

						TGax editor please make the changes as shown in 11-17/0230r1
8533	Robert Stacey	27.6.2	176.25	Missing TA field setting rules of NDPA in MultiBSSID is supported, as defined in Trigger frame (see section 27.5.2.2.2)	Need to add the TA field setting rules for the NDPA in case of dot11MultiBSSIDActivated is false / true, similar to the rules of trigger frame (section 27.5.2.2.2)	Accept Propose to add a new paragraph in 27.6.2 to cover the case of setting the TA field when the frame is addressed to STAs belonging to at least two BSSs of a multiple BSSID set or the case of STAs belonging to a single BSS. TGax editor please make the changes as shown in 11-17/0230r1
3061	Abhishek Patil	27.4.1	158.11	The AP's condition to responding with M-BA to a multi-BSS STAs is meaningless, since STAs that send HE Trigger-based PPDU get to decide the ack policy. So, the right way is to stop this condition happening by not sending the trigger frame to STAs belonging to multiple BSSs in a multi-BSS setup.	As in the comment	Reject This sentence is necessary as it specifies the signaling required between AP/STA to indicate whether the STA supports receiving Multi-STA BA addresses to STAs from multiple BSSs.
5455	Graham Smith	27.2.1	149.31	"..and the RA field, TA field or BSSID field of the received frame with the Individual/Group bit forced to the value 0 is same as the BSSID of any member of the Multiple BSSID Set"	To read "and the RA field, TA field of the received frame with the Individual/Group bit forced to the value 0, or the BSSID field, is the same as the BSSID of any member of the Multiple BSSID Set"	Reject The existing sentence correctly captured the desired meaning. I/G bit value 0 applies to BSSID field too. TGax editor please make the changes as shown in 11-17/0230r1
7163	kaiying Lv	27.1.2	149.43	One of the conditions to take a received PPDU as an intra-BSS frame is that "The frame is a control frame that does not have a TA field and the RA matches the saved TXOP holder address for the BSS to which it is associated." Multiple BSSID set should be also considered.	Please change the text as follows: "The frame is a control frame that does not have a TA field and the RA matches the saved TXOP holder address for the BSS to which it is associated or for the BSS which is any member of the multiple BSSID set"	Revised Agree with the comment. Added a separate bullet to capture various conditions under multiple BSSID case. TGax editor please make the changes as shown in 11-17/0230r1
7164	kaiying Lv	27.1.2	149.34	One of the conditions to take a received PPDU as an intra-BSS frame is that "The RXVECTOR parameter PARTIAL_AID in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 0 is the same as the BSSID[39:47] of the AP to which the STA is associated" Multiple BSSID set should be also considered.	change to "The RXVECTOR parameter PARTIAL_AID in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 0 is the same as the BSSID[39:47] of the AP to which the STA is associated or the BSSID[39:47] which is any member of the multiple BSSID set"	Revised Agree with the comment in general. However, for the case of multiple BSSID set, the LSBs of the BSSIDs are different (up to n-bits, where n is the MaxBSSID Indicator). As a result, comparing with partial BSSID (i.e., LSBs of the BSSID) can lead to ambiguous results. Therefore it is recommended that for such case, the BSSID in the MAC header is compared with the BSSIDs of the members of the multiple BSSID set. A recommendation note was added to this paragraph. TGax editor please make the changes as shown in 11-17/0230r1
9378	Weimin Xing	27.2.1	149.35	Add the case for the Multiple BSSID Set.	Please change the text to "The RXVECTOR parameter PARTIAL_AID in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 0 is the same as the BSSID[39:47] of the AP to which the STA is associated or the BSSID[39:47] of any member of the Multiple BSSID Set."	Revised Agree with the comment in general. A note recommending that the receiving STA check the BSSID in the MAC header was added to this paragraph. Please see resolution to CID 7164 for further explanation.

						TGax editor please make the changes as shown in 11-17/0230r1
7165	kaiying Lv	27.1.2	149.50	Multiple BSSID set should be considered.	Please clarify it	Revised Agree with the comment. The paragraph is updated in this document to have a separate bullet dedicated for multiple BSSID case. TGax editor please make the changes as shown in 11-17/0230r1
7841	Mark RISON	27.2.1	149.51	A frame without BSS_COLOR that is part of a Multiple BSSID Set but is not the BSSID of the AP to which the STA is associated will be identified as both infra-BSS (line 27) and inter-BSS (line 51). This does not appear to be the intention (line 58), and is not resolved by giving priority to MAC address decisions (page 150 line 15).	Either: i) Expand the precedence rule on (page 150 line 15) so that the intra-BSS designation takes priority over the inter-BSS designation, -or- ii) Gate the inter-BSS BSSID check (page 149 line 51) on the AP not being a member of a Multiple BSSID Set.	Revised The case of BSS_COLOR not present was covered in D1.0 in 3 rd and 4 th bullet in this paragraph. The paragraph is updated in this document to have a separate bullet dedicated for multiple BSSID case. TGax editor please make the changes as shown in 11-17/0230r1
7169	kaiying Lv	27.2.2	150.04	Multiple BSSID set should also be considered.	change to "The RXVECTOR parameter PARTIAL_AID in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 0 is different from the BSSID[39:47] of the AP to which the STA is associated and the BSSID[39:47] which is any member of the multiple BSSID set"	Revised Agree with the comment. Added a separate bullet to capture various conditions under multiple BSSID case. TGax editor please make the changes as shown in 11-17/0230r1
9379	Weimin Xing	27.2.1	150.04	Add the case for the Multiple BSSID Set.	Please change the text to "The RXVECTOR parameter PARTIAL_AID of the received VHT PPDU frame with the RXVECTOR parameter GROUP_ID equal to 0 is different from the BSSID[39:47] of the AP to which the STA is associated and the BSSID[39:47] of any member of the Multiple BSSID Set."	Revised Agree with the comment. Added a separate bullet to capture various conditions under multiple BSSID case. TGax editor please make the changes as shown in 11-17/0230r1
7146	kaiying Lv	27.5.2.3	167.59	Miss the case of Multiple BSSID set. Please change the text to "The User Info field is addressed to a STA if the AID12 subfield is equal to the AID of the STA and the STA is associated with the AP or the TA field of the received Trigger frame with the Individual/Group bit forced to the value 0 is the same as the BSSID of any member of the Multiple BSSID Set	As in comment	Reject The AID12 subfield of the User Info field identifies the STA that is being addressed by the trigger frame. This applies even in case of a trigger frame addressed to STAs that belong to different BSSs (i.e., a multi-BSS Trigger frame). A STA will not use an RU specified in the Trigger frame just because the TA matched the associated BSS's TA or one of BSSs of the multi-BSS case.
8280	Pascal VIGER	27.5.2.2.1	164.46	A value of 0 in AID12 indicates that nonassociated STAs can transmit using the random access procedure. When support of multiple BSSID is activated, the case of several BSSs shall be managed with regards to the RAPS profile usage.	as per comment, a procedure is required for RAPS management in case of multiple-BSSID.	Reject In a multiple BSSID set, the AP corresponding to the transmitted BSSID beacons. Therefore, there is only one Beacon for the multiple BSSID set. As a result, there will be only one RAPS profile for the multiple BSSID set.
8292	Pascal VIGER	27.5.2.2.2	165.46	In case of multiple BSS, the TA field of TF shall be set to the MAC address of the transmitted BSSID. In order to distinguish (because it seems the case is not supported yet) between TF addressed to STAs of the single 'transmitted BSSID', and TF addressed to STAs of the overall multiple BSS set, the	as per comment	Reject The recommended change is not acceptable as it doesn't fit with the definition of the I/G bit. Further, it is an AP's choice on whether to transmit a multi-BSS control frame (i.e., an AP implementation may choose not to send such frames). The decision may depend on how many associated STAs support

				Individual/Group bit shall be used (forced to 1).		receiving multi-BSS control frames. Therefore, the situation pointed out by the commenter will be rare occurrence.
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27.4.1 Overview

TGax Editor: Please modify the 8th paragraph of this section in D1.1 (pg 162, line 25) as follows:

[3060, 9444] If an HE AP does not receive an HE Capabilities element with the Rx Control Frame To MultiBSS subfield in HE MAC Capabilities Information field set to 1 from a STA, then the HE AP shall not send to the STA a Multi-STA Block Ack frame ~~whose destination directed to STAs~~ from at least two different BSSs of the multiple BSSID set. ~~associate with more than one APs to the STA.~~

TGax Editor: Please add a new paragraph after the 8th paragraph (above) in this section as follows:

An AP that transmits a Multi-STA BlockAck frame addressed to HE STAs shall set the TA field of the frame to the MAC address of the AP, except when dot11MultiBSSIDActivated is true and the Multi-STA BlockAck frame is directed to STAs from at least two different BSSs of the multiple BSSID set, in which case, the AP shall set the TA field of the frame to the transmitted BSSID.

TGax Editor: Please modify the 9th paragraph of this section in D1.1 (pg 162, line 30) as follows:

A non-AP HE STA that is associated with a BSS corresponding to [5175] a nontransmitted BSSID and has indicated support for receiving Control frames with TA set to the ~~transmitted BSSID~~ (via Rx Control Frame To MultiBSS subfield set to 1 in HE Capabilities element that it transmits), shall [3062], upon receiving an MU BAR Control frame with TA set to the transmitted BSSID, respond with a BlockAck frame whose RA is set either to the (nontransmitted) BSSID of the BSS [5175] it is associated with or the transmitted BSSID (i.e., the TA of the soliciting MU BAR frame).

27.5.2.2.2 Allowed settings of the Trigger frame fields and UL MU Response Scheduling A-Control subfields

TGax Editor: Please modify the paragraphs in this section of D1.1 (pg 169 line 59) as follows:

TGax Editor: Move the 1st sentence in the 2nd paragraph before the paragraph that describe the rules for setting the TA field (i.e., move it before the 1st paragraph in D1.1).

If an HE AP does not receive an HE Capabilities element with the Rx Control Frame To MultiBSS subfield in HE MAC Capabilities Information field equal to 1 from a STA, the HE AP shall not send to the STA a Trigger frame directed to STAs from at least two different BSSs of the multiple BSSID set. [3072, 4817]

An AP that transmits a Trigger frame shall set the TA field of the frame to the MAC address of the AP, except when dot11MultiBSSIDActivated is true and the Trigger frame is directed to STAs from at least two different BSSs of the multiple BSSID set, in which case, the AP shall set the TA field of the frame to the transmitted BSSID. ~~one of the following:~~

- ~~The MAC address of the AP transmitting the frame when dot11MultiBSSIDActivated is false or when dot11MultiBSSIDActivated is true and the Trigger frame is directed to STAs that intend to communicate with the AP~~
- ~~The MAC address of the transmitted BSSID when dot11MultiBSSIDActivated is true and the Trigger frame is directed to STAs that intend to communicate with at least two different BSSs of the multiple BSSID set and that have indicated reception support for this Trigger frame in the Multiple BSSID Control Support field of the HE Capabilities element it transmits (see 11.1.3.8 (Multiple BSSID procedure)).~~ [5708, 3071, 5709, 5710, 9709, 5711, 7177]

NOTE—All MPDUs within an A-MPDU carried in an HE trigger-based PPDU have the same RA (see 9.7.3 (A-MPDU contents)). The settings of the address fields of MPDUs within the A-MPDU depend on the type and subtype of the MPDU as defined in 9.3 (Format of individual frame types).

~~If an HE AP does not receive an HE Capabilities element with the Rx Control Frame To MultiBSS field equal to 1 from a STA, the HE AP shall not send a Trigger frame whose destination STAs associate with more than one APs to the STA. The RA field of the frames sent in response to a MU-RTS frame is set as defined in 9.3.1.3 (CTS frame format). The RA field of the MPDUs sent in response of a MU-BAR is set as defined in 9.3.1.9 (BlockAck frame format). BlockAck frame and Data frames whose RAs are different shall not be aggregated in one A-MPDU in responding to an MU-BAR frame. The RA field of the Data frames and Management frames sent in response to a Trigger frame shall be set to the MAC address of the destination AP.~~

9.3.1.23 Trigger frame format

TGax Editor: Please modify the 5th paragraph of this section in D1.1 (pg 42, line 65) as follows:

The TA field value is the address of the STA transmitting the Trigger frame when the Trigger frame is addressed to STAs that belong to a single BSS. The TA field value is the address of the transmitted BSSID when the Trigger frame is addressed to STAs from at least two different BSSs of the multiple BSSID set. [3163, 9821]

27.6.2 Rules for HE sounding protocol sequences

TGax Editor: Please modify the 2nd paragraph of this section in D1.1 (pg 180 line 20) as follows:

If an HE AP does not receive an HE Capabilities element with the Rx Control Frame To MultiBSS subfield in the HE MAC Capabilities Information field equal to 1 from a STA, the HE AP shall not send to the STA an NDP Announcement frame whose destination directed to STAs from at least two different BSSs of the multiple BSSID set ~~associate with more than one APs to the STA.~~ [3075]

TGax Editor: Please add the following (new) paragraph to section 27.6.2 after the 2nd (above) paragraph:

[8533] An AP that transmits an NDP Announcement frame addressed to HE STAs shall set the TA field of the frame to the MAC address of the AP, except when dot11MultiBSSIDActivated is true and the NDP Announcement frame is directed to STAs from at least two different BSSs of the multiple BSSID set, in which case, the AP shall set the TA field of the frame to the transmitted BSSID.

TGax Editor: Please add the following (new) paragraph to section 27.6.2 after the 15th paragraph (below Figure 27.4) [pg 182 line 27 in D1.1]:

A non-AP HE STA that is associated with a BSS corresponding to a nontransmitted BSSID and has indicated support for receiving Control frames with TA set to the transmitted BSSID (via Rx Control Frame To MultiBSS subfield set to 1 in HE Capabilities element that it transmits), shall, upon receiving an NDP

Announcement Control frame with TA set to the transmitted BSSID, respond with a Beamforming feedback frame whose RA is set either to the (nontransmitted) BSSID of the BSS it is associated with or the transmitted BSSID (i.e., the TA of the soliciting NDP Announcement frame).

27.2.1 Intra-BSS and inter-BSS frame determination

TGax Editor: Please modify the following paragraphs of this section in D1.1 (pg 153, line 18) as follows:

An HE STA determines whether a received frame is an inter-BSS or an intra-BSS frame by using the RXVECTOR parameters (e.g., BSS_COLOR in HE PPDU or GROUP_ID and PARTIAL_AID in VHT PPDU) or MAC address.

A frame received by the STA is an intra-BSS frame if one of the following conditions is true:

- The RXVECTOR parameter BSS_COLOR in the received PPDU carrying the frame is the same as the BSS color announced by the AP to which the STA is associated
- The RA field, TA field or BSSID field of the received frame with the Individual/Group bit forced to the value 0 is the same as the BSSID of AP to which the STA is associated
- ~~The AP to which the STA is associated is a member of a Multiple BSSID Set with two or more members and the RA field, TA field or BSSID field of the received frame with the Individual/Group bit forced to the value 0 is same as the BSSID of any member of the Multiple BSSID Set~~^[7163]
- The RXVECTOR parameter PARTIAL_AID in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 0 is the same as the BSSID[39:47] of the AP to which the STA is associated
- The value of RXVECTOR parameter PARTIAL_AID [5:8] in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 63 is the same as the partial BSS color announced by the AP to which the STA is associated when the Partial BSS Color field in the most recently received HE Operation element is 1.
- The frame is a control frame that does not have a TA field and the RA matches the saved TXOP holder address for the BSS to which it is associated.
- The AP to which the STA is associated is a member of a multiple BSSID set with two or more members and one of the following condition is true:
 - the RA field, TA field or BSSID field of the received frame with the Individual/Group bit forced to the value 0 is same as the BSSID of any member of the multiple BSSID set.
 - the frame is a control frame that does not have a TA field and the RA matches the saved TXOP holder address for a BSS that is a member of the multiple BSSID set.^[7163]

Note – A frame received by a STA is classified as an intra-BSS frame if the MAC address is the same as the BSSID of any member of the multiple BSSID set when the STA is associated with an AP that is a member of a multiple BSSID set with two or more members and the received VHT PPDU has RXVECTOR parameter GROUP_ID equal to 0.^[7164, 9378]

A frame received by the STA is an inter-BSS frame if one of the following conditions is true:

- The RXVECTOR parameter BSS_COLOR of the PPDU carrying the frame is not 0 and does not match the BSS color announced by the AP to which the STA is associated
- When the RXVECTOR parameter BSS_COLOR of the PPDU carrying the frame is not present:
 - The BSSID field of the received frame with Individual/Group bit forced to the value 0, if available, does not match the BSSID of AP to which the STA is associated

- If the BSSID field is not available, both the RA and TA fields exist, and none of the address fields of the received frame with Individual/Group bit forced to the value 0 match the BSSID of AP to which the STA is associated
- ~~The AP to which the STA is associated is a member of a Multiple BSSID Set with two or more members and the BSSID field of the received frame with Individual/Group bit forced to the value 0, if available, does not match the BSSID of any member of the Multiple BSSID Set~~
- ~~If the AP to which the STA is associated is a member of a Multiple BSSID Set with two or more members, the BSSID field is not available, both the RA and TA fields exist, and none of the address fields of the received frame with the Individual/Group bit forced to the value 0 match the BSSID of any member of the Multiple BSSID Set~~ [7165, 7169, 7841, 9379]
- The RXVECTOR parameter PARTIAL_AID of the received VHT PPDU frame with the RXVECTOR parameter GROUP_ID equal to 0 is different from the BSSID[39:47] of the AP to which the STA is associated
- The value of RXVECTOR parameter PARTIAL_AID [5:8] in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 63 is different from the partial BSS color announced by the AP to which the STA is associated when the Partial BSS Color field in the most recently received HE Operation element is 1.
- An HE AP receives either a VHT MU PPDU or an HE MU PPDU.
- The AP to which the STA is associated is a member of a multiple BSSID set with two or more members and one of the following condition is true:
 - the BSSID field of the received frame with Individual/Group bit forced to the value 0, if available, does not match the BSSID of any member of the multiple BSSID set. [7165, 7841]
 - the BSSID field is not available, both the RA and TA fields exist, and none of the address fields of the received frame with the Individual/Group bit forced to the value 0 match the BSSID of any member of the multiple BSSID set. [7841]
 - the RXVECTOR parameter PARTIAL_AID in the received VHT PPDU with the RXVECTOR parameter GROUP_ID equal to 0 is different from the BSSID[39:47] of any member of the Multiple BSSID set. [7169, 9379]

If the received frame satisfies both intra-BSS and inter-BSS conditions, the decision made by using the MAC address takes precedence over the decision made by using the RXVECTOR parameter BSS_COLOR.

If the received frame does not satisfy any of the intra-BSS and inter-BSS conditions, then the frame cannot be determined as intra-BSS or inter-BSS frame.

11.1.3.8 Multiple BSSID procedure

TGax Editor: Please modify the 1st paragraph of this section in the baseline (802.11-2016 spec) as follows:

Implementation of the Multiple BSSID capability is optional for a WNM STA and for a DMG STA. A STA that implements the Multiple BSSID capability has dot11MultiBSSIDImplemented equal to true. When dot11MultiBSSIDImplemented is true, dot11WirelessManagementImplemented shall be equal to true except for a DMG STA and an HE STA, in which case it may be equal to false. A STA in which dot11MultiBSSIDActivated is true is defined as a STA that supports the Multiple BSSID capability. The STA shall set to 1 the Multiple BSSID field of the Extended Capabilities elements that it transmits.

TGax Editor: Please modify the 3rd paragraph of this section in D1.1 (pg 145 line 30) as follows:

Please note, following modifications are proposed to make the text in this paragraph consistent with the text in the rest of the 11ax draft

An HE STA that supports receiving control frames addressed ~~addressed~~ directed to STAs ~~from at least two different BSSs of a belonging to multiple BSSIDs~~ set (i.e., has the Rx Control Frame To MultiBSS subfield set to 1 in the HE Capabilities element it ~~sends~~ transmits) and is associated with an HE AP whose MaxBSSID Indicator field is set to n and whose Tx BSSID Indicator is set to 0 shall decode the Beacon frame with a Multiple BSSID element whose $48 - n$ MSBs of the BSSID are same as the $48 - n$ MSBs of BSSID of the AP with which the STA is associated in order to identify the transmitted BSSID.

APPENDIX AP

Documents

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Everything ▼

All Years ▼

TGax (inactive) ▼

CID

Created (ET) ▼	Year	DCN	Rev	Group	Title	Author (Affiliation)	Uploaded (ET)	Actions
09-Mar-2017 ET	2017	331	2	TGax	LB225 Comment resolution for CIDs for 28.3.11.9 Constellation mapping	Jianhan Liu (Mediatek Inc.)	09-Mar-2017 20:12:00 ET	Download
09-Mar-2017 ET	2017	332	2	TGax	LB225 Comment resolution for CIDs for 28.3.10 HE Preamble	Jianhan Liu (Mediatek Inc.)	09-Mar-2017 20:11:09 ET	Download
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09-Mar-2017 ET	2017	250	2	TGax	Various CIDs in 27.5.2	Abhishek Patil (Qualcomm)	09-Mar-2017 19:49:15 ET	Download
09-Mar-2017 ET	2017	329	2	TGax	LB225 Comment resolution for CIDs for 28.3.11.5 Coding	Jianhan Liu (Mediatek Inc.)	09-Mar-2017 19:32:49 ET	Download
09-Mar-2017 ET	2017	389	0	TGax	CIDs-for-27-2-1-part1	Kaiying Lv (ZTE Corp.)	10-Mar-2017 14:31:48 ET	Download
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09-Mar-2017 ET	2017	332	1	TGax	LB225 Comment resolution for CIDs for 28.3.10 HE Preamble	Jianhan Liu (Mediatek Inc.)	09-Mar-2017 17:54:47 ET	Download
09-Mar-2017 ET	2017	309	1	TGax	CIDs on HE Sounding (27-6-2)	Raja Banerjea (Qualcomm)	09-Mar-2017 14:08:48 ET	Download
09-Mar-2017 ET	2017	204	5	TGax	CID for 27.2.3 MU EDCA parameters	laurent cariou (Intel)	09-Mar-2017 12:46:36 ET	Download
09-Mar-2017 ET	2017	250	1	TGax	Various CIDs in 27.5.2	Abhishek Patil (Qualcomm)	09-Mar-2017 07:45:59 ET	Download
08-Mar-2017 ET	2017	370	0	TGax	some CIDs related to 20MHz operation--text	Guoqing Li (Apple)	09-Mar-2017 12:02:41 ET	Download

08-Mar-2017 ET	2017	369	0	TGax	Some CIDs related to 20MHz operation	Guoqing Li (Apple)	09-Mar-2017 12:01:58 ET	Download
08-Mar-2017 ET	2017	204	4	TGax	CID for 27.2.3 MU EDCA parameters	laurent cariou (Intel)	08-Mar-2017 13:25:08 ET	Download
08-Mar-2017 ET	2017	360	0	TGax	LB225 CR for CID5917 and CID8165	Ming Gan (Huawei)	15-Mar-2017 15:40:21 ET	Download
07-Mar-2017 ET	2017	338	0	TGax	CR for 27.5.2.4 - Physical CS CIDs	Rojan Chitrakar (Panasonic)	12-Mar-2017 17:52:18 ET	Download
07-Mar-2017 ET	2017	337	0	TGax	Explanation of CR for CID 8555	Rojan Chitrakar (Panasonic)	10-Mar-2017 12:57:36 ET	Download
07-Mar-2017 ET	2017	336	0	TGax	CR for CID 8555 - Virtual CS during UL MU CS	Rojan Chitrakar (Panasonic)	10-Mar-2017 12:58:35 ET	Download
07-Mar-2017 ET	2017	335	0	TGax	CR for CID 8142 - Random Access acronym	Rojan Chitrakar (Panasonic)	12-Mar-2017 17:57:14 ET	Download
06-Mar-2017 ET	2017	333	0	TGax	LB225 Comment resolution for CIDs for 28.3.13 Non-HT duplicate transmission	Jianhan Liu (Mediatek Inc.)	06-Mar-2017 19:55:27 ET	Download
06-Mar-2017 ET	2017	332	0	TGax	LB225 Comment resolution for CIDs for 28.3.10 HE Preamble	Jianhan Liu (Mediatek Inc.)	06-Mar-2017 19:54:08 ET	Download
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06-Mar-2017 ET	2017	230	1	TGax	CIDs related to multi-BSSID	Abhishek Patil (Qualcomm)	06-Mar-2017 15:58:46 ET	Download
02-Mar-2017 ET	2017	309	0	TGax	CIDs on HE Sounding (27-6-2)	Raja Banerjee (Qualcomm)	06-Mar-2017 18:24:11 ET	Download
28-Feb-2017 ET	2017	204	3	TGax	CID for 27.2.3 MU EDCA parameters	laurent cariou (Intel)	28-Feb-2017 12:35:05 ET	Download
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16-Feb-2017 ET	2017	204	1	TGax	CID for 27.2.3 MU EDCA parameters	laurent cariou (Intel)	16-Feb-2017 19:20:03 ET	Download
10-Feb-2017 ET	2017	250	0	TGax	Various CIDs in 27.5.2	Abhishek Patil (Qualcomm)	07-Mar-2017 19:32:05 ET	Download
10-Feb-2017 ET	2017	249	0	TGax	CIDs in 27.5.2	Abhishek Patil (Qualcomm)	04-May-2017 01:14:28 ET	Download
09-Feb-2017 ET	2017	230	0	TGax	CIDs related to multi-BSSID	Abhishek Patil (Qualcomm)	02-Mar-2017 20:12:05 ET	Download

09-Feb-2017 ET	2017	229	0	TGax	CIDs related to Random Access	Abhishek Patil (Qualcomm)	09-Mar-2017 12:12:34 ET	Download
30-Jan-2017 ET	2017	204	0	TGax	CID for 27.2.3 MU EDCA parameters	laurent cariou (Intel)	02-Feb-2017 09:57:39 ET	Download
19-Jan-2017 ET	2017	135	6	TGax	CIDs in HE Operation	Abhishek Patil (Qualcomm)	19-Jan-2017 16:05:45 ET	Download
19-Jan-2017 ET	2017	135	5	TGax	CIDs in HE Operation	Abhishek Patil (Qualcomm)	19-Jan-2017 15:50:41 ET	Download
19-Jan-2017 ET	2017	173	0	TGax	CIDs on Signaling for UL HE MU PPDU	John Son (WILUS)	19-Jan-2017 14:03:18 ET	Download
19-Jan-2017 ET	2017	137	2	TGax	CIDs in 9.4.2.222	Abhishek Patil (Qualcomm)	19-Jan-2017 12:17:03 ET	Download
19-Jan-2017 ET	2017	135	4	TGax	CIDs in HE Operation	Abhishek Patil (Qualcomm)	19-Jan-2017 12:16:36 ET	Download
18-Jan-2017 ET	2017	135	3	TGax	CIDs in HE Operation	Abhishek Patil (Qualcomm)	18-Jan-2017 17:31:42 ET	Download
18-Jan-2017 ET	2017	135	2	TGax	CIDs in HE Operation	Abhishek Patil (Qualcomm)	18-Jan-2017 07:18:52 ET	Download
17-Jan-2017 ET	2017	135	1	TGax	CIDs in HE Operation	Abhishek Patil (Qualcomm)	17-Jan-2017 16:34:59 ET	Download
17-Jan-2017 ET	2017	104	1	TGax	Discussion on CR for CID 5066	Dengyu Qiao (Huawei)	17-Jan-2017 10:40:59 ET	Download
17-Jan-2017 ET	2017	114	1	TGax	CID-Trigger frame_Part-1	Lochan Verma (Qualcomm)	17-Jan-2017 10:14:08 ET	Download
17-Jan-2017 ET	2017	140	0	TGax	Various CIDs in clause 6 & 9	Abhishek Patil (Qualcomm)	04-May-2017 01:27:26 ET	Download
17-Jan-2017 ET	2017	138	0	TGax	CIDs in 27.16.2 (part 1)	Abhishek Patil (Qualcomm)	03-Mar-2017 19:42:54 ET	Download
16-Jan-2017 ET	2017	137	1	TGax	CIDs in 9.4.2.222	Abhishek Patil (Qualcomm)	16-Jan-2017 23:06:09 ET	Download
16-Jan-2017 ET	2017	137	0	TGax	CIDs in 9.4.2.222	Abhishek Patil (Qualcomm)	16-Jan-2017 22:40:27 ET	Download
16-Jan-2017 ET	2017	72	2	TGax	CID 6124 Resolution: Remove 2x LTF+08.us GI for UL Transmission	Jianhan Liu (Mediatek Inc.)	16-Jan-2017 18:02:45 ET	Download
16-Jan-2017 ET	2017	135	0	TGax	CIDs in HE Operation	Abhishek Patil (Qualcomm)	16-Jan-2017 23:53:36 ET	Download
16-Jan-2017 ET	2017	114	0	TGax	CID-Trigger frame_Part-1	Lochan Verma (Qualcomm)	16-Jan-2017 16:20:01 ET	Download
16-Jan-2017 ET	2017	99	1	TGax	Additional background for CID 8908	Sigurd Schelstraete (Quantenna)	16-Jan-2017 10:49:36 ET	Download
16-Jan-2017 ET	2017	104	0	TGax	Discussion on CR for CID 5066	Dengyu Qiao (Huawei)	16-Jan-2017 09:24:55 ET	Download
16-Jan-2017 ET	2017	99	0	TGax	Additional background for CID 8908	Sigurd Schelstraete (Quantenna)	16-Jan-2017 09:12:14 ET	Download
15-Jan-2017 ET	2017	72	1	TGax	CID 6124 Resolution: Remove 2x LTF+08.us GI for UL Transmission	Jianhan Liu (Mediatek Inc.)	15-Jan-2017 22:38:14 ET	Download
15-Jan-2017 ET	2017	72	0	TGax	CID 6124 Resolution: Remove 2x LTF+08.us GI for UL Transmission	Jianhan Liu (Mediatek Inc.)	15-Jan-2017 22:36:40 ET	Download
14-Nov-2016 ET	2016	1522	3	TGax	CID 2147 SIGB Encoding	Hongyuan Zhang (Marvell)	14-Nov-2016 14:26:09 ET	Download
10-Nov-2016 ET	2016	1440	4	TGax	Proposed Resolutions to CID 2719	Jing Ma (NICT)	10-Nov-2016 11:58:14 ET	Download

09-Nov-2016 ET	2016	1503	2	TGax	CR HE beacon for CID 991	Yonggang Fang (ZTE TX)	09-Nov-2016 18:54:32 ET	Download
09-Nov-2016 ET	2016	1503	1	TGax	CR HE beacon for CID 991	Yonggang Fang (ZTE TX)	09-Nov-2016 16:46:50 ET	Download
09-Nov-2016 ET	2016	1522	2	TGax	CID 2147 SIGB Encoding	Hongyuan Zhang (Marvell)	09-Nov-2016 14:45:10 ET	Download
09-Nov-2016 ET	2016	1413	8	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	09-Nov-2016 11:15:01 ET	Download
09-Nov-2016 ET	2016	1413	7	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	09-Nov-2016 11:11:58 ET	Download
09-Nov-2016 ET	2016	1413	6	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	09-Nov-2016 10:01:14 ET	Download
09-Nov-2016 ET	2016	1516	1	TGax	Random Access CIDs	Reza Hedayat (Newracom)	09-Nov-2016 09:14:42 ET	Download
08-Nov-2016 ET	2016	1522	1	TGax	CID 2147 SIGB Encoding	Hongyuan Zhang (Marvell)	08-Nov-2016 23:03:50 ET	Download
08-Nov-2016 ET	2016	1522	0	TGax	CID 2147 SIGB Encoding	Hongyuan Zhang (Marvell)	08-Nov-2016 22:57:11 ET	Download
08-Nov-2016 ET	2016	1440	3	TGax	Proposed Resolutions to CID 2719	Jing Ma (NICT)	08-Nov-2016 18:08:57 ET	Download
08-Nov-2016 ET	2016	1516	0	TGax	Random Access CIDs	Reza Hedayat (Newracom)	08-Nov-2016 17:43:33 ET	Download
08-Nov-2016 ET	2016	1415	2	TGax	CID72 BSS Color change mechanism	Abhishek Patil (Qualcomm)	08-Nov-2016 12:47:21 ET	Download
08-Nov-2016 ET	2016	1387	3	TGax	Comment resolution on CID2506 and proposed changes	Jinsoo Choi (LG Electronics)	08-Nov-2016 12:33:38 ET	Download
08-Nov-2016 ET	2016	1440	2	TGax	Proposed Resolutions to CID 2719	Jing Ma (NICT)	08-Nov-2016 11:55:03 ET	Download
08-Nov-2016 ET	2016	1387	2	TGax	Comment resolution on CID2506 and proposed changes	Jinsoo Choi (LG Electronics)	08-Nov-2016 11:41:57 ET	Download
08-Nov-2016 ET	2016	1440	1	TGax	Proposed Resolutions to CID 2719	Jing Ma (NICT)	08-Nov-2016 09:52:08 ET	Download
08-Nov-2016 ET	2016	1503	0	TGax	CR HE beacon for CID 991	Yonggang Fang (ZTE TX)	09-Nov-2016 14:27:46 ET	Download
08-Nov-2016 ET	2016	1387	1	TGax	Comment resolution on CID2506 and proposed changes	Jinsoo Choi (LG Electronics)	08-Nov-2016 08:41:41 ET	Download
07-Nov-2016 ET	2016	1361	1	TGax	CC0-Remaining CIDs on MU Operation	Alfred Asterjadhi (Qualcomm Inc.)	07-Nov-2016 21:43:16 ET	Download
07-Nov-2016 ET	2016	1360	1	TGax	CC0-HE variant HT control - Some Remaining CIDs	Alfred Asterjadhi (Qualcomm Inc.)	07-Nov-2016 18:25:20 ET	Download
07-Nov-2016 ET	2016	1398	1	TGax	CR for CID 2077	Sriram Venkateswaran (Broadcom)	07-Nov-2016 18:22:39 ET	Download
07-Nov-2016 ET	2016	1374	1	TGax	Resolution on CID495 and Removal of Unnecessary PHY TBDs	Yujin Noh (Newracom)	07-Nov-2016 17:52:42 ET	Download
07-Nov-2016 ET	2016	1375	1	TGax	Comment Resolution for CID2867 and Text Change Proposal of	Yujin Noh (Newracom)	07-Nov-2016 17:51:38 ET	Download

26.3.10.8
HE-SIG-B

07-Nov-2016 ET	2016	1413	5	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	07-Nov-2016 11:08:35 ET	Download
07-Nov-2016 ET	2016	1413	4	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	07-Nov-2016 10:46:25 ET	Download
07-Nov-2016 ET	2016	1415	1	TGax	CID72 BSS Color change mechanism	Abhishek Patil (Qualcomm)	07-Nov-2016 10:45:48 ET	Download
06-Nov-2016 ET	2016	1450	0	TGax	CR-for-CID 2492-section-25-9-spatial-reuse-operation	Kaiying Lv (ZTE Corp.)	07-Nov-2016 02:15:41 ET	Download
06-Nov-2016 ET	2016	1440	0	TGax	Proposed Resolutions to CID 2719	Jing Ma (NICT)	07-Nov-2016 09:59:48 ET	Download
06-Nov-2016 ET	2016	1413	3	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	06-Nov-2016 02:04:33 ET	Download
06-Nov-2016 ET	2016	1415	0	TGax	CID72 BSS Color change mechanism	Abhishek Patil (Qualcomm)	06-Nov-2016 01:53:04 ET	Download
06-Nov-2016 ET	2016	1413	2	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	06-Nov-2016 01:36:28 ET	Download
06-Nov-2016 ET	2016	1413	1	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	06-Nov-2016 01:33:15 ET	Download
06-Nov-2016 ET	2016	1413	0	TGax	CID193 BSS Color Disabled Indication	Abhishek Patil (Qualcomm)	06-Nov-2016 01:32:29 ET	Download
05-Nov-2016 ET	2016	1398	0	TGax	CR for CID 2077	Sriram Venkateswaran (Broadcom)	05-Nov-2016 19:30:50 ET	Download
05-Nov-2016 ET	2016	1392	0	TGax	comment-resolution-CID-2624-and-2738	Young Hoon Kwon (Newracom)	06-Nov-2016 20:34:35 ET	Download
05-Nov-2016 ET	2016	1389	0	TGax	Comment Resolution for CID 807	Po-Kai Huang (Intel)	05-Nov-2016 13:28:05 ET	Download
05-Nov-2016 ET	2016	1387	0	TGax	Comment resolution on CID2506 and proposed changes	Jinsoo Choi (LG Electronics)	07-Nov-2016 00:05:20 ET	Download
03-Nov-2016 ET	2016	1375	0	TGax	Commont Resolution for CID2867 and Text Change Proposal of 26.3.10.8 HE-SIG-B	Yujin Noh (Newracom)	06-Nov-2016 23:11:20 ET	Download
03-Nov-2016 ET	2016	1374	0	TGax	Resoluction on CID495 and Removal of Unnecessary PHY TBDs	Yujin Noh (Newracom)	06-Nov-2016 23:11:53 ET	Download
01-Nov-2016 ET	2016	1361	0	TGax	CC0-Remaining CIDs on MU Operation	Alfred Asterjadhi (Qualcomm Inc.)	07-Nov-2016 00:50:28 ET	Download

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APPENDIX AQ

Documents

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Everything

All Years

TGax (inactive)

multi-BSSID

Created (ET) ▼	Year	DCN	Rev	Group	Title	Author (Affiliation)	Uploaded (ET)	Actions
06-Mar-2017 ET	2017	230	1	TGax	CIDs related to multi-BSSID	Abhishek Patil (Qualcomm)	06-Mar-2017 15:58:46 ET	Download
09-Feb-2017 ET	2017	230	0	TGax	CIDs related to multi-BSSID	Abhishek Patil (Qualcomm)	02-Mar-2017 20:12:05 ET	Download

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All Years ▼

TGax (inactive) ▼

BSSID

Created (ET) ▼	Year	DCN	Rev	Group	Title	Author (Affiliation)	Uploaded (ET)	Actions
30-Jun-2020 ET	2020	315	6	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	30-Jun-2020 10:16:17 ET	Download
30-Jun-2020 ET	2020	315	5	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	30-Jun-2020 01:51:03 ET	Download
29-Jun-2020 ET	2020	315	4	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	29-Jun-2020 20:47:48 ET	Download
26-Jun-2020 ET	2020	315	3	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	26-Jun-2020 02:08:51 ET	Download
25-Mar-2020 ET	2020	315	2	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	25-Mar-2020 13:14:06 ET	Download
19-Mar-2020 ET	2020	315	1	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	19-Mar-2020 20:09:09 ET	Download
10-Feb-2020 ET	2020	315	0	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	15-Mar-2020 20:45:59 ET	Download
14-Nov-2019 ET	2019	1905	4	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	14-Nov-2019 16:32:24 ET	Download
13-Nov-2019 ET	2019	1905	3	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	13-Nov-2019 02:07:32 ET	Download
12-Nov-2019 ET	2019	1905	2	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	12-Nov-2019 14:59:39 ET	Download
12-Nov-2019 ET	2019	1905	1	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	12-Nov-2019 13:20:17 ET	Download
06-Nov-2019 ET	2019	1905	0	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	11-Nov-2019 16:24:54 ET	Download
18-Sep-2019 ET	2019	1520	4	TGax	Multiple BSSID - part 3	Abhishek Patil (Qualcomm)	18-Sep-2019 23:45:13 ET	Download
17-Sep-2019 ET	2019	1520	3	TGax	Multiple BSSID - part 3	Abhishek Patil (Qualcomm)	17-Sep-2019 21:33:47 ET	Download
16-Sep-2019 ET	2019	1150	3	TGax	Resolution for CIDs on co-located BSSID	Abhishek Patil (Qualcomm)	16-Sep-2019 09:40:50 ET	Download
16-Sep-2019 ET	2019	1150	2	TGax	Resolution for CIDs on co-located BSSID	Abhishek Patil (Qualcomm)	16-Sep-2019 09:32:49 ET	Download
16-Sep-2019 ET	2019	1520	2	TGax	Multiple BSSID - part 3	Abhishek Patil (Qualcomm)	16-Sep-2019 09:31:50 ET	Download
16-Sep-2019 ET	2019	1520	1	TGax	Multiple BSSID - part 3	Abhishek Patil (Qualcomm)	16-Sep-2019 06:55:41 ET	Do



16-Sep-2019 ET	2019	1150	1	TGax	Resolution for CIDs on co-located BSSID	Abhishek Patil (Qualcomm)	16-Sep-2019 06:48:59 ET	Download
11-Sep-2019 ET	2019	1558	0	TGax	Visio file for updated Fig 11-3a (Example of profile split across multiple Multiple BSSID elements)	Abhishek Patil (Qualcomm)	16-Sep-2019 06:50:04 ET	Download
11-Sep-2019 ET	2019	1552	0	TGax	Visio file for Figure 11-3x (Subelements in Multiple BSSID element)	Abhishek Patil (Qualcomm)	16-Sep-2019 06:49:37 ET	Download
09-Sep-2019 ET	2019	1520	0	TGax	Multiple BSSID - part 3	Abhishek Patil (Qualcomm)	16-Sep-2019 05:08:36 ET	Download
16-Jul-2019 ET	2019	1148	2	TGax	Resolution for CIDs related to Multiple BSSID - part 2	Abhishek Patil (Qualcomm)	16-Jul-2019 14:11:28 ET	Download
15-Jul-2019 ET	2019	1148	1	TGax	Resolution for CIDs related to Multiple BSSID - part 2	Abhishek Patil (Qualcomm)	15-Jul-2019 09:51:02 ET	Download
08-Jul-2019 ET	2019	339	1	TGax	CR for Co-hosted BSSID	Po-Kai Huang (Intel)	08-Jul-2019 17:58:25 ET	Download
05-Jul-2019 ET	2019	1150	0	TGax	Resolution for CIDs on co-located BSSID	Abhishek Patil (Qualcomm)	16-Sep-2019 05:51:16 ET	Download
05-Jul-2019 ET	2019	1148	0	TGax	Resolution for CIDs related to Multiple BSSID - part 2	Abhishek Patil (Qualcomm)	12-Jul-2019 04:42:39 ET	Download
14-May-2019 ET	2019	506	3	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	14-May-2019 11:30:54 ET	Download
11-May-2019 ET	2019	506	2	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	11-May-2019 19:17:03 ET	Download
09-May-2019 ET	2019	506	1	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	09-May-2019 17:00:24 ET	Download
08-May-2019 ET	2019	753	1	TGax	Multiple BSSID minor bug fix	Po-Kai Huang (Intel)	08-May-2019 16:07:54 ET	Download
07-May-2019 ET	2019	753	0	TGax	Multiple BSSID minor bug fix	Po-Kai Huang (Intel)	07-May-2019 18:50:38 ET	Download
14-Mar-2019 ET	2019	506	0	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	08-May-2019 18:45:24 ET	Download
12-Mar-2019 ET	2019	289	2	TGax	CR for Multiple BSSID Bug Fix	Po-Kai Huang (Intel)	12-Mar-2019 15:49:45 ET	Download
12-Mar-2019 ET	2019	289	1	TGax	CR for Multiple BSSID Bug Fix	Po-Kai Huang (Intel)	12-Mar-2019 14:29:56 ET	Download
06-Mar-2019 ET	2019	339	0	TGax	CR for Co-hosted BSSID	Po-Kai Huang (Intel)	11-Mar-2019 01:01:12 ET	Download
25-Feb-2019 ET	2019	289	0	TGax	CR for Multiple BSSID Bug Fix	Po-Kai Huang (Intel)	11-Mar-2019 01:06:37 ET	Download
17-Jan-2019 ET	2019	28	4	TGax	Multiple BSSID clarifications	Abhishek Patil (Qualcomm)	17-Jan-2019 09:43:19 ET	Download
16-Jan-2019 ET	2019	28	3	TGax	Multiple BSSID clarifications	Abhishek Patil (Qualcomm)	16-Jan-2019 15:03:23 ET	Download

16-Jan-2019 ET	2019	28	2	TGax	Multiple BSSID clarifications	Abhishek Patil (Qualcomm)	16-Jan-2019 10:28:07 ET	Download
15-Jan-2019 ET	2019	28	1	TGax	Multiple BSSID clarifications	Abhishek Patil (Qualcomm)	15-Jan-2019 22:18:04 ET	Download
08-Jan-2019 ET	2019	28	0	TGax	Multiple BSSID clarifications	Abhishek Patil (Qualcomm)	08-Jan-2019 16:58:28 ET	Download
12-Nov-2018 ET	2018	1814	2	TGax	Resolution for CIDs related to Multiple BSSID - Part 2	Abhishek Patil (Qualcomm)	12-Nov-2018 09:24:40 ET	Download
12-Nov-2018 ET	2018	1814	1	TGax	Resolution for CIDs related to Multiple BSSID - Part 2	Abhishek Patil (Qualcomm)	12-Nov-2018 03:21:14 ET	Download
06-Nov-2018 ET	2018	1508	3	TGax	CR for multiple BSSID	Po-Kai Huang (Intel)	06-Nov-2018 12:48:23 ET	Download
30-Oct-2018 ET	2018	1814	0	TGax	Resolution for CIDs related to Multiple BSSID - Part 2	Abhishek Patil (Qualcomm)	11-Nov-2018 06:08:31 ET	Download
11-Sep-2018 ET	2018	1508	2	TGax	CR for multiple BSSID	Po-Kai Huang (Intel)	11-Sep-2018 18:04:08 ET	Download
10-Sep-2018 ET	2018	1508	1	TGax	CR for multiple BSSID	Po-Kai Huang (Intel)	10-Sep-2018 23:08:20 ET	Download
07-Sep-2018 ET	2018	1320	4	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	07-Sep-2018 18:32:02 ET	Download
07-Sep-2018 ET	2018	1320	3	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	07-Sep-2018 16:58:59 ET	Download
06-Sep-2018 ET	2018	1320	2	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	06-Sep-2018 21:58:10 ET	Download
06-Sep-2018 ET	2018	1320	1	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	06-Sep-2018 18:20:23 ET	Download
04-Sep-2018 ET	2018	1508	0	TGax	CR for multiple BSSID	Po-Kai Huang (Intel)	07-Sep-2018 11:16:53 ET	Download
12-Jul-2018 ET	2018	1320	0	TGax	Resolution for CIDs related to Multiple BSSID	Abhishek Patil (Qualcomm)	05-Sep-2018 02:24:03 ET	Download
08-May-2018 ET	2018	368	7	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	08-May-2018 08:00:48 ET	Download
08-May-2018 ET	2018	368	6	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	08-May-2018 05:25:17 ET	Download
08-May-2018 ET	2018	368	5	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	08-May-2018 05:12:35 ET	Download
08-May-2018 ET	2018	368	4	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	08-May-2018 05:04:32 ET	Download
04-May-2018 ET	2018	368	3	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	04-May-2018 04:08:48 ET	Download
01-May-2018 ET	2018	368	2	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	01-May-2018 09:48:32 ET	Download
18-Apr-2018 ET	2018	693	0	TGax	Multiple BSSID Group Addressed Transmission	Po-Kai Huang (Intel)	30-Apr-2018 12:26:48 ET	Download
11-Apr-2018 ET	2018	368	1	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	11-Apr-2018 13:33:44 ET	Download
24-Feb-2018 ET	2018	368	0	TGax	Multiple BSSID	Abhishek Patil (Qualcomm)	02-Mar-2018 23:34:53 ET	Download
17-Jan-2018 ET	2017	1857	2	TGax	CIDs related to Multiple BSSID topic - Part 2	Abhishek Patil (Qualcomm)	17-Jan-2018 13:20:06 ET	Download
10-Jan-2018 ET	2017	1861	1	TGax	CIDs related to Multiple	Abhishek Patil (Qualcomm)	10-Jan-2018 20:16:29 ET	Download

					BSSID topic - Part 3				
10-Jan-2018 ET	2017	1857	1	TGax	CIDs related to Multiple BSSID topic - Part 2	Abhishek Patil (Qualcomm)	10-Jan-2018 16:30:18 ET	Download	
09-Dec-2017 ET	2017	1861	0	TGax	CIDs related to Multiple BSSID topic - Part 3	Abhishek Patil (Qualcomm)	09-Jan-2018 23:46:19 ET	Download	
09-Dec-2017 ET	2017	1857	0	TGax	CIDs related to Multiple BSSID topic - Part 2	Abhishek Patil (Qualcomm)	09-Jan-2018 23:45:08 ET	Download	
07-Dec-2017 ET	2017	1847	0	TGax	CIDs related to Multiple BSSID topic	Abhishek Patil (Qualcomm)	09-Jan-2018 23:44:06 ET	Download	
13-Sep-2017 ET	2017	1493	2	TGax	Proposed Texts of Improving Scanning for identifying Transmitted BSSID	Po-Kai Huang (Intel)	13-Sep-2017 20:57:34 ET	Download	
13-Sep-2017 ET	2017	1493	1	TGax	Proposed Texts of Improving Scanning for identifying Transmitted BSSID	Po-Kai Huang (Intel)	13-Sep-2017 20:30:15 ET	Download	
13-Sep-2017 ET	2017	1493	0	TGax	Proposed Texts of Improving Scanning for identifying Transmitted BSSID	Po-Kai Huang (Intel)	13-Sep-2017 17:29:30 ET	Download	
13-Sep-2017 ET	2017	1492	0	TGax	Improve Scanning for Identifying Transmitted BSSID	Po-Kai Huang (Intel)	13-Sep-2017 17:29:03 ET	Download	
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09-Feb-2017 ET	2017	230	0	TGax	CIDs related to multi-BSSID	Abhishek Patil (Qualcomm)	02-Mar-2017 20:12:05 ET	Download	
09-Nov-2016 ET	2016	1452	2	TGax	Multiple BSSID and MU	Liwen Chu (Marvell)	09-Nov-2016 16:00:08 ET	Download	
08-Nov-2016 ET	2016	1452	1	TGax	Multiple BSSID and MU	Liwen Chu (Marvell)	08-Nov-2016 12:36:11 ET	Download	
07-Nov-2016 ET	2016	1454	0	TGax	Multiple BSSID and MU Discussion	Liwen Chu (Marvell)	08-Nov-2016 12:33:21 ET	Download	
06-Nov-2016 ET	2016	1452	0	TGax	Multiple BSSID and MU	Liwen Chu (Marvell)	07-Nov-2016 09:30:38 ET	Download	
11-Sep-2016 ET	2016	1205	0	TGax	Text for Intra-PPDU Power Save for a Multiple BSSID Set Case	Geonjung Ko (WILUS)	12-Sep-2016 04:08:47 ET	Download	
11-Sep-2016 ET	2016	1204	0	TGax	Intra-PPDU Power Save for a Multiple BSSID Set Case	Geonjung Ko (WILUS)	12-Sep-2016 04:08:24 ET	Download	
19-Jan-2016 ET	2016	42	2	TGax	BSS Color Settings for a Multiple BSSID Set	Geonjung Ko (WILUS)	19-Jan-2016 13:57:30 ET	Download	
19-Jan-2016 ET	2016	68	1	TGax	BSS Color and Multiple BSSID	Liwen Chu (Marvell)	19-Jan-2016 13:47:58 ET	Download	
19-Jan-2016 ET	2016	42	1	TGax	BSS Color Settings for a Multiple BSSID Set	Geonjung Ko (WILUS)	19-Jan-2016 10:41:24 ET	Download	
17-Jan-2016 ET	2016	68	0	TGax	BSS Color and Multiple BSSID	Liwen Chu (Marvell)	18-Jan-2016 05:17:20 ET	Download	

16-Jan-2016 ET	2016	42	0	TGax	BSS Color Settings for a Multiple BSSID Set	Geonjung Ko (WILUS)	18-Jan-2016 08:00:10 ET	Download
25-Aug-2015 ET	2015	1014	0	TGax	Multiple BSSID element	Guido R. Hiertz (Ericsson)	25-Aug-2015 09:59:52 ET	Download

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APPENDIX AS

IEEE 802.11, The Working Group for Wireless LANs Standards

This page is maintained by [Stephen McCann](#) . Comments are welcome.

IEEE 802.11 WG LETTER BALLOTS

Note - percentage results are rounded to the nearest integer

Note - Links to documents in the voting members' private area (such as drafts) will stop functioning once the project is complete, e.g., when its output document has been published by the IEEE-SA.

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
288	TGbi	Technical TGbi Draft 1.00	LB# 288	Draft	Draft P802.11bi_D1.0.pdf	2025-01-27	2025-02-27	31	Pool	640
				Redlined Doc	N/A				Approve	309
				Resolution Doc	N/A				Disapprove	38
				Comment	Template				Abstain	63
				Pool	LB# 288 Voters				Return%	64
									Approve%	89
287	TGbk	Recirculation TGbk Draft 3.00	LB# 287	Draft	Draft P802.11bk_D3.0.pdf	2024-08-01	2024-08-15	14	Pool	559
				Redlined Doc	Draft P802.11bk_D3.0_redline_compared_to_D2.0.pdf				Approve	342
				Resolution Doc	11-24-1011-02-00bk-lb286-cid-resolution-status-for-d2-0.xlsx				Disapprove	6
				Comment	Template				Abstain	47
				Pool	LB# 287 Voters				Return%	71
									Approve%	98
286	TGbk	Recirculation TGbk Draft 2.00	LB# 286	Draft	Draft P802.11bk_D2.0.pdf	2024-04-10	2024-04-26	16	Pool	559
				Redlined Doc	Draft P802.11bk_D2.0_redline_compared_to_D1.0.pdf				Approve	321
				Resolution Doc	11-24-0013-08-00bk-lb279-comments-on-d1-0.xlsx				Disapprove	10
				Comment	Template				Abstain	53
				Pool	LB# 286 Voters				Return%	69
									Approve%	97
285	TGbf	Recirculation TGbf Draft 4.00	LB# 285	Draft	Draft P802.11bf_D4.0.pdf	2024-04-10	2024-04-26	16	Pool	491
				Redlined Doc	Draft P802.11bf_D4.0_redline_compared_to_D3.0.pdf				Approve	354
				Resolution Doc	11-24-0028-14-00bf-lb281-comments-and-approved-resolutions.xlsx				Disapprove	13
				Comment	Template				Abstain	38
				Pool	LB# 285 Voters				Return%	82
									Approve%	96
284	TGbh	Recirculation TGbh Draft 4.00	LB# 284	Draft	Draft P802.11bh_D4.0.pdf	2024-03-21	2024-04-06	16	Pool	527
				Redlined Doc	Draft P802.11bh_D4.0_Redline Compared to D3.0.pdf				Approve	356
				Resolution Doc	11-24-0380-02-00bh-ieee-802-11bh-lb283-comments.xlsx				Disapprove	2
				Comment	Template				Abstain	52
				Pool	LB# 284 Voters				Return%	78
									Approve%	99
283	TGbh	Recirculation TGbh Draft 3.00	LB# 283	Draft	Draft P802.11bh_D3.0.pdf	2024-02-09	2024-02-24	15	Pool	527
				Redlined Doc	Draft P802.11bh_D3.0_Redline Compared to D2.0.pdf				Approve	341
				Resolution Doc	11-24-0040-10-00bh-ieee-802-11bh-lb282-comments.xlsx				Disapprove	8
				Comment	Template				Abstain	55
				Pool	LB# 283 Voters				Return%	77
									Approve%	98
282	TGbh	Recirculation TGbh Draft 2.00	LB# 282	Draft	Draft P802.11bh_D2.0.pdf	2023-12-11	2024-01-05	25	Pool	527
				Redlined Doc	Draft P802.11bh_D2.0_Redline Compared to D1.0.pdf				Approve	322
				Resolution Doc	11-23-1152-32-00bh-ieee-802-11bh-lb274-comments.xlsx				Disapprove	19
				Comment	Template				Abstain	52
				Pool	LB# 282 Voters				Return%	75
									Approve%	94
281	TGbf	Recirculation TGbf Draft 3.00	LB# 281	Draft	Draft P802.11bf_D3.0.pdf	2023-12-05	2024-01-04	30	Pool	491
				Redlined Doc	Draft P802.11bf_D3.0_redline_compared_to_D2.0.pdf				Approve	335
				Resolution Doc	11-23-1394-12-00bf-lb276-comments-and-approved-resolutions.xlsx				Disapprove	27
				Comment	Template				Abstain	42
				Pool	LB# 281 Voters				Return%	82
									Approve%	93
280	TGbe	Recirculation TGbe Draft 5.00	LB# 280	Draft	Draft P802.11be_D5.0.pdf	2023-12-01	2023-12-16	15	Pool	491
				Redlined Doc	Draft P802.11be_D5.0_redline_D4.0.pdf				Approve	397
				Resolution Doc	11-23-1375-25-00be-ieee-802-11be-lb275-comments.xlsx				Disapprove	21
									Abstain	5

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
279	TGbk	Technical TGbk Draft 1.00	LB# 279	Comment	Template	2023-11-28	2023-12-28	30	Return%	86
				Pool	LB# 280 Voters				Approve%	95
				Draft	Draft P802.11bk D1.0.pdf				Pool	559
				Redlined Doc	N/A				Approve	290
				Resolution Doc	N/A				Disapprove	16
				Comment	Template				Abstain	46
278	WG Tech Ed	Technical WG Tech Ed Draft 1.00	LB# 278	Pool	LB# 279 Voters	2023-09-25	2023-10-25	30	Return%	63
				Draft	Draft P802.11-2020_Cor2 D1.0.pdf				Approve%	95
				Redlined Doc	N/A				Pool	535
				Resolution Doc	N/A				Approve	272
				Comment	Template				Disapprove	1
				Pool	LB# 278 Voters				Abstain	25
277	TGme	Recirculation TGme Draft 4.00	LB# 277	Draft	Draft P802.11REVme D4.0.pdf	2023-08-10	2023-08-30	20	Return%	56
				Redlined Doc	Draft P802.11REVme D4.0 Redline Compared to D3.0.pdf				Approve%	100
				Resolution Doc	11-22-0065-23-000m-revme-wg-ballot-comments.xls				Pool	485
				Comment	Template				Approve	338
				Pool	LB# 277 Voters				Disapprove	13
				Draft	Draft P802.11bf D2.0.pdf				Abstain	21
276	TGbf	Recirculation TGbf Draft 2.00	LB# 276	Redlined Doc	Draft P802.11bf D2.0 redline compared to D1.0.pdf	2023-07-26	2023-08-20	25	Return%	77
				Resolution Doc	11-23-0314-21-00bf-lb272-comments-and-approved-resolutions.xlsx				Approve%	96
				Comment	Template				Pool	491
				Pool	LB# 276 Voters				Approve	291
				Draft	Draft P802.11be D4.0.pdf				Disapprove	48
				Redlined Doc	Draft P802.11be D4.0 redline D3.0.pdf				Abstain	49
275	TGbe	Recirculation TGbe Draft 4.00	LB# 275	Resolution Doc	11-23-0272-36-00be-ieee-802-11be-lb271-comments.xlsx	2023-07-24	2023-08-13	20	Return%	79
				Comment	Template				Approve%	86
				Pool	LB# 275 Voters				Pool	491
				Draft	Draft P802.11be D3.0.pdf				Approve	364
				Redlined Doc	Draft P802.11be D4.0 redline D3.0.pdf				Disapprove	40
				Resolution Doc	11-23-0272-36-00be-ieee-802-11be-lb271-comments.xlsx				Abstain	4
274	TGbh	Technical TGbh Draft 1.00	LB# 274	Comment	Template	2023-06-01	2023-07-01	30	Return%	83
				Pool	LB# 274 Voters				Approve%	90
				Draft	Draft P802.11bh D1.0.pdf				Pool	527
				Redlined Doc	N/A				Approve	247
				Resolution Doc	N/A				Disapprove	22
				Comment	Template				Abstain	52
273	TGme	Recirculation TGme Draft 3.00	LB# 273	Pool	LB# 273 Voters	2023-04-12	2023-05-07	25	Return%	61
				Draft	Draft P802.11REVme D3.0.pdf				Approve%	92
				Redlined Doc	Draft P802.11REVme D3.0 Redline Compared to D2.0.pdf				Pool	485
				Resolution Doc	11-22-0065-17-000m-revme-wg-ballot-comments.xls				Approve	321
				Comment	Template				Disapprove	25
				Pool	LB# 273 Voters				Abstain	18
272	TGbf	Technical TGbf Draft 1.00	LB# 272	Draft	Draft P802.11bf D1.0.pdf	2023-01-30	2023-03-02	31	Return%	75
				Redlined Doc	N/A				Approve%	93
				Resolution Doc	N/A				Pool	491
				Comment	Template				Approve	244
				Pool	LB# 272 Voters				Disapprove	70
				Draft	Draft P802.11be D3.0.pdf				Abstain	46
271	TGbe	Technical TGbe Draft 3.00	LB# 271	Redlined Doc	N/A	2023-01-30	2023-03-02	31	Return%	73
				Resolution Doc	N/A				Approve%	78
				Comment	Template				Pool	491
				Pool	LB# 271 Voters				Approve	302
				Draft	Draft P802.11REVme D2.0.pdf				Disapprove	76
				Redlined Doc	Draft P802.11REVme D2.0 Redline Compared to D1.0.pdf				Abstain	6
270	TGme	Recirculation TGme Draft 2.00	LB# 270	Resolution Doc	11-22-0065-12-000m-revme-wg-ballot-comments.xls	2022-10-17	2022-11-11	25	Return%	78
				Comment	Template				Approve%	80
				Pool	LB# 270 Voters				Pool	485
				Draft	Draft P802.11bb D4.0.pdf				Approve	282
				Redlined Doc	Draft P802.11bb D4.0 redline compared to D3.0.pdf				Disapprove	44
				Resolution Doc	11-22-1498-06-00bb-lb267-poll-comments.xlsx				Abstain	25
269	TGbb	Recirculation TGbb Draft 4.00	LB# 269	Comment	Template	2022-09-16	2022-10-01	15	Return%	72
				Pool	LB# 270 Voters				Approve%	87
				Draft	Draft P802.11bb D4.0.pdf				Pool	485
				Redlined Doc	Draft P802.11bb D4.0 redline compared to D3.0.pdf				Approve	301
				Resolution Doc	11-22-1498-06-00bb-lb267-poll-comments.xlsx				Disapprove	2
									Abstain	71

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
									Return%	77
				Comment	Template				Approve%	99
				Pool	LB# 269 Voters					
268	TGbc	Recirculation TGbc Draft 4.00	LB# 268	Draft	Draft P802.11bc D4.0.pdf	2022-08-10	2022-08-25	15	Pool	369
				Redlined Doc	Draft P802.11bc Redline D4.0 to D3.0.pdf				Approve	236
				Resolution Doc	11-22-0686-16-00bc-lb264-comments-on-p802-11bc-d3-0.xlsx				Disapprove	12
									Abstain	35
									Return%	77
				Comment	Template				Approve%	95
				Pool	LB# 268 Voters					
267	TGbb	Recirculation TGbb Draft 3.00	LB# 267	Draft	Draft P802.11bb D3.0.pdf	2022-08-01	2022-08-31	30	Pool	485
				Redlined Doc	Draft P802.11bb D3.0 redline compared to D2.1.pdf				Approve	281
				Resolution Doc	11-22-0949-07-00bb-comments-from-cc-against-d2-1.xlsx				Disapprove	15
									Abstain	75
									Return%	76
				Comment	Template				Approve%	95
				Pool	LB# 267 Voters					
266	TGbe	Technical TGbe Draft 2.00	LB# 266	Draft	Draft P802.11bc D2.0.pdf	2022-05-25	2022-07-04	40	Pool	512
				Redlined Doc	N/A				Approve	228
				Resolution Doc	N/A				Disapprove	127
									Abstain	11
									Return%	71
				Comment	Template				Approve%	64
				Pool	LB# 266 Voters					
265	WG Tech Ed	Recirculation WG Tech Ed Draft 2.10	LB# 265	Draft	Draft P802.11-2020 Cor1 D2.1.pdf	2022-05-17	2022-06-01	15	Pool	511
				Redlined Doc	Draft P802.11-2020-Cor1 D2.1 Redline Compared to D1.0.pdf				Approve	290
				Resolution Doc	11-22-0648-04-0000-comments-on-p802-11-cor1-d1-0.xlsx				Disapprove	1
									Abstain	36
									Return%	64
				Comment	Template				Approve%	100
				Pool	LB# 265 Voters					
264	TGbc	Recirculation TGbc Draft 3.00	LB# 264	Draft	Draft P802.11bc Redline D3.0 to D2.0.pdf	2022-04-08	2022-04-28	20	Pool	380
				Redlined Doc	Draft P802.11bc Redline D3.0 to D2.0.pdf				Approve	228
				Resolution Doc	11-21-1758-29-00bc-lb257-comments-on-p802-11bc-d2-0.xlsx				Disapprove	19
									Abstain	34
									Return%	74
				Comment	Template				Approve%	92
				Pool	LB# 264 Voters					
263	TGbb	Recirculation TGbb Draft 2.00	LB# 263	Draft	Draft P802.11bb D2.0.pdf	2022-04-07	2022-04-22	15	Pool	485
				Redlined Doc	Draft P802.11bb D2.0 redline compared to D1.0.pdf				Approve	271
				Resolution Doc	11-22-0074-20-00bb-lb260-comments.xlsx				Disapprove	18
									Abstain	68
									Return%	74
				Comment	Template				Approve%	94
				Pool	LB# 263 Voters					
262	WG Tech Ed	Technical WG Tech Ed Draft 1.00	LB# 262	Draft	Draft P802.11-2020 Cor1 D1.0.pdf	2022-03-15	2022-04-14	30	Pool	511
				Redlined Doc	N/A				Approve	260
				Resolution Doc	N/A				Disapprove	3
									Abstain	41
									Return%	59
				Comment	Template				Approve%	99
				Pool	LB# 262 Voters					
261	TGbd	Recirculation TGbd Draft 4.00	LB# 261	Draft	Draft P802.11bd D4.0.pdf	2022-03-15	2022-03-30	15	Pool	340
				Redlined Doc	Draft P802.11bd D4.0 Redline Compared to D3.0.pdf				Approve	245
				Resolution Doc	11-21-2018-07-00bd-tgbd-lb259-comments.xlsx				Disapprove	3
									Abstain	26
									Return%	81
				Comment	Template				Approve%	99
				Pool	LB# 261 Voters					
260	TGbb	Technical TGbb Draft 1.00	LB# 260	Draft	P802.11bb D1.0.pdf	2021-12-03	2022-01-12	40	Pool	485
				Redlined Doc	N/A				Approve	221
				Resolution Doc	N/A				Disapprove	34
									Abstain	59
									Return%	65
				Comment	Template				Approve%	87
				Pool	LB# 260 Voters					
259	TGbd	Recirculation TGbd Draft 3.00	LB# 259	Draft	Draft P802.11bd D3.0.pdf	2021-12-01	2021-12-16	15	Pool	340
				Redlined Doc	Draft P802.11bd D3.0 Redline Compared to D2.0.pdf				Approve	223
				Resolution Doc	11-21-1296-07-00bd-tgbd-lb254-comments.xlsx				Disapprove	15
									Abstain	29
									Return%	79
				Comment	Template				Approve%	94
				Pool	LB# 259 Voters					
258	TGme	Technical TGme Draft 1.00	LB# 258	Draft	Draft P802.11REVme D1.0.pdf	2021-12-01	2022-01-10	40	Pool	485
				Redlined Doc	Draft P802.11REVme D1.0 Redline Compared to D0.0.pdf				Approve	243
				Resolution Doc	N/A				Disapprove	45
									Abstain	25

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
									Return%	65
				Comment	Template				Approve%	84
				Pool	LB# 258 Voters					
				Draft	Draft P802.11bc D2.0.pdf					
				Redlined Doc	Draft P802.11bc Redline D2.0 to D1.0.pdf					
				Resolution Doc	11-20-1985-49-00bc-lb-252-comments-on-p802-11bc-draft-1-0.xlsx					
257	TGbc	Recirculation TGbc Draft 2.00	LB# 257	Comment	Template	2021-10-08	2021-10-28	20	Pool	369
				Pool	LB# 257 Voters				Approve	198
				Draft	Draft P802.11az D4.0.pdf				Disapprove	22
				Redlined Doc	Draft P802.11az D4.0 redline compared to D3.0.pdf				Abstain	34
				Resolution Doc	11-20-1985-49-00bc-lb-252-comments-on-p802-11bc-draft-1-0.xlsx				Return%	69
				Comment	Template				Approve%	90
256	TGaz	Recirculation TGaz Draft 4.00	LB# 256	Pool	LB# 256 Voters	2021-09-21	2021-10-01	10	Pool	329
				Draft	Draft P802.11az D4.0.pdf				Approve	262
				Redlined Doc	Draft P802.11az D4.0 redline compared to D3.0.pdf				Disapprove	5
				Resolution Doc	11-21-1471-02-00az-lb-255-comments.xlsx				Abstain	24
				Comment	Template				Return%	88
				Pool	LB# 256 Voters				Approve%	98
255	TGaz	Recirculation TGaz Draft 4.00	LB# 255	Pool	LB# 255 Voters	2021-08-23	2021-09-07	15	Pool	329
				Draft	Draft P802.11az D4.0.pdf				Approve	253
				Redlined Doc	Draft P802.11az D4.0 redline compared to D3.0.pdf				Disapprove	14
				Resolution Doc	11-21-0258-08-00az-lb253-comments.xlsx				Abstain	24
				Comment	Template				Return%	88
				Pool	LB# 255 Voters				Approve%	95
254	TGbd	Recirculation TGbd Draft 2.00	LB# 254	Pool	LB# 254 Voters	2021-07-12	2021-08-01	20	Pool	340
				Draft	Draft P802.11bd D2.0.pdf				Approve	200
				Redlined Doc	Draft P802.11bd D2.0 Redline Compared to D1.0.pdf				Disapprove	26
				Resolution Doc	11-20-1887-11-00bd-tgbd-lb251-comments.xlsx				Abstain	28
				Comment	Template				Return%	75
				Pool	LB# 254 Voters				Approve%	88
253	TGaz	Recirculation TGaz Draft 3.00	LB# 253	Pool	LB# 253 Voters	2021-01-26	2021-02-10	15	Pool	329
				Draft	Draft P802.11az D3.0.pdf				Approve	231
				Redlined Doc	Draft P802.11az D3.0 redline compared to D2.0.pdf				Disapprove	31
				Resolution Doc	11-20-0017-12-00az-lb249-comment.xlsx				Abstain	25
				Comment	Template				Return%	87
				Pool	LB# 253 Voters				Approve%	88
252	TGbc	Technical TGbc Draft 1.00	LB# 252	Pool	LB# 252 Voters	2020-11-20	2020-12-20	30	Pool	369
				Draft	Draft P802.11bc D1.0.pdf				Approve	153
				Redlined Doc	N/A				Disapprove	32
				Resolution Doc	N/A				Abstain	32
				Comment	Template				Return%	59
				Pool	LB# 252 Voters				Approve%	83
251	TGbd	Technical TGbd Draft 1.00	LB# 251	Pool	LB# 251 Voters	2020-10-19	2020-11-18	30	Pool	340
				Draft	Draft P802.11bd D1.0.pdf				Approve	174
				Redlined Doc	N/A				Disapprove	39
				Resolution Doc	N/A				Abstain	21
				Comment	Template				Return%	69
				Pool	LB# 251 Voters				Approve%	82
250	TGba	Recirculation TGba Draft 6.00	LB# 250	Pool	LB# 250 Voters	2020-01-17	2020-02-01	15	Pool	329
				Draft	Draft P802.11ba D6.0.pdf				Approve	266
				Redlined Doc	Draft P802.11ba D6.0 Redline Compared to D5.0.pdf				Disapprove	4
				Resolution Doc	11-19-2162-02-00ba-comments-on-tgba-d5-0.xlsx				Abstain	23
				Comment	Template				Return%	89
				Pool	LB# 250 Voters				Approve%	99
249	TGaz	Recirculation TGaz Draft 2.00	LB# 249	Pool	LB# 249 Voters	2019-12-09	2020-01-03	25	Pool	329
				Draft	Draft P802.11az D2.0.pdf				Approve	219
				Redlined Doc	Draft P802.11az D2.0 redline compared to D1.0.pdf				Disapprove	33
				Resolution Doc	11-20-1719-05-00az-tgaz-lb240-comment-resolution.docx				Abstain	28
				Comment	Template				Return%	85
				Pool	LB# 249 Voters				Approve%	87
248	TGba	Recirculation TGba Draft 5.00	LB# 248	Pool	LB# 248 Voters	2019-12-02	2019-12-17	15	Pool	329
				Draft	Draft P802.11ba D5.0.pdf				Approve	258
				Redlined Doc	Draft P802.11ba D5.0 Redline Compared to D4.0.pdf				Disapprove	12
				Resolution Doc	11-19-1770-08-00ba-comments-on-tgba-d4-0.xlsx				Abstain	22
				Comment	Template				Return%	89
				Pool	LB# 248 Voters				Approve%	96
247	TGax	Recirculation TGax Draft 6.00	LB# 247	Draft	Draft P802.11ax D6.0.pdf	2019-11-26	2019-12-11	15	Pool	303
				Redlined Doc	Draft P802.11ax D6.0 Redline Compared to D5.0.pdf				Approve	271
				Resolution Doc	11-19-1782-10-00ax-comments-on-d5-0.xlsx				Disapprove	7
									Abstain	3

COMPLETED BALLOTS, from LB101 onwards										
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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
246	TGay	Recirculation TGay Draft 5.00	LB# 246	Comment	Template	2019-10-24	2019-11-08	15	Return%	93
				Pool	LB# 247 Voters				Approve%	97
				Draft	Draft P802.11ay_D5.0.pdf				Pool	322
				Redlined Doc	Draft P802.11ay_D5.0 redline compared to D4.0.pdf				Approve	260
				Resolution Doc	11-19-1180-05-00ay-comments-on-tgay-d4-0.xlsx				Disapprove	3
				Comment	Template				Abstain	25
245	TGmd	Recirculation TGmd Draft 3.00	LB# 245	Pool	LB# 246 Voters	2019-10-13	2019-10-30	17	Return%	89
				Draft	Draft P802.11REVmd_D3.0.pdf				Approve%	99
				Redlined Doc	Draft P802.11REVmd_D3.0 Redline Compared to D2.0.pdf				Pool	254
				Resolution Doc	11-19-1837-02-000m-revmd-wg-lb245-comment-resolutions.xls				Approve	213
				Comment	Template				Disapprove	8
				Pool	LB# 245 Voters				Abstain	7
244	TGax	Recirculation TGax Draft 5.00	LB# 244	Draft	Draft P802.11ax_D5.0.pdf	2019-10-06	2019-10-24	18	Return%	90
				Redlined Doc	Draft P802.11ax_D5.0 Redline Compared to D4.0.pdf				Approve%	96
				Resolution Doc	11-19-0292-29-00ax-comments-on-tgax-d4-0.xlsx				Pool	303
				Comment	Template				Approve	258
				Pool	LB# 244 Voters				Disapprove	17
				Draft	Draft P802.11ba_D4.0.pdf				Abstain	4
243	TGba	Recirculation TGba Draft 4.00	LB# 243	Redlined Doc	Draft P802.11ba_D4.0 Redline Compared to D3.0.pdf	2019-09-27	2019-10-15	18	Return%	92
				Resolution Doc	11-19-1016-10-00ba-comments-on-tgba-d3-0.xlsx				Approve%	94
				Comment	Template				Pool	329
				Pool	LB# 243 Voters				Approve	238
				Draft	Draft P802.11ay_D4.0.pdf				Disapprove	27
				Redlined Doc	Draft P802.11ay_D4.0 redline compared to D3.0.pdf				Abstain	24
242	TGay	Recirculation TGay Draft 4.00	LB# 242	Resolution Doc	11-19-0297-08-00ay-comments-on-11ay-d3-0.xlsx	2019-06-20	2019-07-08	18	Return%	88
				Comment	Template				Approve%	90
				Pool	LB# 242 Voters				Pool	322
				Draft	Draft P802.11az_D1.0.pdf				Approve	259
				Redlined Doc	P802.11az_D1.0 Redline compared to D0.6.pdf				Disapprove	6
				Resolution Doc	N/A				Abstain	25
241	TGba	Recirculation TGba Draft 3.00	LB# 241	Comment	Template	2019-06-03	2019-06-18	15	Return%	90
				Pool	LB# 241 Voters				Approve%	98
				Draft	Draft P802.11ba_D3.0.pdf				Pool	329
				Redlined Doc	Draft P802.11ba_D3.0 Redline Compared to D2.1.pdf				Approve	214
				Resolution Doc	11-19-0312-12-00ba-comments-on-tgba-d2-0.xlsx				Disapprove	40
				Comment	Template				Abstain	26
240	TGaz	Technical TGaz Draft 1.00	LB# 240	Pool	LB# 240 Voters	2019-02-05	2019-03-09	32	Return%	85
				Draft	Draft P802.11az_D1.0.pdf				Approve%	84
				Redlined Doc	P802.11az_D1.0 Redline compared to D0.6.pdf				Pool	329
				Resolution Doc	N/A				Approve	186
				Comment	Template				Disapprove	49
				Pool	LB# 240 Voters				Abstain	29
239	TGay	Recirculation TGay Draft 3.00	LB# 239	Draft	Draft P802.11ay_D3.0.pdf	2019-02-04	2019-02-28	24	Return%	80
				Redlined Doc	Draft P802.11ay_D3.0 redline compared to D2.0.pdf				Approve%	79
				Resolution Doc	11-18-1483-07-00ay-comment-database-on-d2-0.xlsx				Pool	322
				Comment	Template				Approve	243
				Pool	LB# 239 Voters				Disapprove	18
				Draft	Draft P802.11ax_D4.0.pdf				Abstain	30
238	TGax	Recirculation TGax Draft 4.00	LB# 238	Redlined Doc	Draft P802.11ax_D4.0 Redline Compared to D3.0.pdf	2019-02-01	2019-02-25	24	Return%	90
				Resolution Doc	11-18-1123-24-00ax-comments-on-tgax-d3-0.xlsx				Approve%	93
				Comment	Template				Pool	303
				Pool	LB# 238 Voters				Approve	260
				Draft	Draft P802.11ba_D2.0.pdf				Disapprove	22
				Redlined Doc	Draft P802.11ba_D2.0 Redline Compared to D1.0.pdf				Abstain	3
237	TGba	Technical TGba Draft 2.00	LB# 237	Resolution Doc	11-18-1794-11-00ba-comments-on-tgba-d1-0.xlsx	2019-01-30	2019-03-03	32	Return%	94
				Comment	Template				Approve%	92
				Pool	LB# 237 Voters				Pool	329
				Draft	Draft P802.11REVmd_D2.0.pdf				Approve	202
				Redlined Doc	Draft P802.11REVmd_D2.0 Redline Compared to D1.0.pdf				Disapprove	43
				Resolution Doc	11-18-0611-29-000m-revmd-wg-ballot-comments.xls				Abstain	26
236	TGmd	Recirculation TGmd Draft 2.00	LB# 236	Comment	Template	2018-12-11	2019-01-10	30	Return%	82
				Pool	LB# 236 Voters				Approve%	82
				Draft	Draft P802.11REVmd_D2.0.pdf				Pool	254
				Redlined Doc	Draft P802.11REVmd_D2.0 Redline Compared to D1.0.pdf				Approve	199
235	TGmd	Recirculation TGmd Draft 2.00	LB# 235	Resolution Doc	11-18-0611-29-000m-revmd-wg-ballot-comments.xls	2018-12-11	2019-01-10	30	Disapprove	16
				Comment	Template				Abstain	7
				Pool	LB# 235 Voters				Approve	199
				Draft	Draft P802.11REVmd_D2.0.pdf				Disapprove	16

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
235	TGba	Technical TGba Draft 1.00	LB# 235	Comment	Template	2018-09-24	2018-10-24	30	Return%	87
				Pool	LB# 236 Voters				Approve%	93
				Draft	Draft P802.11ba D1.0.pdf				Pool	319
				Redlined Doc	Draft P802.11ba D1.0 Redline Compared to D0.4.pdf				Approve	159
				Resolution Doc	N/A				Disapprove	62
				Comment	Template				Abstain	23
234	TGay	Technical TGay Draft 2.00	LB# 234	Pool	LB# 235 Voters	2018-08-01	2018-08-31	30	Return%	76
				Draft	Draft P802.11ay D2.0.pdf				Approve%	72
				Redlined Doc	Draft P802.11ay D2.0 redline compared to D1.0.pdf				Pool	322
				Resolution Doc	11-18-0067-11-00ay-11ay-d1-0-comment-database.xlsx				Approve	219
				Comment	Template				Disapprove	17
				Pool	LB# 234 Voters				Abstain	29
233	TGax	Technical TGax Draft 3.00	LB# 233	Draft	Draft P802.11ax D3.0.pdf	2018-06-01	2018-07-01	30	Return%	82
				Redlined Doc	Draft P802.11ax D3.0 Redline Compared to D2.0.pdf				Approve%	93
				Resolution Doc	11-17-1682-13-00ax-comments-on-teax-d2-0.xlsx				Pool	303
				Comment	Template				Approve	212
				Pool	LB# 233 Voters				Disapprove	33
				Draft	Draft P802.11REVmd D1.0.pdf				Abstain	4
232	TGmd	Technical TGmd Draft 1.00	LB# 232	Redlined Doc	Draft P802.11REVmd D1.0 Redline Compared to D0.1.pdf	2018-02-05	2018-03-17	40	Return%	81
				Resolution Doc	11-17-0914-13-000m-revmd-wg-cc-comments.xls				Approve%	85
				Comment	Template				Pool	254
				Pool	LB# 232 Voters				Approve	166
				Draft	Draft P802.11ay D1.0.pdf				Disapprove	29
				Redlined Doc	Draft P802.11ay D1.0 Redline Compared to D0.8.pdf				Abstain	11
231	TGay	Technical TGay Draft 1.00	LB# 231	Resolution Doc	N/A	2017-11-24	2018-01-07	44	Return%	81
				Comment	Template				Approve%	85
				Pool	LB# 231 Voters				Pool	288
				Draft	Draft P802.11ax D2.0.pdf				Approve	147
				Redlined Doc	Draft P802.11ax D2.0 Redline Compared to D1.0.pdf				Disapprove	51
				Resolution Doc	11-17-0010-14-00ax-comments-on-teax-d1-0.xlsx				Abstain	31
230	TGax	Technical TGax Draft 2.00	LB# 230	Comment	Template	2017-10-05	2017-11-04	30	Return%	80
				Pool	LB# 230 Voters				Approve%	74
				Draft	Draft P802.11ak D4.0.pdf				Pool	329
				Redlined Doc	Draft P802.11ak D4.0 Redline.pdf				Approve	137
				Resolution Doc	11-17-0025-09-00ak-11ak-wg-lb-comments.xlsx				Disapprove	81
				Comment	Template				Abstain	8
229	TGak	Recirculation TGak Draft 4.00	LB# 229	Pool	LB# 231 Voters	2017-03-15	2017-03-30	15	Return%	69
				Draft	Draft P802.11aj D5.0.pdf				Approve%	63
				Redlined Doc	Draft P802.11aj D5.0 Redline.pdf				Pool	359
				Resolution Doc	11-16-1639-02-00aj-lb226-comments-database.xlsx				Approve	202
				Comment	Template				Disapprove	10
				Pool	LB# 229 Voters				Abstain	41
228	TGaj	Recirculation TGaj Draft 5.00	LB# 228	Draft	Draft P802.11ak D3.0.pdf	2017-02-17	2017-03-04	15	Return%	70
				Redlined Doc	Draft P802.11ak D3.0 Redline.pdf				Approve%	95
				Resolution Doc	11-15-0556-34-00ak-lb212-working-group-ballot-comments.xlsx				Pool	377
				Comment	Template				Approve	247
				Pool	LB# 228 Voters				Disapprove	14
				Draft	Draft P802.11aj D4.0.pdf				Abstain	51
227	TGak	Recirculation TGak Draft 3.00	LB# 227	Redlined Doc	Draft P802.11aj D4.0 Redline.pdf	2016-12-21	2017-01-10	20	Return%	83
				Resolution Doc	11-16-1129-02-00aj-lb223-comments-database.xlsx				Approve%	95
				Comment	Template				Pool	359
				Pool	LB# 227 Voters				Approve	198
				Draft	Draft P802.11aj D5.0.pdf				Disapprove	12
				Redlined Doc	Draft P802.11aj D5.0 Redline.pdf				Abstain	43
226	TGaj	Recirculation TGaj Draft 4.00	LB# 226	Resolution Doc	N/A	2016-12-06	2016-12-21	15	Return%	70
				Comment	Template				Approve%	94
				Pool	LB# 226 Voters				Pool	377
				Draft	Draft P802.11ax D1.0.pdf				Approve	234
				Redlined Doc	Draft P802.11ax D1.0 Redline Compared to D0.5.pdf				Disapprove	21
				Resolution Doc	N/A				Abstain	55
225	TGax	Technical TGax Draft 1.00	LB# 225	Comment	Template	2016-12-01	2017-01-08	38	Return%	82
				Pool	LB# 225 Voters				Approve%	92
				Draft	Draft P802.11ax D1.0.pdf				Pool	371
				Redlined Doc	Draft P802.11ax D1.0 Redline Compared to D0.5.pdf				Approve	145
				Resolution Doc	N/A				Disapprove	106
				Resolution Doc	N/A				Abstain	25

COMPLETED BALLOTS, from LB101 onwards										
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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
224	TGaq	Recirculation TGaq Draft 7.00	LB# 224	Comment	Template	2016-09-10	2016-09-25	15	Return%	74
				Pool	LB# 225 Voters				Approve%	58
				Draft	Draft P802.11aq_D7.0.pdf				Pool	357
				Redlined Doc	Draft P802.11aq_D7.0 Redline.pdf				Approve	226
				Resolution Doc	11-16-1108-03-00aq-lb222-wg-comments-for-11aq-draft-6-0.xlsx				Disapprove	7
				Comment	Template				Abstain	47
223	TGaj	Recirculation TGaj Draft 3.00	LB# 223	Pool	LB# 224 Voters	2016-08-15	2016-08-30	15	Return%	78
				Draft	Draft P802.11aj_D3.0.pdf				Approve%	97
				Redlined Doc	Draft P802.11aj_D3.0 Redline.pdf				Pool	377
				Resolution Doc	11-16-0811-02-00aj-lb220-comments-database.xlsx				Approve	221
				Comment	Template				Disapprove	27
				Pool	LB# 223 Voters				Abstain	57
222	TGaq	Recirculation TGaq Draft 6.00	LB# 222	Comment	Template	2016-08-04	2016-08-19	15	Return%	81
				Pool	LB# 222 Voters				Approve%	89
				Draft	Draft P802.11aq_D6.0.pdf				Pool	357
				Redlined Doc	Draft P802.11aq_D6.0 Redline.pdf				Approve	223
				Resolution Doc	11-16-0982-04-00aq-lb221-wg-comments-for-11aq-draft-5-0.xlsx				Disapprove	10
				Comment	Template				Abstain	47
221	TGaq	Recirculation TGaq Draft 5.00	LB# 221	Pool	LB# 222 Voters	2016-07-04	2016-07-19	15	Return%	78
				Draft	Draft P802.11aq_D5.0.pdf				Approve%	93
				Redlined Doc	Draft P802.11aq_D5.0 Redline.pdf				Pool	357
				Resolution Doc	11-16-0553-04-00aq-lb219-wg-comments-for-11aq-draft-4-0.xlsx				Approve	218
				Comment	Template				Disapprove	16
				Pool	LB# 221 Voters				Abstain	46
220	TGaj	Recirculation TGaj Draft 2.00	LB# 220	Comment	Template	2016-06-15	2016-06-30	15	Return%	79
				Pool	LB# 220 Voters				Approve%	89
				Draft	Draft P802.11aj_D2.0.pdf				Pool	377
				Redlined Doc	Draft P802.11aj_D2.0 Redline.pdf				Approve	218
				Resolution Doc	11-16-0193-04-00aj-lb217-comments-database.xlsx				Disapprove	28
				Comment	Template				Abstain	53
219	TGaq	Recirculation TGaq Draft 4.00	LB# 219	Pool	LB# 220 Voters	2016-04-06	2016-04-21	15	Return%	77
				Draft	Draft P802.11aq_D4.0.pdf				Approve%	93
				Redlined Doc	Draft P802.11aq_D4.0 Redline.pdf				Pool	357
				Resolution Doc	11-15-1377-17-00aq-lb216-wg-ballot-comments-for-11aq-draft-3-0.xlsx				Approve	213
				Comment	Template				Disapprove	17
				Pool	LB# 219 Voters				Abstain	45
218	TGak	Recirculation TGak Draft 2.00	LB# 218	Comment	Template	2016-02-24	2016-03-10	15	Return%	62
				Pool	LB# 218 Voters				Approve%	91
				Draft	Draft P802.11ak_D2.0.pdf				Pool	361
				Redlined Doc	Draft P802.11ak_D2.0 Redline.pdf				Approve	174
				Resolution Doc	11-15-0556-19-00ak-lb212-working-group-ballot-comments.xlsx				Disapprove	17
				Comment	Template				Abstain	33
217	TGaj	Technical TGaj Draft 1.00	LB# 217	Pool	LB# 218 Voters	2015-12-21	2016-01-20	30	Return%	77
				Draft	Draft P802.11aj_D1.0.pdf				Approve%	88
				Redlined Doc	N/A				Pool	368
				Resolution Doc	N/A				Approve	221
				Comment	Template				Disapprove	30
				Pool	LB# 217 Voters				Abstain	31
216	TGaq	Technical TGaq Draft 3.00	LB# 216	Comment	Template	2015-10-08	2015-11-07	30	Return%	72
				Pool	LB# 216 Voters				Approve%	93
				Draft	Draft P802.11aq_D3.0.pdf				Pool	358
				Redlined Doc	N/A				Approve	202
				Resolution Doc	N/A				Disapprove	16
				Comment	Template				Abstain	39
215	TGah	Recirculation TGah Draft 5.00	LB# 215	Pool	LB# 215 Voters	2015-09-18	2015-10-03	15	Return%	86
				Draft	Draft P802.11ah_D5.0.pdf				Approve%	98
				Redlined Doc	N/A				Pool	330
				Resolution Doc	11-15-0525-02-00ah-tgah-lb211-comments-on-d5-0.xlsx				Approve	262
				Comment	Template				Disapprove	6
				Pool	LB# 215 Voters				Abstain	15
214	TGai	Recirculation TGai Draft 6.00	LB# 214	Draft	Draft P802.11ai_D6.0.pdf	2015-07-16	2015-07-31	15	Return%	86
				Redlined Doc	Draft P802.11ai_D6.0 Redline.pdf				Approve%	98
				Resolution Doc	11-15-0772-08-00ai-lb213comments-for-draft-5-0.xlsx				Pool	336
									Approve	252
									Disapprove	7
									Abstain	21

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
213	TGai	Recirculation TGai Draft 5.00	LB# 213	Comment	Template	2015-06-11	2015-06-26	15	Return%	83
				Pool	LB# 213 Voters				Approve%	97
				Draft	Draft P802.11ai_D5.0.pdf				Pool	336
				Redlined Doc	Draft P802.11ai_D5.0 Redline.pdf				Approve	238
				Resolution Doc	11-15-0281-20-00ai-tbai-lb209-comments-on-draft-d4-0.xlsx				Disapprove	20
				Comment	Template				Abstain	21
212	TGak	Technical TGak Draft 1.00	LB# 212	Pool	LB# 213 Voters	2015-04-06	2015-05-06	30	Return%	83
				Draft	Draft P802.11ak_D1.0.pdf				Approve%	92
				Redlined Doc	N/A				Pool	361
				Resolution Doc	N/A				Approve	134
				Comment	Template				Disapprove	24
				Pool	LB# 212 Voters				Abstain	27
211	TGah	Recirculation TGah Draft 5.00	LB# 211	Comment	Template	2015-04-01	2015-04-16	15	Return%	51
				Pool	LB# 211 Voters				Approve%	85
				Draft	Draft P802.11ah_D5.0.pdf				Pool	330
				Redlined Doc	Draft P802.11ah_D5.0 Redline.pdf				Approve	248
				Resolution Doc	11-15-0261-07-00ah-tgah-lb207-comments-on-d4-0.xlsx				Disapprove	19
				Comment	Template				Abstain	16
210	TGmc	Recirculation TGmc Draft 4.00	LB# 210	Pool	LB# 211 Voters	2015-03-11	2015-03-26	15	Return%	86
				Draft	Draft P802.11REVmc_D4.0.pdf				Approve%	93
				Redlined Doc	N/A				Pool	325
				Resolution Doc	11-13-0233-56-0000-revme-wg-ballot-comments.xls				Approve	241
				Comment	Template				Disapprove	10
				Pool	LB# 210 Voters				Abstain	18
209	TGai	Recirculation TGai Draft 4.00	LB# 209	Comment	Template	2015-02-09	2015-02-24	15	Return%	83
				Pool	LB# 209 Voters				Approve%	96
				Draft	Draft P802.11ai_D4.0.pdf				Pool	336
				Redlined Doc	Draft P802.11ai_D4.0 Redline.pdf				Approve	230
				Resolution Doc	11-14-1351-30-00ai-tgai-lb204-comments-for-draft-3-0.xlsx				Disapprove	25
				Comment	Template				Abstain	22
208	TGaq	Technical TGaq Draft 1.00	LB# 208	Pool	LB# 209 Voters	2015-02-02	2015-03-04	30	Return%	82
				Draft	Draft P802.11aq_D1.0.pdf				Approve%	90
				Redlined Doc	N/A				Pool	363
				Resolution Doc	N/A				Approve	139
				Comment	Template				Disapprove	52
				Pool	LB# 208 Voters				Abstain	42
207	TGah	Recirculation TGah Draft 4.00	LB# 207	Comment	Template	2015-01-30	2015-02-14	15	Return%	64
				Pool	LB# 207 Voters				Approve%	73
				Draft	Draft P802.11ah_D4.0.pdf				Pool	330
				Redlined Doc	Draft P802.11ah_D4.0 Redline.pdf				Approve	245
				Resolution Doc	11-14-1372-09-00ah-tgah-lb205-comments-on-d3-0.xlsx				Disapprove	19
				Comment	Template				Abstain	18
206	TGmc	Recirculation TGmc Draft 4.00	LB# 206	Pool	LB# 207 Voters	2015-01-28	2015-02-17	20	Return%	85
				Draft	Draft P802.11REVmc_D4.0.pdf				Approve%	93
				Redlined Doc	Draft P802.11REVmc_D4.0 Redline.pdf				Pool	325
				Resolution Doc	11-13-0233-51-0000-revme-wg-ballot-comments.xls				Approve	237
				Comment	Template				Disapprove	14
				Pool	LB# 206 Voters				Abstain	18
205	TGah	Recirculation TGah Draft 3.00	LB# 205	Comment	Template	2014-10-10	2014-10-25	15	Return%	83
				Pool	LB# 205 Voters				Approve%	94
				Draft	Draft P802.11ah_D3.0.pdf				Pool	330
				Redlined Doc	Draft P802.11ah_D3.0 Redline.pdf				Approve	234
				Resolution Doc	11-14-0796-11-00ah-tgah-lb203-comments-on-d2-0.xlsx				Disapprove	27
				Comment	Template				Abstain	17
204	TGai	Recirculation TGai Draft 3.00	LB# 204	Pool	LB# 204 Voters	2014-09-29	2014-10-14	15	Return%	84
				Draft	Draft P802.11ai_D3.0.pdf				Approve%	90
				Redlined Doc	Draft P802.11ai_D3.0 Redline.pdf				Pool	336
				Resolution Doc	11-14-0565-24-00ai-tgai-lb201-comments-for-draft-2-0.xlsx				Approve	214
				Comment	Template				Disapprove	28
				Pool	LB# 204 Voters				Abstain	28
203	TGah	Technical TGah Draft 2.00	LB# 203	Comment	Template	2014-06-05	2014-07-05	30	Return%	80
				Pool	LB# 203 Voters				Approve%	88
				Draft	Draft P802.11ah_D2.0.pdf				Pool	330
				Redlined Doc	N/A				Approve	204
				Resolution Doc	11-13-1336-16-00ah-tgah-lb200-comments-on-d1-0.xlsx				Disapprove	43
									Abstain	24

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Return%	82
				Pool	LB# 203 Voters				Approve%	83
202	TGmc	Recirculation TGmc Draft 3.00	LB# 202	Draft	Draft P802.11REVmc_D3.0.pdf	2014-06-03	2014-06-23	20	Pool	325
				Redlined Doc	Draft P802.11REVmc_D3.0 Redline.pdf				Approve	219
				Resolution Doc	11-13-0233-32-0000-revmc-wg-ballot-comments.xls				Disapprove	24
				Comment	Template				Abstain	19
				Pool	LB# 202 Voters				Return%	81
									Approve%	90
201	TGai	Technical TGai Draft 2.00	LB# 201	Draft	Draft P802.11ai_D2.0.pdf	2014-04-07	2014-05-07	30	Pool	336
				Redlined Doc	Draft P802.11ai_D2.0 Redline.pdf				Approve	195
				Resolution Doc	11-13-1076-34-00ai-tgai-lb-198-comments-for-d1-0.xlsx				Disapprove	34
				Comment	Template				Abstain	28
				Pool	LB# 201 Voters				Return%	76
									Approve%	85
200	TGah	Technical TGah Draft 1.00	LB# 200	Draft	Draft P802.11ah_D1.0.pdf	2013-10-05	2013-11-04	30	Pool	323
				Redlined Doc	N/A				Approve	144
				Resolution Doc	N/A				Disapprove	54
				Comment	Template				Abstain	18
				Pool	LB# 200 Voters				Return%	67
									Approve%	73
199	TGmc	Recirculation TGmc Draft 2.00	LB# 199	Draft	Draft P802.11REVmc_D2.0.pdf	2013-10-03	2013-10-23	20	Pool	325
				Redlined Doc	Draft P802.11REVmc_D2.0 Redline.pdf				Approve	207
				Resolution Doc	11-13-0233-18-0000-revmc-wg-ballot-comments.xls				Disapprove	23
				Comment	Template				Abstain	22
				Pool	LB# 199 Voters				Return%	78
									Approve%	90
198	TGai	Technical TGai Draft 1.00	LB# 198	Draft	Draft P802.11ai_D1.0.pdf	2013-08-13	2013-09-12	30	Pool	334
				Redlined Doc	N/A				Approve	147
				Resolution Doc	N/A				Disapprove	51
				Comment	Template				Abstain	22
				Pool	LB# 198 Voters				Return%	66
									Approve%	74
197	TGaf	Recirculation TGaf Draft 5.00	LB# 197	Draft	Draft P802.11af_D5.0.pdf	2013-07-17	2013-08-01	15	Pool	300
				Redlined Doc	N/A				Approve	228
				Resolution Doc	11-12-1017-50-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	3
				Comment	Template				Abstain	7
				Pool	LB# 197 Voters				Return%	79
									Approve%	99
196	TGaf	Recirculation TGaf Draft 5.00	LB# 196	Draft	Draft P802.11af_D5.0.pdf	2013-05-30	2013-06-14	15	Pool	300
				Redlined Doc	Draft P802.11af_D5.0 Redline.pdf				Approve	215
				Resolution Doc	11-12-1017-46-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	14
				Comment	Template				Abstain	8
				Pool	LB# 196 Voters				Return%	79
									Approve%	94
195	TGaf	Recirculation TGaf Draft 4.00	LB# 195	Draft	Draft P802.11af_D4.0.pdf	2013-04-02	2013-04-17	15	Pool	300
				Redlined Doc	Draft P802.11af_D4.0 Redline.pdf				Approve	211
				Resolution Doc	11-12-1017-38-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	19
				Comment	Template				Abstain	7
				Pool	LB# 195 Voters				Return%	79
									Approve%	92
194	TGac	Recirculation TGac Draft 5.00	LB# 194	Draft	Draft P802.11ac_D5.0.pdf	2013-03-20	2013-04-04	15	Pool	300
				Redlined Doc	N/A				Approve	252
				Resolution Doc	11-13-0199-03-00ac-lb191-comments-tgac-d5-0.xls				Disapprove	10
				Comment	Template				Abstain	10
				Pool	LB# 194 Voters				Return%	91
									Approve%	96
193	TGmc	Technical TGmc Draft 1.00	LB# 193	Draft	Draft P802.11REVmc_D1.0.pdf	2013-01-31	2013-03-02	30	Pool	325
				Redlined Doc	N/A				Approve	197
				Resolution Doc	N/A				Disapprove	26
				Comment	Template				Abstain	22
				Pool	LB# 193 Voters				Return%	75
									Approve%	88
192	TGaf	Recirculation TGaf Draft 3.00	LB# 192	Draft	Draft P802.11af_D3.0.pdf	2013-01-24	2013-02-08	15	Pool	300
				Redlined Doc	Draft P802.11af_D3.0 Redline.pdf				Approve	194
				Resolution Doc	11-12-1017-30-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	30
									Abstain	8

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
191	TGac	Recirculation TGac Draft 5.00	LB# 191	Comment	Template	2013-01-17	2013-02-01	15	Return%	77
				Pool	LB# 192 Voters				Approve%	87
				Draft	Draft P802.11ac_D5.0.pdf				Pool	300
				Redlined Doc	Draft P802.11ac_D5.0 Redline.pdf				Approve	249
				Resolution Doc	11-12-1277-10-00ac-lb190-comments-tgac-d4-0.xls				Disapprove	12
				Comment	Template				Abstain	10
				Pool	LB# 191 Voters				Return%	90
190	TGac	Recirculation TGac Draft 4.00	LB# 190	Draft	Draft P802.11ac_D4.0.pdf	2012-10-17	2012-11-01	15	Approve%	95
				Redlined Doc	Draft P802.11ac_D4.0 Redline.pdf				Pool	300
				Resolution Doc	11-12-0752-17-00ac-lb188-comments-tgac-d3-0.xls				Approve	242
				Comment	Template				Disapprove	15
				Pool	LB# 190 Voters				Abstain	14
				Redlined Doc	N/A				Return%	90
				Resolution Doc	N/A				Approve%	94
189	TGaf	Technical TGaf Draft 2.00	LB# 189	Draft	Draft P802.11af_D2.0.pdf	2012-07-20	2012-08-19	30	Pool	300
				Redlined Doc	N/A				Approve	163
				Resolution Doc	N/A				Disapprove	43
				Comment	Template				Abstain	14
				Pool	LB# 189 Voters				Return%	73
				Redlined Doc	N/A				Approve%	79
				Resolution Doc	N/A				Pool	300
188	TGac	Recirculation TGac Draft 3.00	LB# 188	Draft	Draft P802.11ac_D3.0.pdf	2012-06-05	2012-06-25	20	Approve	233
				Redlined Doc	Draft P802.11ac_D3.0 Redline.pdf				Disapprove	24
				Resolution Doc	11-12-0223-24-00ac-lb187-comment-tgac-d2-0.xls				Abstain	14
				Comment	Template				Return%	90
				Pool	LB# 188 Voters				Approve%	91
				Redlined Doc	N/A				Pool	300
				Resolution Doc	N/A				Approve	223
187	TGac	Technical TGac Draft 2.00	LB# 187	Draft	Draft P802.11ac_D2.0.pdf	2012-01-19	2012-02-18	30	Disapprove	28
				Redlined Doc	N/A				Abstain	19
				Resolution Doc	N/A				Return%	90
				Comment	Template				Approve%	89
				Pool	LB# 187 Voters				Pool	300
				Redlined Doc	N/A				Approve	223
				Resolution Doc	N/A				Disapprove	28
186	TGad	Recirculation TGad Draft 5.00	LB# 186	Draft	Draft P802.11ad_D5.0.pdf	2011-11-09	2011-11-24	15	Abstain	21
				Redlined Doc	N/A				Return%	82
				Resolution Doc	11-11-1374-02-00ad-lb185-comment-database.xlsx				Approve%	95
				Comment	Template				Pool	278
				Pool	LB# 186 Voters				Approve	197
				Redlined Doc	N/A				Disapprove	11
				Resolution Doc	N/A				Abstain	21
185	TGad	Recirculation TGad Draft 5.00	LB# 185	Draft	Draft P802.11ad_D5.0.pdf	2011-09-21	2011-10-06	15	Return%	82
				Redlined Doc	Draft P802.11ad_D5.0 Redline.pdf				Approve%	94
				Resolution Doc	11-11-1113-05-00ad-lb183-comment-database.xlsx				Pool	278
				Comment	Template				Approve	196
				Pool	LB# 185 Voters				Disapprove	13
				Redlined Doc	N/A				Abstain	19
				Resolution Doc	N/A				Return%	82
184	TGaa	Recirculation TGaa Draft 6.00	LB# 184	Draft	Draft P802.11aa_D6.0.pdf	2011-08-16	2011-08-31	15	Approve%	95
				Redlined Doc	N/A				Pool	257
				Resolution Doc	11-11-1118-01-00aa-proposed-resolutions-to-lb182-comments.xlsx				Approve	151
				Comment	Template				Disapprove	8
				Pool	LB# 184 Voters				Abstain	38
				Redlined Doc	N/A				Return%	77
				Resolution Doc	N/A				Approve%	95
183	TGad	Recirculation TGad Draft 4.00	LB# 183	Draft	Draft P802.11ad_D4.0.pdf	2011-07-25	2011-08-09	15	Pool	278
				Redlined Doc	Draft P802.11ad_D4.0 Redline.pdf				Approve	195
				Resolution Doc	11-11-0850-06-00ad-lb177-comment-database.xlsx				Disapprove	11
				Comment	Template				Abstain	22
				Pool	LB# 183 Voters				Return%	82
				Redlined Doc	N/A				Approve%	95
				Resolution Doc	N/A				Pool	257
182	TGaa	Recirculation TGaa Draft 6.00	LB# 182	Draft	Draft P802.11aa_D6.0.pdf	2011-07-25	2011-08-09	15	Approve	149
				Redlined Doc	Draft P802.11aa_D6.0 Redline.pdf				Disapprove	9
				Resolution Doc	11-11-0876-07-00aa-lb179-comments.xlsx				Abstain	38
				Comment	Template				Return%	76
				Pool	LB# 182 Voters				Approve%	94
				Redlined Doc	N/A				Pool	278
				Resolution Doc	N/A				Approve	182
181	TGae	Recirculation TGae Draft 5.00	LB# 181	Draft	Draft P802.11ae_D5.0.pdf	2011-07-20	2011-08-04	15	Disapprove	7
				Redlined Doc	Draft P802.11ae_D5.0 Redline.pdf				Abstain	35
				Resolution Doc	11-11-0888-08-00ae-lb-180-comment-resolutions.xls				Pool	278

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
180	TGae	Recirculation TGae Draft 4.00	LB# 180	Comment	Template	2011-06-03	2011-06-18	15	Return%	81
				Pool	LB# 181 Voters				Approve%	96
				Draft	Draft P802.11ae_D4.0.pdf				Pool	278
				Redlined Doc	Draft P802.11ae_D4.0 Redline.pdf				Approve	180
				Resolution Doc	11-11-0598-07-00ae-tgae-lb-176-comment-resolutions.xls				Disapprove	8
				Comment	Template				Abstain	35
179	TGaa	Recirculation TGaa Draft 5.00	LB# 179	Pool	LB# 180 Voters	2011-06-02	2011-06-17	15	Return%	80
				Draft	Draft P802.11aa_D5.0.pdf				Approve%	96
				Redlined Doc	Draft P802.11aa_D5.0 Redline.pdf				Pool	257
				Resolution Doc	11-11-0523-08-00aa-lb175-comments.xls				Approve	142
				Comment	Template				Disapprove	15
				Pool	LB# 179 Voters				Abstain	39
178	TGac	Technical TGac Draft 1.00	LB# 178	Resolution Doc	11-11-0523-08-00aa-lb175-comments.xls	2011-05-26	2011-06-25	30	Return%	76
				Comment	Template				Approve%	90
				Draft	Draft P802.11ac_D1.0.pdf				Pool	315
				Redlined Doc	N/A				Approve	148
				Resolution Doc	N/A				Disapprove	52
				Comment	Template				Abstain	16
177	TGad	Recirculation TGad Draft 3.00	LB# 177	Pool	LB# 178 Voters	2011-05-17	2011-06-01	15	Return%	69
				Draft	Draft P802.11ad_D3.0.pdf				Approve%	74
				Redlined Doc	Draft P802.11ad_D3.0 Redline.pdf				Pool	278
				Resolution Doc	11-11-0508-07-00ad-lb174-comment-database.xlsx				Approve	188
				Comment	Template				Disapprove	16
				Pool	LB# 177 Voters				Abstain	24
176	TGae	Recirculation TGae Draft 3.00	LB# 176	Resolution Doc	11-11-0255-03-00ae-tgae-lb-172-comment-resolutions.xls	2011-04-11	2011-04-26	15	Return%	82
				Comment	Template				Approve%	92
				Draft	Draft P802.11ae_D3.0.pdf				Pool	278
				Redlined Doc	Draft P802.11ae_D3.0 Redline.pdf				Approve	163
				Resolution Doc	11-11-0255-03-00ae-tgae-lb-172-comment-resolutions.xls				Disapprove	21
				Comment	Template				Abstain	37
175	TGaa	Recirculation TGaa Draft 4.00	LB# 175	Pool	LB# 176 Voters	2011-03-25	2011-04-09	15	Return%	79
				Draft	Draft P802.11aa_D4.0.pdf				Approve%	89
				Redlined Doc	Draft P802.11aa_D4.0 Redline.pdf				Pool	257
				Resolution Doc	11-11-0267-03-00aa-lb173-comments.xls				Approve	135
				Comment	Template				Disapprove	23
				Pool	LB# 175 Voters				Abstain	37
174	TGad	Recirculation TGad Draft 2.00	LB# 174	Resolution Doc	11-11-0267-03-00aa-lb173-comments.xls	2011-03-21	2011-04-05	15	Return%	76
				Comment	Template				Approve%	85
				Draft	Draft P802.11ad_D2.0.pdf				Pool	278
				Redlined Doc	Draft P802.11ad_D2.0 Redline.pdf				Approve	175
				Resolution Doc	11-10-1220-21-00ad-lb168-comment-database.xlsx				Disapprove	25
				Comment	Template				Abstain	25
173	TGaa	Recirculation TGaa Draft 3.00	LB# 173	Pool	LB# 174 Voters	2011-02-09	2011-02-24	15	Return%	81
				Draft	Draft P802.11aa_D3.0.pdf				Approve%	88
				Redlined Doc	Draft P802.11aa_D3.0 Redline.pdf				Pool	257
				Resolution Doc	11-10-1441-10-00aa-lb170-comments.xls				Approve	127
				Comment	Template				Disapprove	30
				Pool	LB# 173 Voters				Abstain	37
172	TGae	Recirculation TGae Draft 2.00	LB# 172	Resolution Doc	11-10-1441-10-00aa-lb170-comments.xls	2011-02-03	2011-02-18	15	Return%	75
				Comment	Template				Approve%	81
				Draft	Draft P802.11ae_D2.0.pdf				Pool	278
				Redlined Doc	Draft P802.11ae_D2.0 Redline.pdf				Approve	155
				Resolution Doc	11-10-1221-24-00ae-tgae-lb169-comment-resolutions.xls				Disapprove	26
				Comment	Template				Abstain	38
171	TGaf	Technical TGaf Draft 1.00	LB# 171	Pool	LB# 172 Voters	2011-01-25	2011-02-24	30	Return%	79
				Draft	Draft P802.11af_D1.0.pdf				Approve%	86
				Redlined Doc	N/A				Pool	300
				Resolution Doc	N/A				Approve	125
				Comment	Template				Disapprove	76
				Pool	LB# 171 Voters				Abstain	35
170	TGaa	Recirculation TGaa Draft 2.00	LB# 170	Resolution Doc	11-10-1395-02-00aa-lb164-consolidated-comments-editorial-notes.xls	2010-11-23	2010-12-08	15	Return%	79
				Draft	Draft P802.11aa_D2.0.pdf				Approve%	62
				Redlined Doc	Draft P802.11aa_D2.0 Redline.pdf				Pool	257
				Resolution Doc	11-10-1395-02-00aa-lb164-consolidated-comments-editorial-notes.xls				Approve	117
									Disapprove	32
									Abstain	36

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
									Return%	72
				Comment	Template				Approve%	79
				Pool	LB# 170 Voters					
169	TGae	Technical TGae Draft 1.00	LB# 169	Draft	Draft P802.11ae D1.0.pdf	2010-09-27	2010-10-27	30	Pool	278
									Approve	134
				Redlined Doc	N/A				Disapprove	32
				Resolution Doc	N/A				Abstain	40
									Return%	74
				Comment	Template				Approve%	81
				Pool	LB# 169 Voters					
168	TGad	Technical TGad Draft 1.00	LB# 168	Draft	Draft P802.11ad D1.0.pdf	2010-09-24	2010-10-24	30	Pool	278
									Approve	163
				Redlined Doc	N/A				Disapprove	24
				Resolution Doc	N/A				Abstain	26
									Return%	77
				Comment	Template				Approve%	87
				Pool	LB# 168 Voters					
167	TGmb	Recirculation TGmb Draft 5.00	LB# 167	Draft	Draft P802.11REVmb D5.0.pdf	2010-08-04	2010-08-19	15	Pool	246
									Approve	172
				Redlined Doc	Draft P802.11REVmb D5.0 Redline.pdf				Disapprove	15
				Resolution Doc	11-09-0706-15-000m-revmb-wg-ballot-comments.xls				Abstain	25
									Return%	86
				Comment	Template				Approve%	92
				Pool	LB# 167 Voters					
166	TGs	Recirculation TGs Draft 7.00	LB# 166	Draft	Draft P802.11s D7.0.pdf	2010-07-29	2010-08-13	15	Pool	248
									Approve	167
				Redlined Doc	Draft P802.11s D7.0 Redline.pdf				Disapprove	9
				Resolution Doc	11-10-0725-09-000s-lb-165-comment-resolutions.xls				Abstain	34
									Return%	85
				Comment	Template				Approve%	95
				Pool	LB# 166 Voters					
165	TGs	Recirculation TGs Draft 6.00	LB# 165	Draft	Draft P802.11s D6.0.pdf	2010-06-13	2010-06-28	15	Pool	248
									Approve	157
				Redlined Doc	Draft P802.11s D6.0 Redline Compared to P802.11s D5.0.pdf				Disapprove	20
				Resolution Doc	11-10-0478-09-000s-lb-161-comment-resolutions.xls				Abstain	33
									Return%	85
				Comment	Template				Approve%	89
				Pool	LB# 165 Voters					
164	TGaa	Technical TGaa Draft 1.00	LB# 164	Draft	Draft P802.11aa D1.0.pdf	2010-06-10	2010-07-10	30	Pool	257
									Approve	112
				Redlined Doc	N/A				Disapprove	31
				Resolution Doc	N/A				Abstain	37
									Return%	70
				Comment	Template				Approve%	78
				Pool	LB# 164 Voters					
163	TGmb	Recirculation TGmb Draft 4.00	LB# 163	Draft	Draft P802.11REVmb D4.0.pdf	2010-06-10	2010-06-25	15	Pool	246
									Approve	164
				Redlined Doc	Draft P802.11REVmb D4.0 Redline.pdf				Disapprove	20
				Resolution Doc	11-09-0706-12-000m-revmb-wg-ballot-comments.xls				Abstain	28
									Return%	86
				Comment	Template				Approve%	89
				Pool	LB# 163 Voters					
162	TGmb	Recirculation TGmb Draft 3.00	LB# 162	Draft	Draft P802.11REVmb D3.0.pdf	2010-03-31	2010-04-25	25	Pool	246
									Approve	167
				Redlined Doc	Draft P802.11REVmb D3.0 Redline.pdf				Disapprove	20
				Resolution Doc	11-09-0706-10-000m-revmb-wg-ballot-comments.xls				Abstain	25
									Return%	86
				Comment	Template				Approve%	89
				Pool	LB# 162 Voters					
161	TGs	Recirculation TGs Draft 5.00	LB# 161	Draft	Draft P802.11s D5.0.pdf	2010-03-31	2010-04-15	15	Pool	248
									Approve	159
				Redlined Doc	Draft P802.11s D5.0 Redline Compared to P802.11s D4.0.pdf				Disapprove	19
				Resolution Doc	11-10-0032-13-000s-lb-159-comment-resolutions.xls				Abstain	32
									Return%	85
				Comment	Template				Approve%	89
				Pool	LB# 161 Voters					
160	TGmb	Recirculation TGmb Draft 2.00	LB# 160	Draft	Draft P802.11REVmb D2.0.pdf	2009-12-11	2010-01-08	28	Pool	246
									Approve	166
				Redlined Doc	Draft P802.11REVmb D2.0 Redline.pdf				Disapprove	20
				Resolution Doc	11-09-0706-06-000m-revmb-wg-ballot-comments.xls				Abstain	25
									Return%	86
				Comment	Template				Approve%	89
				Pool	LB# 160 Voters					
159	TGs	Recirculation TGs Draft 4.00	LB# 159	Draft	Draft P802.11s D4.0.pdf	2009-12-09	2010-01-08	30	Pool	248
									Approve	150
				Redlined Doc	Draft P802.11s D4.0 Redline.pdf				Disapprove	27
				Resolution Doc	11-09-0471-24-000s-lb-147-comment-resolutions.xls				Abstain	33

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
158	TGp	Recirculation TGp Draft 9.00	LB# 158	Comment	Template	2009-09-25	2009-10-10	15	Return%	85
				Pool	LB# 159 Voters				Approve%	85
				Draft	Draft P802.11p_D9.0.pdf				Pool	232
				Redlined Doc	Draft P802.11p_D9.0 Redline.pdf				Approve	171
				Resolution Doc	11-09-0927-03-000p-lb154-tgp-comment-resolution-master.xls				Disapprove	12
				Comment	Template				Abstain	29
157	TGz	Recirculation TGz Draft 6.00	LB# 157	Pool	LB# 158 Voters	2009-08-11	2009-08-26	15	Return%	91
				Draft	Draft P802.11z_D6.0.pdf				Approve%	93
				Redlined Doc	Draft P802.11z_D6.0 Redline.pdf				Pool	254
				Resolution Doc	11-09-0739-04-000z-tgz-lb153-comment-spreadsheet.xls				Approve	187
				Comment	Template				Disapprove	8
				Pool	LB# 157 Voters				Abstain	38
156	TGu	Recirculation TGu Draft 8.00	LB# 156	Comment	Template	2009-08-03	2009-08-18	15	Return%	92
				Pool	LB# 156 Voters				Approve%	96
				Draft	Draft P802.11u_D8.0.pdf				Pool	213
				Redlined Doc	Draft P802.11u_D8.0 Redline.pdf				Approve	148
				Resolution Doc	11-09-0692-14-000u-lb152-comment-spreadsheet.xls				Disapprove	11
				Comment	Template				Abstain	35
155	TGv	Recirculation TGv Draft 7.00	LB# 155	Pool	LB# 155 Voters	2009-07-23	2009-08-07	15	Return%	91
				Draft	Draft P802.11v_D7.0.pdf				Approve%	92
				Redlined Doc	Draft P802.11v_D7.0 Redline.pdf				Pool	254
				Resolution Doc	11-09-0676-07-000v-lb-150-comments.xls				Approve	176
				Comment	Template				Disapprove	16
				Pool	LB# 155 Voters				Abstain	38
154	TGp	Recirculation TGp Draft 8.00	LB# 154	Comment	Template	2009-07-21	2009-08-05	15	Return%	91
				Pool	LB# 154 Voters				Approve%	89
				Draft	Draft P802.11p_D8.0.pdf				Pool	232
				Redlined Doc	Draft P802.11p_D8.0 Redline.pdf				Approve	163
				Resolution Doc	11-09-0688-03-000p-LB151-TGp Comment Resolution Master2.xls				Disapprove	20
				Comment	Template				Abstain	28
153	TGz	Recirculation TGz Draft 5.00	LB# 153	Pool	LB# 154 Voters	2009-06-08	2009-06-23	15	Return%	91
				Draft	Draft P802.11z_D5.0.pdf				Approve%	92
				Redlined Doc	Draft P802.11z_D5.0 Redline.pdf				Pool	254
				Resolution Doc	11-09-0313-03-000z-tgz-lb143-comment-spreadsheet.xls				Approve	183
				Comment	Template				Disapprove	15
				Pool	LB# 153 Voters				Abstain	34
152	TGu	Recirculation TGu Draft 7.00	LB# 152	Comment	Template	2009-06-04	2009-06-19	15	Return%	91
				Pool	LB# 152 Voters				Approve%	88
				Draft	Draft P802.11u_D7.0.pdf				Pool	213
				Redlined Doc	Draft P802.11u_D7.0 Redline.pdf				Approve	142
				Resolution Doc	11-09-0489-13-000u-lb148-comment-spreadsheet.xls				Disapprove	19
				Comment	Template				Abstain	33
151	TGp	Recirculation TGp Draft 7.00	LB# 151	Pool	LB# 152 Voters	2009-05-29	2009-06-13	15	Return%	91
				Draft	Draft P802.11p_D7.0.pdf				Approve%	85
				Redlined Doc	Draft P802.11p_D7.0 Redline.pdf				Pool	232
				Resolution Doc	11-09-0432-05-000p-lb144-tgp-comment-resolution-master.xls				Approve	158
				Comment	Template				Disapprove	27
				Pool	LB# 151 Voters				Abstain	26
150	TGv	Recirculation TGv Draft 6.00	LB# 150	Comment	Template	2009-05-28	2009-06-12	15	Return%	91
				Pool	LB# 150 Voters				Approve%	90
				Draft	Draft P802.11v_D6.0.pdf				Pool	254
				Redlined Doc	Draft P802.11v_D6.0 Redline Compared to P802.11v_D5.0.pdf				Approve	172
				Resolution Doc	11-09-0434-04-000v-lb146.xls				Disapprove	20
				Comment	Template				Abstain	38
149	TGmb	Technical TGmb Draft 1.00	LB# 149	Pool	LB# 150 Voters	2009-05-18	2009-06-27	40	Return%	91
				Draft	Draft P802.11REVmb_D1.0.pdf				Approve%	90
				Redlined Doc	N/A				Pool	246
				Resolution Doc	N/A				Approve	155
				Comment	Template				Disapprove	23
				Pool	LB# 149 Voters				Abstain	29
148	TGu	Recirculation TGu Draft 6.00	LB# 148	Comment	Template	2009-04-09	2009-04-24	15	Return%	84
				Pool	LB# 148 Voters				Approve%	87
				Draft	Draft P802.11u_D6.0.pdf				Pool	213
				Redlined Doc	Draft P802.11u_D6.0 Redline.pdf				Approve	142
				Resolution Doc	11-09-0245-10-000u-lb142-comment-spreadsheet.xls				Disapprove	15
									Abstain	35

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Return%	90
				Pool	LB# 148 Voters				Approve%	90
147	TGs	Technical TGs Draft 3.00	LB# 147	Draft	Draft P802.11s_D3.0.pdf	2009-04-04	2009-05-04	30	Pool	248
				Redlined Doc	N/A				Approve	132
				Resolution Doc	N/A				Disapprove	35
				Comment	Template				Abstain	34
				Pool	LB# 147 Voters				Return%	81
									Approve%	79
146	TGv	Recirculation TGv Draft 5.00	LB# 146	Draft	Draft P802.11v_D5.0.pdf	2009-03-20	2009-04-04	15	Pool	254
				Redlined Doc	Draft P802.11v_D5.0 Redline Compared to P802.11v_D4.0.pdf				Approve	155
				Resolution Doc	11-08-1467-04-000v-lb140-comments.xls				Disapprove	32
				Comment	Template				Abstain	41
				Pool	LB# 146 Voters				Return%	90
									Approve%	83
145	TGs	Procedural TGs Draft 3.00	LB# 145	Draft	Draft P802.11s_D3.0.pdf	2009-03-19	2009-04-03	15	Pool	247
				Redlined Doc	N/A				Approve	166
				Resolution Doc	N/A				Disapprove	6
				Comment	Template				Abstain	24
				Pool	LB# 145 Voters				Return%	79
									Approve%	97
144	TGp	Recirculation TGp Draft 6.00	LB# 144	Draft	Draft P802.11p_D6.0.pdf	2009-03-16	2009-03-31	15	Pool	232
				Redlined Doc	Draft P802.11p_6.0 Redline.pdf				Approve	161
				Resolution Doc	11-08-1452-06-000p-lb141-tgp-comment-resolution-master.xls				Disapprove	20
				Comment	Template				Abstain	29
				Pool	LB# 144 Voters				Return%	91
									Approve%	89
143	TGz	Recirculation TGz Draft 4.00	LB# 143	Draft	Draft P802.11z_D4.0.pdf	2009-02-18	2009-03-05	15	Pool	254
				Redlined Doc	Draft P802.11z_D4.0 Redline.pdf				Approve	170
				Resolution Doc	11-09-0097-02-000z-lb139-comment-resolution.xls				Disapprove	23
				Comment	Template				Abstain	37
				Pool	LB# 143 Voters				Return%	91
									Approve%	88
142	TGu	Recirculation TGu Draft 5.00	LB# 142	Draft	Draft P802.11u_D5.0.pdf	2009-02-05	2009-02-20	15	Pool	213
				Redlined Doc	Draft P802.11u_D5.0 Redline.pdf				Approve	125
				Resolution Doc	11-08-1225-25-000u-lb137-comment-spreadsheet.xls				Disapprove	27
				Comment	Template				Abstain	39
				Pool	LB# 142 Voters				Return%	90
									Approve%	82
141	TGp	Recirculation TGp Draft 5.00	LB# 141	Draft	Draft P802.11p_D5.0.pdf	2008-11-20	2008-12-05	15	Pool	232
				Redlined Doc	Draft P802.11p_D5.0 Redline Compared to P802.11p_D4.0.pdf				Approve	149
				Resolution Doc	11-08-0514-06-000p-lb125-tgp-comment-resolution-master.xls				Disapprove	26
				Comment	Template				Abstain	35
				Pool	LB# 141 Voters				Return%	91
									Approve%	85
140	TGv	Technical TGv Draft 4.00	LB# 140	Draft	Draft P802.11v_D4.0.pdf	2008-11-19	2008-12-19	30	Pool	254
				Redlined Doc	Draft P802.11v_D4.0 Redline.pdf				Approve	149
				Resolution Doc	11-08-0801-05-000v-lb133-comments.xls				Disapprove	36
				Comment	Template				Abstain	40
				Pool	LB# 140 Voters				Return%	89
									Approve%	81
139	TGz	Technical TGz Draft 3.00	LB# 139	Draft	Draft P802.11z_D3.0.pdf	2008-11-18	2008-12-18	30	Pool	254
				Redlined Doc	N/A				Approve	155
				Resolution Doc	N/A				Disapprove	29
				Comment	Template				Abstain	41
				Pool	LB# 139 Voters				Return%	89
									Approve%	84
138	TGn	Recirculation TGn Draft 7.00	LB# 138	Draft	Draft P802.11n_D7.0.pdf	2008-11-17	2008-12-02	15	Pool	325
				Redlined Doc	N/A				Approve	281
				Resolution Doc	11-08-1417-00-000n-p802-11n-wg-ballot-unsatisfied-comments.xls				Disapprove	14
				Comment	Template				Abstain	20
				Pool	LB# 138 Voters				Return%	97
									Approve%	95
137	TGu	Recirculation TGu Draft 4.00	LB# 137	Draft	Draft P802.11u_D4.0.pdf	2008-09-23	2008-10-08	15	Pool	213
				Redlined Doc	Draft P802.11u_D4.0 Redline.pdf				Approve	118
				Resolution Doc	11-08-0722-27-000u-lb-132-comment-spreadsheet.xls				Disapprove	34
									Abstain	37

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
136	TGn	Recirculation TGn Draft 7.00	LB# 136	Comment	Template	2008-09-15	2008-09-30	15	Return%	89
				Pool	LB# 137 Voters				Approve%	78
				Draft	Draft P802.11n_D7.0.pdf				Pool	325
				Redlined Doc	Draft P802.11n_D7.0 Redline.pdf				Approve	276
				Resolution Doc	11-08-0958-02-000n-ten-lb134-composite-comments.xls				Disapprove	17
				Comment	Template				Abstain	21
135	TGz	Technical TGz Draft 2.00	LB# 135	Pool	LB# 136 Voters	2008-07-21	2008-08-20	30	Return%	97
				Draft	Draft P802.11z_D2.0.pdf				Approve%	94
				Redlined Doc	N/A				Pool	242
				Resolution Doc	N/A				Approve	99
				Comment	Template				Disapprove	51
				Pool	LB# 135 Voters				Abstain	48
134	TGn	Recirculation TGn Draft 6.00	LB# 134	Redlined Doc	Draft P802.11z_D2.0 Redline.pdf	2008-07-21	2008-08-05	15	Return%	82
				Resolution Doc	11-08-0713-02-000n-ten-lb129-composite-comments.xls				Approve%	66
				Comment	Template				Pool	325
				Pool	LB# 134 Voters				Approve	266
				Draft	Draft P802.11n_D6.0.pdf				Disapprove	27
				Redlined Doc	Draft P802.11n_D6.0 Redline.pdf				Abstain	21
133	TGv	Technical TGv Draft 3.00	LB# 133	Resolution Doc	11-08-0713-02-000n-ten-lb129-composite-comments.xls	2008-06-13	2008-07-13	30	Return%	97
				Comment	Template				Approve%	91
				Pool	LB# 133 Voters				Pool	213
				Draft	Draft P802.11v_D3.0.pdf				Approve	106
				Redlined Doc	Draft P802.11v_D3.0 Redline.pdf				Disapprove	47
				Resolution Doc	11-08-0265-04-000v-lb123-comments.xls				Abstain	28
132	TGu	Technical TGu Draft 3.00	LB# 132	Comment	Template	2008-06-12	2008-07-12	30	Return%	85
				Pool	LB# 132 Voters				Approve%	69
				Draft	Draft P802.11u_D3.0.pdf				Pool	213
				Redlined Doc	Draft P802.11u_D3.0 Redline.pdf				Approve	113
				Resolution Doc	N/A				Disapprove	34
				Comment	Template				Abstain	35
131	TGv	Procedural TGv Draft 2.02	LB# 131	Pool	LB# 132 Voters	2008-05-28	2008-06-12	15	Return%	85
				Draft	Draft P802.11v_D2.02.pdf				Approve%	77
				Redlined Doc	Draft P802.11v_D2.02 Redline.pdf				Pool	213
				Resolution Doc	11-08-0265-04-000v-lb123-comments.xls				Approve	175
				Comment	Template				Disapprove	14
				Pool	LB# 131 Voters				Abstain	18
130	TGu	Procedural TGu Draft 3.00	LB# 130	Resolution Doc	11-08-0265-04-000v-lb123-comments.xls	2008-05-27	2008-06-11	15	Return%	97
				Comment	Template				Approve%	93
				Pool	LB# 130 Voters				Pool	212
				Draft	Draft P802.11u_D3.0.pdf				Approve	159
				Redlined Doc	Draft P802.11u_D3.0 Redline.pdf				Disapprove	8
				Resolution Doc	N/A				Abstain	19
129	TGn	Recirculation TGn Draft 5.00	LB# 129	Comment	Template	2008-05-23	2008-06-12	20	Return%	88
				Pool	LB# 130 Voters				Approve%	95
				Draft	Draft P802.11n_D5.0.pdf				Pool	325
				Redlined Doc	Draft P802.11n_D5.0 Redline.pdf				Approve	261
				Resolution Doc	11-08-0460-02-000n-ten-lb124-composite-comments.xls				Disapprove	29
				Comment	Template				Abstain	23
128	TGw	Recirculation TGw Draft 6.00	LB# 128	Pool	LB# 129 Voters	2008-04-03	2008-04-18	15	Return%	96
				Draft	Draft P802.11w_D6.0.pdf				Approve%	90
				Redlined Doc	11-08-0448-00-000w-Redlined Draft P802.11w_D6.0 Compared To Draft P802.11w_5.0.pdf				Pool	427
				Resolution Doc	11-08-0261-05-000w-lb121-comment-resolution.xls				Approve	266
				Comment	Template				Disapprove	8
				Pool	LB# 128 Voters				Abstain	54
127	TGz	Technical TGz Draft 1.00	LB# 127	Resolution Doc	11-08-0261-05-000w-lb121-comment-resolution.xls	2008-04-03	2008-05-03	30	Return%	77
				Comment	Template				Approve%	97
				Draft	Draft P802.11z_D1.0.pdf				Pool	233
				Redlined Doc	N/A				Approve	103
				Resolution Doc	N/A				Disapprove	59
				Comment	Template				Abstain	47
126	TGS	Technical TGS Draft 2.00	LB# 126	Pool	LB# 127 Voters	2008-04-03	2008-05-03	30	Return%	90
				Draft	Draft P802.11s_D2.0.pdf				Approve%	64
				Redlined Doc	N/A				Pool	233
				Resolution	N/A				Approve	103
									Disapprove	67
									Abstain	36

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
125	TGp	Technical TGp Draft 4.00	LB# 125	Doc		2008-04-03	2008-05-03	30	Return%	88
				Comment	Template				Approve%	61
				Pool	LB# 126 Voters					
				Draft	Draft P802.11p_D4.0.pdf				Pool	233
				Redlined Doc	index.html				Approve	136
				Resolution Doc	index.html				Disapprove	37
				Comment	Template				Abstain	32
124	TGn	Recirculation TGn Draft 4.00	LB# 124	Pool	LB# 125 Voters	2008-03-28	2008-04-12	15	Return%	88
				Draft	index.html				Approve%	79
				Redlined Doc	index.html				Pool	325
				Resolution Doc	11-07-2783-08-000n-ten-lb115-editor-comments.xls				Approve	253
				Comment	Template				Disapprove	34
				Pool	LB# 124 Voters				Abstain	25
				Draft	Draft P802.11v_D2.0.pdf				Return%	96
123	TGv	Technical TGv Draft 2.00	LB# 123	Redlined Doc	index.html	2008-02-14	2008-03-15	30	Approve%	88
				Resolution Doc	index.html				Pool	261
				Comment	Template				Approve	126
				Pool	LB# 123 Voters				Disapprove	62
				Draft	Draft P802.11u_D2.0.pdf				Abstain	34
				Redlined Doc	index.html				Return%	85
				Resolution Doc	index.html				Approve%	67
122	TGu	Technical TGu Draft 2.00	LB# 122	Comment	Template	2008-02-14	2008-03-15	30	Pool	261
				Pool	LB# 122 Voters				Approve	125
				Draft	Draft P802.11u_D2.0.pdf				Disapprove	53
				Redlined Doc	index.html				Abstain	37
				Resolution Doc	index.html				Return%	82
				Comment	Template				Approve%	70
				Pool	LB# 122 Voters					
121	TGw	Recirculation TGw Draft 5.00	LB# 121	Draft	P802.11w_D5.0.pdf	2008-02-05	2008-02-20	15	Pool	427
				Redlined Doc	index.html				Approve	259
				Resolution Doc	index.html				Disapprove	14
				Comment	Template				Abstain	55
				Pool	LB# 121 Voters				Return%	77
				Draft	Draft P802.11v_D1.04.pdf				Approve%	95
				Redlined Doc	index.html					
120	TGv	Procedural TGv Draft 1.04	LB# 120	Resolution Doc	index.html	2008-01-29	2008-02-13	15	Pool	297
				Comment	Template				Approve	213
				Pool	LB# 120 Voters				Disapprove	13
				Draft	Draft P802.11u_D2.0.pdf				Abstain	27
				Redlined Doc	index.html				Return%	85
				Resolution Doc	index.html				Approve%	94
				Comment	Template					
119	TGu	Procedural TGu Draft 2.00	LB# 119	Pool	LB# 119 Voters	2008-01-27	2008-02-11	15	Pool	297
				Draft	Draft P802.11u_D2.0.pdf				Approve	203
				Redlined Doc	index.html				Disapprove	16
				Resolution Doc	index.html				Abstain	33
				Comment	Template				Return%	85
				Pool	LB# 119 Voters				Approve%	93
				Draft	11-07-2959-02-000k-11k-sponsor-ballot-recirc-2-comment-resolutions(1).xls					
118	TGk	Technical TGk	LB# 118	Redlined Doc	N/A	2007-12-13	2008-01-05	23	Pool	299
				Resolution Doc	N/A				Approve	175
				Comment	Template				Disapprove	0
				Pool	LB# 118 Voters				Abstain	20
				Draft	Draft P802.11w_D4.0.pdf				Return%	65
				Redlined Doc	11-07-2943-00-000w-Redlined document D4.0-vs-3.0.pdf				Approve%	100
				Resolution Doc	11-07-2697-07-000w-lb114-comment-resolutions.xls					
117	TGw	Recirculation TGw Draft 4.00	LB# 117	Comment	Template	2007-12-12	2008-01-05	24	Pool	427
				Pool	LB# 117 Voters				Approve	245
				Draft	Draft P802.11v_D6.0.pdf				Disapprove	21
				Redlined Doc	11-07-2902-00-000y Redlined Draft P802.11v_D6.0 Compared To Draft P802.11v_D5.0.pdf				Abstain	60
				Resolution Doc	11-07-2623-05-000y-d5-comments.xls				Return%	76
				Comment	Template				Approve%	92
				Pool	LB# 116 Voters					
116	TGy	Recirculation TGy Draft 6.00	LB# 116	Draft	Draft P802.11n_D3.0.pdf	2007-11-23	2007-12-08	15	Pool	347
				Redlined Doc	11-07-2902-00-000y Redlined Draft P802.11v_D6.0 Compared To Draft P802.11v_D5.0.pdf				Approve	271
				Resolution Doc	11-07-2623-05-000y-d5-comments.xls				Disapprove	2
				Comment	Template				Abstain	54
				Pool	LB# 116 Voters				Return%	94
				Draft	Draft P802.11n_D3.0.pdf				Approve%	99
				Redlined Doc	index.html					
115	TGn	Recirculation TGn Draft 3.00	LB# 115	Resolution	index.html	2007-10-07	2007-10-27	20	Pool	325
									Approve	240
									Disapprove	43
									Abstain	27

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
114	TGw	Recirculation TGw Draft 3.00	LB# 114	Doc		2007-10-04	2007-10-19	15	Return%	95
				Comment	Template				Approve%	85
				Pool	LB# 115 Voters					
				Draft	Draft P802.11w_D3.0.pdf				Pool	427
				Redlined Doc	11-07-2562-00-000w-D3.0-v-2.0-redline.pdf				Approve	245
				Resolution Doc	11-07-0714-13-000w-lb-102-comment-resolution-spreadsheet.xls				Disapprove	21
112	TGy	Recirculation TGy Draft 5.00	LB# 112	Comment	Template	2007-09-28	2007-10-13	15	Abstain	59
				Pool	LB# 114 Voters				Return%	76
				Draft	Draft P802.11y_D5.0.pdf				Approve%	92
				Redlined Doc	11-07-2607-00-000y-tgy-redline-between-Draft-5.0-and-4.0.pdf				Pool	347
				Resolution Doc	11-07-2333-07-000y-d4-comments.xls				Approve	257
				Comment	Template				Disapprove	11
111	TGk	Technical TGk	LB# 111	Pool	LB# 112 Voters	2007-08-27	2007-09-11	15	Abstain	59
				Draft	11-07-2289-05-000k-jgk-sponsor-ballot-comment-resolutions.xls				Return%	94
				Redlined Doc	N/A				Approve%	96
				Resolution Doc	N/A				Pool	278
				Comment	Template				Approve	196
				Pool	LB# 111 Voters				Disapprove	22
110	TGp	Technical TGp Draft 3.00	LB# 110	Draft	Draft P802.11p_D3.0.pdf	2007-08-13	2007-09-12	30	Abstain	35
				Redlined Doc	N/A				Return%	91
				Resolution Doc	N/A				Approve%	90
				Comment	Template				Pool	278
				Pool	LB# 110 Voters				Approve	143
				Draft	Draft P802.11q_D4.0.pdf				Disapprove	50
109	TGy	Recirculation TGy Draft 4.00	LB# 109	Redlined Doc	11-07-2268-00-000y-tgy-redline-between-Draft-4.0-and-3.0.pdf	2007-08-06	2007-08-21	15	Abstain	58
				Resolution Doc	11-07-2019-06-000y-d3-comments.xls				Return%	90
				Comment	Template				Approve%	74
				Pool	LB# 109 Voters				Pool	347
				Draft	Draft P802.11r_D1.0.pdf				Approve	250
				Redlined Doc	11-07-2268-00-000y-tgy-redline-between-Draft-4.0-and-3.0.pdf				Disapprove	17
108	TGv	Technical TGv Draft 1.00	LB# 108	Resolution Doc	11-07-2019-06-000y-d3-comments.xls	2007-07-31	2007-08-30	30	Abstain	60
				Comment	Template				Return%	94
				Pool	LB# 108 Voters				Approve%	94
				Draft	Draft P802.11s_D1.0.pdf				Pool	278
				Redlined Doc	N/A				Approve	132
				Resolution Doc	N/A				Disapprove	77
107	TGu	Technical TGu Draft 1.00	LB# 107	Comment	Template	2007-06-08	2007-07-08	30	Abstain	38
				Pool	LB# 107 Voters				Return%	89
				Draft	Draft P802.11u_D1.0.pdf				Approve%	63
				Redlined Doc	index.html				Pool	299
				Resolution Doc	index.html				Approve	111
				Comment	Template				Disapprove	62
106	TGy	Recirculation TGy Draft 3.00	LB# 106	Pool	LB# 107 Voters	2007-06-05	2007-06-20	15	Abstain	48
				Draft	Draft P802.11v_D3.0.pdf				Return%	74
				Redlined Doc	index.html				Approve%	64
				Resolution Doc	index.html				Pool	347
				Comment	Template				Approve	242
				Pool	LB# 106 Voters				Disapprove	24
105	TGr	Recirculation TGr Draft 6.00	LB# 105	Draft	Draft P802.11r_D6.0.pdf	2007-05-28	2007-06-13	16	Abstain	60
				Redlined Doc	index.html				Return%	94
				Resolution Doc	index.html				Approve%	91
				Comment	Template				Pool	347
				Pool	LB# 105 Voters				Approve	221
				Draft	Draft P802.11v_D2.0.pdf				Disapprove	41
104	TGy	Recirculation TGy Draft 2.00	LB# 104	Redlined Doc	index.html	2007-04-19	2007-05-05	16	Abstain	62
				Resolution Doc	index.html				Return%	93
				Comment	Template				Approve%	84
				Pool	LB# 104 Voters				Pool	347
				Draft	Draft P802.11k_D7.0.pdf				Approve	363
				Redlined Doc	index.html				Disapprove	29
103	TGk	Recirculation TGk Draft 7.00	LB# 103	Resolution Doc	index.html	2007-04-18	2007-05-05	17	Abstain	39

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
102	TGw	Recirculation TGw Draft 2.00	LB# 102			2007-04-07	2007-05-02	25	Return%	84
				Comment	Template				Approve%	93
				Pool	LB# 103 Voters					
				Draft	Draft P802.11w_D2.0.pdf				Pool	427
				Redlined Doc	index.html				Approve	227
				Resolution Doc	index.html				Disapprove	29
101	TGt	Technical TGt Draft 1.00	LB# 101			2007-04-16	2007-05-16	30	Abstain	61
				Comment	Template				Return%	74
				Pool	LB# 102 Voters				Approve%	89
				Draft	Draft-P802.11.2_D1.0.pdf				Pool	307
				Redlined Doc	N/A				Approve	163
				Resolution Doc	N/A				Disapprove	52
99	TGt	Procedural TGt Draft 0.14	LB# 99			2007-03-28	2007-04-12	15	Abstain	57
				Comment	Template				Return%	89
				Pool	LB# 101 Voters				Approve%	76
				Draft	Draft P802.11.2_D0.14.pdf				Pool	323
				Redlined Doc	N/A				Approve	244
				Resolution Doc	N/A				Disapprove	16
98	TGr	Recirculation TGr Draft 5.00	LB# 98			2007-03-20	2007-04-04	15	Abstain	38
				Comment	Template				Return%	92
				Pool	LB# 99 Voters				Approve%	94
				Draft	Draft P802.11r_D5.0.pdf				Pool	518
				Redlined Doc	11-07-0471-00-000r-P802-11r-D5-0-redline.pdf				Approve	350
				Resolution Doc	11-06-1895-18-000r-d4-comments.xls				Disapprove	19
97	TGn	Technical TGn Draft 2.00	LB# 97			2007-02-07	2007-03-09	30	Abstain	67
				Comment	Template				Return%	84
				Pool	LB# 98 Voters				Approve%	95
				Draft	Draft-P802.11n_D2.0.pdf				Pool	325
				Redlined Doc	index.html				Approve	231
				Resolution Doc	N/A				Disapprove	46
96	TGk	Recirculation TGk Draft 7.00	LB# 96			2007-01-29	2007-02-13	15	Abstain	28
				Comment	Template				Return%	94
				Pool	LB# 97 Voters				Approve%	83
				Draft	Draft P802.11k_D7.0.pdf				Pool	514
				Redlined Doc	11-07-0119-00-000k-D7.0-Redlined-Changes-from-D6.0.pdf				Approve	361
				Resolution Doc	11-06-1739-18-000k-lb-90-EDITOR-comment-resolution-worksheet.xls				Disapprove	30
95	TGn	Procedural TGn Draft 2.00	LB# 95			2007-01-22	2007-02-06	15	Return%	83
				Comment	Template				Approve%	92
				Pool	LB# 96 Voters				Pool	332
				Draft	Draft P802.11n_D1.0.pdf				Approve	293
				Redlined Doc	N/A				Disapprove	6
				Resolution Doc	N/A				Abstain	14
94	TGy	Technical TGy Draft 1.00	LB# 94			2006-12-08	2007-01-07	30	Return%	94
				Comment	Template				Approve%	98
				Pool	LB# 95 Voters				Pool	347
				Draft	Draft P802.11y_D1.0.pdf				Approve	182
				Redlined Doc	N/A				Disapprove	59
				Resolution Doc	N/A				Abstain	71
93	TGs	Technical TGs Draft 1.00	LB# 93			2006-12-07	2007-01-06	30	Return%	90
				Comment	Template				Approve%	76
				Pool	LB# 94 Voters				Pool	347
				Draft	Draft P802.11s_D1.0.pdf				Approve	128
				Redlined Doc	N/A				Disapprove	138
				Resolution Doc	N/A				Abstain	36
92	TGp	Technical TGp Draft 2.00	LB# 92			2006-12-06	2007-01-05	30	Return%	87
				Comment	Template				Approve%	48
				Pool	LB# 93 Voters				Pool	347
				Draft	Draft P802.11p_D2.0.pdf				Approve	166
				Redlined Doc	11-06-1885-00-000p-Draft P802.11p_D2.0-Redline.pdf				Disapprove	83
				Resolution Doc	11-06-0553-07-000p-lb81-11p-d1-0-comment-resolutions.xls				Abstain	62
91	TGr	Recirculation TGr Draft 4.00	LB# 91			2006-11-20	2006-12-04	14	Return%	90
				Comment	Template				Approve%	67
				Pool	LB# 92 Voters				Pool	518
				Draft	Draft P802.11r_D4.0.pdf				Approve	335
									Disapprove	30
									Abstain	70

COMPLETED BALLOTS, from LB101 onwards										
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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
90	TGk	Recirculation TGk Draft 6.00	LB# 90			2006-11-01	2006-11-16	15	Return%	84
				Comment	Template				Approve%	92
				Pool	LB# 91 Voters					
				Draft	P802.11k-D6.0.pdf				Pool	514
				Redlined Doc	11-06-1583-00-000k-redlined-version-draft-d6.0.pdf				Approve	354
				Resolution Doc	11-06-1366-08-000k-tgk-lb86-comment-resolution-spreadsheet.xls				Disapprove	36
89	TGk	Procedural TGk Draft 6.00	LB# 89			2006-10-13	2006-10-30	17	Abstain	39
				Comment	Template				Return%	83
				Pool	LB# 90 Voters				Approve%	91
				Draft	P802.11k-D6.0.pdf				Pool	424
				Redlined Doc	11-06-1583-00-000k-redlined-version-draft-d6.0.pdf				Approve	236
				Resolution Doc	11-06-1366-08-000k-tgk-lb86-comment-resolution-spreadsheet.xls				Disapprove	14
88	TGw	Technical TGw Draft 1.00	LB# 88			2006-10-10	2006-11-19	40	Abstain	25
				Comment	Template				Return%	65
				Pool	LB# 89 Voters				Approve%	94
				Draft	P802.11w-D1.0.pdf				Pool	427
				Redlined Doc	N/A				Approve	202
				Resolution Doc	N/A				Disapprove	34
87	TGr	Recirculation TGr Draft 3.00	LB# 87			2006-09-29	2006-10-14	15	Abstain	59
				Comment	Template				Return%	69
				Pool	LB# 88 Voters				Approve%	86
				Draft	11-06-1540-00-000r-P802-11r-D3-0-redline.pdf				Pool	518
				Redlined Doc	N/A				Approve	318
				Resolution Doc	11-06-0537-34-000r-d2-comments.xls				Disapprove	50
86	TGk	Recirculation TGk Draft 5.00	LB# 86			2006-09-01	2006-09-16	15	Abstain	65
				Comment	Template				Return%	84
				Pool	LB# 87 Voters				Approve%	86
				Draft	P802.11k_D5.0.pdf				Pool	514
				Redlined Doc	11-06-1311-00-0000-redlined-document-11k-draft-d5.0.doc				Approve	325
				Resolution Doc	11-06-0891-18-000k-LB83-may-to-jun-com-merge.xls				Disapprove	59
85	TGk	Procedural TGk Draft 5.00	LB# 85			2006-08-10	2006-08-26	16	Abstain	44
				Comment	Template				Return%	83
				Pool	LB# 86 Voters				Approve%	85
				Draft	P802.11k_D5.0.pdf				Pool	452
				Redlined Doc	11-06-1311-00-0000-redlined-document-11k-draft-d5.0.pdf				Approve	246
				Resolution Doc	11-06-0891-18-000k-LB83-may-to-jun-com-merge.xls				Disapprove	65
84	TGn	Technical TGn Draft 1.00	LB# 84			2006-03-19	2006-04-29	41	Abstain	46
				Comment	Template				Return%	79
				Pool	LB# 85 Voters				Approve%	79
				Draft	P802.11n-D1.0.pdf				Pool	435
				Redlined Doc	N/A				Approve	149
				Resolution Doc	N/A				Disapprove	171
83	TGk	Recirculation TGk Draft 4.00	LB# 83			2006-03-16	2006-03-31	15	Abstain	32
				Comment	Template				Return%	81
				Pool	LB# 84 Voters				Approve%	47
				Draft	P802.11k-D4.0-changes.doc				Pool	514
				Redlined Doc	N/A				Approve	308
				Resolution Doc	11-05-1049-69-000k-11k-lb78-comment-resolution-spreadsheet.xls				Disapprove	73
82	TGr	Recirculation TGr Draft 2.00	LB# 82			2006-03-15	2006-04-04	20	Return%	83
				Comment	Template				Approve%	81
				Pool	LB# 83 Voters				Pool	518
				Draft	P802.11r-D2.0-changes.pdf				Approve	316
				Redlined Doc	N/A				Disapprove	44
				Resolution Doc	11-06-1284-29-000r-lb79-11r-d1-0-comment-resolutions.xls				Abstain	69
81	TGp	Technical TGp Draft 1.00	LB# 81			2006-03-02	2006-04-11	40	Return%	83
				Comment	Template				Approve%	88
				Pool	LB# 82 Voters				Pool	486
				Draft	P802.11p_D1.0.pdf				Approve	167
				Redlined Doc	N/A				Disapprove	117
				Resolution Doc	N/A				Abstain	63
80	TGp	Procedural TGp Draft 0.26	LB# 80			2006-02-03	2006-02-18	15	Return%	71
				Comment	Template				Approve%	59
				Pool	LB# 81 Voters				Pool	486
				Draft	P802.11p_D0.26.pdf				Approve	217
									Disapprove	72
									Abstain	56

COMPLETED BALLOTS, from LB101 onwards										
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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
79	TGr	Technical TGr Draft 1.00	LB# 79	Comment	Template	2005-11-25	2006-01-04	40	Return%	71
				Pool	LB# 80 Voters				Approve%	75
				Draft	P802.11r-D1.0.pdf				Pool	518
				Redlined Doc	N/A				Approve	268
				Resolution Doc	N/A				Disapprove	64
				Comment	Template				Abstain	72
78	TGk	Technical TGk Draft 3.00	LB# 78	Pool	LB# 79 Voters	2005-10-03	2005-11-12	40	Return%	78
				Draft	P802.11k-D3.0.pdf				Approve%	81
				Redlined Doc	N/A				Pool	514
				Resolution Doc	N/A				Approve	295
				Comment	Template				Disapprove	75
				Pool	LB# 78 Voters				Abstain	33
77	TGma	Technical TGma Draft 4.00	LB# 77	Draft	P802.11-REVma-D4.0.pdf	2005-09-09	2005-09-19	10	Return%	78
				Redlined Doc	N/A				Approve%	80
				Resolution Doc	N/A				Pool	542
				Comment	Template				Approve	411
				Pool	LB# 77 Voters				Disapprove	15
				Draft	P802.11-REVma-D3.0.pdf				Abstain	19
76	TGma	Technical TGma Draft 3.00	LB# 76	Redlined Doc	N/A	2005-08-08	2005-08-19	11	Return%	82
				Resolution Doc	N/A				Approve%	96
				Comment	Template				Pool	542
				Pool	LB# 76 Voters				Approve	397
				Draft	P802.11REV-ma-D2.0.pdf				Disapprove	20
				Redlined Doc	N/A				Abstain	21
75	TGma	Technical TGma Draft 2.00	LB# 75	Resolution Doc	N/A	2005-07-07	2005-07-17	10	Return%	81
				Comment	Template				Approve%	95
				Pool	LB# 75 Voters				Pool	542
				Draft	P802.11REV-ma-D1.0.pdf				Approve	387
				Redlined Doc	N/A				Disapprove	26
				Resolution Doc	N/A				Abstain	19
74	TGma	Technical TGma Draft 1.00	LB# 74	Comment	Template	2005-03-29	2005-05-08	40	Return%	80
				Pool	LB# 74 Voters				Approve%	94
				Draft	P802.11k-D2.0.pdf				Pool	542
				Redlined Doc	N/A				Approve	348
				Resolution Doc	N/A				Disapprove	36
				Comment	Template				Abstain	23
73	TGk	Technical TGk Draft 2.00	LB# 73	Pool	LB# 73 Voters	2005-02-03	2005-03-15	40	Return%	75
				Draft	P802.11k-D1.0.pdf				Approve%	91
				Redlined Doc	N/A				Pool	493
				Resolution Doc	11-04-0964-37-000k-lb71-comment-spreadsheet.xls				Approve	253
				Comment	Template				Disapprove	42
				Pool	LB# 71 Voters				Abstain	25
71	TGk	Technical TGk Draft 1.00	LB# 71	Draft	P802.11E-D8.0-redlined.pdf	2004-08-02	2004-09-11	40	Return%	65
				Redlined Doc	N/A				Approve%	86
				Resolution Doc	N/A				Pool	412
				Comment	Template				Approve	329
				Pool	LB# 68 Voters				Disapprove	18
				Draft	P802.11j-D1.4-redlined.pdf				Abstain	27
68	TGj	Recirculation TGj Draft 1.40	LB# 68	Redlined Doc	N/A	2004-04-05	2004-04-20	15	Return%	91
				Resolution Doc	11-04-0411-02-000j-tgj-comment-resolution-lb66.xls				Approve%	95
				Comment	Template				Pool	464
				Pool	LB# 67 Voters				Approve	273
				Draft	P802.11E-D8.0-redlined.pdf				Disapprove	13
				Redlined Doc	N/A				Abstain	24
67	TGe	Recirculation TGe Draft 8.00	LB# 67	Resolution Doc	11-04-0181-05-000e-letter-ballot-65-comments.xls	2004-02-24	2004-03-10	15	Return%	67
				Comment	Template				Approve%	94
				Pool	LB# 66 Voters				Pool	321
				Draft	P802.11j-D1.3redlined.pdf				Approve	262
				Redlined Doc	N/A				Disapprove	16
				Resolution Doc	11-04-0042-05-000j-tgj-comment-resolution-lb64.xls				Abstain	23
66	TGj	Recirculation TGj Draft 1.30	LB# 66	Comment	Template	2004-02-04	2004-03-11	36	Return%	94
				Pool	LB# 66 Voters				Approve%	94
				Draft	P802.11j-D1.3redlined.pdf				Pool	464
				Redlined Doc	N/A				Approve	258
				Resolution Doc	11-04-0042-05-000j-tgj-comment-resolution-lb64.xls				Disapprove	17
				Comment	Template				Abstain	27

COMPLETED BALLOTS, from LB101 onwards										
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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
65	TGe	Recirculation TGe Draft 7.00	LB# 65	Comment	Template	2004-01-31	2004-02-15	15	Return%	65
				Pool	LB# 66 Voters				Approve%	94
				Draft	P802_11E-D7.0-redlined.pdf				Pool	321
				Redlined Doc	N/A				Approve	258
				Resolution Doc	11-04-1001-06-000e-letter-ballot-63-comments.xls				Disapprove	19
				Comment	Template				Abstain	24
64	TGj	Technical TGj Draft 1.20	LB# 64	Pool	LB# 65 Voters	2003-12-05	2004-01-14	40	Return%	94
				Draft	P802_11j-D1.2.doc				Approve%	93
				Redlined Doc	N/A				Pool	463
				Resolution Doc	11-03-337r6-W-TGj_Letter_Ballot_Comment_Resolution_May_2003.xls				Approve	212
				Comment	Template				Disapprove	27
				Pool	LB# 64 Voters				Abstain	24
63	TGe	Recirculation TGe Draft 6.00	LB# 63	Draft	P802_11E-D6.0-redlined.pdf	2003-12-04	2003-12-20	16	Return%	57
				Redlined Doc	N/A				Approve%	89
				Resolution Doc	11-03-0658-17-000e-letter-ballot-59-comments.xls				Pool	321
				Comment	Template				Approve	248
				Pool	LB# 63 Voters				Disapprove	30
				Draft	802_11i-D7.0-redlined.doc				Abstain	23
62	TGi	Recirculation TGi Draft 7.00	LB# 62	Redlined Doc	N/A	2003-10-20	2003-11-04	15	Return%	94
				Resolution Doc	11-03-0808-00-000i-LB61Comments.xls				Approve%	89
				Comment	Template				Pool	321
				Pool	LB# 62 Voters				Approve	264
				Draft	802_11i-D6.0-redlined.doc				Disapprove	14
				Redlined Doc	N/A				Abstain	21
61	TGi	Recirculation TGi Draft 6.00	LB# 61	Resolution Doc	11-03-0659-04-000i-LB60-Comments.xls	2003-09-24	2003-10-09	15	Return%	93
				Comment	Template				Approve%	92
				Pool	LB# 61 Voters				Pool	321
				Draft	802_11i-D5.0-redlined.doc				Approve	257
				Redlined Doc	N/A				Disapprove	21
				Resolution Doc	11-03-452r6-1-LB57-Comments.xls				Abstain	21
60	TGi	Recirculation TGi Draft 5.00	LB# 60	Comment	Template	2003-08-04	2003-08-19	15	Return%	93
				Pool	LB# 60 Voters				Approve%	87
				Draft	802_11i-D5.0-redlined.doc				Pool	321
				Redlined Doc	N/A				Approve	243
				Resolution Doc	11-03-452r6-1-LB57-Comments.xls				Disapprove	36
				Comment	Template				Abstain	20
59	TGe	Recirculation TGe Draft 5.00	LB# 59	Pool	LB# 60 Voters	2003-08-01	2003-08-22	21	Return%	82
				Draft	P802_11E-D5.0-changes-with-4.0-marked.pdf				Approve%	97
				Redlined Doc	N/A				Pool	321
				Resolution Doc	11-03-020r13-E-Merged_Letter_Ballot_51_Comments.xls				Approve	248
				Comment	Template				Disapprove	7
				Pool	LB# 59 Voters				Abstain	8
57	TGi	Recirculation TGi Draft 4.00	LB# 57	Draft	802_11i-D4_0-redlined.doc	2003-05-22	2003-06-06	15	Return%	93
				Redlined Doc	N/A				Approve%	78
				Resolution Doc	11-03-033r10-1-LB52-Comments.xls				Pool	321
				Comment	Template				Approve	218
				Pool	LB# 57 Voters				Disapprove	61
				Draft	802_11g-D6.1-tracking.doc				Abstain	19
56	TGj	Technical TGj Draft 1.00	LB# 56	Redlined Doc	N/A	2003-04-01	2003-05-12	41	Return%	75
				Resolution Doc	N/A				Approve%	68
				Comment	Template				Pool	394
				Pool	LB# 56 Voters				Approve	196
				Draft	P802_11j-D1_0.doc				Disapprove	93
				Redlined Doc	N/A				Abstain	5
54	TGg	Recirculation TGg Draft 6.10	LB# 54	Resolution Doc	11-03-068r12-G-LB50_Comment_Resolution.xls	2003-01-20	2003-02-04	15	Return%	82
				Comment	Template				Approve%	89
				Pool	LB# 54 Voters				Pool	321
				Draft	802_11i-D3.0.pdf				Approve	184
				Redlined Doc	N/A				Disapprove	22
				Resolution Doc	N/A				Abstain	58
52	TGi	Technical TGi Draft 3.00	LB# 52	Draft	802_11i-D3.0.pdf	2002-12-02	2003-01-12	41	Return%	82
				Redlined Doc	N/A				Approve%	89
				Resolution Doc	N/A				Pool	321
				Resolution Doc	N/A				Approve	209
				Resolution Doc	N/A				Disapprove	65
									Abstain	21

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
51	TGe	Technical TGe Draft 4.00	LB# 51	Comment	Template	2002-11-28	2003-01-08	41	Return%	92
				Pool	LB# 52 Voters				Approve%	76
				Draft	P802_11E-D4_0.pdf				Pool	321
				Redlined Doc	N/A				Approve	228
				Resolution Doc	N/A				Disapprove	47
				Comment	Template				Abstain	21
50	TGg	Technical TGg Draft 5.00	LB# 50	Pool	LB# 51 Voters	2002-11-27	2003-01-08	42	Return%	92
				Draft	802.11g-D5.0.doc				Approve%	83
				Redlined Doc	N/A				Pool	321
				Resolution Doc	N/A				Approve	256
				Comment	Template				Disapprove	34
				Pool	LB# 50 Voters				Abstain	18
49	TGg	Recirculation TGg Draft 4.00	LB# 49	Draft	802.11g-D4.0.pdf	2002-10-17	2002-11-01	15	Return%	96
				Redlined Doc	N/A				Approve%	88
				Resolution Doc	2-535.zip				Pool	382
				Comment	Template				Approve	217
				Pool	LB# 49 Voters				Disapprove	33
				Draft	802-11-h-D2.2.pdf				Abstain	25
48	TGh	Recirculation TGh Draft 2.20	LB# 48	Redlined Doc	N/A	2002-10-17	2002-11-01	15	Return%	72
				Resolution Doc	11-02-515r7-H-Comments form LB42.xls				Approve%	87
				Comment	Template				Pool	356
				Pool	LB# 48 Voters				Approve	241
				Draft	index.html				Disapprove	7
				Redlined Doc	N/A				Abstain	17
42	TGh	Recirculation TGh	LB# 42	Resolution Doc	N/A	2002-07-23	2002-09-01	40	Return%	74
				Comment	Template				Approve%	97
				Pool	LB# 42 Voters				Pool	360
				Draft	index.html				Approve	208
				Redlined Doc	N/A				Disapprove	24
				Resolution Doc	N/A				Abstain	39
41	TGg	Technical TGg	LB# 41	Comment	Template	2002-07-23	2002-09-01	40	Return%	75
				Pool	LB# 41 Voters				Approve%	90
				Draft	index.html				Pool	382
				Redlined Doc	N/A				Approve	194
				Resolution Doc	N/A				Disapprove	40
				Comment	Template				Abstain	15
39	TGe	Technical TGe	LB# 39	Pool	LB# 42 Voters	2002-05-23	2002-07-02	40	Return%	65
				Draft	P802_11E-D3_0.pdf				Approve%	83
				Redlined Doc	N/A				Pool	365
				Resolution Doc	N/A				Approve	106
				Comment	Template				Disapprove	110
				Pool	LB# 39 Voters				Abstain	44
38	TGf	Recirculation TGf	LB# 38	Draft	802.11f-D3.1.pdf	2002-05-08	2002-06-16	39	Return%	71
				Redlined Doc	N/A				Approve%	49
				Resolution Doc	N/A				Pool	291
				Comment	Template				Approve	221
				Pool	LB# 38 Voters				Disapprove	9
				Draft	P802_11H-D2_0.pdf				Abstain	25
36	TGh	Technical TGh	LB# 36	Redlined Doc	N/A	2002-03-26	2002-05-05	40	Return%	88
				Resolution Doc	N/A				Approve%	96
				Comment	Template				Pool	330
				Pool	LB# 36 Voters				Approve	165
				Draft	P802_11H-D2_0.pdf				Disapprove	52
				Redlined Doc	N/A				Abstain	53
35	TGi	Technical TGi	LB# 35	Resolution Doc	N/A	2002-03-25	2002-05-04	40	Return%	82
				Comment	Template				Approve%	76
				Pool	LB# 35 Voters				Pool	338
				Draft	P802_11i-D2_0.pdf				Approve	143
				Redlined Doc	N/A				Disapprove	43
				Resolution Doc	N/A				Abstain	78
33	TGg	Technical TGg	LB# 33	Comment	Template	2002-01-31	2002-03-11	39	Return%	78
				Pool	LB# 33 Voters				Approve%	77
				Draft	P802_11i-D2_0.pdf				Pool	286
				Redlined Doc	N/A				Approve	86
				Resolution Doc	N/A				Disapprove	104
				Comment	Template				Abstain	41

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
									Return%	81
				Comment					Approve%	45
				Pool						
32	TGf	Technical TGf	LB# 32	Draft		2002-01-29	2002-03-10	40	Pool	290
				Redlined Doc	N/A				Approve	145
				Resolution Doc	N/A				Disapprove	31
				Comment					Abstain	19
				Pool					Return%	67
									Approve%	82
30	TGe	Technical TGe	LB# 30	Draft		2001-12-05	2002-01-16	42	Pool	266
				Redlined Doc	N/A				Approve	101
				Resolution Doc	N/A				Disapprove	84
				Comment					Abstain	33
				Pool					Return%	82
									Approve%	55
29	TGh	Technical TGh	LB# 29	Draft		2001-07-25	2001-09-03	40	Pool	None
				Redlined Doc	N/A				Approve	None
				Resolution Doc	N/A				Disapprove	None
				Comment					Abstain	None
				Pool					Return%	0
									Approve%	None
28	TGf	Technical TGf	LB# 28	Draft		2001-07-25	2001-09-03	40	Pool	None
				Redlined Doc	N/A				Approve	None
				Resolution Doc	N/A				Disapprove	None
				Comment					Abstain	None
				Pool					Return%	0
									Approve%	None
27	TGe	Technical TGe	LB# 27	Draft		2001-04-05	2001-05-15	40	Pool	None
				Redlined Doc	N/A				Approve	None
				Resolution Doc	N/A				Disapprove	None
				Comment					Abstain	None
				Pool					Return%	0
									Approve%	None
26	TGf	Technical TGf	LB# 26	Draft		2001-04-05	2001-05-15	40	Pool	None
				Redlined Doc	N/A				Approve	None
				Resolution Doc	N/A				Disapprove	None
				Comment					Abstain	None
				Pool					Return%	0
									Approve%	None
22	TGd	Recirculation TGd	LB# 22	Draft		2000-06-12	2000-06-26	14	Pool	None
				Redlined Doc	N/A				Approve	None
				Resolution Doc	N/A				Disapprove	None
				Comment					Abstain	None
				Pool					Return%	0
									Approve%	None
21	TGd	Recirculation TGd	LB# 21	Draft		2000-03-27	2000-04-04	8	Pool	None
				Redlined Doc	N/A				Approve	None
				Resolution Doc	N/A				Disapprove	None
				Comment					Abstain	None
				Pool					Return%	0
									Approve%	None
15	TGb	Technical TGb	LB# 15	Draft		1998-09-30	1998-11-09	40	Pool	None
				Redlined Doc	N/A				Approve	None
				Resolution Doc	N/A				Disapprove	None
				Comment					Abstain	None
				Pool					Return%	0
									Approve%	None



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APPENDIX AT

Status of Project IEEE 802.11ax High Efficiency WLAN (HEW)

Osama Aboul-Magd (Huawei Technologies), Chair

Simone Merlin (Qualcomm), Vice Chair

Ron Porat (Broadcom), Vice Chair

Yasuhiko Inoue (NTT), Secretary

Robert Stacy (Intel), Technical Editor

Background

In May 2013, the High Efficiency WLAN Study Group (HEW SG), a study group within IEEE 802.11 working group had started its activity to consider the improvement of spectrum efficiency to enhance the system throughput/area in high density scenarios of APs and/or STAs.

The study group was created based on the following straw poll and motion:

<Straw Poll>

Do you support starting a new study group called “high efficiency WLAN” to enhance 802.11 PHY and MAC in 2.4 and 5GHz with a focus on:

- Improving spectrum efficiency and area throughput
- Improving real world performance in indoor and outdoor deployments
 - in the presence of interfering sources, dense heterogeneous networks
 - in moderate to heavy user loaded APs

<Motion>

Request an approval by IEEE 802 LMSC to form an 802.11 Study Group to consider High-efficiency WLAN [as described in doc 11-13-0339r2] with the intent of creating a PAR and five criteria.

The HEW SG has successfully developed PAR and CSD documents and the project 802.11ax has started in May 2014.

Task Group Documents – the latest revisions (as of March 30th, 2015)

- [11-14-0165-01](#) PAR and [11-14-0169-01](#) CSD
 - [11-14-0938-04](#) TGax Selection Procedure
 - [11-14-0980-16](#) TGax Simulation Scenarios
 - [11-14-0571-12](#) TGax Evaluation Methodology
 - [11-14-0882-04](#) TGax Channel Models
 - [11-14-1009-02](#) TGax Functional Requirements
 - [11-15-0132-17](#) TGax Specification Framework
-

September 2016 – Warsaw, Poland

The TGax had 11 sessions during the week.

Six out of eleven sessions were assigned to the ad hoc group sessions.

	Tuesday		Wednesday		Thursday
			TGax (full)		
	TGax (MU)	TGax (MAC)			TGax (full)
			TGax (PHY)	TGax (MAC)	TGax (full)
Gax IAC)	TGax (PHY)	TGax (MAC)	TGax (MU)	TGax (MAC)	TGax (full)
Gax SR)					

Main documents

- TGax Agenda: [11-16-1077-06](#), TGax September 2016 Meeting Agenda
 - TGax PHY ad hoc agenda and motions: [11-16-1246-06](#), TGax PHY Ad Hoc Sep 2016 Meeting Agenda
 - ✧ TGax PHY ad hoc meeting minutes: [11-16-1276-00](#), September 2016 Warsaw PHY Ad Hoc Meeting Minutes
 - TGax MAC ad hoc agenda: [11-16-1247-02](#), TGax MAC Ad Hoc September 2016 Meeting Agenda
 - ✧ TGax MAC ad hoc meeting minutes: [11-16-1252-01](#), September 2016 Warsaw TGax MAC Ad hoc Meeting Minutes
 - TGax Multi-User ad hoc agenda: [11-16-1244-01](#), TGax MU Ad-hoc Agenda September 2016
 - ✧ TGax Multi-User ad hoc meeting minutes: [11-16-1275-00](#), IEEE 802.11 TGax, MU Ad hoc September 2016 TGax Meeting Minutes
 - TGax Spatial Reuse ad hoc agenda: [11-16-1245-02](#), TGax Spatial Reuse Ad-hoc Agenda September 2016 Meeting
 - ✧ TGax Multi-User ad hoc meeting minutes: [11-16-1300-00](#), TGax Spatial Reuse ad hoc group meeting minutes
- Closing report: [11-16-1284-00](#), TGax September 2016 Closing Report
- Draft TGax minutes: [11-16-1231-00](#), IEEE 802.11 TGax September 2016 Warsaw Meeting Minutes

Achievements

1. Work Completed

- **TGax received about 90 submissions.**
 - ✧ Number of submissions: PHY/MAC/MU/SR/TG = 28/43/12/9/6.
- The TG completed the discussion of all the submissions.**
- Exact count of resolved CIDs will be published by the Editor.**
- **The TG editor is planning to have draft revision D0.5 ready based on resolved comments.**

2. Technical Presentations

90 technical submissions were received.

Here is the list of submissions:

- **Submissions – MAC (43 submissions)**
 - ✧ [11-16-0864](#), “Comment Resolutions on Clause 6 & 8 comments,” Yasuhiko Inoue (NTT)
 - ✧ [11-16-0869](#), “Misc. TWT comment resolution,” Zhou Lan (Broadcom)
 - ✧ [11-16-0881](#), “Comment resolution on ROMI,” Jayh Park (LG Electronics)
 - ✧ [11-16-0882](#), “Comment resolution on TOMI,” Alfred Asterjadhi (Qualcomm)
 - ✧ [11-16-0883](#), “Comment resolution for CID152,” JayhPark (LG Electronics)
 - ✧ [11-16-0884](#), “Spec. Text for HE Operation element and AID Assign Rule,” Jianhan Liu (MediaTek)
 - ✧ [11-16-0913](#), “SU Multi-TID Rules,” Jarkko Kneckt (Apple)
 - ✧ [11-16-0917](#), “Text for TID value of ALL ACK signaling,” Woojin Ahn (WILUS)

- ✧ [11-16-0918](#), “Discussions on Partial BSS Color,” Geonjung Ko (WILUS)
- ✧ [11-16-0924](#), “NAV resetting with RTS/MU-RTS,” Weiming Xing (ZTE)
- ✧ [11-16-0925](#), “Spec text on NAV resetting with RTS/MU-RTS,” Weiming Xing (ZTE)
- ✧ [11-16-0941](#), “CR HE Fragmentation - part 2,” Ming Gan (Huawei)
- ✧ [11-16-0942](#), “CR Service Field,” Ming Gan (Huawei)
- ✧ [11-16-0960](#), “AP access procedure for UL MU operation,” Jinsoo Ahn (Yonsei Univ.)
- ✧ [11-16-0961](#), “Consideration on Multi-STA BlockAck Optimization,” Hanseul Hong (Yonsei Univ.)
- ✧ [11-16-0962](#), “EDCA rules-follow up 1,” Jing Ma (NICT)
- ✧ [11-16-0963](#), “EDCA rules-follow up 2,” Jing Ma (NICT)
- ✧ [11-16-0998](#), “Rules for 2 EDCA parameters,” Laurent Cariou (Intel)
- ✧ [11-16-1110](#), “Comment Resolution on subclause 10.22.2 and 10.22.4,” Yongho Seok (Newracom)
- ✧ [11-16-1131](#), “Comment Resolution on MU Ack Policy,” Yongho Seok (Newracom)
- ✧ [11-16-1154](#), “MAC CR for CID 966,” Weiming Xing (ZTE)
- ✧ [11-16-1157](#), “Comment resolution on SU_MU ACK procedures,” Jeongki Kim (LG Electronics)
- ✧ [11-16-1173](#), “Comment Resolution on Two NAVs - Part II,” Po-Kai Huang (Intel)
- ✧ [11-16-1180](#), “Proposed text changes for MU EDCA parameters,” Laurent Cariou (Intel)
- ✧ [11-16-1181](#), “CW value after UL MU procedure,” Woojin Ahn (WILUS)
- ✧ [11-16-1182](#), “HE Sounding Feedback Segmentation,” Liwen Chu (Marvell)
- ✧ [11-16-1183](#), “MU RTS CTS data rate comment,” Liwen Chu (Marvell)
- ✧ [11-16-1184](#), “A-MPDU 25.10 25.10.2 comment resolution,” Liwen Chu (Marvell)
- ✧ [11-16-1185](#), “A-MPDU 25.10.3 comment resolution,” Liwen Chu (Marvell)
- ✧ [11-16-1186](#), “A-MPDU Content Comment Resolution,” Liwen Chu (Marvell)
- ✧ [11-16-1188](#), “MAC Capabilities in HE Capabilities IE,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16-1189](#), “CC0-TWT operation,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16-1195](#), “MAC Clarifications,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16-1204](#), “Intra-PPDU Power Save for a Multiple BSSID Set Case,” Geonjung Ko (Wilus)
- ✧ [11-16-1205](#), “Text for Intra-PPDU Power Save for a Multiple BSSID Set Case,” Geonjung Ko (Wilus)
- ✧ [11-16-1210](#), “Comment Resolution on MU acknowledgement procedure,” Junichi Iwatani (NTT)
- ✧ [11-16-1211](#), “CR_CID_122_576_972_2598,” Huizao Wang (Quantenna)
- ✧ [11-16-1213](#), “CR TWT and HE element related,” Matt Fischer (Broadcom)
- ✧ [11-16-1220](#), “MU mode EDCA control,” Jinsoo Ahn (Yonsei Univ.)
- ✧ [11-16-1234](#), “Spec Text for TWT Protection field,” Hanseul Hong (Yonsei Univ.)
- ✧ [11-16-1236](#), “Text for Partial BSS Color and AID Assignment Rule,” Geonjung Ko (Wilus)
- ✧ [11-16-1237](#), “Setting Quiet Time Period,” Chao-Chun Wang (MediaTek)
- ✧ [11-16-1238](#), “Setting Quiet Time Period - text,” Chao-Chun Wang (MediaTek) – not available

● Submissions – PHY (28 submissions)

- ✧ [11-16-1133](#), “11ax sounding modes reduction,” Yan Zhang (Marvell)
- ✧ [11-16-1134](#), “11ax spec text on sounding modes reduction,” Yan Zhang (Marvell)
- ✧ [11-16-1135](#), “11ax comment resolutions for clause 26.3.5,” Yan Zhang (Marvell)
- ✧ [11-16-1136](#), “11ax comment resolutions for clause 26.3.8,” Yan Zhang (Marvell)
- ✧ [11-16-1137](#), “11ax comment resolutions for clause 26.3.9,” Yan Zhang (Marvell)
- ✧ [11-16-1138](#), “11ax comment resolutions for clause 26.3.10,” Yan Zhang (Marvell)
- ✧ [11-16-1148](#), “CR HE-SIG-A part III,” Ross Jian Yu (Huawei)
- ✧ [11-16-1149](#), “CR HE-SIG-A part II,” Ross Jian Yu (Huawei)
- ✧ [11-16-1150](#), “CR Packet Extension part I,” Ross Jian Yu (Huawei)
- ✧ [11-16-1160](#), “Comment Resolution for CID 355,” Eunsung Park (LG Electronics)

- ✧ [11-16-1167](#), “UL MU Clarifications,” Ron Porat (Broadcom)
- ✧ [11-16-1168](#), “DCM TBDs,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16-1169](#), “CR Duplicate MU MIMO,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16-1170](#), “HE PHY Capabilities,” Lochan Verma (Qualcomm)
- ✧ [11-16-1171](#), “PHY Miscellaneous Part-1,” Lochan Verma (Qualcomm)
- ✧ [11-16-1176](#), “PHY CR Miscellaneous Part-2,” Lochan Verma (Qualcomm)
- ✧ [11-16-1179](#), “PHY section editorial comments on D0.4,” Sungeun Lee (Cypress)
- ✧ [11-16-1190](#), “Tx Quality Requirements,” Daewon Lee (Newracom)
- ✧ [11-16-1191](#), “Comment Resolution for CIDs on PHY Transmit Spec,” Daewon Lee (Newracom)
- ✧ [11-16-1192](#), “Comment Resolution for CID 1450,” Daewon Lee (Newracom)
- ✧ [11-16-1193](#), “HE variant HT Control - HE Link Adaptation,” Daewon Lee (Newracom)
- ✧ [11-16-1194](#), “Removal of Unnecessary PHY TBDs,” Daewon Lee (Newracom)
- ✧ [11-16-1202](#), “CR HE-LTF,” Ming Gan (Huawei)
- ✧ [11-16-1227](#), “cr-on-26-3-7,” Shahrnaz Azizi (Intel)
- ✧ [11-16-1232](#), “Text change proposal of TXTIME in 26.3.19 and 26.4.3,” Daewon Lee (Newracom)
- ✧ [11-16-1233](#), “CR for DCM related CID 503, 504 and 2750,” Daewon Lee (Newracom)
- ✧ [11-16-1240](#), “Packet Extension Factor calculation fix,” Yan Zhang (Marvell)
- ✧ [11-16-1242](#), “spec text for packet extension factor calculation fix,” Yan Zhang (Marvell)

● **Submissions – Multi-User (12 submissions)**

- ✧ [11-16-0773](#), “Comment Resolution Section 25.6 HE Sounding,” Raja Banerjee (Qualcomm)
- ✧ [11-16-0929](#), “CR - UL MU Operation,” Simone Merlin (Qualcomm)
- ✧ [11-16-1152](#), “DL OFDMA Ack rule for uplink trigger based PPDU,” Ming Gan (Huawei)
- ✧ [11-16-1158](#), “Comment resolution on OFDMA random access procedure,” Jeongki Kim (LG Electronics)
- ✧ [11-16-1162](#), “Comment Resolution on Retransmission of OFDMA Random Access,” Yunbo Li (Huawei)
- ✧ [11-16-1163](#), “Concluding OFDMA M-BA transmission,” Zhou Lan (Broadcom)
- ✧ [11-16-1177](#), “comment-resolution-TXOP-truncation,” Young Hoon Kwon (Newracom)
- ✧ [11-16-1199](#), “Proposed text changes for DL OFDMA Acknowledge rule for trigger based PPDU,” Ming Gan (Huawei)
- ✧ [11-16-1222](#), “Comment Resolution on UL OFDMA Random Access,” Chittabrata Ghosh (Intel)
- ✧ [11-16-1224](#), “Random Access Parameter Set (RAPS) element,” Chittabrata Ghosh (Intel)
- ✧ [11-16-1239](#), “Trigger Frame MU BAR part 1,” Raja Banerjee (Qualcomm)
- ✧ [11-16-1241](#), “Trigger Frame MU BAR part 2,” Raja Banerjee (Qualcomm)

● **Submissions – Spatial Reuse (9 submissions)**

- ✧ [11-16-0945](#), “Clarification for OBSS_PD-based SR parameters,” Matt Fischer (Broadcom)
- ✧ [11-16-0947](#), “Proposed text changes for OBSS_PD-based SR parameters,” Laurent Cariou (Intel)
- ✧ [11-16-1064](#), “Unified SR approach DSC, ATPC and Inter-BSS,” Graham Smith (SR Technologies)
- ✧ [11-16-1155](#), “SR Comment Resolution for CID994,” Kaiying Lv (ZTE) – not available
- ✧ [11-16-1161](#), “Simulation-based evaluation of OBSS_PD-based SR default parameters,” Tanguy Ropitault (NIST)
- ✧ [11-16-1178](#), “comment-resolution-SR-RSSI,” Young Hoon Kwon (Newracom)
- ✧ [11-16-1216](#), “SR Field SRP Table for HE-Trigger-Based PPDU,” James Wang (MediaTek)
- ✧ [11-16-1223](#), “CR for Section 25.9.2 OBSS_PD Spatial reuse,” Laurent Cariou (Intel)
- ✧ [11-16-1225](#), “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA,” Sean Coffey (RealTek)

● **Submissions – TG (6 submissions)**

- ✧ [11-15-1095](#), “OFDMA performance in 11ax,” Suhwook Kim (LG Electronics)
- ✧ [11-16-1143](#), “11ax PAR Verification,” Paul Cheng (MediaTek)
- ✧ [11-16-1159](#), “Summary of Mandatory or Optional Features of 802.11ax,” Joonsuk Kim (Apple)
- ✧ [11-16-1166](#), “Meeting PAR requirements with UL OFDMA,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16-1198](#), “Preliminary 11ax PAR Verification,” Jiyong Pang (Huawei)
- ✧ [11-16-1219](#), “Considerations on CR for 2665 and 2715,” Jing Ma (NICT)

3. Timeline

Current Timeline	Modified Timeline
<ul style="list-style-type: none"> ● May 2014: start of the TG ● Nov. 2014: First draft of the TG SFD was approved ● Jan. 2016: proposed TG draft ● March 2016: Draft D0.1 was approved and CC started ● September 2016: Draft 1.0 and WG letter ballot ● March 2017: Draft 2.0 and recirculation ● July 2017: MDR (Mandatory Document Review) ● November 2017: Formation of SB pool ● March 2018: Sponsor Ballot ● December 2018: RevCom 	<ul style="list-style-type: none"> ● May 2014: start of the TG ● Nov. 2014: First draft of the TG SFD was approved ● Jan. 2016: proposed TG draft ● March 2016: Draft D0.1 was approved and CC started ● November 2016: Draft 1.0 and WG letter ballot ● May 2017: Draft 2.0 and recirculation ● November 2017 : MDR (Mandatory Document Review) ● January 2018: Formation of SB pool ● March 2018: Sponsor Ballot ● December 2018: RevCom

Goals for November 2016

- Continue with Comment Resolutions.
- Prepare draft D1.0 and start a WG LB

Teleconferences

- Weekly teleconferences are planned after July 2016 session.
 - ✧ Thursday, September 29th, October 20th 10:00 – 12:00 (ET).
 - ✧ Thursday, October 13th: 20:00 – 22:00 (ET)
 - ✧ Thursday, October 27th and November 17th; 10:00 – 12:00 (ET)

July 2016 – San Diego, CA

The TGax planned to have 10 sessions during the week.
Four out of ten sessions were assigned to the ad hoc group sessions.

Tuesday

Wednesday

Thursday

			TGax (full)		
TGax (PHY)	TGax (MAC)				TGax (full)
		TGax (PHY)	TGax (MAC)		TGax (full)
TGax (SR)	TGax (MU)		TGax (full)		
TGax (PHY)	TGax (MAC)				

Main documents

- TGax Agenda: [11-16-0779-06](#), TGax July 2016 Meeting Agenda
 - TGax PHY ad hoc agenda and motions: [11-16-1007-03](#), TGax PHY Ad Hoc July 2016 Meeting Agenda
 - ✧ TGax PHY ad hoc meeting minutes: [11-16-1040-00](#), IEEE 802.11 TGax July 2016 San Diego PHY Ad Hoc Meeting Minutes
 - TGax MAC ad hoc agenda: [11-16-0997-01](#), TGax MAC Ad Hoc July 2016 Meeting Agenda
 - ✧ TGax MAC ad hoc meeting minutes: [11-16-1000-02](#), IEEE 802.11 TGax, MAC Ad hoc July 2016 San Diego TGax MAC Ad hoc Meeting Minutes
 - TGax Multi-User ad hoc agenda: [11-16-1012-00](#), TGax MU Ad-hoc Agenda July 2016 Agenda
 - ✧ TGax Multi-User ad hoc meeting minutes: [11-16-1027-00](#), IEEE 802.11 TGax, MU Ad hoc July 2016 TGax Meeting Minutes
 - TGax Spatial Reuse ad hoc agenda: [11-16-1016-01](#), TGax Spatial Reuse Ad-hoc Group Agenda
 - ✧ TGax Multi-User ad hoc meeting minutes: [11-16-1022-00](#), TGax Spatial Reuse ad hoc group meeting minutes
- Closing report: [11-16-1051-00](#), TGax July 2016 Closing Report
- Draft TGax minutes: [11-16-0967-00](#), IEEE 802.11 TGax July 2016 San Diego Meeting Minutes

Achievements

4. Work Completed

- TGax received about 90 submissions.
 - ✧ Number of submissions: PHY/MAC/MU/SR/TG = 26/34/12/10/8.

Most of the submissions are proposed resolutions for the comments on the draft 0.1.
A number of submissions were proposing new text to be added to the draft.

 - A long list of submissions are yet to be considered.
- Approved the resolutions of about 230 comments discussed during telecons.
- Approved the resolutions of about 230 comments discussed during telecons.
 - ✧ Exact count of resolved CIDs will be published by the Editor.
- The TG editor is planning to have draft revision D0.3 ready based on resolved comments.

5. Technical Presentations

90 technical submissions were received.

Here is the list of submissions:

- Submissions – PHY (26 submissions)
 - ✧ [11-16-0816](#), “Comment Resolution for CID 2183,” Daewon Lee (Newracom)
 - ✧ [11-16-0872](#), “CR HE-SIG-A Part II,” Ross Jian Yu (Huawei Technologies)
 - ✧ [11-16-0873](#), “CR HE-SIG-A Part I,” Ross Jian Yu (Huawei Technologies)
 - ✧ [11-16-0891](#), “LDPC for 1024QAM,” Hongyuan Zhang (Marvell)
 - ✧ [11-16-0892](#), “Spec Text on LDPC for 1024QAM,” Hongyuan Zhang (Marvell)
 - ✧ [11-16-0893](#), “11ax Extended Range PPDU,” Bin Tian (Qualcomm)

- ✧ [11-16-0894](#), “HE-LTF Capabilities,” Hongyuan Zhang (Marvell)
- ✧ [11-16-0895](#), “Spec Text for HE-LTF Capabilities,” Hongyuan Zhang (Marvell)
- ✧ [11-16-0896](#), “11ax Beamformee Capabilities,” Hongyuan Zhang (Marvell)
- ✧ [11-16-0897](#), “Spec Text for Beamformee Capabilities,” Hongyuan Zhang (Marvell)
- ✧ [11-16-0898](#), “BW Field in HE-MU Format,” Hongyuan Zhang (Marvell)
- ✧ [11-16-0899](#), “Spec Text for BW Field in HE-MU Format,” Hongyuan Zhang (Marvell)
- ✧ [11-16-0900](#), “PHY Comment Resolution for CID 1052 and 2519,” Bin Tian (Qualcomm)
- ✧ [11-16-0903](#), “Gamma phase rotation for HE PPDU,” Yujin Noh (Newracom)
- ✧ [11-16-0904](#), “Proposed text for gamma phase rotation for HE PPDU,” Yujin Noh (Newracom)
- ✧ [11-16-0906](#), “RU restriction on 20MHz operating STAs,” Joonsuk Kim (Apple)
- ✧ [11-16-0908](#), “CR - proposed text on RU restriction of 20MHz STAs,” Joonsuk Kim (Apple)
- ✧ [11-16-0910](#), “Minimum Occupied Bandwidth,” Ron Porat (Broadcom)
- ✧ [11-16-0914](#), “Bit field finalization of HE-SIG-A,” Lochan Verma (Qualcomm)
- ✧ [11-16-0915](#), “Text for bit field finalization of HE-SIG-A,” Lochan Verma (Qualcomm)
- ✧ [11-16-0920](#), “PHY comment resolution for CID 1659,493,494,” Xiaogang Chen (Intel)
- ✧ [11-16-0922](#), “PHY CR 1024 QAM,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16-0923](#), “PHY CR DCM Constellation Mapping,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16-0928](#), “CR on Section 26.3.9.8 - HE-SIG-B,” Kaushik Josiam
- ✧ [11-16-0937](#), “11ax Comment Resolutions for Clauses 26.3.2-26.3.9.3-26.3.9.4-26.3.9.5-26.3.10.2-26.3.10.13,” Rui Cao (Marvell)
- ✧ [11-16-0964](#), “Considerations on MAC-PHY interactions during SR operations,” Jing Ma (NICT)

● **Submissions – MAC (34 submissions)**

- ✧ [11-16-0828](#), “HE Fragmentation - part 1,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16-0829](#), “Comment Resolution for Section 10.24.10 Block Ack/GCR block ack,” Reza Hedayat (Newracom)
- ✧ [11-16-0844](#), “CC0-Intra_PPDU_PS,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16-0856](#), “Issue of Buffer Status reporting,” Stephane Baron (Canon)
- ✧ [11-16-0860](#), “comment resolution on A-MPDU format,” Yongho Seok (Newracom)
- ✧ [11-16-0861](#), “comment resolution on mu acknowledgment procedure,” Yongho Seok (Newracom)
- ✧ [11-16-0862](#), “comment resolution on subclause 25.11,” Yongho Seok (Newracom)
- ✧ [11-16-0864](#), “d0.1 comment resolution on clause 6,” Yasuhiko Inoue (NTT)
- ✧ [11-16-0867](#), “CIDs for CIDs: Section 9.3.1.9.3 Compressed BA format,” George Cherian (Qualcomm)
- ✧ [11-16-0868](#), “CIDs for Section 9.3.1.9.7 Multi STA BAs,” George Cherian (Qualcomm)
- ✧ [11-16-0869](#), “Comment resolution section 9.3 TWT,” Zhou Lan (Broadcom)
- ✧ [11-16-0871](#), “Trigger Frame Per User Info Order,” Zhou Lan (Broadcom)
- ✧ [11-16-0877](#), “Comment resolution on CID 783 (TXOP Duration field format),” Jeongki Kim (LG Electronics)
- ✧ [11-16-0878](#), “Comment resolution on CID 782 (Intra-PPDU PS),” Jeongki Kim (LG Electronics)
- ✧ [11-16-0881](#), “Comment resolution on ROMI,” Jayh Park (LG Electronics)
- ✧ [11-16-0882](#), “Comment resolution on TOMI,” Jayh Park (LG Electronics)
- ✧ [11-16-0883](#), “Comment resolution for CID 152,” Jayh Park (LG Electronics)
- ✧ [11-16-0884](#), “Spec. Text for HE Operation element and AID Assign Rule,” Jianhan Liu (MediaTek)
- ✧ [11-16-0890](#), “Comment Resolution on NAV Setting of Single and Multiple Protection and Control Response,” Po-Kai Huang (Intel)
- ✧ [11-16-0913](#), “SU Multi-TID Rules,” Jarkko Kneckt (Apple)
- ✧ [11-16-0916](#), “TID value of ALL ACK signaling,” Woojin Ahn (Wilus Institute)
- ✧ [11-16-0917](#), “Text for TID value of ALL ACK signaling,” Woojin Ahn (Wilus Institute)

- ✧ [11-16-0918](#), "Discussions on Partial BSS Color," Geonjung Ko (Wilus Institute)
- ✧ [11-16-0924](#), "NAV resetting with RTS/MU-RTS," Weimin Xing (ZTE)
- ✧ [11-16-0925](#), "Spex text on NAV resetting with RTS/MU-RTS," Weimin Xing (ZTE)
- ✧ [11-16-0941](#), "CR HE Fragmentation - part 2," Ming Gan (Huawei technologies)
- ✧ [11-16-0942](#), "CR Service Field," Ming Gan (Huawei Technologies)
- ✧ [11-16-0951](#), "Setting for TXOP Duration Field," Po-Kai Huang (Intel)
- ✧ [11-16-0952](#), "Spec text trigger frame per user info order," Zhou Lan (Broadcom)
- ✧ [11-16-0953](#), "Comment Resolution and Spec Text for Setting for TXOP Duration field," Po-Kai Huang (Intel)
- ✧ [11-16-0960](#), "AP access procedure for UL MU operation," Jinsoo Ahn (Yonsei Univ.)
- ✧ [11-16-0961](#), "Consideration on Multi-STA BlockAck Optimization," Hanseul Hong (Yonsei Univ.)
- ✧ [11-16-0962](#), "EDCA rules follow up 1," Jing Ma (NICT)
- ✧ [11-16-0963](#), "EDCA rules follow up 2," Jing Ma (NICT)
- ✧ [11-16-0966](#), "CID 71 and CID 190 Resolutions," Jarkko Knecht (Apple)
- ✧ [11-16-0998](#), "2 sets of EDCA parameters," Laurent Cariou (Intel)

● **Submissions – Multi-User (12 submissions)**

- ✧ [11-16-0866](#), "Comment Resolution of Section 26.3.13 MU-MIMO," Kome Oteri (InterDigital)
- ✧ [11-16-0875](#), "CR for the section 10.3.2.8a CS Condition to Respond CTS," Kiseon Ryu (LG Electronics)
- ✧ [11-16-0876](#), "CR for the section 25.5.2.4 UL MU CS CCA and CS Required Bit," Kiseon Ryu (LG Electronics)
- ✧ [11-16-0880](#), "UL MU Transmission Rules - EDCA backoff," Jayh Park (LG Electronics)
- ✧ [11-16-0885](#), "Comment Resolution on UL MU CS NAV Consideration," Po-Kai Huang (Intel)
- ✧ [11-16-0886](#), "Comment Resolution for some UL MU CS TBD," Po-Kai Huang (Intel)
- ✧ [11-16-0887](#), "Spec Text for MU-RTS restriction on HE MU PPDU," Po-Kai Huang (Intel)
- ✧ [11-16-0926](#), "Soliciting UL_MU_ACK," Raja Banerjee (Qualcomm)
- ✧ [11-16-0929](#), "CR - UL MU Operation," Simone Merlin (Qualcomm)
- ✧ [11-16-0930](#), "CR - DL MU Operation," Simone Merlin (Qualcomm)
- ✧ [11-16-0938](#), "Comment Resolution for Sub-clause 25.10.4," Chittabrata Ghosh (Intel)
- ✧ [11-16-0958](#), "UL OFDMA for Unassociated STAs," Leonardo Lanante (Kyushu Institute of Tech.)

● **Submissions – Spatial Reuse (10 submission)**

- ✧ [11-16-0879](#), "Comment resolution on SR for VHT PPDU," Jeongki Kim (LG Electronics)
- ✧ [11-16-0889](#), "Comment Resolution for Spatial Reuse (Intra BSS detection)," Young Hoon Kwon (Newracom)
- ✧ [11-16-0901](#), "Clarification of SR Fields in HE Trigger Based PPDU," Daewon Lee (Newracom)
- ✧ [11-16-0902](#), "Proposed Text Changes for SR Fields in HE Trigger-Based PPDU," Daewon Lee (Newracom)
- ✧ [11-16-0905](#), "SR Fields Clarification," Ron Porat (Broadcom)
- ✧ [11-16-0919](#), "Discussions on SR Fields in HE Trigger-based PPDU," Geonjung Ko (Wilus Institute)
- ✧ [11-16-0310](#), "DSC Proposal Text," Graham Smith (SR Technologies)
- ✧ [11-16-0945](#), "Clarifications for OBSS_PD-based SR parameters," Laurent Cariou (Intel)
- ✧ [11-16-0947](#), "Proposed text changes for OBSS_PD-based SR parameters," Laurent Cariou (Intel)
- ✧ [11-16-0957](#), "Comment Resolutions on OBSS_PD Conditions in 25.9.3," James Wang (MediaTek)

- **Submissions – TG (8 submissions)**

- ✧ [11-15-1095](#), “OFDMA Performance in 11ax,” Suhwook Kim (LG Electronics)
- ✧ [11-16-0835](#), “EIFS,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16-0870](#), “Concluding MAC Trigger Padding,” Zhou Lan (Broadcom)
- ✧ [11-16-0907](#), “20MHz HE devices,” Joonsuk Kim (Apple)
- ✧ [11-16-0909](#), “CR – proposed text on 20 MHz devices,” Joonsuk Kim (Apple)
- ✧ [11-16-0949](#), “MAC trigger frame padding follow up,” Zhou Lan (Broadcom)
- ✧ [11-16-0965](#), “On High Efficiency WLAN (HEW) TG PAR Scope,” Osama Aboul-Magd (Huawei Technologies)

6. Timeline

- **May 2014:** start of the TG
- **Nov. 2014:** First draft of the TG SFD was approved
- **Jan. 2016:** proposed TG draft
- **March 2016:** Draft D0.1 was approved and CC started
- **September 2016:** Draft 1.0 and WG letter ballot
- **March 2017:** Draft 2.0 and recirculation
- **July 2017:** MDR (Mandatory Document Review)
- **November 2017:** Formation of SB pool
- **March 2018:** Sponsor Ballot
- **December 2018:** RevCom

Goals for September 2016

- Continue with Comment Resolutions.

Teleconferences

- Weekly teleconferences are planned after July 2016 session.
 - ✧ Thursday, August 4th; 20:00 – 22:00 (ET) → Approved during May 2016 meeting.
 - ✧ Thursday, August 11th, 25th, and September 8th; 10:00 – 12:00 (ET)
 - ✧ Thursday, August 18rd, September 1st, and 22nd; 20:00 – 22:00 (ET)

May 2016 – Waikoloa, HI

The TGax planned to have 10 sessions during the week.

Six out of ten sessions were assigned to the ad hoc group sessions.

	Tuesday		Wednesday		Thursday
	TGax (PHY)	TGax (MAC/SR)			TGax (full)
Gax (C/SR)	TGax (PHY)	TGax (MU)	TGax (PHY) TGax (MAC)	TGax (MAC/SR) TGax (MAC/SR)	TGax (full)
Gax (MU)		TGax (full)			

Main documents

- TGax Agenda: [11-16-0512-04](#), TGax May 2016 Meeting Agenda
 - TGax PHY ad hoc agenda and motions: [11-16-0693-03](#), TGax PHY Ad Hoc May 2016 Meeting Agenda
 - ✧ TGax PHY ad hoc meeting minutes: [11-16-0755-00](#), TGax May 2016 Waikoloa PHY Ad Hoc Meeting Minutes
 - TGax MAC and SR ad hoc agenda: [11-16-0698-04](#), TGax MAC and Spatial Reuse Ad Hoc Agenda May 2016 Meeting
 - ✧ TGax MAC and Spatial Reuse ad hoc meeting minutes: [11-16-0701-00](#), Combined Spatial Reuse & MAC ad hoc group meeting minutes
 - TGax Multi-User ad hoc agenda: [11-16-0697-02](#), TGax MU Ad-hoc Agenda May 2016 Agenda
 - ✧ TGax Multi-User ad hoc meeting minutes: [11-16-0716-00](#), May 2016 Waikoloa TGax MU Ad hoc Meeting minutes
- Closing report: [11-16-0739-00](#), TGax May 2016 Closing Report
- Draft TGax minutes: [11-16-0686-00](#), TGax May 2016 Waikoloa Meeting Minutes

Achievements

7. Work Completed

- **TGax received about 70 submissions.**

✧ Number of submissions: PHY/MAC/MUSR/TG = 33/18/9/3/6.

Majority of the submission were requesting changes to the TG Specification Framework.

Few submissions were addressing comment resolution mainly of the PHY clause.

- **Agreed to terminate the Specification Framework process. The frame of reference is Draft D0.1**
 - ✧ Future submissions shall bring text to continue developing the TG draft
 - ✧ The TG Technical Editor is planning to generate draft D0.2 based on outcome of this meeting
- **Approved the resolutions of about 200 comments, most of them addressing the PHY clause**
- **Revisited and accepted a new modified timeline.**

8. Technical Presentations

70 technical submissions have been covered during the week.

A list of the submissions is also available in the agenda document.

- Submissions – PHY (33 submissions)
 - ✧ [11-16/0608](#), “Beamforming Feedback Report Structure,” Sameer Vermani (Qualcomm)
 - ✧ [11-16/0610](#), “CR HE-SIG-A Part I,” Ross Jian Yu (Huawei Technologies)
 - ✧ [11-16/0611](#), “Remaining Issues in Trigger Frame Design,” Sameer Vermani (Qualcomm)
 - ✧ [11-16/0613](#), “SIG-B Related Issues,” Lochan Verma (Qualcomm)
 - ✧ [11-16/0614](#), “Comment Resolution on Clause 26.1.1 Part 1,” Lochan Verma (Qualcomm)
 - ✧ [11-16/0615](#), “Comment Resolution on Clause 26.3.12 Part 1,” Lochan Verma (Qualcomm)
 - ✧ [11-16/0617](#), “Remaining Topics in Power Control,” Bin Tian (Qualcomm)
 - ✧ [11-16/0618](#), “11ax CSD Design,” Bin Tian (Qualcomm)
 - ✧ [11-16/0619](#), “PAPR Reduction of HE-SIGB,” Bin Tian (Qualcomm)
 - ✧ [11-16/0620](#), “DCM PHY Parameters,” Hongyuan Zhang (Marvell)
 - ✧ [11-16/0621](#), “DCM Interleaver,” Tianyu Wu (MediaTek)
 - ✧ [11-16/0622](#), “16 QAM Mapping for DCM,” Sudhir Srinivasa (Marvell)
 - ✧ [11-16/0623](#), “CR on Section 26.3.10.12,” Bin Tian (Qualcomm)
 - ✧ [11-16/0625](#), “CR on Section 26.3.6,” Bin Tian (Qualcomm)
 - ✧ [11-16/0626](#), “Feedback Element Compression for 802.11ax,” Kome Oteri (InterDigital Communications)
 - ✧ [11-16/0633](#), “Left over Issues in RU Signaling for HE-SIGB,” Yan Zhang (Marvell)
 - ✧ [11-16/0634](#), “11ax Comment Resolutions for Clauses 26.3.2,” Yan Zhang (Marvell)

- ✧ [11-16/0635](#), “BW indication for Non-contiguous Channel Bonding,” Yunbo Li (Huawei Technologies)
 - ✧ [11-16/0636](#), “TXOP Duration field in HE-SIG-A,” Jeongki Kim (LG Electronics)
 - ✧ [11-16/0637](#), “Load balancing indication for MU-MIMO over 484-tone and larger RU in OFDMA,” Ming Gan (Huawei Technologies)
 - ✧ [11-16/0638](#), “Discussions for Non-contiguous Channel Bonding,” John Son (Wilus)
 - ✧ [11-16/0639](#), “Follow-up on HE-SIG-B user-specific field,” Jinsoo Choi (LG Electronics)
 - ✧ [11-16/0649](#), “Feedback Tone Map and Quantization,” Sriram Venkateswaran (Broadcom)
 - ✧ [11-16/0652](#), “Power scaling of 4 extra tones,” Xiaogang Chen (Intel)
 - ✧ [11-16/0653](#), “CR on section 26.3.3,” Xiaogang Chen (Intel)
 - ✧ [11-16/0654](#), “CP and LTF Options and Signaling,” Ron Porat (Broadcom)
 - ✧ [11-16/0655](#), “On MCS0 DCM Modulation and DCM Capability,” Jianhan Liu (MediaTek)
 - ✧ [11-16/0656](#), “1024QAM Modulation,” Jianhan Liu (MediaTek)
 - ✧ [11-16/0658](#), “CR on 26.3.7.1,” Jinsoo Choi (LG Electronics)
 - ✧ [11-16/0659](#), “CR on 26.3.9.9 and 26.3.5,” Eunsung Park (LG Electronics)
 - ✧ [11-16/0663](#), “CR on Section 26.2.2,” Ke Yao (ZTE)
 - ✧ [11-16/0681](#), “Comment Resolution CID 215 2486,” Daewon Lee (Newracom)
 - ✧ [11-16/0682](#), “CR CID on PHY data field other,” Daewon Lee (Newracom)
- Submissions – MAC (18 submissions)
- ✧ [11-16/0583](#), “Backoff Procedure Handling Upon TF Reception,” Yu Wang (Ericsson)
 - ✧ [11-16/0584](#), “Need of SDU Fragmentation to Reduce Padding Ratio in UL-OFDMA Transmission,” Yu Wang (Ericsson)
 - ✧ [11-16/0588](#), “Channel State Estimation based Bidirectional Initialized Random Access,” Bo Li (Northwestern Polytechnical Univ.)
 - ✧ [11-16/0590](#), “Multi-BSS Association for Edge Users’ Throughput Improvements,” Mao Yang (Northwestern Polytechnical Univ.)
 - ✧ [11-16/0616](#), “BlockAck generation and selection rules,” Alfred Asterjadhi (Qualcomm)
 - ✧ [11-16/0627](#), “ROM Recovery Rules,” Jayh Hyunhee Park (LG Electronics)
 - ✧ [11-16/0628](#), “Buffer Status Report in HE Control field,” Jayh Hyunhee Park (LG Electronics)
 - ✧ [11-16/0640](#), “BSS Color Collision,” Geonjung Ko (Wilus Institute)
 - ✧ [11-16/0641](#), “Regarding HE fragmentation,” Woojin Ahn (Yonsei Univ.)
 - ✧ [11-16/0643](#), “HE Control Scheduling,” Liwen Chu (Marvell)
 - ✧ [11-16/0644](#), “SS Allocation in Trigger,” Liwen Chu (Marvell)
 - ✧ [11-16/0645](#), “MU Minimum MPDU Start Spacing,” Liwen Chu (Marvell)
 - ✧ [11-16/0646](#), “HE Beamforming Feedback,” Liwen Chu (Marvell)
 - ✧ [11-16/0657](#), “In-device Multi-radio Coexistence and UL MU operation,” Robert Stacy (Intel)
 - ✧ [11-16/0673](#), “Multi-User EDCA,” Jinsoo Ahn (Yonsei Univ.)
 - ✧ [11-16/0674](#), “EIFS excess problem of Acknowledgement for UL MU procedure,” Hanseul Hon (Yonsei Univ.)
 - ✧ [11-16/0675](#), “comment resolution for CID2383,” Yonggang Fang (ZTE)
 - ✧ [11-16/0684](#), “Channel Access Efficiency,” Evgeny Khorov (IITP)
- Submissions – Multi-User (9 submissions)
- ✧ [11-16/0582](#), “Random Access RU Allocation in the Trigger Frame,” Evgeny Khorov (IITP)
 - ✧ [11-16/0591](#), “Issues related to OCW management,” Patrice Nezou (Canon)
 - ✧ [11-16/0592](#), “Follow up on Issue related to unused UL OFDMA RUs,” Stephane Baron (Canon)
 - ✧ [11-16/0648](#), “MU-RTS/CTS PHY Format,” Po-Kai Huang (Intel)
 - ✧ [11-16/0661](#), “Adaptive Random Access UL OFDMA,” Leonardo Lanante (Kyushu Institute of Technology)

- ✧ [11-16/0662](#), “Further consideration on channel access rule to facilitate MU transmission opportunity,” Jing Ma (NICT)
- ✧ [11-16/0664](#), “Consideration on backoff procedure for UL MU transmission,” Jing Ma (NICT)
- ✧ [11-16/0665](#), “Some Notes on Interference Alignment for Downlink Multi-User MIMO,” Dzevdan Kapetanovic (Ericsson)
- ✧ [11-16/0667](#), “Signaling of Multi-TID Aggregation Limit,” Chittabrata Ghosh (Intel)
- Submissions – Spatial Reuse (3 submission)
 - ✧ [11-16/0581](#), “Proposed changes to SR clause,” Soma Tayamon (Ericsson)
 - ✧ [11-16/0589](#), “Fractional-Backoff Procedure and Dynamic CCA,” Bo Li (Northwestern Polytechnical University)
 - ✧ [11-16/0647](#), “Consideration of Spatial Reuse for Trigger Frame,” Po-Kai Huang (Intel)
- Submissions – TG (6 submissions)
 - ✧ [11-16/0571](#), “QoS Handling of Trigger Frame,” Yu Wang (Ericsson)
 - ✧ [11-16/0597](#), “TG ax Indoor Enterprise Scenarios, Color, DSC and TPC,” Graham Smith (SR Technologies)
 - ✧ [11-16/0604](#), “Simulation-based evaluation of DSC in enterprise scenario,” Tanguy Ropitault (NIST)
 - ✧ [11-16/0609](#), “HE NDPA frame format,” Ross Jian Yu (Huawei)
 - ✧ [11-16/0612](#), “Mandatory/Optional Issues for 802.11ax,” Sameer Vermani (Qualcomm)
 - ✧ [11-16/0629](#), “Box 5 Calibration Results,” Marik Hsiao (MediaTek)

9. Timeline

Current Timeline	Modified Timeline
<ul style="list-style-type: none"> ● May 2014: start of the TG ● Nov. 2014: First draft of the TG SFD was approved ● Jan. 2016: proposed TG draft ● March 2016: Draft D0.1 was approved and CC started ● July 2016: Draft 1.0 and WG letter ballot ● March 2017: Draft 2.0 and recirculation ● Jan 2018: Sponsor Ballot 	<ul style="list-style-type: none"> ● May 2014: start of the TG ● Nov. 2014: First draft of the TG SFD was approved ● Jan. 2016: proposed TG draft ● March 2016: Draft D0.1 was approved and CC started ● September 2016: Draft 1.0 and WG letter ballot ● March 2017: Draft 2.0 and recirculation ● July 2017: MDR (Mandatory Document Review) ● November 2017: Formation of SB pool ● March 2018: Sponsor Ballot ● December 2018: RevCom

Goals for July 2016

- Continue with Comment Resolutions.

Teleconferences

- Weekly teleconferences are planned after May 2016 session.
 - ✧ Thursday, June 2nd, 16th, 30th, and July 14th: 10:00 – 12:00 (ET)
 - ✧ Thursday, June 23rd, July 7th, and August 4th: 20:00 – 22:00 (ET)

March 2016 – Macau

The TGax planned to have 9 sessions during the week.
Five out of nine sessions were assigned to the ad hoc group sessions.

	Tuesday		Wednesday		Thursday
	TGax (PHY)	TGax (MAC)			TGax (full)
			TGax (PHY)	TGax (MAC)	
	TGax (SR)	TGax (MAC)	TGax (MAC)	TGax (MU)	TGax (full)
Gax (MU)		TGax (full)			

Main documents

- TGax Agenda: [11-16-0235-07](#), TGax March 2016 Meeting Agenda
 - TGax PHY ad hoc agenda and motions: [11-16-0421-03](#), TGax PHY Ad Hoc March 2016 Meeting Agenda
 - ✧ TGax PHY ad hoc meeting minutes: [11-16-0509-00](#), TGax March 2016 Macau PHY Ad Hoc Meeting Minutes
 - TGax MAC ad hoc agenda: [11-16-0427-04](#), TGax MAC Ad Hoc March 2016 Meeting Agenda
 - ✧ TGax MAC ad hoc meeting minutes: [11-16-0439-01](#), Mar 2016 Macau TGax MAC Ad hoc Meeting Minutes
 - TGax Multi-User ad hoc agenda: [11-16-0419-02](#), TGax MU Ad-hoc Agenda March 2016 Agenda
 - ✧ TGax Multi-User ad hoc meeting minutes: [11-16-0466-00](#), March 2016 Macau TGax MU Ad hoc Meeting minutes
 - TGax Spatial Reuse ad hoc agenda and motions: [11-16-0422-02](#), 802.11ax Spatial Reuse Ad Hoc Group Agenda
 - ✧ TGax Spatial Reuse ad hoc minutes: [11-16-0537-00](#), Spatial Reuse ad hoc group March 2016 minutes
- Closing report: [11-16-0475-00](#), TGax March 2016 Closing Report
- Draft TGax minutes: [11-16-0415-00](#), TGax March 2016 Macau Meeting Minutes

Achievements

10. TG Documents

- **Passed a number of affecting all aspects of the TG Specification Framework:**
 - ✧ PHY – 22 motions passed.
 - ✧ MAC – 17 motions passed.
 - ✧ MU – 9 motions passed.
 - ✧ SR – 2 motions passes.
- **Latest revision of the Specification Framework is available at;**
 - ✧ <https://mentor.ieee.org/802.11/dcn/15/11-15-0132-16-00ax-spec-framework.docx>
- **Other TG documents**

- ✧ Simulation Scenario <https://mentor.ieee.org/802.11/dcn/14/11-14-0980-16-00ax-simulation-scenarios.docx>
- ✧ Evaluation Methodology <https://mentor.ieee.org/802.11/dcn/14/11-14-0571-12-00ax-evaluation-methodology.docx>
- ✧ Channel Model <https://mentor.ieee.org/802.11/dcn/14/11-14-0882-04-00ax-tgax-channel-model-document.docx>
- ✧ Functional Requirements <https://mentor.ieee.org/802.11/dcn/14/11-14-1009-02-00ax-proposed-802-11ax-functional-requirements.doc>

11. Technical Presentations

48 technical submissions have been covered during the week.

A list of the submissions is available in the agenda document.

● Submissions – PHY (12 submissions)

- ✧ [11-15/1354](#), “SIGA fields and Bitwidths,” Ron Porat (Broadcom)
- ✧ [11-16/0203](#), “Signalling Support for Full Bandwidth MU-MIMO Compressed SIG-B Mode,” Lei Huang (Panasonic)
- ✧ [11-16/0319](#), “I-Q Decoupled OFDM: A Solution To I/Q Imbalance,” Shouxing Simon Qu (Blackberry)
- ✧ [11-16/0335](#), “HE-STF sequences for 160/80+80MHz,” Eunsung Park (LG Electronics)
- ✧ [11-16/0343](#), “Spectral Mask Discussion,” Hongyuan Zhang (Marvell)
- ✧ [11-16/0344](#), “PHY Padding Related Issues,” Hongyuan Zhang (Marvell)
- ✧ [11-16/0346](#), “11ax Pilot Sequence,” Bin Tian (Qualcomm)
- ✧ [11-16/0349](#), “HE-SIG-B Compression Mode,” Kaushik Josiam (Samsung)
- ✧ [11-16/0367](#), “Power Scaling of L-LTF and L-STF,” Yakun Sun (Marvell)
- ✧ [11-16/0389](#), “Sounding Design,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16/0395](#), “Preamble transmission for Uplink OFDMA,” Ming Gan (Huawei)
- ✧ [11-16/0397](#), “HE-SIG-B Signaling Discussions,” John Son (WILUS Institute)

● Submissions – MAC (18 submissions)

- ✧ [11-16/0297](#), “Results for beacon collisions,” Evgeny Khorov (IITP RAS)
- ✧ [11-16/0345](#), “Simultaneous NAK for MU GCR-BA,” Jinsoo Ahn (Yonsei Univ.)
- ✧ [11-16/0347](#), “Fragmentation for MU frames-Follow up on parameters,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16/0352](#), “Considerations on MU initial link setup,” Woojin Ahn (Yonsei Univ.)
- ✧ [11-16/0353](#), “MU-RTS/CTS for TWT Protection,” Hanseul Hong (Yonsei Univ.)
- ✧ [11-16/0358](#), “Maximal A-MPDU Size,” Liwen Chu (Marvell)
- ✧ [11-16/0359](#), “Management ACK,” Liwen Chu (Marvell)
- ✧ [11-16/0361](#), “Ack Policy of UL MU frame,” Jeongki Kim (LG Electronics)
- ✧ [11-16/0362](#), “Multi-TID Aggregation Limit,” Chittabrata Ghosh (Intel)
- ✧ [11-16/0365](#), “Multi-STA BA Design,” Xiaofei Wang (InterDigital)
- ✧ [11-16/0368](#), “MAC padding options for legacy trigger frame,” Zhou Lan (Broadcom)
- ✧ [11-16/0369](#), “M-BA aggregated trigger frame,” Zhou Lan (Broadcom)
- ✧ [11-16/0377](#), “Sounding Sequences Clarifications,” Simone Merlin (Qualcomm)
- ✧ [11-16/0378](#), “Extended BA Bitmap,” Simone Merlin (Qualcomm)
- ✧ [11-16/0383](#), “RU Signaling in Trigger Frame,” Yunbo Li (Huawei)
- ✧ [11-16/0396](#), “Issues on BSS Color Bits Collision,” Geonjung Ko (WILUS Institute)
- ✧ [11-16/0399](#), “Considerations on Trigger Frame for Random Access Procedure,” Evgeny Khorov (IITP RAS)
- ✧ [11-16/0404](#), “BlockAck Bitmap,” Dengyu Qiao (Huawei)

● Submissions – Multi-User (6 submissions)

- ✧ [11-16/0331](#), “Power Control for Multi-User Transmission in 802.11ax,” Kome Oteri (InterDigital)
- ✧ [11-16/0333](#), “Issue related to unused UL OFDMA RUs,” Stephane Baron (Canon)

- ✧ [11-16/0340](#), “Random Access UL MU Resource Allocation and Indication,” Leonardo Lanante (Kyushu Institute of Technology)
- ✧ [11-16/0371](#), “Further consideration for MU-RTS/CTS,” Jin Ma (NICT)
- ✧ [11-16/0379](#), “Trigger Frame Format,” Simone Merlin (Qualcomm)
- ✧ [11-16/0413](#), “Power Control for UL MU,” Arjun Bharadwaj (Qualcomm)
- Submissions – Spatial Reuse (7 submission)
 - ✧ [11-16/0212](#), “Enterprise Scenario DSC and Color,” Graham Smith (SR Technplogies)
 - ✧ [11-16/0310](#), “DSC Proposed Text,” Graham Smith (SR Technplogies)
 - ✧ [11-16/0350](#), “Enterprise Scenario TPC and DSC,” Graham Smith (SR Technplogies)
 - ✧ [11-16/0360](#), “Simulation results of spatial reuse with various MCSs,” Junichi Iwatani (NTT)
 - ✧ [11-16/0382](#), “Discussion on Spatial Reuse Operations in 11ax,” Yunbo Li (Huawei)
 - ✧ [11-16/0403](#), “Spatial Re-Use with Adaptive CCA and TPC Simulation,” Frank Hsu (MediaTek)
 - ✧ [11-16/0414](#), “Adjustment Rules for Adaptive CCA and TPC,” James Wang (MediaTek)
- Submissions – TG (5 submissions)
 - ✧ [11-15/1095](#), “OFDMA Performance in 11ax,” Suhwook Kim (LG Electronics)
 - ✧ [11-16/0066](#), “Views on UL MU Features,” Joonsuk Kim (Apple)
 - ✧ [11-16/0355](#), “Snapshot of Residential Use 2016,” Carol Ansley (ARRIS Group)
 - ✧ [11-16/0364](#), “AID Assign Rules Based on BSS Color and HE Operation Element,” Jianhan Liu (MediaTek)
 - ✧ [11-16/0394](#), “Achieving High Efficiency in Medium Access via Roster Mode,” Sean Coffey (RealTek)

12. Draft Specification

- The TGax approved version 0.1 of the draft specification.
- **TG Motion:**
- **Move to accept document 11-16/0024r1 as the TG draft specification D0.1, and start a 21 day comment collection period.**
 - The submission is available at: <https://mentor.ieee.org/802.11/dcn/16/11-16-0024-01-00ax-proposed-draft-specification.docx>
 - **Move: Robert Stacey, Second: Simone Merlin**
 - **Y/N/A: 75/0/5, motion passes.**

Goals for May 2016

- Comment Resolution.
- Technical presentations.
- Revisit the timeline based on the number of comments received.

Teleconferences

- Four teleconferences are planned before the March 2016 session.
 - ✧ Thursday, April 14th, 10:00 – 12:00 (ET)
 - ✧ Thursday, April 21st, 20:00 – 22:00 (ET)
 - ✧ Thursday, April 28th, 10:00 – 12:00 (ET)
 - ✧ Thursday, May 5th, 20:00 – 22:00 (ET)

January 2016 – Atlanta, GA

The TGax planned to have 10 sessions during the week.

Four out of ten sessions were assigned to the ad hoc group sessions.

	Tuesday		Wednesday	Thursday
			TGax (full)	
	TGax (PHY)	TGax (MAC)		TGax (full)
	TGax (PHY)	TGax (MAC)	TGax (full)	
TGax (MAC)			TGax (full)	TGax (full)
	TGax (MU)			

Main documents

- TGax Agenda: [11-15-1516-03](#), TGax January 2016 Meeting Agenda
 - TGax PHY ad hoc agenda: [11-16-0108-02](#), TGax PHY Ad Hoc Jan 2016 Meeting Agenda
 - TGax MAC ad hoc agenda: [11-16-0109-02](#), TGax MAC Ad Hoc January 2016 Meeting Agenda
 - TGax Multi-User ad hoc agenda: [11-16-0147-01](#), TGax MU Ad-hoc January 2016 Agenda
- Closing report: [11-16-0187-00](#), TGax January 2016 Closing Report
- Draft TGax minutes: [11-16-0096-00](#), TGax January 2016 Atlanta Meeting Minutes
 - TGax PHY ad hoc meeting minutes: [11-16-0119-00](#), January 2016 Atlanta PHY Ad Hoc Meeting Minutes
 - TGax MAC ad hoc meeting minutes: [11-16-0110-00](#), Jan 2016 Atlanta TGax MAC Ad hoc Meeting Minutes
 - TGax Multi-User ad hoc meeting minutes: [11-16-0150-00](#), January 2016 Atlanta TGax MU Ad hoc Meeting minutes

Achievements

13. TG Documents

- **Passed a number of affecting all aspects of the TG Specification Framework:**
 - ✧ PHY – 30 motions passed.
 - ✧ MAC – 9 motions passed.
 - ✧ MU – 7 motions passed.
- **Latest revision of the Specification Framework is available at;**
 - ✧ <https://mentor.ieee.org/802.11/dcn/15/11-15-0132-15-00ax-spec-framework.docx>
- **Other TG documents**
 - ✧ Simulation Scenario <https://mentor.ieee.org/802.11/dcn/14/11-14-0980-16-00ax-simulation-scenarios.docx>
 - ✧ Evaluation Methodology <https://mentor.ieee.org/802.11/dcn/14/11-14-0571-12-00ax-evaluation-methodology.docx>
 - ✧ Channel Model <https://mentor.ieee.org/802.11/dcn/14/11-14-0882-04-00ax-tgax-channel-model-document.docx>
 - ✧ Functional Requirements <https://mentor.ieee.org/802.11/dcn/14/11-14-1009-02-00ax-proposed-802-11ax-functional-requirements.doc>

14. Technical Presentations

48 technical submissions have been covered during the week.

A list of the submissions is available in the agenda document.

● Submissions – PHY (22 submissions)

- ✧ [11-16/0030](#), “Maximum Tone Grouping Size for 802.11ax Feedback with MU-MIMO,” Kome Oteri (InterDigital)
- ✧ [11-16/0033](#), “1x HE-LTF for ULMUMIMO,” Hongyuan Zhang (Marvell)
- ✧ [11-16/0034](#), “Beamforming with HE-LTF Compression,” Hongyuan Zhang (Marvell)
- ✧ [11-16/0036](#), “CRC Generation for HE-SIG,” Yakun Sun (Marvell)
- ✧ [11-16/0037](#), “Continuous Puncturing for HE-SIGB Encoding,” Yakun Sun (Marvell)
- ✧ [11-16/0038](#), “Sequence for 1x LTF,” Daewon Lee (Newracom)
- ✧ [11-16/0039](#), “RU Allocation in SIG-B,” Daewon Lee (Newracom)
- ✧ [11-16/0040](#), “Issues with Compressed SIG-B Mode,” Yujin Noh (Newracom)
- ✧ [11-16/0041](#), “Link Adaptation for HE WLAN,” Yujin Noh (Newracom)
- ✧ [11-16/0044](#), “MCS Levels and TX EVM Requirement for 1024 QAM,” Eunsung Park (LG Electronics)
- ✧ [11-16/0045](#), “Flexible Wider Bandwidth Transmission,” John Son (WILUS)
- ✧ [11-16/0046](#), “Content for the extra tones in LSIG and RLSIG,” Jiayin Zhang (Huawei)
- ✧ [11-16/0047](#), “Discussion on the HE Extended Range SU PPDU,” Jiayin Zhang (Huawei)
- ✧ [11-16/0052](#), “Remaining HE-LTF Sequence Design,” Le Liu (Huawei)
- ✧ [11-16/0053](#), “Requirements for UL MU Transmissions,” Arjun Bharadwaj (Qualcomm)
- ✧ [11-16/0056](#), “On QPSK DCM Modulation and LDPC Tone Mapper for DCM,” Jianhan Liu (MediaTek)
- ✧ [11-16/0071](#), “Packet Extension Follow Up,” Ron Porat (Broadcom)
- ✧ [11-16/0079](#), “Allocation sizes for BCC in OFDMA,” Ken Taniguchi (Toshiba)
- ✧ [11-16/0080](#), “1x/2x/4x OFDM Symbol in HE SU PPDU with BCC,” Heejung Yu (Yeungnam Univ./NEWRACOM)
- ✧ [11-16/0088](#), “Ng for Compressed Beamforming feedback,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16/0089](#), “Single Stream Pilots in UL MU MIMO,” Sriram Venkateswaran (Broadcom)
- ✧ [11-16/0104](#), “Rate Matching for HE-SIG-B,” Daewon Lee (Newracom)

● Submissions – MAC (12 submissions)

- ✧ [11-16/0015](#), “Explicit Block Ack Request in DL MU PPDU,” Yongho Seok (Newracom)
- ✧ [11-16/0017](#), “Beacon Collision Avoidance,” Evgeny Khorov (IITP)
- ✧ [11-16/0018](#), “TDMA for Eliminating Hidden Station Effect in Dense Networks,” Evgeny Khorov (IITP)
- ✧ [11-16/0028](#), “Follow Up for Multi-STA BA for SU Transmissions,” Xiaofei Wang (InterDigital)
- ✧ [11-16/0029](#), “TXOP Truncation Enhancement,” Xiaofei Wang (InterDigital)
- ✧ [11-16/0042](#), “BSS Color Settings for a Multiple BSSID Set,” Geonjung Ko (WILUS)
- ✧ [11-16/0050](#), “Fragmentation for MU frames-Follow up on acks,” Alfred Asterjadhi (Qualcomm)
- ✧ [11-16/0051](#), “Response Give Trigger Type,” David Xun Yang (Huawei)
- ✧ [11-16/0068](#), “BSS Color and Multiple BSSID,” Liwen Chu (Marvell)
- ✧ [11-16/0069](#), “Multi-TID A-MPDU in MU Transmission,” Liwen Chu (Marvell)
- ✧ [11-16/0087](#), “NAV cancellation issues on MU protection,” Jinsoo Ahn (Yonsei Univ.)
- ✧ [11-16/0102](#), “High Efficiency Medium Access via Rosters,” Sean Coffey (RealTek)

● Submissions – Multi-User (9 submissions)

- ✧ [11-16/0031](#), “Proposed UL MU CS Rules,” Lei Wang (Marvell)
- ✧ [11-16/0048](#), “Protection using MU RTS/CTS,” Young Hoon Kwon (Newracom)
- ✧ [11-16/0054](#), “UL MU CCA Response,” Kaiying Lv (ZTE)
- ✧ [11-16/0057](#), “Indication for UL MU Carrier Sensing,” Kiseon Ryu (LG Electronics)
- ✧ [11-16/0065](#), “Duration/ID field in UL-MU,” Tomo Adachi (Toshiba)
- ✧ [11-16/0066](#), “Views on UL-MU Features,” Joonsuk Kim (Apple)

- ✧ [11-16/0067](#), “MAC Padding in Trigger Frame,” Liwen Chu (Marvell)
- ✧ [11-16/0085](#), “Congestion control for UL MU random access,” Woojin Ahn (Yonsei Univ.)
- ✧ [11-16/0091](#), “Regarding HE NDPA frame for DL Sounding Sequence,” Narendar Madhavan (Toshiba)

- Submissions – Spatial Reuse (1 submission)

- ✧ [11-16/0060](#), “Recipient-aware Spatial Reuse,” Reza Hedayat (Newracom)

- Submissions – TG (4 submissions)

- ✧ [11-15/1095](#), “OFDMA Performance in 11ax,” Suhwook Kim (LG Electronics)
- ✧ [11-16/0024](#), “Proposed draft specification,” Robert Stacy (Intel)
- ✧ [11-16/0043](#), “Clarification of SFD Texts,” John Son (WILUS)
- ✧ [11-16/0059](#), “Non-contiguous Channel Bonding in 11ax,” Yunbo Li (Huawei)

15. Draft Specification

- Document [11-16/0024r0](#) was submitted by the TG Editor and it includes a “draft” draft specification.
- The submission was reviewed by the TG Editor and is available on mentor to be reviewed by TG members.
- The submission is available at: <https://mentor.ieee.org/802.11/dcn/16/11-16-0024-00-00ax-proposed-draft-specification.docx>

16. Plan for Progressing TG Draft

- Approve the TG draft specification during the March 2016 meeting.
 - Draft 0.1
- Start a comment collection (CC) for 30 days on draft 0.1 – Ends some time in April.
- Comment resolution (May and July)
- Draft 1.0 in July 2016 and start WG LB.

Goals for March 2016

- Discuss Proposals affecting the TG Specification Framework document
- Approve D0.1 of the TG Draft
- Approve a 30-day Comment Collection Process.

Teleconferences

- Three teleconferences are planned before the March 2016 session.
 - ✧ Thursday, February 4th, 10:00 – 12:00 (ET)
 - ✧ Thursday, February 18th, 20:00 – 22:00 (ET)
 - ✧ Thursday, March 3rd, 10:00 – 12:00 (ET)

November 2015 – Dallas, TX

The TGax planed to have 10 sessions during the week.

One more session was added during the WG opening week plenary session due to the large number of submissions.

Five out of eleven sessions were assigned to the ad hoc group sessions.

Tuesday

Wednesday

Thursday

			TGax		TGax
TGax (PHY)	TGax (MAC)				TGax
TGax (MU)	TGax (SR)	TGax (PHY)	TGax (SR)		TGax
		TGax (PHY)	TGax (MU)		
TGax (PHY)	TGax (MAC)				

Main documents

- TGax Agenda: [11-15-1232-04](#), TGax November 2015 Meeting Agenda
 - TGax PHY ad hoc agenda: [11-15-1385-03](#), TGax PHY Ad Hoc Nov 2015 Meeting Agenda
 - TGax MAC ad hoc agenda: [11-15-1382-03](#), TGax MAC ad hoc Nov 2015 Meeting Agenda
 - TGax Multi-User ad hoc agenda: [11-15-1418-02](#), TGax MU Ad-hoc November 2015 Agenda
 - TGax Spatial Reuse ad hoc agenda: [11-15-1403-06](#), 802.11ax Spatial Reuse Ad Hoc Group Agenda
- Closing report: [11-15-1457-00](#), TGax November 2015 Closing Report
- Draft TGax minutes: [11-15-1368-01](#), TGax November 2015 Dallas Meeting Minutes
 - TGax PHY ad hoc meeting minutes: [11-15-1442-00](#), November 2015 Dallas PHY Ad Hoc Meeting Minutes
 - TGax MAC ad hoc meeting minutes: [11-15-1414-00](#), Nov 2015 Dallas TGax MAC Ad hoc Meeting Minutes
 - TGax Multi-User ad hoc meeting minutes: [11-15-1423-01](#), November 2015 Dallas TGax MU Ad hoc Meeting minutes
 - TGax Spatial Reuse ad hoc meeting minutes: [11-15-1421-01](#), Minutes of the IEEE 802.11ax Spatial Reuse ad hoc group meeting – Dallas, November 2015

Achievements

17. TG Documents

- **Passed a number of affecting all aspects of the TG Specification Framework:**
 - ✧ PHY – 33 motions passed.
 - ✧ MAC – 16 motions passed.
 - ✧ MU – 12 motions passed.
 - ✧ SR – 1 motion passed.
- **Latest revision of the Specification Framework is available at;**
 - ✧ <https://mentor.ieee.org/802.11/dcn/15/11-15-0132-10-00ax-spec-framework.docx>
- **Approved new revisions of the TGax Simulation Scenario and Evaluation Methodology documents.**
 - ✧ Simulation Scenario <https://mentor.ieee.org/802.11/dcn/14/11-14-0980-16-00ax-simulation-scenarios.docx>
 - ✧ Evaluation Methodology <https://mentor.ieee.org/802.11/dcn/14/11-14-0571-11-00ax-evaluation-methodology.docx>
- **Other documents**
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0882-04-00ax-tgax-channel-model-document.docx>
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-1009-02-00ax-proposed-802-11ax-functional-requirements.doc>

18. Technical Presentations

- 83 technical submissions have been covered during the week.
 A list of the submissions is available in the [agenda document](#).
- Submissions – PHY

- ✧ [11-15-1059](#), "SIG-B Encoding Structure Part II," Ron Porat (Broadcom)
- ✧ [11-15-1289](#), "Non-Uniform Constellations for 1024-QAM," Thomas Handte (Sony)
- ✧ [11-15-1303](#), "LTF Sequence Designs," Sungho Moon (Newracom)
- ✧ [11-15-1304](#), "Supported Resource Allocations in SIG-B," Sungho Moon (Newracom)
- ✧ [11-15-1305](#), "STBC and Padding Discussions" Hongyuan Zhang (Marvell)
- ✧ [11-15-1309](#), "Extended Range Support for 11ax," Sameer Vermani (Qualcomm)
- ✧ [11-15-1310](#), "11ax LDPC Tone Mapper for 160MHz," Bin Tian (Qualcomm)
- ✧ [11-15-1311](#), "11ax Spectral Mask," Bin Tian (Qualcomm)
- ✧ [11-15-1315](#), "HE-SIG-B Mapping and Compression," Kaushik Josiam (Samsung)
- ✧ [11-15-1320](#), "Maximum Tone Grouping Size for 802.11ax Feedback," Kome Oteri (InterDigital)
- ✧ [11-15-1321](#), "Reducing Explicit MIMO Compressed Beamforming Feedback Overhead for 802.11a," Kome Oteri (InterDigital)
- ✧ [11-15-1322](#), "Channel Estimation Enhancement and Transmission Efficiency Improvement Using Beam-Change Indication and 1x HE-LTF," Jianhan Liu (MediaTek)
- ✧ [11-15-1323](#), "HE-STF Sequence," Ensung Park (LG Electronics)
- ✧ [11-15-1324](#), "MCS for HE-SIG-B," Dongguk Lim (LG Electronics)
- ✧ [11-15-1327](#), "Diversity Mode in OFDMA," Yujin Noh (Newracom)
- ✧ [11-15-1329](#), "Link Adaptation for HE WLAN," Yujin Noh (Newracom)
- ✧ [11-15-1331](#), "PHY Padding Capability Signaling," Daewon Lee (Newracom)
- ✧ [11-15-1332](#), "Implicit Sounding for HE WLAN," Daewon Lee (Newracom)
- ✧ [11-15-1334](#), "HE-LTF Sequence Design," Le Liu (Huawei)
- ✧ [11-15-1335](#), "HE-SIG-B Contents," Le Liu (Huawei)
- ✧ [11-15-1347](#), "Strategies to reduce MIMO feedback overhead," Filippo Tosato (Toshiba)
- ✧ [11-15-1349](#), "Sounding for Uplink Transmission," Sungho Moon (Newracom)
- ✧ [11-15-1350](#), "Spatial Configuration And Signaling for MU-MIMO," Yakun Sun (Marvell)
- ✧ [11-15-1353](#), "Preamble Formats," Ron Porat (Broadcom)
- ✧ [11-15-1354](#), "SIGA fields and Bitwidths," Ron Porat (Broadcom)
- ✧ [11-15-1357](#), "Extra tones in the preamble," Xiaogang Chen (Intel)
- ✧ [11-15-1372](#), "L-LENGTH Equation Updates," Hongyuan Zhang (Marvell)

● Submissions – MAC

- ✧ [11-15-1265](#), "RTSCTS for UL DL OFDMA Control," Cheeha Kim (POSTECH)
- ✧ [11-15-1278](#), "HE MU Acknowledgment Procedure," Yongho Seok (Newracom)
- ✧ [11-15-1300](#), "DL MU transmission sequence," Yong Hoon Kwon (Newracom)
- ✧ [11-15-1318](#), "Fragmentation for MU frames-Follow up," Alfred Asterjadhi (Qualcomm)
- ✧ [11-15-1319](#), "Scheduled Trigger frames-Follow up," Alfred Asterjadhi (Qualcomm)
- ✧ [11-15-1330](#), "A method of transmitting Multi-STA Block frame," Jeongki Kim (LG Electronics)
- ✧ [11-15-1341](#), "Reception Status of Frames Transmitted in Random Access RUs," Tomoko Adachi (Toshiba)
- ✧ [11-15-1344](#), "Trigger Frame Format," Simone Merlin (Qualcomm)
- ✧ [11-15-1345](#), "Trigger type specific information," Kiseon Ryu (LG Electronics)
- ✧ [11-15-1346](#), "Ack Policy for UL MU Ack transmission," Kiseon Ryu (LG Electronics)
- ✧ [11-15-1351](#), "Rate MCS Selection Rules for M-BA and DL OFDMA BA," Liwen Chu (Marvell)
- ✧ [11-15-1352](#), "broadcast STAID in HE SIG B," Liwen Chu (Marvell)
- ✧ [11-15-1355](#), "Considerations for TDLS transmission in 11ax," Yingpei Lin (Huawei)
- ✧ [11-15-1359](#), "System Performance Evaluation of 802.11ae," Yu Wang (Ericsson)

● Submissions – Multi-User

- ✧ [11-15-1280](#), "Traffic priority for random Multi User Uplink OFDMA," Stephane Baron (Canon)
- ✧ [11-15-1301](#), "NAV Rule for UL MU Response," Yingpei Lin (Huawei)

- ✧ [11-15-1312](#), “MU BAR Frame Format,” Reza Hedayat (Newracom)
- ✧ [11-15-1314](#), “I/Q Imbalance Impact to TGax OFDMA Uplink Reception,” Rui Yang (InterDigital)
- ✧ [11-15-1325](#), “MU-RTS/CTS Follow Up,” Po-Kai Huang (Intel)
- ✧ [11-15-1326](#), “NAV Consideration for UL MU Response Follow Up,” Po-Kai Huang (Intel)
- ✧ [11-15-1328](#), “Scheduling information for UL OFDMA Acknowledgement,” Yujin Noh (Newracom)
- ✧ [11-15-1340](#), “NDP Announcement for HE Sequence,” Narendar Madhavan (Toshiba)
- ✧ [11-15-1364](#), “Signaling Trigger Information for STAs in 11ax,” Chittabrata Ghosh (Intel)
- ✧ [11-15-1369](#), “Random access based buffer status report,” Woojin Ahn (Yunsei Univ.)
- ✧ [11-15-1370](#), “UL OFDMA Random Access Control,” Jinsoo Ahn (Yonsei Univ.)
- ✧ [11-15-1374](#), “Consideration for protecting cascading MU DL/UL transmission with MU RTS/CTS,” Jing Ma (NICT)

● Submissions – Spatial Reuse

- ✧ [11-15-1259](#), “Use of TG ax Scenarios for Spatial Reuse,” Graham Smith (SR Technologies)
- ✧ [11-15-1284](#), “Simulation results for spatial reuse in 11ax,” Jinmin Kim (LG Electronics)
- ✧ [11-15-1313](#), “Considerations for Spatial Reuse,” Reza Hedayat (Newracom)
- ✧ [11-15-1316](#), “DSC calibration results with NS-3,” M. Shahwaiz Afaqui (T.U. Catalonia)
- ✧ [11-15-1336](#), “BSS Color Field Size Measurements,” Chuck Lukaszewski (Aruba-HP)
- ✧ [11-15-1337](#), “Secondary Channel CCA of HE STA,” John Son (Willus Institute)
- ✧ [11-15-1338](#), “Improving Spatial Reuse During OBSS UL MU Procedure,” Geonjung Ko (Willus Institute)
- ✧ [11-15-1348](#), “Multiple NAVs for Spatial Reuse,” Sigurd Schelstraete (Quantenna)
- ✧ [11-15-1427](#), “Drivers of the dynamic CCA adaptation,” Eduard Garcia-Villegas (Technical Univ. of Catalonia)

● Submissions – TG

- ✧ [11-15-1288](#), “An issue of wider bandwidth operation at real denser environment,” Katsuo Yunoki (KDDI R&D Labs)
- ✧ [11-15-1302](#), “System Level Simulator Evaluation with/without Capture Effect,” Vida Ferdowsi (Newracom)
- ✧ [11-15-1360](#), “Implications of wrap-around for TGax Scenario 3 and Scenario 4 – follow-up,” Marcin Filo (Univ. of Surrey)
- ✧ [11-15-1361](#), “Energy consumption with Scheduled PSP,” Dmitry Akhmetov (Intel)
- ✧ [11-15-1362](#), “On TGax Scenario 4 channel model – follow-up,” Marcin Filo (Univ. of Surrey)
- ✧ [11-15-1363](#), “Regulatory Landscape for Narrowband Transmissions in 11ax,” Ilan Sutskover (Intel)
- ✧ [11-15-1373](#), “Updated Box5 Calibration Results,” Narendar Madhavan (Toshiba)
- ✧ [11-15-1375](#), “11ax Support for IoT - Requirements and Technological Implications,” Shimo Shilo (Huawei)

Goals for January 2016

- Continue to advance TG documents based on submissions.
 - Priority to the TG Specification Framework document.
- TG timeline indicates draft D0.1 will be available in January 2016.
- Technical Presentations.

Teleconferences

- One teleconference is planned before the January 2016 session.
 - ✧ Thursday, December 10th, 10:00 – 12:00 (ET)

September 2015 – Bangkok, Thailand

Originally, TGax planned to have ten sessions during the week.

Two more sessions were added during the WG opening week plenary session due to the large number of submissions.

Six out of twelve sessions were assigned to the ad hoc sessions.

	Tuesday		Wednesday		Thursday
			TGax		TGax
	TGax (PHY)	TGax (MAC)			
Gax IAC)	TGax (MU)	TGax (SR)	TGax (PHY)	TGax (SR)	TGax
	TGax		TGax		
Gax IAC)	TGax (MU)	TGax (SR)			

Main documents

- TGax Agenda: [11-15-0987-06](#), TGax September 2015 Meeting Agenda
 - TGax PHY ad hoc agenda: [11-15-1125-04](#), TGax PHY Ad Hoc September 2015 Meeting Agenda
 - TGax MAC ad hoc agenda: [11-15-1126-03](#), TGax MAC ad hoc September 2015 Meeting Agenda
 - TGax Multi-User ad hoc agenda: [11-15-1141-02](#), TGax MU ad-hoc September 2015 Agenda
 - TGax Spatial Reuse ad hoc agenda: [11-15-1143-03](#), TGax Spatial Reuse Ad Hoc September 2015 Meeting Agenda
- Closing report: [11-15-1190-00](#), TGax September 2015 Closing Report
- Draft TGax minutes: [11-15-1093-00](#), TGax September 2015 Bangkok Meeting Minutes
 - TGax PHY ad hoc meeting minutes: [11-15-1205-00](#), September 2015 Bangkok PHY Ad Hoc Meeting Minutes
 - TGax MAC ad hoc meeting minutes: [11-15-1130-02](#), September 2015 TGax MAC Ad hoc Meeting Minutes
 - TGax Multi-User ad hoc meeting minutes: [11-15-1160-00](#), September 2015 TGax MU Ad hoc Meeting minutes
 - TGax Spatial Reuse ad hoc meeting minutes: [11-15-1206-00](#), Minutes of the IEEE 802.11ax Spatial Reuse ad hoc group meeting – Bangkok, September 2015

Achievements

19. TG Documents

- **Passed a number of affecting all aspects of the TG Specification Framework:**
 - ✧ PHY – 29 motions passed.
 - ✧ MAC – 12 motions passed.
 - ✧ MU – 15 motions passed.
 - ✧ SR – 4 motions passed.
- **Latest revision of the Specification Framework is available at;**
 - ✧ <https://mentor.ieee.org/802.11/dcn/15/11-15-0132-09-00ax-spec-framework.docx>
- **Approved new revisions of the TGax Simulation Scenario and Evaluation Methodology documents.**
 - ✧ Simulation Scenario <https://mentor.ieee.org/802.11/dcn/14/11-14-0980-14-00ax-simulation-scenarios.docx>
 - ✧ Evaluation Methodology <https://mentor.ieee.org/802.11/dcn/14/11-14-0571-10-00ax-evaluation-methodology.docx>
- Other documents

- ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0882-04-00ax-tgax-channel-model-document.docx>
- ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-1009-02-00ax-proposed-802-11ax-functional-requirements.doc>

20. Technical Presentations

83 technical submissions have been covered during the week.

A list of the submissions is available in the [agenda document](#).

● PHY

- ✧ [11-15-0579](#), "Preamble Design and Auto-detection," Hongyuan Zhang (Marvell)
- ✧ [11-15-0580](#), "11ax Coding Discussion," Hongyuan Zhang (Marvell)
- ✧ [11-15-0602](#), "HE-LTF squence for UL MU-MIMO," Xiaogang Chen (Intel)
- ✧ [11-15-0810](#), "HE PHY Padding and Packet Extension," Hongyuan Zhang (Marvell)
- ✧ [11-15-0823](#), "Preamble Design and Auto-Detection for 11ax," Sungho Moon (Newracom)
- ✧ [11-15-0826](#), "HE-SIG-A Transmission for Range Extension," Jiayin Zhang (Huawei)
- ✧ [11-15-0853](#), "Extensible Preamble Format Design," Leonardo Lanante (Kyutech)
- ✧ [11-15-1031](#), "DL MU Signaling," Katsuo Yunoki (KDDI)
- ✧ [11-15-1051](#), "HE NDP frame for sounding," Young Hoon Kwon (Newracom)
- ✧ [11-15-1059](#), "SIG-B Encoding Structure Part II," Ron Porat (Broadcom)
- ✧ [11-15-1066](#), "HE-SIG-B Contents," Kaushik Josiam (Samsung)
- ✧ [11-15-1068](#), "Reliable Transmission Scheme for HE-SIG-B and Data," Jianhan Liu (MediaTek)
- ✧ [11-15-1070](#), "1024 QAM Proposal," Eunsung Park (LG Electronics)
- ✧ [11-15-1071](#), "Tone Grouping Factors and NDP format for 11ax," Sameer Vermani (Qualcomm)
- ✧ [11-15-1075](#), "Number of BSS Color bits," Junichi Iwatani (NTT)
- ✧ [11-15-1077](#), "HE-SIG-A Content," Jiayin Zhang (Huawei)
- ✧ [11-15-1088](#), "LTF Design for Uplink MU-MIMO," Daewon Lee (Newracom)
- ✧ [11-15-1089](#), "Considerations on PHY Padding and Packet Extension in 11ax," Yujin Noh (Newracom)
- ✧ [11-15-1091](#), "Considerations on Range Extension with SIG-A Repetition," Yujin Noh (Newracom)
- ✧ [11-15-1092](#), "Support of 1x/2x/4x OFDM Symbol in HE SU PPDU," Heejung Yu (Yeungnam Univ.)
- ✧ [11-15-1106](#), "SIG-B Structure," Reza Hedayat (Newracom)
- ✧ [11-15-1111](#), "SIG-B Resource Unit Allocation Coding," Amin Jafarian (Newracom)
- ✧ [11-15-1119](#), "Discussions on HE SIG-A Structure," John Son (Wilus Institute)
- ✧ [11-15-1122](#), "Identifiers in HE PPDUs for power saving," Alfred Asterjadhi (Qualcomm)

● MAC

- ✧ [11-15-1013](#), "802.11ae & 802.11ax," Guido R. Hiertz (Ericsson)
- ✧ [11-15-1014](#), "Multiple BSSID Element," Guido R. Hiertz (Ericsson)
- ✧ [11-15-1015](#), "Proxy ARB in 802.11ax," Guido R. Hiertz (Ericsson)
- ✧ [11-15-1033](#), "Data field in HE PPDU," Yongho Seok (Newracom)
- ✧ [11-15-1034](#), "Notification of Operating Mode Changes," Yongho Seok (Newracom)
- ✧ [11-15-1044](#), "Further Study of 11ax Multicast," Kazuyuki Sakoda (Sony)
- ✧ [11-15-1052](#), "Bandwidth for UL MU transmission," Young Hoon Kwon (Newracom)
- ✧ [11-15-1060](#), "Receive Operating Mode Indication for Power Save," Eric Wong (Apple)
- ✧ [11-15-1063](#), "11ax Channel access procedure," Chao-Chun Wang (MediaTek)
- ✧ [11-15-1067](#), "MU TXOP truncation," Jeongki Kim (LG Electronics)
- ✧ [11-15-1096](#), "Recovery Procedures in Cascading Sequences," John Son (Wilus Institute)
- ✧ [11-15-1098](#), "ACK/BA frame for UL MU under cascading structure," Narendar Madhavan (Toshiba)
- ✧ [11-15-1114](#), "Airtime Analysis of EDCA," Sean Coffey (RealTek)
- ✧ [11-15-1115](#), "High Efficiency in Accessing the Medium," Sean Coffey (RealTek)

- ✧ [11-15-1116](#), “Trigger Frame Channel Access,” Jinsoo Ahn (Yonsei Univ.)
 - ✧ [11-15-1120](#), “Buffer Status Report,” Alfred Asterjadhi (Qualcomm)
 - ✧ [11-15-1121](#), “HE A-Control field,” Alfred Asterjadhi (Qualcomm)
 - ✧ [11-15-1137](#), “Triggered OFDMA Random Access Observations,” Russell Huang (MediaTek)
- Multi-User
 - ✧ [11-15-1043](#), “Overall Protocol of UL MU BA for Multicast Transmission,” Kazuyuki Sakoda (Sony)
 - ✧ [11-15-1047](#), “RU selection process upon TF-R reception,” Stephane Baron (Canon)
 - ✧ [11-15-1053](#), “Multiuser Block ACK Request (MU-BAR),” Guoqing Li (Apple)
 - ✧ [11-15-1057](#), “Multiple Resource Unit Allocation for TGax OFDMA,” Kome Oteri (InterDigital)
 - ✧ [11-15-1062](#), “NAV Consideration for UL MU Response to Trigger frame,” Po-Kai Huang (Intel)
 - ✧ [11-15-1065](#), “11ax uplink Multi-TID aggregation,” Chao-Chun Wang (MediaTek)
 - ✧ [11-15-1086](#), “Consideration on multi-STA BA frame indication,” Jing Ma (NICT)
 - ✧ [11-15-1097](#), “Reducing Channel Sounding Protocol Overhead for 11ax,” Narendar Madhavan (Toshiba)
 - ✧ [11-15-1102](#), “Fragmentation with MU Operation,” Chittabrata Ghosh (Intel)
 - ✧ [11-15-1103](#), “DL Sounding Sequence with UL MU Feedback,” Chittabrata Ghosh (Intel)
 - ✧ [11-15-1105](#), “UL OFDMA-based Random Access Procedure,” Chittabrata Ghosh (Intel)
 - ✧ [11-15-1107](#), “Power Save with Random Access,” Chittabrata Ghosh (Intel)
 - ✧ [11-15-1117](#), “Regarding UL MU protection,” Woojin Ahn (Yonsei Univ.)
 - ✧ [11-15-1123](#), “Acknowledgement to DL MU,” Liwen Chu (Marvell)
 - ✧ [11-15-1129](#), “Feedback overhead in DL-MU-MIMO,” Filippo Tosato (Toshiba)
 - Spatial Reuse
 - ✧ [11-15-1045](#), “Dynamic CCA control and TPC Simulation Results with SS1-SS3,” Takeshi Itagaki (Sony)
 - ✧ [11-15-1058](#), “CCA consideration for UL MU transmission,” Kiseon Ryu (LG Electronics)
 - ✧ [11-15-1069](#), “Adaptive CCA and TPC,” James Wang (MediaTek)
 - ✧ [11-15-1081](#), “Further consideration on receive behaviour based on the cascading structure and the BSS color scheme,” Jing Ma (NICT)
 - ✧ [11-15-1082](#), “Analysis of BSS and ESS Structure During Concurrent SR Transmissions,” Chuck Lukaszewski (Aruba/HP)
 - ✧ [11-15-1083](#), “Cost/Benefit Analysis of SR Techniques,” Chuck Lukaszewski (Aruba/HP)
 - ✧ [11-15-1101](#), “DSC/DCCA Calibration with TGax Agreed Scenarios,” Masahito Mori (Sony)
 - ✧ [11-15-1104](#), “TXOP Considerations for Spatial Reuse,” Reza Hedayat (Newracom)
 - ✧ [11-15-1109](#), “OBSS NAV and PD Threshold Rule for Spatial Reuse,” Rossi Jun Luo (Huawei)
 - ✧ [11-15-1110](#), “BSS TXOP,” Amin Jafarian (Newracom)
 - ✧ [11-15-1118](#), “Discussions on Spatial Reuse Enhancement,” Geonjung Ko (WILUS)
 - ✧ [11-15-1138](#), “To DSC or not to DSC,” Filip Mestanov (Ericsson)
 - Simulation and Calibration and others
 - ✧ [11-15-1039](#), “Spatial Reuse Measurements,” Chuck Lukaszewski (Aruba Networks, a HP company)
 - ✧ [11-15-1046](#), “MAC calibration results,” Stephane Baron (Canon)
 - ✧ [11-15-1048](#), “On TGax Scenario 4 channel model,” Marcin Filo (Univ. of Surrey)
 - ✧ [11-15-1049](#), “Implications of wrap-around for TGax Scenario 3 and Scenario 4,” Marcin Filo (Univ. of Surrey)
 - ✧ [11-15-1056](#), “Clarifying Link Level Simulator Assumptions,” Kome Oteri (InterDigital)
 - ✧ [11-15-1087](#), “MU BFee Interference channel feedback,” Sigurd Schelstraete (Quantenna)
 - ✧ [11-15-1095](#), “OFDMA performance in 11ax,” Suhwook Kim (LG Electronics)

- ✧ [11-15-1099](#), “Power Save Simulation Results,” Hyeyoung Choi (LG Electronics)
- ✧ [11-15-1100](#), “Discussion on Deep and Shallow Sleep States,” Chittabrata Ghosh (Intel)
- ✧ [11-15-1113](#), “Box5 Calibration results,” Vida Ferdowsi (Newracom)
- ✧ [11-15-1134](#), “11ax Support for IoT,” Shimi Shilo (Huawei)
- ✧ [11-15-1135](#), “Results for SS6 calibration case for single BSS and OBSS,” Esa Tuomaala (Nokia)

Goals for November 2015

- Continue to advance TG documents based on submissions.
 - Priority to the TG Specification Framework document.
- Technical Presentations.

Teleconferences

- One teleconference is planned before the November 2015 session.
 - ✧ Thursday, October 15th, 10:00 – 12:00 (ET)

July 2015 – Waikoloa, HI

Originally, TGax planned to have nine sessions during the week.
 Two more sessions were added during the mid-week plenary session (marked red).
 Four out of eleven sessions were ad hoc sessions.

Tuesday		Wednesday		Thursday
				TGax
TGax	TGax			TGax
(PHY)	(MAC)			
TGax	TGax	TGax	TGax	TGax
(Multi-User)	(Spatial Reuse)	(PHY)	(MAC)	
		TGax	TGax	TGax
		(PHY)	(Multi-User)	
TGax				

Main documents

- TGax Agenda: [11-15-0735-05](#), TGax July 2015 Meeting Agenda
 - TGax PHY ad hoc agenda: [11-15-0898-03](#), TGax PHY Ad Hoc Jul 2015 Meeting Agenda
 - TGax MAC ad hoc agenda: [11-15-0888-02](#), TGax MAC ad hoc July 2015 Meeting Agenda
 - TGax Multi-User ad hoc agenda: [11-15-0899-02](#), TGax MU ad-hoc July 2015 Agenda
 - TGax Spatial Reuse ad hoc agenda: [11-15-0911-01](#), 802.11ax Spatial Reuse Ad Hoc Group
- Closing report: [11-15-0963-00](#), TGax July 2015 Closing Report
- Draft TGax minutes: [11-15-0884-00](#), TGax July 2015 Waikoloa Meeting Minutes
 - TGax PHY ad hoc meeting minutes: [11-15-0913-00](#), July 2015 Hawaii PHY Ad Hoc Meeting Minutes
 - TGax MAC ad hoc meeting minutes: [11-15-0922-01](#), July 2015 Hawaii TGax MAC Ad hoc Meeting Minutes
 - TGax Multi-User ad hoc meeting minutes: [11-15-0949-01](#), July 2015 Hawaii TGax MU Ad hoc Meeting minutes

- TGax Spatial Reuse ad hoc meeting minutes: [11-15-0971-01](#), Minutes of the IEEE 802.11ax Spatial Reuse ad hoc group meeting

Achievements

21. TG Documents

- **Passed a number of PHY, MAC and MU motions affecting the TGax Specification Framework:**
 - ✧ PHY Motions: SIG-A, SIG-B, Pilots, etc.
 - ✧ MAC Motions: Trigger frame, etc.
 - ✧ MU Motions: Trigger frame for random access, MU CTS, etc.
- **Latest revision of the Specification Framework is available at;**
 - ✧ <https://mentor.ieee.org/802.11/dcn/15/11-15-0132-07-00ax-spec-framework.docx>
- **Approved new revisions of the TGax Simulation Scenario and Evaluation Methodology documents.**
 - ✧ Simulation Scenario <https://mentor.ieee.org/802.11/dcn/14/11-14-0980-14-00ax-simulation-scenarios.docx>
 - ✧ Evaluation Methodology <https://mentor.ieee.org/802.11/dcn/14/11-14-0571-10-00ax-evaluation-methodology.docx>
- **Other documents**
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0882-04-00ax-tgax-channel-model-document.docx>
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-1009-02-00ax-proposed-802-11ax-functional-requirements.doc>

22. Technical Presentations

More than 70 technical submissions have been covered during the week.

A list of the submissions is available in the [agenda document](#).

- **PHY**
 - ✧ [11-15-0579](#), “preamble design and autodetection,” Hongyuan Zhang (Marvell)
 - ✧ [11-15-0580](#), “11ax coding discussion,” Hongyuan Zhang (Marvell)
 - ✧ [11-15-0602](#), “HE-LTF sequence for UL MU-MIMO,” Qinghua Li (Intel)
 - ✧ [11-15-0805](#), “SIG-B field for HEW PPDU,” Young Hoon Kwon (Newracom)
 - ✧ [11-15-0810](#), “HE PHY Padding and Packet Extension,” Hongyuan Zhang (Marvell)
 - ✧ [11-15-0812](#), “Pilot Design for Data Section,” Sameer Vermani (Qualcomm)
 - ✧ [11-15-0813](#), “CP Indication for UL MU Transmission,” Zhigang Rong (Huawei)
 - ✧ [11-15-0816](#), “Interleaver and Tone Mapper for OFDMA,” Yakun Sun (Marvell)
 - ✧ [11-15-0817](#), “P Matrix for HE-LTF,” Yakun Sun (Marvell)
 - ✧ [11-15-0819](#), “11ax OFDMA Tone Plan Leftover Tones and Pilot Structure,” Bin Tian (Qualcomm)
 - ✧ [11-15-0821](#), “HE SIG-B Structure,” Joonsuk Kim (Apple)
 - ✧ [11-15-0822](#), “SIG-A Structure in 11ax Preamble,” Jianhan Liu (MediaTek)
 - ✧ [11-15-0823](#), “Preamble Design and Auto-Detection for 11ax,” Sungho Moon (Newracom)
 - ✧ [11-15-0824](#), “Pilot Design for 11ax Downlink Transmissions,” Yujin Noh (Newracom)
 - ✧ [11-15-0826](#), “HE-SIG-A transmission for range extension,” Jiayin Zhang (Huawei)
 - ✧ [11-15-0827](#), “Considerations on HE-SIG-A and B,” Katsuo Yunoki (KDDI Labs)
 - ✧ [11-15-0832](#), “Performance evaluation of SU/MU MIMO in OFDMA,” Jiayin Zhang (Huawei)
 - ✧ [11-15-0845](#), “LTF Design for Uplink MU-MIMO,” Daewon Lee (Newracom)
 - ✧ [11-15-0853](#), “Extensible Preamble Format Design,” Leonardo Lanante (Kyushu Institute of Technology)
 - ✧ [11-15-0865](#), “Discussion of ACI performance and ACI requirements for IEEE 802.11ax,” Leif Wilhelmsson (Ericsson AB)
 - ✧ [11-15-0868](#), “Impact of Frequency Selective Scheduling Feedback for OFDMA,” Hakan Persson (Ericsson)

- ✧ [11-15-0873](#), “SIG-B Encoding Structure,” Ron Porat (Broadcom)
- ✧ [11-15-0887](#), “Efficient padding for last OFDM symbol,” Heejung Yu (Newracom)
- MAC
 - ✧ [11-15-0615](#), “DL OFDMA Bandwidth,” Liwen Chu (Marvell)
 - ✧ [11-15-0803](#), “Frame Collision Information Management,” Peng Shao (NEC Communication Systems)
 - ✧ [11-15-0831](#), “Broadcast and Unicast (Trigger) in DL MU,” Liwen Chu (Marvell)
 - ✧ [11-15-0841](#), “Cascading Structure,” David Xun Yang (Huawei Technologies)
 - ✧ [11-15-0851](#), “HE Trigger Frame Format,” John Son (WILUS Institute)
 - ✧ [11-15-0856](#), “Compressed Uplink Trigger Frame,” Vida Ferdowsi (Newracom)
 - ✧ [11-15-0871](#), “Efficiency enhancement for 802.11ax,” Guido R. Hiertz (Ericsson)
 - ✧ [11-15-0872](#), “802.11ai and 802.11ax,” Guido R. Hiertz (Ericsson)
 - ✧ [11-15-0874](#), “Minimal data rates management frame transmissions in 2.4 GHz,” Guido R. Hiertz (Ericsson)
 - ✧ [11-15-0876](#), “Duration and MAC Padding for MU PPDU,” Simone Merlin (Qualcomm)
 - ✧ [11-15-0877](#), “Trigger Frame Format,” Simone Merlin (Qualcomm)
 - ✧ [11-15-0878](#), “Issues on Trigger Frame Retransmission,” Jinsoo Ahn (Yonsei Univ.)
 - ✧ [11-15-0880](#), “Scheduled Trigger frames,” Alfred Asterjadhi (Qualcomm)
 - ✧ [11-15-0914](#), “Enlarged minimal contention window size,” Guido R. Hiertz (Ericsson)
- Multi-User
 - ✧ [11-15-0800](#), “Multiplexing of Acknowledgements for Multicast Transmission,” Yusuke Tanaka (Sony)
 - ✧ [11-15-0806](#), “Protection for MU transmission,” Young Hoon Kwon (Newracom)
 - ✧ [11-15-0818](#), “Further Analysis of Feedback and Frequency Selective Scheduling (FSS) for TGax OFDMA,” Kome Oteri (InterDigital Communication)
 - ✧ [11-15-0829](#), “Uplink ACK and BA Multiplexing,” Reza Hedayat (Newracom)
 - ✧ [11-15-0843](#), “UL MU OFDMA analysis,” Yonggang Fang (ZTE)
 - ✧ [11-15-0852](#), “Transmission Interval of Trigger Frames,” Leonardo Lanante (Kyushu Institute of Technology)
 - ✧ [11-15-0854](#), “DL OFDMA Signalling,” Tomoko Adachi (Toshiba)
 - ✧ [11-15-0855](#), “How to collect STAs’ Tx demands for UL MU,” Tomoko Adachi (Toshiba)
 - ✧ [11-15-0858](#), “MU BFee Interference channel feedback,” Sigurd Schelstraete (Quantenna)
 - ✧ [11-15-0859](#), “A mechanism for incremental updates to MU precoding,” Sigurd Schelstraete (Quantenna)
 - ✧ [11-15-0867](#), “MU-RTS/CTS for DL MU,” Po-kai Huang (Intel)
 - ✧ [11-15-0875](#), “Random Access with Trigger Frames using OFDMA,” Chittabrata Ghosh (Intel)
 - ✧ [11-15-0881](#), “Regarding buffer status of UL-STAs in UL-OFDMA,” Woojin Ahn (Yonsei Univ.)
- Spatial Reuse
 - ✧ [11-15-0797](#), “NAV Operation for Spatial Reuse,” Yongho Seok (Newracom)
 - ✧ [11-15-0801](#), “DCCA/DSC Reference Simulation Results,” Masahito Mori (Sony)
 - ✧ [11-15-0804](#), “Outdoor Enterprise Scenario and DSC,” Graham Smith (SR Technologies)
 - ✧ [11-15-0807](#), “DSC Summary,” Graham Smith (SR Technologies)
 - ✧ [11-15-0811](#), “Topics for Consideration for Spatial Reuse,” Xiaofei Wang (InterDigital)
 - ✧ [11-15-0882](#), “DSC leveraging uplink RTS/CTS control,” M. Shahwaiz Afaqui (Technical University of Catalonia)
 - ✧ [11-15-0883](#), “Follow Up Discussion on The Receiver Behavior,” Yasuhiko Inoue (NTT)
 - ✧ [11-15-0886](#), “DSC Calibration Results,” Chinghwa Yu (MediaTek)
- Simulation and Calibration and others

- ✧ [11-15-0754](#), “WLAN Packet traffic and efficiency analysis,” Jim Lansford (CSR)
- ✧ [11-15-0781](#), “Summary of Power Save Calibration Results,” Eric Wong (Apple)
- ✧ [11-15-0787](#), “Power Save Calibration Results,” Eric Wong (Apple)
- ✧ [11-15-0788](#), “Box 1 and Box 2 calibration results,” Takeshi Itagaki (Sony)
- ✧ [11-15-0789](#), “Proposed Changes to Evaluation Methodologies,” Allan Jones (Activision)
- ✧ [11-15-0802](#), “Box5 Calibration Results of SS6,” Jiyong Pang (Huawei)
- ✧ [11-15-0814](#), “Simulation Results for Box5 Calibration,” Ke Yao (ZTE)
- ✧ [11-15-0833](#), “Calibration results for PSP and UAPSD for 20, 40 and 80MHz bands,”
Dmitry Akhmetov (Intel)
- ✧ 11-15-0680, “Reference Box5 Calibration Assumptions and Parameters,” Jiyong Pang
(Huawei)
- ✧ [11-15-0849](#), “Simulation Results for Box5 Calibration,” Rongzhen Yang (Intel)
- ✧ [11-15-0869](#), “OFDMA and VoIP Capacity,” Hakan Persson (Ericsson)
- ✧ [11-15-0870](#), “802.11ax in 2.4 GHz,” Guido R. Hiertz (Ericsson)
- ✧ [11-15-0885](#), “Box 5 Calibration Results,” ChingHwa Yu (MediaTek)

Goals for September 2015

- Continue to advance TG documents based on submissions.
 - Priority to the TG Specification Framework document.
- Technical Presentations.

Teleconferences

- One teleconference is planned before the September 2015 session.
 - ✧ Thursday, August 20th, 10:00 – 12:00 (ET)

May 2015 – Vancouver, BC, Canada

TGax had eight sessions during the week. Four out of eight sessions were ad hoc sessions.

	Tuesday		Wednesday		Thursday
	TGax (Multi-User)	TGax (Spatial Reuse)			TGax
TGax (MAC)	TGax (PHY)	TGax (Spatial Reuse)	TGax (PHY)	TGax (Multi-User)	TGax
			TGax		

Main documents

- TGax Agenda: [11-15-0500-08](#), TGax May 2015 Meeting Agenda
 - TGax PHY ad hoc agenda: [11-15-0640-04](#), TGax PHY Ad Hoc May 2015 Meeting Agenda
 - TGax MAC ad hoc agenda: [11-15-0599-02](#), TGax MAC ad hoc May 2015 Meeting Agenda
 - TGax Multi-User ad hoc agenda: [11-15-0645-01](#), TGax MU ad-hoc May 2015 Agenda
 - TGax Spatial Reuse ad hoc agenda: [11-15-0650-02](#), 802.11ax Spatial Reuse Ad Hoc Group
- Closing report: [11-15-00692-01](#), TGax May 2015 Closing Report
- Draft TGax minutes: [11-15-0622-00](#), TGax May 2015 Vancouver Meeting Minutes
 - TGax PHY ad hoc meeting minutes: [11-15-0651-02](#), May 2015 Vancouver PHY Ad Hoc Meeting Minutes

- TGax MAC ad hoc meeting minutes: [11-15-0637-00](#), May 2015 Vancouver TGax MAC Ad hoc Meeting Minutes
- TGax Multi-User ad hoc meeting minutes: [11-15-0679-00](#), May 2015 Vancouver Multi-User ad hoc Meeting minutes
- TGax Spatial Reuse ad hoc meeting minutes: [11-15-0662-01](#), May 2015 Vancouver Spatial Reuse ad hoc Meeting Minutes

Achievements

23. TG Documents

- **Passed a number of PHY and MAC motions affecting the TGax Specification Framework:**
 - ✧ PHY Motions: Tone Plans, STF design, SIG-B, etc.
 - ✧ MAC Motions: Enhancing multi-STA BA and aspects of the trigger frame
- **Latest revision of the Specification Framework is available at;**
 - ✧ <https://mentor.ieee.org/802.11/dcn/15/11-15-0132-05-00ax-spec-framework.docx>
- **Approved new revisions of the TGax Evaluation Methodology documents.**
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0571-09-00ax-evaluation-methodology.docx>
- **Other documents**
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0980-12-00ax-simulation-scenarios.docx>
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0882-04-00ax-tgax-channel-model-document.docx>
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-1009-02-00ax-proposed-802-11ax-functional-requirements.doc>

24. Technical Presentations

More than 50 technical submissions have been covered during the week.

A list of the submissions is available in the [agenda document](#).

- **PHY**
 - ✧ [11-15/0550](#), “L-preamble issues for UL-OFDMA,” Katsuo Yunoki (KDDI Labs)
 - ✧ [11-15/0553](#), “Enhancing Performance of Hybrid-ARQ with Linear Constellation Precoding,” Muhammad Mehboob Fareed (King Abdullah Univ. of Science and Technology)
 - ✧ [11-15/0569](#), “Performance of 1x, 2x, and 4x HE-LTF,” Kome Oteri (InterDigital)
 - ✧ [11-15/0572](#), “Inefficiency of 256-FFT per 20MHz,” Heejung Yu (Yeungnam Univ./Newracom)
 - ✧ [11-15/0574](#), “SIG structure for UL PPDU,” Young Hoon Kwon (Newracom)
 - ✧ [11-15/0575](#), “Preamble Structure in 802.11ax,” Yujin Noh (Newracom)
 - ✧ [11-15/0577](#), “Pilot Design for 11ax,” Daewon Lee (Newracom)
 - ✧ [11-15/0579](#), “Preamble design and auto-detection,” Hongyuan Zhang (Marvell)
 - ✧ [11-15/0580](#), “11ax coding discussion,” Hongyuan Zhang (Marvell)
 - ✧ [11-15/0584](#), “Considerations on LTF Sequence Design,” Sungho Moon (Newracom)
 - ✧ [11-15/0600](#), “Non Uniform Constellations for 1024QAM,” Daniel Schneider (Sony)
 - ✧ [11-15/0602](#), “HE-LTF sequence for UL MU-MIMO,” Qinghua Li (Intel)
 - ✧ [11-15/0621](#), “Design Principles for HE Preamble,” John Son (WILUS)
 - ✧ [11-15/0381](#), “HE-STF Proposal,” Yakun Sun (Marvell)
- **MAC**
 - ✧ [11-15/0567](#), “Multi-STA BA for SU Transmissions,” Xiaofei Wang (InterDigital)
 - ✧ [11-15/0604](#), “Random Access with Trigger Frames using OFDMA,” Chittabrata Ghosh (Intel)
 - ✧ [11-15/0611](#), “Multi-STA Block ACK Protection,” Jinsoo Ahn (Yonsei Univ.)
 - ✧ [11-15/0615](#), “UL OFDMA Bandwidth,” Liwen Chu (Marvell)
 - ✧ [11-15/0617](#), “Duration and MAC Padding for UL MU PPDU,” Gang Ding (Qualcomm)
 - ✧ [11-15/0626](#), “Further consideration for Multi-STA Block ACK frame,” Jeongki Kim (LG)

- Multi-User
 - ✧ [11-15/0378](#), “Channel Sensing in UL OFDMA,” Reza Hedayat (Newracom)
 - ✧ [11-15/0568](#), “Frequency Selective Scheduling (FSS) for TGax OFDMA,” Kome Oteri (InterDigital)
 - ✧ [11-15/0586](#), “Frequency Diversity Options in OFDMA,” Reza Hedayat (Newracom)
 - ✧ [11-15/0587](#), “Uplink ACK and BA Multiplexing,” Reza Hedayat (Newracom)
 - ✧ [11-15/0597](#), “Beamformed HE PPDU,” Yongho Seok (Newracom)
 - ✧ [11-15/0608](#), “Regarding trigger frame in UL MU,” Tomo Adachi (Toshiba)
 - ✧ [11-15/0612](#), “Multi Channel availability for UL-OFDMA,” Woojin Ahn (Yonsei Univ.)
- Spatial Reuse
 - ✧ [11-15/0543](#), “Simulation Scenario changes for Frequency Re-use,” Graham Smith (SR Technologies)
 - ✧ [11-15/0544](#), “Proposed text additions to 14/980 for frequency re-use,” Graham Smith (SR Technologies)
 - ✧ [11-15/0548](#), “Enterprise Scenario and DSC,” Graham Smith (SR Technologies)
 - ✧ [11-15/0588](#), “CCA revisited II,” Amin Jafarian (Newracom)
 - ✧ [11-15/0595](#), “Discussion on The Receiver Behavior for CCAC/DSC with BSS Color,” Yasuhiko Inoue (NTT)
- Simulation and Calibration
 - ✧ [11-15/0551](#), “OBSS Preamble Detection,” Suhwook Kim (LG Electronics)
 - ✧ [11-15/0552](#), “IEEE 802.11 performance in dense, cellular-like, outdoor deployments,” Richard Edgar (Imagination Technologies)
 - ✧ [11-15/0330](#), “OFDMA Numerology and Structure,” Sharnaz Azizi (Intel)
 - ✧ [11-15/0583](#), “OBSS Preamble Error Probability,” Jiyong Pan (Huawei)
 - ✧ [11-15/0590](#), “Traffic Model Updates to Evaluation Methodology,” Phil Barber (Huawei)
 - ~~✧ [11-14/1392](#), “Simulation results for Box 5 calibration,” Suhwook Kim (LG Electronics)~~
 - ✧ [11-15/0674](#), “Joint submission for Box 5 Calibration,” Suhwook Kim (LG Electronics)
 - ✧ [11-15/0581](#), “LSP Correlation Clarification for Scenario 4,” Daewon Lee (Newracom)
 - ✧ [11-15/0582](#), “Clarifications to Box 2 MIMO simulation calibrations,” Daewon Lee (Newracom)
 - ✧ [11-15/0373](#), “Mixed traffic configurations on simulation scenarios,” Yingpei Lin (Huawei)
 - Not presented since the contents of this submission was merged into 11-15/0590.
 - ✧ [11-15/0610](#), “Simulation Results for Box 5 Calibration,” Vida Ferdowsi (Newracom)
 - ✧ [11-15/0613](#), “Box 5 Calibration Result,” Chinghwa Yu (MediaTek)
 - ✧ [11-15/0623](#), “TGax simulation scenario “Box 5” – calibration results,” Guido Hiertz (Ericsson)
 - ✧ [11-15/0316](#), “Power Save Calibrations,” Hyeyoung Choi (LG Electronics)
 - ✧ [11-15/0564](#), “802.11ax Calibration and Modeling Adjacent Channel Interference,” Naveen Kakani (CSR)
 - ✧ [11-15/0576](#), “Latency and Power Consumption in State Transitions,” Chittabrata Ghosh (Intel)
 - ✧ [11-15/0592](#), “More Power Save Calibration Results,” Eric Wong (Apple)
 - ✧ [11-15/0598](#), “U-APSD Enhancement for HE,” Jarkko Kneckt (Nokia)
 - ✧ [11-15/0603](#), “Calibration Results for PSP and U-APSD,” Chittabrata Ghosh (Intel)

Goals for July 2015

- Continue to advance TG documents based on submissions.

- Expectation is more submissions affecting the TG specification framework document will be considered.
- Technical Presentations.

Teleconferences

- One teleconference is planned before the July 2015 session.
 - ✧ Thursday, June 18th, 10:00 – 12:00 (ET)

March 2015 – Berlin, Germany

The original plan was to have nine sessions during the week, but one more session was added (Wednesday PM2).

Monday	Tuesday	Wednesday	Thursday
TGax (ad hoc)		TGax (MU/Spatial Reuse)	TGax
	TGax (PHY/MAC)		
TGax	TGax	TGax TGax	TGax
	TGax		

Main documents

- Agenda: [11-15/0235r8](#), TGax March 2015 Meeting Agenda
- Closing report: [11-15/0465r0](#), TGax March 2015 Closing Report
- Minutes: [11-15/0309r1](#), TGax March 2015 Berlin Meeting Minutes

Achievements

25. Passed a number of motions affecting the TG specification framework:

- PHY motions related to LTF design and SIG-B.
- MAC motions related to Multi-User Block ACK and Multi-User Procedure
- MU motions related to ACK multiplexing
- Etc.

26. TG Documents.

- Approved new revisions of Simulation Scenarios and Evaluation Methodology TG documents.
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0571-08-00ax-evaluation-methodology.docx>
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0980-09-00ax-simulation-scenarios.docx>
- Other TG documents.
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-0882-04-00ax-tgax-channel-model-document.docx>
 - ✧ <https://mentor.ieee.org/802.11/dcn/14/11-14-1009-02-00ax-proposed-802-11ax-functional-requirements.doc>

27. Technical Presentations

Following technical submissions have been covered during the week.

- MAC
 - ✧ [11-15/0320](#), “GCR-BA with Measurement Report Performance in OBSS,” Yuichi Morioka (SONY)

- ✧ [11-15/0336](#), “MAC Overhead Analysis of MU Transmissions,” Xiaofei WANG (InterDigital)
- ✧ [11-15/0362](#), “Beacon Transmission Issues,” Yonggang Fang (ZTE)
- ✧ [11-15/0365](#), “UL MU Procedure,” Kiseon Ryu (LG Electronics)
- ✧ [11-15/0366](#), “Multi-STA BA,” Simone Merlin (Qualcomm)
- ✧ [11-15/0376](#), “UL-MU MAC Throughput Under Non-Full Buffer Traffic,” Tatsumi Uwai (Radrix Co. Ltd)
- Spatial Reuse
 - ✧ [11-15/0300](#), “Potential of Modified Signal Detection Thresholds,” Gustav Wikstrom (Ericsson AB)
 - ✧ [11-15/0318](#), “CCA Regime Evaluation Revisited,” Amin Jafarian (Newracom Inc.)
 - ✧ [11-15/0319](#), “Impact of TPC coupled to DSC for legacy unfairness issue,” Masahito Mori (Sony)
 - ✧ [11-15/0338](#), “Discussions on the Definition of CCA Threshold,” Akira Kishida (NTT)
 - ✧ [11-15/0367](#), “OBSS preamble detection,” Gwen Barriac (Qualcomm)
 - ✧ [11-15/0371](#), “Proposal and simulatin based evaluation of DSC-AP Algorithm,” Eduard Garcia-Villegas (UPC)
 - ✧ [11-15/0374](#), “Further Considerations on Legacy Fairness with Enhanced CCA,” John Son (WILUS Institute)
- PHY
 - ✧ [11-15/0305](#), “Effective Subcarrier Assignment for DL-OFDMA,” Katsuo Yunoki (KDDI R&D Laboratories)
 - ✧ [11-15/0330](#), “OFDMA Numerology and Structure,” Shahrnaz Azizi (Intel Corporation)
 - ✧ [11-15/0344](#), “SIG field design principle for 11ax,” Young Hoon Kwon (Newracom)
 - ✧ [11-15/0349](#), “HE-LTF Proposal,” Hongyuan Zhang (Marvell)
 - ✧ [11-15/0358](#), “Numerology for 11ax,” Daewon Lee (Newracom)
 - ✧ [11-15/0360](#), “Preamble Auto-Detection for 802.11ax,” Sungho Moon (NEWRACOM)
 - ✧ [11-15/0364](#), “11ax Preamble design: training sequence,” Sigurd Schelstraete (Quantenna)
 - ✧ [11-15/0375](#), “Minimum Resource Granularity in OFDMA,” John Son (WILUS Institute)
 - ✧ [11-15/0378](#), “Channel Sensing in UL OFDMA,” Reza Hedayat (Newracom)
 - ✧ [11-15/0380](#), “Discussion on OFDMA scheduling for 802.11ax,” Le Liu (Huawei Technologies)
 - ✧ [11-15/0381](#), “HE-STF Proposal,” Yakun Sun (Marvell)
 - ✧ [11-15/0383](#), “Impact of number of sub-channels in OFDMA,” Leif Wilhelmsson (Ericsson)
- Multi-User
 - ✧ [11-15/0331](#), “Uplink Multi-User MIMO Protocol Design,” Yongho Seok (NEWRACOM)
 - ✧ [11-15/0333](#), “Throughput Comparison of Some Multi-user Schemes in 802.11ax,” Kome Oteri (InterDigital)
 - ✧ [11-15/0336](#), “MAC Overhead Analysis of MU Transmissions,” Xiaofei WANG (InterDigital)
 - ✧ [11-15/0353](#), “OFDMA Non-contiguous Channel Utilization,” Jinsoo Ahn (Yonsei univ.)
 - ✧ [11-15/0354](#), “Bandwidth granularity on UL-OFDMA data allocation,” Woojin Ahn (Yonsei Univ.)
 - ✧ [11-15/0363](#), “UL MU Synchronization Requirements,” Yonggang Fang (ZTE)
 - ✧ [11-15/0377](#), “Considerations on UL MU Resource Scheduling,” Leonardo Lanante (Kyutech)
 - ✧ [11-15/0379](#), “DL OFDMA Performance and ACK Aggregation,” Reza Hedayat (Newracom)
 - ✧ [11-15/0384](#), “Discussion on DL-OFDMA Sub-channel Indication Method,” Yu Cai (Lenovo)
- Simulation and Calibration
 - ✧ [11-14/1392](#), “Simulation results for Box-5 calibration,” Suhwook Kim (LG Electronics)
 - ✧ [11-14/1434](#), “SLS Box4 Calibration Results,” Russell Huang (MediaTek Inc.)

- ✧ [11-15/0053](#), “Box5 Results of 11ac SS6,” Jiyong Pang (Huawei)
- ✧ [11-15/0072](#), “U-APSD power saving calibration results,” Yanchun Li (Huawei)
- ✧ [11-15/0125](#), “Box 1 and Box 2 Calibration Results,” Ron Porat (Broadcom)
- ✧ [11-15/0304](#), “Evaluating Power Save Performance,” Joonsuk Kim (Apple)
- ✧ [11-15/0306](#), “Power Save Mode Calibration Results,” Eric Wong (Apple)
- ✧ [11-15/0307](#), “MAC calibration results for Test 4,” Ke Yao (ZTE Corp.)
- ✧ [11-15/0308](#), “Simulation results for box 5,” Ke Yao (ZTE Corp.)
- ✧ [11-15/0314](#), “Sleep States in IEEE 802.11ax Simulation Scenarios,” Chittabrata Ghosh (Intel)
- ✧ [11-15/0316](#), “Power Save Calibration,” Hyeyoung Choi (LG)
- ✧ [11-15/0326](#), “U-APSD Enhancements for HE,” Jarkko Knecht (Nokia)
- ✧ [11-15/0327](#), “Microsleep for HE STA,” Jarkko Knecht (Nokia)
- ✧ [11-15/0343](#), “In Situ Frame Size Measurements,” Chuck Lukaszewski (Aruba Networks)
- ✧ [11-15/0351](#), “Empirical Measurements of Channel Degradation Under Load,” Chuck Lukaszewski (Aruba Networks)
- ✧ [11-15/0357](#), “Scenario 1 CCA Simulation,” Knut Odman (Broadcom Corporation)
- ✧ [11-15/0359](#), “Clarification of MIMO Box2 calibration,” Jaehyun Ahn (Newracom)
- ✧ [11-15/0368](#), “Box 5 results for Single BSS Calibration Case,” Esa Tuomaala (Nokia)
- ✧ [11-15/0369](#), “MAC calibration test 4 simulation results,” Enrico-Henrik Rantala (Nokia)
- ✧ [11-15/0370](#), “MAC Calibration Results,” Guoqing Li (Apple)
- ✧ [11-15/0372](#), “Corrections on Reference Traffic Profile for Scenario 2 in Simulation Scenarios Document,” Yingpei Lin (Huawei)
- ✧ [11-15/0373](#), “Mixed traffic configurations on simulation scenarios,” Yingpei Lin (Huawei)
- ✧ [11-15/0382](#), “MAC calibration test 4 simulation results,” Yanchun Li (Huawei)
- ✧ [11-15/0441](#), “Proposed text to TGax Simulation Scenarios MAC test 4,” Enrico-Henrik Rantala (Nokia)

Goals for May 2015

- Continue to advance TG documents based on submissions.
 - Expectation is more submissions affecting the TG specification framework document will be considered.
- Technical Presentations.

Teleconferences

- Two teleconferences are planned before the May 2015 session.
 - ✧ Thursday, April 9th, 10:00 – 12:00 (ET)
 - ✧ Thursday, April 30th, 20:00 – 22:00 (ET)

January 2015 – Atlanta, GA

The original plan was to have nine sessions during the week, but one session was cancelled.

	Monday	Tuesday	Wednesday	Thursday
AM1			TGax	TGax
AM2	TGax	TGax		
PM1	TGax	TGax	TGax	TGax (canceled)
PM2				
PM3	TGax			

Main documents

- Agenda: [11-14/1578r6](#), TGax January 2015 Meeting Agenda
- Closing report: [11-15/0186r0](#), TGax January 2015 Closing Report
- Draft minutes: [11-15/0090r0](#), TGax January 2015 Atlanta Meeting Minutes

Achievements

28. TG Structure

- Ad hoc chairs elected.

MAC	PHY	MU	Spatial Reuse
Eric Wong (Apple)	Bo Sun (ZTE)	Sigurd Schelstraete (Quantenna)	Laurent Cariou (Orange)
Reza Hedayat (NEWRACOM)	Jianhan Liu (MediaTak)	Kiseon Ryu (LG Electronics)	Guido Hiertz (Ericsson AB)
Brian Hart (Cisco)	Yakun Sun (Marvell)	Kaushik Josiam (Samsung)	Jae Seung Lee (ETRI)

29. TG Documents.

- Passed a number of motions affecting the TG specification Framework.
- Approved new revisions of Simulation Scenarios and Evaluation Methodology TG documents.
 - ✧ TGax Simulation Scenarios ([11-14/0980r6](#))
 - ✧ TGax Evaluation Methodology ([11-14/0571r7](#)).

30. Technical Presentations

Following technical submissions have been covered during the week.

- DSA and CCA
 - ✧ [15/0025](#), “DSC and Roaming,” Graham Smith (SR Technologies)
 - ✧ [15/0027](#), “Simulation Based Evaluation DSC in residential scenario,” M. Shahwaiz Afaqui (UPC)
 - ✧ [15/0045](#), “Performance Analysis of BSS Color and DSC,” Masahito Mori (Sony)
 - ✧ [15/0050](#), “Modeling components impacting throughput gain from CCAT adjustment,” Yu Wang (Ericsson AB)
 - ✧ [15/0085](#), “Legacy Fairness Issues of Enhanced CCA,” John Son (WILUS Institute)
 - ✧ [15/0105](#), “Dynamic CCA Management,” Sean Coffey (RealTek)
- OFDMA
 - ✧ [15/0034](#), “DL-OFDMA Map Frame,” Katsuo Yunoki (KDDI Labs)
 - ✧ [15/0066](#), “Downlink OFDMA Protocol Design,” Yongho Seok (Newracom)
 - ✧ [15/0079](#), “OFDM Numerology for 11ax,” Daewon Lee (Newracom)
 - ✧ [15/0091](#), “UL-OFDMA Procedure in IEEE 802.11ax,” Woojin Ahn (Yonsei Univ.)
 - ✧ [15/0092](#), “DL-OFDMA Procedure in IEEE 802.11ax,” Jinsoo Ahn (Yonsei Univ.)
- MU
 - ✧ 15/0010, “draft for integrated UL DL MU MIMO Frame Format,” Tae-Yoon Kim (Korea Univ.) – Not presented
 - ✧ 15/0029, “Discussion on integrated UL/DL MU-MIMO,” Tae-Yoon Kim (Korea Univ.) – Not presented
 - ✧ [15/0040](#), “Discussion on integrated UL-DL MU-MIMO-MAC,” TaeYoon Kim (Korea Univ.)
 - ✧ [15/0064](#), “Consideration on UL-MU overheads,” Tomoko Adachi (Toshiba)
 - ✧ [15/0086](#), “Uplink MU Transmission and Legacy Coexistence,” Reza Hedayat (NEWRACOM)
 - ✧ [15/0089](#), “MAC Efficiency Gain of Uplink Multi-user Transmission,” Leonardo Lanante Jr (Kyushu Inst. of Tech.)

- MAC

- ✧ [15/0035](#), “Scalable Channel Utilization,” Katsuo Yunoki (KDDI R&D Laboratories)
- ✧ [15/0037](#), “Structural Format Change,” Kyonggi University
- ✧ [15/0046](#), “11aa GCR-BA Performance in OBSS,” Yuichi Morioka (Sony)
- ✧ [15/0059](#), “Uplink RTS/CTS Control,” Sigurd Schelstraete (Quantenna)

- PHY

- ✧ [15/0048](#), “Non-Uniform Constellations for Higher Order QAMs,” Daniel Schneider (Sony)
- ✧ [15/0068](#), “Support of outdoor environments,” Young Hoon Kwon (NEWRACOM)
- ✧ [15/0079](#), “OFDM Numerology for 11ax,” Daewon Lee (NEWRACOM)
- ✧ [15/0081](#), “Considerations on 11ax Auto-detection Methods,” Jaeyoung Song (KAIST)
- ✧ [15/0082](#), “Considerations on 11ax OFDMA Frequency Granularity,” Young-bin Kim (KAIST)
- ✧ [15/0097](#), “Performance Analysis of Frequency Selective Scheduling,” Ningbo Zhang (BUPT)
- ✧ [15/0099](#), “Payload Symbol Size for 11ax,” Sriram Venkateswaran (Broadcom)
- ✧ [15/0101](#), “Preamble structure for 11ax system,” Jiayin Zhang (Huawei)

- Simulation Scenario and Evaluation Methodology

- ✧ [14/1342](#), “MAC Calibration Results,” Igor Kim (ETRI)
- ✧ [14/1343](#), “Multicast Scenarios for MAC Calibration,” Igor Kim (ETRI)
- ✧ [14/1392](#), “Simulation Results for Box-5 Calibration,” Suhwook Kim (LGE)
- ✧ [14/1523](#), “Offline Discussion Minutes of SLS Calibration,” Jiyong Pang (Huawei)
- ✧ [14/1590](#), “Multi-wall penetration loss model for HEW system level simulation,” Kejun Zhao et al. (National Engineering Research Center for Broadband Networks & Applications)
- ✧ [14/1597](#), “PHY abstraction and performance for outdoor channel models,” Kejun Zhao et al. (National Engineering Research Center for Broadband Networks & Applications)
- ✧ [15/0022](#), “MAC Calibration Results,” Xiaofei Wang (InterDigital)
- ✧ [15/0044](#), “Proposed Changes to Simulation Scenarios,” Masahito Mori (Sony)
- ✧ [15/0051](#), “Box5 Calibration Results,” Jiyong Pang (Huawei)
- ✧ [15/0052](#), “Box5 Results of One BSS Case,” Jiyong Pang (Huawei)
- ✧ [15/0053](#), “Box5 Results of 11ac SS6,” Jiyong Pang (Huawei)
- ✧ [15/0061](#), “FPS Network Traffic Model,” Allan Jones (Activision)
- ✧ [15/0065](#), “11ax EMD Revision Straw Poll,” Jiyong Pang (Huawei)
- ✧ [15/0071](#), “MAC calibration test 4 results,” Yanchun Li (Huawei)
- ✧ [15/0072](#), “U-APSD power saving calibration results,” Yanchun Li (Huawei)
- ✧ [15/0073](#), “Simulation Results of Box5,” Ke Yao (ZTE)
- ✧ [15/0078](#), “Clarification on calibration test cases,” Guoqing Li (Apple)
- ✧ [15/0080](#), “MAC Calibration Results,” Geonjung Ko (WILUS Institute)
- ✧ [15/0093](#), “Text Update on PHY Abstraction and SP,” Yakun Sun (Marvell)
- ✧ [15/0103](#), “Power Save Calibration,” Yarkko Knecht (Nokia)
- ✧ [15/0104](#), “SLS MAC Test 4 Results,” Chinghwa Yu (MediaTek)

- Others

- ✧ [15/0043](#), “In-band Full Duplex Radios and System Performance,” Kapseok Chang (ETRI)
- ✧ [15/0075](#), “Operating Rules for TGax Ad Hoc groups,” Osama Aboul-Magd (TGax chair)
- ✧ [15/0076](#), “Field Sample OBSS and Client Data,” Carol Ansley (ARRIS Group)

Goals for March 2015

- Continue to advance TG documents.

- Expectation is more submissions affecting the TG specification framework document will be considered.

- Technical Presentations.

Teleconferences

- One teleconference is planned before the March 2015 session.
 - ✧ Thursday, February 26th, 10:00 – 12:00 (ET)

November 2014 – San Antonio, TX

The original plan was to have nine sessions during the week, but one session was cancelled.

	Monday	Tuesday	Wednesday	Thursday
AM1	TGax (ad hoc)			TGax
AM2		TGax		
PM1		TGax	TGax	TGax
PM2	TGax	TGax		
PM3		TGax (cancelled)		

Main documents

- Agenda: [11-14/1319r7](#), TGax November 2014 Meeting Agenda
- Closing report: [11-14/1536r0](#), TGax November 2014 Closing Report
- Draft minutes: [11-14/1460r0](#), TGax November 2014 Meeting Minutes

Achievements

31. Discussions on the TG Structure

- The TG approved a motion to create four ad hoc groups.
 - ✧ PHY, MAC, Multiuser and Spatial Reuse
- The TG approved a motion to have 3 co-chairs for each of the ad hocs.
- Ad hoc chairs election is scheduled for January 2015 meeting on Tuesday.
- Ad hoc meetings will start on March 2015
- Robert Stacy (Intel) was appointed as the technical editor of the TGax.

32. TG Documents – The group approved updated documents.

- The group approved the first version of TGax Specification Framework document ([11-14/1453r2](#)).
- The group approved new revisions of the following documents.
 - ✧ TGax Simulation Scenarios ([11-14/0980r5](#))
 - ✧ TGax Evaluation Methodology ([11-14/0571r6](#)).

33. Technical Presentations

About 35 technical submissions covered during the week.

- Evaluation Methodology
 - ✧ [11-14/1388](#), “Consideration on PER Prediction for PHY Abstraction,” Bo Sun (ZTE Corp)
 - ✧ [11-14/1418](#), “Further Study of Time Varying Interference and PHY Abstraction,” Yakun Sun (Marvell)
 - ✧ [11-14/1420](#), “The Impact of Preamble Error on MAC System Performance,” Po-Kai Huang (Intel)

- ✧ 11-14/1424, "Proposed Changes to Evaluation Methodology and Simulation Scenario," Yuichi Morioka (Sony)
- ✧ [11-14/1440](#), "A Few Corrections to Video Traffic Model," Guoqing Li (Apple)
- Simulation Scenarios and Calibration
 - ✧ [11-14/1177](#), "Discussion about Box5 Calibration," Jiyong Pang (Huawei)
 - ✧ [11-14/1342](#), "MAC Calibration Results," Igor Kim (ETRI)
 - ✧ [11-14/1343](#), "Multicast Scenarios for MAC Calibration," Igor Kim (ETRI)
 - ✧ [11-14/1392](#), "Simulation results for Box 5 calibration," Suhwook Kim (LG Electronics)
 - ✧ [11-14/1402](#), "Box1 and Box3 calibration results," Masahito Mori (Sony)
 - ✧ [11-14/1419](#), "SLS Box5 Calibration Results and Discussions," Yakun Sun (Marvell)
 - ✧ [11-14/1434](#), "TGax SLS Box4 Calibration Results," Russell Huang (MediaTek Inc.)
 - ✧ [11-14/1441](#), "Simulation Setting of Box5 Calibration," Jiyong Pang (Huawei)
 - ✧ [11-14/1444](#), "Energy Efficiency Evaluation and Simulation Model," Chinghwa Yu (MediaTek)
 - ✧ [11-14/1449](#), "MAC Calibration Results," Newracom
 - ✧ [11-14/1450](#), "Box 0 calibration results," Hongsup Lee (Newracom)
 - ✧ [11-14/1451](#), "Box 1 and Box 2 Calibration Results," Jaehyun Ahn (Newracom)
- Technology/Others
 - ✧ [11-14/1228](#), "Issues on 256-FFT per 20MHz," Heejung Yu (NEWRACOM/YU)
 - ✧ [11-14/1380](#), "Efficiency Measurement for RTS/CTS," Katsuo Yunoki (KDDI R&D Laboratories)
 - ✧ [11-14/1381](#), "Novel RTS/CTS Procedure," Katsuo Yunoki (KDDI R&D Laboratories)
 - ✧ [11-14/1382](#), "Responses to the comments on doc.1169," Katsuo Yunoki (KDDI R&D Laboratories)
 - ✧ [11-14/1397](#), "Discussion on Frame Structure for Future WLAN Systems with OFDMA," Myeong-Jin Kim (Korea University)
 - ✧ [11-14/1403](#), "Performance Analysis of BSS Color and DSC," Masahito Mori (Sony)
 - ✧ [11-14/1404](#), "11aa GCR-BA Performance in OBSS," Yuichi Morioka (Sony)
 - ✧ [11-14/1416](#), "Observed protocol violations caused by DSC with roaming STAs," Chuck Lukaszewski (Aruba Networks)
 - ✧ [11-14/1417](#), "HEW PPDU Transmission Discussion," Yongho Seok (NEWRACOM)
 - ✧ [11-14/1426](#), "DSC and legacy coexistence," Gustav Wikstrom et al. (Ericsson)
 - ✧ [11-14/1427](#), "DSC Performance," Gustav Wikstrom et al. (Ericsson)
 - ✧ [11-14/1428](#), "Clear Channel Assessment for OFDMA PHY," K. C. Chen (NTU) and D. J. Deng (NCUE)
 - ✧ [11-14/1431](#), "Issues on UL-OFDMA Transmission," Young Hoon Kwon (Newracom)
 - ✧ [11-14/1433](#), "Protocol and signaling framework for OFDMA," Sigurd Schelstraete (Quantenna)
 - ✧ [11-14/1435](#), "Considerations on OBSS Spatial Re-Use," Jianhan Liu (Mediatek Inc.)
 - ✧ [11-14/1436](#), "Overhead Analysis for Simultaneous Downlink Transmissions," Pengfei Xia (interdigita)
 - ✧ [11-14/1437](#), "Efficient Wider Bandwidth Operation in IEEE 802.11ax," Jinsoo Ahn (Yonsei Univ)
 - ✧ [11-14/1439](#), "Preamble Considerations in Large Channel Delay Spread Scenarios," Daewon Lee (Newracom)
 - ✧ [11-14/1442](#), "Considerations on DL OFDMA control mechanism," Woojin Ahn (Yonsei Univ.)
 - ✧ [11-14/1443](#), "Adapting CCA and Receiver Sensitivity," Esa Tuomaala (Nokia)
 - ✧ [11-14/1446](#), "Analysis of frequency and power requirements for UL-OFDM," Leif Wilhelmsson (Ericsson)
 - ✧ [11-12/1448](#), "Considerations for Adaptive CCA," Reza Hedayat (Newracom)
 - ✧ [11-14/1452](#), "Frequency selective scheduling in OFDMA," Leif Wilhelmsson (Ericsson)

- Specification Framework
 - ✧ [11-14/1429](#), “Proposed 802.11ax specification framework document,” Minho Cheong (Newracom)
 - ✧ [11-14/1432](#), “Proposed 802.11ax specification framework – background,” Minho Cheong (Newracom)
 - ✧ [11-14/1447](#), “Proposed Spec Framework Document for 11ax considering potential tech features,” John Son (WILUS Institute), Young Doo Kim (SK Telecom)
 - ✧ [11-14/1453](#), “Spec Framework Proposal,” Robert Stacey (Intel)

Goals for January 2015

- Elect ad hoc chairs – 3 co-chairs/ad hoc group as agreed.
- Continue to advance TG documents.
- Technical Presentations.

Teleconferences

- One teleconference is planned before the January 2015 session.
 - ✧ Thursday, December 4th, 10:00 – 12:00 (ET)
 - Chair had sent out call for submissions on the TGax reflector.

September 2014 – Athens, Greece

TGax had nine sessions during the week.

	Monday	Tuesday	Wednesday	Thursday
AM1				TGax
AM2	TGax	TGax		
PM1		TGax	TGax	TGax
PM2	TGax	TGax		
PM3	TGax			

Main documents

- Agenda: [11-14/1033r5](#), TGax September 2014 Meeting Agenda
- Closing report: [11-14/1304r0](#), TGax September 2014 Closing Report
- Draft minutes: [11-14/1159r1](#), TGax September 2014 Meeting Minutes

Achievements

34. The group elected two vice chairs and discussed about the TG structure.

- Election of Vice Chairs took place during this meeting. The TG Vice Chairs are:
 - ✧ Simone Merlin (Qualcomm)
 - ✧ Ron Porat (Broadcom)
- The group started discussion on the Ad Hoc groups. Discussion will continue in future meetings.

35. The group approved minutes from the July 2014 San Diego meeting.

- [11-14/0864r0](#), July 2014 San Diego Meeting Minutes

36. TG Documents – The group approved updated documents.

- The TGax Simulation Scenarios ([11-14/0980r4](#)) and the TGax Evaluation Methodology ([11-14/0571r5](#)).
- The TGax Channel Model document ([11-14-0882r4](#)).
- The TGax Functional Requirements document ([11-14-1009r2](#)).

37. Technical Presentations

54 submissions were uploaded on the server and 52 of them were covered during the week.

● Functional Requirements

- ◇ [11-14/0636](#), "Discussion on Functional Requirements," David Xun Yang (Huawei Technologies)
- ◇ [11-14/0920](#), "Considerations of Functional Requirements Documents," David Xun Yang (Huawei Technologies)
- ◇ [11-14/1009](#), "Proposed 802.11ax Functional Requirements," Lei Wang (Marvell)
- ◇ [11-14/1164](#), "Meaningful 11ax Functional Requirements," Joe Kwak (InterDigital)
- ◇ [11-14/1167](#), "TGax Functional Requirement Discussion," Yonggang Fang (ZTE)
- ◇ [11-14/1170](#), "Functional Requirements Discussions on Coex with Legacy STAs," Masahito Mori (Sony)
- ◇ [11-14/1234](#), "Requirements Discussion," Joseph Levy (InterDigital)

● Simulation Scenarios and Calibration

- ◇ [11-14/0800](#), "Box 1 and Box 2 Calibration Results," Nihae Jindal (Broadcom)
- ◇ [11-14/1147](#), "MAC Simulator Calibration Results," Shoko Shinohara, Akira Kishida (NTT)
- ◇ [11-14/1175](#), "MAC Calibration results," Suhwook Kim (LG Electronics)
- ◇ [11-14/1177](#), "Discussion about Box5 Calibration," Jiyong Pang (Huawei Technologies)
- ◇ [11-14/1187](#), "The Effect of Preamble Error Model on MAC Simulator," Po-Kai Huang (Intel)
- ◇ [11-14/1191](#), "MAC calibration results," Zhou Lan (Huawei Technologies)
- ◇ [11-14/1192](#), "MAC calibration results comparison," Zhou Lan (Huawei Technologies)
- ◇ [11-14/1198](#), "Additional Test Cases for MAC calibration," Gwen Barriac (Qualcomm)
- ◇ [11-14/1217](#), "MAC Calibration Results for Test 1 and 2," Esa Tuomaala (Nokia)
- ◇ [11-14/1223](#), "Stadium Measurements," Brian Hart (Cisco Systems)
- ◇ [11-14/1226](#), "SLS Box 1&2 Calibration Results," Russell Huang (MediaTek)
- ◇ [11-14/1230](#), "MAC Calibration Result," Chinghwa Yu (MediaTek)

● Evaluation Methodology

- ◇ [11-14/1161](#), "Parameters for Power Save Mechanisms," Eric Wong (Apple)
- ◇ [11-14/1162](#), "Energy Efficiency Evaluation Methodology Follow Up," Eric Wong (Apple)
- ◇ [11-14/1174](#), "PHY Abstraction with Time Varying Interference," Yakun Sun (Marvell)
- ◇ [11-14/1176](#), "PHY abstraction tables for 11ax system level simulation," Jiayin Zhang (Huawei Technologies)
- ◇ [11-14/1221](#), "Traffic Generator for OBSS Calibration Case," Chao-Chun Wang (MediaTek)

● Channel Model

- ◇ [11-14/1214](#), "Impact of correlated shadowing in 802.11ax system evaluations," Leif Wilhelmsson (Ericsson AB)
- ◇ [11-14/1222](#), "Doppler Effect Evaluation for 11ax," Jianhan Liu (MediaTek)

● Technology/Others

- ◇ [11-14/1106](#), "WLAN Frame Collision Information," Peng Shao (NEC Communication Systems)
- ◇ [11-14/1148](#), "Consideration of asynchronous interference in OBSS environment," Koichi Ishihara (NTT)
- ◇ [11-14/1168](#), "802.11 TGax PHY Frame Structure Discussion for Enabling New Contention Mechanism," Yonggang Fang (ZTE)
- ◇ [11-14/1169](#), "DL-FDMA considerations," Katsuo Yunoki (KDDI R&D Labs.)
- ◇ [11-14/1171](#), "DSC Simulation Results for Scenario 3," Masahiro Mori (Sony)
- ◇ [11-14/1172](#), "Multicast Performance in OBSS," Yuichi Morioka (Sony)
- ◇ [11-14/1178](#), "Inter-BSS interference in WLANs," Hyunduk Kang (ETRI)

- ✧ [11-14/1179](#), “Considerations for Partial Band Interference between WLAN Systems,” Gwangzeen Ko (ETRI)
- ✧ [11-14/1180](#), “Discussions on Interference between TD-LTE & WLAN around 2.4GHz Band,” Meng Yang (CATR)
- ✧ [11-14/1181](#), “Measurements on A-MPDU performances under various channel conditions,” John Sun (WILUS Institute)
- ✧ [11-14/1186](#), “Comparisons of Simultaneous Downlink Transmissions,” Pengfei Xia (InterDigital)
- ✧ [11-14/1190](#), “Frame Exchange Control for Uplink Multi-user transmission,” Kaying Lv (ZTE)
- ✧ [11-14/1199](#), “Effect of CCA in residential scenario part 2,” Gwen Barriac (Qualcomm)
- ✧ [11-14/1207](#), “OBSS reuse mechanism which preserves fairness,” Laurent Cariou (Orange)
- ✧ [11-14/1208](#), “MAC considerations on 802.11ax OFDMA,” Jinsoo Ahn (Yonsei Univ.)
- ✧ [11-14/1209](#), “Multiple RF operation for 802.11ax OFDMA,” Woojin Ahn (Yonsei Univ.)
- ✧ [11-14/1210](#), “HEW PPDU Format for Supporting MIMO-OFDMA,” Yongho Seok (NEWRACOM)
- ✧ [11-14/1211](#), “ACK Procedure for OFDMA,” Yongho Seok (NEWRACOM)
- ✧ [11-14/1216](#), “Consideration on Coexistence between LTE-U and 802.11 WLAN,” Jae Seung Lee (ETRI)
- ✧ [11-14/1224](#), “Link-Aware CCA,” Brian Hart (Cisco Systems)
- ✧ [11-14/1225](#), “Considerations on CCA for OBSS Operation in 802.11ax,” Luo Jun (Huawei Technologies)
- ✧ [11-14/1227](#), “OFDMA Performance Analysis,” Tianyu Wu (MediaTek)
- ✧ [11-14/1128](#), “Issues on 256-FFT per 20MHz,” Heejung Yu (NEWRACOM)
- ✧ [11-14/1229](#), “Dynamic OFDM Symbol Duration,” Alan Jauh (MediaTek)
- ✧ [11-14/1232](#), “On MU Aggregation Mechanisms for 11ax,” Reza Hedyat (NEWRACOM)
- ✧ [11-14/1233](#), “Adaptive CCA for 11ax,” Reza Hedyat (NEWRACOM)

Goals for November 2014

- Continue to advance TG documents.
- Technical Presentations.

Teleconferences

- One teleconference is planned before the November 2014 session.
 - ✧ Thursday, October 9th, 10:00 – 12:00 (ET)
 - Chair had sent out call for submissions on the TGax reflector.

July 2014 – San Diego, CA

TGax had ten sessions during the week.

	Monday	Tuesday	Wednesday	Thursday
AM1	TGax		TGax	TGax
AM2		TGax		
PM1			TGax	TGax
PM2	TGax	TGax	TGax	
PM3		TGax		

Main documents

- Agenda: [11-14/0748r6](#), TGax July 2014 Meeting Agenda

- Closing report: [11-14/0984r1](#), TGax July 2014 Closing Report
- Draft minutes: [11-14/0864r0](#), July 2014 Meeting Minutes

Achievements

38. The group discussed on the TG structure.

- The group will have two vice chairs to be election during the initial meeting slot of TGax in September 2014.
 - ✧ Chair has sent out the call for nominations to the reflector.
- The group will have some ad hoc groups in the future, however, the discussion on the ad hoc structure was deferred.

39. The group approved minutes from the May 2014 Waikoloa meeting and Teleconference on July 2nd, 2014.

- [11-14/0655r3](#), May 2014 Waikoloa Meeting Minutes
- [11-14/0788r2](#), Minutes from the teleconference on July 2nd, 2014

40. TG Documents – The group discussed and approved following documents as current TG documents.

- The group approved new version of the Simulation Scenarios ([11-14/0980r1](#)) and Evaluation Methodology ([11-14/0571r3](#)) documents.
- The group approved the initial version of the TGax Channel Model document ([11-14-0882r3](#)).
- The group adopted the initial version of the TGax Selection Procedure ([11-14-0938r4](#)).
- The group had discussion on the Functional Requirements document.

41. Technical Presentations

More than 40 submissions were covered during the week.

- Simulation Scenarios and Calibration
 - ✧ [11-14/0799](#), “Modifications to Simulation Scenarios and Calibration Process,” Nihar Jindal (Broadcom)
 - ✧ [11-14/0800](#), “Box 1 and Box 2 Calibration Results,” Nihar Jindal (Broadcom)
 - ✧ [11-14/0803](#), “Packet Length for Box 0 Calibration,” Wookbong Lee (LG Electronics)
 - ✧ [11-14/0850](#), “Clarification for MAC Calibration,” Gwen Barriac (Qualcomm)
 - ✧ [11-14/0851](#), “Proposed Rate Control for MAC Simulator,” Gwen Barriac (Qualcomm)
 - ✧ [11-14/0859](#), “Proposing a Stadium Scenario,” Hakan Persson (Ericsson)
 - ✧ [11-14/0860](#), “Text proposal of a Stadium scenario to ax,” Hakan Persson (Ericsson)
 - ✧ [11-14/0869](#), “MAC calibration results,” Zhou Lan (Huawei)
 - ✧ [11-14/0871](#), “Further Calibration Results towards Integrated System Level Simulation,” Jiyong Pang (Huawei)
 - ✧ [11-14/0892](#), “MAC Calibration Text to Simulation Scenarios,” Jarkko Kneckt (Nokia)
 - ✧ [11-14/0894](#), “Calibration of System Level Simulators,” Sayantan Choudhury (Nokia)
 - ✧ [11-14/0895](#), “Calibration of MAC simulator with OBSS Network Scenario,” Chao-CHun Wang (MediaTek)
- Evaluation Methodology
 - ✧ [11-14/0571](#), “Evaluation Methodologies,” Ron Porat (Broadcom)
 - ✧ [11-14/0810](#), “RBIR-based PHY Abstraction with Channel Estimation Error,” Yukun Sun (Marvell)
 - ✧ [11-14/0811](#), “Overview on RBIR-based PHY Abstraction,” Yukun Sun (Marvell)
 - ✧ [11-14/0827](#), “Energy Efficiency Evaluation Methodology,” Eric Wong (Apple)
 - ✧ [11-14/0865](#), “ACI and AACI for 802.11ax System Simulations,” Yu Cai (Huawei)
 - ✧ [11-14/0866](#), “Traffic modeling and system capacity performance measure,” Johan Soder (Ericsson)
 - ✧ [11-14/0873](#), “PHY Abstraction Table for 11ax System Level Simulations,” Jiayin Zhang (Huawei).
 - ✧ [11-14/0874](#), “Unified Traffic Model on Enterprise Scenario,” Phillip Barber (Huawei)

- ✧ [11-14/0875](#) “VoIP Traffic Model Content for 11ax TG Simulation Scenarios & Evaluation Methodology,” Phillip Barber (Huawei)
- Channel Models
 - ✧ [11-14/0882](#), “IEEE 802.11ax Channel Model Document,” Jianhan Liu (Mediatek inc.)
 - ✧ [11-14/0904](#) “In-Cabin WiFi Channel Channel: Preliminary Ray Tracing Simulations,” Fan Bai (General Motors)
- Functional Requirements
 - ✧ [11-14/0567](#), “Proposed 802.11ax Functional Requirements,” Lei Wang (Marvell)
 - ✧ [11-14/0818](#), “Synchronization Requirements,” Yonggang Fang (ZTE)
 - ✧ [11-14/0821](#), “Coexistence Requirements of 802.11 WLAN and LTE in Unlicensed Spectrum,” Alireza Babaei (CableLabs).
 - ✧ [11-14/0835](#), “Functional Requirements Discussion,” Joe Kwak (InterDigital)
- Technology/Others
 - ✧ [11-14/0779](#), “Dynamic Sensitivity Control Practical Usage,” Graham Smith (DSP Group)
 - ✧ [11-14/0801](#), “Envisioning 11ax PHY Structure - Part II,” Dongguk Lim (LG Electronics)
 - ✧ [11-14/0802](#), “Consideration on UL MU transmission,” Jinyoung Chun (LG Electronics)
 - ✧ [11-14/0804](#), “Envisioning 11ax PHY Structure – Part I,” Jinsoo Choi (LG Electronics)
 - ✧ [11-14/0832](#), “Performance Evaluation of OBSS Densification,” Po-Kai Huang (Intel)
 - ✧ [11-14/0833](#), “Residential Scenario Sensitivity and Transmit Power Control Simulation Results,” Ron Murias (InterDigital)
 - ✧ [11-14/0838](#), “Discussion on dual-link STR in IEEE 802.11ax,” Jinsoo Ahn (Yonsei Univ)
 - ✧ [11-14/0839](#), “Discussion on OFDMA in IEEE 802.11ax,” Jinsoo Ahn (Yonsei Univ)
 - ✧ [11-14/0846](#), “Changing CCA in the Residential Environment,” Gwen Barriac (Qualcomm)
 - ✧ [11-14/0847](#), “Further Considerations on Enhanced CCA for 11ax,” John Son (WILUS Institute)
 - ✧ [11-14/0854](#), “DSC and Legacy Coexistence,” Yuichi Morioka (SONY)
 - ✧ [11-15/0855](#), “Techniques for Short Downlink Frames,” Brian Hart (Cisco Systems)
 - ✧ [11-15/0856](#), “Evaluating Dynamic CCA/Receiver Sensitivity Algorithms,” Brian Hart (Cisco Systems)
 - ✧ [11-14/0858](#), “Analysis on Multiplexing Schemes exploiting frequency selectivity,” Kaushik Josiam (Samsung)
 - ✧ [11-14/0861](#), “Impact of CCA adaptation on spatial reuse in dense residential scenario,” Sayantan Choudhury (Nokia)
 - ✧ [11-14/0868](#), “UL & DL DSC and TPC MAC simulations,” Johan Soder (Ericsson)
 - ✧ [11-14/0872](#), “A Protocol Framework for Dynamic CCA,” Sean Coffey (Realtek)
 - ✧ [11-14/0880](#), “Increased Network Throughput with Channel Width Related CCA and Rules,” James Wang (Mediatek)
 - ✧ [11-14/0889](#), “Performance Gains from CCA Optimization,” Nihar Jindal (Broadcom)

42. Timeline: There are no changes in the timeline.

- TGax initial timeline approved during the May 2014 Waikoloa session.
 - ✧ May 2014 - TG kick off
 - ✧ Nov. 2014 - start working on the Specification Framework
 - ✧ Jul. 2016 - Draft 1.0 to be ready
 - ✧ Mar. 2017 - Draft 2.0 to be ready
 - ✧ 1H/2019 - publication of the IEEE 802.11ax amendment

Goals for September 2014

- TG vice-chairs election.
- Continue to advance TG documents.
- Technical Presentations.

Teleconferences

- One teleconference is planned before the September 2014 session.
 - ✧ Thursday, August 14th, 10:00 – 12:00 (ET)
 - Chair had sent out call for submissions on the TGax reflector.

May 2014 – Waikoloa, Big Island, HI

TGax had nine sessions during the week.

	Monday	Tuesday	Wednesday	Thursday
AM1			TGax	TGax
AM2	TGax	TGax		
PM1				TGax
PM2	TGax	TGax		
PM3	TGax	TGax		

Main documents

- Agenda: [11-14/0478r5](#), TGax May 2014 Meeting Agenda
- Closing report: [11-14/0702r0](#), TGax May 2014 Closing Report
- Draft minutes: [11-14/0655r1](#), May 2014 Waikoloa Meeting Minutes

Achievements

43. The group elected the chairperson and the secretary.

- Chairperson: Osama Aboul-Magd (Huawei Technologies)
- Secretary: Yasuhiko Inoue (NTT)
- Other officer positions and TG structure will be discussed during the July 2014 meeting.

44. The group approved minutes from the March 2014 Beijing meeting and Teleconference on April 17th 2014.

- [11-14/0380r1](#), March 2014 Beijing Meeting Minutes
- [11-14/0530r0](#), Minutes from the teleconference on April 17th, 2014

45. TG Documents

- The group approved initial version of the Simulation Scenarios ([11-14/0621r4](#)) and Evaluation Methodology ([11-14/0571r2](#)) documents.
- The group started the discussion related to Functional Requirements document. Expectation is to approve the initial revision of the document in July.
- Discussion related to Channel Model document is expected to start in July.

46. Technical Presentations

40 submissions were covered during the week.

- [11-14/0527](#), “PHY Abstraction for TGax System Level Simulations”, Pengfei Xia (InterDigital)
- [11-14/0546](#), “IEEE 802.11ax High Efficiency WLAN Packet measurements around Boulder Colorado”, Jim Lansford (CSR)
- [11-14/0567](#), “Proposed 802.11ax Functional Requirements”, Lei Wang (Marvell)
- [11-14/0571](#), “11ax Evaluation Methodologies”, Ron Porat (Broadcom)
- [11-14/0577](#), “Path Loss Model for Scenario 1,” Nihar Jindal (Broadcom)
- [11-14/0578](#), “Residential Scenario CCA/TPC Simulation Discussion,” Frank La Sita (InterDigital)
- [11-14/0581](#), “Further Discussions on PHY Abstraction,” Yakun Sun (Marvell)

- [11-14/0582](#), “Calibrating MAC Simulator Through Function Test,” Jinjing Jiang (Marvell)
- [11-14/0583](#), “Further Discussions on Instantaneous SINR Calibration for System Simulation,” Yakun Sun (Marvell)
- [11-14/0584](#), “System Level Simulations on Beamforming and Link Adaptation,” Yan Zhang (Marvell)
- [11-14/0585](#), “PHY Abstractions for and IEEE 11ax PHY System Simulation and Integrated System Level Simulation,” Jianhan Liu (MediaTek)
- [11-14/0586](#), “Automotive Considerations for the Simulation Scenarios,” Igal Kotzer (General Motors)
- [11-14/0594](#), “Insert Virtual Desktop Infrastructure (VDI) Traffic Model Content for HEW Simulation Scenarios,” Yingpei Lin (Huawei)
- [11-14/0595](#), “Edits on Some Traffic Content for HEW SG Simulation Scenarios,” Yingpei Lin (Huawei)
- [11-14/0598](#), “Uplink multi-user MAC protocol for 11ax,” Tran Thi Thao Nguyen (Kyushu Inst. of Tech.)
- [11-14/0600](#), “Proposed Calibration For MAC simulator,” Gwen Barriac (Qualcomm)
- [11-14/0604](#), “Modeling and Evaluating Variable Bit rate Video Streaming for 802.11ax,” Chao-Chun Wang (MediaTek)
- [11-14/612](#), “Calibration Procedures towards Integrated System Level Simulation,” Jiayin Zhang (Huawei)
- [11-14/0613](#), “Discussions on adaptive frame length in MAC based on block ACK,” Ningbo Zhang (BUPT)
- [11-14/0614](#), “Joint Coding and Modulation Diversity with LRA MMSE VP by QR precoding MIMO,” Ningbo Zhang (BUPT)
- [11-14/0616](#), “CSMA/CA Enhancement Suggestion,” Yonggang Fang (ZTE)
- [11-14/0617](#), “Discussion on timeline for 802.11ax,” Laurent Cariou (Orange)
- [11-14/0620](#), “Link Adaptation for PHY SLS calibration,” Jinyoung Chun (LG Electronics)
- [11-14/0621](#), “TGax Simulation Scenarios,” Simone Merlin (Qualcomm)
- [11-14/0624](#), “Investigation on 1024 QAM feasibility in 11ax,” Eunsung Park (LG Electronics)
- [11-14/0625](#), “Multi-channel operation in Simulation scenarios,” Suhwook Kim (LG Electronics)
- [11-14/0626](#), “IEEE 802.11ax Functional Requirements,” SangHyun Chang (Samsung)
- [11-14/0627](#), “Outdoor Channel Models for System Level Simulations,” Kaushik Josiam (Samsung)
- [11-14/0628](#), “Measurements on CCA Thresholds in OBSS Environment,” John Son (WILUS Institute), Young Doo Kim (SK Telecom)
- [11-14/0634](#), “Consideration on MAC system calibration,” Zhou Lan (Huawei)
- [11-14/0635](#), “Dynamic Sensitivity Control Implementation,” Graham Smith (DSP Group)
- [11-14/0636](#), “Consideration on functional requirements,” Zhou Lan (Huawei)
- [11-14/0637](#), “Spatial Reuse and Coexistence with Legacy Devices,” James Wang (MediaTek)
- [11-14/0647](#), “PHY abstraction method comparison,” Tianyu Wu (MediaTek)
- [11-14/0648](#), “Performance Observation of a Dense Campus Network,” Chinghwa Yu (MediaTek)
- [11-14/0649](#), “802.11ax Timeline Scenarios,” Rolf de Vegt (Qualcomm)
- [11-14/0656](#), “How to Describe 802.11ax Functional Requirements,” Minh Cheong
- [11-14/0660](#), “802.11ax Timeline,” Minh Cheong (NEWRACOM)
- [11-14/0677](#), “Comparison of Calibration Methodology for MAC Simulation,” Chinghwa Yu (MediaTek)
- [11-14/0682](#), “In Situ Spectrum Reuse Measurements in Indoor 20,000 Seat Arena,” Chuck Lukaszewski (Aruba Networks)

47. Timeline

- The group approved initial timeline.
 - ✧ May 2014 - TG kick off
 - ✧ Nov. 2014 - start working on the Specification Framework

- ◇ Jul. 2016 - Draft 1.0 to be ready
- ◇ Mar. 2017 - Draft 2.0 to be ready
- ◇ 1H/2019 - publication of the IEEE 802.11ax amendment

Goals for July 2014

- Continue to advance simulation scenarios (11-14/0621) and Evaluation Methodologies (11-14/0571) documents.
- Approve an initial Functional Requirements documents
- Approve an initial Channel Model document.
- Discuss and approve TG structure and process.
- Technical Presentations.

Teleconferences

- Three teleconferences are planned before the July 2014 session.
 - ◇ Wednesday, June 4th, 10:00 – 12:00 (ET)
 - ◇ Wednesday, June 18th, 20:00 – 22:00 (ET)
 - ◇ Wednesday, July 2nd, 10:00 – 12:00 (ET)
- Details of the meeting information will be announced on the reflector.

March 2014 – Beijing, China

HEW study group had seven sessions during the week.

	Monday	Tuesday	Wednesday	Thursday
AM1			HEW	HEW
AM2		HEW		
PM1				HEW
PM2	HEW	HEW		
PM3		HEW		

Main documents

- Agenda: [11-14/0219r4](#), HEW SG March 2014 Meeting Agenda
- Closing report: [11-14/0457r0](#), HEW SG March 2014 Closing Report
- Draft minutes: [11-14/0380r0](#), March 2014 Beijing Meeting Minutes

Achievements

48. The group approved minutes from the January 2014 Los Angeles meeting and teleconferences on February 6th 2014 and February 13th 2014.

- [11-14/0199r0](#), January 2014 Los Angeles Meeting Minutes
- [11-14/0229r2](#), Minutes from the teleconference on February 6th, 2014
- [11-14/0242r0](#), Minutes from the teleconference on February 13th, 2014

49. Addressed comments related to the PAR and CSD received from individuals and other IEEE 802 WGs. Resolutions of comments are contained in the following document:

- <https://mentor.ieee.org/802.11/dcn/14/11-14-0424-00-0hew-hew-sg-par-and-csd-comments-and-resolutions.pptx>

50. Updated the PAR and the CSD documents based on received comments:

- <https://mentor.ieee.org/802.11/dcn/14/11-14-0165-01-0hew-802-11-hew-sg-proposed-par.docx>
- <https://mentor.ieee.org/802.11/dcn/14/11-14-0169-01-0hew-ieee-802-11-hew-sg-proposed-csd.docx>

51. The group passed motions to approve revised PAR and CSD documents, and SG extension.

- Revised PAR (11-14/0165r1): Y/N/A = 94/0/1, Pass
- Revised CSD (11-14/0169r1): Y/N/A = 97/0/1, Pass
- SG extension: Y/N/A = 105/0/0, Pass
- **HEW SG has completed its work and the IEEE standard board approved 802.11ax project.**

52. The group received more than 30 submissions in the categories of simulation scenarios, evaluation methodologies, channel models, functional requirements, technologies and selection procedure.

Following submissions have been presented and discussed during the week.

- [11-13/1359r1](#), “HEW-Evaluation-Methodology” Ron Porat (Broadcom)
- [11-14/0112r1](#), “Wi-Fi interference measurements in Korea - part II”, Minh Cheong (NEWRACOM)
- [11-14/0113r1](#), “Modeling of additional channel loss in dense WLAN environments”, Minh Cheong (NEWRACOM)
- [11-14/0294r2](#), “DSC Channel Selection and Legacy Sharing” Graham Smith (DSP Group)
- [11-14/0301r0](#), “Multicast Considerations for HEW”, Eisuke Sakai (Sony Corporation)
- [11-14/0306r0](#), “Discussions on HEW Functional Requirements”, Lei Wang (Marvell)
- [11-14/0307r0](#), “PHY Calibration Results”, Nihar Jindal (Broadcom)
- [11-14/0328r2](#), “Dense Apartment Complex Throughput Calculations”, Graham Smith (DSP Group)
- [11-14/0329r0](#), “Channel Models for different links in Simulations”, Kaushik Josiam (Samsung)
- [11-14/0330r3](#), “HEW PHY Abstraction”, Sameer Vermani (Qualcomm)
- [11-14/0335r0](#), “Instantaneous SINR Calibration for System Simulation”, Yakun Sun (Marvell)
- [11-14/0336r0](#), “Calibration of Long-Term SINR for System Simulator”, Yakun Sun (Marvell)
- [11-14/0339r0](#), “A simplified STR Mechanism”, Raja Banerjee (CSR)
- [11-14/0340r0](#), “A simplified STR Mechanism – MAC”, Raja Banerjee (CSR)
- [11-14/0342r0](#), “Short Packet Optimizations”, Naveen Kakani (CSR, Inc)
- [11-14/0345r1](#), “Joint Coding and Modulation Diversity with RBD pre-coding for next generation WLAN”, Zhanji Wu (BUPT)
- [11-14/0350r0](#), “Suggestion on Evaluation Methodology”, Jinyoung Chun (LG Electronics)
- [11-14/0352r0](#), “Discussion on power save mode for real time traffic”, Giwon Park (LG Electronics)
- [11-14/0353r0](#), “Suggestion on PHY Abstraction for Evaluation Methodology”, Dongguk Lim (LG Electronics)
- [11-14/0355r0](#), “Simulation Scenario 1 Revised”, Simone Merlin (Qualcomm)
- [11-14/0356r0](#), “Calibration of System Level Simulators”, Jarkko Kneckt (Nokia)
- [11-14/0357r0](#), “Utilizing Unused Resources for Simultaneous Transmissions”, Jarkko Kneckt (Nokia)
- [11-14/0365r0](#), “Extended Intra-Vehicle Channel Model”, Igal Kotzer (General Motors)
- [11-14/0372r2](#), “System level simulations on increased spatial reuse”, Liwen Chu (Marvell)
- [11-14/0373r1](#), “Energy Efficiency in HEW”, Pingping Xu, Wei Wang (Southeast University)
- [11-14/0381r0](#), “Stadium scenario for HEW”, Johan Soder, Filip Mestanov (Ericsson AB)
- [11-14/0383r0](#), “Considerations on evaluation methodology for candidate HEW PHY&MAC techniques”, Le Liu (Huawei)
- [11-14/0385r0](#), “Simulation Methodology and Calibration”, Gwen Barriac (Qualcomm)
- [11-14/0386r0](#), “Discussions on MCS selection”, Tianyu Wu (MediaTek)
- [11-14/0392r0](#), “Traffic Separation Scheme for Optimizing WLANs using PHY and MAC options”, Takayuki Nishio (Kyoto University)
- [11-14/0393r0](#), “Possible Indoor Channel Models for HEW System Simulations”, Leif Wilhelmsson (Ericsson AB).

- [11-14/0419r0](#), “802.11ax Spec Development Process Proposal”, Rolf de Vegt (Qualcomm)

Goals for May 2014

- Meet as a new TG and will have officer elections.
- Continue the work on simulation scenarios, evaluation methodologies, channel models, and function requirements.

Teleconferences

- One teleconference planned before the May 2014 session.
 - ✧ Thursday, April 17th, 10:00 – 12:00 (ET)
 - ✧ Details to be announced.

January 2014 – Los Angeles, CA

HEW study group had nine sessions during the week.

	Monday	Tuesday	Wednesday	Thursday
AM1				HEW
AM2	HEW	HEW		
PM1				HEW
PM2	HEW	HEW	HEW	
PM3	HEW	HEW		

Main documents

- Agenda: [11-13/1506r5](#), HEW SG January 2014 Meeting Agenda
- Closing report: [11-14/0187r0](#), HEW SG January 2014 Closing Report
- Draft minutes: [11-14/0199r0](#), January 2014 Los Angeles Meeting Minutes

Achievements

1. The group approved minutes from the November 2013 Dallas meeting and teleconferences on December 4th 2013, December 18th 2013 and January 8th, 2014..
 - [11-13/1465r1](#), November 2013 Dallas Meeting Minutes
 - [11-13/1495r0](#), Minutes from the teleconference on December 4th, 2013
 - [11-13/1532r1](#), Minutes from the teleconference on December 18th, 2013
 - [11-14/0024r1](#), Minutes from the teleconference on January 8th, 2014
2. The group resolved open issues related to the PAR and CSD.
3. The group received 28 submissions that were categorized into (1) PAR and 5 Criteria related submissions, and (2) Best Effort submissions. Best Effort submissions basically related to simulation scenario and evaluation methodology.
 - PAR and 5 Criteria related submissions
 - ✧ [11-13/1410r6](#), “802.11 HEW Draft PAR and 5C”, Osama Aboul-Magd and All
 - ✧ [11-13/1489r5](#), “Airport Capacity Analysis”, Graham Smith (DSP Group)
 - ✧ [11-14/0026r1](#), “thoughts on hew par”, Yong Liu (Apple)
 - ✧ [11-14/0045r2](#), “E-Education Analysis”, Graham Smith (DSP Group)
 - ✧ [11-14/0058r1](#), “Pico Cell Use Case Analysis “, Graham Smith (DSP Group)
 - ✧ [11-14/0061r0](#), “Some findings from real world measurement”, Katsuo Yunoki (KDDI Labs)

- ✧ [11-14/0065r1](#), “Comments on Draft HEW PAR”, Bill Carney (SONY)
- ✧ [11-14/0101r2](#), “Comments on 802.11 HEW Draft PAR & 5C”, Rakesh Taori (Samsung Electronics)
- ✧ [11-14/0106r0](#), “Discussion on HEW PAR”, Kiseon Ryu (LG Electronics)
- ✧ [11-14/0119r2](#), “Suggested PAR Changes”, James Yee (MediaTek)
- ✧ [11-14/0163r1](#), “Raising the PAR”, Mat Fischer (Broadcom)

● **Best Effort submissions**

- ✧ [11-14/0043r2](#), “PHY abstraction in system level simulation for HEW study”, Fei Tong (Samsung)
- ✧ [11-14/0051r0](#), “Wireless Office with Interference”, David Xun Yang (Huawei)
- ✧ [11-14/0053r0](#), “Further Considerations on Calibration of System Level Simulation”, Jiayin Zhang (Huawei)
- ✧ [11-14/0056r1](#), “Traffic Model on Virtual Desktop Infrastructure”, Yingpei Lin (Huawei)
- ✧ [11-14/0059r1](#), “Integrated System Level Simulation”, Jun Luo (Huawei)
- ✧ [11-14/0063r0](#), “Design Challenges for 802.11 HEW Radios”, Yu Cai (Huawei)
- ✧ [11-14/0070r0](#), “Joint MAC/PHY Evaluation Methodology”, Kaushik Josiam (Samsung)
- ✧ [11-14/0082r0](#), “Improved Spatial Reuse Feasibility – Part I”, Ron Porat (Broadcom)
- ✧ [11-14/0083r0](#), “Improved Spatial Reuse Feasibility – Part II”, Ron Porat (Broadcom)
- ✧ [11-14/0086r2](#), “Outdoor AP Measurement in Tokyo”, Tsugu Aoki (Toshiba)
- ✧ [11-14/0088r0](#), “Intra-Vehicular Channel Model”, Igal Kotzer (General Motors)
- ✧ [11-14/0095r0](#), “OFDM-IDMA Uplink Communication”, Leonardo Lanante (Kyushu Inst. Of Tech)
- ✧ [11-14/0107r0](#), “HEW Evaluation Metrics”, Yonggang Fang (ZTETX)
- ✧ [11-14/0116r1](#), “Long-Term SINR Calibration for System Level Simulation”, Yakun Sun (Marvell)
- ✧ [11-14/0117r0](#), “PHY Abstraction for HEW System Level Simulation”, Yakun Sun (Marvell)
- ✧ [11-14/0118r0](#), “Consideration on System Level Simulation”, Jinsoo Chio (LG Electronics)

4. The group passed motions to approve PAR and CSD.

- PAR: [11-14/0165r0](#), IEEE 802.11 HEW SG Proposed PAR
- CSD: [11-14/0169r0](#), IEEE 802.11 HEW SG Proposed CSD

Goals for the March 2014 Meeting

- Resolve comments expected from EC members and other IEEE 802 WGs
- Continue with presentations relevant to the SG topics.
 - ✧ Simulation scenarios
 - ✧ Evaluation Methodologies
 - ✧ Channel Models
 - ✧ Technology
 - ✧ etc.

Teleconferences

The group agreed to have four teleconferences before the March 2014 meeting.

- Thursday, February 6th, 2014: 20:00 – 22:00 (ET)
- Thursday, February 13th, 2014: 10:00 – 12:00 (ET)
- Thursday, February 20th, 2014: 10:00 – 12:00 (ET)
- Thursday, February 27th, 2014: 20:00 – 22:00 (ET)

November 2013 – Dallas, TX

HEW study group had ten sessions during the week.

	Monday	Tuesday	Wednesday	Thursday
AM1			HEW	HEW
AM2		HEW		
PM1		HEW	HEW	HEW
PM2	HEW	HEW	HEW	HEW

Main documents

- Agenda: [11-13/1263r5](#), HEW SG November 2013 Meeting Agenda
- Closing report: [11-13/1476r1](#), HEW SG November 2013 Closing Report
- Draft minutes: [11-13/1465r1](#), November 2013 Dallas Meeting Minutes

Achievements

1. The group approved minutes from the September 2013 Nanjing meeting and teleconferences on October 3rd and October 30th, 2013.

- [11-13/1117r1](#), September 2013 Nanjing Meeting Minutes
- [11-13/1275r1](#), Minutes from the teleconference on October 3rd, 2013
- [11-13/1303r0](#), Minutes from the teleconference on October 30th, 2013

2. The group received more than 40 submissions that were categorized into three categories, i.e., (1) Channel Mode/Simulation Scenarios and Evaluation Methodologies, (2) MAC/PHY technologies and (3) PAR proposals. Following submissions were presented during the week.

- **Channel Models, Simulation Scenarios and Evaluation Methodologies**

- ✧ [11-13/1001r5](#), “HEW SG Simulation Scenarios”, Simone Merlin (Qualcomm)
- ✧ [11-13/1305r0](#), “Simplification on HEW traffic models”, Bill Carney (Sony)
- ✧ [11-13/1334r5](#), [11-13/1335r4](#), “Video Traffic Modeling”, Guiqing Li (Intel)
- ✧ [11-13/1359r0](#), “HEW Evaluation Methodology”, Ron Porat (Broadcom)
- ✧ [11-13/1370r0](#), “LTE OOB Interference to 2.4 GHz Band”, Yonggang Fang (ZTE TX)
- ✧ [11-13/1376r3](#), “Discussions on Penetration Loss”, Jianhan Liu (MediaTek)
- ✧ [11-13/1380r0](#), “Outdoor Channel Model Simulation Follow-up”, Hongyuan Zhang (Marvell)
- ✧ [11-13/1383r0](#), “System Level Simulation Parameters”, Wookbong Lee (LG Electronics)
- ✧
- ✧ [11-13/1387r1](#), “HEW channel modeling for system level simulation”, Yan Zhang (Marvell)
- ✧ [11-13/1390r0](#), “PHY Abstraction for HEW System Level Simulations”, Yakun Sun (Marvell)
- ✧ [11-13/1391r0](#), “About SINR conversion for PHY Abstraction”, Yakun Sun (Marvell)
- ✧ [11-13/1392r0](#), “Methodology of Calibrating System Level Simulation Results”, Yakun Sun (Marvell)
- ✧ [11-13/1401r0](#), “System Level Assessments for Outdoor HEW Deployments”, Kaushik Josiam (Samsung)
- ✧ [11-13/1406r0](#), “Traffic Modeling for HEW Simulations”, Huai-Rong Shao (Samsung)
- ✧ [11-13/1407r0](#), “Simulation based study of QoE”, Chao-Chun Wang (MediaTek)
- ✧ [11-13/1412r0](#), “How to use simulation scenarios in HEW”, Minh Cheong (ETIR)
- ✧ [11-13/1419r1](#), “Modifications to ITU Channel Model to Support 160MHz bandwidth of operation”, Shahrnaz Azizi (Intel)
- ✧ [11-13/1420r1](#), “HEW Considerations for the Vehicular Environment”, Igal Kotzer (General Motors)
- ✧ [11-13/1438r0](#), “Traffic Observation and Study on Virtual Desktop Infrastructure”, Phillip Barber (Huawei Technologies)
- ✧ [11-13/1456r1](#), “Considerations on WFA feedback”, Simone Merlin (Qualcomm)

● MAC/PHY Technologies

- ✧ [11-13/1325r5](#), “IEEE 802.11ai overview”, Hiroshi Mano (ATRD), chair of TGai
- ✧ [11-13/1349r0](#), “Access Control Enhancement”, Katsuo Yunoki (KDDI)
- ✧ [11-13/1375r1](#), “Summary and Discussions of Proposals on Potential PHY Technologies in HEW”, Jianhan Liu (MediaTek)
- ✧ [11-13/1377r0](#), “DL efficiency enhancement in high density network”, Kiseon Ryu (LG Electronics)
- ✧ [11-13/1382r0](#), “Discussion on OFDMA in HEW”, Jinsoo Choi (LG Electronics)
- ✧ [11-13/1386r2](#), “Improving WLAN Efficiency and QoE – A Top Down Approach”, Veli-Pekka Kentonen (7 Signals)
- ✧ [11-13/1388r0](#), “UL MU-MIMO transmission”, Jinyoung Chun (LG)
- ✧ [11-13/1395r2](#), “Simultaneous Transmission Technologies for HEW”, Koichi Ishihara (NTT)
- ✧ [11-13/1409r0](#), “Dual Wi-Fi: Dual Channel Wi-Fi for Congested WLANs with Asymmetric Traffic Loads”, Adriana Flores (Rice University)
- ✧ [11-13/1421r1](#), “STR Radios and STR Media Access”, Phillip Levis (Stanford University)
- ✧ [11-13/1440r0](#), “Argos | Practical Masive-MIMO”, Clayton Shepard (Rice University)

● PAR proposals

- ✧ [11-13/1331r2](#), “Proposed direction and priorities for HEW”, Guido R. Hiertz (Ericsson)
- ✧ [11-13/1333r0](#), “Power Efficiency PAR Requirements”, Chris Hansen (Covariant)
- ✧ [11-13/1366r3](#), “Some propositions to progress towards the PAR definition”, Laurent Cariou (Orange)
- ✧ [11-13/1361r0](#), “Discussion to derive HEW Functional Requirements”, Yasunao Misawa (KDDI)
- ✧ [11-13/1389r1](#), “Discussion on HEW PAR”, HanGyu Cho (LG Electronics)
- ✧ [11-13/1397r0](#), “Renewing 2.4 GHz”, Brian Hart (Cisco Systems)
- ✧ [11-13/1398r0](#), “Requirements for HEW”, Akira Yamada (NTT DOCOMO)
- ✧ [11-13/1404r0](#), “Some Thoughts on PAR”, and [11-13/1405r0](#), “HEW PAR”, Eldad Perahia (Intel)
- ✧ [11-13/1450r0](#), “Summary of PAR Discussions”, Osama Aboul-Magd (HEW SG chair)
- ✧ [11-13/1470r1](#) and [11-13/1471r1](#), “802.11 HEW proposed basis for PAR discussion”, Laurent Cariou (Orange)

3. Discussed the WFA feedback on prioritization of the usage cases and approved a liaison letter back to WFA.

- Feedback from Wi-Fi Alliance:
 - ✧ [11-13/1443r0](#), Liaison from Wi-Fi Alliance - HEW Use Cases
- Approved a liaison document to Wi-Fi Alliance:
 - ✧ [11-13/1446r0](#), IEEE 802.11 Liaison to WFA on Prioritization of High Efficiency WLAN (HEW) Usage Scenarios

4. Started the discussion on the PAR.

5. The group passed a motion to extend the study group by 136/0/2.

Goals for the January 2014

- Progress the work on the PAR and 5C.

Teleconferences

The group agreed to have three teleconferences before the January 2014 meeting.

- Wednesday, December 4th, 2013: 10:00 – 12:00 (ET)
- Wednesday, December 18th, 2013: 20:00 – 22:00 (ET)
- Wednesday, January 8th, 2014: 10:00 – 12:00 (ET)

September 2013 – Nanjing, China

HEW study group had nine sessions during the week.

	Monday	Tuesday	Wednesday	Thursday
AM1				HEW
AM2		HEW		
PM1			HEW	HEW
PM2	HEW	HEW	HEW	
Evening	HEW	HEW		

Main documents

- Agenda: [11-13/0951r7](#)
- Closing report: [11-13/1231r1](#)
- Draft minutes: [11-13/1117r1](#)

Achievements

1. **The group approved minutes from the Geneva meeting and teleconference on August 28th, 2013.**
 - [11-13/0861r1](#), Minutes from face-to-face meeting in Geneva, July 2013
 - [11-13/1003r0](#), Minutes from the teleconference on August 28th, 2013
2. **50 submissions in the following categories were received and presented during the week.**
 - **Channel Models (CM)**
 - ✧ [11-13/0996r2](#), “Outdoor Channel Model Candidates for HEW”, Kaushik Josiam (Samsung)
 - ✧ [11-13/1113r0](#), “Channel Modeling for Dense Wi-Fi Environments“, Minhho Cheong (ETRI)
 - ✧ [11-13/1125r3](#), “HEW Outdoor Channel Model Discussions”, Hongyuan Zhang (Marvell)
 - ✧ [11-13/1135r4](#), “Summary of HEW Channel Models”, Jianhan Liu (MediaTek)
 - ✧ [11-13/1146r1](#), “Update on HEW Channel Model”, Shahrnaz Azizi (Intel Corp)
 - **Simulation Scenarios/Simulation Methodologies (SS/SM)**
 - ✧ [11-13/1000r2](#), “Simulation Scenarios”, Simone Merlin (Qualcomm)
 - ✧ [11-13/1001r2](#), “Simulation Scenarios Document Template”, Simone Merlin (Qualcomm)
 - ✧ [11-13/1079r0](#), “Outdoor Stadium Simulation Details Discussion”, Joseph Levy (InterDigital)
 - ✧ [11-13/1080r0](#), “Markov Modeling of the Channel for HEW System Level Simulations”, Joseph Levy (InterDigital)
 - ✧ [11-13/1081r0](#), “HEW Simulation Methodology”, Sayantan Choudhury (Nokia).
 - ✧ [11-13/1083r0](#), “HEW SG Unified Simulation Scenarios”, David Xun Yang (Huawei)
 - ✧ [11-13/1114r1](#), “Simulation Scenario for unplanned Wi-Fi Network”, Jae Seung Lee (ETRI)
 - ✧ [11-13/1123r1](#), “Capacity Simulation of High Density Indoor WLAN Systems”, Filip Mestanov (Ericsson AB)
 - ✧ [11-13/1133r0](#), “Virtual Desktop Infrastructure (VDI)”, Yingpei Lin (Huawei Technologies)
 - ✧ [11-13/1153r0](#), “Simulation Scenario Proposal”, Laurent Cariou (Orange)
 - ✧ [11-13/1159r1](#), “Video Performance Requirements and Simulation Parameters”, Guoqing Li (Intel)
 - ✧ [11-13/1162r1](#), “Video Application Categories and Characteristics”, Guoqing Li (Intel)
 - ✧ [11-13/1176r0](#), “Some Simulation Scenarios for HEW”, Reza Hedayat (Cisco)
 - **Evaluation Methodologies (EM)**
 - ✧ [11-13/1051r1](#), “Evaluation Methodology”, Ron Porat (Broadcom)
 - ✧ [11-13-1054r1](#), “HEW Evaluation Metrics Suggestions”, Yonggang Fang (ZTETX)

- ✧ [11-13/1059r0](#), “PHY Abstraction for HEW Evaluation Methodology”, Dongguk Lim (LG Electronics)
- ✧ [11-13/1131r0](#), “PHY Abstraction for HEW System Level Simulation”, Jiayin Zhang (Huawei Technologies)
- ✧ [11-13/1137r2](#), “The Definition of Performance Metrics for HEW”, Haui-Rong Shao (Samsung)
- ✧ [11-13/1144r1](#), “Simplified Traffic Model Based on Aggregated Network Statistics”, William Carney (Sony)
- ✧ [11-13/1158r0](#), “Video Traffic and Applications for HEW”, William Carney (Sony)

● Functional Requirements (FR)

- ✧ [11-13/1097r0](#), “Functional Requirements for HEW PAR”, Minh Cheong (ETRI)
- ✧ [11-13/1116r0](#), “Discussion on HEW Functional Requirements”, Jinsoo Choi (LG Electronics)

● MAC/PHY Technologies (TECH)

- ✧ [11-13/1046r2](#), “Discussion for Massive MIMO for HEW”, Zhigang Wen (BUPT)
- ✧ [11-13/1056r1](#), “Enhancement on resource utilization in OBSS environment”, Giwon Park (LG Electronics)
- ✧ [11-13/1058r0](#), “Efficient wider bandwidth operation”, Kiseon Ryu (LG Electronics)
- ✧ [11-13/1061r0](#), “Multicast Transmission for HEW”, Jeongki Kim (LG electronics)
- ✧ [11-13/1073r1](#), “Access Control Enhancement”, Katsuo Yunoki (KDDI Labs)
- ✧ [11-13/1074r0](#), “Occupied air time calculation for doc.1073r0”, Katsuo Yunoki (KDDI R&D Laboratories)
- ✧ [11-13/1077r1](#), “EDCA Enhancements for HEW”, Hui Zhao (BUPT)
- ✧ [11-13/1089r1](#), “D2D Technology for HEW”, Xiang Gao (BUPT)
- ✧ [11-13/1090r2](#), “Non-linear pre-coding MIMO Scheme for next generation WLAN”, Xiang Gao (BUPT)
- ✧ [11-13/1105r0](#), “Discussion on Access Mechanism for HEW”, Meng Yang (CATR)
- ✧ [11-13/1122r1](#), “Considerations for In-Band Simultaneous Transmit and Receive (STR) feature in HEW”, Rakesh Taori (Samsung Electronics)
- ✧ [11-13/1126r0](#), “Beamforming under OBSS Interference”, Hongyuan Zhang (Marvell)
- ✧ [11-13/1168r0](#), “Requirements on WLAN Ad Push”, Hui Tian (BUPT)
- ✧ [11-13/1169r0](#), “WLAN Cellular Offload in High Speed Moving Environment”, Hui Tian (BUPT)
- ✧ [11-13/1154r0](#), “DL-MU-MIMO Transmission with Unequal Bandwidth”, Yongming Huang (Southeast University)
- ✧ [11-13/1155r0](#), “Space Division Multiplex for OBSS Interference Suppression”, Yongming Huang (Southeast University)
- ✧ [11-13/1156r0](#), “TXOP Redundancy NAV Clear”, Yongming Huang (Southeast University)
- ✧ [11-13/1157r3](#), “Feasibility of Coordination Transmission for HEW”, Yunzhou Li (Tsinghua University)

● General (GEN)

- ✧ [11-13/1057r0](#), “Legacy support on HEW frame structure”, Wookbong Lee (LG electronics)
- ✧ [11-13/1100r0](#), “HEW SG Progress Review”, Osama Aboul-Magd (HEW SG)
- ✧ [11-13/1115r0](#), “Possible vision of the HEW-driven Wi-Fi 2020”, Minh Cheong (ETRI)
- ✧ [11-13/1163r0](#), “PAR and 5C: Comments based on 11n”, Sean Coffey (RealTek)
- ✧ [11-13/1164r1](#), “Some PAR and 5C Requirements”, Paul Lambert (Marvell)

3. Straw Polls

Several straw polls were conducted to sense the group consensus on topics related to simulation scenarios, evaluation methodologies and channel models.

4. Timeline

The group reviewed the timeline. No changes.

5. Teleconferences

The HEW SG agreed to have three teleconferences before the November 2013 session.

- Wednesday, October 9th, 2013: 10:00 – 12:00 (ET)
- Wednesday, October 17th, 2013: 00:01 – 02:00 (ET)
- Wednesday, October 30th, 2013: 10:00 – 12:00 (ET)

Goals for the November 2013

- Hear presentations addressing SS/SM/EM/FR/CM/TECH
 - Attempt to consolidate documents related to the above areas of discussion.
 - Priority will be given to presentations with consolidated views
- Start discussion on PAR related issues
- Motion for SG extension
- WFA feedback on the usage cases

July 2013 – Geneva, Switzerland

HEW study group had nine sessions during the week.

Main documents

- Agenda: [11-13/0664r5](#)
- Closing report: [11-13/0922r0](#)
- Draft minutes: [11-13/0861r0](#)

Achievements

1. **The group approved minutes from the face-to-face meeting in Waikoloa, HI and teleconferences held on June 5th and June 19th.**
 - [11-13/0560r2](#), May 2013 Waikoloa meeting minutes
 - [11-13/0663r1](#), Teleconference minutes 20130605
 - [11-13/0704r0](#), Teleconference minutes 20130619
2. **The group received over 35 submissions in areas of (1) Usage Models/Use Cases, (2) Functional Requirements, (3) Simulation Scenarios and Evaluation Methodology, (4) MAC/PHY techniques as listed below.**
 - **Usage Models/Use Cases**
 - ✧ [11-13/0657r3](#), “HEW SG usage models and requirements - Liaison with WFA” Laurent Cariou (Orange)
 - ✧ [11-13/0795r0](#), “HEW Usage Scenarios Categorization”, Eldad Perahia (Intel)
 - ✧ [11-13/0802r1](#), “Proposed re-categorization of the HEW usage models”, Yasuhiko Inoue (NTT)
 - ✧ [11-13/0761r0](#), “Interference Control Use Case for HEW”, Fang Xie (CMCC)
 - ✧ [11-13/0836r0](#), “HEW Usage Models for Backhuls and Floor Automation“, Minhø Cheong (ETRI)
 - **Functional Requirements**
 - ✧ [11-13/0787r0](#), “Follow up requirements”, Wu Tianyu (Huawei)
 - ✧ [11-13/0850r0](#), “Quantitative QoE Requirements for HEW”, Huai-Rong Shao (Samsung)
 - ✧ [11-13/0798r1](#), “Functional Requirements in HEW”, Jinsoo Choi (LG Electronics)
 - ✧ [11-13/0840r1](#), “HEW Functional Requirements Follow-up (Preliminary Version for Study Group discussions)”, Minhø Cheong (ETRI)
 - **Simulation Scenarios and Evaluation Methodology**
 - ✧ [11-13/0723r1](#), “HEW SG Evaluation Methodology Overview”, Minyoung Park (Intel)

- ✧ [11-13/0756r1](#), “HEW Channel Model”, Vinko Erceg (Broadcom)
- ✧ [11-13/0858r0](#), “Enhanced Channel Model for HEW”, Shahrnaz Azizi (Intel)
- ✧ [11-13/0728r1](#), “Network Optimization for Expected HEW Traffic Patterns”, Bill Carney (Sony)
- ✧ [11-13/0869r0](#), “Simulation scenarios and metrics for HEW”, Thomas Derham (Orange)
- ✧ [11-13/0872r1](#), “Clarifications on outdoor deployments”, Laurent Cariou (Orange)
- ✧ [11-13/0847r1](#), “Evaluation Criteria and Simulation Scenarios” Klaus Doppler (Nokia)
- ✧ [11-13/0786r0](#), “Discussion on System Level Simulation Methodology” Wu Tianyu (Huawei)
- ✧ [11-13/0757r1](#), “Evaluation Methodology and Simulation Scenarios” Nihar Jindal (Broadcom)
- ✧ [11-13/0805r2](#), “On Definition of Dense Networks and Performance Metric”, Jianhan Liu (MediaTek)
- ✧ [11-13/0800r1](#), “HEW Study Group Documentation”, Hemanth Sampath (Qualcomm)
- ✧ [11-13/0837r0](#), “Consideration for HEW Evaluation Methodology”, Minh Cheong (ETRI)

● MAC/PHY techniques

- ✧ [11-13/0768r0](#), “TD-*u*CSMA”, Riccard Scapigno (ISMB)
- ✧ [11-13/0843r0](#), “Further Evaluation on outdoor Wi-Fi”, Wookbong Lee (LG Electronics)
- ✧ [11-13/0852r0](#), “Potential approach to improve WLAN BSS edge performance”, Juho Pirskanen (Renesas Mobile)
- ✧ [11-13/0871r0](#), “Discussion on Potential Techniques for HEW”, Timo Koskela (Renesas Mobile)
- ✧ [11-13/0877r0](#), “HEW Beamforming Enhancements”, James Wang (MediaTek)
- ✧ [11-13/0764r1](#), “Full-duplex Technology for HEW”, Andre Bourdoux (IMEC)
- ✧ [11-13/0765r2](#), “Full-duplex is an emerging radio paradigm that has the potential to improve the efficiency of future WLANs”, Hongliang Bian (China Telecom)
- ✧ [11-13/0712r1](#), “A Brief Time of History”, Larry Taylor (DTC)
- ✧ [11-13/0801r1](#), “Issues of Low Rate Transmissions”, Akira Kishida (NTT)
- ✧ [11-13/0758r0](#), “Possible Approaches for HEW”, Katsuo Yunoki (KDDI Labs)
- ✧ [11-13/0849r1](#), “New Techniques: Enabling Real World Improvement By Exposing Internal MAC state”, Brian Hart (Cisco)
- ✧ [11-13/0854r1](#), “Consideration on Efficiency Enhancement”, SangHyun Chang (Samsung)
- ✧ [11-13/0865r2](#), “Video Data Rate for HEW”, Huai-Rong Shao (Samsung)
- ✧ [11-13/0878r0](#), “Efficiency enhancement for dense WLAN environment”, Jeongki Kim (LG Electronics)

3. The group approved document [11-13/0657r6](#) as HEW SG initial draft of Usage Models and to send it to Wi-Fi Alliance asking for prioritization of the use cases and additional feedbacks.
4. The group also approved a liaison letter to the Wi-Fi Alliance contained in the document [11-13/902r1](#).
5. The group passed motion to extend the SG.
6. The group discusses the timeline.
 - May 2013: Initial meeting
 - July 2013: Presentations, SG extension
 - September 2013: Presentations
 - November 2013: Presentations, Initial PAR & 5C, SG extension
 - January 2014: Presentations, Final version of PAR and 5C, WG approval
 - March 2014: Presentations, EC approval of PAR and 5C
 - May – June 2014: NesCom approval
 - July 2014: TG starts
7. Teleconferences
The group agreed to have two teleconferences before the September 2013 meeting.

- Wednesday, August 7th, 2013: 10:00 – 12:00 (ET)
- Wednesday, August 28th, 2013: 20:00 – 22:00 (ET)

Next steps

During the September 2013 meeting, the HEW SG continues discussions on issues related to:

- Usage Models/Use Cases
- Functional Requirements
- Feasibility
- Scope and Process

May 2013 – Waikoloa, HI

Main documents

- Agenda: [11-13/0400r4](#)
- Closing report: [11-13/0624r0](#)
- Draft minutes: [11-13/0560r2](#)

Achievements

1. The group decided leadership structure to have one chairperson and one secretary.

- Ÿ Osama Aboul-Magd (Huawei Technologies) was elected as the chair of the HEW SG.
- Ÿ Yasuhiko Inoue (NTT) was elected as the recording secretary of the HEW SG.

2. The group received 22 submissions as listed below.

Ÿ Usage Models/Use Cases:

- ✧ [11-13/0514r0](#), “HEW Usage Scenarios and Applications”, Eldad Perahia (Intel)
- ✧ [11-13/0538r0](#), “Dense apartment building use case for HEW”, Klaus Doppler (Nokia)
- ✧ [11-13/0554r0](#), “Use Cases”, Minh Cheong (ETRI)
- ✧ [11-13/0567r0](#), “Proposed HEW Usage Models”, Yasuhiko Inoue (NTT)
- ✧ [11-13/0527r2](#), “Usage Models for Next Generation”, David Xun Yang (Huawei) and James Wang (MediaTek)
- ✧ [11-13/0534r1](#), “Direction and Use Cases for HEW”, HanGyu Cho (LG Electronics)
- ✧ 11-13/0563r0, “D2D Technology for HEW”, Zhanji Wu (BUPT) – not presented

Ÿ Problem Statements:

- ✧ [11-13/0505r0](#), “MAC Efficiency Analysis for HEW SG”, Minyoung Park (Intel)
- ✧ [11-13/0545r1](#), “WLAN QoE, End User Perspective Opportunities to Improve”, Veli-Pekka Ketonen (7 signals)
- ✧ [11-13/0523r2](#), “Understanding Current Situation of Public Wi-Fi Usage – Possible Requirements for HEW –”, Katsuo Yunoki (KDDI Labs)
- ✧ [11-13/0539r0](#), “Efficient Frequency Spectrum Utilization”, Yongho Seok (LG Electronics)
- ✧ [11-13/0544r3](#), “Discussions on 11ac PHY efficiency”, Jianhan Liu (MediaTek)
- ✧ [11-13/0536r0](#), “HEW SG PHY Considerations For Outdoor Environment”, Wookbong Lee (LG Electronics)
- ✧ [11-13/0576r3](#), “Performance Evaluation for 11ac”, Wu Tianyu (Huawei Technologies)
- ✧ [11-13/0556r1](#), “Wi-Fi interference measurements in Korea – Part 1”, Minh Cheong (ETRI)
- ✧ [11-13/0549r0](#), “A perspective on what any High Efficiency Wireless TG should and should not do”, Brian Hart (Cisco Systems)

Ÿ Requirements:

- ✧ [11-13/0524r2](#), “HEW Functional Requirements”, Wu Tianyu (Huawei Technologies)

- ✧ [11-13/0555r2](#), “Considerations on Functional Requirements for HEW”, Minh Cheoung (ETRI)

Ÿ **Scenarios and Metrics**

- ✧ [11-13/0503r0](#), “Discussion on Basic Technical Aspects for HEW”, Juho Pirskanen (Renesas Mobile)
- ✧ [11-13/0542r0](#), “HEW Scenarios and Goals”, Simone Merlin (Qualcomm)
- ✧ [11-13/0486r1](#), “HEW – Metrics, Targets and Simulation Scenarios”, Ron Porat (Broadcom)
- ✧ [11-13/0520r1](#), “HEW scenarios and evaluation metrics”, Thomas Derham (Orange)

Ÿ **Technical Feasibility**

- ✧ [11-13/0558r1](#), “Coexistence and Optimization of Wireless LAN: Time, Frequency, Space, Power, and Load”, Jim Lansford (CSR)

3. Liaison to the Wi-Fi Alliance

- Ÿ The group agreed to ask the Wi-Fi Alliance for input about priority of the use cases.
- Ÿ Laurent Cariou (Orange) volunteers to develop the use case document.

4. Project planning

- Ÿ The group discussed about the project plan based on the submission [11-13/0616r2](#) by Phil Barber (Huawei)
- Ÿ Discussion to be continued in the July meeting.

5. Teleconferences

- Ÿ The group agreed to have two teleconferences before the July 2013 Plenary to develop a use case document to be shared with the Wi-Fi Alliance.
 - ✧ June 5th: 10:00 – 12:00 (ET)
 - ✧ June 19th: 20:00 – 22:00 (ET)

Next Steps

- During July 2013 session, the HEW SG will continue discussions on:
 - Usage Cases
 - Functional Requirements
 - Feasibility
 - Scope and Process

Related documents

Documents referenced in the motion that led to the creation of the study group

- <https://mentor.ieee.org/802.11/dcn/13/11-13-0339-10-0wng-high-efficiency-wlan-straw-poll.ppt>

Press release document

- <https://mentor.ieee.org/802.11/dcn/13/11-13-0418-02-0000-proposed-edits-to-hew-press-release.doc>
-

USEFUL LINKS TO OTHER SITES:

IEEE P802.11 WLANs RELATED

- [Home](#)
- [IEEE 802.11 WiKi](#)

- [E-mail Reflectors Archives \(Members Only\)](#)

OTHER SITES

- [IEEE P802 LAN/MAN Standards Committee \(LMSC\)](#)

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APPENDIX AU

TGax July 2016 Meeting Agenda

Date: 2016-06-15

Authors:

Name	Company	Address	Phone	email
Osama Aboul-Magd	Huawei Technologies	303 Terry Fox Drive Kanata, ONT, Canada K2K-3J1	613-287-1405	Osama.aboulmagd@Huawei.com

IEEE 802.11 TGax: High Efficiency WLAN Task Group

**San Diego, USA
July 24-29, 2016**

Chair: Osama Aboul-Magd (Huawei Technologies)

Vice Chair: Simone Merlin (Qualcomm)

Vice Chair: Ron Porat (Broadcom)

Secretary: Yasuhiko Inoue (NTT)

Technical Editor: Robert Stacey (Intel)

Meeting Protocol

- **Please announce your affiliation when you first address the group during a meeting slot**

Attendance

- <http://newton.meeting.verilan.com>

1. Register
2. Indicate attendance

Attendance, Voting & Document Status

- Make sure your badges are correct
- If you plan to make a submission be sure it does not contain company logos or advertising
- Questions on Voting status, Ballot pool, Access to Reflector, Documentation, member' s area
 - see Jon Rosdahl – jrosdahl@ieee.org
- Cell Phones Silent or Off

Patent Policy

- Following 5 slides

Instructions for the WG Chair

The IEEE-SA strongly recommends that at each WG meeting the chair or a designee:

- Show slides #1 through #4 of this presentation
- Advise the WG attendees that:
 - The IEEE's patent policy is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
 - Early identification of patent claims which July be essential for the use of standards under development is strongly encouraged;
 - There July be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- **Instruct the WG Secretary to record in the minutes of the relevant WG meeting:**
 - That the foregoing information was provided and that slides 1 through 4 (and this slide 0, if applicable) were shown;
 - That the chair or designee provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that July be essential for the use of that standard
 - Any responses that were given, specifically the patent claim(s)/patent application claim(s) and/or the holder of the patent claim(s)/patent application claim(s) that were identified (if any) and by whom.
- The WG Chair shall ensure that a request is made to any identified holders of potential essential patent claim(s) to complete and submit a Letter of Assurance.
- It is recommended that the WG chair review the guidance in *IEEE-SA Standards Board Operations Manual* 6.3.5 and in FAQs 14 and 15 on inclusion of potential Essential Patent Claims by incorporation or by reference.

Note: **WG** includes Working Groups, Task Groups, and other standards-developing committees with a PAR approved by the IEEE-SA Standards Board.

Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy.

- Participants [Note: Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2]:
 - “Shall inform the IEEE (or cause the IEEE to be informed)” of the identity of each “holder of any potential Essential Patent Claims of which they are personally aware” if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
 - “Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)
- The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group
- Early identification of holders of potential Essential Patent Claims is strongly encouraged
- No duty to perform a patent search

Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.

Patent Policy is stated in these sources:

IEEE-SA Standards Boards Bylaws

<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>

IEEE-SA Standards Board Operations Manual

<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>

Material about the patent policy is available at

<http://standards.ieee.org/about/sasb/patcom/materials.html>

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at patcom@ieee.org or visit <http://standards.ieee.org/about/sasb/patcom/index.html>

This slide set is available at
<https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt>

Call for Potentially Essential Patents

- **If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:**
 - Either speak up now or
 - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible or
 - Cause an LOA to be submitted

Other Guidelines for IEEE WG Meetings

- All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
- Don't discuss the interpretation, validity, or essentiality of patents/patent claims.
- Don't discuss specific license rates, terms, or conditions.
 - Relative costs, including licensing costs of essential patent claims, of different technical approaches July be discussed in standards development meetings.
 - Technical considerations remain primary focus
- Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
- Don't discuss the status or substance of ongoing or threatened litigation.
- Don't be silent if inappropriate topics are discussed ... do formally object.

See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and “Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association’s Antitrust and Competition Policy” for more details.

Agenda Items for the Week

- Approve TG and Telecons minutes since May meeting.
- Resolution of comments received on draft D0.1
- Ad Hoc group meetings
- Technical Presentations and related straw polls and/or motions
- Schedule Telecon times.

General Flow of the Meeting

- **Monday July 25, 08:00 – 10:00**
 - Call Ad Hoc Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - AD hoc meeting Agenda setting
 - Approval of ad hoc meeting agenda
 - Call for submissions
 - Presentations
 - Adjourn
- **Monday July 25, 16:00 – 18:00**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Review from November 2014 meeting
 - Call for submissions
 - Agenda setting and approval
 - TG Motions
 - Presentations
 - Recess
- **Tuesday July 26, 10:30 – 12:30**
 - Ad Hoc Group Meetings
- **Tuesday July 26, 16:00 – 18:00**
 - Ad Hoc Group Meetings
- **Tuesday July 26, 19:30 – 21:30**
 - Ad Hoc Group Meetings
- **Wednesday July 27, 08:00 – 10:00**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Progress Review
 - Presentations
- **Wednesday July 27, 13:30 – 15:30**
 - Ad Hoc Group Meetings
- **Wednesday July 27, 16:00 – 18:00**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Presentations
 - TG Motions
 - Recess
- **Thursday July 28, 10:30 – 12:30**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Presentations
 - TG Motions
 - Recess
- **Thursday July 28, 13:30 – 15:30**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Presentations
 - TG Motions
 - Goals for March 2016
 - Telecon Schedule
 - Adjourn

TGax Schedule in a Glance

	Monday	Tuesday	Wednesday	Thursday
AM1	TGax		TGax	
AM2		PHY MAC		TGax
PM1			PHY MAC	TGax
PM2	TGax	SR MU	TGax	
EVE		PHY MAC		

* Ad Hoc group is tbd

Submissions (PHY)

DCN	Title	Author	ad hoc
11-16/0816	Comment Resolution for CID 2183	Daewon Lee	PHY
11-16/0872	CR HE-SIG-A Part II	Ross Jian Yu	PHY
11-16/0873	CR HE-SIG-B Part I	Ross Jian Yu	PHY
11-16/0891	LDPC for 1024QAM	Hongyuan Zhang	PHY
11-16/0892	Spec Text on LDPC for 1024QAM	Hongyuan Zhang	PHY
11-16/0893	11ax Extended Range PPDU	Bin Tian	PHY
11-16/0894	HE-LTF Capabilities	Hongyuan Zhang	PHY
11-16/0895	Spec Text for HE-LTF Capabilities	Hongyuan Zhang	PHY
11-16/0896	11ax Beamformee Capabilities	Hongyuan Zhang	PHY
11-16/0897	Spec Text for Beamformee Capabilities	Hongyuan Zhang	PHY
11-16/0898	BW Field in HE-MU Format	Hongyuan Zhang	PHY
11-16/0899	Spec Text for BW Field in HE-MU Format	Hongyuan Zhang	PHY
11-16/0900	PHY Comment Resolution for CID 1052 and 2519	Hongyuan Zhang	PHY
11-16/0903	Gamma phase rotation for HE PPDU	Bin Tian	PHY
11-16/0904	proposed text for gamma phase rotation for HE PPDU	Yujin Noh	PHY
11-16/0906	RU restriction on 20MHz operating STAs	Yujin Noh	PHY
11-16/0908	CR - proposed text on RU restriction of 20MHz STAs	Joonsuk Kim	PHY
11-16/0910	Minimum Occupied Bandwidth	Joonsuk Kim	PHY
11-16/0914	Bit field finalization of HE-SIG-A	Ron Porat	PHY
11-16/0915	Text for bit field finalization of HE-SIG-A	Lochan Verma	PHY
11-16/0920	PHY comment resolution for CID 1659,493,494	Lochan Verma	PHY
11-16/0922	PHY CR 1024 QAM	Xiaogang Chen	PHY
11-16/0923	PHY CR DCM Constellation Mapping	Sriram Venkateswaran	PHY
11-16/0928	CR on Section 26.3.9.8 - HE-SIG-B	Sriram Venkateswaran	PHY
11-16/0937	11ax Comment Resolutions for Clauses 26.3.2-26.3.9.3-26.3.9.4-26.3.9.5-26.3.10.2- 26.3.10.13	Kaushik Josiam	PHY
11-16/0964	Considerations on MAC-PHY interactions during SR operations	Rui Cao	PHY
		Jing Ma	PHY

Submissions (MAC)

34 submissions

DCN	Title	Author	ad hoc
11-16/0828	HE Fragmentation - part 1	Alfred Asterjadhi	MAC
11-16/0829	Comment Resolution for Section 10.24.10 Block Ack/GCR block ack	Reza Hedayat	MAC
11-16/0844	CCO-Intra_PPDU_PS	Alfred Asterjadhi	MAC
11-16/0856	Issue of Buffer Status reporting	Stephane Baron	MAC
11-16/0860	comment resolution on A-MPDU format	Yongho Seok	MAC
11-16/0861	comment resolution on mu acknowledgment procedure	Yongho Seok	MAC
11-16/0862	comment resolution on subclause 25.11	Yongho Seok	MAC
11-16/0864	40.1 comment resolution on clause 6	Yasuhiko Inoue	MAC
11-16/0867	CIDs for CIDs: Section 9.3.1.9.3 Compressed BA format	George Chierian	MAC
11-16/0868	CIDs for Section 9.3.1.9.7 Multi STA BAs	George Chierian	MAC
11-16/0869	Comment resolution section 9.3 TWT	Zhou Lan	MAC
11-16/0871	Trigger Frame Per User Info Order	Zhou Lan	MAC
11-16/0877	Comment resolution on CID 783 (TXOP Duration field format)	Jeongki Kim	MAC
11-16/0878	Comment resolution on CID 782 (Intra-PPDU PS)	Jeongki Kim	MAC
11-16/0881	Comment resolution on ROMI	Jayh Park	MAC
11-16/0882	Comment resolution on TOMI	Jayh Park	MAC
11-16/0883	Comment resolution for CID152	Jayh Park	MAC
11-16/0884	Spec. Text for HE Operation element and AID Assign Rule	Jianhan Liu	MAC
11-16/0890	Comment Resolution on NAV Setting of Single and Multiple Protection and Control Response	Po-Kai Huang	MAC
11-16/0913	SU Multi-TID Rules	Jarkko Knecht	MAC
11-16/0916	TID value of ALL ACK signaling	Woojin Ahn	MAC
11-16/0917	Text for TID value of ALL ACK signaling	Woojin Ahn	MAC
11-16/0918	Discussions on Partial BSS Color	Geonjung Ko	MAC
11-16/0924	NAV resetting with RTS/MU-RTS	Weimin Xing	MAC
11-16/0925	Spec text on NAV resetting with RTS/MU-RTS	Weimin Xing	MAC
11-16/0941	CR HE Fragmentation - part 2	Ming Gan	MAC
11-16/0942	CR Service Field	Ming Gan	MAC
11-16/0951	Setting for TXOP Duration Field	Po-Kai Huang	MAC
11-16/0952	Spec text trigger frame per user info order	Zhou Lan	MAC
11-16/0953	Comment Resolution and Spec Text for Setting for TXOP Duration field	Po-Kai Huang	MAC
11-16/0960	AP access procedure for UL MU operation	Jinsoo Ahn	MAC
11-16/0961	Consideration on Multi-STA BlockAck Optimization	Hanseul Hong	MAC
11-16/0962	EDCA rules-follow up 1	Jing Ma	MAC
11-16/0963	EDCA rules-follow up 2	Jing Ma	MAC
11-16/0966	CID71 and CID190 Resolutions	Jarkko Knecht	MAC

Submissions (MU)

DCN	Title	Author	ad hoc
11-16/0866	Comment Resolution of Section 26.3.13 MU-MIMO	Kome Oteri	MU
11-16/0875	CR for the section 10.3.2.8a CS Condition to Respond CTS	Kiseon Ryu	MU
11-16/0876	CR for the section 25.5.2.4 UL MU CS CCA and CS Required Bit	Kiseon Ryu	MU
11-16/0880	UL MU Transmission Rules - EDCA backoff	Jayh Park	MU
11-16/0885	Comment Resolution on UL MU CS NAV Considerstion	Po-Kai Huang	MU
11-16/0886	Comment Resolution for some UL MU CS TBD	Po-Kai Huang	MU
11-16/0887	Spec Text for MU-RTS restriction on HE MU PPDU	Po-Kai Huang	MU
11-16/0926	Soliciting UL_MU_ACK	Raja Banerjee	MU
11-16/0929	CR - UL MU Operation	Simone Merlin	MU
11-16/0930	CD - DL MU Operation	Simone Merlin	MU
11-16/0938	Comment Resolution for Sub-clause 25.10.4	Chittabrata Ghosh	MU
11-16/0958	UL OFDMA for Unassociated STAs	Leonardo Lanante	MU

12 submissions

Submissions (SR)

DCN	Title	Author	ad hoc
11-16/0879	Comment resolution on SR for VHT PPDU's	Jeongki Kim	SR
11-16/0889	comment-resolution-SR-Intra-BSS-detection	Young Hpoon Kown	SR
11-16/0901	Clarification of SR Fields in HE Trigger Based PPDU	Daewon Lee	SR
11-16/0902	Proposed Text Changes for SR Fields in HE Trigger-Based PPDU	Daewon Lee	SR
11-16/0905	SR Fields Clarification	Ron Porat	SR
11-16/0919	Discussions on SR Fields in HE Trigger-based PPDU	Geonjung Ko	SR
11-16/0310	DSC Proposal Text	Graham Smith	SR
11-16/0945	Clarifications for OBSS_PD-based SR parameters	Laurent Cariou	SR
11-16/0946	Proposed text changes for OBSS_PD-based SR parameters	Laurent Cariou	SR
11-16/0957	Comment Resolutions on OBSS_PD Conditions in 25.9.3	James Wang	SR

10 submissions

Submissions (TG)

DCN	Title	Author	ad hoc
11-16/0835	EIFS	Alfred Asterjadhi	TG
11-15/1095	OFDMA Performance in 11ax	Suhwook Kim	TG
11-16/0870	Concluding MAC Trigger Padding	Zhou Lan	T G
11-16/0907	20MHz HE devices	Joonsuk Kim	TG
11-16/0909	CR - proposed text on 20MHz devices	Joonsuk Kim	TG
11-16/0949	MAC trigger frame padding follow up	Zhou Lan	TG
11-16/0965	On High Efficiency WLAN (HEW) TG PAR Scope	Osama Aboul-Magd	TG

9 submissions adding Ke Yao comment resolution

Agenda for Monday July 25, 08:00 – 10:00

- **Call meeting to order**
- **Patent policy, etc.**
- **Ad Hoc meeting (No motions)**
- **Call for submissions.**
- **Set up agenda for the ad hoc meeting.**
- **Presentations**
- **Adjourn**

Agenda for Monday July 25, 16:00 – 18:00

- Call meeting to order
- Patent policy, etc.
- Call for submissions
- Set Ad Hoc Groups schedule and approve agenda
- Comment Resolution Tutorial – Adrian Stephens
- Summary from May 2016 meeting
- TG motions
 - Approve TG meeting and Telecon minutes since May meeting.
 - Approve resolutions of comments, if needed.
- **Comment Resolution Status – Robert Stacey**
- **Timeline**
- **Presentations and Comment Resolution**
 - TXOP Duration Issues (Jeongki Kim and Bo Sun)
 - 11-16/0965; On HEW TG PAR Scope
 - 11-15/1095; OFDMA Performance in 11ax
 -

• **Recess**

Submission

Slide 21

Osama Aboul-Magd (Huawei Technologies)

Summary from May 2016 Meeting

- Received about 70 submissions. Majority of the submission were requesting changes to the TG Specification Framework document. Few submissions were addressing comment resolution mainly for the PHY clause.
- Agreed to terminate the Specification Framework process. The frame of reference is Draft D0.1.
 - Future submissions shall bring text to continue developing the TG draft
- Approved the resolutions of about 200 comments, most of them addressing the PHY clause
- Revisited the timeline and accepted a new modified timeline – next slide.
- The TG had a series of telecons where resolutions of about 227 comments were discussed.

Submissions Covered During Telecons

- <https://mentor.ieee.org/802.11/dcn/16/11-16-0725-03-00ax-comment-resolution-on-9-3-1-23.docx> (6 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0773-02-00ax-comment-resolution-section-25-6-he-sounding.docx> (15 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0774-01-00ax-comment-resolution-on-9-3-1-23-ruallocation.docx> (14 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0780-01-00ax-comment-resolution-on-9-3-1-23-phy-tbd.docx> (31 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0775-01-00ax-comment-resolution-on-section-26-3-12-4-phy-mu-mimo-power-pre-correction.docx> (7 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0766-00-00ax-he-variant-ht-control-ul-mu-response.docx> (28 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0798-00-00ax-he-variant-ht-control-general.docx> (33 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0815-02-00ax-comment-resolution-mu-rts-scrambler-seed.docx> (5 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0819-01-00ax-cids-for-section-9-3-1-9-blockack-frame-format.docx> (9 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0806-00-00ax-he-variant-ht-control-buffer-status-report.docx> (24 CIDs)
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0807-00-00ax-comment-resolution-on-mu-rts-cts-procedure.docx> (27 CIDs)
- **Note: A new revision is expected to accommodate Mark's comments**
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0808-00-00ax-comment-resolution-on-trigger-frame-format-mu-rts-variant.docx> (14 CIDs)
- **Note: A new revision is expected to accommodate Mark's comments**
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0813-00-00ax-cr-on-section-26-2-2-txrvector-parameters.doc> (4 CIDs)
- **Note: We need to revisit this document again to try to cose a couple of TBDs**
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0836-00-00ax-comment-resolution-on-section-9-4-1-phy-mu-mimo-compressed-beamforming-report.docx> (10 CIDs)
- **Note: Adds significant amount of text and introduces new frame.**

Approval of TG Minutes (March 2016 Meeting and Telecon Minutes)

- Approve TGax minutes of meetings and teleconferences from May 2016 interim meeting to today:

- <https://mentor.ieee.org/802.11/dcn/16/11-16-0686-00-00ax-tgax-may-2016-waikoloa-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0768-05-00ax-tgax-teleconference-minutes-from-june-to-july-2016.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0755-00-00ax-tgax-may-2016-waikoloa-phy-ad-hoc-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0716-00-00ax-mu-ad-hoc-meeting-minutes-may-2016.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-0701-00-00ax-combined-spatial-reuse-mac-ad-hoc-group-meeting-minutes.docx>

- Move: Bo Sun

Second: Robert Stacey

- ~~Approved with no objection~~

Submission

Slide 24

Osama Aboul-Magd (Huawei Technologies)

Comment Resolution Status (Editor Report)

- **Robert Stacey (Technical Editor)**

From IEEE 802.11 Operation Manual

- <https://mentor.ieee.org/802.11/dcn/14/11-14-0629-14-0000-802-11-operations-manual.docx>

Motions modifying drafts may be made at appropriate times during meetings. Complex technical changes to a draft shall be in a submission that has been accepted by document control according to document formats specified in section 3.7 of this document and has been made available electronically for a **period of not less than four active 802.11 WG session hours**. The TG chair determines if a technical change is sufficiently complex to require a submission.

When a CRC is following the “Accelerated process” for completion of a WG letter ballot, and is not meeting during an 802.11 WG session, any submission containing changes to the draft shall be on the server and announced to the appropriate TG reflector no less than 72 hours before any motion is made related to that submission.

NOTE – when a CRC is meeting coincident with an 802.11 session, it is subject to the four hour rule described in the previous paragraph.

Timeline

- **May 2014:** start of the TG
- **Nov. 2014:** First draft of the TG SFD was approved
- **Jan. 2016:** proposed TG draft
- **March 2016:** Draft D0.1 was approved and CC started
- **September 2016: Draft 1.0 and WG letter ballot**
- **March 2017:** Draft 2.0 and recirculation
- **July 2017:** MDR (Mandatory Document Review)
- **November 2017:** Formation of SB pool
- **March 2018:** Sponsor Ballot
- **December 2018:** RevCom

Agenda for Tuesday July 26, 10:30 – 12:30

- **Ad Hoc Group Meetings**
 - PHY: Seaport DE
 - MAC: Seaport G

Agenda for Tuesday July 17, 16:00 – 18:00

- **Ad Hoc Group Meetings**
 - MU : Seaport DE
 - SR: Seaport G

Agenda for Tuesday July 17, 19:30 – 21:30

- **Ad Hoc Group Meetings**
 - PHY: Seaport DE
 - MAC: Harbor EF

Agenda for Wednesday July 27, 08:00 – 10:00

- **TG Meeting**
- **Call Meeting to order**
- **IEEE 802 and 802.11 IPR Policy and procedure.**
- **Progress from Ad Hoc**
- **Presentations**
 - 11-16/0907: 20 MHz HE Devices – Joonsuk kim
 - 11-16/0909: Text for 20 MHz - Joonsuk Kim
 - 11-16/0870 and 11-16/0949 – Zhou Lan
 - 11-16/0971 – Graham Smith
 - 11-16/0957 – James Wang
 - 11-16/0947 – Laurent Cariou
- **Recess**

Agenda for Wednesday July 27, 13:30 – 15:30

- Ad Hoc Group Meetings
 - PHY: Seaport DE
 - MAC: Seaport G

Agenda for Wednesday July 27, 16:00 – 18:00

- **TG Meeting**
- **Call Meeting to order**
- **IEEE 802 and 802.11 IPR Policy and procedure.**
- **Presentations**
 - 11-16/0947 – Laurent Cariou
 - 11-16/0957 – James Wang (??)
- **TG Motions**
- **Recess**

SR Motion #9

- **Move to include the text in doc 11-16/0971r2 related to DSC in the next revision of the TG draft**
- **Move: Graham Smith**
- **Second: Sean Coffey**
- **Motion withdrawn**

SR Motion #10

- **Move to accept the proposed text changes in document “11-16/0947r4, for OBSS_PD-based SR parameters” and include the changes in the next revision of the TG draft**
- **Move: Laurent Cariou**
- **Second: Ron Porat**
- **Y: 59, N:20, A: 29**
- **Motion fails**

Agenda for Thursday July 28, AM2 and PM1

- **TG Meeting**
- **Call Meeting to order**
- **IEEE 802 and 802.11 IPR Policy and procedure.**
- **TG Motions**
- **Presentations (if time allows)**
 - George
 - Wojin
 - Chitto
 - Jerrko
 - Kaushik
- **Telecon**
- **adjourn**

SR Motion #11

- **Move to accept the proposed text changes in document 11-16/0902r3 and include the changes in the next revision of the TG draft**
- **Move: Daewon Lee**
- **Second: Ron Porat**
- **Accepted with no objection**

PHY Motion #158

- **Move to include the spec text change as shown in doc 11/16-0892r0 to the next revision of the TG draft**
- **Move: Hongyuan Zhang**
- **Second: Bo Sun**
- **Y/N/A**
- **Accepted with no objection**

PHY Motion #159

- **Move to include the spec text changes as shown in doc 11/16-0895r0 in the next revision of the TG draft, which reflects Straw Polls 1~3 in doc 11-16/0894r0**
- **Move: Hongyuan Zhang**
- **Second: Bo Sun**
- **Accepted with no objection**

PHY Motion #160

- Move to include the spec text changes as shown in doc 11/16-0897r1 in the next revision of the TG draft.
- Move: Hongyuan Zhang
- Second: Bo Sun
- Accepted with no objection
- Y/N/A

PHY Motion #161

- **Move to include the spec text changes as shown in doc 11/16-0899r0 (reflects the content of SP1 in doc 11-16/0898r0) to the next revision of the TG draft**
- **Move: Hongyuan Zhang**
- **Second: Bo Sun**
- **Y/N/A**
- **Accepted with no objection**

PHY Motion #162

- Move to add the spec text changes to D0.2 on Table 26-20
 - Fields in the HE-SIG-A for an HE SU PPDU and HE Extended Range SU PPDU as shown in doc 11/16-0915r0
- Move: Bin Tian
- Second:
- Y/N/A

PHY Motion #163

- **Move to include the spec text change as shown in doc 11/16-0909r2 in the next revision of the TG draft.**
- **Move: Joonsuk Kim**
- **Second: Bo Sun**
- **Y/N/A**
- **Approved with no objection**

PHY Motion #164

- **Move to include the spec text changes in doc 11-16/0915r2 in the next revision of the TG draft.**
- **Move: Brian Hart**
- **Second: Bo Sun**
- **Accepted with no objection**

PHY Motion #165

- **Move to add to the next revision of the TG draft:**
 - Add at the end of section 26.3.7.1 the following sentence:
 - In a HE MU PPDU transmission, at least $N \times 4 \times 26$ tones (contiguous or non-contiguous), where N is the number of 20MHz channels' legacy preambles present, shall be occupied throughout the signaled BW
- **Move: Ron Porat**
- **Second: Bo Sun**
- **Y/N/A**
- **Accepted with no objection**

MU Motion #57

- **Move to add the following to the next revision of the**

TG draft:

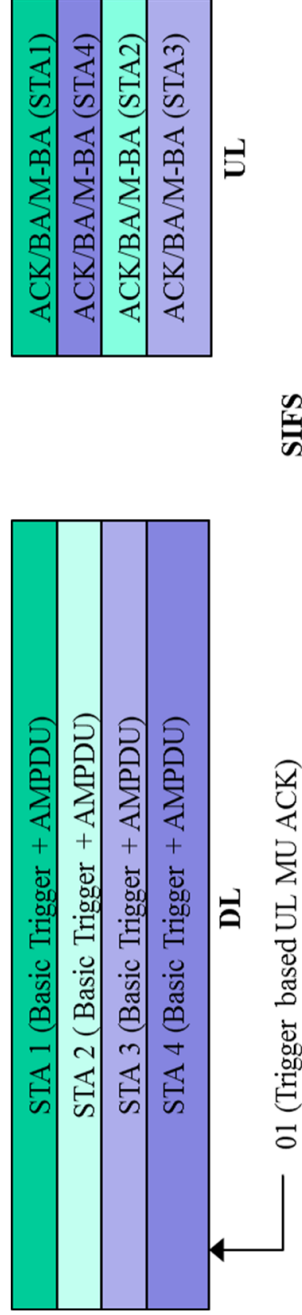
- *Insert the following at the end of 10.22.2.2:*
- When an HE STA successfully receives the corresponding acknowledgement frame in response to the MPDU sent in HE trigger based PPDU, the backoff for the associated EDCAF resumes the backoff counter countdown
- *Insert the following at the end of 10.22.2.2:*
- When an HE STA does not receive the corresponding acknowledgement frame in response to the MPDU sent in HE trigger based PPDU, the backoff for the associated EDCAF resumes the backoff counter countdown

- *Insert the following at the end of 10.22.2.2:*
- If an HE STA does not successfully receive the corresponding acknowledgement frame in response to the MPDU sent in an HE trigger based PPDU, the short retry counters and long retry counters for the associated EDCAF are not changed

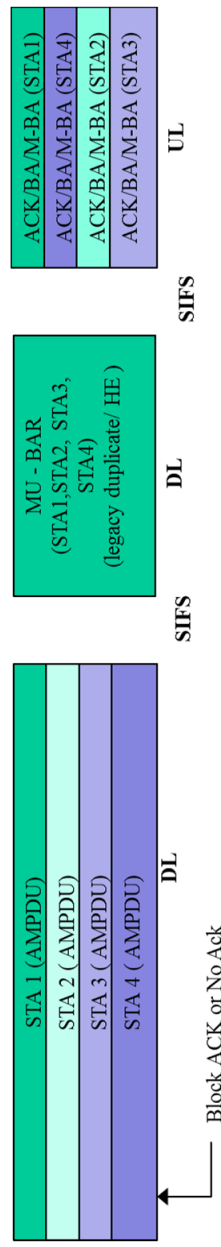
- **Move: Kiseon Ryu**
- **Second: Simone Merlin**
- **Accepted with no objection**

MU Motion

- **Move to add the following text to the next revision of the TG draft**
- **Section 25.5.1**
 - It is mandatory at the non AP HE STA to support reception of Trigger in the DL MU PPDU aggregated with Data and respond with an ACK/BA/M-BA if the QoS ACK Policy in the DL AMPDU is set to 01 (Trigger based UL MU ACK) and the STA has not set the UL MU Disable to 1.



- It is mandatory at the non AP HE STA to support reception of DL MU PPDU with QoS ACK Policy set to Block Ack or No ACK followed by a MU-BAR within SIFS followed by transmission of the ACK/BA/M-BA appropriately if the STA has not set the UL MU Disable to 1.



- **Move: Simone Merlin**
- **Second: Alfred**

~~Table till PM1~~
Submission

MAC Motion #85

- **Move to add the following text to the TG draft:**
 - The Queue Size subfield is an 8-bit field that indicates the amount of buffered traffic, for a given TC or TS at the STA sending this frame.
 - An HE non-AP STA uses the Queue Size subfield to indicate the amount of buffered traffic intended for the STA identified by the receiver address of the frame containing the QoS Control field.
- **Move: Pascal Viger Second:**
- **Y/N/A: Stephane Baron**
- **Accepted with no objection**

MAC Motion #86

- **Move to add the following text to the TG draft:**
 - Add to clause #9.3.1.23
 - “Per User Info fields with AID = 0 shall be allocated only after Per User Info fields with AID not equals to 0, if any, and before the MAC padding field, if present.”
- Move: Zhou Lan
- Second: Reza Hedayat
- Accepted with no objection

MAC Motion #87

- **Move to include the spec text change as shown in doc 11/16-0917r1 in the TG draft**
- **Move: Woojin Ahn**
- **Second: John Son**
- **Accepted with no objection**

CR Motion #15

- **Move to approve resolutions of CIDs, 9, 228**
- **2219, 2422, 2691, 2900 in doc 11-16/0725r3.**
- **Move: Raja Banerjee**
- **Second: Simone Merlin**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #16

- **Move to approve resolutions to CIDs, 55, 1000, 1221, 1915, 2234, 802,1695, 1222, 182, 971,2713, 702, 1916, 2233, 223 in doc 11-16/0773r2.**
- **Move: Raja Banerjee**
- **Second: Robert Stacey**
- **Accepted with no objection**

CR Motion #17

- **Move to accept resolutions to CIDs, 262,1083, 102, 612, 660, 830, 864, 1716, 2215, 2301, 2376, 372, 719, 864 in doc 11-16/0774r1**
- **Move: Raja Banerjee**
- **Second: Simone Merlin**
- **Y/N/A**
- **Accepted with no objection**

CR Motion # 18

- **Move to approve resolutions to CIDs, 101,103, 104,374,375, 377, 558, 561, 661, 662, 664, 688, 1296, 1299, 1301, 1717, 1718, 1882, 2113, 2114, 2174, 2217, 2302, 2421, 227, 720, 663,1303,1305,1306 in doc 11-16/0780r1**
- **Move: Raja Banerjee**
- **Second: Simone Merlin**
- **Accepted with no objection**
-

CR Motion #19

- **Move to approve resolutions to CIDs, 340, 341, 342, 343, 1023, 2734, and 2889 in doc 11-16/0775r2**
- **Move: Lochan Verma**
- **Second: Sameer Vermani**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #20

- **Move to approve resolutions of CIDs, 855, 1064, 1, 784, 90, 94, 654, 453, 1181, 2249, 2297, 2208, 2406, 2576, 2901, 2902, 2903, 2405, 2904, 1254, 1255, 1256, 1202, 1714, 1761, 1762, 1881, 1418 in doc 11-16/766r1**
- **Move: Alfred Asterjadhi**
- **Second: Young Hoon kwon**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #21

- **Move to approve resolutions of CIDs, 1126, 1127, 1179, 58, 89, 361, 2248, 1877, 1878, 792, 686, 687, 793, 1133, 91, 92, 362, 363, 2296, 1712, 1713, 1250, 1253, 1711, 2204, 2205, 2206, 211, 364, 1231, 134, 1750, 1244 in doc 11-16/0798r0**
- **Move: Alfred Asterjadhi**
- **Second: Simone Merlin**
- **Y/N/A**
- **No objection**

CR Motion #22

- **Move to approve resolutions to CIDs, 14, 127, 370, 371, 2602 in doc 11-16/0815r2**
- **Move: Young Hoon Kwon**
- **Second: Yongho Seok**
- **Accepted with no objection**

CR Motion #23

- **Move to approve resolutions to CIDs, 961, 1137, 804, 212, 2212, 2412, 2413, 1136, 1493 in doc 11-16/0819r1**
- **Move: Alfred**
- **Second: Yasu**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #24

- **Move to approve resolutions to CIDs, 824, 93, 1067, 2388, 45, 178, 254, 438, 680, 769, 770, 771, 817, 818, 1062, 1065, 1066, 1550, 2189, 2190, 2191, 2272, 2711, 147 in doc 11-16/0806r0**
- **Move: Alfred Asterjadhi**
- **Second: Matt Fischer**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #25

- **Move to approve the resolutions to CIDs, 963, 128, 214, 2171, 2428, 692, 124, 2906, 2840, 2603, 2599, 1209, 2264, 15, 13, 126, 1071, 693, 1768, 401, 1727, 403, 1644, 2281, 2282, 2279, 160 in doc11-16/0807r2**
- **Move: Po-Kai Huang**
- **Second: Yongho Seok**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #26

- **Move to accept the resolutions of CIDs, 1311, 2223, 110, 2587, 8, 2222, 1068, 1310, 1312, 2588, 2601, 2894, 1204, 2907 in doc 11-16/0808r2**
- **Move: Po-Kai Huang**
- **Second: Kiseon Ryu**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #27

- **Move to approve resolutions to CIDs, 2517, 1780, 1923, and 1610 in doc 11-16/0813r5.**
- **Move: Bo Sun**
- **Second: Hongyuan Zhang**
- **Y/N/A**
- **Accepted with no objection**

CR motion #28

- **Move to approve resolutions to CIDs, 112, 380, 381, 456, 539, 689, 690, 1154, 1316, 1862 in doc 11-16/0836r1**
- **Move: Lochan Verma**
- **Second: Sriram**
- **Y/N/A**
- **No objection**

CR Motion #29

- **Move to approve resolution to CID 2183 in document 11-16/0816r1**
- **Move: Daewon Lee**
- **Second: Young Hoon Kwon**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #30

- **Move to approve the resolutions to CIDs, 2007, 2005, 2123, 2747, 2746, 2244, 842, 846, 526, 910 in doc 11-16/0872r2**
-
- **Move: Ross Jian Yu**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #31

- **Move to approve resolutions to CIDs, 302, 2040, 2132, 2680, 2039, 2038, 1001,479, 2150 in doc 11-16/0873r1**
- **Move: Ross Jian Yu**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #32

- **Move to approve resolutions to CIDs, 2032, 2549, 2133, 2548, and 1009 in doc 11-16/1021r2**
- **Move: Ross Jian Yu**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #33

- **Move to approve the resolutions to CIDs, 1052, 2519 in doc 11-16/0900r1**
- **Move: Robert Stacey**
- **Second: Sriram**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #34

- **Move to approve the resolution to CID 854 in doc 11-16/0908r1**
- **Move: Joonsuk Kim**
- **Second: Yongho Seok**
- **Accepted with no objection**

CR Motion #35

- **Move to approve the resolutions to CIDs, 1659, 493, 494 in doc 11-16/0920r3**
- **Move: Xiogang Chen**
- **Second: Bo Sun**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #36

- **Move to approve the resolutions to the CIDs, 1782, 2082, 2083 in doc 11-16/0922r2**
- **Move:** Sriram Venkaeswaran
- **Second:** Bo Sun
- **Accepted with no objection**

CR Motion #37

- Move to approve the resolutions to CIDs, 836 883 884 1930 2247 292 525 904 906 908 1984 1990 1995 1988 1994 1058 1992 1991 1985 1989 1684 523 1857 271 1412 1195 1996 2532 2120 2098 293 1987 1993 2748 2749 in doc 11-16/0937r7.
- **Move: Rui Cao**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #38

- Move to approve resolutions to CIDs, 482, 1867, 2084, 2085 in doc 11-16/0923r1
- Need presentation can skip
- Move: Sriram Venkateswaran
- Second:
- Y/N/A

CR Motion #39

- **Move to approve resolutions to CIDs, 22, 23, 24, 136, 414, 415, 587, 694, 21, 1213, 2615, 1442, 1443, 1756, 1769, 2231 in doc 11-16/0829r3**
- **Move: Reza Hedayat**
- **Second: Brian Hart**
- **Accepted with no objection**

CR Motion #40

- **Move to approve resolutions to CIDs, 1275, 1270, 1269, 1139, 97, 2213, 1809, 1808, 1807, 1806 in doc 11-16/0867r2**
- **Move: George Cherian**
- **Second: Brian Hart**
- **Accepted with no objection**

CR Motion #41

- **Move to approve resolutions to CIDs, 76, 194, 258, 259, 1598, 1773, 2849 in doc 11-16/0844r2**
- **Move: Alfred Asterjadhi**
- **Second: Brian Hart**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #42

- **Move to approve resolutions to CIDs, 1482, 1481, 1480, 1479, 1478, 1476, 1475, 1474, 1473, 30, 1225, 1486, 967, 750, 697, 696, 1793, 424, 167, 2629, 2628, 2627, 2626, 2269, 1484, 1485, 1794, 1662, 1487, 2197, 2464, 2465, 1470, 165, 1217 in doc 11-16/0828r0**
- **Move: Alfred Asterjadhi**
- **Second: Brian Hart**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #43

- **Move to approve resolutions to CIDs, 2484, 2483, 2482, 2481, 2430, 2429, 2489 in doc 11-16/0860r1**
- **Move: Yongho Seok**
- **Second: Brian Hart**
- **Accepted with no objection**

CR Motion #44

- **Move to approve the resolutions to CIDs, 73, 210, 192, 642, 1593, 1919, 643, 1595, 2259, 2260 in doc 11-16/0862r3**
- **Move: Yongho Seok**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #45

- **Move to approve resolutions to CIDs, 2608, 2607, 2606, 2488, 2487, 1399, 2841 in doc 11-16/0861r2**
- **Move: Yongho Seok**
- **Second: Brian Hart**
- **Accepted with no objection**

CR Motion #46

- **Move to approve the resolution to CID 2596 in doc 11-16/0953r2 and includes the text changes in the TG draft**
- **Move: Po-Kai Huang**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion # 47

- **Move to approve resolutions to CIDs, 705, 2437, 2436, 2439, 2440 in doc 11-16/0879r2**
- **Move: Jeongki Kim**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #48

- **Move to approve resolutions to CIDs, 62, 640, 2434, 2438, 703, 2435, 66, 257, 447, 186, 2661, 2662, 776, 2660, 1577, 2332, 2718 in doc 11-16/0889r1**
- **Move: Young Hoon Kwon**
- **Second: Yongho Seok**
- **Accepted with no objection**

CR Motion #49

- **Move to approve resolutions of CIDs, 1070, 2226, 693, 125, 2650, 2651 in doc 11-16/0875r2**
- **Move: Kiseon Ryu**
- **Second: Po-Kai Huang**
- **Y/N/A**
- **accepted with no objection**

CR Motion #50

- **Move to approve the resolutions of CIDs, 768, 829, 978, 1546, 1295, 2710, 2709, 2187, 2647, 2266 in doc 11-16/0876r2**
- **Move: Kiseon Ryu**
- **Second: Po-Kai Huang**
- **Accepted with no objection**

CR Motion #51

- **Move to approve the resolutions of CIDs, 2890, 2896, 1634 in doc 11-16/0870r0**
- **Move: Zhou Lan**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #52

- Move to approve resolution to CID 783 in doc 11-16/0877 r5
-
- Move: Jeongki Kim
- Second: Kiseon Ryu
- Accepted with no objection

CR Motion #53

- **Move to approve resolutions of CIDs, 162, 2444, 2443, 2623 in doc 11-16/0835r1**
- **Move: Alfred**
- **Second: Po-Kai Huang**
- **Accepted with no objection**

CR Motion #54

- **Move to approve resolutions to CIDs 507, 949, 1005, 1785, 1862 in doc 11-16/0866r4**
- **Move: Kome Oteri**
- **Second: Xiaofei**
- **Accepted with no objection**

CR Motion #55

- **Move to approve resolutions to CIDs, 482, 1867, 2084, 2085 in doc 11-16/0923r1**
-
- **Move:** Sriram Venkateswaran
- **Second:** Ron Porat
- Accepted with no objection

CR Motion #56

- **Move to approve resolutions of CIDs, 9, 228**
- **2219, 2422, 2691, 2900 in doc 11-16/0725r3.**
- **Move: Alfred**
- **Second: Simone Merlin**
- **Second: Y/N/A**
- **Accepted with no objection**

CR Motion #57

- **Move to approve resolutions to CIDs, 55, 1000, 1221, 1915, 2234, 802,1695, 1222, 182, 971,2713, 702, 1916, 2233, 223 in doc 11-16/0773r2.**
- **Move: Alfred**
- **Second: Simone**
- **No objection**

CR Motion #58

- **Move to accept resolutions to CIDs, 262,1083, 102, 612, 660, 830, 864, 1716, 2215, 2301, 2376, 372, 719, 864 in doc 11-16/0774r1**

- **Move: Alfred**
- **Second: Simone Merlin**
- **Y/N/A**

Accepted with no objection

CR Motion #59

- **Move to approve resolutions to CIDs, 101,103, 104,374,375, 377, 558, 561, 661, 662, 664, 688, 1296, 1299, 1301, 1717, 1718, 1882, 2113, 2114, 2174, 2217, 2302, 2421, 227, 720, 663,1303,1305,1306 in doc 11-16/0780r1**

- **Move: Alfred**
 - **Second: Simone Merlin**
- Accepted with no objection**

CR Motion #60

- **Move to accept resolutions to CIDs, 80, 1284, 1182, 1143, 1286, 962, 1287, **831**, 508, 367, 100, 99, 98, 999, 1812, 2580, 2458, 2414, 2232, 2185, 2170, 1285, 1813, 2582, 1811, 1810, 1715, 1291, 1288, 1814 in doc 11-16/0868r1**
- **Move: George Cherian**
- **Second: Simone Merlin**
- **Y/N/A**
- **Accepted with no objection**

CR Motion #61

- **Move to approve resolutions to CIDs, 306, 310, 311, 477, 1002, 1003, 1010, 1692, 2020, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2036, 2037, 2130, 2151, 2245, 2246, 2543, 2544, 2545, 2546, 2547, 2679, 2681 in doc 11-16/0928r2**
- **Move: Kaushik Josiam**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #62

- **Move to approve resolutions to CIDs, 1589, 1590, 2668, and 2669 in doc 11-16/0938r0**
- **Move: Chitto Ghosh**
- **Second: Yasu**
- **Accepted with no objection**

CR Motion #63

- **Move to approve resolutions to CIDs, 71 and 190 in doc 11-16/966r0**
- **Move: Jarkko Knecht**
- **Second: Alfred**
- **Accepted with no objection**

CR Motion #64

- **Move to approve resolution to CID 782 in doc 11-16/0878r1**
- **Move: Jeongki Kim**
- **Second: Kiseon Ryu**
- **Approved with no objection**

Conference call times

- **August 4 20:00 – 22:00 ET is already approved**
- **August 11, 25, Sept 8 10:00 – 12:00 ET**
- **August 18, Sept 1 20:00 – 22:00 ET**

APPENDIX AV

TGax September 2016 Meeting Agenda

Date: 2016-08-05

Authors:

Name	Company	Address	Phone	email
Osama Aboul-Magd	Huawei Technologies	303 Terry Fox Drive Kanata, ONT, Canada K2K-3J1	613-287-1405	Osama.aboulmagd@Huawei.com

IEEE 802.11 TGax: High Efficiency WLAN Task Group

**Warsaw, Poland
September 11-16, 2016**

Chair: Osama Aboul-Magd (Huawei Technologies)

Vice Chair: Simone Merlin (Qualcomm)

Vice Chair: Ron Porat (Broadcom)

Secretary: Yasuhiko Inoue (NTT)

Technical Editor: Robert Stacey (Intel)

Meeting Protocol

- **Please announce your affiliation when you first address the group during a meeting slot**

Attendance

- <http://newton.meeting.verilan.com>

1. Register
2. Indicate attendance

Attendance, Voting & Document Status

- Make sure your badges are correct
- If you plan to make a submission be sure it does not contain company logos or advertising
- Questions on Voting status, Ballot pool, Access to Reflector, Documentation, member' s area
 - see Jon Rosdahl – jrosdahl@ieee.org
- Cell Phones Silent or Off

Patent Policy

- **Following 5 slides**

Instructions for the WG Chair

The IEEE-SA strongly recommends that at each WG meeting the chair or a designee:

- Show slides #1 through #4 of this presentation
- Advise the WG attendees that:
 - The IEEE's patent policy is described in Clause 6 of the *IEEE-SA Standards Board Bylaws*;
 - Early identification of patent claims which September be essential for the use of standards under development is strongly encouraged;
 - There September be Essential Patent Claims of which the IEEE is not aware. Additionally, neither the IEEE, the WG, nor the WG chair can ensure the accuracy or completeness of any assurance or whether any such assurance is, in fact, of a Patent Claim that is essential for the use of the standard under development.
- **Instruct the WG Secretary to record in the minutes of the relevant WG meeting:**
 - That the foregoing information was provided and that slides 1 through 4 (and this slide 0, if applicable) were shown;
 - That the chair or designee provided an opportunity for participants to identify patent claim(s)/patent application claim(s) and/or the holder of patent claim(s)/patent application claim(s) of which the participant is personally aware and that September be essential for the use of that standard
 - Any responses that were given, specifically the patent claim(s)/patent application claim(s) and/or the holder of the patent claim(s)/patent application claim(s) that were identified (if any) and by whom.
- The WG Chair shall ensure that a request is made to any identified holders of potential essential patent claim(s) to complete and submit a Letter of Assurance.
- It is recommended that the WG chair review the guidance in *IEEE-SA Standards Board Operations Manual* 6.3.5 and in FAQs 14 and 15 on inclusion of potential Essential Patent Claims by incorporation or by reference.

Note: **WG** includes Working Groups, Task Groups, and other standards-developing committees with a PAR approved by the IEEE-SA Standards Board.

Participants, Patents, and Duty to Inform

All participants in this meeting have certain obligations under the IEEE-SA Patent Policy.

- Participants [Note: Quoted text excerpted from IEEE-SA Standards Board Bylaws subclause 6.2]:
 - “Shall inform the IEEE (or cause the IEEE to be informed)” of the identity of each “holder of any potential Essential Patent Claims of which they are personally aware” if the claims are owned or controlled by the participant or the entity the participant is from, employed by, or otherwise represents
 - “Should inform the IEEE (or cause the IEEE to be informed)” of the identity of “any other holders of potential Essential Patent Claims” (that is, third parties that are not affiliated with the participant, with the participant’s employer, or with anyone else that the participant is from or otherwise represents)
- The above does not apply if the patent claim is already the subject of an Accepted Letter of Assurance that applies to the proposed standard(s) under consideration by this group
- Early identification of holders of potential Essential Patent Claims is strongly encouraged
- No duty to perform a patent search

Patent Related Links

All participants should be familiar with their obligations under the IEEE-SA Policies & Procedures for standards development.

Patent Policy is stated in these sources:

IEEE-SA Standards Boards Bylaws

<http://standards.ieee.org/develop/policies/bylaws/sect6-7.html#6>

IEEE-SA Standards Board Operations Manual

<http://standards.ieee.org/develop/policies/opman/sect6.html#6.3>

Material about the patent policy is available at

<http://standards.ieee.org/about/sasb/patcom/materials.html>

If you have questions, contact the IEEE-SA Standards Board Patent Committee Administrator at patcom@ieee.org or visit <http://standards.ieee.org/about/sasb/patcom/index.html>

This slide set is available at
<https://development.standards.ieee.org/myproject/Public/mytools/mob/slideset.ppt>

Call for Potentially Essential Patents

- **If anyone in this meeting is personally aware of the holder of any patent claims that are potentially essential to implementation of the proposed standard(s) under consideration by this group and that are not already the subject of an Accepted Letter of Assurance:**
 - Either speak up now or
 - Provide the chair of this group with the identity of the holder(s) of any and all such claims as soon as possible or
 - Cause an LOA to be submitted

Other Guidelines for IEEE WG Meetings

- All IEEE-SA standards meetings shall be conducted in compliance with all applicable laws, including antitrust and competition laws.
- Don't discuss the interpretation, validity, or essentiality of patents/patent claims.
- Don't discuss specific license rates, terms, or conditions.
 - Relative costs, including licensing costs of essential patent claims, of different technical approaches September be discussed in standards development meetings.
 - Technical considerations remain primary focus
- Don't discuss or engage in the fixing of product prices, allocation of customers, or division of sales markets.
- Don't discuss the status or substance of ongoing or threatened litigation.
- Don't be silent if inappropriate topics are discussed ... do formally object.

See *IEEE-SA Standards Board Operations Manual*, clause 5.3.10 and "Promoting Competition and Innovation: What You Need to Know about the IEEE Standards Association's Antitrust and Competition Policy" for more details.

Agenda Items for the Week

- Approve TG and Telecons minutes since May meeting.
- Resolution of comments received on draft D0.1
- Ad Hoc group meetings
- Technical Presentations and related straw polls and/or motions
- Schedule Telecon times.

General Flow of the Meeting

- **Monday September 12, 10:30 – 12:30**
 - Call Ad Hoc Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - AD hoc meeting Agenda setting
 - Approval of ad hoc meeting agenda
 - Call for submissions
 - Presentations
 - Recess
- **Monday September 12, 16:00 – 18:00**
 - Ad Hoc Group Meetings
- **Monday September 12, 19:30 – 21:30**
 - Ad Hoc Group Meetings
- **Tuesday September 13, 10:30 – 12:30**
 - Ad Hoc Group Meetings
- **Tuesday September 13, 16:00 – 18:00**
 - Ad Hoc Group Meetings
- **Wednesday September 14, 08:00 – 10:00**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Progress Review
 - Presentations
 - Recess
- **Wednesday September 14, 13:30 – 15:30**
 - Ad Hoc Group Meetings
- **Wednesday September 14, 16:00 – 18:00**
 - Ad Hoc Group Meetings
- **Thursday September 15, 10:30 – 12:30**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Presentations
 - TG Motions
 - Recess
- **Thursday September 15, 13:30 – 15:30**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Presentations
 - TG Motions
 - Recess
- **Thursday September 28, 16:00 – 18:00**
 - Call Meeting to order
 - IEEE 802 and 802.11 IPR Policy and procedure.
 - Presentations
 - TG Motions
 - Goals for November 2016
 - Telecon Schedule
 - Adjourn

TGax Schedule in a Glance

	Monday		Tuesday		Wednesday		Thursday
AM1					TGax		
AM2	TGax		MU	MAC			TGax
PM1					PHY	MAC	TGax
PM2	PHY	MAC	PHY	MAC	MU/PHY	MAC	TGax
EVE	PHY	SR					

* Ad Hoc group is tbd

Agenda for Monday September 12, 10:30 – 13:30

- **Call meeting to order**
- **Patent policy, etc.**
- **Call for submissions**
- **Set Ad Hoc Groups schedule and approve agenda**
- **Summary from July 2016 meeting**
- **TG motions**
 - Approve TG meeting and Telecon minutes since November meeting.
 - Approve resolutions of comments, if needed.
- **Comment Resolution Status – Robert Stacey**
- **Timeline**
- **Presentations and Comment Resolution**
- **Recess**

MAC Leftover

DCN	Title	Author
11-16/0828	HE Fragmentation - part 1	Alfred Asterjadhi
11-16/0829	Comment Resolution for Section 10.24.10 Block Ack/GCR block ack	Reza Hedayat
11-16/0844	CC0-Intra_PPDU_PS	Alfred Asterjadhi
11-16/0856	Issue of Buffer Status reporting	Stephane Baron
11-16/0860	comment resolution on A-MPDU format	Yongho Seok
11-16/0861	comment resolution on mu acknowledgment procedure	Yongho Seok
11-16/0862	comment resolution on subclause 25.11	Yongho Seok
11-16/0864	d0.1 comment resolution on clause 6	Yasuhiko Inoue
11-16/0867	CIDs for CIDs: Section 9.3.1.9.3 Compressed BA format	George Cherian
11-16/0868	CIDs for Section 9.3.1.9.7 Multi STA BAs	George Cherian
11-16/0869	Comment resolution section 9.3 TWT	Zhou Lan
11-16/0871	Trigger Frame Per User Info Order	Zhou Lan
11-16/0877	Comment resolution on CID 783 (TXOP Duration field format)	Jeongki Kim
11-16/0878	Comment resolution on CID 782 (Intra-PPDU PS)	Jeongki Kim
11-16/0881	Comment resolution on ROMI	Jayh Park
11-16/0882	Comment resolution on TOMI	Alfred
11-16/0883	Comment resolution for CID152	Jayh Park
11-16/0884	Spec. Text for HE Operation element and AID Assign Rule	Jianhan Liu
11-16/0890	Comment Resolution on NAV Setting of Single and Multiple Protection and Control Response	Po-Kai Huang

Submission

Slide 16

Osama Aboul-Magd (Huawei Technologies)

MAC Leftover (Cotinued)

DCN	Title	Author
11-16/0913	SU Multi-TID Rules	Jarkko Knecht
11-16/0916	TID value of ALL ACK signaling	Woojin Ahn
11-16/0917	Text for TID value of ALL ACK signaling	Woojin Ahn
11-16/0918	Discussions on Partial BSS Color	Geonjung Ko
11-16/0924	NAV resetting with RTS/MU-RTS	Weimin Xing
11-16/0925	Spex text on NAV resetting with RTS/MU-RTS	Weimin Xing
11-16/0941	CR HE Fragmentation - part 2	Ming Gan
11-16/0942	CR Field	Ming Gan
11-16/0951	Setting for TXOP Duration Field	Po-Kai Huang
11-16/0952	Spec text trigger frame per user info order	Zhou Lan
11-16/0953	Comment Resoluaton and Spec Text for Setting for TXOP Duration field	Po-Kai Huang
11-16/0960	AP access procedure for UL MU operation	Jinsoo Ahn
11-16/0961	Consideration on Multi-STA BlockAck Optimization	Hanseul Hong
11-16/0962	EDCA rules-follow up 1	Jing Ma
11-16/0963	EDCA rules-follow up 2	Jing Ma
11-16/0966	CID71 and CID190 Resolutions	Jarkko Knecht
11-16/0998	Rules for 2 EDCA parameters	laurent cariou

MU Leftover

DCN	Title	Author	ad hoc
11-16/0866	Comment Resolution of Section 26.3.13 MU-MIMO	Kome Oteri	MU
11-16/0875	CR for the section 10.3.2.8a CS Condition to Respond CTS	Kiseon Ryu	MU
11-16/0876	CR for the section 25.5.2.4 UL MU CS CCA and CS Required Bit	Kiseon Ryu	MU
11-16/0880	UL MU Transmission Rules - EDCA backoff	Jayh Park	MU
11-16/0885	Comment Resolution on UL MU CS NAV Considerstion	Po-Kai Huang	MU
11-16/0886	Comment Resolution for some UL MU CS TBD	Po-Kai Huang	MU
11-16/0887	Spec Text for MU-RTS restriction on HE MU PPDU	Po-Kai Huang	MU
11-16/0926	Soliciting UL_MU_ACK	Raja Banerjee	MU
11-16/0929	CR - UL MU Operation	Simone Merlin	MU
11-16/0930	CD - DL MU Operation	Simone Merlin	MU
11-16/0938	Comment Resolution for Sub-clause 25.10.4	Chittabrata Ghosh	MU
11-16/0958	UL OFDMA for Unassociated STAs	Leonardo Lanante	MU

PHY Leftover

DCN	Title	Author	ad hoc
11-16/0898	BW Field in HE-MU Format	Hongyuan Zhang	PHY
11-16/0899	Spec Text for BW Field in HE-MU Format	Hongyuan Zhang	PHY
11-16/0903	Gamma phase rotation for HE PPDU	Yujin Noh	PHY
11-16/0904	proposed text for gamma phase rotation for HE PPDU	Yujin Noh	PHY
11-16/0937	11ax Comment Resolutions for Clauses 26.3.2-26.3.9.3-26.3.9.4-26.3.9.5-26.3.10.2- 26.3.10.13	Rui Cao	PHY
11-16/0906	RU restriction on 20MHz operating STAs	Joonsuk Kim	PHY
11-16/0908	CR - proposed text on RU restriction of 20MHz STAs	Joonsuk Kim	PHY
11-16/0910	Minimum Occupied Bandwidth	Ron Porat	PHY
11-16/1021r1	further-change-on-the-proposed-change-of-cid-2032-2549-2133-2548-1009	Ross	PHY
11-16/0914	Bit field finalization of HE-SIG-A	Lochan Verma	PHY
DCN	Title	Author	ad hoc
11-16/0915	Text for bit field finalization of HE-SIG-A	Lochan Verma	PHY
11-16/0920	PHY comment resolution for CID 1659,493,494	Xiaogang Chen	PHY
11-16/0922	PHY CR 1024 QAM	Sriram Venkateswaran	PHY
11-16/0923	PHY CR DCM Constellation Mapping	Sriram Venkateswaran	PHY
11-16/0928	CR on Section 26.3.9.8 - HE-SIG-B	Kaushik Josiam	PHY
11-16/0964	Considerations on MAC-PHY interactions during SR operations	Jing Ma	PHY

SR Leftover

DCN	Title	Author	Order
11-16/0879r2	Comment resolution on SR for VHT PPDU	Jeongki Kim	1
11-16/0889r1	comment-resolution-SR-Intra-BSS-detection	Young Hoon Kown	2
11-16/0901r2	Clarification of SR Fields in HE Trigger Based PPDU	Daewon Lee	3
11-16/0902r2	Proposed Text Changes for SR Fields in HE Trigger-Based PPDU	Daewon Lee	4
11-16/0905	SR Fields Clarification	Ron Porat	5
11-16/0919r0	Discussions on SR Fields in HE Trigger-based PPDU	Geonjung Ko	6
11-16/0971r2	DSC Proposal Text	Graham Smith	10
11-16/0945	Clarifications for OBSS_PD-based SR parameters	Laurent Cariou	7
11-16/0947	Proposed text changes for OBSS_PD-based SR parameters	Laurent Cariou	8
11-16/0957	Comment Resolutions on OBSS_PD Conditions in 25.9.3	James Wang	9

Submissions

- **TBD**

MAC Submissions

DCN	Title	Author	Ad Hoc	Notes
11-16/0864	40.1 comment resolution on clause 6	Yasuhiko Inoue	MAC	presented during a telecon.
11-16/0869	Comment resolution section 9.3 TWT	Zhou Lan	MAC	
11-16/0881	Comment resolution on TOMI	Jayh Park	MAC	
11-16/0882	Comment resolution on TOMI	Alfred	MAC	
11-16/0883	Comment resolution for CID152	Jayh Park	MAC	
11-16/0884	Spec. Text for HE Operation element and AID Assign Rule	Jianhan Liu	MAC	
11-16/0913	SU Multi-TID Rules	Jarkko Knecht	MAC	
11-16/0917	Text for TID value of ALL ACK signaling	Wojin Ahn	MAC	
11-16/0918	Discussions on Partial BSS Color	Geonjung Ko	MAC	
11-16/0924	NAV resetting with RTS/MU-RTS	Weimin Xing	MAC	
11-16/0925	Spec text on NAV resetting with RTS/MU-RTS	Weimin Xing	MAC	
11-16/0941	CR HE Fragmentation - part 2	Ming Gan	MAC	
11-16/0942	CR Service Field	Ming Gan	MAC	
11-16/0960	AP access procedure for UL MU operation	Jinsoo Ahn	MAC	presented during telecon. waiting SP
11-16/0961	Consideration on Multi-STA BlockAck Optimization	Hansuel Hong	MAC	
11-16/0962	EDCA rules-follow up 1	Jing Ma	MAC	presented during telecon. waiting SP
11-16/0963	EDCA rules-follow up 2	Jing Ma	MAC	presented during telecon. Waiting SP
11-16/0998	Rules for 2 EDCA parameters	laurent carrou	MAC	
11-16/1110	comment resolution on subclause 10.2.2.2 and 10.2.2.4	Yongho Seok	MAC	
11-16/1131	comment resolution on mu ack policy	Yongho Seok	MAC	
11-16/1154	MAC CR for CID 966	Weimin Xing	MAC	
11-16/1157	Comment resolution on SU_MU ACK procedures	Jeongki Kim	MAC	
11-16/1173	Comment Resolution on Two NAVs - Part II	Po-Kai Huang	MAC	
11-16/1180	Proposed text changes for MU EDCA parameters	laurent carrou	MAC	
11-16/1181	CW value after UL MU procedure	Wojin Ahn	MAC	
11-16/1182	HE Sounding Feedback Segmentation	Liwen Chu	MAC	
11-16/1183	MU RTS CTS data rate comment	Liwen Chu	MAC	
11-16/1184	A-MPDU 25.10.25.10.2 comment resolution	Liwen Chu	MAC	
11-16/1185	A-MPDU 25.10.3 comment resolution	Liwen Chu	MAC	
11-16/1186	A-MPDU Content Comment Resolution	Liwen Chu	MAC	
11-16/1188	MAC Capabilities in HE Capabilities IE	Alfred Asterjadhri	MAC	
11-16/1189	CCQ-TWT operation	Alfred Asterjadhri	MAC	
11-16/1195	MAC Clarifications	Alfred Asterjadhri	MAC	
11-16/1204	Intra-PPDU Power Save for a Multiple BSSID Set Case	Geonjung Ko	MAC	
11-16/1205	Text for Intra-PPDU Power Save for a Multiple BSSID Set Case	Geonjung Ko	MAC	
11-16/1210	Comment Resolution on MU acknowledgement procedure	Junichi Iwatani	MAC	
11-16/1211	CR, CID, 122, 576, 972, 2598	Huizhao Wang	MAC	
11-16/1213	CR TWT and HE element related	Matthew Fischer	MAC	
11-16/1220	MU mode EDCA control	Jinsoo Ahn	MAC	
11-16/1234	Spec Text for TWT Protection field	Hansuel Hong	MAC	
11-16/1236	Text for Partial BSS Color and AID Assignment Rule	Geonjung Ko	MAC	
11-16/1237	setting-quiet-time-period	Chao-Chun Wang	MAC	
11-16/1238	Setting Quiet time period - text	Chao-Chun Wang	MAC	

PHY Submissions

DCN	Title	Author	Ad Hoc	Notes
11-16/1133	11ax sounding modes reduction	Yan Zhang	PHY	
11-16/1134	11ax spec text on sounding modes reduction	Yan Zhang	PHY	
11-16/1135	11ax comment resolutions for clause 26.3.5	Yan Zhang	PHY	
11-16/1136	11ax comment resolutions for clause 26.3.8	Yan Zhang	PHY	
11-16/1137	11ax comment resolutions for clause 26.3.9	Yan Zhang	PHY	
11-16/1138	11ax comment resolutions for clause 26.3.10	Yan Zhang	PHY	
11-16/1148	CR HE-SIG-A part III	Ross Jian Yu	PHY	
11-16/1149	CR HE-SIG-A part II	Ross Jian Yu	PHY	
11-16/1150	CR Packet Extension Part I	Ross Jian Yu	PHY	
11-16/1160	Comment Resolution for CID 355	Eunsung Park	PHY	
11-16/1167	UL MU Clarifications	Ron Porat	PHY	
11-16/1168	DCM TBDs	Sriram Venkateswaran	PHY	
11-16/1169	CR Duplicate MU MIMO	Sriram Venkateswaran	PHY	
11-16/1170	HE PHY Capabilities	Lochan Verma	PHY	
11-16/1171	PHY Miscellaneous Part-1	Lochan Verma	PHY	
11-16/1176	PHY CR Miscellaneous Part-2	Lochan Verma	PHY	
11-16/1179	PHY section editorial comments on D0.4	Sungeun Lee	PHY	maybe discuss with the Editor
11-16/1190	Tx Quality Requirements	Daewon Lee	PHY	
11-16/1191	Comment Resolution for CIDs on PHY Transmit Spec	Daewon Lee	PHY	
11-16/1192	Comment Resolution for CID 1450	Daewon Lee	PHY	
11-16/1193	HE variant HT Control - HE Link Adaptation	Daewon Lee	PHY	
11-16/1194	Removal of Unnecessary PHY TBDs	Daewon Lee	PHY	
11-16/1202	CR HE-LTF	Ming Gan	PHY	
11-16/1227	cr-on-26-3-7	Shahnaz Azizi	PHY	
11-16/1232	Text change proposal of TXTIME in 26.3.19 and 26.4.3	Daewon Lee	PHY	
11-16/1233	CR for DCM related CID 503, 504 and 2750	Daewon Lee	PHY	
11-16/1240	Packet Extension Factor calculation fix	Yan Zhang	PHY	
11-16/1242	spec text for packet extension factor calculation fix	Yan Zhang	PHY	

28 submissions

MU Submissions

DCN	Title	Author	Ad Hoc	Notes
11-16/773	Comment Resolution Section 25.6 HE Sounding	Raja Banerjee	MU	presented before July meeting. New revision
11-16/0929	CR - UL MU Operation	Simone Merlin	MU	presented during a telecon.
11-16/1152	DL OFDMA Ack rule for uplink trigger based PPDU	Ming Gan	MU	
11-16/1158	Comment resolution on OFDMA random access procedure	Jeongki Kim	MU	
11-16/1162	Comment Resolution on Retransmission of OFDMA Random Access	Yunbo Li	MU	
11-16/1163	Concluding OFDMA M-BA transmission	Zhou Lan	MU	
11-16/1177	comment-resolution-TXOP-truncation	Young-Hoon Kown	MU	
11-16/1239	Trigger Frame_MUBAR_part1	Raja Banerjee	MU	
11-16/1241	Trigger Frame_MUBAR_part2	Raja Banerjee	MU	
	Proposed text changes for DL OFDMA Acknowledge rule for trigger based PPDU	Ming Gan	MU	
11-16/1199				
11-16/1222	Comment Resolution on UL OFDMA Random Access	Chittabrata Ghosh	MU	
11-16/1224	Random Access Paramter Set (RAPS) element	Chittabrata Ghosh	MU	

12 MU

SR Submissions

DCN	Title	Author	Ad Hoc	Notes
11-16/0945	Clarification for OBSS_PD-based SR parameters	Matthew Fischer	SR	
11-16/0947	Proposed text changes for OBSS_PD-based SR parameters	Laurent Cariou	SR	
11-16/1064	Unified SR approach DSC, A-TPC and Inter-BSS	Graham Smith	SR	
11-16/1155	SR Comment Resolution for CID994	Kaiying Lv	SR	
11-16/1161	Simulation-based evaluation of OBSS_PD-based SR default parameters	Tanguy Ropitault	SR	
11-16/1178	comment-resolution-SR-RSSI	Young-Hoon Kown	SR	
11-16/1216	SR Field SRP Table for HE-Trigger-Based PPDU	James Wang	SR	
11-16/1223	CR for Section 25.9.2 OBSS_PD Spatial reuse	laurent cariou	SR	
11-16/1225	Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA	Sean Coffey	SR	

TG submissions

DCN	Title	Author	Ad Hoc	Notes
11-16/1095	OFDMA performance in 11ax	Suhwook Kim	TG	
11-16/1143	11ax PAR Verification	TG	TG	
11-16/1159	Summary of Mandatory or Optional Features of 802.11ax	Joonsuk Kim	TG	
11-16/1166	Meeting PAR requirements with UL OFDMA	Sriram Venkateswaran	TG	
11-16/1198	Preliminary 11ax PAR Verification	Jiyong Pang	TG	
11-16/1219	Considerations on CR for 2665 and 2715	Jing Ma	TG	

6 submissions

Summary from July 2016 Meeting

- Approved the resolutions of about 230 comments discussed during telecons before July meeting.
- Approved resolutions of almost 350 CIDs during the July meeting
- Approved a number of submissions proposing new text to be added to the draft.
- Editor generated draft D0.3 and draft D0.4.
- **Conducted weekly telecons since July F2F meeting.**
 - Covered 17 submissions
 - Discussed resolutions of almost 250 CIDs
 - Please refer to telecon minutes
 - <https://mentor.ieee.org/802.11/dcn/16/11-16-1105-03-00ax-tgax-teleconference-minutes-from-august-to-september-2016.docx>



Microsoft Word
Document

Approval of TG Minutes (July 2016 Meeting and Telecon Minutes)

- Approve TGax minutes of meetings and teleconferences from July 2016 plenary meeting to today:

- <https://mentor.ieee.org/802.11/dcn/16/11-16-0967-00-00ax-tgax-july-2016-san-diego-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1105-03-00ax-tgax-teleconference-minutes-from-august-to-september-2016.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1040-00-00ax-tgax-july-2016-san-diego-phy-ad-hoc-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1000-02-00ax-july-2016-san-diego-tgax-mac-ad-hoc-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1027-00-00ax-mu-ad-hoc-meeting-minutes-july-2016.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1022-00-00ax-tgax-spatial-reuse-ad-hoc-group-meeting-minutes.docx>

- Move: Peter Loc

Second: Yasu Inoue

Approved with no objection

Slide 28

Osama Aboul-Magd (Huawei Technologies)

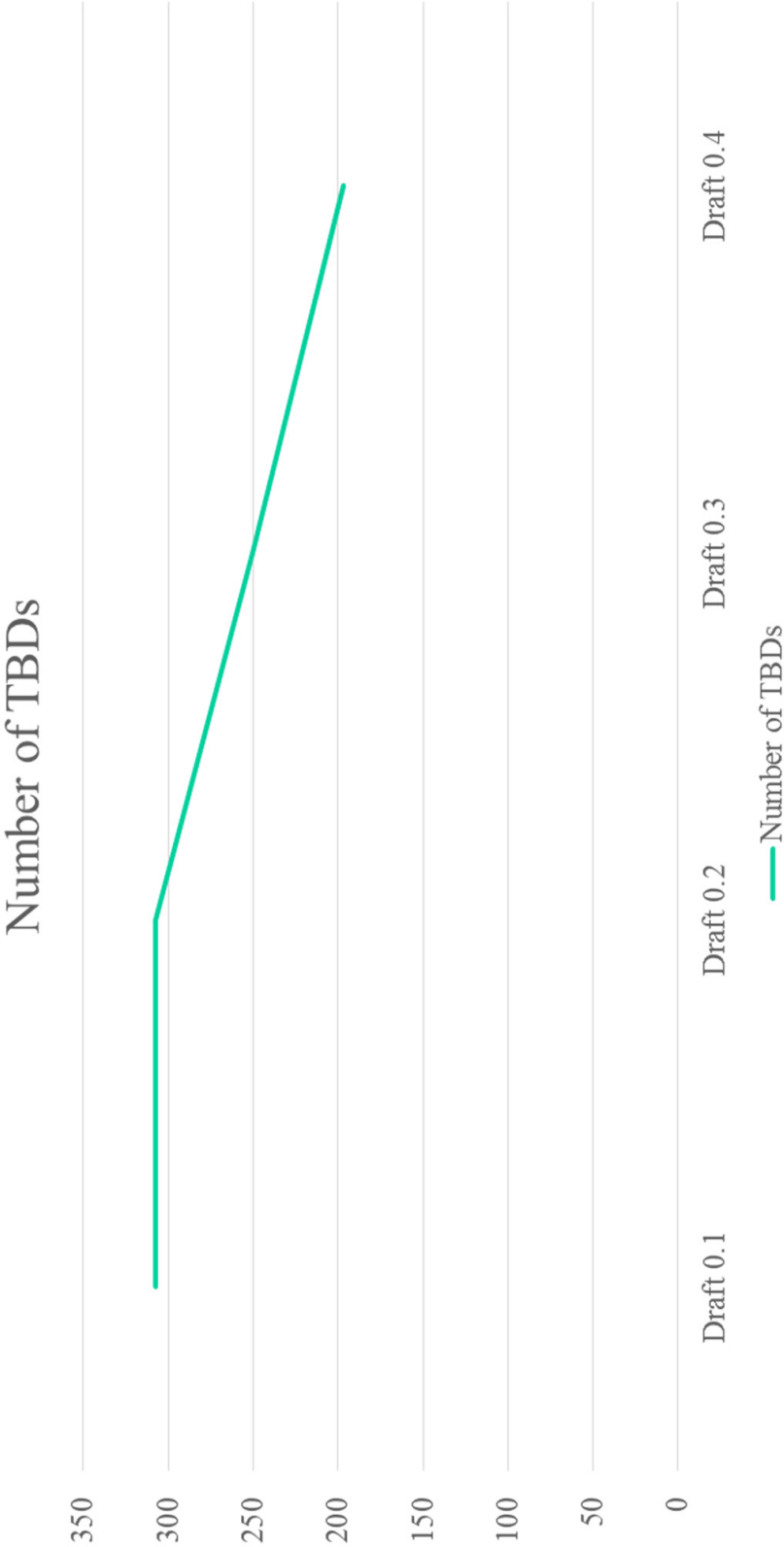
Comment Resolution Status (Editor Report)

- **Robert Stacey**

Timeline

- May 2014: start of the TG
- Nov. 2014: First draft of the TG SFD was approved
- Jan. 2016: proposed TG draft
- March 2016: Draft D0.1 was approved and CC started
- **September 2016: Draft 1.0 and WG letter ballot**
- March 2017: Draft 2.0 and recirculation
- July 2017: MDR (Mandatory Document Review)
- November 2017: Formation of SB pool
- March 2018: Sponsor Ballot
- December 2018: RevCom

Number of TBDs



Agenda for Monday September 12, 16:00 – 18:00

- **Ad Hoc Meetings**
 - PHY: Ballroom C&D
 - MAC : Baltic I

Agenda for Monday September 12, 19:30 – 21:30

- **Ad Hoc Meetings**
 - PHY: Ballroom C&D
 - SR: Baltic I

Agenda for Tuesday September 13, 10:30 – 12:30

- **Ad Hoc Group Meetings**
 - MU: Ballroom C&D
 - MAC: Baltic I

Agenda for Tuesday September 13, 16:00 – 18:00

- **Ad Hoc Group Meetings**
 - PHY: Ballroom C&D
 - MAC: Baltic I

Agenda for Wednesday September 14,

08:00 – 10:00

- TG Meeting
- Call Meeting to order
- IEEE 802 and 802.11 IPR Policy and procedure.
- Progress from the ad hocs
- Presentations
 - 11-16/1143, “11ax PAR Verification”
 - 11-16/1159, “Summary of Mandatory or Optional Features in 11ax”
 - 11-16/1223, “CR for Section 25.9.2 OBSS_PD Spatial reuse” - SP
 - 11-16/1219, “Consideration on CR for 2665 and 2715 – Jing Ma
 - 11-16/1225, “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA” – move to Thursday AM2

Submission

Slide 36

Osama Aboul-Magd (Huawei Technologies)

- **Recess**

11-16/1223 SP

- Do you agree with the comment resolutions in document 1223r6 for CIDs 2386, 1232, 63, 463, 2663, 67, 641, 2913, 65, 462, 2742, 2743, 777, 255, 2665, 449, 68, 706, 1018, 2723, 1017, 1582, and 2667?
- Accepted with no objection

Agenda for Wednesday September 14, 13:30 – 15:30

- **Ad Hoc Group Meetings**
 - PHY: Ballroom C/D
 - MAC: Baltic I

Agenda for Wednesday September 14, 16:00 – 18:00

- **Ad Hoc Group Meeting**
 - MU : Ballroom C/D
 - MAC: Baltic I

Agenda for Thursday September 15, 08:00 – 10:00

- **Ad Hoc Meetings**
 - PHY: Ballroom C/D
 - MAC: Baltic I

Agenda for Thursday September 15, AM2, PM1, and PM2

- **TG Meeting**
- **Call Meeting to order**
- **IEEE 802 and 802.11 IPR Policy and procedure.**
- **Presentations**
 - Continuation of PHY comments assignment
 - 11-16/1225, “Heads We Win, Tails We Don't Lose: Proposals for Dynamic CCA” – move to Thursday AM2
 - 11-16/1241 from the MAC ad hoc
- **TG Motions**
- **Timeline**
- **Goals for November 2016**
- **Telecon Schedule**
- **Adjourn**

Motions

- TG Motions start here

PHY Motion #166

Move to make the following changes to the spec.

Replace the following text in Subclause 26.3.5 P82 L65

The HE extended range SU PPDU is 20 MHz and can only be transmitted with the <HE-MCS, NSS> tuples <MCS 0, 1>, <MCS 1, 1> and <MCS 2, 1>

by

The HE extended range SU PPDU only supports single 242-tone and 106-tone RU. The 242-tone RU can only be transmitted with the <HE-MCS, NSS> tuples <MCS 0, 1>, <MCS 1, 1> and <MCS 2, 1>. The 106-tone RU can only be transmitted with the <HE-MCS, NSS> tuples <MCS 0, 1>. The 106-tone RU location within the 20MHz tone plan is fixed as the right one.

Move: Bin Tian

Second: VK Jones

PHY Motion #167

- **Move to accept the spec text changes as shown in doc 11/16-1134r1 and add to the next revision of the TG draft**
- **Move: Yan Zhang**
- **Second: Daewon Lee**
- **Accepted with no objection**

PHY Motion

- Move to adopt the following SRP values for the corresponding entries in Spatial Reuse fields (in Spatial Reuse 1, Spatial Reuse 2, Spatial Reuse 3, and Spatial Reuse 4) for HE Trigger-based PPDU

Spatial Reuse	SRP	Spatial Reuse	SRP
0001	-80 dBm	1000	-44 dBm
0010	-74 dBm	1001	-41 dBm
0011	-68 dBm	1010	-38dBm
0100	-62 dBm	1011	-35dBm
0101	-56 dBm	1100	-32 dBm
0110	-50 dBm	1101	-29 dBm
0111	-44 dBm	1110	-26 dBm

- $SRP = TX_PWR_{AP} + Acceptable_Receiver_Interference_level_{AP}$
- Adjustment range for parameter (referenced to the antenna port) 1110
 - TX_PWR_{AP} : -10 dBm to 26 dBm
 - Acceptable Receiver Interference Level_{AP}: -82dBm to -36 dBm
- If SRP is below <-80 dBm, set to Spatial Reuse to 0001, if SRP is above -26 dBm, set Spatial reuse to 1110
- Set Spatial Reuse to 0000 for SR disallowed flag, Value 1111 is reserved
- Same table is used for AP and STA.

Doc 11-16/1216r1

Move: James Wang

Second:

Motion is not run since it is included in comment resolution doc 11-16/1148r6

PHY Motion # 168

- **Move to accept the proposed spec text in doc 11-16/1170r1 and include it in the next revision of the TG draft**
- **Move: Sameer Vermani**
- **Second: Bin Tian**
- **Accepted with no objection**

PHY Motion #169

- **Move to accept the proposed spec text in doc 11-16/1171r0 and include it in the next revision of the TG draft**
- **Move: Sameer Vermani**
- **Second: Bin Tian**
- **Accepted with no objection**

PHY Motion #170

- **Move to add to 11ax spec draft D0.4 page 227 line 7 the following statement:**
 - A STA that applies beamforming (BF) in the UL should take the BF gain into account when calculating the transmit power needed to meet the target RSSI.
- **Move: Sriram**
- **Second: Zhou Lan**
- **Doc 11-16/1167r1**
- **Accepted with no objection**

PHY Motion

- Move to add to the 11ax spec draft D0.4 on page 186 line 52 (after “It is mandatory to support transmission of 1x HE-LTF in an UL MU-MIMO PPDU over the full bandwidth, for a STA declaring support for UL MU-MIMO”) the following sentence:
 - When 1xLTF is used for full BW UL MU-MIMO, no pilots (in the LTF field) or frequency domain masking are applied.
- Move: Sriram Second:
- Doc: 11-16/1167r1
- Skipped because it is already in a CR document 11-

16/1202r2

PHY Motion #171

- **Move to add the proposed spec text changes in 11-16/1168r2 and include it in the next revision of the TG draft**
- **Move: Sriram Venkateswaran**
- **Second: Bin Tian**
- **Accepted with no objection**

PHY Motion #172

- **Move to add the proposed spec text changes in 11-16/1179r4 and include in the next revision of the TG draft**
- **Move: Daewon Lee**
- **Second: Sai**
- **Accepted with no objection**

PHY Motion #173

- **Move to add the proposed spec text changes in 11-16/1194r1 and include it in the next revision of the TG draft**
- **Move: Daewon Lee**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

PHY Motion #174

- **Move to add the proposed spec text changes in 11-16/1242r1 and include it in the next revision of the TG draft**
- **Move: Yan Zhang**
- **Second: Daewon Lee**
- **Accepted with no objection**

SR Motion #12

- **Move to accept the modifications as proposed in submission 11-16/0947r12 and include it in the next TG draft**
- **Move: Matthew Fischer**
- **Second: Alfred Asterjadhi**
- **Y:27 N: 10 A:21 Motion fails**

Motion to amend (SR #12 *)

- **Move to amend the motion (2016-09 SR #12) as follows:**
 - Alter to:
 - Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text
“In the SR subfield of the HE-SIGA field:
 - One entry disallows SRP-based SR;
 - One entry disallows both SRP-based SR and OBSS_PD-based SR.”
 - added in Section 25.9.2,
and include it in the next TG draft
- **Move: Sean Coffey**
- **Second: George Cherian**
- **Y 26 N 22 A 17**
- **Simple majority required. Motion passes**

Motion (2016-09 SR #12A)

Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text

“In the SR subfield of the HE-SIGA field:

- One entry disallows SRP-based SR;
- One entry disallows both SRP-based SR and OBSS_PD-based SR.”

added in Section 25.9.2,
and include it in the next TG draft

Motion to amend (SR #12 **)

Amend to read as:

- “Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text
- “In the SR subfield of the HE-SIGA field:
- One entry disallows both SRP-based SR and OBSS_PD-based SR.”
- added in Section 25.9.2,
- and include it in the next TG draft”

Move: Matthew Fischer

Second: Bin Tian

Y 39 N 14 A 9

Simple majority required. Motion passes

Motion (2016-09 SR #12B)

“Move to accept the modifications as proposed in submission 11-16/0947r12, with the normative text

“In the SR subfield of the HE-SIGA field:

- One entry disallows both SRP-based SR and OBSS_PD-based SR.”

added in Section 25.9.2,

and include it in the next TG draft”

Y 44 N 21 A 4

75% majority required. Motion fails

Motin To reconsider SR Motion #12

- **Move to reconsider SR Motion #12**
- **Move: Robert Stacey**
- **Second Po-Kai Huang**
- **Y: 34 No: 5 A: 25**
- **Motion Passes**
- **Back to the original SR #12 motion.**

Move to amend ST Motion #12

- **Move to amend the motion**
- **Delete the exploratory text**

MU motion #58

- Move to add the following text after the end of the first paragraph of section 10.3.2.11.3 of the draft spec:

Specifically, when an AP transmits an immediate acknowledgement in HE MU PPDU in response to (A-)MPDU sent in HE trigger-based PPDU, the AP should send it within the 20 MHz channel(s) where the pre-HE modulated fields of the HE trigger-based PPDU sent by the STA are located. The immediate acknowledgement is either Block Ack frame (or Ack frame) or Multi-STA Block Ack frame.

Move: Ming Gan

Second: David Yang

Accepted with no objection

MU Motion #59

- **Move to add the following paragraph after the first paragraph of section 25.4.1**

A HE AP should only transmit group addressed M-BA in the DL MU PPDU to HE non AP STA n on the (broadcast RU) RU (26/52/106/242/484/996) that includes the RU used for receiving the immediate preceding HE Trigger Based PPDU from STA n . There shall be no more than one M-BA that is addressed to multiple recipients carried in a broadcast RU of the DL MU PPDU.

- **Move: Zhou Lan Second: Sriram**
- **Doc: 11-16/1163r0**
- **Approved with no objection**

MU Motion #60

- Move to add the following text to the next revision of the TG draft
- *TGax editor: Add the Paragraph on page 40 line 62 as the following:*
 - An MU-RTS frame shall not be carried in an HE MU PPDU.
- Move: Po-Kai Huang
- Second: Robert Stacey
- Accepted with no objection
- Doc 11-16/0887r1

MAC Motion #88

- **Move to accept the proposed text in document 16/0884r5 and include it in the next revision of the TG draft.**
- **Move: Tianyu Wu**
- **Second: David Yang**
- **Accepted with no objection**

MAC Motion #89

- **Move to accept the proposed text in document 16/0925r1 and include it in the next revision of the TG draft.**
- **Move: Weimin Xing**
- **Second: Kaiying**
- **Accepted with no objection**

MAC Motion #90

- **Move to add the following sentence to the section 25.5.2.2.3 AP access procedures for UL MU operation on page 92 line 31, draft D0.4**
 - An AP may send the Trigger frame using any access category and follows the rules defined in 10.22.2 (HCF contention based channel access (EDCA)) for obtaining and sharing the TXOP

- **Move: Jing Ma**
- **Second: Young Hoon Kwon**

Accepted with no objection

- **Doc:11-16/0962r5**

MAC Motion #91

- **Move to accept the spec changes proposed in document 16/1180r1 and include them in the next revision of the TG draft**
- **Move: Po-Kai Huang**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

MAC Motion

- Move to add the subfields below to the HE Capabilities IE and include it in the next revision of the TG draft

+HTC-HE Support	HE Link Adaptation	All Ack Support	32 bit BA Bitmap Support	MU Cascading Supported	Broadcast TWT Supported	Ack-enabled Multi-TID Aggregation Support	Group Addressed Multi-STA BlockAck In DL MU Support	OMI A-Control Support	OFDMA RA Support
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Bits:

1 2 1 1 1 1 1 1 1 1

- Move: Alfred Asterjadhi
- Second:
- Doc:11-16/1188r1
- Motion is not run. It is included in another CR

MAC Motion

- **Do you support that:**
 - The reception of Action (ACK) frame aggregated with Data is optional.
 - The reception of acknowledgement frames (ACK, BA, M-BA) aggregated with Data is optional (indicated via MU Cascading Supported bit).
 - The reception of Basic variant Trigger frame aggregated with Data is mandatory.

- **What is the action?**

MAC Motion

- **Move to accept the proposed text in document 16/0884r5 and add it to the next revision of the TG draft.**
- **Move: Jianhan Liu**
- **Second:**
- **Motion is skipped. Duplication of MAC Motion #88**

MAC Motion #92

- **Move to instruct the TGax Editor to make the following changes:**

- *TGax Editor: Change the paragraph below of 9.3.1.23.1 of D0.4 as follows:*
- The TID Aggregation Limit subfield indicates the maximum number of TIDs ~~minus 1~~ that can be aggregated by a STA in a multi-TID A-MPDU carried in the responding HE trigger-based PPDU.
- NOTE— A value of 7 in the TID Aggregation Limit subfield indicates to the STA that it can aggregate QoS Data frames from any number of different TID values in the multi-TID A-MPDU.
- *TGax Editor: Change the paragraph below of 25.5.2.2.2 of D0.4 as follows:*
- The AP shall set the value in the TID Aggregation Limit subfield in the Type dependent Per User Information field to 0 or 1 for an HE STA with STA that has indicated a zero value in the Multi-TID Aggregation Support field of the HE Capabilities element it transmits and is identified by the AID12 subfield of the User Info field of a Basic Trigger variant Trigger frame (see 9.3.1.23 (Trigger frame format)). (#2669) A value of zero indicates to the STA that it shall not solicit any immediate response for the MPDUs that the STA aggregates in the Trigger-based PPDU.

- **Move: Alfred Asterjadhi Second: George Cherian**

~~• Accepted with no objection~~

Submission

- **Doc: 11-16/1195r1**

Slide 71

Osama Aboul-Magd (Huawei Technologies)

MAC Motion

- **Move to accept the following NAV update rule:**
 - A STA shall update its NAV, irrespectively of whether it is the intended receiver of an MPDU contained in the received PPDU, except that it shall ignore the NAV if the PPDU solicits an immediate response from the STA
- **Move: Alfred Asterjadhi**
- **Second:**
- **Skipped because it is included in CR document 11-16/1173r2**

MAC Motion #93

- **Move to accept the proposed spec text change in document 16/1205r0 and include it in the next revision of the TG draft**
- **Move: Geonjung Ko**
- **Second: John Son**
- **Accepted with no objection**

CR Motion #65

- **Move to accept resolutions to CIDs; 1467, 635, 2648, 2708, 1544, 1545, 2649, 437, 1542, 990, 2256, 1543, 599 in doc 11-16/0885r3**
- **Move: Po-Kai Huang**
- **Second: Alfred**
- **Accepted with no objection**

CR Motion #66

- **Move to accept resolutions to CIDs; 177, 2188, 1220, 206, 700 in doc 11-16/0886r3**
- **Move: Po-Kai Huang**
- **Second: Alfred**
- **Accepted with no objection**

CR Motion #67

- **Move to accept resolutions to CIDs; 2579, 1203, 795, 610, 2408, 2375, 2184, 1263, 1264, 2409, 2410, 2411 in doc 11-16/0890r2**
- **Move: Po-Kai Huang**
- **Second: Kiseon Ryu**
- **Accepted with no objection**

CR Motion #68

- **Move to accept resolutions to CIDs; 1218, 31, 168, 752, 1495, 1498, 1499, 1500, 1664, 1795, 1900, 2319, 813 doc 11-16/1028r3**
- **Move: Bin Tian**
- **Second: Alfred**
- **Accepted with no objection**

CR Motion #69

- **Move to accept resolutions to CID; 32, 33, 169, 221, 250, 427, 429, 753, 754, 755, 756, 1502, 1503, 1504, 1505, 1506, 1508, 1801, 1901, 1902, 1903, 2632, 2633, 2634, 2635 in doc 11-16/930r3**
- **Move: Alfred Asterjadhi**
- **Second: VK Jones**
- **Accepted with no objection**

CR Motion #70

- Move to accept resolutions to CIDs; 34, 35, 36, 39, 40, 42, 43, 44, 170, 172, 173, 174, 175, 176, 432, 436, 460, 591, 593, 594, 676, 677, 678, 698, 699, 800, 815, 816, 859, 860, 862, 968, 977, 997, 1078, 1079, 1080, 1081, 1082, 1184, 1438, 1519, 1522, 1530, 1531, 1534, 1538, 1541, 1646, 1648, 1665, 1753, 1772, 1802, 1828, 1904, 1905, 1906, 1909, 1910, 1911, 1912, 2173, 2175, 2176, 2194, 2255, 2271, 2321, 2381, 2382, 2452, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2644, 2645, 2646, 2682, 2706, 2707 in doc 11-16/0929r3

- Move: Alfred Asterjadhi Second: Bin Tian

CR Motion #71

- **Move to accept resolutions to CIDs; 112, 380, 381, 456, 539, 689, 690, 1154, 1316, 1862 in doc 11-16/1097r1**
- **Move: Sameer Vermani**
- **Second: Bin Tian**
- **Accepted with no objection**

CR Motion #72

- **Move to accept resolutions to CIDs; 1743, 1775, 1638, 785, 1742, 164, 1636, 28, 163, 2317, 1463, 2625, 2702, 2703, 2704, 2705, 422, 748, 1216, 1744, 1759, 866, 788, 2739, 220, 1014, 1011, 746, 1466, 709, 27, 1469, 2473, 747, 2491, 1215, 29 in doc 11-16/1106r2**
- **Move: Po-Kai Huang**
- **Second: Kiseon Ryu**
- **Accepted with no objection**

CR Motion #73

- **Move to accept resolutions to CIDs; 2207, 857, 2611, 2612, 1429, 1434, 1435, 1817 in doc 11-16/1127r0**
- **Move: Alfred Asterjadhi**
- **Second: Bin Tian**
- **Accepted with no objection**

CR Motion #74

- **Move to accept resolutions to CIDs; 995, 2597, 2584 in doc 11-16/1122r0**
- **Move: Po-Kai Huang**
- **Second: Kiseon Ryu**
- **Accepted with no objection**

CR Motion #75

- **Move to accept resolutions to CIDs; 83, 1227, 1228, 1229, 1238, 1239, 1240, 2292, 2293, 2294, 2304, 2305, 2306, 1125, 1230, 1241, 1596, 1869, 2420, 1123 in doc 11-16/0864r6**
- **Move: Yasu Inoue**
- **Second: Alfred**
- **Accepted with no objection**

CR Motion #76

- **Move to accept resolutions to CIDs; 2386, 1232, 63, 463, 2663, 67, 641, 2913, 65, 462, 2742, 2743, 777, 255, 2665, 449, 68, 706, 1018, 2723, 1017, 1582, and 2667 in doc 1223r6**
- **Move: Po-Kai Huang**
- **Second: Chittabrata Ghosh**
- **Accepted with no objection**

CR Motion #77

- **Move to approve resolutions of CIDs; 2664 and 2744 in doc 11-16/1178r0**
- **Move: Youn Hoon Kwon**
- **Second: Daewon Lee**
- **Accepted with no objection**

CR Motion #78

- **Move to accept resolution to CID 979 in doc 11-16/0876r2**
- **Move: Kiseon Ryu**
- **Second: Alfred Asterjadhi**
- **Accepted with no objection**

CR Motion #79

- **Move to approve resolutions to CIDs; 1927, 2521, 2522, 2523, 2107, 2108 in doc 11-16/1135r2**
- **Move: Yan Zhang**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #80

- **Move to approve resolutions to CIDs; 286, 290, 2137, 287, 288, 289, 528, 1676, 1980, 1982, 1983, 2417, 2418, 2419, 298, 299, 300, 1979, 2370, 901, 1847, 1967, 1968, 1970, 1971, 1973, 1974, 1976, 1977, 1978 in doc 11-16/1136r5.**
- **Move: Yan Zhang**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #81

- **Move to approve resolutions of CIDs; 294, 873, 1099, 1698, 1997, 1998, 1999, 2000, 2019, 2531, 2540, 2541 and 2542 in doc 11-16/1137r4**
- **Move: Yan Zhang**
- **Second: Daewon Lee**
- **Accepted with no objection**

CR Motion #82

- **Move to approve the resolutions of CIDs; 2097, 2099, 2563, 2564, 2726, 2881, 484 in doc 11-16/1138r4**
- **Move: Yan Zhang**
- **Second: Bo Sun**
- **Accepted ith no objection**

CR Motion #83

- **Move to approve the resolutions of CIDs; 1022, 2864, 2678, 2016, 2011, 2010, 2001, and 226 in doc 11-16/1148r6**
- **Move: Ross Jian Yu**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #84

- **Move to approve the resolutions of CIDs; 304, 2035, 2033, 527, 478, 2550, 2157, 2131 in doc 11-16/1149r1**
- **Move: Ross Jian Yu**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #85

- **Move to accept resolutions to CIDs; 1459, 2100, 2101, 2102, 2104, 2135, 2568, 2569, 2570, 2571, 2573, 1414, 1626, 2015, and 336 in doc 11-16/1150r3**
- **Move: Ross Jian Yu**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #86

- **Move to approve resolution of CID 355 in doc 11-16/1160r0**
- **Move: Eunsung Park**
- **Second: Jinsoo Choi**
- **Accepted with no objection**

CR Motion #87

- **Move to approve resolutions to CIDs; 834, 1030, 1604, 1861, 2242, and 2919 in doc 11-16/1176r1**
- **Move: Sameer Vermani**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #88

- **Move to accept resolutions to CIDs; 506, 851, 1024, 1628, 1693, 1694, 1696, 2159, 2162, 2163, 2165, 2166 in doc 11-16/1169_{r1}**
- **Move: Sriram Venkateswaran**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #89

- **Move to approve resolutions to CIDs; 1778, 1784, 2063, 2064, 2065, 2069, 2071, 2073, 2074, 925, 2561, 2560, 2562, 2076, 2070, 332, 2075, 328, 329, 331, 2160, 2161, 2164, 2067 in doc 11-16/1259r2**
- **Move: Sriram Venkateswaran**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #90

- **Move to approve resolutions to CIDs; 538, 496, 497, 498, 499, 344, 501, 1026, 1115, 2351, 500 in doc 11-16/1191r2**
- **Move: Daewon Lee**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #91

- **Move to approve the resolution of CID 1450 in doc 11-16/1192r0**
- **Move: Daewon Lee**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #92

- **Move to accept resolutions to CIDs 4 and 2740 in doc 11-16/1193r1**
- **Move: Daewon Lee**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #93

- **Move to accept resolutions to CIDs; 503, 504 and 2750 in doc 11-16/1233r1**
- **Move: Daewon Lee**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #94

- **Move to accept resolutions to CIDs; 327, 2442 in doc 11-16/0942r3**
- **Move: Min Gan**
- **Second: Peter Loc**
- **Accepted with no objection**

CR Motion

- Move to accept resolutions to CID 286 and CID 2137 to as in 11-16/1136r5
- Move: Yan Zhang
- **Skipped. Covered by motion #80**

CR Motion #95

- **Move to approve resolution of CIDs 55, 1000, 1221, 1915, 2234, 802, 1695, 1222, 182, 971, 2713, 702, 1916, 2233, 223 as proposed in doc 11-16/0773r4**
- **Move: Sameer Vermani**
- **Second: Bin Tian**
- **Accepted with no objection**

CR Motion #96

- **Move to approve resolution of CIDs 787 and 2471 as proposed in doc 11-16/1158r3**
- **Move: Jeongki Kim**
- **Second: Kiseon Ryu**
- **Accepted with no objection**

CR Motion #97

- **Move to approve resolution of CIDs 49, 601, 442, 2385, 51, 602, 1198, 2684, 181, 440 and 2291 as proposed in doc 11-16/1162r4**
- **Move: Yunbo Li**
- **Second: Ross Jian Yu**
- **Accepted with no objection**

CR Motion #98

- **Move to approve resolutions of CIDs 18, 204, 626, 673, 737, 738, 810, 1440, 1660, 2193, 2283, 2447, 2613, 2614 and 992 as proposed in doc 11-16/1177r2**
- **Move: Young Hoon Kwon**
- **Second: Peter Loc**
- **Accepted with no objection**

CR Motion #99

- **Move to approve resolution of CIDs 5, 108, 512, 566, 567, 615, 665, 973, 1308, 1815, 2220, 2252, 2423, 2585 and 2586 as proposed in doc 11-16/1239r1**
- **Move: George Cherian**
- **Second: Kiseon Ryu**
- **Accepted with no objection**

CR Motion #100

- **Move to approve resolution of CIDs 863, 219, 411, 2380, 2609, 671, 2115, 986 and 734 as proposed in doc 11-16/1183r3**
- **Move: Liwen Chu**
- **Second: Kiseon Ryu**
- **Accepted with no objection**

CR Motion #101

- **Move to approve resolution of CIDs 47, 48, 179, 180, 450, 600, 701, 801, 820, 988, 1084, 1199, 1201, 1913, 1914 and 2384 as proposed in doc 11-16/1222r1**
- **Move: Chittabrata Ghosh**
- **Second: Po-Kai Huang**
- **Accepted with no objection**

CR Motion #102

- **Move to approve resolution of CIDs 2316, 631, 811, 2905, 2257, 632, 205 and 966 as proposed in doc 11-16/1173r2**
- **Move: Po-Kai Huang**
- **Second: Chittabrata Ghosh**
- **Accepted with no objection**

CR Motion #103

- **Move to accept resolutions to CIDs: 1315, 2424, 2589, 2590, 2591 in doc 11-16/0869r2**
- **Move: Zhou Lan**
- **Second: Alfred Asterjadhi**
- **Accepted with no objection**

CR Motion #104

- **Move to accept resolutions to CIDs: 2, 60, 61, 184, 185, 207, 445, 446, 655, 685, 775, 856, 1223, 1224, 1562, 1565, 1568, 1569, 1572, 1573, 1574, 2200, 2236, 2238, 2239, 2328, 2330, 2657 in doc 11-16/0881r2**
- **Move: Jayh Park**
- **Second: Brian Hart**
- **Accepted with no objection**

CR Motion #105

- **Move to accept resolution for CIDs: 152 in doc 11-16/0883r1**
- **Move: Jayh Park**
- **Second: Alfred Asterjadhi**
- **Accepted with no objection**

CR Motion #106

- **Move to accept resolutions to CIDs: 1477, 675, 423, 166, 1823, 2270, 2268, 2254, 2198, 1824, 1818, 1800, 1796, 1663, 1491, 1489, 1488, 2630 in doc 11-16/0941r0**
- **Move: Ming Gan**
- **Second: Peter Loc**
- **Accepted with no objection**

CR Motion #107

- **Move to accept resolutions to CIDs: 2468, 2470, 2448, 2450, 2451, 809 in doc 11-16/1110r0**
- **Move: Yongho Seok**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #108

- **Move to accept resolutions to CIDs; 2445, 2457, 2494, 2395 in doc 11-16/1131r2**
- **Move: Yongho Seok**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #108

- **Move to accept resolutions to CIDs: 129, 130, 131, 132, 405, 406, 407, 408, 672 in doc 11-16/1157r0**
- **Move: Jeongki Kim**
- **Second: Young Hoon Kwon**
- **Accepted with no objection**

CR Motion #110

- **Move to accept resolutions to CIDs: 2258, 2446, 1588, 1645 in doc 11-16/1184r1**
- **Move: Liwen Chu**
- **Second: Lei Wang**
- **Accepted with no objection**

CR Motion #111

- **Move to accept resolutions for CIDs: 984, 70, 229, 191, 2670, 1379, 1380 in doc 11-16/1185r2**
- **Move: Liwen Chu**
- **Second: Lei Wang**
- **Accepted with no objection**

CR Motion #112

- **Move to accept resolutions for CIDs: 95, 365, 656, 794, 1134, 1135, 1260, 2298, 2407, 2463, 2469, 2658, 2659 in doc 11-16/0882r3**
- **Move:Jayh Park**
- **Second: Alfred Asterjadhi**
- **Accepted with no objection**

CR Motion #113

- **Do you agree to add to the 11ax specification D0.1 the comment resolutions in document 16/1189r2 for CIDs: 1214, 1779, 1658, 2899, 959, 416, 1735, 740, 1445, 1639, 137, 139, 2398, 2399, 1640, 1738, 2616, 1651, 1652, 1736, 1737, 742, 25, 138, 2617, 1653, 744, 957, 26, 141, 420, 142, 2618, 1741, 1874, 2400, 2845, 1649, 1650, 1740, 1739, 695, 1641, 976, 144, 1077, 145, 146, 452, 1642, 2619, 2621, 1643, 1647, 958, 745, 586, 143, 2622, 2820, 1656, 1654, 1657, 1646, 1318, 544, 155, 153, 151 in doc 11-16/1189r2.**
- **Move: Alfred Asterjadhri**
- **Second: Reza Hedayat**
- **Accepted with no objection**

CR Motion #114

- **Move to accept resolutions for CIDs: 2313, 1410, 1454, 1728, 1897, 1411, 1729, 1898, 1899, 1730, 1731, 1403, 1427, 1409, 20, 1732, 1733, 17, 133 in doc 11-16/1210r1**
- **Move: Junichi Iwatani**
- **Second: Yasu Inoue**
- **Accepted with no objection**

CR Motion #115

- **Move to accept resolutions for CIDs:122, 576, 972, 2598 in doc 11-16/1211r2**
- **Move: Huizhao Wang**
- **Second: Zhou Lan**
- **Accepted with no objection**

CR Motion #116

- **Move to accept resolutions to CIDs; 1865 323 481 517
537 920 319 1059 2559 2551 2552 2553 2554 2555 2556
2557 2558 923 in doc 11-16/1202r5**
- **Move: Ming Gan**
- **Second: Bo Sun**
- **Accepted with no objection**

CR Motion #117

- **Move to accept resolutions to CIDs; 841,1787,1945, 1946,1949,1950,1965,2365,2366,2524,2525,2526,2918 in doc 11-16/1227r2**
- **Move: Po-Kai Huang**
- **Second: Chitto Ghosh**
- **Accepted with no objection**

CR Motion #118

- Move to accept resolutions for CIDs: 805, 1354, 1356, 1357, 1358, 1360, 1359, 668, 1792, 2475, 2477, 2478, 2479, 2480, 1527, 2263, 120, 1366, 10, 1368, 1369, 1371, 1372, 1374, 1375, 394, 11, 12, 669, 1378, 1376, 2455, 2592, 1381, 1384, 2456, 1377, 1635, 1804, 2309, 1367, 670, 2593, 2594, 2595, 1386 in doc 11-16/1186r1
- Move: Liwen Chu
- Second: Lei Wang
- Accepted with no objection

CR Motion #119

- “Moved to add to the 1 lax draft comment resolutions in document 16/1266r3 for CIDs:

113	114	115	116	117	156	196	197
198	199	200	201	202	213	263	
264	267	387	388	389	390	391	
392	393	457	571	572	573	620	
621	666	667	682	723	724		
1027	1152	1156	1157	1158	1159	1160	
1161	1162	1163	1164	1183	1205	1206	
1207	1314	1319	1320	1321	1322	1323	
1324	1325	1327	1332	1333	1335	1343	
1344	1346	1347	1348	1352	1415	1452	
1453	1655	1679	1680	1721	1723	1724	
1725	1764	1797	1798	1799	1803	1883	
1884	1885	1886	1887	1888	1889	1890	
1891	1892	1893	1894	1896	2253	2276	
2277	2278	2307	2308	2377	2390	2391	
2392	2393	2394	2425	2426	2427	2466	
2830	2831	2832	2836	2837	2838	2839	

- **Move: Brian Hart**
- **Second: Yasu Inoue**
- **Accepted with no objection**

CR Motion #120

- **Move to accept resolutions to CIDs; 567,665, 2220,2586 in doc 11-16/1241r1**
- **Move: George Cherian**
- **Second: Reza Hedayat**
- **Accepted with no objection**

CR Motion #121

- **The comment resolution to the following CIDs is “Revised” since they have been resolved in D0.4 or by approved resolutions to other CIDs?**
 - CID 2745, 1981, 1025, 502, 1666, 284, 1670, 1788, 1672, 1675, 2139, 1622, 1681, 295, 297, 2182, 309
- **Move to accept the resolution of the above CIDs as “Revised”**
- **Move: Bo Sun Second: Bin Tian**
- **Accepted with no objection**

CR Motion #122

- The comment resolution to CID 261 is “Rejected” with the reason “HE modulated field consists HE-STF, HE-LTF and HE-DATA only as defined in 26.3.2”
- Move to accept “Rejected” as the resolution to CID 261.
- Move Bo Sun Second: Bin Tian
- Accepted with no objection

CR Motion #123

- The comment resolution to CID 1458 is “Rejected” with the reason “The commenter failed to provide an applicable changes to the spec.”
- Move to accept “Rejected” as the resolution to CID 1458
- Move: Bo Sun Second: Bin Tian
- Accepted with no objection

CR Motion #124

- **Move to accept resolutions to CIDs, 1034, 1035, 1036, and 2138 in doc 11-16/1277r1**
- **Move: Yan Zhang**
- **Second: Bo Sun**
- **Accepted with no objection**

Timeline

Current Timeline

- May 2014: start of the TG
- Nov. 2014: First draft of the TG SFD was approved
- Jan. 2016: proposed TG draft
- March 2016: Draft D0.1 was approved and CC started
- **September 2016: Draft 1.0 and WG letter ballot**
- March 2017: Draft 2.0 and recirculation
- July 2017: MDR (Mandatory Document Review)
- November 2017: Formation of SB pool
- March 2018: Sponsor Ballot
- December 2018: RevCom

Modified Timeline

- May 2014: start of the TG
- Nov. 2014: First draft of the TG SFD was approved
- Jan. 2016: proposed TG draft
- March 2016: Draft D0.1 was approved and CC started
- **November 2016: Draft 1.0 and WG letter ballot**
- **May 2017: Draft 2.0 and recirculation**
- **Novemehr 2017: MDR (Mandatory Document Review)**
- **January 2018: Formation of SB pool**
- **March 2018: Sponsor Ballot**
- **December 2018: RevCom**

November 2016 Plan

- Continue with the comment resolution
- Resolve as many comments as we can
- Prepare draft D1.0 and start a WG LB

Conference call times

- Thursday Sept 29, Oct 20 10:00 – 12:00 ET
- Thursday Oct 13 20:00 -22:00 ET
- Thursday Oct 27 10:00 – 12:00 ET
- Thursday Nov 17 10:00 -12:00 ET

APPENDIX AW

**IEEE P802.11
Wireless LANs**

IEEE 802.11 TGax				
November 2016 San Antonio Meeting Minutes				
Date: 2016-11-29				
Author(s):				
Name	Affiliation	Address	Phone	email
Yasuhiko Inoue	NTT	1-1 Hikari-no-oka, Yokosuka, Kanagawa 239-0847 Japan	+81 46 859 5097	inoue.yasuhiko@lab.ntt.co.jp

Abstract

TGax meeting minutes from the IEEE 802.11 November 2016 San Antonio meeting, November 7th – 11th, 2016.

Minutes/motions from the ad hoc groups are contained in the following documents:

- PHY Ad Hoc
 - Agenda: 11-16-1475, TGax PHY Ad Hoc Nov 2016 Meeting Agenda
 - Minutes: 11-16-1530, November 2016 San Antonio PHY Ad Hoc Meeting Minutes
- MAC Ad Hoc
 - Agenda: 11-16-1478, TGax MAC Ad Hoc November 2016 Meeting Agenda
 - Minutes: 11-16-1480, November 2016 San Antonio TGax MAC Ad hoc Meeting Minutes
- MU Ad Hoc
 - Agenda: 11-16-1487, TGax MU Ad-hoc Agenda November 2016
 - Minutes: 11-16-1520, IEEE 802.11 TGax, MU Ad hoc November 2016 Meeting Minutes
- SR Ad Hoc
 - Agenda: 11-16-1481, TGax Spatial Reuse Ad-hoc Agenda November 2016 Meeting
 - Minutes: 11-16-1569, TGax Spatial Reuse ad hoc group meeting minutes – San Antonio, November 2016

**IEEE 802.11 Task Group AX (TGax)
November 2016 San Antonio Meeting
Grand Hyatt San Antonio, TX, U.S.A.
November 7th – 11th, 2016**

TGax Chair	Osama Aboul-Magd (Huawei Technologies)
Vice Chair	Simone Merlin (Qualcomm)
Vice Chair	Ron Porat (Broadcom)
TGax Secretary	Yasuhiko Inoue (NTT)
TGax Technical Editor	Robert Stacy (Intel)

Monday, November 7th, 2016, AM1 TGax Ad Hoc Session (8:00 - 10:00 AM)

1. The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chair of the TGax, @08:03 AM
 - 1.1. Introduction of TGax chair, secretary, vice chair.
2. **Announcement**
 - 2.1. Agenda Doc.11-16/1310r0 on the server. Rev. 1 is the working document.
 - 2.2. Meeting Protocol:
 - 2.2.1. Chair asked to set the mobile devices mute.
 - 2.2.2. Chair asked to state name and affiliation when speaking for the first time.
 - 2.3. Attendance reminder.
 - 2.3.1. The attendance server: <https://imat.ieee.org/>
 - 2.4. Since this is an ad hoc meeting, no motion will be conducted.
3. **Agenda Setting.**
 - 3.1. Proposed Agenda for Monday AM1:
 - 3.1.1. Call meeting to order
 - 3.1.2. Ad Hoc Meeting (no Motions)
 - 3.1.3. Patent policy, etc.
 - 3.1.4. Agenda Items for the week.
 - 3.1.5. Call for submissions.
 - 3.1.6. Set Ad hoc Group schedule and approve agenda.
 - 3.1.7. Comment Resolution Status – Robert Stacy (TGax editor).
 - 3.1.8. Timeline
 - 3.1.9. Presentations and Comment Resolution
 - 3.1.9.1. 11-16/1348 Coexistence assurance document
 - 3.1.9.2. 11-16/1363 11ax PAR Verification through OFDMA
 - 3.1.9.3. 11-16/1414 Verifying 11ax_i's PAR by UL MU-MIMO
 - 3.1.9.4. 11-16/1435 PAR Verification Simulation Followup
 - 3.1.9.5. More presentations if time allows
 - 3.1.10. Recess.
 - 3.2. Chair asked if there are any other items – No items proposed. Meeting will be conducted based on this order.
4. **The chair reviewed the mandatory 5 slides of P&P.**
 - 4.1. Instructions for the WG Chair.
 - 4.2. Participants, Patents, and Duty to Inform.

- 4.3. Patent Related Links.
- 4.4. Call for potentially essential patents.
 - 4.4.1. Chair asked if anyone is aware of potentially essential patents.**
 - 4.4.2. No potentially essential patents reported.**
- 4.5. Other Guidelines for IEEE WG Meetings.

5. Agenda items for the week

- Approve TG and Teleconferences minutes since September meeting.
- Complete the resolution of comments received on draft D0.1
- Approve a motion to prepare draft D1.0 and start WG LB
- Ad Hoc group meetings
- Technical Presentations and related straw polls and/or motions
- Schedule Teleconference times.

6. General Flow of the meeting

- 6.1. Slides 13 and 14 of the 16/1310r1 contain general flow of the meeting.
- 6.2. There are eight meeting slots planed for TGax.

Monday			Tuesday		Wednesday		Thursday	
AM1	TGax (full ad hoc)				TGax (full)		TGax (ad hoc)	TGax (ad hoc)
AM2			TGax (Ad Hoc)	TGax (Ad Hoc)				
PM1	TGax (full)				TGax (Ad Hoc)	TGax (Ad Hoc)	TGax (full)	
PM2	TGax (ad hoc)	TGax (ad hoc)	TGax (Ad Hoc)	TGax (Ad Hoc)	TGax (ad hoc)	TGax (ad hoc)	TGax (full)	
PM3	TGax (ad hoc)	TGax (ad hoc)						

7. Call for submissions – there are about 90 submissions

- 7.1. PHY – 29 submissions
 - 7.1.1. 16/1295, “CC23 PHY CR Miscellaneous Part-1,” Yongho Seok (Newracom)
 - 7.1.2. 16/1340, “CR HE-PHY Miscellaneous Part-3,” Lochan Verma (Qualcomm)
 - 7.1.3. 16/1341, “CR HE-PHY-Introduction-Part-2,” Lochan Verma (Qualcomm)
 - 7.1.4. 16/1356, “Spec text for HE NDP,” Yongho Seok (Newracom)
 - 7.1.5. 16/1370, “Proposed Spec Text for CCA Section,” Laurent Cariou (Intel)
 - 7.1.6. 16/1371, “CR HE-SIG-B part III,” Ross Jian Yu (Huawei)
 - 7.1.7. 16/1372, “Some proposed changes to D0.5,” Ross Jian Yu (Huawei)
 - 7.1.8. 16/1374, “Resolution on CID495 and Removal of Unnecessary PHY TBDs,” Yujin Noh (Newracom)
 - 7.1.9. 16/1375, “Comment Resolution for CID2867 and Text Change Proposal of 26.3.10.8 HE-SIG-B,” Yujin Noh (Newracom)
 - 7.1.10. 16/1377, “Comment resolution on Clauses 26.3.9 and 26.3.10,” Yusuke Asai (NTT)
 - 7.1.11. 16/1387, “Comment resolution on CID2506 and proposed changes,” Jinsoo Chio (LG Electronics)
 - 7.1.12. 16/1393, “EVM Definition for UL OFDMA,” Ron Porat (Broadcom)
 - 7.1.13. 16/1398, “CR for CID 2077,” Sriram Venkateswaran (Broadcom)
 - 7.1.14. 16/1399, “Changes to D0.5,” Sriram Venkateswaran (Broadcom)
 - 7.1.15. 16/1402, “11ax Receiver Specification,” Bin Tian (Qualcomm)
 - 7.1.16. 16/1406, “Spec Text for 11ax Receiver Requirements,” Bin Tian (Qualcomm)

- 7.1.17. 16/1407, "Changes to D0.5," Xiaogang Chen (Intel)
- 7.1.18. 16/1408, "PHY CRs 26.3.3,26.3.18,26.3.19," Xiaogang Chen (Intel)
- 7.1.19. 16/1410, "Clause 26 Fixes," Hongyuan Zhang (Marvell)
- 7.1.20. 16/1411, "TXTIME and RXTIME Fixes," Hongyuan Zhang (Marvell)
- 7.1.21. 16/1421, "Smoothness Recommendation for 4x HE-LTF," Feng Jiang (Intel)
- 7.1.22. 16/1427, "Remove TBDs in PHY Transmit Spec.," Yujin Noh (Newracom)
- 7.1.23. 16/1434, "Miscellaneous HE PHY corrections," Lochan Verma (Qualcomm)
- 7.1.24. 16/1437, "Updated Text for DCM," Jianhan Liu (MediaTek)
- 7.1.25. 16/1438, "0.8us GI with 4x HE LTF," Jianhan Liu (MediaTek)
- 7.1.26. 16/1439, "Error correction to D0.5 on Beam-change text," Jianhan Liu (MediaTek)
- 7.1.27. 16/1443, "Spec text: Smoothness Recommendation for HE-LTF," Feng Jiang (Intel)
- 7.1.28. 16/1448, "Remaining CR on section-26-2-2 TXRXVECTOR Parameters," Ke Yao (ZTE)
- 7.1.29. 16/1449, "Proposed Text Changes to TXRXVECTOR in Clause 26.2.2," Ke Yao (ZTE)

7.2. MAC – 36 submissions

- 7.2.1. 16/1238, "Setting Quiet time period – text," Chao-Chun Wang (MediaTek)
- 7.2.2. 16/1352, "CC23 MAC CR Miscellaneous Part-1," Yongho Seok (Newracom)
- 7.2.3. 16/1354, "CC23 CR Annex C," Yongho Seok (Newracom)
- 7.2.4. 16/1355, "Spec text for 10.22.2.5 and 3.2," Yongho Seok (Newracom)
- 7.2.5. 16/1358, "CC0-Remaining CIDs on BA," Alfred Asterjadhi (Qualcomm)
- 7.2.6. 16/1359, "CC0-Some remaining CIDs related to TWT," Alfred Asterjadhi (Qualcomm)
- 7.2.7. 16/1360, "CC0-HE variant HT control - Some Remaining CIDs," Alfred Asterjadhi (Qualcomm)
- 7.2.8. 16/1362, "CC0-Complete RTS Enablement," Alfred Asterjadhi (Qualcomm)
- 7.2.9. 16/1367, "NDP feedback report," Laurent Cariou (Intel)
- 7.2.10. 16/1368, "Follow-up on MU EDCA parameters," Laurent Cariou (Intel)
- 7.2.11. 16/1380, "Proposed text changes for TWT in congested environment," Laurent Cariou (Intel)
- 7.2.12. 16/1381, "Proposed text changes for fragmentation operation," Laurent Cariou (Intel)
- 7.2.13. 16/1404, "Early TWT SP Termination in TWT Operation," Jayh Hyunhee Park (LG Electronics)
- 7.2.14. 16/1409, "A-MSDU Fragmentation," Matthew Fischer (Broadcom)
- 7.2.15. 16/1413, "CID193 BSS Color Disabled Indication," Abhishek Patil (Qualcomm)
- 7.2.16. 16/1415, "CID72 BSS Color change mechanism," Abhishek Patil (Qualcomm)
- 7.2.17. 16/1416, "CC0-HE BSS operation11-16-xxxx-00-00ax-CC0-HE BSS operation," Alfred Asterjadhi (Qualcomm)
- 7.2.18. 16/1417, "CC0-HE BSS operation," Alfred Asterjadhi (Qualcomm)
- 7.2.19. 16/1418, "CC0-HE Multirate Support and 2G4 40MHz HE STA," Alfred Asterjadhi (Qualcomm)
- 7.2.20. 16/1419, "MCS_NSS_BW_PPDU_Selection_for_11ax," Alfred Asterjadhi (Qualcomm)
- 7.2.21. 16/1420, "TWT Information frames in 11ax," Alfred Asterjadhi (Qualcomm)
- 7.2.22. 16/1423, "NAV Update Rule Considering UL MU Operation," Geonjung Ko (WILUS)
- 7.2.23. 16/1424, "Issue on the CWmax value in MU EDCA," Woojin Ahn (WILUS)
- 7.2.24. 16/1425, "Clarification on applying MU EDCA parameter set," Woojin Ahn (WILUS)
- 7.2.25. 16/1431, "IEEE 802.11ax Annex G," Osama Aboul-Magd (Huawei Technologies)
- 7.2.26. 16/1442, "Spec texts for section 25.4 BA," Jeongki Kim (LG Electronics)
- 7.2.27. 16/1452, "Multiple BSSID and MU," Liwen Chu (Marvell)
- 7.2.28. 16/1453, "A-MPDU content," Liwen Chu (Marvell)
- 7.2.29. 16/1454, "Multiple BSSID and MU Discussion," Liwen Chu (Marvell)
- 7.2.30. 16/1456, "A-MPDU content discussion," Liwen Chu (Marvell)
- 7.2.31. 16/1458, "Comment Resolution for Sub-clause 25.13.2," Chittabrata Ghosh (Intel)
- 7.2.32. 16/1459, "Considerations on Quiet Time Period," Jinsoo Ahn (Yonsei Univ.)
- 7.2.33. 16/1461, "MU BAR comment resolutions," Reza Hedayat (Newracom)
- 7.2.34. 16/1464, "RD Protocol," Jarkko Knecht (Apple)
- 7.2.35. 16/1468, "A-MPDU Content Capabilities," Raja Banerjee (Qualcomm)
- 7.2.36. 16/1477, "CC23 Proposed Resolution (Update for) TWT Element," Matthew Fischer (Broadcom)

7.3. SR – 9 submissions

- 7.3.1. 16/0947, “Proposed text changes for OBSS_PD-based SR parameters,” Matthew Fischer (Broadcom)
- 7.3.2. 16/1063, “Unified SR text DSC, ATPC, inter-BSS,” Graham Smith (SR Technologies)
- 7.3.3. 16/1064, “Unified SR approach DSC, ATPC and Inter-BSS,” Graham Smith (SR Technologies)
- 7.3.4. 16/1121, “Spec Texts: Spatial Reuse Indication for Trigger,” Po-Kai Huang (Intel)
- 7.3.5. 16/1337, “CR on SR CCA rules clause 25.9,” Bo Sum (ZTE)
- 7.3.6. 16/1403, “SR Backoff Procedure,” Jayh Hyunhee Park (LG Electronics)
- 7.3.7. 16/1430, “Comment Resolution for SR on BSS Color,” Junichi Iwatani (NTT)
- 7.3.8. 16/1440, “Proposed Resolutions to CID 2719,” Jing Ma (NICT)
- 7.3.9. 16/1450, “CR for CID 2492 section 25.9 spatial reuse operation,” Kaiying Lv (ZTE)

7.4. MU – 12 submissions

- 7.4.1. 16/1353, “CC23 MAC CR Miscellaneous Part-2,” Yongho Seok (Newracom)
- 7.4.2. 16/1357, “CC0 Remaining CIDs on sounding,” Alfred Asterjadhi (Qualcomm)
- 7.4.3. 16/1361, “CC0- Remaining CIDs on MU Operation,” Alfred Asterjadhi (Qualcomm)
- 7.4.4. 16/1382, “MAC support of preamble puncture,” Zhou Lan (Broadcom)
- 7.4.5. 16/1383, “Spec Text: MAC support of preamble puncture,” Zhou Lan (Broadcom)
- 7.4.6. 16/1389, “Comment Resolution for CID 807,” Po-Kai Huang (Intel)
- 7.4.7. 16/1390, “Spec Text: Revision for NAV Setting Rule under Immediate Response,” Po-Kai Huang (Intel)
- 7.4.8. 16/1391, “Comment Resolution Random Access miscellaneous,” Young Hoon Kwon (Newracom)
- 7.4.9. 16/1392, “Comment Resolution CID 2624 and 2738,” Young Hoon Kwon (Newracom)
- 7.4.10. 16/1426, “DL/UL indication in MU-RTS,” Woojin Ahn (WILUS)
- 7.4.11. 16/1441, “Consideration on Internal Contention Between Data and Trigger Frame,” Jing Ma (NICT)
- 7.4.12. 16/1457, “11ax D0.1 Comment Resolution for Clause 25.5.3,” David Xun Yang (Huawei)

7.5. TG – 4 submissions

- 7.5.1. 16/0995, “Editor's report,” Robert Stacy (Intel)
- 7.5.2. 16/1363, “11ax PAR Verification through OFDMA,” Suhwook Kim (LG Electronics)
- 7.5.3. 16/1414, “Verifying 11ax's PAR by UL MU-MIMO,” Jason Yuchen Guo (Huawei)
- 7.5.4. 16/1435, “PAR Verification Simulation Followup,” James Yee (MediaTek)

8. Ad Hoc meeting scheduling

8.1. Ad Hoc slot assignment

- 8.1.1. PHY ... 5, MAC ... 5, SR ... 2, MU ... 2.

	Monday		Tuesday		Wednesday		Thursday	
AM1	TGax (full ad hoc)				TGax (full)		TGax (PHY)	TGax (MAC)
AM2			TGax (PHY)	TGax (MAC)				
PM1	TGax (full)				TGax (PHY)	TGax (MAC)	TGax (full)	
PM2	TGax (PHY)	TGax (MAC)	TGax (SR)	TGax (MU)	TGax (PHY)	TGax (MAC)	TGax (full)	
PM3	TGax (SR)	TGax (MU)						

8.2. Chair asked if there are any objections to approve the TGax schedule as follow.

- 8.2.1. There are no objections. The TGax schedule is approved.

9. Presentations

9.1. Osama Aboul-Magd (Huawei Technologies), Chair of TGax, presented “Coexistence assurance document,” based on the submission 11-16/1348r1, on behalf of Eldad Perahia (HP Enterprise).

9.1.1. Summary

9.1.1.1. Eldad Perahia (HP Enterprise) created the coexistence assurance document and the initial version was presented during the TGax teleconference.

9.1.1.2. The TGax chair presented the updated document.

9.1.2. Discussion

9.1.2.1. During the teleconference, some issues have been raised such as the definition of “legacy 802.11 system,” and content of the section 5 New Features.

9.1.2.2. Osama asked for suggestions for the above issues.

9.1.3. Next Step

9.1.3.1. Osama will make some modification before the motion to approve the document as the official TGax CA document.

9.2. Suhwook Kim (LG Electronics) presented “11ax PAR Verification through OFDMA,” based on the submission 11-16/1363r0.

9.2.1. Summary

9.2.1.1. It was verified that OFDMA can provide four times throughput enhancement in outdoor environment and DL/UL mixed traffic.

9.2.1.2. More gain in OFDMA can be obtained e.g., by adopting a better scheduler than a random scheduler.

9.2.2. Discussion

9.2.2.1. A member asked for the details of simulation conditions such as frame aggregation and MCS selection. Another member also asked for the simulation set up.

9.2.2.2. Chair asked for the importance of the simulation scenario that 37 STAs are on the same location. The answer is that it is to obtain the highest performance gain.

9.2.3. Next Step

9.2.3.1. The presenter plans to provide more simulation results.

9.3. Jason Yuchen Guo presented “Verifying 11ax’s PAR by UL MU-MIMO,” based on the submission 11-16/1414r2.

9.3.1. Summary

9.3.1.1. This presentation is to verify the four times throughput gain by UL MU-MIMO.

9.3.1.2. Higher throughput gain can be expected as the STA density goes higher.

9.3.1.3. Use of efficient scheduling algorithm also important for the higher throughput gain.

9.3.2. Discussion

9.3.2.1. There was a discussion on the fairness of the scheduling algorithm.

9.3.2.2. A member asked for the reason of fixed throughput performance in slide 4. → It is due to the assumed scheduling algorithm.

9.3.2.3. There was a discussion on the MCS selection/link adaptation.

9.3.2.4. There was a question on the use of buffer status report. → It is not considered in the simulations.

9.4. James Yee (MediaTek) presented “PAR Verification Simulation Follow-up ,” based on the submission 11-16/1435r0.

9.4.1. Summary

9.4.1.1. In the residential scenario, increasing STA size improves DL gain and using higher UL MCS (5->8, 9) improves UL gain.

- 9.4.1.2. Indoor BSS scenario with more STAs and no frequency reuse does not show additional performance gain.
 - 9.4.1.3. 4x gain with certain single BSS scenarios, but they are not the 'dense' STA and BSS scenarios we target in the EVM.
 - 9.4.2. Discussion
 - 9.4.2.1. A member commented on the throughput of MU with and without OBSS_PD that overhead introduced by the trigger frame is not so significant.
 - 9.4.2.2. There was a discussion on the adjustment of OBSS_PD in a multiple BSS scenario.
 - 9.4.2.3. A member asked if there are simulation results changing the packet size. The answer is yes. Additional gain can be expected in some cases.
 - 9.4.2.4. There was a discussion on the impact of legacy STAs.
 - 9.4.3. Straw poll
 - 9.4.3.1. The straw poll was deferred until PM1 (due to lack of time).
10. Adjournment
- 10.1. TGax ad hoc session adjourned @ 10:00 AM.

Monday, November 7th, 2016, PM1 TGax Ad Hoc Session (13:30 - 15:30)

- 1. The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chair of the TGax, @13:33 AM**
 - 1.1. Introduction of TGax chair, secretary, vice chair.
- 2. Announcement**
 - 2.1. Agenda Doc.11-16/1310r1 on the server. Rev. 2 is the working document.
 - 2.2. Meeting Protocol: Chair asked to state name and affiliation when speaking for the first time.
 - 2.3. Attendance reminder.
 - 2.3.1. The attendance server: <https://imat.ieee.org/>
- 3. Agenda for Monday, November 7th, PM1 (13:30 – 15:30).**
 - 3.1. Proposed Agenda for Monday PM1:
 - 3.1.1. Call meeting to order
 - 3.1.2. Patent policy, etc.
 - 3.1.3. Call for submissions.
 - 3.1.4. Set Ad hoc Group schedule and approve agenda.
 - 3.1.5. Summary from September 2016 meeting.
 - 3.1.6. TG motions
 - 3.1.6.1. Approve TG meeting and Telecon minutes since November meeting.
 - 3.1.6.2. Approve resolutions of comments, if needed
 - 3.1.7. Comment Resolution Status – Robert Stacy (TGax editor).
 - 3.1.8. Timeline
 - 3.1.9. Presentations and Comment Resolution
 - 3.1.10. Recess.
 - 3.2. Chair asked if there are any other items – No items proposed. Meeting will be conducted based on this order.
- 4. The chair reviewed the mandatory 5 slides of P&P.**
 - 4.1. Instructions for the WG Chair.
 - 4.2. Participants, Patents, and Duty to Inform.
 - 4.3. Patent Related Links.
 - 4.4. Call for potentially essential patents.
 - 4.4.1. Chair asked if anyone is aware of potentially essential patents.**
 - 4.4.2. No potentially essential patents reported.**
 - 4.5. Other Guidelines for IEEE WG Meetings.
- 5. Agenda items for the week**
 - 5.1. Approve TG and Telecons minutes since July meeting.
 - 5.2. Resolution of comments received on draft D0.1
 - 5.3. Ad Hoc group meetings
 - 5.4. Technical Presentations and related straw polls and/or motions
 - 5.5. Schedule Telecon times.
- 6. Summary from the September 2016 Meeting – slide 23 of the agenda document.**
 - Continue with the resolution of comments received on CC-23
 - Good progress on the comment resolution
 - Adjusted the TG timeline with draft D1.0 available after November meeting.
 - Draft D0.5 was prepared by the TG Editor.

- Conducted “almost” weekly telecons since September F2F meeting.
 - Covered 13 submissions
 - Discussed resolutions of almost 55 CIDs
 - Please refer to telecon minutes
 - <https://mentor.ieee.org/802.11/dcn/16/11-16-1308-02-00ax-tgax-teleconference-minutes-from-september-to-october.docx>

7. TG Motions

7.1. Approve TGax minutes of meetings and teleconferences from September 2016 meeting to today:

- <https://mentor.ieee.org/802.11/dcn/16/11-16-1231-00-00ax-tgax-september-2016-warsaw-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1308-02-00ax-tgax-teleconference-minutes-from-september-to-october.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1300-00-00ax-september-2016-tgax-spatial-reuse-ad-hoc-group-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1276-00-00ax-september-2016-warsaw-tgax-phv-ad-hoc-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1252-01-00ax-september-2016-warsaw-tgax-mac-ad-hoc-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/16/11-16-1275-00-00ax-mu-ad-hoc-meeting-minutes-september-2016.docx>

7.2. Moved by Simone Merlin, Seconded by Robert Stacy

7.3. Result: Motion was accepted with no objection.

8. Editor’s Report

- 8.1. Robert Stacy (Intel), TGax Editor, presented “,” based on the submission 11-16-0995-02.
- 8.2. CR Status Summary
- 8.3. Discussion – No discussion.

9. Timeline

- **Current Timeline**
 - **May 2014: start of the TG**
 - **Nov. 2014: First draft of the TG SFD was approved**
 - **Jan. 2016: proposed TG draft**
 - **March 2016: Draft D0.1 was approved and CC started**
 - **November 2016: Draft 1.0 and WG letter ballot**
 - **May 2017: Draft 2.0 and recirculation**
 - **November 2017: MDR (Mandatory Document Review)**
 - **January 2018: Formation of SB pool**
 - **March 2018: Sponsor Ballot**
 - **December 2018: RevCom**

- 9.1. The good news is that the number of TBDs in the draft is reduced as shown in slide 27.

10. Presentation and Comment Resolution**10.1. PAR Verification Discussion****10.1.1. Discussion on continuing the work on PAR verification**

10.1.1.1. 4 time improvement is already shown for outdoor scenarios in 11-16/1363

10.1.1.2. 4 times for indoor scenario is observed in 11-16/1414

10.1.2. Discussion

10.1.2.1. A member commented that it is hard to show x4 improvement for indoor cases. Outdoor scenario is more appropriate.

10.1.2.2. There was a comment that some simulation results are not based on realistic scenarios. More time is needed to evaluate realistic scenario.

10.1.2.3. There was a comment that indoor scenario is very important.

10.1.2.4. A member suggested mixed environment of HE and legacy STAs.

10.1.2.5. There was a comment that single BSS is not a dense environment.

10.1.3. Straw poll by James Yee (MediaTek) re: submission 11-16-1435-00.

10.1.3.1. Straw Poll: While we continue to look for additional gain under new modes - combination of 11ax features, do we:

Option 1

Continue to use current EVM scenarios.

Option 2

Modify scenarios in the EVM. E.g.

- Adding single BSS scenarios

- New OBSS scenarios

10.1.3.2. Discussion

10.1.3.2.1. Chair commented that we need more time if we choose option 2.

10.1.3.2.2. A member asked if EVM is the right reference to discuss the simulation scenario.

10.1.3.2.3. Chair asked if there is any objection to go with option 2. → No objection. The simulation scenario will be discussed in the TGax conferences.

10.2. James Wang (MediaTek) presented “Spatial Reuse Subfield Encoding Rule Clarification,” based on the submission 11-16-1473-00.**10.2.1. Summary**

10.2.1.1. This is the proposed changes to the Spatial Reuse subfield encoding rule based on TGax Draft 0.5

10.2.1.2. Transmit power of AP in table 26-19 Spatial Reuse subfield encoding is changed from “TX PWRAP: -10 dBm to 26 dBm” to “TX PWRAP: $\geq$ -10 dBm.”

10.2.2. Discussion

10.2.2.1. A member commented it could mean infinite transmit power is allowed. → The upper limit of the transmit power is obviously the regulatory limit.

10.2.3. Next Step

10.2.3.1. Chair asked if there is objection to this change. → No objection heard.

10.3. Sameer Vermani (Qualcomm) presented “Comment Resolutions of Miscellaneous HE PHY comments,” based on the submission 11-16-1340-03.**10.3.1. Summary**

- 10.3.1.1. A previous version of this document was presented by Lochan Verma during the TGax conference call on October 27th and got some minor comment.
- 10.3.1.2. This is the update considering those comments.
- 10.3.2. Discussion
 - 10.3.2.1. A member suggested further change to the document. → Sameer agreed.
- 10.3.3. Next Step
 - 10.3.3.1. Chair asked if there is any objection to accept the resolution. → No objection heard.
- 10.4. Sameer Vermani (Qualcomm) presented “Comment Resolutions on Clause 26.1.1 Part 2,” based on the submission 11-16-1341-06.**
 - 10.4.1. Summary
 - 10.4.1.1. Previous version of this document was presented by Lochan Verma during the TGax teleconference on October 27th.
 - 10.4.1.2. Proposed changes to the text in 26.1.1 Introduction to the HE PHY.
 - 10.4.2. Discussion
 - 10.4.2.1. No discussion.
 - 10.4.3. Next Step
 - 10.4.3.1. Chair asked if there is any objection to the resolution. → No objection heard.
- 10.5. Sameer Vermani (Qualcomm) presented “Miscellaneous HE PHY Corrections,” based on the submission 11-16-1434-01.**
 - 10.5.1. Summary
 - 10.5.1.1. Various fixes relevant to the HE PHY proposed.
 - 10.5.2. Discussion
 - 10.5.2.1. A member suggested minor correction to the document. Sameer agreed and updated the document.
 - 10.5.3. Next Step
 - 10.5.3.1. Chair asked if there is any objection to this resolution. → No objection heard.
- 10.6. Jarkko Knecht (Apple) presented “Resolution to CIDs 52, 2459 and 2632,” based on the submission 11-16-1464-00.**
 - 10.6.1. Summary
 - 10.6.1.1. This document contains proposed resolutions for CIDs 52, 2459 and 2632 regarding the reverse direction protocol.
 - 10.6.1.2. Text for the RD protocol signaling and the use of Multi-TID transmissions in RD protocol were proposed.
 - 10.6.2. Discussion
 - 10.6.2.1. A member commented that there is duplicate on the definition of the Multi-TID Aggregation. → Jarkko to update the document.
 - 10.6.2.2. There was a discussion on the tradeoff between the AC constraint and QoS.
 - 10.6.3. Next Step
 - 10.6.3.1. Chair asked if there is any objection to incorporate these changes to the draft. → No objection heard.
- 10.7. Ross Jian Yu (Huawei Technologies) presented “Proposed resolutions to comments on clause 26.3.10.8 in D0.5,” based on the submission 11-16-1371-00.**
 - 10.7.1. Summary
 - 10.7.1.1. The document contains the proposed resolutions for CIDs 308, 1619 and 2847.
 - 10.7.1.2. The document contains the proposed changes to the text in clause 26.3.10.8.4 as well which clarifies the mapping of user-fields to the RU allocation signaling for 80 and 160 MHz.
 - 10.7.2. Discussion
 - 10.7.2.1. No discussion.

10.7.3. Next Step

10.7.3.1. Chair asked if there is any objection to the proposed resolutions. → No objection.

10.8. Ross Jian Yu (Huawei Technologies) presented “Proposed change,” based on the submission 11-16-1372-01.

10.8.1. Summary

10.8.1.1. This submission contains the proposed changes to clause 26.3.10.5 L-SIG and 26.3.10.8 HE-SIG-B.

10.8.2. Discussion

10.8.2.1. Chair confirmed that this is not comment resolution.

10.8.3. Next Step

10.8.3.1. Chair asked if there is any objection to accept the proposed changes in 16/1372r1. → No objection.

11. AoB

11.1. Chair asked if we have any business that can be conducted.

11.2. Room assignment for PM2 & PM3:

11.2.1. PM2: PHY – Texas D, MAC - Texas E.

11.2.2. PM3: MU – Texas D, SR – Texas E.

12. Adjournment

12.1. TGax recessed @ 15:29 PM.

Monday, November 7th, 2016, PM2 TGax ad hoc sessions (16:00-18:00)

Ad Hoc room assignment:

- PHY ad hoc: Texas D
- MAC ad hoc: Texas E

Monday, November 7th, 2016, PM3 TGax ad hoc sessions (19:30-21:30)

Ad Hoc room assignment:

- SR ad hoc: Texas D
- MU ad hoc: Texas E

Tuesday, November 8th, 2016, AM2 TGax ad hoc sessions (10:30-12:30)

Ad Hoc room assignment:

- PHY ad hoc: Texas D
- MAC ad hoc: Texas E

Tuesday, November 8th, 2016, PM2 TGax ad hoc sessions (16:00-18:00)

Ad Hoc room assignment:

- SR ad hoc: Texas D
- MU ad hoc: Texas E

Wednesday, November 9th 2016, AM1 TGax Full Sessions (8:00-10:00)

1. The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chair of the TGax, @8:04 AM.
 - 1.1. Introduction of the TG leadership.
 - 1.2. Agenda 11-16-1310-02 is on the server.
2. Announcements/Reminder
 - 2.1. Chair asked participants to state name and affiliation when speaking for the first time during the session.
 - 2.2. Chair reminded that the meeting is conducted under IEEE 802 and 802.11 P&P.
 - 2.3. Chair reminded attendance.
3. Agenda Setting
 - 3.1. Proposed agenda for this session
 - 3.1.1. Call Meeting to order
 - 3.1.2. IEEE 802 and 802.11 IPR Policy and procedure.
 - 3.1.3. Progress Review
 - 3.1.4. Presentations
 - 3.1.4.1. 11-16/1472 New Amendment Style – Robert Stacey
 - 3.1.4.2. 11-16/1431 IEEE 802.11ax Annex G - Osama
 - 3.1.4.3. Presentations from ad hocs
 - 3.1.5. Recess
 - 3.2. Chair asked if there is any objection to proceed with this agenda. → No objection.
 - 3.3. The agenda for Wednesday AM1 was approved.
4. Progress from Ad Hoc groups
 - 4.1. MU and SR ad hocs – completed.
 - 4.2. PHY: 7 – 8 presentations left.
 - 4.3. MAC: 16 presentations to go.
5. Presentations
 - 5.1. **Robert Stacy (Intel) presented “New Amendment Style,” based on the submission 11-16-1472r01.**
 - 5.1.1. Summary
 - 5.1.1.1. The new amendment style is not a radical departure from how we amend the 802.11 specification.
 - 5.1.1.2. It concentrates MAC changes into one clause which helps with a number issues.
 - 5.1.1.3. The requirement inheritance is clear from the structure of the document.
 - 5.1.2. Discussion
 - 5.1.2.1. A member asked if there is a plan to apply this new style to the previous amendment. → Currently there is no plan to do so.
 - 5.1.2.2. Chair mentioned that the issue raised during the conference call was cross reference. Not sure what is the real issue.
 - 5.2. **Osama Aboul-Magd (Huawei Technologies) presented “IEEE 802.11ax Annex G,” based on the submission 11-16-1431r01.**
 - 5.2.1. Summary
 - 5.2.1.1. This document contains resolutions for CIDs 1430, 1703 and 2503.

5.2.1.2. The initial text for the G.5 HE Sequences is proposed. The plan is to put one example here and add more, or reject current text and start from the scratch after the WG LB.

5.2.2. Discussion

5.2.2.1. A member commented that people should pay more attention to this clause since Annex. G is normative. The only trigger sequence looks quiet incomplete.

5.2.2.2. Another member suggested the trigger sequence to be the placeholder.

5.3. Jeongki Kim (LG Electronics) presented “Spec text for section 25.4 Block Acknowledgment,” based on the submission 11-16-1442r00.

5.3.1. Summary

5.3.1.1. This is basically a clarification to the texts in subclause 25.4 Block Acknowledgment in D0.5.

5.3.1.2. In 9.3.1.9.7 Multi-STA BlockAck variant (D0.5), ACK of all MPDUs in an A-MPDU is indicated by Ack Type = 1 and TID subfield = 14 of Multi-STA Block ACK frame. The same concept should also be used in other subclauses (25.4 Block Acknowledgement).

5.3.2. Discussion

5.3.2.1. No discussion.

5.3.3. Next Step

5.3.3.1. Chair asked if there is any objection to accept this spec text. → No objection.

5.4. Abhishek Patil (Qualcomm) presented “Proposed Resolution for CID 193 (BSS Color Disable Indication),” based on the submission 11-16-1413r06.

5.4.1. Summary

5.4.1.1. The submission contains a resolution for CID 193.

5.4.1.2. The proposed resolution is to disable BSS Color when AP determines that there is a color collision.

5.4.2. Discussion

5.4.2.1. The document is not on the server. A member asked for more time to review.

5.5. Alfred Asterjadhi (Qualcomm) presented “HE BSS Operation,” based on the submission 11-16-1417r00.

5.5.1. Summary

5.5.1.1. This document contains a resolution for the CID 154.

5.5.1.2. Proposed resolution includes expansion of the Basic HE MCS and NSS Set field from 2 to 3 bits to include the new MCSs added in 11ax (1024 QAM) and the addition of the VHT Operation Information field to the HE Operation element to remove dependency from the VHT Operation element.

5.5.2. Discussion

5.5.2.1. No discussion.

5.5.3. Next Step

5.5.3.1. Chair asked if there is any objection to accept this resolution and the changes to the draft. → No objection.

5.6. Alfred Asterjadhi (Qualcomm) presented “MCS, NSS, BW and PPDU selection for 11ax,” based on the submission 11-16-1419r00.

5.6.1. Summary

5.6.1.1. This submission contains a proposed clarification on the selection rules for PPDU type, BW, and <MCS, NSS> for 11ax.

5.6.1.2. Proposed to finalize all the normative behavior for the selection of these parameters for control response frames.

- 5.6.1.3. Related submission (11-16-1418) which contains the spec text was presented as well.
 - 5.6.2. Discussion
 - 5.6.2.1. There was a discussion on the applicability of each rule.
 - 5.6.3. Next Step
 - 5.6.3.1. Chair asked if there is any objection to this resolution for CID #203. → No objection.
- 6. Preview of WG Motion
 - 6.1. Chair showed the motion text for WG Letter Ballot:
 - 6.1.1. Discussion
 - 6.1.1.1. A member mentioned that TGax, at this point, does not need detailed description as in the motion for WG recirculation ballot. Just need to say:
 - 6.1.1.1.1. Instruct the editor to prepare for TGax draft 1.0, and
 - 6.1.1.1.2. Approve a 30-day Working Group Letter Ballot.
 - 6.1.2. Chair will update the motion text as suggested.
 - 6.2. Chair showed the motion text for approval of coexistence assurance document.
- 7. AOB
 - 7.1. Only 5 minutes left.
 - 7.2. No other business to conduct.
- 8. Recess
 - 8.1. TGax full session is in recess @9:55 AM, until Thursday AM2.

Wednesday, November 9th 2016, PM1 TGax Ad Hoc Sessions (13:30-15:30)

- PHY ad hoc → Texas D.
- MAC ad hoc → Texas E

Wednesday, November 9th 2016, PM2 TGax ad hoc Sessions (16:00-18:00)

- PHY ad hoc → Texas D
- MAC ad hoc → Texas E

Thursday, November 10th, 2016, AM1 TGax full Session (8:00-10:00)**1 The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chairperson of the TGax, @8:04 AM**

- 1.1 Agenda 16/1310r3 is on the server. Rev. 4 is the working document.
- 1.2 Introduction of people at the front table.

2 Announcement/Reminder

- 2.1 Chair reminded IEEE 802 and 802.11 IPR P&P.
- 2.2 Chair asked people to state name and affiliation when addressing for the first time in the session.
- 2.3 Chair reminded people to do attendance.

3 Agenda for this session

- 3.1 Thursday AM1, PM1 and PM2
 - 3.1.1 Call Meeting to order
 - 3.1.2 Announcement/Reminder
 - 3.1.2.1 IEEE 802 and 802.11 IPR Policy and procedure.
 - 3.1.2.2 Attendance
 - 3.1.3 Agenda Setting
 - 3.1.4 Presentations
 - 3.1.5 TG Motions
 - 3.1.6 New Business:
 - 3.1.6.1 11-16-1238-04 Setting Quiet Time Period, by Chao-Chun Wang
 - 3.1.7 WG LB, CA Doc Motions
 - 3.1.8 11-16-1537-00, by Guido R. Hiertz.
 - 3.1.9 Goals for January 2017
 - 3.1.10 Teleconference schedule
 - 3.1.11 AOB
 - 3.1.12 Adjourn
- 3.2 Chair asked if there are any modifications to the agenda.
- 3.3 Agenda approved with no objection.

4 TG Motions

Chair asked the people to check the agenda file to make sure that the motion text is correct.

4.1 PHY Motion**4.1.1 PHY Motion #175: Move to accept the proposed changes to 11ax D0.5 spec text as in 11-16/1356r0.**

4.1.1.1 Moved by Young Hoon Kwon, Seconded by Alfred Asterjadhi

4.1.1.2 Discussion – No discussion.

4.1.1.3 Result: The motion was accepted with no objection.

4.1.2 PHY Motion #176: Move to accept the proposed spec changes in doc 11-16/1387r3.

4.1.2.1 Moved by Jinsoo Choi, Seconded by Kiseon Ryu.

4.1.2.2 Discussion – No discussion.

4.1.2.3 Result: The motion was accepted with no objection

4.1.3 PHY Motion #177: Move to accept the proposed spec text changes in doc 11-16/1427r2.

4.1.3.1 Moved by Yujin Noh, Seconded by Young Hoon Kwon.

4.1.3.2 Discussion – No discussion.

4.1.3.3 Result: The motion was accepted with no objection.

4.1.4 PHY Motion #178: Do you agree the proposed spec text changes as in doc 11-16/1370r4.

4.1.4.1 Moved by Laurent Cariou, Seconded by Chittabrata Ghosh.

4.1.4.2 Discussion – No discussion.

4.1.4.3 Result: The motion was accepted with no objection.

4.1.5 PHY Motion #179: Move to accept the proposed spec text changes in doc 11-16/1399r2.

4.1.5.1 Moved by Sriram Venkateswaran, Seconded by Ron Porat.

4.1.5.2 Discussion – No discussion.

4.1.5.3 Result: The motion was accepted with no objection.

4.1.6 PHY Motion #180: Move to adopt the spec text in doc 11/16-1406r1 on 11ax Receiver Requirements.

4.1.6.1 Moved by Bin Tian, Seconded by Abhishek Patil.

4.1.6.2 Result: The motion was accepted with no objection.

4.1.7 PHY Motion #181: Move to adopt the changes to the 11ax spec text in doc 11/16-1407r4.

4.1.7.1 Moved by Xiaogang Chen, Seconded by Chittabrata Ghosh.

4.1.7.2 Discussion - No discussion.

4.1.7.3 Result: The motion was accepted with no objection.

4.1.8 PHY Motion #182: Move to adopt the spec text in doc 11/16-1443r0 into 11ax draft.

4.1.8.1 Moved by Feng Jiang, Seconded by Chittabrata Ghosh.

4.1.8.2 Discussion – No discussion.

4.1.8.3 Result: The motion was accepted with no objection.

4.1.9 PHY Motion #183: Move to adopt the spec text in doc 11/16-1410r2 into 11ax draft.

4.1.9.1 Moved by Hongyuan Zhang, Seconded by Saishankar Nandagopalan.

4.1.9.2 Discussion – No discussion.

4.1.9.3 Result: The motion was accepted with no objection.

4.1.10 PHY Motion #184: Move to adopt the spec text in doc 11/16-1411r1 into 11ax draft.

4.1.10.1 Moved by Hongyuan Zhang, Seconded by Saishankar Nandagopalan.

4.1.10.2 Discussion – No discussion.

4.1.10.3 Result: The motion was accepted with no objection.

4.1.11 PHY Motion #185: Move to adopt the spec text in doc 11/16-1437r0 into 11ax draft.

4.1.11.1 Moved by Tianyu Wu, Seconded by Hongyuan Zhang.

4.1.11.2 Discussion – No discussion.

4.1.11.3 Result: The motion was accepted with no objection.

4.1.12 PHY Motion #186: Move to adopt the spec text in doc 11/16-1438r4 into 11ax draft.

4.1.12.1 Moved by Tianyu Wu, Seconded by Hongyuan Zhang.

4.1.12.2 Discussion – No discussion.

4.1.12.3 Result: The motion was accepted with no objection.

4.1.13 PHY Motion #187: Move to adopt the spec text in doc 11/16-1439r1 into 11ax draft.

4.1.13.1 Moved by Tianyu Wu, Seconded by Hongyuan Zhang.

4.1.13.2 Discussion – No discussion.

4.1.13.3 Result: The motion was accepted with no objection.

4.1.14 PHY Motion #188: Move to adopt the spec text in doc 11/16-1449r3 into 11ax draft.

4.1.14.1 Moved by Bin Tian, Seconded by Alfred Asterjadhi.

4.1.14.2 Discussion – No discussion.

4.1.14.3 Result: The motion was accepted with no objection.

4.1.15 PHY Motion #189: Move to adopt the spec text in doc 11/16-1434r2 into 11ax draft.

4.1.15.1 Moved by Sameer Vermani, Seconded by Abhishek Patil.

4.1.15.2 Discussion – No discussion.

4.1.15.3 Result: The motion was accepted with no objection.

4.1.16 PHY Motion #190: Move to adopt the spec text in doc 11-16/1372r1 into 11ax draft.

4.1.16.1 Moved by Ross Jian Yu, Seconded by Ron Porat.

4.1.16.2 Discussion – No discussion.

4.1.16.3 Result: The motion was accepted with no objection.

4.2 MAC Motions

4.2.1 MAC Motion #94: Move to update the 11ax specification D0.5 according to the instructions in document 16/1355r0.

4.2.1.1 Moved by Young Hoon Kwon, Seconded by Eric Wong.

4.2.1.2 Discussion - No discussion.

4.2.1.3 Result: The motion was accepted with no objection.

4.2.2 MAC Motion #95: Move to update the 11ax specification D0.5 according to the instructions in document 16/1362r1.

4.2.2.1 Moved by Alfred Asterjadhi, Seconded by George Cherian.

4.2.2.2 Discussion – No discussion.

4.2.2.3 Result: The motion was accepted with no objection.

4.2.3 MAC Motion #96: Move to update the 11ax specification D0.5 according to the instructions in slide 16 of document 16/1367r0.

And append the following sentence at the end of slide 16

- This mechanism is optional for non-AP STA

4.2.3.1 Moved by Laurent Cariou, Seconded by Alfred Asterjadhi.

4.2.3.2 Discussion – No discussion.

4.2.3.3 Result: The motion was accepted with no objection.

4.2.4 MAC Motion #97: Move to update the 11ax specification D0.5 according to the instructions in document 16/1368r2.

4.2.4.1 Moved by Laurent Cariou, Seconded by Eric Wong.

4.2.4.2 Discussion – No discussion.

4.2.4.3 Result: The motion was accepted with no objection.

4.2.5 MAC Motion #98: Move to update the 11ax specification D0.5 according to the instructions in slide 16 of document 16/1404r1.

4.2.5.1 Moved by Kiseon Ryu, Seconded by Alfred Asterjadhi.

4.2.5.2 Discussion – No discussion.

4.2.5.3 Result: The motion was accepted with no objection.

4.2.6 MAC Motion #99: Move to update the 11ax specification D0.5 according to the instructions in document 16/1409r3.

4.2.6.1 Moved by Zhou Lan, Seconded by Eric Wong.

4.2.6.2 Discussion – No discussion.

4.2.6.3 Result: The motion was accepted with no objection.

4.2.7 MAC Motion #100: Move to update the 11ax specification D0.5 according to the instructions in slides 8, 9 and 10 in document 16/1420r0.

4.2.7.1 Moved by Alfred Asterjadhi, Seconded by Abhishek Patil.

4.2.7.2 Discussion – No discussion.

4.2.7.3 Result: The motion was accepted with no objection.

4.2.8 MAC Motion #101: Move to update the 11ax specification D0.5 according to the instructions in document 16/1380r3.

4.2.8.1 Moved by Laurent Cariou, Seconded by Abhishek Patil.

4.2.8.2 Discussion – No discussion.

4.2.8.3 Result: The motion was accepted with no objection.

4.2.9 MAC Motion #102: Move to update the 11ax specification D0.5 according to the instructions in slide 6 of document 16/1425r2.

4.2.9.1 Moved by Woojin Ahn, Seconded by John Son.

4.2.9.2 Discussion – No discussion.

4.2.9.3 Result: The motion was accepted with no objection.

4.2.10 MAC Motion #103: Move to update the 11ax specification D0.5 according to the instructions in document 16/1452r2.

4.2.10.1 Moved by Liwen Chu, Seconded by Abhishek Patil.

4.2.10.2 Discussion – No discussion.

4.2.10.3 Result: The motion was accepted with no objection.

4.2.11 MAC Motion #104: Move to update the 11ax specification D0.5 according to the instructions in document 16/1453r1.

4.2.11.1 Moved by Liwen Chu, Seconded by Eric Wong.

4.2.11.2 Discussion – No discussion.

4.2.11.3 Result: The motion was accepted with no objection.

4.2.12 MAC Motion #105: Move to update the 11ax specification D0.5 according to the instructions in document 16/1381r2.

4.2.12.1 Moved by Laurent Cariou, Seconded by Chittabrata Ghosh.

4.2.12.2 Discussion – No discussion.

4.2.12.3 Result: The motion was accepted with no objection.

4.2.13 MAC Motion #106: Move to instruct the TGax editor to remove the sentence below from IEEE802.11ax D0.5 in clause 9.3.1.23.

“The exact location of each 20 MHz for 80 MHz BW is TBD”

4.2.13.1 Moved by Alfred Asterjadhi, Seconded by Ron Porat.

4.2.13.2 Discussion – No discussion.

4.2.13.3 Result: The motion was accepted with no objection.

4.2.14 MAC Motion #107: Move to instruct the TGax Editor to make the following changes (related to HE Link adaptation A-Control format):

- Replace “TBD” with “16” in P17L21 of TGax D0.5
- Replace “TBD” with “Reserved” in P19L8 of TGax D0.5
- Replace “B6+X” with “B15” in P19L6 of TGax D0.5
- Replace “X” with “9” in P19L6 of TGax D0.5

4.2.14.1 Moved by Abhishek Patil, Seconded by Alfred Asterjadhi.

4.2.14.2 Discussion – No discussion.

4.2.14.3 Result: The motion was accepted with no objection.

4.2.15 MAC Motion #108: Move to instruct the TGax Editor to make the changes as shown in 16/1529r0.

4.2.15.1 Moved by Zhou Lan, Seconded by Eric Wong.

4.2.15.2 Discussion – No discussion.

4.2.15.3 Result: The motion was accepted with no objection.

4.2.16 MAC Motion #109: Move to instruct the TGax Editor to make the changes as shown in slide 6 of document 16/1424r2.

4.2.16.1 Moved by Woojin Ahn, Seconded by John Son.

4.2.16.2 Discussion – No discussion.

4.2.16.3 Result: The motion was accepted with no objection.

4.2.17 MAC Motion #110: Move to instruct the TGax Editor to make the changes as shown in 16/1442r0.

4.2.17.1 Moved by Jeongki Kim, Seconded by Kiseon Ryu.

4.2.17.2 Discussion – No discussion.

4.2.17.3 Result: The motion was accepted with no objection.

4.2.18 MAC Motion #111: Move to instruct the TGax Editor to make the changes as shown in 16/1238r4.

4.2.18.1 Moved by Chao-Chun Wang, Seconded by Dengyu Qiao.

4.2.18.2 Discussion – No discussion.

4.2.18.3 Result: The motion was accepted with no objection.

4.3 MU Motions

4.3.1 MU Motion #61: Move to update the 11ax draft specification D0.5 according to editor instruction in document 802.11-16/1383r2

- A HE AP transmits a new trigger variant (Bandwidth Query Report Poll) to solicit bandwidth Query Report from one or multiple HE non AP STAs
- A HE non AP STA after receiving Bandwidth Query Report Poll from a HE AP responds with channel availability information in a new A-control field (Bandwidth Query Report)
- It is optional for a non AP STA to support the Bandwidth Query mechanism

4.3.1.1 Moved by Zhou Lan, Seconded by Ron Porat.

4.3.1.2 Discussion – No discussion.

4.3.1.3 Result: The motion was accepted with no objection.

4.3.2 MU Motion #62: Move to accept the proposed changes to D0.5 in 802.11-16/1390r0.

4.3.2.1 Moved by Po-Kai Huang, Seconded by Kiseon Ryu.

4.3.2.2 Discussion – No discussion.

4.3.2.3 Result: The motion was accepted with no objection.

4.4 SR Motions

4.4.1 SR Motion #13: Move to incorporate 11-16/947r18 into the TGax draft.

4.4.1.1 Moved by Zhou Lan, Seconded by Ron Porat.

4.4.1.2 Discussion:

- A member commented that this motion should be withdrawn and whole SR related text should be reviewed.
- Another member agreed with the previous commenter and proposed a motion to table this motion.

4.4.1.3 Motion to table SR Motion #13: Move to table the SR Motion #13 till January 2017 F2F meeting.

4.4.1.3.1. Moved by Sean Coffey, Seconded by Graham Smith.

4.4.1.3.2. Result: Y/N/A = 16/42/43, motion to table the SR motion #13 fails.

- Go back to the main motion.
- A member asked for a recorded vote.

4.4.1.4 Result: Y/N/A = 45/19/51, motion fails (< 75%).

- The vote record can be found in the Annex of this document.
-

4.4.2 SR Motion #14: Move to incorporate 11-16/1121r2 into the TGax draft.

4.4.2.1 Moved by Po-Kai Huang, Seconded by Laurent Cariou.

4.4.2.2 Discussion – No discussion.

4.4.2.3 Result: The motion was accepted with no objection.

4.4.3 SR Motion #15: Move to add the following text in the 11ax spec draft (11-16/1403r1).

25.9.2.1 General

- **SR Backoff procedure for SR delayed case**

The STA may resume its backoff procedure after the end of the PPDU carrying the SR delay entry by following the procedure defined in 10.22.2 HCF contention based channel access (EDCA)

NOTE - The countdown of an existing backoff procedure is suspended until the end of the PPDU carrying the SR delay entry since the medium is busy during the duration of the PPDU carrying the SR delay entry..

4.4.3.1 Moved by Kiseon Ryu, Seconded by Po-Kai Huang.

4.4.3.2 Discussion – No discussion.

4.4.3.3 Result: The motion was accepted with no objection.

4.4.4 SR Motion #16: Move to accept the changes to the TG draft in doc 11-16/1473r0.

4.4.4.1 Moved by James Wang, Seconded by Bahar Sadeghi.

4.4.4.2 Discussion – No discussion.

4.4.4.3 Result: The motion was accepted with no objection.

Chair asked if there is any business that can be done in 6 minutes. → No response.

5 Recess

TGax Recess @9:54 until PM1 (13:30) this afternoon.

Thursday, November 10th, 2016, PM1 TGax full Session (13:30-15:30)

6 The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chairperson of the TGax @ 13:35.

6.1 The agenda file: 11-16-1310-04.

7 Announcement

7.1 Chair reminded IEEE 802 and 802.11 IPR P&P.

7.2 Chair asked people to state name and affiliation when addressing for the first time in the session.

7.3 Chair reminded people to do attendance.

8 Agenda for this sessions – as approved during AM1 session.

8.1.1 Call Meeting to order

8.1.2 Announcement/Reminder

8.1.2.1 IEEE 802 and 802.11 IPR Policy and procedure.

8.1.2.2 Attendance

8.1.3 Agenda Setting

8.1.4 Presentations

8.1.5 TG Motions

8.1.6 New Business:

8.1.6.1 11-16-1238-04 Setting Quiet Time Period, by Chao-Chun Wang

8.1.7 WG LB, CA Doc Motions

8.1.8 11-16-1537-00, by Guido R. Hiertz.

8.1.9 Goals for January 2017

8.1.10 Teleconference schedule

8.1.11 AOB

8.1.12 Adjourn

9 TG Motions (continued from AM1)

9.1 CR Motions

9.1.1 CR Motion #125 (PHY): Move to accept resolutions to CIDs

- CID 495 as in 11-16/1374r1
- CID 2867 in 11-16/1375r1
- CID 2043, 2044, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2058, 2059, 2062 in doc 11-16/1377r6
- CID 2431 in 11-16/1295r0
- CID 2077 in doc 11-16/1398r1
- CID 1031, 1827, 2472, 2753 in doc 11-16/1448r0
- CID 1116, 2350, 2460, 2461, 1038, 2147, 275 in doc 11-16/1408r0
- CID 1864 and 1849 in doc 11-16/1341r6
- CID 2506 in doc 11-16/1387r3
- CID 2147 in doc 11-16/1522r2
- 1932, 2106, 2572, 2796 in doc 11-16/1340r4
- CID 308, 1619, 2874 in doc 11-16/1371r0

9.1.1.1 Moved by Bin Tian, Seconded by Jianhan Liu.

9.1.1.2 Discussion – No discussion.

9.1.1.3 Result: The motion was accepted with no objection.

9.1.2 CR Motion #126 (PHY): Move to accept the following resolution to CID 85

- Resolution: Rejected

- Reason: The comment doesn't provide an applicable change suggestion to the spec draft

9.1.2.1 Moved by Jianhan Liu, Seconded by Hongyuan Zhang.

9.1.2.2 Discussion – No discussion.

9.1.2.3 Result: The motion was accepted with no objection.

9.1.3 CR Motion #127 (MAC): Move to accept resolutions to CIDs

- CIDs: 150, 1020, 2201 in doc 11-16/1354r0

- CIDs: 135, 658, 2389 in doc 11-16/1358r0

- CIDs: 385, 419, 458, 459, 514, 630, 741, 743, 2844, 2846 in doc 11-16/1359r0

- CIDs: 93, 824, 819, 989, 1067, 2388, 147, 161 in doc 11-16/1360r1

- CID 72 in doc 11-16/1415r2

- CID 193 in doc 11-16/1413r8

- CIDs: 195, 723, 779, 780, 1087, 1088, 2179, 2387, 2672, 2673, and 2674 in doc 11-16/1458r0

- CID 6 and 7 in doc 11-16/1461r1

- CIDs: 969, 1517, 1558, 1560, 1917, 2180 in doc 11-16/1357r0

9.1.3.1 Moved by Reza Hedayat, Seconded by George Cherian.

9.1.3.2 Discussion – No discussion.

9.1.3.3 Result: The motion was accepted with no objection.

9.1.4 CR Motion #128 (MAC): Move to accept resolutions to CIDs

- CID 682 in doc 11-16/1477r2

- CID 991 in doc 11-16/1503r2

- CID 1012 in doc 11-16/1350r0

- CID: 861, 1073, 16, 1398, 1212, 1211, 1176, 964, 823, 798, 797, 781, 733, 1400, 1072, 735 in doc 11-16/1332r3

- CID: 81, 82, 710, 1226, 1235, 1236, 1351, 1707, 1776 in doc 11-16/1336r1

- CID 2186 in doc 11-16/1342 (Editor)

- CID 154 in doc 11-16/1417r0

- CID 203 in doc 11-16/1418r0

- CID 1430, 1703, and 2503 in doc 11-16/1431r1

- CID 1700 and 2504 in doc 11-16/1335r3

9.1.4.1 Moved by Yonggang Fang, Seconded by Reza Hedayat.

9.1.4.2 Note: The motion is referring to the latest revision of 1342 which is r0.

9.1.4.3 Discussion – No discussion.

9.1.4.4 Result: The motion was accepted with no objection.

9.1.5 CR Motion #129 (MAC): Move to accept resolutions to CIDs

- CID 52, 2459, and 2632 in doc 11-16/1464r1

- CID 2113 in doc 11-16/1346r1

- CIDs: 1920, 2441, 2671, 2262, 2396, 2454, 2604, 2605, 1734, 118, 691, 822, 1353 in doc 11-16/1352r1

9.1.5.1 Moved by Reza Hedayat, Seconded by George Cherian.

9.1.5.2 Discussion – No discussion.

9.1.5.3 Result: The motion was accepted with no objection.

9.1.6 CR Motion #130 (MU): Move to accept resolutions to CIDs

- CIDs 2490 and 2505 as proposed in 11-16/1353r1
- CIDs 37, 38, 171, 759, 761, 763, 764, 815, 950, 1219, 1540, 2273, 2320, 2449, 2467, 2636, 2656 and 2910 as proposed in 11-16/1361r1
- CIDs 59, 2652 and 2653 as proposed in 802.11-16/1391r0
- CIDs 2624 and 2738 as proposed in 802.11-16/1392r0
- CID 807 as proposed in 802.11-16/1389r0
- CIDs 53, 54, 56, 57, 604, 1553, 1554, 1555, 1557 and 2655 as proposed in 802.11-16/1457r3
- CID: 729, 1069, 806, 2261, 2909, 1468, 1637, 998, 730, 245, 246, 247, 248, 399, 421, 1464, 588, 256, 812, 1661 in doc 11-16/1339r1

9.1.6.1 Moved by Kiseon Ryu, Seconded by Yonggang Fang.

9.1.6.2 Discussion – No discussion.

9.1.6.3 Result: The motion was accepted with no objection.

9.1.7 CR Motion #131 (SR): Move to accept resolutions to CIDs

- CIDs 187, 224, 803, 1233, 1578, 1579, 2284, 2433, 2666, 2912, 2915, 2916, 2917 in doc 11-16/1337r0.
- CIDs 448, 833, and 1232 in doc 11-16/1430r0
- CID 2492 as provided in submission 11-16/1450r0 and to modify the 802.11ax draft amendment as shown in the submission
- CID 2719 and to modify (adding text to the end of section 25.9.2.1 on page 153 line 15) the 802.11ax draft amendment as proposed in submission 11-16/1440r4

9.1.7.1 Moved by Sameer Alfred Asterjadhi, Seconded by Po-Kai Huang.

9.1.7.2 Discussion – No discussion.

9.1.7.3 Result: The motion was accepted with no objection.

9.1.8 CR Motion #132 (SR): Move to accept resolutions to CIDs

- CID 944, 64, and 2911 in doc 11-16/1476r6 with the exception that 11-16/1476r6 replaces 11-16/461476r4 in the resolution

9.1.8.2 Moved by VK Jones, Seconded by Ron Porat.

9.1.8.3 Discussion

- A member asked to table this motion since there are so many additions to the current draft.
- The presenter replied that this document contains resolutions for the CIDs 944, 64 and 2911, and proposed text discussed in SR ad hoc in the simplest way.
- The previous commenter withdraws the motion to table, but recommends to vote No on this motion.
- This motion is determined to be a recorded vote.

9.1.8.4 Result: Y/N/A = 46/29/38, motion fails.

- The vote record is available in the Annex B of this document.

9.2 Motion to reconsider**9.2.1 Move to reconsider motion SR-13 on OBSS_PD SR.****9.2.1.1 Moved by Sriram Venkateswaran, Seconded Saishankar Nandagopalan.****9.2.1.1.1. Discussion**

- A member mentioned that this is out of order. The mover mentioned that he voted “No” for the SR motion #13, however it is worth to reconsider.

9.2.1.2. Result: Motion to reconsider passed with no objection.

9.2.1.3. Go back to the main motion

9.2.1.4. Discussion – No discussion.**9.2.1.5. Result: Y/N/A = 46/18/38, motion fails (<75%)**

- The vote record is available in the Annex C of this document.
-

9.3 WG Motions**9.3.1 WG LB Motion:**

- Instruct the editor to prepare TGax Draft D1.0
- Approve a 30 day Working Group Technical Letter Ballot asking the question “Should TGax Draft 1.0 be forwarded to Sponsor Ballot?”

9.3.1.1 Moved by Robert Stacy, Seconded by Vinko Erceg.**9.3.1.2 Discussion – No discussion.****9.3.1.3 Result: Y/N/A = 89/0/6, motion passes.**

9.3.2 Coexistence Assurance Document: Move to adopt 11-16/1348r2 as coexistence assurance document for 802.11ax amendment.**9.3.2.1 Moved by Robert Stacy, Seconded by Yasuhiko Inoue.****9.3.2.2 Discussion – No discussion.****9.3.2.3 Result: Y/N/A = 82/0/7, motion passes.**

10 Presentation**10.1 Guido R. Hiertz (Ericsson) presented “TGax ad hoc meeting,” based on the submission 11-16-1537-00.****10.1.1 Summary**

10.1.1.1 Guido proposes an ad hoc meeting in Stockholm, Sweden, just before the IEEE 802 Wireless Session January 2017.

10.1.1.2 Ericsson will host the meeting

10.1.2 Discussion

10.1.2.1 The editor will create draft 1.0 in two or three week after the November session and a 30-day WG letter ballot starts after that. The ballot will be closed early January. We can assign comments during the teleconferences in January.

10.1.2.2 A member mentioned that it is difficult to prepare the resolution before the January 2017 meeting considering the sequence of events we will have.

10.1.3 Motion: Authorize TGax to hold an ad-hoc meeting on January 11-13/2017 in Stockholm, Sweden, for the purpose of comment resolution.**10.1.3.1 Moved by Guido R. Hiertz, Seconded by Hakan Persson**

10.1.3.2 Discussion

11.1.3.2.1. A member mentioned that it is generally good to have an ad hoc meeting to accelerate the comment resolution process, however January is not the right timing.

11.1.3.2.2. There were similar comments.

10.1.3.3 Result: Y/N/A = 9/52/32, motion fails.

11 Teleconferences

11.1 Weekly conference calls are planned after September session.

- Thursday Dec. 1st, 8th and 15th, 2016 21:00 - 23:00 (ET) – For PAR Verification
- Thursday Jan. 5th, 2017 11:00 - 13:00 (ET)
- Thursday Jan. 12th, 2017 20:00 - 22:00 (ET)

12 AOB

12.1 No other business to conduct.

13 Adjournment

13.1 TGax adjourned for the week @ 15:35.

Thursday, November 10th, 2016, PM2 TGax full Session (16:00-18:00)

Upon completion of its business, TGax Thursday PM2 session was cancelled.

Annex A. Vote record of the SR Motion #13 - Thursday, November 10th, 2016, AM1 session.

Annex B. Vote record of the CR Motion #132 (SR) - Thursday, November 10th, 2016, PM1 session.

Annex C. Vote record of the SR Motion #13 (reconsider) - Thursday, November 10th, 2016, PM1 session.

The results are contained in separate tabs the excel file below..



802.11 TGax roll
call vote November

APPENDIX AX

**IEEE P802.11
Wireless LANs**

IEEE 802.11 TGax**March 2017 Vancouver Meeting Minutes****Date:** 2017-04-05**Author(s):**

Name	Affiliation	Address	Phone	email
Yasuhiko Inoue	NTT	1-1 Hikari-no-oka, Yokosuka, Kanagawa 239-0847 Japan	+81 46 859 5097	inoue.yasuhiko@lab. ntt.co.jp

Abstract

TGax meeting minutes from the IEEE 802.11 Vancouver session, March 13th – 17nd, 2017.

Minutes/motions from the ad hoc groups are contained in the following documents:

- PHY Ad Hoc
 - <https://mentor.ieee.org/802.11/dcn/17/11-17-0494-00-00ax-march-2017-vancouver-phy-ad-hoc-meeting-minutes.docx>
- MAC Ad Hoc
 - <https://mentor.ieee.org/802.11/dcn/17/11-17-0155-01-00ax-11ax-mac-ad-hoc-minutes.docx>
- MU Ad Hoc
 - <https://mentor.ieee.org/802.11/dcn/17/11-17-0495-00-00ax-tgax-mu-ad-hoc-minutes-march-2017.docx>
- SR Ad Hoc
 - <https://mentor.ieee.org/802.11/dcn/17/11-17-0504-00-00ax-spatial-reuse-ad-hoc-group-march-2017-minutes.docx>

**IEEE 802.11 Task Group ax
March 2017 Vancouver Meeting
Hyatt Regency Vancouver, BC, Canada
March 13th – 17th, 2017**

TGax Chair	Osama Aboul-Magd (Huawei Technologies)
Vice Chair	Simone Merlin (Qualcomm)
Vice Chair	Ron Porat (Broadcom)
TGax Secretary	Yasuhiko Inoue (NTT)
TGax Technical Editor	Robert Stacy (Intel)

Monday, March 13th, 2017, PM1 TGax Session (13:30-15:30)

1. The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chair of the TGax, @13:35
 - 1.1. Introduction of front table.
2. **Announcement**
 - 2.1. Agenda Doc.11-17/0199r1 on the server. Rev. 2 is the working document.
 - 2.2. Meeting Protocol: Chair asked to state name and affiliation when speaking for the first time.
 - 2.3. Attendance reminder.
 - 2.3.1. The attendance server: <https://imat.ieee.org/>
3. **The chair reviewed the mandatory 6 slides of P&P.**
 - 3.1. Instructions for the WG Chair.
 - 3.2. Participants, Patents, and Duty to Inform.
 - 3.3. Patent Related Links.
 - 3.4. Call for potentially essential patents.
 - 3.4.1. Chair asked if anyone is aware of potentially essential patents.
 - 3.4.2. No potentially essential patents reported.
 - 3.5. Other Guidelines for IEEE WG Meetings.
 - 3.6. Participation in IEEE 802 Meetings
4. **Agenda items for the week**
 - 4.1. Approve meeting and teleconferences minutes since January 2017
 - 4.2. Continue with comment resolution on draft D1.0
 - 4.3. Schedule TG ad hoc meeting (possibly in Korea)
 - 4.4. Schedule TG teleconferences.
5. **General Flow of the meeting**
 - 5.1. Slides 14 and 15 of the 17/0199r6 contain general flow of the meeting.

5.2. There are ten meeting slots planed for TGax.

	Monday	Tuesday	Wednesday	Thursday
AM1			TGax (full session)	
AM2		TGax (Ad Hoc)	TGax (Ad Hoc)	
PM1	TGax (full session)		TGax (Ad Hoc)	TGax (Ad Hoc)
PM2	TGax (Ad Hoc)	TGax (Ad Hoc)	TGax (Ad Hoc)	TGax (full session)
PM3		SR ad Hoc		

6. Call for submissions – 62 submissions

6.1. PHY – 13 submissions

- 6.1.1. 11-17-0044, “NDP Short Feedback Design,” Ron Porat (Broadcom)
- 6.1.2. 11-17-0078, “RBW of 11ax,” Xiaogang Chen (Intel)
- 6.1.3. 11-17-0231, “CR_clause 28.3.5,” Xiaogang Chen (Intel)
- 6.1.4. 11-17-0234, “CR_clause 28.3.19_28.3.20,” Xiaogang Chen (Intel)
- 6.1.5. 11-17-0247, “CR HE PHY Introduction Part 4,” Lochan Verma (Qualcomm)
- 6.1.6. 11-17-0261, “CR HE PHY Transmit Requirements HE_TRIG_PPDU Part 1,” Lochan Verma (Qualcomm)
- 6.1.7. 11-17-0290, “CRs on TX specification,” Yujin Noh (Newracom)
- 6.1.8. 11-17-0345, “LB225 CR on TXOP_DURATION (28.2.2),” Jeongki Kim (LG Electronics)
- 6.1.9. 11-17-0398, “11ax Comment Resolutions for HE Preamble,” Yan Zhang (Marvell)
- 6.1.10. 11-17-0400, “CRs for 20MHz-only STA - Part 1,” Sungeun Lee (Cypress)
- 6.1.11. 11-17-0404, “CR on Pre-HE preamble transmission for trigger based PPDU,” Ross Jian Yu (Huawei)
- 6.1.12. 11-17-0414, “CR on clause 28-3-11 HE PHY data field,” Tianyu Wu (MediaTek)
- 6.1.13. 11-17-0436, “LB225 Comment Resolution of CID 7517,” Jianhan Liu (MediaTek)

6.2. MAC – 25 submissions

- 6.2.1. 11-17-0074, “Explanations for CR on 27.5.2.7,” Laurent Cariou (Intel)
- 6.2.2. 11-17-0088, “Discussion for CR on 10.22.2.8 TXOP limits,” Woojin Ahn (Wilus)
- 6.2.3. 11-17-0239, “LB225-MAC-CR-HT Control subclause 9.2.4.6.X and 10.1 - Block 2,” Alfred Asterjadhi (Qualcomm)
- 6.2.4. 11-17-0240, “LB225-MAC-CR-HT Control subclause 9.2.4.6.X and 10.1 - Block 3,” Alfred Asterjadhi (Qualcomm)
- 6.2.5. 11-17-0283, “lb225-mac-cr-9-3-1-23,” Raja Banerjea (Qualcomm)
- 6.2.6. 11-17-0285, “LB225-MAC-CR-HE MCS_NSS resolutions,” Alfred Asterjadhi (Qualcomm)
- 6.2.7. 11-17-0308, “CR for section 9.4.2 BSS load PPT,” Frank Hsu (MediaTek)
- 6.2.8. 11-17-0319, “CRs for Section 27.4,” George Cherian (Qualcomm)
- 6.2.9. 11-17-0341, “LB225 11ax D1.0 Comment Resolution 10.13,” Liwen Chu (Marvell)
- 6.2.10. 11-17-0344, “LB225 CR on EIFS and TXOP_DURATION (10.3.2.3.7 and 27.11.5),” Jeongki Kim (LG Electronics)
- 6.2.11. 11-17-0346, “LB225 CR on TXOP Truncation (10.22.2.9),” Jeongki Kim (LG Electronics)
- 6.2.12. 11-17-0347, “LB225 CR on Intra-PPDU PS (27.14.1),” Jeongki Kim (LG Electronics)
- 6.2.13. 11-17-0353, “LB225-CRs-on-OFDMA-based-random-access-Response,” Suhwook Kim (LG Electronics)
- 6.2.14. 11-17-0359, “mac-cr-CS Required-9-3-1-23,” Raja Banerjea (Qualcomm)
- 6.2.15. 11-17-0360, “LB225 CR for CID5917 and CID8165,” Ming Gan (Huawei)

- 6.2.16. 11-17-0361, "BSS Load Information in 802.11ax," Ming Gan (Huawei)
- 6.2.17. 11-17-0362, "LB225 CR for Subclause 9.4.2.218.2," Ming Gan (Huawei)
- 6.2.18. 11-17-0384, "LB225, Comment resolution for 10.24.10," Reza Hedayat (Newracom)
- 6.2.19. 11-17-0389, "CIDs-for-27-2-1-part1," Kaiying Lv (ZTE)
- 6.2.20. 11-17-0395, "LB225-CR-on-Pre-association," Ming Gan (Huawei)
- 6.2.21. 11-17-0396, "Association Exchange using Contention based UL OFDMA," Ming Gan (Huawei)
- 6.2.22. 11-17-0421, "cr-for-11.49-HE BSS operation," Chao-Chun Wang (MediaTek)
- 6.2.23. 11-17-0443, "LB225-CRs-on-OFDMA-based-random-access-Figure," Suhwook Kim (LG Electronics)
- 6.2.24. 11-17-0445, "CR on Per-TID All Ack in Multi-STA BlockAck Frame," Geonjung Ko (Wilus)
- 6.2.25. 11-17-0448, "Proposed resolution for comments related to CIDs in 27.5.2," Jing Ma (NICT)

6.3. MU – 9 submissions

- 6.3.1. 11-17-0271, "CR for 17.2.2.1 and 17.3.9.10," Po-kai Huang (Intel)
- 6.3.2. 11-17-0282, "11-17-xxxx-0x-00ax-lb225-mac-cr-number-of-ss-9-3-1-23," Raja Banerjee (Qualcomm)
- 6.3.3. 11-17-0302, "D1.0 MAC Resolution CR for 27.5.2.4," Po-Kai Huang (Intel)
- 6.3.4. 11-17-0325, "CR for 27.14.3 OPS," Laurent Cariou (Intel)
- 6.3.5. 11-17-0335, "CR for CID 8142 - Random Access acronym," Rojan Chitrakar (Panasonic)
- 6.3.6. 11-17-0338, "CR for 27.5.2.4 - Physical CS CIDs," Rojan Chitrakar (Panasonic)
- 6.3.7. 11-17-0349, "LB225 CR for 25.5.2.4 Setting of CS Required Bit," Kiseon Ryu (LG Electronics)
- 6.3.8. 11-17-0403, "CR-Subclause-27-5-3-MU-Cascading," David Xun Yang (Huawei)
- 6.3.9. 11-17-0442, "LB225, CR CIDs 3215, 3216," Reza Hedayat (Newracom)

6.4. SR – 10 submissions

- 6.4.1. 11-16-1063, "Unified SR text DSC, ATPC, inter-BSS," Graham Smith (SR Technologies)
- 6.4.2. 11-16-1476, "CR-for section-25-9-spatial-reuse-operation-for-HE-PPDU," Matthew Fischer (Broadcom)
- 6.4.3. 11-17-0075, "SRP-based SR Summary and Update," Matthew Fischer (Broadcom)
- 6.4.4. 11-17-0163, "DSC as OBSS_PD," Graham Smith (SR Technologies)
- 6.4.5. 11-17-0267, "CR for 25.9.2.2 OBSS_PD Spatial reuse," Laurent Cariou (Intel)
- 6.4.6. 11-17-0383, "Spatial Reuse Group Challenges," Reza Hedayat (Newracom)
- 6.4.7. 11-17-0452, "LB225, CR for CID3222," Reza Hedayat (Newracom)
- 6.4.8. 11-17-0455, "Some clarifications on current SR spec text," Laurent Cariou (Intel)
- 6.4.9. 11-17-0458, "OBSS_PD: Threshold problems," Sean Coffey (RealTek)
- 6.4.10. 11-17-0459, "," Kaiying Lv (ZTE)

6.5. TG – 5 submissions

- 6.5.1. 11-17-0112, "Link Transmit Power," Matthew Fischer (Broadcom)
- 6.5.2. 11-17-0328, "Link Adaptation Feedback for Combating Interference," Feng Jiang ()
- 6.5.3. 11-17-0334, "Proposed Text for Simulation Scenarios," Frank Hsu (MediaTek)
- 6.5.4. 11-17-0369, "Some CIDs related to 20MHz operation," Guoqing Li (Apple)
- 6.5.5. 11-17-0370, "Some CIDs related to 20MHz operation -- text," Guoqing Li (Apple)

6.6. Ad Hoc meeting scheduling

- 6.6.1. Ad Hoc slot assignment
 - 6.6.1.1. MAC ... 5, PHY ... 3.5, SR ... 1, MU ... 1.5.
- 6.6.2. Chair asked if there are any objections to approve the TGax schedule as follow.
 - 6.6.2.1. There are no objections. The TGax schedule is approved.

	Monday		Tuesday		Wednesday		Thursday
AM1					TGax (full session)		
AM2			TGax (PHY)	TGax (MAC)			TGax (full session)
PM1	TGax (full session)				TGax (MAC)	TGax (MU)	
PM2	TGax (PHY)	TGax (MAC)	TGax (PHY)	TGax (MAC)	TGax (MAC)	TGax (PHY/MU)	TGax (full session)
PM3			TGax (SR)				

7. Agenda for Monday, March 14th, PM1 (13:30 – 15:30).

7.1. Proposed Agenda for Monday PM1:

- 7.1.1. Call meeting to order
- 7.1.2. Patent policy, etc.
- 7.1.3. Call for submissions
- 7.1.4. Set Ad Hoc Groups schedule and approve agenda
- 7.1.5. Summary from January 2017 meeting
- 7.1.6. TG motions
 - 7.1.6.1. Approve TG meeting and Telecon minutes since November meeting.
 - 7.1.6.2. Approve resolutions of comments, if needed.
- 7.1.7. Editor Report – Robert Stacey
- 7.1.8. Timeline
- 7.1.9. On Comment Resolution
- 7.1.10. Next ad Hoc Meeting (May)
- 7.1.11. Presentations and Comment Resolution
- 7.1.12. Recess

- 7.2. Chair asked if there are any other items – No items proposed. Meeting will be conducted based on this order.

8. Summary from January 2017 Meeting

- 8.1. Continued with the resolution of comments received on draft D1.0
- 8.2. Discussed issues related to spatial Reuse.
- 8.3. Held a weekly teleconferences to advance comment resolution
- 8.4. Held a TG 3-day ad hoc meeting in San Diego

9. TG Motions

9.1. Motion: Approve TGax minutes of meetings and teleconferences from January 2017 interim meeting to today:

- <https://mentor.ieee.org/802.11/dcn/17/11-17-0126-00-00ax-tgax-january-2017-atlanta-meeting-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/17/11-17-0224-03-00ax-tgax-teleconference-minutes-from-jan-to-mar-2017.docx>
- <https://mentor.ieee.org/802.11/dcn/17/11-17-0155-00-00ax-11ax-mac-ad-hoc-minutes.docx>
- <https://mentor.ieee.org/802.11/dcn/17/11-17-0358-00-00ax-tgax-march-2017-ad-hoc-meeting-minutes-non-phy-ad-hoc.docx>

- <https://mentor.ieee.org/802.11/dcn/17/11-17-0456-00-00ax-mar-2017-tgax-sd-phv-ad-hoc-premeeting-minutes.docx>

9.1.1. Discussion:

- 9.1.1.1. A member requested to check the CIDs discussed during the TGax ad hoc meeting.

9.1.2. Result: The motion was postponed until Wednesday AM1.

10. Editor's Report

- 10.1. Draft 1.1 is on the members' only area of the 802.11 web site.

11. Timeline

- 11.1. Slide 24 of the agenda document contains the current timeline.
- 11.1.1. May 2014: start of the TG
 - 11.1.2. Nov. 2014: First draft of the TG SFD was approved
 - 11.1.3. Jan. 2016: proposed TG draft
 - 11.1.4. March 2016: Draft D0.1 was approved and CC started
 - 11.1.5. November 2016: Draft 1.0 and WG letter ballot
 - 11.1.6. May 2017: Draft 2.0 and recirculation
 - 11.1.7. November 2017: MDR (Mandatory Document Review)
 - 11.1.8. January 2018: Formation of SB pool
 - 11.1.9. March 2018: Sponsor Ballot
 - 11.1.10. December 2018: RevCom
- 11.2. Draft 2.0 is very unlikely to be available in May 2017.
- 11.2.1. Chair asked for comments and suggestions.
 - 11.2.2. Timeline will be discussed during the TGax full session on Thursday session.

12. On Comment Resolutions

- 12.1. Number of comments were rejected with no proper reasons
- 12.2. Some of the reasons cited, "it is in the SFD", "the group adopted it"
- 12.3. Please refer to the comment resolution tutorial;
<https://mentor.ieee.org/802.11/dcn/16/11-16-0230-03-000m-sb1-stephens-resolutions-part-1.doc>

13. Presentations

- 13.1. Guoqing Li (Apple) presented "CIDs Related to 20MHz-only STAs operating on non-primary 20 MHz channels," based on the submission 11-17-0369-03.
- 13.1.1. Summary
- 13.1.1.1. The 802.11ax draft is introducing 20 MHz-only STAs which operate at 20MHz BW only, however, it is not clear on whether and how these STAs can operate on non-primary 20MHz channel, see text below.
 - 13.1.1.2. What's defined in 11ax draft 1.0 is ready to enable the non-primary channel operation mode which enables intelligent load balancing and interference management, maximizes BSS BW utilization and reduces STA power consumption.
- 13.1.2. Discussion
- 13.1.2.1. A member mentioned that he/she likes this idea. However, he/she is concerned about the consistency with the protection mechanism, i.e. MU-RTS/CTS procedure.

- 13.1.2.2. Another member is concerned about the range disadvantage that a 20 MHz-only STA may have, and also the additional complexity since such a device is very likely to be a low cost device.
- 13.1.2.3. There is a comment that efficiency can be achieved by putting 20 MHz-only STA on the primary channel while placing other HE STAs secondary channels.
- 13.1.2.4. There is a comment that this proposal introduces an OBSS coexistence issue. The commenter would like to see all the mechanism for this procedure and results of evaluation.
- 13.1.2.5. A member mentioned that he/she generally agrees with the idea of giving a kind of flexibility. He/she would like to understand relationship between MU-RTS/CTS procedure and power efficiency.
- 13.1.3. Next Step
 - 13.1.3.1. It is good to give people to review the document 17/370r2 that contains the text of this proposal.

14. AoB

- 14.1. PM2 session on Monday March 13th is ad hoc sessions
 - 14.1.1. Ad Hoc #1 – PHY – Regency C.
 - 14.1.2. Ad Hoc #2 – MAC – Regency D.

15. TGax meeting recessed @ 15:30.

The next TGax full session is AM1 on Wednesday, March 15th.

Monday, March 13th, 2017, PM2 TGax Ad Hoc Sessions (16:00-18:00)

- Ad Hoc #1: PHY – Regency C
 - Agenda: 11-17-0464
- Ad hoc #2: MAC – Regency D
 - Agenda: 11-17-0453

Tuesday, March 14th, 2017, AM2 TGax Ad Hoc Sessions (10:30-12:30)

- Ad hoc #1: PHY – Regency C
 - Agenda: 11-17-0464
- Ad hoc #2: MAC – Regency D
 - Agenda: 11-17-0453

Tuesday, March 14th, 2017, PM2 TGax Ad Hoc Sessions (16:00-18:00)

- Ad hoc #1: PHY – Regency C.
 - Agenda: 11-17-0464
- Ad hoc #2: MAC – Regency D
 - Agenda: 11-17-0453

Tuesday, March 14th 2016, PM3 TGax ad hoc Session (19:30-21:30)

- Ad hoc #1: SR – Regency C.
 - Agenda: 11-17-0482

Wednesday, March 15th 2017, AM1 TGax full Sessions (13:30-15:30)**1 The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chairperson of the TGax, @8:00 AM**

- 1.1 Agenda 17/0199r3 is on the server.
- 1.2 Rev. 4 is the working document.

2 Agenda Setting

- 2.1 Proposed agenda for this session
 - 2.1.1 Call Meeting to order
 - 2.1.2 IEEE 802 and 802.11 IPR Policy and procedure.
 - 2.1.3 Approval of TG Minutes
 - 2.1.4 May ad hoc Meeting and motion
 - 2.1.5 Timeline
 - 2.1.6 Progress Review from ad hocs
 - 2.1.7 Presentations
 - 2.1.7.1 SP remaining from yesterday
 - 2.1.7.2 11-17/0075 and 11-16/1476
 - 2.1.7.3 11-17/0383 and 11-17/0452
 - 2.1.7.4 11-17/0459
 - 2.1.7.5 11-17/0267 – SP
 - 2.1.8 Recess
- 2.2 Chair asked if there any comments or suggestions on the proposed agenda. No response.
 - 2.2.1 The agenda for Wednesday AM1 is approved.

3 Reminder

- 3.1 Chair reminded that we are still operating under IEEE 802 and 802.11 Policies and Procedures.
- 3.2 Chair asked to state name and affiliation when addressing for the first time in the session.
- 3.3 Chair asked to put cellphone mute.

4 Approval of TG minutes (January 2017 meeting and teleconferences)**4.1 Motion: Approve TGax minutes of meetings and teleconferences from January 2017 plenary meeting to today:**

- 4.1.1 <https://mentor.ieee.org/802.11/dcn/17/11-17-0126-00-00ax-tgax-january-2017-atlanta-meeting-minutes.docx>
- 4.1.2 <https://mentor.ieee.org/802.11/dcn/17/11-17-0224-03-00ax-tgax-teleconference-minutes-from-jan-to-mar-2017.docx>
- 4.1.3 <https://mentor.ieee.org/802.11/dcn/17/11-17-0155-00-00ax-11ax-mac-ad-hoc-minutes.docx>
- 4.1.4 <https://mentor.ieee.org/802.11/dcn/17/11-17-0358-02-00ax-tgax-march-2017-ad-hoc-meeting-minutes-non-phy-ad-hoc.docx>
- 4.1.5 <https://mentor.ieee.org/802.11/dcn/17/11-17-0456-00-00ax-mar-2017-tgax-sd-phy-ad-hoc-premeeting-minutes.docx>

4.2 Moved by Bo Sun, Seconded by Bin Tian.

4.3 Discussion: No discussion.

4.4 Result: Motion was approved with no objection.

5 Ad Hoc Meeting in May 2017

- 5.1 Jinsoo Ahn (LG Electronics) volunteers to host the TGax ad hoc meeting in May 2017 before the week of the IEEE 802 Wireless Interim session.
- 5.2 Discussion
 - 5.2.1 Some members prefer to have the ad hoc meeting on Saturday and Sunday.
 - 5.2.2 PHY ad hoc does not need ad hoc meeting.

5.3 Motion

- 5.3.1 Authorize TGax to hold an ad-hoc meeting on May 3-5 in Seoul, Korea, for the purpose of working on comment resolution excluding PHY CIDs.
 - 5.3.2 Moved by Robert Stacey, Seconded by Qinghua Li
 - 5.3.3 Discussion: No discussion.
 - 5.3.4 Result: Y/N/A = 55/0/2, motion passes.
-

6 Timeline discussion

- 6.1 Chair showed the proposed modification to the timeline contained in the agenda file and requested for comments and suggestions.
 - 6.1.1 There will be a motion to approve the modified timeline on Thursday.

7 Progress from ad hoc groups

- 7.1 Report from the ad hoc groups:
 - 7.1.1 PHY (Bo): 4 presentations left. Need one more session.
 - 7.1.2 MU (Sigurd): 8 submissions left. Need one more session. It can be a joint session with PHY ad hoc.
 - 7.1.3 SR (Guido): 5 left. Want Thursday AM1 session.
 - 7.1.4 MAC (Eric): 14 left. Need more sessions.
- 7.2 Chair will request additional meeting slot during the WG mid-week plenary session.
- 7.3 Chair also asked the members to review the motion text contained in the agenda file.

8 Presentations

- 8.1 Matt. Fischer (Broadcom) presented “SRP-Based SR Operation,” based on the submission 11-17-0075-07.
 - 8.1.1 Summary
 - 8.1.1.1 This is an update of a presentation that was given in January 2017 session.
 - 8.1.2 Discussion
 - 8.1.2.1 Q: A member asked about the retransmission procedure when the acknowledgment is not returned. → It is not likely that the retransmission occurs within the same SRP PPDU. We may need to think about the use of Delayed Block ACK procedure.
 - 8.1.2.2 C: Some members disagree with the concept of SRP. Although some cases are explained in the document, there seems to be many hidden assumptions. More details of this procedure have to be discussed.
 - 8.1.2.3 C: A member commented that AP will have an advantage for SR transmissions.
 - 8.1.2.4 Q: A member asked if we have a mechanism to completely ON/OFF this procedure. → SR_Disallow bit.

- 8.1.2.5 C: Another member pointed out that there are some issues such as number of STAs participating SR transmissions, collision probability in a dense wireless LAN environment, UL/DL balancing.

8.1.3 Straw Polls

8.1.3.1 Straw Poll #1: Do you support the use of SRP in the DSRP_PPDU case, i.e. Trigger followed by UL Trigger-based PPDU?

8.1.3.1.1 Y/N/A = 31/12/35

8.1.3.2 Straw Poll #2: Do you support the use of SRP in the TSRP_PPDU case, i.e. HE Trigger-based PPDU preceded by IDLE or by PPDU with color match of Trigger-based PPDU?

8.1.3.2.1 Y/N/A = 24/26/29

8.1.3.3 Straw Poll #3: Do you support the use of SRP in the ULSRP_PPDU case 1, i.e. HE UL SU PPDU or HE UL MU PPDU preceded by IDLE?

8.1.3.3.1 Y/N/A = 13/25/31

8.2 Reza Hedayat (Newracom) presented “LB225, CR for CID3222,” based on the submission 11-17-0452-02.

8.2.1 Summary

- 8.2.1.1 As a resolution for CID #3222, OBSS_PD Rule is modified.
- 8.2.1.2 The proposal is to use a more relaxed OBSS-PD for response frames to protect intended recipients of data frames from potential interference/collision.
- 8.2.1.3 Proposed text is contained in slide 10 of 11-17-0452-02.

8.2.2 Discussion

- 8.2.2.1 A member commented that we should have protection for response frame.
-

8.2.3 Straw Poll

8.2.3.1 Do you accept the Revised resolution for CID 3222 with the proposed text in slide 10 of 17-0452r1?

8.2.3.1.1 Accepted with no objection.

9 AoB

9.1 Guoqing Li (Apple) has straw polls from submission 11-17-0369

9.1.1 Straw Polls:

9.1.1.1 Straw Poll #1: Do you agree to accept the text described in 0370r2 for comment resolution for CID 8810 and 8811?

9.1.1.1.1 Discussion:

9.1.1.1.1.1 A member commented that this adds lots of complexity.

9.1.1.1.2 Result: Y/N/A = 39/26/17, straw poll will not be converted to a motion.

9.1.1.2 Straw Poll #2: Do you agree to allow 20 MHz-only STAs to operate on any 20 MHz channel within the BSS bandwidth as an optional mode?

9.1.1.2.1 Discussion:

9.1.1.2.2 Result: This straw poll was not conducted.

10 Recess

10.1 There will be TGax ad hoc meetings this afternoon.

10.2 Chair will send out an email.

Wednesday, March 15th 2017, PM1 TGax Ad Hoc Sessions (13:30-15:30)

- Ad Hoc #1: MAC – Regency C
 - Agenda: 11-17-0453
- Ad Hoc #2: MU – Regency D
 - Agenda: 11-17-0485

Wednesday, March 15th 2017, PM2 TGax Ad Hoc Sessions (16:00-18:00)

- Ad Hoc #1: MU/PHY – Regency C
 - Agenda: 11-17-0485/11-17-0464
- Ad Hoc #2: MAC – Regency D
 - Agenda: 11-17-0453

Thursday, March 16th, 2017, PM1 TGax full Session (13:30-15:30)**1 The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chairperson of the TGax, @13:30.**

1.1 Agenda 17/0199r5 is on the server. Rev. 6 is the working document.

2 Agenda for this session**2.1 Thursday PM1 and PM2**

2.1.1 Call Meeting to order

2.1.2 Agenda Setting

2.1.3 Announcement/Reminder

2.1.3.1 IEEE 802 and 802.11 IPR Policy and procedure.

2.1.3.2 Attendance

2.1.4 TG Motions

2.1.5 Timeline update

2.1.6 Goals for May 2016

2.1.7 Teleconferences

2.1.8 Presentations

2.1.8.1 11-17/0328

2.1.8.2 11-17/0112

2.1.9 Adjourn

2.2 Chair asked if there are any modifications to the agenda.

2.3 Agenda approved without objections.

3 Announcement/Reminder

3.1 Chair reminded IEEE 802 and 802.11 IPR P&P.

3.2 Chair asked people to state name and affiliation when addressing for the first time in the session.

3.3 Chair reminded people to do attendance.

4 Motions – TG documents**4.1 CR Motions**

4.1.1 CR Motion #152 (MAC): Move to accept resolutions to CIDs; 5164, 6974, 6975, 6978, 6979, 6980, 6981, 7532, 7533, 8293, 8486, 9865, and 9866 in doc 11-17/0191r5

4.1.1.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.1.2 Discussion: No discussion.

4.1.1.3 Result: Motion was accepted with no objection.

4.1.2 CR Motion #153 (MAC): Move to accept resolutions to CIDs; 3193, 3194, 4747, 4748, 5032, 5172, 5684, 5854, 5906, 5908, 6159, 6160, 7138, 7178, 7185, 7186, 7795, 8212, 8213, 8214, 8264, 8295, 8296, 8297, 9403, 9491, 9521, 9586, 9702, 10248, 10249, 10327, 3244, 3389, 3499, 3830, 3919, 4270, 4454, 4483, 4742, 4744, 5843, 5911, 5912, 6462, 6463, 6464, 7562, 8201, 8262, 8263, 8265, 8290, 8291, 8519, 4745, 7660 in doc 11-17/0204r5.

4.1.2.1 Moved by Laurent Cariou, Seconded by Yasu Inoue.

4.1.2.2 Discussion: No discussion.

4.1.2.3 Result: Motion was accepted with no objection.

4.1.3 CR Motion #154 (MAC): Move to accept resolutions to CIDs; 6935, 3102, 7707, 8494, 4715, 6936, 4716, 6937, 5432, 4717 in doc 11-17/0223r2.

4.1.3.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.3.2 Discussion: No discussion.

4.1.3.3 Result: Motion was accepted with no objection.

4.1.4 CR Motion #155 (MAC): Move to accept resolutions to CIDs; 5931, 7528, 9748 in doc 11-17/0227r0.

4.1.4.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.4.2 Discussion: No discussion.

4.1.4.3 Result: Motion was accepted with no objection.

4.1.5 CR Motion #156 (MAC): Move to accept resolutions to CIDs; 4266, 4479, 5211, 10290 in doc 11-17/0248r3.

4.1.5.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.5.2 Discussion: No discussion.

4.1.5.3 Result: Motion was accepted with no objection.

4.1.6 CR Motion #157 (MAC): Move to accept resolutions to CIDs; 9756, 7788 in doc 11-17/0255r0.

4.1.6.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.6.2 Discussion: A member asked for a count.

4.1.6.3 Result: Y/N/A = 28/3/9, motion passes.

4.1.7 CR Motion #158 (MAC): Move to accept resolutions to CIDs; 3166, 6086, 6328, 7267, 7272, 7275, 7753, 8396, 9834, 9836, 5682, 7271, 3019, 6329, 9835, 9646, 9647, 8252, 7273, 7274, 7490, 8117, 10342 in doc 11-17/0207r6.

4.1.7.1 Moved by Po-Kai Huang, Seconded by Yasu Inoue.

4.1.7.2 Discussion: No discussion.

4.1.7.3 Result: Motion was accepted with no objection.

4.1.8 CR Motion #159 (MAC): Move to accept resolutions to CIDs; 9612, 4832 in doc 11-17/0208r2.

4.1.8.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.8.2 Discussion:

4.1.8.2.1 A member asked for deferral of CID #9612.

4.1.8.2.2 Another member objects to it.

4.1.8.3 Result: Y/N/A = 28/3/9, motion passes.

4.1.9 CR Motion #160 (MAC): Move to accept resolutions to CIDs; 7667, 9693, 6529 in doc 11-17/0209r2.

4.1.9.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.9.2 Discussion: No discussion.

4.1.9.3 Result: Motion was accepted with no objection.

4.1.10 CR Motion #161 (MU): Move to accept resolutions to CIDs; 7840, 7959, 8502, 9771, 8715, 10071 in doc 11-17/0309r1.

4.1.10.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.10.2 Discussion: No discussion.

4.1.10.3 Result: Motion was accepted with no objection.

4.1.11 CR Motion #162 (MAC): Move to accept resolutions to CIDs; 7668, 7669, 7906, 9694, 4833, 5775, 9600, 5969, 9861, 5968, 7670, 7881, 9346, 3188 in doc 11-17/0210r2.

4.1.11.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.11.2 Discussion: No discussion.

4.1.11.3 Result: Motion was accepted with no objection.

4.1.12 CR Motion #163 (MAC): Move to accept resolutions to CIDs; 6935, 3102, 7707, 8494, 4715, 6936, 4716, 6937, 5432, 4717 in doc. 11-17/0223r2.

4.1.12.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.12.2 Discussion: This is a duplicate of a previous motion (CR Motion #154).

4.1.13 CR Motion #164 (MAC): Move to accept resolutions to CIDs; 4754, 6094, 7564, 8404, 8689, 9677, 6480, 7565, 5848, 6481, 8406, 6484, 9611 in doc 11-17/0226r3.

4.1.13.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.13.2 Discussion: No discussion.

4.1.13.3 Result: Motion was accepted with no objection.

4.1.14 CR Motion #165 (MAC): Move to accept resolutions to CIDs; 8394, 5215, 7142, 10292 in doc 11-17/0263r3.

4.1.14.1 Moved by Po-Kai Huang, Seconded by Yasu Inoue.

4.1.14.2 Discussion: No discussion.

4.1.14.3 Result: Motion was accepted with no objection.

4.1.15 CR Motion #166 (MAC): Move to accept resolutions to CIDs; 5075, 5076, 5561, 9481, 5562, 5563, 9274, 7140, 9423, 5044, 9425, 8095, 8096, 5045, 9427, 7975, 5932, 7976, 9424, 9426, 9557, 9681, 9850, 5933, 8411, 9515, 7569, 8410, 5795, 7137, 5761, 9682, 8256, 8257, 9428, 4835, 5934, 9851, 7663 in doc 11-17/0264r3.

4.1.15.1 Moved by Po-Kai Huang, Seconded by Yasu Inoue.

4.1.15.2 Discussion: No discussion.

4.1.15.3 Result: Motion was accepted with no objection.

4.1.16 CR Motion #167 (MAC): Move to accept resolutions to CIDs; 10250, 10320, 10321, 10322, 10323, 10247, 10005, 10006, 10246, 9584, 9386, 9285, 8592, 8354, 8211, 7233, 6068, 6056, 5930, 5559, 5468, 5466, 5463, 5358, 5169, 3057, 8268, 8269, 7844, 9442 in doc 11-17/0324r1.

4.1.16.1 Moved by Po-Kai Huang, Seconded by Yasu Inoue.

4.1.16.2 Discussion: No discussion.

4.1.16.3 Result: Motion was accepted with no objection.

4.1.17 CR Motion #168 (MAC): Move to accept resolutions to CIDs; 3006, 3010, 3112, 3162, 5047, 5058, 5067, 5926, 6075, 6076, 6272, 6273, 7134, 7311, 7312, 7314, 7475, 7733, 7734, 7735, 7736, 7737, 7934, 8113, 8186, 8187, 8474, 8475, 8477, 8478, 9362, 9363, 9364, 9625, 9626, 9642, 9814, 9815, 9816, 9817, 9818 in doc 11-17/306r4.

4.1.17.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.17.2 Discussion: No discussion.

4.1.17.3 Result: Motion was accepted with no objection.

4.1.18 CR Motion #169 (MAC): Move to accept resolutions to CIDs; 3060, 3063, 3064, 3065, 3201, 3202, 3203, 3204, 3205, 3206, 3213, 5174, 5178, 5650, 5651, 5652, 5653, 5654, 5655, 5668, 5685, 5803, 5804, 5805, 5806, 6060, 6135, 6608, 6611, 6621, 6623, 6637, 6639, 6640, 6641, 7082, 7393, 7534, 7653, 7654, 7655, 7656, 7802, 7967, 8122, 8391, 8392, 8459, 8490, 8491, 9214, 9286, 9718, 9736, 9737, 9882, 10009, 10329, 10330, 10333, 8395 in doc 11-17/0319r1.

4.1.18.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.18.2 Discussion: No discussion.

4.1.18.3 Result: Motion was accepted with no objection.

4.1.19 CR Motion #170 (MAC): Move to accept resolutions to CIDs; 3019, 9648, 9837, 10162 in doc 11-17/0359r2.

4.1.19.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.19.2 Discussion: No discussion.

4.1.19.3 Result: Motion was accepted with no objection.

4.1.20 CR Motion #171 (MAC): Move to accept resolutions to CIDs; 3018, 8190, 3167, 3216, 5130, 8166, 8335, 8336, 8380, 8415, 8539, 8540, 9494, 9645, 6082, 7484, 9831 in doc 11-17/0283r3.

4.1.20.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.20.2 Discussion: No discussion.

4.1.20.3 Result: Motion was accepted with no objection.

4.1.21 CR Motion #172 (MAC): Move to accept resolutions to CIDs; 6484, 9611 in document 17/0226r3.

1.1.1.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

1.1.1.2 Discussion: No discussion.

1.1.1.3 Result: Motion was accepted with no objection.

4.1.22 CR Motion #173 (MAC): Move to accept resolutions to CIDs; 9428 in document 17/0264r3.

4.1.22.1 Moved by Po-Kai Huang.

4.1.22.2 Discussion: This CID is included in a previous motion (CR Motion #166).

4.1.23 CR Motion #174 (MAC): Move to accept resolutions to CIDs; 3060, 3061, 9444, 5175, 3062, 3071, 5708, 5709, 5710, 9709, 5711, 7177, 3072, 4817, 3136, 9821, 3075, 7552, 7972, 8533, 5455, 7163, 7164, 9378, 7165, 7841, 7169, 9379, 7146, 8280, 8292 in document 17/0230r1.

4.1.23.1 Moved by Abhishek Patil, Seconded by Yasu Inoue.

4.1.23.2 Discussion: No discussion.

4.1.23.3 Result: Motion was accepted with no objection.

4.1.24 CR Motion #175 (MU): Move to accept resolutions to CIDs; 7968, 8271, 4809, 4810, 4811, 5702, 5183, 5184, 9451, 5185, 5703, 7574, 9894, 4812, 5186, 5704, 9452, 8272, 9707, 5706, 5187, 6168, 5983, 8273, 8338, 9588, 6166, 10167, 4815, 4816, 7644, 7812, 9896, 6065, 7175, 9759, 9456, 9589, 7176, 10260, 9898, 8552, 3228, 9710, 4818, 8151, 8701, 8702, 4821, 9529, 4820, 8703, 4822, 4823, 4824, 4825, 6685, 7649, 5717, 3232, 7816, 5988, 9713, 4828, 6196, 3325*, 6695, 8705, 6696, 7817, 6697, 9917, 5997, 5998, 6701 in document 17/0250r2.

4.1.24.1 Moved by Abhishek Patil, Seconded by Yasu Inoue.

4.1.24.2 Discussion: No discussion.

4.1.24.3 Result: Motion was accepted with no objection.

4.1.25 CR Motion #176 (MAC): Move to accept resolutions to CIDs; 6787, 7131, 10300, 10301, 4910, 4911, 6789, 8356, 4909, 9703, 4908 in document 17/138r1.

4.1.25.1 Moved by Abhishek Patil, Seconded by Yasu Inoue.

4.1.25.2 Discussion: No discussion.

4.1.25.3 Result: Motion was accepted with no objection.

4.1.26 CR Motion #177 (MAC): Move to agree to the resolution of CID 5189 in document 17/0359r2.

4.1.26.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.26.2 Discussion: No discussion.

4.1.26.3 Result: Motion was accepted with no objection.

4.1.27 CR Motion #178 (MAC): Move to accept the resolutions to CIDs 3015, 3016, 3165, 7487, 8660, 8661, 9262, 9263, 9633 from document 17/0282r4.

4.1.27.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.27.2 Discussion: No discussion.

4.1.27.3 Result: Motion was accepted with no objection.

4.1.28 CR Motion #179 (MAC): Move to accept the resolutions to CIDs 4564, 4571, 4614, 7369, 8083, 8511, 8512, 9666, 9667 in document 11-17/0235r0.

4.1.28.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.28.2 Discussion: No discussion.

4.1.28.3 Result: Motion was accepted with no objection.

4.1.29 CR Motion #180 (MAC): Move to accept the resolutions to CIDs 3132, 3175, 4720, 6919, 7228, 8308 in document 11-17/0236r2.

4.1.29.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.29.2 Discussion: No discussion.

4.1.29.3 Result: Motion was accepted with no objection.

4.1.30 CR Motion #181 (MAC): Move to accept the resolutions to CIDs 4789, 4808, 5217, 5218, 5219, 5220, 5221, 5511, 5518, 7034, 7035, 7154, 7581, 7582, 8525, 8526, 8616, 8617, 8729, 8730, 9732, 9961, 9962, 9963, 9964 in document 11-17/0237r3.

4.1.30.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.30.2 Discussion: No discussion.

4.1.30.3 Result: Motion was accepted with no objection.

4.1.31 CR Motion #182 (MAC): Move to accept the resolutions to CIDs 3084, 3085, 3086, 5387, 7166, 6786, 6779, 6777, 6781, 3088, 9458, 10299, 3087, 5476 in document 11-17/0134r10.

4.1.31.1 Moved by Abhishek Patil, Seconded by Yasu Inoue.

4.1.31.2 Discussion: No discussion.

4.1.31.3 Result: Motion was accepted with no objection.

4.1.32 CR Motion #183 (MAC): Move to accept the resolution to CID 5050 in document 11-17/0363r5.

4.1.32.1 Moved by Matt Fischer, Seconded by Yasu Inoue.

4.1.32.2 Discussion: No discussion.

4.1.32.3 Result: Motion was accepted with no objection.

4.1.33 CR Motion #184 (MAC): Move to accept the resolutions to CIDs 7809, 3074, 5999, 9121, 9122, 9123, 5018, 5019, 5020, 5021, 5022, 5023, 5066, 5714, 5986, 6167, 7648, 8156, 8279, 8554, 9100, 9591, 9904, 9975, 9708, 10168, 5364, 7814, 3097, 3229, 3230, 3301, 4819, 5035, 5094, 5190, 5370, 5713, 6195, 6677, 6999, 7097, 7845, 8276, 8299, 9528, 9711, 10169, 10010, 5810, 10012, 5365, 9916, 9258, 7745, 9827, 9630, 7329, 9997, 9998, 9826, 7041, 7141, 9897 in document 11-17/0229r2.

4.1.33.1 Moved by Abhishek Patil, Seconded by Yasu Inoue.

4.1.33.2 Discussion: No discussion.

4.1.33.3 Result: Motion was accepted with no objection.

4.1.34 CR Motion #185 (MAC): Move to accept the resolutions to CIDs 5222, 5223, 5224, 5225, 5226, 7584, 7585, 7586, 9751, 9965, 9966, 3256, 3354, 3461, 3775, 3858, 4301, 4925, 5227, 5228, 7587, 7588, 7589, 7590, 7591, 7592 in doc 11-17/0237r3.

4.1.34.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.34.2 Discussion: No discussion.

4.1.34.3 Result: Motion was accepted with no objection.

4.1.35 CR Motion #186 (MAC): Move to accept the resolutions to CIDs; 3004, 4725, 5436, 7715, 8175 (5 CIDs), 3378, 3483, 3812, 3896, 4358, 4425, 4727, 5025, 5438, 7471, 7713, 7714, 8176, 8643, 8644, 9801, 9984 (17 CIDs), 3153, 3381, 3487, 3817, 3902, 4365, 4433, 4734, 5051, 5122, 5123, 5439, 8177, 8645, 8646, 10334, 10335, 10336, 10337 (19 CIDs) in document 11-17/0238r2.

4.1.35.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.35.2 Discussion: No discussion.

4.1.35.3 Result: Motion was accepted with no objection.

4.1.36 CR Motion #187 (MAC): Move to accept the resolutions to CIDs;
- 4732, 4733, 5052, 5053, 5124, 5125, 5440, 7379, 7716, 7717, 8178, 8248, 9804,
- 5335, 5441, 7888,
- 5054, 5055, 5056, 5126, 5442, 7302, 7303, 7305, 7719, 7865, 7867, 8133, 8179, 8180,
8181, 8249, 9620, 9621, 9806
in document 11-17/0239r2.

4.1.36.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.36.2 Discussion: No discussion.

4.1.36.3 Result: Motion was accepted with no objection.

4.1.37 CR Motion #188 (MAC): Move to accept the resolutions to CIDs; 3155, 3382, 3489, 3819, 3905, 4368, 4436, 5443, 7887, 8162, 8647, 3005, 3147, 3157, 3158, 3159, 4738, 5013, 5014, 5127, 5444, 6191, 7015, 7016, 7017, 7018, 7019, 7380, 7472, 7570, 7720, 8182, 8183, 8184, 8250, 8334, 8374, 9397, 9807, 9808, 10339 in document 11-17/0240r2.

4.1.37.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.37.2 Discussion: No discussion.

4.1.37.3 Result: Motion was accepted with no objection.

4.1.38 CR Motion #189 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0243r2.
CIDs: 3795, 4854, 4855, 4856, 4902, 4930, 4931, 5232, 5234, 5242, 5746, 5747, 5750, 5754, 5755, 5791, 10355, 10356

4.1.38.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.38.2 Discussion: No discussion.

4.1.38.3 Result: Motion was accepted with no objection.

4.1.39 CR Motion #190 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0245r2.
CIDs: 4903, 4934, 4935, 5236, 5237, 5238, 5239, 5240, 5745, 6110, 6818, 6819, 7218, 8331, 8332, 8357, 8361

4.1.39.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.39.2 Discussion: No discussion.

4.1.39.3 Result: Motion was accepted with no objection.

4.1.40 CR Motion #191 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0242r5.
CIDs: 3554, 5157, 5786, 5789, 6429, 7558, 8258, 9083, 9114, 8676, 8381, 6074

4.1.40.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.40.2 Discussion: No discussion.

4.1.40.3 Result: Motion was accepted with no objection.

4.1.41 CR Motion #192 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0244r2.
CIDs: 5147, 5148, 5149, 5150, 5151, 5152, 5153, 5154, 5841, 5842, 7557, 7559, 7573, 8346, 8347

4.1.41.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.41.2 Discussion: No discussion.

4.1.41.3 Result: Motion was accepted with no objection.

4.1.42 CR Motion #193 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0246r1.
CIDs: 8623, 8624, 8635, 8637, 8638, 8639, 8640, 8733, 8734, 8736, 8738, 8740, 8741, 8742, 8743, 10404, 10355

4.1.42.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.42.2 Discussion: No discussion.

4.1.42.3 Result: Motion was accepted with no objection.

4.1.43 CR Motion #194 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0247r2.
CIDs: 7036, 7217, 7218, 7428, 7429, 7824, 8359, 8626, 8627, 8629, 8630, 8631, 8632, 8633, 8634, 8732, 8735, 8737, 8739, 9113, 9134, 9777, 7778, 9779, 9780, 10081 10082, 10196

4.1.43.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.43.2 Discussion: No discussion.

4.1.43.3 Result: Motion was accepted with no objection.

4.1.44 CR Motion #195 (MU): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0303r2.
CIDs: 6341, 6339, 7355, 7354, 7349, 3425, 3539, 3440, 3439, 3436, 3434, 3431, 3430, 3428, 3427, 9265 9266, 9840, 7756, 8665, 8666, 8667, 8669, 8670

4.1.44.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.44.2 Discussion: No discussion.

4.1.44.3 Result: Motion was accepted with no objection.

4.1.45 CR Motion #196 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0330r2.

CIDs: 3293, 3343, 3579, 3660, 4009, 4096, 5112, 5113, 5114, 5115, 5306, 5539, 6921, 7694, 7695, 8306, 8307, 8498, 9217, 9220, 9222, 9227, 9228, 9229, 9230, 9231, 9498, and 9499

4.1.45.1 Moved by Jianhan Liu, Seconded by Ron Porat.

4.1.45.2 Discussion: No discussion.

4.1.45.3 Result: Motion was accepted with no objection.

4.1.46 CR Motion #197 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0333r2.

CIDs: 9025 and 9658.

4.1.46.1 Moved by Jianhan Liu, Seconded by Ron Porat.

4.1.46.2 Discussion: No discussion.

4.1.46.3 Result: Motion was accepted with no objection.

4.1.47 CR Motion #198 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0332r2.

CIDs: 4995, 7234, 8894 and 8895.

4.1.47.1 Moved by Jianhan Liu, Seconded by Ron Porat.

4.1.47.2 Discussion: No discussion.

4.1.47.3 Result: Motion was accepted with no objection.

4.1.48 CR Motion #199 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0299r2.

CIDs: 4918, 5264, 6117, 8935, 8936, 10062.

4.1.48.1 Moved by Dongguk Lim, Seconded by Ron Porat.

4.1.48.2 Discussion: No discussion.

4.1.48.3 Result: Motion was accepted with no objection.

4.1.49 CR Motion #200 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0300r2.

CIDs: 5104, 8891, 8892, 8893, 9469.

4.1.49.1 Moved by Dongguk Lim, Seconded by Ron Porat.

4.1.49.2 Discussion: No discussion.

4.1.49.3 Result: Motion was accepted with no objection.

4.1.50 CR Motion #201 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0331r2.

CIDs: 4884, 5279, 7687, 9012, 9071, 10056, 10057 and 10075.

4.1.50.1 Moved by Jianhan Liu, Seconded by Ron Porat.

4.1.50.2 Discussion: No discussion.

4.1.50.3 Result: Motion was accepted with no objection.

4.1.51 CR Motion #202 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0320r2.
CIDs: 5300, 6837, 6838, 7221, 7514, 8859, 8862.

4.1.51.1 Moved by Eunsung Park, Seconded by Ron Porat.

4.1.51.2 Discussion: No discussion.

4.1.51.3 Result: Motion was accepted with no objection.

4.1.52 CR Motion #203 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0321r3.
CIDs: 7048, 8969, 8970, 8971, 8974, 9749, 9750.

4.1.52.1 Moved by Eunsung Park, Seconded by Ron Porat.

4.1.52.2 Discussion: No discussion.

4.1.52.3 Result: Motion was accepted with no objection.

4.1.53 CR Motion #204 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as proposed in 11-17/0317r1.
CIDs: 5284, 10315, 8329, 8330, 9032, 7833, 9033, 8330, 4873, 5878, 7834, 10307, 5875, 5876, 5877, 9035, 9036, 10308, 10309, 10310, 5875, 5876, 5877, 9035, 9036, 10309, 10310.

4.1.53.1 Moved by Bin Tian, Seconded by Ron Porat.

4.1.53.2 Discussion: No discussion.

4.1.53.3 Result: Motion was accepted with no objection.

4.1.54 CR Motion #205 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0305r2.
CIDs: 8880, 8881, 5255, 8883, 8884, 7515, 8885, 8887, 4866, 8888, 4867, 8889, 4868, 4994, 9484, 4990, 4993.

4.1.54.1 Moved by Yan Zhang, Seconded by Ron Porat.

4.1.54.2 Discussion: No discussion.

4.1.54.3 Result: Motion was accepted with no objection.

4.1.55 CR Motion #206 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0261r2.
CIDs: 5784, 5785, 5953, 5954, 7442, 6869, 6870, 6871, 3606, 3609, 3359, 5282, 5281, 9028, 9027, 9090, 9078, 10125, 10314, 7678, 8575, 8581, 8582, 8583, 8578.

4.1.55.1 Moved by Lochan Verma, Seconded by Ron Porat.

4.1.55.2 Discussion: No discussion.

4.1.55.3 Result: Motion was accepted with no objection.

4.1.56 CR Motion #207 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0329r4.
CIDs: 3251, 3252, 3393, 3395, 3502, 3504, 3834, 3836, 3924, 3926, 4461, 4464, 5041, 5042, 5275, 5276, 5277, 5278, 6197, 7430, 7431, 7432, 7434, 7435, 7437, 7438, 7439, 7440, 7441, 7516, 8565, 8997, 8998, 8999, 9000, 9001, 9002, 9004, 9005 and 9069.

4.1.56.1 Moved by Jianhan Liu, Seconded by Ron Porat.

4.1.56.2 Discussion: No discussion.

4.1.56.3 Result: Motion was accepted with no objection.

4.1.57 CR Motion #208 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0301r4.
CIDs: 5287, 5288, 8842, 5289, 3317, 3397, 3666, 3756, 4016, 4140, 4242, 4253, 5095, 5290, 8843, 8844, 10205, 3318, 3399, 3669, 3758, 4145, 4246, 5096, 5291, 8845, 5097, 5293, 5294, 8846, 9162, 5098, 5099, 5100, 5295, 5296, 8847, 9163, and 6114.

4.1.57.1 Moved by Dongguk Lim, Seconded by Ron Porat.

4.1.57.2 Discussion: No discussion.

4.1.57.3 Result: Motion was accepted with no objection.

4.1.58 CR Motion #209 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0231r2.
CIDs: 4000, 4236, 4897, 5254, 8161, 8838, 8841, 10202, and 10203.

4.1.58.1 Moved by Po-Kai Huang, Seconded by Ron Porat.

4.1.58.2 Discussion: No discussion.

4.1.58.3 Result: Motion was accepted with no objection.

4.1.59 CR Motion #210 (PHY): Move to accept the resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0232r2.
CIDs: 5101, 5102, 5103, 5297, 5298, 5299, 7513, 8848, 8849, 8850, 8851, 8852, 8853, 8854, 8855, 8856, 8857, 8858, 8985, 9158, 9159, 9160, 9166, 9167, and 10114.

4.1.59.1 Moved by Xiaogang Chen, Seconded by Ron Porat.

4.1.59.2 Discussion: No discussion.

4.1.59.3 Result: Motion was accepted with no objection.

4.1.60 CR Motion #211 (MAC): Move to accept the resolutions to the CIDs as in 11-17/0283r6.
CIDs: 8114, 3018, 8190, and 9494.

4.1.60.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.60.2 Discussion: No discussion.

4.1.60.3 Result: Motion was accepted with no objection.

4.1.61 CR Motion #212 (SR): Move to accept “Revised” as the resolution for CID 3222 with the proposed text in slide 10 of 11-17/0452r2.

4.1.61.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.61.2 Discussion: No discussion.

4.1.61.3 Result: Motion was accepted with no objection.

4.1.62 CR Motion #213 (MAC): Move to accept resolutions to CIDs; 5054, 5055, 5056, 5126, 5442, 7302, 7303, 7305, 7719, 7865, 7867, 8133, 8179, 8180, 8181, 8249, 9620, 9621, 9806 in doc 11-17/0239r2.

4.1.62.1 Moved by Alfred Asterjadhi, Seconded by .

4.1.62.2 Discussion: This is a duplicate of the previous motion.

4.1.63 CR Motion #214 (MAC): Move to accept resolutions to CIDs; 3384, 3491, 3822, 3907, 4371, 4439, 4740, 5445, 7020, 7473, 8185, 8375, 9809, 9810, 9811, 6965 in doc 11-17/0240r2.

4.1.63.1 Moved by Alfred Asterjadhi, Seconded by Yasu Inoue.

4.1.63.2 Discussion: No discussion.

4.1.63.3 Result: Motion was accepted with no objection.

4.1.64 CR Motion #215 (MAC): Move to accept resolutions to CIDs; 6537, 9282 (2 CIDs) in doc 11-17/0346r1.

4.1.64.1 Moved by Jeongki Kim, Seconded by Yasu Inoue.

4.1.64.2 Discussion: No discussion.

4.1.64.3 Result: Motion was accepted with no objection.

4.1.65 CR Motion #216 (MAC): Move to accept resolutions to CIDs; 3089, 6057, 7527, 9599, 9385 in doc 11-17/0344r1.

4.1.65.1 Moved by Jeongki Kim, Seconded by Yasu Inoue.

4.1.65.2 Discussion: No discussion.

4.1.65.3 Result: Motion was accepted with no objection.

4.1.66 CR Motion #217 (MAC): Move to accept resolutions to CIDs; 3091, 5216, 5506, 5938, 6055, 6782, 6783, 6784, 6785, 7602, 8241, 8242, 9602 in doc 11-17/0347r2.

4.1.66.1 Moved by Jeongki Kim, Seconded by Yasu Inoue.

4.1.66.2 Discussion: No discussion.

4.1.66.3 Result: Motion was accepted with no objection.

4.1.67 CR Motion #218 (MAC): Move to accept resolutions to CIDs; 3051, 3052, 3053, 3207, 3208, 3209, 3210, 3211, 3212, 7786, 7787, 9695, 9864 in doc 11-17/0384r2.

4.1.67.1 Moved by Reza Hedayat, Seconded by Yasu Inoue.

4.1.67.2 Discussion: No discussion.

4.1.67.3 Result: Motion was accepted with no objection.

4.1.68 CR Motion #219 (MAC): Move to accept resolutions to CIDs; 3018, 8190, 9494 in doc 11-17/283r5.

4.1.68.1 Moved by Raja Banerjea.

4.1.68.2 Discussion: This is duplicate of the previous motion.

4.1.69 CR Motion #220 (MU): Move to accept resolutions to CIDs; 5397, 5712 in doc 11-17/0448r4.

4.1.69.1 Moved by Jing Ma, Seconded by Yasu Inoue.

4.1.69.2 Discussion: No discussion.

4.1.69.3 Result: Motion was accepted with no objection.

4.1.70 CR Motion #221 (MAC): Move to accept resolutions to CIDs; 5403, 6184, 7044 in doc 11-17/0306r4.

4.1.70.1 Moved by George Cherian, Seconded by Yasu Inoue.

4.1.70.2 Discussion: No discussion.

4.1.70.3 Result: Motion was accepted with no objection.

4.1.71 CR Motion #222 (MU): Move to accept resolutions to CIDs; 7103, 7106, 7412, 8152, 8221, 9103, 9533 in doc 11-17/0443r2.

4.1.71.1 Moved by Suhwook Kim, Seconded by Yasu Inoue.

4.1.71.2 Discussion: No discussion.

4.1.71.3 Result: Motion was accepted with no objection.

4.1.72 CR Motion #223 (MAC): Move to accept resolutions to CIDs; 4782, 5975, 5976, 7161, 7789, 8267, 9698, 7661, 6567 in doc 11-17/0421r1.

4.1.72.1 Moved by Chao-Chun Wang, Seconded by Yasu Inoue.

4.1.72.2 Discussion: No discussion.

4.1.72.3 Result: Motion was accepted with no objection.

4.1.73 CR Motion #224 (MAC): Move to accept resolutions to CIDs; 6189, 7040, 9412 in doc 11-17/0088r2.

4.1.73.1 Moved by Woojin Ahn, Seconded by Yasu Inoue.

4.1.73.2 Discussion: A member expressed a concern on this motion and asked for deferral of this motion.

4.1.73.3 Result: Motion was deferred.

4.1.74 CR Motion #225 (MU): Move to accept resolution to CID 8142 in doc 11-17/0335r0.

4.1.74.1 Moved by Rojan Chitrakar, Seconded by Yasu Inoue.

4.1.74.2 Discussion: No discussion.

4.1.74.3 Result: Motion was accepted with no objection.

4.1.75 CR Motion #226 (PHY): Move to accept resolutions to CIDs; 6569, 7790, 7791, 8690, 8691, 10192, 9683 (MAC) in doc 11-17/0271r4.

4.1.75.1 Moved by Po-Kai Huang, Seconded by Yasu Inoue.

4.1.75.2 Discussion: No discussion.

4.1.75.3 Result: Motion was accepted with no objection.

4.1.76 CR Motion #227 (MU): Move to accept resolutions to CIDs; 3142, 5992, 4830, 7650, 8061, 9712, 9912, 9913, 9914, 10271, 10272, 9297, 10011, 4831, 7575, 10014, 3012 (MAC) in doc 11-17/0302r2.

4.1.76.1 Moved by Po-Kai Huang, Seconded by Yasu Inoue.

4.1.76.2 Discussion: No discussion.

4.1.76.3 Result: Motion was accepted with no objection.

4.1.77 CR Motion #228 (MU): Move to accept resolutions to CIDs; 3235, 4829, 9339, 9911, 10013, 10172, 10270 in doc 11-17/0338r1.

4.1.77.1 Moved by Rojan Chitrakar, Seconded by Yasu Inoue.

4.1.77.2 Discussion: No discussion.

4.1.77.3 Result: Motion was accepted with no objection.

4.1.78 CR Motion #229 (MU): Move to accept resolutions to CIDs; 3231, 6690, 6691, 6692, 9637 in doc 11-17/0349r1.

4.1.78.1 Moved by Kiseon Ryu, Seconded by Yasu Inoue.

4.1.78.2 Discussion: No discussion.

4.1.78.3 Result: Motion was accepted with no objection.

4.1.79 CR Motion #230 (MU): Move to accept resolutions to CIDs; 4806, 4807, 5725, 5726, 5727, 6009, 6145, 6146, 6147, 6148, 6155, 6721, 6722, 8560, 9535, 9716, 9717, 9921, 9922 in doc 11-17/0403r1.

4.1.79.1 Moved by David Xun Yang, Seconded by Yasu Inoue.

4.1.79.2 Discussion: No discussion.

4.1.79.3 Result: Motion was accepted with no objection.

4.1.80 CR Motion #231 (PHY): Move to accept resolution to CID 7517 in doc 11-17/0436r0.

4.1.80.1 Moved by Bo Sun, Seconded by Ron Porat.

4.1.80.2 Discussion: No discussion.

4.1.80.3 Result: Motion was accepted with no objection.

5 Recess @ 15:28 until 16:00.

Thursday, March 16th, 2017, PM2 TGax full Session (16:00-18:00)

6 The meeting called to order by Osama Aboul-Magd (Huawei Technologies), the chairperson of the TGax, @16:00.

6.1 Agenda 17/0199r5 is on the server. Rev. 6 is the working document.

7 Agenda for today has been approved during the PM1 session.

8 Announcement/Reminder

- 8.1 Chair reminded IEEE 802 and 802.11 IPR P&P.
- 8.2 Chair asked people to state name and affiliation when addressing for the first time in the session.
- 8.3 Chair reminded people to do attendance.

9 Continue with Motions – TG documents

9.1 CR Motions

9.1.1 CR Motion #232 (PHY): Move to accept resolutions to CIDs; 9549, 10204 in doc 11-17/0231r2.

9.1.1.1 Moved by Robert Stacy, Seconded by Ron Porat.

9.1.1.2 Discussion: No discussion.

9.1.1.3 Result: Motion was accepted with no objection.

9.1.2 CR Motion #233 (PHY): Move to accept resolution to CID 7547 in doc 11-17/0471r1.

9.1.2.1 Moved by Xiaogang Chen, Seconded by Ron Porat.

9.1.2.2 Discussion: A member asked for deferral. Another member objected.

9.1.2.3 Result: Y/N/A = 28/5/12, motion passes.

9.1.3 CR Motion #234 (PHY): Move to accept resolutions to CIDs; 5381, 5383, 5783, 6880, 6881, 6883, 6884, 6886, 6887, 6889, 6890, 6891, 9041, 9042, 9043, 9044, 9045, 9046, 9047, 9049, 9051, 9089, 9609, 9610, 9733, 10134, 10135, 10228, 10231, 10232 in doc 11-17/0234r3.

9.1.3.1 Moved by Robert Stacy, Seconded by Ron Porat.

9.1.3.2 Discussion: No discussion.

9.1.3.3 Result: Motion was accepted with no objection.

9.1.4 CR Motion #235 (PHY): Move to accept resolution to CID 8136 in doc 11-17/0247r3.

9.1.4.1 Moved by Lochan Verma, Seconded by Ron Porat.

9.1.4.2 Discussion: No discussion.

9.1.4.3 Result: Motion was accepted with no objection.

9.1.5 CR Motion #236 (PHY): Move to accept resolution to CID 8839 in doc 11-17/0261r2.

9.1.5.1 Moved by Lochan Verma, Seconded by Ron Porat.

9.1.5.2 Discussion: No discussion.

9.1.5.3 Result: Motion was accepted with no objection.

9.1.6 CR Motion #237 (PHY): Move to accept resolutions to CIDs; 8897, 8898, 9064, 4870, 4907, 5256, 5265, 9487, 10405, 8899, 5105, 8900, 5257, 8901, 10403, 8902, 10401, 10402, 5258, 4898, 4915, 8927, 8928, 8933, 8934, 10214, 5106, 8929, 8930, 8931, 5263, 6116, 8932, 10215, 8944, 8945, 8946, 8947, 5270, 8169, 8948, 8949 in doc 11-17/0398r1.

9.1.6.1 Moved by Hongyuan Zhang, Seconded by Bin Tian.

9.1.6.2 Discussion: No discussion.

9.1.6.3 Result: Motion was accepted with no objection.

9.1.7 CR Motion #238 (PHY): Move to accept resolutions to CIDs; 8809, 9154, 8360, 8813, 9795, 8614, 7506, 9796, 7508, 8615, 9799, 9800, 8798, 9766, 8799, 8800, 8801, 8802, 8803, 8804, 8805, 5250, 8807, 10089, 9797, 9798, 4973, 10090, 9151, 10091, 10092, 9152, 6826, 6827, 8812, 9767, 9768, 6828, 6829, 6830 in doc 11-17/0400r3.

9.1.7.1 Moved by Sungeun Lee, Seconded by Ron Porat.

9.1.7.2 Discussion: No discussion.

9.1.7.3 Result: Motion was accepted with no objection.

9.1.8 CR Motion #239 (PHY): Move to accept resolutions to CIDs; 8774, 9142, 9143 in doc 11-17/0345r2.

9.1.8.1 Moved by Suhwook Kim, Seconded by Ron Porat.

9.1.8.2 Discussion: No discussion.

9.1.8.3 Result: Motion was accepted with no objection.

9.1.9 CR Motion #240 (PHY): Move to accept resolutions to CIDs; 10360, 8840 in doc 11-17/0404r1.

9.1.9.1 Moved by Ross Jian Yu, Seconded by Ron Porat.

9.1.9.2 Discussion: No discussion.

9.1.9.3 Result: Motion was accepted with no objection.

9.1.10 CR Motion #241 (PHY): Move to accept resolutions to CIDs; 8863, 4983, 8864, 8865, 8866, 8867, 8868, 8869, 8870, 8871, 8872, 8874, 9550, 10036, 4985, 4989, 8875, 8877, 8878, 8879, 10037, 10209, 4986, 4987, 7500, 7501, 9321, 10234, 7244, 7245, 7246, 7502 in doc 11-17/0316r4.

9.1.10.1 Moved by Bin Tian, Seconded by Ron Porat.

9.1.10.2 Discussion: No discussion.

9.1.10.3 Result: Motion was accepted with no objection.

9.1.11 CR Motion #242 (PHY): Move to accept resolution to CID 3441 in doc 11-17/0465r5.

9.1.11.1 Moved by Bin Tian, Seconded by Ron Porat.

9.1.11.2 Discussion: No discussion.

9.1.11.3 Result: Motion was accepted with no objection.

9.1.12 CR Motion #243 (PHY): Move to accept resolutions to CIDs; 4347, 4883, 5304, 5379, 9074, 9014, 9073, 9011, 9010, 9009, 9008, 9007, 9006, 8991, 10224, 10055, 9754 in doc 11-17/0414r1.

9.1.12.1 Moved by Bo Sun, Seconded by Ron Porat.

9.1.12.2 Discussion: No discussion.

9.1.12.3 Result: Motion was accepted with no objection.

9.1.13 CR Motion #244 (SR): Move to accept resolutions to CIDs; 3198, 3199, 3200, 5204, 5205, 5207, 5208, 5484, 5489, 5494, 5496, 5497, 5499, 5500, 5502, 5503, 5690, 5691, 5870, 7122, 7123, 7129, 7406, 7612, 8073, 8104, 8232, 8239, 9315, 9540, 9944, 9946, 9947, 10031, 10032, 7125, 3197, 5689, 9541, 3196, 6025, 7823, 8233 in doc 11-17/0267r5.

9.1.13.1 Moved by Laurent Cariou, Seconded by Alfred Asterjadhi.

9.1.13.2 Discussion: A member asked for a deferral of this motion since the power restriction is not clear.
Another member objects.

9.1.13.3 Result: Y/N/A = 23/9/24, motion failed.

9.1.14 CR Motion #245: Move to accept resolutions to CIDs; 3056, 3189, 3190, 5167, 5168, 5394, 5454, 5456, 5686, 5779, 5799, 6058, 6051, 6152, 6176, 6574, 6575, 6576, 6579, 6580, 6581, 6582, 6583, 7022, 7071, 7232, 7659, 8358, 8693, 9380, 9585, 9727, 9739, 9747, 9872, 10007, 10171, 10241, 10242, 10243, 10244, 10349 in doc 11-17/389r3.

9.1.14.1 Moved by Kaiying Lv.

9.1.14.2 Discussion: Kaiying asked for deferral of this motion.

9.1.14.3 Result: This motion was deferred.

9.1.15 CR Motion #246: Move to accept resolutions to CIDs; 5402, 6183, 5403, 6184, 7044 in doc 11-17/0445r1.

9.1.15.1 Moved by Geonjung Ko.

9.1.15.2 Discussion: Those CIDs are covered by another motion.

9.1.15.3 Result: This motion was not conducted.

9.1.16 CR Motion #247: Move to accept resolutions to CIDs; 3241, 3350, 3454, 3762, 3848, 4284, 4753, 5404, 5571, 6967, 6968, 6969, 6970, 6971, 6972, 6973 in doc 11-17/0341r2.

9.1.16.1 Moved by Hongyuan Zhang, Seconded by Yasu Inoue.

9.1.16.2 Discussion: No discussion.

9.1.16.3 Result: Motion was accepted with no objection.

9.1.17 CR Motion #248: Move to accept resolutions to CIDs; 5036, 7254, 7546, 8140, 8520, 8157, 9332, 9119, 9120 in doc 11-17/0395r8.

9.1.17.1 Moved by Ming Gan, Seconded by Chittabrata Ghosh.

9.1.17.2 Discussion: No discussion.

9.1.17.3 Result: Motion was accepted with no objection.

9.1.18 CR Motion #249 (SR): Move to accept resolutions to CIDs;

6178, 5043, 5873, 5940, 7117, 7174, 5385, 9508, 10040, 10039, 10080, 8094
5941, 7611, 5485, 5504, 8069, 8234, 7908, 8118
6760, 6020, 7116, 3195, 5482, 5680, 10194, 9760, 8068, 8231, 9730

8087, 8091, 8092,

6115, 6127, 6143, 6142, 6842, 5872, 5871, 6845, 5942, 6843, 6844, 3600, 4997, 5259, 5260,
5261, 9462, 9180, 9181, 9183, 9208, 9209, 9210, 10043, 10041, 10415, 10414, 10413, 10412,
10409, 10407, 10406, 10306, 10305, 8568, 8920, 8907, 8908, 8914, 8909

by adopting the proposed resolutions in 11-16-1476r21.

9.1.18.1 Moved by Matthew Fischer, Seconded by Sean Coffey.

9.1.18.2 A member requested vote count.

9.1.18.3 Result: Y/N/A = 31/4/21, motion passes.

9.1.19 CR Motion #250: Move to accept resolution to CID; 6768 by adopting the proposed resolutions in 11-17-0500r0.

9.1.19.1 Moved by Sean Coffey, Seconded by George Cherian.

9.1.19.2 A member requested vote count.

9.1.19.3 Result: Y/N/A = 33/4/17, motion passes.

9.2 TG Motions

9.2.1 A member mentioned 17/292r2 (Re: CR Motion #210) is a wrong document.

9.2.2 WG vice chair suggested motion to reconsider CR Motion #210.

9.2.3 Motion to reconsider CR Motion #210

9.2.3.1 Moved by Jon Rosdahl, Seconded by Al Petrick.

9.2.3.2 Result: Motion to reconsider CR Motion #210 passes with no objection.

9.2.3.3 Back to the CR Motion #210.

9.2.4 CR Motion #210: Move to accept resolutions to the following CIDs and the corresponding spec text modification as in 11-17/0232r3.

CIDs: 5101, 5102, 5103, 5297, 5298, 5299, 7513, 8848, 8849, 8850, 8851, 8852, 8853, 8854,
8855, 8856, 8857, 8858, 8985, 9158, 9159, 9160, 9166, 9167, and 10114.

9.2.4.1 Moved by Jon Rosdahl, Seconded by Al Petrick.

9.2.4.2 Discussion:

9.2.4.3 Motion to table this motion

9.2.4.3.1 Moved by Jon Rosdahl, Seconded by Al Petrick.

9.2.4.3.2 Discussion:

9.2.4.3.2.1 Q: Table to when? → Conference call.

9.2.4.3.3 Result: Motion to table passes with no objection.

10 Timeline update

- 10.1 Proposed modification to the current timeline.
 - 10.1.1 May 2014: start of the TG
 - 10.1.2 Nov. 2014: First draft of the TG SFD was approved
 - 10.1.3 Jan. 2016: proposed TG draft
 - 10.1.4 March 2016: Draft D0.1 was approved and CC started
 - 10.1.5 November 2016: Draft 1.0 and WG letter ballot
 - 10.1.6 September 2017: Draft 2.0 and recirculation
 - 10.1.7 May 2018: MDR (Mandatory Document Review)
 - 10.1.8 May 2018: Formation of SB pool
 - 10.1.9 November 2018: Sponsor Ballot
 - 10.1.10 July 2019: RevCom

11 Goals for the May 2017

- 11.1 Continue with the comment resolution and development of the TG draft.

12 Ad Hoc Meeting

- 12.1 After some discussions, PHY ad hoc decided to have a 1-day ad hoc meeting on Friday.

12.2 Motion: Authorize TGax to hold an ad-hoc meeting on May 3-5 in Seoul, Korea, for the purpose of working on comment resolution.

12.2.1 Moved by Hongyuan Zhang, Seconded by Bo Sun.

12.2.2 Result: Y/N/A = 20/2/9, motion passes.

13 Conference Calls

- 13.1 Already approved.
 - 13.1.1 Thursday, March 30th, 2017: 10:00-12:00 (ET)
 - 13.1.2 Thursday, March 23rd, April 6th, 2017: 20:00-22:00 (ET)
- 13.2 New calls:
 - 13.2.1 Thursday, April 13th, 27th, May 25th, 2017: 10:00 – 12:00 (ET)
 - 13.2.2 Thursday, April 20th, May 18th, 2017: 20:00 – 22:00 (ET)
- 13.3 Chair asked if there is any objection to this plan. → No objection.
- 13.4 The above plan will be approved during the WG closing plenary tomorrow.

14 Motion from the floor

- 14.1 A member proposed a motion to adjourn.
- 14.2 Move to adjourn TGax Meeting for the week.
 - 14.2.1 Moved by Bin Tian, Seconded by David Xun Yang.
 - 14.2.2 Result: Y/N/A = 47/3/1, motion passes.

15 Adjournment

- 15.1 TGax adjourned for the week @ 16:42.

APPENDIX AY

Thread Links			Date Links		
Thread Prev	Thread Next	Thread Index	Date Prev	Date Next	Date Index

[STDS-802-11-TGAX] Draft 1.0

- *To:* STDS-802-11-TGAX@xxxxxxxxxxxxxxxxxxxx
 - *Subject:* [STDS-802-11-TGAX] Draft 1.0
 - *From:* Osama AboulMagd <Osama.AboulMagd@xxxxxxxxxx>
 - *Date:* Thu, 1 Dec 2016 18:41:48 +0000
-

Hello All,

Draft D1.0 is available in the member area. The WG Chair will announce the start of the 30-day WG letter ballot shortly.

Regards;

Osama.

If you wish to be removed from this reflector, do not send your request to this reflector - it will have no effect.

Instead, go to <http://listserv.ieee.org/cgi-bin/wa?SUBED1=STDS-802-11-TGAX> and then press the LEAVE button.

Further information can be found at: http://www.ieee802.org/11/Email_Subscribe.html

- Prev by Date: [\[STDS-802-11-TGAX\] TGax Telecon 20161208 is Cancelled](#)
- Next by Date: [\[STDS-802-11-TGAX\] TGax Telecon on Dec. 1st Cancelled](#)
- Previous by thread: [\[STDS-802-11-TGAX\] TGax Telecon on Dec. 1st Cancelled](#)
- Next by thread: [\[STDS-802-11-TGAX\] TGax Telecon 20161208 is Cancelled](#)
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APPENDIX AZ

Thread Links			Date Links		
Thread Prev	Thread Next	Thread Index	Date Prev	Date Next	Date Index

[STDS-802-11] IEEE 802.11 Mandatory Technical Letter Ballot 225 for P802.11ax Draft 1.0 Starts Today

- To: STDS-802-11@xxxxxxxxxxxxxxxxxx
- Subject: [STDS-802-11] IEEE 802.11 Mandatory Technical Letter Ballot 225 for P802.11ax Draft 1.0 Starts Today
- From: Adrian Stephens <adrian.p.stephens@xxxxxxxxxx>
- Date: Thu, 1 Dec 2016 19:16:52 +0000

--- This message came from the IEEE 802.11 Working Group Reflector ---

IEEE 802.11(TM) Letter Ballot 225

To: IEEE 802.11 Voters,

With this email, the 802.11 Working Group is officially beginning WG Technical Letter Ballot 225 (LB225), which is a Letter Ballot on the question "Should P802.11ax D1.0 be forwarded to Sponsor Ballot?".

This Letter Ballot opens Thu Dec 01, 2016 at 23:59 Eastern Time USA (11:59PM) and will close 30 days later on Sat Dec 31, 2016 at 23:59 Eastern Time USA (11:59pm). All necessary documents are available in the instructions that can be found on the IEEE 802.11 web site at http://www.ieee802.org/11/LetterBallots/LB225ax/LB225_instructions.html.

Important:

o This is a 30-day Technical letter ballot and the ballot group (i.e., those that may vote) for this ballot is all IEEE 802.11 voter members as of the start of this letter ballot. o All current voter members of 802.11 are required to vote on this ballot series. o If you cast a "Do not approve" vote on this ballot, it must be accompanied by comments for your vote to be valid. o You must follow these instructions to vote. Do not send an email to vote. Voting by any method other than the web-based process described here will invalidate your vote. o Failure to follow these instructions will result in your vote being discarded as an invalid vote. o Not voting on a letter ballot series or sending an invalid vote can affect your voting privileges. o The draft is password protected in accordance with IEEE 802 Policies and Procedures. To obtain the draft, use the username and the password supplied to active members for the 802.11 WG private area.

(The attached file contains a reminder set for 4 days before the close of the ballot. You may find it helpful to import this into or open this with your calendar client in order to get an automated reminder.)

Thank you for participating in Letter Ballot 225.

Adrian Stephens, IEEE 802.11 Working Group Chair
E-mail: Adrian.P.Stephens@xxxxxxxxxx

Osama Aboul-Magd, IEEE 802.11 TGax Chair
E-mail: Osama.AboulMagd@xxxxxxxxxx

If you wish to be removed from this reflector, do not send your request to this reflector - it will have no effect.

Instead, go to <http://listserv.ieee.org/cgi-bin/wa?SUBED1=STDS-802-11> and then press the LEAVE button.

If there is no LEAVE button here, try <http://listserv.ieee.org/cgi-bin/wa?SUBED1=STDS-802-11-RO>.

Further information can be found at: http://www.ieee802.org/11/Email_Subscribe.html

BEGIN:VCALENDAR
VERSION:2.0
METHOD:PUBLISH

BEGIN:VEVENT
DTSTART:20161227T000000Z
DTEND:20161227T235959Z
LOCATION:http://www.ieee802.org/11/LetterBallots/LB225ax/LB225_instructions.html
TRANSP:TRANSPARENT
SEQUENCE:0
UID:225@802.11
DTSTAMP:20161201
SUMMARY;ENCODING=QUOTED-PRINTABLE:Reminder - IEEE 802.11 LB225 for TGax finishes on Sat Dec 31, 2016
CLASS:PUBLIC
BEGIN:VALARM
TRIGGER:-PT0M
ACTION:DISPLAY
DESCRIPTION:Reminder
END:VALARM
END:VEVENT
END:VCALENDAR

- **Follow-Ups:**
 - [Re: \[STDS-802-11\] IEEE 802.11 Mandatory Technical Letter Ballot 225 for P802.11ax Draft 1.0 Starts Today](#)
 - *From:* Sigurd Schelstraete
 - [Re: \[STDS-802-11\] IEEE 802.11 Mandatory Technical Letter Ballot 225 for P802.11ax Draft 1.0 Starts Today](#)
 - *From:* Adrian Stephens
- Prev by Date: [Re: \[STDS-802-11\] IEEE 802.11 Mandatory Technical Letter Ballot 225 for P802.11ax Draft 1.0 Starts Today](#)
- Next by Date: [\[STDS-802-11\] TGax special measures declaration doc](#)
- Previous by thread: [\[STDS-802-11\] TGax special measures declaration doc](#)
- Next by thread: [Re: \[STDS-802-11\] IEEE 802.11 Mandatory Technical Letter Ballot 225 for P802.11ax Draft 1.0 Starts Today](#)
- Index(es):
 - [Date](#)
 - [Thread](#)

APPENDIX BA

IEEE 802.11™ TGax Technical Letter Ballot 225 Instructions

Motion: " Should P802.11ax D1.0 be forwarded to Sponsor Ballot? "

(Type of Motion: Technical)

Cast your vote here

This Letter Ballot opens on: Thu Dec 01, 2016 at 23:59 Eastern Time USA and closes 38 days later on Sun Jan 08, 2017 at 23:59 Eastern Time USA. ([Add reminder to calendar](#)).

[Show detailed instructions](#) [Show detailed description of how to provide comments](#)

The draft and the supporting documentation:

Document	Hyperlink
Draft	Draft P802.11ax_D1.0.pdf
Redlined Doc	n/a
Resolution Doc	n/a
Comment Template	.xls format or .csv format NOTE - you must be already signed into Mentor for these links to work.
Ballot Group	LB225 Voters
CA Document	11-16-1348-02-00ax-coexistence-assurance.docx
CSD Document	11-14-0169-01-0hew-ieee-802-11-hew-sg-proposed-csd.docx

Notes

- This is a 38-day Technical letter ballot and the ballot group (i.e., those that may vote) for this ballot is all IEEE 802.11 voters as of the start of this letter ballot.
All current voter members of 802.11 are required to vote on this letter ballot series, even if they are subject to TGax "special measures".
- If you cast a "Do not approve" vote on this ballot, it must be accompanied by "must be satisfied = yes" comments for your vote to be valid.
- You must follow these instructions to vote. Do not send an email to vote. Voting by any method other than the web-based process described here will invalidate your vote. Failure to follow these instructions will result in your vote being discarded as an invalid vote. Not voting on letter ballots or sending an invalid vote can affect your voting privileges.
- The draft is password protected in accordance with IEEE 802 Policies and Procedures. To obtain the draft, use the username and the password supplied to active members for the 802.11 WG private area.
- You need an IEEE-SA web account to vote. Instructions for getting an account, changing the registered email address and affiliation are [here](#). If you get a new IEEE-SA web account, you will need to record an interest in C/LM/WG802.11, and let the WG chair know your new SA pin before you can vote using this account.

IEEE 802.11 Working Group Chair
E-mail: adrian.p.stephens@ieee.org

Osama Aboul-Magd
IEEE 802.11 TGax Chair
E-mail: Osama.AboulMagd@huawei.com

Thu Dec 01, 2016 - Updated 2016-12-09

APPENDIX BB

IEEE 802.11, The Working Group for Wireless LANs Standards

This page is maintained by [Adrian Stephens](#) . Comments are welcome.

IEEE 802.11 WG LETTER BALLOTS

Note - percentage results are rounded to the nearest integer

Note - Links to documents in the voting members' private area (such as drafts) will stop functioning once the project is complete, e.g., when its output document has been published by the IEEE-SA.

ONGOING BALLOTS/COMMENT COLLECTIONS

CC	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
25	TGmd	Comments TGmd Draft 0.1	CC25	Draft	Draft P802.11REVmd_D0.1.pdf	Wed May 10, 2017	Wed Jun 14, 2017	35	Ballot Group	N/A
				Redlined Doc	n/a				Approve	n/a
				Resolution Doc	n/a				Abstain	n/a
				Comments Templates	.xls format .csv format NOTE - you must be already signed into Mentor for these links to work.				Return%	n/a
				Ballot Group	n/a				Approve%	n/a
				CA Document	n/a					
				CSD Document	n/a					
26	LC_TIG	Comments LC_TIG Draft 8	CC26	Draft	11-17/23rd08	Wed May 17, 2017	Fri Jun 09, 2017	23	Ballot Group	N/A
				Redlined Doc	n/a				Approve	n/a
				Resolution Doc	n/a				Abstain	n/a
				Comments Templates	.xls format .csv format NOTE - you must be already signed into Mentor for these links to work.				Return%	n/a
				Ballot Group	n/a				Approve%	n/a
				CA Document	n/a					
				CSD Document	n/a					

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
229	TGak	Recirculation TGak Draft 4.00	LB# 229	Draft	Draft P802.11ak_D4.0.pdf	2017-03-15	2017-03-30	15	Pool	359
				Redlined Doc	Draft P802.11ak_D4.0 Redline.pdf				Approve	202
				Resolution Doc	11-17-0025-09-00ak-11ak-wg-lb-comments.xlsx				Disapprove	10
				Comment	Template				Abstain	41
				Pool	LB# 229 Voters				Return%	70
									Approve%	95
228	TGaj	Recirculation TGaj Draft 5.00	LB# 228	Draft	Draft P802.11aj_D5.0.pdf	2017-02-17	2017-03-04	15	Pool	377
				Redlined Doc	Draft P802.11aj_D5.0 Redline.pdf				Approve	247
				Resolution Doc	11-16-1639-02-00aj-lb226-comments-database.xlsx				Disapprove	14
				Comment	Template				Abstain	51
				Pool	LB# 228 Voters				Return%	83
									Approve%	95
227	TGak	Recirculation TGak Draft 3.00	LB# 227	Draft	Draft P802.11ak_D3.0.pdf	2016-12-21	2017-01-10	20	Pool	359
				Redlined Doc	Draft P802.11ak_D3.0 Redline.pdf				Approve	198
				Resolution Doc	11-15-0556-34-00ak-lb212-working-group-ballot-comments.xlsx				Disapprove	12
				Comment	Template				Abstain	43
				Pool	LB# 227 Voters				Return%	70
									Approve%	94
226	TGaj	Recirculation TGaj Draft 4.00	LB# 226	Draft	Draft P802.11aj_D4.0.pdf	2016-12-06	2016-12-21	15	Pool	377
				Redlined Doc	Draft P802.11aj_D4.0 Redline.pdf				Approve	234
				Resolution Doc	11-16-1129-02-00aj-lb223-comments-database.xlsx				Disapprove	21
				Comment	Template				Abstain	55
				Pool	LB# 226 Voters				Return%	82
									Approve%	92
225	TGax	Technical TGax Draft 1.00	LB# 225	Draft	Draft P802.11ax_D1.0.pdf	2016-12-01	2017-01-08	38	Pool	371
				Redlined Doc	N/A				Approve	145
				Resolution Doc	N/A				Disapprove	106
									Abstain	25
									Return%	74

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	58
				Pool	LB# 225 Voters					
224	TGaq	Recirculation TGaq Draft 7.00	LB# 224	Draft	Draft P802.11aq_D7.0.pdf	2016-09-10	2016-09-25	15	Pool	357
				Redlined Doc	Draft P802.11aq_D7.0 Redline.pdf				Approve	226
				Resolution Doc	11-16-1108-03-00aq-lb222-wg-comments-for-11aq-draft-6-0.xlsx				Disapprove	7
				Comment	Template				Abstain	47
				Pool	LB# 224 Voters				Return%	78
									Approve%	97
223	TGaj	Recirculation TGaj Draft 3.00	LB# 223	Draft	Draft P802.11aj_D3.0.pdf	2016-08-15	2016-08-30	15	Pool	377
				Redlined Doc	Draft P802.11aj_D3.0 Redline.pdf				Approve	221
				Resolution Doc	11-16-0811-02-00aj-lb220-comments-database.xlsx				Disapprove	27
				Comment	Template				Abstain	57
				Pool	LB# 223 Voters				Return%	81
									Approve%	89
222	TGaq	Recirculation TGaq Draft 6.00	LB# 222	Draft	Draft P802.11aq_D6.0.pdf	2016-08-04	2016-08-19	15	Pool	357
				Redlined Doc	Draft P802.11aq_D6.0 Redline.pdf				Approve	223
				Resolution Doc	11-16-0982-04-00aq-lb221-wg-comments-for-11aq-draft-5-0.xlsx				Disapprove	10
				Comment	Template				Abstain	47
				Pool	LB# 222 Voters				Return%	78
									Approve%	96
221	TGaq	Recirculation TGaq Draft 5.00	LB# 221	Draft	Draft P802.11aq_D5.0.pdf	2016-07-04	2016-07-19	15	Pool	357
				Redlined Doc	Draft P802.11aq_D5.0 Redline.pdf				Approve	218
				Resolution Doc	11-16-0553-04-00aq-lb219-wg-comments-for-11aq-draft-4-0.xlsx				Disapprove	16
				Comment	Template				Abstain	46
				Pool	LB# 221 Voters				Return%	78
									Approve%	93
220	TGaj	Recirculation TGaj Draft 2.00	LB# 220	Draft	Draft P802.11aj_D2.0.pdf	2016-06-15	2016-06-30	15	Pool	377
				Redlined Doc	Draft P802.11aj_D2.0 Redline.pdf				Approve	218
				Resolution Doc	11-16-0193-04-00aj-lb217-comments-database.xlsx				Disapprove	28
				Comment	Template				Abstain	53
				Pool	LB# 220 Voters				Return%	79
									Approve%	89
219	TGaq	Recirculation TGaq Draft 4.00	LB# 219	Draft	Draft P802.11aq_D4.0.pdf	2016-04-06	2016-04-21	15	Pool	357
				Redlined Doc	Draft P802.11aq_D4.0 Redline.pdf				Approve	213
				Resolution Doc	11-15-1377-17-00aq-lb216-wg-ballot-comments-for-11aq-draft-3-0.xlsx				Disapprove	17
				Comment	Template				Abstain	45
				Pool	LB# 219 Voters				Return%	77
									Approve%	93
218	TGak	Recirculation TGak Draft 2.00	LB# 218	Draft	Draft P802.11ak_D2.0.pdf	2016-02-24	2016-03-10	15	Pool	361
				Redlined Doc	Draft P802.11ak_D2.0 Redline.pdf				Approve	174
				Resolution Doc	11-15-0556-19-00ak-lb212-working-group-ballot-comments.xlsx				Disapprove	17
				Comment	Template				Abstain	33
				Pool	LB# 218 Voters				Return%	62
									Approve%	91
217	TGaj	Technical TGaj Draft 1.00	LB# 217	Draft	Draft P802.11aj_D1.0.pdf	2015-12-21	2016-01-20	30	Pool	368
				Redlined Doc	N/A				Approve	221
				Resolution Doc	N/A				Disapprove	30
				Comment	Template				Abstain	31
				Pool	LB# 217 Voters				Return%	77
									Approve%	88
216	TGaq	Technical TGaq Draft 3.00	LB# 216	Draft	Draft P802.11aq_D3.0.pdf	2015-10-08	2015-11-07	30	Pool	358
				Redlined Doc	N/A				Approve	202
				Resolution Doc	N/A				Disapprove	16
				Comment	Template				Abstain	39
				Pool	LB# 216 Voters				Return%	72
									Approve%	93
215	TGah	Recirculation TGah Draft 5.00	LB# 215	Draft	Draft P802.11ah_D5.0.pdf	2015-09-18	2015-10-03	15	Pool	330
				Redlined Doc	N/A				Approve	262
				Resolution Doc	11-15-0525-02-00ah-tgah-lb211-comments-on-45-0.xlsx				Disapprove	6
				Comment	Template				Abstain	15
				Pool	LB# 215 Voters				Return%	86
									Approve%	98
214	TGai	Recirculation TGai Draft 6.00	LB# 214	Draft	Draft P802.11ai_D6.0.pdf	2015-07-16	2015-07-31	15	Pool	336
				Redlined Doc	Draft P802.11ai_D6.0 Redline.pdf				Approve	252
				Resolution Doc	11-15-0772-08-00ai-lb213comments-for-draft-5-0.xlsx				Disapprove	7
									Abstain	21
									Return%	83

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	97
				Pool	LB# 214 Voters					
213	TGai	Recirculation TGai Draft 5.00	LB# 213	Draft	Draft P802.11ai_D5.0.pdf	2015-06-11	2015-06-26	15	Pool	336
				Redlined Doc	Draft P802.11ai_D5.0 Redline.pdf				Approve	238
				Resolution Doc	11-15-0281-20-00ai-tbai-lb209-comments-on-draft-d4-0.xlsx				Disapprove	20
				Comment	Template				Abstain	21
				Pool	LB# 213 Voters				Return%	83
									Approve%	92
212	TGak	Technical TGak Draft 1.00	LB# 212	Draft	Draft P802.11ak_D1.0.pdf	2015-04-06	2015-05-06	30	Pool	361
				Redlined Doc	N/A				Approve	134
				Resolution Doc	N/A				Disapprove	24
				Comment	Template				Abstain	27
				Pool	LB# 212 Voters				Return%	51
									Approve%	85
211	TGah	Recirculation TGah Draft 5.00	LB# 211	Draft	Draft P802.11ah_D5.0.pdf	2015-04-01	2015-04-16	15	Pool	330
				Redlined Doc	Draft P802.11ah_D5.0 Redline.pdf				Approve	248
				Resolution Doc	11-15-0261-07-00ah-tgah-lb207-comments-on-d4-0.xlsx				Disapprove	19
				Comment	Template				Abstain	16
				Pool	LB# 211 Voters				Return%	86
									Approve%	93
210	TGmc	Recirculation TGmc Draft 4.00	LB# 210	Draft	Draft P802.11REVmc_D4.0.pdf	2015-03-11	2015-03-26	15	Pool	325
				Redlined Doc	N/A				Approve	241
				Resolution Doc	11-13-0233-56-0000-revme-wg-ballot-comments.xls				Disapprove	10
				Comment	Template				Abstain	18
				Pool	LB# 210 Voters				Return%	83
									Approve%	96
209	TGai	Recirculation TGai Draft 4.00	LB# 209	Draft	Draft P802.11ai_D4.0.pdf	2015-02-09	2015-02-24	15	Pool	336
				Redlined Doc	Draft P802.11ai_D4.0 Redline.pdf				Approve	230
				Resolution Doc	11-14-1351-30-00ai-tgai-lb204-comments-for-draft-3-0.xlsx				Disapprove	25
				Comment	Template				Abstain	22
				Pool	LB# 209 Voters				Return%	82
									Approve%	90
208	TGaq	Technical TGAq Draft 1.00	LB# 208	Draft	Draft P802.11aq_D1.0.pdf	2015-02-02	2015-03-04	30	Pool	363
				Redlined Doc	N/A				Approve	139
				Resolution Doc	N/A				Disapprove	52
				Comment	Template				Abstain	42
				Pool	LB# 208 Voters				Return%	64
									Approve%	73
207	TGah	Recirculation TGah Draft 4.00	LB# 207	Draft	Draft P802.11ah_D4.0.pdf	2015-01-30	2015-02-14	15	Pool	330
				Redlined Doc	Draft P802.11ah_D4.0 Redline.pdf				Approve	245
				Resolution Doc	11-14-1372-09-00ah-tgah-lb205-comments-on-d3-0.xlsx				Disapprove	19
				Comment	Template				Abstain	18
				Pool	LB# 207 Voters				Return%	85
									Approve%	93
206	TGmc	Recirculation TGmc Draft 4.00	LB# 206	Draft	Draft P802.11REVmc_D4.0.pdf	2015-01-28	2015-02-17	20	Pool	325
				Redlined Doc	Draft P802.11REVmc_D4.0 Redline.pdf				Approve	237
				Resolution Doc	11-13-0233-51-0000-revme-wg-ballot-comments.xls				Disapprove	14
				Comment	Template				Abstain	18
				Pool	LB# 206 Voters				Return%	83
									Approve%	94
205	TGah	Recirculation TGah Draft 3.00	LB# 205	Draft	Draft P802.11ah_D3.0.pdf	2014-10-10	2014-10-25	15	Pool	330
				Redlined Doc	Draft P802.11ah_D3.0 Redline.pdf				Approve	234
				Resolution Doc	11-14-0796-11-00ah-tgah-lb203-comments-on-d2-0.xlsx				Disapprove	27
				Comment	Template				Abstain	17
				Pool	LB# 205 Voters				Return%	84
									Approve%	90
204	TGai	Recirculation TGai Draft 3.00	LB# 204	Draft	Draft P802.11ai_D3.0.pdf	2014-09-29	2014-10-14	15	Pool	336
				Redlined Doc	Draft P802.11ai_D3.0 Redline.pdf				Approve	214
				Resolution Doc	11-14-0565-24-00ai-tgai-lb201-comments-for-draft-2-0.xlsx				Disapprove	28
				Comment	Template				Abstain	28
				Pool	LB# 204 Voters				Return%	80
									Approve%	88
203	TGah	Technical TGah Draft 2.00	LB# 203	Draft	Draft P802.11ah_D2.0.pdf	2014-06-05	2014-07-05	30	Pool	330
				Redlined Doc	N/A				Approve	204
				Resolution Doc	11-13-1336-16-00ah-tgah-lb200-comments-on-d1-0.xlsx				Disapprove	43
									Abstain	24
									Return%	82

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	83
				Pool	LB# 203 Voters					
202	TGmc	Recirculation TGmc Draft 3.00	LB# 202	Draft	Draft P802.11REVmc_D3.0.pdf	2014-06-03	2014-06-23	20	Pool	325
				Redlined Doc	Draft P802.11REVmc_D3.0 Redline.pdf				Approve	219
				Resolution Doc	11-13-0233-32-0000-revme-wg-ballot-comments.xls				Disapprove	24
				Comment	Template				Abstain	19
				Pool	LB# 202 Voters				Return%	81
									Approve%	90
201	TGai	Technical TGai Draft 2.00	LB# 201	Draft	Draft P802.11ai_D2.0.pdf	2014-04-07	2014-05-07	30	Pool	336
				Redlined Doc	Draft P802.11ai_D2.0 Redline.pdf				Approve	195
				Resolution Doc	11-13-1076-34-00ai-tgai-lb-198-comments-for-d1-0.xlsx				Disapprove	34
				Comment	Template				Abstain	28
				Pool	LB# 201 Voters				Return%	76
									Approve%	85
200	TGah	Technical TGah Draft 1.00	LB# 200	Draft	Draft P802.11ah_D1.0.pdf	2013-10-05	2013-11-04	30	Pool	323
				Redlined Doc	N/A				Approve	144
				Resolution Doc	N/A				Disapprove	54
				Comment	Template				Abstain	18
				Pool	LB# 200 Voters				Return%	67
									Approve%	73
199	TGmc	Recirculation TGmc Draft 2.00	LB# 199	Draft	Draft P802.11REVmc_D2.0.pdf	2013-10-03	2013-10-23	20	Pool	325
				Redlined Doc	Draft P802.11REVmc_D2.0 Redline.pdf				Approve	207
				Resolution Doc	11-13-0233-18-0000-revme-wg-ballot-comments.xls				Disapprove	23
				Comment	Template				Abstain	22
				Pool	LB# 199 Voters				Return%	78
									Approve%	90
198	TGai	Technical TGai Draft 1.00	LB# 198	Draft	Draft P802.11ai_D1.0.pdf	2013-08-13	2013-09-12	30	Pool	334
				Redlined Doc	N/A				Approve	147
				Resolution Doc	N/A				Disapprove	51
				Comment	Template				Abstain	22
				Pool	LB# 198 Voters				Return%	66
									Approve%	74
197	TGaf	Recirculation TGaf Draft 5.00	LB# 197	Draft	Draft P802.11af_D5.0.pdf	2013-07-17	2013-08-01	15	Pool	300
				Redlined Doc	N/A				Approve	228
				Resolution Doc	11-12-1017-50-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	3
				Comment	Template				Abstain	7
				Pool	LB# 197 Voters				Return%	79
									Approve%	99
196	TGaf	Recirculation TGaf Draft 5.00	LB# 196	Draft	Draft P802.11af_D5.0.pdf	2013-05-30	2013-06-14	15	Pool	300
				Redlined Doc	Draft P802.11af_D5.0 Redline.pdf				Approve	215
				Resolution Doc	11-12-1017-46-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	14
				Comment	Template				Abstain	8
				Pool	LB# 196 Voters				Return%	79
									Approve%	94
195	TGaf	Recirculation TGaf Draft 4.00	LB# 195	Draft	Draft P802.11af_D4.0.pdf	2013-04-02	2013-04-17	15	Pool	300
				Redlined Doc	Draft P802.11af_D4.0 Redline.pdf				Approve	211
				Resolution Doc	11-12-1017-38-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	19
				Comment	Template				Abstain	7
				Pool	LB# 195 Voters				Return%	79
									Approve%	92
194	TGac	Recirculation TGac Draft 5.00	LB# 194	Draft	Draft P802.11ac_D5.0.pdf	2013-03-20	2013-04-04	15	Pool	300
				Redlined Doc	N/A				Approve	252
				Resolution Doc	11-13-0199-03-00ac-lb191-comments-tgac-d5-0.xls				Disapprove	10
				Comment	Template				Abstain	10
				Pool	LB# 194 Voters				Return%	91
									Approve%	96
193	TGmc	Technical TGmc Draft 1.00	LB# 193	Draft	Draft P802.11REVmc_D1.0.pdf	2013-01-31	2013-03-02	30	Pool	325
				Redlined Doc	N/A				Approve	197
				Resolution Doc	N/A				Disapprove	26
				Comment	Template				Abstain	22
				Pool	LB# 193 Voters				Return%	75
									Approve%	88
192	TGaf	Recirculation TGaf Draft 3.00	LB# 192	Draft	Draft P802.11af_D3.0.pdf	2013-01-24	2013-02-08	15	Pool	300
				Redlined Doc	Draft P802.11af_D3.0 Redline.pdf				Approve	194
				Resolution Doc	11-12-1017-30-00af-tgaf-wg-lb-comment-resolutions.xlsx				Disapprove	30
									Abstain	8
									Return%	77

COMPLETED BALLOTS, from LB101 onwards

Letter ballot results up to LB100 [can be found here](#). Ballot results can also be found in [this spreadsheet](#).

LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	87
				Pool	LB# 192 Voters					
191	TGac	Recirculation TGac Draft 5.00	LB# 191	Draft	Draft P802.11ac_D5.0.pdf	2013-01-17	2013-02-01	15	Pool	300
				Redlined Doc	Draft P802.11ac_D5.0 Redline.pdf				Approve	249
				Resolution Doc	11-12-1277-10-00ac-lb190-comments-tgac-d4-0.xls				Disapprove	12
				Comment	Template				Abstain	10
				Pool	LB# 191 Voters				Return%	90
									Approve%	95
190	TGac	Recirculation TGac Draft 4.00	LB# 190	Draft	Draft P802.11ac_D4.0.pdf	2012-10-17	2012-11-01	15	Pool	300
				Redlined Doc	Draft P802.11ac_D4.0 Redline.pdf				Approve	242
				Resolution Doc	11-12-0752-17-00ac-lb188-comments-tgac-d3-0.xls				Disapprove	15
				Comment	Template				Abstain	14
				Pool	LB# 190 Voters				Return%	90
									Approve%	94
189	TGaf	Technical TGaf Draft 2.00	LB# 189	Draft	Draft P802.11af_D2.0.pdf	2012-07-20	2012-08-19	30	Pool	300
				Redlined Doc	N/A				Approve	163
				Resolution Doc	N/A				Disapprove	43
				Comment	Template				Abstain	14
				Pool	LB# 189 Voters				Return%	73
									Approve%	79
188	TGac	Recirculation TGac Draft 3.00	LB# 188	Draft	Draft P802.11ac_D3.0.pdf	2012-06-05	2012-06-25	20	Pool	300
				Redlined Doc	Draft P802.11ac_D3.0 Redline.pdf				Approve	233
				Resolution Doc	11-12-0223-24-00ac-lb187-comment-tgac-d2-0.xls				Disapprove	24
				Comment	Template				Abstain	14
				Pool	LB# 188 Voters				Return%	90
									Approve%	91
187	TGac	Technical TGac Draft 2.00	LB# 187	Draft	Draft P802.11ac_D2.0.pdf	2012-01-19	2012-02-18	30	Pool	300
				Redlined Doc	N/A				Approve	223
				Resolution Doc	N/A				Disapprove	28
				Comment	Template				Abstain	19
				Pool	LB# 187 Voters				Return%	90
									Approve%	89
186	TGad	Recirculation TGad Draft 5.00	LB# 186	Draft	Draft P802.11ad_D5.0.pdf	2011-11-09	2011-11-24	15	Pool	278
				Redlined Doc	N/A				Approve	197
				Resolution Doc	11-11-1374-02-00ad-lb185-comment-database.xlsx				Disapprove	11
				Comment	Template				Abstain	21
				Pool	LB# 186 Voters				Return%	82
									Approve%	95
185	TGad	Recirculation TGad Draft 5.00	LB# 185	Draft	Draft P802.11ad_D5.0.pdf	2011-09-21	2011-10-06	15	Pool	278
				Redlined Doc	Draft P802.11ad_D5.0 Redline.pdf				Approve	196
				Resolution Doc	11-11-1113-05-00ad-lb183-comment-database.xlsx				Disapprove	13
				Comment	Template				Abstain	19
				Pool	LB# 185 Voters				Return%	82
									Approve%	94
184	TGaa	Recirculation TGaa Draft 6.00	LB# 184	Draft	Draft P802.11aa_D6.0.pdf	2011-08-16	2011-08-31	15	Pool	257
				Redlined Doc	N/A				Approve	151
				Resolution Doc	11-11-1118-01-00aa-proposed-resolutions-to-lb182-comments.xls				Disapprove	8
				Comment	Template				Abstain	38
				Pool	LB# 184 Voters				Return%	77
									Approve%	95
183	TGad	Recirculation TGad Draft 4.00	LB# 183	Draft	Draft P802.11ad_D4.0.pdf	2011-07-25	2011-08-09	15	Pool	278
				Redlined Doc	Draft P802.11ad_D4.0 Redline.pdf				Approve	195
				Resolution Doc	11-11-0850-06-00ad-lb177-comment-database.xlsx				Disapprove	11
				Comment	Template				Abstain	22
				Pool	LB# 183 Voters				Return%	82
									Approve%	95
182	TGaa	Recirculation TGaa Draft 6.00	LB# 182	Draft	Draft P802.11aa_D6.0.pdf	2011-07-25	2011-08-09	15	Pool	257
				Redlined Doc	Draft P802.11aa_D6.0 Redline.pdf				Approve	149
				Resolution Doc	11-11-0876-07-00aa-lb179-comments.xlsx				Disapprove	9
				Comment	Template				Abstain	38
				Pool	LB# 182 Voters				Return%	76
									Approve%	94
181	TGac	Recirculation TGac Draft 5.00	LB# 181	Draft	Draft P802.11ac_D5.0.pdf	2011-07-20	2011-08-04	15	Pool	278
				Redlined Doc	Draft P802.11ac_D5.0 Redline.pdf				Approve	182
				Resolution Doc	11-11-0888-08-00ae-lb-180-comment-resolutions.xls				Disapprove	7
									Abstain	35
									Return%	81

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	96
				Pool	LB# 181 Voters					
180	TGae	Recirculation TGae Draft 4.00	LB# 180	Draft	Draft P802.11ae_D4.0.pdf	2011-06-03	2011-06-18	15	Pool	278
				Redlined Doc	Draft P802.11ae_D4.0 Redline.pdf				Approve	180
				Resolution Doc	11-11-0598-07-00ae-tgae-lb-176-comment-resolutions.xls				Disapprove	8
				Comment	Template				Abstain	35
				Pool	LB# 180 Voters				Return%	80
									Approve%	96
179	TGaa	Recirculation TGaa Draft 5.00	LB# 179	Draft	Draft P802.11aa_D5.0.pdf	2011-06-02	2011-06-17	15	Pool	257
				Redlined Doc	Draft P802.11aa_D5.0 Redline.pdf				Approve	142
				Resolution Doc	11-11-0523-08-00aa-lb175-comments.xls				Disapprove	15
				Comment	Template				Abstain	39
				Pool	LB# 179 Voters				Return%	76
									Approve%	90
178	TGac	Technical TGac Draft 1.00	LB# 178	Draft	Draft P802.11ac_D1.0.pdf	2011-05-26	2011-06-25	30	Pool	315
				Redlined Doc	N/A				Approve	148
				Resolution Doc	N/A				Disapprove	52
				Comment	Template				Abstain	16
				Pool	LB# 178 Voters				Return%	69
									Approve%	74
177	TGad	Recirculation TGad Draft 3.00	LB# 177	Draft	Draft P802.11ad_D3.0.pdf	2011-05-17	2011-06-01	15	Pool	278
				Redlined Doc	Draft P802.11ad_D3.0 Redline.pdf				Approve	188
				Resolution Doc	11-11-0508-07-00ad-lb174-comment-database.xlsx				Disapprove	16
				Comment	Template				Abstain	24
				Pool	LB# 177 Voters				Return%	82
									Approve%	92
176	TGae	Recirculation TGae Draft 3.00	LB# 176	Draft	Draft P802.11ae_D3.0.pdf	2011-04-11	2011-04-26	15	Pool	278
				Redlined Doc	Draft P802.11ae_D3.0 Redline.pdf				Approve	163
				Resolution Doc	11-11-0255-03-00ae-tgae-lb-172-comment-resolutions.xls				Disapprove	21
				Comment	Template				Abstain	37
				Pool	LB# 176 Voters				Return%	79
									Approve%	89
175	TGaa	Recirculation TGaa Draft 4.00	LB# 175	Draft	Draft P802.11aa_D4.0.pdf	2011-03-25	2011-04-09	15	Pool	257
				Redlined Doc	Draft P802.11aa_D4.0 Redline.pdf				Approve	135
				Resolution Doc	11-11-0267-03-00aa-lb173-comments.xls				Disapprove	23
				Comment	Template				Abstain	37
				Pool	LB# 175 Voters				Return%	76
									Approve%	85
174	TGad	Recirculation TGad Draft 2.00	LB# 174	Draft	Draft P802.11ad_D2.0.pdf	2011-03-21	2011-04-05	15	Pool	278
				Redlined Doc	Draft P802.11ad_D2.0 Redline.pdf				Approve	175
				Resolution Doc	11-10-1220-21-00ad-lb168-comment-database.xlsx				Disapprove	25
				Comment	Template				Abstain	25
				Pool	LB# 174 Voters				Return%	81
									Approve%	88
173	TGaa	Recirculation TGaa Draft 3.00	LB# 173	Draft	Draft P802.11aa_D3.0.pdf	2011-02-09	2011-02-24	15	Pool	257
				Redlined Doc	Draft P802.11aa_D3.0 Redline.pdf				Approve	127
				Resolution Doc	11-10-1441-10-00aa-lb170-comments.xls				Disapprove	30
				Comment	Template				Abstain	37
				Pool	LB# 173 Voters				Return%	75
									Approve%	81
172	TGae	Recirculation TGae Draft 2.00	LB# 172	Draft	Draft P802.11ae_D2.0.pdf	2011-02-03	2011-02-18	15	Pool	278
				Redlined Doc	Draft P802.11ae_D2.0 Redline.pdf				Approve	155
				Resolution Doc	11-10-1221-24-00ae-tgae-lb169-comment-resolutions.xls				Disapprove	26
				Comment	Template				Abstain	38
				Pool	LB# 172 Voters				Return%	79
									Approve%	86
171	TGaf	Technical TGaf Draft 1.00	LB# 171	Draft	Draft P802.11af_D1.0.pdf	2011-01-25	2011-02-24	30	Pool	300
				Redlined Doc	N/A				Approve	125
				Resolution Doc	N/A				Disapprove	76
				Comment	Template				Abstain	35
				Pool	LB# 171 Voters				Return%	79
									Approve%	62
170	TGaa	Recirculation TGaa Draft 2.00	LB# 170	Draft	Draft P802.11aa_D2.0.pdf	2010-11-23	2010-12-08	15	Pool	257
				Redlined Doc	Draft P802.11aa_D2.0 Redline.pdf				Approve	117
				Resolution Doc	11-10-1395-02-00aa-lb164-consolidated-comments-editorial-notes.xls				Disapprove	32
									Abstain	36
									Return%	72

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	79
				Pool	LB# 170 Voters					
169	TGae	Technical TGae Draft 1.00	LB# 169	Draft	Draft P802.11ae_D1.0.pdf	2010-09-27	2010-10-27	30	Pool	278
				Redlined Doc	N/A				Approve	134
				Resolution Doc	N/A				Disapprove	32
				Comment	Template				Abstain	40
				Pool	LB# 169 Voters				Return%	74
									Approve%	81
168	TGad	Technical TGad Draft 1.00	LB# 168	Draft	Draft P802.11ad_D1.0.pdf	2010-09-24	2010-10-24	30	Pool	278
				Redlined Doc	N/A				Approve	163
				Resolution Doc	N/A				Disapprove	24
				Comment	Template				Abstain	26
				Pool	LB# 168 Voters				Return%	77
									Approve%	87
167	TGmb	Recirculation TGmb Draft 5.00	LB# 167	Draft	Draft P802.11REVmb_D5.0.pdf	2010-08-04	2010-08-19	15	Pool	246
				Redlined Doc	Draft P802.11REVmb_D5.0 Redline.pdf				Approve	172
				Resolution Doc	11-09-0706-15-000m-revmb-wg-ballot-comments.xls				Disapprove	15
				Comment	Template				Abstain	25
				Pool	LB# 167 Voters				Return%	86
									Approve%	92
166	TGs	Recirculation TGs Draft 7.00	LB# 166	Draft	Draft P802.11s_D7.0.pdf	2010-07-29	2010-08-13	15	Pool	248
				Redlined Doc	Draft P802.11s_D7.0 Redline.pdf				Approve	167
				Resolution Doc	11-10-0725-09-000s-lb-165-comment-resolutions.xls				Disapprove	9
				Comment	Template				Abstain	34
				Pool	LB# 166 Voters				Return%	85
									Approve%	95
165	TGs	Recirculation TGs Draft 6.00	LB# 165	Draft	Draft P802.11s_D6.0.pdf	2010-06-13	2010-06-28	15	Pool	248
				Redlined Doc	Draft P802.11s_D6.0 Redline Compared to P802.11s_D5.0.pdf				Approve	157
				Resolution Doc	11-10-0478-09-000s-lb-161-comment-resolutions.xls				Disapprove	20
				Comment	Template				Abstain	33
				Pool	LB# 165 Voters				Return%	85
									Approve%	89
164	TGaa	Technical TGaa Draft 1.00	LB# 164	Draft	Draft P802.11aa_D1.0.pdf	2010-06-10	2010-07-10	30	Pool	257
				Redlined Doc	N/A				Approve	112
				Resolution Doc	N/A				Disapprove	31
				Comment	Template				Abstain	37
				Pool	LB# 164 Voters				Return%	70
									Approve%	78
163	TGmb	Recirculation TGmb Draft 4.00	LB# 163	Draft	Draft P802.11REVmb_D4.0.pdf	2010-06-10	2010-06-25	15	Pool	246
				Redlined Doc	Draft P802.11REVmb_D4.0 Redline.pdf				Approve	164
				Resolution Doc	11-09-0706-12-000m-revmb-wg-ballot-comments.xls				Disapprove	20
				Comment	Template				Abstain	28
				Pool	LB# 163 Voters				Return%	86
									Approve%	89
162	TGmb	Recirculation TGmb Draft 3.00	LB# 162	Draft	Draft P802.11REVmb_D3.0.pdf	2010-03-31	2010-04-25	25	Pool	246
				Redlined Doc	Draft P802.11REVmb_D3.0 Redline.pdf				Approve	167
				Resolution Doc	11-09-0706-10-000m-revmb-wg-ballot-comments.xls				Disapprove	20
				Comment	Template				Abstain	25
				Pool	LB# 162 Voters				Return%	86
									Approve%	89
161	TGs	Recirculation TGs Draft 5.00	LB# 161	Draft	Draft P802.11s_D5.0.pdf	2010-03-31	2010-04-15	15	Pool	248
				Redlined Doc	Draft P802.11s_D5.0 Redline Compared to P802.11s_D4.0.pdf				Approve	159
				Resolution Doc	11-10-0032-13-000s-lb-159-comment-resolutions.xls				Disapprove	19
				Comment	Template				Abstain	32
				Pool	LB# 161 Voters				Return%	85
									Approve%	89
160	TGmb	Recirculation TGmb Draft 2.00	LB# 160	Draft	Draft P802.11REVmb_D2.0.pdf	2009-12-11	2010-01-08	28	Pool	246
				Redlined Doc	Draft P802.11REVmb_D2.0 Redline.pdf				Approve	166
				Resolution Doc	11-09-0706-06-000m-revmb-wg-ballot-comments.xls				Disapprove	20
				Comment	Template				Abstain	25
				Pool	LB# 160 Voters				Return%	86
									Approve%	89
159	TGs	Recirculation TGs Draft 4.00	LB# 159	Draft	Draft P802.11s_D4.0.pdf	2009-12-09	2010-01-08	30	Pool	248
				Redlined Doc	Draft P802.11s_D4.0 Redline.pdf				Approve	150
				Resolution Doc	11-09-0471-24-000s-lb-147-comment-resolutions.xls				Disapprove	27
									Abstain	33
									Return%	85

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	85
				Pool	LB# 159 Voters					
158	TGp	Recirculation TGp Draft 9.00	LB# 158	Draft	Draft P802.11p_D9.0.pdf	2009-09-25	2009-10-10	15	Pool	232
				Redlined Doc	Draft P802.11p_D9.0 Redline.pdf				Approve	171
				Resolution Doc	11-09-0927-03-000p-lb154-tgp-comment-resolution-master.xls				Disapprove	12
				Comment	Template				Abstain	29
				Pool	LB# 158 Voters				Return%	91
									Approve%	93
157	TGz	Recirculation TGz Draft 6.00	LB# 157	Draft	Draft P802.11z_D6.0.pdf	2009-08-11	2009-08-26	15	Pool	254
				Redlined Doc	Draft P802.11z_D6.0 Redline.pdf				Approve	187
				Resolution Doc	11-09-0739-04-000z-tgz-lb153-comment-spreadsheet.xls				Disapprove	8
				Comment	Template				Abstain	38
				Pool	LB# 157 Voters				Return%	92
									Approve%	96
156	TGu	Recirculation TGu Draft 8.00	LB# 156	Draft	Draft P802.11u_D8.0.pdf	2009-08-03	2009-08-18	15	Pool	213
				Redlined Doc	Draft P802.11u_D8.0 Redline.pdf				Approve	148
				Resolution Doc	11-09-0692-14-000u-lb152-comment-spreadsheet.xls				Disapprove	11
				Comment	Template				Abstain	35
				Pool	LB# 156 Voters				Return%	91
									Approve%	93
155	TGv	Recirculation TGv Draft 7.00	LB# 155	Draft	Draft P802.11v_D7.0.pdf	2009-07-23	2009-08-07	15	Pool	254
				Redlined Doc	Draft P802.11v_D7.0 Redline.pdf				Approve	176
				Resolution Doc	11-09-0676-07-000v-lb-150-comments.xls				Disapprove	16
				Comment	Template				Abstain	38
				Pool	LB# 155 Voters				Return%	91
									Approve%	92
154	TGp	Recirculation TGp Draft 8.00	LB# 154	Draft	Draft P802.11p_D8.0.pdf	2009-07-21	2009-08-05	15	Pool	232
				Redlined Doc	Draft P802.11p_D8.0 Redline.pdf				Approve	163
				Resolution Doc	11-09-0688-03-000p-LB151-TGp Comment Resolution Master2.xls				Disapprove	20
				Comment	Template				Abstain	28
				Pool	LB# 154 Voters				Return%	91
									Approve%	89
153	TGz	Recirculation TGz Draft 5.00	LB# 153	Draft	Draft P802.11z_D5.0.pdf	2009-06-08	2009-06-23	15	Pool	254
				Redlined Doc	Draft P802.11z_D5.0 Redline.pdf				Approve	183
				Resolution Doc	11-09-0313-03-000z-tgz-lb143-comment-spreadsheet.xls				Disapprove	15
				Comment	Template				Abstain	34
				Pool	LB# 153 Voters				Return%	91
									Approve%	92
152	TGu	Recirculation TGu Draft 7.00	LB# 152	Draft	Draft P802.11u_D7.0.pdf	2009-06-04	2009-06-19	15	Pool	213
				Redlined Doc	Draft P802.11u_D7.0 Redline.pdf				Approve	142
				Resolution Doc	11-09-0489-13-000u-lb148-comment-spreadsheet.xls				Disapprove	19
				Comment	Template				Abstain	33
				Pool	LB# 152 Voters				Return%	91
									Approve%	88
151	TGp	Recirculation TGp Draft 7.00	LB# 151	Draft	Draft P802.11p_D7.0.pdf	2009-05-29	2009-06-13	15	Pool	232
				Redlined Doc	Draft P802.11p_D7.0 Redline.pdf				Approve	158
				Resolution Doc	11-09-0432-05-000p-lb144-tgp-comment-resolution-master.xls				Disapprove	27
				Comment	Template				Abstain	26
				Pool	LB# 151 Voters				Return%	91
									Approve%	85
150	TGv	Recirculation TGv Draft 6.00	LB# 150	Draft	Draft P802.11v_D6.0.pdf	2009-05-28	2009-06-12	15	Pool	254
				Redlined Doc	Draft P802.11v_D6.0 Redline Compared to P802.11v_D5.0.pdf				Approve	172
				Resolution Doc	11-09-0434-04-000v-lb146.xls				Disapprove	20
				Comment	Template				Abstain	38
				Pool	LB# 150 Voters				Return%	91
									Approve%	90
149	TGmb	Technical TGmb Draft 1.00	LB# 149	Draft	Draft P802.11REVmb_D1.0.pdf	2009-05-18	2009-06-27	40	Pool	246
				Redlined Doc	N/A				Approve	155
				Resolution Doc	N/A				Disapprove	23
				Comment	Template				Abstain	29
				Pool	LB# 149 Voters				Return%	84
									Approve%	87
148	TGu	Recirculation TGu Draft 6.00	LB# 148	Draft	Draft P802.11u_D6.0.pdf	2009-04-09	2009-04-24	15	Pool	213
				Redlined Doc	Draft P802.11u_D6.0 Redline.pdf				Approve	142
				Resolution Doc	11-09-0245-10-000u-lb142-comment-spreadsheet.xls				Disapprove	15
									Abstain	35
									Return%	90

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	90
				Pool	LB# 148 Voters					
147	TGs	Technical TGs Draft 3.00	LB# 147	Draft	Draft P802.11s_D3.0.pdf	2009-04-04	2009-05-04	30	Pool	248
				Redlined Doc	N/A				Approve	132
				Resolution Doc	N/A				Disapprove	35
				Comment	Template				Abstain	34
				Pool	LB# 147 Voters				Return%	81
									Approve%	79
146	TGv	Recirculation TGv Draft 5.00	LB# 146	Draft	Draft P802.11v_D5.0.pdf	2009-03-20	2009-04-04	15	Pool	254
				Redlined Doc	Draft P802.11v_D5.0 Redline Compared to P802.11v_D4.0.pdf				Approve	155
				Resolution Doc	11-08-1467-04-000v-lb140-comments.xls				Disapprove	32
				Comment	Template				Abstain	41
				Pool	LB# 146 Voters				Return%	90
									Approve%	83
145	TGs	Procedural TGs Draft 3.00	LB# 145	Draft	Draft P802.11s_D3.0.pdf	2009-03-19	2009-04-03	15	Pool	247
				Redlined Doc	N/A				Approve	166
				Resolution Doc	N/A				Disapprove	6
				Comment	Template				Abstain	24
				Pool	LB# 145 Voters				Return%	79
									Approve%	97
144	TGp	Recirculation TGp Draft 6.00	LB# 144	Draft	Draft P802.11p_D6.0.pdf	2009-03-16	2009-03-31	15	Pool	232
				Redlined Doc	Draft P802.11p_6.0 Redline.pdf				Approve	161
				Resolution Doc	11-08-1452-06-000p-lb141-tpg-comment-resolution-master.xls				Disapprove	20
				Comment	Template				Abstain	29
				Pool	LB# 144 Voters				Return%	91
									Approve%	89
143	TGz	Recirculation TGz Draft 4.00	LB# 143	Draft	Draft P802.11z_D4.0.pdf	2009-02-18	2009-03-05	15	Pool	254
				Redlined Doc	Draft P802.11z_D4.0 Redline.pdf				Approve	170
				Resolution Doc	11-09-0097-02-000z-lb139-comment-resolution.xls				Disapprove	23
				Comment	Template				Abstain	37
				Pool	LB# 143 Voters				Return%	91
									Approve%	88
142	TGu	Recirculation TGu Draft 5.00	LB# 142	Draft	Draft P802.11u_D5.0.pdf	2009-02-05	2009-02-20	15	Pool	213
				Redlined Doc	Draft P802.11u_D5.0 Redline.pdf				Approve	125
				Resolution Doc	11-08-1225-25-000u-lb137-comment-spreadsheet.xls				Disapprove	27
				Comment	Template				Abstain	39
				Pool	LB# 142 Voters				Return%	90
									Approve%	82
141	TGp	Recirculation TGp Draft 5.00	LB# 141	Draft	Draft P802.11p_D5.0.pdf	2008-11-20	2008-12-05	15	Pool	232
				Redlined Doc	Draft P802.11p_D5.0 Redline Compared to P802.11p_D4.0.pdf				Approve	149
				Resolution Doc	11-08-0514-06-000p-lb125-tpg-comment-resolution-master.xls				Disapprove	26
				Comment	Template				Abstain	35
				Pool	LB# 141 Voters				Return%	91
									Approve%	85
140	TGv	Technical TGv Draft 4.00	LB# 140	Draft	Draft P802.11v_D4.0.pdf	2008-11-19	2008-12-19	30	Pool	254
				Redlined Doc	Draft P802.11v_D4.0 Redline.pdf				Approve	149
				Resolution Doc	11-08-0801-05-000v-lb133-comments.xls				Disapprove	36
				Comment	Template				Abstain	40
				Pool	LB# 140 Voters				Return%	89
									Approve%	81
139	TGz	Technical TGz Draft 3.00	LB# 139	Draft	Draft P802.11z_D3.0.pdf	2008-11-18	2008-12-18	30	Pool	254
				Redlined Doc	N/A				Approve	155
				Resolution Doc	N/A				Disapprove	29
				Comment	Template				Abstain	41
				Pool	LB# 139 Voters				Return%	89
									Approve%	84
138	TGn	Recirculation TGn Draft 7.00	LB# 138	Draft	Draft P802.11n_D7.0.pdf	2008-11-17	2008-12-02	15	Pool	325
				Redlined Doc	N/A				Approve	281
				Resolution Doc	11-08-1417-00-000n-p802-11n-wg-ballot-unsatisfied-comments.xls				Disapprove	14
				Comment	Template				Abstain	20
				Pool	LB# 138 Voters				Return%	97
									Approve%	95
137	TGu	Recirculation TGu Draft 4.00	LB# 137	Draft	Draft P802.11u_D4.0.pdf	2008-09-23	2008-10-08	15	Pool	213
				Redlined Doc	Draft P802.11u_D4.0 Redline.pdf				Approve	118
				Resolution Doc	11-08-0722-27-000u-lb-132-comment-spreadsheet.xls				Disapprove	34
									Abstain	37
									Return%	89

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	78
				Pool	LB# 137 Voters					
136	TGn	Recirculation TGn Draft 7.00	LB# 136	Draft	Draft P802.11n_D7.0.pdf	2008-09-15	2008-09-30	15	Pool	325
				Redlined Doc	Draft P802.11n_D7.0 Redline.pdf				Approve	276
				Resolution Doc	11-08-0958-02-000n-ten-lb134-composite-comments.xls				Disapprove	17
				Comment	Template				Abstain	21
				Pool	LB# 136 Voters				Return%	97
									Approve%	94
135	TGz	Technical TGz Draft 2.00	LB# 135	Draft	Draft P802.11z_D2.0.pdf	2008-07-21	2008-08-20	30	Pool	242
				Redlined Doc	N/A				Approve	99
				Resolution Doc	N/A				Disapprove	51
				Comment	Template				Abstain	48
				Pool	LB# 135 Voters				Return%	82
									Approve%	66
134	TGn	Recirculation TGn Draft 6.00	LB# 134	Draft	Draft P802.11n_D6.0.pdf	2008-07-21	2008-08-05	15	Pool	325
				Redlined Doc	Draft P802.11n_D6.0 Redline.pdf				Approve	266
				Resolution Doc	11-08-0713-02-000n-ten-lb129-composite-comments.xls				Disapprove	27
				Comment	Template				Abstain	21
				Pool	LB# 134 Voters				Return%	97
									Approve%	91
133	TGv	Technical TGv Draft 3.00	LB# 133	Draft	Draft P802.11v_D3.0.pdf	2008-06-13	2008-07-13	30	Pool	213
				Redlined Doc	Draft P802.11v_D3.0 Redline.pdf				Approve	106
				Resolution Doc	11-08-0265-04-000v-lb123-comments.xls				Disapprove	47
				Comment	Template				Abstain	28
				Pool	LB# 133 Voters				Return%	85
									Approve%	69
132	TGu	Technical TGu Draft 3.00	LB# 132	Draft	Draft P802.11u_D3.0.pdf	2008-06-12	2008-07-12	30	Pool	213
				Redlined Doc	Draft P802.11u_D3.0 Redline.pdf				Approve	113
				Resolution Doc	N/A				Disapprove	34
				Comment	Template				Abstain	35
				Pool	LB# 132 Voters				Return%	85
									Approve%	77
131	TGv	Procedural TGv Draft 2.02	LB# 131	Draft	Draft P802.11v_D2.02.pdf	2008-05-28	2008-06-12	15	Pool	213
				Redlined Doc	Draft P802.11v_D2.02 Redline.pdf				Approve	175
				Resolution Doc	11-08-0265-04-000v-lb123-comments.xls				Disapprove	14
				Comment	Template				Abstain	18
				Pool	LB# 131 Voters				Return%	97
									Approve%	93
130	TGu	Procedural TGu Draft 3.00	LB# 130	Draft	Draft P802.11u_D3.0.pdf	2008-05-27	2008-06-11	15	Pool	212
				Redlined Doc	Draft P802.11u_D3.0 Redline.pdf				Approve	159
				Resolution Doc	N/A				Disapprove	8
				Comment	Template				Abstain	19
				Pool	LB# 130 Voters				Return%	88
									Approve%	95
129	TGn	Recirculation TGn Draft 5.00	LB# 129	Draft	Draft P802.11n_D5.0.pdf	2008-05-23	2008-06-12	20	Pool	325
				Redlined Doc	Draft P802.11n_D5.0 Redline.pdf				Approve	261
				Resolution Doc	11-08-0460-02-000n-ten-lb124-composite-comments.xls				Disapprove	29
				Comment	Template				Abstain	23
				Pool	LB# 129 Voters				Return%	96
									Approve%	90
128	TGw	Recirculation TGw Draft 6.00	LB# 128	Draft	Draft P802.11w_D6.0.pdf	2008-04-03	2008-04-18	15	Pool	427
				Redlined Doc	11-08-0448-00-000w-Redlined Draft P802.11w_D6.0 Compared To Draft P802.11w_5.0.pdf				Approve	266
				Resolution Doc	11-08-0261-05-000w-lb121-comment-resolution.xls				Disapprove	8
				Comment	Template				Abstain	54
				Pool	LB# 128 Voters				Return%	77
									Approve%	97
127	TGz	Technical TGz Draft 1.00	LB# 127	Draft	Draft P802.11z_D1.0.pdf	2008-04-03	2008-05-03	30	Pool	233
				Redlined Doc	N/A				Approve	103
				Resolution Doc	N/A				Disapprove	59
				Comment	Template				Abstain	47
				Pool	LB# 127 Voters				Return%	90
									Approve%	64
126	TGs	Technical TGs Draft 2.00	LB# 126	Draft	Draft P802.11s_D2.0.pdf	2008-04-03	2008-05-03	30	Pool	233
				Redlined Doc	N/A				Approve	103
				Resolution Doc	N/A				Disapprove	67
									Abstain	36
									Return%	88

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	61
				Pool	LB# 126 Voters					
125	TGp	Technical TGp Draft 4.00	LB# 125	Draft	Draft P802.11p_D4.0.pdf	2008-04-03	2008-05-03	30	Pool	233
				Redlined Doc	index.html				Approve	136
				Resolution Doc	index.html				Disapprove	37
				Comment	Template				Abstain	32
				Pool	LB# 125 Voters				Return%	88
									Approve%	79
124	TGn	Recirculation TGn Draft 4.00	LB# 124	Draft	index.html	2008-03-28	2008-04-12	15	Pool	325
				Redlined Doc	index.html				Approve	253
				Resolution Doc	11-07-2783-08-000n-ten-lb115-editor-comments.xls				Disapprove	34
				Comment	Template				Abstain	25
				Pool	LB# 124 Voters				Return%	96
									Approve%	88
123	TGv	Technical TGv Draft 2.00	LB# 123	Draft	Draft P802.11v_D2.0.pdf	2008-02-14	2008-03-15	30	Pool	261
				Redlined Doc	index.html				Approve	126
				Resolution Doc	index.html				Disapprove	62
				Comment	Template				Abstain	34
				Pool	LB# 123 Voters				Return%	85
									Approve%	67
122	TGu	Technical TGu Draft 2.00	LB# 122	Draft	Draft P802.11u_D2.0.pdf	2008-02-14	2008-03-15	30	Pool	261
				Redlined Doc	index.html				Approve	125
				Resolution Doc	index.html				Disapprove	53
				Comment	Template				Abstain	37
				Pool	LB# 122 Voters				Return%	82
									Approve%	70
121	TGw	Recirculation TGw Draft 5.00	LB# 121	Draft	P802.11w_D5.0.pdf	2008-02-05	2008-02-20	15	Pool	427
				Redlined Doc	index.html				Approve	259
				Resolution Doc	index.html				Disapprove	14
				Comment	Template				Abstain	55
				Pool	LB# 121 Voters				Return%	77
									Approve%	95
120	TGv	Procedural TGv Draft 1.04	LB# 120	Draft	Draft P802.11v_D1.04.pdf	2008-01-29	2008-02-13	15	Pool	297
				Redlined Doc	index.html				Approve	213
				Resolution Doc	index.html				Disapprove	13
				Comment	Template				Abstain	27
				Pool	LB# 120 Voters				Return%	85
									Approve%	94
119	TGu	Procedural TGu Draft 2.00	LB# 119	Draft	Draft P802.11u_D2.0.pdf	2008-01-27	2008-02-11	15	Pool	297
				Redlined Doc	index.html				Approve	203
				Resolution Doc	index.html				Disapprove	16
				Comment	Template				Abstain	33
				Pool	LB# 119 Voters				Return%	85
									Approve%	93
118	TGk	Technical TGk	LB# 118	Draft	11-07-2959-02-000k-11k-sponsor-ballot-recirc-2-comment-resolutions(1).xls	2007-12-13	2008-01-05	23	Pool	299
				Redlined Doc	N/A				Approve	175
				Resolution Doc	N/A				Disapprove	0
				Comment	Template				Abstain	20
				Pool	LB# 118 Voters				Return%	65
									Approve%	100
117	TGw	Recirculation TGw Draft 4.00	LB# 117	Draft	Draft P802.11w_D4.0.pdf	2007-12-12	2008-01-05	24	Pool	427
				Redlined Doc	11-07-2943-00-000w-Redlined document D4.0-vs-3.0.pdf				Approve	245
				Resolution Doc	11-07-2697-07-000w-lb114-comment-resolutions.xls				Disapprove	21
				Comment	Template				Abstain	60
				Pool	LB# 117 Voters				Return%	76
									Approve%	92
116	TGy	Recirculation TGy Draft 6.00	LB# 116	Draft	Draft P802.11y_D6.0.pdf	2007-11-23	2007-12-08	15	Pool	347
				Redlined Doc	11-07-2902-00-000y Redlined Draft P802.11y_D6.0 Compared To Draft P802.11y_D5.0.pdf				Approve	271
				Resolution Doc	11-07-2623-05-000y-d5-comments.xls				Disapprove	2
				Comment	Template				Abstain	54
				Pool	LB# 116 Voters				Return%	94
									Approve%	99
115	TGn	Recirculation TGn Draft 3.00	LB# 115	Draft	Draft P802.11n_D3.0.pdf	2007-10-07	2007-10-27	20	Pool	325
				Redlined Doc	index.html				Approve	240
				Resolution Doc	index.html				Disapprove	43
									Abstain	27
									Return%	95

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	85
				Pool	LB# 115 Voters					
114	TGw	Recirculation TGw Draft 3.00	LB# 114	Draft	Draft P802.11w_D3.0.pdf	2007-10-04	2007-10-19	15	Pool	427
				Redlined Doc	11-07-2562-00-000w-D3.0-v-2.0-redline.pdf				Approve	245
				Resolution Doc	11-07-0714-13-000w-lb-102-comment-resolution-spreadsheet.xls				Disapprove	21
				Comment	Template				Abstain	59
				Pool	LB# 114 Voters				Return%	76
									Approve%	92
112	TGy	Recirculation TGy Draft 5.00	LB# 112	Draft	Draft P802.11y_D5.0.pdf	2007-09-28	2007-10-13	15	Pool	347
				Redlined Doc	11-07-2607-00-000y-igy-redline-between-Draft-5.0-and-4.0.pdf				Approve	257
				Resolution Doc	11-07-2333-07-000y-d4-comments.xls				Disapprove	11
				Comment	Template				Abstain	59
				Pool	LB# 112 Voters				Return%	94
									Approve%	96
111	TGk	Technical TGk	LB# 111	Draft	11-07-2289-05-000k-jgk-sponsor-ballot-comment-resolutions.xls	2007-08-27	2007-09-11	15	Pool	278
				Redlined Doc	N/A				Approve	196
				Resolution Doc	N/A				Disapprove	22
				Comment	Template				Abstain	35
				Pool	LB# 111 Voters				Return%	91
									Approve%	90
110	TGp	Technical TGp Draft 3.00	LB# 110	Draft	Draft P802.11p_D3.0.pdf	2007-08-13	2007-09-12	30	Pool	278
				Redlined Doc	N/A				Approve	143
				Resolution Doc	N/A				Disapprove	50
				Comment	Template				Abstain	58
				Pool	LB# 110 Voters				Return%	90
									Approve%	74
109	TGy	Recirculation TGy Draft 4.00	LB# 109	Draft	Draft P802.11y_D4.0.pdf	2007-08-06	2007-08-21	15	Pool	347
				Redlined Doc	11-07-2268-00-000y-igy-redline-between Draft 4.0 and 3.0.pdf				Approve	250
				Resolution Doc	11-07-2019-06-000y-d3-comments.xls				Disapprove	17
				Comment	Template				Abstain	60
				Pool	LB# 109 Voters				Return%	94
									Approve%	94
108	TGv	Technical TGv Draft 1.00	LB# 108	Draft	Draft P802.11v_D1.0.pdf	2007-07-31	2007-08-30	30	Pool	278
				Redlined Doc	N/A				Approve	132
				Resolution Doc	N/A				Disapprove	77
				Comment	Template				Abstain	38
				Pool	LB# 108 Voters				Return%	89
									Approve%	63
107	TGu	Technical TGu Draft 1.00	LB# 107	Draft	Draft P802.11u_D1.0.pdf	2007-06-08	2007-07-08	30	Pool	299
				Redlined Doc	index.html				Approve	111
				Resolution Doc	index.html				Disapprove	62
				Comment	Template				Abstain	48
				Pool	LB# 107 Voters				Return%	74
									Approve%	64
106	TGy	Recirculation TGy Draft 3.00	LB# 106	Draft	Draft P802.11y_D3.0.pdf	2007-06-05	2007-06-20	15	Pool	347
				Redlined Doc	index.html				Approve	242
				Resolution Doc	index.html				Disapprove	24
				Comment	Template				Abstain	60
				Pool	LB# 106 Voters				Return%	94
									Approve%	91
105	TGr	Recirculation TGr Draft 6.00	LB# 105	Draft	Draft P802.11r_D6.0.pdf	2007-05-28	2007-06-13	16	Pool	518
				Redlined Doc	index.html				Approve	360
				Resolution Doc	index.html				Disapprove	11
				Comment	Template				Abstain	65
				Pool	LB# 105 Voters				Return%	84
									Approve%	97
104	TGy	Recirculation TGy Draft 2.00	LB# 104	Draft	Draft P802.11y_D2.0.pdf	2007-04-19	2007-05-05	16	Pool	347
				Redlined Doc	index.html				Approve	221
				Resolution Doc	index.html				Disapprove	41
				Comment	Template				Abstain	62
				Pool	LB# 104 Voters				Return%	93
									Approve%	84
103	TGk	Recirculation TGk Draft 7.00	LB# 103	Draft	Draft P802.11k_D7.0.pdf	2007-04-18	2007-05-05	17	Pool	514
				Redlined Doc	index.html				Approve	363
				Resolution Doc	index.html				Disapprove	29
									Abstain	39
									Return%	84

COMPLETED BALLOTS, from LB101 onwards										
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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	93
				Pool	LB# 103 Voters					
102	TGw	Recirculation TGw Draft 2.00	LB# 102	Draft	Draft P802.11w D2.0.pdf	2007-04-07	2007-05-02	25	Pool	427
				Redlined Doc	index.html				Approve	227
				Resolution Doc	index.html				Disapprove	29
				Comment	Template				Abstain	61
				Pool	LB# 102 Voters				Return%	74
									Approve%	89
101	TGt	Technical TGt Draft 1.00	LB# 101	Draft	Draft-P802.11.2_D1.0.pdf	2007-04-16	2007-05-16	30	Pool	307
				Redlined Doc	N/A				Approve	163
				Resolution Doc	N/A				Disapprove	52
				Comment	Template				Abstain	57
				Pool	LB# 101 Voters				Return%	89
									Approve%	76
99	TGt	Procedural TGt Draft 0.14	LB# 99	Draft	Draft P802.11.2_D0.14.pdf	2007-03-28	2007-04-12	15	Pool	323
				Redlined Doc	N/A				Approve	244
				Resolution Doc	N/A				Disapprove	16
				Comment	Template				Abstain	38
				Pool	LB# 99 Voters				Return%	92
									Approve%	94
98	TGr	Recirculation TGr Draft 5.00	LB# 98	Draft	Draft P802.11r D5.0.pdf	2007-03-20	2007-04-04	15	Pool	518
				Redlined Doc	11-07-0471-00-000r-P802-11r-D5-0-redline.pdf				Approve	350
				Resolution Doc	11-06-1895-18-000r-d4-comments.xls				Disapprove	19
				Comment	Template				Abstain	67
				Pool	LB# 98 Voters				Return%	84
									Approve%	95
97	TGn	Technical TGn Draft 2.00	LB# 97	Draft	Draft-P802.11n D2.0.pdf	2007-02-07	2007-03-09	30	Pool	325
				Redlined Doc	index.html				Approve	231
				Resolution Doc	N/A				Disapprove	46
				Comment	Template				Abstain	28
				Pool	LB# 97 Voters				Return%	94
									Approve%	83
96	TGk	Recirculation TGk Draft 7.00	LB# 96	Draft	Draft P802.11k D7.0.pdf	2007-01-29	2007-02-13	15	Pool	514
				Redlined Doc	11-07-0119-00-000k-D7.0-Redlined-Changes-from-D6.0.pdf				Approve	361
				Resolution Doc	11-06-1739-18-000k-lb-90-EDITOR-comment-resolution-worksheet.xls				Disapprove	30
				Comment	Template				Abstain	38
				Pool	LB# 96 Voters				Return%	83
									Approve%	92
95	TGn	Procedural TGn Draft 2.00	LB# 95	Draft	Draft P802.11n D1.10.pdf	2007-01-22	2007-02-06	15	Pool	332
				Redlined Doc	N/A				Approve	293
				Resolution Doc	N/A				Disapprove	6
				Comment	Template				Abstain	14
				Pool	LB# 95 Voters				Return%	94
									Approve%	98
94	TGy	Technical TGy Draft 1.00	LB# 94	Draft	Draft P802.11y D1.0.pdf	2006-12-08	2007-01-07	30	Pool	347
				Redlined Doc	N/A				Approve	182
				Resolution Doc	N/A				Disapprove	59
				Comment	Template				Abstain	71
				Pool	LB# 94 Voters				Return%	90
									Approve%	76
93	TGs	Technical TGs Draft 1.00	LB# 93	Draft	Draft P802.11s D1.0.pdf	2006-12-07	2007-01-06	30	Pool	347
				Redlined Doc	N/A				Approve	128
				Resolution Doc	N/A				Disapprove	138
				Comment	Template				Abstain	36
				Pool	LB# 93 Voters				Return%	87
									Approve%	48
92	TGp	Technical TGp Draft 2.00	LB# 92	Draft	Draft P802.11p D2.0.pdf	2006-12-06	2007-01-05	30	Pool	347
				Redlined Doc	11-06-1885-00-000p-Draft P802.11p D2.0-Redline.pdf				Approve	166
				Resolution Doc	11-06-0553-07-000p-lb81-11p-d1-0-comment-resolutions.xls				Disapprove	83
				Comment	Template				Abstain	62
				Pool	LB# 92 Voters				Return%	90
									Approve%	67
91	TGr	Recirculation TGr Draft 4.00	LB# 91	Draft	Draft P802.11r D4.0.pdf	2006-11-20	2006-12-04	14	Pool	518
				Redlined Doc	11-06-1850-00-000r-P802.11r-D4.0-redline.pdf				Approve	335
				Resolution Doc	11-06-1576-11-000r-d3-comments.xls				Disapprove	30
									Abstain	70
									Return%	84

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	92
				Pool	LB# 91 Voters					
90	TGk	Recirculation TGk Draft 6.00	LB# 90	Draft	P802.11k-D6.0.pdf	2006-11-01	2006-11-16	15	Pool	514
				Redlined Doc	11-06-1583-00-000k-redlined-version-draft-d6.0.pdf				Approve	354
				Resolution Doc	11-06-1366-08-000k-tgk-lb86-comment-resolution-spreadsheet.xls				Disapprove	36
				Comment	Template				Abstain	39
				Pool	LB# 90 Voters				Return%	83
									Approve%	91
89	TGk	Procedural TGk Draft 6.00	LB# 89	Draft	P802.11k-D6.0.pdf	2006-10-13	2006-10-30	17	Pool	424
				Redlined Doc	11-06-1583-00-000k-redlined-version-draft-d6.0.pdf				Approve	236
				Resolution Doc	11-06-1366-08-000k-tgk-lb86-comment-resolution-spreadsheet.xls				Disapprove	14
				Comment	Template				Abstain	25
				Pool	LB# 89 Voters				Return%	65
									Approve%	94
88	TGw	Technical TGw Draft 1.00	LB# 88	Draft	P802.11w-D1.0.pdf	2006-10-10	2006-11-19	40	Pool	427
				Redlined Doc	N/A				Approve	202
				Resolution Doc	N/A				Disapprove	34
				Comment	Template				Abstain	59
				Pool	LB# 88 Voters				Return%	69
									Approve%	86
87	TGr	Recirculation TGr Draft 3.00	LB# 87	Draft	11-06-1540-00-000r-P802-11r-D3-0-redline.pdf	2006-09-29	2006-10-14	15	Pool	518
				Redlined Doc	N/A				Approve	318
				Resolution Doc	11-06-0537-34-000r-d2-comments.xls				Disapprove	50
				Comment	Template				Abstain	65
				Pool	LB# 87 Voters				Return%	84
									Approve%	86
86	TGk	Recirculation TGk Draft 5.00	LB# 86	Draft	P802.11k-D5.0.pdf	2006-09-01	2006-09-16	15	Pool	514
				Redlined Doc	11-06-1311-00-0000-redlined-document-11k-draft-d5.0.doc				Approve	325
				Resolution Doc	11-06-0891-18-000k-LB83-may-to-jun-com-merge.xls				Disapprove	59
				Comment	Template				Abstain	44
				Pool	LB# 86 Voters				Return%	83
									Approve%	85
85	TGk	Procedural TGk Draft 5.00	LB# 85	Draft	P802.11k-D5.0.pdf	2006-08-10	2006-08-26	16	Pool	452
				Redlined Doc	11-06-1311-00-0000-redlined-document-11k-draft-d5.0.pdf				Approve	246
				Resolution Doc	11-06-0891-18-000k-LB83-may-to-jun-com-merge.xls				Disapprove	65
				Comment	Template				Abstain	46
				Pool	LB# 85 Voters				Return%	79
									Approve%	79
84	TGn	Technical TGn Draft 1.00	LB# 84	Draft	P802.11n-D1.0.pdf	2006-03-19	2006-04-29	41	Pool	435
				Redlined Doc	N/A				Approve	149
				Resolution Doc	N/A				Disapprove	171
				Comment	Template				Abstain	32
				Pool	LB# 84 Voters				Return%	81
									Approve%	47
83	TGk	Recirculation TGk Draft 4.00	LB# 83	Draft	P802.11k-D4.0-changes.doc	2006-03-16	2006-03-31	15	Pool	514
				Redlined Doc	N/A				Approve	308
				Resolution Doc	11-05-1049-69-000k-11k-lb78-comment-resolution-spreadsheet.xls				Disapprove	73
				Comment	Template				Abstain	44
				Pool	LB# 83 Voters				Return%	83
									Approve%	81
82	TGr	Recirculation TGr Draft 2.00	LB# 82	Draft	P802.11r-D2.0-changes.pdf	2006-03-15	2006-04-04	20	Pool	518
				Redlined Doc	N/A				Approve	316
				Resolution Doc	11-06-1284-29-000r-lb79-11r-d1-0-comment-resolutions.xls				Disapprove	44
				Comment	Template				Abstain	69
				Pool	LB# 82 Voters				Return%	83
									Approve%	88
81	TGp	Technical TGp Draft 1.00	LB# 81	Draft	P802.11p-D1.0.pdf	2006-03-02	2006-04-11	40	Pool	486
				Redlined Doc	N/A				Approve	167
				Resolution Doc	N/A				Disapprove	117
				Comment	Template				Abstain	63
				Pool	LB# 81 Voters				Return%	71
									Approve%	59
80	TGp	Procedural TGp Draft 0.26	LB# 80	Draft	P802.11p-D0.26.pdf	2006-02-03	2006-02-18	15	Pool	486
				Redlined Doc	N/A				Approve	217
				Resolution Doc	N/A				Disapprove	72
									Abstain	56
									Return%	71

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	75
				Pool	LB# 80 Voters					
79	TGr	Technical TGr Draft 1.00	LB# 79	Draft	P802.11r-D1.0.pdf	2005-11-25	2006-01-04	40	Pool	518
				Redlined Doc	N/A				Approve	268
				Resolution Doc	N/A				Disapprove	64
				Comment	Template				Abstain	72
				Pool	LB# 79 Voters				Return%	78
									Approve%	81
78	TGk	Technical TGk Draft 3.00	LB# 78	Draft	P802.11k-D3.0.pdf	2005-10-03	2005-11-12	40	Pool	514
				Redlined Doc	N/A				Approve	295
				Resolution Doc	N/A				Disapprove	75
				Comment	Template				Abstain	33
				Pool	LB# 78 Voters				Return%	78
									Approve%	80
77	TGma	Technical TGma Draft 4.00	LB# 77	Draft	P802.11-REVma-D4.0.pdf	2005-09-09	2005-09-19	10	Pool	542
				Redlined Doc	N/A				Approve	411
				Resolution Doc	N/A				Disapprove	15
				Comment	Template				Abstain	19
				Pool	LB# 77 Voters				Return%	82
									Approve%	96
76	TGma	Technical TGma Draft 3.00	LB# 76	Draft	P802.11-REVma-D3.0.pdf	2005-08-08	2005-08-19	11	Pool	542
				Redlined Doc	N/A				Approve	397
				Resolution Doc	N/A				Disapprove	20
				Comment	Template				Abstain	21
				Pool	LB# 76 Voters				Return%	81
									Approve%	95
75	TGma	Technical TGma Draft 2.00	LB# 75	Draft	P802.11REV-ma-D2.0.pdf	2005-07-07	2005-07-17	10	Pool	542
				Redlined Doc	N/A				Approve	387
				Resolution Doc	N/A				Disapprove	26
				Comment	Template				Abstain	19
				Pool	LB# 75 Voters				Return%	80
									Approve%	94
74	TGma	Technical TGma Draft 1.00	LB# 74	Draft	P802.11REV-ma-D1.0.pdf	2005-03-29	2005-05-08	40	Pool	542
				Redlined Doc	N/A				Approve	348
				Resolution Doc	N/A				Disapprove	36
				Comment	Template				Abstain	23
				Pool	LB# 74 Voters				Return%	75
									Approve%	91
73	TGk	Technical TGk Draft 2.00	LB# 73	Draft	P802.11k-D2.0.pdf	2005-02-03	2005-03-15	40	Pool	493
				Redlined Doc	N/A				Approve	253
				Resolution Doc	11-04-0964-37-000k-lb71-comment-spreadsheet.xls				Disapprove	42
				Comment	Template				Abstain	25
				Pool	LB# 73 Voters				Return%	65
									Approve%	86
71	TGk	Technical TGk Draft 1.00	LB# 71	Draft	P802.11k-D1.0.pdf	2004-08-02	2004-09-11	40	Pool	412
				Redlined Doc	N/A				Approve	329
				Resolution Doc	N/A				Disapprove	18
				Comment	Template				Abstain	27
				Pool	LB# 71 Voters				Return%	91
									Approve%	95
68	TGj	Recirculation TGj Draft 1.40	LB# 68	Draft	P802_11j-D1.4-redlined.pdf	2004-04-05	2004-04-20	15	Pool	464
				Redlined Doc	N/A				Approve	273
				Resolution Doc	11-04-0411-02-000j-tgj-comment-resolution-lb66.xls				Disapprove	13
				Comment	Template				Abstain	24
				Pool	LB# 68 Voters				Return%	67
									Approve%	95
67	TGe	Recirculation TGe Draft 8.00	LB# 67	Draft	P802_11E-D8.0-redlined.pdf	2004-02-24	2004-03-10	15	Pool	321
				Redlined Doc	N/A				Approve	262
				Resolution Doc	11-04-0181-05-000e-letter-ballot-65-comments.xls				Disapprove	16
				Comment	Template				Abstain	23
				Pool	LB# 67 Voters				Return%	94
									Approve%	94
66	TGj	Recirculation TGj Draft 1.30	LB# 66	Draft	P802_11j-D1.3redlined.pdf	2004-02-04	2004-03-11	36	Pool	464
				Redlined Doc	N/A				Approve	258
				Resolution Doc	11-04-0042-05-000j-tgj-comment-resolution-lb64.xls				Disapprove	17
									Abstain	27
									Return%	65

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	94
				Pool	LB# 66 Voters					
65	TGe	Recirculation TGe Draft 7.00	LB# 65	Draft	P802_11E-D7.0-redlined.pdf	2004-01-31	2004-02-15	15	Pool	321
				Redlined Doc	N/A				Approve	258
				Resolution Doc	11-04-1001-06-000e-letter-ballot-63-comments.xls				Disapprove	19
				Comment	Template				Abstain	24
				Pool	LB# 65 Voters				Return%	94
									Approve%	93
64	TGj	Technical TGj Draft 1.20	LB# 64	Draft	P802_11j-D1.2.doc	2003-12-05	2004-01-14	40	Pool	463
				Redlined Doc	N/A				Approve	212
				Resolution Doc	11-03-337r6-W-TGj_Letter_Ballot_Comment_Resolution_May_2003.xls				Disapprove	27
				Comment	Template				Abstain	24
				Pool	LB# 64 Voters				Return%	57
									Approve%	89
63	TGe	Recirculation TGe Draft 6.00	LB# 63	Draft	P802_11E-D6.0-redlined.pdf	2003-12-04	2003-12-20	16	Pool	321
				Redlined Doc	N/A				Approve	248
				Resolution Doc	11-03-0658-17-000e-letter-ballot-59-comments.xls				Disapprove	30
				Comment	Template				Abstain	23
				Pool	LB# 63 Voters				Return%	94
									Approve%	89
62	TGi	Recirculation TGi Draft 7.00	LB# 62	Draft	802_11i-D7.0-redlined.doc	2003-10-20	2003-11-04	15	Pool	321
				Redlined Doc	N/A				Approve	264
				Resolution Doc	11-03-0808-00-000i-LB61Comments.xls				Disapprove	14
				Comment	Template				Abstain	21
				Pool	LB# 62 Voters				Return%	93
									Approve%	95
61	TGi	Recirculation TGi Draft 6.00	LB# 61	Draft	802.11i-D6.0-redlined.doc	2003-09-24	2003-10-09	15	Pool	321
				Redlined Doc	N/A				Approve	257
				Resolution Doc	11-03-0659-04-000i-LB60-Comments.xls				Disapprove	21
				Comment	Template				Abstain	21
				Pool	LB# 61 Voters				Return%	93
									Approve%	92
60	TGi	Recirculation TGi Draft 5.00	LB# 60	Draft	802.11i-D5.0-redlined.doc	2003-08-04	2003-08-19	15	Pool	321
				Redlined Doc	N/A				Approve	243
				Resolution Doc	11-03-452r6-1-LB57-Comments.xls				Disapprove	36
				Comment	Template				Abstain	20
				Pool	LB# 60 Voters				Return%	93
									Approve%	87
59	TGe	Recirculation TGe Draft 5.00	LB# 59	Draft	P802_11E-D5.0-changes-with-4.0-marked.pdf	2003-08-01	2003-08-22	21	Pool	321
				Redlined Doc	N/A				Approve	248
				Resolution Doc	11-03-020r13-E-Merged_Letter_Ballot_51_Comments.xls				Disapprove	7
				Comment	Template				Abstain	8
				Pool	LB# 59 Voters				Return%	82
									Approve%	97
57	TGi	Recirculation TGi Draft 4.00	LB# 57	Draft	802_11i-D4.0-redlined.doc	2003-05-22	2003-06-06	15	Pool	321
				Redlined Doc	N/A				Approve	218
				Resolution Doc	11-03-033r10-1-LB52-Comments.xls				Disapprove	61
				Comment	Template				Abstain	19
				Pool	LB# 57 Voters				Return%	93
									Approve%	78
56	TGj	Technical TGj Draft 1.00	LB# 56	Draft	P802_11j-D1.0.doc	2003-04-01	2003-05-12	41	Pool	394
				Redlined Doc	N/A				Approve	196
				Resolution Doc	N/A				Disapprove	93
				Comment	Template				Abstain	5
				Pool	LB# 56 Voters				Return%	75
									Approve%	68
54	TGg	Recirculation TGg Draft 6.10	LB# 54	Draft	802.11g-D6.1-tracking.doc	2003-01-20	2003-02-04	15	Pool	321
				Redlined Doc	N/A				Approve	184
				Resolution Doc	11-03-068r12-G-LB50_Comment_Resolution.xls				Disapprove	22
				Comment	Template				Abstain	58
				Pool	LB# 54 Voters				Return%	82
									Approve%	89
52	TGi	Technical TGi Draft 3.00	LB# 52	Draft	802.11i-D3.0.pdf	2002-12-02	2003-01-12	41	Pool	321
				Redlined Doc	N/A				Approve	209
				Resolution Doc	N/A				Disapprove	65
									Abstain	21
									Return%	92

COMPLETED BALLOTS, from LB101 onwards										
Letter ballot results up to LB100 can be found here . Ballot results can also be found in this spreadsheet .										
LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment	Template				Approve%	76
				Pool	LB# 52 Voters					
51	TGe	Technical TGe Draft 4.00	LB# 51	Draft	P802_11E-D4_0.pdf	2002-11-28	2003-01-08	41	Pool	321
									Approve	228
				Redlined Doc	N/A				Disapprove	47
				Resolution Doc	N/A				Abstain	21
				Comment	Template				Return%	92
				Pool	LB# 51 Voters				Approve%	83
50	TGg	Technical TGg Draft 5.00	LB# 50	Draft	802.11g-D5.0.doc	2002-11-27	2003-01-08	42	Pool	321
									Approve	256
				Redlined Doc	N/A				Disapprove	34
				Resolution Doc	N/A				Abstain	18
				Comment	Template				Return%	96
				Pool	LB# 50 Voters				Approve%	88
49	TGg	Recirculation TGg Draft 4.00	LB# 49	Draft	802.11g-D4.0.pdf	2002-10-17	2002-11-01	15	Pool	382
									Approve	217
				Redlined Doc	N/A				Disapprove	33
				Resolution Doc	2-535.zip				Abstain	25
				Comment	Template				Return%	72
				Pool	LB# 49 Voters				Approve%	87
48	TGh	Recirculation TGh Draft 2.20	LB# 48	Draft	802-11-h-D2.2.pdf	2002-10-17	2002-11-01	15	Pool	356
									Approve	241
				Redlined Doc	N/A				Disapprove	7
				Resolution Doc	11-02-515r7-H-Comments_form_LB42.xls				Abstain	17
				Comment	Template				Return%	74
				Pool	LB# 48 Voters				Approve%	97
42	TGh	Recirculation TGh	LB# 42	Draft	index.html	2002-07-23	2002-09-01	40	Pool	360
									Approve	208
				Redlined Doc	N/A				Disapprove	24
				Resolution Doc	N/A				Abstain	39
				Comment	Template				Return%	75
				Pool	LB# 42 Voters				Approve%	90
41	TGg	Technical TGg	LB# 41	Draft	index.html	2002-07-23	2002-09-01	40	Pool	382
									Approve	194
				Redlined Doc	N/A				Disapprove	40
				Resolution Doc	N/A				Abstain	15
				Comment	Template				Return%	65
				Pool					Approve%	83
39	TGe	Technical TGe	LB# 39	Draft	P802_11E-D3_0.pdf	2002-05-23	2002-07-02	40	Pool	365
									Approve	106
				Redlined Doc	N/A				Disapprove	110
				Resolution Doc	N/A				Abstain	44
				Comment					Return%	71
				Pool					Approve%	49
38	TGf	Recirculation TGf	LB# 38	Draft	802.11f-D3.1.pdf	2002-05-08	2002-06-16	39	Pool	291
									Approve	221
				Redlined Doc	N/A				Disapprove	9
				Resolution Doc	N/A				Abstain	25
				Comment	Template				Return%	88
				Pool	LB# 38 Voters				Approve%	96
36	TGh	Technical TGh	LB# 36	Draft	P802_11H-D2_0.pdf	2002-03-26	2002-05-05	40	Pool	330
									Approve	165
				Redlined Doc	N/A				Disapprove	52
				Resolution Doc	N/A				Abstain	53
				Comment					Return%	82
				Pool					Approve%	76
35	TGi	Technical TGi	LB# 35	Draft	P802_11i-D2_0.pdf	2002-03-25	2002-05-04	40	Pool	338
									Approve	143
				Redlined Doc	N/A				Disapprove	43
				Resolution Doc	N/A				Abstain	78
				Comment					Return%	78
				Pool					Approve%	77
33	TGg	Technical TGg	LB# 33	Draft		2002-01-31	2002-03-11	39	Pool	286
									Approve	86
				Redlined Doc	N/A				Disapprove	104
				Resolution Doc	N/A				Abstain	41
									Return%	81

COMPLETED BALLOTS, from LB101 onwards

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LB	Group(s)	Comment(s)	Instructions	Document(s)		Opened	Closed	Days	Ballot Results	
				Comment					Approve%	45
				Pool						
32	TGf	Technical TGf	LB# 32	Draft		2002-01-29	2002-03-10	40	Pool	290
									Approve	145
				Redlined Doc	N/A				Disapprove	31
				Resolution Doc	N/A				Abstain	19
				Comment					Return%	67
				Pool					Approve%	82
30	TGe	Technical TGe	LB# 30	Draft		2001-12-05	2002-01-16	42	Pool	266
									Approve	101
				Redlined Doc	N/A				Disapprove	84
				Resolution Doc	N/A				Abstain	33
				Comment					Return%	82
				Pool					Approve%	55
29	TGh	Technical TGh	LB# 29	Draft		2001-07-25	2001-09-03	40	Pool	None
									Approve	None
				Redlined Doc	N/A				Disapprove	None
				Resolution Doc	N/A				Abstain	None
				Comment					Return%	0
				Pool					Approve%	None
28	TGf	Technical TGf	LB# 28	Draft		2001-07-25	2001-09-03	40	Pool	None
									Approve	None
				Redlined Doc	N/A				Disapprove	None
				Resolution Doc	N/A				Abstain	None
				Comment					Return%	0
				Pool					Approve%	None
27	TGe	Technical TGe	LB# 27	Draft		2001-04-05	2001-05-15	40	Pool	None
									Approve	None
				Redlined Doc	N/A				Disapprove	None
				Resolution Doc	N/A				Abstain	None
				Comment					Return%	0
				Pool					Approve%	None
26	TGf	Technical TGf	LB# 26	Draft		2001-04-05	2001-05-15	40	Pool	None
									Approve	None
				Redlined Doc	N/A				Disapprove	None
				Resolution Doc	N/A				Abstain	None
				Comment					Return%	0
				Pool					Approve%	None
22	TGd	Recirculation TGd	LB# 22	Draft		2000-06-12	2000-06-26	14	Pool	None
									Approve	None
				Redlined Doc	N/A				Disapprove	None
				Resolution Doc	N/A				Abstain	None
				Comment					Return%	0
				Pool					Approve%	None
21	TGd	Recirculation TGd	LB# 21	Draft		2000-03-27	2000-04-04	8	Pool	None
									Approve	None
				Redlined Doc	N/A				Disapprove	None
				Resolution Doc	N/A				Abstain	None
				Comment					Return%	0
				Pool					Approve%	None
15	TGb	Technical TGb	LB# 15	Draft		1998-09-30	1998-11-09	40	Pool	None
									Approve	None
				Redlined Doc	N/A				Disapprove	None
				Resolution Doc	N/A				Abstain	None
				Comment					Return%	0
				Pool					Approve%	None



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APPENDIX BC

IEEE 802.11 FUTURE SESSION PLANS

IEEE 802.11 WLAN WORKING GROUP SESSIONS



All interested parties are welcome to attend our open Public meetings of the IEEE 802.11 Working Group, you do not have to be an IEEE member to attend. There is a registration fee, to defray the cost of the session. At Plenary sessions these are administered by the IEEE 802 LMSC organization. Interim sessions are administered by the IEEE 802.11/15 Working Groups. This is in-addition to your individual hotel accommodation, and travel expenses. Click here to view an [Example Plenary and Interim Session Agenda](#), or review the latest Combined Tentative Agenda for the next IEEE 802.11 WG Session below.

For Year 2016

January 17-22

Hyatt Regency Atlanta, Atlanta, GA, USA

[Session Information](#)

[Registration](#)

[Hotel Room Reservation](#)

Session

Type

155

Interim*

Registration Fees & Deadlines

Early: Before 6:00 PM Pacific Time, Friday, December 4, 2015

* \$US 375.00 for attendees staying at the Hyatt Regency Atlanta

* \$US 575.00 for all others (including local attendees not staying at the group hotel)

Standard: After Early Registration and before 6:00 PM Pacific Time, Friday January 8, 2016

* \$US 575.00 for attendees staying at the Hyatt Regency Atlanta

* \$US 775.00 for all others (including local attendees not staying at the group hotel)

Late/On-site: After 6:00 PM Pacific Time Friday January 8, 2016

* \$US 775.00 for attendees staying at the Hyatt Regency Atlanta

* \$US 975.00 for all others (including local attendees not staying at the group hotel)

Student Registration: \$US 150 (college students at the bachelor or post-graduate level)

* The Student meeting fee is available only one time per person.

* The person using the Student meeting fee will not be able to use meeting attendance to gain or maintain voting rights.

* A valid current student ID must be shown when picking up the meeting badge.

Hotel Room Rates

EARLY RATE: \$US 179.00/Night (plus applicable taxes)*

Rate applies to first 50% of Room Block or until November 30, 2015 which ever comes first. Single/Double Occupancy Run of House Rooms, Internet access included.

IEEE 802 RATE: \$US 189.00/Night (plus applicable taxes)*

Rate applies to last 50% of Room Block or until January 4, 2016 which ever comes first. Single/Double Occupancy Run of House Rooms, Internet access included.

EXTRA ADULTS: \$US 10.00/Night (plus applicable taxes)

Rate applies to Extra Adults (>2).

Per Person, Per Night.

EXTENDED DATES:

Subject to availability the IEEE 802 Group Rate is available January 8th to 29th, 2016.

SUBJECT TO AVAILABILITY:

Rates subject to the deadline and availability of rooms in the IEEE 802 Group Room Block.

ROOM BLOCK DEADLINE:

January 4, 2016. If the block is sold out before the January 4, 2016 rates may no longer be available.

HOTEL CANCELLATION POLICY:

No penalty if reservation is cancelled prior to 6:00 PM Central Time on anticipated date of arrival.

Harbin, China

Hotel Details:

Hotel Name: Heilongjiang Trade Union Business Hotel (<http://www.hljghds.com/h-index.html>)
Hotel address: No. 333, Guogeli Street, Nan Gang, 150001 Harbin, China
Hotel contact: Mr. Shoudu SUN , shoudu263@263.net , +86-18686840022
Conference contact: Ms. Sha WEI, weisha@cesi.cn , +86-13810785724
Hotel Price: Business Queen Room:780RMB, Business Twin Room:880 RMB
For hotel reservation, please email to Mr. Shoudu SUN, and cc to Ms. Sha WEI

January 27-28

155.5 China Interim

Meeting Registration Details

Meeting registration fee :1800 RMB
Pay upon hotel check-in

Invitation Letter for Visa Application

Contact person: Ms. Meng ZHAO, meng.zhao@ieee.org , +86-15801384410
If you need an invitation letter for Visa application, please send your request to Ms. Meng ZHAO.

March 13-18

156 Plenary

Sands Venetian Hotel, Macau, PRC

[Register for the session](#)

[Hotel Reservations](#)

[Session Information](#)

Registration Fees & Deadlines

Standard Registration: Before 6:00 PM Pacific Time, Friday January 29, 2016

* \$US 600.00 for attendees staying at the Sands Venetian Macao Hotel

* \$US 1050.00 for all others (including local attendees not staying at the group hotel)

Late/On-site Registration: After 6:00 PM Pacific Time Friday January 29, 2016

* \$US 800.00 for attendees staying at the Sands Venetian Macao Hotel

* \$US 1250.00 for all others (including local attendees not staying at the group hotel)

Student Registration: \$US 150 (college students at the bachelor or post-graduate level)

* The Student meeting fee is available only one time per person.

* The person using the Student meeting fee will not be able to use meeting attendance to gain or maintain voting rights.

* A valid current student ID must be shown when picking up the meeting badge.

Terms and conditions can be found on the information page.

IEEE 802 GROUP HOTEL ROOM RATE:

Single/Double Occupancy Royal Suite Rooms, Internet access included.

Friday March 11, 2016

* 1,700.00 HKD/MOP

Saturday March 12, 2016

* 2,300.00 HKD/MOP

Sunday March 13 - Thursday March 17, 2016

* 1,550.00 HKD/MOP

Friday March 18, 2016

* 1,700.00 HKD/MOP

Saturday March 19, 2016

* 2,300.00 HKD/MOP

Sunday March 20, 2016

* 1,550.00 HKD/MOP

These rates do not include any applicable service charges, Macau room tax, tourism tax and/or other taxes with similar application at the rate applicable at time of occupancy. Hotel will charge a 10% service charge and 5% Government Tax.

ROOM BLOCK DEADLINE:

If the block is sold out before February 12, 2016 IEEE 802 Group rates may no longer be available.

HOTEL CANCELLATION/CHANGE POLICY:

* Individual Guest Room Reservations may be changed or cancelled without charge up until 6:00 PM Pacific Time Friday February 12, 2016.

* A charge equivalent to full nights' accommodation, plus service charge and government tax, will be imposed on guest's guaranteed credit card for no show, amendments or cancellations received after 12 February 2016. No Refunds after February 12, 2016.

EXTENDED DATES:

Delegates request to extend their stay outside the agreed room block (Friday March 11th through Sunday March 20th), based upon hotel availability.

SUBJECT TO AVAILABILITY: *Rates are subject to the deadline and availability of rooms in the IEEE 802 Group Room Block.

How to Make a Room Reservation at Sands Venetian Macao Hotel

[Reserve room online](#)

Reserve a room by phone or email:

Phone# 853 2882 8852 Email: group.reservations@sands.com.mo

Ask for reservations and then ask for IEEE 802 Plenary Session Group Rate, code = "IEEE 802"

Do you Need A VISA to enter Macau?

A Visa is not required for most participants traveling to Macau. However we recommend visiting the following Macau government sites to determine if you need to obtain such a visa.

* Entrance Visa Required Countries List (<http://www.fsm.gov.mo/psp/eng/AfMV.html>)

* Exempt Countries List (http://www.fsm.gov.mo/psp/eng/EDoN.html#EDoN_VII)

May 15-20	Hilton Waikoloa Village, HI, USA	157	Interim*
May 25-26	Beijing, China	157.7	China Interim
July 24-29	Manchester Grand Hyatt, San Diego, CA, USA	158	Plenary
September 11-16	Marriott Warsaw	159	Interim*
September 28-29	Chongqing, China	159.5	China Interim
November 6-11	Grand Hyatt San Antonio, San Antonio, TX, USA	160	Plenary
For Year 2017		Session	Type
January 15-20	Hyatt Regency, Atlanta, GA, USA	161	Interim*
March 12-17	Hyatt Regency, Vancouver, BC, Canada	162	Plenary
May 14-19	Daejeon Convention Center, Daejeon, Korea (TBC)	163	Interim*
July 9-14	Estrel Hotel and Convention Center, Berlin, Germany	164	Plenary
September 10-15	Hilton Waikoloa Village, Kona, HI, USA	165	Interim*
November 5-10	Caribe Hotel and Convention Center, Orlando, FL, USA	166	Plenary
For Year 2018		Session	Type
January		167	Interim*
March 4-9 (TBC)	Hyatt Regency O'Hare, Rosemont, Illinois, USA	168	Plenary
May		169	Interim*
July	Manchester Grand Hyatt, San Diego, CA, USA	170	Plenary
September 9-14	Hilton Waikoloa Village, Kona, HI, USA	171	Interim*
November 11-16		172	Plenary

NOTES

China Interim - denotes an interim meeting of the IEEE 802.11 Working Group held in China, at which the only task group meeting is TGaj (China Millimetre Wave).

* *Denotes* - The IEEE 802.11 Working Group for Wireless Area Networks (WLANs) session is co-located with the IEEE 802.15 Working Group for Wireless Personal Area Networks (WPANs), IEEE 802.18 Technical Advisory Group for Radio Regulatory (R-REG), IEEE 802.19 Technical Advisory Group for Wireless Coexistence (COEX), IEEE 802.20 Working Group for Mobile Broadband Wireless Access (MBWA), IEEE 802.21 Working Group for Media Independent Handover Interoperability (MIHI), and IEEE 802.22 Working Group for Wireless Regional Area Networks (WRAN) sessions. A joint opening session with the five Working Groups and both the Technical Advisory Groups is normally carried out, at all Interim sessions.

GENERAL SESSION INFORMATION

- New attendees should check the agenda file for any new members orientation session. This session typically takes place on Sunday afternoon or Monday morning, and is intended to bring new attendees rapidly up to speed with how to operate effectively within the group.
- The Online Tentative Session Agenda displayed is always subject to change, after review at the start of the Full Working Group session for each meeting, and may be revised during the week to incorporate any necessary work.
- All Working Group sessions start promptly on time, as detailed in the session agenda.
- Attendees should bring a Laptop computer (or other small form factor computing device) equipped with 802.11 connectivity for use at the meetings. This is needed to access meeting documents and draft standards and to record meeting attendance.
- The Working Group operates under a hierarchy of IEEE, IEEE-SA, IEEE LMSC and 802.11 policies and procedures as described in <http://www.ieee802.org/11/Rules/rules.shtml>. You are deemed to be aware of and compliant to these rules by your participation in an 802.11 meeting.

This page is maintained by [Adrian Stephens](#). Comments are welcome.

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APPENDIX BD

SUMMARY REPORTS & MINUTES OF 802.11 WG SESSIONS

IEEE 802.11 WLAN WORKING GROUP SESSIONS

As our sessions are open to the public, all interested parties are welcome to attend IEEE P802.11 Working Group sessions, for which there is a registration fee, to defray the cost of the session. At Plenary sessions this is administered by the IEEE P802 LMSC organization. Whereas, the Interim sessions are normally managed by our sponsoring host. This is in-addition to your individual hotel accommodation, and travel expenses. Click here to view [Example Plenary and Interim Session Agenda](#).

File URL or Doc#

Session	Date	Month	Report	Minutes	Location	Place	Type
For Year 2025							
210	8 th - 14 th	March	Report		Hilton Atlanta	Atlanta GA USA	Plenary
209	12 th - 17 th	January	Report	Minutes	Kobe Convention Center	Kobe Japan	Interim
For Year 2024							
208	10 th - 15 th	November	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Plenary
207	8 th - 13 th	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
206	14 th - 19 th	July	Report	Minutes	Sheraton Le Centre	Montreal QC Canada	Plenary
205	12 th - 17 th	May	Report	Minutes	Warsaw Marriott	Warsaw Poland	Interim
204	10 th - 15 th	March	Report	Minutes	Hyatt Regency	Denver CO USA	Plenary
203	14 th - 19 th	January	Report	Minutes	Hilton Panama	Panama City Panama	Interim
For Year 2023							
202	12 th - 17 th	November	Report	Minutes	Hilton Hawaiian Village Waikiki	Honolulu HI USA	Plenary
201	10 th - 15 th	September	Report	Minutes	Grand Hyatt	Atlanta GA USA	Interim
200	9 th - 14 th	July	Report	Minutes	Estrel	Berlin Germany	Plenary
199	14 th - 19 th	May	Report	Minutes	Hilton Orlando Lake Buena Vista	Orlando FL USA	Interim
198	12 th - 17 th	March	Report	Minutes	Hilton Atlanta	Atlanta GA USA	Plenary
197	15 th - 20 th	January	Report	Minutes	Hilton Inner Harbor	Baltimore MD USA	Interim
For Year 2022							
196	13 th - 18 th	November	Report	Minutes	Marriott Marquis Queen's Park	Bangkok Thailand	Plenary
195	11 th - 16 th	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
194	10 th - 15 th	July	Report	Minutes	Marriott	Montreal QC Canada	Plenary
193	8 th - 13 th	May	Report	Minutes	Online	Online	Interim
192	7 th - 15 th	March	Report	Minutes	Online	Online	Plenary
191	17 th - 25 th	January	Report	Minutes	Online	Online	Interim
For Year 2021							
190	8 th - 16 th	November	Report	Minutes	Online	Online	Plenary
189	13 th - 21 st	September	Report	Minutes	Online	Online	Interim
188	12 th - 20 th	July	Report	Minutes	Online	Online	Plenary
187	10 th - 18 th	May	Report	Minutes	Online	Online	Interim
186	8 th - 16 th	March	Report	Minutes	Online	Online	Plenary
185	11 th - 15 th	January	Report	Minutes	Online	Online	Interim
For Year 2020							
184	2 nd - 10 th	November	Report	Minutes	Online	Online	Plenary
183	13 th - 17 th	September	Report	Minutes	Online	Online	Interim
182	13 th - 16 th	July	Report	Minutes	Online	Online	Plenary
181	10 th - 15 th	May	Cancelled Session		Marriott	Warsaw Poland	Interim
180	15 th - 20 th	March	Cancelled Session		Hilton Atlanta	Atlanta GA USA	Plenary
179	12 th - 17 th	January	Report	Minutes	Hotel Irvine	Irvine CA USA	Interim
For Year 2019							
178	11 th - 15 th	November	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Plenary
177	16 th - 20 th	September	Report	Minutes	JW Marriott	Hanoi Vietnam	Interim
176	15 th - 19 th	July	Report	Minutes	Austria Center Vienna	Vienna Austria	Plenary
175	13 th - 17 th	May	Report	Minutes	Grand Hyatt	Atlanta GA USA	Interim

n/a Denotes - Not Applicable.

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File URL or Doc#

Session	Date	Month	Report	Minutes	Location	Place	Type
174	11 th - 15 th	March	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Plenary
173	14 th - 18 th	January	Report	Minutes	Hilton at the ball park	St Louis MO USA	Interim
For Year 2018							
172	12 th - 16 th	November	Report	Minutes	Marriott Marquis Queen's Park	Bangkok Thailand	Plenary
171	10 th - 14 th	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
170	9 th - 13 th	July	Report	Minutes	Manchester Grand Hyatt	San Diego CA USA	Plenary
169	7 th - 11 th	May	Report	Minutes	Marriott	Warsaw Poland	Interim
168	5 th - 9 th	March	Report	Minutes	Hyatt Regency O'Hare	Rosemont IL USA	Plenary
167	15 th - 19 th	January	Report	Minutes	Hotel Irvine	Irvine CA USA	Interim
For Year 2017							
166	6 th - 10 th	November	Report	Minutes	Caribe Royale	Orlando FL USA	Plenary
165	11 th - 15 th	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
164	9 th - 14 th	July	Report	Minutes	Estrel	Berlin Germany	Plenary
163	8 th - 12 th	May	Report	Minutes	Lotte	Daejeon South Korea	Interim
162	13 th - 17 th	March	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Plenary
161	16 th - 20 th	January	Report	Minutes	Grand Hyatt	Atlanta GA USA	Interim
For Year 2016							
160	7 th - 11 th	November	Report	Minutes	Grand Hyatt	San Antonio TX USA	Plenary
159	12 th - 16 th	September	Report	Minutes	Marriott	Warsaw Poland	Interim
158	25 th - 29 th	July	Report	Minutes	Manchester Grand Hyatt	San Diego CA USA	Plenary
157	16 th - 20 th	May	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
156	14 th - 18 th	March	Report	Minutes	Venetian	Macau	Plenary
155.5	27 th - 27 th	January	Report	Minutes	Heilongjiang Trade Union Hotel	Harbin China	Interim
155	18 th - 22 nd	January	Report	Minutes	Hyatt Regency	Atlanta GA USA	Interim
For Year 2015							
154	9 th - 13 th	November	Report	Minutes	Hyatt Regency	Dallas TX USA	Plenary
153	14 th - 18 th	September	Report	Minutes	Centara Grand	Bangkok Thailand	Interim
152	13 th - 17 th	July	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Plenary
151.5	19 th - 20 th	May	Report	Minutes	Zhuhai Dehan	Zhuhai China	Interim
151	11 th - 15 th	May	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Interim
150	9 th - 13 th	March	Report	Minutes	Estrel	Berlin Germany	Plenary
149.5	21 st - 22 nd	January	Report	Minutes	Kempinski	Xiamen China	Interim
149	11 th - 16 th	January	Report	Minutes	Hyatt Regency	Atlanta GA USA	Interim
For Year 2014							
148	2 nd - 7 th	November	Report	Minutes	Grand Hyatt	San Antonio TX USA	Plenary
147	14 th - 19 th	September	Report	Minutes	Hilton Athens	Athens Greece	Interim
146.5	9 th - 10 th	September	Report	Minutes	Sofitel Luxury	Chengdu China	Interim
146	13 th - 18 th	July	Report	Minutes	Manchester Hyatt	San Diego CA USA	Plenary
145.5	21 st - 22 nd	May	Report	Minutes	New Century	Beijing China	Interim
145	11 th - 16 th	May	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
144	16 th - 21 st	March	Report	Minutes	China World	Beijing China	Plenary
143.5	8 th - 9 th	January	Report	Minutes	Howard Johnson Resort	Sanya China	Interim
143	19 th - 24 th	January	Report	Minutes	Hyatt Century Plaza	Los Angeles CA USA	Interim
For Year 2013							
142	10 th - 15 th	November	Report	Minutes	Hyatt Regency	Dallas TX USA	Plenary
141	15 th - 20 th	September	Report	Minutes	Zhong Shan	Nanjing China	Interim

n/a Denotes - Not Applicable.

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File URL or Doc#							
Session	Date	Month	Report	Minutes	Location	Place	Type
140	14 th - 19 th	July	Report	Minutes	ITU Headquarters	Geneva Switzerland	Plenary
139	11 th - 17 th	May	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
138.5	24 th - 25 th	April	Report	Minutes	Nikko New Century	Beijing China	Interim
138	17 th - 22 nd	March	Report	Minutes	Caribe Royale	Orlando FL USA	Plenary
137.5	23 rd - 24 th	January	Report	Minutes	Grand Mercure Oriental Ginza	Shenzhen China	Interim
137	12 th - 18 th	January	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Interim
For Year 2012							
136	12 th - 16 th	November	Report	Minutes	Grand Hyatt	San Antonio TX USA	Plenary
135.5	26 th - 27 th	September	Report	Minutes	Nikko New Century	Beijing China	Interim
135	16 th - 21 st	September	Report	Minutes	Hyatt Regency	Indian Wells CA USA	Interim
134	14 th - 20 th	July	Report	Minutes	Manchester Grand Hyatt	San Diego CA USA	Plenary
133	13 th - 18 th	May	Report	Minutes	Hyatt Regency	Atlanta GA USA	Interim
132	11 th - 16 th	March	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Plenary
131	15 th - 20 th	January	Report	Minutes	Hyatt Regency	Jacksonville FL USA	Interim
For Year 2011							
130	6 th - 11 th	November	Report	Minutes	Hyatt Regency	Atlanta GA USA	Plenary
129	18 th - 23 rd	September	Report	Minutes	Okinawa Convention Center	Okinawa Japan	Interim
128	17 th - 22 nd	July	Report	Minutes	Hyatt Regency	San Francisco CA USA	Plenary
127	8 th - 13 th	May	Report	Minutes	Hyatt Grand Champion	Indian Wells CA USA	Interim
126	13 th - 18 th	March	Report	Minutes	Marina Bay Sands	Singapore	Plenary
125	16 th - 21 st	January	Report	Minutes	Hyatt Century Plaza	Los Angeles CA USA	Interim
For Year 2010							
124	7 th - 12 th	November	Report	Minutes	Hyatt Regency	Dallas TX USA	Plenary
123	12 th - 17 th	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
122	11 th - 16 th	July	Report	Minutes	Manchester Grand Hyatt	San Diego CA USA	Plenary
121	16 th - 21 st	May	Report	Minutes	China World	Beijing PRC	Interim
120	14 th - 19 th	March	Report	Minutes	Caribe Royale	Orlando FL USA	Plenary
119	17 th - 22 nd	January	Report	Minutes	Hyatt Century Plaza	Los Angeles CA USA	Interim
For Year 2009							
118	15 th - 20 th	November	Report	Minutes	Hyatt Regency	Atlanta GA USA	Plenary
117	20 th - 25 th	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
116	12 th - 17 th	July	Report	Minutes	Hyatt Regency	San Francisco CA USA	Plenary
115	10 th - 15 th	May	Report	Minutes	Fairmont The Queen Elizabeth	Montreal PQ Canada	Interim
114	8 th - 13 th	March	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Plenary
113	18 th - 23 rd	January	Report	Minutes	Hyatt Century Plaza	Los Angeles CA USA	Interim
For Year 2008							
112	9 th - 14 th	November	Report	Minutes	Hyatt Regency	Dallas TX USA	Plenary
111	7 th - 12 th	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
110	13 th - 18 th	July	Report	Minutes	Hyatt Regency	Denver CO USA	Plenary
109	11 th - 16 th	May	Report	Minutes	Hyatt Regency	Jacksonville FL USA	Interim
108	16 th - 21 st	March	Report	Minutes	Caribe Royale	Orlando FL USA	Plenary
107	13 th - 18 th	January	Report	Minutes	Howard Plaza	Taipei Taiwan ROC	Interim
For Year 2007							
106	11 th - 16 th	November	Report	Minutes	Hyatt Regency	Atlanta GA USA	Plenary
105	16 th - 21 st	September	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
104	15 th - 20 th	July	Report	Minutes	Hyatt Regency	San Francisco CA USA	Plenary

n/a Denotes - Not Applicable.

IEEE 802.11 WLAN WORKING GROUP SESSIONS

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File URL or Doc#

Session	Date	Month	Report	Minutes	Location	Place	Type
103	13 th - 18 th	May	Report	Minutes	Fairmont The Queen Elizabeth	Montreal PQ Canada	Interim
102	11 th - 16 th	March	Report	Minutes	Caribe Royale	Orlando FL USA	Plenary
101	14 th - 19 th	January	Report	Minutes	Hilton London Metropole	London United Kingdom	Interim
For Year 2006							
100	13 th - 17 th	November	Report	Minutes	Hyatt Regency	Dallas TX USA	Plenary
99	17 th - 22 nd	September	Report	Minutes	Exhibition Convention Centre	Melbourne Victoria Australia	Interim
98	16 th - 21 st	July	Report	Minutes	Manchester Grand Hyatt	San Diego CA USA	Plenary
97	15 th - 19 th	May	Report	Minutes	Hyatt Regency	Jacksonville FL USA	Interim
96	6 th - 10 th	March	Report	Minutes	Hyatt Regency	Denver CO USA	Plenary
95	15 th - 20 th	January	Report	Minutes	Hilton Waikoloa Village	Waikoloa HI USA	Interim
For Year 2005							
94	13 th - 18 th	November	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Plenary
93	18 th - 23 rd	September	Report	Minutes	Hyatt Regency	Garden Grove CA USA	Interim
92	17 th - 22 nd	July	Report	Minutes	Hyatt Regency	San Francisco CA USA	Plenary
91	15 th - 20 th	May	Report	Minutes	Cairns Convention Centre	Cairns Queensland Australia	Interim
90	13 th - 18 th	March	Report	Minutes	Hyatt Regency	Atlanta GA USA	Plenary
89	16 th - 21 st	January	Report	Minutes	Hyatt Regency	Monterey CA USA	Interim
For Year 2004							
88	15 th - 19 th	November	Report	Minutes	Hyatt Regency	San Antonio TX USA	Plenary
87	12 th - 17 th	September	Report	Minutes	Estrel Hotel Berlin	Berlin Germany	Interim
86	12 th - 16 th	July	Report	Minutes	Portland Hilton	Portland OR USA	Plenary
85	9 th - 14 th	May	Report	Minutes	Hyatt Regency	Garden Grove CA USA	Interim
84	14 th - 19 th	March	Report	Minutes	Hilton in Walt Disney World	Lake Buena Vista FL USA	Plenary
83	11 th - 16 th	January	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Interim
For Year 2003							
82	10 th - 14 th	November	Report	Minutes	Hyatt Regency	Albuquerque NM USA	Plenary
81	15 th - 19 th	September	Report	Minutes	Swisstel The Stamford	Singapore	Interim
80	20 th - 25 th	July	Report	Minutes	Hyatt Regency	San Francisco CA USA	Plenary
79	12 th - 16 th	May	Report	Minutes	Hyatt Regency	Dallas/Ft Worth Airport TX USA	Interim
78	10 th - 14 th	March	Report	Minutes	Hyatt Regency	Dallas/Ft Worth Airport TX USA	Plenary
77	13 th - 17 th	January	Report	Minutes	Fort Lauderdale Marina Marriott	Fort Lauderdale FL USA	Interim
For Year 2002							
76	11 th - 15 th	November	Report	Minutes	Hyatt Regency	Kauai HI USA	Plenary
75	9 th - 13 th	September	Report	Minutes	Hyatt Regency	Monterey CA USA	Interim
74	8 th - 12 th	July	Report	Minutes	Hyatt Regency	Vancouver BC Canada	Plenary
73	13 th - 17 th	May	Report	Minutes	Wentworth Sydney Hotel	Sydney NSW Australia	Interim
72	11 th - 15 th	March	Report	Minutes	Hyatt Regency	St. Louis MO USA	Plenary
71	21 st - 25 th	January	Report	Minutes	Wyndham Anatole Hotel	Dallas TX USA	Interim
For Year 2001							
70	11 th - 16 th	November	Report	Minutes	Hyatt Regency	Austin TX USA	Plenary
69	17 th - 21 st	September	Cancelled Session		Hyatt Regency	Bellevue WA USA	Interim
68	9 th - 13 th	July	Report	Minutes	Portland Marriott Downtown	Portland OR USA	Plenary
67	14 th - 18 th	May	Report	Minutes	Radisson at Universal Orlando	Orlando FL USA	Interim
66	12 th - 16 th	March	Report	Minutes	Marriott Resort	Hilton Head SC USA	Plenary
65	15 th - 19 th	January	Report	Minutes	Hyatt Regency Resort	Monterey CA USA	Interim
For Year 2000							
n/a Denotes - Not Applicable.							

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File URL or Doc#							
Session	Date	Month	Report	Minutes	Location	Place	Type
64	13 th - 17 th	November	Report	Minutes	Hyatt Regency	Tampa FL USA	Plenary
63	18 th - 22 nd	September	Report	Minutes	Radisson Resort Spa	Scottsdale AZ USA	Interim
62	10 th - 14 th	July	Report	Minutes	Hyatt Regency	La Jolla CA USA	Plenary
61	8 th - 12 th	May	Report	Minutes	Renaissance Madison Hotel	Seattle WA USA	Interim
60	6 th - 10 th	March	Report	Minutes	Hyatt Regency	Albuquerque NM USA	Plenary
59	10 th - 14 th	January	Report	Minutes	David Intercontinental Hotel	Tel Aviv Israel	Interim
For Year 1999							
58	8 th - 12 th	November	Report	Minutes	Hyatt Regency	Kauai HI USA	Plenary
57	13 th - 17 th	September	Report	Minutes	Hilton Sonoma County	Santa Rosa CA USA	Interim
56	5 th - 9 th	July	Report	Minutes	Queen Elizabeth	Montreal PQ Canada	Plenary
55	3 rd - 7 th	May	Report	Minutes	Makuhari Prince Hotel	Chiba Japan	Interim
54	8 th - 12 th	March	Report	Minutes	Hyatt Regency	Austin TX USA	Plenary
53	11 th - 15 th	January	Report	Minutes	Grosvenor	Lake Buena Vista FL USA	Interim
For Year 1998							
52	9 th - 13 th	November	n/a	Minutes	Hyatt Regency	Albuquerque NM USA	Plenary
51	1 st - 1 st	October	n/a	Minutes	Hyatt Regency	Atlanta GA USA	Special
50	14 th - 18 th	September	n/a	Minutes	Westford Regency Inn	Westford MA USA	Interim
49	6 th - 11 th	July	n/a	Minutes	Hyatt Regency	La Jolla CA USA	Plenary
48	19 th - 21 st	May	n/a	Minutes	Sheraton Grand	Irving TX USA	Special
47	8 th - 9 th	April	n/a	Minutes	Boston Marriott	Cambridge MA USA	Special
46	4 th - 8 th	May	n/a	Minutes	Holiday Inn	Utrecht Nederlands	Interim
45	9 th - 13 th	March	n/a	Minutes	Hyatt Regency	Irvine CA USA	Plenary
44	19 th - 23 rd	January	n/a	Minutes	Embassy Suites	Lynnwood WA USA	Interim
For Year 1997							
43	10 th - 14 th	November	n/a	Minutes	Queen Elizabeth	Montreal PQ Canada	Plenary
42	8 th - 12 th	September	n/a	Minutes	Grafton Radisson Edwardian	London United Kingdom	Interim
41	6 th - 11 th	July	n/a	Minutes	Hyatt Regency	Maui HI USA	Plenary
40	7 th - 9 th	May	n/a	Minutes	AMD Facility	Sunnyvale CA USA	Interim
39	10 th - 14 th	March	n/a	Minutes	Marriott	Irvine CA USA	Plenary
38	13 th - 17 th	January	n/a	Minutes	Harris Facility	Palm Bay FL USA	Interim
For Year 1996							
37	11 th - 14 th	November	n/a	Minutes	Hotel Vancouver	Vancouver BC Canada	Plenary
36	8 th - 12 th	July	n/a	Minutes	Various Campus Locations	Twente University Nederlands	Plenary
35	6 th - 9 th	May	n/a	Minutes	Westin	Waltham MA USA	Interim
34	11 th - 15 th	March	n/a	Minutes	Hyatt Regency	La Jolla CA USA	Plenary
33	8 th - 12 th	January	n/a	Minutes	Westgate Hotel	San Diego CA USA	Interim
For Year 1995							
32	6 th - 9 th	November	n/a	Minutes	Queen Elizabeth	Montreal PQ Canada	Plenary
31	28 th - 31 st	August	n/a	Minutes	Marriott	Schaumburg IL USA	Interim
30	10 th - 13 th	July	n/a	Minutes	Hyatt Regency	Maui HI USA	Plenary
29	8 th - 11 th	May	n/a	Minutes	Hilton Inn	Salt Lake City UT USA	Interim
28	6 th - 10 th	March	n/a	Minutes	Ramada Resort	West Palm Beach FL USA	Plenary
27	9 th - 12 th	January	n/a	Minutes	LeBaron	San Jose CA USA	Interim
For Year 1994							
26	7 th - 11 th	November	n/a	Minutes	Hyatt Regency	Incline Village NV USA	Plenary
25	29 th - 1 st	Aug / Sep	n/a	Minutes	Marriott Rivercenter	San Antonio TX USA	Interim

n/a Denotes - Not Applicable.

IEEE 802.11 WLAN WORKING GROUP SESSIONS

As our sessions are open to the public, all interested parties are welcome to attend IEEE P802.11 Working Group sessions, for which there is a registration fee, to defray the cost of the session. At Plenary sessions this is administered by the IEEE P802 LMSC organization. Whereas, the Interim sessions are normally managed by our sponsoring host. This is in-addition to your individual hotel accommodation, and travel expenses. Click here to view [Example Plenary and Interim Session Agenda](#).

File URL or Doc#

Session	Date	Month	Report	Minutes	Location	Place	Type
24	11 th - 15 th	July	n/a	Minutes	Walt Disney World Swan	Orlando FL USA	Plenary
23	9 th - 12 th	May	n/a	Minutes	Holiday Inn	Oshawa ON Canada	Interim
22	7 th - 11 th	March	n/a	Minutes	Hotel Vancouver	Vancouver BC Canada	Plenary
21	10 th - 13 th	January	n/a	Minutes	LeBaron	San Jose CA USA	Interim
For Year 1993							
20	8 th - 12 th	November	n/a	Minutes	Ramada	West Palm Beach FL USA	Plenary
19	20 th - 23 rd	September	n/a	Minutes	Wyndham Garden	Atlanta GA USA	Interim
18	12 th - 15 th	July	n/a	Minutes	Sheraton	Denver CO USA	Plenary
17	10 th - 13 th	May	n/a	Minutes	Holiday Inn	Wilmington DE USA	Interim
16	8 th - 12 th	March	n/a	Minutes	Omni Inner Harbor	Baltimore MD USA	Plenary
15	11 th - 14 th	January	n/a	Minutes	Ramada	Agoura Hills CA USA	Interim
For Year 1992							
14	9 th - 12 th	November	n/a	.doc .pdf	Hyatt Regency	La Jolla CA USA	Plenary
13	14 th - 17 th	September	n/a	.doc .pdf	Hilton	Dayton OH USA	Interim
12	6 th - 9 th	July	n/a	.doc .pdf	Radisson	Minneapolis MN USA	Plenary
11	11 th - 14 th	May	n/a	.doc .pdf	Holiday Inn	Leiden Netherlands	Interim
10	9 th - 12 th	March	n/a	.doc .pdf	Marriott	Irvine CA USA	Plenary
9	13 th - 16 th	January	n/a	.doc .pdf	Omni Europe	Chapel Hill NC USA	Interim
For Year 1991							
8	11 th - 15 th	November	n/a	.doc .pdf	Crown Sterling Suites	Ft. Lauderdale FL USA	Plenary
7	8 th - 12 th	September	n/a	.doc .pdf	Hyatt Regency	Palo Alto CA USA	Interim
6	8 th - 11 th	July	n/a	.doc .pdf	Hyatt Regency	Kauai HI USA	Plenary
5	6 th - 9 th	May	n/a	.doc .pdf	Marriott	Worcester MA USA	Interim
4	11 th - 14 th	March	n/a	.doc .pdf	Westin Resort	Hilton Head SC USA	Plenary
3	7 th - 10 th	January	n/a	.doc .pdf	Compri hotel	Gaithersburg MD USA	Interim
For Year 1990							
2	12 th - 16 th	November	n/a	.doc .pdf	Hyatt Regency	La Jolla CA USA	Plenary
1	10 th - 14 th	September	n/a	.doc .pdf	Holiday Inn	Oshawa ON Canada	Interim

n/a Denotes - Not Applicable.



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APPENDIX BE

Explanations for CR on 27.5.2.7 NDP feedback report

Date: 2017-03-06

Authors:

Name	Affiliations	Address	Phone	email
Laurent Cariou	Intel			
Robert Stacey	Intel			
Po-Kai Huang	Intel			
Chitto Ghosh	Intel			
Xiaogang Chen	Intel			
Qinghua Li	Intel			
Leo Montreuil	Broadcom			
Ron Porat	Broadcom			
Matthew Fischer	Broadcom			
David Klover	Cisco			
Genadiy Tsodik	Huawei			
Leonid Epstein	Huawei			
Avi Weitzman	Huawei			
Shimi Shilo	Huawei			
Yunbo Li	Huawei			

Background (1)

- **It is well accepted that being able to get a very short simultaneous feedback from a high number of STAs (all STAs) improve the 11ax system and power efficiencies [1], [3]**
 - Many feedbacks require 1 bit: PS-Poll (power efficiency), Channel Availability (collisions avoidance)
 - Other feedbacks could be 2 bit. For example: “How many buffered Bytes for transmission: 0, 1 to 1000, 1000 to 5000, > 5000 ?”
 - A short simultaneous resource request feedback (1 or several bits) capable of supporting a high number of STAs is needed for an efficient UL MU simultaneous scheduling in addition to the existing (or enhanced) piggybacked buffer information
 - Less overhead for resource request feedback than polling method
 - Low and stable latency for resource request feedback, compared to possibly high and unpredictable latency with CSMA-CA in dense environments

Background (2)

- In Nov. 2016, added subclause 25.5.2.7 to the spec:

25.5.2.7 NDP feedback report procedure

The NDP feedback report is a mechanism for an HE AP to collect short feedbacks from a very high number of HE STAs, in an efficient manner. The feedbacks (e.g. resource requests) are sent without data payloads in response to a Trigger frame. The feedbacks are not for channel sounding. This mechanism is optional for non-AP STA.

- But details of the NDP feedback mechanism are TBD
- Contribution 44r1 proposes a signaling technique for the NDP feedback mechanism that can handle a high number of STAs and is power and air time efficient
- This contribution proposes to define a new trigger type for NDP feedback report and the procedure for an HE non-AP STA to know, based on the trigger frame, if it can respond and what parameters to use to respond

Trigger frame proposal

- We propose to define a new trigger type for NDP feedback report
 - This is the cleanest solution, as specific common info field parameters are needed for this mechanism and as this mechanism should be generic and work for multiple types of feedbacks
- We propose that this trigger type contains all the information so that:
 - STAs can know if they are scheduled
 - STAs can know on which allocation they can transmit their response, that allocation being unique
 - STAs can know what is the type of feedback that is requested and how many bits for the feedback

Proposed design for the trigger frame

- Use information in common info field and trigger dependent common info field.

Feedb ack type	Feedb ack size	Sched uling Type	Group ID	Starting STA	Probe request option	Target RSSI	Number of users per set of tones	Duplicate	Resource request buffer threshold
4	8		6	11	1	7	2	1	4

Bits:

Trigger dependent common info field

Feedback types

- We propose to define types of feedback, and a field to identify the type
 - We define the resource request type
 - We can then easily define others
- For each feedback type, we can define and limit the modes of operation:
 - number of bits of feedback
 - For instance, if feedback type is resource request, it has to be a 1-bit feedback and the mapping is the following
 - For a 1-bit feedback, PHY design allows to have 3 states
 - a state with no-response
 - A state with a bit received with a value of 0
 - Defines a resource request for a small payload
 - A state with a bit received with a value of 1
 - Defines a resource request for a larger payload
 - Mode for selecting the scheduled users
 - Range of AIDs
 - GroupID

<i>b0</i> Value	Description
0	Resource request with buffered bytes for transmission between 1 and “resource_request_buffer_threshold”
1	Resource request with buffered bytes for transmission above “resource_request_buffer_threshold”

Feedback types

- With this solution, it is also possible to define multiple feedbacks
 - Some feedback type indexes are associated with a single pre-defined feedback
 - Some feedback type indexes can be associated with multiple pre-defined feedbacks
- For each index, there is a clear spec sub-section that describes how the bits are assigned to each feedback (including the number of bits) and how to encode them

Scheduling the STAs with range of AID

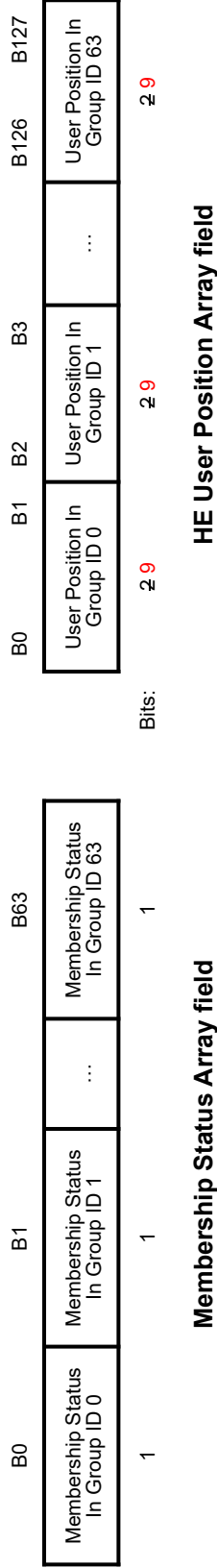
- *If Scheduling type field is set to zero, the STAs are scheduled with a range of AIDs*
- The trigger frame identifies the group of STAs that can respond:
- This is done by defining a range of consecutive AIDs, by using:
 - Starting STA field in the trigger frame
 - And the parameters to know how many AIDs are scheduled (NAIDs)
- The STAs whose AID is between Starting STA and Starting STA + NAIDs are scheduled
 - The index of the STA AID compared to Starting STA is used to know the allocation
- This allows:
 - Unique allocation per AID
 - No need for assigning the allocation in a static manner with any other frame exchanges
 - Starting STA field allows to define different groups of STAs and target the AID range that associated STAs are using

Scheduling the STAs with groupID

- *If Scheduling type field is set to 1, the STAs are scheduled with groupID*
- The trigger frame identifies the group of STAs that can respond:
 - The groupID field is set to a predefined group ID
 - The Starting STA field indicates at which index in the group the range of STAs are scheduled
 - STAs that belong to the group and whose index is between Starting STA and Starting STA + NAIDs are scheduled
 - The index of the STA in the groupID compared to Starting STA is used to know the allocation

GroupID management

- We propose to enable group management as in 11ac
 - Frame unicasted to a STA to indicate to which group it is a member and the position of that STA in these groups.
 - 9 bits to indicate groups positions (instead of 2 with 11ac)
- For this, we propose to define a new HE Group ID Management frame (HE action frame)
 - It replicates 11ax groupID management
 - It includes Membership status array field already defined in 9.4.1.54
 - It includes a new HE user Position Array field (see below with the changes compared to User Position Array field used in 11ac)



Deriving parameters for transmission of the response (allocation)

- The response follows the UL MU operation
- The parameters of the trigger-based PPDU are derived from the trigger frame, and each AID has a unique combination of:
 - 242 RU allocation
 - Tone sets allocations within each RU
 - NUM_STS
- These are calculated based on:
 - AID range option: index “AID-AID start” and parameters from trigger frame: feedback size, BW, number of users per set of tones
 - Group ID: index “STA position in the group – Index start” and parameters from trigger frame: feedback size, BW, number of users per set of tones

Deriving parameters for transmission of the response (allocation)

- STAs are assigned in order depending on their AID or GroupID index, starting from Starting STA:
 - Assign all frequency allocations on the whole bandwidth using SS1 first
 - 18 first STAs for a 20MHz BW
 - 36 first STAs for a 40MHz BW (if duplicate =0)
 - Then assign the following STAs using incremented SSs.
 - Next 18 STAs are assigned the same allocations but with SS2
- For $BW > 20\text{MHz}$:
 - If duplicate field is equal to 0, allocations in frequency are done in order on the whole bandwidth
 - 18 first STAs in the first 20MHz, 18 following STAs in the second 20MHz...
 - If duplicate field is equal to 1, the same set of users are assigned the same allocation in each 20MHz

Example of user mapping

		Pm-c1	Pm-c2
242 RU1	TS0	0	36
	TS1	1	37
	...	...	...
242 RU2	TS18	17	53
	TS0	18	54
	TS1	19	55
	...	...	...
	TS18	35	71

40MHz – 2 P-matrix codes

		Pm-c1	Pm-c2
RU1	TS0	0	72
	TS1	1	73
	...	...	...
RU2	TS18	17	89
	TS0	18	90
	TS1	19	91
	...	...	...
RU3	TS18	35	107
	TS0	36	108
	TS1	37	109
	...	...	...
RU4	TS18	53	125
	TS0	54	126
	TS1	55	127
	...	...	...
	TS18	71	143

80MHz – 2 P-matrix codes

Power control

- TargetRSSI is included in the trigger dependent common info field
- This enables power control with the same target for all STAs

Specific mode for request for probe response

- *groupID* field set to the value of a groupID
- Associated STAs belonging to the signaled group ID shall respond as explained in previous slides.
- If the field “probe request option” is set to 1, it indicates that the last available allocation is assigned for non-associated STAs to **send single bit indicating probe request**.
 - This may be useful in HD/VHD deployments, such as stadiums or malls.
- The AP shall make sure that there is one allocation at the end of the bitmap not assigned to the STAs belonging to the groupID
- Non-zero value of the allocation assigned for probe requests in the received NDP feedback indicates that at least one STA requested a Probe Response frame.
- A single Probe Response shall be transmitted by the AP with the Addr1 set to Broadcast Address allowing all the non-associated STAs that transmitted the single-bit probe request to receive the probe response, preventing multiple APs from transmitting a probe-response.

Summary

- We propose to progress on the definition of the NDP feedback report procedure
 - New trigger type
 - Parameters to identify the scheduled STAs
 - Parameters for scheduled STAs to derive the parameters for the response
 - Resource request type

Straw Poll 2bis

- Which option do you prefer?
 - STAs scheduled by a NDP feedback report trigger frame variant with a feedback type set to “resource request” are identified by:
 - Option 1: a single mode: a range of AIDs
 - Option 2: 2 modes: a mode with a range of AIDs and a mode with groupID

Straw Poll 2

- Do you agree to define a new NDP feedback report trigger frame variant

Strawpoll #3

- Do you agree to define that the STAs scheduled by a NDP feedback report trigger frame variant with a feedback type set to “resource request” are identified by
 - Option 1: one range of AIDs
 - Option 2: one or multiple ranges of AIDs

Note: A range of AIDs is defined to be between AID start and AID start + NAIDs - 1. The trigger frame includes the AID start parameter and the needed parameters to calculate NAIDs

Straw Poll #3

- Do you agree that the RU allocation, RU tone set allocation and starting_STS_num for the NDP feedback response from an HE non-AP STA are calculated based on common parameters in the new NDP feedback report trigger frame variant. A “duplicate” field is defined in the new NDP feedback report trigger frame variant to indicate that STAs allocated are calculated on with a 20MHz bandwidth and are duplicated on the other 20MHz channels

Straw Poll #4

- Do you agree that, for resource request feedback type:
 - The feedback size is set to “1 bit” only
 - The NDP feedback report trigger frame variant has a field called “resource request buffer threshold”
 - Scheduled STAs send a 0 for the NDP feedback report to indicate a resource request with buffer size below the “resource request buffer threshold”
 - Scheduled STAs send a 1 for the NDP feedback report to indicate a resource request with buffer size above the “resource request buffer threshold”

Straw Poll #5

- Do you agree with the mode defined in slide 20 to allocate one allocation to all unassociated STAs to make a request for a transmission by the AP of a probe response.

References

- [1] IEEE 802.11-16/1367r0: [NDP feedback report](#)
- [2] IEEE 802.11-15/1334r1: [HE-LTF sequence design](#)
- [3] IEEE 11-17-0044-00-00ax-NDP short feedback design

Straw Poll #4bis

- Which option do you prefer:
- The “resource request buffer threshold” allows to make 2 levels of resource requests, one for a payload smaller than the threshold, one for a payload higher than the threshold
 - Option 1: The “resource request buffer threshold” is indicated in the eliciting NDP feedback report poll trigger frame
 - Option 2: The “resource request buffer threshold” is indicated in an IE sent by the AP

Annex – PHY design currently proposed

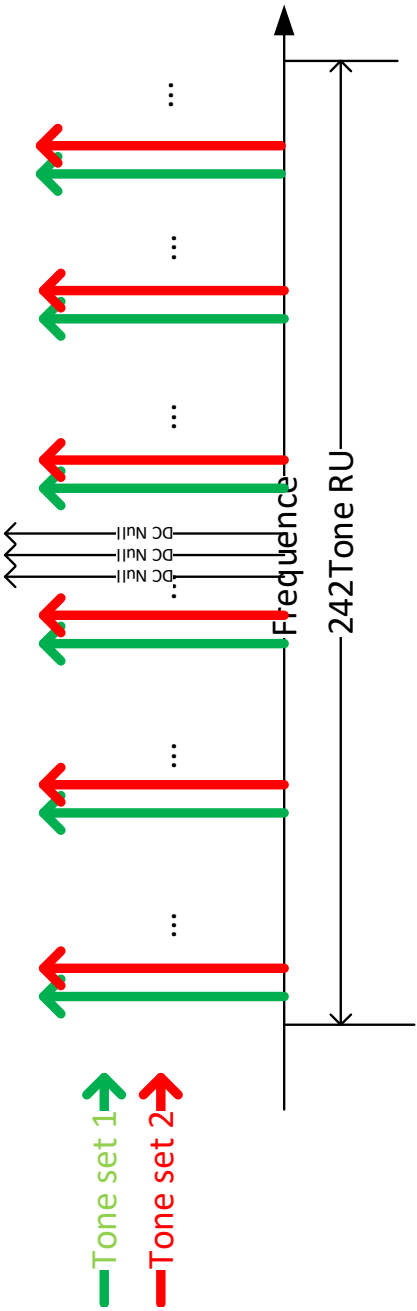
How to define the NDP feedback mechanism?

- UL MU transmission in response to a trigger frame
- Use frequency dimension for many small orthogonal allocations
- To avoid collisions, assign orthogonal allocations to users
- No data payload (NDP), STAs transmit energy on one orthogonal allocation for feedback
 - with spreading gain in time domain for PHY robustness
- For minimal changes to the current PHY, we propose
 - to use UL MU NDP simultaneous transmissions in response to a trigger frame
 - and to define orthogonal allocations (resource block RBs) to multiplex different STAs' feedbacks
 - These orthogonal allocations (RBs) are defined by using different frequency tone sets

Overview of proposed signaling for Short Feedback

- For each 20MHz, the 242 tones RU are divided into 18 tones sets. Each tone set is made of 12 tones that are equally distributed over the RU (2 tones adjacent to each other)
- 1 allocation is made of 1 tone sets and a SS
 - 1 or multiple allocations can be uniquely assigned to one STA
 - 1 bit can be transmitted using 1 allocation (1 tone sets, made of 2 subsets of 6 tones)
 - 1 is sent by modulating to first tone subset and not the second one
 - 0 is sent by modulating the second subtone set and not the first one
- Channel estimation is not needed for detection
- AP and STAs must have a prior agreement on allocation assignment

Proposed distribution of tones over 242 tones



Tone set indices for each 20 MHz: I_{ULf}

P-Matrix 1x1	P-Matrix 2x2	P-Matrix 4x4	2 bit or 1 bit high power		
			1 bit		
Tone sets	Tone sets	Tone sets	b0 = 1	b0 = 0	b1 = 1 b1 = 0
1	1,2	1,2,3,4	-113,-77,-41,6,42,78	-112,-76,-40,7,43,79	-95,-59,-23,24,60,96 -94,-58,-22,25,61,97
2	:	:	-111,-75,-39,8,44,80	-110,-74,-38,9,45,81	-93,-57,-21,26,62,98 -92,-56,-20,27,63,99
3	:	:	-109,-73,-37,10,46,82	-108,-72,-36,11,47,83	-91,-55,-19,28,64,100 -90,-54,-18,29,65,101
4	:	:	-107,-71,-35,12,48,84	-106,-70,-34,13,49,85	-89,-53,-17,30,66,102 -88,-52,-16,31,67,103
5	:	:	-105,-69,-33,14,50,86	-104,-68,-32,15,51,87	-87,-51,-15,32,68,104 -86,-50,-14,33,69,105
6	:	:	-103,-67,-31,16,52,88	-102,-66,-30,17,53,89	-85,-49,-13,34,70,106 -84,-48,-12,35,71,107
7	:	:	-101,-65,-29,18,54,90	-100,-64,-28,19,55,91	-83,-47,-11,36,72,108 -82,-46,-10,37,73,109
8	:	:	-99,-63,-27,20,56,92	-98,-62,-26,21,57,93	-81,-45,-9,38,74,110 -80,-44,-8,39,75,111
9	17,18	33,34,35,36	-97,-61,-25,22,58,94	-96,-60,-24,23,59,95	-79,-43,-7,40,76,112 -78,-42,-6,41,77,113
10	19,20	37,38,39,40	-95,-59,-23,24,60,96	-94,-58,-22,25,61,97	
11	:	:	-93,-57,-21,26,62,98	-92,-56,-20,27,63,99	
12	:	:	-91,-55,-19,28,64,100	-90,-54,-18,29,65,101	
13	:	:	-89,-53,-17,30,66,102	-88,-52,-16,31,67,103	
14	:	:	-87,-51,-15,32,68,104	-86,-50,-14,33,69,105	
15	:	:	-85,-49,-13,34,70,106	-84,-48,-12,35,71,107	
16	:	:	-83,-47,-11,36,72,108	-82,-46,-10,37,73,109	
17	:	:	-81,-45,-9,38,74,110	-80,-44,-8,39,75,111	
18	35,36	69,70,71,72	-79,-43,-7,40,76,112	-78,-42,-6,41,77,113	

Submission

Slide 30

Laurent cariou, Intel

Max # of STAs that can simultaneously send the UL Short Feedback

BW	Response = 1 bit			Response = 2 bit		
	$N_{ss} = 1$	$N_{ss} = 2$	$N_{ss} = 4$	$N_{ss} = 1$	$N_{ss} = 2$	$N_{ss} = 4$
20 MHz	18	36	72	9	18	36
40 MHz	36	72	144	18	36	72
80 MHz	72	144	288	36	72	144
160 MHz	144	288	576	72	144	288

Straw Poll 1

- Do you agree to modify the spec following the comment resolutions in document 17-073r1?

APPENDIX BF

IEEE P802.11 - WORKING GROUP MEMBERSHIP LISTS

This page shows information for IEEE P802.11 Voter, Potential Voter, Aspirant, Ex Officio members, and Ex Voters as of 2016-11-11.

Note that this information is updated only after each 802.11 face-to-face session or working group letter ballot series.

The fields in the membership list have the following meaning

Column	Description
Status	<p>The Status column has the following meaning:</p> <ul style="list-style-type: none">• Voter - the member can vote• Potential voter - the member will have a voting token at the next face-to-face meeting and will become a voter after that meeting• Aspirant - the member has recorded attendance at one qualifying meeting• Ex Officio - the member is a voter by virtue of their membership of the IEEE 802 executive committee (EC)• Ex Voter - the member was previously a voter member of 802.11. If you wish to be recognized as an Ex Voter, and are not recorded below, please furnish evidence of former voter status to the WG officers. <p>Members of all these status are entitled to join 802.11 email reflectors and submit documents to the 802.11 document server.</p>
Expires	<p>This column shows the meeting number (which is necessarily a Plenary meeting) and approximate starting date of the meeting after which a voting member's voting status expires, if member does not attend any qualifying meetings between now and the end of that meeting. For "potential voter" members, this shows the meeting after which their status reverts to "aspirant". For "aspirant" members, this shows the meeting after which they lose "aspirant" status (and disappear from this listing).</p> <p>An asterisk after a meeting number (e.g., "142* (2013-11-07)") indicates that a voting member needs to attend one additional meeting before the cited meeting, or they will lose their voting membership at the cited meeting, regardless of whether they attend it or not. This occurs when the last two meetings attended by the member were a plenary and the interim following it.</p> <p>NOTE--the "Expires" entry for some voting members is blank. This signifies that the chair has granted them voting membership without an attendance requirement.</p>
Expired	<p>The Expired column indicates the date when the member became an Ex Voter, if that is known.</p>
Last Invalid Ballot	<p>This column indicates the ballot number any last invalid or missed ballot (see http://www.ieee802.org/11/LetterBallots.shtml for the list of working group ballots). It is present only for Voter members.</p> <p>An invalid ballot is a failure to return a vote in a Working Group letter ballot series (i.e., the initial ballot and all recirculations for a particular project), or returning an invalid vote (voting "no" with</p>

no "must be satisfied" comments, or voting abstain for a reason other than "lack of expertise"). Invalid ballots are counted over up to the last three letter ballot series since the member gained Voter status.

Transition arrangements: For ballots starting before August 2016, a voter's response to a letter ballot series is determined by their response to the initial ballot. After then, a voter's response will be determined when the letter ballot series is known to have terminated (i.e., when the project is approved by the EC, or meets the terms of conditional approval by the EC, to proceed to sponsor ballot). Voters who failed to meet the updated OM were granted a waiver of the most recent ballot they missed so that the change in the application of the rules resulted in no loss of voting membership.

According to the 802.11 operations manual, a Voter must return a valid vote in 2 of the last 3 letter ballot series to maintain their status. This means the voter can miss or return an invalid vote at most 1 such ballot series.

A Voter that has missed a ballot series and fails to return a valid vote by the end of the next letter ballot series loses their Voter status and becomes an Ex Voter.

Please verify your affiliation.

There is a specific requirement in the IEEE-SA policies and procedures that attendees at its meetings disclose their affiliation. Attendees failing properly to do so risk losing the privileges of membership (i.e., voting rights).

For information from the IEEE-SA on affiliations please [click here](#).

Affiliation is not shown for Ex-Voters. For other membership statuses, if there is no affiliation beside your name or if the affiliation is incorrect please [follow these instructions](#).

If you have any related questions, please contact Adrian P Stephens at adrian.p.stephens@ieee.org.

Member Status	Count
Aspirant	115
ExOfficio	12
Ex Voter	785
Potential Voter	32
Voter	359

Detail

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Abdallah	Ramy		Sony Corporation	Aspirant	162 (2017-	Hyatt Regency, Vancouver, BC,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					03-12)	Canada		
Aboba	Bernard			Ex Voter				
Aboulmagd	Osama	S	Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Abraham	Santosh	P	Qualcomm Technologies Incorporated	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Abu Surra	Shadi	A	SAMSUNG	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Adachi	Tomoko		TOSHIBA Corporation	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Agardh	Kare		Sony Mobile Communications	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Aggarwal	Alok			Ex Voter			2009-07-20	
Agre	Jonathan	R		Ex Voter				
Ahn	Jaehyun			Ex Voter			2016-01-21	
Ahn	Jinsoo		Yonsei University	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ahn	Seung Hyeok		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ahn	Woojin		WILUS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Aiello	Roberto			Ex Voter			2015-07-28	
Aio	Kosuke		Sony Corporation	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Akhmetov	Dmitry		Intel Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Aldana	Carlos	H	Intel Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Alexander	Thomas			Ex Voter			2015-03-13	
Alimian	Areg			Ex Voter				
Alpert	Yaron		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Al-Taleb	Sajaa		telekom research and development/malaysia	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Amann	Keith			Ex Voter			2008-11-17	
Amini	Peiman			Ex Voter			2013-07-19	
An	Song-Haur		INDEPENDENT	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Andrade	Merwyn	B		Ex Voter				
Andren	Carl	F		Ex Voter				
Andrus	David	C		Ex Voter			2011-11-11	
Ansley	Carol		ARRIS Group	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Anton	Butch			Ex Voter				
Anwyl	Gary			Ex Voter			2010-03-22	
Aoki	Tsuguhide		TOSHIBA Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		217
Aramaki	Takashi			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Arita	Takashi			Ex Voter			2008-05-05	
Ariyavisitakul	Sirikiat Lek	L		Ex Voter			2014-11-07	
Armstrong	Lee	R	US Department of Transportation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Arndt	Manfred		Hewlett Packard Enterprise	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Arnett	Larry			Ex Voter				
Arnold	James		US Department of Transportation	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Asai	Yusuke		NTT	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ashley	Alex			Ex Voter			2013-07-19	
Asterjadhi	Alfred		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Atcitty	Torrey			Ex Voter			2012-05-01	
Au	Kwok Shum	S	Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Audeh	Malik			Ex Voter			2009-11-23	
Auluck	Vijay		Intel Corporation	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Aust	Stefan			Ex Voter			2015-11-13	
Avera	Drayton		Ratrix Technologies	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Awater	Geert	A	Qualcomm Incorporated	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Azizi	Shahnaz		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Babaei	Alireza			Ex Voter			2016-01-21	
Backes	Floyd			Ex Voter			2008-03-25	
Bagby	David		Calypso Ventures, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Bahr	Michael			Ex Voter			2012-07-20	
Bai	Fan			Ex Voter			2009-11-23	
Baik	Eugene		Qualcomm Incorporated	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Bain	David		TM Technologies	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Bajko	Gabor			Ex Voter			2016-03-18	
Baker	Dennis	J		Ex Voter			2008-12-21	
Banerjea	Raja			Ex Voter			2013-11-15	
Banerjee	Kaberi			Ex Voter			2011-03-18	
bang	saehee		LG ELECTRONICS	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Bansal	Amit			Ex Voter			2009-03-16	
Barber	Phillip			Ex Voter			2015-11-13	
Barber	Simon			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
baron	stephane		Canon Research Centre France	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Barr	David		Intel Corporation	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Barr	John	R		Ex Voter			2012-05-01	
Barriac	gwendolyn		Qualcomm Incorporated	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Barry	Kevin	M		Ex Voter				
Bartel	Charles	R		Ex Voter				
Basson	Gal			Ex Voter			2011-07-22	
Batra	Anuj		Apple, Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Bavafa	Moussa			Ex Voter			2009-05-05	
Baykas	Tuncer			Ex Voter			2013-03-04	
Baysal	Burak	H		Ex Voter				
Bei	Jianwei		Marvell Semiconductor, Inc.	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Benko	John	L		Ex Voter			2010-07-11	
Ben-Tovim	Erez			Ex Voter			2013-11-15	
Benveniste	Mathilde			Ex Voter			2009-11-23	
Berens	Friedbert		FBConsulting Sarl	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Berger	Christian		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Berkema	Alan			Ex Voter			2014-07-18	
Berry	Don			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Bhandaru	Nehru		Broadcom Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Bharadwaj	Arjun		Qualcomm Incorporated	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Bhatt	Anirudh			Ex Voter			2012-05-01	
Bhukania	Bijoy			Ex Voter			2012-11-16	
Bims	Harry		Bims Laboratories, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Bjerke	Bjorn	A		Ex Voter			2009-03-16	
Black	Simon			Ex Voter				
Blanchard	Colin			Ex Voter			2008-05-05	
Blue	Scott			Ex Voter				
Bocus	Mohammud		Toshiba of Europe Ltd.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Boer	Jan			Ex Voter				
Booth	Ted			Ex Voter			2012-05-01	
Borges	Daniel			Ex Voter			2011-06-27	
Boucachard	Philippe			Ex Voter			2013-07-19	
Bourdoux	Andre		IMEC	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Brandt	David		Rockwell Automation	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Brasier	William	M		Ex Voter				
Braskich	Anthony			Ex Voter			2010-03-22	
Bray	Jennifer			Ex Voter				
Breit	Gregory			Ex Voter			2011-11-11	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Brennan	Joseph			Ex Voter			2010-03-22	
Britz	David			Ex Voter			2008-12-21	
Buffington	John		ltron Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Buga	Walter			Ex Voter			2010-07-16	
Bumiller	G			Ex Voter			2012-07-20	
Buttar	Alistair	G		Ex Voter			2008-02-13	
Bynum	Ann			Ex Voter			2016-03-18	
Cai	Lin			Ex Voter			2015-07-28	
CAI	YU			Ex Voter			2015-07-28	
Caillerie	Alain		Canon Research Centre France	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Calcev	George		Huawei R&D USA	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Calvert	Chris		Landis Gyr Group Worldwide	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Camps Mur	Daniel	C		Ex Voter			2012-05-01	
Cam-Winget	Nancy			Ex Voter			2010-07-16	
Canchi	Radhakrishna		Kyocera International, Inc.	ExOfficio	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Canpolat	Necati			Ex Voter			2011-07-22	
cao	fengming		Toshiba of Europe Ltd.	Aspirant	162 (2017-	Hyatt Regency, Vancouver, BC,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					03-12)	Canada		
Cao	Rui		Marvell Semiconductor, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Capar	Cagatay		Ericsson	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Cardona	Javier			Ex Voter			2010-03-22	
Cariou	Laurent		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Carlo	James			Ex Voter			2008-03-25	
Carney	William		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Carson	Pat			Ex Voter				
Centonza	Angelo			Ex Voter			2008-03-25	
Cha	Jaesun			Ex Voter			2013-07-19	
Chair	Ricky		Airgain	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Challans	Romana			Ex Voter			2013-03-22	
CHAMBELIN	Philippe			Ex Voter			2012-10-31	
Chan	Douglas	S		Ex Voter			2009-11-23	
Chang	Kapseok			Ex Voter			2011-07-22	
Chang	Kuor-Hsin			Ex Voter			2015-03-13	
CHANG	SANGHYUN		SAMSUNG ELECTRONICS	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Chang	Soo-Young		California State University, Sacramento (CSUS)	Voter	166* (2017-	Caribe Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Chang	Xin			Ex Voter			2014-07-08	
Chaplin	Clint	F	Imagicon	ExOfficio				
Chen	Bin			Ex Voter			2013-07-19	
Chen	Jiamin		HUAWEI	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Chen	Jiunn-Tsair			Ex Voter			2010-03-22	
Chen	Jixin			Ex Voter			2014-05-09	
CHEN	KWANG-CHENG		National Taiwan University	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Chen	Lidong		NIST	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Chen	Qian			Ex Voter			2014-11-07	
CHEN	Rory			Ex Voter			2008-02-13	
Chen	Spark		ARRIS Group	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Chen	Teyan		Huawei Technologies Co. Ltd	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
CHEN	Xi			Ex Voter			2014-03-21	
Chen	Xiaogang		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Chen	Ye			Ex Voter				
Chen	Yi-Ming			Ex Voter				
Cheng	Hong			Ex Voter			2008-05-05	
Cheng	Paul		MediaTek Inc.	Voter	164 (2017-	Estrel Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-09)	Center, Berlin, Germany		
Cheong	Minho		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
CHERIAN	GEORGE		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Cherniavsky	Dmitry		SiBEAM, Inc.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Chesson	Greg			Ex Voter				
Chi	Zhipei			Ex Voter			2015-07-28	
Chia	Meng	W		Ex Voter			2011-07-22	
Chin	Francois			Ex Voter			2014-11-07	
Chin	Woon Hau			Ex Voter			2016-07-29	
Chindapol	Aik			Ex Voter				
Chitrakar	Rojan		Panasonic Asia Pacific Pte Ltd.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Cho	Hangyu		lg electronics	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Cho	Joongwon			Ex Voter			2016-11-11	
Cho	Woong			Ex Voter			2010-11-12	
Choi	Chang-Soon			Ex Voter			2010-11-12	
Choi	Hyeyoung			Ex Voter			2016-07-29	
Choi	Inhwan			Ex Voter			2012-02-19	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Choi	In-Kyeong		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Choi	Jee-Yon			Ex Voter			2015-03-13	
Choi	Jinsoo		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Choi	Nakjung			Ex Voter			2010-03-22	
Choi	Sangsung		Electronics and Telecommunications Research Institute (ETRI)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Choi	Seyeong			Ex Voter			2010-03-22	
Choi	Sunghyun			Ex Voter				
Choi	Won-Joon			Ex Voter				
Choo	Li Chia	C		Ex Voter			2014-07-18	
Choudhury	Abhijit	K		Ex Voter			2008-07-19	
Choudhury	Sayantan		Nokia	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		212
CHRISTIN	Philippe			Ex Voter			2011-07-22	
Chu	Liwen		Marvell Semiconductor, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Chu	Wenjing			Ex Voter			2014-03-21	
CHUN	JINYOUNG			Ex Voter			2016-01-21	
Ciochina	Dana		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ciotti	Frank			Ex Voter				
Clements	Ken			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Coffey	John		Realtek Semiconductor Corp.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Cole	Terry	L		Ex Voter			2010-03-14	
Coleman	Ryon	K		Ex Voter			2008-12-21	
Congdon	Paul			Ex Voter				
Conner	W	S		Ex Voter			2008-02-13	
Cook	Charles	I		Ex Voter			2010-11-12	
Cook	Kenneth			Ex Voter				
Cooklev	Todor			Ex Voter			2009-03-16	
Coop	Kenneth			Ex Voter			2015-11-08	
Cordeiro	Carlos		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Correal	Neiyer			Ex Voter			2014-07-18	
Crowley	Steven			Ex Voter			2008-03-25	
Cypher	David	E		Ex Voter			2009-11-23	
da Silva	Claudio		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
DANG	Meimei		China Academy of Telecommunication Research (CATR)	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Das	Subir		Applied Communication Sciences	ExOfficio				
Dauphinee	Leonard		MaxLinear Corp	Potential Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
De Courville	Marc			Ex Voter			2009-11-23	
De Ruijter	Hendricus			Ex Voter			2013-11-10	
de Vegt	Rolf	J	Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Debergh	Pierre		Orange	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Dehghan	Hossein			Ex Voter			2012-05-01	
Demessie	Yohannes			Ex Voter			2013-03-22	
Deng	Der-Jiunn		National Changhua University of Education	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
denison	michael			Ex Voter			2014-07-18	
Denteneer	Theodorus			Ex Voter			2012-05-01	
Derham	Thomas			Ex Voter			2015-07-28	
Deshmukh	Nikhil		National Instruments Corporation	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
deVries	Jeremy			Ex Voter			2010-03-22	
Dickey	Susan			Ex Voter			2010-11-12	
Ding	Gang			Ex Voter			2010-09-18	
DING	ZHIMING			Ex Voter			2008-12-21	
Doi	Yoshiharu			Ex Voter			2009-07-20	
Donapati	Rakesh		Anritsu Company	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Orlando, FL, USA		
Dong	Ting			Ex Voter			2014-05-09	
Dong	Xiandong			Ex Voter			2014-07-18	
Doppler	Klaus			Ex Voter			2015-05-07	
Dorsey	John			Ex Voter			2011-03-18	
Douglas	Brett	L		Ex Voter				
Dowse	Malcolm			Ex Voter			2016-01-21	
Drennan	Offie			Ex Voter			2012-07-20	
DU	JiaDong			Ex Voter			2015-11-13	
Du	Lei			Ex Voter			2008-03-25	
Dua	Praveen			Ex Voter			2016-11-11	
Duan	Chunjie			Ex Voter			2011-11-11	
Dundar	Baris	B		Ex Voter				
Durand	Roger	P		Ex Voter			2014-11-07	
duvvuri	srinivasa			Ex Voter			2009-11-23	
Eastlake 3rd	Donald	E	Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Ecclesine	Peter		Self	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Edgar	Richard		Imagination Technologies Ltd.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Edney	Jonathan	P		Ex Voter				
Edwards	Bryan			Ex Voter			2008-03-25	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Eitan	Alecsander		Qualcomm Incorporated	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Ekbal	Amal			Ex Voter			2014-03-21	
Elbakoury	Hesham	M		Ex Voter			2008-03-25	
Ellis	Jason			Ex Voter				
Ellis	Michael			Ex Voter			2009-06-30	
ElSherif	Ahmed		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Emeott	Stephen	P		Ex Voter			2009-11-23	
Emmelmann	Marc		Self Employed	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Engwer	Darwin			Ex Voter			2010-03-22	
Eo	Iksoo			Ex Voter			2015-05-07	
Epstein	Joseph			Ex Voter			2009-03-16	
Epstein	Leonid		Celeno Communications	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Erceg	Vinko		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Eriksson	Patrik			Ex Voter				
Escalera	Natalia		Buffalo Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Estevez	Leonardo			Ex Voter			2011-02-25	
Estrada	Andrew			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Euscher	Christoph			Ex Voter				
Faccin	Stefano	M		Ex Voter				
Falk	Lars	P		Ex Voter			2009-03-16	
Fan	Zhong			Ex Voter			2016-07-29	
Fanfelle	Robert			Ex Voter			2009-07-20	
Fang	Ping		Huawei Device Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Fang	Yonggang		ZTE TX Inc	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Fechtel	Stefan			Ex Voter			2009-11-23	
Fei	QIN			Ex Voter			2014-07-08	
Feinberg	Paul	H		Ex Voter			2008-12-21	
Feldman	Alex			Ex Voter				
Feng	Xiang		Keysight Technologies	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Ferdowsi	Vida		Newracom Inc.	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Filin	Stanislav			Ex Voter			2014-07-08	
Filo	Marcin		University of Surrey	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Finn	Norman		Self Employed	Voter				
Fischer	Matthew	J	Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Fischer	Michael		NXP Semiconductors	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Fisher	Wayne	K		Ex Voter			2010-11-12	
Flammer	George			Ex Voter			2014-03-21	
FLYNN	P			Ex Voter			2014-07-18	
Fracchia	Roberta			Ex Voter			2008-12-21	
Frank	Colin			Ex Voter			2011-11-11	
Fujimoto	Atsushi			Ex Voter			2010-07-16	
Fujinami	Makoto			Ex Voter			2008-03-25	
Fujio	Shunsuke		FUJITSU LABORATORIES LIMITED	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Fukatsu	Noriyasu			Ex Voter			2012-05-01	
Fuller	Richard		OmniTrail Technologies	Potential Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Funada	Ryuhei			Ex Voter			2009-07-20	
Fung	Patrick			Ex Voter			2012-05-01	
Furuichi	Sho		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Gagiev	Yaroslav		Intel Corporation	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Gal	Dan			Ex Voter			2015-05-07	
Gallizio	Edoardo			Ex Voter			2008-05-05	
Gan	Ming		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Gao	Wen			Ex Voter			2011-02-25	
Garcia Villegas	Eduard		Universitat Politecnica de Catalunya (UPC)	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Gardner	James			Ex Voter				
Gast	Matthew			Ex Voter			2011-03-18	
Ghamri-Doudane	Mohamed			Ex Voter			2011-11-11	
Ghanbarinejad	Majid		Huawei R&D USA	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Ghasemi	Amir			Ex Voter			2011-02-25	
Ghazi	Vafa			Ex Voter				
Ghosh	Chittabrata		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ghosh	Monisha			Ex Voter			2016-07-29	
Gilb	James	P	Gilb Consulting, Inc.	ExOfficio	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Gilbert	Jeffrey			Ex Voter			2011-07-22	
Gillmore	Matthew			Ex Voter			2015-03-05	
GIRAUD	Claude			Ex Voter			2011-11-11	
Glibbery	Ronald			Ex Voter			2010-11-12	
Gloger	Reinhard			Ex Voter			2013-03-22	
Godfrey	Tim		Electric Power Research Institute, Inc. (EPRI)	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
GONG	DANING			Ex Voter			2013-11-10	
Gong	Michelle			Ex Voter			2012-05-01	
Goodall	David			Ex Voter			2014-07-18	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Gossain	Hrishikesh			Ex Voter			2008-03-25	
Gosteau	Jeremy			Ex Voter			2008-07-18	
GOTO	Fumihide		Self	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Gottlib	Elad			Ex Voter			2014-03-21	
Grandhe	Niranjan		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Grandhi	Sudheer	A		Ex Voter			2013-11-10	
Grass	Eckhard		Humboldt-University in Berlin	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Grau	Stephen			Ex Voter			2014-07-18	
Gray	Gordon	P		Ex Voter				
Green	Evan	R		Ex Voter				
Green	Larry			Ex Voter				
Grigat	Michael		Deutsche Telekom AG	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Grodzinsky	Mark			Ex Voter			2011-03-18	
Gu	Daqing			Ex Voter				
Guener	Tugrul			Ex Voter			2008-12-21	
Guo	Jianlin			Ex Voter			2010-03-22	
Guo	Qiang		Huawei R&D USA	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Guo	Yuchen		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Gupta	Pratibha			Ex Voter			2008-09-16	
Gupta	Vivek	G		Ex Voter			2010-03-22	
Hadad	Zion		Runcom Technologies LTD.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Hailemariam	Meareg		IEEE	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Haines	Russell			Ex Voter			2015-07-28	
Haisch	Fred			Ex Voter				
Halasz	David			Ex Voter			2014-11-07	
Hall	Robert		Johnson Controls Inc	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Halls	David		Toshiba of Europe Ltd.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		217
Hamady	Neil			Ex Voter				
Hamilton	Mark		Ruckus Wireless	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
HAN	Xiao		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Han	Yunbo		HUAWEI	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Hanatani	Yoshikazu			Ex Voter			2016-03-18	
Handte	Thomas		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Hansen	Christopher	J	Covariant Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Hao	Peng			Ex Voter			2015-05-07	
Har Zion	Yuval		Celeno Communications	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hara	Yukihito		Buffalo Inc.	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Harada	Hiroshi			Ex Voter			2013-11-15	
Hardison	Nathaniel			Ex Voter			2015-11-13	
Harkins	Daniel	N	Aruba Networks, Inc.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hart	Brian	D	Cisco Systems, Inc.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hartman	Chris		Apple, Inc.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Haslestad	Thomas			Ex Voter				
Hassan	Amer	A		Ex Voter			2010-07-11	
Hassel	Vegard			Ex Voter			2010-03-22	
Hattig	Myron			Ex Voter			2008-03-25	
Hauser	James	P		Ex Voter				
Hayakawa	Yutaka			Ex Voter				
Hayase	Shigenori			Ex Voter			2008-11-17	
Hayes	Kevin	V		Ex Voter			2008-11-17	
Hayes	Victor		CONSULTANT	Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
He	Haixiang			Ex Voter				
He	Linhai		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
he	shiwen		Southeast University, China	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		216
Heberling	Allen			Ex Voter			2015-11-08	
Hedayat	Ahmadreza		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Hedberg	David	J		Ex Voter				
Heide	Carolyn			Ex Voter			2015-11-13	
Heile	Robert	F	Wi-SUN Alliance	ExOfficio				
Henry	Jerome		Cisco Systems, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Hepworth	Eleanor			Ex Voter				
Hermodsson	Frans			Ex Voter				
Hiertz	Guido	R	Ericsson AB	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hillman	Garth	D		Ex Voter			2014-03-21	
Hinsz	Christopher	S		Ex Voter			2008-02-13	
Hiraga	Ken			Ex Voter			2012-11-16	
Hirano	Jun			Ex Voter				
Ho	Chin	K		Ex Voter			2013-07-19	
Ho	Duncan		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ho	Jin-Meng			Ex Voter				

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Hoang	Anh Tuan	T		Ex Voter			2013-11-15	
Hoang	Dien			Ex Voter			2013-07-19	
Hoghooghi	Michael	M		Ex Voter				
Holt	Keith			Ex Voter				
Hong	Hanseul		Yonsei University	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hong	Seung-Eun			Ex Voter			2011-07-22	
Hong	Song-Nam			Ex Voter			2016-03-18	
Hong	Sungjin		WILUS Institute	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Hong	Wei			Ex Voter			2014-03-21	
Hong	Wei			Ex Voter			2014-07-18	
Hong	Yong-Geun			Ex Voter			2008-05-05	
Honma	Naoki			Ex Voter			2010-03-22	
Horisaki	Koji		Toshiba	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		216
Horne	Kenneth		Keysight Technologies	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Horne	William			Ex Voter				
Hosur	Srinath			Ex Voter				
Hou	Victor		Broadcom Corporation	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Housley	Russell	D		Ex Voter				
Howard	David			Ex Voter			2012-05-01	
hsiao	ying-chuan			Ex Voter			2013-11-10	
Hsieh	Jing-Rong			Ex Voter			2016-07-29	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Hsu	Chien-Fang		MediaTek Inc.	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Hsu	Jen-Yuan			Ex Voter			2014-05-09	
Hsu	Ju-Lan			Ex Voter			2012-02-19	
Hsu	Yungping			Ex Voter				
Hu	Chunyu		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hu	Junling			Ex Voter			2008-12-21	
hu	wendong			Ex Voter			2010-11-12	
Hua	Rui		ZTE Corporation	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Huang	He		ZTE Corporation	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Huang	Lei		Huawei Technologies Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Huang	Lei		Panasonic Asia Pacific Pte Ltd.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Huang	Po-Kai		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Huang	Robert	Y		Ex Voter			2010-03-22	
Huang	Rongsheng		MediaTek Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Huang	Tian-Wei			Ex Voter			2011-07-22	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
huang	wenyuan		Toshiba Electronics China	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
HUANG	YUN-LIANG		MediaTek Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Huang	Zhiyong		LitePoint Corporation/Teradyne	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
HUH	JYOUNG			Ex Voter			2008-02-13	
Humbert	John			Ex Voter			2015-11-08	
Hunter	David		WireFi Networks Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Hurtarte	Jeorge		Teradyne, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Hwang	Sung Hyun	H	ETRI	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ibrahim	Azmi		TM Research & Development	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ibrahim	Brima		Broadcom Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Ikram	Muhammad	Z		Ex Voter				
Imamura	Daichi			Ex Voter				
Inoue	Yasuhiko		Nippon Telegraph and Telephone Corporation (NTT)	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ishihara	Koichi		Nippon Telegraph and Telephone Corporation	Aspirant	164 (2017-	Estrel Hotel and Convention		

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			(NTT)		07-09)	Center, Berlin, Germany		
Ishizu	Kentaro		National Institute of Information and Communications Technology (NICT)	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Iso	Akio			Ex Voter			2012-05-01	
ITO	Takumi			Ex Voter				
Ivry	Raanan		Optima Labs	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Iwaoka	Mitsuru			Ex Voter			2016-03-18	
Iwatani	Junichi		Nippon Telegraph and Telephone Corporation (NTT)	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Jacobs	Wynona			Ex Voter			2011-11-11	
Jacobsen	Eric	A		Ex Voter				
Jacobson	Scott		Cadence Design Systems, Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
jafarian	amin			Ex Voter			2015-07-28	
Jain	Avinash			Ex Voter			2011-06-27	
Jalfon	Marc			Ex Voter			2008-05-05	
Jang	KyungHun			Ex Voter				
Jauh	Alan			Ex Voter			2016-07-29	
Jee	Junghoon			Ex Voter			2009-07-20	
Jeffries	Timothy		Huawei R&D USA	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Jeon	Ho-In J	J		Ex Voter			2008-02-13	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Jeon	Hongseok			Ex Voter			2009-11-23	
Jeon	Taehyun			Ex Voter				
Jeong	ByungJang	J		Ex Voter			2012-07-20	
Jeong	Chanyong		SAMSUNG ELECTRO-MECHANICS	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
JEONG	MIN SEOP		SAMSUNG ELECTRONICS	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Jeong	Moo Ryong	R		Ex Voter				
Jeong	Wuncheol			Ex Voter			2013-11-15	
Jeong	Yangseok			Ex Voter			2015-03-05	
Jeong	Yeonkwon			Ex Voter			2009-11-23	
Jetcheva	Jorjeta	G		Ex Voter			2012-07-20	
Ji	Lusheng			Ex Voter			2011-07-22	
Ji	Mingyue		Broadcom Corporation	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Jia	Jia		Huawei Technologies Co., Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Jiang	Daniel			Ex Voter			2010-03-22	
jiang	feng		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Jiang	Jinjing		Marvell Semiconductor, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Jiang	Robert			Ex Voter			2015-11-08	
Jin	Liang		Spirent Communications	Voter	166 (2017-	Caribe Hotel and Convention		212

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					11-05)	Center, Orlando, FL, USA		
Jin	Sunggeun			Ex Voter			2013-09-16	
Jin	ZhongYi			Ex Voter			2013-03-22	
Jindal	Nihar			Ex Voter			2015-11-08	
jo	junho			Ex Voter			2011-11-11	
Jo	Kyungtae		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Johnsson	Kerstin		Intel Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Johnston	David			Ex Voter				
Jokela	Jari	E		Ex Voter			2016-07-29	
Jones	Allan		Activision	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
JONES	JEFFRUM		Qorvo, Inc.	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Jones	Vincent Knowles IV		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
JOO	SEONG-SOON			Ex Voter			2015-03-05	
Jose	Bobby			Ex Voter				
Joshi	Avinash			Ex Voter			2012-07-20	
Josiam	Kaushik		SAMSUNG	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Jun	Haeyoung			Ex Voter			2011-06-27	
Junell	Jari			Ex Voter			2014-03-21	
Kafle	Padam			Ex Voter			2013-07-19	
Kahn	Michael			Ex Voter			2008-07-19	
Kain	Carl	W	Noblis, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kakani	Naveen	K	Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kamath	Krishnanand		Viavi Solutions	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Kandala	Srinivas			Ex Voter				
Kang	Byeongwoo			Ex Voter			2012-05-01	
Kang	Hyunduk		Electronics and Telecommunications Research Institute (ETRI)	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Kang	Hyunjeong			Ex Voter			2015-11-08	
Kaniganti	Madhuri		Microsoft Corporation	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Kapetanovic	Dzevdan		Ericsson AB	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Karaoguz	Jeyhan			Ex Voter			2011-02-25	
Karcz	Kevin			Ex Voter				
Karnam	Mohan		Imagination Technologies Ltd.	Potential Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Karnik	Pankaj	R		Ex Voter				
Kasher	Assaf	Y	Qualcomm Incorporated	Voter	164 (2017-	Estrel Hotel and Convention		

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					07-09)	Center, Berlin, Germany		
Kasslin	Mika			Ex Voter			2014-03-21	
Katagiri	Masami			Ex Voter			2015-07-28	
Kato	Masato			Ex Voter			2009-07-20	
Kato	Shuzo			Ex Voter			2012-09-03	
Kato	Tatsuya			Ex Voter			2010-11-12	
Kavner	Douglas			Ex Voter			2010-03-22	
Kedem	Oren		Intel Corporation	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kennedy	Richard	H	Hewlett Packard Enterprise	ExOfficio	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kenney	John			Ex Voter			2016-03-18	
Kerry	Stuart	J	OK-Brit	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ketchum	John	W		Ex Voter			2008-03-25	
Khakuria	Prithpal			Ex Voter			2012-07-20	
Khine	Thet	H		Ex Voter			2012-05-01	
Khorov	EVGENY		IITP RAS	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Khoryaev	Alexey			Ex Voter			2011-06-27	
Khoury	Peter		Ruckus Wireless	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
KI	SANGWON		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kikuma	Tomohiro			Ex Voter				
Kim	Bonghoe			Ex Voter			2012-11-16	
KIM	BYOUNG-HOON			Ex Voter			2012-11-16	
Kim	Byoung-Jo			Ex Voter				
Kim	Eun	S		Ex Voter			2012-11-16	
Kim	Eung	S		Ex Voter			2010-11-12	
Kim	Eunkyo			Ex Voter			2008-03-25	
Kim	Eunkyung			Ex Voter			2015-03-13	
Kim	Hongsoog			Ex Voter			2015-03-05	
Kim	Igor		Electronics and Telecommunications Research Institute (ETRI)	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kim	Jaehwan			Ex Voter			2015-11-13	
Kim	Jeehoon			Ex Voter			2016-07-29	
Kim	Jeongki		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Kim	Jin Min		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Kim	Jinho			Ex Voter			2013-11-10	
Kim	Jinkyong			Ex Voter			2014-03-21	
Kim	Joo Young			Ex Voter			2013-11-10	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Kim	Joonsuk		Apple, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Kim	Kyeongpyo		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Kim	Kyeongsoo			Ex Voter			2008-03-25	
Kim	Myeong-Jin			Ex Voter			2016-03-18	
Kim	Sang Gook		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
KIM	SANGKYUN			Ex Voter			2015-03-13	
kim	Seong Soo	S		Ex Voter			2008-12-21	
Kim	Suhwook		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Kim	Taejoon			Ex Voter			2013-07-19	
Kim	Yongho		Korea National University of Transportation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kim	Yongsuk			Ex Voter				
Kim	Yongsun			Ex Voter			2011-07-22	
Kim	Youhan		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kim	Youjin			Ex Voter			2008-09-16	
Kim	Youngsoo			Ex Voter			2016-03-18	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Kim	Youn-Kwan		The Catholic University of Korea	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Kim	Yunbae		Electronics and Telecommunications Research Institute (ETRI)	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
kim	yunjoo			Ex Voter			2012-07-20	
Kimhi	Ziv			Ex Voter				
Kinney	Patrick			Ex Voter			2008-03-25	
Kirimis	Dimitri		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kiryanov	Anton		IITP RAS	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kishida	Akira			Ex Voter			2015-11-08	
Kitazawa	Shoichi		ATR Wave Engineering Laboratories	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Kivinen	Tero			Ex Voter			2012-11-16	
Klein	Philippe		Broadcom Corporation	Aspirant				
Kleindl	Gunter			Ex Voter			2008-11-17	
Klik	Cees			Ex Voter				
Kloper	David		Cisco Systems, Inc.	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
KNECKT	JARKKO		Apple, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Ko	Geonjung		WILUS Institute	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

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Ko	Gwangzeen			Ex Voter			2015-11-13	
KOBAYASHI	MARK	M		Ex Voter			2012-05-01	
Koga	Keiichiro			Ex Voter				
Koh	Benjamin			Ex Voter			2008-03-25	
Kojima	Fumihide		National Institute of Information and Communications Technology (NICT)	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kolze	Tom		Broadcom Corporation	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Koskela	Timo			Ex Voter			2014-07-08	
Kotzer	Igal		General Motors Company	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kountz	Dennis		Chemours	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kowalski	John			Ex Voter				
Kraemer	Bruce	P	Marvell Semiconductor, Inc.	Voter				
Krasicki	Maciej		Poznan University of Technology	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Kruys	Johannes	P		Ex Voter			2009-07-20	
Kudo	Riichi			Ex Voter			2011-11-11	
Kuehnel	Thomas			Ex Voter			2009-06-30	
kukil	LIM		WILUS Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kulkarni	Parag		Toshiba	Potential Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kumagai	Tomoaki			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Kumar	G Rajendra			Ex Voter			2014-07-18	
Kumar	Manish		Marvell Semiconductor, Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kumar	Rajesh		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kumar	Rajneesh			Ex Voter			2008-03-25	
Kumari	Warren		Google	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kunihiro	Takushi			Ex Voter				
Kurihara	Thomas	M		Ex Voter			2012-11-16	
Kuwahara	Denis			Ex Voter				
Kwak	Byung-Jae		Electronics and Telecommunications Research Institute (ETRI)	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Kwak	Jin-Sam		WILUS Institute	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		216
Kwak	Joseph			Ex Voter			2015-07-28	
KWON	EDWIN			Ex Voter			2009-06-30	
Kwon	Hyoungjin			Ex Voter			2015-11-13	
KWON	UI	K		Ex Voter			2011-06-27	
Kwon	Yong-Jin		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kwon	Young Hoon	H	Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
LAGRANGE	Pascal			Ex Voter			2011-11-11	
Lakkis	Ismail			Ex Voter			2010-11-12	
Lalam	Massinissa		SAGEMCOM SAS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lambert	Paul		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Lan	Zhou		National Institute of Information and Communications Technology (NICT)	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Lanante	Leonardo		Kyushu Institute of Technology	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Landt	Jeremy	A		Ex Voter			2010-11-12	
Lansford	James		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Lanzl	Colin			Ex Voter				
Lauer	Joseph	P		Ex Voter			2011-02-25	
Le Rouzic	Jean-Pierre			Ex Voter			2015-03-13	
Leach	David	J		Ex Voter				
Lee	Anseok			Ex Voter			2013-07-19	
Lee	Daewon		Newracom Inc.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lee	Donghun			Ex Voter			2013-11-10	
Lee	Dongjun			Ex Voter				
Lee	Hongsup			Ex Voter			2015-11-08	

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lee	hoosung			Ex Voter			2011-07-22	
LEE	Ilgu			Ex Voter			2015-03-05	
Lee	Insun			Ex Voter				
Lee	Jae Seung	S	ETRI	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lee	Jae-Ho			Ex Voter			2014-03-21	
Lee	Jehun		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Lee	JiHo		Korea University	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lee	Jihyun			Ex Voter			2012-07-20	
Lee	Jin			Ex Voter			2008-09-16	
lee	jiseon		Pohang University of Science and Technology (POSTECH)	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
LEE	JOONSOO		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lee	Ronald		MaxLinear	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lee	Sok-kyu			Ex Voter				
LEE	SUNGEUN		Cypress Semiconductor Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lee	Tae	H		Ex Voter			2009-07-20	
Lee	Wookbong			Ex Voter			2016-01-21	
Lee	Wooyong			Ex Voter			2011-11-11	

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Lee	Xiaoyang		DHS/OEC	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lee	Young Ha		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Lee	Yuro			Ex Voter			2015-11-13	
Lefkowitz	Martin			Ex Voter				
Lei	Zhongding			Ex Voter			2016-07-29	
Leicht	Suzanne		National Security Agency	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
lemberger	Uriel			Ex Voter			2008-03-25	
Lepp	James		BlackBerry	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Leung	Wai Kong	K		Ex Voter			2014-07-08	
Levy	Joseph		InterDigital, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Li	Bin			Ex Voter			2011-11-11	
Li	Bo		northwestern polytechnical university	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Li	Dejian		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Li	Feng			Ex Voter			2015-11-08	
Li	Guoqing		Apple, Inc.	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		

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LI	HONGGANG			Ex Voter			2015-03-05	
Li	Huan-Bang		National Institute of Information and Communications Technology (NICT)	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Li	Jing		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Li	Liang			Ex Voter			2015-03-05	
Li	Lingjie			Ex Voter			2013-03-22	
Li	Pen			Ex Voter				
Li	Qinghua		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Li	Sheung			Ex Voter			2010-03-22	
Li	Yanchun		Huawei Technologies Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Li	Yunbo		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
LI	YUNZHOU			Ex Voter			2013-03-04	
Li	Zhiqiang			Ex Voter			2015-05-07	
Liang	Haixiang		Huawei R&D USA	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lim	Dong Guk		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Lin	Chih-Che			Ex Voter			2014-11-07	

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Lin	Huashih	A		Ex Voter				
Lin	Meilu		HUAWEI	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lin	Paul			Ex Voter			2011-07-22	
Lin	Wei		Huawei Technologies Co. Ltd	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Lin	Yingpei		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lindskog	Erik		Qualcomm Incorporated	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Link	Jeremy			Ex Voter			2012-05-01	
Liru	Lu			Ex Voter			2014-11-07	
Liu	Changwen			Ex Voter				
LIU	CHENCHEN		Huawei Technologies Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		217
Liu	Dapeng			Ex Voter			2014-07-18	
Liu	Der-Zheng		Realtek Semiconductor Corp.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Liu	Fulei		ZTE Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Liu	Hang			Ex Voter			2011-03-18	
Liu	I-Ru			Ex Voter			2008-05-05	
Liu	Jianhan		MediaTek Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212

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Liu	Jinnan		HUAWEI	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Liu	Le		Huawei Technologies Co. Ltd	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Liu	Pei			Ex Voter			2012-10-09	
Liu	Pei		HiSilicon Technologies Co., LTD.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		216
Liu	Siyang			Ex Voter			2012-07-20	
Liu	Yong		Apple, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		212
Liu	Yun		Huawei Technologies Co., Ltd	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Liu	Zongru			Ex Voter			2014-03-21	
Livshitz	Michael			Ex Voter			2009-06-30	
Lo	Titus	K		Ex Voter				
Loc	Peter		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lomayev	Artyom		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Lou	Hui-Ling		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		216
Lu	Su			Ex Voter			2015-07-28	
Lubar	Daniel			Ex Voter			2009-07-20	
Lukaszewski	Chuck		Aruba Networks, Inc.	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		

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Luo	Haiyun			Ex Voter			2008-07-18	
Luo	Jun		Huawei Technologies Co. Ltd	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Luo	Long			Ex Voter			2014-03-21	
Luo	Yi		Huawei Technologies Co. Ltd	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Luo	Zhendong		China Academy of Telecommunication Research (CATR)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lv	Kaiying		ZTE Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Lynch	Bradley			Ex Voter			2012-05-01	
Lynch	Michael		MJ Lynch & Associates, LLC.	ExOfficio				
M. Hizan	Hizamel		TM Research & Development	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ma	Hui			Ex Voter			2008-07-19	
Ma	Jing		National Institute of Information and Communications Technology (NICT)	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Ma	YuanYe		CESI Group	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Maamari	Diana		Huawei R&D USA	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
MADHAVAN	NARENDAR		TOSHIBA Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Maeda	Shigeru		TOSHIBA Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		

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Mahadevappa	Ravishankar			Ex Voter				
Maida	Anthony	F		Ex Voter			2008-12-21	
Majkowski	Jakub			Ex Voter			2009-11-23	
Malarky	Alastair			Ex Voter			2011-02-25	
Malek	Majid	m		Ex Voter				
Malik	Rahul		Qualcomm Incorporated	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Malinen	Jouni	K	Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Maltsev	Alexander		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Mangold	Stefan		ltron Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Mani	Mahalingam			Ex Voter			2008-02-13	
Mano	Hiroshi		Koden Techno Info K.K.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Marin	James		Self Employed	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Marker	Jeffrey		Ixia	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Marks	Roger		EthAirNet Associates	ExOfficio				
Marshall	Bill			Ex Voter			2011-11-11	
Maruhashi	Kenichi			Ex Voter			2011-11-11	
Maslennikov	Roman	M		Ex Voter			2010-07-16	
Masour	Avi			Ex Voter			2012-05-01	
Matsumoto	Yoichi			Ex Voter				

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Matsuo	Ryoko		TOSHIBA Corporation	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
MATTA	SUDHEER			Ex Voter			2008-12-21	
Maufer	Thomas	A		Ex Voter				
Mccann	Stephen		BlackBerry	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
McClellan	Kelly	P		Ex Voter				
Mcfarland	William	J		Ex Voter				
McIntosh	Bill			Ex Voter				
McNamara	Darren	P		Ex Voter			2008-07-18	
Mcnew	Justin	P		Ex Voter			2010-11-12	
Medvedev	Irina			Ex Voter			2008-03-25	
Mehta	Pratik	M		Ex Voter				
Merlin	Simone		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Mese	Murat			Ex Voter			2012-07-20	
Mesecke	Sven			Ex Voter			2015-03-13	
Mestanov	Filip		Ericsson AB	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Meyer	Klaus			Ex Voter			2008-07-18	
Miao	Yannan		Huawei Technologies Co. Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Miller	James			Ex Voter			2016-07-29	
Miller	Robert	R		Ex Voter			2011-11-11	

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Miroll	Jochen			Ex Voter			2011-02-25	
Misawa	Yasunao			Ex Voter			2015-03-13	
Miyoshi	Hidekazu			Ex Voter			2008-05-05	
Mizutani	Keiichi			Ex Voter			2013-11-10	
Mlinarsky	Fanny			Ex Voter			2012-05-01	
Mobasher	Amin		SAMSUNG	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Mody	Apurva		BAE Systems	ExOfficio				
Mohanty	Bibhu		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Monajemi	Pooya		Cisco Systems, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Monnerie	Emmanuel			Ex Voter			2012-05-01	
Montemurro	Michael		Research In Motion Limited	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Montenegro	Gabriel			Ex Voter			2008-02-13	
Montreuil	Leo		Broadcom Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Moon	Sungho		Newracom Inc.	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Moore	Rondal			Ex Voter				
Moorti	Rajendra	T		Ex Voter			2012-05-01	
Moreton	Mike			Ex Voter				
Mori	Hiroki			Ex Voter			2016-07-29	
Mori	Kenichi		Space-Time Engineering	Voter	166 (2017-	Caribe Hotel and Convention		

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					11-05)	Center, Orlando, FL, USA		
Mori	Masahito		Sony Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Morioka	Hitoshi		SRC Software	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Morioka	Yuichi		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Morley	Steven	A		Ex Voter				
Morris	Roy			Ex Voter				
Moskowitz	Robert	G		Ex Voter			2008-01-05	
Motozuka	Hiroyuki		Panasonic Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Mourot	Patrick			Ex Voter				
Mueller	Robert		Ilmenau University of Technology - TU Ilmenau	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Mujtaba	Syed	A		Ex Voter				
Murabito	Anthony			Ex Voter			2010-11-12	
Murakami	Yutaka		Panasonic Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Murias	Ronald			Ex Voter			2015-07-28	
Murphy	Peter			Ex Voter				
Murphy	Rick			Ex Voter			2014-07-18	
Murray	Peter			Ex Voter			2011-07-22	
Myles	Andrew		Cisco Systems, Inc.	Voter	166 (2017-	Caribe Hotel and Convention		

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					11-05)	Center, Orlando, FL, USA		
Nabar	Rohit			Ex Voter			2009-03-16	
Nabetani	Toshihisa		TOSHIBA Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Nadeem	Tamer			Ex Voter			2008-05-05	
Nagai	Yukimasa		Mitsubishi Electric Corporation	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		216
Nagao	Yuhei		Radrix Co., Ltd	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
nagata	kengo			Ex Voter			2009-11-23	
Nakano	Hiroki		Kyoto University	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Nakao	Seigo			Ex Voter				
Nakase	Hiroyuki			Ex Voter			2010-03-22	
Nanda	Sanjiv			Ex Voter			2008-03-25	
Nandagopalan	SAI SHANKAR	S	Cypress Semiconductor Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Narasimhan	Partha			Ex Voter				
Narasimhan	Ravi			Ex Voter				
Nemavat	Pradeep			Ex Voter			2012-11-16	
Nezou	Patrice		Canon Research Centre France	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Ngo	Chiu		SAMSUNG	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Ni	Qiang			Ex Voter				
Nikolich	Paul		self (YAS), Samsung, Intel, SilverSpringNetworks, HP	ExOfficio				

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Nikula	Eero			Ex Voter			2009-11-23	
Nitsche	Gunnar			Ex Voter				
Noble	Erwin			Ex Voter			2008-11-17	
Noens	Richard	H		Ex Voter			2010-03-22	
Noh	Yujin		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Nordstrom	Eric			Ex Voter			2015-11-13	
Notor	John		Notor Research; ARM, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Oakes	Ivan	F		Ex Voter				
Odagiri	Hideaki			Ex Voter			2009-03-16	
Odman	Knut		Broadcom Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		216
Ogawa	Hiroyo			Ex Voter			2014-11-07	
Oguma	Hiroshi			Ex Voter				
Oh	Jinhyung			Ex Voter			2015-07-28	
Oh	Jisung			Ex Voter			2009-11-23	
Oh	Jong-Ee			Ex Voter			2015-05-07	
Oh	Minseok		Kyonggi University	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
OH	MIN-SEOK		LG Electronics	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
O'Hara	Robert			Ex Voter			2008-05-05	
Ohtani	Yoshihiro			Ex Voter				

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Okada	Hiraku		Nagoya University	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Okada	Kazuyasu			Ex Voter			2011-11-11	
Olesen	Robert		InterDigital, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		217
Olson	Chandra	S		Ex Voter			2009-07-20	
Olson	David			Ex Voter			2013-03-22	
Omori	Youko			Ex Voter			2010-07-16	
Orlik	Philip		Mitsubishi Electric Research Labs (MERL)	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Oteri	Oghenekome		InterDigital, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Oyama	Satoshi		Association of Radio Industries and Businesses (ARIB)	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Ozaki	Kazuyuki		FUJITSU LABORATORIES LIMITED	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Paine	Richard	H		Ex Voter			2010-07-16	
PALANIVELU	Arul	D		Ex Voter			2010-03-22	
Paljug	Michael	J		Ex Voter			2013-07-19	
Palm	Stephen		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Pandey	Santosh Ghanshyam	G	Cisco Systems, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		216

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Pang	Jiyong		Huawei Technologies Co. Ltd	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		212
Pantelidou	Anna			Ex Voter			2014-03-21	
Papadopoulos	Babis			Ex Voter			2015-11-08	
Pare	Thomas		MediaTek Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Park	Changmin			Ex Voter			2009-11-23	
Park	Eunsung		LG Electronics	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Park	Giwon			Ex Voter			2015-07-28	
Park	Hyungu		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Park	Hyunhee		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Park	Jaewoo			Ex Voter			2015-07-28	
Park	Jeonghwan		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Park	Jonghyun			Ex Voter			2012-11-16	
Park	Jungsoo			Ex Voter			2008-12-21	
Park	Minyoung		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Park	Seung-Hoon			Ex Voter			2013-11-10	

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PARK	SEUNGKEUN		ETRI	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Park	Sung-jin		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Park	Taejoon			Ex Voter			2014-05-09	
Parsons	Glenn		Ericsson AB	ExOfficio				
Patel	Vijaykumar			Ex Voter			2009-11-23	
Pathmasuntharam	Jaya	S		Ex Voter			2013-03-22	
Patil	Abhishek		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Patil	Sandhya			Ex Voter			2013-03-22	
Patkar	Raghavendra		National Instruments Corporation	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Peiris	Bemini	H		Ex Voter			2011-07-22	
Peleg	Yaron			Ex Voter				
Peng	Xiaoming		Institute for Infocomm Research	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		212
Perahia	Eldad			Ex Voter			2016-01-21	
Pereira	Stephanie			Ex Voter			2015-07-28	
Perez Costa	Xavier	P		Ex Voter			2014-07-08	
Persson	Hakan		Ericsson AB	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Petranovich	James	E	ViaSat, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center,		

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						Orlando, FL, USA		
petrick	Albert		Jones-Petrick and Associates, LLC.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Petro	John			Ex Voter			2014-07-08	
Petrovic	Vladan			Ex Voter			2015-03-13	
Pienciak	Walter		IEEE	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
PILLAI	KRISHNA	M		Ex Voter			2012-11-16	
Ping Ping	Xu	P		Ex Voter			2015-03-13	
Pirhonen	Riku		Self Employed	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Pirskanen	Juho			Ex Voter			2014-07-18	
Pirzada	Fahd			Ex Voter			2009-03-16	
Pitarresi	Joe			Ex Voter				
Png	Khiam Boon	B		Ex Voter			2015-03-13	
Poncini	Victoria	M		Ex Voter			2008-03-25	
Ponnampalam	Vishakan			Ex Voter			2013-09-16	
Ponnuswamy	Subburajan			Ex Voter			2008-11-17	
Popa	Daniel			Ex Voter			2012-11-16	
Pope	Steve		Self Employed	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
porat	ron		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Portaro	James	D		Ex Voter			2010-11-12	
Ptasinski	Henry	S		Ex Voter			2013-11-15	
Pulikoonattu	Rethnakaran		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Purkovic	Aleksandar			Ex Voter				
Purnadi	Rene			Ex Voter			2011-02-25	
Pustogarov	Ivan			Ex Voter			2011-11-11	
Putta	Satish			Ex Voter			2012-07-20	
Pyo	Chang-Woo	C		Ex Voter			2014-07-18	
Qi	Emily	H	Intel Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Qian	Luke			Ex Voter			2009-07-20	
Qiao	Dengyu		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Qu	Huyu			Ex Voter			2013-03-22	
Qu	Shouxing		BlackBerry	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Raab	Jim	E		Ex Voter			2012-05-01	
Rabarijaona	Verotiana		National Institute of Information and Communications Technology (NICT)	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Rafie	Reza		Self	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center,		

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						Orlando, FL, USA		
Rahman	Mohammad	A		Ex Voter			2010-07-16	
Rai	Vinuth			Ex Voter			2009-11-23	
Raissinia	Ali			Ex Voter			2010-03-22	
Rajagopal	Sridhar			Ex Voter			2011-07-22	
Rajakarunanayake	Yasantha		MediaTek Inc.	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Rajkumar	Ajay			Ex Voter				
Rakanovic	Demir		u-blox	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ramamurthy	Harish			Ex Voter			2014-07-18	
Ramasasthy	Jayaram			Ex Voter			2013-03-04	
Rangwala	Noman			Ex Voter				
Rantala	Enrico-Henrik		Nokia	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Rayment	Stephen G	G	Ericsson AB	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		212
Razoumov	Leonid			Ex Voter			2008-12-21	
Redlich	Oded		Huawei Technologies Co. Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Reede	Ivan			Ex Voter			2015-03-13	
Reible	Stanley	A		Ex Voter				
Ren	Yazhen		Huawei Technologies Co. Ltd	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Repice	Joseph	A		Ex Voter			2008-11-17	
Reuss	Edward		NO AFFILIATION	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Reznik	Alex			Ex Voter			2011-11-11	
Riegel	Maximilian		Nokia Networks	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Rios	Carlos	A		Ex Voter			2008-07-19	
Rison	Mark		Samsung Cambridge Solution Centre	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
roblot	sandrine			Ex Voter			2011-07-22	
Roebuck	Randal			Ex Voter			2010-07-16	
Roh	Dongwook			Ex Voter			2012-05-01	
Rong	Zhigang		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Rosdahl	Jon	W	Qualcomm Technologies, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Roy	Arnab		InterDigital, Inc.	Potential Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Roy	Richard			Ex Voter			2016-01-21	
Ryu	Cheol			Ex Voter			2015-11-13	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Ryu	Kiseon		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Sada	Tomoki		KDDI R&D Laboratories	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sadeghi	Bahareh		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Sadot	Emek			Ex Voter				
Sadri	Ali		Intel Corporation	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Safonov	Alexander			Ex Voter			2012-05-01	
Sakamoto	Takenori		Panasonic Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Sakoda	Kazuyuki		Sony Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Salazar Cardozo	Ruben E	S		Ex Voter			2013-09-16	
Sambasivan	Sam		AT&T	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Sampath	Hemanth		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sanwalka	Anil			Ex Voter				
Sargologos	Nicholas			Ex Voter			2008-09-16	
Sarikaya	Behcet		Huawei R&D USA	Aspirant	166 (2017-	Caribe Hotel and Convention		

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					11-05)	Center, Orlando, FL, USA		
Sarrigeorgidis	Konstantinos			Ex Voter				
Sarris	Ioannis		u-blox	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Sasaki	Shigenobu		Niigata University	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Sastry	Ambatipudi R	R		Ex Voter			2008-03-25	
SATO	KATSUYOSHI			Ex Voter			2009-07-20	
Sato	Naotaka		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sawada	Hirokazu			Ex Voter			2011-07-22	
Scarpa	Vincenzo			Ex Voter			2008-11-17	
Schelstraete	Sigurd		Quantenna Communications, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Schlanger	Gabriel			Ex Voter			2008-05-05	
Schmidl	Timothy			Ex Voter			2012-11-16	
Schnacke	Richard			Ex Voter				
Schneider	Daniel			Ex Voter			2016-07-29	
Schultz	Donald			Ex Voter			2010-03-22	
Schwoerer	Jean			Ex Voter			2015-03-13	
Schylander	Erik			Ex Voter				
Scott	Andy		NCTA	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Segev	Jonathan		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Seibert	Cristina			Ex Voter			2014-07-18	
Seminario	Max		ADVANTEST	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Sensendorf	Joe			Ex Voter				
Seok	Yongho		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Serafimovski	Nikola		pureLiFi	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Shah	Kunal		Silver Spring Networks Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Shao	Huairong			Ex Voter			2014-11-07	
SHAO	PENG		NEC Communication Systems, Ltd.	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Shao	Zhenhai			Ex Voter			2014-03-21	
Shapira	Nir			Ex Voter			2012-11-16	
Sharma	Neeraj			Ex Voter			2009-07-20	
Sharon	Ariel			Ex Voter			2008-03-25	
Shearer	Steve			Ex Voter			2012-07-20	
Shellhammer	Stephen	J	Qualcomm Incorporated	ExOfficio				
Shen	Bazhong		Broadcom Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		216
Shen	Xia		China Academy of Telecommunication Research (CATR)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention		

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						Center, Berlin, Germany		
Sherlock	Ian		Texas Instruments Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Sherman	Matthew			Ex Voter				
Shi	Kai			Ex Voter			2009-11-23	
SHI	QICAI			Ex Voter			2014-07-18	
Shi	Wei			Ex Voter			2013-07-19	
SHIBAGAKI	Nobuhiko			Ex Voter			2014-07-08	
Shilo	Shimi		Huawei Technologies Co., Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Shimada	Shusaku		Schubiquist Technologies	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Shimomura	Tsuyoshi			Ex Voter			2015-03-13	
Shin	ChangSub	S		Ex Voter			2013-11-10	
SHIN	JUNG-CHUL			Ex Voter			2016-07-29	
Shin	Wooram			Ex Voter			2014-11-07	
Shukla	Ashish			Ex Voter			2011-07-22	
Shvodian	William	M		Ex Voter				
Shyy	D.	J		Ex Voter			2008-05-05	
Siep	Thomas	M		Ex Voter			2013-11-15	
Sim	Michael		Panasonic Corporation	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Simon	Francois			Ex Voter			2010-11-12	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Simons	John			Ex Voter			2008-03-25	
Simpson	Floyd			Ex Voter				
Singh	Harkirat			Ex Voter			2009-03-16	
Singh	Shubhranshu			Ex Voter			2010-11-12	
Siti	Massimiliano			Ex Voter			2008-03-25	
Skafidas	Efstratios (Stan)			Ex Voter				
Skidmore	Roger	R		Ex Voter				
Slater	Robert			Ex Voter			2016-07-29	
Smith	Dwight			Ex Voter			2013-11-10	
Smith	Graham	K	SR Technologies	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Smith	Matt			Ex Voter			2009-11-23	
So	Tricci			Ex Voter				
Sohn	Ill	S		Ex Voter			2012-11-16	
Solomon	Yoram			Ex Voter				
Son	Ju-Hyung		WILUS Institute	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Son	JungBo	B		Ex Voter			2015-11-13	
Song	Chunyi			Ex Voter			2012-05-01	
Song	Hayeong		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Song	Jae-Hyung			Ex Voter			2011-06-27	
Song	Leilei			Ex Voter			2008-07-18	

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Song	Myung Sun	S		Ex Voter			2014-07-08	
Song	Nah-Oak		Korea Advanced Institute of Science and Technology (KAIST)	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Song	Yoo-Seung			Ex Voter			2009-06-30	
Sood	Kapil			Ex Voter			2010-03-22	
Soomro	Amjad			Ex Voter				
Soranno	Robert	T		Ex Voter				
Sreemanthula	Srinivas			Ex Voter			2008-02-13	
Sridhara	Vinay			Ex Voter			2010-03-22	
Srinivasa	Sudhir		Marvell Semiconductor, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Stacey	Robert		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Stanley	Dorothy		Hewlett Packard Enterprise	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Steck	William	K		Ex Voter				
Stefani	Lawrence			Ex Voter			2013-11-10	
Stephens	Adrian	P	Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Stephenson	David	S		Ex Voter			2011-02-25	
Stevenson	Carl	R		Ex Voter			2010-03-14	
Stine	John			Ex Voter			2011-03-18	
Stott	Noel		Ixia	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center,		

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						Orlando, FL, USA		
Strickland	Stuart		Hewlett Packard Enterprise	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Struik	Rene			Ex Voter			2015-03-13	
STRUTT	GUENAEL	T		Ex Voter			2011-06-27	
SU	HONGJIA		Huawei Technologies Co. Ltd	Potential Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Suh	JUNG HOON	H	Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sum	Chin-Sean			Ex Voter			2014-03-21	
Sumi	Takenori		Mitsubishi Electric Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sun	Bo		ZTE Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Sun	Chen		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sun	Li-Hsiang		InterDigital, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
sun	sheng		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Sun	Yakun		Marvell Semiconductor, Inc.	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		212

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Sun	Yanjun		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Sun	Winston			Ex Voter			2008-02-13	
Surineni	Shravan	K		Ex Voter				
Suzuki	Hideyuki			Ex Voter			2008-07-18	
Szott	Szymon		AGH University of Science and Technology	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Tabibiazar	Arash			Ex Voter			2010-03-22	
Taghavi	Mohammad	H		Ex Voter			2012-11-16	
Takagi	Eiji			Ex Voter			2009-11-23	
Takagi	Masahiro			Ex Voter				
Takahashi	Kazuaki		Panasonic Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Takahashi	Seiichiro			Ex Voter				
Takai	Mineo		Space-Time Engineering	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Takatori	Yasushi		Nippon Telegraph and Telephone Corporation (NTT)	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Takeda	Daisuke			Ex Voter				
Tal	Nir			Ex Voter				
Tamaki	Tsuyoshi			Ex Voter				
Tamhane	Sagar		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Tan	Pek-Yew			Ex Voter				
Tan	Teik-Kheong			Ex Voter			2010-07-16	
Tanahashi	Masato			Ex Voter			2008-07-19	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Tanaka	Hideki			Ex Voter				
Tanaka	Yusuke		Sony Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Tandai	Tomoya			Ex Voter			2016-03-18	
Taniguchi	Kentaro		TOSHIBA Corporation	Voter	162* (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Tao	Wu		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Taori	Rakesh		Phazr	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Tarighat	Alireza			Ex Voter			2016-01-21	
Tayamon	Soma		Ericsson AB	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Teo	Joseph			Ex Voter			2013-07-19	
Tetzlaff	Thomas			Ex Voter			2014-11-07	
Thirupathi	Durai		Broadcom Corporation	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Thompson	Geoffrey	O		Ex Voter			2011-09-23	
THOMSON	ALLAN			Ex Voter			2011-07-22	
Thrasher	Jerry			Ex Voter			2013-09-16	
Tian	Bin		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
tian	kaibo		ZTE	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Tian	Qingjiang		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Tian	Tao		Qualcomm Incorporated	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		217
Tian	Tong			Ex Voter			2014-07-18	
Tingleff	Jens			Ex Voter			2015-11-13	
Tinnakornsriruphap	Peerapol		Qualcomm Incorporated	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Tokubo	Eric			Ex Voter			2011-02-25	
Tolpin	Alexander			Ex Voter			2008-12-21	
Tomcik	James	D		Ex Voter			2012-05-01	
Tong	Fei		Samsung Cambridge Solution Center	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Torab	Payam		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Torkildson	Eric		Nokia	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Tosato	Filippo			Ex Voter			2016-11-11	
Toyoda	Ichihiko			Ex Voter			2012-05-01	
Trachewsky	Jason			Ex Voter			2010-11-12	
Trainin	Solomon	B	Intel Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Tran	Ha Nguyen	N		Ex Voter			2014-07-18	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Tsai	Chia-Hung		MediaTek Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Tsai	Chia-Lung			Ex Voter			2014-05-09	
Tsao	Alvin			Ex Voter			2008-05-05	
Tsao	Jean			Ex Voter			2010-11-12	
Tsodik	Genadiy		Huawei Technologies Co. Ltd	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Tsonev	Dobroslav		pureLiFi	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Tsoulogiannis	Tom			Ex Voter				
tsubaki	toshimitsu			Ex Voter			2016-11-11	
Tsukada	Kazuyoshi			Ex Voter			2015-11-13	
Tu	Yung-Szu			Ex Voter			2011-07-22	
Tuomaala	Esa		Nokia	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		212
Turner	Sandra	L		Ex Voter				
Tzamaloukas	Mike	E		Ex Voter				
Umehira	Masahiro			Ex Voter			2015-03-13	
Urabe	Yoshio		Panasonic Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Uyehara	Ashley			Ex Voter			2008-11-17	
Van Erven	Niels			Ex Voter				
Van Leeuwen	Richard			Ex Voter				
Van Nee	Richard	D	Qualcomm Incorporated	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
van Waes	Nico	J		Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Van Zelst	Allert		Qualcomm Incorporated	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Vangelista	Lorenzo		Patavina Technologies	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Vanthournout	Jerome		CEVA-DSP	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Varlet-Andre	Mathieu			Ex Voter			2009-06-30	
Varsanofiev	Dmitri			Ex Voter				
Varshney	Prabodh		Nokia	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Venkatachalam Jayara	Venkata Ramanan		Qualcomm Incorporated	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Venkatesan	Ganesh		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Venkateswaran	Sriram		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Verma	Karan		Central University of Rajasthan	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Verma	Lochan		Qualcomm Incorporated	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Vermani	Sameer		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Victor	Dalton	T		Ex Voter			2015-03-13	
VIGER	Pascal		Canon Research Centre France	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Villardi	Gabriel		National Institute of Information and Communications Technology (NICT)	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Virk	Bhupender			Ex Voter			2012-07-20	
Vlantis	George	A	STMicroelectronics	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Vogtli	Nanci			Ex Voter				
Volpano	Dennis			Ex Voter				
Wadhwa	Sanjay			Ex Voter			2012-07-20	
Walker	Jesse	R		Ex Voter			2010-07-16	
Wallace	Brad	N		Ex Voter				
Wandile	Vivek			Ex Voter				
Wang	Bo		Huawei Technologies Co., Ltd	Potential Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Wang	Chao Chun		MediaTek Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Wang	Haiguang			Ex Voter			2015-07-28	
Wang	Haiming		Southeast University, China	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Wang	Huaiyuan			Ex Voter				
Wang	Hui			Ex Voter			2008-03-25	
Wang	Huizhao		Quantenna Communications, Inc.	Voter	166 (2017-	Caribe Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Wang	James June	J	MediaTek Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Wang	Junyi			Ex Voter			2012-07-20	
Wang	Lei		Huawei R&D USA	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Wang	Lin			Ex Voter			2014-03-21	
Wang	Qi		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Wang	Stanley			Ex Voter				
Wang	Xiang			Ex Voter			2014-03-21	
Wang	Xiaofei		InterDigital, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Wang	Xuehuan		Huawei Technologies Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Wang	Yi		Huawei Technologies Co. Ltd	Potential Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Want	Roy		Google	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Ward	Dennis			Ex Voter			2008-03-25	
Ward	Lisa		Rohde & Schwarz	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center,		212

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Orlando, FL, USA		
Ware	Christopher	G		Ex Voter				
Warren	Craig	D		Ex Voter			2010-07-16	
Watanabe	Fujio		NTT DoCoMo, Inc.	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
waye	patrick			Ex Voter			2009-06-30	
Webber	Julian		Advanced Telecommunications Research Institute International (ATR)	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Wee	Gaius		Panasonic Asia Pacific Pte Ltd.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Wei-Xia	Zou			Ex Voter			2015-11-13	
Wells	Bryan			Ex Voter				
Wen	Ericson			Ex Voter			2014-03-21	
Wen	Lei			Ex Voter			2013-07-19	
Wendt	Jim			Ex Voter				
Wentink	Menzo	M	Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
West	Nicholas			Ex Voter			2012-11-16	
Weytjens	Filip			Ex Voter				
Whetten	Frank			Ex Voter			2010-03-22	
Whitesell	Stephen	R		Ex Voter			2008-02-13	
Wicaksana	Harya			Ex Voter			2013-11-15	
Wilhelmsson	Leif		Ericsson AB	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Williams	Christopher			Ex Voter			2014-07-08	
Williams	Kyle			Ex Voter			2009-03-16	
Wilson	James	M		Ex Voter				
Wineinger	Gerald			Ex Voter			2008-07-19	
Winters	Jack	H		Ex Voter				
WON	EUN TAE	T		Ex Voter			2015-03-05	
Wong	Eric		Apple, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Wong	Ian			Ex Voter			2012-11-16	
Wong	Timothy	G		Ex Voter			2014-03-21	
Worsham	James			Ex Voter			2012-05-01	
Worstell	Harry	R		Ex Voter			2016-03-18	
Wright	Charles	R		Ex Voter				
Wright	Michael			Ex Voter				
Wu	Fonchi			Ex Voter			2010-07-16	
Wu	Gang			Ex Voter				
Wu	Jianbing		Shenzhen iTest Technology Co.,Ltd.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Wu	Songping			Ex Voter			2008-11-17	
Wu	Tianyu		MediaTek Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Wu	Ye			Ex Voter			2011-02-25	
Wu	Zhanji			Ex Voter			2013-09-16	
Xia	Pengfei			Ex Voter			2015-11-08	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Xiao	Zhenyu			Ex Voter			2014-03-21	
Xie	Fang			Ex Voter			2013-11-15	
Xie	Zhen			Ex Voter			2008-03-25	
Xin	Yan		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Xing	Weimin		ZTE Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Xu	Dongmei			Ex Voter			2014-03-21	
Xu	Mingguang			Ex Voter			2015-11-08	
XU	QUANPING			Ex Voter			2014-03-21	
Xue	Qi		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
YAGHOOBI	HASSAN		Intel Corporation	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yagi	Akiyoshi			Ex Voter			2008-11-17	
Yamada	Akira		NTT DoCoMo, Inc.	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Yamamoto	Takeshi			Ex Voter			2009-11-23	
Yamaura	Tomoya			Ex Voter			2009-03-16	
Yang	Guang-Qi			Ex Voter			2014-07-08	
Yang	Lin			Ex Voter			2014-07-18	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Yang	Liuyang			Ex Voter			2011-06-27	
Yang	Meng			Ex Voter			2015-03-05	
Yang	Ou		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yang	Rongzhen			Ex Voter			2015-05-07	
YANG	RUI		InterDigital, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Yang	Sihoon			Ex Voter			2008-03-25	
Yang	Xun		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Yang	Xun			Ex Voter			2015-05-07	
Yang	Yang			Ex Voter			2014-03-21	
Yang	Yunsong		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yang	Zhiyu			Ex Voter			2008-09-16	
Yano	Kazuto		Advanced Telecommunications Research Institute International (ATR)	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
YAO	KE		ZTE Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Ye	Fan			Ex Voter			2014-05-09	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Ye	Huanchun			Ex Voter			2012-07-20	
Yee	James		MediaTek Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Yee	Jung			Ex Voter			2012-07-20	
Yee	Peter		NSA/IAD	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yeh	Chi-Hsiang			Ex Voter			2008-03-25	
Yeow	Wai-Leong			Ex Voter			2013-03-22	
Yin	Hujun			Ex Voter			2015-03-05	
Yokohira	Kanji			Ex Voter			2008-03-25	
Yokoo	Kaoru			Ex Voter			2014-03-21	
Yokota	Hidetoshi		Landis Gyr Group Worldwide	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Yong	Su Khiong	K	Apple, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Yonge	Larry			Ex Voter			2015-11-08	
Yoon	Chanho			Ex Voter			2012-11-16	
Yoshida	Seiji			Ex Voter			2010-03-22	
Young	Christopher		Broadcom Corporation	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Yu	Bo		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Yu	Chang Wahn			Ex Voter			2015-03-05	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Yu	Chinghwa		Spreadtrum Comm.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		212
Yu	Heejung		Yeungnam University	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Yu	Jian		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yu	Mao		Marvell Semiconductor, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Yu	Patrick			Ex Voter				
Yu	Zhan			Ex Voter			2013-03-22	
Yucek	Tevfik		Qualcomm Incorporated	Potential Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Yue	Guangrong			Ex Voter			2014-11-07	
Yun	Ji-Hoon			Ex Voter			2015-07-28	
Yun	SunWoong		LG ELECTRONICS	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yung	Hon	M		Ex Voter				
Yunoki	Katsuo	D	KDDI R&D Laboratories	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Yurtkuran	Erol	K		Ex Voter				
Zaks	Artur			Ex Voter			2012-05-01	
Zelevnikar	Alan		ARRIS Group	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Zeng	Kun		Huawei Technologies Co. Ltd	Voter	166 (2017-	Caribe Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Zhang	Dezhi			Ex Voter			2012-11-16	
Zhang	Hongyuan		Marvell Semiconductor, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Zhang	Hui			Ex Voter			2014-03-21	
zhang	huimin			Ex Voter			2009-07-20	
ZHANG	JIAYIN		Huawei Technologies Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Zhang	Jinyun		Mitsubishi Electric Research Labs (MERL)	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Zhang	Junjian			Ex Voter			2013-03-22	
Zhang	Nianzu			Ex Voter			2014-05-09	
Zhang	Ning			Ex Voter			2012-05-01	
Zhang	Xin			Ex Voter			2013-11-15	
Zhang	Xingxin		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Zhang	Yan		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Zhao	Meiyuan			Ex Voter			2010-11-12	
Zhao	Mu			Ex Voter			2016-01-21	
Zhao	Qiang			Ex Voter			2012-05-01	
Zhao	Shiwei			Ex Voter			2011-07-22	
ZHAO	XIAOWU		ZTE Corporation	Aspirant	164 (2017-	Estrel Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-09)	Center, Berlin, Germany		
Zheng	Jun			Ex Voter			2016-07-29	
ZHENG	SHOUKANG			Ex Voter			2015-03-13	
Zheng	Xiayu		Marvell Semiconductor, Inc.	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Zhou	Jingyi		Verizon Communications	Aspirant	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Zhou	Mingtuo			Ex Voter			2014-07-08	
Zhou	Xun		Huawei Technologies Co. Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Zhou	Yan		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
zhou	yuan			Ex Voter			2014-11-07	
Zhu	Chunhui		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		212
Zhu	Hufei			Ex Voter			2015-05-07	
Zhu	Jing			Ex Voter			2009-03-16	
Zhu	Jun		Huawei Technologies Co. Ltd	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Zhuang	Yan			Ex Voter			2015-11-13	
Zhuo	Lan		CESI Group	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Zorn	Glen			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Zuckerman	Lawrence			Ex Voter			2012-11-16	
Zuniga	Juan Carlos		SIGFOX	Voter	162 (2017-03-12)	Hyatt Regency, Vancouver, BC, Canada		
Zweig	Jonathan			Ex Voter			2008-11-17	
Zyren	James			Ex Voter				

How do I specify my affiliation?

Affiliation is recorded in the IEEE myProject system at the Sponsor level, the Working Group level, and the Project level.

The affiliation shown above is updated from the IEEE-SA registration data after each session you attend.

To enter affiliation initially:

- Log onto [myProject](#)
- Click on Manage Activity Profile
- Expand the list to the Sponsor, Working Group, or Project
- Check the box to enroll in that specific group
- Follow the instructions to add your affiliation

To modify your affiliation in a committee that you already enrolled in:

- Log onto [myProject](#)
- Click on My Info on the top right hand corner
- Click on Affiliation Information

If you change your affiliation using the myProject system please also send an email to the Working Group Chair (Adrian P Stephens at adrian.p.stephens@ieee.org).

(Any changes may also often require the changing of emails in the 802.11 email reflectors, which can be done by the Working Group 2nd Vice Chair ([Dorothy Stanley](#)) at the same time.)

How do I specify my employer?

There is no specific requirement in the IEEE-SA policies and procedures to disclose your employer.

Employer is asked for once in [myProject](#).

To view or update your employer :

- Log onto [myProject](#)
 - Click on My Info on the top right hand corner
 - Here you can modify your employer
-

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APPENDIX BG

IEEE P802.11 - WORKING GROUP MEMBERSHIP LISTS

This page shows information for IEEE P802.11 Voter, Potential Voter, Aspirant, Ex Officio members, and Ex Voters as of 2017-05-12.

Note that this information is updated only after each 802.11 face-to-face session or working group letter ballot series.

The fields in the membership list have the following meaning

Column	Description
Status	<p>The Status column has the following meaning:</p> <ul style="list-style-type: none"> • Voter - the member can vote • Potential voter - the member will have a voting token at the next face-to-face meeting and will become a voter after that meeting • Aspirant - the member has recorded attendance at one qualifying meeting • Ex Officio - the member is a voter by virtue of their membership of the IEEE 802 executive committee (EC) • Ex Voter - the member was previously a voter member of 802.11. If you wish to be recognized as an Ex Voter, and are not recorded below, please furnish evidence of former voter status to the WG officers. <p>Members of all these status are entitled to join 802.11 email reflectors and submit documents to the 802.11 document server.</p>
Expires	<p>This column shows the meeting number (which is necessarily a Plenary meeting) and approximate starting date of the meeting after which a voting member's voting status expires, if member does not attend any qualifying meetings between now and the end of that meeting. For "potential voter" members, this shows the meeting after which their status reverts to "aspirant". For "aspirant" members, this shows the meeting after which they lose "aspirant" status (and disappear from this listing).</p> <p>An asterisk after a meeting number (e.g., "142* (2013-11-07)") indicates that a voting member needs to attend one additional meeting before the cited meeting, or they will lose their voting membership at the cited meeting, regardless of whether they attend it or not. This occurs when the last two meetings attended by the member were a plenary and the interim following it.</p> <p>NOTE--the "Expires" entry for some voting members is blank. This signifies that the chair has granted them voting membership without an attendance requirement.</p>
Expired	The Expired column indicates the date when the member became an Ex Voter, if that is known.
Last Invalid Ballot	<p>This column indicates the ballot number any last invalid or missed ballot (see http://www.ieee802.org/11/LetterBallots.shtml for the list of working group ballots). It is present only for Voter members.</p> <p>An invalid ballot is a failure to return a vote in a Working Group letter ballot series (i.e., the initial ballot and all recirculations for a particular project), or returning an invalid vote (voting "no" with</p>

no "must be satisfied" comments, or voting abstain for a reason other than "lack of expertise"). Invalid ballots are counted over up to the last three letter ballot series since the member gained Voter status.

Transition arrangements: For ballots starting before August 2016, a voter's response to a letter ballot series is determined by their response to the initial ballot. After then, a voter's response will be determined when the letter ballot series is known to have terminated (i.e., when the project is approved by the EC, or meets the terms of conditional approval by the EC, to proceed to sponsor ballot). Voters who failed to meet the updated OM were granted a waiver of the most recent ballot they missed so that the change in the application of the rules resulted in no loss of voting membership.

According to the 802.11 operations manual, a Voter must return a valid vote in 2 of the last 3 letter ballot series to maintain their status. This means the voter can miss or return an invalid vote at most 1 such ballot series.

A Voter that has missed a ballot series and fails to return a valid vote by the end of the next letter ballot series loses their Voter status and becomes an Ex Voter.

Please verify your affiliation.

There is a specific requirement in the IEEE-SA policies and procedures that attendees at its meetings disclose their affiliation. Attendees failing properly to do so risk losing the privileges of membership (i.e., voting rights).

For information from the IEEE-SA on affiliations please [click here](#).

Affiliation is not shown for Ex-Voters. For other membership statuses, if there is no affiliation beside your name or if the affiliation is incorrect please [follow these instructions](#).

If you have any related questions, please contact Adrian P Stephens at adrian.p.stephens@ieee.org.

Summary

Member Status	Count
Aspirant	112
ExOfficio	12
Ex Voter	827
Potential Voter	29
Voter	328

Detail

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Aboba	Bernard			Ex Voter				
Aboulmagd	Osama	S	Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Abraham	Santosh	P	Qualcomm Technologies Incorporated	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Abu Surra	Shadi	A		Ex Voter			2016-11-11	
Adachi	Tomoko		TOSHIBA Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Agardh	Kare		Sony Mobile Communications	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Aggarwal	Alok			Ex Voter			2009-07-20	
Agre	Jonathan	R		Ex Voter				
Ahn	Jaehyun			Ex Voter			2016-01-21	
Ahn	Jinsoo		Yonsei University	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Ahn	Seung Hyeok		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ahn	Woojin		WILUS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Aiello	Roberto			Ex Voter			2015-07-28	
Aio	Kosuke		Sony Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Akhmetov	Dmitry		Intel Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Aldana	Carlos	H	Intel Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Alexander	Thomas			Ex Voter			2015-03-13	
Alimian	Areg			Ex Voter				
Alpert	Yaron		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Al-Taleb	Sajaa		telekom research and development/malaysia	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Amann	Keith			Ex Voter			2008-11-17	
Amini	Peiman			Ex Voter			2013-07-19	
An	Song-Haur		INDEPENDENT	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Andrade	Merwyn	B		Ex Voter				
Andren	Carl	F		Ex Voter				
Andrus	David	C		Ex Voter			2011-11-11	
Ansley	Carol		ARRIS Group	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Anton	Butch			Ex Voter				
Anwyl	Gary			Ex Voter			2010-03-22	
Aoki	Tsuguhide		TOSHIBA Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		217
Aramaki	Takashi			Ex Voter				
Arita	Takashi			Ex Voter			2008-05-05	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Ariyavisitakul	Sirikiat Lek	L		Ex Voter			2014-11-07	
Armstrong	Lee	R	US Department of Transportation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Arndt	Manfred		Hewlett Packard Enterprise	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Arnett	Larry			Ex Voter				
Arnold	James			Ex Voter			2016-11-11	
Asai	Yusuke		NTT	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ashley	Alex			Ex Voter			2013-07-19	
Asterjadhi	Alfred		Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Atcitty	Torrey			Ex Voter			2012-05-01	
Au	Kwok Shum	S	Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Audeh	Malik			Ex Voter			2009-11-23	
Auluck	Vijay		Self	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Aust	Stefan			Ex Voter			2015-11-13	
Avera	Drayton			Ex Voter			2016-03-18	
Awater	Geert	A	Qualcomm Incorporated	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Azizi	Shahrnaz		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		

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Babaei	Alireza			Ex Voter			2016-01-21	
Backes	Floyd			Ex Voter			2008-03-25	
Bagby	David		Calypso Ventures, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Bahr	Michael			Ex Voter			2012-07-20	
Bai	Fan			Ex Voter			2009-11-23	
Baik	Eugene		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Bain	David		TM Technologies	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Bajko	Gabor			Ex Voter			2016-03-18	
Baker	Dennis	J		Ex Voter			2008-12-21	
Banerjea	Raja			Ex Voter			2013-11-15	
Banerjee	Kaberi			Ex Voter			2011-03-18	
bang	saehee		LG ELECTRONICS	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Bansal	Amit			Ex Voter			2009-03-16	
Barber	Phillip			Ex Voter			2015-11-13	
Barber	Simon			Ex Voter				
baron	stephane		Canon Research Centre France	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Barr	David		Intel Corporation	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention		

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						Center, Berlin, Germany		
Barr	John	R		Ex Voter			2012-05-01	
Barriac	gwendolyn			Ex Voter			2017-03-17	
Barry	Kevin	M		Ex Voter				
Bartel	Charles	R		Ex Voter				
Basson	Gal			Ex Voter			2011-07-22	
Batra	Anuj		Apple, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Bavafa	Moussa			Ex Voter			2009-05-05	
Baykas	Tuncer			Ex Voter			2013-03-04	
Baysal	Burak	H		Ex Voter				
Bei	Jianwei		Marvell Semiconductor, Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Benko	John	L		Ex Voter			2010-07-11	
Ben-Tovim	Erez			Ex Voter			2013-11-15	
Benveniste	Mathilde			Ex Voter			2009-11-23	
Berens	Friedbert		FBConsulting Sarl	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Berger	Christian		Marvell Semiconductor, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Berkema	Alan			Ex Voter			2014-07-18	
Berry	Don			Ex Voter				
Bhandaru	Nehru		Broadcom Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Bharadwaj	Arjun			Ex Voter			2017-01-20	
Bhatt	Anirudh			Ex Voter			2012-05-01	
Bhukania	Bijoy			Ex Voter			2012-11-16	
Bims	Harry		Bims Laboratories, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Bjerke	Bjorn	A		Ex Voter			2009-03-16	
Black	Simon			Ex Voter				
Blanchard	Colin			Ex Voter			2008-05-05	
Blue	Scott			Ex Voter				
Bocus	Mohammud		Toshiba of Europe Ltd.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Boer	Jan			Ex Voter				
Booth	Ted			Ex Voter			2012-05-01	
Borges	Daniel			Ex Voter			2011-06-27	
Boucachard	Philippe			Ex Voter			2013-07-19	
Bourdoux	Andre		IMEC	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Brandt	David		Rockwell Automation	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Brasier	William	M		Ex Voter				
Braskich	Anthony			Ex Voter			2010-03-22	
Bray	Jennifer			Ex Voter				
Breit	Gregory			Ex Voter			2011-11-11	
Brennan	Joseph			Ex Voter			2010-03-22	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Britz	David			Ex Voter			2008-12-21	
Brown	Alan	M	ADTRAN Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Buffington	John		Ittron Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Buga	Walter			Ex Voter			2010-07-16	
Bumiller	G			Ex Voter			2012-07-20	
Buttar	Alistair	G		Ex Voter			2008-02-13	
Bynum	Ann			Ex Voter			2016-03-18	
Cai	Lin			Ex Voter			2015-07-28	
CAI	YU			Ex Voter			2015-07-28	
Caillerie	Alain		Canon Research Centre France	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Calcev	George		Huawei R&D USA	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Calvert	Chris		Landis Gyr Group Worldwide	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Camps Mur	Daniel	C		Ex Voter			2012-05-01	
Cam-Winget	Nancy			Ex Voter			2010-07-16	
Canchi	Radhakrishna		Kyocera International, Inc.	ExOfficio	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Canpolat	Necati			Ex Voter			2011-07-22	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
cao	fengming			Ex Voter			2016-07-29	
Cao	Rui		Marvell Semiconductor, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Capar	Cagatay			Ex Voter			2016-11-11	
Cardona	Javier			Ex Voter			2010-03-22	
Cariou	Laurent		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Carlo	James			Ex Voter			2008-03-25	
Carney	William		Sony Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Carson	Pat			Ex Voter				
Centonza	Angelo			Ex Voter			2008-03-25	
Cha	Jaesun			Ex Voter			2013-07-19	
Chair	Ricky		Airgain	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Challans	Romana			Ex Voter			2013-03-22	
CHAMBELIN	Philippe			Ex Voter			2012-10-31	
Chan	Douglas	S		Ex Voter			2009-11-23	
Chang	Kapseok			Ex Voter			2011-07-22	
Chang	Kuor-Hsin			Ex Voter			2015-03-13	
CHANG	SANGHYUN		SAMSUNG ELECTRONICS	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Chang	Soo-Young		California State University, Sacramento (CSUS)	Voter	166 (2017-	Caribe Hotel and Convention		225

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Chang	Xin			Ex Voter			2014-07-08	
Chaplin	Clint	F	Imagicon	ExOfficio				
Chen	Bin			Ex Voter			2013-07-19	
Chen	Cheng		Intel Corporation	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Chen	Jiamin		HUAWEI	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Chen	Jiunn-Tsair			Ex Voter			2010-03-22	
Chen	Jixin			Ex Voter			2014-05-09	
CHEN	KWANG-CHENG			Ex Voter			2016-07-29	
Chen	Lidong			Ex Voter			2016-11-11	
Chen	Peng		Huawei Technologies Co. Ltd	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Chen	Qian			Ex Voter			2014-11-07	
CHEN	Rory			Ex Voter			2008-02-13	
Chen	Spark		ARRIS Group	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Chen	Teyan			Ex Voter			2016-11-11	
CHEN	Xi			Ex Voter			2014-03-21	
Chen	Xiaogang		Intel Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Chen	Ye			Ex Voter				
Chen	Yi-Ming			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Cheng	Gary		Peraso Technologies Incorporated	Potential Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Cheng	Hong			Ex Voter			2008-05-05	
Cheng	Paul		MediaTek Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Cheng	Yong		Huawei Device	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Cheong	Minho		Newracom Inc.	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
CHERIAN	GEORGE		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Cherniavsky	Dmitry		SiBEAM, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Chesson	Greg			Ex Voter				
Chi	Zhipai			Ex Voter			2015-07-28	
Chia	Meng	W		Ex Voter			2011-07-22	
Chin	Francois			Ex Voter			2014-11-07	
Chin	Woon Hau			Ex Voter			2016-07-29	
Chindapol	Aik			Ex Voter				
Chitrakar	Rojan		Panasonic Asia Pacific Pte Ltd.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Cho	Hangyu		lg electronics	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Cho	Joongwon			Ex Voter			2016-11-11	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Cho	Woong			Ex Voter			2010-11-12	
Choi	Chang-Soon			Ex Voter			2010-11-12	
Choi	Hyeyoung			Ex Voter			2016-07-29	
Choi	Inhwan			Ex Voter			2012-02-19	
Choi	In-Kyeong		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Choi	Jee-Yon			Ex Voter			2015-03-13	
Choi	Jinsoo		LG ELECTRONICS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Choi	Nakjung			Ex Voter			2010-03-22	
Choi	Sangsung		Electronics and Telecommunications Research Institute (ETRI)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Choi	Seyeong			Ex Voter			2010-03-22	
Choi	Sunghyun			Ex Voter				
Choi	Won-Joon			Ex Voter				
Choo	Li Chia	C		Ex Voter			2014-07-18	
Choudhury	Abhijit	K		Ex Voter			2008-07-19	
Choudhury	Sayantan		Nokia	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
CHRISTIN	Philippe			Ex Voter			2011-07-22	
Chu	Liwen		Marvell Semiconductor, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Chu	Wenjing			Ex Voter			2014-03-21	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
CHUN	JINYOUNG			Ex Voter			2016-01-21	
Ciochina	Dana		Sony Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ciotti	Frank			Ex Voter				
Clements	Ken			Ex Voter				
Coffey	John		Realtek Semiconductor Corp.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Cole	Terry	L		Ex Voter			2010-03-14	
Coleman	Ryon	K		Ex Voter			2008-12-21	
Congdon	Paul			Ex Voter				
Conner	W	S		Ex Voter			2008-02-13	
Cook	Charles	I		Ex Voter			2010-11-12	
Cook	Kenneth			Ex Voter				
Cooklev	Todor			Ex Voter			2009-03-16	
Coop	Kenneth			Ex Voter			2015-11-08	
Cordeiro	Carlos		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Correal	Neiyer			Ex Voter			2014-07-18	
Crowley	Steven			Ex Voter			2008-03-25	
Cypher	David	E		Ex Voter			2009-11-23	
da Silva	Claudio		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
DANG	Meimei		China Academy of Telecommunication Research (CATR)	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Das	Subir		Applied Communication Sciences	ExOfficio				
Dash	Debashis		Quantenna Communications, Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Dauphinee	Leonard		MaxLinear Corp	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
De Courville	Marc			Ex Voter			2009-11-23	
De Ruijter	Hendricus		Silicon Laboratories	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
de Vegt	Rolf	J	Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		217
Debergh	Pierre		Orange	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Dehghan	Hossein			Ex Voter			2012-05-01	
Demessie	Yohannes			Ex Voter			2013-03-22	
Deng	Der-Jiunn		National Changhua University of Education	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
denison	michael			Ex Voter			2014-07-18	
Denteneer	Theodorus			Ex Voter			2012-05-01	
Derham	Thomas			Ex Voter			2015-07-28	
Deshmukh	Nikhil		National Instruments Corporation	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
deVries	Jeremy			Ex Voter			2010-03-22	
Dickey	Susan			Ex Voter			2010-11-12	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Ding	Gang			Ex Voter			2010-09-18	
DING	ZHIMING			Ex Voter			2008-12-21	
Doi	Yoshiharu			Ex Voter			2009-07-20	
Donapati	Rakesh		Anritsu Company	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Dong	Ting			Ex Voter			2014-05-09	
Dong	Xiandong			Ex Voter			2014-07-18	
Doppler	Klaus			Ex Voter			2015-05-07	
Dorsey	John			Ex Voter			2011-03-18	
Douglas	Brett	L		Ex Voter				
Dowse	Malcolm			Ex Voter			2016-01-21	
Drennan	Offie			Ex Voter			2012-07-20	
DU	JiaDong			Ex Voter			2015-11-13	
Du	Lei			Ex Voter			2008-03-25	
Dua	Praveen			Ex Voter			2016-11-11	
Duan	Chunjie			Ex Voter			2011-11-11	
Dundar	Baris	B		Ex Voter				
Durand	Roger	P		Ex Voter			2014-11-07	
duvvuri	srinivasa			Ex Voter			2009-11-23	
Eastlake 3rd	Donald	E	Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		216
Ecclesine	Peter		Self	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Edgar	Richard		Imagination Technologies Ltd.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Edney	Jonathan	P		Ex Voter				
Edwards	Bryan			Ex Voter			2008-03-25	
Eitan	Alecsander		Qualcomm Incorporated	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Ekbal	Amal			Ex Voter			2014-03-21	
Elbakoury	Hesham	M		Ex Voter			2008-03-25	
Ellis	Jason			Ex Voter				
Ellis	Michael			Ex Voter			2009-06-30	
ElSherif	Ahmed		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Emeott	Stephen	P		Ex Voter			2009-11-23	
Emmelmann	Marc		Self Employed	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Engwer	Darwin			Ex Voter			2010-03-22	
Eo	Iksoo			Ex Voter			2015-05-07	
Epstein	Joseph			Ex Voter			2009-03-16	
Epstein	Leonid		Celeno Communications	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Erceg	Vinko		Broadcom Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Eriksson	Patrik			Ex Voter				

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Escalera	Natalia		Buffalo Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Estevez	Leonardo			Ex Voter			2011-02-25	
Estrada	Andrew		Sony Corporation	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Euscher	Christoph			Ex Voter				
Faccin	Stefano	M		Ex Voter				
Falk	Lars	P		Ex Voter			2009-03-16	
Fan	Zhong			Ex Voter			2016-07-29	
Fanfelle	Robert			Ex Voter			2009-07-20	
Fang	Ping		Huawei Device Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Fang	Yonggang		ZTE TX Inc	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Fechtel	Stefan			Ex Voter			2009-11-23	
Fei	QIN			Ex Voter			2014-07-08	
Feinberg	Paul	H		Ex Voter			2008-12-21	
Feldman	Alex			Ex Voter				
Feldman	Ariel		Autotalks	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Feng	Xiang		Keysight Technologies	Potential Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Ferdowsi	Vida			Ex Voter			2016-11-11	
Filin	Stanislav			Ex Voter			2014-07-08	
Finn	Norman		Huawei Technologies Co. Ltd	Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Fischer	Matthew	J	Broadcom Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Fischer	Michael		NXP Semiconductors	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Fisher	Wayne	K		Ex Voter			2010-11-12	
Flammer	George			Ex Voter			2014-03-21	
FLYNN	P			Ex Voter			2014-07-18	
Fracchia	Roberta			Ex Voter			2008-12-21	
Frank	Colin			Ex Voter			2011-11-11	
Fujimoto	Atsushi			Ex Voter			2010-07-16	
Fujinami	Makoto			Ex Voter			2008-03-25	
Fujio	Shunsuke		FUJITSU LABORATORIES LIMITED	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Fukatsu	Noriyasu			Ex Voter			2012-05-01	
Funada	Ryuhei			Ex Voter			2009-07-20	
Fung	Patrick			Ex Voter			2012-05-01	
Furuichi	Sho		Sony Corporation	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Gagiev	Yaroslav		Intel Corporation	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Gal	Dan			Ex Voter			2015-05-07	
Gallizio	Edoardo			Ex Voter			2008-05-05	
Gan	Ming		Huawei Technologies Co. Ltd	Voter	170* (2018-	Manchester Grand Hyatt,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-01)	San Diego, CA, USA		
Gao	Wen			Ex Voter			2011-02-25	
Garcia Villegas	Eduard		Universitat Politecnica de Catalunya (UPC)	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Gardner	James			Ex Voter				
Gast	Matthew			Ex Voter			2011-03-18	
Ghamri-Doudane	Mohamed			Ex Voter			2011-11-11	
Ghanbarinejad	Majid		Huawei R&D USA	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ghasemi	Amir			Ex Voter			2011-02-25	
Ghazi	Vafa			Ex Voter				
Ghosh	Chittabrata		Intel Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Ghosh	Monisha			Ex Voter			2016-07-29	
Gilb	James	P	Gilb Consulting, Inc.	ExOfficio				
Gilbert	Jeffrey			Ex Voter			2011-07-22	
Gillmore	Matthew			Ex Voter			2015-03-05	
GIRAUD	Claude			Ex Voter			2011-11-11	
Glibbery	Ronald			Ex Voter			2010-11-12	
Gloger	Reinhard			Ex Voter			2013-03-22	
Godfrey	Tim		Electric Power Research Institute, Inc. (EPRI)	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
GONG	DANING			Ex Voter			2013-11-10	
Gong	Michelle			Ex Voter			2012-05-01	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Goodall	David			Ex Voter			2014-07-18	
Gossain	Hrishikesh			Ex Voter			2008-03-25	
Gosteau	Jeremy			Ex Voter			2008-07-18	
GOTO	Fumihide		Self	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Gottlib	Elad			Ex Voter			2014-03-21	
Grandhe	Niranjan		Marvell Semiconductor, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Grandhi	Sudheer	A		Ex Voter			2013-11-10	
Grass	Eckhard		Humboldt-University in Berlin	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Grau	Stephen			Ex Voter			2014-07-18	
Gray	Gordon	P		Ex Voter				
Green	Evan	R		Ex Voter				
Green	Larry			Ex Voter				
Grigat	Michael		Deutsche Telekom AG	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Grodzinsky	Mark			Ex Voter			2011-03-18	
Gu	Daqing			Ex Voter				
Guener	Tugrul			Ex Voter			2008-12-21	
Guo	Jianlin			Ex Voter			2010-03-22	
Guo	Qiang		Huawei R&D USA	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Guo	Yuchen		Huawei Technologies Co., Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						San Diego, CA, USA		
Gupta	Pratibha			Ex Voter			2008-09-16	
Gupta	Vivek	G		Ex Voter			2010-03-22	
Hadad	Zion			Ex Voter			2017-01-20	
Hailemariam	Meareg		IEEE	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Haines	Russell			Ex Voter			2015-07-28	
Haisch	Fred			Ex Voter				
Halasz	David			Ex Voter			2014-11-07	
Hall	Robert		Johnson Controls Inc	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Halls	David		Toshiba of Europe Ltd.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		217
Hamady	Neil			Ex Voter				
Hamilton	Mark		Ruckus Wireless	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
HAN	Xiao		Huawei Technologies Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Han	Yunbo		HUAWEI	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Hanatani	Yoshikazu			Ex Voter			2016-03-18	
Handte	Thomas		Sony Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Hansen	Christopher	J	Covariant Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
HAO	CHEN		Huawei Technologies Co., Ltd	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Hao	Peng			Ex Voter			2015-05-07	
Har Zion	Yuval		Celeno Communications	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Harada	Hiroshi			Ex Voter			2013-11-15	
Hardison	Nathaniel			Ex Voter			2015-11-13	
Harkins	Daniel	N	Aruba Networks, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Hart	Brian	D	Cisco Systems, Inc.	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hartman	Chris		Apple, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Haslestad	Thomas			Ex Voter				
Hassan	Amer	A		Ex Voter			2010-07-11	
Hassel	Vegard			Ex Voter			2010-03-22	
Hattig	Myron			Ex Voter			2008-03-25	
Hauser	James	P		Ex Voter				
Hayakawa	Yutaka			Ex Voter				
Hayase	Shigenori			Ex Voter			2008-11-17	
Hayes	Kevin	V		Ex Voter			2008-11-17	
Hayes	Victor		CONSULTANT	Voter				
He	Haixiang			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
He	Linhai		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
he	shiwen		Southeast University, China	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Heberling	Allen		Tensorcom, Inc.	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Hedayat	Ahmadreza		Newracom Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Hedberg	David	J		Ex Voter				
Heide	Carolyn			Ex Voter			2015-11-13	
Heile	Robert	F	Wi-SUN Alliance	ExOfficio				
Henry	Jerome		Cisco Systems, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hepworth	Eleanor			Ex Voter				
Hermodsson	Frans			Ex Voter				
Hiertz	Guido	R	Ericsson AB	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Hillman	Garth	D		Ex Voter			2014-03-21	
Hinsz	Christopher	S		Ex Voter			2008-02-13	
Hiraga	Ken			Ex Voter			2012-11-16	
Hirano	Jun			Ex Voter				
Hirata	Ryuichi		Sony Corporation	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ho	Chin	K		Ex Voter			2013-07-19	
Ho	Duncan		Qualcomm Incorporated	Voter	166 (2017-	Caribe Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Ho	Jin-Meng			Ex Voter				
Hoang	Anh Tuan	T		Ex Voter			2013-11-15	
Hoang	Dien			Ex Voter			2013-07-19	
Hoghooghi	Michael	M		Ex Voter				
Holt	Keith			Ex Voter				
Hong	Hanseul		Yonsei University	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Hong	Seung-Eun			Ex Voter			2011-07-22	
Hong	Song-Nam			Ex Voter			2016-03-18	
Hong	Sungjin		WILUS Institute	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Hong	Wei			Ex Voter			2014-07-18	
Hong	Wei			Ex Voter			2014-03-21	
Hong	Yong-Geun			Ex Voter			2008-05-05	
Honma	Naoki			Ex Voter			2010-03-22	
Horisaki	Koji		TOSHIBA Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Horne	William			Ex Voter				
Hosur	Srinath			Ex Voter				
Hou	Victor			Ex Voter			2016-11-11	
Housley	Russell	D		Ex Voter				
Howard	David			Ex Voter			2012-05-01	
hsiao	ying-chuan			Ex Voter			2013-11-10	
Hsieh	Jing-Rong			Ex Voter			2016-07-29	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Hsu	Chien-Fang		MediaTek Inc.	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Hsu	Jen-Yuan			Ex Voter			2014-05-09	
Hsu	Ju-Lan			Ex Voter			2012-02-19	
Hsu	Yungping			Ex Voter				
Hu	Chunyu		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hu	Junling			Ex Voter			2008-12-21	
hu	wendong			Ex Voter			2010-11-12	
Huang	He			Ex Voter			2016-11-11	
Huang	Lei		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Huang	Lei		Panasonic Asia Pacific Pte Ltd.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Huang	Po-Kai		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Huang	Robert	Y		Ex Voter			2010-03-22	
Huang	Rongsheng		MediaTek Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Huang	Tian-Wei			Ex Voter			2011-07-22	
HUANG	YUN-LIANG		MediaTek Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Huang	Zhiyong		LitePoint Corporation/Teradyne	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
HUH	JIYOUNG			Ex Voter			2008-02-13	
Humbert	John			Ex Voter			2015-11-08	
Hunter	David		WireFi Networks Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		217
Hurtarte	Jeorge		Teradyne, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Hwang	Sung Hyun	H	Electronics and Telecommunications Research Institute (ETRI)	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Ibrahim	Azmi		TM Research & Development	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ibrahim	Brima			Ex Voter			2017-03-17	
Ikram	Muhammad	Z		Ex Voter				
Imamura	Daichi			Ex Voter				
Inoue	Yasuhiko		Nippon Telegraph and Telephone Corporation (NTT)	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Iqbal	Zabed		Georgia Southern University	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Ishihara	Koichi		Nippon Telegraph and Telephone Corporation (NTT)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Ishizu	Kentaro		National Institute of Information and Communications Technology (NICT)	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Iso	Akio			Ex Voter			2012-05-01	
ITO	Takumi			Ex Voter				
Iwaoka	Mitsuru			Ex Voter			2016-03-18	
Iwatani	Junichi		Nippon Telegraph and Telephone Corporation (NTT)	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Jacobs	Wynona			Ex Voter			2011-11-11	
Jacobsen	Eric	A		Ex Voter				
Jacobson	Scott		Cadence Design Systems, Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
jafarian	amin			Ex Voter			2015-07-28	
Jain	Avinash			Ex Voter			2011-06-27	
Jalfon	Marc			Ex Voter			2008-05-05	
Jang	KyungHun			Ex Voter				
Jauh	Alan			Ex Voter			2016-07-29	
Jee	Junghoon			Ex Voter			2009-07-20	
Jeffries	Timothy		Huawei R&D USA	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Jeon	Ho-In J	J		Ex Voter			2008-02-13	
Jeon	Hongseok			Ex Voter			2009-11-23	
Jeon	Taehyun			Ex Voter				
Jeong	ByungJang	J		Ex Voter			2012-07-20	
Jeong	Chanyong		SAMSUNG ELECTRO-MECHANICS	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
JEONG	MIN SEOP		SAMSUNG ELECTRONICS	Aspirant	168 (2018-	Hyatt Regency O'Hare,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					03-04)	Rosemont, Illinois, USA		
Jeong	Moo Ryong	R		Ex Voter				
Jeong	Wuncheol			Ex Voter			2013-11-15	
Jeong	Yangseok			Ex Voter			2015-03-05	
Jeong	Yeonkwon			Ex Voter			2009-11-23	
Jetcheva	Jorjeta	G		Ex Voter			2012-07-20	
Ji	Chenhe		Huawei Technologies Co., Ltd	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ji	Lusheng			Ex Voter			2011-07-22	
Ji	Mingyue		Broadcom Corporation	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Jia	Jia		Huawei Technologies Co., Ltd	Potential Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Jiang	Daniel			Ex Voter			2010-03-22	
jiang	feng		Intel Corporation	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Jiang	Jinjing		Marvell Semiconductor, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Jiang	Robert			Ex Voter			2015-11-08	
Jin	Liang		Spirent Communications	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Jin	Sunggeun			Ex Voter			2013-09-16	
Jin	ZhongYi			Ex Voter			2013-03-22	
Jindal	Nihar			Ex Voter			2015-11-08	

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jo	junho			Ex Voter			2011-11-11	
Jo	Kyungtae		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Johnsson	Kerstin		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Johnston	David			Ex Voter				
Jokela	Jari	E		Ex Voter			2016-07-29	
Jones	Allan		Activision	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
JONES	JEFFRUM		Qorvo, Inc.	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Jones	Vincent Knowles IV		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
JOO	SEONG-SOON			Ex Voter			2015-03-05	
Jose	Bobby			Ex Voter				
Joshi	Avinash			Ex Voter			2012-07-20	
Josiam	Kaushik		SAMSUNG	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Jun	Haeyoung			Ex Voter			2011-06-27	
Junell	Jari			Ex Voter			2014-03-21	
Kafle	Padam			Ex Voter			2013-07-19	
Kahn	Michael			Ex Voter			2008-07-19	
Kain	Carl	W	Noblis, Inc.	Voter	168* (2018-03-04)	Hyatt Regency O'Hare,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Rosemont, Illinois, USA		
Kakani	Naveen	K	Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kandala	Srinivas			Ex Voter				
Kang	Byeongwoo			Ex Voter			2012-05-01	
Kang	Hyunduk		Electronics and Telecommunications Research Institute (ETRI)	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Kang	Hyunjeong			Ex Voter			2015-11-08	
Kapetanovic	Dzevdan		Ericsson AB	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Karaoguz	Jeyhan			Ex Voter			2011-02-25	
Karcz	Kevin			Ex Voter				
Karnik	Pankaj	R		Ex Voter				
Kasher	Assaf	Y	Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kasslin	Mika			Ex Voter			2014-03-21	
Katagiri	Masami			Ex Voter			2015-07-28	
Kato	Masato			Ex Voter			2009-07-20	
Kato	Shuzo			Ex Voter			2012-09-03	
Kato	Tatsuya			Ex Voter			2010-11-12	
Kavner	Douglas			Ex Voter			2010-03-22	
Kedem	Oren		Intel Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kennedy	Richard	H	Hewlett Packard Enterprise	ExOfficio	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Kenney	John			Ex Voter			2016-03-18	
Kerry	Stuart	J	OK-Brit	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ketchum	John	W		Ex Voter			2008-03-25	
Khakuria	Prithpal			Ex Voter			2012-07-20	
Khine	Thet	H		Ex Voter			2012-05-01	
Khorov	EVGENY		Skoltech	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Khoryaev	Alexey			Ex Voter			2011-06-27	
Khoury	Peter		Ruckus Wireless	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
KI	SANGWON		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kikuma	Tomohiro			Ex Voter				
Kim	Bonghoe			Ex Voter			2012-11-16	
KIM	BYOUNG-HOON			Ex Voter			2012-11-16	
Kim	Byoung-Jo			Ex Voter				
Kim	Eun	S		Ex Voter			2012-11-16	
Kim	Eung	S		Ex Voter			2010-11-12	
Kim	Eunkyo			Ex Voter			2008-03-25	
Kim	Eunkyung			Ex Voter			2015-03-13	
Kim	Hongsoog			Ex Voter			2015-03-05	
Kim	Igor		Electronics and Telecommunications Research Institute (ETRI)	Potential Voter	168* (2018-03-04)	Hyatt Regency O'Hare,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Rosemont, Illinois, USA		
Kim	Jaehwan			Ex Voter			2015-11-13	
Kim	Jeehoon			Ex Voter			2016-07-29	
Kim	Jeongki		LG ELECTRONICS	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kim	Jin Min		LG ELECTRONICS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		216
Kim	Jinho			Ex Voter			2013-11-10	
Kim	Jinkyong			Ex Voter			2014-03-21	
Kim	Joo Young			Ex Voter			2013-11-10	
Kim	Joonsuk		Apple, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Kim	Kyeongpyo		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kim	Kyeongsoo			Ex Voter			2008-03-25	
Kim	Myeong-Jin			Ex Voter			2016-03-18	
Kim	Sang Gook		LG ELECTRONICS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
KIM	SANGKYUN			Ex Voter			2015-03-13	
kim	Seong Soo	S		Ex Voter			2008-12-21	
Kim	Suhwook		LG ELECTRONICS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Kim	Taejoon			Ex Voter			2013-07-19	
Kim	Yongho		Korea National University of Transportation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kim	Yongsuk			Ex Voter				
Kim	Yongsun			Ex Voter			2011-07-22	
Kim	Youhan		Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kim	Youjin			Ex Voter			2008-09-16	
Kim	Youngsoo			Ex Voter			2016-03-18	
Kim	Youn-Kwan		The Catholic University of Korea	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kim	Yunbae		Electronics and Telecommunications Research Institute (ETRI)	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
kim	yunjoo			Ex Voter			2012-07-20	
Kimhi	Ziv			Ex Voter				
Kinney	Patrick			Ex Voter			2008-03-25	
Kirimis	Dimitri		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kiryanov	Anton		IITP RAS	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kishida	Akira			Ex Voter			2015-11-08	
Kitazawa	Shoichi			Ex Voter			2016-11-11	
Kivinen	Tero			Ex Voter			2012-11-16	
Klein	Philippe		Broadcom Corporation	Aspirant				
Kleindl	Gunter			Ex Voter			2008-11-17	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Klik	Cees			Ex Voter				
Kloper	David		Cisco Systems, Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
KNECKT	JARKKO		Apple, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ko	Geonjung		WILUS Institute	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ko	Gwangzeen			Ex Voter			2015-11-13	
KOBAYASHI	MARK	M		Ex Voter			2012-05-01	
Koga	Keiichiro			Ex Voter				
Koh	Benjamin			Ex Voter			2008-03-25	
Kojima	Fumihide		National Institute of Information and Communications Technology (NICT)	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kolze	Tom			Ex Voter			2016-07-29	
Koskela	Timo			Ex Voter			2014-07-08	
Kotzer	Igal		General Motors Company	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Kountz	Dennis		Chemours	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Kowalski	John			Ex Voter				
Kraemer	Bruce	P	Marvell Semiconductor, Inc.	Voter				
Krasicki	Maciej			Ex Voter			2015-07-28	
Kruys	Johannes	P		Ex Voter			2009-07-20	
Kudo	Riichi			Ex Voter			2011-11-11	
Kuehnel	Thomas			Ex Voter			2009-06-30	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
kukil	LIM		WILUS Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kulkarni	Parag		Toshiba	Potential Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kumagai	Tomoaki			Ex Voter				
Kumar	G Rajendra			Ex Voter			2014-07-18	
Kumar	Manish		Marvell Semiconductor, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Kumar	Rajesh		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kumar	Rajneesh			Ex Voter			2008-03-25	
Kumari	Warren		Google	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kunihiro	Takushi			Ex Voter				
Kurihara	Thomas	M		Ex Voter			2012-11-16	
Kuwahara	Denis			Ex Voter				
Kwak	Byung-Jae		Electronics and Telecommunications Research Institute (ETRI)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Kwak	Jin-Sam		WILUS Institute	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		216
Kwak	Joseph			Ex Voter			2015-07-28	
KWON	EDWIN			Ex Voter			2009-06-30	
Kwon	Hyoungjin			Ex Voter			2015-11-13	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
KWON	UI	K		Ex Voter			2011-06-27	
Kwon	Yong-Jin		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Kwon	Young Hoon	H	Newracom Inc.	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
LAGRANGE	Pascal			Ex Voter			2011-11-11	
Lakkis	Ismail			Ex Voter			2010-11-12	
Lalam	Massinissa		SAGEMCOM SAS	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lambert	Paul		Marvell Semiconductor, Inc.	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lan	Zhou		Huawei Technologies Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lanante	Leonardo		Kyushu Institute of Technology	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Landt	Jeremy	A		Ex Voter			2010-11-12	
Lansford	James		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Lanzl	Colin			Ex Voter				
Lauer	Joseph	P		Ex Voter			2011-02-25	
Le Rouzic	Jean-Pierre			Ex Voter			2015-03-13	
Leach	David	J		Ex Voter				
Lee	Anseok			Ex Voter			2013-07-19	
Lee	Daewon		Newracom Inc.	Voter	166* (2017-	Caribe Hotel and Convention		225

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Lee	Donghun			Ex Voter			2013-11-10	
Lee	Dongjun			Ex Voter				
Lee	Hongsup			Ex Voter			2015-11-08	
lee	hoosung			Ex Voter			2011-07-22	
Lee	Howon		Hankyong National University	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
LEE	Ilgu			Ex Voter			2015-03-05	
Lee	Insun			Ex Voter				
Lee	Jae Seung	S	ETRI	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lee	Jae-Ho			Ex Voter			2014-03-21	
Lee	Jehun		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lee	JiHo		Korea University	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lee	Jihyun			Ex Voter			2012-07-20	
Lee	Jin			Ex Voter			2008-09-16	
LEE	JOONSOO		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
LEE	JUNG WOON		Samsung Electronics Co., Ltd.	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Lee	Ronald		MaxLinear	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Center, Berlin, Germany		
Lee	Sok-kyu			Ex Voter				
LEE	SUNGEUN		Cypress Semiconductor Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Lee	Tae	H		Ex Voter			2009-07-20	
Lee	Wookbong			Ex Voter			2016-01-21	
Lee	Wooyong			Ex Voter			2011-11-11	
Lee	Xiaoyang		DHS/OEC	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Lee	Young Ha		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lee	Yuro			Ex Voter			2015-11-13	
Lefkowitz	Martin			Ex Voter				
Lei	Zhongding			Ex Voter			2016-07-29	
Leicht	Suzanne		National Security Agency	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
lemberger	Uriel			Ex Voter			2008-03-25	
Lepp	James		BlackBerry	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Leung	Wai Kong	K		Ex Voter			2014-07-08	
Levy	Joseph		InterDigital, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Li	Bin			Ex Voter			2011-11-11	
Li	Bo		northwestern polytechnical university	Aspirant	164 (2017-	Estrel Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-09)	Center, Berlin, Germany		
Li	Dejian		Huawei Technologies; HiSilicon	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Li	Feng			Ex Voter			2015-11-08	
Li	Guoqing		Apple, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
LI	HONGGANG			Ex Voter			2015-03-05	
Li	Huan-Bang		National Institute of Information and Communications Technology (NICT)	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Li	Jing		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Li	Liang			Ex Voter			2015-03-05	
Li	Lingjie			Ex Voter			2013-03-22	
Li	Pen			Ex Voter				
Li	Qiang		HUAWEI	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Li	Qinghua		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Li	Sheung			Ex Voter			2010-03-22	
Li	Yanchun		Huawei Technologies Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Li	Yunbo		Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
LI	YUNZHOU			Ex Voter			2013-03-04	
Li	Zhiqiang			Ex Voter			2015-05-07	
Liang	Haixiang		Huawei R&D USA	Potential Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lim	Dong Guk		LG ELECTRONICS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Lim	Sungkyun		Georgia Southern University	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lin	Chih-Che			Ex Voter			2014-11-07	
Lin	Huashih	A		Ex Voter				
Lin	Meilu		HUAWEI	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Lin	Paul			Ex Voter			2011-07-22	
Lin	Wei			Ex Voter			2017-01-20	
Lin	Yingpei		Huawei Technologies Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Lindskog	Erik		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Link	Jeremy			Ex Voter			2012-05-01	
Liru	Lu			Ex Voter			2014-11-07	
Liu	Changwen			Ex Voter				
LIU	CHENCHEN			Ex Voter			2017-01-20	
Liu	Dapeng			Ex Voter			2014-07-18	
Liu	Der-Zheng		Realtek Semiconductor Corp.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Orlando, FL, USA		
Liu	Fulei		ZTE Corporation	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Liu	Hang			Ex Voter			2011-03-18	
Liu	I-Ru			Ex Voter			2008-05-05	
Liu	Jianhan		MediaTek Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Liu	Jinnan		HiSilicon Technologies Co., LTD.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Liu	Le			Ex Voter			2017-01-20	
Liu	Pei			Ex Voter			2017-01-20	
Liu	Pei			Ex Voter			2012-10-09	
Liu	Siyang			Ex Voter			2012-07-20	
Liu	Yong		Apple, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Liu	Yun		Huawei Technologies Co., Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Liu	Zongru			Ex Voter			2014-03-21	
Livshitz	Michael			Ex Voter			2009-06-30	
Lo	Titus	K		Ex Voter				
Loc	Peter		Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Lomayev	Artyom		Intel Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center,		217

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Orlando, FL, USA		
Lou	Hui-Ling		Marvell Semiconductor, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Lu	Su			Ex Voter			2015-07-28	
Lubar	Daniel			Ex Voter			2009-07-20	
Lukaszewski	Chuck			Ex Voter			2016-11-11	
Luo	Haiyun			Ex Voter			2008-07-18	
Luo	Jun		Huawei Technologies Co. Ltd	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Luo	Long			Ex Voter			2014-03-21	
Luo	Yi			Ex Voter			2016-11-11	
Luo	Zhendong		China Academy of Telecommunication Research (CATR)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Lv	Kaiying		ZTE Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Lv	Lily		Huawei Technologies Co. Ltd	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Lynch	Bradley			Ex Voter			2012-05-01	
Lynch	Michael		MJ Lynch & Associates, LLC.	ExOfficio				
M. Hizan	Hizamel		TM Research & Development	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ma	Hui			Ex Voter			2008-07-19	
Ma	Jing		National Institute of Information and	Voter	170* (2018-	Manchester Grand Hyatt,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
			Communications Technology (NICT)		07-01)	San Diego, CA, USA		
Maamari	Diana		Huawei R&D USA	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
MADHAVAN	NARENDAR		TOSHIBA Corporation	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Maeda	Shigeru			Ex Voter			2017-03-17	
Mahadevappa	Ravishankar			Ex Voter				
Maida	Anthony	F		Ex Voter			2008-12-21	
Majkowski	Jakub			Ex Voter			2009-11-23	
Malarky	Alastair			Ex Voter			2011-02-25	
Malek	Majid	m		Ex Voter				
Malik	Rahul		Qualcomm Incorporated	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Malinen	Jouni	K	Qualcomm Incorporated	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Maltsev	Alexander		Intel Corporation	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Mangold	Stefan		Itron Inc.	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Mani	Mahalingam			Ex Voter			2008-02-13	
Mano	Hiroshi		Koden Techno Info K.K.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Marin	James			Ex Voter			2016-11-11	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Marks	Roger		EthAirNet Associates; Huawei	ExOfficio	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Marshall	Bill			Ex Voter			2011-11-11	
Maruhashi	Kenichi			Ex Voter			2011-11-11	
Maslennikov	Roman	M		Ex Voter			2010-07-16	
Masour	Avi			Ex Voter			2012-05-01	
Matsumoto	Yoichi			Ex Voter				
Matsuo	Ryoko		TOSHIBA Corporation	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
MATTA	SUDHEER			Ex Voter			2008-12-21	
Maufer	Thomas	A		Ex Voter				
Mccann	Stephen		BlackBerry	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
McClellan	Kelly	P		Ex Voter				
Mcfarland	William	J		Ex Voter				
McIntosh	Bill			Ex Voter				
McNamara	Darren	P		Ex Voter			2008-07-18	
Mcnew	Justin	P		Ex Voter			2010-11-12	
Medvedev	Irina			Ex Voter			2008-03-25	
Mehta	Pratik	M		Ex Voter				
Merlin	Simone		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Mese	Murat			Ex Voter			2012-07-20	
Mesecke	Sven			Ex Voter			2015-03-13	
Mestanov	Filip		Ericsson AB	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Center, Berlin, Germany		
Meyer	Klaus			Ex Voter			2008-07-18	
Miao	Yannan		Huawei Technologies Co. Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Miller	James			Ex Voter			2016-07-29	
Miller	Robert	R		Ex Voter			2011-11-11	
Miroll	Jochen			Ex Voter			2011-02-25	
Misawa	Yasunao			Ex Voter			2015-03-13	
Miyoshi	Hidekazu			Ex Voter			2008-05-05	
Mizutani	Keiichi			Ex Voter			2013-11-10	
Mlinarsky	Fanny			Ex Voter			2012-05-01	
Mobasher	Amin		SAMSUNG	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Mody	Apurva		BAE Systems	ExOfficio				
Mohanty	Bibhu		Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Monajemi	Pooya		Cisco Systems, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Monnerie	Emmanuel			Ex Voter			2012-05-01	
Montemurro	Michael		BlackBerry	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Montenegro	Gabriel			Ex Voter			2008-02-13	
Montreuil	Leo		Broadcom Corporation	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Moon	Sungho			Ex Voter			2016-11-11	
Moore	Rondal			Ex Voter				
Moorti	Rajendra	T		Ex Voter			2012-05-01	
Moreton	Mike			Ex Voter				
Mori	Hiroki			Ex Voter			2016-07-29	
Mori	Kenichi		Space-Time Engineering	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Mori	Masahito			Ex Voter			2017-03-17	
Morioka	Hitoshi		SRC Software	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Morioka	Yuichi		Sony Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Morley	Steven	A		Ex Voter				
Morris	Roy			Ex Voter				
Moseley	James		Georgia Southern University	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Moskowitz	Robert	G		Ex Voter			2008-01-05	
Motozuka	Hiroyuki		Panasonic Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Mourot	Patrick			Ex Voter				
Mueller	Robert		Ilmenau University of Technology - TU Ilmenau	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Mujtaba	Syed	A		Ex Voter				
Murabito	Anthony			Ex Voter			2010-11-12	
Murakami	Yutaka		Panasonic Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						San Diego, CA, USA		
Murias	Ronald			Ex Voter			2015-07-28	
Murphy	Peter			Ex Voter				
Murphy	Rick			Ex Voter			2014-07-18	
Murray	Peter			Ex Voter			2011-07-22	
Myles	Andrew		Cisco Systems, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Nabar	Rohit			Ex Voter			2009-03-16	
Nabetani	Toshihisa			Ex Voter			2017-03-17	
Nadeem	Tamer			Ex Voter			2008-05-05	
Nagai	Yukimasa			Ex Voter			2017-01-20	
Nagao	Yuhei			Ex Voter			2017-01-20	
nagata	kengo			Ex Voter			2009-11-23	
Nakanishi	Kensuke		Toshiba	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Nakano	Hiroki		Kyoto University	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Nakao	Seigo			Ex Voter				
Nakase	Hiroyuki			Ex Voter			2010-03-22	
Nanda	Sanjiv			Ex Voter			2008-03-25	
Nandagopalan	SAI SHANKAR	S	Cypress Semiconductor Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Narasimhan	Partha			Ex Voter				
Narasimhan	Ravi			Ex Voter				
Nemavat	Pradeep			Ex Voter			2012-11-16	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Nezou	Patrice		Canon Research Centre France	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ngo	Chiu			Ex Voter			2016-11-11	
Ni	Qiang			Ex Voter				
Nikolich	Paul		self (YAS), Samsung, Intel, SilverSpringNetworks, HP	ExOfficio				
Nikula	Eero			Ex Voter			2009-11-23	
Nitsche	Gunnar			Ex Voter				
Noble	Erwin			Ex Voter			2008-11-17	
Noens	Richard	H		Ex Voter			2010-03-22	
Noh	Yujin		Newracom Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Nordstrom	Eric			Ex Voter			2015-11-13	
Notor	John		Notor Research; ARM, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Oakes	Ivan	F		Ex Voter				
Odagiri	Hideaki			Ex Voter			2009-03-16	
Odman	Knut			Ex Voter			2017-01-20	
Ogawa	Hiroyo			Ex Voter			2014-11-07	
Oguma	Hiroshi			Ex Voter				
Oh	Jinhyung			Ex Voter			2015-07-28	
Oh	Jisung			Ex Voter			2009-11-23	
Oh	Jong-Ee			Ex Voter			2015-05-07	
Oh	Minseok		Kyonggi University	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
OH	MIN-SEOK		LG Electronics	Voter	166 (2017-	Caribe Hotel and Convention		225

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Oh	Youngseok		SK Telecom	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
O'Hara	Robert			Ex Voter			2008-05-05	
Ohtani	Yoshihiro			Ex Voter				
Okada	Hiraku		Nagoya University	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Okada	Kazuyasu			Ex Voter			2011-11-11	
Olesen	Robert			Ex Voter			2017-01-20	
Olson	Chandra	S		Ex Voter			2009-07-20	
Olson	David			Ex Voter			2013-03-22	
Omori	Youko			Ex Voter			2010-07-16	
Oteri	Oghenekome		InterDigital, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Oyama	Satoshi			Ex Voter			2014-03-21	
Ozaki	Kazuyuki		FUJITSU LABORATORIES LIMITED	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Paine	Richard	H		Ex Voter			2010-07-16	
PALANIVELU	Arul	D		Ex Voter			2010-03-22	
Paljug	Michael	J		Ex Voter			2013-07-19	
Palm	Stephen		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Pan	Chun		Huawei Technologies Co., Ltd	Aspirant	170 (2018-	Manchester Grand Hyatt,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-01)	San Diego, CA, USA		
Pandey	Santosh Ghanshyam	G	Cisco Systems, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Pang	Jiyong			Ex Voter			2017-03-17	
Pantelidou	Anna			Ex Voter			2014-03-21	
Papadopoulos	Babis			Ex Voter			2015-11-08	
Pare	Thomas		MediaTek Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Park	Changmin			Ex Voter			2009-11-23	
Park	Eunsung		LG Electronics	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Park	Giwon			Ex Voter			2015-07-28	
Park	Hyungu		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Park	Hyunhee		LG ELECTRONICS	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Park	Jaewoo			Ex Voter			2015-07-28	
Park	Jeonghwan		Newracom Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Park	Jonghyun			Ex Voter			2012-11-16	
Park	Jungsoo			Ex Voter			2008-12-21	
Park	Minyoung		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						San Diego, CA, USA		
Park	Seung-Hoon			Ex Voter			2013-11-10	
PARK	SEUNGKEUN		ETRI	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Park	Sung-jin		LG ELECTRONICS	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Park	Taejoon			Ex Voter			2014-05-09	
Parsons	Glenn		Ericsson AB	ExOfficio				
Patel	Vijaykumar			Ex Voter			2009-11-23	
Pathmasuntharam	Jaya	S		Ex Voter			2013-03-22	
Patil	Abhishek		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Patil	Sandhya			Ex Voter			2013-03-22	
Patkar	Raghavendra		National Instruments Corporation	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Peiris	Bemini	H		Ex Voter			2011-07-22	
Peleg	Yaron			Ex Voter				
Peng	Xiaoming		Institute for Infocomm Research	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Perahia	Eldad			Ex Voter			2016-01-21	
Pereira	Stephanie			Ex Voter			2015-07-28	
Perez Costa	Xavier	P		Ex Voter			2014-07-08	
Persson	Hakan		Ericsson AB	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Peterson	Harry		Airvine Inc	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Petranovich	James	E	ViaSat, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
petrick	Albert		Jones-Petrick and Associates, LLC.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Petro	John			Ex Voter			2014-07-08	
Petrovic	Vladan			Ex Voter			2015-03-13	
Pienciak	Walter			Ex Voter			2016-11-11	
PILLAI	KRISHNA	M		Ex Voter			2012-11-16	
Ping Ping	Xu	P		Ex Voter			2015-03-13	
Pirhonen	Riku			Ex Voter			2012-09-03	
Pirskanen	Juho			Ex Voter			2014-07-18	
Pirzada	Fahd			Ex Voter			2009-03-16	
Pitarresi	Joe			Ex Voter				
Png	Khiam Boon	B		Ex Voter			2015-03-13	
Poncini	Victoria	M		Ex Voter			2008-03-25	
Ponnampalam	Vishakan			Ex Voter			2013-09-16	
Ponnuswamy	Subburajan			Ex Voter			2008-11-17	
Popa	Daniel			Ex Voter			2012-11-16	
Pope	Steve		Self Employed	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Popper	Ambroise		Quantenna Communications, Inc.	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Rosemont, Illinois, USA		
porat	ron		Broadcom Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Portaro	James	D		Ex Voter			2010-11-12	
Ptasinski	Henry	S		Ex Voter			2013-11-15	
Pulikkoonattu	Rethnakaran		Broadcom Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Purkovic	Aleksandar			Ex Voter				
Purnadi	Rene			Ex Voter			2011-02-25	
Pustogarov	Ivan			Ex Voter			2011-11-11	
Putta	Satish			Ex Voter			2012-07-20	
Pyo	Chang-Woo	C		Ex Voter			2014-07-18	
Qi	Emily	H	Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Qian	Luke			Ex Voter			2009-07-20	
Qiao	Dengyu		Huawei Technologies Co. Ltd	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Qu	Huyu			Ex Voter			2013-03-22	
Qu	Shouxing		BlackBerry	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Raab	Jim	E		Ex Voter			2012-05-01	
Rabarijaona	Verotiana		National Institute of Information and Communications Technology (NICT)	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Rafie	Reza		Self	Aspirant	166 (2017-	Caribe Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					11-05)	Center, Orlando, FL, USA		
Rahman	Mohammad	A		Ex Voter			2010-07-16	
Rai	Vinuth			Ex Voter			2009-11-23	
Raissinia	Ali			Ex Voter			2010-03-22	
Rajagopal	Sridhar			Ex Voter			2011-07-22	
Rajakarunanayake	Yasantha			Ex Voter			2016-11-11	
Rajkumar	Ajay			Ex Voter				
Rakanovic	Demir		u-blox	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ramamurthy	Harish			Ex Voter			2014-07-18	
Ramasasthy	Jayaram			Ex Voter			2013-03-04	
Rangwala	Noman			Ex Voter				
Rantala	Enrico-Henrik		Nokia	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Rayment	Stephen G	G	Ericsson AB	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Razoumov	Leonid			Ex Voter			2008-12-21	
Redlich	Oded		Huawei Technologies Co. Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Reede	Ivan			Ex Voter			2015-03-13	
Reible	Stanley	A		Ex Voter				
Ren	Yazhen		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Repice	Joseph	A		Ex Voter			2008-11-17	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Reuss	Edward		NO AFFILIATION	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Reznik	Alex			Ex Voter			2011-11-11	
Riegel	Maximilian		Nokia Networks	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Rios	Carlos	A		Ex Voter			2008-07-19	
Rison	Mark		Samsung Cambridge Solution Centre	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Robert	Joerg		University of Erlangen-Nuremberg	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
roblot	sandrine			Ex Voter			2011-07-22	
Roebuck	Randal			Ex Voter			2010-07-16	
Roh	Dongwook			Ex Voter			2012-05-01	
Rong	Zhigang		Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Rosdahl	Jon	W	Qualcomm Technologies, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Roy	Richard			Ex Voter			2016-01-21	
Ryu	Cheol			Ex Voter			2015-11-13	
Ryu	Kiseon		LG ELECTRONICS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Sada	Tomoki		KDDI R&D Laboratories	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sadeghi	Bahareh		Intel Corporation	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Sadot	Emek			Ex Voter				
Sadri	Ali		Intel Corporation	Potential Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Safonov	Alexander			Ex Voter			2012-05-01	
Sakamoto	Takenori		Panasonic Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sakoda	Kazuyuki		Sony Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Salazar Cardozo	Ruben E	S		Ex Voter			2013-09-16	
Sambasivan	Sam		AT&T	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Sampath	Hemanth		Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Sanwalka	Anil			Ex Voter				
Sargologos	Nicholas			Ex Voter			2008-09-16	
Sarikaya	Behcet		Huawei R&D USA	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sarrigeorgidis	Konstantinos			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Sarris	Ioannis		u-blox	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Sasaki	Shigenobu		Niigata University	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Sastry	Ambatipudi R	R		Ex Voter			2008-03-25	
SATO	KATSUYOSHI			Ex Voter			2009-07-20	
Sato	Naotaka		Sony Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Sawada	Hirokazu			Ex Voter			2011-07-22	
Scarpa	Vincenzo			Ex Voter			2008-11-17	
Schelstraete	Sigurd		Quantenna Communications, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Schlanger	Gabriel			Ex Voter			2008-05-05	
Schmidl	Timothy			Ex Voter			2012-11-16	
Schnacke	Richard			Ex Voter				
Schneider	Daniel			Ex Voter			2016-07-29	
Schultz	Donald			Ex Voter			2010-03-22	
Schwoerer	Jean			Ex Voter			2015-03-13	
Schylander	Erik			Ex Voter				
Scott	Andy		NCTA	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		216
Segev	Jonathan		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Seibert	Cristina			Ex Voter			2014-07-18	
Seminario	Max		ADVANTEST	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Sensendorf	Joe			Ex Voter				
Seok	Yongho		Newracom Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Serafimovski	Nikola		pureLiFi	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Shah	Kunal		Silver Spring Networks Inc.	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Shao	Huairong			Ex Voter			2014-11-07	
SHAO	PENG			Ex Voter			2016-11-11	
Shao	Zhenhai			Ex Voter			2014-03-21	
Shapira	Nir			Ex Voter			2012-11-16	
Sharma	Neeraj			Ex Voter			2009-07-20	
Sharon	Ariel			Ex Voter			2008-03-25	
Shearer	Steve			Ex Voter			2012-07-20	
Shellhammer	Stephen	J	Qualcomm Incorporated	ExOfficio				
Shen	Bazhong			Ex Voter			2017-01-20	
Shen	Xia		China Academy of Telecommunication Research (CATR)	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Sherlock	Ian		Texas Instruments Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		217
Sherman	Matthew			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Shi	Kai			Ex Voter			2009-11-23	
SHI	QICAI			Ex Voter			2014-07-18	
Shi	Wei			Ex Voter			2013-07-19	
SHIBAGAKI	Nobuhiko			Ex Voter			2014-07-08	
Shilo	Shimi		Huawei Technologies Co., Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Shimomura	Tsuyoshi			Ex Voter			2015-03-13	
Shin	ChangSub	S		Ex Voter			2013-11-10	
SHIN	JUNG-CHUL			Ex Voter			2016-07-29	
Shin	Wooram			Ex Voter			2014-11-07	
Shukla	Ashish			Ex Voter			2011-07-22	
Shvodian	William	M		Ex Voter				
Shyy	D.	J		Ex Voter			2008-05-05	
Siep	Thomas	M		Ex Voter			2013-11-15	
Sim	Michael		Panasonic Corporation	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Simon	Francois			Ex Voter			2010-11-12	
Simons	John			Ex Voter			2008-03-25	
Simpson	Floyd			Ex Voter				
Singh	Harkirat			Ex Voter			2009-03-16	
Singh	Shubhranshu			Ex Voter			2010-11-12	
Siti	Massimiliano			Ex Voter			2008-03-25	
Skafidas	Efstratios (Stan)			Ex Voter				
Skidmore	Roger	R		Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Slater	Robert			Ex Voter			2016-07-29	
Smith	Dwight			Ex Voter			2013-11-10	
Smith	Graham	K	SR Technologies	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		216
Smith	Matt			Ex Voter			2009-11-23	
So	Tricci			Ex Voter				
Sohn	IllSoo	S		Ex Voter			2012-11-16	
Solomon	Yoram			Ex Voter				
Son	Ju-Hyung		WILUS Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Son	JungBo	B		Ex Voter			2015-11-13	
Song	Chunyi			Ex Voter			2012-05-01	
Song	Hayeong		Newracom Inc.	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Song	Jae-Hyung			Ex Voter			2011-06-27	
Song	Leilei			Ex Voter			2008-07-18	
Song	Myung Sun	S		Ex Voter			2014-07-08	
Song	Nah-Oak		Korea Advanced Institute of Science and Technology (KAIST)	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Song	Yoo-Seung			Ex Voter			2009-06-30	
Sood	Kapil			Ex Voter			2010-03-22	
Soomro	Amjad			Ex Voter				
Soranno	Robert	T		Ex Voter				
Squiers	Ronald		Mentor Graphics	Potential Voter	168 (2018-	Hyatt Regency O'Hare,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					03-04)	Rosemont, Illinois, USA		
Sreemanthula	Srinivas			Ex Voter			2008-02-13	
Sridhara	Vinay			Ex Voter			2010-03-22	
Srinivasa	Sudhir		Marvell Semiconductor, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Stacey	Robert		Intel Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Stanley	Dorothy		Hewlett Packard Enterprise	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Steck	William	K		Ex Voter				
Stefani	Lawrence			Ex Voter			2013-11-10	
Stephens	Adrian	P	Intel Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Stephenson	David	S		Ex Voter			2011-02-25	
Stevenson	Carl	R		Ex Voter			2010-03-14	
Stine	John			Ex Voter			2011-03-18	
Stott	Noel		Ixia	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Strickland	Stuart		Hewlett Packard Enterprise	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Struik	Rene			Ex Voter			2015-03-13	
STRUTT	GUENAEL	T		Ex Voter			2011-06-27	
Suh	JUNG HOON	H	Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Sum	Chin-Sean			Ex Voter			2014-03-21	
Sumi	Takenori		Mitsubishi Electric Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Sun	Bo		ZTE Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Sun	Chen		Sony Corporation	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Sun	Li-Hsiang		InterDigital, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
sun	sheng		Huawei Technologies Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Sun	Yakun			Ex Voter			2017-03-17	
Sun	Yanjun		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		217
Sun	Winston			Ex Voter			2008-02-13	
Surineni	Shravan	K		Ex Voter				
Suzuki	Hideyuki			Ex Voter			2008-07-18	
Szott	Szymon		AGH University of Science and Technology	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Tabibiazar	Arash			Ex Voter			2010-03-22	
Taghavi	Mohammad	H		Ex Voter			2012-11-16	
Takagi	Eiji			Ex Voter			2009-11-23	
Takagi	Masahiro			Ex Voter				

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Takahashi	Kazuaki		Panasonic Corporation	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Takahashi	Seiichiro			Ex Voter				
Takai	Mineo		Space-Time Engineering	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		217
Takatori	Yasushi			Ex Voter			2016-11-11	
Takeda	Daisuke			Ex Voter				
Tal	Nir			Ex Voter				
Tamaki	Tsuyoshi			Ex Voter				
Tamhane	Sagar		Marvell Semiconductor, Inc.	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Tan	Pek-Yew			Ex Voter				
Tan	Teik-Kheong			Ex Voter			2010-07-16	
Tanahashi	Masato			Ex Voter			2008-07-19	
Tanaka	Hideki			Ex Voter				
Tanaka	Yusuke		Sony Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Tandai	Tomoya			Ex Voter			2016-03-18	
Taniguchi	Kentaro		TOSHIBA Corporation	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Tao	Wu		Huawei Technologies Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Taori	Rakesh		Phazr	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Tarighat	Alireza			Ex Voter			2016-01-21	
Tayamon	Soma		Ericsson AB	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Center, Berlin, Germany		
Teo	Joseph			Ex Voter			2013-07-19	
Tetzlaff	Thomas			Ex Voter			2014-11-07	
Thompson	Geoffrey	O		Ex Voter			2011-09-23	
THOMSON	ALLAN			Ex Voter			2011-07-22	
Thrasher	Jerry			Ex Voter			2013-09-16	
Tian	Bin		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Tian	Qingjiang		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Tian	Tao		Spreadtrum Communications, Inc.	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Tian	Tong			Ex Voter			2014-07-18	
Tingleff	Jens			Ex Voter			2015-11-13	
Tinnakornsisuphap	Peerapol		Qualcomm Incorporated	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Tokubo	Eric			Ex Voter			2011-02-25	
Tolpin	Alexander			Ex Voter			2008-12-21	
Tomcik	James	D		Ex Voter			2012-05-01	
Tong	Fei		Samsung Cambridge Solution Center	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Torab	Payam		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center,		225

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
						Orlando, FL, USA		
Torkildson	Eric		Nokia	Potential Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Tosato	Filippo			Ex Voter			2016-11-11	
Toyoda	Ichihiko			Ex Voter			2012-05-01	
Trachewsky	Jason			Ex Voter			2010-11-12	
Trainin	Solomon	B	Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Tran	Ha Nguyen	N		Ex Voter			2014-07-18	
Tsai	Chia-Hung		MediaTek Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Tsai	Chia-Lung			Ex Voter			2014-05-09	
Tsao	Alvin			Ex Voter			2008-05-05	
Tsao	Jean			Ex Voter			2010-11-12	
Tsodik	Genadiy		Huawei Technologies Co. Ltd	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Tsonev	Dobroslav		pureLiFi	Aspirant	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Tsoulogiannis	Tom			Ex Voter				
tsubaki	toshimitsu			Ex Voter			2016-11-11	
Tsukada	Kazuyoshi			Ex Voter			2015-11-13	
Tu	Yung-Szu			Ex Voter			2011-07-22	
Tuomaala	Esa		Nokia	Aspirant	164 (2017-	Estrel Hotel and Convention		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-09)	Center, Berlin, Germany		
Turner	Sandra	L		Ex Voter				
Tzamaloukas	Mike	E		Ex Voter				
Umehira	Masahiro			Ex Voter			2015-03-13	
Urabe	Yoshio		Panasonic Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Uyehara	Ashley			Ex Voter			2008-11-17	
Van Erven	Niels			Ex Voter				
Van Leeuwen	Richard			Ex Voter				
Van Nee	Richard	D	Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
van Waes	Nico	J		Ex Voter				
Van Zelst	Allert		Qualcomm Incorporated	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Vangelista	Lorenzo		Patavina Technologies	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Vanthournout	Jerome		CEVA-DSP	Potential Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Varlet-Andre	Mathieu			Ex Voter			2009-06-30	
Varsanofiev	Dmitri			Ex Voter				
Varshney	Prabodh		Nokia	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Venkatachalam Jayara	Venkata Ramanan		Qualcomm Incorporated	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Venkatesan	Ganesh		Intel Corporation	Voter	170* (2018-	Manchester Grand Hyatt,		225

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-01)	San Diego, CA, USA		
Venkateswaran	Sriram		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Verma	Karan		Central University of Rajasthan	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Verma	Lochan		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Vermani	Sameer		Qualcomm Incorporated	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Victor	Dalton	T		Ex Voter			2015-03-13	
VIGER	Pascal		Canon Research Centre France	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Villard	Gabriel			Ex Voter			2015-07-28	
Virk	Bhupender			Ex Voter			2012-07-20	
Vlantis	George	A	STMicroelectronics	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Vogtli	Nanci			Ex Voter				
Volpano	Dennis			Ex Voter				
Wadhwa	Sanjay			Ex Voter			2012-07-20	
Walker	Jesse	R		Ex Voter			2010-07-16	
Wallace	Brad	N		Ex Voter				
Wandile	Vivek			Ex Voter				
Wang	Bo		Huawei Technologies Co., Ltd	Potential Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Wang	Chao Chun		MediaTek Inc.	Voter	170* (2018-	Manchester Grand Hyatt,		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
					07-01)	San Diego, CA, USA		
Wang	Haiguang			Ex Voter			2015-07-28	
Wang	Haiming		Southeast University, China	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Wang	Huaiyuan			Ex Voter				
Wang	Hui			Ex Voter			2008-03-25	
Wang	Huizhao		Quantenna Communications, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Wang	James June	J	MediaTek Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Wang	Junyi			Ex Voter			2012-07-20	
Wang	Lei		Huawei R&D USA	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Wang	Lin			Ex Voter			2014-03-21	
Wang	Qi		Apple, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Wang	Stanley			Ex Voter				
Wang	Xiang			Ex Voter			2014-03-21	
Wang	Xiaofei		InterDigital, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Wang	Xuehuan		Huawei Technologies Co., Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Wang	Yi		Huawei Technologies Co. Ltd	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Want	Roy		Google	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ward	Dennis			Ex Voter			2008-03-25	
Ward	Lisa		Rohde & Schwarz	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Ware	Christopher	G		Ex Voter				
Warren	Craig	D		Ex Voter			2010-07-16	
Watanabe	Fujio		NTT DoCoMo, Inc.	Voter	164* (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
waye	patrick			Ex Voter			2009-06-30	
Webber	Julian		Advanced Telecommunications Research Institute International (ATR)	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Wee	Gaius		Panasonic Asia Pacific Pte Ltd.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Wei-Xia	Zou			Ex Voter			2015-11-13	
Wells	Bryan			Ex Voter				
Wen	Ericson			Ex Voter			2014-03-21	
Wen	Lei			Ex Voter			2013-07-19	
Wendt	Jim			Ex Voter				
Wentink	Menzo	M	Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
West	Nicholas			Ex Voter			2012-11-16	
Weytjens	Filip			Ex Voter				
Whetten	Frank			Ex Voter			2010-03-22	
Whitesell	Stephen	R		Ex Voter			2008-02-13	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Wicaksana	Harya			Ex Voter			2013-11-15	
Wilhelmsson	Leif		Ericsson AB	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Williams	Christopher			Ex Voter			2014-07-08	
Williams	Kyle			Ex Voter			2009-03-16	
Wilson	James	M		Ex Voter				
Wineinger	Gerald			Ex Voter			2008-07-19	
Winters	Jack	H		Ex Voter				
WON	EUN TAE	T		Ex Voter			2015-03-05	
Wong	Eric		Apple, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Wong	Ian			Ex Voter			2012-11-16	
Wong	Timothy	G		Ex Voter			2014-03-21	
Worsham	James			Ex Voter			2012-05-01	
Worstell	Harry	R		Ex Voter			2016-03-18	
Wright	Charles	R		Ex Voter				
Wright	Michael			Ex Voter				
Wu	Fonchi			Ex Voter			2010-07-16	
Wu	Gang			Ex Voter				
Wu	Jianbing		Shenzhen iTest Technology Co.,Ltd.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		225
Wu	Songping			Ex Voter			2008-11-17	
Wu	Tianyu		MediaTek Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Wu	Ye			Ex Voter			2011-02-25	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Wu	Zhanji			Ex Voter			2013-09-16	
Xia	Pengfei			Ex Voter			2015-11-08	
Xiao	Zhenyu			Ex Voter			2014-03-21	
Xie	Fang			Ex Voter			2013-11-15	
Xie	Zhen			Ex Voter			2008-03-25	
Xin	Yan		Huawei Technologies Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Xing	Weimin		ZTE Corporation	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Xu	Dongmei			Ex Voter			2014-03-21	
Xu	Mingguang			Ex Voter			2015-11-08	
XU	QUANPING			Ex Voter			2014-03-21	
Xue	Qi		Qualcomm Incorporated	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
YAGHOOBI	HASSAN		Intel Corporation	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Yagi	Akiyoshi			Ex Voter			2008-11-17	
Yamada	Akira		NTT DoCoMo, Inc.	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Yamamoto	Takeshi			Ex Voter			2009-11-23	
Yamaura	Tomoya			Ex Voter			2009-03-16	
Yang	Guang-Qi			Ex Voter			2014-07-08	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Yang	Lin			Ex Voter			2014-07-18	
Yang	Liuyang			Ex Voter			2011-06-27	
Yang	Meng			Ex Voter			2015-03-05	
Yang	Ou		Intel Corporation	Voter	168* (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Yang	Rongzhen			Ex Voter			2015-05-07	
YANG	RUI		InterDigital, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		217
Yang	Sihoon			Ex Voter			2008-03-25	
Yang	Xi		Apple, Inc.	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Yang	Xun			Ex Voter			2015-05-07	
Yang	Xun		Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Yang	Yang			Ex Voter			2014-03-21	
Yang	Yunsong		Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Yang	Zhiyu			Ex Voter			2008-09-16	
Yano	Kazuto		Advanced Telecommunications Research Institute International (ATR)	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
YAO	KE		ZTE Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Ye	Fan			Ex Voter			2014-05-09	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Ye	Huanchun			Ex Voter			2012-07-20	
Yee	James		MediaTek Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Yee	Jung			Ex Voter			2012-07-20	
Yee	Peter		NSA/IAD	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Yeh	Chi-Hsiang			Ex Voter			2008-03-25	
Yeow	Wai-Leong			Ex Voter			2013-03-22	
Yin	Hujun			Ex Voter			2015-03-05	
Yokohira	Kanji			Ex Voter			2008-03-25	
Yokoo	Kaoru			Ex Voter			2014-03-21	
Yokota	Hidetoshi		Landis Gyr Group Worldwide	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Yong	Su Khiong	K	Apple, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Yonge	Larry			Ex Voter			2015-11-08	
Yoon	Chanho			Ex Voter			2012-11-16	
Yoshida	Seiji			Ex Voter			2010-03-22	
Young	Christopher		Broadcom Corporation	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yu	Bo		Marvell Semiconductor, Inc.	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Yu	Chang Wahn			Ex Voter			2015-03-05	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Yu	Chinghwa		Spreadtrum Comm.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		225
Yu	Heejung		Yeungnam University	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Yu	Jian		Huawei Technologies Co. Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Yu	Mao		Marvell Semiconductor, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Yu	Patrick			Ex Voter				
Yu	Zhan			Ex Voter			2013-03-22	
Yucek	Tevfik		Qualcomm Incorporated	Aspirant	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yue	Guangrong			Ex Voter			2014-11-07	
Yun	Ji-Hoon			Ex Voter			2015-07-28	
Yun	SunWoong		LG ELECTRONICS	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Yung	Hon	M		Ex Voter				
Yunoki	Katsuo	D	KDDI R&D Laboratories	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Yurtkuran	Erol	K		Ex Voter				
Zaks	Artur			Ex Voter			2012-05-01	
Zelevnikar	Alan		ARRIS Group	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Zeng	Kun		Huawei Technologies Co. Ltd	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		225
Zeng	Yan		Huawei Technologies Co., Ltd	Aspirant	170 (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Zhang	Dezhi			Ex Voter			2012-11-16	
Zhang	Hongyuan		Marvell Semiconductor, Inc.	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Zhang	Hui			Ex Voter			2014-03-21	
zhang	huimin			Ex Voter			2009-07-20	
ZHANG	JIAYIN		Huawei Technologies Co. Ltd	Voter	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Zhang	Junjian			Ex Voter			2013-03-22	
Zhang	Nianzu			Ex Voter			2014-05-09	
Zhang	Ning			Ex Voter			2012-05-01	
Zhang	Xin			Ex Voter			2013-11-15	
Zhang	Xingxin		Huawei Technologies Co. Ltd	Potential Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		
Zhang	Yan		Marvell Semiconductor, Inc.	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		
Zhao	Meiyuan			Ex Voter			2010-11-12	
Zhao	Mu			Ex Voter			2016-01-21	
Zhao	Qiang			Ex Voter			2012-05-01	
Zhao	Shiwei			Ex Voter			2011-07-22	

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
ZHAO	XIAOWU		ZTE Corporation	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Zheng	Jun			Ex Voter			2016-07-29	
ZHENG	SHOUKANG			Ex Voter			2015-03-13	
Zheng	Xiayu		Marvell Semiconductor, Inc.	Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Zhou	Jingyi			Ex Voter			2015-11-08	
Zhou	Mingtuo			Ex Voter			2014-07-08	
Zhou	Xun		Huawei Technologies Co. Ltd	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Zhou	Yan		Qualcomm Incorporated	Voter	168 (2018-03-04)	Hyatt Regency O'Hare, Rosemont, Illinois, USA		217
zhou	yuan			Ex Voter			2014-11-07	
Zhu	Chunhui		Huawei Technologies Co., Ltd	Voter	170* (2018-07-01)	Manchester Grand Hyatt, San Diego, CA, USA		225
Zhu	Hufei			Ex Voter			2015-05-07	
Zhu	Jing			Ex Voter			2009-03-16	
Zhu	Jun		Huawei Technologies Co. Ltd	Voter	166* (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		
Zhuang	Yan			Ex Voter			2015-11-13	
Zhuo	Lan		CESI Group	Potential Voter	166 (2017-11-05)	Caribe Hotel and Convention Center, Orlando, FL, USA		

Family Name	Given Name	MI	Affiliation	Status	Expires	Meeting Location	Expired	Last Invalid Ballot
Zorn	Glen			Ex Voter				
Zuckerman	Lawrence			Ex Voter			2012-11-16	
Zuniga	Juan Carlos		SIGFOX	Aspirant	164 (2017-07-09)	Estrel Hotel and Convention Center, Berlin, Germany		
Zweig	Jonathan			Ex Voter			2008-11-17	
Zyren	James			Ex Voter				

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-

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APPENDIX BH

BSS Load Information Element for 11ax

Date: 2017-03-15

Authors:

Name	Affiliations	Address	Phone	email
Frank Hsu	MediaTek			frank.hsu@mediatek.com
Chaochun Wang				chaochun.wang@mediatek.com
James Yee				james.yee@mediatek.com
Gabor Bajko				gabor.bajko@mediatek.com
Bo Sun	ZTE			sun.bo1@zte.com.cn

11ax D1.0 CID of BSS Load

CID	Commenter	P.L	Clause	Comment	Proposed Change
5917	James Yee	67.01	9.4.2.139	With the introduction of new features such as OFDMA and UL MU MIMO, the existing BSS load elements (9.4.2.160 & 9.4.2.28), which address STA numbers, primary/secondary channel busy condition and DL MU-MIMO underutilization (11ac) are not sufficient for addressing the BSS load status in a 11ax BSS. A further enhanced BSS Load element needs to be defined.	Add a new information element to define 11ax BSS Load. The new IE shall address utilization status of OFDMA as well as UL/DL MU MIMO, as well as provisions to allow future extensions.
8165	Ming Gan	67.01	9.4.2.	BSS load element provides the channel utilization such that the unassociated STA can choose the proper AP $\pm \epsilon$ and extended BSS load element further provides the the spatial stream underutilization given the busy channel such that unassociated STA with MU-MIMO capability can choose the proper AP. Now 11ax introduce a OFDMA, there is the probability of frequency underutilization given the busy channel.	Define a HE BSS load element considering frequency utilization such to help unassociated STA to choose a best AP

Summary

- **802.11 defines two BSS load information elements[1] containing**
 - information of current STA population and traffic level in the BSS (BSS load element)
 - information of MIMO spatial stream underutilization and bandwidth utilization (Extended BSS load element)
- **11ax introduces MU of OFDMA and UL MIMO, but current BSS load IEs cannot reflect true loading of 11ax HE BSSs**
- **In this presentation, we propose defining a new information element for conveying HE BSS load information**

11ax MU BSS Load Element

- **Propose to add a new IE containing three categories of information**
 1. 11ax MU capable STA count and active STA counts
 2. MU TXOP time percentage over an observation period
 3. Load Report: Underutilization rate of MU TXOP to reflect potential capacity of an 11ax BSS

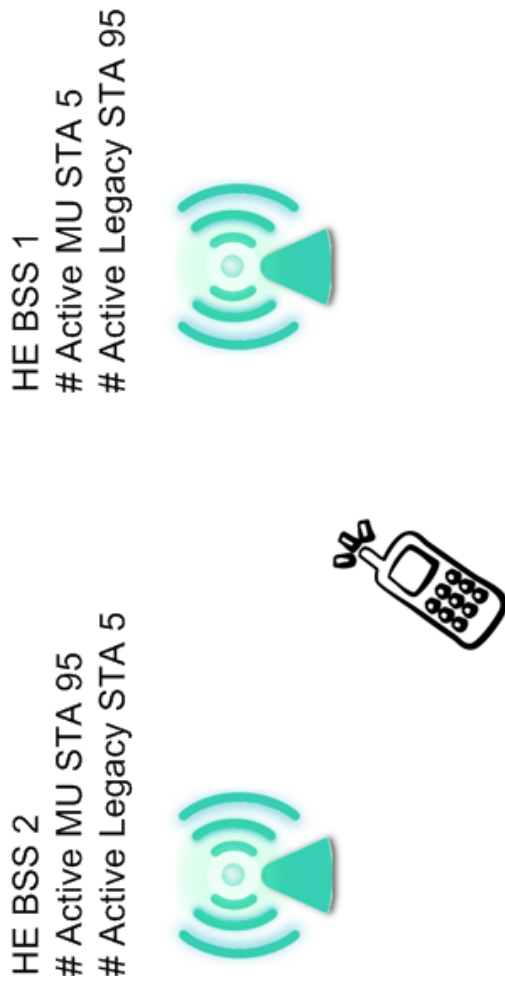
11ax MU BSS Load Element Contents(1/4)

1. STA count

- **Total number of MU capable STAs**
 - MU includes MU MIMO and OFDMA
 - Let STAs know how many MU competitors are within the BSS
- **Active STA counts**
 - Some associated STA may not be active for a long time
 - AP can monitor STA's activities during an observation period
 - Prefer to define observation period in units of beacon intervals
 - An active STA: if the AP receives any MPDU from that STA during the observation period. Two active STA counts are defined.
 - Active STA count
 - Active MU capable STA count

11ax MU BSS Load Element Contents(2/4)

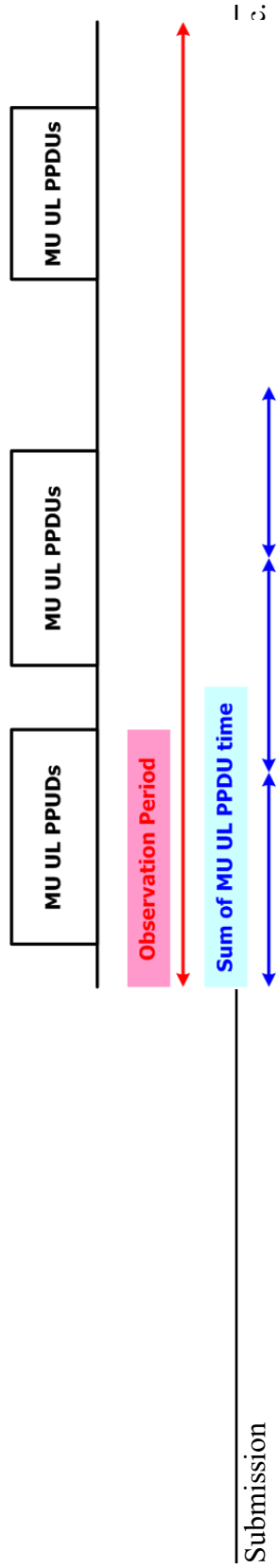
- **Usage Example:**
 - Example: HE BSS1 has 100 active STAs with 5 active MU capable STAs, and HE BSS2 has 100 active STAs with 95 active MU capable STAs. An unassociated HE STA may choose HE BSS2 for more transmit and receive opportunities



11ax MU BSS Load Element Contents(3/4)

2. Time percentage of MU/SU TXOPs

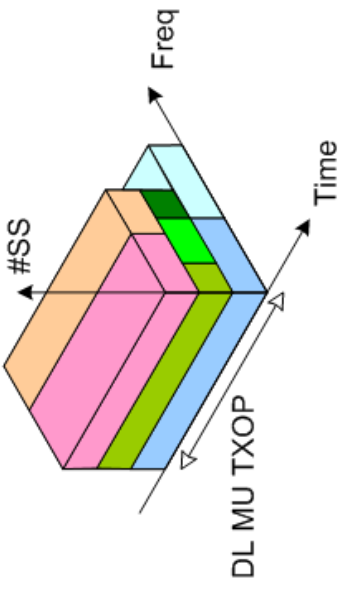
- MU: Report UL and DL separately
- SU: Report DL
- Let STAs know the traffic trend of TXOPs during the observation period. STA may have specific UL/DL requirements
 - dot11ChannelUtilizationBeaconIntervals serves as the observation period (50 beacon intervals default)
- Usage Example:
 - High percentage UL TXOP means heavily MU UL loaded BSS
- Illustration



11ax MU BSS Load Element Contents(4/4)

3. Load report of MU TXOPs

- Underutilization percentage over space & frequency
 - Information of available BW and SS
 - Interfered and used RUs shall not be included
 - Separate DL & UL reports
- Report BW
 - Reports of per 20 MHz BW
- Underutilization percentage formula (MU DL example)



$$N_{\max_SS} \times RU_{\max} \times \sum_j T_{Busy(MUDL),j} - \sum_j \left[T_{Busy(MUDL),j} \left(\sum_i N_{SS,i,j} \times RU_{Busy,i,j} \right) \right]$$

$$N_{\max_SS} \times RU_{\max} \times \sum_j T_{Busy(MUDL),j}$$

$N_{\max_SS}$: Max supported spatial stream

RU_{Busy} : Occupied RU weight(Used or interfered)

$RU_{\max}$: RU weight of the available BW

$T_{Busy(MUDL)}$: Time of busy period for MU DL (MU DL TXOP)

11ax MU BSS Load Information Element

(1/2)

- Define a new BSS Load information element for 11ax
- For UL/DL underutilization
 - Variable length dependent on the channel bandwidth
- Optional subelements carry active STA counts and legacy BSS load IEs (defined in next page)

Element ID	Length	Element ID Extension	MU Capable STA count	MU UL TXOP Utilization	MU DL TXOP Utilization	SU DL TXOP Utilization	MU Underutilization Count
Octet 1	1	1	2	1	1	1	1

MU UL Underutilization #1	MU DL Underutilization #1	MU UL Underutilization #2	-----	MU UL Underutilization #N	MU DL Underutilization #N	Optional Subelements
Octet 1	1	1		1	1	Variant

From Lowest 20MHz subband to Highest 20MHz subband →

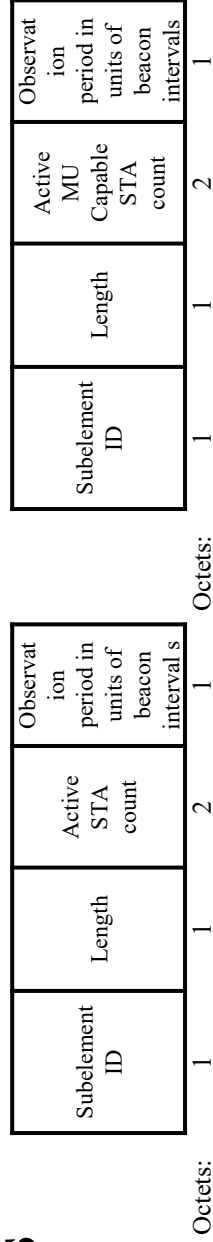
11ax MU BSS Load Information Element

(2/2)

- **Subelements**
 - Optional active STA counts
 - Able to carry legacy BSS load elements
 - BSS load (9.4.2.28)
 - Extended BSS load (9.4.2.160)

Subelement ID	Name	Extensible
0	Reserved	
1	Active STA count	Yes
2	Active MU capable STA count	Yes
3	BSS load	
4	Extended BSS load	
5-255	Reserved	

- **Active STA count subelements**



Straw poll 1

- Do you support to add a BSS load information element containing information defined on page 3~7?
 - Y
 - N
 - A

Straw poll 2

- Do you support to define the 11ax MU BSS load information element as the formant on page 8~9?
 - Y
 - N
 - A

References

1. P802.11 2016

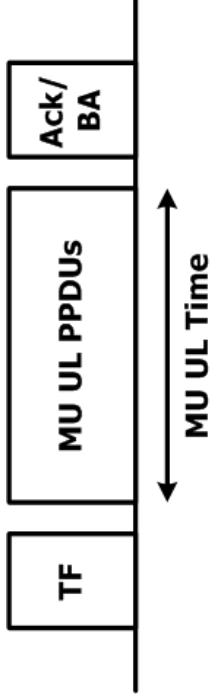
BACKUP

Underutilization Percentage RU Weights

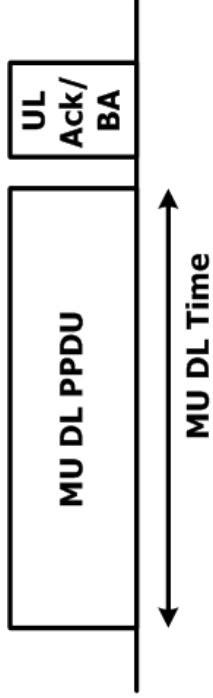
- RU weights example of report per 20 MHz BW
 - RU26: 1/9
 - RU52: 2/9
 - RU106: 4/9
 - RU242: 9/9
 - RU484: 9/9 (half on the target 20MHz)

MU UL/DL Time Definitions

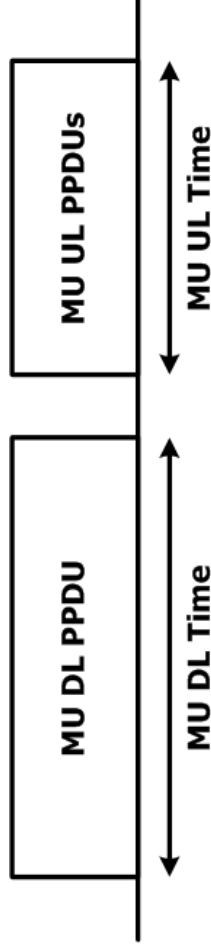
- UL MU by TF



- DL MU



- Cascaded MU



Legacy BSS Load IEs

- BSS load element

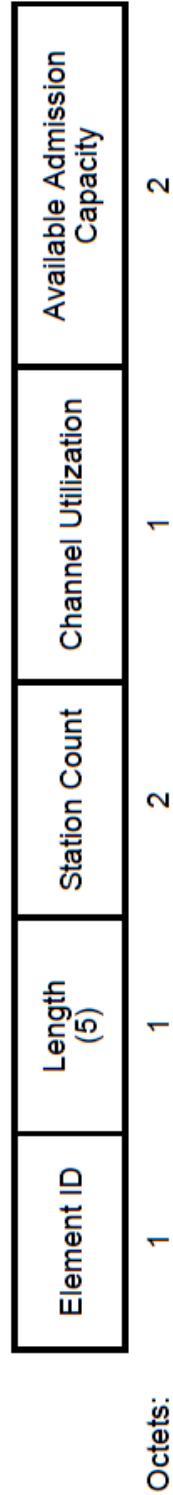


Figure 9-260—BSS Load element format

- Extended BSS load element

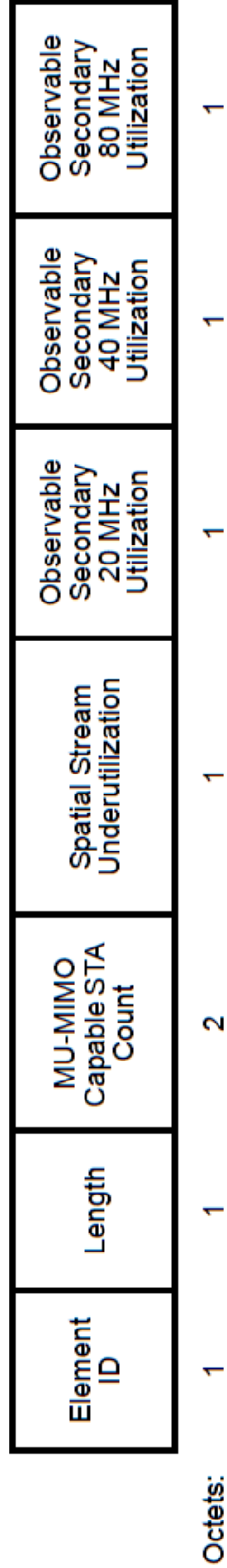


Figure 9-565—Extended BSS Load element format

dot11ChannelUtilizationBeaconIntervals

- In Annex C

dot11ChannelUtilizationBeaconIntervals OBJECT-TYPE

SYNTAX Unsigned32 (1..100)

MAX-ACCESS read-write

STATUS current

DESCRIPTION

"This is a control variable.

It is written by an external management entity.

Changes take effect as soon as practical in the implementation.

This attribute indicates the number of beacon intervals over which the channel busy time should be averaged."

DEFVAL { 50 }

::= { dot11OperationEntry 16 }

APPENDIX BI

Resolution to CID 7547

Date: 2017-03-02

Authors:

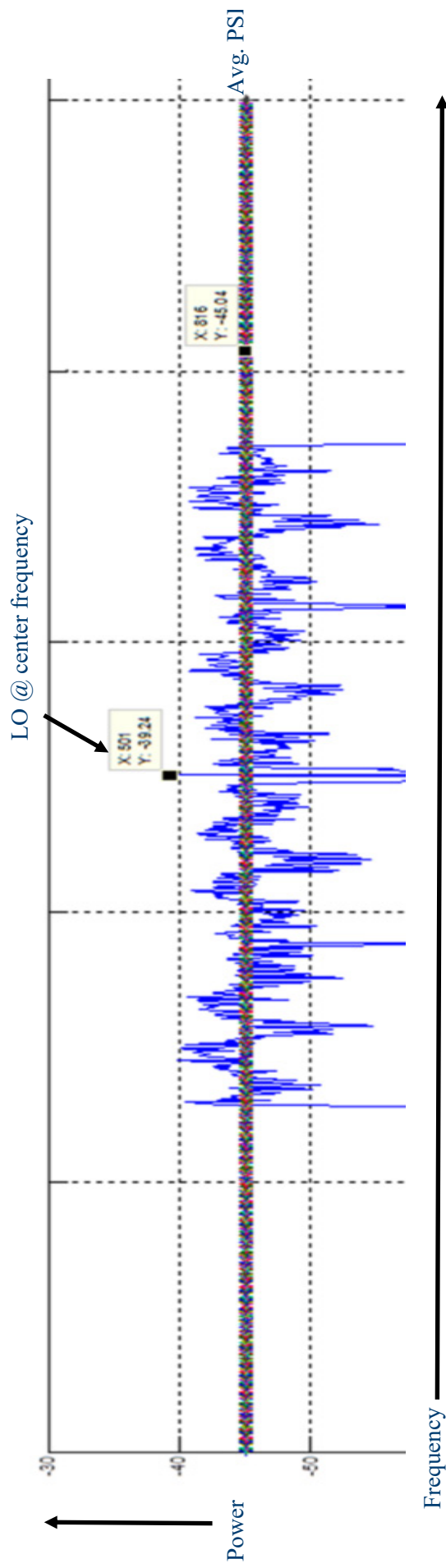
Name	Affiliations	Address	Email
Xiaogang Chen	Intel		Xiaogang.c.chen@intel.com
Ilan Sutskover	Intel		
Michael Simon	Rohde-schwarz		
Lisa Ward	Rohde-schwarz		

Statement of Problem

- **Draft 1.0 defines that masks of HE PPDU_s are measured with RBW=25kHz and VBW=7.5kHz**
 - A change over former 802.11 that used RBW=100kHz and VBW=30kHz
- **With RBW of 25kHz, each spectrum point for 160MHz transmission is approximately 10LOG(160/0.025)=38dB below the total power. 6dB lower than 11ac.**
 - For in-band spurs, there is more chance that 0dB_r at peak spectrum will be touching the CW “spur” instead of the data subcarriers.
 - For out-band spurs, there is more chance the spur break the mask.
- **Smaller RBW requires larger number of points at the SA, resulting in significantly more variance in the frequency domain & higher test time**
- **We have identified that some major SA manufacturers (like Keysight) support RF filtering with a limited RBW granularity only, where RBW=25kHz is not one of the available options**

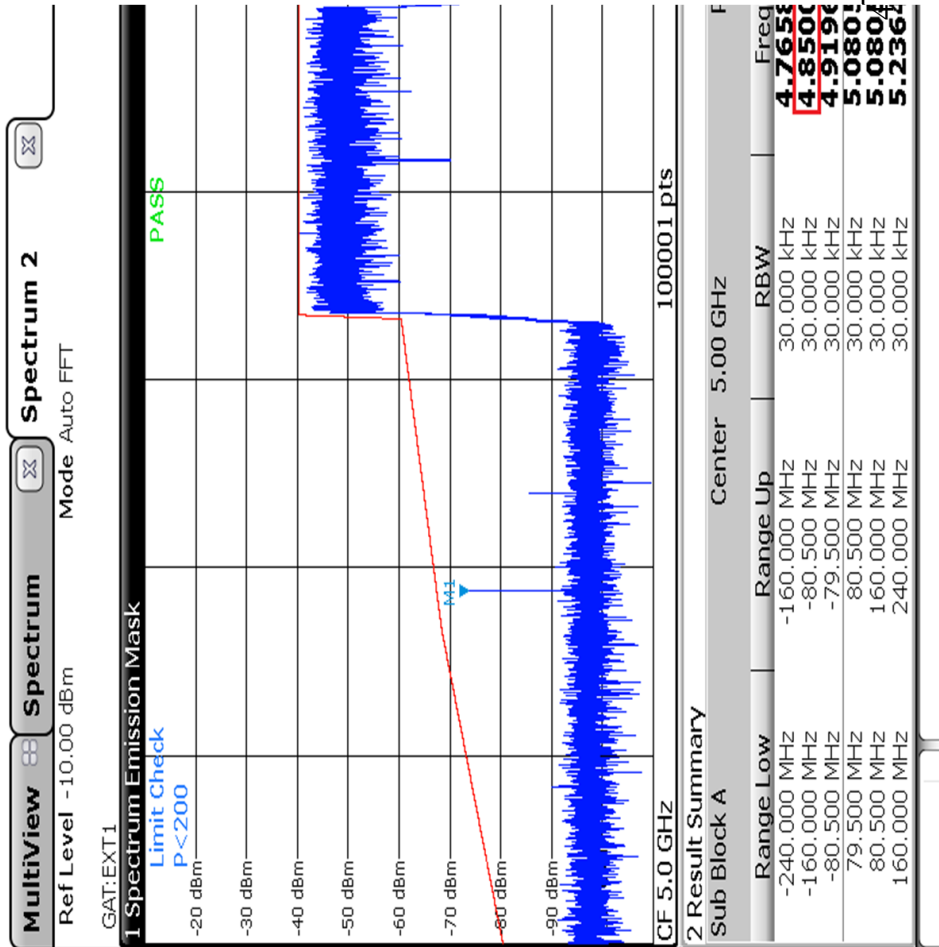
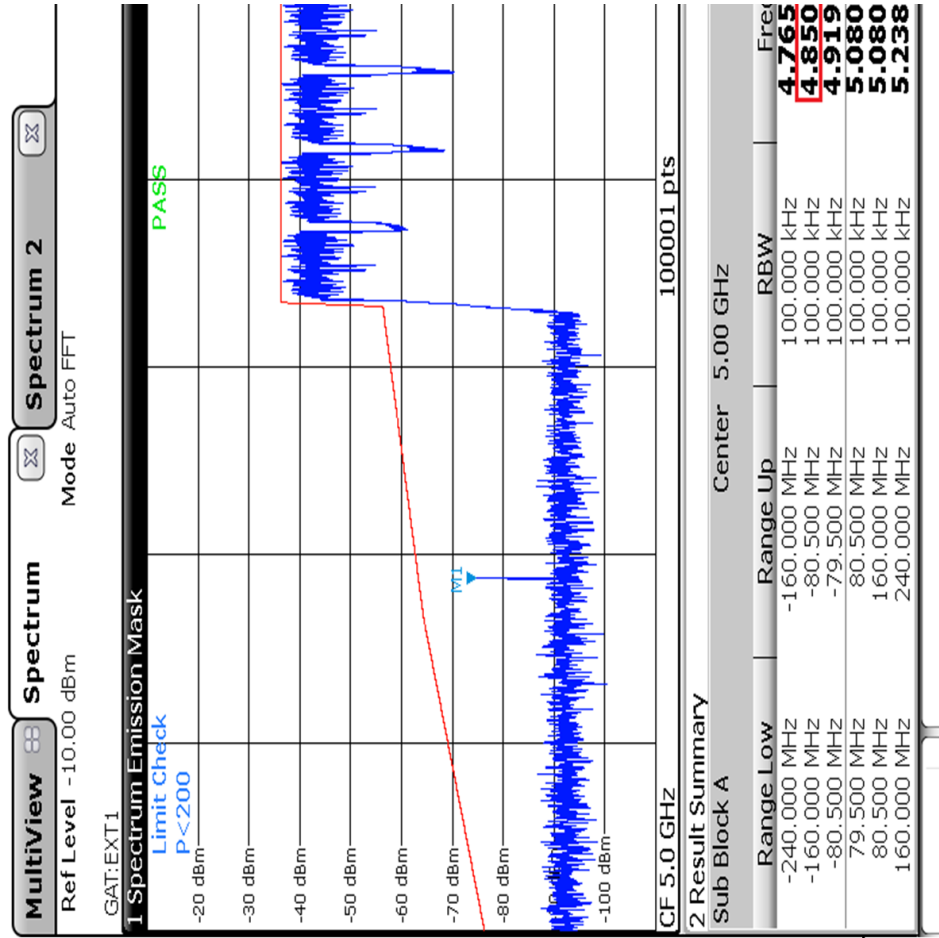
Spur Resilience (in-band)

- CW-like signals' power does not vary with RBW, as their bandwidth is infinitely small. But the mask peak spectrum reduces in power with reduction to RBW.
- As a result, resilience to CW-like spurs has degraded by 6dB upon the change from RBW=100kHz to RBW=25kHz



Spur Resilience (out-band)

- Mask drop more due to accumulated power drop from 100kHz to 30kHz;
- Less margin for 30kHz RBW to the mask if out of band spur presents.



Number of Points in the Spectrum Analyzer

- To ensure proper coverage of the tested span, the number of points measured must cover the spectrum properly. With reduction of RBW by 4X (compared to 11ac and earlier WiFi), 4X points are required to ensure same coverage.
- For 160MHz PPDU, span greater than 480MHz is required. With RBW=25kHz, according to R&S guideline (see below), one expects at least $2 \times 480000 / 25 = 38400$ points.
- Number of points has a significant impact on both test time and “deviations” in the spectrum (see next slides). The number of points is an implementation issue and is not defined by the standard.

Figure 10 - menu to define the frequency step size

As a rule of thumb, you should keep the frequency step size to around half of the measurement bandwidth. This way there is no possibility of both missing information or an error in the magnitude response. The displayed measurement bandwidths of the network analyzer define the 3 dB bandwidths of the measurement filter, so up to 3 dB error could be expected when the frequency step size comes close to the measurement bandwidth.

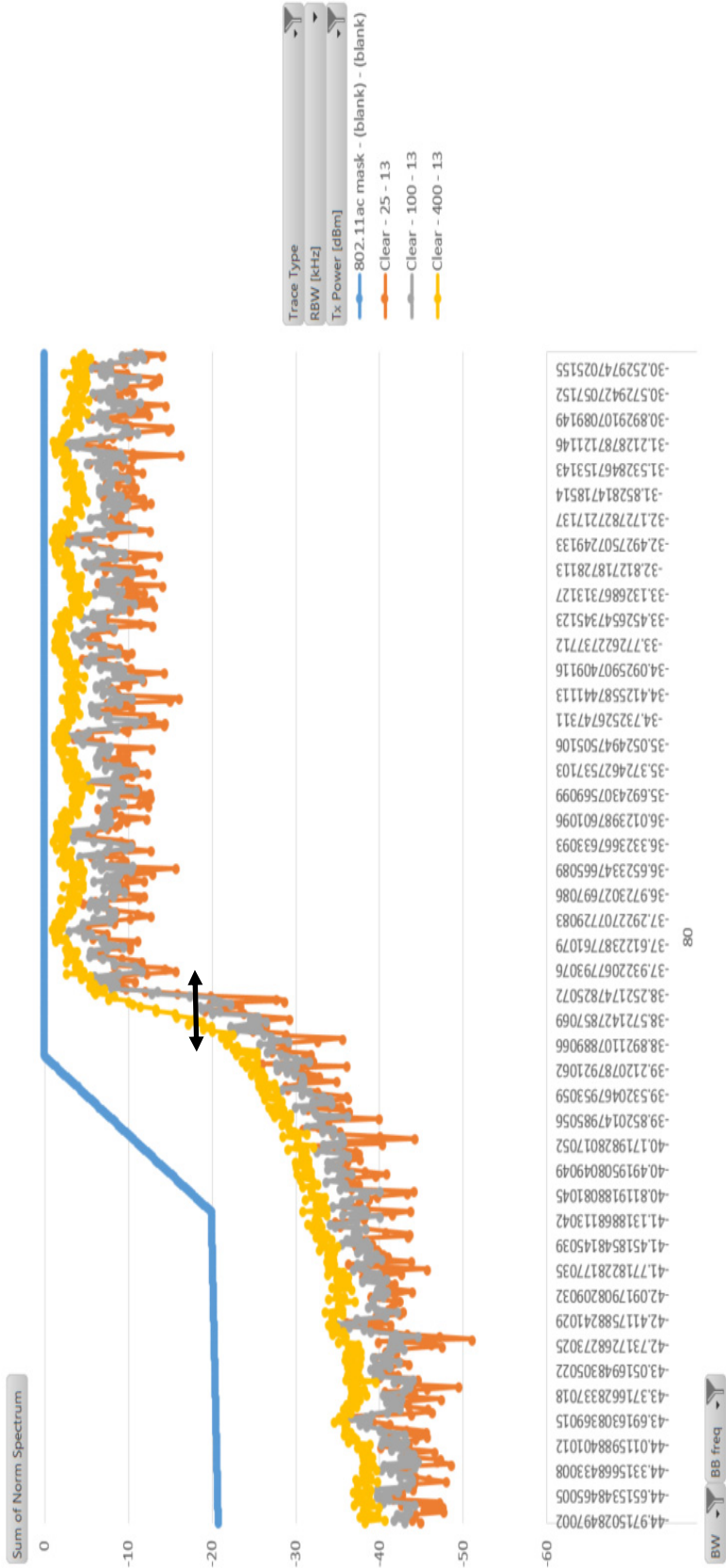
With a maximum number of 60,001 data points and a measurement bandwidth of 5 MHz, the maximum frequency span that can be measured is:

$$2.5 \text{ MHz} \times 60,000 = 150 \text{ GHz}$$

https://cdn.rohde-schwarz.com/pws/dl_downloads/dl_application/application_notes/1ez62/1EZ62_0e.pdf

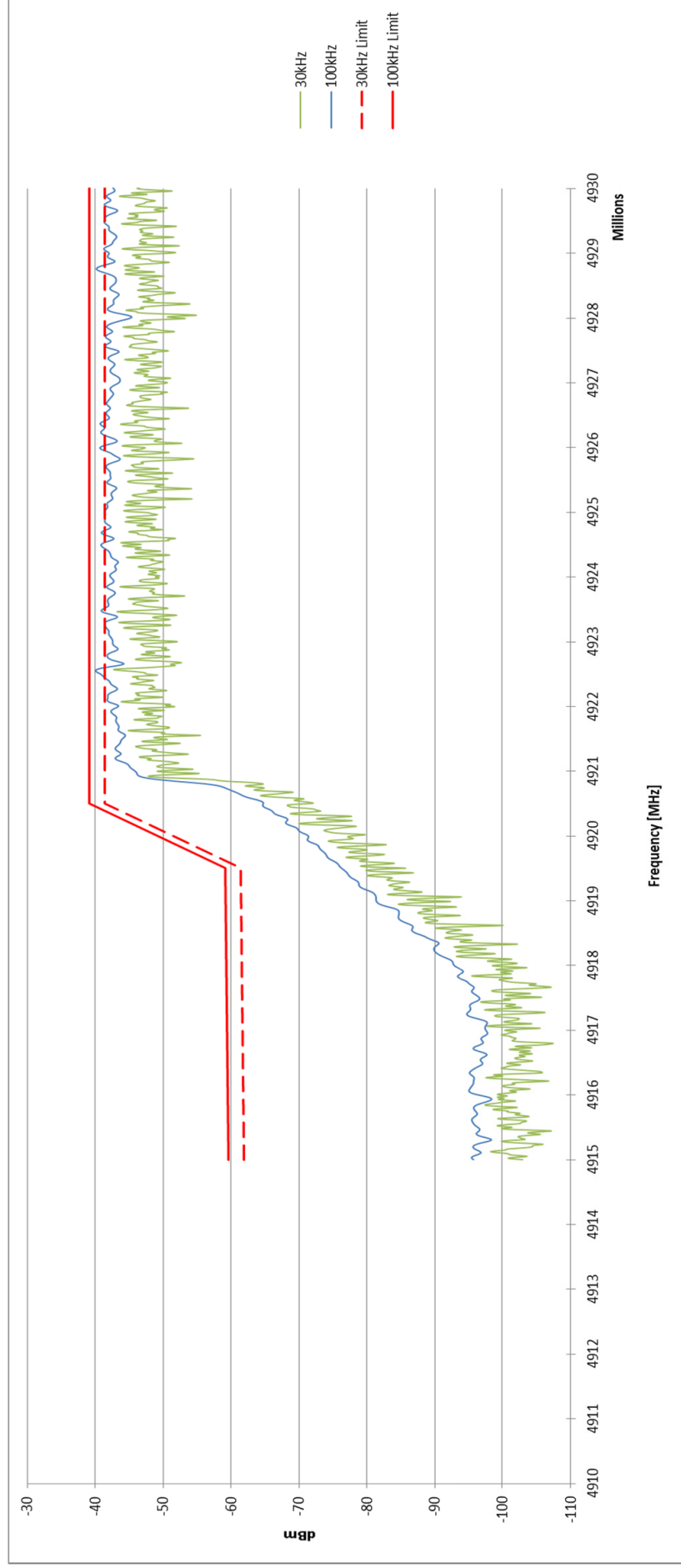
Impacts on the 11ax mask (1/3)

- 11ac transmissions with RBW=24kHz, 100kHz, 400kHz
- Shaping with 4X RBW is only slightly worse (~1 subcarrier spacing) than with 1X RBW.



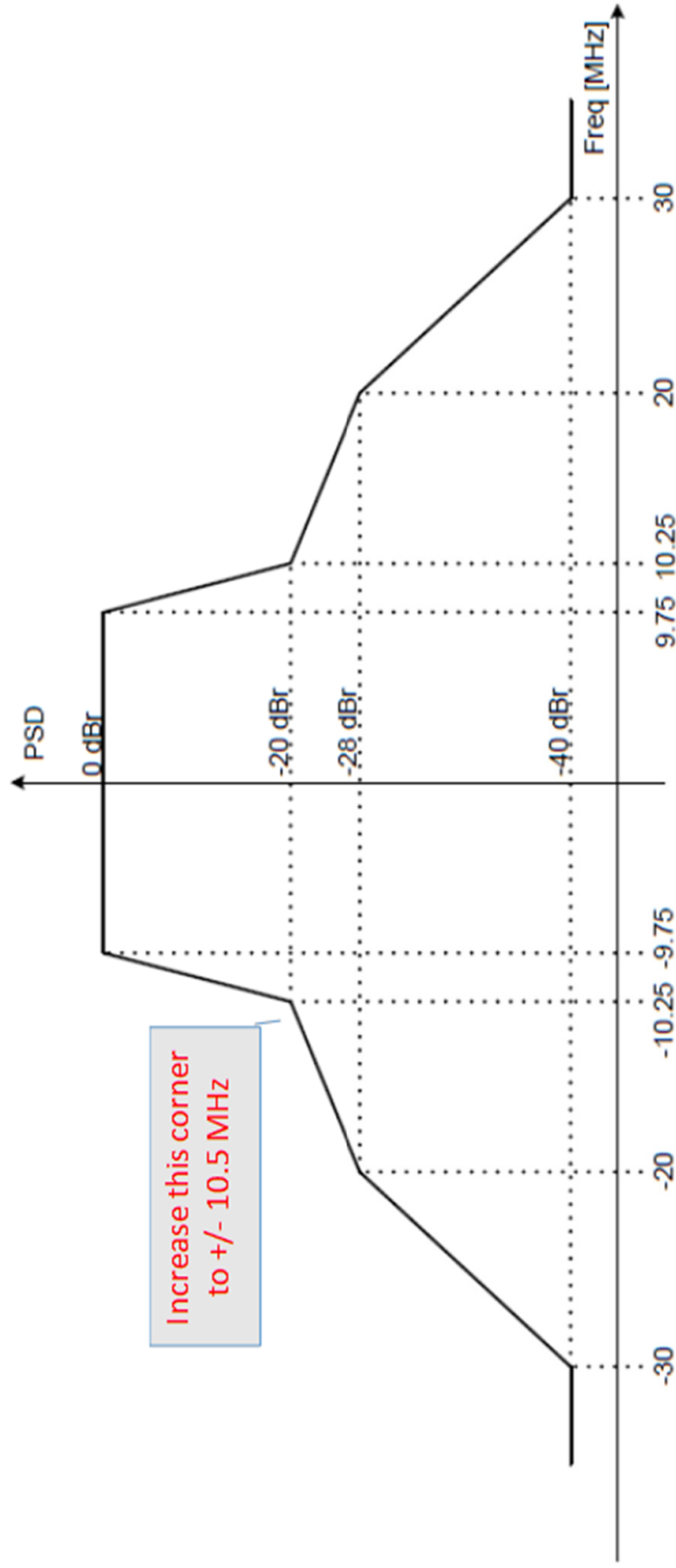
Impacts on the 11ax mask (2/3)

- Cross check from Rohde-schwarz



Impacts on the 11ax mask (3/3)

- RBW 100kHz extends the shoulder part of the measured signal;
- If CFO presents in testing, it might be safer to stretch out 20MHz mask a little as shown below **(to be updated)**



Proposed changes: Revised for CID 7547 per editing instructions in 11-17/0078r1

- *To the TGax Editor: modify P.L. 353.53 as following*
 - Measurements shall be made using a ~~25~~ 100 kHz resolution bandwidth and a 7.5 kHz video bandwidth.

- *In addition, replace Figure 28-37 with the bellow figure.*

