



The Mobile
Broadband Standard

UMTS

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RAN1 - Radio layer 1

RAN WG1 (Radio layer 1) is responsible for the specification of the physical layer of the radio Interface for UE, UTRAN, Evolved UTRAN, and beyond; covering both FDD and TDD modes of the radio interface.

Terms of reference

The latest terms of reference were approved at RAN#53 in document RP-110963.zip.

Within the scope of TSG RAN, RAN WG1 is responsible for the development of specifications dealing with UTRA, Evolved UTRA, and beyond.
RAN WG1 is responsible for:

Specification of the physical layer of the Uu radio Interface for UE, UTRAN, Evolved UTRAN, and beyond, covering both FDD and TDD modes, as well as the physical layer of the Un Interface for Relay Nodes. The work in RAN WG1 includes especially:

- Specification of physical channel structures
 - Specification of the mapping of the transport channels onto physical channels
 - Specification of the physical layer multiplexing, and channel coding and error detection
 - Specification of the spreading and modulation
 - Specification of the physical layer procedures
 - Specification of definition of measurements and their provision by the physical layer to the upper layers
- RAN WG1 also carries out work related to handling of the physical layer related UE capabilities and to physical layer related parameters used in UE tests developed in TSG RAN.

Useful links and information

About RAN WG1	List of elected officials
Documents	Documents area
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TSG RAN Plenary	
TSG RAN WG1	Radio Layer 1 specification
TSG RAN WG2	Radio Layer 2 and Radio Layer 3 RR specification
TSG RAN WG3	lub lnr and lu specification - UTRAN O&M requirements
TSG RAN WG4	Radio performance and protocol aspects (system) - RF parameters and BS conformance

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4.9 "Withdrawing" of specifications

A TSG may decide to withdraw a specification which is obsolete if its re...

For example, if it contained provisions which were contradictory to prov...

Before withdrawing a specification, the TSG shall ensure that no referen...

specification and raise appropriate Change Requests to eliminate any su...

A TSG shall use the procedure in clause 4.9B to withdraw specifications

4.9A "Withdrawing" of functionality

A TSG may decide to withdraw functionality.

Before withdrawing functionality, the TSG shall:

- raise Change Requests to eliminate any references made to this fu...
- move text within specifications as appropriate

Proposal to withdraw TR 38.900 (channel model for spectrum above 6GHz) at RAN#76

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RAN Working groups and Ad Hoc groups	
TSG RAN WG5	Mobile terminal conformance testing
TSG RAN WG6	Legacy RAN radio and protocol
TSG RAN AHG1	Ad-hoc group on ITU (internal) co-ordination

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SA	76	West Palm Beach, Florida	07-09 Jun 2017
GERAN	75	Berlin (TBC)	21-25 Aug 2017
CT	77	Sapporo	11-12 Sep 2017
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SA	77	Sapporo	13-15 Sep 2017
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CT	78	Lisbon	18-19 Dec 2017
RAN	78	Lisbon	18-21 Dec 2017
SA	78	Lisbon	20-22 Dec 2017
CT	79	India	19-20 Mar 2018
RAN	79	India	19-22 Mar 2018
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LTE
Carrier Aggregation Explained
HetNet/Small Cells
NAS
The Evolved Packet Core
HSPA
UMTS
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Market Representation Partner of vehicle manufacturers and a member, to the 3GPP environment.



Partner's meeting in West Palm Beach today, to complete the signing of the Partnership Agreement.

The 5GAA application for 3GPP MRP status stated: "It is important to connect the telecom industry and vehicle manufacturers, to develop end-to-end solutions for future mobility and transportation services." Dino Fiore told the 3GPP OP meeting: "The access part is vitally important and we will work on that with 3GPP. In addition to that, we will look at the other pieces required – including the work on upper layers (SDOs including ETSI-ITS, ISO, SAE and IEEE) and security aspects - to develop the system as a whole."

A lot of the work is already happening in 3GPP, with an initial version of the V2X access specifications in Release 14 and active discussions to define next generation V2X capabilities on-going.

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Recent News



5G paper highlights VR capabilities

April 7, 2017

ATIS have updated and published the second issue of their '5G Reimagined' White Paper, which gives the North American Perspective on deployment scenarios and use cases for 5G networks.

This 68 page paper provides a lot of detail on some of the use cases that will drive the introduction of 5G and the continued development of LTE functionality - to meet that need.

Download the paper ...[here](#)

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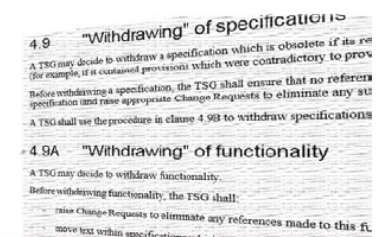

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5G Communication for Automation in Vertical Domains

March 14, 2017

By Joachim W. Walewski, Siemens AG, rapporteur of the FS_CAV study item.

A new SA1 study item on requirements for automation in verticals focuses on critical communications as an enabler for wireless control loops. Once complete, the group will have identified the normative 3GPP work needed to deliver 5G for automation in a variety of industries.

The Study item description is in 3GPP SA Plenary document SP-170169.

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RAN	79	India	19-22 Mar 2018
SA	79	India	21-23 Mar 2018

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- LTE
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- HetNet/Small Cells
- NAS
- The Evolved Packet Core
- HSPA
- UMTS
- W-CDMA
- GPRS & EDGE

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Subject: [RAN1 #AH_NR2 \(June\) agenda + Tdoc allocation starting time](#)
From: Patrick Merias <Patrick.Merias@ETSI.ORG>
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Dear all,

Upcoming ad-hoc meeting agenda has been entered into 3GU (RAN1#AH_NR2 agenda is now available with Tdoc# R1-1709880 based on draft version 5 distributed by Mr Chair) and consequently Tdoc reservation is opened...

Please remember a few basics:

- Don't forget to register (or unregister if you're not coming) as participant of the meeting
- Keep the acknowledgment message as confirmation of your registration – the token included in shall be used during the meeting time for your official checking in to the meeting
- Use the correct type when requesting Tdoc numbers especially for CR and draftCR – do not use "other" or "discussion" for CR and draftCR – also pay attention entering accurate information regarding spec, release, WI code and category both for CR and draftCR.

I'll soon check and submit any incoming NR-related LSs relevant to the June meeting.

Wish you all a pleasant day

BR

P

Patrick Merias - Mobile Competence Center Technical Officer

ATOM

RSS1

RSS2



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 R1-1709901.zip	2017/06/15 15:47	880,3 KB
 R1-1709902.zip	2017/06/15 15:47	335,7 KB
 R1-1709903.zip	2017/06/15 19:14	22,3 KB
 R1-1709904.zip	2017/06/16 9:52	54,6 KB
 R1-1709905.zip	2017/06/16 9:52	91,6 KB
 R1-1709906.zip	2017/06/16 9:52	653,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1709908.zip	2017/06/16 9:52	68,7 KB
 R1-1709909.zip	2017/06/16 9:52	95,5 KB
 R1-1709910.zip	2017/06/16 9:52	276,5 KB
 R1-1709911.zip	2017/06/17 2:50	330,8 KB
 R1-1709912.zip	2017/06/17 3:15	807,7 KB
 R1-1709913.zip	2017/06/17 2:50	99,1 KB
 R1-1709914.zip	2017/06/17 2:50	199,1 KB
 R1-1709915.zip	2017/06/17 2:50	68,2 KB
 R1-1709916.zip	2017/06/17 2:50	61,7 KB
 R1-1709917.zip	2017/06/17 2:50	943,3 KB
 R1-1709918.zip	2017/06/17 2:50	65,2 KB
 R1-1709919.zip	2017/06/17 2:50	36,1 KB
 R1-1709920.zip	2017/06/17 2:50	104,1 KB
 R1-1709921.zip	2017/06/17 2:50	61,2 KB
 R1-1709922.zip	2017/06/17 2:50	43,8 KB
 R1-1709923.zip	2017/06/17 2:57	299,3 KB
 R1-1709924.zip	2017/06/17 2:57	49,1 KB
 R1-1709925.zip	2017/06/17 2:57	162,8 KB
 R1-1709926.zip	2017/06/17 2:57	29,4 KB
 R1-1709927.zip	2017/06/17 2:57	287,3 KB
 R1-1709928.zip	2017/06/17 2:57	286,1 KB
 R1-1709929.zip	2017/06/17 2:57	579,1 KB
 R1-1709930.zip	2017/06/17 2:57	135,5 KB
 R1-1709931.zip	2017/06/17 2:57	200,3 KB
 R1-1709932.zip	2017/06/17 3:15	431,6 KB
 R1-1709933.zip	2017/06/17 2:57	55,8 KB
 R1-1709934.zip	2017/06/17 2:54	53,4 KB
 R1-1709935.zip	2017/06/17 2:54	346,4 KB
 R1-1709936.zip	2017/06/17 2:54	182,2 KB
 R1-1709937.zip	2017/06/17 3:15	109 KB
 R1-1709938.zip	2017/06/17 2:54	146,7 KB
 R1-1709939.zip	2017/06/17 2:54	202,1 KB
 R1-1709940.zip	2017/06/17 2:54	257,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1709943.zip	2017/06/17 2:54	52,9 KB
 R1-1709944.zip	2017/06/17 2:54	528,3 KB
 R1-1709945.zip	2017/06/17 2:54	215,8 KB
 R1-1709946.zip	2017/06/17 2:54	58,2 KB
 R1-1709947.zip	2017/06/17 2:54	599,1 KB
 R1-1709948.zip	2017/06/17 3:15	156,3 KB
 R1-1709949.zip	2017/06/17 2:54	256,9 KB
 R1-1709950.zip	2017/06/17 2:50	949,3 KB
 R1-1709951.zip	2017/06/17 2:50	95,8 KB
 R1-1709952.zip	2017/06/17 2:50	485,9 KB
 R1-1709953.zip	2017/06/17 2:50	112,6 KB
 R1-1709954.zip	2017/06/17 2:50	112,9 KB
 R1-1709955.zip	2017/06/17 2:50	51,4 KB
 R1-1709956.zip	2017/06/17 2:50	197,6 KB
 R1-1709957.zip	2017/06/17 2:50	231,1 KB
 R1-1709958.zip	2017/06/17 2:50	152,7 KB
 R1-1709959.zip	2017/06/17 2:50	579,5 KB
 R1-1709960.zip	2017/06/17 2:50	90,2 KB
 R1-1709961.zip	2017/06/17 2:50	346,4 KB
 R1-1709962.zip	2017/06/17 2:50	433,6 KB
 R1-1709963.zip	2017/06/17 2:50	55,6 KB
 R1-1709964.zip	2017/06/17 2:54	45,3 KB
 R1-1709965.zip	2017/06/17 2:54	46,4 KB
 R1-1709966.zip	2017/06/17 2:54	88,9 KB
 R1-1709967.zip	2017/06/17 2:50	34,3 KB
 R1-1709968.zip	2017/06/17 2:50	46,7 KB
 R1-1709969.zip	2017/06/17 2:50	64,9 KB
 R1-1709970.zip	2017/06/17 2:50	44,9 KB
 R1-1709971.zip	2017/06/17 2:50	121,7 KB
 R1-1709972.zip	2017/06/17 2:50	355,9 KB
 R1-1709973.zip	2017/06/17 2:50	108,4 KB
 R1-1709974.zip	2017/06/17 2:50	83,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1709977.zip	2017/06/17 2:54	34,3 KB
 R1-1709978.zip	2017/06/17 2:50	188,9 KB
 R1-1709979.zip	2017/06/17 2:55	316 KB
 R1-1709980.zip	2017/06/17 2:55	1124,5 KB
 R1-1709981.zip	2017/06/17 2:55	194,7 KB
 R1-1709982.zip	2017/06/17 2:55	519,3 KB
 R1-1709983.zip	2017/06/17 2:54	77,7 KB
 R1-1709984.zip	2017/06/17 2:51	98,8 KB
 R1-1709985.zip	2017/06/17 2:51	144,3 KB
 R1-1709986.zip	2017/06/17 2:51	297,5 KB
 R1-1709987.zip	2017/06/17 2:51	325,3 KB
 R1-1709988.zip	2017/06/17 2:57	150,8 KB
 R1-1709989.zip	2017/06/17 2:51	104,9 KB
 R1-1709990.zip	2017/06/17 2:51	207,9 KB
 R1-1709991.zip	2017/06/17 2:57	63,8 KB
 R1-1709992.zip	2017/06/17 2:57	267,7 KB
 R1-1709993.zip	2017/06/17 2:51	102,6 KB
 R1-1709994.zip	2017/06/17 2:51	183,5 KB
 R1-1709995.zip	2017/06/20 5:16	129,9 KB
 R1-1709996.zip	2017/06/20 5:17	720,5 KB
 R1-1709997.zip	2017/06/20 5:17	940,2 KB
 R1-1709998.zip	2017/06/20 5:17	649,1 KB
 R1-1709999.zip	2017/06/20 5:17	255,7 KB
 R1-1710000.zip	2017/06/20 5:17	143,7 KB
 R1-1710001.zip	2017/06/20 5:17	253,3 KB
 R1-1710002.zip	2017/06/20 5:17	610,4 KB
 R1-1710003.zip	2017/06/20 5:17	149 KB
 R1-1710004.zip	2017/06/20 5:17	2525,9 KB
 R1-1710005.zip	2017/06/17 2:57	109,5 KB
 R1-1710006.zip	2017/06/19 23:09	1074,6 KB
 R1-1710007.zip	2017/06/17 2:51	1497,2 KB
 R1-1710008.zip	2017/06/17 2:51	392,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710012.zip	2017/06/17 2:56	75,9 KB
 R1-1710013.zip	2017/06/17 2:51	300,8 KB
 R1-1710014.zip	2017/06/17 5:55	289,5 KB
 R1-1710015.zip	2017/06/17 5:55	230,8 KB
 R1-1710016.zip	2017/06/17 5:55	198,2 KB
 R1-1710017.zip	2017/06/17 1:51	795,5 KB
 R1-1710018.zip	2017/06/17 1:51	154,5 KB
 R1-1710019.zip	2017/06/17 1:51	123,7 KB
 R1-1710020.zip	2017/06/17 1:51	98,9 KB
 R1-1710021.zip	2017/06/16 15:44	154 KB
 R1-1710022.zip	2017/06/17 3:05	86,8 KB
 R1-1710023.zip	2017/06/17 3:05	134,8 KB
 R1-1710024.zip	2017/06/17 3:05	81,3 KB
 R1-1710025.zip	2017/06/17 3:05	52,2 KB
 R1-1710026.zip	2017/06/17 3:05	49 KB
 R1-1710027.zip	2017/06/17 3:05	136 KB
 R1-1710028.zip	2017/06/17 3:05	119,8 KB
 R1-1710029.zip	2017/06/17 3:05	61,6 KB
 R1-1710030.zip	2017/06/17 3:05	56,9 KB
 R1-1710031.zip	2017/06/17 3:05	64,7 KB
 R1-1710032.zip	2017/06/17 3:05	91,9 KB
 R1-1710033.zip	2017/06/17 3:05	733,6 KB
 R1-1710034.zip	2017/06/17 3:05	103,3 KB
 R1-1710035.zip	2017/06/17 3:05	87,6 KB
 R1-1710036.zip	2017/06/17 3:05	201,8 KB
 R1-1710037.zip	2017/06/17 3:05	44,3 KB
 R1-1710038.zip	2017/06/17 3:05	106,3 KB
 R1-1710039.zip	2017/06/17 3:05	86,4 KB
 R1-1710040.zip	2017/06/17 3:05	53,7 KB
 R1-1710041.zip	2017/06/17 3:05	214,3 KB
 R1-1710042.zip	2017/06/17 3:05	80,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710045.zip	2017/06/19 7:37	572 KB
 R1-1710046.zip	2017/06/19 7:37	151,5 KB
 R1-1710047.zip	2017/06/19 7:37	249,6 KB
 R1-1710048.zip	2017/06/19 7:38	977 KB
 R1-1710049.zip	2017/06/17 3:05	219,3 KB
 R1-1710050.zip	2017/06/17 3:05	342,1 KB
 R1-1710051.zip	2017/06/17 3:05	56,5 KB
 R1-1710052.zip	2017/06/17 3:05	48,8 KB
 R1-1710053.zip	2017/06/17 3:05	47,8 KB
 R1-1710054.zip	2017/06/17 3:05	32,6 KB
 R1-1710055.zip	2017/06/17 3:05	34,5 KB
 R1-1710056.zip	2017/06/17 3:05	56,7 KB
 R1-1710057.zip	2017/06/17 3:05	58,9 KB
 R1-1710058.zip	2017/06/17 3:05	29 KB
 R1-1710059.zip	2017/06/28 13:45	76,4 KB
 R1-1710060.zip	2017/06/17 3:05	57,1 KB
 R1-1710061.zip	2017/06/17 3:05	21,9 KB
 R1-1710062.zip	2017/06/17 3:05	52,5 KB
 R1-1710063.zip	2017/06/17 3:05	61,1 KB
 R1-1710064.zip	2017/06/17 3:05	87,1 KB
 R1-1710065.zip	2017/06/17 3:05	70,9 KB
 R1-1710066.zip	2017/06/17 3:05	149,1 KB
 R1-1710067.zip	2017/06/17 3:05	143,3 KB
 R1-1710068.zip	2017/06/17 3:05	125,6 KB
 R1-1710069.zip	2017/06/17 3:05	135 KB
 R1-1710070.zip	2017/06/17 3:05	65,2 KB
 R1-1710071.zip	2017/06/17 3:05	47,9 KB
 R1-1710072.zip	2017/06/17 3:05	28,1 KB
 R1-1710073.zip	2017/06/17 3:05	244,6 KB
 R1-1710074.zip	2017/06/17 3:05	148,5 KB
 R1-1710075.zip	2017/06/17 3:05	230,5 KB
 R1-1710076.zip	2017/06/17 3:05	33,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710079.zip	2017/06/17 3:05	162,1 KB
 R1-1710080.zip	2017/06/17 3:05	46,7 KB
 R1-1710081.zip	2017/06/17 3:05	55,7 KB
 R1-1710082.zip	2017/06/17 3:05	59,9 KB
 R1-1710083.zip	2017/06/17 3:05	185,6 KB
 R1-1710084.zip	2017/06/17 3:05	431,2 KB
 R1-1710085.zip	2017/06/17 3:04	54,8 KB
 R1-1710086.zip	2017/06/17 3:04	53 KB
 R1-1710087.zip	2017/06/17 3:04	125,6 KB
 R1-1710088.zip	2017/06/17 3:04	54,9 KB
 R1-1710089.zip	2017/06/17 3:04	46,8 KB
 R1-1710090.zip	2017/06/17 3:04	49,8 KB
 R1-1710091.zip	2017/06/17 3:04	45,1 KB
 R1-1710092.zip	2017/06/17 3:05	50,6 KB
 R1-1710093.zip	2017/06/17 3:05	47,3 KB
 R1-1710094.zip	2017/06/17 3:05	69,5 KB
 R1-1710095.zip	2017/06/17 3:05	44,3 KB
 R1-1710096.zip	2017/06/17 3:05	61 KB
 R1-1710097.zip	2017/06/17 3:05	41,3 KB
 R1-1710098.zip	2017/06/17 3:05	41,6 KB
 R1-1710099.zip	2017/06/17 3:05	87,8 KB
 R1-1710100.zip	2017/06/17 3:05	44,3 KB
 R1-1710101.zip	2017/06/17 3:05	53,3 KB
 R1-1710102.zip	2017/06/17 3:05	45,5 KB
 R1-1710103.zip	2017/06/17 3:05	17,7 KB
 R1-1710104.zip	2017/06/17 1:52	614 KB
 R1-1710105.zip	2017/06/17 1:52	445,8 KB
 R1-1710106.zip	2017/06/17 1:52	43,7 KB
 R1-1710107.zip	2017/06/17 1:52	103,8 KB
 R1-1710108.zip	2017/06/17 1:53	198,7 KB
 R1-1710109.zip	2017/06/17 1:53	139,1 KB
 R1-1710110.zip	2017/06/17 1:53	111,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710112.zip	2017/06/17 1:54	327,8 KB
 R1-1710113.zip	2017/06/17 1:54	703,6 KB
 R1-1710114.zip	2017/06/17 1:54	57,9 KB
 R1-1710115.zip	2017/06/17 1:55	47,7 KB
 R1-1710116.zip	2017/06/17 1:56	37,7 KB
 R1-1710117.zip	2017/06/17 1:57	111,1 KB
 R1-1710118.zip	2017/06/17 1:57	107,7 KB
 R1-1710119.zip	2017/06/17 1:57	94,9 KB
 R1-1710120.zip	2017/06/17 1:57	114,8 KB
 R1-1710121.zip	2017/06/17 1:57	46,6 KB
 R1-1710122.zip	2017/06/17 1:58	96,7 KB
 R1-1710123.zip	2017/06/17 1:58	166,6 KB
 R1-1710124.zip	2017/06/17 1:58	40 KB
 R1-1710125.zip	2017/06/17 1:58	131,7 KB
 R1-1710126.zip	2017/06/17 1:58	145,3 KB
 R1-1710127.zip	2017/06/16 19:16	60,7 KB
 R1-1710128.zip	2017/06/16 19:16	94,8 KB
 R1-1710129.zip	2017/06/16 19:16	309,5 KB
 R1-1710130.zip	2017/06/16 19:16	283,9 KB
 R1-1710131.zip	2017/06/16 10:13	164 KB
 R1-1710132.zip	2017/06/16 10:13	20,6 KB
 R1-1710133.zip	2017/06/17 7:24	97 KB
 R1-1710134.zip	2017/06/16 10:13	16,4 KB
 R1-1710135.zip	2017/06/16 10:13	18,2 KB
 R1-1710136.zip	2017/06/16 10:13	20,1 KB
 R1-1710137.zip	2017/06/16 10:13	39,8 KB
 R1-1710138.zip	2017/06/16 10:13	50,4 KB
 R1-1710139.zip	2017/06/16 10:13	17,9 KB
 R1-1710140.zip	2017/06/16 10:13	22,3 KB
 R1-1710141.zip	2017/06/16 10:13	37,3 KB
 R1-1710142.zip	2017/06/16 10:13	167,5 KB
 R1-1710143.zip	2017/06/16 10:13	43 KB
 R1-1710144.zip	2017/06/16 10:13	77 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710147.zip	2017/06/16 10:13	151,4 KB
 R1-1710148.zip	2017/06/16 10:13	29,6 KB
 R1-1710149.zip	2017/06/16 10:13	25,6 KB
 R1-1710150.zip	2017/06/16 10:13	32 KB
 R1-1710151.zip	2017/06/16 10:14	87,7 KB
 R1-1710152.zip	2017/06/16 10:14	385,7 KB
 R1-1710153.zip	2017/06/16 10:14	33,6 KB
 R1-1710154.zip	2017/06/16 10:14	30,3 KB
 R1-1710155.zip	2017/06/16 10:14	164,8 KB
 R1-1710156.zip	2017/06/16 10:14	143,5 KB
 R1-1710157.zip	2017/06/16 10:14	388,1 KB
 R1-1710158.zip	2017/06/16 10:14	161 KB
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 R1-1710160.zip	2017/06/16 10:15	110,2 KB
 R1-1710161.zip	2017/06/16 10:15	131,4 KB
 R1-1710162.zip	2017/06/16 10:15	46 KB
 R1-1710163.zip	2017/06/16 10:15	143,4 KB
 R1-1710164.zip	2017/06/16 10:15	89,3 KB
 R1-1710165.zip	2017/06/16 10:15	450,8 KB
 R1-1710166.zip	2017/06/16 10:15	16,4 KB
 R1-1710167.zip	2017/06/16 10:15	35,6 KB
 R1-1710168.zip	2017/06/16 10:15	44,6 KB
 R1-1710169.zip	2017/06/16 10:15	105,8 KB
 R1-1710170.zip	2017/06/16 10:15	125,4 KB
 R1-1710171.zip	2017/06/16 10:16	159,6 KB
 R1-1710172.zip	2017/06/16 10:16	18,7 KB
 R1-1710173.zip	2017/06/16 10:16	219,2 KB
 R1-1710174.zip	2017/06/16 10:16	20,8 KB
 R1-1710175.zip	2017/06/17 6:02	790,8 KB
 R1-1710176.zip	2017/06/17 6:02	150,2 KB
 R1-1710177.zip	2017/06/17 7:34	78,6 KB
 R1-1710178.zip	2017/06/17 7:59	251,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710180.zip	2017/06/17 6:02	282,2 KB
 R1-1710181.zip	2017/06/17 9:49	100,2 KB
 R1-1710182.zip	2017/06/17 6:02	88,8 KB
 R1-1710183.zip	2017/06/17 8:38	280,8 KB
 R1-1710184.zip	2017/06/17 6:02	305,7 KB
 R1-1710185.zip	2017/06/17 6:03	332,3 KB
 R1-1710186.zip	2017/06/17 6:03	418,8 KB
 R1-1710187.zip	2017/06/17 6:03	376,3 KB
 R1-1710188.zip	2017/06/17 6:03	79 KB
 R1-1710189.zip	2017/06/17 6:08	79,2 KB
 R1-1710190.zip	2017/06/17 6:22	107 KB
 R1-1710191.zip	2017/06/17 6:27	76,3 KB
 R1-1710192.zip	2017/06/17 6:34	79 KB
 R1-1710193.zip	2017/06/17 6:37	101,8 KB
 R1-1710194.zip	2017/06/17 9:31	207,1 KB
 R1-1710195.zip	2017/06/17 6:42	54,4 KB
 R1-1710196.zip	2017/06/17 6:45	151,6 KB
 R1-1710197.zip	2017/06/17 6:47	182,3 KB
 R1-1710198.zip	2017/06/17 6:50	300,8 KB
 R1-1710199.zip	2017/06/17 6:54	286,1 KB
 R1-1710200.zip	2017/06/17 6:56	146,2 KB
 R1-1710201.zip	2017/06/17 7:00	119,9 KB
 R1-1710202.zip	2017/06/17 8:48	193,7 KB
 R1-1710206.zip	2017/06/17 9:52	227,7 KB
 R1-1710207.zip	2017/06/17 9:52	587,4 KB
 R1-1710208.zip	2017/06/17 9:53	63,8 KB
 R1-1710209.zip	2017/06/17 7:03	88,4 KB
 R1-1710210.zip	2017/06/17 7:07	81,8 KB
 R1-1710211.zip	2017/06/12 7:18	11,8 KB
 R1-1710212.zip	2017/06/12 7:18	13,7 KB
 R1-1710213.zip	2017/06/12 7:18	11,4 KB
 R1-1710214.zip	2017/06/12 7:18	14,8 KB
 R1-1710215.zip	2017/06/12 7:18	11,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710217.zip	2017/06/12 7:18	12,4 KB
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 R1-1710219.zip	2017/06/16 0:23	69,4 KB
 R1-1710220.zip	2017/06/12 9:57	10,8 KB
 R1-1710221.zip	2017/06/12 9:57	11,1 KB
 R1-1710222.zip	2017/06/16 14:58	220,9 KB
 R1-1710223.zip	2017/06/16 9:52	157 KB
 R1-1710224.zip	2017/06/16 9:52	48,6 KB
 R1-1710225.zip	2017/06/16 9:52	123,2 KB
 R1-1710226.zip	2017/06/16 9:52	102,4 KB
 R1-1710228.zip	2017/06/16 9:17	55,3 KB
 R1-1710229.zip	2017/06/13 11:58	284,2 KB
 R1-1710230.zip	2017/06/16 14:58	217,8 KB
 R1-1710231.zip	2017/06/16 16:40	78,6 KB
 R1-1710232.zip	2017/06/16 16:40	83,6 KB
 R1-1710233.zip	2017/06/16 16:40	107 KB
 R1-1710234.zip	2017/06/16 16:40	172,7 KB
 R1-1710235.zip	2017/06/16 16:40	50 KB
 R1-1710236.zip	2017/06/16 16:40	49,9 KB
 R1-1710237.zip	2017/06/16 16:40	176,9 KB
 R1-1710238.zip	2017/06/16 16:40	55,1 KB
 R1-1710239.zip	2017/06/16 16:40	227 KB
 R1-1710240.zip	2017/06/16 16:40	31,2 KB
 R1-1710241.zip	2017/06/16 16:40	303,9 KB
 R1-1710242.zip	2017/06/16 16:40	215 KB
 R1-1710243.zip	2017/06/16 16:40	46,4 KB
 R1-1710244.zip	2017/06/17 5:46	306,2 KB
 R1-1710245.zip	2017/06/17 5:46	127,2 KB
 R1-1710246.zip	2017/06/17 5:46	81 KB
 R1-1710247.zip	2017/06/17 5:46	88,9 KB
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 R1-1710249.zip	2017/06/17 5:46	308,5 KB
 R1-1710250.zip	2017/06/17 5:46	65,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710256.zip	2017/06/16 8:51	43,6 KB
 R1-1710257.zip	2017/06/16 8:51	217,7 KB
 R1-1710258.zip	2017/06/17 5:29	1825,1 KB
 R1-1710259.zip	2017/06/17 5:29	170,4 KB
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 R1-1710261.zip	2017/06/17 5:29	37,1 KB
 R1-1710262.zip	2017/06/17 5:29	78,9 KB
 R1-1710263.zip	2017/06/17 5:29	80,5 KB
 R1-1710264.zip	2017/06/17 5:29	123,8 KB
 R1-1710265.zip	2017/06/17 5:29	30,6 KB
 R1-1710267.zip	2017/06/17 5:29	56,9 KB
 R1-1710268.zip	2017/06/17 5:29	152,5 KB
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 R1-1710270.zip	2017/06/17 5:29	39,4 KB
 R1-1710271.zip	2017/06/17 5:29	45,5 KB
 R1-1710272.zip	2017/06/17 5:29	510 KB
 R1-1710273.zip	2017/06/17 5:29	41,8 KB
 R1-1710274.zip	2017/06/17 5:29	43 KB
 R1-1710275.zip	2017/06/17 5:29	63,2 KB
 R1-1710276.zip	2017/06/17 5:29	41,5 KB
 R1-1710277.zip	2017/06/17 5:30	61,1 KB
 R1-1710278.zip	2017/06/17 5:30	58,5 KB
 R1-1710279.zip	2017/06/17 5:30	40,8 KB
 R1-1710280.zip	2017/06/17 5:30	32,4 KB
 R1-1710281.zip	2017/06/17 5:30	73,4 KB
 R1-1710282.zip	2017/06/17 5:30	74,2 KB
 R1-1710283.zip	2017/06/17 5:30	137 KB
 R1-1710284.zip	2017/06/17 5:30	49,5 KB
 R1-1710285.zip	2017/06/17 5:30	34,6 KB
 R1-1710286.zip	2017/06/17 5:30	29,7 KB
 R1-1710287.zip	2017/06/17 5:30	108,1 KB
 R1-1710288.zip	2017/06/17 5:30	63,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710293.zip	2017/06/17 5:31	161,6 KB
 R1-1710294.zip	2017/06/17 5:31	64,2 KB
 R1-1710295.zip	2017/06/17 5:31	33,3 KB
 R1-1710296.zip	2017/06/17 5:31	232,4 KB
 R1-1710297.zip	2017/06/17 5:31	223 KB
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 R1-1710299.zip	2017/06/17 5:31	179,2 KB
 R1-1710300.zip	2017/06/17 5:31	82,6 KB
 R1-1710301.zip	2017/06/17 5:32	55,5 KB
 R1-1710302.zip	2017/06/17 5:32	41,2 KB
 R1-1710303.zip	2017/06/17 5:32	101,6 KB
 R1-1710304.zip	2017/06/17 5:32	89,5 KB
 R1-1710305.zip	2017/06/17 5:32	120,7 KB
 R1-1710306.zip	2017/06/17 5:32	793,1 KB
 R1-1710307.zip	2017/06/17 5:32	51,8 KB
 R1-1710308.zip	2017/06/17 5:32	64,5 KB
 R1-1710309.zip	2017/06/17 5:32	94,7 KB
 R1-1710310.zip	2017/06/17 5:32	108,8 KB
 R1-1710311.zip	2017/06/17 5:32	34,2 KB
 R1-1710312.zip	2017/06/17 5:32	66,5 KB
 R1-1710313.zip	2017/06/17 5:32	635,8 KB
 R1-1710314.zip	2017/06/17 5:32	45,3 KB
 R1-1710315.zip	2017/06/17 5:32	107,9 KB
 R1-1710316.zip	2017/06/17 5:32	126,8 KB
 R1-1710317.zip	2017/06/17 5:32	72 KB
 R1-1710318.zip	2017/06/17 5:32	30,8 KB
 R1-1710319.zip	2017/06/17 5:32	79,2 KB
 R1-1710320.zip	2017/06/17 5:32	39,1 KB
 R1-1710321.zip	2017/06/17 5:44	109,6 KB
 R1-1710322.zip	2017/06/17 5:44	51,3 KB

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 R1-1710325.zip	2017/06/17 5:44	37,3 KB
 R1-1710326.zip	2017/06/17 5:44	51,2 KB
 R1-1710327.zip	2017/06/17 5:44	54,6 KB
 R1-1710328.zip	2017/06/27 15:17	150,7 KB
 R1-1710329.zip	2017/06/17 5:44	38,2 KB
 R1-1710330.zip	2017/06/17 5:44	89,5 KB
 R1-1710331.zip	2017/06/17 5:44	79,6 KB
 R1-1710332.zip	2017/06/17 5:44	79,7 KB
 R1-1710333.zip	2017/06/17 5:44	61,3 KB
 R1-1710334.zip	2017/06/17 5:44	41,2 KB
 R1-1710335.zip	2017/06/17 5:44	40 KB
 R1-1710336.zip	2017/06/17 5:44	67,3 KB
 R1-1710337.zip	2017/06/17 5:44	50 KB
 R1-1710338.zip	2017/06/17 5:44	49,4 KB
 R1-1710339.zip	2017/06/17 5:44	340,8 KB
 R1-1710340.zip	2017/06/17 5:44	63,8 KB
 R1-1710341.zip	2017/06/20 5:33	88,6 KB
 R1-1710342.zip	2017/06/20 5:33	228,6 KB
 R1-1710343.zip	2017/06/20 5:33	195 KB
 R1-1710344.zip	2017/06/20 5:33	108,8 KB
 R1-1710345.zip	2017/06/27 15:17	79,5 KB
 R1-1710346.zip	2017/06/20 5:33	95,1 KB
 R1-1710347.zip	2017/06/20 5:34	985,1 KB
 R1-1710348.zip	2017/06/20 5:34	390,6 KB
 R1-1710349.zip	2017/06/20 5:34	68,8 KB
 R1-1710350.zip	2017/06/17 5:45	81 KB
 R1-1710351.zip	2017/06/17 5:45	62,1 KB
 R1-1710352.zip	2017/06/17 5:45	124,3 KB
 R1-1710353.zip	2017/06/17 5:45	61,1 KB
 R1-1710354.zip	2017/06/17 5:45	67,2 KB
 R1-1710355.zip	2017/06/17 5:45	78,9 KB
 R1-1710356.zip	2017/06/17 5:45	68,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710360.zip	2017/06/16 10:30	105,5 KB
 R1-1710361.zip	2017/06/16 10:30	72,2 KB
 R1-1710362.zip	2017/06/16 10:30	76,6 KB
 R1-1710363.zip	2017/06/16 10:30	85,7 KB
 R1-1710364.zip	2017/06/16 10:30	72,7 KB
 R1-1710365.zip	2017/06/16 10:30	706,8 KB
 R1-1710366.zip	2017/06/16 10:30	56,5 KB
 R1-1710367.zip	2017/06/16 10:30	667,6 KB
 R1-1710368.zip	2017/06/16 10:30	80,5 KB
 R1-1710369.zip	2017/06/16 10:30	202,9 KB
 R1-1710370.zip	2017/06/19 14:13	68,4 KB
 R1-1710371.zip	2017/06/16 10:30	67,5 KB
 R1-1710372.zip	2017/06/17 6:42	85,8 KB
 R1-1710373.zip	2017/06/20 5:37	361,4 KB
 R1-1710374.zip	2017/06/17 6:42	75,7 KB
 R1-1710375.zip	2017/06/17 6:42	38,7 KB
 R1-1710376.zip	2017/06/20 5:37	114,2 KB
 R1-1710378.zip	2017/06/17 6:42	1039,5 KB
 R1-1710379.zip	2017/06/17 6:42	114 KB
 R1-1710380.zip	2017/06/17 6:42	85,2 KB
 R1-1710381.zip	2017/06/17 6:42	58,8 KB
 R1-1710382.zip	2017/06/17 6:42	203,4 KB
 R1-1710383.zip	2017/06/17 6:42	135,5 KB
 R1-1710384.zip	2017/06/17 6:42	1073,2 KB
 R1-1710385.zip	2017/06/17 6:42	340,5 KB
 R1-1710386.zip	2017/06/17 6:56	80,9 KB
 R1-1710387.zip	2017/06/17 6:56	106,9 KB
 R1-1710389.zip	2017/06/17 6:42	103,9 KB
 R1-1710390.zip	2017/06/17 6:42	82,7 KB
 R1-1710391.zip	2017/06/17 6:42	67,3 KB
 R1-1710392.zip	2017/06/17 6:42	100,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710395.zip	2017/06/17 6:42	72,1 KB
 R1-1710396.zip	2017/06/17 6:42	131,9 KB
 R1-1710397.zip	2017/06/17 6:42	76,9 KB
 R1-1710398.zip	2017/06/17 6:42	148,5 KB
 R1-1710399.zip	2017/06/17 6:42	118,3 KB
 R1-1710400.zip	2017/06/17 6:42	255,5 KB
 R1-1710401.zip	2017/06/17 6:43	685,7 KB
 R1-1710402.zip	2017/06/17 6:43	2421,2 KB
 R1-1710403.zip	2017/06/17 6:43	365,4 KB
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 R1-1710406.zip	2017/06/17 6:43	763,3 KB
 R1-1710407.zip	2017/06/17 6:43	93,4 KB
 R1-1710408.zip	2017/06/16 14:58	139,3 KB
 R1-1710409.zip	2017/06/16 9:52	140,4 KB
 R1-1710410.zip	2017/06/16 9:52	46,8 KB
 R1-1710411.zip	2017/06/16 9:52	85 KB
 R1-1710412.zip	2017/06/17 3:17	78,4 KB
 R1-1710413.zip	2017/06/17 3:17	18,5 KB
 R1-1710414.zip	2017/06/17 3:17	31 KB
 R1-1710415.zip	2017/06/17 3:17	371,3 KB
 R1-1710416.zip	2017/06/17 3:17	55 KB
 R1-1710417.zip	2017/06/17 3:17	26,7 KB
 R1-1710418.zip	2017/06/17 3:17	35,9 KB
 R1-1710419.zip	2017/06/17 3:17	17,7 KB
 R1-1710420.zip	2017/06/17 3:17	18,2 KB
 R1-1710421.zip	2017/06/17 3:17	18,7 KB
 R1-1710422.zip	2017/06/17 3:17	94,8 KB
 R1-1710423.zip	2017/06/17 3:17	18,2 KB
 R1-1710424.zip	2017/06/17 3:17	14,4 KB
 R1-1710425.zip	2017/06/17 3:17	379,2 KB
 R1-1710426.zip	2017/06/17 3:17	116,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710429.zip	2017/06/17 3:17	27,9 KB
 R1-1710430.zip	2017/06/17 3:17	24,4 KB
 R1-1710431.zip	2017/06/17 3:17	287,8 KB
 R1-1710432.zip	2017/06/17 3:17	25,9 KB
 R1-1710433.zip	2017/06/17 3:17	38,7 KB
 R1-1710434.zip	2017/06/17 3:17	41,9 KB
 R1-1710435.zip	2017/06/17 3:17	99 KB
 R1-1710436.zip	2017/06/17 3:17	24,5 KB
 R1-1710437.zip	2017/06/17 3:17	81,5 KB
 R1-1710438.zip	2017/06/17 3:17	47,5 KB
 R1-1710439.zip	2017/06/17 3:17	25,8 KB
 R1-1710440.zip	2017/06/17 3:17	24,1 KB
 R1-1710442.zip	2017/06/17 3:17	26,6 KB
 R1-1710443.zip	2017/06/17 3:17	27,3 KB
 R1-1710444.zip	2017/06/17 3:17	63,7 KB
 R1-1710445.zip	2017/06/17 2:51	65 KB
 R1-1710446.zip	2017/06/17 2:57	378,4 KB
 R1-1710447.zip	2017/06/17 2:57	412,7 KB
 R1-1710448.zip	2017/06/17 2:57	190,7 KB
 R1-1710449.zip	2017/06/17 2:57	179,1 KB
 R1-1710450.zip	2017/06/17 2:57	70,6 KB
 R1-1710451.zip	2017/06/17 2:57	866,3 KB
 R1-1710452.zip	2017/06/17 2:57	100,8 KB
 R1-1710453.zip	2017/06/17 2:57	153,4 KB
 R1-1710454.zip	2017/06/17 2:57	83,5 KB
 R1-1710455.zip	2017/06/17 2:56	75,3 KB
 R1-1710456.zip	2017/06/17 2:56	48,6 KB
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 R1-1710458.zip	2017/06/17 2:56	32,3 KB
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 R1-1710460.zip	2017/06/17 2:56	358,9 KB
 R1-1710461.zip	2017/06/17 2:56	76,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710463.zip	2017/06/17 2:56	412,6 KB
 R1-1710464.zip	2017/06/17 2:56	71,1 KB
 R1-1710465.zip	2017/06/17 2:51	142,5 KB
 R1-1710466.zip	2017/06/17 2:57	437,9 KB
 R1-1710467.zip	2017/06/17 2:57	140,8 KB
 R1-1710468.zip	2017/06/17 2:57	163,6 KB
 R1-1710469.zip	2017/06/17 2:57	130,7 KB
 R1-1710470.zip	2017/06/20 5:17	466,1 KB
 R1-1710471.zip	2017/06/20 5:17	175,4 KB
 R1-1710472.zip	2017/06/20 5:17	295,5 KB
 R1-1710473.zip	2017/06/17 2:57	190,1 KB
 R1-1710474.zip	2017/06/17 2:57	339,8 KB
 R1-1710475.zip	2017/06/17 2:56	581,1 KB
 R1-1710476.zip	2017/06/17 2:56	106,2 KB
 R1-1710477.zip	2017/06/17 2:51	76,3 KB
 R1-1710478.zip	2017/06/17 2:51	97,2 KB
 R1-1710479.zip	2017/06/20 5:17	186,5 KB
 R1-1710480.zip	2017/06/20 7:05	72,5 KB
 R1-1710481.zip	2017/06/20 7:05	122 KB
 R1-1710482.zip	2017/06/20 7:05	78,4 KB
 R1-1710483.zip	2017/06/20 7:05	71,7 KB
 R1-1710484.zip	2017/06/20 7:05	86,3 KB
 R1-1710485.zip	2017/06/20 7:05	203,3 KB
 R1-1710486.zip	2017/06/20 7:05	76,4 KB
 R1-1710487.zip	2017/06/27 15:17	99,5 KB
 R1-1710488.zip	2017/06/27 15:17	84,3 KB
 R1-1710489.zip	2017/06/20 7:05	83,2 KB
 R1-1710490.zip	2017/06/20 7:05	1929,8 KB
 R1-1710491.zip	2017/06/20 7:05	1387,2 KB
 R1-1710493.zip	2017/06/20 7:05	419,6 KB
 R1-1710494.zip	2017/06/20 7:05	295,5 KB
 R1-1710495.zip	2017/06/20 7:05	355,9 KB
 R1-1710496.zip	2017/06/20 7:05	2079,6 KB

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 R1-1710502.zip	2017/06/17 6:15	238,5 KB
 R1-1710503.zip	2017/06/20 4:44	100,6 KB
 R1-1710504.zip	2017/06/17 10:18	64 KB
 R1-1710505.zip	2017/06/17 6:14	84,9 KB
 R1-1710506.zip	2017/06/20 4:44	340,9 KB
 R1-1710507.zip	2017/06/17 8:09	72,3 KB
 R1-1710508.zip	2017/06/17 6:14	86,7 KB
 R1-1710509.zip	2017/06/17 6:14	104 KB
 R1-1710510.zip	2017/06/17 6:14	86,7 KB
 R1-1710511.zip	2017/06/27 15:17	690,2 KB
 R1-1710512.zip	2017/06/17 6:14	98,9 KB
 R1-1710513.zip	2017/06/17 6:14	99,9 KB
 R1-1710514.zip	2017/06/17 7:10	66,9 KB
 R1-1710515.zip	2017/06/17 7:10	87,1 KB
 R1-1710516.zip	2017/06/17 6:14	65,1 KB
 R1-1710517.zip	2017/06/17 6:14	207,4 KB
 R1-1710518.zip	2017/06/17 6:14	94,5 KB
 R1-1710519.zip	2017/06/17 6:14	100,1 KB
 R1-1710520.zip	2017/06/17 6:14	93,5 KB
 R1-1710521.zip	2017/06/17 6:14	229 KB
 R1-1710522.zip	2017/06/17 6:14	104,9 KB
 R1-1710523.zip	2017/06/17 6:14	43,9 KB
 R1-1710524.zip	2017/06/17 6:14	42 KB
 R1-1710525.zip	2017/06/17 6:14	351,8 KB
 R1-1710526.zip	2017/06/17 6:14	348,2 KB
 R1-1710527.zip	2017/06/17 6:14	154,1 KB
 R1-1710528.zip	2017/06/17 6:14	120,9 KB
 R1-1710529.zip	2017/06/17 6:14	76,2 KB
 R1-1710530.zip	2017/06/17 6:14	424,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710534.zip	2017/06/17 6:14	102,7 KB
 R1-1710535.zip	2017/06/17 6:14	142,9 KB
 R1-1710536.zip	2017/06/17 6:14	195,3 KB
 R1-1710537.zip	2017/06/17 6:14	72,7 KB
 R1-1710538.zip	2017/06/17 6:14	88,7 KB
 R1-1710539.zip	2017/06/17 6:14	46,2 KB
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 R1-1710541.zip	2017/06/17 8:50	463,2 KB
 R1-1710542.zip	2017/06/17 6:14	230,8 KB
 R1-1710543.zip	2017/06/17 6:15	83 KB
 R1-1710544.zip	2017/06/17 6:15	374,1 KB
 R1-1710545.zip	2017/06/17 6:15	141 KB
 R1-1710546.zip	2017/06/17 6:15	142,6 KB
 R1-1710547.zip	2017/06/17 6:24	70,4 KB
 R1-1710548.zip	2017/06/17 6:24	124,2 KB
 R1-1710549.zip	2017/06/17 6:24	57,2 KB
 R1-1710550.zip	2017/06/17 6:15	58 KB
 R1-1710551.zip	2017/06/17 6:15	735,2 KB
 R1-1710552.zip	2017/06/17 6:15	88,6 KB
 R1-1710553.zip	2017/06/17 6:15	410,4 KB
 R1-1710554.zip	2017/06/17 6:15	61,5 KB
 R1-1710555.zip	2017/06/17 9:30	159,3 KB
 R1-1710556.zip	2017/06/17 6:15	105,2 KB
 R1-1710557.zip	2017/06/17 6:15	109,2 KB
 R1-1710558.zip	2017/06/17 6:15	81,1 KB
 R1-1710559.zip	2017/06/17 6:15	103,9 KB
 R1-1710560.zip	2017/06/17 6:15	192,4 KB
 R1-1710561.zip	2017/06/17 6:15	65,2 KB
 R1-1710562.zip	2017/06/17 6:15	116 KB
 R1-1710563.zip	2017/06/17 6:15	122 KB
 R1-1710564.zip	2017/06/17 6:15	284,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710566.zip	2017/06/17 6:24	58,7 KB
 R1-1710567.zip	2017/06/17 6:15	121,2 KB
 R1-1710568.zip	2017/06/17 6:15	126,1 KB
 R1-1710569.zip	2017/06/17 6:24	55,5 KB
 R1-1710570.zip	2017/06/17 6:15	114,3 KB
 R1-1710571.zip	2017/06/17 6:15	279,4 KB
 R1-1710572.zip	2017/06/17 6:15	114,4 KB
 R1-1710573.zip	2017/06/17 6:15	16,2 KB
 R1-1710574.zip	2017/06/17 6:15	23,7 KB
 R1-1710575.zip	2017/06/17 6:15	392,6 KB
 R1-1710576.zip	2017/06/17 6:15	460,5 KB
 R1-1710577.zip	2017/06/17 6:15	166 KB
 R1-1710578.zip	2017/06/17 6:24	203,6 KB
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 R1-1710580.zip	2017/06/17 6:24	72,2 KB
 R1-1710581.zip	2017/06/17 6:15	256,2 KB
 R1-1710582.zip	2017/06/17 6:15	201,9 KB
 R1-1710583.zip	2017/06/17 6:15	89,3 KB
 R1-1710584.zip	2017/06/17 6:15	66,6 KB
 R1-1710585.zip	2017/06/17 6:24	111,1 KB
 R1-1710586.zip	2017/06/17 6:15	144,4 KB
 R1-1710587.zip	2017/06/20 3:41	369,5 KB
 R1-1710588.zip	2017/06/16 22:04	96,2 KB
 R1-1710589.zip	2017/06/16 22:22	32,8 KB
 R1-1710590.zip	2017/06/16 22:36	32,8 KB
 R1-1710591.zip	2017/06/20 3:42	415,3 KB
 R1-1710592.zip	2017/06/16 21:25	35 KB
 R1-1710593.zip	2017/06/16 10:16	91,9 KB
 R1-1710594.zip	2017/06/16 18:49	167,1 KB
 R1-1710595.zip	2017/06/16 18:49	66 KB
 R1-1710596.zip	2017/06/16 18:49	67,5 KB
 R1-1710597.zip	2017/06/16 18:49	88,6 KB
 R1-1710598.zip	2017/06/16 18:49	161,5 KB

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 R1-1710603.zip	2017/06/16 18:49	121,1 KB
 R1-1710604.zip	2017/06/16 18:49	126,1 KB
 R1-1710605.zip	2017/06/16 18:49	64,2 KB
 R1-1710606.zip	2017/06/16 18:49	91 KB
 R1-1710607.zip	2017/06/17 6:15	44,9 KB
 R1-1710608.zip	2017/06/17 2:51	61,1 KB
 R1-1710609.zip	2017/06/17 2:51	88,7 KB
 R1-1710610.zip	2017/06/17 2:51	127,7 KB
 R1-1710611.zip	2017/06/17 2:51	136,8 KB
 R1-1710612.zip	2017/06/17 2:51	261,8 KB
 R1-1710613.zip	2017/06/17 2:51	79,5 KB
 R1-1710614.zip	2017/06/17 2:51	192 KB
 R1-1710615.zip	2017/06/17 2:51	240,7 KB
 R1-1710616.zip	2017/06/17 2:51	69,9 KB
 R1-1710617.zip	2017/06/17 2:51	82,7 KB
 R1-1710618.zip	2017/06/17 2:52	327,3 KB
 R1-1710619.zip	2017/06/17 2:52	79,9 KB
 R1-1710620.zip	2017/06/17 2:52	22,4 KB
 R1-1710621.zip	2017/06/17 2:52	239,2 KB
 R1-1710622.zip	2017/06/17 2:52	43,9 KB
 R1-1710623.zip	2017/06/16 20:00	269,4 KB
 R1-1710624.zip	2017/06/17 1:00	306,9 KB
 R1-1710625.zip	2017/06/20 4:47	110,8 KB
 R1-1710626.zip	2017/06/16 16:24	165,8 KB
 R1-1710627.zip	2017/06/16 21:00	50,3 KB
 R1-1710628.zip	2017/06/20 4:50	176,7 KB
 R1-1710629.zip	2017/06/16 20:00	100,7 KB
 R1-1710630.zip	2017/06/16 12:28	127,7 KB
 R1-1710631.zip	2017/06/16 12:28	121,3 KB
 R1-1710632.zip	2017/06/17 0:42	98,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710635.zip	2017/06/16 10:50	49,7 KB
 R1-1710636.zip	2017/06/16 10:50	438,9 KB
 R1-1710637.zip	2017/06/16 19:58	36,2 KB
 R1-1710638.zip	2017/06/16 19:58	107,2 KB
 R1-1710639.zip	2017/06/16 19:58	42,2 KB
 R1-1710640.zip	2017/06/17 1:49	57,9 KB
 R1-1710641.zip	2017/06/16 10:50	263,4 KB
 R1-1710642.zip	2017/06/16 21:22	205 KB
 R1-1710643.zip	2017/06/16 20:15	208,7 KB
 R1-1710644.zip	2017/06/16 21:22	216,2 KB
 R1-1710645.zip	2017/06/16 6:57	124,2 KB
 R1-1710646.zip	2017/06/16 6:57	154 KB
 R1-1710647.zip	2017/06/16 7:43	304,4 KB
 R1-1710648.zip	2017/06/16 7:43	1103,3 KB
 R1-1710649.zip	2017/06/16 19:59	37,9 KB
 R1-1710650.zip	2017/06/16 6:57	29,3 KB
 R1-1710651.zip	2017/06/16 19:15	149,7 KB
 R1-1710652.zip	2017/06/16 23:44	147,3 KB
 R1-1710653.zip	2017/06/16 21:31	47,2 KB
 R1-1710654.zip	2017/06/16 22:13	130,3 KB
 R1-1710655.zip	2017/06/17 1:50	210,5 KB
 R1-1710656.zip	2017/06/16 21:31	41,2 KB
 R1-1710657.zip	2017/06/16 21:31	1081,8 KB
 R1-1710658.zip	2017/06/16 21:31	724,5 KB
 R1-1710659.zip	2017/06/16 21:31	101,1 KB
 R1-1710660.zip	2017/06/16 6:57	74,7 KB
 R1-1710661.zip	2017/06/16 22:13	38,9 KB
 R1-1710662.zip	2017/06/16 22:13	38,2 KB
 R1-1710663.zip	2017/06/16 22:13	128,3 KB
 R1-1710664.zip	2017/06/16 22:13	87,1 KB
 R1-1710665.zip	2017/06/16 23:44	50,5 KB
 R1-1710666.zip	2017/06/16 0:17	270,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710668.zip	2017/06/16 6:57	56,9 KB
 R1-1710669.zip	2017/06/16 21:22	50 KB
 R1-1710670.zip	2017/06/16 20:15	148,2 KB
 R1-1710671.zip	2017/06/16 6:57	45,8 KB
 R1-1710672.zip	2017/06/16 21:22	52 KB
 R1-1710673.zip	2017/06/16 20:15	268,5 KB
 R1-1710674.zip	2017/06/16 20:15	40,5 KB
 R1-1710675.zip	2017/06/16 21:22	156,2 KB
 R1-1710676.zip	2017/06/16 6:57	258,1 KB
 R1-1710677.zip	2017/06/16 18:47	87,4 KB
 R1-1710678.zip	2017/06/16 7:44	45,5 KB
 R1-1710679.zip	2017/06/16 7:44	35 KB
 R1-1710680.zip	2017/06/16 7:44	94,9 KB
 R1-1710681.zip	2017/06/16 10:13	65,7 KB
 R1-1710682.zip	2017/06/16 7:25	34,1 KB
 R1-1710683.zip	2017/06/16 7:46	444,3 KB
 R1-1710684.zip	2017/06/16 7:46	35,6 KB
 R1-1710685.zip	2017/06/16 7:46	305,7 KB
 R1-1710686.zip	2017/06/16 7:58	412,9 KB
 R1-1710687.zip	2017/06/16 7:58	209,2 KB
 R1-1710688.zip	2017/06/16 21:31	297 KB
 R1-1710689.zip	2017/06/16 7:44	124,5 KB
 R1-1710690.zip	2017/06/16 19:58	198,3 KB
 R1-1710691.zip	2017/06/16 12:28	352,6 KB
 R1-1710692.zip	2017/06/16 12:28	95,3 KB
 R1-1710693.zip	2017/06/17 1:25	59,9 KB
 R1-1710694.zip	2017/06/16 12:28	189,6 KB
 R1-1710695.zip	2017/06/16 12:28	1100,6 KB
 R1-1710696.zip	2017/06/16 12:28	113,9 KB
 R1-1710697.zip	2017/06/17 1:25	50,5 KB
 R1-1710698.zip	2017/06/17 1:25	54,9 KB
 R1-1710699.zip	2017/06/17 1:25	49,7 KB
 R1-1710700.zip	2017/06/16 7:16	52,4 KB

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 R1-1710703.zip	2017/06/17 2:42	2281,3 KB
 R1-1710704.zip	2017/06/17 2:42	2186,2 KB
 R1-1710705.zip	2017/06/17 1:25	54,5 KB
 R1-1710706.zip	2017/06/17 1:25	54,8 KB
 R1-1710707.zip	2017/06/16 12:29	27,7 KB
 R1-1710708.zip	2017/06/17 2:42	618 KB
 R1-1710709.zip	2017/06/16 10:51	59,3 KB
 R1-1710710.zip	2017/06/17 1:25	56,9 KB
 R1-1710711.zip	2017/06/17 1:25	51,2 KB
 R1-1710712.zip	2017/06/16 7:16	50,8 KB
 R1-1710713.zip	2017/06/17 2:42	452,8 KB
 R1-1710714.zip	2017/06/17 2:42	834,2 KB
 R1-1710716.zip	2017/06/17 1:25	50,5 KB
 R1-1710717.zip	2017/06/16 23:44	59 KB
 R1-1710718.zip	2017/06/17 0:42	33,4 KB
 R1-1710719.zip	2017/06/16 10:51	48,8 KB
 R1-1710720.zip	2017/06/16 7:36	54,2 KB
 R1-1710721.zip	2017/06/16 7:39	54,7 KB
 R1-1710722.zip	2017/06/16 7:39	56,1 KB
 R1-1710723.zip	2017/06/16 7:39	54,4 KB
 R1-1710724.zip	2017/06/16 10:50	77,8 KB
 R1-1710725.zip	2017/06/16 7:36	67,8 KB
 R1-1710726.zip	2017/06/16 10:51	275 KB
 R1-1710727.zip	2017/06/16 10:51	169,8 KB
 R1-1710728.zip	2017/06/16 10:50	51,1 KB
 R1-1710729.zip	2017/06/16 10:51	167,5 KB
 R1-1710730.zip	2017/06/16 7:36	50,2 KB
 R1-1710731.zip	2017/06/17 1:25	49,8 KB
 R1-1710732.zip	2017/06/16 7:16	92,8 KB
 R1-1710733.zip	2017/06/16 12:29	99,6 KB
 R1-1710734.zip	2017/06/16 7:16	52,4 KB
 R1-1710735.zip	2017/06/16 7:39	101,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710737.zip	2017/06/16 6:51	89,2 KB
 R1-1710738.zip	2017/06/16 6:51	107,8 KB
 R1-1710739.zip	2017/06/17 1:25	178,7 KB
 R1-1710740.zip	2017/06/17 1:25	49,9 KB
 R1-1710741.zip	2017/06/17 1:25	49,8 KB
 R1-1710742.zip	2017/06/19 10:54	93,7 KB
 R1-1710743.zip	2017/06/19 10:54	80,5 KB
 R1-1710744.zip	2017/06/20 6:35	276,4 KB
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 R1-1710749.zip	2017/06/20 6:36	1888,7 KB
 R1-1710750.zip	2017/06/20 6:36	331,8 KB
 R1-1710751.zip	2017/06/20 6:36	283,8 KB
 R1-1710752.zip	2017/06/20 6:36	166 KB
 R1-1710753.zip	2017/06/17 1:58	19 KB
 R1-1710754.zip	2017/06/16 22:13	100,3 KB
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 R1-1710756.zip	2017/06/16 22:13	74,6 KB
 R1-1710757.zip	2017/06/16 7:53	457,7 KB
 R1-1710758.zip	2017/06/16 7:53	307,7 KB
 R1-1710759.zip	2017/06/16 19:15	132,5 KB
 R1-1710760.zip	2017/06/16 8:09	27,7 KB
 R1-1710761.zip	2017/06/16 12:28	248 KB
 R1-1710762.zip	2017/06/16 12:29	56,6 KB
 R1-1710763.zip	2017/06/16 9:36	447,9 KB
 R1-1710764.zip	2017/06/22 3:09	51,8 KB
 R1-1710765.zip	2017/06/17 2:42	39 KB
 R1-1710766.zip	2017/06/16 10:50	345,7 KB
 R1-1710767.zip	2017/06/17 2:42	16,2 KB
 R1-1710768.zip	2017/06/17 1:58	451,6 KB
 R1-1710769.zip	2017/06/16 13:47	29,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710772.zip	2017/06/16 9:22	68,2 KB
 R1-1710773.zip	2017/06/17 2:38	701,7 KB
 R1-1710774.zip	2017/06/17 2:38	55,1 KB
 R1-1710776.zip	2017/06/17 2:38	275,2 KB
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 R1-1710778.zip	2017/06/17 2:38	474,6 KB
 R1-1710779.zip	2017/06/17 2:38	41,2 KB
 R1-1710780.zip	2017/06/17 2:38	107,7 KB
 R1-1710781.zip	2017/06/17 2:38	38,1 KB
 R1-1710782.zip	2017/06/17 2:38	75,1 KB
 R1-1710783.zip	2017/06/17 2:38	354,6 KB
 R1-1710784.zip	2017/06/17 2:38	194,2 KB
 R1-1710785.zip	2017/06/17 2:38	125,3 KB
 R1-1710786.zip	2017/06/17 2:39	45,2 KB
 R1-1710787.zip	2017/06/15 9:57	88,9 KB
 R1-1710788.zip	2017/06/17 5:15	386,3 KB
 R1-1710789.zip	2017/06/17 5:15	1315,4 KB
 R1-1710790.zip	2017/06/17 5:15	51,4 KB
 R1-1710791.zip	2017/06/17 5:15	228,4 KB
 R1-1710792.zip	2017/06/17 5:15	61,2 KB
 R1-1710793.zip	2017/06/17 5:15	65,3 KB
 R1-1710794.zip	2017/06/17 5:15	17,2 KB
 R1-1710795.zip	2017/06/17 5:15	44,4 KB
 R1-1710796.zip	2017/06/17 5:15	78,7 KB
 R1-1710797.zip	2017/06/17 5:15	36,1 KB
 R1-1710798.zip	2017/06/20 6:01	48,4 KB
 R1-1710799.zip	2017/06/17 5:15	50,9 KB
 R1-1710800.zip	2017/06/20 6:02	234,3 KB
 R1-1710801.zip	2017/06/17 5:47	34,4 KB
 R1-1710802.zip	2017/06/17 5:15	88,1 KB
 R1-1710803.zip	2017/06/20 6:01	580,6 KB
 R1-1710804.zip	2017/06/17 5:15	33,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710808.zip	2017/06/17 5:15	172 KB
 R1-1710809.zip	2017/06/17 5:15	439,1 KB
 R1-1710810.zip	2017/06/17 5:15	166,7 KB
 R1-1710811.zip	2017/06/17 5:15	114,3 KB
 R1-1710812.zip	2017/06/17 5:15	51,8 KB
 R1-1710813.zip	2017/06/17 5:15	69,6 KB
 R1-1710814.zip	2017/06/23 20:31	17,5 KB
 R1-1710815.zip	2017/06/17 5:15	253,8 KB
 R1-1710816.zip	2017/06/17 5:15	105,2 KB
 R1-1710817.zip	2017/06/23 20:31	26,7 KB
 R1-1710818.zip	2017/06/17 5:15	417,4 KB
 R1-1710819.zip	2017/06/17 5:16	1586,8 KB
 R1-1710820.zip	2017/06/17 5:16	595,6 KB
 R1-1710821.zip	2017/06/17 5:16	372,9 KB
 R1-1710822.zip	2017/06/17 5:16	224,4 KB
 R1-1710823.zip	2017/06/17 5:16	198,5 KB
 R1-1710824.zip	2017/06/17 5:16	495,2 KB
 R1-1710825.zip	2017/06/20 6:01	1529,6 KB
 R1-1710826.zip	2017/06/20 6:01	675 KB
 R1-1710827.zip	2017/06/20 6:00	2479,9 KB
 R1-1710828.zip	2017/06/20 5:59	207,5 KB
 R1-1710829.zip	2017/06/20 5:59	136,7 KB
 R1-1710830.zip	2017/06/17 5:16	339,6 KB
 R1-1710831.zip	2017/06/17 5:16	152,9 KB
 R1-1710832.zip	2017/06/17 5:17	1743 KB
 R1-1710833.zip	2017/06/17 5:17	122,5 KB
 R1-1710834.zip	2017/06/17 5:17	116,9 KB
 R1-1710835.zip	2017/06/17 5:17	324,3 KB
 R1-1710836.zip	2017/06/17 5:17	107,7 KB
 R1-1710837.zip	2017/06/17 5:17	438,3 KB
 R1-1710838.zip	2017/06/17 5:17	100,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710843.zip	2017/06/16 21:38	330,2 KB
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 R1-1710845.zip	2017/06/20 6:34	338,5 KB
 R1-1710846.zip	2017/06/20 6:35	210,3 KB
 R1-1710847.zip	2017/06/20 6:36	337,9 KB
 R1-1710848.zip	2017/06/20 6:36	290,5 KB
 R1-1710849.zip	2017/06/20 6:37	429,8 KB
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 R1-1710851.zip	2017/06/16 16:57	117,4 KB
 R1-1710852.zip	2017/06/16 16:57	29,1 KB
 R1-1710853.zip	2017/06/16 16:57	65,8 KB
 R1-1710854.zip	2017/06/16 16:57	95,2 KB
 R1-1710855.zip	2017/06/16 16:57	44 KB
 R1-1710856.zip	2017/06/16 16:57	17,3 KB
 R1-1710857.zip	2017/06/16 16:57	16,8 KB
 R1-1710858.zip	2017/06/19 20:01	110,4 KB
 R1-1710859.zip	2017/06/19 20:01	205,4 KB
 R1-1710860.zip	2017/06/16 16:57	89,4 KB
 R1-1710861.zip	2017/06/16 16:57	46,5 KB
 R1-1710862.zip	2017/06/16 16:57	67,1 KB
 R1-1710863.zip	2017/06/16 16:57	37,4 KB
 R1-1710864.zip	2017/06/16 16:57	37,6 KB
 R1-1710865.zip	2017/06/16 16:57	139,1 KB
 R1-1710866.zip	2017/06/16 16:57	46,4 KB
 R1-1710867.zip	2017/06/16 16:57	18,5 KB
 R1-1710870.zip	2017/06/16 20:54	36 KB
 R1-1710871.zip	2017/06/16 20:54	295,2 KB
 R1-1710872.zip	2017/06/16 20:54	110,2 KB
 R1-1710873.zip	2017/06/16 20:54	31,1 KB
 R1-1710874.zip	2017/06/16 20:54	985 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710877.zip	2017/06/16 20:54	42,6 KB
 R1-1710878.zip	2017/06/16 20:54	35,8 KB
 R1-1710879.zip	2017/06/16 20:54	122,6 KB
 R1-1710880.zip	2017/06/16 21:30	42,7 KB
 R1-1710881.zip	2017/06/16 21:30	38,1 KB
 R1-1710882.zip	2017/06/16 21:30	55,1 KB
 R1-1710883.zip	2017/06/16 16:34	127,9 KB
 R1-1710884.zip	2017/06/16 16:34	163,6 KB
 R1-1710885.zip	2017/06/16 16:34	77,8 KB
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 R1-1710887.zip	2017/06/17 6:15	58,2 KB
 R1-1710889.zip	2017/06/16 21:12	386,2 KB
 R1-1710890.zip	2017/06/16 21:12	185,1 KB
 R1-1710891.zip	2017/06/16 21:12	50 KB
 R1-1710892.zip	2017/06/16 21:12	105,4 KB
 R1-1710893.zip	2017/06/16 21:23	57,7 KB
 R1-1710894.zip	2017/06/16 21:23	175,8 KB
 R1-1710895.zip	2017/06/16 21:23	59,5 KB
 R1-1710896.zip	2017/06/16 21:23	78,8 KB
 R1-1710897.zip	2017/06/16 21:23	43,1 KB
 R1-1710898.zip	2017/06/16 21:23	42,4 KB
 R1-1710899.zip	2017/06/16 21:23	62,7 KB
 R1-1710900.zip	2017/06/16 21:23	90,2 KB
 R1-1710901.zip	2017/06/16 21:23	35,4 KB
 R1-1710902.zip	2017/06/16 21:23	39,1 KB
 R1-1710903.zip	2017/06/17 5:46	262,4 KB
 R1-1710904.zip	2017/06/17 4:13	342,9 KB
 R1-1710905.zip	2017/06/17 4:14	237 KB
 R1-1710906.zip	2017/06/17 4:13	30,7 KB
 R1-1710907.zip	2017/06/17 4:13	74,3 KB
 R1-1710908.zip	2017/06/17 4:13	28,7 KB
 R1-1710909.zip	2017/06/17 2:55	142,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710912.zip	2017/06/16 21:30	58,9 KB
 R1-1710913.zip	2017/06/17 2:41	242,7 KB
 R1-1710914.zip	2017/06/17 2:41	303,2 KB
 R1-1710915.zip	2017/06/20 4:20	61 KB
 R1-1710916.zip	2017/06/17 2:41	144,2 KB
 R1-1710917.zip	2017/06/20 4:20	452,1 KB
 R1-1710918.zip	2017/06/17 2:41	685,6 KB
 R1-1710919.zip	2017/06/17 2:41	122,5 KB
 R1-1710920.zip	2017/06/16 23:50	147,2 KB
 R1-1710921.zip	2017/06/16 23:50	151,1 KB
 R1-1710922.zip	2017/06/16 23:50	93,6 KB
 R1-1710923.zip	2017/06/16 23:50	126,2 KB
 R1-1710924.zip	2017/06/16 23:50	493,6 KB
 R1-1710925.zip	2017/06/16 23:50	75,2 KB
 R1-1710926.zip	2017/06/16 23:50	83,1 KB
 R1-1710927.zip	2017/06/16 23:50	30,5 KB
 R1-1710928.zip	2017/06/16 23:51	30,6 KB
 R1-1710929.zip	2017/06/16 10:01	124,9 KB
 R1-1710930.zip	2017/06/16 10:01	140,9 KB
 R1-1710931.zip	2017/06/16 23:51	1206,7 KB
 R1-1710932.zip	2017/06/16 10:01	97,6 KB
 R1-1710933.zip	2017/06/16 23:51	87,2 KB
 R1-1710934.zip	2017/06/16 10:01	64,6 KB
 R1-1710935.zip	2017/06/16 10:01	89,9 KB
 R1-1710936.zip	2017/06/16 23:51	292,8 KB
 R1-1710937.zip	2017/06/16 10:01	67,6 KB
 R1-1710938.zip	2017/06/16 23:51	52,9 KB
 R1-1710939.zip	2017/06/16 10:01	60,6 KB
 R1-1710940.zip	2017/06/16 10:01	64 KB
 R1-1710941.zip	2017/06/16 23:51	53,5 KB
 R1-1710942.zip	2017/06/16 10:01	67,4 KB
 R1-1710943.zip	2017/06/16 10:01	108,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710945.zip	2017/06/16 23:51	75,1 KB
 R1-1710946.zip	2017/06/16 23:51	74,3 KB
 R1-1710947.zip	2017/06/16 23:51	53,6 KB
 R1-1710948.zip	2017/06/16 23:51	50,1 KB
 R1-1710949.zip	2017/06/16 23:51	177,5 KB
 R1-1710950.zip	2017/06/17 5:36	460,8 KB
 R1-1710951.zip	2017/06/16 23:52	127,3 KB
 R1-1710952.zip	2017/06/16 23:52	137,8 KB
 R1-1710953.zip	2017/06/16 23:52	136,5 KB
 R1-1710954.zip	2017/06/16 23:52	55,9 KB
 R1-1710955.zip	2017/06/16 23:52	51,2 KB
 R1-1710956.zip	2017/06/16 23:52	122,8 KB
 R1-1710957.zip	2017/06/16 23:52	50,3 KB
 R1-1710958.zip	2017/06/16 23:52	98,8 KB
 R1-1710959.zip	2017/06/16 23:52	406,2 KB
 R1-1710960.zip	2017/06/16 23:52	263 KB
 R1-1710961.zip	2017/06/16 23:52	713 KB
 R1-1710962.zip	2017/06/16 23:52	328,4 KB
 R1-1710963.zip	2017/06/16 6:28	56,7 KB
 R1-1710964.zip	2017/06/16 6:28	28,9 KB
 R1-1710965.zip	2017/06/16 6:28	29,2 KB
 R1-1710966.zip	2017/06/16 2:14	72,6 KB
 R1-1710967.zip	2017/06/16 9:27	40,1 KB
 R1-1710968.zip	2017/06/28 13:45	131,9 KB
 R1-1710969.zip	2017/06/16 8:11	57,1 KB
 R1-1710970.zip	2017/06/16 8:11	23,7 KB
 R1-1710971.zip	2017/06/16 8:11	51,7 KB
 R1-1710972.zip	2017/06/16 8:11	294,1 KB
 R1-1710973.zip	2017/06/16 8:52	1060,3 KB
 R1-1710974.zip	2017/06/16 8:52	106,8 KB
 R1-1710975.zip	2017/06/16 8:52	723,7 KB
 R1-1710976.zip	2017/06/17 2:39	55,9 KB
 R1-1710977.zip	2017/06/17 2:39	223 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1710979.zip	2017/06/17 3:28	55,3 KB
 R1-1710980.zip	2017/06/17 3:28	70,6 KB
 R1-1710981.zip	2017/06/17 3:28	50,2 KB
 R1-1710982.zip	2017/06/17 3:28	83,8 KB
 R1-1710983.zip	2017/06/17 3:28	47,8 KB
 R1-1710984.zip	2017/06/17 3:28	34,7 KB
 R1-1710985.zip	2017/06/17 3:28	35,5 KB
 R1-1710986.zip	2017/06/17 3:28	37,9 KB
 R1-1710987.zip	2017/06/17 3:28	48,7 KB
 R1-1710988.zip	2017/06/17 3:28	59,8 KB
 R1-1710989.zip	2017/06/17 3:28	47,3 KB
 R1-1710990.zip	2017/06/17 3:28	102,6 KB
 R1-1710991.zip	2017/06/17 3:28	41,8 KB
 R1-1710992.zip	2017/06/17 3:28	44,6 KB
 R1-1710993.zip	2017/06/17 3:28	36,1 KB
 R1-1710994.zip	2017/06/17 3:28	122,1 KB
 R1-1710995.zip	2017/06/17 3:28	175,3 KB
 R1-1710996.zip	2017/06/17 3:28	39,1 KB
 R1-1710997.zip	2017/06/17 3:28	42,7 KB
 R1-1710998.zip	2017/06/17 3:28	93,1 KB
 R1-1710999.zip	2017/06/17 3:28	64,7 KB
 R1-1711000.zip	2017/06/17 3:28	45,9 KB
 R1-1711001.zip	2017/06/17 3:28	39,5 KB
 R1-1711002.zip	2017/06/17 3:28	36,1 KB
 R1-1711003.zip	2017/06/17 3:28	62,5 KB
 R1-1711004.zip	2017/06/17 3:28	106,8 KB
 R1-1711005.zip	2017/06/17 4:36	90,8 KB
 R1-1711006.zip	2017/06/16 20:22	27,4 KB
 R1-1711007.zip	2017/06/17 5:26	123,6 KB
 R1-1711008.zip	2017/06/17 5:26	209,7 KB
 R1-1711009.zip	2017/06/17 5:26	89 KB
 R1-1711010.zip	2017/06/17 5:26	97,1 KB
 R1-1711011.zip	2017/06/17 5:26	256,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711013.zip	2017/06/17 5:26	33,2 KB
 R1-1711014.zip	2017/06/17 5:26	38 KB
 R1-1711015.zip	2017/06/17 5:26	225,5 KB
 R1-1711016.zip	2017/06/17 5:26	66,4 KB
 R1-1711017.zip	2017/06/17 5:26	437,8 KB
 R1-1711018.zip	2017/06/17 5:26	49,7 KB
 R1-1711019.zip	2017/06/17 5:26	127,9 KB
 R1-1711020.zip	2017/06/17 5:26	113,2 KB
 R1-1711021.zip	2017/06/17 5:26	407,5 KB
 R1-1711022.zip	2017/06/17 5:26	49,2 KB
 R1-1711023.zip	2017/06/17 5:26	238,5 KB
 R1-1711024.zip	2017/06/17 5:26	150,7 KB
 R1-1711025.zip	2017/06/17 5:26	68 KB
 R1-1711026.zip	2017/06/17 5:26	41,4 KB
 R1-1711027.zip	2017/06/17 5:26	63 KB
 R1-1711028.zip	2017/06/17 5:26	61,3 KB
 R1-1711029.zip	2017/06/17 5:26	45,3 KB
 R1-1711030.zip	2017/06/17 5:26	35,9 KB
 R1-1711031.zip	2017/06/17 5:26	91,3 KB
 R1-1711032.zip	2017/06/17 5:26	105,1 KB
 R1-1711033.zip	2017/06/17 5:26	107,2 KB
 R1-1711034.zip	2017/06/17 5:26	552,1 KB
 R1-1711035.zip	2017/06/17 5:26	196,7 KB
 R1-1711036.zip	2017/06/17 5:26	68,7 KB
 R1-1711037.zip	2017/06/17 5:26	88,7 KB
 R1-1711038.zip	2017/06/17 5:26	42,8 KB
 R1-1711039.zip	2017/06/17 5:26	114,7 KB
 R1-1711040.zip	2017/06/17 5:26	35,4 KB
 R1-1711041.zip	2017/06/17 5:56	123,7 KB
 R1-1711042.zip	2017/06/17 5:26	399,1 KB
 R1-1711043.zip	2017/06/17 5:26	276,5 KB
 R1-1711044.zip	2017/06/17 5:26	751,3 KB
 R1-1711045.zip	2017/06/17 5:26	133,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711049.zip	2017/06/17 5:26	302,4 KB
 R1-1711050.zip	2017/06/17 5:26	4441,6 KB
 R1-1711051.zip	2017/06/17 5:26	639,5 KB
 R1-1711052.zip	2017/06/17 5:26	93,7 KB
 R1-1711053.zip	2017/06/17 5:26	271,3 KB
 R1-1711054.zip	2017/06/17 5:26	53,3 KB
 R1-1711055.zip	2017/06/17 4:13	61,5 KB
 R1-1711056.zip	2017/06/17 3:26	73,1 KB
 R1-1711057.zip	2017/06/17 3:26	73,6 KB
 R1-1711058.zip	2017/06/20 5:34	102,9 KB
 R1-1711059.zip	2017/06/17 3:26	141 KB
 R1-1711060.zip	2017/06/17 3:26	56,4 KB
 R1-1711061.zip	2017/06/20 5:34	144,1 KB
 R1-1711062.zip	2017/06/17 3:26	87 KB
 R1-1711063.zip	2017/06/17 3:26	103,6 KB
 R1-1711064.zip	2017/06/17 3:26	189,5 KB
 R1-1711065.zip	2017/06/17 3:27	145,2 KB
 R1-1711066.zip	2017/06/17 3:27	107 KB
 R1-1711067.zip	2017/06/17 3:27	47,5 KB
 R1-1711068.zip	2017/06/17 3:27	68,1 KB
 R1-1711069.zip	2017/06/17 3:27	34 KB
 R1-1711070.zip	2017/06/17 3:27	36,7 KB
 R1-1711071.zip	2017/06/17 3:27	70 KB
 R1-1711072.zip	2017/06/17 5:25	110,2 KB
 R1-1711073.zip	2017/06/17 3:27	94,3 KB
 R1-1711074.zip	2017/06/17 3:27	115 KB
 R1-1711075.zip	2017/06/17 5:25	250,5 KB
 R1-1711076.zip	2017/06/17 5:25	307,7 KB
 R1-1711077.zip	2017/06/17 5:25	486,2 KB
 R1-1711078.zip	2017/06/17 5:25	749,2 KB
 R1-1711079.zip	2017/06/17 5:25	135,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711082.zip	2017/06/17 5:25	79,3 KB
 R1-1711083.zip	2017/06/17 5:25	75,1 KB
 R1-1711084.zip	2017/06/16 16:33	1005 KB
 R1-1711085.zip	2017/06/16 16:33	130,5 KB
 R1-1711086.zip	2017/06/16 16:33	82 KB
 R1-1711087.zip	2017/06/17 5:25	83,8 KB
 R1-1711088.zip	2017/06/17 4:13	148,2 KB
 R1-1711089.zip	2017/06/17 4:13	142,5 KB
 R1-1711090.zip	2017/06/17 4:13	64,7 KB
 R1-1711091.zip	2017/06/17 4:13	94,7 KB
 R1-1711092.zip	2017/06/17 4:13	78,8 KB
 R1-1711093.zip	2017/06/17 4:13	140,2 KB
 R1-1711094.zip	2017/06/17 4:13	73,8 KB
 R1-1711095.zip	2017/06/17 4:13	94,2 KB
 R1-1711096.zip	2017/06/17 4:13	82 KB
 R1-1711097.zip	2017/06/17 4:13	64,9 KB
 R1-1711098.zip	2017/06/17 4:13	1039,7 KB
 R1-1711099.zip	2017/06/17 4:13	541,2 KB
 R1-1711100.zip	2017/06/17 4:13	144,2 KB
 R1-1711101.zip	2017/06/17 4:13	102,1 KB
 R1-1711102.zip	2017/06/17 4:13	66 KB
 R1-1711103.zip	2017/06/17 4:13	73,3 KB
 R1-1711104.zip	2017/06/17 4:13	98,6 KB
 R1-1711105.zip	2017/06/17 4:13	99,1 KB
 R1-1711106.zip	2017/06/17 4:13	60,4 KB
 R1-1711107.zip	2017/06/17 4:13	69,6 KB
 R1-1711108.zip	2017/06/17 4:13	138,9 KB
 R1-1711109.zip	2017/06/17 4:13	56,2 KB
 R1-1711110.zip	2017/06/17 4:13	213,2 KB
 R1-1711111.zip	2017/06/17 4:13	82,3 KB
 R1-1711112.zip	2017/06/17 4:13	111,3 KB
 R1-1711113.zip	2017/06/17 4:13	70,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-171115.zip	2017/06/17 4:13	71,9 KB
 R1-171116.zip	2017/06/17 4:13	77,1 KB
 R1-171117.zip	2017/06/17 4:13	120,1 KB
 R1-171118.zip	2017/06/17 4:13	60 KB
 R1-171119.zip	2017/06/17 4:13	60,6 KB
 R1-171120.zip	2017/06/17 4:13	90,8 KB
 R1-171121.zip	2017/06/17 4:13	60,9 KB
 R1-171122.zip	2017/06/17 4:13	59 KB
 R1-171123.zip	2017/06/17 4:13	60,2 KB
 R1-171124.zip	2017/06/20 3:00	407,9 KB
 R1-171125.zip	2017/06/20 3:00	633 KB
 R1-171126.zip	2017/06/20 3:00	376,7 KB
 R1-171127.zip	2017/06/20 3:00	415,4 KB
 R1-171128.zip	2017/06/20 3:00	563,4 KB
 R1-171129.zip	2017/06/17 4:13	183,9 KB
 R1-171130.zip	2017/06/17 4:13	40,1 KB
 R1-171131.zip	2017/06/16 16:33	163 KB
 R1-171132.zip	2017/06/16 10:05	199,5 KB
 R1-171133.zip	2017/06/17 3:27	80,8 KB
 R1-171134.zip	2017/06/17 3:27	54,8 KB
 R1-171135.zip	2017/06/17 6:58	166,6 KB
 R1-171136.zip	2017/06/17 6:58	147,3 KB
 R1-171137.zip	2017/06/20 4:56	3038,1 KB
 R1-171138.zip	2017/06/17 6:58	100,4 KB
 R1-171139.zip	2017/06/17 6:58	69,7 KB
 R1-171140.zip	2017/06/20 4:56	212 KB
 R1-171141.zip	2017/06/17 6:58	104,2 KB
 R1-171142.zip	2017/06/17 6:58	97,1 KB
 R1-171143.zip	2017/06/17 6:58	53,2 KB
 R1-171144.zip	2017/06/17 6:58	89 KB
 R1-171145.zip	2017/06/17 6:58	109,3 KB
 R1-171146.zip	2017/06/17 6:58	177,6 KB
 R1-171147.zip	2017/06/17 6:58	43,6 KB

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 R1-1711150.zip	2017/06/17 6:58	20,6 KB
 R1-1711151.zip	2017/06/17 7:04	78,5 KB
 R1-1711152.zip	2017/06/17 5:16	1813,8 KB
 R1-1711153.zip	2017/06/17 5:58	70,3 KB
 R1-1711154.zip	2017/06/17 5:59	65,1 KB
 R1-1711155.zip	2017/06/17 5:32	202,1 KB
 R1-1711156.zip	2017/06/17 5:16	614,1 KB
 R1-1711157.zip	2017/06/17 5:16	112,8 KB
 R1-1711158.zip	2017/06/17 6:01	121,9 KB
 R1-1711159.zip	2017/06/17 6:02	24,6 KB
 R1-1711160.zip	2017/06/17 5:16	262,8 KB
 R1-1711161.zip	2017/06/17 5:16	51,8 KB
 R1-1711162.zip	2017/06/17 6:05	125,3 KB
 R1-1711163.zip	2017/06/17 6:05	92,8 KB
 R1-1711164.zip	2017/06/17 5:50	108,3 KB
 R1-1711165.zip	2017/06/17 5:51	167 KB
 R1-1711166.zip	2017/06/17 5:52	66,5 KB
 R1-1711167.zip	2017/06/17 5:16	287,2 KB
 R1-1711168.zip	2017/06/17 5:54	466,8 KB
 R1-1711169.zip	2017/06/17 5:32	238,4 KB
 R1-1711170.zip	2017/06/17 5:16	342,2 KB
 R1-1711171.zip	2017/06/17 5:16	714,1 KB
 R1-1711172.zip	2017/06/17 5:16	2079,2 KB
 R1-1711173.zip	2017/06/17 5:16	382,8 KB
 R1-1711174.zip	2017/06/17 5:16	115,7 KB
 R1-1711175.zip	2017/06/17 6:09	1140,6 KB
 R1-1711176.zip	2017/06/17 6:09	90,9 KB
 R1-1711177.zip	2017/06/17 6:48	1707,4 KB
 R1-1711178.zip	2017/06/17 6:48	654,5 KB
 R1-1711179.zip	2017/06/17 6:48	57,4 KB
 R1-1711180.zip	2017/06/17 6:48	341,2 KB
 R1-1711182.zip	2017/06/17 6:48	65,9 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711184.zip	2017/06/17 6:48	201,9 KB
 R1-1711185.zip	2017/06/17 6:48	67,2 KB
 R1-1711186.zip	2017/06/17 6:40	512,9 KB
 R1-1711187.zip	2017/06/17 6:40	337 KB
 R1-1711188.zip	2017/06/17 5:16	189,1 KB
 R1-1711189.zip	2017/06/17 5:32	171,1 KB
 R1-1711190.zip	2017/06/17 5:16	312,3 KB
 R1-1711191.zip	2017/06/17 6:37	115,3 KB
 R1-1711192.zip	2017/06/17 5:16	135,9 KB
 R1-1711193.zip	2017/06/17 5:34	258,1 KB
 R1-1711194.zip	2017/06/17 5:16	71,5 KB
 R1-1711195.zip	2017/06/17 5:16	80,3 KB
 R1-1711196.zip	2017/06/17 5:38	541,9 KB
 R1-1711197.zip	2017/06/17 5:16	248,6 KB
 R1-1711198.zip	2017/06/17 5:16	93,1 KB
 R1-1711199.zip	2017/06/17 5:16	51,1 KB
 R1-1711200.zip	2017/06/17 5:16	282,4 KB
 R1-1711201.zip	2017/06/17 5:16	68,2 KB
 R1-1711202.zip	2017/06/18 23:49	110,7 KB
 R1-1711203.zip	2017/06/18 23:49	128,3 KB
 R1-1711204.zip	2017/06/18 23:49	89,9 KB
 R1-1711205.zip	2017/06/17 5:17	688,5 KB
 R1-1711206.zip	2017/06/18 23:50	220,8 KB
 R1-1711207.zip	2017/06/17 6:12	221,8 KB
 R1-1711208.zip	2017/06/17 5:17	63,8 KB
 R1-1711209.zip	2017/06/23 20:31	67,8 KB
 R1-1711210.zip	2017/06/20 5:19	120,2 KB
 R1-1711211.zip	2017/06/20 5:19	147,1 KB
 R1-1711212.zip	2017/06/20 5:19	149,9 KB
 R1-1711213.zip	2017/06/20 5:19	1007 KB
 R1-1711214.zip	2017/06/20 6:50	234,8 KB
 R1-1711215.zip	2017/06/20 6:50	790 KB
 R1-1711216.zip	2017/06/20 6:50	100,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711218.zip	2017/06/20 6:50	567,9 KB
 R1-1711219.zip	2017/06/20 6:25	282,6 KB
 R1-1711220.zip	2017/06/20 6:25	291,3 KB
 R1-1711221.zip	2017/06/20 6:25	162,3 KB
 R1-1711222.zip	2017/06/20 6:25	665,8 KB
 R1-1711223.zip	2017/06/20 5:24	158,9 KB
 R1-1711224.zip	2017/06/18 23:49	151,5 KB
 R1-1711225.zip	2017/06/17 6:20	64,4 KB
 R1-1711226.zip	2017/06/17 6:20	297,9 KB
 R1-1711227.zip	2017/06/17 6:20	139,4 KB
 R1-1711228.zip	2017/06/17 6:20	232,8 KB
 R1-1711229.zip	2017/06/17 6:20	111,6 KB
 R1-1711230.zip	2017/06/17 5:17	143,5 KB
 R1-1711232.zip	2017/06/17 1:26	63,7 KB
 R1-1711233.zip	2017/06/17 1:26	47,3 KB
 R1-1711234.zip	2017/06/17 1:26	63,8 KB
 R1-1711235.zip	2017/06/17 1:26	61,1 KB
 R1-1711236.zip	2017/06/17 1:26	248,4 KB
 R1-1711237.zip	2017/06/17 1:26	58,8 KB
 R1-1711238.zip	2017/06/17 1:26	63,1 KB
 R1-1711239.zip	2017/06/17 1:26	59,1 KB
 R1-1711240.zip	2017/06/17 1:26	66,5 KB
 R1-1711241.zip	2017/06/17 1:26	64,6 KB
 R1-1711242.zip	2017/06/17 1:26	69,8 KB
 R1-1711243.zip	2017/06/17 1:26	71 KB
 R1-1711244.zip	2017/06/17 1:26	69,4 KB
 R1-1711245.zip	2017/06/17 1:26	430,7 KB
 R1-1711246.zip	2017/06/17 5:17	517 KB
 R1-1711247.zip	2017/06/23 20:31	242,4 KB
 R1-1711251.zip	2017/06/17 5:24	76,1 KB
 R1-1711252.zip	2017/06/17 5:25	97,1 KB
 R1-1711253.zip	2017/06/16 11:03	55,4 KB
 R1-1711254.zip	2017/06/16 12:14	181,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711256.zip	2017/06/17 3:37	86,4 KB
 R1-1711257.zip	2017/06/17 1:28	52,7 KB
 R1-1711258.zip	2017/06/17 1:28	36,1 KB
 R1-1711259.zip	2017/06/17 1:28	34,7 KB
 R1-1711260.zip	2017/06/16 18:12	125,4 KB
 R1-1711261.zip	2017/06/16 18:12	407,9 KB
 R1-1711262.zip	2017/06/16 18:13	95,8 KB
 R1-1711263.zip	2017/06/16 18:13	129,1 KB
 R1-1711264.zip	2017/06/16 18:13	199,1 KB
 R1-1711265.zip	2017/06/16 18:13	107 KB
 R1-1711266.zip	2017/06/16 18:13	60,5 KB
 R1-1711267.zip	2017/06/16 18:12	62,9 KB
 R1-1711268.zip	2017/06/16 18:12	51,9 KB
 R1-1711269.zip	2017/06/16 18:12	40,7 KB
 R1-1711270.zip	2017/06/16 21:18	284,6 KB
 R1-1711271.zip	2017/06/16 18:12	87,7 KB
 R1-1711272.zip	2017/06/16 10:58	69,9 KB
 R1-1711273.zip	2017/06/16 10:59	180,1 KB
 R1-1711274.zip	2017/06/18 3:18	95,1 KB
 R1-1711275.zip	2017/06/17 6:12	385,6 KB
 R1-1711276.zip	2017/06/20 6:28	62,8 KB
 R1-1711277.zip	2017/06/19 3:12	30,2 KB
 R1-1711278.zip	2017/06/20 6:28	75,1 KB
 R1-1711279.zip	2017/06/17 5:58	77,1 KB
 R1-1711280.zip	2017/06/19 6:24	18 KB
 R1-1711281.zip	2017/06/19 3:12	25,4 KB
 R1-1711282.zip	2017/06/26 9:06	474 KB
 R1-1711283.zip	2017/06/19 3:12	67,1 KB
 R1-1711284.zip	2017/06/16 21:14	846,7 KB
 R1-1711285.zip	2017/06/16 21:15	112,9 KB
 R1-1711286.zip	2017/06/16 21:15	36,1 KB
 R1-1711287.zip	2017/06/16 21:14	38,9 KB
 R1-1711288.zip	2017/06/16 21:14	152,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711291.zip	2017/06/16 21:14	263,7 KB
 R1-1711292.zip	2017/06/16 21:14	332,8 KB
 R1-1711293.zip	2017/06/17 5:30	137,1 KB
 R1-1711294.zip	2017/06/16 21:13	154 KB
 R1-1711295.zip	2017/06/16 21:15	99,9 KB
 R1-1711296.zip	2017/06/16 21:15	152,1 KB
 R1-1711297.zip	2017/06/16 21:15	147,4 KB
 R1-1711298.zip	2017/06/16 21:15	38,9 KB
 R1-1711299.zip	2017/06/16 21:15	435,7 KB
 R1-1711300.zip	2017/06/16 21:15	38,7 KB
 R1-1711301.zip	2017/06/16 21:15	46,2 KB
 R1-1711302.zip	2017/06/17 5:31	132,5 KB
 R1-1711303.zip	2017/06/16 21:15	46,1 KB
 R1-1711304.zip	2017/06/16 21:16	489,3 KB
 R1-1711305.zip	2017/06/16 21:16	150,6 KB
 R1-1711306.zip	2017/06/16 21:16	419,7 KB
 R1-1711307.zip	2017/06/16 21:16	47,8 KB
 R1-1711308.zip	2017/06/16 21:16	154,3 KB
 R1-1711309.zip	2017/06/16 21:16	40,6 KB
 R1-1711310.zip	2017/06/16 21:16	61,8 KB
 R1-1711311.zip	2017/06/16 21:16	340,3 KB
 R1-1711312.zip	2017/06/16 21:16	120,5 KB
 R1-1711313.zip	2017/06/16 18:18	70,8 KB
 R1-1711314.zip	2017/06/16 18:18	163,6 KB
 R1-1711315.zip	2017/06/16 18:18	43,3 KB
 R1-1711316.zip	2017/06/16 9:58	55,5 KB
 R1-1711317.zip	2017/06/16 12:44	21,8 KB
 R1-1711318.zip	2017/06/16 11:31	60,7 KB
 R1-1711319.zip	2017/06/16 11:32	99 KB
 R1-1711320.zip	2017/06/16 11:54	75,4 KB
 R1-1711321.zip	2017/06/16 11:33	53,6 KB
 R1-1711322.zip	2017/06/16 11:36	54,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
 R1-1711323.zip	2017/06/16 11:37	52,7 KB
 R1-1711324.zip	2017/06/16 11:47	59 KB
 R1-1711325.zip	2017/06/16 11:48	56,2 KB
 R1-1711326.zip	2017/06/16 11:37	53,9 KB
 R1-1711327.zip	2017/06/16 11:49	200,1 KB
 R1-1711328.zip	2017/06/16 11:50	69,5 KB
 R1-1711329.zip	2017/06/16 11:51	77,6 KB
 R1-1711330.zip	2017/06/16 11:39	423,5 KB
 R1-1711331.zip	2017/06/16 11:40	74,1 KB
 R1-1711332.zip	2017/06/16 11:41	82,5 KB
 R1-1711333.zip	2017/06/16 11:52	129,5 KB
 R1-1711334.zip	2017/06/16 17:56	23 KB
 R1-1711335.zip	2017/06/16 17:56	22,6 KB
 R1-1711336.zip	2017/06/17 5:45	441 KB
 R1-1711337.zip	2017/06/17 5:46	249,9 KB
 R1-1711338.zip	2017/06/16 9:11	32,4 KB
 R1-1711339.zip	2017/06/16 9:11	92,9 KB
 R1-1711340.zip	2017/06/16 9:11	117,6 KB
 R1-1711341.zip	2017/06/16 9:11	20,6 KB
 R1-1711342.zip	2017/06/16 9:11	19,6 KB
 R1-1711343.zip	2017/06/16 10:33	107,6 KB
 R1-1711344.zip	2017/06/20 5:18	55,2 KB
 R1-1711345.zip	2017/06/20 5:20	94,2 KB
 R1-1711346.zip	2017/06/20 5:20	137,3 KB
 R1-1711347.zip	2017/06/20 6:23	813,8 KB
 R1-1711348.zip	2017/06/20 6:23	507,2 KB
 R1-1711349.zip	2017/06/20 5:20	25 KB
 R1-1711350.zip	2017/06/17 10:46	136,5 KB
 R1-1711351.zip	2017/06/19 6:27	231,5 KB
 R1-1711352.zip	2017/06/17 10:46	136,2 KB
 R1-1711353.zip	2017/06/17 10:46	81,4 KB
 R1-1711354.zip	2017/06/17 8:03	126,8 KB
 R1-1711355.zip	2017/06/17 8:04	83,8 KB
 R1-1711356.zip	2017/06/17 8:04	182,6 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711358.zip	2017/06/17 8:04	163,9 KB
 R1-1711359.zip	2017/06/17 8:04	63,5 KB
 R1-1711360.zip	2017/06/17 8:04	87,6 KB
 R1-1711361.zip	2017/06/17 8:04	88,3 KB
 R1-1711362.zip	2017/06/17 8:04	161,6 KB
 R1-1711363.zip	2017/06/17 2:48	20,8 KB
 R1-1711364.zip	2017/06/17 2:49	20,4 KB
 R1-1711365.zip	2017/06/16 15:23	67,6 KB
 R1-1711366.zip	2017/06/19 7:47	506,3 KB
 R1-1711367.zip	2017/06/16 15:16	75,6 KB
 R1-1711368.zip	2017/06/16 11:53	70,2 KB
 R1-1711369.zip	2017/06/16 11:53	71,3 KB
 R1-1711371.zip	2017/06/17 5:46	80,5 KB
 R1-1711372.zip	2017/06/17 5:46	143,7 KB
 R1-1711373.zip	2017/06/19 21:15	297,8 KB
 R1-1711374.zip	2017/06/17 5:46	72,6 KB
 R1-1711375.zip	2017/06/19 21:15	158 KB
 R1-1711376.zip	2017/06/17 5:46	116,9 KB
 R1-1711377.zip	2017/06/17 5:46	136,4 KB
 R1-1711378.zip	2017/06/17 5:46	52,1 KB
 R1-1711379.zip	2017/06/17 5:46	72,9 KB
 R1-1711380.zip	2017/06/17 5:46	203,9 KB
 R1-1711381.zip	2017/06/17 5:46	465,6 KB
 R1-1711382.zip	2017/06/17 5:46	58,3 KB
 R1-1711383.zip	2017/06/17 5:46	1483,9 KB
 R1-1711384.zip	2017/06/17 5:46	348,6 KB
 R1-1711385.zip	2017/06/17 5:46	471,7 KB
 R1-1711386.zip	2017/06/17 5:46	135,3 KB
 R1-1711387.zip	2017/06/17 5:46	78,3 KB
 R1-1711388.zip	2017/06/17 5:46	56,8 KB
 R1-1711389.zip	2017/06/17 5:46	41,9 KB
 R1-1711390.zip	2017/06/16 11:53	90,4 KB
 R1-1711391.zip	2017/06/19 11:19	54,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711394.zip	2017/06/17 3:55	401,7 KB
 R1-1711395.zip	2017/06/17 3:56	127,3 KB
 R1-1711396.zip	2017/06/16 16:22	120,5 KB
 R1-1711397.zip	2017/06/16 16:22	390,1 KB
 R1-1711398.zip	2017/06/16 18:22	110,5 KB
 R1-1711399.zip	2017/06/16 18:44	524,6 KB
 R1-1711400.zip	2017/06/16 18:44	76,5 KB
 R1-1711401.zip	2017/06/17 3:15	105,7 KB
 R1-1711402.zip	2017/06/17 3:15	41,9 KB
 R1-1711403.zip	2017/06/17 3:15	53,6 KB
 R1-1711404.zip	2017/06/17 4:46	207,2 KB
 R1-1711405.zip	2017/06/17 3:15	51 KB
 R1-1711406.zip	2017/06/17 3:15	29,5 KB
 R1-1711407.zip	2017/06/17 5:30	109,7 KB
 R1-1711408.zip	2017/06/17 3:15	41,6 KB
 R1-1711409.zip	2017/06/17 3:15	180,6 KB
 R1-1711410.zip	2017/06/17 3:15	325,9 KB
 R1-1711411.zip	2017/06/17 2:56	388 KB
 R1-1711412.zip	2017/06/17 2:56	543,4 KB
 R1-1711413.zip	2017/06/17 2:56	801,7 KB
 R1-1711414.zip	2017/06/17 2:56	314,4 KB
 R1-1711415.zip	2017/06/17 2:56	203,1 KB
 R1-1711416.zip	2017/06/17 2:56	390 KB
 R1-1711417.zip	2017/06/17 2:56	166,4 KB
 R1-1711418.zip	2017/06/17 2:56	30,4 KB
 R1-1711419.zip	2017/06/17 2:56	210 KB
 R1-1711420.zip	2017/06/17 2:56	169,7 KB
 R1-1711421.zip	2017/06/17 2:56	67,3 KB
 R1-1711422.zip	2017/06/17 2:56	93,2 KB
 R1-1711423.zip	2017/06/17 2:56	119,1 KB
 R1-1711424.zip	2017/06/17 2:51	111,1 KB
 R1-1711425.zip	2017/06/17 2:56	41 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711428.zip	2017/06/17 2:57	62,6 KB
 R1-1711429.zip	2017/06/17 2:57	55,4 KB
 R1-1711430.zip	2017/06/17 2:57	172,7 KB
 R1-1711431.zip	2017/06/17 2:57	103,5 KB
 R1-1711432.zip	2017/06/17 2:57	202,6 KB
 R1-1711433.zip	2017/06/17 3:15	108,6 KB
 R1-1711434.zip	2017/06/17 3:15	106,7 KB
 R1-1711435.zip	2017/06/17 3:15	253,8 KB
 R1-1711436.zip	2017/06/27 15:17	421 KB
 R1-1711437.zip	2017/06/27 15:17	337,3 KB
 R1-1711438.zip	2017/06/20 5:18	292,7 KB
 R1-1711439.zip	2017/06/20 5:18	83,7 KB
 R1-1711441.zip	2017/06/18 14:26	73,1 KB
 R1-1711442.zip	2017/06/20 5:17	2909,2 KB
 R1-1711443.zip	2017/06/20 5:17	109,9 KB
 R1-1711444.zip	2017/06/16 19:58	1347,4 KB
 R1-1711445.zip	2017/06/16 19:58	149,3 KB
 R1-1711446.zip	2017/06/16 19:58	157,2 KB
 R1-1711447.zip	2017/06/16 19:58	44,6 KB
 R1-1711448.zip	2017/06/16 19:58	46,7 KB
 R1-1711449.zip	2017/06/16 19:58	330,4 KB
 R1-1711450.zip	2017/06/17 1:58	44 KB
 R1-1711451.zip	2017/06/17 1:59	55,5 KB
 R1-1711452.zip	2017/06/17 1:59	124,2 KB
 R1-1711453.zip	2017/06/16 19:58	64,1 KB
 R1-1711454.zip	2017/06/17 1:59	449,9 KB
 R1-1711455.zip	2017/06/16 19:58	57,6 KB
 R1-1711456.zip	2017/06/16 19:58	82 KB
 R1-1711457.zip	2017/06/17 1:59	101,3 KB
 R1-1711458.zip	2017/06/17 1:59	62,4 KB
 R1-1711459.zip	2017/06/17 1:59	137,9 KB
 R1-1711460.zip	2017/06/17 2:00	44,5 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711463.zip	2017/06/17 2:00	326 KB
 R1-1711464.zip	2017/06/17 2:51	111,9 KB
 R1-1711465.zip	2017/06/17 2:51	408,5 KB
 R1-1711466.zip	2017/06/17 2:51	595,2 KB
 R1-1711467.zip	2017/06/17 2:51	115,2 KB
 R1-1711468.zip	2017/06/16 13:21	93,3 KB
 R1-1711469.zip	2017/06/17 2:51	31,3 KB
 R1-1711470.zip	2017/06/17 2:51	136 KB
 R1-1711471.zip	2017/06/16 13:21	242,6 KB
 R1-1711472.zip	2017/06/16 13:21	130,7 KB
 R1-1711473.zip	2017/06/16 13:21	34,3 KB
 R1-1711474.zip	2017/06/16 13:21	21,6 KB
 R1-1711475.zip	2017/06/16 13:21	71,9 KB
 R1-1711476.zip	2017/06/17 5:59	43,2 KB
 R1-1711477.zip	2017/06/17 5:59	450,1 KB
 R1-1711478.zip	2017/06/17 5:59	184,4 KB
 R1-1711479.zip	2017/06/17 5:59	48,1 KB
 R1-1711480.zip	2017/06/17 5:59	55,7 KB
 R1-1711481.zip	2017/06/17 5:59	47,1 KB
 R1-1711482.zip	2017/06/17 5:59	86,1 KB
 R1-1711483.zip	2017/06/17 6:05	47,5 KB
 R1-1711484.zip	2017/06/17 6:05	50,7 KB
 R1-1711485.zip	2017/06/17 6:05	48,7 KB
 R1-1711486.zip	2017/06/17 5:59	287 KB
 R1-1711487.zip	2017/06/17 5:59	407,4 KB
 R1-1711488.zip	2017/06/17 5:59	596,4 KB
 R1-1711489.zip	2017/06/17 5:59	119,9 KB
 R1-1711490.zip	2017/06/17 5:59	222,7 KB
 R1-1711491.zip	2017/06/17 5:59	326,9 KB
 R1-1711492.zip	2017/06/17 5:59	27 KB
 R1-1711493.zip	2017/06/17 5:59	44,9 KB
 R1-1711494.zip	2017/06/17 5:59	243 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711496.zip	2017/06/17 5:59	93,1 KB
 R1-1711497.zip	2017/06/17 5:59	39,6 KB
 R1-1711498.zip	2017/06/17 5:59	458,8 KB
 R1-1711499.zip	2017/06/17 5:59	66,5 KB
 R1-1711500.zip	2017/06/17 5:59	39,8 KB
 R1-1711501.zip	2017/06/17 5:59	104,3 KB
 R1-1711502.zip	2017/06/17 5:59	44,5 KB
 R1-1711503.zip	2017/06/17 5:59	42,4 KB
 R1-1711504.zip	2017/06/17 5:59	43,3 KB
 R1-1711505.zip	2017/06/17 5:59	81,8 KB
 R1-1711506.zip	2017/06/17 5:59	79,1 KB
 R1-1711507.zip	2017/06/17 5:59	46,5 KB
 R1-1711508.zip	2017/06/17 5:59	40,1 KB
 R1-1711509.zip	2017/06/17 6:00	30,2 KB
 R1-1711510.zip	2017/06/17 5:59	86,4 KB
 R1-1711511.zip	2017/06/17 5:59	43,9 KB
 R1-1711512.zip	2017/06/17 5:59	32,8 KB
 R1-1711513.zip	2017/06/17 5:59	41,1 KB
 R1-1711514.zip	2017/06/17 5:59	38,9 KB
 R1-1711515.zip	2017/06/17 5:59	48,4 KB
 R1-1711516.zip	2017/06/17 5:59	26,6 KB
 R1-1711517.zip	2017/06/17 5:59	78,6 KB
 R1-1711518.zip	2017/06/17 5:59	33,2 KB
 R1-1711519.zip	2017/06/17 5:59	21,3 KB
 R1-1711520.zip	2017/06/17 5:59	68 KB
 R1-1711521.zip	2017/06/17 5:59	66,8 KB
 R1-1711522.zip	2017/06/17 5:59	66,9 KB
 R1-1711523.zip	2017/06/17 5:59	165,8 KB
 R1-1711524.zip	2017/06/17 5:59	68,2 KB
 R1-1711525.zip	2017/06/17 5:59	67,6 KB
 R1-1711526.zip	2017/06/17 5:59	16,5 KB
 R1-1711527.zip	2017/06/17 3:52	108 KB
 R1-1711528.zip	2017/06/16 18:49	18 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711531.zip	2017/06/16 13:39	147,3 KB
 R1-1711532.zip	2017/06/19 20:30	56,1 KB
 R1-1711533.zip	2017/06/19 20:30	87,8 KB
 R1-1711534.zip	2017/06/19 20:30	157,9 KB
 R1-1711535.zip	2017/06/19 20:30	76,7 KB
 R1-1711536.zip	2017/06/19 20:30	153 KB
 R1-1711537.zip	2017/06/27 15:17	232,8 KB
 R1-1711538.zip	2017/06/19 20:30	537,5 KB
 R1-1711539.zip	2017/06/19 20:30	149,9 KB
 R1-1711540.zip	2017/06/19 20:30	135 KB
 R1-1711541.zip	2017/06/25 11:52	110,2 KB
 R1-1711542.zip	2017/06/19 20:30	450,5 KB
 R1-1711543.zip	2017/06/19 20:30	224,3 KB
 R1-1711544.zip	2017/06/19 20:30	79 KB
 R1-1711545.zip	2017/06/19 20:30	78,8 KB
 R1-1711546.zip	2017/06/19 20:30	126,8 KB
 R1-1711547.zip	2017/06/16 13:39	116,9 KB
 R1-1711548.zip	2017/06/16 13:39	167,3 KB
 R1-1711549.zip	2017/06/16 16:38	36,1 KB
 R1-1711550.zip	2017/06/16 17:39	54,6 KB
 R1-1711551.zip	2017/06/16 14:06	53,4 KB
 R1-1711552.zip	2017/06/17 5:17	69,3 KB
 R1-1711553.zip	2017/06/17 5:17	149,5 KB
 R1-1711554.zip	2017/06/17 5:17	185,4 KB
 R1-1711555.zip	2017/06/17 5:17	99,9 KB
 R1-1711556.zip	2017/06/17 5:17	233,1 KB
 R1-1711557.zip	2017/06/20 6:25	132 KB
 R1-1711558.zip	2017/06/17 5:26	36,5 KB
 R1-1711560.zip	2017/06/16 15:22	2888,3 KB
 R1-1711561.zip	2017/06/17 4:31	99,8 KB
 R1-1711562.zip	2017/06/17 4:31	222,2 KB
 R1-1711563.zip	2017/06/17 4:31	75,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711565.zip	2017/06/16 21:30	41,6 KB
 R1-1711566.zip	2017/06/16 21:13	54,4 KB
 R1-1711567.zip	2017/06/27 15:17	29,4 KB
 R1-1711568.zip	2017/06/16 16:39	144,6 KB
 R1-1711569.zip	2017/06/16 21:32	157,3 KB
 R1-1711570.zip	2017/06/20 2:58	285,1 KB
 R1-1711571.zip	2017/06/20 2:58	116,3 KB
 R1-1711573.zip	2017/06/28 13:45	577,5 KB
 R1-1711574.zip	2017/06/17 10:09	52,8 KB
 R1-1711575.zip	2017/06/19 8:58	220,5 KB
 R1-1711576.zip	2017/06/20 7:43	43,6 KB
 R1-1711577.zip	2017/06/20 7:43	68,9 KB
 R1-1711578.zip	2017/06/27 15:17	57,8 KB
 R1-1711579.zip	2017/06/21 16:29	50,6 KB
 R1-1711580.zip	2017/06/27 15:17	306,3 KB
 R1-1711581.zip	2017/06/28 13:45	108,4 KB
 R1-1711582.zip	2017/06/21 16:29	886,4 KB
 R1-1711583.zip	2017/06/23 20:31	225,9 KB
 R1-1711584.zip	2017/06/23 20:31	69,3 KB
 R1-1711585.zip	2017/06/23 20:31	121,7 KB
 R1-1711586.zip	2017/06/21 16:29	69,3 KB
 R1-1711587.zip	2017/06/27 15:17	339,9 KB
 R1-1711588.zip	2017/06/27 15:17	210,2 KB
 R1-1711589.zip	2017/06/23 20:31	231,8 KB
 R1-1711590.zip	2017/06/22 8:57	355,7 KB
 R1-1711591.zip	2017/06/23 20:31	223,8 KB
 R1-1711592.zip	2017/06/23 20:31	278,8 KB
 R1-1711593.zip	2017/06/23 20:31	27,8 KB
 R1-1711594.zip	2017/06/23 20:31	423,2 KB
 R1-1711595.zip	2017/06/27 15:17	115,8 KB
 R1-1711596.zip	2017/06/23 20:31	74,1 KB
 R1-1711597.zip	2017/06/23 20:31	131,2 KB
 R1-1711598.zip	2017/06/23 20:31	481,1 KB

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 R1-1711600.zip	2017/06/22 14:56	961,1 KB
 R1-1711601.zip	2017/06/22 14:15	93,5 KB
 R1-1711602.zip	2017/06/22 14:56	331 KB
 R1-1711603.zip	2017/06/23 20:31	185,4 KB
 R1-1711604.zip	2017/06/23 20:31	169,4 KB
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 R1-1711606.zip	2017/06/25 11:52	914,3 KB
 R1-1711607.zip	2017/06/25 11:52	353 KB
 R1-1711608.zip	2017/06/25 11:52	80,8 KB
 R1-1711609.zip	2017/06/26 3:03	48,2 KB
 R1-1711610.zip	2017/06/26 9:06	199,3 KB
 R1-1711611.zip	2017/06/25 2:48	250 KB
 R1-1711612.zip	2017/06/25 2:48	807,1 KB
 R1-1711613.zip	2017/06/26 1:09	3141,2 KB
 R1-1711614.zip	2017/06/24 6:59	54 KB
 R1-1711615.zip	2017/06/24 6:59	3034,9 KB
 R1-1711616.zip	2017/06/24 6:59	26,9 KB
 R1-1711617.zip	2017/06/24 6:59	103,8 KB
 R1-1711618.zip	2017/06/26 1:09	720,3 KB
 R1-1711619.zip	2017/06/24 6:59	157 KB
 R1-1711620.zip	2017/06/24 6:59	272,9 KB
 R1-1711621.zip	2017/06/24 6:59	465,3 KB
 R1-1711622.zip	2017/06/27 15:16	147,4 KB
 R1-1711623.zip	2017/06/28 13:44	44,8 KB
 R1-1711624.zip	2017/06/28 13:44	86,8 KB
 R1-1711625.zip	2017/06/24 6:59	199,5 KB
 R1-1711626.zip	2017/06/24 6:59	41,7 KB
 R1-1711627.zip	2017/06/27 15:16	222,6 KB
 R1-1711628.zip	2017/06/27 15:16	219,5 KB
 R1-1711629.zip	2017/06/27 15:16	438 KB
 R1-1711630.zip	2017/06/27 15:16	438,7 KB
 R1-1711631.zip	2017/06/24 14:35	218,1 KB
 R1-1711632.zip	2017/06/25 11:52	391,4 KB

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 R1-1711636.zip	2017/06/25 11:52	171,7 KB
 R1-1711637.zip	2017/06/25 11:52	54,3 KB
 R1-1711638.zip	2017/06/25 11:52	265,1 KB
 R1-1711639.zip	2017/06/27 15:16	533,8 KB
 R1-1711641.zip	2017/06/27 15:16	1498,9 KB
 R1-1711642.zip	2017/06/26 9:06	11,9 KB
 R1-1711643.zip	2017/06/27 15:16	192,7 KB
 R1-1711644.zip	2017/06/27 15:16	1004 KB
 R1-1711645.zip	2017/06/27 15:15	382,7 KB
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 R1-1711647.zip	2017/06/27 15:15	301,1 KB
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 R1-1711650.zip	2017/06/27 15:15	247,4 KB
 R1-1711652.zip	2017/06/27 15:15	57,6 KB
 R1-1711653.zip	2017/06/27 15:15	111,4 KB
 R1-1711654.zip	2017/06/27 15:15	203,4 KB
 R1-1711655.zip	2017/06/27 15:15	562,6 KB
 R1-1711657.zip	2017/07/01 0:57	15,1 KB
 R1-1711658.zip	2017/06/27 15:15	163,9 KB
 R1-1711659.zip	2017/06/27 15:15	205,1 KB
 R1-1711660.zip	2017/06/28 13:44	66,2 KB
 R1-1711661.zip	2017/06/27 15:14	63,5 KB
 R1-1711662.zip	2017/06/28 13:44	52,6 KB
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 R1-1711665.zip	2017/07/01 0:57	24,8 KB
 R1-1711666.zip	2017/06/29 12:37	24,7 KB
 R1-1711667.zip	2017/06/28 13:44	27,3 KB
 R1-1711668.zip	2017/06/29 12:37	24,4 KB
 R1-1711669.zip	2017/06/27 15:14	171,8 KB
 R1-1711671.zip	2017/06/27 15:14	98,6 KB
 R1-1711672.zip	2017/06/27 15:14	59,4 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711677.zip	2017/06/28 13:44	356,6 KB
 R1-1711678.zip	2017/06/29 12:37	61,5 KB
 R1-1711679.zip	2017/06/28 13:44	295,9 KB
 R1-1711681.zip	2017/06/27 15:14	31,1 KB
 R1-1711682.zip	2017/06/27 15:14	35,5 KB
 R1-1711683.zip	2017/07/01 0:57	16,6 KB
 R1-1711684.zip	2017/06/29 12:37	18,7 KB
 R1-1711685.zip	2017/07/01 0:57	14,5 KB
 R1-1711686.zip	2017/08/12 9:40	17,8 KB
 R1-1711688.zip	2017/06/29 12:37	33,7 KB
 R1-1711689.zip	2017/07/03 14:01	36,4 KB
 R1-1711690.zip	2017/06/28 13:44	95,6 KB
 R1-1711691.zip	2017/06/28 13:44	51,3 KB
 R1-1711692.zip	2017/06/27 15:14	17,1 KB
 R1-1711693.zip	2017/06/27 15:14	158,2 KB
 R1-1711694.zip	2017/06/27 15:14	186,2 KB
 R1-1711695.zip	2017/06/27 15:14	51,9 KB
 R1-1711696.zip	2017/06/27 15:14	254,2 KB
 R1-1711697.zip	2017/06/29 12:37	33,1 KB
 R1-1711698.zip	2017/06/29 12:37	29,7 KB
 R1-1711699.zip	2017/06/29 12:37	34,7 KB
 R1-1711700.zip	2017/06/27 15:14	35,3 KB
 R1-1711701.zip	2017/06/27 15:14	114,9 KB
 R1-1711702.zip	2017/06/28 13:44	434,6 KB
 R1-1711705.zip	2017/06/27 15:14	24,3 KB
 R1-1711707.zip	2017/06/27 15:14	39,8 KB
 R1-1711708.zip	2017/06/27 15:14	38,3 KB
 R1-1711709.zip	2017/06/27 15:14	29 KB
 R1-1711710.zip	2017/06/29 12:37	26,4 KB
 R1-1711711.zip	2017/06/27 15:14	255,4 KB
 R1-1711712.zip	2017/07/01 0:57	91 KB
 R1-1711714.zip	2017/06/28 13:44	110,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711716.zip	2017/07/01 0:57	111,7 KB
 R1-1711717.zip	2017/07/01 0:57	119,2 KB
 R1-1711719.zip	2017/07/01 0:57	104,6 KB
 R1-1711720.zip	2017/07/01 0:57	100,9 KB
 R1-1711721.zip	2017/06/29 12:37	100,8 KB
 R1-1711722.zip	2017/06/29 12:37	106,3 KB
 R1-1711723.zip	2017/06/28 13:44	166,1 KB
 R1-1711724.zip	2017/06/29 12:37	101,1 KB
 R1-1711725.zip	2017/07/01 0:57	20,5 KB
 R1-1711727.zip	2017/06/27 15:14	421,5 KB
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 R1-1711729.zip	2017/07/01 0:57	64,6 KB
 R1-1711730.zip	2017/06/28 13:44	506,9 KB
 R1-1711731.zip	2017/07/01 0:57	29,8 KB
 R1-1711747.zip	2017/07/01 0:57	675,1 KB
 R1-1711748.zip	2017/07/01 0:57	382,6 KB
 R1-1711749.zip	2017/07/01 0:57	611,9 KB
 R1-1711750.zip	2017/07/01 0:56	61 KB
 R1-1711751.zip	2017/06/28 13:44	312,2 KB
 R1-1711752.zip	2017/06/28 13:44	658,4 KB
 R1-1711753.zip	2017/06/29 12:37	33,4 KB
 R1-1711754.zip	2017/06/28 13:44	43,6 KB
 R1-1711755.zip	2017/06/28 13:44	76,5 KB
 R1-1711757.zip	2017/06/28 13:44	1305,2 KB
 R1-1711758.zip	2017/07/01 0:56	18,8 KB
 R1-1711759.zip	2017/06/28 13:43	53,6 KB
 R1-1711760.zip	2017/07/01 0:56	76,1 KB
 R1-1711761.zip	2017/06/28 13:43	47,2 KB
 R1-1711762.zip	2017/06/28 13:43	49,6 KB
 R1-1711763.zip	2017/06/28 13:43	45,7 KB
 R1-1711764.zip	2017/06/28 13:43	139,6 KB
 R1-1711765.zip	2017/06/29 12:37	44 KB
 R1-1711766.zip	2017/07/01 0:56	37,1 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711768.zip	2017/06/28 13:43	39 KB
 R1-1711769.zip	2017/07/01 0:56	133,6 KB
 R1-1711770.zip	2017/06/28 13:43	107,1 KB
 R1-1711771.zip	2017/06/28 13:43	106,5 KB
 R1-1711772.zip	2017/06/29 12:37	130,3 KB
 R1-1711773.zip	2017/06/29 12:37	33,4 KB
 R1-1711774.zip	2017/06/28 13:43	81,1 KB
 R1-1711775.zip	2017/06/28 13:43	59,2 KB
 R1-1711776.zip	2017/07/01 0:56	39,3 KB
 R1-1711777.zip	2017/07/01 0:56	37,4 KB
 R1-1711778.zip	2017/06/29 12:37	68,8 KB
 R1-1711779.zip	2017/06/28 13:43	23,7 KB
 R1-1711780.zip	2017/06/28 13:43	25,3 KB
 R1-1711781.zip	2017/06/29 12:37	311 KB
 R1-1711782.zip	2017/06/28 13:43	41,4 KB
 R1-1711783.zip	2017/06/28 13:43	38,6 KB
 R1-1711784.zip	2017/06/29 12:37	33,5 KB
 R1-1711785.zip	2017/07/01 0:56	43,5 KB
 R1-1711786.zip	2017/07/01 0:56	169,5 KB
 R1-1711787.zip	2017/06/29 12:36	60,4 KB
 R1-1711788.zip	2017/06/28 13:43	38,8 KB
 R1-1711789.zip	2017/06/28 13:43	33,3 KB
 R1-1711790.zip	2017/06/28 13:43	433,5 KB
 R1-1711791.zip	2017/06/29 12:36	53,5 KB
 R1-1711792.zip	2017/07/01 0:56	37,5 KB
 R1-1711793.zip	2017/07/01 0:56	38,7 KB
 R1-1711794.zip	2017/06/29 12:36	71 KB
 R1-1711795.zip	2017/06/28 13:43	40 KB
 R1-1711796.zip	2017/06/28 13:43	29,5 KB
 R1-1711797.zip	2017/06/29 12:36	61 KB
 R1-1711798.zip	2017/06/28 13:43	54,4 KB
 R1-1711799.zip	2017/06/29 12:36	60,8 KB
 R1-1711800.zip	2017/06/29 12:36	37,8 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711803.zip	2017/06/28 13:43	34,6 KB
 R1-1711804.zip	2017/06/28 13:43	33,2 KB
 R1-1711805.zip	2017/06/28 13:43	122,1 KB
 R1-1711806.zip	2017/06/28 13:43	36,4 KB
 R1-1711807.zip	2017/06/28 13:43	50,7 KB
 R1-1711808.zip	2017/06/28 13:43	34,9 KB
 R1-1711809.zip	2017/07/01 0:56	39,6 KB
 R1-1711810.zip	2017/06/28 13:43	76,8 KB
 R1-1711811.zip	2017/07/01 0:56	48,8 KB
 R1-1711812.zip	2017/06/29 12:36	41 KB
 R1-1711813.zip	2017/06/29 12:36	39,7 KB
 R1-1711814.zip	2017/06/29 12:36	42,8 KB
 R1-1711815.zip	2017/06/29 12:36	41,1 KB
 R1-1711816.zip	2017/06/29 12:36	107 KB
 R1-1711817.zip	2017/06/29 12:36	84,7 KB
 R1-1711818.zip	2017/06/29 12:36	36,9 KB
 R1-1711819.zip	2017/06/29 12:36	37,4 KB
 R1-1711820.zip	2017/06/29 12:35	10,3 KB
 R1-1711822.zip	2017/06/29 12:36	2019,3 KB
 R1-1711823.zip	2017/07/03 14:01	369,9 KB
 R1-1711824.zip	2017/06/28 13:43	23,4 KB
 R1-1711825.zip	2017/06/28 13:43	63,7 KB
 R1-1711827.zip	2017/06/29 12:35	86,6 KB
 R1-1711828.zip	2017/06/29 12:35	32,4 KB
 R1-1711829.zip	2017/06/28 13:43	51,2 KB
 R1-1711830.zip	2017/06/29 12:35	41,3 KB
 R1-1711831.zip	2017/06/29 12:35	38 KB
 R1-1711832.zip	2017/06/29 12:35	35,3 KB
 R1-1711833.zip	2017/06/29 12:35	35,3 KB
 R1-1711834.zip	2017/06/28 13:43	31,8 KB
 R1-1711835.zip	2017/06/28 13:42	30,5 KB
 R1-1711836.zip	2017/07/01 0:56	48,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711838.zip	2017/07/01 0:56	36 KB
 R1-1711839.zip	2017/06/28 13:42	23,5 KB
 R1-1711840.zip	2017/07/01 0:56	28,6 KB
 R1-1711841.zip	2017/07/01 0:56	32,6 KB
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 R1-1711843.zip	2017/06/29 12:35	58,6 KB
 R1-1711844.zip	2017/06/29 12:35	97 KB
 R1-1711845.zip	2017/07/01 0:56	52,8 KB
 R1-1711846.zip	2017/07/01 0:56	43,5 KB
 R1-1711847.zip	2017/07/01 0:56	42,1 KB
 R1-1711848.zip	2017/06/29 12:35	26,3 KB
 R1-1711849.zip	2017/06/29 12:35	86,9 KB
 R1-1711850.zip	2017/06/29 12:35	37,9 KB
 R1-1711851.zip	2017/06/29 12:35	40 KB
 R1-1711852.zip	2017/07/01 0:56	44,5 KB
 R1-1711853.zip	2017/06/29 12:35	27,5 KB
 R1-1711854.zip	2017/06/29 12:35	123 KB
 R1-1711855.zip	2017/06/29 12:35	35,4 KB
 R1-1711856.zip	2017/06/29 12:35	130,3 KB
 R1-1711857.zip	2017/06/29 12:35	51,2 KB
 R1-1711858.zip	2017/06/29 12:35	35,9 KB
 R1-1711859.zip	2017/06/29 12:35	35,9 KB
 R1-1711860.zip	2017/06/29 12:35	203,5 KB
 R1-1711861.zip	2017/06/29 12:34	35,7 KB
 R1-1711862.zip	2017/06/29 12:34	34,2 KB
 R1-1711863.zip	2017/06/29 12:34	31,2 KB
 R1-1711864.zip	2017/06/29 12:34	36,2 KB
 R1-1711865.zip	2017/06/29 12:34	34,5 KB
 R1-1711866.zip	2017/06/29 12:34	51,9 KB
 R1-1711868.zip	2017/06/29 12:34	61,4 KB
 R1-1711869.zip	2017/07/01 0:56	34,5 KB
 R1-1711870.zip	2017/07/01 0:56	41,3 KB
 R1-1711871.zip	2017/06/29 12:34	37,3 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711873.zip	2017/06/29 12:34	38,9 KB
 R1-1711874.zip	2017/07/01 0:56	36,2 KB
 R1-1711875.zip	2017/06/29 12:34	45,3 KB
 R1-1711876.zip	2017/06/29 12:34	53,5 KB
 R1-1711877.zip	2017/06/29 12:34	16,5 KB
 R1-1711878.zip	2017/06/29 12:34	16,4 KB
 R1-1711879.zip	2017/06/29 12:34	19 KB
 R1-1711880.zip	2017/06/29 12:34	18 KB
 R1-1711881.zip	2017/07/01 0:56	42,5 KB
 R1-1711883.zip	2017/06/29 12:34	40,4 KB
 R1-1711884.zip	2017/07/01 0:56	35,2 KB
 R1-1711885.zip	2017/06/29 12:34	128 KB
 R1-1711886.zip	2017/07/01 0:56	482,9 KB
 R1-1711887.zip	2017/07/01 0:56	39,1 KB
 R1-1711888.zip	2017/06/29 12:34	174,8 KB
 R1-1711889.zip	2017/06/29 12:34	37,3 KB
 R1-1711890.zip	2017/07/01 0:56	52,3 KB
 R1-1711891.zip	2017/06/29 12:34	41,3 KB
 R1-1711892.zip	2017/06/29 12:34	13,8 KB
 R1-1711893.zip	2017/06/29 12:34	27,1 KB
 R1-1711894.zip	2017/06/29 12:34	70,6 KB
 R1-1711895.zip	2017/06/29 12:34	72 KB
 R1-1711896.zip	2017/07/01 0:56	38,4 KB
 R1-1711897.zip	2017/07/01 0:55	57,7 KB
 R1-1711898.zip	2017/06/29 12:34	16,3 KB
 R1-1711899.zip	2017/06/29 12:34	69,2 KB
 R1-1711900.zip	2017/06/29 12:33	45,7 KB
 R1-1711901.zip	2017/06/29 12:33	42,9 KB
 R1-1711902.zip	2017/06/29 12:33	44 KB
 R1-1711903.zip	2017/07/01 0:55	47,7 KB
 R1-1711904.zip	2017/07/01 0:55	125 KB
 R1-1711905.zip	2017/07/01 0:55	61,6 KB
 R1-1711906.zip	2017/06/29 12:33	135,7 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711910.zip	2017/06/29 12:33	16 KB
 R1-1711911.zip	2017/06/29 12:33	369,7 KB
 R1-1711912.zip	2017/06/29 12:33	31,7 KB
 R1-1711913.zip	2017/06/29 12:33	34,3 KB
 R1-1711914.zip	2017/06/29 12:33	231,5 KB
 R1-1711915.zip	2017/07/01 0:55	125,9 KB
 R1-1711916.zip	2017/07/01 0:55	191,9 KB
 R1-1711917.zip	2017/07/01 0:55	211 KB
 R1-1711918.zip	2017/06/29 12:33	154,4 KB
 R1-1711919.zip	2017/06/29 12:33	140,6 KB
 R1-1711920.zip	2017/06/29 12:33	34,7 KB
 R1-1711921.zip	2017/07/01 0:55	45,1 KB
 R1-1711922.zip	2017/06/29 12:33	38,7 KB
 R1-1711923.zip	2017/06/29 12:33	37,9 KB
 R1-1711924.zip	2017/07/01 0:55	54,4 KB
 R1-1711926.zip	2017/06/29 12:33	39,6 KB
 R1-1711927.zip	2017/07/01 0:55	60,1 KB
 R1-1711928.zip	2017/07/01 0:55	71,1 KB
 R1-1711929.zip	2017/07/03 14:01	27 KB
 R1-1711930.zip	2017/07/01 0:55	47 KB
 R1-1711931.zip	2017/07/01 0:55	17,4 KB
 R1-1711932.zip	2017/07/01 0:55	40 KB
 R1-1711933.zip	2017/07/01 0:55	28,9 KB
 R1-1711934.zip	2017/07/01 0:55	28,7 KB
 R1-1711935.zip	2017/07/01 0:55	62,5 KB
 R1-1711936.zip	2017/06/29 12:33	31,8 KB
 R1-1711939.zip	2017/07/01 0:55	42,1 KB
 R1-1711940.zip	2017/07/01 0:55	11,3 KB
 R1-1711941.zip	2017/07/01 0:54	30,6 KB
 R1-1711942.zip	2017/07/01 0:54	43,5 KB
 R1-1711943.zip	2017/07/01 0:54	33 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 R1-1711947.zip	2017/07/01 0:54	154,2 KB
 R1-1711948.zip	2017/07/01 0:54	58,1 KB
 R1-1711949.zip	2017/07/01 0:54	18,2 KB
 R1-1711950.zip	2017/07/01 0:54	16 KB
 R1-1711951.zip	2017/07/01 0:54	77,9 KB
 R1-1711952.zip	2017/07/01 0:54	131,5 KB
 R1-1711956.zip	2017/07/01 0:54	32 KB
 R1-1711957.zip	2017/07/01 0:54	59,1 KB
 R1-1711958.zip	2017/07/01 0:54	41,2 KB
 R1-1711959.zip	2017/07/01 0:54	30,5 KB
 R1-1711960.zip	2017/07/01 0:54	24,8 KB
 R1-1711962.zip	2017/07/01 0:54	170,8 KB
 R1-1711963.zip	2017/07/01 0:54	699,8 KB
 R1-1711964.zip	2017/07/01 0:54	646,5 KB
 R1-1711965.zip	2017/07/01 0:54	41 KB
 R1-1711966.zip	2017/07/01 0:54	23,1 KB
 R1-1711967.zip	2017/07/01 0:54	153,7 KB
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 R1-1711969.zip	2017/07/01 0:54	43,3 KB
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 R1-1712017.zip	2017/08/12 9:36	39,2 KB

sort by name/desc	sort by date/desc	sort by size/desc
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 TDoc_List_Meeting_RAN1-NR#2.zip	2018/01/10 16:45	794,9 KB

2070 items.



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Subject: [\[RAN1#AH_NR2\]: Preliminary report from Qingdao](#)
From: Patrick Merias <[log in to unmask](#)>
Reply To: Patrick Merias <[log in to unmask](#)>
Date: Mon, 3 Jul 2017 14:06:47 +0000
Content-Type: multipart/mixed
Parts/Attachments: [text/plain](#) (789 bytes) , [text/html](#) (4 kB) ,
[Draft_Minutes_report_RAN1#AH_NR2_v010.zip](#) (823 kB)



Dear all,

Hope you all had a safe journey back...

Enclosed is a preliminary version of last week meeting.

Contributions have been uploaded to the 3GPP ftp web site – I'm going now to start checking them all and report the actual status into 3GU Tdoc_list

BR

P

Patrick Merias– Mobile Competence Center Technical OfficerETSI • [www.etsi.org](#) • [log in to unmask](#)

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ATOM

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RSS2

**3GPP TSG RAN WG1 Meeting #90
Prague, Czech Rep, 21st – 25th August 2017**

R1-171xxxx

Source: MCC Support

Title: Draft Report of 3GPP TSG RAN WG1 #AH_NR2 v0.1.0
(Qingdao, China, 27th – 30th June 2017)

Document for: Comments



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The second 3GPP TSG WG RAN1 ad-hoc meeting on NR, hosted by ZTE Corporation, was held at the Meridien Qingdao, China. The meeting started at 9:00 on Tuesday 27th June and finished at 20:15 on Friday 30th June 2017. The number of attending delegates, having confirmed their participation through the electronic check-in application, was 394. Note that the number of registered was 557.

	Monday	Tuesday	Wednesday	Thursday	Friday
8:30 am 9 am					
Coffee 10:30-11:00		1, 2, 3, 4 5.1.1 5.1.2	5.1.10 5.1.4 Offline: Initial Access (PBCH)	5.1.1 5.1.6 5.1.8 5.1.9	5.1.1 Offline 5.1.2.1 () 5.1.2.2 () 5.1.2
Lunch		5 5.1.1.1.3 5.1.3.1.1.1	15:00 5.1.1 (3pm start) 5.1.4 5.1.7 5.1.8 5.1.3	5.1.1 5.1.4 5.1.2 5.1.7 5.1.3 5.1.1 (7pm start)	5.1.5 5.1.1 5.1.5 (3pm) 5.1.3 5.1.4 Revisit
Coffee 16:30-17:00		5.1.4			
	La Ballroom 1 (5F)	La Ballroom 2 (5F)	Paris Room (6F)	Vienna Room (6F)	Berlin Room (6F)

The number of contributions for this meeting was xxxx, and those documents were categorized as followed.

Agenda Item	Input Document	Treated Document
All		

	Contribution is agreed/approved
	Contribution is not pursued (no consensus)
	Further discussion is required – come-back needed
	Working assumption
	Specific action needed from MCC
	Contribution is for email discussion/approval

1 Opening of the meeting

Mr Matthew Baker (Vice Chairman) welcomed the participants of the RAN WG1 ad-hoc meeting and opened the meeting at 09:00.

Mr Xinhui Wang on behalf of ZTE welcomed the delegates, and detailed the domestic arrangements for the full week.

1.1 Call for IPR

The attention of the members of this Technical Specification Group was drawn to the fact that 3GPP Individual Members have the obligation under the IPR Policies of their respective Organizational Partners to inform their respective Organizational Partners of Essential IPRs they become aware of.

The members take note that they are hereby invited:

- to investigate whether their organization or any other organization owns IPRs which were, or were likely to become Essential in respect of the work of 3GPP.
- to notify their respective Organizational Partners of all potential IPRs, e.g., for ETSI, by means of the IPR Information Statement and the Licensing declaration forms (e.g. see the ETSI IPR forms <http://webapp.etsi.org/Ipr/>).

1.2 Competition law statement

The Chairman also drew Member's attention to the fact that 3GPP activities are subject to antitrust and competition laws and that compliance with said laws is therefore required of any participant of this WG meeting including the Chairman and Vice Chairmen. In case of question, please contact your legal counsel.

The present meeting will be conducted with strict impartiality and in the interests of 3GPP.

Furthermore, the Chairman reminded Members that timely submission of work items/contributions in advance of WG meetings is important to allow for full and fair consideration of such matters.

1.3 Network usage conditions

The PCG has laid down the following network usage conditions:

Users shall not use the network to engage in illegal activities. This includes activities such as copyright violation, hacking, espionage or any other activity that may be prohibited by local laws.

Users shall not engage in non-work related activities that consume excessive bandwidth or cause significant degradation of the performance of the network.
Since the **network is a shared resource**, users should exercise some basic etiquette when using the 3GPP network at a meeting. It is understood that high bandwidth applications such as downloading large files or video streaming might be required for business purposes, but delegates should be strongly discouraged in performing these activities for personal use. Downloading a movie or doing something in an interactive environment for personal use essentially wastes bandwidth that others need to make the meeting effective. The meeting chairman should remind end users that the network is a shared resource; the more one user grabs, the less there is for another. Email and its attachments already take up significant bandwidth (certain email programs are not very bandwidth efficient). In case of need the chair can ask the delegates to restrict IT usage to things that are essential for the meeting itself.

1. **DON'T place your WiFi device in ad-hoc mode**
2. **DON'T set up a personal hotspot in the meeting room**
3. **DO try 802.11a if your WiFi device supports it**
4. **DON'T manually allocate an IP address**
5. **DON'T be a bandwidth hog by streaming video, playing online games, or downloading huge files**
6. **DON'T use packet probing software which clogs the local network (e.g., packet sniffers or port scanners)**

2 Approval of Agenda

[R1-1711601](#) Draft Agenda of RAN1#AH_NR2 meeting RAN1 Chair

Matthew Baker (Vice Chairman) proposed the agenda for the meeting, as well the schedule of the week.

Decision: The agenda is approved.

3 Approval of Minutes from previous meetings

R1-1709881 Report of RAN1#89 meeting ETSI

The document was presented by Patrick Merias from MCC (ETSI Mobile Competence Center) and provides a draft of the report from last RAN1#89 meeting in Hangzhou.

Discussion: MCC recalled that the report is a draft for information, with focus on the NR part – final report will be presented for approval at the next ordinary meeting (RAN1#90).

Decision: The document is approved.

R1-1711586 Selected highlights from RAN#76 of relevance to RAN1 RAN1 Chair

The document (slide 3 relevant to NR) was presented by Matthew Baker (Vice Chairman) on behalf of RAN1 Chair and provides highlights relevant to RAN1 from the last plenary.

Discussion: Confirmation of one additional ad-hoc meeting in January 2018.

Panasonic understanding is that RAN1 works for eMBB low latency (December 2017), no need to work the solution satisfying URLLC at this meeting

Ericsson: the low latency part should be specified until December, independently of use cases (eMBB or URLLC). No need to limit our work to eMBB use case only for December. If clarification needed, should be a RAN discussion/decision

Decision: The document is noted.

4 Incoming Liaison Statements

NR Rel-15

R1-1710211 LS on SR design principles in NRRAN2, Samsung

The document was presented by ... from Samsung and informs RAN1 of RAN2 most recent agreements on SR design principles for NR. RAN2 would like to inform RAN1 that it does not see the need for multi-bit SR support and ask RAN1 to take all this information into account in its own work on SR design.

Decision: The document is noted.

R1-1710212 LS on UE measurement capabilities across LTE and NR RAN2, NTT DOCOMO

The document was presented by Hiroki Harada from NTT DOCOMO and asks RAN4 to investigate the UE measurement capabilities and answer the 5 questions listed in the LS.

Discussion: No action to RAN1.

Decision: The document is noted.

R1-1710215 Response LS on reading time index indication for RRM measurements RAN2, Intel

The document was presented by Daewon Lee from Intel and is a reply to [R1-1706707](#):

- From RAN2 point of view, the UE should be able to perform beam/cell measurement and identification quickly and reliably with minimal need for measurement gaps. Therefore, if there is considerable delay due to reading the time index from PBCH, RAN2 observes that this may impact handover performance and UE power consumption. RAN2 would like to ask RAN1 to consider the above information in RAN1 design.
- In addition, RAN2 would like to ask RAN1 if the time index indication needs to be acquired by the UE for every measurement sample and if the UE also need to acquire the time index indication in the idle/inactive mode.

Discussion: Suggested reply in [R1-1710500](#).

Decision: The document is noted.

R1-1710500 Draft Reply LS on reading time index indication for RRM measurements Intel Corporation

The document was presented by Daewon Lee from Intel and is a reply to R2-1706160 ([R1-1710215](#)).

- For UEs in CONNECTED mode, UE may be able to infer the SS block time index indication for detected NR PSS/SSS of neighbour cell, if the UE has successfully retrieve the SS block time index of any SS block from the neighbour cell. However, depending of network deployment scenario, configured SS burst set periodicity, and mobility situation of the UE, the UE may need to re-retrieve the SS block time index of neighbour cells time to time and possibly in every few measurement samples when SS burst set periodicity is configured to be very long (e.g. 160 msec). The frequency and instances in which the UE is required to read the SS block time index of the detected SS block is implementation specific. In case of inter-frequency RRM measurements, UE may be required to read the SS block time index within the measurement gap at least once.
- For UEs in IDLE/INACTIVE mode, UEs may not necessarily need the SS block time index for the cell re-selection process. UEs will be able to uniquely identify whether two SS blocks from a cell are from the same beam or not by interval between the two SS blocks. If the SS blocks are separately by integer multiple of the configured SS burst set periodicity, the two SS blocks are from the same beam. Otherwise, they are from different beam. Given that the UE is able to uniquely identify SS blocks (although it may not have the SS block time index information), it can perform per beam filtering of the measurements and ultimately derive the cell level quality. It should be noted that when the UE needs to camp on a cell, it will be required to successfully read the SS block time index information (as well as SFN in NR PBCH) to derive the slot and radio frame boundaries.

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Decision: The document is noted. To be treated under 5.1.1.1.3 for the preparation of the final answer.

Friday:

[R1-1711907](#) [DRAFT] Reply LS response on reading time index indication for RRM measurements Intel

Decision: The document is noted and final LS is [approved in R1-1711908](#).

[R1-1710216](#) LS on Emergency Support in NR SA2, Nokia

The document was presented by Karri Ranta-aho from Nokia and asks RAN to clarify and confirm the support for emergency services including regulatory requirements in NR for Rel-15.

Discussion: No action to RAN1.
Decision: The document is noted.

[R1-1710220](#) Reply LS on Emergency Support in NR RAN, T-Mobile

The document was presented by Scott Migaldi from T-Mobile and is the reply to [R1-1710216](#).

- RAN confirms that support for Emergency Services and the corresponding support for Location Services is included in the scope for release 15 work. Support for Emergency Services and the corresponding support for Location Services will be specified by June 2018, and will be applicable for both a non-standalone NR UE that is supported with a LTE PCell and for a standalone NR UE. This work will not delay the previously approved December 2017 completion goal deadline for non-standalone NR.
- The regulatory performance targets in any radio access technology are specified in the US by the FCC as shown below:

FCC BENCHMARK	ACCURACY REQUIREMENT
APRIL 2017	40% of all 911 Calls <= 50m
APRIL 2018	50% of all 911 Calls <= 50m
APRIL 2020	70% of all 911 Calls <= 50m
APRIL 2021	80% of all 911 Calls <= 50m

Decision: The document is noted.

[R1-1710217](#) LS on Support for fake gNB detection mechanisms SA3, Nokia

The document was presented by Karri Ranta-aho from Nokia.

Discussion: Nokia suggested RAN1 looking at questions 4 and 5.

T-Mobile → make sure our reply won't have impact to roaming

Decision: The document is noted. Draft a reply in [R1-1711657](#) – (Nokia)

Friday:

[R1-1711657](#) [DRAFT] Response LS on Support for fake gNB detection mechanisms Nokia

Decision: The document is noted and final LS is [approved in R1-1711997](#).

[R1-1710213](#) LS on UE categories for NR and LTE-NR Dual Connectivity RAN2, NTT DOCOMO

The document was presented by Fred Takeda from NTT DOCOMO and asks RAN1 to provide input for Layer 1 parameter set today associated with UE category for LTE-NR DC and the NR standalone operation.

Decision: The document is noted.

[R1-1710221](#) Reply LS on UE categories for NR and LTE-NR Dual Connectivity RAN, NTT DOCOMO

The document was presented by Fred Takeda from NTT DOCOMO and is a preliminary reply to [R1-1710213](#).

Regarding item 1) The necessity of UE categories for UE in the LTE-NR DC (Opt. 3/4/7) as well as the NR standalone (Opt. 2)

RAN foresees industrial demand that LTE-NR DC (Option 3/4/7 series) enables operators to provide a certain peak data rate, as well as the NR standalone (Option 2). RAN would like to let RAN WGs to decide how the target peak data rate can be supported for LTE-NR DC and NR standalone in the specifications, e.g. whether the existing concept of UE category is inherited or a new concept in defining the target peak data rate is introduced. RAN sees that it is important that practical UE constraints are also taken into account in the UE capabilities and categories e.g. UE constraints due to hardware sharing during LTE – NR DC operations. It is also up to RAN WGs how the UE categories and capabilities are defined for LTE-NR DC as well as NR standalone.

Regarding item 2) The target peak data rate in DL and UL to be supported for Option 3 until December 2017 and item 3) The target peak data rate in DL and UL to be supported for the other options until June 2018.

RAN will discuss these items by email until TSG-RAN #77 and aim to decide the target value(s) at the #77 meeting.

Decision: The document is noted.

[R1-1710214](#) LS reply to SA2 on maximum data rate RAN2, MediaTek

The document was presented by ... from MediaTek and inform RAN1 of RAN2's conclusion that Options 3 also targets the same maximum data rate as NR SA, i.e. 20Gbps for downlink and 10Gbps for uplink per UE.

Decision: The document is noted.

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[R1-1711055](#) Initial views on UE category NTT DOCOMO, INC.

The document was presented by Fred Takeda from NTT DOCOMO.

Proposal 1: Define UE category based on the maximum number of DL/UL-SCH transport block bits transmitted/received within a fixed/reference time duration (e.g., 1ms).

- Difference in subcarrier-spacing is not visible in the UE category.
- FFS: different capabilities of MIMO/MCS results in different UE categories or in the same UE category with different values on some parameters.

One list of UE category is used for the use-cases of eMBB, URLLC, and mMTC.

Proposal 2: Identify soft-buffer definition for the LTE-NR dual connectivity, and inform RAN1's understanding to RAN2.

- Option 1: Soft-buffer sizes are defined for LTE operation and NR operation, respectively.
- Option 2: Soft-buffer size is defined as the sum of LTE and NR, and the soft-buffer is shared by LTE and NR in semi-static or dynamic manner.

Discussion: Panasonic → hard to downselect between option 1 & 2 in a timely manner (likely not before Dec 17).

Qualcomm → RAN1 should not worry too much at this meeting, mainly RAN2 issues.

Ericsson → no sure whether different UE categories are needed for eMBB, URLLC, and mMTC

Decision: The document is noted.

[R1-1711476](#) On UE Categories/Capabilities Ericsson

The document was presented by Daniel Larsson from Ericsson.

- Proposal 1: In NR, the number of supported MIMO layers is signalled as explicit capability (possibly per band) and not part of a UE category.
- Proposal 2: In NR, the modulation schemes is signalled as explicit UE capability and not part of a UE category.
- Proposal 3: Discuss whether NR capability signalling should allow the UE to indicate a peak data rate being lower than the peak L1 data rate derived from the supported scheduling bandwidth and modulation and MIMO schemes.
- Proposal 4: If it is agreed that UEs should be able to indicate a baseband processing restriction (see Proposal 2), the UEs indicate the total number of supported code blocks separately for UL and DL instead of a L1-bit-rate.
- Proposal 5: If Proposal 3 is agreed, the NW derives the UE's amount of supported soft buffer from the total number of supported code blocks in DL (hence, there is no need to specify and signal the soft-buffer size explicitly).
- Proposal 6: NR UEs should be able to advertise also a maximum scheduling bandwidth. The details need to be further studied
- Proposal 7: Discuss whether the total number of code block does not need to be signalled and this property can be derived from the maximum scheduling BW in addition to the other throughput affecting capabilities that the UE indicates

Decision: The document is noted.

LSs received during the meeting from other WGs

[R1-1711892](#) Reply LS on PBCH content RAN2, Huawei

Decision: The document is noted.

[R1-1711940](#) LS to RAN1 on NR basic handover RAN2, Ericsson

Decision: The document is noted. Prepare draft LS to RAN2 in [R1-1711968](#) – Dhiraj (Samsung)

[R1-1711968](#) [DRAFT] Reply LS response on NR basic handover Samsung

Decision: The document is noted and final LS is approved in [R1-1711987](#) with the addition of the following sentence in Section 1 *RAN1 will inform RAN2 when more details on RACH resources and the corresponding associations are available.*

[R1-1711950](#) LS to RAN1 on Random Access RAN2, Samsung

Decision: The document is noted.

Not treated.

[R1-1711949](#) Reply LS to RAN1 on UL data transmission without UL grant for NR RAN2, Huawei

5 NR

5.1 New Radio Access Technology - WID in RP-171485

[R1-1711642](#) NR topics requiring coordination between RAN1 and RAN2 RAN2 Chair

The document was presented by RAN1 Vice Chair on behalf of RAN2.

1. Beam management / recovery procedures: RAN2 assume that RAN1 is leading this topic and RAN2 will wait for RAN1 to make progress before discussing in detail. Once RAN1 has started to make progress then RAN2 will look at implications to RAN2 specifications. Input from RAN1 before the August WG meeting is preferable.
2. Beam aspects of random access procedures: Input from RAN1 before the August WG meeting is preferable.
3. UL/DL HARQ: RAN2 would like to receive input on e.g. the impact due to multiple numerologies, HARQ retransmission across numerologies, any other differences compared to LTE, etc. Initial input from RAN1 before the August WG meeting is preferable

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4. UL grant free transmission and relation to UL SPS: Based on LS [R1-1709805](#), RAN2 understands that discussion in RAN1 is still ongoing and expects to receive further information from a future meeting about any differences between UL SPS and grant free. Until such information is received RAN2 will continue to progress on RAN2 aspects of UL SPS, agreed to be as LTE as baseline. Additionally RAN2 will discuss some aspects of UL grant free and SPS, e.g. if any difference between them from RAN2 point of view, and will aim to provide input to RAN1 this meeting. Input from RAN1 before the August WG meeting is preferable
5. Impact of PDCCH design (e.g. 'core set') on PDCCH monitoring and DRX: RAN2 would like to receive input on e.g. the impact of the 'core set', beam related aspects, etc. Input from RAN1 before the August WG meeting is preferable.
6. PHR: RAN2 assume that RAN1 is leading this topic and we will implement any MAC signalling aspects as required (i.e. similar working arrangement as for LTE). Input from RAN1 before the October WG meeting is preferable.
7. UL power sharing between LTE/NR: RAN2 will need to be informed regarding the conclusions of RAN1 discussions on UL power sharing between LTE and NR.
8. Transport block sizes: RAN2 assume that RAN1 is leading this topic but that some coordination will be needed between RAN1 and RAN2.
9. L1 parameters to be configured by RRC: Initial input from RAN1 in advance of October WG meeting is preferable (in advance means enough time to enable the parameters to be analysed and contributions to be submitted to the October WG meeting). This implies the initial input should be available at the end of the September RAN1 ad hoc. It is acceptable if there is some degree of revision to the parameter set after the October WG meeting.
10. UE capabilities: RAN2 assume that we will lead the discussion of the UE category question delegated from RAN plenary (i.e. "RAN WGs to decide how the target peak data rate can be supported for LTE-NR DC and NR standalone in the specifications, e.g. whether the existing concept of UE category is inherited or a new concept in defining the target peak data rate is introduced" from LS RP-171480). RAN2 also has ongoing discussion on capability sharing and coordination between LTE and NR, where the exact capabilities for will require coordination with RAN1 and RAN4. RAN1 can begin discussions of the L1 capability parameters in parallel.

Discussion: Suggestion by VC to provide a reply per point (through an LS – at least for some of the bullets)

Ericsson: Make sure RAN1 is not starting email discussions during the upcoming summer period.

CATT: concern regarding RAN2's intention on point 4 (expecting info from RAN1, but has already decided to progress further).

CATT: also has concern of the impact to RAN2 if RAN1 cannot draw a clear answer to each of RAN2's questioning.

Huawei: let's continue RAN1 discussion on UL grant free transmission/UL SPS and later in the week liaise to RAN2.

Decision: The document is noted.

Coordinators for LSs to RAN2 (review status on Friday):

1. Beam management: Sundar (Qualcomm) [R1-1711683](#)
2. Beam aspects of Random Access: Teck Hu (Huawei) [R1-1711684](#)
3. UL/DL HARQ: Karri Ranta-aho (Nokia) [R1-1711685](#)
4. UL SPS / grant free: Fred (NTT DOCOMO) [R1-1711686](#)
5. PDCCH monitoring and DRX: Tony (CATT) [R1-1711687](#) - see 5.1.3.1

Friday

[R1-1711879](#) [Draft] LS on Beam Aspects of NR RACH Huawei

Decision: The document is noted and final LS is [approved in R1-1711880](#) with following updates

NR RACH procedures support [multiple beams](#) using a PRACH preamble format (Option 1) whereby the CP is inserted at the beginning of the [single or](#) consecutive multiple/repeated RACH sequences, the CP/GT between RACH sequences is omitted and the GT is reserved at the end of the [single or](#) consecutive multiple/repeated RACH sequences [e.g. potentially used for gNB Rxx beam sweeping](#).

An 4-step RACH procedure is supported in NR [and](#); a RACH transmission occasion is defined as the time-frequency resource on which a PRACH message 1 is transmitted using the configured PRACH preamble format with a single particular tx beam. The random access configuration is included in the remaining minimum SI. In NR, the RACH configuration provides at least the RACH time/freq. information and the RACH preamble format. [gNB can configure an association between one or multiple occasion for SS Block and a subset of RACH resources and/or a subset of preamble indices. Tx Beam for Msg 1 and Msg 3 transmissions \(for UE in IDLE mode\) is selected by the UE and downlink Tx beam for Msg 2 can be obtained by the detected preamble and/or the RACH resource.](#)

Email approval of the LS on beam management until July 10th – Qualcomm

Email approval of the LS on UL/DL HARQ until July 6th – Nokia

[R1-1711318](#) Discussion on the options in NR design Panasonic
[R1-1711366](#) "TS38.211 v0.0.1 NR; Physical channels and modulation" Ericsson LM
[R1-1711886](#) "TS38.211 v0.0.2 NR; Physical channels and modulation" Ericsson LM

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Discussion: Panasonic → as already commented earlier in the week, RAN1 should strive to endorse specs on day one of a meeting as the review of the specs during the meeting is very challenging and difficult.

Decision: The document is **endorsed as v0.1.0 in R1-1712004** as basis for further updates.

Email discussion until August meeting about all specs

- 1st step: All spec editors will provide new draft specs (including all agreements and WA) until July 14th
- 2nd step: All spec editors will provide further updated specs (including all agreements and WA) until August 4th
- All companies are recommended checking these specs and comment via the reflector
- All spec editors will update specs via the reflector and submit them to the August meeting (RAN1#90)
- Objective is to get the updated specs endorsed on Monday on Monday (day 1 of RAN1#90)

Email discussion until the August meeting w.r.t the RRC parameters list for NR

- Daniel (Ericsson) will provide an initial RRC parameters list until August 9th
- All companies are recommended checking it and comment via the reflector
- Daniel (Ericsson) will update it via the reflector and submit it to the August meeting (RAN1#90)
- Objective is to get the (updated) RRC parameters list agreed on Monday (day 1 of RAN1#90)

5.1.1 Initial access and mobility

Refer to [R1-1709821](#) for work plan.

Friday

R1-1711984 [Draft] LS on NR initial access and mobility NTT DOCOMO

Decision: The document is noted and final LS to RAN2 is **approved in R1-1712001**.

R1-1711985 [Draft] LS on NR initial access and mobility NTT DOCOMO

Decision: The document is noted and final LS to RAN4 is **approved in R1-1712003** with following updates
Confirm Working Assumption for NR-SSS design from RAN1#89, **with following updates except for:**

- Ordering of initial state:
 - NR-SSS, initial value $x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0$

5.1.1.1 Synchronization signal and initial access procedure

5.1.1.1.1 Remaining details on SS sequence design

*Include confirmation of WA of NR-SSS, and other details on NR-SSS such as sequence to RE mapping
Note that NR-PSS and NR-SSS sequence design and RE mapping need to be finalized in this meeting*

R1-1710501 NR PSS and SSS design Intel Corporation

- Proposal 1: Confirm the WA on NR-SSS made in RAN1#89 meeting.
- Proposal 2: Capture in the specification the text proposed in Section 3.

Decision: The document is noted.

R1-1710807 On the Robustness of NR SSS in Frequency Offset MediaTek Inc.

- Observation 1: Due to the selection of m_0 , current NR-SSS design is quite vulnerable to frequency offset.
- Proposal 1: NR-SSS should adopt the following m_0 and m_1 mapping:

$$m_0 = \left(3 \left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)} \right) \times 5; \quad m_1 = (N_{ID}^{(1)} \bmod 112) + 1$$

Discussion: Huawei → no evaluations have motivated this proposal

Decision: The document is noted.

Agreement: Confirm Working Assumption for NR-SSS design from RAN1#89, except for:

- Ordering of initial state:
 - NR-SSS, initial value $x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0$
- Cyclic shift values m_0 and m_1 :
 - FFS between formulae in the RAN1#89 working assumption and the following formulae, to be evaluated during this week and confirmed by Friday:

$$m_0 = \left(3 \left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)} \right) \times 5; \quad m_1 = (N_{ID}^{(1)} \bmod 112)$$

Thursday

Above agreement is modified as follows:

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Agreement: Confirm Working Assumption for NR-SSS design from RAN1#89, with the following updates:

- Ordering of initial state:
 - NR-SSS, initial value $x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0$
- Cyclic shift values m_0 and m_1 (as defined in [R1-1711888](#))

R1-1711810 **Analysis of SSS Proposals** **Intel Corporation**

Decision: The document is noted.

R1-1711860 **Evaluation of NR-SS** **Huawei, HiSilicon**

Decision: The document is noted.

R1-1711888 **WF on m_0 and m_1 for NR-SSS** **NTT DOCOMO, ITL, Intel, Samsung, InterDigital, Motorola Mobility, Lenovo**

- The cyclic shift values m_0 and m_1 are jointly determined by the cell IDs carried by NR PSS (i.e., $N_{ID}^{(2)} = 0, 1, 2$) and NR SSS (i.e., $N_{ID}^{(1)} = 0, 1, \dots, 335$)), where the cell ID is given by $N_{ID}^{cell} = 3N_{ID}^{(1)} + N_{ID}^{(2)}$
 - $m_0 = \left(3 \left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)} \right) 5$
 - $m_1 = (N_{ID}^{(1)} \bmod 112)$

Discussion: Also supported by Mediatek, LGE, ZTE.

Decision: The document is agreed.

Agreement: For NR-PSS:

- initial value $x(0) = 0, x(1) = 1, x(2) = 1, x(3) = 0, x(4) = 1, x(5) = 1, x(6) = 1$

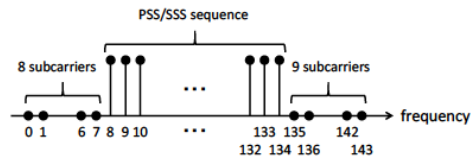
R1-1711654 **WF on NR-SS sequence design** **NTT DOCOMO, ZTE, InterDigital**

- Update agreements on NR-PSS with following change
 - Number of PSS sequences: 3
 - PSS sequence details:
 - Frequency domain-based pure BPSK M sequence (fixing the time/freq. offset ambiguity)
 - 1 polynomial: Decimal 145 (i.e. $g(x) = x^7 + x^4 + 1$)
 - In freq. domain 3 cyclic shifts (0, 43, 86) to get the 3 PSS signals
 - Initial poly shift register value: $x(0) = 0, x(1) = 1, x(2) = 1, x(3) = 0, x(4) = 1, x(5) = 1, x(6) = 1$
- Confirm working assumptions on NR-SSS with following changes
 - NR-SSS sequence design is 1 polynomial with 127 cyclic shifts, and 1 another polynomial with 9 cyclic shifts
 - Two generator polynomials will be defined for m-sequences, and cyclic shift according to NR-cell ID is applied to each m-sequence
 - Two polynomials are generated by $g_0(x) = x^7 + x^4 + 1$ and $g_1(x) = x^7 + x + 1$
 - Initial poly shift register value: $x(0) = 1, x(1) = 0, x(2) = 0, x(3) = 0, x(4) = 0, x(5) = 0, x(6) = 0$
 - The cyclic shift values m_0 and m_1 are jointly determined by the cell IDs carried by NR PSS (i.e., $N_{ID}^{(2)} = 0, 1, 2$) and NR SSS (i.e., $N_{ID}^{(1)} = 0, 1, \dots, 335$)), where the cell ID is given by $N_{ID}^{cell} = 3N_{ID}^{(1)} + N_{ID}^{(2)}$
 - Option 1
 - $m_0 = 3 \left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)}$
 - $m_1 = (N_{ID}^{(1)} \bmod 112) + m_0 + 1$
 - Option 2
 - $m_0 = \left(3 \left\lfloor \frac{N_{ID}^{(1)}}{112} \right\rfloor + N_{ID}^{(2)} \right) K$, where $K > 1$ (e.g., 5)
 - $m_1 = (N_{ID}^{(1)} \bmod 112)$
 - Down-selection of above options will be done within this meeting
- NR-SSS sequence is mapped to consecutive 127 subcarriers as well as NR-PSS
- Frequency center of NR-PSS/SSS is aligned with frequency center of NR-PBCH
- Update agreements on number of NR-SSS signals with following change
 - Number of SSS signals: 1008 post-scrambling
 - Note that number of NR physical cell IDs is 1008

Decision: The document is noted.

Agreements:

- NR-SSS sequence is mapped to consecutive 127 subcarriers as well as NR-PSS as follows:



- Centre frequency of NR-PSS/SSS is aligned with centre frequency of NR-PBCH
 - i.e. mapped on the 7th to 18th PRBs of the 24 PRBs used for the SS block
- Update agreements on number of NR-SSS signals with following change
 - Number of SSS signals: 1008 post-scrambling
- The number of NR physical cell IDs is 1008

Not treated.

R1-1709884	NR-SS sequence design	ZTE
R1-1709911	Finalization of the NR-SSS	Huawei, HiSilicon
R1-1710022	Remaining detail of NR-PSS and NR-SSS Sequence Design and RE mapping	CATT
R1-1710258	Remaining issue on SS Sequence Design	LG Electronics
R1-1710623	Remaining details on SS sequence design	Samsung
R1-1710913	On Design of Synchronization Signal Sequences in NR	InterDigital, Inc.
R1-1710975	Considerations and Evaluation on SS Sequence Design for New Radio	ITRI
R1-1711056	Discussion on remaining details on SS sequence design for NR	NTT DOCOMO, INC.
R1-1711135	Synchronization signal sequence design	Qualcomm Incorporated
R1-1711260	Remaining open issues on NR Synchronisation signal design	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711275	Discussion on NR-SSS working assumption	Motorola Mobility, Lenovo
R1-1711371	Remaining details on NR-SS sequence design	Ericsson

5.1.1.1.2 SS burst set composition

Include candidate locations of SS block within a slot

[R1-1711372](#) SS burst set composition Ericsson

- Proposal 1: The network decides whether a SS block position should be allocated or not.
- Proposal 2: For compositions with two SS blocks per a slot, for 15, 30 and 120 kHz, the SS blocks start at the 3rd and 9th symbols.
- Proposal 3: For 15 kHz subcarrier spacing and below 3 GHz carrier frequency, an SS block may be initiated at the 3rd symbol in a 14 symbol slot. SS blocks are transmitted in consecutive slots.
- Proposal 4: For 15 kHz subcarrier spacing and between 3 and 6 GHz carrier frequency, an SS block may be initiated at the 3rd and 9th symbols per 14 symbol slot.
- Proposal 5: For 30 kHz subcarrier spacing, an SS block may be initiated at the 3rd and 9th symbols in a 14 symbol slot. SS blocks are transmitted in every 2nd slot.
- Proposal 6: For 120 kHz, an SS burst is composed by up to 8 SS blocks.
- Proposal 7: For 120 kHz, the SS burst set is composed by up to 8 SS bursts with 1 DL/UL slot in-between SS bursts.
- Proposal 8: For 240 kHz, an SS slot pair is composed by SS blocks every 5th symbol, starting at the 5th symbol.
- Proposal 9: For 240 kHz, an SS burst is composed by up to 16 SS blocks (4 SS slot pairs).
- Proposal 10: For 240 kHz, the SS burst set is composed by up to 4 SS bursts with 8 DL/UL slots in-between bursts.

Decision: The document is noted.

[R1-1710412](#) NR SS block and burst set composition AT&T

- Proposal 1: For 15kHz, 30kHz, and 120kHz SS Block SCS, the two candidate SS Block positions within a 14 symbol slot are symbols 4-7 and 8-11.
- Proposal 2: For 240kHz SS Block SCS, the four candidate SS Block positions within two consecutive slots of 14 symbols are symbols 4-7 and 8-11 of the first slot, and symbols 2-5 and 6-9 of the second slot.
- Proposal 3: NR should support dedicated signalling for UE-specific indication of valid SS block time locations within a given SS burst set which accommodate different SS burst set periodicities.

Decision: The document is noted.

[R1-1711580](#) SS burst set composition Samsung (Revision of [R1-1710624](#))

- Proposal 1: For each frequency band, the NR-SS block mapping pattern is fixed/predefined.
- Proposal 2: For below 6GHz NR, the SS block mapping patterns shown in FIGURE 1 should be considered for SS burst set composition.

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- Proposal3: For above 6GHz NR, the SS block mapping patterns shown in FIGURE 3 should be considered for SS burst set composition.
- Proposal 4: SS blocks comprising an SS burst set shall be mapped in max 2~4ms duration, starting from a beginning of a frame or a half-frame.

Decision: The document is noted.

R1-1711645 SS burst set composition consideration Qualcomm Incorporated (Revision of [R1-1711136](#))

- Proposal 1: For burst-set with $L = 4$ SS blocks, the blocks start in OFDM symbols {2,8,17,21}. Burst-set pattern with $L \in \{8, 64\}$ SS blocks is obtained by further tiling the burst-set pattern for $L = 4$.
- Observation 1: For burst-set with $L = 4$ blocks, each pair of blocks has a unique inter-block distance. These 4-choose-2 unique distances are {4, 6, 9, 13, 15, 19}.
- Observation 2: In burst-set pattern with $L \leq 8$ blocks, for any two pairs of blocks $\{l_1, l_2\}$ and $\{l_3, l_4\}$ such that $\Delta(\{l_1, l_2\}) = \Delta(\{l_3, l_4\})$, we have that $l_1 + l_2 = l_3 + l_4$ and thus $\delta(\{l_1, l_2\}) = \delta(\{l_3, l_4\})$. In words, all blocks pairs with the same inter-block distance have the same bit-difference between their indices (and thus the same bit-difference between their PBCH payloads.)
- Proposal 2: When UE assumes SS burst set periodicity of x ms (e.g. x = 20ms), UE assumes the same set of SS blocks within SS burst set are transmitted with periodicity of x ms
- Proposal 3: When UE assumes SS burst set periodicity of x ms (e.g. x = 20ms), if NW transmits the SS burst set with a smaller periodicity y ms ($y < x$, e.g. y=10ms), UE can assume that the same set of SS blocks within SS burst set are transmitted with periodicity of y ms
- Proposal 4: UE assumes that the transmitted SS blocks in a SS burst set are always logically consecutive, i.e. between any two transmitted SS blocks in a SS burst set, there are no gaps of non-transmitted SS block(s)

Decision: The document is noted.

- FFS offline (Jorma Kaikkonen, Nokia):
 - a. 7 symbol slot is only considered for 15 kHz subcarrier spacing?
 - b. 1 or 2 SS blocks within a 14 symbol slot?
 - c. If 2 SS blocks, is there a need for gaps between SS blocks in a 14 symbol slot?
 - d. Which are the starting symbols for SS blocks for each subcarrier spacing?

Revisit on Wednesday afternoon - [R1-1711678](#)

Thursday

[R1-1711678](#)

Way forward on the mapping of SS blocks

Nokia

[R1-1711899](#)

Way forward on the mapping of SS blocks

Nokia

Agreements:

- Agree on pages 5, 7, 8 (30 kHz subcarrier spacing case) in [R1-1711899](#)
- **Working assumption** on pages 9, 10 (120, 240 kHz subcarrier spacing cases) in [R1-1711899](#)
 - Working assumption can be revisited if there are serious implications to UE AGC operation.

Agreements:

- For 15 kHz subcarrier spacing case,
 - Map two SS blocks candidate locations to the slot of 14 symbols as follows
 - First candidate location is at symbols 2-5
 - Second candidate location is at symbols 8-11

[R1-1711939](#)

Way forward on the mapping of SS blocks with 30kHz SCS

Huawei, HiSilicon, CATT, CATR,

OPPO, MediaTek, Vivo

Possible agreements:

- For 30 kHz subcarrier spacing case, try to agree on Option 1 or Option 3 until Friday, but if not, RAN1 will conclude that no consensus in RAN1 about the second SS block mapping pattern
- Option 1:
 - Map two SS blocks candidate locations to the slot of 14 symbols as follows
 - First candidate location is at symbols 2-5
 - Second candidate location is at symbols 8-11
 - Supported by Intel, LGE, Qualcomm, DOCOMO, ETRI, Samsung, ZTE, Ericsson, ITL (9)
- Option 3:
 - For slot of 14 symbols, two SS blocks are mapped within 14 symbols
 - First candidate SS block location is at symbols 1-4
 - Second candidate SS block location is at symbols 8-11
 - For slot of 7 symbols, one SS block is mapped within 7 symbols

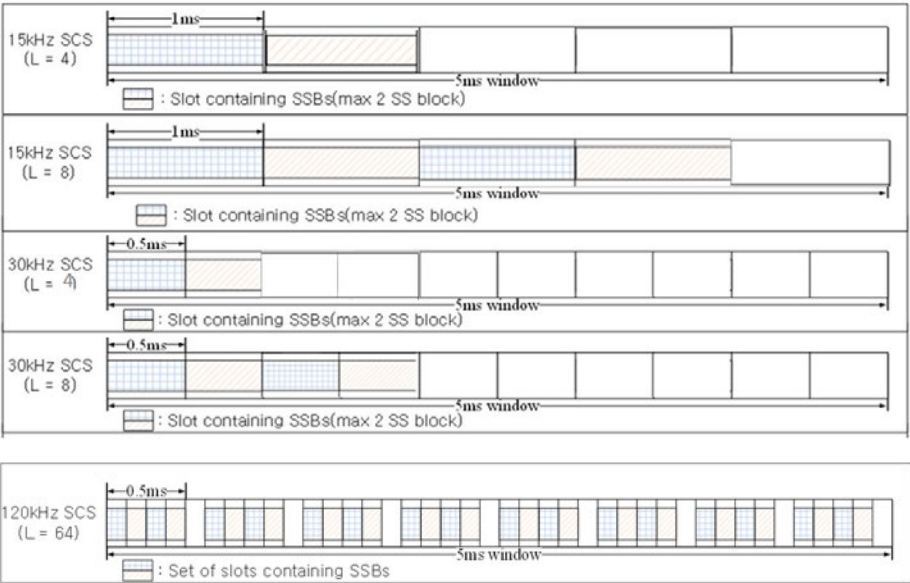
- Candidate SS block location is at symbols 1-4
- Supported by Huawei, HiSilicon, CATT, CATR, OPPO, MediaTek, vivo (7)

Friday
R1-1711939 Way forward on the mapping of SS blocks with 30kHz SCS Huawei, HiSilicon, CATT, CATR, OPPO, MediaTek, Vivo

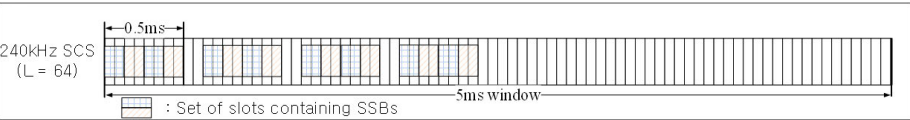
- Agreements:
- For 30 kHz subcarrier spacing case, the second SS block mapping pattern is
 - Map two SS blocks candidate locations to the slot of 14 symbols as follows
 - First candidate location is at symbols 2-5
 - Second candidate location is at symbols 8-11
 - Note: In the case of NR-LTE coexistence, the first SS block mapping pattern (i.e., page 7 in R1-1711899) can be used
 - Note: It is up to RAN4 to decide the SS block mapping pattern for each frequency band

R1-1711854 SS burst set composition LG Electronics, Nokia
Updated in R1-1711906

- Agreements:
- For 15k Hz, 30 kHz, and 120 kHz subcarrier spacing, the following mapping to slots in a half radio frame is agreed
 - Note: For NR and LTE coexistence, duplex direction alignment can be achieved by subframe offset



- Agreement:
- For 240 kHz subcarrier spacing, the following mapping slot in a half radio frame is agreed



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Not treated.

R1-1710372	Remaining issues on SS block and SS burst set composition	vivo
R1-1709885	The composition of SS burst sets	ZTE
R1-1709912	SS Burst Set and Block Composition	Huawei, HiSilicon
R1-1710023	SS Burst Set Composition and SS Block Configuration	CATT
R1-1710131	Discussion on design of SS block	Guangdong OPPO Mobile Telecom.
R1-1710259	Discussion on SS burst set composition	LG Electronics
R1-1710371	Remaining issues on the subcarrier spacing of SS block	Spreadtrum Communications
R1-1710502	SS Burst Set Composition	Intel Corporation
R1-1710798	Discussion on SS burst set composition	MediaTek Inc.
R1-1710914	On SS Burst Set Composition and Multiplexing	InterDigital, Inc.
R1-1711057	Discussion on SS burst set composition for NR	NTT DOCOMO, INC.
R1-1711232	Indication of actually transmitted SS blocks	Sharp
R1-1711261	On SS Burst Set Composition	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711394	Discussion on SS Burst Set Design	Conviva Wireless LLC

5.1.1.1.3 Timing indication based on SS block

Include discussion and evaluation based on email discussion [89-15] such as SS block time index indication mechanism, identification of radio frame boundary and identification of SFN

Note that SS block time index indication mechanism needs to be finalized in this meeting

[R1-1711646](#) Timing indication based on SS block consideration Qualcomm Incorporated (Revision of [R1-1711137](#))

- Proposal 1: PBCH payload carries the synchronization signal block index and 5ms timing boundary.
- Proposal 2: For 10-bit SFN ($s_9, s_8, \dots, s_2, s_1, s_0$), all bits except (s_2, s_1) are sent in PBCH payload. Furthermore, two bits (s_2, s_1) are signalled in PBCH scrambling or in SSS/DMRS.
- Observation 1: Multi-cell interference should be considered in deriving the number of bits that can be carried over PBCH DMRS, as cross-correlation between DMRS sequences across cells significantly impacts DMRS detection performance.
- Observation 2: For single-shot DMRS detection at -6dB SINR, only 2 bits are reliably delivered with 1/3 DMRS while less than 2 bits are reliably delivered with 1/4 DMRS for any PCI combinations.
- Observation 3: The capability of carrying information in DMRS reduces significantly if a high DMRS detection requirement is required e.g., 0.1% DMRS detection error.

Decision: The document is noted.

[R1-1711589](#) Timing indication based on SS block Samsung (Revision of [R1-1710625](#))

Proposal 1: 7-bit MSB of SFN explicitly indicated in MIB and 3-bit LSB of SFN implicitly indicated by using scrambling.

Proposal 2: Multiple NR-DMRS sequences are introduced to indicate the SS block index within an SS burst set.

- 1st preference: DMRS to indicate SS block indices in order to avoid additional latency and power consumption of reading PBCH payload.
- 2nd preference: DMRS to indicate partial SS block indices and offload remaining SS block indices in explicit bits of PBCH payload, if this design can satisfy the reliability and latency issues addressed by LS R2-1706160.

Observations:

- NR-DMRS sequence detection for NR-SS block index identification is much more robust than PBCH explicit indication, even more robust against interference in multi-cell scenarios.
- NR-DMRS sequence detection has no impact on the channel estimation for NR-PBCH detection.
- NR-DMRS uneven RE mapping cannot improve PBCH detection but only results in DMRS performance loss, compared with even mapping assuming similar DMRS overhead.

Proposal 3: NR-DMRS with even RE mapping is preferred for SS block index indication.

Decision: The document is noted.

[R1-1710905](#) Signaling of SS block index Apple Inc.

- Proposal 1: SS block should avoid the 1st symbol of every 0.5ms, which has longer duration compared to other OFDM symbols, to avoid ambiguity in UE detection.
- Proposal 2: nominal SS blocks are partitioned into SS bursts (or groups). Which SS blocks/bursts are actually transmitted can be configured by the network, although the indexing is based on the nominal SS blocks.
- Proposal 3: SS burst index is included in information bits of PBCH, while SS block index within a SS burst is signaled through PBCH implicitly, e.g., with different scrambling codes.
- Proposal 4: SS blocks within each SS burst can be combined to improve PBCH decoding reliability.
- Proposal 5: the set of K different scrambling codes can be selected from existing class of LFSR based sequences, such as M-sequence, Gold sequence, etc.
- Proposal 6: the number of SS blocks per SS burst (or group) K should be pre-determined, and can be band dependent.

- Observation 1: gNB beam mapping to SS blocks is transparent to UEs, regardless of the selection of Kand M
- Decision:** The document is noted.

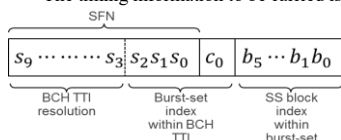
R1-1711373 Timing indication based on SS block Ericsson

- Proposal 1: The timing indication includes half-frame indication, slot/slot pair indication within a half-frame and the SS block indication within a slot/slot pair.
- Proposal 2: The slot group with consecutive or nonconsecutive slots to cover four possible SS block locations is proposed to unify the time indication design for all frequency ranges.
- Proposal 3: The half-frame specific scramble sequence is applied on the coded bits of NR-PBCH payload to indicate the half frame number $n_{\text{half sfn}} = \{0, \dots, 15\}$.
- Proposal 4: The explicit bits attached with the NR-PBCH MIB are used to indicate the slot group location.
- Proposal 5: The cover sequence can be used to implicitly indicate the four possible SS block positions within a slot group.

Decision: The document is noted.

Proposal:

- The timing information to be carried is as follows:



- This information is carried at least partly explicitly on the PBCH
- Options for a hybrid solution:
 - SS block index within burst set is carried by DMRS
 - 2 bits below 3 GHz, 3 bits for 3-6 GHz, 6 bits above 6 GHz
 - Achieves latency gain by enabling reception without decoding
 - Concerns on ability to carry so many bits on DMRS, and would require the DMRS to be invariant
 - SS block index (2/3 bits) within burst is carried by DMRS
 - 4/3 bits to indicate the burst in the burst set are carried in NR-PBCH payload
 - Can achieve latency gain below 3/6 GHz
 - Can enable the UE to obtain the beam index for inclusion in SS block measurement reporting without NR-PBCH decoding
 - But would still require the DMRS to be invariant
 - 2 bits of SFN carried by DMRS
 - Achieves complexity gain but not latency gain
 - SS block index (2 bits) within burst is carried by scrambling of both NR-PBCH and DMRS
 - 4 bits to indicate the burst in the burst set are carried in NR-PBCH payload
 - Achieves latency gain below 3 GHz
 - 3 bits of SFN carried by NR-PBCH payload scrambling

Agreement:

- One of the following two alternatives will be adopted (It is not precluded to adopt a different one of these alternatives below and above 6 GHz):
 - Alt1: 3 bits of SS block index are carried by changing the DMRS sequence within each 5ms period
 - It can be further considered to limit the number of bits carried in this way to 2 if carrying 3 bits is shown to cause problems
 - Alt2: 2 bits of SFN are carried by changing the DMRS sequence every 20ms
 - Check on Friday whether a decision can already be made between Alt 1 and Alt 2
- It can be further considered whether, in addition to the above, 3 bits of the SFN can be carried by scrambling of the PBCH
- Remaining bits of the timing indication are carried explicitly in the NR-PBCH payload
- Note that it is suggested that the above 2 bullets are actually equivalent.

Thursday

Alt.1 supported by ZTE, Samsung, NTT DOCOMO, Intel, vivo, Fujitsu, Nokia, InterDigital, Sharp, LGE, Sony

- Objected by Motorola mobility, Mediatek, Qualcomm, Huawei, HiSilicon, OPPO, Lenovo

Alt.2 supported by Qualcomm, MotM, CATT, Huawei, HiSilicon, Ericsson, Lenovo, OPPO

- Objected by Samsung, LGE, NTT DOCOMO, vivo, Fujitsu, Interdigital, ZTE, Nokia

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Conclusion: RAN1 will definitely select either Alt. 1 or Alt. 2 until Friday (11am), and all proponents are recommended to have following additional evaluations

- Individual pair of cell ID with the condition of worst case
- Random cell ID association with the separation of worst case DMRS pairs to different frequency shift position

Continue discussions until Friday – Samsung (Le)/Qualcomm (Peter)

Friday

Situation unchanged

Ericsson: Ok with either way – everyone should compromise, do not understand the companies objecting to these proposals

Qualcomm: decision should not be taken on counting the number of supporting companies and would like to see evaluation (asynchronous networks) and performance results of alternative 1. Suggested that the synchronization indication is included in the system information and RRM configuration.

Ericsson: could RAN1 decide first on synch indication and then make the choice between Alt 1 & 2?

Agreements:

- An indication related to the synchronization information is provided to the UE
 - When there is the indication for a carrier, UE can utilize serving cell timing to derive the index of SS block transmitted by neighbour cell (e.g., radio frame or SFN or symbol level synchronization)
 - Note that it is up to RAN2 how to provide this indication
 - Note that it is up to RAN4 about the feasibility of synchronization and its requirement

Chair : new round of show of hands

Alt.1 supported by ITL, vivo, Sony, Samsung, ZTE, DOCOMO, LGE, Sharp, ETRI, Fujitsu, Interdigital, Nokia, Intel (13)

- Objected by Qualcomm, Apple, Motorola Mobility (3)

Alt.2 supported by Qualcomm, Mediatek, OPPO, Huawei, HiSilicon, Xiaomi, Sequans, Motorola mobility, Lenovo, Apple, CATT (11)

- Objected by LGE, Samsung (2)

Qualcomm: still objecting to Alt.1 – has not got a technical answer showing the benefit of Alt 1 vs Alt 2

Samsung: RAN1 agreed synch indication, Alt 1 should be agreeable - very disappointed by Qualcomm

Let's revisit in the afternoon.

For sake of making progress, MotM and Apple withdrew their objection to Alt.1

Qualcomm could agree to take it as a working assumption

Agreements:

- **Working assumption:** 3 bits of SS block index are carried by changing the DMRS sequence within each 5ms period
 - It can be further considered to limit the number of bits carried in this way to 2 if carrying 3 bits is shown to cause problems
- FFS: details of scrambling of the PBCH which may or may not carry a part of timing information
- FFS: 5 ms half radio frame interval indication
- Remaining bits of the timing information are carried explicitly in the NR-PBCH payload

[R1-1711868](#)

WF on DMRS indication Samsung

[R1-1711946](#)

WF on DMRS indication Samsung

[R1-1711967](#)

Timing information indicated by DMRS ZTE

[R1-1711952](#)

Performance evaluation of interference randomization Qualcomm Incorporated

Not treated.

[R1-1709886](#)

Timing indication based on SS blocks ZTE

[R1-1709901](#)

Scrambling pattern for timing indication over PBCH Sequans Communications

[R1-1709913](#)

Time Index Indication Huawei, HiSilicon

[R1-1710024](#)

SS-block time index indication CATT

[R1-1710132](#)

Discussion on the timing indication of SS block Guangdong OPPO Mobile Telecom.

[R1-1710223](#)

Discussion on timing indication based on SS block Beijing Xinwei Telecom Techn.

[R1-1710231](#)

Consideration on timing indication based on SS block Fujitsu

[R1-1710260](#)

Discussion on SS block time index indication LG Electronics

[R1-1710370](#)

Discussion on time index indication Spreadtrum Communications

[R1-1710373](#)

Discussion on SS block time index indication vivo

[R1-1710419](#)

SS block time index indication AT&T

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R1-1710503	Time Index Signaling for SS Blocks	Intel Corporation
R1-1710799	Further discussion on SS block index indication	MediaTek Inc.
R1-1710858	Discussion on SS block time index indication	Sony
R1-1710915	On SS Block Based Timing Indication in NR	InterDigital, Inc.
R1-1711058	Discussion on timing indication based on SS block for NR	NTT DOCOMO, INC.
R1-1711262	SS block time index indication	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711274	Discussion on location and timing indication of SS block	Xiaomi Technology
R1-1711276	Indication of SS block timing information	Motorola Mobility, Lenovo
R1-1711351	On timing indication for NR	ITL

5.1.1.1.4 Remaining details on multiple SS block transmissions in wideband CC

Include number of SS blocks in wideband CC, RRM measurement with multiple SS blocks in wideband CC, and how to inform UE about presence/parameters of SS block(s)

R1-1709887	Multiple SS blocks in wideband CC	ZTE
R1-1709973	On initial access for wideband carrier	Huawei, HiSilicon
R1-1710025	Multiple SS block Transmission in wideband	CATT
R1-1710133	Remaining details on multiple SS block transmissions in wideband CC	Guangdong OPPO Mobile Telecom.
R1-1710261	Remaining issues on Multiple SS block transmissions in wideband CC	LG Electronics
R1-1710374	SS block transmissions and RRM measurement in wideband CC	vivo
R1-1710420	SS block transmissions in a wideband CC	AT&T
R1-1710504	SS Block(s) in Wideband Operation	Intel Corporation
R1-1710626	Remaining details on multiple SS block transmissions in wideband CC	Samsung
R1-1710882	Multiple SS Blocks in wideband carrier	Ericsson AB
R1-1711059	Discussion on remaining details on multiple SS block transmissions in wideband CC for NR	NTT DOCOMO, INC.
R1-1711138	Multiple SS block transmissions design in wideband CC	Qualcomm Incorporated
R1-1711263	SS-block transmission in multi CC deployments	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711352	Multiple SS block indication in wideband CC	ITL
R1-1711364	Multiple SS block transmissions in a wideband CC	ASUSTEK COMPUTER (SHANGHAI)

5.1.1.2 Broadcast signal/channel

5.1.1.2.1 NR-PBCH contents and payload size

Include NR-PBCH contents, required number of bits for each content and corresponding payload size

R1-1709888	NR-PBCH contents	ZTE
R1-1709914	NR-PBCH contents and payload size	Huawei, HiSilicon
R1-1710026	NR PBCH Contents and Payload Size	CATT
R1-1710262	Consideration on NR-PBCH contents and payload size	LG Electronics
R1-1710375	Views on NR-PBCH contents and payload size	vivo
R1-1710421	Details of NR-PBCH contents	AT&T
R1-1710505	NR PBCH Design	Intel Corporation
R1-1710627	NR-PBCH contents and payload size	Samsung
R1-1710797	Discussion on PBCH Contents	MediaTek Inc.
R1-1710916	On Physical Broadcast Channel in NR	InterDigital, Inc.
R1-1711060	Discussion on NR-PBCH contents and payload size	NTT DOCOMO, INC.
R1-1711139	PBCH contents and payload size consideration	Qualcomm Incorporated
R1-1711264	NR-PBCH content	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711277	Discussion on NR-PBCH contents	Motorola Mobility, Lenovo
R1-1711374	NR-PBCH Content and payload size	Ericsson

5.1.1.2.2 NR-PBCH RE mapping and SS block composition

Include discussion and evaluation based on email discussion [89-15] such as SS block composition, NR-PBCH RE mapping, etc. Note that SS block composition needs to be finalized in this meeting

From Wednesday morning offline

Agreements

- For the case of 2 PBCH symbols within the SS block: PSS-PBCH-SSS-PBCH
- PBCH RE mapping: Alt. 1, NR-PBCH coded bits of the NR-PBCH code block(s) are mapped across REs in N PBCH symbols, where N is the number of PBCH symbols in a NR-SS block

R1-1711140	SS block composition and PBCH RE mapping design	Qualcomm Incorporated
R1-1710376	NR-PBCH RE mapping and evaluation	vivo
R1-1710628	NR-PBCH RE mapping and SS block composition	Samsung
R1-1710369	NR-PBCH RE mapping and SS block composition	Spreadtrum Communications
R1-1710506	SS Block Composition	Intel Corporation
R1-1710800	Performance evaluation for RE mapping and SS block composition	MediaTek Inc.
R1-1710917	On NR-PBCH RE Mapping and SS Block Composition	InterDigital, Inc.
R1-1709889	NR-PBCH RE mapping and SS block composition	ZTE
R1-1710006	Discussion and evaluation on NR-PBCH design	Huawei, HiSilicon
R1-1710027	NR PBCH RE mapping in SS Block	CATT
R1-1710224	Discussion and evaluation on SS block composition	Beijing Xinwei Telecom Techn.
R1-1710263	Discussion on NR-PBCH RE mapping and SS block composition	LG Electronics
R1-1710859	Considerations on SS block compositions	Sony
R1-1711061	Discussion on NR-PBCH design and SS block composition	NTT DOCOMO, INC.
R1-1711265	SS block composition	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711278	NR-PBCH RE mapping	Motorola Mobility, Lenovo
R1-1711375	NR-PBCH RE mapping and SS block composition	Ericsson

5.1.1.2.3 Sequence design of DMRS for NR-PBCH

Include DMRS sequence generation, sequence to RE mapping, etc.

Note that DMRS sequence design and RE mapping need to be finalized in this meeting

From Wednesday morning offline

Proposed working assumption (from Wednesday morning offline):

- Sequence type: Gold sequence
 - If cross correlation issues are found, other sequences can be considered
- Sequence initialization from cell ID, and 2 or 3 bits from time identification
- Different sequences in the N NR-PBCH symbols
 - Using longer sequence, different mapping, different initialization etc.

Working assumption:

- Sequence type: Gold sequence
 - If cross correlation issues are found, other sequences can be considered
- Sequence initialization from cell ID, and 2 or 3 bits from time identification
- Different sequences in the N NR-PBCH symbols
 - FFS: Using longer sequence, different mapping, different initialization etc.

Conclusion: Discuss further until Thursday and downselect from:

- Alt 1: Equal DMRS density across NR-PBCH with 3 RE/PRB/Symbol
 - Supported by NTT DOCOMO, Huawei, HiSilicon, vivo, ITL, LGE, OPPO, Intel, Mediatek, Ericsson, Fujitsu, ETRI, Samsung
- Alt 2: Equal DMRS density across NR-PBCH with 4 RE/PRB/Symbol
 - Supported by Samsung, ZTE, CATT, LGE
- Alt 3: Unequal DMRS density with 4 RE/PRB/Symbol outside the NR-PSS/SSS bandwidth and 2 RE/PRB/symbol inside the NR-PSS/SSS bandwidth
 - Supported by Qualcomm, Sony, Interdigital, Sierra

Thursday

CATT, ZTE (for compromise) also support Alt.1

Nokia can also go to Alt.1 although no evaluations have been performed (only Alt.2 and 3 were evaluated)

Agreement: Equal DMRS density across NR-PBCH with 3 RE/PRB/Symbol

Agreement: DMRS have the same RE position in all NR-PBCH symbols

Continue discussion on further details (Daewon, Intel)

Friday

[R1-1711943](#) Discussion on DMRS sequence for NR PBCH Intel

Conclusions:

- Companies are encouraged to provide the following information on NR PBCH DMRS sequence until 28th July in order to finalize the design – Daewon (Intel)
 - Sequence generation related parameters
 - Gold Code LFSR size
 - Gold Code Polynomials
 - initial state configuration
 - output shift offset (e.g. Nc in LTE)
 - Sequence Modulation
 - Sequence mapping to NR PBCH DMRS RE positions
 - Exact NR PBCH DMRS RE positions within the NR PBCH resource
 - Some examples of the information are shown in [R1-1711943](#)

Not treated.

R1-1709890	NR-PBCH DMRS design	ZTE
R1-1710007	DMRS for NR-PBCH	Huawei, HiSilicon
R1-1710028	NR PBCH DM RS sequence design and RE mapping	CATT
R1-1710225	Discussion and evaluation on DMRS design for NR-PBCH	Beijing Xinwei Telecom Techn.
R1-1710232	Discussion on DMRS for NR-PBCH	Fujitsu
R1-1710264	Discussion on DMRS design for NR-PBCH	LG Electronics
R1-1710507	DMRS Sequence for NR PBCH	Intel Corporation
R1-1710629	Sequence design of DMRS for NR-PBCH	Samsung
R1-1710918	On DMRS Designs for NR-PBCH	InterDigital, Inc.
R1-1711062	Discussion on sequence design of DMRS for NR-PBCH	NTT DOCOMO, INC.
R1-1711141	DMRS design for NR-PBCH	Qualcomm Incorporated
R1-1711266	NR-PBCH DMRS design	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711353	DMRS sequence design for NR-PBCH	ITL
R1-1711376	NR-PBCH DMRS design	Ericsson

5.1.1.2.4 Remaining minimum system information delivery

Include numerology used for RMSI delivery

Limit to 1 contribution per 1 company/organization/university

R1-1709891	RMSI delivery	ZTE
R1-1709915	Discussion on NR RMSI delivery	Huawei, HiSilicon
R1-1710029	RMSI Delivery	CATT
R1-1710134	Discussion on the numerology of the RMSI	Guangdong OPPO Mobile Telecom.
R1-1710233	Discussion on the CORESET for RMSI delivery	Fujitsu
R1-1710244	PRB indexing for RMSI in NR	NEC
R1-1710265	Remaining minimum system information delivery	LG Electronics
R1-1710508	RMSI Delivery Mechanisms	Intel Corporation
R1-1710608	Delivery of remaining minimum system information	ETRI
R1-1710630	Remaining minimum system information delivery	Samsung
R1-1710773	CORESET configuration for RMSI scheduling	CMCC
R1-1710801	Further discussion on Remaining minimum system information delivery	MediaTek Inc.
R1-1710841	Discussion on remaining system information delivery	Beijing Xinwei Telecom Techn.
R1-1710919	On Minimum System Information Delivery	InterDigital, Inc.
R1-1711063	Discussion on remaining minimum system information delivery for NR	NTT DOCOMO, INC.
R1-1711142	Remaining system information delivery consideration	Qualcomm Incorporated
R1-1711267	On Remaining System Information Delivery	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711319	Relation among NR-PBCH, SIBs and subcells	Panasonic
R1-1711377	NR delivery of remaining minimum system information	Ericsson

5.1.1.2.5 Other system information delivery

Include how to deliver other system information

Limit to 1 contribution per 1 company/organization/university

R1-1709892	Other SI delivery	ZTE
R1-1710030	Delivery of Other System Information	CATT
R1-1710135	Discussion on the on-demand SI	Guangdong OPPO Mobile Telecom.
R1-1710266	Other system information delivery	LG Electronics
R1-1710379	Identification NSA mode during initial access	vivo
R1-1710477	Discussion on other system information delivery	Huawei, HiSilicon

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R1-1710609	Delivery of other system information	ETRI
R1-1710631	Other system information delivery	Samsung
R1-1710802	Further discussion on OSI delivery	MediaTek Inc.
R1-1711143	Other system information delivery consideration	Qualcomm Incorporated
R1-1711378	NR delivery of other system information	Ericsson
R1-1711391	On Other System Information Delivery	Nokia, Alcatel-Lucent Shanghai Bell

5.1.1.3 Paging design

Include PO/PF definition, whether/how to multiplex paging DCI and/or message with other signal/channel, spatial QCL assumption with other signal/channel, and paging indication mechanism

Limit to 1 contribution per 1 company/organization/university

R1-1709893	Paging design in NR	ZTE
R1-1709916	Multi-beam Paging for NR	Huawei, HiSilicon
R1-1710031	NR Paging Channel	CATT
R1-1710136	On NR paging design and transmission	Guangdong OPPO Mobile Telecom.
R1-1710267	Paging design in NR	LG Electronics
R1-1710509	NR Paging Design	Intel Corporation
R1-1710632	Paging design	Samsung
R1-1710803	Further discussion on paging design	MediaTek Inc.
R1-1711064	Discussion on paging design for NR	NTT DOCOMO, INC.
R1-1711144	Paging design consideration	Qualcomm Incorporated
R1-1711254	Discussion on Paging Design	III
R1-1711271	Paging in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711379	On NR paging design	Ericsson

5.1.1.4 Physical random access channel and random access procedure

5.1.1.4.1 PRACH preamble format details for long/short sequence length

Include discussion and evaluation based on email discussion [89-16], whether/how to support restricted set, etc.

From Wednesday morning offline

R1-1709894	NR-PRACH formats for long/short sequences	ZTE
R1-1710510	NR PRACH Preamble design	Intel Corporation
R1-1710633	PRACH preamble format details for long/short sequence length	Samsung
R1-1710268	Discussion on PRACH preamble format details	LG Electronics
R1-1711527	PRACH Preamble Format Design	Cohere Technologies
R1-1711547	Discussion on PRACH designs for short sequence	Sequans Communications

Agreements

- Confirm the working assumption on supporting format 3
- For formats with L=839
 - Unrestricted sets are supported
 - For restricted sets
 - 1.25 kHz: Restricted set A supported, Restricted set B is FFS
 - 5 kHz: Restricted set is supported with FFS if Restricted set A, B or both are supported
- For L=127/139 with option 1, formats with 1,2,4,6, and 12 OFDM symbols are supported
 - Discuss further until Friday actual format definitions with CP and GP (LGE)
 - Number of symbols can be adjusted if problems are identified

Thursday

[R1-1711875](#) WF on PRACH Preamble Format for Short sequence with Option 1 LG Electronics, NTT DOCOMO

Also supported by ZTE, Ericsson

Possible agreements:

- For 15kHz subcarrier spacing,
 - Agree at least followings

Preamble format	# of Sequence	TCP	TSEQ	TGP	Path profile (Ts)	Path profile (us)	Maximum Cell radius (meter)	Use case
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A	0	1	144	2048	0	48	1.56	[469]	TA is already known or Very small cell
	1	2	288	4096	0	96	3.13	[469]	Small cell
	2	4	576	8192	0	144	4.69	[1,055]	Normal cell
	3	6	864	12288	0	144	4.69	[1,758]	Normal cell
B	4	12	936	24576	792	144	4.69	[3,867]	Normal cell

- Note 1: Unit is Ts, where Ts = 1/30.72MHz
- Note 2: PRACH preamble are aligned with OFDM symbol boundary for data with same numerology
- Note 3: Additional 16Ts for every 0.5ms should be included in TCP when RACH preamble is transmitted across 0.5ms boundary or from 0.5ms boundary
- Note 4: Note that cell radius can be changed later
- Note 5: For format A, GP can be defined within the last RACH preamble among consecutively transmitted RACH preambles

Continue offline discussions until Friday – Hyunsoo (LGE)

Friday

Agreements:

- For 15 kHz subcarrier spacing,
 - Agree on following preamble formats A2, A3, B4
 - Working assumption on following preamble formats A0, A1, B0, B1, B2, B3, C0, C1

Preamble format	# of Sequence	TCP	TSEQ	TGP	Path profile (Ts)	Path profile (us)	Maximum Cell radius (meter)	Use case
A	0	1	144	2048	0	48	469	TA is already known or Very small cell
	1	2	288	4096	0	96	938	Small cell
	2	4	576	8192	0	144	2,109	Normal cell
	3	6	864	12288	0	144	3,516	Normal cell
B	0	1	144	2048	0	48	469	TA is already known or Very small cell
	1	2	192	4096	96	96	469	Small cell
	2	4	360	8192	216	144	1,055	Normal cell
	3	6	504	12288	360	144	1,758	Normal cell
C	4	12	936	24576	792	144	3,867	Normal cell
	0	1	1240	2048	0	144	5300	Normal cell
	1	2	1384	4096	0	144	6000	Normal cell

- Note 1: Unit is Ts, where Ts = 1/30.72MHz
- Note 2: PRACH preamble are aligned with OFDM symbol boundary for data with same numerology
- Note 3: Additional 16Ts for every 0.5ms should be included in TCP when RACH preamble is transmitted across 0.5ms boundary or from 0.5ms boundary
- Note 4: For format A, GP can be defined within the last RACH preamble among consecutively transmitted RACH preambles
- For 30/60/120 kHz subcarrier spacing, preamble format can be scaled according to subcarrier spacing.
 - Ts = 1/(2*30720) ms for 30 kHz subcarrier spacing
 - Ts = 1/(4*30720) ms for 60 kHz subcarrier spacing
 - Ts = 1/(8*30720) ms for 120 kHz subcarrier spacing
 - Note that some of the formats may not be applicable to all subcarrier spacings

Not treated.

[R1-1711270](#)
Corporation

[89-16] Email discussion on NR-PRACH preamble formats based on short sequence length ZTE

[R1-1710008](#)

[R1-1710032](#)

[R1-1710229](#)

Corporation

[R1-1710889](#)

[R1-1711065](#)

[R1-1711145](#)

[R1-1711270](#)

Corporation

[R1-1711380](#)

PRACH preamble format details for long/short sequence length Huawei, HiSilicon
NR RACH Long and Short Preamble Sequence Length CATT
[89-16] Email discussion on NR-PRACH preamble formats based on short sequence length ZTE
NR Physical Random Access Channel Nokia, Alcatel-Lucent Shanghai Bell
Discussion on PRACH preamble format details for long/short sequence length for NR NTT DOCOMO, INC.
PRACH preamble format design for long/short sequence length Qualcomm Incorporated
[89-16] Email discussion on NR-PRACH preamble formats based on short sequence length ZTE
NR-RACH preamble format details Ericsson

5.1.1.4.2 PRACH preamble format details for capacity enhancement and beam management

Include necessity and detailed solution for PRACH capacity enhancement, and PRACH design for beam management/recovery

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[R1-1711865](#) Multiple/Repeated PRACH Preamble Transmission with OCC across Preambles Qualcomm,
Interdigital, Samsung, AT&T, Verizon
[R1-1711827](#) WF on Capacity Enhancement for option 1 of PRACH preamble LGE, IITL
[R1-1711849](#) WF on Preamble sequence for capacity enhancement Huawei, HiSilicon

Possible agreements:

- NR should support PRACH preambles with ZC sequences of length $L=127$
- NR should support at least 64 PRACH preamble sequences per cell constructed from a single-root ZC sequence with m-sequence cover sequences.
 - The m-sequence cover sequences have length $L=127$ and are obtained by cyclic-shifts of a single m-sequence generated from the generator polynomial $g(D) = D^7 + D^3 + 1$.

Friday

[R1-1711870](#) WF on NR PRACH capacity enhancement CATT, Huawei, TCL

- Support RACH format design for Option 4.

Discussion: Also supported by Nokia.

Decision: The document is noted.

[R1-1710890](#) NR Physical Random Access Channel Capacity Nokia, Alcatel-Lucent Shanghai Bell

- Proposal 1: RACH sequence capacity should consider the on-demand SI RACH requests.
- Proposal 2: Use the same PRACH preamble format for FDM multiplexed PRACH resources for initial access and PRACH resources for beam recovery requests.
- Proposal 3: In multiplexing resources for beam recovery requests in TDM manner with RACH slots, support SR like resource of PUCCH for beam recovery requests.
- Proposal 4: As capacity need to due handovers depend on network load and deployment, the NR should support flexible PRACH resource allocation both in time and frequency domain.
- Proposal 5: NR to consider dedicated PRACH preamble sequences for paging driven response.
- Proposal 6: RACH sequence capacity should consider paging indicator response.
- Proposal 7: Support 139 sequence length for short PRACH preamble sequence.
- Proposal 8: Consider preamble format 4 as a method to increase the PRACH preamble sequence capacity.
- Proposal 9: RACH configuration supports both option 1 and option 4.

Decision: The document is noted.

[R1-1711600](#) PRACH preamble sequences and formats for capacity enhancement and beam management Huawei,
HiSilicon (Revision of [R1-1709917](#))

- Proposal 1: NR should support PRACH preambles with ZC sequences of length $L=127$.
- Proposal 2: NR should support at least 64 PRACH preamble sequences per cell constructed from a single-root ZC sequence with m-sequence cover sequences.
 - The m-sequence cover sequences have length $L=127$ and are obtained by cyclic-shifts of a single m-sequence generated from the generator polynomial $g(D) = D^7 + D^3 + 1$.
- Proposal 3: 2-stage PRACH with proper UE grouping should be supported as an option to reduce detection complexity for the much higher PRACH spectral efficiency in NR.
- Proposal 4: NR supports option 4 for gNB sweeping.

Decision: The document is noted.

Not treated.

[R1-1709895](#) NR-PRACH formats: capacity enhancements and other use cases ZTE
[R1-1709917](#) PRACH preamble sequences and formats for capacity enhancement and beam management Huawei,
HiSilicon
[R1-1710033](#) NR RACH Preamble Format for capacity enhancement, CATT
[R1-1710269](#) Discussion on PRACH preamble for capacity enhancement LG Electronics
[R1-1710511](#) Discussions on PRACH Capacity Intel Corporation
[R1-1710610](#) NR-PRACH for various use cases ETRI
[R1-1710634](#) PRACH preamble format details for capacity enhancement and beam management Samsung
[R1-1710822](#) On PRACH design to support uplink requests MediaTek Inc.
[R1-1710890](#) NR Physical Random Access Channel Capacity Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711066](#) Discussion on PRACH preamble format details for capacity enhancement and beam management for NR
NTT DOCOMO, INC.
[R1-1711146](#) PRACH preamble design for capacity enhancement Qualcomm Incorporated
[R1-1711381](#) NR-RACH preamble format details for capacity enhancement and beam management Ericsson
[R1-1711569](#) PRACH Design TCL Communication Ltd.

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5.1.1.4.3 Power ramping and power control during RA procedure

Include remaining details on PRACH power ramping and Msg.3 power control mechanism

Note that all remaining aspects related to power ramping/control during RA procedure need to be finalized in this meeting

From Wednesday evening offline

Agreements:

- The UE calculates the PRACH transmit power for the retransmission at least based on the most recent estimate pathloss and power ramping
 - The pathloss is measured at least on the SS block associated with the PRACH resources/preamble subset
- UE behavior when reaching the maximum power
 - If the recalculated power is still at or above the $P_{c,max}$
 - The UE can transmit at maximum power even if it changes its TX beam

To be discussed further:

- Is the UE required to select the PRACH resources based on the SS block received with the highest SS block RSRP?
- Is the UE is allowed to change SS block used for the pathloss estimate for retransmission?

Thursday: Above questions should not have an impact to RAN4 progress.

Continue discussion until Friday – Nazmul (Qualcomm)

Friday: Continue discussions at the next meeting.

R1-1711861 WF on RACH Power Control Mechanism for Msg.1 Transmission LGE, NTT DOCOMO

Also supported by Huawei, HiSilicon

Possible agreements:

- Configure the number of beam switching N for power ramping in Msg.1 (re)transmission, where,
 - when UE conducts beam switching and the number of beam switching is equal to or lower than the number N
 - The counter of power ramping remains unchanged,
 - when UE conducts beam switching and the number of beam switching is N+1
 - If UE doesn't reaches maximum power, the counter of power ramping increases
 - Otherwise, UE reports random access problem to upper layer
 - when the counter of power ramping increases
 - The number of beam switching is reset.
- Configure the maximum count of continuously increasing power ramping in a certain beam, where,
 - when the configured number is exceeded,
 - UE should change its beam for PRACH preamble retransmission.

Not treated.

R1-1709896	Power control during random access procedure	ZTE
R1-1709918	Discussion on power ramping and power control during RA procedure	Huawei, HiSilicon
R1-1710034	RACH power control and power ramping procedure	CATT
R1-1710137	Discussion on Power ramping and power control during RA procedure	Guangdong OPPO Mobile Telecom.
R1-1710252	Discussion on preamble transmitting power	NEC Corporation
R1-1710270	Discussion on Power Control issue for Message 1 and 3	LG Electronics
R1-1710512	PRACH Power ramping procedure	Intel Corporation
R1-1710635	Power ramping and power control during RA procedure	Samsung
R1-1710823	PRACH Msg1 retransmission	MediaTek Inc.
R1-1710870	Power ramping for Msg1 preamble re-transmission	InterDigital, Inc.
R1-1710891	Preamble Power Ramping and RACH Message 3 Power Control	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711067	Discussion on power ramping and power control during RA procedure for NR	NTT DOCOMO, INC.
R1-1711147	Power ramping and power control for RA procedure	Qualcomm Incorporated
R1-1711233	Remaining issues on power ramping in NR	Sharp
R1-1711382	Power ramping and power control during RA procedure	Ericsson

5.1.1.4.4 4-step RA procedure

Include Msg.2/3/4 channel design, RACH configuration, non-contention based random access procedure, etc.

R1-1711866 WF on RACH configuration in RMSI Huawei, HiSilicon

Agreement:

- All random access configuration information is broadcasted in all beams used for RMSI within a cell
 - i.e, RMSI information is common for all beams

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[R1-1711936](#) WF on CSI-RS based RACH Configuration Samsung, Ericsson, ZTE, Mediatek Mitsubishi, MTI
Also supported by Nokia, Huawei, HiSilicon

Agreements:

- At least for handover case, a source cell can indicate in the handover command,
 - Association between RACH resources and CSI-RS configuration(s)
 - Association between RACH resources and SS blocks
 - A set of dedicated RACH resources (FFS: time/frequency/sequence)
 - Note that above CSI-RS configuration is UE-specifically configured

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[R1-1711876](#) WF on multiple Msg.1 transmission for contention free case Samsung, Huawei, Hisilicon,
MediaTek, ZTE

Possible agreements:

- For contention free case, a UE can be configured to transmit multiple Msg.1 over multiple RACH transmission occasions before the end of a monitored RAR window

Friday

Agreements:

- For contention free case, a UE can be configured to transmit multiple Msg.1 over dedicated multiple RACH transmission occasions in time domain before the end of a monitored RAR window if the configuration of dedicated multiple RACH transmission occasions in time domain is supported.
 - Note: The time resource used for 'dedicated RACH in time domain' is different from the time resources of contention based random access
 - Note: Multiple Msg1 can be transmitted with same or different UE TX beams

[R1-1711799](#) WF on random access association configuration ZTE

Possible agreements:

- The subsets of PRACH resources/indices are defined using the following parameters
 - W: Number of preamble indices per subset of preamble indices
 - X: Number of preamble subsets per PRACH resource
 - Y: Number of associations per preamble subset per PRACH time instance
- The SS blocks are consecutively associated with the subsets of PRACH resources/indices using the following parameter
 - Z: Association time period
 - The number of PRACH time instances after which an association from an SS block occurs again

Friday

[R1-1711945](#) WF on random access association configuration ZTE

Agreements:

- For contention-based random access, an association between an SS block in the SS burst set and a subset of RACH resources and/or preamble indices is configured by a set of parameters in RMSI.
 - RAN1 strives to use the same set of parameters for different cases, e.g. analog/hybrid/digital beamforming at gNB, level of gNB beam correspondence, number of SS blocks, number of frequency multiplexed PRACH resources, PRACH resource density in time etc.
 - RAN1 strives to minimize the set of parameters.
 - FFS the set of parameters
 - FFS the number of SS blocks (if indicated in RMSI or MIB), e.g. the actually transmitted SS blocks or the maximum number (L).

Not treated.

[R1-1709897](#) 4-step random access procedure ZTE
[R1-1710035](#) Further details on NR 4-step RA Procedure CATT
[R1-1710138](#) NR 4-Step Random Access Procedure Guangdong OPPO Mobile Telecom.
[R1-1710218](#) RACH transmission count Mitsubishi Electric Co.
[R1-1710234](#) Discussion on 4-step RA procedure Fujitsu
[R1-1710271](#) RACH Procedure LG Electronics
[R1-1710422](#) DL Tx beam reporting in msg. 3 AT&T
[R1-1710478](#) RACH procedures and resource configuration Huawei, HiSilicon
[R1-1710513](#) 4-step PRACH Procedures Intel Corporation
[R1-1710636](#) 4-step RACH procedure Samsung

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R1-1710774	Discussion on RACH configuration	CMCC
R1-1710824	On 4-step RACH procedure	MediaTek Inc.
R1-1710860	Considerations on 4-step RA procedure	Sony
R1-1710871	Multiple Msg1 transmissions for one monitored RAR window	InterDigital, Inc.
R1-1710892	NR 4-step RACH procedure	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711068	Discussion on 4-step RA procedure for NR	NTT DOCOMO, INC.
R1-1711148	4-step RACH procedure consideration	Qualcomm Incorporated
R1-1711279	RACH configuration and procedure	Motorola Mobility, Lenovo
R1-1711383	4-step random access procedure	Ericsson

5.1.1.5 Mobility procedure

5.1.1.5.1 Measurement based on SS block

Include whether/how to handle power offset between NR-SSS and PBCH-DMRS, one or multiple information on periodicity and timing for RRM measurement per carrier, etc.

[R1-1710977](#) Discussion on RRM measurement on SS blocks CMCC

Alt 1: Network indicates one single shortest periodicity for RRM measurement in the same carrier frequency.

Alt 2: Network indicates one single longest periodicity for RRM measurement in the same carrier frequency.

Alt 3: Network indicates two periodicities, one for the camping cell and the other for the neighboring cells in the same carrier frequency.

- Observation 1: For IDLE mode UE RRM measurement, one single indication of the *longest* SS burst set periodicity of all the cells in the same carrier frequency can work, as long as the SS block timing locations within the SS burst set with longer periodicity is a subset of SS block timing locations within the SS burst set with shorter periodicity, i.e., *subset alignment of all SS blocks in the same carrier frequency*.
- Observation 2: From network operating perspective, subset alignment of SS blocks is necessary since it ensures the simple indication of SSBS periodicity for RRM measurement and that UE can also detect cells that are not configured in the neighbor cell list.
- Observation 3: For IDLE mode UE, both Alt 2 and Alt 3 can work.
- Proposal 1: It is slightly preferred that Alt 2, i.e., one periodicities and one information regarding SS block timing locations is indicated to IDLE mode UE for intra-frequency measurement.
- Proposal 2: For CONNECTED mode UE, two SSBS periodicities and two information regarding SS block timing locations are indicated for intra-frequency measurement.
- Proposal 3: Only one SSBS periodicity regarding inter-frequency measurement is preferred to be indicated.

Decision: The document is noted.

[R1-1709919](#) SS Burst Periodicities and timing for UE RRM measurement Huawei, HiSilicon

- Proposal 1: In addition to NR-SSS, UE may optionally use DMRS for PBCH to derive SS block RSRP as cell level quality for L3 mobility. Whether and how to use DMRS for PBCH is up to UE implementation.
- Proposal 2: NR should support fixed power offset between NR-SSS and PBCH-DMRS to use PBCH-DMRS to derive SS block RSRP for L3 mobility.
- Proposal 3: NR should support to indicate multiple SS burst set periodicities and information regarding measurement timing/duration to connected mode UE.
- Proposal 4: NR should support to indicate one SS burst set periodicity and one information regarding measurement timing/duration for all cells or non-serving cells to idle mode UE.

Decision: The document is noted.

[R1-1710637](#) Measurement based on SS block Samsung

- Proposal 1: A fixed EPRE power ratio shall be adopted between SSS and PBCH DMRS. The fixed ratio shall be 3.5dB.
- Proposal 2: Only a single SS burst set periodicity value shall be configured per carrier

Decision: The document is noted.

[R1-1711761](#) WF on measurement based on SS block NTT DOCOMO, Ericsson, Huawei, HiSilicon, AT&T

- Regarding the measurement timing configuration i.e., SS burst set periodicity/timing/duration information for UE RRM measurement per frequency carrier,
 - Only single measurement timing configuration is configured per frequency carrier to UE for IDLE mode measurement.
 - Multiple measurement timing configurations can be configured to UE in CONNECTED mode.
 - Different measurement timing configurations are applied to different group of cells on the frequency carrier
 - FFS maximum number of measurement timing configurations per frequency carrier

Decision: The document is noted.

Agreements:

- Regarding the SS block based RRM measurement timing configuration (SMTC) i.e., measurement window periodicity/duration/offset information for UE RRM measurement per frequency carrier,
 - For intra-frequency CONNECTED mode measurement, up to two measurement window periodicities can be configured
 - UE can be informed of which cell(s) is associated with which measurement window periodicity
 - For cell(s) that is not listed, longer measurement window periodicity is used
 - Single measurement window offset and duration are configured per frequency carrier
 - For IDLE mode measurements, only single SMTC is configured per frequency carrier
 - For inter-frequency CONNECTED mode measurements, only single SMTC is configured at least per frequency carrier
 - RAN1 asks RAN4 if there is any concern for inter-frequency measurement based on single SMTC or multiple SMTCs across different frequency carriers

R1-1711801 **WF on power offset of NR-PBCH DMRS and NR-SSS** **MediaTek, Huawei, HiSilicon, NTT DOCOMO**

- A fixed power offset defined in the specification shall be adopted between SSS and PBCH DMRS.
 - FFS: 0 dB, 3 dB, or 3.5 dB power offset

Decision: The document is noted and the following is agreed:

Agreement: A fixed power offset defined in the specification shall be adopted between SSS and PBCH DMRS per frequency band

Not treated.

R1-1711800	WF on SS block repetition	ZTE, Sierra Wireless
R1-1709898	RRM measurements on IDLE mode	RS ZTE
R1-1710036	IDLE and CONNECTED mode UE mobility based on SS-block measurements	CATT
R1-1710139	On RRM measurement based on SS block	Guangdong OPPO Mobile Telecom.
R1-1710272	SS block based RRM Measurement	LG Electronics
R1-1710377	SS block time index for idle/inactive measurement	vivo
R1-1710423	Measurement based on SS block	AT&T
R1-1710514	SS Block based RRM Measurements	Intel Corporation
R1-1710804	Discussion on measurement based on SS block	MediaTek Inc.
R1-1711069	Discussion on NR RRM measurement based on SS block	NTT DOCOMO, INC.
R1-1711149	Measurement based on SS block consideration	Qualcomm Incorporated
R1-1711268	SS block measurements and procedures	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711384	Mobility measurements based on SS block	Ericsson

5.1.1.5.2 Measurement based on CSI-RS for L3 mobility

*Include candidate periodicity values, whether/how transmission and/or measurement bandwidth is indicated, numerology of CSI-RS for L3 mobility, spatial QCL assumption, methods to obtain parameters of CSI-RS for L3 mobility, etc.
Note that CSI-RS configuration parameters for L3 mobility need to be finalized in this meeting*

R1-1710273 **CSI-RS based RRM Measurement for L3 Mobility** **LG Electronics**

- Proposal 1: Considering the UE behaviour of L3 mobility, CSI-RS for L3 mobility should be transmitted periodically, and the periodicity of CSI-RS is configured to be at least less than 20ms.
- Proposal 2: Transmission bandwidth of CSI-RS is signalled by UE-dedicated RRC message and how much part is used as measurement bandwidth is an implementation issue.
- Proposal 3: Symbol duration of CSI-RS is based on SCS of data channel and it is configured per frequency through UE-dedicated RRC configuration message. IFDMA is proposed for sub-time unit transmission within an OFDM symbol.
- Proposal 4: A part of spatial information can be exploited from a SS block if the beam width of SS block is super set but limited set of the beam width of CSI-RS.
- Proposal 5: When a UE detects SS block of a cell, which is not in the neighbour cell list or whose CSI-RS configuration is not given to the UE, UE may request CSI-RS configuration for that cell using measurement report.

Decision: The document is noted.

R1-1710805 **Discussion on CSI-RS for L3 mobility** **MediaTek Inc.**

- Proposal 1: Candidate periodicity values of CSI-RS for L3 mobility is 5, 10, 20, 40, 80, 160 ms.
- Proposal 2: CSI-RS for L3 mobility and SS block burst are transmitted in TDM manner.

- Proposal 3: The CSI-RS for L3 mobility and the measurement gap should be aligned, and the entire CSI-RS for L3 mobility should be contained in the measurement gap.
- Proposal 4: NR supports measurement configuration of CSI-RS for L3 mobility, including
 - measurement bandwidth per carrier frequency
 - numerology
 - QCL assumption
- Observation 1: The numerologies of CSI-RS from different cells could be different, so it is unlikely all configuration parameters are valid for all CSI-RS resources on a carrier frequency (Method 2).
- Proposal 5: As a baseline, configuration parameters of CSI-RS for L3 mobility are valid for one CSI-RS resource. Certain parameters can be cell-specific/frequency-specific, e.g. periodicity.
- Observation 2: If the configuration parameters can be obtained from detected cell-ID (e.g. Method 3 & Method 5), then it is cell-specific configuration, and RAN1 does not see the need to support cell-specific configuration for CSI-RS for RRM measurement.
- Observation 3: Measuring CSI-RS with parameters derived from detected cells will increase UE complexity.

Decision: The document is noted.

R1-1711762 **WF on measurement based on CSI-RS** **NTT DOCOMO, Ericsson, AT&T**

- Following CSI-RS properties for RRM measurement for L3 mobility are supported in NR
 - Configurable periodicity (as already agreed)
 - {5, 10, 20, 40, [80, 160]} ms are supported
 - Configurable transmission bandwidth (as already agreed)
 - FFS candidate values
 - Configurable measurement bandwidth (as already agreed) and frequency location
 - At least minimum carrier bandwidth for each frequency band/range and at least one additional wider bandwidth for each SCS (e.g., maximum UE bandwidth) are supported
 - FFS other candidate values for wider bandwidth for each SCS
 - Measurement of CSI-RS in subband/bandwidth part which may or may not contain SS Blocks is supported
 - Configurable parameters for sequence generation
 - Configurable numerology
 - For each frequency range, subcarrier spacing values applicable to data, CSI-RS for beam management and SS block in the frequency range are supported
 - FFS: Configurable spatial QCL with SS block
 - It is assumed that property of spatial QCL between SS block and CSI-RS for beam management will be reused
 - Configurable CSI-RS time/frequency resource (as already agreed)
 - CSI-RS design including RE mapping and density for beam management is assumed as baseline

Decision: The document is noted, modified and agreed as follows:

Agreements:

- Following CSI-RS properties for RRM measurement for L3 mobility are supported in NR
 - Configurable periodicity (as already agreed)
 - {5, 10, 20, 40, [80, 160]} ms are supported
 - This does not mean periodicity will be configured per CSI-RS resource
 - Configurable transmission bandwidth (as already agreed)
 - FFS candidate values
 - Configurable measurement bandwidth (as already agreed) and frequency location
 - At least minimum carrier bandwidth for each frequency band/range and at least one additional wider bandwidth for each SCS (e.g., maximum UE bandwidth) are supported
 - FFS other candidate values for wider bandwidth for each SCS
 - Measurement of CSI-RS in subband/bandwidth part which may or may not contain SS Blocks is supported
 - Configurable parameters for sequence generation
 - Configurable numerology
 - For each frequency range, subcarrier spacing values applicable to data, CSI-RS for beam management and SS block in the frequency range are supported
 - Association between CSI-RS for RRM measurement and SS block
 - It is assumed that property of spatial QCL between SS block and CSI-RS for beam management will be reused
 - Configurable CSI-RS time/frequency resource (as already agreed)
 - CSI-RS design including RE mapping and density for beam management is assumed as baseline
 - Note that above properties are relevant for RAN4 RRM measurement evaluations and not intended to be an exhaustive list of properties

R1-1711864 Measurement window periodicity, duration and offset of CSI-RS for L3 mobility Qualcomm

Possible agreements:

- For DRX operation,
 - For the CSI-RS based RRM measurement timing configuration (i.e., measurement window periodicity/duration/offset information), only a single measurement window periodicity, duration and offset for all CSI-RS resources are configured per frequency carrier
 - This applies to both intra-frequency and inter-frequency measurements

Not treated.

R1-1709899	RRM measurements on CSI-RS for L3 mobility	ZTE
R1-1709920	CSI-RS configuration parameters for L3 mobility	Huawei, HiSilicon
R1-1710037	L3 Mobility based on CSI-RS based measurements	CATT
R1-1710378	CSI-RS configuration for L3 mobility	vivo
R1-1710424	Measurement based on CSI-RS for L3 mobility	AT&T
R1-1710515	CSI-RS based RRM Measurements	Intel Corporation
R1-1710638	Measurement based on CSI-RS for L3 mobility	Samsung
R1-1710775	Discussion on RRM measurement on SS blocks	CMCC
R1-1711070	Discussion on NR RRM measurement based on CSI-RS for L3 mobility	NTT DOCOMO, INC.
R1-1711150	Measurement based on CSI-RS for L3 mobility consideration	Qualcomm Incorporated
R1-1711385	Measurements based on CSI-RS for L3 mobility	Ericsson
R1-1711392	CSI-RS configuration for L3 mobility purposes	Nokia, Alcatel-Lucent Shanghai Bell

5.1.1.5.3 Radio link monitoring

Include RS used to derive SINR like metric for RLM

Note that RS used for radio link monitoring needs to be finalized in this meeting

R1-1711151 Radio link monitoring consideration Qualcomm Incorporated

- Proposal 1: In Idle/RRC connected inactive/RRC connected active states, cell detection and measurements are based on cell-specific PSS and SSS for both the serving cell and neighboring cells.
- Proposal 2: Choice of RLM RS should consider the following aspects
 - RLM RS should be QCL with NR-PDCCH to reflect the channel experienced by NR-PDCCH
 - UE should be able to estimate the interference level experienced by NR-PDCCH
 - RLM RS should have guaranteed existence with lower enough periodicity, i.e. 10-20ms or DRX cycle if DRX cycle is longer than 10-200ms
 - Consider reuse RLM RS for other purposes to reduce overhead, i.e. beam management, tracking RS, etc.
- Proposal 3: LTE Radio Link Failure triggering procedure can be a starting pointing for NR radio link monitoring design
- Proposal 4: In addition to RLM based IS/OOS, beam failure recovery procedure can provide periodic/apperiodic IS and OOS indications to upper layers for the RLF procedure.

Decision: The document is noted.

R1-1711763 WF on radio link monitoring NTT DOCOMO, Ericsson, AT&T

- The RS used for RLM should have following properties
 - Periodic transmission with short enough periodicity
 - Wideband transmission relative to bandwidth of active bandwidth part
 - Supporting both single beam and multi-beam operations
 - Representing control channel quality, e.g., by QCL with PDCCH
- CSI-RS can be periodic and can be transmitted in wideband. CSI-RS has enough flexibility not only on periodicity and bandwidth but also on transmission beam/scheme to represent control channel quality and so on. Therefore, at least periodic CSI-RS can be used for RLM. In some case, CSI-RS for RLM and CSI-RS for RRM measurement and/or for beam management may share the same physical resources to reduce RS overhead.
- SS block can be also considered for RLM as SS block is the always-on signal to provide cell coverage. But there may be a case where SS block cannot provide some properties required for RLM, e.g., QCL with PDCCH.

Decision: The document is noted, modified as follows:

Agreements

- The RS used for RLM should have following properties
 - Periodic transmission with short enough periodicity
 - Wideband transmission relative to bandwidth of active bandwidth part
 - Supporting both single beam and multi-beam operations
 - Representing control channel quality
- Both CSI-RS based RLM and SS block based RLM are supported

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- o FFS: whether or not only a single type of RS is configured to UE for RLM at a time

R1-1711806 WF on radio link monitoring in NR Huawei, HiSilicon, Qualcomm, ATT

- NR should support aperiodic indication from beam failure recovery to assist RLF procedure.
 - Example 1: aperiodic IS indication(s) from beam failure recovery can stop/reset T310
 - RAN2 can decide specific procedure
 - Example 2: aperiodic OOS indication from failure of beam recovery procedure
 - How to use aperiodic OOS indication can be decided in RAN2

Decision: The document is noted.

Thursday

- NR should strive to provide aperiodic indication based on beam failure recovery procedure to assist RLF procedure if the same RS is used for beam failure recovery and RLM procedure
 - Example 1: aperiodic IS indication(s) from beam failure recovery can stop/reset T310
 - RAN2 can decide specific procedure
 - Example 2: aperiodic OOS indication from failure of beam recovery procedure
 - How to use aperiodic OOS indication can be decided in RAN2

Friday

R1-1711889 WF on Radio Link Monitoring in NR Huawei, HiSilicon, Qualcomm, ATT, DOCOMO, Intel, Vivo, LGE

Agreements:

- NR should strive to provide aperiodic indication(s) based on beam failure recovery procedure to assist radio link failure (RLF) procedure, if same RS is used for beam failure recovery and RLM procedures.
 - o Example 1: aperiodic indication(s) based on beam failure recovery procedure can reset/stop T310
 - RAN2 can decide specific procedure
 - o Example 2: aperiodic indication(s) based on failure of beam recovery procedure
 - How to use aperiodic indication can be decided in RAN2
 - o FFS: aperiodic indication(s) based on beam failure recovery procedure to assist RLF procedure if different RS is used

R1-1711850 WF on RLM CATT

Not treated.

R1-1709900	Radio link monitoring in NR	ZTE	
R1-1709921	Discussion on remaining issues of radio link monitoring		Huawei, HiSilicon
R1-1710038	NR Radio Link Monitoring	CATT	
R1-1710274	Discussion on Radio Link Monitoring in NR LG Electronics		
R1-1710425	Radio link monitoring	AT&T	
R1-1710516	NR Radio Link Monitoring	Intel Corporation	
R1-1710639	Radio link monitoring	Samsung	
R1-1710806	Discussion on Radio Link Monitoring	MediaTek Inc.	
R1-1711071	Discussion on NR RLM and RLF	NTT DOCOMO, INC.	
R1-1711269	NR Radio link monitoring	Nokia, Alcatel-Lucent Shanghai Bell	
R1-1711386	Radio link monitoring	Ericsson	

5.1.1.6 Other

R1-1709922	On numerology determination during initial access	Huawei, HiSilicon
R1-1710445	Minimum UE bandwidth in NR	Huawei, HiSilicon
R1-1710640	Discussion on SS periodicity and PBCH TTISamsung	
R1-1710641	Considerations on PRACH design in high-mobility scenario	Samsung
R1-1711387	Consideration of PRACH Configuration in NR	Ericsson
R1-1711388	Additional synchronization provision	Ericsson

5.1.2 MIMO

R1-1711916 Chairman's notes of AI 5.1.2 MIMO Ad-Hoc chair (Qualcomm)

The document was presented by Wanshi Chen from Qualcomm.

Decision: The document is endorsed and content is incorporated as below, with the add-on regarding the conclusion on beam management details (see 5.1.2.2.1).

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5.1.2.1 Multi-antenna scheme

Physical control channel related issues are to be discussed in the agenda item for scheduling/HARQ aspects.

5.1.2.1.1 Codeword mapping

Including codeword-to-layer mapping, codeword to resource mapping and interleaving

R1-1710642	Finalizing Layer Mapping	Samsung
R1-1710446	Codeword to layer mapping in NR	Huawei, HiSilicon
R1-1711007	Codeword to layer mapping for DL and UL	Ericsson
R1-1711152	CW to layer mapping and frequency domain interleaving	Qualcomm Incorporated
R1-1710426	Remaining details of codeword mapping for NR MIMO	AT&T
R1-1710517	Remaining details on CW to MIMO layer mapping	Intel Corporation

Continue discussion offline – Youngwoo (Samsung)/Leiming (Huawei)

[R1-1711935](#) Summary of Open Issues on Layer Mapping Samsung

Agreements:

- Companies are encouraged to provide evaluation results especially for URLLC, intra-slot frequency hopping, dynamic TDD and high speed train scenarios
 - Practical simulation assumptions e.g. CBG based HARQ, pre-emption indication, DMRS, interleaver should be considered.
 - For both CP-OFDM and DFT-S waveforms
 - Evaluation should be done considering both slot and mini-slot.

Agreements:

- NR supports higher layer signalling for the maximum number of MCS/RV/NDI in DCI for PDSCH
 - FFS HARQ ID
 - Unless indicated otherwise, UE assumes single MCS/RV/NDI in DCI, i.e. up to four MIMO layers
- NR supports higher layer signalling for the maximum number of CQIs in UCI
 - Unless indicated otherwise, UE assumes single CQI in UCI, i.e. up to four MIMO layers in RI report
 - FFS subband CQI
 - FFS Whether or not the actual number of CQIs is also RI dependent
 - Note: This higher layer signalling can be the other signalling related to RI/PMI reporting (e.g. RI restriction)
 - FFS applicability on single/multi TRP

Not treated.

R1-1711665	WF on MIMO layer to CW correspondence	Intel
R1-1709904	Discussion on Remaining Details of Codeword Mapping	Beijing Xinwei Telecom Techn.
R1-1710050	On codeword mapping	CATT
R1-1710175	Codeword mapping and interleaving	ZTE
R1-1710255	Remaining details on DMRS ports and number of layers indication	NEC Corporation
R1-1710275	Discussion on codeword mapping	LG Electronics
R1-1710594	On codeword to RE mapping scheme	Lenovo, Motorola Mobility
R1-1710611	Discussion on codeword mapping	ETRI
R1-1710815	codeword mapping in NR	MediaTek Inc.
R1-1711072	Discussion on codeword mapping	NTT DOCOMO, INC.

5.1.2.1.2 Codebook based transmission for UL

R1-1710643	Codebook-Based UL Transmission	Samsung
R1-1710518	On codebook based UL transmission	Intel Corporation
R1-1710051	Considerations on codebook based UL transmission	CATT
R1-1711610	UL MIMO for codebook based transmission	Ericsson (Revision of R1-1711008)
R1-1711073	Codebook design for uplink	NTT DOCOMO, INC.

Continue discussion offline – Yushu (Intel)

R1-1711674	Summary of Issues and WFs on Codebook based transmission for UL	Intel
R1-1711881	Summary of Issues and WFs on Codebook based transmission for UL	Intel

Conclusion:

- To better understand the tradeoff of uplink cell throughput gain vs. the overhead of control signalling for down-selection, determine the control signalling for frequency-selective precoding after the codebook is defined

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[R1-1711874](#) NR UL MIMO Signaling Mechanism Ericsson, Nokia, Alcatel-Lucent Shanghai Bell, Qualcomm,
CATT, ZTE
[R1-1711792](#) WF on codebook based UL transmission MediaTek, Nokia, Shanghai Bell

Not treated.

[R1-1710140](#) On uplink codebook design Guangdong OPPO Mobile Telecom.
[R1-1710176](#) Codebook based UL transmission ZTE
[R1-1710276](#) Discussion on codebook based transmission for UL LG Electronics
[R1-1710447](#) Codebook based transmission for UL MIMO Huawei, HiSilicon
[R1-1710816](#) Codebook based transmission in UL MediaTek Inc.
[R1-1710920](#) TPMI Indication for Frequency Selective UL Precoding InterDigital, Inc.
[R1-1711153](#) Codebook based UL transmission Qualcomm Incorporated
[R1-1711284](#) Codebook Based Transmission and Codebook Design for UL MIMO Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.1.3 Non-codebook based transmission for UL

[R1-1709923](#) Non-codebook based transmission for UL MIMO Huawei, HiSilicon
[R1-1710177](#) Non-Codebook based and Hybrid based UL transmission ZTE
[R1-1710644](#) Discussion on Non-Codebook-Based UL Transmission Samsung
[R1-1711154](#) Non-codebook based UL transmission Qualcomm Incorporated

Continue discussion offline – Jun (Nokia)

[R1-1711884](#) Summary of issues on UL non-codebook based transmissions Nokia, ASB
[R1-1711750](#) WF on UL non-codebook based transmission Huawei, HiSilicon, DOCOMO, Sharp, LGE, Ericsson,
China Telecom, Deutsche Telekom, Xinwei, Vodafone, CeWiT, China Unicom, Tejas Networks, CATR, IITH, IITM,
Panasonic, ZTE, InterDigital, AT&T, SoftBank, KDDI
Also supported by Fujitsu, Mitsubishi

Agreements:

- For PUSCH precoder determination in non-codebook-based UL MIMO, support at least one of the followings:
 - Alt.1: Signalling of SRI(s) only, without TPMI indication in the UL grant
 - Alt.2: Signalling of TRI only, without TPMI indication in the UL grant
 - Alt.3: Signalling of TRI and a single SRI, without TPMI indication in the UL grant
 - Alt. 4: signalling of a single TRI, a single CRI without TPMI indication in the UL grant
 - To down-select in the next meeting considering single- vs. multi-panel (companies are encouraged to perform more evaluations)
 - Note: this may depend UE's capability in terms of calibration

[R1-1710052](#) On non-codebook based UL transmission CATT
[R1-1710277](#) Discussion on non-codebook based transmission for UL LG Electronics
[R1-1710519](#) On non-codebook based UL transmission Intel Corporation
[R1-1711009](#) UL MIMO for non-codebook based transmission Ericsson
[R1-1711074](#) Beam determination for non-codebook based transmission for uplink NTT DOCOMO, INC.
[R1-1711285](#) Non-codebook based UL-MIMO transmission Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.1.4 Diversity transmission for UL

[R1-1710427](#) UL diversity transmission for NR AT&T
[R1-1710178](#) Diversity based uplink transmission schemes ZTE

Continue offline discussion – Cristina (Mitsubishi)

[R1-1711845](#) Summary of AI 5.1.2.1.4 Diversity transmission for UL Mitsubishi

Conclusion:

- Companies are strongly encouraged to perform analysis and simulations for diversity transmission for both CP-OFDM and DFT-s-OFDM based UL considering various scenarios
- Aim to conclude in the next meeting

[R1-1710921](#) STBC-based Transmission for Uplink Transmit Diversity InterDigital, Inc.
[R1-1711286](#) UL-MIMO diversity-based transmission Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710053](#) Considerations on transmission diversity scheme in UL CATT

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R1-1710278	Discussion on diversity transmission for UL	LG Electronics
R1-1710448	Diversity-based transmission for UL	Huawei, HiSilicon
R1-1710520	On diversity based UL transmission	Intel Corporation
R1-1710645	Diversity transmission for UL	Samsung
R1-1710886	UL diversity transmission for DFTsOFDM	Mitsubishi Electric RCE
R1-1711010	Robust Transmission Scheme for PUSCH	Ericsson
R1-1711155	On UL diversity transmission scheme	Qualcomm Incorporated

5.1.2.1.5 PRB bundling for DL

R1-1709905	Further Discussion on DL PRB Bundling	Beijing Xinwei Telecom Techn.
R1-1711287	On details of PRB Bundling	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711156	Discussion on PRB bundling for DL	Qualcomm Incorporated

Continue offline discussion – Peng (Xinwei)

R1-1711960	Summary of Issues on DL PRB bundling	Xinwei
R1-1711990	WF on DL PRB Bundling	Xinwei, Huawei, HiSilicon, Qualcomm

Agreements:

- For DL data transmission:
 - PRB bundling size values include
 - Case 1: one or more values down-selected from the following set
 - {1}, 2, 4, 8 and 16};
 - FFS the relationship with RBG size;
 - Case 2: values equal to consecutively scheduled bandwidth in frequency;
 - For UE-specific PRB bundling size indication, support dynamically indicated PRB bundling size with up to 1 bit overhead;
 - FFS implicit indication to reduce configuration overhead, e.g., based on DMRS configuration etc;
 - FFS the usage of above 1 bit, e.g. whether to switch between Case 1 and Case 2 or between two configured Case 1 values;
 - FFS other aspects related to MU-MIMO pairing and higher-layer signaling

Not treated.

R1-1710521	On PRB bundling for DL	Intel Corporation
R1-1709925	PRB bundling size for DL data precoding	Huawei, HiSilicon
R1-1710054	PRB bundling for DL transmission	CATT
R1-1710179	On PRB Bundling	ZTE
R1-1710360	Discussion on PRB bundling size for NR DL	Spreadtrum Communications
R1-1710646	PRB bundling for NR DMRS	Samsung
R1-1710922	PRG Size Indication in NR	InterDigital, Inc.
R1-1711011	PRB bundling	Ericsson

5.1.2.1.6 Multi-TRP and Multi-panel transmission

<u>DL</u>		
R1-1711013	DL multi-TRP and multi-panel transmission	Ericsson

Agreements:

- The maximum supported number of unicast and dynamically scheduled NR-PDSCHs a UE can be expected to simultaneously receive is 2 on a per component carrier basis in case of one bandwidth part for the component carrier
 - FFS in case of two or more bandwidth parts for the component carrier
 - FFS the max number of corresponding NR-PDCCHs

R1-1710180	Multi-TRP Transmission and interference coordination	ZTE
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UL

R1-1710648	Discussions on NR UL multi-panel/multi-TRP	Samsung
R1-1710522	Discussion on uplink multi-panel and multi-TRP operation	Intel Corporation
R1-1711667	WF on multiple PDSCH approach of supporting NC-JT	Intel

Agreements:

- Send LS to RAN2 (cc RAN3) to inform about RAN1 agreement from RAN1#89 on the support of multiple PDSCHs transmission to the UE to support NC-JT operation

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- Include in the LS the following content
 - RAN1 agreement from RAN1#89
 - RAN1 is considering different scenarios including TRPs connected with ideal and non-ideal backhaul link, TRPs with same and different cell IDs, etc. to provide an increased throughput for users covered by different TRPs, and greater radio link reliability through dual connectivity-like operation
 - RAN1 thinks that the above agreement may have impact on RAN2 specification
 - Actions: RAN1 asks RAN2 to take into account the above agreement in RAN2's work and provide any information that may be relevant for future RAN1's work on this topic

Draft LS is **endorsed** in [R1-1711820](#). Final LS is **approved** in [R1-1712000](#).

Continue discussion offline – Xin (CATT)

[R1-1711857](#) **Summary of views on multi-TRP & multi-panel transmission** CATT

Not treated.

[R1-1709924](#) Multiple NR-PDCCH for Multiple TRP transmission Huawei, HiSilicon
[R1-1710055](#) Considerations on multi-panel/multi-TRP transmission CATT
[R1-1710141](#) Considerations on the multi-TRP/Multi-panel design to support the reception of multiple PDCCHGuangdong
OPPO Mobile Telecom.
[R1-1710235](#) Discussion on multiple NR-PDCCHs in NC-JT scheme Fujitsu
[R1-1710279](#) Discussion on cooperative transmission LG Electronics
[R1-1710428](#) On the details of multi-TRP and multi-panel transmission AT&T
[R1-1710451](#) CSI acquisition details for NCJT Huawei, HiSilicon
[R1-1710523](#) Support of downlink NC-JT in NR Intel Corporation
[R1-1710647](#) Discussions on NR DL network coordination Samsung
[R1-1710814](#) Multi-TRP and panel transmission MediaTek Inc.
[R1-1710923](#) DCI Design for Multi-TRP/Panel Transmission for DL InterDigital, Inc.
[R1-1710969](#) NR-PDCCH for multi-TRP transmission China Telecommunications
[R1-1711012](#) UL multi-panel transmission Ericsson
[R1-1711157](#) On multi-TRP and multi-panel transmission Qualcomm Incorporated
[R1-1711288](#) On the maximum number of PDSCH/PDSCHs to be supported for multi-TRP transmission Nokia,
Alcatel-Lucent Shanghai Bell

5.1.2.1.7 Rate matching

[R1-1710649](#) **On PDSCH rate matching for NR** Samsung
[R1-1711014](#) **On rate matching** Ericsson

Agreements:

- A UE is configured with resources for PDSCH rate matching
 - FFS details
- A UE is configured with resources for PUSCH rate matching
 - FFS details

Continue discussion offline – Kunil (LGE)

[R1-1711841](#) **Summary of views on resource for PDSCH and PUSCH rate matching** LGE

Not treated.

[R1-1710181](#) Discussion on rate matching ZTE
[R1-1710280](#) Discussion on rate matching LG Electronics
[R1-1709933](#) Rate matching for data channel Huawei, HiSilicon
[R1-1710429](#) On the need of per RE level PDSCH rate-matching and RE mapping signalling AT&T
[R1-1710524](#) Rate matching for NR Intel Corporation
[R1-1711158](#) On PDSCH and PUSCH RE mapping Qualcomm Incorporated

5.1.2.1.8 Other

[R1-1711159](#) **Transmission scheme for broadcast PDSCH** Qualcomm Incorporated

Agreement: For NR in Rel-15, DL transmission scheme 2 is not explicitly supported for broadcast PDSCH in specification

Not treated.

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R1-1709926	Discussion on transmission parameter sets	Huawei, HiSilicon
R1-1710182	On transmission setting	ZTE
R1-1710650	Discussion on transmission parameter sets	Samsung
R1-1710651	Discussion of number of PDSCHs in NR-CoMP	Samsung
R1-1710652	Multi-TA procedures for Multi-TRP	Samsung
R1-1711441	On the feedback overhead reduction for multi-subband UL MIMO	Huawei, HiSilicon
R1-1711444	Continuous precoding for NR DMRS in time domain	Samsung

5.1.2.2 Beam management

5.1.2.2.1 Beam management details

R1-1710654	DL beam management for NR	Samsung
R1-1711160	Beam management for NR	Qualcomm Incorporated
R1-1710183	DL beam management for NR MIMO	ZTE
R1-1709928	UL beam management	Huawei, HiSilicon
R1-1711016	UL beam management details	Ericsson

Continue offline discussion – Sundar (Qualcomm)

R1-1711965	Beam management offline summary	Qualcomm
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Agreements:

- RAN1 to study the relation (if any) between a measurement and/or reporting on a reference signal and a subsequent beam indication for beam management purposes
 - Study the indicator(s) used for PDCCH and PDSCH
 - Study whether there is a relationship between the indicator types e.g. same type of indicator or different types
- Study L1-RSRP reporting of multiple beams considering
 - Differential L1-RSRP for multiple beams
 - Reference RSRP for L1-RSRP differential report, e.g., predefined or configurable
 - Bit-width of reporting.
 - Number of groups/beams per group
 - UCI design of the beam reporting.
 - FFS: Other issues

Agreements:

- RAN1 agrees that the certain number of beam failure recovery request transmissions is NW configurable by using some parameters
 - Parameters used by the NW could be:
 - Number of transmissions
 - Solely based on timer
 - Combination of above
- FFS: whether beam failure recovery procedure is influenced by the RLF event

Agreements:

- In case of unsuccessful recovery from beam failure, UE sends an indication to higher layers, and refrains from further beam failure recovery
 - Relationship between RLF and unsuccessful beam failure recovery indication (if any) e.g. whether beam failure recovery procedure influences or is influenced by the RLF event
 - Send LS to inform RAN2 – to be done next meeting

Proposals:

- Support L1-RSRP reporting of measurements on SS block for beam management procedures
 - Supported by: Qualcomm, Samsung, Ericsson, vivo, NTT DOCOMO, Lenovo, MotM, OPPO, Spreadtrum, LGE, Sharp, Nokia, ASB, MediaTek, ZTE, AT&T, CEWIT, [Panasonic](#)
 - Objected by: InterDigital, Intel, Huawei, HiSilicon, CATT

Conclusion:

No consensus to support L1-RSRP reporting of measurements on SS block for beam management procedures in Rel-15

Friday:

[Qualcomm: strongly requested to remove the above conclusion – and suggested to leave the topic opened for the next meeting](#)

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Intel: concern with the process of deleting what was already agreed during the MIMO session – RAN1 spent a lot of time to reach and write down that conclusion
InterDigital: similar view as Intel
Samsung/Ericsson/Panasonic: ok to delete it
Qualcomm: Can "in Rel-15" be replaced by "in this meeting"
Ericsson: do not agree – it has a complete different meaning

Final conclusion:

- No consensus at this meeting to support L1-RSRP reporting of measurements on SS block for beam management procedures in Rel-15

Note: Any company/university/organization is free to contribute to this topic in future meetings

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R1-1709906	Discussion on DL Beam Management	Beijing Xinwei Telecom Techn.
R1-1710056	Further consideration on downlink beam management	CATT
R1-1710057	Considerations on UL beam management	CATT
R1-1710142	Discussion on the DL Beam Management	Guangdong OPPO Mobile Telecom.
R1-1710143	Discussion on the UL Beam Management	Guangdong OPPO Mobile Telecom.
R1-1710184	UL beam management for NR MIMO	ZTE
R1-1710281	Discussion on DL beam management	LG Electronics
R1-1710282	Discussion on UL beam management	LG Electronics
R1-1710361	Differential RSRP report for beam management	Spreadtrum Communications
R1-1710399	Beam management and beam reporting	vivo
R1-1710430	DL beam management details	AT&T
R1-1710449	General views on DL beam management	Huawei, HiSilicon
R1-1710525	Details for UL Beam Management	Intel Corporation
R1-1710526	Details for DL Beam Management	Intel Corporation
R1-1710595	Discussion of RS for DL beam management	Lenovo, Motorola Mobility
R1-1710653	UL beam management	Samsung
R1-1710776	Comparisons on Beam Reporting in NR	CMCC
R1-1710808	Discussions on NR DL beam management	MediaTek Inc.
R1-1710809	Efficient UL beam management with imperfect beam correspondence	MediaTek Inc.
R1-1710851	Considerations on DL beam management	Sony
R1-1710852	Considerations on UL beam management	Sony
R1-1710924	On Beam Management for DL Control and Data Channels	InterDigital, Inc.
R1-1710925	On Efficient UL Beam Management	InterDigital, Inc.
R1-1711015	On DL beam indication	Ericsson
R1-1711075	View on Beam Management Details	NTT DOCOMO, INC.
R1-1711289	On the utilization of SS block for beam management	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711290	SRS transmission for beam management	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711334	Considerations on UE Beamforming Management	ASUSTEK COMPUTER (SHANGHAI)
R1-1711336	Discussion on group based beam reporting	China Unicom
R1-1711473	View on Multi-Beam Management	KT Corp.

5.1.2.2.2 Mechanism to recover from beam failure

R1-1710810	Mechanism for flexible beam failure recovery	MediaTek Inc.
R1-1710527	Discussion for Mechanism to Recover from Beam Failure	Intel Corporation
R1-1711291	Beam Recovery in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710283	Discussion on beam failure recovery	LG Electronics
R1-1711076	Further views on mechanism to recover from beam failure	NTT DOCOMO, INC.

Discuss discussion offline – Chia-Hao (MTK)

R1-1711897	Offline Discussion Summary on Beam Recovery	MediaTek
R1-1711717	WF on using SS block for beam recovery	ZTE, Ericsson, NTT DOCOMO, MediaTek, Spreadtrum, vivo, OPPO, Qualcomm, Xinwei, LG Electronics, AT&T, Lenovo, CMCC, China Unicom, China Telecom, ASTRI, Samsung, Nokia, ASB, III, MITI, Sharp, National Instruments

Proposals:

- In addition to periodic CSI-RS, SS-block within the serving cell can be used for new candidate beam identification

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- Supported by: ZTE, Ericsson, NTT DOCOMO, MediaTek, Spreadtrum, vivo, OPPO, Qualcomm, Xinwei, LG Electronics, AT&T, Lenovo, CMCC, China Unicom, China Telecom, ASTRI, Samsung, Nokia, ASB, III, MTI, Sharp, National Instruments
- Objected by: IDC, HW, HiSi, Intel

Continue discussion next meeting

Not treated.

[R1-1709907](#) Discussion on Beam Failure Recovery Beijing Xinwei Telecom Techn.
[R1-1709929](#) General views on beam failure recovery Huawei, HiSilicon
[R1-1710058](#) Consideration on DL beam failure and recovery CATT
[R1-1710144](#) On Beam Recovery Mechanism Guangdong OPPO Mobile Telecom.
[R1-1710185](#) Discussion on beam recovery mechanism ZTE
[R1-1710236](#) Discussion on beam failure recovery procedure Fujitsu
[R1-1710251](#) Discussion on beam failure recovery request NEC Corporation
[R1-1710364](#) Discussion on beam failure recovery Spreadtrum Communications
[R1-1710400](#) Beam failure recovery procedure vivo
[R1-1710431](#) Considerations on beam failure recovery mechanism AT&T
[R1-1710596](#) Discussion of beam recovery procedure Lenovo, Motorola Mobility
[R1-1710655](#) Beam failure recovery Samsung
[R1-1710926](#) On Remaining Details of Beam Failure Recovery InterDigital, Inc.
[R1-1711017](#) Mechanism to recover from beam failure Ericsson
[R1-1711161](#) Beam recovery procedures Qualcomm Incorporated
[R1-1711234](#) Discussion on mechanisms for beam failure recovery Sharp

5.1.2.2.3 Other

[R1-1710186](#) **Beam grouping evaluation for beam management** ZTE
[R1-1710662](#) **On SS-block based beam management** Samsung
[R1-1711292](#) **BPL definition and Spatial QCL time indication** Nokia, Alcatel-Lucent Shanghai Bell

Not treated.

[R1-1709927](#) Beam indication for DL control channel Huawei, HiSilicon
[R1-1709930](#) Procedure details for beam failure recovery Huawei, HiSilicon
[R1-1710005](#) Considerations on timing advance design in NR Huawei, HiSilicon
[R1-1710145](#) Beam association relationship between data and control channels Guangdong OPPO Mobile Telecom.
[R1-1710228](#) Further discussion on channel reciprocity and beam correspondence MTI
[R1-1710450](#) Multi-beam transmission for DL control channel Huawei, HiSilicon
[R1-1710459](#) Discussion on UL SRS transmission power Huawei, HiSilicon
[R1-1710473](#) Network-based mechanism for millimeter-wave link recovery Huawei, HiSilicon
[R1-1710528](#) On Timing Advance for multi-beam operation Intel Corporation
[R1-1710656](#) Measurement and reporting for beam management Samsung
[R1-1710657](#) Discussion on Group based reporting Samsung
[R1-1710658](#) Discussion on Tx beam grouping configuration Samsung
[R1-1710659](#) Discussion on beam indication for PDSCH Samsung
[R1-1710660](#) L1 RSRP reporting for beam management Samsung
[R1-1710661](#) L1-RSRP measurement duration Samsung
[R1-1710663](#) DL beam management configuration Samsung
[R1-1710664](#) QCL associations for beam management RS Samsung
[R1-1710665](#) Aperiodic BSI reporting Samsung
[R1-1710666](#) Beam management for PDCCH Samsung
[R1-1711018](#) Beam management in C-DRX Ericsson
[R1-1711019](#) On the use of SS for beam management Ericsson
[R1-1711020](#) Further results on beam management without beam indication Ericsson
[R1-1711021](#) Performance of beam grouping Ericsson
[R1-1711022](#) On beam grouping Ericsson
[R1-1711023](#) Analysis of beam indication signalling options Ericsson
[R1-1711293](#) On beam grouping and reporting Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711294](#) On Multi-beam Downlink Control Channel Operation Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711295](#) Multi-beam Uplink Control Channel Operation Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711401](#) Measurement RS for beam management Huawei, HiSilicon
[R1-1711402](#) Relationship between beam failure recovery and RLF Huawei, HiSilicon

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[R1-1711403](#) Robust transmission for UL control channel Huawei, HiSilicon
[R1-1711410](#) Cross-carrier beam management Huawei, HiSilicon
[R1-1711445](#) System level evaluation results for beam management Samsung
[R1-1711446](#) Link level evaluation results for beam management Samsung
[R1-1711447](#) Link level simulation assumptions for beam management Samsung
[R1-1711448](#) System level simulation assumptions for beam management Samsung

5.1.2.3 CSI acquisition

5.1.2.3.1 CSI framework

Including beam management framework

[R1-1709931](#) Discussion on CSI Framework Design Huawei, HiSilicon
[R1-1711024](#) Further details of CSI framework Ericsson
[R1-1710059](#) Summary of email discussion [89-17] NR CSI framework CATT
Offline to come up with overhead numbers based on [R1-1710059](#) – Rakesh (CATT)

Continue offline discussion – Xiaoyi (AT&T)

[R1-1711893](#) Offline discussion summary on CSI framework AT&T

Agreements:

- For aperiodic CSI-RS triggering offset X, X is fixed to zero.
- For aperiodic CSI reporting on PUSCH, Y is indicated by DCI.
 - DCI to be used for indicating the timing for PUSCH is also used to indicate Y.
 - This applies to both UCI only and UCI+Data PUSCH
 - The set of values is configured by higher layer
 - The candidate set of values of Y is selected according to restricted conditions inferred from configuration of CSI related settings.
 - The condition include at least;
 - CSI parameter
 - Number of CSI-RS antenna ports if PMI is included
 - CSI-RS location
 - Frequency granularity of CSI
 - FFS: number of simultaneous CSI calculations
 - FFS on mechanisms to relax CSI report timing according to number of simultaneous CSI calculations
 - FFS different or same candidate Y value for the cases of UCI multiplexed with data and UCI only

Not treated.

[R1-1711077](#) Discussion on CSI framework NTT DOCOMO, INC.
[R1-1711296](#) On the CRI definition and usability in NR Nokia, Alcatel-Lucent Shanghai Bell
[R1-1709908](#) Discussion on CSI Framework and Semi-persistent CSI-RS Resources and Reports Activation Beijing
Xinwei Telecom Techn.
[R1-1710060](#) Views on CSI framework CATT
[R1-1710187](#) On CSI framework details ZTE
[R1-1710284](#) Discussion on CSI framework LG Electronics
[R1-1710432](#) Discussion on the channels to carry CSI report AT&T
[R1-1710529](#) On NR CSI framework Intel Corporation
[R1-1710667](#) CSI Acquisition and Beam Management Framework Samsung
[R1-1710927](#) On CSI framework for NR InterDigital, Inc.
[R1-1711162](#) Details of CSI framework Qualcomm Incorporated

5.1.2.3.2 Details of CSI acquisition

Including channel and interference measurement and reporting

[R1-1710530](#) On Details of CSI acquisition Intel Corporation
[R1-1711297](#) Remaining aspects on interference estimation options and configuration Nokia, Alcatel-Lucent
Shanghai Bell

Continue discussion offline – Yuichi (DCM)

[R1-1711924](#) Summary of CSI Acquisition Details NTT DoCoMo

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Not treated.

R1-1709932	Channel and interference measurement for CSI acquisition	Huawei, HiSilicon
R1-1711025	On CSI acquisition and reporting	Ericsson
R1-1710061	Discussion on details of CSI acquisition	CATT
R1-1710188	Details of CSI acquisition	ZTE
R1-1710285	Discussion on interference measurement	LG Electronics
R1-1710433	On the details of CSI acquisition	AT&T
R1-1710668	Discussions on CSI measurements and reporting for NR	Samsung
R1-1710854	Considerations on interference measurement	Sony
R1-1710928	On CSI acquisition for NR	InterDigital, Inc.
R1-1711078	On CSI measurement for NR	NTT DOCOMO, INC.
R1-1711163	Details of CSI acquisition	Qualcomm Incorporated

5.1.2.3.3 CSI acquisition for reciprocity based operation

R1-1710669	CSI Reporting for Reciprocity Operation	Samsung
R1-1711298	On the channel reciprocity support for CSI acquisition	Nokia, Alcatel-Lucent Shanghai Bell

Continue offline discussion – Ruyue (ZTE)

R1-1711725	Summary of CSI acquisition for reciprocity based operation	ZTE
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Not treated.

R1-1710189	On reciprocity based CSI acquisition	ZTE
R1-1711026	Further discussion on CSI acquisition for reciprocity-based operation	Ericsson
R1-1710062	Views on reciprocity based CSI acquisition	CATT
R1-1710286	Discussion on CSI acquisition for reciprocity based operation	LG Electronics
R1-1710812	CSI acquisition for reciprocity based operation	MediaTek Inc.
R1-1711164	CSI acquisition for reciprocity based operation	Qualcomm Incorporated
R1-1711404	Discussion on reciprocity based CSI acquisition mechanism	Huawei, HiSilicon

5.1.2.3.4 CSI feedback

Including type I/II codebook based scheme and other potential use cases, e.g., semi-open-loop

R1-1710190	CSI feedback mechanism on PUCCH	ZTE
R1-1710672	CSI parameters and multiplexing	Samsung

Continue discussion offline – Mark (Ericsson)

R1-1711904	Summary of views on CSI feedback for Type I and Type II Ericsson
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Agreement:

- Periodic CSI reporting is carried at least on
 - Short PUCCH
 - Long PUCCH
 - FFS whether in single-slot only or in multiple slots

Agreements:

- Type I CSI feedback is supported for P/SP/A-CSI and can be carried on either one of PUCCH and PUSCH
- Type I subband CSI can be carried on either one of PUSCH and long PUCCH
- Type II CSI is carried at least on PUSCH
 - FFS CSI on PUCCH

CSF for TS2

R1-1711300	CSI feedback in support of semi-open loop transmission	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711405	CSI acquisition for DL robust transmission	Huawei, HiSilicon

Continue discussion offline – Mark (Ericsson)

R1-1711905	Summary of CSI Feedback for Open-loop/Semi-open-loop	Ericsson
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Not treated.

R1-1711029	Type I & II CSI reporting	Ericsson
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R1-1711079	CSI Feedback Design for NR MIMO	NTT DOCOMO, INC.
R1-1710063	Discussion on periodic and aperiodic CSI feedback	CATT
R1-1710191	CSI feedback mechanism on PUSCH	ZTE
R1-1710192	Overhead reduction for Type II CSIZTE	
R1-1710287	Discussion on overhead reduction for Type II codebook	LG Electronics
R1-1710288	Discussions on CSI reporting contents	LG Electronics
R1-1710289	CSI feedback for OL and semi-OL MIMO	LG Electronics
R1-1710290	UL channel utilization for CSI reporting	LG Electronics
R1-1710434	CSI feedback for closed loop and semi open loop transmission schemes AT&T	
R1-1710452	CSI acquisition details for hybrid CSI	Huawei, HiSilicon
R1-1710453	The remaining issues for Type I codebook	Huawei, HiSilicon
R1-1710454	The remaining issues for Type II codebook	Huawei, HiSilicon
R1-1710670	Remaining details of Type I and Type II CSI codebooks	Samsung
R1-1710671	CSI support for transparent precoder cycling	Samsung
R1-1710673	Differential reporting of Type II CSI	Samsung
R1-1710674	On higher rank (3 and 4) Type II CSI	Samsung
R1-1710813	Remaining issues in NR CSI feedback	MediaTek Inc.
R1-1711027	CSI feedback and Transparent PDSCH TxD	Ericsson
R1-1711028	Codebook subset restriction	Ericsson
R1-1711030	Encoding and mapping of CSI parameters	Ericsson
R1-1711031	CSI feedback for multi-TRP	Ericsson
R1-1711080	Feedback Design for CSI Type I	NTT DOCOMO, INC.
R1-1711081	Feedback Design for CSI Type II	NTT DOCOMO, INC.
R1-1711165	On Type I and Type II CSI feedback using PUCCH	Qualcomm Incorporated
R1-1711166	On CSI feedback for open- or semi-open-loop transmission	Qualcomm Incorporated
R1-1711299	Feedback transmission of type II codebook	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711407	Multiple-panel codebook	Huawei, HiSilicon
R1-1711408	Category 2 codebook design for type II codebook	Huawei, HiSilicon
R1-1711409	Codebook design for beamformed CSI-RS	Huawei, HiSilicon
R1-1711566	On semi-persistent CSI reporting on PUSCH	Ericsson

5.1.2.3.5 Other

R1-1710675	Discussion on CSI-RS Resource Activation	Samsung
R1-1710676	Discussions on channel and interference measurements for NR	Samsung
R1-1710677	Discussions on CSI Feedback Signalling Overhead Reduction	Samsung
R1-1711032	On Dynamic Triggering for CSI Reports and CSI-RS	Ericsson
R1-1711033	A comparison of CSI-RS activation schemes based on MAC CE and DCI	Ericsson
R1-1711034	Identifying bounds on parameters in CSI framework	Ericsson
R1-1711035	Frequency parametrization for Type II CSI codebook	Ericsson
R1-1711036	Further details of measurement restriction configuration	Ericsson
R1-1711037	Performance impact of inactive antenna ports	Ericsson
R1-1711038	On partial bands and CSI acquisition	Ericsson
R1-1711039	NR CSI Computation Capability	Ericsson
R1-1711301	On the CSI timing relationships	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711406	Other remaining issues for CSI framework	Huawei, HiSilicon
R1-1711449	Discussions on service specific CSI for NR	Samsung

5.1.2.4 Reference signals and QCL

5.1.2.4.1 Multiplexing of different types of RSs

Including multiplexing and RE mapping of RSs

R1-1710193	Discussion on multiplexing of different RSs	ZTE
R1-1710064	Discussion on RS multiplexing	CATT
R1-1710435	Multiplexing of CSI-RS with PDSCH in mixed numerology scenarios	AT&T

Agreement:

- In NR, for a given BWP, support the case where CSI-RS for CSI acquisition and beam management is always transmitted with the same numerology as the PDSCH of the UE if PDSCH is present
 - FFS the case when PDSCH is not present

R1-1710678	Discussions on multiplexing of different types of RSs for DL	Samsung
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Discuss further offline – Leiming (Huawei)

[R1-1711974](#) Summary of views on multiplexing of different types of RS Huawei, HiSilicon

Not treated.

[R1-1710009](#) Multiplexing different types of DL RS Huawei, HiSilicon
[R1-1710010](#) Multiplexing different types of UL RS Huawei, HiSilicon
[R1-1710291](#) On collision avoidance for PTRS and other RSs LG Electronics
[R1-1710531](#) On multiplexing of different RS types Intel Corporation
[R1-1710679](#) Discussions on multiplexing of different types of RSs for UL Samsung
[R1-1711040](#) On Multiplexing of RS types for downlink Ericsson
[R1-1711167](#) On multiplexing of different types of RSs Qualcomm Incorporated
[R1-1711302](#) On multiplexing of different RS types Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711558](#) Multiplexing of different types of RS for uplink Ericsson

5.1.2.4.2 CSI-RS

[R1-1711041](#) On CSI-RS for CSI-acquisition Ericsson

[R1-1711759](#) Summary of offline discussion on CSI-RS Samsung

Agreements:

- At least for CSI acquisition, for N=4 OFDM symbols,
 - Support two pairs of adjacent OFDM symbols for one CSI-RS resource where the two pairs can be adjacent or non-adjacent
 - For each pair, support a uniform RE mapping pattern in the time domain wherein the same sub-carriers are occupied in the two adjacent OFDM symbols
 - Note: CDM pattern will be discussed separately

Agreements:

- Support for CSI-RS sequence design:
 - (Working assumption) PN sequence at least for CSI-RS for CSI acquisition
 - UE specifically configured CSI-RS sequence seed
 - FFS, sequence design, e.g. PN sequence, ZC sequence, M sequence, etc., for other use cases such as beam management and fine time/frequency tracking

Agreements:

- For beam management, CSI-RS with sub-time units smaller than an OFDM symbol in a reference numerology is not supported in Rel-15

Continue discussion offline – Lu (Huawei)

[R1-1711922](#) WF on CSI-RS for BM Intel, Ericsson, CATT, Samsung, MediaTek, AT&T, NTT Docomo, KT

Also supported by Spreadtrum, Qualcomm

[R1-1711923](#) WF on CSI-RS for BM Samsung, Intel, AT&T, NTT DOCOMO, ZTE

[R1-1711787](#) WF on CSI-RS Samsung, Ericsson, NTT DOCOMO, CATT, LGE

Agreements:

- Regarding CSI-RS RE Patterns for CSI Acquisition, support at least the following CSI-RS RE patterns for CSI acquisition for OCC based CDM

X	Density [RE/RB/port]	N	(Y,Z)	CDM	Remark
1	>1, 1	1	N.A.	No CDM	
2	1	1	(2,1)	FD-CDM2	
4	1	2	(2,2)	FD-CDM2, CDM4(FD2,TD2)	
8	1	2	(2,2)	FD-CDM2, CDM4(FD2,TD2)	
16	1	2	(2,2)	FD-CDM2, CDM4(FD2,TD2)	
32	1, 1/2	4	(2,2)	FD-CDM2, CDM4(FD2,TD2)	FFS, CDM8 details

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- Note: The RE pattern for an X-port CSI-RS resource spans $N \geq 1$ OFDM symbols in the same slot and is comprised of one or multiple component CSI-RS RE patterns, where a component CSI-RS RE pattern is defined within a single PRB as Y adjacent REs in the frequency domain and Z adjacent REs in the time domain (agreements in RAN1#88)
- Note: Density 1/2 is based on a PRB-level comb with the same comb offset value for all ports.
- Note: REs for CDM2 and CDM4(FD2,TD2) comprise adjacent REs
- Note: RAN1 will continue discussing adding more entries to the above table

Agreement:

- For partial-band CSI-RS, partial-band can be the same as bandwidth part
 - FFS whether or not to have small values than the bandwidth of bandwidth part

Agreements:

- Confirm the WA with the following revision
 - Support PN sequence for CSI-RS for CSI acquisition and beam management
- FFS detailed sequence generation and initialization methods
 - E.g. function of slot number, OFDM symbol number, CP length, UE ID, cell ID, virtual cell ID, function of PRB position of configured CSI-RS resource, etc.

Agreement:

- Down-select among the following two options in the next meeting
 - Option 1-1: From a UE perspective, CSI-RS is not multiplexed on SS block OFDM symbol(s)
 - Option 1-2: From a UE perspective, CSI-RS can be multiplexed on SS block symbol(s)

Agreements:

- Down-select among the following two options in the next meeting:
 - Option 2-1: From a UE perspective, CSI-RS is not multiplexed on PDCCH OFDM symbol(s) for a slot
 - Option 2-2: From a UE perspective, CSI-RS can be multiplexed on PDCCH OFDM symbol(s) for a slot
 - Note: PDCCH decoding behavior at UE side will not be changed by Option 2-2.
 - Note: up to each company to define PDCCH OFDM symbols based on the max possible number of symbols or the configured PDCCH OFDM symbols for the slot

R1-1711804 WF on CDM-8 in CSI-RS for CSI acquisition LG Electronics, Samsung, CATT, NTT DOCOMO

Agreements:

- For CDM-8 in CSI-RS for CSI acquisition, support at least one of the following:
 - Alt 1: Distributed across multiple of the component CSI-RS RE patterns
 - Alt 2: Fully contained within one component CSI-RS RE pattern
- For CDM-4, study further whether to support the ports being distributed across multiple of the component CSI-RS RE patterns

R1-1711803 WF on configuration of CSI-RS for CSI acquisition LGE, Samsung

Agreements:

- For CSI acquisition, at least the following parameters associated with a CSI-RS resource can be indicated to be a UE based on higher-layer configuration:
 - Number of CSI-RS ports
 - Density (RE/PRB/port)
 - For density = 1/2, comb offset
 - CDM (Length, Type)
 - Locations of the component RE patterns for the corresponding CSI-RS resource
 - FFS on signaling details
 - Scrambling ID
- Note: the detailed approach for the above signaling is FFS

R1-1711976 WF on CSI-RS for beam management NTT DoCoMo, Ericsson, Samsung

R1-1711973 WF on CSI-RS for BM Intel, Ericsson, Spreadtrum, MediaTek, Samsung, Verizon

Agreements:

- CSI-RS resource with 1-port and 2-port for one OFDM symbol can be used for beam management
 - Value of $D \geq 1$ represents RE/RB/port within a OFDM symbol.
 - For the case of 1-port
 - No CDM

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- Subcarrier spacing within a PRB for $D > 1$
 - Even spacing
- Constant subcarrier spacing across PRB(s)
- Constant subcarrier spacing within a BWP
- FFS the values of D
- For the case of 2-port:
 - Reuse the same pattern as that of for CSI acquisition at least for $D = 1$ (if supported)
- FFS: the potential number of CSI-RS OFDM symbols for beam management
- FFS: other values of X and D for beam management
- In the LS to RAN4, add “RAN1 are discussing the respective possible limited set values of D for 1-port and 2-port CSI-RS resource, e.g., taking from {1, 2, 3, 4, 6}. RAN4 is also welcome to provide inputs to select the values of D for 1-port and 2-port CSI-RS resources, respectively”

LS to be prepared in [R1-1712003](#) (Yuichi, DCM)

Email approval for the LS in [R1-1712003](#) until 7/7 (Yuichi, DoCoMo)

R1-1709946	CSI-RS design in NR	Huawei, HiSilicon
R1-1709947	CSI-RS design for beam management	Huawei, HiSilicon
R1-1710065	Design of CSI-RS for CSI acquisition	CATT
R1-1710066	Design of CSI-RS for beam management	CATT
R1-1710146	Disussion on CSI-RS design for beam management	Guangdong OPPO Mobile Telecom.
R1-1710194	On CSI-RS for beam management	ZTE
R1-1710195	On CSI-RS for CSI acquisition	ZTE
R1-1710256	CSI-RS design for beam management and interference measurement	NEC Corporation
R1-1710292	On CSI-RS design for beam management	LG Electronics
R1-1710293	On CSI-RS design for CSI acquisition	LG Electronics
R1-1710365	Discussion on CSI-RS design for CSI acquisition	Spreadtrum Communications
R1-1710401	On CSI-RS design for beam management	vivo
R1-1710436	Remaining details of CSI-RS	AT&T
R1-1710532	On CSI-RS for beam management	Intel Corporation
R1-1710533	On CSI-RS for CSI acquisition	Intel Corporation
R1-1710680	Discussions on CSI-RS design for NR MIMO	Samsung
R1-1710681	CSI-RS for beam management	Samsung
R1-1710811	IFDMA Based Beam Management CSI-RS for Flexible TX/RX Beam Sweeping	MediaTek Inc.
R1-1710833	On CSI-RS configuration for fine time and frequency tracking support	MediaTek Inc.
R1-1710931	CSI-RS Design for Beam Management	InterDigital, Inc.
R1-1710974	Discussion on using sub-time unit for CSI-RS of beam management	ITRI
R1-1711042	On CSI-RS for beam management	Ericsson
R1-1711082	CSI-RS for beam managment	NTT DOCOMO, INC.
R1-1711083	CSI-RS for CSI acquisition	NTT DOCOMO, INC.
R1-1711168	Discussion on CSI-RS design	Qualcomm Incorporated
R1-1711303	On the CSI-RS configurations for NR CSI acquisition	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711304	On CSI-RS Design for DL Beam Management	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711339	Consideration on the CSI-RS design for NR CATR	
R1-1711468	On CSI-RS design for DL beam management	KT Corp.

5.1.2.4.3 DMRS

Limit to maximum 2 contributions (one for discussion, another for evaluation) per 1 company/organization/university for DL and UL, independently

R1-1709909	Further Evaluation and Discussion on DMRS Design Details	Beijing Xinwei Telecom Techn.
R1-1710196	Discussion on downlink DMRS design	ZTE
R1-1711043	On DL DMRS design	Ericsson
R1-1710831	On downlink DMRS design	MediaTek Inc.

Continue discussion offline – Alex (Qualcomm)

[R1-1711778](#) Remaining issues on NR DM-RS Qualcomm
[R1-1711797](#) WF on DMRS sequence, Samsung, Ericsson, Qualcomm Incorporated, CATT, Nokia, Alcatel-Lucent Shanghai Bell, Intel, AT&T, NTT DOCOMO, INC., LG Electronics, KT Corp., MediaTek Inc., Mitsubishi Electric Co., Spreadtrum, Fujitsu, Xinwei, KDDI, Panasonic, ITL
Also supported SONY, KRRI

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Agreement: Both in DL and UL DMRS for CP-OFDM, only PN sequence is supported

R1-1711784 **WF on DMRS design** **MediaTek, Huawei, HiSilicon, China Telecom, ZTE, ASUSTek, CeWiT, Spreadtrum, Tejas Networks, CATR, Deutsche Telekom, IITH, Xinwei, MTL, CHTTL, China Unicom, IITM, ITRI**

Agreements:

- The working assumption made in RAN1#89 for DM-RS is updated and agreed as follows for CP-OFDM:
 - A UE is configured by higher layers with DMRS pattern either from the front-loaded DMRS Configuration type 1 or from the front-loaded DMRS Configuration type 2 for DL/UL:
 - Configuration type 1:
 - One symbol:
 - Comb 2 + 2 CS, up to 4 ports
 - Two symbols:
 - Comb 2 + 2 CS + TD-OCC ({1 1} and {1 -1}), up to 8 ports
 - Note: It should be possible to schedule up to 4 ports without using both {1,1} and {1,-1}.
 - Configuration type 2:
 - One symbol:
 - 2-FD-OCC across adjacent REs in the frequency domain, up to 6 ports
 - Two symbols:
 - 2-FD-OCC across adjacent REs in the frequency domain + TD-OCC (both {1,1} and {1,-1}) up to 12 ports
 - Note: It should be possible to schedule up to 6 ports without using both {1,1} and {1,-1}.
 - From UE perspective, frequency domain CD-Med DMRS ports are QCLED.
 - FFS: Whether the front-load DMRS configuration type for a UE for UL and DL can be different or not.
 - Note: If there are significant complexity/performance issues involved in the above agreements, down-selection can still be discussed

R1-1711813 **WF on DM-RS** **NTT DOCOMO, Ericsson, Nokia, ASB, ZTE, KT Corp, Sharp, Qualcomm**

Proposals:

- In configuration 1 for DL, at least for SU-MIMO,
 - For 1-symbol, DM-RS $N \leq 2$ layer reception are multiplexed without any CDM in frequency for a UE
 - For 2-symbol, DM-RS $N \leq 4$ layer reception are multiplexed without any CDM in frequency for a UE
- FFS the case of UL MU-MIMO

Discuss till next meeting

R1-1711783 **WF on UL DMRS pattern for DFT-S-OFDM** **LG Electronics, ZTE, Ericsson, NEC, NTT DOCOMO**

Agreements:

- For DFT-S-OFDM based PUSCH DMRS
 - DMRS are mapped to resource elements using a comb structure (IFDMA).
 - DMRS and associated PUSCH are multiplexed in time domain
 - At least the following (repetition factor, CS) combinations is supported
 - (2, 2)
 - Front load DMRS is allocated to 1 or 2 OFDM symbols
 - When 2 OFDM symbols are allocated, TD-OCC ({1 1} and {1 -1}) are supported for orthogonal DMRS port multiplexing.
 - FFS the detailed applicability of 1 vs. 2 OFDM symbols
 - FFS the location of the DMRS symbol(s)

R1-1711816 **WF on front-loaded DMRS design for slot aggregation** **vivo, Huawei, HiSilicon**

Further discussion till next meeting

R1-1711770 **WF on DL DMRS for broadcast/multicast PDSCH** **LG Electronics, Qualcomm**

Agreements:

- For broadcast/multicast PDSCH (other than PBCH), the PDSCH is transmitted with a single DMRS port:
 - Support using only one front-load DMRS Configuration from Configuration 1 and Configuration 2. To down-select from:
 - Alt 1: Configuration 1 (FFS 1 or 2 symbols)

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- Alt 2: Configuration 2 with 2 symbols
- Support additional DM-RS. To down-select from:
 - Alt 1: Additional DMRS is always present
 - Alt 2: Additional DMRS is configurable
 - FFS the number of additional DMRS symbol(s)

[R1-1711722](#) WF on multiplexing between DMRS and data ZTE, Qualcomm, KT Corp., DOCOMO

Agreements:

- Study further aspects related to DMRS and data multiplexing in DL and UL considering 14 and 7 symbol slots/mini-slots, 1 vs. 2 front loaded DM-RS symbols, additional DM-RS, etc.
- Study further aspects related to possibly power boosting DM-RS (performance, complexity, spec impact)

[R1-1711714](#) WF on DMRS multiplexing scheme in time domain ZTE, Xinwei, ASTRI, Spreadtrum

[R1-1711666](#) WF on SS block and DM-RS collision handling Intel

Agreements:

- Study further how to handle DM-RS and SS block collision (if any)
 - E.g., changing DM-RS symbol(s) position in time domain, no PDSCH transmission on the collided PRBs, dropping the DM-RS symbol in collision, etc.

[R1-1711771](#) WF on signalling DMRS configuration LG Electronics, ZTE

Agreements:

- The number of front-load DMRS symbols can be 1 or 2 when the number of DMRS ports allocated to UE is equal or less than N
 - N is 4 for Configuration 1 and 6 for Configuration 2.
 - FFS the details to determine 1 or 2 symbols

Not treated.

R1-1709941	Design of DL DMRS for data transmission	Huawei, HiSilicon
R1-1709942	Evaluation results of DMRS design for DL data channel	Huawei, HiSilicon
R1-1709943	UL DMRS design for data transmission	Huawei, HiSilicon
R1-1709944	Evaluation results of DMRS design for UL data channel	Huawei, HiSilicon
R1-1710067	On DMRS design for DL	CATT
R1-1710068	On DMRS design for UL	CATT
R1-1710197	Evaluation results on DL DMRS	ZTE
R1-1710198	Discussion on uplink DMRS design	ZTE
R1-1710257	Considerations on the design of DMRS	NEC Corporation
R1-1710294	On DL DMRS design	LG Electronics
R1-1710295	On UL DMRS design	LG Electronics
R1-1710362	DMRS configurations for CP-OFDM.	Spreadtrum Communications
R1-1710402	On DL DMRS design	vivo
R1-1710410	Evaluation of DL DMRS designs	Mitsubishi Electric Co.
R1-1710411	Views on DL DMRS designs	Mitsubishi Electric Co.
R1-1710534	On the remaining details of DM-RS design	Intel Corporation
R1-1710607	On DM-RS for NR	Intel Corporation
R1-1710612	Discussion on downlink DMRS design	ETRI
R1-1710613	Discussion on uplink DMRS design	ETRI
R1-1710682	Discussion on DL DMRS design for NR	Samsung
R1-1710683	Evaluation results on DL DMRS for NR	Samsung
R1-1710684	Discussion on UL DMRS design for NR	Samsung
R1-1710685	Evaluation results on UL DMRS for NR	Samsung
R1-1710933	On DM-RS design for NR	InterDigital, Inc.
R1-1710970	On front-load DMRS design	China Telecommunications
R1-1711044	On DL DMRS evaluations	Ericsson
R1-1711045	On UL DMRS design	Ericsson
R1-1711046	On UL DMRS evaluations	Ericsson
R1-1711084	Evaluation results of DM-RS	NTT DOCOMO, INC.

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R1-1711085	Discussion on DM-RS design	NTT DOCOMO, INC.
R1-1711169	Discussion on UL DMRS design	Qualcomm Incorporated
R1-1711170	Discussion on DL DMRS design	Qualcomm Incorporated
R1-1711171	Evaluation of UL DMRS design	Qualcomm Incorporated
R1-1711172	Evaluation of DL DMRS design	Qualcomm Incorporated
R1-1711305	On design of DL DM-RS for NR physical data channels	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711306	DL DM-RS patterns link performance evaluation	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711307	On design of UL DM-RS for NR physical data channels	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711340	Consideration on the font loaded DM RS design for NR	CATR
R1-1711350	DMRS pattern configuration for NR	ITL

5.1.2.4.4 PT-RS

R1-1710296	On DL PT-RS design	LG Electronics
R1-1709940	PTRS for DFT-s-OFDM	Huawei, HiSilicon
R1-1710936	Remaining Issues on PTRS for NR	InterDigital, Inc.

Continue offline discussion – Mattias (Ericsson)

R1-1711914	Overview of WFs on PTRS	Ericsson
R1-1711815	WF on PT-RS for DFT-S-OFDM	NTT DOCOMO, Mitsubishi Electric, Huawei, HiSilicon, Nokia, ASB

Agreements:

- For PT-RS insertion for UL DFT-S-OFDM
 - Companies are encouraged to perform simulations with realistic simulation assumptions comparing pre-DFT vs. post-DFT PT-RS insertion
 - For pre-DFT, companies are encouraged to compare chunk-based distribution vs. non-chunk based distribution

Agreements:

- Support at least full symbol-level time density for time-domain PT-RS for DFT-S-OFDM (every PUSCH carrying symbol)
 - FFS: whether to support configurable symbol-level time density for time-domain PT-RS density reduction for DFT-S-OFDM
 - Note: If supported, the configuration can be implicit (associated with scheduled MCS and/or BW and/or DM-RS port(s)/position) or explicit, which is to be decided in next meeting

[R1-1711891](#) WF on PT-RS for DFT-S-OFDM Samsung, Intel, CATT

[R1-1711814](#) WF on PT-RS for CP-OFDM NTT DOCOMO, Ericsson, Nokia, ASB, Panasonic, Spreadtrum, ZTE

Agreements:

- If one DL PT-RS port is configured for a DL DM-RS port group, the DL PT-RS port and one DL DM-RS port in the DL DM-RS port group are associated for phase tracking, the association is determined in the specification
 - FFS details for the association
- If one DL PT-RS port is configured for a DL DM-RS port group, the DL PT-RS port is associated with:
 - Alt 1: the lowest DL DM-RS port in the DL DM-RS port group.
 - Alt 2: one DL DM-RS port in the DL DM-RS port group in a RB, where the one DL DM-RS port may vary across RBs
 - Other alternatives are not precluded
 - To conclude with one alternative next meeting
- FFS the case of two codewords

R1-1711688	Way Forward on PTRS	Intel, Huawei, HiSilicon, National Instruments, MediaTek
R1-1711941	Way Forward on PTRS	Intel, Huawei, HiSilicon, National Instruments, MediaTek

Agreements:

- Study further whether or not to support power boosting for PT-RS considering different or same number of ports compared with DM-RS
- Down-selection among the following for CP-OFDM DL & UL for PTRS:
 - Opt-1: a single association table pair per subcarrier spacing
 - Opt-2: UE recommends the preferred thresholds in tables and/or gNB to update/confirm

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- Opt-3: multiple association tables for each subcarrier spacing, to reflect different phase noise models resulting from different carrier frequencies, subcarrier spacings, UE implementations
- Opt-4: a single association table pair per subcarrier spacing based on UE capability

[R1-1711895](#) **WF on Remaining Issues on PTRS for CP-OFDM – Part II** Huawei, HiSilicon, InterDigital, Xinwei, Intel, NI, Panasonic, Spreadtrum

[R1-1711932](#) **WF on PT-RS pattern in frequency domain** LG Electronics

Agreements:

- For PTRS for CP-OFDM, study further how to handle mapping PTRS in case of non-consecutive scheduling
 - Alt 1: based on PRBs
 - Alt 2: based on VRBs
 - Other alternatives are not precluded
 - Note: consecutive scheduling can be considered as a special case
- For PTRS for CP-OFDM, study further whether or not there is need for interference randomization for PT-RS and if so, how
 - Companies are encouraged to provide simulation results
- To continue study to finalize the PT-RS density tables w.r.t. to MCS and scheduled bandwidth

[R1-1711773](#) **WF on PT-RS collision avoidance** LG Electronics, Huawei, CATT, ZTE

Agreement: Study further how to handle PT-RS collision with CSI-RS

[R1-1711894](#) **WF on Remaining Issues on PTRS for CP-OFDM – Part I** Huawei, HiSilicon, InterDigital, Xinwei, NI, Panasonic

Agreements:

- For PTRS for CP-OFDM, NR supports
 - Information related to UE to facilitate PTRS port configuration
 - FFS details, e.g., UE to report information (if so, details), or re-using UE information available for other purposes

Not treated.

R1-1709939	PTRS for CP-OFDM	Huawei, HiSilicon
R1-1710069	Considerations on RS for phase tracking	CATT
R1-1710199	Discussion on RS for phase tracking	ZTE
R1-1710227	Further Discussion on PTRS Design Details	Beijing Xinwei Telecom Techn.
R1-1710230	UL PTRS for DFT-s-OFDM waveform	Mitsubishi Electric RCE
R1-1710297	On UL PT-RS design	LG Electronics
R1-1710359	PT-RS design	Panasonic Corporation
R1-1710363	Considerations on PT-RS for CP-OFDM	Spreadtrum Communications
R1-1710403	On PT-RS design for CP-OFDM	vivo
R1-1710535	On PT-RS for CP-OFDM	Intel Corporation
R1-1710536	On PT-RS for DFT-s-OFDM	Intel Corporation
R1-1710686	On DL PTRS design	Samsung
R1-1710687	On UL PTRS for DFT-s-OFDM	Samsung
R1-1710777	Discussion on PT-RS design	CMCC
R1-1711047	On PTRS DL design	Ericsson
R1-1711048	On PTRS UL design	Ericsson
R1-1711086	Discussion on PT-RS design	NTT DOCOMO, INC.
R1-1711173	Phase and frequency tracking reference signal considerations	Qualcomm Incorporated
R1-1711308	Discussion on PT-RS design for CP-OFDM	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711309	On Details of the PT-RS Design for DFT-s-OFDM	Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.4.5 SRS

R1-1710855	Considerations on SRS design	Sony
R1-1711049	On SRS design	Ericsson
R1-1711087	Discussions on NR SRS Design	NTT DOCOMO, INC.
R1-1711174	Discussion on SRS design	Qualcomm Incorporated

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Agreement: For NR SRS, support sounding bandwidth in multiple of 4 PRBs

- FFS the detailed set of SRS sounding bandwidths to be supported
- At least 4 PRBs as SRS sounding bandwidth is supported

Continue offline discussion – Takano (SONY)

[R1-1711951](#) Open issues on SRS design SONY

[R1-1711791](#) Way Forward on SRS Switching Huawei, HiSilicon, Softbank, CMCC, Deutsche Telekom, CATR, Tejas Networks, OPPO, Qualcomm, CeWiT, Sony, ZTE, Xinwei, IITM, China Unicom, IITH, Ericsson, InterDigital, China Telecom, MediaTek

Agreement: Support antenna switching for SRS transmission within a carrier:

- FFS: Support at least [2Tx, 4Tx] switching

[R1-1711869](#) WF_config_collision_SRS_PUCCH_L Mitsubishi Electric, AT&T, Panasonic, Samsung, Huawei, HiSilicon, ZTE

Agreements:

- From a UE perspective, NR supports one or both of the following options on a given carrier:
 - Option 1 : Support only one of the following options for avoiding collisions between NR-SRS and short PUCCH
 - Option 1-1 : symbol level TDM
 - Option 1-2 : FDM
 - Option 1-3 : both symbol level TDM and FDM
 - FFS : details
 - Note : other options are not precluded
 - Option 2: Prioritize SRS or short PUCCH transmission, i.e., drop SRS or short PUCCH in case of collision
 - FFS whether to have one prioritization rule, or configurable prioritization

[R1-1711852](#) WF on SRS Sequence Design Ericsson, Huawei, HiSilicon, Nokia, ASB, Panasonic, NTT DOCOMO

[R1-1711668](#) WF on SRS sequence for NR Intel, Samsung, Qualcomm

Also supported by LGE, KT, CATT

[R1-1711767](#) WF on SRS sequence generation for partial overlapping LG Electronics, Intel Corporation, ZTE

Agreements:

- NR supports at least the following SRS sequences
 - LTE SRS sequences
- Study further whether or not to additionally support the following for NR SRS sequence design:
 - Opt-1: Truncated ZC design
 - Set of [60] long ZC sequences designed for each of [5] different reference carrier bandwidths where the sequence length exceeds the carrier bandwidth before truncation
 - The portion of the truncated sequence corresponds to the SRS PRB location assigned to the UE
 - Ports on the same comb are separated by cyclic shifts which are repeated every n SRS REs, e.g. n=[8,12]
 - Opt-2: block-wise concatenation based ZC sequence generation.
 - The number of blocks (e.g. 1, 2, ...) and/or block length (e.g. 4RBs, 8RBs, ...) per each block is informed to UE
 - Alt1. the number of blocks and/or block length are configured by network. If 1 block is configured, SRS sequence for NR is the same as LTE SRS sequence
 - Alt2. Implicit signaling e.g. the number of blocks and block length are dependent on waveform. When DFT-S-OFDM is configured to UE, the number of block is one and the block length is equal to SRS BW; When CP-OFDM is configured, the number of blocks can be larger than 1.
 - Opt-3: Same LTE SRS sequence generation mechanism with additional roots
- To conclude during the next meeting
 - Evaluations to consider at least CM/PAPR and sequence cross-correlation for the case of fully and partially overlapping SRS allocations
 - Evaluations to further consider CM/PAPR for carrier bandwidths different than the reference ones

[R1-1711920](#) WF on SRS design in NR LG Electronics, CATT, Intel Corp., KT Corp., Qualcomm

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[R1-1711930](#) WF on SRS Configuration Huawei, HiSilicon, OPPO

- Agreement:** Support gNB to configure one or more groups where each group contains one or more SRS resource(s) to UE
- Note: different groups may be for different purposes, e.g., one or more groups for beam management, one for DL CSI acquisition, one for UL CSI acquisition, etc.

Not treated.

R1-1709936	UL SRS design for beam management and CSI acquisition	Huawei, HiSilicon
R1-1710070	Further considerations on SRS design	CATT
R1-1710147	On SRS design for NR	Guangdong OPPO Mobile Telecom.
R1-1710200	Discussion on SRS design for NR	ZTE
R1-1710298	On SRS design and related operations	LG Electronics
R1-1710409	Views on SRS designs	Mitsubishi Electric Co.
R1-1710537	Discussion on SRS for NR	Intel Corporation
R1-1710688	SRS design for NR	Samsung
R1-1710817	SRS design in NR	MediaTek Inc.
R1-1710929	Discussion on SRS sequence generation for NR	Panasonic Corporation
R1-1710938	On SRS for NR	InterDigital, Inc.
R1-1711310	UL SRS design considerations in NR	Nokia, Alcatel-Lucent Shanghai Bell

5.1.2.4.6 TRS

R1-1709934	Reference signal for fine time and frequency tracking	Huawei, HiSilicon
R1-1710832	On TRS design requirement	MediaTek Inc.
R1-1711175	Further analysis on fine time/frequency tracking RS design	Qualcomm Incorporated

Further discussion offline, especially to narrow-down (possibly selecting) the possible range/set of values for the following parameters for TRS:

- X: the length of TRS burst in terms of number of slots
- Y: the TRS burst periodicity in terms of number of slots
- Sr: TRS subcarrier spacing
- Sr: TRS symbol spacing within a slot
- N: Number of OFDM symbols per TRS within a slot
- B: TRS bandwidth in terms of number of RBs

Revisit later this week – Chiao-yao (MTK) (including possible other aspects for TRS)

R1-1711765	Summary of views on TRS	MediaTek
R1-1711766	WF on TRS	MediaTek, Huawei, HiSilicon, Ericsson, Qualcomm

- Agreements:**
- Slide 3 and slide 4 in [R1-1711766](#) are agreed with the following updates:
 - N: add value of 1
 - B: 50 RBs assuming SCS=15KHz (FFS, for other SCS values)

- Agreements:**
- TRS is UE-specifically managed
 - NR supports TRS for multi-TRP transmission
 - Details FFS
 - FFS how to handle the case of initial access and idle mode (e.g., the necessity of TRS or not, default value if TRS is necessary, etc)
 - FFS how to handle multi-beam transmission
 - FFS: whether the tracking performance enhancement is needed for long DRX

Not treated.

R1-1710201	Discussion on fine time/frequency tracking of channel	ZTE
R1-1710299	Discussion on fine time/frequency tracking of channel	LG Electronics
R1-1710538	Discussion on TRS	Intel Corporation
R1-1710689	Discussions on fine time/frequency tracking for NR	Samsung
R1-1710853	Considerations on fine time/frequency tracking	Sony
R1-1711050	On time and frequency tracking of the channel	Ericsson
R1-1711311	Views on the fTFT-RS in NR	Nokia, Alcatel-Lucent Shanghai Bell

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5.1.2.4.7 QCL

[R1-1710202](#) QCL design for UL and DL MIMO ZTE
[R1-1710539](#) On QCL for different BW parts and other QCL details Intel Corporation
[R1-1711176](#) Discussion on QCL Qualcomm Incorporated
[R1-1711312](#) On QCL Framework and Configurations in NR Nokia, Alcatel-Lucent Shanghai Bell

Agreements:

- For QCL, NR supports:
 - At least one or two DM-RS antenna port groups per PDSCH
 - FFS other number of groups
 - QCL assumption across carriers and bandwidth parts for DL
 - FFS details for indication, the applicable RS(s), the applicable QCL parameters, and configurability
 - FFS whether or not to have UE assisted management

Continue offline discussion – Mihai (Nokia)

Not treated.

[R1-1709935](#) Details of QCL assumptions and related RS design considerations Huawei, HiSilicon
[R1-1710071](#) On QCL for NR CATT
[R1-1710300](#) Discussion on QCL for NR LG Electronics
[R1-1710690](#) On QCL for NR Samsung
[R1-1710941](#) On QCL for NR InterDigital, Inc.
[R1-1711051](#) The QCL framework in NR Ericsson

5.1.2.4.8 Other

[R1-1709937](#) UL SRS sequence design in NR Huawei, HiSilicon
[R1-1709945](#) Common UL/DL DMRS design Huawei, HiSilicon
[R1-1710455](#) Signaling of DMRS ports for SU/MU-MIMO Huawei, HiSilicon
[R1-1710456](#) DMRS design for URLLC Huawei, HiSilicon
[R1-1710457](#) Considerations on UE-specific RS Sequence Design Huawei, HiSilicon
[R1-1710458](#) Discussion on UL DMRS power boosting Huawei, HiSilicon
[R1-1711052](#) On the number of antenna ports for CSI-RS Ericsson
[R1-1711053](#) On the collision between DMRS and DC subcarrier Ericsson
[R1-1711246](#) Discussion on Bursty Interference Measurement Resources Qualcomm Incorporated

5.1.2.5 Other

Including MIMO calibration

[R1-1709938](#) SRS antenna switching Huawei, HiSilicon

[R1-1709910](#) NR MIMO System Level Phase 3 Calibration Results Beijing Xinwei Telecom Techn.
[R1-1710072](#) System level calibration results for NR MIMO CATT
[R1-1710073](#) Link level calibration results for NR MIMO CATT
[R1-1710203](#) Calibration results for Phase 1 NR MIMO link level calibration ZTE
[R1-1710204](#) Calibration results for Phase 1 NR MIMO system level calibration ZTE
[R1-1710205](#) Calibration results for Phase 2 NR MIMO link level calibration ZTE
[R1-1710206](#) Calibration results for Phase 2 NR MIMO system level calibration ZTE
[R1-1710207](#) Calibration results for Phase 3 NR MIMO calibration ZTE
[R1-1710208](#) Further clarification on Phase 3 NR MIMO calibration ZTE
[R1-1710301](#) Phase 3 SLS Calibration Results for NR MIMO LG Electronics
[R1-1710302](#) Phase 2 LLS Calibration Results for NR MIMO LG Electronics
[R1-1710540](#) Calibration results for Phase 2 NR MIMO system level calibration Intel Corporation
[R1-1711393](#) Calibration results for Phase 1 NR MIMO system level calibration MOTOROLA MOBILITY LLC
[R1-1711450](#) MIMO Phase-2 SLS calibration results on 30GHz frequency band Samsung
[R1-1711451](#) MIMO Phase-2 LLS calibration results on 30GHz frequency band Samsung
[R1-1711452](#) Evaluation results for dense urban on 30GHz frequency band Samsung

5.1.3 Scheduling/HARQ aspects

The document was presented by ... from ...

Discussion: .

Decision: The document is noted.

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5.1.3.1 Physical downlink control channel

[R1-1711567](#) Summary of e-mail discussion on DCI content Ericsson LM

[R1-1711910](#) [DRAFT] Reply LS on PDCCH design Ericsson

[R1-1711972](#) [DRAFT] Reply LS on PDCCH design Ericsson, CATT

[R1-1711992](#) [DRAFT] Reply LS on PDCCH design Ericsson, CATT

Decision: The document is noted and final LS is **approved in R1-1712006** by deleting a sentence “RAN1 may downselect between 7 and 14 symbols in the future.” and capture past agreements related to it in RAN1 #86bis (in Lisbon) as it is in Section 1.

5.1.3.1.1 PDCCH structure

R1-1711961 WF on PDCCH CRC Panasonic

R1-1712006 WF on UE behaviour for reserved resource Samsung

5.1.3.1.1.1 CCE-to-REG mapping and PDCCH-to-CCE mapping

Including REG bundle size/structure.

[R1-1711411](#) Evaluation on REG bundle sizes for 1-symbol CORESET duration Huawei, HiSilicon

Observation 1: For 1-symbol CORESET configured with REG-to-CCE mapping without interleaving, same precoder across multiple CCEs, i.e., higher REG bundling size such as 12 REGs, will improve PDCCH performance.

Observation 2: for 1-symbol CORESET configured with REG-to-CCE mapping with interleaving,

- using smaller REG bundling size hence finer cycling granularity, precoder cycling can obtain more diversity gain, i.e., the performance curve of BLER vs SNR will have a steeper slope, especially for the case of low Delay spread(hence low frequency selectivity)and in high SNR region, where channel estimation performance can be ensured with smaller REG bundling size, e.g.,2;
- using larger REG bundling size such as 3 or 6, channel estimation performance can be improved, especially for the case of high Delay spread(hence high frequency selectivity)and in low SNR region, where PDCCH performance will be ensured by high PDCCH aggregation level;
- higher PDCCH aggregation level will benefit from larger bundling size;

Proposal: Configurable REG bundling size should be supported for 1-symbol CORESE configured with REG-to-CCE mapping with interleaving, and bundle size 2, 3 or 6 can be configured.

Decision: The document is noted.

[R1-1711412](#) Evaluation on REG bundle sizes for more than 1 symbol CORESET duration Huawei, HiSilicon

Observation 1: for 2- or 3-symbol CORESET configured with REG-to-CCE mapping without interleaving, same precoder across multiple CCEs, i.e., higher REG bundling size such as 12 REGs, will improve PDCCH performance.

Observation 2: for 2- or 3-symbol CORESET configured with REG-to-CCE mapping with interleaving:

- using lower REG bundling size (REG bundle pattern 0) have finer cycling granularity, precoder cycling can obtain more diversity gain, especially for the case high SNR region;
- using higher REG bundling size (REG bundle pattern 1), channel estimation performance can be improved, especially for the case of low SNR region;
- higher PDCCH aggregation level will benefit from larger bundling size;

Proposal: For Option2 in 2 and 3 OFDM symbol CORESET, the following REG bundle patterns can be configured:

- 1 symbol in time domain and {3,6} consecutive REGs in frequency domain;
- 1 symbol in time domain and {2,6} consecutive REGs in frequency domain;
- 2 symbols in time domain and 1 REG per symbol in frequency domain;
- 2 symbols in time domain and 3 consecutive REGs per symbol in frequency domain; Or
- 3 symbols in time domain and 1 REG per symbol in frequency domain;
- 3 symbols in time domain and 2 consecutive REGs per symbol in frequency domain.

Decision: The document is noted.

[R1-1710541](#) NR PDCCH physical structure Intel Corporation

- Observation 1: In case of CORESET of 1 OS and 48 RBs, REGBs of 3 and 6 REGs exhibit similar performance. While REGB of 6 REGs shows slightly better performance than REGB of 3 REGs for high AL NR-PDCCH in low SNR, the performance of REGB of 3 REGs is slightly better than that of REGB of 6 REGs for low AL NR-PDCCH in high SNR.
- Observation 2: In case of CORESET of 2(3) OS and 24(16) RBs, REGBs of 2(3) and 6 REGs exhibit similar performance. Specifically REGB of 6 REGs shows slightly better performance than REGB of 2(3) REGs for high AL NR-PDCCH in low SNR.

- Proposal 1: For non-interleaved REG-to-CCE mapping in 1-symbol CORESET, UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 2: For interleaved REG-to-CCE mapping in 1-symbol CORESET, REG bundle size is 3REGs and UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 3: For non-interleaved REG-to-CCE mapping in CORESET of more than 1 symbol with time-first mapping of REG-to-CCE, UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 4: For interleaved REG-to-CCE mapping in CORESET of more than 1-symbol with time-first mapping of REG-to-CCE, REG bundle size is 2 REGs and 3 REGs for 2-symbol and 3-symbol CORESETs respectively, and UE assumption of same precoding over multiple REG bundles can be configured by the gNB.
- Proposal 5: At least for interleaved REG-to-CCE mapping in 1-symbol and multi-symbol CORESETs with time-first mapping, when configured, the same precoding may be assumed across no more than [2] REG bundles.
- Proposal 6: For multi-symbol PDCCH CORESET, adopt the following additional REG-to-CCE mapping option:
 - (Option 2) Support of frequency-first mapping such that:
 - REG-to-CCE mapping is exactly same as the case where a CORESET with 1 symbol
 - A PDCCH candidate can be mapped across OFDM symbols.

Decision: The document is noted.

R1-1711708 **WF on REG bundle size in a CORESET with interleaving** LG Electronics, ETRI, NTT DOCOMO, Ericsson, InterDigital

- The REG bundle size in a CORESET with interleaving is
 - [2 or 3] for 1-symbol CORESET
 - 2 for 2-symbol CORESET when time-first REG-to-CCE mapping is applied
 - 3 for 3-symbol CORESET when time-first REG-to-CCE mapping is applied

Decision: The document is noted.

Proposed agreement

- The REG bundle size in a CORESET with interleaving is
 - Configurable between 2 and 6 for 1-symbol CORESET
 - Configurable between 2 and 6 for 2-symbol CORESET when time-first REG-to-CCE mapping is applied
 - Configurable between 3 and 6 for 3-symbol CORESET when time-first REG-to-CCE mapping is applied

For 2 and 3 symbols CORESET

- Option 1 REG bundle size = CORESET length
 - Supported by Samsung, LGE, Panasonic, NTT DOCOMO, Ericsson, ETRI, OPPO, ZTE, InterDigital
- Option 2 REG bundle size = 6
 - Nokia, ASB, Qualcomm

Agreements

For a 1-symbol CORESET with interleaving,

- At least REG bundle size = 2 is supported
- **Working assumption:**
 - REG bundle size = 6 is also supported
 - FFS whether configuration between 2 and 6 is explicit or implicit
 - Precoder granularity in frequency domain is equal to the REG bundle size in the frequency domain

For a 2 or 3 symbol CORESET with interleaving,

- At least REG bundle size = CORESET length is supported
- **Working assumption:**
 - REG bundle size = 6 is also supported
 - FFS whether configuration between CORESET length and 6 is explicit or implicit
 - Precoder granularity in frequency domain is equal to the REG bundle size in the frequency domain

(Note: REG bundle size = REGs in frequency domain x symbols in time domain)

The document was presented by ... from ...

Discussion: .

Decision: The document is noted.

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R1-1710011	Overview of PDCCH-CCE-REG mapping and REG bundling	Huawei, HiSilicon
R1-1710074	NR-PDCCH mapping structure	CATT
R1-1710104	CCE mapping with REG bundling	ZTE
R1-1710148	NR-PDCCH CCE-to-REG mapping with REG bundling	Guangdong OPPO Mobile Telecom.
R1-1710303	Discussion on NR-PDCCH structure	LG Electronics
R1-1710366	Discussion on NR-REG to NR-CCE time-/frequency mapping	Spreadtrum Communications
R1-1710390	Discussion on REG bundling size/structure	vivo
R1-1710614	NR-PDCCH mapping structure and REG bundle size	ETRI
R1-1710691	Resource Mapping for PDCCH	Samsung
R1-1710788	Discussions on NR-PDCCH Structure	MediaTek Inc.
R1-1710903	PDCCH structure for NR	NEC
R1-1710944	On the impact of multi-beam operation on PDCCH structure	InterDigital, Inc.
R1-1710973	Discussion on REG bundle size	ITRI
R1-1710978	On the PDCCH construction for NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711088	Views on remaining issues of resource mapping for NR-PDCCH	NTT DOCOMO, INC.
R1-1711177	PDCCH structure	Qualcomm Incorporated
R1-1711235	REG bundling for NR PDCCH	Sharp
R1-1711273	Design of resource mapping and NR-PDCCH	HTC Corporation
R1-1711280	On CCE and PDCCH mapping	Motorola Mobility, Lenovo
R1-1711327	The relation among REG, CCE, and CORESET	Panasonic
R1-1711475	Views on CCE-to-REG mapping	KT Corp.
R1-1711477	On NR-PDCCH Structure	Ericsson

5.1.3.1.1.2 RS structure/mapping

Including possible wideband RS.

DMRS mapping

- Option 1: DMRS is mapped on all REGs on all the OFDM symbols of a given PDCCH candidate
 - Supported by Ericsson, Nokia, ASB, ITRI, Huawei, HiSilicon, OPPO, Intel, ETRI, KT, Lenovo, MotM, Panasonic, NTT DOCOMO, CATT, MediaTek, CMCC, Sony, Spectrum
- Option 2 DMRS is mapped on all REGs on the first OFDM symbol of a given PDCCH candidate
 - Samsung, ZTE, Huawei, HiSilicon, vivo, InterDigital, LGE, Qualcomm, Sharp, Intel, NEC, Panasonic
- Option 3 DMRS is mapped on all REGs on the first and last OFDM symbols of a given PDCCH candidate
 - DOCOMO, CATT, MediaTek, CMCC, vivo, Sony, Spectrum

Agreement

- DMRS is mapped on all REGs on all the OFDM symbols of a given PDCCH candidate
 - The DMRS density is the same on all REGs

R1-1709950	DMRS for NR-PDCCH	Huawei, HiSilicon
R1-1710075	Further details of NR-PDCCH RS structure	CATT
R1-1710105	Issues regarding DMRS structure and mapping	ZTE
R1-1710149	On NR PDCCH RS design	Guangdong OPPO Mobile Telecom.
R1-1710304	Discussion on reference signal for NR-PDCCH	LG Electronics
R1-1710389	DMRS design for NR-PDCCH	vivo
R1-1710542	On DM-RS design for NR PDCCH	Intel Corporation
R1-1710615	DMRS design for NR-PDCCH	ETRI
R1-1710692	DMRS Structure for PDCCH	Samsung
R1-1710778	On DMRS Design for NR-PDCCH	CMCC
R1-1710789	RS structures for NR-PDCCH	MediaTek Inc.
R1-1710945	On REG bundling and associated DMRS	InterDigital, Inc.
R1-1710979	On the remaining details of PDCCH reference signal structure	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711089	Views on DM-RS design for NR-PDCCH	NTT DOCOMO, INC.
R1-1711178	RS for DL control channel	Qualcomm Incorporated
R1-1711328	RS mapping of NR-PDCCH	Panasonic
R1-1711478	On DM-RS for NR-PDCCH	Ericsson

5.1.3.1.2 Search space

5.1.3.1.2.1 CORESET configuration

Including relationship between CORESET and search space.

From offline discussion...

Agreements:

- For a CORESET which is configured by UE-specific higher-layer signalling, at least following are configured.
 - Frequency-domain resources, which may or may not be contiguous
 - Each contiguous part of a CORESET is equal to or more than the size of REG-bundle in frequency
 - FFS: exact size and number of contiguous parts for a CORESET
 - Starting OFDM symbol
 - Time duration
 - REG bundle size if the configuration is explicit
 - Transmission type (i.e., interleaved or non-interleaved)
 - More parameters may be added if agreed
- For a CORESET which is configured by UE-specific higher-layer signalling, at least following is configured.
 - Monitoring periodicity
 - FFS: it is a configuration per CORESET or per one or a set of PDCCH candidates
 - FFS: relation with DRX
 - FFS: default/fallback value

R1-1709951	Configuration of control resource set	Huawei, HiSilicon	
R1-1710076	Configuration aspects of the NR-PDCCH	CATT	
R1-1710106	NR-PDCCH CORESET configuration	ZTE	
R1-1710150	PDCCH CORESET configuration and UE procedure on NR-PDCCH monitoring		Guangdong OPPO
Mobile Telecom.			
R1-1710305	Discussion on CORESET configuration	LG Electronics	
R1-1710543	CORESETs for NR PDCCH	Intel Corporation	
R1-1710693	CORESET Configurations	Samsung	
R1-1710779	Discussion on CORESET duration	CMCC	
R1-1710790	Discussions on CORESET configurations	MediaTek Inc.	
R1-1710872	CORESET Monitoring Under Dynamic Change of BWP	InterDigital, Inc.	
R1-1710980	On the PDCCH control resource set and its connection to the search space for NR		Nokia, Alcatel-Lucent
Shanghai Bell			
R1-1711090	Views on control resource set configuration for NR-PDCCH	NTT DOCOMO, INC.	
R1-1711179	Control resource set and search space	Qualcomm Incorporated	
R1-1711272	Configuration for control resource sets and search spaces	HTC Corporation	
R1-1711329	Configuration of CORESET	Panasonic	
R1-1711368	Discussion on the search space design	Xiaomi technology	
R1-1711479	On Configuration of Control Resource Sets	Ericsson	

5.1.3.1.2.2 Search space design

Including possible nested search space. Both common search space and UE-specific search space should be considered.

R1-1711754 WF on NR PDCCH Blind decodes vivo, Samsung

Agreements:

- For PDCCH blind decoding, at least for the non-initial access, at least the following can be configured:
 - Number of PDCCH candidates per CCE aggregation level, per DCI format size that the UE monitors
 - Set of aggregation levels
 - FFS explicit or implicit configuration
 - Set of DCI format sizes
 - FFS explicit or implicit configuration
 - FFS: per CORESET not used for initial access or search space
 - FFS: Signalling details
 - Note that the number of candidates can be zero
- UE blind decoding capability is known by NW
 - FFS: How the capability is derived

Possible proposals from offline:

- FFS: UE PDCCH blind decoding capability is defined in NR
 - FFS: The capability can be defined as the maximum number of blind decodes that a UE can support within a time unit.
 - FFS: the value of the time unit

R1-1710306	Discussion on hierarchical search space structure	LG Electronics
R1-1710544	NR PDCCH: Search spaces and monitoring behavior	Intel Corporation
R1-1709952	Search space design	Huawei, HiSilicon
R1-1710077	Search space design for NR-PDCCH	CATT
R1-1710107	Search space design for NR-PDCCH	ZTE
R1-1710151	NR PDCCH search space design with nested structure	Guangdong OPPO Mobile Telecom.
R1-1710393	Discussion on search space design supporting dynamic DCI size	vivo
R1-1710694	Search Space Design	Samsung
R1-1710780	Discussion on NR-PDCCH search space design	CMCC
R1-1710946	Search space design for eMBB-URLLC Multiplexing	InterDigital, Inc.
R1-1710981	On the search space design and UE blind detection	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711091	Views on search space design for NR-PDCCH	NTT DOCOMO, INC.
R1-1711180	Nested search space design	Qualcomm Incorporated
R1-1711321	PDCCH BD reduction	Panasonic
R1-1711330	Search space design	Panasonic
R1-1711480	On Search Space and Blind Decoding Design	Ericsson

5.1.3.1.2.3 Multi-beam operation for PDCCH

R1-1710012	Multi-beam operation for PDCCH	Huawei, HiSilicon
R1-1710078	Discussion on multi-beam operation for NR-PDCCH	CATT
R1-1710108	Supporting Multi-beam in NR-PDCCH	ZTE
R1-1710152	Search space design consideration for NR PDCCH with BF	Guangdong OPPO Mobile Telecom.
R1-1710307	Discussion on multi-beam operation for NR-PDCCH	LG Electronics
R1-1710437	Control channel configuration for multi-TRP and multi-panel transmission	AT&T
R1-1710545	Multi-beam operation for NR PDCCH	Intel Corporation
R1-1710616	NR-PDCCH for broadcast information delivery	ETRI
R1-1710695	Multibeam Transmission for PDCCH	Samsung
R1-1710982	PDCCH support for multi-beam system	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711092	Views on multi-beam based NR-PDCCH	NTT DOCOMO, INC.
R1-1711181	Multi-beam control operation	Qualcomm Incorporated
R1-1711395	Discussion on Multi-beam Operation for PDCCH	Convida Wireless LLC
R1-1711481	On Multi-beam and Multi-TRP Operation for PDCCH	Ericsson

5.1.3.1.3 Resource sharing between PDCCH and PDSCH

[R1-1711921](#) WF on PDCCH /PDSCH resource sharing ZTE, Nokia, Ericsson, LG, Panasonic, Qualcomm, Sharp

- The following is supported for dynamic resource reuse for PDSCH
 - RRC signaling to indicate the time and frequency resources for which the dynamic signaling below indicates resources for which PDSCH may or may not be mapped
 - FFS whether the time and frequency resources can correspond to resources used for purposes other than CORESETs configured for monitoring PDCCH by the UE or by other UEs
 - Dynamic signaling that
 - Indicates which of the time and frequency resources configured by the RRC signaling can be mapped to PDSCH (Details FFS) and
 - Can additionally indicate which of the time and frequency resources not indicated by the above RRC signaling and that are part of the CORESETs configured to the UE for PDCCH monitoring are mapped to PDSCH (Details FFS)
 - Note: Dynamic signaling overhead will limit the number of resources that can be dynamically indicated for reuse of resources. FFS the limit on the overhead.
 - UE can assume that the reused resources shall be within the frequency domain spanned by the resources allocated for the PDSCH
 - UE assumes that resources used for reception of PDCCH scheduling PDSCH are not reused
 - FFS: Reuse of resources used for other control signaling, e.g., common search space, group common PDCCH, broadcast PDCCH, UL grant

Decision: The document is noted.

R1-1711482	On Data Transmission in Control Resource Sets	Ericsson
R1-1710546	Dynamic resource sharing between control and data	Intel Corporation
R1-1709956	Resource multiplexing of downlink control and data	Huawei, HiSilicon
R1-1710079	Flexible reuse of DL control resources for data transmission	CATT

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R1-1710109	Resource sharing between PDCCH and PDSCH	ZTE
R1-1710153	On resource sharing between PDCCH and PDSCH	Guangdong OPPO Mobile Telecom.
R1-1710308	Discussion on multiplexing between control and data	LG Electronics
R1-1710617	Discussion on dynamic indication of PDSCH start symbol	ETRI
R1-1710696	Multiplexing NR-PDCCH and PDSCH	Samsung
R1-1710791	Resource sharing between PDCCH and PDSCH	MediaTek Inc.
R1-1710873	PDSCH starting position in NR	InterDigital, Inc.
R1-1710983	Resource sharing between PDCCH and PDSCH in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711093	Resource sharing between data and control channels	NTT DOCOMO, INC.
R1-1711182	Resource reuse for data in DL control region	Qualcomm Incorporated
R1-1711236	Indication of PDSCH starting position for NR	Sharp
R1-1711320	Resource sharing between PDCCH and PDSCH	Panasonic
R1-1711354	PDSCH starting position indication for NR	WILUS Inc.

5.1.3.1.4 Group-common PDCCH

R1-1710968	Summary of [89-20] email discussion on Group-common PDCCH for NR	CATT
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Agreements:

- In 'Slot format related information', 'Empty' is not indicated explicitly.
- Note: RAN1 specification ensures that UE(s) is/are aware of which resources can be for 'gap for DL-UL switching' and/or 'gap'
- Note: RAN1 specification ensures that UE(s) is/are aware of which resources are for 'CSI/interference measurement'.

Agreements:

- UE is configured with a CORESET to monitor group-common PDCCH.
- When configured, the group-common PDCCH follows the same CORESET configuration (e.g., REG-to-CCE mapping) of the CORESET.
 - A group-common PDCCH is formed by an integer number of CCEs.
- The CORESET for the monitored group-common PDCCH carrying SFI can be the same or different from the CORESET for the monitored PDCCH for other types of control signalling.

Friday

R1-1711991 WF on contents of the group-common PDCCH CATT, NEC

Agreement: Prioritize discussion of SFI functionality of a group-common PDCCH.

- Further work will be on group-common PDCCH carrying the SFI at least in August meeting.

5.1.3.1.4.1 Structure of group-common PDCCH

Limit to 1 contributions per 1 company/organization/university

R1-1709954	Structure of group-common PDCCH	Huawei, HiSilicon
R1-1710080	Channel structure for group-common PDCCH	CATT
R1-1710309	Discussion on the structure of group common PDCCH	LG Electronics
R1-1710438	Group common PDCCH Structure for NR	AT&T
R1-1710547	Group-common PDCCH: Physical structure	Intel Corporation
R1-1710697	UE-Group Common PDCCH Structure	Samsung
R1-1710792	Structure of group-common PDCCH	MediaTek Inc.
R1-1710857	On structure of group-common PDCCH	Sony
R1-1710947	Group-common PDCCH design considerations	InterDigital, Inc.
R1-1710984	On the structure of group common PDCCH in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711094	Views on structure of group-common PDCCH	NTT DOCOMO, INC.
R1-1711183	Structure of group common PDCCH	Qualcomm Incorporated
R1-1711237	Group common PDCCH structure for NR	Sharp
R1-1711331	Discussion on structure of group common PDCCH	Panasonic
R1-1711355	Discussion on structure for group-common PDCCH for NR	WILUS Inc.
R1-1711370	Discussion on the search space design	Xiaomi Technology
R1-1711390	Discussion on the structure of group common PDCCH	Xiaomi Technology
R1-1711483	On Group-Common PDCCH Structure and Configuration	Ericsson

5.1.3.1.4.2 Contents of group-common PDCCH

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[R1-1709953](#) Contents of group-common PDCCH Huawei, HiSilicon
[R1-1710081](#) Contents of the group-common PDCCH CATT
[R1-1710110](#) Group-common PDCCH design consideration ZTE
[R1-1710310](#) Discussion on the contents of group common PDCCH LG Electronics
[R1-1710391](#) Discussion on group common PDCCH and BD vivo
[R1-1710439](#) On the contents of group common PDCCH AT&T
[R1-1710548](#) Group-common PDCCH: Contents Intel Corporation
[R1-1710698](#) Functionalities of UE-Common PDCCH Samsung
[R1-1710793](#) Contents of group-common PDCCH MediaTek Inc.
[R1-1710856](#) On contents of group-common PDCCH Sony
[R1-1710907](#) Control indicator in group-common PDCCH for UE power saving Apple Inc.
[R1-1710985](#) On the contents of group common PDCCH in NR Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711095](#) Views on contents of group-common PDCCH NTT DOCOMO, INC.
[R1-1711184](#) Contents of group common PDCCH Qualcomm Incorporated
[R1-1711238](#) Group common PDCCH contents for NR Sharp
[R1-1711281](#) NR Group-common PDCCH contents and structure Motorola Mobility, Lenovo
[R1-1711332](#) Discussion on contents of group common PDCCH Panasonic
[R1-1711356](#) Discussion on contents for group-common PDCCH for NR WILUS Inc.
[R1-1711369](#) Discussion on the content of group common PDCCH Xiaomi technology
[R1-1711484](#) On the Content of Group-Common PDCCH Ericsson

5.1.3.1.4.3 UE behaviour related to group-common PDCCH

Limit to 1 contributions per 1 company/organization/university

[R1-1710082](#) Configuration and monitoring of the group-common PDCCH CATT
[R1-1710154](#) Impact on common channel reception to PDCCH design Guangdong OPPO Mobile Telecom.
[R1-1710311](#) Discussion on UE behavior for the group common PDCCH LG Electronics
[R1-1710368](#) The relation among UE-specific DCI, GC-PDCCH, and semi-static signaling Spreadtrum Communications
[R1-1710440](#) UE behaviour for group common PDCCH AT&T
[R1-1710476](#) UE behavior related to group-common PDCCH Huawei, HiSilicon
[R1-1710549](#) Group-common PDCCH: UE behavior Intel Corporation
[R1-1710699](#) UE Behavior for UE-Group Common PDCCH Detection Samsung
[R1-1710781](#) UE behaviour related to dynamic and semi-static configured resources CMCC
[R1-1710794](#) UE behaviour for group-common PDCCH MediaTek Inc.
[R1-1710906](#) UE behavior on UL/DL transmission direction determination in NR TDD Apple Inc.
[R1-1710948](#) UE behaviour related to CORESET(s) configured by PBCH InterDigital, Inc.
[R1-1710986](#) On the UE behaviour related to group common PDCCH in NR Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711096](#) Views on UE behavior for group-common PDCCH NTT DOCOMO, INC.
[R1-1711185](#) UE behaviour related to group common PDCCH Qualcomm Incorporated
[R1-1711239](#) Group common PDCCH monitoring for NR Sharp
[R1-1711333](#) Discussion on DL/UL transmission direction Panasonic
[R1-1711357](#) Discussion on UE behavior for group-common PDCCH for NR WILUS Inc.
[R1-1711485](#) On UE Procedures Related to Group-Common PDCCH Ericsson

5.1.3.1.5 Ultra-reliable part of URLLC for DL control

Identify necessary techniques for physical downlink control channel to meet the URLLC requirements set forth by TR38.913.

[R1-1709993](#) UE procedure of PDCCH monitoring for URLLC Huawei, HiSilicon
[R1-1710111](#) NR-PDCCH for supporting URLLC ZTE
[R1-1710155](#) DL control channel design for URLLC Guangdong OPPO Mobile Telecom.
[R1-1710312](#) Discussion on DL control with ultra-reliability LG Electronics
[R1-1710550](#) Satisfying ultra-reliability targets for NR PDCCH Intel Corporation
[R1-1710700](#) PDCCH Design for URLLC Samsung
[R1-1710862](#) Reliable PDCCH operation for URLLC Sony
[R1-1710874](#) Considerations for ultra-reliable DCI transmission InterDigital, Inc.
[R1-1710949](#) On Ultra-reliable and low-latency PDCCH InterDigital, Inc.
[R1-1710987](#) On the URLLC specific aspects for DL control channel Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711097](#) DL control channel design for URLLC NTT DOCOMO, INC.
[R1-1711338](#) Consideration on physical downlink control channel for URLLC CATR
[R1-1711486](#) On PDCCH for Ultra-Reliable Transmission Ericsson
[R1-1711487](#) On the Performance Evaluation of PDCCH for Ultra-Reliable Transmission Ericsson
[R1-1711552](#) Management of URLLC DL control channel efficiency and reliability Qualcomm Incorporated

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5.1.3.1.6 Other

The document was presented by ... from ...

Discussion: .

Decision: The document is noted.

[R1-1710395](#) DCI content size and compression vivo

[R1-1709955](#) UE-specific DCI contents in NR Huawei, HiSilicon
[R1-1709957](#) Dynamic and semi-static DL/UL resource partition Huawei, HiSilicon
[R1-1709986](#) PDCCH reliability for URLLC Huawei, HiSilicon
[R1-1710460](#) Resource sharing between NR-PDCCH and data Huawei, HiSilicon
[R1-1710467](#) DCI design for URLLC Huawei, HiSilicon
[R1-1710701](#) Transmit Diversity for PDCCH Samsung
[R1-1710702](#) Bandwidth Part Hopping for CORESETS Samsung
[R1-1710988](#) On the usage of PDCCH DMRS as a complementary synchronization signal in DL Nokia, Alcatel-Lucent
Shanghai Bell
[R1-1711186](#) Common control resource set signaling in MIB Qualcomm Incorporated
[R1-1711187](#) Advanced Grant Indication for UE Power Saving Qualcomm Incorporated
[R1-1711413](#) CCE-to-REG mapping Huawei, HiSilicon
[R1-1711414](#) PDCCH-to-CCE mapping Huawei, HiSilicon
[R1-1711415](#) NR DL control capacity and blocking probability Huawei, HiSilicon
[R1-1711423](#) PDCCH monitoring for slot-aggregation and cross-slot scheduling Huawei, HiSilicon
[R1-1711431](#) HARQ feedback indication design for UL grant-free transmission Huawei, HiSilicon
[R1-1711433](#) Discussion on remaining frequency resources on symbol carrying CORESET Huawei, HiSilicon
[R1-1711453](#) DL and UL Assignment for NR TDD Samsung
[R1-1711454](#) Slot Reconfiguration for Low Latency in TDD Samsung
[R1-1711455](#) Indication of Reserved Resources Samsung

5.1.3.2 Physical uplink control channel

5.1.3.2.1 PUCCH in short-duration

Wednesday offline summary:

Discussions:

- Companies supporting option 4 (sequence selection)
 - Qualcomm, Ericsson, MediaTek, ZTE, LG, Interdigital, Motorola mobility, Lenovo, DOCOMO
 - For SR only case: Intel, ZTE
- Companies supporting option 1 (FDM RS and UCI)
 - Option 1-1: FDM two sequences, one sequence is modulated with UCI
 - Option 1-2: based on single sequence, modulate even tone of a single sequence.
 - Modulate can be BPSK or QPSK
 - Samsung (Option 1-1), ZTE (option 1-2), Huawei, HiSilicon (Option 1-2), intel (option 1-1), Nokia (option 1-1), CATT (?)
- Advantages of option 4 (sequence selection)
 - Lower PAPR than option 1
 - With 2 bits payload, better link level performance for 1 UE
 - For 3 UEs, one company provided link level simulation showing option 4 has better performance than option 1. ([R1-1711649](#))
 - MUX capacity is 6 UEs for 1 bit UCI, MUX capacity 3 UEs for 2 bits UCI
 - If multiplex with DMRS other UEs short PUCCH, can achieve flexible PUCCH allocation and higher multiplexing capacity.
 - Better MUX capacity for SR than 1-2.
- Advantages of option 1 (FDM RS and UCI)
 - Lower PAPR than LTE is only for option 1-2, but with worse cross-correlation than LTE.
 - MUX capacity of 6 UEs for 1 bit
 - Potential MUX capacity of 6 UEs for 2 bits

Qualcomm and Ericsson comment maximizing UE MUX capacity is not main design target for short PUCCH. Single UE performance is more important.

Thursday

Agreements:

- Working assumption:**
 - For short-PUCCH with UCI of up to 2 bits (with/without SR), option 4 is supported.

- No more short-PUCCH format is supported for short-PUCCH in the WID scope.

5.1.3.2.1.1 Short-PUCCH for UCI of up to 2 bits

R1-1709958	Short PUCCH for up to 2 UCI bits	Huawei, HiSilicon
R1-1710083	Short PUCCH for small UCI payloads	CATT
R1-1710112	On short PUCCH for up to 2 bits UCI	ZTE
R1-1710156	Discussion on short PUCCH for up to 2 UCI bits	Guangdong OPPO Mobile Telecom.
R1-1710313	Design of short NR-PUCCH for up to 2 UCI bits	LG Electronics
R1-1710386	Discussion on short-PUCCH up to 2-bit	vivo
R1-1710551	Performance of short PUCCH format for 1~2 bits HARQ-ACK	Intel Corporation
R1-1710588	Results for short PUCCH for UCI of up to 2 bits	IITH
R1-1710618	Short-PUCCH for UCI of up to 2 bits	ETRI
R1-1710703	Short PUCCH for UCI of 1 or 2 Bits	Samsung
R1-1710819	Performance evaluation on channel structure of short PUCCH for 1 or 2 bits UCI	MediaTek Inc.
R1-1710893	On the short PUCCH design for small UCI payloads	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710930	Discussion on 1-symbol NR-PUCCH for UCI of up to 2 bits	Panasonic Corporation
R1-1710950	Evaluations of 1-symbol short-PUCCH with 1 or 2 bit(s)	InterDigital, Inc.
R1-1711098	Sequence-based PUCCH for UCI of up to 2 bits	NTT DOCOMO, INC.
R1-1711188	Channelization of 1-symbol short PUCCH with 1 or 2 bits payload	Qualcomm Incorporated
R1-1711242	Short PUCCH structure for UCI of up to 2 bits	Sharp
R1-1711282	Short PUCCH for up to 2 bit UCI	Motorola Mobility, Lenovo
R1-1711358	Short PUCCH structure for UCI of up to 2 bits	WILUS Inc.
R1-1711488	On the Design of Short PUCCH for 1-2 UCI bits	Ericsson

5.1.3.2.1.2 Short-PUCCH for UCI of more than 2 bits

R1-1709959	Short PUCCH with more than 2 UCI bits	Huawei, HiSilicon
R1-1710084	Short PUCCH for moderate and large UCI payloads	CATT
R1-1710113	On short-PUCCH for more than 2 bits	ZTE
R1-1710157	Discussion on short PUCCH for more than 2 UCI bits	Guangdong OPPO Mobile Telecom.
R1-1710226	Discussion on 2-symbol Short PUCCH with More Than 2 Bits	Beijing Xinwei Telecom Techn.
R1-1710253	Discussion on extending of scheduling request	NEC Corporation
R1-1710314	Design of short NR-PUCCH for more than 2 UCI bits	LG Electronics
R1-1710367	Discussion on 1-symbol PUCCH design	Spreadtrum Communications
R1-1710387	Discussion on short-PUCCH more than 2-bit	vivo
R1-1710408	On pre-DFT RS/UCI multiplexing for PUCCH in short duration	Mitsubishi Electric RCE
R1-1710552	2-symbol NR PUCCH	Intel Corporation
R1-1710589	Further discussion on pre-DFT multiplexing for short PUCCH	IITH
R1-1710619	Short-PUCCH for UCI of more than 2 bits	ETRI
R1-1710704	Short PUCCH for UCI of more than 2 Bits	Samsung
R1-1710894	Short PUCCH design for UCI of more than 2 bits	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711099	FDM-based PUCCH for UCI of more than 2 bits	NTT DOCOMO, INC.
R1-1711189	Channelization of 1-symbol short PUCCH with more than 2 bits payload	Qualcomm Incorporated
R1-1711243	Short PUCCH structure for UCI of more than 2 bits	Sharp
R1-1711489	On the Design of Short PUCCH for more than 2 UCI bits	Ericsson

5.1.3.2.2 PUCCH in long-duration

R1-1711677	Summary of the E-mail Discussion [89-21]: On Long PUCCH for NR	Ericsson
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[R1-1711834](#) WF on Long PUCCH Format with 1-2 UCI bits Ericsson, Huawei, HiSilicon, LG, ZTE, MediaTek, Panasonic, WILUS Inc., Intel, Vivo, Cohere Technologies, ETRI, Motorola mobility, Lenovo, CATT

Possible agreements:

- For a long PUCCH with up to 2 bits UCI:
 - For location of DMRS select from one of the following alternative in the next meeting:
 - Alt 1: DMRS always occurs in even [or odd] symbols in the long PUCCH
 - Alt 2: DMRS always occurs in even [or odd] symbols in the slot
 - Alt 3: DMRS occurs in one or more sets of consecutive symbols within the long PUCCH. The occasion of DMRS symbols depends on the duration of long PUCCH.
 - Alt 4: DMRS occurs in one or more sets of consecutive symbols within the long PUCCH. The occasion of DMRS symbols depends on the duration of long PUCCH but fixed within the slot

Possible agreements:

- For a long PUCCH with up to 2 bits UCI:
 - The DM-RS symbol(s) are formed as follows:

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- DMRS for a PUCCH is a cyclic shift of a base sequence (e.g. a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
- The data symbols are formed as the following:
 - The modulated UCI bit(s) is multiplied with a cyclic shift of a base sequence (e.g. a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
 - Note: BPSK and QPSK modulations for 1 and 2 UCI bits, respectively.

Thursday (offline)

[R1-1711912](#) WF on Long PUCCH Format with 1-2 UCI bits Ericsson, Huawei, HiSilicon, LG, ZTE, MediaTek, Panasonic, WILUS Inc., Intel, Vivo, Cohere Technologies, ETRI, Motorola mobility, Lenovo, CATT, Qualcomm

Agreements:

- For a long PUCCH with up to 2 bits UCI:
 - **Working assumption:**
 - DMRS always occurs in every other symbols in the long PUCCH
 - FFS: even or odd symbols
 - The working assumption can be revisited if an issue is found in terms of transient period.

Agreements:

- The DMRS symbol(s) are formed as follows:
 - DMRS for a PUCCH is a sequence (e.g. a cyclic shift of a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
- Note: The data symbols are formed as the following:
 - The modulated UCI bit(s) is multiplied with a sequence (e.g. a cyclic shift of a CAZAC or computer generated sequence) in frequency domain with Orthogonal Cover Code (OCC) in time.
 - BPSK and QPSK modulations for 1 and 2 UCI bits, respectively.
- Note: The usage of OCC for DMRS and UCI symbols is effectively disabled for differentiation of the users that are assigned with the same OCC.

[R1-1711835](#) WF on Frequency Hopping for Long PUCCH Ericsson, MediaTek, Qualcomm, Panasonic, Intel, LG, NTT DOCOMO, Cohere Technologies, WILUS Inc., Huawei, HiSilicon, Samsung

Possible agreements:

- For a long PUCCH with N symbols in a slot
 - At most one hop within a slot is supported.
 - FFS on how to enable or disable frequency hopping
 - In case of frequency hopping, the hop occurs at the end of the X-th symbol where
 - FFS between $X = \text{floor}(N/2)$ or $\text{ceil}(N/2)$

Friday offline

Agreements:

- For a PUCCH format for UCI with large payload with no multiplexing capacity within a slot:
 - The DMRS and UCI are mapped to different symbols.
 - For intra-slot frequency-hopping, one or two DMRS symbol(s) is/are mapped on each frequency-hop of the long-PUCCH.
 - Opt.1: one DMRS per frequency-hop
 - The location is around the middle of the frequency-hop
 - Opt.2: one or two DMRS per frequency-hop
 - FFS: the location of the DMRS symbol(s)
 - The DMRS symbol(s) are formed as follows:
 - DMRS for a PUCCH is a sequence (e.g. a cyclic shift of a CAZAC or computer generated sequence) in frequency domain.
 - **Working assumption:**
 - The symbols carrying UCI are formed as follows:
 - The UCI bits are encoded and scrambled, QPSK modulated and DFT pre-coded and mapped to the REs for the symbols carrying UCI of the long PUCCH

Friday: IITH commented during offline “Pi/2 BPSK modulation should be used for long duration PUCCH “, not captured due to concern from others

[R1-1711996](#) WF on Long PUCCH Format for more than 2 UCI bits with Multi-user Multiplexing Ericsson

[R1-1709960](#) Overview of long PUCCH design Huawei, HiSilicon

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[R1-1710590](#) Views on long-duration PUCCH IITH
[R1-1711201](#) Uplink Resource for SR Qualcomm Incorporated

5.1.3.2.2.1 Long-PUCCH for UCI of up to 2 bits

Focus on long-PUCCH within a slot.

[R1-1709961](#) Long PUCCH structure for up to 2 bits with high multiplexing capacity Huawei, HiSilicon
[R1-1710085](#) Long PUCCH for small UCI payloads CATT
[R1-1710114](#) On long-PUCCH for up to 2 bits ZTE
[R1-1710158](#) Discussion on long PUCCH for up to 2 UCI bits Guangdong OPPO Mobile Telecom.
[R1-1710315](#) Design of long NR-PUCCH for up to 2 UCI bits LG Electronics
[R1-1710553](#) Structure of 1~2 bits HARQ-ACK long PUCCH with TDM DMRS Intel Corporation
[R1-1710598](#) Long PUCCH design for UCI of up to 2 bits Lenovo, Motorola Mobility
[R1-1710705](#) Long PUCCH for UCI of 1 or 2 Bits Samsung
[R1-1710895](#) On long PUCCH design for small payloads Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710932](#) Discussion on channel structure of long-duration NR-PUCCH for UCI of up to 2 bits Panasonic Corporation
[R1-1711100](#) Long-PUCCH for UCI of up to 2 bits NTT DOCOMO, INC.
[R1-1711190](#) Long PUCCH design with 1 or 2 bits UCI payload Qualcomm Incorporated
[R1-1711490](#) On the Design of Long PUCCH for 1-2 UCI bits Ericsson

5.1.3.2.2.2 Long-PUCCH for UCI of more than 2 bits

Focus on long-PUCCH within a slot.

[R1-1709962](#) Long PUCCH structure for moderate payload with some multiplexing capacity Huawei, HiSilicon
[R1-1710086](#) Long PUCCH for moderate and large UCI payloads CATT
[R1-1710115](#) On long-PUCCH for more than 2 bits ZTE
[R1-1710316](#) Design of long NR-PUCCH for more than 2 UCI bits LG Electronics
[R1-1710554](#) Long PUCCH for moderate and large payload Intel Corporation
[R1-1710599](#) Long PUCCH design for UCI of more than 2 bits Lenovo, Motorola Mobility
[R1-1710706](#) Long PUCCH for UCI of more than 2 Bits Samsung
[R1-1710896](#) Long PUCCH design for UCI more than 2 bits Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710934](#) Discussion on channel design of long-duration NR-PUCCH for UCI of more than 2 bits Panasonic Corporation
[R1-1711101](#) Long-PUCCH for UCI of more than 2 bits NTT DOCOMO, INC.
[R1-1711191](#) Long PUCCH design with more than 2 bits UCI payload Qualcomm Incorporated
[R1-1711240](#) Slot structure of NR long PUCCH for more than 2 bits Sharp
[R1-1711251](#) Design of Long-PUCCH for UCI of more than 2 bits Cohere Technologies
[R1-1711491](#) On the Design of Long PUCCH for more than 2 UCI bits Ericsson

5.1.3.2.2.3 Support of long-PUCCH over multiple slots

[R1-1710013](#) Support of long-PUCCH over multiple slots Huawei, HiSilicon
[R1-1710087](#) Design of multi-slot PUCCH transmission CATT
[R1-1710116](#) Consideration on long-PUCCH over slots ZTE
[R1-1710159](#) Slot aggregation and configuration for NR long PUCCH Guangdong OPPO Mobile Telecom.
[R1-1710317](#) Support of long NR-PUCCH over multiple slots LG Electronics
[R1-1710555](#) Long PUCCH over multiple slots Intel Corporation
[R1-1710600](#) Long PUCCH over multiple slots Lenovo, Motorola Mobility
[R1-1710620](#) Long-PUCCH over multiple slots ETRI
[R1-1710707](#) Multi-Slot Long PUCCH Transmission Samsung
[R1-1710935](#) Discussion on support of long-duration NR-PUCCH over multiple slots Panasonic Corporation
[R1-1710976](#) NR Long PUCCH Requirements CMCC
[R1-1711102](#) Long-PUCCH for more than one slot NTT DOCOMO, INC.
[R1-1711192](#) Long PUCCH over multiple slots Qualcomm Incorporated
[R1-1711241](#) Structure of NR long PUCCH over multiple slots Sharp
[R1-1711252](#) Support of long-PUCCH over multiple slots Cohere Technologies
[R1-1711492](#) On support of Long PUCCH over multiple slots Ericsson

5.1.3.2.3 Transmit diversity for PUCCH

[R1-1710160](#) Design of NR PUCCH with long duration Guangdong OPPO Mobile Telecom.
[R1-1710222](#) Transmit diversity for DFTsOFDM-based PUCCH in long duration Mitsubishi Electric RCE
[R1-1710254](#) Discussion on beam sweeping or beam changing of SR NEC Corporation

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[R1-1710318](#) Consideration on transmit diversity for NR-PUCCH LG Electronics
[R1-1710441](#) Transmit diversity for PUCCH AT&T
[R1-1710463](#) Transmit diversity for PUCCH Huawei, HiSilicon
[R1-1710556](#) Transmit diversity for PUCCH Intel Corporation
[R1-1710708](#) Transmit Diversity for PUCCH Samsung
[R1-1710897](#) Transmit Diversity for PUCCH Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710951](#) On transmit diversity for Long PUCCH InterDigital, Inc.
[R1-1711193](#) Transmit diversity for PUCCH Qualcomm Incorporated
[R1-1711493](#) On Transmit Diversity Schemes for PUCCH Ericsson

5.1.3.2.4 Resource allocation for PUCCH

[R1-1710088](#) Further discussion on PUCCH resource allocation CATT
[R1-1710117](#) NR PUCCH resource allocation ZTE
[R1-1710161](#) Resource indication for UL control channel Guangdong OPPO Mobile Telecom.
[R1-1710237](#) PUCCH resource allocation Fujitsu
[R1-1710319](#) Consideration on resource allocation for NR-PUCCH LG Electronics
[R1-1710388](#) Discussion of PUCCH resource indication vivo
[R1-1710461](#) PUCCH resource allocation for HARQ-ACK and SR Huawei, HiSilicon
[R1-1710557](#) Resource allocation for PUCCH during initial access Intel Corporation
[R1-1710709](#) Resource Allocation for PUCCH with HARQ-ACK Samsung
[R1-1710782](#) Discussion on subband-based PUCCH resource allocation and indication CMCC
[R1-1710898](#) On the resource allocation for PUCCH Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710937](#) Discussion on resource allocation for uplink control channel Panasonic Corporation
[R1-1711103](#) PUCCH resource allocation NTT DOCOMO, INC.
[R1-1711194](#) Resource allocation for PUCCH Qualcomm Incorporated
[R1-1711283](#) PUCCH resource allocation for HARQ-ACK feedback to Msg4 Motorola Mobility, Lenovo
[R1-1711494](#) On Resource Allocation for PUCCH and Multiplexing PUCCH Formats Ericsson

5.1.3.2.5 UCI multiplexing

[R1-1709989](#) Discussion on UCI feedback for URLLC Huawei, HiSilicon

5.1.3.2.5.1 UCI piggyback on PUSCH

For both PUSCH with CP-OFDM waveform and PUSCH with DFT-s-OFDM waveform

[R1-1709963](#) UCI piggyback on PUSCH Huawei, HiSilicon
[R1-1710089](#) Multiplexing of UCI and UL data on PUSCH CATT
[R1-1710118](#) UCI multiplexing on PUSCH ZTE
[R1-1710162](#) On UCI and data multiplexing in PUSCH Guangdong OPPO Mobile Telecom.
[R1-1710320](#) Support of UCI piggyback on PUSCH for NR LG Electronics
[R1-1710558](#) UCI multiplexing onto PUSCH Intel Corporation
[R1-1710710](#) On UCI Multiplexing in PUSCH Samsung
[R1-1710820](#) Discussion on UCI on PUSCH MediaTek Inc.
[R1-1710899](#) UCI multiplexing on PUSCH Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710939](#) Discussion on UCI on PUSCH Panasonic Corporation
[R1-1710952](#) Considerations on UCI transmission on PUSCH InterDigital, Inc.
[R1-1711104](#) UCI on PUSCH NTT DOCOMO, INC.
[R1-1711195](#) UCI piggyback on PUSCH Qualcomm Incorporated
[R1-1711359](#) Discussion on UCI piggyback on PUSCH WILUS Inc.
[R1-1711495](#) On UCI on PUSCH Ericsson

5.1.3.2.5.2 PUCCH-PUSCH multiplexing

[R1-1710090](#) Simultaneous PUCCH-PUSCH transmission in NR CATT
[R1-1710119](#) Multiplexing of PUSCH and short PUCCH ZTE
[R1-1710163](#) Multiplexing of short PUCCH and long PUCCH Guangdong OPPO Mobile Telecom.
[R1-1710321](#) Support of uplink channel multiplexing for NR LG Electronics
[R1-1710464](#) Multiplexing of PUCCH and PUSCH Huawei, HiSilicon
[R1-1710559](#) PUCCH-PUSCH multiplexing Intel Corporation
[R1-1710711](#) On Simultaneous PUSCH and PUCCH Transmissions Samsung
[R1-1710821](#) Discussion on PUCCH and PUSCH multiplexing MediaTek Inc.
[R1-1710900](#) On the multiplexing between PUCCHs and PUSCH Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710940](#) Discussion on UCI and data multiplexing Panasonic Corporation
[R1-1711105](#) Multiplexing of PUCCH and PUSCH NTT DOCOMO, INC.

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R1-1711196	Multiplexing of PUCCH and PUSCH	Qualcomm Incorporated
R1-1711244	PUCCH and PUSCH multiplexing methods	Sharp
R1-1711360	Simultaneous transmission for long-PUCCH and PUSCH	WILUS Inc.
R1-1711496	On Simultaneous Transmission of PUSCH and PUCCH	Ericsson

5.1.3.2.6 Ultra-reliable part of URLLC for UL control

Identify necessary techniques for physical uplink control channel to meet the URLLC requirements set forth by TR38.913.

R1-1710120	Analysis of URLLC reliability for uplink control channel	ZTE
R1-1710322	Discussion on UL control with ultra-reliability	LG Electronics
R1-1710560	On UL control channel design aspects for URLLC	Intel Corporation
R1-1710597	Enhanced SR carried in UL control channel	Lenovo, Motorola Mobility
R1-1710712	PUCCH Design for URLLC	Samsung
R1-1710875	Considerations for ultra-reliable UCI transmission	InterDigital, Inc.
R1-1710901	On URLLC UCI transmission	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710942	Discussion on SR for URLLC and multiplexing with HARQ-ACK	Panasonic Corporation
R1-1711106	UL control channel design for URLLC	NTT DOCOMO, INC.
R1-1711497	On PUCCH for Ultra-Reliable Transmission	Ericsson
R1-1711498	On the Performance Evaluation of PUCCH for Ultra-Reliable Transmission	Ericsson
R1-1711548	Resource allocation for PUCCH to support URLLC	Sequans Communications
R1-1711553	The necessity of reliable SR design for GF/GB UL URLLC transmission	Qualcomm Incorporated

5.1.3.2.7 Other

R1-1710561	Configurations of various long PUCCH lengths	Intel Corporation
R1-1710562	Short PUCCH formats for 1~2 bits UCI	Intel Corporation
R1-1710563	Cyclic shift assignment and CM for FDM DMRS and UCI	Intel Corporation
R1-1710564	Short UL control channel early in a slot	Intel Corporation
R1-1710713	Performance Results for Long PUCCH	Samsung
R1-1710714	Performance Results for UCI and Data Multiplexing	Samsung
R1-1710715	UE-Group CSI Reporting	Samsung
R1-1710716	Multiplexing PUSCH with Short PUCCH or SRS	Samsung
R1-1710717	BSI/CSI Transmission on PUCCH	Samsung
R1-1710902	CP-OFDM waveform for NR long PUCCH	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711416	Performance evaluations on 1-symbol PUCCH for up to 2 UCI bits	Huawei, HiSilicon
R1-1711417	Long PUCCH structure for large payload with no multiplexing capacity	Huawei, HiSilicon
R1-1711418	On CSI feedback in NR	Huawei, HiSilicon
R1-1711419	Transmit diversity for short duration PUCCH	Huawei, HiSilicon
R1-1711420	Multiplexing between PUCCHs	Huawei, HiSilicon
R1-1711421	Multiplexing of UL control channel and SRS in NR	Huawei, HiSilicon

5.1.3.3 DL/UL data scheduling and HARQ procedure

From Thursday offline...

Agreements:

- RAN1 advises based on the current understanding that RAN2 can make progress without taking into account the progress of CBG retransmissions and pre-emption indication.
- RAN1 will strive for making CBG retransmissions and pre-emption indication being not be visible in the MAC spec.

Agreements:

- For HARQ,
 - The retransmissions can occupy a different frequency allocation than the initial transmission (Note, this is supported in LTE)
 - For downlink, the transmission durations for a given TB may not be the same in some cases.
 - Among initial transmission and retransmissions for a data having fixed DMRS position relative to the start of the slot
 - Among initial transmission and retransmissions for a data having fixed DMRS position relative to the start of the data
 - FFS: other cases
 - For uplink at least scheduled by a UL grant, the transmission durations for a given TB may not be the same in some cases.

Agreements:

- One TB is mapped to one DL/UL carrier.

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- Re-transmission of a TB cannot take place on different carrier than the initial transmission.
- **Working assumption:**
 - Re-transmission of a TB cannot take place on different numerology than the initial transmission in Rel. 15.
- When uplink CBG-based (re)transmission is configured, the UL grant indicates which CBG(s) of a TB is/are retransmitted

Email approval of the LS capturing the above agreements/WA until 6th of July – Karri (Nokia)

5.1.3.3.1 DL/UL resource allocation

[R1-1711322](#) Frequency/time resource assignment of the operation modes Panasonic

From Wednesday offline...

Agreements:

- For downlink, UE can be informed about the first DMRS position of the PDSCH between the following:
 - Fixed on the 3rd or 4th symbol of the slot (for, a.k.a, slot-based scheduling)
 - 1st symbol of the scheduled data (for a.k.a non-slot-based scheduling)
 - FFS: if special handling is needed for the case where some of the PRBs of the symbol of the scheduled data is overlapped with the other signals/channels
- FFS: When the UE is configured both slot-based scheduling and non-slot-based scheduling, the first DMRS position of the PDSCH can be changed between the 3rd or 4th symbol of the slot and 1st symbol of the scheduled data

Agreements:

- For uplink, the first DMRS position of the PUSCH is fixed relative to the start of the scheduled data.
 - FFS: Additional possibility of the another fixed position relative to the start of slot
 - The exact fixed position can be changed depending on the duration of the scheduled data

Conclusion:

- For both downlink and uplink, the second or later or additional DMRS is up to MIMO discussion.

5.1.3.3.1.1 Frequency-domain resource allocation

Including resource allocation for PDSCH/PUSCH with CP-OFDM waveform and PUSCH with DFT-s-OFDM waveform.

[R1-1710164](#) Bandwidth part configuration and frequency resource allocation Guangdong OPPO Mobile Telecom.

[R1-1711689](#) **Outputs of offline discussion on RBG size/number determination** OPPO

RBG size/number determination, following options are discussed:

- Option 1:
 - Semi-statically configure a size of Type0 RA bitmap in DCI.
 - Then determine the number and size of RBGs for a RA based on size of BWP and the size of the bitmap.
- Option 2:
 - RBG size can be semi-statically configured per BWP.
 - FFS: Dynamic switching of RBG size.
 - Then number of RBGs in the BWP is determined by size of the BWP and the configured/indicated RBG size.
- Option 3:
 - RBG size is determined by the BW of the BWP and/or PDCCH monitoring periodicity
 - FFS: Necessity of signaling

Friday

[R1-1711843](#) **Outputs of offline discussion on RBG size/number determination** OPPO, Nokia, LGE, Samsung, vivo, ZTE, CATR

Agreements:

- For PDSCH/PUSCH, the RBG size/number can be changed along with the change of the BWP used for resource allocation.
- FFS: If one or multiple of following option(s) is/are also used for RBG size/number determination:
 - Opt. 1: Semi-statically configured size of Type0 RA bitmap.
 - Number and size of RBGs for a RA is determined based on size of BWP and the size of the bitmap.
 - Opt. 2: Semi-statically configured RBG size(s) per BWP for deriving number of RBGs.
 - Number of RBGs in the BWP is determined by size of the BWP and the configured/indicated RBG size(s).
 - FFS: Dynamic switching of RBG size(s).
 - Opt. 3: DCI format/DCI format size (e.g. a compact DCI may be with a larger RBG size than a normal DCI).

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- Opt. 4: Transmission durations (e.g. a shorter-duration transmission may be with a larger RBG size than a longer one).
- Opt. 5: RBG size is determined depending on the size of the BWP.
- Other options are not precluded.

**[R1-1711753](#) WF on UL Resource Allocation for PUSCH with DFT-s-OFDM waveform in NR NEC, NTT
DOCOMO, Panasonic, OPPO, Ericsson, Nokia, ASB**

Agreements

- In frequency-domain, for PUSCH with DFT-s-OFDM waveform in NR, contiguous resource allocation scheme based on LTE UL RA Type 0 is adopted in Rel. 15.
 - FFS:
 - A coarser granularity (i.e. more than 1RB) of resource assignment in order to reduce the overhead further
 - BW parts
- In frequency-domain, for PDSCH in NR, a resource allocation scheme based on LTE DL RA Type 2 is supported in Rel. 15.
 - FFS:
 - A coarser granularity (i.e. more than 1RB) of resource assignment in order to reduce the overhead further
 - BW parts
- In frequency-domain, for PUSCH with CP-OFDM waveform in NR, contiguous resource allocation scheme based on LTE UL RA Type 0 is supported in Rel. 15
 - FFS:
 - A coarser granularity (i.e. more than 1RB) of resource assignment in order to reduce the overhead further
 - BW parts
- A DCI format with resource allocation based on LTE DL RA type 0 (i.e., bit-map) is supported for PDSCH.
- A DCI format with resource allocation based on LTE DL RA type 0 (i.e., bit-map) is supported for PUSCH with CP-OFDM waveform.
- A DCI format with resource allocation based on LTE DL RA type 2 is supported for PDSCH.
- A DCI format with resource allocation based on LTE UL RA type 0 is supported for PUSCH with CP-OFDM waveform and with DFT-s-OFDM waveform.
- FFS: some or all of the above DCI formats have the same DCI payload size.

Proposals from offline

- FFS: for PUSCH transmission, the waveform is either dynamically indicated by the scheduling DCI or is semi-statically configured by higher-layer signalling.
 - This will be discussed in scheduling/HARQ agenda.
- FFS: whether to conform the following working assumption
 - In frequency-domain, for PUSCH with DFT-s-OFDM waveform, only contiguous resource allocation is supported in Rel. 15.

Not treated

R1-1709974	Scheduling and resource allocation mechanism for active bandwidth parts	Huawei, HiSilicon
R1-1710091	NR DL/UL frequency domain resource allocation	CATT
R1-1710121	Resource allocation in frequency domain	ZTE
R1-1710164	Bandwidth part configuration and frequency resource allocation	Guangdong OPPO Mobile Telecom.
R1-1710245	Frequency-domain resource allocation schemes for NR	NEC
R1-1710323	Discussion on frequency-domain resource allocation	LG Electronics
R1-1710392	Discussion on downlink RA	vivo
R1-1710413	Further details on forward compatible resources in NR	AT&T
R1-1710565	DL/UL data frequency-domain resource allocation	Intel Corporation
R1-1710718	DL/UL Frequency Resource Allocation	Samsung
R1-1710787	On default bandwidth part	PANASONIC
R1-1710953	On frequency-domain resource allocation for NR	InterDigital, Inc.
R1-1710989	On resource allocation in frequency domain for PDSCH and PUSCH in NR	Nokia, Alcatel-Lucent
R1-1711107	Frequency-domain resource allocation	NTT DOCOMO, INC.

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R1-1711197	MPR issue with distributed RB allocation in UL	Qualcomm Incorporated
R1-1711198	Short PUSCH transmission in UL short duration	Qualcomm Incorporated
R1-1711363	Two-step resource allocation for data channel in NR	ASUSTEK COMPUTER (SHANGHAI)
R1-1711499	On Resource Allocation in the Frequency Domain	Ericsson

5.1.3.3.1.2 Time-domain resource allocation

Timing/duration determination for symbol-level/slot-level/multi-slot-level scheduling.

Limit to 1 contributions per 1 company/organization/university

R1-1709994	Discussion on data transmission duration	Huawei, HiSilicon
R1-1710092	NR DL/UL time domain resource allocation	CATT
R1-1710165	Time-domain resource allocation for NR	Guangdong OPPO Mobile Telecom.
R1-1710238	Discussion on time domain resource allocation	Fujitsu
R1-1710246	Time-domain resource allocation schemes for NR	NEC
R1-1710324	Discussion on time-domain resource allocation	LG Electronics
R1-1710397	Discussion on flexible length scheduling	vivo
R1-1710414	Transmission duration indication for symbol-level/slot-level/multi-slot-level scheduling	AT&T
R1-1710566	Time-domain resource allocation for DL and UL data	Intel Corporation
R1-1710719	DL/UL Time Resource Allocation	Samsung
R1-1710838	Cross-slot scheduling for UE power saving	MediaTek Inc.
R1-1710990	Time-domain resource allocation for NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711108	Time-domain resource allocation	NTT DOCOMO, INC.
R1-1711471	Discussions on Transmission Duration	KT Corp.
R1-1711500	On Resource Allocation in the Time Domain	Ericsson

5.1.3.3.1.3 Transport block size determination

Limit to 1 contributions per 1 company/organization/university

R1-1709978	TB mapping and TB size determination	Huawei, HiSilicon
R1-1710325	Discussion on TB size determination for NR	LG Electronics
R1-1710720	Transport Block Size Determination	Samsung
R1-1710991	Transport block size determination and the support of slot aggregation in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711109	Transport block size determination	NTT DOCOMO, INC.
R1-1711199	Discussion TB size determination	Qualcomm Incorporated
R1-1711501	On MCS/transport Block Size Determination	Ericsson

5.1.3.3.2 UL data transmission procedure with grant

Including details for single/multiple SR configurations.

R1-1710021	Advantages of Underlay Scheduling Request method over PUCCH-based SR	Idaho National Laboratory
R1-1710093	Further details of grant-based UL transmission	CATT
R1-1710122	On scheduling request in NR	ZTE
R1-1710166	Discussion on the UL waveform indication	Guangdong OPPO Mobile Telecom.
R1-1710247	Frequency hopping for NR UL PUSCH	NEC
R1-1710326	Discussion on scheduling request for UL transmission with grant	LG Electronics
R1-1710465	On uplink data scheduling	Huawei, HiSilicon
R1-1710567	SR configuration and UL data scheduling	Intel Corporation
R1-1710721	SR Transmission for Multiple Configurations	Samsung
R1-1710722	Procedures for Grant-Based UL Transmissions	Samsung
R1-1710834	On support of Grant-free and Grant-based transmission for UL	URLLC MediaTek Inc.
R1-1710992	Discussion on multiple SR configuration	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711110	Scheduling request design in NR system	NTT DOCOMO, INC.
R1-1711200	Simultaneous UL SR channel	Qualcomm Incorporated
R1-1711502	On UL Data Scheduling Grant in NR	Ericsson
R1-1711503	On Scheduling Request Enhancements	Ericsson
R1-1711836	WF on scheduling request for NR	Idaho National Laboratory, KDDI, Lenovo, Motorola Mobility, IITH, CEWIT, IITM, Tejas Networks, Qualcomm

5.1.3.3.3 UL data transmission procedure without grant

Including HARQ/re-transmission, UE identification, relation b/w UL grant-free and UL SPS, etc.

R1-1710328	Summary of [89-22] Email discussion about UL data transmission without UL grant	LG Electronics
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Agreements:

- In addition to the RS parameters, time and frequency resource are configured in a UE-specific manner.
 - Note: it is common understanding that the time and frequency resources configured for a UE may or may not collide with those for another UE (to be captured in the LS).
- WA: Both DFT-S-OFDM and CP-OFDM are supported for UL transmission without grant.
- NR supports more than 1 HARQ process for UL transmission without grant

Offline summary (on-going):

R1-1711829 Offline discussions on UL data transmission without grant NTT DOCOMO

- Function of L1 signalling
 - At least following functionality of the L1 signalling is supported
 - Activation/Deactivation
 - Modification of parameters configured by RRC
 - For example at least following parameters are common in the RRC configuration and L1 signaling
 - One physical resource including following
 - Time domain resource allocation for one transmission
 - Frequency domain resource allocation in terms of RB(s) or RBG(s)
 - UE-specific DMRS configuration
 - MCS/TBS
 - Switch to grant-based re-transmission for the same TB
 - Companies are encouraged to provide detailed methods to determine the grant is for the same TB
 - Companies are encouraged to provide analysis to prove the benefits of supporting an acknowledgement/indication of successful receiving of that TB from gNB in next meeting
- Formats of L1 signalling
 - Select from following two options to achieve each of the L1 signalling functionalities in next meeting
 - Option 1: UE-specific DCI (UL grant)
 - Option 2: Group common DCI
 - FFS the monitoring occasions for the L1 signalling
- RRC configurations
 - At least for UL transmission without UL grant and without L1 activation/deactivation signalling, the RRC (re-)configuration for a set of resource and parameters includes at least the following
 - Transmission interval, where the minimum value can be one slot or one mini-slot
 - One physical resource including following
 - Time domain resource allocation for one transmission
 - Frequency domain resource allocation in terms of RB(s) or RBG(s)
 - UE-specific DMRS configuration
 - At least one physical resource can be configured for one UE within the transmission interval
 - FFS multiple physical resources can be configured for one UE within the transmission interval
 - Note:
 - At least repetition can be performed on the same physical resource defined above
 - FFS multiple physical resources can be configured for the K repetitions, where K>1
 - Other transmission related parameters:
 - An MCS/TBS value
 - Number of repetitions K
 - Power control related parameters
 - FFS: HARQ process related parameters
 - FFS: Possible RVs related parameters for repetitions
 - FFS: Possible hopping related parameters including enable/disable configurability
 - FFS: Possible ACK feedback related parameters
 - FFS other parameters
 - Multiple sets of resource and parameters can be (re-)configured for each UE

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Agreements:

- The same TA adjustment procedure/mechanism (including expiration of TA timer) is applied to UL transmission with and without UL grant
- For UL transmission without UL grant,
 - Open-loop power control based on pathloss estimate is supported.
 - FFS: Closed-loop power control is supported, which is based on NW signaling.

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- A UE shall not transmit anything on configured resources for UL transmission without UL grant when there is no transport block to transmit.
- FFS: UCI piggybacking with transport block is supported for UL transmission without UL grant.

Agreement: RAN1 considers that UE transmitting UL transmission without UL grant can be identified based on time/frequency resources and RS parameter(s).

R1-1711969 Offline discussions on UL data transmission without grant NTT DOCOMO

Agreements:

- Type of UL data transmission without grant
 - Type 1: UL data transmission without grant is only based on RRC (re)configuration without any L1 signalling
 - Type 2: UL data transmission without grant is based on both RRC configuration and L1 signalling to activation/deactivation for UL data transmission without grant
 - Note: functionality of modification is achieved the L1 signalling by activation
 - Type 3: UL data transmission without grant is based on RRC configuration, and allows L1 signalling to modify some parameters configured by RRC but no L1 signalling for activation
- For UL data transmission without grant, type 1 and type 2 have already been agreed, FFS type 3.
- FFS the reliability issues for L1 signalling.
- For Type 1 UL transmission without UL grant, the RRC (re-)configuration includes at least the following
 - Periodicity and offset of a resource with respect to SFN=0
 - Time domain resource allocation
 - Frequency domain resource allocation
 - UE-specific DMRS configuration
 - Note:
 - one TB is mapped to a resource at least consisting of time/frequency-domain resource
 - RAN1 will not introduce specific resource allocation and DMRS configuration for UL data transmission without grant separate from UL data transmission with UL grant within the Rel.15 WI
 - An MCS/TBS value
 - Number of repetitions K
 - Power control related parameters
 - FFS HARQ related parameters
 - FFS if multiple resources can be configured
- For Type 2 UL transmission without UL grant
 - The RRC (re-) configuration for resource and parameters includes at least the following
 - Periodicity of a resource
 - Power control related parameters
 - At least the following additional parameters for the resource are given by L1 signalling
 - Offset associated with the periodicity with respect to a timing reference indicated by L1 signalling for activation
 - FFS: the timing reference
 - Time domain resource allocation
 - Frequency domain resource allocation
 - UE-specific DMRS configuration
 - An MCS/TBS value
 - Note:
 - one TB is mapped to one resource
 - RAN1 will not introduce specific resource allocation and DMRS configuration for UL data transmission without grant separate from UL data transmission with UL grant within the Rel.15 WI
 - FFS multiple resources can be configured
 - FFS HARQ related parameters
 - FFS whether number of repetitions K is configured by RRC signalling and/or indicated by L1 signalling

Email approval of the LS to RAN2 until 6th of July to explain RAN1 understandings based on above agreements – Lihui (NTT DOCOMO)

Not treated.

[R1-1709991](#)

Resource configuration on UL transmission without grant Huawei, HiSilicon

[R1-1709992](#)

UE identification and HARQ combining for grant-free transmissions Huawei, HiSilicon

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R1-1710014	Evaluation of UE identification for UL transmission without grant	ZTE
R1-1710015	Considerations on the procedures of UL data transmission without grant	ZTE
R1-1710094	Grant-free UL transmission procedure	CATT
R1-1710167	HARQ for uplink grant-free transmission	Guangdong OPPO Mobile Telecom.
R1-1710239	Discussions on HARQ for grant-free transmission	Fujitsu
R1-1710248	UL data transmission without grant	NEC
R1-1710327	Discussion on UL transmission without grant	LG Electronics
R1-1710328	Summary of [89-22] Email discussion about UL data transmission without UL grant	LG Electronics
R1-1710380	Discussion on UL grant-free transmission	vivo
R1-1710568	UL grant-free transmissions: Resource configuration	Intel Corporation
R1-1710601	UL grant-free transmission for URLLC	Lenovo, Motorola Mobility
R1-1710621	Resource allocation and transmission scheme for URLLC grant-free transmission	ETRI
R1-1710723	Procedures for Grant-Free UL Transmissions	Samsung
R1-1710724	Grant-Free and Grant-Based UL Transmissions	Samsung
R1-1710835	Grant-free Scheduling and retransmission schemes for UL URLLC	MediaTek Inc.
R1-1710836	On use of scrambling for UL Grant-free URLLC transmission	MediaTek Inc.
R1-1710861	Pre-emption in UL grant free resource	Sony
R1-1710863	Discussion on the retransmission of UL transmission without grant	Sony
R1-1710887	UL grant-free transmissions: Physical layer procedures	Intel Corporation
R1-1710963	On network resources and UE transmission configurations for grant-free access	NEC
R1-1710971	UL grant-free transmission for URLLC	China Telecommunications
R1-1710993	Unified framework for UL grant-free and UL SPS	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710994	UE identification and HARQ for URLLC UL grant-free	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711006	Issues and Control Design for UL Grant-free URLLC III	
R1-1711111	Overall solutions for UL grant free transmission	NTT DOCOMO, INC.
R1-1711253	Resource configuration for UL transmission without grant	NICT
R1-1711323	UL data transmission without grant	Panasonic
R1-1711504	On SPS/Grant-Free Transmission	Ericsson
R1-1711505	On HARQ Retransmission for SPS/Grant-free	Ericsson

5.1.3.3.4 CBG-based (re)transmission

[R1-1711883](#) WF on CBG retransmission Samsung

Possible proposal from offline:

- CBG formation remains the same in retransmission as initial transmission

Possible agreement:

- Each CBG is the same set of CB(s) between initial transmission and retransmission

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[R1-1711958](#) WF on CBG retransmission Samsung, ZTE

Working assumption: For initial transmission and retransmission, each CBG of a TB has the same set of CB(s).

Agreement: For CBG-based (re)transmission, the DCI scheduling CBG-based (re)transmission carries single RV field for the transport block.

Email approval until July 13th for downselection between the following – Jeongho (Samsung)

- For the indicated number of CBGs per TB where “indicated” is realized by RRC, MAC, L1 signalling, the following options are considered for down-selection in RAN1#90.
 - Option 1. RRC signaling (for bit-field size)
 - Option 2. L1 signaling (for indication the number of CBGs per TB) + RRC signaling (for bit-field size)
 - Option 3. both Option 1 and Option 2
- To determine the number of CBG HARQ-ACK bits per TB, the following options are considered for down-selection in RAN1#90.
 - Option 1. A UE transmits HARQ-ACK bits only for scheduled CBGs.
 - “scheduled CBGs” means the CBGs scheduled in a (re)transmission
 - Option 2. A UE transmits HARQ-ACK bits for indicated CBGs.
 - FFS: “indicated” is realized by RRC, MAC, L1 signalling
 - Option 3. both Option 1 and Option 2 by configuration
- For DL CBG-based (re)transmission, when information on which CBG(s) is/are (re)transmitted is configured to be included in the DCI, the following options are considered for down-selection in RAN#90.
 - Option 1. TB-level NDI is jointly encoded with the information on which CBG(s) is/are (re)transmitted

- Option 2. There is separate 1-bit bit-field for TB-level NDI.
- When CBG-based retransmission is configured, TB-level HARQ-A/N is supported and at least following options can be considered for down-selection in RAN1#90.
 - Option 1. Add 1 bit upon CBG-level HARQ-ACK bits
 - Option 2. Use all NACK of CBG-level HARQ-ACK bits
 - Option 3. Use different PUCCH format or PUCCH resource
- For HARQ-ACK codebook for CBG-based retransmission, the following options are considered for down-selection in RAN1#90.
 - Option 1. Dynamic codebook determination for multiple PDSCHs
 - Option 2. Semi-static codebook determination for multiple PDSCHs
 - Option 3. both Option 1 and Option 2 by configuration

5.1.3.3.4.1 CBG construction

Limit to 1 contribution per 1 company/organization/university

R1-1709968	Discussion on CBG construction	Huawei, HiSilicon
R1-1710017	CBG construction	ZTE
R1-1710095	Details of CBG construction	CATT
R1-1710329	Consideration on CBG construction for NR HARQ	LG Electronics
R1-1710396	Discussion on CB grouping	vivo
R1-1710442	On CBG construction for NR PDSCH and PUSCH	AT&T
R1-1710569	On CBG construction	Intel Corporation
R1-1710593	Discussion on CBG grouping	Guangdong OPPO Mobile Telecom.
R1-1710602	CBG construction for CBG-based retransmission	Lenovo, Motorola Mobility
R1-1710725	CBG Construction	Samsung
R1-1710830	Discussion on CBG construction for CBG-based (re)transmission	MediaTek Inc.
R1-1710876	CBG based HARQ for NR InterDigital, Inc.	
R1-1710995	Mapping code blocks to code block groups	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711112	CBG construction	NTT DOCOMO, INC.
R1-1711202	CBG Construction Principles for CBG-based Transmission with Multi-Bit HARQ feedback	Qualcomm Incorporated
R1-1711506	On Code Block Group Formation and CRC Attachment	Ericsson

5.1.3.3.4.2 DL control signalling for CBG-based (re)transmission

Including CBG information by the DCI.

Limit to 1 contribution per 1 company/organization/university

R1-1709967	Scheduling mechanisms for CBG-based re-transmission	Huawei, HiSilicon
R1-1710018	DL control for CBG	ZTE
R1-1710096	DL control signaling design for CBG-based operation	CATT
R1-1710168	Discussion on CBG indication in DCI	Guangdong OPPO Mobile Telecom.
R1-1710240	Discussion on DL control signaling related to CBG based (re)-transmission	Fujitsu
R1-1710330	Consideration on DCI signaling for CBG based HARQ	LG Electronics
R1-1710443	DCI design for CBG based re transmission	AT&T
R1-1710570	DCI design and scheduling of CBG-based (re)transmissions	Intel Corporation
R1-1710603	DL control signalling for CBG-based retransmission	Lenovo, Motorola Mobility
R1-1710726	Scheduling for CBG Retransmissions	Samsung
R1-1710864	Discussion on the CBG index indication by DCI	Sony
R1-1710908	DL control signal for CBG-based transmission	Apple Inc.
R1-1710972	Control signalling for CBG-based (re)transmission	China Telecommunications
R1-1710996	DL control signalling for CBG-based transmissions	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711113	DL control signalling for CBG-based (re)transmission	NTT DOCOMO, INC.
R1-1711203	DCI considerations for CBG-based (re)-Transmissions	Qualcomm Incorporated
R1-1711245	Pardon the Interruption: Downlink Control Signaling to Enable Preemption and CBG-based (Re) Transmission	Sharp
R1-1711257	Discussion on DL control signalling for CBG-based retransmission	HTC Corporation
R1-1711316	DL control signaling for CBG-based (re)transmission	Shenzhen Coolpad Technologies
R1-1711324	DL control signalling for CBG-based (re)transmission	Panasonic
R1-1711341	Discussions on the indication for CBG	CATR
R1-1711507	On Retransmission Decoder Throughput Issues and CBG-based Retransmission Control	Ericsson
R1-1711531	CBG based retransmission Sequans Communications	

5.1.3.3.4.3 UL control signalling for CBG-based (re)transmission

Including CBG-level HARQ-ACK feedback.

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R1-1709969	Discussion on CBG-based feedback	Huawei, HiSilicon
R1-1710019	UL control for CBG	ZTE
R1-1710097	UL control signaling design for CBG-based operation	CATT
R1-1710169	Discussion on HARQ-ACK feedback for CBG-based transmission	Guangdong OPPO Mobile Telecom.
R1-1710241	Discussion on CBG based HARQ-ACK Design	Fujitsu
R1-1710331	Consideration on UCI signaling for CBG based HARQ	LG Electronics
R1-1710444	Uplink control channel design for CBG based re transmission	AT&T
R1-1710571	HARQ-ACK feedback for CBG-based (re)transmissions	Intel Corporation
R1-1710604	UL HARQ-ACK feedback for CBG-based retransmission	Lenovo, Motorola Mobility
R1-1710727	HARQ-ACK Feedback for CBG-Based Retransmissions	Samsung
R1-1710954	HARQ feedback design considerations for CBG based transmission	InterDigital, Inc.
R1-1710997	HARQ-ACK feedback for CBG-based (re-)transmission in NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711114	UL control signalling for CBG-based (re)transmission	NTT DOCOMO, INC.
R1-1711204	UCI considerations for CBG-based (re-)Transmissions	Qualcomm Incorporated
R1-1711258	Discussion on UL control signalling for CBG-based retransmission	HTC Corporation
R1-1711361	Discussion on UL HARQ-ACK feedback for CBG-based retransmission	WILUS Inc.
R1-1711472	Considerations on TB-CRC Failure	KT Corp.
R1-1711508	On Design of CBG HARQ-ACK Feedback Schemes	Ericsson
R1-1711530	CBG based HARQ-Ack/Nack	Sequans Communications

5.1.3.3.5 HARQ-ACK feedback

5.1.3.3.5.1 HARQ-ACK feedback timing

Limit to 1 contributions per 1 company/organization/university

R1-1709970	HARQ feedback timing for NR	Huawei, HiSilicon
R1-1710332	Consideration on HARQ-ACK feedback timing for NR	LG Electronics
R1-1710418	HARQ-ACK feedback timing for FDD, semi-static TDD and mini-slot based transmissions	AT&T
R1-1710728	HARQ-ACK Feedback Timing	Samsung
R1-1710783	Discussion on timing design for semi-static DL/UL assignment	CMCC
R1-1710795	Timing of HARQ-ACK for PDSCH	MediaTek Inc.
R1-1710877	DL HARQ Feedback suppression	InterDigital, Inc.
R1-1710888	HARQ-ACK feedback: Timing considerations	Intel Corporation
R1-1710998	Timing aspects for HARQ-ACK feedback	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711115	HARQ-ACK timing	NTT DOCOMO, INC.
R1-1711205	Low latency impact analysis on user plane and control plane	Qualcomm Incorporated
R1-1711509	On HARQ Feedback Timing	Ericsson

5.1.3.3.5.2 HARQ-ACK multiplexing/bundling

Including solutions to address single/multiple TBs/CBGs over single/multiple carriers/TTIs.

R1-1710098	NR HARQ-ACK multiplexing	CATT
R1-1710242	Discussion on HARQ-ACK codebook	Fujitsu
R1-1710333	Support of HARQ-ACK multiplexing/bundling for NR	LG Electronics
R1-1710462	On HARQ-ACK multiplexing and/or bundling	Huawei, HiSilicon
R1-1710572	HARQ-ACK multiplexing and bundling	Intel Corporation
R1-1710605	HARQ-ACK codebook design for CBG-based transmission	Lenovo, Motorola Mobility
R1-1710729	HARQ-ACK Codeword Determination	Samsung
R1-1710999	On HARQ feedback determination	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711116	HARQ-ACK multiplexing	NTT DOCOMO, INC.
R1-1711259	Discussion on CBG-based HARQ feedback multiplexing	HTC Corporation
R1-1711510	On HARQ Codebook	Ericsson

5.1.3.3.6 Processing time and HARQ process number

R1-17111856	WF on Processing Time Requirements	Qualcomm, ZTE, Deutsche Telekom, Vodafone, Panasonic, Ericsson
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Agreements

- For NR, RAN1 should consider the UE processing time(s) in terms of symbols (N1, N2) together with absolute time (in us), instead of slots (K)
 - N1: the number of OFDM symbols required for UE processing from the end of NR-PDSCH reception to the earliest possible start of the corresponding ACK/NACK transmission from UE perspective.

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- o N2: the number of OFDM symbols required for UE processing from the end of NR-PDCCH containing the UL grant reception to the earliest possible start of the corresponding NR-PUSCH transmission from UE perspective.
- o Note the timing advance is not included in N1 and N2
 - FFS whether other aspects, e.g. UE UL/DL switching time, etc. are included in N1 and N2
- o FFS between the following for each combination defined in the next slide
 - Opt 1: UE reports N1 and N2 as UE capability
 - Opt 2: Fixed values of N1 and N2
- o UE is not expected transmit anything in uplink if the network set the values of K1 and/or K2 without leaving sufficient time for UE processing

Friday

[R1-1711957](#) **WF on Processing Time Requirements** **Qualcomm**

Conclusions:

- Email discussion about followings – Joseph (Qualcomm)
 - o Step 1: identify the candidate factors for processing time (until 4th Aug.)
 - o Step 2: identify the table (until 4th Aug.)
- Based on the proponents' input for step 1 and step 2, following work will be done:
 - o Step 3: fill-in the table
 - o Targeting finishing step 3 until September meeting.
 - Note: companies are encouraged to bring up initial numbers for the table to the August meeting
 - o Note: fill-in the table does not necessarily results in defining some UE capabilities or exact values of K1 and K2 in the specification.

5.1.3.3.6.1 Number of HARQ processes and HARQ RTT

[R1-1709965](#) Number of HARQ processes and HARQ RTT Huawei, HiSilicon
[R1-1710099](#) Discussion on number of HARQ processes and HARQ RTT CATT
[R1-1710334](#) Discussion on HARQ process number for NR LG Electronics
[R1-1710394](#) Discussion on NR UE supporting self-contained operation vivo
[R1-1710415](#) Remaining details on the number of HARQ processes in NR AT&T
[R1-1710573](#) On HARQ processes and HARQ RTT Intel Corporation
[R1-1710730](#) On Number of HARQ Processes and HARQ RTT Samsung
[R1-1710967](#) Number of HARQ processes for co-existence with TD-LTE NEC Corporation
[R1-1711000](#) On the number of HARQ processes Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711117](#) Processing time and HARQ process number for NR NTT DOCOMO, INC.
[R1-1711206](#) UE processing time Qualcomm Incorporated
[R1-1711511](#) On Minimum Processing Time and Number of HARQ Processes in NR Ericsson

5.1.3.3.6.2 Soft-buffer management

[R1-1709966](#) Soft buffer handling Huawei, HiSilicon
[R1-1710020](#) Consideration about CBG soft-buffer management ZTE
[R1-1710100](#) Soft buffer management for NR CATT
[R1-1710335](#) Discussion on soft buffer management for NR LG Electronics
[R1-1710574](#) Soft-buffer requirements in NR Intel Corporation
[R1-1710731](#) Soft Buffer Partitioning Samsung
[R1-1711001](#) On the HARQ soft buffer handling Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711118](#) Soft-buffer size and management NTT DOCOMO, INC.
[R1-1711207](#) Considerations for soft buffer management Qualcomm Incorporated
[R1-1711325](#) UE category modelling and soft buffer Panasonic
[R1-1711512](#) On HARQ and Soft Buffer Handling Ericsson

5.1.3.3.7 Multiplexing data with different transmission durations

5.1.3.3.7.1 Pre-emption indication for downlink

Including signalling details and UE behaviour when it is indicated.

[R1-1711342](#) Discussion on the granularity of preemption indication CATR

Offline summary (on-going):

[R1-1711823](#) **WF on pre-emption indication** Huawei, HiSilicon, MediaTek, Sequans, NTT DOCOMO, Sony, vivo, ZTE, InterDigital, III

Proposals:

- For downlink preemption indication
 - It is transmitted using a group common DCI in PDCCH
 - Working Assumption: This group common DCI is separate from group common PDCCH for SFI
 - Group common DCI addresses a time duration and frequency band
 - Whether a UE needs to monitor preemption indication is configured by RRC signaling
 - The granularity of preemption indication in time domain can be configured
 - The granularity of preemption indication in frequency domain will be down selected from
 - Option 1: RBG(s) in a common frequency band addressed by group common DCI with a given numerology
 - Option 2: 1/N of a common frequency band addressed by group common DCI with a given numerology
 - FFS: the value of N.
 - Details of group common DCI for pre-emption indication
 - FFS CORESET configuration and monitoring interval for the group common DCI
 - FFS details of contents for the group common DCI (E.g. the time/freq of pre-emption, number of pre-emption)

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[R1-171911](#) WF on pre-emption indication Huawei, HiSilicon, MediaTek, Sequans, NTT DOCOMO, Sony, vivo, ZTE, InterDigital, III, Intel, LGE, Samsung

Agreements

- For downlink preemption indication
 - It is transmitted using a group common DCI in PDCCH
 - FFS: This group common DCI is transmitted separately from SFI
 - Whether a UE needs to monitor preemption indication is configured by RRC signaling
 - The granularity of preemption indication in time domain can be configured
 - Details of granularity are FFS

[R1-171981](#) WF on group common pre-emption indication Huawei, HiSilicon, Sharp, ZTE, LGE, Sony, Panasonic, MediaTek, InterDigital

Not treated.

[R1-1709984](#) On pre-emption indication for DL multiplexing of URLLC and eMBB Huawei, HiSilicon
[R1-1710101](#) Further design considerations for DL pre-emption indication CATT
[R1-1710123](#) DL pre-emption indication ZTE
[R1-1710170](#) Symbol-level resource allocation and pre-emption indication Guangdong OPPO Mobile Telecom.
[R1-1710336](#) Discussion on pre-emption indication for downlink LG Electronics
[R1-1710382](#) Discussion on pre-emption indication for downlink vivo
[R1-1710575](#) Remaining details of DL pre-emption indication Intel Corporation
[R1-1710732](#) Indication of Preempted Resources in DL Samsung
[R1-1710865](#) Remaining issues on using pre-emption indicator for DL URLLC/eMBB multiplexing Sony
[R1-1710955](#) Signalling design considerations for DL pre-emption indication InterDigital, Inc.
[R1-1711002](#) On pre-emption indication Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711119](#) Pre-emption indication for downlink NTT DOCOMO, INC.
[R1-1711362](#) Discussion on UE behavior by pre-emption indication WILUS Inc.
[R1-1711474](#) Views on preemption indication for DL KT Corp.
[R1-1711513](#) On Pre-emption Indication for Downlink Ericsson
[R1-1711551](#) Considerations on multiplexing with different transmission durations KDDI Corporation
[R1-1711554](#) URLLC DL pre-emption and UL suspension indication channel design Qualcomm Incorporated

5.1.3.3.7.2 Possible enhancements for uplink

[R1-1709988](#) Discussion on UL multiplexing of grant-based eMBB and grant-free URLLC Huawei, HiSilicon
[R1-1710124](#) Uplink multiplexing for different transmission durations ZTE
[R1-1710243](#) On eMBB and URLLC multiplexing for Uplink Fujitsu
[R1-1710337](#) Discussion on eMBB and URLLC multiplexing for uplink LG Electronics
[R1-1710383](#) Discussion on UL multiplexing data with different transmission durations vivo
[R1-1710576](#) Multiplexing of UL transmissions with different data durations and latency requirements Intel Corporation
[R1-1710606](#) On eMBB/URLLC multiplexing for uplink transmission Lenovo, Motorola Mobility
[R1-1710733](#) On Indication of Preempted Resources in UL Samsung
[R1-1710867](#) Multiplexing data with different transmission durations for Uplink Sony
[R1-1710956](#) Multiplexing of low-latency traffic and non-latency sensitive traffic in UL InterDigital, Inc.

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R1-1711003	Pause-Resume Scheduling for Low Latency Uplink Transmissions	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711120	Multiplexing of different data durations for uplink	NTT DOCOMO, INC.
R1-1711208	Timing advance for different numerology	Qualcomm Incorporated
R1-1711514	On Pre-emption Indication for Uplink	Ericsson

5.1.3.3.8 Ultra-reliable part of URLLC for scheduling/HARQ procedure

Identify necessary techniques for scheduling/HARQ procedure to meet the URLLC requirements set forth by TR38.913.

R1-1709985	PDSCH reliability for URLLC	Huawei, HiSilicon
R1-1709987	Discussion on URLLC numerology	Huawei, HiSilicon
R1-1709990	Link adaption for URLLC transmission	Huawei, HiSilicon
R1-1710016	Repetition/hopping related design and reliability evaluations for grant-free URLLC	ZTE
R1-1710125	Supporting Ultra reliability in scheduling	ZTE
R1-1710338	Discussion on scheduling and HARQ procedure for URLLC	LG Electronics
R1-1710381	Scheduling and HARQ aspects for URLLC reliability	vivo
R1-1710466	Consideration on subsequent transmission after pre-emption	Huawei, HiSilicon
R1-1710468	Discussion on Multi-TRP cooperation for URLLC	Huawei, HiSilicon
R1-1710469	Support of URLLC for TDD	Huawei, HiSilicon
R1-1710577	On link adaptation enhancements to support URLLC	Intel Corporation
R1-1710734	Scheduling/HARQ Procedures for URLLC	Samsung
R1-1710837	HARQ procedure for DL URLLC	MediaTek Inc.
R1-1710866	Feedback for improving URLLC reliability	Sony
R1-1711004	Discussion on scheduling based URLLC transmission	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711005	CSI measuring and reporting procedure for URLLC	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711121	Scheduling and HARQ procedures for URLLC	NTT DOCOMO, INC.
R1-1711343	Discussion on URLLC transmitted in same or different numerology resources	ASUSTEK COMPUTER
(SHANGHAI)		
R1-1711432	Discussion on over-the-air time synchronization for URLLC	Huawei, HiSilicon
R1-1711515	On Supporting High Reliability for Data Transmissions	Ericsson
R1-1711555	UL URLLC Capacity Based on URLLC and eMBB dynamic multiplexing	Qualcomm Incorporated
R1-1711556	Ultra reliable HARQ design with async CSI feedback	Qualcomm Incorporated
R1-1711560	Discussion on wireless time synchronization for URLLC	SIA

5.1.3.3.9 Other

R1-1709964	HARQ processing time	Huawei, HiSilicon
R1-1710735	Remaining Aspects for Short Scheduling Durations	Samsung
R1-1710736	Triggered UCI Transmissions	Samsung
R1-1710737	DL Resource Allocation for Multiplexing Data with Different Transmissions Durations	Samsung
R1-1710738	Average User Plane Latency for Preemption based Multiplexing	Samsung
R1-1711367	On UE processing time	Ericsson LM
R1-1711422	Resource allocation for data channels	Huawei, HiSilicon
R1-1711426	CBG-based transmission/retransmission for DL multiplexing of eMBB and URLLC	Huawei, HiSilicon
R1-1711427	Discussion on group common pre-emption indication	Huawei, HiSilicon
R1-1711428	Superposed transmission of pre-emption indication with eMBB data	Huawei, HiSilicon
R1-1711429	Consideration on ACK/NACK error in CBG-based retransmission	Huawei, HiSilicon
R1-1711430	Discussion on UL multiplexing of grant-based eMBB and URLLC	Huawei, HiSilicon
R1-1711434	Discussion on TB size determination	Huawei, HiSilicon
R1-1711435	Unified design for slot and mini-slot	Huawei, HiSilicon
R1-1711456	HARQ Process Management in NR	Samsung
R1-1711457	Indication of Preempted Resources Prior to HARQ-ACK Feedback	Samsung
R1-1711458	Considerations on Signaling for Indicating Preempted Resources	Samsung
R1-1711516	On Mixed Numerology	Ericsson

5.1.3.4 Scheduling/HARQ aspects for carrier aggregation and dual connectivity

R1-1711425	Summary of LTE CA/DC and remaining issues for NR	Huawei, HiSilicon
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5.1.3.4.1 Carrier aggregation

R1-1711846	Way Forward on NR Carrier Aggregation	Huawei, HiSilicon, KT, CATR, MediaTek, Nokia, ASB, Ericsson, Intel
Also supported by LGE		

Conclusions:

Email approval on the following until July 10th – Zhenfei (Huawei):

- NR support Primary Component Carrier (PCC) and Secondary Component Carrier (SCC)
 - A UE monitors PDCCH candidates in common search space(s) and UE specific search space(s) on PCC
 - A UE monitors PDCCH candidates on UE-specific search space(s) for an SCC
- Support cross carrier scheduling with CIF
 - A carrier is scheduled by one and only one carrier
 - FFS: the number of CIF bits and possible connection to BWPs
- NR Supports at least 2 cell groups for PUCCH
 - Carrier transmitting the PUCCH can be configured within the cell group
 - FFS The PUCCH configuration can be done by the UL PCC reconfiguration or PUCCH reconfiguration
- For scheduling with different and the same numerologies:
 - For self-scheduling
 - PDCCH and the scheduled PDSCH have the same numerologies
 - PDCCH and the scheduled PUSCH can have the same or different numerologies
 - The time granularity indicated in the DCI for the timing relationship between DCI and the corresponding PUSCH follows the numerology of the PUSCH transmission
 - For cross-carrier scheduling
 - PDCCH and the scheduled PDSCH/PUSCH can have different or the same numerologies
 - The time granularity indicated in the DCI for the timing relationship between DCI and the corresponding PDSCH/PUSCH follows the numerology of the PDSCH/PUSCH transmission
 - UE is not expected to support faster processing for the case of cross-carrier scheduled PDSCH/PUSCH transmission scheduled by a DCI requiring than the case of self-scheduled PDSCH/PUSCH transmission scheduled by the DCI.
- UCI feedback related to multiple DL component carriers is supported for DL component carriers operating with the same and different numerology
 - The time granularity indicated in the DCI for PDSCH and the corresponding HARQ-ACK follows the numerology for HARQ-ACK transmission
 - UE is not expected to support faster processing for the case when PDSCH and the corresponding HARQ-ACK use a different numerology than the case of the case when PDSCH and HARQ-ACK use the same numerology
- NR support 4 timing advance groups including Primary Timing Advance Group and Secondary Timing Advance Group(s)
 - Support PRACH transmission for timing advance acquisition on SCC

5.1.3.4.1.1 Self-/cross-carrier scheduling and joint/separate UCI feedback

For carriers with the same and different numerology

R1-1709975	On NR carrier aggregation	Huawei, HiSilicon
R1-1710102	Scheduling and HARQ support for NR CA	CATT
R1-1710171	Bandwidth part based resource scheduling for carrier aggregation	Guangdong OPPO Mobile Telecom.
R1-1710339	Support of cross-CC DCI/UCI transmission for NR CA	LG Electronics
R1-1710578	Scheduling and UCI feedback for carrier aggregation	Intel Corporation
R1-1710739	Cross-Carrier Scheduling and HARQ-ACK Feedback	Samsung
R1-1710885	On cross-carrier scheduling and joint UCI design	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710964	On UE-to-UE measurement for CLI management	NEC
R1-1711122	NR carrier aggregation	NTT DOCOMO, INC.
R1-1711209	CA with mixed numerology	Qualcomm Incorporated
R1-1711517	On Scheduling and UCI Handling in Carrier Aggregation	Ericsson

5.1.3.4.1.2 SRS fast switching

For carriers with the same and different numerology

R1-1711847	Way Forward on SRS Switching	Huawei, HiSilicon, MediaTek, Intel
R1-1709976	SRS switching among CCs and bandwidth parts	Huawei, HiSilicon
R1-1710579	On SRS fast switching	Intel Corporation
R1-1710740	Fast Carrier Switching for SRS Transmissions	Samsung
R1-1711518	On SRS Fast Switching in NR	Ericsson

5.1.3.4.2 Dual connectivity

R1-1709977	On NR dual connectivity	Huawei, HiSilicon
R1-1710103	Scheduling and HARQ support for NR DC	CATT
R1-1710340	Discussion on dual connectivity with single active UL at a given time	LG Electronics

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R1-1710580	On Dual Connectivity for NR	Intel Corporation
R1-1710741	DC for UE with Single UL Carrier Capability	Samsung
R1-1710884	On NR CA/DC configuration	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711123	LTE-NR Dual connectivity	NTT DOCOMO, INC.
R1-1711519	On Dual Connectivity for NR	Ericsson

5.1.4 Channel coding

[R1-1711917](#) Chairman's notes of AI 5.1.4 Channel coding Ad-Hoc chair (Nokia)

The document was presented by Matthew Baker from Nokia.

Decision: The document is endorsed and the content is incorporated as below.

5.1.4.1 LDPC code

5.1.4.1.1 Coding chain

R1-1711344	LDPC Coding chain	Intel Corporation
R1-1710844	Consideration on coding chain for eMBB data channel	ZTE

5.1.4.1.1.1 CRC attachment

R1-1710482	Study of Number of CRC Bits for Small Transport Blocks	Ericsson
R1-1711533	CRC attachment for Smaller TBs	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710827	On CRC attachment for TB and CB	MediaTek Inc.
Note: proposal is for $L_{TB-CRC} = 14$ for TBs less than e.g. 512 (or higher?)		
R1-1710957	Data channel processing and CRC attachment	InterDigital, Inc.
R1-1711210	CRC attachment	Qualcomm Incorporated

Proposal to be checked until RAN1#90 after LDPC design is complete:

- $L_{TB-CRC} = 16$ bits for TBs smaller than e.g. 1008 or 8432 bits
- $L_{CB-CRC} = 8$ bits
- Checking other values is not precluded

Agreement: CBG-level CRC is not adopted

Not treated.

R1-1710481	Study of Number of CRC Bits for Code Blocks	Ericsson
R1-1710044	Consideration on CRC attachment for eMBB data	CATT
R1-1710341	Discussion on CRC reduction and attachment for eMBB data	LG Electronics
R1-1710480	CRC Attachment for Code Block Group	Ericsson
R1-1711532	CRC attachment for CBG	Nokia, Alcatel-Lucent Shanghai Bell

5.1.4.1.1.2 Segmentation

R1-1710342	Code block segmentation for eMBB	LG Electronics
R1-1710742	CB segmentation on data channel	Samsung
R1-1711534	Code block segmentation of eMBB	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711211	LDPC segmentation	Qualcomm Incorporated
R1-1711439	Segmentation for eMBB data	Huawei, HiSilicon

Agreement: Same value of Z for code blocks within a TB

[R1-1711535](#) Padding for LDPC Nokia, Alcatel-Lucent Shanghai Bell

Agreement: Working assumption from RAN1-NRAH#1 is confirmed that filler bits F are attached at the end of info block B

Not treated.

R1-1710743	UE operation for two different base graphs	Samsung
R1-1710958	Code block segmentation for eMBB data channel	InterDigital, Inc.

5.1.4.1.1.3 Rate matching

[R1-1710344](#) Discussion on bit level interleaver LG Electronics

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[R1-1710484](#) Bit Ordering for Circular Buffer of LDPC Codes Ericsson
[R1-1711538](#) Interleaving for LDPC Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710828](#) On interleaver for NR LDPC code MediaTek Inc.
[R1-1711212](#) LDPC rate matching Qualcomm Incorporated

Conclusion for bit-level interleaving: Revisit after the decision on modulation symbol interleaving in the MIMO session.

[R1-1710045](#) IR-HARQ scheme for NR LDPC codes CATT
[R1-1710485](#) Rate Matching for NR LDPC codes Ericsson
[R1-1711438](#) Rate matching for LDPC codes Huawei, HiSilicon

Agreement:

- The number of RVs is 4.
- The RVs are at fixed locations in the circular buffer
- RV#0 is self-decodable
- **Working assumption** (to be confirmed after selection of the BGs): The first 2Z punctured systematic bits are not entered into the circular buffer

Not treated

[R1-1711536](#) Rate matching for LDPC Nokia, Alcatel-Lucent Shanghai Bell
[R1-1710343](#) On rate matching with LDPC code for eMBB LG Electronics
[R1-1710483](#) LDPC Code Performance at High Code RateEricsson

5.1.4.1.1.4 Other

[R1-1710486](#) Throughput Requirements of LDPC Decoder Ericsson
R1-1711440 On LDPC codes for eMBB data Huawei, HiSilicon

5.1.4.1.2 LDPC code design

Finalise number of base graphs, compact vs. extended design, and other design details

[R1-1711944](#) Observations on LDPC Shift Coefficients Qualcomm, Intel, Ericsson
[R1-1711692](#) WF on final parity check matrix selection Nokia

Agreements: Down selection of PCMs are facilitated as follows:

- Considering the priority given to certain merged proposals in BG1 and BG2, the following ranking is used to facilitate the selection of parity check matrices in more fairer manner.
- The proponent(s) who are not selected for BG1 or BG2 are ranked above.
- The proponent(s) who are only in one selected solution of BG1 and BG2 are ranked next.
- The proponent(s) who are selected for both BG1 and BG2 are ranked below.
- Any PCMs with significant overlaps with previous PCM designs are ranked below.
- If there are several proponents end up with the same rank, mutual understanding may use to rank the companies.
 - Previous proposals on BG1 and BG2 and the effort put in there shall be considered when ranking.
 - Higher ranking may provide to proponents who were not in the BG1.
- Ranking changes from top to bottom when the proponent's proposal selected for a shift coefficient design.

Selection of final parity check matrices for BG1 is facilitated as below.

For Set $i = 1:8$

- Step 1: Cross check BLER performance at 10-2 and 10-4 for the block sizes related to the Set i (within 512-to-8448) and code rates 8/9-to-1/3.
- Step 2: Identify the candidates which are within 0.1 dB BLER performance across most block sizes related to the Set i (within 512-to-8448) and code rates 8/9-to-1/3.
- Step 3: Higher ranked identified candidate which is proven to satisfy the selection criteria as below, the proposal is selected as shift coefficient design for Set i .
- Step 4: the selected proponent is ranked below others.

End

Selection criteria for a ranked high proposal as candidate X:

- A candidate among existing candidates which has better ($>0.1\text{dB}$) BLER performance for block sizes related to the Set i (within 512-to-8448) and code rates 8/9-to-1/3 is selected as candidate Y.

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- Error floor should be checked by examining slope of BLER curves at BLER=10⁻⁴.
- Denote P1 as the number of simulation cases for which the required SNR of candidate X is smaller than the required SNR of candidate Y for more than 0.1dB
- Denote P2 as the number of simulation cases for which the required SNR of candidate Y is smaller than the required SNR of candidate X for more than 0.1dB
- If $P2 - P1 \leq 2\%$ of all simulation cases (QPSK, block sizes related to the Set **i** (within 512-to-8448) and code rates 8/9-to-1/3, BLER targets), and satisfies the error floor requirement, candidate X is deemed to satisfy the selection criteria.

Selection of final parity check matrices for BG2 is facilitated as below.

For Set **i** = 1:8

- Step 1: Cross check BLER performance at 10⁻² and 10⁻⁴ for the block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5.
- Step 2: Identify the candidates which are within 0.1 dB BLER performance across most block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5.
- Step 3: Higher ranked identified candidate which is proven to satisfy the selection criteria as below, the proposal is selected as shift coefficient design for Set **i**.
- Step 4: the selected proponent is ranked below others.

End

Selection criteria for a ranked high proposal as candidate X:

- A candidate among existing candidates which has better (>0.1dB) BLER performance for block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5 is selected as candidate Y.
- Error floor should be checked by examining slope of BLER curves at BLER=10⁻⁴.
- Denote P1 as the number of simulation cases for which the required SNR of candidate X is smaller than the required SNR of candidate Y for more than 0.1dB
- Denote P2 as the number of simulation cases for which the required SNR of candidate Y is smaller than the required SNR of candidate X for more than 0.1dB
- If $P2 - P1 \leq 2\%$ of all simulation cases (QPSK, block sizes related to the Set **i** (within 40-to-2560) and code rates 2/3-to-1/5, BLER targets), and satisfies the error floor requirement, candidate X is deemed to satisfy the selection criteria.

R1-1711545 Shanghai Bell	Summary of [89-24] Email discussion LDPC code base graph #1 for NR	Nokia, Alcatel-Lucent
R1-1711546 Shanghai Bell	Summary of [89-25] Email discussion on LDPC code base graph #2 for NR	Nokia, Alcatel-Lucent

Not treated.

R1-1710046	LDPC design for eMBB data	CATT
R1-1710047	Offset optimization for NR LDPC	CATT
R1-1710345	Circulant permutation matrix design for LDPC codes	LG Electronics
R1-1710487	LDPC Code Design for Base Graph #1	Ericsson
R1-1710488	LDPC Code Design for Base Graph #2	Ericsson
R1-1710489	Application of Two Base Graphs for NR Data Channels	Ericsson
R1-1710744	LDPC Code for BG#1	Samsung
R1-1710745	LDPC Code for BG#2	Samsung
R1-1710746	Modulo Lifting for Length-Flexible QC LDPC Codes	Samsung
R1-1710829	On NR LDPC design and performance	MediaTek Inc.
R1-1710845	Shift coefficients design for base graph 1	ZTE
R1-1710846	Shift coefficients design for base graph 2	ZTE
R1-1711213	LDPC rate compatible design	Qualcomm Incorporated
R1-1711345	Base Graph 1 lifting and evaluations	Intel Corporation
R1-1711346	Base Graph 2 lifting and evaluations	Intel Corporation
R1-1711436	LDPC design for base graph 1	Huawei, HiSilicon
R1-1711437	LDPC design for base graph 2	Huawei, HiSilicon
R1-1711537	LDPC designs for base graph 1 and base graph 2	Nokia, Alcatel-Lucent Shanghai Bell

[R1-1711731](#) **WF on LDPC code usage scenarios** **MediaTek, Qualcomm, InterDigital, ZTE**

[R1-1711982](#) **WF on LDPC parity check matrices** **Nokia**

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Agreement: Final parity check matrices for NR LDPC base graph #1 and #2 are agreed as in excel files [R1-1711982_BG1.xlsx](#) and [R1-1711982_BG2.xlsx](#) in [R1-1711982](#).

Agreements:

- Base graph #1 is used for the initial transmission and subsequent re-transmissions of the same TB when
 - CBS > X or code rate of the initial transmission > Y
- Base graph #2 is used for the initial transmission and subsequent re-transmissions of the same TB when
 - CBS ≤ X and code rate of the initial transmission ≤ Y
- **Working assumption:** X = 2560 and Y = 0.67
 - FFS after PCM decisions if X can be extended to 3840 and/or Y can be extended to 0.75

To be checked how the receiver knows in each case the code rate of the initial transmission, and how exactly it is defined. FFS whether some UE capabilities may be possible that do not require the implementation of both base graphs.

5.1.4.2 Polar code

5.1.4.2.1 Code construction

[R1-1711443](#) **Summary of [89-26] Polar code for NR -- alignment of latency/complexity calculation for early termination** Huawei

The document was presented by Zukang Shen from Huawei.

Decision: The document is noted.

[R1-1711442](#) **Summary of [89-27] Polar code proposal for NR** Huawei

Decision: The document is noted.

[R1-1711644](#) **Study of Split-CRC Polar Code Construction for Early Termination** Tsofun Algorithm
(Revision of [R1-1709883](#))

- Proposal 1: Use $J+J'=n_{\text{FAR}} + 3$ for polar code construction.
- Proposal 2: If some of the J+J' bits are distributed to allow ET, a relaxed requirement for FAR due to undetectable decoding errors should be agreed.

Decision: The document is noted.

[R1-1711347](#) **Simple distributed CRC design for Polar codes** Intel Corporation

- Any assistance bits (if distributed) are based on CRC and are distributed in a controlled and simple way as proposed in the companion document [\[R1-1711348\]](#).

Decision: The document is noted.

[R1-1711215](#) **Evaluation of early termination for Polar codes** Qualcomm Incorporated

- Proposal: Adopt CRC-aided successive-cancellation list decoding (CA-SCL) (with one long CRC) solution of Polar codes for control channel for robust performance, lower complexity and latency.

Decision: The document is noted.

[R1-1710490](#) **CRC-based Polar Code Construction** Ericsson

- Proposal 1: Adopt CA-Polar for both DL and UL of NR.
- Proposal 2: Recursive and non-recursive distributed CRC (D-CRC) can be considered as alternative choices, if early termination is required to be supported via modified code construction.

Decision: The document is noted.

[R1-1711764](#) **WF on Polar codes construction** NTT DOCOMO, Ericsson, Qualcomm, Intel, Tsofun Algorithm, CATT, AT&T

- Assume the input information sequence of channel coding is $(u_1, u_2, \dots, u_K)$
- If the i th assistant bit p_i of Polar codes are inserted after u_b ($b=1,2,\dots,K$), then p_i can only linearly generated from information bits $(u_1, u_2, \dots, u_b)$ without any interleaving,
 - That is, no interleaver is used before the basic Polar encoder, and the information bits are mapped into the encoder by keeping the same input order and no de-interleaver is used after the basic Polar decoder
- i.e., $p_i = a_1 u_1 \oplus a_2 u_2 \oplus \dots \oplus a_b u_b \oplus \dots \oplus a_K u_K$, where

$$a_j = \begin{cases} 0 \text{ or } 1, & \text{if } j \leq b \\ 0, & \text{if } j > b \end{cases}$$

Decision: The document is noted.

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R1-1711730 WF on the Number of Assistant Bits for Polar Construction
Qualcomm, Intel, Tsfun Algorithm, Samsung, LG, Fujitsu

Ericsson, NTT DOCOMO,

- The number of assistant bits of Polar codes is
- $J+J' = n_{\text{FAR}} + 3$

Decision: The document is noted.

Questions:

- $J' = 3$ or 6?
- How are the $J+J'$ bits generated?
- Which bits are distributed (if any) and how?

Proposal for further consideration over lunch:

- For DL and UL for $K \geq 22$:
 - The number of assistant bits of Polar codes is
 - $J+J' = n_{\text{FAR}} + 3$
 - The $J+J'$ bits are generated from a single CRC polynomial
 - Working assumption that 3 bits are distributed
 - 6 distributed bits can be further considered if 3 is shown to be insufficient
- (FFS?) For UL for $K < 22$:
 - The number of assistant bits of Polar codes is
 - $J' = 6$
 - The J' bits comprise 3 CRC bits and 3 parity bits
 - 6 bits are distributed

Alternative proposal (Nokia)

- The number of assistant bits of Polar codes is
 - $J+J' = n_{\text{FAR}} + 6$
- The $J+J'$ bits are generated from a single CRC polynomial plus at least 3 parity bits
- 9 of the $J+J'$ bits are distributed

Possible compromise:

- The number of assistant bits of Polar codes is
 - $J+J' = n_{\text{FAR}} + 6$
- The $J+J'$ bits are generated from a single CRC polynomial
- Confirm working assumption that some (9?) of the $J+J'$ bits are distributed

Proposal:

- For DL & UL, at least for $K > 22$:
 - The number of assistant bits of Polar codes is
 - $J+J' = n_{\text{FAR}} + 3$
 - The $J+J'$ bits are generated from:
 - Working assumption a single CRC polynomial with no interleaver
 - If it turns out that the FAR target cannot be satisfied, then FFS between:
 - Single CRC with interleaver, or
 - Two CRCs
 - Working assumption that 3 bits are distributed
 - 6 distributed bits can be further considered if 3 is shown to be insufficient
- FFS: For UL for $K \leq 22$:
 - The number of assistant bits of Polar codes is
 - $J' = 6$
 - The J' bits comprise 3 CRC bits and 3 parity bits
 - 6 bits are distributed

Question: Can the FAR target be satisfied using a single CRC polynomial with no interleaver, while achieving early termination benefits?

Yes: Intel, NTT DOCOMO, Ericsson, CATT, Qualcomm, ~~Tsfun~~, NEC

No: Nokia, LG, Huawei, CohLog, MediaTek, ZTE, Accelercomm, ~~NEC~~, Tsfun

Question: Are the achievable early termination benefits (while achieving the FAR and BLER targets) worthwhile compared to the complexity of adding an interleaver?

Yes: LG, Nokia, MediaTek, Huawei, Accelercomm, ITRI, CohLog, NEC, Spreadtrum, InterDigital

No: Ericsson, NTT DOCOMO, Qualcomm, Intel, CATT, Fujitsu, Tsfun

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Question: Should we work on a code construction based solution to deliver early termination benefits while achieving the FAR and BLER targets with acceptable complexity?

a) Downlink

Yes: Samsung, Nokia, LG, Huawei, MediaTek, Intel, InterDigital, ZTE, ITRI, Spreadtrum, Tsofun, Coherent Logix, Accelercomm, NEC, Qualcomm (if there is a plan B), NTT DOCOMO (if there is a plan B)

No: Ericsson

b) Uplink

Yes: Nokia, Huawei, Accelercomm, LG, NEC, Intel (if same scheme as for DL)

No: Ericsson, Qualcomm, Samsung, Fujitsu

Conclusion:

- RAN1 will work on a code construction based solution to deliver early termination benefits while achieving the FAR and BLER targets with acceptable complexity at least for the DL
- Revisit UL after designing the DL solution.

Possible solutions for code construction based solution to deliver early termination benefits while achieving the FAR and BLER targets with acceptable complexity for downselection:

- Single CRC + interleaver
 - LG, Huawei, HiSilicon, Nokia, ASB, Coherent Logix, ZTE, Accelercomm, Spreadtrum, MediaTek
- Multiple segment CRCs
 - Tsofun, NTT DOCOMO, Qualcomm, CATT, Intel, Ericsson

Agreement:

- All companies work together to design for the DL a Single CRC polynomial + Interleaver scheme to deliver early termination benefits while achieving the FAR (in presence of AWGN, and in presence of random QPSK, and undetected errors in intended user's codeword), and BLER targets with acceptable complexity and latency.
 - **Working assumption** that the CRC length is 19 bits, to be finalised as part of the design, taking into account the number of blind decodes or hypotheses to be tested.
 - Longer CRCs will be considered if required to meet the FAR target
- For DL for $K+nFAR \geq 12$, and for UL where $K+nFAR > 22$, $J+J' = nFAR + 3$
- For UL, where $12 \leq K+nFAR \leq 22$, $J+J' = nFAR + 6$, comprising 3 parity bits and $nFAR + 3$ additional CRC bits

Note: K is the number of payload information bits without CRC or parity bits

Note: nFAR may be zero in some circumstances.

Note: UE specific scrambling is not precluded and will be considered separately.

From **R1-1708833** (submitted to RAN1#89):

Proposal: The interleaver is determined from the CRC generator matrix

R1-1711980	Performance with L1 CRC polynomial	Qualcomm
R1-1709996	Parity check bits for Polar code	Huawei, HiSilicon
R1-1709997	Early termination for Polar code	Huawei, HiSilicon
R1-1710048	Polar codes construction for NR control channel	CATT
R1-1710747	Polar code construction	Samsung
R1-1710847	Performance evaluations on Polar codes	ZTE
R1-1711125	Performance evaluation of DSPC-Polar codes	NTT DOCOMO, INC.
R1-1711214	Early termination scheme for Polar codes	Qualcomm Incorporated
R1-1711540	Early termination benefits of CRC distribution	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711541	Performance evaluation of polar code constructions	Nokia, Alcatel-Lucent Shanghai Bell
R1-1709882	Enhancement of Early Termination of Polar Codes by placing UE-ID on Frozen Symbols	Tsofun
R1-1711570	UE_ID Insertion for Early Block Discrimination on DCI Blind Detection	Coherent Logix
R1-1709998	Polar code for very small block length	Huawei, HiSilicon
R1-1711557	Performance of polar code for very small block length	Qualcomm Incorporated
R1-1709902	Enhancements for Polar code construction	Sequans Communications
R1-1709995	Polar code construction	Huawei, HiSilicon

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R1-1710346	Early termination effect of polar codes	LG Electronics
R1-1710479	Evaluation of PM based early termination for Polar code	Huawei, HiSilicon
R1-1710491	Study of Early Termination for DCI	Ericsson
R1-1710748	Scrambling for polar codes	Samsung
R1-1710770	Discussion on Polar code construction	Spreadtrum Communications
R1-1711124	Distributed simple parity check Polar codes	NTT DOCOMO, INC.
R1-1711216	Decoding and encoding latency for polar codes with PC frozen bits or distributed CRC bits	
Incorporated		Qualcomm
R1-1711217	Performance comparison between CA-polar and PC-polar for very small block length	Qualcomm
Incorporated		
R1-1711348	Evaluations of Polar code designs	Intel Corporation
R1-1711539	Distributed CRC Polar code construction	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711571	Scrambling Sequence Design for Early Block Discrimination on DCI Blind Detection	Coherent Logix
R1-1711572	Scrambling Sequence Design for Multi-Mode Block Discrimination on DCI Blind Detection	Coherent
Logix		
R1-1711573	Early Block Discrimination on DCI Blind Detection	Coherent Logix

R1-1711983 **WF on Polar Code Construction With PC bits** **Huawei, HiSilicon, CATT, MTK,ZTE, Accelercomm, Coherent Logix, LG, Spreadtrum, Interdigital, Nokia**

Agreement: For UL, where $12 \leq K+nFAR \leq 22$, $J+J' = nFAR + 6$, 3 PC bits are generated according to the following steps:

1. Encode K info bits to $K+nFAR+3$ CRC encoded bits,
 - o FFS the $nFAR+3$ CRC bit locations
2. Select $K' = K+nFAR+6$ most reliable bit positions
3. Select 3 PC bits from the K' reliable positions
 - o The most reliable n positions with w_{min} , where
 - w_{min} is the minimum row weight (as defined in R1-1706193) of the $K+nFAR+3$ most reliable positions within the K' reliable positions, where n is given by:
 - $n=1$ if $M-K-nFAR > 192$
 - $n=0$ otherwise
 - o 3- n positions selected in least reliable positions within the K' reliable positions.
4. **Working Assumption:** The value of the PC bits is obtained from a length-5 cycle shift register as in R1-1706193

5.1.4.2.2 **Sequence design**

R1-1710470 **Necessity of multiple sequence for Polar code** **Huawei, HiSilicon**

Agreement:

- Channel bit interleaving is applied
 - o The interleaving is either performed as part of the rate matching and/or after rate matching
 - To be confirmed after the rate matching discussion whether the interleaving is a separate function
 - o FFS whether the interleaver is a function of the modulation
- The same sequence for each mother code size is used for all modulations
- The UL sequence for a given mother code size is also used for the DL

R1-1710348	Design of polar codes with high order modulations	LG Electronics
R1-1710961	Interleaver design for polar codes with high order modulation	InterDigital, Inc.

R1-1710000	Nested sequence for Polar code		Huawei, HiSilicon
R1-1710493	On Bit Mapping Design for Polar Codes	Ericsson	
R1-1710843	On the storage of polar code sequences		AccelerComm Ltd
R1-1711126	Sequence design of Polar codes		NTT DOCOMO, INC.
R1-1711218	Sequence construction of Polar codes for control channel		Qualcomm Incorporated
R1-1711542	Sequence design for Polar codes	Nokia, Alcatel-Lucent Shanghai Bell	
R1-1711822	Design of combined-and-Nested polar code sequences	Samsung	(Revision of R1-1710749)
R1-1711781	Performance comparison of sequences for Polar code	Huawei	

R1-1711794 **WF on Polar Code Sequence evaluation criteria** **Samsung**

Current support for each sequence:

- Polarization Weight (PW): Huawei, MediaTek, Nokia, LG, InterDigital, ZTE, Spreadtrum, CATT, Accel., [Tsofun](#)

- Optimized- combined-and-nested (CN): Samsung, Qualcomm, NTT DOCOMO, Ericsson, Tsofun
- mutual information density evolution (MI-DE): Qualcomm, Samsung, NTT DOCOMO, Ericsson, Tsofun,
- Intel: Intel, Samsung, Qualcomm, NTT DOCOMO, Ericsson, Tsofun
- Docomo: NTT DOCOMO, Ericsson, Samsung, Qualcomm, Tsofun

Proposal:

- PW is adopted up to N=512
 - Companies work together to design the sequence for N>512
- Objected by Samsung, Qualcomm, NTT DOCOMO, Ericsson, Tsofun

Agreement for Next Steps:

- Polar code sequence candidates, including any merged solutions, should be provided by Wed 2nd Aug – Zukang (Huawei)
- Identify candidates of polar code sequence according to the procedure below by Wed 9th Aug– Zukang (Huawei)
- Rate matching proposals for any sequence that has been selected as a winner by at least one company to be provided by Wed 16th Aug. – Zukang (Huawei)

Decision procedure:

Candidate sequences shall have the property of simple nestedness, i.e. one sequence of length N/2 is nested with the sequence of length N

- Presence or absence of any other property (including symmetry, arithmetic describability, down-nestedness (i.e. a sequence of length N/2 is nested within the lower half of the sequence of length N), up-and-down-nestedness (i.e. a sequence of length N/2 is nested in both the upper and lower halves of the sequence of length N)) shall not be used as a decision criterion.
- Performance metric
 - SNR to achieve 10⁻² and 10⁻³ BLER
- Simulation assumptions
 - Evaluate the block error rate (BLER) performance versus SNR

Channel	AWGN Channel
Modulation	QPSK
Info. Block length (=K bits w/o CRC)	K = 8:1:min (200, K _{max,N}), where K _{max,N} = ⌊5N/6 – (J + J')⌋ K = min (200, K _{max,N}):24:K _{max,N} , where K _{max,N} = ⌊5N/6 – (J + J')⌋ excluding any code rates below 1/8
Codeword length (=N)	{64, 128, 256, 512, 1024}
Decoding algorithm	List-X with LLR-based min-sum
List sizes	1,2,4,8,16 (pruned to 8 best paths for CRC check)
Code construction for evaluation	CA polar
Number of (J+J') bits	19 bits (0b10100010101101111001 where the last bit is d19)

PerfThresh_K = 0.1dB for lower range of K, 0.3dB for higher range of K
PerfThresh_L = 0.4dB for L=1, 0.2dB for L=2, 0.1dB otherwise.
PerfThresh = max (PerfThresh_K, PerfThresh_L)

Each company selects a winning sequence by the following algorithm:

- For sequence A,
 - compare with sequence Bat each simulation case.
 - For each simulation case:
 - if A's performance is worse than B – PerfThresh, increment FailCount_AB
 - if A's performance is better than B + PerfThresh, increment WinCount_AB
 - If (FailCount_AB – WinCountAB) / Total number of simulation cases > 2%, increment OverallFail_A
 - compare with sequence Cat each simulation case.

- For each simulation case:
 - if A's performance is worse than $C - \text{PerfThresh}$, increment FailCount_AC
 - if A's performance is better than $C + \text{PerfThresh}$, increment WinCount_AC
- If $(\text{FailCount\_AC} - \text{WinCount\_AC}) / \text{Total number of simulation cases} > 2\%$, increment OverallFail_A
- repeat for sequences D...N
- For sequence B,
 - compare with sequence A at each simulation case
 - etc
- ...
- For sequence N,
 - compare with sequence A
 - etc
- Select sequence with smallest OverallFail

If multiple sequences A to M have the same smallest OverallFail,

- For sequence A,
 - compare with sequence B at each simulation case.
 - For each simulation case, if A's performance is better than $B + \text{PerfThresh}$, increment WinCount_AB
 - compare with sequence C at each simulation case.
 - For each simulation case, if A's performance is better than $C + \text{PerfThresh}$, increment WinCount_AC
 - $\text{WinCount A} = \sum \text{WinCount\_AB...AM}$
 - repeat for sequences up to M
- Repeat for sequences B to M.
- Select sequence with highest WinCount, referred to as sequence W.
- If any $\text{WinCount\_xW} > \text{WinCount Wx}$, then sequence(s) x is/are also selected.

If more than 1 sequence is selected by at least one company, then the final sequence will be chosen from the sequences that were selected by at least one company according to the largest support in RAN1#90.

R1-1710347	Repetition scheme of polar codes	LG Electronics	
R1-1710750	Design of unified rate-matching for polar codes	Samsung	
R1-1710825	Optimization and comparison of Polar code rate-matching design	MediaTek Inc.	
R1-1710848	Rate matching scheme of Polar codes	ZTE	
R1-1710960	Parameter selection for polar codes repetition	InterDigital, Inc.	
R1-1711219	Determination of the values for the parameters in rate-matching for control channel	Qualcomm	
R1-1710496	Thresholds for Mother Code Size Determination	Ericsson	
R1-1711349	Discussion on Polar code rate-matching	Intel Corporation	

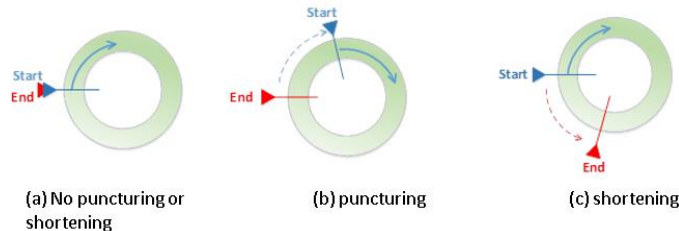
[R1-1711697](#) WF on rate matching for Polar codes Qualcomm

Agreement: $R_{\min} = 1/8$

[R1-1711729](#) WF on Circular buffer of Polar Code Ericsson, Qualcomm, MediaTek, LGE

Agreement:

- To support repetition, puncturing, and shortening of Polar code:
 - The $N=2^n$ coded bits at the output of Polar encoder is written into a length-N circular buffer in an order that is predefined for a given value of N
 - To obtain M coded bits for transmission
 - Puncturing is realized by selecting bits from position (N-M) to position (N-1) from the circular buffer
 - Shortening is realized by selecting bits from position 0 to position M-1 from the circular buffer
 - Repetition is realized by selecting all bits from the circular buffer, and additionally repeat (M-N) consecutive bits from the circular buffer
 - Exact set of repeated bits FFS till RAN1#90



[R1-1710751](#) Circular buffer management for polar code rate-matching Samsung

R1-1710492	Information Sequence Design for Polar Codes	Ericsson
R1-1710494	Impact of Puncturing on Bit-channel Capacities	Ericsson
R1-1710495	Polar Code Performance in Fading Channel	Ericsson
R1-1710591	Sequence design evaluation for rate-matched polar codes	NEC Corporation
R1-1710959	Parameter selection for polar codes puncturing and shortening	InterDigital, Inc.
R1-1711127	Rate matching of Polar codes	NTT DOCOMO, INC.
R1-1711220	Rate-matching scheme for control channel	Qualcomm Incorporated
R1-1711543	Rate matching for Polar codes	Nokia, Alcatel-Lucent Shanghai Bell

5.1.4.2.3 Other

R1-1709999	Interleaver design for Polar code	Huawei, HiSilicon
R1-1710752	Design of channel interleaver for polar codes	Samsung
R1-1710849	Segmentation of Polar codes	ZTE
R1-1711128	Interleaving design of Polar codes	NTT DOCOMO, INC.
R1-1711222	Design and evaluation of Interleaver for Polar codes	Qualcomm Incorporated
R1-1710001	Rate matching for Polar code	Huawei, HiSilicon
R1-1710003	Channel coding chain for control channel	Huawei, HiSilicon
R1-1710842	A flexible, low-latency, hardware-efficient SCL polar decoder	AccelerComm Ltd
R1-1710868	Blind Detection with Polar Codes	McGill University
R1-1710869	Partitioned List Decoding of Polar Codes	McGill University
R1-1711221	Design of Polar code for large UCI with segmentation	Qualcomm Incorporated

5.1.4.3 PBCH

R1-1710002	Support of implicit soft combining for PBCH by Polar code construction	Huawei, HiSilicon
R1-1710004	Channel coding for URLLC	Huawei, HiSilicon
R1-1710049	Discussion on Polar codes for PBCH	CATT
R1-1710349	Details on PBCH coding	LG Electronics
R1-1710472	Benefits of implicit soft combining for PBCH by Polar code construction	Huawei, HiSilicon
R1-1710497	Study of Number of CRC Bits for PBCH	Ericsson
R1-1710498	Polar Code Design for NR-PBCH	Ericsson
R1-1710826	Polar coding design for NR-PBCH combining	MediaTek Inc.
R1-1710850	Considerations on Channel Coding for NR-PBCH	ZTE
R1-1711223	PBCH channel coding	Qualcomm Incorporated
R1-1711544	Implicit timing indication for PBCH	Nokia, Alcatel-Lucent Shanghai Bell

5.1.4.4 Other

R1-1709903	Discussion of LTE-RM decoding ambiguity	Sequans Communications
R1-1710471	CRC polynomial for L1 control information and MIB	Huawei, HiSilicon
R1-1710499	LDPC Code Performance for High Reliability Use Cases	Ericsson

5.1.5 Modulation

[R1-1711956](#) On Pi/2-BPSK with spectrum shaping Ericsson

- Proposed agreement: Spectrum shaping is supported without RAN1 impact

Decision: The document is noted.

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[R1-1711831](#) WF on pi/2 BPSK with spectrum shaping IITH, ATT, Qualcomm, Deutsche Telekom, IITM, Reliance Jio, Samsung, Thales, INL, CEWiT, Tejas Networks, DISH, Sony

- pi/2 BPSK DFT-s-OFDM supports spectrum shaping without spectrum expansion of pi/2 BPSK data at least for uplink data for carrier frequencies below 6GHz
 - The spectrum shaping function shall be specified in RAN1

Discussion: Also supported by Interdigital

Ericsson is OK with main bullet, commented that RAN4 was expecting information by end of June meeting – if we proceed now with proposal, RAN1 will delay RAN4 progress

Decision: The document is noted.

[R1-1711909](#) [Draft] LS response on required NR parameters from RAN4 perspective Ericsson

Decision: The document is noted and final LS is [approved in R1-1711973](#) with following typo corrections

Based on this, RAN1 would like ~~the~~ to inform RAN4 that the RAN1 specifications will support the following modulation schemes in the uplink transmission direction: $\pi/2$ -BPSK, QPSK, 16QAM, 64QAM, and 256QAM.

RAN1 specifications will support both OFDM (without DFT precoding) and DFT-precoded OFDM (a.k.a. DFTS-OFDM) for the uplink transmission direction. All above modulation schemes are supported for both OFDM and DFTS-precoded OFDM.

Although indicated in the RAN4-sourced LS as information not being necessary until later, RAN1 would also like to inform RAN4 that the RAN1 specifications will support the following -modulation schemes in the downlink transmission direction: QPSK, 16QAM, 64QAM, and 256QAM.

Not treated.

R1-1710474	Further consideration on pi/2 BPSK with FDSS	Huawei, HiSilicon
R1-1710592	Next steps for pi/2 BPSK with spectrum shaping	IITH
R1-1710753	Modulation Schemes for NR	Samsung
R1-1710881	On pi/2-BPSK DFTS-OFDM with spectrum shaping	Ericsson AB
R1-1711224	Consideration for MCS table	Qualcomm Incorporated
R1-1711398	On spectrum shaping for uplink Pi/2 BPSK with DFT-S-OFDM	Nokia, Alcatel-Lucent Shanghai Bell

5.1.6 Duplexing

Focus on cross-link interference management for duplexing flexibility

[R1-1711918](#) Chairman's notes of AI 5.1.6 Duplexing Ad-Hoc chair (Qualcomm)

The document was presented by RAN1 chair on behalf of Wanshi Chen (Vice Chair).

Decision: The document is endorsed. Content incorporated below.

[R1-1710127](#) Viewpoint on NR CLI Management for Duplexing Work Plan ZTE

5.1.6.1 Cross-link interference management

Note that potential schemes are listed in Section 10.1 of TR38.802

R1-1709982	UE-to-UE measurement for cross-link interference mitigation	Huawei, HiSilicon
R1-1710039	Support of interference management schemes in duplexing flexibility	CATT
R1-1710350	Discussion on CLI measurement for Duplexing Flexibility	LG Electronics
R1-1710581	Details on cross-link interference measurement	Intel Corporation
R1-1710755	Cross-link Interference Management based on Coordinated Beamforming	Samsung
R1-1710771	Discussions on UE-to-UE interference measurement and report	Panasonic
R1-1710784	Discussion on UE-to-UE cross-link interference management	CMCC
R1-1710818	CLI measurements in NR	MediaTek Inc.
R1-1710965	On cross-carrier scheduling and HARQ-ACK feedback for NR CA	NEC
R1-1710128	UE-to-UE measurement as an enabler for CLI mitigation schemes	ZTE
R1-1711129	Discussion on cross-link interference mitigation for duplexing flexibility	NTT DOCOMO, INC.
R1-1711225	Dynamic TDD UE-to-UE measurement considerations	Qualcomm Incorporated
R1-1711314	On NR Cross-Link Symbol Alignment Scheme	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711562	On Hybrid TDD and Signaling for Cross-link Interference Mitigation	Ericsson

Further revised in [R1-1711706](#)

[R1-1711682](#) WF on UE-to-UE measurement as an enabler for CLI mitigation schemes ZTE

Agreements:

- For CLI management, support UE-to-UE interference measurement and reporting without the introduction of new RS(s)

Agreements:

- For UE-to-UE interference, support CLI measurement metrics which include at least one of
 - RSRP for the purpose of CLI
 - FFS the definition (e.g., based on SRS, DM-RS, etc.) and the corresponding reporting
 - RSSI for the purpose of CLI
 - FFS the definition (e.g., resources for the measurement) and the corresponding reporting
- For UE-to-UE interference, FFS additionally support CQI/CSI as the CLI measurement metrics and if so, its definition/reporting

[R1-1711707](#) WF on inter-TRP signaling for UE-to-UE cross-link interference measurement LGE
[R1-1711700](#) WF on CLI measurement MediaTek
[R1-1711842](#) WF on UE-to-UE crosslink measurement CMCC, Spreadtrum
[R1-1711830](#) WF on UE-UE CLI measurement Huawei, HiSilicon, ZTE, MediaTek, Intel, CMCC
[R1-1711851](#) WF on inter-gNB signaling for cross-link interference management LGE

[R1-1709981](#) TRP-to-TRP measurement for cross-link interference mitigation Huawei, HiSilicon
[R1-1710129](#) Channel sensing based schemes for cross-link interference mitigation in NR ZTE
[R1-1710351](#) Discussion on details of backhaul signaling for duplexing flexibility LG Electronics
[R1-1710582](#) On RS transmission location for cross-link interference measurement for NR duplex flexibility Intel Corporation
[R1-1710754](#) Cross-link Interference Management Based on UE Measurements Samsung
[R1-1710772](#) Discussions on intended DL/UL direction configuration via Xn signalling Panasonic
[R1-1711226](#) Dynamic TDD Cross-link interference management consideration Qualcomm Incorporated
[R1-1711313](#) Cross-link interference management based on Xn support Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711561](#) On Hybrid TDD and Measurements for Cross-link Interference Mitigation Ericsson

5.1.6.2 Other

[R1-1709983](#) UL Power control for cross-link interference mitigation Huawei, HiSilicon
[R1-1710130](#) TRP-to-TRP measurement as an enabler for CLI mitigation schemes ZTE
[R1-1710756](#) Performance Evaluation of Cross-Link Interference Management Samsung
[R1-1710757](#) Timing Alignment on Cross-Link for Dynamic TDD Samsung
[R1-1710758](#) Cross-Link Interference Management based on Power Control Samsung
[R1-1710759](#) Discussion on CLI Mitigation with Network Coordination Samsung
[R1-1710760](#) Interference Measurement Table and Beam Coordination Samsung
[R1-1711130](#) Discussion on prioritized scenarios for duplexing flexibility NTT DOCOMO, INC.
[R1-1711315](#) LBT-based UL transmission for dynamic TDD Nokia, Alcatel-Lucent Shanghai Bell
[R1-1711563](#) On Dynamic TDD Scenarios Ericsson
[R1-1711564](#) On Duplexing in Paired Spectrum Ericsson

5.1.7 Wider bandwidth operations

Refer to [R1-1709841](#) for work plan. Note that this agenda will be closed after this meeting.

[R1-1711795](#) On bandwidth parts and “RF” requirements Ericsson

Possible observations (from Wednesday offline)

- Usage scenarios #1, and 2, and 3 are at least identified as usage scenarios for BW part
 - From UE perspective, usage scenarios #1 and 3 are the same
- Usage scenario #4 can be considered in the context of carrier aggregation

Observation:

- Usage scenarios #1, and 2, and 3 in [R1-1711795](#) are at least identified as usage scenarios for BW part
 - From UE perspective, at least for single active BW part scenario, usage scenarios #1 and 3 are the same

Agreements:

- Usage scenario #4 in [R1-1711795](#) is supported in the context of non-contiguous intra-band carrier aggregation
 - Carrier without SS block can be configured for some UEs
- Send LS to RAN2/4 to tell above agreement/observation in [R1-1711824](#)

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R1-1711824 **Draft LS on non-contiguous CA** **AT&T**

Decision: The document is noted and final LS is **approved in R1-1711825**

MCC: to attach **R1-1711795** to the LS

R1-1711788 **Way forward on further details of bandwidth part operation** **Intel, AT&T, Huawei, HiSilicon**

Possible agreements (from Wednesday offline)

- For a single carrier WB UE, multiple active bandwidth parts with different numerologies are considered for a UE simultaneously
 - One TB is mapped per each active BWP.
 - FFS: The multiple active BWPs may overlap in frequency domain.
 - FFS: Cross-BWP scheduling is supported.
- Primary focus is to complete the single active bandwidth part case

Agreements:

- Primary focus is to complete the single active bandwidth part case
- If time is available later after completing the single active bandwidth part case, following cases should be considered for UE
 - For a single carrier WB UE, multiple active bandwidth parts with different numerologies are configured for a UE simultaneously
 - One TB is mapped per each active BWP.
 - FFS: The multiple active BWPs may overlap in frequency domain.
 - FFS: Cross-BWP scheduling is supported.

Possible agreement (from Wednesday offline)

- For intra-band scenario, capability(capabilities) of time required for bandwidth adaptation is reported by UE.
 - FFS: Detailed reporting contents
 - Minimum requirement for RF retuning time is to be determined by RAN 4

R1-1711802 **Way Forward on Further Details for Bandwidth Part** **MediaTek, Huawei, HiSilicon**

Agreements:

- For FDD, separate sets of bandwidth part (BWP) configurations for DL & UL per component carrier
 - The numerology of DL BWP configuration is applied to at least PDCCH, PDSCH & corresponding DMRS
 - The numerology of UL BWP configuration is applied to at least PUCCH, PUSCH & corresponding DMRS
- For TDD, separate sets of BWP configurations for DL & UL per component carrier
 - The numerology of DL BWP configuration is applied to at least PDCCH, PDSCH & corresponding DMRS
 - The numerology of UL BWP configuration is applied to at least PUCCH, PUSCH & corresponding DMRS
 - For UE, if different active DL and UL BWPs are configured, UE is not expected to retune the center frequency of channel BW between DL and UL

Agreements:

- At least one of configured DL BWPs includes one CORESET with common search space at least in primary component carrier
- Each configured DL BWP includes at least one CORESET with UE-specific search space for the case of single active BWP at a given time
 - In case of single active BWP at a given time, if active DL BWP does not include common search space, then UE is not required to monitor the common search space

Possible agreement:

- For the indication of active DL/UL bandwidth part(s), support both DCI and time pattern schemes
 - FFS UE-specific DCI or group common DCI
 - FFS details of time pattern schemes

Thursday

R1-1711812 **WF on configuration of a BWP in wider bandwidth operation** **LG Electronics, MediaTek**

Agreement:

- In configuration of a BWP,
 - A UE is configured with BWP in terms of PRBs.
 - The offset between BWP and a reference point is implicitly or explicitly indicated to UE.

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- FFS for reference point, e.g., center/boundary of NR carrier, channel number used for sync. and/or channel raster, or center/boundary of RMSI BW, center/boundary of SS block accessed during the initial access, etc.
- NR supports MU-MIMO between UEs in different (but overlapping) BWPs

[R1-1711855](#) Way forward on PRB indexing Intel, Sharp, Ericsson, MediaTek, NTT DOCOMO, Panasonic, Nokia, ASB, NEC, KT, ETRI

Agreements:

- Common PRB indexing is supported
 - The indexing is common to all the UEs sharing a wideband CC from network perspective, regardless of whether they are NB, CA, or WB UEs.
 - The indexing is with respect to the reference point
 - The indexing is with respect to a given numerology
 - Note: Example usage of common PRB indexing is for scheduling group common PDSCH, RS sequences, BWP configuration, etc.
- UE-specific PRB indexing is supported
 - It is indexed per BWP with respect to the configured SCS for the BWP
 - Note: Example usage of UE-specific indexing is for scheduling UE-specific PDSCH

[R1-1711853](#) Activation/deactivation of bandwidth part Ericsson

Agreements:

- Activation/deactivation of DL and UL bandwidth parts can be
 - by means of dedicated RRC signaling
 - Possibility to activate in the bandwidth part configuration
 - by means of DCI (explicitly and/or implicitly) or MAC CE [one to be selected]
 - by means of DCI could mean
 - Explicit: Indication in DCI (FFS: scheduling assignment/grant or a separate DCI) triggers activation/deactivation
 - Separate DCI means DCI not carrying scheduling assignment/grant
 - Implicit: Presence of DCI (scheduling assignment/grant) in itself triggers activation/deactivation
 - This does not imply that all these alternatives are to be supported.
 - FFS: by means of timer
 - FFS: according to configured time pattern

Prepare draft LS to RAN2/4 until Friday – Pei-Kai (Mediatek), Intel

Friday

[R1-1711948](#) [Draft] LS on bandwidth part operation in NR MediaTek
Further revised in **[R1-1711989](#)** [Draft] LS on Bandwidth Part Operation in NR Mediatek

Decision: The document is noted and final LS is **approved in [R1-1711998](#)**.

[R1-1711913](#) WF on introduction indication in SS block for cell update CMCC

[R1-1711873](#) WF on initial bandwidth part LG Electronics, Ericsson, MediaTek

[R1-1711795](#) On bandwidth parts and 'RF' requirements Ericsson
[R1-1709972](#) Overview of wider bandwidth operations Huawei, HiSilicon
[R1-1710040](#) NR wider bandwidth operation CATT
[R1-1710126](#) Resource allocation for wideband operation ZTE
[R1-1710172](#) Discussion on UE specific RF bandwidth adaptation in NR Guangdong OPPO Mobile Telecom.
[R1-1710249](#) PRB and RBG indexing within wider channel BW for NR NEC
[R1-1710352](#) Remaining details on wider bandwidth operation LG Electronics
[R1-1710398](#) NR transmission on anchor bandwidth part vivo
[R1-1710416](#) Design considerations for NR operation with wide bandwidths AT&T
[R1-1710583](#) Open issues for wider bandwidth operations Intel Corporation

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R1-1710622	UE bandwidth configuration during initial access	ETRI
R1-1710761	Wider Bandwidth Operations	Samsung
R1-1710785	Discussion on the change of SS block frequency position	CMCC
R1-1710796	Further Details on Wider Bandwidth Operations in NR	MediaTek Inc.
R1-1710878	Bandwidth Adaptation via BWP Selection in NR	InterDigital, Inc.
R1-1710883	On wider band aspects of NR	Nokia, Alcatel-Lucent Shanghai Bell
R1-1710943	Discussion on PRB grid and PRB indexing	Panasonic Corporation
R1-1711131	Remaining issues on wider bandwidth operations for NR	NTT DOCOMO, INC.
R1-1711227	UE Power Saving during Active State	Qualcomm Incorporated

5.1.8 NR-LTE co-existence

Refer to [R1-1709844](#) for work plan.

[R1-1711919](#) Chairman's notes of AI 5.1.8 NR-LTE co-existence Ad-Hoc chair (Qualcomm)

The document was presented by RAN1 chair on behalf of Wanshi Chen (Vice Chair).

Decision: The document is endorsed. Content incorporated below.

R1-1709980	Subcarrier mapping for LTE-NR coexistence	Huawei, HiSilicon
R1-1710173	Discussion on the NR-LTE self-interference issue	Guangdong OPPO Mobile Telecom.
R1-1710250	Discussion on UL sharing of NR and LTE NEC	
R1-1710354	Remaining details on UL sharing between LTE and NR	LG Electronics
R1-1710384	Interference analysis for LTE-NR co-existence	vivo
R1-1710417	Remaining details of NR-LTE coexistence in overlapping spectrum	AT&T

Proposals:

- Send an LS to RAN3 that specifications of Xn interface and enhanced X2 interface shall include messages to enable coordination between LTE MCG and NR SCG of:
 - SCell activation/deactivation/reconfiguration
 - MBSFN subframe configuration
 - Signaling needed for timing synchronization and SFN alignment between LTE and NR
 - TDD UL/DL configuration
 - Indication of semi-statically reserved resources reserved of LTE

Continue discussion offline – Ralf (AT&T)

Thursday

[R1-1711710](#) WF on NR-LTE coexistence AT&T, Nokia, Ericsson, Vodafone

Agreements:

- For LTE-NR coexistence in overlapping spectrum, support on the Xn interface and enhanced X2 interface messages
 - FFS details, e.g., SCell ON/OFF, LTE MBSFN subframe configuration, synchronization aspects between LTE and NR, indication of semi-statically reserved resources in frequency domain, Indication of semi-statically reserved resources in time domain, etc.
- For LTE-NR coexistence in adjacent spectrum, support on the Xn interface and enhanced X2 interface messages
 - FFS details, e.g., synchronization aspects between LTE and NR, TDD UL/DL configuration, etc.
 - FFS the case of multi-operator scenarios
- Aim to conclude the FFS parts for the above and send an LS to RAN3 in the next meeting

R1-1710584	Open issues for LTE-NR coexistence	Intel Corporation
R1-1710763	LTE-NR coexistence for UL	Samsung
R1-1710840	Discussion on Uplink TDM Operation for NR NSA	China Telecommunications
R1-1710880	On uplink half-tone shift	Ericsson AB
R1-1710904	Uplink transmission in NR NSA mode	Apple Inc.
R1-1711701	Considerations of NR-LTE coexistence in uplink	ZTE (Revision of R1-1710910)
R1-1711132	Views on single UL transmission and UL sharing	NTT DOCOMO, INC.
R1-1711229	NR-LTE Co-channel Coexistence Considerations	Qualcomm Incorporated
R1-1711337	On NR-LTE coexistence for NSA and SA	China Unicom
R1-1711584	On UL coverage extension of TDD @3.5GHz	ORANGE (Revision of R1-1711365)
R1-1711400	On 1Tx only UE in LTE-NR Dual Connectivity	Nokia, Alcatel-Lucent Shanghai Bell

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[R1-1711709](#) WF on NR-LTE coexistence in overlapping spectrum AT&T, Deutsche Telekom, Vodafone, Intel, Ericsson, Samsung, Orange, China Unicom, Huawei, HiSilicon, China Telecom

Agreements:

- In NR, support configuration between the following for paired spectrum (support of scheme 2 below is conditioned on the assumption that 100kHz is adopted as a supported UL channel raster in NR to support LTE/NR co-existence with LTE FDD)
 - Scheme 1: Do nothing to allow subcarrier alignment between NR UL (15 kHz) and LTE UL
 - Scheme 2: Allow subcarrier alignment between NR UL (15 kHz) and LTE UL, where NR UL raster is with a 7.5 kHz shift to the LTE UL raster
- Send an LS to RAN4 - Ralf (AT&T)

Wednesday

[R1-1711779](#) [DRAFT] LS on subcarrier alignment and channel raster AT&T, Sprint, T-Mobile USA, Huawei, HiSilicon, Samsung, Deutsche Telekom, Ericsson, Intel, China Telecom

The document was presented by Ralf Bendlin from AT&T.

Discussion: .Qualcomm: let's delete "to support configuration of subcarrier alignment between NR UL (15 kHz) and LTE UL in paired spectrum".

AT&T compromise: RAN1 kindly requests RAN4 to take the above RAN1 agreement into account ensuring scheme 1 and scheme 2 are possible

Qualcomm: Scheme 2 is conditioned to RAN4 decision

Decision: The document is noted and final LS is **approved in [R1-1711834](#)** with the following updates:

Action to RAN4 WG:

RAN1 kindly requests RAN4 to take the above RAN1 agreement ~~to support configuration of subcarrier alignment between NR UL (15 kHz) and LTE UL in paired spectrum~~ into account when discussing NR channel raster.

Dates of next TSG-RAN WG1 Meetings:

RAN1 #90	21st – 25th August 2017	Prague, Czech Republic
RAN1 NR Ad-Hoc#32	18th – 21th September 2017	Nagoya, Japan

Thursday

[R1-1711675](#) Way forward on UE self-interference Vivo, OPPO, Coolpad, China Telecom, Xiaomi, Huawei, HiSilicon, China Unicom

Agreements:

- RAN1 to continue study the solution(s) to mitigate UE self-interference due to the simultaneous transmission and reception at the same time
 - Note: the issue is particular applicable for specific band combination(s) (e.g. harmonics related issues)
 - Note: the issue can be addressed if UE is not mandated to transmit on one carrier (F1) and receive on another carrier (F2) at the same time
- Send an LS to RAN4 regarding the above agreements – Xueming (Vivo), which is **approved in [R1-1711872](#)**

[R1-1711705](#) Way forward on handling of single UL transmission NTT DoCoMo

[R1-1711848](#) Way forward on handling of single UL transmission NTT DoCoMo, Apple

Agreements:

- Support the following solution to single UL transmission where NW synchronization between eNodeB and gNodeB is assumed (where there is at least one LTE carrier and at least one NR carrier of a different carrier frequency)
 - When UE is activated with multiple UL carriers on different frequencies, time-switching of LTE UL carrier and NR UL carrier is used
 - UL transmission timing pattern of LTE carrier and NR carrier is semi-statically shared between eNodeB and gNodeB
 - FFS: Signaling to UE of UL transmission timing pattern
 - UE simultaneously receives signals/channels from both NR DL carrier and LTE DL carrier
 - For scheduling/HARQ timing of LTE FDD carrier, the following timing can be considered, e.g., for LTE:
 - DL-reference UL/DL configuration for TDD
 - DL-reference UL/DL configuration defined for FDD-SCell in TDD-FDD CA with TDD-PCell
 - Up to NW implementation (i.e., no RAN1 spec. impact)
 - For scheduling/HARQ timing of NR carrier, no special handling would be necessary
 - Other solutions are not precluded

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- Send an LS to RAN2, RAN3, and RAN4 – Kazuaki (DCM), which is drafted and endorsed in [R1-1711877](#). Final LS approved in [R1-1711877](#).

[R1-1711817](#) **WF on LTE/NR DC deployment scenarios to extend NR UL coverage** Orange, Deutsche Telekom, Ericsson, China Unicom, OPPO, Huawei, China Telecom, Nokia, ZTE

Agreements:

- RAN1 should consider the following scenarios as listed in [R1-1711817](#) in the future work especially in terms of UL coverage
 - Scenario 1
 - Scenario 2 where UL sharing is from network perspective
 - FFS where UL sharing from UE perspective
 - Aim to conclude in the next meeting; if no consensus, consider sending an LS to RANP for clarification
 - Scenario 3

Not treated.

R1-1709979	Overview of NR UL for LTE-NR coexistence	Huawei, HiSilicon
R1-1710041	Support of UL carrier sharing between NR-LTE	CATT
R1-1710353	Remaining details on DL sharing between LTE and NR	LG Electronics
R1-1710385	Issues on UL transmission for LTE-NR co-existence	vivo
R1-1710762	LTE-NR coexistence for DL	Samsung
R1-1710909	Discussion of NR-LTE coexistence on DL	ZTE
R1-1710912	Reserved resources supporting NR co-existence with LTE and NB-IoT	Ericsson AB
R1-1711228	NR LTE Adjacent Channel Coexistence Consideration	Qualcomm Incorporated
R1-1711247	NR LTE Adjacent Channel Coexistence Consideration	Qualcomm Incorporated
R1-1711248	NR-LTE Co-channel Coexistence Considerations	Qualcomm Incorporated
R1-1711399	LTE and NR performance in NR-LTE UL sharing	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711559	Uplink operation for LTE+NR Dual Connectivity	VODAFONE Group Plc

5.1.9 UL power control

[R1-1711947](#) **Chairman's notes of AI 5.1.9 UL Power Control** Ad-Hoc chair (Qualcomm)

The document was presented by RAN1 chair on behalf of Wanshi Chen (Vice Chair).

Decision: The document is endorsed. Content incorporated below.

5.1.9.1 Power sharing mechanism

Including power sharing mechanism for LTE-NR dual connectivity, NR carrier aggregation and dual connectivity

R1-1709949	Power control for CA and DC	Huawei, HiSilicon
R1-1710042	Power Sharing Mechanism	CATT
R1-1710839	UL Power Sharing for LTE-NR Dual Connectivity	MediaTek Inc.
R1-1710879	Power Sharing Mechanisms with LTE-NR DC and NR DC	InterDigital, Inc.
R1-1711526	Power Sharing for LTE-NR Dual Connectivity	Ericsson

Agreements:

- Regarding power sharing for LTE-NR dual connectivity, support at least semi-static power sharing between LTE and NR
 - FFS details
 - Discuss further whether or not to support dynamic power sharing between LTE and NR
 - Discuss further impacts due to other factors, e.g., different TTI lengths, channel/service types, synchronous vs. asynchronous, different processing latency for LTE vs. NR, assumption regarding communication between NR vs. LTE at UE, specification impact to LTE (if any) and/or NR, etc.

Send an LS to RAN4 to inform the above agreements – Ravi (Ericsson)

Friday

[R1-1711898](#) **[DRAFT] LS on power sharing for LTE-NR Dual Connectivity** Ericsson

Discussion: Nokia → should RAN2 be informed as well?

AT&T → WI code is incorrect

Decision: The document is noted and final LS is [approved in R1-1711999](#) by adding RAN2 in CC part and updating work item code to “NR_newRAT”.

R1-1711862	WF on LTE-NR power sharing mechanism	NTT DoCoMo, InterDigital
R1-1710355	Discussion on power sharing for LTE-NR dual connectivity	LG Electronics

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R1-1710585	Power sharing mechanism for NR dual connectivity	Intel Corporation
R1-1710764	On UL Power Sharing for Multi-Cell Transmissions	Samsung
R1-1710911	Power Control for CA and DC in NR	ZTE
R1-1711133	LTE-NR power sharing mechanism	NTT DOCOMO, INC.
R1-1711396	On power sharing between LTE and NR in DC	Nokia, Alcatel-Lucent Shanghai Bell

5.1.9.2 NR power control framework

Including power control for PUSCH/PUCCH/SRS/DMRS, PHR calculation

R1-1710174	Uplink power control for NR	Guangdong OPPO Mobile Telecom.
R1-1710356	Discussion on uplink power control for NR	LG Electronics
R1-1711818	WF on UL power control	LGE, Ericsson, InterDigital

Agreements:

- In NR, PUSCH and at least some type(s) of SRS can share same closed loop power control command from gNB
 - FFS details, e.g., the type(s) of SRS, beam related aspects, etc.
- In NR, PUSCH and PUCCH rely on independent closed loop power control commands from gNB
- Study aspects related SRS carrier switching

R1-1711134	Power control framework for PUSCH	NTT DOCOMO, INC.
R1-1711230	Power control and PHR for NR	Qualcomm Incorporated
R1-1711397	UL Power Control for MIMO	Nokia, Alcatel-Lucent Shanghai Bell
R1-1711724	Summary of power control	ZTE
R1-1711721	WF on UL power control	ZTE, NTT DoCoMo
R1-1711863	WF on NR power control framework	NTT DOCOMO, Nokia, Intel, InterDigital
R1-1711819	WF on PHR for different waveforms	LG Electronics, NTT DOCOMO, InterDigital

Agreement: UE's power headroom report is based on the corresponding PUSCH transmission(s)

- FFS details

Not treated.

R1-1709948	General considerations on UL power control design	Huawei, HiSilicon
R1-1710043	NR Power Control Framework	CATT
R1-1710209	On NR power control	ZTE
R1-1710210	On NR PHR calculation	ZTE
R1-1710219	UL transmission power control	Mitsubishi Electric Co.
R1-1710357	Discussion on uplink power headroom report for NR	LG Electronics
R1-1710404	UL multi-beam power control	vivo
R1-1710475	Discussion on PHR calculation	Huawei, HiSilicon
R1-1710586	PUSCH and PUCCH power control	Intel Corporation
R1-1710765	Power Control Framework	Samsung
R1-1710766	On PHR Requirements and Calculation	Samsung
R1-1710786	Discussion on NR power control and sharing	CMCC
R1-1711602	Common and Beam Specific Power Control Parameters	InterDigital, Inc.
R1-1711054	On the NR UL power control framework	Ericsson
R1-1711249	Power control and PHR for NR	Qualcomm Incorporated
R1-1711335	UL power control in multi-beam based approaches	ASUSTEK COMPUTER (SHANGHAI)

5.1.10 Channel model

[R1-1711623](#) **Correction on the formula of AnnexA** ZTE, Ericsson (Revision of [R1-1711255](#))

Decision: Agreed in [R1-1711758](#) as 38.901CR0016 with latest version of cover sheet (v11.2).

[R1-1711624](#) **Correction on Procedure A of spatial-consistency UT mobility modeling** ZTE, Ericsson (Revision of [R1-1711256](#))

Decision: Agreed in [R1-1711760](#) as 38.901CR0017 with latest version of cover sheet (v11.2).

5.1.11 Other

R1-1709971	Remaining issues on ECP	Huawei, HiSilicon
R1-1710358	Multiplexing NCP and ECP	LG Electronics
R1-1710405	Feasibility study on subband constellation rotation for uplink PAPR reduction for CP-OFDM waveform	vivo
R1-1710406	PAE consideration on supporting CP-OFDM and DFT-S-OFDM	vivo

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R1-1710407	Forward compatibility consideration for ECP design and NR-MBMS	vivo
R1-1710767	ECP Aspects for 60kHz SCS	Samsung
R1-1710768	On PAPR of DMRS for p/2-BPSK DFT-s-OFDM with Spectrum Shaping	Samsung
R1-1710769	RACH Aspects for CA and DC	Samsung
R1-1710966	Flexible subcarrier spacing in the uplink for NR use cases including mMTC	ATR
R1-1711231	TDD-SUL CA scenario	Qualcomm Incorporated
R1-1711250	TDD-SUL CA scenario	Qualcomm Incorporated
R1-1711326	Comment on NR specification	Panasonic
R1-1711389	Further details on scrambling	Ericsson
R1-1711424	On bandwidth adaptation	Huawei, HiSilicon
R1-1711459	Modulation Scheme for URLLC with Preemption Multiplexing	Samsung
R1-1711460	On Transparency of Spectrum Shaping for p/2-BPSK DFT-s-OFDM	Samsung
R1-1711461	On Spectrum Shaping Methods for p/2-BPSK DFT-s-OFDM	Samsung
R1-1711462	On Modulation Schemes for High Spectral Efficiency	Samsung
R1-1711463	Transmission and Reception for High-Order Modulation with MIMO	Samsung
R1-1711528	Extended Range Considerations for mMTC	HUGHES Network Systems Ltd
R1-1711529	Channel Model for Non-Terrestrial Networks	HUGHES Network Systems Ltd
R1-1711574	Discussion on bandwidth part configuration	LG Electronics Inc.

5.2 Other

R1-1711317	Discussion on NR Operating in Unlicensed Spectrum	ASUSTEK COMPUTER (SHANGHAI)
R1-1711464	High level consideration on NR unlicensed band operation	Huawei, HiSilicon
R1-1711465	NR Numerology on unlicensed bands	Huawei, HiSilicon
R1-1711466	NR Frame structure on unlicensed bands	Huawei, HiSilicon
R1-1711467	Coexistence and Channel access for NR unlicensed band operations	Huawei, HiSilicon
R1-1711469	NR standalone operation on unlicensed bands	Huawei, HiSilicon
R1-1711470	Discussion on NoMA study for Rel-15 SI	Huawei, HiSilicon
R1-1711520	Discussion of Multi-Antenna and Highly Directional Beam-Forming for Operation in Unlicensed Spectrum	Ericsson
R1-1711521	On Autonomous UL Transmissions for NR in Unlicensed Spectrum	Ericsson
R1-1711522	On Channel Access Mechanisms for NR in Unlicensed Spectrum	Ericsson
R1-1711523	On NR Operation in the 60 GHz Unlicensed Band	Ericsson
R1-1711524	On Physical Layer Design Policies for Unlicensed Operation of NR	Ericsson
R1-1711525	Technology Components for Unlicensed Operation	Ericsson
R1-1711549	Considerations on Satellite channel model	THALES
R1-1711550	NTN Bentpipe payload architecture and characteristics	THALES
R1-1711568	Considerations on HAPS channel model	CNES, Thales

6 Closing of the meeting

Mr Chair thanked all for the progress achieved during this second ad-hoc meeting on NR.
Special thanks to the Vice chairmen, especially at the start of the meeting and for chairing their respective sessions.
Mr Chair thanked the host ZTE for the organization and facilities. Although meeting's start was a bit challenging, with inadequate number of seats, no power to all seats... during the first 1,5 hours of day one, the number of meeting rooms (5 all together) were really appreciated.

Then Mr chair warned the delegates that organizing the RAN1 chair and vice chair election at the next meeting could also be a challenge (due to the number of voting companies – likely to be around 300 – and the potential number of round of voting. August will be last meeting chaired by Satoshi-san.

Meeting was closed at 20:15.
See you all in Prague.

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Annex A: List of Tdocs at RAN1 #AH_NR2

Please see excel file attached to this report

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Annex B: List of CRs agreed at RAN1 #AH_NR2

TS/TR	CR	Rev	Rel	Title	Cat	Vsn	@ Mtg	TD#	Source to WG	Work Item
38.901	16	-	Rel-14	Correction on the fomula of Annex A	F	14.1.0	R1#AH_NR2	R1-1711758	ZTE, Ericsson	NR_newRAT-Core
38.901	17	-	Rel-14	Correction on Procedure A of spatially-consistency UT mobility modeling	F	14.1.0	R1#AH_NR2	R1-1711760	ZTE, Ericsson	NR_newRAT-Core

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Annex C-1: List of Outgoing LSs from RAN1 #AH_NR2

TDoc #	Title	Source	Release	Related WIs	Reply to	To	Cc	Original LS	Reply in
R1-1711825	LS on non-contiguous CA	RAN1, AT&T	Rel-15	NR_newRAT-Core		RAN2, RAN4			
R1-1711839	LS on subcarrier alignment and channel raster	RAN1, AT&T	Rel-15	NR_newRAT-Core		RAN4			
R1-1711872	LS on UE self-interference	RAN1, vivo	Rel-15	NR_newRAT-Core		RAN4			
R1-1711878	LS on single UL transmission	RAN1, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN2, RAN3, RAN4			
R1-1711880	LS on Beam Aspects of NR RACH	RAN1, Huawei	Rel-15	NR_newRAT-Core		RAN2			
R1-1711966	Reply LS on reading time index indication for RRM measurements	RAN1, Intel	Rel-15	NR_newRAT-Core	R2-1706160	RAN2			
R1-1711975	LS response on required parameters from RAN4 perspective	RAN1, Ericsson	Rel-15	NR_newRAT-Core	R4-1704216	RAN4			
R1-1711987	"Reply LS response on NR basic handover		Rel-15	NR_newRAT-Core	R2-1707503	RAN2			
"	RAN1, Samsung		Rel-15	NR_newRAT-Core	S3-171568	SA3	RAN2, RAN4		
R1-1711997	Response LS on Support for fake gNB detection mechanisms	RAN1, Nokia	Rel-15	NR_newRAT-Core		RAN2, RAN4			
R1-1711998	LS on bandwidth part operation in NR	RAN1, MediaTek	Rel-15	NR_newRAT-Core		RAN4	RAN2		
R1-1711999	LS on power sharing for LTE-NR Dual Connectivity	RAN1, Ericsson	Rel-15	NR_newRAT-Core		RAN2	RAN3		
R1-1712000	LS on support of multi-TRP transmission in NR	RAN1, Intel	Rel-15	NR_newRAT-Core		RAN2			
R1-1712001	LS on NR initial access and mobility	RAN1, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN4			
R1-1712002	LS on NR initial access and mobility	RAN1, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN2			
R1-1712005	Reply LS on PDCCH design	RAN1, Ericsson, CATT	Rel-15	NR_newRAT-Core		RAN2, RAN4			

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Annex C-2: List of Incoming LSs from RAN1 #AH_NR2

TDoc #	Title	Source	Release	Related WIs	Reply to	To	Cc	Original LS	Reply in
R1-1710211	LS on SR design principles in NR	RAN2, Samsung	Rel-15	NR_newRAT-Core		RAN1		R2-1705867	
R1-1710212	LS on UE measurement capabilities across LTE and NR	RAN2, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN4	RAN1	R2-1706140	
R1-1710213	LS on UE categories for NR and LTE-NR Dual Connectivity	RAN2, NTT DOCOMO	Rel-15	NR_newRAT-Core		RAN, RAN1	RAN4	R2-1706141	
R1-1710214	LS reply to SA2 on maximum data rate	RAN2, MediaTek	Rel-15	NR_newRAT-Core	S2-172398, R1-1706857	SA2, RAN1	RAN3, SA1, CT1, CT4	R2-1706155	
R1-1710215	Response LS on reading time index indication for RRM measurements	RAN2, Intel	Rel-15	NR_newRAT-Core	R1-1706707	RAN1		R2-1706160	
R1-1710216	LS on Emergency Support in NR	SA2, Nokia	Rel-15	NR_newRAT-Core		RAN	SA, RAN1, RAN2, RAN3	S2-173700	
R1-1710217	LS on Support for fake gNB detection mechanisms	SA3, Nokia	Rel-15	NR_newRAT-Core		RAN1, RAN2, RAN4		S3-171568	
R1-1710220	Reply LS on Emergency Support in NR	RAN, T-Mobile	Rel-15	NR_newRAT-Core	S2-173700	SA2	SA, RAN1, RAN2, RAN3	RP-171434	
R1-1710221	Reply LS on UE categories for NR and LTE-NR Dual Connectivity	RAN, NTT DOCOMO	Rel-15	NR_newRAT-Core	R2-1706141	RAN2, RAN1	RAN4	RP-171480	
R1-1711892	Reply LS on PBCH content	RAN2, Huawei	Rel-15	NR_newRAT-Core	R1-1709789	RAN1		R2-1707490	
R1-1711940	LS to RAN1 on NR basic handover	RAN2, Ericsson	Rel-15	NR_newRAT-Core		RAN1		R2-1707503	
R1-1711949	Reply LS to RAN1 on UL data transmission without UL grant for NR	RAN2, Huawei	Rel-15	NR_newRAT-Core	R1-1709805	RAN1		R2-1707499	
R1-1711950	LS to RAN1 on Random Access	RAN2, Samsung	Rel-15	NR_newRAT-Core		RAN1		R2-1707504	

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Annex D: List of Approved updated WIDs

None

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Annex E: List of draft TSs/TRs agreed at RAN1 #AH_NR2

Tdoc Number	Title	Source	Conclusion/Decision
R1-1712004	TS38.211 v0.1.0 NR; Physical channels and modulation	Ericsson LM	Endorsed

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Annex F: List of actions

- Outgoing LS

[NRAH2-01] Sundar (Qualcomm)
LS of beam management
Email approval until 10th July

[NRAH2-02] Karri (Nokia)
LS of UL/DL HARQ
Email approval until 6th July

- CR approval

None

- Text proposal for TS and TR

[NRAH2-03] Editors

Email discussion until August meeting about all specs

- 1st step: All spec editors will provide new draft specs (including all agreements and WA) until July 14th
- 2nd step: All spec editors will provide further updated specs (including all agreements and WA) until August 4th
- All companies are recommended checking these specs and comment via the reflector
- All spec editors will update specs via the reflector and submit them to the August meeting (RAN1#90)
- Objective is to get the updated specs endorsed on Monday on Monday (day 1 of RAN1#90)

- Miscellaneous

[NRAH2-04] Daniel (Ericsson)

Email discussion until the August meeting w.r.t the RRC parameters list for NR

- Daniel (Ericsson) will provide an initial RRC parameters list until August 9th
- All companies are recommended checking it and comment via the reflector
- Daniel (Ericsson) will update it via the reflector and submit it to the August meeting (RAN1#90)
- Objective is to get the (updated) RRC parameters list agreed on Monday (day 1 of RAN1#90)

[NRAH2-05] Daewon (Intel)

DMRS sequence for NR PBCH

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Companies are encouraged to provide the information on NR PBCH DMRS sequence until 28th July in order to finalize the design

[NRAH2-06] Yuichi (DOCOMO)
LS of CSI-RS for beam management
Email approval for the LS in R1-1712003 until 7th July

[NRAH2-07] Lihui (DOCOMO)
LS of UL SPS / grant free
Email approval until 6th July to explain RAN1 understandings based on above agreements

[NRAH2-08] Jeongho (Samsung)
Down selection of CBG-based (re)transmission Email approval until 13th July to have down selection

[NRAH2-09] Joseph (Qualcomm)
Processing Time Requiriements
1 Email discussion about followings – Joseph (Qualcomm)
- Step 1: identify the candidate factors for processing time (until 4th Aug.)
- Step 2: identify the table (until 4th Aug.) 1 Based on the proponents' input for step 1 and step 2, following work will be done:
- Step 3: fill-in the table
- Targeting finishing step 3 until September meeting.
² Note: companies are encouraged to bring up initial numbers for the table to the August meeting
- Note: fill-in the table does not necessarily results in defining some UE capabilities or exact values of K1 and K2 in the specification.

[NRAH2-10] Zhenfei (Huawei)
Scheduling/HARQ aspects for CA
Email approval until 10th July

[NRAH2-11] Zukang (Huawei)
Polar code sequence
- Polar code sequence candidates, including any merged solutions, should be provided by Wed 2nd Aug § Identify candidates of polar code sequence according to the procedure below by Wed 9th Aug § Rate matching proposals for any sequence that has been selected as a winner by at least one company to be provided by Wed 16th Aug.

[NRAH2-12] Zukang (Huawei)
Polar code design on polynomial and interleaver for email discussion until August 7th
Main target is on gathering all proposals about detailed design on polynomial and interleaver.

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Annex G: List of participants at RAN1 #AH_NR2

Please see excel file attached to this report

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Annex H: TSG RAN WG1 meetings in 2017 – 2018

TITLE	TYPE	DATES	LOCATION	CTRY
<u>3GPPRAN1#90</u>	<u>WG</u>	21 – 25 Aug 2017	Prague	Rep Czech
<u>3GPPRAN1-NR3</u>	<u>AH</u>	18 – 21 Sep 2017	Nagoya	Japan
<u>3GPPRAN1#90bis</u>	<u>WG</u>	09 – 13 Oct 2017	Prague	Rep Czech
<u>3GPPRAN1#91</u>	<u>WG</u>	27 Nov – 01 Dec 2017	Reno	US
<u>3GPPRAN1-AH-1801</u>	<u>AH</u>	22 – 26 Jan 2018	TBD	
<u>3GPPRAN1#92</u>	<u>WG</u>	26 Feb – 2 Mar 2018	Athens	Greece
<u>3GPPRAN1#92bis</u>	<u>WG</u>	16 – 20 Apr 2018	TBD	China
<u>3GPPRAN1#93</u>	<u>WG</u>	21 – 25 May 2018	TBD	Korea
<u>3GPPRAN1#94</u>	<u>WG</u>	20 – 24 Aug 2018	Gothenburg	Sweden
<u>3GPPRAN1#94bis</u>	<u>WG</u>	8 – 12 Oct 2018	TBD	China
<u>3GPPRAN1#95</u>	<u>WG</u>	12 – 16 Nov 2018	TBD	US

MEETING TYPES		
AH = Ad Hoc	ST = Startup Meeting	RG = Rapporteurs Group
JM = Joint	WG = Working Group	SG = Steering Group
PM = Preparatory Meeting	CM = Chairmen's meeting	TG = Task Group
RM = Resolution Meeting	OR = Ordinary	XO = Extraordinary

End of document

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	TDoc	Title	Source	Contact	Contact ID	Type	For	Abstract	Secretary Remarks	Agenda item sort order	Agenda item	Agenda item description	TDoc sort order within agenda item	TDoc Status
1														
2	R1-1709880	Draft Agenda of RAN1#AH_NR2 meeting	RAN1 Chair	Patrick Merias	52292	agenda	Approval			2	2	Approval of Agenda	0	revised
3	R1-1709881	Report of RAN1#89 meeting	ETSI	Patrick Merias	52292	report	Information		For information only, shall go for approval at RAN1#90	3	3	Review of Minutes from previous meeting	0	noted
4	R1-1709882	Enhancement of Early Termination of Polar Codes by placing UE-ID on Frozen Symbols	Tsfun Algorithm	Alexander Smekhov	71316	discussion				127	5.1.4.2.1	Code construction	0	available
5	R1-1709883	Study of Split-CRC Polar Code Construction for Early Termination	Tsfun Algorithm	Alexander Smekhov	71316	discussion	Decision			127	5.1.4.2.1	Code construction	0	revised
6	R1-1709884	NR-SS sequence design	ZTE	Yifei Yuan	58526	discussion				9	5.1.1.1.1	Remaining details on SS sequence design	0	available
7	R1-1709885	The composition of SS burst sets	ZTE	Yifei Yuan	58526	discussion				10	5.1.1.1.2	SS burst set composition	0	available
8	R1-1709886	Timing indication based on SS blocks	ZTE	Yifei Yuan	58526	discussion				11	5.1.1.1.3	Timing indication based on SS block	0	available
9	R1-1709887	Multiple SS blocks in wideband CC	ZTE	Yifei Yuan	58526	discussion				12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
10	R1-1709888	NR-PBCH contents	ZTE	Yifei Yuan	58526	discussion				14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
11	R1-1709889	NR-PBCH RE mapping and SS block composition	ZTE	Yifei Yuan	58526	discussion				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
12	R1-1709890	NR-PBCH DMRS design	ZTE	Yifei Yuan	58526	discussion				16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
13	R1-1709891	RMSI delivery	ZTE	Yifei Yuan	58526	discussion				17	5.1.1.2.4	Remaining minimum system information delivery	0	available
14	R1-1709892	Other SI delivery	ZTE	Yifei Yuan	58526	discussion				18	5.1.1.2.5	Other system information delivery	0	available
15	R1-1709893	Paging design in NR	ZTE	Yifei Yuan	58526	discussion				19	5.1.1.3	Paging design	0	available
16	R1-1709894	NR-PRACH formats for long/short sequences	ZTE	Yifei Yuan	58526	discussion				21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
17	R1-1709895	NR-PRACH formats: capacity enhancements and other use cases	ZTE	Yifei Yuan	58526	discussion				22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
18	R1-1709896	Power control during random access procedure	ZTE	Yifei Yuan	58526	discussion				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
19	R1-1709897	4-step random access procedure	ZTE	Yifei Yuan	58526	discussion				24	5.1.1.4.4	4-step RA procedure	0	available
20	R1-1709898	RRM measurements on IDLE mode RS	ZTE	Yifei Yuan	58526	discussion				26	5.1.1.5.1	Measurement based on SS block	0	available
21	R1-1709899	RRM measurements on CSI-RS for L3 mobility	ZTE	Yifei Yuan	58526	discussion				27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
22	R1-1709900	Radio link monitoring in NR	ZTE	Yifei Yuan	58526	discussion				28	5.1.1.5.3	Radio link monitoring	0	available
23	R1-1709901	Scrambling pattern for timing indication over PBCH	Sequans Communications	Michal Palgy	66137	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available
24	R1-1709902	Enhancements for Polar code construction	Sequans Communications	Michal Palgy	66137	discussion	Decision			127	5.1.4.2.1	Code construction	0	available
25	R1-1709903	Discussion of LTE-RM decoding ambiguity	Sequans Communications	Michal Palgy	66137	discussion	Discussion			131	5.1.4.4	Other	0	available
26	R1-1709904	Discussion on Remaining Details of Codeword Mapping	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			32	5.1.2.1.1	Codeword mapping	0	available
27	R1-1709905	Further Discussion on DL PRB Bundling	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			36	5.1.2.1.5	PRB bundling for DL	0	noted
28	R1-1709906	Discussion on DL Beam Management	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
29	R1-1709907	Discussion on Beam Failure Recovery	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
30	R1-1709908	Discussion on CSI Framework and Semi-persistent CSI RS Resources and Reports Activation	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			45	5.1.2.3.1	CSI framework	0	available
31	R1-1709909	Further Evaluation and Discussion on DMRS Design Details	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			53	5.1.2.4.3	DMRS	0	noted
32	R1-1709910	NR MIMO System Level Phase 3 Calibration Results	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			59	5.1.2.5	Other	0	available
33	R1-1709911	Finalization of the NR-SSS	Huawei, HiSilicon	Brian Classon	45750	other				9	5.1.1.1.1	Remaining details on SS sequence design	0	available
34	R1-1709912	SS Burst Set and Block Composition	Huawei, HiSilicon	Brian Classon	45750	other				10	5.1.1.1.2	SS burst set composition	0	available
35	R1-1709913	Time Index Indication	Huawei, HiSilicon	Brian Classon	45750	other				11	5.1.1.1.3	Timing indication based on SS block	0	available
36	R1-1709914	NR-PBCH contents and payload size	Huawei, HiSilicon	Brian Classon	45750	other				14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
37	R1-1709915	Discussion on NR RMSI delivery	Huawei, HiSilicon	Brian Classon	45750	other				17	5.1.1.2.4	Remaining minimum system information delivery	0	available
38	R1-1709916	Multi-beam Paging for NR	Huawei, HiSilicon	Brian Classon	45750	other				19	5.1.1.3	Paging design	0	available
39	R1-1709917	PRACH preamble sequences and formats for capacity enhancement and beam management	Huawei, HiSilicon	Brian Classon	45750	other				22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	revised
40	R1-1709918	Discussion on power ramping and power control during RA procedure	Huawei, HiSilicon	Brian Classon	45750	other				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available

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41	R1-1709919	SS Burst Periodicities and timing for UE RRM measurement	Huawei, HiSilicon	Brian Classon	45750	other				26	5.1.1.5.1	Measurement based on SS block	0	noted
42	R1-1709920	CSI-RS configuration parameters for L3 mobility	Huawei, HiSilicon	Brian Classon	45750	other				27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
43	R1-1709921	Discussion on remaining issues of radio link monitoring	Huawei, HiSilicon	Brian Classon	45750	other				28	5.1.1.5.3	Radio link monitoring	0	available
44	R1-1709922	On numerology determination during initial access	Huawei, HiSilicon	Brian Classon	45750	discussion				29	5.1.1.6	Other	0	available
45	R1-1709923	Non-codebook based transmission for UL MIMO	Huawei, HiSilicon	Brian Classon	45750	other				34	5.1.2.1.3	Non-codebook based transmission fo UL	0	noted
46	R1-1709924	Multiple NR-PDCCH for Multiple TRP transmission	Huawei, HiSilicon	Brian Classon	45750	other				37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
47	R1-1709925	PRB bundling size for DL data precoding	Huawei, HiSilicon	Brian Classon	45750	other				36	5.1.2.1.5	PRB bundling for DL	0	available
48	R1-1709926	Discussion on transmission parameter sets	Huawei, HiSilicon	Brian Classon	45750	other				39	5.1.2.1.8	Other	0	available
49	R1-1709927	Beam indication for DL control channel	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
50	R1-1709928	UL beam management	Huawei, HiSilicon	Brian Classon	45750	other				41	5.1.2.2.1	Beam management details	0	noted
51	R1-1709929	General views on beam failure recovery	Huawei, HiSilicon	Brian Classon	45750	other				42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
52	R1-1709930	Procedure details for beam failure recovery	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
53	R1-1709931	Discussion on CSI Framework Design	Huawei, HiSilicon	Brian Classon	45750	other				45	5.1.2.3.1	CSI framework	0	noted
54	R1-1709932	Channel and interference measurement for CSI acquisition	Huawei, HiSilicon	Brian Classon	45750	other				46	5.1.2.3.2	Details of CSI acquisition	0	revised
55	R1-1709933	Rate matching for data channel	Huawei, HiSilicon	Brian Classon	45750	other				38	5.1.2.1.7	Rate matching	0	available
56	R1-1709934	Reference signal for fine time and frequency tracking	Huawei, HiSilicon	Brian Classon	45750	other				56	5.1.2.4.6	TRS	0	noted
57	R1-1709935	Details of QCL assumptions and related RS design considerations	Huawei, HiSilicon	Brian Classon	45750	other				57	5.1.2.4.7	QCL	0	available
58	R1-1709936	UL SRS design for beam management and CSI acquisition	Huawei, HiSilicon	Brian Classon	45750	other				55	5.1.2.4.5	SRS	0	available
59	R1-1709937	UL SRS sequence design in NR	Huawei, HiSilicon	Brian Classon	45750	other				58	5.1.2.4.8	Other	0	available
60	R1-1709938	SRS antenna switching	Huawei, HiSilicon	Brian Classon	45750	other				59	5.1.2.5	Other	0	available
61	R1-1709939	PTRS for CP-OFDM	Huawei, HiSilicon	Brian Classon	45750	other				54	5.1.2.4.4	PT-RS	0	available
62	R1-1709940	PTRS for DFT-s-OFDM	Huawei, HiSilicon	Brian Classon	45750	other				54	5.1.2.4.4	PT-RS	0	noted
63	R1-1709941	Design of DL DMRS for data transmission	Huawei, HiSilicon	Brian Classon	45750	other				53	5.1.2.4.3	DMRS	0	available
64	R1-1709942	Evaluation results of DMRS design for DL data channel	Huawei, HiSilicon	Brian Classon	45750	other				53	5.1.2.4.3	DMRS	0	available
65	R1-1709943	UL DMRS design for data transmission	Huawei, HiSilicon	Brian Classon	45750	other				53	5.1.2.4.3	DMRS	0	available
66	R1-1709944	Evaluation results of DMRS design for UL data channel	Huawei, HiSilicon	Brian Classon	45750	other				53	5.1.2.4.3	DMRS	0	available
67	R1-1709945	Common UL/DL DMRS design	Huawei, HiSilicon	Brian Classon	45750	other				58	5.1.2.4.8	Other	0	available
68	R1-1709946	CSI-RS design in NR	Huawei, HiSilicon	Brian Classon	45750	other				52	5.1.2.4.2	CSI-RS	0	available
69	R1-1709947	CSI-RS design for beam management	Huawei, HiSilicon	Brian Classon	45750	other				52	5.1.2.4.2	CSI-RS	0	available
70	R1-1709948	General considerations on UL power control design	Huawei, HiSilicon	Brian Classon	45750	other				140	5.1.9.2	NR power control framework	0	available
71	R1-1709949	Power control for CA and DC	Huawei, HiSilicon	Brian Classon	45750	other				139	5.1.9.1	Power sharing mechanism	0	noted
72	R1-1709950	DMRS for NR-PDCCH	Huawei, HiSilicon	Brian Classon	45750	other				64	5.1.3.1.1.2	RS structure/mapping	0	available
73	R1-1709951	Configuration of control resource set	Huawei, HiSilicon	Brian Classon	45750	other				66	5.1.3.1.2.1	CORESET configuration	0	available
74	R1-1709952	Search space design	Huawei, HiSilicon	Brian Classon	45750	other				67	5.1.3.1.2.2	Search space design	0	available
75	R1-1709953	Contents of group-common PDCCH	Huawei, HiSilicon	Brian Classon	45750	other				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
76	R1-1709954	Structure of group-common PDCCH	Huawei, HiSilicon	Brian Classon	45750	other				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
77	R1-1709955	UE-specific DCI contents in NR	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
78	R1-1709956	Resource multiplexing of downlink control and data	Huawei, HiSilicon	Brian Classon	45750	other				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
79	R1-1709957	Dynamic and semi-static DL/UL resource partition	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
80	R1-1709958	Short PUCCH for up to 2 UCI bits	Huawei, HiSilicon	Brian Classon	45750	other				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
81	R1-1709959	Short PUCCH with more than 2 UCI bits	Huawei, HiSilicon	Brian Classon	45750	other				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
82	R1-1709960	Overview of long PUCCH design	Huawei, HiSilicon	Brian Classon	45750	other				80	5.1.3.2.2	PUCCH in long-duration	0	available
83	R1-1709961	Long PUCCH structure for up to 2 bits with high multiplexing capacity	Huawei, HiSilicon	Brian Classon	45750	other				81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available

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84	R1-1709962	Long PUCCH structure for moderate payload with some multiplexing capacity	Huawei, HiSilicon	Brian Classon	45750	other				82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
85	R1-1709963	UCI piggyback on PUSCH	Huawei, HiSilicon	Brian Classon	45750	other				87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
86	R1-1709964	HARQ processing time	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
87	R1-1709965	Number of HARQ processes and HARQ RTT	Huawei, HiSilicon	Brian Classon	45750	other				106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
88	R1-1709966	Soft buffer handling	Huawei, HiSilicon	Brian Classon	45750	other				107	5.1.3.3.6.2	Soft-buffer management	0	available
89	R1-1709967	Scheduling mechanisms for CBG-based re-transmission	Huawei, HiSilicon	Brian Classon	45750	other				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
90	R1-1709968	Discussion on CBG construction	Huawei, HiSilicon	Brian Classon	45750	other				99	5.1.3.3.4.1	CBG construction	0	available
91	R1-1709969	Discussion on CBG-based feedback	Huawei, HiSilicon	Brian Classon	45750	other				101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
92	R1-1709970	HARQ feedback timing for NR	Huawei, HiSilicon	Brian Classon	45750	other				103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
93	R1-1709971	Remaining issues on ECP	Huawei, HiSilicon	Brian Classon	45750	other				142	5.1.11	Other	0	available
94	R1-1709972	Overview of wider bandwidth operations	Huawei, HiSilicon	Brian Classon	45750	other				136	5.1.7	Wider bandwidth operations	0	available
95	R1-1709973	On initial access for wideband carrier	Huawei, HiSilicon	Brian Classon	45750	other				12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
96	R1-1709974	Scheduling and resource allocation mechanism for active bandwidth parts	Huawei, HiSilicon	Brian Classon	45750	other				93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
97	R1-1709975	On NR carrier aggregation	Huawei, HiSilicon	Brian Classon	45750	other				115	5.1.3.4.1.1	Self-/cross-carrier scheduling and joint/separate UCI feedback	0	available
98	R1-1709976	SRS switching among CCs and bandwidth parts	Huawei, HiSilicon	Brian Classon	45750	other				116	5.1.3.4.1.2	SRS fast switching	0	available
99	R1-1709977	On NR dual connectivity	Huawei, HiSilicon	Brian Classon	45750	other				117	5.1.3.4.2	Dual connectivity	0	available
100	R1-1709978	TB mapping and TB size determination	Huawei, HiSilicon	Brian Classon	45750	other				95	5.1.3.3.1.3	Transport block size determination	0	available
101	R1-1709979	Overview of NR UL for LTE-NR coexistence	Huawei, HiSilicon	Brian Classon	45750	other				137	5.1.8	NR-LTE co-existence	0	available
102	R1-1709980	Subcarrier mapping for LTE-NR coexistence	Huawei, HiSilicon	Brian Classon	45750	other				137	5.1.8	NR-LTE co-existence	0	noted
103	R1-1709981	TRP-to-TRP measurement for cross-link interference mitigation	Huawei, HiSilicon	Brian Classon	45750	other				134	5.1.6.1	Cross-link interference management	0	available
104	R1-1709982	UE-to-UE measurement for cross-link interference mitigation	Huawei, HiSilicon	Brian Classon	45750	other				134	5.1.6.1	Cross-link interference management	0	noted
105	R1-1709983	UL Power control for cross-link interference mitigation	Huawei, HiSilicon	Brian Classon	45750	other				135	5.1.6.2	Other	0	available
106	R1-1709984	On pre-emption indication for DL multiplexing of URLLC and eMBB	Huawei, HiSilicon	Brian Classon	45750	other				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
107	R1-1709985	PDSCH reliability for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
108	R1-1709986	PDCCH reliability for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
109	R1-1709987	Discussion on URLLC numerology	Huawei, HiSilicon	Brian Classon	45750	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
110	R1-1709988	Discussion on UL multiplexing of grant-based eMBB and grant-free URLLC	Huawei, HiSilicon	Brian Classon	45750	other				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
111	R1-1709989	Discussion on UCI feedback for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				86	5.1.3.2.5	UCI multiplexing	0	available
112	R1-1709990	Link adaption for URLLC transmission	Huawei, HiSilicon	Brian Classon	45750	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
113	R1-1709991	Resource configuration on UL transmission without grant	Huawei, HiSilicon	Brian Classon	45750	other				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
114	R1-1709992	UE identification and HARQ combining for grant-free transmissions	Huawei, HiSilicon	Brian Classon	45750	other				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
115	R1-1709993	UE procedure of PDCCH monitoring for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
116	R1-1709994	Discussion on data transmission duration	Huawei, HiSilicon	Brian Classon	45750	other				94	5.1.3.3.1.2	Time-domain resource allocation	0	available
117	R1-1709995	Polar code construction	Huawei, HiSilicon	Brian Classon	45750	other				127	5.1.4.2.1	Code construction	0	available
118	R1-1709996	Parity check bits for Polar code	Huawei, HiSilicon	Brian Classon	45750	other				127	5.1.4.2.1	Code construction	0	noted
119	R1-1709997	Early termination for Polar code	Huawei, HiSilicon	Brian Classon	45750	other				127	5.1.4.2.1	Code construction	0	noted
120	R1-1709998	Polar code for very small block length	Huawei, HiSilicon	Brian Classon	45750	other				127	5.1.4.2.1	Code construction	0	noted
121	R1-1709999	Interleaver design for Polar code	Huawei, HiSilicon	Brian Classon	45750	other				129	5.1.4.2.3	Other	0	available
122	R1-1710000	Nested sequence for Polar code	Huawei, HiSilicon	Brian Classon	45750	other				128	5.1.4.2.2	Sequence design	0	noted
123	R1-1710001	Rate matching for Polar code	Huawei, HiSilicon	Brian Classon	45750	other				129	5.1.4.2.3	Other	0	revised
124	R1-1710002	Support of implicit soft combining for PBCH by Polar code construction	Huawei, HiSilicon	Brian Classon	45750	other				130	5.1.4.3	PBCH	0	revised
125	R1-1710003	Channel coding chain for control channel	Huawei, HiSilicon	Brian Classon	45750	other				129	5.1.4.2.3	Other	0	available
126	R1-1710004	Channel coding for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				130	5.1.4.3	PBCH	0	available

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127	R1-1710005	Considerations on timing advance design in NR	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
128	R1-1710006	Discussion and evaluation on NR-PBCH design	Huawei, HiSilicon	Brian Classon	45750	other				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
129	R1-1710007	DMRS for NR-PBCH	Huawei, HiSilicon	Brian Classon	45750	other				16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
130	R1-1710008	PRACH preamble format details for long/short sequence length	Huawei, HiSilicon	Brian Classon	45750	other				21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
131	R1-1710009	Multiplexing different types of DL RS	Huawei, HiSilicon	Brian Classon	45750	other				51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
132	R1-1710010	Multiplexing different types of UL RS	Huawei, HiSilicon	Brian Classon	45750	other				51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
133	R1-1710011	Overview of PDCCH-CCE-REG mapping and REG bundling	Huawei, HiSilicon	Brian Classon	45750	other				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
134	R1-1710012	Multi-beam operation for PDCCH	Huawei, HiSilicon	Brian Classon	45750	other				68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
135	R1-1710013	Support of long-PUCCH over multiple slots	Huawei, HiSilicon	Brian Classon	45750	other				83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
136	R1-1710014	Evaluation of UE identification for UL transmission without grant	ZTE	Yifei Yuan	58525	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
137	R1-1710015	Considerations on the procedures of UL data transmission without grant	ZTE	Yifei Yuan	58525	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
138	R1-1710016	Repetition/hopping related design and reliability evaluations for grant-free URLLC	ZTE	Yifei Yuan	58525	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
139	R1-1710017	CBG construction	ZTE	Yifei Yuan	58525	discussion				99	5.1.3.3.4.1	CBG construction	0	available
140	R1-1710018	DL control for CBG	ZTE	Yifei Yuan	58525	discussion				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
141	R1-1710019	UL control for CBG	ZTE	Yifei Yuan	58525	discussion				101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
142	R1-1710020	Consideration about CBG soft-buffer management	ZTE	Yifei Yuan	58525	discussion				107	5.1.3.3.6.2	Soft-buffer management	0	available
143	R1-1710021	Advantages of Underlay Scheduling Request method over PUCCH-based SR	Idaho National Laboratory	Ramon Khalona	19055	other	Discussion			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
144	R1-1710022	Remaining detail of NR-PSS and NR-SSS Sequence Design and RE mapping	CATT	Yanping Xing	57090	discussion	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	available
145	R1-1710023	SS Burst Set Composition and SS Block Configuration	CATT	Yanping Xing	57090	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	available
146	R1-1710024	SS-block time index indication	CATT	Yanping Xing	57090	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available
147	R1-1710025	Multiple SS block Transmission in wideband	CATT	Yanping Xing	57090	discussion	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
148	R1-1710026	NR PBCH Contents and Payload Size	CATT	Yanping Xing	57090	discussion	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
149	R1-1710027	NR PBCH RE mapping in SS Block	CATT	Yanping Xing	57090	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
150	R1-1710028	NR PBCH DM RS sequence design and RE mapping	CATT	Yanping Xing	57090	discussion	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
151	R1-1710029	RMSI Delivery	CATT	Yanping Xing	57090	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
152	R1-1710030	Delivery of Other System Information	CATT	Yanping Xing	57090	discussion	Decision			18	5.1.1.2.5	Other system information delivery	0	available
153	R1-1710031	NR Paging Channel	CATT	Yanping Xing	57090	discussion	Decision			19	5.1.1.3	Paging design	0	available
154	R1-1710032	NR RACH Long and Short Preamble Sequence Length	CATT	Yanping Xing	57090	discussion	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
155	R1-1710033	NR RACH Preamble Format for capacity enhancement.	CATT	Yanping Xing	57090	discussion	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	revised
156	R1-1710034	RACH power control and power ramping procedure	CATT	Yanping Xing	57090	discussion	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	revised
157	R1-1710035	Further details on NR 4-step RA Procedure	CATT	Yanping Xing	57090	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
158	R1-1710036	IDLE and CONNECTED mode UE mobility based on SS block measurements	CATT	Yanping Xing	57090	discussion	Decision			26	5.1.1.5.1	Measurement based on SS block	0	available
159	R1-1710037	L3 Mobility based on CSI-RS based measurements	CATT	Yanping Xing	57090	discussion	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	revised
160	R1-1710038	NR Radio Link Monitoring	CATT	Yanping Xing	57090	discussion	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
161	R1-1710039	Support of interference management schemes in duplexing flexibility	CATT	Yanping Xing	57090	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	noted
162	R1-1710040	NR wider bandwidth operation	CATT	Yanping Xing	57090	discussion	Decision			136	5.1.7	Wider bandwidth operations	0	available
163	R1-1710041	Support of UL carrier sharing between NR-LTE	CATT	Yanping Xing	57090	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	available
164	R1-1710042	Power Sharing Mechanism	CATT	Yanping Xing	57090	discussion	Decision			139	5.1.9.1	Power sharing mechanism	0	noted
165	R1-1710043	NR Power Control Framework	CATT	Yanping Xing	57090	discussion	Decision			140	5.1.9.2	NR power control framework	0	available
166	R1-1710044	Consideration on CRC attachment for eMBB data	CATT	Yanping Xing	57090	discussion	Decision			121	5.1.4.1.1.1	CRC attachment	0	available
167	R1-1710045	IR-HARQ scheme for NR LDPC codes	CATT	Yanping Xing	57090	discussion	Decision			123	5.1.4.1.1.3	Rate matching	0	noted
168	R1-1710046	LDPC design for eMBB data	CATT	Yanping Xing	57090	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	revised

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169	R1-1710047	Offset optimization for NR LDPC	CATT	Yanping Xing	57090	discussion	Decision			125	5.1.4.1.2	LDPC code design		0 available
170	R1-1710048	Polar codes construction for NR control channel	CATT	Yanping Xing	57090	discussion	Decision			127	5.1.4.2.1	Code construction		0 noted
171	R1-1710049	Discussion on Polar codes for PBCH	CATT	Yanping Xing	57090	discussion	Decision			130	5.1.4.3	PBCH		0 revised
172	R1-1710050	On codeword mapping	CATT	Yanping Xing	57090	discussion	Decision			32	5.1.2.1.1	Codeword mapping		0 available
173	R1-1710051	Considerations on codebook based UL transmission	CATT	Yanping Xing	57090	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL		0 noted
174	R1-1710052	On non-codebook based UL transmission	CATT	Yanping Xing	57090	discussion	Decision			34	5.1.2.1.3	Non-codebook based transmission fo UL		0 available
175	R1-1710053	Considerations on transmission diversity scheme in UL	CATT	Yanping Xing	57090	discussion	Decision			35	5.1.2.1.4	Diversity transmission for UL		0 available
176	R1-1710054	PRB bundling for DL transmission	CATT	Yanping Xing	57090	discussion	Decision			36	5.1.2.1.5	PRB bundling for DL		0 available
177	R1-1710055	Considerations on multi-panel/multi-TRP transmission	CATT	Yanping Xing	57090	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission		0 available
178	R1-1710056	Further consideration on downlink beam management	CATT	Yanping Xing	57090	discussion	Decision			41	5.1.2.2.1	Beam management details		0 available
179	R1-1710057	Considerations on UL beam management	CATT	Yanping Xing	57090	discussion	Decision			41	5.1.2.2.1	Beam management details		0 available
180	R1-1710058	Consideration on DL beam failure and recovery	CATT	Yanping Xing	57090	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure		0 available
181	R1-1710059	Summary of email discussion [89-17] NR CSI framework	CATT	Yanping Xing	57090	discussion	Decision			45	5.1.2.3.1	CSI framework		0 noted
182	R1-1710060	Views on CSI framework	CATT	Yanping Xing	57090	discussion	Decision			45	5.1.2.3.1	CSI framework		0 available
183	R1-1710061	Discussion on details of CSI acquisition	CATT	Yanping Xing	57090	discussion	Decision			46	5.1.2.3.2	Details of CSI acquisition		0 available
184	R1-1710062	Views on reciprocity based CSI acquisition	CATT	Yanping Xing	57090	discussion	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation		0 available
185	R1-1710063	Discussion on periodic and aperiodic CSI feedback	CATT	Yanping Xing	57090	discussion	Decision			48	5.1.2.3.4	CSI feedback		0 available
186	R1-1710064	Discussion on RS multiplexing	CATT	Yanping Xing	57090	discussion	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs		0 noted
187	R1-1710065	Design of CSI-RS for CSI acquisition	CATT	Yanping Xing	57090	discussion	Decision			52	5.1.2.4.2	CSI-RS		0 available
188	R1-1710066	Design of CSI-RS for beam management	CATT	Yanping Xing	57090	discussion	Decision			52	5.1.2.4.2	CSI-RS		0 available
189	R1-1710067	On DMRS design for DL	CATT	Yanping Xing	57090	discussion	Decision			53	5.1.2.4.3	DMRS		0 available
190	R1-1710068	On DMRS design for UL	CATT	Yanping Xing	57090	discussion	Decision			53	5.1.2.4.3	DMRS		0 available
191	R1-1710069	Considerations on RS for phase tracking	CATT	Yanping Xing	57090	discussion	Decision			54	5.1.2.4.4	PT-RS		0 available
192	R1-1710070	Further considerations on SRS design	CATT	Yanping Xing	57090	discussion	Decision			55	5.1.2.4.5	SRS		0 available
193	R1-1710071	On QCL for NR	CATT	Yanping Xing	57090	discussion	Decision			57	5.1.2.4.7	QCL		0 available
194	R1-1710072	System level calibration results for NR MIMO	CATT	Yanping Xing	57090	discussion	Decision			59	5.1.2.5	Other		0 available
195	R1-1710073	Link level calibration results for NR MIMO	CATT	Yanping Xing	57090	discussion	Decision			59	5.1.2.5	Other		0 available
196	R1-1710074	NR-PDCCH mapping structure	CATT	Yanping Xing	57090	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping		0 available
197	R1-1710075	Further details of NR-PDCCH RS structure	CATT	Yanping Xing	57090	discussion	Decision			64	5.1.3.1.1.2	RS structure/mapping		0 available
198	R1-1710076	Configuration aspects of the NR-PDCCH	CATT	Yanping Xing	57090	discussion	Decision			66	5.1.3.1.2.1	CORESET configuration		0 available
199	R1-1710077	Search space design for NR-PDCCH	CATT	Yanping Xing	57090	discussion	Decision			67	5.1.3.1.2.2	Search space design		0 available
200	R1-1710078	Discussion on multi-beam operation for NR-PDCCH	CATT	Yanping Xing	57090	discussion	Decision			68	5.1.3.1.2.3	Multi-beam operation for PDCCH		0 available
201	R1-1710079	Flexible reuse of DL control resources for data transmission	CATT	Yanping Xing	57090	discussion	Decision			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH		0 available
202	R1-1710080	Channel structure for group-common PDCCH	CATT	Yanping Xing	57090	discussion	Decision			71	5.1.3.1.4.1	Structure of group-common PDCCH		0 available
203	R1-1710081	Contents of the group-common PDCCH	CATT	Yanping Xing	57090	discussion	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCH		0 available
204	R1-1710082	Configuration and monitoring of the group-common PDCCH	CATT	Yanping Xing	57090	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH		0 available
205	R1-1710083	Short PUCCH for small UCI payloads	CATT	Yanping Xing	57090	discussion	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits		0 revised
206	R1-1710084	Short PUCCH for moderate and large UCI payloads	CATT	Yanping Xing	57090	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits		0 available
207	R1-1710085	Long PUCCH for small UCI payloads	CATT	Yanping Xing	57090	discussion	Decision			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits		0 available
208	R1-1710086	Long PUCCH for moderate and large UCI payloads	CATT	Yanping Xing	57090	discussion	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits		0 available
209	R1-1710087	Design of multi-slot PUCCH transmission	CATT	Yanping Xing	57090	discussion	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots		0 available
210	R1-1710088	Further discussion on PUCCH resource allocation	CATT	Yanping Xing	57090	discussion	Decision			85	5.1.3.2.4	Resource allocation for PUCCH		0 available
211	R1-1710089	Multiplexing of UCI and UL data on PUSCH	CATT	Yanping Xing	57090	discussion	Decision			87	5.1.3.2.5.1	UCI piggyback on PUSCH		0 available

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212	R1-1710090	Simultaneous PUCCH-PUSCH transmission in NR	CATT	Yanping Xing	57090	discussion	Decision			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
213	R1-1710091	NR DL/UL frequency domain resource allocation	CATT	Yanping Xing	57090	discussion	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
214	R1-1710092	NR DL/UL time domain resource allocation	CATT	Yanping Xing	57090	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
215	R1-1710093	Further details of grant-based UL transmission	CATT	Yanping Xing	57090	discussion	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
216	R1-1710094	Grant-free UL transmission procedure	CATT	Yanping Xing	57090	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
217	R1-1710095	Details of CBG construction	CATT	Yanping Xing	57090	discussion	Decision			99	5.1.3.3.4.1	CBG construction	0	available
218	R1-1710096	DL control signaling design for CBG-based operation	CATT	Yanping Xing	57090	discussion	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
219	R1-1710097	UL control signaling design for CBG-based operation	CATT	Yanping Xing	57090	discussion	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
220	R1-1710098	NR HARQ-ACK multiplexing	CATT	Yanping Xing	57090	discussion	Decision			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
221	R1-1710099	Discussion on number of HARQ processes and HARQ RTT	CATT	Yanping Xing	57090	discussion	Decision			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
222	R1-1710100	Soft buffer management for NR	CATT	Yanping Xing	57090	discussion	Decision			107	5.1.3.3.6.2	Soft-buffer management	0	available
223	R1-1710101	Further design considerations for DL pre-emption indication	CATT	Yanping Xing	57090	discussion	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
224	R1-1710102	Scheduling and HARQ support for NR CA	CATT	Yanping Xing	57090	discussion	Decision			115	5.1.3.4.1.1	Self-/cross-carrier scheduling and joint/separate UCI feedback	0	available
225	R1-1710103	Scheduling and HARQ support for NR DC	CATT	Yanping Xing	57090	discussion	Decision			117	5.1.3.4.2	Dual connectivity	0	available
226	R1-1710104	CCE mapping with REG bundling	ZTE	Yifei Yuan	58525	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
227	R1-1710105	Issues regarding DMRS structure and mapping	ZTE	Yifei Yuan	58525	discussion				64	5.1.3.1.1.2	RS structure/mapping	0	available
228	R1-1710106	NR-PDCCH CORESET configuration	ZTE	Yifei Yuan	58525	discussion				66	5.1.3.1.2.1	CORESET configuration	0	available
229	R1-1710107	Search space design for NR-PDCCH	ZTE	Yifei Yuan	58525	discussion				67	5.1.3.1.2.2	Search space design	0	available
230	R1-1710108	Supporting Multi-beam in NR-PDCCH	ZTE	Yifei Yuan	58525	discussion				68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
231	R1-1710109	Resource sharing between PDCCH and PDSCH	ZTE	Yifei Yuan	58525	discussion				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
232	R1-1710110	Group-common PDCCH design consideration	ZTE	Yifei Yuan	58525	discussion				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
233	R1-1710111	NR-PDCCH for supporting URLLC	ZTE	Yifei Yuan	58525	discussion				74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
234	R1-1710112	On short PUCCH for up to 2 bits UCI	ZTE	Yifei Yuan	58525	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
235	R1-1710113	On short-PUCCH for more than 2 bits	ZTE	Yifei Yuan	58525	discussion				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
236	R1-1710114	On long-PUCCH for up to 2 bits	ZTE	Yifei Yuan	58525	discussion				81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
237	R1-1710115	On long-PUCCH for more than 2 bits	ZTE	Yifei Yuan	58525	discussion				82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
238	R1-1710116	Consideration on long-PUCCH over slots	ZTE	Yifei Yuan	58525	discussion				83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
239	R1-1710117	NR PUCCH resource allocation	ZTE	Yifei Yuan	58525	discussion				85	5.1.3.2.4	Resource allocation for PUCCH	0	available
240	R1-1710118	UCI multiplexing on PUSCH	ZTE	Yifei Yuan	58525	discussion				87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
241	R1-1710119	Multiplexing of PUSCH and short PUCCH	ZTE	Yifei Yuan	58525	discussion				88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
242	R1-1710120	Analysis of URLLC reliability for uplink control channel	ZTE	Yifei Yuan	58525	discussion				89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
243	R1-1710121	Resource allocation in frequency domain	ZTE	Yifei Yuan	58525	discussion				93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
244	R1-1710122	On scheduling request in NR	ZTE	Yifei Yuan	58525	discussion				96	5.1.3.3.2	UL data transmission procedure with grant	0	available
245	R1-1710123	DL pre-emption indication	ZTE	Yifei Yuan	58525	discussion				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
246	R1-1710124	Uplink multiplexing for different transmission durations	ZTE	Yifei Yuan	58525	discussion				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
247	R1-1710125	Supporting Ultra reliability in scheduling	ZTE	Yifei Yuan	58525	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
248	R1-1710126	Resource allocation for wideband operation	ZTE	Yifei Yuan	58525	discussion				136	5.1.7	Wider bandwidth operations	0	available
249	R1-1710127	Viewpoint on NR CLI Management for Duplexing Work Plan	ZTE	Carolyn Taylor	19440	discussion				133	5.1.6	Duplexing	0	noted
250	R1-1710128	UE-to-UE measurement as an enabler for CLI mitigation schemes	ZTE	Carolyn Taylor	19440	discussion				134	5.1.6.1	Cross-link interference management	0	noted
251	R1-1710129	Channel sensing based schemes for cross-link interference mitigation in NR	ZTE	Carolyn Taylor	19440	discussion				134	5.1.6.1	Cross-link interference management	0	available
252	R1-1710130	TRP-to-TRP measurement as an enabler for CLI mitigation schemes	ZTE	Carolyn Taylor	19440	discussion				135	5.1.6.2	Other	0	available
253	R1-1710131	Discussion on design of SS block	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	available
254	R1-1710132	Discussion on the timing indication of SS block	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available

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255	R1-1710133	Remaining details on multiple SS block transmissions in wideband CC	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
256	R1-1710134	Discussion on the numerology of the RMSI	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
257	R1-1710135	Discussion on the on-demand SI	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			18	5.1.1.2.5	Other system information delivery	0	available
258	R1-1710136	On NR paging design and transmission	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			19	5.1.1.3	Paging design	0	available
259	R1-1710137	Discussion on Power ramping and power control during RA procedure	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
260	R1-1710138	NR 4-Step Random Access Procedure	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
261	R1-1710139	On RRM measurement based on SS block	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			26	5.1.1.5.1	Measurement based on SS block	0	available
262	R1-1710140	On uplink codebook design	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	available
263	R1-1710141	Considerations on the multi-TRP/Multi-panel design to support the reception of multiple PDCCH	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
264	R1-1710142	Discussion on the DL Beam Management	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
265	R1-1710143	Discussion on the UL Beam Management	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
266	R1-1710144	On Beam Recovery Mechanism	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
267	R1-1710145	Beam association relationship between data and control channels	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			43	5.1.2.2.3	Other	0	available
268	R1-1710146	Discussion on CSI-RS design for beam management	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
269	R1-1710147	On SRS design for NR	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			55	5.1.2.4.5	SRS	0	available
270	R1-1710148	NR-PDCCH CCE-to-REG mapping with REG bundling	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
271	R1-1710149	On NR PDCCH RS design	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			64	5.1.3.1.1.2	RS structure/mapping	0	available
272	R1-1710150	PDCCH CORESET configuration and UE procedure on NR-PDCCH monitoring	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			66	5.1.3.1.2.1	CORESET configuration	0	available
273	R1-1710151	NR PDCCH search space design with nested structure	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			67	5.1.3.1.2.2	Search space design	0	available
274	R1-1710152	Search space design consideration for NR PDCCH with BF	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
275	R1-1710153	On resource sharing between PDCCH and PDSCH	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
276	R1-1710154	Impact on common channel reception to PDCCH design	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
277	R1-1710155	DL control channel design for URLLC	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
278	R1-1710156	Discussion on short PUCCH for up to 2 UCI bits	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
279	R1-1710157	Discussion on short PUCCH for more than 2 UCI bits	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
280	R1-1710158	Discussion on long PUCCH for up to 2 UCI bits	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
281	R1-1710159	Slot aggregation and configuration for NR long PUCCH	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
282	R1-1710160	Design of NR PUCCH with long duration	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
283	R1-1710161	Resource indication for UL control channel	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
284	R1-1710162	On UCI and data multiplexing in PUSCH	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
285	R1-1710163	Multiplexing of short PUCCH and long PUCCH	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
286	R1-1710164	Bandwidth part configuration and frequency resource allocation	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
287	R1-1710165	Time-domain resource allocation for NR	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
288	R1-1710166	Discussion on the UL waveform indication	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
289	R1-1710167	HARQ for uplink grant-free transmission	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
290	R1-1710168	Discussion on CBG indication in DCI	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
291	R1-1710169	Discussion on HARQ-ACK feedback for CBG-based transmission	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
292	R1-1710170	Symbol-level resource allocation and pre-emption indication	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
293	R1-1710171	Bandwidth part based resource scheduling for carrier aggregation	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			115	5.1.3.4.1.1	Self/cross-carrier scheduling and joint/separate UCI feedback	0	available
294	R1-1710172	Discussion on UE specific RF bandwidth adaptation in NR	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			136	5.1.7	Wider bandwidth operations	0	available
295	R1-1710173	Discussion on the NR-LTE self-interference issue	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	noted
296	R1-1710174	Uplink power control for NR	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			140	5.1.9.2	NR power control framework	0	noted
297	R1-1710175	Codeword mapping and interleaving	ZTE	Ruyue Yu-Ngok Li	43128	discussion				32	5.1.2.1.1	Codeword mapping	0	revised

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298	R1-1710176	Codebook based UL transmission	ZTE	Ruyue Yu-Ngok Li	43128	discussion				33	5.1.2.1.2	Codebook based transmission for UL	0	available
299	R1-1710177	Non-Codebook based and Hybrid based UL transmission	ZTE	Ruyue Yu-Ngok Li	43128	discussion				34	5.1.2.1.3	Non-codebook based transmission for UL	0	noted
300	R1-1710178	Diversity based uplink transmission schemes	ZTE	Ruyue Yu-Ngok Li	43128	discussion				35	5.1.2.1.4	Diversity transmission for UL	0	noted
301	R1-1710179	On PRB Bundling	ZTE	Ruyue Yu-Ngok Li	43128	discussion				36	5.1.2.1.5	PRB bundling for DL	0	available
302	R1-1710180	Multi-TRP Transmission and interference coordination	ZTE	Ruyue Yu-Ngok Li	43128	discussion				37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	noted
303	R1-1710181	Discussion on rate matching	ZTE	Ruyue Yu-Ngok Li	43128	discussion				38	5.1.2.1.7	Rate matching	0	available
304	R1-1710182	On transmission setting	ZTE	Ruyue Yu-Ngok Li	43128	discussion				39	5.1.2.1.8	Other	0	available
305	R1-1710183	DL beam management for NR MIMO	ZTE	Ruyue Yu-Ngok Li	43128	discussion				41	5.1.2.2.1	Beam management details	0	noted
306	R1-1710184	UL beam management for NR MIMO	ZTE	Ruyue Yu-Ngok Li	43128	discussion				41	5.1.2.2.1	Beam management details	0	available
307	R1-1710185	Discussion on beam recovery mechanism	ZTE	Ruyue Yu-Ngok Li	43128	discussion				42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
308	R1-1710186	Beam grouping evaluation for beam management	ZTE	Ruyue Yu-Ngok Li	43128	discussion				43	5.1.2.2.3	Other	0	noted
309	R1-1710187	On CSI framework details	ZTE	Ruyue Yu-Ngok Li	43128	discussion				45	5.1.2.3.1	CSI framework	0	revised
310	R1-1710188	Details of CSI acquisition	ZTE	Ruyue Yu-Ngok Li	43128	discussion				46	5.1.2.3.2	Details of CSI acquisition	0	available
311	R1-1710189	On reciprocity based CSI acquisition	ZTE	Ruyue Yu-Ngok Li	43128	discussion				47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	revised
312	R1-1710190	CSI feedback mechanism on PUCCH	ZTE	Ruyue Yu-Ngok Li	43128	discussion				48	5.1.2.3.4	CSI feedback	0	noted
313	R1-1710191	CSI feedback mechanism on PUSCH	ZTE	Ruyue Yu-Ngok Li	43128	discussion				48	5.1.2.3.4	CSI feedback	0	available
314	R1-1710192	Overhead reduction for Type II CSI	ZTE	Ruyue Yu-Ngok Li	43128	discussion				48	5.1.2.3.4	CSI feedback	0	available
315	R1-1710193	Discussion on multiplexing of different RSs	ZTE	Ruyue Yu-Ngok Li	43128	discussion				51	5.1.2.4.1	Multiplexing of different types of RSs	0	noted
316	R1-1710194	On CSI-RS for beam management	ZTE	Ruyue Yu-Ngok Li	43128	discussion				52	5.1.2.4.2	CSI-RS	0	available
317	R1-1710195	On CSI-RS for CSI acquisition	ZTE	Ruyue Yu-Ngok Li	43128	discussion				52	5.1.2.4.2	CSI-RS	0	available
318	R1-1710196	Discussion on downlink DMRS design	ZTE	Ruyue Yu-Ngok Li	43128	discussion				53	5.1.2.4.3	DMRS	0	noted
319	R1-1710197	Evaluation results on DL DMRS	ZTE	Ruyue Yu-Ngok Li	43128	discussion				53	5.1.2.4.3	DMRS	0	available
320	R1-1710198	Discussion on uplink DMRS design	ZTE	Ruyue Yu-Ngok Li	43128	discussion				53	5.1.2.4.3	DMRS	0	available
321	R1-1710199	Discussion on RS for phase tracking	ZTE	Ruyue Yu-Ngok Li	43128	discussion				54	5.1.2.4.4	PT-RS	0	available
322	R1-1710200	Discussion on SRS design for NR	ZTE	Ruyue Yu-Ngok Li	43128	discussion				55	5.1.2.4.5	SRS	0	available
323	R1-1710201	Discussion on fine time/frequency tracking of channel	ZTE	Ruyue Yu-Ngok Li	43128	discussion				56	5.1.2.4.6	TRS	0	available
324	R1-1710202	QCL design for UL and DL MIMO	ZTE	Ruyue Yu-Ngok Li	43128	discussion				57	5.1.2.4.7	QCL	0	noted
325	R1-1710203	Calibration results for Phase 1 NR MIMO link level calibration	ZTE	Ruyue Yu-Ngok Li	43128	discussion				59	5.1.2.5	Other	0	withdrawn
326	R1-1710204	Calibration results for Phase 1 NR MIMO system level calibration	ZTE	Ruyue Yu-Ngok Li	43128	discussion				59	5.1.2.5	Other	0	withdrawn
327	R1-1710205	Calibration results for Phase 2 NR MIMO link level calibration	ZTE	Ruyue Yu-Ngok Li	43128	discussion				59	5.1.2.5	Other	0	withdrawn
328	R1-1710206	Calibration results for Phase 2 NR MIMO system level calibration	ZTE	Ruyue Yu-Ngok Li	43128	discussion				59	5.1.2.5	Other	0	available
329	R1-1710207	Calibration results for Phase 3 NR MIMO calibration	ZTE	Ruyue Yu-Ngok Li	43128	discussion				59	5.1.2.5	Other	0	available
330	R1-1710208	Further clarification on Phase 3 NR MIMO calibration	ZTE	Ruyue Yu-Ngok Li	43128	discussion				59	5.1.2.5	Other	0	available
331	R1-1710209	On NR power control	ZTE	Ruyue Yu-Ngok Li	43128	discussion				140	5.1.9.2	NR power control framework	0	available
332	R1-1710210	On NR PHR calculation	ZTE	Ruyue Yu-Ngok Li	43128	discussion				140	5.1.9.2	NR power control framework	0	available
333	R1-1710211	LS on SR design principles in NR	RAN2, Samsung	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
334	R1-1710212	LS on UE measurement capabilities across LTE and NR	RAN2, NTT DOCOMO	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
335	R1-1710213	LS on UE categories for NR and LTE-NR Dual Connectivity	RAN2, NTT DOCOMO	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
336	R1-1710214	LS reply to SA2 on maximum data rate	RAN2, MediaTek	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
337	R1-1710215	Response LS on reading time index indication for RRM measurements	RAN2, Intel	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
338	R1-1710216	LS on Emergency Support in NR	SA2, Nokia	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
339	R1-1710217	LS on Support for fake gNB detection mechanisms	SA3, Nokia	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
340	R1-1710218	RACH transmission count	Mitsubishi Electric Co.	Fumihito Hasegawa	61720	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available

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341	R1-1710219	UL transmission power control	Mitsubishi Electric Co.	Fumihito Hasegawa	61720	discussion	Decision			140	5.1.9.2	NR power control framework	0	available
342	R1-1710220	Reply LS on Emergency Support in NR	RAN, T-Mobile	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
343	R1-1710221	Reply LS on UE categories for NR and LTE-NR Dual Connectivity	RAN, NTT DOCOMO	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
344	R1-1710222	Transmit diversity for DFTsOFDM-based PUCCH in long duration	Mitsubishi Electric RCE	Cristina Ciocchina-Duchesne	56339	discussion	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
345	R1-1710223	Discussion on timing indication based on SS block	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available
346	R1-1710224	Discussion and evaluation on SS block composition	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
347	R1-1710225	Discussion and evaluation on DMRS design for NR-PBCH	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
348	R1-1710226	Discussion on 2-symbol Short PUCCH with More Than 2 Bits	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
349	R1-1710227	Further Discussion on PTRS Design Details	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			54	5.1.2.4.4	PT-RS	0	withdrawn
350	R1-1710228	Further discussion on channel reciprocity and beam correspondence	MTI	Chie Ming Chou	64291	discussion				43	5.1.2.2.3	Other	0	available
351	R1-1710229	(89-16) Email discussion on NR-PRACH preamble formats based on short sequence length	ZTE Corporation	Jan Johansson	72705	discussion	Discussion			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	revised
352	R1-1710230	UL PTRS for DFTsOFDM waveform	Mitsubishi Electric RCE	Cristina Ciocchina-Duchesne	56339	discussion	Decision			54	5.1.2.4.4	PT-RS	0	noted
353	R1-1710231	Consideration on timing indication based on SS block	Fujitsu	Tim Mousley	10954	other				11	5.1.1.1.3	Timing indication based on SS block	0	available
354	R1-1710232	Discussion on DMRS for NR-PBCH	Fujitsu	Tim Mousley	10954	other				16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
355	R1-1710233	Discussion on the CORESET for RMSI delivery	Fujitsu	Tim Mousley	10954	other				17	5.1.1.2.4	Remaining minimum system information delivery	0	available
356	R1-1710234	Discussion on 4-step RA procedure	Fujitsu	Tim Mousley	10954	other				24	5.1.1.4.4	4-step RA procedure	0	available
357	R1-1710235	Discussion on multiple NR-PDCCHs in NC-JT scheme	Fujitsu	Tim Mousley	10954	other				37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
358	R1-1710236	Discussion on beam failure recovery procedure	Fujitsu	Tim Mousley	10954	other				42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
359	R1-1710237	PUCCH resource allocation	Fujitsu	Tim Mousley	10954	other				85	5.1.3.2.4	Resource allocation for PUCCH	0	available
360	R1-1710238	Discussion on time domain resource allocation	Fujitsu	Tim Mousley	10954	other				94	5.1.3.3.1.2	Time-domain resource allocation	0	available
361	R1-1710239	Discussions on HARQ for grant-free transmission	Fujitsu	Tim Mousley	10954	other				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
362	R1-1710240	Discussion on DL control signaling related to CBG based (re-)transmission	Fujitsu	Tim Mousley	10954	other				100	5.1.3.3.4.2	DL control signalling for CBG-based (re-)transmission	0	available
363	R1-1710241	Discussion on CBG based HARQ-ACK Design	Fujitsu	Tim Mousley	10954	other				101	5.1.3.3.4.3	UL control signalling for CBG-based (re-)transmission	0	available
364	R1-1710242	Discussion on HARQ-ACK codebook	Fujitsu	Tim Mousley	10954	other				104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
365	R1-1710243	On eMBB and URLLC multiplexing for Uplink	Fujitsu	Tim Mousley	10954	other				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
366	R1-1710244	PRB indexing for RMSI in NR	NEC	Yassin Awad	37300	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
367	R1-1710245	Frequency-domain resource allocation schemes for NR	NEC	Yassin Awad	37300	discussion	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
368	R1-1710246	Time-domain resource allocation schemes for NR	NEC	Yassin Awad	37300	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
369	R1-1710247	Frequency hopping for NR UL PUSCH	NEC	Yassin Awad	37300	discussion	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
370	R1-1710248	UL data transmission without grant	NEC	Yassin Awad	37300	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
371	R1-1710249	PRB and RBG indexing within wider channel BW for NR	NEC	Yassin Awad	37300	discussion	Decision			136	5.1.7	Wider bandwidth operations	0	available
372	R1-1710250	Discussion on UL sharing of NR and LTE	NEC	Yassin Awad	37300	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	noted
373	R1-1710251	Discussion on beam failure recovery request	NEC Corporation	Yukai Gao	62939	discussion				42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
374	R1-1710252	Discussion on preamble transmitting power	NEC Corporation	Yukai Gao	62939	discussion				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	withdrawn
375	R1-1710253	Discussion on extending of scheduling request	NEC Corporation	Yukai Gao	62939	discussion				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	withdrawn
376	R1-1710254	Discussion on beam sweeping or beam changing of SR	NEC Corporation	Yukai Gao	62939	discussion				84	5.1.3.2.3	Transmit diversity for PUCCH	0	withdrawn
377	R1-1710255	Remaining details on DMRS ports and number of layers	NEC Corporation	Yukai Gao	62939	discussion				32	5.1.2.1.1	Codeword mapping	0	available
378	R1-1710256	CSI-RS design for beam management and interference measurement	NEC Corporation	Yukai Gao	62939	discussion				52	5.1.2.4.2	CSI-RS	0	available
379	R1-1710257	Considerations on the design of DMRS	NEC Corporation	Yukai Gao	62939	discussion				53	5.1.2.4.3	DMRS	0	available
380	R1-1710258	Remaining issue on SS Sequence Design	LG Electronics	Youngwoo Yun	45048	discussion	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	available
381	R1-1710259	Discussion on SS burst set composition	LG Electronics	Youngwoo Yun	45048	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	available
382	R1-1710260	Discussion on SS block time index indication	LG Electronics	Youngwoo Yun	45048	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available
383	R1-1710261	Remaining issues on Multiple SS block transmissions in wideband CC	LG Electronics	Youngwoo Yun	45048	discussion	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available

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384	R1-1710262	Consideration on NR-PBCH contents and payload size	LG Electronics	Youngwoo Yun	45048	discussion	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
385	R1-1710263	Discussion on NR-PBCH RE mapping and SS block composition	LG Electronics	Youngwoo Yun	45048	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
386	R1-1710264	Discussion on DMRS design for NR-PBCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
387	R1-1710265	Remaining minimum system information delivery	LG Electronics	Youngwoo Yun	45048	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
388	R1-1710266	Other system information delivery	LG Electronics	Youngwoo Yun	45048	discussion	Decision		Late contribution	18	5.1.1.2.5	Other system information delivery	0	withdrawn
389	R1-1710267	Paging design in NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			19	5.1.1.3	Paging design	0	available
390	R1-1710268	Discussion on PRACH preamble format details	LG Electronics	Youngwoo Yun	45048	discussion	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
391	R1-1710269	Discussion on PRACH preamble for capacity enhancement	LG Electronics	Youngwoo Yun	45048	discussion	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
392	R1-1710270	Discussion on Power Control issue for Message 1 and 3	LG Electronics	Youngwoo Yun	45048	discussion	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
393	R1-1710271	RACH Procedure	LG Electronics	Youngwoo Yun	45048	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
394	R1-1710272	SS block based RRM Measurement	LG Electronics	Youngwoo Yun	45048	discussion	Decision			26	5.1.1.5.1	Measurement based on SS block	0	available
395	R1-1710273	CSI-RS based RRM Measurement for L3 Mobility	LG Electronics	Youngwoo Yun	45048	discussion	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	noted
396	R1-1710274	Discussion on Radio Link Monitoring in NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
397	R1-1710275	Discussion on codeword mapping	LG Electronics	Youngwoo Yun	45048	discussion	Decision			32	5.1.2.1.1	Codeword mapping	0	available
398	R1-1710276	Discussion on codebook based transmission for UL	LG Electronics	Youngwoo Yun	45048	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	available
399	R1-1710277	Discussion on non-codebook based transmission for UL	LG Electronics	Youngwoo Yun	45048	discussion	Decision			34	5.1.2.1.3	Non-codebook based transmission for UL	0	available
400	R1-1710278	Discussion on diversity transmission for UL	LG Electronics	Youngwoo Yun	45048	discussion	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	available
401	R1-1710279	Discussion on cooperative transmission	LG Electronics	Youngwoo Yun	45048	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
402	R1-1710280	Discussion on rate matching	LG Electronics	Youngwoo Yun	45048	discussion	Decision			38	5.1.2.1.7	Rate matching	0	available
403	R1-1710281	Discussion on DL beam management	LG Electronics	Youngwoo Yun	45048	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
404	R1-1710282	Discussion on UL beam management	LG Electronics	Youngwoo Yun	45048	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
405	R1-1710283	Discussion on beam failure recovery	LG Electronics	Youngwoo Yun	45048	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	noted
406	R1-1710284	Discussion on CSI framework	LG Electronics	Youngwoo Yun	45048	discussion	Decision			45	5.1.2.3.1	CSI framework	0	available
407	R1-1710285	Discussion on interference measurement	LG Electronics	Youngwoo Yun	45048	discussion	Decision			46	5.1.2.3.2	Details of CSI acquisition	0	available
408	R1-1710286	Discussion on CSI acquisition for reciprocity based operation	LG Electronics	Youngwoo Yun	45048	discussion	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	available
409	R1-1710287	Discussion on overhead reduction for Type II codebook	LG Electronics	Youngwoo Yun	45048	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
410	R1-1710288	Discussions on CSI reporting contents	LG Electronics	Youngwoo Yun	45048	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
411	R1-1710289	CSI feedback for OL and semi-OL MIMO	LG Electronics	Youngwoo Yun	45048	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
412	R1-1710290	UL channel utilization for CSI reporting	LG Electronics	Youngwoo Yun	45048	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
413	R1-1710291	On collision avoidance for PTRS and other RSs	LG Electronics	Youngwoo Yun	45048	discussion	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
414	R1-1710292	On CSI-RS design for beam management	LG Electronics	Youngwoo Yun	45048	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
415	R1-1710293	On CSI-RS design for CSI acquisition	LG Electronics	Youngwoo Yun	45048	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
416	R1-1710294	On DL DMRS design	LG Electronics	Youngwoo Yun	45048	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
417	R1-1710295	On UL DMRS design	LG Electronics	Youngwoo Yun	45048	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
418	R1-1710296	On DL PT-RS design	LG Electronics	Youngwoo Yun	45048	discussion	Decision			54	5.1.2.4.4	PT-RS	0	noted
419	R1-1710297	On UL PT-RS design	LG Electronics	Youngwoo Yun	45048	discussion	Decision			54	5.1.2.4.4	PT-RS	0	revised
420	R1-1710298	On SRS design and related operations	LG Electronics	Youngwoo Yun	45048	discussion	Decision			55	5.1.2.4.5	SRS	0	available
421	R1-1710299	Discussion on fine time/frequency tracking of channel	LG Electronics	Youngwoo Yun	45048	discussion	Decision			56	5.1.2.4.6	TRS	0	available
422	R1-1710300	Discussion on QCL for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			57	5.1.2.4.7	QCL	0	available
423	R1-1710301	Phase 3 SLS Calibration Results for NR MIMO	LG Electronics	Youngwoo Yun	45048	discussion	Decision			59	5.1.2.5	Other	0	available
424	R1-1710302	Phase 2 LLS Calibration Results for NR MIMO	LG Electronics	Youngwoo Yun	45048	discussion	Decision			59	5.1.2.5	Other	0	available
425	R1-1710303	Discussion on NR-PDCH structure	LG Electronics	Youngwoo Yun	45048	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCH-to-CCE mapping	0	available
426	R1-1710304	Discussion on reference signal for NR-PDCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			64	5.1.3.1.1.2	RS structure/mapping	0	available

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427	R1-1710305	Discussion on CORESET configuration	LG Electronics	Youngwoo Yun	45048	discussion	Decision			66	5.1.3.1.2.1	CORESET configuration	0	available
428	R1-1710306	Discussion on hierarchical search space structure	LG Electronics	Youngwoo Yun	45048	discussion	Decision			67	5.1.3.1.2.2	Search space design	0	available
429	R1-1710307	Discussion on multi-beam operation for NR-PDCCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
430	R1-1710308	Discussion on multiplexing between control and data	LG Electronics	Youngwoo Yun	45048	discussion	Decision			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
431	R1-1710309	Discussion on the structure of group common PDCCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
432	R1-1710310	Discussion on the contents of group common PDCCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
433	R1-1710311	Discussion on UE behavior for the group common PDCCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
434	R1-1710312	Discussion on DL control with ultra-reliability	LG Electronics	Youngwoo Yun	45048	discussion	Decision			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
435	R1-1710313	Design of short NR-PUCCH for up to 2 UCI bits	LG Electronics	Youngwoo Yun	45048	discussion	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
436	R1-1710314	Design of short NR-PUCCH for more than 2 UCI bits	LG Electronics	Youngwoo Yun	45048	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
437	R1-1710315	Design of long NR-PUCCH for up to 2 UCI bits	LG Electronics	Youngwoo Yun	45048	discussion	Decision			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
438	R1-1710316	Design of long NR-PUCCH for more than 2 UCI bits	LG Electronics	Youngwoo Yun	45048	discussion	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
439	R1-1710317	Support of long NR-PUCCH over multiple slots	LG Electronics	Youngwoo Yun	45048	discussion	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
440	R1-1710318	Consideration on transmit diversity for NR-PUCCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
441	R1-1710319	Consideration on resource allocation for NR-PUCCH	LG Electronics	Youngwoo Yun	45048	discussion	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
442	R1-1710320	Support of UCI piggyback on PUSCH for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
443	R1-1710321	Support of uplink channel multiplexing for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
444	R1-1710322	Discussion on UL control with ultra-reliability	LG Electronics	Youngwoo Yun	45048	discussion	Decision			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
445	R1-1710323	Discussion on frequency-domain resource allocation	LG Electronics	Youngwoo Yun	45048	discussion	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
446	R1-1710324	Discussion on time-domain resource allocation	LG Electronics	Youngwoo Yun	45048	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
447	R1-1710325	Discussion on TB size determination for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			95	5.1.3.3.1.3	Transport block size determination	0	available
448	R1-1710326	Discussion on scheduling request for UL transmission with grant	LG Electronics	Youngwoo Yun	45048	discussion	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
449	R1-1710327	Discussion on UL transmission without grant	LG Electronics	Youngwoo Yun	45048	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
450	R1-1710328	Summary of [89-22] Email discussion about UL data transmission without UL grant	LG Electronics	Youngwoo Yun	45048	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	noted
451	R1-1710329	Consideration on CBG construction for NR HARQ	LG Electronics	Youngwoo Yun	45048	discussion	Decision			99	5.1.3.3.4.1	CBG construction	0	available
452	R1-1710330	Consideration on DCI signaling for CBG based HARQ	LG Electronics	Youngwoo Yun	45048	discussion	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
453	R1-1710331	Consideration on UCI signaling for CBG based HARQ	LG Electronics	Youngwoo Yun	45048	discussion	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
454	R1-1710332	Consideration on HARQ-ACK feedback timing for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
455	R1-1710333	Support of HARQ-ACK multiplexing/bundling for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
456	R1-1710334	Discussion on HARQ process number for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
457	R1-1710335	Discussion on soft buffer management for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			107	5.1.3.3.6.2	Soft-buffer management	0	available
458	R1-1710336	Discussion on pre-emption indication for downlink	LG Electronics	Youngwoo Yun	45048	discussion	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
459	R1-1710337	Discussion on eMBB and URLLC multiplexing for uplink	LG Electronics	Youngwoo Yun	45048	discussion	Decision			110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
460	R1-1710338	Discussion on scheduling and HARQ procedure for URLLC	LG Electronics	Youngwoo Yun	45048	discussion	Decision			111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
461	R1-1710339	Support of cross-CC DCI/UCI transmission for NR CA	LG Electronics	Youngwoo Yun	45048	discussion	Decision			115	5.1.3.4.1.1	Self/cross-carrier scheduling and joint/separate UCI feedback	0	available
462	R1-1710340	Discussion on dual connectivity with single active UL at given time	LG Electronics	Youngwoo Yun	45048	discussion	Decision			117	5.1.3.4.2	Dual connectivity	0	available
463	R1-1710341	Discussion on CRC reduction and attachment for eMBB data	LG Electronics	Youngwoo Yun	45048	discussion	Decision			121	5.1.4.1.1.1	CRC attachment	0	available
464	R1-1710342	Code block segmentation for eMBB	LG Electronics	Youngwoo Yun	45048	discussion	Decision			122	5.1.4.1.1.2	Segmentation	0	noted
465	R1-1710343	On rate matching with LDPC code for eMBB	LG Electronics	Youngwoo Yun	45048	discussion	Decision			123	5.1.4.1.1.3	Rate matching	0	available
466	R1-1710344	Discussion on bit level interleaver	LG Electronics	Youngwoo Yun	45048	discussion	Decision			123	5.1.4.1.1.3	Rate matching	0	noted
467	R1-1710345	Circulant permutation matrix design for LDPC codes	LG Electronics	Youngwoo Yun	45048	discussion			Late contribution	125	5.1.4.1.2	LDPC code design	0	revised
468	R1-1710346	Early termination effect of polar codes	LG Electronics	Youngwoo Yun	45048	discussion	Decision			127	5.1.4.2.1	Code construction	0	available
469	R1-1710347	Repetition scheme of polar codes	LG Electronics	Youngwoo Yun	45048	discussion	Decision			128	5.1.4.2.2	Sequence design	0	revised

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470	R1-1710348	Design of polar codes with high order modulations	LG Electronics	Youngwoo Yun	45048	discussion	Decision			128	5.1.4.2.2	Sequence design	0	available
471	R1-1710349	Details on PBCH coding	LG Electronics	Youngwoo Yun	45048	discussion	Decision			130	5.1.4.3	PBCH	0	available
472	R1-1710350	Discussion on CLI measurement for Duplexing Flexibility	LG Electronics	Youngwoo Yun	45048	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	noted
473	R1-1710351	Discussion on details of backhaul signaling for duplexing flexibility	LG Electronics	Youngwoo Yun	45048	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	available
474	R1-1710352	Remaining details on wider bandwidth operation	LG Electronics	Youngwoo Yun	45048	discussion	Decision			136	5.1.7	Wider bandwidth operations	0	available
475	R1-1710353	Remaining details on DL sharing between LTE and NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	available
476	R1-1710354	Remaining details on UL sharing between LTE and NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	available
477	R1-1710355	Discussion on power sharing for LTE-NR dual connectivity	LG Electronics	Youngwoo Yun	45048	discussion	Decision			139	5.1.9.1	Power sharing mechanism	0	available
478	R1-1710356	Discussion on uplink power control for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			140	5.1.9.2	NR power control framework	0	noted
479	R1-1710357	Discussion on uplink power headroom report for NR	LG Electronics	Youngwoo Yun	45048	discussion	Decision			140	5.1.9.2	NR power control framework	0	available
480	R1-1710358	Multiplexing NCP and ECP	LG Electronics	Youngwoo Yun	45048	discussion	Decision			142	5.1.11	Other	0	available
481	R1-1710359	PT-RS design	Panasonic Corporation	Shotaro Maki	69884	discussion				54	5.1.2.4.4	PT-RS	0	available
482	R1-1710360	Discussion on PRB bundling size for NR DL	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			36	5.1.2.1.5	PRB bundling for DL	0	available
483	R1-1710361	Differential RSRP report for beam management	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
484	R1-1710362	DMRS configurations for CP-OFDM.	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
485	R1-1710363	Considerations on PT-RS for CP-OFDM	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			54	5.1.2.4.4	PT-RS	0	available
486	R1-1710364	Discussion on beam failure recovery	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
487	R1-1710365	Discussion on CSI-RS design for CSI acquisition	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
488	R1-1710366	Discussion on NR-REG to NR-CCE time-/frequency mapping	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
489	R1-1710367	Discussion on 1-symbol PUCCH design	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
490	R1-1710368	The relation among UE-specific DCI, GC-PDCCH, and semi-static signaling	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
491	R1-1710369	NR-PBCH RE mapping and SS block composition	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	noted
492	R1-1710370	Discussion on time index indication	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available
493	R1-1710371	Remaining issues on the subcarrier spacing of SS block	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	available
494	R1-1710372	Remaining issues on SS block and SS burst set composition	vivo	Yu Ding	67720	discussion				10	5.1.1.1.2	SS burst set composition	0	available
495	R1-1710373	Discussion on SS block time index indication	vivo	Yu Ding	67720	discussion				11	5.1.1.1.3	Timing indication based on SS block	0	available
496	R1-1710374	SS block transmissions and RRM measurement in wideband CC	vivo	Yu Ding	67720	discussion				12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
497	R1-1710375	Views on NR-PBCH contents and payload size	vivo	Yu Ding	67720	discussion				14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
498	R1-1710376	NR-PBCH RE mapping and evaluation	vivo	Yu Ding	67720	discussion				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	noted
499	R1-1710377	SS block time index for idle/inactive measurement	vivo	Yu Ding	67720	discussion				26	5.1.1.5.1	Measurement based on SS block	0	withdrawn
500	R1-1710378	CSI-RS configuration for L3 mobility	vivo	Yu Ding	67720	discussion				27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
501	R1-1710379	Identification NSA mode during initial access	vivo	Yu Ding	67720	discussion				18	5.1.1.2.5	Other system information delivery	0	available
502	R1-1710380	Discussion on UL grant-free transmission	vivo	Yu Ding	67720	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
503	R1-1710381	Scheduling and HARQ aspects for URLLC reliability	vivo	Yu Ding	67720	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
504	R1-1710382	Discussion on pre-emption indication for downlink	vivo	Yu Ding	67720	discussion				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
505	R1-1710383	Discussion on UL multiplexing data with different transmission durations	vivo	Yu Ding	67720	discussion				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
506	R1-1710384	Interference analysis for LTE-NR co-existence	vivo	Yu Ding	67720	discussion				137	5.1.8	NR-LTE co-existence	0	noted
507	R1-1710385	Issues on UL transmission for LTE-NR co-existence	vivo	Yu Ding	67720	discussion				137	5.1.8	NR-LTE co-existence	0	available
508	R1-1710386	Discussion on short-PUCCH up to 2-bit	vivo	Yu Ding	67720	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	withdrawn
509	R1-1710387	Discussion on short-PUCCH more than 2-bit	vivo	Yu Ding	67720	discussion				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	revised
510	R1-1710388	Discussion of PUCCH resource indication	vivo	Yu Ding	67720	discussion				85	5.1.3.2.4	Resource allocation for PUCCH	0	withdrawn
511	R1-1710389	DMRS design for NR-PDCCH	vivo	Yu Ding	67720	discussion				64	5.1.3.1.1.2	RS structure/mapping	0	available
512	R1-1710390	Discussion on REG bundling size/structure	vivo	Yu Ding	67720	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available

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513	R1-1710391	Discussion on group common PDCCH and BD	vivo	Yu Ding	67720	discussion				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
514	R1-1710392	Discussion on downlink RA	vivo	Yu Ding	67720	discussion				93	5.1.3.3.1.1	Frequency-domain resource allocatio	0	available
515	R1-1710393	Discussion on search space design supporting dynamic DCI size	vivo	Yu Ding	67720	discussion				67	5.1.3.1.2.2	Search space design	0	available
516	R1-1710394	Discussion on NR UE supporting self-contained operation	vivo	Yu Ding	67720	discussion				106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
517	R1-1710395	DCI content size and compression	vivo	Yu Ding	67720	discussion				75	5.1.3.1.6	Other	0	available
518	R1-1710396	Discussion on CB grouping	vivo	Yu Ding	67720	discussion				99	5.1.3.3.4.1	CBG construction	0	available
519	R1-1710397	Discussion on flexible length scheduling	vivo	Yu Ding	67720	discussion				94	5.1.3.3.1.2	Time-domain resource allocation	0	available
520	R1-1710398	NR transmission on anchor bandwidth part	vivo	Yu Ding	67720	discussion				136	5.1.7	Wider bandwidth operations	0	available
521	R1-1710399	Beam management and beam reporting	vivo	Yu Ding	67720	discussion				41	5.1.2.2.1	Beam management details	0	available
522	R1-1710400	Beam failure recovery procedure	vivo	Yu Ding	67720	discussion				42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
523	R1-1710401	On CSI-RS design for beam management	vivo	Yu Ding	67720	discussion				52	5.1.2.4.2	CSI-RS	0	available
524	R1-1710402	On DL DMRS design	vivo	Yu Ding	67720	discussion				53	5.1.2.4.3	DMRS	0	available
525	R1-1710403	On PT-RS design for CP-OFDM	vivo	Yu Ding	67720	discussion				54	5.1.2.4.4	PT-RS	0	available
526	R1-1710404	UL multi-beam power control	vivo	Yu Ding	67720	discussion				140	5.1.9.2	NR power control framework	0	available
527	R1-1710405	Feasibility study on subband constellation rotation for uplink PAPR reduction for CP-OFDM waveform	vivo	Yu Ding	67720	discussion				142	5.1.11	Other	0	available
528	R1-1710406	PAE consideration on supporting CP-OFDM and DFT-S OFDM	vivo	Yu Ding	67720	discussion				142	5.1.11	Other	0	available
529	R1-1710407	Forward compatibility consideration for ECP design and NR-MBMS	vivo	Yu Ding	67720	discussion				142	5.1.11	Other	0	available
530	R1-1710408	On pre-DFT RS/UCI multiplexing for PUCCH in short duration	Mitsubishi Electric RCE	Cristina Ciocina-Duchesne	56339	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
531	R1-1710409	Views on SRS designs	Mitsubishi Electric Co.	Fumihito Hasegawa	61720	discussion				55	5.1.2.4.5	SRS	0	revised
532	R1-1710410	Evaluation of DL DMRS designs	Mitsubishi Electric Co.	Fumihito Hasegawa	61720	discussion				53	5.1.2.4.3	DMRS	0	available
533	R1-1710411	Views on DL DMRS designs	Mitsubishi Electric Co.	Fumihito Hasegawa	61720	discussion				53	5.1.2.4.3	DMRS	0	available
534	R1-1710412	NR SS block and burst set composition	AT&T	Milap Majmudar	70953	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	noted
535	R1-1710413	Further details on forward compatible resources in NR	AT&T	Milap Majmudar	70953	discussion	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocatio	0	available
536	R1-1710414	Transmission duration indication for symbol-level/slot-level/multi-slot-level scheduling	AT&T	Milap Majmudar	70953	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
537	R1-1710415	Remaining details on the number of HARQ processes in NR	AT&T	Milap Majmudar	70953	discussion	Decision			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
538	R1-1710416	Design considerations for NR operation with wide bandwidths	AT&T	Milap Majmudar	70953	discussion	Decision			136	5.1.7	Wider bandwidth operations	0	available
539	R1-1710417	Remaining details of NR-LTE coexistence in overlapping spectrum	AT&T	Milap Majmudar	70953	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	noted
540	R1-1710418	HARQ-ACK feedback timing for FDD, semi-static TDD and mini-slot based transmissions	AT&T	Milap Majmudar	70953	discussion	Decision			103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
541	R1-1710419	SS block time index indication	AT&T	Milap Majmudar	70953	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available
542	R1-1710420	SS block transmissions in a wideband CC	AT&T	Milap Majmudar	70953	discussion	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
543	R1-1710421	Details of NR-PBCH contents	AT&T	Milap Majmudar	70953	discussion	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
544	R1-1710422	DL Tx beam reporting in msg. 3	AT&T	Milap Majmudar	70953	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
545	R1-1710423	Measurement based on SS block	AT&T	Milap Majmudar	70953	discussion	Decision			26	5.1.1.5.1	Measurement based on SS block	0	available
546	R1-1710424	Measurement based on CSI-RS for L3 mobility	AT&T	Milap Majmudar	70953	discussion	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
547	R1-1710425	Radio link monitoring	AT&T	Milap Majmudar	70953	discussion	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
548	R1-1710426	Remaining details of codeword mapping for NR MIMO	AT&T	Milap Majmudar	70953	discussion	Decision			32	5.1.2.1.1	Codeword mapping	0	noted
549	R1-1710427	UL diversity transmission for NR	AT&T	Milap Majmudar	70953	discussion	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	noted
550	R1-1710428	On the details of multi-TRP and multi-panel transmission	AT&T	Milap Majmudar	70953	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
551	R1-1710429	On the need of per RE level PDSCH rate-matching and RE mapping signalling	AT&T	Milap Majmudar	70953	discussion	Decision			38	5.1.2.1.7	Rate matching	0	available
552	R1-1710430	DL beam management details	AT&T	Milap Majmudar	70953	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
553	R1-1710431	Considerations on beam failure recovery mechanism	AT&T	Milap Majmudar	70953	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
554	R1-1710432	Discussion on the channels to carry CSI report	AT&T	Milap Majmudar	70953	discussion	Decision			45	5.1.2.3.1	CSI framework	0	available
555	R1-1710433	On the details of CSI acquisition	AT&T	Milap Majmudar	70953	discussion	Decision			46	5.1.2.3.2	Details of CSI acquisition	0	available

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556	R1-1710434	CSI feedback for closed loop and semi open loop transmission schemes	AT&T	Milap Majmundar	70953	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
557	R1-1710435	Multiplexing of CSI-RS with PDSCH in mixed numerology scenarios	AT&T	Milap Majmundar	70953	discussion	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	noted
558	R1-1710436	Remaining details of CSI-RS	AT&T	Milap Majmundar	70953	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
559	R1-1710437	Control channel configuration for multi-TRP and multi-panel transmission	AT&T	Milap Majmundar	70953	discussion	Decision			68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
560	R1-1710438	Group common PDCCH Structure for NR	AT&T	Milap Majmundar	70953	discussion	Decision			71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
561	R1-1710439	On the contents of group common PDCCH	AT&T	Milap Majmundar	70953	discussion	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
562	R1-1710440	UE behaviour for group common PDCCH	AT&T	Milap Majmundar	70953	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
563	R1-1710441	Transmit diversity for PUCCH	AT&T	Milap Majmundar	70953	discussion	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	withdrawn
564	R1-1710442	On CBG construction for NR PDSCH and PUSCH	AT&T	Milap Majmundar	70953	discussion	Decision			99	5.1.3.3.4.1	CBG construction	0	available
565	R1-1710443	DCI design for CBG based re transmission	AT&T	Milap Majmundar	70953	discussion	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
566	R1-1710444	Uplink control channel design for CBG based re transmission	AT&T	Milap Majmundar	70953	discussion	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
567	R1-1710445	Minimum UE bandwidth in NR	Huawei, HiSilicon	Brian Classon	45750	discussion				29	5.1.1.6	Other	0	available
568	R1-1710446	Codeword to layer mapping in NR	Huawei, HiSilicon	Brian Classon	45750	other				32	5.1.2.1.1	Codeword mapping	0	noted
569	R1-1710447	Codebook based transmission for UL MIMO	Huawei, HiSilicon	Brian Classon	45750	other				33	5.1.2.1.2	Codebook based transmission for UL	0	available
570	R1-1710448	Diversity-based transmission for UL	Huawei, HiSilicon	Brian Classon	45750	other				35	5.1.2.1.4	Diversity transmission for UL	0	available
571	R1-1710449	General views on DL beam management	Huawei, HiSilicon	Brian Classon	45750	other				41	5.1.2.2.1	Beam management details	0	revised
572	R1-1710450	Multi-beam transmission for DL control channel	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
573	R1-1710451	CSI acquisition details for NCJT	Huawei, HiSilicon	Brian Classon	45750	other				37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
574	R1-1710452	CSI acquisition details for hybrid CSI	Huawei, HiSilicon	Brian Classon	45750	other				48	5.1.2.3.4	CSI feedback	0	available
575	R1-1710453	The remaining issues for Type I codebook	Huawei, HiSilicon	Brian Classon	45750	other				48	5.1.2.3.4	CSI feedback	0	available
576	R1-1710454	The remaining issues for Type II codebook	Huawei, HiSilicon	Brian Classon	45750	other				48	5.1.2.3.4	CSI feedback	0	available
577	R1-1710455	Signaling of DMRS ports for SU/MU-MIMO	Huawei, HiSilicon	Brian Classon	45750	other				58	5.1.2.4.8	Other	0	available
578	R1-1710456	DMRS design for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				58	5.1.2.4.8	Other	0	available
579	R1-1710457	Considerations on UE-specific RS Sequence Design	Huawei, HiSilicon	Brian Classon	45750	other				58	5.1.2.4.8	Other	0	available
580	R1-1710458	Discussion on UL DMRS power boosting	Huawei, HiSilicon	Brian Classon	45750	other				58	5.1.2.4.8	Other	0	available
581	R1-1710459	Discussion on UL SRS transmission power	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
582	R1-1710460	Resource sharing between NR-PDCCH and data	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
583	R1-1710461	PUCCH resource allocation for HARQ-ACK and SR	Huawei, HiSilicon	Brian Classon	45750	other				85	5.1.3.2.4	Resource allocation for PUCCH	0	available
584	R1-1710462	On HARQ-ACK multiplexing and/or bundling	Huawei, HiSilicon	Brian Classon	45750	other				104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
585	R1-1710463	Transmit diversity for PUCCH	Huawei, HiSilicon	Brian Classon	45750	other				84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
586	R1-1710464	Multiplexing of PUCCH and PUSCH	Huawei, HiSilicon	Brian Classon	45750	other				88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
587	R1-1710465	On uplink data scheduling	Huawei, HiSilicon	Brian Classon	45750	other				96	5.1.3.3.2	UL data transmission procedure with grant	0	available
588	R1-1710466	Consideration on subsequent transmission after pre-emption	Huawei, HiSilicon	Brian Classon	45750	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
589	R1-1710467	DCI design for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
590	R1-1710468	Discussion on Multi-TRP cooperation for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
591	R1-1710469	Support of URLLC for TDD	Huawei, HiSilicon	Brian Classon	45750	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
592	R1-1710470	Necessity of multiple sequence for Polar code	Huawei, HiSilicon	Brian Classon	45750	other				128	5.1.4.2.2	Sequence design	0	noted
593	R1-1710471	CRC polynomial for L1 control information and MIB	Huawei, HiSilicon	Brian Classon	45750	other				131	5.1.4.4	Other	0	available
594	R1-1710472	Benefits of implicit soft combining for PBCH by Polar code construction	Huawei, HiSilicon	Brian Classon	45750	other				130	5.1.4.3	PBCH	0	revised
595	R1-1710473	Network-based mechanism for millimeter-wave link recovery	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
596	R1-1710474	Further consideration on pi/2 BPSK with FDSS	Huawei, HiSilicon	Brian Classon	45750	other				132	5.1.5	Modulation	0	available
597	R1-1710475	Discussion on PHR calculation	Huawei, HiSilicon	Brian Classon	45750	other				140	5.1.9.2	NR power control framework	0	available
598	R1-1710476	UE behavior related to group-common PDCCH	Huawei, HiSilicon	Brian Classon	45750	other				73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available

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599	R1-1710477	Discussion on other system information delivery	Huawei, HiSilicon	Brian Classon	45750	other				18	5.1.1.2.5	Other system information delivery	0	available
600	R1-1710478	RACH procedures and resource configuration	Huawei, HiSilicon	Brian Classon	45750	other				24	5.1.1.4.4	4-step RA procedure	0	available
601	R1-1710479	Evaluation of PM based early termination for Polar code	Huawei, HiSilicon	Brian Classon	45750	other				127	5.1.4.2.1	Code construction	0	available
602	R1-1710480	CRC Attachment for Code Block Group	Ericsson	Yufei Blankenship	59257	discussion				121	5.1.4.1.1.1	CRC attachment	0	available
603	R1-1710481	Study of Number of CRC Bits for Code Blocks	Ericsson	Yufei Blankenship	59257	discussion				121	5.1.4.1.1.1	CRC attachment	0	available
604	R1-1710482	Study of Number of CRC Bits for Small Transport Block	Ericsson	Yufei Blankenship	59257	discussion				121	5.1.4.1.1.1	CRC attachment	0	noted
605	R1-1710483	LDPC Code Performance at High Code Rate	Ericsson	Yufei Blankenship	59257	discussion				123	5.1.4.1.1.3	Rate matching	0	available
606	R1-1710484	Bit Ordering for Circular Buffer of LDPC Codes	Ericsson	Yufei Blankenship	59257	discussion				123	5.1.4.1.1.3	Rate matching	0	noted
607	R1-1710485	Rate Matching for NR LDPC codes	Ericsson	Yufei Blankenship	59257	discussion				123	5.1.4.1.1.3	Rate matching	0	noted
608	R1-1710486	Throughput Requirements of LDPC Decoder	Ericsson	Yufei Blankenship	59257	discussion				124	5.1.4.1.1.4	Other	0	available
609	R1-1710487	LDPC Code Design for Base Graph #1	Ericsson	Yufei Blankenship	59257	discussion			Late contr bution	125	5.1.4.1.2	LDPC code design	0	available
610	R1-1710488	LDPC Code Design for Base Graph #2	Ericsson	Yufei Blankenship	59257	discussion			Late contr bution	125	5.1.4.1.2	LDPC code design	0	available
611	R1-1710489	Application of Two Base Graphs for NR Data Channels	Ericsson	Yufei Blankenship	59257	discussion				125	5.1.4.1.2	LDPC code design	0	available
612	R1-1710490	CRC-based Polar Code Construction	Ericsson	Yufei Blankenship	59257	discussion				127	5.1.4.2.1	Code construction	0	noted
613	R1-1710491	Study of Early Termination for DCI	Ericsson	Yufei Blankenship	59257	discussion				127	5.1.4.2.1	Code construction	0	available
614	R1-1710492	Information Sequence Design for Polar Codes	Ericsson	Yufei Blankenship	59257	discussion			Late contr bution	128	5.1.4.2.2	Sequence design	0	withdrawn
615	R1-1710493	On Bit Mapping Design for Polar Codes	Ericsson	Yufei Blankenship	59257	discussion				128	5.1.4.2.2	Sequence design	0	revised
616	R1-1710494	Impact of Puncturing on Bit-channel Capacities	Ericsson	Yufei Blankenship	59257	discussion				128	5.1.4.2.2	Sequence design	0	revised
617	R1-1710495	Polar Code Performance in Fading Channel	Ericsson	Yufei Blankenship	59257	discussion				128	5.1.4.2.2	Sequence design	0	revised
618	R1-1710496	Thresholds for Mother Code Size Determination	Ericsson	Yufei Blankenship	59257	discussion				128	5.1.4.2.2	Sequence design	0	available
619	R1-1710497	Study of Number of CRC Bits for PBCH	Ericsson	Yufei Blankenship	59257	discussion				130	5.1.4.3	PBCH	0	available
620	R1-1710498	Polar Code Design for NR-PBCH	Ericsson	Yufei Blankenship	59257	discussion				130	5.1.4.3	PBCH	0	available
621	R1-1710499	LDPC Code Performance for High Reliability Use Cases	Ericsson	Yufei Blankenship	59257	discussion				131	5.1.4.4	Other	0	available
622	R1-1710500	Draft Reply LS on reading time index indication for RRM measurements	Intel Corporation	Seunghee Han	47329	LS out	Decision			4	4	Incoming Liaison Statements	0	noted
623	R1-1710501	NR PSS and SSS design	Intel Corporation	Seunghee Han	47329	discussion	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	noted
624	R1-1710502	SS Burst Set Composition	Intel Corporation	Seunghee Han	47329	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	available
625	R1-1710503	Time Index Signaling for SS Blocks	Intel Corporation	Seunghee Han	47329	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	revised
626	R1-1710504	SS Block(s) in Wideband Operation	Intel Corporation	Seunghee Han	47329	discussion	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
627	R1-1710505	NR PBCH Design	Intel Corporation	Seunghee Han	47329	discussion	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
628	R1-1710506	SS Block Composition	Intel Corporation	Seunghee Han	47329	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	revised
629	R1-1710507	DMRS Sequence for NR PBCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
630	R1-1710508	RMSI Delivery Mechanisms	Intel Corporation	Seunghee Han	47329	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
631	R1-1710509	NR Paging Design	Intel Corporation	Seunghee Han	47329	discussion	Decision			19	5.1.1.3	Paging design	0	available
632	R1-1710510	NR PRACH Preamble design	Intel Corporation	Seunghee Han	47329	discussion	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
633	R1-1710511	Discussions on PRACH Capacity	Intel Corporation	Seunghee Han	47329	discussion	Decision		Late contr bution	22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
634	R1-1710512	PRACH Power ramping procedure	Intel Corporation	Seunghee Han	47329	discussion	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
635	R1-1710513	4-step PRACH Procedures	Intel Corporation	Seunghee Han	47329	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
636	R1-1710514	SS Block based RRM Measurements	Intel Corporation	Seunghee Han	47329	discussion	Decision			26	5.1.1.5.1	Measurement based on SS block	0	available
637	R1-1710515	CSI-RS based RRM Measurements	Intel Corporation	Seunghee Han	47329	discussion	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
638	R1-1710516	NR Radio Link Monitoring	Intel Corporation	Seunghee Han	47329	discussion	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
639	R1-1710517	Remaining details on CW to MIMO layer mapping	Intel Corporation	Seunghee Han	47329	discussion	Decision			32	5.1.2.1.1	Codeword mapping	0	noted
640	R1-1710518	On codebook based UL transmission	Intel Corporation	Seunghee Han	47329	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	noted

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641	R1-1710519	On non-codebook based UL transmission	Intel Corporation	Seunghee Han	47329	discussion	Decision			34	5.1.2.1.3	Non-codebook based transmission for UL	0	available
642	R1-1710520	On diversity based UL transmission	Intel Corporation	Seunghee Han	47329	discussion	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	available
643	R1-1710521	On PRB bundling for DL	Intel Corporation	Seunghee Han	47329	discussion	Decision			36	5.1.2.1.5	PRB bundling for DL	0	available
644	R1-1710522	Discussion on uplink multi-panel and multi-TRP operation	Intel Corporation	Seunghee Han	47329	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	noted
645	R1-1710523	Support of downlink NC-JT in NR	Intel Corporation	Seunghee Han	47329	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
646	R1-1710524	Rate matching for NR	Intel Corporation	Seunghee Han	47329	discussion	Decision			38	5.1.2.1.7	Rate matching	0	available
647	R1-1710525	Details for UL Beam Management	Intel Corporation	Seunghee Han	47329	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
648	R1-1710526	Details for DL Beam Management	Intel Corporation	Seunghee Han	47329	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
649	R1-1710527	Discussion for Mechanism to Recover from Beam Failure	Intel Corporation	Seunghee Han	47329	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	noted
650	R1-1710528	On Timing Advance for multi-beam operation	Intel Corporation	Seunghee Han	47329	discussion	Decision			43	5.1.2.2.3	Other	0	available
651	R1-1710529	On NR CSI framework	Intel Corporation	Seunghee Han	47329	discussion	Decision			45	5.1.2.3.1	CSI framework	0	available
652	R1-1710530	On Details of CSI acquisition	Intel Corporation	Seunghee Han	47329	discussion	Decision			46	5.1.2.3.2	Details of CSI acquisition	0	noted
653	R1-1710531	On multiplexing of different RS types	Intel Corporation	Seunghee Han	47329	discussion	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
654	R1-1710532	On CSI-RS for beam management	Intel Corporation	Seunghee Han	47329	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	noted
655	R1-1710533	On CSI-RS for CSI acquisition	Intel Corporation	Seunghee Han	47329	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
656	R1-1710534	On the remaining details of DM-RS design	Intel Corporation	Seunghee Han	47329	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
657	R1-1710535	On PT-RS for CP-OFDM	Intel Corporation	Seunghee Han	47329	discussion	Decision			54	5.1.2.4.4	PT-RS	0	noted
658	R1-1710536	On PT-RS for DFT-s-OFDM	Intel Corporation	Seunghee Han	47329	discussion	Decision			54	5.1.2.4.4	PT-RS	0	noted
659	R1-1710537	Discussion on SRS for NR	Intel Corporation	Seunghee Han	47329	discussion	Decision			55	5.1.2.4.5	SRS	0	available
660	R1-1710538	Discussion on TRS	Intel Corporation	Seunghee Han	47329	discussion	Decision			56	5.1.2.4.6	TRS	0	available
661	R1-1710539	On QCL for different BW parts and other QCL details	Intel Corporation	Seunghee Han	47329	discussion	Decision			57	5.1.2.4.7	QCL	0	noted
662	R1-1710540	Calibration results for Phase 2 NR MIMO system level calibration	Intel Corporation	Seunghee Han	47329	discussion	Decision			59	5.1.2.5	Other	0	available
663	R1-1710541	NR PDCCH physical structure	Intel Corporation	Seunghee Han	47329	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	noted
664	R1-1710542	On DM-RS design for NR PDCCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			64	5.1.3.1.1.2	RS structure/mapping	0	available
665	R1-1710543	CORESETs for NR PDCCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			66	5.1.3.1.2.1	CORESET configuration	0	available
666	R1-1710544	NR PDCCH: Search spaces and monitoring behavior	Intel Corporation	Seunghee Han	47329	discussion	Decision			67	5.1.3.1.2.2	Search space design	0	available
667	R1-1710545	Multi-beam operation for NR PDCCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
668	R1-1710546	Dynamic resource sharing between control and data	Intel Corporation	Seunghee Han	47329	discussion	Decision			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
669	R1-1710547	Group-common PDCCH: Physical structure	Intel Corporation	Seunghee Han	47329	discussion	Decision			71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
670	R1-1710548	Group-common PDCCH: Contents	Intel Corporation	Seunghee Han	47329	discussion	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
671	R1-1710549	Group-common PDCCH: UE behavior	Intel Corporation	Seunghee Han	47329	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
672	R1-1710550	Satisfying ultra-reliability targets for NR PDCCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
673	R1-1710551	Performance of short PUCCH format for 1~2 bits HARQ ACK	Intel Corporation	Seunghee Han	47329	discussion	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
674	R1-1710552	2-symbol NR PUCCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
675	R1-1710553	Structure of 1~2 bits HARQ-ACK long PUCCH with TDM DMRS	Intel Corporation	Seunghee Han	47329	discussion	Decision			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
676	R1-1710554	Long PUCCH for moderate and large payload	Intel Corporation	Seunghee Han	47329	discussion	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
677	R1-1710555	Long PUCCH over multiple slots	Intel Corporation	Seunghee Han	47329	discussion	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
678	R1-1710556	Transmit diversity for PUCCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
679	R1-1710557	Resource allocation for PUCCH during initial access	Intel Corporation	Seunghee Han	47329	discussion	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
680	R1-1710558	UCI multiplexing onto PUSCH	Intel Corporation	Seunghee Han	47329	discussion	Decision			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
681	R1-1710559	PUCCH-PUSCH multiplexing	Intel Corporation	Seunghee Han	47329	discussion	Decision			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
682	R1-1710560	On UL control channel design aspects for URLLC	Intel Corporation	Seunghee Han	47329	discussion	Decision			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
683	R1-1710561	Configurations of various long PUCCH lengths	Intel Corporation	Seunghee Han	47329	discussion	Decision			90	5.1.3.2.7	Other	0	available

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684	R1-1710562	Short PUCCH formats for 1~2 bits UCI	Intel Corporation	Seunghee Han	47329	discussion	Decision			90	5.1.3.2.7	Other	0	available
685	R1-1710563	Cyclic shift assignment and CM for FDM DMRS and UC	Intel Corporation	Seunghee Han	47329	discussion	Decision			90	5.1.3.2.7	Other	0	available
686	R1-1710564	Short UL control channel early in a slot	Intel Corporation	Seunghee Han	47329	discussion	Decision			90	5.1.3.2.7	Other	0	available
687	R1-1710565	DL/UL data frequency-domain resource allocation	Intel Corporation	Seunghee Han	47329	discussion	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
688	R1-1710566	Time-domain resource allocation for DL and UL data	Intel Corporation	Seunghee Han	47329	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
689	R1-1710567	SR configuration and UL data scheduling	Intel Corporation	Seunghee Han	47329	discussion	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
690	R1-1710568	UL grant-free transmissions: Resource configuration	Intel Corporation	Seunghee Han	47329	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
691	R1-1710569	On CBG construction	Intel Corporation	Seunghee Han	47329	discussion	Decision			99	5.1.3.3.4.1	CBG construction	0	available
692	R1-1710570	DCI design and scheduling of CBG-based (re)transmissions	Intel Corporation	Seunghee Han	47329	discussion	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
693	R1-1710571	HARQ-ACK feedback for CBG-based (re)transmissions	Intel Corporation	Seunghee Han	47329	discussion	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
694	R1-1710572	HARQ-ACK multiplexing and bundling	Intel Corporation	Seunghee Han	47329	discussion	Decision			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
695	R1-1710573	On HARQ processes and HARQ RTT	Intel Corporation	Seunghee Han	47329	discussion	Decision			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
696	R1-1710574	Soft-buffer requirements in NR	Intel Corporation	Seunghee Han	47329	discussion	Decision			107	5.1.3.3.6.2	Soft-buffer management	0	available
697	R1-1710575	Remaining details of DL pre-emption indication	Intel Corporation	Seunghee Han	47329	discussion	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
698	R1-1710576	Multiplexing of UL transmissions with different data durations and latency requirements	Intel Corporation	Seunghee Han	47329	discussion	Decision			110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
699	R1-1710577	On link adaptation enhancements to support URLLC	Intel Corporation	Seunghee Han	47329	discussion	Decision			111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
700	R1-1710578	Scheduling and UCI feedback for carrier aggregation	Intel Corporation	Seunghee Han	47329	discussion	Decision			115	5.1.3.4.1.1	Self-/cross-carrier scheduling and joint/separate UCI feedback	0	available
701	R1-1710579	On SRS fast switching	Intel Corporation	Seunghee Han	47329	discussion	Decision			116	5.1.3.4.1.2	SRS fast switching	0	available
702	R1-1710580	On Dual Connectivity for NR	Intel Corporation	Seunghee Han	47329	discussion	Decision			117	5.1.3.4.2	Dual connectivity	0	available
703	R1-1710581	Details on cross-link interference measurement	Intel Corporation	Seunghee Han	47329	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	noted
704	R1-1710582	On RS transmission location for cross-link interference measurement for NR duplex flexibility	Intel Corporation	Seunghee Han	47329	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	available
705	R1-1710583	Open issues for wider bandwidth operations	Intel Corporation	Seunghee Han	47329	discussion	Decision			136	5.1.7	Wider bandwidth operations	0	available
706	R1-1710584	Open issues for LTE-NR coexistence	Intel Corporation	Seunghee Han	47329	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	noted
707	R1-1710585	Power sharing mechanism for NR dual connectivity	Intel Corporation	Seunghee Han	47329	discussion	Decision			139	5.1.9.1	Power sharing mechanism	0	available
708	R1-1710586	PUSCH and PUCCH power control	Intel Corporation	Seunghee Han	47329	discussion	Decision			140	5.1.9.2	NR power control framework	0	available
709	R1-1710587	Polar code construction for NR control channel	NEC Corporation	Prakash Chaki	70856	discussion				127	5.1.4.2.1	Code construction	0	available
710	R1-1710588	Results for short PUCCH for UCI of up to 2 bits	IITH	Kuchi Kiran	61192	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
711	R1-1710589	Further discussion on pre-DFT multiplexing for short PUCCH	IITH	Kuchi Kiran	61192	discussion				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
712	R1-1710590	Views on long-duration PUCCH	IITH	Kuchi Kiran	61192	discussion				80	5.1.3.2.2	PUCCH in long-duration	0	available
713	R1-1710591	Sequence design evaluation for rate-matched polar codes	NEC Corporation	Prakash Chaki	70856	discussion				128	5.1.4.2.2	Sequence design	0	available
714	R1-1710592	Next steps for pi/2 BPSK with spectrum shaping	IITH	Kuchi Kiran	61192	discussion				132	5.1.5	Modulation	0	available
715	R1-1710593	Discussion on CBG grouping	Guangdong OPPO Mobile Telecom.	Jia Shen	67727	discussion	Decision			99	5.1.3.3.4.1	CBG construction	0	available
716	R1-1710594	On codeword to RE mapping scheme	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			32	5.1.2.1.1	Codeword mapping	0	available
717	R1-1710595	Discussion of RS for DL beam management	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			41	5.1.2.2.1	Beam management details	0	available
718	R1-1710596	Discussion of beam recovery procedure	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
719	R1-1710597	Enhanced SR carried in UL control channel	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
720	R1-1710598	Long PUCCH design for UCI of up to 2 bits	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
721	R1-1710599	Long PUCCH design for UCI of more than 2 bits	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
722	R1-1710600	Long PUCCH over multiple slots	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
723	R1-1710601	UL grant-free transmission for URLLC	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
724	R1-1710602	CBG construction for CBG-based retransmission	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			99	5.1.3.3.4.1	CBG construction	0	available
725	R1-1710603	DL control signalling for CBG-based retransmission	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
726	R1-1710604	UL HARQ-ACK feedback for CBG-based retransmission	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available

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727	R1-1710605	HARQ-ACK codebook design for CBG-based transmission	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
728	R1-1710606	On eMBB/URLLC multiplexing for uplink transmission	Lenovo, Motorola Mobility	Chenxi Zhu	64707	discussion	Discussion			110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
729	R1-1710607	On DM-RS for NR	Intel Corporation	Seunghee Han	47329	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
730	R1-1710608	Delivery of remaining minimum system information	ETRI	Jihyung Kim	65152	discussion				17	5.1.1.2.4	Remaining minimum system information delivery	0	available
731	R1-1710609	Delivery of other system information	ETRI	Jihyung Kim	65152	discussion				18	5.1.1.2.5	Other system information delivery	0	available
732	R1-1710610	NR-PRACH for various use cases	ETRI	Jihyung Kim	65152	discussion				22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
733	R1-1710611	Discussion on codeword mapping	ETRI	Jihyung Kim	65152	discussion				32	5.1.2.1.1	Codeword mapping	0	available
734	R1-1710612	Discussion on downlink DMRS design	ETRI	Jihyung Kim	65152	discussion				53	5.1.2.4.3	DMRS	0	available
735	R1-1710613	Discussion on uplink DMRS design	ETRI	Jihyung Kim	65152	discussion				53	5.1.2.4.3	DMRS	0	available
736	R1-1710614	NR-PDCCH mapping structure and REG bundle size	ETRI	Jihyung Kim	65152	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
737	R1-1710615	DMRS design for NR-PDCCH	ETRI	Jihyung Kim	65152	discussion				64	5.1.3.1.1.2	RS structure/mapping	0	available
738	R1-1710616	NR-PDCCH for broadcast information delivery	ETRI	Jihyung Kim	65152	discussion				68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
739	R1-1710617	Discussion on dynamic indication of PDSCH start symbol	ETRI	Jihyung Kim	65152	discussion				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
740	R1-1710618	Short-PUCCH for UCI of up to 2 bits	ETRI	Jihyung Kim	65152	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
741	R1-1710619	Short-PUCCH for UCI of more than 2 bits	ETRI	Jihyung Kim	65152	discussion				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
742	R1-1710620	Long-PUCCH over multiple slots	ETRI	Jihyung Kim	65152	discussion				83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
743	R1-1710621	Resource allocation and transmission scheme for URLLC grant-free transmission	ETRI	Jihyung Kim	65152	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
744	R1-1710622	UE bandwidth configuration during initial access	ETRI	Jihyung Kim	65152	discussion				136	5.1.7	Wider bandwidth operations	0	available
745	R1-1710623	Remaining details on SS sequence design	Samsung	Younsun Kim	43499	other	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	available
746	R1-1710624	SS burst set composition	Samsung	Younsun Kim	43499	other	Decision			10	5.1.1.1.2	SS burst set composition	0	revised
747	R1-1710625	Timing indication based on SS block	Samsung	Younsun Kim	43499	other	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	revised
748	R1-1710626	Remaining details on multiple SS block transmissions in wideband CC	Samsung	Younsun Kim	43499	other	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
749	R1-1710627	NR-PBCH contents and payload size	Samsung	Younsun Kim	43499	other	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
750	R1-1710628	NR-PBCH RE mapping and SS block composition	Samsung	Younsun Kim	43499	other	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	noted
751	R1-1710629	Sequence design of DMRS for NR-PBCH	Samsung	Younsun Kim	43499	other	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
752	R1-1710630	Remaining minimum system information delivery	Samsung	Younsun Kim	43499	other	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
753	R1-1710631	Other system information delivery	Samsung	Younsun Kim	43499	other	Decision			18	5.1.1.2.5	Other system information delivery	0	available
754	R1-1710632	Paging design	Samsung	Younsun Kim	43499	other	Decision			19	5.1.1.3	Paging design	0	available
755	R1-1710633	PRACH preamble format details for long/short sequence length	Samsung	Younsun Kim	43499	other	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
756	R1-1710634	PRACH preamble format details for capacity enhancement and beam management	Samsung	Younsun Kim	43499	other	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
757	R1-1710635	Power ramping and power control during RA procedure	Samsung	Younsun Kim	43499	other	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
758	R1-1710636	4-step RACH procedure	Samsung	Younsun Kim	43499	other	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
759	R1-1710637	Measurement based on SS block	Samsung	Younsun Kim	43499	other	Decision			26	5.1.1.5.1	Measurement based on SS block	0	noted
760	R1-1710638	Measurement based on CSI-RS for L3 mobility	Samsung	Younsun Kim	43499	other	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	revised
761	R1-1710639	Radio link monitoring	Samsung	Younsun Kim	43499	other	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
762	R1-1710640	Discussion on SS periodicity and PBCH TTI	Samsung	Younsun Kim	43499	discussion				29	5.1.1.6	Other	0	available
763	R1-1710641	Considerations on PRACH design in high-mobility scenario	Samsung	Younsun Kim	43499	discussion				29	5.1.1.6	Other	0	available
764	R1-1710642	Finalizing Layer Mapping	Samsung	Younsun Kim	43499	other	Decision			32	5.1.2.1.1	Codeword mapping	0	noted
765	R1-1710643	Codebook-Based UL Transmission	Samsung	Younsun Kim	43499	other	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	noted
766	R1-1710644	Discussion on Non-Codebook-Based UL Transmission	Samsung	Younsun Kim	43499	other	Decision			34	5.1.2.1.3	Non-codebook based transmission fo UL	0	noted
767	R1-1710645	Diversity transmission for UL	Samsung	Younsun Kim	43499	other	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	available
768	R1-1710646	PRB bundling for NR DMRS	Samsung	Younsun Kim	43499	other	Decision			36	5.1.2.1.5	PRB bundling for DL	0	available

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769	R1-1710647	Discussions on NR DL network coordination	Samsung	Younsun Kim	43499	other	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
770	R1-1710648	Discussions on NR UL multi-panel/multi-TRP	Samsung	Younsun Kim	43499	other	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	noted
771	R1-1710649	On PDSCH rate matching for NR	Samsung	Younsun Kim	43499	other	Decision			38	5.1.2.1.7	Rate matching	0	noted
772	R1-1710650	Discussion on transmission parameter sets	Samsung	Younsun Kim	43499	other	Decision			39	5.1.2.1.8	Other	0	available
773	R1-1710651	Discussion of number of PDSCHs in NR-CoMP	Samsung	Younsun Kim	43499	other	Decision			39	5.1.2.1.8	Other	0	available
774	R1-1710652	Multi-TA procedures for Multi-TRP	Samsung	Younsun Kim	43499	other	Decision			39	5.1.2.1.8	Other	0	available
775	R1-1710653	UL beam management	Samsung	Younsun Kim	43499	other	Decision			41	5.1.2.2.1	Beam management details	0	available
776	R1-1710654	DL beam management for NR	Samsung	Younsun Kim	43499	other	Decision			41	5.1.2.2.1	Beam management details	0	noted
777	R1-1710655	Beam failure recovery	Samsung	Younsun Kim	43499	other	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
778	R1-1710656	Measurement and reporting for beam management	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
779	R1-1710657	Discussion on Group based reporting	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
780	R1-1710658	Discussion on Tx beam grouping configuration	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
781	R1-1710659	Discussion on beam indication for PDSCH	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
782	R1-1710660	L1 RSRP reporting for beam management	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
783	R1-1710661	L1-RSRP measurement duration	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
784	R1-1710662	On SS-block based beam management	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	noted
785	R1-1710663	DL beam management configuration	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
786	R1-1710664	QCL associations for beam management RS	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
787	R1-1710665	Aperiodic BSI reporting	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
788	R1-1710666	Beam management for PDCCH	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	revised
789	R1-1710667	CSI Acquisition and Beam Management Framework	Samsung	Younsun Kim	43499	other	Decision			45	5.1.2.3.1	CSI framework	0	available
790	R1-1710668	Discussions on CSI measurements and reporting for NR	Samsung	Younsun Kim	43499	other	Decision			46	5.1.2.3.2	Details of CSI acquisition	0	available
791	R1-1710669	CSI Reporting for Reciprocity Operation	Samsung	Younsun Kim	43499	other	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	noted
792	R1-1710670	Remaining details of Type I and Type II CSI codebooks	Samsung	Younsun Kim	43499	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
793	R1-1710671	CSI support for transparent precoder cycling	Samsung	Younsun Kim	43499	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
794	R1-1710672	CSI parameters and multiplexing	Samsung	Younsun Kim	43499	other	Decision			48	5.1.2.3.4	CSI feedback	0	noted
795	R1-1710673	Differential reporting of Type II CSI	Samsung	Younsun Kim	43499	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
796	R1-1710674	On higher rank (3 and 4) Type II CSI	Samsung	Younsun Kim	43499	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
797	R1-1710675	Discussion on CSI-RS Resource Activation	Samsung	Younsun Kim	43499	other	Decision			49	5.1.2.3.5	Other	0	available
798	R1-1710676	Discussions on channel and interference measurements for NR	Samsung	Younsun Kim	43499	other	Decision			49	5.1.2.3.5	Other	0	available
799	R1-1710677	Discussions on CSI Feedback Signalling Overhead Reduction	Samsung	Younsun Kim	43499	other	Decision			49	5.1.2.3.5	Other	0	available
800	R1-1710678	Discussions on multiplexing of different types of RSs for DL	Samsung	Younsun Kim	43499	other	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	noted
801	R1-1710679	Discussions on multiplexing of different types of RSs for UL	Samsung	Younsun Kim	43499	other	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
802	R1-1710680	Discussions on CSI-RS design for NR MIMO	Samsung	Younsun Kim	43499	other	Decision			52	5.1.2.4.2	CSI-RS	0	available
803	R1-1710681	CSI-RS for beam management	Samsung	Younsun Kim	43499	other	Decision			52	5.1.2.4.2	CSI-RS	0	available
804	R1-1710682	Discussion on DL DMRS design for NR	Samsung	Younsun Kim	43499	other	Decision			53	5.1.2.4.3	DMRS	0	available
805	R1-1710683	Evaluation results on DL DMRS for NR	Samsung	Younsun Kim	43499	other	Decision			53	5.1.2.4.3	DMRS	0	available
806	R1-1710684	Discussion on UL DMRS design for NR	Samsung	Younsun Kim	43499	other	Decision			53	5.1.2.4.3	DMRS	0	available
807	R1-1710685	Evaluation results on UL DMRS for NR	Samsung	Younsun Kim	43499	other	Decision			53	5.1.2.4.3	DMRS	0	available
808	R1-1710686	On DL PTRS design	Samsung	Younsun Kim	43499	other	Decision			54	5.1.2.4.4	PT-RS	0	available
809	R1-1710687	On UL PTRS for DFT-s-OFDM	Samsung	Younsun Kim	43499	other	Decision			54	5.1.2.4.4	PT-RS	0	available
810	R1-1710688	SRS design for NR	Samsung	Younsun Kim	43499	other	Decision			55	5.1.2.4.5	SRS	0	available
811	R1-1710689	Discussions on fine time/frequency tracking for NR	Samsung	Younsun Kim	43499	other	Decision			56	5.1.2.4.6	TRS	0	available

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812	R1-1710690	On QCL for NR	Samsung	Younsun Kim	43499	other	Decision			57	5.1.2.4.7	QCL	0	available
813	R1-1710691	Resource Mapping for PDCCH	Samsung	Younsun Kim	43499	other	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
814	R1-1710692	DMRS Structure for PDCCH	Samsung	Younsun Kim	43499	other	Decision			64	5.1.3.1.1.2	RS structure/mapping	0	revised
815	R1-1710693	CORESET Configurations	Samsung	Younsun Kim	43499	other	Decision			66	5.1.3.1.2.1	CORESET configuration	0	available
816	R1-1710694	Search Space Design	Samsung	Younsun Kim	43499	other	Decision			67	5.1.3.1.2.2	Search space design	0	available
817	R1-1710695	Multibeam Transmission for PDCCH	Samsung	Younsun Kim	43499	other	Decision			68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
818	R1-1710696	Multiplexing NR-PDCCH and PDSCH	Samsung	Younsun Kim	43499	other	Decision			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
819	R1-1710697	UE-Group Common PDCCH Structure	Samsung	Younsun Kim	43499	other	Decision			71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
820	R1-1710698	Functionalities of UE-Common PDCCH	Samsung	Younsun Kim	43499	other	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
821	R1-1710699	UE Behavior for UE-Group Common PDCCH Detection	Samsung	Younsun Kim	43499	other	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
822	R1-1710700	PDCCH Design for URLLC	Samsung	Younsun Kim	43499	other	Decision			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
823	R1-1710701	Transmit Diversity for PDCCH	Samsung	Younsun Kim	43499	other	Decision			75	5.1.3.1.6	Other	0	available
824	R1-1710702	Bandwidth Part Hopping for CORESETS	Samsung	Younsun Kim	43499	other	Decision			75	5.1.3.1.6	Other	0	available
825	R1-1710703	Short PUCCH for UCI of 1 or 2 Bits	Samsung	Younsun Kim	43499	other	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
826	R1-1710704	Short PUCCH for UCI of more than 2 Bits	Samsung	Younsun Kim	43499	other	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
827	R1-1710705	Long PUCCH for UCI of 1 or 2 Bits	Samsung	Younsun Kim	43499	other	Decision			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
828	R1-1710706	Long PUCCH for UCI of more than 2 Bits	Samsung	Younsun Kim	43499	other	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
829	R1-1710707	Multi-Slot Long PUCCH Transmission	Samsung	Younsun Kim	43499	other	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
830	R1-1710708	Transmit Diversity for PUCCH	Samsung	Younsun Kim	43499	other	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
831	R1-1710709	Resource Allocation for PUCCH with HARQ-ACK	Samsung	Younsun Kim	43499	other	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
832	R1-1710710	On UCI Multiplexing in PUSCH	Samsung	Younsun Kim	43499	other	Decision			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
833	R1-1710711	On Simultaneous PUSCH and PUCCH Transmissions	Samsung	Younsun Kim	43499	other	Decision			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
834	R1-1710712	PUCCH Design for URLLC	Samsung	Younsun Kim	43499	other	Decision			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
835	R1-1710713	Performance Results for Long PUCCH	Samsung	Younsun Kim	43499	other	Decision			90	5.1.3.2.7	Other	0	available
836	R1-1710714	Performance Results for UCI and Data Multiplexing	Samsung	Younsun Kim	43499	other	Decision			90	5.1.3.2.7	Other	0	available
837	R1-1710715	UE-Group CSI Reporting	Samsung	Younsun Kim	43499	other	Decision		Late contribution	90	5.1.3.2.7	Other	0	withdrawn
838	R1-1710716	Multiplexing PUSCH with Short PUCCH or SRS	Samsung	Younsun Kim	43499	other	Decision			90	5.1.3.2.7	Other	0	available
839	R1-1710717	BS/CSI Transmission on PUCCH	Samsung	Younsun Kim	43499	other	Decision			90	5.1.3.2.7	Other	0	available
840	R1-1710718	DL/UL Frequency Resource Allocation	Samsung	Younsun Kim	43499	other	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
841	R1-1710719	DL/UL Time Resource Allocation	Samsung	Younsun Kim	43499	other	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
842	R1-1710720	Transport Block Size Determination	Samsung	Younsun Kim	43499	other	Decision			95	5.1.3.3.1.3	Transport block size determination	0	available
843	R1-1710721	SR Transmission for Multiple Configurations	Samsung	Younsun Kim	43499	other	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
844	R1-1710722	Procedures for Grant-Based UL Transmissions	Samsung	Younsun Kim	43499	other	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
845	R1-1710723	Procedures for Grant-Free UL Transmissions	Samsung	Younsun Kim	43499	other	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
846	R1-1710724	Grant-Free and Grant-Based UL Transmissions	Samsung	Younsun Kim	43499	other	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
847	R1-1710725	CBG Construction	Samsung	Younsun Kim	43499	other	Decision			99	5.1.3.3.4.1	CBG construction	0	available
848	R1-1710726	Scheduling for CBG Retransmissions	Samsung	Younsun Kim	43499	other	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
849	R1-1710727	HARQ-ACK Feedback for CBG-Based Retransmissions	Samsung	Younsun Kim	43499	other	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
850	R1-1710728	HARQ-ACK Feedback Timing	Samsung	Younsun Kim	43499	other	Decision			103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
851	R1-1710729	HARQ-ACK Codeword Determination	Samsung	Younsun Kim	43499	other	Decision			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
852	R1-1710730	On Number of HARQ Processes and HARQ RTT	Samsung	Younsun Kim	43499	other	Decision			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
853	R1-1710731	Soft Buffer Partitioning	Samsung	Younsun Kim	43499	other	Decision			107	5.1.3.3.6.2	Soft-buffer management	0	available
854	R1-1710732	Indication of Preempted Resources in DL	Samsung	Younsun Kim	43499	other	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available

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855	R1-1710733	On Indication of Preempted Resources in UL	Samsung	Younsun Kim	43499	other	Decision			110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
856	R1-1710734	Scheduling/HARQ Procedures for URLLC	Samsung	Younsun Kim	43499	other	Decision			111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
857	R1-1710735	Remaining Aspects for Short Scheduling Durations	Samsung	Younsun Kim	43499	other	Decision			112	5.1.3.3.9	Other	0	available
858	R1-1710736	Triggered UCI Transmissions	Samsung	Younsun Kim	43499	other	Decision			112	5.1.3.3.9	Other	0	available
859	R1-1710737	DL Resource Allocation for Multiplexing Data with Different Transmissions Durations	Samsung	Younsun Kim	43499	other	Decision			112	5.1.3.3.9	Other	0	available
860	R1-1710738	Average User Plane Latency for Preemption based Multiplexing	Samsung	Younsun Kim	43499	other	Decision			112	5.1.3.3.9	Other	0	available
861	R1-1710739	Cross-Carrier Scheduling and HARQ-ACK Feedback	Samsung	Younsun Kim	43499	other	Decision			115	5.1.3.4.1.1	Self-/cross-carrier scheduling and joint/separate UCI feedback	0	available
862	R1-1710740	Fast Carrier Switching for SRS Transmissions	Samsung	Younsun Kim	43499	other	Decision			116	5.1.3.4.1.2	SRS fast switching	0	available
863	R1-1710741	DC for UE with Single UL Carrier Capability	Samsung	Younsun Kim	43499	other	Decision			117	5.1.3.4.2	Dual connectivity	0	available
864	R1-1710742	CB segmentation on data channel	Samsung	Younsun Kim	43499	other	Decision			122	5.1.4.1.1.2	Segmentation	0	noted
865	R1-1710743	UE operation for two different base graphs	Samsung	Younsun Kim	43499	other	Decision			122	5.1.4.1.1.2	Segmentation	0	available
866	R1-1710744	LDPC Code for BG#1	Samsung	Younsun Kim	43499	other	Decision			125	5.1.4.1.2	LDPC code design	0	available
867	R1-1710745	LDPC Code for BG#2	Samsung	Younsun Kim	43499	other	Decision			125	5.1.4.1.2	LDPC code design	0	available
868	R1-1710746	Modulo Lifting for Length-Flex ble QC LDPC Codes	Samsung	Younsun Kim	43499	other	Decision			125	5.1.4.1.2	LDPC code design	0	available
869	R1-1710747	Polar code construction	Samsung	Younsun Kim	43499	other	Decision			127	5.1.4.2.1	Code construction	0	available
870	R1-1710748	Scrambling for polar codes	Samsung	Younsun Kim	43499	other	Decision			127	5.1.4.2.1	Code construction	0	available
871	R1-1710749	Design of combined-and-Nested polar code sequences	Samsung	Younsun Kim	43499	other	Decision			128	5.1.4.2.2	Sequence design	0	revised
872	R1-1710750	Design of unified rate-matching for polar codes	Samsung	Younsun Kim	43499	other	Decision			128	5.1.4.2.2	Sequence design	0	available
873	R1-1710751	Circular buffer management for polar code rate-matching	Samsung	Younsun Kim	43499	other	Decision			128	5.1.4.2.2	Sequence design	0	noted
874	R1-1710752	Design of channel interleaver for polar codes	Samsung	Younsun Kim	43499	other	Decision			129	5.1.4.2.3	Other	0	available
875	R1-1710753	Modulation Schemes for NR	Samsung	Younsun Kim	43499	other	Decision			132	5.1.5	Modulation	0	available
876	R1-1710754	Cross-link Interference Management Based on UE Measurements	Samsung	Younsun Kim	43499	other	Decision			134	5.1.6.1	Cross-link interference management	0	available
877	R1-1710755	Cross-link Interference Management based on Coordinated Beamforming	Samsung	Younsun Kim	43499	other	Decision			134	5.1.6.1	Cross-link interference management	0	noted
878	R1-1710756	Performance Evaluation of Cross-Link Interference Management	Samsung	Younsun Kim	43499	other	Decision			135	5.1.6.2	Other	0	available
879	R1-1710757	Timing Alignment on Cross-Link for Dynamic TDD	Samsung	Younsun Kim	43499	other	Decision			135	5.1.6.2	Other	0	available
880	R1-1710758	Cross-Link Interference Management based on Power Control	Samsung	Younsun Kim	43499	other	Decision			135	5.1.6.2	Other	0	available
881	R1-1710759	Discussion on CLI Mitigation with Network Coordination	Samsung	Younsun Kim	43499	other	Decision			135	5.1.6.2	Other	0	available
882	R1-1710760	Interference Measurement Table and Beam Coordination	Samsung	Younsun Kim	43499	other	Decision			135	5.1.6.2	Other	0	available
883	R1-1710761	Wider Bandwidth Operations	Samsung	Younsun Kim	43499	other	Decision			136	5.1.7	Wider bandwidth operations	0	available
884	R1-1710762	LTE-NR coexistence for DL	Samsung	Younsun Kim	43499	other	Decision			137	5.1.8	NR-LTE co-existence	0	available
885	R1-1710763	LTE-NR coexistence for UL	Samsung	Younsun Kim	43499	other	Decision			137	5.1.8	NR-LTE co-existence	0	noted
886	R1-1710764	On UL Power Sharing for Multi-Cell Transmissions	Samsung	Younsun Kim	43499	other	Decision		Late contribution	139	5.1.9.1	Power sharing mechanism	0	available
887	R1-1710765	Power Control Framework	Samsung	Younsun Kim	43499	other	Decision			140	5.1.9.2	NR power control framework	0	available
888	R1-1710766	On PHR Requirements and Calculation	Samsung	Younsun Kim	43499	other	Decision			140	5.1.9.2	NR power control framework	0	available
889	R1-1710767	ECP Aspects for 60kHz SCS	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other	0	available
890	R1-1710768	On PAPR of DMRS for p/2-BPSK DFT-s-OFDM with Spectrum Shaping	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other	0	available
891	R1-1710769	RACH Aspects for CA and DC	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other	0	available
892	R1-1710770	Discussion on Polar code construction	Spreadtrum Communications	Arto Lehti	61519	discussion	Decision			127	5.1.4.2.1	Code construction	0	available
893	R1-1710771	Discussions on UE-to-UE interference measurement and report	Panasonic	Lilei Wang	56630	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	noted
894	R1-1710772	Discussions on intended DL/UL direction configuration via Xn signalling	Panasonic	Lilei Wang	56630	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	available
895	R1-1710773	CORESET configuration for RMSI scheduling	CMCC	Hui Tong	58245	other	Discussion			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
896	R1-1710774	Discussion on RACH configuration	CMCC	Hui Tong	58245	other	Discussion			24	5.1.1.4.4	4-step RA procedure	0	available
897	R1-1710775	Discussion on RRM measurement on SS blocks	CMCC	Hui Tong	58245	other	Discussion			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	withdrawn

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898	R1-1710776	Comparisons on Beam Reporting in NR	CMCC	Hui Tong	58245	other	Discussion			41	5.1.2.2.1	Beam management details	0	available
899	R1-1710777	Discussion on PT-RS design	CMCC	Hui Tong	58245	other	Discussion			54	5.1.2.4.4	PT-RS	0	available
900	R1-1710778	On DMRS Design for NR-PDCCH	CMCC	Hui Tong	58245	other	Discussion			64	5.1.3.1.1.2	RS structure/mapping	0	available
901	R1-1710779	Discussion on CORESET duration	CMCC	Hui Tong	58245	other	Discussion			66	5.1.3.1.2.1	CORESET configuration	0	available
902	R1-1710780	Discussion on NR-PDCCH search space design	CMCC	Hui Tong	58245	other	Discussion			67	5.1.3.1.2.2	Search space design	0	available
903	R1-1710781	UE behaviour related to dynamic and semi-static configured resources	CMCC	Hui Tong	58245	other	Discussion			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
904	R1-1710782	Discussion on subband-based PUCCH resource allocation and indication	CMCC	Hui Tong	58245	other	Discussion			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
905	R1-1710783	Discussion on timing design for semi-static DL/UL assignment	CMCC	Hui Tong	58245	other	Discussion			103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
906	R1-1710784	Discussion on UE-to-UE cross-link interference management	CMCC	Hui Tong	58245	other	Discussion			134	5.1.6.1	Cross-link interference management	0	noted
907	R1-1710785	Discussion on the change of SS block frequency position	CMCC	Hui Tong	58245	other	Discussion			136	5.1.7	Wider bandwidth operations	0	available
908	R1-1710786	Discussion on NR power control and sharing	CMCC	Hui Tong	58245	other	Discussion			140	5.1.9.2	NR power control framework	0	available
909	R1-1710787	On default bandwidth part	PANASONIC	Quan Kuang	64589	discussion				93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
910	R1-1710788	Discussions on NR-PDCCH Structure	MediaTek Inc.	Tao Chen	56050	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
911	R1-1710789	RS structures for NR-PDCCH	MediaTek Inc.	Tao Chen	56050	discussion				64	5.1.3.1.1.2	RS structure/mapping	0	available
912	R1-1710790	Discussions on CORESET configurations	MediaTek Inc.	Tao Chen	56050	discussion				66	5.1.3.1.2.1	CORESET configuration	0	available
913	R1-1710791	Resource sharing between PDCCH and PDSCH	MediaTek Inc.	Tao Chen	56050	discussion				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
914	R1-1710792	Structure of group-common PDCCH	MediaTek Inc.	Tao Chen	56050	discussion				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
915	R1-1710793	Contents of group-common PDCCH	MediaTek Inc.	Tao Chen	56050	discussion				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
916	R1-1710794	UE behaviour for group-common PDCCH	MediaTek Inc.	Tao Chen	56050	discussion				73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
917	R1-1710795	Timing of HARQ-ACK for PDSCH	MediaTek Inc.	Tao Chen	56050	discussion				103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
918	R1-1710796	Further Details on Wider Bandwidth Operations in NR	MediaTek Inc.	Tao Chen	56050	discussion				136	5.1.7	Wider bandwidth operations	0	available
919	R1-1710797	Discussion on PBCH Contents	MediaTek Inc.	Tao Chen	56050	discussion				14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
920	R1-1710798	Discussion on SS burst set composition	MediaTek Inc.	Tao Chen	56050	discussion				10	5.1.1.1.2	SS burst set composition	0	available
921	R1-1710799	Further discussion on SS block index indication	MediaTek Inc.	Tao Chen	56050	discussion				11	5.1.1.1.3	Timing indication based on SS block	0	available
922	R1-1710800	Performance evaluation for RE mapping and SS block composition	MediaTek Inc.	Tao Chen	56050	discussion				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	noted
923	R1-1710801	Further discussion on Remaining minimum system information delivery	MediaTek Inc.	Tao Chen	56050	discussion				17	5.1.1.2.4	Remaining minimum system information delivery	0	available
924	R1-1710802	Further discussion on OSI delivery	MediaTek Inc.	Tao Chen	56050	discussion				18	5.1.1.2.5	Other system information delivery	0	available
925	R1-1710803	Further discussion on paging design	MediaTek Inc.	Tao Chen	56050	discussion				19	5.1.1.3	Paging design	0	available
926	R1-1710804	Discussion on measurement based on SS block	MediaTek Inc.	Tao Chen	56050	discussion				26	5.1.1.5.1	Measurement based on SS block	0	available
927	R1-1710805	Discussion on CSI-RS for L3 mobility	MediaTek Inc.	Tao Chen	56050	discussion				27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	noted
928	R1-1710806	Discussion on Radio Link Monitoring	MediaTek Inc.	Tao Chen	56050	discussion				28	5.1.1.5.3	Radio link monitoring	0	available
929	R1-1710807	On the Robustness of NR SSS in Frequency Offset	MediaTek Inc.	Tao Chen	56050	discussion				9	5.1.1.1.1	Remaining details on SS sequence design	0	noted
930	R1-1710808	Discussions on NR DL beam management	MediaTek Inc.	Tao Chen	56050	discussion				41	5.1.2.2.1	Beam management details	0	available
931	R1-1710809	Efficient UL beam management with imperfect beam correspondence	MediaTek Inc.	Tao Chen	56050	discussion				41	5.1.2.2.1	Beam management details	0	available
932	R1-1710810	Mechanism for flexible beam failure recovery	MediaTek Inc.	Tao Chen	56050	discussion				42	5.1.2.2.2	Mechanism to recover from beam failure	0	noted
933	R1-1710811	IFDMA Based Beam Management CSI-RS for Flexible TX/RX Beam Sweeping	MediaTek Inc.	Tao Chen	56050	discussion				52	5.1.2.4.2	CSI-RS	0	noted
934	R1-1710812	CSI acquisition for reciprocity based operation	MediaTek Inc.	Tao Chen	56050	discussion				47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	available
935	R1-1710813	Remaining issues in NR CSI feedback	MediaTek Inc.	Tao Chen	56050	discussion				48	5.1.2.3.4	CSI feedback	0	available
936	R1-1710814	Multi-TRP and panel transmission	MediaTek Inc.	Tao Chen	56050	discussion			Late contribution	37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
937	R1-1710815	codeword mapping in NR	MediaTek Inc.	Tao Chen	56050	discussion				32	5.1.2.1.1	Codeword mapping	0	available
938	R1-1710816	Codebook based transmission in UL	MediaTek Inc.	Tao Chen	56050	discussion				33	5.1.2.1.2	Codebook based transmission for UL	0	available
939	R1-1710817	SRS design in NR	MediaTek Inc.	Tao Chen	56050	discussion			Late contribution	55	5.1.2.4.5	SRS	0	available
940	R1-1710818	CLI measurements in NR	MediaTek Inc.	Tao Chen	56050	discussion				134	5.1.6.1	Cross-link interference management	0	noted

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941	R1-1710819	Performance evaluation on channel structure of short PUCCH for 1 or 2 bits UCI	MediaTek Inc.	Tao Chen	56050	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
942	R1-1710820	Discussion on UCI on PUSCH	MediaTek Inc.	Tao Chen	56050	discussion				87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
943	R1-1710821	Discussion on PUCCH and PUSCH multiplexing	MediaTek Inc.	Tao Chen	56050	discussion				88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
944	R1-1710822	On PRACH design to support uplink requests	MediaTek Inc.	Tao Chen	56050	discussion				22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
945	R1-1710823	PRACH Msg1 retransmission	MediaTek Inc.	Tao Chen	56050	discussion				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	revised
946	R1-1710824	On 4-step RACH procedure	MediaTek Inc.	Tao Chen	56050	discussion				24	5.1.1.4.4	4-step RA procedure	0	available
947	R1-1710825	Optimization and comparison of Polar code rate-matching design	MediaTek Inc.	Tao Chen	56050	discussion				128	5.1.4.2.2	Sequence design	0	available
948	R1-1710826	Polar coding design for NR-PBCH combining	MediaTek Inc.	Tao Chen	56050	discussion				130	5.1.4.3	PBCH	0	available
949	R1-1710827	On CRC attachment for TB and CB	MediaTek Inc.	Tao Chen	56050	discussion				121	5.1.4.1.1.1	CRC attachment	0	noted
950	R1-1710828	On interleaver for NR LDPC code	MediaTek Inc.	Tao Chen	56050	discussion				123	5.1.4.1.1.3	Rate matching	0	noted
951	R1-1710829	On NR LDPC design and performance	MediaTek Inc.	Tao Chen	56050	discussion				125	5.1.4.1.2	LDPC code design	0	revised
952	R1-1710830	Discussion on CBG construction for CBG-based (re)transmission	MediaTek Inc.	Tao Chen	56050	discussion				99	5.1.3.3.4.1	CBG construction	0	available
953	R1-1710831	On downlink DMRS design	MediaTek Inc.	Tao Chen	56050	discussion				53	5.1.2.4.3	DMRS	0	noted
954	R1-1710832	On TRS design requirement	MediaTek Inc.	Tao Chen	56050	discussion				56	5.1.2.4.6	TRS	0	noted
955	R1-1710833	On CSI-RS configuration for fine time and frequency tracking support	MediaTek Inc.	Tao Chen	56050	discussion				52	5.1.2.4.2	CSI-RS	0	available
956	R1-1710834	On support of Grant-free and Grant-based transmission for UL URLLC	MediaTek Inc.	Tao Chen	56050	discussion				96	5.1.3.3.2	UL data transmission procedure with grant	0	available
957	R1-1710835	Grant-free Scheduling and retransmission schemes for UL URLLC	MediaTek Inc.	Tao Chen	56050	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
958	R1-1710836	On use of scrambling for UL Grant-free URLLC transmission	MediaTek Inc.	Tao Chen	56050	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
959	R1-1710837	HARQ procedure for DL URLLC	MediaTek Inc.	Tao Chen	56050	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
960	R1-1710838	Cross-slot scheduling for UE power saving	MediaTek Inc.	Tao Chen	56050	discussion				94	5.1.3.3.1.2	Time-domain resource allocation	0	available
961	R1-1710839	UL Power Sharing for LTE-NR Dual Connectivity	MediaTek Inc.	Tao Chen	56050	discussion				139	5.1.9.1	Power sharing mechanism	0	noted
962	R1-1710840	Discussion on Uplink TDM Operation for NR NSA	China Telecommunications	Sen Xu	56667	discussion	Discussion			137	5.1.8	NR-LTE co-existence	0	noted
963	R1-1710841	Discussion on remaining system information delivery	Beijing Xinwei Telecom Techn.	Peng Sun	62183	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
964	R1-1710842	A flexible, low-latency, hardware-efficient SCL polar decoder	AccelerComm Ltd	Rob Maunder	67229	discussion	Discussion			129	5.1.4.2.3	Other	0	available
965	R1-1710843	On the storage of polar code sequences	AccelerComm Ltd	Rob Maunder	67229	discussion	Discussion			128	5.1.4.2.2	Sequence design	0	noted
966	R1-1710844	Consideration on coding chain for eMBB data channel	ZTE	Yifei Yuan	58526	discussion				120	5.1.4.1.1	Coding chain	0	available
967	R1-1710845	Shift coefficients design for base graph 1	ZTE	Yifei Yuan	58526	discussion				125	5.1.4.1.2	LDPC code design	0	revised
968	R1-1710846	Shift coefficients design for base graph 2	ZTE	Yifei Yuan	58526	discussion				125	5.1.4.1.2	LDPC code design	0	revised
969	R1-1710847	Performance evaluations on Polar codes	ZTE	Yifei Yuan	58526	discussion				127	5.1.4.2.1	Code construction	0	available
970	R1-1710848	Rate matching scheme of Polar codes	ZTE	Yifei Yuan	58526	discussion				128	5.1.4.2.2	Sequence design	0	available
971	R1-1710849	Segmentation of Polar codes	ZTE	Yifei Yuan	58526	discussion				129	5.1.4.2.3	Other	0	revised
972	R1-1710850	Considerations on Channel Coding for NR-PBCH	ZTE	Yifei Yuan	58526	discussion				130	5.1.4.3	PBCH	0	available
973	R1-1710851	Considerations on DL beam management	Sony	Martin Beale	59973	other				41	5.1.2.2.1	Beam management details	0	available
974	R1-1710852	Considerations on UL beam management	Sony	Martin Beale	59973	other				41	5.1.2.2.1	Beam management details	0	available
975	R1-1710853	Considerations on fine time/frequency tracking	Sony	Martin Beale	59973	other				56	5.1.2.4.6	TRS	0	available
976	R1-1710854	Considerations on interference measurement	Sony	Martin Beale	59973	other				46	5.1.2.3.2	Details of CSI acquisition	0	available
977	R1-1710855	Considerations on SRS design	Sony	Martin Beale	59973	other				55	5.1.2.4.5	SRS	0	noted
978	R1-1710856	On contents of group-common PDCCH	Sony	Martin Beale	59973	other				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
979	R1-1710857	On structure of group-common PDCCH	Sony	Martin Beale	59973	other				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
980	R1-1710858	Discussion on SS block time index indication	Sony	Martin Beale	59973	other				11	5.1.1.1.3	Timing indication based on SS block	0	revised
981	R1-1710859	Considerations on SS block compositions	Sony	Martin Beale	59973	other				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	revised
982	R1-1710860	Considerations on 4-step RA procedure	Sony	Martin Beale	59973	other				24	5.1.1.4.4	4-step RA procedure	0	available

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983	R1-1710861	Pre-emption in UL grant free resource	Sony	Martin Beale	59973	other				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
984	R1-1710862	Reliable PDCCH operation for URLLC	Sony	Martin Beale	59973	other				74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
985	R1-1710863	Discussion on the retransmission of UL transmission without grant	Sony	Martin Beale	59973	other				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
986	R1-1710864	Discussion on the CBG index indication by DCI	Sony	Martin Beale	59973	other				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
987	R1-1710865	Remaining issues on using pre-emption indicator for DL URLLC/eMBB multiplexing	Sony	Martin Beale	59973	other				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
988	R1-1710866	Feedback for improving URLLC reliability	Sony	Martin Beale	59973	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
989	R1-1710867	Multiplexing data with different transmission durations for Uplink	Sony	Martin Beale	59973	other				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
990	R1-1710868	Blind Detection with Polar Codes	McGill University	Carlo Condo	70564	discussion			Late contribution	129	5.1.4.2.3	Other	0	withdrawn
991	R1-1710869	Partitioned List Decoding of Polar Codes	McGill University	Carlo Condo	70564	discussion			Late contribution	129	5.1.4.2.3	Other	0	withdrawn
992	R1-1710870	Power ramping for Msg1 preamble re-transmission	InterDigital, Inc.	Aata El Hamss	71288	discussion				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
993	R1-1710871	Multiple Msg1 transmissions for one monitored RAR window	InterDigital, Inc.	Aata El Hamss	71288	discussion				24	5.1.1.4.4	4-step RA procedure	0	available
994	R1-1710872	CORESET Monitoring Under Dynamic Change of BWP	InterDigital, Inc.	Aata El Hamss	71288	discussion				66	5.1.3.1.2.1	CORESET configuration	0	available
995	R1-1710873	PDSCH starting position in NR	InterDigital, Inc.	Aata El Hamss	71288	discussion				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
996	R1-1710874	Considerations for ultra-reliable DCI transmission	InterDigital, Inc.	Aata El Hamss	71288	discussion				74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
997	R1-1710875	Considerations for ultra-reliable UCI transmission	InterDigital, Inc.	Aata El Hamss	71288	discussion				89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
998	R1-1710876	CBG based HARQ for NR	InterDigital, Inc.	Aata El Hamss	71288	discussion				99	5.1.3.3.4.1	CBG construction	0	available
999	R1-1710877	DL HARQ Feedback suppression	InterDigital, Inc.	Aata El Hamss	71288	discussion				103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
1000	R1-1710878	Bandwidth Adaptation via BWP Selection in NR	InterDigital, Inc.	Aata El Hamss	71288	discussion				136	5.1.7	Wider bandwidth operations	0	available
1001	R1-1710879	Power Sharing Mechanisms with LTE-NR DC and NR DC	InterDigital, Inc.	Aata El Hamss	71288	discussion				139	5.1.9.1	Power sharing mechanism	0	noted
1002	R1-1710880	On uplink half-tone shift	Ericsson AB	Erik Dahlman	23366	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	noted
1003	R1-1710881	On pi/2-BPSK DFTS-OFDM with spectrum shaping	Ericsson AB	Erik Dahlman	23366	discussion	Decision			132	5.1.5	Modulation	0	available
1004	R1-1710882	Multiple SS Blocks in wideband carrier	Ericsson AB	Erik Dahlman	23366	discussion	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
1005	R1-1710883	On wider band aspects of NR	Nokia, Alcatel-Lucent Shanghai Bell	Karol Schober	68456	other	Approval			136	5.1.7	Wider bandwidth operations	0	available
1006	R1-1710884	On NR CA/DC configuration	Nokia, Alcatel-Lucent Shanghai Bell	Karol Schober	68456	other	Approval			117	5.1.3.4.2	Dual connectivity	0	available
1007	R1-1710885	On cross-carrier scheduling and joint UCI design	Nokia, Alcatel-Lucent Shanghai Bell	Karol Schober	68456	other	Approval			115	5.1.3.4.1.1	Self/cross-carrier scheduling and joint/separate UCI feedback	0	available
1008	R1-1710886	UL diversity transmission for DFTsOFDM	Mitsubishi Electric RCE	Cristina Ciochina-Duchesne	56339	discussion	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	available
1009	R1-1710887	UL grant-free transmissions: Physical layer procedures	Intel Corporation	Seunghee Han	47329	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1010	R1-1710888	HARQ-ACK feedback: Timing considerations	Intel Corporation	Seunghee Han	47329	discussion	Decision			103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	withdrawn
1011	R1-1710889	NR Physical Random Access Channel	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
1012	R1-1710890	NR Physical Random Access Channel Capacity	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	noted
1013	R1-1710891	Preamble Power Ramping and RACH Message 3 Power Control	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
1014	R1-1710892	NR 4-step RACH procedure	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
1015	R1-1710893	On the short PUCCH design for small UCI payloads	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1016	R1-1710894	Short PUCCH design for UCI of more than 2 bits	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
1017	R1-1710895	On long PUCCH design for small payloads	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
1018	R1-1710896	Long PUCCH design for UCI more than 2 bits	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
1019	R1-1710897	Transmit Diversity for PUCCH	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available

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1020	R1-1710898	On the resource allocation for PUCCH	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
1021	R1-1710899	UCI multiplexing on PUSCH	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
1022	R1-1710900	On the multiplexing between PUCCHs and PUSCH	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
1023	R1-1710901	On URLLC UCI transmission	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
1024	R1-1710902	CP-OFDM waveform for NR long PUCCH	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			90	5.1.3.2.7	Other	0	available
1025	R1-1710903	PDCCH structure for NR	NEC	Yassin Awad	37300	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
1026	R1-1710904	Uplink transmission in NR NSA mode	Apple Inc.	Wei Zeng	70918	discussion	Discussion			137	5.1.8	NR-LTE co-existence	0	noted
1027	R1-1710905	Signaling of SS block index	Apple Inc.	Wei Zeng	70918	discussion	Discussion			11	5.1.1.1.3	Timing indication based on SS block	0	noted
1028	R1-1710906	UE behavior on UL/DL transmission direction determination in NR TDD	Apple Inc.	Wei Zeng	70918	discussion	Discussion			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1029	R1-1710907	Control indicator in group-common PDCCH for UE power saving	Apple Inc.	Wei Zeng	70918	discussion	Discussion			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1030	R1-1710908	DL control signal for CBG-based transmission	Apple Inc.	Wei Zeng	70918	discussion	Discussion			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1031	R1-1710909	Discussion of NR-LTE coexistence on DL	ZTE	Wenfeng Zhang	71639	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	available
1032	R1-1710910	Considerations of NR-LTE coexistence in uplink	ZTE	Wenfeng Zhang	71639	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	revised
1033	R1-1710911	Power Control for CA and DC in NR	ZTE	Wenfeng Zhang	71639	discussion	Decision			139	5.1.9.1	Power sharing mechanism	0	available
1034	R1-1710912	Reserved resources supporting NR co-existence with LTE and NB-IoT	Ericsson AB	Erik Dahlman	23366	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	available
1035	R1-1710913	On Design of Synchronization Signal Sequences in NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				9	5.1.1.1.1	Remaining details on SS sequence design	0	available
1036	R1-1710914	On SS Burst Set Composition and Multiplexing	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				10	5.1.1.1.2	SS burst set composition	0	available
1037	R1-1710915	On SS Block Based Timing Indication in NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				11	5.1.1.1.3	Timing indication based on SS block	0	available
1038	R1-1710916	On Physical Broadcast Channel in NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
1039	R1-1710917	On NR-PBCH RE Mapping and SS Block Composition	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	noted
1040	R1-1710918	On DMRS Designs for NR-PBCH	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
1041	R1-1710919	On Minimum System Information Delivery	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				17	5.1.1.2.4	Remaining minimum system information delivery	0	available
1042	R1-1710920	TPMI Indication for Frequency Selective UL Precoding	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				33	5.1.2.1.2	Codebook based transmission for UL	0	available
1043	R1-1710921	STBC-based Transmission for Uplink Transmit Diversity	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				35	5.1.2.1.4	Diversity transmission for UL	0	available
1044	R1-1710922	PRG Size Indication in NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				36	5.1.2.1.5	PRB bundling for DL	0	available
1045	R1-1710923	DCI Design for Multi-TRP/Panel Transmission for DL	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
1046	R1-1710924	On Beam Management for DL Control and Data Channels	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				41	5.1.2.2.1	Beam management details	0	available
1047	R1-1710925	On Efficient UL Beam Management	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				41	5.1.2.2.1	Beam management details	0	available
1048	R1-1710926	On Remaining Details of Beam Failure Recovery	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
1049	R1-1710927	On CSI framework for NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				45	5.1.2.3.1	CSI framework	0	available
1050	R1-1710928	On CSI acquisition for NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				46	5.1.2.3.2	Details of CSI acquisition	0	available
1051	R1-1710929	Discussion on SRS sequence generation for NR	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				55	5.1.2.4.5	SRS	0	available
1052	R1-1710930	Discussion on 1-symbol NR-PUCCH for UCI of up to 2 bits	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	revised
1053	R1-1710931	CSI-RS Design for Beam Management	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				52	5.1.2.4.2	CSI-RS	0	noted
1054	R1-1710932	Discussion on channel structure of long-duration NR-PUCCH for UCI of up to 2 bits	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
1055	R1-1710933	On DM-RS design for NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				53	5.1.2.4.3	DMRS	0	available
1056	R1-1710934	Discussion on channel design of long-duration NR-PUCCH for UCI of more than 2 bits	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
1057	R1-1710935	Discussion on support of long-duration NR-PUCCH over multiple slots	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1058	R1-1710936	Remaining Issues on PTRS for NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				54	5.1.2.4.4	PT-RS	0	noted
1059	R1-1710937	Discussion on resource allocation for uplink control channel	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				85	5.1.3.2.4	Resource allocation for PUCCH	0	available
1060	R1-1710938	On SRS for NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				55	5.1.2.4.5	SRS	0	available

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1061	R1-1710939	Discussion on UCI on PUSCH	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
1062	R1-1710940	Discussion on UCI and data multiplexing	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
1063	R1-1710941	On QCL for NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				57	5.1.2.4.7	QCL	0	available
1064	R1-1710942	Discussion on SR for URLLC and multiplexing with HARQ-ACK	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
1065	R1-1710943	Discussion on PRB grid and PRB indexing	Panasonic Corporation	Tetsuya Yamamoto	59095	discussion				136	5.1.7	Wider bandwidth operations	0	available
1066	R1-1710944	On the impact of multi-beam operation on PDCCH structure	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
1067	R1-1710945	On REG bundling and associated DMRS	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				64	5.1.3.1.1.2	RS structure/mapping	0	available
1068	R1-1710946	Search space design for eMBB-URLLC Multiplexing	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				67	5.1.3.1.2.2	Search space design	0	available
1069	R1-1710947	Group-common PDCCH design considerations	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1070	R1-1710948	UE behaviour related to CORESET(s) configured by PBCH	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1071	R1-1710949	On Ultra-reliable and low-latency PDCCH	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
1072	R1-1710950	Evaluations of 1-symbol short-PUCCH with 1 or 2 bit(s)	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1073	R1-1710951	On transmit diversity for Long PUCCH	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
1074	R1-1710952	Considerations on UCI transmission on PUSCH	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
1075	R1-1710953	On frequency-domain resource allocation for NR	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
1076	R1-1710954	HARQ feedback design considerations for CBG based transmission	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
1077	R1-1710955	Signalling design considerations for DL pre-emption indication	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1078	R1-1710956	Multiplexing of low-latency traffic and non-latency sensitive traffic in UL	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
1079	R1-1710957	Data channel processing and CRC attachment	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				121	5.1.4.1.1.1	CRC attachment	0	noted
1080	R1-1710958	Code block segmentation for eMBB data channel	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				122	5.1.4.1.1.2	Segmentation	0	available
1081	R1-1710959	Parameter selection for polar codes puncturing and shortening	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				128	5.1.4.2.2	Sequence design	0	available
1082	R1-1710960	Parameter selection for polar codes repetition	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				128	5.1.4.2.2	Sequence design	0	available
1083	R1-1710961	Interleaver design for polar codes with high order modulation	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				128	5.1.4.2.2	Sequence design	0	available
1084	R1-1710962	Common and Beam Specific Power Control Parameters	InterDigital, Inc.	Shahrokh Nayeb Nazar	72080	discussion				140	5.1.9.2	NR power control framework	0	withdrawn
1085	R1-1710963	On network resources and UE transmission configurations for grant-free access	NEC	Kevin Lin	45809	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1086	R1-1710964	On UE-to-UE measurement for CLI management	NEC	Kevin Lin	45809	discussion	Decision			115	5.1.3.4.1.1	Self-/cross-carrier scheduling and joint/separate UCI feedback	0	available
1087	R1-1710965	On cross-carrier scheduling and HARQ-ACK feedback for NR CA	NEC	Kevin Lin	45809	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	available
1088	R1-1710966	Flexible subcarrier spacing in the uplink for NR use cases including mMTC	ATR	ROYA EBRAHIM REZAGAH	66159	discussion				142	5.1.11	Other	0	available
1089	R1-1710967	Number of HARQ processes for co-existence with TD-LTE	NEC Corporation	Takahiro Sasaki	39454	discussion	Decision			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
1090	R1-1710968	Summary of [89-20] email discussion on Group-common PDCCH for NR	CATT	Yanping Xing	57090	discussion				70	5.1.3.1.4	Group-common PDCCH	0	noted
1091	R1-1710969	NR-PDCCH for multi-TRP transmission	China Telecommunications	Jianchi Zhu	58216	discussion				37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
1092	R1-1710970	On front-load DMRS design	China Telecommunications	Jianchi Zhu	58216	discussion				53	5.1.2.4.3	DMRS	0	available
1093	R1-1710971	UL grant-free transmission for URLLC	China Telecommunications	Jianchi Zhu	58216	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1094	R1-1710972	Control signalling for CBG-based (re)transmission	China Telecommunications	Jianchi Zhu	58216	discussion				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1095	R1-1710973	Discussion on REG bundle size	ITRI	Hung-hsiang Wang	46683	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
1096	R1-1710974	Discussion on using sub-time unit for CSI-RS of beam management	ITRI	Hung-hsiang Wang	46683	discussion				52	5.1.2.4.2	CSI-RS	0	available
1097	R1-1710975	Considerations and Evaluation on SS Sequence Design for New Radio	ITRI	Hung-hsiang Wang	46683	discussion				9	5.1.1.1.1	Remaining details on SS sequence design	0	available
1098	R1-1710976	NR Long PUCCH Requirements	CMCC	Hui Tong	58245	other	Discussion			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1099	R1-1710977	Discussion on RRM measurement on SS blocks	CMCC	Hui Tong	58245	other	Discussion			26	5.1.1.5.1	Measurement based on SS block	0	noted
1100	R1-1710978	On the PDCCH construction for NR	Nokia, Alcatel-Lucent Shanghai Bell	Sigen Ye	45768	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available

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1101	R1-1710979	On the remaining details of PDCCH reference signal structure	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				64	5.1.3.1.1.2	RS structure/mapping	0	available
1102	R1-1710980	On the PDCCH control resource set and its connection to the search space for NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				66	5.1.3.1.2.1	CORESET configuration	0	available
1103	R1-1710981	On the search space design and UE blind detection	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				67	5.1.3.1.2.2	Search space design	0	available
1104	R1-1710982	PDCCH support for multi-beam system	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
1105	R1-1710983	Resource sharing between PDCCH and PDSCH in NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
1106	R1-1710984	On the structure of group common PDCCH in NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1107	R1-1710985	On the contents of group common PDCCH in NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1108	R1-1710986	On the UE behaviour related to group common PDCCH in NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1109	R1-1710987	On the URLLC specific aspects for DL control channel	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
1110	R1-1710988	On the usage of PDCCH DMRS as a complementary synchronization signal in DL	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				75	5.1.3.1.6	Other	0	available
1111	R1-1710989	On resource allocation in frequency domain for PDSCH and PUSCH in NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
1112	R1-1710990	Time-domain resource allocation for NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				94	5.1.3.3.1.2	Time-domain resource allocation	0	available
1113	R1-1710991	Transport block size determination and the support of slot aggregation in NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				95	5.1.3.3.1.3	Transport block size determination	0	available
1114	R1-1710992	Discussion on multiple SR configuration	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				96	5.1.3.3.2	UL data transmission procedure with grant	0	available
1115	R1-1710993	Unified framework for UL grant-free and UL SPS	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1116	R1-1710994	UE identification and HARQ for URLLC UL grant-free	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1117	R1-1710995	Mapping code blocks to code block groups	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				99	5.1.3.3.4.1	CBG construction	0	available
1118	R1-1710996	DL control signalling for CBG-based transmissions	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1119	R1-1710997	HARQ-ACK feedback for CBG-based (re-)transmission in NR	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
1120	R1-1710998	Timing aspects for HARQ-ACK feedback	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
1121	R1-1710999	On HARQ feedback determination	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
1122	R1-1711000	On the number of HARQ processes	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
1123	R1-1711001	On the HARQ soft buffer handling	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				107	5.1.3.3.6.2	Soft-buffer management	0	available
1124	R1-1711002	On pre-emption indication	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1125	R1-1711003	Pause-Resume Scheduling for Low Latency Uplink Transmissions	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
1126	R1-1711004	Discussion on scheduling based URLLC transmission	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1127	R1-1711005	CSI measuring and reporting procedure for URLLC	Nokia, Alcatel-Lucent Shanghai Bell	Signe Ye	45768	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1128	R1-1711006	Issues and Control Design for UL Grant-free URLLC	Ill	Chun-che Chien	43585	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1129	R1-1711007	Codeword to layer mapping for DL and UL	Ericsson	Stephen Grant	65572	discussion	Decision			32	5.1.2.1.1	Codeword mapping	0	noted
1130	R1-1711008	UL MIMO for codebook based transmission	Ericsson	Stephen Grant	65572	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	revised

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1131	R1-1711009	UL MIMO for non-codebook based transmission	Ericsson	Stephen Grant	65572	discussion	Decision			34	5.1.2.1.3	Non-codebook based transmission for UL	0	available
1132	R1-1711010	Robust Transmission Scheme for PUSCH	Ericsson	Stephen Grant	65572	discussion	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	available
1133	R1-1711011	PRB bundling	Ericsson	Stephen Grant	65572	discussion	Decision			36	5.1.2.1.5	PRB bundling for DL	0	available
1134	R1-1711012	UL multi-panel transmission	Ericsson	Stephen Grant	65572	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
1135	R1-1711013	DL multi-TRP and multi-panel transmission	Ericsson	Stephen Grant	65572	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	noted
1136	R1-1711014	On rate matching	Ericsson	Stephen Grant	65572	discussion	Decision			38	5.1.2.1.7	Rate matching	0	noted
1137	R1-1711015	On DL beam indication	Ericsson	Stephen Grant	65572	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
1138	R1-1711016	UL beam management details	Ericsson	Stephen Grant	65572	discussion	Decision			41	5.1.2.2.1	Beam management details	0	noted
1139	R1-1711017	Mechanism to recover from beam failure	Ericsson	Stephen Grant	65572	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
1140	R1-1711018	Beam management in C-DRX	Ericsson	Stephen Grant	65572	discussion	Decision			43	5.1.2.2.3	Other	0	available
1141	R1-1711019	On the use of SS for beam management	Ericsson	Stephen Grant	65572	discussion	Decision			43	5.1.2.2.3	Other	0	available
1142	R1-1711020	Further results on beam management without beam indication	Ericsson	Stephen Grant	65572	discussion	Decision			43	5.1.2.2.3	Other	0	available
1143	R1-1711021	Performance of beam grouping	Ericsson	Stephen Grant	65572	discussion	Decision			43	5.1.2.2.3	Other	0	available
1144	R1-1711022	On beam grouping	Ericsson	Stephen Grant	65572	discussion	Decision			43	5.1.2.2.3	Other	0	available
1145	R1-1711023	Analysis of beam indication signalling options	Ericsson	Stephen Grant	65572	discussion	Decision			43	5.1.2.2.3	Other	0	available
1146	R1-1711024	Further details of CSI framework	Ericsson	Stephen Grant	65572	discussion	Decision			45	5.1.2.3.1	CSI framework	0	noted
1147	R1-1711025	On CSI acquisition and reporting	Ericsson	Stephen Grant	65572	discussion	Decision			46	5.1.2.3.2	Details of CSI acquisition	0	available
1148	R1-1711026	Further discussion on CSI acquisition for reciprocity-based operation	Ericsson	Stephen Grant	65572	discussion	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	revised
1149	R1-1711027	CSI feedback and Transparent PDSCH Tx	Ericsson	Stephen Grant	65572	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
1150	R1-1711028	Codebook subset restriction	Ericsson	Stephen Grant	65572	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
1151	R1-1711029	Type I & II CSI reporting	Ericsson	Stephen Grant	65572	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
1152	R1-1711030	Encoding and mapping of CSI parameters	Ericsson	Stephen Grant	65572	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
1153	R1-1711031	CSI feedback for multi-TRP	Ericsson	Stephen Grant	65572	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
1154	R1-1711032	On Dynamic Triggering for CSI Reports and CSI-RS	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	available
1155	R1-1711033	A comparison of CSI-RS activation schemes based on MAC CE and DCI	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	available
1156	R1-1711034	Identifying bounds on parameters in CSI framework	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	available
1157	R1-1711035	Frequency parametrization for Type II CSI codebook	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	available
1158	R1-1711036	Further details of measurement restriction configuration	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	available
1159	R1-1711037	Performance impact of inactive antenna ports	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	revised
1160	R1-1711038	On partial bands and CSI acquisition	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	available
1161	R1-1711039	NR CSI Computation Capability	Ericsson	Stephen Grant	65572	discussion	Decision			49	5.1.2.3.5	Other	0	available
1162	R1-1711040	On Multiplexing of RS types for downlink	Ericsson	Stephen Grant	65572	discussion	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
1163	R1-1711041	On CSI-RS for CSI-acquisition	Ericsson	Stephen Grant	65572	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	noted
1164	R1-1711042	On CSI-RS for beam management	Ericsson	Stephen Grant	65572	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	noted
1165	R1-1711043	On DL DMRS design	Ericsson	Stephen Grant	65572	discussion	Decision			53	5.1.2.4.3	DMRS	0	noted
1166	R1-1711044	On DL DMRS evaluations	Ericsson	Stephen Grant	65572	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
1167	R1-1711045	On UL DMRS design	Ericsson	Stephen Grant	65572	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
1168	R1-1711046	On UL DMRS evaluations	Ericsson	Stephen Grant	65572	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
1169	R1-1711047	On PTRS DL design	Ericsson	Stephen Grant	65572	discussion	Decision			54	5.1.2.4.4	PT-RS	0	available
1170	R1-1711048	On PTRS UL design	Ericsson	Stephen Grant	65572	discussion	Decision			54	5.1.2.4.4	PT-RS	0	available
1171	R1-1711049	On SRS design	Ericsson	Stephen Grant	65572	discussion	Decision			55	5.1.2.4.5	SRS	0	noted
1172	R1-1711050	On time and frequency tracking of the channel	Ericsson	Stephen Grant	65572	discussion	Decision			56	5.1.2.4.6	TRS	0	revised
1173	R1-1711051	The QCL framework in NR	Ericsson	Stephen Grant	65572	discussion	Decision			57	5.1.2.4.7	QCL	0	available

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1174	R1-1711052	On the number of antenna ports for CSI-RS	Ericsson	Stephen Grant	65572	discussion	Decision			58	5.1.2.4.8	Other	0	available
1175	R1-1711053	On the collision between DMRS and DC subcarrier	Ericsson	Stephen Grant	65572	discussion	Decision			58	5.1.2.4.8	Other	0	available
1176	R1-1711054	On the NR UL power control framework	Ericsson	Stephen Grant	65572	discussion	Decision			140	5.1.9.2	NR power control framework	0	available
1177	R1-1711055	Initial views on UE category	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				4	4	Incoming Liaison Statements	0	noted
1178	R1-1711056	Discussion on remaining details on SS sequence design for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				9	5.1.1.1.1	Remaining details on SS sequence design	0	available
1179	R1-1711057	Discussion on SS burst set composition for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				10	5.1.1.1.2	SS burst set composition	0	available
1180	R1-1711058	Discussion on timing indication based on SS block for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				11	5.1.1.1.3	Timing indication based on SS block	0	available
1181	R1-1711059	Discussion on remaining details on multiple SS block transmissions in wideband CC for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
1182	R1-1711060	Discussion on NR-PBCH contents and payload size	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
1183	R1-1711061	Discussion on NR-PBCH design and SS block composition	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	revised
1184	R1-1711062	Discussion on sequence design of DMRS for NR-PBCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
1185	R1-1711063	Discussion on remaining minimum system information delivery for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				17	5.1.1.2.4	Remaining minimum system information delivery	0	available
1186	R1-1711064	Discussion on paging design for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				19	5.1.1.3	Paging design	0	available
1187	R1-1711065	Discussion on PRACH preamble format details for long/short sequence length for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
1188	R1-1711066	Discussion on PRACH preamble format details for capacity enhancement and beam management for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
1189	R1-1711067	Discussion on power ramping and power control during RA procedure for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
1190	R1-1711068	Discussion on 4-step RA procedure for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				24	5.1.1.4.4	4-step RA procedure	0	available
1191	R1-1711069	Discussion on NR RRM measurement based on SS block	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				26	5.1.1.5.1	Measurement based on SS block	0	available
1192	R1-1711070	Discussion on NR RRM measurement based on CSI-RS for L3 mobility	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
1193	R1-1711071	Discussion on NR RLM and RLF	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				28	5.1.1.5.3	Radio link monitoring	0	available
1194	R1-1711072	Discussion on codeword mapping	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				32	5.1.2.1.1	Codeword mapping	0	available
1195	R1-1711073	Codebook design for uplink	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				33	5.1.2.1.2	Codebook based transmission for UL	0	noted
1196	R1-1711074	Beam determination for non-codebook based transmission for uplink	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				34	5.1.2.1.3	Non-codebook based transmission for UL	0	available
1197	R1-1711075	View on Beam Management Details	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				41	5.1.2.2.1	Beam management details	0	available
1198	R1-1711076	Further views on mechanism to recover from beam failure	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				42	5.1.2.2.2	Mechanism to recover from beam failure	0	noted
1199	R1-1711077	Discussion on CSI framework	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				45	5.1.2.3.1	CSI framework	0	available
1200	R1-1711078	On CSI measurement for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				46	5.1.2.3.2	Details of CSI acquisition	0	available
1201	R1-1711079	CSI Feedback Design for NR MIMO	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				48	5.1.2.3.4	CSI feedback	0	available
1202	R1-1711080	Feedback Design for CSI Type I	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				48	5.1.2.3.4	CSI feedback	0	available
1203	R1-1711081	Feedback Design for CSI Type II	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				48	5.1.2.3.4	CSI feedback	0	available
1204	R1-1711082	CSI-RS for beam management	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				52	5.1.2.4.2	CSI-RS	0	available
1205	R1-1711083	CSI-RS for CSI acquisition	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				52	5.1.2.4.2	CSI-RS	0	available
1206	R1-1711084	Evaluation results of DM-RS	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				53	5.1.2.4.3	DMRS	0	available
1207	R1-1711085	Discussion on DM-RS design	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				53	5.1.2.4.3	DMRS	0	available
1208	R1-1711086	Discussion on PT-RS design	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				54	5.1.2.4.4	PT-RS	0	available
1209	R1-1711087	Discussions on NR SRS Design	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				55	5.1.2.4.5	SRS	0	noted
1210	R1-1711088	Views on remaining issues of resource mapping for NR-PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
1211	R1-1711089	Views on DM-RS design for NR-PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				64	5.1.3.1.1.2	RS structure/mapping	0	available
1212	R1-1711090	Views on control resource set configuration for NR-PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				66	5.1.3.1.2.1	CORESET configuration	0	available
1213	R1-1711091	Views on search space design for NR-PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				67	5.1.3.1.2.2	Search space design	0	available
1214	R1-1711092	Views on multi-beam based NR-PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
1215	R1-1711093	Resource sharing between data and control channels	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available

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1216	R1-1711094	Views on structure of group-common PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1217	R1-1711095	Views on contents of group-common PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1218	R1-1711096	Views on UE behavior for group-common PDCCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1219	R1-1711097	DL control channel design for URLLC	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
1220	R1-1711098	Sequence-based PUCCH for UCI of up to 2 bits	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1221	R1-1711099	FDM-based PUCCH for UCI of more than 2 bits	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
1222	R1-1711100	Long-PUCCH for UCI of up to 2 bits	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
1223	R1-1711101	Long-PUCCH for UCI of more than 2 bits	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
1224	R1-1711102	Long-PUCCH for more than one slot	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1225	R1-1711103	PUCCH resource allocation	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				85	5.1.3.2.4	Resource allocation for PUCCH	0	available
1226	R1-1711104	UCI on PUSCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
1227	R1-1711105	Multiplexing of PUCCH and PUSCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
1228	R1-1711106	UL control channel design for URLLC	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
1229	R1-1711107	Frequency-domain resource allocation	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
1230	R1-1711108	Time-domain resource allocation	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				94	5.1.3.3.1.2	Time-domain resource allocation	0	available
1231	R1-1711109	Transport block size determination	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				95	5.1.3.3.1.3	Transport block size determination	0	available
1232	R1-1711110	Scheduling request design in NR system	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				96	5.1.3.3.2	UL data transmission procedure with grant	0	available
1233	R1-1711111	Overall solutions for UL grant free transmission	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1234	R1-1711112	CBG construction	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				99	5.1.3.3.4.1	CBG construction	0	available
1235	R1-1711113	DL control signalling for CBG-based (re)transmission	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1236	R1-1711114	UL control signalling for CBG-based (re)transmission	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
1237	R1-1711115	HARQ-ACK timing	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
1238	R1-1711116	HARQ-ACK multiplexing	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
1239	R1-1711117	Processing time and HARQ process number for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
1240	R1-1711118	Soft-buffer size and management	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				107	5.1.3.3.6.2	Soft-buffer management	0	available
1241	R1-1711119	Pre-emption indication for downlink	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1242	R1-1711120	Multiplexing of different data durations for uplink	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
1243	R1-1711121	Scheduling and HARQ procedures for URLLC	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1244	R1-1711122	NR carrier aggregation	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				115	5.1.3.4.1.1	Self-/cross-carrier scheduling and joint/separate UCI feedback	0	available
1245	R1-1711123	LTE-NR Dual connectivity	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				117	5.1.3.4.2	Dual connectivity	0	available
1246	R1-1711124	Distributed simple parity check Polar codes	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				127	5.1.4.2.1	Code construction	0	available
1247	R1-1711125	Performance evaluation of DSPC-Polar codes	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				127	5.1.4.2.1	Code construction	0	noted
1248	R1-1711126	Sequence design of Polar codes	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				128	5.1.4.2.2	Sequence design	0	noted
1249	R1-1711127	Rate matching of Polar codes	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				128	5.1.4.2.2	Sequence design	0	available
1250	R1-1711128	Interleaving design of Polar codes	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				129	5.1.4.2.3	Other	0	available
1251	R1-1711129	Discussion on cross-link interference mitigation for duplexing flexibility	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				134	5.1.6.1	Cross-link interference management	0	noted
1252	R1-1711130	Discussion on prioritized scenarios for duplexing flex bil	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				135	5.1.6.2	Other	0	available
1253	R1-1711131	Remaining issues on wider bandwidth operations for NR	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				136	5.1.7	Wider bandwidth operations	0	available
1254	R1-1711132	Views on single UL transmission and UL sharing	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				137	5.1.8	NR-LTE co-existence	0	noted
1255	R1-1711133	LTE-NR power sharing mechanism	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				139	5.1.9.1	Power sharing mechanism	0	available
1256	R1-1711134	Power control framework for PUSCH	NTT DOCOMO, INC.	Kazuaki Takeda	43136	discussion				140	5.1.9.2	NR power control framework	0	noted
1257	R1-1711135	Synchronization signal sequence design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			9	5.1.1.1.1	Remaining details on SS sequence design	0	available
1258	R1-1711136	SS burst set composition consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			10	5.1.1.1.2	SS burst set composition	0	revised

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1259	R1-1711132	Timing indication based on SS block consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			11	5.1.1.1.3	Timing indication based on SS block	0	revised
1260	R1-1711138	Multiple SS block transmissions design in wideband CC	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
1261	R1-1711139	PBCH contents and payload size consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
1262	R1-1711140	SS block composition and PBCH RE mapping design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	noted
1263	R1-1711141	DMRS design for NR-PBCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
1264	R1-1711142	Remaining system information delivery consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
1265	R1-1711143	Other system information delivery consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			18	5.1.1.2.5	Other system information delivery	0	available
1266	R1-1711144	Paging design consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			19	5.1.1.3	Paging design	0	available
1267	R1-1711145	PRACH preamble format design for long/short sequence length	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
1268	R1-1711146	PRACH preamble design for capacity enhancement	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
1269	R1-1711147	Power ramping and power control for RA procedure	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
1270	R1-1711148	4-step RACH procedure consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			24	5.1.1.4.4	4-step RA procedure	0	available
1271	R1-1711149	Measurement based on SS block consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			26	5.1.1.5.1	Measurement based on SS block	0	available
1272	R1-1711150	Measurement based on CSI-RS for L3 mobility consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
1273	R1-1711151	Radio link monitoring consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			28	5.1.1.5.3	Radio link monitoring	0	noted
1274	R1-1711152	CW to layer mapping and frequency domain interleaving	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			32	5.1.2.1.1	Codeword mapping	0	noted
1275	R1-1711153	Codebook based UL transmission	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			33	5.1.2.1.2	Codebook based transmission for UL	0	available
1276	R1-1711154	Non-codebook based UL transmission	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			34	5.1.2.1.3	Non-codebook based transmission for UL	0	noted
1277	R1-1711155	On UL diversity transmission scheme	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			35	5.1.2.1.4	Diversity transmission for UL	0	available
1278	R1-1711156	Discussion on PRB bundling for DL	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			36	5.1.2.1.5	PRB bundling for DL	0	noted
1279	R1-1711157	On multi-TRP and multi-panel transmission	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
1280	R1-1711158	On PDSCH and PUSCH RE mapping	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			38	5.1.2.1.7	Rate matching	0	available
1281	R1-1711159	Transmission scheme for broadcast PDSCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			39	5.1.2.1.8	Other	0	noted
1282	R1-1711160	Beam management for NR	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			41	5.1.2.2.1	Beam management details	0	noted
1283	R1-1711161	Beam recovery procedures	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
1284	R1-1711162	Details of CSI framework	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			45	5.1.2.3.1	CSI framework	0	available
1285	R1-1711163	Details of CSI acquisition	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			46	5.1.2.3.2	Details of CSI acquisition	0	available
1286	R1-1711164	CSI acquisition for reciprocity based operation	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	available
1287	R1-1711165	On Type I and Type II CSI feedback using PUCCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			48	5.1.2.3.4	CSI feedback	0	available
1288	R1-1711166	On CSI feedback for open- or semi-open-loop transmission	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			48	5.1.2.3.4	CSI feedback	0	available
1289	R1-1711167	On multiplexing of different types of RSs	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
1290	R1-1711168	Discussion on CSI-RS design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			52	5.1.2.4.2	CSI-RS	0	revised
1291	R1-1711169	Discussion on UL DMRS design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			53	5.1.2.4.3	DMRS	0	available
1292	R1-1711170	Discussion on DL DMRS design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			53	5.1.2.4.3	DMRS	0	available
1293	R1-1711171	Evaluation of UL DMRS design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			53	5.1.2.4.3	DMRS	0	available
1294	R1-1711172	Evaluation of DL DMRS design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			53	5.1.2.4.3	DMRS	0	available
1295	R1-1711173	Phase and frequency tracking reference signal considerations	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			54	5.1.2.4.4	PT-RS	0	available
1296	R1-1711174	Discussion on SRS design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			55	5.1.2.4.5	SRS	0	noted
1297	R1-1711175	Further analysis on fine time/frequency tracking RS design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			56	5.1.2.4.6	TRS	0	noted
1298	R1-1711176	Discussion on QCL	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			57	5.1.2.4.7	QCL	0	noted
1299	R1-1711177	PDCC structure	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	revised
1300	R1-1711178	RS for DL control channel	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			64	5.1.3.1.1.2	RS structure/mapping	0	revised

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1301	R1-1711179	Control resource set and search space	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			66	5.1.3.1.2.1	CORESET configuration	0	available
1302	R1-1711180	Nested search space design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			67	5.1.3.1.2.2	Search space design	0	available
1303	R1-1711181	Multi-beam control operation	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	withdrawn
1304	R1-1711182	Resource reuse for data in DL control region	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
1305	R1-1711183	Structure of group common PDCCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1306	R1-1711184	Contents of group common PDCCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	revised
1307	R1-1711185	UE behaviour related to group common PDCCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1308	R1-1711186	Common control resource set signaling in MIB	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			75	5.1.3.1.6	Other	0	available
1309	R1-1711187	Advanced Grant Indication for UE Power Saving	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			75	5.1.3.1.6	Other	0	available
1310	R1-1711188	Channelization of 1-symbol short PUCCH with 1 or 2 bits payload	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1311	R1-1711189	Channelization of 1-symbol short PUCCH with more than 2 bits payload	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
1312	R1-1711190	Long PUCCH design with 1 or 2 bits UCI payload	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits	0	available
1313	R1-1711191	Long PUCCH design with more than 2 bits UCI payload	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
1314	R1-1711192	Long PUCCH over multiple slots	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1315	R1-1711193	Transmit diversity for PUCCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
1316	R1-1711194	Resource allocation for PUCCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
1317	R1-1711195	UCI piggyback on PUSCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
1318	R1-1711196	Multiplexing of PUCCH and PUSCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
1319	R1-1711197	MPR issue with distributed RB allocation in UL	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
1320	R1-1711198	Short PUSCH transmission in UL short duration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
1321	R1-1711199	Discussion TB size determination	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			95	5.1.3.3.1.3	Transport block size determination	0	available
1322	R1-1711200	Simultaneous UL SR channel	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
1323	R1-1711201	Uplink Resource for SR	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			80	5.1.3.2.2	PUCCH in long-duration	0	available
1324	R1-1711202	CBG Construction Principles for CBG-based Transmission with Multi-Bit HARQ feedback	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			99	5.1.3.3.4.1	CBG construction	0	available
1325	R1-1711203	DCI considerations for CBG-based (re-)Transmissions	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			100	5.1.3.3.4.2	DL control signalling for CBG-based (re-)transmission	0	available
1326	R1-1711204	UCI considerations for CBG-based (re-)Transmissions	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			101	5.1.3.3.4.3	UL control signaling for CBG-based (re-)transmission	0	available
1327	R1-1711205	Low latency impact analysis on user plane and control plane	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
1328	R1-1711206	UE processing time	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
1329	R1-1711207	Considerations for soft buffer management	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			107	5.1.3.3.6.2	Soft-buffer management	0	available
1330	R1-1711208	Timing advance for different numerology	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
1331	R1-1711209	CA with mixed numerology	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion		Late contribution	115	5.1.3.4.1.1	Self/cross-carrier scheduling and joint/separate UCI feedback	0	available
1332	R1-1711210	CRC attachment	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			121	5.1.4.1.1.1	CRC attachment	0	noted
1333	R1-1711211	LDPC segmentation	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			122	5.1.4.1.1.2	Segmentation	0	noted
1334	R1-1711212	LDPC rate matching	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			123	5.1.4.1.1.3	Rate matching	0	available
1335	R1-1711213	LDPC rate compatible design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			125	5.1.4.1.2	LDPC code design	0	revised
1336	R1-1711214	Early termination scheme for Polar codes	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			127	5.1.4.2.1	Code construction	0	available
1337	R1-1711215	Evaluation of early termination for Polar codes	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			127	5.1.4.2.1	Code construction	0	noted
1338	R1-1711216	Decoding and encoding latency for polar codes with PC frozen bits or distributed CRC bits	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			127	5.1.4.2.1	Code construction	0	noted
1339	R1-1711217	Performance comparison between CA-polar and PC-polar	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			127	5.1.4.2.1	Code construction	0	available
1340	R1-1711218	Sequence construction of Polar codes for control channel	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			128	5.1.4.2.2	Sequence design	0	revised
1341	R1-1711219	Determination of the values for the parameters in rate-matching for control channel	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			128	5.1.4.2.2	Sequence design	0	available
1342	R1-1711220	Rate-matching scheme for control channel	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			128	5.1.4.2.2	Sequence design	0	available
1343	R1-1711221	Design of Polar code for large UCI with segmentation	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			129	5.1.4.2.3	Other	0	available

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1344	R1-1711222	Design and evaluation of Interleaver for Polar codes	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			129	5.1.4.2.3	Other	0	available
1345	R1-1711223	PBCH channel coding	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			130	5.1.4.3	PBCH	0	revised
1346	R1-1711224	Consideration for MCS table	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			132	5.1.5	Modulation	0	noted
1347	R1-1711225	Dynamic TDD UE-to-UE measurement considerations	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			134	5.1.6.1	Cross-link interference management	0	available
1348	R1-1711226	Dynamic TDD Cross-link interference management consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			134	5.1.6.1	Cross-link interference management	0	available
1349	R1-1711227	UE Power Saving during Active State	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			136	5.1.7	Wider bandwidth operations	0	available
1350	R1-1711228	NR LTE Adjacent Channel Coexistence Consideration	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			137	5.1.8	NR-LTE co-existence	0	available
1351	R1-1711229	NR-LTE Co-channel Coexistence Considerations	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			137	5.1.8	NR-LTE co-existence	0	noted
1352	R1-1711230	Power control and PHR for NR	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			140	5.1.9.2	NR power control framework	0	noted
1353	R1-1711231	TDD-SUL CA scenario	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion		Late contribution	142	5.1.11	Other	0	withdrawn
1354	R1-1711232	Indication of actually transmitted SS blocks	Sharp	Toshizo Nogami	60264	other				10	5.1.1.1.2	SS burst set composition	0	available
1355	R1-1711233	Remaining issues on power ramping in NR	Sharp	Toshizo Nogami	60264	other				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
1356	R1-1711234	Discussion on mechanisms for beam failure recovery	Sharp	Toshizo Nogami	60264	other				42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
1357	R1-1711235	REG bundling for NR PDCCH	Sharp	Toshizo Nogami	60264	other				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
1358	R1-1711236	Indication of PDSCH starting position for NR	Sharp	Toshizo Nogami	60264	other				69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
1359	R1-1711237	Group common PDCCH structure for NR	Sharp	Toshizo Nogami	60264	other				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1360	R1-1711238	Group common PDCCH contents for NR	Sharp	Toshizo Nogami	60264	other				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1361	R1-1711239	Group common PDCCH monitoring for NR	Sharp	Toshizo Nogami	60264	other				73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1362	R1-1711240	Slot structure of NR long PUCCH for more than 2 bits	Sharp	Toshizo Nogami	60264	other				82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
1363	R1-1711241	Structure of NR long PUCCH over multiple slots	Sharp	Toshizo Nogami	60264	other				83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1364	R1-1711242	Short PUCCH structure for UCI of up to 2 bits	Sharp	Toshizo Nogami	60264	other				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1365	R1-1711243	Short PUCCH structure for UCI of more than 2 bits	Sharp	Toshizo Nogami	60264	other				79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
1366	R1-1711244	PUCCH and PUSCH multiplexing methods	Sharp	Toshizo Nogami	60264	other				88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
1367	R1-1711245	Pardon the Interruption: Downlink Control Signaling to Enable Preemption and CBG-based (Re) Transmission	Sharp	Toshizo Nogami	60264	other				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1368	R1-1711246	Discussion on Bursty Interference Measurement Resources	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			58	5.1.2.4.8	Other	0	available
1369	R1-1711247	Contents of group common PDCCH	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion		Late contribution	72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1370	R1-1711248	NR-LTE Co-channel Coexistence Considerations	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			137	5.1.8	NR-LTE co-existence	0	withdrawn
1371	R1-1711249	Power control and PHR for NR	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			138	5.1.9	UL power control	0	withdrawn
1372	R1-1711250	TDD-SUL CA scenario	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			142	5.1.11	Other	0	withdrawn
1373	R1-1711251	Design of Long-PUCCH for UCI of more than 2 bits	Cohere Technologies	Christian Ibars Casas	66231	discussion	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
1374	R1-1711252	Support of long-PUCCH over multiple slots	Cohere Technologies	Christian Ibars Casas	66231	discussion	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1375	R1-1711253	Resource configuration for UL transmission without grant	NICT	Masayuki Oodo	69716	discussion				97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1376	R1-1711254	Discussion on Paging Design	Ill	Chun-che Chien	43585	discussion				19	5.1.1.3	Paging design	0	available
1377	R1-1711255	Correction on the formula of AnnexA	ZTE	Nan Zhang	64596	draftCR	Decision			141	5.1.10	Channel model	0	revised
1378	R1-1711256	Correction on Procedure A of spatially-consistency UT mobility modeling	ZTE	Nan Zhang	64596	draftCR	Decision			141	5.1.10	Channel model	0	revised
1379	R1-1711257	Discussion on DL control signalling for CBG-based retransmission	HTC Corporation	Ling-san Meng	59466	discussion				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1380	R1-1711258	Discussion on UL control signalling for CBG-based retransmission	HTC Corporation	Ling-san Meng	59466	discussion				101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
1381	R1-1711259	Discussion on CBG-based HARQ feedback multiplexing	HTC Corporation	Ling-san Meng	59466	discussion				104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
1382	R1-1711260	Remaining open issues on NR Synchronisation signal design	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	available
1383	R1-1711261	On SS Burst Set Composition	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	available
1384	R1-1711262	SS block time index indication	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available

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1385	R1-1711263	SS-block transmission in multi CC deployments	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
1386	R1-1711264	NR-PBCH content	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	revised
1387	R1-1711265	SS block composition	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
1388	R1-1711266	NR-PBCH DMRS design	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
1389	R1-1711267	On Remaining System Information Delivery	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
1390	R1-1711268	SS block measurements and procedures	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			26	5.1.1.5.1	Measurement based on SS block	0	available
1391	R1-1711269	NR Radio link monitoring	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
1392	R1-1711270	[89-16] Email discussion on NR-PRACH preamble formats based on short sequence length	ZTE Corporation	Jan Johansson	72705	discussion	Discussion			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
1393	R1-1711271	Paging in NR	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			19	5.1.1.3	Paging design	0	available
1394	R1-1711272	Configuration for control resource sets and search spaces	HTC Corporation	Chien-Hsin Tang	70236	discussion				66	5.1.3.1.2.1	CORESET configuration	0	available
1395	R1-1711273	Design of resource mapping and NR-PDCCH	HTC Corporation	Chien-Hsin Tang	70236	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
1396	R1-1711274	Discussion on location and timing indication of SS block	Xiaomi Technology	Yang Liu	66714	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available
1397	R1-1711275	Discussion on NR-SSS working assumption	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				9	5.1.1.1.1	Remaining details on SS sequence design	0	available
1398	R1-1711276	Indication of SS block timing information	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				11	5.1.1.1.3	Timing indication based on SS block	0	available
1399	R1-1711277	Discussion on NR-PBCH contents	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
1400	R1-1711278	NR-PBCH RE mapping	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
1401	R1-1711279	RACH configuration and procedure	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				24	5.1.1.4.4	4-step RA procedure	0	available
1402	R1-1711280	On CCE and PDCCH mapping	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available
1403	R1-1711281	NR Group-common PDCCH contents and structure	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1404	R1-1711282	Short PUCCH for up to 2 bit UCI	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion			Late contribution	78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1405	R1-1711283	PUCCH resource allocation for HARQ-ACK feedback to Msg4	Motorola Mobility, Lenovo	Vijay Nangia	34148	discussion				85	5.1.3.2.4	Resource allocation for PUCCH	0	available
1406	R1-1711284	Codebook Based Transmission and Codebook Design for UL MIMO	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	available
1407	R1-1711285	Non-codebook based UL-MIMO transmission	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			34	5.1.2.1.3	Non-codebook based transmission fo UL	0	available
1408	R1-1711286	UL-MIMO diversity-based transmission	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	available
1409	R1-1711287	On details of PRB Bundling	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			36	5.1.2.1.5	PRB bundling for DL	0	noted
1410	R1-1711288	On the maximum number of PDSCH/PDSCHs to be supported for multi-TRP transmission	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
1411	R1-1711289	On the utilization of SS block for beam management	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
1412	R1-1711290	SRS transmission for beam management	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			41	5.1.2.2.1	Beam management details	0	available
1413	R1-1711291	Beam Recovery in NR	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	noted
1414	R1-1711292	BPL definition and Spatial QCL time indication	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			43	5.1.2.2.3	Other	0	noted
1415	R1-1711293	On beam grouping and reporting	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			43	5.1.2.2.3	Other	0	available
1416	R1-1711294	On Multi-beam Downlink Control Channel Operation	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			43	5.1.2.2.3	Other	0	available
1417	R1-1711295	Multi-beam Uplink Control Channel Operation	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			43	5.1.2.2.3	Other	0	available

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1418	R1-1711298	On the CRI definition and usability in NR	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			45	5.1.2.3.1	CSI framework	0	available
1419	R1-1711297	Remaining aspects on interference estimation options and configuration	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			46	5.1.2.3.2	Details of CSI acquisition	0	noted
1420	R1-1711298	On the channel reciprocity support for CSI acquisition	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	noted
1421	R1-1711299	Feedback transmission of type II codebook	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	revised
1422	R1-1711300	CSI feedback in support of semi-open loop transmission	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	noted
1423	R1-1711301	On the CSI timing relationships	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			49	5.1.2.3.5	Other	0	available
1424	R1-1711302	On multiplexing of different RS types	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
1425	R1-1711303	On the CSI-RS configurations for NR CSI acquisition	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
1426	R1-1711304	On CSI-RS Design for DL Beam Management	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			52	5.1.2.4.2	CSI-RS	0	available
1427	R1-1711305	On design of DL DM-RS for NR physical data channels	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
1428	R1-1711306	DL DM-RS patterns link performance evaluation	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
1429	R1-1711307	On design of UL DM-RS for NR physical data channels	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			53	5.1.2.4.3	DMRS	0	available
1430	R1-1711308	Discussion on PT-RS design for CP-OFDM	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			54	5.1.2.4.4	PT-RS	0	available
1431	R1-1711309	On Details of the PT-RS Design for DFT-s-OFDM	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			54	5.1.2.4.4	PT-RS	0	revised
1432	R1-1711310	UL SRS design considerations in NR	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			55	5.1.2.4.5	SRS	0	available
1433	R1-1711311	Views on the TFFT-RS in NR	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			56	5.1.2.4.6	TRS	0	available
1434	R1-1711312	On QCL Framework and Configurations in NR	Nokia, Alcatel-Lucent Shanghai Bell	Mihai Enescu	68296	discussion	Decision			57	5.1.2.4.7	QCL	0	noted
1435	R1-1711313	Cross-link interference management based on Xn support	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	available
1436	R1-1711314	On NR Cross-Link Symbol Alignment Scheme	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	noted
1437	R1-1711315	LBT-based UL transmission for dynamic TDD	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			135	5.1.6.2	Other	0	available
1438	R1-1711316	DL control signaling for CBG-based (re)transmission	Shenzhen Coolpad Technologies	Mingju Li	60196	discussion				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1439	R1-1711317	Discussion on NR Operating in Unlicensed Spectrum	ASUSTEK COMPUTER (SHANGHAI)	Alex Liou	65894	discussion				143	5.2	Other	0	available
1440	R1-1711318	Discussion on the options in NR design	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			6	5.1	New Radio Access Technology - WID in RP-171485	0	available
1441	R1-1711319	Relation among NR-PBCH, SIBs and subcells	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
1442	R1-1711320	Resource sharing between PDCCH and PDSCH	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
1443	R1-1711321	PDCCH BD reduction	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			67	5.1.3.1.2.2	Search space design	0	available
1444	R1-1711322	Frequency/time resource assignment of the operation modes	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			92	5.1.3.3.1	DL/UL resource allocation	0	available
1445	R1-1711323	UL data transmission without grant	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1446	R1-1711324	DL control signalling for CBG-based (re)transmission	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1447	R1-1711325	UE category modelling and soft buffer	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			107	5.1.3.3.6.2	Soft-buffer management	0	available
1448	R1-1711326	Comment on NR specification	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			142	5.1.11	Other	0	available
1449	R1-1711327	The relation among REG, CCE, and CORESET	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	available

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1450	R1-1711328	RS mapping of NR-PDCCH	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			64	5.1.3.1.2	RS structure/mapping	0	available
1451	R1-1711329	Configuration of CORESET	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			66	5.1.3.1.2.1	CORESET configuration	0	available
1452	R1-1711330	Search space design	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			67	5.1.3.1.2.2	Search space design	0	available
1453	R1-1711331	Discussion on structure of group common PDCCH	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1454	R1-1711332	Discussion on contents of group common PDCCH	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1455	R1-1711333	Discussion on DL/UL transmission direction	Panasonic	Hidetoshi Suzuki	21346	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1456	R1-1711334	Considerations on UE Beamforming Management	ASUSTEK COMPUTER (SHANGHAI)	Mingche Li	53966	discussion				41	5.1.2.2.1	Beam management details	0	available
1457	R1-1711335	UL power control in multi-beam based approaches	ASUSTEK COMPUTER (SHANGHAI)	Mingche Li	53966	discussion				140	5.1.9.2	NR power control framework	0	available
1458	R1-1711336	Discussion on group based beam reporting	China Unicom	Xiao Han	46713	discussion				41	5.1.2.2.1	Beam management details	0	available
1459	R1-1711337	On NR-LTE coexistence for NSA and SA	China Unicom	Xiao Han	46713	discussion				137	5.1.8	NR-LTE co-existence	0	noted
1460	R1-1711338	Consideration on physical downlink control channel for URLLC	CATR	Yanping Xing	57090	other	Discussion			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
1461	R1-1711339	Consideration on the CSI-RS design for NR	CATR	Yanping Xing	57090	other	Discussion			52	5.1.2.4.2	CSI-RS	0	available
1462	R1-1711340	Consideration on the font loaded DM RS design for NR	CATR	Yanping Xing	57090	other	Discussion			53	5.1.2.4.3	DMRS	0	available
1463	R1-1711341	Discussions on the indication for CBG	CATR	Yanping Xing	57090	other	Discussion			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1464	R1-1711342	Discussion on the granularity of preemption indication	CATR	Yanping Xing	57090	other	Discussion			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1465	R1-1711343	Discussion on URLLC transmitted in same or different numerology resources	ASUSTEK COMPUTER (SHANGHAI)	Denry Huang	65852	agenda				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1466	R1-1711344	LDPC Coding chain	Intel Corporation	Seunghee Han	47329	discussion	Decision			120	5.1.4.1.1	Coding chain	0	available
1467	R1-1711345	Base Graph 1 lifting and evaluations	Intel Corporation	Seunghee Han	47329	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	revised
1468	R1-1711346	Base Graph 2 lifting and evaluations	Intel Corporation	Seunghee Han	47329	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	revised
1469	R1-1711347	Simple distributed CRC design for Polar codes	Intel Corporation	Seunghee Han	47329	discussion	Decision			127	5.1.4.2.1	Code construction	0	noted
1470	R1-1711348	Evaluations of Polar code designs	Intel Corporation	Seunghee Han	47329	discussion	Decision			127	5.1.4.2.1	Code construction	0	available
1471	R1-1711349	Discussion on Polar code rate-matching	Intel Corporation	Seunghee Han	47329	discussion	Decision			128	5.1.4.2.2	Sequence design	0	available
1472	R1-1711350	DMRS pattern configuration for NR	ITL	Sung Jun Yoon	58632	other				53	5.1.2.4.3	DMRS	0	available
1473	R1-1711351	On timing indication for NR	ITL	Sung Jun Yoon	58632	other				11	5.1.1.1.3	Timing indication based on SS block	0	available
1474	R1-1711352	Multiple SS block indication in wideband CC	ITL	Sung Jun Yoon	58632	other				12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
1475	R1-1711353	DMRS sequence design for NR-PBCH	ITL	Sung Jun Yoon	58632	other				16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
1476	R1-1711354	PDSCH starting position indication for NR	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	available
1477	R1-1711355	Discussion on structure for group-common PDCCH for NR	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1478	R1-1711356	Discussion on contents for group-common PDCCH for NR	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1479	R1-1711357	Discussion on UE behavior for group-common PDCCH for NR	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCH	0	available
1480	R1-1711358	Short PUCCH structure for UCI of up to 2 bits	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1481	R1-1711359	Discussion on UCI piggyback on PUSCH	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
1482	R1-1711360	Simultaneous transmission for long-PUCCH and PUSCH	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
1483	R1-1711361	Discussion on UL HARQ-ACK feedback for CBG-based retransmission	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
1484	R1-1711362	Discussion on UE behavior by pre-emption indication	WILUS Inc.	Minseok Noh	62848	discussion	Discussion			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1485	R1-1711363	Two-step resource allocation for data channel in NR	ASUSTEK COMPUTER (SHANGHAI)	Eddie Lin	40159	discussion				93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
1486	R1-1711364	Multiple SS block transmissions in a wideband CC	ASUSTEK COMPUTER (SHANGHAI)	Eddie Lin	40159	discussion				12	5.1.1.1.4	Remaining details on multiple SS block transmissions in wideband CC	0	available
1487	R1-1711365	On UL coverage extension of TDD @3.5GHz	ORANGE	Hao Lin	65530	discussion				137	5.1.8	NR-LTE co-existence	0	revised
1488	R1-1711366	TS38.211 v0.0.1 NR; Physical channels and modulation	Ericsson LM	Stefan Parkvall	28759	draft TS				6	5.1	New Radio Access Technology - WID in RP-171485	0	revised
1489	R1-1711367	On UE processing time	Ericsson LM	Stefan Parkvall	28759	discussion	Decision			112	5.1.3.3.9	Other	0	available

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1490	R1-1711368	Discussion on the search space design	Xiaomi technology	Yajun Zhu	71337	discussion				66	5.1.3.1.2.1	CORESET configuration	0	available
1491	R1-1711369	Discussion on the content of group common PDCCH	Xiaomi technology	Yajun Zhu	71337	discussion				72	5.1.3.1.4.2	Contents of group-common PDCCH	0	available
1492	R1-1711370	Discussion on the search space design	Xiaomi Technology	Yajun Zhu	71337	discussion				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	withdrawn
1493	R1-1711371	Remaining details on NR-SS sequence design	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	available
1494	R1-1711372	SS burst set composition	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			10	5.1.1.1.2	SS burst set composition	0	noted
1495	R1-1711373	Timing indication based on SS block	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	noted
1496	R1-1711374	NR-PBCH Content and payload size	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
1497	R1-1711375	NR-PBCH RE mapping and SS block composition	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
1498	R1-1711376	NR-PBCH DMRS design	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	available
1499	R1-1711377	NR delivery of remaining minimum system information	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			17	5.1.1.2.4	Remaining minimum system information delivery	0	available
1500	R1-1711378	NR delivery of other system information	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			18	5.1.1.2.5	Other system information delivery	0	available
1501	R1-1711379	On NR paging design	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			19	5.1.1.3	Paging design	0	available
1502	R1-1711380	NR-RACH preamble format details	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
1503	R1-1711381	NR-RACH preamble format details for capacity enhancement and beam management	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
1504	R1-1711382	Power ramping and power control during RA procedure	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
1505	R1-1711383	4-step random access procedure	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			24	5.1.1.4.4	4-step RA procedure	0	available
1506	R1-1711384	Mobility measurements based on SS block	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			26	5.1.1.5.1	Measurement based on SS block	0	available
1507	R1-1711385	Measurements based on CSI-RS for L3 mobility	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
1508	R1-1711386	Radio link monitoring	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
1509	R1-1711387	Consideration of PRACH Configuration in NR	Ericsson	Asbjorn Grovlen	45069	discussion				29	5.1.1.6	Other	0	available
1510	R1-1711388	Additional synchronization provision	Ericsson	Asbjorn Grovlen	45069	discussion				29	5.1.1.6	Other	0	available
1511	R1-1711389	Further details on scrambling	Ericsson	Asbjorn Grovlen	45069	discussion	Decision			142	5.1.11	Other	0	available
1512	R1-1711390	Discussion on the structure of group common PDCCH	Xiaomi Technology	Yajun Zhu	71337	discussion				71	5.1.3.1.4.1	Structure of group-common PDCCH	0	available
1513	R1-1711391	On Other System Information Delivery	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			18	5.1.1.2.5	Other system information delivery	0	available
1514	R1-1711392	CSI-RS configuration for L3 mobility purposes	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
1515	R1-1711393	Calibration results for Phase 1 NR MIMO system level calibration	MOTOROLA MOBILITY LLC	Colin Frank	46352	discussion				59	5.1.2.5	Other	0	available
1516	R1-1711394	Discussion on SS Burst Set Design	Conviva Wireless LLC	Qing Li	65106	discussion				10	5.1.1.1.2	SS burst set composition	0	available
1517	R1-1711395	Discussion on Multi-beam Operation for PDCCH	Conviva Wireless LLC	Qing Li	65106	discussion				68	5.1.3.1.2.3	Multi-beam operation for PDCCH	0	available
1518	R1-1711396	On power sharing between LTE and NR in DC	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			139	5.1.9.1	Power sharing mechanism	0	available
1519	R1-1711397	UL Power Control for MIMO	Nokia, Alcatel-Lucent Shanghai Bell	Emad Farag	66840	discussion	Decision			140	5.1.9.2	NR power control framework	0	noted
1520	R1-1711398	On spectrum shaping for uplink P/2 BPSK with DFT-S-OFDM	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			132	5.1.5	Modulation	0	available
1521	R1-1711399	LTE and NR performance in NR-LTE UL sharing	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	available
1522	R1-1711400	On 1Tx only UE in LTE-NR Dual Connectivity	Nokia, Alcatel-Lucent Shanghai Bell	Karri Ranta-aho	64268	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	noted
1523	R1-1711401	Measurement RS for beam management	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
1524	R1-1711402	Relationship between beam failure recovery and RLF	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
1525	R1-1711403	Robust transmission for UL control channel	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
1526	R1-1711404	Discussion on reciprocity based CSI acquisition mechanism	Huawei, HiSilicon	Brian Classon	45750	other				47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	available
1527	R1-1711405	CSI acquisition for DL robust transmission	Huawei, HiSilicon	Brian Classon	45750	other				48	5.1.2.3.4	CSI feedback	0	noted
1528	R1-1711406	Other remaining issues for CSI framework	Huawei, HiSilicon	Brian Classon	45750	other				49	5.1.2.3.5	Other	0	available

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1529	R1-1711407	Multiple-panel codebook	Huawei, HiSilicon	Brian Classon	45750	other				48	5.1.2.3.4	CSI feedback	0	available
1530	R1-1711408	Category 2 codebook design for type II codebook	Huawei, HiSilicon	Brian Classon	45750	other				48	5.1.2.3.4	CSI feedback	0	available
1531	R1-1711409	Codebook design for beamformed CSI-RS	Huawei, HiSilicon	Brian Classon	45750	other				48	5.1.2.3.4	CSI feedback	0	available
1532	R1-1711410	Cross-carrier beam management	Huawei, HiSilicon	Brian Classon	45750	other				43	5.1.2.2.3	Other	0	available
1533	R1-1711411	Evaluation on REG bundle sizes for 1-symbol CORESET duration	Huawei, HiSilicon	Brian Classon	45750	other				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	noted
1534	R1-1711412	Evaluation on REG bundle sizes for more than 1 symbol CORESET duration	Huawei, HiSilicon	Brian Classon	45750	other				63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping	0	noted
1535	R1-1711413	CCE-to-REG mapping	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
1536	R1-1711414	PDCCH-to-CCE mapping	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
1537	R1-1711415	NR DL control capacity and blocking probability	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
1538	R1-1711416	Performance evaluations on 1-symbol PUCCH for up to 2 UCI bits	Huawei, HiSilicon	Brian Classon	45750	other				90	5.1.3.2.7	Other	0	available
1539	R1-1711417	Long PUCCH structure for large payload with no multiplexing capacity	Huawei, HiSilicon	Brian Classon	45750	other				90	5.1.3.2.7	Other	0	available
1540	R1-1711418	On CSI feedback in NR	Huawei, HiSilicon	Brian Classon	45750	other				90	5.1.3.2.7	Other	0	available
1541	R1-1711419	Transmit diversity for short duration PUCCH	Huawei, HiSilicon	Brian Classon	45750	other				90	5.1.3.2.7	Other	0	available
1542	R1-1711420	Multiplexing between PUCCHs	Huawei, HiSilicon	Brian Classon	45750	other				90	5.1.3.2.7	Other	0	available
1543	R1-1711421	Multiplexing of UL control channel and SRS in NR	Huawei, HiSilicon	Brian Classon	45750	other				90	5.1.3.2.7	Other	0	available
1544	R1-1711422	Resource allocation for data channels	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1545	R1-1711423	PDCCH monitoring for slot-aggregation and cross-slot scheduling	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
1546	R1-1711424	On bandwidth adaptation	Huawei, HiSilicon	Brian Classon	45750	other				142	5.1.11	Other	0	available
1547	R1-1711425	Summary of LTE CA/DC and remaining issues for NR	Huawei, HiSilicon	Brian Classon	45750	other				113	5.1.3.4	Scheduling/HARQ aspects for carrier aggregation and dual connectivity	0	available
1548	R1-1711426	CBG-based transmission/retransmission for DL multiplexing of eMBB and URLLC	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1549	R1-1711427	Discussion on group common pre-emption indication	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1550	R1-1711428	Superposed transmission of pre-emption indication with eMBB data	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1551	R1-1711429	Consideration on ACK/NACK error in CBG-based retransmission	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1552	R1-1711430	Discussion on UL multiplexing of grant-based eMBB and URLLC	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1553	R1-1711431	HARQ feedback indication design for UL grant-free transmission	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
1554	R1-1711432	Discussion on over-the-air time synchronization for URLLC	Huawei, HiSilicon	Brian Classon	45750	other				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1555	R1-1711433	Discussion on remaining frequency resources on symbol carrying CORESET	Huawei, HiSilicon	Brian Classon	45750	other				75	5.1.3.1.6	Other	0	available
1556	R1-1711434	Discussion on TB size determination	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1557	R1-1711435	Unified design for slot and mini-slot	Huawei, HiSilicon	Brian Classon	45750	other				112	5.1.3.3.9	Other	0	available
1558	R1-1711436	LDPC design for base graph 1	Huawei, HiSilicon	Brian Classon	45750	other				125	5.1.4.1.2	LDPC code design	0	revised
1559	R1-1711437	LDPC design for base graph 2	Huawei, HiSilicon	Brian Classon	45750	other				125	5.1.4.1.2	LDPC code design	0	available
1560	R1-1711438	Rate matching for LDPC codes	Huawei, HiSilicon	Brian Classon	45750	other				123	5.1.4.1.1.3	Rate matching	0	noted
1561	R1-1711439	Segmentation for eMBB data	Huawei, HiSilicon	Brian Classon	45750	other				122	5.1.4.1.1.2	Segmentation	0	noted
1562	R1-1711440	On LDPC codes for eMBB data	Huawei, HiSilicon	Brian Classon	45750	other				124	5.1.4.1.1.4	Other	0	withdrawn
1563	R1-1711441	On the feedback overhead reduction for multi-subband UL MIMO	Huawei, HiSilicon	Brian Classon	45750	other				39	5.1.2.1.8	Other	0	available
1564	R1-1711442	Summary of [89-27] Polar code proposal for NR	Huawei	Brian Classon	45750	other				127	5.1.4.2.1	Code construction	0	noted
1565	R1-1711443	Summary of [89-26] Polar code for NR -- alignment of latency/complexity calculation for early termination	Huawei	Brian Classon	45750	other				127	5.1.4.2.1	Code construction	0	noted
1566	R1-1711444	Continuous precoding for NR DMRS in time domain	Samsung	Younsun Kim	43499	other	Decision			39	5.1.2.1.8	Other	0	available
1567	R1-1711445	System level evaluation results for beam management	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
1568	R1-1711446	Link level evaluation results for beam management	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
1569	R1-1711447	Link level simulation assumptions for beam management	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available
1570	R1-1711448	System level simulation assumptions for beam management	Samsung	Younsun Kim	43499	other	Decision			43	5.1.2.2.3	Other	0	available

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1571	R1-1711449	Discussions on service specific CSI for NR	Samsung	Younsun Kim	43499	other	Decision			49	5.1.2.3.5	Other		0 available
1572	R1-1711450	MIMO Phase-2 SLS calibration results on 30GHz frequency band	Samsung	Younsun Kim	43499	other	Decision			59	5.1.2.5	Other		0 available
1573	R1-1711451	MIMO Phase-2 LLS calibration results on 30GHz frequency band	Samsung	Younsun Kim	43499	other	Decision			59	5.1.2.5	Other		0 available
1574	R1-1711452	Evaluation results for dense urban on 30GHz frequency band	Samsung	Younsun Kim	43499	other	Decision			59	5.1.2.5	Other		0 available
1575	R1-1711453	DL and UL Assignment for NR TDD	Samsung	Younsun Kim	43499	other	Decision			75	5.1.3.1.6	Other		0 available
1576	R1-1711454	Slot Reconfiguration for Low Latency in TDD	Samsung	Younsun Kim	43499	other	Decision			75	5.1.3.1.6	Other		0 available
1577	R1-1711455	Indication of Reserved Resources	Samsung	Younsun Kim	43499	other	Decision			75	5.1.3.1.6	Other		0 available
1578	R1-1711456	HARQ Process Management in NR	Samsung	Younsun Kim	43499	other	Decision			112	5.1.3.3.9	Other		0 available
1579	R1-1711457	Indication of Preempted Resources Prior to HARQ-ACK Feedback	Samsung	Younsun Kim	43499	other	Decision			112	5.1.3.3.9	Other		0 available
1580	R1-1711458	Considerations on Signaling for Indicating Preempted Resources	Samsung	Younsun Kim	43499	other	Decision			112	5.1.3.3.9	Other		0 available
1581	R1-1711459	Modulation Scheme for URLLC with Preemption Multiplexing	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other		0 available
1582	R1-1711460	On Transparency of Spectrum Shaping for p/2-BPSK DFT-s-OFDM	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other		0 available
1583	R1-1711461	On Spectrum Shaping Methods for p/2-BPSK DFT-s-OFDM	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other		0 available
1584	R1-1711462	On Modulation Schemes for High Spectral Efficiency	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other		0 available
1585	R1-1711463	Transmission and Reception for High-Order Modulation with MIMO	Samsung	Younsun Kim	43499	other	Decision			142	5.1.11	Other		0 available
1586	R1-1711464	High level consideration on NR unlicensed band operation	Huawei, HiSilicon	Brian Classon	45750	other				143	5.2	Other		0 available
1587	R1-1711465	NR Numerology on unlicensed bands	Huawei, HiSilicon	Brian Classon	45750	other				143	5.2	Other		0 available
1588	R1-1711466	NR Frame structure on unlicensed bands	Huawei, HiSilicon	Brian Classon	45750	other				143	5.2	Other		0 available
1589	R1-1711467	Coexistence and Channel access for NR unlicensed band operations	Huawei, HiSilicon	Brian Classon	45750	other				143	5.2	Other		0 available
1590	R1-1711468	On CSI-RS design for DL beam management	KT Corp.	Kyu Jin Park	58528	discussion	Decision			52	5.1.2.4.2	CSI-RS		0 available
1591	R1-1711469	NR standalone operation on unlicensed bands	Huawei, HiSilicon	Brian Classon	45750	other				143	5.2	Other		0 available
1592	R1-1711470	Discussion on NoMA study for Rel-15 SI	Huawei, HiSilicon	Brian Classon	45750	other				143	5.2	Other		0 available
1593	R1-1711471	Discussions on Transmission Duration	KT Corp.	Kyu Jin Park	58528	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation		0 available
1594	R1-1711472	Considerations on TB-CRC Failure	KT Corp.	Kyu Jin Park	58528	discussion	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission		0 available
1595	R1-1711473	View on Multi-Beam Management	KT Corp.	Kyu Jin Park	58528	discussion	Decision			41	5.1.2.2.1	Beam management details		0 available
1596	R1-1711474	Views on preemption indication for DL	KT Corp.	Kyu Jin Park	58528	discussion	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink		0 available
1597	R1-1711475	Views on CCE-to-REG mapping	KT Corp.	Kyu Jin Park	58528	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCCH-to-CCE mapping		0 available
1598	R1-1711476	On UE Categories/Capabilities	Ericsson	Sorour Falahati	58325	discussion	Decision			4	4	Incoming Liaison Statements		0 noted
1599	R1-1711477	On NR-PDCCH Structure	Ericsson	Sorour Falahati	58325	discussion	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCCH-to-CCE mapping		0 available
1600	R1-1711478	On DM-RS for NR-PDCCH	Ericsson	Sorour Falahati	58325	discussion	Decision			64	5.1.3.1.1.2	RS structure/mapping		0 available
1601	R1-1711479	On Configuration of Control Resource Sets	Ericsson	Sorour Falahati	58325	discussion	Decision			66	5.1.3.1.2.1	CORESET configuration		0 available
1602	R1-1711480	On Search Space and Blind Decoding Design	Ericsson	Sorour Falahati	58325	discussion	Decision			67	5.1.3.1.2.2	Search space design		0 available
1603	R1-1711481	On Multi-beam and Multi-TRP Operation for PDCCCH	Ericsson	Sorour Falahati	58325	discussion	Decision			68	5.1.3.1.2.3	Multi-beam operation for PDCCCH		0 available
1604	R1-1711482	On Data Transmission in Control Resource Sets	Ericsson	Sorour Falahati	58325	discussion	Decision			69	5.1.3.1.3	Resource sharing between PDCCCH and PDSCH		0 available
1605	R1-1711483	On Group-Common PDCCCH Structure and Configuration	Ericsson	Sorour Falahati	58325	discussion	Decision			71	5.1.3.1.4.1	Structure of group-common PDCCCH		0 available
1606	R1-1711484	On the Content of Group-Common PDCCCH	Ericsson	Sorour Falahati	58325	discussion	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCCH		0 available
1607	R1-1711485	On UE Procedures Related to Group-Common PDCCCH	Ericsson	Sorour Falahati	58325	discussion	Decision			73	5.1.3.1.4.3	UE behaviour related to group-common PDCCCH		0 available
1608	R1-1711486	On PDCCCH for Ultra-Reliable Transmission	Ericsson	Sorour Falahati	58325	discussion	Decision			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control		0 available
1609	R1-1711487	On the Performance Evaluation of PDCCCH for Ultra-Reliable Transmission	Ericsson	Sorour Falahati	58325	discussion	Decision			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control		0 available
1610	R1-1711488	On the Design of Short PUCCH for 1-2 UCI bits	Ericsson	Sorour Falahati	58325	discussion	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits		0 available
1611	R1-1711489	On the Design of Short PUCCH for more than 2 UCI bits	Ericsson	Sorour Falahati	58325	discussion	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits		0 available
1612	R1-1711490	On the Design of Long PUCCH for 1-2 UCI bits	Ericsson	Sorour Falahati	58325	discussion	Decision			81	5.1.3.2.2.1	Long-PUCCH for UCI of up to 2 bits		0 available
1613	R1-1711491	On the Design of Long PUCCH for more than 2 UCI bits	Ericsson	Sorour Falahati	58325	discussion	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits		0 available

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1614	R1-1711492	On support of Long PUCCH over multiple slots	Ericsson	Sorour Falahati	58325	discussion	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1615	R1-1711493	On Transmit Diversity Schemes for PUCCH	Ericsson	Sorour Falahati	58325	discussion	Decision			84	5.1.3.2.3	Transmit diversity for PUCCH	0	available
1616	R1-1711494	On Resource Allocation for PUCCH and Multiplexing PUCCH Formats	Ericsson	Sorour Falahati	58325	discussion	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
1617	R1-1711495	On UCI on PUSCH	Ericsson	Sorour Falahati	58325	discussion	Decision			87	5.1.3.2.5.1	UCI piggyback on PUSCH	0	available
1618	R1-1711496	On Simultaneous Transmission of PUSCH and PUCCH	Ericsson	Sorour Falahati	58325	discussion	Decision			88	5.1.3.2.5.2	PUCCH-PUSCH multiplexing	0	available
1619	R1-1711497	On PUCCH for Ultra-Reliable Transmission	Ericsson	Sorour Falahati	58325	discussion	Decision			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
1620	R1-1711498	On the Performance Evaluation of PUCCH for Ultra-Reliable Transmission	Ericsson	Sorour Falahati	58325	discussion	Decision			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
1621	R1-1711499	On Resource Allocation in the Frequency Domain	Ericsson	Sorour Falahati	58325	discussion	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	available
1622	R1-1711500	On Resource Allocation in the Time Domain	Ericsson	Sorour Falahati	58325	discussion	Decision			94	5.1.3.3.1.2	Time-domain resource allocation	0	available
1623	R1-1711501	On MCS/transport Block Size Determination	Ericsson	Sorour Falahati	58325	discussion	Decision			95	5.1.3.3.1.3	Transport block size determination	0	available
1624	R1-1711502	On UL Data Scheduling Grant in NR	Ericsson	Sorour Falahati	58325	discussion	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
1625	R1-1711503	On Scheduling Request Enhancements	Ericsson	Sorour Falahati	58325	discussion	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
1626	R1-1711504	On SPS/Grant-Free Transmission	Ericsson	Sorour Falahati	58325	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1627	R1-1711505	On HARQ Retransmission for SPS/Grant-free	Ericsson	Sorour Falahati	58325	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1628	R1-1711506	On Code Block Group Formation and CRC Attachment	Ericsson	Sorour Falahati	58325	discussion	Decision			99	5.1.3.3.4.1	CBG construction	0	available
1629	R1-1711507	On Retransmission Decoder Throughput Issues and CBG-based Retransmission Control	Ericsson	Sorour Falahati	58325	discussion	Decision			100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1630	R1-1711508	On Design of CBG HARQ-ACK Feedback Schemes	Ericsson	Sorour Falahati	58325	discussion	Decision			101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
1631	R1-1711509	On HARQ Feedback Timing	Ericsson	Sorour Falahati	58325	discussion	Decision			103	5.1.3.3.5.1	HARQ-ACK feedback timing	0	available
1632	R1-1711510	On HARQ Codebook	Ericsson	Sorour Falahati	58325	discussion	Decision			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
1633	R1-1711511	On Minimum Processing Time and Number of HARQ Processes in NR	Ericsson	Sorour Falahati	58325	discussion	Decision			106	5.1.3.3.6.1	Number of HARQ processes and HARQ RTT	0	available
1634	R1-1711512	On HARQ and Soft Buffer Handling	Ericsson	Sorour Falahati	58325	discussion	Decision			107	5.1.3.3.6.2	Soft-buffer management	0	available
1635	R1-1711513	On Pre-emption Indication for Downlink	Ericsson	Sorour Falahati	58325	discussion	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1636	R1-1711514	On Pre-emption Indication for Uplink	Ericsson	Sorour Falahati	58325	discussion	Decision			110	5.1.3.3.7.2	Possible enhancements for uplink	0	available
1637	R1-1711515	On Supporting High Reliability for Data Transmissions	Ericsson	Sorour Falahati	58325	discussion	Decision			111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1638	R1-1711516	On Mixed Numerology	Ericsson	Sorour Falahati	58325	discussion	Decision			112	5.1.3.3.9	Other	0	available
1639	R1-1711517	On Scheduling and UCI Handling in Carrier Aggregation	Ericsson	Sorour Falahati	58325	discussion	Decision			115	5.1.3.4.1.1	Self/cross-carrier scheduling and joint/separate UCI feedback	0	available
1640	R1-1711518	On SRS Fast Switching in NR	Ericsson	Sorour Falahati	58325	discussion	Decision			116	5.1.3.4.1.2	SRS fast switching	0	available
1641	R1-1711519	On Dual Connectivity for NR	Ericsson	Sorour Falahati	58325	discussion	Decision			117	5.1.3.4.2	Dual connectivity	0	available
1642	R1-1711520	Discussion of Multi-Antenna and Highly Directional Beamforming for Operation in Unlicensed Spectrum	Ericsson	Sorour Falahati	58325	discussion	Information			143	5.2	Other	0	available
1643	R1-1711521	On Autonomous UL Transmissions for NR in Unlicensed Spectrum	Ericsson	Sorour Falahati	58325	discussion	Information			143	5.2	Other	0	available
1644	R1-1711522	On Channel Access Mechanisms for NR in Unlicensed Spectrum	Ericsson	Sorour Falahati	58325	discussion	Information			143	5.2	Other	0	available
1645	R1-1711523	On NR Operation in the 60 GHz Unlicensed Band	Ericsson	Sorour Falahati	58325	discussion	Information			143	5.2	Other	0	available
1646	R1-1711524	On Physical Layer Design Policies for Unlicensed Operation of NR	Ericsson	Sorour Falahati	58325	discussion	Information			143	5.2	Other	0	available
1647	R1-1711525	Technology Components for Unlicensed Operation	Ericsson	Sorour Falahati	58325	discussion	Information			143	5.2	Other	0	available
1648	R1-1711526	Power Sharing for LTE-NR Dual Connectivity	Ericsson	Sorour Falahati	58325	discussion	Decision			139	5.1.9.1	Power sharing mechanism	0	noted
1649	R1-1711527	PRACH Preamble Format Design	Cohere Technologies	Christian Ibars Casas	65231	discussion	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
1650	R1-1711528	Extended Range Considerations for mMTC	HUGHES Network Systems Ltd	Mustafa Eroz	70202	discussion				142	5.1.11	Other	0	available
1651	R1-1711529	Channel Model for Non-Terrestrial Networks	HUGHES Network Systems Ltd	Mustafa Eroz	70202	discussion				142	5.1.11	Other	0	available
1652	R1-1711530	CBG based HARQ-Ack/Nack	Sequans Communications	GUANG LIU	64119	discussion				101	5.1.3.3.4.3	UL control signalling for CBG-based (re)transmission	0	available
1653	R1-1711531	CBG based retransmission	Sequans Communications	GUANG LIU	64119	discussion				100	5.1.3.3.4.2	DL control signalling for CBG-based (re)transmission	0	available
1654	R1-1711532	CRC attachment for CBG	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			121	5.1.4.1.1.1	CRC attachment	0	available
1655	R1-1711533	CRC attachment for Smaller TBs	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			121	5.1.4.1.1.1	CRC attachment	0	noted

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1656	R1-1711534	Code block segmentation of eMBB	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			122	5.1.4.1.1.2	Segmentation	0	noted
1657	R1-1711535	Padding for LDPC	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			122	5.1.4.1.1.2	Segmentation	0	noted
1658	R1-1711536	Rate matching for LDPC	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			123	5.1.4.1.1.3	Rate matching	0	available
1659	R1-1711537	LDPC designs for base graph 1 and base graph 2	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision		Late contribution	125	5.1.4.1.2	LDPC code design	0	available
1660	R1-1711538	Interleaving for LDPC	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			123	5.1.4.1.1.3	Rate matching	0	noted
1661	R1-1711539	Distributed CRC Polar code construction	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			127	5.1.4.2.1	Code construction	0	available
1662	R1-1711540	Early termination benefits of CRC distribution	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			127	5.1.4.2.1	Code construction	0	available
1663	R1-1711541	Performance evaluation of polar code constructions	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision		Late contribution	127	5.1.4.2.1	Code construction	0	available
1664	R1-1711542	Sequence design for Polar codes	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			128	5.1.4.2.2	Sequence design	0	available
1665	R1-1711543	Rate matching for Polar codes	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			128	5.1.4.2.2	Sequence design	0	available
1666	R1-1711544	Implicit timing indication for PBCH	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			130	5.1.4.3	PBCH	0	available
1667	R1-1711545	Summary of [89-24] Email discussion LDPC code base graph #1 for NR	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	available
1668	R1-1711546	Summary of [89-25] Email discussion on LDPC code base graph #2 for NR	Nokia, Alcatel-Lucent Shanghai Bell	Keeth Jayasinghe	64118	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	available
1669	R1-1711547	Discussion on PRACH designs for short sequence	Sequans Communications	GUANG LIU	64119	discussion				21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
1670	R1-1711548	Resource allocation for PUCCH to support URLLC	Sequans Communications	GUANG LIU	64119	discussion				89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
1671	R1-1711549	Considerations on Satellite channel model	THALES	Th bault Deleu	64070	discussion	Information	Considerations on Satellite channel model		143	5.2	Other	0	available
1672	R1-1711550	NTN Bentpipe payload architecture and characteristics	THALES	Th bault Deleu	64070	discussion	Information	Bentpipe payload architecture and characteristics		143	5.2	Other	0	available
1673	R1-1711551	Considerations on multiplexing with different transmission durations	KDDI Corporation	Takeo Ohseki	58533	other				109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1674	R1-1711552	Management of URLLC DL control channel efficiency and reliability	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			74	5.1.3.1.5	Ultra-reliable part of URLLC for DL control	0	available
1675	R1-1711553	The necessity of reliable SR design for GF/GB UL URLLC transmission	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			89	5.1.3.2.6	Ultra-reliable part of URLLC for UL control	0	available
1676	R1-1711554	URLLC DL pre-emption and UL suspension indication channel design	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	available
1677	R1-1711555	UL URLLC Capacity Based on URLLC and eMBB dynamic multiplexing	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1678	R1-1711556	Ultra reliable HARQ design with async CSI feedback	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1679	R1-1711557	Performance of polar code for very small block length	Qualcomm Incorporated	Peter Gaal	57198	discussion	Discussion			127	5.1.4.2.1	Code construction	0	available
1680	R1-1711558	Multiplexing of different types of RS for uplink	Ericsson	Stephen Grant	65572	discussion	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
1681	R1-1711559	Uplink operation for LTE+NR Dual Connectivity	VODAFONE Group Plc	Razieh Razavi	63862	discussion			Late contribution	137	5.1.8	NR-LTE co-existence	0	withdrawn
1682	R1-1711560	Discussion on wireless time synchronization for URLLC	SIA	Chunhe Song	72342	discussion				111	5.1.3.3.8	Ultra-reliable part of URLLC for scheduling/HARQ procedure	0	available
1683	R1-1711561	On Hybrid TDD and Measurements for Cross-link Interference Mitigation	Ericsson	Sorour Falahati	58325	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	available
1684	R1-1711562	On Hybrid TDD and Signaling for Cross-link Interference Mitigation	Ericsson	Sorour Falahati	58325	discussion	Decision			134	5.1.6.1	Cross-link interference management	0	revised
1685	R1-1711563	On Dynamic TDD Scenarios	Ericsson	Sorour Falahati	58325	discussion	Decision			135	5.1.6.2	Other	0	available
1686	R1-1711564	On Duplexing in Paired Spectrum	Ericsson	Sorour Falahati	58325	discussion	Decision			135	5.1.6.2	Other	0	available
1687	R1-1711565	On bandwidth parties	Ericsson AB	Erik Dahlman	23366	discussion	Decision			136	5.1.7	Wider bandwidth operations	0	available
1688	R1-1711566	On semi-persistent CSI reporting on PUSCH	Ericsson	Sebastian Faxälv	63374	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
1689	R1-1711567	Summary of e-mail discussion on DCI content	Ericsson LM	Stefan Parkvall	28759	discussion			Late contribution	61	5.1.3.1	Physical downlink control channel	0	available
1690	R1-1711568	Considerations on HAPS channel model	CNES, Thales	Th bault Deleu	64070	discussion	Information	Considerations on HAPS channel model		143	5.2	Other	0	available
1691	R1-1711569	PRACH Design	TCL Communication Ltd.	Umer Salim	70602	discussion				22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available

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1692	R1-1711570	UE_ID Insertion for Early Block Discrimination on DCI Blind Detection	Coherent Logix	Kevin Shelby	67999	discussion	Decision	Elaborates on the benefits of UE_ID insertion in frozen bits for early DCI block discrimination.		127	5.1.4.2.1	Code construction	0	available
1693	R1-1711571	Scrambling Sequence Design for Early Block Discrimination on DCI Blind Detection	Coherent Logix	Kevin Shelby	67999	discussion	Decision	Disclose the scrambling sequence considerations for early DCI block discrimination.		127	5.1.4.2.1	Code construction	0	available
1694	R1-1711572	Scrambling Sequence Design for Multi-Mode Block Discrimination on DCI Blind Detection	Coherent Logix	Kevin Shelby	67999	discussion	Decision	Scrambling sequence considerations for multi-mode block discrimination	Late contribution	127	5.1.4.2.1	Code construction	0	withdrawn
1695	R1-1711573	Early Block Discrimination on DCI Blind Detection	Coherent Logix	Kevin Shelby	67999	discussion	Decision	Methods of early block discrimination of DCI blind detection.	Late contribution	127	5.1.4.2.1	Code construction	0	available
1696	R1-1711574	Discussion on bandwidth part configuration	LG Electronics Inc.	Yunjung Yi	56790	discussion				142	5.1.11	Other	0	available
1697	R1-1711575	Discussion on Polar codes for PBCH	CATT	Patrick Merias	52292	discussion	Decision			130	5.1.4.3	PBCH	0	available
1698	R1-1711576	L3 Mobility based on CSI-RS based measurements	CATT	Patrick Merias	52292	discussion	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
1699	R1-1711577	On UL coverage extension of TDD @3.5GHz	ORANGE	Patrick Merias	52292	discussion				137	5.1.8	NR-LTE co-existence	0	revised
1700	R1-1711578	Circulant permutation matrix design for LDPC codes base graph #2	LG Electronics	Patrick Merias	52292	discussion			Late contribution	125	5.1.4.1.2	LDPC code design	0	revised
1701	R1-1711579	Calibration results for Phase 1 and Phase 2 NR MIMO system level calibration	vivo	Patrick Merias	52292	discussion				59	5.1.2.5	Other	0	available
1702	R1-1711580	SS burst set composition	Samsung	Patrick Merias	52292	other	Decision			10	5.1.1.1.2	SS burst set composition	0	noted
1703	R1-1711581	Measurement based on CSI-RS for L3 mobility	Samsung	Patrick Merias	52292	other	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
1704	R1-1711582	Analysis of the benefits of PC bits for Polar code	Huawei, HiSilicon	Patrick Merias	52292	discussion				127	5.1.4.2.1	Code construction	0	available
1705	R1-1711583	DMRS Structure for PDCCH	Samsung	Patrick Merias	52292	other	Decision			64	5.1.3.1.1.2	RS structure/mapping	0	available
1706	R1-1711584	On UL coverage extension of TDD @3.5GHz	ORANGE	Patrick Merias	52292	discussion				137	5.1.8	NR-LTE co-existence	0	noted
1707	R1-1711585	Partial pre-emption based multiplexing data with different transmission durations in DL	Samsung	Patrick Merias	52292	discussion				112	5.1.3.3.9	Other	0	available
1708	R1-1711586	Selected highlights from RAN#76 of relevance to RAN1	RAN1 Chair	Patrick Merias	52292	other	Information		Only relevant for NR part shall be presented again at RAN1#90	3	3	Review of Minutes from previous meeting	0	noted
1709	R1-1711587	Shift coefficients design for base graph 1	ZTE	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	revised
1710	R1-1711588	Shift coefficients design for base graph 2	ZTE	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	revised
1711	R1-1711589	Timing indication based on SS block	Samsung	Patrick Merias	52292	other	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	noted
1712	R1-1711590	Feedback transmission of type II codebook	Nokia, Alcatel-Lucent Shanghai Bell	Patrick Merias	52292	discussion	Decision			48	5.1.2.3.4	CSI feedback	0	available
1713	R1-1711591	Link level performance evaluation for mobility scenario	Samsung	Patrick Merias	52292	discussion			Late contribution	58	5.1.2.4.8	Other	0	available
1714	R1-1711592	Composite beam transmission for SS blocks	Samsung	Patrick Merias	52292	discussion			Late contribution	43	5.1.2.2.3	Other	0	available
1715	R1-1711593	System level evaluation on effect of penetration loss in sub-6GHz and above-6GHz frequency bands	Samsung	Patrick Merias	52292	discussion			Late contribution	59	5.1.2.5	Other	0	available
1716	R1-1711594	Analysis on random cluster effect in map-based hybrid channel model	Samsung	Patrick Merias	52292	discussion			Late contribution	59	5.1.2.5	Other	0	available
1717	R1-1711595	Impact of channel estimation error on the performance of high spectral efficiency MIMO schemes	Samsung	Patrick Merias	52292	discussion			Late contribution	142	5.1.11	Other	0	available
1718	R1-1711596	Indication of Preempted Resources for TB-based retransmission	Samsung	Patrick Merias	52292	discussion			Late contribution	112	5.1.3.3.9	Other	0	available
1719	R1-1711597	Remaining Issues on RB Grid	Samsung	Patrick Merias	52292	discussion			Late contribution	142	5.1.11	Other	0	available
1720	R1-1711598	On numerology for NR RACH	Samsung	Patrick Merias	52292	discussion			Late contribution	29	5.1.1.6	Other	0	available
1721	R1-1711599	Remaining issues on PT-RS density in CP-OFDM	Samsung	Patrick Merias	52292	discussion			Late contribution	58	5.1.2.4.8	Other	0	available
1722	R1-1711600	PRACH preamble sequences and formats for capacity enhancement and beam management	Huawei, HiSilicon	Patrick Merias	52292	other				22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	noted
1723	R1-1711601	Draft Agenda of RAN1#AH_NIR2 meeting	RAN1 Chair	Patrick Merias	52292	agenda	Approval			2	2	Approval of Agenda	0	approved
1724	R1-1711602	Common and Beam Specific Power Control Parameters	InterDigital, Inc.	Patrick Merias	52292	discussion				140	5.1.9.2	NR power control framework	0	available
1725	R1-1711603	Short PUCCH for small UCI payloads	CATT	Patrick Merias	52292	discussion	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1726	R1-1711604	Beam management for PDCCH	Samsung	Patrick Merias	52292	other	Decision			43	5.1.2.2.3	Other	0	available
1727	R1-1711605	PBCH channel coding	Qualcomm Incorporated	Patrick Merias	52292	discussion	Discussion			130	5.1.4.3	PBCH	0	available

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1728	R1-1711606	Codeword mapping and interleaving	ZTE	Patrick Merias	52292	discussion				32	5.1.2.1.1	Codeword mapping	0	available
1729	R1-1711607	On CSI framework details	ZTE	Patrick Merias	52292	discussion				45	5.1.2.3.1	CSI framework	0	available
1730	R1-1711608	On reciprocity based CSI acquisition	ZTE	Patrick Merias	52292	discussion				47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	available
1731	R1-1711609	Further discussion on CSI acquisition for reciprocity-based operation	Ericsson	Patrick Merias	52292	discussion	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	available
1732	R1-1711610	UL MIMO for codebook based transmission	Ericsson	Patrick Merias	52292	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	noted
1733	R1-1711611	Time Index Signaling for SS Blocks	Intel Corporation	Patrick Merias	52292	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	revised
1734	R1-1711612	SS Block Composition	Intel Corporation	Patrick Merias	52292	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	revised
1735	R1-1711613	On time and frequency tracking of the channel	Ericsson	Patrick Merias	52292	discussion	Decision			56	5.1.2.4.6	TRS	0	available
1736	R1-1711614	Dynamic resource allocation for Integrated Access and Backhaul	Samsung	Patrick Merias	52292	discussion		Late contribution		143	5.2	Other	0	available
1737	R1-1711615	Deployment scenarios for Integrated Access and Backhaul	Samsung	Patrick Merias	52292	discussion		Late contribution		143	5.2	Other	0	available
1738	R1-1711616	Evaluation assumptions for Integrated Access and Backhaul	Samsung	Patrick Merias	52292	discussion		Late contribution		143	5.2	Other	0	available
1739	R1-1711617	RACH power control and power ramping procedure	CATT	Patrick Merias	52292	discussion	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
1740	R1-1711618	NR RACH Preamble Format for capacity enhancement.	CATT	Patrick Merias	52292	discussion	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	available
1741	R1-1711619	Discussion on msg.3 tx timing determination	Samsung	Patrick Merias	52292	discussion		Late contribution		29	5.1.1.6	Other	0	available
1742	R1-1711620	Discussion on RACH design	Samsung	Patrick Merias	52292	discussion		Late contribution		29	5.1.1.6	Other	0	available
1743	R1-1711621	Assisted information for Msg.3 tx beam determination	Samsung	Patrick Merias	52292	discussion		Late contribution		29	5.1.1.6	Other	0	available
1744	R1-1711622	Discussion on NR-PBCH design and SS block composition	NTT DOCOMO, INC.	Patrick Merias	52292	discussion				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
1745	R1-1711623	Correction on the formula of AnnexA	ZTE, Ericsson	Patrick Merias	52292	draftCR	Decision			141	5.1.10	Channel model	0	revised
1746	R1-1711624	Correction on Procedure A of spatially-consistency UT mobility modeling	ZTE, Ericsson	Patrick Merias	52292	draftCR	Decision			141	5.1.10	Channel model	0	revised
1747	R1-1711625	PRACH Msg1 retransmission	MediaTek Inc.	Patrick Merias	52292	discussion				23	5.1.1.4.3	Power ramping and power control during RA procedure	0	available
1748	R1-1711626	RRM for wider bandwidth operations	Samsung	Patrick Merias	52292	discussion		Late contribution		29	5.1.1.6	Other	0	available
1749	R1-1711627	LDPC shift coefficients design for BG1	Samsung	Patrick Merias	52292	other	Decision	Late contribution		125	5.1.4.1.2	LDPC code design	0	available
1750	R1-1711628	LDPC shift coefficients design for BG2	Samsung	Patrick Merias	52292	other	Decision	Late contribution		125	5.1.4.1.2	LDPC code design	0	available
1751	R1-1711629	Performance evaluation of LDPC shift coefficients design for BG1	Samsung	Patrick Merias	52292	other	Decision	Late contribution		125	5.1.4.1.2	LDPC code design	0	available
1752	R1-1711630	Performance evaluation of LDPC shift coefficients design for BG2	Samsung	Patrick Merias	52292	other	Decision	Late contribution		125	5.1.4.1.2	LDPC code design	0	available
1753	R1-1711631	On Details of the PT-RS Design for DFT-s-OFDM	Nokia, Alcatel-Lucent Shanghai Bell	Patrick Merias	52292	discussion	Decision			54	5.1.2.4.4	PT-RS	0	available
1754	R1-1711632	Channel and interference measurement for CSI acquisition	Huawei, HiSilicon	Patrick Merias	52292	other				46	5.1.2.3.2	Details of CSI acquisition	0	available
1755	R1-1711633	PDCH structure	Qualcomm Incorporated	Patrick Merias	52292	discussion	Discussion			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCH-to-CCE mapping	0	available
1756	R1-1711634	RS for DL control channel	Qualcomm Incorporated	Patrick Merias	52292	discussion	Discussion			64	5.1.3.1.1.2	RS structure/mapping	0	available
1757	R1-1711635	Summary of Open Issues on Layer Mapping	Samsung	Patrick Merias	52292	discussion				32	5.1.2.1.1	Codeword mapping	0	revised
1758	R1-1711636	General views on DL beam management	Huawei, HiSilicon	Patrick Merias	52292	other				41	5.1.2.2.1	Beam management details	0	available
1759	R1-1711637	Discussion on NTN Deployment Scenarios	Samsung	Patrick Merias	52292	discussion		Late contribution		143	5.2	Other	0	available
1760	R1-1711638	Discussion on transition between NR network coordination schemes	Samsung	Patrick Merias	52292	discussion		Late contribution		39	5.1.2.1.8	Other	0	available
1761	R1-1711639	Performance comparison of interleaver designs	Qualcomm	Patrick Merias	52292	other				129	5.1.4.2.3	Other	0	available
1762	R1-1711640	Interleaver design for Polar codes	Qualcomm Incorporated	Patrick Merias	52292	discussion	Discussion			129	5.1.4.2.3	Other	0	withdrawn
1763	R1-1711641	Repetition scheme of polar codes	LG Electronics	Patrick Merias	52292	discussion	Decision			128	5.1.4.2.2	Sequence design	0	available
1764	R1-1711642	NR topics requiring coordination between RAN1 and RAN2	RAN2 Chair	Patrick Merias	52292	discussion	Information			6	5.1	New Radio Access Technology - WID in RP-171485	0	noted
1765	R1-1711643	Views on SRS designs	Mitsubishi Electric	Patrick Merias	52292	discussion				55	5.1.2.4.5	SRS	0	available
1766	R1-1711644	Study of Split-CRC Polar Code Construction for Early Termination	Tsotun Algorithm	Patrick Merias	52292	discussion	Decision			127	5.1.4.2.1	Code construction	0	noted
1767	R1-1711645	SS burst set composition consideration	Qualcomm Incorporated	Patrick Merias	52292	discussion	Discussion			10	5.1.1.1.2	SS burst set composition	0	noted
1768	R1-1711646	Timing indication based on SS block consideration	Qualcomm Incorporated	Patrick Merias	52292	discussion	Discussion			11	5.1.1.1.3	Timing indication based on SS block	0	noted
1769	R1-1711647	Time Index Signaling for SS Blocks	Intel Corporation	Patrick Merias	52292	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	available

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1770	R1-1711648	SS Block Composition	Intel Corporation	Patrick Merias	52292	discussion	Decision			15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
1771	R1-1711649	Discussion on 1-symbol NR-PUCCH for UCI of up to 2 bits	Panasonic Corporation	Patrick Merias	52292	discussion				78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1772	R1-1711650	NR-PBCH content	Nokia, Alcatel-Lucent Shanghai Bell	Patrick Merias	52292	discussion	Decision			14	5.1.1.2.1	NR-PBCH contents and payload size	0	available
1773	R1-1711651	Discussion on CSI-RS design	Qualcomm Incorporated	Patrick Merias	52292	discussion	Discussion			52	5.1.2.4.2	CSI-RS	0	withdrawn
1774	R1-1711652	Summary of the 2nd NOMA Workshop	ZTE	Patrick Merias	52292	other	Information			143	5.2	Other	0	available
1775	R1-1711653	Considerations of NR-LTE coexistence in uplink	ZTE	Patrick Merias	52292	discussion	Decision			137	5.1.8	NR-LTE co-existence	0	revised
1776	R1-1711654	WF on NR-SS sequence design	NTT DOCOMO, ZTE, InterDigital	Patrick Merias	52292	other	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	noted
1777	R1-1711655	Discussion on short-PUCCH more than 2-bit	Patrick Merias	52292	discussion					79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
1778	R1-1711656	WF on PRACH formats for long sequence length (L = 839)	ZTE	Patrick Merias	52292	other	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	withdrawn
1779	R1-1711657	[DRAFT] Response LS on Support for fake gNB detection mechanisms	Nokia	Patrick Merias	52292	LS out	Decision			4	4	Incoming Liaison Statements	0	revised
1780	R1-1711658	Considerations on SS block compositions	Sony	Patrick Merias	52292	other				15	5.1.1.2.2	NR-PBCH RE mapping and SS block composition	0	available
1781	R1-1711659	Discussion on SS block time index indication	Sony	Patrick Merias	52292	other				11	5.1.1.1.3	Timing indication based on SS block	0	available
1782	R1-1711660	WF on CSI-RS	Samsung, Ericsson, NTT DOCOMO, CATT	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	available
1783	R1-1711661	Summary of views on NR CSI-RS	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	available
1784	R1-1711662	WF on CW to layer mapping	Huawei, HiSilicon, ZTE, Xinwei, China Unicom, ETRI, Softbank, DOCOMO, LGE, Deutsche Telekom, CATR	Patrick Merias	52292	other	Decision			32	5.1.2.1.1	Codeword mapping	0	available
1785	R1-1711663	On UL PT-RS design	LG Electronics	Patrick Merias	52292	discussion	Decision			54	5.1.2.4.4	PT-RS	0	withdrawn
1786	R1-1711664	WF on number of MCS and CQI configuration	Intel, Samsung	Patrick Merias	52292	other	Decision			32	5.1.2.1.1	Codeword mapping	0	available
1787	R1-1711665	WF on MIMO layer to CW correspondence	Intel, AT&T	Patrick Merias	52292	other	Decision			32	5.1.2.1.1	Codeword mapping	0	available
1788	R1-1711666	WF on SS block and DM-RS collision handling	Intel	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	noted
1789	R1-1711667	WF on multiple PDSCH approach of supporting NC-JT	Intel	Patrick Merias	52292	other	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	noted
1790	R1-1711668	WF on SRS sequence for NR	Intel, Samsung, Qualcomm	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS	0	noted
1791	R1-1711669	LDPC design for eMBB data	CATT	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	revised
1792	R1-1711670	Summary of remaining items on beam management	Qualcomm	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	withdrawn
1793	R1-1711671	Performance impact of inactive antenna ports	Ericsson	Patrick Merias	52292	discussion	Decision			49	5.1.2.3.5	Other	0	available
1794	R1-1711672	Summary of QCL	Nokia, Alcatel-Lucent Shanghai Bell	Patrick Merias	52292	other	Decision			57	5.1.2.4.7	QCL	0	available
1795	R1-1711673	WF on QCL	Nokia, Alcatel-Lucent Shanghai Bell	Patrick Merias	52292	other	Decision			57	5.1.2.4.7	QCL	0	withdrawn
1796	R1-1711674	Summary of Issues and WFs on Codebook based transmission for UL	Intel	Patrick Merias	52292	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	revised
1797	R1-1711675	WF on UE self-interference	Vivo, OPPO, Coolpad, China Telecom, Xiaomi, Huawei, HiSilicon, China Unicom	Patrick Merias	52292	other	Decision			137	5.1.8	NR-LTE co-existence	0	noted
1798	R1-1711676	WF on Transmission Scheme of Broadcast PDSCH	Qualcomm	Patrick Merias	52292	other	Decision			39	5.1.2.1.8	Other	0	withdrawn
1799	R1-1711677	Summary of the E-mail Discussion [89-21]: On Long PUCCH for NR	Ericsson	Patrick Merias	52292	other	Decision			80	5.1.3.2.2	PUCCH in long-duration	0	noted
1800	R1-1711678	Way forward on the mapping of SS blocks	Nokia	Patrick Merias	52292	other	Decision			10	5.1.1.1.2	SS burst set composition	0	revised
1801	R1-1711679	Impact of Puncturing on Bit-channel Capacities	Ericsson	Patrick Merias	52292	discussion				128	5.1.4.2.2	Sequence design	0	available
1802	R1-1711680	WF on LTE-NR Coexistence with UL sharing	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			137	5.1.8	NR-LTE co-existence	0	withdrawn
1803	R1-1711681	WF on the structure of a data channel including DMRS	Panasonic, OPPO, NTT DOCOMO	Patrick Merias	52292	other	Decision			91	5.1.3.3	DL/UL data scheduling and HARQ procedure	0	available
1804	R1-1711682	WF on UE to UE measurement as an enabler for CLI mitigation schemes	ZTE	Patrick Merias	52292	other	Decision			134	5.1.6.1	Cross-link interference management	0	noted
1805	R1-1711683	[DRAFT LS] on NR Beam Management	Qualcomm	Patrick Merias	52292	LS out	Decision			6	5.1	New Radio Access Technology - WID in RP-171485	0	revised
1806	R1-1711684	[DRAFT] LS on Beam Aspects of NR RACH	Huawei	Patrick Merias	52292	LS out	Decision			6	5.1	New Radio Access Technology - WID in RP-171485	0	revised

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1807	R1-1711685	[DRAFT] LS on HARQ operation	Nokia	Patrick Merias	52292	LS out	Decision		For email	6	5.1	New Radio Access Technology - WID in RP-171485		0 revised
1808	R1-1711686	LS on NR UL SPS / UL transmission without UL grant	RAN1, NTT DOCOMO	Patrick Merias	52292	LS out	Approval			6	5.1	New Radio Access Technology - WID in RP-171485		0 revised
1809	R1-1711687	[DRAFT LS] to RAN2 on PDCCH monitoring and DRX	CATT	Patrick Merias	52292	LS out	Decision			6	5.1	New Radio Access Technology - WID in RP-171485		0 withdrawn
1810	R1-1711688	Way Forward on PTRS	Intel	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS		0 revised
1811	R1-1711689	Outputs of offline discussion on RBG size/number determination	OPPO	Patrick Merias	52292	other	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation		0 revised
1812	R1-1711690	WF on the number of CBGs	OPPO	Patrick Merias	52292	other	Decision			99	5.1.3.3.4.1	CBG construction		0 available
1813	R1-1711691	Analysis of SSS Proposals	Intel Corporation	Patrick Merias	52292	other	Decision			9	5.1.1.1.1	Remaining details on SS sequence design		0 revised
1814	R1-1711692	WF on final PCM selection	Nokia, Alcatel-Lucent Shanghai Bell	Patrick Merias	52292	other	Decision			125	5.1.4.1.2	LDPC code design		0 noted
1815	R1-1711693	Base Graph 1 lifting and evaluations	Intel Corporation	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design		0 available
1816	R1-1711694	Base Graph 2 lifting and evaluations	Intel Corporation	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design		0 available
1817	R1-1711695	WF on cross-link interference aware UPLC	Huawei	Patrick Merias	52292	other	Decision			134	5.1.6.1	Cross-link interference management		0 available
1818	R1-1711696	On NR LDPC design and performance	MediaTek Inc.	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design		0 revised
1819	R1-1711697	WF on rate-matching for Polar codes	Qualcomm	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design		0 noted
1820	R1-1711698	WF on interleaver design	Qualcomm	Patrick Merias	52292	other	Decision			129	5.1.4.2.3	Other		0 available
1821	R1-1711699	WF on SRS design in NR	LG Electronics	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS		0 revised
1822	R1-1711700	WF on CLI measurement	MediaTek Inc.	Patrick Merias	52292	other	Decision			134	5.1.6.1	Cross-link interference management		0 noted
1823	R1-1711701	Considerations of NR-LTE coexistence in uplink	ZTE	Patrick Merias	52292	discussion	Decision			137	5.1.8	NR-LTE co-existence		0 noted
1824	R1-1711702	Rate matching for Polar code	Huawei, HiSilicon	Patrick Merias	52292	other				129	5.1.4.2.3	Other		0 available
1825	R1-1711703	Support of implicit soft combining for PBCH by Polar code construction	Huawei, HiSilicon	Patrick Merias	52292	other				130	5.1.4.3	PBCH		0 withdrawn
1826	R1-1711704	Benefits of implicit soft combining for PBCH by Polar code construction	Huawei, HiSilicon	Patrick Merias	52292	other				130	5.1.4.3	PBCH		0 withdrawn
1827	R1-1711705	WF on handling of single UL transmission	NTT DOCOMO	Patrick Merias	52292	other	Decision			137	5.1.8	NR-LTE co-existence		0 revised
1828	R1-1711706	On Hybrid TDD and Signaling for Cross-link Interference Mitigation	Ericsson	Patrick Merias	52292	discussion	Decision			134	5.1.6.1	Cross-link interference management		0 withdrawn
1829	R1-1711707	WF on inter-TRP signaling for UE-to-UE cross-link interference measurement	LG Electronics	Patrick Merias	52292	other	Decision			134	5.1.6.1	Cross-link interference management		0 noted
1830	R1-1711708	WF on REG bundle size in a CORESET with interleaving	LG Electronics, ETRI, NTT DOCOMO, Ericsson, InterDigital	Patrick Merias	52292	other	Decision			63	5.1.3.1.1.1	CCE-to-REG mapping and PDCCH-to-CCE mapping		0 noted
1831	R1-1711709	WF on NR-LTE coexistence in overlapping spectrum	AT&T, Deutsche Telekom, Vodafone, Intel, Ericsson, Samsung, Orange, China Unicom, Huawei, HiSilicon, China Telecom	Patrick Merias	52292	other	Decision			137	5.1.8	NR-LTE co-existence		0 noted
1832	R1-1711710	WF on NR-LTE coexistence	AT&T, Nokia, Ericsson, Vodafone	Patrick Merias	52292	other	Decision			137	5.1.8	NR-LTE co-existence		0 noted
1833	R1-1711711	LDPC design for eMBB data	CATT	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design		0 available
1834	R1-1711712	WF on group-based beam reporting	ZTE, ASTRI, Nokia, ASB, NTT DOCOMO, Intel, Qualcomm, Samsung, AT&T	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details		0 available
1835	R1-1711713	WF on beam indication	ZTE	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details		0 withdrawn
1836	R1-1711714	WF on DMRS multiplexing in time domain	ZTE, Xinwei, ASTRI, Spreadtrum	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS		0 noted
1837	R1-1711715	WF on channel reciprocity based CSI	ZTE, Nokia, ASB, LG Electronics, ASTRI, Ericsson, NTT DOCOMO	Patrick Merias	52292	other	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation		0 available
1838	R1-1711716	WF on partial channel reciprocity based CSI	ZTE, GMOC, China Telecom, China Unicom, ASTRI	Patrick Merias	52292	other	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation		0 available

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1839	R1-1711712	WF on using SS block for beam recovery	ZTE, Ericsson, NTT DCOMO, MediaTek, Spreadtrum, vivo, OPPO, Qualcomm, Xinwei, LG Electronics, AT&T, Lenovo, CMCC, China Unicom, China Telecom, ASTRI, Samsung, Nokia, ASB, III, MTI, Sharp, National Instruments	Patrick Merias	52292	other	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	noted
1840	R1-1711718	WF on DL beam indication with beam correspondence	ZTE	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	withdrawn
1841	R1-1711719	WF on CSI in PUCCH	ZTE, NTT DCOMO	Patrick Merias	52292	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
1842	R1-1711720	WF on Type II CSI	ZTE, MediaTek	Patrick Merias	52292	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
1843	R1-1711721	WF on power control	ZTE, NTT DCOMO	Patrick Merias	52292	other	Decision			140	5.1.9.2	NR power control framework	0	noted
1844	R1-1711722	WF on DMRS multiplexing with data	ZTE, Qualcomm, KT Corp., NTT DCOMO	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	noted
1845	R1-1711723	WF on CSI-RS CDM pattern	ZTE	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	available
1846	R1-1711724	Summary of power control	ZTE	Patrick Merias	52292	other	Decision			140	5.1.9.2	NR power control framework	0	noted
1847	R1-1711725	Summary of channel reciprocity based CSI	ZTE	Patrick Merias	52292	other	Decision			47	5.1.2.3.3	CSI acquisition for reciprocity based operation	0	noted
1848	R1-1711726	WF on DMRS port multiplexing in frequency domain	MediaTek Inc.	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	withdrawn
1849	R1-1711727	LDPC design for base graph 1	Huawei, HiSilicon	Patrick Merias	52292	other				125	5.1.4.1.2	LDPC code design	0	available
1850	R1-1711728	WF on CRC Attachment for CBGs	Ericsson	Patrick Merias	52292	other	Decision			121	5.1.4.1.1.1	CRC attachment	0	available
1851	R1-1711729	WF on Circular buffer of Polar Code	Ericsson, Qualcomm, MediaTek, LGE	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design	0	noted
1852	R1-1711730	WF on the Number of Assistant Bits for Polar Construction	Ericsson, NTT DCOMO, Qualcomm, Intel, Tsotun Algorithm, Samsung, LG, Fujitsu	Patrick Merias	52292	other	Decision			127	5.1.4.2.1	Code construction	0	noted
1853	R1-1711731	WF on LDPC Code Usage Scenarios	MediaTek, Qualcomm, InterDigital, ZTE	Patrick Merias	52292	other	Decision			125	5.1.4.1.2	LDPC code design	0	noted
1854	R1-1711732	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1855	R1-1711733	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1856	R1-1711734	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1857	R1-1711735	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1858	R1-1711736	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1859	R1-1711737	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1860	R1-1711738	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1861	R1-1711739	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1862	R1-1711740	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1863	R1-1711741	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1864	R1-1711742	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1865	R1-1711743	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1866	R1-1711744	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1867	R1-1711745	void	ETSI	Patrick Merias	52292	other				118	5.1.4	Channel coding	0	withdrawn
1868	R1-1711746	WF on time resource indication	OPPO	Patrick Merias	52292	other				94	5.1.3.3.1.2	Time-domain resource allocation	0	withdrawn
1869	R1-1711747	Shift coefficients design for base graph 1	ZTE	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	available
1870	R1-1711748	Shift coefficients design for base graph 2	ZTE	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	available
1871	R1-1711749	Segmentation of Polar codes	ZTE	Patrick Merias	52292	discussion				129	5.1.4.2.3	Other	0	available

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1872	R1-1711750	WF on UL non-codebook based transmission	Huawei, HiSilicon, DOKOMO, Sharp, LGE, Ericsson, China Telecom, Deutsche Telekom, Xinwei, Vodafone, CeWIT, China Unicom, Tejas Networks, CATR, IITH, IITM, Panasonic, ZTE, InterDigital, AT&T, SoftBank, KDDI	Patrick Merias	52292	other	Decision			34	5.1.2.1.3	Non-codebook based transmission fo UL	0	noted
1873	R1-1711751	On Bit Mapping Design for Polar Codes	Ericsson	Patrick Merias	52292	discussion				128	5.1.4.2.2	Sequence design	0	available
1874	R1-1711752	Polar Code Performance in Fading Channel	Ericsson	Patrick Merias	52292	discussion				128	5.1.4.2.2	Sequence design	0	available
1875	R1-1711753	WF on UL resource allocation for PUSCH with DT-s-OFDM waveform in NR	NEC, NTT DOKOMO, OPPO, Ericsson, Nokia, ASB	Patrick Merias	52292	other	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocatio	0	noted
1876	R1-1711754	WF on NR PDCCH blind decodes	vivo, Samsung	Patrick Merias	52292	other	Decision			67	5.1.3.1.2.2	Search space design	0	noted
1877	R1-1711755	Open issues on SRS design	Sony	Patrick Merias	52292	discussion				55	5.1.2.4.5	SRS	0	revised
1878	R1-1711756	WF on Polar rate-matching selection	MediaTek Inc.	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design	0	withdrawn
1879	R1-1711757	Optimization and comparison of Polar code rate-matching design	MediaTek Inc.	Patrick Merias	52292	discussion				128	5.1.4.2.2	Sequence design	0	available
1880	R1-1711758	Correction on the formula of AnnexA	ZTE, Ericsson	Patrick Merias	52292	CR	Decision			141	5.1.10	Channel model	0	agreed
1881	R1-1711759	Summary of offline discussion on CSI-RS	Samsung	Patrick Merias	52292	discussion				52	5.1.2.4.2	CSI-RS	0	noted
1882	R1-1711760	Correction on Procedure A of spatial-consistency UT mobility modeling	ZTE, Ericsson	Patrick Merias	52292	CR	Decision			141	5.1.10	Channel model	0	agreed
1883	R1-1711761	WF on measurement based on SS block	NTT DOKOMO, Ericsson, Huawei, HiSilicon, AT&T	Patrick Merias	52292	other	Decision			26	5.1.1.5.1	Measurement based on SS block	0	noted
1884	R1-1711762	WF on measurement based on CSI-RS	NTT DOKOMO, Ericsson, AT&T	Patrick Merias	52292	other	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	noted
1885	R1-1711763	WF on radio link monitoring	NTT DOKOMO, Ericsson, AT&T	Patrick Merias	52292	other	Decision			28	5.1.1.5.3	Radio link monitoring	0	noted
1886	R1-1711764	WF on Polar codes construction	NTT DOKOMO, Ericsson, Qualcomm, Intel, Tsoufun Algorithm, CATT, AT&T	Patrick Merias	52292	other	Decision			127	5.1.4.2.1	Code construction	0	noted
1887	R1-1711765	Summary of views on TRS	MediaTek Inc.	Patrick Merias	52292	discussion				56	5.1.2.4.6	TRS	0	noted
1888	R1-1711766	WF on TRS	MediaTek, Huawei, HiSilicon, Ericsson, Qualcomm	Patrick Merias	52292	other	Decision			56	5.1.2.4.6	TRS	0	noted
1889	R1-1711767	WF on SRS sequence generation for partial overlapping	LG Electronics, Intel Corporation, ZTE	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS	0	noted
1890	R1-1711768	On bandwidth parts and 'RF' requirements	Ericsson	Patrick Merias	52292	discussion				136	5.1.7	Wider bandwidth operations	0	revised
1891	R1-1711769	WF on CSI feedback for NCJT	LG Electronics, Ericsson, Intel	Patrick Merias	52292	other	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	available
1892	R1-1711770	WF on DL DMRS for broadcast/multicast PDSCH	LG Electronics, Qualcomm	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	noted
1893	R1-1711771	WF on signaling DMRS configuration	LG Electronics, ZTE	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	noted
1894	R1-1711772	WF on processing time requirements	Qualcomm	Patrick Merias	52292	other	Decision			105	5.1.3.3.6	Processing time and HARQ process number	0	revised
1895	R1-1711773	WF on PT-RS collision avoidance	LG Electronics, Huawei, CATT, ZTE	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	noted
1896	R1-1711774	Circulant permutation matrix design for LDPC codes	LG Electronics	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	revised
1897	R1-1711775	Circulant permutation matrix design for LDPC codes base graph #2	LG Electronics	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	revised
1898	R1-1711776	WF on PUCCH resource allocation	LG Electronics	Patrick Merias	52292	other	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
1899	R1-1711777	WF on CW to layer mapping scheme for data channels	Qualcomm, ATT, Ericsson, Samsung, Nokia, ASB, CATT, Interdigital, Intel, Sharp, Verizon, BT, CHITL, Panasonic, NEC, KDDI	Patrick Merias	52292	other	Decision			32	5.1.2.1.1	Codeword mapping	0	available
1900	R1-1711778	Remaining issues on NR DM-RS	Qualcomm	Patrick Merias	52292	discussion				53	5.1.2.4.3	DMRS	0	noted

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1901	R1-1711779	[DRAFT] LS on subcarrier alignment and channel raster	AT&T, Sprint, T-Mobile USA, Huawei HiSilicon, Samsung, Deutsche Telekom, Ericsson, Intel, China Telecom	Patrick Merias	52292	LS out	Decision			137	5.1.8	NR-LTE co-existence	0	revised
1902	R1-1711780	Summary on DL PRB bundling	Xinwei	Patrick Merias	52292	discussion				36	5.1.2.1.5	PRB bundling for DL	0	revised
1903	R1-1711781	WF on performance comparison of sequences for Polar code	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design	0	noted
1904	R1-1711782	WF on UL transmission without grant	NEC	Patrick Merias	52292	other	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	available
1905	R1-1711783	WF on UL DMRS pattern for DFT-S-OFDM	LG Electronics, ZTE, Ericsson, NEC, NTT DOCOMO	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	noted
1906	R1-1711784	WF on DMRS design	MediaTek, Huawei, HiSilicon, China Telecom, ZTE, ASUSTek, CeWIT, Spreadtrum, Tejas Networks, CATR, Deutsche Telekom, IITH, Xinwei, MTI, CHITL, China Unicom, IITM, ITRI	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	noted
1907	R1-1711785	WF on periodic CSI reporting on short PUCCH	Ericsson, Samsung, Huawei, HiSilicon, CATT	Patrick Merias	52292	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
1908	R1-1711786	WF on unifying wideband and partial band definitions	Ericsson, LGE, Samsung	Patrick Merias	52292	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
1909	R1-1711787	WF on CSI-RS	Samsung, Ericsson, NTT DOCOMO, CATT, LGE	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	noted
1910	R1-1711788	Way forward on further details of bandwidth part operation	Intel, AT&T, Huawei, HiSilicon	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations	0	noted
1911	R1-1711789	Way forward on PRB indexing	Intel, Sharp, ETRI	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations	0	revised
1912	R1-1711790	On NR LDPC design and performance	MediaTek Inc.	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	available
1913	R1-1711791	WF on Antenna Switching for SRS Transmission	Huawei, HiSilicon, Softbank, CMCC, Deutsche Telekom, CATR, Tejas Networks, OPPO, Qualcomm, CeWIT, Sony, ZTE, Xinwei, IITM, China Unicom, IITH, Ericsson, InterDigital, China Telecom, MediaTek	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS	0	noted
1914	R1-1711792	WF on codebook based UL transmission	MediaTek, Nokia, Alcatel-Lucent Shanghai Bell	Patrick Merias	52292	other	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	noted
1915	R1-1711793	WF on codeword mapping	MediaTek Inc.	Patrick Merias	52292	other	Decision			32	5.1.2.1.1	Codeword mapping	0	available
1916	R1-1711794	WF on polar code sequence	Samsung	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design	0	noted
1917	R1-1711795	On bandwidth parts and 'RF' requirements	Ericsson	Patrick Merias	52292	discussion				136	5.1.7	Wider bandwidth operations	0	noted
1918	R1-1711796	1-symbol short PUCCH with 1 or 2 bits UCI	Qualcomm	Patrick Merias	52292	other	Decision			78	5.1.3.2.1.1	Short-PUCCH for UCI of up to 2 bits	0	available
1919	R1-1711797	WF on DMRS sequence	Samsung, Ericsson, Qualcomm Incorporated, CATT, Nokia, Alcatel-Lucent Shanghai Bell, Intel, AT&T, NTT DOCOMO, INC., LG Electronics, KT Corp., MediaTek Inc., Mitsubishi Electric Co., Spreadtrum, Fujitsu, Xinwei, KDDI, Panasonic, IITL	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS	0	noted

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1920	R1-1711798	Summary of CSI Acquisition Details	NTT DOCOMO	Patrick Merias	52292	other	Decision			46	5.1.2.3.2	Details of CSI acquisition		0 revised
	R1-1711799	WF on random access association configuration	ZTE	Patrick Merias	52292	other	Decision			24	5.1.1.4.4	4-step RA procedure		0 revised
1921	R1-1711800	WF on SS block repetition	ZTE, Sierra Wireless	Patrick Merias	52292	other	Decision			26	5.1.1.5.1	Measurement based on SS block		0 available
1922	R1-1711801	WF on power offset of NR-PBCH DMRS and NR-SSS	MediaTek, Huawei, HiSilicon, NTT DOCOMO	Patrick Merias	52292	other	Decision			26	5.1.1.5.1	Measurement based on SS block		0 noted
1923	R1-1711802	WF on further details for bandwidth part	MediaTek, Huawei, HiSilicon	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations		0 noted
1924	R1-1711803	WF on configuration of CSI-RS for CSI acquisition	LG Electronics, Samsung	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS		0 noted
1925	R1-1711804	WF on CDM-8 in CSI-RS for CSI acquisition	LG Electronics, Samsung, CATT, NTT DOCOMO	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS		0 noted
1926	R1-1711805	WF on Single DCI based NCJT	LG Electronics, Intel Corporation, ZTE	Patrick Merias	52292	other	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission		0 available
1927	R1-1711806	WF on radio link monitoring in NR	Huawei, HiSilicon, Qualcomm, ATT	Patrick Merias	52292	other	Decision			28	5.1.1.5.3	Radio link monitoring		0 noted
1928	R1-1711807	Summary of views on multi-TRP & multi-panel transmission	CATT	Patrick Merias	52292	other	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission		0 revised
1929	R1-1711808	WF on PDSCH rate matching	LG Electronics, Panasonic, NTT DOCOMO, InterDigital, Intel	Patrick Merias	52292	other	Decision			38	5.1.2.1.7	Rate matching		0 available
1930	R1-1711809	WF on slot format indication with group common PDCCCH	LG Electronics, InterDigital, ...	Patrick Merias	52292	other	Decision			72	5.1.3.1.4.2	Contents of group-common PDCCCH		0 available
1931	R1-1711810	Analysis of SSS Proposals	Intel Corporation	Patrick Merias	52292	other	Decision			9	5.1.1.1.1	Remaining details on SS sequence design		0 noted
1932	R1-1711811	WF on CSI measurement details	NTT DOCOMO, ZTE, Nokia, ASB, NEC	Patrick Merias	52292	other	Decision			46	5.1.2.3.2	Details of CSI acquisition		0 available
1933	R1-1711812	WF on configuration of a bandwidth part in wideband bandwidth operation	LG Electronics, MediaTek	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations		0 noted
1934	R1-1711813	WF on DM-RS	NTT DOCOMO, Ericsson, Nokia, ASB, ZTE, KT Corp, Sharp, Qualcomm	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS		0 noted
1935	R1-1711814	WF on PT-RS for DFT-S-OFDM	NTT DOCOMO, Ericsson, Nokia, ASB, Panasonic, Spreadtrum, ZTE	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS		0 noted
1936	R1-1711815	WF on PT-RS for CP-OFDM	NTT DOCOMO, Mitsubishi Electric, Huawei, HiSilicon, Nokia, ASB	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS		0 noted
1937	R1-1711816	WF on front-loaded DMRS design for slot aggregation	vivo, Huawei, HiSilicon	Patrick Merias	52292	other	Decision			53	5.1.2.4.3	DMRS		0 noted
1938	R1-1711817	WF on LTE-NR DC deployment scenarios to extend NR UL coverage	Orange, Deutsche Telekom, Ericsson, China Unicom, OPPO, Huawei, China Telecom, Nokia, ZTE	Patrick Merias	52292	other	Decision			137	5.1.8	NR-LTE co-existence		0 noted
1939	R1-1711818	WF on UL power control	LG Electronics, Ericsson, InterDigital	Patrick Merias	52292	other	Decision			140	5.1.9.2	NR power control framework		0 noted
1940	R1-1711819	WF on PHR for different waveforms	LG Electronics, NTT DOCOMO, InterDigital	Patrick Merias	52292	other	Decision			140	5.1.9.2	NR power control framework		0 noted
1941	R1-1711820	[DRAFT] LS on support of multi-TRP transmission in NR	Intel	Patrick Merias	52292	LS out	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission		0 revised
1942	R1-1711821	WF on Configuration of UL Transmission without Grant	Ericsson	Patrick Merias	52292	other	Decision			97	5.1.3.3.3	UL data transmission procedure without grant		0 withdrawn
1943	R1-1711822	Design of combined-and-Nested polar code sequences	Samsung	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design		0 noted
1944	R1-1711823	WF on pre-emption indication	Huawei, HiSilicon, MediaTek, Sequans, NTT DOCOMO, Sony, vivo, ZTE, InterDigital, III	Patrick Merias	52292	other	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink		0 revised
1945	R1-1711824	[DRAFT] LS on non-contiguous CA	AT&T	Patrick Merias	52292	LS out	Decision			136	5.1.7	Wider bandwidth operations		0 revised
1946	R1-1711825	LS on non-contiguous CA	RAN1, AT&T	Patrick Merias	52292	LS out	Approval		sent	136	5.1.7	Wider bandwidth operations		0 approved
1947	R1-1711826	WF on interleaver design on NR polar codes	LG Electronics	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design		0 withdrawn
1948	R1-1711827	WF on Capacity Enhancement for option 1 of PRACH preamble	LG Electronics, IITL	Patrick Merias	52292	other	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management		0 noted
1949	R1-1711828	WF on RACH power control	LG Electronics, ETRI	Patrick Merias	52292	other	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure		0 available
1950														

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1951	R1-1711829	Offline discussions on UL data transmission without grant	NTT DOCOMO	Patrick Merias	52292	other	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	noted
1952	R1-1711830	WF on UE-UE CLI measurement	Huawei, HiSilicon, ZTE, MediaTek, Intel, CMCC	Patrick Merias	52292	other	Decision			134	5.1.6.1	Cross-link interference management	0	noted
1953	R1-1711831	WF on pi/2 BPSK with spectrum shaping	IITH, ATT, Qualcomm, Deutsche Telekom, IITM, Reliance Jio, Samsung, Thales, INL, CEWIT, Tejas Networks, DISH, Sony	Patrick Merias	52292	other	Decision			132	5.1.5	Modulation	0	noted
1954	R1-1711832	WF on Pre-DFT Multiplexing of RS and UCI in short duration PUCCH	IITH	Patrick Merias	52292	other	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
1955	R1-1711833	WF on waveform for long duration PUCCH	IITH, ATT, Deutsche Telekom, IITM, Reliance Jio, DISH, Thales, CEWIT, Tejas Networks, Sony, INL	Patrick Merias	52292	other	Decision			82	5.1.3.2.2.2	Long-PUCCH for UCI of more than 2 bits	0	available
1956	R1-1711834	WF on Long PUCCH Format with 1-2 UCI bits	Ericsson, Huawei, HiSilicon, LG, ZTE, MediaTek, Panasonic, WILUS Inc., Intel, Vivo, Cohere Technologies, ETRI, Motorola mobility, Lenovo, CATT	Patrick Merias	52292	other	Decision			80	5.1.3.2.2	PUCCH in long-duration	0	revised
1957	R1-1711835	WF on Frequency Hopping for Long PUCCH	Ericsson, MediaTek, Qualcomm, Panasonic, Intel, LG, NTT DOCOMO, Cohere Technologies, WILUS Inc., Huawei, HiSilicon, Samsung	Patrick Merias	52292	other	Decision			80	5.1.3.2.2	PUCCH in long-duration	0	noted
1958	R1-1711836	WF on scheduling request for NR	Idaho National Laboratory, KDDI, Lenovo, Motorola Mobility, IITH, CEWIT, IITM, Tejas Networks, Qualcomm	Patrick Merias	52292	other	Decision			96	5.1.3.3.2	UL data transmission procedure with grant	0	available
1959	R1-1711837	Open issues on SRS design	Sony	Patrick Merias	52292	discussion				55	5.1.2.4.5	SRS	0	revised
1960	R1-1711838	WF on Beam Reporting	Intel, Huawei, HiSilicon, InterDigital CATT	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	available
1961	R1-1711839	LS on subcarrier alignment and channel raster	RAN1, AT&T	Patrick Merias	52292	LS out	Approval		sent	137	5.1.8	NR-LTE co-existence	0	approved
1962	R1-1711840	WF on Frequency Hopping for Multi-slot Long PUCCH	LG Electronics	Patrick Merias	52292	other	Decision			83	5.1.3.2.2.3	Support of long-PUCCH over multiple slots	0	available
1963	R1-1711841	Summary of views on resource for PDSCH and PUSCH rate matching	LG Electronics	Patrick Merias	52292	other	Decision			38	5.1.2.1.7	Rate matching	0	noted
1964	R1-1711842	WF on UE-to-UE crosslink measurement	CMCC, Spreadtrum	Patrick Merias	52292	other	Decision			134	5.1.6.1	Cross-link interference management	0	noted
1965	R1-1711843	Outputs of offline discussion on RBG size/number determination	OPPO, Nokia, LG, Samsung, vivo, ZTE, CATR	Patrick Merias	52292	other	Decision			93	5.1.3.3.1.1	Frequency-domain resource allocation	0	noted
1966	R1-1711844	WF on the number of CBGs	OPPO	Patrick Merias	52292	other	Decision			99	5.1.3.3.4.1	CBG construction	0	available
1967	R1-1711845	Summary of AI 5.1.2.1.4 Diversity transmission for UL	Mitsubishi Electric	Patrick Merias	52292	other	Decision			35	5.1.2.1.4	Diversity transmission for UL	0	noted
1968	R1-1711846	WF on NR CA	Huawei, HiSilicon, KT, CATR, MediaTek, Nokia, ASB, Ericsson, Intel	Patrick Merias	52292	other	Decision			114	5.1.3.4.1	Carrier aggregation	0	noted
1969	R1-1711847	WF on SRS switching	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			116	5.1.3.4.1.2	SRS fast switching	0	available
1970	R1-1711848	WF on handling of single UL transmission	NTT DOCOMO, Apple	Patrick Merias	52292	other	Decision			137	5.1.8	NR-LTE co-existence	0	noted
1971	R1-1711849	WF on Preamble sequence for capacity enhancement	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	noted
1972	R1-1711850	WF for NR RLM	CATT	Patrick Merias	52292	other	Decision			28	5.1.1.5.3	Radio link monitoring	0	noted
1973	R1-1711851	WF on inter-gNB signaling for cross-link interference management	LG Electronics	Patrick Merias	52292	other	Decision			134	5.1.6.1	Cross-link interference management	0	noted

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1974	R1-1711852	WF on SRS sequence design	Ericsson, Huawei, HiSilicon, Nokia, ASB, Panasonic, NTT DOCOMO	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS	0	noted
1975	R1-1711853	Activation/deactivation of bandwidth parts	Ericsson	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations	0	noted
1976	R1-1711854	WF on SS Burst set Composition	LG Electronics	Patrick Merias	52292	other	Decision			10	5.1.1.1.2	SS burst set composition	0	revised
1977	R1-1711855	Way forward on PRB indexing	Intel, Sharp, Ericsson, MediaTek, NTT DOCOMO, Panasonic, Nokia, ASB, NEC, KT, ETRI	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations	0	noted
1978	R1-1711856	WF on processing time requirements	Qualcomm, ZTE, Deutsche Telekom, Vodafone, Panasonic, Ericsson	Patrick Merias	52292	other	Decision			105	5.1.3.3.6	Processing time and HARQ process number	0	revised
1979	R1-1711857	Summary of views on multi-TRP & multi-panel transmission	CATT	Patrick Merias	52292	other	Decision			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	noted
1980	R1-1711858	WF on beam failure recovery request	LG Electronics, Intel, Huawei, HiSilicon, vivo	Patrick Merias	52292	other	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
1981	R1-1711859	WF on SRS beam sweeping behavior	LG Electronics, Huawei, HiSilicon, Samsung, Ericsson	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	available
1982	R1-1711860	Evaluation of NR-SS	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	noted
1983	R1-1711861	WF on RACH power control mechanism Msg.1 transmission	LG Electronics, NTT DOCOMO	Patrick Merias	52292	other	Decision			23	5.1.1.4.3	Power ramping and power control during RA procedure	0	noted
1984	R1-1711862	WF on power sharing mechanism	NTT DOCOMO, InterDigital	Patrick Merias	52292	other	Decision			139	5.1.9.1	Power sharing mechanism	0	noted
1985	R1-1711863	WF on NR power control framework	NTT DOCOMO INC., Nokia, Intel, InterDigital	Patrick Merias	52292	other	Decision			140	5.1.9.2	NR power control framework	0	noted
1986	R1-1711864	Measurement window periodicity, duration and offset of CSI-RS for L3 mobility	Qualcomm	Patrick Merias	52292	other	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	noted
1987	R1-1711865	Multiple/repeated PRACH preamble transmission with OCC across preambles	Qualcomm, Interdigital, Samsung, AT&T, Verizon	Patrick Merias	52292	other	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	noted
1988	R1-1711866	WF on RACH configuration in RMSI	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			24	5.1.1.4.4	4-step RA procedure	0	noted
1989	R1-1711867	Observations on PBCH Signaling	Qualcomm	Patrick Merias	52292	other	Decision			130	5.1.4.3	PBCH	0	withdrawn
1990	R1-1711868	WF on DMRS indication	Samsung	Patrick Merias	52292	other	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	revised
1991	R1-1711869	WF on collision avoidance between short PUCCH and SRS	Mitsubishi Electric, AT&T, Panasonic, Samsung, Huawei, HiSilicon, ZTE	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS	0	noted
1992	R1-1711870	NR PRACH capacity enhancement	CATT, Huawei, TCL	Patrick Merias	52292	other	Decision			22	5.1.1.4.2	PRACH preamble format details for capacity enhancement and beam management	0	noted
1993	R1-1711871	WF on radio link monitoring in NR	Huawei, HiSilicon, Qualcomm, ATT, NTT DOCOMO, Intel	Patrick Merias	52292	other	Decision			28	5.1.1.5.3	Radio link monitoring	0	revised
1994	R1-1711872	LS on UE self-interference	RAN1, vivo	Patrick Merias	52292	LS out	Approval			137	5.1.8	NR-LTE co-existence	0	approved
1995	R1-1711873	WF on initial bandwidth part	LG Electronics, Ericsson, MediaTek	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations	0	noted
1996	R1-1711874	NR UL MIMO Signaling Mechanism	Ericsson, Nokia, Alcatel-Lucent, Shanghai Bell, Qualcomm, CATT, ZTE	Patrick Merias	52292	other	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	noted
1997	R1-1711875	WF on PRACH Preamble Format for Short sequence with Option 1	LG Electronics, NTT DOCOMO	Patrick Merias	52292	other	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	noted
1998	R1-1711876	WF on multiple Msg1 transmission for contention free case	Samsung, Huawei, HiSilicon, MediaTek, ZTE	Patrick Merias	52292	other	Decision			24	5.1.1.4.4	4-step RA procedure	0	noted
1999	R1-1711877	[DRAFT] LS on single UL transmission	NTT DOCOMO	Patrick Merias	52292	LS out	Decision			137	5.1.8	NR-LTE co-existence	0	revised
2000	R1-1711878	LS on single UL transmission	RAN1, NTT DOCOMO	Patrick Merias	52292	LS out	Approval		sent - MCC to correct WI code to NR_newRAT-Core	137	5.1.8	NR-LTE co-existence	0	approved
2001	R1-1711879	[DRAFT] LS on Beam Aspects of NR RACH	Huawei	Patrick Merias	52292	LS out	Decision			6	5.1	New Radio Access Technology - WID in RP-171485	0	revised
2002	R1-1711880	LS on Beam Aspects of NR RACH	RAN1, Huawei	Patrick Merias	52292	LS out	Approval		sent	6	5.1	New Radio Access Technology - WID in RP-171485	0	approved

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2003	R1-1711881	Summary of Issues and WFs on Codebook based transmission for UL	Intel	Patrick Merias	52292	discussion	Decision			33	5.1.2.1.2	Codebook based transmission for UL	0	noted
2004	R1-1711882	WF on use of SS blocks in beam management	Qualcomm	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	withdrawn
2005	R1-1711883	WF on CBG retransmission	Samsung	Patrick Merias	52292	other	Decision			98	5.1.3.3.4	CBG-based (re)transmission	0	revised
2006	R1-1711884	Summary of issues on UL non-codebook based transmission	Nokia, Alcatel-Lucent, Shanghai Bell	Patrick Merias	52292	other	Decision			34	5.1.2.1.3	Non-codebook based transmission fo UL	0	noted
2007	R1-1711885	WF on change of SS block frequency position	CMCC	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations	0	available
2008	R1-1711886	TS38.211 v0.0.2 NR; Physical channels and modulation	Ericsson LM	Patrick Merias	52292	draft TS				6	5.1	New Radio Access Technology - WID in RP-171485	0	revised
2009	R1-1711887	WF on 2-symbol NR-PUCCH	LG Electronics	Patrick Merias	52292	other	Decision			79	5.1.3.2.1.2	Short-PUCCH for UCI of more than 2 bits	0	available
	R1-1711888	WF on m0 and m1 for NR-SSS	NTT DOCOMO, IITL, Intel, Samsung, InterDigital, Motorola Mobility, Lenovo	Patrick Merias	52292	other	Decision			9	5.1.1.1.1	Remaining details on SS sequence design	0	agreed
2010														
	R1-1711889	WF on radio link monitoring in NR	Huawei, HiSilicon, Qualcomm, ATT, NTT DOCOMO, Intel, Vivo, LGE	Patrick Merias	52292	other	Decision			28	5.1.1.5.3	Radio link monitoring	0	noted
2011														
2012	R1-1711890	WF on UL frequency selective precoding in UL non-codebook based transmission	Huawei, HiSilicon, LG Electronics	Patrick Merias	52292	other	Decision			34	5.1.2.1.3	Non-codebook based transmission fo UL	0	available
2013	R1-1711891	WF on PT-RS for DFT-S-OFDM	Samsung, Intel, CATT	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	noted
2014	R1-1711892	Reply LS on PBCH content	RAN2, Huawei	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
2015	R1-1711893	Offline discussions summary on CSI framework	AT&T	Patrick Merias	52292	other	Decision			45	5.1.2.3.1	CSI framework	0	noted
	R1-1711894	WF on remaining issues on PTRS for CP-OFDM - Part 1	Huawei, HiSilicon, InterDigital, Xinwei, NI, Panasonic	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	noted
2016														
	R1-1711895	WF on remaining issues on PTRS for CP-OFDM - Part 2	Huawei, HiSilicon, InterDigital, Xinwei, Intel, NI, Panasonic, Spreadtrum	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	noted
2017														
2018	R1-1711896	WF on UE assistance information for UL beam management	MediaTek, Samsung Intel	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	available
2019	R1-1711897	Offline discussion summary on beam recovery	MediaTek	Patrick Merias	52292	other	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	noted
2020	R1-1711898	[DRAFT] LS on power sharing for LTE-NR Dual Connectivity	Ericsson	Patrick Merias	52292	LS out	Decision			139	5.1.9.1	Power sharing mechanism	0	revised
2021	R1-1711899	Way forward on the mapping of SS blocks	Nokia	Patrick Merias	52292	other	Decision			10	5.1.1.1.2	SS burst set composition	0	noted
2022	R1-1711900	WF on remaining issues on CSI-RS for mobility with RAN4 impact	Ericsson	Patrick Merias	52292	other	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
2023	R1-1711901	WF on remaining RLM issues with RAN4 impact	Ericsson	Patrick Merias	52292	other	Decision			28	5.1.1.5.3	Radio link monitoring	0	available
2024	R1-1711902	WF on CSI-RS resources for L3 mobility	Ericsson	Patrick Merias	52292	other	Decision			27	5.1.1.5.2	Measurement based on CSI-RS for L3 mobility	0	available
2025	R1-1711903	WF on SRS for UL beam management	OPPO, Intel, Samsung, Xinwei	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	available
2026	R1-1711904	Summary of views on CSI feedback for Type I and Type II	Ericsson	Patrick Merias	52292	other	Decision			48	5.1.2.3.4	CSI feedback	0	noted
2027	R1-1711905	Summary of CSI Feedback for Open-loop/Semi-open-loop	Ericsson	Patrick Merias	52292	other	Decision			48	5.1.2.3.4	CSI feedback	0	noted
2028	R1-1711906	WF on SS Burst set Composition	LG Electronics, Nokia, InterDigital, British Telecom	Patrick Merias	52292	other	Decision			10	5.1.1.1.2	SS burst set composition	0	noted
2029	R1-1711907	Draft Reply LS on reading time index indication for RRM measurements	Intel Corporation	Patrick Merias	52292	LS out	Decision			4	4	Incoming Liaison Statements	0	revised
2030	R1-1711908	Reserved resource for forward compatibility	Ericsson	Patrick Merias	52292	other	Decision			142	5.1.11	Other	0	available
2031	R1-1711909	[DRAFT] LS response on required parameters from RAN4 perspective	Ericsson	Patrick Merias	52292	LS out	Decision			132	5.1.5	Modulation	0	revised
2032	R1-1711910	[DRAFT] Reply LS on PDCCH design	Ericsson, CATT	Patrick Merias	52292	LS out	Decision		Reply to R1-1711642	61	5.1.3.1	Physical downlink control channel	0	revised
	R1-1711911	WF on pre-emption indication	Huawei, HiSilicon, MediaTek, Sequans, NTT DOCOMO, Sony, vivo, ZTE, InterDigital, IITL, Intel, LGE, Samsung	Patrick Merias	52292	other	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	noted
2033														

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
2034	R1-1711912	WF on Long PUCCH Format with 1-2 UCI bits	Ericsson, Huawei, HiSilicon, LG, ZTE, MediaTek, Panasonic, WILUS Inc., Intel, Vivo, Cohere Technologies, ETRI, Motorola mobility, Lenovo, CATT, Qualcomm	Patrick Merias	52292	other	Decision			80	5.1.3.2.2	PUCCH in long-duration	0	noted
2035	R1-1711913	WF on introduction indication in SS block for cell update	CMCC	Patrick Merias	52292	other	Decision			136	5.1.7	Wider bandwidth operations	0	noted
2036	R1-1711914	Overview of WFs on PTRS	Ericsson	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	noted
2037	R1-1711915	WF on PTRS multiplexing with other RSs for CP-OFDM	ZTE	Patrick Merias	52292	other	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	revised
2038	R1-1711916	Chairman's notes of AI 5.1.2 MIMO	Ad-Hoc chair (Qualcomm)	Patrick Merias	52292	other	Endorsement			30	5.1.2	MIMO	0	endorsed
2039	R1-1711917	Chairman's notes of AI 5.1.4 Channel coding	Ad-Hoc chair (Nokia)	Patrick Merias	52292	other	Endorsement			118	5.1.4	Channel coding	0	endorsed
2040	R1-1711918	Chairman's notes of AI 5.1.6 Duplexing	Ad-Hoc chair (Qualcomm)	Patrick Merias	52292	other	Endorsement			133	5.1.6	Duplexing	0	endorsed
2041	R1-1711919	Chairman's notes of AI 5.1.8 NR-LTE co-existence	Ad-Hoc chair (Qualcomm)	Patrick Merias	52292	other	Endorsement			137	5.1.8	NR-LTE co-existence	0	endorsed
2042	R1-1711920	WF on SRS design in NR	LG Electronics, CATT, Intel Corp., KT Corp., Qualcomm	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS	0	noted
2043	R1-1711921	WF on PDCCH and PDSCH resource sharing	ZTE, Nokia, Ericsson, LG, Panasonic, Qualcomm, Sharp	Patrick Merias	52292	other	Decision			69	5.1.3.1.3	Resource sharing between PDCCH and PDSCH	0	noted
2044	R1-1711922	WF on CSI-RS for BM	Intel, Ericsson, CATT, Samsung, MediaTek, AT&T, NTT Docomo, KT	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	noted
2045	R1-1711923	WF on CSI-RS for BM	Samsung, Intel, AT&T, NTT DOCOMO, ZTE	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	noted
2046	R1-1711924	Summary of CSI Acquisition Details	NTT DOCOMO	Patrick Merias	52292	other	Decision			46	5.1.2.3.2	Details of CSI acquisition	0	noted
2047	R1-1711925	Remaining part of email summary for UL transmission without UL grant	LG Electronics	Patrick Merias	52292	other	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	withdrawn
2048	R1-1711926	WF on PT-RS pattern in the frequency domain	LG Electronics	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	revised
2049	R1-1711927	WF on gNB response for beam failure request	Huawei, HiSilicon, LG Electronics, Intel	Patrick Merias	52292	other	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
2050	R1-1711928	WF on PRACH for beam failure recovery request transmission	Huawei, HiSilicon, LG Electronics, Ericsson, CATT, NTT DOCOMO	Patrick Merias	52292	other	Decision			42	5.1.2.2.2	Mechanism to recover from beam failure	0	available
2051	R1-1711929	WF on Beam Reporting	Huawei, HiSilicon, Samsung, Intel, Nokia, Oppo, National Instruments	Patrick Merias	52292	other	Decision			41	5.1.2.2.1	Beam management details	0	available
2052	R1-1711930	WF on SRS Configuration	Huawei, HiSilicon, OPPO	Patrick Merias	52292	other	Decision			55	5.1.2.4.5	SRS	0	noted
2053	R1-1711931	[DRAFT] Reply LS on PDCCH design	Ericsson, CATT	Patrick Merias	52292	LS out	Decision		Reply to R1-1711642	61	5.1.3.1	Physical downlink control channel	0	revised
2054	R1-1711932	WF on PT-RS pattern in the frequency domain	LG Electronics	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	noted
2055	R1-1711933	WF on HARQ-ACK multiplexing for NR	LG Electronics	Patrick Merias	52292	other	Decision			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
2056	R1-1711934	WF on HARQ-ACK bundling for NR	LG Electronics	Patrick Merias	52292	other	Decision			104	5.1.3.3.5.2	HARQ-ACK multiplexing/bundling	0	available
2057	R1-1711935	Summary of Open Issues on Layer Mapping	Samsung	Patrick Merias	52292	discussion				32	5.1.2.1.1	Codeword mapping	0	noted
2058	R1-1711936	WF on CSI-RS based RACH configuration	Samsung, Ericsson, ZTE, Mediatek Mitsubishi, MTI	Patrick Merias	52292	other	Decision			24	5.1.1.4.4	4-step RA procedure	0	noted
2059	R1-1711937	Circulant permutation matrix design for LDPC codes	LG Electronics	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	withdrawn
2060	R1-1711938	Circulant permutation matrix design for LDPC codes base graph #2	LG Electronics	Patrick Merias	52292	discussion				125	5.1.4.1.2	LDPC code design	0	withdrawn
2061	R1-1711939	WF on the mapping of SS blocks with 30kHz SCS	Huawei, HiSilicon, CATT, CATR, OPPO, MediaTek, Vivo	Patrick Merias	52292	other	Decision			10	5.1.1.1.2	SS burst set composition	0	noted
2062	R1-1711940	LS to RAN1 on NR basic handover	RAN2, Ericsson	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
2063	R1-1711941	Way Forward on PTRS	Intel, Huawei, HiSilicon, National Instruments, MediaTek	Patrick Merias	52292	other	Decision			54	5.1.2.4.4	PT-RS	0	noted

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2064	R1-1711942	WF on periodic CSI reporting on short PUCCH	Ericsson, Samsung, Huawei, HiSilicon, CATT	Patrick Merias	52292	other	Decision			48	5.1.2.3.4	CSI feedback	0	available
2065	R1-1711943	Discussion on DMRS sequence for NR PBCH	Intel	Patrick Merias	52292	other	Decision			16	5.1.1.2.3	Sequence design of DMRS for NR-PBCH	0	noted
2066	R1-1711944	Observations on LDPC Shift Coefficients	Qualcomm	Patrick Merias	52292	other	Decision			125	5.1.4.1.2	LDPC code design	0	noted
2067	R1-1711945	WF on random access association configuration	ZTE	Patrick Merias	52292	other	Decision			24	5.1.1.4.4	4-step RA procedure	0	noted
2068	R1-1711946	WF on DMRS indication	Samsung	Patrick Merias	52292	other	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	noted
2069	R1-1711947	Chairman's notes of AI 5.1.9 UL Power Control	Ad-Hoc chair (Qualcomm)	Patrick Merias	52292	other	Endorsement			138	5.1.9	UL power control	0	endorsed
2070	R1-1711948	[Draft] LS on bandwidth part operation in NR	MediaTek	Patrick Merias	52292	LS out	Decision			136	5.1.7	Wider bandwidth operations	0	revised
2071	R1-1711949	Reply LS to RAN1 on UL data transmission without UL grant for NR	RAN2, Huawei	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	postponed
2072	R1-1711950	LS to RAN1 on Random Access	RAN2, Samsung	Patrick Merias	52292	LS in				4	4	Incoming Liaison Statements	0	treated
2073	R1-1711951	Open issues on SRS design	Sony	Patrick Merias	52292	discussion				55	5.1.2.4.5	SRS	0	noted
2074	R1-1711952	Performance evaluation of interference randomization	Qualcomm Inc.	Patrick Merias	52292	discussion	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	noted
2075	R1-1711953	Evaluation of proposed PCMs for BG#1	Huawei, HiSilicon	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	withdrawn
2076	R1-1711954	Evaluation of proposed PCMs for BG#2	Huawei, HiSilicon	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	withdrawn
2077	R1-1711955	Ranking of proposed PCMs for BG#1 and BG#2 based on evaluation results	Huawei, HiSilicon	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	withdrawn
2078	R1-1711956	On Pi/2-BPSK with spectrum shaping	Ericsson	Patrick Merias	52292	discussion	Decision			132	5.1.5	Modulation	0	noted
2079	R1-1711957	WF on processing time requirements	Qualcomm	Patrick Merias	52292	other	Decision			105	5.1.3.3.6	Processing time and HARQ process number	0	noted
2080	R1-1711958	WF on CBG retransmission	Samsung, ZTE	Patrick Merias	52292	other	Decision			98	5.1.3.3.4	CBG-based (re)transmission	0	noted
2081	R1-1711959	WF on DL PRB bundling	Xinwei	Patrick Merias	52292	other	Decision			36	5.1.2.1.5	PRB bundling for DL	0	revised
2082	R1-1711960	Summary on DL PRB bundling	Xinwei	Patrick Merias	52292	discussion	Decision			36	5.1.2.1.5	PRB bundling for DL	0	noted
2083	R1-1711961	WF on the false alarm rate target of eMBB DCI	Panasonic, Qualcomm, Intel, NTT DOCOMO	Patrick Merias	52292	other	Decision			62	5.1.3.1.1	PDCCH structure	0	withdrawn
2084	R1-1711962	Way Forward on network-based beam failure recovery	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			43	5.1.2.2.3	Other	0	available
2085	R1-1711963	Crosscheck Results for PCM of BG1	Samsung	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	available
2086	R1-1711964	Crosscheck Results for PCM of BG2	Samsung	Patrick Merias	52292	discussion	Decision			125	5.1.4.1.2	LDPC code design	0	available
2087	R1-1711965	Beam management offline summary	Qualcomm	Patrick Merias	52292	discussion	Decision			41	5.1.2.2.1	Beam management details	0	noted
2088	R1-1711966	Reply LS on reading time index indication for RRM measurements	RAN1, Intel	Patrick Merias	52292	LS out	Approval		MCC to correct Response to: LS R1-1706160 (R2-170215) as Response to: LS R2-1706160 (R1-1710215)	4	4	Incoming Liaison Statements	0	noted
2089	R1-1711967	Timing information indicated by DMRS	ZTE	Patrick Merias	52292	other	Decision			11	5.1.1.1.3	Timing indication based on SS block	0	noted
2090	R1-1711968	[DRAFT] Reply LS response on NR basic handover	Samsung	Patrick Merias	52292	LS out	Decision			4	4	Incoming Liaison Statements	0	revised
2091	R1-1711969	Offline discussions on UL data transmission without grant	NTT DOCOMO	Patrick Merias	52292	discussion	Decision			97	5.1.3.3.3	UL data transmission procedure without grant	0	noted
2092	R1-1711970	WF on RACH preamble format for short sequence with and 2 OFDM symbols	Nokia, Alcatel-Lucent, Shanghai Bell	Patrick Merias	52292	other	Decision			21	5.1.1.4.1	PRACH preamble format details for long/short sequence length	0	available
2093	R1-1711971	WF on QCL assumption in NR	ZTE, ASTRI, Nokia, ASB	Patrick Merias	52292	other	Decision			57	5.1.2.4.7	QCL	0	available
2094	R1-1711972	[DRAFT] Reply LS on PDCCH design	Ericsson, CATT	Patrick Merias	52292	LS out	Decision		Reply to R1-1711642	61	5.1.3.1	Physical downlink control channel	0	revised
2095	R1-1711973	WF on CSI-RS for BM	Intel, Ericsson, Spreadtrum, MediaTek, Samsung, Verizon	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	available
2096	R1-1711974	Summary of views on multiplexing of different types of RS	Huawei, HiSilicon	Patrick Merias	52292	other	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	noted
2097	R1-1711975	LS response on required parameters from RAN4 perspective	RAN1, Ericsson	Patrick Merias	52292	LS out	Approval			132	5.1.5	Modulation	0	approved
2098	R1-1711976	WF on CSI-RS for beam management	NTT DOCOMO, Ericsson, Samsung	Patrick Merias	52292	other	Decision			52	5.1.2.4.2	CSI-RS	0	noted
2099	R1-1711977	Sequence construction of Polar codes for control channels	Qualcomm Incorporated	Patrick Merias	52292	other	Decision			128	5.1.4.2.2	Sequence design	0	withdrawn
2100	R1-1711978	LDPC rate compatible design	Qualcomm Incorporated	Patrick Merias	52292	other	Decision			125	5.1.4.1.2	LDPC code design	0	available
2101	R1-1711979	Performance cross-check for PCMs of NR LDPC BG1 and BG2	MediaTek	Patrick Merias	52292	other	Decision			125	5.1.4.1.2	LDPC code design	0	withdrawn

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2102	R1-1711980	Performance with L1 CRC polynomial	Qualcomm Incorporated	Patrick Merias	52292	other	Decision			127	5.1.4.2.1	Code construction	0	noted
	R1-1711981	WF on group common pre-emption indication	Huawei, HiSilicon, Sharp, ZTE, LG, Sony, Panasonic, MediaTek, InterDigital	Patrick Merias	52292	other	Decision			109	5.1.3.3.7.1	Pre-emption indication for downlink	0	noted
2103														
2104	R1-1711982	WF on LDPC parity check matrices	Nokia	Patrick Merias	52292	other	Decision			125	5.1.4.1.2	LDPC code design	0	noted
	R1-1711983	WF on Polar Code Construction With PC bits	Huawei, HiSilicon, CATT, MTK, ZTE, DCM, Accelercomm, Coherentlogix, LG, Spreadtrum, Interdigital, Nokia	Patrick Merias	52292	other	Decision			127	5.1.4.2.1	Code construction	0	noted
2105														
2106	R1-1711984	[DRAFT] LS on NR initial access and mobility	NTT DOCOMO	Patrick Merias	52292	LS out	Decision			7	5.1.1	Initial access and mobility	0	revised
2107	R1-1711985	[DRAFT] LS on NR initial access and mobility	NTT DOCOMO	Patrick Merias	52292	LS out	Decision			7	5.1.1	Initial access and mobility	0	revised
2108	R1-1711986	WF on PTRS multiplexing with other RSs for CP-OFDM	ZTE	Patrick Merias	52292	other	Decision			51	5.1.2.4.1	Multiplexing of different types of RSs	0	available
2109	R1-1711987	Reply LS response on NR basic handover	RAN1, Samsung	Patrick Merias	52292	LS out	Approval			4	4	Incoming Liaison Statements	0	approved
2110	R1-1711988	WF on beam indication for PDCCH	Samsung	Patrick Merias	52292	other	Decision			43	5.1.2.2.3	Other	0	available
2111	R1-1711989	[Draft] LS on bandwidth part operation in NR	MediaTek	Patrick Merias	52292	LS out	Decision			136	5.1.7	Wider bandwidth operations	0	revised
2112	R1-1711990	WF on DL PRB bundling	Xinwei	Patrick Merias	52292	other	Decision			36	5.1.2.1.5	PRB bundling for DL	0	noted
2113	R1-1711991	WF on contents of the group-common PDCCH	CATT, NEC	Patrick Merias	52292	other	Decision			70	5.1.3.1.4	Group-common PDCCH	0	noted
2114	R1-1711992	[DRAFT] Reply LS on PDCCH design	Ericsson, CATT	Patrick Merias	52292	LS out	Decision		Reply to R1-1711642	61	5.1.3.1	Physical downlink control channel	0	revised
2115	R1-1711993	WF on UE behavior for reserved resource	Samsung	Patrick Merias	52292	other	Decision			62	5.1.3.1.1	PDCCH structure	0	revised
2116	R1-1711994	WF on UE power saving with PDCCH monitoring in CDRX	Qualcomm	Patrick Merias	52292	other	Decision			75	5.1.3.1.6	Other	0	available
2117	R1-1711995	WF on the content of the long PUCCH resource configuration	Ericsson	Patrick Merias	52292	other	Decision			85	5.1.3.2.4	Resource allocation for PUCCH	0	available
2118	R1-1711996	WF on long PUCCH Format for more than 2 UCI bits with multi-user multiplexing	Ericsson	Patrick Merias	52292	other	Decision			80	5.1.3.2.2	PUCCH in long-duration	0	available
2119	R1-1711997	Response LS on Support for fake gNB detection mechanisms	RAN1, Nokia	Patrick Merias	52292	LS out	Approval			4	4	Incoming Liaison Statements	0	approved
2120	R1-1711998	LS on bandwidth part operation in NR	RAN1, MediaTek	Patrick Merias	52292	LS out	Approval			136	5.1.7	Wider bandwidth operations	0	approved
2121	R1-1711999	LS on power sharing for LTE-NR Dual Connectivity	RAN1, Ericsson	Patrick Merias	52292	LS out	Approval			139	5.1.9.1	Power sharing mechanism	0	approved
2122	R1-1712000	LS on support of multi-TRP transmission in NR	RAN1, Intel	Patrick Merias	52292	LS out	Approval			37	5.1.2.1.6	Multi-TRP and Multi-panel transmission	0	approved
2123	R1-1712001	LS on NR initial access and mobility	RAN1, NTT DOCOMO	Patrick Merias	52292	LS out	Approval			7	5.1.1	Initial access and mobility	0	approved
2124	R1-1712002	LS on NR initial access and mobility	RAN1, NTT DOCOMO	Patrick Merias	52292	LS out	Approval			7	5.1.1	Initial access and mobility	0	approved
2125	R1-1712003	[DRAFT] Reply LS on CSI-RS design for beam management	NTT DOCOMO	Patrick Merias	52292	LS out	Decision		For email	52	5.1.2.4.2	CSI-RS	0	revised
2126	R1-1712004	TS38.211 v0.1.0 NR; Physical channels and modulation	Ericsson LM	Patrick Merias	52292	draft TS				6	5.1	New Radio Access Technology - WID in RP-171485	0	endorsed
2127	R1-1712005	Reply LS on PDCCH design	RAN1, Ericsson, CATT	Patrick Merias	52292	LS out	Approval		Reply to R1-1711642	61	5.1.3.1	Physical downlink control channel	0	approved
2128	R1-1712006	WF on UE behavior for reserved resource	Samsung	Patrick Merias	52292	other	Decision			62	5.1.3.1.1	PDCCH structure	0	noted
2129	R1-1712007	LS on NR Beam Management	RAN1, Qualcomm	Patrick Merias	52292	LS out	Approval		For email	6	5.1	New Radio Access Technology - WID in RP-171485	0	approved
2130	R1-1712008	LS on HARQ operation	RAN1, Nokia	Patrick Merias	52292	LS out	Approval		Reply to R1-1711642	6	5.1	New Radio Access Technology - WID in RP-171485	0	approved
2131	R1-1712009	Reply LS on CSI-RS design for beam management	RAN1, NTT DOCOMO	Patrick Merias	52292	LS out	Approval			52	5.1.2.4.2	CSI-RS	0	approved
2132	R1-1712010	LS on a correction to the applicable UL modulation schemes	RAN1, Huawei	Patrick Merias	52292	LS out	Approval			132	5.1.5	Modulation	0	approved
2133	R1-1712011	TS38.211 v0.1.1 NR; Physical channels and modulation	Ericsson LM	Patrick Merias	52292	draft TS			Capture decisions up to and including RAN1 NR AdHoc #2	6	5.1	New Radio Access Technology - WID in RP-171485	0	available
2134	R1-1712012	TS38.201 v0.0.1 NR; Physical layer; General descriptor	NTT DOCOMO	Patrick Merias	52292	draft TS			Capture decisions up to and including RAN1 NR AdHoc #2	6	5.1	New Radio Access Technology - WID in RP-171485	0	available
2135	R1-1712013	TS38.202 v0.0.1 NR; Physical layer services provided by the physical layer	Qualcomm	Patrick Merias	52292	draft TS			Capture decisions up to and including RAN1 NR AdHoc #2	6	5.1	New Radio Access Technology - WID in RP-171485	0	available
2136	R1-1712014	TS38.212 v0.0.1 NR; Multiplexing and channel coding	Huawei	Patrick Merias	52292	draft TS			Capture decisions up to and including RAN1 NR AdHoc #2	6	5.1	New Radio Access Technology - WID in RP-171485	0	available
2137	R1-1712015	TS38.213 v0.0.1 NR; Physical layer procedures for control	Samsung	Patrick Merias	52292	draft TS			Capture decisions up to and including RAN1 NR AdHoc #2	6	5.1	New Radio Access Technology - WID in RP-171485	0	available

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2138	R1-1712016	TS38.214 v0.0.1 NR; Physical layer procedures for data	Nokia	Patrick Merias	52292	draft TS			Capture decisions up to and including RAN1 NR AdHoc #2	6	5.1	New Radio Access Technology - WID in RP-171485	0	available
2139	R1-1712017	TS38.215 v0.0.1 NR; Physical layer measurements	Intel	Patrick Merias	52292	draft TS			Capture decisions up to and including RAN1 NR AdHoc #2	6	5.1	New Radio Access Technology - WID in RP-171485	0	available

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	Reservation date	Uploaded	Is revision of	Revised to	Release	Spec	Version	Related Wis	CR	CR revision	CR category	TSG CR Pack	Reply to	To	Cc	Original LS	Reply in
1																	
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338	2017-06-12 06:44:19	2017-06-12 07:18:45		Rel-15				5GS_Ph1						RAN	SA, RAN1, RAN2, RAN3	S2-173700	
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366	2017-06-13 17:48:57	2017-06-17 05:46:17			Rel-15			NR_newRAT									
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824	2017-06-15 08:06:49	2017-06-17 01:26:31															
825	2017-06-15 08:06:49	2017-06-17 02:43:12															
826	2017-06-15 08:06:49	2017-06-17 02:43:12															
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835	2017-06-15 08:06:49	2017-06-17 02:43:12															
836	2017-06-15 08:06:49	2017-06-17 02:43:12															
837	2017-06-15 08:06:49																
838	2017-06-15 08:06:49	2017-06-17 01:26:31															
839	2017-06-15 08:06:49	2017-06-16 23:45:41															
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844	2017-06-15 08:06:49	2017-06-16 07:39:43															
845	2017-06-15 08:06:49	2017-06-16 07:39:43															
846	2017-06-15 08:06:49	2017-06-16 10:51:50															
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848	2017-06-15 08:06:49	2017-06-16 10:51:50															
849	2017-06-15 08:06:49	2017-06-16 10:51:50															
850	2017-06-15 08:06:50	2017-06-16 10:51:50															
851	2017-06-15 08:06:50	2017-06-16 07:36:57															
852	2017-06-15 08:06:50	2017-06-17 01:26:31															
853	2017-06-15 08:06:50	2017-06-17 01:26:31															
854	2017-06-15 08:06:50	2017-06-16 07:17:15															

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856	2017-06-15 08:06:50	2017-06-16 07:17:16															
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861	2017-06-15 08:06:50	2017-06-17 01:26:31															
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865	2017-06-15 08:06:50	2017-06-19 10:55:02															
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867	2017-06-15 08:06:50	2017-06-20 06:37:16															
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875	2017-06-15 08:06:50	2017-06-17 02:01:01															
876	2017-06-15 08:06:50	2017-06-16 22:14:27															
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881	2017-06-15 08:06:50	2017-06-16 19:15:24															
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891	2017-06-15 08:06:51	2017-06-16 13:47:05															
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893	2017-06-15 09:25:24	2017-06-16 09:22:06		R1-1713857													
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897	2017-06-15 09:46:37																

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902	2017-06-15 09:46:37	2017-06-17 02:39:22															
903	2017-06-15 09:46:37	2017-06-17 02:39:22															
904	2017-06-15 09:46:37	2017-06-17 02:39:22															
905	2017-06-15 09:46:37	2017-06-17 02:39:22															
906	2017-06-15 09:46:37	2017-06-17 02:39:22															
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908	2017-06-15 09:46:37	2017-06-17 02:39:22															
909	2017-06-15 09:50:28	2017-06-15 09:57:44															
910	2017-06-15 10:24:15	2017-06-17 05:19:18															
911	2017-06-15 10:24:15	2017-06-17 05:19:18															
912	2017-06-15 10:24:15	2017-06-17 05:19:18															
913	2017-06-15 10:24:15	2017-06-17 05:19:18															
914	2017-06-15 10:24:15	2017-06-17 05:19:18															
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916	2017-06-15 10:24:15	2017-06-17 05:19:18															
917	2017-06-15 10:24:15	2017-06-17 05:19:18															
918	2017-06-15 10:24:15	2017-06-17 05:19:18															
919	2017-06-15 10:24:15	2017-06-17 05:19:18															
920	2017-06-15 10:24:15	2017-06-20 06:02:12															
921	2017-06-15 10:24:16	2017-06-17 05:19:18															
922	2017-06-15 10:24:16	2017-06-20 06:02:12															
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925	2017-06-15 10:24:16	2017-06-20 06:02:12															
926	2017-06-15 10:24:16	2017-06-17 05:19:18															
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928	2017-06-15 10:24:16	2017-06-17 05:19:18															
929	2017-06-15 10:24:16	2017-06-17 05:19:18															
930	2017-06-15 10:24:16	2017-06-17 05:19:18															
931	2017-06-15 10:24:16	2017-06-17 05:19:18															
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936	2017-06-15 10:24:16	2017-06-23 20:31:49															
937	2017-06-15 10:24:16	2017-06-17 05:19:18															
938	2017-06-15 10:24:16	2017-06-17 05:19:18															
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942	2017-06-15 10:24:16	2017-06-17 05:19:18															
943	2017-06-15 10:24:16	2017-06-17 05:19:18															
944	2017-06-15 10:24:16	2017-06-17 05:19:18															
945	2017-06-15 10:24:16	2017-06-17 05:19:18		R1-1711625													
946	2017-06-15 10:24:16	2017-06-17 05:19:18															
947	2017-06-15 10:24:16	2017-06-20 06:02:12															
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954	2017-06-15 10:24:16	2017-06-17 05:19:19															
955	2017-06-15 10:24:16	2017-06-17 05:19:19															
956	2017-06-15 10:24:16	2017-06-17 05:19:19															
957	2017-06-15 10:24:16	2017-06-17 05:19:19															
958	2017-06-15 10:24:16	2017-06-17 05:19:19															
959	2017-06-15 10:24:16	2017-06-17 05:19:19															
960	2017-06-15 10:24:16	2017-06-17 05:19:19															
961	2017-06-15 10:24:16	2017-06-17 05:19:19															
962	2017-06-15 10:49:27	2017-06-16 12:39:08															
963	2017-06-15 11:12:24	2017-06-16 09:52:57															
964	2017-06-15 11:29:56	2017-06-16 21:38:19															
965	2017-06-15 11:31:22	2017-06-16 21:38:19															
966	2017-06-15 12:32:22	2017-06-20 06:38:44															
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968	2017-06-15 12:32:22	2017-06-20 06:38:44		R1-1711588													
969	2017-06-15 12:32:22	2017-06-20 06:38:44															
970	2017-06-15 12:32:22	2017-06-20 06:38:44															
971	2017-06-15 12:32:22	2017-06-20 06:38:44		R1-1711749													
972	2017-06-15 12:32:22	2017-06-20 06:38:44															
973	2017-06-15 13:05:36	2017-06-16 16:58:19															
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979	2017-06-15 13:05:36	2017-06-16 16:58:19															
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981	2017-06-15 13:05:36	2017-06-19 20:01:27		R1-1711658													
982	2017-06-15 13:05:36	2017-06-16 16:58:19															

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988	2017-06-15 13:05:36	2017-06-16 16:58:19															
989	2017-06-15 13:05:36	2017-06-16 16:58:19															
990	2017-06-15 13:49:00		R1-1708273														
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1004	2017-06-15 14:38:27	2017-06-16 21:30:26															
1005	2017-06-15 14:43:35	2017-06-16 16:34:45															
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1008	2017-06-15 16:01:47	2017-06-16 14:58:34			Rel-15												
1009	2017-06-15 16:40:08	2017-06-17 06:19:32			Rel-15												
1010	2017-06-15 16:41:03				Rel-15												
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1012	2017-06-15 17:23:41	2017-06-16 21:12:36															
1013	2017-06-15 17:23:41	2017-06-16 21:12:36															
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1016	2017-06-15 17:24:28	2017-06-16 21:23:22															
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1019	2017-06-15 17:24:28	2017-06-16 21:23:22															

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1023	2017-06-15 17:24:28	2017-06-16 21:23:22															
1024	2017-06-15 17:24:28	2017-06-16 21:23:22															
1025	2017-06-15 17:34:00	2017-06-17 05:46:17			Rel-15			NR_newRAT									
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1037	2017-06-16 00:15:16	2017-06-20 04:20:51															
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1039	2017-06-16 00:18:23	2017-06-20 04:20:51															
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1041	2017-06-16 00:20:20	2017-06-17 02:41:30															
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1060	2017-06-16 00:30:27	2017-06-16 23:51:34															

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1064	2017-06-16 00:31:10	2017-06-16 10:02:07															
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1078	2017-06-16 00:40:25	2017-06-16 23:52:42															
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1081	2017-06-16 00:44:32	2017-06-16 23:52:42															
1082	2017-06-16 00:45:06	2017-06-16 23:52:42															
1083	2017-06-16 00:45:37	2017-06-16 23:52:55															
1084	2017-06-16 00:46:20	2017-06-16 23:52:55		R1-1711602													
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1093	2017-06-16 02:27:44	2017-06-16 08:11:55															
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1096	2017-06-16 02:36:07	2017-06-16 08:54:11						NR_newRAT-Core									
1097	2017-06-16 02:36:07	2017-06-16 08:54:11						NR_newRAT-Core									
1098	2017-06-16 02:43:39	2017-06-17 02:39:22															
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1100	2017-06-16 02:57:52	2017-06-17 03:29:17															

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1109	2017-06-16 02:57:52	2017-06-17 03:29:17															
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1111	2017-06-16 02:57:53	2017-06-17 03:29:17															
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1417																	

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1448	2017-06-16 08:50:18	2017-06-16 11:37:48	R1-1708119														
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1527	2017-06-16 12:36:39	2017-06-17 03:15:49															
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1613	2017-06-16 13:23:46	2017-06-17 06:02:02															

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1698	2017-06-19 07:51:33	2017-06-20 07:43:52	R1-1710037														
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1769																	

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1864	2017-06-27 15:10:28																
1865	2017-06-27 15:10:29																
1866	2017-06-27 15:10:29																
1867	2017-06-27 15:10:29																
1868	2017-06-27 15:10:29																
1869	2017-06-28 13:41:41	2017-07-01 00:57:52	R1-1711587														
1870	2017-06-28 13:41:42	2017-07-01 00:57:52	R1-1711588														
1871	2017-06-28 13:41:42	2017-07-01 00:57:52	R1-1710849														

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	2017-06-28 13:41:42	2017-07-01 00:57:52															
1872																	
1873	2017-06-28 13:41:43	2017-06-28 13:47:52	R1-1710493														
1874	2017-06-28 13:41:43	2017-06-28 13:47:52	R1-1710495														
	2017-06-28 13:41:43	2017-06-29 12:37:52															
1875																	
1876	2017-06-28 13:41:43	2017-06-28 13:47:52															
1877	2017-06-28 13:41:43	2017-06-28 13:47:52	R1-1711837														
1878	2017-06-28 13:41:43																
1879	2017-06-28 13:41:43	2017-06-28 13:47:52															
1880	2017-06-28 13:41:43	2017-07-01 00:57:52	R1-1711623		Rel-14	38.901	14.1.0	NR_newRAT-Core	0016		F						
1881	2017-06-28 13:41:45	2017-06-28 13:47:52															
1882	2017-06-28 13:41:45	2017-07-01 00:57:52	R1-1711624		Rel-14	38.901	14.1.0	NR_newRAT-Core	0017		F						
	2017-06-28 13:41:46	2017-06-28 13:47:52															
1883																	
1884	2017-06-28 13:41:46	2017-06-28 13:47:52															
1885	2017-06-28 13:41:46	2017-06-28 13:47:52															
	2017-06-28 13:41:46	2017-06-28 13:47:52															
1886																	
1887	2017-06-28 13:41:46	2017-06-29 12:37:52															
	2017-06-28 13:41:46	2017-07-01 00:57:52															
1888																	
1889	2017-06-28 13:41:46	2017-06-29 12:37:52															
1890	2017-06-28 13:41:46	2017-06-28 13:47:52	R1-1711795														
1891	2017-06-28 13:41:46	2017-07-01 00:57:52															
1892	2017-06-28 13:41:46	2017-06-28 13:47:52															
1893	2017-06-28 13:41:46	2017-06-28 13:47:52															
1894	2017-06-28 13:41:46	2017-06-29 12:37:52	R1-1711856														
	2017-06-28 13:41:47	2017-06-29 12:37:52															
1895																	
1896	2017-06-28 13:41:47	2017-06-28 13:47:52	R1-1710345	R1-1711937	Rel-15												
1897	2017-06-28 13:41:47	2017-06-28 13:47:52	R1-1711578	R1-1711938	Rel-15												
1898	2017-06-28 13:41:47	2017-07-01 00:57:52															
	2017-06-28 13:41:47	2017-07-01 00:57:52															
1899																	
1900	2017-06-28 13:41:47	2017-06-29 12:37:52															

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
	2017-06-28 13:41:47	2017-06-28 13:47:52		R1-1711839	Rel-15			NR_newRAT-Core						RAN4			
1901																	
1902	2017-06-28 13:41:47	2017-06-28 13:47:52		R1-1711960													
1903	2017-06-28 13:41:47	2017-06-29 12:37:52															
1904	2017-06-28 13:41:47	2017-06-28 13:47:52															
1905	2017-06-28 13:41:47	2017-06-28 13:47:52															
1906	2017-06-28 13:41:47	2017-06-29 12:37:52															
1907	2017-06-28 13:41:47	2017-07-01 00:57:52															
1908	2017-06-28 13:41:47	2017-07-01 00:57:52															
1909	2017-06-28 13:41:47	2017-06-29 12:37:52															
1910	2017-06-28 13:41:48	2017-06-28 13:47:52															
1911	2017-06-28 13:41:48	2017-06-28 13:47:52		R1-1711855													
1912	2017-06-28 13:41:48	2017-06-28 13:47:52	R1-1711696														
1913	2017-06-28 13:41:48	2017-06-29 12:37:52															
1914	2017-06-28 13:41:48	2017-07-01 00:57:52															
1915	2017-06-28 13:41:48	2017-07-01 00:57:52															
1916	2017-06-28 13:41:48	2017-06-29 12:37:52															
1917	2017-06-28 13:41:48	2017-06-28 13:47:52	R1-1711768														
1918	2017-06-28 13:41:48	2017-06-28 13:47:52															
1919	2017-06-28 13:41:48	2017-06-29 12:37:52															

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
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1921	2017-06-28 13:41:48	2017-06-29 12:37:52		R1-1711945													
1922	2017-06-28 13:41:48	2017-06-29 12:37:52															
1923	2017-06-28 13:41:48	2017-06-28 13:47:52															
1924	2017-06-28 13:41:48	2017-06-28 13:47:52															
1925	2017-06-28 13:41:48	2017-06-28 13:47:52															
1926	2017-06-28 13:41:48	2017-06-28 13:47:52															
1927	2017-06-28 13:41:48	2017-06-28 13:47:52															
1928	2017-06-28 13:41:48	2017-06-28 13:47:52		R1-1711871													
1929	2017-06-28 13:41:48	2017-06-28 13:47:52		R1-1711857													
1930	2017-06-28 13:41:48	2017-06-28 13:47:52															
1931	2017-06-28 13:41:48	2017-07-01 00:57:52															
1932	2017-06-28 13:41:48	2017-06-28 13:47:52	R1-1711691														
1933	2017-06-28 13:41:49	2017-07-01 00:57:52															
1934	2017-06-28 13:41:49	2017-06-29 12:37:52															
1935	2017-06-28 13:41:49	2017-06-29 12:37:52															
1936	2017-06-28 13:41:49	2017-06-29 12:37:52															
1937	2017-06-28 13:41:49	2017-06-29 12:37:52															
1938	2017-06-28 13:41:49	2017-06-29 12:37:52															
1939	2017-06-28 13:41:49	2017-06-29 12:37:52															
1940	2017-06-28 13:41:49	2017-06-29 12:37:52															
1941	2017-06-28 13:41:49	2017-06-29 12:37:52		R1-1712000	Rel-15			NR_newRAT-Core						RAN2	RAN3		
1942	2017-06-28 13:41:49	2017-06-29 12:37:52															
1943	2017-06-28 13:41:49	2017-06-29 12:37:52	R1-1710749														
1944	2017-06-28 13:41:49	2017-07-03 14:07:52		R1-1711911													
1945	2017-06-28 13:41:49	2017-06-28 13:47:52															
1946	2017-06-28 13:41:49	2017-06-28 13:47:52			Rel-15			NR_newRAT-Core						RAN2, RAN4			
1947	2017-06-28 13:41:49	2017-06-28 13:47:52			Rel-15			NR_newRAT-Core						RAN2, RAN4			
1948	2017-06-28 13:41:50	2017-06-29 12:37:52															
1949	2017-06-28 13:41:50	2017-06-29 12:37:52															
1950	2017-06-28 13:41:50	2017-06-29 12:37:52															

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1951	2017-06-28 13:41:50	2017-06-28 13:47:52															
1952	2017-06-28 13:41:50	2017-06-29 12:37:52															
1953	2017-06-28 13:41:50	2017-06-29 12:37:52															
1954	2017-06-28 13:41:50	2017-06-29 12:37:52															
1955	2017-06-28 13:41:50	2017-06-29 12:37:52															
1956	2017-06-28 13:41:50	2017-06-28 13:47:52		R1-1711912													
1957	2017-06-28 13:41:50	2017-06-28 13:47:52															
1958	2017-06-28 13:41:50	2017-07-01 00:57:52															
1959	2017-06-28 13:41:50	2017-06-29 12:37:52	R1-1711755	R1-1711951													
1960	2017-06-28 13:41:50	2017-07-01 00:57:52															
1961	2017-06-28 13:41:50	2017-06-28 13:47:52	R1-1711779		Rel-15			NR_newRAT-Core						RAN4			
1962	2017-06-28 13:41:50	2017-07-01 00:57:52															
1963	2017-06-28 13:41:50	2017-07-01 00:57:52															
1964	2017-06-28 13:41:50	2017-06-29 12:37:52															
1965	2017-06-28 13:41:50	2017-06-29 12:37:52	R1-1711689														
1966	2017-06-28 13:41:50	2017-06-29 12:37:52															
1967	2017-06-29 12:30:08	2017-07-01 00:57:52															
1968	2017-06-29 12:30:09	2017-07-01 00:57:52															
1969	2017-06-29 12:30:09	2017-07-01 00:57:52															
1970	2017-06-29 12:30:09	2017-06-29 12:37:52	R1-1711705														
1971	2017-06-29 12:30:10	2017-06-29 12:37:52															
1972	2017-06-29 12:30:10	2017-06-29 12:37:52															
1973	2017-06-29 12:30:10	2017-06-29 12:37:52															

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1974	2017-06-29 12:30:10	2017-07-01 00:57:52															
1975	2017-06-29 12:30:10	2017-06-29 12:37:52															
1976	2017-06-29 12:30:10	2017-06-29 12:37:52		R1-1711906													
	2017-06-29 12:30:10	2017-06-29 12:37:52	R1-1711789														
1977																	
	2017-06-29 12:30:10	2017-06-29 12:37:52	R1-1711772	R1-1711957													
1978																	
1979	2017-06-29 12:30:10	2017-06-29 12:37:52	R1-1711807														
	2017-06-29 12:30:10	2017-06-29 12:37:52															
1980																	
	2017-06-29 12:30:10	2017-06-29 12:37:52															
1981																	
1982	2017-06-29 12:30:10	2017-06-29 12:37:52															
1983	2017-06-29 12:30:10	2017-06-29 12:37:52															
1984	2017-06-29 12:30:10	2017-06-29 12:37:52															
1985	2017-06-29 12:30:10	2017-06-29 12:37:52															
1986	2017-06-29 12:30:10	2017-06-29 12:37:52															
	2017-06-29 12:30:10	2017-06-29 12:37:52															
1987																	
1988	2017-06-29 12:30:10	2017-06-29 12:37:52															
1989	2017-06-29 12:30:10																
1990	2017-06-29 12:30:10	2017-06-29 12:37:52		R1-1711946													
	2017-06-29 12:30:10	2017-07-01 00:57:52															
1991																	
	2017-06-29 12:30:10	2017-07-01 00:57:52															
1992																	
	2017-06-29 12:30:10	2017-06-29 12:37:52	R1-1711806	R1-1711889													
1993																	
1994	2017-06-29 12:30:10	2017-06-29 12:37:52			Rel-15			NR_newRAT-Core						RAN4			
	2017-06-29 12:30:11	2017-06-29 12:37:52															
1995																	
	2017-06-29 12:30:11	2017-07-01 00:57:52															
1996																	
1997	2017-06-29 12:30:11	2017-06-29 12:37:52															
	2017-06-29 12:30:11	2017-06-29 12:37:52															
1998																	
1999	2017-06-29 12:30:11	2017-06-29 12:37:52			Rel-15			NR_newRAT-Core						RAN2, RAN3, RAN4			
	2017-06-29 12:30:11	2017-06-29 12:37:52			Rel-15			NR_newRAT-Core						RAN2, RAN3, RAN4			
2000																	
	2017-06-29 12:30:11	2017-06-29 12:37:52	R1-1711684	R1-1711880	Rel-15			NR_newRAT-Core						RAN2			
2001	2017-06-29 12:30:11	2017-06-29 12:37:52	R1-1711879		Rel-15			NR_newRAT-Core						RAN2			
2002																	

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
2003	2017-06-29 12:30:11	2017-07-01 00:57:52	R1-1711674														
2004	2017-06-29 12:30:11																
2005	2017-06-29 12:30:11	2017-06-29 12:37:52		R1-1711958													
2006	2017-06-29 12:30:11	2017-07-01 00:57:52															
2007	2017-06-29 12:30:11	2017-06-29 12:37:52															
2008	2017-06-29 12:30:11	2017-07-01 00:57:52	R1-1711366	R1-1712004	Rel-15	38.211	0.0.2	NR_newRAT-Core									
2009	2017-06-29 12:30:13	2017-07-01 00:57:52															
2010	2017-06-29 12:30:13	2017-06-29 12:37:52															
2011	2017-06-29 12:30:13	2017-06-29 12:37:52	R1-1711871														
2012	2017-06-29 12:30:13	2017-07-01 00:57:52															
2013	2017-06-29 12:30:13	2017-06-29 12:37:52															
2014	2017-06-29 12:30:13	2017-06-29 12:37:52			Rel-15			NR_newRAT-Core					R1-1709789	RAN1		R2-1707490	
2015	2017-06-29 12:30:13	2017-06-29 12:37:52															
2016	2017-06-29 12:30:13	2017-06-29 12:37:52															
2017	2017-06-29 12:30:13	2017-06-29 12:37:52															
2018	2017-06-29 12:30:13	2017-07-01 00:57:52															
2019	2017-06-29 12:30:13	2017-07-01 00:57:52															
2020	2017-06-29 12:30:13	2017-06-29 12:37:52		R1-1711999	Rel-15			NR_newRAT-Core						RAN4			
2021	2017-06-29 12:30:13	2017-06-29 12:37:52	R1-1711678														
2022	2017-06-29 12:30:13	2017-06-29 12:37:52															
2023	2017-06-29 12:30:13	2017-06-29 12:37:52															
2024	2017-06-29 12:30:13	2017-06-29 12:37:52															
2025	2017-06-29 12:30:13	2017-07-01 00:57:52															
2026	2017-06-29 12:30:13	2017-07-01 00:57:52															
2027	2017-06-29 12:30:13	2017-07-01 00:57:52															
2028	2017-06-29 12:30:13	2017-06-29 12:37:52	R1-1711854														
2029	2017-06-29 12:30:13	2017-07-01 00:57:52	R1-1710500	R1-1711966	Rel-15			NR_newRAT-Core					R2-170215	RAN2			
2030	2017-06-29 12:30:14	2017-07-01 00:57:52															
2031	2017-06-29 12:30:14	2017-07-01 00:57:52		R1-1711975	Rel-15			NR_newRAT-Core						RAN4			
2032	2017-06-29 12:30:14	2017-06-29 12:37:52		R1-1711931	Rel-15			NR_newRAT-Core						RAN2			
2033	2017-06-29 12:30:14	2017-06-29 12:37:52	R1-1711823														

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
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2035	2017-06-29 12:30:14	2017-06-29 12:37:52															
2036	2017-06-29 12:30:14	2017-06-29 12:37:52															
2037	2017-06-29 12:30:14	2017-07-01 00:57:52		R1-1711986													
2038	2017-06-29 12:30:14	2017-07-01 00:57:52															
2039	2017-06-29 12:30:14	2017-07-01 00:57:52															
2040	2017-06-29 12:30:14	2017-06-29 12:37:52															
2041	2017-06-29 12:30:14	2017-06-29 12:37:52															
2042	2017-06-29 12:30:14	2017-06-29 12:37:52	R1-1711699														
2043	2017-06-29 12:30:14	2017-07-01 00:57:52															
2044	2017-06-29 12:30:14	2017-06-29 12:37:52															
2045	2017-06-29 12:30:14	2017-06-29 12:37:52															
2046	2017-06-29 12:30:14	2017-07-01 00:57:52	R1-1711798														
2047	2017-06-29 12:30:14																
2048	2017-06-29 12:30:14	2017-06-29 12:37:52		R1-1711932													
2049	2017-06-29 12:30:14	2017-07-01 00:57:52															
2050	2017-06-29 12:30:15	2017-07-01 00:57:52															
2051	2017-06-29 12:30:15	2017-07-03 14:07:52															
2052	2017-06-29 12:30:15	2017-07-01 00:57:52															
2053	2017-06-29 12:30:15	2017-07-01 00:57:52	R1-1711910	R1-1711972	Rel-15			NR_newRAT-Core						RAN2			
2054	2017-06-29 12:30:15	2017-07-01 00:57:52	R1-1711926														
2055	2017-06-29 12:30:15	2017-07-01 00:57:52															
2056	2017-06-29 12:30:15	2017-07-01 00:57:52															
2057	2017-06-29 12:30:15	2017-07-01 00:57:52	R1-1711636		Rel-15												
2058	2017-06-29 12:30:15	2017-06-29 12:37:52															
2059	2017-07-01 00:51:26		R1-1711774		Rel-15												
2060	2017-07-01 00:51:28		R1-1711776		Rel-15												
2061	2017-07-01 00:51:28	2017-07-01 00:57:52															
2062	2017-06-29 00:00:00	2017-06-29 00:00:00			Rel-15			NR_newRAT-Core						RAN1		R2-1707503	
2063	2017-07-01 00:51:33	2017-07-01 00:57:52	R1-1711688														

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2067	2017-07-01 00:51:33	2017-07-01 00:57:52	R1-1711799														
2068	2017-07-01 00:51:34	2017-07-01 00:57:52	R1-1711868														
2069	2017-07-01 00:51:34	2017-07-01 00:57:52															
2070	2017-07-01 00:51:34	2017-07-01 00:57:52	R1-1711989		Rel-15			NR_newRAT-Core						RAN2, RAN4			
2071	2017-07-01 00:51:35	2017-07-01 00:57:52			Rel-15			NR_newRAT-Core					R1-1709805	RAN1		R2-1707499	
2072	2017-07-01 00:51:35	2017-07-01 00:57:52			Rel-15			NR_newRAT-Core						RAN1		R2-1707504	
2073	2017-07-01 00:51:35	2017-07-01 00:57:52	R1-1711837														
2074	2017-07-01 00:51:35	2017-07-01 00:57:52															
2075	2017-07-01 00:51:35																
2076	2017-07-01 00:51:35																
2077	2017-07-01 00:51:35																
2078	2017-07-01 00:51:35	2017-07-01 00:57:52															
2079	2017-07-01 00:51:35	2017-07-01 00:57:52	R1-1711856														
2080	2017-07-01 00:51:35	2017-07-01 00:57:52	R1-1711883														
2081	2017-07-01 00:51:35	2017-07-01 00:57:52		R1-1711990													
2082	2017-07-01 00:51:35	2017-07-01 00:57:52	R1-1711780														
2083	2017-07-01 00:51:35																
2084	2017-07-01 00:51:35	2017-07-01 00:57:52															
2085	2017-07-01 00:51:35	2017-07-01 00:57:52															
2086	2017-07-01 00:51:35	2017-07-01 00:57:52															
2087	2017-07-01 00:51:35	2017-07-01 00:57:52															
2088	2017-07-01 00:51:35	2017-07-01 00:57:52	R1-1711907		Rel-15			NR_newRAT-Core					R2-1706160	RAN2			
2089	2017-07-01 00:51:36	2017-07-01 00:57:52															
2090	2017-07-01 00:51:36	2017-07-01 00:57:52	R1-1711987		Rel-15			NR_newRAT-Core					R2-1707503	RAN2			
2091	2017-07-01 00:51:36	2017-07-01 00:57:52															
2092	2017-07-01 00:51:36	2017-07-01 00:57:52															
2093	2017-07-01 00:51:37	2017-07-01 00:57:52															
2094	2017-07-01 00:51:37	2017-07-01 00:57:52	R1-1711931	R1-1711992	Rel-15			NR_newRAT-Core						RAN2			
2095	2017-07-01 00:51:37	2017-07-01 00:57:52															
2096	2017-07-01 00:51:37	2017-07-01 00:57:52															
2097	2017-07-01 00:51:37	2017-07-01 00:57:52	R1-1711909		Rel-15			NR_newRAT-Core					R4-1704216	RAN4			
2098	2017-07-01 00:51:37	2017-07-01 00:57:52															
2099	2017-07-01 00:51:37		R1-1711218		Rel-15			NR_newRAT-Core									
2100	2017-07-01 00:51:38	2017-07-01 00:57:52	R1-1711213		Rel-15			NR_newRAT-Core									
2101	2017-07-01 00:51:38																

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
2102	2017-07-01 00:51:38	2017-07-01 00:57:52															
	2017-07-01 00:51:38	2017-07-01 00:57:52															
2103																	
2104	2017-07-01 00:51:38	2017-07-01 00:57:52															
	2017-07-01 00:51:38	2017-07-01 00:57:52															
2105																	
2106	2017-07-01 00:51:38	2017-07-01 00:57:52		R1-1712001	Rel-15			NR_newRAT-Core						RAN2			
2107	2017-07-01 00:51:39	2017-07-01 00:57:52		R1-1712002	Rel-15			NR_newRAT-Core						RAN4			
2108	2017-07-01 00:51:39	2017-07-01 00:57:52	R1-1711915														
2109	2017-07-01 00:51:39	2017-07-01 00:57:52	R1-1711968		Rel-15			NR_newRAT-Core				R2-1707503		RAN2			
2110	2017-07-01 00:51:39	2017-07-01 00:57:52															
2111	2017-07-01 00:51:39	2017-07-01 00:57:52	R1-1711948	R1-1711998	Rel-15			NR_newRAT-Core						RAN2, RAN4			
2112	2017-07-01 00:51:39	2017-07-01 00:57:52	R1-1711959														
2113	2017-07-01 00:51:39	2017-07-01 00:57:52															
2114	2017-07-01 00:51:39	2017-07-01 00:57:52	R1-1711972	R1-1712005	Rel-15			NR_newRAT-Core						RAN2			
2115	2017-07-01 00:51:39	2017-07-01 00:57:52		R1-1712006													
2116	2017-07-01 00:51:39	2017-07-01 00:57:52															
2117	2017-07-01 00:51:39	2017-07-01 00:57:52															
2118	2017-07-01 00:51:39	2017-07-01 00:57:52															
2119	2017-07-01 00:51:39	2017-07-01 00:57:52	R1-1711657		Rel-15			NR_newRAT-Core				S3-171568		SA3	RAN2, RAN4		
	2017-07-01 00:51:40	2017-08-12 09:38:54	R1-1711989		Rel-15			NR_newRAT-Core						RAN2, RAN4			
2120	2017-07-01 00:51:40	2017-07-01 00:57:52	R1-1711898		Rel-15			NR_newRAT-Core						RAN4	RAN2		
2121	2017-07-01 00:51:40	2017-07-01 00:57:52	R1-1711820		Rel-15			NR_newRAT-Core						RAN2	RAN3		
2122	2017-07-01 00:51:40	2017-07-01 00:57:52	R1-1711984		Rel-15			NR_newRAT-Core						RAN2			
2123	2017-07-01 00:51:40	2017-07-01 00:57:52	R1-1711985		Rel-15			NR_newRAT-Core						RAN4			R4-1708275
2124	2017-07-01 00:51:41	2017-07-01 00:57:52		R1-1712009	Rel-15			NR_newRAT-Core				R4-1704216		RAN4	RAN2		
2125	2017-07-01 00:51:41	2017-07-01 17:35:54	R1-1711886	R1-1712011	Rel-15	38.211	0.1.0	NR_newRAT-Core									
2126	2017-07-01 00:51:45	2017-07-01 00:57:52	R1-1711992		Rel-15			NR_newRAT-Core						RAN2			
2127	2017-07-01 00:51:45	2017-07-01 00:57:52	R1-1711993														
2128	2017-07-01 17:34:26	2017-08-12 09:30:36	R1-1711683		Rel-15			NR_newRAT-Core						RAN2			
2129	2017-08-12 09:33:29	2017-08-12 09:34:07	R1-1711685		Rel-15			NR_newRAT-Core						RAN2			
2130	2017-08-12 09:33:30	2017-08-12 09:34:07	R1-1712003		Rel-15			NR_newRAT-Core									
2131	2017-08-12 09:33:30	2017-08-12 09:34:07			Rel-15			NR_newRAT-Core					R4-1704216	RAN4	RAN2		
2132	2017-07-17 00:00:00	2017-07-17 00:00:00	R1-1712004		Rel-15	38.211	0.1.1	NR_newRAT-Core						RAN4			
2133	2017-07-17 00:00:00	2017-07-17 00:00:00			Rel-15	38.201	0.0.1	NR_newRAT-Core									
2134	2017-07-17 00:00:00	2017-07-17 00:00:00			Rel-15	38.202	0.0.1	NR_newRAT-Core									
2135	2017-07-17 00:00:00	2017-07-17 00:00:00		R1-1714564	Rel-15	38.212	0.0.1	NR_newRAT-Core									
2136	2017-07-17 00:00:00	2017-07-17 00:00:00			Rel-15	38.213	0.0.1	NR_newRAT-Core									
2137																	

	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
2138	2017-07-17 00:00:00	2017-07-17 00:00:00			Rel-15	38.214	0.0.1	NR_newRAT-Core									
2139	2017-07-17 00:00:00	2017-07-17 00:00:00			Rel-15	38.215	0.0.1	NR_newRAT-Core									