3GPP TSG-RAN WG2 meeting #101 **R2-1804201**
Sanya, China, 16 - 20 April, 2018

Agenda Item: 2.2
Source: ETSI MCC
Title: Report of 3GPP TSG RAN2#101 meeting, Athens, Greece

Document for: Approval

Report of 3GPP TSG RAN WG2 meeting #101
Athens, Greece
26 February - 2 March, 2018

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 001

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Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 002

Contents

Organisation of the meeting 8

Statistics/Executive Summary 8

1 Opening of the meeting (9 AM) 9
1.1 Call for IPR 9
1.2 Network usage conditions 9
1.3 Other 9

2 General 10
2.1 Approval of the agenda 10
2.2 Approval of the report of the previous meeting 10
2.3 Reporting from other meetings 10
2.4 Others 11

3 Incoming liaisons 11

4 Joint LTE/NR topics 13
4.1 Handover interruption time for LTE and NR 13

5 Void 15

6 LTE: Rel-12 and earlier releases 15

7 LTE: Rel-13 17
7.1 WI: Further LTE Physical Layer Enhancements for MTC 17
7.2 WI: Narrowband IOT 20
7.3 Other LTE Rel-13 WIs 25

8 LTE Rel-14 28
8.1 WI: Enhanced LAA for LTE 28
8.2 WI: Support for V2V services based on LTE sidelink 29
8.2.1 User plane 29
8.2.2 Control plane 29
8.3 Void 29
8.4 Void 29
8.5 WI: Enhanced LTE-WLAN Aggregation (eLWA) 29
8.6 WI: Further mobility enhancements in LTE 29
8.7 WI: Further Indoor Positioning enhancements for UTRA and LTE 29
8.8 WI: L2 latency reduction techniques for LTE 30
8.9 Void 30
8.10 WI: eMBMS enhancements for LTE 30
8.11 WI: Enhancements of NB-IoT 30
8.12 WI: Further Enhanced MTC for LTE 33
8.12.1 Multicast for feMTC and eNB-IoT 34
8.12.2 Other 34
8.13 WI: LTE-based V2X Services 35
8.13.1 Stage 2 35
8.13.2 User plane 36
8.13.3 Control plane 37
8.14 WI: SRS switching between LTE component carriers 37
8.15 WI: Measurement Gap Enhancement for LTE 38
8.16 Void 38
8.17 WI: Performance enhancements for high speed scenario in LTE 38
8.18 WI: Voice and Video enhancement for LTE 38
8.19 New UE category with single receiver based on Category 1 for LTE 38
8.20 Uplink Capacity Enhancements for LTE 38
8.21 WI: Enhancements on Full-Dimension (FD) MIMO for LTE 38
8.22 Void 38
8.23 WI: Downlink Multiuser Superposition Transmission for LTE 38
8.24 Other LTE Rel-14 WIs 38

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 003

8.25 LTE TEI14 enhancements ... 39

9 LTE Rel-15 ... 42
9.1 Void ... 42
9.2 WI: Shortened TTI and processing time for LTE ... 42
9.3 Void ... 44
9.4 Void ... 44
9.5 Further video enhancements for LTE ... 44
9.6 QoE Measurement Collection for streaming services in E-UTRAN ... 44
9.7 LTE connectivity to 5G-CN ... 45
9.7.1 Organisational ... 45
9.7.2 Stage 2 aspects independent from NR/5GC ... 46
9.7.3 Stage 2 aspects dependent on NR/5GC ... 50
9.7.3.1 Inactive state ... 50
9.7.3.2 Flow based QoS ... 50
9.7.3.3 Slicing ... 50
9.7.3.4 Access control ... 50
9.7.3.5 Other ... 51
9.8 Positioning Accuracy Enhancements for LTE ... 51
9.8.1 Organisational ... 51
9.8.2 GNSS positioning enhancements ... 52
9.8.3 Support for IMU positioning ... 57
9.8.4 UE-based OTDOA positioning ... 58
9.8.5 Broadcasting of assistance data ... 58
9.9 Enhancing CA Utilization ... 65
9.9.1 General ... 65
9.9.2 Delay reduction for SCell set-up ... 65
9.9.3 Signalling overhead reduction for configuration activation ... 67
9.9.4 Others ... 68
9.10 Enhancements on LTE-based V2X Services ... 68
9.10.1 General ... 68
9.10.2 Carrier aggregation (up to 8 PC5 carriers) ... 68
9.10.3 Radio resource pool sharing between UEs using mode 3 and mode 4 ... 72
9.10.4 Others ... 73
9.11 High capacity stationary wireless and 1024 QAM ... 74
9.11.1 General ... 74
9.11.2 UE capability and potential new categories ... 74
9.11.3 Corresponding higher-layer procedures and signalling ... 74
9.12 Enhancements to LTE operation in unlicensed spectrum ... 74
9.12.1 General ... 75
9.12.2 Autonomous uplink access on Frame structure type 3 ... 75
9.12.3 Other operation on Frame structure type 3 ... 77
9.12.4 Others ... 77
9.13 Further NB-IoT enhancements ... 77
9.13.1 Organisational ... 77
9.13.2 Early Data Transmission ... 78
9.13.3 System Acquisition Enhancements ... 78
9.13.4 Relaxed Monitoring for cell reselection ... 78
9.13.5 Semi-Persistent Scheduling ... 80
9.13.6 RRC Connection Release Enhancements ... 80
9.13.7 UE differentiation ... 81
9.13.8 TDD ... 82
9.13.9 Wake Up Signal ... 84
9.13.10 Other ... 85
9.14 Even further enhanced MTC for LTE ... 86
9.14.1 Organisational ... 86
9.14.2 Early data transmission ... 88
9.14.3 System acquisition time enhancements ... 94
9.14.4 Relaxed monitoring for cell reselection ... 95
9.14.5 Access/load control of idle mode UEs ... 95
9.14.6 Uplink HARQ-ACK feedback ... 96
9.14.7 Increased PDSCH spectral efficiency ... 98

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 004

9.14.8 Increased PUSCH spectral efficiency ... 98
9.14.9 Wake Up Signal ... 98
9.14.10 Other ... 99
9.15 Highly Reliable Low Latency Communication for LTE ... 99
9.16 UL data compression in LTE ... 103
9.17 Further enhancements to CoMP for LTE ... 106
9.18 Enhanced LTE Support for Aerial Vehicles ... 106
9.19 Bluetooth/WLAN measurement collection in MDT ... 109
9.20 Other LTE Rel-15 WIs ... 110
9.21 LTE TEI15 enhancements ... 111
9.21.1 CP latency for LTE ... 111
9.21.2 Other ... 112

10 WI: New Radio (NR) Access Technology ... 114
10.1 Organisational ... 114
10.2 Stage 2 and common UP/CP aspects ... 117
10.2.1 Stage 2 TSs and running CR ... 117
10.2.2 Stage 2 corrections for EN-DC ... 118
10.2.2.1 User plane ... 119
10.2.2.2 Other ... 119
10.2.3 Stage 2 corrections for non EN-DC ... 120
10.2.4 Mobility mechanisms - basic handover ... 122
10.2.5 Bandwidth parts ... 122
10.2.6 Supplementary uplink ... 124
10.2.7 Mobility mechanisms - other ... 124
10.2.8 Mobility - RLM,RLF ... 126
10.2.9 Mobility - Inter-RAT ... 126
10.2.10 Security (non EN-DC) ... 127
10.2.11 Slicing ... 129
10.2.12 QoS ... 131
10.2.13 Positioning ... 132
10.2.14 Other ... 133
10.3 Stage 3 user plane ... 136
10.3.1 MAC ... 136
10.3.1.1 TS ... 136
10.3.1.2 MAC general aspects ... 137
10.3.1.3 MAC PDU format ... 141
10.3.1.4 Random access ... 143
10.3.1.4.1 Differentiation of RA parameters ... 143
10.3.1.4.2 Random access in presence of multi-beam operation ... 144
10.3.1.4.3 Random access procedures ... 147
10.3.1.5 SR ... 150
10.3.1.6 BSR ... 151
10.3.1.7 LCP ... 153
10.3.1.8 SPS/Grant-free ... 154
10.3.1.9 HARQ ... 157
10.3.1.10 DRX ... 158
10.3.1.11 Impact of PDCP duplication on MAC ... 160
10.3.1.12 PHR ... 161
10.3.1.13 Other ... 163
10.3.2 RLC ... 163
10.3.2.1 TS ... 163
10.3.2.2 RLC header format ... 164
10.3.2.3 Impact of PDCP duplication to RLC ... 164
10.3.2.4 Other ... 165
10.3.3 PDCP ... 166
10.3.3.1 TS ... 166
10.3.3.2 PDCP PDU formats ... 167
10.3.3.5 PDCP duplication ... 167
10.3.3.7 Other ... 169
10.3.4 SDAP ... 170
10.3.4.1 TS ... 170

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 005

10.3.4.2 Header Format ... 171
10.3.4.3 QoS flow remapping and handover ... 171
10.3.4.4 Others ... 172
10.4 Stage 3 control plane ... 173
10.4.1 NR RRC ... 173
10.4.1.1 TS and running CR ... 173
10.4.1.2 Specification methodology ... 173
10.4.1.3 Connection control procedures ... 173
10.4.1.3.1 Corrections to connection control for EN-DC ... 173
10.4.1.3.2 Connection control message harmonisation ... 175
10.4.1.3.3 Connection establishment procedures ... 176
10.4.1.3.4 Connection reconfiguration procedures ... 177
10.4.1.3.5 Other ... 177
10.4.1.4 RRM measurements ... 178
10.4.1.4.1 Corrections to RRM for EN-DC ... 178
10.4.1.4.2 Measurement gaps for EN-DC ... 178
10.4.1.4.3 Measurement gaps for non EN-DC ... 180
10.4.1.4.4 Measurement events ... 180
10.4.1.4.5 Inter-RAT measurements ... 180
10.4.1.4.6 Other ... 181
10.4.1.5 Mobility ... 182
10.4.1.5.1 Corrections SCG change for EN-DC ... 182
10.4.1.5.2 SCG failure for EN-DC ... 182
10.4.1.5.3 Handover ... 182
10.4.1.6 System information ... 182
10.4.1.6.1 System information content/structure ... 183
10.4.1.6.2 System information procedures email discussion ... 184
10.4.1.6.3 Stored system information ... 185
10.4.1.6.4 System information modification ... 186
10.4.1.6.5 System information scheduling ... 186
10.4.1.6.6 On demand system information ... 187
10.4.1.6.7 System information -other ... 190
10.4.1.7 Inactive state ... 190
10.4.1.7.1 RAN area configuration ... 190
10.4.1.7.2 RRC inactive procedures email discussion ... 191
10.4.1.7.3 RAN area update procedure ... 191
10.4.1.7.4 Paging in inactive ... 192
10.4.1.7.5 Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive ... 192
10.4.1.7.6 Security framework for inactive ... 193
10.4.1.7.7 Inactive - other ... 196
10.4.1.8 Access control ... 197
10.4.1.8.1 Access control for Idle/Inactive ... 198
10.4.1.8.2 Access control for connected ... 200
10.4.1.9 Inter-Node RRC messages ... 200
10.4.1.9.1 Inter-Node RRC messages for non EN-DC ... 200
10.4.1.10 Other (non EN-DC) ... 201
10.4.2 LTE RRC changes related to NR ... 201
10.4.2.1 Running CR ... 201
10.4.2.2 Corrections to RRM measurements for EN-DC ... 201
10.4.2.3 Corrections to other EN-DC aspects ... 202
10.4.3 EN-DC ASN.1 review ... 203
10.4.3.1 Rapporteur inputs ... 203
10.4.3.2 ASN.1 issue documents ... 208
10.4.4 UE capabilities ... 212
10.4.4.1 TS ... 212
10.4.4.2 UE capabilities for EN DC ... 213
10.4.4.3 Temporary capability restriction ... 216
10.4.4.4 Other aspects for non EN-DC ... 217
10.4.5 Idle/inactive mode procedures ... 217
10.4.5.1 TS ... 217
10.4.5.2 Selection/reselection rules ... 218
10.4.5.3 Cell quality derivation ... 218

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 006

10.4.5.4 Service based reselection ... 218
10.4.5.5 Selection/reselection - other aspects ... 219
10.4.5.6 Idle/inactive paging ... 219

11 Rel-15 NR Study Items ... 221
11.1 Study on Integrated Access and Backhaul for NR ... 221

12 Comebacks ... 221
12.1 Breakout sessions ... 221
12.1.1 Report from Break-Out session ... 221
12.1.2 Report from Break-Out session ... 223
12.1.3 Report from Break-Out session ... 223
12.1.4 Report from Break-Out session ... 226
12.1.5 Report from Break-Out session ... 226
12.1.6 Report from Break-Out session ... 227
12.2 Main session ... 227

13 Outgoing LSs ... 228

14 Any other business ... 228

15 Closing of the meeting (17:00) ... 229

Annex A: List of participants ... 229

Annex B: List of Tdocs ... 230

Annex C: Incoming liaison statements ... 230

Annex D: Outgoing liaison statements ... 235

Annex E: List of agreed CRs ... 237

Annex F: Email Approvals ... 241
ASN.1 review related. Deadlines stated for each discussion (all 23:59 Pacific Time) ... 241
Deadline Thursday, 2018-03-08, 23:59 Pacific Time ... 242
Deadline Thursday, 2018-03-15, 23:59 Pacific Time ... 244
Deadline Thursday, 2018-03-29, 23:59 Pacific Time ... 245

Annex G: History ... 250

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 007

Organisation of the meeting

Meeting:	3GPP TSG RAN2#101
Meeting location:	Athens, Greece
Duration:	26.02 - 02.03.2018
Host:	EF3
TSG RAN WG2 Chairman:	Richard Burbidge (Intel Corporation) (richard.c.burbidge@intel.com)
TSG RAN WG2 Vice chairman:	Hu Nan (CMCC) (hunan@chinamobile.com)
TSG RAN WG2 Vice chairman:	Johan Johansson (MediaTek) (johan.johansson@mediatek.com)
TSG RAN WG2 MCC Support:	Juha Korhonen (ETSI MCC) (juha.korhonen@etsi.org)
Email reflector:	3GPP_TSG_RAN_WG2@LIST.ETSI.ORG
Technical documents:	ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_101/Docs
Next meetings:	TSG RAN#79 19.03 - 21.03.2017, Chennai, India
	TSG RAN2#101bis 16.04 - 20.04.2018, Sanya, China
	TSG RAN2#102 21.05 - 25.05.2018, Busan, Korea

Statistics/Executive Summary

TSG RAN2#101 was held in Athens, Greece, hosted by European Friends of 3GPP (EF3). The meeting had 6 breakout sessions in addition to the main session. The main session was mainly about NR and NR control plane. The parallel sessions were:

- LTE and NR User Plane;
- LTE
- NB-IoT and MTC
- Rel-15 V2X
- Rel-15 MTC
- Positioning

The statistics from this meeting are:

- 294 participants checked in (registered: 344 participants).
- 2440 Tdoc numbers allocated with 2368 available contributions. (See the attached tdoc list)
- 82 incoming liaison statements, out of which 75 were noted and 7 were moved to be treated in RAN2#101bis meeting.
- 51 outgoing liaison statements.
- 82 email approvals/discussions scheduled after RAN2#101 meeting, see Annex F for details.
- Number of CRs submitted 401. Out of these, 91 were agreed and 3 endorsed. See Annex E for details.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 008

1 Opening of the meeting (9 AM)

1.1 Call for IPR

The attention of the delegates of this Working Group is 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 delegates were asked to take note that they were 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 Statement and the Licensing declaration forms (http://webapp.etsi.org/Ipr/).

NOTE: IPRs may be declared to the Director-General or Chairman of the SDO, but not to the RAN WG2 Chairman.

1.2 Network usage conditions

The PCG has laid down the following network usage conditions

1. **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.**

2. **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)**

1.3 Other

In accordance with the Working Procedures it is reaffirmed that:

(i) compliance with all applicable antitrust and competition laws is required;

(ii) timely submissions of work items in advance of TSG or WG meetings are important to allow for full and fair consideration of such matters; and

(iii) the chairman will conduct the meeting with strict impartiality and in the interests of 3GPP

Note on (i): In case of question please contact your legal counsel.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 009

Note on (ii): WIDs don't need to be submitted to the RAN2 meeting and will typically not be discussed here either.

2 General

THANK YOU to companies that request TDoc numbers and submit contributions early before deadline (really appreciated). Will start to refrain from treating late documents.

2.1 Approval of the agenda

A draft schedule for the week is provided as a separate document, distributed via the RAN2 email reflector and made available during the meeting week in the RAN2\Inbox\Chairmans_Notes folder.

R2-1801700 Agenda for RAN2#101 Chairman agenda
=> Approved

2.2 Approval of the report of the previous meeting

R2-1801701 RAN2#100 Meeting Report MCC report
=> Approved

R2-1801702 RAN2#AH-1801 Meeting Report MCC report
=> Approved

2.3 Reporting from other meetings

NR

NR specifications: All NR submitted to RAN were approved.

NR workload management: RAN chair's summary on NR workload management was endorsed in RP-172844. RAN2 will focus on corrections to EN-DC and essential components of standalone in the next quarter. NR-NR DC to commence in Q2. Other aspects impacting RAN2 are described in more detail below.

NR Study Items: The RAN2 time allocated to NR SIs within the Q1 2018 was reduced to allow focus on corrections to EN-DC and on progressing standalone. The unlicensed study will not be discussed in Q1 2018 and the IAB study will be discussed in the January ad hoc (with 0.5 TU allocation) but not discussed in the February meeting. (Endorsed in RP-172805).

URLLC: The scope of URLLC work to be done within the NR WI was endorsed in RP-172817. For RAN2, this means that we work on duplication for CA and DC and also on the upper layer impacts of RAN1's topics after RAN1 has progressed. In Q1 2018, duplication will only be discussed within the user plane session.

LTE/NR

LTE RRC ASN.1 freeze will apply to EN-DC only and not any completed Rel-15 LTE WIs. To make this easier the CRs from completed LTE WIs will not be implemented in the RAN2 specifications until June 2018. Further details, including handling of corrections related to these LTE WIs, is described in the endorsed RP-172755).

0ms handover interruption time: RAN2 is tasked by RAN to investigate how to meet the IMT-2020 requirement for 0ms handover interruption time for both LTE and NR. This is will initially be handled by email discussion, then discussed at the RAN2#101 and the conclusions reported to RAN#79. (Endorsed in RP-172807).

LTE

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 010

Control plane latency: RAN2 (and RAN1) is tasked to check the feasibility and values for reduced processing times for the RRC Resume procedure, in order to meet the IMT-2020 requirement for 20ms control plane latency. This task is communicated to RAN2 in approved LS RP-172840.

New WI on increasing the number of DRBs to 15 was approved in RP-172835 with time allocated in the 2 meetings of Q2 2018.

New WI on Enhanced LTE Support for Aerial Vehicles was approved in RP-172826, starting from RAN2#101.

New WI on Bluetooth/WLAN measurement collection in MDT was approved in RP-172820, with time allocated RAN2#101 and RAN2#101bis.

Time budget: Additional time was allocated to both Rel-15 NB-IoT and MTC work items.

UE categories: The technically endorsed CRs introducing 2Gbit/s DL UE category were approved. A way forward to introduce a new 1.4 Gbit/s DL UE category was endorsed in RP-172752 and RAN2 is tasked to provide technically endorsed Rel-14 CRs to RAN#79.

2.4 Others

Rapporteur changes

Spec	former rapporteur	proposed new rapporteur

Isolated impact analysis
Note that an isolated impact analysis is required for Rel-8 to Rel-14 CRs from Q3 2017 onwards.
Only corrections where there is a proven problem are allowed for frozen releases (Rel-8 to Rel-14).

RAN2 WG Handbook
Latest version can always be found at ftp://ftp.3gpp.org/tsg_ran/WG2_RL2/Org/RAN2_Handbook/

Drafting rules
Note that specification drafting rules in TR 21.801 must be followed when drafting a CR and draft TS/TR.
Latest version can always be found at http://www.3gpp.org/ftp/specs/archive/21_series/21.801/

Time Budget
The time budget endorsed at RAN-78 is available in RP-172830

Offline discussion during RAN2 meeting
Chairs will allocate a number of offline discussions during the meeting. Create a folder starting with this number within inbox/drafts and use this to share any documents relating to the offline discussion (please use format "nnn ....", i.e. a 3 digit number). Also use this number in the title of any reflector emails relating to this offline discussion. (please use format "[101 Offline#nnn]....."). Do not share documents over the reflector during the meeting

3 Incoming liaisons

Note: LSs are moved to the respective agenda items if any.

R2-1801705 Reply LS on LTE call redirection to GERAN (C1-175377; contact: Nokia) CT1 LS in Rel-15 TEI15 To:SA3, RAN2 Cc:RAN3

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 011

=> Noted

R2-1801728 LS on the addition of PC2 for uplink CA_41C (R4-1714017; contact: Sprint) RAN4 LS in Rel-15 LTE_CA_C_B41_PC2 To:RAN2
=> Noted

R2-1801730 LS on Measurement requirement for LAA/WiFi hardware sharing problem (R4-1714276; contact: Qualcomm) RAN4 LS in Rel-13 TEI13 To:RAN2
=> Noted

R2-1801737 LS on CP latency reduction (RP-172840; contact: Ericsson) RAN LS in Rel-15 TEI15 To:RAN2, RAN1
=> Noted

R2-1801738 LS on Removal of 'over LTE' limitation from Mission Critical Specifications (S1- 174542; contact: Dutch Police) SA1 LS in Rel-15 MCOver To:SA2, SA3, SA4, SA5, SA6, CT1, CT3, CT4, CT6, RAN1, RAN2, RAN3, RAN4, RAN5, RAN6 Cc:SA, CT, RAN
=> Spec rapporteurs to check whether any action is needed in the RAN2 spec
=> Noted

R2-1801740 Reply LS on FEC and ROHC for mission critical services over MBMS (S2-179613; contact: Nokia) SA2 LS in Rel-15 MBMS_Mcservices To:CT3, SA6, SA4, RAN2, RAN3
- Ericsson wonder how this works as we do not have RoHC over MBMS as PDCP is not used.
- Vivo think RoHC is between BMSC and UE and hence there is no impact to PDCP.
- Nokia suggests that SA6 stage 2 (23.280) should also be checked.

=> Offline discussion to understand what SA2 spec requires and if there is any impact in RAN2 spec. (Offline discussion #01, Nokia)

R2-1803964 RoHC support for Mission Critical services over MBMS Nokia, Nokia Shanghai Bell CR Rel-15 36.300 15.0.0 1116 - F TEI15, MBMS_Mcservices
=> Agreed

R2-1801767 LS on Dynamic PLR Allocation in eVoLP (S4-180219; contact: Intel) SA4 LS in Rel-15 FS_eVoLP To:RAN2, SA2
- Intel think from signalling perspective this could be supported if SA4 agree to have a WI
- Nokia think we have already liaised about feasibility in the eNB with no impact to the radio. Now the feature is different as it involves signalling changes.
- Intel think we should wait for SA4 to continue their work.

=> To be discussed at next meeting based on contributions on how to respond to the LS.

R2-1803774 LS on UE WLAN MAC address inclusion in E911 location information (S1-180298; contact: Qualcomm)
- Qualcomm have a CR in the TEI15 agenda
- Broadcom have concerns that this exposes the WLAN MAC address and also think SA2 is discussing solutions that do not have privacy issues.
- T-Mobile also don't see a need for this.
- Intel also share the same concern.
- Nokia think it is the same issue as discussed in Rel-14 but now SA1 have discussed and are recommending a solution instead of a requirement. Better for SA2 to discuss first. Qualcomm think SA2 discussed in Reno.
- Apple also have a concern on the privacy issue.

=> We will wait for SA2 to have more discussion before concluding what is needed in RAN2

R2-1803775 Reply LS on URLLC (S1-180628; contact: Vodafone) SA1 LS in Rel-15 To:SA, SA2 Cc:RAN, RAN1, RAN2
=> Noted

New LS in (during RAN2#101)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 012

New LS in

R2-1803966 LS on introducing of LTE UE DL CAT 21 for 1.4Gbps in Rel.14 (R1-1803373; contact: HiSilicon) RAN1 LS in Rel-14 TEI14 To:RAN2 Cc:RAN
=> Noted

R2-1804012 LS on INOBEAR (S2-182355; contact: Samsung) SA2 LS in Rel-15 INOBEAR To:CT1, CT4, RAN2, RAN3
=> Noted

Liaisons with RAN2 in CC

R2-1801721 Response LS on LTE call redirection to GERAN (R3-175030; contact: Nokia) RAN3 LS in Rel-14 TEI14 To:SA3 Cc:CT1, RAN2

R2-1801736 LS on the number of data bearers (RP-172836; contact: Samsung) RAN LS in Rel-15 TEI15 To:SA, CT Cc:RAN2, RAN3, SA2, CT1, CT4

R2-1801771 Reply LS on FEC and ROHC for mission critical services over MBMS (S4-180275; contact: Expway) SA4 LS in Rel-15 To:SA2 Cc:CT3, SA6, RAN2, RAN3
=> 3 LSs above noted without presentation

4 Joint LTE/NR topics

4.1 Handover interruption time for LTE and NR

Contributions related to the given to RAN2 from RAN#78 as described in RP-172807.

Including output from email discussion [RAN2#101] email discussion on IMT-2020 requirement for 0ms handover interruption time.

R2-1802401 Report of email discussion on IMT-2020 requirement for 0ms handover interruption time Rapporteur (ZTE Corporation) discussion Rel-15 NR_newRAT-Core Late

- Vodafone thinks the requirement just need to be fulfilled with one configuration. So what is proposed is correct, and no need to involved RAN4 as we have found one configuration.
- DOCOMO support the conclusions and we don't need to specify solutions for all cases. This shows there is one configuration to meet the requirement and this is sufficient.
- Intel also agree we only need to find one scenario but would like to also consider whether SN change could be considered to meet the requirements.
- Huawei think LTE can meet the requirement but not due to MBB and RACH-less. Thinks DC based mobility by setting and releasing SCGs can meet the requirement without any additional cost.
- Nokia think the Rel-14 solutions will not provide genuine 0ms interruption. Think EN-DC SN change can meet the requirement.
- Qualcomm have similar view to Vodafone, DOCOMO, Intel. For IMT-2020 it is enough to rely on MBB with dual tx/rx.
- Ericsson agree the requirement is mobility interruption and it doesn't say HO. So it could even be intra-cell movement.
- Nokia thinks the first bullet under agreement 1 is not correct. Huawei shares Nokia view. And would like to ask RAN4 opinion.
  T-Mobile support the conclusion and think RAN4 doesn’t need to be involved.

NR

- Intel suggest that beam mobility can be used to meet the 0ms interruption requirement
- CMCC think the ITU requirement is not so clear whether it is inter or intra cell but the RAN requirement is clear it must be inter-cell.
- Huawei think we don't have anything yet that can meet the requirement. Think we can rely on DC based handover.
- Samsung think there is no ITU test environment that allows a DC based approach. Also think that the it can be met with beam mobility intra cell.
- Vodafone agrees that we can use beam mobility. But also wonder if we could use CA with SCell addition and release.
- Ericsson think in addition to beam mobility that a handover with dual tx/rx where the UE keeps connection with the source and could be done by implementation.
- MediaTek think that beam management approach doesn’t work at low frequencies.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 013

- ZTE think that MBB and RACHless will not be agreed for NR in R15 nor on any DC based solution, so the beam management approach is sufficient. Only concern is that the requirement is met in a subset of cases in which LTE meets the requirements.
- Qualcomm agree with Ericsson that dual tx/rx with dual stack can meet the requirement by implementation.
- Nokia wonder how dual tx/rx can be met purely based on implementation. Perhaps the beam mobility is the best that we can have for now.

Agreements
1 For LTE list 2 cases where the 0ms interruption at mobility is possible:
i For the intra-frequency case, under the assumption of a dual RX UE, with the combination of Make-Before-Break (MBB) and RACH-less handover, the handover interruption time in LTE can be reduced down to 0 ms (in the scenarios where RACH-less handover is applicable, i.e. no/negligible UE TA difference between the source and the target cell).
ii For DC operation, addition and release of the SCG in response to mobility. No change to the PCell.
2 No additional work on LTE will be done in Rel-15. At most some clarification note could be added.
3 For NR the 0ms interruption at mobility is possible:
i intra-cell using beam mobility
ii For CA operation, addition and release of SCell in response to mobility. No change to PCell.
iii Further cases might be added depending on progress within the NR WI by the end of Rel-15

=> Offline discussion to consider what notes could be added to the LTE RAN2 spec (Offline discussion #03, ZTE)

Update from offline: It was proposed to add 2 notes to RAN2 specs. No agreement to add any notes, but one which is more general than just 0ms interruption relating to the size of the UL grant being able to carry data as well as handover complete might be proposed in future under TEI.

=> No notes will be added to LTE specs specifically addressing how to handle the 0ms interruption

=> Draft LS in R2-1703833 to RAN (Offline discussion #04, ZTE)

R2-1803833 [DRAFT] LS to RAN on IMT-2020 requirement for 0ms handover interruption time in Rel-15 ZTE LS out Rel-15 NR_newRAT-Core To:RAN

=> Approved in R2-1804091

R2-1802402 Draft LS on IMT-2020 requirement for 0ms handover interruption time ZTE Corporation, Sanechips LS out Rel-15 NR_newRAT-Core To:RAN4

R2-1802403 IMT-2020 Requirement on 0ms Handover Interruption in Rel-15 MediaTek Inc. discussion

R2-1802981 0ms interruption time requirement for NR Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1802019 Discussion on the support of MBB and RACH-less in R15 ZTE Corporation, Sanechips discussion Rel-15

R2-1802269 Discussion on 0ms handover interruption requirement for EN-DC OPPO discussion

R2-1802270 Left issue for 0ms handover interruption requirement OPPO discussion

R2-1802469 Analysis of solutions in LTE for 0ms interruption Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801542

R2-1802470 Phased enhancement for 0ms interruption with DC based HO Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803132 Some considerations on 0msec interruption HO Sony discussion Rel-15 NR_newRAT-Core

R2-1803345 Dual connected intra-frequency handover for 0 ms interruption and mobility robustness Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1708588

R2-1803346 On the means to achieve 0 ms interruption requirement for IMT-2020 Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 014

R2-1803555	NR-NR DC for 0ms handover interruption time in NR	AT&T	discussion		
R2-1803662	NR 0ms Interruption HO	Qualcomm Incorporated	discussion	Rel-15	NR_newRAT-Core

5 Void

6 LTE: Rel-12 and earlier releases

Including corrections related to the following WIs:
(LTE-L23, leading WG: RAN2, REL-8, started: Sep. 06, closed: Dec. 08, WID: RP-080747)
(LTE_CA-Core, leading WG: RAN1, REL-10, started: Dec. 09, closed: June 11, WID: RP-100661)
(LTE_UL_MIMO-Core, leading WG: RAN1, REL-10, started: Dec.09, closed: June 11, WID: RP-100959)
(LTE_eDL_MIMO-Core, leading WG: RAN1, REL-10, started: Dec.09, closed: March 11, WID: RP-100196)
(LTE_Relay-Core, leading WG: RAN1, REL-10, started: Dec. 09, closed: June 11, WID: RP-110911)
(MBMS_LTE_enh-Core, leading WG: RAN2, REL-10, started: June 10, closed: March 11, WID: RP-101244)
(MDT_UMTSLTE-Core, leading WG: RAN2, REL-10, started: Dec. 09, closed: June 11, WID: RP-100360)
(eICIC_LTE-Core, leading WG: RAN1, REL-10, started: March 10, closed: June 11, WID: RP-100383)
(SONenh_LTE-Core, leading WG: RAN3, REL-10, started: March 10, closed: June 11, WID: RP-101004)
(LTE_CA_enh-Core, leading WG: RAN1, REL-11, started: March 11, closed: Mar.13, WID: RP-121999)
(MBMS_LTE_SC-Core, leading WG: RAN2, REL-11, started: June 10, closed: Sep.12, WID: RP-120258)
(LTE_eDDA-Core, leading WG: RAN2, REL-11, started: March 11, closed: Dec.12, WID: RP-120256)
(LCS_LTE-NBPS-Core, leading WG: RAN2, REL-11, started: March 09, closed: June. 13, WID: RP-131259)
(eICIC_enh_LTE-Core, leading WG: RAN1, REL-11, started: March 11, closed: Dec. 12, WID: RP-120860)
(SPIA_IDC_LTE-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Dec. 12, WID: RP-111355)
(COMP_LTE_DL-Core, leading WG: RAN1, REL-11, started: Sep.11, closed: Dec.12, WID: RP-111365)
(COMP_LTE_UL-Core, leading WG: RAN1, REL-11, started: Sep.11, closed: Dec.12, WID: RP-111365)
(LTE_TDD_add_subframe, leading WG: RAN1, REL-11, started: March 12; closed: Sep. 12, WID: RP-120384)
(FS_HetNet_eMOB_LTE, leading WG: RAN2, REL-11, started: March 11, closed: Sep. 12, WID: RP-110709)
(LTE_enh_dl_ctrl-Core, leading WG: RAN1, REL-11, started: Dec. 11, closed: Dec. 12, WID: RP-120871)
(LTE_SC_enh_dualC-Core, leading WG: RAN2, REL-12, started: Dec.13, closed: Dec.14, WID: RP-141797)
(LTE_SC_enh_L1-Core, leading WG: RAN1, REL-12, started: Dec.13, closed: Dec.14, WID: RP-132073)
(LTE_D2D_Prox-Core, leading WG: RAN1, REL-12, started: Mar.14, closed: Mar.15, WID: RP-142043)
(MBMS_LTE_OS-Core, leading WG: RAN2, REL-12, started: Sep.13, closed: Dec.14, WID: RP-140282)
(LTE_NAICS-Core, leading WG: RAN1, Rel-12, started: Mar 14, closed: Dec.14, WID: RP-140519)
(LC_MTC_LTE-Core, leading WG: RAN1, REL-12, started: Jun 13, closed: Dec 14, WID: RP-140522)
(GCSE_LTE-MBMS_CM-Core, leading WG: RAN3, started: Sep. 14, closed: Mar. 2015, WID: RP-141035)
(LTE_CA_TDD_FDD-Core, leading WG: RAN1, REL-12, started: Jun 13, closed: Jun 14, WID: RP-140465)
(LCS_BDS-LTE-Core, leading WG: RAN2, REL-12, started: Mar 13, closed: Dec 13, WID: RP-130416)
(LTE_eDL_MIMO_enh-Core, leading WG: RAN1, REL-12, started: Sep 12, closed: June 14, WID: RP-121416)
(HetNet_eMOB_LTE-Core, leading WG: RAN2, REL-12, started: Dec.12, , closed: Sep 14, WID: RP-122007)
(Cov_Enh_LTE-Core, leading WG: RAN1, REL-12, started: Jun.13, closed: Jun.14, WID: RP-130833)
(LTE_TDD_eIMTA-Core, leading WG: RAN1, REL-12, started: Dec 12, closed: Jun.14, WID: RP-121772)
(SCM_LTE-Core, leading WG: RAN2, REL-12, started: Mar.14, closed: Sep.14, WID: RP-140434)

Including any LTE corrections related to the following joint UMTS/LTE WIs:
(SIMTC-RAN_OC-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Sep. 12, WID: RP-111373)
(eMDT_UMTSLTE-Core, leading WG: RAN2, REL-11, started: Sep.11, closed: Dec.12, WID: RP-121204)
(SONenh2_LTE_UTRA-Core, leading WG: RAN3, REL-11, started: Sep.11, closed: Dec.12, WID: RP-120314)
(rSRVCC-GERAN, leading WG: GERAN2, REL-11, started: Sep.11, closed: Nov.13, WID: GP-111290)
(EHNB_enh3-Core, leading WG: RAN3, REL-12, started: Sep.12, closed: Dec 13, WID: RP-130741)
(MTCe_RAN-Core, leading WG: RAN2, REL-12, started: Dec.13, closed: Sep.14, WID: RP-132053)
(UTRA_LTE_WLAN_interw-Core, leading WG: RAN2, REL-12, started: Dec.13, closed: Sep.14, WID: RP-132101)
(LTE_UTRA_IncMon-Core, leading: RAN4, REL-12, started: Dec.13, closed: Dec. 14, WID: RP-132061)
Documents in this agenda item will be handled in a break out session

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 015

R2-1803026 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Rel-12 36.331 12.16.0 3258 - F
TEI12
=> Impact analysis missing
- Nokia thinks the intention is correct
- Nokia asks if we need to ask CT1 that the values are properly set. Vencore explains that it is all clear.
- Nokia thinks we should put it in the resume as well
- Qualcomm agrees with the intention
=> We will do this from Rel-14 onwards, add magic sentence, and impact analysis
=> The CR is not agreed

R2-1803032 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Rel-13 36.331 13.8.1 3260 - A
TEI12
=> The CR is not agreed

R2-1803035 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Rel-14 36.331 14.5.1 3262 - A
TEI12
=> We will do this from Rel-14 onwards, add magic sentence, and impact analysis
=> Add SCM WI code
=> The CR is revised in R2-1803834

R2-1803834 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Approval R2-1803035 Rel-14
36.331 14.5.1 TEI12 3262 1 F
[CB 301]

R2-1803037 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Rel-15 36.331 15.0.1 3263 - A
TEI12
=> The CR is revised R2-1803861

R2-1803861 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Approval R2-1803037 Rel-15
36.331 15.0.1 TEI12 3263 A
[CB 301]

R2-1803473 Correction to MAC Entity modelling Ericsson CR Rel-11 36.321 11.6.0 1224
- F LTE_CA_enh-Core
- Nokia thinks the intention is correct but maybe we can start from rel-14
=> Make change from Rel-14 on and soften the impact analysis description
=> The CR is not agreed

R2-1803474 Correction to MAC Entity modelling Ericsson CR Rel-12 36.321 12.10.0 1225
- A LTE_CA_enh-Core
=> The CR is not agreed

R2-1803475 Correction to MAC Entity modelling Ericsson CR Rel-13 36.321 13.7.0 1226
- A LTE_CA_enh-Core
=> The CR is not agreed

R2-1803476 Correction to MAC Entity modelling Ericsson CR Rel-14 36.321 14.5.0 1227
- A LTE_CA_enh-Core
=> The CR is postponed

R2-1803477 Correction to MAC Entity modelling Ericsson CR Rel-15 36.321 15.0.0 1228
- A LTE_CA_enh-Core
=> The CR is postponed

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 016

R2-1803598 Removal of the FDD/TDD diff restriction for crs-InterfHandl IE Qualcomm Incorporated CR Rel-11 36.331 11.18.0 3288 - F TEI11, eICIC_enh_LTE-Core
- Huawei would like to check with RAN1
- Ericsson has some concerns how the eNB distinguishes between UEs that are doing this or not. Qualcomm explains that the UE can use the other IE as long as it doesn't discard it.
- Qualcomm thinks that motivation is to avoid testing the feature even if it is not deployed. Nokia explains that we should test if we can test and if it is not deployed it is not a bit problem. We have done this for all features

=> The CR is postponed

Not treated

R2-1803600 Removal of the FDD/TDD diff restriction for crs-InterfHandl IE Qualcomm Incorporated CR Rel-12 36.331 12.16.0 3289 - A TEI11, eICIC_enh_LTE-Core

R2-1803602 Removal of the FDD/TDD diff restriction for crs-InterfHandl IE Qualcomm Incorporated CR Rel-13 36.331 13.8.1 3290 - A TEI11, eICIC_enh_LTE-Core

R2-1803614 Removal of the FDD/TDD diff restriction for crs-InterfHandl IE Qualcomm Incorporated CR Rel-14 36.331 14.5.1 3291 - A TEI11, eICIC_enh_LTE-Core

R2-1803616 Removal of the FDD/TDD diff restriction for crs-InterfHandl IE Qualcomm Incorporated CR Rel-15 36.331 15.0.1 3293 - A TEI11, eICIC_enh_LTE-Core

7 LTE: Rel-13

7.1 WI: Further LTE Physical Layer Enhancements for MTC

(LTE_MTCe2_L1-Core, leading WG: RAN1, REL-13; started: Sep. 14, closed: Mar. 16, WID: RP-150492)

Documents in this agenda item will be handled in a break out session

Incoming LS

R2-1801722 Reply LS on Paging failures for CE Capable UEs (R3-175045; contact: Qualcomm) RAN3 LS in Rel-13 TEI13 To:SA2, RAN2

⇒ **Noted**

36.300

R2-1803305 Correction on the SI-RNTI for MPDCCH Intel Corporation CR Rel-13 36.300 13.10.0 1099 - F LTE_MTCe2_L1-Core
- QC think that also 36.321 needs to be updated.
- Huawei think that consequences if not approved should be clearer, and could contain the word "incorrect".

⇒ **Revised, Revisions in R2-1803791, 92, 93.**

Check offline if MAC CRs are needed, offline 307
- Intel explains after offline that MAC CRs are not needed

R2-1803791 Correction on the SI-RNTI for MPDCCH Intel Corporation CR Rel-13 36.300 13.10.0 1099 1 F LTE_MTCe2_L1-Core
- Intel explains that concequence if not approved was update

⇒ **agreed**

R2-1803306 Correction on the SI-RNTI for MPDCCH Intel Corporation CR Rel-14 36.300 14.5.0 1100 - A LTE_MTCe2_L1-Core

⇒ **revised**

R2-1803792 Correction on the SI-RNTI for MPDCCH Intel Corporation CR Rel-14 36.300 14.5.0 1100 1 A LTE_MTCe2_L1-Core

⇒ **agreed**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 017

R2-1803307 Correction on the SI-RNTI for MPDCCH Intel Corporation CR Rel-15 36.300 15.0.0 1101 - A LTE_MTCe2_L1-Core

⇒ **revised**

R2-1803793 Correction on the SI-RNTI for MPDCCH Intel Corporation CR Rel-15 36.300 15.0.0 1101 1 A LTE_MTCe2_L1-Core

⇒ **agreed**

36.331

R2-1802069 Clarification of applying extended value t3xy for CE mode A only capable UEs Nokia, Nokia Shanghai Bell CR Rel-13 36.331 13.8.1 3213 - F LTE_MTCe2_L1-Core

- Huawei think this is not needed and it is obvious. Ericsson agrees.
- QC think a clarification could be good, but is wondering about the condition, “support CE mode B” doesn’t mean that the UE is in CE mode B. Ericsson confirms that this is the case.
- Intel are OK to have this clarification. Intel think we should consider a different condition relating to UE operation rather than UE support. Nokia think we should not go this way.
- Huawei further think that the clarification is not completely correct.
- Nokia think we can change the wording to “.. UEs that don’t support CE mode B .. ”

Offline chance to convince other companies that clarification Is needed, offline 309 (Nokia)

- Huawei think that the interoperability statement should not indicate any problems.
- Gemalto wonders what happens oif network doesn’t support CE mode B.
- LG are not sure this is needed.
- Ericsson and Huawei think it is not needed.

⇒ **Not pursued**

R2-1802070 Clarification of applying extended value t3xy for CE mode A only capable Ues Nokia, Nokia Shanghai Bell CR Rel-14 36.331 14.5.0 3214 - A LTE_MTCe2_L1-Core

⇒ **Not pursued**

R2-1802196 Correction to Radio Resource common configuration during CE->NC Handover for Rel-13 eMTC Huawei, HiSilicon CR Rel-13 36.331 13.8.0 3218 - F LTE_MTCe2_L1-Core

- Intel wonders what happens with Rel-13 UEs already in the field.
- Ericsson are concerned about bw compatibility, and wonders what is the scenario to use delta configuration.
- QC think that it is need to be clearer in the CR the condition refers to CE mode, which is another IE configured elsewhere.
- Blackberry point out that for this solution to work, the network and the device need to implement the solution.
- In any case it seems delta configuration doesn’t work for this case currently. The network need to use full configuration.

Offline, companies want to check (Huawei, 315)

⇒ **revised**

R2-1803803 Correction to Radio Resource common configuration during CE->NC Handover for Rel-13 eMTC Huawei, HiSilicon CR Rel-13 36.331 13.8.0 3218 1 F LTE_MTCe2_L1-Core

- Blackberry think that still both the network and the device need to implement the solution. Has anything really changed?
- Intel think a rel-13 CR is not appropriate, but would be ok with Rel-14 onwards.
- QC think that for UEs in the field there will be problems is this is agreed. QC think that the network could maybe handle this but it should be notes that this change is not backwards compatible.
- Ericsson think we should not introduce non-backwards compatible solutions.
- LG think this is better than full configuration.
- Gemalto think this could be ok for Rel-14.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 018

- After some further discussion both Ericsson and Qualcomm comments that it is not crystal clear what is the problem. Intel think similar problems exists when the UE moves between eNBs of different releases. Chair think that in this case the network always uses the full configuration

⇒ **Not pursued**

R2-1802197 Correction to Radio Resource common configuration during CE->NC Handover for Rel-13 eMTC Huawei, HiSilicon CR Rel-14 36.331 14.5.0 3219 - A LTE_MTCe2_L1-Core

⇒ **Not pursued**

R2-1802198 Correction to Radio Resource common configuration during CE->NC Handover for Rel-13 eMTC Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3220 - A LTE_MTCe2_L1-Core

⇒ **Not pursued**

36.321

R2-1803679 DRX behaviour in eMTC/NB-IoT NTT DOCOMO INC. discussion LTE_MTCe2_L1-Core, NB_IOT-Core

- QC think that we should not redefine PDCCH sub-frame, as this may cause incompatibility. QC think that Alt2 is the correct interpretation. Docomo think that we have already clarified in a previous meeting that Alt 1 is correct.
- NEC think this illustrates that a clarification is needed. NEC think ALT1 is correct.
- Intel think that the wording on PDCCH candidates is confusing. Chair think that we never specified anything on PDCCH candidates before.
- Huawei and QC think that the current spec is clear and no change is needed.
- QC think that the second change is needed.
- Docomo clarifies that there has been interoperability problems.
- Sequans wonder if there is a problem for NB-IoT. Huawei think that due to the 'pp' definition there is no issue for NB-IoT.
- 3 companies think that alt 1 is correct, 3 companies think that alt 2 is correct.

Offline 310, determine which Alt is the correct interpretation, propose way forward (Docomo)

R2-1803801 Way forward on DRX timer counting in eMTC/NB-IoT NTT Docomo DISCUSSION

- LG think that the informative annex on DRX clarifies that the ALT1 is correct also for MTC.
- Intel think a clarification might be needed as the appendix is somewhat unclear.
- QC think that the annex is only informative, and think an email discussion is ok.

⇒ **For NB-IoT, R2 confirm that Alt 1 is the common understanding. No change is needed in the specification.**

⇒ **For MTC, we assume that we don't correct Rel-13.**

✉ **Email discussion, next meeting (MTC R13) on DRX for MTC, arrive at an agreeable interpretation, and correction to the TS, if needed (NTT Docomo)**

R2-1803680 Clarification on PDCCH monitoring during DRX mode NTT DOCOMO INC. CR Rel-13 36.321 13.7.0 1235 - F LTE_MTCe2_L1-Core, NB_IOT-Core

R2-1803681 Clarification on PDCCH monitoring during DRX mode NTT DOCOMO INC. CR Rel-14 36.321 14.5.0 1236 - A LTE_MTCe2_L1-Core, NB_IOT-Core

R2-1803682 Clarification on PDCCH monitoring during DRX mode NTT DOCOMO INC. CR Rel-15 36.321 15.0.0 1237 - A LTE_MTCe2_L1-Core, NB_IOT-Core

⇒ **3 CRs above are postponed**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 019

7.2 WI: Narrowband IOT

(NB_IOT-Core; leading WG: RAN1; started: Sep. 15; target: Jun. 16; WID: RP-152284)

Documents in this agenda item will be handled in a break out session

Incoming LS

R2-1801706 LS on Status of Specifications Covering Requirements for IoT Modules (C1-175380; contact: Ericsson) CT1 LS in Rel-13 NB_IOT To:GSMA TSGIoT Subgroup Cc:SA3, RAN2, RAN5, CT

⇒ **Noted**

Early contention resolution

R2-1802623 Early Contention Resolution and RRC Resume MediaTek Beijing Inc. discussion

DISCUSSION

P1:

- QC think that for Rel-13 this must be based on UEs on the market and for Rel-13 Early Contention Resolution cannot be supported. Huawei agrees
- QC doesn't understand why there is a requirement on segmentation on MSG3. On MSG4 it seems clear.
- Ericsson think that early contention resolution was tested for Rel-13.
- The chair think that the issue is that R1 TS doesn't say that CSS is monitored beyond the RACH procedure. Ericsson think this was accidental and not intentional.
- If Early Contention Resolution is not supported in Rel-13, Ericsson want an indication in MSG3 whether this is supported or not.

P2:

- QC could accept this for Rel-14. Huawei are ok but doesn't really understand the benefit. QC agrees.
- QC think this would be optional for Rel-14 UEs. Blackberry agrees. Ericsson think it should be mandatory. Blackberry think we then need to discuss usefulness.
- ZTE wonders about the network end. Huawei think it is fully optional in the network. ZTE think if this is not mandatory in the UE then no UEs will.

P3:

- QC think the wording is ok

P4:

- QC think that the stored physical layer and MAC-Main configuration is never actually used. Huawei agrees. Intel also think that UE just uses the default configurations.

⇒ **Rel-13 NB-IoT doesn't support early contention resolution.**

⇒ **Rel-14 NB-IoT and onwards supports early contention resolution.**

⇒ **Send LS to R1 to ask to update R1 specifications for Rel-14 and later, to clarify the UE NPDCCH monitoring that the UE shall continue to monitor CSS beyond RACH until USS configuration is received.**

⇒ **Need a RRC CR for Rel-14 adding an indication in MSG3, naming and details discussed offline.**

Offline discussion 300, whether support for ECR is optional or not (Ericsson)

- QC indicate that this was discussed with the CR discussion. 2 companies that want this mandatory, at least 3 companies want this optional. LG are also ok with optional. Ericsson think that we are now making a mandatory feature optional. Ericsson cannot agree to this.
- Gemalto think this need to be optional as it introduces additional testing etc.
- Chair thinks it is difficult to argue why this need to be mandatory. We haven't seen any evidence why this feature would be essential for NB-IoT. ZTE think it impacts UE power saving.
- ZTE think an addition MSG3 indication might be needed for Rel-14 UEs. Chair think that the same indication can be used.
- Nokia wonders if we need a capability bit.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 020

⇒ **Due to specific objection (from Ericsson) it is still FFS whether for Rel-14 and onwards early contention resolution is optional. Chair assumes that the resolution of this FFS will only impact 36.306, and possibly description text in 36.331, no interoperability or protocol impact.**

R2-1803947 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-14 36.331 14.5.1 3302 - C NB_IOT-Core, TEI14
- Shadow in 3948
- Ericsson think that the title is misleading and have some more detailed comments

⇒ **Revised, revisions in R2-1803806/07**

Resolve detailed comments offline (317), (QC)

R2-1803806 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-14 36.331 14.5.1 3302 1 C NB_IOT-Core, TEI14
=> Revised in R2-1804131

R2-1804131 Introduction of support for MAC PDU containing UE contention resolution identity MAC control element without RRC response message in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-14 36.331 14.5.1 3302 2 C NB_IOTenh-Core, TEI14
=> Postponed

R2-1803948 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-15 36.331 15.0.1 3303 - C NB_IOT-Core, TEI14

R2-1803807 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-15 36.331 15.0.1 3303 1 C NB_IOT-Core, TEI14
=> Revised in R2-1804132

R2-1804132 Introduction of support for MAC PDU containing UE contention resolution identity MAC control element without RRC response message in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-15 36.331 15.0.1 3303 2 C NB_IOTenh-Core, TEI14
=> Postponed

R2-1803311 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated CR Rel-14 36.300 14.5.0 1070 1 F NB_IOT-Core R2-1712291

⇒ **Revised in R2-1803781**

R2-1803781 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-14 36.300 14.5.0 1070 2 F NB_IOT-Core R2-1712291
- Chair: there seems to be different theories what stage-2 actually mean.

⇒ **Revised in R2-1803808 / 09 (Rel-14/15)**

Continue discuss details offline (318) on the Rel-14/15 CR, and potential alignment of the Rel-13 CR (QC)

R2-1803808 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-14 36.300 14.5.0 1070 3 F NB_IOT-Core
=> Revised in R2-1804133

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 021

R2-1804133 Introduction of support for MAC PDU containing UE contention resolution identity MAC control element without RRC response message in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-14 36.300 14.5.0 1070 4 F NB_IOT-Core
=> Postponed

R2-1803312 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-15 36.300 15.0.0 1102 - A NB_IOT-Core
=> Revised in R2-1803782

R2-1803782 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-15 36.300 15.0.0 1102 1 A NB_IOT-Core
=> Revised in R2-1803809

R2-1803809 Introduction of early contention resolution in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-15 36.300 15.0.0 1102 2 A NB_IOT-Core
=> Revised in R2-1804134

R2-1804134 Introduction of support for MAC PDU containing UE contention resolution identity MAC control element without RRC response message in NB-IoT Qualcomm Incorporated, BlackBerry UK Limited, Gemalto N.V CR Rel-15 36.300 15.0.0 1102 3 A NB_IOT-Core
=> Postponed

✉ **Email discussion, one week (NB-IoT R14), Agree 36.331 and 36.300 CRs for introduction of early contention resolution (Qualcomm)**

R2-1803945 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-13 36.300 13.10.0 1115 - F NB_IOT-Core
- Ericsson think that the Rel-13 CR should be aligned with the Rel-14/15 CRs

⇒ **Revised in R2-1803810**

R2-1803810 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-13 36.300 13.10.0 1115 1 F NB_IOT-Core

⇒ **Revised in R2-1803826**

R2-1803826 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-13 36.300 13.10.0 1115 3 F NB_IOT-Core
=> Revised in R2-1804135

R2-1804135 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-13 36.300 13.10.0 1115 4 F NB_IOT-Core
=> Agreed

R2-1803780 Draft Early contention resolution in NB-IoT LS out Qualcomm

⇒ **CC RAN5**

⇒ **Approved, final version in R2-1803797**

RRC Resume

Discussion from R2-1802623, sorted here under a separate heading for better clarity.

RRC CR (NB-IoT and LTE Rel-13,14,15) for RRC Resume Clarifications, Offline 301 (Mediatek)
FFS: The default physical layer and MAC Main configurations is the baseline for the reconfiguration in the RRC Connection Resume Message.
- The FFS is discussed below.

R2-1803998 RRC Corrections for RRC Resume Mediatek inc CR Rel-13 36.331 13.8.1 3304 - F NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13
- Discuss whether to use Stored AS config or default config as a base for Reconfigruation of physical layer and MAC main configuration at RRC resume.
- Huawei think that Resume should be same as reestablishment, i.e. use default configuration. Intel think that the resume and reestablishment are different. Huawei think that when there is fallback to Setup anyway the default configuration are used.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 022

- QC think that in any case C-RNTI cannot be restored. Chair think that C-RNTI is not part of the stored AS context.
- It is clear that the stored Physical layer configuration and MAC Main configuration cannot be used before the reception of the RRC resume message. Until this point in time, the default configuration must be used (for MSG3 and MSG4).
- Poll:
    - Default Config: Huawei, Qualcomm
    - Stored AS Config: Intel, Mediatek, LG, Ericsson, ZTE
- Chair wonder if we can follow the majority. Hopefully there is no “real” problem as networks likely provide full configurations.

QC want to check, Update CRs offline (MTK), revision in R2-1803811

⇒ **RAN2 confirms that the Physical layer configuration and MAC Main configuration from the stored AS context is used as a basis for the reconfiguration in the DL RRC Connection Resume message. The default configurations are used up until the reception of this message.**

=> Revised in R2-1803811

R2-1803811 RRC Corrections for RRC Resume Mediatek inc CR Rel-13 36.331 13.8.1 3304 1 F NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13

=> Agreed in R2-1804118

R2-1803999 RRC Corrections for RRC Resume Mediatek inc CR Rel-14 36.331 14.5.1 3305 - A NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13

=> Agreed

R2-1804000 RRC Corrections for RRC Resume Mediatek inc CR Rel-15 36.331 15.0.1 3306 - A NB_IoT-Core, LTE_MTCe2_L1-Core, TEI13

=> Agreed

✉ **Email discussion, one week (NB-IoT MTC R13), RRC Corrections for RRC Resume, Agreed 36.331 CR, incl shadows (Mediatek).**

R2-1803830 MAC Corrections for RRC Resume MediaTek inc CR Rel-13 36.321 13.7.0 1240 - F NB_IOT-Core, TEI13

- Huawei think that Annex B was never discussed for NB-IoT and think there may be more problems.
- This is a late document.
- Chair: some coversheet updates are needed, and Rel-14 and Rel-15 shadows.

Offline 301 (Mediatek), resulted in a revised CR

⇒ **revised**

R2-1803997 MAC Corrections for RRC Resume MediaTek inc CR Rel-13 36.321 13.7.0 1240 1 F NB_IOT-Core, TEI13

- In the coversheet, CR number is needed.
- In the note, use NOTE in capitals, remove “Also, in Rel-13, Case 1 and Case 6 are not applicable to NB-IoT.”, use the NOTE style.

⇒ **Revised in R2-1803812**

R2-1803812 MAC Corrections for RRC Resume MediaTek inc CR Rel-13 36.321 13.7.0 1240 2 F NB_IOT-Core, LTE_MTCe2_L1-Core, TEI13

⇒ **agreed**

R2-1803831 MAC Corrections for RRC Resume MediaTek inc CR Rel-14 36.321 14.5.0 1241 - A NB_IOT-Core, LTE_MTCe2_L1-Core, TEI13

⇒ **agreed**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 023

R2-1803832 MAC Corrections for RRC Resume MediaTek inc CR Rel-15 36.321 15.0.0 1242 - A NB_IOT-Core, LTE_MTCe2_L1-Core, TEI13

⇒ **agreed**

36.331

R2-1803684 Clarification on the NPRACH starting subcarrier partitioning for multi-tone Msg3 transmission NTT DOCOMO INC. CR Rel-13 36.331 13.8.1 3294 - F NB_IOT-Core

- Huawei wonders if we really want a Rel-13 CR. Has there been any problems? Docomo think there hasn't been any problems but it should be clear.
- Huawei confirms that the proposal is correct.
- Ericsson think there is a R1 CR as well and would like to check consistency. Docomo confirms that there is a R1 CR. Huawei think the R1 CR and R2 clarification are no realted. Docomo think they are related.
- Ericsson are ok to not correct Rel-13 (assuming that R2 CR is not related to the said R1 CR).
- Allow time to check offline, discuss also cover sheet, e.g. cross reference to R1 CR.
- Editorial: Ericsson think the s at the end indexs shall be removed. QC point out that impact analysis is missing.

Offline disc 303 (docomo), resivions in R2-1803784, 85, 86 (TBD if the Rel-13 revision is needed).

- Docomo checked that R1 CR is not related and are ok to introduce this only for Rel-14/15.
- The clarifcations are considered correct

⇒ **CR for Rel-13 is not pursued**

R2-1803685 Clarification on the NPRACH starting subcarrier partitioning for multi-tone Msg3 transmission NTT DOCOMO INC. CR Rel-14 36.331 14.5.1 3295 - A NB_IOT-Core

R2-1803785 Clarification on the NPRACH starting subcarrier partitioning for multi-tone Msg3 transmission NTT DOCOMO INC. CR Rel-14 36.331 14.5.1 3295 1 F NB_IOT-Core

- QC think that the coversheet should be updated so that the interoperability statement says that there is no interoperability issues foreseen.

⇒ **Revised in R2-1803815, with coversheet update, which is agreed unseen.**

R2-1803686 Clarification on the NPRACH starting subcarrier partitioning for multi-tone Msg3 transmission NTT DOCOMO INC. CR Rel-15 36.331 15.0.1 3296 - A NB_IOT-Core

R2-1803786 Clarification on the NPRACH starting subcarrier partitioning for multi-tone Msg3 transmission NTT DOCOMO INC. CR Rel-15 36.331 15.0.1 3296 1 A NB_IOT-Core

⇒ **Revised in R2-1803816, with coversheet update, which is agreed unseen.**

R2-1803711 Clarification on downlinkBitmapNonAnchor configuration NTT DOCOMO INC. CR Rel-13 36.331 13.8.1 3298 - F NB_IOT-Core

- Chair think that "not present" is inconsistent with Need ON, Maybe "not configured is more accurate.
- Huawei and Ericsson think this doesn't need to be clarified. Huawei think this shall be configured once, otherwise there is a network error.
- QC think this is not strictly needed. From Rel-15 would be ok.

⇒ **Not pursued**

R2-1803712 Clarification on downlinkBitmapNonAnchor configuration NTT DOCOMO INC. CR Rel-14 36.331 14.5.1 3299 - A NB_IOT-Core

⇒ **Not pursued**

R2-1803717 Clarification on downlinkBitmapNonAnchor configuration NTT DOCOMO INC. CR Rel-15 36.331 15.0.1 3300 - A NB_IOT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 024

⇒ **Not pursued**

36.321

R2-1801945 Updating Power Headroom upon RAR Reception MediaTek Inc. CR Rel-13 36.321 13.7.0 1206 - F NB_IOT-Core

- Ericsson think this is already the behaviour. Huawei disagrees.
- QC agrees with the intention.
- Ericsson would like some more time.
- Huawei anyway would not like to change Rel-13, and think that if there would be a change the whole MAC CE should be updated.

Offline check 304 for a way forward (mediatek).

- LG think that for normal scheduling this can happen so the main problem is the CE level ramping. LG think that the MAC PDU need to be regenerated and propose to postpone to next meeting.
- Huawei don't want to correct Rel-13, but can accept a "may".
- Ericsson think this is serious and need to be fixed asap and preferably in Rel-13.

⇒ **Postponed to the next meeting.**

R2-1804001 Updating Power Headroom upon RAR Reception MediaTek Inc. CR Rel-13 36.321 13.7.0 1206 1 F NB_IOT-Core

⇒ **postponed**

R2-1801946 Updating Power Headroom upon RAR Reception MediaTek Inc. CR Rel-14 36.321 14.5.0 1207 - A NB_IOT-Core

⇒ **postponed**

Withdrawn

R2-1803274 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-14 36.321 14.5.0 1070 1 F NB_IOT-Core R2-1712291 Withdrawn

R2-1803275 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-15 36.321 15.0.0 1216 - A NB_IOT-Core Withdrawn

R2-1803285 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-14 36.321 14.5.0 1070 1 F NB_IOT-Core R2-1712291 Withdrawn

R2-1803286 Clarification early contention resolution not supported in NB-IoT Qualcomm Incorporated CR Rel-15 36.321 15.0.0 1219 - A NB_IOT-Core Withdrawn

7.3 Other LTE Rel-13 WIs

Including corrections related to the following WIs:
(LTE_LAA-Core, leading WG: RAN1, REL-13; started: June 15, closed: Dec. 15, WID: RP-151045)
(LTE_CA_enh_b5C-Core, leading WG: RAN1, REL-13; started: Dec. 14, closed: Dec. 15, WID: RP-151984)
(LTE_SC_PTM-Core, leading WG: RAN2, REL-13; started: June 15, closed: Dec. 15, WID: RP-151110)
(LTE_eD2D_Prox-Core, leading WG: RAN2, REL-13; started: Dec. 14, closed: Mar. 16, WID: RP-150441)
(LTE_MC_load-Core, leading WG: RAN2, started: Mar. 15, closed: Dec. 15, WID: RP-152181)
(LTE_dualC_enh-Core, leading WG: RAN2, started: Mar. 15, closed: Dec. 15, WID: RP-151739)
(LTE_extDRX-Core; leading WG: RAN2; started: Mar. 15; closed: Mar. 16; WID: RP-150493)
(LTE_EBF_FDMIMO-Core; leading WG: RAN1; started: June. 15; closed: Dec. 15; WID: RP-151085)
(LTE_eMDT2-Core; leading WG: RAN2; started: Sep. 15; closed: Dec 15; WID: RP-151611)
(UTRA_LTE_iPos_enh-Core; leading WG: RAN2; started: Sep. 15; closed: Dec 15; WID: RP-152251)
(LTE_WLAN_radio-Core, leading WG: RAN2, started: Mar. 15, closed: Mar. 16, WID: RP-152213)
(LTE_WLAN_radio_legacy-Core; leading WG: RAN2; started: Sep. 15; closed: Mar 15; WID: RP-151615)

Including any LTE corrections related to the following joint UMTS/LTE WIs:
(ACDC-RAN-Core; leading WG: RAN2; REL-13; started: Mar. 15; closed: Dec. 15; RP-150662)
Documents in this agenda item will be handled in a break out session

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 025

Related to: R2-1801730 LS on Measurement requirement for LAA/WiFi hardware sharing problem (R4-1714276; contact: Qualcomm) RAN4 LS in Rel-13 TEI13 To:RAN2

R2-1802744 [DRAFT] Reply LS on Measurement requirements for LAA/WiFi hardware sharing problem Nokia LS out Rel-14 LTE_LAA-Core To:RAN4

R2-1802745 Discussion on LAA/Wifi coexistence Nokia, Nokia Shanghai Bell discussion Rel-13 LTE_LAA-Core, TEI13

Proposal 1: *Ask from RAN4 why RLM could be affected when LAA/WLAN HW sharing is used.*

- Qualcomm doesn't thinks we need an LS

=> From RAN2 perspective RLM should not be affected

R2-1803620 Reply LS on Measurement requirement for LAA/WiFi hardware sharing problem Qualcomm Incorporated LS out To:RAN4

- Ericsson thinks we should the TDM option as well

=> Add TDM option as well

=> From RAN2 perspective RLM should not be affected

=> The LS is revised in R2-1803835

R2-1803835 [Draft] Reply LS on Measurement requirement for LAA/WiFi hardware sharing problem Qualcomm Incorporated LS out R2-1803620 RAN4

[CB 102]

R2-1803495 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson CR Rel-13 36.300 13.10.0 1105 - B LTE_LAA-Core

=> Remove note from RLM

=> Delete RLM from Note

=> The CR is agreed in R2-1803836

R2-1803496 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson CR Rel-14 36.300 14.5.0 1106 - A LTE_LAA-Core

=> The CR is revised in R2-1803496

R2-1803496 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson CR Rel-14 36.300 14.5.0 1106 - A LTE_LAA-Core

[CB]

R2-1803497 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson CR Rel-15 36.300 15.0.0 1107 - A LTE_LAA-Core

=> The CR is revised in R2-1803497

R2-1803497 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson CR Rel-15 36.300 15.0.0 1107 - A LTE_LAA-Core

[CB]

Not treated

R2-1803508 LS on Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson LS out Rel-13 LTE_LAA-Core To:RAN4

R2-1803510 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson discussion Rel-13 LTE_LAA-Core

R2-1802248 Correction on eCA Huawei, HiSilicon CR Rel-13 36.331 13.8.1 3228 - F LTE_CA_enh_b5C-Core

- Nokia asks if this is really need as it is a simple indication in 36.306

=> The CR is not agreed

R2-1802249 Correction on eCA Huawei, HiSilicon CR Rel-14 36.331 14.5.1 3229 - A LTE_CA_enh_b5C-Core

=> The CR is not agreed

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 026

R2-1802250 Correction on eCA Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3230 - A LTE_CA_enh_b5C-Core
=> The CR is not agreed

R2-1802385 Power classes for CA Ericsson discussion Rel-13 LTE_CA_C_B41_PC2
- Nokia shares the concern about the size but there is a technical reason why they agreed on a per band combination. Intel agrees with Nokia.
=> Noted

R2-1802386 Power classes for CA Ericsson CR Rel-13 36.331 13.8.1 3234 - C LTE_CA_C_B41_PC2
=> Not treated

R2-1802387 Power classes for CA Ericsson CR Rel-14 36.331 14.5.1 3235 - A LTE_CA_C_B41_PC2
=> Not treated

R2-1802388 Power classes for CA Ericsson CR Rel-15 36.331 15.0.1 3236 - A LTE_CA_C_B41_PC2
=> Not treated

R2-1802389 Power classes for CA Ericsson CR Rel-13 36.306 13.8.0 1550 - C LTE_CA_C_B41_PC2
=> Not treated

R2-1802390 Power classes for CA Ericsson CR Rel-14 36.306 14.5.0 1551 - A LTE_CA_C_B41_PC2
=> Not treated

R2-1803177 Different power class support for band combinations Nokia, Nokia Shanghai Bell, Sprint CR Rel-13 36.331 13.8.1 3265 - C TEI13
[CB 103]

R2-1802908 Correction to handling of p-Max procedure for high-power Ues Intel Corporation discussion Rel-13 TEI13
RAN2 to agree from release-13 that the UE shall use the default power class for the band on which the UE has to transmit, if the IE p-Max is absent. The UE shall not use the maximum power according to its capability if the p-Max IE is absent.
- Intel explains that eNB may need be equipped to handle interference from this. Nokia agrees that there is something missing.
- Nokia asks how the early UEs handle this
=> Noted

R2-1802913 Correction to handling of p-Max procedure for high-power Ues Intel Corporation CR Rel-13 36.331 13.8.1 3254 - F TEI13
=> express that without these changes the same issue will persist (i.e. no new inter-operability issues are introduced)
=> update: p-Max - Value applicable for the cell. If absent the UE applies the maximum power of the default power class for the band the UE is using for transmission, according to TS 36.101[42]. NOTE 2.
=> The CR is revised in R2-1803837

R2-1803837 Correction to handling of p-Max procedure for high-power UEs Intel Corporation CR Rel-13 36.331 13.8.1 TEI13 3254 1 F
[CB 104]

R2-1802914 Correction to handling of p-Max procedure for high-power Ues Intel Corporation CR Rel-14 36.331 14.5.1 3255 - A TEI13
=> The CR is revised in R2-1803852

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 027

R2-1803852 Correction to handling of p-Max procedure for high-power UEs Intel Corporation CR
R2-1802914 Rel-14 36.331 14.5.1 TEI13 3255 1 A
[CB 104]

R2-1802915 Correction to handling of p-Max procedure for high-power Ues Intel Corporation CR
Rel-15 36.331 15.0.1 3256 - A TEI13
=> The CR is revised in R2-1803853

R2-1803853 Correction to handling of p-Max procedure for high-power UEs Intel Corporation CR
R2-1802915 Rel-15 36.331 15.0.1 TEI13 3256 1 A
[CB 104]

R2-1803178 Different power class support for band combinations Nokia, Nokia Shanghai Bell, Sprint
CR Rel-14 36.331 14.5.1 3266 - A TEI13
=> Not treated

R2-1803179 Different power class support for band combinations Nokia, Nokia Shanghai Bell, Sprint
CR Rel-15 36.331 15.0.1 3267 - A TEI13
=> Not treated

R2-1802391 Reply LS on the addition of PC2 for uplink CA_41C Ericsson LS out Rel-13
LTE_CA_C_B41_PC2 To:RAN4
=> Not treated

R2-1803445 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR
Rel-13 36.331 13.8.1 3275 - F LTE_CA_enh_b5C-Core
- Ericsson suggests to update something on field description of PUCCH-format
=> The CR is revised in R2-1803839

R2-1803839 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR
Agreement R2-1803445 Rel-13 36.331 13.8.1 LTE_CA_enh_b5C-Core 3275
1 F
[CB 106]

R2-1803446 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR
Rel-14 36.331 14.5.1 3276 - A LTE_CA_enh_b5C-Core
=> The CR is revised in R2-1803840

R2-1803840 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR
Agreement R2-1803446 Rel-14 36.331 14.5.1 LTE_CA_enh_b5C-Core 3276
1 A
[CB 106]

R2-1803447 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR
Rel-15 36.331 15.0.1 3277 - A LTE_CA_enh_b5C-Core
=> The CR is revised in R2-1803841

R2-1803841 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR
Agreement R2-1803447 Rel-15 36.331 15.0.1 LTE_CA_enh_b5C-Core 3277
1 A
[CB 106]

8 LTE Rel-14

8.1 WI: Enhanced LAA for LTE

(LTE_eLAA-Core; leading WG: RAN1; REL-14; started: Dec. 15; closed: Mar. 17; WID:RP-162229)
This agenda item is for correction CRs to the closed WI.
Documents in this agenda item will be handled in a break out session

R2-1802242 Correction on eLAA Huawei, HiSilicon CR Rel-14 36.300 14.5.0 1092 -
F LTE_eLAA-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 028

- Qualcomm has checked with RAN4 colleagues and we cannot remove everything

=> The CR is postponed

R2-1802243 Correction on eLAA Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1093 - A LTE_eLAA-Core

=> The CR is postponed

R2-1803498 Clarification to PUCCH Configuration for LAA SCells Ericsson CR Rel-14 36.300 14.5.0 1108 - F LTE_eLAA-Core

- Huawei doesn't think this change is needed. In RAN1 specifications it is already specified that PUCCH is not supported for LAA. Ericsson thinks it is good as we have the same clarification for PRACH.
- Nokia agrees with Huawei there is nothing broken

=> The CR is not agreed

R2-1803499 Clarification to PUCCH Configuration for LAA SCells Ericsson CR Rel-15 36.300 15.0.0 1109 - A LTE_eLAA-Core

=> The CR is not agreed

R2-1803500 Clarification to PUCCH Configuration for LAA SCells Ericsson CR Rel-14 36.331 14.5.1 3281 - F LTE_eLAA-Core

=> The CR is agreed

R2-1803501 Clarification to PUCCH Configuration for LAA SCells Ericsson CR Rel-15 36.331 15.0.1 3282 - A LTE_eLAA-Core

=> The CR is agreed

8.2 WI: Support for V2V services based on LTE sidelink

(LTE_SL_V2V-Core; leading WG: RAN1; started: Dec. 15; closed: Sept 16; WID: RP-161603)

Documents in this agenda item will be handled in a break out session

8.2.1 User plane

8.2.2 Control plane

8.3 Void

8.4 Void

8.5 WI: Enhanced LTE-WLAN Aggregation (eLWA)

(LTE_WLAN_aggr-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Mar. 17; WID: RP-160923)

Documents in this agenda item will be handled in a break out session

8.6 WI: Further mobility enhancements in LTE

(LTE_eMob-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Mar. 17; WID:RP-162503)

Documents in this agenda item will be handled in a break out session

8.7 WI: Further Indoor Positioning enhancements for UTRA and LTE

(UTRA_LTE_iPos_enh2-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Dec. 16; WID: RP-162026)

Documents in this agenda item will be handled in a break out session

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 029

Withdrawn

R2-1803414 Corrections to the periodical reporting ASN1 for WLAN, Sensor and TBS Intel Corporation CR Rel-14 36.355 14.4.0 0192 - F UTRA_LTE_iPos_enh2-Core Withdrawn

8.8 WI: L2 latency reduction techniques for LTE

(LTE_LATRED_L2-Core; leading WG: RAN2; REL-14; started: Mar. 16; closed: Sep. 16; WID: RP-160667)

Documents in this agenda item will be handled in a break out session

8.9 Void

8.10 WI: eMBMS enhancements for LTE

(MBMS_LTE_enh2-Core; leading WG: RAN1; REL-14; started: Mar. 16; closed: Sep. 17; WID:RP-162231)

Documents in this agenda item will be handled in a break out session

R2-1802240 Correction on SI-RNTI value for FeMBMS Huawei, HiSilicon CR Rel-14 36.321 14.5.0 1212 - F MBMS_LTE_enh2-Core
- Ericsson notes that the interoperability analysis is not correct
=> Update impact analysis
=> The CR is updated in R2-1803838

R2-1803838 Correction on SI-RNTI value for FeMBMS Huawei, HiSilicon CR Approval R2-1802240 Rel-14 36.321 14.5.0 MBMS_LTE_enh2-Core 1212 1 F
=> The CR is agreed

R2-1802241 Correction on SI-RNTI value for FeMBMS Huawei, HiSilicon CR Rel-15 36.321 15.0.0 1213 - A MBMS_LTE_enh2-Core
=> The CR is revised in R2-1803843

R2-1803843 Correction on SI-RNTI value for FeMBMS Huawei, HiSilicon CR Approval R2-1802241 Rel-15 36.321 15.0.0 MBMS_LTE_enh2-Core 1213 1 A
=> The CR is agreed

R2-1803740 Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier spacing Qualcomm Incorporated CR Rel-14 36.300 14.5.0 1069 1 F MBMS_LTE_enh2-Core R2-1711617
=> The CR is agreed

R2-1803741 Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier spacing Qualcomm Incorporated CR Rel-15 36.300 15.0.0 1113 A MBMS_LTE_enh2-Core
=> The CR is agreed

8.11 WI: Enhancements of NB-IoT

(NB_IOTenh-Core; leading WG: RAN1; REL-14; started: June 16; closed: Jun. 17; WID: RP-171060)

Note: SC-PTM for eNB-IoT is handled under 8.12.1

Documents in this agenda item will be handled in a break out session

Including output of email discussion [100#37][NB-IoT R14] Measurement Report for NB-IoT (CMCC)

Measurement Reporting

R2-1803220 Report for Email discussion on Measurement Report for NB-IoT CMCC discussion Rel-14 NB_IOTenh-Core
DISCUSSION
P1:
- Huawei want to clarify that this is for maintenance. In R1 they are discussing link adaptation and have different proposals.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 030

- Ericsson think that the R1 and R2 discussions are related, but acknowledge that the cases have different requirements.
- CMCC has proposed measurements both for link adaptation and for maintenance.
- Gemalto think that there is a difference that for link adaptation the measurement need to be fresh.
- Huawei think that RSRP is useful for maintenance but not for link adaptation.
- Huawei think we can agree to this. Ericsson too.
- CMCC think SINR would be even better than NRSRQ. Ericsson think that there is no specified SINR measurement. Ericsson think that there is more specification work for SINR.

P2

- Ericsson would like this in MSG3 as the measurement can then be used for link adaptation. Ericsson have problems with MSG4 transmission. ZTE also prefers MSG3. QC think that if in MSG3 it can be used for EDT.
- Huawei think that if for maintenance MSG5 is ok, and that not all UEs need to report.
- CMCC think that MSG3 reporting is for link adaptation, but think that the limited space in MSG3 will limit granularity and for Maintenance high granularity is wanted. CMCC further think that link adaptation measurements can be related to UE receive performance and thus not reliable for maintenance. Nokia agrees with CMCC and Huawei.
- Ericsson want to address also link adaptation and want to report a part in MSG3.

⇒ **NRSRP and NRSRQ of the serving cell, available in the UE, to be reported by NB-IoT UE, for the purpose of Network Mgmt.**

⇒ **The reporting can happen in MSG5**

⇒ **We assume that R1 will anyway discuss link adaptation, and possible measurement(s) to be included in MSG3 etc. We will wait for R1 outcome until finally agreeing the solution, in case there is some cross-relation.**

CB Friday to check the R1 status. Offline discussion 305 to prepare comeback (Ericsson).

- Ericsson/CMCC reports that RAN1 have had progress and agreed on an IE to be reported in MSG3. We expect that R1 will send an LS, and we can introduce that in the next quarter.
- CMCC think we should introduce RSRP and RSRQ in MSG5 now.
- QC think we should discuss network control and the UE should send this only when needed.

⇒ **We will have NRSRP and NRSRQ reporting in MSG5.**

⇒ **Postpone details to next meeting: Whether there is Network Control, CRs**

R2-1802570 Measurement reporting in NB-IoT Ericsson discussion Rel-14 NB_IOTenh-Core

R2-1802571 Introduction of Idle mode measurements reporting Ericsson draftCR Rel-14 36.306 14.5.0 C NB_IOTenh-Core, TEI14

R2-1802572 Introduction of Idle mode measurements reporting Ericsson draftCR Rel-14 36.331 14.5.1 C NB_IOTenh-Core, TEI14

R2-1802573 LS on Idle mode measurements reporting in NB-IoT Ericsson LS out Rel-14 NB_IOTenh-Core To:RAN4

Above 4 documents not treated

36.300

R2-1802238 Missing description of RRC Connection Re-establishment for the Control plane Huawei, HiSilicon CR Rel-14 36.300 14.5.0 1091 - F NB_IOTenh-Core

- QC wonders about “resume’. Huawei think this is just about resuing Rel-8 wording.
- Ericsson think that the UE ctxt availability should be part of success or non-successful criteria.
- Ericsson also have some editorial comments.
- QC think that for the last change we should just say that the UE goes to Idle and may reconnect.

⇒ **Revised, Revisions in R2-1803787/88**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 031

R2-1803787 Missing description of RRC Connection Re-establishment for the Control plane Huawei, HiSilicon CR Rel-14 36.300 14.5.0 1091 1 F NB_IOTenh-Core
- LG wonders what the possible outcomes. Huawei clarifies that either the MME provides the context or not.

⇒ **Agreed**

R2-1802276 Missing description of RRC Connection Re-establishment for the Control plane Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1094 - A NB_IOTenh-Core
R2-1803788 Missing description of RRC Connection Re-establishment for the Control plane Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1094 - A NB_IOTenh-Core

⇒ **Agreed**

36.331

R2-1802236 Correction to RRCConnectionReestablishment message in 36.331 Huawei, HiSilicon CR Rel-14 36.331 14.5.1 3223 - F NB_IOTenh-Core
- Chair think this is not backwards compatible,
- Ericsson and QC agrees with the proposal.
- Ericsson think this must be reported on the Website.

⇒ **Revised (cover sheet)**

R2-1803799 Correction to RRCConnectionReestablishment message in 36.331 Huawei, HiSilicon CR Rel-14 36.331 14.5.1 3223 1 F NB_IOTenh-Core

⇒ **Agreed**

⇒ **Flag this as non-bw compatible change for UEs that implement RRC Conn Reestablishment for the CIOT CP solution.**

R2-1802237 Correction to RRCConnectionReestablishment message in 36.331 Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3224 - A NB_IOTenh-Core

⇒ **revised**

R2-1803800 Correction to RRCConnectionReestablishment message in 36.331 Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3224 1 A NB_IOTenh-Core

⇒ **Agreed**

R2-1802917 Small corrections on PhysicalConfigDedicated-NB ZTE Corporation, Sanechips CR Rel-14 36.331 14.5.1 3257 - F NB_IOTenh-Core
- For the first change, Huawei would prefer “Anchor/Non-Anchor” for consistency.
- Huawei think the second change is not needed, the network can signal this IE also for the anchor carrier (with value 0) and that the third change is non-backwards compatible.
- QC point out that one section is repeated and changed twice, and that changes are done to a R-13 IE, in this Rel-14 CR. We should have consistent handling of a certain IE across releases.
- There are concerns on change 2 and 3.

⇒ **First change is agreeable, and is editorial.**

⇒ **Revised**

R2-1804038 Small corrections on PhysicalConfigDedicated-NB ZTE Corporation, Sanechips CR Rel-14 36.331 14.5.1 3257 1 F NB_IOTenh-Core

⇒ **agreed**

R2-1804039 Small corrections on PhysicalConfigDedicated-NB ZTE Corporation, Sanechips CR Rel-15 36.331 15.0.1 3307 - F NB_IOTenh-Core
Revised in R2-1804124
R2-1804124 Small corrections on PhysicalConfigDedicated-NB ZTE Corporation, Sanechips CR Rel-15 36.331 15.0.1 3307 1 F NB_IOTenh-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 032

=> Withdrawn

⇒ **agreed in R2-1804039**

36.321

R2-1803276 Correct introduction of multiple HARQ processes for NB-IoT Qualcomm Incorporated CR Rel-14 36.321 14.5.0 1217 - F NB_IOTenh-Core

- Huawei are ok with change 1 but think that change 2 is only applicable when the second HARQ process is configured. Ericsson agrees and think a better wording can be found
- Work offline on the wording

⇒ **Revised in R2-1803789/90**

R2-1803789 Correct introduction of multiple HARQ processes for NB-IoT Qualcomm Incorporated CR Rel-14 36.321 14.5.0 1217 1 F NB_IOTenh-Core

⇒ **agreed**

R2-1803277 Correct introduction of multiple HARQ processes for NB-IoT Qualcomm Incorporated CR Rel-15 36.321 15.0.0 1218 - A NB_IOTenh-Core

⇒ **revised**

R2-1803790 Correct introduction of multiple HARQ processes for NB-IoT Qualcomm Incorporated CR Rel-15 36.321 15.0.0 1218 1 A NB_IOTenh-Core

⇒ **Agreed**

Withdrawn

R2-1802239 Missing description of RRC Connection Re-establishment for the Control plane Huawei, HiSilicon CR Rel-15 36.331 15.0.0 3225 - A NB_IOTenh-Core Withdrawn

R2-1803287 Correct introduction of multiple HARQ processes for NB-IoT Qualcomm Incorporated CR Rel-14 36.321 14.5.0 1220 - F NB_IOTenh-Core Withdrawn

R2-1803288 Correct introduction of multiple HARQ processes for NB-IoT Qualcomm Incorporated CR Rel-15 36.321 15.0.0 1221 - A NB_IOTenh-Core Withdrawn

8.12 WI: Further Enhanced MTC for LTE

(LTE_feMTC-Core; leading WG: RAN1; REL-14; started: June 16; closed: Jun. 17; WID: RP-170532)

Documents in this agenda item will be handled in a break out session

Incoming LS

R2-1801723 LS on Paging in case of Enhanced Coverage Restriction (R3-175078; contact: Nokia) RAN3 LS in Rel-14 TEI14, NB_IOTenh-Core, CIoT_Ext To:SA2 Cc:RAN2

- Ericsson wonders if the eNB has to follow the CE restriction IE, or if the eNB can choose. Nokia think it means that the UE is restricted in using CE mode. Ericsson point out that MPDCCH is used for Cat-M UEs also in normal coverage.
- So maybe the statement to not page with MPDCCH is not completely correct.

⇒ **Noted**

R2-1801746 Reply LS on Paging in case of Enhanced Coverage Restriction (S2-181236; contact: Nokia) SA2 LS in Rel-14 TEI14, NB_IOTenh-Core, CIoT_Ext To:RAN3 Cc:RAN2

⇒ **Noted**

R2-1801739 Reply LS on Restricted Use of Enhanced Coverage (S2-179612; contact: Nokia) SA2 LS in Rel-14 CIoT_Ext To:RAN6, CT1 Cc:RAN2

⇒ **Noted**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 033

The above 3 LS'es moved here from 8.11

8.12.1 Multicast for feMTC and eNB-IoT

8.12.2 Other

CE Mode B Restriction Change

R2-1803299 Discussion on CE mode B restriction change in RRC connected mode Intel Corporation discussion Rel-14 LTE_feMTC-Core

DISCUSSION

- Ericsson think that switching between Data Centric and Voice centric is up to UE impl. Ericsson are concerned that the full solution may not be completely in place.
- Intel think that the logic to control this is not in the scope of AS, it is up to CT1 to what extent to standardize it. QC agrees and also think that UE behaviour in connected is fully controlled by the network.
- QC support these changes.

⇒ **The existing indication of the CE mode B restriction (from NAS to AS) can be used as indication for UE AS to apply correct cell suitability check criteria for the cell reselection.**

⇒ **Provide feedback to SA2 in a reply LS that there is no issue in updating the CE mode B restriction parameter at eNB by MME in RRC connected mode.**

R2-1803300 Support of CE mode B restriction for Rel-14 eMTC Intel Corporation CR Rel-14 36.304 14.5.0 0407 - F LTE_feMTC-Core

- QC think the following text need to be complemented and corrected "the cell selection criterion S in normal coverage or in enhanced coverage based on coverage specific values Qrxlevmin_CE and Qqualmin_CE shall be fulfilled";

⇒ **Revised in R2-1803794**

R2-1803794 Support of CE mode B restriction for Rel-14 eMTC Intel Corporation CR Rel-14 36.304 14.5.0 0407 1 F LTE_feMTC-Core

- Huawei think that "except for NB-IoT" isn't needed because NB-ioT doesn't support CE Mode B

⇒ **Remove "Except for NB-IoT,"**

⇒ **Revised in R2-1803817, which is agreed unseen**

R2-1803304 [DRAFT] Reply LS on Data support for "voice centric" UE supporting CE mode B Intel Corporation LS out Rel-14 LTE_feMTC-Core To:SA2

- Huawei wonders if it is worth mentioning that we have modified the Idle mode for this. For Idle, QC think we are just correcting a R-13 feature

⇒ **Approved, final version in R2-1803795**

36.331

R2-1802066 SR prohibit timer extension for CE ModeB Nokia, Nokia Shanghai Bell discussion Rel-14 LTE_feMTC-Core

Proposal 1: extend the sr-ProhibitTimer from [0, 7] to [0, 15] for Rel-14.

Proposal 2: RAN2 to discuss whether to define new UE capability bit for the extended sr-ProhibitTimer.

DISCUSSION

- Intel wonders why PDCCH monitoring interferes with SR in FDD. The UE doesn't need to do SR when the UE is receiving PDCCH. Why couldn't the UE prioritize PDCCH monitoring? Nokia think that the UE complexity would then increase.
- Chair wonders what is really the UE behavior in these cases.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 034

Offline 312, give companies time to think about it (Nokia), CB Friday
- Nokia reports that companies didn't really input and more time is probably needed, suggest postpone.

⇒ **Noted, Postpone this discussion**

R2-1802067 Extension of SR prohibit timer Nokia, Nokia Shanghai Bell CR Rel-14 36.331 14.5.0 3212 - F LTE_feMTC-Core

R2-1802068 Extension of SR prohibit timer Nokia, Nokia Shanghai Bell CR Rel-14 36.306 14.5.0 1544 - F LTE_feMTC-Core

⇒ **Postpone 2 CRs above**

R2-1802199 Correction to field description for HARQ-ACK delay for Rel-14 MTC Huawei, HiSilicon CR Rel-14 36.331 14.5.0 3221 - F LTE_feMTC-Core

⇒ **Agreed**

R2-1802200 Correction to field description for HARQ-ACK delay for Rel-14 MTC Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3222 - A LTE_feMTC-Core

⇒ **Agreed**

R2-1802201 Correction to description for HARQ-ACK delay for Rel-14 MTC Huawei, HiSilicon CR Rel-14 36.306 14.5.0 1545 - F LTE_feMTC-Core

⇒ **Agreed**

8.13 WI: LTE-based V2X Services

(LTE_V2X-Core, leading WG: RAN1; REL-14; started: June 16; closed: Mar. 17; WID: RP-162519)

Documents in this agenda item will be handled in a break out session

R2-1801713 LS on problematic MCS-TBS configurations for PSSCH decoding (R1-1721299; contact: Huawei) RAN1 LS in Rel-14 LTE_V2X-Core To:RAN2

=> Noted

8.13.1 Stage 2

R2-1801861 CR on CBR measurement OPPO, LG Electronics Inc. CR Rel-14 36.300 14.5.0 1087 - F LTE_V2X-Core

=> Intention is agreeable. How to capture single CBR measurement is revised. Will be revised in R2-1803901.

=> The CR is agreed (and R2-1803901 for revision is withdrawn)

R2-1803901 CR on CBR measurement OPPO, LG Electronics Inc. CR Rel-14 36.300 14.5.0 1087 1 F LTE_V2X-Core

=> Withdrawn

R2-1801863 CR on CBR measurement OPPO, LG Electronics Inc. CR Rel-15 36.300 15.0.0 1088 - A LTE_V2X-Core

=> Will be revised in R2-1803902

=> The CR is agreed (and R2-1803902 for revision is withdrawn)

R2-1803902 CR on CBR measurement OPPO, LG Electronics Inc. CR Rel-15 36.300 15.0.0 1088 - A LTE_V2X-Core

=> Withdrawn

R2-1801910 Miscellaneous correction to V2X in TS 36.300 Huawei, HiSilicon CR Rel-14 36.300 14.5.0 1089 - F LTE_V2X-Core Revised

R2-1803580 Miscellaneous correction to V2X in TS 36.300 Huawei, HiSilicon CR Rel-14 36.300 14.5.0 1110 - F LTE_V2X-Core

=> No need to add "one"

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 035

=> No need to add “the UE follows”
=> Update cover sheet
=> Will be revised in R2-1803904

R2-1803904 Miscellaneous correction to V2X in TS 36.300 Huawei, HiSilicon CR Rel-14 36.300 14.5.0 1110 - F LTE_V2X-Core
=> Keeping “inter”
=> The CR is agreed in R2-1803913

R2-1803579 Miscellaneous correction to V2X in TS 36.300 Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1089 1 F LTE_V2X-Core R2-1801910
=> Will be revised in R2-1803903

R2-1803903 Miscellaneous correction to V2X in TS 36.300 Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1089 1 A LTE_V2X-Core R2-1801910
=> The CR is agreed in R2-1803914 with the above update.

8.13.2 User plane

R2-1801860 CR on CBR measurement OPPO CR Rel-14 36.321 14.5.0 1204 - F LTE_V2X-Core
=> Noted

R2-1801862 CR on CBR measurement OPPO CR Rel-15 36.321 15.0.0 1205 - A LTE_V2X-Core
=> Noted

R2-1802119 MCS Selection Issue CATT discussion
=> Noted

R2-1802131 Addtion the allowed MCS values for V2X sidelink communication (option 1 + 2) CATT CR Rel-14 36.321 14.5.0 1208 - F LTE_V2X-Core

R2-1802132 Addtion the allowed MCS values for V2X sidelink communication (option 2) CATT CR Rel-14 36.321 14.5.0 1209 - F LTE_V2X-Core

R2-1802135 Addtion the allowed MCS values for V2X sidelink communication (option 1 + 2) CATT CR Rel-15 36.321 15.0.0 1210 - A LTE_V2X-Core

R2-1802136 Addtion the allowed MCS values for V2X sidelink communication (option 2) CATT CR Rel-15 36.321 15.0.0 1211 - A LTE_V2X-Core

R2-1803516 Clarification to Sidelink Booking Processes Ericsson CR Rel-14 36.321 14.5.0 1229 - F LTE_V2X-Core
=> Add “communication” after “For V2X sidelink”.
=> The CR is agreed in R2-1803905

R2-1803517 Clarification to Sidelink Booking Processes Ericsson CR Rel-15 36.321 15.0.0 1230 - A LTE_V2X-Core
=> The CR is agreed in R2-1803906

R2-1803292 Clarification on number of SL processes for V2X communication Intel Corporation CR Rel-14 36.321 14.5.0 1222 - F LTE_V2X-Core

R2-1803293 Clarification on number of SL processes for V2X communication Intel Corporation CR Rel-15 36.321 15.0.0 1223 - A LTE_V2X-Core

R2-1803599 Transmit less-than-expected data for configured sidelink grant for transmission of multiple MAC PDUs Qualcomm Incorporated discussion Rel-14 LTE_V2X-Core
=> Noted

R2-1803601 Clarification on transmit insufficient data with configured sidelink grant Qualcomm Incorporated CR Rel-14 36.321 14.5.0 1233 - F LTE_V2X-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 036

8.13.3 Control plane

R2-1803294 Clarifications on V2X resource selection in the absence of positioning information Intel Corporation CR Rel-14 36.331 14.5.1 3271 - F LTE_V2X-Core
=> To change “pool is” to “pools are”
=> To update cover page to correct impact analysis
=> The CR is agreed in R2-1803907

R2-1803295 Clarifications on V2X resource selection in the absence of positioning information Intel Corporation CR Rel-15 36.331 15.0.1 3272 - A LTE_V2X-Core
=> The CR is agreed in R2-1803908

R2-1803518 Clarifications to V2X Zoning Ericsson CR Rel-14 36.331 14.5.1 3284 - F LTE_V2X-Core

R2-1803519 Clarifications to V2X Zoning Ericsson CR Rel-15 36.331 15.0.1 3285 - A LTE_V2X-Core

R2-1803615 Correction on SI-offsetIndicator for the sidelink resource pool Qualcomm Incorporated CR Rel-14 36.331 14.5.1 3292 - F LTE_V2X-Core
=> Will be revised R2-1803909 with the further offline discussion

R2-1803909 Correction on SI-offsetIndicator for the sidelink resource pool Qualcomm Incorporated CR Rel-14 36.331 14.5.1 3292 - F LTE_V2X-Core
=> The CR is agreed

R2-1803910 Correction on SI-offsetIndicator for the sidelink resource pool Qualcomm Incorporated CR Rel-15 36.331 15.0.1 3301 - A LTE_V2X-Core
=> Correct release in cover page
=> The CR is agreed in R2-1803915

Withdrawn

R2-1802909 Clarification on number of SL processes for V2X communication Intel Corporation CR Rel-15 36.321 15.0.0 1215 - A LTE_V2X-Core Withdrawn

R2-1802910 Clarifications on V2X resource selection in the absence of positioning information Intel Corporation CR Rel-15 36.331 15.0.0 3253 - A LTE_V2X-Core Withdrawn

8.14 WI: SRS switching between LTE component carriers

(LTE_SRS_switch; leading WG: RAN1; REL-14; started: Mar.16: closed: Dec. 16; WID: RP-160935)

Documents in this agenda item will be handled in a break out session

R2-1802166 Correction on SRS carrier switching Huawei, HiSilicon, Qualcomm Incorporated CR Rel-14 36.331 14.5.1 3216 - F LTE_SRS_switch-Core
- Ericsson wonders if a CR for 36.306 is needed
- Nokia indicates that we should try to avoid doing these types of CRs but it is ok for now.

=> The CR is agreed

R2-1802167 Correction on SRS carrier switching Huawei, HiSilicon, Qualcomm Incorporated CR Rel-15 36.331 15.0.1 3217 - A LTE_SRS_switch-Core
=> The CR is agreed

R2-1803842 Correction on SRS carrier switching Huawei, HiSilicon, Qualcomm Incorporated CR Approval Rel-14 36.306 14 LTE_SRS_switch-Core F
[CB 108]

R2-1803725 Removal of Type3 PH for single serving cell case NTT DOCOMO INC. CR Rel-14 36.321 14.5.0 1238 - F LTE_SRS_switch-Core
=> The CR is agreed

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 037

R2-1803726 Removal of Type3 PH for single serving cell case NTT DOCOMO INC. CR Rel-15
36.321 15.0.0 1239 - A LTE_SRS_switch-Core
=> The CR is agreed

8.15 WI: Measurement Gap Enhancement for LTE

(LTE_meas_gap_enh-Core; leading WG: RAN4; REL-14; started: Mar. 16; closed: Jun. 17; WID: RP-160912)
Documents in this agenda item will be handled in a break out session

8.16 Void

8.17 WI: Performance enhancements for high speed scenario in LTE

(LTE_high_speed-Core; leading WG: RAN4; REL-14; started: Dec. 15. 16; closed: Dec. 16; WID: RP-160172)
Documents in this agenda item will be handled in a break out session

8.18 WI: Voice and Video enhancement for LTE

(LTE_VoLTE_ViLTE_enh; leading WG: RAN2; REL-14; started: Sep. 16; closed: Mar. 17: WID: RP-161856)
Documents in this agenda item will be handled in a break out session

8.19 New UE category with single receiver based on Category 1 for LTE

(LTE_UE_cat_1Rx-Core; leading WG: RAN4; REL-14; started: Sep. 16; closed: Jun. 17: WID: RP-171149)
Documents in this agenda item will be handled in a break out session

8.20 Uplink Capacity Enhancements for LTE

LTE_UL_CAP_enh-Core; leading WG: RAN1; REL-14; started: Mar. 16; closed: Mar. 17: WID: RP-162488
Documents in this agenda item will be handled in a break out session

8.21 WI: Enhancements on Full-Dimension (FD) MIMO for LTE

(LTE_eFD_MIMO-Core; leading WG: RAN1; REL-14; started: Mar. 2016; closed: Mar. 17: WID: RP-160623)
Documents in this agenda item will be handled in a break out session

8.22 Void

8.23 WI: Downlink Multiuser Superposition Transmission for LTE

(LTE_MUST-Core; leading WG: RAN1; REL-14; started: Mar. 16; closed: Dec. 16: WID: RP-161019)
Documents in this agenda item will be handled in a break out session

8.24 Other LTE Rel-14 WIs

Documents in this agenda item will be handled in a break out session
This agenda item may be used for documents relating to Rel-14 WIs with no allocated RAN2 time but which might have minor RAN2 impact.
Including any LTE corrections related to the following joint UMTS/LTE WI:
(eDECOR-UTRA_LTE-Core; leading WG: RAN3; REL-14; started: Dec. 16; closed: Mar. 17: WID: RP-162543)

R2-1803596 Clarification on UL/DL UE fallback categories Qualcomm Incorporated CR Rel-14
36.306 14.5.0 1565 - F TEI14
=> The CR is postponed

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 038

8.25 LTE TEI14 enhancements

Documents in this agenda item will be handled in a break out session

Small Technical Enhancements affecting LTE Rel-14 that do not belong to any Rel-14 WI.

Note: A TEI enhancement proposal should be treated for only one meeting cycle and involve only one WG. Otherwise, a WI should be proposed at RAN plenary!

This agenda item is for items already discussed under TEI14. New proposals should be submitted to TEI15, AI 9.19.

R2-1802746 BCS and fallback band combinations Nokia, Nokia Shanghai Bell discussion Rel-13 36.331 LTE_CA_enh_b5C-Core
=> Noted

R2-1803548 Bandwidths in fallback band combinations Ericsson discussion Rel-14 TEI14
=> Noted
Discussions
- Intel thinks that option 4 is better and with option 2 the network expects the UE to report BC1. Nokia confirms. Intel is concerned that it increases the size. Nokia acknowledges that it will increase the size but in very rare cases. Ericsson agrees as we are over complicating the design.
- Ericsson and Nokia thinks that option 2 should be selected. Qualcomm is good with option 2 as it aligns with RAN4 definition.

=> Option 2 will be used to resolve the fallback BC issues

R2-1803549 Supported bandwidths in Fallback band combination Ericsson CR Rel-14 36.306 14.5.0 1564 - F TEI14
=> Update change "A fallback band combination supports the same bandwidth as the parent band combination"
=> Add parent band combination to the definition
=> The CR is revised in R2-1803844

R2-1803844 Supported bandwidths in Fallback band combination Ericsson CR R2-1803549 Rel-14 36.306 14.5.0 TEI14 1564 1 F
[CB 110]

R2-1802380 FGI20 limitation for DRBs Ericsson discussion Rel-14
Proposal 1 Introduce a new capability to overcome FGI20 limitation
- Nokia thinks the question is whether we do it for R14 or R15
- Qualcomm thinks we should first finish the WI on increasing DRB numbers

Proposal 2 If new capability is set, then the UE supports any combinations of AM and UM bearers, up to 8 DRBs in total
Proposal 3 Discuss in which release new capability bit is introduced like Rel-14
=> This will be done in TEI15

R2-1802445 Selective retransmission for PDCP data recovery Samsung Research America CR Rel-14 36.323 14.5.0 0218 - C TEI14
- Ericsson asks about the motivation to add this to LTE and is not sure about the gain.
- Nokia likes this proposal but thinks we need a UE capability. Samsung doesn't think it is needed. Nokia is maybe convinced and we may not need it.

=> This is will not be done as part of TEI14
=> Not agreed

R2-1802446 Selective retransmission for PDCP data recovery Samsung Research America CR Rel-15 36.323 14.5.0 0219 - A TEI14
=> Not treated

R2-1802785 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom CR Rel-14 36.306 14.5.0 1555 - B TEI14
=> Revised in R2-1803750

R2-1803750 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom CR Rel-14 36.306 14.5.0 1555 1 B TEI14
=> Update cover page to explain why we are introducing it and impact analysis

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 039

=> The CR is revised in R2-1803845

R2-1803845 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange CR Agreement R2-1803750 Rel-14 36.306 14.5.0 TEI14 1555 2 B
[CB 111]

R2-1802786 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom CR Rel-14 36.331 14.5.1 3244 - B TEI14
=> Revised in R2-1803751

R2-1803751 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom CR Rel-14 36.331 14.5.1 3244 1 B TEI14
=> Revised in R2-1803846

R2-1803846 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange CR Agreement R2-1803751 Rel-14 36.331 14.5.1 TEI14 3244 2 B
[CB 111]

R2-1802787 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom CR Rel-15 36.331 15.0.1 3245 - A TEI14
=> Revised in R2-1803752

R2-1803752 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom CR Rel-15 36.331 15.0.1 3245 1 A TEI14
=> Revised in R2-1803847

R2-1803847 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange CR Agreement R2-1803752 Rel-15 36.331 15.0.1 TEI14 3245 2 A
[CB 111]

R2-1802805 Unexpected connection releases after UE capability signalling Huawei, HiSilicon discussion Rel-14
- Ericsson wonders what the spec impact is. Huawei thinks that a note to tell the network to be careful
- Intel and LG think that this a network implementation issue
- Nokia wonders if this is happening due to old MME implementations that had size limitations.

=> Noted

R2-1803401 Segmentation of LPP Messages Qualcomm Incorporated, Ericsson, Nokia CR Rel-14 36.355 14.4.0 0189 1 F TEI14 R2-1713021
- LG asks how re-ordering is done. Qualcomm explains that it is done using the SNs
- Intel asks if we can enhance PDCP to handle the segmentation. Qualcomm thinks it is possible but LPP is applicable to different access types.
- Nextnav asks if this should be TEI15. Qualcomm thinks that this is TEI14.

=> The CR is agreed

R2-1803433 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel CR Rel-14 36.331 14.5.1 3273 - F TEI14
- Qualcomm thinks that this is already implicitly in the specification. Nokia explains that it is safer to state it explicitly

=> The changes are agreeable
=> Discuss offline the other scenario – for dedicated priorities
=> The CR is revised in R2-1803848

R2-1803848 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel CR Discussion R2-1803433 Rel-14 36.331 14.5.1 TEI14 3273 1 F
[CB 113]

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 040

R2-1803434 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel CR Rel-15 36.331 15.0.1 3274 - A TEI14
=> The CR is revised in R2-1803849

R2-1803849 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel CR Discussion Rel-15 36.331 15.0.1 TEI14 3274 A
[CB 113]

R2-1803457 Signalling for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Rel-14 36.331 14.5.1 3278 - F TEI14
- LG asks what is the motivation.
=> Update the CR with motivation
- Ericsson thinks that we need to clean up the text and terminology (e.g. we don't have open CSG cells, but non-CSG cells)
=> The CR is revised in R2-1803850

R2-1803850 Signalling for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Discussion R2-1803457 Rel-14 36.331 14.5.1 TEI14 3278 1 F
[CB 114]

R2-1803458 Capability for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Rel-14 36.306 14.5.0 1561 - F TEI14
=> The CR is revised in R2-1803851

R2-1803851 Capability for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Discussion R2-1803458 Rel-14 36.306 14.5.0 TEI14 1561 1 F
[CB 114]

R2-1803460 Signalling for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Rel-15 36.331 15.0.1 3279 - A TEI14

R2-1803537 RRC reconfiguration of SPS-Config Ericsson discussion Rel-14
- Oppo is fine to allow RRC reconfiguration but not to allow de-activation via RRC. Huawei agrees with Oppo and asks how to handle reconfiguration ambiguity period.
- Ericsson proposes that we stop the grant and then re-activate by PDCCH
- LG thinks this CR is not necessary. Ericsson thinks that this is not for all cases
=> This will not be done for TEI14

R2-1803691 Addition of UE MAC address to WLAN measurement information Qualcomm Incorporated, Comtech, AT&T, Cisco CR Rel-14 36.355 14.4.0 0194 - F TEI14
=> The CR is postponed

Not treated

R2-1802381 Avoiding FGI20 limitation Ericsson CR Rel-14 36.331 14.5.1 3232 - C TEI14

R2-1802382 Avoiding FGI20 limitation Ericsson CR Rel-14 36.306 14.5.0 1548 - C TEI14

R2-1802383 Avoiding FGI20 limitation Ericsson CR Rel-15 36.331 15.0.1 3233 - A TEI14

R2-1802384 Avoiding FGI20 limitation Ericsson CR Rel-15 36.306 14.5.0 1549 - A TEI14

R2-1803538 CR for RRC reconfiguration of SPS-Config 36321 rel14 Ericsson CR Rel-14 36.321 14.5.0 1231 - C TEI14 Revised

R2-1803539 CR for RRC reconfiguration of SPS-Config 36321 rel15 Ericsson CR Rel-15 36.321 15.0.0 1232 - A TEI14 Revised

R2-1803540 CR for RRC reconfiguration of SPS-Config 36331 rel14 Ericsson CR Rel-14 36.331 14.5.1 3286 - C TEI14 Revised

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 041

R2-1803541 CR for RRC reconfiguration of SPS-Config 36331 rel15 Ericsson CR Rel-15 36.331 15.0.1 3287 - A TEI14 Revised

R2-1803701 RRC reconfiguration of SPS-Config Ericsson CR Rel-14 36.321 14.5.0 1231 1 C TEI14 R2-1803538

R2-1803702 RRC reconfiguration of SPS-Config Ericsson CR Rel-15 36.321 15.0.0 1232 1 A TEI14 R2-1803539

R2-1803703 RRC reconfiguration of SPS-Config Ericsson CR Rel-14 36.331 14.5.1 3286 1 C TEI14 R2-1803540

R2-1803704 RRC reconfiguration of SPS-Config Ericsson CR Rel-15 36.331 15.0.1 3287 1 A TEI14 R2-1803541

Withdrawn

R2-1802747 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel discussion Rel-14 36.331 TEI14 Withdrawn

R2-1802748 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel discussion Rel-15 36.331 TEI14 Withdrawn

R2-1802749 Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell discussion Rel-14 TEI14 Withdrawn

9 LTE Rel-15

9.1 Void

9.2 WI: Shortened TTI and processing time for LTE

(LTE_STTIandPT-core; leading WG: RAN1; REL-15; started: June 16; target: Jun. 18; WID: RP-171468)

Time budget: 0 TU

Documents in this agenda item will be handled in a break out session

This WI is complete from RAN2 point of view but RAN2 CRs have not been implemented to the specification as described in RP-172755. The CRs will be maintained as running CRs and then agreed again in RAN2#102. This AI is for corrections to the running CRs.

✉ **[LTE/sTTI] Running 36.331 – Ericsson**

- deadline to next meeting

✉ **[LTE/sTTI] Running 36.306 – Ericsson**

deadline to next meeting

R2-1802712 Outstanding issues for sTTI Ericsson discussion Rel-15 LTE_sTTIandPT

Proposal 1: Include an indication in PHR MAC CE whether it was sent on PUSCH or slot/subslot PUSCH.

- Qualcomm doesn't think this is needed as the MAC doesn't usually indicate which PHY channel something was sent.
- Qualcomm asks if an indication is needed to indicated to the network whether PHR is for sTTI or not. Nokia thinks the network is aware as it has scheduled the UE.

Proposal 2: Report sTTI-SupportedCombinations for each band combination, but not for each band.

Proposal 3: Report simultaneousTx-differentTx-duration for each band combination, but not for each band.

- Intel explains that these parameters are linked to the MIMO layers and this is why it has to be per band combination.

=> No changes for UE capabilities

R2-1802713 Correction of shortened TTI and processing time for LTE Ericsson draftCR Rel-15 36.331 15.0.1 F LTE_sTTIandPT

=> Should be a discussion paper

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 042

=> The changes will be done in the running CR
=> Noted

R2-1802296 Remaining issue for SPS LG Electronics Mobile Research discussion LTE_sTTIandPT-Core
Proposal 1. The UE switches to new SPS by deactivating the previously activated SPS if SPS activation command activating another SPS is received.
- Ericsson thinks that this would impact RAN1, so we should send an LS
- Nokia thinks that we shouldn't allow configuration of both at the same time.
- Qualcomm thinks we need to clarify UE behaviour when it gets a second command. Huawei and Qualcomm thinks that a straight forward approach is to just activate according to the latest command.

=> FFS what the UE behaviour is

Proposal 2. The UE deactivation the activated SPS regardless whether the SPS release command is received on PDCCH or sPDCCH.
- Qualcomm thinks this is not allowed

=> This proposal can be done in RAN1
=> Noted

R2-1802297 Correction to reflect RAN1 agreement LG Electronics Mobile Research CR Rel-15 36.331 15.0.1 3231 - F LTE_sTTIandPT-Core
=> Should not be a CR document
=> MBMS should be corrected in a separate CR
=> The sTTI changes can be included in the running CR from Ericcson
=> Noted

R2-1802899 sTTI/sPT capability additions Intel Corporation discussion Rel-15 LTE_sTTIandPT
Proposal 7: Only the eNBs which actually support sTTI or sPT features and are interested in knowing the UE capability for these features, explicitly request for this capability in the UECapabilityEnquiry message. And that the UE reports the sTTI/sPT capability only when requested for this
- Qualcomm thinks that if we do such optimizations it should be more general not just for sTTI. Nokia thinks that if we do this it may increase signalling for inquiries. Is there a motivation to do this.

=> Noted

Agreements
=> Make IE stti-SPT-BandParameterList-r15 optional and the absence of this IE implies that the UE does not support sTTI feature for the corresponding CA BC.
=> Add missing IE sTTI-SupportedCSI-Proc-r15 to STTI-SPT-BandParameters-r15
=> Add missing IE sTTI-CA-MIMO-ParametersUL-r15 to STTI-SPT-BandParameters-r15
=> Add more description to the usage and interpretation of the sTTI/sPT fields in 36.306
=> Remove sTTI-SPT-BandParameters--r15 from PhyLayerParameters-v15xy and use sTTI-SPT-SupportedBandCombinationList-r15 for reporting non-CA band related sTTI/sPT capabilities.
=> Correct the typo for the field description of numberOfBlindDecodesUSS

Withdrawn

R2-1802900 sTTI/sPT capability changes for 36.331 Intel Corporation CR Rel-15 36.331 15.0.1 3252 - B LTE_sTTIandPT Withdrawn

R2-1802912 sTTI/sPT capability changes for 36.306 Intel Corporation draftCR Rel-15 36.306 14.5.0 LTE_sTTIandPT Withdrawn

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 043

9.3 Void

9.4 Void

9.5 Further video enhancements for LTE

(LTE_ViLTE_enh2-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172726)

Time budget: 0 TU

Documents in this agenda item will be handled in a break out session

This WI is complete from RAN2 point of view but RAN2 CRs have not been implemented to the specification as described in RP-172755. The CRs will be maintained as running CRs and then agreed again in RAN2#102. This AI is for corrections to the running CRs.

R2-1802876 Discussion on corrections to eVideo Huawei, HiSilicon discussion Rel-15 36.300 LTE_ViLTE_enh2-Core

=> Change to "UE can report to the network its capability of supporting assistance information bit for local cache. If supported, the UE assisted local cache function can be activated by the eNB. After that, the UE may indicate the assistance information bit in the uplink PDCP PDU. Whether the UE indicates this assistance information bit is based on for instance the service from the application layer the UE requests that support local cache handling."

=> With this change, the change in annex is agreed.

R2-1803699 Assistance information for local cache Ericsson discussion Rel-15 LTE_ViLTE_enh2-Core

=> Capture the change with separate figures for uplink and downlink in this paper.

R2-1802990 Discussion on different handling for critical data LG Electronics France discussion Rel-15 LTE_ViLTE_enh2-Core R2-1713685

R2-1802991 Differant handling for critical data LG Electronics France CR Rel-15 36.323 14.5.0 0214 1 B LTE_ViLTE_enh2-Core R2-1713686

R2-1802999 Differant handling for critical data LG Electronics France CR Rel-15 36.331 15.0.1 3196 1 B LTE_ViLTE_enh2-Core R2-1713689

9.6 QoE Measurement Collection for streaming services in E-UTRAN

(LTE_QMC_Streaming; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-170956)

Time budget: 0 TU

Documents in this agenda item will be handled in a break out session

This WI is complete from RAN2 point of view but RAN2 CRs have not been implemented to the specification as described in RP-172755. The CRs will be maintained as running CRs and then agreed again in RAN2#102. This AI is for corrections to the running CRs.

R2-1801708 Service types for QMC reporting (C1-180636; contact: Ericsson) CT1 LS in Rel-15 EQoE_MTSI, UMTS_QMC_Streaming, LTE_QMC_Streaming, QOED To:SA4, RAN2, RAN6 Cc:SA5

=> Noted

=> Corresponding discussion will be taken in 9.20.

R2-1801754 LS on Attributes for QoE measurement collection (S5-176409; contact: Ericsson) SA5 LS in Rel-15 LTE_QMC_Streaming To:SA4, RAN2, RAN3

=> Noted

R2-1801769 Reply LS on Attributes for QoE measurement collection (S4-180240; contact: Ericsson) SA4 LS in Rel-15 UMTS_QMC_Streaming, LTE_QMC_Streaming, EQoE_MTSI, QOED To:SA5 Cc:RAN2, RAN3

=> Noted

R2-1801768 Reply LS on adding new service type in QMC reporting (S4-180229; contact: Ericsson) SA4 LS in Rel-15 UMTS_QMC_Streaming, LTE_QMC_Streaming, EQoE_MTSI, QOED To:RAN6 Cc:CT1, RAN2

=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 044

R2-1802888 Running CR on Introduction of QoE Measurement Collection for LTE Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1098 - B LTE_QMC_Streaming-Core

R2-1802889 Running CR on Introduction of QoE Measurement Collection for LTE Huawei, HiSilicon CR Rel-15 36.306 14.5.0 1558 - B LTE_QMC_Streaming-Core

R2-1802890 Running CR on Introduction of QoE Measurement Collection for LTE Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3249 - B LTE_QMC_Streaming-Core

R2-1802891 Discussion on QoE configuration id Huawei, HiSilicon discussion Rel-15 LTE_QMC_Streaming-Core

9.7 LTE connectivity to 5G-CN

(LTE_5GCN_connect-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172342)
Time budget: 1.5 TU
At this meeting, due to the commonality with NR, this WI will be handled in the main session.

9.7.1 Organisational

Including incoming LSs, rapporteur inputs, running CRs
Principles on what to specify in which specs, terminology, etc

LSs

R2-1801707 Reply LS on security aspects of supporting LTE connected to 5GC (C1-180485; contact: Huawei) CT1 LS in Rel-15 LTE_5GCN_connect To:RAN2, RAN3 Cc:SA3
=> Noted

R2-1801745 Reply LS to CN node selection for LTE features when E-UTRA is connected to 5G CN (S2-179618; contact: Nokia) SA2 LS in Rel-15 5GS_Ph1 To:RAN2, CT1 Cc:RAN3
=> Noted

R2-1801747 Reply LS on details of network identifiers (S2-181262; contact: Qualcomm) SA2 LS in Rel-15 LTE_5GCN_connect, NR_newRAT-Core To:RAN2
=> Noted

R2-1801752 LS on Security aspects of supporting LTE connected to 5GC (S3-180348; contact: Ericsson) SA3 LS in Rel-15 LTE_5GCN_connect-Core To:RAN2 Cc:CT1
- OPPO understand that LTE RRC will configure NR PDCP algorithms. Ericsson think the NR PDCP config will be included in the LTE RRC as a container. Qualcomm think even if NR PDCP is used then the LTE algorithms are used.
=> Noted

Rapporteur inputs

R2-1802513 Running 36.304 CR for LTE connectivity to 5GCN Huawei draftCR Rel-15 36.304 14.5.0 B LTE_5GCN_connect-Core
- Ericsson think the CT1 CR has been interpreted wrongly and there should be no impact to cell selection and reselection. If CN type is used in cell selection then the UE will select cells that are not optimal from radio point of view.
- Samsung agree with Ericsson and think this is not discussed to use CN type for reselection. But agree that CN type is passed to upper layers.
- OPPO think for cell selection/reselection then some checking is needed.
=> Remove aspects on cell selection/reselection (needs to be discussed based on papers)
=> Other aspects can be discussed offline to ensure it is aligned with CT1 agreements.
=> Revised in R2-1803986 (Offline discussion #40)

R2-1803986 Running 36.304 CR for LTE connectivity to 5GCN Huawei draftCR Rel-15 36.304 14.5.0 B LTE_5GCN_connect-Core
=> Endorsed as running CR

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 045

9.7.2 Stage 2 aspects independent from NR/5GC

Including AS support for EPC/5GC selection, inter-RAT mobility (e.g. between E-UTRA/5GC and E-UTRA/EPC but not mobility in inactive which is addressed by AI 10.4.1.7.4), etc.

Network identities

R2-1802631 Handling of Collision betweem UE Identifier in LTE connected to 5GC Ericsson discussion Rel-15 LTE_5GCN_connect-Core

Agreements
1 5g-s-TMSI is added to IE PagingUE-Identity (legacy S-TMSI field is never used to page UEs connected to 5GC)

R2-1803016 Addition of Core Network type information in RRC signalling LG Electronics discussion Rel-15 LTE_5GCN_connect-Core

- Discussed jointly with the previous paper
- Vodafone think the S-TMSI will be different based on network planning. Wonders if this collision will happen. Qualcomm think that this is possible but SA2 think it is not necessary. OK to use the spare but could define a new message.
- Nokia think we may need spare bit for the establishment cause. Also think that SA2 might be asking us to extend the S-TMSI. So think it would be better to avoid using the bit.
- Lenovo think the collision probability is very low and will still be very close to what we have today. Huawei have the same view that it is a very rare case. For the routing purposes we already agreed this can be done based on MSG5.
- Ericsson think SA2 asked to define a solution for the collision. Think a message 3.5 can be used to resolve this discussion forever.
- Intel have a similar view as Ericsson that SA2 requested us to provide a solution.
- ZTE support the Ericsson view as it avoids collision and resolved the PDCP version change issue.
- CATT support Huawei. China Telecom also support to save the bit for other used.
- ZTE think that a new logical channel and define a new message could be used that would give us some extra space so it is not the last spare bit.

Show of hands
1 Add 5GCN indication in MSG3 (could be using spare bit, or new message) [7]
2 Do not add 5GCN indicator in MSG3 [12]

Agreements
1 5GCN indicator is not added to MSG3 (remain included in MSG5)

R2-1801776 Discussion UE Identifier Definition in RRC Signalling in eLTE OPPO discussion LTE_5GCN_connect

R2-1802517 Discussion on network identifiers Huawei, HiSilicon discussion Rel-15 LTE_5GCN_connect-Core

R2-1802944 5G network identifiers Intel Corporation discussion Rel-15 LTE_5GCN_connect-Core

SRB1 PDCP version change

R2-1801777 Discussion on PDCP Version Reconfiguration in eLTE OPPO, vivo, Intel Corporation, China Telecom, Xiaomi, Lenovo, Motorola Mobility discussion LTE_5GCN_connect

R2-1801922 NR PDCP Reconfiguration for SRB1 CATT discussion Rel-15 LTE_5GCN_connect-Core

- Discussed jointly with previous paper.
- Qualcomm think the implicit creates ambiguity period. If there are UE initiated messages then the network can detect this from the header.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 046

- OPPO think there is an ambiguity period for the explicit approach if UE generates RRC message with LTE PDCP after network has sent the reconfig but before the response is received. With implicit it is clear that any message after MSG5 will used NR PDCP.
- ZTE don't see the ambiguity and would prefer to use the same approach as EN-DC
- LG support the explicit approach.
- Intel think it is normal that during an ongoing reconfig there is an ambiguity period. Normally this is resolved by network implementation.
- Ericsson support the implicit approach. Sony also support the implicit. China Telecom also support the implicit and can avoid the additional reconfiguration.
- Huawei think both approaches can work.

Show of hands
1 Implicit change to NR-PDCP following transmission of MSG5 [10]
2 Explicit reconfiguration procedure used to reconfigure SRB1 to NR-PDCP [5]

Agreements
1 UE implicitly changes to NR-PDCP for SRB1 following submission of MSG5 to lower layers.

R2-1802048 PDCP version change for SRB1 for LTE/5GC ZTE Corporation, Sanechips discussion Rel-15

R2-1802630 Handling of NR PDCP and Security Mode Command for LTE connected to 5GC Ericsson discussion Rel-15 LTE_5GCN_connect-Core

R2-1802498 PDCP version change in eLTE LG Electronics France discussion Rel-15 LTE_5GCN_connect-Core

TAC

R2-1802516 Discussion on 5G TAC broadcasted in SI Huawei, HiSilicon discussion Rel-15 LTE_5GCN_connect-Core

- Huawei think even if the TAC is the legacy TAC, it may still be a different TAC value for 4G and 5G CN
- Vodafone think this is not related to the TAC size question. Assume there could be a different TAC value for 4G and 5G CN.
- Nokia think it is clear that the 2 could be different so we don't need to ask about that. Also assume we need TA per PLMN the same as LTE/EPC.
- Intel assume we can have TAC per PLMN and also think 4G and 5G TAC will be different.
- Qualcomm assume different TAC per 4G and 5G

Agreements:
1 New TAC field for 5GC will be introduced (separate from TAC for EPC, to enable different TAC value for EPC and 5GC)
2 TAC for 5GC can be PLMN specific

R2-1802519 Draft LS on 5G TAC Huawei LS out Rel-15 LTE_5GCN_connect-Core To:SA2

Security

R2-1802946 Support of security for eLTE Intel Corporation discussion Rel-15 LTE_5GCN_connect-Core

- Qualcomm think the algorithms are AS specific and not specific to the CN and the PDCP type.
- Ericsson think the NR code points should be used as in EN-DC. Agree SA3 said they should be RAT dependent but there is no point to change from approach taken for EN-DC
- Qualcomm think that the 5G NAS will already transfer the LTE and the NR code points. Think that for EN-DC the security code point in the NR-PDCP config is optional an can be omitted.
- Intel think NR-PDCP uses the NR code point and the UE needs to translate to the LTE algorithms.
- ZTE would prefer to use the NR code points. CMCC also share the same view. OPPO also share the same view. LG have same preference.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 047

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Agreements
1. NR security code points are added to LTE RRC signalling.
2 RAN2 assumption is that 5G NAS will be able to provide separate 5G security capabilities for use with NR and with LTE/5GC. (Agreement 1 could be revisited if this assumption is not confirmed by CT1)
3 Data integrity protection will not be supported for E-UTRA connected to 5GC in rel-15.

=> LS to CT1 and SA3 to inform them of above agreements and explain that we see the need to distinguish security between NR and 5GC. Draft in R2-1803991 (Offline discussion #41, Intel)

R2-1803991 [DRAFT] LS on Security aspects of supporting LTE connected to 5GC Intel LS out Rel-15 LTE_5GCN_connect-Core To:CT1 Cc:SA3
=> Change " and provide feedback if any " to "and answer the question above"
=> Approved in R2-1804092
=> Revised in R2-1804108
[MCC]: Added WI code "LTE_5GCN_connect-Core" in the LS header
=> Approved

R2-1802065 Access Stratum Security aspects of E-UTRAN connected to 5GCN Qualcomm discussion Rel-15 LTE_5GCN_connect-Core R2-1712262
R2-1802628 Draft LS on Security aspects of supporting LTE connected to 5GC Ericsson LS out Rel-15 LTE_5GCN_connect-Core To:SA3, CT1
R2-1803222 Remaining issues related to SMC CMCC discussion Rel-15 LTE_5GCN_connect-Core

CN selection/CN type availability

R2-1801921 Consideration on PLMNs Connected to both 5GC and EPC CATT discussion Rel-15 LTE_5GCN_connect-Core
R2-1801779 Discussion UE assistance for CN Node Indication in eLTE OPPO discussion
R2-1802063 Preventing Legacy LTE UEs from camping on eLTE Cells & PLMNs connected to New 5G Core Network only Qualcomm discussion Rel-15 LTE_5GCN_connect-Core R2-1712264
R2-1802109 Consideration on coding details of PLMN ID vivo discussion Rel-15 LTE_5GCN_connect-Core
R2-1802110 CN selection for LTE connected to 5GC vivo discussion Rel-15 LTE_5GCN_connect-Core R2-1712778
R2-1802112 Further considerations on the CN selection for E-UTRAN connected to 5G CN Samsung discussion Rel-15 LTE_5GCN_connect-Core R2-1712171
R2-1802113 CN type indication for E-UTRAN connected to 5G CN Samsung discussion Rel-15 LTE_5GCN_connect-Core R2-1712172
R2-1802514 Initial CN type selection procedure Huawei, HiSilicon discussion Rel-15 LTE_5GCN_connect-Core
R2-1802515 Draft LS on CN type information provided by AS to NAS Huawei LS out Rel-15 LTE_5GCN_connect-Core To:CT1
R2-1802518 Discussion on PLMN list design Huawei, HiSilicon discussion Rel-15 LTE_5GCN_connect-Core
R2-1803269 Network controlled selection to 5GC or EPC HTC Corporation discussion Rel-15

Other

R2-1802945 Handling of disabling of eLTE capability Intel Corporation discussion Rel-15 LTE_5GCN_connect-Core
- LG think when eLTE is disabled the UE falls back to legacy behaviour.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 048

- Alex think this can be controlled by NAS indicating that the UE should not consider cells belonging to 5GC.
- Ericsson think this is a UE implementation issue and nothing that needs to be captured in the spec.
- Qualcomm understand that the capabilities need to be disabled within the AS and could be left to implementation or specified.
- LG think the most important point if capability update as today a change of capabilities required detach. This approach can be used.
- Ericsson think this is a corner case and we want to UE to detach and reattach as soon as the NAS disables the N1 mode. Nokia can also live with detach and reattach but the behaviour needs to be clearly specified. DT also have the same view. Qualcomm are also ok with this approach. ZTE also. Lenovo are also ok.
- Huawei think this is not fully consistent with CT1 agreements where they agreed that NAS will indicate to AS to disable the capabilities.

Agreements
1 If NAS disables or re-enables NG-RAN related capability (CT1 term "N1 mode") the UE NAS procedure should be used to update the update the UE radio access capabilities (e.g. detach and reattached as used in LTE/EPC). RAN2 assume this would be fully specified in NAS specs.

=> Draft LS in R2-1803993 to CT1, SA2 to provide the agreement and explain the reason that this is the only mechanism available to change he UE radio access capabilities (Offline discussion #42, Lenovo)

R2-1803993 [DRAFT] LS to SA2 and CT1 on enabling and disabling NG RAN Capabilities Lenovo LS out Rel-15 LTE_5GCN_connect-Core To:CT1, SA2
=> Approved in R2-1804094

R2-1802947 Support of positioning for E-UTRA connected to 5GC Intel Corporation discussion Rel-15 LTE_5GCN_connect-Core R2-1712663
R2-1801781 Discussion on EPC and 5GC Selection During for Intra-LTE Handover with CN Type Change OPPO discussion Rel-15 LTE_5GCN_connect-Core R2-1712222
R2-1801782 Discussion on ANR issue for eLTE OPPO discussion LTE_5GCN_connect
R2-1802041 Enhancements on ANR functionality for eLTE ZTE Corporation, Sanechips discussion Rel-15
R2-1802111 Mobility issue in LTE connected to NextGen Core vivo discussion Rel-15 LTE_5GCN_connect-Core R2-1712780
R2-1802629 Implicit target CN Type indication during a handover command Ericsson discussion Rel-15 LTE_5GCN_connect-Core
R2-1802632 Message 3.5 in LTE connected to 5GC Ericsson discussion Rel-15 LTE_5GCN_connect-Core
R2-1803055 Network slicing information delivery for LTE connected to 5GC LG Electronics UK discussion Rel-15
R2-1803121 PDCP Count wrap around stage 2 description Vodafone GmbH discussion Rel-15
R2-1803130 ANR enhancements involving 5GC Sony discussion Rel-15 LTE_5GCN_connect-Core
R2-1803131 Coexistence of 5GC and legacy eNB in the same network Sony discussion Rel-15 LTE_5GCN_connect-Core
R2-1803610 Disabling UE capability for access to 5GC NEC discussion Rel-15 LTE_5GCN_connect-Core

Withdrawn
R2-1802053 PDCP version change for SRB1 for LTE/5GC ZTE Corporation, Sanechips discussion Rel-15 Withdrawn

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 049

9.7.3 Stage 2 aspects dependent on NR/5GC

No documents should be submitted to 9.7.3. Please submit to 9.7.3.x.
The agenda items 9.7.3.x will be disscussed when the corresponding NR topic has made sufficient progress.

✉ **[101#33][LTE/5GC] Inactive (Intel)**
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

✉ **[101#34][LTE/5GC] Slicing (Ericsson)**
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

✉ **[101#35][LTE/5GC] Flow based QoS (Huawei)**
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

✉ **[101#36][LTE/5GC] Access Control (China Telecom)**
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

=> Running CRs updated to capture agreements from this meeting can be submitted to the next meeting (no email discussion for these)

9.7.3.1 Inactive state

R2-1802064 RRC INACTIVE State aspects for E-UTRAN connected to 5GCN Qualcomm discussion Rel-15 LTE_5GCN_connect-Core R2-1712265

R2-1802495 DataInactivityTimer for INACTIVE in eLTE LG Electronics France discussion Rel-15 LTE_5GCN_connect-Core

9.7.3.2 Flow based QoS

R2-1803154 Number of DRBs in E-UTRA connected to 5GC Ericsson discussion Rel-15 LTE_5GCN_connect-Core

9.7.3.3 Slicing

9.7.3.4 Access control

R2-1801778 Discussion on Access Control for eLTE OPPO discussion R2-1712220

R2-1802733 Impact of 5GC on Establishment Cause for eLTE LG Electronics Inc. discussion Rel-15 LTE_5GCN_connect-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 050

9.7.3.5 Other

R2-1802510 Support for PLMN selection while in INACTIVE state in eLTE LG Electronics Inc. discussion Rel-15 LTE_5GCN_connect-Core R2-1713632

R2-1802596 Discussion on redirection information Google Inc. discussion 36.331 LTE_5GCN_connect-Core

R2-1802597 Discussion on cell reselection and system information acquisition Google Inc. discussion 36.331 LTE_5GCN_connect-Core

R2-1802680 NR configuration handling when NAS disable NR capability China Telecom Corporation Ltd. discussion

9.8 Positioning Accuracy Enhancements for LTE

(LCS_LTE_acc_enh-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172313)
Time budget: 1 TU
Documents in this agenda item will be handled in a break out session

9.8.1 Organisational

Including incoming LSs, rapporteur inputs, running CRs
Including output of email discussion [99bis#56][LTE/Positioning] Running LPP CR (Qualcomm)

Workplan

R2-1803641 Updated work plan for UE Positioning Accuracy Enhancements for LTE work item Nokia, Nokia Shanghai Bell discussion Rel-15 LCS_LTE_acc_enh-Core

Additional TUs for RAN3 have been added. No other major changes.

LSs

R2-1801710 LS on encrypting broadcasted positioning data and LS on provisioning of positioning assistance data via LPPa for broadcast C1-180643; contact: Qualcomm) CT1 LS in Rel-15 LCS_LTE_acc_enh-Core To:SA2 Cc:RAN3, RAN2, CT4, SA3

RAN2 in Cc:
⇨ Noted

R2-1801744 Response to LS on encrypting broadcasted positioning data and LS on provisioning of positioning assistance data via LPPa for broadcast (S2-179617; contact: Qualcomm) SA2 LS in Rel-15 LCS_LTE_acc_enh-Core To:RAN2, CT1, CT4, SA3 Cc:RAN3

⇨ Will reply under the broadcast agenda item
⇨ Noted
⇨ Email discussion to converge on a reply. Deadline for next meeting (Qualcomm) [CB]

R2-1801750 Reply LS on encrypting broadcasted positioning data (S3-173439; contact: Ericsson) SA3 LS in Rel-15 LCS_LTE_acc_enh-Core To:RAN2 Cc:RAN3, SA2

⇨ Related contributions, will reply under the broadcast agenda item
⇨ Noted

Organisational and running CR

R2-1802689 Report of email discussion [99bis#56][LTE/Positioning] Running LPP CR Qualcomm Incorporated discussion Rel-15 LCS_LTE_acc_enh-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 051

⇨ Noted

R2-1802690 Running LPP CR for RTK GNSS positioning Qualcomm Incorporated draftCR Rel-15 36.355 14.4.0 B LCS_LTE_acc_enh-Core

Baseline for further work. No attempt to endorse at this stage.
⇨ Noted

9.8.2 GNSS positioning enhancements

RTK payload transmission, transparent or not? Supported RTK techniques, SSR, VRS, PPP, etc? The details on the support of UE based and UE assisted; The details about unicast and broadcast of RTK assistance data;
Including output of email discussion [99bis#57][LTE/Positioning] Future phase support of SSR (u-blox)

Discussion of running CR

R2-1803284 Considerations on Stage 3 Running CR for LPP ESA discussion Rel-15 LCS_LTE_acc_enh

Agreements:

1. *ReceiverAndAntennaDescription-r15* to become *AntennaDescription-r15* and to be formed of two fields, namely *antennaDescriptor* and *antennaSetupID.* In addition, the IGS naming convention should be mentioned in the IE description.
2. Support provision of sub-sets of MSM7 by making optional/conditional the appropriate fields (integer milliseconds and range rate) in *GNSS-RTK-Observations* IE.
3. Add antenna height field to *GNSS-RTK-ReferenceStationInfo* IE as an optional field.
4. Use *GNSS-SignalID* as a replacement for *signal-and-tracking-mode-ID*.
5. Extend *GNSS-SignalID* rather than changing the legacy signals.

- QC ask if the purpose is just to provide the phase offset to the UE, why not just add a field for that rather than assume the complexity of the antenna description?
- ESA think we could define a field for phase centre offset, but there would need to be a database for all the different antenna models for corrections.
- Ericsson ask if it would be possible in LPP or by reference to provide a clear reference to the antennas. ESA clarify that the naming follows IGS convention and there is no ambiguity.
- QC wonder what happens if a reference station is set up to use an antenna type that the UE does not know; where would the UE get updated information? ESA: two options, one where the UE does nothing and relies on the service provider with a naming descriptor of "null antenna"; the other where the UE is expected to apply the corrections based on knowing the setup of the reference station. If neither option is available the UE just has worse errors.
- Ericsson understand that the names of the antennas are listed but the characteristics are not, and need to be gathered from somewhere. ESA consider the IGS antenna models are the repository of the needed information. They think translating all these antenna models to LPP would be excessive work.
- Ericsson are fine with the proposal if a reference can be included in 36.355. ESA indicate the IGS models are already referenced.

Proposal 2. To support provision of sub-sets of MSM7 by making optional/conditional the appropriate fields in *GNSS-RTK-Observations* IE.

- QC: which subsets?
- Ericsson think we need to consider the case that this information comes from outside the E-SMLC. The different MSM variants may come to the E-SMLC for encoding and we need to support them all.
- ESA consider that e.g. ESM1 is not likely to be needed. We don't need to support all subsets. A minimum starting point would be MSM3 which is ~1/2 the size of MSM7.
- Nokia think we agreed to support all the MSM messages and this is just a question of implementation in the ASN.1. Clarify that the "subsets" are lower MSM message numbers, not picking and choosing fields.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 052

- QC think the implementation of this agreement would just require making all the fields in the observation message optional.
- Ericsson think some cases could be handled by delta encoding e.g. MSM4 and 5.
- ESA think the integer milliseconds could be made optional, and then the mandatory fields would map to MSM3
- QC think the range rate also needs to be optional.
- Ericsson understand that this would leave us with MSM3 as a minimum. QC confirm and think this is OK; the lower MSM messages are just differential GPS.
- Ericsson think you might want to broadcast the reduced assistance data, but QC think this can be done with legacy assistance data.

Proposal 3. Add antenna height field to *GNSS-RTK-ReferenceStationInfo* IE since this IE is used as specified for RTCM message type 1006, not RTCM message type 1005.

Proposal 4. To use *GNSS-SignalID* as a replacement for *signal-and-tracking-mode-ID*.

Proposal 5. To use *GNSS-SignalID* for the FFS in *signal-and-tracking-mode-ID*.

- ESA clarify that adopting P4 would resolve the FFSs.

Proposal 6. If changing the existing *GNSS-Signal ID* will affect the backward compatibility, we believe the GNSS-SignalID should not be modified and left as is. Additionally, a note explaining potential dupplications could be added after the *GNSS-SignalID*.

- QC think changing the legacy definition is dangerous. Historically we didn't have the finer granularity of signals. Prefer to keep the legacy signal entries and add new ones on top of it.

R2-1803395 Comments on Running LPP CR for RTK Positioning LCS_LTE_acc_enh-Core Qualcomm Incorporated discussion

Agreements:

RAN2 should define the details of the new GAD shapes and provide the RAN2 recommendation to SA2 for inclusion in TS 23.032.

Add additional horizontal and vertical accuracy fields to the *QoS* IE with finer resolution. The definition/accuracy-code should be the same as for the new GAD shapes in TS 23.032 (Proposal 1).

Add a *unit* field to the *ResponseTime* and *ResponseTimeNB* IEs, applicable to both, *time* and *responseTimeEarlyFix* to indicate a time resolution of 10 seconds, together with corresponding capabilities.

Add an additional entry to the *LocationSource* IE to indicate whether HA GNSS has been used by the target device or not. Granularity of the flag is FFS.

Add a new *ha-gnss-Modes* field to the IE *A-GNSS-ProvideCapabilities* to indicate to the location server the HA GNSS mode(s) supported by the target device.

The reference station IDs need to be unique. FFS how to do it.

Add the epoch time (*GNSS-SystemTime*) to the IE *GNSS-RTK-Observations*.

Proposal 1: Define new "High Accuracy GAD Shapes" in TS 23.032.

- This is an SA2 spec; we can make recommendations to them.

Proposal 2: RAN2 should define the details of the new GAD shapes and provide the RAN2 recommendation to SA2 for inclusion in TS 23.032.

- Nokia want to avoid having new shapes defined in a different place.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 053

- Ericsson wonder about the details; would we use the LPPe definitions? Qualcomm used LPPe as a baseline but we can work on the details.
- Nokia think we can work on the details offline
- => Email discussion to finalise the shape recommendations (Nokia). Deadline for next meeting. [CB]

Proposal 3: Add additional horizontal and vertical accuracy fields to the *QoS* IE with finer resolution. The definition/accuracy-code should be the same as for the new GAD shapes in TS 23.032 (Proposal 1).

⇨**Agreed**

Proposal 4: Add a *unit* field to the *ResponseTime* and *ResponseTimeNB* IEs, applicable to both, *time* and *responseTimeEarlyFix* to indicate a time resolution of 10 seconds, together with corresponding capabilities.

⇨**Agreed**

Proposal 5: Add an additional entry to the *LocationSource* IE to indicate whether HA GNSS has been used by the target device or not.

- ESA wonder if a distinction is needed between different forms of HA GNSS e.g. RTK vs. PPP.
- Qualcomm think it's not clear what all the possible forms would be.
- FFS whether finer granularity is needed in this flag.

Proposal 6: Add a new *ha-gnss-Modes* field to the IE *A-GNSS-ProvideCapabilities* to indicate to the location server the HA GNSS mode(s) supported by the target device.

- QC clarify for UE-based mode, we don't have a capability that would indicate whether the UE supports RTK or not.
- => Agreed

Proposal 7: The following fields in IE *GNSS-RTK-Observations* should be optional present:
rough-phase-range-rate-r15
fine-PhaseRangeRate-r15

⇨**Already covered**

Proposal 8: Add a Provider Name character string to the *GNSS-ReferenceStationID* and extend the value range for the *referenceStationID* field.

- Ericsson are not sure if it needs to be universally unique. It needs to be unique at the time of usage but reuse over large areas may be OK.
- QC think the RTCM specification is clear that the reference station names must be unique within the whole network and not subject to change.
- Ericsson wonder if there is a need to define the character strings so they are globally unique. Qualcomm think we could discuss possible approaches e.g. the PLMN ID.
- Nokia think if you use the PLMN ID you are assuming the reference stations are part of a PLMN. It could be a completely separate third party network. QC agree but from the UE point of view it doesn't matter; it gets information from the serving PLMN.
- Ericsson agree that PLMN ID would be unfortunate.
- Nokia think we can acknowledge the problem and discuss a solution.
- => We acknowledge that the reference station IDs need to be unique. FFS how to do it.

Proposal 9: A positive sign of the ADR measurement should indicate that the satellite is moving away from the target device; a negative sign should indicate that the satellite is moving towards the target device.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 054

- Ericsson prefer the opposite sign convention.
- => FFS

Proposal 10: Add the epoch time (*GNSS-SystemTime*) to the IE *GNSS-RTK-Observations*.

R2-1803453 On remaining issues of GNSS RTK information via LPP Ericsson discussion Rel-15

Agreements:

Remove antennaSerialNumber, receiverTypeDescriptor, receiverFirmwareVersion, receiverSerialNumber. antennaDescriptor and antennaSetUpID were previously agreed to be included in the AntennaDescription structure; FFS whether to keep them.

Add reference station uncertainty fields in the assistance data as OPTIONAL fields.
Add a stage-2 definition to describe the subnetwork concept.
Add a clarifying text in stage 2 to refer to the RTCM definitions of signal generations.
Remove ssr-ProviderID/ssr-SolutionID from LPP (pending future decisions on SSR).
Confirm the introduction of the periodic assistance data via LPP for the GNSS RTK assistance data.

P2: Clarify the *HighAccuracy3Dposition* IE *cep* field definition according to the suggested text proposal.

P3: Change the *HighAccuracy3Dposition altitude* field to OPTIONAL.

- Qualcomm think this relates to the details of the shapes.
- In scope for the email discussion on shapes.

P5: Do not add the descriptive fields *antennaDescriptor, antennaSetUpID,*(all values except 0), *antennaSerialNumber, receiverTypeDescriptor, receiverFirmwareVersion, receiverSerialNumber* unless their definitions and motivations are properly sorted out

- ESA agree that many of these can be omitted but the antenna description and setup ID are meaningful and should be kept.
- ESA clarify the setup IDs come from the service provider. Providing a value of 0 may result in applying the wrong model.
- Ericsson think the meaning needs to be clear.
- ESA think the cost of removing them could be a positioning error of a few decimeters.
- QC think this is an outdated way of handling the errors. We could provide the phase offset in LPP or let the server correct. They are OK to include the setup ID if a table of well-defined values exists.
- Remove antennaSerialNumber, receiverTypeDescriptor, receiverFirmwareVersion, receiverSerialNumber. antennaDescriptor and antennaSetUpID are FFS.

P7. Fields with data possibly unavailable shall be OPTIONAL or conditional present, where omission is interpreted by the device as unavailable

- QC think this is similar to the descriptive antenna serial numbers. If data are not available we cannot provide information. But we can't solve this by making the fields OPTIONAL because RTCM has a statement "lowest negative integer means data unavailable" for all signed integers, so it would mean making every signed integer OPTIONAL.
- The issue is real but FFS how to address it.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 055

P8. Add definitions of Pseudorange, Phaserange, Phaserangerate etc to stage-2 36.305.

- ESA have a draft that includes the definitions.
- => Already in the current draft

P11. Add reference station uncertainty fields in the assistance data.

- ESA agree and think the fields should be OPTIONAL.

P16. Add an extended field description in LPP or a stage-2 definition to describe the subnetwork concept

- ESA agree and will add it in the next version.
- To be captured in the stage 2.
- Nokia observe this concept is in the reference RTCM standard. ESA will summarise and refer to RTCM.

P17. Add a clarifying text in stage 2 to refer to the RTCM definitions of signal generations.

- ESA will capture it in stage 2.

P18. Reuse the RTCM definition and value range of the network ID.

- QC think this is the same issue as the station ID and we need to think about how to make it unique.
- FFS; consider along with the station ID.

P20. Do not add *ssr-ProviderID/ssr-SolutionID* unless they have been properly defined and their needs have been clearly motivated

- These fields are in the baseline now.
- To be removed pending decisions on SSR.

P21. Confirm the introduction of the periodic assistance data via LPP for the GNSS RTK assistance data.

-

Stage 2

R2-1802710 Additional Stage-2 Considerations for RTK Assistance Data Deutsche Telekom discussion Rel-15

R2-1803282 Draft Stage 2 CR for RTK and PPP positioning ESA draftCR Rel-15 36.305 14.3.0 B LCS_LTE_acc_enh

- Nokia suggest we go to email discussion for a baseline.
- => To be endorsed by email. Deadline for next meeting (ESA) [CB]

R2-1803283 Additional observations on MAC and FKP ESA discussion Rel-15 LCS_LTE_acc_enh

SSR email discussion

R2-1803142 Report of email discussion [99bis#57][LTE/Positioning] Future phase support of SSR u-blox AG discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 056

9.8.3 Support for IMU positioning

The details of IMU raw data; the scenario and benefits on how to use IMU raw data;
Including output of email discussion [99bis#58][LTE/Positioning] Measurements for IMU positioning (Intel)

Email discussion

R2-1803411 Report of email Discussion [99bis#58][LTE/Positioning] Measurements for IMU positioning Intel Corporation discussion Rel-15 LCS_LTE_acc_enh-Core

Proposal 1: Due to substantial signalling and lack of utility of raw IMU measurements, it is proposed that UE shall not signal the raw IMU measurements

⇨

Proposal 2: UE shall signal acceleration, velocity, displacement and timestamp to the location server. These measurements can be computed either using IMU sensors or from other sources like OTDOA. Since TS 36.355 already supports signalling of velocity and timestamp, additional signalling shall be defined for acceleration and displacement

- Nokia are not sure about the meaning of the "other sources like OTDOA". Intel think you can compute acceleration and displacement using OTDOA or other methods in addition to IMUs.
- Ericsson note there is already signalling support for some of these items, but the signalling design and report content still needs to be discussed. Too soon to agree that only acceleration and displacement are needed.
- Qualcomm don't think you can compute displacement with OTDOA unless you support UE-based OTDOA.
- => Support signalling of acceleration and displacement
- => Email discussion on movement model (Fraunhofer)
    - Deadline for next meeting

    ⇨Email discussion on details of reporting acceleration and displacement (Sony)

        - Deadline for next meeting

Proposal 3: The measurements and the signalling needed to support UE movement model shall be taken up as a separate discussion.

- Qualcomm are not convinced you can separate the motion measurements from the positioning methods. If we support the motion measurements we need to support them within the positioning method. This is an issue of how to implement in LPP.
- Ericsson think you can separate them for reporting although there are benefits to linking them in the device.
- ZTE wonder why companies want to report acceleration if not for the movement model. They have a related contribution.

LPP proposals for new measurements

R2-1803412 Signaling acceleration and displacement for IMU positioning in LPP Intel Corporation draftCR Rel-15 36.355 14.4.0 LCS_LTE_acc_enh-Core

R2-1803397 Mitigating Movement of a UE during Positioning using IMUs Qualcomm Incorporated discussion LCS_LTE_acc_enh-Core R2-1711034

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 057

R2-1803452 Addition of a new positioning method based on additional sensors measurements Ericsson CR Rel-15 36.355 14.4.0 0193 - B LCS_LTE_acc_enh-Core

R2-1803398 Running LPP CR for INS support Qualcomm Incorporated draftCR Rel-14 36.355 14.4.0 B LCS_LTE_acc_enh-Core

R2-1803413 LS to SA2 on describing acceleration and displacement Intel Corporation LS out Rel-15 LCS_LTE_acc_enh-Core To:SA2

Other topics

R2-1801966 Discussion on IMU positioning ZTE Corporation discussion Rel-15

R2-1801972 Support IMU positioning ZTE Corporation draftCR Rel-15 36.305 14.3.0 LCS_LTE_acc_enh-Core

R2-1801973 Supoort IMU positioning over LPP ZTE Corporation draftCR Rel-15 36.355 14.4.0 B LCS_LTE_acc_enh-Core

R2-1801974 Local NED coordinates frame for IMU positioning ZTE Corporation draftCR Rel-15 23.032 14.0.0 B LCS_LTE_acc_enh-Core

R2-1802312 Movement model based IMU positioning Fraunhofer IIS discussion Rel-15

R2-1803140 Considerations on IMU positioning Sony discussion Rel-15 LCS_LTE_acc_enh-Core

9.8.4 UE-based OTDOA positioning

What additional assistance information is required? Note, as second priority

R2-1801967 On UE-based OTDOA positioning ZTE Corporation discussion Rel-15

R2-1802921 Consideration on UE-based OTDOA positioning LG Electronics Inc. discussion Rel-15 LCS_LTE_acc_enh-Core R2-1711689

R2-1803399 Introduction of UE-Based OTDOA Positioning Qualcomm Incorporated discussion LCS_LTE_acc_enh-Core

R2-1803400 Draft CR 36.305: Introduction of UE-based OTDOA Positioning Qualcomm Incorporated draftCR Rel-15 36.355 14.4.0 B LCS_LTE_acc_enh-Core R2-1711038

R2-1803631 Discussion on OTDOA positioning Huawei discussion

9.8.5 Broadcasting of assistance data

SIB design for the transmission of A-GNSS, RTK and, as second priority, UE-based OTDOA assistance information. Encryption of assistance data broadcasting (SA3 input is needed);

Ciphering

R2-1803385 Ciphering of Broadcast Assistance Data Qualcomm Incorporated discussion LCS_LTE_acc_enh-Core

Proposal 1: Adopt Solution [1] as described in [2]. (Reuse the LPPe ciphering solution.)

Proposal 2: The ciphering solution can be completed by RAN2 and included in RAN2 owned specifications. No further work should be required in SA3.

Proposal 3: No subscription hierachy should be specified.

- Ericsson see benefits to solution 2 e.g. minimising the number of keys for scalability and value in the subscription hierarchy.
- DT think the main advantage of option 2 is the reduced signalling. Option 1 gives better flexibility. They might want to give different accuracy to different groups of users. They also are not sure if option 2 is at a mature stage in SA3 and so would prefer to go with option 1.
- Ericsson note the LS is clear that both solutions can work.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 058

- Qualcomm agree there is a statement that option 2 can work but they think the description is not clear about the complete solution and it has to be developed by SA3.
- Nokia think it's strange that we are debating security solutions in RAN2. Suggest that we give feedback to SA3 in terms of any concerns with both solutions, and expect SA3 to take the final decision.
- QC think there is nothing on the ciphering for SA3 to do; both solutions reuse AES. What we need to do is make the overall system work end-to-end. They cannot design a broadcast solution for us because they don't have the requirements.
- Ericsson think SA3 want to understand if we need multiple subscription levels, and we can discuss that and reply to SA3 with that part.
- DT think SA3 are expecting us to deliver a preference. They think flexibility should be the main driver and prefer option 1.
- Ericsson think the operator should be able to define the subscription hierarchy and change it.
- DT wonder why we talk about "gold" subscribers, vs. just having different e.g. accuracy provided to different subscribers.
- QC think the "gold" subscriber also has access to lower data which creates charging problems. The key hierarchy exists to solve different problems and doesn't apply to our objective of providing different data to different subscribers.
- Nokia think if we expect a preference to be indicated to SA3 we should go to email to finalise the reply.
- => Email discussion to conclude and draft the reply to SA3. Deadline before next meeting (Ericsson). [CB]

R2-1803455 Encryption and key handling of broadcast positioning information Ericsson discussion Rel-15

R2-1803633 Discussion on Cipher Key Distribution Huawei, HiSilicon, CAICT discussion

R2-1803390 Distribution of Ciphering Keys for Broadcast of Positioning Assistance Data Qualcomm Incorporated discussion LCS_LTE_acc_enh-Core

Draft reply LSs on encryption

R2-1803388 [DRAFT] Response to LS on encrypting broadcasted positioning data Qualcomm Incorporated LS out Rel-15 LCS_LTE_acc_enh-Core To:SA3 Cc:RAN3, SA2

R2-1803393 [DRAFT] Response to LS on encrypting broadcasted positioning data and LS on provisioning of positioning assistance data via LPPa for broadcast Qualcomm Incorporated LS out Rel-15 LCS_LTE_acc_enh-Core To:SA2 Cc:CT1, CT4, SA3, RAN3

R2-1803448 draft reply LS to SA3 on encryption of broadcast positioning information Ericsson LS out Rel-15 LCS_LTE_acc_enh-Core To:SA3 Cc:RAN3, SA2

R2-1803454 draft reply LS to SA2 on encryption of broadcast positioning information Ericsson LS out Rel-15 To:SA2 Cc:SA3,RAN3,CT1,CT4

SIB design

R2-1803642 SIBs for broadcasting of assistance data Nokia, Nokia Shanghai Bell discussion Rel-15 LCS_LTE_acc_enh-Core

- LG support the proposal to use segmentation of SIBs. They understand that in LTE this is done only for ETWS/CMAS and similarly in NR. Do we need to check with RAN1 for the maximum size of a segment?
- Nokia envisioned using ETWS as a model. The segmentation can be based on the SIB size limitation that is already known from L1 constraints. They don't think we need to ask further questions about the limit.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 059

- Ericsson wonder what "minimize" the number of SIBs means; would we have one large SIB that is segmented? Do we try to minimise the number of SIB types or the number of SIBs by assistance data type?

- Nokia think the bottom line is the number of SIB types. If you map each assistance data IE into a separate SIB type, they have to be scheduled in the SI message. If you group all the A-GNSS assistance data for example, the E-SMLC can select specific sets of assistance data that come as separate OCTET STRINGs and map to the sme A-GNSS SIB. But this would be distinct from e.g. OTDOA information.

Proposal 1: minimize the number of SIBs needed for broadcast of assistance data.

- Qualcomm don't think this is a desired design goal. It forces you to group assistance data elements into a single message when they may have different requirements on e.g. update rate. Also if you group assistance data elements you need segmentation, and this proposal only supports OCTET STRING segmentation which affects latency at the UE. The UE may only be interested in a subset of a large message but has to receive the whole thing. They don't think it matters how many new SIB types we specify; it's just specification work and does not impact functionality. They would prefer to have one SIB type and make the distinctions in LPP. Think the scheduling problem still exists independent of the number of SIB types; it will only be solved by reducing the amount of broadcast data. Operators need to select what pieces they want to broadcast, but we shouldn't restrict it in the specification.

- DT think grouping elements with similar scheduling requirements might be good. They understand Nokia's proposal would mean e.g. one SIB for network RTK, but there might be different requirements within the different solutions under network RTK and they would have to be grouped together.

- Nokia don't have a proposal for a hard number but think that minimising the SIB types simplifies scheduling at the eNB. As far as minimising the amount of assistance data, the E-SMLC always has this choice by selecting the particular IEs, however we need to discuss how they map to the SIBs.

- Intel agree with Qualcomm that the scheduling does not depend on the number of SIB types. The division should be such that the UE can decrypt with a small number of messages rather than waiting for a lot of segments. So if each SIB can contain a minimum number of independently decodable containers it would be better.

- Nokia wonder how strict the requirements are on the latency. They would prefer to simplify.

- Ericsson think it's important to keep flexibility. If we support more than one encryption category, we have the question of how we would split them up. We shouldn't do something here that is inflexible, e.g. one large SIB that is segmented.

- Huawei would prefer to do the segmentation at E-SMLC rather than eNB.

- Nokia think if you view the division as segmentation that may be the right answer for segmenting the payload. But the eNB should be the one to segment SIBs.

- Qualcomm ask if there is any technical issue with defining a large number of SIBs. They don't think scheduling is really an issue. Anyway the operator will have to do some downselection according to the available capacity.

- Nokia are thinking of scheduling. We can have flexibility with multiple SIB types but they aren't sure about going to the level of individual IEs.

- Qualcomm think if you have one assistance data element per SIB, you can keep open to do segmentation at E-SMLC or eNB. But if you aggregate them you can only segment the octet string.

- Nokia are thinking of octet string segmentation and wonder if there is an advantage to having multiple segmentation solutions. QC think this flexibility is required, and octet string segmentation has a disadvantage in latency. But they think pseudo segmentation may not be possible for all AD elements. They don't see a huge complexity impact.

- Ericsson agree with QC in general and think there could be some value to having the extra "safety" segmentation in the eNB. But pseudo segmentation at E-SMLC is also natural to keep the flexibility.

- Nokia ask if QC's usage of octet string segmentation would meet the latency targets. QC think it depends on the requirements and how many GNSSs you are supporting, etc. They would expect significant AD sizes compared to the SIB size we have available.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 060

- DT wonder if the UE can start using part of the message after partial decoding in case of pseudo segmentation, or has to wait for the whole message anyway. QC think this depends on how the E-SMLC did the segmentation. E.g. you could use separate GNSSs separately, and you might be able to use individual sets of satellites.
- Intel think if you have reference time/location as part of one SIB, you could decode it and start using it immediately. The AD are clearly large enough to need segmentation.
- QC think segmentation at the eNB is not a good idea. The E-SMLC has the intelligence about how to segment the data. Intel agree.
- Nokia think PWS segmentation can be done at eNB also and that seems to work, but they agree it's possible it would not be appropriate here. If you only have segmentation at the E-SMLC, it could result in lots of SIBs and corresponding scheduling complexity.
- QC think there are many more services here than for PWS, with different transmission requirements, and extending the PWS model anyway would result in many new SIBs.
- DT understand that the proposal for segmentation at the eNB is just to follow the PWS model, with no specific implication about how the eNB would optimise transmission. They want to confirm that the service is seen as static in terms of SIB planning.
- Ericsson think the eNB may still need to segment as a backup measure, in case it builds a SIB that is too large. In respect of the DT comment they consider that the eNB would make sure there are resources normally, but there may be circumstances where rejection of the transmission is allowed. Related to RAN3 discussion.
- Nokia were not thinking of any specific optimisations at the eNB, just of handling the limited SIB size.
- Ericsson wonder how many messages we are expecting to be segmented. The PHY limit may be sufficient for most of the messages.
- DT think if we have segmentation only at the eNB of one encrypted string from the E-SMLC, the eNB will never be aware of the content. Nokia think even without knowing the content the eNB could segment based on metadata to handle different streams of content.

Proposal 2: Define SIBs based on specific positioning service like conventional A-GNSS, network RTK GNSS, PPP, OTDOA etc to be deployed in the network and organize all assistance data information elements for that positioning service grouped under one SIB.

- Ericsson think we have a lot of RTK GNSS messages and we need to define each as individual SIBs, one for each RTCM message.
- Intel support the Nokia proposal to break down by positioning service. Some of the large AD elements could be further broken down into smaller SIBs.
- Nokia think the E-SMLC can do some grouping by selecting the appropriate LPP IEs, but the main question is how to map the OCTET STRING to the SIBs: to one SIB (independently decodable) or a set of SIBs (collective decoding)?
- u-blox think breaking down by SIBs needs further discussion. One might have a UE that supports GPS but not Galileo, or L2 but not L5. From the perspective of UE complexity they see benefit in finer granularity.
- Ericsson think flexibility is important and services that are not universally supported now may become so.
- u-blox agree about the need for flexibility but think it also applies to what the UE chooses to support for a particular service. E.g. certain GNSSs could be disabled to save power.
- Intel wonder how we would know the UE support for a broadcast transmission. It would have to be a difference of UE reception based on what it supports but the SIBs are always transmitted.
- Nokia think maybe all A-GNSS related data in one SIB could be too much.
- Ericsson think it is important for the UE to understand what is relevant to it and what is available. If we group in large chunks it will oblige the UE to do a lot of processing to understand this, but if we have a lot of small chunks the UE will have to receive chunks it may not benefit from. A structure to tell the UE what is needed would help.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 061

- Qualcomm agree that the UE needs to know in advance what is broadcasted and have the freedom to pick the information it needs. This is why they want to have scheduling information changes so that the UE can determine this.

- => SIBs are at finer granularity than the positioning service.

- Qualcomm think once you start grouping AD elements you lose the benefits. Ericsson wonder what is an AD element for this purpose. QC clarify all the elements that are objectives of the WI, and think we should not select options but make them all available for the operator to broadcast.

- Nokia ask for clarification of the benefits QC are thinking of with the previous comment. QC think the issue is that the UE needs to read everything in the group, and you have to use octet string segmentation for the concatenated SIB. Nokia agree this is true for arbitrary groupings but we may know the common ways of deploying it, e.g. all the network RTK AD together, OTDOA etc. Qualcomm think it would be nice if we had such requirements but we don't know what will be deployed and in what combinations.

Proposal 3: The positioning service specific assistance data OCTET STRING sent from E-SMLC to eNB is encrypted and this encrypted OCTET STRING and ciphering key associated with it are broadcast in SIB.

Proposal 4: Segmentation of assistance data broadcast in SIB shall be done by the eNB in a similar way as it is done for warning message content broadcast in SIB12.

Proposal 5: The E-SMLC shall be responsible for building the ProvideAssistanceData IE OCTET STRING and, optionally, encrypt it and the eNB shall be responsible for building the complete SIB that broadcasts the assistance data OCTET STRING from E-SMLC.

R2-1803394 Further Details on Broadcast of Assistance Data Qualcomm Incorporated discussion LCS_LTE_acc_enh-Core

- Ericsson wonder about including the key index inside the SIB; doesn't it need to be indicated outside the SIB so it can be read without decrypting?

- Nokia think we should decide on number of SIBs and not focus on e.g. ciphering key aspects now.

Proposal 1: Support octet string- and pseudo-segmentation of large assistance data elements for each SIB.

Proposal 2: For pseudo-segmentation, support dependent and independent ciphering of each segment.

Proposal 3: Support ciphering of the assistance data elements for each SIB.

Proposal 4: Define a separate Positioning System Information Block (SIB) for each GNSS assistance data element specified in LPP.

- Nokia have a concern with the size of the positioning SIB type list in the proposal and would like to simplify it.

- Intel agree with Nokia that this level of granularity is too much. There could be some that would be needed by all UEs, and others that can be grouped e.g. reference time and location can be grouped together for GNSS.

- Qualcomm agree grouping would reduce the number of SIBs, but if you group reference time and location together, you eithe rhave to broadcast the location more often or the time less often. They don't see a middle way here; either we have a one-SIB approach or a list of SIBs, and if we have a list the size doesn't make much difference.

- Intel wonder if it makes sense to have a SIB for an individual small IE.

- Qualcomm think e.g. reference time and acquisition assistance need to go together but you cannot say all UEs have to support both. The grouping is in the SI message in their proposal.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 062

- u-blox would like clarification on what the problem is with the number of SIBs. Nokia's concern is with scheduling at the eNB if you have a lot of the AD elements defined as SIBs, not all of which need to be broadcast for a particular deployment; from the cell perspective you see a lot of instances of SIBs being broadcast, that need to be scheduled together with the other, existing SIBs.
- Qualcomm think what matters is the number of SI messages, not the number of SIBs, and the amount of data does not change depending on the grouping. Nokia agree that you have to map the SIBs to SI messages according to the periodicity, so it may be dictated by the delivery requirements.
- Qualcomm think you can run into trouble scheduling SI messages, but it is because of the amount of data, not because of the grouping.
- Ericsson think all the IEs from LPP have to be supported in the broadcast. Nokia agree butyou may not need to transmit them all at the same time. Ericsson don't see that having one big SIB helps. Nokia think you can view the SIB as one container and it is an E-SMLC decision how it populates the container.
- Nokia would like to have basically a SIB per positioning service, with breakdown of the larger elements.
- Ericsson suggest we start from the QC baseline and discuss towards the next meeting to evaluate the overhead and potentially take proposals for grouping AD elements.

Show of hands

1. One SIB per positioning service (possibly with larger elements broken up) - 1
2. One SIB per AD element – 5

> ⇨Proceed with the QC proposal (one SIB per AD element) as a baseline. Related contributions are invited on complexity analysis and possible grouping of some elements in the same SIB.

- Return to the topic of segmentation
- Qualcomm think if you want to support pseudo segmentation it must be supported at the E-SMLC.
- Nokia wonder if we can simplify to one solution rather than support both. Qualcomm are concerned about future proofing if we have only one, and do not see a lot of work to support both from the beginning.
- Nokia think if you have only the pseudo segmentation, is there really a future case where octet string segmentation is needed? Qualcomm think it depends on future deployments, but it might be an issue for NB where the SIBs are much smaller.
- Ericsson think with the decision to have a SIB per AD element, pseudo segmentation may not be needed. They would also like to avoid multiple methods. DT agree.
- Qualcomm think pseudo segmentation is still desirable, because it's more efficient and reduces the latency at the UE. It has been used since GSM.
- Nokia wonder if doing octet string segmentation will really impact latency.
- Ericsson think since we are talking about much smaller chunks, the impact is smaller and the cost of supporting multiple options is troublesome.
- Intel think if we have pseudo segmentation at the E-SMLC and each segment can be independently used, it would make more sense than waiting to assemble all the fragments of an octet string. It depends on how you schedule.
- Ericsson think some latency is tolerable.
- Qualcomm think there is no additional complexity to support both, either from the E-SMLC or the UE processing point of view.
- Nokia could be OK to support both options but we still need to conclude on the location of segmentation.
- Huawei prefer to have one option as a baseline. Would prefer to have segmentation in the E-SMLC.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 063

- u-blox think we are already doing some pseudo segmentation by creating a SIB per AD element and potentially combining IEs. They also think we should support octet string segmentation due to the uncertainty about how big these SIBs will be in the future.
- Ericsson can agree on octet string segmentation and leave pseudo segmentation as an optimisation.
- Ericsson think there is a need for some study on pseudo segmentation before a final decision.
- Nokia wonder if we can decide on the location of segmentation.
- DT think the location depends on which solution we support. E.g. pseudo segmentation can only be done at the E-SMLC.
- Ericsson think it is a question of optimizing for latency or flexibility. The eNB has the expertise on resource allocation. Suggest we take octet string segmentation as baseline.
- Qualcomm ask which node should do the octet string segmentation. Ericsson think we have already effectively done some segmentation in the E-SMLC by going to smaller AD chunks, but if it can be shown that these chunks are not so small we might need pseudo segmentation. We could look at specific examples in ASN.1 and see if and where segmentation is needed.
- Qualcomm think some AD elements are large enough that segmentation will still be needed.
- Qualcomm think segmentation should be done in one place and there is no reason for the eNB to be involved. Changing the E-SMLC is quicker and easier and avoids RAN impacts.

- => Octet string segmentation will be supported. FFS which node does it.
- => FFS pseudo segmentation (contributions invited)

- No response to RAN3 at this time (wait for next meeting)

Proposal 5: Define a separate Positioning SIB for UE-assisted and UE-based OTDOA assistance data; as well as for WB an NB related assistance data.

Proposal 6: Include the details of the Positioning SIBs in LPP [15], and specify a single generic Positioning SIB in RRC [17].

Proposal 7: Use a critical extension of the *SystemInformation* message for the new Positioning SIB types.

Proposal 8: Define additional scheduling information in SIB1 and SIB1-NB for the Positioning SIBs which includes the *GNSS-ID* (if applicable), as well as information about whether the Positioning SIB is encrypted or not.

Proposal 9: The Cipher Set Data (provided point-to-point to subscribed UEs) should include a cipher key identifier, a key value, a list of applicable Positioning SIB Types, a time of applicability, and an area of applicability.

R2-1803029 Discussion on SIB Design for Broadcast of RTK Assistance Data Ericsson discussion Rel-15

R2-1803634 Discussion on the broadcasting of assistance data Huawei, HiSilicon, CAICT discussion

Proposal 3: Support repetitions of some broadcasted assistance data during the valid time or modification period.

- Nokia think it is too early to discuss repetitions. We can treat it when we work on details of the SIBs.

Additional topics

R2-1803632 Considerations on system information modification Huawei, HiSilicon, CAICT discussion
R2-1803635 Switch between unicast and broadcast Huawei, HiSilicon, CAICT discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 064

Withdrawn

R2-1803033 New SIB(s) for RTK Assistance Data Broadcast Ericsson CR Rel-15 36.331 15.0.1 3261 - B LCS_LTE_acc_enh-Core Withdrawn

9.9 Enhancing CA Utilization

(LTE_euCA-Core; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-170805)
Time budget: 0.5 TU
Documents in this agenda item will be handled in a break out session

9.9.1 General

Including incoming LSs, work plan, rapporteur inputs, running CRs

R2-1802750 Updated work plan for the euCA WID Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core
- Intel think there will be small work in RAN1. Nokia think it can be addressed by LS.
=> No RAN1 TUs are foreseen to be needed for the euCA WID.
=> No TUs are foreseen to be needed for remaining RAN3 work.

9.9.2 Delay reduction for SCell set-up

Idle measurement:

R2-1802751 Remaining Stage-2 work on IDLE mode measurements Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core R2-1713161
- vivo support proposal 1 and think not all UEs should do this measurement.
- Qualcomm think we need wait for RAN4 progress. Nokia think we can do the procedure issue.

Agreements:
1 Do not define a validity timer for IDLE measurement configuration in SIB5. It doesn't exclude UE performs aperiodic measurement.
2 The information that can be broadcast in SIB5 should be limited to at most 3 inter-frequencies and at most N cells per carrier frequency. Value of N is FFS.
3 UE can be provided with a "CA measurement configuration" within *RRCConnectionRelease* that is different from SIB5 configuration, and which overrides any SIB5 configurations. FFS the dedicated configuration is still valid after cell reselection.
4 Validity timer is only defined for configuration given in *RRCConnectionRelease*.
5 Only CRS-based measurements (RSRP/RSRQ/RS-SINR) are supported for IDLE mode measurements.
6 Network can indicate which measurement quantities out of RSRP, RSRQ and RS-SINR UE should report for IDLE mode measurements.

R2-1802007 Consideration on IDLE measurement across cells vivo discussion P4-6
- Ericsson and Intel think timer is enough and don't need to introduce valid area.
- OPPO wonder how to configure the area.

Agreements:
1 UE may continue performing IDLE state euCA measurement after cell reselection.
If the ongoing IDLE state measurement is configured only via SIB5 in source cell:
2 After cell reselection, if the SIB5 of the target cell includes the IDLE state measurement configuration, UE continues performing IDLE state measurement and updated the configuration according to the SIB5 of the target cell.
3 After cell reselection, if the SIB5 of the target cell includes no configuration for the IDLE state measurement, UE stops performing IDLE state measurement.

✉ **[101#42][LTE/euCA] Introducing valid area mechanism (vivo)**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 065

- Identify the scenarios of valid area
- discuss whether or not to introduce valid area mechanism
  Intended outcome: Report from email discussion
  Deadline:

R2-1802752 Remaining Stage-3 work on IDLE mode measurements Nokia, Nokia Shanghai Bell
=> Noted

R2-1803660 Reporting condition of IDLE measurements LG electronics inc discussion Rel-15 LTE_euCA-Core R2-1713161

R2-1801794 Discussion on Measurement Configuration for Fast SCell Configuration OPPO discussion LTE_euCA

R2-1803607 CA measurements in Idle Ericsson discussion Rel-15 LTE_euCA-Core

> Agreement:
> The following behaviour is to adopt for reporting of the IDLE mode measurements:
> The UE waits for an explicit eNB-request for the IDLE mode measurements. The measurements should be reported after security establishment.

Idle measurement reporting:

R2-1802073 Fast SCell Configuration through Quick SCell Measurement Reporting Qualcomm discussion Rel-15 LTE_euCA-Core

> Agreements:
> 1 Timer T331 starts upon RRC Connection release message received by UE.
> 2 Minimum SCell Signal Quality threshold for reporting may be configured by eNB.

R2-1802753 Security aspects of IDLE mode measurements Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core R2-1713162

R2-1802003 Remaining Issues of IDLE State Measurement vivo discussion

R2-1802669 IDLE Mode Measurement Reporting message Huawei, HiSilicon discussion Rel-15 LTE_euCA-Core

Temporary CQI reporting:

R2-1802657 Remaining issues of temporary CQI reporting Huawei, HiSilicon discussion LTE_euCA-Core

R2-1802756 Remaining work on the temporary CQI reporting during Scell activation Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core

R2-1803609 Fallback to long CQI reporting period Ericsson discussion Rel-15 LTE_euCA-Core

R2-1802004 Fallback to long CQI report vivo discussion

R2-1802911 Handling of CSI for SCell activation in euCA Intel Corporation discussion Rel-15 LTE_euCA-Core

Timing of direct activation:

R2-1802754 Remaining Stage-3 work on direct activation of SCells Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core R2-1713164

> Agreements
> 1 When SCell is configured as activated, the PUCCH format changes to take this into account at *n+20* (i.e. after the RRC processing delay). This should be confirmed from RAN4.

CBF:=> Draft LS in R2-1803969 to RAN1/RAN4 to inform the agreements. Ask RAN4 if CSI reporting delay requirements (today 24 (34) ms after activation) can be reduced if UE has been monitoring the Scell carrier. (Nokia, offline#222)

R2-1803608 Direct activation at configuration Ericsson discussion Rel-15 LTE_euCA-Core
=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 066

R2-1802301 Timing issue in configuring SCell in activated state LG Electronics Mobile Research discussion LTE_euCA-Core

R2-1802072 Draft LS about direct SCell activation delay during HO and Non-HO cases Qualcomm LS out Rel-15 LTE_euCA-Core To:RAN 4

R2-1802656 Discussion on timing issue of direct activation Huawei, HiSilicon discussion LTE_euCA-Core

New State:

R2-1802755 Remaining work on the New Scell State Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core

Agreements:
1 Use “Dormant SCell state” as the name of the new Scell state and use ”Hibernate” as the action for moving from Activated SCell state to Dormant Scell state if necessary.
2 Dormant Scell follows PCell DRX for CQI/RRM measurement report triggering.
3 Additional new MAC CE is needed for state transition in/out of the dormant state. Legacy MAC CE is still used as in Rel-10 CA.
4 Define a MAC CE for state transition from activated SCell state to the dormant SCell state.
5 It is supported that UE transits from dormant state to deactivate state.

R2-1802074 SCell New State Transitions and Signalling Procedures Qualcomm discussion Rel-15 LTE_euCA-Core

R2-1802655 Discussion on new SCell state Huawei, HiSilicon discussion Rel-15 LTE_euCA-Core

R2-1802002 MAC CE for the new SCell state vivo discussion

R2-1802667 Clarification on the MAC CE for new SCell state transition Huawei, HiSilicon discussion Rel-15 LTE_euCA-Core

Others:

R2-1803605 Measurement improvements for euCA Ericsson discussion Rel-15 LTE_euCA-Core

R2-1803604 [DRAFT] LS to RAN4 on euCA measurement improvements Ericsson LS out Rel-15 LTE_euCA-Core To:RAN4

R2-1803606 RRC Suspended and CA establishment Ericsson discussion Rel-15 LTE_euCA-Core

9.9.3 Signalling overhead reduction for configuration activation

Including output of email discussion [100#36][LTE/euCA] Solutions on signalling overhead reduction (Nokia)

R2-1802758 Report of email discussion 100#36 (common configuration) Nokia (rapporteur) discussion Rel-15 LTE_euCA-Core
- Huawei think common parameters bring more complexity.
- Qualcomm and Ericsson think we should follow the email discussion results from majority.

Agreements:
1 Adopt the new common parameters structure as proposed in R2-1713491 / R2-1712257.
2 Dedicated Scell configuration can be used to override common parameter configuration.
3 Four common SCell parameter groups are allowed by the RRC signalling.
4 Do not define a new group-based MAC CE.

R2-1802658 Discussion on the details of idle mode measurements Huawei, HiSilicon discussion LTE_euCA-Core

R2-1802668 Signalling overhead reduction for SCell Configuration Huawei, HiSilicon discussion Rel-15 LTE_euCA-Core

R2-1802670 Signalling overhead reduction for SCell (de)Activation Huawei, HiSilicon discussion Rel-15 LTE_euCA-Core R2-1713335

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 067

Late

R2-1802757 Remaining work on common SCell configuration Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core R2-1713491 Late

R2-1802759 RRC CR based on the outcome of email discusion [100#36] Nokia (rapporteur) discussion Rel-15 LTE_euCA-Core Late

9.9.4 Others

R2-1802760 Applying IDLE mode measurements for EN-DC Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_euCA-Core R2-1711004

9.10 Enhancements on LTE-based V2X Services

(LTE_eV2X-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-171740)
Time budget: 1 TU
Documents in this agenda item will be handled in a break out session

9.10.1 General

Including incoming LSs, work plan and rapporteur inputs.

R2-1801729 LS reply on resource selection for Mode-4 sidelink CA (R4-1714180; contact: Huawei) RAN4 LS in Rel-15 LTE_eV2X-Core To:RAN1 Cc:RAN2
=> Noted

R2-1801748 Reply LS on Reliability for eV2X (S2-181368; contact: OPPO) SA2 LS in Rel-15 LTE_eV2X-Core To:RAN2 Cc:CT1
=> Noted

9.10.2 Carrier aggregation (up to 8 PC5 carriers)

Focus should be on RAN2 aspects.
Details of carrier selection
Handling of the UE with limited Rx chains
Protocol architecture and details for packet duplication
Including output of email discussion [100#41][LTE – eV2X] TX carrier selection – LG

R2-1801854 Discussion on SA2 questions on PPPR OPPO discussion Rel-15 LTE_eV2X-Core
Proposal 1 RAN2 confirm that eNB needs to be made aware of the PPPR information.
=> If we can make any conclusion regarding how the eNB is aware of PPPR, it can be also included. Otherwise we can indicate it's under the discussion.
=> Add "for mode 3"
=> Agreed with the above additional clarifications
Proposal 2 Define PPPR as 4 levels or 8 levels.
=> Add "from RAN2 perspective, 4 levels or 8 levels will be sufficient."
=> Add clarification that indicates final decision is up to SA2
Proposal 3 RAN2 confirm that it is beneficial to apply reliability to V2X messages of specific application.
=> Offline: How to respond Q3?

R2-1801847 [Draft] Reply LS on Reliability for eV2X OPPO LS out Rel-15 LTE_eV2X-Core To:SA2 Cc:CT1

R2-1803911 [Draft] Reply LS on Reliability for eV2X OPPO LS out Rel-15 LTE_eV2X-Core To:SA2 Cc:CT1
=> Remove "However, high PPPR value will lead to higher resources usage, and it is desirable to limit the use of high PPPR value to messages that really requires it."
=> Change "blocking points" to "concern"
=> Change "values" to "levels"
=> Approved with the above updates in R2-1803916

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 068

R2-1802695 Summary of e-mail discussion [100#41] Tx carrier selection LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core Late

Proposal 1 When UE performs Tx carrier selection using CBR and PPPP, Tx carrier selection based on a configuration of Rel-14 CBR-PPPP-TxConfigList is used as a baseline.
=> Agreed

Proposal 1a Changes in configuration of Rel-14 CBR-PPPP-TxConfigList are allowed.
Proposal 1b Discuss whether to introduce '0' value for cr-limit or 'minus_Infinite' for maxTxPower.
=> Offline: whether we need new Rel-15 parameter to avoid any impact on Rel-14

Proposal 2 Tx carrier selection based on (pre)configuration is performed in MAC layer.
=> Agreed. FFS on the need of LCP change.

Proposal 3 MAC entity of the UE selects final carrier(s) with lowest CBR level if there are multiple candidate carriers after selection based on CBR and PPPP.
=> Offline: when the carrier (re)selection is triggered, either proposal3 or leaving it to UE implementation

R2-1803912 Summary of offline discussion on Tx carrier selection LG Electronics Inc. Rel-15 LTE_eV2X-Core
=> For Tx carrier selection, introduce new Rel-15 parameters on top of the Rel-14 CBR-PPPP-TxConfigList.
=> FFS on how to select the final carrier(s) among the multiple candidate carriers in which the UE is capable to transmit. We will decide option out of two (i.e. based on CBR or leaving it to UE implementation) next meeting.

Agreements
1: When UE performs Tx carrier selection using CBR and PPPP, Tx carrier selection based on a configuration of Rel-14 CBR-PPPP-TxConfigList is used as a baseline.
2: Tx carrier selection based on (pre)configuration is performed in MAC layer. FFS on the need of LCP change.
3: For Tx carrier selection, introduce new Rel-15 parameters on top of the Rel-14 CBR-PPPP-TxConfigList.
4: FFS on how to select the final carrier(s) among the multiple candidate carriers in which the UE is capable to transmit. We will decide option out of two (i.e. based on CBR or leaving it to UE implementation) next meeting.

R2-1803618 Semi-static configuration used in carrier selection for CA in eV2X Qualcomm Incorporated discussion Rel-15 LTE_eV2X-Core

R2-1802307 Details on carrier selection and handling Rx limited V2X UE Lenovo, Motorola Mobility discussion Rel-15 LTE_eV2X-Core

R2-1802920 Consideration of carrier reselection LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core
Proposal 1. UE is allowed to not to trigger Tx carrier reselection procedure even when resource reselection is triggered.
=> Offline as part of R2-1802695
Proposal 2. When resource reselection is triggered, only if the CBR level of the selected carrier becomes above an offset associated threshold, UE performs Tx carrier reselection and then resource reselection
Proposal 3. Based on the offset associated threshold, UE can avoid the frequent carrier switching operation.
Proposal 4. Such an offset associated threshold can be varied according to current CBR level since carrier reselection is more required when CBR level is high.
=> Noted

R2-1801912 On the sublayers and triggers for Tx carrier selection Huawei, HiSilicon discussion Rel-15

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 069

R2-1802697 V2X sidelink reception procedure considering packet duplication LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core
=> PDCP performs packet duplication detection in Rx UE.

Agreements
1: PDCP performs packet duplication detection in Rx UE.

R2-1803521 Configuration of LCIDs for Sidelink Packet Duplication Ericsson discussion Rel-15 LTE_eV2X-Core
=> Noted

R2-1801908 Packet duplication for PC5 CA Huawei, HiSilicon discussion Rel-15
=> Noted

R2-1802601 LCID Mapping for Packet Duplication in Sidelink Carrier Aggregation Samsung discussion Rel-15
=> Noted

Possible options: 1) Hard-coded: 7
2) Configuration and/or preconfiguration: ruled-out
3) Up to UE implementation with informing duplicated LCID to Rx UE: 5
4) Hybrid option: 1) + 2): ruled-out

=> Working assumption: Option1 (Hard-coded) unless it brings big problem.

R2-1802116 PDCP duplication for eV2X CATT discussion

R2-1801856 Packet duplication in CA-based eV2x OPPO discussion Rel-15 LTE_eV2X-Core

R2-1803011 Considerations on signalling for packet duplication via Sidelink ITL discussion Rel-15

R2-1801909 On Rx carrier selection for UEs with limited Rx capability in eV2X Huawei, HiSilicon discussion Rel-15
=> Noted

R2-1803527 Sidelink Carrier Selection Criteria for RX Ericsson discussion Rel-15 LTE_eV2X-Core
=> WA (No additional enhancement to handle UEs with limited Rx capability in eV2X) is confirmed and now agreed.

Agreements
1: No additional enhancement to handle UEs with limited Rx capability in eV2X

R2-1801852 Carrier selection in CA-based eV2x OPPO discussion Rel-15 LTE_eV2X-Core

R2-1801853 Discussion on Carrier Set Configuration for PC5 CA OPPO discussion Rel-15 LTE_eV2X-Core R2-171218

R2-1801901 Discussion on the Tx carrier selection Huawei, HiSilicon discussion Rel-15

R2-1801906 Considerations on resource allocation for PC5 CA Huawei, HiSilicon discussion Rel-15

R2-1801907 Discussion on the questions in SA2 LS on reliability for eV2X Huawei, HiSilicon discussion Rel-15

R2-1801957 Considerations on carrier selection and resource selection in sidelink CA ZTE discussion Rel-15

R2-1801958 Consideration on the data duplication activation ZTE discussion Rel-15

R2-1801959 Consideration on the LCID for sidelink data duplication ZTE discussion Rel-15

R2-1801960 Discussion on resource request mechanism in PC5 CA ZTE discussion Rel-15

R2-1801983 Consideration on Packet Duplication over Sidelink Potevio discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 070

R2-1802005 Packet duplication indication for PC5 vivo discussion
R2-1802114 Discussion on PPPR usage CATT discussion
R2-1802118 CC selection CATT discussion
R2-1802120 draft Reply LS on Reliability for eV2X CATT LS out To:SA2
R2-1802308 Remaining issues of packet duplication Lenovo, Motorola Mobility discussion Rel-15 LTE_eV2X-Core
R2-1802431 Discussion on Duplication Request Change Triggered by UE ITRI discussion
R2-1802455 Discussion on SPS support with enhanced Carrier Aggregation Samsung discussion Rel-15 R2-1713839
R2-1802499 Coexistence with DSRC carrier LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core
R2-1802599 Packet Duplication for the Sidelink Carrier Aggregation Samsung discussion Rel-15
R2-1802600 Consideration on Required Reliability for Tx carrier selection Samsung discussion Rel-15
R2-1802696 V2X sidelink transmission procedure considering packet duplication LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core
R2-1802698 [DRAFT] LS to SA2 on handling of duplicated V2X packet LG Electronics Inc. LS out Rel-15 LTE_eV2X-Core To:SA2
R2-1802732 De-prioritization of duplicated transmission for V2X sidelink communication LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core R2-1713707
R2-1802901 On overall reliability framework for Rel-15 eV2X Intel Corporation discussion Rel-15 LTE_eV2X-Core
R2-1802902 Response LS2 to SA2 on overall reliability framework for Rel-15 eV2X Intel Corporation LS out Rel-15 LTE_eV2X-Core To:SA2
R2-1802904 Packet duplication aspects for CA based eV2X Intel Corporation discussion Rel-15 LTE_eV2X-Core
R2-1802906 On carrier selection procedure for CA over PC5 Intel Corporation discussion Rel-15 LTE_eV2X-Core
R2-1803013 Carrier aggregation with both of carriers provided by eNB and only allowed to use in OOC LG Electronics discussion Rel-15 LTE_eV2X-Core
R2-1803350 Further thoughts on the UE request for duplication activation Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_eV2X-Core
R2-1803352 On the PPPR for V2X duplication via multiple PC5 carriers Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_eV2X-Core
R2-1803353 Handling the V-UEs with limited capabilities Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_eV2X-Core
R2-1803520 CBR-PPPP Configuration for Sidelink Carrier Selection Ericsson discussion Rel-15 LTE_eV2X-Core
R2-1803523 LS Reply on Reliability for eV2X Ericsson LS out Rel-15 LTE_eV2X-Core To:SA2 Cc:CT1
R2-1803525 Packet duplication for PC5 Ericsson discussion Rel-15 LTE_eV2X-Core
R2-1803528 Sidelink Carrier Selection Criteria for TX Ericsson discussion Rel-15 LTE_eV2X-Core

Withdrawn

R2-1802117 CC selection CATT discussion Withdrawn
R2-1802496 oexistence with DSRC carrier LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core Withdrawn
R2-1802903 Limited RX UE considerations for CA over PC5 Intel Corporation discussion Rel-15 LTE_eV2X-Core Withdrawn

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 071

9.10.3 Radio resource pool sharing between UEs using mode 3 and mode 4

Focus should be on RAN2 aspects.
Including output of email discussion [100#42][LTE – eV2X] Radio resource pool sharing – OPPO

R2-1801858 Summary of [100#42] - eV2X Radio resource pool sharing OPPO report Rel-15 LTE_eV2X-Core
Proposal 1 Support resource pool sharing between Rel-15 mode-3 and Rel-15 mode-4 UE.
=> Agreed
Proposal 2 Support resource pool sharing between Rel-15 mode-3 and Rel-14 mode-4 UE.
=> Agreed
Proposal 3 Not support resource pool sharing between Rel-14 mode-3 and Rel-15 mode-4 UE.
=> Agreed
Proposal 4 Support both full and partial resource pool sharing.
=> Full resource pool sharing is supported. Partial resource pool sharing scenario is deprioritized in Rel-15.
Proposal 5 Reuse Rel-14 single pool configuration for mode-3, no enhancement is needed.
=> Agreed
Proposal 6 RAN2 to further discuss whether to configure a single pool as in Rel-14, or separate dedicated and shared pools for mode-4.
=> Noted
Proposal 7 It is up to RAN1 to decide on the tool of non-zero reservation bits for resource pool sharing.
=> Agreed
Proposal 8 It is up to RAN1 to decide on the tool of mode indicator in SCI for resource pool sharing.
=> Agreed
Proposal 9 RAN2 to further discuss whether to support of mode-3 sensing report for resource pool sharing.
=> FFS on the need of support of new mode-3 sensing report for resource pool sharing.

Agreements
1: Support resource pool sharing between Rel-15 mode-3 and Rel-15 mode-4 UE.
2: Support resource pool sharing between Rel-15 mode-3 and Rel-14 mode-4 UE.
3: Not support resource pool sharing between Rel-14 mode-3 and Rel-15 mode-4 UE.
4: Full resource pool sharing is supported. Partial resource pool sharing scenario is deprioritized in Rel-15.
5: Reuse Rel-14 single pool configuration for mode-3, no enhancement is needed.
6: It is up to RAN1 to decide on the tool of non-zero reservation bits for resource pool sharing.
7: It is up to RAN1 to decide on the tool of mode indicator in SCI for resource pool sharing.
8: FFS on the need of support of new mode-3 sensing report for resource pool sharing.

R2-1801961 Consideration on resource pool sharing between UEs using mode 3 and mode 4 ZTE discussion Rel-15
=> Noted

R2-1801848 Resource pool sharing in eV2x OPPO discussion Rel-15 LTE_eV2X-Core R2-1712180
R2-1801900 Discussion on resource pool sharing between mode3 and mode4 UEs Huawei, HiSilicon discussion Rel-15
R2-1801902 On resource pool sharing between R15 UEs and R14 UEs Huawei, HiSilicon discussion Rel-15
R2-1802115 mode 3&4 resource sharing CATT discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 072

R2-1802309 Discussion on issues for resource pool sharing Lenovo, Motorola Mobility discussion Rel-15 LTE_eV2X-Core

R2-1802905 Resource pools sharing between mode 3 and 4 Intel Corporation discussion Rel-15 LTE_eV2X-Core

R2-1803038 Mode 3 behaviour in shared resource pools for V2X phase 2 Samsung discussion Rel-15

R2-1803039 Mode 4 behaviour in shared resource pools for V2X phase 2 Samsung discussion Rel-15

R2-1803145 Shared resource pool configuration for mode 4 Samsung discussion Rel-15

R2-1803342 Resource Pool Sharing between V2X Mode 3 and Mode 4 UEs Fraunhofer HHI, Fraunhofer IIS discussion Rel-15

R2-1803526 Pool sharing between mode 3 and mode 4 Ericsson discussion Rel-15 LTE_eV2X-Core

R2-1803623 Resource pool sharing between Mode 3 and Mode 4 Qualcomm Incorporated discussion Rel-15 LTE_eV2X-Core R2-1713387

9.10.4 Others

Including RAN2 aspects, if any, on the WI objectives 1b (64 QAM), 1c (delay reduction at layer 1), 2 (transmit diversity), and 3 (short TTI).

R2-1803621 Coexistence between Rel-14 and Rel-15 V2X UEs Qualcomm Incorporated discussion LTE_eV2X-Core R2-1713407
=> RAN2 should send LS to SA2 to ask if upper-layer guidance can be provided for TX transmission mechanism to distinguish release (Rel-14 or Rel-15) selection within a UE. We will include the background information.
=> [CBF]: LS to SA2 in R2-1803917 (OPPO)

R2-1803014 The way to figure out high rate transmission support of transmitting Ues LG Electronics discussion Rel-15 LTE_eV2X-Core

R2-1801859 [Draft] LS on PC5 RAT version selection OPPO, Qualcomm Incorporated LS out Rel-15 LTE_eV2X-Core To:SA2

R2-1801903 Support of unicast and groupcast for eV2X Huawei, HiSilicon discussion Rel-15
=> Noted

R2-1801857 L2 desination address collision handling in eV2x OPPO, Qualcomm Incorporated, ZTE Corporation discussion Rel-15 LTE_eV2X-Core
=> Noted

R2-1801849 Resource selection for sTTI in eV2x OPPO discussion Rel-15 LTE_eV2X-Core R2-1712181

R2-1801850 UL-SL prioritization in eV2x OPPO discussion Rel-15 LTE_eV2X-Core

R2-1801851 Latency reduction in eV2x OPPO discussion Rel-15 LTE_eV2X-Core

R2-1801855 Discussion on impact due to MCS table revision OPPO discussion Rel-15 LTE_eV2X-Core

R2-1801904 Coexistence of R14 UEs and R15 UEs regarding 64QAM and Tx diversity Huawei, HiSilicon discussion Rel-15

R2-1801905 Consideration on latency related aspects in LTE eV2X Huawei, HiSilicon discussion Rel-15

R2-1801962 Discussion on Latency reduction ZTE discussion Rel-15

R2-1801963 Discussion on R14 and R15 V2X coexistence issue ZTE discussion Rel-15

R2-1802453 Latency reduction on V2X phase 2 for sidelink SPS Ues Samsung discussion Rel-15

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 073

R2-1802454 Latency reduction on V2X phase 2 for UEs using mode 4 Samsung discussion Rel-15

R2-1802456 Sidelink SPS confirmation for multiple SPS configurations Samsung discussion Rel-15 R2-1713766

R2-1802699 RAN2 aspects regarding support of 64QAM and TX diversity LG Electronics Inc. discussion Rel-15 LTE_eV2X-Core R2-1713824

R2-1803015 LS on support of 64QAM and Tx diversity for Rel-15 V2X UE LG Electronics LS out Rel-15 LTE_eV2X-Core To:SA1, SA2

R2-1803351 On the co-existence of Rel-14 and Rel-15 V-UEs Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_eV2X-Core

R2-1803522 Latency reduction for eV2V Ericsson discussion Rel-15 LTE_eV2X-Core

R2-1803524 On the Support of 64QAM and TX diversity Ericsson discussion Rel-15 LTE_eV2X-Core

R2-1803624 Latency reduction for packet transmission in eV2X Qualcomm Incorporated discussion Rel-15 LTE_eV2X-Core R2-1713404

9.11 High capacity stationary wireless and 1024 QAM

(LTE_1024QAM_DL-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Mar. 18: WID: RP-171738)
Time budget: 0.5 TU
Documents in this agenda item will be handled in a break out session

9.11.1 General

Including incoming LSs, work plan, rapporteur inputs, running CRs

R2-1801714 LS on RRC parameters for high capacity stationary wireless link and introduction of 1024 QAM for LTE (R1-1721731; contact: Huawei) RAN1 LS in Rel-15 LTE_1024QAM_DL To:RAN2

- Huawei clarifies this capability is per band and BC.
- Qualcomm think it is possible when carrier aggregation UE can activate 1024 QAM only in one carrier.

=> Noted

9.11.2 UE capability and potential new categories

R2-1802247 Support of 1024QAM in TS 36.306 Huawei, HiSilicon CR Rel-15 36.306 14.5.0 1547 - B LTE_1024QAM_DL-Core

=> Changed to “This field defines whether the UE supports 1024QAM in DL on this band or on this band within the band combination as described in TS 36.331 [5].”

=> Endorsed as the running CR in R2-1803994.

9.11.3 Corresponding higher-layer procedures and signalling

R2-1802246 Support of 1024QAM in TS 36.331 Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3227 - B LTE_1024QAM_DL-Core

=> Revised to R2-1803970

R2-1803970 Support of 1024QAM in TS 36.331 Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3227 - B LTE_1024QAM_DL-Core

=> Endorsed as the running CR.

9.12 Enhancements to LTE operation in unlicensed spectrum

(LTE_unlic-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172841)
Time budget: 1 TU
Documents in this agenda item will be handled in a break out session

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 074

9.12.1 General

Including incoming LSs, work plan, rapporteur inputs, running CRs

R2-1803172 Summary of RAN1 agreements and RAN2 implications Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_unlic-Core

9.12.2 Autonomous uplink access on Frame structure type 3

R2-1803972 proposal to progress feLAA Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_unlic-Core

- Huawei think P1 and P2 are not needed. LG, Qualcomm and Nokia support P1.
- Moto think it cannot work sufficiently with H1.
- Moto think reusing SPS RNTI is very complicated and bringing much impact on RAN1 specs.
- Intel and LG support introduce a new RNTI.

P1: Agree on multi-bit activation/deactivation command
P2: introduce new RNTI for activation/deactivation
H1: Reuse current zero-bit confirmation MAC CE for AUL activation/deactivation confirmation.
H2: Introduce a new RNTI for AUL activation/deactivation.
E1: Reuse SPS RNTI

Agreements:
1 Introduce multi-bit activation/deactivation MAC CE confirmation.
2 Introduce new RNTI for activation/deactivation.
3 For the AUL confirmation MAC CE, same triggering procedures specified for the Rel.14 SPS confirmation are adopted, i.e. AUL confirmation triggered at reception of PDCCH indicating AUL release/activation.

SR:

Agreements:
1 No enhancement on SR triggering will be introduced in FeLAA. No specification changes are needed.
2 No enhancement on SR cancellation will be introduced in FeLAA. No specification changes are needed.

R2-1802251 Issues on AUL activation and deactivation Huawei, HiSilicon discussion Rel-15 LTE_unlic-Core
=> Noted

R2-1803509 MAC Modelling for AUL Ericsson discussion Rel-15 LTE_unlic-Core

Agreements
1 When AUL is configured, the UE is allowed to retransmit a MAC PDU in a later AUL subframe (e.g. in the next AUL subframe) if the associated LBT procedure failed, without the need to wait for a SUL grant, HARQ feedback or expiry of the retransmission timer X. This agreement can be consulted RAN1 for the feasibility.
2 RAN2 understanding is that “Physical layer informs the MAC layer on the outcome of the LBT procedure (e.g., by ACK/NACK), so that MAC can trigger a retransmission in a later subframe, without the need to wait for a SUL grant or the expiry of the retransmission timer X.” How to capture the modelling can be further studied.

R2-1802252 Issues on BS and PH calculation for AUL Huawei, HiSilicon discussion Rel-15 LTE_unlic-Core

- Moto think the current mechanism can work and don’t think P2 is necessary.
- Huawei think the information of the time on BSR/PHR is important from eNB perspective.
- Qualcomm think the problem already exist now.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 075

- Ericsson confirm the problem but not support the solution.
- Qualcomm don't see much benefit for P2.

Agreements:
1 In FeLAA, no enhancement on BSR/PHR trigger and cancellation is introduced.
2 It is up to UE implementation to solve issue of out of date BSR/PHR if necessary.
FFS the impact on spec.

R2-1802253 Handling on Timer X with AUL Huawei, HiSilicon discussion Rel-15 LTE_unlic-Core

Agreements:
1 Timer X is maintained per HARQ process for AUL.
2 UE shall not use the AUL resource to perform both new transmission and retransmission for the same HARQ process before the Timer X stops/expires.
3 Start/restart the Timer X after the initial AUL transmission/AUL retransmission of a given HARQ process.

R2-1802254 Issues on coexistence between AUL and SUL Huawei, HiSilicon discussion Rel-15 LTE_unlic-Core
R2-1802255 Disucssion on the priority class for AUL Huawei, HiSilicon discussion Rel-15 LTE_unlic-Core
R2-1802256 Other MAC aspects of AUL Huawei, HiSilicon discussion Rel-15 LTE_unlic-Core
R2-1802851 Necessity of multi bit confirmation MAC CE LG Electronics Inc. discussion Rel-15 36.321 LTE_unlic-Core R2-1713646
R2-1802892 HARQ aspects of AUL Intel Corporation discussion Rel-15 LTE_unlic-Core
R2-1802893 Other aspects of AUL Intel Corporation discussion Rel-15 LTE_unlic-Core
R2-1802919 HARQ process collision between AUL and SUL LG Electronics Inc. discussion Rel-15 36.321 LTE_unlic-Core
R2-1803173 Open points of AUL Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_unlic-Core
R2-1803181 Remaining HARQ Aspects for Autonomous Uplink Motorola Mobility Germany GmbH discussion Rel-15 LTE_unlic-Core R2-1712979
- Huawei and Qualcomm think it is up to UE implementation.
- Ericsson observes the problem.

=> Noted and the topic mentioned in proposal1 can be discussed in next meeting.

R2-1803187 Remaining MAC Aspects for Autonomous Uplink Motorola Mobility Germany GmbH discussion Rel-15 LTE_unlic-Core
R2-1803502 AUL Configuration for feLAA Ericsson discussion Rel-15 LTE_unlic-Core
R2-1803503 Channel Access Priority Classes for feLAAEricsson discussion Rel-15 LTE_unlic-Core
R2-1803504 Coexistence Between AUL and Dynamically Scheduled UL Grants Ericsson discussion Rel-15 LTE_unlic-Core
R2-1803505 HARQ Retransmissions for Autonomous UL Access Ericsson discussion Rel-15 LTE_unlic-Core
R2-1803506 Impact on BSR for feLAA Ericsson discussion Rel-15 LTE_unlic-Core
R2-1803507 Impact on Uplink Timing Alignment for feLAA Ericsson discussion Rel-15 LTE_unlic-Core

=> Noted

Agreement:
Like for the pTAG, the expiry of an timeAlignmentTimer in an sTAG clears AUL resources for any associated SCell, hence AUL transmissions on those SCells are stopped

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 076

R2-1803511 On AUL Confirmation Ericsson discussion Rel-15 LTE_unlic-Core
R2-1803559 Remaining Issues for AUL Qualcomm Incorporated discussion

9.12.3 Other operation on Frame structure type 3

R2-1803512 RAN2 Impact on Multiple Starting and Ending Positions in a Subframe Ericsson discussion Rel-15 LTE_unlic-Core

9.12.4 Others

✉ **[101#26][LTE/feLAA] Introduce feLLA in TS 36.331 (Nokia)**
Capture the agreements so far from RAN1 and RAN2
Intended outcome: endorsed running CR
Deadline: Thursday 2018-03-15

R2-1804138 Introduce feLAA in TS 36.331 Nokia draftCR Rel-15 36.331 15.0.1 B LTE_unlic-Core
=> Endorsed as a running CR

✉ **[101#27][LTE/feLAA] Introduce feLLA in TS 36.321 (Ericsson)**
Intended outcome: endorsed running CR
Deadline: Thursday 2018-03-15

R2-1804139 Introduce feLAA in TS 36.321 Ericsson draftCR Rel-15 36.321 15.0.0 B LTE_unlic-Core
=> Endorsed as a running CR

9.13 Further NB-IoT enhancements

(NB_IOTenh2-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172063)
Time budget: 2.5 TU
Documents in this agenda item will be handled in a break out session
Some sub-items in 9.13 and 9.14 may be treated jointly.

9.13.1 Organisational

Including incoming LSs, rapporteur inputs, running CRs

Incoming LS

R2-1801742 Reply LS on UE differentiation for Rel-15 NB-IoT (S2-179615; contact: Huawei) SA2 LS in Rel-15 NB_IOTenh2-Core To:RAN2 Cc:CT1, RAN3

⇒ **We need to reply**

⇒ **Noted**

R2-1801743 Reply LS on UE differentiation for NB-IoT (S2-179616; contact: Huawei) SA2 LS in Rel-15 NB_IOTenh2-Core To:RAN3, RAN2
- Huawei suggests that we let R3 handle this.

⇒ **Noted**

Running CRs

R2-1802234 Introduction of further NB-IoT enhancements other than EDT in TS 36.331 Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 B NB_IOTenh2-Core
R2-1802235 Introduction of further NB-IoT enhancements in TS 36.300 Huawei, HiSilicon draftCR Rel-15 36.300 15.0.0 B NB_IOTenh2-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 077

R2-1803006 Introduction of further NB-IoT enhancements in 36.322 Ericsson draftCR Rel-15 36.322 15.0.0 B NB_IOTenh2-Core R2-1713691

R2-1803007 Introduction of further NB-IoT enhancements in 36.306 Ericsson draftCR Rel-15 36.306 14.5.0 B NB_IOTenh2-Core R2-1713690

R2-1803093 Running Rel-15 36.321 CR for NB-IoT Ericsson draftCR Rel-15 36.321 15.0.0 B NB_IOTenh2-Core

R2-1803732 Running 36.304 CR for Further NB-IoT enhancements Nokia, Nokia Shanghai Bell CR Rel-15 36.304 14.5.0 0409 - F NB_IOTenh2-Core

The above 1 tdoc moved here from 9.14

QC think we should have email discussions to capture current meeting agreements.

- Assume that we don't capture WUS
- We will need R1 RRC parameters at next meeting.
- We can discuss in the email discussion exactly what should be the scope.

✉ **Email discussion, two weeks (NB-IoT R15), Running CR 36.300, including EDT (Huawei)**

✉ **Email discussion, two weeks (NB-IoT R15), Running CR 36.331, excluding EDT, incl. TDD (Huawei)**

✉ **Email discussion, two weeks (NB-IoT R15), Running CR 36.321 (Ericsson)**

9.13.2 Early Data Transmission

Early Data transmission for NB-IoT is treated jointly with MTC under AI 9.14.2. Do not use this AI for any item that can be discussed jointly.

R2-1802766 Benefits of simple EDT Gemalto N.V. discussion Late

9.13.3 System Acquisition Enhancements

System acquisition Enhancements for NB-IoT is treated jointly with MTC under AI 9.14.3. Do not use this AI for any item that can be discussed jointly.

9.13.4 Relaxed Monitoring for cell reselection

Relaxed monitoring for cell reselection for MTC and NB-IoT is treated jointly under this AI. Problem fixing and Limited treatement of items previously on the table, no new solutions.

R2-1801947 Relaxed Monitoring for Mobile NB-IOT UEs MediaTek Inc. discussion

R2-1802126 Remaining issues on relaxed monitoring LG Electronics Inc. discussion Rel-15

R2-1802170 Resetting the reference RSRP in relaxed monitoring for NB-IoT and eMTC. Huawei, HiSilicon discussion Rel-15 NB_IOTenh-Core, LTE_eMTC4-Core

R2-1802559 Relaxed Monitoring in NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core

R2-1802561 Relaxed Monitoring in MTC Ericsson discussion Rel-15 LTE_eMTC4-Core

- The above tdocs contains proposal that were taken into account at this meeting.

⇒ **Above 5 tdocs are noted without presentation**

R2-1802482 Power saving impacts from relaxed monitoring for cell reselection III discussion NB_IOTenh2

Above tdoc is not treated

GENERAL DISCUSSION ON THIS AI

Offline discussion 316, way forward, at least try to address the issue that the UE need to do "proper" cell reselection while moving (Ericsson)

- The offline discussion resulted in updated CRs, see below

CRs

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 078

R2-1802171 Correction to relaxed monitoring reference RSRP reset (Alternative 1) Huawei, HiSilicon
CR Rel-15 36.304 14.5.0 0402 - F NB_IOTenh-Core, TEI14

⇒ **revised**

R2-1804054 Correction to relaxed monitoring reference RSRP reset (Alternative 1) Huawei, HiSilicon
CR Rel-15 36.304 14.5.0 0402 2 F NB_IOTenh-Core, TEI14

- QC wonders what happens for eDRX UEs with cycle > 5 min. Chair think that the UE would just apply the R4 requirements then.
- ZTE wonders if the UE measures the serving cell all the time. Ericsson and Huawei clarifies yes.
- Intel wonders if the first change is really clear. Huawei think that in the context of the text just above the first change it is indeed clear.
- LG wonders if after 24h the UE need to do monitor for 24h. QC indicates that after 24h the UE is required to do at least some measurement but not for 24h ..
- QC has editorial comments.

⇒ **Revision for minor Editorial updates in R2-1803818, which is agreed unseen.**
- [MCC]: a revision is needed to correct the 3GU entry data.
=> Revised in R2-1803827

R2-1803827 Correction to relaxed monitoring reference RSRP reset (Alternative 1) Huawei, HiSilicon, Ericsson CR Rel-14 36.304 14.5.0 0402 4 F NB_IOTenh-Core
=> Agreed

R2-1802133 Correction on relaxed monitoring in 36.304LG Electronics Deutschland CR Rel-14
36.304 14.5.0 0401 - C NB_IOTenh2-Core

R2-1802134 Correction on relaxed monitoring in 36.331LG Electronics Deutschland CR Rel-14
36.331 14.5.1 3215 - C NB_IOTenh2-Core

R2-1802172 Correction to relaxed monitoring reference RSRP reset (Alternative 2) Huawei, HiSilicon
CR Rel-15 36.304 14.5.0 0403 - F NB_IOTenh-Core, TEI14

R2-1802175 Introduction of relaxed monitoring for efeMTC in 36.304 Huawei, HiSilicon draftCR Rel-15 36.304 14.5.0 B LTE_eMTC4-Core

R2-1802176 Introduction of relaxed monitoring for efeMTC in 36.306 Huawei, HiSilicon draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core

R2-1802177 Introduction of relaxed monitoring for efeMTC in 36.331 Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

R2-1802560 Correction to relaxed monitoring in NB-IoT Ericsson CR Rel-14 36.304 14.5.0 0404 - F NB_IOTenh-Core, TEI14

Above 7 tdocs not treated

R2-1802562 Introduction of relaxed monitoring for BL and CE UE Ericsson, BlackBerry UK LimitedCR
Rel-14 36.304 14.5.0 0405 - C LTE_feMTC-Core, TEI14
=> Agreed in R2-1804111

R2-1802563 Introduction of relaxed monitoring for BL and CE UE Ericsson, BlackBerry UK LimitedCR
Rel-14 36.306 14.5.0 1552 - C LTE_feMTC-Core, TEI14
=> Agreed in R2-1804112

R2-1802564 Introduction of relaxed monitoring for BL and CE UE Ericsson, BlackBerry UK LimitedCR
Rel-14 36.331 14.5.1 3237 - C LTE_feMTC-Core, TEI14
=> Revised in R2-1803983

R2-1803983 Introduction of relaxed monitoring for BL and CE UE Ericsson, BlackBerry UK LimitedCR
Rel-14 36.331 14.5.1 3237 1 C LTE_feMTC-Core, TEI14
=> Agreed in R2-1804113

R2-1803700 Introduction of relaxed monitoring for BL and CE UE Ericsson, BlackBerry UK LimitedCR
Rel-15 36.331 15.0.1 3297 - A LTE_feMTC-Core, TEI14
=> Revised in R2-1803984

R2-1803984 Introduction of relaxed monitoring for BL and CE UE Ericsson, BlackBerry UK LimitedCR
Rel-15 36.331 15.0.1 3297 1 A LTE_feMTC-Core, TEI14

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 079

DISCUSSION on the above 4 CRs
=> Agreed in R2-1804114

- Ericsson think that the solution can be the same, but a somewhat different value range. QC supports this. LG, Gemalto, Blackberry, Sierra Wireless Sequans support this
- Huawei think we have discuss this twice and agreed to have it in Rel-15 and think that the release is frozen. Huawei think this can be Rel-15 and make it early implementable.

⇒ **Will have relaxed monitoring for MTC in Rel-14**

✉ **Email discussion, one week, CRs (R14 and shadows) for relaxed monitoring for MTC, (Ericsson).**

9.13.5 Semi-Persistent Scheduling

General

R2-1802225 Semi-Persistent Scheduling in NB-IoT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core

SPS for SC-PTM

R2-1802057 Consideration on SPS for SC-PTM in FeNB-IoT ZTE Corporation, Sanechips discussion Rel-15 NB_IOTenh2-Core

R2-1803694 Introducing SPS for NB-IoT SC-PtM Ericsson discussion Rel-15 NB_IOTenh2-Core

Connected Mode SPS

R2-1803693 General aspects of SPS for NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core

R2-1802618 Connected Mode SPS MediaTek Beijing Inc. discussion

R2-1803698 SPS and Multi-grant transmissions for NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core

Show of hands, companies that want Connected mode SPS for Rel-15, Yes: 2, No: 6

⇒ **Will not support Connected mode SPS for Rel-15, except for UL SPS for SR/BSR if RAN1 requests this (as earlier indicated in LS).**

Idle Mode SPS

R2-1802995 Further consideration on SPS for NB-IoT LG Electronics Mobile Research discussion Rel-15 NB_IOTenh2-Core

R2-1802617 NB-IoT Idle mode SPS for M2M regular reporting MediaTek Beijing Inc. discussion

R2-1803697 Recurrent periodic NB-IOT transmissions with very long transmission intervals Ericsson discussion Rel-15 NB_IOTenh2-Core

Above 9 tdocs not treated

Show of hands, companies that want Idle mode SPS in Rel-15, Yes: 3, No: 4
- Ericsson think this will take too much time in Rel-15 to finish this.

⇒ **Will not support Idle mode SPS for Rel-15**

9.13.6 RRC Connection Release Enhancements

Problem fixing and Limited treatement of items previously on the table, no new solutions.

R2-1802578 Successful acknowledgement of RRCConnectionRelease for BL and CE UE Ericsson CR Rel-14 36.331 14.5.1 3238 - F LTE_feMTC-Core, TEI14

R2-1802579 Successful acknowledgement of RRCConnectionRelease for BL and CE UE Ericsson CR Rel-15 36.331 15.0.1 3239 - A LTE_feMTC-Core, TEI14

R2-1802574 Quick RRC connection release Ericsson discussion Rel-15 NB_IOTenh2-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 080

R2-1802575 Introduction of timer based release Ericsson draftCR Rel-15 36.306 14.5.0 B
NB_IOTenh2-Core R2-1713025
R2-1802576 Introduction of timer based release Ericsson draftCR Rel-15 36.321 15.0.0 B
NB_IOTenh2-Core R2-1713026
R2-1802577 Introduction of timer based release Ericsson draftCR Rel-15 36.331 15.0.1 B
NB_IOTenh2-Core R2-1713027

Above 6 tdocs not treated

9.13.7 UE differentiation

R2-1802583 UE differentiation way forward Ericsson, Vodafone discussion Rel-15 NB_IOTenh2-Core R2-1713029

DISCUSSION

P1

- Vodafone think this proposal is important. CMCC support this.
- LG think that if we add battery indicator is there, this information is useful. LG suggest to clarify what we previously meant with battery indicator.
- Huawei think that remaining battery life is not very accurate and wonders what behaviour is expected. Vodafone think that e.g. DRX can be configured differently dep on remaining battery life.
- Sierra Wireless think this is low priority, and the information need a lot of other information is needed to use it. SW think that the device owner may need to be notified but this is in the application not in the communication layers. Nokia think this is not important, and think that network can behave the same way regardless this. Gemalto also think this is not important.

P2

- Chair interprets that the main purpose is to have a eNB to learn.
- CMCC support this. Docomo think this makes sense. Huawei can agree to this. LG too
- Mediatek agrees to this and think this can be used to e.g. learn the proper timing for traffic e.g. to release to Idle. ZTE support this.
- Nokia wonders if this is the scope of RAN2. QC also doubts. Chair think it is ok. Vodafone think the main usefulness is shown in the Uu interface and it R2.
- QC don't want to talk about vendor proprietary information. Vodafone think this is ok. On S1 it seems needed to standardise a container even if the contents is non-standard.

⇒ **P1 seems non agreeable at this point in time.**

⇒ **RAN2 considers it useful to introduce a vendor specific *UE differentiation information* IE on S1-AP/X2-AP interface for NB-IoT.**

⇒ **Send an LS to RAN3, CC SA2 and CT1, asking to introduce this.**

Draft LS in R2-1803813 (Ericsson)

R2-1803813 LS on UE differentiation in NB-IoT Ericsson LS out Rel-15 NB_IOTenh2-Cor
To:RAN3 Cc: SA2, CT1

⇒ **Remove "RAN2 kindly asks RAN3 to consider the list of S1-AP/X2-AP messages where UE differentiation information needs to be included to support both Control Plane and User Plane CIoT EPS Optimisation"**

⇒ **With this change the LS is approved. Final version in R2-1803820**

=> Revised in R2-1804106
[MCC]: Typo in the Cc: list: SA3 should be SA2

=> Approved

R2-1802226 UE differentiation Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core
R2-1802602 Discussion on UE differentiation MediaTek Beijing Inc. discussion
R2-1802585 UE differentiation open issues Ericsson discussion Rel-15 NB_IOTenh2-Core

⇒ **Above 3 tdocs noted without presentation**

Reply LS

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 081

R2-1802227 [DRAFT] Reply LS to Reply LS on UE differentiation for Rel-15 NB-IoT Huawei LS out Rel-15 NB_IOTenh2-Core To:SA2 Cc:RAN3, CT1
- Propose to reply in the scope of the previous R2 LS + SA2 parameters.

R2-1802584 LS on UE differentiation in NB-IoT Ericsson LS out Rel-15 NB_IOTenh2-Core R2-1713030 To:RAN3, SA2 Cc:CT1
- Proposes most of the SA2 parameters to be not applicable.
- Propose to add remaining battery life
- Propose to add also the idea of a RAN transparent container.

DISCUSSION on two above draft LSes.
- LG think that adding the parameters is ok.
- gemalto do not think remaining battery life is useful. QC agrees.

Offline discussion 313 on Reply LS taking into account the parameters proposed in the R2 LS to SA2 and the parameters in the SA2 reply LS (Huawei)

R2-1803802 [DRAFT] Reply LS to Reply LS on UE differentiation for Rel-15 NB-IoT Huawei LS out Rel-15 NB_IOTenh2-Core To:SA2 Cc:RAN3, CT1
- Chair point out that at last meeting we discussed this we meant battery powered by non-replaceable and non-rechargeable battery by battery indication
- Huawei want to add that subscription parameters and RAN AS container are two different methods that can be complementary.
- Ericsson are ok with the LS but an also tone down some statements

⇒ **Add to battery indication code point: non-replaceable and non-rechargeable battery**

⇒ **Add a statement that subscription parameters and RAN AS container are two different methods that can be complementary.**

⇒ **Can offline discuss other minor modifications**

Revision in R2-1803814

R2-1803814 [DRAFT] Reply LS to Reply LS on UE differentiation for Rel-15 NB-IoT Huawei LS out Rel-15 NB_IOTenh2-Core To:SA2 Cc:RAN3, CT1

⇒ **Approved, final version in R2-1803821**

9.13.8 TDD

R2-1803008 Email discussion report on Timer impact of TDD Ericsson report Rel-15

DISCUSSION

P3:
- ZTE prefers more large values, e.g. T311 extend 3 times (somewhat based on fraction of available DL subframes).

P5:
- Ericsson think T310 should be extended as there could be cases where synch takes longer time. ZTE agrees, as the DL detection time may take longer time.
- Huawei think that T310 don't need to be extended.

P6:
- Huawei think that the counters don't need to be extended.

P8:
- Not crystal clear whether companies has intended the MAC DRX inactivity timer or the RRC Data Inactivity Timer.
- Huawei think this is about service inacitivty, and not related to TDD delays.

P9:
- Chair wonders what input we will get from R1. Ericsson think R1 is working on PDCCH monitoring but that R2 likely can use same models as for FDD.

P11
- Ericsson think that due to lack of DL subframes the RAR can be delayed and an extension is needed.
- Huawei are not sure, as we have now changed such that the timer only covers the PDCCH part. Huawei also thinks that RA-RNTI need to be changed if we do this.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 082

P17

- Huawei think that the discard timer is not very realted to TDD timeline and that it anyway supports long values, e.g. infinity.
- ZTE think that the range should anyway be revisited, and that the timer is indeed related to TDD latency.

⇒ **R2 assumes that the following timers are not extended for NB-TDD UEs: *T322* and *T-Reselection-NB*. No updates are needed for the start and stop conditions, and actions that follow the timer expiry for these timers. Configuration is done using the legacy mechanism.**

⇒ **The Range of the following timers are extended for NB-TDD UEs: *T300*, *T301* and *T311*. No updates are needed for the start and stop conditions, and actions that follow the timer expiry for these timers. Configuration is done using the legacy mechanism.**

⇒ **It is FFS if it shall be possible to configure T311 up to approximately 3 times the current max value, or whether the max T311 is 200s.**

⇒ **It is FFS if it shall be possible to configure T300 up to approximately 3 times the current max value**

⇒ **It is FFS if T310 needs to be extended.**

⇒ **R2 assumes that NB-FDD *TimeAlignmentTimer* range is used for NB-TDD. No updates are needed for the start and stop conditions, and actions that follow the timer expiry for these timers. Configuration is done using the legacy mechanism.**

⇒ **R2 assumes that No extention is needed for *Backoff Parameter, logicalChannelSR-ProhibitTimer, periodicBSR Timer* and *retxBSR-Timer.* No updates are needed for the start and stop conditions, and actions that follow the timer expiry for these timers. Configuration is done using the legacy mechanism.**

⇒ **It is FFS whether *ra-ResponseWindowSize* should be extended, e.g. from 10.24sec to 15.36sec or 20.48 sec.**

⇒ **It is FFS whether max value of *mac-ContentionResolutionTimer* should be extended, e.g. from 10.24sec to 15.36sec or 20.48 sec.**

⇒ ***It is FFS if T-PollRetransmit* timer is extended for NB-TDD UEs. No updates are needed for the start and stop conditions, and actions that follow the timer expiry for these timers. Configuration is done using the legacy mechanism.**

⇒ ***R2 Assumes T-Reordering* is not extended for NB-TDD UEs. No updates are needed for the start and stop conditions, and actions that follow the timer expiry for these timers. Configuration is done using the legacy mechanism.**

⇒ **It is FFS whether *discardTimer* value range should be updated.**

R2-1802228 System information scheduling in TDD mode Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core

Whether *SIB1-NB* transmission is configured on the anchor carrier or a non-anchor carrier, *SIB1-NB* scheduling information is signalled in *MIB-NB* as in FDD mode.

The information on the PRB location and *eutra-NumCRS-Ports* needs to be provided for the UE to receive *SIB1-NB* on non-anchor carrier.

Inform RAN1 that at most 10bits can be used to indicate the PRB carrying *SIB1-NB* and for future extensionin *MIB-NB*.

Whether SIBs other than *SIB1-NB* are transmitted on the anchor carrier or a non-anchor carrier, scheduling parameters for SIBs (i.e. *schedulingInfoList*, *si-WindowLength* and *si-RadioFrameOffset*) are signalled in *SIB1-NB* as in FDD mode.

The carrier frequency, *indexToMidPRB*, *eutra-NumCRS-Ports* and *eutraControlRegionSize* need to be indicated by SIB1-NB for the UEs to receive other SIBs on non-anchor carrier.

DISCUSSION

- Chair wonders what we can expect from R1, will they provide a configuration parameters excel sheet? Huawei think we will have LSs, not sure about spreadsheet.

P1

- Ericsson support

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 083

- QC wonders if the MIB-NB is always on Anchor. Huawei confirms.

P2

- Ericsson point out that there are different cases

P3

- Chair think that if R1 has doubts they will ask.

P5

- Chair wonders if all ther params are for inband

⇒ **Whether *SIB1-NB* transmission is configured on the anchor carrier or a non-anchor carrier, *SIB1-NB* scheduling information is signalled in *MIB-NB* as in FDD mode.**

⇒ **The information on the PRB location and *eutra-NumCRS-Ports* needs to be provided for the UE to receive *SIB1-NB* on an inband non-anchor carrier.**

⇒ **Whether SIBs other than *SIB1-NB* are transmitted on the anchor carrier or a non-anchor carrier, scheduling parameters for SIBs (i.e. *schedulingInfoList*, *si-WindowLength* and *si-RadioFrameOffset*) are signalled in *SIB1-NB* as in FDD mode.**

⇒ **It is FFS if the carrier frequency and for inband case *indexToMidPRB*, *eutra-NumCRS-Ports* and *eutraControlRegionSize* need to be indicated by SIB1-NB for the UEs to receive other SIBs on non-anchor carrier.**

R2-1803012 MIB, SIBs and Paging for NB-IoT TDD Ericsson discussion Rel-15

R2-1803018 Analysis on NB-TDD RAR Window Size and Contention Resolution Timers Ericsson discussion Rel-15

R2-1802229 Paging, random access and timers in TDD mode Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core

Above 3 tdocs not treated

9.13.9 Wake Up Signal

Wake Up Signal etc for MTC and NB-IoT is treated jointly under this Agenda Item.

R2-1802224 Draft Reply LS to RAN1 on wake-up signalHuawei LS out Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core To:RAN1

- QC support this LS
- ZTE think the general idea to have one WUS cover multiple PO is ok, but it is not clear how the configuration would work, and it is not clear whether it is for PTW or not.

⇒ **Approved, final version in R2-1803798**

R2-1802223 Wake-up signal in NB-IoT and MTC Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

R2-1802586 Wake Up Signal in NB-IoT and MTC Ericsson discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

R2-1803280 Wakeup Signal Considerations Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core R2-1713033

Above tdoc moved here from 9.14

R2-1802704 Consideration of WUS enabled and disabled LG Electronics Inc. discussion Rel-15 NB_IOTenh2-Core

R2-1803134 WUS aspects on grouping and mobility for efeMTC and feNB-IoT Sony discussion Rel-15 NB_IOTenh2-Core R2-1712993

R2-1803302 WUS consideration for eFeMTC Intel Corporation discussion Rel-15 LTE_eMTC4-Core

R2-1802058 Further consideration on wake-up signal ZTE Corporation, Sanechips discussion Rel-15 NB_IOTenh2-Core

Above 7 tdocs not treated

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 084

9.13.10 Other

E.g. Access barring enhancement (may be treated together with MTC), Enhancements to standalone operation mode, UE Feedback, Support for physical layer SR, Measurement Accuracy Enhancements, NPRACH reliability, NPRACH range, small cell support, Support for RLC-UM, other.

Enhancements to Standalone operation

R2-1802555 Standalone enhancements Ericsson discussion Rel-15 NB_IOTenh2-Core

R2-1802232 Combinations with standalone and in-band or guard-band carrier Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core

R2-1802061 Consideration on enhancements to standalone operation mode in FeNB-IoT ZTE Corporation, Sanechips discussion Rel-15 NB_IOTenh2-Core

R2-1802556 Introduction of standalone enhancements Ericsson draftCR Rel-15 36.300 15.0.0 B NB_IOTenh2-Core

R2-1802557 Introduction of standalone enhancements Ericsson draftCR Rel-15 36.306 14.5.0 B NB_IOTenh2-Core

R2-1802558 Introduction of standalone enhancements Ericsson draftCR Rel-15 36.331 15.0.1 B NB_IOTenh2-Core

Above 6 tdocs not treated

✉ **Email discussion, next meeting (NB-IoT R15): Enhancements to standalone Operation, arrive at agreeable proposals from Meeting Input (Huawei)**

PHR enhancements

R2-1802233 Enhancement to PHR in NB-IoT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core

R2-1802565 UE feedback enhancements Ericsson discussion Rel-15 NB_IOTenh2-Core

R2-1802062 Consideration on PHR granularity enhancements in FeNB-IoT ZTE Corporation, Sanechips discussion Rel-15 NB_IOTenh2-Core

R2-1802568 Introduction of enhanced PHR reporting Ericsson draftCR Rel-15 36.331 15.0.1 C NB_IOTenh2-Core

R2-1802567 Introduction of enhanced PHR reporting Ericsson draftCR Rel-15 36.321 15.0.0 C NB_IOTenh2-Core

R2-1802566 Introduction of enhanced PHR reporting Ericsson draftCR Rel-15 36.306 14.5.0 C NB_IOTenh2-Core

R2-1802569 LS on enhanced PHR reporting in NB-IoT Ericsson LS out Rel-15 NB_IOTenh2-Core To:RAN4

Above 7 tdocs not treated

✉ **Email discussion, next meeting (NB-IoT R15): PHR enhancements, arrive at agreeable proposals from Meeting Input (Ericsson)**

RLC UM

R2-1802998 Remaining details of RLC UM for NB-IoT LG Electronics Mobile Research discussion Rel-15 NB_IOTenh2-Core

R2-1802610 RLC UM for NB-IoT open issues Ericsson discussion Rel-15 NB_IOTenh2-Core

R2-1802230 RLC UM remaining issues Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core

R2-1803000 Introduction of RLC UM for NB-IoT LG Electronics Mobile Research draftCR Rel-15 36.323 14.5.0 F NB_IOTenh2-Core

Above 4 tdocs not treated

High Quality Criterion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 085

R2-1802581 High quality criterion in NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core R2-1713031
- Ericsson explains that the motive for including EC-GSM is that for dual mode UEs NB-IoT/EC-GSM, such UEs will favour EC-GSM with potentially bad consequences.
- Can resubmit for next meeting, no attempt to agree now.

⇒ **Noted**

R2-1802582 LS on high quality signal threshold in NB-IoT and EC-GSM Ericsson LS out Rel-15 NB_IOTenh2-Core R2-1713032 To:RAN4, RAN6 Cc:CT1

Other Enhancements

R2-1802838 Stopping contention resolution timer based on retransmission scheduling LG Electronics Inc. discussion Rel-15 36.321 NB_IOTenh2-Core R2-1712199

R2-1802839 Stopping contention resolution timer based on retransmission scheduling LG Electronics Inc. CR Rel-15 36.321 15.0.0 1158 3 F LTE_eMTC4-Core, NB_IOTenh2-Core R2-1712205

Scheduling Request

R2-1803695 NB-IoT PHY Scheduling Request Ericsson discussion Rel-15 NB_IOTenh2-Core

R2-1802059 Consideration on SR transmission enhancement in FeNB-IoT ZTE Corporation, Sanechips discussion Rel-15 NB_IOTenh2-Core

R2-1802622 L1 Scheduling Request by SPS MediaTek Beijing Inc. discussion

R2-1803692 DRAFT LS on dedicated PHY SR signal for Rel-15 NB-IoT Ericsson LS out Rel-15 NB_IOTenh2-Core To:RAN WG1

NPRACH enhancements

R2-1802060 Consideration on NPRACH range enhancements in FeNB-IoT ZTE Corporation, Sanechips discussion Rel-15 NB_IOTenh2-Core

R2-1803696 NPRACH reliability and range enhancement in NB-IoT Ericsson discussion Rel-15 NB_IOTenh2-Core

Support of Small Cells

R2-1802056 Further consideration on supporting small cell in FeNB-IoT ZTE Corporation, Telekom R&D Sdn. Bhd. discussion Rel-15 NB_IOTenh2-Core

R2-1802231 Small cell support in NB-IoT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core

Above 11 tdocs not treated

9.14 Even further enhanced MTC for LTE

(LTE_eMTC4-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172811)
Time budget: 2.5 TU
Documents in this agenda item will be handled in a break out session

9.14.1 Organisational

Including incoming LSs, rapporteur inputs, running CRs
Including output of email discussion [100#39][MTC R15] 36.331 CR [Qualcomm]
Including output of email discussion [100#40][MTC R15] 36.321 CR [Intel]

R2-1801712 LS on HARQ-ACK feedback for eFeMTC (R1-1721254; contact: Qualcomm) RAN1 LS in Rel-15 LTE_eMTC4-Core To:RAN2

=> Noted. We will decide whether we reply from this meeting based on the discussion in the related agenda item.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 086

R2-1801727 LS response to System acquisition time reduction for Rel-15 LTE MTC (R4-1713855; contact: Ericsson) RAN4 LS in Rel-15 LTE_eMTC4-Core To:RAN1, RAN2

=> Noted.

R2-1801749 Reply LS on Paging failures for CE Capable UEs (S2-181370; contact: Intel) SA2 LS in Rel-15 TEI15 To:RAN3, RAN2

=> Noted.

R2-1803303 Introduction of EDT for eMTC in Rel-15 TS 36.321 Intel Corporation draftCR Rel-15 36.321 15.0.0 B LTE_eMTC4-Core

R2-1803443 Introduction of EDT for eMTC and NB-IoT enhancements Qualcomm Incorporated, Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core, NB_IOTenh2-Core R2-1713710

The document below has been moved to 9.13.1

R2-1803732 Running 36.304 CR for Further NB-IoT enhancements Nokia, Nokia Shanghai Bell CR Rel-15 36.304 14.5.0 0409 - B NB_IOTenh2-Core

The documents below have been moved from 9.13.1

R2-1801703 Reply LS on EDT procedures and AS NAS interaction (C1-175072; contact: MediaTek) CT1 LS in Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core To:RAN2, RAN3, SA2

- MediaTek thinks that this may not be so urgent, so it should be OK to reply in a later meeting. LG agree, and thinks that it would be good to provide some details regarding the discussion.

- QC thinks that CT1 may have an inccorect assumption regarding MME not being aware of EDT.

Offline discussion (401) to work on the draft LS reply to CT1 (MediaTek)

R2-1803819 Reply LS on EDT procedures and AS NAS interaction MediaTek

- Ericsson wonders if it is needed to inform RAN3 considering that the discussion is already ongoing.

- LG is not sure if CT1 is aware of this discussion. It would be good to inform CT1 about the discussion on MME awareness.

=> LS is approved in R2-1803885.

R2-1801704 Reply LS on Early Data Transmission (C1-175310; contact: Qualcomm) CT1 LS in Rel-15 LTE_eMTC4-Core, NB_IOTenh2-Core To:SA2, RAN2 Cc:RAN3, SA3

=> Noted.

R2-1801741 Reply LS on EDT procedures and AS NAS interaction (S2-179614; contact: Qualcomm) SA2 LS in Rel-15 LTE_eMTC4-Core, NB_IOTenh2-Core To:RAN2, CT1, RAN3

=> Noted.

R2-1801709 Reply LS on EDT procedures and AS NAS interaction (C1-180638; contact: Qualcomm) CT1 LS in Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core To:SA2 Cc:RAN2, RAN3

=> Noted.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 087

R2-1801751 Reply LS on Early Data Transmission (S3-173472; contact: Ericsson) SA3 LS in Rel-15 LTE_eMTC4-Core, NB_IOTenh2-Core To:RAN2 Cc:RAN3, SA2, CT1

- MediaTek wonders about the reply to question 4.

=> Noted.

9.14.2 Early data transmission

Early Data transmission for NB-IoT and MTC is treated jointly under this AI.
Including output of email discussion [100#38][MTC Rel-15] padding issue in Msg3 [Ericsson]

Padding in Msg3

R2-1803077 [100#38][MTC/NB-IoT] Padding issue in Msg3 Ericsson report LTE_eMTC4-Core, NB_IOTenh2-Core

Proposal 1 Discuss the feasibility of eNB providing different size UL grant for Msg3 retransmission.

- LG and QC think that for HARQ retransmission the eNB shall not provide a grant with a different size. Huawei agrees.
- Ericsson explains that this should be possible. MediaTek thinks that the baseline would be that HARQ works as it does currently.

Proposal 2 Protocol overhead (MAC/RLC/PDCP/RRC) for EDT is assumed to be 20 bytes for TBS evaluations.

- Huawei would like to asssume 25 bytes for 3GPP protocol overhead.

=> Protocol overhead (MAC/RLC/PDCP/RRC) for EDT is assumed to be 25 bytes for TBS evaluations.

Proposal 3 Discuss further the possible minimum payload size and select a minimum TBS for EDT from (N)PUSCH tables based on the discussion.

- MediaTek wonders whether we have a limitation regarding the number of possibilities. QC explains we need to think about the step sizes. Sierra Wireless would like to keep it minimum considering SMS as a baseline. Gemalto agrees.
- Ericsson thinks it would be good to have something compatitive with technologies alternative to 3GPP.

=> The minimum possible TB size is assumed to be around 320 bits based on the values in (N)PUSCH tables.

Proposal 4 Include the minimum TBS in a reply to RAN1 LS.

Proposal 5 Usable TB sizes are chosen from the existing (N)PUSCH tables. The number of possible sizes are decided after discussion of the grant mechanism.

Proposal 6 RAN2 intends to specify a mechanism to avoid the padding issue.

- Huawei thinks that this should be up to the feedback from RAN1. QC suggests to discuss the solutions first. QC thinks wording can also be improved since there will be padding in either case. We can say “to minimize” instead.
- QC and Intel would like to deprioritize addressing this issue.

Proposal 7 Ask feasibility of flexible resource allocation (e.g. solution 2./3./6.) from RAN1.

=> We need to discuss the next proposal first.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 088

Proposal 8 Discuss further if Msg3 padding issue is addressed using flexible resource allocation, pending RAN1 confirmation, and/or (N)PRACH partitioning.

- MediaTek thinks it would be good to address this issue.
- QC thinks PRACH partitioning should not be considered. LG thinks PRACH partioning should not be ruled since other options have impacts on other procedures. Huawei thinks PRACH partioning would be waste of resources.
- MediaTek explains why it would be good to address this issue otherwise it may be too costly for the UE regarding power consumption. This is especially the case for UEs in bad coverage.
- Ericsson suggests discussing the details of the solution as the usecases have already been discussed and identified.

Proposal 9 Segmentation support (solution 7.) is discussed separately based on further contributions.

Proposal 10 Discuss sub-PRB allocation for Msg3 based on further contributions.

Agreements

- Protocol overhead (MAC/RLC/PDCP/RRC) for EDT is assumed to be 25 bytes for TBS evaluations.
- The minimum possible TB size is assumed to be around 320 bits based on the values in (N)PUSCH tables.

R2-1802220 TBS of EDT Msg3 in NB-IoT and MTC Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

R2-1802221 Draft reply LS to RAN1 on early data transmission Huawei LS out Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core To:RAN1

Proposal 1: Indicate to RAN1 that the larger the number of TBS values the better in both NB-IoT and MTC.

- LG thinks it would be good to consider the use cases and there is no need to send too many values.

Proposal 2: RAN2 to confirm that the new UL grant format / definition does not need to be backward compatible.

- LG thinks there should not be any impact on the legacy UEs w r t power consumption.
- QC and Ericsson agree with the proposal.
- ZTE thinks similarly with LG. RNTI's can be the same for legacy and EDT UEs.
- MediaTek thinks more work is needed if format is changed. For the UL grants, there is no need to be backwards compatible.
- Ericsson proposes that RAR format should be kept same and UEs need to check the header.

=> If confirmed new UL grant format does not need to be backwards compatible.

=> Same RAR format is used for EDT UEs.

Proposal 3: RAN2 to provide the following feedback to RAN1 for NB-IoT:

- **Alt.0, Alt.1 and Alt.5 are too restrictive in terms of number of possible combinations.**
- **Alt.2 allows enough combinations for flexibility and can be a suitable option.**
- **Alt.3 has not benefit compared to alt 2, is less flexible and uses unnecessarily bits in the SIB.**
- **Alt.4 offers the full flexibility in terms of which TBS can be used and is preferred.**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 089

- QC and Ericsson agree with the intention.
- Gemalto also agrees and wonders if there is a need to have too many TB sizes.
- ZTE wonders about the need for a bit in RAR for eMTC.
- QC prefers to indicate only the alternative preffered.
- Huawei thinks there is no point in providing a grant in between legacy and maximum possible TB size.
- Ericsson think we should not mandate anything on eNB.

=> We will draft a reply LS based on the solution we would like to have and there is no need address the alternatives from RAN1. RAN2 would like RAN1 to choose the alternatives based on the agreements, i.e. related solution, from this meeting.

Proposal 4: Indicate to RAN1 that the reserved bit in MAC RAR can be used for the EDT feature in MTC.

- MediaTek thinks it is OK to state that the reserved bit can be used if necessary. Ericsson prefers not to use it unless there are no other means. Intel is fine using the reserved bit for MTC if necessary.
- Ericsson thinks that we can indicate that it is possible but also state that it should only be used unless there are no other alternatives. LG agrees.

Agreements
- If new UL grant format is defined, it does not need to be backwards compatible.
- Same RAR format is used for EDT UEs.

R2-1803080 TB sizes and UL grant for Msg3 Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

R2-1803081 DRAFT Reply LS to RAN1 on early data transmission Ericsson LS out LTE_eMTC4-Core, NB_IOTenh2-Core To:RAN1

Proposal 1 Use flexible uplink resource allocation, such as two or more signalled TB sizes for Msg3 to avoid excessive padding.

Proposal 2 Ask RAN1 about feasibility of flexible TBS indication in UL grant for Msg3 based on above information. If found feasible, ask RAN1 to specify UL grant with multiple TBS options.

- MediaTek thinks a general agreement would be good to inform RAN1 and ask for confirmation.
- MediaTek proposed that we can inform RAN1 that it would be benefical if the UE could choose a TB size that requires minimum number of padding bits.
- QC agrees with MediaTek that this would be beneficial.
- QC and Sierra Wireless would like to have the discussion based on the alternatives provided during the related email discussion.
- MediaTek thinks it would be if the UE can use this flexibility to fallback to legacy and this should be stated in the LS reply. MediaTek would like to keep the size of padding bits to %10 in the largest TBS.
- LG wonders how it would be possible for the UE to go with the legacy mechanism.
- Huawei thinks that eNB should either provide UL grant size for the legacy message or the maximum possible value broadcasted in SI.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 090

- QC thinks that the network should provide the maximum possible value broadcasted in system information. Sierra Wireless, Gemalto, MediaTek, and Nokia assume the same. MediaTek thinks that the UE may use a more reliable MCS instead of padding bits. This is up to RAN1 to decide.
- Sierra Wireless thinks that a table of possible TB sizes can be provided in SI or hardcoded in the specs and the UE chooses based on the maximum possible value broadcasted in SI. Gemalto agrees with Sierra Wireless.
- ZTE indicates that network resources should also be considered.
- Ericsson states that that would mean the network would provide the legacy grant when no resources are available for the max possible TB size.
- MediaTek thinks that RAN2 already agreed that the solution adresses both UP and CP solutions and therefore segmentation should not be a requirement.
- ZTE thinks that mandating the max possible TB size broadcasted would mean that the network may be quite conservative in terms of max TB size, i.e. smaller max TB size.

=> We intend to send an LS reply to RAN1 stating that RAN2 thinks that it would be benefical if the UE could choose a TB size that requires minimum number of padding bits from a set of possible TBS values.

=> The EDT UL grant shall always allow the max TB size broadcasted in system information unless the provided UL grant is for legacy Msg3.

=> The EDT UL grant shall allow the UE to choose an appropriate TB size, MCS, repetitions, and RUs (for NB-IoT) from a set of TB sizes provided based on the UL data. It is FFS how the set of possible TB sizes, MCS, repetitions, and RUs (for NB-IoT) is provided, e.g. hardcoded in the specs. This is pending RAN1 confirmation.

=> RAN2 assumes that 8 possible candidate values for the maximum TB size broadcasted in system information. RAN2 assumes that for each maximum TB size broadcasted, up to 4 possible TB sizes, i.e. blind decoding options, are allowed.

=> Send an LS reply to RAN1 capturing the agreements above including the agreement on the maximum and minimum possible TB sizes and ask RAN1 for confirmation.

Draft LS reply to RAN1 on early data transmission [offline# 402] [Huawei] in R2-1803882.

=> Replace **"**The EDT UL grant shall always allow the max TB size broadcasted in system information unless the provided UL grant size is the legacy minimum TB size for Msg3.**"** **with** **"**The EDT UL grant shall always allow the max TB size broadcasted in system information unless the provided UL grant is for legacy Msg3.**"**

=> Replace **"**For eMTC, the reserved bit in MAC RAR can be used for the EDT feature in eMTC if necessary.**"** **with** **"**For eMTC, the reserved bit in MAC RAR can be used for the EDT feature in eMTC only if it is necessary.**"**

=> With the changes above, the LS is approved in R2-1803884.

Proposal 3 **Minimum TBS for Msg3 transmission is in order of few hundred (200-300) bits at most. Indicate this to RAN1.**

=> This proposal has already been discussed.

Proposal 4 **Ask RAN1 to consider redefining the UL grant in RAR message and to use 5-bit MCS index for signalling TB size or combinations of multiple TB sizes, RUs, repetitions, if viable.**

Proposal 5 **Indicate to RAN1 that for LTE-M one reserved RAR bit is not needed to be used for EDT feature.**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 091

Proposal 6 **Indicate to RAN1 in the reply LS that the UL grant can be redefined if needed, thus no spare bits need to be used for EDT.**

Agreements

- The EDT UL grant shall always allow the max TB size broadcasted in system information unless the provided UL grant is for legacy Msg3.
- The EDT UL grant shall allow the UE to choose an appropriate TB size, MCS, repetitions, and RUs (for NB-IoT) from a set of TB sizes provided based on the UL data. It is FFS how the set of possible TB sizes, MCS, repetitions, and RUs (for NB-IoT) is provided, e.g. hardcoded in the specs. This is pending RAN1 confirmation.
- RAN2 assumes that 8 possible candidate values for the maximum TB size broadcasted in system information. RAN2 assumes that for each maximum TB size broadcasted, up to 4 possible TB sizes, i.e. blind decoding options, are allowed.
- For eMTC, the reserved bit in MAC RAR can be used for the EDT feature in eMTC only if it is necessary.
- Send an LS reply to RAN1 capturing the agreements above including the agreement on the maximum and minimum possible TB sizes and ask RAN1 for confirmation.

✉ **Email discussion on the remaining issues for EDT in the CP and UP solutions [Huawei]**
- Intention: to progress the discussion on the remaining issues for EDT in the CP and UP solutions.
- The email discussion is until the next meeting.

✉ **Email discussion on the security issues for EDT [Intel]**
- Intention: to progress the discussion on the security issues for EDT.
- The email discussion is until the next meeting.

✉ **Email discussion on running 36.331 CR for eMTC and NB-IoT for EDT to capture the Rel-15 EDT agreements [Qualcomm]**
- Intention: to progress the running 36.331 CR for eMTC and NB-IoT for EDT to capture the Rel-15 agreements.
- The email discussion is until the next meeting.

✉ **Email discussion on running 36.331 CR for eMTC excluding EDT to capture the Rel-15 agreements [Qualcomm]**
- Intention: to progress the running 36.331 CR for eMTC excluding EDT to capture the Rel-15 agreements.
- The email discussion is until the next meeting.

✉ **Email discussion on running 36.321 CR for eMTC and NB-IoT for EDT to capture the Rel-15 EDT agreements [Intel]**
- Intention: to progress the running 36.321 CR for eMTC and NB-IoT for EDT to capture the Rel-15 agreements.
- The email discussion is until the next meeting.

✉ **Email discussion on running 36.321 CR for eMTC excluding EDT to capture the Rel-15 agreements [Intel]**
- Intention: to progress the running 36.321 CR for eMTC excluding EDT to capture the Rel-15 agreements.
- The email discussion is until the next meeting.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 092

R2-1803597 Message 3 support for Sub-PRB Uplink Sierra Wireless, S.A. discussion Rel-15 R2-1713877

R2-1802603 EDT TBS dermination MediaTek Beijing Inc. discussion

R2-1802997 Consideration on UL grant for Msg3 LG Electronics Mobile Research discussion Rel-15 LTE_eMTC4-Core

R2-1803417 Padding issue of EDT in eFeMTC and FeNB-IoT Kyocera discussion

CP solution

R2-1802215 Remaining issues for EDT in the CP solution for eMTC and NB-IoT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

R2-1803075 Remaining Issues on early data transmission over CP Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

UP solution

R2-1803076 Remaining issues on early data transmission over UP Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

R2-1802217 Remaining issues for EDT in the UP solution for eMTC and NB-IoT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

Security

R2-1803298 Security framework for Msg3 and Msg4 in EDT Intel Corporation discussion Rel-15 LTE_eMTC4-Core

R2-1802218 Security issues for EDT in the UP solution for eMTC and NB-IoT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

R2-1803074 Security for Msg3 in early data transmission Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

AS-NAS interaction

R2-1802216 AS-NAS interactions for EDT for eMTC and NB-IoT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

RRC-MAC modeling

R2-1802219 MAC-RRC modelling and fallback scenarios for EDT Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

R2-1803073 Msg3 handling in early data transmission Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

R2-1803144 RRC-MAC interacton for fallback regarding the UL grant LG Electronics UK discussion Rel-15

EDT in DL

R2-1803143 Consideration of MT case for early data transmission LG Electronics UK discussion Rel-15

R2-1802222 Early DL data transmission Huawei, HiSilicon discussion Rel-15 NB_IOTenh2-Core, LTE_eMTC4-Core

Other

R2-1803415 Consideration of T300 and Contention Resolution Timer for EDT in eFeMTC and FeNB-IoT Kyocera discussion

R2-1803054 Further discussion on MO EDT scenarios LG Electronics UK discussion Rel-15

R2-1802611 EDT RACH Fallback MediaTek Beijing Inc. discussion

Running CRs

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 093

R2-1803492 Establishment Cause Values for EDT in eMTC and NB-IoT Qualcomm Incorporated discussion LTE_eMTC4-Core, NB_IOTenh2-Core

R2-1803078 Details on PRACH partitioning for EDT Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

R2-1802996 (N)PRACH resource partitioning for EDT indication LG Electronics Mobile Research discussion Rel-15 LTE_eMTC4-Core

R2-1803493 ASN.1 for PRACH partitioning Qualcomm Incorporated discussion LTE_eMTC4-Core

R2-1803487 General description of early data transmission Qualcomm Incorporated draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core, NB_IOTenh2-Core

Late

R2-1802766 Benefits of simple EDT Gemalto N.V. discussion Late

Withdrawn

R2-1803079 Evaluation for early data transmissions Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core Withdrawn

9.14.3 System acquisition time enhancements

System acquisition Enhancements for NB-IoT and MTC is treated jointly under this AI.

R2-1802179 Skip system information reading for MTC based on MIB indication Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core R2-1713109

R2-1802055 SIB1-BR skipping in eFeMTC ZTE Corporation, Sanechips discussion Rel-15 LTE_eMTC4-Core

R2-1803071 Skipping SIB1-BR acquisition Ericsson discussion LTE_eMTC4-Core R2-1713051

R2-1803072 Skipping SIB1-BR acquisition Ericsson draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

- LG would like to clarify whether setting the bit would mean system information has been changed or not. Huawei assumes if the bit is set there has been no SI update. ZTE assumes the opposite.
- Ericsson thinks this does not matter much as long as the intention is kept. Huawei thinks it would be good considering that the bit is previously reserved and might assumed to be 0.
- Gemalto would like to discuss the benefits first.
- Sierra Wireless have some concerns regarding two MIBs, i.e. even and odd numbered MIBs.
- Chair wonders whether this would mean RAN4 needs to evaluate MIB acquisition performance again.
- QC thinks it may not be reasonable to assume that reserved bits are set to zero.
- Gemalto wonders whether Huawei's proposal has an impact on the possibility of configuration of validity period in eMTC.
- ZTE assumes there won't be any impact on the MIB acquisition performance.
- Ericsson supports the intention from the ZTE proposal.
- Intel wonders how the indication works from network standpoint.
- ZTE thinks validity time should not be coupled with the time period for this indication. It is also not good to assume anything regarding the frequency of SI updates.
- ZTE thinks it would be good to have configurability. Ericsson agrees.
- Show of hands on the configurability of time period:

Yes: 3

No: 7

=> No additional bit is added for EAB

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 094

=> Setting the bit in MIB indicates that there has been no SI change over existing SI validity time.

R2-1802124 Optimization of SI acquisition in MTC LG Electronics Inc. discussion Rel-15 R2-1713763

R2-1802178 Skip system information reading for MTC based on neighbor cell indication Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core R2-1713108

R2-1802180 Introduction of system information acquisition optimisation in MIB and SIB4 Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core R2-1713110

R2-1802181 Introduction of system information acquisition optimisation in MIB Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core R2-1713111

R2-1802125 MIB-NB skipping in NB-IoT LG Electronics Inc. discussion Rel-15 R2-1713764

R2-1803070 Temporary SI densification for efeMTC and feNB-IoT Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

Agreements

- No additional bit is added for EAB
- Setting the bit in MIB indicates that there has been no SI change over existing SI validity time.

9.14.4 Relaxed monitoring for cell reselection

Relaxed monitoring for cell reselection for MTC is treated jointly with NB-IoT under AI 9.13.4. Do not use this AI for any item that can be discussed jointly.

9.14.5 Access/load control of idle mode UEs

R2-1803409 CE-based access barring and load balancing for idle mode UEs for eFeMTC Kyocera discussion

R2-1802159 Further consideration on supporting CEL-based access barring for eFeMTC ZTE Corporation, Sanechips discussion Rel-15 LTE_eMTC4-Core

R2-1803301 CE level based access barring and load control for eFeMTC Intel Corporation discussion Rel-15 LTE_eMTC4-Core

R2-1803052 Access barring for CE level in efeMTC LG Electronics UK discussion Rel-15 R2-1713755

R2-1803091 Improved Idle Mode Access control for efeMTC and feNB-IoT UEs Ericsson discussion LTE_eMTC4-Core, NB_IOTenh2-Core

R2-1803092 Improved Idle Mode Access control for efeMTC and feNB-IoT UEs Ericsson draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core, NB_IOTenh2-Core

R2-1802174 Improved access/load control of idle mode UEs for MTC and NB-IOT Huawei, HiSilicon discussion Rel-15 NB_IOTenh-Core, LTE_eMTC4-Core

R2-1802160 Impacts on PRACH procedure of CEL-based access barring ZTE Corporation, Sanechips discussion Rel-15 LTE_eMTC4-Core

R2-1802161 Supporting CEL-based access barring for eFeMTC ZTE Corporation, Sanechips draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

R2-1802173 Existing solutions for access/load control of idle mode UEs for MTC and NB-IOT Huawei, HiSilicon discussion Rel-15 NB_IOTenh-Core, LTE_eMTC4-Core

R2-1802544 Improved Access and Load control for Idle Mode UEs Fujitsu discussion Rel-15 LTE_eMTC4-Core R2-1712976

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 095

The document below has been moved from 9.13.10

R2-1803053 Access barring for CE level in feNB-IOT LG Electronics UK discussion Rel-15 R2-1713756

9.14.6 Uplink HARQ-ACK feedback

R2-1803278 Input on HARQ-ACK feedback for eFeMTC Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core

R2-1803279 Reply LS on HARQ-ACK feedback for eFeMTC Qualcomm Incorporated LS out Rel-15 LTE_eMTC4-Core To:RAN1

R2-1803082 Uplink HARQ ACK feedback for MTC Ericsson discussion LTE_eMTC4-Core

R2-1802184 Uplink HARQ-ACK feedback for early termination of PUSCH transmission Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core R2-1713115

Proposal 1: RAN2 confirms that early termination of MPDCCH and/or PUSCH can be used to perform faster RRC connection release. RAN2 specification changes not needed for this.

- ZTE, Huawei and LG support the proposal.

=> Early termination of MPDCCH and/or PUSCH can be used to complete RRC connection release procedure faster. RAN2 assumes no changes in RAN2 specification to capture this agreement.

Proposal 2: RAN2 confirms that early termination of PUSCH for Msg3 transmission can be useful with EDT.

- Ericsson wonders about the intention. QC explains that the benefits are obvious, but we need to find out whether/how it should work for EDT.
- ZTE agrees with QC that there may be a need to indicate capability.
- LG would like to consider also the HARQ-NACK feedback. QC thinks this is about positive HARQ feedback, i.e. HARQ-ACK. Ericsson agrees with QC.
- QC thinks early HARQ-NACK is not useful. LG would like to check and come back if necessary.
- LG does not want to use this mechanism for EDT.

Proposal 3: RAN2 confirms that early termination of MPDCCH purely from uplink transmission point of view has no benefit beyond what is possible with early termination of PUSCH.

Proposal 4: RAN2 confirms that early termination of MPDCCH both from uplink and downlink transmission point of view allows UE to enter C-DRX earlier.

- LG does not think that early termination of MPDCCH is beneficial. ZTE agrees. It can be hard for the network to know whether there will be data in uplink or downlink in near future.
- Intel thinks this could be beneficial assuming that network does not intend to schedule anything for the UE in the near future.
- Intel, Ericsson, and ZTE consider the following case mentioned in the LS from RAN1 as a corner case:

  “To acknowledge all pending uplink HARQ processes, so that the UE may transition to DRX earlier.”
- Huawei also agrees and thinks that this would not be power efficient.
- QC wonders about the argument regarding UE power consumption.

Proposal 5: Inform RAN1 that RAN2 intends to use early termination of MPDCCH to stop monitoring MPDCCH for both uplink and downlink transmission point of view till the start of the next C-DRX cycle.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 096

=> Send an LS reply to RAN1 that captures the following.

=> RAN2 assumes that with *early termination of MPDCCH monitoring*, RAN1 intends to refer to early termination of MPDCCH monitoring and early termination of any ongoing PUSCH transmission.

=> For case 1; RAN2 thinks that UL explicit HARQ-ACK for early termination of MPDCCH monitoring and early termination of any ongoing PUSCH transmission can be used to acknowledge the receipt of the RRCConnectionRelease message. RAN2 assumes no changes in RAN2 specification to capture this agreement.

=> For case 2; RAN2 thinks that using an explicit HARQ-ACK feedback to acknowledge all pending UL HARQ processes is not efficient with respect to UE power consumption. RAN2 agreed that this use case is not supported.

Draft LS reply to RAN1 on HARQ-ACK feedback for eFeMTC [offline# 403] [Qualcomm] in R2-1803883.

R2-1803883 Draft LS reply to RAN1 on HARQ-ACK feedback for eFeMTC Qualcomm

=> The LS is approved in R2-1803886.

R2-1802182 Uplink HARQ-ACK feedback for early termination of MPDCCH monitoring Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core

R2-1802183 draft Reply LS on HARQ-ACK feedback for eFeMTC Huawei, HiSilicon LS out Rel-15 LTE_eMTC4-Core To:RAN1

R2-1802840 DRX enhancement using HARQ feedback LG Electronics Inc. discussion Rel-15 36.321 LTE_eMTC4-Core R2-1712231

R2-1802850 RA enhancement using HARQ feedback LG Electronics Inc. discussion Rel-15 36.321 LTE_eMTC4-Core R2-1712233

R2-1802162 Further consideration on Uplink HARQ-ACK feedback in eFeMTC ZTE Corporation, Sanechips discussion Rel-15 LTE_eMTC4-Core

R2-1802849 DRX enhancement using HARQ feedback LG Electronics Inc. draftCR Rel-15 36.321 15.0.0 C LTE_eMTC4-Core R2-1712232

R2-1803083 Uplink HARQ ACK feedback for MTC Ericsson draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core

R2-1803084 Uplink HARQ ACK feedback for MTC Ericsson draftCR Rel-15 36.321 15.0.0 B LTE_eMTC4-Core

R2-1803122 Uplink HARQ ACK feedback for MTC Ericsson draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

Agreements

- Early termination of MPDCCH and/or PUSCH can be used to complete RRC connection release procedure faster. RAN2 assumes no changes in RAN2 specification to capture this agreement.
- Send an LS reply to RAN1 that captures the following.
- RAN2 assumes that with early termination of MPDCCH monitoring, RAN1 intends to refer to early termination of MPDCCH monitoring and early termination of any ongoing PUSCH transmission.
- For case 1; RAN2 thinks that UL explicit HARQ-ACK for early termination of MPDCCH monitoring and early termination of any ongoing PUSCH transmission can be used to acknowledge the receipt of the *RRCConnectionRelease* message. RAN2 assumes no changes in RAN2 specification to capture this agreement.
- For case 2; RAN2 thinks that using an explicit HARQ-ACK feedback to acknowledge all pending UL HARQ processes is not efficient with respect to UE power consumption. RAN2 agreed that this use case is not supported.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 097

Withdrawn

R2-1803085 Uplink HARQ ACK feedback for MTC Ericsson CR Rel-15 36.331 15.0.1 3264 - B LTE_eMTC4-Core Withdrawn

R2-1803289 Input on HARQ-ACK feedback for eFeMTC Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core Withdrawn

R2-1803290 Reply LS on HARQ-ACK feedback for eFeMTC Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core Withdrawn

9.14.7 Increased PDSCH spectral efficiency

R2-1802185 Increased PDSCH spectral efficiency for Rel-15 MTC Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core R2-1713116

R2-1802186 DRAFT LS on signalling support of 64QAM for Rel-15 MTC Huawei, HiSilicon LS out Rel-15 LTE_eMTC4-Core R2-1713117 To:RAN1

R2-1802187 Introduction of 64QAM for PDSCH in Rel-15 MTC Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core R2-1713118

R2-1802188 Introduction of 64QAM for PDSCH in Rel-15 MTC Huawei, HiSilicon draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core R2-1713119

R2-1803089 Introduction of DL 64QAM for BL/CE UEs Ericsson draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core

R2-1803090 Introduction of DL 64QAM for BL/CE UEs Ericsson draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

✉ **Email discussion on increased PDSCH spectral efficiency [Huawei]**
- Intention: to progress and provide text proposals to be included in the running CRs for eMTC to capture the Rel-15 agreements.
- The email discussion is until the next meeting.

9.14.8 Increased PUSCH spectral efficiency

R2-1802189 Increased PUSCH spectral efficiency for Rel-15 MTC Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core R2-1713120

R2-1803087 Introduction of UE capability for PUSCH sub-PRB allocation Ericsson draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core

R2-1803088 Introduction of UE capability for PUSCH sub-PRB allocation Ericsson draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

✉ **Email discussion on increased PUSCH spectral efficiency [Ericsson]**
- Intention: to progress and provide text proposals to be included in the running CRs for eMTC to capture the Rel-15 agreements.
- The email discussion is until the next meeting.

9.14.9 Wake Up Signal

Wake Up Signal etc for MTC is treated jointly with NB-IoT under AI 9.13.9 Do not use this AI for any item that can be discussed jointly.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 098

The document below has been moved to 9.13.9

R2-1803280 Wakeup Signal Considerations Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core R2-1713033

Withdrawn

R2-1803291 Wakeup Signal Considerations Qualcomm Incorporated discussion Rel-15 LTE_eMTC4-Core R2-1713033 Withdrawn

9.14.10 Other

Including higher UE velocity, lower UE power class, CRS muting etc.

R2-1802163 Further consideration on supporting lower UE power class in eFeMTC ZTE Corporation, Sanechips discussion Rel-15 LTE_eMTC4-Core

R2-1802165 Supporting lower UE power class in eFeMTC ZTE Corporation, Sanechips draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

R2-1802168 Supporting lower UE power class in eFeMTC ZTE Corporation, Sanechips draftCR Rel-15 36.304 14.5.0 B LTE_eMTC4-Core

R2-1802169 Supporting lower UE power class in eFeMTC ZTE Corporation, Sanechips draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core

R2-1802190 Lower UE power class for Rel-15 MTC Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core R2-1713121

R2-1802191 Draft Reply LS on new UE power class for Rel-15 MTC Huawei, HiSilicon LS out Rel-15 LTE_eMTC4-Core R2-1713122 To:RAN4 Cc:RAN1

R2-1802192 Introduction of Lower UE power class for Rel-15 MTC Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core R2-1713123

R2-1802193 Introduction of Lower UE power class for Rel-15 MTC Huawei, HiSilicon draftCR Rel-15 36.304 14.5.0 B LTE_eMTC4-Core R2-1713124

R2-1802194 Introduction of Lower UE power class for Rel-15 MTC Huawei, HiSilicon draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core R2-1713125

R2-1802195 On CRS muting for BL UEs Huawei, HiSilicon discussion Rel-15 LTE_eMTC4-Core R2-1713127

R2-1802580 Dense PRS configurations Ericsson discussion Rel-15 LTE_eMTC4-Core

R2-1803066 Lower power class UE for LTE-MTC Ericsson discussion LTE_eMTC4-Core

R2-1803067 Introducing 14 dBm UE power class for BL UEs Ericsson draftCR Rel-15 36.304 14.5.0 B LTE_eMTC4-Core

R2-1803068 Introducing 14 dBm UE power class for BL UEs Ericsson draftCR Rel-15 36.306 14.5.0 B LTE_eMTC4-Core

R2-1803069 Introducing 14 dBm UE power class for BL UEs Ericsson draftCR Rel-15 36.331 15.0.1 B LTE_eMTC4-Core

R2-1803086 CRS muting Ericsson discussion LTE_eMTC4-Core R2-1713063

✉ **Email discussion on lower power class UE [ZTE]**
- Intention: to progress and provide text proposals to be included in the running CRs for eMTC to capture the Rel-15 agreements.
- The email discussion is until the next meeting.

9.15 Highly Reliable Low Latency Communication for LTE

LTE_HRLLC-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172845
Time budget: 1.0 TU
Documents in this agenda item will be handled in a break out session
Duplication:

R2-1802927 Issues on PDCP duplication LG Electronics France discussion LTE_HRLLC-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 099

=> Noted

R2-1802714 PDCP duplication in LTE Ericsson discussion Rel-15 LTE_HRLLC

=> Noted

L1:

- OPPO and Ericsson prefer current mechanism.
- Huawei support P1 and P2. OPPO support P1 only for SRB case.
- LG, Huawei and OPPO don't agree proposal 6.
- LG think 1 byte is enough for the MAC CE. Huawei share the same view.

L 1. The PDCP entity transmits duplicated PDCP PDU only when requested by lower layers, as in LTE.
L 2. CA and DC PDCP duplication for AM DRBs is not supported.
L 3. CA PDCP duplication for SRBs is not supported.
Proposal 1: Support RLC AM for packet duplication via DC.
Proposal 2: Support RLC AM for packet duplication via CA.
Proposal 3: The same PDCP mechanism for "Data volume calculation" can be used for both CA and DC duplication.
Proposal 4: When PDCP duplication is activated, all PDCP data is reported to both the MAC entity associated with the primary RLC entity and the MAC entity associated with the second RLC entity.
Proposal 5: For CA case, When PDCP duplication is configured but not activated, all PDCP data is reported only to the MAC entity associated with the primary RLC entity.
Proposal 6: If configured, PDCP delivers data out-of-order.
Proposal 7: Introduce a three-octet bitmap for MAC CE activation/deactivation of PDCP duplication.

Proposal 8: Introduce a UE capability for packet duplication.

Agreements:
1 The PDCP entity transmits duplicated PDCP PDU only when requested by lower layers, as in LTE
2 Support RLC AM for packet duplication via DC for DRB.
3 Support RLC AM for packet duplication via CA for DRB.
4 The same PDCP mechanism for "Data volume calculation" can be used for both CA and DC duplication.
5 For DC case, when PDCP duplication is activated, all PDCP data is reported to both the MAC entity associated with the primary RLC entity and the MAC entity associated with the second RLC entity.
6 For CA case, when PDCP duplication is activated, all PDCP data is reported to the MAC entity which is the same as agreed in NR session.
7 For CA case, when PDCP duplication is configured but not activated, all PDCP data is reported only to the MAC entity associated with the primary RLC entity.
8 Introduce one byte bitmap for MAC CE activation/deactivation of PDCP duplication at least for DRB.
9 Introduce UE capabilities for packet duplication.

R2-1801846 Discussion on LTE PDCP operation OPPO discussion Rel-15 LTE_HRLLC-Core

Agreements:
1 The UE shall discard packets that have been acknowledged by RLC in the other RLC leg. PDCP should indicate to the other associated RLC entity to discard the corresponding PDCP PDU. RLC procedures and PDCP discard procedures are not impacted by this agreement.
2 For CA and DC upon deactivation of PDCP data duplication, the UE transmitting PDCP entity should indicate to lower layers to discard all PDCP PDUs provided for duplicate transmission to the secondary RLC entity.

R2-1802715 PDCP duplication discard and recovery Ericsson discussion Rel-15 LTE_HRLLC

- LG think reliability cannot be guaranteed for P3.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 100

- OPPO think it should be applied for UM mode and don't support introducing a new timer.

Agreements:
1 At PDCP re-establishment, when retransmitting PDCP SDUs for AM DRBs, duplicated PDUs are submitted to both associated RLC entities when PDCP duplication is activated.
2 At PDCP data recovery, when retransmitting PDCP SDUs for AM DRBs, duplicated PDUs are submitted to both associated RLC entities when PDCP duplication is activated.
3 For packet duplication via CA, meeting the maximum number of RLC retransmissions for the secondary leg does not trigger RLF.

R2-1802675 Discussion on the MAC impact from packet duplication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core
- LG agree with P1.

Agreements:
1 SRB duplication activation/deactivation via MAC CE is not supported in LTE. Once the duplication for SRB is configured, it is always activated.
2 RLC UM split bearer, i.e. two UM mode RLCs configured for one PDCP-config needs to be supported in LTE for the packet duplication.
3 For DC, when DRB duplication is deactivated via MAC CE, the UE falls back to the split bearer operation. For CA, when DRB duplication is deactivated via MAC CE, the UE falls back to the single RLC operation.
4 RRC can be used to de-configure the packet duplication directly.

R2-1802719 Prioritization between MAC CEs and High Reliability LCHs Ericsson discussion Rel-15 LTE_HRLLC

Agreement:
1 Maintain the current LTE prioritization rules for handling MAC CE and LCHs configured with enhanced reliability requirements.

R2-1802677 Discussion on PDCP impact for PDCP duplication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1802676 BSR procedure for data duplication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1802671 Impact on CA Cell State from the PDCP duplication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1801842 Discussion on UL duplication control OPPO discussion Rel-15 LTE_HRLLC-Core

R2-1801843 Discussion on use case of UL duplication OPPO discussion Rel-15 LTE_HRLLC-Core

R2-1801844 Discussion on RLF handling for CA duplication OPPO discussion Rel-15 LTE_HRLLC-Core

R2-1801964 Discussion on PDCP packet duplication in LTE ZTE discussion Rel-15

R2-1802672 Discussion on the RRC Impact from Packet Duplication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1802674 MAC Structure and Operation for HRLLC Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1802882 Discussion on support RLC AM for DRB for PDCP duplication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1802883 Discussion on the RLC impact from PDCP duplication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 101

R2-1802926 PDCP configuration for SRB LG Electronics France discussion Rel-15 LTE_HRLLC-Core

SPS:

R2-1802300 SPS for HRLLC LG Electronics Mobile Research discussion LTE_HRLLC-Core
- OPPO and Huawei prefer to use DCI as legacy behaviour.
=> Noted

R2-1801845 Discussion on HARQ configuration OPPO discussion Rel-15 LTE_HRLLC-Core
- Ericsson think this timer is not needed in LTE. OPPO think the scenario is similar with NR.
- LG support the proposal.
=> Noted

R2-1802717 Reliability for PHICH-less UL SPS Ericsson discussion Rel-15 LTE_HRLLC

R2-1803107 [DRAFT] LS on mutiple cell SPS (de)activation OPPO LS out LTE_HRLLC-Core To:RAN1

TB repetition:

R2-1802720 Transport block repetition for reliability Ericsson discussion Rel-15 LTE_HRLLC

Agreements
1 A variable number of consecutive repetitions in time for SPS UL should be supported and is to be controlled by the eNB through RRC signalling.

R2-1802885 TB repetition for HRLLC Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1801965 Discussion on transport block repetition ZTE discussion Rel-15

R2-1802718 Support periodic URLLC traffic with SPS Ericsson discussion Rel-15 LTE_HRLLC

R2-1802299 Autonomous TTI bundling for HRLLC LG Electronics Mobile Research discussion LTE_HRLLC-Core

Time Synchronization:

R2-1802880 Discussion on use cases and requirements on synchronization accuracy Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1802881 Discussion on solutions of providing time reference information Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core
- ZTE wonder it is for TDD or FDD. Huawei indicate it is for TDD.
- LG think we should first check the feasibility in RAN4. Huawei think RAN4 is not involved in this WI for this topic.

✉ **[101#45][LTE/HRLLC] The granularity of time reference discussion (Huawei)**
- Discussion on use cases and requirements on synchronization accuracy and identify the gap between the requirement and the current synch accuracy
- Discussion on granularity of time
Intended outcome: Report of email discussion
Deadline:

R2-1802721 UE Time Synchronization Ericsson discussion Rel-15 LTE_HRLLC

Others:

R2-1802884 Potential enhancements for HRLLC based on sTTI Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core

R2-1802722 sPUCCH Utilization Strategy Ericsson discussion Rel-15 LTE_HRLLC

Running CRs:

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 102

R2-1802678 Configuration of packet duplication over CA and DC for TS 36.331 Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3242 - B LTE_HRLLC-Core

R2-1802679 Introduction of HRLLC in LTE for TS 36.300 Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1095 - B LTE_HRLLC-Core

R2-1802723 Running CR for introduction of Ultra Reliable Low Latency Communicaton for LTE Ericsson draftCR Rel-15 36.300 15.0.0 B LTE_HRLLC

R2-1802724 Running CR for introduction of Ultra Reliable Low Latency Communicaton for LTE Ericsson draftCR Rel-15 36.321 15.0.0 B LTE_HRLLC

R2-1802725 Running CR for introduction of Ultra Reliable Low Latency Communicaton for LTE Ericsson draftCR Rel-15 36.322 15.0.0 B LTE_HRLLC

R2-1802726 Running CR for introduction of Ultra Reliable Low Latency Communicaton for LTE Ericsson draftCR Rel-15 36.323 14.5.0 B LTE_HRLLC

R2-1802727 Running CR for introduction of Ultra Reliable Low Latency Communicaton for LTE Ericsson draftCR Rel-15 36.331 15.0.1 B LTE_HRLLC

R2-1802716 TP for PDCP duplication Ericsson discussion Rel-15 LTE_HRLLC

R2-1802886 Introduction of HRLLC in LTE Huawei, HiSilicon CR Rel-15 36.321 15.0.0 1214 - B LTE_HRLLC-Core

R2-1802887 Introduction of HRLLC in LTE Huawei, HiSilicon CR Rel-15 36.323 14.5.0 0225 - B LTE_HRLLC-Core

Withdrawn

R2-1802673 Cell deactivation impact on PDCP dulication Huawei, HiSilicon discussion Rel-15 LTE_HRLLC-Core Withdrawn

CBF: Draft LS in R2-1804009 to RAN1 to inform our progress of this meeting (Ericsson, offline# 201)

[101#46][LTE/URLLC] Introduction of URLLC in LTE in TS 36.321 (Ericsson)

Intended outcome: endorsed running CR for next meeting
Deadline:

[101#47][LTE/URLLC] Introduction of URLLC in LTE in TS 36.323 (Ericsson)

Intended outcome: endorsed running CR for next meeting
Deadline:

[101#48][LTE/URLLC] Introduction of URLLC in LTE in TS 36.322 (Ericsson)

Intended outcome: endorsed running CR for next meeting
Deadline:

[101#49][LTE/URLLC] Introduction of URLLC in LTE in TS 36.331 (Ericsson)

Intended outcome: endorsed running CR for next meeting
Deadline:

[101#50][LTE/URLLC] Introduction of URLLC in LTE in TS 36.300 (Ericsson)

Intended outcome: endorsed running CR for next meeting
Deadline:

9.16 UL data compression in LTE

(LTE_UDC-Core; leading WG: RAN2; Rel-15; started Sep 17; target: Mar 18; WID RP-172365)
Time budget: 1.0 TU
Documents in this agenda item will be handled in a break out session

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 103

Running CR:

R2-1801913 Introduction of DEFLATE based UDC Solution CATT CR Rel-15 36.323 14.5.0 0217 - B LTE_UDC-Core
=> Endorsed as running CR

R2-1801914 Introduction of DEFLATE based UDC Solution CATT CR Rel-15 36.331 15.0.1 3211 - B LTE_UDC-Core
=> Endorsed as running CR

R2-1801915 Introduction of DEFLATE based UDC Solution CATT CR Rel-15 36.300 15.0.0 1090 - B LTE_UDC-Core
=> Endorsed as running CR

Operator defined dictionary:

R2-1801917 Further Discussion on Operator Defined Dictionary CATT, MediaTek Inc. discussion Rel-15 LTE_UDC-Core
- Ericsson wonder which PLMN ID should be reported. CATT think it should left UE implementation.

P2:
- Huawei think there is no RAN2 impact

> Agreements:
> 1 Define an associated PLMN ID in UDC related UE capability reporting if it reports supporting operator defined dictionary.
> 2 From RAN2 perspective, UE is not required to report supporting operator defined dictionary when it enters a roaming network.
> 3 4 bits version ID for operator defined dictionary can be defined in UDC related UE capability reporting.

R2-1803469 Pre-Defined Dictionary for UDC Ericsson discussion Rel-15

P3:
- LG and CATT think it is not needed.

=> Noted

R2-1802854 Discussion on operator defined dictionary Huawei, HiSilicon discussion Rel-15 LTE_UDC-Core
=> RAN confirms both eNB and UE should have the same configuration for ODD.

R2-1801918 Introduction of Operator Defined Dictionary Capability CATT, MediaTek Inc. draftCR Rel-15 36.331 15.0.1 B LTE_UDC-Core

R2-1801919 Introduction of Operator Defined Dictionary Capability CATT, MediaTek Inc. draftCR Rel-15 36.306 14.5.0 B LTE_UDC-Core

R2-1803467 Pre-Defined Dictionary Configuration for UDC Ericsson CR Rel-15 36.331 15.0.1 3280 - B LTE_UDC-Core

R2-1803468 Pre-defined Dictionary for UDC Ericsson CR Rel-15 36.323 14.5.0 0226 - B LTE_UDC-Core

R2-1803471 Standard and Operator defined dictionary capability support for UDC Ericsson CR Rel-15 36.306 14.5.0 1562 - B LTE_UDC-Core

UDC procedure:

R2-1802855 Discussion on setup and release of UDC Huawei, HiSilicon discussion Rel-15 LTE_UDC-Core R2-1712721
- LG think case 2 and 4 don't exist.
- LG, CATT and MTK think handover procedure can be used for these cases. CMCC slightly prefer to use handover procedure.

=> RAN2 confirm that handover procedure can be used for case 1-4 in R2-1802855.

R2-1802130 Discussion on UDC Reconfiguration MediaTek Inc. discussion LTE_UDC-Core

> Agreement:
> 1 Specify in RAN2 spec that UDC configuration is not used for split and LWA DRBs.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 104

R2-1803297 Handling of UDC configuration for resume procedure Intel Corporation discussion Rel-15 LTE_UDC-Core

Agreement:
1 Upon initiation of RRC connection resume, the UE shall release the UDC configuration if configured.

R2-1803470 Setup and Release Behaviour for UDC during setup/release Ericsson discussion Rel-15

R2-1802856 CR on UDC configuration Huawei, HiSilicon CR Rel-15 36.323 14.5.0 0220 - B LTE_UDC-Core

R2-1802857 CR on UDC configuration Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3246 - B LTE_UDC-Core

FU bit clarification:

R2-1802128 Discussion on UDC FU Bit MediaTek Inc., Ericsson discussion LTE_UDC-Core

Agreement:
Replace “processed by UDC” by “compressed by UDC” in RAN2 spec to clarify UDC function behavior.

R2-1801920 Clarification on FU bit CATT, Ericsson draftCR Rel-15 36.323 14.5.0 F LTE_UDC-Core

R2-1802129 Clarification of UDC Behavior on FU bit MediaTek Inc. draftCR Rel-15 36.323 14.5.0 F LTE_UDC-Core

Capability:

R2-1802858 Discussion on UE capabilities of UDC Huawei, HiSilicon discussion Rel-15 LTE_UDC-Core

Agreements:
There are three types of UE capability regarding UDC:
- (1) basic UDC functionality
- (2) standard dictionary
- (3) operator defined dictionary

Dictionary related capabilities (2) and (3) are dependent on the basic UDC functionality (1). In addition, A UE that supports (1) shall support 8192 bytes for compression buffer per DRB.

R2-1802859 CR on UE capabilities of UDC Huawei, HiSilicon CR Rel-15 36.306 14.5.0 1556 - B LTE_UDC-Core

R2-1801916 Introduction of DEFLATE based UDC Solution CATT CR Rel-15 36.306 14.5.0 1543 - B LTE_UDC-Core

Others:

R2-1803296 UE initiated history buffer reset in UDC Intel Corporation discussion Rel-15 LTE_UDC-Core

Agreement:
The UE can set FR bit to trigger a history buffer reset without getting a request from eNB before.

R2-1802761 UDC processing requirement Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_UDC-Core
- CATT think it is not necessary to assess processing time as we didn’t do for RoHC.

=> Noted

R2-1802860 CR on UDC header Huawei, HiSilicon CR Rel-15 36.323 14.5.0 0221 - B LTE_UDC-Core

R2-1802861 CR on UDC buffer if dictionary is not configured Huawei, HiSilicon CR Rel-15 36.323 14.5.0 0222 - B LTE_UDC-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 105

R2-1802862 CR on standard dictionary Huawei, HiSilicon CR Rel-15 36.323 14.5.0 0223 - B LTE_UDC-Core

R2-1802863 CR on standard dictionary Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3247 - B LTE_UDC-Core

R2-1803729 Possible enhancement for reset feedback in UDC Ericsson discussion
=> Withdrawn

✉ **[101#22][LTE/UDC] Introduction of DEFLATE based UDC Solution in TS36.323 (CATT)**
Intended outcome: endorsed CR
Deadline: One week

✉ **[101#23][LTE/UDC] Introduction of DEFLATE based UDC Solution in TS36.331 (CATT)**
Intended outcome: endorsed CR
Deadline: One week

✉ **[101#24][LTE/UDC] Introduction of DEFLATE based UDC Solution in TS36.306 (CATT)**
Intended outcome: endorsed CR
Deadline: One week

✉ **[101#25][LTE/UDC] Introduction of DEFLATE based UDC Solution in TS36.300 (CATT)**
Intended outcome: endorsed CR
Deadline: One week

=> From RAN perspective the WI is completed.

9.17 Further enhancements to CoMP for LTE

(feCOMP_LTE-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Mar. 18: WID: RP-171031)
Time budget: 0.5 TU
Documents in this agenda item will be handled in a break out session

R2-1802898 Introduction of further enhancements to CoMP Intel Corporation CR Rel-15 36.331 15.0.1 3251 - B feCOMP_LTE-Core
=> Revised in R2-1803779.

CBF offline#255 (Intel)

9.18 Enhanced LTE Support for Aerial Vehicles

(LTE_Aerial-Core;leading WG: RAN2; REL-15; started: Dec. 17; target: June. 18: WID: RP-172826)
Time budget: 1.0 TU
Documents in this agenda item will be handled in a break out session
Subscription based identification:

R2-1803715 Subscription based UAV Identification NTT DOCOMO INC. discussion
=> Revised in R2-1803744

R2-1803744 Subscription based UAV Identification NTT DOCOMO INC. discussion
- Nokia think we don't need to involve CT4 for this moment.

CBF:=> Draft LS to SA2 with the contents of the work split (DoCoMo, offline#205)

Agreement:
1 RAN2 confirm the following work/responsibility split between WGs:
RAN2:
- To clarify and confirm the usage of the subscription based identification and the overall stage2 behaviour of UAV identification signaling.
RAN3:
- To define the signaling/IE for subscription based UAV identification.
SA2:
- To define the subscription based UAV identification and the necessary signaling in interfaces between CN nodes (e.g., MME – HSS, etc.)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 106

2	RAN2 to confirm that the subscription based information is signaled from the MME to the eNB

R2-1803437 [DRAFT] Reply LS on Certification/License and Identification of Aerial Vehicles Ericsson LS out Rel-15 FS_LTE_Aerial To:SA2, RAN3 Cc:SA1

R2-1802614 [DRAFT] LS on UAV UE identification Nokia LS out Rel-15 LTE_Aerial-Core To:RAN3, SA2 Cc:SA1

R2-1802662 Identification of Air-borne UE Huawei, HiSilicon discussion Rel-15 LTE_Aerial-Core

Mobility enhancement:

Conditional handover

R2-1802709 General aspects of Conditional HO in Aerial LG Electronics Inc. discussion Rel-15 LTE_27Aerial-Core
=> Noted

R2-1802665 Discussion on Conditional HO Huawei, HiSilicon discussion Rel-15 LTE_Aerial-Core
- 4 companies prefer to specify conditional handover for Aerial UE.
- 6 companies don't support to specify conditional handover for Aerial UE.

=> Noted

R2-1802304 Discussion on potential mobility enhancement for aerial UE Lenovo, Motorola Mobility discussion Rel-15 LTE_Aerial-Core

R2-1802790 Other Mobility enhancements for aerial UEs Ericsson discussion Rel-15 LTE_Aerial-Core

Measurement reporting

R2-1802306 Potential measurement enhancements for aerial UE Lenovo, Motorola Mobility discussion Rel-15 LTE_Aerial-Core

=> Introduce new measurement event/modify existing measurement events for interference detection

R2-1802895 New measurement event for interference detections from multiple cells Intel Corporation discussion Rel-15 LTE_Aerial-Core
=> Noted

R2-1802789 Measurement reporting enhancement Ericsson discussion Rel-15 LTE_Aerial-Core
=> Noted

R2-1802666 Discussion on enhancement of measurement reporting mechanismHuawei, HiSilicon discussion Rel-15 LTE_Aerial-Core

R2-1802706 Mobility Enhancement using MR Triggering LG Electronics Inc. discussion Rel-15 LTE_Aerial-Core

R2-1802806 Measurement reporting enhancements for Aerials InterDigital discussion Rel-15 LTE_Aerial

Late

R2-1803713 Discussion on Enhancements to Measurement Report Mechanisms for UAV NTT DOCOMO INC. discussion Late
=> Withdrawn

R2-1803743 Discussion on Enhancements to Measurement Report Mechanisms for UAV NTT DOCOMO INC. discussion Late

Location and path information

R2-1802661 Introduction of flight path for Aerial Vehicles Huawei, HiSilicon discussion Rel-15 LTE_Aerial-Core
=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 107

R2-1803348 Mobility enhancements for UAVs – planned flight route Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_Aerial-Core R2-1713264

R2-1802907 Measurement reporting information for Aerial UE Intel Corporation discussion Rel-15 LTE_Aerial-Core

> Agreement:
> UE location information are included in the measurement report for Aerial UE based on the existing location information IE and reporting mechanism. Any parameters for reporting can be further studied.

R2-1802807 Indication of UE airborne status and support of UAV functions InterDigital discussion Rel-15 LTE_Aerial

R2-1802705 Mobility Enhancement using Location Information LG Electronics Inc. discussion Rel-15 LTE_Aerial-Core
29

R2-1802708 Enhancement to History Information for Aerial UE LG Electronics Inc. discussion Rel-15 LTE_Aerial-Core

R2-1802788 Airborne status indication and related mobility enhancements Ericsson discussion Rel-15 LTE_Aerial-Core

Others:

R2-1803349 Mobility enhancements for UAVs - reference altitude Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_Aerial-Core R2-1713265

- Qualcomm concerns the privacy issue.

> Agreement:
> Provide reference altitude information (including threshold) to UAV UE provided by eNB to assist UE to identify its status (i.e., airborne status).

R2-1802538 Enhanced MSE using tier for aerial UE LG Electronics Mobile Research discussion LTE_Aerial-Core

R2-1803049 Discussion points for UAV mobility enhancement KDDI Corporation discussion

R2-1803129 Location based mobility enhancements for UAVs Sony discussion Rel-15 LTE_Aerial-Core

R2-1803217 Air-borne UE dedicated mobility management CMCC discussion Rel-15 LTE_Aerial-Core

R2-1803384 Mobility Enhancements for Aerial UEs Fraunhofer HHI, Fraunhofer IIS discussion Rel-15

R2-1803420 UE-based mobility solution with Uplink Interference coordination Kyocera discussion

Airborne status detection:

R2-1802305 Discussion on airborne status management for aerial UE Lenovo, Motorola Mobility discussion Rel-15 LTE_Aerial-Core
=> Noted

R2-1802615 UE's airborne status indication Nokia, Nokia Shanghai Bell discussion Rel-15 LTE_Aerial-Core

R2-1803138 Potential handover enhancements for aerial UE Sony discussion Rel-15 LTE_Aerial-Core R2-1712992

R2-1803139 Discussion on identification of aerial UE Sony discussion Rel-15 LTE_Aerial-Core

R2-1803218 MDT-based air-borne UE identification CMCC discussion Rel-15 LTE_Aerial-Core

Others:

R2-1802303 Discussion on signaling exchange issues for UL interference detection Lenovo, Motorola Mobility discussion Rel-15 LTE_Aerial-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 108

R2-1802663 Potential enhancements for drones in idle state Huawei, HiSilicon discussion Rel-15 LTE_Aerial-Core

R2-1802707 HOF or RLF Handling of Aerial UELG Electronics Inc. discussion Rel-15 LTE_Aerial-Core

R2-1802654 Introduction of height dependant TTT for Aerial Vehicles for TS 36.331. Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3240 - B LTE_Aerial-Core

R2-1802659 Introduction of flight path for Aerial Vehicles for TS 36.331 Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3241 - B LTE_Aerial-Core

R2-1802660 Introduction of flight path for Aerial Vehicles for TS 36.306 Huawei, HiSilicon CR Rel-15 36.306 14.5.0 1553 - B LTE_Aerial-Core

R2-1802664 Introduction of drone related SIBs for Aerial Vehicles for TS 36.331. Huawei, HiSilicon discussion Rel-15 36.331 LTE_Aerial-Core

9.19 Bluetooth/WLAN measurement collection in MDT

(LTE_MDT_BT_WLAN-Core; leading WG: RAN2; REL-15; started: Dec. 17; target: June. 18: WID: RP-172820)
Time budget: 0.5 TU
Documents in this agenda item will be handled in a break out session

R2-1803223 Work plan for New WID on Bluetooth/WLAN measurement collection in MDT CMCC discussion Rel-15 LTE_MDT_BT_WLAN-Core
=> Noted

R2-1802539 MDT exception for reducing power consumption LG Electronics Mobile Research discussion LTE_MDT_BT_WLAN-Core
=> Noted

R2-1802877 Use cases for WLAN and Bluetooth measurement collection in MDT Huawei, HiSilicon discussion Rel-15 LTE_MDT_BT_WLAN-Core

> Agreement:
> Immediate MDT, Logged MDT and RLF report are supported for WLAN/BT measurement collection if the measurements available.

R2-1803224 Consideration on Bluetooth/WLAN measurement collection in MDT CMCC discussion Rel-15 LTE_MDT_BT_WLAN-Core
=> Revised in R2-1803770

R2-1803770 Consideration on Bluetooth/WLAN measurement collection in MDT CMCC discussion Rel-15 LTE_MDT_BT_WLAN-Core

> Agreements:
> 1 UE reports WLAN/BT measurements to eNB.
> 2 For BT measurements, reuse the measurement information (i.e., btAddr, rssi) already defined in LPP specification 36.355 as much as possible.
> For WLAN measurements, reuse the measurements in specification 36.331 as much as possible.
> 3 For Immediate MDT, WLAN and BT measurements is carried as measurement results.
> 4 The reporting form of BT/WLAN measurements in logged MDT is carried as measurement results.
> 5 At least the MAC addresses of Bluetooth beacons and BSSID/SSID/HESSID of WLAN APs should be reported if UE reports Bluetooth/WLAN measurements.
> 6 If requested by the network, the report can further include RSSI for Bluetooth beacons and both RSSI and RTT for WLAN Aps if these measurement results available (the availability has the same meaning as available GNSS information in Rel-10 MDT) in UE.
> 6.1 Enforce UE to turn on WLAN/BT is not supported.
> 7 2 bits should be defined separately in UE capability to indicate whether the UE support Bluetooth and WLAN measurements or not.
> 8 The existing MDT measurement configuration procedures can be used.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 109

R2-1802879 Analysis on measurement procedures for WLAN and Bluetooth measurement collection in MDT Huawei, HiSilicon discussion Rel-15 LTE_MDT_BT_WLAN-Core

=> To minimize the impacts due to large WLAN and Bluetooth reports:
- Decrease maximum number of WLAN APs and Bluetooth beacons measured.
- Restrict the configuration parameters for WLAN measurement.
- Measurement results are carried by SRB 2.

R2-1803426 Considerations for MDT with WLAN/BT measurements Kyocera discussion

Agreement: 1 The UE includes in the availability indicator an indication of whether any WLAN measurement is logged.

R2-1802878 Overview of WLAN and Bluetooth measurement collection in MDT Huawei, HiSilicon discussion Rel-15 LTE_MDT_BT_WLAN-Core

R2-1803237 Introduction of Bluetooth/ WLAN measurement collection in MDT CMCC CR Rel-15 36.306 14.5.0 1560 - B LTE_MDT_BT_WLAN-Core

R2-1803238 Introduction of new measurement collection in MDT-location information CMCC CR Rel-15 36.331 15.0.1 3269 - B LTE_MDT_BT_WLAN-Core

R2-1803239 Introduction of new measurement collection in MDT-measurement results CMCC CR Rel-15 36.331 15.0.1 3270 - B LTE_MDT_BT_WLAN-Core

R2-1803240 Introduction of new measurement collection in MDT CMCC CR Rel-15 37.320 14.0.0 0070 - B LTE_MDT_BT_WLAN-Core

✉ **Email discussion on Introduction of Bluetooth/ WLAN measurement collection in MDT in 36.306 (CMCC)**
Deadline:
Intended outcome: endorsed running CR

✉ **Email discussion on Introduction of Bluetooth/ WLAN measurement collection in MDT in 36.331 (Huawei)**
Deadline:
Intended outcome: endorsed running CR

✉ **Email discussion on Introduction of Bluetooth/ WLAN measurement collection in MDT in 37.320 (CMCC)**
Deadline:
Intended outcome: endorsed running CR

9.20 Other LTE Rel-15 WIs

This agenda item may be used for documents relating to Rel-15 WIs with no allocated RAN2 time but which might have minor RAN2 impact (e.g. CT/SA WIs for which we have received an LS requesting RAN2 action)

R2-1802728 Handling of incoming LS on new service type in QMC reporting Ericsson discussion Rel-15 TEI15
=> Noted

R2-1802875 Discussion on QoE requirements from SA4 Huawei, HiSilicon discussion Rel-15 TEI15
=> Noted

CBF:=> Draft LS in R2-1803962 to SA4, SA5 cc RAN3 to ask the meaning of new service and ask the possibility to address this in container. Add description that this cannot be handled in LTE QMC (Ericsson ,offline#234)

R2-1803183 Handling of incoming LS on Attributes for QoE measurement collection Ericsson discussion Rel-15 Revised
=> Revised to R2-1803727

R2-1803727 Handling of incoming LS on Attributes for QoE measurement collection Ericsson discussion Rel-15 Revised

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 110

CBF:=> Draft a reply LS in R2-1803963 to SA5 cc SA4, RAN3 saying that RAN2 has analysed the proposed new attributes and concluded that if the areaScope is not sent to the UE the size of the RRC message is decreased. Ask the possibility of adding new service type in container (Ericsson offline#234).

R2-1803184 [DRAFT] Reply LS on Attributes for QoE measurement collection Ericsson LS out Rel-15 QOED To:SA5 Cc:RAN3, SA4 Revised

R2-1803185 [DRAFT] Reply LS on adding new service type in QMC reporting Ericsson LS out Rel-15 QOED To:SA4 Cc:RAN3, SA5

R2-1802729 Introduction of QoE Measurement Collection for MTSI services Ericsson CR Rel-15 36.300 15.0.0 1096 - B TEI15

R2-1802730 Introduction of QoE Measurement Collection for MTSI services Ericsson CR Rel-15 36.306 14.5.0 1554 - B TEI15

R2-1802731 Introduction of QoE Measurement Collection for MTSI services Ericsson CR Rel-15 36.331 15.0.1 3243 - B TEI15

Late

R2-1803727 Handling of incoming LS on Attributes for QoE measurement collection Ericsson discussion Rel-15 R2-1803183 Late

R2-1803728 [DRAFT] Reply LS on Attributes for QoE measurement collection Ericsson LS out Rel-15 QOED R2-1803184 To:SA5 Cc:RAN3, SA4 Late

9.21 LTE TEI15 enhancements

Small Technical Enhancements affecting LTE Rel-15 that do not belong to any Rel-15 WI.

Note: A TEI enhancement proposal should be treated for only one meeting cycle and involve only one WG. Otherwise, a WI should be proposed at RAN plenary!

Time budget: 1 TU

9.21.1 CP latency for LTE

Contributions related to the task given to RAN2 from RAN#78 as described in LS RP-172840.

R2-1802271 Discussion on CP Latency for IMT-2020 submission OPPO discussion
=> Not treated

R2-1802413 Discussion on CP Latency Reduction Options MediaTek Inc. discussion Rel-15 TEI15
=> Noted

R2-1803515 Control Plane Latency Reduction Ericsson discussion Rel-15 TEI15
=> Noted
- CATT think for TDD case component 5 must be reduced.

=> RAN2 will focus on component 5, 7, 9 and 10 to reduce the CP latency.
=> The following table is used as baseline.

Component	Description	Op1:Latency [ms]	Op2:Latency [ms]	Op3:Latency [ms]	Op4:Latency [ms]
1	Average delay due to RACH scheduling period (1TTI)	0.5	0.5	0.5	0.5
2	Transmission of RACH Preamble	1	1	1	1
3	Preamble detection and processing in eNB	2	2	2	2
4	Transmission of RA response	1	1	1	1
5	UE Processing Delay (decoding of scheduling grant, timing alignment and C-RNTI assignment + L1 encoding of RRC Connection Resume Request)	3	4	4[5]	5
6	Transmission of RRC Connection Resume Request	1	1	1	1
7	Processing delay in eNB (L2 and RRC)	3	2	4[3]	2

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 111

8	Transmission of RRC Connection Resume	1	1	1	1
9	Processing delay in the UE (L2 and RRC; including UL grant reception)	5	7	4	5
10	Transmission of RRC Connection Resume Complete and UP data	[0]	[0]	[0]	[0]
	Total delay [ms]	17.5	19.5	18.5	18.5

CB tomorrow morning :=> Draft LS to RAN1 inform our situation. Ask what RAN1 can do for component 5. (Ericsson offline#288)

R2-1803979 [DRAFT] LS to RAN1 on CP latency Ericsson LS out Rel-15 TEI15 To:RAN1
=> With the change "**how much specification effort is required and how much gain could be obtained.**"
=> LS is approved in R2-1803985.

R2-1801923 Control Plane Latency Reduction in LTE for TDD CATT discussion Rel-15 TEI15

R2-1802626 CP Latency Reduction using Early Data Transmission MediaTek Beijing Inc. discussion

R2-1802653 Consideration on LTE Control Plane Latency Reduction Huawei, HiSilicon discussion Rel-15 TEI15

R2-1802894 CP latency reduction for LTE Intel Corporation discussion Rel-15 TEI15

R2-1803513 Control Plane latency reduction Ericsson CR Rel-15 36.306 14.5.0 1563 - B TEI15

R2-1803514 Control Plane latency reduction Ericsson CR Rel-15 36.331 15.0.1 3283 - B TEI15

9.21.2 Other

Including output of email discussion [100#35][LTE/TEI15] New L2 measurements (Huawei)

HSDN:

R2-1802897 Cell reselection for the UE on high-speed-dedicated network Intel Corporation discussion Rel-15 TEI15

Agreement:
1 Introduce 1 new bit indication in SIB1 to indicate the high speed dedicated network cell.
2 Maximum value for the weight for high speed dedicated network cell is 16. New value of MSE cell count for HSDN case can be further considered.
3 When the UE is in high mobility state, the UE prioritize to re-select the high speed dedicated network cell regardless of frequency priority.
4 When the UE supporting the HSDN feature is not in high mobility state, the UE deprioritize (i.e., lowest priority) to re-select the high speed dedicated network cell.

R2-1803213 Support of mobility-state-based cell reselection in the high-speed-railway dedicated LTE network (HSDN) CMCC discussion Rel-15 TEI15

R2-1801924 Open Issues of Cell Reselection in HSDN CATT discussion Rel-15 TEI15
- Ericsson think P3 is kind of optimisation

Agreements:
1 HSDN neighbouring cell list can be provided in SIB. FFS the content of the list.

[101#43][LTE/TEI15] Support of mobility-state-based cell reselection in the high-speed-railway dedicated LTE network in 36.304 (OPPO)
Intended outcome: endorsed CR
Deadline: until next meeting

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 112

✉ **[101#44][LTE/TEI15] Support of mobility-state-based cell reselection in the high-speed-railway dedicated LTE network in 36.331 (CMCC)**
Intended outcome: endorsed CR
Deadline: until next meeting

R2-1801773 Discussion on System Information and Cell Reselection Issues for High Speed Dedicated Network OPPO discussion Rel-15 TEI15

R2-1801774 CR to TS 36.331 on System Information Issues for High Speed Dedicated Network OPPO draftCR Rel-15 36.331 15.0.1 TEI15

R2-1801775 CR to TS 36.304 on Cell Reselection Issues for High Speed Dedicated Network OPPO draftCR Rel-14 36.304 14.5.0 TEI15

R2-1802257 Discussion on the issues for UE on high-speed dedicated network Huawei, HiSilicon discussion Rel-15 TEI15

R2-1802896 CR for support of cell reselection for high speed dedicated network Intel Corporation CR Rel-15 36.331 15.0.1 3250 - B TEI15

R2-1803235 Support of mobility-state-based cell reselection in the high-speed-railway dedicated LTE network (HSDN) CMCC CR Rel-15 36.304 14.5.0 0406 - F TEI15

R2-1803236 Support of accurate UE mobility state estimation and mobility-state-based cell reselection for HSDN CMCC CR Rel-15 36.331 15.0.1 3268 - F TEI15

R2-1803308 CR for support of cell reselection for high speed dedicated network Intel Corporation CR Rel-15 36.304 14.5.0 0408 - B TEI15

L2 measurement:

R2-1802864 Email discussion summary on new L2 measurements Huawei discussion Rel-15 TEI15

> Agreement:
> 1 for use case 1, introduce the following two new measurements:
> - Distribution of total PRB usage for DL
> - Distribution of total PRB usage for UL

CBF: Check the following proposal can be agreed or not and try to agree CR of TS36.314 (Huawei, offline 298)
Proposal: for use case 2, Introduce following two new measurements:
- Distribution of Scheduled IP Throughput in DL
- Distribution of Scheduled IP Throughput in UL

=> For the new measurements, it is proposed to have new section(s) to describe them.

CBF:=> (Huawei, offline 299) Draft LS to SA5:
for use case 1, regarding the following two new measurements, consult SA5 on impacts due to lot of samples.
- Distribution of PRB usage per traffic class for DL
- Distribution of PRB usage per traffic class for UL

for use case 2, regarding the following two new measurements, consult SA5 on impacts due to lot of samples.
- Distribution of Scheduled IP Throughput in DL (per QCI)
- Distribution of Scheduled IP Throughput in UL (per QCI)

for use case 3, consult SA5 on the following two comments:
- whether the existing performance measurements and their combinations provide various means to reflect effectively RRC-connected UEs, e.g. RRC measurements defined in TS 32.425
- the intention, i.e. in case if UE has multiple E-RABs with different QCI, then the same UE could be counted twice.

R2-1802865 CR on distribution of total PRB usage Huawei, HiSilicon CR Rel-15 36.314 14.0.0 0049 - F TEI15

R2-1802866 CR on distribution of scheduled IP throughput Huawei, HiSilicon CR Rel-15 36.314 14.0.0 0050 - F TEI15
=> Revised in R2-1803953

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 113

R2-1803953 CR on distribution of scheduled IP throughput Huawei, HiSilicon CR Rel-15 36.314 14.0.0 0050 - F TEI15

R2-1802867]DRAFT] Response LS on adding PRB usage distribution and IP throughput distribution measurements Huawei LS out Rel-15 TEI15 To:SA5

R2-1802868 [DRAFT] Response LS on adding measurements on average number of total active UEs Huawei LS out Rel-15 TEI15 To:SA5

Others:

R2-1803603 Addition of Missing Figures for R-PDCCH, EPDCCH and MPDCCH Ericsson CR Rel-15 36.300 15.0.0 1111 - F TEI15

- Qualcomm think it is not needed.

=> Postponed

R2-1802870 Discussion on additional PDCP discard timer Huawei, HiSilicon discussion Rel-15 TEI15 R2-1712725

R2-1802871 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15 36.300 15.0.0 1097 - B TEI15

R2-1802872 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15 36.306 14.5.0 1557 - B TEI15

R2-1802873 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15 36.323 14.5.0 0224 - B TEI15

R2-1802874 Introduction of additional PDCP discard timer Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3248 - B TEI15

R2-1802244 Enhancement of SRS antenna switching in TS 36.331 Huawei, HiSilicon CR Rel-15 36.331 15.0.1 3226 - B TEI15

R2-1802245 Enhancement of SRS antenna switching in TS 36.306 Huawei, HiSilicon CR Rel-15 36.306 14.5.0 1546 - B TEI15

R2-1802869 Discussion on dual registration and issues in LTE Huawei, HiSilicon discussion Rel-15 TEI15

R2-1803439 Enabling MBMS Bearer Event Notification Ericsson Limited CR Rel-15 36.300 15.0.0 1103 - F MBMS_Mcservices

R2-1802421 Clarification on RSTD Reporting for Assistance Data Reference Cell Samsung Electronics France SA discussion Rel-15 TEI15

R2-1802423 CR on Solution 1 for RSTD Reporting for Assistance Data Reference Cell Samsung Electronics France SA CR Rel-15 36.355 14.4.0 0190 - C TEI15

R2-1802426 CR on Solution 2 for RSTD Reporting for Assistance Data Reference Cell Samsung Electronics France SA CR Rel-15 36.355 14.4.0 0191 - C TEI15

R2-1803028 Japanese regulation regarding HPUE UL CA in Band 41 KDDI Corporation discussion Rel-15

10 WI: New Radio (NR) Access Technology

(NR_newRAT-Core; leading WG: RAN1; REL-15; started: Mar. 17; target: Jun. 18: WID: RP-172834)

10.1 Organisational

Incoming LSs, work plan, status from other groups, etc.

Liaisons to RAN2

R2-1801715 LS on OSI and paging PDCCH configuration (R1-1801189; contact: Samsung) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2

=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 114

R2-1801717 LS response to RAN2 on MAC CEs for beam management and CSI (R1-1801272; contact: Huawei) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Noted

R2-1801719 LS on correction to RRC parameters for NR (R1-1801281; contact: Ericsson and MediaTek) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Noted

R2-1801720 LS on NR UE feature list (R1-1801290; contact: NTT DOCOMO and AT&T)RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2, RAN4 Cc:RAN3
- DOCOMO think we should have some agreement how to implement this. For example RAN1 propose another differentiation between FR1 and FR2.
=> Noted

R2-1801726 LS on Extending TAC for NR and NG-RAN (R3-180634; contact: Ericsson) RAN3 LS in Rel-15 NR_newRAT-Core To:RAN2, SA2
- Huawei think it is strange that RAN3 made this decision and think it may impact the CN. We need to check with other WGs before confirming the change
- Intel have a similar view as SA2 try to have a unified behaviour between LTE and NR connected to 5GC.
- Vivo think that if SA2 have a problem they can respond to the LS.
- Intel think we need to look more to look at the consequences of 2 TAC sizes.
- Vodafone wonders if a mix of the 2 sizes can be used.
=> Offline discussion to consider whether in NR there is any complication to the RAN2 procedures due to the use of 2 TAC sizes (2 or 3 bytes). Can then consider what to reply to RAN3. Draft LS in R2-1803876 (Offline discussion #07, Vivo)

R2-1803876 [DRAFT] Reply LS on Extending TAC for NR and NG-RAN vivo LS out Rel-15 NR_newRAT-Core To:RAN3 Cc:SA2,CT1,CT4
- Vodafone understand that there is no clarity on the concept of 3 bytes, and the need for it. We should wait for clear guidance from SA2.
- Intel think RAN2 still have more work to do for the full analysis.
- Ericsson also think we should discuss more before sending any LS.
=> No RAN2 will be sent until RAN2 has discussed further.

R2-1801731 Reply LS on PHR mapping table for FR1 and FR2 (R4-1801078; contact: Huawei) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN2
- Ericsson think the PHR design might need to be reconsidered as they require 7 bits but the current design has only 6 bits.
=> Noted

R2-1801732 LS on measurement gap patterns (R4-1801079; contact: Huawei) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN2 Cc:RAN1
=> Noted

R2-1801733 Reply LS on LTE measurement gap patterns for SSTD measurement (R4-1801080; contact: Huawei) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Noted

R2-1801734 LS for intra-frequency measurement on NR SCell (R4-1801307; contact: NTT DOCOMO) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Noted

R2-1801753 Reply LS on security during Resume reject in INACTIVE state in NR (S3- 180349; contact: Intel) SA3 LS in Rel-15 NR_newRAT-Core To:RAN2
- Huawei think SA3 don't see the benefit of reducing the wait timer to address the DoS issues so we can have further discussion. ZTE have the same view and think that the reject must be sent with integrity protection.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 115

- Ericsson also think that idle mode UEs can be rejected with wait timer and we can't do anything about this. But we should not add tiers longer than LTE so not to make things worse that LTE. Intel share the same view.
- ZTE think the difference with Idle is that the UE in CM connected has different expectations in terms of service availability. Think that RRC Connection Setup can be used in the case of the context is not available.

=> Noted

R2-1801755 LS on measurement of user plane latency (S5-181576; contact: Huawei) SA5 LS in Rel-15 NETSLICE-ADPM5G To:RAN2

- Ericsson think this is for NR and we don't have the L2 measurement spec in place so we need to understand if we can have this in Rel-15.
- DOCOMO think we agreed not to have a L2 measurement TS in this release as it is only needed for SON purposes.

=> Noted

R2-1803747 LS for measurement gap timing offset granularity (R4-1801331; source: NTT DOCOMO, INC.) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN2

=> Noted

Liaisons to RAN2 with copy of agreements to take into account

R2-1801716 LS on power control for LTE-NR Dual Connectivity (R1-1801231; contact: Ericsson) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN4, RAN2

- Ericsson understand the Pmax on LTE side is needed for all UEs and not just those that don't support dynamic power sharing.
- Huawei have the same understanding as Ericsson.

=> Delegates are invited to check with RAN1 colleague whether Pmax can be applicable also to UEs with dynamic power sharing. LTE RRC can be updated accordingly.

=> Delegates are invited to check whether the X-total is dynamic or static and hence whether it would be useful to include in the internode message.

R2-1801718 Agreements on Paging (R1-1801280; contact: Huawei) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2

=> Noted without presentation.

Liaisons with RAN2 in CC

R2-1801711 LS on selectively disabling legacy radio access (C1-180711; contact: Qualcomm) CT1 LS in Rel-16 To:SA1 Cc:SA3, SA2, RAN2, CT4

R2-1801724 LS on security for CU-CP/UP separation (R3-180630; contact: Ericsson) RAN3 LS in Rel-15 NR_CPUP_Split To:SA3 Cc:RAN2

R2-1801725 Reply to LS on handling concurrent running of security procedures (R3-180632; contact: Ericsson) RAN3 LS in Rel-15 5GS_Ph1 To:SA3 Cc:RAN2

R2-1801735 LS reply on required information for NSA on X2 (R4-1801327; contact: Nokia) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN3 Cc:RAN1, RAN2

R2-1801756 Reply LS to SA2 on default values for 5GS QoS averaging window (S6-180222; contact: Motorola Solutions) SA6 LS in Rel-15 5GS_Ph1 To:SA2 Cc:RAN2, CT1, SA4

R2-1801770 Reply LS on default values for 5GS QoS averaging window for standardised 5QIs (S4-180254; contact: Intel) SA4 LS in Rel-15 FS_eVoLP To:SA2 Cc:CT1, RAN2, SA6

R2-1803776 Reply LS on selectively disabling legacy radio technologies (S1-180634; contact: Ericsson and Qualcomm)

=> Noted without presentation

New LS in (during RAN2#101)

R2-1803980 LS on MAC CEs for BM and CSI (R1-1803347; contact: Huawei) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2

=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 116

R2-1803931 Reply LS to LS on RAN2 Assumption about DRB ID value range (S3-180848; contact: Nokia) SA3 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Noted

R2-1803975 LS on Support User Plane Encryption in UP security policy (S3-180943; contact: Huawei) SA3 LS in Rel-15 5GS_Ph1-SEC To:SA2, RAN2, RAN3
- Nokia assume that the NULL algorithm can be used for encryption.
- Intel think there should only be one alg across DRBs.
=> Can consider next meeting the stage 3 consequences of enabling encryption per PDU session.

R2-1803981 LS reply on beam failure recovery (R1-1803348; contact: CATT) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Treated in UP session

R2-1803987 LS on Measurement gap timing advance (R4-1803126; contact: NTT DOCOMO) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Signalling implications will be considered in the next meeting.

R2-1803988 Missing values for calculating the RA-RNTI (R1-1803372; contact: Ericsson) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Noted

R2-1803989 LS on Maximum TBS for PDSCH containing RMSI/OSI/Paging (R1-1803375; contact: CATT) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2
=> Noted

R2-1803990 Reply LS on Raster Configuration (R1-1803379; contact: Intel and MediaTek) RAN1 LS in Rel-15 NR_newRAT-Core To:RAN2 Cc:RAN4
- Intel think the only think we need to do is add a field description to clarify that the cell defining SSB for PCell must always be on the sync raster, even though it is signalled with ARFCN.
=> Noted

R2-1804048 LS on RAR RAN1
=> RAN1 agreement will be captured in the MAC spec.

R2-1803940 LS on UE feature list (R4-1803288; contact: NTT DOCOMO) RAN4 LS in Rel-15 NR_newRAT-Core To:RAN1, RAN2 Cc:RAN3
=> Noted

Rapporteur inputs

R2-1801889 RAN WG's progress on NR WI in the January AH meeting 2018 (Rapporteur) discussion Rel-15 NR_newRAT-Core NTT DOCOMO, INC. Late
=> Noted

10.2 Stage 2 and common UP/CP aspects

10.2.1 Stage 2 TSs and running CR

TS 38.300, TS 37.340 rapporteur inputs (e.g. FFS lists, etc) and running CR to 36.300. Please submit proposed corrections to the appropriate agenda item.

TS 38.300

R2-1802500 Miscellaneous Corrections & Additions Rapporteur (Nokia) CR Rel-15 38.300 15.0.0 0009 - F NR_newRAT

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 117

=> Revised to include new agreements from this meeting in R2-1803877 (Offline discussion #08, Nokia)

R2-1803877 Miscellaneous Corrections & Additions Rapporteur (Nokia) CR Rel-15 38.300 15.0.0 0009 1 F NR_newRAT

✉ **[101#12][NR] 38.300 CR (Nokia)**
Intended outcome: Agreed CR
Deadline: Thursday 2018-03-08
=> Agreed in R2-1803877

R2-1802501 NR Stage 2 Open Issues Rapporteur (Nokia) discussion Rel-15 NR_newRAT
=> Noted

TS 37.340

R2-1802392 Miscellaneous corrections ZTE CR Rel-15 37.340 15.0.0 0004 - F NR_newRAT-Core
=> Revised to include new agreements from this meeting in R2-1803878 (Offline discussion #09, ZTE)

R2-1803878 Miscellaneous corrections ZTE CR Rel-15 37.340 15.0.0 0004 1 F NR_newRAT-Core
=> Agreed

R2-1802393 List of FFS for MR-DC Rapporteur (ZTE Corporation) discussion Rel-15 NR_newRAT-Core
- Rapporteur clarifies that all the FFSs are for the June version of the spec.
=> Noted

R2-1802394 Draft37.340CR Introduction of NR-NR DC Rapporteur (ZTE Corporation) draftCR Rel-15 37.340 15.0.0 NR_newRAT-Core

36.300 running CR

R2-1803742 Introduction of New Radio Access Technology in TS 36.300 NTT DOCOMO, Inc., Rapporteur (Nokia) CR Rel-15 36.300 15.0.0 0998 3 B NR_newRAT-Core R2-1705995
=> Endorsed as current running CR

R2-1803478 Clarification for the use of en-gNB in LTE Stage-2 Nokia, Nokia Shanghai Bell CR Rel-15 36.300 15.0.0 1104 - F NR_newRAT-Core
=> Agreed

Withdrawn

R2-1802763 Clarification for the use of en-gNB in LTE Stage-2 Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core Withdrawn

R2-1803723 Introduction of New Radio Access Technology in TS 36.300 NTT DOCOMO, INC., Rapporteur (Nokia) CR Rel-15 36.300 15.0.0 1112 - B NR_newRAT-Core R2-1801388 Late

10.2.2 Stage 2 corrections for EN-DC

No documents should be submitted to 10.2.2. Please submit to 10.2.2.x.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 118

10.2.2.1 User plane

Corrections to 38.300 or 37.340 for EN-DC related to user plane or common UP/CP aspects (i.e. that should be discussed with both user plane control plane people present)

R2-1802986 Maximum number of carriers in CA and DC Intel Corporation discussion Rel-15 NR_newRAT-Core
- DOCOMO think all 32 CCs could be configured on LTE side.
=> TP for 38.300 is agreed
=> Wording of the TP for 37.340 can be finalised offline and then included into the running CR.

R2-1803650 Maximum number of CC in NR CANTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core
=> Check offline what the current status is in RAN1 regarding the number of supported CCs. (Offline discussion #14, DOCOMO)

R2-1804031 Offline discussion #14 report on maximum number of CC in NR CANTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803651 Draft LS on maximum number of CCs for NR CA NTT DOCOMO, INC. LS out Rel-15 NR_newRAT-Core To:RAN WG1
=> Revised in R2-1804032

R2-1804032 [DRAFT] LS on maximum number of CCs for N
=> Change action to " RAN2 respectfully asks RAN1 to check if RAN1 specs support 32 CCs for NR CA. "
=> Approved in R2-1804052

10.2.2.2 Other

Corrections to 38.300 or 37.340 for EN-DC other than those that fall into 10.2.2.2

R2-1802395 Clarification on SN modification procedure ZTE Corporation, Sanechips discussion Rel-15 NR_newRAT-Core
- Ericsson prefer proposal 1a as the main use case for change of MCG RLC is when the SkgNB is changing and so the information is required from SN to MN.

Agreements
1 Remove the current PDCP Change Indication IE from the SgNB Modification Request message (as the only possible setting at the moment for this, "S-KgNB update is required", seems not necessary)

=> Send a LS to RAN3 to inform them of the decision about the PDCP Change Indication IE in a SgNB Modification Request message. Draft in R2-1803879 (Offline discussion #10, ZTE)

R2-1803879 [DRAFT] LS on PDCP Change Indication ZTE LS out Rel-15 NR_newRAT-Core To:RAN3
=> Approved in R2-1804050

R2-1802396 SCG configuration handling during resumption in EN-DC ZTE Corporation, Sanechips discussion Rel-15 NR_newRAT-Core
- Intel think we previously agreed the UE behaviour.
- Ericsson thinks it should be clear that the bearer configuration should be kept.
=> " In EN-DC, the SCG configuration is kept in the UE during suspension. The UE releases the SCG configuration (but not the radio bearer configuration) during resumption initiation." agreed to be added to the spec.

R2-1802522 Remaining issues on Secondary RAT data volume counting Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800726

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 119

- Vivo think that the LTE L2 measurement was not applied for the split bearer.
- Ericsson ask if there is any other difference than LTE. Huawei think it is just split bearer and duplication.
- DOCOMO think this is used for MDT purposes and is not sure if MDT is supported for EN-DC. But wonder if it is needed for charging purposes. Huawei confirm that charging is the primary purpose.
- Samsung think RAN3 should send an LS to explain exactly what we need to do.

=> Offline checking to look at what is specified in LTE and see what additional work might be needed to enable RAN3's requirements (Offline discussion #11, Huawei)

R2-1804018 Offline discussion #11 Secondary RAT data volume counting Huawei discussion Rel-15 NR_newRAT-Core

Agreements
1: RAN2 leave the remaining issues on secondary RAT data volume to discuss in RAN3 firstly. 2: The guidance of how to measure secondary RAT data volume for EN-DC will be described in TS 37.340.

R2-1802771 TP to Stage-2 on Measurements Ericsson discussion Rel-15 NR_newRAT-Core

=> Corrections in 9.1 are agreed.

R2-1803532 Inter node procedure for handover command duplication Ericsson discussion Rel-15 NR_newRAT-Core

- ZTE see the potential issue but think it can be left to implementation in the network and no need for the indication on X2. Huawei agree with ZTE.
- NEC think that RAN3 can directly discuss this issue.

=> Noted

R2-1802530 Clarification of the NR RRC configuration response Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Moved from 10.2.2.1 to 10.2.2.2

- Ericsson think this could also apply in any case that only the PDCP config is reconfigured, even for other bearers.

=> Offline discussion to conclude how to update the stage 2 to reflect the configuration of an SN terminated MCG bearer or a reconfiguration of PDCP only, with respect to inclusion of NR RRC Reconfig message and response (Offline discussion #12, ZTE)

R2-1804049 Clarification on SN RRC response message ZTE draftCR

=> Agreed

=> Change will also be duplicated in other procedure for the final CR.

R2-1802531 Draft LS on NR RRC configuration response message Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:RAN3

Moved from 10.2.2.1 to 10.2.2.2

=> Revised to clarify that this applies to any reconfiguration where only the PDCP config in the SN is affected. Revised in R2-1803880 (Offline discussion #13, Huawei)

R2-1803880 [DRAFT] LS on NR RRC configuration response message Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:RAN3

=> Approved in R2-1804051

=> Revised in R2-1804104

[MCC]: Replaced source: “Huawei” with “RAN2”

=> Approved

10.2.3 Stage 2 corrections for non EN-DC

Correction 38.300 or 37.340 not related to EN-DC

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 120

R2-1801865 Clarification for the inter-RAT re-selection in the RRC_INACTIVE state Samsung, Nokia, Nokia Shanghai Bell CR Rel-15 38.300 15.0.0 0007 - F NR_newRAT-Core
=> TP is agreed.

R2-1802127 Clarification for cell reselection in the RRC_INACTIVE state Samsung CR Rel-15 38.300 15.0.0 0008 - F NR_newRAT-Core
=> Discuss offline how to capture the agreements for inactive, for example just point to the idle mode section.
=> Revised in R2-1803893 (Offline discussion #17, Samsung)

R2-1803893 Clarification for cell reselection in the RRC_INACTIVE state Samsung CR Rel-15 38.300 15.0.0 0008 1 F NR_newRAT-Core
=> To be merged into the rapporteur CR

R2-1802259 Discussion on the LCP restricions Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Change is agreed with rapporteur left to improve the wording of the 'and/or's

R2-1802275 Corrections on Some Description for 38.300 OPPO draftCR Rel-15 38.300 15.0.0 NR_newRAT-Core R2-1800671
=> First change " PRACH resource " is agreed
=> Other changes to the SI description can be discussed offline to conclude what is needed to align without agreements (Offline discussion #18, OPPO). Revision can be provided in R2-1803894.

R2-1803894 Corrections on Some Description for 38.300 OPPO draftCR Rel-15 38.300 15.0.0 NR_newRAT-Core
=> TP is agreed
=> Agreement from CP session that on demand SI delivery in connected by RRC signalling will not be supported in Rel-15 to be captured by the rapporteur

R2-1802343 TP to 38.300 on paging Ericsson discussion
=> Agreed

R2-1803354 Correction to numerology of SI broadcast and paging Huawei, HiSilicon CR Rel-15 36.300 15.0.0 0004 1 F NR_newRAT-Core R2-1801177
=> Addressed in rapporteur CR

R2-1802377 TP on 38.300 for RNA Configuration Ericsson discussion Rel-15 NR_newRAT-Core
moved from 10.2.14 to 10.2.3
=> Offline discussion to improve the wording. Revised in R2-1803898 (Offline discussion #19, Ericsson)

R2-1803898 TP on 38.300 for RNA Configuration Ericsson discussion Rel-15 NR_newRAT-Core
=> TP agreed

Withdrawn

R2-1801864 Clarification for the PLMN selection procedure in the RRC_INACTIVE state Samsung, Nokia, Nokia Shanghai Bell CR Rel-15 38.300 15.0.0 0006 - F NR_newRAT-Core Withdrawn

R2-1802355 TP to 38.300 on Access Control Ericsson discussion Withdrawn

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 121

10.2.4 Mobility mechanisms - basic handover

Any remaining stage 2 aspects of basic handover (and not common to SCG change for EN-DC). Contributions should include a TP to show how the stage 2 specification would be impacted (if no stage 2 spec impact then the contribution should be submitted to an appropriate stage 3 AI)

R2-1802082 Remaining issues and TP for baseline handover procedure vivo discussion Rel-15 NR_newRAT-Core R2-1800863

> Agreements
> 1: AS configuration includes the QoS flow to DRB mapping configured to the UE via reflective QoS to support lossless handover (mapping configured by RRC signalling already agreed to be provided in AS config).
> FFS: Whether the beam measurement information is provided in the HandoverPreparationInformation following the same principles as beam measurement information in the SCG change case.
> FFS: Whether AS configuration needs to includes the minimum system information from source
> 2 The target gNB optionally includes the common RACH configuration in the ReconfigWithSync, if not included, the UE continues to use the common RACH configuration of the source cell.

=> Offline discussion of the FFS points(Offline discussion #22, Vivo)
=> TP stage 2 to be provided in R2-1803900 (Offline discussion #22, Vivo)

R2-1804013 Summary of offline discussion #22 vivo discussion Rel-15 NR_newRAT-Core
- Samsung ask if there was conclusion on the number of cell to be forwarded.

> Agreements
> 1: The beam measurement information is provided in the HandoverPreparationInformation following the same principles as beam measurement information in the SCG change case.
> FFS The number of cells for which this information is provided.
> 2: AS configuration can include the minimum system information from source.

R2-1803900 TP stage-2 for baseline handover procedure vivo discussion Rel-15 NR_newRAT-Core
=> Revised to R2-1804047

R2-1804047 TP stage-2 for baseline handover procedure vivo discussion Rel-15 NR_newRAT-Core
=> Not based on latest version of the spec.
=> Rapporteur to add to the CR and update to the latest spec version as needed.

R2-1802468 Further discussion on information for handover Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800547

R2-1802407 TP on Basic HO Considering the FFS Issues MediaTek Inc. discussion R2-1800629

R2-1803021 Remaining issues of stage 2 basic mobility mechanism and TP Qualcomm Incorporated discussion Rel-15

R2-1803225 TP for on-demand SI acquisition during HO PANASONIC R&D Center Germany discussion Rel-15 R2-1800813

R2-1803339 Remaining stage-2 open issues in basic HO Ericsson discussion Rel-15 NR_newRAT-Core

10.2.5 Bandwidth parts

Stage 2 aspects of bandwidth parts for standalone operation. Note that corrections to bandwidth parts for EN-DC should be submitted to the appropriate UP or CP stage 3 AI.

System information in connected

R2-1802979 Paging and Broadcast Information Handling in NR SA for RRC CONNECTED state UE Intel Corporation discussion Rel-15 NR_newRAT-Core
Moved from 10.4.1.6.7 to 10..2.5

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 122

R2-1801824 Reception of updated SI in connected mode CATT discussion

R2-1803387 BWP operation for requesting other SI for PCell and SCell Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core

- Above 3 papers discussed jointly
- LG assume that SI update is not frequent and hence it does not need to optimise and so the UE can switch to the BWP where the SI is provided. Thinks there is a problem for the network to broadcast over many BWPs.
- Intel think we should clarify that the discussion about SI reception is just for the PCell.
- MediaTek agree with LG that the change is rare and hence it would be OK to provide on all configured BWPs and hence no need to switch.
- DOCOMO think the most important thing is to not degrade PWS due to BWPs and hence SI can be provided on all BWPs.
- Nokia agree we should not optimise very much and the easiest is to allow the UE to switch to the Initial BWP. Nokia think the network could schedule the UE on both BWPs if it doesn't know which BWP the UE is using.
- Huawei think the network cannot provide MIB in all BWPs.
- Lenovo think this is not just for the SI update case but also the UE needs to keep its SI update to date. If SI is provided in all BWPs then the BWP starts to look like a cell.
- Qualcomm think we should separate ETWS and other SI. For ETWS it makes sense to deliver over the current active BWP. For other SI this could be challenging for the network and another approach may be needed.
- ZTE want to minimise the risk of losing the UE and hence minimise the autonomous switches. It should be under n/w control to move the UE to the initial BWP.
- Ericsson agree that autonomous switching can cause risk of losing the UE. Simplest is to provide it in the current BWP and if not provided the UE doesn't attempt to receive.
- Vivo also think autonomous switch is risky. For the network to switch the UE it is difficult to know the UE capabilities.
- Samsung share the view of Ericsson. Think if paging can be broadcast the updated SI can be provided. It could be just send for a limited time after an SI change.
- ZTE ask is a single BWP can belong to more than one cell and hence it is not clear which SI would be provided in this BWP.

Show of hands
1/ SI is provided in the UEs active BWP [17]
2/ UE switches to the Initial BWP for SI reception [14]
3/ SI request [1]

Agreements
1: Monitoring of paging by the UE and SI reception by the UE is only for the NR PCell while the UE is in connected mode.
2 Provision of SI required for the connected mode UEs by dedicated signalling is an option for the network
3 UE acquires SI broadcast required for the connected mode UE from within the UE's active BWP, if it is provided. Paging is also provided in UE's active BWP as previously agreed). If it is not provided in the UE's active BWP then the UE does not acquire SI broadcast from within that BWP. (i.e. The UE does not switch active BWP autonomously for reception of SI broadcast)

=> Offline discussion to progress the further details of the solution. E.g. whether MIB is provided or not on the BWP, whether it is just provided temporarily after and SI change, numerology details, capability, anything special needed for case of overlapping BWP, etc (Offline discussion #15, LG)

R2-1804045 Report of Offline Discussion #15 LG Electronics In
=> Noted

R2-1804046 [DRAFT] Reply LS on SI reception in BWPLG Electronics Inc.

✉ **[101#13][NR] SI reception in connected LS (LG)**

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 123

Intended outcome: Approved LS
Deadline: Thursday 2018-03-08
=> Approved in R2-1804109

R2-1801819 SI Reception on BWPs for Connected UEsHuawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801881 Updated SI Reception in RRC Connected: Bandwidth Part Aspects Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core

R2-1802158 CONNECTED mode UE behaviour on receiving paging message for SI change notification ITRI discussion NR_newRAT-Core

R2-1802321 Notification and retrieval of updated SI for a UE in an active DL BWP Ericsson discussion

R2-1802613 System Information update and BWP operation Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1803683 System information acquisition in RRC CONNECTED over BWP Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

R2-1802040 BWP impacts on Paging and System Inforamtion receiving at connected state ZTE Corporation, Sanechips discussion Rel-15
Moved from 10.4.1.6.7 to 10..2.5

Other

R2-1802164 Clarification on the usage of SSB ZTE Corporation, Sanechips discussion Rel-15

R2-1801818 BWP issues for SA Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801820 Discussion on cell definition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800655

R2-1801821 Addition of stage-2 cell definition Huawei, HiSilicon CR Rel-15 38.300 15.0.0 0005 - F NR_newRAT-Core

R2-1801976 Delta signaling in BWP Spreadtrum Communications discussion Rel-15

R2-1802075 Discussion on the per RF UE capability for BWP OPPO discussion

R2-1802076 Confirm BWP configuration issue and L2 handling for BWP reconfiguration OPPO discussion R2-1800607

R2-1802462 Further considerations for bandwidth part Samsung discussion Rel-15

R2-1803391 Initial BWP for Secondary Serving Cell Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core

Withdrawn

R2-1802828 Bandwidth Part Considerations for RRC_INACTIVE InterDigital discussion Rel-15 NR_newRAT-Core Withdrawn

10.2.6 Supplementary uplink

Stage 2 aspects of supplementary uplink for standalonne operation. Note that corrections to SUL for EN-DC should be submitted to the appropriate UP or CP stage 3 AI.

R2-1802742 Support of handover with SUL LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1802827 SUL Operation in NR Standalone InterDigital discussion Rel-15 NR_newRAT-Core

10.2.7 Mobility mechanisms - other

Note decisions at RAN2#97bis to progress the basic HO mechanism and only when stable to discuss conditional handover and potential optimisations to target close to 0ms or 0ms interruption.

Note at this meeting the specific task on 0ms interruption given to RAN2 from RAN#78 as described in RP-172807 will be discussed under AI 4.1

R2-1801783 Discussion on DC-based HO for NR OPPO discussion R2-1800051

R2-1801784 Discussion on Conditional Handover Optimization OPPO discussion R2-1800053

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 124

R2-1801785 Discussion on Make-Before-Break for NR Handover OPPO discussion R2-1800055
R2-1801786 Discussion on RACH less for NR Handover OPPO discussion R2-1800056
R2-1801883 Mobility enhancements for NR Samsung discussion Rel-15 NR_newRAT-Core R2-1801337
R2-1801935 Ping Pong Issues for Conditional Handover TCL discussion NR_newRAT-Core R2-1800091
R2-1801937 Mobility enhancement mechanism for 0ms interruption handover in NR TCL discussion NR_newRAT-Core R2-1801349
R2-1802008 Discussion on Conditional Handover in NRASTRI, TCL Communication Ltd. discussion R2-1800663
R2-1802020 Discussion on targeting the 0ms interruption with DC based handover ZTE Corporation, Sanechips discussion Rel-15
R2-1802021 Discussion on single connected handover ZTE Corporation, Sanechips discussion Rel-15
R2-1802408 Mobility Enhancement for '0ms Interruption' HO MediaTek Inc. discussion NR_newRAT-Core R2-1800630
R2-1802450 The Necessity of T312 in NR Samsung Electronics discussion R2-1801373
R2-1802471 3 Types of HO in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800548
R2-1802472 Further discussion on Conditional HO Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800549
R2-1802473 DC based NR scheme for 0ms interruption handover Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800550
R2-1802474 Security key change without L2 reset Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800552
R2-1802475 DC for intra-frequency mobility in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800553
R2-1802476 Mobility enhancements for PCell change Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800554
R2-1802477 Potential Advantages of multi-connectivity with multiple MAC entities within an NR cell Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800555
R2-1802478 Inter MN handover without SN change Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800556
R2-1802486 Introduction of Conditional handover Samsung discussion Rel-15 NR_newRAT-Core R2-1801493
R2-1802487 Operational aspects of conditional handover mechanism Samsung discussion Rel-15 NR_newRAT-Core R2-1801494
R2-1802541 Support of DC based handover with conditional handover for 0ms interruption LG Electronics Mobile Research discussion NR_newRAT-Core
R2-1802542 Support of RACH-less handover in NR LG Electronics Mobile Research discussion NR_newRAT-Core
R2-1802616 ANR for SA and NSA Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core
R2-1802692 ANR for NR LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801424
R2-1802693 Conditional handover procedure LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801425
R2-1802702 DRB Handling while RRC Connection Re-establishment in NR LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801291
R2-1802814 Conditional Reconfiguration for NR InterDigital discussion Rel-15 NR_newRAT-Core R2-1801109
R2-1803019 Discussion on conditional handover in NR KT Corp. discussion R2-1800609

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 125

R2-1803044 Conditional handover in NR system Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core R2-1801026

R2-1803335 Enhancing Handover Failure Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803336 Conditional Handover Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803337 Conditional Handover Simulation Results Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803338 On Reliability, overhead and controllability aspects of Conditional Handover Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803343 On the opportunities and threats of NR Conditional Handover Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1801099

R2-1803347 Configuration Management for NR Conditional Handover Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

10.2.8 Mobility - RLM,RLF

Any remaining stage 2 aspects of radio link monitoring procedure and criteria for declaring radio link failure, including impact of beam failure/recovery. This AI will be discussed after receiving input from RAN1 on the questions we asked.

Maximum 1 tdoc per company

R2-1802459 Discussion on aperiodic indications from beam failure recovery to assist RLF Samsung Electronics discussion R2-1801413

R2-1802768 Beam recovery impact to RLF triggering Ericsson discussion Rel-15 NR_newRAT-Core

R2-1801975 Discussions on the IS and OOS counting procedure Spreadtrum Communications discussion Rel-15 R2-1800274

R2-1802071 Impact of Beam Failure Recovery on RLF related actions Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1802083 RLM/RLF in NR vivo discussion Rel-15 NR_newRAT-Core R2-1800865

R2-1802703 RLF considering Beam Recovery Failure LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801300

R2-1803249 RLF with beam failure recovery Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803556 Impact of beam failure and recovery on RLM procedures AT&T discussion

10.2.9 Mobility - Inter-RAT

Connected mode mobility between NR and E-UTRA.

RRM measurements to be discussed under appropriate stage 3 AI.

R2-1802642 RRC procedures for inter-RAT mobility from E-UTRA to NR Ericsson discussion Rel-15 NR_newRAT-Core

Agreements for inter-RAT HO from E-UTRA to NR

1. Modify the legacy MobilityFromEUTRACommand to allow transfer of NR RRC message e.g. RRCReconfiguration to enable inter-RAT handover to NR (applicable to LTE/EPC and LTE/5GC)
2. Inter-system, inter-RAT handover from E-UTRA/EPC to NR will require a full configuration to reset the radio bearers.
3. In order to keep the SDAP and PDCP configurations during intra-system, inter-RAT handover from E-UTRA/5GC to NR, delta-configuration for the radio bearer configuration can be used.
4. Align the handling of PDCP/SDAP and security parameters in all intra-5GC handover scenarios (i.e. intra-NR, intra-E-UTRA, and inter-RAT where both source and target node use 5GC).

R2-1802643 RRC procedures for inter-RAT mobility from NR to E-UTRA Ericsson discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 126

Agreements
1 MobilityFromNRCommand allows transfer of LTE RRC message e.g. RRCConnectionReconfiguration to enable inter-RAT handover to LTE (applicable to handover to LTE/EPC and LTE/5GC)
2 For inter-system inter-RAT handover from NR to E-UTRA/EPC, the UE is configured via the RRCConnectionReconfiguration message (full configuration) carried by NR, as in legacy inter-RAT handover procedure.
3 In order to keep the SDAP and PDCP configurations during intra-system, inter-RAT handover from NR to E-UTRA/5GC, delta-configuration for the radio bearer configuration can be used.
4 Security procedures for inter-system handover to E-UTRA/EPC should follow legacy inter-RAT handover procedures i.e. be configured with 36.331 SecurityConfigHO.

R2-1802480 Message content in inter-RAT handover Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800559

Agreements
1: In handover between LTE connected to 5GC and NR, QoS flow related handling follows the principles defined for intra-NR handover and related information should be included in HandoverPreparationInformation.
2: The same measurement related content is included for the inter-RAT handover from LTE to NR as for the SN addition case in EN-DC.

=> TP to drafted for next meeting.

R2-1802595 UE context handling during inter RAT handover Ericsson discussion Rel-15 NR_newRAT-Core
R2-1801787 Discussion on Inter-RAT Handover between NR and LTE OPPO discussion R2-1800065
R2-1802121 NR inter-RAT mobility to CSG cell LG Electronics Inc. discussion Rel-15 R2-1801399
R2-1802479 Inter-RAT handover between LTE and NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800558
R2-1803576 Mobility between E-UTRAN and NR Qualcomm Incorporated discussion R2-1800106
R2-1803432 Stage 2 CR on the support of intra-system HO between LTE and NR (38.300) Ericsson draftCR Rel-15 38.300 15.0.0 NR_newRAT-Core
moved from 10.2.3 to 10.2.9

10.2.10 Security (non EN-DC)

Stage 2 aspects of security for cases other than EN-DC

User plane IP

R2-1802965 Supporting Integrity protection for DRB in EN-DC and Standalone Intel Corporation discussion Rel-15 NR_newRAT-Core
P4
- ZTE think there are 2 cases where attacker has the key and the case where the attacker is injecting packets to cause DoS. Intel think this will deny service only if this is the only cell but there will be an interruption.
- Ericsson think it can be left to the network. Intel think that a fraud BS will ignore the message and there can be no way to recover. Ericsson think that if this is a fraud BS that can understand the message then security has already been compromised. Intel think this is even more reason to move to another cell.
- Qualcomm think that proposal 4 is overkill. CRC falsing could cause an IP check failure and we should avoid reestablishment. So we should detect consecutive failures.
- Vivo think that changing cell might still lead the UE to be under a fake eNB.
- Huawei think we should try to detect consecutive failure.
- OPPO think that IP check failure can happen in both uplink and downlink and PDCP should be able to recover.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 127

- ZTE think DRB IP is just there to address packets injected by an attacker and not to address DoS.

Agreements for EN-DC
1: Integrity protection of DRB is not supported for EN-DC.
Agreements for SA
2: Any data packet failing integrity check is discarded by PDCP.
3: It is left to network to ensure that the UE supported data rate for integrity protection is not exceeded. UE behaviour when data rate exceeds supported rate is unspecified.
4: In NR UE capability signalling add a code point for support of the full data rate of the UE.
5: Signal the UE capability for supported max data rate for DRB IP in NAS as part of the rest of the UE security capability. This should be confirmed with SA3/CT1/RAN3.
6 Some description of the max DRB-IP data rate should remain visible in the AS specs (either 38.306 or 38.300). Details TBD.
FFS: After detecting [N] IP failures the UE reports the failure to the network.
FFS: Whether N=1 or >1, whether the report indicate the DRB that has failed.

=> Draft LS in R2-1803973 to CT1/SA3/RAN3 on DRB-IP capability move to NAS specs (Offline discussion #35, Intel)
=> Offline discussion to try to progress the FFS (Offline discussion #36, Intel)

R2-1803973 [DRAFT] UE capability related to integrity protection of DRBs Intel LS out Rel-15 NR_newRAT-Core To:CT1, SA3, RAN3
=> Approved in R2-1804056

R2-1804010 Report of offline discussion #36 on DRB IP failure reporting Intel Corporation (rapporteur) report Rel-15 NR_newRAT-Core
=> Noted
=> Solutions will be further discussed at the next meeting

R2-1802397 DRB integrity check failure handling ZTE Corporation, Sanechips discussion Rel-15 NR_newRAT-Core
=> Revised R2-1803967
R2-1803967 DRB integrity check failure handling ZTE Corporation, Sanechips discussion Rel-15 NR_newRAT-Core

R2-1803611 UP integrity protection granularity NEC discussion Rel-15 NR_newRAT-Core

Agreements
1 If integrity protected applies to a PDU session then it is applied to all DRBs of the PDU session.
2 If ciphering applies to a PDU session then it is applied to all DRBs of the PDU session.
Note: Signalling may still be per DRB and the above constraints ensured by network configuration. To be concluded in final ASN.1 design.

R2-1802798 Activation/deactivation of the DRB integrity protection Huawei, HiSilicon discussion Rel-15 NR_newRAT R2-1800474
R2-1801798 Discussion on the data available for BSR calculation due to DRB IP OPPO discussion R2-1800278
R2-1801799 Discussion on DRB IP failure handling and data recovery OPPO discussion R2-1800279
R2-1801825 DRB IP check failure CATT discussion
R2-1802049 Frame work for DRB integrity protection ZTE Corporation, Sanechips discussion Rel-15
R2-1802077 Behavior on DRB IP check failure vivo discussion Rel-15 NR_newRAT-Core R2-1800861

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 128

R2-1802429 Draft LS on the MAC-I size reporting and DRB IP failure handling procedure OPPO LS out To:CT1, RAN3 Cc:SA2

R2-1802524 User plane integrity protection check failure handling in SCG Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800729

R2-1802527 CR on 37.340 for UP IP check failure handling in SCG Huawei, HiSilicon draftCR Rel-15 37.340 15.0.0 NR_newRAT-Core R2-1800732

R2-1802590 Handling of UP integrity protection failure Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802797 Integrity protection and Counter Check Procedure for NR UP Huawei, HiSilicon discussion Rel-15 NR_newRAT R2-1800473

R2-1803612 [DRAFT] LS on granularity of UP integrity protection NEC LS out Rel-15 NR_newRAT-Core To:SA3 Cc:SA2, RAN3

R2-1802801 Re-establishment upon integrity check failure Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800471

R2-1802802 [DRAFT] LS to SA3 on re-establishment upon integrity check failure Huawei LS out Rel-15 NR_newRAT-Core R2-1800472 To:SA3

Other

R2-1802961 Security procedures during RRC connection setup Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1802799 Procedures for enabling security per bearer Huawei, HiSilicon discussion Rel-15

R2-1802637 Key refresh at handover in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802800 Stage 2 correction on security Huawei, HiSilicon draftCR Rel-15 38.300 15.0.0 F NR_newRAT R2-1800477

10.2.11 Slicing

Including signalling of slice info to RAN, impact to access control, confirmation (or otherwise) of working assumption from RAN2#99 on use of dedicated prioritises to control idle mode mobility for slicing, etc

Idle mode behaviour

R2-1803464 Control of the frequency on which the UE camps with TP Nokia, Nokia Shaghai Bell discussion NR_newRAT-Core

- CATT think the allowed slice information is not enough to set the priorities but the default slice is needed as well. There might be a preferred slice for among the slices of the UE.
- Qualcomm think that some companies in RAN3 are against including the signalling although SA2 did agree it.
- Nokia think the gNB has the Allowed Slice information although there might be other optimisations that could provide the gNB with more information.
- Ericsson agree there is discussion in RAN3 and SA2 that the RAN might not be given the allowed slices. Prefer to use the RFSP which could be used to set the frequency priorities. Do not agree with providing the UE information about slices.

Agreements

1 Working assumption from RAN2#99 is confirmed ("For needs of slicing, appropriate configuration of the dedicated priorities provided from the gNB can be used to control the frequency on which the UE camps. (i.e. reuse of same mechanism as in LTE). ")

2 No additional mechanisms for frequency prioritisation with respect to slicing will be specified for Rel-15

=> Send LS to SA2/RAN3 in R2-1804005 to tell them that in the case of slicing RAN needs to be able to appropriately configure the frequency priorities for idle mode reselection (i.e. to reuse the same priority based reselection mechanism as defined for LTE), hence appropriate information needs to be available in RAN for this configuration (Nokia, Offline discussion #45)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 129

R2-1804005 [DRAFT][LS to indicate that RAN needs to be able to appropriately configure the frequency priorities for idle mode reselection, etc] Nokia LS out Rel-15 NR_newRAT-Core To:SA2, RAN3
=> Revised to R2-1804071

R2-1804071 [DRAFT][LS to indicate that RAN needs to be able to appropriately configure the frequency priorities for idle mode reselection, etc] Nokia LS out Rel-15 NR_newRAT-Core To:SA2, RAN3
=> Change consider to agree
=> Change the action (text in []) to " and provide the necessary signalling"
=> Approved in R2-1804095

R2-1801826 Cell reselection based on slice availability CATT discussion R2-1800131

R2-1802261 Slice Availability for Cell Reselection Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801793 Working Assumption Confirmation and Proposed CR to TS 38.300 on Network Slicing OPPO, Coolpaddiscussion NR_newRAT-Core R2-1800054

R2-1802033 Idle mode behaviour for NW slicing ZTE Corporation, Sanechips discussion Rel-15

R2-1802078 Cell selection/reselection with network slicing vivo discussion Rel-15 NR_newRAT-Core R2-1800855

R2-1802079 Mechanism for UE dedicated priority camping vivo discussion Rel-15 NR_newRAT-Core

R2-1802080 UE registered slices information at gNB vivo discussion Rel-15 NR_newRAT-Core R2-1800862

R2-1802152 Discussion on the dedicated priority for network slicing in cell reselection ITRI discussion NR_newRAT-Core R2-1801340

R2-1802543 Considering slice availability for inter-frequency cell re-selection Gemalto N.V. discussion R2-1800185

R2-1802636 Slice availability Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802691 Cell reselection upon incoming service request Sequans Communications discussion R2-1801176
=> Revised in R2-1803748

R2-1803748 Cell reselection upon incoming service request Sequans Communications discussion

R2-1802958 Slice based cell reselection Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803581 Consideration of slicing in cell reselection Qualcomm Incorporated discussion

Signalling of slice info

R2-1802635 Signalling aspects of network slicing Ericsson discussion Rel-15 NR_newRAT-Core

- Nokia think there are cases that both 5G-S-TMSI and the NSSAI info will be provided by the upper layers. The case they are both provided is some optimisation. Suggest we just include the parameters that are provided by upper layers.
- Sony think nothing is broken if the NSSAI is not included in the MSG5.
- Panasonic think the 5G-S-TMSI is not good enough to find the right AMF and so some slice info is required to let the correct NAS node be found.

P6

- Ericsson think it is worth to avoid the duplication ad this is a large amount of information.
- Panasonic think NAS needs the information to find the slice instance but AS needs less info as it only needs to identify the AMF that provides the slice.
- Samsung thinks typically there might be only 1 or 2 slices and hence the overhead is not so big.

Agreements

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 130

1 For connection establishment case the 5G-S-TMSI is included in MSG3 if provided by upper layers 2 For connection establishment case the NSSAI info is included in MSG5 if provided by upper layers. FFS Whether the NSSAI info needs to be included in MSG5 in the case of resume. 3 RAN2 understanding of SA3 agreement is that no privacy protection for NSSAI is standardized in Rel-15.

=> LS to CT1, SA2 in R2-1804011 whether there is any case where the NAS would provide NSSAI info when the UE resumes from inactive, e.g. when TAU is triggered in inactive state. (Offline discussion #46, Ericsson)

R2-1804011 [DRAFT][LS to CT1, SA2 whether there is any case where the NAS would provide NSSAI info when UE resumes from INACTIVE] Ericsson LS out Rel-15 NR_newRAT-Core To:CT1, SA2
=> Approved R2-1804030
=> Revised in R2-1804107
[MCC]: Added WI code "NR_newRAT-Core" in the header
=> Approved

R2-1802034 Signalling of slice info ZTE Corporation, Sanechips discussion Rel-15
R2-1802260 Further Discussion on Slice Selection Information over RRC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1803051 Network slicing information delivery via RRC messages LG Electronics UK discussion Rel-15 R2-1801252
R2-1803133 NSSAI in MSG5 Sony discussion Rel-15 NR_newRAT-Core R2-1800984
R2-1803216 Requested NSSAI in RRC CMCC discussion Rel-15 LTE_ViLTE_enh2-Core R2-1800801
R2-1803423 Slice Information in RRC Samsung Electronics GmbH discussion R2-1801450
R2-1803463 Slice assistance information over RRC with TP Nokia, Nokia Shaghai Bell discussion NR_newRAT-Core

Other

R2-1802262 Slice-based Unified Access Control Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1802263 What is RAN part of a network slice ? Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1802463 Connected mobility aspects to support network slicing Samsung discussion Rel-15
R2-1802957 Slice based access control. Intel Corporation discussion Rel-15 NR_newRAT-Core

10.2.12 QoS

Any remaining stage 2 aspects, including QoS operation with DC.
Detailed topics, including QoS flow remapping, should be discussed in stage 3 user plane

Number of DRBs

R2-1803396 Number of DRBs in NR MediaTek Inc. discussion Rel-15 NR_newRAT-Core
- T-Mobile think that 16 is too small and the number should be 32.
- Vodafone wonder if all these slices can be active at the same time. It is an artificial configuration. 16 is a good number. But has a concern about proposal 4.
- AT+T think that 16 is the minimum and would not be opposed to 32.
- LG think that 16 is enough for the number of bearers configured at the same time but has concern about the proposal 4. Ericsson also agree that DRBs should not be counted twice.
- If we have 16 DRBs then that would mean 32 RLC entities
- Qualcomm support 16 and think 32 could be a capability.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 131

- OPPO think there is a limit in the number of DRBs that can support duplication of 8 per CG due to the MAC CE.
- Huawei also think that 16 DRBs is enough

P2

- Ericsson think we should be careful to have more than 16. Intel is also not sure that a capability is needed.
- Samsung have some sympathy with the proposal. Would like to be future proof.
- CMCC share the view from LG to be future proof.

Agreements
1: The number of DRBs a UE must support in NR is 16 (split and duplicated DRBs count as 1 DRB)
2 The UE shall support any combination of RLC modes as long as the overall number of DRBs does not exceed the maximum number of supported DRBs.

=> Offline discussion to understand whether 32 DRBs are possible from the UP point of view and what the implications would be to support 32 DRBs. (Samsung, Offline discussion #16)

Update from offline discussion: Was discussed in UP session and the conclusions captured in the report.

R2-1801867 Further considerations on the number of DRBs and PDU sessions for NR Samsung discussion Rel-15 NR_newRAT-Core R2-1800117

R2-1802265 Maximum DRB Numbers for NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803152 Number of supported Data Radio Bearers in NR Ericsson discussion Rel-15 NR_newRAT-Core

moved from 10.2.2.1 to 10.2.12

Other

R2-1801866 On default DRB, default QoS flow and profile Samsung discussion Rel-15 NR_newRAT-Core R2-1800116

R2-1802014 QoS remaining aspects for NR-NR DC ZTE Corporation, Sanechips discussion Rel-15

R2-1802264 DRB Level Offloading in NR DC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802502 Default QoS Profile Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

R2-1803153 Notification control Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803155 Need of Maximum Burst Size parameter for all GBR Flows Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803156 QoS Flow Relocation in NR-DC between MN and SN Ericsson discussion Rel-15 NR_newRAT-Core R2-1800697

10.2.13 Positioning

R2-1803456 On the remaining details of NR Release 15 positioning support Ericsson discussion Rel-15

Agreements
1 Stage 3 positioning specification (LPP) 36.355 is used for NR positioning (at least for Rel-15).
FFS: Whether a procedure is needed to enable the network to request information about LTE cells including the SFN0 timing of the cells, or rely on time reference from a serving NR cell (purpose is to enable the network to provide the OTDOA assistance information).
2 It would be up to LMF and E-SMLC implementation to handle the information sharing between E-UTRAN cells and LMF.
3 NR device should have the capability to request the NR cell to assign measurement gaps for the time when it wants to do E-UTRA positioning measurements. (i.e. following the procedure defined for LTE)
FFS Whether the UE needs to acquire MIB/SIB1 which would require longer idle periods.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 132

4	RAN2 confirms that there is a need to define measurement gaps for inter-RAT E-UTRA RSTD and ECID measurements and requires RAN4 input for continuation of the work.

=> LS to be sent to RAN4. Draft in R2-1803899 (Offline discussion #20, Ericsson)

R2-1803899 [DRAFT] LS On measurement gaps for Rel. 15 NR positioning Ericsson LS out Rel-15 NR_newRAT-Core To:RAN4
=> Approved in R2-1804058
=> Revised in R2-1804105
[MCC]: Removed ”draft” from the LS title
=> Approved

R2-1802803 Protocol impacts of positioning in NR Huawei, HiSilicon discussion Rel-15
R2-1802923 Support NR positioning under dual connectivity LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1713253
R2-1803643 Inter-RAT OTDOA support in NR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1801224

TPs

R2-1803309 Text Proposal for Clause 1-3 of TS 38.305 Qualcomm Incorporated discussion NR_newRAT-Core R2-1800824
R2-1803310 Text Proposal for Clause 4 of TS 38.305 Qualcomm Incorporated discussion NR_newRAT-Core
R2-1803459 Text proposal for 38.305 skeleton Ericsson discussion Rel-15 38.305
R2-1803313 Text Proposal for Clause 5 of TS 38.305 Qualcomm Incorporated discussion NR_newRAT-Core R2-1800827
R2-1803314 Text Proposal for Clause 6 of TS 38.305 Qualcomm Incorporated discussion NR_newRAT-Core R2-1800839
R2-1803315 Text Proposal for Clause 7 of TS 38.305 Qualcomm Incorporated discussion NR_newRAT-Core R2-1800840
R2-1803316 Text Proposal for Clause 6 and 7 of TS 38.305 Qualcomm Incorporated discussion NR_newRAT-Core R2-1800841
R2-1803317 Text Proposal for Clause 8 of TS 38.305 Qualcomm Incorporated discussion NR_newRAT-Core
=> Offline discussion to progress the TPs for the 38.305 (Offline discussion #21, Qualcomm)
Update from offline: There is a set of agreeable TPs that can be included in the draft TS

✉ **[101#14][NR] 38.305 (Qualcomm)**
Intended outcome: Agreed TS v1.0.0 for submission to RAN for information
Deadline: Thursday 2018-03-08
=> Endorsed in R2-1803804.

10.2.14 Other

Other stage 2 aspects for non EN-DC

Voice

R2-1802606 Voice over NR Feature Planning Qualcomm Incorporated discussion Rel-15 NR_newRAT R2-1800905
- Ericsson understand that TTI bundling is covered by the aggregation feature in Phy. Qualcomm think this was defined for URLLC and is not sure it can be applied to the voice case.

Agreements:

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 133

1 MAC CE based rate adaption and UE reporting air interface delay budget adjustment can be discussed after March. Limited time will be available for discussion and they will be lower priority than essential functionality for SA. To be confirmed in RAN plenary.
2 RAN2 understand that the features Short PDCP SN, SRVCC to UTRAN, MDT for MMTel, will not be supported in Rel-15
FFS Whether there is any AS impact to support the UE capability match.

R2-1802607 DRAFT LS on VoNR Feature Plan Qualcomm Incorporated LS out Rel-15 NR_newRAT R2-1800906 To:SA2, RAN1, RAN3 Cc:CT1
R2-1802287 Support of Rel-14 voice enhancements in SA NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800757
R2-1802608 VoNR TBS analysis Qualcomm Incorporated discussion Rel-15 NR_newRAT

Emergency/voice fallback

R2-1802358 Support for IMS Emergency calls in NR Ericsson discussion

Agreements
1 Include an ims-Emergency support indicator in NR broadcast for limited service mode UEs.
2 Include an eCallOverIMS-Support indicator in NR broadcast
=> TP is agreed

R2-1802288 Support EPS fallback for voice in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Agreements
1: EPS fall back to E-UTRAN for voice by HO and redirect procedure are supported. For the HO case no change to the HO procedure is needed compared to any other handover from NR to E-UTRA/EPC.

R2-1802286 Emergency Service Fallback from NR to LTE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802357 Emergency/Voice Fallback from NR to LTE Ericsson discussion
=> Offline discussion to progress the need for a CN indication in the redirection to LTE (Offline discussion #47, Ericsson)
Update from offline: To be redicussed at the next meeting

R2-1802640 LS on Emergency Fallback from NR to LTE Ericsson LS out Rel-15 NR_newRAT-Core To:SA2
R2-1802966 Emergency call support in SA NR Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1803050 Support for IMS emergency services in NR LG Electronics UK discussion Rel-15 R2-1801251

RAN sharing

R2-1802289 Network sharing for NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800758

Agreements
1: Each PLMN can set its own TAC and Cell-ID values for a shared NR cell.
2: Maximum number of PLMNs in minimum SI to be broadcasted in a cell is 12.

R2-1802359 RAN Sharing and identifier aspects in NR Ericsson discussion
R2-1802360 Stage 2 proposal for RAN Sharing Ericsson discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 134

ANR

R2-1802804 Automatic Neighbour Relation in NR Huawei, HiSilicon discussion Rel-15

> Agreements
> 1: For LTE reportCGI of an NR cell the UE acquires the cell ID from SIB1 of the NR cell (for post EN-DC early freeze)
> FFS Whether the UE reports anything to indicate that the NSA cell was not broadcasting SIB1.
> 2: Introduce a capability bit in LTE for the capability of reportCGI towards NR neighbours (no differentiation between SA/NSA case).
> FFS on differentiation between FR1 and FR2.

R2-1803330 ANR framework for EN-DC and NR standalone Ericsson discussion Rel-15 NR_newRAT-Core
moved from 10.4.2.2 to 10.2.14

R2-1803331 TP on inter-RAT ANR to 36.300 for EN-DC Ericsson discussion Rel-15 NR_newRAT-Core
moved from 10.4.2.2 to 10.2.14

R2-1803332 TP on ANR to 38.300 Ericsson discussion Rel-15 NR_newRAT-Core
moved from 10.4.2.2 to 10.2.14

Dual registration

R2-1803419 RAN2 aspects to support dual registration Samsung Electronics GmbH discussion R2-1801451

R2-1803002 Impacts on Dual registration Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
- Discussed jointly with previous paper
=> RAN2 will not respond to the SA2 LS dual registration
=> RAN2 specs will not specify any behaviour to support this scenario.

R2-1802964 Dual registration solution for 5GS / EPS interworking Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803003 Drafty reply LS on Dual registration Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:SA2 Cc:RAN1, RAN4

R2-1803421 [Draft] Reply LS on simultaneous transmission and/or reception over EPC/E-UTRAN and 5GC/NR Samsung Electronics GmbH LS out R2-1801452 To:SA2

R2-1803530 Dual registration and RAN impacts Ericsson discussion Rel-15 NR_newRAT-Core R2-1801212

Other

R2-1802294 Discussion on the latency measurement Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802295 Draft reply LS on the latency measurement Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:SA5
=> Revised in R2-1804019

R2-1804019 [DRAFT] Reply LS on the latency measurement Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:SA5
=> Approved in R2-1804096

R2-1802081 Signaling procedure of SCell-failure report vivo discussion Rel-15 NR_newRAT-Core R2-1800858

R2-1802202 Bearer handling in NR-E-UTRA Dual Connectivity Samsung R&D Institute India discussion Rel-15 R2-1800610

R2-1802398 Discussion on the Stage 2 Architecture of NN-DC ZTE Corporation, Sanechips discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 135

R2-1802399 SCG configuration handling during suspension/resumption for MR-DC@5GC ZTE Corporation, Sanechips discussion Rel-15 NR_newRAT-Core R2-1801080

R2-1802460 Discussion on NR C-DRX enhancement considering beamforming Samsung Electronics discussion R2-1801414

R2-1802461 UE suspension to RRC_INACTIVE in MR dual connectivity Samsung Electronics discussion R2-1801417

R2-1802521 DRB ID allocation for Option 4 and 7 Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800725

R2-1802528 Discussion on NR DC modelling Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800735

R2-1802646 Support of SRB3 for NR-NR DC Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802738 Handling of SRBs in connection re-establishment LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801382

R2-1802815 On CP Architecture for NR-NR DC InterDigital discussion Rel-15 NR_newRAT-Core R2-1801110

R2-1803001 High data rate impact on packet discard in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803060 Dedicated PRACH resource for beam failure recovery Lenovo, Motorola Mobility discussion Rel-15 R2-1712959

R2-1803210 Discussion on RAN support of edge computing in NR CMCC discussion Rel-15 NR_newRAT-Core R2-1800808

R2-1803241 Discussion on the support of SCG SRB for intra-NR DC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803440 Consideration on self evaluation of IMT-2020 for CP latency Huawei, HiSilicon discussion Rel-15 R2-1801221

R2-1803441 Consideration on self evaluation of IMT-2020 for UP latency Huawei, HiSilicon discussion Rel-15 R2-1801222

R2-1803529 UP latency in NR Ericsson discussion Rel-15 NR_newRAT-Core R2-1801209

R2-1803714 RRC state mismatch in NR NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core R2-1801364

10.3 Stage 3 user plane

Documents in this agenda item will be handled in the NR user plane break out session

10.3.1 MAC

10.3.1.1 TS

Latest TS 38.321, rapporteur inputs, etc

Editorial and small corrections/clarifications should be provided to the rapporteur. Single rapporteur TP is encouraged for editorials and clarifications.

R2-1802433 General corrections on TS 38.321 Samsung (Rapporteur) CR Rel-15 38.321 15.0.0 0039 - F NR_newRAT-Core

=> MAC entity operates independently for DC, unless otherwise specified

- LG ask if we need the definition of PUSCH duration

=> The reason for change for functional changes should be added

=> The CR is revised in R2-1803854

R2-1803854 General corrections on TS 38.321 Samsung (Rapporteur) CR Agreement R2-1802433 Rel-15 38.321 15.0.0 NR_newRAT-Core 0039 1 F

✉ **[NR UP/MAC] Correction CR – Samsung**

- one week after meeting

R2-1802435 List of open issues on NR MAC Samsung (Rapporteur) discussion Rel-15 NR_newRAT-Core

=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 136

10.3.1.2 MAC general aspects

Correction related to NR Unit, BWP and SUL general issues. Detailed functional corrections related to BWP and SUL should be submitted under corresponding function.

R2-1801761 Prevent BWP switching for PDSCH/PUSCH transmission OPPO, Qualcomm discussion
The BWP inactivity timer starts/restarts when the timer expires within a PDSCH/PUSCH transmission (including repetition), or the timer expires within K0/K2;
- Mediatek ask if this will happen. This will be a corner case. Lenovo and LG agree.
- Oppo thinks that the k and repetition numbers can be large and the BWP timers are smalls.

=> Not agreed

R2-1801815 Further considerations on RACH related BWP issues Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
Proposal 1: When contention free random access is triggered for beam failure recovery request, handover and SCG addition/change, the UE switches to the UL BWP where PRACH resources used for contention free random access are configured, if needed.
- CATT thinks that this is agreeable except for BFR. If the thresholds are not met there is no point of switching. Huawei understands that the beam quality should be the same across the BWP.
- Ericsson thinks that the network can move the UE to correct BWP. Samsung explains that with the current RRC the network can indicate.

=> Not needed

Proposal 2: When random access is triggered by PDCCH order, the UE switches to the UL BWP signalled in the PDCCH order, if needed.
- Nokia doesn't see any specification changes. Mediatek agrees.

=> This is current behaviour and no impact to specification

Proposal 3: For the contention free RA on the paired spectrum, the UE receives the RAR on the DL BWP that is active at the time of RAR window start.
- Samsung explains that the determination happens at the beginning of the procedure, the UE determines whether it has to switch or not.

=> This is current behaviour and no impact to specification

Proposal 4: RAN2 assumes that the UL grant in Msg2 can indicate the UE to switch UL BWP.
- Ericsson thinks that this is still up to RAN1 to discuss the content
- Nokia asks if this is for contention free and if so they agree with ericsson
- LG thinks that during the email discussion from RAN2 point of view there was no motivation to allow the RAR to change BWP

=> From RAN2 point of view the RAR does not change the BWP

Proposal 5: For CBRA, all those UL BWP(s) configured to a UE with PRACH configured should be initial UL BWP(s) or overlapped with initial UL BWP(s).
- ZTE thinks this is up to network implementation. Ericsson agrees but this may be quite costly so perhaps this is something interesting to think about it.
- Qualcomm thinks this is very restrictive especially for high frequencies. Samsung thinks that the network also has the option to configure the resources in initial BWP. Huawei then thinks this would be the only solution otherwise the network wouldn't know. LG also thinks Huawei has a point and we can maybe simplify and say that the UE always performs RACH on initial BWP.
- Nokia thinks for TDD we do not have an issue and for FDD there are some proposals to have a linkage. Interdigital agrees and a linkage would be enough without the restriction.

=> Noted

R2-1803203 BWP selection and RA Ericsson discussion Rel-15 NR_newRAT-Core
The gNB links a set of PRACH configurations/resources with DL BWPs so that the UE only monitors RAR on DL BWPs that are linked to the used PRACH resources
- CATT is concerned that we will consume a lot of resources.

=> noted

R2-1803061 BWP ambiguilty in contention-based RACH procedure MediaTek Inc. discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 137

Proposal 1: In FDD system, system information indicates cell-specific UL-DL BWP pairs for UE to perform contention-based RACH procedure.
Proposal 2: In FDD system, UE switch BWP to one of UL-DL BWP pairs as indicated by PCell upon initiating contention-based RACH procedure.
- Nokia thinks this intention is good but it has to be with UE dedicated signalling. Ericsson agrees but we may also needed for initial BWP
- CATT understand that BWP switching is independent and not sure what UE behaviour is if the UE switches to a BWP not in the pair.
- Mediatek thinks that the linkage has to be cell specific.

=> Noted

R2-1803871 Summary of BWP linking Ericsson

UL BWP k is linked with DL BWP k. If the UE intends to transmit preamble on UL BWP k, then the active DL BWP has to be DL BWP k. No additional ASN.1 signalling is foreseen.
- LG asks if this should be per cell so there is commonality between the UE. Ericsson is concerned that this would lead to inflexible scheduling. Mediatek thinks that the network can take care of configuring commonality.
- Lenovo and Samsung explain that the only limitation is more UL BWP than DL BWP and there is no clear use case.

=> Capture an understanding of why we are doing this [CB]
=> Noted

Agreements
=> For FDD and CBRA, PRACH configuration/resources are linked with DL BWPs (implicitly or explicitly). The UE only monitors RAR on DL BWPs that are linked to the used PRACH resources
=> **Working assumption**: UL BWP k is linked with DL BWP k. If the UE intends to transmit preamble on UL BWP k, then the active DL BWP has to be DL BWP k. ASN.1 signalling supports this

✉ **[NR UP/MAC] – BWP linkage – Ericsson**
- Capture the background of the BWP linkage and how to use it
- Before next meeting

BWP

R2-1802141 Further consideration on BWP inactivity timer CATT discussion

Proposal 1: UE should restart the BWP inactivity timer when the DCI scheduling Msg4 with UE's C-RNTI is received.
Proposal 2: UE should restart the BWP inactivity timer when the DCI scheduling Msg2 with UE's C-RNTI is received.
- Futjitsu thinks that this is already covered with the previous agreement.

=> UE should restart the BWP inactivity timer when the DCI scheduling Msg4 with UE's C-RNTI is received
=> UE should restart the BWP inactivity timer when the DCI scheduling Msg2 with UE's C-RNTI is received for CFRA for BFR.
=> The rapporteur will clarify this intention in the CR

Proposal 3: UE should start the BWP inactivity timer in the active BWP when the BWP switching is triggered by the DCI scheduling Msg2 with UE's C-RNTI.

=> This should be covered by first two agreements

Proposal 4: The condition that "if a PDCCH indicating downlink assignment or uplink grant" should be revised as "if a PDCCH addressed to C-RNTI or CS-RNTI indicating downlink assignment or uplink grant".
- Ericsson thinks this is not necessary, as PDCCH only addresses the C-RNTI or CS-RNTI. Huawei thinks that the PDCCH can refer to P-RNTI
- Samsung thinks that this formulation has been used for LTE.
- Google shares the same view as Ericsson.
- Nokia explains that for DRX we specify which RNTI the timer should be restarted and a similar principle should be applied
- Ericsson thinks that we should restart the timer in case of P-RNTI.

=> The inactivity timer is restarted when PDCCH is addressed to C-RNTI or CS-RNTI

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 138

Proposal 5: UE should not restart the BWP inactivity timer if the UE skipped the dynamic UL grant.

- Samsung thinks we should start the BWP. Mediatek sees some benefit with this proposal. ZTE is concerned that the gNB may get de-synchronized. Huawei has similar concern. CATT explains that the gNB will be aware that the UE didn't transmit. Lenovo agrees with CATT and with configured grants we have similar problems.
- LG supports the proposal
- Nokia thinks that the network has a reason for dynamic grant and it would be simpler that the UE restarts the timer.
- Ericsson would like to think further.
- Sharp also thinks that it is better to restart the timer as the network may want to keep the UE in the BWP and there is no other way to keep the UE. LG asks why the network would keep the UE in active BWP if there is no activity.

=> Noted

R2-1801993 Discussion on BWP switching vivo discussion

Proposal: The BWP switching command cannot be transmitted simultaneously with msg2 (i.e. PDCCH addressed with RA-RNTI) for CF-RACH.

- LG thinks this shouldn't be allowed. CATT and Nokia thinks that we don't need to do anything as the network is aware. Samsung explains that we already agreed that the UE will not switch if the random access is ongoing.

=> No need to specify this. The network can avoid this

=> Not agreed

R2-1802436 Basic procedure for BWP switching Samsung discussion Rel-15 NR_newRAT-Core

=> The rapporteur will update the text according to all agreements so far in R2-1803854

=> Not agreed

R2-1802438 UE autonomous BWP switching for configured UL resources LG Electronics Inc. discussion NR_newRAT-Core R2-1801243

Proposal 1. RAN2 shall not allow UE autonomous BWP switching for the configured SR PUCCH on inactive BWP.

- Interdigital thinks proposal 1 is already in the specs and nothing to be done

Proposal 2. RAN2 discuss whether to allow UE autonomous BWP switching to a BWP with a suspended CG Type 1 if there is no CG Type 1 resource on the active BWP and UL data becomes available.

- Interdigital thinks that the network can switch the UE if it needs to. Qualcomm thinks that the UE shouldn't move autonomously as the network wouldn't know where the UE is

=> Not agreed

R2-1802439 BWP switching upon TAT expiry LG Electronics Inc. discussion NR_newRAT-Core R2-1801246

Proposal. The UE switches to the initial DL/UL BWP of SpCell upon pTAT expires.

- Qualcomm thinks that nothing needs to be done
- LG thinks that it takes some time for the UE to switch. Lenovo also thinks there is no issue and the behaviour is well specified now

=> Not agreed

R2-1801817 SRS transmission and CSI report on BWP Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

=> The MAC entity shall transmit SRS on active BWP

=> The MAC entity shall not transmit SRS on inactive BWP

=> Noted

R2-1803062 Correction on handling of BWP inactivity timer MediaTek Inc. discussion

Proposal 1. For FDD, bwp-InactivityTimer is NOT restarted upon reception of UL grant or upon transmittion of configured grant.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 139

- Qualcomm would like to revisit the agreement from last meeting as there are some concerns that RAN1 can't address
- Mediatek explains that there would be UE performance impacts as the UE may never switch to default.

=> Not agreed

Proposal 2. If UE is in initial DL BWP, stop bandwidthPartInactivityTimer if running.

- Interdigital thinks that this should be default and it is already in the specs

=> Not agreed

Proposal 3. "bandwidthPartInactivityTimer associated with the active DL BWP" is replaced with "bandwidthPartInactivityTimer associated with the activated Serving Cell."

- Qualcomm agrees
- Lenovo explains that the timer is per BWP and it may cause some trouble when we allow multiple BWPs active per cell. LG and Nokia agree with Lenovo
- Lenovo explains that the value is per cell but the timer is maintained and associated per DL BWP

=> Keep the timer is associated to active DL BWP

=> Not agreed

R2-1803190 Values for the BWP inactivity timer Ericsson discussion Rel-15 NR_newRAT-Core

The maximum value for the bandwidthPartInactivityTimer should match the value range of the drx-InactivityTimer

- Qualcomm thinks that the max timer is too long for BWP timer and it should be in the 200-300ms range.
- Nokia agrees with Ericsson and would like to have DRX timers in the order of seconds and the minimum should be 5ms
- Mediatek shares the same view as Qualcomm, but would be fine with this as long we keep the short values.
- Oppo thinks 40ms should be the minimum to account for k etc.
- Qualcomm thinks that the minimum should be 2ms, same as switching time.

=> Noted

=> agree to the following values:

```
bandwidthPartInactivityTimer                SetupRelease { ENUMERATED {
                                                ms2, ms3, ms4, ms5, ms6, ms8, ms10, ms20, ms30,
                                                ms40,ms50, ms60, ms80,
                                                ms100, ms200, ms300, ms500, ms750, ms1280, ms1920,
                                                ms2560, spare10, spare9, spare8, spare7,
                                                spare6, spare5, spare4, spare3, spare2, spare1 }}
                                                OPTIONAL--  Need M
```

R2-1803228 Clarifications to BWP operation Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

=> Rapporteur to include in the BWP description the BWP switching is also controlled by bandwidthPartInactivityTimer as well as Random Access procedure initiation.

=> Noted

Not treated

R2-1803564 Dormant BWP for fast SCell activation Qualcomm Incorporated discussion Rel-15 38.321 NR_newRAT-Core R2-1801432

R2-1803565 BWP operation in C-DRX mode Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

R2-1802001 Restart Scell inactive timer due to configration grant vivo discussion

R2-1801816 Remaining issue for BWP inactivity timer Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801890 Remaining issues on BWP inactivity timer ASUSTeK discussion Rel-15 NR_newRAT-Core

R2-1802464 Further considerations for BWP switching Samsung discussion Rel-15

R2-1802545 Remaining issue on BWP timer Fujitsu discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 140

Other

R2-1802214 Remaining issues of MAC entities for EN-DC Huawei, HiSilicon, NTT DOCOMO, INC discussion Rel-15 NR_newRAT-Core
=> When the UE is configured with SCG, two MAC entities are configured to the UE: one for the MCG and one for the SCG.
=> Change will be merged in rapporteur CR
=> Noted

R2-1803208 SUL switch and MAC Entity for 2x Ericsson discussion Rel-15 NR_newRAT-Core
=> Agree to the clarification on SUL switch "*The Supplementary UL carrier can be configured as a complement to the normal UL carrier (NUL). Switching between the normal carrier and the SUL carrier means that the UL transmissions move from the PUSCH on one carrier to the other carrier. This is done via an indication in DCI*"
Proposal 3
- Qualcomm and LG think this is just an optimization
=> Not agreed

Not treated

Wrong AI moves

R2-1801992 Clarification on the RACH re-initiation after BWP switching vivo discussion
=> moved from 10.3.1.2

Not complying to guidelines

R2-1801871 Corrections for Handling BWP Switching Command Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core

R2-1802588 Corrections to MAC entities for EN-DC in TS 36.321 Huawei, HiSilicon, NTT DOCOMO, INC draftCR Rel-15 36.321 15.0.0 NR_newRAT-Core

R2-1803563 Correction for BWP for random access in connected mode Qualcomm Incorporated CR Rel-15 38.321 15.0.0 0026 1 F NR_newRAT-Core R2-1801436

Late

R2-1802203 Remaining issues of MAC entities for EN-DC Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core Late

10.3.1.3 MAC PDU format

Correction CRs related to MAC PDU format
New MAC CE formats related to RAN1 procedures

R2-1803980 Noted

R2-1803865 Draft LS response to RAN1 on NR MIMO MAC Huawei
=> LS is approved in R2-1803872

R2-1803971 Summary of offline on MAC CEs definition for NR MIMO
Proposal 1a: Do not optimize size of SP CSI-RS / CSI-IM Resource Set Activation/Deactivation MAC CE by defining new RRC parameters.
- Qualcomm thinks that this can be a huge MAC CE so they propose that RRC provides several configured lists of TCI_State_Ids. Samsung things that this is a very rare case and since it is the DL size is not critical.

Proposal 6: Discuss further whether Serving Cell ID should be contained in MAC CEs for NR MIMO.
- Vivo thinks that we should consider the LTE principle. Ericsson explains that there are two principles that MAC CEs can apply to any cell and there was a restriction for one case and we would like to avoid such restrictions.
- Huawei also supports adding some cell ID to allow the transmission on any cell
- Qualcomm doesn't think we need to include the cell ID

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 141

- Nokia thinks that the cell ID overhead is quite negligible when compared to other information and even RAN1 considered the principle of cross cell reporting. Vivo is concerned with bad network behaviour.

=> *Noted*

Agreements

1 Do not optimize size of SP CSI-RS / CSI-IM Resource Set Activation/Deactivation MAC CE by defining new RRC parameters
2 Do not optimize (i.e. indicate TCI State and two 'R' bits per octet)
3 Spatial relation indication for SP SRS Activation/Deactivation MAC CE: Have a 1-bit field (e.g. 'F' field) indicating whether the ID contains 7-bit CSI-RS resource ID or 6-bit SRS resource ID or SSB index. If 'F' field is set to 0, then first bit of 7-bit long ID field indicates whether the remaining 6 bits indicate SRS resource ID or SSB index (see R2-1803206)
4 PUCCH spatial relation Activation/Deactivation MAC CE should not contain SUL/non-SUL indication field
5 SP ZP CSI-RS Resource Set Activation/Deactivation MAC CE should only indicate the resource set to be (de)activated. There is no need to indicate particular resources within the set.
6 Global CORESET ID (one out of twelve) per cell is used within CORESET for TCI State Indication for UE-specific PDCCH MAC CE. There is no need to have BWP ID within this MAC CE. NOTE: need to confirm that this is compatible with ASN.1
7 Serving Cell ID is contained in MAC CEs for NR MIMO. The network should not send this MAC CEs for deactivated serving cells.
8 BWP ID is indicated for MAC CEs for NR MIMO, except for TCI state indication for UE-specific PDCCH
9 Reply to RAN1 that from RAN2 perspective there is no additional latency introduced and that this should be decided by RAN1 and/or RAN4
10 A single MAC CE is used for activation and deactivation in case of CSI-Semi-persistent CSI-RS/CSI-IM and Semi-persistent SRS activation resource set activation/deactivation MAC CEs, i.e. there is no separate MAC CE for deactivation.
11 Semi-persistent ZP CSI-RS resource set activation/deactivation MAC CE should indicate only a single resource set ID.

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✉ **[NR UP/MAC] MAC CEs for NR MIMO – Nokia**

- Agree to CR introducing MAC CEs for NR MIMO
- one week after the meeting

Not treated

R2-1801932 MAC CE for activation/deactivation of semi-persistent SRS ZTE, Sanechips discussion Rel-15 NR_newRAT-Core

R2-1801948 Introducing MAC CEs for NR MIMO Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Revised in R2-1803763

R2-1803763 Introducing MAC CEs for NR MIMO Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801949 Text proposal on MAC CEs for NR MIMO Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Revised in R2-1803764

R2-1803764 Text proposal on MAC CEs for NR MIMO Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801994 MAC CEs for beam management vivo discussion R2-1800899

R2-1801995 MAC CEs format for beam management vivo discussion R2-1801543

R2-1802404 TP for MAC CEs to Support Beam Management and CSI Acquisition MediaTek Inc. discussion

R2-1802405 MAC CEs for Beam Management and CSI Acquisition MediaTek Inc. discussion

R2-1802418 New MAC CEs for NR MIMO Samsung Electronics France SA discussion Rel-15 38.321 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 142

R2-1802546 Padding value in TS38.321 Fujitsu discussion Rel-15 NR_newRAT-Core R2-1800312

R2-1802612 MAC CEs definition for NR MIMO Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1803118 Discussion on new MAC CE for MIMO Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

R2-1803206 MAC CEs for activating an RS resource and handling corresponding TCI states Ericsson discussion Rel-15 NR_newRAT-Core

10.3.1.4 Random access

10.3.1.4.1 Differentiation of RA parameters

Contributions should focus on stage 3 details on prioritized RACH procedures. Idle mode prioritized RACH is out-of-scope of Rel-15.

R2-1803192 Further discussions on prioritized RACH access Ericsson discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803389 Differentiation of RA parameters Stage2 and 3 details Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core
=> Noted
- Mediatek thinks we should just have two classes – prioritized and non-prioritized

R2-1802422 Differentiation of Backoff parameter and/or power ramping Samsung discussion NR_newRAT-Core
=> Noted

Whether scaling factor or BI in the MAC subheader
- CATT thinks that scaling factor is sufficient and there is not gains with indicating it with MAC subheaders. ZTE doesn't think we should modify the MAC Subheaders again. Nokia and LG thinks that a simple mechanism should be adapted and no MAC subheaders.
- Huawei and Qualcomm think that the priority should be indicated in msg2 and can be adapted dynamically.
- Intel and Convida, Interdigital agrees with scaling factor and additional changes are just enhancements. Futjistu thinks that we can also extend the BI
- Mediatek thinks that the scaling factor can be broadcasted. Nokia doesn't want to have broadcast mechanism.
- Interdigital thinks that we should configure the scaling factor and not skip the BI so we can allow for better differentiation. Qualcomm also disagrees to skipping. Intel agrees
- LG thinks that distribution cannot be easily achieved by the gNB anyways
- Nokia thinks skipping is a good starting point but scaling factor gives some flexibility
- LG would like to change the range the UE can select from

For power ramping
- Nokia thinks that the power ramping step can be provided to the UE in the HO command. Once the HO is complete the UE will use the value in SI

Agreements:
1. The MAC PDU subheader is not modified
2. Only two categories (high priority RACH access and normal RACH access) are defined
3. A scaling factor is configured by the network for BI
4. A power ramping step is configured for the high priority RACH access. FFS how it is signalled (e.g. :
   a) power ramping step configured for high priority and used for both BFR and HO
   b) a specific step is configured for BFR and for HO
   c) Same CFRA BFR power ramping step is re-used for CB as well. For HO, the power ramping step is configured with the HO command

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 143

Not treated

R2-1803567 Backoff procedure for prioritized random access Qualcomm Incorporated, Huawei discussion Rel-15 NR_newRAT-Core

R2-1803461 Procedural details for prioritized Random Access Nokia, Nokia Shaghai Bell discussion NR_newRAT-Core

R2-1803566 Configuration of random access priority through dedicated signaling Qualcomm Incorporated, OPPO discussion Rel-15 NR_newRAT-Core

R2-1803568 Signaling aspect of prioritized random access Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

R2-1801950 Remaining details on random access prioritization Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801969 Discussion on the initial backoff value OPPO discussion

R2-1802010 On Prioritization of Random Access PANASONIC R&D Center Germany discussion

R2-1802442 Discussion on differentiation of RACH parameters OPPO discussion R2-1800074

R2-1802948 Further discussion on differentiation using RA parameters Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803040 Priority Indication for prioritized random access Vencore Labs, OEC discussion Rel-15 36.331 NR_newRAT-Core

10.3.1.4.2 Random access in presence of multi-beam operation

Corrections/critical issues related to random access in presence of multi-beam operation
Finalize beam failure recovery design/specification

R2-1803981 LS reply on beam failure recovery RAN1
=> Noted

On the timer *beamFailureRecoveryTimer*
- LG still doesn't understand why the timer is needed on top of max transmission. Nokia also doesn't see any value.
- Vivo thinks that this timer is needed for beam candidate detection. Panasonic also thinks that this timer is needed.
- Nokia points out that this framework doesn't even account for contention based

max. # of BFRQ transmissions
1. *maxpreambleBFR for CFRA and CB*
2. *single maxpreamble for all RACH types (no BFR specific)*

- Ericsson thinks that the BFR specific preambleMAX is not needed and we can just use
- Interdigital thinks that we should the same value for both contention based and contention free, otherwise it is extremely complex in the MAC spec
- Vivo explains that the only reason why there is a BFR specific value is because they thought that the recovery time is different

On SCell support
- LG, Nokia, don't think we need support SCell. Ericsson thinks that it would be hard to do it.
- CATT thinks we can support it and it just means that we would do only CF. Huawei explains that support of BFR on SCell doesn't mean a RACH is perfomed on the SCell. RAN1 is discussing.
- Google doesn't think it is essential.
- Docomo reminds us that this is the last meeting for ASN.1 and new approaches of sending on PCell would have ASN.1 impact.
- LG thinks that network has other means to detect the failure and PCell is available.
- Ericsson explains that in ASN.1 the structure allows to single CFRA resources. CATT thinks that the BFR resources are provided with the BWP and there is nothing new.
- Qualcomm explains that RAN1 was concerned about UE complexity monitoring.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 144

On beam failure detection
- Mediatek thinks that we can use the period *BFD RS* $\overline{q}_0$ in the MAC to check
- Vivo understands that we just need to monitor if we receive an indication during the period.

When do we reset the counter
- Nokia thinks that we shouldn't reset the counter with only one instance indication.
- LG thinks that we should count x consecutive. Intel agrees and this is like RLM
- Mediatek suggests having a single counter – it is incremented when beam failure instance is received and decremented when no beam failure instance is received.

Modeling of beam selection
=> No additional interlayer interactions will be specified

Options
Two mechanisms for BFR detection
Option 1
=> *The periodicity of BFD RS* $\overline{q}_0$ *is used to determine a notification interval.*
=> *The UE triggers BFR when x (FFS consecuitive) "beam failure instance" are received within a window. The UE resets the counter after y consecutive missing "beam failure instance" indications*
=> *x and y are configurable by the network*

Option 2
PHY delivers to MAC "beam failure instance" notifications only and MAC maintains a timer for resetting the counter:
- *the timer is (re)started upon every new reception of "beam-failure instance".*
- *At timer expiry the counter is reset.*

A BFR counter is maintained and incremented at every "beam-failure instance" indication. When the counter reaches MaxBFI the UE trigger BFR
Timer is configured in number of periods (periodicity of BFD RS $\overline{q}_0$*)*
- Vivo asks what happens whether is no instance. Nokia explains that you don't need to count non-instance

Agreements
1 Single maxpreamble, powerampingstep and received target power parameters are used that can have different values depending on why the random access is used (BFR or not).
3 From RAN2 point of view beamFailureRecoveryTimer is not supported
4 Assume that at least CFRA BFR can be configured for SCell using ASN.1. FFS if there are any major impacts to support this in UP
5 PHY delivers to MAC "beam failure instance" notifications only and MAC maintains a timer for resetting the counter:
- the timer is (re)started upon every new reception of "beam-failure instance".
- At timer expiry the counter is reset.

6 A BFR counter is maintained and incremented at every "beam-failure instance" indication. When the counter reaches MaxBFI the UE trigger BFR
7 Timer is configured in number of periods (periodicity of BFD RS). Nokia will trigger email discussion on deciding the values for timer using [CB 180]
8 As in all other cases the UE performs random access for BFR on active BWP if RACH resources are available, otherwise it falls back to initial BWP. On each BWP the same prioritization rule is applied (CFRA and then CBRA).

R2-1803230 Beam failure detection and recovery Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT
=> Noted

R2-1803198 Contention based random access for beam failure Ericsson discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 145

Proposal 1 For CBRA based BFR, Message 3 shall include a new MAC CE to indicate that the CBRA is for BFR.

- Nokia thinks this is not an urgent issue and the network can implicitly detect from the fact that the UE switched beams.
- Sharp supports the proposal in principle
- Huawei thinks this is a CP issue

=> Not supported for Rel-15
=> Not agreed

Not treated - deprioritized

R2-1801879 Multiple Msg1 Transmissions Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1800087

R2-1801927 Remaining issues on Multiple Msg.1 transmission ZTE, Sanechips discussion Rel-15 NR_newRAT-Core R2-1800400

R2-1802277 Remaining issues on multi-preamble transmission Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801796 Multiple preamble transmission for contention free RACH Beijing Xiaomi Mobile Software discussion Rel-15 R2-1800234

R2-1802434 RAR window extension for multiple preamble transmission LG Electronics Inc. discussion NR_newRAT-Core R2-1800567

R2-1802949 On beam failure recovery and detection using random access procedure Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1802406 Clarifications on Beam Failure Recovery Procedure MediaTek Inc. discussion

R2-1801898 CR on aligning completion of BFR and RA procedure ASUSTeK discussion Rel-15 NR_newRAT-Core

R2-1801870 Corrections for Beam Failure Recovery Request Procedure Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core

R2-1801926 Remaining Considerations on RACH procedure for BFR ZTE, Sanechips discussion Rel-15 NR_newRAT-Core

R2-1802085 Remaining issues of beam failure recovery and corresponding TP vivo discussion Rel-15 NR_newRAT-Core

R2-1802142 Beam failure detection CATT discussion

R2-1802143 RACH reattempt considering beam selection CATT discussion

R2-1802151 Beam failure recovery CATT discussion

R2-1802278 Remaining issues with beam failure recovery under non-CA Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802437 BFR-specific Random Access parameters Samsung discussion Rel-15 NR_newRAT-Core

R2-1802490 Discussion for beam failure recovery under CA CATT, Huawei, Hisilicon discussion Rel-15 NR_newRAT-Core

R2-1802810 Random Access initiated by BFR InterDigital discussion Rel-15 NR_newRAT-Core

R2-1802843 BFR open issues LG Electronics UK discussion Rel-15 NR_newRAT-Core

R2-1803031 Beam refinement after beam recovery or scheduling request Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801269

R2-1803034 Measurement reporting and beam refinement during RACH Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801255

R2-1803045 Identification of Contention based random access for beam failure recovery SHARP Corporation discussion Rel-15 NR_newRAT-Core

R2-1803046 Remaining issues on contention free random access for beam failure recovery SHARP Corporation discussion Rel-15 NR_newRAT-Core

R2-1803113 Backoff value setting on SS block change Google Inc. discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 146

R2-1803193 Multiple Preamble Transmissions in NR Random Access Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803194 Beam reselection in case of high load during RA Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803195 Beam failure recovery in Scell Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803196 Beam failure recovery procedure Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803197 Parameters for Beam failure recovery Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803199 Removal of beam failure timer Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803226 Timer associated with the dedicated BFR PRACH resource PANASONIC R&D Center Germany discussion Rel-15

R2-1803229 BWP switch interaction with contention free BFR preamble Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

R2-1803572 Selection between CFRA and CBRA for BFR Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

Wrong AI moves

R2-1801892 UE behaviours upon beam failure and recovery ASUSTeK discussion Rel-15 NR_newRAT-Core
=> from 10.3.1.2

R2-1803108 Stopping UL transmissions at detection of beam failure Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core
=> from 10.3.1.2

R2-1801814 Beam failure recovery for Scell Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802086 RACH configuration for beam failure recovery vivo discussion Rel-15 NR_newRAT-Core R2-1800866

Not complying to guidelines:

R2-1802084 Correction on 38.321 for beam failure recovery based on agreements vivo CR Rel-15 38.321 15.0.0 0038 - F NR_newRAT-Core

R2-1803569 Backoff indication in multi-beam systems Qualcomm Incorporated CR Rel-15 38.321 15.0.0 0024 1 C NR_newRAT-Core R2-1801434

R2-1803570 Inter-leaved RAR reception in the case of multiple Msg1 transmissions Qualcomm Incorporated CR Rel-15 38.321 15.0.0 0025 1 C NR_newRAT-Core R2-1801435

R2-1803571 Simultaneous RAR reception in the case of multiple Msg1 transmissions Qualcomm Incorporated CR Rel-15 38.321 15.0.0 0034 1 C NR_newRAT-Core R2-1801444

R2-1802279 Text proposal for beam failure recovery Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Moved from wrong AIs

R2-1802006 Discussion on the impact on beam failure recovery vivo discussion R2-1800895

Late

R2-1802144 RACH reattempt considering beam selection CATT discussion Late
=> Withdrawn

10.3.1.4.3 Random access procedures

Corrections/critical issues related to general random access procedure

R2-1801808 Further Discussion of Random access failure in SUL case Beijing Xiaomi Mobile Software discussion Rel-15

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 147

Proposal: RAN2 to discuss whether the SUL/non-SUL carrier on which RA problem occurs is indicated in SCG-RLF.
- Vivo thinks that the network can know where the failure occurred based on the RSRP reported in SCG-RLF
- Samsung thinks this is a corner case
- LG thinks that it doesn't matter where the failure occurred as the reset is needed anyways.

=> Not agreed

R2-1801925 Remaining issues about Power Suspension in RACH ZTE, Sanechips discussion Rel-15 NR_newRAT-Core R2-1800399
- Samsung things we have already discussed and agreed to this

=> Not agreed

R2-1801951 On the corrections to random access procedures in TS 38.321 Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

=> Noted

R2-1802844 RA open issues LG Electronics UK discussion Rel-15 NR_newRAT-Core
- Ericsson indicates that RAN1 decided max value 80. LG asks if it is regardless of numerology. That's Ericsson's understanding

=> Value of X is 80

Proposal 3. Multiple Msg1 transmission is supported in NR.
- CATT and Nokia think that this is not urgent for Rel-15. Ericsson supports the proposal. Interdigital thinks that RAN1 has completed the CFRA so we should support it.
- Qualcomm explains that it has been deprioritized in RAN1. Samsung explains that the work is not complete.

=> *Work on Multiple Msg1 transmission is de-prioritized in Rel-15 NR.*

=> Power ramping suspension is supported in NR.

Proposal 6. In NR, PDCCH order or RRC optionally indicate the ra-PRACH-MaskIndex as in LTE.
- Samsung indicates that the mask is also applicable to handover case so we should wait and use the same mechanism. Whether the mask is needed is still under discussion in CP
- Ericsson, CATT and Docomo agree

=> From RAN2 UP point of view PDCCH order or RRC optionally indicate the ra-PRACH-MaskIndex as in LTE

=> There is an initial UL BWP per carrier, i.e., one for normal UL and the other one for SUL

=> Noted

✉ **[NR UP/MAC] PRACH table – LG**
- email discussion on PRACH configuration table
- deadline next meeting

R2-1802950 On remaining aspects for random access procedure Intel Corporation discussion Rel-15 NR_newRAT-Core

=> DELTA_PREAMBLE values as defined by RAN1 should be incorporated in the power ramping equation for random access (as in the text proposal below).

=> The power ramping suspension notification defined in NR for UL beam switch case can be reused for the lower prioritized PRACH transmission in dual-connectivity case

=> Noted

R2-1803200 Draft LS on Deltapreamblemsg3 and messagepoweroffsetgroupB Ericsson LS out Rel-15 NR_newRAT-Core To:RAN1
- Samsung indicates that deltapreamble has been already agreed

=> The LS is revised in R2-1803855

R2-1803855 Draft LS on Deltapreamblemsg3 and messagepoweroffsetgroupB Ericsson LS out

=> The LS is approved in R2-1803860

R2-1803655 Discussion on messagePowerOffsetGroupB NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 148

=> Confirm messagePowerOffsetGroupB is taken into account for preamble group selection (as in LTE).

Proposal2: Take the value range of LTE as a baseline.

- Ericsson thinks we should add a new value zero.

=> Value range of LTE is used as a baseline, ask RAN1 to confirm

=> Keep name of ra-Msg3SizeGroupA

=> Noted

R2-1803201 Remaining issues for RA-RNTI formula Ericsson discussion Rel-15 NR_newRAT-Core

=> Noted

R2-1803211 Further consideration on RA-RNTI calculation with respect to the SUL. CMCC discussion Rel-15 NR_newRAT-Core

=> Not agreed

R2-1802440 Clarification on BWP switching for CFRA LG Electronics Inc. discussion NR_newRAT-Core R2-1801246

=> Noted

R2-1802441 Issues on CBRA in BWP operation LG Electronics Inc. discussion NR_newRAT-Core

=> Not treated

R2-1802547 Preamble selection in TS38.321 Fujitsu discussion Rel-15 NR_newRAT-Core R2-1800310

=> Not agreed

R2-1803204 Reuse of notification of suspending power ramping counter for DC Ericsson discussion Rel-15 NR_newRAT-Core

=> Not treated

R2-1803573 Random access contention mitigation in NR Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801446

Network can choose to provide more than one grant (and temporary C-RNTI) in a Random Access Response message to mitigate potential contention between multiple UEs using the same RACH resource.

- Lenovo explains that the UE would not continue parsing the RAR if it detects its RAPID
- Intel doesn't see the gains at this point

=> Not agreed

Not treated

R2-1801876 Beamforming Aspects of Msg1 based SI Request Mechanism Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1800094

R2-1801878 PRACH Preamble Selection for Msg1 based SI Request Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1800093

R2-1803064 Contention resolution for Msg3 based SI request for broadcast delivery MediaTek Inc. discussion R2-1801271

R2-1803202 Msg3 size for CCCH payload Ericsson discussion Rel-15 NR_newRAT-Core

R2-1801873 RA Issues for Msg3 based SI Request Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core

R2-1801874 Draft CR_TA Timer Handling for Msg3 based SI Request Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core

R2-1802145 RA procedure for Msg3 based SI request CATT discussion R2-1800161

Withdrawn

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 149

R2-1802044 Remaining issues about Power Suspension in RACH ZTE Corporation, Sanechips discussion Rel-15 Withdrawn

10.3.1.5 SR

Corrections/critical issues related to SR

R2-1801952 On SR procedure in the case of beam failure Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800974

Proposal 1: In case of beam failure indication from lower layers, MAC suspends/stops an ongoing SR procedure, and resumes the suspended/stopped SR procedure(s) when beam failure recovery is successful

- Lenovo thinks that this should be more general and the UE should suspend all transmissions
- Ericsson is concerned that we are doing this action too early, so perhaps we should do it when we are performing recovery. Interdigital thinks that we can base it on the counter and we should suspend SR and other transmissions
- Nokia asks if the UE switches beams if it also switches the beam for SR
- Vivo agrees
- Ericsson, LG, Nokia and Samsung see no issue with the SR being send
- Lenovo thinks that there is a problem with interference, so it is natural that the UE stops UL transmissions.
- CATT, Mediatek agrees that it is quite useless the send the SR as the UE will not be monitoring the coreset anyways. Nokia thinks that the UE will have to monitor for C-RNTI anyways
- Lenovo thinks this is the same as link failure, the UE stops UL transmissions
- LG thinks that RAN1 can drop it
- Ericsson asks what happens with the timers

=> Noted

R2-1802492 Issues with parallel RACH and SR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

Proposal 1: when the MAC entity is configured with SR configuration, SR trigger by any LCH shall not trigger RACH.

Proposal 2: If a LCH is configured with zero SR configuration, it either does not trigger SR or the triggered SR remains pending until cancelled.

- Samsung and Lenovo don't want to revisit the agreement and we have other cases where we would trigger SR and RACH.

=> Not agreed

R2-1803205 Stopping a RA procedure triggered by SR Ericsson discussion Rel-15 NR_newRAT-Core

Proposal 1 Upon occurrence of an UL grant addressed to the C-RNTI and this grant fulfils the rules for SR cancellation, the UE shall stop ongoing Message1 transmission which was initiated by MAC due to a pending SR which has no valid PUCCH resource configuration

- Lenovo supports. Vivo thinks that it should be a may.
- Huawei thinks that even if it receives msg2 it is beneficial to drop. Samsung thinks that with the current spec it is sufficient.
- Qualcomm thinks that stopping preamble transmission may be difficult.

=> Not agreed

R2-1802625 Fixing the SR cancellation mechanism in NR and TP for TS38.321 Samsung R&D Institute UK discussion

- Nokia thinks this is changing an agreement that the cancellation is per UE and not per trigger
- Ericsson thinks that the UE needs to keep track of what triggered.
- Lenovo asks how this can be tested.

=> Noted

R2-1802587 Parallel RA procedure and SR procedure ASUSTEK COMPUTER (SHANGHAI) discussion NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 150

- LG asks what is the expected behaviour if this happens. Samsung thinks that this can be something RAN1 decides. Vivo thinks that this can already happen in DC case and RAN1 has some prioritization. Lenovo has a similar understanding, we inform RAN1 and they can discuss and do what is necessary
- Ericsson assumes that RAN1 would know anyways

=> Send LS to RAN1 to let me know
=> Noted

R2-1802589 Draft LS to RAN1 on handling parallel RA procedure and SR procedure ASUSTEK COMPUTER (SHANGHAI) LS out NR_newRAT-Core To:RAN1

"In the current RAN2 specs, a UE could perform random access procedure and scheduling request procedure in parallel for single cell, CA, and DC. The UE may need to perform PRACH transmission and SR transmission in the same slot.

RAN2 doesn't expect any changes in RAN2 specification and would like to inform RAN1 of this possible situation."

Action:
RAN2 respectfully asks RAN1 to take this into account
=> the LS is approved in R2-1803856 with the changes above

Not treated
Not complying to guidelines

R2-1803574 Correction for SR cancelation due to an immediate UL-SCH transmission Qualcomm Incorporated CR Rel-15 38.321 15.0.0 0032 1 F NR_newRAT-Core R2-1801442

R2-1803575 Correction for SR cancelation upon inclusion of BSR in a UL-SCH transmission Qualcomm Incorporated, Xiaomi CR Rel-15 38.321 15.0.0 0040 - F NR_newRAT-Core

10.3.1.6 BSR

Corrections/critical issues related to BSR
Finalize how to handle the "immediate transmission" and ensure that an SR is triggered for URLLC transmission

R2-1801811 Discussion on immediate transmission Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Proposal 1: As in LTE, when the UE perform MAC PDU assembly for a UL grant is up to UE implementation.
Proposal 2: Remove the "immediate" and the concerned "else" to allow the regular BSR to trigger SR even if there is available UL resource to accommodate the BSR.
Proposal 3: Delay SR cancellation to the time point when the MAC PDU which includes a BSR is transmitted.

- Convida asks if we would cancel a SR that have been triggered after assembly

=> Noted

R2-1802624 Issue of triggering SR when UL-SCH resources are available for BSR and TP for TS38.321 Samsung R&D Institute UK discussion
=> Noted

R2-1802809 SR Triggering in NR InterDigital discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803207 On the immediate transmission Ericsson, Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core
=> Noted

Discussion on options for removing "immediate":
Option 1: remove "immediate" and "else"
Option 2: add in normative text "*If the MAC PDU including a BSR MAC CE is scheduled to be transmitted later than the next PUCCH transmission occasion of the SR configuration of a*

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 151

LCH that triggered a BSR, the UE may trigger the relevant SR even if the MAC PDU is assembled and this PDU includes the buffer status at the time this BSR is triggered"

Option 3: The MAC entity generates a BSR MAC CE if an UL resource that meets the LCP LCH selection restrictions configured for the LCH that triggered BSR is available. An SR is triggered otherwise

- ZTE is concerned that with removing of else we risk changing BWP. CATT doesn't like the UE triggering SR all the time and supports option 3.
- Convida thinks that even with URLLC we may end up with unnecessary SRs as the UE may end up getting an acceptable grant. Ericsson explains that we have prohibit timers. Convida thinks that we may have short prohibit timers

Discussion on whether we specify when the UE generates the MAC PDU

- Qualcomm would disagree with specifying when the UE generates the MAC PDU and option 2 is acceptable.
- Samsung agrees with Qualcomm

=> We will not specify when the UE generates the MAC PDU
=> An SR may be transmitted during the period of MAC PDU scheduling and transmission of BSR
=> *An SR may/shall? be cancelled if at the time of transmission the BSR includes the information of the logical channel that triggered the SR.*

Discussion

When a BSR MAC CE is included in a MAC PDU for transmission, and this BSR MAC CE includes the buffer status at the time a BSR was triggered, this BSR shall be cancelled.

When is the SR cancelled

- Convida thinks that we cancel only what is included in the BSR.
- Samsung thinks that at the time of assembly the UE should cancel. Qualcomm also thinks that this is simpler. If cancelling at transmission the UE would have to check what is still pending.
- Interdigital thinks that if we keep the if/else then we can keep the current cancellation mechanism.
- Ericsson would support the Huawei proposal.

- Convida asks what we are trying to solve – if the grant is acceptable you don't trigger the SR
- Samsung is concerned about remove the "else"

R2-1803866 Finalizing the desing of SR and BSR triggering and cancelation mechansm Samsung
=> Noted

=> Something will be specified to make sure that an SR is triggered
=> Alternative C is agreed

✉ **[NR UP/MAC] TP on SR and BSR triggering – Samsung**

- Use R2-1803869 as a baseline to agreed to final corrections
- 3 days after the meeting

Alt. A: Leave SR triggering to UE implementation
Alt. B: Always trigger SR
Alt. C: Trigger (or not) SR based on grant type and LCP restrictions configured for the LCH triggering the SR

R2-1803867 SR and BSR TP A Samsung
=> Not agreed

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 152

R2-1803868 SR and BSR TP B Samsung
=> Not agreed

R2-1803869 SR and BSR TP C Samsung
=> Moved to email discussion

R2-1801812 Uses of different BSR formats Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Not agreed

R2-1802000 The padding BSR overrides the regular BSR vivo discussion
Proposal 1: The padding BSR shall have precedence over the Regular BSR and the Periodic BSR when only a single LCG has data available.
- CATT agrees
- Samsung thinks this looks strange and doesn't work.
=> Not agreed

R2-1802952 Remaining issues in BSR Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803209 SR and BWP interaction Ericsson discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803408 BSR design to support pre-processing MediaTek Inc. discussion Rel-15 NR_newRAT-Core R2-1801140
Proposal 1: When the gNB provides a grant and the UE is unable to process headers in time to meet the uplink transmission deadline, the UE shall be allowed to add padding in MAC PDU.
- LG asks why the gNB would provide such a grant as it should be aware of UE capabilities
- Qualcomm supports proposal 1 and it can happen in scenarios where the UE receives multiple grants at the same time.
Proposal 2: Both padding disambiguation and detailed BSR enhancements are supported in NR.
=> Not agreed

Not treated
R2-1803063 Correction on new immediate transmission for BSR MediaTek Inc. discussion
R2-1801999 Discussion on the immediate transmission for BSR and SR cancel vivo discussion

Move from wrong AI
R2-1801810 SR cancel issue Beijing Xiaomi Mobile Software discussion Rel-15

10.3.1.7 LCP

Corrections/critical issues related to LCP

R2-1801896 Discussion on the UL grant processing order for NR LCP ASUSTeK discussion Rel-15 NR_newRAT-Core
=> Not agreed

R2-1802503 Regarding Fixed LCP Restrictions Nokia, Ericsson, Nokia Shanghai Bell discussion Rel-15 NR_newRAT
- Mediatek has some sympathy but needs to be looked at more broadly and maybe it is a little late at this point of the release.
- Futjistu also thinks this is interesting but is open to discuss it in the future
=> Not for Rel-15
=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 153

R2-1802448 The Impact of MCS/CQI Design for URLLC on UL Scheduling/LCP Samsung Electronics discussion
=> Noted

R2-1802627 Clarifying LCP mapping restrictions and TP for TS38.321 Samsung R&D Institute UK discussion
- Ericsson and Lenovo think that this is specified in the field description in RRC
=> Noted

Late

R2-1802811 LCP for URLLC InterDigital discussion Rel-15 NR_newRAT-Core Late
=> Withdrawn

10.3.1.8 SPS/Grant-free

Corrections/critical issues related to Configured grant and SPS

Including output of email discussion [NR-AH1801#15][NR UP/MAC] Repetition aspects – Huawei. New contributions on repetition aspects are not encouraged.

for L2 parameter discussion

Configured grant

For UP – whether and for which type the configuration release is possible

=> Configuration release is allowed for both types

Open issue to check what resource allocation is

=> Dynamic switch is only applicable for type 2 (add restriction)

sr-ProhibitTimer if smaller values are needed

```
sr-ProhibitTimer                    ENUMERATED {ms1, ms2, ms4, ms8, ms16, ms32, ms64, ms128},
```

- Qualcomm would like to add .25 and .5ms
- Nokia thinks that if we don't configure we have a value of 0ms

Mediatek – check with RAN1 what the values of p0-PUSCH-Alpha should be instead P0-PUSCH-AlphaSetId,

=> Confirm with RAN1 that is has been fixed it. RAN1 said they might fix it in RAN1 specs

R2-1802212 Summary of [NR-AH1801#5][NR UP/MAC] Repetition aspects Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core
=> Noted

R2-1802213 TP for [NR-AH1801#5][NR UP/MAC] Repetition aspects Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core
=> The TP is revised in R2-1803769

R2-1803769 TP for [NR-AH1801#5][NR UP/MAC] Repetition aspects Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core
- Ericsson thinks that transmission within a bundle is clearer
=> use transmission within a bundle instead of a repetiton
- LG thinks that in 5.4.2.1 we should align the procedures and avoid repetitions
=> Try to align the procedures in 5.4.2.1 and not repeat
- Nokia thinks that "1> if this PDSCH duration is for a retransmission within a bundle" is not needed. All retransmissions are part of the DL assignment
=> remove " if this PDSCH duration is for a retransmission within a bundle"
=> Think of a better way to specify this behaviour in the else branch: "if the uplink grant is for repetitionpart of a bundle of a configured grant, and that cannotshall not be used for initial transmission according to subclause of 6.1.2.3 of TS 38.214 [47], and no MAC PDU has been obtained for this bundle;
- Ericsson thinks that we shouldn't use adaptive retransmission
=> We will delete all instances of the word "adaptive" and "non-adaptive" retransmission

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 154

=> Move "For both repetition within a bundle of a configured grant, the sequence of redundancy versions is determined according to subclause 6.1.2.3 of TS 38.214 [47]. For slot aggregationrepetition within a bundle of a dynamic grant, the sequence of redundancy versions is determined according to subclause 6.1.4 of TS 38.214 [47]" to the HARQ entity section
=> The TP is revised in R2-1803859

R2-1803859 TP for [NR-AH1801#5][NR UP/MAC] Repetition aspects Huawei, HiSilicon discussion Decision R2-1803769 Rel-15 38.321
- Nokia asks if the HARQ buffer flushing in case of UL skipping for dynamic grant case
=> The TP will be merged in the MAC CR
=> Noted

R2-1802808 Restriction of configured grant type 2 to UL/SUL InterDigital discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1802146 Configured grant in UL/SUL CATT discussion
=> Noted

Discussion:
- Samsung supports that the restriction doesn't apply to type 2
- ZTE thinks that type 2 should be configured on both. CATT explains that this is quite different from BWP switching as it shouldn't happen too often.
- LG, Huawei, thinks the restriction should apply to both and agrees with CATT
- Interdigital explains that with type 2 we don't need to do any changes and just follow the current specs. Intel agrees and doesn't see any complexity. Qualcomm also agrees and the existing framework has everything needed. Oppo shares the view. Ericsson as well and there is a use case.
- Nokia thinks that it is not really needed
- Mediatek thinks that there are other parameters provided in RRC like pathloss could be different. Lenovo doesn't think there is any issue.

=> The restriction that a configured grant is configured on only one of SUL or UL applies to Type 1 only. No additional changes are needed to allow type 2.

R2-1801766 Draft LS to RAN1 on supporting type 2 configuerd grant on both SUL and UL OPPO LS out To:RAN1
=> No need to send LS
=> Noted

R2-1803165 Remaining issues for configuredGrantTimer Ericsson discussion Rel-15 NR_newRAT-Core
A candidate value list is further proposed below:
Proposal 3 configuredGrantTimer value list can be down select from [1, 2, 4, 8, 12, 16, 20, 24, 28, 32, 40, 64, 80, 128, 160, 320].
- Huawei thinks that it should just be in terms of slot and slot is dependent on numerology. Ericsson has no strong opinion but the timers should match the periodicity.
- Nokia thinks that one benefit is that we would have less values.
- Qualcomm agrees with Ericsson and whether to use symbol or slot depends on the periodicity of the configured grant.
- Huawei thinks that 640 is not needed and is beyond the maximum re-transmission timer
- Nokia doesn't see the benefit of timers above 100ms

=> configuredGrantTimer value unit is OFDM symbol if the configured grant periodicity is in number of OFDM symbols.
=> configuredGrantTimer value unit is slot if the configured grant periodicity is in number of milliseconds.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 155

=> Use configuredGrantTimer values from 14 x n/ 12 x n [2, 4, 8, 12, 16, 20, 24, 28, 32, 40, 64, 80, 128, 160, 320, 640] in the same as they are used for the CG periodicity in ASN.1: this results in:
 For normal CP: 2, 7, {1, 2, 4, 5, 8, 10, 20, 32, 40, 64, 80, 128, 160, 256, 512, 640 } x 14
 For extended CP: 2, 6, {1, 2, 4, 8, 20, 40, 80, 128, 160, 256, 320, 512, 640 } x 12

R2-1803857 Configure grant timer values Ericsson
=> Noted

R2-1801891 Remaining issues on configured grant timer ASUSTeK discussion Rel-15 NR_newRAT-Core
Proposal1: All configured grant timers are stopped after Type 1 (re-)initialization.
Proposal2: All configured grant timers are stopped after Type 2 (re-)activation.
- Nokia thinks that intended behaviour should be to stop all timers
- LG thinks that the previous retransmissions are still valid even if a new type 2 is given. Huawei agrees. Interdigital doesn't think that a new type 2 implies stopping of other HARQ
=> Not agreed

R2-1802845 Configured scheduling open issues LG Electronics UK discussion Rel-15 NR_newRAT-Core
=> configuredGrantTimer is optional and configured by RRC per CG resource
=> Keep existing text (i.e. Confirm that the identified HARQ process is configured for configured scheduling is correct)
=> Noted

R2-1803231 sCellDeactivationTimer handling with configured scheduling Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT
=> Noted

R2-1802992 Restart condition of sCellDeactivationTimer for configured UL grant and configured DL assignment LG Electronics Mobile Research discussion Rel-15 NR_newRAT-Core
=> Noted

Agreements
=> sCellDeactivationTimer is restarted when a MAC PDU is transmitted in a configured uplink grant or received in a configured downlink assignment

R2-1803164 Confirmation of configured UL Grant Type 2 Activation for Multiple Aggregated Cells Ericsson discussion Rel-15 NR_newRAT-Core R2-1800708
1: The confirmation is sent on the same carrier in which the corresponding configured grant Type 2 is activated/deactivated;
or
2: a new confirmation MAC CE format will be used to indicate the correspondence to carrier.

- Interdigital thinks that even with current specifications there is no problem unless the network sends the commands too close in time. Nokia also thinks that the gNB can handle it.
- Ericsson is fine but it implies that there may be some latencies
=> No changes are needed
=> Noted

R2-1803114 Changes related to skipping UL transmission Google Inc. discussion Rel-15 NR_newRAT-Core
Proposal 1: A UE should flush HARQ buffer if the UE skips uplink transmission of a configured grant
- LG thinks that intention is correct but it is already captured as the UE ignores the grant if the buffer is empty.
- LG thinks that there are two ways to solve this: ignore the grant even when HARQ buffer is not empty or flush the HARQ buffer

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 156

- Samsung thinks this is corner case and the error can only happen if the TB size in the dynamic grant matches. Huawei agrees.
=> Noted

R2-1802205 Miscellaneous corrections to calculation of configured grant Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core
- Nokia thinks that we should change the RRC if anything is needed. Huawei thinks that RAN1 has a table. Ericsson understands that RRC would need to signal something.
- Interdigital explains that they are still discussing in RAN1 the table
- Nokia thinks that we anyways need to configure the periodicity in RRC
=> The value for configured grant should be in symbols and needs to be updated in RRC
=> somehow capture the changes related to timedomainallocation and × numberOfSymbolsPerSlot in the formular Rapporteur will merge it in main CR
=> Not agreed

R2-1802918 HARQ retransmission of configured grant type1 LG Electronics Inc. discussion Rel-15 38.321 NR_newRAT-Core
=> Not agreed

Not treated

R2-1801990 Discussion on the simultaneous configuration of grant free type 1/2 vivo discussion

R2-1802767 Allowing simultaneous configuration of Type 2 grants on SUL and UL Samsung R&D Institute UK discussion

R2-1803186 Configured Scheduling for SUL Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802207 Configured grant Type 2 configuration on SUL Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core

R2-1801765 Configured grant type 2 on both SUL and UL OPPO, Qualcomm discussion

R2-1801931 Consideration on the configured grant type 2 for supporting SUL ZTE, Sanechips discussion Rel-15 NR_newRAT-Core R2-1801081

R2-1802987 Type 2 configured grant on SUL and UL Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1802206 Discussion on values of ConfiguredGrantTimer Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core

R2-1801839 Discussion on behavior of ConfiguredGrantTimer OPPO discussion Rel-15 NR_newRAT-Core

Late

R2-1802953 Configured Grant Timer in DRX Intel Corporation discussion Rel-15 NR_newRAT-Core Late

Not complying

R2-1802993 TP on Restart condition of sCellDeactivationTimer for configured UL grant and configured DL assignment LG Electronics Mobile Research discussion Rel-15 38.321 NR_newRAT-Core

Moves from wrong AI

R2-1802204 Impact of configured uplink grant and downlink assignment on sCellDeactivationTimer Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core

10.3.1.9 HARQ

Corrections/critical issues related to HARQ

R2-1802208 Redundancy version of a TB in BCCH transmission Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core
=> Noted

R2-1802846 HARQ open issues LG Electronics UK discussion Rel-15 NR_newRAT-Core
Proposal 4. Flexible initial transmission within the bundle is supported for slot aggregation of dynamic scheduling as well.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 157

- Ericsson asks what is the benefit for the dynamic case

=> Flexible initial transmission within the bundle is not supported for dynamic scheduling. Rapporteur will make sure the spec properly captures this.

=> Noted

10.3.1.10 DRX

Contributions should focus on final critical issues/corrections for DRX

R2-1801758 UE behaviour on DRX timer operation OPPO, APT, Qualcomm, Huawei, HiSilicon discussion R2-1800073 Withdrawn

R2-1801763 UE behaviour on DRX timer operation OPPO, APT, Qualcomm, Huawei, HiSilicon, CATT discussion

Proposal 1 The UE behaviour in the case of DRX Active Time partially overlapping with CORESET should be clearly defined in the specification.

Proposal 2 The UE continue monitoring PDCCH until the end of the PDCCH monitoring occasion even though the drx-InactivityTimer is expired before the end of the PDCCH monitoring occasion.

- Ericsson thinks that we should ensure that the timers start at slot boundaries and the network can handle the configuration
- Intel agrees to proposal 2
- Google thinks that the network is aware and can be in control. LG, ZTE, InterDigital, and Lenovo agrees. Lenovo explains that the network can avoid scheduling the UE if the timer expires in the middle of the coreset
- Mediatek prefers that the UE goes to sleep, but we should specify something
- Qualcomm would like to prevent this from happening.

=> Noted

Agreements:
- The UE is not required to monitor the PDCCH if it is not a complete PDCCH occasion (e.g. the timer start or expires in the middle of a PDCCH monitoring occasion).
- a table with DRX timers (description, unit, stop, and start) is added as informative text in an Annex

R2-1803030 Beam management in C-DRX Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801261

- Qualcomm explains that the UE doesn't send CSI during DRX so we need to introduce it. Intel asks beam management is needed every DRX. Interdigital thinks that this is a RAN4 requirement issue and different requirements would be set depending on whether DRX is configured or not.

=> Noted

R2-1802532 Impacts of ConfiguredGrantTimer in DRX Huawei Telecommunication India discussion

Proposal 1: The Active Time includes the time while the ConfiguredGrantTimer is running.

- Intel thinks this increases power consumption on the UE side. Ericsson, Intel, Mediatek, QC don't think this is needed.

=> Noted

R2-1803232 DRX for configured grant/assignment Nokia, Nokia Shanghai Bell, Lenovo discussion Rel-15 NR_newRAT

Proposal 1: confirm that it is possible the configured grant is not aligned with DRX drx-onDurationTimer or active time.

- Qualcomm doesn't see any use case in which the configured grant is during DRX
- Nokia explains that we now have very small values. Mediatek asks why the network is configuring DRX in that case. Ericsson supports this proposal as we didn't allow very small onDuration.
- Lenovo explains that this is similar to LTE, the UE has to wake up to receive the assignment and the only difference is to start the HARQ RTT timer.

Proposal 2: confirm that the UE shall monitor PDCCH after it transmits on the configured grant.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 158

Proposal 4: the HARQ RTT timer is started upon UL transmission on a configured grant or a DL reception a DL assignment, regardless of whether the MAC entity is in active time.
- LG and Huawei agree with the intention of this proposal

Proposal 5: inactivity timer is started or restarted when a MAC PDU is multiplexed and transmitted on a configured grant or a new transmission is received in a configured downlink assignment, regardless of whether the MAC entity is in active time.
- Huawei and LG don't think this is needed

=> Noted

Agreements
=> When DRX is configured, the UL HARQ RTT timer is started regardless of whether the MAC entity is in active time. Working assumption for DL HARQ RTT

R2-1802535 Impacts of new RNTIs and beam failure recovery in DRX Huawei Telecommunication India discussion
- Samsung and Ericsson don't think we should add a note with active time
- Ericsson thinks that similar to LTE we should add at the very begging to list of RNTIs which are applicable.

=> As a baseline we will capture the same RNTIs as LTE that are subject to DRX. FFS about other RNTIs

=> Noted

✉ **[NR UP/MAC] DRX and RNTIs – Huawei**
- Identify new NR RNTIs and whether they need to be subject to DRX
- before next meeting

R2-1803191 Annex for DRX timers Ericsson discussion Rel-15 NR_newRAT-Core

=> Noted

R2-1802147 Handling of the DRX Ambiguous Period CATT discussion R2-1800166

=> When defining the UE behavior on CQI/PMI/RI and type 0 SRS reporting on PUCCH, the ambiguity period should also be considered in NR. FFS on the values of the ambiguous period.

=> Noted

R2-1802148 Small corrections on DRX CATT discussion

=> When UE is not in Active Time, no PUCCH transmission is performed except for SR (CSI on PUCCH shall not be reported)

=> cqi-Mask mechanism can be reused in NR.

=> The discussion on half-duplex FDD UE should be postponed in RAN2 until there is conclusion in RAN1

=> Noted

R2-1802951 Clarifications related to DRX Intel Corporation discussion Rel-15 NR_newRAT-Core

=> Noted

Not treated

R2-1801880 Clarification of PDCCH monitoring within CORESET duration APT, MTI, OPPO, Convida Wireless discussion Rel-15

R2-1802211 Enhancement of DRX Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core

R2-1802841 SPS and DRX LG Electronics UK discussion Rel-15 NR_newRAT-Core

R2-1802842 TP on SPS and DRX LG Electronics UK discussion Rel-15 38.321 NR_newRAT-Core

R2-1802853 The start condition of the drx-HARQ-RTT-TimerDL LG Electronics Inc. discussion Rel-15 38.321 NR_newRAT-Core R2-1801029

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 159

R2-1802916 Text proposal fot the start condition of the drx-HARQ-RTT-TimerDL LG Electronics Inc. discussion Rel-15 38.321 NR_newRAT-Core R2-1801051

R2-1803169 UE behavior at the end of DRX active time MediaTek Inc. discussion Rel-15 NR_newRAT-Core

R2-1803182 Interaction between BWP operation and C-DRX PANASONIC discussion R2-1800976

R2-1803189 DRX with short on-duration and Wake-up signaling Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803560 DRX inactivity timer and A-CSI request Qualcomm Incorporated CR Rel-15 38.321 15.0.0 0031 1 F NR_newRAT-Core R2-1801441

R2-1803561 An issue with DRX on duration timer Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801433

10.3.1.11 Impact of PDCP duplication on MAC

MAC CE for activation/deactivation of PDCP duplication (max 1 contribution per company)

Aspects related to fallback to split bearer and handling of RLC/PDCP entities during activation/deactivation should be submitted in AI 10.3.3.5

R2-1802298 PDCP duplication impacts for MAC LG Electronics Mobile Research discussion NR_newRAT-Core

BSR triggers

- CATT thinks that we should have a new BSR trigger when we deactivate for dual connectivity. LG thinks that nothing changes and over reporting of BS is not a big problem.
- Huawei would like to de-couple the SCell deactivation and duplication MAC CE
- LG thinks that the only issue now would be the implicit de-activation

=> Noted

Agreements
1. For activating PDCP duplication, the current BS calculation doesn't need to be changed for both CA and DC cases. 2. FFS Bj is reset when duplication is activated. 3. In case of deactivating PDCP duplication, the current BS calculation doesn't need to be changed for both CA and DC cases. 4. As a baseline, no new BSR trigger condition is introduced to support packet duplication. FFS if there is a problem to address for CA 5. There is no enhancement for PBR execution. For a split bearer, one PBR value is used regardless of whether duplication is activated or deactivated. 6. The UE shall not flush the HARQ buffer when packet duplication is deactivated 7. FFS if duplication MAC CE is de-coupled from SCell deactivation MAC CE. 8. BWP switching does not impact packet duplication

R2-1803672 BSR operation with CA packet duplication Sequans Communications discussion Rel-15 NR_newRAT-Core R2-1801242

- CATT acknowledges the issue
- Ericsson thinks that the network can know what data is available as it is aware that duplication is activated.

=> Noted

Not treated

R2-1802493 Remaining MAC issues on duplication Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1803160 PDCP duplication impact to MAC Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802149 Duplication activation/deactivation MAC CE CATT discussion

R2-1801764 Duplication control using MAC CE OPPO discussion R2-1800066

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 160

R2-1803119 Duplication activation/deactivation MAC CE Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

R2-1803167 Duplication control MAC CE format MediaTek Inc. discussion Rel-15 NR_newRAT-Core R2-1801156

R2-1803117 Impact of PDCP duplication on LCP Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801253

R2-1802258 Discussion on LCP in case of activation of PDCP CA duplication Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803592 Implicit Activation and Deactivation of PDCP Duplication Samsung discussion NR_newRAT-Core

R2-1801897 PDCP duplication and SCell (de-)activation ASUSTeK discussion Rel-15 NR_newRAT-Core R2-1800123

R2-1801939 PBR configuration for duplication DRB Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801940 BSR procedure for data duplication Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801941 Impacts of cell/BWP deactivation on PDCP duplication Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801996 Duplication deactivation due to Scell or BWP deactivation vivo discussion R2-1800897

R2-1801997 SR and BSR cancel due to Duplication deactivation vivo discussion

R2-1802548 MAC header shortening Fujitsu discussion Rel-15 NR_newRAT-Core

R2-1802841R2-1802842R2-1803047 Impacts of SCell activation/deactivation on activation/deactivation of PDCP duplication in CA SHARP Corporation discussion Rel-15 NR_newRAT-Core

R2-1803562 Impact of PDCP duplication on BSR Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801431

Moves from wrong AI

R2-1801759 Duplication impacts on LCP OPPO discussion

R2-1803593 PBR for PDCP Duplication Samsung discussion NR_newRAT-Core

R2-1801989 PDCP duplication impacts on LCP vivo discussion R2-1800890

R2-1801760 SCell (de-)activation with duplication operation OPPO discussion R2-1800067

10.3.1.12 PHR

Corrections/critical corrections related to PHR

Including output of email discussion [NR-AH1801#16][NR UP/ MAC] – PHR for SUL – Huawei. Contributions on this topic are not encouraged.

R2-1802281 Report of the email discussion on PHR MAC CE for SUL Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

- Huawei doesn't think it can be infererred
- LG asks if RAN1 supports SRS and PUSCH transmission simultaneously. Huawei thinks that there is no such restrictions. Vivo thinks it is beneficial but not discussed in RAN1
- Mediatek is concerned about the real time impact on the UE having to calculate a large number of PHs
- Nokia thinks that this is a big task just for this case. Docomo agrees. Ericsson thinks that we have to define new formats anyways.
- CATT thinks that SUL is used only in some situation and simultaneous of SRS and PUSCH is rare.

=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 161

R2-1801930 Consideration on the length of PHR and PHR format ZTE, Sanechips discussion Rel-15 NR_newRAT-Core
- Ericsson thinks that the RAN4 was quite clear that it has to be 7 bits
- Huawei thinks that we need to follow RAN4 agreements
- Qualcomm is concerned with the 7 bits format for LTE and we should send an LS back to RAN4. Docomo, Samsung, LG, Mediatek agrees.
- Samsung and LG think that if granularity is a problem we can make another table.
- Samsung thinks that in the same MAC CE we would have to change the format depending on what cell we are reporting.

=> From RAN2 point of view, there is strong preference to keep PHR field to 6bits and using the defined PHR formats
=> Send LS to RAN4
=> Noted

R2-1803654 Draft LS on field length of Pcmax,c and PH NTT DOCOMO, INC. LS out Rel-15 NR_newRAT-Core To:RAN WG4
=> update second sentence “RAN2 discusses how to adopt the RAN4 request on 7 bits field of PH (and Pcmax,c) and RAN2 has a preference to use 6bits for them as in LTE to avoid the impact on PHR MAC CE format of LTE for the case of EN-DC”
=> The LS is approved in R2-1803863 with the change above

R2-1803656 Discussion on multi PHs NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core
Proposal1: Adopt PHR MAC CE to contain multiple Type1 and Type3 PHs even for one serving cell.
Proposal2: Discuss the PHR MAC CE format to contain multiple Type1 and Type3 PHs even for one serving cell.
- Lenovo thinks that the UE is operating on one beam at a time so there is no strong motivation
- Docomo asks how the gNB know. Lenovo explains that it is beam management.

=> Not supported

R2-1803111 PHR for NR CA Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core R2-1800680
=> No changes to current specifications
=> Noted

R2-1801991 Correction on the power backoff for the SUL PHR reporting vivo discussion
=> Not agreed

Not treated

R2-1801813 PHR in case of no NR type-2 PH Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1801899 Pathloss reference change for triggering PHR ASUSTeK discussion Rel-15 NR_newRAT-Core
R2-1801929 Further consideration on the report of PHR in EN-DC ZTE, Sanechips discussion Rel-15 NR_newRAT-Core
R2-1802150 Futher clarification on PHR MAC CE for EN-DC CATT discussion
R2-1802209 Remaining issues of power management in NR Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core
R2-1802489 Text proposal for SUL PHR MAC CE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1802848 Support of SRS on SUL LG Electronics UK discussion Rel-15 NR_newRAT-Core
R2-1803472 Requirements on new PHR formats Ericsson discussion Rel-15 NR_newRAT-Core
R2-1803653 Field length of PHR MAC CE NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core

Withdrawn

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 162

R2-1802302 SRS PHR for SUL LG Electronics Mobile Research discussion NR_newRAT-Core Withdrawn

10.3.1.13 Other

Other corrections on topics not included in the detailed agenda items.

Not treated

R2-1801840 LTE MAC CE control of UL duplication in EN-DC OPPO discussion Rel-15 NR_newRAT-Core

R2-1802210 Alignment with RAN1 on handling of CSI reporting Huawei, HiSilicon discussion Rel-15 38.321 NR_newRAT-Core

R2-1802447 Further Discussion on Packet Duplication Considering SUL and Bandwidth Part Samsung Electronics discussion

R2-1802554 Discussion on beam failure recovery request in NR ASUSTEK COMPUTER (SHANGHAI) discussion NR_newRAT-Core R2-1800042

R2-1802847 Remaining MAC open issues LG Electronics UK discussion Rel-15 NR_newRAT-Core

R2-1803109 Maintenance of Timing Advance at TA timer expiry Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core R2-1800678

R2-1803188 Impact of multiple measurement gaps in MAC Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803427 NR user plane latency Samsung Electronics GmbH discussion R2-1801454

R2-1803591 Clarification on Downlink Duplication Samsung discussion NR_newRAT-Core

R2-1803649 CR to 36.321 on SCell Activation for EN-DC NTT DOCOMO, INC. CR Rel-15 36.321 15.0.0 1234 - F NR_newRAT-Core

R2-1803652 Discussion on SCellDeactivationTimer NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core

R2-1803687 Transport Block size for NR VoIP SHARP Corporation discussion Rel-15 NR_newRAT-Core R2-1801504

Wrong AIs

R2-1801987 Clarification on the measurement used for the selection of the beam or UL carrier vivo discussion R2-1800887
=> moved from 10.3.1.1

10.3.2 RLC

10.3.2.1 TS

Latest TS 38.322, rapporteur inputs, etc

Editorial and small corrections/clarifications should be provided to the rapporteur. Single rapporteur TP is encouraged for editorials and clarifications.

R2-1803406 Corrections for RLC specification MediaTek Inc. CR Rel-15 38.322 15.0.0 0003 - F NR_newRAT-Core
=> The CR is agreed

R2-1801998 RLC UM SDU segment discard vivo discussion
Proposal: If the outOfOrderDelivery is configured in PDCP entity, when the indication from the upper layer (i.e. PDCP) indicates to discard a particular RLC SDU, the transmitting side of the transmitting UM RLC entity shall discard the indicated RLC SDU, no matter if a segment of the SDU has been submitted to the lower layers.
- Ericsson, LG and Samsung think this is an optimization
=> Not agreed

L2 parameters SRB config

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 163

UP to discuss setting of T-reassembly and T-reordering for SRB1/2/3
- Docomo indicates that CP agreed to infinity for T-reordering
=> T-reassembly (LTE as a baseline) - 35ms SRB1/2/3

10.3.2.2 RLC header format

Corrections related to RLC header format

10.3.2.3 Impact of PDCP duplication to RLC

R2-1803318 RLC handling upon duplication deactivation Nokia, Mediatek, Nokia Shanghai Bell
discussion Rel-15 NR_newRAT

Discuss the possible means of reducing overhead when duplication is deactivated

1. Transmit the RLC PDU header fields without the associated SDUs to synchronise the RLC entities; or
2. Flushing all buffered data at RLC and reset of Tx variables in transmitter and Rx variables in receiver.

NOTE: The corresponding Rx and Tx variables are not reset if duplication is still active in the reverse link.

- Ericsson doesn't think there are many packets so we can just retransmit.
- Lenovo prefers options 2 in Nokia paper.
- ZTE asks how the tx/rx variable are reset at the same time. LG thinks that even if we keep retransmitting there is no issue
- Oppo would like to clarify that once we deactivate we can transmit the packets in the same TB

=> Noted

Options
1. allowed cells LCP restriction is removed for both primary and secondary
2. allowed cells LCP restriction is removed for primary and secondary is suspended

- Mediatek asks where we would specify this.

Agreements
1 No need to optimize further
2 If PDCP duplication is deactivated, the "allowed cells" LCP restriction is removed for both primary and secondary RLC and secondary RLC leg remains active
3 The MAC spec will capture the "allowed cells" restriction removal

R2-1802924 RLC behavior after reaching the maximum number of retransmission LG Electronics France
discussion Rel-15 NR_newRAT-Core R2-1801236

Proposal 1. When receiving the SCell-RLF with cause of RLC failure from the UE, the gNB shall re-establish the corresponding AM RLC entity.
Proposal 2. The AM RLC entity shall reset the RETX_COUNT to zero when indicating the RLC failure to RRC.
Proposal 3. The AM RLC entity shall reset all RETX_COUNTs maintained by itself to zero when indicating the RLC failure to RRC.
Proposal 4. The impact of suspending RB with RLC failure should be cautiously checked, especially for BSR and LCP.

- Samsung agrees with the intended behaviour but nothing need to be captured. Vivo thinks this is network behaviour
- Ericsson thinks that if the RLC is suspended nothing needs to be reset
- Lenovo asks if the behaviour is the same as SCell-RLF. Oppo agrees with Lenovo.

=> No further optimization are considered, the UE continues normal operation
=> Noted

Not treated
R2-1803161 PDCP duplication impact to RLC Ericsson discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 164

R2-1803590 Impact of Deactivation of PDCP Duplication to RLC Samsung discussion NR_newRAT-Core

R2-1801757 UE behaviours for SCell RLF in CA duplication OPPO discussion

R2-1801762 Impact of duplication on RLC OPPO discussion R2-1800068

R2-1802549 RLC header shortening Fujitsu discussion Rel-15 NR_newRAT-Core

R2-1802925 RLC behavior after reaching the maximum number of retransmission LG Electronics France draftCR Rel-15 38.322 15.0.0 F NR_newRAT-Core R2-1801280

R2-1802994 Consideration on indicating RLC max retransmissions LG Electronics Mobile Research discussion Rel-15 NR_newRAT-Core

R2-1803170 On remaining issues of SCell-RLF handling ITL discussion Rel-15

R2-1803594 RLC Max Retransmissions in CA Duplication Samsung discussion NR_newRAT-Core R2-1801502

R2-1801942 Further consideration on per Cell RLF Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

10.3.2.4 Other

Noted

R2-1801822 Remaining issues of POLL mechanism Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803004 Correction on TX_Next - 1 for POLL_SN and the RLC SDU for retransmission LG Electronics Mobile Research, MediaTek Inc., Sharp, Samsung, Huawei, Qualcomm discussion Rel-15 NR_newRAT-Core R2-1801562
=> Noted

R2-1803162 RLC TX-NEXT Procedure Ericsson, Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1802954 Potential issue of POLL_SN mismatch Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803005 TP on Correction on TX_Next - 1 for POLL_SN and the RLC SDU for retransmission LG Electronics Mobile Research, MediaTek Inc., Sharp, Samsung discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803870 Summary of POLL_SN related issue discussion Decision Rel-15 NR_newRAT-Core
=> Noted

R2-1801823 Correction to remaining early status reporting issue Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
- ZTE agrees with the issue but this doesn't solve the issue
- Samsung things this is a corner case. Mediatek and LG point out that we have discussed this many times.

=> Not agreed

R2-1803163 Clarification of RLC poll handling for Dual Connectivity Ericsson discussion Rel-15 NR_newRAT-Core
- LG thinks that we can already include a poll for the last submitted PDU
- Nokia is fine with the proposed note.
- LG explains that we had this discussion in LTE
- Mediatek thinks we can wait to finalize the polling discussion

=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 165

R2-1803674 Fast RLC status report Sequans Communications discussion Rel-15 NR_newRAT-Core

Proposal 1: Allow transmission of RLC SR upon missing PDU detection trigger

Proposal 2: To limit the overhead, consider introducing a partial SR to be sent upon missing PDU detection trigger

Proposal 3: To limit useless retransmissions, do not consider for retransmission RLC PDUs already ACKed

- Qualcomm has sympathy with the proposal and would like to investigate different solution and point out that it can also be solved at the PDCP layer.
- Samsung thinks that this can be achieved by proper setting of timers and it is more of a PDCP issue. Ericsson thinks this is an optimization and can be fixed with shorter prohibit timers
- LG thinks that things that it is breaking a rule and creating a problem.

=> Not agreed

10.3.3 PDCP

10.3.3.1 TS

Latest TS 38.323, rapporteur inputs, etc

Editorial and small corrections/clarifications should be provided to the rapporteur. Single rapporteur TP is encouraged for editorials and clarifications.

R2-1802835 Introduction of PDCP duplication LG Electronics Inc. (PDCP rapporteur) CR Rel-15 38.323 15.0.0 0003 - B NR_newRAT-Core

- Lenovo thinks that this version is forcing the UE to submit at the same time. Nokia doesn't think so. It just says submit not at the same time. Then the discard section should say that the UE discards both in PDCP and RLC. Lenovo thinks that when we fall back to UL split we shouldn't discard as we can transmit on any leg.
- Mediatek doesn't think we should specify discard of PDCP PDU. LG explains that if we store PDCP PDU duplicates in the PDPC then we need specify.
- LG also thinks that the submission can be left to UE implementation

The time of submission is up to UE implementation or mandate that the submission is made to both RLC legs at the same time

- Nokia is concerned that there may be a large amount of data in one of the RLC entity. Samsung thinks that the RLC entity can discard. Huawei thinks that we anyways have to store the duplicate in the PDCP so it is the same problem. Ericsson doesn't think this is the same. Nokia thinks that the window can stall in the RLC because. LG thinks that the discard timer will trigger the discard.

=> The CR is endorsed in R2-1803864 with the two FFSs removed

Agreements

=> The duplication is done at the time of submission. When to submit the PDCP PDU is up to UE implementation. The PDCP modelling assumes that the submission to different RLC entity is done at the same time and a single PDCP data volume

=> The PDCP Control PDU is submitted to the primary RLC entity (i.e. control PDUs are not duplicated). Remove FFS from "indicate the PDCP data volume excluding the PDCP Control PDU to the MAC entity associated with the secondary RLC entity"

R2-1802834 Small corrections to PDCP specification LG Electronics Inc. (PDCP rapporteur) CR Rel-15 38.323 15.0.0 0002 - F NR_newRAT-Core

=> rapporteur will change the name of "pdcd-duplication" in PDCP specs

=> The CR is revised in R2-1803858

R2-1803858 Small corrections to PDCP specification LG Electronics Inc. (PDCP rapporteur) CR Rel-15 38.323 15.0.0 0002 - F NR_newRAT-Core

=> the CR is agreed

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 166

R2-1803009 Text proposal for PDCP duplication Huawei/HiSilicon discussion Rel-15
=> Not treated

10.3.3.2 PDCP PDU formats

Corrections/critical issues related to PDCP PDU formats

10.3.3.5 PDCP duplication

Impacts of PDCP duplication and whether duplication is supported for SRB for CA.

L2 parameter discussion
If the UE is configured with DC, is CG Id necessary even for CA duplication? (e.g. can the UE determine to which CG the RLC entity is applicable for)
- Nokia indicates that both options work

=> No it is not needed. Both options can work, choice or condition

Max 1 contribution per company

R2-1803110 Remaining issues on PDCP packet duplication Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core
Proposal 1: UE should continue with the lower of the two PDCP data volume/status – if the amount of PDCP data available for transmission is different for the two LCHs - upon deactivation of PDCP duplication.
- LG thinks that one data volume should be enough. Nokia thinks it would be up to implementation and packets will discarded.
- Lenovo thinks that if you submit only upon request you may have different status when you deactive. LG assumes that the PDCP will always submit to both legs. Huawei and ZTE agree.
- Samsung thinks that this is not a problem.
- Lenovo thinks that this is reverting the agreement that it is up to UE implementation. Huawei thinks that what is up to UE implementation is when to submit but when it submits it always duplicates. Mediatek thinks this is strange and has some sympathy for the proposal.
- CATT thinks this model is simpler
- Qualcomm thinks that the submission time can be different

=> Noted

R2-1803159 PDCP duplication Ericsson discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1802955 Remaining issues of packet duplication Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1802837 CA duplication for SRBs LG Electronics, vivo, NEC, Panasonic, MediaTek, Fujitsu, Qualcomm, Intel discussion Rel-15 NR_newRAT-Core
CA duplication for SRBs is not supported
- Nokia asks how the LCID configuration is a problem since the IE is already there and mandatory in the ASN.1 structure

=> Noted

R2-1803233 Support for SRB duplication with CA Nokia, Nokia Shanghai Bell, CATT, Ericsson, ZTE discussion Rel-15 NR_newRAT
=> Noted

Discussion:
- Intel doesn't see a strong motivation and there isn't much latency gains. Mediatek has a similar view. Nokia thinks that the links are different as this are different cells.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 167

- ZTE thinks that since there is no cross HARQ retransmission we may have latency issues. Ericsson also thinks this is beneficial for reliability.
- CATT explains that there is no complexity at all so we shouldn't exclude a feature that only brings benefits but no drawbacks.
- CMCC and KT support this feature
- Mediatek indicates that this would have an implication on the total possible DRBs supported

=> SRB duplication for CA is supported. *FFS* LCID is allocated by RRC signalling and is not fixed.

Not treated

R2-1803168 On duplication of PDCP Control PDUs MediaTek Inc. discussion Rel-15 NR_newRAT-Core

R2-1801841 Discussion on RLF handling for PDCP duplication OPPO discussion Rel-15 NR_newRAT-Core

R2-1803595 Further Discussion on PDCP Duplication Samsung discussion NR_newRAT-Core

R2-1803234 Transmission operation for PDCP duplication Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

R2-1801928 Consideration on the remaining issues on PDCP Duplication ZTE, Sanechips discussion Rel-15 NR_newRAT-Core

R2-1801938 Interaction between PDCP and RLC Entities for duplication in NR-NR DC TCL discussion NR_newRAT-Core R2-1801350

R2-1801981 Impact of BWP deactivaion on PDCP duplication Spreadtrum Communications discussion Rel-15

R2-1801984 Remain issues of PDCP duplication Potevio discussion

R2-1801988 Remaining issues of PDCP duplication vivo discussion

R2-1802153 Discussion on PDCP data volume calculation in packet duplication ITRI discussion NR_newRAT-Core R2-1801341

R2-1802551 Deactivation aspects for PDCP packet duplication based on uplink split bearer III discussion Rel-15

R2-1802836 Remaining issues in PDCP duplication LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1803116 PDCP duplication Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801244

R2-1803166 Duplicate discard based on HARQ feedback MediaTek Inc., CATT discussion Rel-15 NR_newRAT-Core

R2-1803171 Configuration of PDCP duplication on default DRB ITL discussion Rel-15 R2-1801514

R2-1803534 Avoiding redundant transmission for PDCP duplication CMCC discussion Rel-15 NR_newRAT-Core

R2-1803669 Reordering timer for PDCP operation with duplication Sequans Communications discussion NR_newRAT-Core R2-1801256

Not complying

R2-1801943 UE behaviors upon duplication deactivation and activation Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1801944 PDCP duplication for SRB Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802280 Discussion on duplication of PDCP control PDU Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802138 UE behaviors upon PDCP duplication deactivation CATT discussion

R2-1802139 Duplication Scenarios CATT discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 168

10.3.3.7 Other

Corrections/critical issues related to PDCP

R2-1802140 ROHC issues in Split bearer CATT discussion
=> Noted

R2-1802282 Remaining issues with PDCP transmit operation Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803402 Corrections related to RLC data volume MediaTek Inc. discussion Rel-15 38.323 NR_newRAT-Core R2-1801149

Proposal 1: The NR PDCP spec. should define the "RLC data volume" be 0 for LTE RLC entities.
- Mediatek thinks that we can have a better clarification and not something cryptic

=> Change/correct the spec reference in the PDCP and no additional change is needed

Proposal 2: Change "RLC data volume pending for initial transmission" to "RLC data volume corresponding to RLC SDUs that have not been included in an RLC data PDU and RLC PDUs that are pending for initial transmission".
- Samsung and LG agree with the intention.
- Lenovo thinks that the current wording already includes the SDU. Ericsson agrees.
- LG thinks that we can make the text more concise
- Mediatek thinks that there is room for confusion

=> Noted

R2-1803622 Flow control using highest sequence number acceptable by the receiver Qualcomm Incorporated discussion
- Mediatek asks why the L2 buffer capability is not sufficient. Qualcomm explains that the buffer is dynamically allocated especially in case of multiple radio bearer.
- Ericsson thinks that the gNB has some flexibility on how it schedules. It can take into account the SN and monitor HARQ ACK/NACK.
- LG thinks that only AM is a problem and we can rely on the status report.
- LG explains that the flow control was introduced for WLAN as the gNB didn't know the status of the WLAN.
- Qualcomm is concerned that there are limitations like prohibit timers and the network won't be aware of the UE situation
- Docomo has some sympathy for the proposal especially for the DC but is ok to keep things as is for Rel-15
- Vivo has some sympathy as well
- Samsung has some sympathy but technically is not sure how this can work

=> Noted

R2-1803677 L2 buffer congestion handling Sequans Communications discussion Rel-15 NR_newRAT-Core
- Samsung and Mediatek thinks that this can be up to UE implemation. LG agrees and we should avoid specifying internal UE behaviour and it is obvious that the UE would discard the incoming packets. Sequans doesn't think it is so obvious because another solutions is to stop waiting for missing packets.
- LG thinks that buffer overflow is a very rare case

=> We will add the same note as LTE in stage 2 and no further specification or optimization will be pursued in Rel-15

=> Noted

R2-1803671 UL split with LTE link Sequans Communications discussion Rel-15 NR_newRAT-Core R2-1713665
=> Noted

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 169

10.3.4 SDAP

From CP

Agreements from CP – for reference 1: The number of DRBs a UE must support in NR is 16 (split and duplicated DRBs count as 1 DRB) 2 The UE shall support any combination of RLC modes as long as the overall number of DRBs does not exceed the maximum number of supported DRBs.

=> Offline discussion to understand whether 32 DRBs are possible from the UP point of view and what the implications would be to support 32 DRBs. (Samsung, Offline discussion #16)

Discussion from UP point of view

- Samsung explains that the current LCID is 6 bits and 64 values
- Huawei thinks that to support 32 DRBs we would need to have 32 logical channels.
- MEdiatek explains that we have 32 values reserved for LCID and if we have duplication that means we have a total of 24 (8 DRBs with duplication, that means 16logicals channel duplication and 16 others). Oppo thinks that we can have up to 16 duplication DRBs
- Nokia doesn't think it is useful to have 32 DRBs share one grant and to support this it would mean that we have to put restrictions on how we configure duplication
- Ericsson thinks that we should not consider increase the LCID space as we need reserved values for MAC CE and we don't want to end up in the same situations as LTE
- LG thinks that the maximum duplication bearer has to be limited to 7 per CG and we should decide the maximum per UE.
- Nokia actually thinks that we should keep same ratio as LTE, 16 for LCID and the rest reserved.
- Vivo points out that we need three LCID for SRBs

Observations from UP on what is possible with existing specs => RAN2 UP agrees that the reserved LCID space for logical channels ID cannot be increased past 32 => With this limitation, a maximum of 29 DRBs can be configured without any CA duplicate bearer configured. => With CA duplications up to 19 DRBs can be configured. A maximum of 8 DRBs and 2 SRBs can be configured with CA duplication, which means that 18 logical channel ID are taken for duplicate DRBs/SRBs. That means that 11 other DRBs can be configured without duplication, making a total of 19DRBs in worst case scenario.

How many DRBs can be configured with duplication?

- LG and Mediatek thinks that up 8DRBs can be configured with PDCP duplication per UE
- Nokia thinks that it is up 8DRBs per MAC entity. LG thinks that the DRB ID is per UE and in the MAC we include DRB ID. CATT explains that the UE has to map the DRBs of each ID for the MAC CE bitmap.
- Oppo would like to have 16DRBs

=> A maximum of 8DRBs per MAC entity

10.3.4.1 TS

Latest TS 37.324, rapporteur inputs, etc
Including output of email discussion [NR-AH1801#17][NR UP/SDAP] Running TS 37.324 – Huawei

R2-1803489 Draft TS 37.324 v120 Rapporteur (Huawei) draft TSRel-15 37.324 1.2.0 NR_newRAT-Core R2-1713458

=> Rapporteur can think of aligning the RQI handling description with the AS descriptions
=> update the text that at most one default DRB is configured per PDU session. It is possible that no default DRB is configured.
=> The CR is endorsed in R2-1803862 v1.2.0

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 170

✉ **[NR UP/SDAP] Running TS – Huawei**
- before next meeting

R2-1803491 Update of Editor's Notes for TS 37.324 v1.2.0 Rapporteur (Huawei) discussion Rel-15 37.324 NR_newRAT-Core
=> noted

10.3.4.2 Header Format

Details of header format with the 8bit header size limitations. Contributions on RQI setting and size of QFI should be submitted in this AI. (max 1 contributions per company)
Contributions on this topic should depend on SA2 input and whether there is a need to remap NAS QFI to AS QFI

R2-1803157 SDAP QFI mapping between AS and NAS Ericsson discussion Rel-15 NR_newRAT-Core
=> Noted

R2-1803403 On mapping NAS QFI to AS QFI Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core
=> Noted

Discussions
- Mediatek thinks we should minimize the signalling and we should hard code the mapping
- ZTE thinks that we also have SDAP without payload
- LG thinks that we have to translate the QFI mapping for every packet
=> Wait for SA2

R2-1802266 Further Discussion on SDAP Header Format Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
Proposal 2: The UL SDAP header is of one byte size, and carries 6 bit QFI.
- Xiaomi would like to avoid having to remap for UL
- MEdiatek thinks that we should use the same as the DL.
=> wait for SA2

Agreements:
1. The presence of SDAP header is configured per DRB for UL or DL independently
2. For DL SDAP headers, two bits, one bit RQI and one bit RDI
3. For UL SDAP header at least a QFI field is present. RQI and RDI are not needed. FFS on the size of QFI depending on DL

Not treated

R2-1801971 SDAP header format OPPO discussion

R2-1802012 Discussion on SDAP DATA PDU for reflective QoS ZTE Corporation, Sanechips discussion Rel-15

R2-1803410 QFI mapping in SDAP MediaTek Inc. discussion Rel-15 NR_newRAT-Core

R2-1803535 Shorter QFI in SDAP header CMCC discussion Rel-15 NR_newRAT-Core

R2-1803688 UL SDAP header for Multiple QoS flows mapped to a DRB mapping SHARP Corporation discussion Rel-15 NR_newRAT-Core

Late

R2-1801868 Further considerations on the QoS header format Samsung discussion Rel-15 NR_newRAT-Core R2-1800119 Late

10.3.4.3 QoS flow remapping and handover

How to ensure in-order delivery in case of QoS flow remapping (max 1 contribution per company)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 171

R2-1802504 QoS Flow Remapping Nokia, Huawei, HiSilicon, Nokia Shanghai Bell discussion Rel-15 NR_newRAT
- Ericsson thinks that we need to ensure that the end marker comes last.
=> Noted

R2-1803024 QoS flow to DRB remapping LG Electronics France discussion NR_newRAT-Core
- *The out-of-order delivery problem in the DL/UL is resolved by gNB implementation.*
=> Noted

R2-1803424 Further considerations on in-order QoS flow remapping MediaTek Inc. discussion Rel-15 NR_newRAT-Core
=> *Noted*

For DL (gNB implementation or end-marker solution)
- Oppo thinks that we can rely on gNB implementation for DL.
- Nokia thinks that this would then require network signalling. Huawei agrees with Nokia especially when we consider CU/DU case.
- Mediatek thinks that we have to compare the complexity.
- Samsung thinks that if the network can handle it then we should do it in the network
- Samsung asks why you need signalling. Nokia explains that if we have CU/DU and an open interface. Ericsson thinks that we can do this at the PDCP level and we can wait to the status report. Nokia thinks that it introduces even more delay.

=> For DL it is left up to gNB implementation. FFS if RAN3 signalling is required.

For UL (gNB implementation or end/start marker solution)
- Nokia thinks that for the UL there is no valid UE complexity argument and we should send an end-marker.
- Ericsson asks where we set the end-marker. Mediatek explains one solution is in the SDAP header.
- Intel asks if the SDAP header needs to be present. Huawei doesn't think this is a problem as to do QFI remapping you need to have SDAP otherwise you just do DRB remapping
- Ericsson asks if you need any interaction between the layers to set the marker. Huawei explains that on the UE side you don't need to buffer. Mediatek thinks that this applies only the AM flows.
- Qualcomm would like to have the same solution for both so that SDAP doesn't have to differentiate
- Samsung asks why we can't rely on gNB implementations. Mediatek and Nokia explain that there is large delays and it is similar to the handover, you have to use both paths in parallel

Agreements:
=> For DL it is left up to gNB implementation. FFS if RAN3 signalling is required.
=> FFS - We define an end/start marker on UE side and how it is used it is up to gNB implementation. At least for RLC AM the start/end marker solution is used as a baseline.

Not treated

R2-1801797 QoS Flow Remapping Beijing Xiaomi Mobile Software discussion Rel-15 R2-1800235

R2-1801970 In-order delivery for QoS flow remapping OPPO discussion

R2-1802013 Discussion on QoS flow-DRB remapping ZTE Corporation, Sanechips discussion Rel-15

R2-1802137 Discussion of QoS re-mapping issue CATT discussion

R2-1803214 Issues with QoS flow remapping CMCC discussion Rel-15 LTE_5GCN_connect-Core R2-1800798

R2-1803404 Flow relocation Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801264

10.3.4.4 Others

Other remaining issues

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 172

Not treated

R2-1801772 Open issues of SDAP Beijing Xiaomi Mobile Software discussion Rel-15 R2-1800230

R2-1803158 SDAP configurations aspects Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803490 Further discussion on SDAP Configuration LG Electronics discussion NR_newRAT-Core R2-1713668

R2-1803536 Data forwarding of L2 CMCC discussion Rel-15 NR_newRAT-Core R2-1800802

R2-1801893 Presence of UL SDAP header on default DRB ASUSTeK discussion Rel-15 NR_newRAT-Core R2-1800045

R2-1801933 Issues with RQI setting for AS updating TCL, vivo discussion NR_newRAT-Core R2-1800089

R2-1801934 QFI Presence for AS Level Reflective QoS TCL discussion NR_newRAT-Core R2-1800090

R2-1801968 Discussion on QFI remapping issue OPPO discussion

R2-1802267 QoS Flow Level Offloading in NR-DC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802268 Lossless Handover of QoS Flow Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802505 New QoS flow on the Default Bearer Nokia, Mediatek, Nokia Shanghai Bell discussion Rel-15 NR_newRAT

R2-1803215 How to toggle the RDI bit CMCC discussion Rel-15 LTE_ViLTE_enh2-Core

R2-1803488 Considerations on release of a mapping of QoS flow to DRB LG Electronics discussion NR_newRAT-Core R2-1801457

R2-1803689 Indication of mapping rule stored and removed SHARP Corporation discussion Rel-15 NR_newRAT-Core

R2-1803690 Clarification of adding/releasing a QoS flow to/from a DRB SHARP Corporation discussion Rel-15 NR_newRAT-Core

L2 parameters - To be discussed with SDAP

- Mediatek and QC thinks that as long as we have SDAP-DL header we don't need reflective QoS
- Huawei explains that NAS reflective QoS is configured by NAS signaling

=> reflectiveQoS IE is not needed. The presence of sdpa-headerDL is sufficient.

=> SDAP-Config should be an optional IE for EN-DC and conditional to 5GC connectivity

10.4 Stage 3 control plane

10.4.1 NR RRC

10.4.1.1 TS and running CR

38.331 rapporteur inputs including FFS list, running CR to add non-EN-DC aspects, etc. Please submit corrections to the appropriate agenda item.

10.4.1.2 Specification methodology

10.4.1.3 Connection control procedures

No documents should be submitted to 10.4.1.3. Please submit to 10.4.1.3.x.

10.4.1.3.1 Corrections to connection control for EN-DC

Corrections related to connection control procedures for EN-DC and not covered within the ASN.1 review.

R2-1802018 Discusson on the indication of band information ZTE Corporation, Sanechips discussion Rel-15

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 173

- Ericsson explain it is already included in the SIB1 as a list. For dedicated signalling it could be just one entry.
- Qualcomm wonder if a priority handling is needed. An operator may want to prioritise one band due to better emission requirements.

Agreements:
1 FreqInfoDL includes a list of frequency bands and when used in dedicated signalling it will only contain one entry. When used in SIB1 it may contain more than one entry.
2 FreqInfoUL includes a list of frequency band and when used in dedicated signalling it will only contain one entry. When used in SIB1 it may contain more than one entry. (Use for the SUL case)
3 For SIB1 case, the UE applies the first band in the list that it supports

R2-1802409 SRB in re-establishment and resume procedure MediaTek Inc. and LG Electronics Inc. discussion Rel-15 NR_newRAT-Core
- Intel think that both cases work and this is a matter of taste. Think there is very little motivation to change what is currently specified.
- Ericsson also think it is a matter of taste as SRB2 is not used during re-establishment. But thinks reverting to LTE is cleaner to specify in the specs. Thinks the legacy eNB cannot revert the PDCP type to LTE. Intel think the legacy eNB case uses full configuration but the case here is where the eNB has a choice.

Agreements
1 UE reverts to using LTE PDCP for SRB1 and SRB2 upon re-establishment or resume.

R2-1802529 Remaining issues of inter node message Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
- Samsung ask if the SN has to inform the MN after every reconfiguration in the SN.
- Huawei think it allows MN to make better decisions on measurements and for single UL it enables the MN to select the TDM pattern.
- Nokia think the selected BC is not enough for measurements purposes to enable the count of layers.

Agreements
1 SN can inform MN of the selected BC.

R2-1802598 Discussion and TP on RRC Information IEs Google Inc. discussion 38.331 NR_newRAT-Core

Agreements
1: Remove fullConfigSN from the CG-Config IE.
2: Change to scg-CellGroupConfig, scg-RB-Config in the TP is agreed

R2-1802967 Race conditions during SCG failure Intel Corporation discussion Rel-15 NR_newRAT-Core

Agreements
1 RAN2 understanding is confirmed that once UE suspends transmission on the SCG SRB/DRB, UE only resumes it after an SpCell change (i.e., SCG reconfiguration with sync) procedure with sync and there is no other triggers to resume.
2 UE always applies new configuration after SCG failure indication, even if it does not result in resuming SCG transmissions.
3 RAN2 understand that after SCG failure there can be ambiguity in the network with regard to the current SCG configuration in the UE (due to reconfig send via SRB3). It is network implementation to handle this.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 174

R2-1802982 Combined HO with SCG change Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Avoid the SpCell change terminology
=> Double check offline to see if this is already covered somewhere in the spec
=> Revised in R2-1803935 (Offline discussion #23, Intel)

R2-1803935 Combined HO with SCG change Intel Corporation discussion Rel-15 NR_newRAT-Core
=> TP is agreed

R2-1803418 Additional information in CG-ConfigInfo to resolve PCID confusion Samsung Electronics GmbH discussion
- Nokia think that the neighbour cell info is exchanged in the X2 setup procedure. Think the SCG add should not be done for a PCI that is not provided from the gNB in the setup. But the neighbour information is optional.
- Ericsson agree it is more of a RAN3 issue to discuss.
- Samsung think this was not an issue in DC as the MCG config was available to the SN.

=> Should be discussed in RAN3 first.

10.4.1.3.2 Connection control message harmonisation

Harmonisation/merging of messages to be used for different procedures, UE identity and other message content to be used in different cases, etc.

Maximum 1 tdoc per company

R2-1803730 Harmonization of the RRC procedures Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1801064
- Ericsson ask how re-establishment is encrypted as this is needed if the DRBs are setup. Nokia thinks if it succeeds then the context is there and hence there are keys that can be used. Intel share the view and agree that there is a key present in the network and think horizontal key derivation could be used to protect it.
- LG also see benefit and think the key issues can be considered further.
- Ericsson think that the reconfiguration and re-establishment can be in the same message to avoid delay. Also think that it depends on the outcome of the msg4 security solution.
- Huawei think that some security solutions will be more suitable than others for this merge. Also in the re-establishment case the UE and the network are not fully synchronised as a message may have been lost. Also don't see the benefit as very large.
- Intel think that all the security solutions could work with combined re-establishment and resume.
- OPPO think that different cells may have been prepared and will have different keys and so there is something to resolve.

Agreements
1: RRC Connection Request/Setup procedure is not merged to other RRC procedures

=> Offline discussion on re-establishment procedure to consider whether to resume SRB/DRBs, use I-RNTI in the reestablishment request and whether to combine with Resume (Nokia, Offline discussion #44)

Update from offline: Some agreement that it would be possible to resume DRBs with the re-establishment, I-RNTI question to be addressed after making more progress on the message content.

=> Content of the messages will be progressed based on the assumption of separate messages and procedures
=> Resuming the DRBs in re-establishment can be considered further

R2-1802366 Harmonizing RRC Connection control messages and procedures Ericsson discussion Rel-15 NR_newRAT-Core

Agreements

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 175

1	Message and procedure structure will follow the LTE baseline (apart from resume / re-establishment which is being discussed offline). This is not meant to override any previous agreements that have been made

✉ **[101#37][NR] RRC procedures/messages (Ericsson)**
Start to draft RRC spec text based on agreements that have been made. Identify FFS points that still need to be resolved.
Intended outcome: Report to next meeting including identified FFS points and TP.
Deadline: Thursday 2018-03-08

R2-1801886 Further discussion on merging NR RRC messagesSamsung Telecommunications discussion Rel-15 NR_newRAT-Core R2-1800850

R2-1801827 RRC connection re-establishment and resume procedures in NR CATT discussion R2-1800132

R2-1802537 Simplification of RRC messages for NR LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801362

R2-1802816 Harmonization of Connection Control Procedures and Messages InterDigital discussion Rel-15 NR_newRAT-Core R2-1801112

R2-1802934 NR common RRC procedures Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1800918

R2-1803098 Connection control messages, harmonised initial baseline Samsung Telecommunications discussion

R2-1803242 Harmonization of RRC Connection Control management procedures Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803719 Harmonization of the RRC connection management procedures NTT DOCOMO, INC. discussion R2-1801359

10.4.1.3.3 Connection establishment procedures

Connection establishment procedures for standalone operation

R2-1802963 RRC Connection establishment optimisation for NR Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1800942

R2-1802362 Idle to Connected transition Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802361 NR RRC States overview and remaining open issues Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802087 Remaining FFS Issues on MSG3/4/5 Content for NR RRC Connection Control vivo discussion Rel-15 NR_newRAT-Core R2-1800878

R2-1802363 Need for MSG.5 in Resume procedure Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802369 Text proposal to RRC connection control Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802593 Handling of resume failureEricsson discussion Rel-15 NR_newRAT-Core

R2-1802812 Open Issues on Connection Control Procedures InterDigital discussion Rel-15 NR_newRAT-Core R2-1801107

R2-1803048 Considerations on Establishment cause for NR KDDI Corporation discussion Rel-15 R2-1800576

R2-1803243 Consideration on RRC connection establishment procedure Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803244 [DRAFT] LS to RAN1 on MSG 3 size Huawei LS out Rel-15 NR_newRAT-Core To:RAN1

R2-1803245 RRC Connection Re-establishment procedure in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803246 RRC Establishment Cause Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 176

Late

R2-1803462 Access Control impacts to NR RRC estalishment cause Nokia, Nokia Shaghai Bell discussion NR_newRAT-Core Late

10.4.1.3.4 Connection reconfiguration procedures

Aspects related to connection reconfiguration procedure for standalone operation

R2-1802272 Discussion on RLM parameter reconfiguration OPPO discussion

R2-1802367 Timer-based transition to inactive Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802465 Corrections for BWP configuration Samsung discussion Rel-15

R2-1802592 Handling of suspend failure Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803036 Remaining RRC procedure issues of BWP Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core R2-1801287

R2-1803667 Enhance RRC configuration procedure in NR Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

10.4.1.3.5 Other

Other aspects of connection control procedures, state transitions, etc for standalone operation

R2-1801828 Open Issues on Connection Control Procedure CATT discussion R2-1800133

R2-1801895 State transition from RRC_CONNECTED to RRC_INACTIVE ASUSTeK discussion Rel-15 NR_newRAT-Core R2-1800047

R2-1802273 Discussion on Left Issues for RRC State Transitions OPPO discussion R2-1800668

R2-1802348 Wait Timer in NR Ericsson discussion

R2-1802370 TP on 38.331 on DL/UL Information Transfer Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802591 NR re-establishment procedure Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802634 Multiplexing NAS messages with MSG 3 Ericsson discussion Rel-15 LTE_5GCN_connect-Core

R2-1802638 Size of MSG3 in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802639 Draft LS on MSG3 size Ericsson LS out Rel-15 NR_newRAT-Core To:RAN1

R2-1802684 NR RRC connection release and re-direct Ericsson discussion Rel-15 NR_newRAT-Core R2-1801074

R2-1802685 RRC UE processing time for RRC reconfiguration in 38.331 Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802686 RRC UE processing time for Standalone NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802817 Timer-Based Inactivation for NR InterDigital discussion Rel-15 NR_newRAT-Core R2-1801113

R2-1802962 Release with redirection in NR SA Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803247 UE behaviour upon leaving RRC_CONNECTED state Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803250 Remaining issues on State transition between RRC CONNECTED and INACTIVE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803251 Timer based state transition from CONNECTED to INACTIVE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803416 RRC processing delay for standalone NR Samsung Electronics GmbH discussion R2-1801456

R2-1803425 UL split SRB and SCG failure Samsung Electronics GmbH discussion R2-1801449

R2-1803731 RRC connection release and inactivation procedures Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1801066

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 177

10.4.1.4 RRM measurements

No documents should be submitted to 10.4.1.4. Please submit to 10.4.1.4.x.

10.4.1.4.1 Corrections to RRM for EN-DC

Corrections related to RRM measurement and measurement reporting for EN-DC and not covered within the ASN.1 review.

R2-1802023 Clarification on SSB-ToMeasure bitmap in SMTC configuration ZTE Corporation, Sanechips discussion Rel-15
=> Noted

R2-1802983 SSB and CSI-RS configuration in measurement object Intel Corporation discussion Rel-15 NR_newRAT-Core
- Ericsson wonder how it works for idle for the UE to determine the SCS. Intel understand for the idle mode case the UE needs to blind detect the SCS, for those bands where there is not a 1:1 mapping.

Agreements
1: Subcarrier spacing of a SSB is given in the measurement object.

R2-1803146 Network coordination for aligning the number of measurement layers across LTE and NR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT
- DOCOMO think we previously agreed not to have any more optimisation for this release. Samsung have a similar view and that we would not have renegotiation.

=> Noted

R2-1803557 Remaining details of CSI-RS for RRM configuration AT&T discussion
- DOCOMO think in the past that the measurement framework should be agnostic to the BWP.
- Samsung have a similar view and think we can just have the measurement b/w per CSI-RS to serve the same purpose.
- Qualcomm share the similar view.
- Ericsson think that this use case can be achieved with multiple MOs configured with different CSI-RS resources but referencing the same SSB.

=> Noted

R2-1803724 On enabling/disabling intra-frequency measurement on NR SCell frequency layer NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core Late
- Ericsson think the UE is not required for measure on the neighbour cells on serving carrier frequencies. Nokia have a similar view to Ericsson. Think the RAN4 discussion is not about the neighbour cell measurements.
- Qualcomm understand the concern in RAN4 is about the serving cell measurement, in the case of several serving cells in a wideband carrier.
- Vivo have a similar understanding as Qualcomm.
- Nokia think we need to change a fundamental principle compared to LTE where all serving cells are measured. Ericsson wonder what is saved as L1 measurements would still need to be performed.

=> Draft LS to RAN4 to ask questions for clarification before we can design the signalling. Draft LS in R2-1803938 (Offline discussion #24, DOCOMO)

R2-1803938 [DRAFT] Reply LS on intra-frequency measurement on NR SCell NTT DOCOMO, INC. LS out Rel-15 NR_newRAT-Core To:RAN4
=> Approved in R2-1804097

R2-1803344 Beam selection and consolidation enhancements Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1801100

10.4.1.4.2 Measurement gaps for EN-DC

Any remaining aspects of measurement gaps for EN-DC
Including output of email discussion [NR-AH1801#08][NR] Measurement gap coordination assistance info (Samsung)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 178

Gap coordination assistance

R2-1803042 Report of Email Discussion [NR-AH1801#08][NR] Measurement gap coordination assistance info Rapporteur (Samsung) report NR_newRAT-Core

- Intel think that it may be simpler to just provide the frequency. OPPO agree with Intel.
- Nokia think both sets of information can be used in different use cases. We can select just 1 or select both.
- Ericsson support solution B as it can also be used for the coordination of the number of frequencies. ZTE support solution A and think for coordination of frequencies the just the carrier frequency is not enough.
- Vivo prefer solution B. Qualcomm also support solution B.
- Samsung think that solution B doesn't address the requirements for CSI-RS measurements. Ericsson thinks that solution B doesn't preclude handling CSI RS as some frequency info relating to eh CSI-RS can be provided.

Agreements
1) For per-UE gap and independent FR1 gap case, SN indicates to MN the list of SN configured frequencies measured by UE.
2) For independent FR2 gap case, MN indicates to SN the list of MN configured frequencies measured by UE.
3) Information can be exchanged whenever there is any change in the set of frequencies to be measures.

FFS: Whether any information in addition to the frequencies to be measured is needed for the purpose of handling CSI-RS measurements.

=> TP to be provided in R2-1803941 (Offline discussion #25, Nokia)

R2-1803941 TP for Gap coordination assistance information Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

=> TP is agreed
=> In addition add the FR1 gap configuration in the MeasGapConfig and add an indication whether the gap configuration is per UE or per FR (impacts ASN.1 review discussion part 4, 6)

R2-1802647 Assistance information for measurement capability and gap coordination Ericsson discussion Rel-15

=> Noted

R2-1803056 Assistance Info for UE specific Gap coordination Nokia, Nokia Shanghai Bell, vivo discussion

=> Covered by previous discussion

Gap configuration

R2-1802980 Measurement gap indication for FR gap Intel Corporation discussion Rel-15 NR_newRAT-Core

- Ericsson thinks the UE know the UE capability so it is clear how to interpret the configuration.
- Intel think that currently the network has to configure per FR gaps if the UE supports FR gaps.
- Qualcomm think that the network needs to follow the UE capability and has no choice. Support the explicit indication. MediaTek share the view of Qualcomm and Intel.

Agreements
1 The network configuration from the MN to the UE indicates if the measurement gap from MN applies to LTE/FR1/FR2 serving cell(s) (i.e. per UE gap) or applies to LTE/FR1 serving cell(s) (i.e. per FR gap to LTE/FR1 and no per FR gap for FR2 serving cells).

R2-1802523 Remaining issue on the measurement gap for ENDC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800727

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 179

=> Should be first discussed in RAN4

R2-1802651 Measurement gap pattern in unsynchronized network Ericsson discussion Rel-15 NR_newRAT-Core
- Samsung think this was already discussed in RAN4 and they assume in R15 timeframe that the SMTC occasions are synchronised.

=> Should be first discussed in RAN4

R2-1802652 [DRAFT] LS to RAN4 on the need for additional MGL values in measurement gap pattern Ericsson LS out Rel-15 NR_newRAT-Core To:RAN4

R2-1803720 On Measurement Gap Timing Advance NTT DOCOMO, INC. discussion NR_newRAT-Core
- Samsung think this indication is needed in the LTE configuration from the MN.

Agreement
1 For NR RRC add configuration within the MeasGapConfig to indicate the "MG timing advanced". Length of the MG timing advance is to be signalling explicitly with values 0, 0.25 and 0.5ms. (Rapporteur can select a more appropriate name)

R2-1802791 Measurement gap configuration in NR Huawei, HiSilicon discussion Rel-15
=> Revised in R2-1803761

R2-1803761 Measurement gap configuration in NR Huawei, HiSilicon discussion Rel-15

R2-1803043 Measurement Gap Offset Calculation Samsung R&D Institute India discussion

Need for gaps

R2-1802604 Measurement gap handling in EN-DC Qualcomm Incorporated discussion Rel-15 NR_newRAT R2-1800903

R2-1802274 Potential Issues on EN-DC Measurement Gap OPPO discussion

10.4.1.4.3 Measurement gaps for non EN-DC

R2-1802694 Per-CC gap for MR-DC LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801427

R2-1802792 NCSG support in NR Huawei, HiSilicon discussion Rel-15

R2-1802793 Measurement gap capability feedback Huawei, HiSilicon discussion Rel-15

R2-1802978 Measurement gap capability information for NR SA Intel Corporation discussion Rel-15 NR_newRAT-Core

10.4.1.4.4 Measurement events

Any additional aspects of measurement events.

R2-1802772 Triggering condition for A1-A6 events in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802776 Alternative time to trigger Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802832 Measurement Configuration with Ax and Cx Events InterDigital discussion Rel-15 NR_newRAT-Core R2-1801135

R2-1803252 Remaining issue on Measurement events Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803451 Layer 3 mobility based on CSI-RS events Ericsson discussion Rel-15 NR_newRAT-Core

10.4.1.4.5 Inter-RAT measurements

Inter-RAT E-UTRA measurements for the purpose of inter-RAT handover from NR to E-UTRA

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 180

R2-1802025 Inter-RAT measurements for NR handover to EUTRAN ZTE Corporation, Sanechips discussion Rel-15

R2-1803257 Remaining issue on Events and measurements for handover from NR to E-UTRA Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

10.4.1.4.6 Other

Other RRM related aspects that are not related for EN-DC

R2-1801980 Issues on SSTD measurement in NR Spreadtrum Communications discussion Rel-15 R2-1800270

R2-1802022 SMTC configuration in asynchronous networks ZTE Corporation, Sanechips discussion Rel-15

R2-1802024 Consideration on ReportCGI measurement ZTE Corporation, Sanechips discussion Rel-15

R2-1802449 The Impact of Beam Sweeping on RRM Measurement Samsung Electronics discussion R2-1801372

R2-1802451 Discussion on Speed-dependent Scaling of Measurement-related Parameters and Mobility History Reporting in NR Samsung Electronics discussion R2-1801368

R2-1802452 Discussion on the Use of Alternative TTT in NR Samsung Electronics discussion R2-1801369

R2-1802466 RRM measurement configuration for BWP in NR Samsung discussion Rel-15

R2-1802467 RRM measurement for multiple numerologies in NR Samsung discussion Rel-15

R2-1802645 Measurement configurations and signaling for fast setup Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802762 Considerations on fast access inter-site small cells in NR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1713490

R2-1802769 Mobility states and speed based parameter scaling in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802770 Triggering of L3 filtered beam measurements Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802773 Impact of cell quality scaling in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802774 Discussion on allowInterruptions in NR and EN-DC Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802775 [DRAFT] LS to RAN4 on the need for allowInterruptions Ericsson LS out Rel-15 NR_newRAT-Core To:RAN4

R2-1803101 Inter RAT mobility, defining initial baseline Samsung Telecommunications discussion

R2-1803255 Cell quality adjustment for connected UE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803256 Correction to cell quality derivation Huawei, HiSilicon draftCR Rel-15 38.331 15.0.0 NR_newRAT-Core

R2-1803258 Speed dependent TTT scaling for NR measurements Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803259 CR on speed dependent mobility in TS 38.331 Huawei, HiSilicon draftCR Rel-15 38.331 15.0.0 NR_newRAT-Core

R2-1803320 Measurement priority handling in NR Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803323 Measurement Requirements for Deactivated Secondary Component Carriers Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803324 UE capability for increased number of carrier monitoring Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803329 Location Information configuration and reporting Ericsson discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 181

Withdrawn

R2-1803041 Discussions on whether to reuse LTE RRM features in NR Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core Late

10.4.1.5 Mobility

No documents should be submitted to 10.4.1.5. Please submit to 10.4.1.5.x.

10.4.1.5.1 Corrections SCG change for EN-DC

Corrections to 38.331 related to SCG change for EN-DC and not covered within the ASN.1 review.

R2-1803668 SRB3 usage Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core
=> Proposes sentence need to be reworded to make it clear
=> To be checked offline whether we have a stage 2 agreement that SRB3 cannot be reconfigured via SRB3. (Offline discussion #701, Qualcomm)
=> Revised in R2-1803956.

R2-1803956 SRB3 usage Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core
=> SN terminated DRB terminology to be checked offline
=> Wording of final part on change of the MCG configuration to be reworded offline
=> With changes above the TP is agreed.

10.4.1.5.2 SCG failure for EN-DC

Corrections to 38.331 and 36.331 related to SCG failure for EN-DC and not covered within the ASN.1 review.

R2-1801829 Capture agreements on RS type for SCG failure report CATT discussion
=> Revised R2-1803892

R2-1803892 Capture agreements on RS type for SCG failure report CATT discussion
=> Sorting of the measurements in the SCG failure report is based on SSB RSRP measurement if available and otherwise CSI-RS measurements
=> Text to be worked offline with the rapporteur.

R2-1803663 Open issue on NR measured results in SCG Failure information Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core
=> Noted

For EN-DC post March freeze

R2-1802649 Remaining issues on SCG Failure (TP to 36.331) Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802650 SCell-RLF discussion (TP to 38.331) Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802818 Discussion on Handling Split SRB during SCG Failure InterDigital discussion Rel-15 NR_newRAT-Core

R2-1803405 SCG failure handling for split bearer Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

10.4.1.5.3 Handover

Stage 3 details of basic handover.

R2-1802011 Bandwidth part operations during handover PANASONIC discussion

R2-1802444 Configuration of power control parameters during handover through CFRA Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

R2-1803096 Changes requires to support baseline HO procedure Samsung Telecommunications discussion

R2-1803100 Dedicated signalling of SI upon UE mobility Samsung Telecommunications discussion

10.4.1.6 System information

No documents should be submitted to 10.4.1.6. Please submit to 10.4.1.6.x.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 182

10.4.1.6.1 System information content/structure

Progress details of the content and structure of system information (excluding MIB content for which any corrections should be handled as part of the ASN.1 review)

Including output of email discussion [NR-AH1801#11][NR] System information content/structure (Ericsson)

R2-1802313 Summary of email discussion [NR-AH1801#11] System information content/structure Ericsson discussion

Agreements
1 Working assumption that minimum system information consists of MIB and SIB1, while all other NR-SIBs are part of other system information. This working assumption can be re-evaluated after checking with RAN1 if the expected size of the SIB1 is problematic.
2 MIB and SIB1 are separate RRC messages, while all other SIBs are transmitted in SI messages scheduled in SIB1 (similar to LTE).
3 NR Rel-15 will contain SIBs for Common cell re-selection information (similar to LTE SIB3), Neighbouring cell information for intra-frequency cell re-selection (similar to LTE SIB4), Information relevant for inter-frequency cell re-selection (similar to LTE SIB5) and Information relevant for inter-RAT cell re-selection to E-UTRAN.
4 NR Rel-15 will contain SIBs for ETWS primary notification, ETWS secondary notification and CMAS.
5 An indication for forward compatibility purposes (e.g. for CSG) is introduced in SIB1, but no further SIBs for functionality related to Cell reselection to UTRA, Cell reselection to GERAN, cell reselection to CDMA2000, Home eNB, MBMS, EAB, WLAN interworking, Sidelink, or V2X are specified for NR Rel-15.
6 SIB containing GNSS and UTC information (corresponding to LTE SIB16) will be specified for NR Rel-15.
7 SIB1 contains Scheduling Info List and SI Window Length
8 SIB1 contains Cell Selection Info
9a SIB1 contains information elements relevant for initial access from ServingCellConfigCommon. (May be revisited if WA is not confirmed)
10 SIB1 contains Cell Access Related Info (May be revisited if WA is not confirmed)
11: SIB1 for ANR purposes in NSA deployments will have minimal content

=> ASN.1 in the paper will be used as a baseline for further discussion and addition of agreements from this meeting

R2-1803356 The maximum size of RMSI Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

- Samsung think the AC info of about 450 bits is too much and we need to discuss how it can be reduced.
- Ericsson think the estimate if a valid one but AC info can be discussed more. Suggest we also ask RAN1 to compressed or optimise the L1 parameters.
- LG ask if PLMN sharing was considered for the AC. Huawei assumed some common information between PLMNs, and also it did not consider future extensions.

=> LS will be sent to RAN1 to ask for input in SIB1 size.

R2-1803357 Draft LS to RAN1 on maximum size for RMSI Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:RAN1

=> Removed reference to multiplexing patterns
=> Add request for RAN1 to look at reducing the L1 parameter size and indicate that RAN2 will do the same for RAN2 parameters.
=> Add the estimate as an attachment
=> Add that RAN2 preference and our working assumption is a single SIB
=> Add that we want a single SIB design for all cases (e.g. FR1 and FR2)
=> Revised in R2-1803958 (Offline discussion #31)

R2-1803958 [DRAFT] LS to RAN1 on maximum size for RMSI Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:RAN1

=> Remove " or more "

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 183

=> Approved in R2-1804098

R2-1802088 Single cellBarred IE in NR System Information vivo,Qualcomm Incorporated, Xiaomi, CATR, China Telecom, China Unicom discussion Rel-15 NR_newRAT-Core R2-1800388
- ZTE think that in the multi PLMN case there should be barred per PLMN to cover the mix of NSA and SA. OPPO also have the concern about PLMN sharing.
- Samsung support the proposals.

Agreements
1: The "cellBarred" IE in MIB is used to handle all the cases, e.g. NSA, congestion, etc. ("cellBarred" and "intraFreqReselection" IEs are only in MIB).
2: The duration of the barring timer for all cases in NR is 300 seconds, same as LTE.

R2-1802045 Multi-PLMN aspects of NSA bit in SIB1 ZTE Corporation, Sanechips discussion Rel-15
R2-1801788 Discussion on CellBarred IE in NR SIB1 OPPO, Coolpaddiscussion R2-1800052
R2-1802318 System information content at network sharing Ericsson discussion
R2-1802319 Reserving cells for operators and future use Ericsson discussion
R2-1802322 Open issues on cell barring Ericsson discussion
R2-1802324 Optional configuration in NR system information Ericsson discussion
R2-1802329 Size of remaining minimum system information Ericsson discussion
R2-1802330 Draft LS to RAN1 on size of remaining minimum system information Ericsson LS out To:RAN1
R2-1803355 Remaining issues on the contents of RMSIHuawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1803358 Discussion on the location of synchronization information Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1803359 Discussion on barring indication in NR-MIB and SIB1 Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801178
R2-1803428 Remaining SIB1 contents Samsung R&D Institute India discussion

Late
R2-1802050 Multi-PLMN aspects of NSA bit in SIB1 ZTE Corporation, Sanechips discussion Rel-15 Withdrawn

10.4.1.6.2 System information procedures email discussion

Output of email discussion [NR-AH1801#12][NR] System information procedures (Samsung)
This AI is for the output of the email discussion only. Please submit company contributions to the appriopriate AI 10.4.1.6.3, 10.4.1.6.4, or 10.4.1.6.5.

R2-1803422 Report of email discussion on [NR-AH1801#12][NR] System information procedures Samsung (Email rapporteur) R&D Institute India report Late

Agreements for SI modification
2.1.1: Like LTE, the SI change/update is indicated to UEs through paging.
2.1.2a: RRC_IDLE and RRC_INACTIVE UEs shall monitors for SI update notification in its own paging occasion every DRX cycle.
2.1.2b: RRC_CONNECTED UE monitors for SI update notification in any paging occasion (if the UE is provided with common search space to monitor paging in connected)
2.1.3: In NR, adopt the LTE concept of modification period for SI update handling.
2.1.4a: SI update indication included in paging message is supported (can be revisited if the DCI design allows the SI update indication and scheduling of a paging message in parallel)
2.1.4b: SI update indication included in DCI is supported

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 184

FFS Detail content of the SI update indication within paging message and DCI.
2.2.1: For NR, adopt LTE principle; UE acquires SI immediately for ETWS/CMAS notifications and for SI update indications in paging UE acquires SI at next modification period boundary.
FFS If any different handling is required for AC related parameters.
2.2.2: If UE receives SI update indication in paging, then UE acquires the updated SI at the next modification period boundary assuming NW broadcasts updated SI (even if the updated SI is on-demand SI).

Agreements for SI scheduling
3.1.1: In NR, adopt the "LTE scheduling framework" characterized as follows:
- SIBs (other than SIB 1) are transmitted in SI messages.
- SIB 1 indicates mapping of SIBs to SI messages.
- Each SIB is contained in only a single SI message.
- Only SIBs having the same periodicity can be mapped to the same SI message.

3.2.1a: Only a single SI message is scheduled within one SI-window.
FFS: Whether SI-windows can overlap
3.2.2: The SI-window length is common for all SI-messages.
3.2.3: Segmentation of SIB/SI messages is not allowed except ETWS/CMAS SIBs.

Agreements on stored SI
1.1.1: Value tag associated with each SIB of Other SI (OSI) available in cell is included in SIB1 regardless of whether the SIB is broadcasted or provided on demand.
FFS size of value tag
1.1.2: For "cell specific" SIB the LTE principle is applicable for determining the validity of the stored information corresponding to that SIB
FFS Whether it is necessary to support a case where a SIB is area specific but within that area there are some cells which provide cell specific version of the SIB.
1.2.1: Adopt the LTE principle for validity of stored system information based on expiry of validity timer regardless of the SIB is "cell-specific" or "area-specific". Single validity timer for all cases is the baseline.
1.2.2: The SI storage and management of stored SI can be left to UE implementation. Decision to store a SIB and how many to store is UE implementation.
1.3.1: System Info Area ID, if signalled, is signalled in SIB1 separately and in addition to value tags associated with each SIB available in the cell.
1.3.2a: The rules for defining whether a stored SIB is valid in the current cell will be clearly defined in the spec, and if the UE doesn't have a valid stored SIB for the current cell then the UE must acquire.

2 A SIB can be configured to be cell specific or area specific (not applicable SIB1). Whether this is configured per SIB or configured per SI message to be concluded when ASN.1 is specified.
3 At most one AreaID can be indicated within SIB1, and if indicated then applies to all area specific SIBs available in the cell.

10.4.1.6.3 Stored system information

Further details of stored SI including index/identifier format
Maximum 1 tdoc per company

R2-1802819 Remaining Details of Stored System Information InterDigital discussion Rel-15 NR_newRAT-Core
R2-1803227 Considerations for the Area ID design PANASONIC R&D Center Germany discussion Rel-15 R2-1800815
R2-1802039 Consideration on the scope of Area Id ZTE Corporation, Sanechips discussion Rel-15

Agreements

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 185

1 SI Area ID and Ran Area ID are independent
2 SI Area ID is unique with PLMN or TA
FFS Whether to select PLMN or TA

=> Offline discussion to try to conclude the FFS (Offline discussion #32, Samsung)

R2-1804004 Offline discussion #32 (Scope of Area ID) Samsung discussion Rel-15 NR_newRAT-Core

Agreements
1: SI Area ID (SIAID) is locally unique within TA. FFS [X] Bits allocated to SIAID in SIB1.
2: TAC + SIAID combination to be taken into account while defining rules for validity of stored area-specific SIBs.

R2-1802089 Stored system information for NR vivo discussion Rel-15 NR_newRAT-Core R2-1800871
R2-1802315 Stored System Information Ericsson discussion
R2-1802540 Area ID and details on value tag message structure for NR Gemalto N.V. discussion R2-1712244
R2-1802959 Stored System Information using Area ID Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1803127 Remaining issues on stored SI Sony discussion Rel-15 NR_newRAT-Core R2-1800987
R2-1803360 Area ID and value tag for SIBs Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801184
R2-1803386 Further on Index based SI distributions Lenovo, Motorola Mobility, Panasonic discussion Rel-15 NR_newRAT-Core R2-1705387
R2-1803429 Remaining issues for Index based approach and Stored SI Samsung R&D Institute India discussion
R2-1803659 Open issues on stored system information LG electronics inc discussion
R2-1803665 NR SI area ID and value tag Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

10.4.1.6.4 System information modification

Maximum 1 tdoc per company

R2-1803361 SI Update procedure Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801185
R2-1802506 Remaining issues on change of System Information in NR Ericsson discussion
R2-1801790 Discussion on Remaining issues for NR SI Modification OPPO discussion NR_newRAT-Core R2-1800061
R2-1801830 SI change indication CATT discussion R2-1800139
R2-1801884 System Information Update in NR Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1800076
R2-1802090 SI Change Notification vivo discussion Rel-15 NR_newRAT-Core R2-1800872
R2-1802820 SI Modification Procedure in NR InterDigital discussion Rel-15 NR_newRAT-Core
R2-1803010 SI modification for Stored SI ITL discussion Rel-15 R2-1801268

10.4.1.6.5 System information scheduling

Maximum 1 tdoc per company

R2-1801885 SI Message TX/RX in NR Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1800077
R2-1801789 Remaining Issues on MSI Scheduling OPPO discussion Rel-15 NR_newRAT-Core
R2-1802091 Scheduling of Other SI vivo discussion Rel-15 NR_newRAT-Core R2-1800873

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 186

R2-1802740 System information scheduling LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801385

R2-1803120 Scheduling multiple SI messages in a single window Ericsson discussion

R2-1803362 Considerations on System Information scheduling Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

10.4.1.6.6 On demand system information

Including need for additional bit to indicate if SI message is actually being broadcast

R2-1802037 Further consideration on the Msg3 Content ZTE Corporation, Sanechips discussion Rel-15

R2-1801831 Remaining issues of on-demand SI CATT discussion R2-1800140

R2-1802821 MSG3-Based SI Request Procedure InterDigital discussion Rel-15 NR_newRAT-Core
Discussed jointly with previous papers

Do we revert the previous agreement that SI request is in RRC message in MSG3?
- LG have some sympathy to change to using MAC CE. Must also consider collision between SI request and connection request but if MAC CE is used then it can be deprioritised in the case of connection request.
- Lenovo consider the SI to be an RRC responsibility and changing the agreement would require MAC to be involved. Huawei agree with Lenovo. ZTE think the MAC layer anyway needs to be involved due to the SI scheduling. Vivo also agree with that this is RRC responsibility. Nokia also agree with others not change the previous agreement. Qualcomm also agree and think a smart network can still look into the RRC message in the DU. Samsung also support not to change the previous agreement.

Do we need to support that the UE is moved to connected after an SI request?
- Lenovo think in a previous email discussion we had an agreement that UE-ID would not be present. Also think the network cannot know whether the UE should be moved to connected.
- IDC think the UE ID is not only for moving the UE to connected. The addition of UE ID is to avoid the collision between the SI request message content and the UE ID of another ID.
- Nokia think it should be support to move the UE to connected.
- Huawei understand that earlier discussion we agree not to discuss moving the UE to connected. And think there is no contention resolution issue as the UE requesting SI doesn't actually needs to resolve contention. It only needs to be performed for the UE that needs to continue.
- Qualcomm think we don’t need to optimise for minor cases. UE ID is not needed as UE just needs to know that the SI will be broadcast.

Is contention resolution required for SI request?
- Intel think from the network point of view it doesn’t know the difference between SI request and connection request and will just response in message 4 by repeating the CCCH message.

Options for contention resolution:
a/ UE MAC performs same as other cases and check the contention resolution MAC CE against the transmitted request (common RACH procedure in MAC)
b/ UE can check from MSG4 content which SIBs are being transmitted by the n/w

Agreements
1 Previous agreement that SI request is an RC message is confirmed.
2 SI request and RRC connection request are 2 independent procedures.
3 UE ID is not included in MSG3
4 For contention resolution UE MAC performs same as other cases and check the contention resolution MAC CE against the transmitted request (common RACH procedure in MAC)

R2-1803645 Indication for On-Demand SI Broadcast Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1801226

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 187

- LG think from the UE perspective it doesn't matter whether the SIB is on demand or broadcast and hence the first indicator from the proposal is not needed. It only needs to know if the UE is broadcast at the moment.
- IDC agree with LG but the previously agreed bit needs to reflect whether the UE is currently being broadcast.
- Nokia assume that the previously agreed bit is statically telling the UE that it is periodic or on demand. For periodic broadcast SIBs the UE should not have to check again SIB1, but for on demand it does need to check SIB1 again before requesting.
- Qualcomm think the first bit is essential and the second is good to have.
- Sony agree with the proposal. Also think the network should not have to page the UE when the bit changes.
- Lenovo think we just need to specify one bit that says the SIB is broadcast until the end of the modification period.
- Vivo think the second bit is required and the first one is only needed for rare case.

Agreements
1 One indicator in SIB1 indicates whether an SI message is currently broadcast or not. The indication is valid until the end of the modification period. UE cannot infer whether this is a temporary broadcast of an on demand SI or a periodic broadcast SI.

R2-1802326 On-demand SI in RRC connected Ericsson discussion
- Nokia think it would be better to do this when there are SIBs defined that would benefit from this.
- LG think the network may temporarily broadcast SI on BWP but we discussed the network may not provide it via SI. So in this case that the UE does not successfully acquire during the temporary broadcast then the UE could request an SI.
- Lenovo think the most relevant SIBs for this might be added in future. In future we might also need to think about SCell SIBs as well.
- Ericsson think that given the current SIBs this could be postponed for R15.
- Samsung think there is not much effort to specify this for connected as both the request and response are already there.

Agreement
1 On demand request for SI in connected will not be specified in R15 (can be specified in a later release when SIBs are defined that would benefit from this mechanism).
2 UE behaviour will not be specified for the case that a UE in connected mode fails to successfully received a modified SIB1 that is temporarily broadcast on the UEs active BWP.

✉ **[101#38][NR] SI procedure text (LG)**
Intended outcome: TP
Deadline: Thursday 2018-03-29

✉ **[101#39][NR] SIB content ASN.1 (Huawei)**
Progress the SIB content and ASN.1 structure based on existing agreements.
Can use Huawei contribution (R2-1803371) on content of idle mode SIBs as a starting point.
Intended outcome: TP for the ASN1
Deadline: Thursday 2018-03-29

R2-1802093 Failure Handling for On Demand SI Acquisition Procedure vivo discussion Rel-15 NR_newRAT-Core R2-1800874

R2-1801780 Clarifications on Upper Layer Actions Upon RACH Problem for SI Request OPPO discussion NR_newRAT-Core

R2-1801791 Discussion on Indication of On-Demand SI in RMSI and TP to TS 38.331 OPPO discussion NR_newRAT-Core R2-1800058

R2-1801795 Discussion on SI request prohibit timer OPPO discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 188

R2-1801809 Remain issues of on-demand SI Beijing Xiaomi Mobile Software discussion Rel-15 R2-1711030

R2-1801832 Necessity of additional indicator for SI message actually being broadcast CATT discussion R2-1800141

R2-1801882 On Demand SI: Remaining Issues Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1800075

R2-1801894 Random access procedure for SI request ASUSTeK discussion Rel-15 NR_newRAT-Core

R2-1801978 Consideration on Remaining Issues of On-Demand SI Spreadtrum Communications discussion Rel-15 R2-1800271

R2-1801985 Msg 4 content for SI request Potevio discussion R2-1800766

R2-1802035 Consideration on the group based SI request scheme ZTE Corporation, Sanechips discussion Rel-15

R2-1802036 Upper layer actions for the Random Access problem ZTE Corporation, Sanechips discussion Rel-15

R2-1802092 Beam based on demand SI acquisition for idle/inactive UE vivo discussion Rel-15 NR_newRAT-Core

R2-1802094 Remaining issues of on demand SI vivo discussion Rel-15 NR_newRAT-Core R2-1800875

R2-1802316 Open issues on On-demand SI Ericsson discussion

R2-1802323 On-demand SI reject procedure Ericsson discussion

R2-1802457 Efficient broadcast indication mechanism ETRI discussion R2-1801285

R2-1802553 Discussion on On-demand system information request in NR ASUSTEK COMPUTER (SHANGHAI) discussion NR_newRAT-Core R2-1800041

R2-1802735 Remaining issues on on-demand SI request procedure LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801378

R2-1802822 On the Need for Additional Indication for On Demand SI InterDigital discussion Rel-15 NR_newRAT-Core

R2-1802960 Remaining issues on On demand System Information Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803126 Necessity of indication that on demand SI is being broadcast Sony discussion Rel-15 NR_newRAT-Core R2-1800985

R2-1803363 Indications for Other SI acquisition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803364 MSG3 based other SI acquisition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801188

R2-1803365 Connected mode SI acquisition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801189

R2-1803366 Failure handing for on-demand SI acquisition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801190

R2-1803367 No rejection procedure for OSI request Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801190

R2-1803368 RACH Configuration for Msg1 based On-Demand SI Request. Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803392 On demand SI Request remaining FFS Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core R2-1800712

R2-1803646 SI Request and Delivery using Msg 3 Approach Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1801227

R2-1803648 On-demand SI Delivery for RRC_IDLE/RRC_INACTIVE UEs Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1803661 SI request in RRC_CONNECTED LG electronics inc discussion

R2-1803666 Open issues on NR on-demand SI Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 189

R2-1803673 Duration of on-demand SI broadcast Ericsson discussion

Withdrawn

R2-1802314 SS Block index dependent system information Ericsson discussion Withdrawn

10.4.1.6.7 System information -other

Other system information related aspects

R2-1802320 Defining reserved resources in NR-SIB1 Ericsson discussion

R2-1802317 Dedicated System Information Ericsson discussion

R2-1802325 Update of SI Area common SI Ericsson discussion

R2-1802328 Public Warning System provisioning Ericsson discussion

R2-1802424 On supporting multiple modification periods in NR Samsung discussion NR_newRAT-Core

R2-1803059 TP to 38.331 on System Information Ericsson discussion

R2-1803369 Public Warning system for NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801191

R2-1803370 On the timing of SIB1 Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801192

10.4.1.7 Inactive state

No documents should be submitted to 10.4.1.6. Please submit to 10.4.1.6.x.

10.4.1.7.1 RAN area configuration

Any further details of RAN area configuration given LS response to RAN3 from RAN2#99bis.
Maximum 1 tdoc per company
Including output of email discussion [NR-AH1801#13][NR] RRC inactive (RAN area configuration) (Intel)

R2-1802932 Report of #13 RRC inactive (RAN area configuration) (Intel) Intel Corporation report Rel-15 NR_newRAT-Core
=> Revised in R2-1803760

R2-1803760 Report of #13 RRC inactive (RAN area configuration) (Intel) Intel Corporation report Rel-15 NR_newRAT-Core

Agreements
1: For cell lists approach, RNA contains cells that belong to the same PLMN
2: maximum number of cells in RAN notification area is 32;
3: NR Cell Identity (36 bits) are used as cell id for cell list approach;
4: maximum RAN Area IDs configured in one RNA is [32]
5: RANAC size should [6]bits. (send LS to RAN3)
6: For one cell, only 1 RANAC can be broadcasted. A single RANAC is common for all PLMNs sharing the RAN.
7 RANAC is optional field in SIB1.
8 maximum 16 TAIs can be configured in one RAN notification area;
9 ASN.1 is agreed as a baseline.
10 RNA is mandatory configured for the inactive UEs for Rel-15; (May be re-discussed after the discussion of the interaction between RANU and TAU)

=> Draft LS in R2-1803976 to RAN3 to inform them of RANAC size. (Offline discussion #37)

R2-1803976 [DRAFT] Agreements on RAN notification area Intel LS out Rel-15 NR_newRAT-Core To:RAN3
=> Approved in R2-1804099

R2-1801800 Discussion on Assistance Information for RAN-based Notification Area Decision OPPO discussion R2-1800280

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 190

R2-1801953 RAN Notification Area Configuration in NR MediaTek Inc. discussion Rel-15 R2-1801302
R2-1802364 Default RNA configuration Ericsson discussion Rel-15 NR_newRAT-Core
R2-1802681 RAN Notification Area Configuration – A few Questions? PANASONIC R&D Center Germany discussion Rel-15
R2-1803136 UE specific Paging area definition Sony discussion Rel-15 NR_newRAT-Core
R2-1803260 RAN notification area configuration Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

10.4.1.7.2 RRC inactive procedures email discussion

Output of email discussion [NR-AH1801#14][NR] RRC inactive procedures (Qualcomm)
This AI is for the output of the email discussion only. Please submit company contributions to the appriopriate AI 10.4.1.7.3 or 10.4.1.7.4.

R2-1803585 Report of Email Discussion [NR-AH1801#14][NR] RRC inactive procedures Qualcomm Incorporated report
=> Revised in R2-1803778
R2-1803778 Report of Email Discussion [NR-AH1801#14][NR] RRC inactive procedures Qualcomm Incorporated report

Agreements
1: RAN2 to confirm that moving the UE to RRC_CONNECTED or RRC_IDLE in response to RNAU is allowed and up to eNB decision.
2: RAN2 to agree that the UE context is transferred to the serving gNB when it receives from the UE an RNAU due to change of RNA.
3: If resume procedure (including RNAU procedure) fails, the UE move to RRC_IDLE and indicates to NAS to perform NAS recovery
3a Resume procedure is protected by a timer (similar to T300 for connection establishment procedure). UE consider resume failure upon timer expiry.
4 For RAN paging, I-RNTI is used as the UE identity in the paging record.
5 The UE initiates RRC Connection Resume procedure upon receiving RAN paging.
6 RAN2 to confirm that the UE moves to RRC_IDLE and informs NAS when it receives a CN paging in RRC_INACTIVE state.
7 Same paging message is used for RAN paging as Idle paging.
8 RAN paging is not used to move UEs from RRC_INACTIVE to RRC_IDLE.

10.4.1.7.3 RAN area update procedure

Maximum 1 tdoc per company

R2-1802794 On the support of periodical RNA update without context relocation Huawei, HiSilicon discussion Rel-15 NR_newRAT R2-1800483
- ZTE think this needs to be discussed in conjunction with using reject to move the UE to idle and not relocating the anchor.
- Ericsson think the first question is to understand whether we want to support this this case
- Intel think in the RAN3 case is a success case as the gNB has verified the context and hence SRB1 must be used and the message must be protected. Huawei confirm they consider this as a success case but respond on SRB0 as it is possible to reuse an existing message.
- Ericsson think it is an optimisation to do periodical update and not relocate the context when in resume and RNAU case we always relocate the context. Nokia have a similar view to Ericsson, what is the benefit to not relocate during the periodical update.
- Huawei think if most UEs don't move then the load due to periodical update could be significant.
- IDC have a similar view to Ericsson and think that we can align periodical and RNAU. Samsung also have the same view and think 30minutes might be typical, and also think we need to consider the CU/DU split.
- Panasonic think we should not rule out any options for the network as it may be used depending on UE mobility history.

=> Respond to RAN3 that there was no consensus in RAN2 to support the feature. Signalling solutions were presented but there were concerns about whether the benefits of the feature

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 191

justify these solutions (final wording to be worked offline and how the benefits in RAN3 can be weighed against the complexities in RAN2). Draft LS in R2-1803977 (Offline discussion #38, Huawei)

R2-1803977 [DRAFT] Reply LS on periodic RNA update without anchor relocation Huawei LS out Rel-15 NR_newRAT-Core To:RAN3
=> Approved in R2-1804101

R2-1802375 Context and anchor gNB relocation support in NR Release 15 Ericsson discussion Rel-15 NR_newRAT-Core
R2-1801833 RAN-based notification area update procedure CATT discussion R2-1800142
R2-1802310 Anchor gNB relocation in periodic RNAU Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core
R2-1802533 Timer handling of RAN-based location area update LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801357
R2-1802594 RNAU Failure clarification Ericsson discussion Rel-15 NR_newRAT-Core
R2-1802823 RAN Location Area Update Procedure for NR InterDigital discussion Rel-15 NR_newRAT-Core
R2-1802935 Periodic RNAU without anchor gNB relocation Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1803584 Periodic RNAU without anchor gNB relocation Qualcomm Incorporated discussion R2-1800215

10.4.1.7.4 Paging in inactive

RRC procedure to respond to paging, including any differences between RAN and CN paging

R2-1802739 RAN paging DRX in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801384
R2-1802009 Discussion on enhanced paging mechanism for handling RAN-initiated paging failure ASTRI, TCL Communication Ltd. discussion R2-1800666
R2-1802154 Discussion on receiving paging message during state transition procedure ITRI discussion NR_newRAT-Core R2-1801342
R2-1802311 RAN paging in the inactive state Lenovo, Motorola Mobility discussion Rel-15 NR_newRAT-Core
R2-1802534 Paging for a UE in RRC_INACTIVE LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801363
R2-1802933 RAN-initiated paging message Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1800917
R2-1803212 Paging Failure Handling in RRC_INACTIVE CMCC discussion Rel-15 NR_newRAT-Core
R2-1803431 Open issues on paging in RRC_INACTIVE Ericsson Japan discussion
R2-1803638 RAN initiated Paging Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801098

10.4.1.7.5 Inter-RAT mobility between NR Inactive and E-UTRA/5GC Inactive

R2-1802922 Inter-RAT mobility between NR and eLTE for Inactive state LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1713260

Proposal 1: RAN2 should support inter-RAT mobility between NR RRC_INACTIVE and eLTE RRC_INACTIVE
Proposal 2: It should be allowed that a mixture of NR cells and eLTE cells is configured as one RAN notification area.
Proposal 3: If a mixture of NR cells and eLTE cells is configured as one RAN notification area, RAN UE ID (e.g. Resume ID) should be valid across RAT within one RAN notification area.
Proposal 4: Context fetching via Xn interface between NR and eLTE should be supported

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 192

R2-1801872 Inter-RAT mobility in the RRC INACTIVE state Samsung discussion Rel-15 NR_newRAT-Core R2-1800102

- Discussed jointly with the previous paper
- Samsung suggest the first step is to agree the baseline that inter-RAT reselection with TAU should be supported.
- Qualcomm think it seems obvious that it should be support as it is the same RAN, same core, same state, etc
- Huawei think we don't yet have Inactive in LTE, the L2 in LTE is different, the AS context will be different. Not sure it is reasonable to conclude we can do it in R15. Does the network need to keep 2 contexts, it is not clear. OPPO agree with Huawei's comments.
- Intel assume Inactive will be the same in LTE but agree L2 is different and that is what we need to work. We could aim to support it.
- Nokia agree with Huawei comments but wonder if it can be finished in Release 15.

=> RAN2 will not specify inter-RAT mobility between LTE and NR in INACTIVE state in Rel-15. Can be considered for Rel-16 (to be concluded by RAN plenary)

=> RAN2 aim to define INACTIVE in LTE and NR in a way that this can be possible to introduce in future.

Agreement
1: Inter-RAT re-selection from NR INACTIVE to an LTE/5GC cell, UE moves to Idle and informs NAS to trigger NAS recovery.

R2-1802931 Mobility of UE in INACTIVE between NR and E-UTRA connected to 5GC Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1800915

R2-1802042 Consideration on inter-RAT mobility for UE in inactive state ZTE Corporation, Sanechips discussion Rel-15

R2-1802095 INACTIVE mobility between eLTE and NR vivo discussion Rel-15 NR_newRAT-Core

R2-1802347 Mobility between LTE and NR for inactive Ues Ericsson discussion

R2-1802374 TP to 38.331 on RRC states Ericsson discussion Rel-15 NR_newRAT-Core

R2-1802633 Coordination of I-RNTI/Resume ID's across RAT's Ericsson discussion Rel-15 LTE_5GCN_connect-Core

R2-1803262 Inter-RAT mobility for inactive UE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803613 Inter-RAT mobility in RRC INACTIVE state NEC discussion Rel-15 NR_newRAT-Core

10.4.1.7.6 Security framework for inactive

Security framework for inactive UEs to address FFS arising from email discussion 98#30.

R2-1802096 Security aspects in RRC INACTIVE vivo discussion Rel-15 NR_newRAT-Core R2-1800868

Proposal 1 AS Security parameters (e.g., NCC, security algorithm) from anchor gNB are used for integrity protected RRC resume MSG3, and integrity protected as well as encrypted RRC resume MSG4.

Proposal 2 AS Security parameters are included in the RRC release kind of message from anchor gNB which triggers UE to enter INATIVE from CONNECTED.

Proposal 3 The RRC resume procedure is fallback to RRC connection setup in case that encryption algorithm configured by anchor gNB is not supported by the new gNB where UE initiates RRC resuming.

R2-1802536 Consideration on security aspect for inactive UEs LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801361

Proposal 1. NCC value is provided to the UE prior to the RRC Connection Resume procedure.
Proposal 2. RAN2 assumes that the NCC value is updated by the anchor gNB.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 193

Proposal 3. The gNB provides the NCC value during RRC_CONNECTED, and it is used at least for the RRC Connection Resume procedure and the RRC Connection Reestablishment procedure.
Proposal 4. Send an LS to RAN3 and SA3 based on the discussion above.

R2-1802795 Security for Msg4 Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800508

Proposal 1 When the PDCP entity does not need to be relocated, the UE should be able to resume use of radio bearers using the stored radio bearer and PDCP security context at the anchor gNB.
Proposal 2 The cryptographic algorithms to be used may be changed to accommodate the new serving gNB and should be provided to the UE during the transition to RRC_CONNECTED state.
Proposal 3 When new security keys need to be derived, the current value of NCC should be provided to the UE during the transition to RRC_CONNECTED state, not during the transition to RRC_INACTIVE state.
Proposal 4 The current value of NCC and the cryptographic algorithms selected by the new serving gNB should be conveyed to the UE in Msg4 as plaintext outside of the ciphered RRC message. The plaintext can be conveyed as layer 2 information in the MAC PDU that carries the ciphered RRC message.
Proposal 5 If the plaintext information containing NCC and the selected cryptographic algorithm is not included in Msg4, then the UE should continue to use the keys established with the last serving gNB.

R2-1802928 NR security framework for inactive Intel Corporation discussion Rel-15 NR_newRAT-Core
- Discussed jointly with previous papers
- ZTE think that NCC could be in message 4 but message 4 is not encrypted. Ericsson we previously agreed to encrypt Msg 4. Qualcomm wonder if there is really anything to be protected in msg4.
- Samsung think another option is to not provide NCC as all during the suspend or resume procedures and rely on the UE to do horizontal derivation in all cases. But would be provided in HO.
- Vivo clarify that there proposal is that NCC is provided from a previous RRC connection.

Options:
1 NCC provided when the connection is suspended
2 NCC is provided in the MSG4 in an unencrypted part
3 Horizontal derivation is always used for MSG4

=> Offline discussion to try to conclude (Offline discussion #33, Intel)

R2-1804014 Report of Offline discussion #33 Intel discussion Rel-15 NR_newRAT-Core
- Huawei think that different companies have very different understandings and think it would be best to first clarify the different solutions.
- Qualcomm have similar view and think that it is difficult to select a solution.

Show of hands:
1 NCC provided when the connection is suspended [7]
2 NCC is provided in the MSG4 in an unencrypted part [5]
3 Horizontal derivation is always used for MSG4 [3]

Show of hands for which options are not acceptable to companies
1 NCC provided when the connection is suspended [2]
2 NCC is provided in the MSG4 in an unencrypted part [7]
3 Horizontal derivation is always used for MSG4 [2]

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 194

Working assumption:
1 NCC provided when the connection is suspended
2: New key is derived based on the NCC received in the suspend message and used for the calculation of MAC-I in MSG3.

=> Send LS to SA3 in R2-1804060 to describe our WA and to ask relevant questions. Initial version of questions to be discussed offline (Huawei, Offline discussion #48)

R2-1804060 Draft LS on inactive security LS out SA3 Huawei

✉ **[101#15][NR] Inactive security LS (Huawei)**
Intended outcome: Approved LS
Deadline: Thursday 2018-03-08
=> Approved in R2-1804136

R2-1804136 LS on security for inactive state RAN2 LS out Rel-15 NR_newRAT-Core To:SA3
=> Approved

R2-1803265 Security for Msg3 Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Agreements
1 Msg3 is protected and verification is performed by the last serving gNB before UE context is transferred to another network node.
FFS Whether it may also be possible that the target gNB can verify the Msg3 in some cases.
=> Include in previous offline whether Msg 3 is protected with old key or new.
2 Msg3 includes a MAC-I in the RRC message as in LTE
FFS Inputs used for MAC-I calculation in order to possibly address the replay attack concern from SA3.

R2-1801834 Security issues related to RRC resume procedure from inactive state CATT discussion R2-1800144
R2-1802046 Security of REJECT message ZTE Corporation, Sanechips discussion Rel-15
R2-1802047 Ciphering of Msg4 during INACTIVE to CONNECTED mode transition ZTE Corporation, Sanechips discussion Rel-15
R2-1802372 Way forward with Security in RRC Inactive Ericsson discussion Rel-15 NR_newRAT-Core
R2-1802373 Security for RRCResumeRequest message Ericsson discussion Rel-15 NR_newRAT-Core
R2-1802378 Security issues on reject message on SRB0 Ericsson discussion Rel-15 NR_newRAT-Core
R2-1802379 [DRAFT] LS to SA3 on Security issues on reject message on SRB0 Ericsson LS out Rel-15 NR_newRAT-Core To:SA3
R2-1802813 Security Aspects of Connection Control InterDigital discussion Rel-15 NR_newRAT-Core R2-1801108
R2-1803176 Security in inactive state Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1711056
R2-1803263 Security of INACTIVE to CONNECTED state transition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1803264 [DRAFT] LS to SA3 on inactive to connected state transition Huawei LS out Rel-15 NR_newRAT-Core To:SA3
R2-1803266 Discussion on DoS and replay attacks for rejection procedure Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1803430 Common Security framework for Resume and Re-establishment Samsung R&D Institute India discussion
R2-1803587 Security Issues for RRC INACTIVE Qualcomm Incorporated discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 195

R2-1803640 [DRAFT] LS on security framework for resume and re-establishment Samsung R&D Institute India LS out To:SA3

Withdrawn

R2-1802051 Security of REJECT message ZTE Corporation, Sanechips discussion Rel-15 Withdrawn

R2-1802052 Ciphering of Msg4 during INACTIVE to CONNECTED mode transition ZTE Corporation, Sanechips discussion Rel-15 Withdrawn

10.4.1.7.7 Inactive - other

Other inactive state related aspects

Support of Inactive (response to SA2 LS)

R2-1801875 On the optionality of the INACTIVE state Samsung discussion Rel-15 NR_newRAT-Core R2-1800114

=> Respond to SA2 that there is no decision whether RRC_INACTIVE is mandatory or optional. If a capability for INACTIVE is required it will be contained within the UE radio access capabilities.
=> Draft response LS to SA2 in R2-1803978 (Offline discussion #39, Samsung)

R2-1803978 [DRAFT] Response LS on optionality of the UE procedures related to RRC Inactive Samsung LS out Rel-15 NR_newRAT-Core To:SA2 Cc:RAN3, CT1
=> Change first sentence of response to " RAN WG2 would like to indicate that there was no decision whether RRC_INACTIVE is mandatory or optional for NR "
=> Approved in R2-1804067

R2-1802344 UE support for RRC_INACTIVE Ericsson discussion

R2-1802345 Draft LS on inactive state Ericsson LS out To:SA2 Cc:RAN

R2-1802494 Further consideration on INACTIVE feature LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801352

R2-1803175 Consistent support of RRC_INACTIVE for NW and UE Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core R2-1711055

R2-1803586 UE Support of RRC INACTIVE Qualcomm Incorporated discussion

I-RNTI

R2-1803589 RRC_INACTIVE Context ID Qualcomm Incorporated discussion R2-1800214

Agreements
1: Assuming no limitation on MSG3 size based on the feedback from RAN1, I-RNTI size is 52 bits, including node ID and UE identifier.
2: Internal structure is transparent to the UE and internal structure can be discussed by RAN3.

R2-1802481 On the design I-RNTI Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802936 The length of resume id Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1800920

R2-1801869 Further considerations on the I-RNTI radio network identity Samsung discussion Rel-15 NR_newRAT-Core R2-1800113
moved from 10.2.14 to 10.4.1.7.7

R2-1802365 I-RNTI discussion Ericsson discussion Rel-15 NR_newRAT-Core
moved from 10.4.1.3.3 to 10.4.1.7.7

Other

R2-1802376 CN area updating in RRC_INACTIVE Ericsson discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 196

R2-1802930 Resume Failure handling in inactive Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1802497 PLMN selection in RRC_INACTIVE LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801354

R2-1802929 TP on agreed NR inactive aspects Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1800913

R2-1801801 Discussion on cell reselection priority for INACTIVE UE OPPO discussion R2-1800281

R2-1801802 Discussion on Cached Data Handling for INACTIVE UE OPPO discussion R2-1800282

R2-1801877 On the MICO mode and the RRC_INACTIVE state Samsung discussion Rel-15 NR_newRAT-Core R2-1801365

R2-1801887 RA Procedure for RRC Inactive State Samsung Electronics Co., Ltd discussion Rel-15 NR_newRAT-Core R2-1800080

R2-1801979 UL data transmission in inactive Spreadtrum Communications discussion Rel-15

R2-1802038 CN area update in Inactive state ZTE Corporation, Sanechips discussion Rel-15

R2-1802097 Cell Reselection Priorities for INACTIVE UE vivo discussion Rel-15 NR_newRAT-Core

R2-1802098 RRC Connection Release Issues for UE in RRC_INACTIVE vivo discussion Rel-15 NR_newRAT-Core R2-1800877

R2-1802155 Discussion on cell reselection for inactive state ITRI discussion NR_newRAT-Core R2-1801343

R2-1802368 [DRAFT] Reply LS on Periodical RNA update Ericsson LS out Rel-15 NR_newRAT-Core To:RAN3

R2-1802371 [DRAFT] Reply LS on extending TAC for NR and NG-RAN Ericsson LS out Rel-15 NR_newRAT-Core To:RAN3 Cc:SA2, CT1, CT4

R2-1802417 RRC state transition Apple Inc. discussion Rel-15 NR_newRAT-Core

R2-1802488 UE Assistance Information for energy efficiency enhancement Samsung discussion Rel-15 NR_newRAT-Core R2-1801495

R2-1802508 Consideration on MICO mode for RRC_INACTIVE LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801356

R2-1802511 Offloading UEs in RRC_INACTIVE LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801360

R2-1802512 Anchor relocation in RRC_INACTIVE LG Electronics France discussion Rel-15 NR_newRAT-Core R2-1801353

R2-1802737 Handling of radio bearers and security for data transmission in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801381

R2-1802796 RLAU procedure and interaction with TAU Huawei, HiSilicon discussion Rel-15 NR_newRAT R2-1800485

R2-1803017 Synchronization of UE context during RNA update procedure LG Electronics discussion Rel-15 NR_newRAT-Core R2-1801358

R2-1803023 Cell Reselection in RRC Inactive Interdigital Asia LLC discussion Rel-15

R2-1803135 State transition timing from RRC Inactive to Idle Sony discussion Rel-15 NR_newRAT-Core

R2-1803261 Discussion on CN location Update and RNA Update for inactive state Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803267 RRC state transition from INACTIVE to IDLE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803268 The content of AS context for inactive UE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803588 UE AS Context for RRC_INACTIVE Qualcomm Incorporated discussion R2-1800213

10.4.1.8 Access control

No documents should be submitted to 10.4.1.8. Please submit to 10.4.1.8.x.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 197

R2-1801792 Discussion on Access Control for Network Slicing OPPO discussion NR_newRAT-Core R2-1800062

10.4.1.8.1 Access control for Idle/Inactive

Including output of email discussion [NR-AH1801#07][NR/] Reply LS to CT1 on AC (Intel)

R2-1802937 Report of #07 Reply LS to CT1 on AC (Intel) Intel Corporation discussion Rel-15 NR_newRAT-Core

P2

- Nokia think AS will need to set for cause for AS triggered events and this means we will not have a unified framework.
- ZTE thinks what NAS tells AS is not important, what matters is what is seen on the radio. If we put it in NAS then everything is confined in the NAS specs. In LTE CT1 did the work.
- Intel think it is just which group does the work and everything else is implementation.

P3

- T-Mobile think more than 8 causes will be needed. A lot more.
- Vodafone think we need to have sufficient spare values as well.

Agreements for NR and LTE/5GC

1: For both NR/eLTE, the mapping between access categories/access identities and establishment cause value is needed;

2: For NAS triggered events NAS performs the mapping to AS cause value when NAS makes a request to AS for access.

FFS on whether NAS also provides cause value for AS triggered events.

3 For LTE/5GC, no change the LTE cause values for NAS triggered events

FFS whether a new cause is needed for AS triggered events (e.g. RNAU)

4: RAN2 recommendation that access identities 1,2, 11-15 (MPS, MCS and AC11-15) all use establishment cause value highPriorityAccess (Final decision by CT1

5: Confirm CT1 question 2 the call type is not needed for NG-RAN access.

6: Tbarring is per access category.

7: Tbarring is specified in AS layer, and maintained (running) in AS layer.

8: When barring is alleviated (for a specific access category), the indication of alleviation of access barring is indicated to the NAS on a per access category basis.

9: AS need to be known Access Identities for AS triggered events.

10: Bitmap is used for access identities 1,2,11-15 and for emergency calls in 5G as ac-BarringForSpecialAC, and barring factor/timer is used for normal UE (access identity 0 in 5G) as ac-BarringFactor;

13: ACB parameters (barring factor/timer and bitmap as per agreement 10) are set per access category and per PLMN.

FFS on how to reduce the signalling overhead;

14: RAN2 confirms SA1 understanding that there is no requirement to distinguish SMS and SMS over IP in ACB mechanism

15: Slicing can be taken into account in the definition of operator defined access categories (the operator defined access categories are visible to AS but not the relation to a slice).

16 No RAN2 impact is foreseen to support roaming UE except cat a, b and c for access category 1;

17 For connected mode/inactive and IDLE, the AS/NAS modelling for access control for NAS triggered events is:

- NAS is responsible for the determination of access identities and access categories and cause value, and provides one or more access identities and one access category to lower layers for the given access attempt;
- AS is responsible for access barring check and indicate whether the access attempt is barred or not to NAS layer;
- It is NAS layer to perform how to stop/allow service transmission based on ACB checking result from AS layer;

18: Leave it to UE implementation on how the NAS gets cat a, b and c information for access category 1 (no need to specify detailed AS/NAS interaction for this)

19: Confirm to reuse LTE approach, the access attempt is allowed if the UE has passed ACB checking based on ACB parameters for at least one access identity provided by NAS for the given access attempt.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 198

Agreements for NR only
1: At least 8 and preferably 16 (or more) cause value to be included in MSG 3. To be finalised when the we have received input from RAN1 on MSG3 size and have a full picture of the content of MSG3.
2: At least the following LTE establishment cause values are reused for NR: emergency, highPriorityAccess, mt-Access, mo-Signalling, mo-Data, mo-VoiceCall-v1280
FFS Whether the LTE cause delayTolerantAccess-v1020 is also available in NR.
3: AS triggered event, RNA update shall be controlled by ACB
FFS Which access category is used for an RNA update
4: On demand SI request shall not be controlled by ACB.

=> Send LS to RAN1 to ask about the NR MSG3 size. Can start to estimate the content. Draft in R2-1803874 (Offline discussion #05, DOCOMO)

R2-1803874 [DRAFT] LS on Message 3 size and S-TMSI bit length for NR NTT DOCOMO LS out Rel-15 NR_newRAT-Core To:RAN1, SA2
=> Add sentence " Based on the status of RAN2 discussion we expect that NR will require a larger size."
=> Approved in R2-1804073

R2-1802938 [DRAFT] Reply LS on CT1's chosen solution for unified access control Intel Corporation LS out Rel-15 NR_newRAT-Core, 5GS_Ph1-CT To:CT1 Cc:SA1
=> Answers 1 and 6 to be updated to reflect the above agreement.
=> Revision in R2-1803875 (Offline discussion #06, Intel)

R2-1803875 [DRAFT] Reply LS on CT1's chosen solution for unified access control Intel Corporation LS out Rel-15 NR_newRAT-Core, 5GS_Ph1-CT To:CT1 Cc: SA1
=> Add " how AS layer obtains the Access Identities " to the end of the response to Q6.
=> Approved in R2-1803939

✉ **[101#40][NR] Access Control (LG)**
Discuss the structure of the procedure text for Access Control and draft a text proposal based on agreements made so far. Identify FFS points to be resolved (addressing FFS points to be based on contribution at the next meeting)
Identify what information is required to be included in the ASN.1 and draft a baseline ASN.1 structure that can be used as a baseline for discussion of signalling optimisations at the next meeting.
Intended outcome: Draft TP submitted to next meeting
Deadline: Thursday 2018-03-29

R2-1802031 Consideration on the barring parameters ZTE Corporation, Sanechips discussion Rel-15
R2-1802351 RRC-initiated access attempts in RRC_IDLE and RRC_INACTIVE Ericsson discussion
R2-1802099 Discussion on the access control of SI request vivo discussion Rel-15 NR_newRAT-Core R2-1800879
R2-1802350 AS-NAS functional division for Unified Access Control Ericsson discussion
R2-1802353 Signaling of access control parameters Ericsson discussion
R2-1802354 Establishment causes for NR Ericsson discussion
R2-1802356 RRC Procedure for Access Barring Check Ericsson discussion
R2-1802425 NR Access Control in RRC_Idle and RRC_Inactive Samsung discussion NR_newRAT-Core
R2-1802443 Discussion on Access Control for On-Demand SI OPPO discussion NR_newRAT-Core
R2-1802741 AS level access category for UE in RRC_INACTIVE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core
R2-1802743 Support of Establishment Cause for NR LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 199

R2-1802939 5G access control mechanism in IDLE and INACTIVE Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803020 Consideration on Access Control in NR KT Corp. discussion R2-1800608

R2-1803137 NR Access Control for cell reselection Sony discussion Rel-15 NR_newRAT-Core

R2-1803319 [DRAFT] LS on access attempts in RRC_INACTIVE subject to unified access control Ericsson LS out To:CT1

R2-1803444 [DRAFT] Reply LS on requirements on unified access control for 5GS Ericsson LS out To:CT1 Cc:SA1, SA2

R2-1803542 Access Control in RRC_INACTIVE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801173

R2-1803543 Access Control for OSI request Huawei Technologies France discussion Rel-15

R2-1803544 Access control signaling design Huawei Technologies France discussion Rel-15 R2-1801175

R2-1803545 Basic Access Control in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1713558

R2-1803546 Access Control for MT Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1713565

R2-1803558 Unified Access Control for Idle/Inactive Qualcomm Incorporated discussion

Late

R2-1803465 Access Barring Control for RRC_INACTIVE Nokia, Nokia Shaghai Bell discussion NR_newRAT-Core Late

R2-1803466 NAS/AS modelling for Access Control Nokia, Nokia Shaghai Bell discussion NR_newRAT-Core Late

Withdrawn

R2-1801982 Barring information encoding for 5G unified access control Spreadtrum Communications discussion Rel-15 R2-1800273 Withdrawn

R2-1802030 Establishment cause issue ZTE Corporation, Sanechips discussion Rel-15 Withdrawn

10.4.1.8.2 Access control for connected

R2-1802736 Impact on RRC for access control in RRC_CONNECTED LG Electronics Inc. discussion Rel-15 NR_newRAT-Core

R2-1803547 Access Control in NR for RRC_CONNECTED Huawei Technologies France discussion Rel-15 NR_newRAT-Core R2-1713562

R2-1801936 QoS Flow based Access Control for CONNECTED Mode in NR TCL discussion NR_newRAT-Core R2-1800092

R2-1802032 UAC in RRC_CONNECTED ZTE Corporation, Sanechips discussion Rel-15

R2-1802352 Access Control in RRC_CONNECTED Ericsson discussion

R2-1802427 NR Access Control in RRC_Connected Samsung discussion NR_newRAT-Core

R2-1802940 5G access control mechanism in CONNECTED Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803554 Unified Access Control for RRC Connected mode " Qualcomm Incorporated" discussion

R2-1803582 Access Control for RRC_CONNECTED CMCC discussion Rel-15 NR_newRAT-Core R2-1800790

10.4.1.9 Inter-Node RRC messages

No documents should be submitted to 10.4.1.9. Please submit to 10.4.1.9.x.

10.4.1.9.1 Inter-Node RRC messages for non EN-DC

Start to progress structure and content of the Inter-Node RRC messages used for non EN-DC procedures.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 200

R2-1802687 Open issues on inter-node signalling for handover Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803248 Inter-Node RRC messages for non EN-DC Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

Late

R2-1803105 Some remaining issues concerning RRC Inter-node messages Samsung Telecommunications discussion Late

10.4.1.10 Other (non EN-DC)

Other RRC related aspects

R2-1802525 CR on 36.331 for UP IP check failure handling in SCG Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 NR_newRAT-Core

R2-1802526 CR on 38.331 for UP IP check failure handling in SCG Huawei, HiSilicon draftCR Rel-15 38.331 15.0.0 NR_newRAT-Core

R2-1802682 MCG RLF handling in case of NR-NR DC Ericsson discussion Rel-15 NR_newRAT-Core R2-1801075

R2-1802683 RRC design principles for NR-NR DC Ericsson discussion Rel-15 NR_newRAT-Core R2-1801076

10.4.2 LTE RRC changes related to NR

No documents should be submitted to 10.4.2. Please submit to 10.4.2.x.

10.4.2.1 Running CR

36.331 rapporteur inputs including FFS list, running CR to add non-EN-DC aspects, etc. Please submit corrections to the appropriate agenda item.

R2-1803099 Introducing support for NR, changes only relevant for SA Samsung CR Rel-15 36.331 15.0.1 3186 2 B NR_newRAT-Core R2-1800851

10.4.2.2 Corrections to RRM measurements for EN-DC

Corrections to 36.331 related to RRM procedures for EN-DC and not covered within the ASN.1 review.

R2-1802410 Reporting of NR cells in LTE Measurement Report MediaTek Inc. discussion Rel-15 NR_newRAT-Core

=> Offline whether the LTE configured Inter-RAT NR measurements are considered as 'available' measurements for reporting of NR serving cells and best neighbour cells, and for reporting within NR.

Agreements
1 For the beam level results of NR serving cells and best neighbour cells in LTE measurement report event A3-A5, introduce a new IE in LTE RRC to control the maximum number of reported beams.
2 For the beam level results of NR serving cells and best neighbour cells in LTE measurement report event B1/B2, use the existing IE in LTE RRC to control the maximum number of reported beams.
3 If the beam level result is included in a NR serving cell or its best neighbour cell, UE sorts the beams level result based on the principle in R2-1801646.

R2-1804008 [Offline Discussion] Reporting of NR cells in LTE Measurement Report MediaTek Inc. discussion Rel-15 NR_newRAT-Core

Agreements
1: LTE configured Inter-RAT NR measurements are not considered as 'available' measurements for reporting of NR serving cells and best neighbour cells in LTE event A3-A5 and B1/B2.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 201

R2-1803102 Remaining issues on including results of NR serving frequencies in LTE MR Samsung Telecommunications discussion
=> Offline discussion to conclude proposals 4 and 5 (Offline discussion #26, Samsung)
Update from offline: There was agreement to add the octet string around candidateCellInfoSN, but whether the same information should be carried in the 2 cases could not be concluded. Second part will be discussed as part of the ASN.1 email discussion.

Agreements
1 Within CG-ConfigInfo specified in 38.331, use a container (octet string) for candidateCellInfoSN to facilitate transparent forwarding of results

R2-1802520 Discussion on SSTD measurement configuration for non-configured cell Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
=> Deferred to be discussed as part of ASN.1 review agenda

R2-1803438 SMTC and measurement gap timing for EN-DC Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core
=> Covered by previous discussions

For post March freeze

R2-1803333 Configuration of CGI reporting Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803334 Content of CGI reporting Ericsson discussion Rel-15 NR_newRAT-Core

R2-1803253 NR measurement exception for s-Measure in LTE Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
Moved from 10.2.9 to 10.4.2.2

R2-1803254 NR measurement exception for s-Measure in LTE Huawei, HiSilicon draftCR Rel-15 38.331 15.0.0 NR_newRAT-Core
Moved from 10.2.9 to 10.4.2.2

10.4.2.3 Corrections to other EN-DC aspects

Corrections to 36.331 related to EN-DC procedures other than RRM and not covered within the ASN.1 review.

R2-1803281 NR PDCP configuration in handover to EUTRA HTC Corporation discussion
=> Can be revisited when we discuss HO from NR to EUTRA for the June spec.

R2-1803630 Leaving RRC_CONNECTED HTC Corporation discussion
=> Noted

R2-1803664 Considerations on GSMA NR indication requirements Qualcomm Incorporated, KDDI discussion Rel-15 NR_newRAT-Core
=> Chairman will flag in report to ask for some genral guidance about whether we need to design in order to address these requirements from an external entity.

R2-1803949 Reply LS to LS Reply to 3GPP SA2 on Status Icon related to 5G Vodafone LS out To: GSMA
=> LS will not be sent.

IDC

R2-1802609 IDC indication for EN-DC Qualcomm Incorporated discussion Rel-15 NR_newRAT R2-1800908

R2-1802100 Challenges for in-device coexistence in NR vivo, Potevio, CATR, Xiaomi, Spreadtrum Communications, China Telecom, TCL discussion Rel-15 NR_newRAT-Core R2-1800857

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 202

R2-1802101 Discussion on the IDC report of NR frequency in EN-DC vivo discussion Rel-15 NR_newRAT-Core

R2-1803128 Temporary capability signaling for LTE-NR co-existence Sony discussion Rel-15 NR_newRAT-Core R2-1800982

Overheating

R2-1802414 UE overheating for EN-DC Apple Inc. discussion Rel-15 NR_newRAT-Core
- Vodafone think it is already applicable without any additional indication. There is LTE signalling and it can be used and the network can choose to deconfigure EN-DC
- LG think some of the assistance info is only applicable to UE Cat. But need to clarify of the number of CC applies to both NR and LTE carriers or only LTE. Then we would need to clarify the network behaviour. Nokia have the same understanding that we just need to clarify the number of carriers.
- MediaTek prefer to consider the temporary capability restriction.
- DOCOMO think there may be other factors that cause NR UEs to overheat. DT agree with DOCOMO.

=> Noted

R2-1802415 UE overheating for EN-DC Apple Inc. draftCR Rel-15 36.331 15.0.1 NR_newRAT-Core

R2-1802984 Support of overheating indication for EN-DC Intel Corporation discussion Rel-15 NR_newRAT-Core
moved from 10.4.4.2 to 10.4.2.3
=> Noted

Interworking with NR SA

R2-1802509 Text proposal to 36.331 on NR specific SIB Ericsson discussion

Late

R2-1803494 Remaining issues in Resume and Reestablishment in EN-DC (TP to 36.331) Ericsson Inc. discussion Rel-15 NR_newRAT-Core Late

10.4.3 EN-DC ASN.1 review

No documents should be submitted to 10.4.3. Please submit to 10.4.3.x

10.4.3.1 Rapporteur inputs

ASN.1 Review Issue Lists and ASN.1 review CRs for 38.331 and 36.331, plus any other rapporteur inputs related to ASN.1 review. No company contributions inot this agenda item.

Including output of email discussion [NR-AH1801#18][NR] 36.331 ASN.1 review (Samsung)

Including output of email discussions [NR-AH1801#19-24][NR] 38.331 ASN.1 review parts 1-6

R2-1803550 38331 RIL after RAN2 AH 1801 Ericsson discussion Rel-15 NR_newRAT-Core
- Issues not solved after the ad hoc are marked red

=> Noted

R2-1803551 38331 RIL after ASN.1 Review Phase 2 Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1803552 Draft CR to 38331 after RAN2 AH 1801 Ericsson discussion Rel-15 NR_newRAT-Core
- Input to phase 2 of the ASN.1 review

=> Noted

ASN.1 review part 1

R2-1803771 NR-AH1801#19: Corrections on L1 Parameters (except CSI-RS) for EN-DC Ericsson draftCR Rel-15 38.331 15.0.0 NR_newRAT-Core F

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 203

=> Revised in R2-1804020

R2-1804020 Corrections on L1 Parameters (except CSI-RS) for EN-DC Ericsson draftCR Rel-15 38.331 15.0.0 F NR_newRAT-Core
=> Revised in R2-1804125

R2-1804125 Corrections on L1 Parameters (except CSI-RS) for EN-DC Ericsson draftCR Rel-15 38.331 15.0.0 F NR_newRAT-Core
=> Endorsed, to be added to R2-1803828.

R2-1804021 Report of ASN.1 breakout session for Area 1 Ericsson report Rel-15 NR_newRAT-Core
=> Agreement made during the discussion on empty sequence within a list regarding R2-1803756 is not agreed.

ASN.1 review part 2

R2-1803754 Summary of email discussion #20 for 38.331 ASN.1 review part 2 (L1 parameters for CSI-RS) Huawei discussion Rel-15 NR_newRAT-Core
- Huawei explain the summary contains a list of questions that need clarification from RAN2.
=> The list of questions will be used as a basis for discussion with RAN1.
=> Discuss with RAN1 the reason for the resources, resource sets and resource settings?
=> Discuss with RAN1 why the linking between reports and resources is done in 2 separate lists of linking (measID and aperiodic trigger state)
=> Based on information from RAN1 then possible restructuring can be discussed.

R2-1803933 related to email discussion #20 for 38.331 ASN.1 review part 2 (L1 parameters for CSI-RS Huawei discussion Rel-15 NR_newRAT-Core
=> Revised in R2-1804126

R2-1804126 Corrections on EN-DC - CSI L1 parameters Huawei draftCR Rel-15 38.331 15.0.0 F NR_newRAT-Core
=> Endorsed, to be added to R2-1803828.

ASN.1 review part 3

R2-1803479 Outcome of email discussion [NR-AH1801#21][NR] 38.331 ASN.1 review part 3 - L2 params (Huawei) Huawei discussion Rel-15 Late
=> Revised in R2-1803762

R2-1803762 Outcome of email discussion [NR-AH1801#21][NR] 38.331 ASN.1 review part 3 - L2 params (Huawei) Huawei discussion Rel-15
=> Revised in R2-1803881

R2-1803881 Outcome of email discussion [NR-AH1801#21][NR] 38.331 ASN.1 review part 3 - L2 params (Huawei) Huawei discussion Rel-15
=> Revised to R2-1803955

R2-1803955 Outcome of email discussion [NR-AH1801#21][NR] 38.331 ASN.1 review part 3 - L2 params (Huawei) Huawei discussion Rel-15

Agreements:
H294 - Reuse the DMRS-ULConfig and a condition added to capture the one parameter that is not included for the configured grant case.
Exxx- Add a message constraint for RepK-RV

=> Revised in R2-1804016

R2-1804016 Outcome of email discussion [NR-AH1801#21][NR] 38.331 ASN.1 review part 3 - L2 params (Huawei) Huawei discussion Rel-15
=> Revised in R2-1804127

R2-1804127 TP from email discussion [101#03][NR] 38.331 CR part 3 (Huawei) Huawei draftCR Rel-15 38.331 15.0.0 F NR_newRAT-Core
=> Endorsed, to be added to R2-1803828.

ASN.1 review part 4

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 204

R2-1803755 Summary of email discussion #22 for 38.331 ASN.1 review part 4 (RRM) Huawei discussion Rel-15 NR_newRAT-Core

R2-1803934 TP related to email discussion #22 for 38.331 ASN.1 review part 4 (RRM) Huawei discussion Rel-15 NR_newRAT-Core
=> Revised in R2-1804128

R2-1804128 Corrections on EN-DC Ericsson draftCR Rel-15 38.331 15.0.0 F NR_newRAT-Core
=> Endorsed, to be added to R2-1803828.

ASN.1 review part 5

R2-1803533 Summary of email discussion #23 for 38.331 ASN.1 review part 5 Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1803773 TP related to email discussion #23 for 38.331 ASN.1 review part 5 Ericsson discussion
=> Revised in R2-1804129

R2-1804129 TP related to ASN.1 review Area 5 update after RAN2#101 Ericsson draftCR Rel-15 38.331 15.0.0 F NR_newRAT-Core
=> Endorsed, to be added to R2-1803828.

ASN.1 review part 6

R2-1802765 Outcome of email discussion [NR-AH1801#24][NR] 38.331 ASN.1 review part 6 - Inter-node message (Nokia) Nokia, Nokia Shanghai Bell discussion Rel-15 38.331 NR_newRAT-Core Late
=> Revised in R2-1803957

R2-1803957 Outcome of email discussion [NR-AH1801#24][NR] 38.331 ASN.1 review part 6 - Inter-node message (Nokia) Nokia, Nokia Shanghai Bell discussion Rel-15 38.331 NR_newRAT-Core

R2-1803960 TP related to email discussion [NR-AH1801#24][NR] 38.331 ASN.1 review part 6 - Inter-node message Nokia, Nokia Shanghai Bell discussion Rel-15 NR_NewRAT-Core

36.331

R2-1803094 Review issue list for TS 36.331 EN-DC ASN.1 freeze Rapporteur (Samsung) report R2-1800846 Late

R2-1803095 Miscellaneous corrections from review in preparation for ASN.1 freeze Rapporteur (Samsung) CR Rel-15 36.331 15.0.1 3208 1 F NR_newRAT-Core R2-1800847 Late

Comeback from ASN.1 review session part 1

R2-1803965 [DRAFT] Reply LS on Frequency Band list Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:RAN1, RAN3, RAN4
=> Approved in R2-1804075

R2-1804017 [DRAFT] LS to RAN1 on Beam- and Cell- Radio-Link-Monitoring Nokia LS out Rel-15 NR_newRAT-Core To:RAN1
=> Approved in R2-1804066

Comeback from ASN.1 review session part 6

R2-1804015 Drafted LS to reply RAN3 on required information for NSA on X2 Nokia LS out To:RAN3 Cc:RAN1, RAN4
=> Approved in R2-1804074

R2-1804042 LS on SN triggered fullConfig indication in X2 for EN-DC Nokia

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 205

=> Contact info to be added
=> Approved in R2-1804100

R2-1804043 Notes from the session for email discussion [NR-AH1801#24][NR] 38.331 ASN.1 review part 6 - Inter-node message Nokia

Proposal 1: Decision on whether to use F1AP impact to RRC (R2-1803435) is needed in the main session since it affects ASN.1 freezing.

Agreements
1: Create NR UECapabilityInformation – message in NR RRC for conveying NR and MR-DC capabilities.
2: For SCG case, CellGroupConfig is contained in an octet string within RRC reconfiguration

R2-1804044 TP related to email discussion [NR-AH1801#24][NR] 38.331 ASN.1 review part 6 - Inter-node message Nokia, Nokia Shanghai Bell discussion Rel-15 NR_NewRAT-Core
=> Revised in R2-1804130

R2-1804130 TP from email discussion of email discussion [101#06][NR] 38.331 CR part 6 (Nokia) (Inter-node messages for NR RRC) Nokia draftCR Rel-15 38.331 15.0.0 F NR_NewRAT-Core
=> Endorsed, to be added to R2-1803828.

Comeback from ASN.1 review session part 8 (36.331)

- Update of R2-1802783 in

R2-1804070 on NR serving cell reporting over LTE Ax events in EN-DC Ericsson discussion Rel-15 NR_newRAT-Core Late
=> Latest input from RAN4 needs to be taken into account
=> UE capabilities previously agreed in RAN#100 also need to included (36.331 and 36.306)
=> TP agreed.

- Associated LS to RAN4 is in

R2-1804053 “draft LS ON SFTD measurements” RAN4

✉ **[101#16][NR] LS to RAN4 on SFTD (Ericsson)**
Intended outcome: Approved LS
Deadline: Thursday 2018-03-08
=> Final version submitted by Ericsson in R2-1804117.
=> Revised by MCC in R2-1804119
- Removed "draft" from the title
=> Approved

Comeback from ASN.1 review session part 4

R2-1804059 LS to RAN1 on frequency signalling Huawei
=> Update bullet 1 to say "NR-ARFCN is used instead of GSCN to indicate SSB location both in serving cell configuration and MO. We used NR-ARFCN to allow to indicate the SSB location for the cases that it is allowed for SSB to not be located on the GSCN raster."
=> Remove bullet 2
=> Update field description according to agreement within the part 4 email discussion
=> Approved in R2-1804103 (this be made available after email discussion part 4 completes)

Comeback from ASN.1 review session part 5

R2-1804035 Draft LS on UL timing difference in EN-DC Qualcomm
=> Approved in R2-1804102

R2-1804036 Offline discussion on Multiplicity definitions in 38331 (E359)
=> maxNrofCSI-RS-ResourcesToAverage = 16
=> maxLC-ID to be updated based on the number of DRBs

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 206

=> Other values in the documents are agreed

R2-1804057 Definitions for PSCell/Pcell/SpCell (38331 RIL F008)
=> Agreed

R2-1804055 Notes from session for disc #23 for 38.331 ASN.1 review part 5 Ericsson
Additional comebacks (without documents):
- o Further discussion to check that is there is need to have PSCell release in general (offline Samsung)
- Samsung reported that companies think that PSCell release is not needed. Based on that, we can agree that System Info for PSCell can be updated with Reconfiguration with Sync.

=> System Info for PSCell is updated with Reconfiguration with Sync

R2-1804069 Remaining issues in Resume and Reestablishment in EN-DC (TP to 36.331) Ericsson, Intel

Agreements
1: UE keeps using the same PDCP version for SRB2 and DRBs upon re-establishment or resume (overrides agreement taken earlier in the week)

=> TP is agreed

Email discussions for completion of ASN.1 review CR

✉ **[101#01][NR] 38.331 CR part 1 (Ericsson)**
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
=> Endorsed in R2-1804125

✉ **[101#02][NR] 38.331 CR part 2 (Huawei)**
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
=> Endorsed in R2-1804126

✉ **[101#03][NR] 38.331 CR part 3 (Huawei)**
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
=> Endorsed in R2-1804127

✉ **[101#04][NR] 38.331 CR part 4 (Huawei)**
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
=> Endorsed in R2-1804128

✉ **[101#05][NR] 38.331 CR part 5 (Ericsson)**
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
=> Endorsed in R2-1804129

✉ **[101#06][NR] 38.331 CR part 6 (Nokia)**
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
=> Endorsed in R2-1804130

✉ **[101#07][NR] 38.331 combined CR (Ericsson)**
Single 38.331 CR to be created from the output of the individual email discussions.
Only issues arising from the combining of the separate parts are to be discussed - any issues regarding the content of an individual part must me raised in the appropriate email discussion.
Note if the CR is agreed too late to be submitted to RAN as a RAN2 agreed CR it will be submitted by the rapporteur company.
Intended outcome: Agreed CR

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 207

Deadline: Thursday 2018-03-15
=> Agreed in R2-1803828

✉ **[101#08][NR] 36.331 CR (Samsung)**
Intended outcome: Agreed CR.
Deadline: Tuesday 2018-03-13
=> Agreed in R2-1803829

Comeback to confirm the scope of the email discussion for part 7

✉ **[101#09][NR] 38.331 CR part 7a and 38.306 (Intel)**
Update the output of part 7 of the ASN.1 review with other agreements from the meeting (AI 10.4.4)
Intended outcome: Agreed CR part.
Deadline: Thursday 2018-03-08
=> Endorsed in R2-1804115 (36.306) and R2-1804116 (36.331).

✉ **[101#10][NR] 38.331 CR part 7b and 38.306 (DOCOMO)**
Update the draft CR to reflect new agreements from RAN1/4. Include those capabilities that we know how to include and where to include.
And merge the output for part 7a discussion.
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
=> - Agreed in R2-1804120 (38.306), Endorsed in R2-1804121 (38.331)

=> RAN2 chair will report to RAN that the ASN.1 is ready to freeze

10.4.3.2 ASN.1 issue documents

Discussion documents related to issues identified in the ASN.1 review. Issue number from the issue list is to be included in the title of all discussion documents

Area 3: L2/3 parameters

R2-1803106 Cconfiguration of allowedServingCells (38331 RIL issue Z200) ZTE, Sanechips discussion Rel-15 NR_newRAT-Core Late
=> Change is not needed

R2-1802644 Default NR PDCP config for SRBs (TP to 38.331) Ericsson discussion Rel-15 NR_newRAT-Core Late

Agreements
1 Default value when t-reordering is not included is infinity (specified as a UE action when the field is absent in the field description). The default configurations for the SRBs use this value.

R2-1802852 Remaining issues on ASN.1 of MoreThanOneRLC Huawei, HiSilicon discussion Rel-15 Late

Agreements
1: “SetupRelease” for ul-DataSplitThreshold is removed.

R2-1803896 [D710] RLC parameter NTT DOCOMO, INC. discussion

Agreement
1 Add a condition that SN length is reconfigured only with RLC-reestablishment.

Area 5:

R2-1803897 [D700] PUCCH SRS release NTT DOCOMO, INC. discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 208

=> Text to be updated to reflect that the parameters should be releases for all the BWPs of the serving cell.
=> Field names need to be updated
=> To be added to CR from ASN.1 review area 5.

Remaing documents handled as part of ASN.1 review session.

R2-1802015 Discussion on the configuration of frequency reference in MO ZTE Corporation, Sanechips discussion Rel-15 Late

R2-1802016 Discussion on the configuration of timing reference in MO ZTE Corporation, Sanechips discussion Rel-15 Late

R2-1802017 Discussion on the configuration of initial BWP/first BWP on Scell ZTE Corporation, Sanechips discussion Rel-15 Late

R2-1802327 Signaling of random access parameters [M063] Ericsson discussion Withdrawn

R2-1802419 Correction on SSTD in EN-DC (36.331 RIL M011) MediaTek Inc. and Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802420 CR for SSTD Correction on EN-DC (36.331 RIL M011) MediaTek Inc. and Huawei, HiSilicon draftCR Rel-15 36.331 15.0.1 F NR_newRAT-Core

R2-1802430 Measurement gap configuration in EN-DC (38.331 RIL I031) MediaTek Inc. discussion Rel-15 NR_newRAT-Core Late

R2-1802432 CR for measurement gap configuration in EN-DC (38.331 RIL I031) MediaTek Inc. draftCR Rel-15 38.331 15.0.0 F NR_newRAT-Core Late

R2-1802458 [S035] Discussion on simplification of CSI-MeasConfig Samsung Electronics discussion

R2-1802484 Draft CR for RLM configuration addition in 38.331 Samsung discussion Rel-15 NR_newRAT-Core Late

R2-1802485 [RIL S034] RLM signalling for BWP Samsung discussion Rel-15 NR_newRAT-Core

R2-1802507 Correction on MN terminated SCG RLC bearer (L010) LG Electronics France discussion NR_newRAT-Core

R2-1802621 Frequency Info in MO and SCG Failure Report CATT discussion Late

R2-1802648 Procedures for measurement gap configuration (TP to 38.331) Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802764 Discussion on suspend/resume with EN-DC Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core Late

R2-1802777 Time window configuration procedure in LTE for NR measurements Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802778 RRC configuration and re-configuration of RLM parameters Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802779 On RLM and beam failure monitoring resources Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802780 BWP impact to RLM configuration Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802781 Resolving ambiguous UE behaviour related to Event A4 Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802782 NR serving cell reporting over LTE Bx events in EN-DC Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802783 NR serving cell reporting over LTE Ax events in EN-DC Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802784 On the configurability of NR serving cell reporting Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1802829 Discussion and Text proposal on 38.331 for UE capability supporting power control Huawei, HiSilicon discussion Rel-15 Late

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 209

R2-1802833 PDSCH and PUSCH UE-specific parameters Huawei, HiSilicon discussion Rel-15 Late

R2-1802941 Open issues on EN-DC capabilities on LTE side (I044, I089) Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1802943 Usage of spare value (Z067, H014, etc) Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803022 Clarification for initial BWP ID configuration for DCI indication Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core
=> Revised in R2-1803768

R2-1803768 Clarification for initial BWP ID configuration for DCI indication (RIL Q319 Q320) Qualcomm Incorporated discussion Rel-15 NR_newRAT-Core

R2-1803025 CR for timing advance of measurement gap in TR38.331 Qualcomm Incorporated CR Rel-15 38.331 15.0.0 0007 - B NR_newRAT-Core Late

R2-1803057 Discussion for RAN3 LS about Cell Level SMTC-Config container Nokia, Nokia Shanghai Bell discussion Rel-15

R2-1803058 Drafted LS to reply RAN3 on required information for NSA on X2 Nokia LS out To:RAN3 Cc:RAN1, RAN4
=> Revised in R2-1804015

R2-1804015 Drafted LS to reply RAN3 on required information for NSA on X2 Nokia LS out To:RAN3 Cc:RAN1, RAN4

R2-1803115 Consideration on the signalling structure for RA ZTE Corporation, Sanechips discussion Rel-15 Late

R2-1803270 Clarification on full configuration for SRB HTC Corporation discussion

R2-1803272 On the configuration of BFR detection and RLM RSes Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core Late

R2-1803273 Dedicated RACH configuration for HO and BFR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core Late

R2-1803322 s-Measure configuration and UE behavior Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1803325 TP for SFTD measurements for 36331 for non-serving cells Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1803326 SFTD measurement for non-serving cell when PSCell is configured Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1803327 A3 and A6 offset values in ReportConfigNR Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1803328 [DRAFT] LS to RAN4 on A3 and A6 offsets in NR Ericsson LS out Rel-15 NR_newRAT-Core To:RAN4 Late

R2-1803340 TP on RLM and beam failure monitoring corrections Ericsson discussion Rel-15 NR_newRAT-Core Late

R2-1803341 [DRAFT] LS to RAN1 on RLM and beam failure monitoring corrections Ericsson LS out Rel-15 NR_newRAT-Core To:RAN1 Late

R2-1803380 Discussion and Text proposal on the power information exchange between MN and SN (ASN.1 H317) Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late

R2-1803381 Discussion and Text proposal on the ARFCN in NR(ASN.1 H297) Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late

R2-1803382 draft reply LS on channel raster and SS raster Huawei, HiSilicon LS out Rel-15 NR_newRAT-Core To:RAN1, RAN3, RAN4 Late

R2-1803383 Remaining issues on the ASN.1 for beam failure recovery (ASN.1 H318) Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late

R2-1803407 SUL parameters in PDCCH-Config (ASN.1 H300) Huawei, HiSilicon discussion Rel-15 Late

R2-1803435 F1AP impacts on RRC Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core Late

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 210

R2-1803436 Remaining issues in PDCP-Config Huawei, HiSilicon discussion Rel-15 Withdrawn
R2-1803449 Identification of measurement object corresponding to the serving carrier Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803450 Time window configuration procedure in NR Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803480 SSB in measObject being mandatory Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803481 Serving frequency usage in 5.5 Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803482 TP on s-measure to 38.331 Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803483 TP on s-Measure to 36.331 Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803484 RRM correction to 36.331 (alignment with 38.331) Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803485 Ambiguities in event definition Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803486 Further considerations regarding some radio bearer reconfiguration issues Samsung Telecommunications discussion Late
R2-1803531 Definitions for PSCell/Pcell/SpCell Ericsson discussion Rel-15 NR_newRAT-Core Late
R2-1803625 [D308] Necessity of initial DL/UL BWP in ServingCellConfig NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core Late
R2-1803626 [D309/310/311] Sub-carrier spacing for Msg.1/2/3 NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core Late
R2-1803627 [D312] RACH resources for contention-free RA NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core Late
=> Revised in R2-1803777
R2-1803777 [D312/322] RACH resources for contention-free RA including BFR NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core
R2-1803675 Signaling of random access parameters [M063] Ericsson discussion
R2-1803705 Overview of the CSI configuration framework Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late
R2-1803706 Pool of resources for CSI-MeasConfig Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late
R2-1803707 Aperiodic triggers for CSI reporting Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late
R2-1803708 Semi-persistent CSI reporting Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late
R2-1803709 Configuration of NZP-CSI-RS-Resource and ZP-CSI-RS-Resource Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late
R2-1803710 SS/PBCH resources for CSI reporting Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core Late
R2-1803718 _Text proposal for TrackingAreaCode vivo discussion Rel-15
R2-1803722 [D313] Necessity of LTE CRS rate matching for Other SI NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core Late
R2-1803745 [D323/324] Contention-based RA resource for Beam Failure Recovery NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core
R2-1803746 [D325] Sub-carrier spacing for serving cell/carrier and BWP NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core
R2-1803753 Clarification on L1 parameters for beam failure recovery (RILNo F311) Fujitsu discussion Rel-15 NR_newRAT-Core
R2-1803766 Extension of DL RRC messages Ericsson discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 211

R2-1803895 [Id001][D720] Infinity value for PBR NTT DOCOMO, INC. discussion
R2-1803896 [D710] RLC parameter NTT DOCOMO, INC. discussion

Withdrawn

R2-1802412 38.331 RIL MXXX MediaTek Inc. discussion Rel-15 NR_newRAT-Core Late
R2-1802552 36.331 RIL M015 MediaTek Inc. discussion Rel-15 NR_newRAT-Core Late
R2-1803027 CR for timing advance of measurement gap in TR36.331 Qualcomm Incorporated CR Rel-15 36.331 15.0.1 3259 - B NR_newRAT-Core Late
R2-1803765 Extension of DL RRC messages Ericsson discussion Rel-15 NR_newRAT-Core

10.4.4 UE capabilities

No documents should be submitted to 10.4.4. Please submit to 10.4.4.x.

10.4.4.1 TS

38.306 rapporteur inputs including FFS list, etc. Please submit corrections to the appropriate agenda item.

38.306

R2-1802970 Updates of UE capabilities (38.306) Intel Corporation CR Rel-15 38.306 15.0.0 0003 - F NR_newRAT-Core Late
=> Endorsed as reflecting the current status
=> Revised to reflect further agreements from the discussion this week. R2-1803942 (Offline discussion #27)
=> Rapporteur task to check if there are outstanding issues from the original RIL seen as the NR AH.

R2-1803942 Updates of UE capabilities (38.306) Intel Corporation CR Rel-15 38.306 15.0.0 0003 1 F NR_newRAT-Core
=> Endorsed as baseline to be finalised in the ASN.1 review email discussion.
=> Endorsed in R2-1804115 (to be added to R2-1804120).

R2-1804120 Updates of UE capabilities Intel Corporation, NTT DOCOMO, INC. CR Rel-15 38.306 15.0.0 0003 3 F NR_newRAT-Core
=> Agreed

R2-1802971 Updated open issue list Intel Corporation discussion Rel-15 NR_newRAT-Core
=> Noted

ASN.1 review part 7

R2-1802969 Updates of UE capabilities (38.331) Intel Corporation CR Rel-15 38.331 15.0.0 0005 - F NR_newRAT-Core Late
=> Identified issues will be discussed in the ASN.1 review parallel session (Wed).
=> Revised in R2-1803959

R2-1803959 Updates of UE capabilities (38.331) Intel Corporation CR Rel-15 38.331 15.0.0 0005 1 F NR_newRAT-Core
=> Revised in R2-1803992

R2-1803992 Updates of UE capabilities (38.331) Intel Corporation CR Rel-15 38.331 15.0.0 0005 2 F NR_newRAT-Core
= Revised in R2-1804026

R2-1804026 Updates of UE capabilities (38.331) Intel Corporation CR Rel-15 38.331 15.0.0 0005 3 F NR_newRAT-Core
= >Revised in R2-1804072

R2-1804072 Updates of UE capabilities (38.331) Intel Corporation CR Rel-15 38.331 15.0.0 0005 4 F NR_newRAT-Core
- Output from ASN.1 review part 7
=> Endorsed as baseline. Agreements from the other ASN.1 review sessions may still need to be captured. To be finalised in the ASN.1 review email discussion.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 212

=> Endorsed in R2-1804116

R2-1804121 Updates of UE capabilities (38.331) Intel Corporation CR Rel-15 38.331 15.0.0 0005 6 F NR_newRAT-Core
=> Endorsed

R2-1804034 Summary of ASN.1 review session on part 7 (UE capability)
=> Includes some agreements that need to be captured in 36.331 and 36.306

36.306 CR

R2-1802942 Introduction of EN-DC capabilities Intel Corporation CR Rel-15 36.306 14.5.0 1559 - B NR_newRAT-Core
=> Revised to reflect further agreements from the discussion this week. R2-1803943 (Offline discussion #28)

R2-1803943 Introduction of EN-DC capabilities Intel Corporation CR Rel-15 36.306 14.5.0 1559 1 B NR_newRAT-Core

✉ **[101#11][NR] 36.306 CR for EN-DC (Intel)**
Intended outcome: Agreed CR
Deadline: Thursday 2018-03-08
=> Agreed in R2-1804110

Withdrawn

R2-1802973 CR on UE L1 feature list (38.306) Intel Corporation discussion Rel-15 NR_newRAT-Core Late

R2-1802972 CR on UE L1 feature list (38.331) Intel Corporation CR Rel-15 38.331 15.0.0 0006 - F NR_newRAT-Core Late

10.4.4.2 UE capabilities for EN DC

Including output of email discussion [NR-AH1801#10][NR] UE Capabilities (Intel)
Including output of email discussion [NR-AH1801#09][NR/] L2 buffer size (Intel)

L2 buffer sizes email

R2-1802956 Report of email discussion: [NR-AH1801#09][NR] L2 buffer size (Intel) Intel Corporation report Rel-15 NR_newRAT-Core

Agreements 1: For L2 buffer size calculation for MR/NR-DC, both MN terminated split bearer and SN terminated split bearers are considered. FFS about the detailed equation. 2: For L2 buffer size calculation, RLC RTT for E-UTRA cell group is 75 ms

R2-1803670 RTT values for L2 buffer size calculation MediaTek Inc. discussion Rel-15 NR_newRAT-Core
=> Offline discussion to conclude the RLC RTT times for each SCS (Offline discussion #29, Intel)
Update from offline: It is not possible to conclude this meeting and will be addressed by contributions at the next meeting.

R2-1802988 LTE data-rate calculation for EN-DC Intel Corporation discussion Rel-15 NR_newRAT-Core

Agreements 1 Define LTE part of the peak data-rate calculation as (and pending confirmation from RAN1) LTE Data rate in EN-DC (in Mbps) = 〖10〗^(-3)*∑_(j=1)^J▒〖TBS_(j) 〗

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 213

wherein
J is the number of aggregated LTE component carriers in EN-DC band combination
TBS_(j)is the total maximum number of DL-SCH transport block bits received within a 1ms TTI for j-th CC, as derived from TS36.213 based on the UE supported maximum MIMO layers for the j-th carrier, and based on the modulation order and number of PRBs based on the bandwidth of the j-th carrier.

R2-1802989 [DRAFT] LS on LTE peak data-rate calculation for EN-DC Intel LS out Rel-15 NR_newRAT-Core To:RAN1 Cc:RAN4
=> Remove RAN4 from 1.2
=> Approved in R2-1803950

L2/3 capabilities email

R2-1802968 Email disc. on [NR-AH1801#10][NR] UE Capabilities (Intel)Intel Corporation report Rel-15 NR_newRAT-Core Late
=> Revised in R2-1803932

R2-1803932 Email disc. on [NR-AH1801#10][NR] UE Capabilities (Intel)Intel Corporation report Rel-15 NR_newRAT-Core Late

Agreements
1 No new L2/3 capability is introduced for skipUplinkTxConfiguredGrant. It will be conditional mandatory if the UE supports Configured Grant.
2 No new L2/3 capability is introduced for dedicated bearer on split DRB.
3 For EN-DC, 8 bearers can be supported regardless of bearer types.
FFS: Need of capability/IOT signaling in LTE for support of the additional measurement gap configurations defined for Rel15 ? Whether it is separate for TDD/FDD also needs to be discussed (To be checked whether the NR measurements can be performed with the legacy gap patterns).
4 Capability/IOT signaling for non-default bearer on SCG is removed
5 Capability for multipleSR-Configurations is an ENUMERATED {supported} and if supported UE supports 8 SR configurations, otherwise 1 SR config is supported
FFS: Whether to align the number to what the configuration signalling can support.
6 Capability for multipleConfiguredGrantConfigurations is an ENUMERATED {supported} and if supported UE supports 16 configured grant configurations, otherwise 1 ConfiguredGrant config is supported
FFS: Whether to align the number to what the configuration signalling can support, and to consider whether the 16 refers to the configurations or the active ones only (as they are within the BWP).
7 Capability/IOT signaling for directSN-Addition is removed and it becomes mandatory w/o IOT bit.
8 Capability/IOT signaling for split DRB with UL data TX on only MCG or only SCG is removed and it becomes mandatory w/o IOT bit.
9 The following L2/3 capabilities are defined as mandatory with IOT bit:
- longDRX-Cycle, shortDRX-Cycle, amWithShortSN, umWithShortSN, umWIthLongSN, shortSN*, , intraAndInterF-MeasAndReport*, eventA-MeasAndReport*,
10 The following L2/3 capabilities are defined as optional:
- multipleSR-Configurations, multipleConfiguredGrantConfigurations, supportedROHC-Profiles, maxNumberROHC-ContextSessions, uplinkOnlyROHC-Profiles, continueROHC-Context, independentGapConfig
11 dataRateDRB-IP is removed from the March freeze of ASN.1
12 NR measurements & reporting (at least periodical reporting) in LTE connected mode*, Measurement reporting event B1 for NR in LTE connected* are mandatory without IOT
13 The following L2/3 capabilities are defined as optional: lcp-Restriction, sstd-MeasType1
14 MultipleTimingAdvances for NR CA: Mandatory with IOT bit for inter-band NR CA; otherwise optional
15 L2/3 capabilities with signalling that are not yet defined as mandatory with IOT or optional should be further discussed as part of a RAN plenary discussion.
16 FDD/TDD separation is needed for volteOverNR-PDCP (LTE capability signalling)
17 Split DRB with UL TX on both MCG and SCG are signalled as UE-MRDC-Capability.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 214

R2-1803147 Making SRB3 a mandatory feature Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT R2-1800771

R2-1803151 Covering note for SRB3 Nokia, Nokia Shanghai Bell, NTT DOCOMO INC., Deutsche Telekom AG, MediaTek Inc., Interdigital LLC, Vodafone GmbH, CATT, AT&T, Verizon Wireless discussion Rel-15 NR_newRAT

Agreements
1 Capability/IOT bit is added for SRB3 (no conclusion on mandatory with IOT or optional)

R2-1802688 Split DRB capability signaling in EN-DC Ericsson, Huawei, NTT DOCOMO, Nokia, Nokia Shanghai Bell, Vodafone discussion Rel-15 NR_newRAT-Core R2-1801070
=> Covered by previous discussions

R2-1803678 L2/3 Capabilities MediaTek Inc. discussion Rel-15 NR_newRAT-Core R2-1801531
=> Covered by previous discussions

R2-1803271 Discussion on agreements on UE capabilities for NR measurement HTC Corporation discussion

Agreements
1 NR event A series measurement reporting is mandatory with IoT for a UE supporting EN-DC.
2 NR periodical measurement reporting is mandatory with IoT for a UE supporting EN-DC.

R2-1803112 UE capability for Maximum channel bandwidth Qualcomm Incorporated discussion Rel-15 NR_newRAT R2-1800907
=> Wait for RAN4 to conclude before discussing again.

R2-1803628 Avoiding bridges to nowhere Qualcomm Incorporated discussion Rel-15
=> Revised in R2-1803749

R2-1803749 Avoiding bridges to nowhere Qualcomm Incorporated discussion Rel-15
=> Qualcomm will provide a contribution to show what the signalling details of a solution based on P3, P4 and P5 option 1, so that it can analysed in the group. R2-1803954 (Offline discussion #30)

R2-1803954 [Signalling details of a solution based on P3, P4 and P5 option 1] Qualcomm discussion Rel-15 NR_newRAT-Core
=> Revised in R2-1804083

R2-1804083 Signalling details of a solution based on P3, P4 and P5 option 1] Qualcomm discussion Rel-15 NR_newRAT-Core

Agreements
1: Implement RAN1/RAN4 type 3 parameters into the “BPC” structure (the exact name can be changed in the next meeting).
2: There shall be explicit linking from the RF band combinations to this structure. The relationship is many to many. In ASN.1, include a set of BPC indices, in each RF band combination.

=> Agreements to be added within ASN.1 part 7 email discussion

✉ **[101#41][NR] UE capability structure (Qualcomm)**
Progress further aspects of the UE capability structure
Intended outcome: Report to next meeting
Deadline: Thursday 2018-03-29

R2-1803629 Managing larger Capability containers Qualcomm CDMA Technologies discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 215

- Nokia think other options might be possible such as to use deflate to compress the data and in one example has seen 45% compression.

=> Noted

R2-1802054 Correlated UE capability report in EN-DC and MR-DC/5GCZTE Corporation, Sanechips discussion Rel-15

=> Noted

R2-1802290 Discussion and Text proposal for BPC fallback definition Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802283 Discussion on UE capability for LTE-NR switch time Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800751

R2-1802284 Text Proposal on 38.331 for UE capability of LTE-NR switch time Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800752

R2-1802285 Text Proposal on 38.306 for UE capability of LTE-NR switch time Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800753

R2-1802700 Further clarifications on BPC coordination ZTE Corporation, Sanechips discussion

R2-1802291 Measurement without gap capability reportHuawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800763

Late

R2-1801911 Implementation of L1/RF/RRM capabilities from RAN1/4 NTT DOCOMO, INC. discussion Rel-15 NR_newRAT-Core Late

Agreements

1: For per UE capability and BPC, The UE can signal the different bit setting for FDD/TDD and/or FR1/FR2 in the capability signalling by extending the ASN.1 structure as specified for LTE. (No need for the FDD+FR2 combination)

2: Physical layer parameters are classified into:
   1) features common to FDD/TDD and FR1/FR2 (e.g. PhyParametersCommon);
   2) features requiring FDD/TDD and FR1/FR2 differentiation (e.g. PhyParametersXDD-FRX-Diff)
   3) features only for FDD/TDD and/or FR1/FR2 (e.g. PhyParametersXDD, PhyLayerParametersFRX, etc.).

3: P-BCH (MIB) reception is a component of basic initial access channels and procedures for EN-DC.

4: Broadcast SIB reception including RMSI/OSI and paging are components of basic initial access channels and procedures for NR standalone.

5: More than one SR configurations per PUCCH group (a.k.a numberOfSR-Configurations in RAN2) is defined as a MAC parameter which covers the physical layer aspects.

6 RAN2 confirm the previous agreement that FDD/TDD differentiation is needed for multiple SR configurations

7: Stick to the following RAN2 agreement assuming that duplex modes and FR1/FR2 differentiation is not needed.

- UE capability for support of dynamic power sharing is contained within the MR-DC container.
- UE capability for support of LTE TDM pattern (i.e. SUO case 1) is added to LTE UE capabilities.

Withdrawn

R2-1802605 NR MIMO capability Qualcomm Incorporated discussion Rel-15 NR_newRAT R2-1800904 Withdrawn

10.4.4.3 Temporary capability restriction

Maximum 1 tdoc per company

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 216

R2-1802102 UE radio access capabilities change vivo discussion Rel-15 NR_newRAT-Core R2-1800880

R2-1802292 UE temporary access capability restriction Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1802400 Consideration on the Temporary Capability Restriction for EN-DC ZTE Corporation, Sanechips discussion Rel-15 NR_newRAT-Core R2-1800407

R2-1802985 Temporary capability restriction Intel Corporation discussion Rel-15 NR_newRAT-Core R2-1800947

R2-1803123 UE Capability Restrictions Ericsson discussion Rel-15 NR_newRAT-Core R2-1801164

R2-1803617 Extending LTE Overheating mechanism to NR Qualcomm Incorporated discussion Rel-15

R2-1803619 Temporary Capability Restriction for standalone NR Qualcomm Incorporated discussion Rel-15

R2-1803676 Thermal mitigation provision for NR UE MediaTek Inc. discussion Rel-15 NR_newRAT-Core R2-1800623

10.4.4.4 Other aspects for non EN-DC

Any other aspect related to UE capabilities relevant for non EN-DC cases

R2-1802293 Network handling on UE static access capability Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800765

R2-1802701 NR UE Capability Size Reduction LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801288

R2-1803097 Use of identifier representing NR UE capabilities, baseline Samsung Telecommunications discussion

R2-1803124 UE Capability Compression Ericsson discussion Rel-15 NR_newRAT-Core R2-1801165

R2-1803716 UE capability retrieval framework in NR NTT DOCOMO, INC. discussion Rel-15 R2-1801355

10.4.5 Idle/inactive mode procedures

10.4.5.1 TS

Latest 38.304, other rapporteur inputs, anything related to specification methodology. Please submit any new text proposals to the appropriate agenda item.

R2-1803739 New Generation Radio Access Network; User Equipment (UE) procedures in Idle mode Qualcomm Incorporated draft TS Rel-15 38.304 0.1.2 NR_newRAT-Core R2-1801674

- LG wonder whether anything for UAC is needed in this spec.

=> Remove editor's note for access control.

=> Endorsed as running CR

✉ **[101#17][NR] 38.304 (Qualcomm)**
Update TS to reflect agreements from this meeting.
Intended outcome: Agreed version 1.0.0 for submission to plenary for information.
Deadline: Thursday 2018-03-08

=> Endorsed in R2-1803805

R2-1803371 Introduction of cell selection and reselection in 38.331 Huawei, HiSilicon draftCR Rel-15 38.331 15.0.0 B NR_newRAT-Core

R2-1803372 Introduction of LTE to NR reselection in 36.331 Huawei, HiSilicon draftCR Rel-15 36.331 15.0.0 B NR_newRAT-Core

R2-1803373 Introduction of LTE to NR reselection in 36.304 Huawei, HiSilicon draftCR Rel-15 36.304 14.5.0 B NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 217

10.4.5.2 Selection/reselection rules

Basic criteria and rules for cell selection and reselection
Maximum 1 tdoc per company

R2-1801806 Discussion on cell reselection rules for high speed UE OPPO discussion
R2-1801807 Discussion on UE redistribution within wideband carrier OPPO discussion
R2-1801835 Considerations on Cell Reselection in RRC inactive state CATT discussion
R2-1802103 Remaining issues of cell selection/reselection vivo discussion Rel-15 NR_newRAT-Core
R2-1802122 Cell reselection between NR and LTE LG Electronics Inc. discussion Rel-15 R2-1801401
R2-1802334 Cell-specific prioritisation at reselection Ericsson discussion
R2-1802411 Dedicated cell reselection priorities in RRC_IDLE and RRC_INACTIVE Samsung discussion Rel-15 NR_newRAT-Core
R2-1802416 Cell reselection in INACTIVE state Apple Inc. discussion Rel-15 NR_newRAT-Core
R2-1802830 Impact of SUL on Cell Selection Reselection Criteria InterDigital discussion Rel-15 NR_newRAT-Core
R2-1802974 Further considerations on cell reselection Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1803374 Cell reselection for inactive UEs Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800511
R2-1803721 Open Issues for NR Cell Reselection Qualcomm Incorporated discussion

10.4.5.3 Cell quality derivation

Derivation of cell quantity from beam measurements (including filtering and FFS points from previous meetings)
Maximum 1 tdoc per company

R2-1801954 Cell Quality Derivation and Adjustment for Cell Reselection in NR MediaTek Inc. discussion
R2-1802043 Consideration on cell quality derivation in idle and inactive state ZTE Corporation, Sanechips discussion Rel-15
R2-1802104 Cell quality derivation for cell reselection in idle/inactive mode vivo discussion Rel-15 NR_newRAT-Core
R2-1802156 Discussion on cell quality derivation for NR IDLE mode UE ITRI discussion NR_newRAT-Core R2-1801347
R2-1802331 Cell quality derivation for idle/inactive UEs Ericsson discussion
R2-1802831 Consideration of Number of Good Beams for Cell Selection Reselection InterDigital discussion Rel-15 NR_newRAT-Core
R2-1802975 Further considerations on idle/inactive measurements Intel Corporation discussion Rel-15 NR_newRAT-Core
R2-1803219 Cell quality derivation for reselection CMCC discussion Rel-15 NR_newRAT-Core
R2-1803375 Cell Quality Adjustment in Idle/Inactive State Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core
R2-1802831 Consideration of Number of Good Beams for Cell Selection Reselection InterDigital discussion Rel-15 NR_newRAT-Core
Moved from 10.4.5.5 to 10.4.5.3

10.4.5.4 Service based reselection

Maximum 1 tdoc per company

R2-1802105 Service based cell reselection vivo discussion Rel-15 NR_newRAT-Core R2-1800884
R2-1802157 Service based cell reselection ITRI, ASUSTeK discussion NR_newRAT-Core R2-1801344
R2-1803125 Service based cell reselection Sony discussion Rel-15 NR_newRAT-Core R2-1800986

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 218

R2-1803221 service based reselection in idle CMCC discussion Rel-15 NR_newRAT-Core

R2-1803376 Service-based camping Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

10.4.5.5 Selection/reselection - other aspects

Including, for example mobility states, speed dependent scaling, forward compatibility for CSG, cell reservations, etc

R2-1801805 Mobility state estimation issue during RRC state transitio OPPO discussion

R2-1801836 Service types in Inactive Mode CATT discussion R2-1800151

R2-1802106 Consideration on forward compatibilitiy vivo discussion Rel-15 NR_newRAT-Core R2-1800885

R2-1802123 Idle Measurement Enhancement using UE speed LG Electronics Inc. discussion Rel-15 R2-1801400

R2-1802332 Mobility states and state based scaling Ericsson discussion

R2-1802333 Considering the number of good beams for cell ranking criteria Ericsson discussion

R2-1802346 Service-based RAT/frequency selection in INACTIVE or in IDLE Ericsson discussion

R2-1802349 Open issues for camping procedures Ericsson discussion

R2-1802491 Mobility scaling in cell reselection for NR vivo discussion Rel-15 NR_newRAT-Core

R2-1802550 State estimation and preventing fast moving UEs from entering small cells Fujitsu discussion Rel-15 NR_newRAT-Core R2-1800316

R2-1802711 Mobility scaling for idle mode measurements Sequans Communications discussion R2-1801511

R2-1803180 Priorities for RRC_INACTIVE Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1803377 Speed dependent mobility in Idle and Inactive mode Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core

R2-1803378 Cell reservation and forward compatibility for CSG in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1801203

R2-1803379 Support of Redistribution priority in NR Huawei, HiSilicon discussion Rel-15 NR_newRAT-Core R2-1800512

R2-1803657 Mobility history reporting in NR LG Electronics Inc discussion

R2-1803658 MSE enhancement in NR LG electronics inc discussion

10.4.5.6 Idle/inactive paging

Including beam related aspects, response driven paging and calculation of paging occasion.

R2-1802977 Paging transmission option Intel Corporation, Samsung, MediaTek, Lenovo, Motorola Mobility, Sony, NTT DOCOMO, KT, Panasonic discussion Rel-15 NR_newRAT-Core

- CATT agree with the proposal.
- Huawei wonder if this means we will not use truncated IDs. Intel confirm this is the intention. Qualcomm think the truncation options are still on the table as they are RAN2 scope. Huawei think if we don't consider these then it will help improve progress.
- LG understand that RAN1 will enable forward compatibility so that response based can be discussed in future release.
- MediaTek think response driven might have benefit but there are so many options and it will take a very long time.
- Intel think the truncated ID options are even worse as the UE has to attempt connection establishment and be rejected.

Agreements
1 RAN2 confirms RAN1 agreements that paging mechanisms similar to option2, 3 and 4 (as defined by RAN1) will not be supported in Rel-15
2 Paging messages include the full UE id as in LTE
FFS Whether truncated UE ID could optionally be used in the case of FR2

R2-1802824 Paging in High Frequency InterDigital discussion Rel-15 NR_newRAT-Core

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 219

R2-1803644 Definition of Paging Occasion Huawei Technologies France discussion Rel-15 NR_newRAT-Core R2-1801096

Agreements
1: The length of one PO in case of beam sweeping is one period of beam sweeping
2: The UE can assume that the same paging message is repeated in all beams of the sweeping pattern.
3: The PO is defined by the period in which the paging DCI can be sent (Type2-PDCCH)
4: PO can be TDMed or FDMed with an SS block

Options:
1 Within the DRX cycle, the UEs derive a reference frame and relative to that a paging occasion based on UE ID
2 Within the DRX cycle, UE identifies all the available POs and uses the UE to derive which PO to monitor.

=> Offline discussion on how to derive the PO. (MediaTek, Offline discussion #43)
Update of offline discussion: Seem option 1 can be agreed

Agreements
1 Within the DRX cycle, the UEs derive a reference frame and relative to that a paging occasion based on UE ID

R2-1801803 Discussion on paging overlad due to beam sweeping OPPO discussion
R2-1801804 Discussion on false paging and paging load issue in NR OPPO discussion
R2-1801837 Issues about NR Paging Occasion CATT discussion R2-1800152
R2-1801838 Issues on RX Beam Sweeping for Paging CATT discussion
R2-1801888 PO Determination for Paging Reception Samsung R&D Institute India discussion Rel-15 NR_newRAT-Core R2-1800079
R2-1801955 Overhead Reduction for Paging in Multi-beam Operation MediaTek Inc. discussion R2-1801303
R2-1801956 Paging Transmission in NR Considering SS Blocks MediaTek Inc. discussion R2-1801304
R2-1801977 paging transmission with beam sweeping Spreadtrum Communications discussion Rel-15
R2-1802026 Association between SSB and paging monitoring window ZTE Corporation, Sanechips discussion Rel-15
R2-1802027 consideration on paging mechanism optimization ZTE Corporation, Sanechips discussion Rel-15
R2-1802028 Calculation of paging occasion in NR ZTE Corporation, Sanechips discussion Rel-15
R2-1802029 Paging occasion mechanism comparision ZTE Corporation, Sanechips discussion Rel-15
R2-1802107 Response-driven paging procedure for NR vivo discussion Rel-15 NR_newRAT-Core
R2-1802108 Paging in NR vivo discussion Rel-15 NR_newRAT-Core R2-1800886
R2-1802335 Response-driven paging to reduce beam sweeping overhead in NR Ericsson discussion
R2-1802336 Dedicated RNTI(s) for response-driven paging Ericsson discussion
R2-1802337 Response beam aggregation for response-driven paging Ericsson discussion
R2-1802338 Paging occasions in NR Ericsson discussion
R2-1802339 Configuration of paging transmissions in multi-beam operation Ericsson discussion
R2-1802340 Paging in DCI only Ericsson discussion
R2-1802341 Indication of CN initiated or RAN initiated paging Ericsson discussion

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 220

R2-1802342 [DRAFT] LS on timing requirements on paging occasions relative SS Blocks Ericsson LS out To:RAN4

R2-1802734 CN paging DRX in RRC_IDLE LG Electronics Inc. discussion Rel-15 NR_newRAT-Core R2-1801376

R2-1802825 Paging Indicator Details InterDigital discussion Rel-15 NR_newRAT-Core R2-1801122

R2-1802826 Paging Occasion Calculation for NR InterDigital discussion Rel-15 NR_newRAT-Core

R2-1802976 Calculation of paging occasion Intel Corporation discussion Rel-15 NR_newRAT-Core

R2-1803065 Unambiguous derivation of group paging identifier for response-driven paging Ericsson discussion

R2-1803141 Considerations on Multi-beams Operation & Paging Resource Allocation Sony discussion Rel-15 NR_newRAT-Core Withdrawn

R2-1803148 On Frequently Paged UEs in Response-Driven Paging Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT R2-1800773

R2-1803149 Definition of Paging Indicator for Response-Driven Paging Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT R2-1800774

R2-1803150 Truncated UE-ID with Configurable Length for Response-Driven Paging Nokia, Nokia Shanghai Bell discussion NR_newRAT R2-1800775

R2-1803174 Determination of PF and PO in NR Nokia, Nokia Shanghai Bell discussion Rel-15 NR_newRAT-Core

R2-1803442 Considerations on Multi-beams Operation & Paging Resource Allocation Sony Europe Limited other Rel-15 NR_newRAT-Core

R2-1803577 Use of multiple P-RNTIs for NR paging Qualcomm Incorporated discussion R2-1713781

R2-1803578 Default Association between SSB and Paging Monitoring Qualcomm Incorporated discussion

R2-1803583 Consideration on NR paging Qualcomm Incorporated discussion R2-1713732

R2-1803636 Discussion on paging message Huawei Technologies France discussion Rel-15

R2-1803637 Efficiency of direct and response-driven paging Huawei, HiSilicon discussion Rel-15 R2-1801106

R2-1803639 Definition of Paging Frame Huawei, HiSilicon discussion Rel-15 R2-1801097

R2-1803647 NR Paging Options Huawei Technologies France discussion Rel-15

11 Rel-15 NR Study Items

11.1 Study on Integrated Access and Backhaul for NR

(FS_NR-IAB; leading WG: RAN2; REL-15; started: Mar. 17; target: Jun. 18: SID: RP-172290)
Time budget: 0 TU
This agenda item is a placeholder. The SI will not be discussed at RAN2#101

12 Comebacks

This agenda item will be used during the meeting. No documents are supposed to be submitted by delegates.

12.1 Breakout sessions

12.1.1 Report from Break-Out session

Report from session on Rel-14 and Rel-15 LTE

R2-1803733 Report from Break-Out Session, Vice-Chair (CMCC)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 221

- Vodafone think we are close to concluding the CP latency discussion if RAN1 can agree what is requested.

=> Approved

URLLC

CBF: Draft LS in R2-1804009 to RAN1 to inform our progress of this meeting (Ericsson, offline# 201)

R2-1804009 DRAFT LS on RAN2 agreements for LTE URLLC LS out RAN1 Ericsson

=> Approved in R2-1804084

euCA :

CBF:=> Draft LS in R2-1803969 to RAN1/RAN4 to inform the agreements. Ask RAN4 if CSI reporting delay requirements (today 24 (34) ms after activation) can be reduced if UE has been monitoring the Scell carrier. (Nokia, offline#222)

R2-1803969 [DRAFT] LS on RAN2 agreements for euCA Nokia LS out Rel-15 LTE_euCA-Core To: RAN1, RAN4 Cc: RAN3

✉ **[101#18][LTE/euCA] LS to RAN1/RAN4 (Nokia)**
Intended outcome: Approved LS
Deadline: Thursday 2018-03-08

R2-1804137 LS on RAN2 agreements for euCA RAN2 LS out Rel-15 LTE_euCA-Core To: RAN1, RAN4 Cc: RAN3

=> Approved

feCoMP

R2-1802898 Introduction of further enhancements to CoMP Intel Corporation CR Rel-15 36.331 15.0.1 3251 - B feCOMP_LTE-Core

=> Revised in R2-1804061.

CBF offline#255 (Intel)

R2-1804061 Introduction of further enhancements to CoMP Intel Corporation CR Rel-15 36.331 15.0.1 3251 - B feCOMP_LTE-Core

=> Endorsed as running CR.

Other LRE R15

CBF:=> Draft LS in R2-1803962 to SA4, SA5 cc RAN3 to ask the meaning of new service and ask the possibility to address this in container. Add description that this cannot be handled in LTE QMC (Ericsson ,offline#234)

CBF:=> Draft a reply LS in R2-1803963 to SA5 cc SA4, RAN3 saying that RAN2 has analysed the proposed new attributes and concluded that if the areaScope is not sent to the UE the size of the RRC message is decreased. Ask the possibility of adding new service type in container (Ericsson offline#234).

R2-1803962 DRAFT Reply LS on adding new service type in QMC reporting LS out SA4, SA5 Ericsson

=> Approved in R2-1804085

R2-1803963 DRAFT Reply LS on Attributes for QoE measurement collection LS out SA4, SA5 Ericsson

=> Approved in R2-1804086

TEI 15 L2 measurement:

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 222

CBF: Check the following proposal can be agreed or not and try to agree CR of TS36.314 (Huawei, offline 298)
Proposal: for use case 2, Introduce following two new measurements:
- Distribution of Scheduled IP Throughput in DL
- Distribution of Scheduled IP Throughput in UL

=> For the new measurements, it is proposed to have new section(s) to describe them.

R2-1802865 CR on distribution of total PRB usage CR Huawei, HiSilicon 36.314 0049
=> Agreed

R2-1804022 CR on distribution of scheduled IP throughput Huawei, HiSilicon 36.314 0049
=> Agreed

CBF:=> (Huawei, offline 299) Draft LS to SA5:
for use case 1, regarding the following two new measurements, consult SA5 on impacts due to lot of samples.
- Distribution of PRB usage per traffic class for DL
- Distribution of PRB usage per traffic class for UL

for use case 2, regarding the following two new measurements, consult SA5 on impacts due to lot of samples.
- Distribution of Scheduled IP Throughput in DL (per QCI)
- Distribution of Scheduled IP Throughput in UL (per QCI)

for use case 3, consult SA5 on the following two comments:
- whether the existing performance measurements and their combinations provide various means to reflect effectively RRC-connected UEs, e.g. RRC measurements defined in TS 32.425
- the intention, i.e. in case if UE has multiple E-RABs with different QCI, then the same UE could be counted twice.

R2-1804023 Draft] Response LS on adding PRB usage distribution and IP throughput distribution measurements, Huawei, SA5
=> Approved in R2-1804087

R2-1804024 [Draft] Response LS on adding measurements on average number of total active UEs Huawei [to be RAN2] SA5
=> Approved in R2-1804088

UAV:

CBF:=> Draft LS to SA2 with the contents of the work split (DoCoMo, offline#205)

R2-1804037 Reply LS on Certification/License and Identification of Aerial Vehicles LS out SA2, RAN3 NTT DOCOMO
=> Approved in R2-1804089

12.1.2 Report from Break-Out session

Report from session on Rel-13/14 NB-IoT, Rel-13/14 MTC, Rel-15 NB-IoT WIs

R2-1803734 Report from Break-Out Session, Session Chair (MediaTek)
CBF: Report from LTE Break-Out Session, Vice-Chair (MediaTek)
=> Approved

12.1.3 Report from Break-Out session

Report from session on Rel-14 LTE and NR UP

R2-1803735 Report from Break-Out Session, Vice-Chair (InterDigital)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 223

=> Approved
=> Conclusions from the observations on support of DRB IDs is that the current NR (CP and UP) specs are able to support up to 29DRBs.
=> To be concluded in the ASN.1 email discussion whether to increase the number of DRBs in RRC signalling to enable change of the DRB ID.
=> To be checked in the ASN1 CR that sr-ProhibitTimer is optional (as in LTE)

R2-1803834 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Approval R2-1803035 Rel-14
36.331 14.5.1 TEI12 3262 1 F
=> Agreed[MCC]: Wrong WI code in the cover page: TEI12 -> TEI14
=> Revised in R2-1803887.

R2-1803887 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Rel-14 36.331 14.5.1 TEI14 3262 2
F
=> Agreed

R2-1803861 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Approval R2-1803037 Rel-15
36.331 15.0.1 TEI12 3263 A
=> Agreed
[MCC]: Wrong WI code in the cover page: TEI12 -> TEI14
=> Revised in R2-1803888.

R2-1803888 Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value
Vencore Labs, OEC, AT&T, Intel CR Rel-15 36.331 15.0.1 TEI14 3263 -
A
=> Agreed

R2-1803835 [Draft] Reply LS on Measurement requirement for LAA/WiFi hardware sharing problem
Qualcomm Incorporated LS out R2-1803620
RAN4
=> Modify the RAN2 response to say "... example at least through the following options"
=> Approved in R2-1804065

R2-1804006 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson CR
Rel-14 36.300 14.5.0 1106 - A LTE_LAA-Core
=> Agreed

R2-1804007 Measurement Requirements for LAA-WiFi Hardware Sharing Problem Ericsson CR
Rel-15 36.300 15.0.0 1107 - A LTE_LAA-Core
=> Agreed

R2-1803177 Different power class support for band combinations Nokia, Nokia Shanghai Bell, Sprint
CR Rel-13 36.331 13.8.1 3265 - C TEI13
=> CR number to be added to coversheet
=> Agreed in R2-1804062 (shadows are agreed in R2-1804063, R2-1804064)

R2-1803837 Correction to handling of p-Max procedure for high-power UEs Intel Corporation CR
Rel-13 36.331 13.8.1 TEI13 3254 1 F
=> Agreed
[MCC]: Wrong category in the cover sheet: Cat A -> Cat F.
=> Revised in R2-1803889

R2-1803889 Correction to handling of p-Max procedure for high-power UEs Intel Corporation CR
Rel-13 36.331 13.8.1 TEI13 3254 2 F
=> Agreed

R2-1803852 Correction to handling of p-Max procedure for high-power UEs Intel Corporation CR
R2-1802914 Rel-14 36.331 14.5.1 TEI13 3255 1 A

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 224

=> Agreed

R2-1803853 Correction to handling of p-Max procedure for high-power UEs Intel Corporation CR R2-1802915 Rel-15 36.331 15.0.1 TEI13 3256 1 A
=> Agreed

R2-1803839 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR Agreement R2-1803445 Rel-13 36.331 13.8.1 LTE_CA_enh_b5C-Core 3275 1 F
=> Revised to R2-1804082

R2-1804082 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR Agreement R2-1803445 Rel-13 36.331 13.8.1 LTE_CA_enh_b5C-Core 3275 2 F
=> Agreed

R2-1803840 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR Agreement R2-1803446 Rel-14 36.331 14.5.1 LTE_CA_enh_b5C-Core 3276 1 A
=> Agreed

R2-1803841 Correction to pucch-ConfigDedicated for fallback configuration Qualcomm Incorporated CR Agreement R2-1803447 Rel-15 36.331 15.0.1 LTE_CA_enh_b5C-Core 3277 1 A
=> Agreed

R2-1803842 Correction on SRS carrier switching Huawei, HiSilicon, Qualcomm Incorporated CR A Rel-14 36.306 14.5.0 LTE_SRS_switch-Core 1566 F
=> Agreed
[MCC]: Cover page update to correct the tdoc data in 3GU
=> Revised in R2-1803890

R2-1803890 Correction on SRS carrier switching Huawei, HiSilicon, Qualcomm Incorporated CR F Rel-15 36.306 14.5.0 LTE_SRS_switch-Core 1566 1 F
=> Agreed
(It appreared later that Huawei had submitted this CR as a Rel-15 CR by accident. Huawei will submit a Rel-14 company CR to RAN#79 to fix the issue).

R2-1803844 Supported bandwidths in Fallback band combination Ericsson CR R2-1803549 Rel-14 36.306 14.5.0 TEI14 1564 1 F
=> Agreed

R2-1803845 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange CR Agreement R2-1803750 Rel-14 36.306 14.5.0 TEI14 1555 2 B
=> Technically endorsed for final decision in RAN

R2-1803846 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange CR Agreement R2-1803751 Rel-14 36.331 14.5.1 TEI14 3244 2 B
=> Technically endorsed for final decision in RAN

R2-1803847 Introduction of LTE DL 1.4Gbps Category Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange CR Agreement R2-1803752 Rel-15 36.331 15.0.1 TEI14 3245 2 A
=> Technically endorsed for final decision in RAN

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 225

R2-1803848 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel CR Discussion R2-1803433 Rel-14 36.331 14.5.1 TEI14 3273 1 F
=> Agreed

R2-1803849 Correction to GERAN redirection without AS security Nokia, Nokia Shanghai Bell, Ericsson, Intel CR Discussion Rel-15 36.331 15.0.1 TEI14 3274 A
=> Agreed

R2-1803850 Signalling for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Discussion R2-1803457 Rel-14 36.331 14.5.1 TEI14 3278 1 F
=> Agreed. R2-1803968 is also agreed (Cat A)
[MCC]: Remove "DRAFT" from the cover page
=> Revised in R2-1804122

R2-1804122 Signalling for reading shared PLMN information from non-CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Agreement R2-1803457 Rel-14 36.331 14.5.1 TEI14 3278 2 F
=> Agreed.

R2-1803968 Signalling for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Discussion R2-1803457 Rel-15 36.331 15.0.1 TEI14 3279 1 A
=> Agreed.
[MCC]: Remove "DRAFT" from the cover page
=> Revised in R2-1804123

R2-1804123 Signalling for reading shared PLMN information from non-CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Agreement R2-1803457 Rel-15 36.331 15.0.1 TEI14 3279 2 F
=> Agreed.

R2-1803851 Capability for Inbound mobility for open CSG cells Nokia, Nokia Shanghai Bell, Softbank CR Discussion R2-1803458 Rel-14 36.306 14.5.0 TEI14 1561 1 F
=> Agreed

12.1.4 Report from Break-Out session

Report from session on Rel-15 MTC

R2-1803736 Report from Break-Out Session, Session Chair (Ericsson)
CBF: Report from LTE Break-Out Session, Session Chair (Ericsson)
=> Approved

12.1.5 Report from Break-Out session

Report from session on Rel-15 V2X WI

R2-1803737 Report from Break-Out Session, Session Chair (Intel)
=> Revised in R2-1804027

R2-1804027 Report from break-out session on Rel-15 V2X WI Intel report
=> Approved

R2-1803621 Coexistence between Rel-14 and Rel-15 V2X UEs Qualcomm Incorporated discussion LTE_eV2X-Core R2-1713407
=> RAN2 should send LS to SA2 to ask if upper-layer guidance can be provided for TX transmission mechanism to distinguish release (Rel-14 or Rel-15) selection within a UE. We will include the background information.
=> [CBF]: LS to SA2 in R2-1803917 (OPPO)

R2-1803917 LS on PC5 transmission mechanism selection OPPO, Qualcomm Incorporated LSout SA2

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 226

=> Reword first sentence to clarify what the backward compatibility concern is.
=> Revised in R2-1804040

R2-1804040 LS on PC5 transmission mechanism selection OPPO, Qualcomm Incorporated LSout SA2
=> Approved in R2-1804090

12.1.6 Report from Break-Out session

Report from session on Positioning

R2-1803738 Report from Break-Out Session, Session Chair (Huawei)
CBF: Report from Positioning Break-Out Session, Session Chair (Huawei)
=> Revised in R2-1804081

R2-1804081 Report from Break-Out Session, Session Chair (Huawei)
CBF: Report from Positioning Break-Out Session, Session Chair (Huawei)
=> Approved

12.2 Main session

This section contains a temporary list of comebacks.

=> Offline discussion to consider what notes could be added to the LTE RAN2 spec (Offline discussion #03, ZTE)

=> Draft LS in R2-1703833 to RAN (Offline discussion #04, ZTE)

=> Revised in R2-1803986 (Offline discussion #40)

=> LS to CT1 and SA3 to inform them of above agreements and explain that we see the need to distinguish security between NR and 5GC. Draft in R2-1803991 (Offline discussion #41, Intel)

=> Draft LS in R2-1803993 to CT1, SA2 to provide the agreement and explain the reason that this is the only mechanism available to change he UE radio access capabilities (Offline discussion #42, Lenovo)

=> Revised to include new agreements from this meeting in R2-1803878 (Offline discussion #09, ZTE)

=> Offline discussion to improve the wording. Revised in R2-1803898 (Offline discussion #19, Ericsson)

=> Send LS to SA2/RAN3 in R2-1804005 to tell them that in the case of slicing RAN needs to be able to appropriately configure the frequency priorities for idle mode reselection (i.e. to reuse the same priority based reselection mechanism as defined for LTE), hence appropriate information needs to be available in RAN for this configuration (Nokia, Offline discussion #45)

=> LS to CT1, SA2 in R2-1804011 whether there is any case where the NAS would provide NSSAI info when the UE resumes from inactive, e.g. when TAU is triggered in inactive state. (Offline discussion #46, Ericsson)

=> Offline discussion to progress the need for a CN indication in the redirection to LTE (Offline discussion #47, Ericsson)

New draft LS out

=> Offline discussion on re-establishment procedure to consider whether to resume SRB/DRBs, use I-RNTI in the reestablishment request and whether to combine with Resume (Nokia, Offline discussion #44)

=> Draft LS to RAN4 to ask questions for clarification before we can design the signalling. Draft LS in R2-1803938 (Offline discussion #24, DOCOMO)

=> TP to be provided in R2-1803941 (Offline discussion #25, Nokia)

=> Revised in R2-1803958 (Offline discussion #31)

=> Offline discussion to try to conclude the FFS (Offline discussion #32, Samsung)

=> Draft LS in R2-1803976 to RAN3 to inform them of RANAC size. (Offline discussion #37)

=> Respond to RAN3 that there was no consensus in RAN2 to support the feature. Signalling solutions were presented but there were concerns about whether the benefits of the feature justify these solutions (final wording to be worked offline and how the benefits in RAN3 can be weighed against the complexities in RAN2). Draft LS in R2-1803977 (Offline discussion #38, Huawei)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 227

- => Send LS to SA3 in R2-1804060 to describe our WA and to ask relevant questions. Initial version of questions to be discussed offline (Huawei, Offline discussion #48)
- New LS out
-
- Comeback to confirm the scope of the email discussion for part 7
- Comeback to decide whether we declare that ASN.1 is ready to freeze.
- => Revised to reflect further agreements from the discussion this week. R2-1803942 (Offline discussion #27)
- = Revised in R2-1804072
-
- => Revised to reflect further agreements from the discussion this week. R2-1803943 (Offline discussion #28)
- => Offline discussion to conclude the RLC RTT times for each SCS (Offline discussion #29, Intel)
- => Qualcomm will provide a contribution to show what the signalling details of a solution based on P3, P4 and P5 option 1, so that it can analysed in the group. R2-1803954 (Offline discussion #30)
- => Offline discussion on how to derive the PO. (MediaTek, Offline discussion #43)
- CBF: Draft LS in R2-1804009 to RAN1 to inform our progress of this meeting (Ericsson, offline# 201)
- CBF offline#255 (Intel)
- CBF:=> Draft LS in R2-1803962 to SA4, SA5 cc RAN3 to ask the meaning of new service and ask the possibility to address this in container. Add description that this cannot be handled in LTE QMC (Ericsson ,offline#234)
- CBF:=> Draft a reply LS in R2-1803963 to SA5 cc SA4, RAN3 saying that RAN2 has analysed the proposed new attributes and concluded that if the areaScope is not sent to the UE the size of the RRC message is decreased. Ask the possibility of adding new service type in container (Ericsson offline#234).
- CBF: Check the following proposal can be agreed or not and try to agree CR of TS36.314 (Huawei, offline 298)

Proposal: for use case 2, Introduce following two new measurements:

- CBF:=> (Huawei, offline 299) Draft LS to SA5:

for use case 1, regarding the following two new measurements, consult SA5 on impacts due to lot of samples.

- CBF:=> Draft LS to SA2 with the contents of the work split (DoCoMo, offline#205)
- CBF: Report from LTE Break-Out Session, Vice-Chair (MediaTek)
-
-
- CBF: Report from LTE Break-Out Session, Session Chair (Ericsson)
- => Revised in R2-1804040

13 Outgoing LSs

Draft LSs should be submitted to their corresponding agenda item if there is one. If there is no appropriate agenda item, draft LSs, and any association discussion documents, may be submitted to this agenda item.

14 Any other business

The following CRs were endorsed by RAN3, and then submitted to RAN2 for agreement.

R2-1803918 Clarification on HRL for EN-DC RAN3 (Huawei) CR Rel-15 36.300 15.0.0 1117 - F NR_newRAT-Core R3-180720
=> Agreed

R2-1803919 Stage 2 alignment for NSA Energy Savings RAN3 (Qualcomm Incorporated)CR Rel-15 36.300 15.0.0 1118 - F NR_newRAT-Core R3-180726
=> Agreed

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 228

R2-1803920 Paging failure in CE Capable UEs RAN3 (NTT DOCOMO, Inc.) CR Rel-13 36.300 13.10.0 1119 - F TEI13 R3-181175
=> Agreed

R2-1803921 Paging failure in CE Capable UEs RAN3 (NTT DOCOMO, INC.) CR Rel-14 36.300 14.5.0 1120 - A TEI13 R3-181176
=> Agreed

R2-1803922 Paging failure in CE Capable UEs RAN3 (NTT DOCOMO, INC.) CR Rel-15 36.300 15.0.0 1121 - A TEI13 R3-181177
=> Agreed

R2-1803923 E-UTRA - NR Cell Resource Coordination RAN3 (Nokia, Nokia Shanghai Bell) CR Rel-15 36.300 15.0.0 1122 - B NR_newRAT-Core R3-181187
=> Agreed

R2-1803924 Further Corrrection of TS 37.340 (RAN3 part) RAN3 (ZTE) CR Rel-15 37.340 15.0.0 0005 - F NR_newRAT-Core R3-181386
=> Withdrawn

R2-1803925 Introducing the feature of Single Tx in TS37.340 RAN3 (ZTE) CR Rel-15 37.340 15.0.0 0006 - B NR_newRAT-Core R3-181435
=> Withdrawn

R2-1803926 Data forwarding aspects for intra-system ACTIVE mobility – TP for 37.340 RAN3 (Ericsson) CR Rel-15 37.340 15.0.0 0007 B NR_newRAT-Core R3-18147
=> Withdrawn

R2-1803927 Baseline CR for TS 37.340 (RAN3 part) covering agreements of RAN3 #NR adhoc 1801 and RAN3 #99 RAN3 (ZTE) CR Rel-15 37.340 15.0.0 0008 - B NR_newRAT-Core R3-181582
=> Revised in R2-1803928

R2-1803928 Baseline CR for TS 37.340 (RAN3 part) covering agreements of RAN3 #NR adhoc 1801 and RAN3 #99 RAN3 (ZTE) CR Rel-15 37.340 15.0.0 0008 1 B NR_newRAT-Core
- This CR supercedes R3-1803924/5/6.
=> Agreed

15 Closing of the meeting (17:00)

The meeting was closed at 18:27 on Friday.

Annex A: List of participants

RAN2#101 participants list is at: http://webapp.etsi.org/3GPPRegistration/fViewPart.asp?mid=18770
Total number of participants: 294 (registered 344)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 229

Annex B:
List of Tdocs

The list of tdocs of this RAN2#101 is attached to this report.
Total of 2440 tdoc numbers were allocated of which 2368 tdocs were available.

Annex C:
Incoming liaison statements

TDoc	Title	Source	Status	Rel	Related WIs	To	Cc	Original LS

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 230

R2-1801703	Reply LS on EDT procedures and AS NAS interaction (C1-175072; contact: MediaTek)	CT1	noted	Rel-15	NB_IOTenh2-Core, LTE_eMTC4-Core	RAN2, RAN3, SA2		C1-175072
R2-1801704	Reply LS on Early Data Transmission (C1-175310; contact: Qualcomm)	CT1	noted	Rel-15	LTE_eMTC4-Core, NB_IOTenh2-Core	SA2, RAN2	RAN3, SA3	C1-175310
R2-1801705	Reply LS on LTE call redirection to GERAN (C1-175377; contact: Nokia)	CT1	noted	Rel-15	TEI15	SA3, RAN2	RAN3	C1-175377
R2-1801706	LS on Status of Specifications Covering Requirements for IoT Modules (C1-175380; contact: Ericsson)	CT1	noted	Rel-13	NB_IOT	GSMA TSGIoT Subgroup	SA3, RAN2, RAN5, CT	C1-175380
R2-1801707	Reply LS on security aspects of supporting LTE connected to 5GC (C1-180485; contact: Huawei)	CT1	noted	Rel-15	LTE_5GCN_connect	RAN2, RAN3	SA3	C1-180485
R2-1801708	Service types for QMC reporting (C1-180636; contact: Ericsson)	CT1	noted	Rel-15	EQoE_MTSI, UMTS_QMC_Streaming, LTE_QMC_Streaming, QOED	SA4, RAN2, RAN6	SA5	C1-180636
R2-1801709	Reply LS on EDT procedures and AS NAS interaction (C1-180638; contact: Qualcomm)	CT1	noted	Rel-15	NB_IOTenh2-Core, LTE_eMTC4-Core	SA2	RAN2, RAN3	C1-180638
R2-1801710	LS on encrypting broadcasted positioning data and LS on provisioning of positioning assistance data via LPPa for broadcast C1-180643; contact: Qualcomm)	CT1	noted	Rel-15	LCS_LTE_acc_enh-Core	SA2	RAN3, RAN2, CT4, SA3	C1-180643
R2-1801711	LS on selectively disabling legacy radio access (C1-180711; contact: Qualcomm)	CT1	noted	Rel-16		SA1	SA3, SA2, RAN2, CT4	C1-180711
R2-1801712	LS on HARQ-ACK feedback for eFeMTC (R1-1721254; contact: Qualcomm)	RAN1	noted	Rel-15	LTE_eMTC4-Core	RAN2		R1-1721254
R2-1801713	LS on problematic MCS-TBS configurations for PSSCH decoding (R1-1721299; contact: Huawei)	RAN1	noted	Rel-14	LTE_V2X-Core	RAN2		R1-1721299
R2-1801714	LS on RRC parameters for high capacity stationary wireless link and introduction of 1024 QAM for LTE (R1-1721731; contact: Huawei)	RAN1	noted	Rel-15	LTE_1024QAM_DL	RAN2		R1-1721731
R2-1801715	LS on OSI and paging PDCCH configuration (R1-1801189; contact: Samsung)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1801189
R2-1801716	LS on power control for LTE-NR Dual Connectivity (R1-1801231; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN4, RAN2		R1-1801231
R2-1801717	LS response to RAN2 on MAC CEs for beam management and CSI (R1-1801272; contact: Huawei)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1801272
R2-1801718	Agreements on Paging (R1-1801280; contact: Huawei)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1801280
R2-1801719	LS on correction to RRC parameters for NR (R1-1801281; contact: Ericsson and MediaTek)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1801281
R2-1801720	LS on NR UE feature list (R1-1801290; contact: NTT DOCOMO and AT&T)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2, RAN4	RAN3	R1-1801290
R2-1801721	Response LS on LTE call redirection to GERAN (R3-175030; contact: Nokia)	RAN3	noted	Rel-14	TEI14	SA3	CT1, RAN2	R3-175030
R2-1801722	Reply LS on Paging failures	RAN3	noted	Rel-13	TEI13	SA2,		R3-175045

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 231

	for CE Capable UEs (R3-175045; contact: Qualcomm)					RAN2		
R2-1801723	LS on Paging in case of Enhanced Coverage Restriction (R3-175078; contact: Nokia)	RAN3	noted	Rel-14	TEI14, NB_IOTenh-Core, CIoT_Ext	SA2	RAN2	R3-175078
R2-1801724	LS on security for CU-CP/UP separation (R3-180630; contact: Ericsson)	RAN3	noted	Rel-15	NR_CPUP_Split	SA3	RAN2	R3-180630
R2-1801725	Reply to LS on handling concurrent running of security procedures (R3-180632; contact: Ericsson)	RAN3	noted	Rel-15	5GS_Ph1	SA3	RAN2	R3-180632
R2-1801726	LS on Extending TAC for NR and NG-RAN (R3-180634; contact: Ericsson)	RAN3	noted	Rel-15	NR_newRAT-Core	RAN2, SA2		R3-180634
R2-1801727	LS response to System acquisition time reduction for Rel-15 LTE MTC (R4-1713855; contact: Ericsson)	RAN4	noted	Rel-15	LTE_eMTC4-Core	RAN1, RAN2		R4-1713855
R2-1801728	LS on the addition of PC2 for uplink CA_41C (R4-1714017; contact: Sprint)	RAN4	noted	Rel-15	LTE_CA_C_B41_PC2	RAN2		R4-1714017
R2-1801729	LS reply on resource selection for Mode-4 sidelink CA (R4-1714180; contact: Huawei)	RAN4	noted	Rel-15	LTE_eV2X-Core	RAN1	RAN2	R4-1714180
R2-1801730	LS on Measurement requirement for LAA/WiFi hardware sharing problem (R4-1714276; contact: Qualcomm)	RAN4	noted	Rel-13	TEI13	RAN2		R4-1714276
R2-1801731	Reply LS on PHR mapping table for FR1 and FR2 (R4-1801078; contact: Huawei)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2		R4-1801078
R2-1801732	LS on measurement gap patterns (R4-1801079; contact: Huawei)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2	RAN1	R4-1801079
R2-1801733	Reply LS on LTE measurement gap patterns for SSTD measurement (R4-1801080; contact: Huawei)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2		R4-1801080
R2-1801734	LS for intra-frequency measurement on NR SCell (R4-1801307; contact: NTT DOCOMO)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2		R4-1801307
R2-1801735	LS reply on required information for NSA on X2 (R4-1801327; contact: Nokia)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN3	RAN1, RAN2	R4-1801327
R2-1801736	LS on the number of data bearers (RP-172836; contact: Samsung)	RAN	noted	Rel-15	TEI15	SA, CT	RAN2, RAN3, SA2, CT1, CT4	RP-172836
R2-1801737	LS on CP latency reduction (RP-172840; contact: Ericsson)	RAN	noted	Rel-15	TEI15	RAN2, RAN1		RP-172840
R2-1801738	LS on Removal of 'over LTE' limitation from Mission Critical Specifications (S1- 174542; contact: Dutch Police)	SA1	noted	Rel-15	MCOver	SA2, SA3, SA4, SA5, SA6, CT1, CT3, CT4, CT6, RAN1, RAN2, RAN3, RAN4, RAN5, RAN6	SA, CT, RAN	S1- 174542
R2-1801739	Reply LS on Restricted Use of Enhanced Coverage (S2-179612; contact: Nokia)	SA2	noted	Rel-14	CIoT_Ext	RAN6, CT1	RAN2	S2-179612

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 232

R2-1801740	Reply LS on FEC and ROHC for mission critical services over MBMS (S2-179613; contact: Nokia)	SA2	noted	Rel-15	MBMS_Mcservices	CT3, SA6, SA4, RAN2, RAN3		S2-179613
R2-1801741	Reply LS on EDT procedures and AS NAS interaction (S2-179614; contact: Qualcomm)	SA2	noted	Rel-15	LTE_eMTC4-Core, NB_IOTenh2-Core	RAN2, CT1, RAN3		S2-179614
R2-1801742	Reply LS on UE differentiation for Rel-15 NB-IoT (S2-179615; contact: Huawei)	SA2	noted	Rel-15	NB_IOTenh2-Core	RAN2	CT1, RAN3	S2-179615
R2-1801743	Reply LS on UE differentiation for NB-IoT (S2-179616; contact: Huawei)	SA2	noted	Rel-15	NB_IOTenh2-Core	RAN3, RAN2		S2-179616
R2-1801744	Response to LS on encrypting broadcasted positioning data and LS on provisioning of positioning assistance data via LPPa for broadcast (S2-179617; contact: Qualcomm)	SA2	noted	Rel-15	LCS_LTE_acc_enh-Core	RAN2, CT1, CT4, SA3	RAN3	S2-179617
R2-1801745	Reply LS to CN node selection for LTE features when E-UTRA is connected to 5G CN (S2-179618; contact: Nokia)	SA2	noted	Rel-15	5GS_Ph1	RAN2, CT1	RAN3	S2-179618
R2-1801746	Reply LS on Paging in case of Enhanced Coverage Restriction (S2-181236; contact: Nokia)	SA2	noted	Rel-14	TEI14, NB_IOTenh-Core, CIoT_Ext	RAN3	RAN2	S2-181236
R2-1801747	Reply LS on details of network identifiers (S2-181262; contact: Qualcomm)	SA2	noted	Rel-15	LTE_5GCN_connect, NR_newRAT-Core	RAN2		S2-181262
R2-1801748	Reply LS on Reliability for eV2X (S2-181368; contact: OPPO)	SA2	noted	Rel-15	LTE_eV2X-Core	RAN2	CT1	S2-181368
R2-1801749	Reply LS on Paging failures for CE Capable UEs (S2-181370; contact: Intel)	SA2	noted	Rel-15	TEI15	RAN3, RAN2		S2-181370
R2-1801750	Reply LS on encrypting broadcasted positioning data (S3-173439; contact: Ericsson)	SA3	noted	Rel-15	LCS_LTE_acc_enh-Core	RAN2	RAN3, SA2	S3-173439
R2-1801751	Reply LS on Early Data Transmission (S3-173472; contact: Ericsson)	SA3	noted	Rel-15	LTE_eMTC4-Core, NB_IOTenh2-Core	RAN2	RAN3, SA2, CT1	S3-173472
R2-1801752	LS on Security aspects of supporting LTE connected to 5GC (S3-180348; contact: Ericsson)	SA3	noted	Rel-15	LTE_5GCN_connect-Core	RAN2	CT1	S3-180348
R2-1801753	Reply LS on security during Resume reject in INACTIVE state in NR (S3- 180349; contact: Intel)	SA3	noted	Rel-15	NR_newRAT-Core	RAN2		S3-180349
R2-1801754	LS on Attributes for QoE measurement collection (S5-176409; contact: Ericsson)	SA5	noted	Rel-15	LTE_QMC_Streaming	SA4, RAN2, RAN3		S5-176409
R2-1801755	LS on measurement of user plane latency (S5-181576; contact: Huawei)	SA5	noted	Rel-15	NETSLICE-ADPM5G	RAN2		S5-181576
R2-1801756	Reply LS to SA2 on default values for 5GS QoS averaging window (S6-180222; contact: Motorola Solutions)	SA6	noted	Rel-15	5GS_Ph1	SA2	RAN2, CT1, SA4	S6-180222
R2-1801767	LS on Dynamic PLR Allocation in eVoLP (S4-180219; contact: Intel)	SA4	noted	Rel-15	FS_eVoLP	RAN2, SA2		S4-180219
R2-1801768	Reply LS on adding new service type in QMC reporting (S4-180229; contact: Ericsson)	SA4	noted	Rel-15	UMTS_QMC_Streaming, LTE_QMC_Streaming, EQoE_MTSI, QOED	RAN6	CT1, RAN2	S4-180229

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 233

R2-1801769	Reply LS on Attributes for QoE measurement collection (S4-180240; contact: Ericsson)	SA4	noted	Rel-15	UMTS_QMC_Streaming, LTE_QMC_Streaming, EQoE_MTSI, QOED	SA5	RAN2, RAN3	S4-180240
R2-1801770	Reply LS on default values for 5GS QoS averaging window for standardised 5QIs (S4-180254; contact: Intel)	SA4	noted	Rel-15	FS_eVoLP	SA2	CT1, RAN2, SA6	S4-180254
R2-1801771	Reply LS on FEC and ROHC for mission critical services over MBMS (S4-180275; contact: Expway)	SA4	noted	Rel-15		SA2	CT3, SA6, RAN2, RAN3	S4-180275
R2-1803747	LS for measurement gap timing offset granularity (R4-1801331; source: NTT DOCOMO, INC.)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2		R4-1801331
R2-1803774	LS on UE WLAN MAC address inclusion in E911 location information (S1-180298; contact: Qualcomm)	SA1	noted			RAN2	SA2	S1-180298
R2-1803775	Reply LS on URLLC (S1-180628; contact: Vodafone)	SA1	noted	Rel-15		SA, SA2	RAN, RAN1, RAN2	S1-180628
R2-1803776	Reply LS on selectively disabling legacy radio technologies (S1-180634; contact: Ericsson and Qualcomm)	SA1	noted	Rel-16	TEI16	CT1	SA3, SA2, RAN2, CT4	S1-180634
R2-1803931	Reply LS to LS on RAN2 Assumption about DRB ID value range (S3-180848; contact: Nokia)	SA3	noted	Rel-15	NR_newRAT-Core	RAN2		S3-180848
R2-1803940	LS on UE feature list (R4-1803288; contact: NTT DOCOMO)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN1, RAN2	RAN3	R4-1803288
R2-1803966	LS on introducing of LTE UE DL CAT 21 for 1.4Gbps in Rel.14 (R1-1803373; contact: HiSilicon)	RAN1	noted	Rel-14	TEI14	RAN2	RAN	R1-1803373
R2-1803975	LS on Support User Plane Encryption in UP security policy (S3-180943; contact: Huawei)	SA3	noted	Rel-15	5GS_Ph1-SEC	SA2, RAN2, RAN3		S3-180943
R2-1803980	LS on MAC CEs for BM and CSI (R1-1803347; contact: Huawei)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1803347
R2-1803981	LS reply on beam failure recovery (R1-1803348; contact: CATT)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1803348
R2-1803987	LS on Measurement gap timing advance (R4-1803126; contact: NTT DOCOMO)	RAN4	noted	Rel-15	NR_newRAT-Core	RAN2		R4-1803126
R2-1803988	Missing values for calculating the RA-RNTI (R1-1803372; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1803372
R2-1803989	LS on Maximum TBS for PDSCH containing RMSI/OSI/Paging (R1-1803375; contact: CATT)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2		R1-1803375
R2-1803990	Reply LS on Raster Configuration (R1-1803379; contact: Intel and MediaTek)	RAN1	noted	Rel-15	NR_newRAT-Core	RAN2	RAN4	R1-1803379
R2-1804012	LS on INOBEAR (S2-182355; contact: Samsung)	SA2	noted	Rel-15	780027	CT1, CT4, RAN2, RAN3		S2-182355
R2-1804029	LS on encrypting broadcasted positioning data and on provisioning of positioning assistance data via LPPa for broadcast (C4-182150; contact: Qualcomm)	CT4	available	Rel-15	LCS_LTE_acc_enh-Core	SA2	RAN2, RAN3, CT1, SA3	C4-182150

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 234

R2-1804048	LS on RAR (R1-1803475; contact: Ericsson)	RAN1	noted	Rel-15	NR_newRAT-Core			R1-1803475
R2-1804076	Reply LS on clarification in MAC (R4-1802690; contact: Huawei)	RAN4	available	Rel-15	NR_newRAT-Core	RAN2	RAN1	R4-1802690
R2-1804077	"LS reply on UE RF related parameters, capabilities and features for NR standalone (R4-1802708; contact: NTT DOCOMO)	RAN4	available	Rel-15	NR_newRAT-Core	RAN2	RAN1, RAN3	R4-1802708
R2-1804078	LS reply on UE baseband processing capability (R4-1803122; contact: Intel)	RAN4	available	Rel-15	NR_newRAT-Core	RAN2	RAN1	R4-1803122
R2-1804079	LS reply on In-Device Coexistence solution for EN-DC (R4-1803254; contact: NTT DOCOMO)	RAN4	available	Rel-15	NR_newRAT-Core	RAN2		R4-1803254
R2-1804080	Reply LS on NR Idle Mode Measurements (R4-1803276; contact: CMCC)	RAN4	available	Rel-15	NR_newRAT-Core	RAN2	RAN1	R4-1803276
R2-1804093	LS reply on LTE measurement gap patterns for SSTD measurement (R4-1803506; contact: Ericsson)	RAN4	available	Rel-15	NR_newRAT-Core	RAN2		R4-1803506

82 incoming LS, of which 75 were noted. Seven LSin will be handled in RAN2#101bis.

Annex D:
Outgoing liaison statements

TDoc	Title	Rel	Related WIs	To	Cc

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 235

R2-1803795	Reply LS on Data support for "voice centric" UE supporting CE mode B	Rel-14	LTE_feMTC-Core, LTE_eMTC4-Core	SA2	RAN3, CT1
R2-1803797	Early contention resolution in NB-IoT	Rel-13	NB_IOT-Core	RAN1	RAN5
R2-1803798	Reply LS to RAN1 on wake-up signal	Rel-15	NB_IOTenh2-Core, LTE_eMTC4-Core	RAN1	
R2-1803821	Reply LS to Reply LS on UE differentiation for Rel-15 NB-IoT	Rel-15	NB_IOTenh2-Core	SA2	RAN3, CT1
R2-1803856	LS to RAN1 on handling parallel RA procedure and SR procedure	Rel-15	NR_newRAT-Core	RAN1	
R2-1803860	LS on messagePowerOffsetGroupB	Rel-15	NR_newRAT-Core	RAN1	
R2-1803863	LS on field length of Pcmax,c and PH	Rel-15	NR_newRAT-Core	RAN4	
R2-1803872	LS response to RAN1 on NR MIMO MAC CE	Rel-15	NR_newRAT-Core	RAN1	RAN4
R2-1803884	Reply LS to RAN1 on early data transmission	Rel-15	NB_IOTenh2-Core, LTE_eMTC4-Core	RAN1	
R2-1803885	Reply LS on EDT procedures and AS NAS interaction	Rel-15	NB_IOTenh2-Core, LTE_eMTC4-Core	CT1	RAN3, SA2
R2-1803886	Reply LS on HARQ-ACK feedback for efeMTC	Rel-15	LTE_eMTC4-Core	RAN1	
R2-1803916	Reply LS on Reliability for eV2X	Rel-15	LTE_eV2X-Core	SA2	CT1
R2-1803939	Reply LS on CT1's chosen solution for unified access control	Rel-15	NR_newRAT-Core, 5GS_Ph1-CT	CT1	SA1
R2-1803950	LS on LTE peak data-rate calculation for EN-DC	Rel-15	NR_newRAT-Core	RAN1	RAN4
R2-1803985	LS on CP latency reduction	Rel-15	TEI15	RAN1	
R2-1804050	LS on PDCP Change Indication	Rel-15	NR_newRAT-Core	RAN3	
R2-1804052	LS on maximum number of CCs for NR CA	Rel-15	NR_newRAT-Core	RAN1	
R2-1804056	UE capability related to integrity protection of DRBs	Rel-15	NR_newRAT-Core	CT1, SA3, RAN3	
R2-1804065	Reply LS on Measurement requirement for LAA/WiFi hardware sharing problem	Rel-13	TEI13	RAN4	
R2-1804066	LS to RAN1 on Beam- and Cell- Radio-Link-Monitoring	Rel-15	NR_newRAT-Core	RAN1	
R2-1804067	Response LS on optionality of the UE procedures related to RRC Inactive	Rel-15	NR_newRAT-Core, 5GS_Ph1	SA2	RAN3, CT1
R2-1804073	LS on Message 3 size for NR	Rel-15	NR_newRAT-Core	RAN1	
R2-1804074	Reply LS on required information for NSA on X2	Rel-15	NR_newRAT-Core	RAN3	RAN1, RAN4
R2-1804075	LS on Frequency Band list	Rel-15	NR_newRAT-Core	RAN1, RAN3, RAN4	
R2-1804084	LS on RAN2 agreements for LTE URLLC	Rel-15	LTE_HRLLC-Core	RAN1	
R2-1804085	Reply LS on adding new service type in QMC reporting	Rel-15	TEI15	SA4	RAN3, SA5
R2-1804086	Reply LS on Attributes for QoE measurement collection	Rel-15	TEI15	SA5	RAN3, SA4
R2-1804087	Response LS on adding PRB usage distribution and IP throughput distribution measurements	Rel-15	TEI15	SA5	
R2-1804088	Response LS on adding measurements on average number of total active Ues	Rel-15	TEI15	SA5	
R2-1804089	Reply LS on Certification/License and Identification of Aerial Vehicles	Rel-15	LTE_Aerial	SA2, RAN3	CT4
R2-1804090	LS on PC5 transmission mechanism selection	Rel-15	LTE_eV2X-Core	SA2	
R2-1804091	LS to RAN on IMT-2020 requirement for 0ms handover interruption time in Rel-15	Rel-15	NR_newRAT-Core	RAN	
R2-1804094	LS to SA2 and CT1 on enabling and disabling NG RAN Capabilities	Rel-15	LTE_5GCN_connect-Core	CT1, SA2	
R2-1804095	LS regarding RAN support for NW slicing	Rel-15	NR_newRAT-Core	SA2, RAN3	
R2-1804096	Reply LS on measurement of user plane latency	Rel-15	NR_newRAT-Core	SA5	
R2-1804097	Reply LS on intra-frequency measurement on NR Scell	Rel-15	NR_newRAT-Core	RAN4	
R2-1804098	Response LS on Maximum TBS for PDSCH containing RMSI/OSI/Paging	Rel-15	NR_newRAT-Core	RAN1	
R2-1804099	LS to RAN3 on details of RAN notification area	Rel-15	NR_newRAT-Core	RAN3	
R2-1804100	LS on SN triggered fullConfig indication in X2 for EN-DC	Rel-15	NR_newRAT-Core	RAN3	
R2-1804101	Reply LS on periodic RNA update without anchor relocation	Rel-15	NR_newRAT-Core	RAN3	

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 236

R2-1804102	LS on UL timing difference in EN-DC	Rel-15	NR_newRAT-Core	RAN4	RAN1
R2-1804103	LS on RAN2 agreements on RRM	Rel-15	NR_newRAT-Core	RAN1, RAN4	
R2-1804104	LS on NR RRC configuration response message	Rel-15	NR_newRAT-Core	RAN3	
R2-1804105	LS On measurement gaps for Rel. 15 NR positioning	Rel-15	NR_newRAT-Core	RAN4	
R2-1804106	LS on UE differentiation in NB-IoT	Rel-15	NB_IOTenh2-Core	RAN3	CT1, SA2
R2-1804107	LS on clarification of NSSAI information exchange during Inactive to connected mode transition	Rel-15	NR_newRAT-Core	CT1, SA2	
R2-1804108	LS on Security aspects of supporting LTE connected to 5GC	Rel-15	NR_newRAT-Core, LTE_5GCN_connect-Core	CT1	SA3
R2-1804109	Reply LS on SI reception in BWP	Rel-15	NR_newRAT-Core	RAN1	RAN4
R2-1804119	LS On SFTD measurements	Rel-15	NR_newRAT-Core	RAN4	
R2-1804136	LS on security for inactive state	Rel-15	NR_newRAT-Core	SA3	
R2-1804137	LS on RAN2 agreements for euCA	Rel-15	LTE_euCA-Core	RAN1, RAN4	RAN3

51 outgoing LS.

Annex E:
List of agreed CRs

Agreed CRs:

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 237

TDoc	Title	Source	Rel	Spec	Related WIs	CR	Rev	Ca
R2-1801861	CR on CBR measurement	OPPO, LG Electronics Inc.	Rel-14	36.300	LTE_V2X-Core	1087		F
R2-1801863	CR on CBR measurement	OPPO, LG Electronics Inc.	Rel-15	36.300	LTE_V2X-Core	1088		A
R2-1802166	Correction on SRS carrier switching	Huawei, HiSilicon, Qualcomm Incorporated	Rel-14	36.331	LTE_SRS_switch-Core	3216		F
R2-1802167	Correction on SRS carrier switching	Huawei, HiSilicon, Qualcomm Incorporated	Rel-15	36.331	LTE_SRS_switch-Core	3217		A
R2-1802199	Correction to field description for HARQ-ACK delay for Rel-14 MTC	Huawei, HiSilicon	Rel-14	36.331	LTE_feMTC-Core	3221		F
R2-1802200	Correction to field description for HARQ-ACK delay for Rel-14 MTC	Huawei, HiSilicon	Rel-15	36.331	LTE_feMTC-Core	3222		A
R2-1802201	Correction to description for HARQ-ACK delay for Rel-14 MTC	Huawei, HiSilicon	Rel-14	36.306	LTE_feMTC-Core	1545		F
R2-1802865	CR on distribution of total PRB usage	Huawei, HiSilicon	Rel-15	36.314	TEI15	0049		F
R2-1803401	Segmentation of LPP Messages	Qualcomm Incorporated, Ericsson, Nokia	Rel-14	36.355	TEI14	0189	1	F
R2-1803406	Corrections for RLC specification	MediaTek Inc. (Rapporteur)	Rel-15	38.322	NR_newRAT-Core	0003		F
R2-1803478	Clarification for the use of en-gNB in LTE Stage-2	Nokia, Nokia Shanghai Bell	Rel-15	36.300	NR_newRAT-Core	1104		F
R2-1803500	Clarification to PUCCH Configuration for LAA SCells	Ericsson	Rel-14	36.331	LTE_eLAA-Core	3281		F
R2-1803501	Clarification to PUCCH Configuration for LAA SCells	Ericsson	Rel-15	36.331	LTE_eLAA-Core	3282		A
R2-1803740	Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier spacing	Qualcomm Incorporated	Rel-14	36.300	MBMS_LTE_enh2-Core	1069	1	F
R2-1803741	Reference Signals for MBSFN with 1.25kHz and 7.5khz sub-carrier spacing	Qualcomm Incorporated	Rel-15	36.300	MBMS_LTE_enh2-Core	1113		A
R2-1803787	Missing description of RRC Connection Re-establishment for the Control plane	Huawei, HiSilicon	Rel-14	36.300	NB_IOTenh-Core	1091	1	F
R2-1803788	Missing description of RRC Connection Re-establishment for the Control plane	Huawei, HiSilicon	Rel-15	36.300	NB_IOTenh-Core	1094	1	A
R2-1803789	Correct introduction of multiple HARQ processes for NB-IoT	Qualcomm Incorporated	Rel-14	36.321	NB_IOTenh-Core	1217	1	F
R2-1803790	Correct introduction of multiple HARQ processes for NB-IoT	Qualcomm Incorporated	Rel-15	36.321	NB_IOTenh-Core	1218	1	A
R2-1803791	Correction on the SI-RNTI for MPDCCH	Intel Corporation	Rel-13	36.300	LTE_MTCe2_L1-Core	1099	1	F
R2-1803792	Correction on the SI-RNTI for MPDCCH	Intel Corporation	Rel-14	36.300	LTE_MTCe2_L1-Core	1100	1	A
R2-1803793	Correction on the SI-RNTI for MPDCCH	Intel Corporation	Rel-15	36.300	LTE_MTCe2_L1-Core	1101	1	A
R2-1803796	Introduction of MAC CEs for NR MIMO	Nokia	Rel-15	38.321	NR_newRAT-Core	0041		B
R2-1803799	Correction to RRCConnectionReestablishment message in 36.331	Huawei, HiSilicon	Rel-14	36.331	NB_IOTenh-Core	3223	1	F
R2-1803800	Correction to RRCConnectionReestablishment message in 36.331	Huawei, HiSilicon	Rel-15	36.331	NB_IOTenh-Core	3224	1	A
R2-1803812	MAC Corrections for RRC Resume	MediaTek Inc.	Rel-13	36.321	NB_IOT-Core, TEI13	1240	2	F
R2-1803815	Clarification on the NPRACH starting subcarrier partitioning for multi-tone Msg3 transmission	NTT DOCOMO INC.	Rel-14	36.331	NB_IOT-Core	3295	2	F
R2-1803816	Clarification on the NPRACH starting subcarrier partitioning for multi-tone Msg3 transmission	NTT DOCOMO INC.	Rel-15	36.331	NB_IOT-Core	3296	2	A
R2-1803817	Support of CE mode B restriction for Rel-14 eMTC	Intel Corporation	Rel-14	36.304	LTE_feMTC-Core	0407	2	F
R2-1803827	Correction to relaxed monitoring reference RSRP reset (Alternative 1)	Huawei, HiSilicon, Ericsson	Rel-14	36.304	NB_IOTenh-Core	0402	4	F
R2-1803828	Corrections for EN-DC	Ericsson	Rel-15	38.331	NR_newRAT-Core	0008		F
R2-1803829	Miscellaneous corrections from review in preparation for ASN.1 freeze	Rapporteur (Samsung)	Rel-15	36.331	NR_newRAT-Core	3208	2	F
R2-1803831	MAC Corrections for RRC Resume	MediaTek Inc.	Rel-14	36.321	NB_IOT-Core, TEI13	1241		A
R2-1803832	MAC Corrections for RRC Resume	MediaTek Inc.	Rel-15	36.321	NB_IOT-Core, TEI13	1242		A
R2-1803836	Measurement Requirements for LAA-WiFi Hardware Sharing Problem	Ericsson	Rel-13	36.300	LTE_LAA-Core	1105	1	B

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 238

R2-1803838	Correction on SI-RNTI value for FeMBMS	Huawei, HiSilicon	Rel-14	36.321	MBMS_LTE_enh2-Core	1212	1	F
R2-1803840	Correction to pucch-ConfigDedicated for fallback configuration	Qualcomm Inc., Huawei, HiSilicon, Ericsson	Rel-14	36.331	LTE_CA_enh_b5C-Core	3276	1	A
R2-1803841	Correction to pucch-ConfigDedicated for fallback configuration	Qualcomm Inc., Huawei, HiSilicon, Ericsson	Rel-15	36.331	LTE_CA_enh_b5C-Core	3277	1	A
R2-1803843	Correction on SI-RNTI value for FeMBMS	Huawei, HiSilicon	Rel-15	36.321	MBMS_LTE_enh2-Core	1213	1	A
R2-1803844	Supported bandwidths in Fallback band combination	Ericsson	Rel-14	36.306	TEI14	1564	1	F
R2-1803848	Correction to GERAN redirection without security	Nokia, Nokia Shanghai Bell, Ericsson, Intel	Rel-14	36.331	TEI14	3273	1	F
R2-1803849	Correction to GERAN redirection without security	Nokia, Nokia Shanghai Bell, Ericsson, Intel	Rel-15	36.331	TEI14	3274	1	A
R2-1803851	Capability for for reading shared PLMN information from non-CSG cells	Nokia, Nokia Shanghai Bell, Softbank	Rel-14	36.306	TEI14	1561	1	F
R2-1803852	Correction to handling of p-Max procedure for high-power UEs	Intel Corporation	Rel-14	36.331	TEI13	3255	1	A
R2-1803853	Correction to handling of p-Max procedure for high-power UEs	Intel Corporation	Rel-15	36.331	TEI13	3256	1	A
R2-1803854	General corrections on TS 38.321	Samsung (Rapporteur)	Rel-15	38.321	NR_newRAT-Core	0039	1	F
R2-1803858	Corrections to PDCP specification	LG Electronics Inc.	Rel-15	38.323	NR_newRAT-Core	0002	1	F
R2-1803877	Miscellaneous Corrections & Additions	Rapporteur (Nokia)	Rel-15	38.300	NR_newRAT-Core	0009	1	F
R2-1803878	Miscellaneous corrections	ZTE	Rel-15	37.340	NR_newRAT-Core	0004	1	F
R2-1803887	Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value	Vencore Labs, OEC, AT&T, Intel	Rel-14	36.331	TEI14	3262	2	F
R2-1803888	Correction on Override of the highPriorityAccess Establishment Cause by the mo-VoiceCall value	Vencore Labs, OEC, AT&T, Intel	Rel-15	36.331	TEI14	3263	2	A
R2-1803889	Correction to handling of p-Max procedure for high-power UEs	Intel Corporation	Rel-13	36.331	TEI13	3254	2	F
R2-1803890	Correction on SRS carrier switching	Huawei, HiSilicon, Qualcomm Incorporated	Rel-15	36.306	LTE_SRS_switch-Core	1566	1	F
R2-1803905	Clarification to Sidelink Booking Processes	Ericsson	Rel-14	36.321	LTE_V2X-Core	1229	1	F
R2-1803906	Clarification to Sidelink Booking Processes	Ericsson	Rel-15	36.321	LTE_V2X-Core	1230	1	A
R2-1803907	Clarifications on V2X resource selection in the absence of positioning information	Intel Corporation	Rel-14	36.331	LTE_V2X-Core	3271	1	F
R2-1803908	Clarifications on V2X resource selection in the absence of positioning information	Intel Corporation	Rel-15	36.331	LTE_V2X-Core	3272	1	A
R2-1803909	Correction on SI-offsetIndicator for the sidelink resource pool	Qualcomm Incorporated	Rel-14	36.331	LTE_V2X-Core	3292	1	F
R2-1803913	Miscellaneous correction to V2X in TS 36.300	Huawei, HiSilicon	Rel-14	36.300	LTE_V2X-Core	1110	2	F
R2-1803914	Miscellaneous correction to V2X in TS 36.300	Huawei, HiSilicon	Rel-15	36.300	LTE_V2X-Core	1089	3	A
R2-1803915	Correction on SI-offsetIndicator for the sidelink resource pool	Qualcomm Incorporated	Rel-15	36.331	LTE_V2X-Core	3301	1	A
R2-1803918	Clarification on HRL for EN-DC	RAN3 (Huawei)	Rel-15	36.300	NR_newRAT-Core	1117		F
R2-1803919	Stage 2 alignment for NSA Energy Savings	RAN3 (Qualcomm Incorporated)	Rel-15	36.300	NR_newRAT-Core	1118		F
R2-1803920	Paging failure in CE Capable UEs	RAN3 (NTT DOCOMO, Inc.)	Rel-13	36.300	TEI13	1119		F
R2-1803921	Paging failure in CE Capable UEs	RAN3 (NTT DOCOMO, INC.)	Rel-14	36.300	TEI13	1120		A
R2-1803922	Paging failure in CE Capable UEs	RAN3 (NTT DOCOMO, INC.)	Rel-15	36.300	TEI13	1121		A
R2-1803923	E-UTRA - NR Cell Resource Coordination	RAN3 (Nokia, Nokia Shanghai Bell)	Rel-15	36.300	NR_newRAT-Core	1122		B
R2-1803928	Baseline CR for TS 37.340 (RAN3 part) covering agreements of RAN3 #NR adhoc 1801 and RAN3 #99	RAN3 (ZTE)	Rel-15	37.340	NR_newRAT-Core	0008	1	F

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 239

R2-1803936	Removal of Type3 PH for single serving cell case	NTT DOCOMO INC.	Rel-14	36.321	LTE_SRS_switch-Core	1238	1	F
R2-1803937	Removal of Type3 PH for single serving cell case	NTT DOCOMO INC.	Rel-15	36.321	LTE_SRS_switch-Core	1239	1	A
R2-1803964	RoHC support for Mission Critical services over MBMS	Nokia, Nokia Shanghai Bell	Rel-15	36.300	TEI15, MBMS_Mcservices	1116		F
R2-1803999	RRC Corrections for RRC Resume	MediaTek Inc.	Rel-14	36.331	NB_IOT-Core, TEI13, LTE_MTCe2_L1-Core	3305		A
R2-1804000	RRC Corrections for RRC Resume	MediaTek Inc.	Rel-15	36.331	NB_IOT-Core, TEI13, LTE_MTCe2_L1-Core	3306		A
R2-1804006	Measurement Requirements for LAA-WiFi Hardware Sharing Problem	Ericsson	Rel-14	36.300	LTE_LAA-Core	1106	1	A
R2-1804007	Measurement Requirements for LAA-WiFi Hardware Sharing Problem	Ericsson	Rel-15	36.300	LTE_LAA-Core	1107	1	A
R2-1804022	CR on distribution of scheduled IP throughput	Huawei, HiSilicon	Rel-15	36.314	TEI15	0050	2	F
R2-1804038	Small correction on PhysicalConfigDedicated-NB	ZTE Corporation, Sanechips	Rel-14	36.331	NB_IOTenh-Core	3257	1	F
R2-1804062	Different power class support for band combinations	Nokia, Nokia Shanghai Bell, Sprint	Rel-13	36.331	TEI13	3265	1	C
R2-1804063	Different power class support for band combinations	Nokia, Nokia Shanghai Bell, Sprint	Rel-14	36.331	TEI13	3266	1	A
R2-1804064	Different power class support for band combinations	Nokia, Nokia Shanghai Bell, Sprint	Rel-15	36.331	TEI13	3267	1	A
R2-1804082	Correction to pucch-ConfigDedicated for fallback configuration	Qualcomm Inc., Huawei, HiSilicon, Ericsson	Rel-13	36.331	LTE_CA_enh_b5C-Core	3275	2	F
R2-1804110	Introduction of EN-DC capabilities	Intel Corporation	Rel-15	36.306	NR_newRAT-Core	1559	2	B
R2-1804111	Introduction of support of relaxed monitoring for BL and CE UE	Ericsson, BlackBerry UK Limited	Rel-14	36.304	TEI14, LTE_feMTC-Core	0405	1	C
R2-1804112	Introduction of support of relaxed monitoring for BL and CE UE	Ericsson, BlackBerry UK Limited	Rel-14	36.306	TEI14, LTE_feMTC-Core	1552	1	C
R2-1804113	Introduction of support of relaxed monitoring for BL and CE UE	Ericsson, BlackBerry UK Limited	Rel-14	36.331	TEI14, LTE_feMTC-Core	3237	2	C
R2-1804114	Introduction of support of relaxed monitoring for BL and CE UE	Ericsson, BlackBerry UK Limited	Rel-15	36.331	TEI14, LTE_feMTC-Core	3297	2	A
R2-1804118	RRC Corrections for RRC Resume	MediaTek Inc.	Rel-13	36.331	TEI13, NB_IOT-Core, LTE_MTCe2_L1-Core	3304	2	F
R2-1804120	Updates of UE capabilities	Intel Corporation, NTT DOCOMO, INC.	Rel-15	38.306	NR_newRAT-Core	0003	3	F
R2-1804122	Signalling for reading shared PLMN information from non-CSG cells	Nokia, Nokia Shanghai Bell, Softbank	Rel-14	36.331	TEI14	3278	2	F
R2-1804123	Signalling for Inbound mobility for open CSG cells	Nokia, Nokia Shanghai Bell, Softbank	Rel-15	36.331	TEI14	3279	2	A
R2-1804135	Clarification of contention resolution in NB-IoT	Qualcomm Incorporated	Rel-13	36.300	TEI13, NB_IOT-Core	1115	4	F

91 agreed CRs.

Endorsed CRs:

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 240

TDoc	Title	Source	Rel	Spec	Related WIs	CR	Rev	Ca
R2-1803845	Introduction of LTE DL 1.4Gbps Category	Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange	Rel-14	36.306	TEI14	1555	2	B
R2-1803846	Introduction of LTE DL 1.4Gbps Category	Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange	Rel-14	36.331	TEI14	3244	2	B
R2-1803847	Introduction of LTE DL 1.4Gbps Category	Huawei, HiSilicon, Telefonica, British Telecom, T-Mobile US, Orange	Rel-15	36.331	TEI14	3245	2	A

3 endorsed CRs.

Annex F: Email Approvals

ASN.1 review related. Deadlines stated for each discussion (all 23:59 Pacific Time)

Please request TDoc numbers for the following email discussions from MCC if not already allocated below

[101#01][NR] 38.331 CR part 1 (Ericsson)
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
- Endorsed in R2-1804125

[101#02][NR] 38.331 CR part 2 (Huawei)
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
- Endorsed in R2-1804126

[101#03][NR] 38.331 CR part 3 (Huawei)
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
- Endorsed in R2-1804127

[101#04][NR] 38.331 CR part 4 (Huawei)
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
- Endorsed in R2-1804128

[101#05][NR] 38.331 CR part 5 (Ericsson)
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
- Endorsed in R2-1804129

[101#06][NR] 38.331 CR part 6 (Nokia)
Intended outcome: Agreed CR part.
Deadline: Tuesday 2018-03-13
- Endorsed in R2-1804130

[101#07][NR] 38.331 combined CR (Ericsson)
Single 38.331 CR to be created from the output of the individual email discussions.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 241

Only issues arising from the combining of the separate parts are to be discussed - any issues regarding the content of an individual part must me raised in the appropriate email discussion.
Note if the CR is agreed too late to be submitted to RAN as a RAN2 agreed CR it will be submitted by the rapporteur company.
Intended outcome: Agreed CR
Deadline: Thursday 2018-03-15
- Agreed in R2-1803828

[101#08][NR] 36.331 CR (Samsung)
Intended outcome: Agreed CR.
Deadline: Tuesday 2018-03-13
- Agreed in R2-1803829

[101#09][NR] 38.331 CR part 7a and 38.306 (Intel)
Update the output of part 7 of the ASN.1 review with other agreements from the meeting (e.g. from AI 10.4.4 and other parts of ASN.1 review)
Intended outcome: Agreed 38.331 CR part and agreed 36.306 CR part.
Deadline: Thursday 2018-03-08
- Endorsed in R2-1804115 (36.306) and R2-1804116 (36.331).

[101#10][NR] 38.331 CR part 7b and 38.306 (DOCOMO)
Update the draft CR to reflect new agreements from RAN1/4. Include those capabilities that we know how to include and where to include.
And merge the output for part 7a discussion.
Intended outcome: Agreed 38.331 CR part and agreed 36.306 CR
Deadline: Tuesday 2018-03-13
- Agreed in R2-1804120, Endorsed in R2-1804121 (38.331)

[101#11][NR] 36.306 CR for EN-DC (Intel)
Intended outcome: Agreed CR
Deadline: Thursday 2018-03-08
- Agreed in R2-1804110

Deadline Thursday, 2018-03-08, 23:59 Pacific Time

Please request TDoc numbers for the following email discussions from MCC if not already allocated below

[101#12][NR] 38.300 CR (Nokia)
Intended outcome: Agreed CR
Deadline: Thursday 2018-03-08
- Agreed in R2-1803877

[101#13][NR] SI reception in connected LS (LG)
Intended outcome: Approved LS
Deadline: Thursday 2018-03-08
- Approved in R2-1804109

[101#14][NR] TS 38.305 (Qualcomm)
Intended outcome: Agreed TS v1.0.0 for submission to RAN for information
Deadline: Thursday 2018-03-08
- Endorsed in R2-1803804.

[101#15][NR] Inactive security LS (Huawei)
Intended outcome: Approved LS
Deadline: Thursday 2018-03-08
- Approved in R2-1804136

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 242

[101#16][NR] LS to RAN4 on SFTD (Ericsson)
Intended outcome: Approved LS
Deadline: Thursday 2018-03-08
- Approved in R2-1804119

[101#17][NR] TS 38.304 (Qualcomm)
Update TS to reflect agreements from this meeting.
Intended outcome: Agreed version 1.0.0 for submission to plenary for information.
Deadline: Thursday 2018-03-08
- Endorsed in R2-1803805

[101#18][LTE/euCA] LS to RAN1/RAN4 (Nokia)
Intended outcome: Approved LS
Deadline: Thursday 2018-03-08
- Approved in R2-1804137

[101#22][LTE/UDC] 36.323 CR (CATT)
Introduction of DEFLATE based UDC Solution in TS36.323 (CATT)
Intended outcome: endorsed CR
Deadline: Thursday 2018-03-08
- Endorsed in R2-1803822

[101#23][LTE/UDC] 36.331 CR (CATT)
Introduction of DEFLATE based UDC Solution in TS36.331 (CATT)
Intended outcome: endorsed CR
Deadline: Thursday 2018-03-08
- Endorsed in R2-1803823

[101#24][LTE/UDC] 36.306 CR (CATT)
Introduction of DEFLATE based UDC Solution in TS36.306 (CATT)
Intended outcome: endorsed CR
Deadline: Thursday 2018-03-08
- Endorsed in R2-1803824

[101#25][LTE/UDC] 36.300 CR (CATT)
Introduction of DEFLATE based UDC Solution in TS36.300 (CATT)
Intended outcome: endorsed CR
Deadline: Thursday 2018-03-08
- Endorsed in R2-1803825

[101#28][NR UP/MAC] Correction CR – Samsung
Intended outcome: Agreed CR
Deadline: Thursday 2018-03-08
- Agreed in R2-1803854

[101#29][NR UP/MAC] MAC CEs for NR MIMO – Nokia
- Agree to CR introducing MAC CEs for NR MIMO
Intended outcome: Agreed CR
Deadline: Thursday 2018-03-08
- Agreed in R2-1803796

[101#30][NR UP/MAC] TP on SR and BSR triggering – Samsung
- Use R2-1803869 as a baseline to agree to final corrections
- 3 days after the meeting
Intended outcome: Agreed TP
Deadline: Wednesday 2018-03-07 (note earlier deadline)
- Agreed in R2-1803873.

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 243

[101#52][NB-IOT R14] Early contention resolution (Qualcomm)
Email discussion, one week (NB-IoT R14), Introduction of early contention resolution, agrees 36.331 and 36.300 CRs (Qualcomm)
Intended outcome: agreed CRs
Deadline: Thursday 2018-03-08
- Postponed in R2-1804131, R2-1804132, R2-1804133, R2-1804134. Agreed in R2-1804135.

[101#53][NB-IOT/MTC R13] RRC Resume (MediaTek)
Email discussion, one week (NB-IoT MTC R13), RRC Corrections for RRC Resume, Agreed 36.331 CR, incl shadows (Mediatek).
Intended outcome: agreed CRs
Deadline: Thursday 2018-03-08
- Agreed in R2-1803999. R2-1804000, R2-1804118

[101#54][LTE/MTC R14] Relaxed monitoring (Ericsson)
Email discussion, one week, CRs (R14 and shadows) for relaxed monitoring for MTC, (Ericsson).
Intended outcome: agreed CRs
Deadline: Thursday 2018-03-08
- Agreed in R2-1804111, R2-1804112, R2-1804113, R2-1804114

Deadline Thursday, 2018-03-15, 23:59 Pacific Time

Please request TDoc numbers for the following email discussions from MCC if not already allocated below

[101#31][LTE/NB-IoT R15] Runnng 36.331 CR (Huawei)
Email discussion, two weeks (NB-IoT R15), Running CR 36.331, excluding EDT, incl. TDD (Huawei)
Intended outcome: Endorsed running CR
Deadline: Thursday 2018-03-15
- Endorsed in R2-1803929

[101#32][LTE/ NB-IoT R15] Running 36.321 CR (Ericsson)
Email discussion, two weeks (NB-IoT R15), Running CR 36.321 (Ericsson)
Intended outcome: Endorsed running CR
Deadline: Thursday 2018-03-15
- No output

[101#82][LTE/ NB-IoT R15] Running 36.300 CR (Huawei)
Email discussion, two weeks (NB-IoT R15), Running CR 36.300, including EDT (Huawei)
Intended outcome: Endorsed running CR
Deadline: Thursday 2018-03-15
- Endorsed in R2-1803930

[101#26][LTE/feLAA] Introduce feLLA in TS 36.331 (Nokia)
Capture the agreements so far from RAN1 and RAN2
Intended outcome: endorsed running CR
Deadline: Thursday 2018-03-15
- Endorsed in R2-1804138

[101#27][LTE/feLAA] Introduce feLLA in TS 36.321 (Ericsson)
Intended outcome: endorsed running CR
Deadline: Thursday 2018-03-15
- Endorsed in R2-1804139

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 244

Deadline Thursday, 2018-03-29, 23:59 Pacific Time

TDoc numbers for the following email discussions may be requested via 3GU tool

[101#33][LTE/5GC] Inactive (Intel)
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

[101#34][LTE/5GC] Slicing (Ericsson)
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

[101#35][LTE/5GC] Flow based QoS (Huawei)
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

[101#36][LTE/5GC] Access Control (China Telecom)
Consider agreements made for NR and determine which agreements can be directly translated to LTE/5GC and identify those topics where more discussion is required before it can be concluded for LTE/5GC. Discussions will not go further than NR.
Intended outcome: Report to next meeting and TP (at least stage 2 and possibly stage 3) capturing the agreements which can be directly translated to LTE/5GC
Deadline: Thursday 2018-03-29

[101#37][NR] RRC procedures/messages (Ericsson)
Start to draft RRC spec text based on agreements that have been made. Identify FFS points that still need to be resolved.
Intended outcome: Report to next meeting including identified FFS points and TP.
Deadline: Thursday 2018-03-29

[101#38][NR] SI procedure text (LG)
Intended outcome: TP to next meeting
Deadline: Thursday 2018-03-29

[101#39][NR] SIB content ASN.1 (Huawei)
Progress the SIB content and ASN.1 structure based on existing agreements.
Can use Huawei contribution (R2-1803371) on content of idle mode SIBs as a starting point.
Intended outcome: TP for the ASN1 to next meeting
Deadline: Thursday 2018-03-29

[101#40][NR] Access Control (LG)
Discuss the structure of the procedure text for Access Control and draft a text proposal based on agreements made so far. Identify FFS points to be resolved (addressing FFS points to be based on contributions at the next meeting)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 245

Identify what information is required to be included in the ASN.1 and draft a baseline ASN.1 structure that can be used as a baseline for discussion of signalling optimisations at the next meeting.
Intended outcome: Draft TP submitted to next meeting
Deadline: Thursday 2018-03-29

[101#41][NR] UE capability structure (Qualcomm)
Progress further aspects of the UE capability structure
Intended outcome: Report to next meeting
Deadline: Thursday 2018-03-29

[101#42][LTE/euCA] Introducing valid area mechanism (vivo)
- Identify the scenarios of valid area
- discuss whether or not to introduce valid area mechanism

Intended outcome: Report from email discussion
Deadline: Thursday 2018-03-29

[101#43][LTE/TEI15] HSDN Running 36.304 CR (OPPO)
Support of mobility-state-based cell reselection in the high-speed-railway dedicated LTE network in 36.304 (OPPO)
Intended outcome: running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#44][LTE/TEI15] HSDN Running 36.331 CR (CMCC)
Support of mobility-state-based cell reselection in the high-speed-railway dedicated LTE network in 36.331 (CMCC)
Intended outcome: running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#45][LTE/HRLLC] The granularity of time reference discussion (Huawei)
Discussion on use cases and requirements on synchronization accuracy and identify the gap between the requirement and the current synch accuracy
Discussion on granularity of time
Intended outcome: Report of email discussion
Deadline: Thursday 2018-03-29

[101#46][LTE/HRLLC] Introduction of URLLC in LTE in TS 36.321 (Ericsson)
Intended outcome: running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#47][LTE/HRLLC] Introduction of URLLC in LTE in TS 36.323 (Ericsson)
Intended outcome: running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#48][LTE/HRLLC] Introduction of URLLC in LTE in TS 36.322 (Ericsson)
Intended outcome: running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#49][LTE/URLLC] Introduction of URLLC in LTE in TS 36.331 (Ericsson)
Intended outcome: running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#50][LTE/URLLC] Introduction of URLLC in LTE in TS 36.300 (Ericsson)
Intended outcome: running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#51][LTE/MTC R13] DRX for MTC (DOCOMO)

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 246

Email discussion, next meeting (MTC R13) on DRX for MTC, arrive at an agreeable interpretation, and correction to the TS, if needed (NTT Docomo)
Intended outcome: Report to the next meeting. If needed, an agreeable CR
Deadline: Thursday 2018-03-29

[101#55][LTE/MTC R15] Enhancements to standalone Operation (Huawei)
Email discussion, next meeting (NB-IoT R15): Enhancements to standalone Operation, arrive at agreeable proposals from Meeting Input (Huawei)
Intended outcome: Report of email discussion
Deadline: Thursday 2018-03-29

[101#56][LTE/MTC R15] PHR enhancements (Ericsson)
Email discussion, next meeting (NB-IoT R15): PHR enhancements, arrive at agreeable proposals from Meeting Input (Ericsson)
Intended outcome: Report of email discussion
Deadline: Thursday 2018-03-29

[101#57][NB-IoT/MTC R15] EDT remaining issues (Huawei)
Email discussion on the remaining issues for EDT in the CP and UP solutions [Huawei]
- Intention: to progress the discussion on the remaining issues for EDT in the CP and UP solutions.
Deadline: Thursday 2018-03-29

[101#58][NB-IoT/MTC R15] EDT security issues (Intel)
Email discussion on the security issues for EDT [Intel]
Intention: to progress the discussion on the security issues for EDT.
Deadline: Thursday 2018-03-29

[101#59][NB-IoT/MTC R15] Running 36.331 CR for EDT (Qualcomm)
Email discussion on running 36.331 CR for eMTC and NB-IoT for EDT to capture the Rel-15 EDT agreements [Qualcomm]
Intention: to progress the running 36.331 CR for eMTC and NB-IoT for EDT to capture the Rel-15 agreements.
Deadline: Thursday 2018-03-29

[101#60][LTE/MTC R15] Running 36.331 CR non EDT (Quacomm)
Email discussion on running 36.331 CR for eMTC excluding EDT to capture the Rel-15 agreements [Qualcomm]
Intention: to progress the running 36.331 CR for eMTC excluding EDT to capture the Rel-15 agreements.
Deadline: Thursday 2018-03-29

[101#61][NB-IoT/MTC R15] Running 36.321 CR for EDT(Intel)
Email discussion on running 36.321 CR for eMTC and NB-IoT for EDT to capture the Rel-15 EDT agreements [Intel]
Intention: to progress the running 36.321 CR for eMTC and NB-IoT for EDT to capture the Rel-15 agreements.
Deadline: Thursday 2018-03-29

[101#62][LTE/MTC R15] Running 36.321 CR non EDT (Intel)
Email discussion on running 36.321 CR for eMTC excluding EDT to capture the Rel-15 agreements [Intel]
Intention: to progress the running 36.321 CR for eMTC excluding EDT to capture the Rel-15 agreements.
Deadline: Thursday 2018-03-29

[101#63][NB-IoT/MTC R15] PDSCH spectral efficiency (Huawei)
Email discussion on increased PDSCH spectral efficiency [Huawei]

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 247

Intention: to progress and provide text proposals to be included in the running CRs for eMTC to capture the Rel-15 agreements.
Deadline: Thursday 2018-03-29

[101#64][NB-IoT/MTC R15] PUSCH spectral efficiency (Ericssob)
Email discussion on increased PUSCH spectral efficiency [Ericsson]
Intention: to progress and provide text proposals to be included in the running CRs for eMTC to capture the Rel-15 agreements.
Deadline: Thursday 2018-03-29

[101#65][NB-IoT/MTC R15] Lower power class UE [ZTE]
Email discussion on lower power class UE [ZTE]
Intention: to progress and provide text proposals to be included in the running CRs for eMTC to capture the Rel-15 agreements.
Deadline: Thursday 2018-03-29

[101#66][LTE/sTTI] Running 36.331 – Ericsson
Intended outcome: Running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#67][LTE/sTTI] Running 36.306 – Ericsson
Intended outcome: Running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#68][NR UP/MAC] – BWP linkage – Ericsson
- Capture the background of the BWP linkage and how to use it
  Intended outcome: Report to next meeting
  Deadline: Thursday 2018-03-29

[101#69][NR UP/MAC] PRACH table – LG
- email discussion on PRACH configuration table
  Intended outcome: Report to next meeting
  Deadline: Thursday 2018-03-29

[101#70][NR UP/MAC] DRX and RNTIs – Huawei
- Identify new NR RNTIs and whether they need to be subject to DRX
  Intended outcome: Report to next meeting
  Deadline: Thursday 2018-03-29

[101#71][NR UP/SDAP] Running TS – Huawei
Intended outcome: TS submitted to next meeting
Deadline: Thursday 2018-03-29

[101#72][LTE/V2X] Packet duplications (Ericsson)
Options to inform eNB of PPPR information
Configuration and/or activation options for mode 3 and mode 4
Output: Report to next meeting
Deadline: Thursday 2018-03-29

[101#73][LTE/V2X] Destination address enhancements (ZTE)
The need of the enhancement of destination address for network scheduling of mode-3 (including SPS) and if consensus on the need, possible options can be also discussed (ZTE)
Output: Report to next meeting
Deadline: Thursday 2018-03-29

[101#74][LTE/V2X] 36.300 running CR (Huawei)
Output: Running CR submitted to next meeting

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 248

Deadline: Thursday 2018-03-29

[101#75][LTE/V2X] Additional carrier reselection triggering (Qualcomm)
Need of additional carrier reselection triggering and any restriction (Qualcomm)
Output: Report to next meeting
Deadline: Thursday 2018-03-29

[101#76][LTE/Postioning] Reply to SA2 on provisioning of keys for broadcast assistance data (Qualcomm)
To conclude on the solution for provisioning of keys for broadcast assistance data, and update SA2.
Output: Draft reply to R2-1801744 submitted to next meeting
Deadline: Thursday 2018-03-29

[101#77][LTE/Positioning] Shape recommendations (Nokia)
To converge on the shape recommendations to be sent to SA2.
Output: Report to next meeting
Deadline: Thursday 2018-03-29

[101#78][LTE/Positioning] Stage 2 CR on positioning (ESA)
To endorse the draft stage 2 CR as a baseline for further work.
Output: Updated CR for next meeting
Deadline: Thursday 2018-03-29

[101#79][LTE/Positioning] Reply to SA3 on encrypting broadcasted positioning data (Ericsson)
To conclude on the solution for encrypting the broadcast assistance data (LPPe solution vs. new solution), and update SA3.
Output: Report to next meeting and reply to R2-1801710 submitted to next meeting.
Deadline: Thursday 2018-03-29

[101#80][LTE/Positioning] UE movement model (Fraunhofer)
To progress the signalling and measurements needed to support the UE movement model.
Output: Report to next meeting
Deadline: Thursday 2018-03-29

[101#81][LTE/Positioning] Details of reporting acceleration and displacement (Sony)
To converge on the signalling design and report content for acceleration and displacement measurements.
Output: Report to next meeting
Deadline: Thursday 2018-03-29

[101#19][LTE/BT/WLAN MDT] 36.306 CR (CMCC)
Introduction of Bluetooth/ WLAN measurement collection in MDT in 36.306
Intended outcome: Running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#20][LTE/BT/WLAN MDT] 36.331 CR (Huawei)
Introduction of Bluetooth/ WLAN measurement collection in MDT in 36.331
Intended outcome: Running CR submitted to next meeting
Deadline: Thursday 2018-03-29

[101#21][LTE/BT/WLAN MDT] 37.320 CR (CMCC)
Introduction of Bluetooth/ WLAN measurement collection in MDT in 37.320
Intended outcome: Running CR submitted to next meeting
Deadline: Thursday 2018-03-29

Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 249

Annex G: History

Document history		
Date	**TSG RAN WG2 Tdoc**	**Subject**
23.03.2018	-	Draft report v1
15.04.2018	R2-1804201	Version submitted for approval in RAN2#101bis.

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Unified Patents, LLC v. Togail Technologies, Ltd.
Ex-1035
Page 250