3GPP TSG-RAN WG2 Meeting #112-e draftR2-2010703

Electronic meeting, 2nd – 13th November 2020

Agenda Item: 10.3

Source: Session Chair (Ericsson)

Title: draftReport eMTC breakout session

Document for: Approval

**General**

Recording of voice or video at meetings is not used in 3GPP. This applies also to this e-Meeting. At this e-Meeting, no specific actions are taken to prevent the recording of web conferences. Companies that have concerns related to recordings, if any, may express those by email in the main meeting organizational thread [AT112-e][000]

Please see the following Tdocs for e-meeting guidance:

[R2-2008700](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2008700.zip) Agenda for RAN2#112-e Chairman agenda

[R2-2010988](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010988.zip) RAN2#112-e Meeting Guidelines MCC discussion

**Time Schedule**Please refer to the latest schedule in the RAN2 inbox on the public 3GPP servers.

**Access Tools**

*HTTP Upload Tool:*

ETSI IT has created a facility in Inbox and Inbox/Drafts folders on the public 3GPP servers to allow delegates to upload their documents using a web browser (however Internet Explorer is not yet supported). Open your browser and navigate to your chosen folder – for example,

<https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Inbox>

Click the green button to log in using your EOL account. A panel will appear in the upper part of the screen and documents may be dragged and dropped onto this landing pad; this causes them to be uploaded to the folder.

*Secure FTP:*

Those e-delegates who prefer to use FTP-like access to our e-meeting Inbox & Draft folders but are concerned by their usernames and passwords being sent unencrypted over the internet, ETSI IT has fitted the server with FTPS (SSL) so delegates can connect from their favourite FTP client using the address: ftps.3gpp.org. Please enter your username and password when prompted.

**Organizational**

* Incoming LSs are noted by default. Contact companies should flag LSs that need to be replied from this meeting.
* Legacy topics will be treated by email only unless indicated explicitly. Please see the list of offline email discussions below.
* Rel-16 (draft) CRs and text proposals will be handled as part of the email discussion on the corresponding CR(s) or the ASN.1 review email discussion if associated with a RIL#.
* All organizational emails and notes will be shared over the following email discussion throughout both meeting weeks:
* [AT112-e][400][eMTC/NB-IoT] Organizational Emre’s session

 Scope:

* Share plans for the e-meeting and make announcements
* Share status of email discussions
* Share meeting minutes and agreements for review and endorsement

 Deadline: Friday, November 13th 11:00 UTC

 Status: Started

**List and Status of Offline Email Discussions**

NOTE: The deadlines refer to the deadline for providing company comments unless stated otherwise.

* [AT112-e][401][NB-IoT/eMTC R15] UP EDT for DRB using RLC AM (Huawei)

Status: Closed

 Scope: Discuss how to capture the agreement on how the procedure ends at the UE for MO-EDT, MT-EDT or PUR in the specifications.

 Intended outcome: Agreed 36.300 and 36.331 CRs in R2-2010810, R2-2010811, R2-2010812, and R2-2010813

 Deadline: Tuesday 2020-11-10 14:00 UTC

* [AT112-e][402][eMTC R15] Addition of cross-TTI MIB/SIB-BR decoding capability (Huawei)

Status: Closed

 Scope: Confirm whether SIB1-BR should also be included, the feature is applicable only to CE Mode B UEs, and there should only be a Rel-16 CR.

 Intended outcome: Agreed 36.306 CRs in R2-2010814 and R2-2010815.

 Deadline: Tuesday 2020-11-10 14:00 UTC

* [AT112-e][403][eMTC R16] SIB acquisition for UEs in RRC\_INACTIVE (ZTE)

Status: Closed

 Scope: Discuss whether there is a need to introduce an additional SI acquisition period with a maximum value of rf1024 for UEs in RRC\_INACTIVE.

 Intended outcome: Report from the discussion in R2-2010816

 Deadline: Tuesday 2020-11-10 14:00 UTC

* [AT112-e][404][eMTC R16] Correction to the DRX cycle on RRC\_INACTIVE for eMTC (Huawei)

Status: Closed

 Scope: Check for feedback and update the CR accordingly, if needed.

 Intended outcome: Agreed 36.331 CR in R2-2010817

 Deadline: Tuesday 2020-11-10 14:00 UTC

* [AT112-e][405][eMTC R16] RSS and relaxed monitoring capabilities (Huawei)

Status: Closed

 Scope: Check for feedback and update the CRs accordingly.

 Intended outcome: Agreed 36.306 and 36.331 CRs in R2-2010818 and R2-2010819.

 Deadline: Tuesday 2020-11-10 14:00 UTC

**4 EUTRA corrections Rel-15 and earlier**

*See Appendix A for reference to Work items, work item codes and WIDs.*

*Only essential corrections. No documents should be submitted to 4. Please submit to 4.x*

**4.2 eMTC corrections Rel-15 and earlier**

*Documents in this agenda item will be handled in a break out session. Common NB-IoT/eMTC parts treated jointly with 4.1. No web conference is planned for this agenda item.*

*Including outcome of [Post111-e][922][NBIOT/eMTC R15] UP EDT for DRB using RLC AM (Huawei)*

[R2-2009723](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009723.zip) Report of e-mail discussion [Post111-e][922][NB-IoT/eMTC R15] UP EDT for DRB using RLC AM (Huawei) Huawei, HiSilicon report Rel-15 NB\_IOTenh2-Core, LTE\_eMTC4-Core

Proposal 1: Follow the legacy RLC procedure for poll bit setting in the RLC PDU(s) carrying the UL user data for UP-EDT. No change to the specification is needed.

* For UP-EDT, follow the legacy RLC procedure for poll bit setting in the RLC PDU(s) carrying the UL user data.

Proposal 2: Follow the legacy RLC procedure for inclusion of RLC STATUS PDU in MSG4. No change to the specification is needed.

* For UP-EDT, follow the legacy RLC procedure for inclusion of RLC STATUS PDU in Msg4.

Proposal 3: Capture in the chair minutes that reception of RRCConnectionRelease for EDT is not an implicit RLC ACK of the data included in the uplink transmission.

* Ericsson wonders why the NW would not continue with moving the UE to connected mode in that case.
* Ericsson prefers not to capture that in the meeting minutes. QC and ZTE agree.

Proposal 4: The EDT procedure terminates at the UE with the transmission of HARQ ACK for MSG4.

* QC thinks this is not how it works already today. Ericsson agrees. Huawei confirms that this is the case and suggests that a change can be considered for EDT.
* Sequans supports the proposal and would like to keep the formulation as it is.
* Nokia supports the proposal
* Ericsson wonders what sort of changes are required if this proposal is not agreed.
* QC thinks further clarification is required to clarify the UE behaviour in any case. Huawei explains that this is clarified as suggested in the following proposals, i.e., change in RRC spec. QC thinks this may hide the change the RLC spec and therefore prefers that the change is captured in RLC spec. Huawei thinks this would not be needed.
* For MO-EDT, MT-EDT or PUR, the procedure ends at the UE with the transmission of HARQ ACK for Msg4, i.e., without responding to the poll bit, if any, or waiting for 1.25sec/10 sec. FFS how to capture this in the specifications.

Proposal 5: Capture in stage 2 that the EDT procedure terminates with the transmission of HARQ ACK for MSG4 which is an implicit acknowledgment of the successful delivery of the DL data.

Proposal 6: Capture in RRC specification, that upon reception of RRCConnectionRelease for EDT, the UE can proceed without delay with the release of the resources, regardless of any poll bit.

Proposal 7: MT- EDT follows the same principle as MO-EDT when applicable, i.e. the procedure terminates at the UE with the transmission of HARQ ACK for MSG4.

Proposal 8: PUR follows the same principle as MO-EDT when applicable, i.e. the procedure terminates at the UE with the transmission of HARQ ACK for MSG4.

* [AT112-e][401][NB-IoT/eMTC R15] UP EDT for DRB using RLC AM (Huawei)

 Scope: Discuss how to capture the agreement on how the procedure ends at the UE for MO-EDT, MT-EDT or PUR in the specifications.

 Intended outcome: Agreed 36.300 and 36.331 CRs in R2-2010810, R2-2010811, R2-2010812, and R2-2010813

 Deadline: Tuesday 2020-11-10 14:00 UTC

[R2-2010820](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010820.zip) Summary of [AT112-e][401][NB-IoT/eMTC R15] UP EDT for DRB using RLC AM (Huawei) Huawei, HiSilicon report Rel-15 NB\_IOTenh2-Core, LTE\_eMTC4-Core

Proposal 1: Agree on a stage 2 CR that clarifies that the procedure ends with the positive HARQ ACK which is also an acknowledgement of the successful downlink transmission.

* Ericsson agrees and thinks that we should make sure that the following procedures should be captured: MO-EDT, MT-EDT and PUR, another dimension to check is the EPS and 5GC case and if it is to the same/different eNB.
* QC agrees with the intention.
* RAN2 will agree on a stage 2 CR which clarifies that the procedure ends with the positive HARQ ACK which is also an acknowledgement of the successful downlink transmission.

Proposal 2: Continue discussing the actual wording based on the following proposal from the rapporteur “The procedure ends with the reception of the layer 1 ACK acknowledging the successful DL transmission”.

Proposal 3: No stage 3 CR.

* No Stage 3 CR is needed.
* [POST112-e][xxx][ eMTC R15] UP EDT for DRB using RLC AM (Huawei)

 Scope: Finalize the Stage 2 CR based on the related agreement. Check if Rel-16 is a mirror CR.

 Intended outcome: Agreed 36.300 CRs in R2-2010810 and R2-2010811.

 Deadline: Short

[R2-2010812](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010812.zip) Clarification to UP-EDT Huawei, HiSilicon CR Rel-15 36.331 15.11.0 4477 - F NB\_IOTenh2-Core, LTE\_eMTC4-Core

[R2-2010813](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010813.zip) Clarification to UP-EDT Huawei, HiSilicon CR Rel-16 36.331 16.2.1 4478 - A NB\_IOTenh2-Core, LTE\_eMTC4-Core

* The CRs above are withdrawn.

[R2-2009724](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009724.zip) Clarification to UP-EDT Huawei, HiSilicon CR Rel-15 36.300 15.11.0 1298 1 F NB\_IOTenh2-Core, LTE\_eMTC4-Core [R2-2007328](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2007328.zip)

[R2-2009725](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009725.zip) Clarification to UP-EDT Huawei, HiSilicon CR Rel-16 36.300 16.3.0 1299 1 A NB\_IOTenh2-Core, LTE\_eMTC4-Core [R2-2007329](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2007329.zip)

[R2-2009726](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009726.zip) Clarification to UP-EDT Huawei, HiSilicon CR Rel-15 36.331 15.11.0 4477 - F NB\_IOTenh2-Core, LTE\_eMTC4-Core

[R2-2009727](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009727.zip) Clarification to UP-EDT Huawei, HiSilicon CR Rel-16 36.331 16.2.1 4478 - A NB\_IOTenh2-Core, LTE\_eMTC4-Core

[R2-2009734](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009734.zip) Addition of cross-TTI MIB/SIB-BR decoding capability Huawei, HiSilicon CR Rel-15 36.306 15.9.0 1793 - F LTE\_eMTC4-Core

* QC thinks this should also include SIB1-BR and it is applicable to CE Mode B not A. Ericsson agrees.
* QC wonders if this should only be Rel-16, not Rel-15.

[R2-2009735](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009735.zip) Addition of cross-TTI MIB/SIB-BR decoding capability Huawei, HiSilicon CR Rel-16 36.306 16.2.0 1794 - A LTE\_eMTC4-Core

* [AT112-e][402][eMTC R15] Addition of cross-TTI MIB/SIB-BR decoding capability (Huawei)

 Scope: Confirm whether SIB1-BR should also be included, the feature is applicable only to CE Mode B UEs, and there should only be a Rel-16 CR.

 Intended outcome: Agreed 36.306 CRs in R2-2010814 and R2-2010815.

 Deadline: Tuesday 2020-11-10 14:00 UTC

[R2-2010814](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010814.zip) Addition of cross-TTI MIB/SIB-BR decoding capability Huawei, HiSilicon CR Rel-16 36.306 16.2.0 1794 1 F LTE\_eMTC4-Core

* Agreed

[R2-2010815](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010815.zip) Addition of cross-TTI MIB/SIB-BR decoding capability Huawei, HiSilicon CR Rel-16 36.306 16.2.0 1794 1 A LTE\_eMTC4-Core

* Agreed

**7 Rel-16 EUTRA Work Items**

*Essential corrections*

**7.2 Additional MTC enhancements for LTE**

*(LTE\_eMTC5-Core; LTE\_eMTC5-Core; leading WG: RAN1; REL-16; started: Jun 18; Completed: June 20; WID: RP192875;)*

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

*Some sub-items in 7.2 and 7.3 may be treated jointly.*

*Limit: 5-6 email threads*

7.2.1 General and Stage-2 corrections

*Including incoming LSs*

[R2-2010497](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010497.zip) Support for eDRX cyle beyond 10.24s in RRC\_INACTIVE LG Electronics UK CR Rel-16 36.300 16.3.0 1328 - C LTE\_eMTC5-Core

 - Huawei thinks that the purpose of the extension is to accommodate the number of repetitions required. QC and Ericsson agree.

* Not pursued.

7.2.2 Coexistence with NR corrections

*Coexistence with NR for MTC and NB-IoT is treated jointly under this AI.*

7.2.3 Connection to 5GC corrections

*Connection to 5GC for MTC and NB-IoT is treated jointly under this AI.*

[R2-2009051](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009051.zip) Discussion for clarification on SIB acquisition for eMTC UE in RRC\_INACTIVE ZTE Corporation, Sanechips discussion Rel-16 LTE\_eMTC5-Core

Proposal 1: It’s suggested to introduce a short eDRX acquisition period with maximum length of rf1024 for eMTC in RRC\_INACTIVE to enable eMTC UE to acquire updated system information more timely.

* Huawei and Ericsson think that this is not needed as it is possible for the network to configure accordingly.

Proposal 2: It’s suggested to introduce a corresponding systemInfoModification-short-eDRX IE in PAGING and Direct Indication Information.

[R2-2010461](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010461.zip) Clarification on SIB acquisition for eMTC UE in RRC\_INACTIVE ZTE Corporation, Sanechips CR Rel-16 36.331 16.2.1 4512 - F LTE\_eMTC5-Core

* [AT112-e][403][eMTC R16] SIB acquisition for UEs in RRC\_INACTIVE (ZTE)

 Scope: Discuss whether there is a need to introduce an additional SI acquisition period with a maximum value of rf1024 for UEs in RRC\_INACTIVE.

 Intended outcome: Report from the discussion in R2-2010816

 Deadline: Tuesday 2020-11-10 14:00 UTC

[R2-2010816](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010816.zip) Summary of [AT112-e][403][eMTC R16] SIB acquisition for UEs in RRC\_INACTIVE (ZTE) ZTE Corporation, Sanechips discussion Rel-16 LTE\_eMTC5-Core

Proposal 1: RAN2 discuss the CR for option 2, e.g. eMTC UE in RRC\_INACTIVE would always detect the system information change with *systemInfoModification* IE, no matter whether idle mode eDRX is configured for it. (with configuration restriction that for BL UEs or UEs in CE, the BCCH modification period should be larger than or equal to 10.24s)

* QC thinks the UE should monitor for one indication regarding the change in system information.
* Huawei wonders whether RAN paging DRX cycle or the UE specific DRX should be considered.
* QC thinks that the intention is to use the DRX/eDRX cycle in idle mode also when UE is in RRC-ACTIVE. Huawei and ZTE have a different understanding.
* ZTE thinks when modification updates with respect to eDRX cycles are considered, it is for the eDRX cycle in idle mode.
* Ericsson thinks if RAN paging cycle is larger than the maximum possible for UE specific DRX cycle, it can also be considered as the eDRX cycle.
* Nokia thinks it would be good to clarify what happens outside the PTW with respect to notification for modification when UE is in RRC-INACTIVE. Huawei thinks this is clear.

Proposal 2: If proposal 1 cannot achieve an agreeable CR, RAN2 can have such clarification in Chair note:

“For a eMTC UE in RRC\_INACTIVE that is configured with idle mode eDRX, if its idle mode eDRX cycle is longer than the modification period and if it receives in an eDRX acquisition period at least one Paging message including the *systemInfoModification-eDRX*, it shall acquire the updated system information at the next eDRX acquisition period boundary.”

* Postponed.

[R2-2009738](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009738.zip) Correction to the DRX cycle on RRC\_INACTIVE for eMTC Huawei, HiSilicon CR Rel-16 36.331 16.2.1 4483 - F LTE\_eMTC5-Core

* [AT112-e][404][eMTC R16] Correction to the DRX cycle on RRC\_INACTIVE for eMTC (Huawei)

 Scope: Check for feedback and update the CR accordingly, if needed.

 Intended outcome: Agreed 36.331 CR in R2-2010817

 Deadline: Tuesday 2020-11-10 14:00 UTC

* The rapporteur proposes to postpone the discussion. The intention seems to be agreeable, but exact wording needs more discussion. The CR should be discussed in LTE session in the next meeting.
* Postponed. The discussion will continue in the LTE session.

[R2-2010817](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010817.zip) Correction to the DRX cycle on RRC\_INACTIVE for eMTC Huawei, HiSilicon CR Rel-16 36.331 16.2.1 4483 1 F LTE\_eMTC5-Core

* The CR is withdrawn.

7.2.4 MTC UE capabilities corrections

[R2-2009447](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009447.zip) UE capability for RSS on the same 2 RBs of the MPDCCH narrowband Qualcomm Inc, Ericsson CR Rel-16 36.331 16.2.1 4464 - F LTE\_eMTC5-Core

[R2-2009448](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009448.zip) RSS and relaxed monitoring capabilities for eMTC Qualcomm Inc, Ericsson CR Rel-16 36.306 16.2.0 1792 - F LTE\_eMTC5-Core

[R2-2009736](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009736.zip) Addition of missing capabilities for eMTC R16 Huawei, HiSilicon CR Rel-16 36.306 16.2.0 1780 2 F LTE\_eMTC5-Core [R2-2008236](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_111-e/Docs/R2-2008236.zip)

[R2-2009737](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009737.zip) Addition of missing capabilities for eMTC R16 Huawei, HiSilicon CR Rel-16 36.331 16.2.1 4482 - F LTE\_eMTC5-Core

* The CRs above are merged within the context of the offline discussion #405.
* [AT112-e][405][eMTC R16] RSS and relaxed monitoring capabilities (Huawei)

 Scope: Check for feedback and update the CRs accordingly.

 Intended outcome: Agreed 36.306 and 36.331 CRs in R2-2010818 and R2-2010819.

 Deadline: Tuesday 2020-11-10 14:00 UTC

* The rapporteur reports that 36.306 and 36.331 CRs agreed below are based on the CRs provided in R2-2009447, R2-2009448, R2-2009736 and R2-2009737.

[R2-2010818](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010818zip) Addition of missing capabilities for eMTC R16 Huawei, HiSilicon, Qualcomm Inc., Ericsson CR Rel-16 36.306 16.2.0 1780 3 F LTE\_eMTC5-Core [R2-2009736](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009736.zip)

[R2-2010819](http://ftp.3gpp.org/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2010819.zip) Addition of missing capabilities for eMTC R16 Huawei, HiSilicon, , Qualcomm Inc., Ericsson CR Rel-16 36.331 16.2.1 4482 1 F LTE\_eMTC5-Core

7.2.5 Other MTC specific corrections

*Including corrections related to Mobile-terminated MT early data transmission EDT corrections, Scheduling multiple DL/UL transport blocks corrections, Quality report in Msg3, MPDCCH performance improvement using CRS, Improvements for non-BL UEs, Stand-alone deployment, Mobility enhancements and other MTC specific topics.*