**3GPP TSG-RAN WG2 Meeting #116bis electronic R2-22xxxxx**

Online, January, 2021

Agenda Item: 10.7

Source: Session Chair (Interdigital)

Title: Report NB-IoT breakout session

Document for: Approval

## General

Please see the following TDocs for e-meeting guidance:

[R2-2200000](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200000.zip) Agenda for RAN2#116bis-e Chairman agenda

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

## List and Status of Offline Email Discussions

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

* [AT116bis-e][300][NBIOT/eMTC] Organisational Brian’s Session (Session Chair)

**Status**: Started

**Scope:** Comments to session notes. Kick-off and management of email discussions for NB-IoT session. Coordination issues. Other organisational issues and announcements.

**Intended outcome:** Approval of Report from NB-IoT session.

**Deadline:** EOM

* [AT116bis-e][301][NBIOT/eMTC R17] Carrier Selection (ZTE)

**Status**: Started

**Scope:** Progress the outcome of email discussion [Post116-e][311] to have a set of agreeable proposals and a set of open issues/FFS.

**Intended outcome:** Report in R2-2201786 to treat in wk2 online session (and “easy” agreements by email before the online session, if possible)

**Deadline:** Friday 21 January 1200 UTC

* [AT116bis-e][302][NBIOT/eMTC R17] RLF Measurements (Qualcomm[TBC])

Status: TBD if needed

**Scope:** TBD after online.

**Intended outcome:** TBD after online

**Deadline:** TBD after online

* [AT116bis-e][303][NBIOT/eMTC R17] UE Capabilities (Huawei)

**Status**: Started

**Scope:** Initial discussion to progress UE capabilities discussion.

**Intended outcome:** Report in R2-2201787 (agreements by email if possible – will not be treated online in this meeting)

**Deadline:** Friday 21 January 1200 UTC

## 9.1 NB-IoT and eMTC enhancements

(NB\_IOTenh4\_LTE\_eMTC6-Core; leading WG: RAN1; REL-17; WID: RP-211340)

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

Email max expectation: 4 threads

### 9.1.1 Organizational

Including outcome of [Post116-e][306][NBIOT/eMTC R17] 36.300 running CR (Huawei)

Including outcome of [Post116-e][307][NBIOT/eMTC R17] 36.331 running CR (Qualcomm)

Including outcome of [Post116-e][308][NBIOT/eMTC R17] 36.304 running CR (Nokia)

Including outcome of [Post116-e][309][NBIOT/eMTC R17] 36.306 running CR (ZTE)

LSin

[R2-2200093](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200093.zip) LS on channel quality reporting for NB-IoT (R1-2112971; contact: Huawei) RAN1 LS in Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core To:RAN2, RAN4

* Offline[300]: Noted
* Offline[300]: Wait for RAN1 to conclude on whether and when the legacy table can also be used when 16QAM DL is configured

Running CRs

[R2-2200027](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200027.zip) [Running CR] Introduction of NB-IoT/eMTC Enhancements Qualcomm Incorporated draftCR Rel-17 36.331 16.7.0 B NB\_IOTenh4\_LTE\_eMTC6-Core [R2-2110692](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116-e/Docs/R2-2110692.zip)

* Offline[300]: Endorsed as baseline

[R2-2200029](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200029.zip) Running CR: Introduction of additional enhancements for NB-IoT and eMTC ZTE Corporation, Sanechips draftCR Rel-17 36.306 16.7.0 B NB\_IOTenh4\_LTE\_eMTC6-Core

* Offline[300]: Endorsed as baseline

[R2-2200048](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200048.zip) Running CR: Introduction of Rel-17 enhancements for NB-IoT and eMTC Huawei draftCR Rel-17 36.300 16.7.0 B NB\_IOTenh4\_LTE\_eMTC6-Core [R2-2110477](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116-e/Docs/R2-2110477.zip)

* Offline[300]: Endorsed as baseline

[R2-2200058](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200058.zip) [Running CR] Introduction of NB-IoT/eMTC Enhancements Nokia draftCR Rel-17 36.304 16.6.0 B NB\_IOTenh4\_LTE\_eMTC6-Core

* Offline[300]: Endorsed as baseline
* [Post116bis-e][304][NBIOT/eMTC R17] Update agreements document (Ericsson)

**Scope**: Update the agreements document

**Intended** **outcome**: endorsed report in R2-2201788

**Deadline**: short

* [Post116bis-e][305][NBIOT/eMTC R17] 36.300 running CR (Huawei)

**Scope**: Update the running CR

**Intended** **outcome**: endorsed CR in R2-2201789

**Deadline**: short

* [Post116bis-e][306][NBIOT/eMTC R17] 36.331 running CR (Qualcomm)

**Scope**: Update the running CR

**Intended outcome**: endorsed CR in R2-2201790

**Deadline**: short

* [Post116bis-e][307][NBIOT/eMTC R17] 36.304 running CR (Nokia)

**Scope**: Update the running CR

**Intended outcome**: endorsed CR in R2-2201791

**Deadline**: short

* [Post116bis-e][308][NBIOT/eMTC R17] 36.306 running CR (ZTE)

**Scope**: Update the running CR

**Intended outcome**: endorsed CR in R2-2201792

**Deadline**: short

### 9.1.2 NB-IoT neighbor cell measurements and corresponding measurement triggering before RLF

Including outcome of [Post116-e][310][NBIOT/eMTC R17] RLF measurements (Qualcomm)

Contributions invited on open issues not covered by email discussion

Online Tuesday 18 January:

[R2-2200028](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200028.zip) Report of [Post116-e][310][NBIOT/eMTC] RLF measurements Qualcomm Incorporated report Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

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| **Agreements [Online]:** |

TBD:

* [AT116bis-e][302][NBIOT/eMTC R17] RLF Measurements (Qualcomm[TBC])

**Scope:** TBD after online.

**Intended outcome:** TBD after online

**Deadline:** TBD after online

[R2-2200675](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200675.zip) On remaining issues for connected mode measurements for RLF Nokia, Nokia Shanghai Bells discussion Rel-17

[R2-2200681](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200681.zip) Remaining FFSs on connected mode measurement ZTE Corporation, Sanechips discussion NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2201020](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201020.zip) Consideration on open issues for neighbour cell measurement in RRC connected state Qualcomm Incorporated discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2201077](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201077.zip) Discussion on connected mode measurement in NB-IoT Ericsson discussion Rel-17

* Offline[300]: Above 4 papers are noted

Late/withdrawn

R2-2201534 Support of Early rLF THALES discussion Late

### 9.1.3 NB-IoT carrier selection based on the coverage level, and associated carrier specific configuration

Including outcome of [Post116-e][311][NBIOT/eMTC R17] NB-IoT carrier selection (ZTE)

Contributions invited on open issues not covered by email discussion

[R2-2200030](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200030.zip) Report of [Post116-e][311] NB-IoT carrier selection ZTE Corporation, Sanechips discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

* Offline[300]: noted
* [AT116bis-e][301][NBIOT/eMTC R17] Carrier Selection (ZTE)

**Scope:** Progress the outcome of email discussion [Post116-e][311] to have a set of agreeable proposals and a set of open issues/FFS.

**Intended outcome:** Report in R2-2201786 to treat in wk2 online session (and “easy” agreements by email before the online session, if possible)

**Deadline:** Friday 21 January 1200 UTC

Agreements by email [301]:

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| **Proposed Agreements Offline[301]:**  **[TBD]**  **Proposal 2: UE can be enabled/disabled** **coverage-based paging carrier selection via dedicated signalling. Presence or absence of the coverage information can be implicit enable/disable indication.**  **Proposal 3: In SIB, one or more R17 paging carriers can be configured with a same Rmax (*npdcch-NumRepetitionPaging*) parameter, which means these paging carriers are corresponding to a same coverage level.**  **Proposal 4: In SIB, at most 2 coverage levels can be configured in R17 paging carrier list.**  **Proposal 5: In SIB, the value range for Ramx (*npdcch-NumRepetitionPaging*) in R17 paging carrier (list) configuration can be *ENUMERATED {r1, r2, r4, r8, r16, r32, r64, r128}*.**  **Proposal 6: In SIB, coverage specific nB is supported, e.g., a common nB value is configured for the R17 paging carrier(s) with same Rmax (*npdcch-NumRepetitionPaging*).**  **Proposal 8: In SIB, coverage specific *ue-SpecificDRX-CycleMin* is supported, e.g., a common *ue-SpecificDRX-CycleMin* value is configured for the R17 paging carrier(s) with same Rmax (*npdcch-NumRepetitionPaging*).**  **Proposal 9: Paging weight can still be used in coverage-based paging carrier selection.**  **Proposal 10: In SIB, both non-mixed operation mode and mixed operation mode can be supported in R17 paging carrier list configuration. They can be configured separately (as legacy).**  **Proposal 11: The extension in SIB22-NB can be used for providing R17 paging carrier list configuration.**  **Proposal 13: In SIB, coverage specific NRSRP threshold is supported, e.g., a common NRSRP threshold value is configured for the R17 paging carrier(s) with same Rmax (*npdcch-NumRepetitionPaging*).**  **Proposal 15: No “offset” (headroom) would be introduced for the configured NRSRP threshold.** |

Online Monday 25 January:

R2-2201786 [AT116bis-e][301][NBIOT/eMTC R17] Carrier Selection (ZTE)

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| **Agreements [Online]**  **FFS:** |

[R2-2200633](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200633.zip) The remaining issues on enhanced paging carrier selection Spreadtrum Communications discussion Rel-17

[R2-2200676](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200676.zip) Further details on coverage level based paging carrier selection Nokia, Nokia Shanghai Bells discussion Rel-17

[R2-2200682](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200682.zip) Remaining FFSs on CEL-based paging carrier selection ZTE Corporation, Sanechips discussion NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2200922](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200922.zip) Discussion on details of paging carrier selection MediaTek Inc. discussion NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2201021](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201021.zip) Paging carrier selection with hysteresis Qualcomm Incorporated discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2201022](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201022.zip) Signalling for coverage-based paging carrier selection Qualcomm Incorporated discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2201076](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201076.zip) Remaining issues of carrier selection Ericsson discussion Rel-17

* Offline[300]: Above 7 papers are noted

Legacy issue

[R2-2200866](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200866.zip) Discussion on the issue for Random Access on multicarrier for NB-IoT CMCC discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2200867](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200867.zip) Solution for random access issue on multiCarrier in NB-IoT CMCC draftCR Rel-17 36.331 16.7.0 B NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2200868](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200868.zip) Solution for random access issue on multiCarrier in NB-IoT CMCC draftCR Rel-17 36.321 16.6.0 B NB\_IOTenh4\_LTE\_eMTC6-Core

* Offline[300]: Above 3 papers not treated

### 9.1.4 Other

Includes WI objectives led by other WGs.

[R2-2200677](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200677.zip) On thje open issues for 16QAM for NB-IoT Nokia, Nokia Shanghai Bells discussion Rel-17

[R2-2200683](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2200683.zip) Remaining FFSs on 16QAM for NB-IoT and 1736bits TBS for eMTC ZTE Corporation, Sanechips discussion NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2201078](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201078.zip) Support of 16-QAM for unicast in UL and DL in NB-IoT Ericsson discussion Rel-17

[R2-2201449](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201449.zip) CQI reporting for 16QAM DL Huawei, HiSilicon discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2201448](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201448.zip) Introduction of Rel-17 enhancements for NB-IoT and eMTC Huawei, HiSilicon draftCR Rel-17 36.302 16.1.0 B NB\_IOTenh4\_LTE\_eMTC6-Core

* Offline[300]: Above 5 papers are noted

[R2-2201450](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_116bis-e/Docs/R2-2201450.zip) UE capabilities and FDD/TDD, EPC/5GC differentiation Huawei, HiSilicon discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

* Offline[300]: Noted
* [AT116bis-e][303][NBIOT/eMTC R17] UE Capabilities (Huawei)

**Scope:** Initial discussion to progress UE capabilities discussion.

**Intended outcome:** Report in R2-2201787 (agreements by email if possible – will not be treated online in this meeting)

**Deadline:** Friday 21 January 1200 UTC

Agreements by email [303]:

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| **Agreements Offline[303]**  **[TBD]** |