3GPP TSG-RAN WG2 Meeting #113 electronic R2-2xxxxxx
Online, Jan 25 – Feb 5, 2021

Agenda Item: 10.7

Source: Session Chair (Huawei)

Title: Report NB-IoT breakout session

Document for: Approval

## General

Please see the following TDocs for e-meeting guidance:

[R2-2100000](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100000.zip) Agenda for RAN2#113-e Chairman agenda

[R2-2100351](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100351.zip) 3GPP TSG RAN WG2 Handbook (01/2021) ETSI MCC discussion

[R2-2100352](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100352.zip) RAN2#113-e Meeting Guidelines ETSI MCC discussion

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

## List and Status of Offline Email Discussions

NOTE: The official kick off date for these email discussions is Monday, November 02, 0700 UTC. The rapporteurs can share them on the reflector earlier, however companies are not required to participate before the official kick off date. The deadlines refer to the deadline for providing company comments unless stated otherwise.

* [AT112-e][300][NBIOT] Organisational (Session Chair)

 **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:** Feb 05 1100 UTC

* [AT113-e][301][NBIOT R15] Correction on NPRACH resources in SIB2-NB and SIB23-NB (Mediatek)

 **Scope:**

Week 1: Determine whether there is sufficient support in principle, collect initial comments.

 Week 2: Agree the CRs.

 **Intended outcome:**

 Week 1: Report in R2-2102151

 Week 2: Agreed CRs / decision.

 **Deadline:**

 Week 1: Jan 28 1100 UTC

 Week 2 (if needed): Feb 04 1100 UTC

* [AT113-e][302][ eMTC R16] Paging narrowband selection in RRC\_INACTIVE for GWUS capable UEs (ZTE)

 **Scope:**

Week 1: Try to converge on solution and agreeable proposals.

 Week 2: Agree the CRs / potential LS.

 **Intended outcome:**

 Week 1: Report in R2-2102152

 Week 2: Agreed CRs / potential LS.

 **Deadline:**

 Week 1: Jan 28 1100 UTC

 Week 2 (if needed): Feb 04 1100 UTC

* [AT113-e][303][NBIOT/eMTC R16] PUR corrections (Huawei)

 **Scope:**

Week 1:

 1) Try to achieve agreeable proposals based on [R2-2101033](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101033.zip).

 2) Check if there is sufficient support to pursue [R2-2101085](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101085.zip) and/or [R2-2101551](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101551.zip) and collect initial comments.

 Week 2:

1. Agree the CRs.
2. NOTE that the Week 2 discussion may be branched in case CRs are needed based on [R2-2101085](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101085.zip) and [R2-2101551](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101551.zip).

 **Intended outcome:**

 Week 1: Report in R2-2102153

 Week 2: Agreed CRs

 **Deadline:**

 Week 1: Jan 28 1100 UTC

 Week 2: Feb 04 1100 UTC

* [AT113-e][304][NBIOT/eMTC R17] Neighbour cell measurements before RLF (Ericsson)

 **Scope:**

 Week 1: TBD online Monday 25 Jan

 Week 2: TBD online Monday 1 Feb

 **Intended outcome:**

 Week 1: Report in R2-2102154

 Week 2: TBD

 **Deadline:**

 Week 1: Jan 29 1100 UTC

 Week 2: TBD Feb 04 1100 UTC

* [AT113-e][305][NBIOT/eMTC R17] Paging carrier selection improvements (Huawei)

 **Scope:**

 Week 1: TBD online Monday 25 Jan

 Week 2: TBD online Monday 1 Feb

 **Intended outcome:**

 Week 1: Report in R2-2102155

 Week 2: TBD

 **Deadline:**

 Week 1: Jan 29 1100 UTC

 Week 2: TBD Feb 04 1100 UTC

## 4.1 NB-IoT 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 4.2. No web conference is planned for this agenda item

[R2-2101822](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101822.zip) Correction on NPRACH resources in SIB2-NB and SIB23-NB MediaTek Inc., ZTE CR Rel-15 36.331 15.12.0 4592 - F NB\_IOTenh2-Core

[R2-2101824](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101824.zip) Correction on NPRACH resources in SIB2-NB and SIB23-NB MediaTek Inc., ZTE CR Rel-16 36.331 16.3.0 4593 - A NB\_IOTenh2-Core

* [AT113-e][301][NBIOT R15] Correction on NPRACH resources in SIB2-NB and SIB23-NB (Mediatek)

 **Scope:**

Week 1: Determine whether there is sufficient support in principle, collect initial comments.

 Week 2: Agree the CRs.

 **Intended outcome:**

 Week 1: Report in R2-2102151

 Week 2: Agreed CRs / decision.

 **Deadline:**

 Week 1: Jan 28 1100 UTC

 Week 2 (if needed): Feb 04 1100 UTC

## 7.3 Additional enhancements for NB-IoT

(NB\_IOTenh3-Core; leading WG: RAN1; REL-16; started: Jun 18; Completed: June 20; WID: RP-200293)

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.

### 7.3.1 General and Stage-2 Corrections

Including incoming LSs etc

### 7.3.2 UE-group wake-up signal (WUS) Corrections

UE group wake Up signal for MTC and NB-IoT is treated jointly under this Agenda Item.

[R2-2100943](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100943.zip) Discussion for correction on paging narrowband selection ZTE Corporation, Sanechips discussion Rel-16 NB\_IOTenh3-Core

[R2-2100957](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100957.zip) Correction on paging narrowband selection-Option 1 ZTE Corporation, Sanechips CR Rel-16 36.304 16.3.0 0819 - F NB\_IOTenh3-Core

R2-2100959 Correction on paging narrowband selection-Option 1 ZTE Corporation, Sanechips CR Rel-16 36.304 16.3.0 0820 - F NB\_IOTenh3-Core Withdrawn

[R2-2100965](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100965.zip) Correction on paging narrowband selection-Option 1 ZTE Corporation, Sanechips CR Rel-16 36.331 16.3.0 4556 - F NB\_IOTenh3-Core

[R2-2100966](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100966.zip) Correction on paging narrowband selection-Option 2 ZTE Corporation, Sanechips CR Rel-16 36.304 16.3.0 0821 - F NB\_IOTenh3-Core

[R2-2100968](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100968.zip) Draft LS to RAN3 on UE radio capability provision ZTE Corporation, Sanechips LS out Rel-16 NB\_IOTenh3-Core To:RAN3

[R2-2101037](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101037.zip) Paging monitoring in RRC\_INACTIVE for GWUS capable Ues Huawei, HiSilicon discussion Rel-16 LTE\_eMTC5-Core

[R2-2101152](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101152.zip) Paging narrowband/carrier selection after RRC connection release Qualcomm Incorporated discussion Rel-16 LTE\_eMTC5-Core

[R2-2101153](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101153.zip) [draft] LS on parameters needed at paging RAN node to reliably page an eMTC UE in RRC-INACTIVE state Qualcomm Incorporated LS out Rel-16 LTE\_eMTC5-Core To:RAN3

[R2-2101154](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101154.zip) Paging narrowband selection in RRC-INACTIVE state Qualcomm Incorporated CR Rel-16 36.304 16.3.0 0823 - F LTE\_eMTC5-Core, NB\_IOTenh3-Core

[R2-2101548](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101548.zip) Paging narrowband selection in RRC\_INACTIVE for LTE-M Ericsson discussion Rel-16 LTE\_eMTC5-Core

[R2-2101549](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101549.zip) Correction to paging narrowband selection in RRC\_INACTIVE for LTE-M Ericsson CR Rel-16 36.331 16.3.0 4581 - F LTE\_eMTC5-Core

* [AT113-e][302][eMTC R16] Paging narrowband selection in RRC\_INACTIVE for GWUS capable UEs (ZTE)

 **Scope:**

Week 1: Try to converge on solution and agreeable proposals.

 Week 2: Agree the CRs / potential LS.

 **Intended outcome:**

 Week 1: Report in R2-2102152

 Week 2: Agreed CRs / potential LS.

 **Deadline:**

 Week 1: Jan 28 1100 UTC

 Week 2 (if needed): Feb 04 1100 UTC

### 7.3.3 Transmission in preconfigured resources corrections

Transmission in preconfigured resources for MTC and NB-IoT is treated jointly under this Agenda Item.

Including [Post112-e][351][NBIOT/eMTC R16] (N)RSRP reference for the TA validation for PUR (Huawei)

[R2-2101033](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101033.zip) Summary of email discussion [351] (N)RSRP reference for TA validation for PUR Huawei report Rel-16 NB\_IOTenh3-Core, LTE\_eMTC5-Core

[R2-2101034](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101034.zip) Clarification on the (N)RSRP reference for TA validation for PUR Huawei, HiSilicon CR Rel-16 36.331 16.3.0 4480 2 F NB\_IOTenh3-Core, LTE\_eMTC5-Core [R2-2009730](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009730.zip)

[R2-2101035](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101035.zip) Clarification on the (N)RSRP reference for TA validation for PUR Huawei, HiSilicon CR Rel-16 36.321 16.3.0 1518 - F NB\_IOTenh3-Core, LTE\_eMTC5-Core

[R2-2101085](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101085.zip) Correction on Drb-ContinueROHC for UP-PUR vivo CR Rel-16 36.331 16.3.0 4567 - F NB\_IOTenh3-Core, LTE\_eMTC5-Core

[R2-2101550](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101550.zip) Timing alignment validation for transmission using PUR Ericsson discussion Rel-16 LTE\_eMTC5-Core, NB\_IOTenh3-Core

[R2-2101551](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101551.zip) Correction to timing alignment validation for transmission using PUR Ericsson CR Rel-16 36.331 16.3.0 4582 - F LTE\_eMTC5-Core, NB\_IOTenh3-Core

* [AT113-e][303][NBIOT/eMTC R16] PUR corrections (Huawei)

 **Scope:**

Week 1:

 1) Try to achieve agreeable proposals based on [R2-2101033](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101033.zip).

 2) Check if there is sufficient support to pursue [R2-2101085](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101085.zip) and/or [R2-2101551](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101551.zip) and collect initial comments.

 Week 2:

1. Agree the CRs.
2. NOTE that the Week 2 discussion may be branched in case CRs are needed based on [R2-2101085](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101085.zip) and [R2-2101551](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101551.zip).

 **Intended outcome:**

 Week 1: Report in R2-2102153

 Week 2: Agreed CRs

 **Deadline:**

 Week 1: Jan 28 1100 UTC

 Week 2: Feb 04 1100 UTC

### 7.3.4 Other NB-IoT Specific corrections

NB-IoT specific topics

## 9.1 NB-IoT and eMTC enhancements

(NB\_IOTenh4\_LTE\_eMTC6-Core; leading WG: RAN1; REL-17; WID: RP-201306)

Time budget: 1 TU

Tdoc Limitation: 4 tdocs

Email max expectation: 4 threads

### 9.1.1 Organizational

[R2-2101552](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101552.zip) Work plan of Rel-17 enhancements for NB-IoT and LTE-MTC Ericsson Work Plan Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

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

Including Summary of AI 9.1.2 (Ericsson).

[R2-2101397](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101397.zip) Summary of NB-IoT AI 9.1.2 neighbor cell measurements before RLF Ericsson discussion Late

* [AT113-e][304][NBIOT/eMTC R17] Neighbour cell measurements before RLF (Ericsson)

 **Scope:**

 Week 1: TBD online Monday 25 Jan

 Week 2: TBD online Monday 1 Feb

 **Intended outcome:**

 Week 1: Report in R2-2102154

 Week 2: TBD

 **Deadline:**

 Week 1: Jan 29 1100 UTC

 Week 2: TBD Feb 04 1100 UTC

[R2-2100324](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100324.zip) Further considerations on measurement in connected mode ZTE Corporation, Sanechips discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core [R2-2009058](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009058.zip)

[R2-2100325](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100325.zip) draft LS on measurement in connected mode for NB-IoT ZTE Corporation, Sanechips LS out Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core To:RAN4

[R2-2100513](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100513.zip) Analysis on Re-establishment time components and Solutions for Faster re-establishment Nokia, Nokia Shanghai Bell discussion Rel-17

[R2-2100670](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100670.zip) Further discussion on the corresponding measurement before RLF Spreadtrum Communications discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2101043](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101043.zip) Neighbour cell measurements in RRC\_CONNECTED Huawei, HiSilicon discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2101056](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101056.zip) Impact on Static Devices THALES discussion

[R2-2101113](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101113.zip) Neighbor cell measurements triggering before RLF Lenovo, Motorola Mobility discussion Rel-17

[R2-2101156](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101156.zip) Way forward for connected mode neighbour cell measurement in NB-IoT Qualcomm Incorporated discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core [R2-2009789](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009789.zip)

[R2-2101329](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101329.zip) On the solution for reduction of RLF detection time Nokia Solutions & Networks (I) discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6

[R2-2101396](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101396.zip) Reducing time taken for reestablishment procedures in NB-IoT Ericsson discussion

[R2-2101399](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101399.zip) draft LS Measurements for Reducing time for RRC Reestablishment Ericsson LS out Rel-17 To:RAN4

[R2-2101836](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101836.zip) Measurement before radio link failure MediaTek Inc. discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

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

Including Summary of AI 9.1.3 (Huawei).

[R2-2101045](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101045.zip) Summary of contributions on Paging carrier selection improvements Huawei report Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core Late

* [AT113-e][305][NBIOT/eMTC R17] Paging carrier selection improvements (Huawei)

 **Scope:**

 Week 1: TBD online Monday 25 Jan

 Week 2: TBD online Monday 1 Feb

 **Intended outcome:**

 Week 1: Report in R2-2102155

 Week 2: TBD

 **Deadline:**

 Week 1: Jan 29 1100 UTC

 Week 2: TBD Feb 04 1100 UTC

[R2-2100326](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100326.zip) Paging carriers configuration and selection ZTE Corporation, Sanechips discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core [R2-2009059](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009059.zip)

[R2-2100512](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100512.zip) Paging carrier selection procedure based on CEL Nokia, Nokia Shanghai Bell discussion Rel-17

[R2-2100671](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2100671.zip) Further discussion on enhanced paging carrier selection and NPRACH carrier selection Spreadtrum Communications discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2101044](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101044.zip) Paging carrier selection improvements Huawei, HiSilicon discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2101157](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101157.zip) Support for NB-IoT carrier selection based on the coverage level Qualcomm Incorporated discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core [R2-2009790](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_112-e/Docs/R2-2009790.zip)

[R2-2101395](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101395.zip) NB-IoT carrier selection and configuration based on coverage level Ericsson discussion

[R2-2101839](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101839.zip) Carrier selection enhancement MediaTek Inc. discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

### 9.1.4 Other

Includes WI objectives led by other WGs.

[R2-2101046](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101046.zip) Discussion on 16-QAM for NB-IoT Huawei, HiSilicon discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2101047](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101047.zip) Support of 14 HARQ Processes in DL, for HD-FDD Cat M1 Ues Huawei, HiSilicon discussion Rel-17 NB\_IOTenh4\_LTE\_eMTC6-Core

[R2-2101398](https://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_113-e/Docs/R2-2101398.zip) Support of 16-QAM for unicast in UL and DL in NB-IoT Ericsson discussion