3GPP TSG-RAN WG2 Meeting #119 electronic [R2-2208703](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208703.zip)

Online, August, 2022

Source: Session Chair (InterDigital)

Title: Report for Rel-17 Small data and URLLC/IIoT

**Email discussions:**

* [AT119-e][300] Organizational Diana – URLLC/IIoT, Small data]

Scope:

* + - Share plans for the meetings and list of ongoing email discussions for the sessions related to Rel-17 URLLC/IIoT, Small data, RA Partitioning, R15-16 UP, Rel-18 UAV and NES
		- Share meetings notes and agreements for review and endorsement
* [AT119-e][301][Sdata] CP Open issues and CR to 38.331 (ZTE)

CP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur aiming to have company inputs and proposals by Friday

* [AT119-e][302][Sdata] UP open issues and CR to 38.321 (Huawei)

UP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur aiming to have company inputs and proposals by Friday

* [AT119-e][303][Sdata] CR 38.300 (Nokia)

CR capturing agreed corrections

Deadline:

* [AT119-e][304][IIoT] CR 38.300 (Nokia)

CR capturing agreed corrections

Deadline:

* [AT119-e][305][IIoT] CP open issues and CR 38.331 (Ericsson)

 CP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur

* [AT119-e][306][IIoT] UP open issues and CR 38.321 (Samsung)

 UP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur

* [AT119-e][307][RA Part] CP open issues and CR 38.331 (Ericsson)

 CP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur

* [AT119-e][308][RA Part] UP open issues and CR 38.321 (ZTE)

 UP open issues and CR capturing agreed corrections

Deadline: To be set by rapporteur

* [AT119-e][309][R15/16 UP] CRs on UP (Nokia)

 UP open issues and agreable CRs capturing agreed corrections

Deadline: To be set by rapporteur

* [AT119-e][310][R18 Others - Low Latency] LS on Low latency (Huawei)

Discuss LS response on Low latency

Deadline: To be set by rapporteur

* [AT119-e][311][SDT-Positioning] Config Transfer (Google)

Discuss LS response on Low latency

Deadline: To be set by rapporteur

* [AT119-e][312][SDT] TA validation for CG-SDT (ZTE)

Discuss LS response

Deadline: To be set by rapporteur

Post email discussion

* [Post119-e][NES] Details of solutions - Huawei

- Capture more RAN2 details/impact/benefit on the solution groups and additional things to study

- Attempt prioritization of solutions

# 5 NR Rel-15 and Rel-16

Essential corrections only.

Tdoc Limitation: 11 tdocs in total for all sub agenda items.

### 5.1.2 User Plane corrections

User Plane corrections will be handled in a break out session

#### 5.1.2.1 MAC

[R2-2208008](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208008.zip) SPS HARQ feedback dropping for TDD Nokia, Nokia Shanghai Bell discussion Rel-15 NR\_newRAT-Core

- Ericsson agrees with the principle and wants to review offline.

- Samsung thought that the agreement was that the timer is started after feedback is transmitted. In MBS the HARQ feedback can be disabled and we didn’t change the existing text. Huawei, OPPO agrees with Samsung. Nokia is concerned that if PUCCH is dropped in PHY due to prioritization than the MAC wouldn’t know. Samsung thinks that there is an interaction and the PHY should notify. Qualcomm explains that the UE can easily implement this MAC/PHY interaction and Rel-15 specs already implemented.

- Qualcomm thinks that there is nothing broken if this is not agreed. The gNB is aware the feedback is dropped and can act accordingly.

- Mediatek agrees with the proposal.

- CATT explains that cross layer check of actual L1 transmission is already supported in R16 MAC. Nokia explains that the concern is that if the UE doesn’t start the timer the UE cannot retransmit.

- Qualcomm further indicates this was also discussed in NR-U where LBT may fail for PUCCH. The gNB is not aware. Yet, even in that case, we kept the current spec.

- LG wonders what the gNB might think if the feedback is not received, it could be lost and the UE will not start the timer anyways and it is dangerous for the gNB to assume that the feedback is lost or disabled.

- Nokia asks if the same understanding applies to PUSCH.

=> The CR is not agreed

Straight to email discussion 309

[R2-2208969](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208969.zip) Report for [AT119-e][309][R15/16 UP] CRs on UP (Nokia)

Proposal 1: The changes in [R2-2207896](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207896.zip) and [R2-2207897](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207897.zip) are not agreed. (Yes 0/14, Neutral 3/14, No 11/14)

Proposal 2: The changes in [R2-2207898](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207898.zip) and [R2-2207899](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207899.zip) are not agreed. (Yes 3/14, Neutral 4/14, No 7/14)

Proposal 3: To confirm that the MAC checks whether the configuredGrantTimer and/or cg-RetransmissionTimer is running at the time of corresponding PUSCH transmission, i.e., regardless of when the UE starts processing of the UL grant. The changes in [R2-2208024](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208024.zip) and [R2-2208025](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208025.zip) are not agreed. (Yes 1/14, Neutral 2/14, No 10/14)

Proposal 4: The changes in [R2-2208254](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208254.zip), [R2-2208261](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208261.zip), and [R2-2208263](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208263.zip) are not agreed. (Yes 2/14, Neutral 0/14, No 12/14)

Proposal 5: The changes in [R2-2208689](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208689.zip) (updated from [R2-2206980](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206980.zip)) are not agreed. (Yes 1/14, Neutral 0/14, No 13/14)

**Agreements:**

1. Confirm that the MAC checks whether the configuredGrantTimer and/or cg-RetransmissionTimer is running at the time of corresponding PUSCH transmission, i.e., regardless of when the UE starts processing of the UL grant. No spec changes are needed

[R2-2207896](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207896.zip) Clarification on BFD while SCell is deactivated Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1347 - F NR\_eMIMO-Core

=> The CR is not pursued

[R2-2207897](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207897.zip) Clarification on BFD while SCell is deactivated Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1348 - A NR\_eMIMO-Core

=> The CR is not pursued

[R2-2207898](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207898.zip) Clarification on the matching TB size for 2-step RA Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1349 - F NR\_2step\_RACH-Core

=> The CR is not pursued

[R2-2207899](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207899.zip) Clarification on the matching TB size for 2-step RA Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1350 - A NR\_2step\_RACH-Core

=> The CR is not pursued

[R2-2208009](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208009.zip) Clarification on HARQ RTT timer in case of HARQ feedback dropping Nokia, Nokia Shanghai Bell CR Rel-15 38.321 15.13.0 1358 - F NR\_newRAT-Core

=> The CR is not pursued

[R2-2208010](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208010.zip) Clarification on HARQ RTT timer in case of HARQ feedback dropping Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1359 - A NR\_newRAT-Core

=> The CR is not pursued

[R2-2208011](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208011.zip) Clarification on HARQ RTT timer in case of HARQ feedback dropping Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1360 - A NR\_newRAT-Core

=> The CR is not pursued

[R2-2208024](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208024.zip) Clarification on configuredGrantTimer and cg-RetransmissionTimer Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.9.0 1362 - F TEI16, NR\_unlic-Core

=> The CR is not pursued

[R2-2208025](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208025.zip) Clarification on configuredGrantTimer and cg-RetransmissionTimer Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1363 - A TEI16, NR\_unlic-Core, NR\_SmallData\_INACTIVE-Core

=> The CR is not pursued

[R2-2208254](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208254.zip) Correction on RA Resource Selection in Rel-15 vivo CR Rel-15 38.321 15.13.0 1373 - F NR\_newRAT-Core

=> The CR is not pursued

[R2-2208261](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208261.zip) Correction on RA Resource Selection in Rel-16 vivo CR Rel-16 38.321 16.9.0 1375 - F NR\_newRAT-Core, NR\_2step\_RACH-Core

=> The CR is not pursued

[R2-2208263](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208263.zip) Correction on RA Resource Selection in Rel-17 vivo CR Rel-17 38.321 17.1.0 1376 - A NR\_newRAT-Core, NR\_2step\_RACH-Core

=> The CR is not pursued

#### 5.1.2.2 RLC PDCP SDAP BAP

[R2-2206980](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206980.zip) Retransmission SDU choice under double-no condition When T-PollRetransmit expiration PML discussion

=> Revised in [R2-2208689](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208689.zip)

[R2-2208689](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208689.zip) Correction on RLC retransmission SDU choice when T-PollRetransmit expiration Purple Mountain Laboratories discussion

=> The CR is not pursued

#### 5.1.2.3 Other

User plane related corrections that should be handled in User plane break out session.

## 6.5 NR IIoT URLLC

(NR\_IIOT\_URLLC\_enh-Core; leading WG: RAN2; REL-17; WID: RP-210854)

Tdoc Limitation: 3 tdocs

### 6.5.1 Organizational

Including LSs, rapporteur correction CR, and any rapporteur inputs (e.g. from ASN.1 ad-hoc meeting).

[R2-2206922](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206922.zip) LS on Rel-17 URLLC/IIoT RRC parameter updates (R1-2205507; contact: Nokia) RAN1 LS in Rel-17 NR\_IIOT\_URLLC\_enh To:RAN2

=> Noted

[R2-2208012](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208012.zip) Correction on PUCCH sSCell for TDD Nokia, Nokia Shanghai Bell, Ericsson, Qualcomm, Samsung, ZTE Corporation CR Rel-17 38.300 17.1.0 0524 - F NR\_IIOT\_URLLC\_enh-Core

- LG and Mediatek explains that if we say in addition may cause confusion that the UE may transmit at the same time. Nokia explain that it is clear with the next sentence.

=> The CR is agreed

### 6.5.2 Control Plane

A single CR with miscelaneous corrections is encouraged. Small editorial corrections should be sent directly to rapporteur. Big open issues can be discussed with contributions with CR in the appendix of the contribution

[R2-2208060](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208060.zip) Correction to the field description of usage-pdc Huawei, HiSilicon CR Rel-17 38.331 17.1.0 3351 - F NR\_IIOT\_URLLC\_enh-Core

=> The CR is agreed

[R2-2208556](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208556.zip) CR on 38.331 for field description of PUCCH-Config for PUCCH Carrier Switch ZTE Corporation,Sanechips, Nokia, Nokia Shanghai Bell, Ericsson, Samsung, Qualcomm CR Rel-17 38.331 17.1.0 3440 - F NR\_IIOT\_URLLC\_enh-Core

=> The CR is agreed

### 6.5.3 User Plane

A single CR with miscelaneous corrections is encouraged. Small editorial corrections should be sent directly to rapporteur. Big open issues can be discussed with contributions with CR in the appendix of the contribution

[R2-2208926](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208926.zip) UP Issue summary Samsung

Proposal 1. RAN2 to discuss: When a CG-PUSCH transmission is cancelled by a DG-PUSCH without UL-SCH (i.e. MAC PDU is not delivered to PHY) in Rel-17,

- Option 1. de-prioritization relies on existing Rel-16 LCH-based Prioritization. The CG is not considered as a de-prioritized uplink grant. (no specification change).

- Option 2. the uplink grant associated with the cancelled CG is considered as a de-prioritized grant.

=> de-prioritization relies on existing Rel-16 LCH-based Prioritization. The CG is not considered as a de-prioritized uplink grant. (no specification change)

*Proposal 2. RAN2 to discuss the following options for simultaneous transmission of SR and PUSCH over different PUCCH groups:*

*- Option 1. All Rel-17 UEs mandatorily supports simultaneous transmissions of overlapping SR and PUSCH over different PUCCH groups.*

*- Option 2. Define a capability and RRC configuration parameter of simultaneous transmissions of overlapping SR and PUSCH over different PUCCH groups.*

*- Option 3. Rel-17 MAC does not allow simultaneous transmission of SR and UL-SCH over different PUCCH groups. (No specification change)*

- Mediatek thinks that we should down select between option 1 and 2, exclude option 3. Samsung thinks we can exclude option 3. Nokia thinks that even with option 1 we may need some explicit configuration and the question is whether we have a capability or not. Samsung agrees and are fine with RRC parameters. Oppo agrees to exclude 3

=> Option 3 is excluded and continue discussion on option 1 and 2 (including RRC explicit config and UE capability discussion for option 1).

[R2-2209005](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2209005.zip)

Agreements:

1. Define a capability and an RRC configuration parameter of simultaneous transmissions of overlapping SR and PUSCH over different PUCCH groups. MAC spec will be updated accordingly.

- R2-2207794 (RRC) and R2-2207795 (UE capability) are baselines for phase-2 review.

- Texts for MAC are updated Rapporteur MAC CR review

2 R2-2208014 is not pursued.

3 MAC relies on existing LCH-based Prioritization (no spec change) for the following case:

- a subset of symbols of a CG-PUSCH has been replaced to receive downlink transmission

- a TB is generated for a CG, but it is not transmitted due to collision with a measurement gap

4 Proposed changes in R2-2208355 are not pursued.

5 If simultaneousPUCCH-PUSCH or simultaneousPUCCH-PUSCH-SecondaryPUCCHgroup is configured, when a SR transmission is considered as a prioritized SR transmission, the overlapping uplink grant(s) which can be transmitted with the SR simultaneously shall not be considered as de-prioritized uplink grant(s).

5b (all). If simultaneousPUCCH-PUSCH or simultaneousPUCCH-PUSCH-SecondaryPUCCHgroup is configured, when a PUSCH transmission is considered as a prioritized PUSCH transmission, the overlapping SR(s) which can be transmitted with the PUSCH simultaneously shall not be considered as de-prioritized SR(s).

6 RAN2 confirms “When the maximum allowed deferral time of HARQ feedback is reached drx-RetransmissionTimerDL is not started. (no specification change)”

[R2-2207432](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207432.zip) Discussion on MAC layer operation at PUSCH cancellation Apple discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2207433](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207433.zip) Draft CR for MAC layer operation at PUSCH cancellation Apple, Ericsson CR Rel-17 38.321 17.1.0 1316 - F NR\_IIOT\_URLLC\_enh-Core

[R2-2207506](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207506.zip) Consideration on CG-PUSCH cancellation for UCI -only case CATT discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2207507](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207507.zip) Simultaneous transmission of SR and PUSCH over different PUCCH groups CATT CR Rel-17 38.321 17.1.0 1321 - F NR\_IIOT\_URLLC\_enh-Core

[R2-2207796](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207796.zip) Issue on a CG transmission cancelled by a DG without UL-SCH OPPO discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2208013](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208013.zip) MAC impact on PHY prioritization Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2208014](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208014.zip) Correction on TB generated for UCI multiplexing Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1361 - F NR\_IIOT\_URLLC\_enh-Core

[R2-2208061](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208061.zip) Discussion on deprioritized CG-PUSCH with UCI only TB Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2208062](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208062.zip) Discussion on simultaneous transmissions of SR and PUSCH Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2208122](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208122.zip) Open Issues in IIOT UP Qualcomm Incorporated discussion Rel-17

[R2-2208355](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208355.zip) Discussion on SR error handling on PUCCH Cells ASUSTeK discussion Rel-16 38.321 NR\_IIOT\_URLLC\_enh-Core

[R2-2208588](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208588.zip) Correction for De-prioritizatin of Overlapping Resources Samsung draftCR Rel-17 38.321 17.1.0 F NR\_IIOT\_URLLC\_enh-Core

Moved from TEI17

[R2-2207792](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207792.zip) Clarification on SR and PUSCH collision-Alt1 OPPO, Samsung CR Rel-17 38.321 17.1.0 1341 - F TEI17

[R2-2207793](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207793.zip) Clarification on SR and PUSCH collision-Alt2 OPPO, Samsung CR Rel-17 38.321 17.1.0 1342 - F TEI17

[R2-2207794](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207794.zip) Clarification on SR and PUSCH collision-Alt2 OPPO, Samsung CR Rel-17 38.331 17.1.0 3315 - F TEI17

[R2-2207795](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207795.zip) Clarification on SR and PUSCH collision-Alt2 OPPO, Samsung CR Rel-17 38.306 17.1.0 0778 - F TEI17

## 6.6 Small Data enhancements

(NR\_SmallData\_INACTIVE-Core; leading WG: RAN2; REL-17; WID: RP-212594)

Tdoc Limitation: 3 tdocs

### 6.6.1 Organizational

Including LSs, rapporteur correction CR and any rapporteur inputs (e.g. from ASN.1 ad-hoc meeting).

[R2-2206907](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206907.zip) Reply LS on Small Data Transmission (C1-224149; contact: Apple) CT1 LS in Rel-17 NR\_SmallData\_INACTIVE-Core To:RAN2

=> Noted

[R2-2206931](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206931.zip) LS on transferring SDT configuration and SRS positioning Inactive configuration from DU to CU (R3-223955; contact: Google) RAN3 LS in Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_pos\_enh To:RAN2

=> Noted

=> Response moved to email discussion 311

[R2-2208973](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208973.zip) Report of [AT119-e][311][SDT-Positioning] Config Transfer Google

=> Noted

[R2-2208974](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208974.zip) Reply LS on transferring SDT configuration and SRS positioning Inactive configuration from DU to CU Google

=> The LS is approved in R2-2208915

Moved to email discussion

[R2-2208596](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208596.zip) Discussion on RRC IEs in the RAN3 specification Google Inc. discussion Rel-17

[R2-2207120](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207120.zip) Response to RAN3 LS on SDT containers for F1-AP Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2208072](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208072.zip) On transferring SDT configuration and SRS positioning Inactive configuration from DU to CU

[R2-2206953](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206953.zip) Reply LS on TA validation for CG-SDT (R4-2211122; contact: ZTE) RAN4 LS in Rel-17 NR\_SmallData\_INACTIVE-Core To:RAN2

- LG thinks that RAN4 misunderstood the RAN2 agreement and we should clarify it in the response. ZTE thinks that all cases should be covered by the release but can check. LG explains that they only consider the case from Connected in Inactive and should add the inactive place. Huawei agrees with LG but points out that RAN4 is still discussing this and haven’t yet agreed. LG points out that RAN2 already agreed and RAN4 should incorporate.

=> Include clarification on RAN2 agreement INACTIVE state

=> Noted

[R2-2208990](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208990.zip) Reply LS to the RAN4 LS in [R2-2206953](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206953.zip) ZTE

=> The LS is revised in [R2-2209013](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2209013.zip)

[R2-2209013](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2209013.zip) Reply LS to the RAN4 LS in [R2-2206953](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206953.zip) RAN2

=> The LS is approved

[R2-2207976](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207976.zip) draft reply LS on TA validation for CG-SDT ZTE Corporation, Sanechips LS out To:RAN4

=> Moved to email discussion 312

[R2-2207900](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207900.zip) Corrections on SDT Nokia, Nokia Shanghai Bell, Samsung CR Rel-17 38.300 17.1.0 0519 - F NR\_SmallData\_INACTIVE-Core

=> remove the change in bullet 8 “The receiving gNB sends the *RRCRelease* message including suspend indication to the UE”

- Vivo thinks we should change direct to keeps in inactive. Vodafone, ZTE, and Intel prefer Nokia wording.

=> The CR is agreed in [R2-2208911](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208911.zip) with the change above

[R2-2207928](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207928.zip) Editor's correction to MAC spec for Small Data Transmission Huawei, HiSilicon CR Rel-17 38.321 17.1.0 1357 - F NR\_SmallData\_INACTIVE-Core

=> use as baseline for email discussion CR

### 6.6.2 User plane common aspects

A single CR with miscelaneous corrections is encouraged. Small editorial corrections should be sent directly to rapporteur. Big critical issues can be discussed in a contribution with CR in the appendix of the contribution

*2-stepRACH during CG-SDT*

[R2-2207004](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207004%C2%A0.zip) Issues for RA during CG-SDT procedure Samsung Electronics Co., Ltd     discussion Rel-17    NR\_SmallData\_INACTIVE-Core

[R2-2207001](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207001.zip) cg-SDT-TimeAlignmentTimer Handling Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2207359](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207359%C2%A0.zip) cg-SDT-TimeAlignmentTimer maintenance during 2-step RA   Langbo   CR  Rel-17 38.321    17.1.0     1311       -      F NR\_SmallData\_INACTIVE-Core

[R2-2207360](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207360%C2%A0.zip) cg-SDT-TimeAlignmentTimer handling for RA-SDT Langbo   CR  Rel-17    38.321 17.1.0     1312       -      F NR\_SmallData\_INACTIVE-Core

*LCH-restriction for CG-SDT*

[R2-2207901](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207901%C2%A0.zip) LCH restrictions at SDT mode selection Nokia, Nokia Shanghai Bell, Ericsson, Huawei, HiSilicon, LGE CR  Rel-17    38.321 17.1.0     1351       -      F NR\_SmallData\_INACTIVE-Core

- InterDigital thinks it is a good clarification but is wondering why the network would configure it as False. Nokia explains that the configuration is for each logical channel so we can set it. ZTE, Vivo, NEC agrees with InterDigital that the network should avoid this configuration.

- ZTE thinks that the optimization is not very ideal.

- Lenovo also thinks that if it configures CG resources then it should configure everything else appropriately and should be handled by NW configuration. The assumption is that NW is aware of the data traffic and periodicity as it must configure CG resources and periodicity accordingly. Samsung also has a similar view and we have discussed this in the past.

- Qualcomm thinks that we can maybe capture in the field description that the network configures it consistently. And if we want to go with mix mode then option A can make sense. ZTE doesn’t think the field description needs any clarification.

- Ericsson, Huawei and Sony agrees with Nokia.

- Samsung, for CG-SDT, even if DRBs do not use CG, CG is used for CCCH and DGs are used for DRBs

- LG and Lenovo think that the CR is useful.

- CATT also thinks that there is no issue, CG resource is configured and allowed for all the logical channel for SDT Bearers. Then no issue here.

=> Continue by email discussion to see if companies can support and which option should be supported.

[R2-2208117](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208117%C2%A0.zip) LCH restrictions for CG-SDT       Ericsson discussion     Rel-17 NR\_SmallData\_INACTIVE-Core

=> Noted

*cg-SDT-TAT maintenance after receiving TAC MAC CE*

[R2-2207930](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207930%C2%A0.zip) TAT maintenance for CG-SDT when receiving TAC MAC CE Huawei, Ericsson, HiSilicon, Nokia, Nokia Shanghai Bell, ZTE corporation    discussion     Rel-17 NR\_SmallData\_INACTIVE-Core

- Lenovo supports the proposal, Intel, QC, CATT, Apple, Oppo

- LG explains that we discussed this several times and we don’t see any new argument. InterDigital agrees with LG. Huawei thinks that there was some confusion before.

- Intel asks which of the stored configurations are used and last meeting the assumption was that we are using everything stored.

=> Move to email discussion

*CG-SDT retransmission on different CG configuration*

[R2-2207902](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207902%C2%A0.zip) MAC procedure issues Nokia, Nokia Shanghai Bell CR  Rel-17    38.321    17.1.0 1352       -      F NR\_SmallData\_INACTIVE-Core

*To discuss whether it is allowed to use another CG configuration for CG-SDT retransmission different from the CG config used for initial transmission.*

R2-2208912 Summary of email discussion 302 Huawei

Proposal5: It is not needed that, before initiating CG-SDT UE checks for the availability of CG occasion corresponding to a SSB with SS-RSRP above cg-SDT-RSRP-ThresholdSSB during the remaining time of cg-SDT-TimeAlignmentTimer. If CG occasion is not available, UE does not initiate CG-SDT. (16/18)

Discussions

Proposal1: CG-SDT can be selected if configuredGrantType1Allowed, if configured, is configured as “true” for all the SDT RBs available for data transmission. (15/18)

- InterDigital is concerned that the meaning of CG restriction, only use CG for LCH that are configured as true, otherwise we might as well not have the configuration at all and prefers option B. ZTE doesn’t thinks any option should be adopted and we are agreeing sub-optimal. If we have a dedicated resource we always use it, neither option.

- Nokia thinks that the UE has to follow LCH configuration and not waste data with CCCH. Also fine with option B.

- Ericsson explains that there is no resume cause and the network wouldn’t be able to determine. ZTE explains that transmitting on CG-SDT will indicate it. Ericsson thinks that it could be a request for larger data. ZTE explains that if it is for larger data than SDT DVT SDT should not be used at all.

- LG thinks that option A is better but both work.

**Agreements**

1. For msgB reception, (a) if the C-RNTI MAC CE was included in MSGA, (b) if the cg-SDT-TimeAlignmentTimer is running, and (c) if the PDCCH transmission is addressed to the C-RNTI and contains a UL grant for a new transmission, UE considers Random Access Response reception and random access procedure successfully completed.
2. cg-SDT-TimeAlignmentTimer should be restarted at successful completion of 2-step RACH while legacy TAT should not be started/restarted when CG-SDT procedure is on-going.
3. Start/Restart the CG-SDT TAT from RRC’s perspective whenever the UE receives the CG-SDT configuration in RRCRelease message.
4. Proposal 5a:     The condition to check TAT running for CG-SDT is updated as follows: '2>              if CG-SDT is configured on the selected UL carrier, and TA of the configured grant Type 1 resource is valid in the first available CG occasion according to clause 5.27.2; and'
5. Any configured uplink grant with the same transport format and the HARQ process ID as the initial CG-SDT transmission can be used for CG-SDT retransmission.
6. Add the condition “at least one RB configured for SDT having data available for transmission” as condition to initiate RACH for CG-SDT.
7. Do not restore measObject configuration when the UE derives the pathloss reference upon receiving CG-SDT configuration. (17/18). FFS how to address the issue that measObject is not always configured when the UE receives RRCRelease with CG-SDT config, but current spec needs it.

The MAC entity shall, upon the reception of CG-SDT configuration:

1. store the RSRP of the downlink pathloss reference derived based on the measObject configured for the Serving Cell as in TS 38.331 [5].
2. CG-SDT can be selected if configuredGrantType1Allowed, if configured, is configured as “true” for all the SDT RBs available for data transmission.
3. Legacy TAT is not started/restarted when TAC MAC CE is received during CG-SDT procedure
4. Separate conditions checking ACK of initial CG-SDT and checking SSB index as initial CG-SDT’s
5. Conditions for checking availability of the SSB with SS-RSRP above cg-SDT-RSRP-ThresholdSSB are not redundant. No changes to current spec
6. Capture in the RRC spec in the field description of uci-OnPUSCH that it cannot be configured for CG-SDT
7. No need to trigger RACH when none of the SSB is above the threshold for RA-SDT
8. FFS to check in this meeting - Allow the field harq-ProcID-Offset can be configured for CG-SDT (add the case for CG-SDT). Double confirm that there is nothing that breaks in the MAC when CG retx timer is configured.

Proposal need further discussion

Proposal11: R2 to further discuss whether the field harq-ProcID-Offset can be configured for CG-SDT. (9/16)

- InterDigital understands that previous releases allow this configuration for NR-U and IIoT and we should be able to reuse it. ZTE explains that current RRC has no restriction for CG-SDT. Huawei indicates that there is in a field description a restriction. Huawei also thinks that we should introduce it as it is the same reason we introduced in NR-U. Qualcomm also think there is no restriction.

Proposal14: R2 to further discuss whether to add the note for Bj increment. (7/15)

- NOTE: UE doesn’t update Bj in RRC\_INACTIVE when there is no SDT procedure ongoing.

- LG indicates that we made the agreement last meeting and we are just capturing it in the specification.

To be discussed over email

[R2-2207416](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207416.zip) Analysis on remaining issues for SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2207571](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207571.zip) Correction on SSB selection for CG-SDT LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2207572](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207572.zip) CR for correction on SSB selection for CG-SDT LG Electronics Inc. CR Rel-17 38.321 17.1.0 1325 - F NR\_SmallData\_INACTIVE-Core

[R2-2207573](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207573.zip) Clarification of Bj increment LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2207815](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207815.zip) Correction on the stored RSRP for TA validation Xiaomi draftCR Rel-17 38.321 17.1.0 F NR\_SmallData\_INACTIVE-Core

[R2-2207906](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207906.zip) User plane issues for SDT NEC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2207929](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207929.zip) Text Proposal for RSRP-based TA validation Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2208266](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208266.zip) Correction on CG-SDT Transmisson vivo CR Rel-17 38.321 17.1.0 1377 - F NR\_SmallData\_INACTIVE-Core Late

[R2-2208356](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208356.zip) Correction on SR delay timer ASUSTeK discussion Rel-16 NR\_SmallData\_INACTIVE-Core

[R2-2208660](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208660.zip) Clarification on uci-onPUSCH for CG-SDT vivo CR Rel-17 38.331 17.1.0 3462 - F NR\_SmallData\_INACTIVE-Core

### 6.6.3 Control plane common aspects

A single CR with miscelaneous corrections is encouraged. Small editorial corrections should be sent directly to rapporteur.

Big critical issues can be discussed in a contribution with CR in the appendix of the contribution

T319 delayed start

[R2-2207907](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207907.zip) Issues due to delay of the start of T319a NEC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

*Proposal RAN2 need to update the “while T319a is running” and “if T319a is not running” in TS 38.331, for example by changing them to “while SDT is being performed” and “if SDT is not being performed” respectively. The proposed changes to TS38.331 is provided in Annex.*

- Nokia supports the CR

- Intel thinks we should also treat Samsung and it seems a bit odd we are changing legacy behavior.

- ZTE thinks the problem is valid but also thinks we can consider language and we can maybe add a NOTE

- LG thinks that only issue when RA-SDT is starting. NEC thinks it is also possible for CG case.

- Nokia explains that it is specified also in MAC that "SDT is initiated", maybe we could align with that.

=> Include the possible solution and new wording in CP email discussion.

UDC for SDT moved from 6.6.3

[R2-2208640](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208640.zip) Discussion on UDC continuity in SDT China Telecom discussion

- LG thinks that SDT is mainly for small data and UDC is typically compression for large data. We should make SDT simple and not support. Huawei agrees with LG, and in addition UDC is usually useful for repetitive data and it is an optimization. Apple, Ericsson, agrees with LG. CATT thinks we should support UDC and the packet size should be reduced with UDC especially for CG SDT.

=> The proposal is not agreed

Not treated

[R2-2208655](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208655.zip) CR for TS38.300 on Support of UDC in SDT China Telecom CR Rel-17 38.300 17.1.0 0545 - B NR\_SmallData\_INACTIVE-Core

[R2-2208656](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208656.zip) CR for TS38.331 on Support of UDC in SDT China Telecom CR Rel-17 38.331 17.1.0 3461 - B NR\_SmallData\_INACTIVE-Core

Move to email discussion

[R2-2208987](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208987.zip) Summary of email discussion 301 CP ZTE

Proposal 4: Changes proposed in R2-2207417 can be agreed – to be merged into rapporteur CR (16/17)

- Intel is concerned that companies have different interpretation of the spec on whether the suspend config is or not stored in INACTIVE AS context. Vodafone asks if we have a list of what is stored. Intel explains that in Rel-15 it was done in a messy way but it is stored.

**Agreements**

1. The T319a Synchronization issue in R2-2207003 is not pursued
2. The issue with delayed start of T319a is solved in accordance with the proposal in R2-2207907 – changes merged into rapporteur CR
3. Changes proposed in R2-2208357 are not pursued
4. Changes proposed in R2-2207417 can be agreed – to be merged into rapporteur CR
5. Per R2-2207418 and R2-2208269, remove the redundancy of re-establishment of PDCP entities for SRB1 (details to be discussed in the merged rapporteur CR)
6. No changes needed to remove the redundancy of re-establishment of PDCP entities for SRB2 handling as proposed in R2-2207418
7. Specify the ROHC handling in normative text as noted in R2-2207977 and R2-2207988 (details to be discussed as part of merged CR)
8. Other changes in R2-2207977 and R2-2207988 (apart from the change about sdt-DRB-ContinueROHC) can be merged into rapporteur CR, taking into account the comments received during the email discussion
9. For R2-2208218, Do not support the enhancement for UE assistance information to indicate its RRC state preference (IDLE or INACTIVE) during SDT
10. Clarify in the spec that UDC/EHC is not applicable in SDT (discuss over email to capture in RRC)
11. No need to further specify in SDT section how UAC for non-SDT data is performed as the NAS layer performs UAC according to current procedures

For online discussion:

Proposal 8: No further clarification is needed for handling of UDC/EHC (10/16)

- ZTE explains that these configurations are store but when we restore PDCP in INACTIVE we need to make sure that these are not used.

- Samsung and LG think it should be specified. LG thinks it can be done in stage 2.

- CATT thinks we can clarify this in RRC.

- Ericsson thinks we need to discuss where it would go in RRC as it could go in many places. Maybe stage 2 would be easier.

Proposal 10b: For R2-2207965, no need to perform UAC for non-SDT data indication (13/17)

* InterDigital flagged this due to CT1 LS where SDT operation is transparent to the AS. Then the UAC is broken with SDT and don’t understand why we have to skip UAC. NEC agrees. ZTE explains that UAC is performed when SRB1 is resumed and this is how it works in CONNECTED. We don’t do it again for every packet otherwise we would double bar.
* Intel agrees that we don’t need to specify anything and if anything needs to be changed it should raised in CT1
* LG indicates that UAC is performed for non-SDT data. But spec change is not needed because UAC is specified in different section
* Google explains that there is a fundamental difference in INACTIVE as NAS is not aware and cannot perform UAC. ZTE explains that NAS does UAC for every packet and the requirements are applicable for all states and doesn’t need to know the AS state.

[R2-2207977](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207977.zip) RRC corrections for SDT ZTE Corporation, Sanechips CR Rel-17 38.331 17.1.0 3340 - F NR\_SmallData\_INACTIVE-Core

=> The CR is revised in [R2-2208989](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208989.zip)

[R2-2208989](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208989.zip) RRC corrections for SDT ZTE Corporation, Sanechips CR Rel-17 38.331 17.1.0 3340 - F NR\_SmallData\_INACTIVE-Core

[R2-2207003](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207003.zip) T319a synchronisation issue Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2207417](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207417.zip) Handling of sdt-Config upon reception of RRCRelease message CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2207418](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207418.zip) PDCP Re-establishment for SRB(s) upon initiation of SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2207907](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207907.zip) Issues due to delay of the start of T319a NEC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2207965](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207965.zip) UAC for non-SDT initiation during SDT Google Inc. CR Rel-17 38.331 17.1.0 3337 - F NR\_SmallData\_INACTIVE-Core

[R2-2207988](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207988.zip) ROHC continuity and initial BWP related corrections Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2208130](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208130.zip) BWP for CG-SDT Ericsson discussion Rel-17 38.331 NR\_SmallData\_INACTIVE-Core

[R2-2208218](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208218.zip) RRC state preference during SDT procedure Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2208269](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208269.zip) Correction on SRB1 Handling in SDT vivo CR Rel-17 38.331 17.1.0 3393 - F NR\_SmallData\_INACTIVE-Core

[R2-2208357](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208357.zip) Correction on T319a ASUSTeK discussion Rel-16 NR\_SmallData\_INACTIVE-Core

## 6.18 RACH indication and partitioning

Tdoc Limitation: 2 tdocs

Expected to cover WIs SDT, CovEnh, RedCap, RAN slicing. RA specific aspects from the different WI should be covered in this AI given the RA experts are all there.

### 6.18.1 Common signalling framework

A single CR with miscelaneous corrections is encouraged. Small editorial corrections should be sent directly to rapporteur. Big open issues can be discussed in a contributions with CR in the appendix of the contribution

Move to email discussion

[R2-2208995](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208995.zip) [AT119-e][307][RA Part] CP open issues and CR 38.331 (Ericsson)

[5] Based on the input from companies, the rapporteur proposes to accept change 2, 5, 8, 10. But not change 1 and 3. The proponent argues that indeed change 4, 6, 7 and 9 are essential and should be supported. The rapporteur proposes that these are quickly discussed online to see if the changes are essential given the motivation in this discussion.

• For change 9 a proposal has been made to select from the following alternatives:

1. Change the need code to Need R as proposed in the CR (this is aligned with groupBconfigured field in legacy specs)

2. Keep Need S code and add the description for groupBconfigured field and capture UE behavior in this field description

*[6] There is no consensus to pursue changes proposed in [6]. The Rapporteur thinks that this discussion needs more time to conclude on if a limit is explicitly needed: i.e. determine what a NW may configure in terms of number or partitions, what reasonable SIB or testing limitation may exist - and if a change is pursued, weather a NBC or field description change is to be pursued including the actual max number of partitions. Proposal: Postpone. Discuss shortly online whether:*

*• the maximum number of configurable partitions is essential to be corrected, and if yes*

*• To what maximum number is this limit set to, if it can be same/different for maxAdditionalRACH-r17 or maxFeatureCombPreamblesPerRACHResource-r17*

*• If consensus to a and b - how to correct this. E.g. field description additions also possible.*

- Mediatek this is essential for UE complexity and we should limit the number of partitions that the UE is expected to support, especially for RedCap UEs. Huawei is ok to limit the number (e.g. 64)

- Qualcomm agrees with Mediatek that this is very important to address as it is a big UE implementation problem as it has to dimension for a large number of partions. Apple agrees as it saves memory. Huawei explains that we can clarify it in field description and avoid NBC. ZTE understands the concerns but we should allow the protocol to be extendable but we can limit it for some UEs. Can we have it in RAN5 as a test for RedCap? Mediatek explains that this is a common problem and not just redcap. Why do we need 100+ partitions, it won’t fit in SIB signaling anyways?

- Ericsson and Nokia agree that we should limit and not have a lot of flexibility. It’s also a problem for the network.

**Agreements**

1 There is no consensus to pursue changes proposed in [1]. Change is not aligned with agreements in the common RICS framework.

2 An update to the field description name numberOfPreamblesForThisPartition will be made as proposed in [2].

3 The value range of startPreambleForThisPartition is changed from 1-64 to 0-63 as proposed in [3]. Note that the encoded ASN.1 is unchanged, this may be seen as a so called “functionally NBC” change.

4 There is no consensus to pursue changes proposed in [4]. As the specification already includes the sentence “The network associates all possible preambles of an additional RACH configuration to a feature or feature combination.”, the NW behaviour according to the change proposal seems in place.

5 on [5] Change the need code to Need R as proposed in the CR (this is aligned with groupBconfigured field in legacy specs). Ask question in the email if changes 4, 6, 7 are needed

6 Reduce max number of configurable partitions in the spec. FFS the max limit and how to implement it in a BC way (e.g. field description)

7 The changes proposed in [7] are accepted and will be merged into a Rapporteur CR.

8 With a few exceptions the correction in [8] are supported by a large number of companies and can be included in a Rapporteur CR. Final text may be adjusted in that version.

9 The correction in [8] are supported by all except one company. Unless additional issues with the change can be determined, the correction can be included in a Rapporteur CR.

[R2-2207679](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207679.zip) Miscellaneous corrections to slice-specific RACH configuration Spreadtrum Communications discussion Rel-17

[R2-2207820](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207820.zip) Correction on TS 38 331 for RACH common CATT CR Rel-17 38.331 17.1.0 3317 - F NR\_cov\_enh-Core, NR\_slice-Core, NR\_SmallData\_INACTIVE-Core, NR\_redcap-Core

[R2-2207981](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207981.zip) Correction on startPreambleForThisPartition ZTE Corporation, Sanechips, Ericsson CR Rel-17 38.331 17.1.0 3341 - F NR\_redcap-Core

[R2-2207982](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207982.zip) Configuration of preambles for feature combination ZTE Corporation, Sanechips discussion

[R2-2207989](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207989.zip) RRC corrections to common RACH framework Huawei, HiSilicon draftCR Rel-17 38.331 17.1.0 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

[R2-2207997](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207997.zip) On the number of RACH partitions MediaTek Inc. discussion Rel-17 NR\_cov\_enh-Core, NR\_slice-Core, NR\_SmallData\_INACTIVE-Core, NR\_redcap-Core

[R2-2208240](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208240.zip) Miscellaneous corrections to common signalling for RACH partitioning Nokia, Nokia Shanghai Bell CR Rel-17 38.331 17.1.0 3389 - F NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core

[R2-2208399](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208399.zip) Correction on Feature Combination LG Electronics Inc. CR Rel-17 38.331 17.1.0 3415 - F NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

[R2-2208910](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208910.zip) Correction on the featurePriorities Huawei, HiSilicon discussion Rel-17

### 6.18.2 Common aspects of RACH procedure

A single CR with miscelaneous corrections is encouraged. Small editorial corrections should be sent directly to rapporteur. Big open issues can be discussed with contributions with CR in the appendix of the contribution

Move to email discussion

[R2-2208988](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208988.zip) Report [AT119-e][308][RA Part] UP open issues and CR 38.321 (ZTE)

To agree offline:

1. changes proposed in R2-2207905 are not pursued (5/9)
2. changes proposed in R2-2207989 are not pursued (6/9)
3. changes proposed in R2-2208132 are not pursued (6/8)
4. changes proposed in R2-2208400 are not pursued (8/9)
5. Agree the changes in R2-2208662 (9/9)

For online discussion:

Proposal 5: changes proposed in R2-2208614 (to clarify that the applicability of specific slice group(s) can be determined by upper layer when the RA procedure is initiated not only by the upper layer but also by the MAC layer) are not pursued (5/9)

[R2-2207905](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207905.zip) UL carrier selection for RA-SDT Nokia, Nokia Shanghai Bell CR Rel-17 38.321 17.1.0 1353 - F NR\_SmallData\_INACTIVE-Core

=> The CR is not pursued

[R2-2207990](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207990.zip) MAC correction to the RACH partitioning Huawei, HiSilicon draftCR Rel-17 38.321 17.1.0 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

[R2-2208131](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208131.zip) Correction to CFRA with additionalRACH-Configs Ericsson discussion Rel-17 NR\_redcap-Core, NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_slice-Core

[R2-2208132](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208132.zip) Correction to CFRA with additionalRACH-Configs Ericsson CR Rel-17 38.321 17.1.0 1372 - F NR\_redcap-Core, NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_slice-Core

=> The CR is not pursued

[R2-2208400](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208400.zip) Correction on fallback cases from CFRA to CBRA in CE-only BWP LG Electronics Inc. discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

=> The CR is not pursued

[R2-2208614](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208614.zip) 38.321 CR Correction on the provision of the feature applicability for RACH Beijing Xiaomi Software Tech draftCR Rel-17 38.321 17.1.0 F NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core

=> The change is combined in R2-2208662

[R2-2208662](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208662.zip) Correction on RO Selection with RA Partitioning vivo CR Rel-17 38.321 17.1.0 1398 - F NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core

=> The CR is revised in R2-2208916

R2-2208916 Correction on RO Selection with RA Partitioning vivo, Xiaomi CR Rel-17 38.321 17.1.0 1398 - F NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core

# 8 Rel-18

## 8.3 Network energy savings for NR

(xx-Core; leading WG: RAN1; REL-18; WID: RP-213554)

Time budget: 1 TU

Tdoc Limitation: 2 tdocs

### 8.3.1 Organizational

*LS, workplan, etc*

[R2-2208339](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208339.zip) Work plan for NR network energy savings Huawei Work Plan Rel-18 FS\_Netw\_Energy\_NR

=> Noted

[R2-2208340](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208340.zip) TR 38.864 skeleton for study on network energy savings for NR Huawei discussion Rel-18 FS\_Netw\_Energy\_NR

- Huawei indicates that RAN3 endorsed the same skeleton

=> Use skeleton as baseline for further discussion

=> Noted

[R2-2208341](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208341.zip) General consideration of RAN2 study Huawei discussion Rel-18 FS\_Netw\_Energy\_NR

### 8.3.2 gNB and UE supporting techniques

*Contributions should focus on how to achieve more efficient operation dynamically and/or semi-statically and finer granularity adaptation of transmissions and/or receptions in one or more of network energy saving techniques in time, frequency, spatial, and power domains, with potential support/feedback from UE, and potential UE assistance information*

[R2-2208431](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208431.zip) Discussion on the technical directions for network energy saving CMCC discussion Rel-18

Proposal 1: Spatial and power domain energy saving need to be studied in RAN1 first, and the RAN2 impacts can be studied after RAN1 make further progress. RAN2 can firstly study on the time domain and frequency domain techniques.

- Nokia thinks that time domain is the most promising domain in RAN2 but for frequency domain we may not be the right group.

=> We will prioritize time domain and frequency domain techniques until RAN1 further progresses on other techniques.

Proposal 2: RAN2 is kindly asked to study the UE behavior for the carriers with or without SSB/SIB/paging, e.g., whether UE is allowed to receiving SSB/SIB/paging on the anchor carrier, while perform random access on either anchor carrier or non-anchor carriers, similar as NB-IoT.

Proposal 3: RAN2 is kindly asked to study the UE impact if the transmission period of SSB/SIB is increased. Backward compatible issue needs to be considered.

Proposal 4: RAN2 is kindly asked to study the scenario and mechanism for on demand SSB/SIB transmission.

Observation 1: gNB DTX can help reducing the always on signal transmission, such as SSB/SIB transmission and other period RS transmission, and help UE power saving.

Proposal 5: RAN2 is kindly asked to further study on gNB DTX and potential UE impacts.

Questions:

- Oppo asks if 2,3,4 are complementary or do we prioritize. CMCC indicates that all three proposals are important.

- Apple is asking if proposal 2-4 are for single or multiple-carrier as the impacts to legacy are quite different. CMCC indicates that the focus is on multi-carrier. It is true that single carrier has impact on legacy UEs but we do refarming on some carriers then there will be no legacy.

- Apple asks if the proposal 3 should focus mainly on SIB1 since for other SIBs we already have flexibility with on demand SIB. CMCC indicates that this is focusing on all SIBs and also consider solution where we can do RA on another carrier. Vodafone doesn’t think this is linked to on demand SIB.

- Vodafone asks about the periodicity as we already have quite a flexible long SIB periodicity.

[R2-2207037](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207037.zip) Discussion on NW energy saving KDDI Corporation discussion

Proposal RAN2 study the mechanism and potential solution on transmit partial SSB and SIB1 of energy saving cell on anchor cell

- Vodafone thinks that we should ensure that there is no impact to legacy.

- Apple asks what is anchor cell. KDDI indicates that it is the cell that is transmitting information.

- CATT indicates Regarding legacy, I understand some cells supporting NES may not be visible to legacy, which will access via "anchor cell".

- Huawei asks if we should categorize the solutions in single carrier and multiple carrier. KDDI thinks that we should prioritize multi-carrier.

[R2-2207115](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207115.zip) Efficient operation of adaptation for network energy saving Intel Corporation discussion Rel-18 FS\_Netw\_Energy\_NR

Proposal#1: RAN2 to further study how to enable a group configuration update mechanism to improve network energy saving.

Proposal#2: RAN2 to further study 2-Step approach (preconfiguring the UEs using dedicated signalling and triggering a configuration change using common group signalling) that allows the network to move between different network energy efficiency levels quickly and efficiently by simultaneously reconfiguring multiple UEs securely.

- Samsung asks if this assumes using multicast or groupcast signaling. Intel indicates that this is FFS as it can be DCI with group signaling or paging. Samsung asks how can we guarantee reliability and should be studied. Intel asks that we can study reliability but we assume that DCI has been used and can discuss further. Vivo think that RAN2 should focus RRC/MAC and let RAN1 discuss reliability issue for DCI.

- CATT thinks that we should take a step back and agree that we should first agree that we should minimize the signalling.

- CATT also thinks that we should categorize between IDLE and CONNECTED.

Proposal#3: RAN2 to further study using of 2-step approach of group signalling for fast PCell change/handover for the case of turning off booster cells where the candidate (coverage) cell for a UE to handover to is provided in Step 1 while Step 2 provides the indication by the network when UE needs to perform such handover.

- Apple thinks that group handover may have overlap with other WIs and we should avoid the misalignment.

- BT thinks that we should study what type of devices can support this and how it impacts legacy.

[R2-2208297](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208297.zip) Network Energy savings - UE grouping for efficient signaling Rakuten Mobile, Inc discussion Rel-18

=> Noted

[R2-2207246](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207246.zip) Time domain NES techniques InterDigital discussion Rel-18 FS\_Netw\_Energy\_NR

Support adaptation of semi-statically configured uplink and downlink data and control resources:

- UE does not monitor downlink resources when the network is not active due to NES (e.g. for configured PDCCH and PDSCH resources)

- UE does not transmit on preconfigured uplink resources when the network is not blind decoding due to NES (e.g. PRACH, SRS, PUSCH, and PUCCH resources)

- Intel asks if this is group or dedicated and if it is similar to the solution from Intel

Proposal 6: Study techniques for wake-up request transmitted by the UE in connected mode when the serving cell is in sleep state due to NES.

- Ericsson asks if this is more dependent on RAN1. InterDigital indicates that this also depends on RAN2 as triggers are more RAN2

- Qualcomm asks what the UE knows about the state of the network and we should study.

- Qualcomm thinks that we should take into account UE side.

Proposal 8: Support cell-specific alternative IDLE/Inactive mode DRX cycles for NES.

Proposal 9: Study means for paging reception from a non-camped cell.

=> Noted

[R2-2208120](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208120.zip) Network Energy Savings Techniques Qualcomm Incorporated discussion Rel-18

Proposal 1: Study how to efficiently align UE DRX to support dynamic DTX on the cell side

Proposal 2: Study how to reduce energy consumption on the cell due to blind monitoring and considering the UE impact.

Proposal 3: Study how UE-controlled target cell selection, including cell selection for CHO mobility, and cell selection/reselection in idle/inactive-mode mobility can be made aware of the cell modes of operation.

Proposal 4: Study how to efficiently configure cell selection by the UE in idle/inactive/CHO mobility to support dynamic ES by the candidate target cells

- Fujitsu thinks we should also include on-demand MIB

=> Noted

[R2-2207424](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207424.zip) On-demand measurement for network energy saving Apple discussion Rel-18 FS\_Netw\_Energy\_NR

*Proposal 1: The UE is allowed to notify Network its preference on reference signal pattern for measurements via assistance information. FFS the assistance information is RRC message, MAC-CE or L1 signaling*

*Proposal 2: The Network can use MAC-CE to activate / deactivate a different pattern of reference signals for measurement*

=> Noted

[R2-2208606](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208606.zip) Coexistence considerations in network energy saving MediaTek Inc. discussion Rel-18 FS\_Netw\_Energy\_NR

=> Noted

[R2-2207546](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207546.zip) NW energy saving in IDLE Nokia, Nokia Shanghai Bell discussion Rel-18 FS\_Netw\_Energy\_NR

=> Noted

[R2-2207414](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207414.zip) Efficient PCell and SCell handling for network energy saving Fujitsu discussion Rel-18 FS\_Netw\_Energy\_NR

=> Noted

[R2-2208343](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208343.zip) Discussion on network energy saving techniques for multi-carrier case Huawei, HiSilicon, China Unicom, Deutsche Telekom discussion Rel-18 FS\_Netw\_Energy\_NR

=> Noted

[R2-2208342](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208342.zip) Discussion on network energy saving techniques for single carrier Huawei, HiSilicon, Deutsche Telekom discussion Rel-18 FS\_Netw\_Energy\_NR

=> Noted

[R2-2207786](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207786.zip) discussions on time domain techniques for network energy saving vivo discussion Rel-18

=> Noted

[R2-2207799](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207799.zip) Discussion on network energy savings OPPO discussion Rel-18 FS\_Netw\_Energy\_NR

=> Noted

[R2-2207960](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207960.zip) Alignment of UE and Network Energy Saving Fraunhofer IIS, Fraunhofer HHI discussion Rel-18

=> Noted

[R2-2208593](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208593.zip) Network Energy Saving (NES) Techniques Samsung discussion Rel-18

- BT asks what is new wrt to BWP.

=> Noted

[R2-2208331](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208331.zip) Techniques in various domains and UE assistance information for network energy saving ZTE corporation, Sanechips discussion Rel-18

=> Noted

**UE assistance information**

[R2-2207512](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207512.zip) Consideration on UE Assistance Information CATT discussion Rel-18 FS\_Netw\_Energy\_NR

*Proposal 1: If UE assistance information is part of a specific network energy saving technique, it should be discussed and evaluated under the topic of the specific network energy saving technique.*

- Ericsson thinks it should be studied in general

*Proposal 2: RAN2 to study further the necessary common UE assistance information for network energy saving.*

=> Noted

[R2-2208026](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208026.zip) Assistance information from the UE for NW energy savings Ericsson discussion

Proposal 1 RAN2 to start with assistance information example list agreed in RAN1, and to consider extending the list.

Proposal 2 RAN2 to adopt the term “assistance information from the UE” as agreed in RAN1.

=> Noted

Discussion:

- Nokia agrees with CATT and we should understand what information is useful for NES and then we can group information based on what we find useful.

- Apple agrees we should discuss case by case and analyze impact to both UE and gNB

- Oppo agrees with proposal 1

- Intel agrees with the general approach but there are some parameters already in UE assistance can be used for NES already and should be used as a baseline.

=> RAN2 to adopt the term “assistance information from the UE” as agreed in RAN1

**Solution groups:**

1. Adaption of MIB/SSB/SIB

 - partial/simplified SSB

2 Increase of SSB/SIB periodicity

3 On demand SSB/SIB1 (FFS if there are enhancements for other SIBs)

 - FFS for on-demand MIB

4 Receiving SSB/SIB on one carrier/cell and performing access to another carrier/cell

5 Handover/Fast PCell change for NES

 - CHO or new configuration

 - group HO

6 Resource adaptation (frequency and time domain)

 - Including PRACH, SRS, PUSCH, PUCCH resources and periodicities

 - cell DTX/DRX

 - measurement

 - reference signal type and configuration of reference signal pattern for connected mode

 - BWP adaptation

7 Any Cell activation/re-activation or UE wake up request signal (connected/idle)

8 Paging enhancements (includes paging-less solutions)

9 Cell selection/reselection (ie. cell prioritization also including legacy UEs)

**Things to study**

1. Study group configuration and signalling for transitions for different solutions

 - pre-configuration and L1/L2 signaling to trigger change of configuration

2 Identify/capture RAN2 impact to legacy for the different solutions

3 Awareness of the NES states at the UE side for the different solutions

4 Aim to minimize DL signalling for NES

5 Consider UE complexity and energy consumption

6 UE assistance information for the specific network energy technique, it’s benefits and impact to UE/NW

* [Post119-e][NES] Details of solutions - Huawei

- Capture more RAN2 details/impact/benefit on the solution groups and additional things to study

- Attempt prioritization of solutions

[R2-2207116](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207116.zip) Additional UE assistance information and UE feedback Intel Corporation discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207293](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207293.zip) Assistance information to support choice of NES configuration NEC Telecom MODUS Ltd. Discussion

[R2-2208592](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208592.zip) Feedback and Assistance Information for NES Samsung discussion Rel-18

[R2-2207247](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207247.zip) Frequency domain and UE assistance NES techniques InterDigital discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207292](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207292.zip) Finer granularity configuration for NES NEC Telecom MODUS Ltd. discussion

[R2-2207406](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207406.zip) Consideration on network energy saving Fujitsu discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207423](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207423.zip) Initial discussion on RAN2 work of Network energy saving Apple discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207511](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207511.zip) Network energy savings: issues for investigation in RAN2 CATT discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207545](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207545.zip) NW energy saving in CONNECTED Nokia, Nokia Shanghai Bell discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207787](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207787.zip) discussion on frequency domain and UE-assisted Network Energy saving techniques vivo discussion Rel-18

[R2-2207800](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207800.zip) Discussion on the UE assistance information OPPO discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207919](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207919.zip) Discussion on supporting of network energy savings for NR Lenovo discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2207920](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207920.zip) Discussion on the state transition in NES Lenovo discussion Rel-18 FS\_Netw\_Energy\_NR

[R2-2208031](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208031.zip) Miscellaneous mechanisms for network energy savings Ericsson discussion

[R2-2208233](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208233.zip) gNB operation for NES ETRI discussion

[R2-2208330](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208330.zip) Supporting access via assistant cell for network energy saving ZTE corporation, Sanechips discussion Rel-18

[R2-2208432](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208432.zip) Analysis on power consumption in base station CMCC discussion Rel-18

[R2-2208573](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208573.zip) Energy saving on system information transmission Xiaomi discussion Rel-18 FS\_Netw\_Energy\_NR

## 8.8 NR support for UAV

(xx-Core; leading WG: RAN1; REL-18; WID: RP-213600)

Time budget: 0.5 TU

Tdoc Limitation: 2

### 8.8.1 Organizational

[R2-2207328](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207328.zip) Uncrewed Aerial Vehicles in Rel-18 - workplan Nokia, Nokia Shanghai Bell Work Plan Rel-18 NR\_UAV-Core

=> Noted

=> The WP may be revised once the SA2 objective is agreed in next plenary

### 8.8.2 Measurement reporting

Contributions should focus on enhancement to measurement reports, for example UE-triggered measurement report based on configured height thresholds, Reporting of height, location and speed in measurement report, Flight path reporting, Measurement reporting based on a configured number of cells (i.e. larger than one) fulfilling the triggering criteria simultaneously

Note: Work done in LTE is a starting point for this objective. NR-specific enhancements can be considered, if needed, while overall the LTE and NR solutions should be harmonized as much as possible.

[R2-2207518](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207518.zip) Measurement Reporting for NR UAV CATT discussion Rel-18 NR\_UAV-Core

Proposal 1: As in LTE, UE-triggered measurement report based on configured height thresholds is reused for NR UAV.

Proposal 2: For NR UAV, LTE principle i.e. UE location information, reference altitude information and vertical speed are included in the measurement report. Any parameters for reporting can be further discussed.

Proposal 3: A request message for flight path information from serving gNB is introduced. Use UE information request response message to response.

Proposal 4: A location list of waypoints (3D location information) is adopted as the basic content of flight path report.

Proposal 5: The waypoints can optionally include time stamps if available. Absolute time information is used as baseline for time stamp. UE reports up to the maximum number of waypoints configured by gNB.

- Nokia asks how it works if the timestamp is optional and should be mandatory.

Proposal 6: Introduce the number of triggered cells for interference detection for NR UAV UE.

=> Noted

[R2-2207194](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207194.zip) Discussion on NR support for UAV NTT DOCOMO, INC. discussion Rel-18

Proposal3: Introduce numberOfTriggeringCells in ReportConfigNR to control the excessive measurement reporting for NR UAV.

Proposal4: Introduce numberOfTriggeringBeams in ReportConfigNR to control the excessive measurement reporting for NR UAV.

- Nokia explains that triggeringcells was for interference but the beams are for mobility. NTT explains that this is to reduce measurement reporting overhead.

Proposal5: Introduce a prohibit timer to control the excessive measurement reporting for NR UAV.

- Nokia thinks this should be studied

Proposal6: Introduce a NumberOfGoodBeams threshold to take number of good beams of target cell into account for NR UAV mobility.

- ZTE asks if we support standalone only or DC as well. Nokia doesn’t think there was anything explicitly stated but we should focus on standalone. Huawei thought that DC was not included.

- Intel asks if P3,4 and 6 are individual features or combined. For P4 do we count individual beams. NTT explains that 3 and 4 is combined and 6 is individual.

=> Noted

[R2-2207925](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207925.zip) NR support for UAV first steps plus Inter RAT aspects Vodafone GmbH discussion Rel-18

Proposal 1: It is proposed to re-use 1 to 1 events H1 and H2 defined in LTE and the height reporting within NR

Proposal 2: The accuracy of 1 m for the Hight information is sufficient and hight IE could be re-used in NR

Proposal 3: The definition of the Location Info seems to be sufficient in LTE, but the definition is often relating to LPP protocol 37.335 LTE Positioning Protocol (LPP) and it needs to be confirmed the location information can be re-used with NR.

- Qualcomm ask if we reuse the LTE or do we use the NR one.

- CATT points out that the location needs to be reported to gNB and not the CN.

Proposal 4: The current procedure used for flight path reporting and configuration could be re-used. It is proposed to study if the number of Way Points need to be enhanced.

- Samsung asks why we would need to increase the number of way points. Vodafone asks why we have limited in the first place anyways.

Proposal 5: The functionality of the numberOfTriggeringCells should be introduced in NR. Also, a leaving conditions available in LTE should be introduced too.

Proposal 6: It is proposed to discuss if the enhancements to InterRAT mobility mechanism for UAV need to be done.

- Vodafone clarifies that the scenario is drone is moving to an area where there is no NR. Is existing mobility sufficient to cover the inter-RAT mobility. Huawei agrees that inter-RAT mobility is very important to work well, but perhaps we can rely on legacy mobility.

=> Noted

[R2-2207329](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207329.zip) On measurement reporting enhancements for UAVs - LTE baseline in NR framework Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_UAV-Core

Proposal 2: RAN2 is asked to consider if the UAV UE may be allowed to scale some of the RRM parameters (e.g. TTT) when event H1 or H2 is met.

Proposal 3: RAN2 to study the use of H1 and H2 event in CHO triggering.

Proposal 4: RAN2 to study the vertical movement and associated mobility for UAV UEs.

Proposal 8: Consider studying the following areas related to flight path plan:

• Providing flight path plan from the core network to gNB (e.g. UTM to gNB)

• Waypoints distribution in time and space/location

• Flight path plan modification

*Proposal 10: In measurement reporting based on numberOfTriggeringCells study how to avoid sending the measurement reports mainly due to reportOnLeave.*

- Qualcomm thinks we should study all these proposals. Huawei explains that CHO was not included on purpose. Intel explains that it was downscoped.

- Ericsson agrees with P2-P3 and we should look at specification changes and ensure we limit complexity. For example vertical location is included in common parameters but we have to be careful what we will report, everything or have something to allow just reporting location.

*Proposal 6: If user consent is needed for location reporting in CONNECTED, this shall be clearly indicated to SA3 and other affected WGs already now/as soon as possible.*

- Vodafone thinks we should not bother SA3 everytime. Nokia explains this was a problem in NTN.

=> Noted

[R2-2207233](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207233.zip) Measurement Reports Enhancement for UAV OPPO discussion Rel-18

=> Noted

**Agreements**

1. Use LTE principle as a baseline, introduce similar event H1 (aerial UE height become higher than threshold) and H2 (aerial UE height become lower than threshold. FFS if further NR enhancements are needed. FFS study scaling of RRM parameters (e.g. which parameters and what is the purpose/benefit of the scaling and how)

FFS how to limit excessive measurements and measurement reporting

FFS if user consent is needed for location reporting in CONNECTED

FFS study the vertical movement and associated mobility for UAV UEs

2 Rel-18 NR supports reporting of UAV UE’s height, location and velocity. It is for further study what accuracy and reporting mechanisms are required and if further enhancements are needed.

3 As in LTE, flight path plan reporting will be introduced. Location list of waypoints (3D location information) and timestamp is adopted as the basic content of flight path report. FFS if timestamp is mandatory or optional for NR. FFS if further enhancements are needed

4 Introduce similar functionality to LTE (numberofTriggeringCells). FFS whether numberoftriggerbeams for NR is required or other enhancements. FFS study how to avoid sending the measurement reports mainly due to reportOnLeave.

Not treated

R2-2207076 Consideration on measurement reporting of NR support for UAV DENSO CORPORATION discussion NR\_UAV-Core

R2-2207154 Considerations on Measurement Reports Enhancements NEC Europe Ltd discussion Rel-18 NR\_UAV-Core

R2-2207601 Discussion on measurement reporting enhancement for NR UAV vivo discussion Rel-18 NR\_UAV

R2-2207602 Discussion on flight path reporting for NR UAV vivo discussion Rel-18 NR\_UAV

R2-2207624 On measurement and reporting enhancements Ericsson discussion NR\_UAV-Core Revised

R2-2207715 measurement report enhancement for NR UAV Lenovo discussion Rel-18

R2-2207836 UAV measurement reporting Sony discussion Rel-18 NR\_UAV

R2-2207935 Discussion on measurement reporting in UAV Apple discussion Rel-18 NR\_UAV-Core

R2-2208042 On measurement and reporting enhancements Ericsson discussion NR\_UAV-Core R2-2207624 Withdrawn

R2-2208098 Measurement and reporting enhancements Qualcomm Incorporated discussion Rel-18 NR\_UAV-Core

R2-2208099 Mobility considerations and some performance results Qualcomm Incorporated discussion Rel-18 NR\_UAV-Core

R2-2208250 UAV support for NR Intel Corporation discussion Rel-18 NR\_UAV-Core

R2-2208279 Measurement reporting for UAV InterDigital discussion Rel-18 NR\_UAV-Core

R2-2208335 Measurement Report Enhancement LG Electronics Finland discussion

R2-2208336 Flight Path Information Enhancement LG Electronics Finland discussion

R2-2208412 Discussion on measurement reporting enhancements for NR UAV ZTE Corporation, Sanechips discussion Rel-18 NR\_UAV-Core

R2-2208421 Consideration on subscription-based UAV identification Huawei, HiSilicon discussion Rel-19 NR\_UAV-Core

R2-2208445 Consideration on Measurement Reporting for UAV CMCC discussion Rel-18 NR\_UAV-Core

R2-2208469 Discussion on measurement reporting for NR UAV Xiaomi discussion

R2-2208608 Discussion on enhancements on measurement reports for NR UAV Samsung Electronics Co., Ltd discussion Rel-18 NR\_UAV-Core

### 8.8.3 Subscription-based aerial-UE identification

Contributions should focus on signaling required to support subscription-based aerial-UE identification

Note: Work done in LTE is a starting point for this objective. NR-specific enhancements can be considered, if needed, while overall the LTE and NR solutions should be harmonized as much as possible.

R2-2208630 Discussion on subscription-based aerial-UE identification for NR UAV Samsung Electronics Co., Ltd discussion Rel-18 NR\_UAV-Core

R2-2207234 Subscription-based Aerial-UE Identification OPPO discussion Rel-18

R2-2207330 On subscription-based UAV UE identification Nokia, Nokia Shanghai Bell discussion Rel-18 NR\_UAV-Core

R2-2207519 Subscription-based Aerial-UE Identification for NR CATT discussion Rel-18 NR\_UAV-Core

R2-2208413 Discussion on subscription-based identification for NR UAV ZTE Corporation, Sanechips discussion Rel-18 NR\_UAV-Core

R2-2208420 Measurement report enhancement for UAV Huawei, HiSilicon discussion Rel-18 NR\_UAV-Core

R2-2208426 Discussion on subscription-based aerial-UE identification CMCC discussion Rel-18 NR\_UAV-Core

### 8.8.4 UAV identification broadcast

Study and specify, if needed, enhancements for UAV identification broadcast

NOTE: This Agenda Item will not be treated in this meeting

R2-2207155 Considerations on Enhancements for UAV Identification Broadcast NEC Europe Ltd discussion Rel-18 NR\_UAV-Core

R2-2207626 On broadcasting UAV identification Ericsson discussion NR\_UAV-Core Revised

R2-2207716 Discussion on broadcasting remote id for UAV Lenovo discussion Rel-18

R2-2207837 UAV identification broadcast Sony discussion Rel-18 NR\_UAV

R2-2208040 On broadcasting UAV identification Ericsson discussion NR\_UAV-Core R2-2207626 Withdrawn

R2-2208162 UAV Identity broadcast and Identification Beijing Xiaomi Mobile Software discussion Rel-18 NR\_UAV-Core

## 8.15 R18 Other

Misc Impacts from Other RAN WGs and TSGs (incl MC Enhancements). LS ins for Rel-18 topics that has no RAN WI.

Time budget: 0.5 TU

Tdoc Limitation: -

Low Latency

This topic is handled by UP breakout session (Diana)

[R2-2208914](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208914.zip) Report for email discussion [AT119-e][310][R18 Others - Low Latency] LS on Low latency (Huawei)

[R2-2208688](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208688.zip) Draft reply LS on RAN feedback for low latency Huawei LS out Rel-18 FS\_5TRS\_URLLC To:SA2 Cc:RAN1, RAN3 Late

=> The LS is updated in [R2-2208913](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208913.zip)

[R2-2208913](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208913.zip) Draft reply LS on RAN feedback for low latency RAN2 LS out Rel-18 FS\_5TRS\_URLLC To:SA2 Cc:RAN1, RAN3

=> The LS is approved

[R2-2206963](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2206963%C2%A0%C2%A0.zip)   LS on RAN feedback for low latency (S2-2201767; contact: Huawei)           SA2   LS in    Rel-18  FS\_5TRS\_URLLC         To:RAN2          Cc:RAN1, RAN3

[R2-2208134](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208134%C2%A0%C2%A0.zip)   Discussion on RAN feedback for low latency         Ericsson           discussion   Rel-18

[R2-2208007](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208007%C2%A0%C2%A0.zip)   Proposed response to SA2 LS [R2-2203930](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2203930.zip) on low latency Nokia, Nokia Shanghai Bell      discussion        Rel-18  FS\_5TRS\_URLLC

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[R2-2207043](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207043%C2%A0%C2%A0.zip)   Draft reply LS on RAN feedback for low latency     Qualcomm Incorporated   discussion        Rel-18  FS\_NR\_XR\_enh

*Moved from 8.5.1*

[R2-2207768](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207768%C2%A0%C2%A0.zip)   Consideration on meeting very low latency requirement in TDD      ZTE Corporation, Sanechips, China Southern Power Grid Co., Ltd         discussion   Rel-17  NR\_IIOT\_URLLC\_enh-Core      [R2-2205732](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2205732.zip)

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[R2-2207775](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2207775%C2%A0%C2%A0.zip)   [DRAFT] Reply LS on RAN feedback for low latency          ZTE Corporation, Sanechips           LS out  Rel-17  NR\_IIOT\_URLLC\_enh-Core      [R2-2205734](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2205734%C2%A0%C2%A0.zip) To:SA2 Cc:RAN3

Moved from 6.5.1

[R2-2208687](file:///C%3A%5CUsers%5Cpanidx%5COneDrive%20-%20InterDigital%20Communications%2C%20Inc%5CDocuments%5C3GPP%20RAN%5CTSGR2_119-e%5CDocs%5CR2-2208687.zip)1 21 Discussion on RAN feedback for low latency enquired by SA2 Huawei discussion Late