3GPP TSG-RAN WG2 Meeting #116bis electronic [R2-2xxxxxx](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2xxxxxx.zip)

Online, January, 2022

Source: Session Chair (InterDigital)

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

**Email discussions:**

* [AT116bis-e][500] Organizational Diana – URLLC/IIoT, Small data]

Scope:

* + - Share plans for the meetings and list of ongoing email discussions for the sessions related to URLLC/IIoT, Small data and NR-U, 2-step RACH, and power saving
    - Share meetings notes and agreements for review and endorsement
* [AT116bis-e][501][Sdata] UP open issues (LG)

Remaining UP open issues

Deadline: Proposals by rapporteur by Friday (intermediary deadlines for comments to be set by rapporteur)

CLOSED

* [AT116bis-e][502][Sdata] CP open issues (InterDigital)

Remaining CP open issues

Deadline: Proposals by rapporteur by Friday (intermediary deadlines for comments to be set by rapporteur)

CLOSED

* [AT116bis-e][503][IIoT] Tsynch open issues (ZTE)

Remaining CP open issues

Deadline: Proposals by rapporteur by Friday (intermediary deadlines for comments to be set by rapporteur)

CLOSED

* [AT116bis-e][504][IIoT] UCE open issues (Vivo)

Remaining CP open issues

Deadline: Proposals by rapporteur by Friday (intermediary deadlines for comments to be set by rapporteur)

CLOSED

* [AT116bis-e][505][Sdata] LS to SA3 on small data (Nokia

Deadline – Friday

* [AT116bis-e][506][Sdata] LS to CT1 on small data (ZTE)

Deadline – Friday

CLOSED

* [AT116bis-e][507][Sdata] LS to RAN3 on small data (Intel)

Deadline – Friday

Post email discussions

* [POST116bis-e][508][IIoT] LS to RAN3 on Tsynch (ZTE)

Deadline – Wednesday

* [POST116bis-e][509][Sdata] LS to RAN1 on small data (ZTE)

Deadline – Wednesday

* [POST116bis-e][510][Sdata] UP open issues (Huawei)

Scope:

- List of critical open issues to be resolved for WI completion

- Updated CR 38.321 for information and review

NOTE: NO contributions on these critical open issues are expected

Deadline:

- Open issues list Jan. 28th

- Company inputs Feb. 15th

* [POST116bis-e][511][Sdata] CP open issues (ZTE)

Scope:

- List of critical open issues to be resolved for WI completion (including UE capabilities)

- Updated CR 38.331 for information and review

NOTE: NO contributions on these critical open issues are expected

Deadline:

- Open issues list Jan. 28th

- Company inputs Feb. 15th

* [POST116bis-e][512][IIoT] UP open issues (Samsung)

Scope:

- List of critical open issues to be resolved for WI completion

- Updated CR 38.321 for information and review

NOTE: NO contributions on these critical open issues are expected

Deadline:

- Open issues list Jan. 28th

- Company inputs Feb. 15th

* [POST116bis-e][513][Sdata] CP open issues (Ericsson)

Scope:

- List of critical open issues to be resolved for WI completion (including UE capabilities)

- Updated CR 38.331 for information and review

NOTE: NO contributions on these critical open issues are expected

Deadline:

- Open issues list Jan. 28th

- Company inputs Feb. 15th

* [POST116bis-e][514][IIoT] UP open issues (ZTE)

Scope:

- List of critical open issues to be resolved for WI completion

- Updated CR 38.321 for information and review

NOTE: NO contributions on these critical open issues are expected

Deadline:

- Open issues list Jan. 28th

- Company inputs Feb. 15th

* [POST116bis-e][515][Sdata] CP open issues (Ericsson)

Scope:

- List of critical open issues to be resolved for WI completion

- Updated CR 38.331 for information and review

NOTE: NO contributions on these critical open issues are expected

Deadline:

- Open issues list Jan. 28th

- Company inputs Feb. 15th

## 8.5 NR IIoT URLLC

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

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

Email max expectation: threads

### 8.5.1 Organizational

Including email discussions [Post116-e][511][IIoT] MAC running CR update (Samsung) and [Post116-e][512][IIoT] Stage-2 running CR update (Nokia)

[R2-2200080](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200080.zip) LS on propagation delay compensation (R1-2112834; contact: Huawei) RAN1 LS in Rel-17 NR\_IIOT\_URLLC\_enh To:RAN2, RAN4

=> Noted

[R2-2200024](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200024.zip) MAC Running CR for Rel-17 IIoT/URLLC Samsung draftCR Rel-17 38.321 16.7.0 B NR\_IIOT\_URLLC\_enh

=> The CR is endorsed

[R2-2200052](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200052.zip) Stage-2 Running CR for Rel-17 IIoT/URLLC Nokia, Nokia Shanghai Bell CR Rel-17 38.300 16.8.0 0392 - B NR\_IIOT\_URLLC\_enh [R2-2110441](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110441.zip)

=> The CR is endorsed

[R2-2200951](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200951.zip) RRC running CR for IIoT Ericsson draftCR Rel-16 38.331 16.7.0 NR\_IIOT\_URLLC\_enh

=> the CR will be updated and reviewed after the email in short email discussion

[R2-2200992](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200992.zip) UE capabilities for Rel-17 IIoT / URLLC Intel Corporation discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

=> Noted

*=> [CB] Wait for next week discussion Proposal 1: Discussion for RAN2 UE capabilities for propagation delay compensation can wait for the conclusion regarding UE side PDC vs. network side PDC.*

Agreements:

1 An optional UE capability signalling is introduced for simultaneous configuration of LCH based prioritization (capability lch-priorityBasedPrioritization-r16) and cg-RetransmissionTimer. The capability is per UE, not FDD-TDD DIFF, not FR1-FR2 DIFF.

2 An optional UE capability signalling (intraCG-Prioritization) is introduced to indicate whether UE supports the HARQ process ID selection based on LCH priority. A UE supporting this feature shall also support simultaneous configuration of LCH based prioritization and cg-RetransmissionTimer. The capability is per UE, not FDD-TDD DIFF, not FR1-FR2 DIFF.

3 An optional UE capability signalling for survival time is introduced.

FFS A UE supporting survival time feature shall also support CA PDCP duplication (capability pdcp-DuplicationMCG-OrSCG-DRB) and configured grant type-1 (capability configuredUL-GrantType1 or configuredUL-GrantType1-v1650). The capability is per UE, not FDD-TDD DIFF, not FR1-FR2 DIFF.

FFS on DC duplication or CG Type 1 is supported

Not treated

[R2-2201131](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201131.zip) RAN1 feature impact on MAC in Rel-17 IIoT/URLLC Apple discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core Late

[R2-2201132](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201132.zip) Text proposals to MAC running CR for Rel-17 IIoT/URLLC Apple discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core Late

[R2-2201373](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201373.zip) MAC impact of RAN1 Rel-17 HARQ deferral Xiaomi Communications discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

### 8.5.2 Enhancements for support of time synchronization

RAN1 progress if any should be taken into account. \

[R2-2201826](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201826.zip) Tsynch open issues – outcome of email discussion 503 ZTE

=> Noted

**Agreements**

1. Both RTT-based PDC and legacy TA-based PDC are supported.
2. Both RTT-based UE side PDC and RTT-based gNB side PDC are supported. RRT-based gNB side PDC has to be a simple solution and converge by February meeting.
3. A single pair of TRS/PRS and SRS is configured via RRC signaling for RTT-based PDC.
4. For RTT-based UE side PDC, gNB Rx-Tx time difference, e.g., gNBRx-Tx, shall be provided to UE via DLInformationTransfer signaling.
5. No need to introduce additional activation for RTT measurement in UE side.
6. For RTT-based gNB side PDC, RRC measurement framework can be reused as baseline to provide UE Rx-Tx time difference report.
7. For RTT-based gNB side PDC, besides UE Rx-Tx time difference, no additional information needs to be reported to NW.
8. The signaling flow(s) of RTT-based PDC can be captured in stage-2 specification (taking the examples in [[R2-2200991](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200991.zip)] or [[R2-2201016](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201016.zip)] as baseline). The details can be further fine-tuned based on RAN2 agreements during stage-2 running CR review.
9. FFS an explicit indication to only activate UE side TA-based PDC is introduced in SIB or in unicast signalling and what is indicated
10. FFS For TA-based PDC, it’s no need to specify PD calculation related contents in RAN2.
11. Network configuration should guarantee that RTT-based PDC and TA-based PDC are not activated simultaneously for a UE.
12. RAN2 confirms to introduce separate R17 UE capabilities for RTT-based PDC and legacy TA-based PDC, as defined by RAN1 feature list.
13. RAN2 confirm the agreement in last meeting that reference time provided in dedicated signaling takes priority. FFS UE behavior when it receives reference time info via dedicated signaling.
14. RAN2 send a LS to RAN3 to inform the RAN2 progress about RTT-based PDC and TA-based PDC till the end of RAN2#116bis e-meeting. Email discussion [508]
15. It’s no need to specify solution for the issue of mismatch between propagation delay value and reference time information.

For further discussion:

Proposal 4.2: RAN2 discuss how to activate RTT-based UE side PDC, to activate implicitly via provision of gNB Rx-Tx time difference to UE or to activate via an explicit RRC signaling.

- Mediatek would like to see a common solution for both.

Proposal 5.1: For RTT-based gNB side PDC, RAN2 discuss how to trigger report of UE Rx-Tx time difference to the NW, e.g., explicit request in RRC signaling from gNB or event trigger.

Not treated

[R2-2200060](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200060.zip) RE: LS on Time Synchronization IEEE 1588 WG LS in To:RAN, SA Cc:RAN2

[R2-2200182](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200182.zip) Signalling for Support of Propagation Delay Compensation Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh

[R2-2200320](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200320.zip) RTT-based PDC and TA-based PDC CATT discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200477](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200477.zip) Discussion about propagation delay compensation for accurate time synchronization Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200611](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200611.zip) Discussion on propagation delay compensation for TSN NTT DOCOMO INC. discussion Rel-17

[R2-2200678](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200678.zip) Discussion on RTT-based PDC ZTE Corporation, Sanechips, China Southern Power Grid Co., Ltd discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2200761](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200761.zip) Signaling procedure of RTT based propagation delay compensation Lenovo, Motorola Mobility discussion Rel-17

[R2-2200872](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200872.zip) Discussion on RTT-based PDC Enhancement CMCC discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200926](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200926.zip) Remaining issues on time synchronization enhancement OPPO discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200952](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200952.zip) Propagation delay compensation enhancements Ericsson discussion

[R2-2200991](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200991.zip) Remaining issues of timing synchronization Intel Corporation discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201016](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201016.zip) Propagation Delay Compensation for TSN Qualcomm Incorporated discussion Rel-17

[R2-2201263](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201263.zip) Discussion on propagation delay compensation vivo discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201367](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201367.zip) Issues on PDC Samsung discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

### 8.5.3 Uplink enhancements for URLLC in unlicensed controlled environments

Remaining open issues.

[R2-2201827](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201827.zip) UCE open issues – outcome of email discussion 504 Vivo

=> Revised in [R2-2201922](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201922.zip)

[R2-2201922](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201922.zip) UCE open issues – outcome of email discussion 504 Vivo

=> Noted

Agreements

1. When cg-RetransmissionTimer is configured but autonomousTx is not configured, a deprioritized MAC PDU is not transmitted in a subsequent CG occasion using the Rel-16 URLLC autonomous transmission mechanism. However, autonomous retransmission based on Rel-16 NR-U behaviour can still take place. RAN2 confirms no specification change is required.
2. Put the follow issue on hold and discuss whether and how to handle it during maintenance phase after WI competition: When autonomousTx and cg-retransmissionTimer are configured, if an autonomous retransmission of a PDU is deprioritized with the HARQ not pending, the network will stop the configuredGrantTimer assocated with the deprioritized PDU. A new MAC PDU will be generated and flush the original packet stored in the HARQ buffer, which may lead to packet loss.
3. If HARQ process ID selection is among the initial transmissions and the retransmissions whose HARQ processes are with equal priority, UE prioritizes the HARQ process for retransmission over initial transmission
4. When cg-RetransmissionTimer is configured but autonomousTx is not configured, cg-RetransmissionTimer should not be stopped for the deprioritized CG

*Proposal 1. [Discussion] (16/20) If HARQ process ID selection is among the initial transmissions and the retransmissions whose HARQ processes are with equal priority, UE prioritizes the HARQ process for retransmission over initial transmission.*

- Mediatek, QC, Lenovo, Oppo, CATT, thinks that it should be left to UE implementation as there are different cases.

- Samsung agrees with the proposals. Nokia thinks it makes lots of sense to follow this proposal. Ericsson agrees too and thinks this is inline with Rel-16 baseline NR-U.

*Proposal 3. [Discussion] (Out of 20, 13 for Option 2, 7 for Option 1) When cg-RetransmissionTimer is configured but autonomousTx is not configured, RAN2 further discusses the options regarding the cg-RetransmissionTimer termination for the deprioritized CG:*

*- Option 1: (7/20) cg-RetransmissionTimer should be stopped for the deprioritized CG.*

*- Option 2: (13/20) cg-RetransmissionTimer should not be stopped for the deprioritized CG.*

- CATT thinks that we should go with the simplest solution which is option 1. Nokia points out that option 1 has specification change.

Proposal 5. [Discussion] To decide whether solution for the One-shot HARQ-ACK should be discussed/decided in IIOT or TEI17 for common solution.

- Ericsson explains that this is a known issue for NR-U so we shouldn’t sneak it in Rel-17 and NR-U folks can enhance it. CATT explains that this is to address the latest designs of Rel-17 to see how it impact RAN2.

- Samsung thinks that we need to have a separate agenda item to discuss this issue.

=> RAN2 should look at open issues resulting from RAN1 design

Not treated

[R2-2200183](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200183.zip) Remaining Issues on Configured Grant for URLLC in Unlicensed Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh

[R2-2200321](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200321.zip) Leftovers of UCE CATT discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200478](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200478.zip) Remaining issues about uplink enhancements for URLLC in UCE Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200927](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200927.zip) Remaining issues on URLLC over NRU OPPO discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200953](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200953.zip) Remaining issues in UL CG enhancements Ericsson discussion

[R2-2201018](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201018.zip) CG Harmonization for Unlicensed Controlled Environment Qualcomm Incorporated discussion Rel-17

[R2-2201226](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201226.zip) Further Consideration on the Intra-UE multiplexing in UCE ZTE Corporation,Sanechips discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201264](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201264.zip) Remaining Issues for UCE vivo discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201285](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201285.zip) Remaining issues for IIoT in UCE III discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2201368](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201368.zip) Remaining Issues on CG Enhancement and Intra-UE Prioritization Samsung discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201374](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201374.zip) UE processing time restriction on the retransmission grant selection Xiaomi Communications discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201460](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201460.zip) Remaining issues for UCE MediaTek Inc. discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core [R2-2110754](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110754.zip)

### 8.5.4 RAN enhancements based on new QoS

Contributions should aim to bring new issues not covered in email discussions already and should be clearly separated in the document from issues covered in the email discussion.

Including email discussion [Post116-e][513][IIoT] QoS survival time (Apple)

RAN enhancements based on new QoS related parameters taken into account SA2 progress

[R2-2200003](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200003.zip) Report of [Post116-e][513][IIoT] QoS Survival Time (Apple) Apple discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

=> Noted

Proposals for Online Discussion and Confirmation

*Proposal 1-1 (10/18): To provide radio resources on the legs used for PDCP duplication and to guarantee CG resources are not used outside of Survival Time, RAN2 to discuss whether a CG can be considered deactivated outside of Survival Time and activated in Survival Time. Other variants FFS.*

*Does it apply to type 1?*

- Huawei would like to downpriotize CG. LG doesn’t think we need a mechanism and when we had a similar discussion when we introduced PDCP and it is up the network.

- Vivo also thinks that this is complicated from network point of view and it is not clear how this work for DC dupcliation. Prefer 1C.

- Apple explains is to prevent using the resources out of survival time. It is possible that the UE uses the resources for UCE or MAC CE.

- Fujitsu thinks we would like to rely on NW. CG reuse for other UEs is allowed, but never used for other UEs during STM

- Samsung thinks that this is very rare and agree with LG that this resources will not be used. Same for 1C.

- Ericsson thinks that type 2 can be left to NW implementation and the question is on type1 whether we have autonomous activation/deactivation.

- Qualcomm is generally fine because it saves a lot of overhead but type 1 we are deviating from what and how type 1 was designed to do. Nokia agrees with Qualcomm

- InterDigital thinks that we are discussing what happens after survival time and it is just an optimization.

- CATT doesn’t think that CG type 2 works fine and implicit activation of CG type 1 is a clean and safe way.

- Nokia is concerned that the gNB has to continue decoding the resources as the UE implementation may still send the MAC CE or UCI.

Proposal 1C (11/18): RAN2 to discuss whether CG type-2 and DG based solutions can be used as a supplement to provide radio resources on the legs used for PDCP duplication in Survival Time.

*Proposal 4: RAN2 to discuss whether the number of associated RLC entities that can be activated upon entry into Survival Time can be supported by one or either one of two variants. The second variant may be optionally configured.*

*1) (11/17)* *Following entry to Survival Time, PDCP duplication is activated for all associated RLC entities that are configured for a DRB. The RLC entities are identified using the Rel-15/16 options for RRC configuration of associated RLC entities.*

*2) (8/17) Following entry to Survival Time, PDCP duplication is activated for a separately configured set of associated RLC entities that are configured for a DRB. The RLC entities are identified using a new RRC configuration option which can be optionally present. The separate set is used in Survival Time only.*

- LG thinks that we should use option 2 and there is not reason to introduce the tradeoff. Option 2 is not very complex and in RRC we just need to configure the entities. Xiaomi thinks that we need to reserve more corner cases.

- CATT has done a thorough analysis and shown all possible combination and the additional flexibility only allows addressing new use cases 2 out of 11 and all other cases are addressed by option 1. And there is no obvious benefit. Mediatek, Samsung, Vivo and OPPO supports CATT.

- Nokia has a concern with option1 that the UE will continue transmitting a NACK packed. The UE doesn’t have the knowledge on what is happening and the gNB should have the flexibility to control

- Mediatek asks how option 2 with survival time

- Lenovo agrees with Nokia now and the network can simply configure all carries and cover option 1. Support option 2.

- Intel supports option 1. Not clear how the network knows for option 2 which leg is better.

- Apple supports option 2

- Ericsson agrees that the technical benefit for option 2 is not clear.

- CMCC supports option 1

**Agreements**

1 For the issue that a CG resource may be insufficient for the UE to include the whole application layer message in one configured grant if a MAC CE is to be transmitted in the same CG, it is up to gNB implementation to ensure CG resources are appropriately configured.

2 Survival Time support is configured at DRB level and a new RRC parameter is added in PDCP-Config.

3 Existing LCH to CG mapping restrictions are used to ensure DRBs in support of Survival Time are mapped to one or multiple CGs. No specification change is foreseen.

4 RAN2 assumes that Rel-16 LCH to CG mapping restrictions can be used to prevent a case where DRBs with and without a Survival Time requirement are mapped to the same CG. The setup of mapping restrictions is up to gNB implementation. No specification change is foreseen.

5 Following entry to Survival Time, PDCP duplication is activated for all associated RLC entities that are configured for a DRB. The RLC entities are identified using the Rel-15/16 options for RRC configuration of associated RLC entities

6 The index of LCHs in the MAC PDU that a retransmission grant relates to is used to identify triggering of Survival Time state of a DRB. The MAC layer can receive information from upper layers as to which LCIDs are associated with Survival Time.

7 Following a HARQ-NACK, entry to Survival Time state is triggered only for the DRBs (with a requirement for Survival Time) which are included in the MAC PDU associated with the grant used for transmission of the TB

8 We will support the case where N=1. FFS if cases with N>1 are supported

In that case, when PDCP duplication is already activated in dual connectivity, in order to minimize dependencies between MAC entities in a configuration with survival time the UE enters Survival Time upon reception of one HARQ NACK at either MCG or SCG.

Within a MAC entity, the determination of HARQ-NACKs does not incur interaction between different CCs. When PDCP duplication is already activated in CA duplication for a configuration of survival time, the UE enters Survival Time upon reception of one HARQ NACK at any CC.

9 RAN2 assumes that SDUs from multiple DRBs with a Survival Time requirement (potentially with a different transfer interval and/or lead time for Survival Time entry) are not mapped to the same CG. Setup of appropriate mapping restrictions is up to gNB implementation. No specification change is foreseen.

Not discussed yet

Proposal 5: A new field (such as “duplicationStateSurvTime”, name FFS) is optionally configured to indicate a dedicated set of associated RLC entities configured for activation of PDCP duplication upon entry to Survival Time. The field enables Option 2 (in Q4). If the field is not present then Option 1 (in Q4) is used. Details can be sorted out in stage-3.

Proposal 13 (9/17): For a DC split-bearer in a configuration with N=1 when PDCP duplication is not yet activated, the UE enters Survival Time state upon reception of one HARQ NACK at either MCG or SCG.

Proposal 14: RAN2 to monitor the situation and decide (potentially at a later time) whether a LS to RAN3 is needed.

Proposals for Further Discussion

Proposal 16: RAN2 to discuss, if time permits, options to support a configurable number of count N>1 as well as a combination of HARQ NACK and Tx-side timer for survival time state trigger.

Proposal 12A-1: RAN2 may discuss whether Proposal 12A can be extended to N>1 after reaching a conclusion on the support of N>1

Proposal 13-1: RAN2 may further discuss the counting of N in a split-bearer scenario with N>1 after reaching a conclusion on the support of N>1.

Not treated

[R2-2200184](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200184.zip) Some open issues for Survival Time Support Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh

[R2-2200309](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200309.zip) Analysis on HARQ-NACK solution Fujitsu discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core [R2-2109710](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2109710.zip)

[R2-2200310](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200310.zip) Survival Time Mode and Measurement Gap Fujitsu discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200311](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200311.zip) L1/L2 configuration adaptation Fujitsu discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core [R2-2109709](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2109709.zip)

[R2-2200322](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200322.zip) HARQ NACK solution: leftover issues and TP CATT discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200369](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200369.zip) Additional aspects on resource in Survival Time III discussion Rel-17 NR\_IIOT\_URLLC\_enh

[R2-2200479](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200479.zip) Discussion about UE behaviors for Survival Time state operation Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200704](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200704.zip) N and combined Tx-side timer for IIoT QoS ZTE, Sanechips, China Southern Power Grid Co., Ltd, TCL Communication Ltd., vivo discussion NR\_IIOT\_URLLC\_enh-Core [R2-2110108](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110108.zip)

[R2-2200708](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200708.zip) Remaining issues on the support of survival time Lenovo, Motorola Mobility discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200873](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200873.zip) Remaining Issues on HARQ-NACK Solution CMCC discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200928](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200928.zip) Remaining issues on survival time OPPO discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2200954](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200954.zip) Remaining details on survival time enhancement Ericsson discussion

[R2-2200990](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200990.zip) Survival time handling Intel Corporation discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201019](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201019.zip) RAN Enhancement to support Survival Time Qualcomm Incorporated discussion Rel-17

[R2-2201133](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201133.zip) Remaining QoS solution aspects Apple discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201173](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201173.zip) Remaining issues on the support of survival time InterDigital discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201265](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201265.zip) Discussion on HARQ NACK solution vivo discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201375](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201375.zip) Remaining issues of survival time requirements Xiaomi Communications discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2201520](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201520.zip) CG status and PDCP Duplication status LG Electronics discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2201521](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201521.zip) Remaining issues on QoS support LG Electronics discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2201522](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201522.zip) Selective RLC activation for PDCP duplication in ST state LG Electronics discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2201530](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201530.zip) Finalising Survival Time related enhancements Samsung Electronics GmbH discussion

[R2-2201622](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201622.zip) Considerations on UE Survival Time support Sequans Communications discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

## 8.6 Small Data enhancements

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

Time budget: 1.5 TU

Tdoc Limitation: 4 tdocs

Email max expectation: 2 threads

### 8.6.1 Organizational

In coming LSs, rapporteur input for email discussions summaires etc (tdocs in this don’t count towards tdoc limit).

Inputs expected for 38.321 CR (Huawei), 38.331 CR (ZTE), 38.300 CR (Nokia)

Including [Post116-e][506][SDT] RRC running CR update (ZTE), [Post116-e][507][SDT] MAC running CR update (Huawei), and [Post116-e][508][SDT] Stage-2 running CR update (Nokia)

[R2-2200025](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200025.zip) Introduction of SDT Nokia, Nokia Shanghai Bell CR Rel-17 38.300 16.8.0 0357 - B NR\_SmallData\_INACTIVE-Core [R2-2110808](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110808.zip)

=> The CR is endorsed

[R2-2200032](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200032.zip) Summary of [Post116-e][507][SDT] MAC running CR update (Huawei) Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

=> Noted

[R2-2200031](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200031.zip) Running MAC CR for small data Huawei, HiSilicon draftCR Rel-17 38.321 16.7.0 B NR\_SmallData\_INACTIVE-Core

=> The CR is endorsed

[R2-2200050](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200050.zip) RRC Running CR for SDT ZTE Corporation (rapporteur) discussion Rel-17 38.331 NR\_SmallData\_INACTIVE-Core

=> Noted

[R2-2201027](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201027.zip) Updated RRC running CR for SDT ZTE corporation (rapporteur) draftCR Rel-17 38.331 16.7.0 B NR\_SmallData\_INACTIVE

=> The CR is endorsed

[R2-2200073](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200073.zip) Reply LS on the physical layer aspects of small data transmission (R1-2112782; contact: ZTE) RAN1 LS in Rel-17 NR\_SmallData\_INACTIVE-Core To:RAN2

RAN1 still cannot reach consensus on separate non-initial BWP and explicit L1 ACK feedback for CG-SDT

- LG indicates that for redcap there can be dedicated BWP and it should be excluded as well. Samsung agrees that we should have the same restriction but then there will be an issue. InterDigital also thinks that we should have same assumptions for all cases and if they want to support SDT they should do it on initial BWP. ZTE explain that for REDCAP the initial BWP is still an initial BWP but it is different than the normal BWP.

=> RAN2 confirms that SDT will be configured only on initial BWP and there is no L1 ACK feedback for CG-SDT. ASK RAN1 to confirm whether it is different from initial BWP and that there is no conflict with the agreement

RAN1 would like to ask RAN2 for feedback on whether there is restriction on candidate values of CG period.

=> Respond that we have no restriction

R2-2201828 LS to RAN1 on Small data (response) ZTE

- email discussion 509

[R2-2200502](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200502.zip) UE capabilities for Rel-17 SDT WI Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

=> The UE capabilities will be included in CP open issues email discussion

=> Noted

[R2-2200503](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200503.zip) UE capabilities for Rel-17 SDT WI Intel Corporation draftCR Rel-17 38.306 16.7.0 NR\_SmallData\_INACTIVE-Core

[R2-2200504](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200504.zip) UE capabilities for Rel-17 SDT WI Intel Corporation draftCR Rel-17 38.331 16.7.0 NR\_SmallData\_INACTIVE-Core

Not treated

[R2-2201357](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201357.zip) Discussion on MAC running CR LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

### 8.6.2 User plane common aspects

Overall user plane procedure for SDT (including details of ROHC continuity, BSR/PHR configuration, LCH restrictions, handling of TAT and CG-TAT) )

LG is expected to submit a paper on the proposals not treated from last meeting. Companies are discouraged from submitting documents on those issues again unless their opinon has changed. Focus on new critical open issues

[R2-2201321](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201321.zip) Remaining UP issues in SDT LG Electronics Inc. discussion Rel-17 NR\_SmallData\_INACTIVE-Core

=> Not treated

[R2-2201825](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201825.zip) UP open issues – outcome of email discussion 501 LG electronics

=> Noted

Agreements

1. For both DRBs and SRBs configured with SDT, RAN2 confirm that at the time of SDT data volume calculation, there should be no buffered packets in PDCP/RLC entities that will not be transmitted during SDT procedure
2. For DRBs configured with SDT, PDCP suspend is performed upon reception of RRCRelease message including suspendConfig so that PDCP PDUs are discarded, and PDCP SDUs already stored are considered in SDT data volume calculation. No specification change is needed.
3. For both DRBs and SRBs configured with SDT, RLC entity should be re-established upon reception of RRCRelease message including suspendConfig
4. For both DRBs and SRBs configured with SDT, the UE autonomously re-establishes RLC entities for both DRBs and SRBs upon reception of RRCRelease message including suspendConfig
5. RB level restriction (e.g. sdt-DRB-List) is applied for both CG-SDT and RA-SDT. For CG-SDT, existing LCH restriction (i.e. configuredGrantType1Allowed or allowedCG-List) can be further applied.
6. For CG-SDT resource validation, the UE compares the RSRP at the time of initiating CG-SDT procedure with the RSRP stored at the time when RRCRelease message is received
7. As baseline, the CG-SDT-TAT is stopped when a) UE enters RRC connected, and b) UE receives RRC Release at the end of SDT procedure and RRC Release does not include/configure CG resources. FFS if there is any impact to this agreement as a result of delta signalling
8. The CG-SDT-TAT does not stop at initiation of CG-SDT procedure
9. The CG-SDT-TAT does not stop at initiation of RA-SDT procedure
10. The CG-SDT-TAT does not stop at initiation of legacy RA procedure
11. The logicalChannelSR-DelayTimer is supported and configurable by SIB. All logical channels configured with SDT are configured with a same timer value. The logicalChannelSR-Mask is supported.
12. The size of CCCH message is not considered in SDT data volume calculation
13. If contention resolution fails during RA procedure (for both legacy RA and RA-SDT), the UE restores the NTA value used before RAR TAC is received
14. FFS and leave it to rapporteur If RAR TAC is received during RA-SDT procedure, the CG-SDT-TAT restarts at successful contention resolution
15. FFS and leave it to rapporteur If RAR TAC is received during legacy RA procedure, the CG-SDT-TAT restarts at successful contention resolution
16. FFS for SRBs, whether to discard PDCP SDUs upon reception of RRCRelease message including suspendConfig

To be discussed

For potential agreement:

Proposal 1: The logicalChannelSR-DelayTimer is not supported for logical channels configured with SDT (12/22).

- ZTE is concerned that unnecessary RACH is triggered. LG and Samsung doesn’t agree. Nokia thinks that there is also the empty buffer case and don’t see the problem in supporting this as this is in legacy. Huawei has the same view as Nokia. Ericsson too.

Postpone:

Proposal 8: Postpone to the next meeting: for SRBs, whether to discard PDCP SDUs upon reception of RRCRelease message including suspendConfig.

Not treated

[R2-2200203](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200203.zip) User Plane Aspects of RACH and CG based SDT Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200336](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200336.zip) Consideration on UP remaining issues CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core Late

[R2-2200435](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200435.zip) Remaining issues of user plane common aspects Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200573](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200573.zip) Remaining user plane aspects of SDT NEC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200643](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200643.zip) Discussion on user plane issues of SDT OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200726](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200726.zip) Remaining issues on UP aspects of SDT Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core [R2-2110752](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110752.zip)

[R2-2200863](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200863.zip) Data volume calculation for SDT CMCC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200985](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200985.zip) Common aspects for SDT Ericsson discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201024](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201024.zip) Remaining UP issues for SDT InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201028](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201028.zip) User plane common aspects of SDT ZTE corporation, Sanechips discussion

[R2-2201124](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201124.zip) User plane aspects of SDT Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201439](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201439.zip) Remaining Issues on Subsequent UL transmission during SDT vivo discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201570](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201570.zip) Consideration on UP remaining issues CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201586](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201586.zip) UP aspects for SDT Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core

### 8.6.3 Control plane common aspects

Including output of [Post116-e][510][SDT] CCCH and DCCH (Nokia). Only co-sourced CRs and papers are encouraged for this topic.

Other critical CP open issues

[R2-2200026](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200026.zip) Report of [Post116-e][510][SDT] CCCH and DCCH (Nokia) Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core

*=> Noted*

Discussion

*Suggestion is to continue with both solutions in parallel and send LS to SA3 and make a final decision next meeting.*

- Intel thinks that DCCH is complete and it works and we should agree to it as a baseline. Nokia thinks that CCCH solution is also complete and there is no complexity but we are ok to send SA3. Ericsson agrees with Nokia. Ericsson, Huawei, Fujitsu, InterDigital agree with way forward

- Nokia also thinks we should send an LS to CT1.

- Rapporteur is concerned that we are not ready to complete if there is a hiccup from SA3 and agrees with Intel. Samsung, Qualcomm agrees.

- ZTE thinks that the resume cause is not a showstopper.

- Huawei indicates that SA3 starts ahead of RAN2. Huawei thinks that we clarified all the issues.

- Intel thinks it impact to RAN3. Nokia thinks that it is just regular things that they have to add. Intel explains that we are changing the behaviour.

- LG thinks that DCCH also impacts other group so it is the same and also DCCH also has a lot of open issues.

[R2-2201821](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201821.zip) LS to SA3 Nokia

=> Revised in [R2-2201920](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201920.zip)

[R2-2201920](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201920.zip) LS to SA3

- Nokia indicates that there is a discussion whether we should send an indication before getting a response

- ZTE thinks it’s not clear whether CCCH can be used before contention resolution and we shouldn’t include anything that SA3 has already excluded and stick to horizontal key solution.

- Samsung explains as far as i remember, in all previous discussion of CCCH, there was no restriction that CCCH solution is only used after contention resolution.

=> Add RAN3 to cc

=> Let’s keep it simple and not ask the same questions to SA3

=> The LS is continued by email discussion

[505]

[R2-2201822](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201822.zip) LS to CT1 ZTE

- do have resume cause provided

- Intel thinks that we should ask it regardless of CCCH or DCCH.

- Huawei thinks that we need some background, like an emergency call (e.g. higher priority)

- LG asks if non SDT data has not arrived at the PDCP layer and the SDT data is stopped then the new resume procedure will not be triggered. Data arrival is not mandated by CT1. So we should ask if data will be provided with service request. ZTE explains that from NAS level there is no difference between SDT and non-SDT. LG agrees that there is no difference but data arrival at L2 buffer is up to UE implementation and with DCCH solution if there is no data then no resume request will not be triggered.

=> The LS is approved

[R2-2201823](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201823.zip) LS to RAN3 Intel

=> Revised in [R2-2201930](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201930.zip)

[R2-2201930](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201930.zip) LS to RAN3 Intel

- Huawei thinks that CCCH is already in Q2 and no need to repeat it twice, so we can just clarify it in Q2 and keep Q4 for DCCH only.

- LG thinks DL data is corner can and no need to include both questions.

=> remove Q2 and Q4 if not agreeable today. Simplify questions.

=> the LS is revised in email discussion

[R2-2201674](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201674.zip) Summary of Rel-17 SDT contributions on Control Plane Common Aspects InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core

=> Noted

[R2-2201868](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201868.zip) CP open issues – outcome of email discussion[AT116bis-e][502] InterDigital

=> revised in [R2-220182](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201824.zip)4

[R2-2201824](C:\\Users\\panidx\\OneDrive - InterDigital Communications, Inc\\Documents\\3GPP RAN\\TSGR2_116bis-e\\Docs\\R2-2201824.zip) CP open issues – outcome of email discussion[AT116bis-e][502] InterDigital

=> Noted

Discussion

*Proposal 3: [To discuss, 2/3] It’s left to UE implementation whether UE monitors PO or not between SDT resume request transmission and SDT response reception (same as legacy.)*

- Nokia ask why we can’t receive paging if we are monitoring initial BWP. InterDigital explains that it’s because the network is aware of the UE and can reach the UE.

- ZTE asks if we do get a paging in between what is UE behavior. This is getting complicated and we should just have one behavior.

*Proposal 7: [To discuss, 12/19] T380 is stopped upon successful completion of SDT initiation (i.e. upon contention resolution or acknowledgement of the initial CG transmission), T380 is restarted upon moving back to the legacy RRC\_INACTIVE*

- If UE stops time upon sending resume request there is a risk the UE and Nw may be out of synch. We can keep T380 running and just change the behavior when it expires (i.e. the UE just doesn’t send it).

- Nokia thinks that this is not a problem since the stopping of the timer.

Proposal 8: [To discuss, 6/19] Delta signalling is supported for the SDT related configuration. This delta signaling applies across different SDT sessions and when resuming the RRC connection (i.e. SDT related configuration is released when UE enters RRC\_IDLE or when the network explicitly releases the SDT configuration)

*Proposal 13: [To discuss, 20/20] Network can respond with RRCRelease with/without suspendConfig to RRCResumeRequest for SDT and the UE behaviours upon reception of the RRCRelease message is the same as legacy. FFS if any change is needed for the case of RRCRelease due to DL non-SDT data arrival.*

- Intel thinks that RAN2 excluded optimization for non-anchor relocation. E/// Same option

**Agreements**

1. SDT Failure Detection Timer has an extended duration to accommodate subsequent SDT procedure.
2. UE is does not monitor paging message during SDT procedure (UE monitors paging occasions for SI change notification and emergency notification as per previous agreement.)
3. Do not support on demand SI during SDT procedure.
4. UE shall not perform any periodic RNA update during SDT procedure. The rapporteur will find a simple solution to capture this in the RRC, aiming to follow legacy behavior (i.e. keep T380 running).
5. RRCReconfiguration and RRCReconfigurationComplete are not supported during an SDT session
6. The NW can NOT configure whether UL NAS transmission is allowed over SRB1 using SDT procedure
7. ULInformationTransfer (including NAS message) over SRB2 configured for SDT can be sent during SDT procedure if configured.
8. Network can respond with RRCSetup or RRCReject to RRCResumeRequest for SDT and the UE behaviour upon reception of the RRCSetup or RRCReject message is the same as legacy. FFS if anything additional needs to be added for RRCReject (i.e. similar to EDT)
9. During the SDT procedure (i.e. while SDT timer is running), UE monitors SI change indication in any paging occasion at least once per modification period (i.e. same as legacy RRC\_CONNECTED).
10. During the SDT procedure (i.e. while SDT timer is running), ETWS or CMAS capable UEs monitors PWS notification in any paging occasion at least once every *defaultPagingCycle* (i.e. same as legacy RRC\_CONNECTED).
11. Delta signaling can be supported in RRC signaling and will be considered CR drafting
12. Network can respond with RRCRelease with/without suspendConfig to RRCResumeRequest for SDT and the UE behaviours upon reception of the RRCRelease message is the same as legacy. RAN3 enhancements can be discussed if RAN3 sends LS.

Not treated

[R2-2200201](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200201.zip) Paging Monitoring during SDT procedure Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200202](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200202.zip) RNA update and SI request handling during SDT procedure Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200312](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200312.zip) Handling of SDTF detection timer Fujitsu discussion Rel-17 NR\_SmallData\_INACTIVE-Core [R2-2109712](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2109712.zip)

[R2-2200313](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200313.zip) RAN paging reception and response during SDT Fujitsu discussion Rel-17 NR\_SmallData\_INACTIVE-Core [R2-2109713](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2109713.zip)

[R2-2200337](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200337.zip) Consideration on some CP issues CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core Late

[R2-2200505](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200505.zip) Control Plane leftover issues on SDT procedure Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200574](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200574.zip) Remaining control plane aspects of SDT NEC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200644](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200644.zip) Discussion on control plane issues of SDT OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200663](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200663.zip) Emergency call in the middle of SDT operation InterDigital, Europe, Ltd. Rakuten Mobile Inc. discussion Rel-17

[R2-2200696](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200696.zip) Handling of SDT failure timer InterDigital, Europe, Ltd. discussion Rel-17

[R2-2200727](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200727.zip) Remaining issues on CP aspects of SDT Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core [R2-2110753](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110753.zip)

[R2-2200811](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200811.zip) Control plane common aspects for SDT Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200919](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200919.zip) Subsequent SDT failure detection timer Sony discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200986](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200986.zip) CP aspects for SDT Ericsson discussion

[R2-2201029](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201029.zip) CP open issues for SDT ZTE corporation, Sanechips discussion

[R2-2201125](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201125.zip) Control plane aspects of SDT Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201126](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201126.zip) Power Saving for SDT Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201174](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201174.zip) DCCH-based indication of non-SDT data arrival Intel Corporation, ZTE Corporation, Sanechips, Samsung, Xiaomi, MediaTek, Radisys and Reliance JIO, Qualcomm, CMCC, OPPO, Lenovo, Sony, Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201217](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201217.zip) RNA Update during SDT Sharp discussion

[R2-2201358](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201358.zip) Remaining issues on Control Plane Aspects for SDT LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2201376](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201376.zip) Clarification on the area configured for ROHC continuity Xiaomi Communications discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201377](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201377.zip) Paging reception during SDT Xiaomi Communications discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201378](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201378.zip) RACH failure in subsequent data transmission phase Xiaomi Communications discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201440](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201440.zip) Remaining Issues on RRC-Controlled SDT procedure vivo discussion Rel-17 NR\_SmallData\_INACTIVE-Core [R2-2109439](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2109439.zip)

[R2-2201441](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201441.zip) Further Consideration on the Handling of non-SDT Data Arrival vivo discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201495](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201495.zip) SDT control plane aspects Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE

[R2-2201496](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201496.zip) RRC procedure for SDT Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE

[R2-2201535](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201535.zip) Remaining issues for non-SDT data arrival China Telecommunications discussion

[R2-2201571](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201571.zip) Consideration on some CP issues CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

### 8.6.4 Aspects specific to RACH based schemes

Contribution on this topic should be submitted on the RACH partitioning/configuration AI, unless something specific to Small data needs to be discussed.

[R2-2200338](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200338.zip) Anchor relocation during SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core Late

[R2-2200506](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200506.zip) RACH leftover issues on RA-SDT procedure Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200638](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200638.zip) Discussion on RACH-based SDT Spreadtrum Communications discussion Rel-17

[R2-2200645](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200645.zip) Discussion on swiching from RA-SDT to non-SDT OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200729](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200729.zip) Remaining issues on RACH based SDT Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core [R2-2110760](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110760.zip)

[R2-2200738](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200738.zip) Discussion on triggering legacy RA for RA-SDT ASUSTeK discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200779](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200779.zip) Analysis on open issue of RA based SDT Lenovo, Motorola Mobility discussion Rel-17

[R2-2200983](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200983.zip) RACH based small data transmission Ericsson discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201355](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201355.zip) Switching cases of SDT and non-SDT LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2201356](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201356.zip) Discussion on Carrier selection for SDT LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2201572](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201572.zip) Anchor relocation during SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

### 8.6.5 Aspects specific to CG based schemes

Including outcome of [Post116-e][509][SDT] CG open issues (Huawei)

Contributions should aim to bring new issues not covered in email discussions already and should be clearly separated in the document from issues covered in the email discussion.

[R2-2200033](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200033.zip) Summary of [Post116-e][509][SDT] CG open issues (Huawei) Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

=> Revised in [R2-2201657](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201657.zip)

[R2-2201657](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201657.zip) Summary of [Post116-e][509][SDT] CG open issues (Huawei) Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core [R2-2200033](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200033.zip)

=> Noted

*Discussion*

*Proposal 6 Stick to the previous agreement: subsequent new transmission on CG-SDT. Support implicit ACK for first TB by dynamic scheduling of uplink new transmission for the same HARQ process (like legacy, no new mechanisms).*

*- Nokia indicates that the second part depends on the retransmission discussion and dynamic grant mechanism is not only way to acknowledge implicitly. Intel actually thinks that we shouldn’t support. ZTE supports Intel. InterDigital indicates that this is only for initial transmission and it is something that the network can do but doesn’t have to do.*

*- Samsung doesn’t understand why we have different behaviour. Nokia explains that the network doesn’t need to respond to every retranmsision but has to respond to new transmission. Ericsson and Lenovo agree with Nokia. Xiaomi, InterDigital, Apple and LG agree with Samsung*

*- Ericsson thinks that this is inefficient and you’d have to send a DL for every retx*

*Proposal: There is no restriction on the candidate values of CG period*

- Ericsson thinks that we should be able to configure longer values that current values

*Proposal 8*

*8 Do not perform SSB reselection for retransmission for initial CG-SDT*

*- Nokia, Ericsson, InterDigital and Huawei think that we should support reselection and it is more complex to specify this restrictions.*

*- Lenovo explains that this would make UE’s life a bit easier. Nokia explains that UE doesn’t need to change but it may. Lenovo explains that if the criteria changes the UE should change. ZTE explains that if we switch SSBs we may have to switch HARQ processes as RAN1 has defined some mapping and for simplicity sake we shouldn’t reselect. If we want to allow reselections we should add a restriction to not change HARQ processes. LG, Qualcomm, CATT agrees with ZTE and the procedure doesn’t last long.*

**Agreements:**

1. RSRP-based TA validation is only applicable for initial CG-SDT and not needed for retransmission of the initial CG-SDT.

2 No additional NTA is defined for CG-SDT procedure

3 Upon expiry of CG-SDT-TAT , UE should (a) clears all SDT configured grant, (b) flushes HARQ buffer and (c) continue to maintain NTA.

4 Stick to the previous agreement: subsequent new transmission on CG-SDT is supported. Support ACK for first TB by dynamic scheduling of uplink new transmission for the same HARQ process (like legacy, no new mechanisms).

5 For subsequent TB on CG, UE initiated retransmission is not supported. Dynamic scheduling can be supported like legacy.

6 Subsequent downlink transmission can serve as an implicit acknowledgement for initial CG-SDT but not for subsequent CG-SDT.

7 ConfiguredGrantTimer is reused for CG-SDT for prohibiting the HARQ process for new uplink transmissions

8 Do not perform SSB reselection for retransmission for initial CG-SDT

9 CS-RNTI for CG-SDT is provided to the UE in RRCRelease message.

10 UE does not perform UL carrier reselection for subsequent CG-SDT transmission over CG-SDT resources within one CG-SDT procedure

11 Once a UL carrier is selected for a specific CG-SDT transmission, the UE should perform autonomous retransmission on the same uplink carrier on initial CG

12 There is no restriction on the candidate values of CG period. FFS on values for CG periods and time offset

13 Do not support multiple CG occasions per CG period.

14 If (a) the thresholds for SSB selection and SSB subset selection for TA-validation are different and (b) the highest beam measurement is below the configured threshold, the beam with the highest beam measurement value is used for TA validation

15 CG-SDT timer for initial transmission should be stopped when PDCCH addressed to C-RNTI and CS-RNTI is received. When timer expires the UE is allowed to retransmit for initial CG. CG-SDT is used for controlling retransmissions

16 UE does not use RA-SDT resources during ongoing CG-SDT session

*Proposal 10: CG-SDT timer should be stopped when PDCCH addressed to C-RNTI and CS-RNTI is received*

- Sony explains that we had agreed that it is re-started. Huawei explains that this is for PDCCH monitoring. ZTE explain this timer is not needed for subsequent phase because there are no retransmissions now for this phase as agreed above. Lenovo agrees that we don’t need this timer anymore once we switch to dynamic grant.

- LG explains that the UE doesn’t only monitor PDCCH only when the timer is running.

*Intel After 1st UL SDT, we agree with ZTE that UE should follow the general SDT failure detection timer*

*Proposal18: RAN2 continues the discussion on CG-SDT on the following aspects*

*- Open issues for supporting subsequent transmission on CG*

*- Whether the UE should maintin uplink timing alignment in RRC\_INACTIVE for CG-SDT*

*- Whether UAC should be applicable when CG-SDT is used for the DRB configured for SDT*

*- Wheter CG-SDT assistance information similar to PUR is needed for CG-SDT*

*- Whether power ramping is needed for autonomous retransmission*

[R2-2200437](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200437.zip) Further discussion on TA issues for CG-SDT Huawei, HiSilicon, ZTE corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

- Intel thinks we need further discussion on this. LG will include it in their email discussion.

Not Treated

[R2-2200204](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200204.zip) CG-SDT-TAT expiry handing during the CG-SDT procedure Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200339](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200339.zip) Consideration on CG-SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core Late

[R2-2200436](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200436.zip) Remaining issues of CG-SDT Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200507](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200507.zip) CG-SDT leftover issues Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200646](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200646.zip) Discussion on open issues of CG-SDT OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200717](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200717.zip) Remaining issues on CG-based Small data transmission Lenovo, Motorola Mobility discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200734](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200734.zip) Remaining issues on CG based SDT Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200739](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200739.zip) Discussion on CS-RNTI configuration for CG-SDT ASUSTeK discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2200984](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200984.zip) Details of CG based SDT Ericsson discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201023](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201023.zip) Remaining issues for CG-based SDT InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201030](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201030.zip) Aspects specific to CG-SDT ZTE corporation, Sanechips discussion

[R2-2201338](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201338.zip) Aspects specific to CG-SDT Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201379](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201379.zip) Clarification on the RSRP-based TA validation Xiaomi Communications discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201442](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201442.zip) Supporting Small Data Transmission via CG PUSCH vivo discussion Rel-17 NR\_SmallData\_INACTIVE-Core Late

[R2-2201537](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201537.zip) Remaining issues on CG based SDT China Telecommunications discussion

[R2-2201573](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201573.zip) Consideration on CG-SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

## 8.18 RACH indication and partitioning

Time budget: Equivalent to 0.5-1 TU

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.

### 8.18.1 Common signalling framework

Including output of [Post116-e][514][RACH partitioning] Signaling design (Ericsson) and any other input for RRC signalling (focus company tdocs on issues that are not addressed in [514] email)

[R2-2200020](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200020.zip) [Post116-e][514][RACH partitioning] Signaling design (Ericsson) Email discussion Rapporteur (Ericsson) discussion Rel-17 NR\_redcap-Core, NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_slice-Core

*Proposal 1: Discuss if signaling should allow for a flexibility as clarified above acc. to agreements.*

- Ericsson would like to have the flexibility and indicates that it is already in the CR. Huawei is also in favour of having this flexibility but we don’t need it in RACH config common and we can keep it in feature combination preambles. It would be simpler. Intel prefers just keeping it for FeatureCombinationPreambles and it can anyway achieve the same flexibility

- Vivo agrees with Ericsson but wonders if we should also have the flexibility for msgA. Ericsson agrees that it can be taken for msgA.

- ZTE ask what the proposal is. Ericsson thinks that we would be agreeing to 1 and 2.

- ZTE asks if there still then one-to-one mapping between RACH partition and feature combination

- Vivo would like to have the flexibility and removing the flexibility would result in more overhead.

**=> FFS if we remove the FeatureCombination from RACH common config and only keep 2)**

Whether we support RO sharing per feature and at which level.

*Proposal 2: Confirm the cases to be supported and that the current signaling structure includes the above cases.*

***=> confirmed the above cases as a baseline***

*The rapporteur suggests, that RAN2 should submit a single RRC CR for RA partitioning that captures all RA partition related procedures/signalling which has the WI-code for RedCap, SDT, Coverage enhancements, and Slicing on the cover page. The RRC CRs for RedCap, SDT, Coverage enhancements, and Slicing should then not have any overlap with the RA partitioning CRs.*

=>  **RAN2 submits one RRC CR to plenary that captures the RA partitioning feature that covers all common aspects for RA partitioning. The RRC CRs for RedCap, SDT, Coverage enhancements, and Slicing should not have any overlap with this common RRC CR.**

*Proposal 4: Decide if only the number of preambles belonging a partition is signalled (i.e. X preambles), or if the exact preamble-numbers belonging a partition is signalled (i.e. preambles X-Y)*

- Ericsson thinks that X-Y approach would be simpler from CR implementation. QC, Huawei also agrees.

**=> Agree to use X-Y solution**

[R2-2200019](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200019.zip) Running CR to 38.331 on RA Partitioning Ericsson draftCR Rel-17 38.331 16.7.0 B NR\_redcap-Core, NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_slice-Core

=> The CR is endorsed

Not treated

[R2-2200206](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200206.zip) Preamble and RACH resource configuration Samsung Electronics Co., Ltd discussion Rel-17 NR\_cov\_enh-Core, NR\_SmallData\_INACTIVE-Core, NR\_slice-Core

[R2-2200261](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200261.zip) RRC aspects of RACH partition OPPO discussion Rel-17

[R2-2200419](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200419.zip) Discussion on signaling design for RACH partitioning CATT discussion Rel-17 NR\_cov\_enh-Core, NR\_slice-Core, NR\_SmallData\_INACTIVE-Core, NR\_redcap-Core

[R2-2200456](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200456.zip) Signalling design of RACH partitioning for multiple feature combinations Intel Corporation discussion Rel-17 NR\_cov\_enh-Core, NR\_redcap-Core, NR\_UE\_pow\_sav\_enh-Core, NR\_slice-Core

[R2-2200701](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200701.zip) Consideration on the common signalling framework for RACH partitioning Beijing Xiaomi Software Tech discussion

[R2-2200812](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200812.zip) Common signalling for RACH indication and partitioning Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

[R2-2201049](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201049.zip) Features Combination signalling Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core

[R2-2201127](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201127.zip) Signaling aspects of RACH partitioning Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core

[R2-2201128](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201128.zip) MAC aspects of RACH partitioning Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core

[R2-2201473](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201473.zip) Discussion on signalling aspects on common RACH framework LG Electronics Inc. discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

[R2-2201553](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201553.zip) RACH partitioning for Rel-17 features Ericsson other Rel-17

[R2-2201597](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201597.zip) Discussion on RACH Partitioning in RA Configuration Aspect vivo discussion Rel-17 [R2-2109442](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2109442.zip) Late

### 8.18.2 Common aspects of RACH procedure

Including output of [Post116-e][515][RACH partitioning] MAC Procedure aspects (ZTE) and any other inputs not treated in 515, including RACH procedure and input for handling of the common MAC aspects including handling of RACH initiation, retransmissions etc

[R2-2200049](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200049.zip) [Post116-e][515][RACH partitioning] MAC Procedure aspects (ZTE) email discussion Rapporteur (ZTE Corporation) discussion Revised

=> Noted

*Proposal 1: CE will also be considered as part of the feature combination for each RACH partition and the use of CE will be determined before the RACH partition selection is performed*

- ZTE is concerned that this will introduce complexity in the procedure. Qualcomm that it should be part of feature combination.

- Huawei indicates that after analysing this more agree with ZTE and don’t see how the agreement can be compatible with the CE agreements and it is carrier specific. Agree that CE should be done at the end and not as part of feature combination.

- LG doesn’t see any issue.

- Qualcomm thinks that there would be no problem if both CE and carrier selection are both part of feature combinationObservation 2: In general companies agree with the principles highlighted above for each feature. Some details need further discussion (TBD).

[CB week2]

*Proposal 4: If we agree to specify a set of priorty rules, these rules are selected between following options:*

**Option a:** Priority rules are static and will be defined in the specs (e.g. the available RACH partition with slice info will be prioritized etc)

**Option b:** Priority rules are configurable (e.g. can be configured in SI)

**-** Vivo and QC support option a as it is simpler. Future compatibility is not an issue and new MAC CE can always be introduced later. Priority of features is quite static. Nokia is ok with option a. InterDigital thinks that option a is simpler and doesn’t require SIB overhead. Samsung, Lenovo.

**-** Huawei thinks option b is better for flexibility for future and avoids discussions on prioritization. Apple, CATT, and Oppo support option B. ZTE agrees with Huawei as it is simpler in MAC and we wouldn’t need to decide with option a. Ericsson has a slight preference for b and when we add more features we have to redo the whole priority.

**Agreements**

1. CE will also be considered as part of the feature combination for each RACH partition. The eligibility criteria for CE will be determined before the RACH partition selection is performed. [CB need to confirm that it is compatible with the CE agreements]

2. General understanding for RACH partition usage is per below: Some details are still TBD

For each RACH partition configured, the RACH partition will be considered as available for a triggered RACH procedure in case all the following conditions are satisfied:

a) if REDCAP indication is configured for the partition, then the RACH partition is only applicable to the RACH procedure triggered for REDCAP UE where Msg1 identification is required. Otherwise, if REDCAP indication is not configured, then the RACH partition is applicable to non-REDCAP UE and REDCAP UE where Msg1 identification is not required. (FFS how to determine whether Msg1 identification is required or not)

b) if slice info is configured for the partition,then the RACH partition is only applicable to the RACH procedure triggered for the slice. Otherwise, if the slice info is not configured, then the RACH partition is applicable to all slices.

c) if SDT indication is configured, then the RACH partition is only applicable to the RACH procedure triggered for SDT. Otherwise, if SDT indication is not configured, then the RACH partition is applicable to the RACH procedure not triggered for SDT.

FFS if CE indication is configured, then the RACH partition is only applicable to the RACH procedure where CE is required. Otherwise, if CE indication is not configured, then the RACH partition is applicable to the RACH procedure where CE is not required. (if CE is considered as part of feature combination)

3. If only a subset of features have a matching RACH partition, and the triggered RACH doesn’t fit with any of the configured RACH partitions then the UE behaviour will be specified. Details are TBD

4. Priority rules are configurable (e.g. can be configured in SI)

5 Once the RACH resource partition for a given feature set combination is determined, RACH procedure related variables in sections 5.1.1 and 5.1.1a will be initialized based on the values signalled within the selected RACH partition

As baseline agreement:

1. RACH parameters (e.g. power ramping step, max RACH transmissions etc) are configured per RACH partition rather than per feature within the partition.
2. RA-type selection can happen like today based on the RACH parameters signalled in the selected RACH partition

*Proposal 10: To solve the RNTI collision issue, selection between following options is proposed:*

*Option 1: Do nothing (i.e. leave to network implementation)*

*Option 3: the network should be able to (optionally) configure a specific search space for RAR/MSGB monitoring per RACH resource partition*

*Proposal 7: In general, RACH parameters (e.g. power ramping step, max RACH transmissions etc) are configured per RACH partition rather than per feature within the partition.*

- Nokia asks about BWP switch when there are no RA resources.

Not treated

[R2-2200193](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200193.zip) Selection and fallback between RACH partitions Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core

[R2-2200207](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200207.zip) RA Procedure Aspects Samsung Electronics Co., Ltd discussion Rel-17 NR\_cov\_enh-Core, NR\_SmallData\_INACTIVE-Core, NR\_slice-Core

[R2-2200262](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200262.zip) MAC aspects of RACH partition OPPO discussion Rel-17

[R2-2200420](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200420.zip) Discussion on MAC procedure for RACH partitioning CATT discussion Rel-17 NR\_cov\_enh-Core, NR\_slice-Core, NR\_SmallData\_INACTIVE-Core, NR\_redcap-Core

[R2-2200457](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200457.zip) RACH resource/configuration selection and fallback mechanism Intel Corporation discussion Rel-17 NR\_cov\_enh-Core, NR\_redcap-Core, NR\_UE\_pow\_sav\_enh-Core, NR\_slice-Core

[R2-2200617](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200617.zip) Remaining issues for MAC procedure in RACH partition NEC discussion Rel-17 NR\_redcap-Core, NR\_cov\_enh-Core, NR\_SmallData\_INACTIVE-Core, NR\_slice-Core

[R2-2200703](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200703.zip) Considerations on the common aspects of RACH procedure Beijing Xiaomi Software Tech discussion

[R2-2200813](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200813.zip) MAC aspects for RACH partitioning Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

[R2-2200848](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200848.zip) Discussion on RACH indication and partitioning CMCC discussion Rel-17

[R2-2200917](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200917.zip) RNTI collision issue for different features in NR Sony discussion Rel-17 NR\_redcap-Core, NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_slice-Core

[R2-2201025](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201025.zip) RACH indication and partitioning InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_cov\_enh-Core, NR\_redcap-Core, NR\_slice-Core

[R2-2201026](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201026.zip) Updated - [Post116-e][515][RACH partitioning] MAC Procedure aspects (ZTE) email discussion Rapporteur (ZTE Corporation) discussion [R2-2200049](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2200049.zip)

[R2-2201031](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201031.zip) MAC procedure aspects of RACH partitioning ZTE corporation, Sanechips discussion

[R2-2201474](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201474.zip) Further discussion on common RA procedure LG Electronics Inc. discussion Rel-17 NR\_SmallData\_INACTIVE-Core, NR\_slice-Core, NR\_redcap-Core, NR\_cov\_enh-Core

[R2-2201554](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201554.zip) RNTI collision problem for Rel-17 features Ericsson other Rel-17

[R2-2201589](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201589.zip) Selection of RACH partition Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2201628](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2201628.zip) Discussion on RACH Partitioning in RA Procedure Aspect vivo discussion Rel-17 [R2-2110927](file:///C:\Users\panidx\OneDrive%20-%20InterDigital%20Communications,%20Inc\Documents\3GPP%20RAN\TSGR2_116bis-e\Docs\R2-2110927.zip) Late