**3GPP TSG-RAN WG2 Meeting #112 electronic** [**R2-2010704**](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010704.zip)

**Online, November, 2020**

Source: Session Chair (InterDigital)

Title: Report for Rel-16 (NR-U, Power Savings and 2-step RACH) and IIoT and Small Data

**Organizational:**

1. LSs – contact companies should flag LSs that need presenting. Otherwise we will directly note them
2. All organization emails and notes will be shared over the following email discussion throughout the two meeting weeks:

* [AT112-e][500] Organizational Diana - NR-U, 2-step RACH, Power Savings

Scope:

* + - Share plans for the meetings and list of ongoing email discussions for the sessions related to NR-U, 2-step RACH, and power saving
    - Share meetings notes and agreements for review and endorsement

**Email discussions:**

* [AT112-e][501][IIoT] Summary of URLLC in unlicensed (Qualcomm)

Scope:

* + - Identify open issues for URLLC in unlicensed
    - Get company inputs on opens issues

Intended outcome:

* + - Set of agreeable proposals to be discussed on first online session

Deadline for providing comments:

* + - Companies input: Thursday, Nov. 5th, 20:00 UTC
    - Rapporteur summary/proposals: Friday Nov. 6th
* [AT112-e][502][2s-RA] MAC corrections for 2-step RA (Huawei)

Scope:

* + - Captured agreed changes from [R2-2010405](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010405.zip) and parameter discussion from [R2-2009969](file:///C:\\Users\\panidx\\Documents\\TSGR2_112-e\\Docs\\R2-2009969.zip)

Intended outcome:

* + - Agreeable CR to be approved by email

Deadline for providing comments:

* + - Companies input: Nov. 5th
    - Updated CR ready for email approval: Nov. 6th
* [AT112-e][503][2s-RA] CR 2-step RA parameter corrections (Ericsson)

Scope:

* + - Captured agreed changes from [R2-2009968](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009968.zip), and first change from [R2-2010403](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010403.zip) and [R2-2010404](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010404.zip)

Intended outcome:

* + - Agreeable CR to be approved by email

Deadline for providing comments:

* + - Companies input: Nov. 6th
    - Updated CR ready for email approval: Nov. 10th
* [AT112-e][504][PowSav] Correction on RRM relaxation (Samsung)

Scope:

* + - Captured agreed changes from [R2-2010595](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010595.zip) and [R2-2010597](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010597.zip)

Intended outcome:

* + - Agreeable CR to be approved by email

Deadline for providing comments:

* + - Companies input: Nov. 5th
    - Updated CR ready for email approval: Nov. 6th
* [AT112-e][505][PowSav] Correction on RRC state preference (Nokia)

Scope and outcome:

* + - Review cover page updates for [R2-2009929](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009929.zip) and agree to final CR by email

Deadline for providing comments:

* + - Companies input: Nov. 5th
    - Updated CR ready for email approval: Nov. 6th
* [AT112-e][506][PowSav] UE assistance information for secondary DRX group (Oppo)

Scope and outcome:

* + - Review cover page updates for [R2-2009462](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009462.zip) and agree to final CR by email

Deadline for providing comments:

* + - Companies input: Nov. 5th
    - Updated CR ready for email approval: Nov. 6th
* [AT112-e][507][NR-U] large RAR window capability update (Qualcomm)

Scope:

* + - CR to clarify that large RAR window capability is option for non-standalone NR-U

Intended outcome:

* + - Agreeable CR

Deadline for providing comments:

* + - Companies input: Nov. 11th
    - Updated CR ready for approval: Nov. 12th
* [AT112-e][508][NR-U] Miscellaneous corrections RRC (Qualcomm)

Scope:

* + - Captured agreed changes and send out for review

Intended outcome:

* + - Agreeable CR

Deadline for providing comments:

* + - Companies input: Nov. 11th
    - Updated CR ready for approval: Nov. 12th
* [AT112-e][509][NR-U] Miscellaneous MAC corrections (Ericsson)

Scope:

* + - Captured agreed changes and send out for review

Intended outcome:

* + - Agreeable CR

Deadline for providing comments:

* + - Companies input: Nov. 11th
    - Updated CR ready for approval: Nov. 12th
* [AT112-e][510][NR-U] Correction to NR-U Energy Detection Threshold (ZTE)

Scope:

* + - Discussion on CR [R2-2009195](file:///C:\\Users\\panidx\\Documents\\TSGR2_112-e\\Docs\\R2-2009195.zip) on energy detection

Intended outcome:

* + - Agreeable CR

Deadline for providing comments:

* + - Companies input: Nov. 11th
    - Updated CR ready for approval: Nov. 12th

# 6 Rel-16 NR Work Items

Essential corrections. While high maintenance intensity is expected, Rel-16 corrections are treated separately per WI.

## 6.3 NR-based Access to Unlicensed Spectrum

(NR\_unlic-Core; leading WG: RAN1; REL-16; started: Dec 18; Closed June 20; WID: RP-192926; SR; RP-201141; R1 and R2 are 100% Complete). Documents in this agenda item will be handled in a break out session.).

Limit: 4 email threads

### 6.3.1 General and Stage-2 Corrections

Including incoming LSs, Wi or TS rapporteur inputs, etc.

[R2-2008702](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008702.zip) LS on UE behavior for P/SP-CSI-RS reception in NR-U (R1-2006195; contact: MediaTek) RAN1 LS in Rel-16 NR\_unlic-Core To:RAN4 Cc:RAN2

=> Noted

[R2-2008718](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008718.zip) Reply LS on UE declaring beam failure due to LBT failures during active TCI switching (R1-2007424; contact: Nokia) RAN1 LS in Rel-16 NR\_unlic-Core To:RAN4 Cc:RAN2

=> Noted

[R2-2008743](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008743.zip) LS reply to RAN1on UE capability on wideband carrier operation for NR-U (R4-2011931; contact: MediaTek) RAN4 LS in Rel-16 NR\_unlic-Core To:RAN1, RAN2

=> Wait for RAN4

=> Noted

[R2-2010399](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010399.zip) Discussion on NR-U capabilities Qualcomm Incorporated discussion

=> Noted

- Intel thinks that if RAN1 has identified any differentiation it should be discussed in the NR-U session

*Observation 2: RAN1 is capturing the correspondence between required UE feature groups and NR-U deployments.*

*Proposal 3: RAN2 to introduce a capability for monitoring of large RAR window for NR-U when the UE does not support stand-alone NR-U operation.*

- Qualcomm clarifies that if the UE supports standalone the UE should support it

- Mediatek agrees with the proposal 3

- Intel explains that this has been already included and we just need to update the field description.

- ZTE also raises the issue that if the UE supports 2-step RA the UE should support this.

=> Need to create a NR-U CR if we want to update the field description [CB 507]

*Observation 3: RAN4 is still discussing the need for NR-U wide-band capabilities.*

**Agreements:**

1: RAN2 to confirm that for all Rel-15 upper layer features there is no differentiation needed for NR operation in shared spectrum. No changes to the specifications are needed.

2: RAN2 to confirm that for all Rel-16 upper layer features there is no differentiation needed to NR operation in shared spectrum, unless otherwise captured explicitly in the specifications. No changes to the specifications are needed.

[R2-2010](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010399.zip)834 CR on large RAR window capability Qualcomm Incorporated discussion

[CB 507]

### 6.3.2 User plane

R2-2010980 NR-U miscellenous corrections Ericsson CR Rel-16 38.321 16.2.1 0xxx F NR\_unlic-Core

[CB email discussion 509]

[R2-2008858](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008858.zip) Corrections on autonomous retransmissions CATT CR Rel-16 38.321 16.2.1 0895 - F NR\_unlic-Core

- LG, Vivo and Ericsson doesn’t think second change is necessary as CG timer is started at the first ofdm symbol.

- Ericsson, Huawei has a similar CR but has a different wording

- Mediatek thinks that none of the changes are need, even the first one is captured somewhere else

=> The second change is not needed

=> the first change is agreeable – revise wording in email discussion 509

[R2-2010440](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010440.zip) Consideration on multiple CG with HARQ sharing LG Electronics UK discussion NR\_unlic-Core

*Confirm 1. Even if multiple CGs share a HARQ process, it is always the same CG which comes earliest after cg-RetransmissionTimer expiry due to the fact that cg-RetransmissionTimer is in multiple of periodicity. Hence, retransmission of a MAC PDU is performed on the same CG where the new transmission of the MAC PDU was performed.*

- Huawei doesn’t think we can confirm this

- Nokia clarifies that we would still need the first clarification in cATT paper

- Mediatek thinks that re-tx can happen in a different CG. LBT can fail and the UE can move to next CG.

=> Noted

[R2-2009298](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009298.zip) Correction on autonomous retransmission for NR-U Huawei, HiSilicon CR Rel-16 38.321 16.2.1 0924 - F NR\_unlic-Core

=> not treated as already captured in [R2-2008858](file:///C:\\Users\\panidx\\Documents\\TSGR2_112-e\\Docs\\R2-2008858.zip)

[R2-2009297](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009297.zip) Correction on early termination for repetitions Huawei, HiSilicon CR Rel-16 38.321 16.2.1 0923 - F NR\_unlic-Core

- Xiaomi and ZTE thinks that early termination should be transparent to MAC and the PHY can drop the redundant transmissions. The MAC will generate it anyways

- Qualcomm, Asustek and Lenovo thinks this is a good clarification

- Lenovo thinks that we should have it in MAC

- Mediatek and Nokia agrees but we shouldn’t remove the legacy text

=> Do not remove legacy text

=> the CR is moved to email discussion 509

[R2-2009300](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009300.zip) Correction to NDI toggling for Configured Grant for NRU Huawei, HiSilicon CR Rel-16 38.321 16.2.1 0925 - F NR\_unlic-Core

=> The CR is not pursued

[R2-2010136](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010136.zip) Clarification of PUCCH resource usage in NR-U Qualcomm Incorporated CR Rel-16 38.321 16.2.1 0961 - F NR\_unlic-Core

=> Update: “set of consecutive symbols where the UE doesn’t transmit before the start of a next channel occupancy time”

=> The CR is agreed and will be merged in main CR in email discussion 509

[R2-2010163](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010163.zip) Correction of HARQ operation for NR-U Ericsson CR Rel-16 38.321 16.2.1 0966 - F NR\_unlic-Core

- Mediatek and Nokia doesn’t see a reason to have such definition, as when the HARQ process is pending is already very clear.

=> The second change is captured in CATT CR and first change not needed

[R2-2010420](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010420.zip) Clarification for bundling transmission ASUSTek CR Rel-16 38.321 16.2.1 0985 - F NR\_unlic-Core

=> Not treated

### 6.3.3 Control plane

[R2-2009560](file:///C:\\Users\\panidx\\Documents\\TSGR2_112-e\\Docs\\R2-2009560.zip) Miscellaneous corrections for NR-U Qualcomm Incorporated CR Rel-16 38.331 16.2.0 2091 - F NR\_unlic-Core

=> Moved from 6.3.1

=> The CR is revised in R2-2010831

R2-2010831 Miscellaneous corrections for NR-U Qualcomm Incorporated CR Rel-16 38.331 16.2.0 2091 - F NR\_unlic-Core

[CB 508 – capture miscellaneous corrections and editorials as per below]

[R2-2009194](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009194.zip) Editorial Corrections in RRC for NR-U ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2041 - D NR\_unlic-Core

=> rapporteur can take this into account in email discussion

[R2-2009195](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009195.zip) Correction to NR-U Energy Detection Threshold configuration ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2042 - F NR\_unlic-Core

- Qualcomm thinks this was mistake but needs to be fixed

=> the CR is moved to email discussion for approval

=> The CR is revised in R2-2010835

R2-2010835 Correction to NR-U Energy Detection Threshold configuration ZTE Corporation, Sanechips CR Rel-16 38.331 16.2.0 2042 1 F NR\_unlic-Core

[CB 510]

[R2-2009295](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009295.zip) Correction on description for extendedRAR-window Huawei, HiSilicon CR Rel-16 38.306 16.2.0 0424 - F NR\_unlic-Core

=> General support, move to email discussion 508

[R2-2009296](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009296.zip) Correction of field description for ra-ResponseWindow Huawei, HiSilicon, Ericsson CR Rel-16 38.331 16.2.0 2052 - F NR\_unlic-Core, NR\_2step\_RACH-Core

=> Need to check if RAN1 text is sufficient and whether it is new or not. Note that RAN2 has discussed this last meeting and decided to keep the sentence. Move to email discussion 508

[R2-2009299](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009299.zip) Correction on ssb-SubcarrierOffset in MIB Huawei, HiSilicon, Ericsson CR Rel-16 38.331 16.2.0 2053 - F NR\_unlic-Core

=> Editorial, can be merged to rapporteur CR

[R2-2009349](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009349.zip) Clarification on HARQ processes sharing Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.2.0 2055 - F NR\_unlic-Core

=> Move to email discussion

[R2-2009545](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009545.zip) UE expects clarification Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.2.0 2088 - F NR\_unlic-Core

=> merge in rapporteur CR

[R2-2009546](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009546.zip) RMTC measurement timing Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.2.0 2089 - F NR\_unlic-Core

=> merge in rapporteur CR

[R2-2009602](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009602.zip) Corrections on cg-RetransmissionTimer Lenovo, Motorola Mobility, LG Electronics CR Rel-16 38.331 16.2.0 2096 - F NR\_unlic-Core

=> The CR is not pursued

[R2-2010000](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010000.zip) Correction on csi-RS-ValidationWithDCI Ericsson CR Rel-16 38.331 16.2.0 2156 - F NR\_unlic-Core

=> merge in rapporteur CR

[R2-2010001](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010001.zip) Correction to search space switching config Ericsson CR Rel-16 38.331 16.2.0 2157 - F NR\_unlic-Core

=> NBC, not agreed.

=> Editorial parts can be merged to rapporteur CR

=> The CR is not pursued

[R2-2010002](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010002.zip) Correction on freqMonitorLocations Ericsson CR Rel-16 38.331 16.2.0 2158 - F NR\_unlic-Core

=> merge in rapporteur CR

[R2-2009999](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009999.zip) Miscellaneous corrections Ericsson CR Rel-16 38.331 16.2.0 2155 - F NR\_unlic-Core

=> merge in rapporteur CR

## 6.9 UE Power Saving in NR

(NR\_UE\_pow\_sav-Core; leading WG: RAN1; REL-16; started: Mar 19; Completed Jun 20; WID: RP-200494; SR: RP-200913).

Limit: 3-4 email threads

### 6.9.1 General and Stage-2 corrections

Including incoming LSs, rapporteur inputs, etc

[R2-2008726](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008726.zip) Reply LS on NR SCG release for power saving (R3-205764; contact: ZTE) RAN3 LS in Rel-16 NR\_UE\_pow\_sav-Core To:RAN2

=> Noted

[R2-2008745](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008745.zip) Reply LS on RRM relaxation in power saving (R4-2012122; contact: Huawei) RAN4 LS in Rel-16 NR\_UE\_pow\_sav-Core To:RAN2

=> Noted

### 6.9.2 User plane Corrections

[R2-2008953](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008953.zip) MAC CR for specification redundance between MAC and PHY Xiaomi Communications CR Rel-16 38.321 16.2.1 0902 - F NR\_UE\_pow\_sav-Core

=> the first removal of BWP is acceptable. Need to check for measurement gap

=> The CR is agreed with only the first change “or within BWP switching interruption length” and cover page updated R2-2010832

[R2-2009691](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009691.zip) Correction on DCP for power sving vivo CR Rel-16 38.321 16.2.1 0937 - F NR\_UE\_pow\_sav-Core

- xiaomi thinks that we should also remove “during a measurement gap”. Vivo agrees

- CATT thinks that there is some overlap for bwp change but we haven’t found any overlap for measurement gap.

- CATT would prefer Xiaomi’s version. Qualcomm shares the same view and we should specify the monitoring in MAC

- LG also prefers Xiaomi’s as Vivo’s version changes some behaviour

- Huawei thinks that we have no critical issue to solve.

- Nokia also doesn’t see any issue

=> The CR is not pursued

[R2-2009099](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009099.zip) Corrections to Active time determination Samsung Electronics Co., Ltd CR Rel-16 38.321 16.2.1 0908 - F NR\_UE\_pow\_sav-Core

=> should be in TEI?

### 6.9.3 Control plane Corrections

[R2-2009079](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009079.zip) Duplicated capture for RRM relaxation in RAN2 and RAN4 vivo discussion Rel-16 NR\_UE\_pow\_sav-Core

- Vivo, Mediatek and CATT thinks that there no need to change the RAN2 specification.

- CATT thinks that there are some duplication in RAN4, but we have some CRs in RAN4 to remove some text in RAN4 and reference RAN2

=> No changes to RAN2 specifications for duplication. Any RAN4 modifications can be suggested to RAN4 with normal procedures (company CRs)

=> Noted

[R2-2009080](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009080.zip) Summary of RRM relaxation behaviors vivo, CATT discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-2008569](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008569.zip)

=> Noted

[R2-2009081](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009081.zip) [Draft] LS to RAN4 on RRM measurement relaxation in power saving vivo LS out Rel-16 NR\_UE\_pow\_sav-Core To:RAN4

=> Not treated

[R2-2009952](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009952.zip) Way forward relaxed RRM requirements in RAN2 and RAN4 Ericsson discussion Rel-16 NR\_newRAT-Core

=> Noted

[R2-2009082](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009082.zip) Correction on field description of highPriorityMeasRelax vivo CR Rel-16 38.331 16.2.0 2032 - F NR\_UE\_pow\_sav-Core

- Huawei thinks that reference is already there to 304 and if we have a general purpose to tidy up we can consider it

- Mediatek thinks that there is no problem with the current text. Apple agrees and it is useful to keep the reference.

=> The CR is not pursued

[R2-2010595](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010595.zip) Correction on RRM relaxation Samsung Electronics CR Rel-16 38.304 16.2.0 0193 - F NR\_UE\_pow\_sav-Core

- Mediatek supports the CRs

- Huawei thinks that this a rapporteur CR

=> The CR is agreeable and is combined with [R2-2010597](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010597.zip)

=> The CR is revised in [R2-2010833](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010595.zip)

[R2-2010833](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010595.zip) Correction on RRM relaxation Samsung Electronics, CATT CR Rel-16 38.304 16.2.0 0193 1 F NR\_UE\_pow\_sav-Core

[CB 504 email discussion]

[R2-2010597](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010597.zip) Correction on cell reselection within 1 hour measurement interval CATT CR Rel-16 38.304 16.2.0 0194 - F NR\_UE\_pow\_sav-Core

- Ericsson is not absolute sure that there is no such a cell selection case. CATT didn’t see a case and even in RAN4 cell selection is not mentioned as a case.

- Oppo thinks the CR is reasonable.

- Huawei has a similar understanding but on the other hand nothing is broke, they are quite minor.

=> The CR can be combined with [R2-2010595](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010595.zip)

[R2-2009928](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009928.zip) Correction on RRC state preference - Opt 1 Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.2.0 2144 - F NR\_UE\_pow\_sav-Core

=> Not pursed

[R2-2009929](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009929.zip) Correction on RRC state preference – Opt 2 Nokia, Nokia Shanghai Bell CR Rel-16 38.331 16.2.0 2145 - F NR\_UE\_pow\_sav-Core

=> Update the reason for change but go with this option and change the wording “on the preference on RRC state”

[CB 505 to be agreed by email]

[R2-2009462](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009462.zip) UE assistance information for DRX preference on secondary DRX group - Option1 OPPO, Ericsson CR Rel-16 38.331 16.2.0 2075 - F NR\_UE\_pow\_sav-Core

=> Agree to that we will not have enhancement like option 2.

- Nokia asks why do we limit it to default DRX and not to any DRX group. Oppo thinks that this is exactly why we need the clarification. Ericsson also clarifies that UE assistance applies to second DRX group.

=> Update cover page and agree by email discussion to CR [506]

[R2-2009463](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009463.zip) UE assistance information for DRX preference on secondary DRX group - Option2 OPPO, Ericsson, Qualcomm, Apple, Xiaomi CR Rel-16 38.331 16.2.0 2076 - F NR\_UE\_pow\_sav-Core

- ZTE and CATT thinks that this is out of scope of this work item and should be more TEI

- Qualcomm thought that when we had the discussion most companies preferred option 2. Ericsson thinks we can support secondary DRX and UE assistance and we should signal the power saving parameter. Apple supports

- Samsung is good with option 2 but it is quite late in Rel-16

- LG thinks that this was introduced late and there as a condition that we would go for a very simple solution, but now companies want to enhance the TEI16 feature more and more. It is quite late already in Rel-16. LG wants to go for option 1

- Mediatek see this option being useful and getting them to work together

- Nokia clarifies that in plenary it was discussed to do this in Rel-17. Vivo has the same view.

=> We will not pursue new changes in Rel-16

[R2-2010243](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010243.zip) Correction on otherConfig for RRCResume Huawei, HiSilicon CR Rel-16 38.331 16.2.0 2193 - F NR\_UE\_pow\_sav-Core

- Mediatek thinks that “message only includes fields” needs to change to “can”

=> Change it to “can”

- CATT, Vivo and ZTE thinks that this is a general RRC CR and not related to power saving only. ZTE also thinks that this change may not be needed.

=> The CR can be brought up in RRC session

=> The CR is not pursued

[R2-2009370](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009370.zip) Correction on cell reselection within 1 hour measurement interval CATT CR Rel-16 38.304 16.2.0 0189 - F NR\_UE\_pow\_sav-Core Withdrawn

## 6.11 2-step RACH for NR

(NR\_2step\_RACH-Core; leading WG: RAN1; REL-16; started: Dec 18; Completed: June 20; WID: RP-200085; SR: RP-200622).

Limit: 3 email threads

### 6.11.1 General and Stage-2 Corrections

### 6.11.2 User plane corrections

[R2-2009794](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009794.zip) Clarification on the PRACH occasion frequency domain index Nokia, Nokia Shanghai Bell CR Rel-16 38.321 16.2.1 0943 - F NR\_2step\_RACH-Core

- LG thinks that it is already clear as there are separate sections. Vivo thinks that there is some ambiguity. Nokia asks what is the f\_id we are supposed to used so we need to clarify something.

- ZTE understands the issue shared RO you can’t have 2-step and 4-step so if you write it like this you’ll create additional issues. The UEs would need to understand and read the config generic. ZTE thinks that the current text is ok as we would have had the same issue in CFRA.

- Oppo shares the view that change is not necessary

=> The CR is not pursued

[R2-2009969](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009969.zip) 2-step RA parameter corrections Ericsson CR Rel-16 38.321 16.2.1 0953 - F NR\_2step\_RACH-Core

- ZTE is concerned that if we remove msgA then there is no way to distinguish between 2-step and 4-step

=> discuss offline if there is a good way to clarify this

[R2-2010402](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010402.zip) Correction on BSR for two-step RA Huawei, HiSilicon CR Rel-16 38.321 16.2.1 0981 - F NR\_2step\_RACH-Core

- ZTE is fine with the change but is wondering why we don’t mention mgs3.

- LG suggests to maybe keep the note only applicable to CG instead and remove dynamic grant

- Vivo thinks that we don’t have enough space to include the MAC CE and this is more of an optimization than a clarification

- Oppo thinks that the change is not need and also wonder why this note doesn’t capture the 4-step RA case

- Ericson and Lenovo explain that the UE is allowed to multiplex but in most cases there won’t be enough space, but the UE is allowed to do it.

- LG explains that when we added the note the only thing that was ambiguous was for CG case, for all other case it was already clear that the US-SCH resources are available.

- Apple also doesn’t think we need to list all of the cases and the only useful sentence is the last sentence.

- Huawei would prefer to not modify legacy text but if it removes ambiguity, we would be ok

- Mediatek agrees with Nokia that we can substitute the uplink grants with one generic uplink grant so it is applicable to all grants and future proof.

=> The RAN2 understanding is that the UE is allowed to multiplex BSR in msgA and msg3. FFS if anything needs to be changed in the text and we would need to ensure that there are no issues with NR-U

=> The CR is postponed

[R2-2010405](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010405.zip) Correction on DELTA\_PREAMBLE for 2-step RA Huawei, HiSilicon CR Rel-16 38.321 16.2.1 0982 - F NR\_2step\_RACH-Core

- ZTE agrees with the change

- Vivo thinks that the table index reference to RAN1 needs to be updated

- Nokia thinks that it should be clarified that the parameters are used for 2-step and 4-step respectively

=> port over the editorials from [R2-2009969](file:///C:\\Users\\panidx\\Documents\\TSGR2_112-e\\Docs\\R2-2009969.zip)

=> The reference will need to be updated

[CB 502 email discussion]

### 6.11.3 Control plane corrections

[R2-2009968](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009968.zip) 2-step RA parameter corrections Ericsson CR Rel-16 38.331 16.2.0 2149 - F NR\_2step\_RACH-Core

=> The CR is agreeable and merge first change of [R2-2010403](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010403.zip)and [R2-2010404](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010404.zip)

[CB 503 email discussion]

[R2-2010403](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010403.zip) Correction on msgA-PUSCH-Config Huawei, HiSilicon CR Rel-16 38.331 16.2.0 2213 - F NR\_2step\_RACH-Core

- ZTE and Mediatek thinks the second change is not needed

- LG thinks that the reason for change needs to be updated

=> combine only first change with [R2-2009968](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009968.zip)

[R2-2010404](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010404.zip) Correction on msgA-DMRS-Config Huawei, HiSilicon CR Rel-16 38.331 16.2.0 2214 - F NR\_2step\_RACH-Core

- ZTE thinks that it is simpler to just refer to RAN1 and if it is not clearer in RAN1 it should be clarified in RAN1, we are not experts

=> the change will be captured with a reference to RAN1

=> The CR will be merged with 9968

# 8 Rel-17 NR Work Items

## 8.5 NR IIoT URLLC

(NR\_IIOT\_URLLC\_enh-Core; leading WG: RAN2; REL-17; WID: RP-201310)

Time budget: 1 TU

Tdoc Limitation: 3 tdocs

Email max expectation: 2-3 threads

Focus to clarify the scope, understand the dependencies to other groups, get proposals on the table.

### 8.5.1 Organizational

Rapporteur input

[R2-2008720](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008720.zip) LS on propagation delay compensation enhancements (R1-2007446; contact: Huawei) RAN1 LS in Rel-17 NR\_IIOT\_URLLC\_enh-Core To:RAN2

[R2-2009754](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009754.zip) Updated Work Plan for NR IIoT/URLLC Nokia Work Plan Rel-17 NR\_IIOT\_URLLC\_enh-Core

### 8.5.2 Enhancements for support of time synchronization

Including requirements and scope. Including [Post111-e][924][R17 URLLC/IIoT] Propagation delay for TSN (Nokia)

[R2-2008855](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008855.zip) Discussion on enhancements for support of time synchronization Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2008856](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008856.zip) Draft Reply LS on propagation delay compensation enhancements Huawei, HiSilicon LS out Rel-17 NR\_IIOT\_URLLC\_enh-Core To:RAN1

[R2-2008880](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008880.zip) Propagation Delay Compensation Enhancements Ericsson discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2008972](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008972.zip) Propagation Delay Compensation for TSN Qualcomm Incorporated discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009060](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009060.zip) Further consideration on time synchronization and PDC in TSN ZTE Corporation, Sanechips, China Southern Power Grid Co., Ltd discussion Rel-17

[R2-2009118](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009118.zip) On propagation delay compensation MediaTek Inc. discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core [R2-2007611](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2007611.zip)

[R2-2009270](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009270.zip) Enhancements for Propagation Delay Compensation and Mobility Intel Corporation discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009561](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009561.zip) Consideration of time synchronization enhancement for TSN OPPO discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009672](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009672.zip) Mobility related issues for the propagation delay compensation Beijing Xiaomi Mobile Software discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009755](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009755.zip) Summary of email discussion [Post111-e][924][R17 URLLC/IIoT] Propagation delay for TSN (Nokia) Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009756](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009756.zip) [DRAFT] Reply LS on propagation delay compensation enhancements Nokia, Nokia Shanghai Bell LS out Rel-17 NR\_IIOT\_URLLC\_enh-Core To:RAN1

[R2-2009757](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009757.zip) Discussion on propagation delay compensation mechanisms Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009865](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009865.zip) Considerations on time synchronization enhancement Lenovo, Motorola Mobility discussion Rel-17

[R2-2009915](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009915.zip) Discussion on enhancements for TSN time synchronization China Telecommunications discussion

[R2-2010173](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010173.zip) Mobility aspects of time synchronization Sequans Communications discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010211](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010211.zip) Discussion on the propagation delay compensation vivo discussion [R2-2007145](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2007145.zip)

[R2-2010381](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010381.zip) Enhancements for support of time synchronization for TSN CMCC discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010413](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010413.zip) Discussion on propagation delay compensation for support of time synchronization LG Electronics Inc. discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010523](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010523.zip) RAN2 Aspects on Timing Synchronization Samsung discussion Rel-17

[R2-2010532](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010532.zip) Uplink time synchronization NTT DOCOMO, INC. discussion Rel-17

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

RAN2 aspects related to URLLC in unlicensed controlled environments. Initial discussion on potential impacts, including requirements and scope

[R2-2008853](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008853.zip) Discussion about uplink enhancements for URLLC in unlicensed controlled environment Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2008859](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008859.zip) Co-existence of NR-U and IIOT in R16 CATT discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2008860](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008860.zip) Protocol selection for IIoT on unlicensed spectrum CATT discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2008881](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008881.zip) Harmonizing UL CG enhancements in NR-U and URLLC Ericsson discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2008974](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008974.zip) CG Harmonization in Unlicensed Controlled Environment Qualcomm Incorporated discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2008976](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008976.zip) Uplink enhancements for URLLC in unlicensed controlled environments Intel Corporation discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009117](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009117.zip) On configured grant harmonization MediaTek Inc. discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009501](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009501.zip) Potential UL enhancements for URLLC in unlicensed environments Apple discussion Rel-17

[R2-2009562](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009562.zip) Consideration on URLLC over NRU OPPO discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009598](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009598.zip) Enhancements for URLLC in unlicensed controlled environments Lenovo, Motorola Mobility discussion Rel-17

[R2-2009758](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009758.zip) Uplink CG Harmonization for NR-U and URLLC Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009900](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009900.zip) Considerations in unlicensed URLLC Sony Europe B.V. discussion Rel-17 NR\_IIOT\_URLLC\_enh-Perf

[R2-2009912](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009912.zip) Considerations on the harmonization of enhanced configured grant on shared spectrum channel ZTE Corporation, Sanechips discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009914](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009914.zip) Discussion on CG harmonization for IIoT in unlicensed spectrum Google Inc. discussion

[R2-2010110](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010110.zip) IIoT operation in unlicensed controlled environments InterDigital discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010212](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010212.zip) Harmonizing CG enhancements in NR-U and URLLC/IIoT vivo discussion [R2-2007146](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2007146.zip)

[R2-2010374](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010374.zip) Discussion on CG harmonization for URLLC in unlicensed controlled environments CMCC discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010437](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010437.zip) Consideration on timers for URLLC/IIoT in unlicensed controlled environments III discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2010439](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010439.zip) Harmonized support of IIOT on unlicensed band LG Electronics Inc. discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2010524](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010524.zip) Uplink Enhancements for Unlicensed Spectrum Samsung discussion Rel-17

### 8.5.4 RAN enhancements based on new QoS

RAN enhancements based on new QoS related parameters if any, e.g. survival time, burst spread, decided in SA2. [RAN2, RAN3]

[R2-2008854](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008854.zip) Discussion on RAN enhancements based on new QoS related parameters Huawei, HiSilicon discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2008861](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008861.zip) RAN enhancement based on New QoS CATT discussion NR\_IIOT\_URLLC\_enh-Core

[R2-2008882](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008882.zip) RAN enhancements based on new QoS related parameters Ericsson discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2008985](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008985.zip) RAN Enhancements to Support New QoS Parameters for TSN Intel Corporation discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009062](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009062.zip) New QoS related parameters in TSN ZTE Corporation, Sanechips, China Southern Power Grid Co., Ltd discussion Rel-17

[R2-2009130](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009130.zip) U-plane aspect for RAN enhancement to support new QoS Fujitsu discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009179](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009179.zip) Concept and use of survival timer Samsung Electronics GmbH discussion

[R2-2009563](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009563.zip) Consideration on RAN enhancement based on new QoS OPPO discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009671](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009671.zip) RAN impacts of the IIOT QoS parameters Beijing Xiaomi Mobile Software discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009759](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009759.zip) RAN Enhancement for Survival Time Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2009870](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009870.zip) Discuss on the mechanism to guarantee the survival time Lenovo, Motorola Mobility discussion Rel-17

[R2-2010111](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010111.zip) Enhancements based on new QoS requirements InterDigital discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010213](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010213.zip) Discussion on IIOT QoS impacts in RAN vivo discussion

[R2-2010375](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010375.zip) Discussion on the support of RAN enhancement for new QoS parameters CMCC discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010438](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010438.zip) Discussion on RAN enhancements based on Survival Time III discussion Rel-17 NR\_IIOT\_URLLC\_enh-Core

[R2-2010444](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010444.zip) Support of determinstic IIOT Traffic LG Electronics UK discussion NR\_IIOT\_URLLC\_enh-Core

## 8.6 Small Data enhancements

(NR\_SmallData\_INACTIVE-Core; leading WG: RAN2; REL-17; WID: RP-201305)

Time budget: 1.5 TU

Tdoc Limitation: 4 tdocs

Email max expectation: 3 threads

### 8.6.1 Organizational

In coming LSs, rapporteur input for email discussions summaires etc (tdocs in this don’t count towards tdoc limit). Including [Post111-e][925][R17 Small Data] Agreeable details of RRC-based solution (RACH and CG) (ZTE)

[R2-2009189](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009189.zip) Small Data] Agreeable details of RRC-based solution (RACH and CG) Rapporteur (ZTE) report

### 8.6.2 Security aspects

[R2-2008958](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008958.zip) Discussion on the Security for Small Data Transmission vivo discussion

[R2-2008992](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008992.zip) Security aspect for SDT Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009012](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009012.zip) Security aspects for small data transmission in inactive state OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009366](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009366.zip) Security aspects on SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009490](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009490.zip) Security aspect on SDT procedure Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009920](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009920.zip) Security aspects of SDT Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE

[R2-2009931](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009931.zip) Discussion about security aspects for small data transmission Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009991](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009991.zip) Draft LS on Need of MAC-I for UE authentication NEC Telecom MODUS Ltd. LS out To:SA3

### 8.6.3 Control plane aspects

Support of RRC-less SDT, SDT type selection and switch between SDT and normal resume procedure, Cell reselection and failure handling, etc, except security aspects. Including [Post111-e][926][R17 Small Data] Context fetch (Ericsson)

[R2-2008959](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008959.zip) Duscussion on RRC-Controlled Small Data Transmission vivo discussion

[R2-2008993](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008993.zip) SDT control plane procedures and failure handling Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009013](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009013.zip) Discussion on Control plane aspects for small data transmission OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009055](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009055.zip) RRC-less SDT over CG MediaTek Inc., Apple discussion

[R2-2009095](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009095.zip) Control Plane Aspects of SDT Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009131](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009131.zip) Open issue in [Post111-e][926]: TAT handling Fujitsu discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009132](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009132.zip) Identified issue in [Post111-e][926]: CA and PDCP CA duplication Fujitsu discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009151](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009151.zip) Discussion on the general aspects for small data transmission Spreadtrum Communications discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009190](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009190.zip) Control plane aspects of SDT ZTE Corporation, Sanechips discussion

[R2-2009316](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009316.zip) Discussion on RRC procedure for small data transmission SHARP Corporation discussion NR\_SmallData\_INACTIVE-Core

[R2-2009344](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009344.zip) Timer configuration for SDT failure detection ETRI discussion

[R2-2009347](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009347.zip) Differentiation and triggering of SDT procedure Potevio discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009367](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009367.zip) Considerations on general aspects and subsequent SDT CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009460](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009460.zip) Anchor relocation for Small Data Transmission LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2009491](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009491.zip) Control plane aspects on SDT procedure Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009643](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009643.zip) Discussion on how to handle cell reselection during T319 for the case of SDT ITRI discussion NR\_SmallData\_INACTIVE-Core

[R2-2009656](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009656.zip) Control plane issues for SDT NEC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009675](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009675.zip) Discussion on the RRC-less SDT Beijing Xiaomi Mobile Software discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009873](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009873.zip) Analysis on RA selection and RNAU Lenovo, Motorola Mobility discussion Rel-17

[R2-2009875](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009875.zip) Consideration on RRC-less SDT and subsequent data transmission Lenovo, Motorola Mobility discussion Rel-17

[R2-2009888](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009888.zip) Discussion on context fetch, anchor relocation and subsequent SDT in NR Sony discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009919](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009919.zip) SDT control plane aspects for RACH based schemes Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE

[R2-2009930](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009930.zip) SDT aspects common for RACH-based and CG-based SDT scheme Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009966](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009966.zip) RRC aspects for SDT Ericsson discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009967](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009967.zip) Report of [Post111-e][926][SmallData] ContextFetch\_email Ericsson (rapporteur) report Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009978](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009978.zip) Support of RRC-less SDT NEC Telecom MODUS Ltd. discussion

[R2-2010008](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010008.zip) Control plane aspects on NR small data transmission Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010109](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010109.zip) Small data transmission failure and cell reselection InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010388](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010388.zip) SDT type selection and switch procedure CMCC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010429](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010429.zip) Discussion on subsequent small data transmission ASUSTeK discussion NR\_SmallData\_INACTIVE-Core

### 8.6.4 Aspects specific to RACH based schemes

RA type selection, Separate RA resource pool for SDT

Details of context fetch, support of anchor relocation and no anchor relocation and procedural aspects related to RAN2

[R2-2008960](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008960.zip) Supporting Small Data Transmission via RA Procedure vivo discussion

[R2-2008994](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008994.zip) RACH selection and User plane aspects with and without anchor relocation Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009014](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009014.zip) Discussion on RACH based small data transmission OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009056](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009056.zip) RA-based SDT MediaTek Inc. discussion

[R2-2009096](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009096.zip) Criteria for performing 2 step or 4 step RACH based SDT Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009097](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009097.zip) RACH configuration for Small Data Transmission Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009119](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009119.zip) Timer issues for subsequent data transmissions PANASONIC R&D Center Germany discussion

[R2-2009152](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009152.zip) Discussion on small data transmission for RACH-based scheme Spreadtrum Communications discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009191](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009191.zip) RACH based small data transmission ZTE Corporation, Sanechips discussion

[R2-2009193](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009193.zip) Context fetch and data forwarding for SDT ZTE Corporation, Sanechips discussion

[R2-2009368](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009368.zip) Analysis on SDT without Context relocation CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009457](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009457.zip) RACH-based Small Data Transmission LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2009492](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009492.zip) Context fetch procedure for SDT Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009646](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009646.zip) Discussion on RA-based Small Data Transmission TCL Communication Ltd. discussion Rel-17

[R2-2009657](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009657.zip) Subsequent data transmission for SDT NEC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009799](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009799.zip) Details on RACH specific schemes Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009872](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009872.zip) The basic principle for small data transmissions Lenovo, Motorola Mobility discussion Rel-17

[R2-2009889](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009889.zip) Details of RA-based schemes for SDT in NR Sony discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009963](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009963.zip) Details of RACH based SDT Ericsson discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009965](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009965.zip) Subsequent transmissions after initial SDT Ericsson discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010006](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010006.zip) Discussion on RACH based NR small data transmission Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010106](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010106.zip) RACH-based SDT selection and configuration InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010232](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010232.zip) 2-step RACH and 4-step RACH selection criteria for SDT Xiaomi discussion

[R2-2010280](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010280.zip) Small data transmission with RA-based scheme Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010281](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010281.zip) Small data transmission with CG-based scheme Huawei, HiSilicon discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010389](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010389.zip) Some consideration on RACH based scheme CMCC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010390](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010390.zip) Anchor relocation and context fetch CMCC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010430](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010430.zip) Data forwarding without UE DRB configuration ASUSTeK discussion NR\_SmallData\_INACTIVE-Core

[R2-2010431](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010431.zip) Discussion on initiating SDT based on radio condition ASUSTeK discussion NR\_SmallData\_INACTIVE-Core

### 8.6.5 Aspects specific to CG based schemes

Configuration of CG resources, Validity of CG resources, handling of beam selection for CG etc

[R2-2008935](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008935.zip) Handling of subsequent small data transmission in RRC\_INACTIVE PANASONIC R&D Center Germany discussion

[R2-2008961](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008961.zip) Supporting Small Data Transmission via CG configuration vivo discussion

[R2-2008995](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2008995.zip) Handling of Configured grant for SDT Intel Corporation discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009015](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009015.zip) Discussion on CG based small data transmission OPPO discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009057](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009057.zip) CG-based SDT MediaTek Inc. discussion

[R2-2009094](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009094.zip) Configured Grant based Small Data Transmission Samsung Electronics Co., Ltd discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009192](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009192.zip) Configured grant based small data transmission ZTE Corporation, Sanechips discussion

[R2-2009345](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009345.zip) SDT handling in RRC\_INACTIVE state ETRI discussion

[R2-2009350](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009350.zip) Discussion on aspects specific to CG based SDT Nokia, Nokia Shanghai Bell discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009369](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009369.zip) Analysis on SDT Procedures using CG CATT discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009458](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009458.zip) Coexistence of CG and RACH configuraiton for SDT LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2009459](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009459.zip) CG resources for Small Data Transmission LG Electronics Inc. discussion NR\_SmallData\_INACTIVE-Core

[R2-2009493](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009493.zip) CG based SDT procedure Apple discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009649](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009649.zip) TAT maintenance for CG based SDT ITL discussion Rel-17

[R2-2009874](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009874.zip) Consideration on CG based small data transmission Lenovo, Motorola Mobility discussion Rel-17

[R2-2009890](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009890.zip) Details of CG-based schemes for SDT in NR Sony discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009964](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009964.zip) Details of CG based SDT Ericsson discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2009973](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2009973.zip) Discussion on CG-based Small Data Transmissions NEC Telecom MODUS Ltd. discussion

[R2-2010007](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010007.zip) Discussion on CG based NR small data transmission Qualcomm Incorporated discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010107](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010107.zip) CG-based SDT selection and configuration InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010108](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010108.zip) Beam selection and maintenance for CG-based SDT InterDigital discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010391](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010391.zip) Consideration on CG based SDT CMCC discussion Rel-17 NR\_SmallData\_INACTIVE-Core

[R2-2010432](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010432.zip) Association between Pre-configured PUSCH resources and beam ASUSTeK discussion NR\_SmallData\_INACTIVE-Core

## 10.1 Session on LTE legacy, Mobility, DCCA, Multi-SIM and RAN slicing

[R2-2010701](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010701.zip) Report from session on LTE legacy, LTE TEI16 and NR/LTE Rel-16 Mobility Vice Chairman (Nokia)

## 10.2 Session on R16 eMIMO, CLI, PRN, RACS and R17 NTN and RedCap

[R2-2010702](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010702.zip) Report from Break-Out Session on SRVCC, CLI, PRN, eMIMO, RACS Vice Chairman (ZTE)

## 10.3 Session on eMTC

[R2-2010703](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010703.zip) Report eMTC breakout session Session chair (Ericsson)

## 10.4 Session on NR-U, Power Savings, NTN and 2-step RACH

[R2-2010704](C:\\Users\\panidx\\Documents\\TSGR2_112-e\\Docs\\R2-2010704.zip) Session minutes for NR-U, Power Savings, NTN and 2-step RACH Session chair (InterDigital)

## 10.5 Session on positioning and sidelink relay

[R2-2010705](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010705.zip) Report from session on Rel-15 and 16 LTE and NR positioning Session chair (MediaTek)

## 10.6 Session on SON/MDT

[R2-2010706](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010706.zip) Report from SOM/MDT session Session chair (CMCC

## 10.7 Session on NB-IoT

[R2-2010707](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010707.zip) Report NB-IoT breakout session Session chair (Huawei)

## 10.8 Session on LTE V2X and NR V2X

[R2-2010708](file:///C:\Users\panidx\Documents\TSGR2_112-e\Docs\R2-2010708.zip) Report from session on LTE V2X and NR V2X Session chair (Samsung)