3GPP TSG-RAN WG2 Meeting #109bis-e [R2-2003804](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003804.zip)

**Electronic, 20 April – 30 April 2020**

Source: Session Chair (InterDigital)

Title: Session minutes for NR-U, Power Savings and 2-step RACH

**Organizational:**

1. LSs – contact companies should flag LSs that need presenting. Otherwise we will directly note them
2. Only Email discussions and summary discussions will be treated during e-meetings (indicated clearly in the meeting notes)
3. All organization emails and notes will be shared over the following email discussion throughout the two meeting weeks:

* [AT109bis-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:**

* [AT109bis-e][501][NR-U] CP Open and ASN.1 Issues (Qualcomm)

Scope:

* + - Identify/Summarize all remaining/identified CP and ASN.1 issues

Intended outcome:

* + - Set of proposals to agree by email
    - CR capturing agreements from week1 and then week2

Deadline for providing comments:

* + - Companies input: April 22nd
    - Rapporteur proposals: April 23rd
    - CR capturing agreements: April 27th
* [AT109bis-e][502][NR-U] UP Open Issues (InterDigital, Ericsson)

Scope:

* + - Identify/Summarize all remaining/identified UP issues

Intended outcome:

* + - Set of proposals to agree by email (InterDigital)
    - CR capturing agreements from week1 and then week2 (Ericsson)

Deadline for providing comments:

* + - Companies input: April 22nd
    - Rapporteur proposals: April 23rd
    - CR capturing agreements: April 27th
* [AT109bis-e][503][2s RA] UP Open Issues (ZTE)

Scope:

* + - Identify/Summarize all remaining/identified UP issues

Intended outcome:

* + - Set of proposals to agree by email
    - CR capturing agreements from week1 and then week2

Deadline for providing comments:

* + - Companies input: April 21st
    - Rapporteur proposals: April 22nd to be discussed in week1 discussion.
    - CR capturing agreements: April 27th
* [AT109bis-e][504][NR-U] CP/UE assistance Open and ASN.1 Issues (Mediatek)

Scope:

* + - Identify/Summarize all remaining/identified CP UE assistance and ASN.1 issues

Intended outcome:

* + - Set of proposals to agree by email
    - CR capturing agreements from week1 and then week2

Deadline for providing comments:

* + - Companies input: April 22nd
    - Rapporteur proposals: April 23rd
    - CR capturing agreements: April 27th
* [AT109bis-e][505][PowSav] RRM Open Issues (CATT, Vivo)

Scope:

* + - Identify/Summarize all remaining/identified RRM issues (continuation of pre-meeting email discussion)

Intended outcome:

* + - Set of proposals to agree by email (CATT)
    - CR capturing agreements from week1 and then week2 (Vivo)

Deadline for providing comments:

* + - Companies input: April 22nd
    - Rapporteur proposals: April 23rd
    - CR capturing agreements: April 27th
* [AT109bis-e][506][PowSav] DCP Open Issues (InterDigital, Huawei)

Scope:

* + - Identify/Summarize all remaining/identified DCP issues (continuation of pre-meeting email discussion)

Intended outcome:

* + - Set of proposals to agree by email (InterDigital)
    - CR capturing agreements from week1 and then week2 (Huawei)

Deadline for providing comments:

* + - Companies input: April 22nd
    - Rapporteur proposals: April 23rd
    - CR capturing agreements: April 27th
* [AT109bis-e][507][2s RA] CP and ASN.1 Issues (Ericsson)

Scope:

* + - Identify/Summarize all remaining/identified CP and ASN.1 issues

Intended outcome:

* + - Set of proposals to agree by email
    - CR capturing agreements from week1 and then week2

Deadline for providing comments:

* + - Companies input: April 22nd
    - Rapporteur proposals: April 23rd
    - CR capturing agreements: April 27th
* [AT109bis-e][508][NR-U] CR to 36.331 for NR-U (Qualcomm)

Scope:

* + - Review running 36.331 CR

      Intended outcome:

* + - Agreed CR for 36.331

      Deadline for providing comments – April 24th

# 6 Rel-16 NR Work Items

## 6.2 NR-based Access to Unlicensed Spectrum

(NR\_unlic-Core; leading WG: RAN1; REL-16; started: Dec 18; target; June 20; WID: [RP-192](file:///C:\Data\3GPP\Extracts\RP-191575%20Revised%20WID%20NR-U.doc)926; SR; RP-200459, Further prioritization guidance in RP-191581). Documents in this agenda item will be handled in a break out session.

Time budget: 3 TU

Tdoc Limitation: 3

### 6.2.1 General

Including incoming LSs, rapporteur inputs, etc.  
Contributions in this AI are reserved for WI rapporteur inputs and/or spec rapporteur inputs and do not count towards the tdoc limits. All comments related to 38.300, 38.304 should be given to Ozcan, spec rapporteur. Qualcomm will produce a document with the received issues and update the CR directly

Including [Post109e#40][NR-U] UE capabilities (Qualcomm, Vivo)

No contributions are expected for UE capabilities. Please provide your input to the email discussion. Vivo is expected to produce first draft of 38.304

[R2-2002506](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002506.zip) LS to RAN2 on NR-U related changes for 38.300 running CR (R1-2001300; contact: Qualcomm) RAN1 LS in Rel-16 NR\_unlic-Core To:RAN2

=> Noted

[R2-2002513](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002513.zip) LS on SSB index and candidate SSB index for NR-U (R1-2001357; contact: Samsung, Charter Communications) RAN1 LS in Rel-16 NR\_unlic-Core To:RAN2, RAN4

=> Noted

[R2-2002514](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002514.zip) LS on NR-U enhancements to initial access procedures (R1-2001375; contact: Charter Communications) RAN1 LS in Rel-16 NR\_unlic-Core To:RAN2

=> Noted

**To be treated**

[R2-2002516](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002516.zip) Reply LS on consistent Uplink LBT failure detection mechanism (R1-2001397; contact: Nokia) RAN1 LS in Rel-16 NR\_unlic-Core To:RAN2

=> Noted

[R2-2003008](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003008.zip) Reply LS on consistent Uplink LBT failure detection mechanism Nokia LS out Rel-16 NR\_unlic-Core To:RAN1 Late

- Huawei thinks that we may need to consider case by case

- Nokia thinks that we should always indicates if configured. Qualcomm thinks that the LS is clear already, if configured we always indicate and if not configured the cases are already in the LS.

[CB after email discussion)

[R2-2002530](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002530.zip) LS on UL LBT failure recovery for the target cell (R4-2002282; contact: Ericsson) RAN4 LS in Rel-16 NR\_unlic-Core To:RAN2 Cc:RAN1

=> Noted

**To be treated at the end of the session**

[R2-2002844](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002844.zip) Report of Post109e#40][NR-U] UE capabilities Qualcomm Incorporated report

- Mediatek is concerned that if LBT consistent failure is option then we’d have to solve the issue. ZTE has the same view. Samsung also agrees.

**Agreements**

1: An indication from PHY to MAC on LBT failure or success should be supported by all NR-U UEs. How this can be grouped with other essential PHY layer NR-U capabilities can be discussed after RAN1 progress on those.

2: [CB] Detecting consistent LBT failure and recovery is optional and as a baseline the UE capability is per UE. Whether the signalling is per band will depend on RAN1 discussion.

[CB]

Proposal 3: As a baseline, the capability for LBT detection and recovery capability applies to all cells (SpCell and SCells).

Proposal 4: If a separate capability for SCell LBT detection and recovery is introduced, this will apply to all configured SCells.

Proposal 5: RAN2 should not further discuss the granularity of RSSI/CO measurements until RAN1 discussion concludes.

Proposal 6: RAN2 should not further discuss the granularity of configured grant autonomous transmission support until RAN1 discussion concludes.

Proposal 7: As a baseline, no separate capability is needed for sharing of HARQ processes among multiple configured grants with retransmission timer.

Proposal 8: As baseline, it is mandatory to support monitoring the last two bits of SFN for RACH operation in shared spectrum.

Proposal 9: When msg2/msB is transmitted on shared spectrum, the gNB signals the last 2 bits of SFN when ra-ResponseWindow-r16 is configured with value greater than 10ms; other cases are FFS.

Proposal 10: Multiple PDCCH monitoring occasions for PO is only used for NR operation with shared spectrum channel access.

Proposal 11: As a baseline, white lists for neighbour cells broadcast in SIB are only applicable to NR operation with shared spectrum channel access.

Proposal 12: From RAN2 point of view, retransmission timer for configured grant is used for only NR operation with shared spectrum channel access.

[R2-2002586](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002586.zip) Running CR to 38.306 on Introducing UE Capability for NR Shared Spectrum vivo CR Rel-16 38.306 16.0.0 0266 - B NR\_unlic-Core Withdrawn

[R2-2002584](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002584.zip) Running CR to 38.306 on Introducing UE Capability for NR Shared Spectrum vivo draftCR Rel-16 38.306 16.0.0 B NR\_unlic-Core

### 6.2.2 User plane

*Including [Post109e#39][NR-U] MAC open issues (Ericsson)*

*Contributions related to issues addressed by the email discussions should be avoided and are discouraged for this AI.*

*All identified critical open issues should be provided to the rapporteur via email discussion Post109e#39 and new contributions on those topics are discouraged. Contributions should be reserved for more complicated issued.*

*No individual company CRs should be submitted*

**To be treated**

[R2-2003411](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003411.zip) Post109e#39 NR-U MAC open issues Ericsson discussion Rel-16 NR\_unlic-Core

=> Revised in [R2-2003951](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003951.zip)

[R2-2003951](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003951.zip) Post109e#39 NR-U MAC open issues Ericsson discussion Rel-16 NR\_unlic-Core

***5:*** *Consistent LBT failure is cancelled if lbt-FailureRecoveryConfig IE is reconfigured for any Serving Cell.*

**-** LG thinks that it is too aggressive to always cancel and suggest to cancel if LBT instance max count is greater than old one. Ericsson thinks that this is a rare event and we don’t need to do anything.

**-** Nokia asks if LBT failure is cancelled for all cells or just the ones that have been reconfigured. Qualcomm explains that the configuration is per MAC and not per Cell.

**6:** The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for consistent LBT failure, which has no valid PUCCH resources configured, for the Serving Cell that triggered the consistent LBT failure

**-** Futjistu wonders about the first two conditions. Huawei sympathizes with Futjitsu LG points out that they have a paper to capture general procedures that is being treated in main session and detailed discussion don’t have to take place.

- Nokia prefers to not go into this details and it cannot be implemented this way.

|  |
| --- |
| **Agreements**  **1:** Remove the addition of a third type of retransmissions for Type 1 and Type 2 configured grant when cg\_RetransmissionTimer is configured in the first paragraph of 5.8.2.  **2:** Change the last paragraph in 5.8.2 from  Retransmissions are done by:  -    repetition of configured uplink grants; or  -    receiving uplink grants addressed to CS-RNTI; or  -    retransmission on configured uplink grants.  To:  Retransmissions use:  -    repetition of configured uplink grants; or  -    received uplink grants addressed to CS-RNTI; or  -    configured uplink grants with *cg-RetransmissionTimer* configured.  **3:** Remove “the active UL BWP of” and add “if” in 5.21.2  1> if consistent LBT failure is triggered and not cancelled in the active UL BWP of the SpCell; and  1> if the Random Access procedure is considered successfully completed (see clause 5.1) in the SpCell:  **4:** Reset the *LBT\_COUNTER* when a consistent LBT failure is cancelled in 5.21.2.  **5:** Consistent LBT failure is cancelled if lbt-FailureRecoveryConfig IE is reconfigured.  **6:** FFS to be moved to email discussion - The MAC entity may stop, if any, ongoing Random Access procedure due to a pending SR for consistent LBT failure, which has no valid PUCCH resources configured, for the Serving Cell that triggered the consistent LBT failure, if:   * an RRC (re-)configuration for BWP switching is received for this Serving Cell; or * a PDCCH for BWP switching is received for this Serving Cell; or * this Serving Cell is an SCell that is deactivated (see clause 5.9); or * a MAC PDU is transmitted using a UL grant other than a UL grant provided by Random Access Response, regardless of LBT failure indication from lower layers, and the MAC PDU includes an LBT failure MAC CE that indicates consistent LBT failure for this Serving Cell. |

[R2-2003409](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003409.zip) Corrections of NR-U in 38.321 Ericsson CR Rel-16 38.321 16.0.0 0726 - F NR\_unlic-Core

- LG is concerned that a description is too long

=> The CR will be updated, delete proposal 6 and further comments can be provided via email discussions

[R2-2003952](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003952.zip) Outcome of [AT109bis-e][502][NR-U] UP Open Issues Interdigital

**Will not be treated**

[R2-2002848](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002848.zip) Remaining critical issues for LBT failures Qualcomm Incorporated discussion

[R2-2002582](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002582.zip) Clarification on the LBT Failure Indication vivo discussion

[R2-2002583](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002583.zip) Discussion on the UE Processing Time for Autonomous Retransmission vivo discussion

[R2-2002613](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002613.zip) Clash between NR-U and IIoT for the configured grant Samsung discussion Rel-16 NR\_unlic-Core

[R2-2002614](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002614.zip) Prioritization between initial TX and re-TX on CG in NR-U Samsung CR Rel-16 38.321 16.0.0 0706 - F NR\_unlic-Core

[R2-2002837](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002837.zip) Discussion incoming RAN1 LS on LBT failure indication OPPO discussion Rel-16 NR\_unlic-Core

[R2-2002931](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002931.zip) Stopping ongoing Random Access procedure LG Electronics Inc. discussion Rel-16 NR\_unlic-Core

[R2-2003004](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003004.zip) Remaining issue on 2-step random access in NR-U Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2003005](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003005.zip) Discussion on the MAC CE for NR-U Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2003006](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003006.zip) Discussion on PDCCH group switching for NR-U Huawei, HiSilicon discussion Rel-16 NR\_unlic-Core

[R2-2003410](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003410.zip) UEs not supporting gap-less msgA transmission Ericsson discussion Rel-16 NR\_unlic-Core, NR\_2step\_RACH-Core

[R2-2003498](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003498.zip) MsgA PUSCH LBT failure impact CMCC discussion Rel-16

Not complying to guidance

[R2-2003031](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003031.zip) Flushing HARQ buffer of the pending HARQ process in NR-U LG Electronics Polska CR Rel-16 38.321 16.0.0 0717 - F NR\_unlic-Core

[R2-2003050](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003050.zip) Draft CR on LBT failure handling in MAC Nokia, Nokia Shanghai Bell draftCR Rel-16 38.321 16.0.0 NR\_unlic-Core

### 6.2.3 Control plane

*Including [Post109e#38][NR-U] RRC open issues (Qualcomm)*

*Contributions related to issues addressed by the email discussions should be avoided and are discouraged for this AI.*

*All identified critical open issues should be provided to the rapporteur via email discussion Post109e#38 and new contributions on those topics are discouraged. Contributions should be reserved for more complicated issued.*

*No individual company CRs should be submitted*

**To be treated**

[R2-2002843](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002843.zip) Report of [Post109e#38][NR-U] RRC open issues Qualcomm Incorporated report Late

|  |
| --- |
| **Agreements**  1 Introduce the field descriptions communicated by RAN1 with the following changes:   * Use *inOneGroup* instead of *mediumBitmap* in *ServingCellConfigCommonSIB [verify this]* * Include the statement in “The UE expects that a bit at position k > ssb-PositionQCL-Relationship-16 is 0, and the number of actually transmitted SS/PBCH blocks is not larger the number of 1’s in the bitmap.” in SSB-ToMeasure * Use “For operation in licensed spectrum” instead of “without shared spectrum channel access” * Use “leftmost” instead of “MSB”   2: No other changes are introduced to RRC to address the recommendations and agreements in RAN1 LS (R2-2001357).  3. Introduce the following changes:   * Replace ffsValue with 64 in:   + 1. co-DurationList-r16 SEQUENCE (SIZE(1..ffsValue)) OF CO-Duration-r16 -- FFS size upper limit 64 * Replace ffsValue below with 1120 to support 20ms duration (the new upper limit is changed from 560 to 1120 as it is needed for SCS 60Khz):   + 1. CO-Duration-r16 ::= INTEGER (0..ffsValue) -- FFS upper limit 560   The structure discussion and possible unification is moved to ASN.1 discussion. Capture this as open issue.   * Add field description for *CO-Duration*   4. Introduce the following changes:   1. Replace ffsValue below with 80 (maximum needed for 20ms with SCS of 60khz):    * 1. searchSpaceSwitchingTimer-r16 INTEGER (1..ffsValue) 2. Put in the field description of *searchSpaceSwitchingTimer* that “For 15 kHz SCS, {1..20} are valid. For 30 kHz SCS, {1..40} are valid. For 60kHz SCS, {1..80} are valid. Note that this is in slots as used in 38.213.   5 Introduce the following in the field description of *cp-ExtensionC2, cp-ExtensionC3:*  Configures the cyclic prefix (CP) extension (see TS 38.211 [16], clause 5.3.1). For 15 kHz SCS, {1..28} are valid for both *cp-ExtensionC2* and *cp-ExtensionC3*. For 30 kHz SCS, {1..28} are valid for *cp-ExtensionC2* and {2..28} are valid for *cp-ExtensionC3.* For 60 kHz SCS, {2..28} are valid for *cp-ExtensionC2* and {3..28} are valid for *cp-ExtensionC3*.  6 Introduce the following changes to RRC:   1. Introduce a new IE in RMTC-Config called *ref-SCS-CP* with the values of {15 kHz, 30 kHz, 60 kHz-NCP, 60 kHz-ECP} 2. Remove the Editor’s Note on L3 filtering for RSSI 3. Wait for RAN4 conclusion on actual values for *rssi-Result-r16* and *channelOccupancyThreshold-r16* before introducing the indices corresponding to RAN4 table   7: Introduce the following changes in RRC:   1. Change the value range for *cg-nrofSlots-r16* to {1,2, ..., 40} 2. Change the value range for *cg-minDFIDelay-r16* to ENUMERATED {sym7, sym1x14, sym2x14, sym3x14, sym4x14, sym5x14, sym6x14, sym7x14, sym8x14, sym9x14, sym10x14, sym11x14, sym12x14, sym13x14, sym14x14, sym15x14, sym16x14} and introduce additional text in the field description as:   ***cg-minDFIDelay***  Indicates the minimum duration (in unit of symbols) from the ending symbol of the CG-PUSCH to the starting symbol of the DFI carrying HARQ-ACK for that PUSCH. UE assumes HARQ-ACK is valid only for PUSCH transmissions ending before n - cg-minDFIDelay-r16, where n is the time corresponding to the beginning of the start symbol of the DFI (see TS 38.213 [13], clause 10.3).  The following minimum delay values are supported depending on the configured subcarrier spacing [symbols]:  15 kHz: 7, m\*14, where m={1, 2, 3, 4}  30 kHz: 7, m\*14, where m={1, 2, 3, 4, 5, 6, 7, 8}  60 kHz: 7, m\*14, where m={1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16}   1. Change the value ranges as follows:   *cg-StartingPartialBW-InsideCOT-r16* and *cg-StartingPartialBW-OutsideCOT-r16* to to INTEGER (0..6)  *cg-StartingFullBW-InsideCOT-r16* and *cg-StartingFullBW-OutsideCOT-r16*r to SEQUENCE (SIZE (1..ffsValue)) OF INTEGER (0..6)   1. Change the ffsValue in *betaOffsetCG-UCI-r16* value range to 31   8: For signalling of intra-cell guard bands, an explicit IE is used for “default” case and no guard bands are used if signaling is absent.  9: Add the following ASN.1 to introduce multiple uplink grants:  In PUSCH-Config:  pusch-TimeDomainAllocationList-r16 SetupRelease { PUSCH-TimeDomainResourceAllocationList-r16 }  The new PUSCH-TimeDomainResourceAllocationList-r16:  PUSCH-TimeDomainResourceAllocationList-r16 ::= SEQUENCE (SIZE(1..maxNrofUL-Allocations)) OF PUSCH-TimeDomainResourceAllocation-r16  PUSCH-TimeDomainResourceAllocation-r16 ::=  SEQUENCE {     k2-r16                                              INTEGER (0..32)                                    OPTIONAL,   -- Need S     multiplePUSCH-Allocations-r16             SEQUENCE (SIZE(2..maxNrofMultiplePUSCHs-r16)) OF SinglePUSCH-TimeDomainResourceAllocation-r16  }  SinglePUSCH-TimeDomainResourceAllocation-r16 ::= SEQUENCE {  mappingType ENUMERATED {typeA, typeB},  startSymbolAndLength INTEGER (0..127)  }  10: Add to section 6.5 the UE may stop monitoring the PDCCH occasions for paging when this bit is set as defined in 304.  11: No additional values are introduced for *nrofPDCCHMonitoringOccasionPerSSB-r16* and the Editor’s Note on this can be removed.  12: The following additional values are introduced for *lbt-FailureInstanceMaxCount-r16:* 64 and 128. No additional values are added for *lbt-FailureDectectionTimer-r16* and the Editor’s Note on this can be removed. Check with ASN.1 rapporteur. |

[R2-2002846](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002846.zip) NR-U RRC Open Issues List Qualcomm Incorporated discussion Late

- Ericsson thinks that U523 is incorrect description

- Intel sympathizes with U542. Huawei thinks that the intention and information is the same so it is a matter of signalling structure. Qualcomm thinks that it is a matter of overhead.

**Agreements:**

1. close U521

2. close U522 – the name will remain as is

3. rapporteur will check 523 and correct accordingly

4. U527 can be closed and RAN1 can check and tell us if there is something wrong

5. U540 and U541 can be closed

6. U518 is closed

[R2-2003953](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003953.zip) Outcome of [AT109bis-e][501][NR-U] CP Open and ASN.1 Issues (Qualcomm)

[R2-2002847](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002847.zip) Miscellaneous corrections for NR-U Qualcomm Incorporated CR Rel-16 38.331 16.0.0 1528 - F NR\_unlic-Core Late

=> The CR is endorsed as a baseline and further agreements will be captured in this based

[R2-2002845](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002845.zip) E-UTRAN and NR-U interworking Qualcomm Incorporated discussion

Agreements

1: Introduce RSSI/CO measurement and reporting of NR-U frequencies in E-UTRAN in order to improve E-UTRAN to NR-U handover (depending on whether inter-freq measurements are agreed)

2: Introduce white-list of neighbour NR-U cells in E-UTRAN (SIB24) – 16 NR-U cells just like in NR.

3: Introduce a new cause value scg-lbtFailureNR in SCGFailureInformationNR in 36.331.

4: FFS based on NR discussion – whether Per-cell Q value can be broadcasted in LTE SIB24 for NR-U neighbour cells.

[R2-2003414](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003414.zip) Mobility to NR operating with shared spectrum access Qualcomm Incorporated CR Rel-16 36.331 16.0.0 4263 - B NR\_unlic-Core

=> The CR is moved to email discussion for approval and the agreements based on R2-2002845 should be captured

**Will not be treated**

[R2-2002615](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002615.zip) Applicability of NR-U features to licensed carrier Samsung discussion Rel-16 NR\_unlic-Core [R2-2000535](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2000535.zip)

[R2-2002719](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002719.zip) On Q-values for Measurements in NR-U Mediatek Inc. discussion

[R2-2002910](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002910.zip) Description on Short Message in TS38.331 LG Electronics Inc. discussion Rel-16

[R2-2002966](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002966.zip) Addressing RAN1 and RAN4 questions on LBT failure configuration ZTE Corporation, Sanechips discussion

[R2-2002967](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002967.zip) Draft-Reply LS on consistent UL LBT failure detection mechanism ZTE Corporation, Sanechips response Late

[R2-2002968](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002968.zip) Draft-Reply LS on LS on UL LBT failure recovery for the target cell ZTE Corporation, Sanechips response

[R2-2003041](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003041.zip) Remaining control plane issues Ericsson discussion NR\_unlic-Core [R2-2000337](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2000337.zip)

[R2-2003407](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003407.zip) LS reply to RAN4 on UL LBT failure recovery for the target cell Ericsson LS out Rel-16 NR\_unlic-Core To:RAN4 Cc:None Late

[R2-2003408](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003408.zip) UL LBT failure recovery for target cell Ericsson discussion Rel-16 NR\_unlic-Core

## 6.11 UE Power Saving in NR

(NR\_UE\_pow\_sav-Core; leading WG: RAN1; REL-16; started: Mar 19; target; Jun 20; WID: [RP-200494](file:///C:\Data\3GPP\TSGR\TSGR_84\docs\RP-191607.zip); SR: RP-200237, See also guidence in RP-192326). Documents in this agenda item will be handled in a break out session. NOTE: "SCell dormancy" like behaviour will be discussed in MR-DC WI.

Time budget: 1 TU

Tdoc Limitation: 2

### 6.11.1 Organisational

Including incoming LSs, running TS, rapporteur inputs, etc

NOTE: any stage 3 identified issues with MIMO configurations should be provided to 38.331 rapporteur (Mediatek)

Contributions in this AI are reserved for WI rapporteur inputs and/or spec rapporteur inputs and do not count towards the tdoc limits. Including outcome of email [Post109e#42][PowSav] UE capabilities (Intel)

No contributions expected for UE capabilities. Please provide your input to the email discussion. Intel is expected to produce first draft of 38.304

**To be treated at the end of session**

[R2-2002601](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002601.zip) Report of email discussion [Post109e#42][PowSav] UE capabilities Intel Corporation discussion Rel-16 NR\_UE\_pow\_sav

[R2-2002602](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002602.zip) UE capabilities for Rel-16 Power Saving (PWS) WI Intel Corporation draftCR Rel-16 38.306 16.0.0 B NR\_UE\_pow\_sav

[R2-2002842](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002842.zip) SRB3 for reporting UAI for power saving OPPO CR Rel-16 37.340 16.1.0 0189 - F NR\_UE\_pow\_sav-Core

### 6.11.2 PDCCH-based power saving signals/channel Additional stage-3 RAN2 aspects

Including out of [Post109e#41][PowSav] DCP open issues (InterDigital, Huawei)

Contributions related to issues addressed by the email discussions should be avoided and are discouraged for this AI.

All identified critical open issues should be provided to the rapporteur via email discussion Post109e#41 and new contributions on those topics are discouraged. Contributions should be reserved for more complicated and critical issues.

No individual company CRs should be submitted

**To be treated**

[R2-2003378](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003378.zip) Summary of [Post109e#41] [PowSav] DCP open issues – Phase 1 InterDigital discussion Rel-16 NR\_UE\_pow\_sav-Core Late

[R2-2003379](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003379.zip) Report of [Post109e#41] [PowSav] DCP open issues InterDigital discussion Rel-16 NR\_UE\_pow\_sav-Core Late

R2-2003955 Outcome of [AT109bis-e][506][PowSav] Open Issues for DCP (InterDigital)

[R2-2003129](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003129.zip) Miscellaneous corrections to 38.321 for Rel-16 UE power saving Huawei, HiSilicon CR Rel-16 38.321 16.0.0 0719 - F NR\_UE\_pow\_sav-Core Late

=> The CR will be revised in R2-2003956 capturing agreements from week1 meeting and from offline email discussion

R2-2003956 Miscellaneous corrections to 38.321 for Rel-16 UE power saving Huawei, HiSilicon CR Rel-16 38.321 16.0.0 0719 - F NR\_UE\_pow\_sav-Core Late

**Will not be treated**

[R2-2002797](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002797.zip) PDCCH-WUS Mechanism Apple discussion NR\_UE\_pow\_sav-Core

[R2-2002839](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002839.zip) Remaining issues of DCP impact on SCell dormancy OPPO discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2002866](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002866.zip) Remaining issues for DCP vivo discussion Rel-16 FS\_NR\_UE\_pow\_sav

[R2-2002930](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002930.zip) Correction on RAR and DCP monitoring Nokia, Nokia Shanghai Bell draftCR Rel-16 38.321 16.0.0 F NR\_UE\_pow\_sav-Core

[R2-2003032](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003032.zip) Remaining issue on DCP monitoring within RAR window LG Electronics Inc. discussion NR\_UE\_pow\_sav-Core

[R2-2003288](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003288.zip) Open issues UE capability, DCP, UE assistance and RRM relaxation Ericsson discussion Rel-16 NR\_newRAT-Core

[R2-2003562](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003562.zip) PDCCH-based power saving signal/channel Samsung discussion NR\_UE\_pow\_sav-Core

### 6.11.3 UE assistance and RRC

Including outcome of [Post109e#43][PowSav] UE Assistance and RRC open issues (Mediatek)

Contributions related to issues addressed by the email discussions should be avoided and are discouraged for this AI.

All identified critical open issues should be provided to the rapporteur via email discussion Post109e#43 and new contributions on those topics are discouraged. Contributions should be reserved for more complicated.

No individual company CRs should be submitted

**To be treated**

[R2-2003127](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003127.zip) Summary of [Post109e#43][PowSav] UE Assistance and RRC open issues MediaTek Inc. discussion Rel-16 NR\_UE\_pow\_sav-Core Late

[R2-2003125](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003125.zip) CR for 38.331 for Power Savings MediaTek Inc. CR Rel-16 38.331 16.0.0 1540 - C NR\_UE\_pow\_sav-Core Late

[R2-2003126](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003126.zip) CR for 36.331 for Power Savings MediaTek Inc. CR Rel-16 36.331 16.0.0 4245 - B NR\_UE\_pow\_sav-Core Late

R2-2003957 Outcome of [AT109bis-e][504][PowSav] CP/UE assistance Open and ASN.1 Issues (Mediatek)

**Will not be treated**

[R2-2002670](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002670.zip) Power Saving UE assistance information Sony discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2002798](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002798.zip) Value Range for UE Assistance Information Apple discussion NR\_UE\_pow\_sav-Core

[R2-2002838](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002838.zip) Remaining issues on implicit SCG release OPPO discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2003229](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003229.zip) Adopting general UE assistance reporting framework to UE power saving Samsung Telecommunications discussion Rel-16

[R2-2003289](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003289.zip) UE assistance for connection release Ericsson, ZTE, Deutsche Telekom discussion Rel-16 NR\_newRAT-Core

[R2-2003387](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003387.zip) Adopting general UE assistance reporting framework to UE power saving Samsung Telecommunications discussion Rel-16 Late

[R2-2003472](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003472.zip) Discussion on clarification for max MIMO layer and antenna port Huawei, HiSilicon discussion Rel-16 NR\_UE\_pow\_sav-Core

[R2-2003473](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003473.zip) TP for clarification for max MIMO layer and antenna port Huawei, HiSilicon discussion Rel-16 NR\_UE\_pow\_sav-Core

### 6.11.6 RRM measurement relaxation

Including out of [Post109e#44][PowSav] RRM open issues (CATT, Vivo)

Contributions related to issues addressed by the email discussions should be avoided and are discouraged for this AI.

All identified critical open issues should be provided to the rapporteur via email discussion Post109e#44 and new contributions on those topics are discouraged. Contributions should be reserved for more complicated issued.

No individual company CRs should be submitted

**To be treated**

[R2-2002791](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002791.zip) Report of [Post109e#44][PowSav] RRM open issues CATT discussion Rel-16 NR\_UE\_pow\_sav-Core

=> Revised in R2-2003954

R2-2003954 Report of [Post109e#44][PowSav] RRM open issues CATT discussion Rel-16 NR\_UE\_pow\_sav-Core

R2-2003958 Outcome of [AT109bis-e][505][PowSav] RRM Open Issues (CATT, Vivo)

[R2-2002865](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002865.zip) CR on 38.304 for UE Power saving in NR vivo CR Rel-16 38.304 16.0.0 0152 - B FS\_NR\_UE\_pow\_sav

=> The CR is revised in R2-2003959 capturing additional agreements from the meeting and email discussion

R2-2003959 CR on 38.304 for UE Power saving in NR vivo CR Rel-16 38.304 16.0.0 0152 - B FS\_NR\_UE\_pow\_sav

**Will not be treated**

[R2-2002665](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002665.zip) UE power saving for inter frequency measurements Sony discussion Rel-16 NR\_UE\_pow\_sav-Core [R2-2000827](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2000827.zip)

[R2-2002735](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002735.zip) Configurations for RRM Measurement Relaxation MediaTek Inc. discussion

[R2-2002867](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002867.zip) Configurations for RRM Measurement Relaxation vivo discussion Rel-16 FS\_NR\_UE\_pow\_sav

[R2-2002950](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002950.zip) Correction of SI update of relaxed measurement parameters Nokia, Nokia Shanghai Bell, Ericsson draftCR Rel-16 38.304 16.0.0 F NR\_UE\_pow\_sav-Core

[R2-2003216](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003216.zip) EMR issue on relaxed measurement LG Electronics Inc. discussion Rel-16 NR\_UE\_pow\_sav-Core Withdrawn

[R2-2003219](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003219.zip) EMR issue on relaxed measurement LG Electronics Inc. discussion Rel-16 NR\_UE\_pow\_sav-Core

## 6.13 2-step RACH for NR

(NR\_2step\_RACH-Core; leading WG: RAN1; REL-16; started: Dec 18; target; Mar 20; WID: [RP-](file:///C:\Data\3GPP\Extracts\RP-190711%20Revised%20work%20item%20proposal%202%20step%20RACH%20for%20NR.docx)200085; SR: RP-200488). Documents in this agenda item will be handled in a break out session

Time budget: 1 TU

Tdoc Limitation: 1

### 6.13.1 General

Running CRs, Incoming LSs, Contributions in this AI are restricted for WI rapporteur inputs and/or spec rapporteur inputs and do not count towards the tdoc limits.

All comments related to 38.300 should be given directly to Eswar rapporteur. ZTE will update CRs according to received comments offline

[R2-2003009](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003009.zip) 4-step RA type description Nokia (rapporteur), Nokia Shanghai Bell, ZTE CR Rel-16 38.300 16.1.0 0214 - F NR\_2step\_RACH-Core Late

### 6.13.2 User plan aspects

A single CR will be produced by Rapporteur. No individual company CRs are expected. Comments should be given directly to rapporteur preferable. Contribution should be reserved for more complicated issued, but they should be critical issues

**To be treated**

R2-2003960 Outcome of [AT109bis-e][503][2s RA] UP Open Issues (ZTE)

[R2-2002965](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002965.zip) Updates to MAC spec for 2-step RACH ZTE (CR editor), Nokia, Samsung, Vivo CR Rel-16 38.321 16.0.0 0714 - F NR\_2step\_RACH-Core, NR\_unlic-Core

**Will not be treated**

[R2-2002585](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002585.zip) Remaining Issues on Resource Selection in 2-setp RACH vivo discussion

[R2-2002668](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002668.zip) msgB-RNTI ambiguity for CFRA and CBRA of 2-Step RACH Sony discussion Rel-16 NR\_2step\_RACH-Core [R2-2000833](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2000833.zip)

[R2-2002840](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002840.zip) Remaining issues of 2-step RACH OPPO discussion Rel-16 NR\_2step\_RACH-Core Late

[R2-2003007](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003007.zip) Discussion on remaining issues of 2-step RA Huawei, HiSilicon discussion Rel-16 NR\_2step\_RACH-Core

[R2-2003356](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003356.zip) Handling invalid POs for MsgA transmissions Ericsson discussion Rel-16 NR\_2step\_RACH-Core

[R2-2003357](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003357.zip) Change LCID to eLCID for Absolute Timing Advance Command Ericsson CR Rel-16 38.321 16.0.0 0722 - F NR\_2step\_RACH-Core

[R2-2003362](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003362.zip) Correction of Handling of invalid POs for MsgA transmissions Ericsson CR Rel-16 38.321 16.0.0 0725 - F NR\_2step\_RACH-Core

[R2-2003666](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003666.zip) Further clarifications on parameters for Random Access procedure LG Electronics discussion NR\_2step\_RACH-Core

### 6.13.3 RRC stage-3 related aspects

A single CR will be produced by Rapporteur. No individual company CRs are expected. Comments should be given directly to rapporteur preferable. Contribution should be reserved for more complicated issued, but they should be critical issues

**To be treated**

R2-2003960 RRC ASN.1 open issues Ericsson

[R2-2002556](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002556.zip) Issues - 2 step RA Samsung Electronics Co., Ltd discussion Rel-16 NR\_2step\_RACH-Core

[R2-2002878](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2002878.zip) RAN2 related UE capability for 2-step RACH Intel Corporation discussion Rel-16 NR\_2step\_RACH-Core

[R2-2003255](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003255.zip) Remaining issue on 2-step CFRA Qualcomm Incorporated discussion Rel-16 NR\_2step\_RACH-Core

[R2-2003649](file:///C:\Users\panidx\Documents\RAN2\TSGR2_109bis-e\Docs\R2-2003649.zip) Correction on 2-step RACH configurations in RRC ASUSTeK discussion Rel-16 38.331 NR\_2step\_RACH-Core