**3GPP TSG-RAN WG4 Meeting #97-e *R4-2017400***

**Electronic Meeting, 2 – 13 November, 2020**

**Agenda item:** 4.4, 4.5.2.2, 7.19.4

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for [97e][302] NR\_BSRF\_Maintenance

**Document for:** Information

# Introduction

The e-mail discussion covers Rel-15 and Rel-16 NR BS RF Core maintenance, including MSR specifications, i.e. Agenda items 4.4, 4.5.2.2 and 7.19.4.

The BS RF core spec TS 38.104 is very stable in Rel-15 and Rel-16 and there are few contributions in this area. Contributions were submitted within the following Topics:

1. Maintenance based on updated European regulation and standards
2. AAS capability set and support for NR+UTRA
3. Other maintenance

All topics include CRs for corrections, but no discussion papers.

# Topic #1: Maintenance based on updated European regulation and standards

A set of CRs refer to the LS in R4-2017800 from ETSI MSG TFES concerning Release 15 of the European Harmonised Standards.

## Companies’ contributions summary (CRs)

(Cat A CRs are not listed)

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| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2016345 R4-2016347 | Ericsson | **CR to 38.104/38.141-2 on Category B OTA spurious emissions for Band n257**  Summary of change:  The CR adds Band n257 to Category B limits for OTA spurious emissions. The step frequencies are aligned with the already existing ones for Rx spurious emissions. |
| R4-2016349 R4-2016351 | Ericsson | **CR to 37.104/37.141 on Removal of additional limit for Band 1**  Summary of change:  The additional limit for Band 1 is removed from the specification. |
| R4-2016353 R4-2016355 R4-2016357 | Ericsson | **CR to 37.105/37.141-1/37.141-2 on Removal of additional limit for Band 1**  Summary of change:  The additional limit for Band 1 is removed from the specification. |
| R4-2016359 R4-2016361 | Ericsson | **CR to 36.104/36.141 on Removal of additional limit for Band 1**  Summary of change:  The additional limit for Band 1 is removed from the specification. |

## Companies views’ collection for 1st round

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
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## Summary for 1st round

### Open issues

*Moderator tries to summarize discussion status for 1st round, list all the identified open issues and tentative agreements or candidate options and suggestion for 2nd round i.e. WF assignment.*

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| --- | --- |
|  | **Status summary** |
| **Sub-topic#1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |

*Recommendations on WF/LS assignment*

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|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
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### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provides recommendation on CRs/TPs Status update*

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| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

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| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #2: AAS capability set and support for NR+UTRA (CRs)

This is a continuing topic from RAN3 #96-e (Topic #2 for [302]), where three CRs were discussed and postponed. For this meeting, there are two sets of CRs available.

## Companies’ contributions summary

(Cat A CRs are not listed)

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| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2016367 | Ericsson | **CR to 37.105 on NR+UTRA support for AAS**  Summary of change:  It is added explicitly to the General section that for AAS BS, GSM/EDGE operation is not supported and that UTRA operation is only supported as single-RAT or in combination with E-UTRA. |
| R4-2015967 | Huawei | **CR to TS 37.105: Introduction of new BS capability set for NR+EUTRA+UTRA, Rel-16**  Summary of change: - 6.6.5.2.2, 6.6.5.2.3: conducted OBUE applicability table introduced for Band Category 1, 2, 3; table headers updated - 7.4.2.1: conducted general blocking table updated - 7.7.2.1: conducted Tx IMD table updated - 10.5.2.1: OTA general blocking table updated - 10.8.2.1: OTA Tx IMD table updated |
| R4-2015968 | Huawei | **CR to TS 37.145-1: Introduction of new BS capability set for NR+EUTRA+UTRA, Rel-16**  Summary of changes: - 4.9: introduction of CSA3B for UTRA, EUTRA, NR multi-RAT case. - 4.11.2.8.1.2 (ATC5a): applicabiltiy table updated with new CS - 4.11.2.8.2 (ATC5b): MSR changes reflected. Applicabiltiy table updated with new CS - 4.11.2.9, 4.11.2.10 (ATC6, ANTC6): MSR changes reflected. Power allocation section updated.  - 4.11.2.13, 4.11.2.14 (ATC8, ANTC8): new section for UTRA, E-UTRA and NR multi-RAT operation - 5.2: Test configuration applicability table updated with nes CSA3B test case  - 6.6.5.5.2, 6.6.5.5.3: conducted OBUE applicability table introduced for Band Category 1, 2, 3; table headers updated - 7.4.5.1.1: general blocking table updated - 7.7.5.1.1: Tx IMD table updated |
| R4-2015969 | Huawei | **CR to TS 37.145-2: Introduction of new BS capability set for NR+EUTRA+UTRA, Rel-16**  Summary of changes: - 4.9: introduction of RCSA3B for UTRA, EUTRA, NR multi-RAT case. - 4.11.2.8.1.2 (ATCR5): applicability table updated with new CS - 4.11.2.8.2 (ATCR5b): MSR changes reflected. Applicabiltiy table updated with new CS - 4.11.2.9, 4.11.2.10 (ATCR7, ANTCR7): MSR changes reflected. Power allocation section updated.  - 4.11.2.13, 4.11.2.14 (ATCR9, ANTCR9): new section for UTRA, E-UTRA and NR multi-RAT operation - 5.2: Test configuration applicability table updated with nes RCSA3B test case  - 6.6.5.5.2, 6.6.5.5.3: conducted OBUE applicability table introduced for Band Category 1, 2, 3; table headers updated - 7.8.5.1.1: Tx IMD table updated |

## Open issues summary

### Sub-topic 2-1 Options for Capability sets including UTRA in AAS specs

In the work item MSR\_GSM\_UTRA\_LTE\_NR, the MSR BS specification was extended with additional Capability Sets and requirements for NR + UTRA/GSM combinations. These were not reflected in the AAS specifications, which were not part of the work item.

The CRs submitted provides two different solutions for the AAS specifications.

**Issue 2-1: Options for Capability sets including UTRA in AAS specs**

* Proposals
  + **Option 1: (CR in R4-2016367)**Add an explicit statement in the AAS core spec that UTRA operation is only supported as single-RAT or in combination with E-UTRA.
  + **Option 2: (CRs in R4-2015967, R4-2015968, R4-2015969)**Update relevant AAS core and test requirements to cover combined NR & UTRA support, and add a new Capability Set for AAS with NR, E-UTRA and UTRA, plus two new Test Configurations.
* Recommended WF

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## Companies views’ collection for 1st round

### Open issues

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| **Company** | **Comments** |
| Ericsson | Sub topic 2-1: Ericsson supports Option 1, where the present state of the specifications is clarified. |

### CRs/TPs comments collection

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| --- | --- |
| **CR/TP number** | **Comments collection** |
| XXX | Company A |
| Company B |
|  |
| YYY | Company A |
| Company B |
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## Summary for 1st round

### Open issues

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|  | **Status summary** |
| **Sub-topic#1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |

*Suggestion on WF/LS assignment*

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|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

### CRs/TPs

*Moderator tries to summarize discussion status for 1st round and provided recommendation on CRs/TPs Status update suggestion*

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| --- | --- |
| **CR/TP number** | **CRs/TPs Status update recommendation** |
| XXX | *Based on 1st round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

## Discussion on 2nd round (if applicable)

## Summary on 2nd round (if applicable)

*Moderator tries to summarize discussion status for 2nd round and provided recommendation on CRs/TPs/WFs/LSs Status update suggestion*

|  |  |
| --- | --- |
| **CR/TP/LS/WF number** | **T-doc Status update recommendation** |
| XXX | *Based on 2nd round of comments collection, moderator can recommend the next steps such as “agreeable”, “to be revised”* |

# Topic #3: Other maintenance (CRs)

A number of diverse topics are covered by CRs under “Other maintenance”.

## Companies’ contributions summary

(Cat A CRs are not listed)

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| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2015957 | Huawei | **CR to TS 37.104: addition of missing note for BC1/BC3 OBUE applicability table for WA BS, Rel-16**  Summary of change:  Addition of the missing note in table 6.6.2.1-0. |
| R4-2015966 | Huawei | **CR to TR 38.820: correction in the NF analysis for NR BS, Rel-16**  Summary of change: 5.5.1.2: cross-reference is corrected to point to the figure with the collection of the state-of-the-art LNA-only noise figure publications. |
| R4-2016184 R4-2016186 | Nokia, Nokia Shanghai Bell | **CR to 37.104/37.141: Correction to ACLR limit in non-contiguous spectrum (Rel-15)**  Summary of change:  “NR” is removed in NOTE 3 to address E-UTRA carrier transmitted at the other edge of the gap.. |
| R4-2016206 | Nokia, Nokia Shanghai Bell | **CR to 38.141-2: Correction to test system uncertainty**  Summary of change:  Test System uncertainty is extended up to 43.5GHz. |
| R4-2016363 R4-2016366 | Ericsson | **CR to 37.104/37.141 on MSR Blocking correction**  Summary of change:  The reference to the Void table (previously containing the frequency ranges) is removed. |
| R4-2016430 R4-2016431 R4-2016432 | Huawei | **CR to TS 37.105/37.145-1/37.145-2: addition of the OBUE applicability table, Rel-15**  Summary of change:  OBUE applicability table introduced for Band Category 1, 2, 3; table headers updated to align with MSR. |

## Companies views’ collection for 1st round

### CRs/TPs comments collection

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| **CR/TP number** | **Comments collection** |
| R4-2016206 | Ericsson objects to such a minor editorial CR to an 800-series TR |
| Company B |
|  |
| R4-2016206 | Ericsson agrees that the change to 43.5 GHz is correct, as stated in Annex C. We also note that the upper limit will soon be raised to 48.5 GHz, based on the 47 GHz work item. |
| Company B |
|  |
| R4-2016430 R4-2016431 R4-2016432 | Ericsson thinks this needs careful consideration, since it is not obvious that the applicability table adds clarity, which should be the purpose. There are fewer tables to refer to here than in the MSR specs, so the applicability table is less useful.  Also, it looks like the Band n1 requirement is changed, from “or BS supporting n1” to “except for n1”. |
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## Summary for 1st round

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| **Sub-topic#1** | *Tentative agreements:*  *Candidate options:*  *Recommendations for 2nd round:* |

*Suggestion on WF/LS assignment*

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|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 |  |  |

### CRs/TPs

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