**3GPP T****SG-RAN WG4 Meeting#98bis R4-2105806**

**E-meeting, April 12th – April 20th, 2021**

**Agenda item: 5.4**

**Source: Moderator (Nokia, Nokia Shanghai Bell)**

**Title: Email discussion summary: [98-bis-e][204] LTE\_NR\_DC\_CA\_RRM\_1\_NWM**

**Document for: Information**

**[98-bis-e][204] LTE\_NR\_DC\_CA\_RRM\_1\_NWM - Version 0.0.3**

**RAN4**

# Introduction

This document covers the email discussion related to email thread 204 on

LTE\_NR\_DC\_CA\_RRM\_1.

*List of papers:*

*Core work (Topic #1):*

*Following 2 CRs have been submitted. Companies are encouraged to comment directly on the CRs in Topic #1.*

**Table 1: Submissions for Core**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5.4.1.1 | R4-2106990 | CR on LTE-NR EMR require-  ments 36133 | Huawei, HiSilicon | draftCR |
| 5.4.1.1 | R4-2106991 | CR on EMR  requirements correction 38133 | Huawei, HiSilicon | draftCR |

Performance work (Topic #2):

Following Tdoc’s have been submitted:

**Table 2: Submissions for Performance**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 5.4.2.1.1 | R4-2106389 | Measurement Performance Requirements test for MR-DC | Nokia, Nokia  Shanghai Bell | discussion |
| 5.4.2.1.1 | R4-2106390 | Draft CR for Idle Mode measurements of inter-frequency  RAT CA candidate cells for early reporting  (TC#3) | Nokia, Nokia  Shanghai Bell | draftCR |
| 5.4.2.1.1 | R4-2106391 | Draft Big CR:  Introduction of  Rel-16 MR-DC  EMR RRM performance requirements (TS  38.133) | Nokia, Nokia  Shanghai Bell | draftCR |
| 5.4.2.1.3 | R4-2104859 | Testing of measurement performance for RSRP/RSRQ in EMR | Apple | discussion |
| 5.4.2.1.3 | R4-2106992 | draftCR to update EMR TC4 | Huawei, HiSilicon | draftCR |

# Topic #1: IE names for capabilities

## Contributions summary

No discussion document was submitted for RAN4#98bis meeting for the Core work. 2 CRs have been submitted for corrections to UE Core requirements.

Companies are welcomed to comment directly on the CRs.

**Table 3: CR collection for Core requirements.**

|  |  |  |
| --- | --- | --- |
| Reference | Tdoc | Title |
| 1 | R4-2106990 | CR on LTE-NR EMR requirements 36133 |
| 2 | R4-2106991 | CR on EMR requirements correction 38133 |

## Companies views’ collection for 1st round

### CR comments collection

**Feedback Form 1: CRs comments collection for Topic**

**#1**

|  |  |  |
| --- | --- | --- |
| **Item** | **Company** | **Comments** |
| 1 | Nokia Corporation | Example:   * #1: Company comments * #2: Company comments |
| 2 | Ericsson  GmbH,  Eurolab | #1: OK  #2: OK |
| 3 | Nokia Corporation | #1: ok  #2: ok |
| 4 | Qualcomm  Incorporated | #1: Okay  #2: Okay |

## Summary of 1st round

### CRs

A summary of the 1st round discussion and status of 1st round will be provided here.

**Table 4: CR recommendation for Topic #1 after 1st round**

|  |  |
| --- | --- |
| Tdoc | CRs Status update recommendation |
| R4-2106990 | Endorsed. Based on the 1st round feedback. |
| R4-2106991 | Endorsed. Based on the 1st round feedback. |

# Topic #2: Test of Measurement Performance Requirements test for MR-DC

## Contributions summary

**Table 5: Summary of the contributions**

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2106389 | Nokia, Nokia Shanghai Bell | Observation 1: Measurement accuracy tests include tests under normal and extreme conditions.  Observation 2: Each test case needs to include two set of test parameters. One for normal conditions and one for extreme conditions.  Proposal 1: RAN4 should reconsider defining the absolute measurement accuracy tests as separate test cases |
| R4-2104859 | Apple | Observation 1: LTE CA IDLE mode accuracy requirements are verified together with measurement core requirements in one single test.  Observation 2: NR EMR accuracy requirements have already been verified in the approved test case. |

## Open issues summary

### Sub-topic 1-1

Sub-topic description: Re-consider having the measurement accuracy tests as separate test cases.

3.2.1.1 Issue 1-1-1: Measurement accuracy testing as separate test cases **Proposals:**

*Option 1:* Yes. Define the measurement accuracy test cases as separate tests.

*Option 2:* No. Test the measurement accuracy within core requirements.

**Recommended WF:**

Define and verify absolute measurement accuracy within the agreed test cases. Include the necessary test parameters and settings for testing measurement accuracy under normal and extreme conditions into the existing test cases.

## Companies views’ collection for 1st round

**Feedback Form 2: Companies views’ collection for 1st round**

|  |  |  |
| --- | --- | --- |
| **Item** | **Company** | **Comments** |
| 1 | Ericsson  GmbH,  Eurolab | Our preference is Option 2 i.e. testing both in the same set of test cases. |
| 2 | HuaWei Technologies Co.,  Ltd | We support option 2 which is aligned with the first sentence of the **Recommended WF**.  For the second setence of the **Recommended WF**, we would like to clarify what ”extreme condition” means. Does it mean the extreme condition in accuracy table e.g. Table 10.1.4.1.1-1? It is noted that in existing RAN4 accuracy tests, there is no separate sub-tests for normal and extreme conditions. |
| 3 | Nokia Corporation | We can support the recommended WF.  We can agree to test absolute accuracy requirements in the existing test cases.  The test cases would need to be adapted accordingly. |
| 4 | Qualcomm  Incorporated | Option 2 |
| 5 | Apple  GmbH | Support option 2. As elaborated in our contribution R4-2104859, we have similar test case design in LTE spec, i.e. testing both accuracy and measurement period in one single test (TS36.133 clause A.8.16.105). Note that the signal power level in LTE test is higher than extreme condition, i.e. Es/Iot=0dB for SCC according to Table A.8.16.105.1-2. Therefore we propose to use the same test methodology here, i.e. no need to touch the extreme conditions. |
| 6 | MediaTek  Inc. | MediaTek: Support option 2 |

### CR comments collection

**Table 6: CR collection for Performance requirements.**

|  |  |  |
| --- | --- | --- |
| Reference | Tdoc | Title |
| 1 | R4-2106390 | Draft CR for Idle Mode measurements of inter-frequency RAT CA candidate cells for early reporting (TC#3) |
| 2 | R4-2106992 | draftCR to update EMR TC4 |

**Feedback Form 3: CRs comments collection for Topic**

**#2**

|  |  |  |
| --- | --- | --- |
| **Item** | **Company** | **Comments** |
| 1 | Nokia Corporation | Example:   * #1: Company comments * #2: Company comments |
| 2 | Anritsu Corporation | **Anritsu: Comments to R4-2106390**   1. It is very confusing to have T1, T2 and T5 in one table, and T3, T4 inanother table. If the information on both Cell 1 and Cell 2 for T1..T5 is too much in one table, suggest a split with one table for Cell 1 and another table for Cell 2. 2. In several tables Cell 2 Noc/15kHz is stated twice, once with a fixed value of -98dBm/15kHz and again with band-dependent values, which is a contradiction. To meet the test purpose, it is probably not necessary to use band-dependent values. One fixed value may be OK, and is much simpler. 3. It is not clear why Cell 1 needs different Noc values of -98dBm/15kHz duringT1, T2, T5 and -102dBm/15kHz during T3, T4. Could this be simplified to a constant -98dBm/15kHz during T1..T5? 4. The derived parameters need to be re-evaluated when issues a) b) and c) areresolved. |
| 3 | Ericsson  GmbH,  Eurolab | #1: OK  #2: OK |
| 4 | RO-  HDE &  SCHWARZ | **R4-2106390**  Similar comment as Anritsu, very confusing description of 2Cells across T1-T5.  We suggest separate table per cell, with consecutive description of T1-T5. |

## Summary of 1st round

### Open issues

A summary of the 1st round discussion and status of 1st round will be provided here including identified open issues, tentative agreements and/or candidate options etc.

**Table 7: Summary of Sub-topic 1-1 after 1st round**

|  |  |
| --- | --- |
|  | Status summary |
| Sub-topic 1.1 | Tentative agreements:  Option 2: ’Test the measurement accuracy within core requirements’ (Ericsson, Huawei, Nokia, Qualcomm, Apple, MediaTek) Candidate options:  There are still some open aspects for discussion related to how to test, what to test (Apple, Nokia and Huawei) and the actual test case layout (Anritsu, R&S)  Recommendations for 2nd round:  Continue the discussion of the open aspects above in 2nd round. Likely best way forward is direct CR text drafting. |

### CRs

A summary of the 1st round discussion and status of 1st round will be provided here.

**Table 8: CR recommendation for Topic #2 after 1st round**

|  |  |
| --- | --- |
| Tdoc | CR Status update recommendation |
| R4-2106390 | To be revised. Work with Anritsu and R&S to account the comments. |
| R4-2106992 | Endorsed. No comments received during 1st round |

## Discussion on 2nd round

Can Companies agree to the proposed tentative agreement from 1st round (Option 2 of Issue 1-1-1): Test the measurement accuracy within core requirements

**Proposal:**

Option 1: Yes

Option 2: No

**Feedback Form 4: agree to the proposed tentative agreement?**

|  |  |  |
| --- | --- | --- |
| **Item** | **Company** | **Comments** |
| 1 | HuaWei Technologies Co., Ltd | Support the tentative agreement |

## CR comments collection

CR comments collection

**Table 9: 2nd Round CR comments collection**

|  |  |  |  |
| --- | --- | --- | --- |
| Reference | Title | Revision of | Comment |
| 1 | Draft CR for Idle Mode measurements of inter-frequency RAT CA candidate cells for early reporting  (TC#3) | R4-2106390 |  |

## Summary of 2nd Round

### Open Issues

During 2nd Round one Issue was for open for discussion: whether the proposed tentative agreement was agreeable to companies or not. 1 company posted positive support and no company was against. Hence, the tentative agreement is agreed:

**Agreement:** Test the measurement accuracy within core requirements

### CRs

**Table 10: CR status after 2nd round discussion**

|  |  |
| --- | --- |
| Tdoc | Status |
| R4-2105737 | Postponed |

# Recommendations for Tdocs

## 1st round

New Tdoc’s:

**Table 11: New Tdoc allocation after 1st round**

|  |  |  |
| --- | --- | --- |
| Title | Source | Comment |
| WF on Test cases for MR-DC Idle mode CA measurements | Nokia, Nokia Shanghai Bell | New Tdoc |

Existing Tdoc’s:

**Table 12: Tdoc status of existing Tdoc after 1st round**

|  |  |  |
| --- | --- | --- |
| Title | Source | Comment |
| R4-2106990 | Huawei, HiSilicon | Endorsed |
| R4-2106991 | Huawei, HiSilicon | Endorsed |
| R4-2106390 | Nokia, Nokia Shanghai Bell | Revised |
| R4-2106391 | Nokia, Nokia Shanghai Bell | already reserved in R4-2106391 |
| R4-2106992 | Huawei, HiSilicon | Endorsed |

## 2nd round

Existing Tdoc’s:

**Table 13: Tdoc status of existing Tdoc after 2nd round**

|  |  |  |  |
| --- | --- | --- | --- |
| Tdoc | Title | Source | Comment |
| R4-2195737 | Draft CR for Idle Mode measurements of inter-frequency RAT CA candidate cells for early reporting  (TC#3) | Nokia, Nokia Shanghai  Bell | Postponed |

|  |  |  |  |
| --- | --- | --- | --- |
| R4-2106391 | Draft Big CR: Introduction of Rel-16 MR-  DC EMR RRM performance requirements  (TS 38.133) | Nokia, Nokia Shanghai  Bell | email approval |
| R4-2105841 | WF on Test cases for MR-DC Idle mode CA  measurements | Nokia, Nokia Shanghai  Bell | Agreeable |