3GPP TSG-RAN WG4 Meeting #97-e R4-201xxxx

Electronic Meeting, 2 – 13 November 2020

**Agenda item:** 6.1.2, 6.1.3

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for [97e][225] LTE\_eMTC5\_RRM

**Document for:** Information

# Introduction

This email discussion targets to discuss the Rel-16 eMTC RRM core part maintenance and test cases.

Candidates target of email discussion for 1st round and 2nd round:

* 1st round:
  + Discuss the remaining open issues on Rel-16 eMTC RRM core parts
  + Review the test cases for Rel-16 eMTC RRM requirements.
* 2nd round:
  + Agree with the correction CR(s) for Rel-16 eMTC RRM core requirements.
  + Agree with the test cases for Rel-16 eMTC RRM requirements.

# Topic #1: RRM Core requirements maintenance

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2015778 | Huawei, HiSilicon | Proposal 1: For non-DRX in Connected mode and rmax\*G >= 80ms case, the RSS measurement period is defined as Max(rmax\*G, TRSS ) x N.  Proposal 2: Update the RSS measurement condition related to MG to “There are at least 2 consecutive RSS subframes available outside measurement gaps (if configured) in the window of [n-6, n-2]”.  Proposal 3: Send LS to ask RAN2 to remove RSRQ evaluation in S criterion if the cell is measured based on RSS.  Proposal 4: Add another condition for RSS based measurement for Connected mode that RSRQ is not configured as trigger quantity or report quantity for intra-frequency measurement.  Proposal 5: UE performs neighbor cell RSS measurement in the radio frame w.r.t. neighbor cell timing that is closest to the derived serving cell radio frame offset.  Proposal 6: For neighbour cell RSS measurement, UE may assume the BL/CE DL subframe configuration of neighbor cells is same as serving cell.  Proposal 7: For eMTC in Inactive mode, the Idle mode requirements apply except   * The WUS and PUR requirement do not apply * The reselection requirements for eDRX, which should be defined without considering PTW and considering the new DRX cycles of 5.12s and 10.24s   Observation: RSRQ is used in S criterion that is used for cell selection and cell reselection.  Observation: The derived radio frame offset for neighbour cell RSS according to 36.331 should be w.r.t. serving cell timing. |
| R4-2016141 | Ericsson | * Not see any particular reason to distinguish between the eDRX requirements in IDLE and INACTIVE states. * For all the requirements that do apply for UEs in RRC\_INACTIVE state and are identical to those in RRC\_IDLE state |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 1-1

Remaining issues on RSS measurement requirements

**Issue 1-1-1: RSS measurement period**

* Proposals
  + Option 1: For non-DRX in Connected mode and rmax\*G >= 80ms case, the RSS measurement period is defined as Max(rmax\*G, TRSS) x N
  + Option 2:
* Recommended WF
  + Need discussion.

**Issue 1-1-2: Time relation between MG and RSS**

* Proposals
  + Option 1: Update the RSS measurement condition related to MG to “There are at least 2 consecutive RSS subframes available outside measurement gaps (if configured) in the window of [n-6, n-2]”
  + Option 2:
* Recommended WF
  + Need discussion

**Issue 1-1-3: RSS-based RSRQ measurements in IDLE mode**

* Proposals
  + Option 1: Define RSS based RSRQ measurement
  + Option 2: Remove Squal > 0 in S criterion if the cell is measured based on RSS.
    - Send LS to ask RAN2 to remove RSRQ evaluation in S criterion if the cell is measured based on RSS.
  + Option 3:
* Recommended WF
  + Need discussion

**Issue 1-1-4: RSS-based RSRQ measurement in CONNECTED mode**

* Proposals
  + Option 1: Add another condition for RSS based measurement for Connected mode that RSRQ is not configured as trigger quantity or report quantity for intra-frequency measurement
  + Option 2:
* Recommended WF
  + Need discussion

**Issue 1-1-5: Measurement timing of RSS in neighbor cell**

* Proposals
  + Option 1: UE takes the derived serving cell radio frame offset for measuring the neighbor cell. This means RSS measurement requirements apply when frame timing between serving and neighbour cell are aligned, e.g. within 3us.
  + Option 2: UE performs neighbor cell RSS measurement in the radio frame w.r.t. neighbor cell timing that is closest to the derived serving cell radio frame offset.
  + Option 3:
* Recommended WF
  + Need discussion

**Issue 1-1-6: Assumption of BL/CE DL subframe configuration for RSS measurements in the neighbor cell**

* Proposals
  + Option 1: Serving cell provides the BL/CE DL subframe configuration of each neighbor cell to be measured with RSS
  + Option 2: UE assumes BL/CE DL subframe configuration of each neighbor cell is same as serving cell
  + Option 3:
* Recommended WF
  + Need discussion

### Sub-topic 1-2

eMTC measurement requirements in RRC\_INACTIVE

**Issue 1-2-1: eMTC measurement requirements in RRC\_INACTIVE**

* Proposals
  + Option 1: eMTC IDLE mode requirements apply except:
    - WUS and PUR requirements
    - Reselection requirements for eDRX, which should be defined without considering PTW and considering the new DRX cycles of 5.12s and 10.24s
  + Option 2: All the requirements that do apply for UEs in RRC\_INACTIVE state and are identical to those in RRC\_IDLE state
* Recommended WF
  + Need discussion

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 1-1-1:  Sub topic 1-1-2:  Sub topic 1-1-3:  Sub topic 1-1-4:  Sub topic 1-1-5:  Sub topic 1-1-6:  Sub topic 1-2-1:  ….  Others: |

### CRs/TPs comments collection

*Major close-to-finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2015779 (Huawei, HiSilicon) | Company A |
| Company B |
|  |
| R4-2015780 (Huawei, HiSilicon) | Company A |
| Company B |
|  |
| R4-2016142 (Ericsson) | Company A |
| Company B |
|  |
| R4-2016143 (Ericsson) | Company A |
| Company B |
|  |
| R4-2016547 (Qualcomm) | Company A |
| Company B |
|  |
| R4-2016587 (Nokia, Nokia Shanghai Bell) | Company A |
| Company B |
|  |

## 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.*

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

*Recommendations on WF/LS assignment*

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

### CRs/TPs

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

|  |  |
| --- | --- |
| **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 #2: RRM Performance requirements

*Main technical topic overview. The structure can be done based on sub-agenda basis.*

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2015841 | Ericsson | Proposal 1: Introduce new Out-of-synch test cases for MPDDCH performance improvement with FD-FDD/HD-FDD/TDD for BL UE CE Mode A.  Proposal 2: Introduce new Early out-of-synch test cases for MPDDCH performance improvement with FD-FDD/HD-FDD/TDD for BL UE CE Mode B.  Proposal 3: Set SNR2/SNR3 1dB lower compared with the existing out-of-synch/early out-of-synch test cases. |
| R4-2016144 | Ericsson | Proposal: Serving cell measurement relaxation test is introduced only for normal coverage |

## Open issues summary

*Before e-Meeting, moderators shall summarize list of open issues, candidate options and possible WF (if applicable) based on companies’ contributions.*

### Sub-topic 2-1

Test case design

**Issue 2-1-1: Test scope of RLM with MPDCCH performance improvement**

* Proposals
  + Option 1:
    - Introduce new Out-of-synch test cases for MPDDCH performance improvement with FD-FDD/HD-FDD/TDD for BL UE CE Mode A
    - Introduce new Early out-of-synch test cases for MPDDCH performance improvement with FD-FDD/HD-FDD/TDD for BL UE CE Mode B
  + Option 2:
* Recommended WF
  + Need discussion.

**Issue 2-1-2: Test point of RLM with MPDCCH performance improvement**

* Proposals
  + Option 1: Set SNR2/SNR3 1dB lower compared with the existing out-of-synch/early out-of-synch test cases
  + Option 2:
* Recommended WF
  + Need discussion.

**Issue 2-1-3: Serving cell measurement relaxation test**

* Proposals
  + Option 1: Serving cell measurement relaxation test is introduced only for normal coverage
  + Option 2:
* Recommended WF
  + Need discussion.

**Issue 2-1-4: Review the test cases**

* Directly provide comments, if any, in section 2.3.2.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| XXX | Sub topic 2-1-1:  Sub topic 2-1-2:  Sub topic 2-1-3:  ….  Others: |

### CRs/TPs comments collection

*Major close to finalize WIs and Rel-15 maintenance, comments collections can be arranged for TPs and CRs. For Rel-16 on-going WIs, suggest to focus on open issues discussion on 1st round.*

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2015781 (Huawei, HiSilicon) | Company A |
| Company B |
|  |
| R4-2015842 (Ericsson) | Company A |
| Company B |
|  |
| R4-2016145 (Ericsson) | Moderator: It should be draft CR. |
| Company B |
|  |
| R4-2016551 (Qualcomm) | Moderator: Tdoc not available |
| Company A |
| Company B |
| R4-2016552 (Qualcomm) | Moderator: It should be draft CR. |
| Company A |
| Company B |

## 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.*

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

*Suggestion on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **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*

|  |  |
| --- | --- |
| **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”* |