**3GPP TSG-RAN WG4 Meeting #94-e R4-20xxxxx**

**Electronic Meeting, Feb.24th – Mar.6th 2020**

**Agenda item:** 7.10.2

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for RAN4#94e\_#6\_LTE\_eMTC5

**Document for:** Information

# Introduction

The scope of the email discussion is to discuss the TP proposal and relevant paper for the TR 37.823. There are several topics related to TR37.823:

#1: TR update and corrections

#2: Specific aspect for TDD

#3: R16 RAN1 feature impact on LTE-MTC coexisting with NR

#4: Remaining topic in TR 37.823

There is no TP or discussion paper for power boosting for LTE-MTC so there is a need to discuss how to proceed on the remaining topic in TR37.823 so the TR can be finalized in R16.

For the first round, we will discuss the Topic #1 to #3 also decision on Topic #4.

For second round, we will review the modified version of TP.

# Topic #1: TR update and corrections

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2001862 | Ericsson | TR updates based on previous meeting CR |

## Open issues summary

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2001862 | Ercisson: Proposal to agree on the updated TR. |
| 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:**  TR update and corrections | There is no comments received from other companies, the TR update can be agreed as it is.  *Tentative agreements:*   * Agree the TR update as it is.   *Candidate options:*  *Recommendations for 2nd round:* |

### 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** |
| R4-2001862 | TR update is agreeable. |

## 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: Specific aspect for TDD

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2001127 | Huawei | TP for specific aspect for TDD |

## Open issues summary

No open issue on Specific aspect for TDD.

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
|  |  |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2001127 | Ericsson: ok with the TP. |
| Nokia: The TP widely takes into account our comments made in the last meeting. Nonetheless, we suggest making few improvements to the text:   1. As the matching of NR TDD and LTE-MTC TDD UL/DL configurations is strictly required for enabling co-existence, the last sentence of the first paragraph in section 8.4 should be reworded to state this. 2. In the text below Table 8.4-1, which needs reformatting, the DL/UL subframe ratio for LTE TDD UL/DL configuration 1 is referred to as 1:2 but it should be 1:1 (4 DL and 4 UL SFs per radio frame). |
| Huawei: Agree with Nokia’s comments. A revision of the draft is uploaded. Can the moderator please assign a new tdoc number? |

## 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:**  Specific aspect for TDD | TP will be revised with Nokia comments.  *Tentative agreements:*   * TP will be revised based on company’s comments.   *Candidate options:*  *Recommendations for 2nd round:*   * Review updated TP. |

### 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** |
| R4-2001127 | *Recommendation “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: R16 RAN1 coexisting feature impact

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

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2001864 | Ericsson | Proposal: Capture the R16 RAN1 two co-existing feature in TR 37.823. |
| R4-2001863 | Ericsson | TP for 7.3 and 8.1 |

## Open issues summary

RAN1 LTE-M coexisting with NR feature need to be reflected in TR37.823. There are two features, subcarrier puncturing and finer resource reservation for R16 LTE-MTC. How to capture the features in TR 37.823 need to be discussed.

### Sub-topic 3-1: subcarrier puncturing

This feature is relevant to PRB alignment in chapter 7.

* Proposal
  + Option 1: separate chapter in 7.3 to capture the feature impact
  + Option 2: TBA
* Recommended WF
  + TBA

### Sub-topic 3-2: Resource reservation

Finer resource reservation in LTE-M can give more NR resource allocation flexibility.

* Proposals
  + Option 1: capture the finer resource reservation in chapter 8.1
  + Option 2: TBA
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

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

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2001863 | [Huawei]: In WF R4-1913019, it’s agreed that “Keep the R16 in one separate chapter if it is R16 LTE-M coexisting NR specific feature”. The TP seems to contradict the WF. On the other hand, if RAN4 is going to finalize the TR very soon and no more RAN1 progress would be updated into the TR, the proposed TP could be a convenient solution. |
| Ericsson: we are ok to keep it into separate chapter, so a new level-1 heading will be added with title  “ R16 LTE-M coexisting NR specific feature” , and the added Tp will be moved to this new chapter, is that ok to Huawei and other companies? |
| Nokia: We agree to move both features into a separate chapter, as previously agreed. Then for the TP we have following two comments:  1) On SC puncturing: As RAN1 agreed up to 2 SC’s can be punctured, this should be clarified in the TP. In fact, Figure 7.3-1 just lists the 1 SC puncturing example. So, the 2 SC case should at least be referred in the text.  2) LTE-MTC resource reservation: In the last paragraph of chapter 8, the granularity for DL is left somewhat unclear. The second phrase says “LTE-MTC resource reservation for DL can be configured at slot level or finer than slot level.” According to RAN1 #99 agreements, “finer than slot level” should be replaced by “symbol level” (second bitmap is used in this case as agreed by RAN1). |

## 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:**  subcarrier puncturing  & Resource reservation | TP will be revised based on companies’ comments.  *Tentative agreements:*   * TP to be revised based on companies’ comments.   *Candidate options:*  *Recommendations for 2nd round:*   * Review the revised TP |

### 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** |
| R4-2001863 | recommend “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 #4: Remaining issue in TR37.823

There is no TP proposal for power boosting for LTE-MTC topic, hence some discussion around how to handle this topic. We could also discuss if conclusion of the TR can be finalized.

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
|  |  |  |

## Open issues summary

As there is no TP or discussion paper relate to Power boosting for LTE-MTC topic, this could mean there is no issue seen by companies and hence there is no need to proceed on this topic. Different opinion could be captured relate to this.

### Sub-topic 4-1: Power boosting for LTE-MTC

* Proposal
  + Option 1: Remove chapter 8.3 and companies see no issue to bring it up in TR37.823
  + Option 2: To be decided in future meeting.
* Recommended WF
  + TBA

### Sub-topic 4-2: conclusion on Chapter 11

* Proposal
  + Option 1: Conclude “LTE-MTC can coexist with NR with no issue identified”
  + Option 2: To be decided in future meeting.
* Recommended WF
  + TBA

## Companies views’ collection for 1st round

### Open issues

|  |  |
| --- | --- |
| **Company** | **Comments** |
| Ericsson | Sub topic 4-1: Option 1 is ok for us.  Sub topic 1-2: Option 1 is ok for us |
| Nokia | Sub topic 4-1: We prefer to keep the TR open and decide this in the next meeting based on companies’ input.  Sub topic 4-2: We prefer to keep the TR open and work on the conclusion for agreement in the next meeting. |
| Huawei | Sub topic 4-1: no issue found for power boosting.  Sub topic 4-2: No issue found for coexistence. The text for conclusion needs to be seen in the next meeting. |

### CRs/TPs comments collection

|  |  |
| --- | --- |
| **CR/TP number** | **Comments collection** |
| R4-2001863 | 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:**  Power boosting for LTE-MTC | *Tentative agreements:*   * Assign company to provide TP for chapter 8.3 at next meeting   *Candidate options:*  *Recommendations for 2nd round:*   * Discuss/agree above tentative agreement and capture in WF |
| **Sub-topic#2:**  conclusion on Chapter 11 | *Tentative agreements:*   * Assign company to provide TP for chapter 11 at next meeting   *Candidate options:*  *Recommendations for 2nd round:*   * Discuss/agree above tentative agreement and capture in WF |

*Suggestion on WF/LS assignment*

|  |  |  |
| --- | --- | --- |
|  | **WF/LS t-doc Title** | **Assigned Company,**  **WF or LS lead** |
| #1 | WF on remaining issue on TR 37.823 | Ericsson |

### 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”* |