**3GPP TSG-RAN Meeting # 90-e RP-2xxx**

**Electronic Meeting, December 7-11, 2020**

**Agenda item:** 9.1.2

**Source:** Moderator (Ericsson)

**Title:** Email discussion summary for UE and BS EMC

**Document for:** Information

# Introduction

The documents intent to capture companies’ comments on the following sub-topics related to RAN4 led non-spectrum Rel-17 WIs.

* Topic #1: BS EMC objectives
* Topic #2: UE EMC objectives
* Topic # 3: General aspects e.g. WI organization/structure

# Topic #1: BS EMC objectives

## Issues related to BS EMC for discussion

* Sub-topic 1-1: BS EMC core WI objectives
* Sub-topic 1-2: BS EMC performance WI objectives
* Sub-topic 1-4: Any other issue

## Companies’ views

*Interested companies to provide comments on the sub-topics in the following sections*

### Sub-topic 1-1: BS EMC core WI objectives

1. Evaluate the amount of reduction in test configurations achieved.
2. Consolidate and Analyse the results obtained on EMC performance on different RATs for radiated and immunity testing.
3. Specify BS test configurations and capability sets (Emission and Testing) for EMC according to the results achieved in the WI.
4. Define the required adjustments in the TS 37.113 chapter 4.5 according to the outcome of the proposed WI.

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| **Company** | **Comments** |
| Xiaomi | We support the idea of “simplification”. But for the objectives, we think the test configuration and capability sets are belong to performance part. Also we think the limit should not be changed since the MSR BS has been already on the market for long time. |
| Ericsson | Regarding the definition of the objectives, the separation is considering that the study required to consolidate the test simplification is carried out as part of the Core WI objectives (goals 1 and 2). The third and fourth goals target at cover the possible modification in section 4.5 of the TS.  Our intention is not to change the limits. The first goal looks for measuring the potential of test simplification to generate benefits for the vendors. Nokia expressed some concerns about the need for understanding this potential, so we try to address this comment by proposing goal 1. When including AAS in the scope of the WID we need to consider also TS 37.114.  We could say “Investigate the potential impact of achieving an EMC est simplification for MSR/AAS BS ” |
| ZTE | We agree that it is beneficial to simply the MSR EMC testing, and the objective should only focus on the simplication of test/performance related, without limits changed. To avoid confusion, a sentence should be needed to say the limits are kept unchanged.  In addition, it seems bullet 3 and 4 can be merged since the BS test configurations and capability sets are defined in the TS 37.113 chapter 4.5. |
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### Sub-topic 1-2: BS EMC performance WI objectives

1. Specify how to handle the radiated emission limits for MSR (including AAS) within an EMC-only Capability Sets and Test Configuration.
   * For BS equipment (ITU-R SM 329)
   * For Ancillary equipment (CISPR 32)
2. Specify how to handle the radiated immunity limits for MSR (including AAS) within an EMC-only Capability Sets and Test Configuration.

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| **Company** | **Comments** |
| Xiaomi | For bullet 1, we have question as are we going to define the capability set and test configuration only or the WID also want to deal with the limit? Since this is only listed in performance objective. Also as ancillary equipment is listed here, are we defining specific limit and TC for them?  For bullet 2, is it duplicated? |
| Ericsson | The intention is not to define new limits, it is to reuse what currently exists and propose a simplification by following this principle. The goals look for identifying how the emission and immunity current limits are going to be handled within the proposed test simplification |
| ZTE | For bullet 1, we suggest to delete the sub-bullet of ‘for ancillary equipment’. The radiated emission for ancillary equipment can be performed standalone, which means the simiplication for MSR test will not impact the ancillary equipment. |
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### Sub-topic 1-3: Timeline e.g. TU per meeting for BS EMC

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| **Company** | **Comments** |
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### Sub-topic 1-4: Any other issue e.g. additional objective(s)

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| **Company** | **Comments** |
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## Summary of discussion on BS EMC

*Note: moderator to provide summary*

# Topic #2: UE EMC

## Issues related to UE EMC

* Sub-topic 2-1: Core WI objectives
* Sub-topic 2-2: Timeline e.g. TU per meeting
* Sub-topic 2-3: Any other issue

## Companies’ views

*Interested companies to provide comments on the sub-topics in the following sections*

### Sub-topic 2-1: Core WI objectives

1. Consider potential additional EMC requirements for NR UE supporting different features as defined in TS 38.101-1/-2/-3 and LTE UE supporting different features as defined in TS 36.101:

* emission requirements.
* immunity requirements.
* Limit the features which have been finished before Rel-17 to be considered

1. Define receiver exclusion band for UE supporting different features
2. Investigate current 3GPP UE EMC radiated emission limit:

* Whether current test frequency range is suitable, including the lower and upper test frequency range.

1. Investigate how to establish the communication link for NR and LTE UEs with different features. (Sub clause 4.2 of TS 36.124 and TS 38.124)

* Possible deltaRIB to be considered.
* Possible MSD to be considered.

1. Define proper test configurations for NR and LTE UEs. (Sub clause 8.1 and 9. of TS 36.124 and TS 38.124):

* Investigate whether current test configuration defined in RAN5 can be re-used in EMC tests.
* Investigate whether current OTA test configuration can be reused for radiated emission test.
* Investigate whether regulations have already defined test configurations and if these regulations can be reused.

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| **Company** | **Comments** |
| Xiaomi | We would like to further clarify that the features are limited to Rel-16 so that we don’t need to wait for Rel-17 features to be finished. Also some companies have shared concern on the work load so we would like to put NR as first priority (TS 38.124) and maybe LTE can be as lower priority so that acceptable TU can be achieved.  For test configurations, as already sub clause 8.1 and 9.1 existed in the UE EMC specification, we think RAN4 can take the responsibility to define them and we don’t need to ask RAN5 to do so since they have never discuss EMC before. |
| Ericsson | The proposal of integrating UE and BS EMC would be positively impacted if the priority is in NR. |
| ZTE | 1. For bullet 1: For some features, the leftovers in rel-16 continue to be discussed in Rel-17, for example inter-band DL CA for FR2. So how to treat this case when it say “ limit the features which have been finished before Rel-17 to be considered”? Also, we suggest to explicitly describe the “features” in the WID (maybe in the justification part). 2. For bullet 2 and 3, it seems bullet 2 can be incorporated as sub-bullet for bullet 3. 3. For bullet 4: the sub-bullets should be deleted. Since the deltaRIB/MSD may only apply to FR1 UE, also there exists some other requirements such as ΔRIB,4R for a band supporting 4Rx. Also, for FR2 UE, the requirements are different with FR1, which means the deltaRIB/MSD may not be applied. 4. For bullet 5: Are there any RAN5 work? I wonder if the current test configuration cannot be applied, what should we do? define new test configuration in RAN4 or RAN5? |

### Sub-topic 2-2: Timeline e.g. TU per meeting for UE EMC

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| **Company** | **Comments** |
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### Sub-topic 2-3: Any other issue e.g. additional objective(s)

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| **Company** | **Comments** |
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## Summary of discussion on UE EMC

*Note: moderator to provide summary*

# Topic #3: General

## Issues related to BS and UE EMC

* Sub-topic 3-1: WI organization/structure
* Sub-topic 3-2: Any other issue

## Companies’ views

*Interested companies to provide comments on the sub-topics in the following sections*

### Sub-topic 3-1: WI organization/structure

Question 1: Is it ok to cover both BS EMC and UE EMC under the same WI?

* Option 1: Yes
* Option 2: No

Question 2: Indicate also motivation/reason for your selected option in question 1.

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| **Company** | **Comments** |
| Ericsson | Yes |
| ZTE | Yes |
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### Sub-topic 3-2: Any other issue

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| **Company** | **Comments** |
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## Summary of discussion

*Note: moderator to provide summary*