3GPP TSG-RAN WG4 Meeting #97-e R4-2017164

Electronic Meeting, 2nd– 13th Nov., 2020

**Agenda item: 7.9.2 and 7.9.3**

**Source: Samsung**

**Title: WF on NR eMIMO RRM Performance requirements**

**Document for: Approval**

# **0 Introduction**

This contribution contains the WF for [216] Rel-16 eMIMO RRM issues in RAN4#97e w.r.t. core part maintenance and performance requirement.

# **1st Round Agreements**

#### Topic #2: eMIMO RRM Performance General

**Issue 2-1-1: Work scope of RRM performance part**

Agreement:

RAN4 shall study on and complete Rel-16 eMIMO RRM performance part following the work scope in the Table 1.



#### Topic #3: L1-SINR Measurement Accuracy

**Issue 3-1-4: Difference of accuracy requirements of L1-SINR between FR1 and FR2**

Agreements:

Follow RAN1 assumption that UE uses same Rx beam for channel and interference measurements for both CMR only and CMR+IMR cases

Margins for L1-SINR accuracy requirements

CMR only measurements: same implementation margin is applied for FR1 and FR2. No FR2 specific margin is applied.

CMR+IMR measurements: additional FR2 margin is FFS

**Issue 3-1-5: Accuracy requirements of L1-SINR under extreme condition**

Agreement:

Accuracy requirements of L1-SINR under extreme condition is

* Option 1: 1dB higher than for normal condition (Samsung, Ericsson)
* Option 2: 2dB higher than for normal condition
* Other options are not precluded

**Issue 3-2-1: Measurement samples for defining L1-SINR accuracy requirements**

 Agreement:

L1-SINR accuracy requirements is defined based on the single shot L1-SINR measurement performance, i.e. M = 1.

**Issue 3-2-2: Side condition of Ês/Iot for L1-SINR accuracy requirement**

 Agreement:

 -3dB for Scenario 1A, 2A and 2B; 0dB for Scenario 2C and 2D

**Issue 3-2-3: Io condition of dBm/BWChannel for accuracy requirement**

Agreement: Define accuracy requirement for “Max Io -50 dBm” only

#### Topic #4: Test Case for L1-SINR Measurement

**Issue 4-2-1: Repetition configuration for NZP-CSI-RS based L1-SINR measurement test case**

Agreement:

 Repetition = off

**Issue 4-2-2: IMR configuration for L1-SINR measurement test case**

 Agreement:

CSI-IM configurations and one type of aperiodic CSI-RS configuration with repetition=off need to be introduced in 38.133 Annex A.

#### Topic #5: Test Case for SCell Beam Failure Recovery

**Issue 5-1-2: The setting of cases to be defined for each scenario**

Agreement:

Define setting combination for each scenario as table below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Mode** | **BFD-RSs** | **DRX** | **FR** | **CBD-RSs** |
| ED-DC / Standalone (SA) | CSI-RS | non-DRX | FR1 | SSB |
| FR2 | CSI-RS |
| DRX(40 ms for FR1 and640 ms for FR2) | FR1 | SSB |
| FR2 | CSI-RS |

**Issue 5-2-1: Configuration for Beam Failure Recovery test cases**

Agreement:

Reuse the same test parameters in both scenarios (PUCCH for SR and no PUCCH for SR) for Scell BFR test cases.

# **2nd Round Agreements**

#### Topic #3: L1-SINR Measurement Accuracy

**Issue 3-1-2: Simulation-based accuracy alignment of L1-SINR measurement accuracy**

Tentative agreements:

For the L1-SINR measurement accuracy, simulation-based accuracy is set to be:

±4.0dB, ±3.0dB, ±3.0dB, ±2.5dB, ±2.5dB in Scenario 1A, 2A, 2B, 2C, 2D, respectively.

Companies will further study on accuracy requirement on the basis of simulation-based accuracy. Final accuracy requirement should be derived by adding influence of other factors to the simulation-based accuracy.

#### Topic #4: Test Case for L1-SINR Measurement

**Issue 4-1-1: Scenarios defined for L1-SINR measurement procedure test cases in the spec**

Agreement:

Scenarios defined for L1-SINR measurement procedure:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Mode** | **Scenario** | **CMR** | **IMR** | **DRX** |
| (ED-DC + FR1)and(SA + FR2) | 1A | CSI-RS | N/A | non-DRX |
| 2A | SSB | CSI-IM | DRX |
| 2D | CSI-RS | CSI-RS | DRX |
| (ED-DC + FR2)and(SA + FR1) | 1A | CSI-RS | N/A | DRX |
| 2C | SSB | CSI-RS | non-DRX |
| 2B | CSI-RS | CSI-IM | non-DRX |

#### Topic #5: Test Case for SCell Beam Failure Recovery

**Issue 5-1-1: Scenarios defined for Beam Failure Recovery tests cases**

Tentative agreement:

 Two scenarios are defined for the test cases

* + Scenario 1: Network does not configure PUCCH for SR for BFR MAC CE
	+ Scenario 2: Network configures PUCCH for SR for BFR MAC CE

# **2nd Round Way Forward on R-16 eMIMO RRM**

#### WF on L1-SINR Measurement Accuracy

**FFS on difference of accuracy requirements of L1-SINR between FR1 and FR2 in CMR + IMR case**

* Option 1: No obvious difference as it is SINR
* Option 2: Consider RF margin [x]dB higher for FR2 than FR1

**FFS on accuracy requirements of L1-SINR under extreme condition**

* Option 1: 1dB higher than for normal condition (Similar as SS-SINR)
* Option 2: 2dB higher than for normal condition
* Option 3: other values

**FFS on scenarios for L1-SINR measurement accuracy requirement in the spec**

* Option 1: Each scenarios (1A, 2A, 2B, 2C, 2D) for one sub-section.
* Option 2: Simplify the scenarios/subsections for accuracy requirement
	+ Option 2a: Combine scenarios with the same requirement and side condition into one subsection ([1A], [2A, 2B], [2C, 2D]).
	+ Option 2b: [1A], [2A, 2C], [2B, 2D], same as the core requirement.

**Submit the Test cases for L1-SINR measurement accuracy**

* Companies could update and submit draft CRs on test cases of L1-SINR accuracy requirement next meeting (RAN4#98e) based on the agreement reached in this meeting.

#### WF on Test Case for L1-SINR Measurement

**Complete the test cases of L1-SINR measurement**

* Companies could submit draft CRs to introduce CSI-IM configurations and one type of aperiodic CSI-RS configuration with repetition=off to 38.133 Annex A for L1-SINR test case next meeting (RAN4#98e).

#### WF on Test Case for Pathloss RS Activation Delay

**Define the test case for MAC-CE based pathloss RS activation delay**

* Further study the testability of PL RS activation delay requirement. Companies are encouraged to contribute to this issue by proposing feasible test methods and provide detailed test parameters.
* Test case for MAC-CE based pathloss RS activation delay shall be defined provided it is testable with feasible test method.

#### Others

**Complete/Update the spec for L1-SINR measurement requirement**

* Companies could submit draft CRs to complete the TS 38.133 Annex B.2 for L1-SINR measurement requirement next meeting (RAN4#98e).
* Other necessary update or correction is not preclude.