**3GPP TSG-RAN WG4 Meeting # 102-e**

**Electronic Meeting, 21st February – 3rd March 2022**

**Agenda item:** 10.19.1, 10.19.2

**Source:** Moderator (Samsung)

**Title:** GTW discussion for [137] NR\_feMIMO

**Document for:**

# Topic #1: Simultaneous multi-panel reception with different QCL type-D (RF/RRM)

**Tdocs:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Source** | **Proposals for** | **for impact** | **for Rel-17** |
| Apple | Workplan and Potential scope for Rel-18 | Yes | No |
| MediaTek | Potential scope for Rel-18 | - | No |
| Intel | Workplan | Yes | No |
| Qualcomm | Impact on RF, RRM, Demod and Test | Yes | - |
| Samsung | Workplan | Yes | No |
| Vivo | Workplan | Yes | No |
| ZTE | Workplan | - | No |
| Ericsson | Impact on RRM | Yes | - |

### Sub-topic 1-1: Impact on RAN4 requirements

**Issue 1-1-1: RF/RRM impact**

* Proposals (RF)
  + Is it agreeable that UE capability of simultaneous reception needs further study on following RF requirements with test method enhancements?
    - New EIS spherical coverage based on paired angle
    - Other RF requirement related to correlation between Rx beams
    - Test method (2 simultaneous AoAs)
* Proposals (RRM)
  + Is it agreeable that UE capability of simultaneous reception needs further study on following RRM requirements with test method enhancements?
    - L1-RSRP
    - Scheduling restrictions
    - SCell activation/deactivation delay
    - TCI state switching
    - BFD/CBD/BFR
    - Test method (2 simultaneous AoA)
* Recommended WF
  + Agreeable with following conclusion
    - Multi-panel simultaneous reception with different QCL type-D has much impact on RAN4 requirements of RF, RRM and Demod with its test enhancements

**Discussion:**

### Sub-topic 1-2: Work plan

**Issue 1-2-1: Conclusion of Rel-17**

* Proposals
  + Option 1: It is OK not to introduce both core requirements for RF and RRM in Rel-17.
  + Option 2: Defining only L1-RSRP measurement requirements in Rel-17
* Recommended WF
  + Option 1 with following conclusion
    - RAN4 will NOT define the simultaneous reception related requirements in Rel-17
    - RAN4 will continue discussion for RF/RRM requirements of the simultaneous reception in Rel-18
  + Option 1 with another conclusion (proposed by Nokia)
    - RAN4 continues the simultaneous reception core requirement studies for RF and RRM in Rel-17 unless a Rel-18 RAN4 led WI including this topic is approved
  + Option 1 with another conclusion (proposed by MediaTek)
    - Couple of potential objectives/factors/perspectives are raised in Rel-17, and can be further considered under potential Rel-18 FeMIMO WID objective.

**Discussion:**

# Topic #2: Other RF requirements

### Sub-topic 2-1: Impact of MPE enhancements

**Tdocs:**

|  |  |  |
| --- | --- | --- |
| **Source** | **for Pcmax** | **for P-MPR Note** |
| Vivo | No | No |
| ZTE | No | No |
| Apple | Yes | - |
| Nokia | Yes (if RAN1/2 defines P-MPR per beam) | Yes (if RAN1/2 defines P-MPR per beam) |

**Issue 2-1-1: Does per-beam based (N) P-MPRs impact on Pcmax boundaries?**

* Proposals
  + Option 1: Yes
  + Option 2: No
* Recommended WF
  + Option 2

Discussion:

**Issue 2-1-2: Is it necessary to add a note for relationship between P-MPR and SSBRI/CRI?**

* Proposals
  + Option 1: Yes (based on the reply LS of RAN1)
    - NOTE: UE capability xxs, as defined in TS 38.306 [14], is an optional UE capability to report PCMAX,f,c per indicated SSBRI/CRI value together with corresponding MPE P-MPR bits when the reporting conditions configured by gNB are met. This UE capability is applicable to all FR2 power classes
  + Option 2: No
* Recommended WF
  + N/A (majority view is Option 2)

Discussion:

### Sub-topic 2-2: SRS related impact

**Tdocs:**

|  |  |  |
| --- | --- | --- |
| **Source** | **For issue 2-2-1** | **for issue 2-2-2** |
| Ericsson | Yes | - |
| Huawei | Yes | No |
| Nokia | Yes | Yes |

**Issue 2-2-1: Is it able to transmit other signals in-between SRS resource sets?**

* Proposals
  + Yes, based on switching time of RAN4 if the gap is larger than Y
* Recommended WF
  + Yes

Discussion:

**Issue 2-2-2: Guard period in-between SRS resource sets**

* Proposals
  + Better to define a certain rule for the position of guard period in RAN1 spec
* Recommended WF
  + N/A (LS to RAN1 might be necessary based on the discussion, during 1st round)

Discussion: