**3GPP TSG-RAN WG4 Meeting #112 R4-2411808**

**Maastricht, Netherlands, 19th – 23rd August, 2024**

**Agenda item:** 8.1.3

**Source:** Moderator (Huawei, HiSilicon)

**Title:** Topic summary for [112][213] NR\_ENDC\_RF\_Ph4

**Document for:** Information

# Introduction

This email thread discusses the RRM requirements of WI on R19 NR\_ENDC\_RF\_Ph4.

**Online handling**

(Online) Issue 1-3: Cell identification delay, measurement delay, mobility requirements for 6Rx capable UE

(Online) Issue 1-4: Interruption requirements at SRS antenna switching for 6Rx capable UE

(Online) Issue 1-5: RRM performance requirements for 6Rx capable UE

(Online) Issue 1-6: SNR level for RLM and BFD testing for 6Rx capable UE

# Topic #1: RRM requirements for R19 UE RF enhancements for NR FR1/FR2 and EN-DC

## Companies’ contributions summary

|  |  |  |
| --- | --- | --- |
| **T-doc number** | **Company** | **Proposals / Observations** |
| R4-2411568 | Nokia, Nokia Shanghai Bell | Observation #1: In RAN1, 3T6R and 4T6R SRS antenna switching has not been specified.  Observation #2: In R17, the interruption requirements for SRS antenna switching were specified considering up to 4Rx and SRS resource(s) is assumed being configured within the last 6 symbols of a slot.  Observation #3: In R19, it is not clear SRS resources are always configured within the last 6 symbols of a slot pending on RAN1 discussion.  Proposal 1: To wait for RAN1 conclusion on the 6Rx relevant SRS antenna switching before defining the RRM requirements in RAN4. |
| R4-2412223 | Huawei, HiSilicon | Proposal 1: The existing interruption requirements at SRS antenna switching are applicable to 6RX capable UE, and no specification impact is observed.  Proposal 2: RAN4 introduce the antenna connection for 6Rx capable UEs in TS 38.133 A.3.6, where the following aspects are specified:  Testing principles for 6Rx capable UEs  For RLM and BFD testing, reuse SNR levels specified for 4Rx capable UE |
| R4-2412404 | Ericsson | Observation 1: No RRM work is expected due to the WI objective on introducing support for the higher power UE for CA.  Observation 2: No RRM work is expected due to the WI objective on power domain enhancements.  Observation 3: Impact on RRM performance requirements is expected due to introducing 6 Rx capable UEs in FR1.  Proposal 1: The legacy core RRM requirements are reused for 6 Rx capable UEs.  Proposal 2: RAN4 to define RRM performance requirements for operating 6 Rx capable UEs in FR1 which includes:  New antenna configurations and principle of testing  Proposal 3: RAN4 to discuss impact on RLM/BFD tests when operating with 6 Rx UEs. |

## Open issues summary

### Sub-topic 1: RRM requirements of WI on R19 NR\_ENDC\_RF\_Ph4

**Issue 1-1: support for the higher power UE for CA**

* Proposals
  + Option 1(Ericsson): No RRM work is expected due to the WI objective on introducing support for the higher power UE for CA.
* Recommended WF

Further discussion.

**Issue 1-2: Power boosting and/or MPR reduction**

* Proposals
  + Option 1(Ericsson): No RRM work is expected due to the WI objective on power domain enhancements.
* Recommended WF

Further discussion.

**(Online) Issue 1-3: Cell identification delay, measurement delay, mobility requirements for 6Rx capable UE**

* Proposals
  + Option 1(Ericsson): The legacy core RRM requirements for identification delay, measurement delay, mobility requirements are reused for 6 Rx capable UEs
* Recommended WF

Agree on option 1 and no spec changes.

**(Online) Issue 1-4: Interruption requirements at SRS antenna switching for 6Rx capable UE**

* Proposals
  + Option 1(Nokia): To wait for RAN1 conclusion on the 6Rx relevant SRS antenna switching before defining the RRM requirements in RAN4.
  + Option 2(Huawei, Ericsson): The existing interruption requirements at SRS antenna switching are applicable to 6RX capable UE, and no specification impact is observed.
* Recommended WF

Further discussion.

**(Online) Issue 1-5: RRM performance requirements for 6Rx capable UE**

* Proposals
  + Option 1(Huawei, Ericsson): RAN4 introduce the antenna connection for 6Rx capable UEs in TS 38.133 A.3.6, where the following aspects are specified:
    - Testing principles for 6Rx capable UEs
    - RLM and BFD testing
* Recommended WF

Further discussion.

**(Online) Issue 1-6: SNR level for RLM and BFD testing for 6Rx capable UE**

* Proposals
  + Option 1(Huawei): Reuse SNR levels specified for 4Rx capable UE
  + Option 2 (Ericsson): RAN4 to discuss impact on RLM/BFD tests when operating with 6 Rx UEs
* Recommended WF

Further discussion.