**3GPP TSG-RAN WG4 Meeting #112 R4-2414309**

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

**Agenda item:** 8.22.5

**Source:** Moderator (vivo)

**Title:** WF on LP-WUS UE RF requirements

**Document for:** Approval

# Introduction

This WF capture the agreements for Rel-19 LP-WUS UE RF.

# Topic #1: General and system parameters

### Sub-topic 1-1 General

**Issue 1-1-1: New RAN4 TR to capture simulation and analysis of LP-WUS receiver and requirements**

Agreement:

* RAN4 suggest having a new RAN4 TR to capture the simulations and analysis for LP-WUS RF.

**Issue 1-1-2: Performance metric for Rx RF requirements**

**Agreement:**

* **1% MDR for evaluation [and core requirements]**
* **FFS on the testability issue.**

**Issue 1-1-3: Performance metric for Demodulation requirements**

**Agreement:**

* **[1% or 0.1%] FAR as assumption for MDR result calibration.**

**Issue 1-1-6: Specify FR2 LP-WUS RF requirements**

Agreements:

Wait to RAN1 progress on FR2 LP-WUS work.

### Sub-topic 1-2 System parameters

**Issue 1-2-1: Channel raster for LP-WUR**

Agreements:

* + **RAN4 can further discuss and align understandings on whether new channel raster is needed for LP-WUS.**
  + **RAN1 and RAN2 status on how to indicate the centre operation frequency of LP-WUS will be helpful.**

**Issue 1-2-3: number of RBs for LP-WUS with 15kHz SCS**

Agreements:

* + **Leave RAN1 to make decision.**
  + **RAN4 can discuss assumption of RBs under 15kHz SCS for simulation**

**Issue 1-2-5: Whether need to define CBW for LP-WUR?**

Agreements:

* + **no need to define BW for LP-WUR**

# Topic #2: REFSENS, ASCS and ACS requirements

### Sub-topic 2-1 SNR simulation and values

**Issue 2-1-1: Channel model to specify LP-WUS RF requirements**

**Agreement:**

* **For Channel model to specify LP-WUS RF requirements**
  + Follow typical RF requirements approach, AWGN should be selected.

**Issue 2-1-2: Target SNR simulation condition**

Agreement:

* **Target SNR simulation condition** 
  + Follow similar approach of MR NR, no repetition should be used when simulate target SNR.

**Issue 2-1-3: Whether RAN4 should conclude a target SNR first**

**Agreement:**

* Target SNR is the basis for many Rx requirements discussion. Group should conclude SNR definition and SNR values first.

**Issue 2-1-4: Target SNR value**

Agreements:

* + **RAN4 further discuss target SNR value for LP-WUS**
  + **FFS single SNR for OOK-based and OFDM-based receiver**

### Sub-topic 2-2 NF and REFSENS requirements

**Issue 2-2-2: Baseline architecture for OOK-based LP-WUS**

**Agreement:**

* **use zero-IF receiver as a baseline architecture for envelop based LP\_WUR**

**Issue 2-2-3: Baseline architecture for OFDM-based LP-WUS**

Agreements:

* + **Wait for RAN1’s conclusion on the OFDM-based LP-WUR.**

**Issue 2-2-4: whether different NF for OOK-based and OFDM-based**

**Agreement:**

* Differentiate NF for OOK-based and OFDM-based receiver.

**Issue 2-2-9: MDR value for REFSENS test case**

Agreements:

* + **FFS the MDR for conformance testing should be aligned with the value for RF requirement.**

### Sub-topic 2-3 ASCS simulation and requirements

**Issue 2-3-1: ASCS requirements value**

Agreements:

* + **RAN4 further discuss how to specify ASCS requirement based on simulation outcome.**

**Issue 2-3-2: Required number of guard RB for ASCS**

Agreements:

* + **RAN4 further discuss the required number of guard RBs for ASCS requirement based on simulation outcome.**

**Issue 2-3-3: Test parameters for ASCS**

Agreements:

* + **RAN4 further discuss the test parameters for ASCS requirement.**

### Sub-topic 2-4 ACS simulation and requirements

**Issue 2-4-2: ACS requirements value**

Agreements:

* + **RAN4 further discuss how to specify ACS requirements based on simulation outcome.** 
    - **FFS same as MR, or further relaxed**

**Issue 2-4-3: Required guard RB for ACS requirements**

Agreements:

* + **RAN4 further discuss the number of guard RBs for ACS requirement based on simulation outcome.**

**Issue 2-4-4: Test parameters for LP-WUR ACS case**

Agreements:

* + **RAN4 further discuss the test parameters for ACS requirement.**

# Topic #4: Testability issues

### Sub-topic 4-1 Testability for UE RF requirements

**Issue 4-1-1: General framework on LP-WUS testing**

Agreements:

* + **RAN4 further discuss the high-level approach on how to achieve LP-WUS performance verification.**