**3GPP TSG-RAN5 Meeting #102R5-240278**

**Athens, Greece, 26th February – 1st March 2024**

**3GPP TSG RAN Meeting #103 RP-23xxxx**

**Maastricht , NL,18-21 March 2024**

**Source: China Telecom, CATT, Huawei, HiSilicon**

**Title: New WID on UE Conformance -****Dual Transmission/Reception (Tx/Rx) Multi-SIM for NR**

**Document for: Endorsement**

**Agenda Item: 4.1**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP](http://www.3gpp.org/ftp/Specs/html-info/21900.htm) [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: UE Conformance - Dual Transmission/Reception (Tx/Rx) Multi-SIM for NR

Acronym: NR\_DualTxRx\_MUSIM-UEConTest

Unique identifier:

|  |  |
| --- | --- |
| **This WID includes a Testing part** | **X** |
| **and it addresses the following 3GPP work area:** | **Radio Access** | **X** |
| **Core Network** |  |
| **Services** |  |

Potential target Release: Rel-18

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** |  | X |  |  |  |
| **No** | X |  | X | X |  |
| **Don't know** |  |  |  |  |  |

# 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This description is a

|  |
| --- |
| Normative Work Item:*tick applicable boxes below* |
|  | Stage 1 |
|  | Stage 2 |
|  | Stage 3 |
| X | Other (e.g. testing) |

### 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| NR\_DualTxRx\_MUSIM | R2 | 941001 | Dual Transmission/Reception (Tx/Rx) Multi-SIM for NR |
| NR\_DualTxRx\_MUSIM-Core | R2 | 941101 | Core part: Dual Transmission/Reception (Tx/Rx) Multi-SIM for NR |
| NR\_DualTxRx\_MUSIM-Perf | R2 | 950283 | Perf Part: Dual Transmission/Reception (Tx/Rx) Multi-SIM for NR |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work/Study Items (if any) |
| **Acronym** | Unique ID | Title | Nature of relationship |
|  |  |  |  |

# 3 Justification

MUSIM UE's hardware capabilities are shared by the SIMs, and to use the hardware efficiently and economically, the related capabilities need to be dynamically split between the two SIMs. This can lead to a temporary hardware conflict for the UE, which may require UE to release some resources (e.g. SCell/SCG) from one SIM. If the NW A is not aware of the UE’s reduced capability change in RF chain, there may be data loss due to demodulation failure and wasting radio resources in NW A. To avoid this, assistance from UE to network A on these temporary UE (capability) restrictions can be beneficial.

In NR Rel-17 specification, gap patterns particularly for MUSIM purpose were introduced. However, corresponding RRM requirements are not specified due to lack of RAN4 TUs for Rel-17 MUSIM WI, and the related work will be done in Rel-18.

Release 18 work item NR\_DualTxRx\_MUSIM defines the following new features for MUSIM UEs:

1. Specify procedures to indicate preference on temporary UE capability restriction and removal of restriction with NW A when UE needs transmission or reception (e.g., start/stop connection to NW B) for MUSIM purposee, including UE assistance information of UE capability restriction and early indication[RAN2]

2.Specify MN-SN coordination of R17 MUSIM gaps when network A is NR-DC in Rel-18 [RAN2]

1. Specify priority of periodic gap(s) in addition to scheduling gaps preference which was defined in Rel-17 and RRM requirements for Rel-17 MUSIM gaps [RAN4, RAN2]

For Rel-18 RAN2/4 work item NR\_DualTxRx\_MUSIM, the overall completion level for core part has reached 100% after RP#102, and the performance part target is RP#104 (2024-06).

Therefore it is justified to introduce the conformance testing for Dual Transmission/Reception (Tx/Rx) Multi-SIM UEs requirements into RAN5 specifications.

# 4 Objective

### 4.1 Objective of SI or Core part WI or Testing part WI

The objective of this work item is to define the UE conformance requirements corresponding to the WI Dual Transmission/Reception (Tx/Rx) Multi-SIM for NR to improve the performance of MUSIM UEs, including protocol and RRM test cases.

### 4.2 Objective of Performance part WI

N/A

### 4.3 RAN time budget request (not applicable to RAN5 WIs/SIs)

N/A

# 5 Expected Output and Time scale

|  |
| --- |
| **New specifications** *{One line per specification. Create/delete lines as needed}* |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Remarks |
|  |  |  |  |  |  |

|  |
| --- |
| **Impacted existing TS/TR** *{One line per specification. Create/delete lines as needed}* |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 38.508-1 | Definition of common test environment for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |
| 38.508-2 | Definition of physical implementation capabilities for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |
| 38.522 | Introduction of RRM test applicability for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |
| 38.523-1 | Introduction of signalling test cases for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |
| 38.523-2 | Introduction of test applicability for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |
| 38.509 | Introduction of MUSIM test functions for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |
| 38.533 | Introduction of RRM test cases for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |
| 38.523-3 | Introduction of test model for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) | Progress of TTCN development of the new protocol test cases is tracked in MCC TF160 reports to RAN5/RAN. |
| 38.903 | Introduction of test tolerance for RRM test for Rel-18 NR\_DualTxRx\_MUSIM | TSG RAN#108(July-25) |  |

# 6 Work item Rapporteur(s)

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# 7 Work item leadership

RAN5

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

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| Supporting IM name |
| China Telecom |
| CATT |
| Huawei  |
| HiSilicon |
| Qualcomm |
| MediaTek |
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