**3GPP TSG-RAN5 Meeting #104 R5-245471**

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**3GPP TSG RAN Meeting #105 RP-24xxxx**

**Melbourne, Australia, Sep 09-12, 2024**

**Source: MediaTek Inc., Huawei**

**Title: New WID on UE Conformance - Further enhancements on NR and MR-DC measurement gaps and measurements without gaps**

**Document for: Endorsement**

**Agenda Item: 7.5.1**

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 TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

# Title: UE Conformance – Further enhancements on NR and MR-DC measurement gaps and measurements without gaps

## Acronym: NR\_MG\_enh2-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** |  |  |  |  |  |
| **No** | X | 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\_MG\_enh2 | RAN4 | 950082 | Further enhancements on NR and MR-DC measurement gaps and measurements without gaps |
| NR\_MG\_enh2-Core | RAN4 | 950182 | Core part: Further enhancements on NR and MR-DC measurement gaps and measurements without gaps |
| NR\_MG\_enh2-Perf | RAN4 | 950282 | Perf. part: Further enhancements on NR and MR-DC measurement gaps and measurements without gaps |

### 2.3 Other related Work Items and dependencies

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

## 3 Justification

In Rel-17 the baseline functionality of pre-configured MG, concurrent MG and NCSG was introduced for NR and MR-DC Measurement gap enhancements, however the work on requirements for the joint configuration of pre-configured MG, concurrent MG and NCSG was deprioritized. Hence a number of further enhancements for NR and MR-DC measurement gaps requirements as well as requirements for measurements without gaps are added in Rel-18:

1. Enhancements of pre-configured MGs, multiple concurrent MGs and NCSG

A combination of pre-configured MG, concurrent MG and NCSG mechanisms will improve network configuration flexibility and enable additional use cases.

1. RRM requirements for measurements without gaps

The NeedForGaps feature can bring gains for system throughput and/or mobility performance under certain conditions, where gap-less measurements can be applied. The existing RRM requirements for UEs supporting NeedForGaps feature are specified for intra-frequency SSB based measurements without gaps, while requirements for inter-frequency measurements without gaps are missing. Also, RRM requirements for intra-frequency SSB based measurements without gaps do not assume interruptions.

Inter-frequency measurements without gaps are already supported in Rel-17. Support of gap-less inter-RAT NR and LTE measurements can bring gains for system throughput and/or mobility performance under certain conditions, where gap-less measurements can be applied.

For UE supporting ***interRAT-NeedForGapsNR***, UE can measure inter-RAT NR carrier without gaps which can bring gains for system throughput and/or mobility performance. For inter-RAT LTE measurement, similar UE capability can be introduced for UE to measure inter-RAT LTE carrier without gaps and similar gain can be obtained.

The Rel-18 WI Further enhancements on NR and MR-DC measurement gaps and measurements without gaps has been completed at RP#104 (Jun-2024). To fulfil the demand of further enhancements on measurement gap and measurements without gaps, there is a need to introduce an associated RAN5 work item to enable UE conformance testing for Further enhancements on NR and MR-DC measurement gaps and measurements without gaps.

## 4 Objective

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

The objective of this work item is to enable UE conformance testing for Rel-18 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps, analyse the test case impact, applicability, test environment, and update the relevant conformance specifications.

## 5 Expected Output and Time scale

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| --- |
| **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 |
| TS 38.508-1 | Definition of common test environment for Rel-18 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps | TSG RAN#110(Dec-25) |  |
| TS 38.508-2 | Definition of PICS for Rel-18 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps | TSG RAN#110(Dec-25) |  |
| TS 38.522 | Introduction of Applicability for Rel-18 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps | TSG RAN#110(Dec-25) |  |
| TS 38.523-1 | Introduction of Rel-18 Further enhancements on NR and MR-DC measurement gaps in UE capability transfer test case | TSG RAN#110(Dec-25) |  |
| TS 38.533 | Introduction of the RRM test cases for Rel-18 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps | TSG RAN#110(Dec-25) |  |
| TR 38.903 | Derivation of test tolerances and measurement uncertainty for RRM test cases of Rel-18 Further enhancements on NR and MR-DC measurement gaps and measurements without gaps | TSG RAN#110(Dec-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 |
| MediaTek |
| Huawei |
| Hisilicon |
| ZTE |
| Tejet |
| SRTC |
| Intel |
| China Telecom |
| Ericsson |
| Verizon |
| Apple |
| Vodafone |
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