**3GPP TSG-RAN5 Meeting #103R5-24XXXX**

**Fukuoka, Japan, May 20 – 24 , 2024**

**3GPP TSG RAN Meeting #104 RP-24xxxx**

**Shanghai, China, June 17-20, 2024**

**Source: CMCC, Xiaomi**

**Title: New WID on UE Conformance - In-Device Co-existence (IDC) enhancements for NR and MR-DC**

**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 - In-Device Co-existence (IDC) enhancements for NR and MR-DC

Acronym: NR\_IDC\_enh-UEConTest

Unique identifier:

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

The following lists of RAN2 work items that will be tested in this RAN5 work item will be maintained in future revisions of this WI description:

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| [NR\_IDC\_enh](https://www.3gpp.org/DynaReport/WiSpec--941004.htm%22%20%5Ct%20%22https%3A//www.3gpp.org/_blank) | R2 | 941003 | In-Device Co-existence (IDC) enhancements for NR and MR-DC |
| NR\_IDC\_enh-Core | R2 | 941103 | Core part: In-Device Co-existence (IDC) enhancements for NR and MR-DC |

### 2.3 Other related Work Items and dependencies

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

# 3 Justification

Rel-18 RAN2 work item NR\_IDC\_Enh was carried out to enable well interference mitigation between 3GPP and other RAT under the following assumptions:

As a general assumption, IDC is assumed to work as follows:

1. The UE detects internal issue or the possibility of internal issue caused by coexistence related to usage of certain radio resources, that the UE cannot resolve by itself.
2. The UE provides information to the gNB to assist that the gNB may restrict radio resource usage to avoid the UE internal issue (or potential issue) caused by coexistence.

The IDC solution prior to Rel-18 in NR has the following limitations: It does not support well interference mitigation between 3GPP and other RAT, as e.g. the affected frequencies cannot be adequately indicated via the NR FDM solution. Introducing a TDM solution would make it possible to handle scenarios for which alternative non-interfered frequencies are not available. The TDM solution may be used to avoid the interference caused by simultaneous uplink transmission on the UL frequencies to non-3GPP RAT.

For Rel-18 RAN2 work item NR\_IDC\_Enh, the overall completion level has reached 100% after RP#102. Therefore it is justified to introduce the conformance testing for In-Device Co-existence (IDC) enhancements for NR and MR-DC UE requirements into RAN5 specifications.

# 4 Objective

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

The objective of this RAN5 work item is to define the corresponding UE conformance requirements, applicability, test environment, test points, test procedures and update the relevant conformance specifications for the R18 In-Device Co-existence (IDC) enhancements for NR and MR-DC UE requirements introduced by RAN2.

### 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 |
|  |  |  |  |  |  |

NOTE: If this is a RAN WI including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Remarks for each spec.
By default a new specs can only be new for one of both parts.

|  |
| --- |
| **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 environment for R18 NR IDC enh. | TSG RAN#112(Jun-26) |  |
| TS 38.508-2 | Introduction of common implementation conformance statements for R18 NR IDC enh. | TSG RAN#112(Jun-26) |  |
| TS 38.509 | Introduction of testing functions for SIG test cases impacted by R18 NR IDC enh. | TSG RAN#112(Jun-26) |  |
| TS 38.523-1 | Introduction of the SIG test cases for R18 NR IDC enh. | TSG RAN#112(Jun-26) |  |
| TS 38.523-2 | Introduction of test applicability for SIG test cases impacted by R18 NR IDC enh. | TSG RAN#112(Jun-26) |  |
| TS 38.523-3 | Introduction of test model for R18 NR IDC enh requirements. | TSG RAN#112(Jun-26) | Note: Progress of TTCN development is tracked in MCC TF160 reports to RAN5/RAN. |

NOTE: If this is a RAN WI including Core and Perf. part, then all new Core part specs have to be listed first and then all new Perf. part specs. Indicate "Core part" or "Perf. part" under Remarks for each spec.
If an existing spec is affected by both (Core part and Perf. part), then it has to be listed twice with appropriate approval dates.

# 6 Work item Rapporteur(s)

Dan Song (CMCC), songdan@chinamobile.com

Yumin Wu (Xiaomi), wuyumin@xiaomi.com

# 7 Work item leadership

RAN5

# 8 Aspects that involve other WGs

None

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| CMCC |
| China Telecom |
| China Unicom |
| CAICT |
| CATT |
| Huawei |
| Hisilicon |
| MediaTek |
| Samsung |
| Xiaomi |
| ZTE |