**3GPP TSG-RAN Meeting # 95-e RP-201132**

**Online, , June 29 – July 3, 2020 Revision of RP-201129**

**Source: T-Mobile USA, Dish Network**

**Title: New WID: introduction of NR 47 GHz band**

**Document for: Approval**

**Agenda Item: 9.1.1**

3GPP™ Work Item Description

For guidance, see [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39; and [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm).
Information about Work Items can be found at <http://www.3gpp.org/Work-Items>

# Title: New WID on introduction of NR 47 GHz band

## Acronym: NR\_47GHz\_Band

## Unique identifier:

 NOTE: For new WIs/SIs leave the Unique identifier empty or you can make a proposal for an Acronym.

 If this is a RAN WID including Core and Perf. part, then Title, Acronym and Unique identifier refer to the feature WI.

 Please tick (X) the applicable box(es) in the table below:

 Either:

|  |  |
| --- | --- |
| **This WID includes a Core part** | **X** |
| **This WID includes a Performance part** | **X** |

 or:

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

## 1 Impacts

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

## 2 Classification of the Work Item and linked work items

### 2.1 Primary classification

This work item is a …

|  |  |
| --- | --- |
|  | Feature |
| X | Building Block |
|  | *Work Task* |
|  | Study Item |

NOTE: Normally, Core/Perf. /Testing parts in RAN WIDs are Building Blocks. Only if they are under SA or CT umbrella, we define them as work tasks. If you are in doubt, please contact MCC.

### 2.2 Parent and child Work Items

|  |
| --- |
| Parent and child Work Items  |
| Unique ID | Title | Nature of relationship |
|  | New WID: introduction of NR 47 GHz band | Parent WID |

NOTE: RAN agreed some time ago, that it describes the feature WI + Core/Perf. part WI or Testing part WI in one WID. Therefore, the table above should just include the feature WI Unique ID and title.

### 2.3 Other related Work Items and dependencies

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

NOTE: Also, related or dependent WIs in other TSGs should be indicated.

## 3 Justification

The US FCC auctioned the 47 GHz band beginning in December 2019 as part of Auction 103. The 47 GHz band (47.2-48.2 GHz) was auctioned in 10 blocks of 100 megahertz in each PEA (Partial Economic Area) license. The auction was concluded on 3/5/2020.

As part of facilitating the development of 5G mobile networks, WRC-19 identified the 47 GHz frequency band (47.2-48.2 GHz) for International Mobile Telecommunications (IMT) under Footnote 5.553B[[1]](#footnote-1) of the ITU Radio Regulations for use in 71 nations across Africa, Europe, the Middle East and Asia Pacific (ITU Regions 1 and 3 respectively), in addition to the entire Americas Region (ITU Region 2, which consists of 35 nations). The 47 GHz band can therefore be considered a global band spanning across all ITU regions.

An NR operating band covering the entire 47.2-48.2 GHz should be specified by 3GPP in order to accommodate operations in any part of this range and enable successful 5G deployments at the regional and international levels.

The 47 GHz band frequency range, 47.2-48.2 GHz, falls within the Frequency range designation of FR2, 24250 MHz – 52600 MHz, according to 3GPP TS 38101-2-g31 Table 5.1-1. Hence, the 47 GHz band should be standardized as a 3GPP FR2 operating band, with all requirements specified as in 3GPP TS 38101-2, including all UE Power classes 1, 2, 3, and 4.

## 4 Objective

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

The purpose of this work item is to specify a new NR TDD operating band, Band n2xx, covering the range 47.2-48.2 GHz with the following channel bandwidths.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SCSkHz | 50 MHz | 100 MHz | 200MHz | 400 MHz |
| 60 | Yes | Yes | Yes |  |
| 120 | Yes | Yes | Yes | Yes |

The requirements for the band shall be based on global and regional regulations that are discussed in RAN4 over the planned course of the WI. Consideration of emissions limits that are new to RAN4 after completion of the WI can proceed under maintenance or TEI agenda. The objectives are to define:

* All transmitter and receiver characteristics requirements for the UE (38.101-2)
* All transmitter and receiver characteristics requirements for the BS (38.104)
* The new band to band group for RRM measurement accuracy requirements

### 4.2 Objective of Performance part WI

NOTE: Leave empty if the WI proposal does not contain a RAN performance part.

The objectives are to define:

* Conformance requirements for BS (38.141)
* All relevant requirements for TS 38.101-4, including extending the UE demodulation requirements up to 48.2 GHz

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

NOTE: For all new RAN related WIs/SIs which is not led by RAN WG5 the WI/SI rapporteur has to fill out the attached Excel table to request time budgets for corresponding RAN WG meetings.
The Excel table has to be filled out for all affected RAN WGs and up to the target date of the WI/SI.
One time unit (TU) corresponds to ~ 2 hours in the meeting.
If no TU is needed leave the field empty otherwise enter a number >0 in the field.

 For revisions of already approved WI/SI descriptions: Please remove the Excel table from the WID/SID's zip file. The time budgets are already recorded. If you want to modify them, then this has to be done via the status report and not via a revised WID/SID.

 If this WID is covering Core and Performance part, then please fill out one line for each part in the attached Excel table.

**Additional comments to the time budget request in the attached Excel table:**

## 5 Expected Output and Time scale

|  |
| --- |
| **New specifications** *{One line per specification. Create/delete lines as needed}* |
| Type  | Series | Title | For info at TSG#  | For approval at TSG# | Remarks |
| Internal TR  | *38.XXX* | TDD operating band in Band n2xx |  | RAN#91 | *Editor: Dominique Everaere, Ericsson* |

NOTE: If this is a RAN WID 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 specification.
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 |
| 38.101-2 | NR; UE Radio transmission and reception | RAN#91 | Core part |
| 38.133 | NR; Requirements for support of radio resource management | RAN#91 | Core part |
| 38.104 | NR; BS Radio transmission and reception | RAN#91 | Core part |
| 38.141-2 | NR; Base Station (BS) conformance testing Part 2: Radiated conformance testing | RAN#91 | Perf. Part |
| TS 38.101-4 | NR; User Equipment (UE) radio transmission and reception; Part 4: Performance requirements | RAN#91 | Perf. Part |

NOTE: If this is a RAN WID 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)

Hisashi Onozawa, Nokia, hisashi.onozawa@nokia.com

## 7 Work item leadership

RAN4

## 8 Aspects that involve other WGs

None

NOTE: For RAN WIDs: Section 8 applies only toWGs outside of TSG RAN because RAN WG aspects have to be covered in section 4.

## 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| T-Mobile USA |
| Dish Network |
| Nokia |
| Ericsson |
| Qualcomm |
| Apple Inc.  |
| Intel Corporation |
| Deutsche Telekom |
| Samsung |
|  |
|  |
|  |
|  |

1. 5.553B: In Region 2 and Algeria, Angola, Saudi Arabia, Australia, Bahrain, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Central African Rep., Comoros, Congo (Rep. of the), Korea (Rep. of), Côte d’Ivoire, Djibouti, Egypt, United Arab Emirates, Eswatini, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Equatorial Guinea, India, Iran (Islamic Republic of), Iraq, Japan, Jordan, Kenya, Kuwait, Lesotho, Liberia, Libya, Lithuania, Madagascar, Malaysia, Malawi, Mali, Morocco, Mauritius, Mauritania, Mozambique, Namibia, Niger, Nigeria, Oman, Uganda, Qatar, the Syrian Arab Republic, the Dem. Rep. of the Congo, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Sierra Leone, Singapore, Slovenia, Somalia, Sudan, South Sudan, South Africa, Sweden, Tanzania, Chad, Togo, Tunisia, Zambia and Zimbabwe, the frequency band 47.2-48.2 GHz is identified for use by administrations wishing to implement International Mobile Telecommunications (IMT). [↑](#footnote-ref-1)