**3GPP TSG-RAN Meeting #92-eRP-211598**

**Electronic Meeting, 14th – 18th June 2021** Revision of RP-211589

**Source: Apple Inc.**

**Title: New WID for** Introduction of operation in full unlicensed band 5925-7125MHzrange

**Document for: Approval**

**Agenda Item: 9.6.1**

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: Introduction of operation in full unlicensed band 5925-7125MHz

## Acronym: NR\_6GHz\_unlic\_xxx

## Unique identifier: xxx

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

 For a revised WI/SI: Take Unique identifier and acronym as shown in 3GPP workplan.

 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** |  |

Potential target Release: REL-17

Note that this field above indicates the proposed Release at the time of submission of the WID to TSG approval. It can later be changed without a need to revise the WID. The updated target Release is indicated in the Work Plan. NOTE: In case of contradiction with the target dates of clause 5, clause 5 determines the target release.

## 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 … *{Tick one box. "***Feature** */* **Building Block** */ Work Task" form a hierarchical structure. E.g. no Building Block can be proposed without a corresponding parent Feature. The full structure of all existing Work Items is shown in the 3GPP Work Plan in* *ftp://ftp.3gpp.org/Information/WORK\_PLAN* *}*

|  |  |
| --- | --- |
|  | 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 an SA or CT umbrella, they are defined as work tasks. If you are in doubt, please contact MCC.

### 2.2 Parent Work Item

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
|  |  |  |  |

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 data (In case the feature covers Core and Perf. part, please list under Working Group the leading WG of the Core part).

### 2.3 Other related Work Items and dependencies

*{List here other Work Items which relate to the proposed one, such as preceding SI or a preceding WI (e.g. if further enhancing a feature).}*

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| xxx | Core part: Introduction of the 6GHz unlicensed band [in …] | Child WID |
| xxx | Perf. part: Introduction of the 6GHz unlicensed band [in …] | Child WID |
|  |  |  |

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

**Dependency on non-3GPP (draft) specification**: none

## 3 Justification

NR-U feature was standardized in Rel-16 whereupon a new band n96 was defined. It covers the spectrum range 5925-7125 MHz and for which the corresponding NS values were defined applicable in the USA (according to the FCC Report and Order FCC 20-51). However, there are other countries/regions, which have opened recently the 6GHz band for the license-exempt operation, but regulatory parameters of which are not always the same as defined by US FCC or EU CEPT.

Referring to the latest version of the TR 37.890, there are at least the following countries, which have completed the regulatory framework for the 6GHz band, but which are not supported by the current specification (refer to TR 37.890 for exact parameters and references to the corresponding regulatory documents):

- Region 2: Canada, Brazil, Peru, Chile (5925-7125MHz)

- Region 3: South Korea (5925-7125MHz)

It is also worth noting that there are other countries, such as Saudi Arabia (Region 1), Mexico (Region 2), Japan and Australia (Region 3), which have announced that they would open the 6GHz band for the license-exempt operation, but the exact regulatory parameters are not completed yet.

NOTE: The scope of this WI does not cover the lower 6GHz EU/CEPT band, which is handled in WI "Introduction of lower 6GHz NR unlicensed operation for Europe".

## 4 Objective

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

The objectives of the core part work item are:

- Analyse regulatory requirements for countries/regions that have adopted license-exempt operation in the full 5925-7125MHz frequency range:

NOTE 1: The scope of the WI is Region 2 (Canada, Brazil, Peru, Chile) and Region 3 (South Korea) countries, regulatory parameters for which can be found from TR 37.890;

NOTE 2: Should more countries finalise the regulatory framework and/or a particular country changes the existing regulation for the full 5925-7125MHz frequency range, it can be considered within the timeline of this WI subject for further RAN discussions.

- Depending on the regulatory requirements, determine whether they can be handled by existing NS values or whether new NS values are needed.

- Depending on whether existing NS values cannot be re-used and/or whether new NS values are not possible, determine whether an existing band n96 can be re-used or introduction of a new band will be needed.

- Define or update (if needed) system parameters such as channel bandwidths and channel arrangements.

- Define or update (if needed) transmitter and receiver characteristics requirements for the UE.

- Define or update (if needed) transmitter and receiver characteristics requirements for the BS.

### 4.2 Objective of Performance part WI

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

The objective of the performance part work item is to define or update (if needed) conformance requirements for BS testing.

Changes are to be made in a release-independent manner.

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

NOTE: For all new RAN related WIs/SIs which are 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, then 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  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Remarks |
| *Internal TR* | *TR 38.xxx* | Introduction of operation in full unlicensed band 5925-7125MHz |  | *RAN#95* | *Core part* |

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 |
| 38.101-1 | NR; UE Radio transmission and reception | RAN#95 | Core UE part |
| 38.104 | NR; BS Radio transmission and reception | RAN#95 | Core BS part |
| 37.104 | E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) radio transmission and reception | RAN#95 | Core BS part |
| 37.105 | Active Antenna System (AAS) Base Station (BS) transmission and reception | RAN#95 | Core BS part |
| 38.141-1 | NR; Base Station (BS) conformance testing Part 1: Conducted conformance testing | RAN#96 | Perf. BS part |
| 38.141-2 | NR; Base Station (BS) conformance testing Part 2: Radiated conformance testing | RAN#96 | Perf. BS part |
| 37.141 | E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) conformance testing | RAN#96 | Perf. BS part |
| 37.145-1 | Active Antenna System (AAS) Base Station (BS) conformance testing; Part 1: conducted conformance testing | RAN#96 | Perf. BS part |
| 37.145-2 | Active Antenna System (AAS) Base Station (BS) conformance testing; Part 2: radiated conformance testing | RAN#96  | Perf. BS part |

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)

Alexander Sayenko, Apple Inc, asayenko@apple.com

## 7 Work item leadership

RAN4

## 8 Aspects that involve other WGs

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

## 9 Supporting Individual Members

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| Supporting IM name |
| Apple Inc. |
| Skyworks Solutions Inc. |
| Google Inc. |
| Qualcomm Inc. |
| LG Electronics |
| Intel Corporation |
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