**3GPP TSG RAN Meeting #104 RP-241050**

**Shanghai, China, June 17-20, 2024** (revision of RP-yyxxxx)

**Source: Ericsson**

**Title: New WID on introduction of NR band n68**

**Document for: Approval**

**Agenda Item: 9.1.5**

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: Introduction of NR band n68

## Acronym: NR\_band\_n68

## 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 |  |
| **Don't know** | X |  |  |  |  |

## 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 an 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 |
|  |  | *{mandatory text: "parent WID" or "child 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 and Nature of relationship is "parent WID".

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work Items (if any) |
| Unique ID | Title | Nature of relationship |
| 750067 | New Radio Access Technology | *NR generic requirements* |

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

## 3 Justification

The frequency ranges for the LTE band 68 are 698-728 MHz in uplink and 753-783 MHz in downlink. Also, within the CEPT region, the lower 2x5 MHz in LTE Band 68 is reserved for Public Protection and Disaster Relief agencies – these include Emergency Services operating in many countries, requiring low band spectrum to meet their coverage and operational requirements. The corresponding equipment ecosystem is growing, however PPDR agencies, commercial operators and vendors seek reassurance that this band will be upgradable to 5G NR.

The inclusion of band n68 within the 5G NR operating bands will allow band n68 to deploy advanced 5G NR services and applications in additional low frequency spectrum and contribute to extend the range of deployment. As an LTE refarming band, NR band n68 will be defined under the WI.

## 4 Objective

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

The core objectives of this WI are:

* Specify a new NR FDD operating band n68 (the uplink band for this new band is 30 MHz, 698-728 MHz; the downlink band is 30 MHz, 753-783 MHz; the duplex gap is 25 MHz, 728-753 MHz) to support subcarrier spacing of 15 kHz for 5 MHz channel bandwidth, and subcarrier spacing of 15 kHz and 30 kHz for 10 and 15 MHz channel bandwidths.
	+ Only symmetric bandwidths are supported.
* Specify system parameters and RF characteristics of the new band.
* Address potential BS and UE co-existence issues, if any.
* Update the related technical specifications to include support for the new band
* Specify the UE RF requirements for the new bands based on 2 Rx operation.

Note: This new NR band will be introduced in a REL-independent way starting from REL-15.

### 4.2 Objective of Performance part WI

The objectives of the Performance part work item are to

* Specify a new NR FDD operating band n68 to include the performance requirements with supported subcarrier spacing of 15 kHz for 5 MHz channel bandwidth, and subcarrier spacing of 15 kHz and 30 kHz for 10 and 15 MHz channel bandwidth.

### 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 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 |
|  |  |  |  |  |  |

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.
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 |
|  |  |  |  |
| **36.104** | Evolved Universal Terrestrial Radio Access (E-UTRA);Base Station (BS) radio transmission and reception | TSG-RAN#106 | Core Part |
| **37.104** | E-UTRA, UTRA and GSM/EDGE; Multi-Standard Radio (MSR) Base Station (BS) radio transmission and reception – Band n68 specific requirements/changes | TSG-RAN#106 | Core Part |
| **37.105** | Active Antenna System (AAS) Base Station (BS) transmission and reception | TSG-RAN#106 | Core Part |
| **38.101-1** | NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone – Band n87 and n88 specific requirements/changes | TSG-RAN#106 | Core part |
| **38.101-5** | NR; User Equipment (UE) radio transmission and reception; Part 5: Satellite access Radio Frequency (RF) and performance requirements | TSG-RAN#106 | Core part |
| **38.104** | NR; Base Station (BS) radio transmission and reception – Band n68 specific requirements/changes | TSG-RAN#106 | Core part |
| **38.106** | NR repeater radio transmission and reception | TSG-RAN#106 | Core part |
| **38.174** | NR; Integrated Access and Backhaul (IAB) radio transmission and reception | TSG-RAN#106 | Core part |
| **38.307** | NR; Requirements on User Equipments (UEs) supporting a release-independent frequency band | TSG-RAN#106 | Core part |
| **36.141** | Evolved Universal Terrestrial Radio Access (E-UTRA);Base Station (BS) conformance testing | TSG-RAN#106 | Perf Part |
| **37.141** | E-UTRA, UTRA and GSM/EDGE;Multi-Standard Radio (MSR) Base Station (BS) conformance testing | TSG-RAN#106 | Perf Part |
| **37.145-1** | Active Antenna System (AAS) Base Station (BS)conformance testing;Part 1: Conducted conformance testing | TSG-RAN#106 | Perf Part |
| **37.145-2** | Active Antenna System (AAS) Base Station (BS)conformance testing;Part 2: radiated conformance testing | TSG-RAN#106 | Perf Part |
| **38.115-1** | NR; Repeater conformance testing - Part 1: Conducted conformance testing | TSG-RAN#106 | Perf part |
| **38.141-1** | NR; Base Station (BS) conformance testingPart 1: Conducted conformance testing – Band n68 specific requirements/changes | TSG-RAN#106 | Perf part |
| **38.141-2** | NR; Base Station (BS) conformance testingPart 2: Radiated conformance testing – Band n68 specific requirements/changes | TSG-RAN#106 | Perf part |
| **38.176-1** | NR; Integrated Access and Backhaul (IAB) conformance testing; Part 1: Conducted conformance testing | TSG-RAN#106 | Perf part |
| **38.176-2** | NR; Integrated Access and Backhaul (IAB) conformance testing; Part 2: Radiated conformance testing | TSG-RAN#106 | Perf part |
| **38.133** | NR; Requirements for support of radio resource management – Band n68 specific requirements/changes | TSG-RAN#106 | Perf part |
| **38.307** | Requirements on User Equipments (UEs) supporting a release-independent frequency band | TSG-RAN#106 | Core 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)

Everaere, Dominique

**Company: Ericsson**

**Email:** **dominique.everaere@ericsson.com**

## 7 Work item leadership

RAN4

## 8 Aspects that involve other WGs

NOTE: For RAN WIDs: 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

|  |
| --- |
| Supporting IM name |
| Ericsson |
| A.S.T.R.I.D. SANV |
| Softil Ltd |
| Erillisverkot |
| Netherlands Police |
| Nokia |
| BDBOS |
| Qualcomm |
|  |
|  |