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

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

**Source: RAN4 VC (Qualcomm Incorporated)**

**Title: Basket WID on adding channel bandwidth support to existing NR bands**

**Document for: Approval**

**Agenda Item: 9.1.5**

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: New basket WID on adding channel bandwidth support to existing NR bands.

## Acronym: NR\_BW\_Bands\_R19

## Unique identifier:

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** |  |

Potential target Release: Rel-19.

## 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Affects:** | UICC apps | ME | AN | CN | Others (specify) |
| **Yes** |  | X |  |  |  |
| **No** | X |  | 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* *}*

|  |  |
| --- | --- |
| X | Feature |
|  | 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 Work Item

|  |
| --- |
| Parent Work Items  |
| Unique ID | Title |
|  |  |

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}*  |
|  |  | *{optional free text}*  |

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

## 3 Justification

Many E-UTRA re-farmed bands were specified considering only specified E-UTRA channel bandwidth (5, 10, 15 and 20 MHz). But operators might have larger allocated spectrum and would expect deploying BS/UEs supporting the wider NR channel bandwidth for a more efficient use of their available spectrum. New requests still emerge for existing bands and whenever a new band is specified, it would create a potential for new requests.

The preconditions:

For a specified NR band, to propose list of channel bandwidth(s) and associated sub-carrier spacing to be supported. Clause 4.1 will be updated based on approved requests.

## 4 Objective

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

### 4.1.1 Objective and scope

* Specify channel bandwidth – sub-carrier spacing combinations to be supported for each considered band according to Table 4.1.3-1.
	+ The channel bandwidth should be one of the following list:
		- FR1: {5 MHz, 10 MHz, 15 MHz, 20 MHz, 25 MHz, 30 MHz, 35 MHz, 40 MHz, 45 MHz, 50 MHz, 60 MHz, 70 MHz, 80 MHz, 90 MHz, 100 MHz}.
		- FR2-1: {50 MHz, 100 MHz, 200 MHz, 400 MHz}
	+ The band should be a specified NR band, including SUL and SDL bands.
* Analyze and specify requirements:
	+ Reference sensitivity and associated RB allocation.
	+ When needed:
		- MPR (relative bandwidth criteria)
		- Additional Maximum Power Reduction (A-MPR)
		- NS signalling.
	+ Any other RF requirement which might be relevant.
* CA and EN/DC considerations:
	+ Check the MSD values for the new channel BW(s), only for the BCS4/BCS5 for the considered band and update the MSDs when:
		- The new BW is the new highest BW of an aggressor band for crossband isolation (note that it may also create an MSD where there was no MSD before).
		- The new BW is the new smallest BW of a victim band of an existing MSD.
	+ Any other CA or EN/DC combinations updates are not in the scope of this WI.

### 4.1.2 Way of working

The new request adding support for channel bandwidth in existing NR band should be submitted on RAN4 reflector before tdoc submission deadline the next RAN4 meeting (1 week before the meeting). **When requesting the new channel bandwidth, the proponent should identify the expected impairments including A-MPR and/or MSD and capture them in "Additional information" column in Table 4.1.3-1.**

The basket WI will then be updated with the new request (section 4.1.3, Table 4.1.3-1) and submitted to next RAN4 meeting for endorsement, before submission to RAN meeting for approval.

When the work is completed, all draft CRs related to one request will be submitted in the same RAN4 meeting to check consistency. If they are endorsed, the basket WI Rapporteur will merge all draft CRs from all requests in big CRs (one per TS specification) .

After the RAN4 meeting preceding a RAN meeting, those big CRs will be sent on RAN4 reflector for email approval (1 week) and, if agreed, they will be submitted to following RAN meeting for approval.

Following figure is summarizing the proposed way of working:



### 4.1.3 Requests overview,

Table 4.1.3-1: Requests tracking

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Band** | **Channel bandwidth****and SCS** | **Contact name, company** | **Contact email** | **Other supporting companies** | **Justification** | **Additional information** | **status** |
|  |  |  |  | *Note: minimum 3* | *Note: Spectrum information and usage that would justify introducing support for the new channel bandwidth(s) in the considered band.* | *Note: any specific technical challenge should be triggered and highlighted here* |  |
| n48 | 50 MHz (15, 30 and 60kHz SCS)60, 70, 80, 90, 100 MHz (30 and 60 kHz SCS) | Ruoyu Sun, Cable Labs | R.Sun@cablelabs.com | Charter, Comcast,  | This channel BWs are already supported in DL, they should be supported in UL as well, see RP-241541. |  | new |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

### 4.2 Objective of Performance part WI

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

None.

### 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 |
|  |  |  |  |  |  |

*{Note 1: Only TSs may contain normative provisions. Study Items shall create or impact only TRs.
"Internal TR" is intended for 3GPP internal use only whereas "External TR" may be transposed by OPs.}*

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 38.101-1 | NR; User Equipment (UE) radio transmission and reception; Part 1: Range 1 Standalone | RAN #110 | Core part |
| TS 38.101-2 | NR; User Equipment (UE) radio transmission and reception; Part 2: Range 2 Standalone | RAN #110 | Core part |
| TS 38.104 | NR; BS Radio transmission and reception  | RAN #110 | 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.
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)

## 7 Work item leadership

R4

## 8 Aspects that involve other WGs

None identified yet.

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

|  |
| --- |
| Supporting IM name |
| Ericsson |
| AT&T |
| Verizon |
| T-Mobile USA |
| Telstra |
| CITC |
| Etisalat |
| BT |
| Huawei |
| Nokia |
| Nokia Shanghai Bell |