**3GPP TSG-RAN Meeting #104 RP-241660**

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

**Source: CMCC, CBN**

**Title: New WID:** **Introduction of** **Power Class 2 and UE 40MHz Channel Bandwidth in NR band n28**

**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: Introduction of Power Class 2 and UE 40MHz Channel Bandwidth in NR band n28

Acronym: TBD

Unique identifier: TBD

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** |  |

 or:

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

Potential target Release: Rel-19

NOTE: In case of contradiction with the target dates of clause 5, clause 5 determines the target release.

# 1 Impacts

{For Normative work, identify the anticipated impacts. For a Study, identify the scope of the study}

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **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

*{The full structure of all existing Work Items is shown in the 3GPP Work Plan in* [*https://ftp.3gpp.org/Information/WORK\_PLAN*](https://ftp.3gpp.org/Information/WORK_PLAN)*}*

This description is either a …

|  |  |
| --- | --- |
|  | Study Item |

or a

|  |
| --- |
| Normative Work Item:*tick applicable boxes below* |
|  | Stage 1 |
|  | Stage 2 |
| X | Stage 3 |
|  | Other (e.g. testing) |

### 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the 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 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

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

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

**Dependency on non-3GPP (draft) specification**:

# 3 Justification

For NR band n28, existing specs assume dual duplexer architecture for UE. This assumption has limitations on the location of NR UL carriers, supported UE channel bandwidths and so on. During the Rel-18 discussion of how to specify PC2 requirements in band n28, it is a desire from industry to evolve duplexer implementation and RF architecture for band n28. This WI proposes to specify PC2 and 40MHz for band n28 considering the UE evolution and operators’ deployment requirement.

# 4 Objective

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

The objectives of this WI are to introduce requirements for UE Power Class 2 and 40MHz Channel Bandwidth for NR band n28 as optional features, including the following aspects:

* Introduce requirements for PC2 and those associated with following bullets
	+ Both 1Tx and 2Tx PC2 are supported
	+ UL-MIMO is supported.
	+ Specify A-MPR requirements for PC2
* Introduce 40MHz Channel bandwidth located in UL: 703 - 743MHz and DL: 758 - 798MHz for band n28 supporting PC3 and PC2.
	+ Allow flexible channel allocations within the frequency range (UL: 703 - 743MHz and DL: 758 - 798MHz) for BW<40MHz.
* Release independence of UE 40MHz Channel bandwidth to Rel-15 is anticipated..
* No changes to the existing requirements (38.101-1 v18.5.0) (including A-MPR values and RB allocation regions) for power class 3 with existing channel bandwidths up to and including 30MHz to avoid impacts on existing power class 3 networks. In the event of new regulatory requirements, this assumption can be revisited.

### 4.2 Objective of Performance part WI

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

### 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: 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 #106 | 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)

Xiaoran ZHANG, CMCC, zhangxiaoran@chinamobile.com

# 7 Work item leadership

Lead WG: RAN4

# 8 Aspects that involve other WGs

None

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

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| CMCC |
| CBN |
| CATT |
| Huawei |
| HiSilicon |
| ZTE |
| Spreadtrum |
| Nokia |
| Ericsson |
| KDDI |
| Samsung |
| Qualcomm |
| Apple |