**3GPP TSG-RAN WG4 Meeting #94-e R4-2002668**

**Online, 24th February – 6th March 2020**  (revision of RP-191814)

**Source: Ericsson**

**Title:** **Revised WID: Rel-16 NR inter-band CA for 4 bands DL with 1 band UL**

**Document for: Approval**

**Agenda Item: 9.10.1**

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: Rel16 NR inter-band CA for 4 bands DL with 1 band UL

## Acronym: NR\_CA\_R16\_4BDL\_1BUL

## Unique identifier: 840096

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** |  |

## 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** | **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*](ftp://ftp.3gpp.org/Information/WORK_PLAN) *}*

|  |  |
| --- | --- |
|  | 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

*{Not applicable for* **Feature** *nor for a* **Study Item***}*

*{For a* **Building Block***: list here the parent* **Feature** *}*

*{For a* Work Task*: list here the parent* **Building Block** *}*

|  |  |
| --- | --- |
| Parent Work Items | |
| Unique ID | Title |
|  | New WID on Rel-16 NR inter-band CA for 4 bands DL with 1 band UL |

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

*{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 |
|  | Core part: New WID on Rel-16 NR inter-band CA for 4 bands DL with 1 band UL | Child WID |
|  | Perf. Part: New WID on Rel-16 NR inter-band CA for 4 bands DL with 1 band UL | Child WID |

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

## 3 Justification

All NR inter band CA configurations for 4 different bands DL with 1 band UL will be defined under this WI.

The NR inter band CA configurations will be introduced in a release independent manner based on TS38.307, which will be updated depending on newly introduced CA configurations.

The preconditions shall ensure that the constituent NR band shall be completed and specified before to propose NR inter band CA configurations for 4 different bands DL with 1 band UL.

Example 1: If CA\_1A-2A-3A-4A is proposed,

* NR Band 1, 2, 3 and Band 4 requirements shall be completed and specified in advanced.

## 4 Objective

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

* Specify the band-combination specific RF requirements for all listed NR inter band CA combinations for 4 different bands DL with 1 band UL including at least
  + Applicable frequencies
  + Applicable bandwidths and bandwidth sets
* Analyse combinations that have self-desensitization due to following reasons:
  + TX Harmonic overlap of receive band
  + TX signal overlap of receiver harmonic frequency
  + TX frequency being in close proximity of one of the receive bands
  + Any other identified reasons
* For the combination where self-desensitization exists, specify at least needed
  + ∆TIB and ∆RIB
  + Reference sensitivity excerptions
  + UL RB restrictions for REFSENS test
* Add conformance testing in RAN5 specifications (to follow at a later stage)

Of all REL-16 CA combinations that fall into the category defined by the WI title. An overview table of these CA combinations is provided here:

CA configurations for 4 different bands DL with 1 band UL   
\*Unless otherwise stated, the number of UL CC is one for all band in the configurations.

Table 1-1: Individual combination names, proponents and supporting companies for CA\_x-x-x

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **CA configuration** | **Uplink EN-DC Configuration** | **contact**  **name, company** | **contact**  **email** | **other supporting companies**  **(min. 3)** | **status**  **(new, ongoing, completed, stopped)** | **supported next level fallback modes**  **(in DL and UL)** |
| CA\_n1-n3-n8-n78 | - | Christoph Mäder, Swisscom | [Christoph.maeder@swisscom.com](mailto:Christoph.maeder@swisscom.com) | Ericsson, Vodafone, Telia | ongoing | CA\_n1-n3-n8-ongoing  CA\_n1-n3-n78-ongoing  CA\_n1-n8-n78-ongoing  CA\_n3-n8-n78-ongoing |
| CA\_ n1-n3-n28-n78 | - | Christoph Mäder, Swisscom | [Christoph.maeder@swisscom.com](mailto:Christoph.maeder@swisscom.com) | Ericsson, Vodafone, BT plc, Telia | ongoing | CA\_n1-n3-n28-ongoing  CA\_n1-n3-n78-ongoing  CA\_n1-n28-n78-ongoing  CA\_n3-n28-n78-ongoing |
| CA\_n3A-n28A-n77A-n257A | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n77A\_BCS0  (ongoing) DL\_n3A-n28A-n257A\_BCS0  (ongoing) DL\_n3A-n77A-n257A\_BCS0  (ongoing) DL\_n28A-n77A-n257A\_BCS0 |
| CA\_n3A-n28A-n77A-n257D | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n77A-n257A\_BCS0  (ongoing) DL\_n3A-n28A-n257D\_BCS0  (ongoing) DL\_n3A-n77A-n257D\_BCS0  (ongoing) DL\_n28A-n77A-n257D\_BCS0 |
| CA\_n3A-n28A-n77A-n257G | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n77A-n257A\_BCS0  (ongoing) DL\_n3A-n28A-n257G\_BCS0  (ongoing) DL\_n3A-n77A-n257G\_BCS0  (ongoing) DL\_n28A-n77A-n257G\_BCS0 |
| CA\_n3A-n28A-n77A-n257H | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n77A-n257G\_BCS0  (ongoing) DL\_n3A-n28A-n257H\_BCS0  (ongoing) DL\_n3A-n77A-n257H\_BCS0  (ongoing) DL\_n28A-n77A-n257H\_BCS0 |
| CA\_n3A-n28A-n77A-n257I | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n77A-n257H\_BCS0  (ongoing) DL\_n3A-n28A-n257I\_BCS0  (ongoing) DL\_n3A-n77A-n257I\_BCS0  (ongoing) DL\_n28A-n77A-n257I\_BCS0 |
| CA\_n3A-n28A-n78A-n257A | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (ongoing) DL\_n3A-n28A-n78A\_BCS0  (ongoing) DL\_n3A-n28A-n257A\_BCS0  (ongoing) DL\_n3A-n78A-n257A\_BCS0  (ongoing) DL\_n28A-n78A-n257A\_BCS0 |
| CA\_n3A-n28A-n78A-n257D | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n78A-n257A\_BCS0  (ongoing) DL\_n3A-n28A-n257D\_BCS0  (ongoing) DL\_n3A-n78A-n257D\_BCS0  (ongoing) DL\_n28A-n78A-n257D\_BCS0 |
| CA\_n3A-n28A-n78A-n257G | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n78A-n257A\_BCS0  (ongoing) DL\_n3A-n28A-n257G\_BCS0  (ongoing) DL\_n3A-n78A-n257G\_BCS0  (ongoing) DL\_n28A-n78A-n257G\_BCS0 |
| CA\_n3A-n28A-n78A-n257H | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n78A-n257G\_BCS0  (ongoing) DL\_n3A-n28A-n257H\_BCS0  (ongoing) DL\_n3A-n78A-n257H\_BCS0  (ongoing) DL\_n28A-n78A-n257H\_BCS0 |
| CA\_n3A-n28A-n78A-n257I | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | ZTE, Ericsson, Nokia, Huawei, HiSilicon | ongoing | (new) DL\_n3A-n28A-n78A-n257H\_BCS0  (ongoing) DL\_n3A-n28A-n257I\_BCS0  (ongoing) DL\_n3A-n78A-n257I\_BCS0  (ongoing) DL\_n28A-n78A-n257I\_BCS0 |
| CA\_n3A-n28A-n77(2A)-n257A | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (ongoing) DL\_n3A-n28A-n77(2A)\_BCS0  (ongoing) DL\_n3A-n28A-n77A-n257A\_BCS0  (new) DL\_n3A-n77(2A)-n257A\_BCS0  (new) DL\_n28A-n77(2A)-n257A\_BCS0 |
| CA\_n3A-n28A-n77(2A)-n257D | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(2A)-n257A\_BCS0  (ongoing) DL\_n3A-n28A-n77A-n257D\_BCS0  (new) DL\_n3A-n77(2A)-n257D\_BCS0  (new) DL\_n28A-n77(2A)-n257D\_BCS0 |
| CA\_n3A-n28A-n77(2A)-n257G | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(2A)-n257A\_BCS0  (ongoing) DL\_n3A-n28A-n77A-n257G\_BCS0  (new) DL\_n3A-n77(2A)-n257G\_BCS0  (new) DL\_n28A-n77(2A)-n257G\_BCS0 |
| CA\_n3A-n28A-n77(2A)-n257H | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(2A)-n257G\_BCS0  (ongoing) DL\_n3A-n28A-n77A-n257H\_BCS0  (new) DL\_n3A-n77(2A)-n257H\_BCS0  (new) DL\_n28A-n77(2A)-n257H\_BCS0 |
| CA\_n3A-n28A-n77(2A)-n257I | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(2A)-n257H\_BCS0  (ongoing) DL\_n3A-n28A-n77A-n257I\_BCS0  (new) DL\_n3A-n77(2A)-n257I\_BCS0  (new) DL\_n28A-n77(2A)-n257I\_BCS0 |
| CA\_n3A-n28A-n77(3A)-n257A | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(3A)\_BCS0  (new) DL\_n3A-n28A-n77(2A)-n257A\_BCS0  (new) DL\_n3A-n77(3A)-n257A\_BCS0  (new) DL\_n28A-n77(3A)-n257A\_BCS0 |
| CA\_n3A-n28A-n77(3A)-n257D | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(3A)-n257A\_BCS0  (new) DL\_n3A-n28A-n77(2A)-n257D\_BCS0  (new) DL\_n3A-n77(3A)-n257D\_BCS0  (new) DL\_n28A-n77(3A)-n257D\_BCS0 |
| CA\_n3A-n28A-n77(3A)-n257G | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(3A)-n257A\_BCS0  (new) DL\_n3A-n28A-n77(2A)-n257G\_BCS0  (new) DL\_n3A-n77(3A)-n257G\_BCS0  (new) DL\_n28A-n77(3A)-n257G\_BCS0 |
| CA\_n3A-n28A-n77(3A)-n257H | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(3A)-n257G\_BCS0  (new) DL\_n3A-n28A-n77(2A)-n257H\_BCS0  (new) DL\_n3A-n77(3A)-n257H\_BCS0  (new) DL\_n28A-n77(3A)-n257H\_BCS0 |
| CA\_n3A-n28A-n77(3A)-n257I | - | Masashi Fushiki, SoftBank | masashi.fushiki@g.softbank.co.jp | Ericsson, Huawei, HiSilicon, Nokia, ZTE | new | (new) DL\_n3A-n28A-n77(3A)-n257H\_BCS0  (new) DL\_n3A-n28A-n77(2A)-n257I\_BCS0  (new) DL\_n3A-n77(3A)-n257I\_BCS0  (new) DL\_n28A-n77(3A)-n257I\_BCS0 |
| CA\_n7A-n25A-n66A-n78A | - | Liu Liehai, Huawei | liuliehai@huawei.com | Bell Mobility, TELUS, Hisilicon | New | (new) DL\_n7A-n25A-n66A\_BCS0  (new) DL\_n7A-n25A-n78A\_BCS0  (new) DL\_n25A-n66A-n78A\_BCS0  (new) DL\_n7A-n66A-n78A\_BCS0 |
| CA\_n1A-n3A-n7A-n28A | - | Jeremy Chu, Telstra | Jeremy.chu@team.telstra.com | Ericsson, LGE, Nokia | New | (new) DL\_n1A-n3A-n7A  (complete) DL\_n1A-n3A-n28A  (ongoing) DL\_n1A-n7A-n28A  (new) DL\_n3A-n7A-n28A |
| CA\_n1A-n3A-n7B-n28A | - | Jeremy Chu, Telstra | Jeremy.chu@team.telstra.com | Ericsson, LGE, Nokia | New | (new) DL\_n1A-n3A-n7B  (new) DL\_n1A-n3A-n7A-n28A  (new) DL\_n1A-n7B-n28A  (new) DL\_n3A-n7B-n28A |
| CA\_n1A-n3A-n7A-n78A | - | Jeremy Chu, Telstra | Jeremy.chu@team.telstra.com | Ericsson, LGE, Nokia | New | (new) DL\_n1A-n3A-n7A  (complete) DL\_n1A-n3A-n78A  (ongoing) DL\_n1A-n7A-n78A  (new) DL\_n3A-n7A-n78A |
| CA\_n1A-n3A-n7B-n78A | - | Jeremy Chu, Telstra | Jeremy.chu@team.telstra.com | Ericsson, LGE, Nokia | New | (new) DL\_n1A-n3A-n7B  (new) DL\_n1A-n3A-n7A-n78A  (new) DL\_n1A-n7B-n78A  (new) DL\_n3A-n7B-n78A |
| CA\_n3A-n7A-n28A-n78A | - | Jeremy Chu, Telstra | Jeremy.chu@team.telstra.com | Ericsson, LGE, Nokia | New | (new) DL\_n3A-n7A-n28A  (new) DL\_n3A-n7A-n78A  (complete) DL\_n3A-n28A-n78A  (new) DL\_n7A-n28A-n78A |
| CA\_n3A-n7B-n28A-n78A | - | Jeremy Chu, Telstra | Jeremy.chu@team.telstra.com | Ericsson, LGE, Nokia | New | (new) DL\_n3A-n7B-n28A  (new) DL\_n3A-n7B-n78A  (new) DL\_n3A-n7A-n28A-n78A  (new) DL\_n7B-n28A-n78A |
|  |  |  |  |  |  |  |
| CA\_n2A-n5A-n66A-n260A | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm  Nokia | New | DL\_n2A-n5A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n66A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n5A-n260A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n260A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n260A\_UL\_n260A\_BCS0  DL\_n5A-n66A-n260A\_UL\_n5A\_BCS0  DL\_n5A-n66A-n260A\_UL\_n66A\_BCS0  DL\_n5A-n66A-n260A\_UL\_n260A\_BCS0  DL\_n2A-n66A-n260A\_UL\_n2A\_BCS0  DL\_n2A-n66A-n260A\_UL\_n66A\_BCS0  DL\_n2A-n66A-n260A\_UL\_n260A\_BCS0 |
| CA\_n2A-n5A-n30A-n260A | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm  Nokia | New | DL\_n2A-n5A-n30A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n30A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n30A\_UL\_n30A\_BCS0  DL\_n2A-n5A-n260A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n260A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n260A\_UL\_n260A\_BCS0  DL\_n5A-n30A-n260A\_UL\_n5A\_BCS0  DL\_n5A-n30A-n260A\_UL\_n30A\_BCS0  DL\_n5A-n30A-n260A\_UL\_n260A\_BCS0  DL\_n2A\_n30A\_n260A\_UL\_n2A\_BCS0  DL\_n2A\_n30A\_n260A\_UL\_n30A\_BCS0  DL\_n2A\_n30A\_n260A\_UL\_n30A\_BCS0 |
| CA\_n5A-n30A-n66A-n260A | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n5A-n30A-n66A\_UL\_n5A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n5A-n30A-n260A\_UL\_n5A\_BCS0  DL\_n5A-n30A-n260A\_UL\_n30A\_BCS0  DL\_n5A-n30A-n260A\_UL\_n260A\_BCS0  DL\_n5A-n66A-n260A\_UL\_n5A\_BCS0  DL\_n5A-n66A-n260A\_UL\_n66A\_BCS0  DL\_n5A-n66A-n260A\_UL\_n260A\_BCS0  DL\_n30-n66A-n260A\_UL\_n30A\_BCS0  DL\_n30-n66A-n260A\_UL\_n66A\_BCS0  DL\_n30-n66A-n260A\_UL\_n260A\_BCS0 |
| CA\_n2A-n30A-n66A-n260A | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n2A-n30A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n2A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n30A-n260A\_UL\_n2A\_BCS0  DL\_n2A-n30A-n260A\_UL\_n30A\_BCS0  DL\_n2A-n30A-n260A\_UL\_n260A\_BCS0  DL\_n2A-n66A-n260A\_UL\_n2A\_BCS0  DL\_n2A-n66A-n260A\_UL\_n66A\_BCS0  DL\_n2A-n66A-n260A\_UL\_n260A\_BCS0  DL\_n30-n66A-n260A\_UL\_n30A\_BCS0  DL\_n30-n66A-n260A\_UL\_n66A\_BCS0  DL\_n30-n66A-n260A\_UL\_n260A |
| CA\_n2A-n5A-n66A-n260M | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n2A-n5A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n66A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n5A-n260M\_UL\_n2A\_BCS0  DL\_n2A-n5A-n260M\_UL\_n5A\_BCS0  DL\_n2A-n5A-n260M\_UL\_n260M\_BCS0  DL\_n5A-n66A-n260M\_UL\_n5A\_BCS0  DL\_n5A-n66A-n260M\_UL\_n66A\_BCS0  DL\_n5A-n66A-n260M\_UL\_n260M\_BCS0  DL\_n2A-n66A-n260M\_UL\_n2A\_BCS0  DL\_n2A-n66A-n260M\_UL\_n66A\_BCS0  DL\_n2A-n66A-n260M\_UL\_n260M\_BCS0 |
| CA\_n2A-n5A-n30A-n260M | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n2A-n5A-n30A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n30A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n30A\_UL\_n30A\_BCS0  DL\_n2A-n5A-n260M\_UL\_n2A\_BCS0  DL\_n2A-n5A-n260M\_UL\_n5A\_BCS0  DL\_n2A-n5A-n260M\_UL\_n260M\_BCS0  DL\_n5A-n30A-n260M\_UL\_n5A\_BCS0  DL\_n5A-n30A-n260M\_UL\_n30A\_BCS0  DL\_n5A-n30A-n260M\_UL\_n260M\_BCS0  DL\_n2A\_n30A\_n260M\_UL\_n2A\_BCS0  DL\_n2A\_n30A\_n260M\_UL\_n30A\_BCS0  DL\_n2A\_n30A\_n260M\_UL\_n30A\_BCS0 |
| CA\_n5A-n30A-n66A-n260M | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n5A-n30A-n66A\_UL\_n5A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n5A-n30A-n260M\_UL\_n5A\_BCS0  DL\_n5A-n30A-n260M\_UL\_n30A\_BCS0  DL\_n5A-n30A-n260M\_UL\_n260M\_BCS0  DL\_n5A-n66A-n260M\_UL\_n5A\_BCS0  DL\_n5A-n66A-n260M\_UL\_n66A\_BCS0  DL\_n5A-n66A-n260M\_UL\_n260M\_BCS0  DL\_n30-n66A-n260M\_UL\_n30A\_BCS0  DL\_n30-n66A-n260M\_UL\_n66A\_BCS0  DL\_n30-n66A-n260M\_UL\_n260M\_BCS0 |
| CA\_n2A-n30A-n66A-n260M | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n2A-n30A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n2A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n30A-n260M\_UL\_n2A\_BCS0  DL\_n2A-n30A-n260M\_UL\_n30A\_BCS0  DL\_n2A-n30A-n260M\_UL\_n260M\_BCS0  DL\_n2A-n66A-n260M\_UL\_n2A\_BCS0  DL\_n2A-n66A-n260M\_UL\_n66A\_BCS0  DL\_n2A-n66A-n260M\_UL\_n260M\_BCS0  DL\_n30-n66A-n260M\_UL\_n30A\_BCS0  DL\_n30-n66A-n260M\_UL\_n66A\_BCS0  DL\_n30-n66A-n260M\_UL\_n260M\_BCS0 |
| CA\_n2(2A)-n5A-n30A-n66A | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n2A-n2A-n5A-n30A\_UL\_n2A\_BCS0  DL\_n2A-n2A-n5A-n30A UL\_n5A\_BCS0  DL\_n2A-n2A-n5A-n30A UL\_n30A\_BCS0  DL\_n2A-n2A-n5A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n2A-n5A-n66A\_UL\_n5A\_BCS0  DL\_n2A-n2A-n5A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n2A-n30A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n2A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n2A-n2A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n5A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n5A-n30A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n30A-n66A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n2A-n5A-n30A-n66A\_UL\_n66A\_BCS0 |
| CA\_n2A-n5A-n30A-n66(2A) | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n2A-n5A-n30A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n30A-n66A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n2A-n5A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n5A-n66A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n66A-n66A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n66A-n66A\_UL\_n66A\_BCS0  DL\_n2A-n30A-n66A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n30A-n66A-n66A\_UL\_n30A\_BCS0  DL\_n2A-n30A-n66A-n66A\_UL\_n66A\_BCS0  DL\_n5A-n30A-n66A-n66A\_UL\_n5A\_BCS0  DL\_n5A-n30A-n66A-n66A\_UL\_n30A\_BCS0  DL\_n5A-n30A-n66A-n66A\_UL\_n66A\_BCS0 |
| CA\_n2A-n5A-n30A-n66A | - | Marc Grant, AT&T | marc.grant@att.com | Ericsson  Qualcomm Nokia | New | DL\_n2A-n5A-n30A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n30A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n30A\_UL\_n30A\_BCS0  DL\_n2A-n5A-n66A\_UL\_n2A\_BCS0  DL\_n2A-n5A-n66A\_UL\_n5A\_BCS0  DL\_n2A-n5A-n66A\_UL\_n66A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n5A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n30A\_BCS0  DL\_n5A-n30A-n66A\_UL\_n66A\_BCS0  DL\_n2A\_n30A\_n66A\_UL\_n2A\_BCS0  DL\_n2A\_n30A\_n66A\_UL\_n30A\_BCS0  DL\_n2A\_n30A\_n66A\_UL\_n30A\_BCS0 |

Bandwidth combination set for CA configuration

Table 2-1 Bandwidth combinations for CA with no FR2 bands

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA CA configuration / Bandwidth combination set | | | | | | | | | | | | | | | | | |
| E-UTRA CA Configuration | Uplink CA configurations | NR Bands | SCS (kHz) | 5 MHz | 10 MHz | 15 MHz | 20 MHz | 25 MHz | 30 MHz | 40 MHz | 50 MHz | 60 MHz | 80 MHz | 90 MHz | 100 MHz | Maximum aggregated bandwidth  [MHz] | Bandwidth combination set |
| CA\_n1A-n3A-n8A-n78A | - | n1 | 15 | Yes | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  | 180 | 0 |
| 30 |  | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |
| n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| n8 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes |  | Yes |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes |  | Yes |
| CA\_n1A-n3A-n28A-n78A | - | n1 | 15 | Yes | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  | 180 | 0 |
| 30 |  | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  | Yes |  |  |  |  |  |  |
| n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes |  | Yes |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes |  | Yes |
| CA\_n7A-n25A-n66A-n78A | - | n7 | 15 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  | 210 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |
| n25 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n66 | 15 | Yes | Yes | Yes | Yes |  |  | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes |  |  |  |  |  |
| n78 | 15 |  | Yes |  | Yes |  | Yes | Yes | Yes |  |  |  |  |
| 30 |  | Yes |  | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| 60 |  | Yes |  | Yes |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA configuration | NR Uplink CA configuration | NR  Band | SCS  (kHz) | 5  MHz | 10  MHz | 15  MHz | 20  MHz | 25  MHz | 30  MHz | 40  MHz | 50  MHz | 60  MHz | 70 MHz | 80  MHz | 90  MHz | 100  MHz | **Maximum Aggregated bandwidth**  [MHz] | **Bandwidth combination set** |
| CA\_n1A-n3A-n7A-n28A | - | n1 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  | 120 | 0 |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| n7 | 15 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CA\_n1A-n3A-n7B-n28A | - | n1 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  | 120 | 0 |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| n7 | See CA\_n7B Bandwidth Combination Set 0 in Table 5.5A.1-1 from 38.101-1 | | | | | | | | | | | | | |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| CA\_n1A-n3A-n7A-n78A | - | n1 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  | 200 | 0 |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| n7 | 15 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |
| CA\_n1A-n3A-n7B-n78A | - | n1 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  | 200 | 0 |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| n7 | See CA\_n7B Bandwidth Combination Set 0 in Table 5.5A.1-1 from 38.101-1 | | | | | | | | | | | | | |
| n78 | 15 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |
| CA\_n3A-n7A-n28A-n78A | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  | 200 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| n7 | 15 | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |
| CA\_n3A-n7B-n28A-n78A | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  | 200 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |
| n7 | See CA\_n7B Bandwidth Combination Set 0 in Table 5.5A.1-1 from 38.101-1 | | | | | | | | | | | | | |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |
| 60 |  | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes4 | Yes | Yes | Yes |

Table 2-2 Bandwidth combinations for CA with FR2 bands

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NR CA configuration / Bandwidth combination set** | | | | | | | | | | | | | | | | | | | |
| **NR CA configuration** | **NR Uplink CA configuration** | **NR Band** | **SCS**  **(kHz)** | **5**  **MHz** | **10**  **MHz** | **15**  **MHz** | **20**  **MHz** | **25 MHz** | **30 MHz** | **40**  **MHz** | **50**  **MHz** | **60**  **MHz** | **80**  **MHz** | **90**  **MHz** | **100 MHz** | **200 MHz** | **400 MHz** | **Maximum Aggregated bandwidth**  **[MHz]** | **Bandwidth combination set** |
| CA\_n3A-n28-n77A-n257A | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n77 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | 60 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes |  |
| 120 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes | Yes |
| CA\_n3A-n28-n77A-n257D | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n77 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257D BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28-n77A-n257G | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 350 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n77 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257G BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28-n77A-n257H | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 450 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n77 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257H BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28-n77A-n257I | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n77 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257I BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28-n78A-n257A | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | 60 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes |  |
| 120 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes | Yes |
| CA\_n3A-n28-n78A-n257D | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257D BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28-n78A-n257G | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 350 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257G BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28-n78A-n257H | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 450 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257H BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28-n78A-n257I | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| n78 | 15 |  | Yes | Yes | Yes |  |  | Yes | Yes |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes | Yes | Yes | Yes | Yes |  |  |
| n257 | See CA\_n257I BCS 0 in Table 5.5A.1-1 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(2A)-n257A | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 650 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(2A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | 60 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes |  |
| 120 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes | Yes |
| CA\_n3A-n28A-n77(2A)-n257D | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 650 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(2A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257D Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(2A)-n257G | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 450 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(2A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257G Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(2A)-n257H | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(2A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257H Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(2A)-n257I | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 650 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(2A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257I Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(3A)-n257A | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 750 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(3A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | 60 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes |  |
| 120 |  |  |  |  |  |  |  | Yes |  |  |  | Yes | Yes | Yes |
| CA\_n3A-n28A-n77(3A)-n257D | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 750 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(3A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257D Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(3A)-n257G | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 550 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(3A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257G Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(3A)-n257H | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 650 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(3A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257H Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |
| CA\_n3A-n28A-n77(3A)-n257I | - | n3 | 15 | Yes | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  | 750 | 0 |
| 30 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |
| n28 | 15 | Yes | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 30 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| 60 |  | Yes | Yes | Yes |  |  |  |  |  |  |  |  |  |  |
| n77 | See CA\_n77(3A) Bandwidth Combination Set 0 in Table 5.5A.2-1 in TS 38.101-1 | | | | | | | | | | | | | | |
| n257 | See CA\_n257I Bandwidth Combination Set 0 in Table 5.5A.1-1 in TS 38.101-2 | | | | | | | | | | | | | | |

### 4.2 Objective of Performance part WI

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

This Perf. Part WI has to standardize the Perf. Part requirements:

* Required changes to be added to release independence TS 38.307.

Of all REL-16 CA combinations that fall into the category defined by the WI title. See overview table in 4.1 above.

### 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 |
| Internal TR | 38.716-04-01 | Rel16 NR inter-band CA for 4 bands DL with 1 band UL |  | TSG#87 | Rapporteur:  Per Lindell  [per.lindell@ericsson.com](mailto:per.lindell@ericsson.com)  Core part |

*{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 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 |
| 38.101-1 | User Equipment (UE) radio transmission and reception  Part 1: Range 1 Standalone | TSG#87 | Core part |
| 38.101-2 | User Equipment (UE) radio transmission and reception;  Part 2: Range 2 Standalone | TSG#87 | Core part |
| 38.101-3 | User Equipment (UE) radio transmission and reception;  Part 3: Range 1 and Range 2 Interworking operation with other radios | TSG#87 | Core part |
| 38.307 | Requirements on User Equipments (UEs)  supporting a release-independent frequency band | TSG#87 | 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)

Per Lindell, Ericsson

[per.lindell@ericsson.com](mailto:per.lindell@ericsson.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 |
| Swisscom |
| Ericsson |
| Vodafone |
| Verizon |
| AT&T |
| Telstra |
| T-Mobile US |
| Softbank |
| ZTE |
| Nokia |
| Huawei |
| HiSilicon |
| BT plc |
| Telia |