**3GPP TSG-RAN4 Meeting #102-e *R4-2205241***

**Electronic Meeting, 21 February– 3 March, 2022**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-1** | **CR** | **1017** | **rev** | **-** | **Current version:** | **17.4.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | Big CR on Introduction of completed 5 bands inter-band CA into TS 38.101-1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei, HiSilicon | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_CADC\_R17\_5BDL\_xBUL -Core | | | | |  | ***Date:*** | | | 2022-03-07 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 5 bands NR CA combinatins should be introduced, based on the approved TPs and draft CRs.  R4-2206255 TP to TR 38.717-05-01: CA\_n2-n5-n48-n66-n77 Verizon, Samsung  R4-2206257 draftCR to add CA\_n1A-n3A-n7A-n28A-n78(2A) to 38.101-1 Nokia, BT | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | To introduce band combination CA\_n2-n5-n48-n66-n77  Added CA\_n1A-n3A-n7A-n28A-n78(2A). | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The band combination CA\_n2-n5-n48-n66-n77 and CA\_n1A-n3A-n7A-n28A-n78(2A) can’t be included into the spec. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2A.2.4, 5.2A.3.4, 6.2A.4.2.6, 7.3A.3.2.5 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-1 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## **<<Start of Change>>**

#### 5.2A.2.4 Inter-band CA (five bands)

Table 5.2A.2.4-1: Inter-band CA operating bands involving FR1 (five bands)

|  |  |
| --- | --- |
| NR CA Band | NR Band  (Table 5.2-1) |
| CA\_n1-n3-n5-n7-n78 | n1, n3, n5, n7, n78 |
| CA\_n1-n3-n7-n28-n78 | n1, n3, n7, n28, n78 |
| CA\_n2-n5-n48-n66-n77 | n2, n5, n48, n66, n77 |

## **<<Next of Change>>**

#### 5.5A.3.4 Configurations for inter-band CA (five bands)

Table 5.5A.3.4-1: NR CA configurations and bandwidth combinations sets defined for inter-band CA (five bands)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA configuration | Uplink CA configuration | NR Band | Channel bandwidth (MHz) (NOTE 1) | | | | | | | | | | | | | Bandwidth combination set |
|  |  |  | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
|  | CA\_n1A-n3A CA\_n1A-n5A | n1 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  | CA\_n1A-n7A CA\_n1A-n78A | n3 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
| CA\_n1A-n3A-n5A-n7A-n78A | CA\_n3A-n5A CA\_n3A-n7A | n5 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  | 0 |
|  | CA\_n3A-n78A CA\_n5A-n7A | n7 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |  |
|  | CA\_n5A-n78A CA\_n7A-n78A | n78 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
|  | CA\_n1A-n3A CA\_n1A-n5A | n1 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  | CA\_n1A-n7A CA\_n1A-n78A | n3 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
| CA\_n1A-n3A-n5A-n7B-n78A | CA\_n3A-n5A CA\_n3A-n7A | n5 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  | 0 |
|  | CA\_n3A-n78A CA\_n5A-n7A | n7 | See CA\_n7B bandwidth combination set 0 in Table 5.5A.1-1 | | | | | | | | | | | | |  |
|  | CA\_n5A-n78A CA\_n7A-n78A  CA\_n7B | n78 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
| CA\_n1A-n3A-n7A-n28A-n78A | - | n1 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  | 0 |
|  |  | n3 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
|  |  | n7 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |  |
|  |  | n28 | 5 | 10 | 15 | 20 |  | 30 |  |  |  |  |  |  |  |  |
|  |  | n78 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
|  | CA\_n1A-n3A  CA\_n1A-n7A  CA\_n1A-n28A  CA\_n1A-n78A | n1 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  | 1 |
|  | CA\_n3A-n7A  CA\_n3A-n28A  CA\_n3A-n78A | n3 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
|  | CA\_n7A-n28A  CA\_n7A-n78A | n7 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |  |
|  | CA\_n28A-n78A | n28 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  |  | n78 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
| CA\_n1A-n3A-n7B-n28A-n78A | CA\_n1A-n3A  CA\_n1A-n7A  CA\_n1A-n28A  CA\_n1A-n78A  CA\_n3A-n7A  CA\_n3A-n28A  CA\_n3A-n78A  CA\_n7A-n28A  CA\_n7A-n78A  CA\_n28A-n78A  CA\_n7B | n1 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  | 0 |
|  |  | n3 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
|  |  | n7 | See CA\_n7B Bandwidth Combination Set 0 in Table 5.5A.1-1 | | | | | | | | | | | | |  |
|  |  | n28 | 5 | 10 | 15 | 20 |  | 30 |  |  |  |  |  |  |  |  |
|  |  | n78 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
|  | CA\_n1A-n3A  CA\_n1A-n7A | n1 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |  |
|  | CA\_n1A-n28A  CA\_n1A-n78A | n3 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  |  |
| CA\_n1A-n3A-n7A-n28A-n78(2A) | CA\_n3A-n7A  CA\_n3A-n28A | n7 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |  |  |  |  |  | 0 |
|  | CA\_n3A-n78A  CA\_n7A-n28A | n28 | 5 | 10 | 15 | 20 |  | 30 |  |  |  |  |  |  |  |  |
|  | CA\_n7A-n78A  CA\_n28A-n78A | n78 | See CA\_n78(2A) Bandwidth Combination Set 2 in Table 5.5A.2-1 | | | | | | | | | | | | |  |
|  |  | n2 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  |  | n5 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
| CA\_n2A-n5A-n48A-n66A-n77A | CA\_n2A-n5A  CA\_n2A-n48A  CA\_n2A-n66A  CA\_n2A-n77A  CA\_n5A-n48A  CA\_n5A-n66A  CA\_n5A-n77A  CA\_n48A-n66A  CA\_n66A-n77A | n48 | 5 | 10 | 15 | 20 |  |  | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 0 |
|  |  | n66 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
|  |  | n77 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
|  |  | n2 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  |  | n5 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
| CA\_n2A-n5A-n48B-n66A-n77A | CA\_n2A-n5A  CA\_n2A-n48A  CA\_n2A-n66A  CA\_n2A-n77A  CA\_n5A-n48A  CA\_n5A-n66A  CA\_n5A-n77A  CA\_n48A-n66A  CA\_n66A-n77A  CA\_n48B | n48 | See CA\_n48B Bandwidth Combination Set 2 in Table 5.5A.1-1 | | | | | | | | | | | | | 0 |
|  |  | n66 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
|  |  | n77 |  | 10 | 15 | 20 | 25 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |  |
|  |  | n2 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  |  | n5 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  |  | n48 | 5 | 10 | 15 | 20 |  |  | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 0 |
|  |  | n66 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
|  |  | n77 | See CA\_n77C Bandwidth Combination Set 0 in Table 5.5A.1-1 | | | | | | | | | | | | |  |
| CA\_n2A-n5A-n48A-n66A-n77C | CA\_n2A-n5A  CA\_n2A-n48A  CA\_n2A-n66A  CA\_n2A-n77A  CA\_n5A-n48A  CA\_n5A-n66A  CA\_n5A-n77A  CA\_n48A-n66A  CA\_n66A-n77A  CA\_n77C | n2 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  |  | n5 | 5 | 10 | 15 | 20 |  |  |  |  |  |  |  |  |  |  |
|  |  | n48 | 5 | 10 | 15 | 20 |  |  | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 1 |
|  |  | n66 | 5 | 10 | 15 | 20 | 25 | 30 | 40 |  |  |  |  |  |  |  |
|  |  | n77 | See CA\_n77C Bandwidth Combination Set 1 in Table 5.5A.1-1 | | | | | | | | | | | | |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NOTE 1: The SCS of each channel bandwidth for NR band refers to Table 5.3.5-1. | | | | | | | | | | | | | | | | |

## **<<Next of Change>>**

##### 6.2A.4.2.6 ΔTIB,c for Inter-band CA (five bands)

Table 6.2A.4.2.6-1: ΔTIB,c due to NR CA (five bands)

|  |  |  |
| --- | --- | --- |
| Inter-band CA combination | NR Band | ΔTIB,c (dB) |
|  | n1 | 0.6 |
|  | n3 | 0.6 |
| CA\_n1-n3-n5-n7-n78 | n5 | 0.6 |
|  | n7 | 0.6 |
|  | n78 | 0.8 |
| CA\_n1-n3-n7-n28-n78 | n1 | 0.7 |
|  | n3 | 0.7 |
|  | n7 | 0.7 |
|  | n28 | 0.6 |
|  | n78 | 0.8 |
|  | n2 | 0.6 |
|  | n5 | 0.3 |
| CA\_n2-n5-n48-n66-n77 | n48 | 0.8 |
|  | n66 | 0.6 |
|  | n77 | 0.8 |

## **<<Next of Change>>**

##### 7.3A.3.2.5 ΔRIB,c for five bands

Table 7.3A.3.2.5-1: ΔRIB,c due to CA (five bands)

|  |  |  |
| --- | --- | --- |
| Inter-band CA combination | NR Band | ΔRIB,c (dB) |
|  | n1 | 0.2 |
|  | n3 | 0.2 |
| CA\_n1-n3-n5-n7-n78 | n5 | 0.2 |
|  | n7 | 0.2 |
|  | n78 | 0.5 |
| CA\_n1-n3-n7-n28-n78 | n1 | 0.2 |
|  | n3 | 0.2 |
|  | n7 | 0.2 |
|  | n28 | 0.2 |
|  | n78 | 0.5 |
|  | n2 | 0.2 |
|  | n5 | 0 |
| CA\_n2-n5-n48-n66-n77 | n48 | 0.5 |
|  | n66 | 0.2 |
|  | n77 | 0.5 |

## **<<End of Change>>**