**3GPP TSG-RAN WG4 Meeting #97-e R4-2015919**

**Electronic Meeting, 02 November – 13 November 2020**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **-1** | **CR** | **0548** | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | CR to add NR intra-band FR1 in TS 38.101-1 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** |  | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_CA\_R16\_Intra | | | | |  | ***Date:*** | | | 2020-11-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | B |  | | | | | ***Release:*** | | |  |
|  | *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:*** | | Adding approved NR Intra-band FR1 combinations | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Approved NR Intra-band FR1 combinations at RAN4 96-e:  CA\_n48(A-B)  CA\_n48(A-C)  CA\_n66(2A)\_BCS1  Approved NR Intra-band FR1 combinations at RAN4 97-e:  CA\_n2(2A)  CA\_n5(2A)  CA\_n71(2A)  CA\_n77(2A)\_BCS1 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Approved NR Intra-band FR1 combinations are not added | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.5, 7.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-3 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

---Start of changes---

### 5.5A.2 Configurations for intra-band non-contiguous CA

Table 5.5A.2-1: NR CA configurations and bandwidth combination sets defined for intra-band non-contiguous CA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA Configuration | Uplink Configurations | Channel bandwidths for carrier  (MHz) | Channel bandwidths for carrier  (MHz) | Channel bandwidths for carrier  (MHz) | Channel bandwidths for carrier  (MHz) | Maximum  Aggregated bandwidth  (MHz) | Bandwidth combination set |
| CA\_n2(2A) | - | 5, 10, 15, 20 | 5, 10, 15, 20 |  |  | 40 | 0 |
| CA\_n3(2A) | - | 5, 10, 15, 20 | 5, 10, 15, 20 |  |  | 40 | 0 |
| CA\_n5(2A) | - | 5,10,15,20 | 5,10,15, 20 |  |  | 25 | 0 |
| CA\_n7(2A) | - | 5, 10, 15, 20 | 5, 10, 15, 20 |  |  | 40 | 0 |
| CA\_n25(2A) | - | 5, 10, 15, 20 | 5, 10, 15, 20 |  |  | 40 | 0 |
| CA\_n41(2A) | - | 40, 50, 60, 80, 100 | 40, 50, 60, 80, 100 |  |  | 180 | 0 |
| 10, 15, 20, 40, 50, 60, 80, 90, 100 | 10, 15, 20, 40, 50, 60, 80, 90, 100 |  |  | 190 | 1 |
| CA\_n48(2A) | - |  |  |  |  |  | 0 |
| 10, 15, 20, 40, 50, 60, 80, 90, 100 | 10, 15, 20, 40, 50, 60, 80, 90, 100 |  |  | 1402 |
| CA\_n48(3A) | - | 10, 15, 20, 40,50, 60, 80, 90, 100 | 10, 15, 20, 40,50, 60, 80, 90, 100 | 10, 15, 20, 40,50, 60, 80, 90, 100 |  | 1402 | 0 |
| CA\_n48(4A) | - | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 10, 15, 20, 40, 50, 60, 80, 90, 100 | 1352 | 0 |
| CA\_n66(2A) | - | 5, 10, 15, 20, 40 | 5, 10, 15, 20, 40 |  |  | 60 | 0 |
| 5, 10, 15, 20, 25, 30, 40 | 5, 10, 15, 20, 25, 30, 40 |  |  | 80 | 1 |
| CA\_n71(2A) | - | 5,10,15,20 | 5,10,15, 20 |  |  | 30 | 0 |
| CA\_n77(2A) | - | 20, 40, 80, 100 | 20, 40, 80, 100 |  |  | 200 | 0 |
| 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | 10, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |  | 200 | 1 |
| CA\_n78(2A) | - | 10, 20, 40, 50, 60, 80, 90, 100 | 10, 20, 40, 50, 60, 80, 90, 100 |  |  | 200 | 0 |
| 10, 20, 25, 30, 40, 50, 60, 80, 90, 100 | 10, 20, 25, 30, 40, 50, 60, 80, 90, 100 |  |  | 200 | 1 |
| 10, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 | 10, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100 |  |  | 200 | 2 |
| NOTE 1: Void.  NOTE 2: Parameter value accounts for both, the maximum frequency range of band n48 (150 MHz), and the minimum frequency gaps in between NR non-contiguous component carriers. | | | | | | | |

Table 5.5A.2-2: NR CA configurations and bandwidth combination sets defined for mixed intra-band contiguous and non-contiguous CA

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NR CA Configuration | Uplink CA configuration | CA Class | 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 | Bandwidth combination set |
| CA\_n48(A-B) | CA\_n48B | A | 15 | Yes | Yes | Yes | Yes |  |  | Yes | Yes1 |  |  |  |  |  | 0 |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes1 | Yes1 |  | Yes1 | Yes1 | Yes1 |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes1 | Yes1 |  | Yes1 | Yes1 | Yes1 |
| B | See CA\_n48B bandwidth combination set 0 in Table 5.5A.1-1 | | | | | | | | | | | | | |
| CA\_n48(A-C) | - | A | 15 | Yes | Yes | Yes | Yes |  |  | Yes | Yes1 |  |  |  |  |  | 0 |
| 30 |  | Yes | Yes | Yes |  |  | Yes | Yes1 | Yes1 |  | Yes1 | Yes1 | Yes1 |
| 60 |  | Yes | Yes | Yes |  |  | Yes | Yes1 | Yes1 |  | Yes1 | Yes1 | Yes1 |
| C | See CA\_n48C bandwidth combination set 0 in Table 5.5A.1-1 | | | | | | | | | | | | | |
| NOTE 1: This UE channel bandwidth is applicable only to downlink | | | | | | | | | | | | | | | | | |

### 5.5A.3 Configurations for inter-band CA

---Text omitted---

Table 7.3A.2.2-1: Intra-band non-contiguous CA with one uplink configuration for reference sensitivity

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| CA configuration | SCS  (kHz) | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation | ΔRIBNC (dB) | Duplex mode |
| CA\_n2(2A) | 15 | 25RB+25RB | Wgap = 55.0 | 105 | 5.0 | FDD |
| Wgap = 30.0 | 25 | 0.0 |
| CA\_n3(2A) | 15 | 25RB+25RB | Wgap = 65.0 | 125 | 4.7 | FDD |
| Wgap = 45.0 | 255 | 0.0 |
| CA\_n5(2A) | 15 | 75RB + 25RB | Wgap = 5.0 | 55 | 6.3 | FDD |
| CA\_n7(2A) | 15 | 52RB+25RB | Wgap = 55 | 325 | 0.0 | FDD |
| Wgap = 30 | 505 | 0.0 |
| CA\_n25(2A) | 15 | 25RB+25RB | Wgap = 55.0 | 105 | 5.0 | FDD |
| Wgap = 30.0 | 25 | 0.0 |
| CA\_n41(2A) | N/A | NOTE 1 | NOTE 2 | NOTE 3 | 0.0 | TDD |
| CA\_n66(2A) | N/A | NOTE 1 | NOTE 2 | NOTE 3, NOTE 4 | 0.0 | FDD |
| CA\_n71(2A) | 15 | 25RB+25RB | Wgap = 25.0 | 5 | 4.0 | FDD |
| Wgap = 5.0 | 20 | 0.0 |
| 50RB+25RB | Wgap = 20.0 | 58 | 4.6 |
| Wgap = 5.0 | 208 | 2.3 |
| 75RB+50RB | Wgap = 10.0 | 59 | 22.2 |
| Wgap = 5.0 | 2010 | 5.2 |
| CA\_n77(2A) |  | NOTE 1 | NOTE 2 | NOTE 3 | 0.0 | TDD |
| CA\_n78(2A) |  | NOTE 1 | NOTE 2 | NOTE 3 | 0.0 | TDD |
| NOTE 1: All combinations of channel bandwidths defined in Table 5.5A.2-1.  NOTE 2: All applicable sub-block gap sizes.  NOTE 3: The PCC allocation is same as Transmission bandwidth configuration NRB as defined in Table 5.3.2-1.  NOTE 4: The carrier center frequency of PCC in the DL operating band is configured closer to the UL operating band.  NOTE 5: Refers to the UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission.  NOTE 6: Wgap is the sub-block gap between the two sub-blocks.  NOTE 7: The carrier centre frequency of SCC in the DL operating band is configured closer to the UL operating band.  NOTE 8: Uplink resource block starts at RB postion [9] for SCS=15KHz.  NOTE 9: Uplink resource block starts at RB postion [2] for SCS=15KHz.  NOTE 10: Uplink resource block starts at RB postion [19] for SCS=15KHz. | | | | | | |

---End of changes---