**3GPP TSG-RAN WG4 Meeting # 104-e R4-2212304**

**Electronic Meeting, August 15 – August 26, 2022**

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| *CR-Form-v12.2* | | | | | | | | |
| **DRAFT CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.101** | **CR** | **-** | **rev** | **-** | **Current version:** | **17.6.0** |  |
|  | | | | | | | | |
| *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:*** | Draft CR for 36.101: UE RF requirements for band 8 intra-band contiguous CA | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | CMCC | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_CA\_intra\_B8-Core | | | | |  | ***Date:*** | | | 2022-7-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *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:*** | | A new WID on LTE intra-band contiguous CA for band 8 is approved in RAN#96. This draft CR capture all affected RF requirements for 10+3MHz contiguous CA of band 8. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add following RF requirements for 10+3MHz contiguous CA of band 8   1. CA configurations and BCS configuration 2. UE minimum output power for CA 3. UE transmit OFF power for CA 4. SEM for 10+3 CA 5. UL configuration for REFSENSE | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | BCS1 of LTE band 8 intra-band CA is not finished. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.6A.1, 6.2.3A, 6.3.2A, 6.3.3A, 6.6.2.1A and 7.3.1A | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR… CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## < changed section>

5.6A.1 Channel bandwidths per operating band for CA

The requirements for carrier aggregation in this specification are defined for carrier aggregation configurations with associated bandwidth combination sets. For inter-band carrier aggregation, a *carrier aggregation configuration* is a combination of operating bands, each supporting a carrier aggregation bandwidth class. For intra-band contiguous carrier aggregation, a carrier aggregation configuration is a single operating band supporting a carrier aggregation bandwidth class.

For each carrier aggregation configuration, requirements are specified for all bandwidth combinations contained in a *bandwidth combination set*, which is indicated per supported band combination in the UE radio access capability. A UE can indicate support of several bandwidth combination sets per band combination.

Requirements for intra-band contiguous carrier aggregation are defined for the carrier aggregation configurations and bandwidth combination sets specified in Table 5.6A.1-1. Requirements for inter-band carrier aggregation are defined for the carrier aggregation configurations and bandwidth combination sets specified in Table 5.6A.1-2, Table 5.6A.1-2a, Table 5.6A.1-2b and Table 5.6A.1-2c. Requirements for intra-band non-contiguous carrier aggregation are defined for the carrier aggregation configurations and bandwidth combination sets specified in Table 5.6A.1-3.

The DL component carrier combinations for a given CA configuration shall be symmetrical in relation to channel centre unless stated otherwise in Table 5.6A.1-1, Table 5.6A.1-2, Table 5.6A.1-2a, Table 5.6A.1-2b and Table 5.6A.1-2c.

**Table 5.6A.1-1: E-UTRA CA configurations and bandwidth combination sets defined for intra-band contiguous CA**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **E-UTRA CA configuration / Bandwidth combination set** | | | | | | |
| **E-UTRA CA configuration** | **Uplink CA configurations**  **(NOTE 3)** | **Component carriers in order of increasing carrier frequency** | | | | | **Maximum aggregated  bandwidth [MHz]** | **Bandwidth combination set** |
| **Channel bandwidths for carrier [MHz]** | **Channel bandwidths for carrier [MHz]** | **Channel bandwidths for carrier [MHz]** | **Channel bandwidths for carrier [MHz]** | **Channel bandwidths for carrier [MHz]** |
| CA\_1C | CA\_1C | 15 | 15 |  |  |  | 40 | 0 |
| 20 | 20 |  |  |  |
| 5, 10, 15 | 20 |  |  |  | 40 | 1 |
| 20 | 5, 10, 15, 20 |  |  |  |
| CA\_2C |  | 5 | 20 |  |  |  | 40 | 0 |
| 10 | 15, 20 |  |  |  |
| 15 | 10, 15, 20 |  |  |  |
| 20 | 5, 10, 15, 20 |  |  |  |
| CA\_3B |  | 5 | 3 |  |  |  | 10 | 0 |
| 3, 5 | 5 |  |  |  |
| CA\_3C | CA\_3C | 5, 10, 15 | 20 |  |  |  | 40 | 0 |
| 20 | 5, 10, 15, 20 |  |  |  |
| CA\_5B | CA\_5B | 5, 10 | 10 |  |  |  | 20 | 0 |
| 10 | 5 |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |
| CA\_7B |  | 15 | 5 |  |  |  | 20 | 0 |
| CA\_7C | CA\_7C | 15 | 15 |  |  |  | 40 | 0 |
| 20 | 20 |  |  |  |
| 10 | 20 |  |  |  | 40 | 1 |
| 15 | 15, 20 |  |  |  |
| 20 | 10, 15, 20 |  |  |  |
| 15 | 10, 15 |  |  |  | 40 | 2 |
| 20 | 15, 20 |  |  |  |
| CA\_8B | CA\_8B | 5,10 | 10 |  |  |  | 20 | 0 |
| 10 | 5 |  |  |  |
| 10 | 3,5 |  |  |  | 15 | 1 |
| 3,5 | 10 |  |  |  |
| CA\_12B | - | 5 | 5, 10 |  |  |  | 15 | 0 |
| CA\_23B | - | 10 | 10 |  |  |  | 20 | 0 |
| 5 | 15 |  |  |  |
| CA\_27B | - | 1.4, 3, 5 | 5 |  |  |  | 13 | 0 |
| 1.4, 3 | 10 |  |  |  |
| CA\_28C | - | 5 | 20 |  |  |  | 30 | 0 |
| 10 | 15, 20 |  |  |  |
| 15 | 10, 15 |  |  |  |
| 20 | 5, 10 |  |  |  |
| CA\_38C | CA\_38C | 15 | 15 |  |  |  | 40 | 0 |
| 20 | 20 |  |  |  |
| CA\_39C | CA\_39C | 5,10,15 | 20 |  |  |  | 35 | 0 |
| 20 | 5, 10, 15 |  |  |  |
| CA\_40C | CA\_40C | 10 | 20 |  |  |  | 40 | 0 |
| 15 | 15 |  |  |  |
| 20 | 10, 20 |  |  |  |
| 10, 15 | 20 |  |  |  | 40 | 1 |
| 15 | 15 |  |  |  |
| 20 | 10, 15, 20 |  |  |  |
| CA\_40D | CA\_40C, CA\_40D | 10, 15, 20 | 20 | 20 |  |  | 60 | 0 |
| 20 | 10, 15 | 20 |  |  |
| 20 | 20 | 10, 15 |  |  |
| 15, 20 | 15, 20 | 15, 20 |  |  | 60 | 1 |
| CA\_40E | - | 15, 20 | 15, 20 | 15, 20 | 20 |  | 80 | 0 |
| CA\_40F | - | 15, 20 | 15, 20 | 15, 20 | 20 | 20 | 100 | 0 |
| CA\_41C5 | CA\_41C | 10 | 20 |  |  |  | 40 | 0 |
| 15 | 15, 20 |  |  |  |
| 20 | 10, 15, 20 |  |  |  |
| 5, 10 | 20 |  |  |  | 40 | 1 |
| 15 | 15, 20 |  |  |  |
| 20 | 5, 10, 15, 20 |  |  |  |
| 10 | 15, 20 |  |  |  | 40 | 2 |
| 15 | 10, 15, 20 |  |  |  |
| 20 | 10, 15, 20 |  |  |  |
| 10 | 20 |  |  |  | 40 | 3 |
| 20 | 20 |  |  |  |
| CA\_41D | CA\_41C, CA\_41D | 10 | 20 | 15 |  |  | 60 | 0 |
| 10 | 15, 20 | 20 |  |  |
| 15 | 20 | 10, 15 |  |  |
| 15 | 10, 15, 20 | 20 |  |  |
| 20 | 15, 20 | 10 |  |  |
| 20 | 10, 15, 20 | 15, 20 |  |  |
| CA\_41E | CA\_41C, CA\_41D | 15, 20 | 15, 20 | 15, 20 | 20 |  | 80 | 0 |
| CA\_41F | CA\_41C, CA\_41D | 10,15, 20 | 15, 20 | 20 | 20 | 20 | 100 | 0 |
| CA\_42C5 | CA\_42C | 5, 10, 15, 20 | 20 |  |  |  | 40 | 0 |
| 20 | 5, 10, 15 |  |  |  |
| 10, 15, 20 | 20 |  |  |  | 40 | 1 |
| 20 | 10, 15 |  |  |  |
| CA\_42D | CA\_42C | 5,10,15,20 | 20 | 20 |  |  | 60 | 0 |
| 20 | 20 | 5,10,15 |  |  |
| 10, 15, 20 | 20 | 20 |  |  | 60 | 1 |
| 20 | 20 | 10, 15 |  |  |
| CA\_42E | CA\_42C | 5,10,15,20 | 20 | 20 | 20 |  | 80 | 0 |
| 20 | 20 | 20 | 5,10,15 |  |
| CA\_42F | CA\_42C | 5, 10, 15, 20 | 20 | 20 | 20 | 20 | 100 | 0 |
| 20 | 20 | 20 | 20 | 5, 10, 15, 20 |
| CA\_43C | - | 5 | 20 |  |  |  | 40 | 0 |
| 10 | 15, 20 |  |  |  |
| 15 | 10, 15, 20 |  |  |  |
| 20 | 5, 10, 15, 20 |  |  |  |
| CA\_46C 4 | - | 20 | 20 |  |  |  | 40 | 0 |
| 20 | 10, 20 |  |  |  | 40 | 1 |
| 10, 20 | 20 |  |  |  |
| CA\_46D 4 | - | 20 | 20 | 20 |  |  | 60 | 0 |
| 20 | 20 | 10, 20 |  |  | 60 | 1 |
| 10, 20 | 20 | 20 |  |  |
| CA\_46E 4 | - | 20 | 20 | 20 | 20 |  | 80 | 0 |
| 20 | 20 | 20 | 10, 20 |  | 80 | 1 |
| 10 | 20 | 20 | 20 |  |
| CA\_48B | CA\_48B | 10 | 10 |  |  |  | 20 | 0 |
| CA\_48C | CA\_48C | 5, 10, 15, 20 | 20 |  |  |  | 40 | 0 |
| 20 | 5, 10, 15 |  |  |  |
| CA\_48D | CA\_48C | 5,10,15,20 | 20 | 20 |  |  | 60 | 0 |
| 20 | 20 | 5,10,15 |  |  |
| CA\_48E | CA\_48C | 5,10,15,20 | 20 | 20 | 20 |  | 80 | 0 |
| 20 | 20 | 20 | 5,10,15 |  |
| CA\_48F | - | 5, 10, 15, 20 | 20 | 20 | 20 | 20 | 100 | 0 |
| 20 | 20 | 20 | 20 | 5, 10, 15, 20 |
| CA\_66B | CA\_66B | 5 | 5, 10, 15 |  |  |  | 20 | 0 |
| 10 | 5, 10 |  |  |  |
| 15 | 5 |  |  |  |
| CA\_66C | CA\_66C | 5 | 20 |  |  |  | 40 | 0 |
| 10 | 15, 20 |  |  |  |
| 15 | 10, 15, 20 |  |  |  |
| 20 | 5, 10, 15, 20 |  |  |  |
| CA\_66D | - | 5 | 20 | 20 |  |  | 60 | 0 |
| 20 | 5 | 20 |  |  |
| 20 | 20 | 5 |  |  |
| 10 | 20 | 15 |  |  |
| 15 | 20 | 10 |  |  |
| 10, 15, 20 | 15, 20 | 20 |  |  |
| 15, 20 | 10 | 20 |  |  |
| 15 | 15, 20 | 15 |  |  |
| 20 | 15, 20 | 10, 15 |  |  |
| 20 | 10 | 15 |  |  |
| CA\_70C | - | 5 | 20 |  |  |  | 25 | 0 |
| 10 | 15 |  |
| 15 | 10 |  |
| NOTE 1: The CA configuration refers to an operating band and a CA bandwidth class specified in Table 5.6A-1 (the indexing letter). Absence of a CA bandwidth class for an operating band implies support of all classes.  NOTE 2: For the supported CC bandwidth combinations, the CC downlink and uplink bandwidths are equal.  NOTE 3: Uplink CA configurations are the configurations supported by the present release of specifications.  NOTE 4: Restricted to E-UTRA operation when inter-band carrier aggregation is configured. The downlink operating band is paired with the uplink operating band (external) of the carrier aggregation configuration that is supporting the configured Pcell.  NOTE 5: 8Rx Requirements are applicable for this band configuration if UE supports 8Rx. | | | | | | | | |

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### 6.2.3A UE Maximum Output power for modulation / channel bandwidth for CA

For inter-band carrier aggregation with one uplink component carrier assigned to one E-UTRA band, the requirements in subclause 6.2.3 apply. For inter-band carrier aggregation with two uplink contiguous component carrier assigned to one E-UTRA band specified in this clause for intra-band contiguous carrier aggregation apply for that band.

For inter-band carrier aggregation with one component carrier per operating band and the uplink active in two E-UTRA bands, the requirements in subclause 6.2.3 apply for each uplink component carrier.

For intra-band contiguous carrier aggregation the allowed Maximum Power Reduction (MPR) for the maximum output power in Table 6.2.2A-1due to higher order modulation and contiguously aggregated transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3A-1 for UE power class 3 CA bandwidth classes B and C, in Table 6.2.3A-1a for UE power class 2 CA bandwidth class C, and Table 6.2.3A-2 for UE power class 3 CA bandwidth class D. In case the modulation format is different on different component carriers then the MPR is determined by the rules applied to higher order of those modulations.

Table 6.2.3A-1: Maximum Power Reduction (MPR) for Power Class 3

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Modulation | CA bandwidth Class B and C / Smallest Component Carrier Transmission Bandwidth Configuration | | | | | MPR (dB) |
| 15 RB | 25 RB | 50 RB | 75 RB | 100 RB |
| QPSK | > 4 and ≤ 15 | > 8 and ≤ 25 | > 12 and ≤ 50 | > 16 and ≤ 75 | > 18 and ≤ 100 | ≤ 1 |
| QPSK | >15 | > 25 | > 50 | > 75 | > 100 | ≤ 2 |
| 16 QAM | ≤ 4 | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 |
| 16 QAM | > 4 and ≤ 15 | > 8 and ≤ 25 | > 12 and ≤ 50 | > 16 and ≤ 75 | > 18 and ≤ 100 | ≤ 2 |
| 16 QAM | >15 | > 25 | > 50 | > 75 | > 100 | ≤ 3 |
| 64 QAM | ≤ 4 and allocation wholly contained within a single CC | ≤ 8 and allocation wholly contained within a single CC | ≤ 12 and allocation wholly contained within a single CC | ≤ 16 and allocation wholly contained within a single CC | ≤ 18 and allocation wholly contained within a single CC | ≤ 2 |
| 64 QAM | > 4 or allocation extends across two CC's | > 8 or allocation extends across two CC's | > 12 or allocation extends across two CC's | > 16 or allocation extends across two CC's | > 18 or allocation extends across two CC's | ≤ 3 |
| 256 QAM | ≥ 1 | | | | | ≤ 5 |

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6.3.2A UE Minimum output power for CA

For inter-band carrier aggregation with uplink assigned to two E-UTRA bands and intra-band contiguous and non-contiguous carrier aggregation, the minimum controlled output power of the UE is defined as the transmit power of the UE per component carrier, i.e., the power in the channel bandwidth of each component carrier for all transmit bandwidth configurations (resource blocks), when the power on both component carriers are set to a minimum value.

6.3.2A.1 Minimum requirement for CA

For inter-band carrier aggregation with uplink assigned to two E-UTRA bands, the minimum output power is defined per carrier and the requirement is specified in subclause 6.3.2.1. If two contiguous component carriers are assigned to one E-UTRA band, the requirements in subclause 6.3.2A.1 apply for those component carriers.

For intra-band contiguous and non-contiguous carrier aggregation the minimum output power is defined as the mean power in one sub-frame (1ms). The minimum output power shall not exceed the values specified in Table 6.3.2A.1-1.

**Table 6.3.2A.1-1: Minimum output power for intra-band contiguous and non-contiguous CA UE**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **CC Channel bandwidth / Minimum output power / Measurement bandwidth** | | | | | |
| **1.4**  **MHz** | **3.0**  **MHz** | **5**  **MHz** | **10**  **MHz** | **15**  **MHz** | **20**  **MHz** |
| Minimum output power | -40 dBm | | | | | |
| Measurement bandwidth |  | 2.7MHz | 4.5 MHz | 9.0 MHz | 13.5 MHz | 18 MHz |

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6.3.3A UE Transmit OFF power for CA

For inter-band carrier aggregation with uplink assigned to two E-UTRA bands and intra-band contiguous and non-contiguous carrier aggregation, transmit OFF power is defined as the mean power per component carrier when the transmitter is OFF on all component carriers. The transmitter is considered to be OFF when the UE is not allowed to transmit or during periods when the UE is not transmitting a sub-frame. During measurements gaps, the UE is not considered to be OFF.

6.3.3A.1 Minimum requirement for CA

For inter-band carrier aggregation with uplink assigned to two E-UTRA bands, transmit OFF power requirement is defined per carrier and the requirement is specified in subclause 6.3.3.1. If two contiguous component carriers are assigned to one E-UTRA band, the requirements in subclause 6.3.3A.1 apply for those component carriers.

For intra-band contiguous and non-contiguous carrier aggregation the transmit OFF power is defined as the mean power in a duration of at least one sub-frame (1ms) excluding any transient periods. The transmit OFF power shall not exceed the values specified in Table 6.3.3A.1-1.

**Table 6.3.3A.1-1: Transmit OFF power for intra-band contiguous and non-contiguous CA UE**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **CC Channel bandwidth / Transmit OFF power / Measurement bandwidth** | | | | | |
| **1.4**  **MHz** | **3.0**  **MHz** | **5**  **MHz** | **10**  **MHz** | **15**  **MHz** | **20**  **MHz** |
| Transmit OFF power | -50 dBm | | | | | |
| Measurement bandwidth |  | 2.7MHz | 4.5 MHz | 9.0 MHz | 13.5 MHz | 18 MHz |

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6.6.2.1A Spectrum emission mask for CA

For inter-band carrier aggregation with one component carrier per operating band and the uplink active in two E-UTRA bands, the spectrum emission mask of the UE is defined per component carrier while both component carriers are active and the requirements are specified in subclauses 6.6.2.1 and 6.6.2.2. If for some frequency spectrum emission masks of component carriers overlap then spectrum emission mask allowing higher power spectral density applies for that frequency. If for some frequency a component carrier spectrum emission mask overlaps with the channel bandwidth of another component carrier, then the emission mask does not apply for that frequency.

For intra-band contiguous carrier aggregation the spectrum emission mask of the UE applies to frequencies (ΔfOOB) starting from the ± edge of the aggregated channel bandwidth (Table 5.6A-1) For intra-band contiguous carrier aggregation the bandwidth class B, C and D, the power of any UE emission shall not exceed the levels specified in Table 6.6.2.1A-0, Table 6.6.2.1A-1 and Table 6.6.2.1A-2 for the specified channel bandwidth.

**Table 6.6.2.1A-0: General E-UTRA CA spectrum emission mask for Bandwidth Class B**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ΔfOOB**  **(MHz)** | **25RB+25RB**  **(9.8MHz)** | **15RB+50RB**  **(12.85 MHz)** | **25RB+50RB**  **(14.95 MHz)** | **25RB+75RB**  **(19.8MHz)** | **50RB+50RB**  **(19.9 MHz)** | **Measurement bandwidth** |
| ± 0-1 | -18 | -19 | -20 | -21 | -21 | 30 kHz |
| ± 1-5 | -10 | -10 | -10 | -10 | -10 | 1 MHz |
| ± 5-9.8 | -13 | -13 | -13 | -13 | -13 | 1 MHz |
| ± 9.8-12.85 | -25 | -13 | -13 | -13 | -13 | 1 MHz |
| ± 12.85-14.8 | -25 | -25 | -13 | -13 | -13 | 1 MHz |
| ± 14.8-14.95 |  | -25 | -13 | -13 | -13 | 1 MHz |
| ± 14.95-17.85 |  | -25 | -25 | -13 | -13 | 1 MHz |
| ± 17.85-19.80 |  |  | -25 | -13 | -13 | 1 MHz |
| ± 19.80-19.90 |  |  | -25 | -25 | -13 | 1 MHz |
| ± 19.90-19.95 |  |  | -25 | -25 | -25 | 1 MHz |
| ± 19.95-24.80 |  |  |  | -25 | -25 | 1 MHz |
| ± 24.80-24.90 |  |  |  |  | -25 | 1 MHz |

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7.3.1A Minimum requirements (QPSK) for CA

For intra-band contiguous carrier aggregation the throughput of each component carrier shall be ≥ 95% of the maximum throughput of the reference measurement channels as specified in Annexes A.2.2, A.2.3 and A.3.2 (with one sided dynamic OCNG Pattern OP.1 FDD/TDD for the DL-signal as described in Annex A.5.1.1/A.5.2.1) with parameters specified in Table 7.3.1-1, Table 7.3.1-1a, Table 7.3.1-1A, Table 7.3.1-1B, Table 7.3.1-1C, Table 7.3.1A-0h and Table 7.3.1A-1. For operating bands with an unpaired DL part (as noted in Table 5.5-1), the power levels in Table 7.3.1-1 and Table 7.3.1-1a also apply for an SCC assigned in the unpaired part. The requirement is verified using an uplink CA configuration with the largest number of carriers supported by the UE. Table 7.3.1A-0h, Table 7.3.1A-1 and Table 7.3.1A-2 specifies the maximum number of allocated uplink resource blocks for which the intra-band contiguous carrier aggregation reference sensitivity requirement shall be met. The PCC and SCC allocations as defined in Table 7.3.1A-0h, Table 7.3.1A-1 and Table 7.3.1A-2 form a contiguous allocation where TX–RX frequency separations of the component carriers are as defined in Table 5.7.4-1. In case downlink CA configuration has additional SCC(s) compared to uplink CA configuration those are configured furthers away from uplink band. For UE(s) supporting one uplink carrier, the uplink configuration of the PCC shall be in accordance with Table 7.3.1-2 and the downlink PCC carrier center frequency shall be configured closer to uplink operating band than any of the downlink SCC center frequency. Unless given by Table 7.3.1-3, the reference sensitivity requirements shall be verified with the network signalling value NS\_01 (Table 6.2.4-1) configured.

**Table 7.3.1A-0h: Intra-band contiguous CA uplink configuration for reference sensitivity for Bandwidth Class B**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CA configuration / CC combination / NRB\_agg / Duplex mode** | | | | | | | | | | | |
| **Uplink CA configuration** | **25RB+25RB** | | **50RB+15RB** | | **50RB+25RB** | | **50RB+50RB** | | **75RB+25RB** | | **Duplex Mode** |
| **PCC** | **SCC** | **PCC** | **SCC** | **PCC** | **SCC** | **PCC** | **SCC** | **PCC** | **SCC** |
| CA\_5B | N/A | N/A | N/A | N/A | 25 | 0 | 25 | 0 | N/A | N/A | FDD |
| CA\_8B | N/A | N/A | 25 | 0 | 25 | 0 | 25 | 0 | N/A | N/A | FDD |
| CA\_66B | 25 | 25 | N/A | N/A | 50 | 25 | 50 | 50 | 75 | 25 | FDD |
| NOTE 1: The carrier centre frequency of SCC in the UL operating band is configured closer to the DL operating band.  NOTE 2: The transmitted power over both PCC and SCC shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 3: The UL resource blocks in both PCC and SCC shall be confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1).  NOTE 4: The UL resource blocks in PCC shall be located as close as possible to the downlink operating band, while the UL resource blocks in SCC shall be located as far as possible from the downlink operating band.  NOTE 5: In case a CA configuration consists of CC channel bandwidths which are unequal in bandwidth the PCC channel bandwidth shall be the larger one for reference sensitivity test. | | | | | | | | | | | |