**3GPP TSG-RAN4 Meeting #79 *R4-163850***

**Nanjing, China, 23rd May 2016 - 27th May 2016**

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| *CR-Form-v11.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.101** | **CR** | **3590** | **rev** | **-** | **Current version:** | **13.3.0** |  |
|  | | | | | | | | |
| *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:*** | CR for delta F\_HD for B46 combinations | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | NTT DOCOMO, INC. | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_LAA-Core | | | | |  | ***Date:*** | | | 2016-05-26 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | F |  | | | | | ***Release:*** | | | Rel-13 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Required frequecny gaps for no MSD for CA combinations including B46 are missing. And also, the REFSENS of B46 for CA\_42A-46A needs to be modified due to the frequency proximity. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Add required frequecny gaps for no MSD for CA\_1A-46A, CA\_2A-46A, CA\_3A-46A and CA\_4A-46A. Also, the REFSENS of B46 for CA\_42A-46A is changed from -90 dBm to FFS. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | UEs supporting the CA combinations may not be able to pass the conformance tests within the desense ranges. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.3.1A | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | |  | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 36.521-1 | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |

<Unchanged sections omitted>

### 7.3.1A Minimum requirements (QPSK) for CA

For inter-band carrier aggregation with one component carrier per operating band and the uplink assigned to one E-UTRA band the throughput 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 and Table 7.3.1-2. The reference sensitivity is defined to be met with all downlink component carriers active and one of the uplink carriers active. The uplink resource blocks shall be located as close as possible to the primary downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1). The primary downlink operating band is the downlink band of the active uplink operating band. The UE shall meet the requirements specified in subclause 7.3.1 with the following exceptions.

For the UE that supports any of the E-UTRA CA configurations given in Table 7.3.1A-0a, exceptions to the aforementioned requirements are allowed when the uplink is active in a lower-frequency band and is within a specified frequency range such that transmitter harmonics fall within the downlink transmission bandwidth assigned in a higher band as noted in Table 7.3.1A-0a. For these exceptions, the UE shall meet the requirements specified in Table 7.3.1A-0a and Table 7.3.1A-0b.

Table 7.3.1A-0a: Reference sensitivity for carrier aggregation QPSK PREFSENS, CA (exceptions)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel bandwidth | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz (dBm) | 3 MHz (dBm) | 5 MHz (dBm) | 10 MHz (dBm) | 15 MHz (dBm) | 20 MHz (dBm) | Duplex mode |
| CA\_1A-3A-7A-8A4,5,6 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | N/A | N/A | N/A | N/A |
| 7 |  |  |  | -87.4 | -87 | -86.7 |
| 8 |  |  | -96.8 | -93.8 |  |  |
| CA\_1A-3A-7A-28A5,6 | 1 |  |  | -89.8 | -89.4 | -89 | -88.7 | FDD |
| 3 |  |  |  | -94 | -92.2 | -91 |
| 7 |  |  |  | -95 | -93.2 | -92 |
| 28 |  |  |  | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-8A-40A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | N/A | N/A | N/A | N/A |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_1A-3A-19A-42A9,10 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_1A-3A-19A-42A11 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 | TDD |
| CA\_1A-3A-19A-42C9,10 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_1A-3A-19A-42C11 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 | TDD |
| CA\_1A-3A-28A | 1 |  |  | -89.8 | -89.4 | -89 | -88.7 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]20 | [-96.7]20 | [-94.9]20 | [-93.7]20 |
| 28 |  |  | -98.3 | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-42A9,10 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_1A-3A-42A11 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 | TDD |
| CA\_1A-7A-8A5,6 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 7 |  |  |  | -87.4 | -87 | -86.7 |
| 8 |  |  | -96.8 | -93.8 |  |  |
| CA\_1A-7A-28A5,6 | 1 |  |  | -89.8 | -89.4 | -89 | -88.7 | FDD |
| 7 |  |  |  | -95 | -93.2 | -92 |
|  |  |  | [-97.7]20 | [-95.9]20 | [-94.7]20 |
| 28 |  |  | -98.3 | -95.3 | -93.5 | -90.8 |
| CA\_1A-19A-28A14 | 1 |  |  | N/A | N/A | N/A | N/A | FDD |
| 19 |  |  | N/A | N/A | N/A |  |
| 28 |  |  | N/A | N/A |  |  |
| CA\_1A-28A5,6,14 | 1 |  |  | -89.8 | -89.4 | -89 | -88.7 | FDD |
| 28 |  |  | -98.3 | -95.3 | -93.5 | -90.8 |
| CA\_2A-4A-12A5,6 | 2 |  |  | -97.7 | -94.7 | -92.9 | -91.7 | FDD |
|  |  | [-100.4]20 | [-97.4]20 | [-95.6]20 | [-94.4]20 |
| 4 |  |  | -90 | -89.5 | -89 | -88.5 |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_2A-4A-7A-12A5,6 | 2 |  |  | -97.7 | -94.7 | -92.9 | -91.7 | FDD |
| 4 |  |  | -90 | -89.5 | -89 | -88.5 |
| 7 |  |  | -97.5 | -94.5 | -92.7 | -91.5 |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_3A-7A-8A4,5,6 | 3 |  |  | N/A | N/A | N/A | N/A | FDD |
| 7 |  |  |  | -87.4 | -87 | -86.7 |
| 8 |  |  | -96.8 | -93.8 |  |  |
| CA\_3A-8A4 | 3 |  |  | N/A | N/A | N/A | N/A | FDD |
| 8 |  | N/A | N/A | N/A |  |  |
| CA\_3A-19A-42A9,10 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_3A-19A-42A11 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 | TDD |
| CA\_3A-28A-40A15,16 | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD |
|  |  | [-99.7]20 | [-96.7]20 | [-94.9]20 | [-93.7]20 |
| 28 |  |  | -60.7 | -60.7 | -60.7 | -60.7 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-28A-40C15,16 | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD |
|  |  | [-99.7]20 | [-96.7]20 | [-94.9]20 | [-93.7]20 |
| 28 |  |  | -60.7 | -60.7 | -60.7 | -60.7 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-31A12,13 | 3 |  |  | -86.9 | -86.4 | -86 | -85.6 | FDD |
| 31 |  | -95.5 | -93.3 |  |  |  |
| CA\_3A-42A9,10 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_3A-42A11 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]20 | [-96.5]20 | [-94.7]20 | [-93.5]20 |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 | TDD |
| CA\_4A-5A-12A5,6 | 4 |  |  | -90 | -89.5 | -89 | -88.5 | FDD |
| 5 |  |  | -97.5 | -94.5 |  |  |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_4A-4A-5A-12A5,6 | 4 |  |  | -90 | -89.5 | -89 | -88.5 | FDD |
| 5 |  |  | -97.5 | -94.5 |  |  |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_4A-7A-12A5,6 | 4 |  |  | [-90] | [-89.5] | [-89] | [-88.5] | FDD |
| 7 |  |  | -97.5 | -94.5 |  |  |
|  |  | [-100.2]20 | [-97.2]20 |  |  |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_4A-12A5,6 | 4 | -89.2 | -89.2 | -90 | -89.5 | -89 | -88.5 | FDD |
| 12 |  | -98.2 | -96.5 | -93.5 |  |  |
| CA\_4A-4A-12A-30A5,6 | 4 |  |  | -90 | -89.5 | -89 | -88.5 | FDD |
| 12 |  |  | -96.5 | -93.5 |  |  |
| 30 |  |  | -98.5 | -95.5 |  |  |
| CA\_4A-17A5,6 | 4 |  |  | -90 | -89.5 |  |  | FDD |
| 17 |  |  | -96.5 | -93.5 |  |  |
| CA\_4A-28A5,6 | 4 |  |  | -89.8 | -89.4 | -89 | -88.7 | FDD |
| 28 |  |  | -98.3 | -95.3 | -93.5 | -90.8 |
| CA\_5A-38A19 | 5 |  |  | N/A | N/A |  |  | FDD |
| 38 |  |  | N/A | N/A | N/A | N/A | TDD |
| CA\_7A-8A5,6 | 7 |  |  |  | -87.4 | -87 | -86.7 | FDD |
| 8 |  | -99 | -96.8 | -93.8 |  |  |
| CA\_7A-8A-20A5,6 | 7 |  |  |  | -87.4 | -87 | -86.7 | FDD |
| 8 |  | -99 | -96.8 | -93.8 |  |  |
| 20 |  |  | [-96.8] | [-93.8] |  |  |
|  |  | [-99.5]20 | [-96.5]20 |  |  |
| CA\_8A-41A8 | 8 | N/A | N/A | N/A | N/A |  |  | FDD |
| 41 |  |  |  | N/A | N/A | N/A | TDD |
| CA\_8A-42A17,18 | 8 | -102 | -99 | -96.8 | -93.8 |  |  | FDD |
| 42 |  |  | -84.8 | -84.7 | -84.6 | -84.5 | TDD |
| CA\_8A-42C17,18 | 8 | -102 | -99 | -96.8 | -93.8 |  |  | FDD |
| 42 |  |  | -84.8 | -84.7 | -84.6 | -84.5 | TDD |
| CA\_20A-40A15,16 | 20 |  |  | -60.7 | -60.7 | -60.7 | -60.7 | FDD |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_26A-41A8 | 26 |  |  | N/A | N/A | N/A |  | FDD |
| 41 |  |  | N/A | N/A | N/A | N/A | TDD |
| CA\_28A-40A15,16 | 28 |  |  | -60.7 | -60.7 | -60.7 | -60.7 | FDD |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_28A-40C15,16 | 28 |  |  | -60.7 | -60.7 | -60.7 | -60.7 | FDD |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_28A-40D15,16 | 28 |  |  | -60.7 | -60.7 | -60.7 | -60.7 | FDD |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_28A-42A17,18 | 28 |  |  | -98.3 | -95.3 | -93.5 | -92.3 | FDD |
| 42 |  |  | -85.7 | -85.4 | -85.1 | -84.9 | TDD |
| CA\_28A-42C17,18 | 28 |  |  | -98.3 | -95.3 | -93.5 | -92.3 | FDD |
| 42 |  |  | -85.7 | -85.4 | -85.1 | -84.9 | TDD |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: Reference measurement channel is A.3.2 with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in Annex A.5.1.1/A.5.2.1  NOTE 3: The signal power is specified per port  NOTE 4: No requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the low band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of the high band. The reference sensitivity is only verified when this is not the case (the requirements specified in clause 7.3.1 apply).  NOTE 5: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of a low band for which the 3rd transmitter harmonic is within the downlink transmission bandwidth of a high band.  NOTE 6: The requirements should be verified for UL EARFCN of a low band (superscript LB) such that in MHz and  with the carrier frequency of a high band in MHz and  the channel bandwidth configured in the low band.  NOTE 7: Void.  NOTE 8: No requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the low band for which the 3rd transmitter harmonic is within the downlink transmission bandwidth of the high band. The reference sensitivity is only verified when this is not the case (the requirements specified in clause 7.3.1 apply).  NOTE 9: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band and a range FHD above and below the edge of this downlink transmission bandwidth. The value FHD depends on the E-UTRA configuration: FHD = 10 MHz for CA\_3A-42A, CA\_3A-42C, CA\_1A-3A-42A, CA\_1A-3A-42C, CA\_3A-19A-42A, CA\_3A-19A-42C, CA\_1A-3A-19A-42A and CA\_1A-3A-19A-42C.  NOTE 10: The requirements should be verified for UL EARFCN of the aggressor (lower) band (superscript LB) such that in MHz and  with carrier frequency in the victim (higher) band in MHz and  the channel bandwidth configured in the lower band.  NOTE 11: The requirements are only applicable to channel bandwidths with a carrier frequency at  MHz offset from  in the victim (higher band) with , whereandare the channel bandwidths configured in the aggressor (lower) and victim (higher) bands in MHz, respectively.  NOTE 12: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of a low band for which the 4th transmitter harmonic is within the downlink transmission bandwidth of a high band.  NOTE 13: The requirements should be verified for UL EARFCN of a low band (superscript LB) such that in MHz and  with the carrier frequency of a high band in MHz and  the channel bandwidth configured in the low band.  NOTE 14: For the UE that supports CA\_1A-19A-28A, no requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the low band for which the 3rd transmitter harmonic is within the downlink transmission bandwidth of the high band. The reference sensitivity should only be verified when this is not the case (the requirements specified in clause 7.3.1 apply).  NOTE 15: These requirements apply when there is at least one individual RE within the downlink transmission bandwidth of the victim (lower) band for which the 3rd harmonic is within the uplink transmission bandwidth or the uplink adjacent channel’s transmission bandwidth of an aggressor (higher) band.  NOTE 16: The requirements should be verified for UL EARFCN of the aggressor (higher) band (superscript HB) such that  in MHz and  with  the carrier frequency in the victim (lower) band and  the channel bandwidth configured in the higher band.  NOTE 17: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of a low band for which the 4th transmitter harmonic is within the downlink transmission bandwidth of a high band.  NOTE 18: The requirements should be verified for UL EARFCN of a low band (superscript LB) such that in MHz and  with the carrier frequency of a high band in MHz and  the channel bandwidth configured in the low band.  NOTE 19: No requirements apply for the case that there is at least one individual RE within the uplink transmission bandwidth of the relative higher band and when the frequency range of relative higher band’s uplink channel bandwidth or uplink 1st adjacent channel bandwidth is fully or partially overlapped with the 3 times of the frequency range of the relative lower band’s downlink channel bandwidth. The reference sensitivity is only verified when this is not the case (the requirements specified in clause 7.3.1 apply).  NOTE 20: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | | | | |

Table 7.3.1A-0b: Uplink configuration for the low band (exceptions)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth of the high band / NRB / Duplex mode | | | | | | | | |
| EUTRA CA Configuration | UL band | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | Duplex mode |
| CA\_1A-3A-7A-8A | 8 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_1A-3A-7A-28A | 28 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_1A-3A-19A-42A | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_1A-3A-19A-42C | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_1A-3A-28A | 28 |  |  | 8 | 16 | 25 | 25 | FDD |
| CA\_1A-3A-42A | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_1A-7A-8A | 8 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_1A-7A-28A | 28 |  |  | 8 | 16 | 25 | 25 | FDD |
| CA\_1A-28A | 28 |  |  | 8 | 16 | 25 | 25 | FDD |
| CA\_2A-4A-12A | 12 |  |  | 8 | 16 | 20 | 20 | FDD |
| CA\_3A-7A-8A | 8 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_3A-19A-42A | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_3A-42A | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_4A-4A-5A-12A | 12 |  |  | 8 | 16 |  |  | FDD |
| CA\_4A-4A-12A-30A | 12 |  |  | 8 | 16 |  |  | FDD |
| CA\_4A-5A-12A | 12 |  |  | 8 | 16 | 20 | 20 | FDD |
| CA\_4A-7A-12A | 12 |  |  | 8 | 16 | 20 | 20 | FDD |
| CA\_4A-12A | 12 | 2 | 5 | 8 | 16 | 20 | 20 | FDD |
| CA\_4A-17A | 17 |  |  | 8 | 16 |  |  | FDD |
| CA\_4A-28A | 28 |  |  | [8] | [16] | [25] | [25] | FDD |
| CA\_7A-8A | 8 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_7A-8A-20A | 8 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_8A-42A | 8 |  |  | 8 | 16 | 25 | 25 | FDD |
| CA\_8A-42C | 8 |  |  | 8 | 16 | 25 | 25 | FDD |
| CA\_20A-40A3 | 40 |  |  | 25 | 50 | 75 | 100 | FDD |
| CA\_28A-40A | 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_28A-40C | 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| NOTE 1: refers to the UL resource blocks, which shall be centred within the transmission bandwidth configuration for the channel bandwidth.  NOTE 2: the UL configuration applies regardless of the channel bandwidth of the low band unless the UL resource blocks exceed that specified in Table 7.3.1-2 for the uplink bandwidth in which case the allocation according to Table 7.3.1-2 applies.  NOTE 3: 3 refers to the UL resource blocks shall be located between 2373-2400MHz. | | | | | | | | |

For the UE that supports any of the E-UTRA CA configurations given in Table 7.3.1A-0bA, exceptions are allowed when the uplink is active within a specified frequency range as noted in Table 7.3.1A-0bA. For these exceptions, the UE shall meet the requirements specified in Table 7.3.1A-0bA and Table 7.3.1A-0bB.

Table 7.3.1A-0bA: Reference sensitivity for carrier aggregation QPSK PREFSENS, CA (exceptions for two bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel bandwidth | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz (dBm) | 3 MHz (dBm) | 5 MHz (dBm) | 10 MHz (dBm) | 15 MHz (dBm) | 20 MHz (dBm) | Duplex mode |
| CA\_1A-3A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| CA\_1A-3A5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]8 | [-96.7]8 | [-94.9]8 | [-93.7]8 |
| CA\_1A-3C4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| CA\_1A-3C5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]8 | [-96.7]8 | [-94.9]8 | [-93.7]8 |
| CA\_18A-28A6 | 18 |  |  | -100 | -97 | -95.2 |  | FDD |
| 28 |  |  | -94 | -92.5 |  |  |
| CA\_19A-28A7 | 19 |  |  | -100 | -97 | -95.2 |  | FDD |
| 28 |  |  | -94 | -92 |  |  |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: Reference measurement channel is A.3.2 with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in Annex A.5.1.1/A.5.2.1  NOTE 3: The signal power is specified per port  NOTE 4: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz. For each channel bandwidth in Band 3, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 5: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz. For each channel bandwidth in Band 3, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 6: These requirements apply when the uplink is active in Band 18 and the downlink channels in Band 28 are confined within the restricted frequency range specified for this CA configuration (Table 5.5A-2). For each channel bandwidth in Band 28, the requirement applies regardless of channel bandwidth in Band 18.  NOTE 7: These requirements apply when the uplink is active in Band 19 and the downlink channels in Band 28 are allocated at the middle of the restricted frequency range specified for this CA configuration (Table 5.5A-2). For each channel bandwidth in Band 28, the requirement applies regardless of channel bandwidth in Band 19.  NOTE 8: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | | | | |

Table 7.3.1A-0bB: Uplink configuration for the uplink band (exceptions for two bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | | |
| EUTRA CA Configuration | UL band | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | Duplex mode |
| CA\_1A-3A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3C1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3C1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_18A-28A4 | 18 |  |  | 18 | 18 | 18 |  | FDD |
| CA\_19A-28A4 | 19 |  |  | 18 | 18 | 18 |  | FDD |
| NOTE 1: refers to the UL resource blocks shall be located as close as possible to the downlink channel in Band 3 but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1) in the uplink channel in Band 1.  NOTE 2: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz  NOTE 3: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz.  NOTE 4: refers to the UL resource blocks shall be located as close as possible to the downlink channel in Band 28 but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1). | | | | | | | | |

For the UE that supports any of the E-UTRA CA configurations given in Table 7.3.1A-0bC, exceptions are allowed when the uplink is active within a specified frequency range as noted in Table 7.3.1A-0bC. For these exceptions, the UE shall meet the requirements specified in Table 7.3.1A-0bC and Table 7.3.1A-0bD.

Table 7.3.1A-0bC: Reference sensitivity for carrier aggregation QPSK PREFSENS, CA (exceptions for three bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel bandwidth | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz (dBm) | 3 MHz (dBm) | 5 MHz (dBm) | 10 MHz (dBm) | 15 MHz (dBm) | 20 MHz (dBm) | Duplex mode |
| CA\_1A-3A-5A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| 5 |  |  | -98 | -95 |  |  |
| CA\_1A-3A-5A5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 5 |  |  | -98 | -95 |  |  |
| CA\_1A-3A-7A9 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| 7 |  |  |  | -95 | -93.2 | -92 |
|  |  |  | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| CA\_1A-3A-7A10 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 7 |  |  |  | -95 | -93.2 | -92 |
|  |  |  | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| CA\_1A-3A-7C9 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  |  | -91.5 | -90 | -89 |
| 7 |  |  |  | -95 | -93.2 | -92 |
| CA\_1A-3A-7C10 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  |  | -94 | -92.2 | -91 |
| 7 |  |  |  | -95 | -93.2 | -92 |
| CA\_1A-3A-8A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| CA\_1A-3A-8A5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| CA\_1A-3A-19A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| CA\_1A-3A-19A5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| CA\_1A-3A-20A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| 20 |  |  | -97 | -94 | -91.2 | -90 |
|  |  | [-99.7]11 | [-96.7]11 | [-93.9]11 | [-92.7]11 |
| CA\_1A-3A-20A5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 20 |  |  | -97 | -94 | -91.2 | -90 |
|  |  | [-99.7]11 | [-96.7]11 | [-93.9]11 | [-92.7]11 |
| CA\_1A-3A-26A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| 26 |  |  | -97.57 | -94.57 |  |  |
| CA\_1A-3A-26A5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 26 |  |  | -97.57 | -94.57 |  |  |
| CA\_1A-3A-28A4 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -94 | -91.5 | -90 | -89 |
| 28 |  |  | -98.3 | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-28A5 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 28 |  |  | -98.3 | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-42A4 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -93.8 | -91.3 | -89.8 | -88.8 |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| CA\_1A-3A-42A5 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| CA\_1A-3A-42C4 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -93.8 | -91.3 | -89.8 | -88.8 |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| CA\_1A-3A-42C5 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| CA\_1A-18A-28A6 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 18 |  |  | -100 | -97 | -95.2 |  |
| 28 |  |  | -94 | -92.5 |  |  |
| CA\_1A-19A-28A8 | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 28 |  |  | -94 | -92 |  |  |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: Reference measurement channel is A.3.2 with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in Annex A.5.1.1/A.5.2.1  NOTE 3: The signal power is specified per port  NOTE 4: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz. For each channel bandwidth in Band 3 and Band 5 or Band 8 or Band 19 or Band 20 or Band 26 or Band 28 or Band 42, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 5: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz. For each channel bandwidth in Band 3 and Band 5 or Band 8 or Band 19 or Band 20 or Band 26 or Band 28 or Band 42, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 6: These requirements apply when the uplink is active in Band 18 and the downlink channels in Band 28 are confined within the restricted frequency range specified for this CA configuration (Table 5.5A-2). For each channel bandwidth in Band 28, the requirement applies regardless of channel bandwidth in Band 18.  NOTE 7: 7 indicates that the requirement is modified by -0.5 dB when the carrier frequency of the assigned E-UTRA channel bandwidth is within 865-894 MHz.  NOTE 8: These requirements apply when the uplink is active in Band 19 and the downlink channels in Band 28 are allocated at the middle of the restricted frequency range specified for this CA configuration (Table 5.5A-2). For each channel bandwidth in Band 28, the requirement applies regardless of channel bandwidth in Band 19.  NOTE 9: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz. For each channel bandwidth in Band 3 and Band 7, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 10: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz. For each channel bandwidth in Band 3 and Band 7, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 11: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | | | | |

Table 7.3.1A-0bD: Uplink configuration for the uplink band (exceptions for three bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | | |
| EUTRA CA Configuration | UL band | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | Duplex mode |
| CA\_1A-3A-5A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-5A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-7A5, 6 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-7A5, 7 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-7C5, 6 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-7C5, 7 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-8A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-8A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-19A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-19A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-20A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-20A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-26A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-26A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-28A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-28A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-42A1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-42A1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-3A-42C1, 2 | 1 |  |  | 25 | 25 | 25 | 25 | FDD |
| CA\_1A-3A-42C1, 3 | 1 |  |  | 25 | 45 | 45 | 45 | FDD |
| CA\_1A-18A-28A4 | 18 |  |  | 18 | 18 | 18 |  | FDD |
| CA\_1A-19A-28A4 | 19 |  |  | 18 | 18 | 18 |  | FDD |
| NOTE 1: refers to the UL resource blocks shall be located as close as possible to the downlink channel in Band 3 but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1) in the uplink channel in Band 1.  NOTE 2: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz  NOTE 3: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz.  NOTE 4: refers to the UL resource blocks shall be located as close as possible to the downlink channel in Band 28 but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1).  NOTE 5: refers to the UL resource blocks shall be located as close as possible to the downlink channel in Band 3 but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1) in the uplink channel in Band 1.  NOTE 6: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz  NOTE 7: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz. | | | | | | | | |

For the UE that supports any of the E-UTRA CA configurations given in Table 7.3.1A-0bD1, exceptions are allowed when the uplink is active within a specified frequency range as noted in Table 7.3.1A-0bD1. For these exceptions, the UE shall meet the requirements specified in Table 7.3.1A-0bD1 and Table 7.3.1A-0bD2.

Table 7.3.1A-0bD1: Reference sensitivity for carrier aggregation QPSK PREFSENS, CA (exceptions for four bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel bandwidth | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz (dBm) | 3 MHz (dBm) | 5 MHz (dBm) | 10 MHz (dBm) | 15 MHz (dBm) | 20 MHz (dBm) | Duplex mode |
| CA\_1A-3A-5A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 34 |  |  | -94 | -91.5 | -90 | -89 |
| 35 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]6 | [-96.7]6 | [-94.9]6 | [-93.7]6 |
| 5 |  |  | -98 | -95 |  |  |
| 40 |  |  |  | -91.9 | -90.4 | -89.4 | TDD |
| CA\_1A-3A-7A-8A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 34 |  |  | -94 | -91.5 | -90 | -89 |
| 35 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]6 | [-96.7]6 | [-94.9]6 | [-93.7]6 |
| 7 |  |  |  | -95 | -93.2 | -92 |
|  |  |  | [-97.7]6 | [-95.9]6 | [-94.7]6 |
| 8 |  |  | -96.8 | -93.8 |  |  |
| CA\_1A-3A-7A-28A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 34 |  |  |  | [-91.5] | [-90] | [-89] |
| 35 |  |  |  | -94 | -92.2 | -91 |
| 7 |  |  |  | -95 | -93.2 | -92 |
| 28 |  |  |  | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-7C-28A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 34 |  |  |  | [-91.5] | [-90] | [-89] |
| 35 |  |  |  | -94 | -92.2 | -91 |
| 7 |  |  |  | -95 | -93.2 | -92 |
| 28 |  |  |  | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-8A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 34 |  |  | -94 | -91.5 | -90 | -89 |
| 35 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]6 | [-96.7]6 | [-94.9]6 | [-93.7]6 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | [-93.4] | -91.9 | -90.4 | -89.4 | TDD |
| CA\_1A-3A-19A-42A | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 34 |  |  | -93.8 | -91.3 | -89.8 | -88.8 |
| 35 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]6 | [-96.5]6 | [-94.7]6 | [-93.5]6 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]6 | [-97.7]6 | [-95.9]6 | [-94.7]6 |
| CA\_1A-3A-19A-42C | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 34 |  |  | -93.8 | -91.3 | -89.8 | -88.8 |
| 35 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  |  | [-99.5]6 | [-96.5]6 | [-94.7]6 | [-93.5]6 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]6 | [-97.7]6 | [-95.9]6 | [-94.7]6 |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: Reference measurement channel is A.3.2 with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in Annex A.5.1.1/A.5.2.1  NOTE 3: The signal power is specified per port  NOTE 4: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz. For each channel bandwidth in the bands other than Band 1, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 5: These requirements apply when the uplink is active in Band 1 and the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz. For each channel bandwidth in the bands other than Band 1, the requirement applies regardless of channel bandwidth in Band 1.  NOTE 6: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | | | | |

Table 7.3.1A-0bD2: Uplink configuration for the low band (exceptions for four bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | | |
| **EUTRA CA Configuration** | UL band | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | Duplex mode |
| CA\_1A-3A-5A-40A  CA\_1A-3A-7A-8A  CA\_1A-3A-7A-28A  CA\_1A-3A-7C-28A  CA\_1A-3A-8A-40A  CA\_1A-3A-19A-42A | 11,2 |  |  | 25 | 25 | 25 | 25 | FDD |
| 11,3 |  |  | 25 | 45 | 45 | 45 |
| CA\_1A-3A-19A-42C | 11,2 |  |  | 25 | 25 | 25 | 25 | FDD |
| 11,3 |  |  | 25 | 45 | 45 | 45 |
| NOTE 1: refers to the UL resource blocks shall be located as close as possible to the downlink channel in Band 3 but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1) in the uplink channel in Band 1.  NOTE 2: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is < 60 MHz  NOTE 3: UL allocation when the separation between the lower edge of the uplink channel in Band 1 and the upper edge of the downlink channel in Band 3 is ≥ 60 MHz. | | | | | | | | |

For the UE that supports any of the E-UTRA CA configurations given in Table 7.3.1A-0bE, UE shall meet the reference sensitivities specified in Table 7.3.1A-0bE and Table 7.3.1A-0bF.

Table 7.3.1A-0bE: Reference sensitivity for carrier aggregation QPSK PREFSENS, CA

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| EUTRA CA Configuration | EUTRA band | Channel bandwidth | | | | | | Duplex mode | Applicable active UL band |
| 1.4 MHz (dBm) | 3 MHz (dBm) | 5 MHz (dBm) | 10 MHz (dBm) | 15 MHz (dBm) | 20 MHz (dBm) |
| CA\_1-3A-5A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD | 3 |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 5 |  |  | -98 | -95 |  |  |
| 40 |  |  |  | -92.9 | -91.3 | -90.2 | TDD |
| CA\_1-3A-5A-40A | 1 |  |  | -91.7 | [-89.5] | [-87.9] | [-86.9] | FDD | 40 |
| 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 |
| 5 |  |  | -98 | -95 |  |  |
| 40 |  |  |  | -97 | -95.2 | -94 | TDD |
| CA\_1-3A-8A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD | 3 |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | -95.4 | -92.9 | -91.3 | -90.2 | TDD |
| CA\_1-3A-8A-40A | 1 |  |  | -91.7 | [-89.5] | [-87.9] | [-86.9] | FDD | 40 |
| 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_1A-3A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD | 3 |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 40 |  |  | -100 | -92.9 | -91.3 | -90.2 | TDD |
| CA\_1A-3A-40A | 1 |  |  | -91.7 | [-89.5] | [-87.9] | [-86.9] | FDD | 40 |
| 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_1A-3A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD | 1 |
| 3 |  |  | -97 | -94 | -92.2 | -91 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 40 |  |  | [-93.4] | -91.3 | -90 | -88.9 | TDD |
| CA\_1A-5A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD | 1 |
| 5 |  |  | -98 | -95 |  |  |
| 40 |  |  |  | -91.9 | -90.4 | -89.4 | TDD |
| CA\_1A-5A-40A | 1 |  |  | -91.7 | [-89.5] | [-87.9] | [-86.9] | FDD | 40 |
| 5 |  |  | -98 | -95 |  |  |
| 40 |  |  |  | -97 | -95.2 | -94 | TDD |
| CA\_1A-8A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD | 1 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | [-93.4] | -91.9 | -90.4 | -89.4 | TDD |
| CA\_1A-8A-40A | 1 |  |  | -91.7 | [-89.5] | [-87.9] | [-86.9] | FDD | 40 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_1A-40A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD | 1 |
| 40 |  |  | [-93.4] | -91.9 | -90.4 | -89.4 | TDD |
| CA\_1A-40A | 1 |  |  | -91.7 | [-89.5] | [-87.9] | [-86.9] | FDD | 40 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-5A-40A | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 5 |  |  | -98 | -95 |  |  |
| 40 |  |  |  | -92.9 | -91.3 | -90.2 | TDD |
| CA\_3A-5A-40A | 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 | FDD | 40 |
| 5 |  |  | -98 | -95 |  |  |
| 40 |  |  |  | -97 | -95.2 | -94 | TDD |
| CA\_3A-7A-38A | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 7 |  |  | [-93.8] | [-91.2] | [-89.7] | [-88.6] |
| 38 |  |  | [-93.8] | [-91.2] | [-89.7] | [-88.6] | TDD |
| CA\_3A-8A-40A | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | -95.4 | -92.9 | -91.3 | -90.2 | TDD |
| CA\_3A-8A-40A | 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 | FDD | 40 |
| 8 |  | -99.2 | -97 | -94 |  |  |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-28A-40A | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 28 |  |  | -98.5 | -95.5 | -93.7 | -91 |
| 40 |  |  | -95.4 | -92.9 | -91.3 | -90.2 | TDD |
| CA\_3A-28A-40A | 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 | FDD | 40 |
| 28 |  |  | -96.8 | -94.1 | -92.5 | -89.8 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-28A-40A | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 28 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |  |
| 28 |  |  | -98.5 | -95.5 | -93.7 | -91 |
| 40 |  |  | -95.1 | -92.9 | -91.4 | -90.5 | TDD |
| CA\_3A-28A-40C | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |  |
| 28 |  |  | -98.5 | -95.5 | -93.7 | -91 |
| 40 |  |  | -95.4 | -92.9 | -91.3 | -90.2 | TDD |
| CA\_3A-28A-40C | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 28 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 28 |  |  | -98.5 | -95.5 | -93.7 | -91 |
| 40 |  |  | -95.1 | -92.9 | -91.4 | -90.5 | TDD |
| CA\_3A-28A-40C | 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 | FDD | 40 |
| 28 |  |  | -96.8 | -94.1 | -92.5 | -89.8 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-40A | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 40 |  |  | -95.4 | -92.9 | -91.3 | -90.2 | TDD |
| CA\_3A-40A | 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 | FDD | 40 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-40C | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 40 |  |  | -95.4 | -92.9 | -91.3 | -90.2 | TDD |
| CA\_3A-40C | 3 |  |  | -94.2 | -91.2 | -89.5 | -88.3 | FDD | 40 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_3A-41A5 | 3 |  |  | [-94] | [-91] | [-89.2] | [-87.9] | FDD | 41 |
| 41 |  |  | -97.5 | -94.5 | -92.7 | -91.5 | TDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 41 |  |  | [-93.3] | [-90.7] | [-89.2] | [-88.1] | TDD |
| CA\_3A-41C5 | 3 |  |  | [-94] | [-91] | [-89.2] | [-87.9] | FDD | 41 |
| 41 |  |  | -97.5 | -94.5 | -92.7 | -91.5 | TDD |
| 3 |  |  | -97 | -94 | -92.2 | -91 | FDD | 3 |
|  |  | [-99.7]11 | [-96.7]11 | [-94.9]11 | [-93.7]11 |
| 41 |  |  | [-93.3] | [-90.7] | [-89.2] | [-88.1] | TDD |
| CA\_3A-41A-42A5,6,7,8 | 3 |  |  | -96.5 | -93.5 | -91.7 | -90.5 | FDD | 3 |
| 41 |  |  | [-93.3] | [-90.7] | [-89.2] | [-88.1] | TDD |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 |
| CA\_3A-41A-42A5,6,9 | 3 |  |  | -96.5 | -93.5 | -91.7 | -90.5 | FDD | 3 |
| 41 |  |  | [-93.3] | [-90.7] | [-89.2] | [-88.1] | TDD |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 |
| CA\_3A-41A-42A5,6,10 | 3 |  |  | -96.5 | -93.5 | -91.7 | -90.5 | FDD | 42 |
| 41 |  |  | -97.5 | -94.5 | -92.7 | -91.5 | TDD |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 |
|  |  | [-100.7]11 | [-97.7]11 | [-96.9]11 | [-94.7]11 |
| CA\_3A-41A-42A5,6,10 | 3 |  |  | [-93.5] | [-90.5] | [-88.7] | [-87.4] | FDD | 41 |
| 41 |  |  | -97.5 | -94.5 | -92.7 | -91.5 | TDD |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 |
| CA\_7A-40A | 7 |  |  | -98 | -95 | -93.2 | -92 | FDD | 7 |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| 40 |  |  | -96.3 | -93.6 | -92 | -90.9 | TDD |
| 7 |  |  | -97.1 | -94.3 | -92.7 | -91.5 | FDD | 40 |
| 40 |  |  | -99.5 | -96.5 | -94.7 | -93.5 | TDD |
| CA\_7A-40C | 7 |  |  | -98 | -95 | -93.2 | -92 | FDD | 7 |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| 40 |  |  | -96.3 | -93.6 | -92 | -90.9 | TDD |
| 7 |  |  | -97.1 | -94.3 | -92.7 | -91.5 | FDD | 40 |
| 40 |  |  | -99.5 | -96.5 | -94.7 | -93.5 | TDD |
| CA\_7A-42A | 7 |  |  | -98 | -95 | -93.2 | -92 | FDD | 7 |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| 42 |  |  | -95.6 | -93 | -91.5 | -90.4 | TDD |
| 7 |  |  | -96.2 | -93.2 | -91.5 | -90.3 | FDD | 42 |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]11 | [-97.7]11 | [-96.9]11 | [-94.7]11 |  |
| CA\_7A-42A-42A | 7 |  |  | -98 | -95 | -93.2 | -92 | FDD | 7 |
|  |  | [-100.7]11 | [-97.7]11 | [-95.9]11 | [-94.7]11 |
| 42 |  |  | -95.6 | -93 | -91.5 | -90.4 | TDD |
| 7 |  |  | -96.2 | -93.2 | -91.5 | -90.3 | FDD | 42 |
| 42 |  |  | -98.5 | -95.5 | -93.7 | -92.5 | TDD |
|  |  | [-100.7]11 | [-97.7]11 | [-96.9]11 | [-94.7]11 |  |
| CA\_28A-40A | 28 |  |  | -98.5 | -95.5 | -93.7 | -91 | FDD | 28 |
| 40 |  |  | -95.1 | -92.9 | -91.4 | -90.5 | TDD |
| CA\_28A-40A | 28 |  |  | -96.8 | -94.1 | -92.5 | -89.8 | FDD | 40 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_28A-40C | 28 |  |  | -98.5 | -95.5 | -93.7 | -91 | FDD | 28 |
| 40 |  |  | -95.1 | -92.9 | -91.4 | -90.5 | TDD |
| CA\_28A-40C | 28 |  |  | -96.8 | -94.1 | -92.5 | -89.8 | FDD | 40 |
| 40 |  |  | -100 | -97 | -95.2 | -94 | TDD |
| CA\_28A-40D | 28 |  |  | -98.5 | -95.5 | -93.7 | -91 | FDD | 28 |
| 40 |  |  | -95.1 | -92.9 | -91.4 | -90.5 |
| CA\_28A-40D | 28 |  |  | -96.8 | -94.1 | -92.5 | -89.8 | FDD | 40 |
| 40 |  |  | -100 | -97 | -95.2 | -94 |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A  NOTE 2: Reference measurement channel is A.3.2 with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in Annex A.5.1.1/A.5.2.1  NOTE 3: The signal power is specified per port  NOTE 4: These requirements apply regardless of the channel bandwidth and the location of UL band.  NOTE 5: The B41 requirements are modified by -0.5dB when carrier frequency of the assigned E-UTRA channel bandwidth is within 2545-2690 MHz.  NOTE 6: The antenna isolation for MSD calculation is assumed as 10 dB. For conducted mode REFSENS test such antenna isolation is not observed as the antennas are disconnected. Additionally antenna isolation assumption is under discussion depending on the frequency range  NOTE 7: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band and a range FHD above and below the edge of this downlink transmission bandwidth. The value FHD depends on the E-UTRA configuration: FHD = 10 MHz for CA\_3A-42A, CA\_3A-42C, CA\_1A-3A-42A, CA\_1A-3A-42C, CA\_3A-19A-42A, CA\_3A-19A-42C and CA\_1A-3A-19A-42A, CA 3A-41A-42A.  NOTE 8: The requirements should be verified for UL EARFCN of the aggressor (lower) band (superscript LB) such that in MHz and  with carrier frequency in the victim (higher) band in MHz and  the channel bandwidth configured in the lower band.  NOTE 9: The requirements are only applicable to channel bandwidths with a carrier frequency at  MHz offset from  in the victim (higher band) with , whereandare the channel bandwidths configured in the aggressor (lower) and victim (higher) bands in MHz, respectively.  NOTE 10: Only applicable for UE supporting inter-band carrier aggregation with uplink in one E-UTRA band and without simultaneous Rx/Tx.  NOTE 11: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | | | | | |

Table 7.3.1A-0bF: Uplink configuration for reference sensitivity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | | |
| EUTRA CA Configuration | E-UTRA Band | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | Duplex Mode |
| CA\_1A-3A-40A | 1 |  |  | 25 | 50 | 75 | 100 | FDD |
| 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_1A-5A-40A | 1 |  |  | 25 | 50 | 75 | 100 | FDD |
| CA\_1A-8A-40A | 1 |  |  | 25 | 50 | 75 | 100 | FDD |
| 8 |  | 15 | 25 | 251 |  |  | FDD |
| 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_1A-40A | 1 |  |  | 25 | 50 | 75 | 100 | FDD |
| 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_3A-7A-38A | 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| CA\_3A-8A-40A | 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| 8 |  | 15 | 25 | 251 |  |  | FDD |
| 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_3A-40A  CA\_3A-40C  CA\_3A-5A-40A  CA\_3A-28A-40A  CA\_3A-28A-40C  CA\_1A-3A-5A-40A  CA\_1A-3A-8A-40A | 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_3A-41A | 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| 41 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_3A-41C | 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| 41 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_3A-41A-42A | 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| 41 |  |  | 25 | 50 | 75 | 100 | TDD |
| 42 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_7A-40A,  CA\_7A-40C | 7 |  |  | 25 | 50 | 75 | 751 | FDD |
| 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_7A-42A,  CA\_7A-42A-42A | 7 |  |  | 25 | 50 | 75 | 751 | FDD |
| 42 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_28A-40A,  CA\_28A-40C | 28 |  |  | 25 | 251 | 251 | 251 | FDD |
| 40 |  |  | 25 | 50 | 75 | 100 | TDD |
| NOTE 1: 1 refers to the UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1).  NOTE 2: the UL configuration applies regardless of the channel bandwidth of the low band unless the UL resource blocks exceed that specified in Table 7.3.1-2 for the uplink bandwidth in which case the allocation according to Table 7.3.1-2 applies. | | | | | | | | |

For band combinations including operating bands without uplink band (as noted in Table 5.5-1), the requirements are specified in Table 7.3.1A-0d and Table 7.3.1A-0e.

Table 7.3.1A-0d: Reference sensitivity QPSK PREFSENS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel bandwidth | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz  (dBm) | 3 MHz  (dBm) | 5 MHz  (dBm) | 10 MHz  (dBm) | 15 MHz  (dBm) | 20 MHz  (dBm) | Duplex mode |
| CA\_2A-4A-5A-29A | 2 |  |  | -97.7 | -94.7 | -92.9 | -91.7 | FDD |
|  |  | [-100.4]4 | [-97.4]4 | [-95.6]4 | [-94.4]4 |
| 4 |  |  | -99.7 | -96.7 | -94.9 | -93.7 |
| 5 |  |  | -98 | -95 |  |  |
| 29 |  |  | -97 | -94 |  |  |
| CA\_2A-4A-29A | 2 |  |  | -97.7 | -94.7 | -92.9 | -91.7 | FDD |
|  |  | [-100.4]4 | [-97.4]4 | [-95.6]4 | [-94.4]4 |
| 4 |  |  | -99.7 | -96.7 | -94.9 | -93.7 |
| 29 |  |  | -97 | -94 |  |  |
| CA\_2A-4A-29A-30A | 2 |  |  | -97.6 | -94.6 | -92.8 | -91.6 | FDD |
|  |  | [-100.3]4 | [-97.3]4 | [-95.5]4 | [-94.3]4 |
| 4 |  |  | -99.6 | -96.6 | -94.8 | -93.6 |
| 29 |  |  | -97 | -94 |  |  |
| 30 |  |  | -98.5 | -95.5 |  |  |
| CA\_2A-5A-29A | 2 |  |  | -98 | -95 | -93.2 | -92 | FDD |
|  |  | [-100.7]4 | [-97.7]4 | [-95.9]4 | [-94.7]4 |
| 5 |  |  | -98 | -95 |  |  |
| 29 |  |  | -97 | -94 |  |  |
| CA\_2A-29A | 2 |  |  | -98 | -95 | -93.2 | -92 | FDD |
|  |  | [-100.7]4 | [-97.7]4 | [-95.9]4 | [-94.7]4 |
| 29 |  | -98.7 | -97 | -94 |  |  |
| CA\_2C-29A | 2 |  |  | -98 | -95 | -93.2 | -92 | FDD |
|  |  | [-100.7]4 | [-97.7]4 | [-95.9]4 | [-94.7]4 |
| 29 |  |  | -97 | -94 |  |  |
| CA\_2A-29A-30A | 2 |  |  | -97.6 | -94.6 | -92.8 | -91.6 | FDD |
|  |  | [-100.3]4 | [-97.3]4 | [-95.5]4 | [-94.3]4 |
| 29 |  |  | -97 | -94 |  |  |
| 30 |  |  | -98.5 | -95.5 |  |  |
| CA\_2C-29A-30A | 2 |  |  | -97.6 | -94.6 | -92.8 | -91.6 | FDD |
|  |  | [-100.3]4 | [-97.3]4 | [-95.5]4 | [-94.3]4 |
| 29 |  |  | -97 | -94 |  |  |
| 30 |  |  | -98.5 | -95.5 |  |  |
| CA\_4A-4A-29A | 4 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 29 |  |  | -97 | -94 |  |  |
| CA\_4A-4A-29A-30A | 4 |  |  | -99.6 | -96.6 | -94.8 | -93.6 | FDD |
| 29 |  |  | -97 | -94 |  |  |
| 30 |  |  | -98.5 | -95.5 |  |  |
| CA\_4A-5A-29A | 4 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 5 |  |  | -98 | -95 |  |  |
| 29 |  |  | -97 | -94 |  |  |
| CA\_4A-29A | 4 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 29 |  | -98.7 | -97 | -94 |  |  |
| CA\_4A-29A-30A | 4 |  |  | -99.6 | -96.6 | -94.8 | -93.6 | FDD |
| 29 |  |  | -97 | -94 |  |  |
| 30 |  |  | -98.5 | -95.5 |  |  |
| CA\_5A-29A | 5 |  |  | -98 | -95 |  |  | FDD |
| 29 |  |  | -97 | -94 |  |  |
| CA\_20A-32A | 20 |  |  | -97 | -94 |  |  | FDD |
| 32 |  |  | -100 | -97 | -95.2 | -94 |
| CA\_20A-67A | 20 |  |  | -97 | -94 | -91.2 | -90 | FDD |
| 67 |  |  | -100 | -97 | -95.2 | -94 |
| CA\_23A-29A | 23 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 29 |  | -98.7 | -97 | -94 |  |  |
| CA\_29A-30A | 29 |  |  | -97 | -94 |  |  | FDD |
| 30 |  |  | -99 | -96 |  |  |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: Reference measurement channel is A.3.2 with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in Annex A.5.1.1/A.5.2.1  NOTE 3: The signal power is specified per port.  NOTE 4: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | | | | |

Table 7.3.1A-0e: Uplink configuration for reference sensitivity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz  (dBm) | 3 MHz  (dBm) | 5 MHz  (dBm) | 10 MHz  (dBm) | 15 MHz  (dBm) | 20 MHz  (dBm) | Duplex mode |
| CA\_2A-4A-5A-29A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 4 |  |  | 25 | 50 | 75 | 100 |
| 5 |  |  | 25 | 251 |  |  |
| 29 |  |  | N/A | N/A |  |  |
| CA\_2A-4A-29A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 4 |  |  | 25 | 50 | 75 | 100 |
| 29 |  |  | N/A | N/A |  |  |
| CA\_2A-4A-29A-30A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 4 |  |  | 25 | 50 | 75 | 100 |
| 29 |  |  | N/A | N/A |  |  |
| 30 |  |  | 25 | 251 |  |  |
| CA\_2A-5A-29A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 5 |  |  | 25 | 251 |  |  |
| 29 |  |  | N/A | N/A |  |  |
| CA\_2A-29A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 29 |  | N/A | N/A | N/A |  |  |
| CA\_2C-29A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 29 |  |  | N/A | N/A |  |  |
| CA\_2A-29A-30A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 29 |  |  | N/A | N/A |  |  |
| 30 |  |  | 25 | 251 |  |  |
| CA\_2C-29A-30A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| 29 |  |  | N/A | N/A |  |  |
| 30 |  |  | 25 | 251 |  |  |
| CA\_4A-4A-29A-30A | 4 |  |  | 25 | 50 | 75 | 100 | FDD |
| 29 |  |  | N/A | N/A |  |  |
| 30 |  |  | 25 | 251 |  |  |
| CA\_4A-4A-29A | 4 |  |  | 25 | 50 | 75 | 100 | FDD |
| 29 |  |  | N/A | N/A |  |  |
| CA\_4A-5A-29A | 4 |  |  | 25 | 50 | 75 | 100 | FDD |
| 5 |  |  | 25 | 251 |  |  |
| 29 |  |  | N/A | N/A |  |  |
| CA\_4A-29A | 4 |  |  | 25 | 50 | 75 | 100 | FDD |
| 29 |  | N/A | N/A | N/A |  |  |
| CA\_4A-29A-30A | 4 |  |  | 25 | 50 | 75 | 100 | FDD |
| 29 |  |  | N/A | N/A |  |  |
| 30 |  |  | 25 | 251 |  |  |
| CA\_5A-29A | 5 |  |  | 25 | 251 |  |  | FDD |
| 29 |  |  | N/A | N/A |  |  |
| CA\_20A-32A | 20 |  |  | 25 | 201 |  |  | FDD |
| 32 |  |  | N/A | N/A | N/A | N/A |
| CA\_20A-67A | 20 |  |  | 25 | 201 | 202 | 202 | FDD |
| [67] |  |  | N/A | N/A | N/A | N/A |
| CA\_23A-29A | 23 |  |  | 25 | 50 | 75 | 100 | FDD |
| 29 |  | N/A | N/A | N/A |  |  |
| CA\_29A-30A | 29 |  |  | N/A | N/A |  |  | FDD |
| 30 |  |  | 25 | 25 |  |  |
| NOTE 1: 1 refers to the UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1).  NOTE 2: 2 refers to Band 20; in the case of 15MHz channel bandwidth, the UL resource blocks shall be located at RBstart 11 and in the case of 20MHz channel bandwidth, the UL resource blocks shall be located at RBstart 16 | | | | | | | | |

For band combinations including operating band 46 (Table 5.5-1), the requirements are specified in Table 7.3.1A-0eA and Table 7.3.1A-0eB.

Table 7.3.1A-0eA: Reference sensitivity QPSK PREFSENS

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel bandwidth | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz  (dBm) | 3 MHz  (dBm) | 5 MHz  (dBm) | 10 MHz  (dBm) | 15 MHz  (dBm) | 20 MHz  (dBm) | Duplex mode |
| CA\_1A-46A | 1 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 46 |  |  |  |  |  | -90 | TDD |
| CA\_2A-46A | 2 |  |  | -98 | -95 | -93.2 | -92 | FDD |
|  |  | [-100.7]4 | [-97.7]4 | [-95.9]4 | [-94.7]4 |
| 46 |  |  |  |  |  | -90 | TDD |
| CA\_3A-46A | 3 |  |  | -97 | -94 | -92.2 | -91 | FDD |
| 46 |  |  |  |  |  | -90 | TDD |
| CA\_4A-46A | 4 |  |  | -100 | -97 | -95.2 | -94 | FDD |
| 46 |  |  |  |  |  | -90 | TDD |
| CA\_7A-46A | 7 |  |  | -98 | -95 | -93.2 | -92 | FDD |
|  |  | [-100.7]4 | [-97.7]4 | [-95.9]4 | [-94.7]4 |
| 46 |  |  |  |  |  | -90 | TDD |
| CA\_41A-46A | 41 |  |  | -98 | -95 | -93.2 | -92 | FDD |
| 46 |  |  |  |  |  | -90 | TDD |
| CA\_42A-46A | 42 |  |  | -99 | -96 | -94.2 | -93 | FDD |
|  |  | [-100.7]4 | [-97.7]4 | [-95.9]4 | [-94.7]4 |
| 46 |  |  |  |  |  | FFS | TDD |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: Reference measurement channel is TBD  NOTE 3: The signal power is specified per port.  NOTE 4: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured.  NOTE 5: The requirements do not apply when there is at least one individual RE within the uplink transmission bandwidth of the lower band for which the transmitter harmonic is within the downlink transmission bandwidth of the higher band and a range FHD above and below the edge of this downlink transmission bandwidth. The value FHD depends on the E-UTRA configuration: FHD = [15] MHz for CA\_xA-46A (x=1, 2, 3 and 4) for 3rd harmonic. FFS MHz for the other configuations listed. | | | | | | | | |

Table 7.3.1A-0eB: Uplink configuration for reference sensitivity

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz  (dBm) | 3 MHz  (dBm) | 5 MHz  (dBm) | 10 MHz  (dBm) | 15 MHz  (dBm) | 20 MHz  (dBm) | Duplex mode |
| CA\_1A-46A | 1 |  |  | 25 | 50 | 75 | 100 | FDD |
| CA\_2A-46A | 2 |  |  | 25 | 50 | 501 | 501 | FDD |
| CA\_3A-46A | 3 |  |  | 25 | 50 | 501 | 501 | FDD |
| CA\_4A-46A | 4 |  |  | 25 | 50 | 75 | 100 | FDD |
| CA\_7A-46A | 7 |  |  | 25 | 50 | 75 | 751 | FDD |
| CA\_41A-46A | 41 |  |  | 25 | 50 | 75 | 100 | TDD |
| CA\_41A-46A | 42 |  |  | 25 | 50 | 75 | 100 | TDD |
| NOTE 1: refers to the UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission bandwidth configuration for the channel bandwidth (Table 5.6-1). | | | | | | | | |

In all cases for single uplink inter-band CA, unless given by Table 7.3.1-3 for the band with the active uplink carrier, the applicable reference sensitivity requirements shall be verified with the network signalling value NS\_01 (Table 6.2.4-1) configured.

For inter-band carrier aggregation with one component carrier per operating band and the uplink assigned to two E-UTRA bands the throughput 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 and Table 7.3.1-2. The reference sensitivity is defined to be met with all downlink component carriers active and both of the uplink carriers active.

For E-UTRA CA configurations with uplink and downlink assigned to two E-UTRA bands given in Table 7.3.1A-0f the reference sensitivity is defined only for the specific uplink and downlink test points which are specified in Table 7.3.1A-0f. For E-UTRA CA configurations with uplink assigned to two E-UTRA bands and downlink assigned to three E-UTRA bands given in Table 7.3.1A-0g the reference sensitivity is defined only for the specific uplink and downlink test points which are specified in Table 7.3.1A-0g. For these test points the reference sensitivity requirement specified in Table 7.3.1-1 is relaxed by the amount of parameter MSD given in Table 7.3.1A-0f.

The allowed exceptions defined in Table 7.3.1A-0a and Table 7.3.1A-0b for inter-band carrier aggregation with a single active uplink are also applicable for dual uplink operation.

Table 7.3.1A-0f: 2 UL and 2 DL interband Reference sensitivity QPSK PREFSENS and uplink/downlink configurations

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | |
| EUTRA CA  Configuration | EUTRA band | UL Fc  (MHz) | UL/DL BW  (MHz) | UL  CLRB | DL Fc (MHz) | MSD  (dB) | Duplex mode |
|
| CA\_1A\_3A | 1 | 1950 | 5 | 25 | 2140 | 23 | FDD |
| 3 | 1760 | 5 | 25 | 1855 | N/A |
| CA\_1A\_8A | 1 | 1965 | 5 | 25 | 2155 | 6 | FDD |
| 8 | 887.5 | 5 | 25 | 932.5 | N/A |
| CA\_2A-4A | 2 | 1860 | 20 | 502 | 1940 | 5 | FDD |
| 4 | 1752.5 | 5 | 25 | 2152.5 | N/A |
| CA\_2A-4A | 2 | 1868.3 | 5 | 25 | 1948.3 | N/A | FDD |
| 4 | 1735 | 5 | 25 | 2135 | 5 |
| CA\_3A-5A | 3 | 1771 | 10 | 50 | 1866 | 4 | FDD |
| 5 | 838 | 5 | 25 | 883 | N/A |
| CA\_3A-5A | 3 | 1721 | 10 | 50 | 1816 | N/A | FDD |
| 5 | 838 | 5 | 25 | 883 | 24 |
| CA\_3A-7A | 3 | 1730 | 5 | 25 | 1825 | N/A | FDD |
| 7 | 2535 | 10 | 50 | 2655 | 13 |
| CA\_3A-8A | 3 | 1755 | 10 | 50 | 1850 | N/A | FDD |
| 8 | 900 | 5 | 25 | 945 | 8 |
| CA\_3A-19A | 3 | 1771 | 5 | 25 | 1866 | 4 | FDD |
| 19 | 838 | 5 | 25 | 883 | N/A |
| CA\_3A-19A | 3 | 1721 | 5 | 25 | 1816 | N/A | FDD |
| 19 | 838 | 5 | 25 | 883 | 27 |
| CA-3A-20A | 3 | 1775 | 5 | 25 | 1870 | 4 | FDD |
| 20 | 840 | 5 | 25 | 799 | N/A |
| CA-3A-20A | 3 | 1735 | 5 | 25 | 1830 | N/A | FDD |
| 20 | 847 | 5 | 25 | 806 | 9 |
| CA\_3A-26A | 3 | 1771 | 5 | 25 | 1866 | 4 | FDD |
| 26 | 838 | 5 | 25 | 883 | N/A |
| CA\_3A-26A | 3 | 1721 | 5 | 25 | 1816 | N/A | FDD |
| 26 | 838 | 5 | 25 | 883 | 26 |
| CA\_4A-5A | 4 | 1721 | 5 | 25 | 2121 | N/A | FDD |
| 5 | 838 | 5 | 25 | 883 | 26 |
| CA\_4A-7A | 4 | 1730 | 5 | 25 | 1825 | N/A | FDD |
| 7 | 2535 | 5 | 25 | 2655 | 15 |
| CA\_5A-7A | 5 | 834 | 5 | 25 | 879 | 12 | FDD |
| 7 | 2547 | 10 | 50 | 2667 | N/A |
| CA\_7A-20A | 7 | 2512 | 10 | 50 | 2632 | N/A | FDD |
| 20 | 851 | 5 | 25 | 810 | 12 |
| NOTE 1: Both of the transmitters shall be set min(+20 dBm, PCMAX\_L,c) as defined in subclause 6.2.5A  NOTE 2: RBSTART = 0 | | | | | | | |

Table 7.3.1A-0g: 2 UL and 3 DL interband Reference sensitivity QPSK PREFSENS and uplink/downlink configurations

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth / NRB / Duplex mode | | | | | | | | | |
| EUTRA CA | EUTRA CA | EUTRA band | UL Fc | UL BW | UL | DL Fc (MHz) | DL BW | MSD | Duplex mode |
| DL Configuration | UL Configuration | (MHz) | (MHz) | CLRB | (MHz) | (MHz) | (dB) |
| CA\_1A-5A-7A | CA\_1A-7A | 1 | 1968 | 5 | 25 | 2158 | 5 | NA | FDD |
| 7 | 2512 | 10 | 50 | 2632 | 10 | NA |
| 5 | 835 | 5 | 25 | 880 | 5 | 1.0 |
| CA\_3A-7A-20A | CA\_3A-7A | 3 | 1737 | 5 | 25 | 1832 | 5 | NA | FDD |
| 7 | 2543 | 10 | 50 | 2663 | 10 | NA |
| 20 | 847 | 10 | 20 | 806 | 10 | 10.5 |
| CA\_3A-20A | 3 | 1775 | 10 | 50 | 1870 | 10 | NA | FDD |
| 20 | 855 | 5 | 25 | 896 | 5 | NA |
| 7 | 2510 | 10 | 50 | 2630 | 10 | 26.0 |
| CA\_3A-7A-28A | CA\_3A-7A | 3 | 1747 | 5 | 25 | 1842 | 5 | NA | FDD |
| 7 | 2543 | 5 | 25 | 2663 | 5 | NA |
| 28 | 741 | 5 | 25 | 796.0 | 5 | 20 |
| CA\_7A-28A | 7 | 2543 | 5 | 25 | 2663 | 5 | NA | FDD |
| 28 | 710.5 | 5 | 25 | 765.5 | 5 | NA |
| 3 | 1737.5 | 5 | 25 | 1832.5 | 5 | 26 |

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 7.3.1A-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-1 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-1 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 Bandwith Class B

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CA configuration / CC combination / NRB\_agg / Duplex mode | | | | | |
| Uplink CA configuration | 50RB+25RB | | 50RB+50RB | | Duplex Mode |
| PCC | SCC | PCC | SCC |
| CA\_8B | 25 | 0 | 25 | 0 | 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. | | | | | |

Table 7.3.1A-1: Intra-band contiguous CA uplink configuration for reference sensitivity for Bandwidth Class C

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CA configuration / CC combination / NRB\_agg / Duplex mode | | | | | | | | | | | | | |
| Uplink CA configuration | 100RB+25RB | | 100RB+50RB | | 75RB+75RB | | 75RB+50RB | | 100RB+75RB | | 100RB+100RB | | Duplex Mode |
| PCC | SCC | PCC | SCC | PCC | SCC | PCC | SCC | PCC | SCC | PCC | SCC |
| CA\_1C | N/A | N/A | N/A | N/A | 75 | 54 | N/A | N/A | N/A | N/A | 100 | 30 | FDD |
| CA\_3C | 50 | 0 | 50 | 0 | N/A | N/A | N/A | N/A | 50 | 0 | 50 | 0 | FDD |
| CA\_7C | N/A | N/A | 75 | 0 | 75 | 0 | N/A | N/A | 75 | 0 | 75 | 0 | FDD |
| CA\_38C | N/A | N/A | N/A | N/A | 75 | 75 | N/A | N/A | N/A | N/A | 100 | 100 | TDD |
| CA\_39C | 100 | 25 | 100 | 50 | N/A | N/A | N/A | N/A | 100 | 75 | N/A | N/A | TDD |
| CA\_40C | N/A | N/A | 100 | 50 | 75 | 75 | N/A | N/A | 100 | 75 | 100 | 100 | TDD |
| CA\_41C | N/A | N/A | 100 | 50 | 75 | 75 | N/A | N/A | 100 | 75 | 100 | 100 | TDD |
| CA\_42C | 100 | 25 | 100 | 50 | N/A | N/A | N/A | N/A | 100 | 75 | 100 | 100 | TDD |
| 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.  NOTE 6: Void.  NOTE 7: Void | | | | | | | | | | | | | |

For intra-band non-contiguous carrier aggregation with one uplink carrier and two downlink sub-blocks, the throughput of each downlink 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) and parameters specified in Table 7.3.1-1, Table 7.3.1-1a and Table 7.3.1A-3 with the power level in Table 7.3.1-1, Table 7.3.1-1a increased by RIBNC given in Table 7.3.1A-3 for the SCC(s). The requirements apply with all downlink carriers active. 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-3: Intra-band non-contiguous CA with one uplink configuration for reference sensitivity

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CA configuration | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation | ΔRIBNC (dB) | Duplex mode |
| CA\_2A-2A | 25RB+25RB | 30.0 < Wgap ≤ 50.0 | 121 | 5.3 | FDD |
| [30.0 < Wgap ≤ 50.0] | [121] | [8.0]17 |
| 0.0 < Wgap ≤ 30.0 | 251 | 0 |
| 25RB+50RB | 25.0 < Wgap ≤ 45.0 | 121 | 4.4 |
| [25.0 < Wgap ≤ 45.0] | [121] | [7.1]17 |
| 0.0 < Wgap ≤ 25.0 | 251 | 0 |
| 25RB+75RB | 20.0 < Wgap ≤ 40.0 | 121 | 4.2 |
| [20.0 < Wgap ≤ 40.0] | [121] | [6.9]17 |
| 0.0 < Wgap ≤ 20.0 | 251 | 0 |
| 25RB+100RB | 15.0 < Wgap ≤ 35.0 | 121 | 3.8 |
| [30.0 < Wgap ≤ 50.0] | [121] | [6.5]17 |
| 0.0 < Wgap ≤ 15.0 | 251 | 0 |
| 50RB+25RB | 15.0 < Wgap ≤ 45.0 | 121 | 5.9 |
| [15.0 < Wgap ≤ 45.0] | [121] | [8.6]17 |
| 0.0 < Wgap ≤ 15.0 | 321 | 0 |
| 50RB+50RB | 10.0 < Wgap ≤ 40.0 | 121 | 4.6 |
| [10.0 < Wgap ≤ 45.0] | [121] | [7.3]17 |
| 0.0 < Wgap ≤ 10.0 | 321 | 0 |
| 50RB+75RB | 5.0 < Wgap ≤ 35.0 | 121 | 4.1 |
| [5.0 < Wgap ≤ 35.0] | [121] | [6.8]17 |
| 0.0 < Wgap ≤ 5.0 | 321 | 0 |
| 50RB+100RB | 0.0 < Wgap ≤ 30.0 | 121 | 4.0 |
| [0.0 < Wgap ≤ 30.0] | [121] | [6.7]17 |
| 75RB+25RB | 10.0 < Wgap ≤ 40.0 | 1212 | 6.7 |
| [10.0 < Wgap ≤ 40.0] | [121] | [9.4]17 |
| 0.0 < Wgap ≤ 10.0 | 361 | 0 |
| 75RB+50RB | 5.0 < Wgap ≤ 35.0 | 1212 | 5.4 |
| [5.0 < Wgap ≤ 35.0] | [1212] | [8.1]17 |
| 0.0 < Wgap ≤ 5.0 | 361 | 0 |
| 75RB+75RB | 0.0 < Wgap ≤ 30.0 | 1212 | 4.6 |
| [0.0 < Wgap ≤ 30.0] | [1212] | [7.3]17 |
| 75RB+100RB | 0.0 < Wgap ≤ 25.0 | 1212 | 4.2 |
| [0.0 < Wgap ≤ 25.0] | [1212] | [6.9]17 |
| 100RB+25RB | 0.0 < Wgap ≤ 35.0 | 1613 | 7.2 |
| [0.0 < Wgap ≤ 35.0] | [1612] | [9.9]17 |
| 100RB+50RB | 0.0 < Wgap ≤ 30.0 | 1613 | 5.8 |
| [0.0 < Wgap ≤ 30.0] | [1613] | [8.5]17 |
| 100RB+75RB | 0.0 < Wgap ≤ 25.0 | 1613 | 5.0 |
| [0.0 < Wgap ≤ 25.0] | [1613] | [7.7]17 |
| 100RB+100RB | 0.0 < Wgap ≤ 20.0 | 1613 | 4.6 |
| [0.0 < Wgap ≤ 20.0] | [1613] | [7.3]17 |
| CA\_3A-3A | 25RB+25RB | 45.0 < Wgap ≤ 65.0 | 121 | 4.7 | FDD |
| [45.0 < Wgap ≤ 65.0] | [121] | [7.4]17 |
| 0.0 < Wgap ≤ 45.0 | 251 | 0 |
| 25RB+50RB | 40.0 < Wgap ≤ 60.0 | 121 | 3.8 |
| [40.0 < Wgap ≤ 60.0] | [121] | [6.5]17 |
| 0.0 < Wgap ≤ 40.0 | 251 | 0 |
| 25RB+75RB | 35.0 < Wgap ≤ 55.0 | 121 | 3.6 |
| [35.0 < Wgap ≤ 55.0] | [121] | [6.3]17 |
| 0.0 < Wgap ≤ 35.0 | 251 | 0 |
| 25RB+100RB | 30.0 < Wgap ≤ 50.0 | 121 | 3.4 |
| [30.0 < Wgap ≤ 50.0] | [121] | [6.1]17 |
| 0.0 < Wgap ≤ 30.0 | 251 | 0 |
| 50RB+25RB | 30.0 < Wgap ≤ 60.0 | 129 | 5.1 |
| [30.0 < Wgap ≤ 60.0] | [129] | [7.8]17 |
| 0.0 < Wgap ≤ 30.0 | 321 | 0 |
| 50RB+50RB | 25.0 < Wgap ≤ 55.0 | 129 | 4.3 |
| [25.0 < Wgap ≤ 55.0] | [129] | [7.0]17 |
| 0.0 < Wgap ≤ 25.0 | 321 | 0 |
| 50RB+75RB | 20.0 < Wgap ≤ 50.0 | 129 | 3.8 |
| [20.0 < Wgap ≤ 50.0] | [129] | [6.5]17 |
| 0.0 < Wgap ≤ 20.0 | 321 | 0 |
| 50RB+100RB | 15.0 < Wgap ≤ 45.0 | 129 | 3.4 |
| [15.0 < Wgap ≤ 45.0] | [129] | [6.1]17 |
| 0.0 < Wgap ≤ 15.0 | 321 | 0 |
| 75RB+25RB | 25.0 < Wgap ≤ 55.0 | 1210 | 6.0 |
| [25.0 < Wgap ≤ 55.0] | [1210] | [8.7]17 |
| 0.0 < Wgap ≤ 25.0 | 321 | 0 |
| 75RB+50RB | 20.0 < Wgap ≤ 50.0 | 1210 | 4.7 |
| [20.0 < Wgap ≤ 55.0] | [1210] | [7.4]17 |
| 0.0 < Wgap ≤ 20.0 | 321 | 0 |
| 75RB+75RB | 15.0 < Wgap ≤ 45.0 | 1210 | 4.2 |
| [15.0 < Wgap ≤ 45.0] | [1210] | [6.9]17 |
| 0.0 < Wgap ≤ 15.0 | 321 | 0 |
| 75RB+100RB | 10.0 < Wgap ≤ 40.0 | 1210 | 3.8 |
| [10.0 < Wgap ≤ 40.0] | [1210] | [6.5]17 |
| 0.0 < Wgap ≤ 10.0 | 321 | 0 |
| 100RB+25RB | 15.0 < Wgap ≤ 50.0 | 1611 | 6.5 |
| [15.0 < Wgap ≤ 50.0] | [1611] | [9.2]17 |
| 0.0 < Wgap ≤ 15.0 | 321 | 0 |
| 100RB+50RB | 10.0 < Wgap ≤ 45.0 | 1611 | 5.1 |
| [10.0 < Wgap ≤ 45.0] | [1611] | [7.8]17 |
| 0.0 < Wgap ≤ 10.0 | 321 | 0 |
| 100RB+75RB | 5.0 < Wgap ≤ 40.0 | 1611 | 4.5 |
| [5.0 < Wgap ≤ 40.0] | [1611] | [7.2]17 |
| 0.0 < Wgap ≤ 5.0 | 321 | 0 |
| 100RB+100RB | 0.0 < Wgap ≤ 35.0 | 1611 | 4.1 |
| [0.0 < Wgap ≤ 35.0] | [1611] | [6.8]17 |
| CA\_4A-4A | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | FDD |
| CA\_5A-5A | 25RB+25RB | NOTE 7 | 121 | 5.3 | FDD |
| 25RB+50RB | NOTE 7 | 121 | 4.4 |
| 50RB+25RB | NOTE 7 | 121 | 5.9 |
| 50RB+50RB | NOTE 7 | 121 | 4.6 |
| CA\_7A-7A | 25RB+25RB | 0< Wgap ≤ 60 | 25 | 0.0 | FDD |
| 25RB+50RB | 0 < Wgap ≤ 55 | 25 | 0.0 |
| 25RB+75RB | 0 < Wgap ≤ 50 | 25 | 0.0 |
| 25RB+100RB | 0 < Wgap ≤ 45 | 25 | 0.0 |
| 50RB+25RB | 30 < Wgap ≤ 55 | 321 | 0.0 |
| 0 < Wgap ≤ 30 | 50 | 0.0 |
| 50RB+50RB | 25.0 < Wgap ≤ 50.0 | 321 | 0.0 |
| 0.0 < Wgap ≤ 25.0 | 50 | 0.0 |
| 50RB+75RB | 20 < Wgap ≤ 45 | 321 | 0.0 |
| 0 < Wgap ≤ 20 | 50 | 0.0 |
| 50RB+100RB | 15 < Wgap ≤ 40 | 321 | 0.0 |
| 0 < Wgap ≤ 15 | 50 | 0.0 |
| 75RB+25RB | 20.0 < Wgap ≤ 50.0 | 321 | 0.0 |
| 0.0 < Wgap ≤ 20.0 | 501 | 0.0 |
| 75RB+50RB | 20.0 < Wgap ≤ 45.0 | 321 | 0.0 |
| 0.0 < Wgap ≤ 20.0 | 501 | 0.0 |
| 75RB+75RB | 15.0 < Wgap ≤ 40.0 | 321 | 0.0 |
| 0.0 < Wgap ≤ 15.0 | 501 | 0.0 |
| 75RB+100RB | 10 < Wgap ≤ 35 | 321 | 0.0 |
| 0 < Wgap ≤ 10 | 501 | 0.0 |
| 100RB+25RB | 25 < Wgap ≤ 45 | 321 | 0.0 |
| 0 < Wgap ≤ 25 | 451 | 0.0 |
| 100RB+50RB | 20 < Wgap ≤ 40 | 321 | 0.0 |
| 0 < Wgap ≤ 20 | 451 | 0.0 |
| 100RB+75RB | 15.0 < Wgap ≤ 35.0 | 361 | 0.0 |
| 0.0 < Wgap ≤ 15.0 | 501 | 0.0 |
| 100RB+100RB | 15.0 < Wgap ≤ 30.0 | 321 | 0.0 |
| 0.0 < Wgap ≤ 15.0 | 451 | 0.0 |
| CA\_23A-23A | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | FDD |
| CA\_25A-25A | 25RB+25RB | 30.0 < Wgap ≤ 55.0 | 101 | 5.0 | FDD |
| 0.0 < Wgap ≤ 30.0 | 251 | 0.0 |
| 25RB+50RB | 25.0 < Wgap ≤ 50.0 | 101 | 4.5 |
| 0.0 < Wgap ≤ 25.0 | 251 | 0.0 |
| 25RB+75RB | 20 < Wgap ≤ 45 | 101 | 4.3 |
| 0 < Wgap ≤ 20 | 251 | 0 |
| 25RB+100RB | 15 < Wgap ≤ 40 | 101 | 4.1 |
| 0 < Wgap ≤ 15 | 251 | 0 |
| 50RB+25RB | 15.0 < Wgap ≤ 50.0 | 104 | 5.5 |
| 0.0 < Wgap ≤ 15.0 | 321 | 0.0 |
| 50RB+50RB | 10.0 < Wgap ≤ 45.0 | 104 | 5.0 |
| 0.0 < Wgap ≤ 10.0 | 321 | 0.0 |
| 50RB+75RB | 5 < Wgap ≤ 40 | 104 | 4.5 |
| 0 < Wgap ≤ 5 | 321 | 0 |
| 50RB+100RB | 0 < Wgap ≤ 35 | 104 | 4.2 |
| 75RB+25RB | 10 < Wgap ≤ 45 | 1014 | 7.6 |
| 0 < Wgap ≤ 10 | 321 | 0 |
| 75RB+50RB | 5 < Wgap ≤ 40 | 1014 | 6.7 |
| 0 < Wgap ≤ 5 | 321 | 0 |
| 75RB+75RB | 0 < Wgap ≤ 35 | 1014 | 5.6 |
| 75RB+100RB | 0 < Wgap ≤ 30 | 1014 | 4.8 |
| 100RB+25RB | 0 < Wgap ≤ 40 | 1215 | 8 |
| 100RB+50RB | 0 < Wgap ≤ 35 | 1215 | 6.7 |
| 100RB+75RB | 0 < Wgap ≤ 30 | 1215 | 6.1 |
| 100RB+100RB | 0 < Wgap ≤ 25 | 1215 | 5.7 |
| CA\_40A-40A | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_41A-41A | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_41A-41C | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_41A-41D | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_41C-41C | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_42A-42A | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_42A-42C | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_42A-42D | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_42C-42A | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_42C-42C | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_42D-42A | NOTE 6 | NOTE 7 | NOTE 8 | 0.0 | TDD |
| CA\_66A-66A | NOTE 6 | NOTE 7 | NOTE 8, NOTE 16 | 0.0 | FDD |
| NOTE 1: 1 refers to the UL resource blocks shall be located as close as possible to the downlink operating band but confined within the transmission.  NOTE 2: Wgap is the sub-block gap between the two sub-blocks.  NOTE 3: The carrier center frequency of PCC in the UL operating band is configured closer to the DL operating band.  NOTE 4: 4 refers to the UL resource blocks shall be located at RBstart=33.  NOTE 5: For the TDD intra-band non-contiguous CA configurations, the minimum requirements apply only in synchronized operation between all component carriers.  NOTE 6: All combinations of channel bandwidths defined in Table 5.6A.1-3.  NOTE 7: All applicable sub-block gap sizes.  NOTE 8: The PCC allocation is same as Transmission bandwidth configuration NRB as defined in Table 5.6-1. In case of uplink sub-block is TDD intra-band contiguous CA then the uplink PCC and SCC allocations are the same as NRB\_agg defined in Table 7.3.1A-1.  NOTE 9: 9 refers to the UL resource blocks shall be located at RBstart=25.  NOTE 10: 10 refers to the UL resource blocks shall be located at RBstart=35.  NOTE 11: 11 refers to the UL resource blocks shall be located at RBstart=50.  NOTE 12: 12 refers to the UL resource blocks shall be located at RBstart=39.  NOTE 13: 13 refers to the UL resource blocks shall be located at RBstart=57.  NOTE 14: 14 refers to the UL resource blocks shall be located at RBstart=44.  NOTE 15: 15 refers to the UL resource blocks shall be located at RBstart=62.  NOTE 16: The carrier center frequency of PCC in the DL operating band is configured closer to the UL operating band.  NOTE 17: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | |

For intra-band non-contiguous carrier aggregation with two uplink and downlink carriers the reference sensitivity is defined to be met with both downlink and uplink carriers activated. The downlink PCC and SCC minimum requirements for reference sensitivity as specified in Table 7.3.1-1 are increased by amount of ΔR2UL\_PCC and ΔR2UL\_SCC which are defined in Table 7.3.1A-4 when uplink PCC and SCC allocations are according to the Table 7.3.1A-4.

Table 7.3.1A-4: Intra-band non-contiguous CA with two uplinks configuration for reference sensitivity

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| CA configuration | Aggregated channel bandwidth (PCC+SCC) | Wgap / [MHz] | UL PCC allocation | UL SCC allocation | ΔR2UL\_PCC  (dB) | ΔR2UL\_SCC  (dB) | Duplex mode |
| CA\_4A-4A | NOTE 2 | NOTE 3 | NOTE 4 | NOTE 5 | 0.0 | 0.0 | FDD |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: All combinations of channel bandwidths defined in Table 5.6A.1-3.  NOTE 3: All applicable sub-block gap sizes.  NOTE 4: The PCC allocation is same as Transmission bandwidth configuration NRB as defined in Table 5.6-1.  NOTE 5: The SCC allocation is same as Transmission bandwidth configuration NRB as defined in Table 5.6-1. | | | | | | | |

For combinations of intra-band and inter-band carrier aggregation with up to five downlink carriers (up to two non-contiguously aggregated carriers per band and up to four contiguously aggregated carriers per band) and up to three uplink carriers (up to two contiguously aggregated carriers per band), the requirement is defined with an uplink configuration in accordance with Table 7.3.1A-3 when the uplink is active in a band supporting two non-contigous component carriers, Table 7.3.1A-1 when the uplink (up to two contiguously aggregated uplink carriers) is active in a band supporting two contiguous component carriers and in accordance with Table 7.3.1-2 when an uplink is active in a band supporting one carrier per band. The downlink PCC shall be configured closer to the uplink operating band than the downlink SCC(s) when the uplink is active in band(s) supporting contiguous aggregation of up to three component carriers. The carrier center frequency of PCC in the UL operating band is configured closer to the DL operating band when the uplink is active in band(s) supporting non-contiguous aggregation of up to two component carriers. For these uplink configurations, the UE shall meet the reference sensitivity requirements for intra-band non-contiguous carrier aggregation of two downlink carriers, the requirements for intra-band contiguous carrier aggregation for the contiguously aggregated downlink carriers and for any remaining component carrier(s) the requirements specified in subclause 7.3.1. For the two component carriers within the same band, RIBNC = 0 dB for all sub-block gaps (Table 7.3.1A-3) when the uplink is active in another band. All downlink carriers shall be active throughout the tests and the requirements for the downlinks shall be met with all uplink carriers active in each band capable of UL operation. For contiguously aggregated component carriers configured in Band 46, the said requirements for intra-band contiguous carrier aggregation of downlink carriers are replaced by the requirements in Table 7.3.1A-0eA and Table 7.3.1A-0eB. 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.

For the UE that supports any of combinations of intra-band and inter-band carrier aggregation given in Table 7.3.1A-5, exceptions to the aforementioned requirements are allowed when the uplink is active in a lower-frequency band and is within a specified frequency range such that transmitter harmonics fall within the downlink transmission bandwidth assigned in a higher band as noted in Table 7.3.1A-5. For these exceptions, the UE shall meet the requirements specified in Table 7.3.1A-5 and Table 7.3.1A-6.

Table 7.3.1A-5: Reference sensitivity for carrier aggregation QPSK PREFSENS, CA (exceptions)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Channel bandwidth | | | | | | | | |
| EUTRA CA Configuration | EUTRA band | 1.4 MHz (dBm) | 3 MHz (dBm) | 5 MHz (dBm) | 10 MHz (dBm) | 15 MHz (dBm) | 20 MHz (dBm) | Duplex mode |
| CA\_1A-3A-7C-28A5,6 | 1 |  |  | -89.8 | -89.4 | -89 | -88.7 | FDD |
| 3 |  |  |  | -94 | -92.2 | -91 |
| 7 |  |  |  | -95 | -93.2 | -92 |
| 28 |  |  |  | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-42C8,9 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_1A-7C-28A5,6 | 1 |  |  | -89.8 | -89.4 | -89 | -88.7 | FDD |
| 7 |  |  |  | -95 | -93.2 | -92 |
| 28 |  |  |  | -95.3 | -93.5 | -90.8 |
| CA\_1A-3A-42C10 | 1 |  |  | -99.8 | -96.8 | -95 | -93.8 | FDD |
| 3 |  |  | -96.8 | -93.8 | -92 | -90.8 |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 | TDD |
| CA\_2A-2A-4A-12A5,6 | 2 |  |  | -97.7 | -94.7 | -92.9 | -91.7 | FDD |
|  |  | [-100.4]11 | [-97.4]11 | [-95.6]11 | [-94.4]11 |
| 4 |  |  | -90 | -89.5 | -89 | -88.5 |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_2A-4A-4A-12A5,6 | 2 |  |  | -97.7 | -94.7 | -92.9 | -91.7 | FDD |
|  |  | [-100.4]11 | [-97.4]11 | [-95.6]11 | [-94.4]11 |
| 4 |  |  | -90 | -89.5 | -89 | -88.5 |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_3A-3A-8A4 | 3 |  |  | N/A | N/A | N/A | N/A | FDD |
| 3 |  |  | N/A | N/A | N/A | N/A |
| 8 |  |  | N/A | N/A |  |  |
| CA\_3A-19A-42C8,9 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_3A-19A-42C10 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 19 |  |  | -100 | -97 | -95.2 |  |
| CA\_3A-42C8,9 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 42 |  |  | -71.7 | -71.7 | -71.7 | -71.7 | TDD |
| CA\_3A-42C10 | 3 |  |  | -96.8 | -93.8 | -92 | -90.8 | FDD |
|  |  | [-99.5]11 | [-96.5]11 | [-94.7]11 | [-93.5]11 |
| 42 |  |  | -97.1 | -94.7 | -93.2 | -92.5 | TDD |
| CA\_4A-4A-12A5,6 | 4 |  |  | -90 | -89.5 | -89 | -88.5 | FDD |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_4A-12B5,6 | 4 |  |  | -90 | -89.5 | -89 | -88.5 | FDD |
| 12 |  |  | -96.5 | -93.5 |  |  |
| CA\_8A-41C7 | 8 | N/A | N/A | N/A | N/A |  |  | FDD |
| 41 |  |  |  | N/A | N/A | N/A | TDD |
| 41 |  |  |  | N/A | N/A | N/A |
| CA\_26A-41C7 | 26 |  |  | N/A | N/A | N/A |  | FDD |
| 41 |  |  | N/A | N/A | N/A | N/A | TDD |
| NOTE 1: The transmitter shall be set to PUMAX as defined in subclause 6.2.5A.  NOTE 2: Reference measurement channel is A.3.2 with one sided dynamic OCNG Pattern OP.1 FDD/TDD as described in Annex A.5.1.1/A.5.2.1  NOTE 3: The signal power is specified per port  NOTE 4: No requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the low band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of the high band. The reference sensitivity is only verified when this is not the case (the requirements specified in clause 7.3.1 apply).  NOTE 5: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of a low band for which the 3rd transmitter harmonic is within the downlink transmission bandwidth of a high band.  NOTE 6: The requirements should be verified for UL EARFCN of a low band (superscript LB) such that in MHz and  with the carrier frequency of a high band in MHz and  the channel bandwidth configured in the low band.  NOTE 7: No requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the low band for which the 3rd transmitter harmonic is within the downlink transmission bandwidth of the high band. The reference sensitivity is only verified when this is not the case (the requirements specified in clause 7.3.1 apply).  NOTE 8: These requirements apply when there is at least one individual RE within the uplink transmission bandwidth of the aggressor (lower) band for which the 2nd transmitter harmonic is within the downlink transmission bandwidth of a victim (higher) band and a range FHD above and below the edge of this downlink transmission bandwidth. The value FHD depends on the E-UTRA configuration: FHD = 10 MHz for CA\_3A-42C, CA\_1A-3A-42C and CA\_3A-19A-42C.  NOTE 9: The requirements should be verified for UL EARFCN of the aggressor (lower) band (superscript LB) such that in MHz and  with carrier frequency in the victim (higher) band in MHz and  the channel bandwidth configured in the lower band.  NOTE 10: The requirements are only applicable to channel bandwidths with a carrier frequency at  MHz offset from  in the victim (higher band) with , whereandare the channel bandwidths configured in the aggressor (lower) and victim (higher) bands in MHz, respectively.  NOTE 11: Applicable only if operation with 4 antenna ports is supported in the band with carrier aggregation configured. | | | | | | | | |

Table 7.3.1A-6: Uplink configuration for the low band (exceptions)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA Band / Channel bandwidth of the high band / NRB / Duplex mode | | | | | | | | |
| EUTRA CA Configuration | UL band | 1.4 MHz | 3 MHz | 5 MHz | 10 MHz | 15 MHz | 20 MHz | Duplex mode |
| CA\_1A-3A-7C-28A | 28 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_1A-3A-42C | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_1A-7C-28A | 28 |  |  |  | 16 | 25 | 25 | FDD |
| CA\_2A-2A-4A-12A | 12 |  |  | 8 | 16 | 20 | 20 | FDD |
| CA\_2A-4A-4A-12A | 12 |  |  | 8 | 16 | 20 | 20 | FDD |
| CA\_3A-19A-42C | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_3A-42C | 3 |  |  | 12 | 25 | 36 | 50 | FDD |
| CA\_4A-4A-12A | 12 |  |  | 8 | 16 | 20 | 20 | FDD |
| CA\_4A-12B | 12 |  |  | 8 | 16 | 20 | 20 | FDD |
| NOTE 1: refers to the UL resource blocks, which shall be centred within the transmission bandwidth configuration for the channel bandwidth.  NOTE 2: the UL configuration applies regardless of the channel bandwidth of the low band unless the UL resource blocks exceed that specified in Table 7.3.1-2 for the uplink bandwidth in which case the allocation according to Table 7.3.1-2 applies. | | | | | | | | |

<Unchanged sections omitted>