**3GPP TSG-RAN WG4 Meeting #100-e *R4-2115124***

**Electronic meeting, August 16-27, 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **36.101** | **CR** | **<CR#>** | **rev** | **-** | **Current version:** | **17.2.0** |  |
|  | | | | | | | | |
| *For* [***HELP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network |  |

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| ***Title:*** | Big CR for TS 36.101 Maintenance | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MCC, Xiaomi | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | LTE\_CA\_R14\_intra-Core, LTE\_CA\_R15\_intra-Core,  NB\_IOT\_R14\_bands-Core, NB\_IOTenh-Core,  LTE\_CA\_C\_B41\_PC2-Core | | | | |  | ***Date:*** | | | 2021-08-29 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **A** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This big CRs merge the mutiple endorsed draft CRs. The reason for change in each endorsed draft CR is copied below.  R4-2112389 draft CR to 36.101 on removal of BCS1 for CA\_5B, Apple  <Reason for change>  The configuration CA\_5B was introduced to the Rel-14 specification with BCS0 and BCS1 according to the operator requests in RP-161473 (WID on LTE Advanced intra-band CA Rel-14 for xDL/yUL including contiguous and non-contiguous spectrum). The aggregate BW of BCS1 of this configuration is 8 MHz (3+5 MHz). However, RAN4 did not complete the specification of RF requirements for BCS1 with this configuration: REFSENS requirements for 3+5 MHz are missing, SEM requirements for 3+5 MHz are missing, etc.  R4-2112244 Mirror draft CR for 36.101: Correction on operating bands for NB-IoT in the USA (Rel-17), Qualcomm Incorporated, T-Mobile USA  <Reason for change>  CR for 36.101 to introduce NS Signalling for NB-IoT in the USA was agreed in RAN4#99e. But the frequency range for upper edge of B66 is not correct. The upper edge of B66 should be 2179.9 MHz  R4-2112356 draftCR for TS 36-101 Rel-17: Correction for CA\_66 coexistence, Apple  <Reason for change>  The protected band list for single bands and for intra-band carrier aggregation should be equal as the emission requirements for single and intra-band do not change. In case of CA\_66 we found that bands b49 and b52 are added to the list (compared to single b66). Testing for b49 and b52 region to meet the -50dBm/MHz limit creates an unecessary burden, especiall as they are not used in the field. Therefore, we propose to remove them from the list  R4-2114091 Draft CR MPR and AMPR for LTE CA 256QAM PC2, Huawei, HiSilicon  <Reason for change>  The MPR for PC2 256QAM and the A-MPR for CA\_NS\_04 256QAM PC2 are still FFS in the spec. The Cat F CR has been approved in R4-2108110.  R4-2111845 Draft CR to Reference Channel Parameters in UE Category M1, corporation  <Reason for change>  In the transmission by Reference Channel R.103 FDD described in Table A.3.3.2.1-4, mPDCCH-NumRepetition = 4, MPDCCH repetition number = 4 is specified in test specification. Under this condition, it cannot be scheduled downlink subframe (0th subframe every 11ms) described in note5. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The summary of change in each endorsed draft CR is copied below.  R4-2112389 draft CR to 36.101 on removal of BCS1 for CA\_5B, Apple  <Summary of change>  Remove BCS1 from the CA\_5B configuration in Table 5.6A-1-1  R4-2112244 Mirror draft CR for 36.101: Correction on operating bands for NB-IoT in the USA (Rel-17), Qualcomm Incorporated, T-Mobile USA  <Summary of change>  Corrected the upper edge of band 66 in Table 5.5F-1.  R4-2112356 draftCR for TS 36-101 Rel-17: Correction for CA\_66 coexistence, Apple  <Summary of change>  Removed b49 and b52 from protected band list of CA\_66  R4-2114091 Draft CR MPR and AMPR for LTE CA 256QAM PC2, Huawei, HiSilicon  <Summary of change>  The MPR/A-MPR values are fulfilled based on simulation results and meeting discussions.  R4-2111845 Draft CR to Reference Channel Parameters in UE Category M1, corporation  <Summary of change>  Table A.3.3.2.1-4: Fixed Reference Channel two antenna ports  Change value of Max. Throughput average to 0.0187Mbps.  On the Note5, change value of scheduled subframes to 5th subframe and every 12ms. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The consequences if not approved for each endorsed draft CR are copied below.  R4-2112389 draft CR to 36.101 on removal of BCS1 for CA\_5B, Apple  <Consequences if not approved>  Requirements for CA\_5B are not clear    R4-2112244 Mirror draft CR for 36.101: Correction on operating bands for NB-IoT in the USA (Rel-17), Qualcomm Incorporated, T-Mobile USA  <Consequences if not approved>  The frequency range of B66 for NB-IoT in US is not correct, i.e., the upper edge of B66 for uplink and downlink is not cosistent.  R4-2112356 draftCR for TS 36-101 Rel-17: Correction for CA\_66 coexistence, Apple  <Consequences if not approved>  Testing for b49 and b52 region to meet the -50dBm/MHz limit creates an unecessary burden for the UE.  R4-2114091 Draft CR MPR and AMPR for LTE CA 256QAM PC2, Huawei, HiSilicon  <Consequences if not approved>  The UE requirements would remain incomplete.  R4-2111845 Draft CR to Reference Channel Parameters in UE Category M1, corporation  <Consequences if not approved>  Unable to schedule Reference Channel. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | R4-2112389 draft CR to 36.101 on removal of BCS1 for CA\_5B, Apple  <Clauses affected>  5.6A.1  R4-2112244 Draft CR for 36.101: Correction on operating bands for NB-IoT in the USA (Rel-17), Qualcomm Incorporated, T-Mobile USA  <Clauses affeacted>  5.5F  R4-2112356 draftCR for TS 36-101 Rel-17: Correction for CA\_66 coexistence, Apple  <Clauses affeacted>  6.6.3.2A  R4-2114091 Draft CR MPR and AMPR for LTE CA 256QAM PC2, Huawei, HiSilicon  <Clauses affeacted>  6.2.3A, 6.2.4A.4  R4-2111845 Draft CR to Reference Channel Parameters in UE Category M1, corporation  <Clauses affeacted>  A.3.3.2.1  **Isolated impact analysis:**  No change to UE requirements, changes test parameters only. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | TS 36.521-1, 36.508 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

***<Start of change1>***

## 5.5F Operating bands for category NB1 and NB2

Category NB1 and NB2 are designed to operate in the E-UTRA operating bands 1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 28, 31, 41, 42, 43, 65, 66, 70, 71, 72, 73, 74, 85, 87 and 88 which are defined in Table 5.5-1. Category NB1 and NB2 are designed to operate in the NR operating bands n1, n2, n3, n5, n7, n8, n12, n14, n18, n20, n25, n28, n41, n65, n66, n70, n71, n74, n90.

Category NB1 and NB2 systems operate in HD-FDD duplex mode or in TDD mode.

In case UE receives network signaling value NS\_04 on any of the operating bands listed in Table 5.5F-1 then the lower and upper limit of those bands are shown in Table 5.5F-1 to account for the USA emission requirements.

Table 5.5F-1 E-UTRA operating bands for NB-IoT in the USA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| E‑UTRA Operating Band | Uplink (UL) operating band BS receive UE transmit | | | Downlink (DL) operating band BS transmit  UE receive | | | Duplex Mode |
| FUL\_low – FUL\_high | | | FDL\_low – FDL\_high | | |
| 2 | 1850.1 MHz | – | 1909.9 MHz | 1930.1 MHz | – | 1989.9 MHz | FDD |
| 4 | 1710.1 MHz | – | 1754.9 MHz | 2110.1 MHz | – | 2154.9 MHz | FDD |
| 5 | 824.1 MHz | – | 848.9 MHz | 869.1 MHz | – | 893.9MHz | FDD |
| 12 | 699 MHz | – | 715.9 MHz | 729 MHz | – | 745.9 MHz | FDD |
| 13 | 777 MHz | – | 786.9 MHz | 746 MHz | – | 755.9 MHz | FDD |
| 17 | 704.1 MHz | – | 715.9 MHz | 734.1 MHz | – | 745.9 MHz | FDD |
| 25 | 1850.1 MHz | – | 1914.9 MHz | 1930.1 MHz | – | 1994.9 MHz | FDD |
| 26 | 814.1 MHz | – | 848.9 MHz | 859.1 MHz | – | 893.9 MHz | FDD |
| 66 | 1710.1 MHz | – | 1779.9 MHz | 2110.1 MHz | – | 2179.9 MHz | FDD4 |
| 71 | 663.1 MHz | – | 697.9 MHz | 617.1 MHz | – | 651.9 MHz | FDD |
| 85 | 698.1 MHz | – | 715.9 MHz | 728.1 MHz | – | 745.9 MHz | FDD |

***<End of change1>***

***<Start of change2>***

### 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 |  |  |  |
| 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. | | | | | | | | |

***<End of change2>***

***<Start of change3>***

### 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) |
| 25 RB | 50 RB | 75 RB | 100 RB |
| QPSK | > 8 and ≤ 25 | > 12 and ≤ 50 | > 16 and ≤ 75 | > 18 and ≤ 100 | ≤ 1 |
| QPSK | > 25 | > 50 | > 75 | > 100 | ≤ 2 |
| 16 QAM | ≤ 8 | ≤ 12 | ≤ 16 | ≤ 18 | ≤ 1 |
| 16 QAM | > 8 and ≤ 25 | > 12 and ≤ 50 | > 16 and ≤ 75 | > 18 and ≤ 100 | ≤ 2 |
| 16 QAM | > 25 | > 50 | > 75 | > 100 | ≤ 3 |
| 64 QAM | ≤ 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 | > 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 |

Table 6.2.3A-1a: Maximum Power Reduction (MPR) for Power Class 2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Modulation | CA bandwidth Class C / Smallest Component Carrier Transmission Bandwidth Configuration | | | | MPR (dB) |
| 25 RB | 50 RB | 75 RB | 100 RB |
| QPSK | > 6 and ≤ 25 | > 6 and ≤ 50 | > 6 and ≤ 75 | > 6 and ≤ 100 | ≤ 1 |
| QPSK | > 25 | > 50 | > 75 | > 100 | ≤ 2 |
| 16 QAM | ≤ 6 | ≤ 8 | ≤ 16 | ≤ 18 | ≤ 1.5 |
| 16 QAM | > 6 and ≤ 25 | > 8 and ≤ 50 | > 16 and ≤ 75 | > 18 and ≤ 100 | ≤ 2 |
| 16 QAM | > 25 | > 50 | > 75 | > 100 | ≤ 3 |
| 64 QAM | ≤ 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 | > 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 | | | | ≤ 6 |

Table 6.2.3A-2: Maximum Power Reduction (MPR) for Class 3

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Modulation | CA bandwidth Class D | | | | | MPR (dB) |
| 50 RB + 75 RB + 100RB | 50 RB + 100 RB + 100 RB | 75 RB + 75 RB + 100 RB | 75 RB + 100 RB + 100 RB | 100 RB + 100 RB + 100 RB |
| QPSK | > 12 and ≤ 50 | > 12 and ≤ 50 | > 16 and ≤ 75 | > 16 and ≤ 75 | > 18 and ≤ 100 | ≤ 1 |
| QPSK | > 50 and ≤ 125 | > 50 and ≤ 150 | > 75 and ≤ 150 | > 75 and ≤ 175 | > 100 and ≤ 200 | ≤ 2 |
| QPSK | > 125 | > 150 | > 150 | > 175 | > 200 | ≤ 3 |
| 16 QAM | ≤ 12 | ≤ 12 | ≤ 16 | ≤ 16 | ≤ 18 | ≤ 1 |
| 16 QAM | > 12 and ≤ 50 | > 12 and ≤ 50 | > 16 and ≤ 75 | > 16 and ≤ 75 | > 18 and ≤ 100 | ≤ 2 |
| 16 QAM | > 50 and ≤ 125 | > 50 and ≤ 150 | > 75 and ≤ 150 | > 75 and ≤ 175 | > 100 and ≤ 200 | ≤ 3 |
| 16 QAM | > 125 | > 150 | > 150 | >175 | > 200 | ≤ 3.5 |
| 64 QAM | ≤ 12 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 | ≤ 16 and allocation wholly contained within a single CC | ≤ 18 and allocation wholly contained within a single CC | ≤ 2 |
| 64 QAM | > 12 allocation wholly contained within a single CC or allocation extends across two CC’s | > 12 allocation wholly contained within a single CC or allocation extends across two CC’s | > 16 allocation wholly contained within a single CC or allocation extends across two CC’s | > 16 allocation wholly contained within a single CC or allocation extends across two CC’s | > 18 allocation wholly contained within a single CC or allocation extends across two CC’s | ≤ 3 |
| 64 QAM | allocation extends across three CC’s | allocation extends across three CC’s | allocation extends across three CC’s | allocation extends across three CC’s | allocation extends across three CC’s | ≤ 4.0 |
| 256 QAM | ≥ 1 | | | | | ≤ 5.5 |

***<End of change3>***

***<Start of change4>***

#### 6.2.4A.4 A-MPR for CA\_NS\_04

If the UE is configured to CA\_41C or any uplink inter-band CA configuration containing CA\_41C and it receives IE CA\_NS\_04 the allowed maximum output power reduction applied to transmission on two component carriers for contiguously aggregated signals is specified in Table 6.2.4A.4-1 and Table 6.2.4A.4-1A for UE power class 3 and in Table 6.2.4A.4-2 for UE power class 2.

Table 6.2.4A.4-1: Contiguous Allocation A-MPR for CA\_NS\_04 (power class 3), Bandwidth Class C

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CA Bandwidth Class C | RBStart | LCRB [RBs] | RBstart + LCRB [RBs] | A-MPR for QPSK [dB] | A-MPR for 16 QAM, 64 QAM and 256 QAM [dB] |
| 25 RB / 100 RB | 0 – 34 and 90 – 124 | >0 | N/A | ≤3dB | ≤3.5dB |
| 35 – 89 | N/A | >90 | ≤1dB | ≤2.5dB |
| 50RB / 100 RB | 0 – 44 and 105 – 149 | >0 | N/A | ≤4dB | ≤4dB |
| 45 – 104 | N/A | >105 | ≤3dB | ≤4dB |
| 75 RB / 75 RB | 0 – 44 and 105 – 149 | >0 | N/A | ≤4dB | ≤4dB |
| 45 – 104 | N/A | >105 | ≤4dB | ≤4dB |
| 100 RB / 75 RB | 0 – 49 and 125 – 174 | >0 | N/A | ≤4dB | ≤4dB |
| 50 - 124 | N/A | >125 | ≤3dB | ≤4dB |
| 100 RB / 100 RB | 0 – 59 and 140 – 199 | >0 | N/A | ≤3dB | ≤4dB |
| 60– 139 | N/A | >140 | ≤4dB | ≤4dB |
| NOTE 1: RBstart indicates the lowest RB index of transmitted resource blocks  NOTE 2: LCRB is the length of a contiguous resource block allocation  NOTE 3: For intra-subframe frequency hopping which intersects regions, notes 1 and 2 apply on a per slot basis. For intra-slot or intra-subslot frequency hopping which intersects regions, notes 1 and 2 apply on a per Tno\_hopping basis..  NOTE 4: For intra-subframe frequency hopping which intersects regions, the larger A-MPR value may be applied for both slots in the subframe. For intra-slot frequency hopping which intersects regions, the larger A-MPR value may be applied for the slot. For intra-subslot frequency hopping which intersects regions, the larger A-MPR value may be applied for the subslot. | | | | | |

Table 6.2.4A.4-1A: Contiguous Allocation A-MPR for CA\_NS\_04 (power class 3), Bandwidth Class D

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CA Bandwidth Class D | RBStart | LCRB [RBs] | RBstart + LCRB [RBs] | A-MPR for QPSK [dB] | A-MPR for 16 QAM, 64 QAM and 256 QAM [dB] |
| 50 RB / 75 RB/ 100 RB | 0 – 64 and 161 – 224 | >0 | N/A | ≤4dB | ≤4.5dB |
| 65 – 160 | N/A | >161 | ≤3dB | ≤3.5dB |
| 50 RB / 100 RB / 100 RB | 0 – 72 and 178 – 249 | >0 | N/A | ≤4dB | ≤4.5dB |
| 73 – 177 | N/A | >178 | ≤3dB | ≤3.5dB |
| 75 RB / 75 RB / 100 RB | 0 – 72 and 178 – 249 | >0 | N/A | ≤4dB | ≤4.5dB |
| 73 – 177 | N/A | >178 | ≤3dB | ≤3.5dB |
| 75 RB / 100 RB / 100 RB | 0 – 78 and 197 – 274 | >0 | N/A | ≤3.5dB | ≤4dB |
| 79 - 196 | N/A | >197 | ≤2.5dB | ≤3dB |
| 100 RB / 100 RB / 100 RB | 0 – 96 and 204 – 300 | >0 | N/A | ≤4dB | ≤4dB |
| 97– 203 | N/A | >204 | ≤2.5dB | ≤3dB |
| NOTE 1: RBstart indicates the lowest RB index of transmitted resource blocks  NOTE 2: LCRB is the length of a contiguous resource block allocation  NOTE 3: For intra-subframe frequency hopping which intersects regions, notes 1 and 2 apply on a per slot basis. For intra-slot or intra-subslot frequency hopping which intersects regions, notes 1 and 2 apply on a per Tno\_hopping basis..  NOTE 4: For intra-subframe frequency hopping which intersects regions, the larger A-MPR value may be applied for both slots in the subframe. For intra-slot frequency hopping which intersects regions, the larger A-MPR value may be applied for the slot. For intra-subslot frequency hopping which intersects regions, the larger A-MPR value may be applied for the subslot. | | | | | |

Table 6.2.4A.4-2: Contiguous Allocation A-MPR for CA\_NS\_04 (power class 2)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CA Bandwidth Class C | Lower edge cutoff frequency [MHz]5 | RBStart | LCRB [RBs] | RBstart + LCRB [RBs] | A-MPR per modulation [dB] | | | |
|  | QPSK | 16QAM | 64QAM | 256QAM |
| 25 RB / 100 RB | 2513.5 | 0 – 42 | >0 | N/A | ≤5 | ≤5 | ≤5 | 6.5 |
| 43 – 81 | N/A | >82 | ≤1 | ≤1.5 | ≤1.5 | 3 |
| 82 – 124 | >0 | N/A | ≤1 | ≤1.5 | ≤1.5 | 2.5 |
| 50 RB / 100 RB | 2518.4 | 0 – 52 | >0 | N/A | ≤5 | ≤5 | ≤5 | 6.5 |
| 53 – 94 | N/A | >95 | ≤1 | ≤1.5 | ≤1.5 | 3 |
| 95 – 149 | >0 | N/A | ≤1 | ≤1.5 | ≤1.5 | 2.5 |
| 75 RB / 75 RB | 2519.0 | 0 – 54 | >0 | N/A | ≤5 | ≤5 | ≤5 | 6.5 |
| 55 – 94 | N/A | >95 | ≤2 | ≤2.5 | ≤2.5 | 3.5 |
| 95 – 149 | >0 | N/A | ≤1.5 | ≤2 | ≤2 | 3 |
| 75 RB / 100 RB | 2523.4 | 0 – 64 | >0 | N/A | ≤5 | ≤5 | ≤5 | 6.5 |
| 65 – 114 | N/A | >115 | ≤2 | ≤2.5 | ≤2.5 | 3.5 |
| 115 – 174 | >0 | N/A | ≤1 | ≤1.5 | ≤2 | 3 |
| 100 RB / 100 RB | 2528.3 | 0 – 69 | >0 | N/A | ≤5 | ≤5 | ≤5 | 6.5 |
| 70 – 129 | N/A | >130 | ≤2 | ≤2.5 | ≤2.5 | 3.5 |
| 130 – 199 | >0 | N/A | ≤1.5 | ≤1.5 | ≤2 | 3 |
| NOTE 1: RBstart indicates the lowest RB index of transmitted resource blocks  NOTE 2: LCRB is the length of a contiguous resource block allocation  NOTE 3: For intra-subframe frequency hopping which intersects regions, notes 1 and 2 apply on a per slot basis  NOTE 4: For intra-subframe frequency hopping which intersects regions, the larger A-MPR value may be applied for both slots in the subframe  NOTE 5: The A-MPR values in this table shall apply when the lower edge of the aggregated channel bandwidth (Figure 5.6A-1) is less than or equal to the lower edge cutoff frequency specified in this table for the corresponding CA bandwidth combination. When the lower edge of the aggregated channel bandwidth exceeds the lower edge cutoff frequency, then the A-MPR shall be equal to the MPR specified in Table 6.2.3A-1a. | | | | | | | | |

***<End of change4>***

***<Start of change5>***

#### 6.6.3.2A Spurious emission band UE co-existence for CA

This clause specifies the requirements for the specified carr`ier aggregation configurations for coexistence with protected bands.

NOTE: For measurement conditions at the edge of each frequency range, the lowest frequency of the measurement position in each frequency range should be set at the lowest boundary of the frequency range plus MBW/2. The highest frequency of the measurement position in each frequency range should be set at the highest boundary of the frequency range minus MBW/2. MBW denotes the measurement bandwidth defined for the protected band.

For inter-band carrier aggregation with the uplink assigned to two E-UTRA bands, the requirements in Table 6.6.3.2A-0 apply on each component carrier with all component carriers are active.

NOTE: For inter-band carrier aggregation with uplink assigned to two E-UTRA bands the requirements in Table 6.6.3.2A-0 could be verified by measuring spurious emissions at the specific frequencies where second and third order intermodulation products generated by the two transmitted carriers can occur; in that case, the requirements for remaining applicable frequencies in Table 6.6.3.2A-0 would be considered to be verified by the measurements verifying the one uplink inter-band CA UE to UE co-existence requirements.

Table 6.6.3.2A-0: Requirements for uplink inter-band carrier aggregation (two bands)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA CA Configuration | Spurious emission | | | | | | | |
| Protected band | Frequency range (MHz) | | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| CA\_1-3 | E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 41, 43, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA band 22, 42, 52  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
|  |  | |  |  |  |  |  |
| Frequency range | 1880 | |  | 1895 | -40 | 1 | 3,12 |
| Frequency range | 1895 | |  | 1915 | -15.5 | 5 | 3, 12, 13 |
| Frequency range | 1915 | |  | 1920 | +1.6 | 5 | 3, 12, 13 |
| CA\_1-5 | E-UTRA Band 1, 5, 7, 8, 22, 28, 31, 38, 40, 42, 43, 50, 51, 65, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3,34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA band 26 | 859 | | - | 869 | -27 | 1 |  |
| E-UTRA band 41, 52  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_1-7 | E-UTRA Band 1, 5, 7, 8, 20, 22, 26, 27, 28, 31,32, 40, 42, 43, 50, 51, 52, 65, 67, 72, 74, 75, 76  NR Band n78 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1880 | |  | 1895 | -40 | 1 | 3,12 |
| Frequency range | 1895 | |  | 1915 | -15.5 | 5 | 3, 12, 13 |
| Frequency range | 1915 | |  | 1920 | +1.6 | 5 | 3, 12, 13 |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| CA\_1-8 | E-UTRA Band 1, 20, 28, 31, 32, 38, 40, 50, 51, 65, 67, 72, 73, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 7, 22, 41, 42, 43, 52  NR Band n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 8, 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA band 11, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 11 |
| Frequency range | 860 | | - | 890 | -40 | 1 | 3, 11 |
| NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1880 | |  | 1895 | -40 | 1 | 3,12 |
| Frequency range | 1895 | |  | 1915 | -15.5 | 5 | 3, 12, 13 |
| Frequency range | 1915 | |  | 1920 | +1.6 | 5 | 3, 12, 13 |
| CA\_1-11 | E-UTRA Band 1, 3, 11, 18, 19, 21, 28, 34, 40, 42, 65  NR Band n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_1-18 | E-UTRA Band 1, 3, 11, 21, 40, 42, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 758 | | - | 799 | -50 | 1 |  |
| Frequency range | 799 | | - | 803 | -40 | 1 | 3 |
| Frequency range | 860 | | - | 890 | -40 | 1 |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
|  |  | |  |  |  |  |  |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_1-19 | E-UTRA Band 1, 3, 11, 21, 28, 40, 42, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
|  |  | |  |  |  |  |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
|  |  | |  |  |  |  |  |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_1-20 | E-UTRA Band 1, 3, 7, 8, 22, 31, 32, 34, 40, 43, 50, 51, 65, 67, 68, 72, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 20 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 38, 42, 69  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 758 | | - | 788 | -50 | 1 |  |
| CA\_1-21 | NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 42, 65  NR Band n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
|  |  | |  |  |  |  |  |
|  |  | |  |  |  |  |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_1-26 | E-UTRA Band 1, 5, 7, 11, 18, 19, 21, 22, 26, 31, 38, 40, 42, 43, 50, 51, 65, 73, 74  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1880 | | - | 1895 | -40 | 1 | 3, 12 |
| Frequency range | 1895 | | - | 1915 | -15.5 | 5 | 3, 12, 13 |
| Frequency range | 1915 | | - | 1920 | +1.6 | 5 | 3, 12, 13 |
|  |  | |  |  |  |  |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| E-UTRA Band 41  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 3, 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| Frequency range | 703 | | - | 799 | -50 | 1 |  |
| 799 | | - | 803 | -40 | 1 | 3 |
| CA\_1-28 | E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 27, 31, 38, 40, 41, 72, 73 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 22, 32, 42, 43, 50, 51, 52, 74, 75, 76  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 11, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 21 |
| E-UTRA Band 1, 65 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 6 |
| Frequency range | 470 | | - | 694 | -42 | 8 | 3, 22 |
| Frequency range | 470 | | - | 710 | -26.2 | 6 | 23 |
| Frequency range | 758 | | - | 773 | -32 | 1 | 3 |
| Frequency range | 773 | | - | 803 | -50 | 1 |  |
| Frequency range | 662 | | - | 694 | -26.2 | 6 | 3 |
| Frequency range | 1880 | |  | 1895 | -40 | 1 | 3,12 |
| Frequency range | 1895 | |  | 1915 | -15.5 | 5 | 3, 12, 13 |
| Frequency range | 1915 | |  | 1920 | +1.6 | 5 | 3, 12, 13 |
|  |  | |  |  |  |  |  |
| CA\_1-41 | E-UTRA Band 1, 3, 5, 8, 26, 27, 28, 40, 42, 44, 45, 50, 51, 52, 65, 73, 74  NR Band n78 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| NR Band n77, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1880 | |  | 1895 | -40 | 1 | 3,12 |
| Frequency range | 1895 | |  | 1915 | -15.5 | 5 | 3, 12, 13 |
| Frequency range | 1915 | |  | 1920 | +1.6 | 5 | 3, 12, 13 |
| E-UTRA Band 11, 18, 19, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 30 |
|  |  | |  |  |  |  |  |
| CA\_1-42 | E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 38, 40, 41, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3, 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| Frequency range | 1880 | |  | 1895 | -40 | 1 | 3,12 |
| Frequency range | 1895 | |  | 1915 | -15.5 | 5 | 3, 12, 13 |
| Frequency range | 1915 | |  | 1920 | +1.6 | 5 | 3, 12, 13 |
|  |  | |  |  |  |  |  |
| CA\_2-4 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 53, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 22, 42, 43,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_2-5 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 28, 29, 30, 42, 50, 51, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 26 | 859 | | - | 869 | -27 | 1 |  |
| E-UTRA Band 41, 43, 53  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_2-7 | E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 26, 27, 29, 30, 42, 50, 51, 65, 66, 70, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 43 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_2-12 | E-UTRA Band 5, 13, 14, 17, 24, 26, 27, 30, 41, 50, 53, 71, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 12, 25, 85 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 4, 51, 66, 70,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_2-13 | E-UTRA Band 4, 5,12,13,17, 22, 26, 27, 29, 41, 42, 50, 51, 53, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2,14, 25 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 24, 30, 43,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 769 | | - | 775 | -35 | 0.00625 | 3 |
| Frequency range | 799 | | - | 805 | -35 | 0.00625 | 3 |
| CA\_2-14 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 29, 30, 41, 48, 53, 66, 70, 71, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 769 | | - | 775 | -35 | 0.00625 | 3 |
| Frequency range | 799 | | - | 805 | -35 | 0.00625 | 3, 9 |
| CA\_2-48 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 50, 51, 53, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| CA\_2-49 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 50, 51, 53, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| CA\_3-5 | E-UTRA Band 1, 5, 7, 8, 28, 31, 38, 40, 43, 50, 51, 65, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3,34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 22, 42, 52 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 26 | 859 | | - | 869 | -27 | 1 |  |
| CA\_3-7 | E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 40, 43, 44, 50, 51, 65, 67, 72, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA band 22, 42, 52  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| CA\_3-8 | E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 8 | FDL\_low | | - | FDL\_high | -50 | 1 | 2, 3 |
| E-UTRA band 11, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 10,11 |
| E-UTRA band 7, 22, 41, 42, 43, 52  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4, 10, 11 |
| Frequency range | 860 | | - | 890 | -40 | 1 | 3,11,17 |
| CA\_3A-11A | E-UTRA Band 1, 18, 19, 28, 34, 40, 65 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 42 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_3-18 | E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| NR Band n77, n78, | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_3-19 | E-UTRA Band 1, 11, 21, 28, 40, 65 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3, 34 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 42  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
|  |  | |  |  |  |  |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 3, 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_3-20 | E-UTRA Band 1, 7, 8, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 72, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3, 20 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 22, 38, 42, 52 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 758 | | - | 788 | -50 | 1 |  |
| CA\_3-21 | E-UTRA Band 1, 18, 19, 28, 34, 40, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 42  NR Band n77, n78, | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_3-26 | E-UTRA Band 1, 5, 7, 11, 18, 19, 21, 26, 34, 39, 40, 43, 50, 51, 65, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA band 22, 41, 42  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 703 | | - | 799 | -50 | 1 |  |
| 799 | | - | 803 | -40 | 1 | 3 |
|  |  | |  |  |  |  |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| CA\_3-28 | E-UTRA Band 1, 11, 18, 19, 21, 22, 32, 42, 43, 50, 51, 52, 65, 74, 75, 76  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 6 |
| E-UTRA band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 5, 7, 8, 20, 26, 27, 31, 34, 38, 40, 41, 72, 73 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
|  |  | |  |  |  |  |  |
| Frequency range | 470 | | - | 710 | -26.2 | 6 | 23 |
| Frequency range | 758 | | - | 773 | -32 | 1 | 3 |
| Frequency range | 773 | | - | 803 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4, 5 |
| CA\_3-40 | E-UTRA Band 1, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 38, 39, 41, 43, 44. 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 22, 42, 52  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 |  |
| CA\_3-41 | E-UTRA Band 1, 5, 8, 26, 28, 33, 34, 39, 40, 44, 45, 50, 51, 65, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 11, 18, 19, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 18 |
| NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | |  | 1915.7 | -41 | 0.3 | 4, 18 |
| CA\_3-42 | E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 38, 40, 41, 44, 45, 50, 51, 65, 67, 72, 73, 74, 75, 76  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 11, 18, 19, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 13 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| CA\_4-5 | E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 24, 25, 28, 29, 30, 43, 50, 51, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 26 | 859 | | - | 869 | -27 | 1 |  |
| E-UTRA band 41, 42, 53  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_4-7 | E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 26, 27, 28, 29, 30, 43, 50, 51, 66, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 42 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| CA\_4-12 | E-UTRA Band 2, 5, 7,13, 14, 17, 24, 25, 26, 27, 30, 41, 43, 50, 53, 71, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 4, 22, 42, 51, 66, 70,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 12, 85 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| CA\_4-13 | E-UTRA Band 2,4, 5, 7, 12,13,17,25, 26, 27, 29, 41, 43, 50, 51, 53, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 14 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 22, 24, 30, 42,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 769 | | - | 775 | -35 | 0.00625 | 3 |
| Frequency range | 799 | | - | 805 | -35 | 0.00625 | 3 |
| CA\_4-17 | E-UTRA Band 2, 5, 7,13, 14, 17, 24, 25, 26, 27, 30, 41, 43, 50, 53, 71, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 4, 22, 42, 51, 66, 70,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 12, 85 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| CA\_4-28 | E-UTRA Band 2, 5, 7, 14, 24, 25, 26, 27, 30, 41, 53, 70, 71 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 4, 42, 43, 48 50, 51, 66, 74 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 470 | | - | 710 | -26.2 | 6 | 23 |
| Frequency range | 758 | |  | 773 | -32 | 1 | 3 |
| Frequency range | 773 | |  | 803 | -50 | 1 |  |
| CA\_5-7 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 22, 28, 29, 30, 31, 40, 42, 43, 50, 51, 65, 66, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 52  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 26 | 859 | | - | 869 | -27 | 1 |  |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| CA\_5-12 | E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 30, 31, 43, 50, 53, 71, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 4, 22, 41, 42, 51, 66, 70,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 26 | 859 | | - | 869 | -27 | 1 |  |
| E-UTRA band 12, 85 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| CA\_5-17 | E-UTRA Band 2, 5, 13, 14, 17, 24, 25, 30, 31, 43, 50, 71, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 4, 22, 41, 42, 51, 53, 66, 70,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 26 | 859 | | - | 869 | -27 | 1 |  |
| E-UTRA band 12, 85 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| CA\_5-40 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 21, 28, 31, 34, 38, 42, 43, 45, 65, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 26 | 859 | | - | 869 | -27 | 1 |  |
| E-UTRA band 41, 52  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| CA\_7-8 | E-UTRA Band 1, 20, 27, 28, 31, 32, 34, 40, 50, 51, 65, 67, 68, 72, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 7, 22, 42, 43, 52  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 8 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| CA\_7-20 | E-UTRA Band 1,3, 7, 8, 22, 28, 31, 32, 33, 34, 40, 43, 50, 51, 65, 67, 72, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 20 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 42, 52  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 2, 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 2, 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| CA\_7-26 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 22, 29, 30, 31, 40, 42, 43, 65, 66, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| Frequency range | 703 | | - | 799 | -50 | 1 |  |
| Frequency range | 799 | | - | 803 | -40 | 1 | 3 |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 7 |
| CA\_7-28 | E-UTRA Band 2, 3, 5, 7, 8, 20, 26, 27, 31, 34, 40, 72  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 4, 22, 32, 42, 43, 50, 51, 52, 65, 66, 74, 75, 76  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 6 |
| Frequency range | 758 | | - | 773 | -32 | 1 | 3 |
| Frequency range | 773 | | - | 803 | -50 | 1 |  |
| Frequency range | 2570 | | - | 2575 | +1.6 | 5 | 3, 13, 14 |
| Frequency range | 2575 | | - | 2595 | -15.5 | 5 | 3, 13, 14 |
| Frequency range | 2595 | | - | 2620 | -40 | 1 | 3, 14 |
| CA\_8-20 | E-UTRA Band 1, 28, 31, 32, 33, 34, 39, 40, 45, 50, 51, 65, 67, 68, 72, 73, 74, 75, 76, 87, 88 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 7, 22, 38, 41, 42, 43, 52, 69  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 8, 20 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 11, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 11 |
| Frequency range | 758 | | - | 788 | -50 | 1 |  |
| Frequency range | 860 | | - | 890 | -40 | 1 | 3, 11 |
| CA\_8-28 | E-UTRA Band 3, 4, 7, 22, 32, 41, 42, 43, 50, 51, 52, 65, 66, 73, 74, 75, 76  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | | - | FDL\_high | -50 | 1 | 2, 5, 21 |
| E-UTRA Band 8 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 2, 18, 20, 25, 27, 28, 31, 33, 34, 38, 39, 40, 68, 69, 72, 87, 88 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 11, 21, 45 | FDL\_low | | - | FDL\_high | -50 | 1 | 21 |
| Frequency range | 470 | | - | 694 | -42 | 8 | 3, 22 |
| Frequency range | 470 | | - | 710 | -26.2 | 6 | 23 |
| Frequency range | 662 | | - | 694 | -26.2 | 6 | 3 |
| Frequency range | 758 | | - | 773 | -32 | 1 | 3 |
| Frequency range | 773 | | - | 803 | -50 | 1 |  |
| Frequency range | 860 | | - | 890 | -40 | 1 | 3, 11 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4, 5, 11 |
| CA\_8-39 | E-UTRA Band 1, 28, 40, 45, 50, 51, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 22, 41, 42, 52  NR band n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 8 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| CA\_8-41 | E-UTRA Band 1, 28, 34, 39, 40, 45, 50, 51, 65, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 42, 52  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 11, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 11 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4, 11 |
| CA\_11-18 | E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 42, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 860 | | - | 890 | -40 | 1 | 3 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| CA\_11-26 | E-UTRA Band 1, 3, 11, 18, 19, 21, 26, 28, 34, 40, 42, 65 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 3, 11, 18, 19, 21, 26, 28, 34, 40, 42, 65 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 | 2 |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| CA\_13-66 | E-UTRA Band 2, 4, 5, 12, 13, 17, 25, 26, 27, 29, 41, 50, 51, 53, 66, 70, 71, 74, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 14 | FDL\_low | | - | FDL\_high | -50 | 1 | 3 |
| E-UTRA Band 24, 30, 48,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 769 | | - | 775 | -35 | 0.00625 | 3 |
| Frequency range | 799 | | - | 805 | -35 | 0.00625 | 3, 9 |
| CA\_14-30 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 41, 48, 53, 66, 70, 71, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 769 | | - | 775 | -35 | 0.00625 | 3 |
| Frequency range | 799 | | - | 805 | -35 | 0.00625 | 3, 9 |
| CA\_14-66 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 41, 53, 66, 70, 71, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 48,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 769 | | - | 775 | -35 | 0.00625 | 3 |
| Frequency range | 799 | | - | 805 | -35 | 0.00625 | 3, 9 |
| CA\_18-28 | E-UTRA Band 11, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 21 |
| E-UTRA Band 1, 65 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 6 |
| E-UTRA Band 42, 43  NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 3, 34, 40 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| Frequency range | 470 | | - | 710 | -26.2 | 6 | 23 |
| Frequency range | 758 | | - | 773 | -32 | 1 | 3 |
| Frequency range | 773 | | - | 799 | -50 | 1 |  |
| Frequency range | 799 | | - | 803 | -40 | 1 | 3 |
| Frequency range | 860 | | - | 890 | -40 | 1 |  |
| Frequency range | 945 | | - | 960 | -50 | 1 | 3 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_19-21 | E-UTRA Band 1, 3, 28, 34, 40, 42, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
|  |  | |  |  |  |  |  |
|  |  | |  |  |  |  |  |
| NR Band n77, n78, | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
|  |  | |  |  |  |  |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_19-42 | E-UTRA Band 1, 3, 11, 21, 28, 34, 40, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_21-28 | E-UTRA Band 1, 42, 65  NR Band n77, n78 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 6 |
| E-UTRA Band 3, 18, 19, 34, 40  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| Frequency range | 470 | | - | 710 | -26.2 | 6 | 23 |
| Frequency range | 773 | | - | 803 | -50 | 1 |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4, 5 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_21-42 | E-UTRA Band 1, 3, 18, 19, 28, 34, 40, 65  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4 |
| Frequency range | 2545 | | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | | - | 2645 | -50 | 1 |  |
| CA\_25-26 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 29, 30, 42, 48, 66, 70, 71, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 53  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_25-41 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 42, 45, 48, 66, 70, 71 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| CA\_26-46 | E-UTRA Band 1, 2, 3, 4, 5, 11, 12, 13, 14, 17, 18,19, 21, 24, 25, 26, 29, 30, 31, 34, 39, 40, 42, 43, 48, 65, 66, 70, 71, 85 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 41, 53,  NR Band n77 | FDL\_low | | - | FDL\_high | -50 | 1 | 1, 2 |
| Frequency range | 703 | | - | 799 | -50 | 1 |  |
| Frequency range | 799 | | - | 803 | -40 | 1 | 2 |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 3 |
| CA\_26-48 | E-UTRA Band 1, 2, 3, 4, 5, 11, 12, 13, 14, 17, 18,19, 21, 24, 25, 26, 29, 30, 31, 34, 39, 40, 50, 51, 65, 66, 70, 71, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 | 1, 2 |
| E-UTRA Band 41 | FDL\_low | | - | FDL\_high | -50 | 1 | 1 |
| Frequency range | 703 | | - | 799 | -50 | 1 |  |
| Frequency range | 799 | | - | 803 | -40 | 1 | 2 |
| Frequency range | 945 | | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 3 |
| CA\_28-41 | E-UTRA Band E-UTRA Band 1, 4, 22, 32, 42, 45, 43, 48, 52, 65, 66  NR Band n77, n78, n79 | FDL\_low | - | | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | - | | FDL\_high | -50 | 1 | 5, 6 |
| E-UTRA band 2, 3, 5, 8, 20, 25, 26, 27, 31, 33, 34, 40 | FDL\_low | - | | FDL\_high | -50 | 1 |  |
| E-UTRA band 11, 21 | FDL\_low | - | | FDL\_high | -50 | 1 | 5, 18, 21 |
| E-UTRA band 9, 18, 19 | FDL\_low | - | | FDL\_high | -50 | 1 | 5, 18 |
| Frequency range | 470 | - | | 694 | -42 | 8 | 3, 22 |
| Frequency range | 470 | - | | 710 | -26.2 | 6 | 23 |
| Frequency range | 662 | - | | 694 | -26.2 | 6 | 3 |
| Frequency range | 758 | - | | 773 | -32 | 1 | 3 |
| Frequency range | 773 | - | | 803 | -50 | 1 |  |
| Frequency range | 1884.5 | - | | 1915.7 | -41 | 0.3 | 4, 5, 18 |
| CA\_28-42 | E-UTRA Band 1, 4, 32, 50, 51, 66, 65, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 6 |
| E-UTRA Band 2, 3, 5, 7, 8, 18, 19, 20, 25, 26, 27, 31, 34, 38, 40, 41, 72, 73  NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 11, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 5, 21 |
| Frequency range | 470 | | - | 710 | -26.2 | 6 | 23 |
| Frequency range | 758 | | - | 773 | -32 | 1 | 3 |
| Frequency range | 773 | | - | 803 | -50 | 1 |  |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 4, 5 |
| CA\_39-41 | E-UTRA Band 1, 8, 26, 28, 34, 40, 42, 44, 50, 51, 52, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| NR Band n77, n78, n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1805 | | - | 1855 | -40 | 1 | 20 |
| Frequency range | 1855 | | - | 1880 | -15.5 | 5 | 3, 13, 20 |
| CA\_40-42 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 11, 12, 13, 14, 17, 18, 19, 20, 21, 24, 25, 26, 27, 28, 29, 31, 32, 33, 34, 38, 39, 41, 44, 45, 50, 51, 65, 66, 67, 68, 69, 70, 72, 73, 74, 75, 76 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | | - | 1915.7 | -41 | 0.3 | 8 |
| CA\_41-42 | E-UTRA Band 1, 3, 5, 8, 26, 28, 33, 34, 39, 40, 44, 45, 50, 51, 65, 73, 74 | FDL\_low | | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 9, 11, 18, 19, 21 | FDL\_low | | - | FDL\_high | -50 | 1 | 18 |
| NR Band n79 | FDL\_low | | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | |  | 1915.7 | -41 | 0.3 | 4, 18 |
| NOTE 1: FDL\_low and FDL\_high refer to each E-UTRA frequency band specified in Table 5.5-1  NOTE 2:As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 are permitted for each assigned E-UTRA carrier used in the measurement due to 2nd, 3rd, 4th [or 5th] harmonic spurious emissions. In case the exceptions are allowed due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2MHz + N x LCRB x 180kHz), where N is 2, 3 or 4 for the 2nd, 3rd or 4th harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval.  NOTE 3: These requirements also apply for the frequency ranges that are less than FOOB (MHz) in Table 6.6.3.1-1 and Table 6.6.3.1A-1 from the edge of the aggregated channel bandwidth.  NOTE 4:Applicable when co-existence with PHS system operating in 1884.5 -1915.7MHz.  NOTE 5:Applicable when the assigned E-UTRA carrier is confined within 718 MHz and 748 MHz and when the channel bandwidth used is 5 or 10 MHz.  NOTE 6: As exceptions, measurements with a level up to the applicable requirement of -36 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 3rd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 3rd harmonic totally or partially overlaps the measurement bandwidth (MBW).  NOTE 7: Void  NOTE 8: Void  NOTE 9: Void  NOTE10: Void  NOTE 11: This requirement is applicable only for the following cases: - for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 902.5 MHz ≤ Fc < 907.5 MHz with an uplink transmission bandwidth less than or equal to 20 RB - for carriers of 5 MHz channel bandwidth when carrier centre frequency (Fc) is within the range 907.5 MHz ≤ Fc ≤ 912.5 MHz without any restriction on uplink transmission bandwidth. - for carriers of 10 MHz channel bandwidth when carrier centre frequency (Fc) is Fc = 910 MHz with an uplink transmission bandwidth less than or equal to 32 RB with RBstart > 3.  NOTE 12: This requirement is applicable for any channel bandwidths within the range 1920 - 1980 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 1927.5 - 1929.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 1930 - 1938 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.  NOTE13: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.  NOTE14:This requirement is applicable for any channel bandwidths within the range 2500 - 2570 MHz with the following restriction: for carriers of 15 MHz bandwidth when carrier centre frequency is within the range 2560.5 - 2562.5 MHz and for carriers of 20 MHz bandwidth when carrier centre frequency is within the range 2552 - 2560 MHz the requirement is applicable only for an uplink transmission bandwidth less than or equal to 54 RB.  NOTE 15:Void  NOTE 16:Void  NOTE 17: This requirement is applicable only when Band 3 transmission frequency is less than or equal to 1765 MHz.  NOTE 18: This requirement applies when the E-UTRA carrier is confined within 2545-2575MHz or 2595-2645MHz and the channel bandwidth is 10 or 20 MHz  NOTE 19: Void  NOTE 20: This requirement is only applicable for carriers with bandwidth confined within 1885-1920 MHz (requirement for carriers with at least 1RB confined within 1880 - 1885 MHz is not specified). This requirement applies for an uplink transmission bandwidth less than or equal to 54 RB for carriers of 15 MHz bandwidth when carrier center frequency is within the range 1892.5 - 1894.5 MHz and for carriers of 20 MHz bandwidth when carrier center frequency is within the range 1895 - 1903 MHz.  NOTE 21: As exceptions, measurements with a level up to the applicable requirement of -38 dBm/MHz is permitted for each assigned E-UTRA carrier used in the measurement due to 2nd harmonic spurious emissions. An exception is allowed if there is at least one individual RB within the transmission bandwidth (see Figure 5.6-1) for which the 2nd harmonic totally or partially overlaps the measurement bandwidth (MBW).  NOTE 22: This requirement is applicable in the case of a 10 MHz E-UTRA carrier confined within 703 MHz and 733 MHz, otherwise the requirement of -25 dBm with a measurement bandwidth of 8 MHz applies.  NOTE 23: This requirement is applicable for 5 and 10 MHz E-UTRA channel bandwidth allocated within 718-728MHz. For carriers of 10 MHz bandwidth, this requirement applies for an uplink transmission bandwidth less than or equal to 30 RB with RBstart > 1 and RBstart<48.NOTE 24: Void  NOTE 25: Void | | | | | | | | |

Table 6.6.3.2A-1: Requirements for intraband carrier aggregation

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA CA Configuration | Spurious emission | | | | | | |
| Protected band | Frequency range (MHz) | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| CA\_1 | E-UTRA Band 1, 7, 8, 11, 18, 19, 20, 21, 22, 26, 27, 28, 31, 32, 38, 40, 41, 42, 43, 44, 50, 51, 52, 65, 67, 72, 73, 74, 75, 76  NR Band n78, n79 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 10 |
| NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| CA\_3 | E-UTRA Band 1, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 38, 40, 41, 43, 44, 50, 51, 65, 67, 72, 73, 74, 75, 76  NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 10 |
| E-UTRA Band 22, 42, 52  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| CA\_5 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 24, 25, 28, 29, 30, 31, 34, 38, 40, 42, 43, 45, 48, 65, 66, 70, 71, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 52, 53  NR Band n77, n78,n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| CA\_7 | E-UTRA Band 1, 3, 7, 8, 20, 22, 27, 28, 29, 30. 31, 32, 33, 34, 40, 42, 43, 50, 51, 52, 65, 67, 72, 74, 75, 76  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| CA\_8 | E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 50, 51, 72, 73, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 7 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 8 | FDL\_low | - | FDL\_high | -50 | 1 | 10 |
| E-UTRA Band 22, 41, 42, 43, 52  NR Band n77, n78,n79 | FDL\_low |  | FDL\_high | -50 | 1 | 2 |
| CA\_38 | E-UTRA Band 1,3, 8, 20, 22, 27, 28, 29, 30, 31, 32, 33, 34, 40, 42, 43, 50, 51, 52, 65, 67, 72, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| CA\_39 | E-UTRA Band 22, 34, 40, 41, 42, 44, 50, 51, 52, 73, 74  NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| CA\_40 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 22, 26, 27, 28, 31, 32, 33, 34, 38, 39, 41, 42, 43, 44, 50, 51, 52, 65, 67, 72, 73, 74, 75, 76  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 15 |
| CA\_41 | E-UTRA Band 1, 2, 3, 4, 5, 8, 12, 13, 14, 17, 24, 25, 26, 27, 28, 29, 30, 34, 39, 40, 42, 44, 50, 51, 52, 65, 66, 70, 71, 73, 74, 85  NR Band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| CA\_42 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 11, 18, 19, 20, 21, 25, 26, 27, 28, 31, 32, 33, 34, 38, 40, 41, 44, 50, 51, 65, 66, 67, 72, 73, 74, 75, 76  NR Band n79 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 |  |
| CA\_48 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| CA\_66 | E-UTRA Band 2, 4, 5, 7, 12, 13, 14, 17, 24, 25, 26, 27, 28, 29, 30, 38, 41, 43, 50, 51, 66, 70, 71, 74, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 42, 48  NR Band n77 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| NOTE1:FDL\_low and FDL\_high refer to each E-UTRA frequency band specified in Table 5.5-1  NOTE 2:As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 are permitted for each assigned E-UTRA carrier used in the measurement due to 2nd, 3rd, 4th [or 5th] harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2MHz + N x LCRB x 180kHz), where N is 2, 3, 4, [5] for the 2nd, 3rd, 4th [or 5th] harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval  NOTE 3:To meet these requirements some restriction will be needed for either the operating band or protected band  NOTE 4:N/A  NOTE 5:N/A  NOTE 6:N/A  NOTE 7:N/A  NOTE 8:N/A  NOTE 9: N/A  NOTE 10: The requirement also applies for the frequency ranges that are less than FOOB (MHz) in Table 6.6.3.1-1 and Table 6.6.3.1A-1 from the edge of the aggregated channel bandwidth.  NOTE 11: N/A  NOTE 12: N/A  NOTE 13: N/A  NOTE 14: N/A  NOTE 15: Applicable when co-existence with PHS system operating in 1884.5 -1915.7MHz. | | | | | | | |

Table 6.6.3.2A-2: Requirements for intraband non-contiguous CA

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| E-UTRA CA Configuration | Spurious emission | | | | | | |
| Protected band | Frequency range (MHz) | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| CA\_4-4 | E-UTRA Band 2, 4, 5, 10, 12, 13, 14, 17, 24, 25, 26, 27, 28, 29, 30, 41, 43, 50, 51, 53, 66, 70, 71, 74, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 22, 42,  NR Band n7 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| NOTE1:FDL\_low and FDL\_high refer to each E-UTRA frequency band specified in Table 5.5-1  NOTE 2:As exceptions, measurements with a level up to the applicable requirements defined in Table 6.6.3.1-2 are permitted for each assigned E-UTRA carrier used in the measurement due to 2nd or 3rd harmonic spurious emissions. Due to spreading of the harmonic emission the exception is also allowed for the first 1 MHz frequency range immediately outside the harmonic emission on both sides of the harmonic emission. This results in an overall exception interval centred at the harmonic emission of (2MHz + N x LCRB x 180kHz), where N is 2 or 3 for the 2nd or 3rd harmonic respectively. The exception is allowed if the measurement bandwidth (MBW) totally or partially overlaps the overall exception interval. | | | | | | | |

***<End of change5>***

***<Start of change6>***

Table A.3.3.2.1-4: Fixed Reference Channel two antenna ports

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parameter | Unit | Values | | |
| Reference channel |  | R.79 FDD | R.103 FDD | R.104 FDD |
| Channel bandwidth | MHz | 10 | 10 | 10 |
| Allocated resource blocks (Note 4) |  | 3 | 3 | 3 |
| Allocated DL subframes per Radio Frame |  | Note 3 | Note 5 | Note 3 |
| Modulation |  | 16QAM | QPSK | 64QAM |
| Target Coding Rate |  | 1/2 | 1/3 | 0.4 |
| Information Bit Payload |  |  |  |  |
| For Sub-Frames 0,1,2,3,4,5,6,7,8,9 | Bits | 744 | 224 | 968 |
| Number of Code Blocks |  |  |  |  |
| For Sub-Frames 0,1,2,3,4,5,6,7,8,9 | Code blocks | 1 | 1 | 1 |
| Binary Channel Bits |  |  |  |  |
| For Sub-Frames 0,1,2,3,4,5,6,7,8,9 | Bits | 1584 | 792 | 2376 |
| Max. Throughput averaged over 1 frame | Mbps | 0.149 | 0.0187 | 0.194 |
| UE DL Category |  | M1, M2 ≥ 0 | M1, M2 | M1, M2 |
| Note 1: 2 symbols allocated to PDCCH.  Note 2: Reference signal, synchronization signals and PBCH allocated as per TS 36.211 [4].  Note 3: The downlink subframes are scheduled at the 0th and 1st subframes every 10ms. Information bit payload is available if downlink subframe is scheduled (starting from 0th subframe). The corresponding MPDCCH is scheduled 2 subframes before the corresponding PDSCH transmissions.  Note 4: Allocated PRB positions for PDSCH are {3, 4, 5} within the assigned narrowband. Allocated PRB positions for MPDCCH are {0, 1} within the assigned narrowband.  Note 5: The downlink subframes are scheduled at the 0th subframes every 12ms. Information bit payload is available if downlink subframe is scheduled (starting from 5th subframe). The corresponding MPDCCH is scheduled 5 subframes before the corresponding PDSCH transmissions. | | | | |

***<End of change6>***