**3GPP RAN WG4 Meeting #97e *R4-2016238***

**Electronic meeting, 2nd - 13th November 2020**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.101-3** | **CR** | **0411** | **rev** | **1** | **Current version:** | **15.11.0** |  |
|  | | | | | | | | |
| *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 38101-3 R15 Band 10 protection and DC\_42\_n79 correction | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Skyworks Solutions Inc. | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | xxx | | | | |  | ***Date:*** | | | 2020-10-20 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-15 |
|  | *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) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Band 10 protection removal has been agreed for LTE in R4-2011521. This CR applies this correction to relevant EN-DC combinations.  DC\_42\_n79 Simultaneous Tx/Rx operation is ambiguous. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | E-UTRA Band 10 protection: removed from relevant inter-band EN-DC within FR1 combinations.  DC\_42\_n79 simultaneous Tx/Rx: adding Note that it is not feasible for implementations with n77 filter and adding MSD for simultaneous Tx/Rx operation. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Un-necessary band protection requirements for E-UTRA band 10  Unknown UE behavior in DC\_42\_n79 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.5B.4.1, 6.5B.3.3.2, 7.3B.2.3.4 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | |  | | |
| ***affected:*** | | **X** |  | Test specifications | | | | TS 38.521-3 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | |  | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Revision of R4-2016238 | | | | | | | | |

<< start of changes 1>>

#### 5.5B.4.1 Inter-band EN-DC configurations within FR1 (two bands)

Table 5.5B.4.1-1: Inter-band EN-DC configurations within FR1 (two bands)

| EN-DC  configuration | Uplink EN-DC  configuration  (NOTE 1) | Single UL allowed |
| --- | --- | --- |
| DC\_1A\_n28A | DC\_1A\_n28A | No |
| DC\_1A\_n40A | DC\_1A\_n40A | No |
| DC\_1A\_n51A | DC\_1A\_n51A | No |
| DC\_1A\_n77A7  DC\_1A\_n77C7 | DC\_1A\_n77A | DC\_1\_n77 |
| DC\_1A\_n78A7  DC\_1A\_n78C7 | DC\_1A\_n78A | No |
| DC\_1A\_n79A7  DC\_1A\_n79C7 | DC\_1A\_n79A | No |
| DC\_2A\_n5A | DC\_2A\_n5A | No |
| DC\_2A\_n66A | DC\_2A\_n66A | DC\_2\_n66 |
| DC\_2A\_n71A | DC\_2A\_n71A | No |
| DC\_2A\_n78A | DC\_2A\_n78A | DC\_2\_n78 |
| DC\_3A\_n7A | DC\_3A\_n7A | No |
| DC\_3A\_n28A | DC\_3A\_n28A | No |
| DC\_3A\_n40A | DC\_3A\_n40A | No |
| DC\_3A\_n51A | DC\_3A\_n51A | No |
| DC\_3A\_n77A7  DC\_3A\_n77C7 | DC\_3A\_n77A | DC\_3\_n77 |
| DC\_3A\_n78A7  DC\_3A\_n78C7  DC\_3C\_n78A7 | DC\_3A\_n78A | DC\_3\_n78 |
| DC\_3A\_n79A7  DC\_3A\_n79C7 | DC\_3A\_n79A | No |
| DC\_5A\_n40A | DC\_5A\_n40A | No |
| DC\_5A\_n66A | DC\_5A\_n66A | DC\_5\_n66 |
| DC\_5A\_n78A7 | DC\_5A\_n78A | No |
| DC\_7A-7A\_n78A7 | DC\_7A\_n78A | No |
| DC\_7A\_n28A | DC\_7A\_n28A | No |
| DC\_7A\_n51A | DC\_7A\_n51A | No |
| DC\_7A\_n78A7 | DC\_7A\_n78A | No |
| DC\_7C\_n78A7 | DC\_7A\_n78A | No |
| DC\_8A\_n40A7 | DC\_8A\_n40A | No |
| DC\_8A\_n77A7 | DC\_8A\_n77A | No |
| DC\_8A\_n78A7 | DC\_8A\_n78A | No |
| DC\_8A\_n79A7 | DC\_8A\_n79A | No |
| DC\_11A\_n77A7 | DC\_11A\_n77A | No |
| DC\_11A\_n78A7 | DC\_11A\_n78A | No |
| DC\_11A\_n79A7 | DC\_11A\_n79A | No |
| DC\_12A\_n5A | DC\_12A\_n5A | No |
| DC\_12A\_n66A | DC\_12A\_n66A | No |
| DC\_18A\_n77A7 | DC\_18A\_n77A | No |
| DC\_18A\_n78A7 | DC\_18A\_n78A | No |
| DC\_18A\_n79A7 | DC\_18A\_n79A | No |
| DC\_19A\_n77A7  DC\_19A\_n77C7 | DC\_19A\_n77A | No |
| DC\_19A\_n78A7  DC\_19A\_n78C7 | DC\_19A\_n78A | No |
| DC\_19A\_n79A7  DC\_19A\_n79C7 | DC\_19A\_n79A | No |
| DC\_20A\_n8A | DC\_20A\_n8A | DC\_20\_n8 |
| DC\_20A\_n28A8,10,11 | DC\_20A\_n28A | No |
| DC\_20A\_n51A | DC\_20A\_n51A | No |
| DC\_20A\_n77A7 | DC\_20A\_n77A | No |
| DC\_20A\_n78A7 | DC\_20A\_n78A | No |
| DC\_21A\_n77A7  DC\_21A\_n77C7 | DC\_21A\_n77A | No |
| DC\_21A\_n78A7  DC\_21A\_n78C7 | DC\_21A\_n78A | No |
| DC\_21A\_n79A7  DC\_21A\_n79C7 | DC\_21A\_n79A | No |
| DC\_25A\_n41A | DC\_25A\_n41A | No |
| DC\_26A\_n41A | DC\_26A\_n41A | No |
| DC\_26A\_n77A7 | DC\_26A\_n77A | No |
| DC\_26A\_n78A7 | DC\_26A\_n78A | No |
| DC\_26A\_n79A7 | DC\_26A\_n79A | No |
| DC\_28A n51A | DC\_28A\_n51A | No |
| DC\_28A\_n77A7  DC\_28A\_n77C7 | DC\_28A\_n77A | No |
| DC\_28A\_n78A7  DC\_28A\_n78C7 | DC\_28A\_n78A | No |
| DC\_28A\_n79A7  DC\_28A\_n79C7 | DC\_28A\_n79A | No |
| DC\_30A\_n5A | DC\_30A\_n5A | No |
| DC\_30A\_n66A | DC\_30A\_n66A | No |
| DC\_38A\_n78A7 | DC\_38A\_n78A | No |
| DC\_39A\_n78A5,7 | DC\_39A\_n78A | No |
| DC\_39A\_n79A7 | DC\_39A\_n79A | No |
| DC\_40A\_n77A | DC\_40A\_n77A | No |
| DC\_41A\_n77A  DC\_41C\_n77A | DC\_41A\_n77A | No |
| DC\_41A\_n78A  DC\_41C\_n78A | DC\_41A\_n78A | No |
| DC\_41A\_n79A6,7  DC\_41C\_n79A6,7 | DC\_41A\_n79A | No |
| DC\_42A\_n51A | DC\_42A\_n51A | No |
| DC\_42A\_n77A3,4,9  DC\_42A\_n77C3,4,9  DC\_42C\_n77A3,4,9  DC\_42C\_n77C3,4,9  DC\_42D\_n77A3,4,9  DC\_42E\_n77A3,4,9 | N/A | N/A |
| DC\_42A\_n78A3,4,9  DC\_42A\_n78C3,4,9  DC\_42C\_n78A3,4,9  DC\_42C\_n78C3,4,9  DC\_42D\_n78A3,4,9  DC\_42E\_n78A3,4,9 | N/A | N/A |
| DC\_42A\_n79A9,12  DC\_42A\_n79C9,12  DC\_42C\_n79A9,12  DC\_42C\_n79C9,12  DC\_42D\_n79A9,12  DC\_42E\_n79A9,12 | N/A | N/A |
| DC\_46A\_n78A2  DC\_46C\_n78A2  DC\_46D\_n78A2  DC\_46E\_n78A2 | N/A | N/A |
| DC\_66A\_n5A | DC\_66A\_n5A | DC\_66\_n5 |
| DC\_66A\_n71A | DC\_66A\_n71A | No |
| DC\_66A\_n78A | DC\_66A\_n78A | No |
| NOTE 1: Uplink EN-DC configurations are the configurations supported by the present release of specifications.  NOTE 2: Restricted to E-UTRA operation when inter-band carrier aggregation is configured. The downlink operating band for Band 46 is paired with the uplink operating band (external E-UTRA band) of the carrier aggregation configuration that is supporting the configured Pcell.  NOTE 3: The minimum requirements apply only when there is non-simultaneous Tx/Rx operation between E-UTRA and NR carriers. This restriction applies also for these carriers when applicable EN-DC configuration is part of a higher order EN-DC configuration.  NOTE 4: The minimum requirements for intra-band contiguous or non-contiguous EN-DC apply. The intra-band requirements also apply for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration.  NOTE 5: The frequency range above 3600 MHz for Band n78 is not used in this combination.  NOTE 6: The frequency range below 2506 MHz for Band 41 is not used in this combination.  NOTE 7: Applicable for UE supporting inter-band EN-DC with mandatory simultaneous Rx/Tx capability.  NOTE 8: The frequency range in band n28 is restricted for this band combination to 703 - 733 MHz for the UL and 758-788 MHz for the DL.  NOTE 9: The combination is not used alone as fall back mode of other band combinations in which UL in Band 42 is not used.  NOTE 10: The maximum power spectral density imbalance between downlink carriers is within 6 dB. The power spectral density imbalance condition also applies for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration  NOTE 11: The minimum requirements apply for synchronized DL carriers with a maximum receive time difference ≤ 3 usec. The requirements also apply for these carriers when applicable EN-DC configuration is a subset of a higher order EN-DC configuration  NOTE 12: Simultaneous Rx/Tx capability does not apply for UEs supporting band 42 with a n77 implementation. This restriction is applicable to related higher order configurations. | | |

<< end of changes 1>>

<< start of changes 2>>

##### 6.5B.3.3.2 Spurious emission band UE co-existence

This clause specifies the requirements for the specified EN-DC, for coexistence with protected bands. The requirements in Table 6.5B.3.3.2-1 apply on each component carrier with all component carriers are active.

NOTE: For inter-band EN-DC with uplink assigned to one LTE band and one NR band the requirements in Table 6.5B.3.3.2-1 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;

Table 6.5B.3.3.2-1: Requirements

| EN-DC Configuration | Spurious emission | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Protected band | Frequency range (MHz) | | | Maximum Level (dBm) | MBW (MHz) | NOTE |
| DC\_1\_n28 | E-UTRA Band 5, 7, 8, 18, 19, 20, 26, 27, 31, 38, 40, 41, 72, 73  NR band n79 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 22, 32, 42, 43, 50, 51, 52, 65, 74, 75, 76  NR band n77, n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 3, 34 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 11 |
| E-UTRA Band 1, 65 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 10 |
| Frequency range | 470 | - | 694 | -42 | 8 | 5, 17 |
| Frequency range | 470 | - | 710 | -26.2 | 6 | 14 |
| Frequency range | 758 | - | 773 | -32 | 1 | 5 |
| Frequency range | 773 | - | 803 | -50 | 1 |  |
| Frequency range | 662 | - | 694 | -26.2 | 6 | 5 |
| Frequency range | 1880 | - | 1895 | -40 | 1 | 5,16 |
| Frequency range | 1895 | - | 1915 | -15.5 | 5 | 5, 7, 16 |
| Frequency range | 1915 | - | 1920 | +1.6 | 5 | 5, 7, 16 |
| DC\_1\_n40 | Band 1, 5, 7, 8, 20, 22, 26, 27, 28, 31, 32, 38, 41, 42, 43, 44, 45, 50, 51, 52, 65, 67, 68, 69, 72, 73, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Band 3, 34 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| Frequency range | 1880 |  | 1895 | -40 | 1 | 5, 17 |
| Frequency range | 1895 |  | 1915 | -15.5 | 5 | 5, 7, 17 |
| Frequency range | 1915 |  | 1920 | +1.6 | 5 | 5, 7, 17 |
| DC\_1\_n51 | E-UTRA Band 7, 12, 13, 17, 20, 22, 27, 28, 29, 31, 38, 44, 48, 67, 68, 69, 72, 73 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3, 34 | FDL\_low | - | FDL\_high | -50 | 1 | 5, 2 |
| Frequency range | 1880 | - | 1895 | -40 | 1 | 5, 16 |
| Frequency range | 1895 | - | 1915 | -15.5 | 5 | 5, 7, 16 |
| Frequency range | 1915 | - | 1920 | +1.6 | 5 | 5, 7, 16 |
| E-UTRA Band 5, 6, 8, 26, 30, 40, 41, 42, 43, 46  NR Band n77, n78, n79, | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_1\_n77 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 40, 41, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1880 | - | 1895 | -40 | 1 | 5, 8 |
| Frequency range | 1895 | - | 1915 | -15.5 | 5 | 5, 7, 8 |
| Frequency range | 1915 | - | 1920 | +1.6 | 5 | 5, 7, 8 |
| DC\_1\_n78  DC\_1\_n84\_ULSUP-TDM\_n78 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 40, 41, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1880 | - | 1895 | -40 | 1 | 5, 8 |
| Frequency range | 1895 | - | 1915 | -15.5 | 5 | 5, 7, 8 |
| Frequency range | 1915 | - | 1920 | +1.6 | 5 | 5, 7, 8 |
| DC\_1\_n79 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 21, 26, 28, 34, 40, 41, 42, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1880 | - | 1895 | -40 | 1 | 5, 8 |
| Frequency range | 1895 | - | 1915 | -15.5 | 5 | 5, 7, 8 |
| Frequency range | 1915 | - | 1920 | +1.6 | 5 | 5, 7, 8 |
| DC\_2\_n5 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 28, 29, 30, 42, 48, 50, 51, 66, 70, 71, 74, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25, 48 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 41, 43 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| DC\_2\_n66 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 42, 48 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_2\_n71 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 29, 30, 48, 66 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25, 41, 70 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 71 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| DC\_2\_n78 | E-UTRA Band 4, 5, 12, 13, 14, 17, 24, 26, 27, 28, 29, 30, 41, 50, 51, 66, 70, 71, 74, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_3\_n7 | 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 | 5 |
| E-UTRA band 22, 42 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 2570 | - | 2575 | +1.6 | 5 | 5, 6, 7 |
| Frequency range | 2575 | - | 2595 | -15.5 | 5 | 5, 6, 7 |
| Frequency range | 2595 | - | 2620 | -40 | 1 | 5, 6 |
| DC\_3\_n28 | E-UTRA Band 1, 42, 43, 50, 51, 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 | 9, 11 |
| E-UTRA band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 5, 7, 8, 18, 19, 20, 26, 27, 31, 34, 38, 40, 41, 72 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 10 |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 13 |
| Frequency range | 470 | - | 710 | -26.2 | 6 | 14 |
| Frequency range | 758 | - | 773 | -32 | 1 | 5 |
| Frequency range | 773 | - | 803 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3, 9 |
| DC\_3\_n40 | E-UTRA Band 1, 5, 7, 8, 20, 26, 27, 28, 31, 32, 33, 34, 38, 39, 41, 43, 44. 45, 50, 51, 65, 67, 68, 69, 72, 73, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 22, 42, 52 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_3\_n51 | E-UTRA Band 7, 8, 12, 13, 17, 20, 27, 28, 31, 33, 38, 48, 67, 68, 69, 72, 73 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 1, 5, 6, 22, 26, 30, 34, 36, 40, 41, 42, 43, 44, 46, 65, 71 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_3\_n77 | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| DC\_3\_n78  DC\_3\_n80\_ULSUP-TDM\_n78, | E-UTRA Band 1, 3, 5, 7, 8, 11, 18, 19, 20, 21, 26, 28, 34, 39, 40, 41, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| DC\_3\_n79 DC\_3\_n80\_ULSUP-TDM\_n79, | E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 28, 34, 39, 40, 41, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 42 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| DC\_3\_n82 | E-UTRA Band 1, 3 7, 8, 20，22, 31, 32, 33, 34, 38, 40, 43, 50, 51, 65, 67, 68, 69, 72,74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 42 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_5\_n40 | E-UTRA Band 1, 3, 5, 7, 8, 28, 31, 34, 38, 42, 43, 45, 65, 73 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 26 | 859 | - | 869 | -27 | 1 |  |
| E-UTRA Band 41, 52 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| DC\_5\_n66 | E-UTRA Band 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 17, 24, 25, 28, 29, 30, 34, 38, 40, 43, 45, 50, 51, 65, 66, 70, 71, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 26 | 859 | - | 869 | -27 | 1 |  |
| E-UTRA Band 41, 42, 48, 52 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_5\_n78 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 24, 25, 28, 29, 30, 31, 34, 38, 40, 45, 65, 66, 70 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 26 | 859 | - | 869 | -27 | 1 |  |
| E-UTRA Band 41 | FDL\_low | - | FDL\_high | -50 | 1 | 7 |
| DC\_7\_n28 | E-UTRA Band 2, 3, 5, 7, 8, 20, 26, 27, 31, 34, 40, 72 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 4, 42, 43, 50, 65, 66, 74, 75, 76  NR band n78 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA band 1 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 10 |
| Frequency range | 758 | - | 773 | -32 | 1 | 5 |
| Frequency range | 773 | - | 803 | -50 | 1 |  |
| Frequency range | 2570 | - | 2575 | +1.6 | 5 | 5, 6, 7 |
| Frequency range | 2575 | - | 2595 | -15.5 | 5 | 5, 6, 7 |
| Frequency range | 2595 | - | 2620 | -40 | 1 | 5, 6 |
| DC\_7\_n51 | E-UTRA Band 2, 3, 5, 8, 26, 30, 31, 32, 33, 34, 40, 48, 72 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 2570 | - | 2575 | +1.6 | 5 | 5, 7, 16 |
| Frequency range | 2575 | - | 2595 | -15.5 | 5 | 5, 7, 16 |
| Frequency range | 2595 | - | 2620 | -40 | 1 | 5 |
| E-UTRA Band 1, 4, 12, 13, 14, 17, 20, 22, 23, 27, 28, 29, 42, 43, 44, 46, 65, 66, 67, 68  NR Band n77, n78, n79, | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_7\_n78 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 11, 18, 19, 20, 21, 26, 27, 28, 31, 32, 33, 34, 40, 50, 51, 65, 66, 67, 68, 72, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 2570 | - | 2575 | +1.6 | 5 | 5, 6, 7 |
| Frequency range | 2575 | - | 2595 | -15.5 | 5 | 5, 6, 7 |
| Frequency range | 2595 | - | 2620 | -40 | 1 | 5, 6 |
| DC\_8\_n40 | E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39,, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3, 7, 22, 41, 42, 43, 52 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 8 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| DC\_8\_n77 | E-UTRA Band 1, 20, 28, 31, 32, 33, 34, 38, 39, 40, 44, 45, 50, 51, 65, 67, 68, 69, 72, 73, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA band 3, 7, 41 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 8 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 12 |
| Frequency range | 860 | - | 890 | -40 | 1 | 5, 12 |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3, 12 |
| DC\_8\_n78  DC\_8\_n81\_ULSUP-TDM\_n78, | E-UTRA Band 1, 8, 20, 28, 34, 39, 40, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3, 7, 41 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 12 |
| Frequency range | 860 | - | 890 | -40 | 1 | 5, 12 |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3, 12 |
| DC\_8\_n79  DC\_8\_n81\_ULSUP-TDM\_n79, | E-UTRA Band 1, 8, 28, 34, 39, 40, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 3,41,42 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 12 |
| Frequency range | 860 | - | 890 | -40 | 1 | 5, 12 |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| DC\_11\_n77 | E-UTRA Band 1, 3, 18, 19, 28, 34, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_11\_n78 | E-UTRA Band 1, 3, 18, 19, 28, 34, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_11\_n79 | E-UTRA Band 1, 3, 18, 19, 28, 34, 42, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_12\_n5 | E-UTRA Band 2, 5, 12, 13, 14, 17, 24, 25, 26, 30, 42, 43 50, 51, 71, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Bands 4, 41, 48, 66, 70 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 12, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| DC\_12\_n66 | E-UTRA Band 2, 4, 5, 13, 14, 17, 24, 25, 26, 27, 30, 41, 50, 51, 70, 71, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 4, 48 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 12, 85 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 2, 5, 12, 13, 14, 17, 24, 25, 30, 42, 43 50, 51, 71, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| DC\_18\_n77 | E-UTRA Band 1, 3, 11, 21, 28, 34, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_18\_n78 | E-UTRA Band 1, 3, 11, 21, 28, 34, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_18\_n79 | E-UTRA Band 1, 3, 11, 21, 28, 34, 42, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_19\_n77 | E-UTRA Band 1, 3, 11, 21, 28, 34, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_19\_n78 | E-UTRA Band 1, 3, 11, 21, 28, 34, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_19\_n79 | E-UTRA Band 1, 3, 11, 21, 28, 34, 42, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_20\_n8 | E-UTRA Band 1, 3, 7, 22, 28, 31, 32, 34, 38, 42, 43, 65, 75, 76  NR bandn78 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| DC\_20\_n28  DC\_20\_n83 | E-UTRA Band 1, 3, 7, 8, 22, 31, 32, 34, 38, 42, 43, 65, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| DC\_20\_n51 | E-UTRA Band 1, 3, 4, 8, 17, 22, 28, 29, 31, 40, 43, 48, 65, 66, 68, 72 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 20 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| Frequency range | 758 | - | 788 | -50 | 1 |  |
| E-UTRA Band 2, 7, 25, 32, 33, 34, 35, 36, 37, 38, 39, 41, 42, 46, 69, 70  NR Band n77, n78, n79, | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_20\_n77 | E-UTRA Band 1, 3, 7, 8, 31, 32, 33, 34, 40, 50, 51, 65, 67, 68, 72, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 20 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 38, 69 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_20\_n78,  DC\_20\_n82\_ULSUP-TDM\_n78, | E-UTRA Band 1, 3, 7, 8, 31, 32, 33, 34, 40, 50, 51, 65, 67, 68, 72, 74, 75, 76 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 20 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| E-UTRA Band 38, 69 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_21\_n77 | E-UTRA Band 1, 3, 18, 19, 21, 28, 34, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_21\_n78 | E-UTRA Band 1, 3, 18, 19, 21, 28, 34, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_21\_n79 | E-UTRA Band 1, 3, 18, 19, 21, 28, 34, 42, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_25\_n41 | 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/NR Band 2, 25 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| DC\_26\_n41 | E-UTRA Band 1, 2, 3, 4, 5, 11, 12, 13 , 14, 17, 18, 19, 21, 24, 25, 26, 29, 30, 31, 34, 39, 42, 43, 48, 50, 51, 65, 66, 70, 71, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 |  | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 703 | - | 799 | -50 | 1 |  |
| Frequency range | 799 | - | 803 | -40 | 1 | 5 |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| DC\_26\_n77 | E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 41, , 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 703 | - | 799 | -50 | 1 |  |
| Frequency range | 799 | - | 803 | -40 | 1 | 5 |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_26\_n78 | E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 41, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 703 | - | 799 | -50 | 1 |  |
| Frequency range | 799 | - | 803 | -40 | 1 | 5 |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_26\_n79 | E-UTRA Band 1, 3, 5, 11, 18, 19, 21, 26, 34, 39, 40, 41, 42, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 703 | - | 799 | -50 | 1 |  |
| Frequency range | 799 | - | 803 | -40 | 1 | 5 |
| Frequency range | 945 | - | 960 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| Frequency range | 2545 | - | 2575 | -50 | 1 |  |
| Frequency range | 2595 | - | 2645 | -50 | 1 |  |
| DC\_28\_n51 | E-UTRA Band 2, 3, 5, 7, 8, 25, 26, 31, 34, 38, 40, 41, 66, 72 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 4, 20, 22, 24, 32, 42, 43, 45, 46, 65, 66, 71, 73  NR band n78, n79 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | - | FDL\_high | -50 | 1 | 2, 9, 10 |
| Frequency range | 470 | - | 694 | -42 | 8 | 5, 17 |
| Frequency range | 470 | - | 710 | -26.2 | 6 | 14 |
| Frequency range | 662 | - | 694 | -26.2 | 6 | 5 |
| Frequency range | 758 | - | 773 | -32 | 1 | 5 |
| Frequency range | 773 | - | 803 | -50 | 1 |  |
| DC\_28\_n77 | E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 65 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 11 |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 10 |
| Frequency range | 758 | - | 773 | -32 | 1 |  |
| Frequency range | 773 | - | 803 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3, 9 |
| DC\_28\_n78  DC\_28\_n83\_ULSUP-TDM\_n78, | E-UTRA Band 3, 5, 7, 8, 18, 19, 20, 26, 34, 39, 40, 41 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 11 |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 10 |
| Frequency range | 758 | - | 773 | -32 | 1 |  |
| Frequency range | 773 | - | 803 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3, 9 |
| DC\_28\_n79 | E-UTRA Band 3, 5, 8, 18, 19, 34, 39, 40, 41, 42 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 1 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 11 |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 | 9, 10 |
| Frequency range | 758 | - | 773 | -32 | 1 |  |
| Frequency range | 773 | - | 803 | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3, 9 |
| DC\_30\_n5 | E-UTRA Band 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 24, 25, 26, 28, 29, 30, 31, 34, 38, 42, 43, 45, 48, 50, 51, 65, 66, 70, 71, 73, 74, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 41, 48, 52 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 18, 19 | FDL\_low | - | FDL\_high | -40 | 1 |  |
| E-UTRA Band 11, 21 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| DC\_30\_n66 | E-UTRA Band 2, 4, 5, 12, 13, 14, 17, 24, 25, 26, 27, 29, 30, 38, 41, 66, 70, 71 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Band 48 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_38\_n78 | N/A | | | | | | |
| DC\_39\_n78 | E-UTRA Band 1, 8, 34, 40, 41, 44, 45 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1805 | - | 1855 | -40 | 1 | 18 |
| Frequency range | 1855 | - | 1880 | -15.5 | 5 | 18 |
| DC\_39\_n79 | E-UTRA Band 1, 8, 34, 40, 41, 44, 45 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1805 | - | 1855 | -40 | 1 | 18 |
| Frequency range | 1855 | - | 1880 | -15.5 | 5 | 18 |
| DC\_40\_n77 | N/A | | | | | | |
| DC\_41\_n77 | E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 33, 34, 39, 40, 44, 45, 73, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 |  | 1915.7 | -41 | 0.3 | 3 |
| DC\_41\_n78 | E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 39, 40, 44, 45, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| DC\_41\_n79 | E-UTRA Band 1, 3, 5, 8, 11, 18, 19, 21, 26, 28, 34, 40, 42, 44, 45, 65, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| Frequency range | 1884.5 | - | 1915.7 | -41 | 0.3 | 3 |
| DC\_42\_n51 | E-UTRA Band 3, 8, 20, 25, 30, 31, 34, 39, 41, 73 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 1, 2, 4, 5, 6, 7, 12, 13, 14, 17, 23, 24, 26, 27, 28, 29, 32, 38, 40, 44, 46, 65, 66, 67, 68, 70, 71 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_42\_n77 | N/A | | | | | | |
| DC\_42\_n78 | N/A | | | | | | |
| DC\_42\_n79 | N/A | | | | | | |
| DC\_66\_n5 | E-UTRA Band 1, 2, 3, 4, 5, 6, 7, 8, 12, 13, 14, 17, 24, 25, 26, 28, 29, 30, 34, 38, 40, 43, 45, 50, 51, 65, 66, 70, 71, 85 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 41, 42, 48, 52 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| DC\_66\_n71 | E-UTRA Band 4, 5, 7, 13, 14, 17, 22, 24, 26, 27, 29, 30, 43,50, 51, 66, 74 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| E-UTRA Band 2, 25, 41, 42, 48, 70 | FDL\_low | - | FDL\_high | -50 | 1 | 2 |
| E-UTRA Band 71 | FDL\_low | - | FDL\_high | -50 | 1 | 5 |
| DC\_66\_n78,  DC\_66\_n86\_ULSUP-TDM\_n78, | E-UTRA Band 1, 3, 5, 7, 8, 20, 26, 28, 34, 39, 40, 41, 65 | FDL\_low | - | FDL\_high | -50 | 1 |  |
| NOTE 1: FDL\_low and FDL\_high refer to each E-UTRA frequency band specified in Table 5.5-1 in TS 36.101 [4].  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 (2 MHz + N x LCRB x 180 kHz), 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: Applicable when co-existence with PHS system operating in 1884.5 - 1915.7 MHz  NOTE 4: Void  NOTE 5: 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 channel bandwidth.  NOTE 6: 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 7: For these adjacent bands, the emission limit could imply risk of harmful interference to UE(s) operating in the protected operating band.  NOTE 8: 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  NOTE 9: 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 10: 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 11: 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 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 12: This requirement is applicable only for the following cases: A: 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; B: 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; C: 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 13: Void  NOTE 14: 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 15: Void  NOTE 16: 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.  NOTE 17: 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 18: This requirement is only applicable for E-UTRA 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 E-UTRA carriers of 15 MHz bandwidth when carrier center frequency is within the range 1892.5 - 1894.5 MHz and for E-UTRA carriers of 20 MHz bandwidth when carrier center frequency is within the range 1895 - 1903 MHz.  NOTE 19: Void | | | | | | | |

NOTE: To simplify the above Table, E-UTRA band numbers are listed for bands which are specified only for E-UTRA operation or both E-UTRA and NR operation. NR band numbers are listed for bands which are specified only for NR operation.

<< end of changes 2 >>

<< start of changes 3>>

##### 7.3B.2.3.4 Reference sensitivity exceptions due to cross band isolation for EN-DC in NR FR1

Sensitivity degradation is allowed for a band if it is impacted by UL of another band part of the same EN-DC configuration due to cross band isolation issues. Reference sensitivity exceptions for the victim band are specified in Table 7.3B.2.3.4-1 with uplink configuration of the agressor band specified in Table 7.3B.2.3.4-2.

Table 7.3B.2.3.4-1: Reference sensitivity exceptions (MSD) due to cross band isolation for EN-DC in NR FR1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | E-UTRA or NR Band / Channel bandwidth of the affected DL band / MSD | | | | | | | | | | | | |
| UL band | DL band | 5 MHz  (dB) | 10 MHz  (dB) | 15 MHz  (dB) | 20 MHz  (dB) | 25 MHz  (dB) | 30 MHz  (dB) | 40 MHz  (dB) | 50 MHz  (dB) | 60 MHz  (dB) | 80 MHz  (dB) | 90 MHz  (dB) | 100 MHz  (dB) |
| 1 | n40 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 | 6.6 |  |  |
| n40 | 1 | 8.3 | 8.3 | 8.3 | 8.3 |  |  |  |  |  |  |  |  |
| n41 | 25 | 0.6 | 0.6 | 0.6 | 0.6 |  |  |  |  |  |  |  |  |
| n77 | 411 | 4.5 | 4.5 | 4.5 | 4.5 |  |  |  |  |  |  |  |  |
| 41 | n77 |  | 8.3 | 8.3 | 8.3 |  |  | 6.3 | 5.3 | 4.5 | 4.0 | 3.9 | 3.8 |
| 3 | n51 | 6.4 |  |  |  |  |  |  |  |  |  |  |  |
| 30 | n66 | 8.3 | 8.3 | 8.3 | 8.3 |  |  | 8.3 |  |  |  |  |  |
| n78 | 71 | 4.5 | 4.5 | 4.5 | 4.5 |  |  |  |  |  |  |  |  |
| n78 | 38 | 3.3 | 3.3 | 3.3 | 3.3 |  |  |  |  |  |  |  |  |
| n78 | 411 | 4.5 | 4.5 | 4.5 | 4.5 |  |  |  |  |  |  |  |  |
| n78 | 46 |  |  |  | 7 |  |  |  |  |  |  |  |  |
| 41 | n78 |  | 8.3 | 8.3 | 8.3 |  |  | 6.3 | 5.3 | 4.5 | 4.0 | 3.9 | 3.8 |
| n79 | 424 | 2.8 | 2.8 | 2.8 | 2.8 |  |  |  |  |  |  |  |  |
| NOTE 1: Applicable only when harmonic mixing MSD for this combination is not applied.  NOTE 2: The DL victim band should be configured using the lowest SCS that is compatible with the highest CBW for which an MSD is specified.  NOTE 3: MSD test point can be chosen according to supported BW and lowest SCS supported by the UE.  NOTE 4: The requirements only apply for UEs supporting inter-band DC\_72\_n79 ENDC with simultaneous Rx/Tx capability. Simultaneous Rx/Tx capability does not apply for UEs supporting band 42 with a n77 implementation. These restriction are applicable to related higher order configurations. | | | | | | | | | | | | | |

Table 7.3B.2.3.4-2: Uplink configuration for reference sensitivity exceptions due to cross band isolation for EN-DC in NR FR1

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | E-UTRA or NR Band / SCS / Channel bandwidth of the affected DL band / UL RB allocation of the agressor band | | | | | | | | | | | | | |
| UL band | DL band | | SCS of UL band (kHz) | 5 MHz  (LCRB) | 10 MHz  (LCRB) | 15 MHz  (LCRB) | 20 MHz  (LCRB) | 25 MHz  (LCRB) | 30 MHz  (LCRB) | 40 MHz  (LCRB) | 50 MHz  (LCRB) | 60 MHz  (LCRB) | 80 MHz  (LCRB) | 90 MHz  (LCRB) | 100 MHz  (LCRB) |
| 1 | n40 | | 15 | 25 | 50 | 75 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |  |  |
| n40 | 1 | | 15 | 25 | 50 | 75 | 100 |  |  |  |  |  |  |  |  |
| n41 | 25 | | 30 | 160 | 160 | 160 | 160 |  |  |  |  |  |  |  |  |
| n77 | 41 | | 30 | 270 | 270 | 270 | 270 |  |  |  |  |  |  |  |  |
| 41 | n77 | | 15 |  | 100 | 100 | 100 |  |  | 100 | 100 | 100 | 100 | 100 | 100 |
| 3 | n51 | | 15 | 25 |  |  |  |  |  |  |  |  |  |  |  |
| 30 | n66 | | 15 | 25 | 25 | 25 | 25 |  |  | 25 |  |  |  |  |  |
| n78 | 7 | | 30 | 270 | 270 | 270 | 270 |  |  |  |  |  |  |  |  |
| n78 | 38 | | 30 | 270 | 270 | 270 | 270 |  |  |  |  |  |  |  |  |
| n78 | 41 | | 30 | 270 | 270 | 270 | 270 |  |  |  |  |  |  |  |  |
| n78 | 46 | | 30 |  |  |  | 270 |  |  |  |  |  |  |  |  |
| 41 | n78 | | 15 |  | 100 | 100 | 100 |  |  | 100 | 100 | 100 | 100 | 100 | 100 |
| n79 | 42 | | 30 | 2704 | 2704 | 2704 | 2704 |  |  |  |  |  |  |  |  |
| NOTE 1: The UL configuration applies regardless of the channel bandwidth of the UL band. UL resource blocks allocation in the table shall be further limited to that specified in Table 7.3.1-2 in TS 36.101 [4] or Table 7.3.2-3 in TS 38.101-1 [2].  NOTE 2: When the maximum UL RB allocation "LCRB" value is less than the maximum transmission bandwidth configuration "NRB" defined in Table 5.3.2-1 in 38.101-1 [2] for the specified UL band SCS, the UL band should be configured using the lowest CBW that is compatible with the maximum specified LCRB value.  NOTE 3: If the aggressor band is NR band, the test SCS and UL RB can be adjusted according to supported BW and lowest SCS supported by the UE.  NOTE 4: The requirements only apply for UEs supporting inter-band ENDC with simultaneous Rx/Tx capability. Simultaneous Rx/Tx capability does not apply for UEs supporting band 42 with a n77 implementation. | | | | | | | | | | | | | | | |

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