**3GPP TSG-RAN WG4 Meeting #116 *R4-2511864***

**Bengaluru, IN, Aug 25th – 29th, 2025**

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| *CR-Form-v12.0* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  |  | **CR** |  | **rev** |  | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | draft CR for the support of Inter-band EN-DC with 2Tx and 3Tx (ver.3) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | , Samsung | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_ENDC\_RF\_Ph4-Core | | | | |  | ***Date:*** | | | 2025-08-24 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) Rel-12 (Release 12) Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | This draft CR is to introduce the new Rel.19 HPUE scenarios for inter-band EN-DC as a generic way.  First, Table 1 and Table 2 listed the potential new UL configurations for EN-DC copied from the WF in R4-2502863 (approved in RAN4#114). Note that the configurations with PC3 FDD on E-UTRA band are removed per the WID.  Table 1 Potential new UL configurations for PC2 inter-band EN-DC with 2Tx or 3Tx   |  |  |  | | --- | --- | --- | | E-UTRA band | NR band | 2Tx or 3Tx | | PC3 TDD 1Tx | PC2 FDD 1Tx | 2Tx | | PC3 TDD 1Tx | PC2 FDD 2Tx | 3Tx | | PC3 FDD 1Tx | PC2 FDD 1Tx | 2Tx | | PC3 FDD 1Tx | PC2 FDD 2Tx | 3Tx | | Note: Per the WID, only PC3 is considered for LTE FDD band in EN-DC configuration in this Rel-19 HPUE work under this WI | | |   Table 2 Potential new UL configurations for PC1.5 EN-DC with 2Tx or 3Tx   |  |  |  | | --- | --- | --- | | E-UTRA band | NR band | 2Tx or 3Tx | | PC3 TDD 1Tx | PC1.5 TDD 2Tx | 3Tx | | PC3 FDD 1Tx | PC1.5 TDD 2Tx | 3Tx | | PC2 TDD 1Tx | PC2 TDD 1Tx | 2Tx | | PC2 TDD 1Tx | PC2 TDD 2Tx | 3Tx | | PC2 TDD 1Tx | PC2 FDD 1Tx | 2Tx | | PC2 TDD 1Tx | PC2 FDD 2Tx | 3Tx | | PC2 TDD 1Tx | PC1.5 TDD 2Tx | 3Tx | | Note: Per the WID, only PC3 is considered for LTE FDD band in EN-DC configuration in this Rel-19 HPUE work under this WI | | |   Since per the WID, only PC3 is considered for LTE FDD in EN-DC, the Rel.19 HPUE scenarios can be refined to table 3 and table 4. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | This draft CR demostrates the general specification changes on the maximum output power for the newly Rel.19 inter-band EN-DC scenarios:  2Tx:  Table 3 new UL configurations for inter-band EN-DC with 2Tx   |  |  |  | | --- | --- | --- | | E-UTRA band | NR band | EN-DC Power class | | ***PC3 FDD 1Tx*** | ***PC3 FDD 1Tx*** | ***PC2*** | | PC3 FDD 1Tx | PC2 FDD 1Tx | PC2 | | PC3 TDD 1Tx | PC2 FDD 1Tx | PC2 | | ***PC2 TDD 1Tx*** | ***PC3 FDD 1Tx*** | ***PC2*** | | ***PC2 TDD 1Tx*** | ***PC2 FDD 1Tx*** | ***PC2*** | | ***PC2 TDD 1Tx*** | ***PC3 TDD 1Tx*** | ***PC2*** | | ***PC2 TDD 1Tx*** | ***PC2 TDD 1Tx*** | ***PC2*** | | PC2 TDD 1Tx | PC2 FDD 1Tx | PC1.5 | | PC2 TDD 1Tx | PC2 TDD 1Tx | PC1.5 | | NOTE: The new added rows with bold Italic font are the needed fallback configurations. | | |   3Tx:  Table 3 new UL configurations for inter-band EN-DC with 3Tx   |  |  |  | | --- | --- | --- | | E-UTRA band | NR band | EN-DC Power class | | ***PC3 FDD 1Tx*** | ***PC3 FDD 2Tx*** | ***PC2*** | | PC3 FDD 1Tx | PC2 FDD 2Tx | PC2 | | PC3 TDD 1Tx | PC2 FDD 2Tx | PC2 | | ***PC2 TDD 1Tx*** | ***PC3 FDD 2Tx*** | ***PC2*** | | ***PC2 TDD 1Tx*** | ***PC2 FDD 2Tx*** | ***PC2*** | | ***PC2 TDD 1Tx*** | ***PC3 TDD 2Tx*** | ***PC2*** | | ***PC2 TDD 1Tx*** | ***PC2 TDD 2Tx*** | ***PC2*** | | PC3 FDD 1Tx | PC1.5 TDD 2Tx | PC1.5 | | PC3 TDD 1Tx | PC1.5 TDD 2Tx | PC1.5 | | PC2 TDD 1Tx | PC2 TDD 2Tx | PC1.5 | | PC2 TDD 1Tx | PC2 FDD 2Tx | PC1.5 | | PC2 TDD 1Tx | PC1.5 TDD 2Tx | PC1.5 | | NOTE: The new added rows with bold Italic font are the needed fallback configurations. | | |   Since there is no corresponding Rel.19 HPUE baskets covering these scenarios, it is proposed to introduced the PC1.5 column and transmit power capability configurations tables describing the supporting scenarios as a generic way, and the actual combinations can be introduced via corresponding baskets starting from the next release.  Remove the text “For a terminal that supports inter-band Dual-Connectivity (DC) with UL MIMO or Tx diversity operation, the requirements are targeted for FWA form factor in current specification.”, and void the “NOTE 7: FWA form factor is targeted unless otherwise stated.” in Table 6.2H.1.3-1 based on the agreed WF. | | | | | | | | |
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| ***Consequences if not approved:*** | | The support of Rel-19 new inter-band EN-DC with 2Tx and 3Tx scenarios is missing. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 4.2, 6.2B.1.3, 6.2H.1.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | | **x** |  | Test specifications | | | | 38.521-3 | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## << Start of changes >>

## 4.2 Applicability of minimum requirements

a) In this specification the Minimum Requirements are specified as general requirements and additional requirements. Where the Requirement is specified as a general requirement, the requirement is mandated to be met in all scenarios

b) For specific scenarios for which an additional requirement is specified, in addition to meeting the general requirement, the UE is mandated to meet the additional requirements.

c) The spurious emissions power requirements are for the long-term average of the power. For the purpose of reducing measurement uncertainty it is acceptable to average the measured power over a period of time sufficient to reduce the uncertainty due to the statistical nature of the signal

d) Terminal that supports EN-DC or NE-DC configuration shall meet E-UTRA requirements as specified in TS 36.101 [4] and NR requirements as in TS 38.101-1 [2] and TS 38.101-2 [3] unless otherwise specified in this specification

e) All the requirements for intra-band contiguous and non-contiguous EN-DC or NE-DC apply under the assumption of the same uplink-downlink and special subframe configurations in the E-UTRA and slot format indicated by UL-DL-configurationCommon and UL-DL-configurationDedicated in the NR for the EN-DC or NE-DC, a time offset between the two RATs configurations may be required.

f) For EN-DC or NE-DC combinations with CA configurations for E-UTRA and/or NR, all the requirements for E-UTRA and/or NR all the requirements for E-UTRA and/or NR intra-band contiguous and non-contiguous CA apply under the assumption of the same slot format indicated by UL-DL-configurationCommon and UL-DL-configurationDedicated in the PSCell and SCells for NR and the same uplink-downlink and special subframe configurations in Pcell and SCells for E-UTRA.

A terminal which supports an EN-DC or NE-DC configuration shall support:

If any subsets of the EN-DC or NE-DC configuration do not specify its own bandwidth combination sets in 5.3B, then the terminal shall support the same E-UTRA bandwidth combination sets it signals the support for in E-UTRA CA configuration part of E-UTRA – NR DC and shall support the same NR bandwidth combination sets it signals the support for in NR CA configuration part of E-UTRA – NR DC.

Else if one of the subsets of the EN-DC or NE-DC configuration specify its own bandwidth combination sets in 5.3B, then the terminal shall support a product set of channel bandwidth for each band specified by E-UTRA bandwidth combination sets, NR bandwidth combination sets, and EN-DC or NE-DC bandwidth combination sets it singnals the support.A terminal which supports an inter-band EN-DC or NE-DC configuration with a certain UL configuration shall support the all lower order DL configurations of the lower order EN-DC or NE-DC combinations, which have this certain UL configuration and the fallbacks of this UL configuration.

A terminal which supports NE-DC configurations shall meet the minimum requirements for corresponding EN-DC configuration, unless otherwise specified.

For CA or DC configurations, which include FR2 intra-band CA combinations with multiple FR2 sub-blocks, where at least one of the sub-blocks is a contiguous CA combination :

- if the field *partialFR2-FallbackRX-Req* is not present, the UE shall meet all applicable UE RF requirements for the highest order CA configuration and all associated fallback CA configurations;

- if the field *partialFR2-FallbackRX-Req* is present, for each FR2 intra-band CA configuration with multiple sub-blocks that the UE indicates support for explicitly in UE capability signalling: the in-gap UE RF requirements in clauses 7.5A, 7.5B, 7.6A, 7.6B apply as the equivalent requirements for the associated fallback FR2 intra-band CA configurations with the same number of sub-blocks, where at least one of the sub-blocks consists of a contiguous CA configuration. The UE shall meet all applicable UE RF requirements for fallback CA configurations with a lesser number of sub-blocks;

- regardless of the field *partialFR2-FallbackRX-Req*, the UE shall meet all DL out-of-gap requirements for all lower order fallback CA configurations.

Terminal that supports inter-band NR-DC between FR1 and FR2 configuration shall meet the requirements for corresponding CA configuration (suffix A), unless otherwise specified.

## << Next changes >>

#### 6.2B.1.3 Inter-band EN-DC within FR1

For inter-band EN-DC of E-UTRA and NR in FR1, the following UE Power Classes define the maximum output power for any transmission bandwidth within the aggregated channel bandwidth. The maximum output power is measured as the sum of the maximum output power at each UE antenna connector. The period of measurement shall be at least one sub frame (1ms). UE maximum output power shall be measured over all component carriers from different bands. If each band has separate antenna connectors, maximum output power is measured as the sum of maximum output power at each UE antenna connector.

The maximum output power for inter-band EN-DC with one Tx per band is specified in Table 6.2B.1.3-1. These configurations are subject to the applicable power class of each E-UTRA band and NR band specified in Table 6.2.2-1 of TS 36.101 and Table 6.2.1-1 of TS 38.101-1 respectively.

If *higherPowerLimitMRDC-r17* is indicated for an UL inter-band EN-DC configuration as specified in Table 6.2B.1.3-1 and with uplink bands of different power class capabilities, the UE maximum output power specified in Table 6.2B.1.3-1 for this UL EN-DC configuration is modified in accordance with sub-clause 6.2B.4.1.3.

Table 6.2B.1.3-1: Maximum output power for inter-band EN-DC (two bands)

| EN-DC configuration | Power class 1.5  (dBm) | Tolerance  (dB) | Power class 2  (dBm) | Tolerance  (dB) | Power class 3  (dBm) | Tolerance  (dB) |
| --- | --- | --- | --- | --- | --- | --- |
| DC\_1A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n8A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n20A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n26A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_1A\_n50A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n51A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_1A\_n84A\_ULSUP-TDM\_n77A |  |  | [266] | [+2/-3] | 23 | +2/-3 |
| DC\_1A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_1A\_n84A\_ULSUP-TDM\_n78A |  |  | [266] | [+2/-3] | 23 | +2/-3 |
| DC\_1A\_n79A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_1A\_n84A\_ULSUP-TDM\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n80A |  |  |  |  | 23 | +2/-3 |
| DC\_1A\_n105A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n12A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n25A |  |  |  |  | N/A | N/A |
| DC\_2A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n30A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_2A\_n46A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n48A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_2A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_2A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_3A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_3C\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n7B |  |  |  |  | 23 | +2/-3 |
| DC\_3C\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n8A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n20A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n26A |  |  |  |  | 23 | +2/-3 |
| DC\_3C\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_3C\_n26A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_3C\_n41A, |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_3A\_n50A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n51A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_3C\_n77A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_3C\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_3A\_n79A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_3C\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n80A\_ULSUP-TDM\_n41A |  |  |  |  | 23 | +2/-3 |
| DC\_3C\_n80A\_ULSUP-TDM\_n41A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n80A\_ULSUP-TDM\_n77AA |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n80A\_ULSUP-TDM\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n80A\_ULSUP-TDM\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n82A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n84A |  |  |  |  | 23 | +2/-3 |
| DC\_3A\_n105A |  |  |  |  | 23 | +2/-3 |
| DC\_4A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_4A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_4A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_4A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_4A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_4A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_4A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_5A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n12A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n30A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_5A\_n48A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_5A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_5A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_5A\_n89A\_ULSUP-TDM\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_7C\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n8A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n12A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n20A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n26A |  |  |  |  | 23 | +2/-3 |
| DC\_7C\_n26A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n51A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n77A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_7C\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_7A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n80A |  |  |  |  | 23 | +2/-3 |
| DC\_7A\_n105A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_8B\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n20A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n34A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n39A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n41A, |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_8A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_8A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_8B\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_8A\_n79A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_8A\_n79C |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n80A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n81A\_ULSUP-TDM\_n41A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n81A\_ULSUP-TDM\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_8A\_n81A\_ULSUP-TDM\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_11A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_11A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_11A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_11A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_11A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_11A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_11A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n30A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_12A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n71A7 |  |  |  |  | 23 | +2/-3 |
| DC\_12A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_12A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_13A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_13A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_13A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_13A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_13A\_n48A |  |  |  |  | 23 | +2/-3 |
| DC\_13A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_13A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_13A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_13A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_14A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_14A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_14A\_n30A |  |  |  |  | 23 | +2/-3 |
| DC\_14A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_14A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_14A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_18A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_18A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_18A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_18A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_18A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_18A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_19A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_19A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_19A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_19A\_n79A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_20A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n8A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_20A\_n50A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n51A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n77A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n80A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_20A\_n82A\_ULSUP-TDM\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_20A\_n83A |  |  |  |  | 23 | +2/-3 |
| DC\_21A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_21A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_21A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_21A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_21A\_n79A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_25A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_25A\_n77A |  |  |  |  | 23 | +2/-3 |
| DC\_25A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_26A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_26A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_26A\_n77A |  |  |  |  | 23 | +2/-3 |
| DC\_26A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_26A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n7B |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n8A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n20A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_28A\_n50A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n51A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n71A7 |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_28A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_28A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n105A7 |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n83A\_ULSUP-TDM\_n41A |  |  |  |  | 23 | +2/-3 |
| DC\_28A\_n83A\_ULSUP-TDM\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_30A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_30A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_30A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_30A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_38A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_38A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_38A\_n8A |  |  |  |  | 23 | +2/-3 |
| DC\_38A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_38A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_38A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_39A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_39A\_n41A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_39C\_n41A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_39A\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_39A\_n79A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_40A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_40A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_40A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_40A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_40A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_40A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_40C\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_40A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_40C\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_40A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_41A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_41C\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_41A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_41C\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_41A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_41C\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_41A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_41C\_n77A |  |  | [266] | [+2/-3] | 23 | +2/-3 |
| DC\_41A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_41C\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_41A\_n79A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_41A\_n79C |  |  |  |  | 23 | +2/-3 |
| DC\_41C\_n79A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_42A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_42C\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_42A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_42C\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_42A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_42C\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_42A\_n51A |  |  |  |  | 23 | +2/-3 |
| DC\_42A\_n77A |  |  |  |  | N/A | N/A |
| DC\_42A\_n78A |  |  |  |  | N/A | N/A |
| DC\_42A\_n79A |  |  |  |  | N/A | N/A |
| DC\_48A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_48A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_48A\_n12A |  |  |  |  | 23 | +2/-3 |
| DC\_48A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_48A\_n46A |  |  |  |  | 23 | +2/-3 |
| DC\_48A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_48A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n12A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n28A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n30A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_66A\_n46A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n48A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n71A |  |  |  |  | 23 | +2/-3 |
| DC\_66A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_66A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_66A\_n86A\_ULSUP-TDM\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n1A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n3A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n8A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n20A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n40A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n41A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n77A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n78A |  |  |  |  | 23 | +2/-3 |
| DC\_68A\_n79A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n2A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n5A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n7A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n12A7 |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n25A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n38A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n41A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_71A\_n48A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n66A |  |  |  |  | 23 | +2/-3 |
| DC\_71A\_n77A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_71A\_n78A |  |  | 266 | +2/-3 | 23 | +2/-3 |
| DC\_106A\_n41A |  |  |  |  | 23 | +2/-3 |
| DC\_106A\_n48A |  |  |  |  | 23 | +2/-3 |
| NOTE 1: An uplink DC configuration in which at least one of the bands has NOTE 3 in Table 6.2.1-1 in TS 38.101-1 or NOTE 2 in Table 6.2.2-1 in TS 36.101 is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands is confined within FUL\_low and FUL\_low + 4 MHz or FUL\_high - 4 MHz and FUL\_high.  NOTE 2: PPowerClass, EN-DC is the maximum UE power specified without taking into account the tolerance  NOTE 3: For inter-band EN-DC the maximum power requirement should apply to the total transmitted power over all component carriers (per UE).  NOTE 4: Power Class 3 is the default power class unless otherwise stated.  NOTE 5: The UE is not required to support PC2 within each individual cell group. Power class support within each individual cell group is signaled separately by the UE.  NOTE 6: The UE supports PC3 within E-UTRA cell group, and supports either PC3 or PC2 within NR cell group. Power class support within each individual cell group is signaled separately by the UE.  NOTE 7: Only single switched UL is supported.  NOTE 8: Void.  NOTE 9: Void. | | | | | | |

Table 6.2B.1.3-1a: Per band power class applicable to REFSENS exceptions (two band UL EN-DC)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Inter-band UL  power class  (NOTE 1) | Uplink bands of same power class | | Uplink bands of different power class | |
| E-UTRA band2 | NR band | E-UTRA band2 | NR band |
| Class 3 | Class 3 | Class 3 | Class 3 | Class 5 |
| Class 2 | Class 3 | Class 3 | Class 3 | Class 2 |
|  | Class 2 | Class 2 | Class 2 | Class 3 |
| Class 1.5 | Class 2 | Class 2 |  |  |
| NOTE 1: Indicated by *powerClass/powerClass-v1610*.  NOTE 2: For the FDD E-UTRA band, only Class 3 is applicable. | | | | |

If a UE supports a different power class than the default UE power class for an E-UTRA TDD and NR TDD Inter-band EN-DC band combination and the supported power class enables higher maximum output power than that of the default power class:

– if the field of UE capability *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* is absent and the percentage of NR uplink symbols transmitted in a certain evaluation period is larger than 30% (The exact evaluation period is no less than one radio frame); or

– if the field of UE capability *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* is not absent and the percentage of NR uplink symbols transmitted in a certain evaluation period is larger than *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* as defined in TS38.331 (The exact evaluation period is no less than one radio frame); or

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is provided and set to the maximum output power of the default power class or lower;

– shall apply all requirements for the default power class to the supported power class and set the configured transmitted power as specified sub-clause 6.2B.4;

– Else if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal t*o maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* as defined in TS 38.331; or

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal to 30% when *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* is absent. (The exact evaluation period is no less than one radio frame):

– shall apply all requirements for the supported power class and set the configured transmitted power class as specified in sub-clause 6.2B.4.

If a UE supports a different power class than the default UE power class for an E-UTRA FDD and NR TDD EN-DC band combination and the supported power class enables higher maximum output power than that of the default power class:

If UE indicating the two capabilities *maxUplinkDutyCycle-FDD-TDD-EN-DC1* and *maxUplinkDutyCycle-FDD-TDD-EN-DC2*:

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class, and the percentage of EUTRA uplink symbols transmitted in a certain evaluation period is between 40% and 70%, and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal t*omaxUplinkDutyCycle-FDD-TDD-EN-DC1*as defined in TS 38.331 (The exact evaluation period is no less than one radio frame); or

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class, and the percentage of EUTRA uplink symbols transmitted in a certain evaluation period is no larger than 40%, and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal t*o maxUplinkDutyCycle-FDD-TDD-EN-DC2* as defined in TS 38.331 (The exact evaluation period is no less than one radio frame)

– shall apply all requirements for the supported power class and set the configured transmitted power class as specified in sub-clause 6.2B.4.

– else

– shall apply all requirements for the default power class and set the configured transmitted power as specified sub-clause 6.2B.4;

else

– shall apply all requirements for the supported power class and set the configured transmitted power as specified sub-clause 6.2B.4;

## << Next changes >>

#### 6.2H.1.3 Inter-band EN-DC with UL MIMO within FR1

For inter-band EN-DC of E-UTRA and NR in FR1, the following UE Power Classes define the maximum output power for any transmission bandwidth within the aggregated channel bandwidth. The maximum output power is measured as the sum of the maximum output power at each UE antenna connector. The period of measurement shall be at least one sub frame (1ms). UE maximum output power shall be measured over all component carriers from different bands. If each band has separate antenna connectors, maximum output power is measured as the sum of maximum output power at each UE antenna connector.

The maximum output power for inter-band EN-DC with one Tx in E-UTRA band and 2Tx in NR band is specified in Table 6.2H.1.3-1. These configurations are subject to the applicable power class of each E-UTRA band and NR band specified in Table 6.2.2-1 of TS 36.101 and Table 6.2D.1-1 of TS 38.101-1 respectively.

If *higherPowerLimitMRDC-r17* is indicated for an UL inter-band EN-DC configuration as specified in Table 6.2H.1.3-1 and with uplink bands of different power class capabilities, the UE maximum output power specified in Table 6.2H.1.3-1 for this UL EN-DC configuration is modified in accordance with sub-clause 6.2H.4.1.3.

Table 6.2H.1.3-1: Maximum output power for inter-band EN-DC with UL MIMO and/or TxD (two bands)

| EN-DC configuration | Power class 1.5  (dBm) | Tolerance  (dB) | Power class 2  (dBm) | Tolerance  (dB) | Power class 3  (dBm) | Tolerance  (dB) |
| --- | --- | --- | --- | --- | --- | --- |
| DC\_1A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_3A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_5A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_7A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_8A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_20A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_28A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_40A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| DC\_41A\_n78A |  |  | 265 | +2/-3 | 23 | +2/-3 |
| NOTE 1: An uplink DC configuration in which at least one of the bands has NOTE 3 in Table 6.2.1-1 in TS 38.101-1 or NOTE 2 in Table 6.2.2-1 in TS 36.101 is allowed to reduce the lower tolerance limit by 1.5 dB when the transmission bandwidths of at least one of the bands is confined within FUL\_low and FUL\_low + 4 MHz or FUL\_high - 4 MHz and FUL\_high.  NOTE 2: PPowerClass, EN-DC is the maximum UE power specified without taking into account the tolerance  NOTE 3: For inter-band EN-DC the maximum power requirement should apply to the total transmitted power over all component carriers (per UE).  NOTE 4: Power Class 3 is the default power class unless otherwise stated.  NOTE 5: The UE supports PC3 in E-UTRA band, and supports PC3 or PC2 with UL MIMO and/or TxD in NR band  NOTE 6: Void  NOTE 7: Void | | | | | | |

Table 6.2H.1.3-1a: Per band power class applicable to REFSENS exceptions for inter-band UL EN-DC with 1Tx in E-UTRA band and 2Tx UL MIMO and/or TxD in NR band.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Inter-band  Power class  (NOTE 1) | Uplink bands of same power class | | Uplink bands of different power class | |
| E-UTRA band2 | NR band | E-UTRA band2 | NR band |
| Class 2 | Class 3 | Class 3 | Class 3 | Class 2 |
|  | Class 2 | Class 2 | Class 2 | Class 3 |
| Class 1.5 | Class 2 | Class 2 | Class 3 | Class 1.5 |
|  |  |  | Class 2 | Class 1.5 |
| NOTE 1: Indicated by *powerClass/powerClass-v1610*.  NOTE 2: For the FDD E-UTRA band, only Class 3 is applicable. | | | | |

If a UE supports a different power class than the default UE power class for an E-UTRA TDD and NR TDD Inter-band EN-DC band combination and the supported power class enables higher maximum output power than that of the default power class:

– if the field of UE capability *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* is absent and the percentage of NR uplink symbols transmitted in a certain evaluation period is larger than 30% (The exact evaluation period is no less than one radio frame); or

– if the field of UE capability *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* is present and the percentage of NR uplink symbols transmitted in a certain evaluation period is larger than *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* as defined in TS38.331 (The exact evaluation period is no less than one radio frame); or

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is provided and set to the maximum output power of the default power class or lower;

– shall apply all requirements for the default power class to the supported power class and set the configured transmitted power as specified sub-clause 6.2H.4;

– Else if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal t*o maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* as defined in TS 38.331; or

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal to 30% when *maxUplinkDutyCycle-interBandENDC-TDD-PC2-r16* is absent. (The exact evaluation period is no less than one radio frame):

– shall apply all requirements for the supported power class and set the configured transmitted power class as specified in sub-clause 6.2H.4.

If a UE supports a different power class than the default UE power class for an E-UTRA FDD and NR TDD EN-DC band combination and the supported power class enables higher maximum output power than that of the default power class:

If UE indicating the two capabilities *maxUplinkDutyCycle-FDD-TDD-EN-DC1* and *maxUplinkDutyCycle-FDD-TDD-EN-DC2*:

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class, and the percentage of EUTRA uplink symbols transmitted in a certain evaluation period is between 40% and 70%, and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal t*omaxUplinkDutyCycle-FDD-TDD-EN-DC1*as defined in TS 38.331 (The exact evaluation period is no less than one radio frame); or

– if the IE *p-maxUE-FR1* as defined in TS 38.331 is not provided or set to the higher value than the maximum output power of the default power class, and the percentage of EUTRA uplink symbols transmitted in a certain evaluation period is no larger than 40%, and the percentage of NR uplink symbols transmitted in a certain evaluation period is less than or equal t*o maxUplinkDutyCycle-FDD-TDD-EN-DC2* as defined in TS 38.331 (The exact evaluation period is no less than one radio frame)

– shall apply all requirements for the supported power class and set the configured transmitted power class as specified in sub-clause 6.2H.4.

– else

– shall apply all requirements for the default power class and set the configured transmitted power as specified sub-clause 6.2H.4;

else

– shall apply all requirements for the supported power class and set the configured transmitted power as specified sub-clause 6.2H.4;

## << End of changes >>