**3GPP TSG-RAN4 Meeting #101-e *R4-2120078***

**Electronic Meeting, 1 – 12 November 2021**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **38.307** | **CR** | **0085** | **rev** |  | **Current version:** | **17.3.0** |  |
|  | | | | | | | | |
| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network |  |

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|  | | | | | | | | | | |
| ***Title:*** | Big CR for TS 38.307 Maintenance (Rel-17) | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | MCC | | | | | | | | | |
| ***Source to TSG:*** | R4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | NR\_unlic-Core, HPUE\_PC1\_5\_n77\_n78-Core | | | | |  | ***Date:*** | | | 2021-11-17 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***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.  R4-2119698 Addition of release independence information for shared spectrum access R16  <Reason for change>  Addition of release independence information for shared spectrum access  R4-2119858 Release independence of modifiedMPR-Behavior for PC1.5  <Reason for change>  Power class 1.5 was first introduced in Rel-16, but agreed to be release independent to Rel-15. In Rel-17, power class 1.5 was enhanced to include updated MPR for smartphone and FWA as well as the introduction of modifiedMPR-Behavior to allow the UE to signal which MPR it supports. This modifiedMPR-Behavior then needs to be included in 38.307 to enable PC1.5 to be fully release independence back to Rel-15. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | The summary of change in each endorsed draft CR is copied below.  R4-2119698 Addition of release independence information for shared spectrum access R16  <Summary of change>  Release independence information for shared spectrum access is added  R4-2119858 Release independence of modifiedMPR-Behavior for PC1.5  <Summary of change>  The applicable requirements for release independence are specified in Rel-17 instead of the release in which PC1.5 was introduced and the modifiedMPR-Behavior in Annex L.1 is included in the list of common RF requirements. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The consequences if not approved for each endorsed draft CR are coppied below.  R4-2119698 Addition of release independence information for shared spectrum access R16  <Consequences if not approved>  Release independence information for shared spectrum access is missing  R4-2119858 Release independence of modifiedMPR-Behavior for PC1.5  <Consequences if not approved>  Updates to power class 1.5 are not fully release independent to Rel-15. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.1, 5.6, 5.7, B.4.1, B.4.8, B.4.9 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

## **<<Start of Change>>**

## 5.1 Additional NR operating bands and UE power classes for NR frequency range 1

Requirements for a Rel-17 UE for additional NR operating bands and power classes compared to TS 38.101-1 of Rel-17 [2] are introduced via this clause.

Table 5.1-1: NR operating bands

|  |  |  |  |
| --- | --- | --- | --- |
| Feature | Duplex-mode | Release  independent from | Requirements to be fulfilled  (see TS 38.307 of the release in which the band was introduced) |
| Operating bands | FDD, TDD, SDL, SUL | Rel-15 | Table B.4.1-1, Table B.4.3-1 |
| Shared spectrum access operating bands | TDD | Rel-16 | Table B.4.7-1 |

Table 5.1-2: NR UE power class

|  |  |  |  |
| --- | --- | --- | --- |
| Feature | Duplex-mode | Release  independent from | Requirements to be fulfilled  (see TS 38.307 of the release in which the power class was introduced) |
| Power Class 1 | FDD | Rel-15 | Table B.4.1-1, Table B.4.3-1 |
| Power Class 1.5 | TDD | Rel-15 | Table B.4.1-1, Table B.4.3-1 |
| Power Class 2 | TDD | Rel-15 | Table B.4.1-1, Table B.4.3-1 |
| Power Class 3 | FDD, TDD, SUL | Rel-15 | Table B.4.1-1, Table B.4.3-1 |

## **<<Next of Change>>**

## 5.5 Additional Inter-band NR-DC configurations for NR frequency range 1

Requirements for a Rel-16 UE for additional NR-DC configurations within FR1 compared to TS 38.101-1 of Rel-16 [2] are introduced via this clause.

Table 5.5.1-1: NR-DC within FR1

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Feature | DL/UL | Maximum number of bands | number of CCs | CA BW Classes | Duplex-mode | Release  independent from | requirements to be fulfilled  (see 38.307 of the REL in which the DC configuration was introduced) |
| NR-DC configurations within NR FR1 | DL | 2 | 2 | A | FDD | Rel-16 |  |

5.6 UL 7.5KHz shift for TDD band n40Requirements for a Rel-17 UE for UL 7.5KHz shift for TDD band n40 within FR1 compared to TS 38.101-1 of Rel-17 [2] are introduced via this clause. For Band n40, UL shift is only applicable to uplink transmissions using a 15 kHz SCS.

Table 5.3-2: UL 7.5KHz shift for band n40 in FR1

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Feature | DL/UL | Duplex-mode | Release  independent from | requirements to be fulfilled  (see 38.307 of the REL in which the configuration was introduced) |
| 7.5KHz UL shift for band n40 in FR1 | UL | TDD | Rel-15 | Table B.4.7-1 |

## 5.6 Void

## 5.7 Additional Inter-band EN-DC or NR CA configurations involving shared spectrum access

Requirements for a Rel-17 UE for additional NR CA, EN-DC, and NR DC configurations involving shared spectrum access compared to TS 38.101-1 of Rel-16 [2] or TS 38.101-3 of Rel-17 [4] are introduced via this clause.

Table 5.6-1: NR-DC within FR1

|  |  |  |  |
| --- | --- | --- | --- |
| Feature | Duplex-mode | Release  independent from | Requirements to be fulfilled  (see 38.307 of the REL in which the EN-DC or NR CA configuration was introduced) |
| Intra-band and Inter-band NR CA configurations involving shared spectrum access | FDD and TDD, TDD | Rel-16 | Table B.3.1-1, Table B.4.2-1, Table B.4.8-1 |
| Inter-band EN-DC configurations involving shared spectrum access | FDD and TDD, TDD | Rel-16 | Table B.4.6-1 |
| Inter-band NR DC configurations involving shared spectrum access | FDD and TDD, TDD | Rel-16 | Table B.4.5-1 |

## **<<Next of Change>>**

## B.4.1 Common UE RF requirements for a release independent band

The requirements and test cases listed in Table B.4.1-1 are specified in REL-17 version of TS 38.101-1 [2] or TS 38.101-2 [3].

Table B.4.1-1: Common UE RF requirements for a release independent band

|  |  |
| --- | --- |
| Clause / Clause | Description |
| 5.2 | Operating bands |
| 5.3 | UE Channel bandwidth |
| 5.4 | Channel arrangement |
| 6.2 | Transmitter power |
| 6.3 | Output power dynamics |
| 6.4 | Transmit signal quality |
| 6.5 | Output RF spectrum emissions |
| 6.6 of [3] | Beam correspondence |
| 7.3 | Reference sensitivity |
| 7.4 | Maximum input level |
| 7.5 | Adjacent Channel Selectivity |
| 7.6 | Blocking characteristics |
| 7.7 of [2] | Spurious response |
| 7.8 of [2] | Intermodulation characteristics |
| 7.9 | Spurious emissions |
| L.1 | Indication of modified MPR behavior |
| NOTE: A UE which supports any FR2 band introduced in release N, where N > 15, shall meet the requirements according to the FR2 UE multi-band relaxation factors defined in Table 6.2.1.3-4 of the release N version of [3] for all FR2 bands which it supports. | |

## **<<Next of Change>>**

## B.4.6 Common UE RF requirements for NR interworking between NR and E-UTRA

The requirements and test cases listed in Table B.4.6-1 are specified in REL-16 version of TS 38.101-3 [4].

Table B.4.6-1: Common UE RF requirements for a release independent NR interworking between NR and E-UTRA

|  |  |
| --- | --- |
| Clause | Description |
| 4.2 | Applicability of minimum requirements |
| 5.2B | Operating bands for DC |
| 5.3B | UE channel bandwidth for DC |
| 5.4B | Channel arrangement for DC |
| 6.2B | Transmitter power for DC |
| 6.3B | Output power dynamics for DC |
| 6.4B | Transmit signal quality for DC |
| 6.5B | Output RF spectrum emissions for DC |
| 6.6B | Beam correspondence for DC |
| 7.3B | Reference sensitivity level for DC |
| 7.4B | Maximum input level for DC in FR1 |
| 7.5B | Adjacent Channel Selectivity for DC in FR1 |
| 7.6B | Blocking characteristics for DC in FR1 |
| 7.7B | Spurious response for DC in FR1 |
| 7.8B | Intermodulation characteristics for DC in FR1 |
| 7.9A | Spurious emissions for CA in FR1 |

## B.4.7 Common UE RF requirements for UL 7.5KHz shift for TDD band n40

The requirements and test cases listed in Table B.4.7-1 are specified in REL-17 version of TS 38.101-1 [2]. For Band n40, UL shift is only applicable to uplink transmissions using a 15 kHz SCS.

Table B.4.7-1: Common UE RF requirements for UL 7.5KHz shift for TDD Band n40

|  |  |
| --- | --- |
| Clause | Description |
| 5.4.2.1 | NR-ARFCN and channel raster (7.5kHz frequency shift for TDD band n40) |

## B.4.8 Common UE RF requirements shared spectrum access

The requirements and test cases listed in Table B.4.8-1 are specified in REL-17 version of TS 38.101-1 [2].

Table B.4.8-1: Common UE RF requirements for shared spectrum access

|  |  |
| --- | --- |
| Clause | Description |
| 5.2A | Operating bands for CA |
| 5.3A | UE channel bandwidth for CA |
| 5.4A | Channel arrangement for CA |
| 6.2F | Transmitter power for shared spectrum channel access |
| 6.3F | Output power dynamics for shared spectrum channel access |
| 6.4F | Transmit signal quality for shared spectrum channel access |
| 6.5F | Output RF spectrum emissions |
| 7.3F | Reference sensitivity for shared spectrum channel access |
| 7.4 | Maximum input level |
| 7.5F | Adjacent channel selectivity |
| 7.6F | Blocking characteristics |
| 7.7F | Spurious response for shared spectrum channel access |
| 7.8F | Intermodulation characteristics for shared spectrum channel access |
| 7.9 | Spurious emissions |

## B.4.9 Common UE RF requirements for Intra-band and Inter-band NR CA configurations involving shared spectrum access

The requirements and test cases listed in Table B.4.9-1 are specified in REL-17 version of TS 38.101-1 [2].

Table B.4.9-1: Common UE RF requirements for Intra-band and Inter-band NR CA configurations involving shared spectrum access

|  |  |
| --- | --- |
| Clause | Description |
| 6.2F.1A.1 | UE maximum output power for inter-band CA |
| 6.2F.2A.1 | UE maximum output power reduction for inter-band CA |
| 6.2F.3A.1 | UE additional maximum output power reduction for inter-band CA |
| 6.3F.3A.1 | General ON/OFF mask for inter-band CA |
| 6.4F.2A.1 | Transmit modulation quality for inter-band CA |
| 7.3F.3 | ΔRIB,c |
| 7.3F.4 | Intra-band contiguous shared spectrum channel access CA |
| 7.3G.5 | Inter-band CA with shared spectrum channel access |
| 7.5F.2 | Intra-band contiguous shared spectrum channel access CA |
| 7.7F.2 | Intra-band contiguous shared spectrum channel access CA |

## **<<End of Change>>**