**3GPP TSG-RAN4 Meeting #98-e *rev***

**Online, , 25th Jan 2021 - 5th Feb 2021**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  | **38.101-2** | **CR** | **0325** | **rev** | **2** | **Current version:** | **17.0.0** |  |
|  |
| *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 |  |

|  |
| --- |
|  |
| ***Title:***  | Introduction of n262 UE RF requirements |
|  |  |
| ***Source to WG:*** | Nokia, Nokia Shanghai Bell, Apple Inc. |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_47GHz\_band-Core |  | ***Date:*** | 2021-02-5 |
|  |  |  |  |  |
| ***Category:*** | **B** |  | ***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 canbe 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:*** | Introduce a new NR Band n262 to TS 38.101-2 |
|  |  |
| ***Summary of change:*** | UE RF transmitter and receiver requirements are introduced. |
|  |  |
| ***Consequences if not approved:*** | A new 47 GHz band cannot be deployed |
|  |  |
| ***Clauses affected:*** | 5, 6, 7 |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** | **X** |  |  Other core specifications  | TS 38.104, TS 38.133 |
| ***affected:*** | **X** |  |  Test specifications | TS 38.521-1 |
| ***(show related CRs)*** |  | **X** |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

<Start of Change>

Table 5.2-1: NR operating bands in FR2

|  |  |  |  |
| --- | --- | --- | --- |
| Operating Band | Uplink (UL) operating bandBS receiveUE transmit | Downlink (DL) operating bandBS transmit UE receive | Duplex Mode |
|  | FUL\_low – FUL\_high | FDL\_low – FDL\_high |  |
| n257 | 26500 MHz | – | 29500 MHz  | 26500 MHz | – | 29500 MHz  | TDD |
| n258 | 24250 MHz | – | 27500 MHz | 24250 MHz | – | 27500 MHz | TDD |
| n259 | 39500 MHz | – | 43500 MHz | 39500 MHz | – | 43500 MHz | TDD |
| n260 | 37000 MHz | – | 40000 MHz | 37000 MHz | – | 40000 MHz | TDD |
| n261 | 27500 MHz | – | 28350 MHz | 27500 MHz | – | 28350 MHz | TDD |
| n262 | 47200 MHz | – | 48200 MHz | 47200 MHz | – | 48200 MHz | TDD |

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Table 5.2D-1: NR UL MIMO operating bands

|  |
| --- |
| UL MIMO operating band(Table 5.2-1) |
| n257 |
| n258 |
| n259 |
| n260 |
| n261 |
| n262 |

<Next Change>

Table 5.3.5-1: Channel bandwidths for each NR band

|  |
| --- |
| Operating band / SCS / UE channel bandwidth |
| Operating band | SCSkHz | 50 MHz | 100 MHz | 200MHz | 4001 MHz |
| n257 | 60 | Yes | Yes | Yes |  |
|  | 120 | Yes | Yes | Yes | Yes |
| n258 | 60 | Yes | Yes | Yes |  |
|  | 120 | Yes | Yes | Yes | Yes |
| n259 | 60 | Yes | Yes | Yes |  |
|  | 120 | Yes | Yes | Yes | Yes |
| n260 | 60 | Yes | Yes | Yes |  |
|  | 120 | Yes | Yes | Yes | Yes |
| n261 | 60 | Yes | Yes | Yes |  |
|  | 120 | Yes | Yes | Yes | Yes |
| n262 | 60 | Yes | Yes | Yes |  |
|  | 120 | Yes | Yes | Yes | Yes |
| NOTE 1: This UE channel bandwidth is optional in this release of the specification. |

<Next Change>

Table 5.4.2.3-1: Applicable NR-ARFCN per operating band

|  |  |  |
| --- | --- | --- |
| Operating Band | ΔFRaster(kHz) | Uplink and DownlinkRange of NREF(First – <Step size> – Last) |
| n257 | 60 | 2054166 – <1> – 2104165 |
|  | 120 | 2054167 – <2> – 2104165 |
| n258 | 60 | 2016667 – <1> – 2070832 |
|  | 120 | 2016667 – <2> – 2070831 |
| n259 | 60 | 2270832 – <1> – 2337499 |
|  | 120 | 2270832– <2> – 2337499 |
| n260 | 60 | 2229166 – <1> – 2279165 |
|  | 120 | 2229167 – <2> – 2279165 |
| n261 | 60 | 2070833 – <1> – 2084999 |
|  | 120 | 2070833 – <2> – 2084999 |
| n262 | 60 | 2399166 – <1> – 2415832 |
|  | 120 | 2399167 – <2> – 2415831 |

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Table 5.4.3.3-1: Applicable SS raster entries per operating band

|  |  |  |  |
| --- | --- | --- | --- |
| NR Operating Band | SS Block SCS | SS Block pattern1 | Range of GSCN(First – <Step size> – Last) |
| n257 | 120 kHz | Case D | 22388 - <1> - 22558 |
|  | 240 kHz | Case E | 22390 - <2> - 22556 |
| n258 | 120 kHz | Case D | 22257 - <1> - 22443 |
|  | 240 kHz | Case E | 22258 - <2> - 22442 |
| n259 | 120 kHz | Case D | 23140 – <1> – 23369 |
|  | 240 kHz | Case E | 23142 – <2> – 23368 |
| n260  | 120 kHz | Case D | 22995 - <1> - 23166 |
|  | 240 kHz | Case E | 22996 - <2> - 23164 |
| n261 | 120 kHz | Case D | 22446 - <1> - 22492 |
|  | 240 kHz | Case E | 22446 - <2> - 22490 |
| n262 | 120 kHz | Case D | 23586 – <1> – 23641 |
|  | 240 kHz | Case E | 23588 – <2> – 23640 |
| NOTE 1: SS Block pattern is defined in clause 4.1 in TS 38.213 [10]. |

<Next Change>

Table 5.5A.1-1: NR CA configurations, bandwidth combination sets, and fallback group defined for intra-band contiguous CA

| NR CA configuration / Bandwidth combination set / Fallback group |
| --- |
| NR CA configuration | Uplink CA configurations | BWChannel (MHz) | BWChannel (MHz) | BWChannel (MHz) | BWChannel (MHz) | BWChannel (MHz) | BWChannel (MHz) | BWChannel (MHz) | BWChannel (MHz) | Maximum aggregatedBW (MHz) | BCS | Fallback group |
| CA\_n257B | CA\_n257B | 50, 100, 200, 400 | 400 |  |  |  |  |  |  | 800 | 0 | 1 |
| CA\_n257C | CA\_n257B | 50, 100, 200, 400 | 400 | 400 |  |  |  |  |  | 1200 | 0 | 1 |
| CA\_n257D | CA\_n257D | 50, 100, 200 | 200 |  |  |  |  |  |  | 400 | 0 | 2 |
| CA\_n257E | CA\_n257DCA\_n257E | 50, 100, 200 | 200 | 200 |  |  |  |  |  | 600 | 0 |  |
| CA\_n257F | CA\_n257DCA\_n257ECA\_n257F | 50, 100, 200 | 200 | 200 | 200 |  |  |  |  | 800 | 0 |  |
| CA\_n257G | CA\_n257G | 50, 100 | 100 |  |  |  |  |  |  | 200 | 0 | 3 |
| CA\_n257H | CA\_n257GCA\_n257H | 50, 100 | 100 | 100 |  |  |  |  |  | 300 | 0 |  |
| CA\_n257I | CA\_n257GCA\_n257HCA\_n257I | 50, 100 | 100 | 100 | 100 |  |  |  |  | 400 | 0 |  |
| CA\_n257J | CA\_n257GCA\_n257HCA\_n257ICA\_n257J | 50, 100 | 100 | 100 | 100 | 100 |  |  |  | 500 | 0 |  |
| CA\_n257K | CA\_n257GCA\_n257HCA\_n257ICA\_n257JCA\_n257K | 50, 100 | 100 | 100 | 100 | 100 | 100 |  |  | 600 | 0 |  |
| CA\_n257L | CA\_n257GCA\_n257HCA\_n257ICA\_n257JCA\_n257KCA\_n257L | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 |  | 700 | 0 |  |
| CA\_n257M | CA\_n257GCA\_n257HCA\_n257ICA\_n257JCA\_n257KCA\_n257LCA\_n257M | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 800 | 0 |  |
| CA\_n258B | CA\_n258B | 50, 100, 200, 400 | 400 |  |  |  |  |  |  | 800 | 0 | 1 |
| CA\_n258C | CA\_n258BCA\_n258C | 50, 100, 200, 400 | 400 | 400 |  |  |  |  |  | 1200 | 0 |  |
| CA\_n258D | CA\_n258D | 50, 100, 200 | 200 |  |  |  |  |  |  | 400 | 0 | 2 |
| CA\_n258E | CA\_n258DCA\_n258E | 50, 100, 200 | 200 | 200 |  |  |  |  |  | 600 | 0 |  |
| CA\_n258F | CA\_n258DCA\_n258ECA\_n258F | 50, 100, 200 | 200 | 200 | 200 |  |  |  |  | 800 | 0 |  |
| CA\_n258G | CA\_n258G | 50, 100 | 100 |  |  |  |  |  |  | 200 | 0 | 3 |
| CA\_n258H | CA\_n258GCA\_n258H | 50, 100 | 100 | 100 |  |  |  |  |  | 300 | 0 |  |
| CA\_n258I | CA\_n258GCA\_n258HCA\_n258I | 50, 100 | 100 | 100 | 100 |  |  |  |  | 400 | 0 |  |
| CA\_n258J | CA\_n258GCA\_n258HCA\_n258ICA\_n258J | 50, 100 | 100 | 100 | 100 | 100 |  |  |  | 500 | 0 |  |
| CA\_n258K | CA\_n258GCA\_n258HCA\_n258ICA\_n258JCA\_n258K | 50, 100 | 100 | 100 | 100 | 100 | 100 |  |  | 600 | 0 |  |
| CA\_n258L | CA\_n258GCA\_n258HCA\_n258ICA\_n258JCA\_n258KCA\_n258L | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 |  | 700 | 0 |  |
| CA\_n258M | CA\_n258GCA\_n258HCA\_n258ICA\_n258JCA\_n258KCA\_n258LCA\_n258M | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 800 | 0 |  |
| CA\_n259B | CA\_n259B | 50, 100, 200, 400 | 400 |  |  |  |  |  |  | 800 | 0 | 1 |
| CA\_n259C | CA\_n259B | 50, 100, 200, 400 | 400 | 400 |  |  |  |  |  | 1200 | 0 |  |
| CA\_n259G | CA\_n259G | 50, 100 | 100 |  |  |  |  |  |  | 200 | 0 | 3 |
| CA\_n259H | CA\_n259GCA\_n259H | 50, 100 | 100 | 100 |  |  |  |  |  | 300 | 0 |  |
| CA\_n259I | CA\_n259GCA\_n259HCA\_n259I | 50, 100 | 100 | 100 | 100 |  |  |  |  | 400 | 0 |  |
| CA\_n259J | CA\_n259GCA\_n259HCA\_n259ICA\_n259J | 50, 100 | 100 | 100 | 100 | 100 |  |  |  | 500 | 0 |  |
| CA\_n259K | CA\_n259GCA\_n259HCA\_n259ICA\_n259JCA\_n259K | 50, 100 | 100 | 100 | 100 | 100 | 100 |  |  | 600 | 0 |  |
| CA\_n259L | CA\_n259GCA\_n259HCA\_n259ICA\_n259JCA\_n259KCA\_n259L | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 |  | 700 | 0 |  |
| CA\_n259M | CA\_n259GCA\_n259HCA\_n259ICA\_n259JCA\_n259KCA\_n259LCA\_n259M | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 800 | 0 |  |
| CA\_n260B | CA\_n260B | 50, 100, 200, 400 | 400 |  |  |  |  |  |  | 800 | 0 | 1 |
| CA\_n260C | CA\_n260B | 50, 100, 200, 400 | 400 | 400 |  |  |  |  |  | 1200 | 0 |  |
| CA\_n260D | CA\_n260D | 50, 100, 200 | 200 |  |  |  |  |  |  | 400 | 0 | 2 |
| CA\_n260E | CA\_n260DCA\_n260E | 50, 100, 200 | 200 | 200 |  |  |  |  |  | 600 | 0 |  |
| CA\_n260F | CA\_n260DCA\_n260ECA\_n260F | 50, 100, 200 | 200 | 200 | 200 |  |  |  |  | 800 | 0 |  |
| CA\_n260G | CA\_n260G | 50, 100 | 100 |  |  |  |  |  |  | 200 | 0 | 3 |
| CA\_n260H | CA\_n260GCA\_n260H | 50, 100 | 100 | 100 |  |  |  |  |  | 300 | 0 |  |
| CA\_n260I | CA\_n260GCA\_n260HCA\_n260I | 50, 100 | 100 | 100 | 100 |  |  |  |  | 400 | 0 |  |
| CA\_n260J | CA\_n260GCA\_n260HCA\_n260ICA\_n260J | 50, 100 | 100 | 100 | 100 | 100 |  |  |  | 500 | 0 |  |
| CA\_n260K | CA\_n260GCA\_n260HCA\_n260ICA\_n260JCA\_n260K | 50, 100 | 100 | 100 | 100 | 100 | 100 |  |  | 600 | 0 |  |
| CA\_n260L | CA\_n260GCA\_n260HCA\_n260ICA\_n260JCA\_n260KCA\_n260L | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 |  | 700 | 0 |  |
| CA\_n260M | CA\_n260GCA\_n260HCA\_n260ICA\_n260JCA\_n260KCA\_n260LCA\_n260M | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 800 | 0 |  |
| CA\_n260O | CA\_n260O | 50, 100 | 50, 100 |  |  |  |  |  |  | 200 | 0 | 4 |
| CA\_n260P | CA\_n260OCA\_n260P | 50, 100 | 50, 100 | 50, 100 |  |  |  |  |  | 300 | 0 |  |
| CA\_n260Q | CA\_n260OCA\_n260PCA\_n260Q | 50, 100 | 50, 100 | 50, 100 | 50, 100 |  |  |  |  | 400 | 0 |  |
| CA\_n261B | CA\_n261B | 50, 100, 200, 400 | 400 |  |  |  |  |  |  | 800 | 0 | 1 |
| CA\_n261C | CA\_n261B | 50 | 400 | 400 |  |  |  |  |  | 850 | 0 |  |
| CA\_n261D | CA\_n261D | 50, 100, 200 | 200 |  |  |  |  |  |  | 400 | 0 | 2 |
| CA\_n261E | CA\_n261DCA\_n261E | 50, 100, 200 | 200 | 200 |  |  |  |  |  | 600 | 0 |  |
| CA\_n261F | CA\_n261DCA\_n261ECA\_n261F | 50, 100, 200 | 200 | 200 | 200 |  |  |  |  | 800 | 0 |  |
| CA\_n261G | CA\_n261G | 100 | 50, 100 |  |  |  |  |  |  | 200 | 0 | 3 |
| CA\_n261H | CA\_n261GCA\_n261H | 100 | 100 | 50, 100 |  |  |  |  |  | 300 | 0 |  |
| CA\_n261I | CA\_n261GCA\_n261HCA\_n261I | 50, 100 | 100 | 100 | 100 |  |  |  |  | 400 | 0 |  |
| CA\_n261J | CA\_n261GCA\_n261HCA\_n261ICA\_n261J | 50, 100 | 100 | 100 | 100 | 100 |  |  |  | 500 | 0 |  |
| CA\_n261K | CA\_n261GCA\_n261HCA\_n261ICA\_n261JCA\_n261K | 50, 100 | 100 | 100 | 100 | 100 | 100 |  |  | 600 | 0 |  |
| CA\_n261L | CA\_n261GCA\_n261HCA\_n261ICA\_n261JCA\_n261KCA\_n261L | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 |  | 700 | 0 |  |
| CA\_n261M | CA\_n261GCA\_n261HCA\_n261ICA\_n261JCA\_n261KCA\_n261LCA\_n261M | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 800 | 0 |  |
| CA\_n261O | CA\_n261O | 50, 100 | 50, 100 |  |  |  |  |  |  | 200 | 0 | 4 |
| CA\_n261P | CA\_n261OCA\_n261P | 50, 100 | 50, 100 | 50, 100 |  |  |  |  |  | 300 | 0 |  |
| CA\_n261Q | CA\_n261OCA\_n261PCA\_n261Q | 50, 100 | 50, 100 | 50, 100 | 50, 100 |  |  |  |  | 400 | 0 |  |
| CA\_n262G | CA\_n262G | 50, 100 | 100 |  |  |  |  |  |  |  | 0 | 3 |
| CA\_n262H | CA\_n262GCA\_n262H | 50, 100 | 100 | 100 |  |  |  |  |  |  | 0 |  |
| CA\_n262I | CA\_n262GCA\_n262HCA\_n262I | 50, 100 | 100 | 100 | 100 |  |  |  |  | 400 | 0 |  |
| CA\_n262J | CA\_n262GCA\_n262HCA\_n262ICA\_n262J | 50, 100 | 100 | 100 | 100 | 100 |  |  |  | 500 | 0 |  |
| CA\_n262K | CA\_n262GCA\_n262HCA\_n262ICA\_n262JCA\_n262K | 50, 100 | 100 | 100 | 100 | 100 | 100 |  |  | 600 | 0 |  |
| CA\_n262L | CA\_n262GCA\_n262HCA\_n262ICA\_n262JCA\_n262KCA\_n262L | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 |  | 700 | 0 |  |
| CA\_n262M | CA\_n262GCA\_n262HCA\_n262ICA\_n262JCA\_n262KCA\_n262LCA\_n262M | 50, 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 800 | 0 |  |
| NOTE 1: VoidNOTE 2: For the NR CA configuration with more than two component carries, the bandwidths in a BCS which may introduce combinations more than requested unintentionally should be listed in a row separately.  |

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Table 6.2.1.3-1: UE minimum peak EIRP for power class 3

|  |  |
| --- | --- |
| Operating band | Min peak EIRP (dBm) |
| n257 | 22.4 |
| n258 | 22.4 |
| n259 | 18.7 |
| n260 | 20.6 |
| n261 | 22.4 |
| n262 | 16.0 |
| NOTE 1: Minimum peak EIRP is defined as the lower limit without toleranceNOTE 2: Void |

<Next Change>

Table 6.2.1.3-2: UE maximum output power limits for power class 3

|  |  |  |
| --- | --- | --- |
| Operating band | Max TRP (dBm) | Max EIRP (dBm) |
| n257 | 23 | 43 |
| n258 | 23 | 43 |
| n259 | 23 | 43 |
| n260 | 23 | 43 |
| n261 | 23 | 43 |
| n262 | 23 | 43 |

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Table 6.2.1.3-3: UE spherical coverage for power class 3

|  |  |
| --- | --- |
| Operating band | Min EIRP at 50%-tile CDF (dBm) |
| n257 | 11.5 |
| n258 | 11.5 |
| n259 | 5.8 |
| n260 | 8 |
| n261 | 11.5 |
| n262 | 2.9 |
| NOTE 1: Minimum EIRP at 50 %-tile CDF is defined as the lower limit without toleranceNOTE 2: VoidNOTE 3: The requirements in this table are verified only under normal temperature conditions as defined in Annex E.2.1. |

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Table 6.2.1.3-4: UE multi-band relaxation factors for power class 3

|  |  |  |
| --- | --- | --- |
| **Band** | **MBP,n (dB)** | **MBS,n (dB)** |
| n257 | 0.73 | 0.73 |
| n258 | 0.6 | 0.7 |
| n259 | 0.5 | 0.4 |
| n260 | 0.51 | 0.41 |
| n261 | 0.52,4 | 0.74 |
| n262 | 0.7 | 0.7 |
| Note 1: n260 peak and spherical relaxations are 0 dB for UE that exclusively supports n261+n260Note 2: n261 peak relaxation is 0 dB for UE that exclusively supports n261+n260Note 3: n257 peak and spherical relaxations are 0 dB for UE that exclusively supports n261+n257Note 4: n261 peak and spherical relaxations are 0 dB for UE that exclusively supports n261+n257 |

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Table 6.2.4-1: PUMAX,f,c tolerance

|  |  |  |
| --- | --- | --- |
| Operating Band | ∆P (dB) | Tolerance T(∆P)(dB) |
| n257, n258, n259, n260, n261, n262 | P = 0 | 0 |
|  | 0 < P ≤ 2 | 1.5 |
|  | 2 < P ≤ 3 | 2.0 |
|  | 3 < P ≤ 4 | 3.0 |
|  | 4 < P ≤ 5 | 4.0 |
|  | 5 < P ≤ 10 | 5.0 |
|  | 10 < P ≤ 15 | 7.0 |
|  | 15 < P ≤ X | 8.0 |
| NOTE: X is the value such that Pumax,f,c lower bound, PPowerclass - P – T(P) = minimum output power specified in clause 6.3.1 |

<Next Change>

Table 6.2A.4-1: PUMAX tolerance

|  |  |  |
| --- | --- | --- |
| Operating Band | ∆P (dB) | Tolerance T(∆P)(dB) |
| n257, n258, n259, n260, n261, n262 | P = 0 | 0 |
|  | 0 < P ≤ 2 | 1.5 |
|  | 2 < P ≤ 3 | 2.0 |
|  | 3 < P ≤ 4 | 3.0 |
|  | 4 < P ≤ 5 | 4.0 |
|  | 5 < P ≤ 10 | 5.0 |
|  | 10 < P ≤ 15 | 7.0 |
|  | 15 < P ≤ X | 8.0 |
| NOTE: X is the value such that Pumax lower bound, PPowerclass - P – T(P) = minimum output power specified in clause 6.3A.1 |

<Next Change>

Table 6.2D.1.3-1: UE minimum peak EIRP for UL MIMO for power class 3

|  |  |
| --- | --- |
| Operating band | Min peak EIRP (dBm) |
| n257 | 22.4 |
| n258 | 22.4 |
| n259 | 18.7 |
| n260 | 20.6 |
| n261 | 22.4 |
| n262 | 16.0 |
| NOTE 1: Minimum peak EIRP is defined as the lower limit without tolerance.NOTE 2: Min Peak EIRP refers to the total EIRP for the UL beams peaks. |

<Next Change>

Table 6.2D.1.3-2: UE maximum output power limits for UL MIMO for power class 3

|  |  |  |
| --- | --- | --- |
| Operating band | Max TRP (dBm) | Max EIRP (dBm) |
| n257 | 23 | 43 |
| n258 | 23 | 43 |
| n259 | 23 | 43 |
| n260 | 23 | 43 |
| n261 | 23 | 43 |
| n262 | 23 | 43 |

<Next Change>

Table 6.2D.1.3-4: UE spherical coverage for UL MIMO for power class 3

|  |  |
| --- | --- |
| Operating band | Min EIRP at 50%-tile CDF (dBm) |
| n257 | 11.5 |
| n258 | 11.5 |
| n259 | 5.8 |
| n260 | 8 |
| n261 | 11.5 |
| n252 | 2.9 |
| NOTE 1: Minimum EIRP at 50 %-tile CDF is defined as the lower limit without toleranceNOTE 2: The requirements in this table are only applicable for UE which supports single band in FR2 |

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Table 6.3.1.2-1: Minimum output power for power class 2, 3, and 4

|  |  |  |  |
| --- | --- | --- | --- |
| Operating band | Channel bandwidth(MHz) | Minimum output power(dBm) | Measurement bandwidth(MHz) |
| n257, n258, n259, n260, n261, n262 | 50 | -13 | 47.58 |
|  | 100 | -13 | 95.16 |
|  | 200 | -13 | 190.20 |
|  | 400 | -13 | 380.28 |
| NOTE 1: n260 is not applied for power class 2.NOTE 2: n259 is not applied for power class 2 and 4. |

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Table 6.3.2-1: Transmit OFF power

|  |  |
| --- | --- |
| Operating band | Channel bandwidth / Transmit OFF power (dBm) / measurement bandwidth |
|  | 50 MHz | 100 MHz | 200 MHz | 400 MHz |
| n257, n258, n259, n260, n261, n262 | -35 | -35 | -35 | -35 |
|  | 47.58 MHz | 95.16 MHz | 190.20 MHz | 380.28 MHz |

<Next Change>

Table 6.3A.1.2-1: Minimum output power for CA for power class 2, 3, and 4

|  |  |  |  |
| --- | --- | --- | --- |
| Operating band | Channel bandwidth(MHz) | Minimum output power(dBm) | Measurement bandwidth(MHz) |
| n257, n258, n259, n260, n261, n262 | 50 | -13 | 47.58 |
|  | 100 | -13 | 95.16 |
|  | 200 | -13 | 190.20 |
|  | 400 | -13 | 380.28 |
| NOTE 1: n260 is not applied for power class 2.NOTE 2: n259 is not applied for power class 2 and 4. |

<Next Change>

Table 6.3A.2-1: Transmit OFF power for CA

|  |  |
| --- | --- |
| Operating band | Channel bandwidth / Transmit OFF power (dBm) / measurement bandwidth |
|  | 50 MHz | 100 MHz | 200 MHz | 400 MHz |
| n257, n258, n259, n260, n261, n262 | -35 | -35 | -35 | -35 |
|  | 47.58 MHz | 95.16 MHz | 190.20 MHz | 380.28 MHz |

<Next Change>

Table 6.5.2.3-1: General requirements for NRACLR

|  |  |
| --- | --- |
|  | Channel bandwidth / NRACLR / Measurement bandwidth |
| 50MHz | 100MHz | 200MHz | 400MHz |
| NRACLR for band n257, n258, n261 | 17 dB | 17 dB | 17 dB | 17 dB |
| NRACLR for band n259, n260, n262 | 16 dB | 16 dB | 16 dB | 16 dB |
| NR channel measurement bandwidth (MHz) | 47.58  | 95.16  | 190.20  | 380.28  |
| Adjacent channel centre frequency offset (MHz) | +50/-50 | +100/-100 | +200/-200 | +400/-400 |

<Next Change>

Table 6.5.3.1-1: Requirements

|  |  |
| --- | --- |
| NR Band | Spurious emission |
|  | Protected band/frequency range | Frequency range (MHz) | Maximum Level (dBm) | MBW (MHz) | NOTE |
| n257 | NR Band n260 | FDL\_low | - | FDL\_high | -2 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
|  | Frequency range | 23600 | - | 24000 | 1 | 200 | 3 |
| n258 | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| n259 | NR Band 257 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | NR Band 261 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 36000 | - | 37000 | 7 | 1000 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| n260 | NR Band 257 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | NR Band 261 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | NR Band 262 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| n261 | NR Band 260 | FDL\_low | - | FDL\_high | -2 | 100 |  |
|  | NR Band 262 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| n262 | NR Band 260 | FDL\_low | - | FDL\_high | -2 | 100 |  |
|  | NR Band 261 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| NOTE 1: FDL\_low and FDL\_high refer to each NR frequency band specified in Table 5.2-1NOTE 2: VoidNOTE 3: The protection of frequency range 23600-24000 MHz is meant for protection of satellite passive services. |

<Next Change>

Table 6.5A.2.3.1-1: General requirements for contiguous UL CA NRACLR

|  |  |
| --- | --- |
|  | CA bandwidth class / CA NRACLR / Measurement bandwidth |
|  | Any CA bandwidth class |
| CA NRACLR for band n257, n258, n261 | 17 dB |
| CA NRACLR for band n259, n260, n262 | 16 dB |
| NR channel measurement bandwidth1 | BWChannel\_CA – 2\*BWGB |
| Adjacent channel centre frequency offset (in MHz) | + BWChannel\_CA/- BWChannel\_CA |
| NOTE 1: BWGB is defined in clause 5.3A.2.  |

<Next Change>

Table 6.5A.3.1-1: Requirements for CA

|  |  |
| --- | --- |
| CA band | Spurious emission |
|  | Protected band / frequency range | Frequency range (MHz) | Maximum Level (dBm) | MBW (MHz) | NOTE |
| CA\_n257 | NR Band n260 | FDL\_low | - | FDL\_high | -2 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
|  | Frequency range | 23600 | - | 24000 | 1 | 200 | 2 |
| CA\_n258 | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| CA\_n259 | NR Band 257 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | NR Band 261 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 36000 | - | 37000 | 7 | 1000 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| CA\_n260CA\_n260(\*) | NR Band 257 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | NR Band 261 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | NR Band 262 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| CA\_n261 | NR Band 260 | FDL\_low | - | FDL\_high | -2 | 100 |  |
|  | NR Band 262 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| CA\_n262 | NR Band 260 | FDL\_low | - | FDL\_high | -2 | 100 |  |
|  | NR Band 261 | FDL\_low | - | FDL\_high | -5 | 100 |  |
|  | Frequency range | 57000 | - | 66000 | 2 | 100 |  |
| NOTE 1: FDL\_low and FDL\_high refer to each NR frequency band specified in Table 5.2-1NOTE 2: The protection of frequency range 23600-24000 MHz is meant for protection of satellite passive services. |

<Next Change>

Table 6.6.4.2-1: UE beam correspondence tolerance for power class 3

|  |  |
| --- | --- |
| Operating band | Max ∆EIRPBC at 85th %-tile ∆EIRPBC CDF (dB) |
| n257 | 3.0 |
| n258 | 3.0 |
| n259 | 3.2 |
| n260 | 3.2 |
| n261 | 3.0 |
| n262 | [3.2] |
| NOTE: The requirements in this table are verified only under normal temperature conditions as defined in Annex E.2.1 |

<Next Change>

Table 6.6.4.3.1-1: Conditions for SSB based L1-RSRP measurements for beam correspondence

|  |  |  |  |
| --- | --- | --- | --- |
| Angle of arrival | NR operating bands | Minimum SSB\_RP Note 2 | SSB Ês/Iot |
|  |  | dBm / SCSSSB | dB |
|  |  | SCSSSB = 120 kHz |  |
| All angles **Note 1** | n257 | -96.4 | ≥6 |
|  | n258 | -96.4 |  |
|  | n259 | -92.1 |  |
|  | n260 | -92.1 |  |
|  | n261 | -96.4 |  |
|  | n262 | [-88.7] |  |
| NOTE 1: For UEs that support multiple FR2 bands, the Minimum SSB\_RP values for all angles are increased by ΣMBS, the UE multi-band relaxation factor in dB specified in clause 6.2.1.NOTE 2: Values specified at the radiated requirements reference point to give minimum SSB Ês/Iot, with no applied noise. |

Table 6.6.4.3.1-2: Conditions for CSI-RS based L1-RSRP measurements for beam correspondence

|  |  |  |  |
| --- | --- | --- | --- |
| Angle of arrival | NR operating bands | Minimum CSI-RS\_RP Note 2 | CSI-RS Ês/Iot |
|  |  | dBm / SCSCSI-RS | dB |
|  |  | SCSCSI-RS = 120 kHz |  |
| All angles **Note 1** | n257 | -96.4 | ≥6 |
|  | n258 | -96.4 |  |
|  | n259 | -92.1 |  |
|  | n260 | -92.1 |  |
|  | n261 | -96.4 |  |
|  | n262 | [-88.7] |  |
| NOTE 1: For UEs that support multiple FR2 bands, the Minimum CSI-RS\_RP values are increased by ΣMBS, the UE multi-band relaxation factor in dB specified in clause 6.2.1.NOTE 2: Values specified at the radiated requirements reference point to give minimum CSI-RS Ês/Iot, with no applied noise. |

<Next Change>

Table 6.6.4.3.3-1: SSB signal conditions for CSI-RS based beam correspondence requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Angle of arrival | NR operating bands | Minimum SSB\_RP Note 2 | SSB Ês/Iot |
|  |  | dBm / SCSSSB | dB |
|  |  | SCSSSB = 120 kHz |  |
| All angles **Note 1** | n257 | -101,4 | ≥1 |
|  | n258 | -101,4 |  |
|  | n259 | -97,1 |  |
|  | n260 | -97,1 |  |
|  | n261 | -101,4 |  |
|  | n262 | [-93,7] |  |
| NOTE 1: For UEs that support multiple FR2 bands, the Minimum SSB\_RP values for all angles are increased by ΣMBS, the UE multi-band relaxation factor in dB specified in clause 6.2.1.NOTE 2: Values specified at the radiated requirements reference point to give minimum SSB Ês/Iot, with no applied noise. |

<Next Change>

Table 7.3.2.3-1: Reference sensitivity

|  |  |
| --- | --- |
| Operating band | REFSENS (dBm) / Channel bandwidth |
|  | 50 MHz | 100 MHz | 200 MHz | 400 MHz |
| n257 | -88.3 | -85.3 | -82.3 | -79.3 |
| n258 | -88.3 | -85.3 | -82.3 | -79.3 |
| n259 | -84.7 | -81.7 | -78.7 | -75.7 |
| n260 | -85.7 | -82.7 | -79.7 | -76.7 |
| n261 | -88.3 | -85.3 | -82.3 | -79.3 |
| n262 | -82.8 | -79.8 | -76.8 | -73.8 |
| NOTE 1: The transmitter shall be set to PUMAX as defined in clause 6.2.4 |

<Next Change>

Table 7.3.4.3-1: EIS spherical coverage for power class 3

|  |  |
| --- | --- |
| **Operating band** | **EIS at 50th %-tile CCDF (dBm) / Channel bandwidth** |
|  | **50 MHz** | **100 MHz** | **200 MHz** | **400 MHz** |
| n257 | -77.4 | -74.4 | -71.4 | -68.4 |
| n258 | -77.4 | -74.4 | -71.4 | -68.4 |
| n259 | -71.9 | -68.9 | -65.9 | -62.9 |
| n260 | -73.1 | -70.1 | -67.1 | -64.1 |
| n261 | -77.4 | -74.4 | -71.4 | -68.4 |
| n262 | -69.7 | -66.7 | -63.7 | -60.7 |
| NOTE 1: The transmitter shall be set to PUMAX as defined in clause 6.2.4NOTE 2: The EIS spherical coverage requirements are verified only under normal thermal conditions as defined in Annex E.2.1. |

<Next Change>

**Table 7.5-1: Adjacent channel selectivity**

|  |  |  |
| --- | --- | --- |
| Operating band | Units | Adjacent channel selectivity / Channel bandwidth |
|  |  | 50MHz  | 100MHz | 200MHz | 400MHz |
| n257, n258, n261 | dB | 23 | 23 | 23 | 23 |
| n259, n260, n262 | dB | 22 | 22 | 22 | 22 |

<Next Change>

**Table 7.5-2: Adjacent channel selectivity test parameters, Case 1**

|  |  |  |
| --- | --- | --- |
| Rx Parameter | Units  | Channel bandwidth |
|  |  | 50 MHz  | 100 MHz | 200 MHz | 400 MHz |
| Power in Transmission Bandwidth Configuration | dBm | REFSENS + 14 dB |
| PInterferer for band n257, n258, n261 | dBm | REFSENS + 35.5 dB | REFSENS +35.5 dB | REFSENS +35.5 dB | REFSENS +35.5 dB |
| PInterferer for band n259, n260, n262 | dBm | REFSENS + 34.5 dB | REFSENS +34.5 dB | REFSENS +34.5 dB | REFSENS +34.5 dB |
| BWInterferer  | MHz | 50 | 100 | 200 | 400 |
| FInterferer (offset) | MHz | 50/-50NOTE 3 | 100/-100NOTE 3 | 200/-200NOTE 3 | 400/-400NOTE 3 |
| NOTE 1: The interferer consists of the Reference measurement channel specified in Annex A.3.2 with one sided dynamic OCNG Pattern as described in Annex A.3.2 and set-up according to Annex C.NOTE 2: The REFSENS power level is specified in Clause 7.3.2, which are applicable to different UE power classes.NOTE 3: The absolute value of the interferer offset FInterferer (offset) shall be further adjusted to (CEIL(|FInterferer|/SCS) + 0.5)\*SCS MHz with SCS the sub-carrier spacing of the wanted signal in MHz. Wanted and interferer signal have same SCS.NOTE 4: The transmitter shall be set to 4 dB below the PUMAX,f,c as defined in clause 6.2.4, with uplink configuration specified in Table 7.3.2.1-2. |

**Table 7.5-3: Adjacent channel selectivity test parameters, Case 2**

|  |  |  |
| --- | --- | --- |
| Rx Parameter | Units  | Channel bandwidth |
|  |  | 50 MHz  | 100 MHz | 200 MHz | 400 MHz |
| Power in Transmission Bandwidth Configuration for band n257, n258, n261 | dBm | -46.5 | -46.5 | -46.5 | -46.5 |
| Power in Transmission Bandwidth Configuration for band n259, n260, n262 | dBm | -45.5 | -45.5 | -45.5 | -45.5 |
| PInterferer | dBm | -25 |
| BWInterferer  | MHz | 50 | 100 | 200 | 400 |
| FInterferer (offset) | MHz | 50/-50NOTE 2 | 100/-100NOTE 2 | 200/-200NOTE 2 | 400/-400NOTE 2 |
| NOTE 1: The interferer consists of the Reference measurement channel specified in Annex 3.2 with one sided dynamic OCNG Pattern TDD as described in Annex A and set-up according to Annex C.NOTE 2: The absolute value of the interferer offset FInterferer (offset) shall be further adjusted to (CEIL(|FInterferer|/SCS) + 0.5)\*SCS MHz with SCS the sub-carrier spacing of the wanted signal in MHz. Wanted and interferer signal have same SCS. NOTE 3: The transmitter shall be set to 4 dB below the PUMAX,f,c as defined in clause 6.2.4, with uplink configuration specified in Table 7.3.2.1-2. |

<Next Change>

**Table 7.5A.1-1: Adjacent channel selectivity for intra-band contiguous CA**

|  |  |  |
| --- | --- | --- |
| Operating band | Units | Adjacent channel selectivity / CA bandwidth class |
|  |  | All CA bandwidth class |
| n257, n258, n261 | dB | 23 |
| n259, n260, n262 | dB | 22 |

**Table 7.5A.1-2: Adjacent channel selectivity test parameters for intra-band contiguous CA, Case 1**

|  |  |  |
| --- | --- | --- |
| Rx Parameter | Units  | All CA bandwidth Classes |
| Pw in Transmission Bandwidth Configuration, per CC |  | REFSENS + 14 dB |
| PInterferer for band n257, n258, n261 | dBm | Aggregated power + 21.5 |
| PInterferer for band n259, n260, n262 | dBm | Aggregated power + 20.5 |
| BWInterferer | MHz | BWChannel\_CA |
| FInterferer (offset) | MHz | + BWchannel CA/- BWchannel CANOTE 3 |
|
|
| NOTE 1: The interferer consists of the Reference measurement channel specified in Annex 3.2 with one sided dynamic OCNG Pattern as described in Annex A and set-up according to Annex C.NOTE 2: The Finterferer (offset) is the frequency separation between the center of the aggregated CA bandwidth and the center frequency of the Interferer signalNOTE 3: The absolute value of the interferer offset FInterferer (offset) shall be further adjusted to (CEIL(|FInterferer|/SCS) + 0.5)\*SCS MHz with SCS the sub-carrier spacing of the carrier closest to the interferer in MHz. The interfering signal has the same SCS as that of the closest carrier.NOTE 4: The transmitter shall be set to 4 dB below the PUMAX,f,c as defined in clause 6.2.4, with uplink configuration specified in Table 7.3.2.1-2. |

**Table 7.5A.1-3: Adjacent channel selectivity test parameters for intra-band contiguous CA, Case 2**

|  |  |  |
| --- | --- | --- |
| Rx Parameter | Units  | All CA bandwidth classes |
| Pw in Transmission Bandwidth Configuration, aggregated power for band n257, n258, n261 | dBm | - 46.5 |
| Pw in Transmission Bandwidth Configuration, aggregated power for band n259, n260, n262 | dBm | - 45.5 |
| Pinterferer | dBm | - 25 |
| BWInterferer | MHz | BWChannel\_CA |
| FInterferer (offset) | MHz | + BWchannel CA/- BWchannel CANOTE 3 |
|
|
| NOTE 1: The interferer consists of the Reference measurement channel specified in Annex A.3.3.2 with one sided dynamic OCNG Pattern OP.1 TDD as described in Annex A.5.2.1 and set-up according to Annex C.NOTE 2: The Finterferer (offset) is the frequency separation between the center of the aggregated CA bandwidth and the center frequency of the Interferer signalNOTE 3: The absolute value of the interferer offset FInterferer (offset) shall be further adjusted to (CEIL(|FInterferer|/SCS) + 0.5)\*SCS MHz with SCS the sub-carrier spacing of the carrier closest to the interferer in MHz. The interfering signal has the same SCS as that of the closest carrier.NOTE 4: The transmitter shall be set to 4 dB below the PUMAX,f,c as defined in clause 6.2.4, with uplink configuration specified in Table 7.3.2.1-2. |

<Next Change>

Table 7.6.2-1: In band blocking requirements

|  |  |  |
| --- | --- | --- |
| Rx parameter | Units  | Channel bandwidth |
|  |  | 50 MHz  | 100 MHz | 200 MHz | 400 MHz |
| Power in Transmission Bandwidth Configuration | dBm | REFSENS + 14 dB |
| BWInterferer | MHz | 50 | 100 | 200 | 400 |
| PInterfererfor bands n257, n258, n261 | dBm | REFSENS + 35.5 dB | REFSENS + 35.5 dB | REFSENS + 35.5 dB | REFSENS + 35.5 dB |
| PInterfererfor band n259, n260, n262 | dBm | REFSENS + 34.5 dB | REFSENS + 34.5 dB | REFSENS + 34.5 dB | REFSENS + 34.5 dB |
| FIoffset | MHz | ≤ -100 & ≥ 100NOTE 5 | ≤ -200 & ≥ 200NOTE 5 | ≤ -400 & ≥ 400NOTE 5 | ≤ -800 & ≥ 800NOTE 5 |
| FInterferer | MHz | FDL\_low + 25to FDL\_high - 25 | FDL\_low + 50to FDL\_high - 50 | FDL\_low + 100to FDL\_high - 100 | FDL\_low + 200to FDL\_high - 200 |
| NOTE 1: The interferer consists of the Reference measurement channel specified in Annex A.3.3.2 with one sided dynamic OCNG Pattern OP.1. TDD as described in Annex A.5.2.1 and set-up according to Annex C.NOTE2: The REFSENS power level is specified in Clause 7.3.2, which are applicable according to different UE power classes.NOTE 3: The wanted signal consists of the reference measurement channel specified in Annex A.3.3.2 with one sided dynamic OCNG pattern OP.1 TDD as described in Annex A.5.2.1 and set-up according to Annex C.NOTE 4: FIoffset is the frequency separation between the center of the channel bandwidth and the center frequency of the Interferer signal.NOTE 5: The absolute value of the interferer offset FIoffset shall be further adjusted (CEIL(|FInterferer|/SCS) + 0.5)\*SCS MHz with SCS the sub-carrier spacing of the wanted signal in MHz. Wanted and interferer signal have same SCS.NOTE 6: FInterferer range values for unwanted modulated interfering signals are interferer center frequencies.NOTE 7: The transmitter shall be set to 4 dB below the PUMAX,f,c as defined in clause 6.2.4, with uplink configuration specified in Table 7.3.2.1-2. |

<Next Change>

**Table 7.6A.2.1-1: In band blocking minimum requirements for intra-band contiguous CA**

|  |  |  |
| --- | --- | --- |
| Rx Parameter | Units | All CA bandwidth classes |
| Power in Transmission Bandwidth Configuration, per CC |  | REFSENS + 14 dB |
| Pinterferer for band n257, n258, n261 | dBm | Aggregated power + 21.5 |
| Pinterferer for band n260, n262 | dBm | Aggregated power + 20.5 |
| BWInterferer  | MHz | BWChannel\_CA |
| FIoffset | MHz | +2\*BWChannel\_CA / -2\*BWChannel\_CANOTE 5 |
| FInterferer  | MHz | FDL\_low + 0.5\*BWChannel\_CAToFDL\_high - 0.5\*BWChannel\_CA |
|
|
| NOTE 1: The interferer consists of the Reference measurement channel specified in Annex A.3.3.2 with one sided dynamic OCNG Pattern OP.1 TDD as described in Annex A.5.2.1. and set-up according to Annex C.NOTE 2: The REFSENS power level is specified in Table 7.3.2-1.NOTE 3: The wanted signal consists of the reference measurement channel specified in Annex A.3.3.2 QPSK, R=1/3 with one sided dynamic OCNG pattern OP.1 TDD as described in Annex A.5.2.1 and set-up according to Annex C.NOTE 4: The FInterferer (offset) is the frequency separation between the center of the aggregated CA bandwidth and the center frequency of the Interferer signal.NOTE 5: The absolute value of the interferer offset FInterferer (offset) shall be further adjusted to (CEIL(|FInterferer|/SCS) + 0.5)\*SCS MHz with SCS the sub-carrier spacing of the carrier closest to the interferer in MHz. The interfering signal has the same SCS as that of the closest carrier.NOTE 6: FInterferer range values for unwanted modulated interfering signals are interferer center frequencies.NOTE 7: The transmitter shall be set to 4 dB below the PUMAX,f,c as defined in clause 6.2.4, with uplink configuration specified in Table 7.3.2.1-2. |

<End of Change>