**3GPP TSG-RAN4 Meeting #99-e *R4-2108337***

**Electronic Meeting, May 19-27, 2021**

|  |
| --- |
| *CR-Form-v12.1* |
| **CHANGE REQUEST** |
|  |
|  |  | **CR** | **DraftCR** | **rev** | **-** | **Current version:** |  |  |
|  |
| *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)*.* |
|  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network |  |

|  |
| --- |
|  |
| ***Title:***  | Draft CR on RRM performance requirements for PC1/2/4 for band n262 |
|  |  |
| ***Source to WG:*** | Ericsson |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | NR\_47GHz\_Band-Perf |  | ***Date:*** | 2021-05-24 |
|  |  |  |  |  |
| ***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:*** | To introduce RRM performance requirements for UE power classes 1, 2 and 4 supported for band n262 |
|  |  |
| ***Summary of change:*** | Minimum SSB\_RP and Minimum CSI-RS\_RP are specified at Rx Beam Peak AoA is specified for PC1/2/4 based on their REFSENS.Minimum SSB\_RP and Minimum CSI-RS\_RP are specified at Spherical coverage AoA is specified for PC1/2/4 based on EIS spherical coverage.Following is agreed in the RF session for PC2 and PC4 for 50 MHz channel BW (as captured in R4-2107638):*REFSENS** Agreement in RF
	+ PC1: -92.5 dBm
	+ PC2: -86.8dBm
	+ PC4: -91.0dBm

Gain drop from REFSENS to EIS spherical coverage is the same as EIRP:* Agreement in RF
	+ PC1: 8.2 dB
	+ PC2: 11.9 dB
	+ PC4: 12.1 dB
 |
|  |  |
| ***Consequences if not approved:*** | UE supporting band n262 may not fulfil RRM performance requirements for supported UE power classes 1, 2 and 4 |
|  |  |
| ***Clauses affected:*** | B.1.2, B.2.2, B.2.3, B.2.4.1, B.2.4.2, B.2.5 |
|  |  |
|  | **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----------------------------**

B.1.2 Conditions for measurements on NR intra-frequency cells for cell re-selection

This clause defines the following conditions for NR intra-frequency measurements performed based on SSBs for cell re-selection: SSB\_RP and SSB Ês/Iot, applicable for a corresponding operating band.

The conditions are defined in Table B.1.2-1 for FR1 NR cells.

The conditions are defined in Table B.1.2-2 for FR2 NR cells.

**Table B.1.2-1: Conditions for intra-frequency cell re-selection in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **NR operating band groups Note1** | **Minimum SSB\_RP** | **SSB Ês/Iot** |
| **dBm / SCSSSB** | **dB** |
| **SCSSSB = 15 kHz** | **SCSSSB = 30 kHz** |
| **Conditions** | NR\_FDD\_FR1\_A, NR\_TDD\_FR1\_A | -124 | -121 | ≥ -4 |
| NR\_FDD\_FR1\_B | -123.5 | -120.5 |
| NR\_TDD\_FR1\_C | -123 | -120 |
| NR\_FDD\_FR1\_D, NR\_TDD\_FR1\_D | -122.5 | -119.5 |
| NR\_FDD\_FR1\_E, NR\_TDD\_FR1\_E | -122 | -119 |
| NR\_FDD\_FR1\_F | -121.5 | -118.5 |
| NR\_FDD\_FR1\_G | -121 | -118 |
| NR\_FDD\_FR1\_H | -120.5 | -117.5 |
| NOTE 1: NR operating band groups are defined in clause 3.5.2. |

**Table B.1.2-2: Conditions for intra-frequency cell re-selection in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Angle of arrival** | **NR operating bands** | **Minimum SSB\_RP Note 2, Note 3** | **SSB Ês/Iot** |
|  |  |  | **dBm / SCSSSB** | **dB** |
|  |  |  | **SCSSSB = 120 kHz** | **SCSSSB = 240 kHz** |  |
|  |  |  | **UE Power class** | **UE Power class** |  |
|  |  |  | **1** | **2** | **3** | **4** | **5** | **1, 2, 3, 4, 5** |  |
| Conditions | Rx Beam Peak | n257 | -125.3+Y1 | -110.8 | -109.1 | -124.8+Y4 | -120.4+Y5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-4 |
|  |  | n258 | -125.3+Y1 | -110.8 | -109.1 | -124.8+Y4 | -120.6+Y5 |  |  |
|  |  | n260 | -122.3+Y1 |  | -106.5 | -122.8+Y4 |  |  |  |
|  |  | n261 | -125.3+Y1 | -110.8 | -109.1 | -124.8+Y4 |  |  |  |
| n262 | ~~TBD~~-120.3+Y1 | ~~TBD~~ -105.6 | -103.6 | ~~TBD~~-118.8+Y4 |  |
| Spherical coverage Note 1 | n257 | -117.3+Z1 | -99.8 | -98.2 | -115.8+Z4 | -112.4+Z5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-4 |
|  |  | n258 | -117.3+Z1 | -99.8 | -98.2 | -115.8+Z4 | -112.6+Z5 |  |  |
|  |  | n260 | -114.3+Z1 |  | -93.9 | -110.8+Z4 |  |  |  |
|  |  | n261 | -117.3+Z1 | -99.8 | -98.2 | -115.8+Z4 |  |  |  |
| n262 | ~~TBD~~ -112.1+Z1 | ~~TBD~~ -93.7 | -90.5 | ~~TBD~~ -106.7+Z4 |  |
| NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.NOTE 2: Values specified at the Reference point to give minimum SSB Ês/Iot, with no applied noise.NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ∆MBP,n and Spherical coverage values are increased by ∆MBS,n, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19]. |

*Editor’s notes for Table B.1.2-2:*

*- The value of Y for Power classes 1, 4 and 5 is FFS, where Y1, Y4 and Y5 are the rough/fine beam gain differences in Rx beam peak direction for Power classes 1, 4 and 5 respectively*

*- The value of Z for Power classes 1, 4 and 5 is FFS, where Z1, Z4 and Z5 are the rough/fine beam gain differences in spherical coverage directions for Power classes 1, 4 and 5 respectively*

**----------------------END CHANGE-2----------------------------**

**----------------------START OF CHANGE-3----------------------------**

B.2.2 Conditions for NR intra-frequency measurements

This clause defines the following conditions for NR intra-frequency measurements and corresponding procedures performed based on SSBs: SSB\_RP and SSB Ês/Iot, applicable for a corresponding operating band.

The conditions are defined in Table B.2.2-1 for FR1 NR cells.

The conditions are defined in Table B.2.2-2 for FR2 NR cells.

**Table B.2.2-1: Conditions for intra-frequency measurements in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **NR operating band groups Note1** | **Minimum SSB\_RP** | **SSB Ês/Iot** |
| **dBm / SCSSSB** | **dB** |
| **SCSSSB = 15 kHz** | **SCSSSB = 30 kHz** |
| **Conditions** | NR\_FDD\_FR1\_A, NR\_TDD\_FR1\_A, NR\_SDL\_FR1\_A | -127 | -124 | ≥ -6 |
| NR\_FDD\_FR1\_B | -126.5 | -123.5 |
| NR\_TDD\_FR1\_C | -126 | -123 |
| NR\_FDD\_FR1\_D, NR\_TDD\_FR1\_D | -125.5 | -122.5 |
| NR\_FDD\_FR1\_E, NR\_TDD\_FR1\_E | -125 | -122 |
| NR\_FDD\_FR1\_F | -124.5 | -121.5 |
| NR\_FDD\_FR1\_G | -124 | -121 |
| NR\_FDD\_FR1\_H | -123.5 | -120.5 |
| NOTE 1: NR operating band groups are defined in clause 3.5.2. |

**Table B.2.2-2: Conditions for intra-frequency measurements in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Angle of arrival** | **NR operating bands** | **Minimum SSB\_RP Note 2, Note 3** | **SSB Ês/Iot** |
|  |  |  | **dBm / SCSSSB** | **dB** |
|  |  |  | **SCSSSB = 120 kHz** | **SCSSSB = 240 kHz** |  |
|  |  |  | **UE Power class** | **UE Power class** |  |
|  |  |  | **1** | **2** | **3** | **4** | **5** | **1, 2, 3, 4, 5** |  |
| Conditions | Rx Beam Peak | n257 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 | -123.4+Y5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-6 |
|  |  | n258 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 | -123.6+Y5 |  |  |
|  | n260 | -125.3+Y1 |  | -109.5 | -125.8+Y4 |  |  |  |
| n261 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 |  |  |  |
| n262 | ~~TBD~~ -123.3+Y1 | ~~TBD~~ -108,6 | -106.6 | ~~TBD~~ -121.8+Y4 |  |
| Spherical coverage Note 1 | n257 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 | -115.4+Z5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-6 |
|  | n258 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 | -115.6+Z5 |  |  |
|  | n260 | -117.3+Z1 |  | -96.9 | -113.8+Z4 |  |  |  |
|  | n261 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 |  |  |  |
| n262 | ~~TBD~~ -115.1+Z1 | ~~TBD~~ -96.7 | -93.5 | ~~TBD~~ -109.7+Z4 |  |
| Note 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.Note 2: Values specified at the Reference point to give minimum SSB Ês/Iot, with no applied noise.Note 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ∆MBP,n and Spherical coverage values are increased by ∆MBS,n, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19]. |

*Editor’s notes for Table B.2.2-2:*

*- The value of Y for power classes 1, 4 and 5 is FFS, where Y1, Y4 and Y5 are the rough/fine beam gain differences in Rx beam peak direction for power classes 1, 4 and 5 respectively*

*- The value of Z for power classes 1, 4 and 5 is FFS, where Z1, Z4 and Z5 are the rough/fine beam gain differences in spherical coverage directions for power classes 1, 4 and 5 respectively*

B.2.3 Conditions for NR inter-frequency measurements

This clause defines the following conditions for NR inter-frequency measurements and corresponding procedures performed based on SSBs: SSB\_RP and SSB Ês/Iot, applicable for a corresponding operating band.

The conditions are defined in Table B.2.3-1 for FR1 NR cells.

The conditions are defined in Table B.2.3-2 for FR2 NR cells.

**T****able B.2.3-1: Conditions for inter-frequency measurements in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **NR operating band groups Note1** | **Minimum SSB\_RP** | **SSB Ês/Iot** |
|  |  | **dBm / SCSSSB** | **dB** |
|  |  | **SCSSSB = 15 kHz** | **SCSSSB = 30 kHz** |  |
| Conditions | NR\_FDD\_FR1\_A, NR\_TDD\_FR1\_A, NR\_SDL\_FR1\_A | -125 | -122 | ≥ -4 |
|  | NR\_FDD\_FR1\_B | -124.5 | -121.5 |  |
|  | NR\_TDD\_FR1\_C | -124 | -121 |  |
|  | NR\_FDD\_FR1\_D, NR\_TDD\_FR1\_D | -124.5 | -120.5 |  |
|  | NR\_FDD\_FR1\_E, NR\_TDD\_FR1\_E | -123 | -120 |  |
|  | NR\_FDD\_FR1\_F | -122.5 | -119.5 |  |
|  | NR\_FDD\_FR1\_G | -122 | -119 |  |
|  | NR\_FDD\_FR1\_H | -121.5 | -118.5 |  |
| NOTE 1: NR operating band groups are defined in clause 3.5.2. |

**Table B.2.3-2: Conditions for inter-frequency measurements in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Angle of arrival** | **NR operating bands** | **Minimum SSB\_RP Note 2, Note 3** | **SSB Ês/Iot** |
|  |  |  | **dBm / SCSSSB** | **dB** |
|  |  |  | **SCSSSB = 120 kHz** | **SCSSSB = 240 kHz** |  |
|  |  |  | **UE Power class** | **UE Power class** |  |
|  |  |  | **1** | **2** | **3** | **4** | **5** | **1, 2, 3, 4, 5** |  |
| Conditions | Rx Beam Peak | n257 | -126.3+Y1 | -111.8 | -110.1 | -125.8+Y4 | -121.4+Y5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-4 |
|  |  | n258 | -126.3+Y1 | -111.8 | -110.1 | -125.8+Y4 | -121.6+Y5 |  |  |
|  |  | n260 | -123.3+Y1 |  | -107.5 | -123.8+Y4 |  |  |  |
|  |  | n261 | -126.3+Y1 | -111.8 | -110.1 | -125.8+Y4 |  |  |  |
| n262 | ~~TBD~~ -121.3+Y1 | ~~TBD~~ -106.6 | -104.6 | ~~TBD~~ -119.8+Y4 |  |
|  | Spherical coverage Note 1 | n257 | -118.3+Z1 | -100.8 | -99.2 | -116.8+Z4 |  -113.4+Z5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-4 |
|  |  | n258 | -118.3+Z1 | -100.8 | -99.2 | -116.8+Z4 | -113.6+Z5 |  |  |
|  |  | n260 | -115.3+Z1 |  | -94.9 | -111.8+Z4 |  |  |  |
|  |  | n261 | -118.3+Z1 | -100.8 | -99.2 | -116.8+Z4 |  |  |  |
| n262 | ~~TBD~~ -113.1+Z1 | ~~TBD~~ -94.7 | -91.5 | ~~TBD~~ -107.7+Z4 |  |
| NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.NOTE 2: Values specified at the Reference point to give minimum SSB Ês/Iot, with no applied noise.NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ∆MBP,n and Spherical coverage values are increased by ∆MBS,n, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19]. |

*Editor’s notes for Table B.2.3-2:*

*- The value of Y for power classes 1, 4 and 5 is FFS, where Y1, Y4 and Y5 are the rough/fine beam gain differences in Rx beam peak direction for power classes 1, 4 and 5 respectively*

*- The value of Z for power classes 1, 4 and 5 is FFS, where Z1, Z4 and Z5 are the rough/fine beam gain differences in spherical coverage directions for power classes 1, 4 and 5 respectively*

B.2.4 Conditions for NR L1-RSRP reporting

B.2.4.1 Conditions for SSB based L1-RSRP reporting

This clause defines the following conditions for NR L1-RSRP measurement reporting and corresponding procedures performed based on SSBs: SSB\_RP and SSB Ês/Iot, applicable for a corresponding operating band.

The conditions are defined in Table B.2.4.1-1 for FR1 NR cells.

The conditions are defined in Table B.2.4.1-2 for FR2 NR cells.

**Table B.2.4.1-1: Conditions for SSB based L1-RSRP measurements in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **NR operating band groups Note1** | **Minimum SSB\_RP** | **SSB Ês/Iot** |
|  |  | **dBm / SCSSSB** | **dB** |
|  |  | **SCSSSB = 15 kHz** | **SCSSSB = 30 kHz** |  |
| Conditions | NR\_FDD\_FR1\_A, NR\_TDD\_FR1\_A, NR\_SDL\_FR1\_A | -124 | -121 | ≥ -3 |
|  | NR\_FDD\_FR1\_B | -123.5 | -120.5 |  |
|  | NR\_TDD\_FR1\_C | -123 | -120 |  |
|  | NR\_FDD\_FR1\_D, NR\_TDD\_FR1\_D | -122.5 | -119.5 |  |
|  | NR\_FDD\_FR1\_E, NR\_TDD\_FR1\_E | -122 | -119 |  |
|  | NR\_FDD\_FR1\_F | -121.5 | -118.5 |  |
|  | NR\_FDD\_FR1\_G | -121 | -118 |  |
|  | NR\_FDD\_FR1\_H | -120.5 | -117.5 |  |
| NOTE 1: NR operating band groups are defined in clause 3.5.2. |

**Table B.2.4.1-2: Conditions for SSB based L1-RSRP measurements in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Angle of arrival** | **NR operating bands** | **Minimum SSB\_RP Note 2, Note 3** | **SSB Ês/Iot** |
|  |  |  | **dBm / SCSSSB** | **dB** |
|  |  |  | **SCSSSB = 120 kHz** | **SCSSSB = 240 kHz** |  |
|  |  |  | **UE Power class** | **UE Power class** |  |
|  |  |  | **1** | **2** | **3** | **4** | **5** | **1, 2, 3, 4, 5** |  |
| Conditions | Rx Beam Peak | n257 | -125.3+Y1 | -110.8 | -109.1 | -124.8+Y4 | -120.4+Y5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-3 |
|  |  | n258 | -125.3+Y1 | -110.8 | -109.1 | -124.8+Y4 | -120.6+Y5 |  |  |
|  |  | n260 | -122.3+Y1 |  | -106.5 | -122.8+Y4 |  |  |  |
|  |  | n261 | -125.3+Y1 | -110.8 | -109.1 | -124.8+Y4 |  |  |  |
| n262 | ~~TBD~~ -120.3+Y1 | ~~TBD~~ -105.6 | -103.6 | ~~TBD~~ -118.8+Y4 |  |
|  | Spherical coverage Note 1 | n257 | -117.3+Z1 | -99.8 | -98.2 | -115.8+Z4 | -112.4+Z5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-3 |
|  | n258 | -117.3+Z1 | -99.8 | -98.2 | -115.8+Z4 | -112.6+Z5 |  |  |
|  | n260 | -114.3+Z1 |  | -93.9 | -110.8+Z4 |  |  |  |
|  |  | n261 | -117.3+Z1 | -99.8 | -98.2 | -115.8+Z4 |  |  |  |
| n262 | ~~TBD~~ -112.3+Z1 | ~~TBD~~ -93.7 | -90.5 | ~~TBD~~ -106.7+Z4 |  |
| NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.NOTE 2: Values specified at the Reference point to give minimum SSB Ês/Iot, with no applied noise.NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ∆MBP,n and Spherical coverage values are increased by ∆MBS,n, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19]. |

*Editor’s notes for Table B.2.4.1-2:*

*- The value of Y for power classes 1, 4 and 5 is FFS, where Y1, Y4 and Y5 are the rough/fine beam gain differences in Rx beam peak direction for power classes 1, 4 and 5 respectively*

*- The value of Z for power classes 1, and 4 and 5 is FFS, where Z1, Z4 and Z5 are the rough/fine beam gain differences in spherical coverage directions for power classes 1, 4 and 5 respectively*

B.2.4.2 Conditions for CSI-RS based L1-RSRP reporting

This clause defines the following conditions for NR L1-RSRP measurement reporting and corresponding procedures performed based on CSI-RS: CSI-RS\_RP and CSI-RS Ês/Iot, applicable for a corresponding operating band.

The conditions are defined in Table B.2.4.2-1 for FR1 NR cells.

The conditions are defined in Table B.2.4.2-2 for FR2 NR cells.

**Table B.2.4.2-1: Conditions for CSI-RS based L1-RSRP measurements in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **NR operating band groups Note1** | **Minimum CSI-RS\_RP** | **CSI-RS Ês/Iot** |
|  |  | **dBm / SCSCSI-RS** | **dB** |
|  |  | **SCSCSI-RS = 15 kHz** | **SCSCSI-RS = 30 kHz** | **SCSCSI-RS = 60 kHz** |  |
| Conditions | NR\_FDD\_FR1\_A, NR\_TDD\_FR1\_A, NR\_SDL\_FR1\_A | -124 | -121 | -118 | ≥ -3 |
|  | NR\_FDD\_FR1\_B | -123.5 | -120.5 | -117.5 |  |
|  | NR\_TDD\_FR1\_C | -123 | -120 | -117 |  |
|  | NR\_FDD\_FR1\_D, NR\_TDD\_FR1\_D | -122.5 | -119.5 | -116.5 |  |
|  | NR\_FDD\_FR1\_E, NR\_TDD\_FR1\_E | -122 | -119 | -116 |  |
|  | NR\_FDD\_FR1\_F | -121.5 | -118.5 | -115.5 |  |
|  | NR\_FDD\_FR1\_G | -121 | -118 | -115 |  |
|  | NR\_FDD\_FR1\_H | -120.5 | -117.5 | -114.5 |  |
| NOTE 1: NR operating band groups are defined in clause 3.5.2. |

**Table B.2.4.2-2: Conditions for CSI-RS based L1-RSRP measurements in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Angle of arrival** | **NR operating bands** | **Minimum CSI-RS\_RP Note 2, Note 3** | **CSI-RS Ês/Iot** |
|  |  |  | **dBm / SCSCSI-RS** | **dB** |
|  |  |  | **SCSCSI-RS = 60 kHz** | **SCSCSI-RS = 120 kHz** |  |
|  |  |  | **UE Power class** | **UE Power class** |  |
|  |  |  | **1** | **2** | **3** | **4** | **5** | **1, 2, 3, 4, 5** |  |
| Conditions | Rx Beam Peak | n257 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 | -123.4+Y5 | (Value for SCSCSI-RS = 60 kHz) +3dB | ≥-3 |
|  |  | n258 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 | -123.6+Y5 |  |  |
|  |  | n260 | -125.3+Y1 |  | -109.5 | -125.8+Y4 |  |  |  |
|  |  | n261 | -128.3+Y1 | -113.8 | -112.1 | -127.8+Y4 |  |  |  |
| n262 | ~~TBD~~ -123.3+Y1 | ~~TBD~~ -108.6 | -106.6 | ~~TBD~~ -121.8+Y4 |  |
|  | Spherical coverage Note 1 | n257 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 | -115.4+Z5 | (Value for SCSCSI-RS = 60 kHz) +3dB | ≥-3 |
|  | n258 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 | -115.6+Z5 |  |  |
|  |  | n260 | -117.3+Z1 |  | -96.9 | -113.8+Z4 |  |  |  |
|  |  | n261 | -120.3+Z1 | -102.8 | -101.2 | -118.8+Z4 |  |  |  |
| n262 | ~~TBD~~ -115.1+Z1 | ~~TBD~~ -96.7 | -93.5 | ~~TBD~~ -109.7+Z4 |  |
| NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.NOTE 2: Values specified at the Reference point to give minimum CSI-RS Ês/Iot, with no applied noise.NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ∆MBP,n and Spherical coverage values are increased by ∆MBS,n, the UE multi-band relaxation ~~factor~~ in dB specified in clause 6.2.1 of TS 38.101-2 [19]. |

*Editor’s notes for Table B.2.4.2-2:*

*- The value of Y for power classes 1, 4 and 5 is FFS, where Y1, Y4 and Y5 are the rough/fine beam gain differences in Rx beam peak direction for power classes 1, 4 and 5 respectively*

*- The value of Z for power classes 1, 4 and 5 is FFS, where Z1, Z4 and Z5 are the rough/fine beam gain differences in spherical coverage directions for power classes 1, 4 and 5 respectively*

B.2.5 Conditions for RRC connection release with redirection to NR

This clause defines the following conditions for RRC connection release with redirection to NR: SSB\_RP and SSB Ês/Iot, applicable for a corresponding operating band.

The conditions are defined in Table B.2.5-1 for FR1 NR cells.

The conditions are defined in Table B.2.5-2 for FR2 NR cells.

**Table B.2.5-1: Conditions for for RRC connection release with redirection to NR in FR1**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameter** | **NR operating band groups Note1** | **Minimum SSB\_RP** | **SSB Ês/Iot** |
|  |  | **dBm / SCSSSB** | **dB** |
|  |  | **SCSSSB = 15 kHz** | **SCSSSB = 30 kHz** |  |
| Conditions | NR\_FDD\_FR1\_A, NR\_TDD\_FR1\_A | -125 | -122 | ≥ -4 |
|  | NR\_FDD\_FR1\_B | -124.5 | -121.5 |  |
|  | NR\_TDD\_FR1\_C | -124 | -121 |  |
|  | NR\_FDD\_FR1\_D, NR\_TDD\_FR1\_D | -124.5 | -120.5 |  |
|  | NR\_FDD\_FR1\_E, NR\_TDD\_FR1\_E | -123 | -120 |  |
|  | NR\_FDD\_FR1\_F | -122.5 | -119.5 |  |
|  | NR\_FDD\_FR1\_G | -122 | -119 |  |
|  | NR\_FDD\_FR1\_H | -121.5 | -118.5 |  |
| NOTE 1: NR operating band groups are defined in clause 3.5.2. |

**Table B.2.5-2: Conditions for RRC connection release with redirection to NR in FR2**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parameter** | **Angle of arrival** | **NR operating bands** | **Minimum SSB\_RP Note 2, Note 3** | **SSB Ês/Iot** |
|  |  |  | **dBm / SCSSSB** | **dB** |
|  |  |  | **SCSSSB = 120 kHz** | **SCSSSB = 240 kHz** |  |
|  |  |  | **UE Power class** | **UE Power class** |  |
|  |  |  | **1** | **2** | **3** | **4** | **5** | **1, 2, 3, 4, 5** |  |
| Conditions | Rx Beam Peak | n257 | -126.3+Y1 | -111.8 | -110.1 | -125.8+Y4 | -121.4+Y5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-4 |
|  |  | n258 | -126.3+Y1 | -111.8 | -110.1 | -125.8+Y4 | -121.6+Y5 |  |  |
|  |  | n260 | -123.3+Y1 |  | -107.5 | -123.8+Y4 |  |  |  |
|  |  | n261 | -126.3+Y1 | -111.8 | -110.1 | -125.8+Y4 |  |  |  |
| n262 | ~~TBD~~ -121.3+Y1 | ~~TBD~~ -106.6 | -104.6 | ~~TBD~~ -119.8+Y4 |  |
|  | Spherical coverage Note 1 | n257 | -118.3+Z1 | -100.8 | -99.2 | -116.8+Z4 | -113.4+Z5 | (Value for SCSSSB = 120 kHz) +3dB | ≥-4 |
|  | n258 | -118.3+Z1 | -100.8 | -99.2 | -116.8+Z4 | -113.6+Z5 |  |  |
|  |  | n260 | -115.3+Z1 |  | -94.9 | -111.8+Z4 |  |  |  |
|  |  | n261 | -114.3+Z1 | -100.8 | -99.2 | -116.8+Z4 |  |  |  |
| n262 | ~~TBD~~ -113.1+Z1 | ~~TBD~~ -94.7 | -91.5 | ~~TBD~~ -107.7+Z4 |  |
| NOTE 1: Values based on EIS spherical coverage as defined in clause 7.3.4 of TS 38.101-2 [19]. Side condition applies for directions in which EIS spherical coverage requirement is met.NOTE 2: Values specified at the Reference point to give minimum SSB Ês/Iot, with no applied noise.NOTE 3: For UEs that support multiple FR2 bands, Rx Beam Peak values are increased by ∆MBP,n and Spherical coverage values are increased by ∆MBS,n, the UE multi-band relaxation factor in dB specified in clause 6.2.1 of TS 38.101-2 [19]. |

*Editor’s notes for Table B.2.5.2-2:*

*- The value of Y for power classes 1, 4 and 5 is FFS, where Y1, Y4 and Y5 are the rough/fine beam gain differences in Rx beam peak direction for power classes 1, 4 and 5 respectively*

*- The value of Z for power classes 1, 4 and 5 is FFS, where Z1, Z4 and Z5 are the rough/fine beam gain differences in spherical coverage directions for power classes 1, 4 and 5 respectively*

**----------------------END OF CHANGE----------------------------**