**3GPP TSG-RAN WG4 Meeting # 103-e R4-2210698**

**Electronic Meeting, May 09 – May 20, 2022**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | 38.141-2 | **CR** | Draft CR | **rev** | 1 | **Current version:** | 17.5.0 |  |
|  |
| *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 |  | Radio Access Network | **X** | Core Network |  |

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| --- |
|  |
| ***Title:***  | Draft CR for TS 38.141-2 R17: correction of BS type 1-O co-existence table |
|  |  |
| ***Source to WG:*** | CATT |
| ***Source to TSG:*** | R4 |
|  |  |
| ***Work item code:*** | TEI17 |  | ***Date:*** | 2022-4-14 |
|  |  |  |  |  |
| ***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 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-16 (Release 16)Rel-17 (Release 17)Rel-18 (Release 18)Rel-19 (Release 19)* |
|  |  |
| ***Reason for change:*** | There’re the following mistakes in the latest version.1. NR system is missing in the declarations of co-existence and co-location.2. Some bands are missing in the type 1-O co-existence table.3. The co-existence requirement with E-UTRA band 85 and n85 is not correct. |
|  |  |
| ***Summary of change:*** | The following changes are made,1. Add NR in the declarations of co-existence and co-location.
2. Add the missing bands in the co-existence table.
3. Correct the co-existence requirement with E-UTRA band 85 and n85.
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| ***Consequences if not approved:*** | Mistakes exit in spec. |
|  |  |
| ***Clauses affected:*** | 4.6, 6.7.5.4.5.1 |
|  |  |
|  | **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:*** | This is the revision of R4-2208129. |

*<Start of the changes>*

## 4.6 Manufacturer's declarations

The following BS manufacturer's declarations listed in table 4.6-1, when applicable to the BS under test, are required to be provided by the manufacturer for radiated requirements testing for *BS type 1-H,* *BS type 1-O* and *BS type 2-O*.

For the *BS type 1-H* declarations required for the conducted requirements testing, refer to TS 38.141-1 [3], clause 4.6.

Table 4.6-1 Manufacturers declarations for *BS type 1-H, BS type 1-O* and *BS type 2-O* radiated test requirements

| Declaration identifier | Declaration | Description | Applicability(Note 1) |
| --- | --- | --- | --- |
|  |  |  | BS type 1-H(Note 2) | BS type 1-O | BS type 2-O |
| D.1 | Coordinate system reference point | Location of coordinated system reference point in reference to an identifiable physical feature of the BS enclosure. | x | x | x |
| D.2 | Coordinate system orientation | Orientation of the coordinate system in reference to an identifiable physical feature of the BS enclosure. | x | x | x |
| D.3 | Beam identifier | A unique title to identify a beam, e.g. a, b, c or 1, 2, 3. The vendor may declare any number of beams with unique identifiers. The minimum set to declare for conformance, corresponds to the beams at the reference beam direction with the highest intended EIRP, and covering the properties listed below:1) A beam with the narrowest intended BeWθ and narrowest intended BeWϕ possible when narrowest intended BeWθ is used.2) A beam with the narrowest intended BeWϕ and narrowest intended BeWθ possible when narrowest intended BeWϕ is used.3) A beam with the widest intended BeWθ and widest intended BeWϕ possible when widest intended BeWθ is used.4) A beam with the widest intended BeWϕ and widest intended BeWθ possible when widest intended BeWϕ is used.5) A beam which provides the highest intended EIRP of all possible beams.When selecting the above five beam widths for declaration, all beams that the BS is intended to produce shall be considered, including beams that during operation may be identified by any kind of cell or UE specific reference signals, with the exception of any type of beam that is created from a group of transmitters that are not all phase synchronised.(Note 3) | x | x | x |
| D.4 | *Operating bands* and frequency ranges | List of NR *operating band(s)* supported by the BS and if applicable, frequency range(s) within the *operating band(s)* that the BS can operate in. Supported bands declared for every beam (D.3).(Note 4) | c | x | x |
| D.5 | BS requirements set | Declaration of one of the NR base station *requirement*'*s set* as defined for *BS type 1-H*, *BS type 1-O*, *or BS type 2-O*. | c | x | x |
| D.6 | BS class | Declared as Wide Area BS, Medium Range BS, or Local Area BS. | c | x | x |
| D.7 | BS channel band width and SCS support | BS supported SCS and channel bandwidth per supported SCS. Declared for each beam (D.3) and each *operating band* (D.4). | c | x | x |
| D.8 | *OTA peak directions set* reference beam direction pair | The beam direction pair, describing the reference beam peak direction and the reference beam centre direction. Declared for every beam (D.3). | x | x | x |
| D.9 | OTA peak directions set | The OTA peak directions set for each beam. Declared for every beam (D.3). | x | x | x |
| D.10 | *OTA peak directions set* maximum steering direction(s) | The *beam direction pair(s)* corresponding to the following points:1) The beam peak direction corresponding to the maximum steering from the reference beam centre direction in the positive Φ direction, while the θ value being the closest possible to the reference beam centre direction.2) The beam peak direction corresponding to the maximum steering from the reference beam centre direction in the negative *Φ* direction, while the *θ value being the closest possible to the* reference beam centre direction*.*3) The beam peak direction corresponding to the maximum steering from the reference beam centre direction in the positive *θ* direction, while the *Φ value being the closest possible to the* reference beam centre direction.4) The beam peak direction corresponding to the maximum steering from the reference beam centre direction in the negative *θ* direction, while the *Φ value being the closest possible to the* reference beam centre direction*.*The maximum steering direction(s) may coincide with *the reference beam centre direction*.Declared for every beam (D.3). | x | x | x |
| D.11 | Rated beam EIRP | The rated EIRP level per carrier (Prated,c,EIRP) at the *beam peak direction* associated with a particular *beam direction pair* for each of the declared maximum steering directions (D.10), as well as the reference *beam direction pair* (D.8). Declared for every beam (D.3).(Note 12, 14, 18) | x | x | x |
| D.12 | Beamwidth | The *beamwidth* for the reference *beam direction pair* and the four maximum steering directions. Declared for every beam (D.3). | x | x | x |
| D.13 | Equivalent beams | List of beams which are declared to be equivalent.Equivalent beams imply that the beams are expected to have identical *OTA peak directions sets* and intended to have identical spatial properties at all steering directions within the *OTA peak directions set* when presented with identical signals. All declarations (D.4 – D.12) made for the beams are identical and the transmitter unit*,* RDN and antenna array responsible for generating the beam are of identical design. | x | x | x |
| D.14 | Parallel beams | List of beams which have been declared equivalent (D.13) and can be generated in parallel using independent RF power resources.Independent power resources mean that the beams are transmitted from mutually exclusive transmitter units. | x | x | x |
| D.15 | Number of carriers at maximum TRP | The number of carriers per operating band the BS is capable of generating at maximum TRP declared for every beam (D.3). | n/a | x | x |
| D.16 | Operating bands with multi-band dependencies | List of *operating bands* which are generated using transceiver units supporting operation in multiple *operating bands* through common active RF components. Declared for each *operating band* for which multi-band transceiver is used. | c | x | n/a |
| D.17 | Maximum radiated Base Station RF Bandwidth | Maximum *Base Station RF Bandwidth* in the *operating band*, declared for each supported operating band (D.4).(Note 15) | c | x | x |
| D.18 | Maximum *Radio Bandwidth* of the *operating band* with multi-band dependencies | Largest *Radio Bandwidth* that can be supported by the *operating bands* with multi-band dependencies.Declared for each supported *operating band* which has multi-band dependencies (D.16). | c | x | n/a |
| D.19 | Total RF bandwidth (BWtot) | Total RF bandwidth BWtot of transmitter and receiver, declared per the band combinations (D.52).  | c | x | x |
| D.20 | CA-only operation | Declared of CA-only (with equal power spectral density among carriers) but not multiple carriers operation, declared per *operating band* (D.4) and per beam (D.3). | c | x | x |
| D.21 | Maximum number of supported carriers per *operating band* in multi-band operations  | Maximum number of supported carriers per supported *operating band* declared to have multi-band dependencies (D.16). | c | x | n/a |
| D.22 | Contiguous or non-contiguous spectrum operation support | Ability of BS to support contiguous or non-contiguous (or both) frequency distribution of carriers when operating multi-carrier in an operating band. | c | x | x |
| D.23 | OSDD identifier | A unique identifier for the OSDD. | x | x | n/a |
| D.24 | OSDD operating band support | Operating band supported by the OSDD, declared for every OSDD (D.23).(Note 5) | x | x | n/a |
| D.25 | OTA sensitivity supported BS channel bandwidth and SCS | The *BS* supported SCS and channel bandwidth per supported SCS by each OSDD. | x | x | n/a |
| D.26 | Redirection of receiver target support | Ability to redirect the receiver target related to the OSDD. | x | x | n/a |
| D.27 | Minimum EIS for FR1 (EISminSENS) | The minimum EISminSENS requirement (i.e. maximum allowable EIS value) applicable to all sensitivity RoAoA per OSDD.Declared per NR supported channel BW for the OSDD (D.30).The lowest EIS value for all the declared OSDD's is called minSENS, while its related range of angles of arrival is called *minSENS RoAoA*.(Note 6) | x | x | n/a |
| D.28 | EIS REFSENS for FR2 (EISREFSENS\_50M) | The EISREFSENS\_50M level applicable in the OTA REFSENS RoAoA, (used as a basis for the derivation of the FR2 EISREFSENS for other channel bandwidths supported by BS).(Note 7) | n/a | n/a | x |
| D.29 | Receiver target reference direction Sensitivity Range of Angle of Arrival | The sensitivity RoAoA associated with the receiver target reference direction (D.31) for each OSDD. | x | x | n/a |
| D.30 | Receiver target redirection range | For each OSDD the associated union of all the sensitivity RoAoA achievable through redirecting the receiver target related to the OSDD.(Note 8) | x | x | n/a |
| D.31 | Receiver target reference direction | For each OSDD an associated direction inside the receiver target redirection range (D.30).(Note 9) | x | x | n/a |
| D.32 | Conformance test directions sensitivity RoAoA | For each OSDD that includes a receiver target redirection range, four sensitivity RoAoA comprising the conformance test directions (D.33). | x | x | n/a |
| D.33 | Conformance test directions | For each OSDD four conformance test directions.If the OSDD includes a receiver target redirection range the following four directions shall be declared:1) The direction determined by the maximum φ value achievable inside the receiver target redirection range, while θ value being the closest possible to the receiver target reference direction.2) The direction determined by the minimum φ value achievable inside the receiver target redirection range, while θ value being the closest possible to the receiver target reference direction.3) The direction determined by the maximum θ value achievable inside the receiver target redirection range, while φ value being the closest possible to the receiver target reference direction.4) The direction determined by the minimum θ value achievable inside the receiver target redirection range, while φ value being the closest possible to the receiver target reference direction.If an OSDD does not include a receiver target redirection range the following 4 directions shall be declared:1) The direction determined by the maximum φ value achievable inside the sensitivity RoAoA, while θ value being the closest possible to the receiver target reference direction.2) The direction determined by the minimum φ value achievable inside the sensitivity RoAoA, while θ value being the closest possible to the receiver target reference direction.3) The direction determined by the maximum θ value achievable inside the sensitivity RoAoA, while φ value being the closest possible to the receiver target reference direction.4) The direction determined by the minimum θ value achievable inside the sensitivity RoAoA, while φ value being the closest possible to the receiver target reference direction. | x | x | n/a |
| D.34 | OTA coverage range | Declared as a single range of directions within which selected TX OTA requirements are intended to be met.(Note 10) | x | x | x |
| D.35 | *OTA coverage range* reference direction | The direction describing the reference direction of the *OTA converge range* (D.34).(Note 11) | x | x | x |
| D.36 | OTA coverage range maximum directions | The directions corresponding to the following points:1) The direction determined by the maximum φ value achievable inside the *OTA coverage range*, while θ value being the closest possible to the *OTA coverage range* reference direction.2) The direction determined by the minimum φ value achievable inside the *OTA coverage range*, while θ value being the closest possible to the *OTA coverage range* reference direction.3) The direction determined by the maximum θ value achievable inside the *OTA coverage range*, while φ value being the closest possible to the *OTA coverage range* reference direction.4) The direction determined by the minimum θ value achievable inside the OTA coverage range, while φ value being the closest possible to the OTA coverage range reference direction. | x | x | x |
| D.37 | The rated carrier OTA BS power, Prated,c,TRP | Prated,c,TRP is declared as TRP OTA power per carrier, declared per supported operating band.(Note 12, 14, 18) | n/a | x | x |
| D.38 | Rated transmitter TRP, Prated,t,TRP | Rated total radiated output power*.*Declared per supported *operating band*.(Note 12,14, 18) | n/a | x | x |
| D.39 | CLTA placement for co-location test | The manufacturer shall declare the side of EUT where radiating elements are placed closest to the edge of EUT when applicable. The CLTA shall be placed at the EUT side where radiating elements are placed closest. | n/a | x | n/a |
| D.40 | Spurious emission category | Declare the BS spurious emission category as either category A or B with respect to the limits for spurious emissions, as defined in Recommendation ITU-R SM.329 [5]. | c | x | x |
| D.41 | Additional operating band unwanted emissions | The manufacturer shall declare whether the BS under test is intended to operate in geographic areas where the additional operating band unwanted emission limits defined in clause 6.7.4 apply.(Note 16, Note 19) | c | x | x |
| D.42 | Co-existence with other systems | The manufacturer shall declare whether the BS under test is intended to operate in geographic areas where one or more of the systems GSM850, GSM900, DCS1800, PCS1900, UTRA FDD, UTRA TDD, E-UTRA, PHS and/or NR operating in another operating band are deployed. | c | x | x |
| D.43 | Co-location with other base stations | The manufacturer shall declare whether the BS under test is intended to operate co-located with Base Stations of one or more of the systems GSM850, GSM900, DCS1800, PCS1900, UTRA FDD, UTRA TDD, E-UTRA and/or NR operating in another operating band. | c | x | n/a |
| D.44 | Single-band RIB or multi-band RIB | List of single-band RIB and/or multi-band RIB for the supported operating bands (D.4).  | c | x | n/a |
| D.45 | Single or multiple carrier | BS capability to operate with a single carrier (only) or multiple carriers. Declared per supported operating band, per RIB. (Note 17) | c | x | x |
| D.46 | Maximum number of supported carriers per *operating band* | Maximum number of supported carriers. Declared per supported operating band, per RIB.(Note 15) | c | x | x |
| D.47 | Total maximum number of supported carriers | Maximum number of supported carriers for all supported operating bands. Declared per RIB. | c | x | x |
| D.48 | Other band combination multi-band restrictions | Declare any other limitation under simultaneous operation in the declared band combinations (D.16), which have any impact on the test configuration generation. | c | x | n/a |
| D.49 | Ncells | Number corresponding to the minimum number of cells that can be transmitted by a BS in a particular *operating band*. Declared per *operating band* (D.4). | c | n/a | n/a |
| D.50 | Maximum supported power difference between carriers | Maximum supported power difference between carriers in each supported *operating band*. Declared per *operating band* (D.4). | c | x | x |
| D.51 | Maximum supported power difference between carriers is different *operating bands* | Maximum supported power difference between any two carriers in any two different supported *operating bands*. Declared per operating bands combination (D.52). | c | x | n/a |
| D.52 | Operating band combination support | List of *operating bands* combinations supported by *single-band RIB(s)* and/or *multi-band RIB(s)* of the BS.  | c | x | n/a |
| D.53 | OTA REFSENS RoAoA | Range of angles of arrival associated with the OTA REFSENS.  | n/a | x | x |
| D.54 | OTA REFSENS receiver target reference direction | Reference direction inside the OTA REFSENS RoAoA (D.53). | n/a | x | x |
| D.55 | OTA REFSENS conformance test directions | The following four OTA REFSENS conformance test directions shall be declared:1) The direction determined by the maximum φ value achievable inside the OTA REFSENS RoAoA, while θ value being the closest possible to the OTA REFSENS receiver target reference direction.2) The direction determined by the minimum φ value achievable inside the OTA REFSENS RoAoA, while θ value being the closest possible to the OTA REFSENS receiver target reference direction.3) The direction determined by the maximum θ value achievable inside the OTA REFSENS RoAoA, while φ value being the closest possible to the OTA REFSENS receiver target reference direction.4) The direction determined by the minimum θ value achievable inside the OTA REFSENS RoAoA, while φ value being the closest possible to the OTA REFSENS receiver target reference direction. | n/a | x | x |
| D.56 | Supported frequency range of the NR *operating band* | List of supported frequency ranges representing *fractional bandwidths* (FBW) of *operating bands* with FBW larger than 6%. | x | x | x |
| D.57 | Rated beam EIRP at lower end of the *fractional bandwidth* (Prated,c,FBWlow) | The rated EIRP level per carrier at lower frequency range of the *fractional bandwidth* (Prated,c,FBWlow), at the *beam peak direction* associated with a particular *beam direction pair* for each of the declared maximum steering directions (D.10), as well as the reference *beam direction pair* (D.8).Declared per beam for all supported frequency ranges (D.56).(Note 12, 13, 14, 15, 18) | x | x | x |
| D.58 | Rated beam EIRP at higher frequency range of the *fractional bandwidth* (Prated,c,FBWhigh) | The rated EIRP level per carrier at higher frequency range of the *fractional bandwidth* (Prated,c,FBWhigh), at the *beam peak direction* associated with a particular *beam direction pair* for each of the declared maximum steering directions (D.10), as well as the reference *beam direction pair* (D.8).Declared per beam for all supported frequency ranges in (D.56).(Note 12, 13, 14 ,15, 18) | x | x | x |
| D.59 | Relation between supported maximum RF bandwidth, number of carriers and Rated maximum TRP  | If the rated transmitter TRP and total number of supported carriers are not simultaneously supported, the manufacturer shall declare the following additional parameters:- The reduced number of supported carriers at the rated transmitter TRP;- The reduced total output power at the maximum number of supported carriers. | n/a | x | x |
| D.60 | Inter-band CA  | Declaration of operating band(s) combinations supporting inter‑band CA. Declared per operating band combination (D.52).  | c | x | x |
| D.61 | Intra-band contiguous CA  | Declaration of operating band(s) supporting intra-band contiguous CA. Declared per *operating band* with CA support. | c | x | x |
| D.62 | Intra-band non-contiguous CA  | Declaration of operating band(s) supporting intra-band non‑contiguous CA. Declared per operating band with CA support.  | c | x | x |
| D.63 | Total maximum number of supported carriers in multi-band operation | Maximum number of supported carriers for all supported *operating bands* declared to have multi-band dependencies (D.16)*.*  | c | x | n/a |
| D.100 | PUSCH mapping type | Declaration of the supported PUSCH mapping type for FR1 as specified in TS 38.211 [20], i.e., type A, type B or both. | c | x | n/a |
| D.101 | PUSCH additional DM-RS positions | Declaration of the supported additional DM-RS position(s) for FR2, i.e., pos0, pos1, or both. | n/a | n/a | x |
| D.102 | PUCCH format | Declaration of the supported PUCCH format(s) as specified in TS 38.211 [20], i.e., format 0, format 1, format 2, format 3, format 4. | c | x | x |
| D.103 | PRACH format and SCS | Declaration of the supported PRACH format(s) as specified in TS 38.211 [20], i.e., format: 0, A1, A2, A3, B4, C0, C2.Declaration of the supported SCS(s) per supported PRACH format with short sequence, as specified in TS 38.211 [20], i.e.: - For *BS type 1-O*: 15 kHz, 30 kHz or both.- For *BS type 2-O*: 60 kHz, 120 kHz or both. | c | x | x |
| D.104 | Additional DM-RS for PUCCH format 3 | Declaration of the supported additional DM-RS for PUCCH format 3: without additional DM-RS, with additional DM-RS or both. | c | x | x |
| D.105 | Additional DM-RS for PUCCH format 4 | Declaration of the supported additional DM-RS for PUCCH format 4: without additional DM-RS, with additional DM-RS or both. | c | x | x |
| D.106 | PUSCH PT-RS  | Declaration of PT-RS in PUSCH support: without PT-RS, with PT-RS or both. | n/a | n/a | x |
| D.107 | PUCCH multi-slot  | Declaration of multi-slot PUCCH support. | c | x | n/a |
| D.108 | UL CA | For the highest supported SCS, declaration of the carrier combination with the largest aggregated bandwidth. If there is more than one combination, the carrier combination with the largest number of carriers shall be declared. | c | x | x |
| D.109 | High speed train | Declaration of high speed train scenario support, i.e. HST support or no HST support | c | x | n/a |
| D.110 | Maximum speed of high speed train for PUSCH | Declaration of supported maximum speed for high speed train scenario, i.e. 350 km/h or 500 km/h. This declaration is applicable to PUSCH for high speed train and UL timing adjustment only if BS declares to support high speed train in D.109. | c | x | n/a |
| D.111 | PRACH format for high speed train | Declaration of supported PRACH format(s) for high speed train scenario, i.e. format 0 restricted set type A, format 0 restricted set type B, format A2, format B4, format C2.This declaration is applicable to PRACH for high speed train only if BS declares to support high speed train in D.109. | c | x | n/a |
| D.112 | Interlaced formats | Declaration of support of interlaced PUSCH and PUCCH formats, i.e. interlaced format support or no interlaced format support.  | c | x | n/a |
| D.113 | PRACH format with LRA = 1151 for 15 kHz SCS and LRA = 571 for 30 kHz SCS | Declaration of the supported PRACH format(s) as specified in TS 38.211 [17], i.e., format: A2, B4, C2. Declaration of the supported SCS(s) per supported PRACH format as specified in TS 38.211 [17], i.e., 15 kHz, 30 kHz or both. | c | x | n/a |
| D.114 | CG-UCI | Declaration of support of GC-UCI multiplexed on PUSCH as specified in TS 38.211 [17].  | c | x | n/a |
| D.115 | 2-step RA | Declaration of support of 2-step RA type.  | c | x | x |
| D.116 | PUSCH 256QAM | Declaration of PUSCH 256QAM support | c | x | n/a |
| NOTE 1: Manufacturer declarations applicable per BS *requirement set* were marked as "x". Manufacturer declarations not applicable per BS *requirement set* were marked as "n/a".NOTE 2: For *BS type 1-H*, the only radiated declarations are related to EIRP and EIS requirements. For *BS type 1-H* declarations required for the conducted requirements testing, refer to TS 38.141-1 [3]. For declarations marked as 'c', related conducted declarations in TS 38.141-1 [3] apply. When separately declared, they shall still use the same declaration identifier.NOTE 3: Depending on the capability of the system some of these beams may be the same. For those same beams, testing is not repeated.NOTE 4: These *operating bands* are related to their respective single‑band RIBs.NOTE 5: As each identified OSDD has a declared minimum EIS value (D.27), multiple operating band can only be declared if they have the same minimum EIS declaration.NOTE 6: If the *BS type 1-H* or *BS type 1-O* is not capable of redirecting the receiver target related to the OSDD then there is only one RoAoA applicable to the OSDD.NOTE 7: Although EISREFSENS\_50M level is based on a reference measurement channel with BWChannel = 50 MHz, it does not imply that BS has to support 50 MHz channel bandwidth.NOTE 8: Not applicable for *BS type 2-O*.NOTE 9: For an OSDD without receiver target redirection range, this is a direction inside the sensitivity RoAoA.NOTE 10: *OTA coverage range* is used for conformance testing of such TX OTA requirements as occupied bandwidth, frequency error, TAE or EVM.NOTE 11: The *OTA coverage reference* direction may be the same as the Reference beam direction pair (D.8) but does not have to be.NOTE 12: If a *BS type 2-O* is capable of 64QAM DL operation but not capable of 256QAM DL operation, then up to two rated output power declarations may be made. One declaration is applicable when configured for 64QAM transmissions and the other declaration is applicable when not configured for 64QAM transmissions.NOTE 13: If D.57 and D.58 are declared for certain frequency range (D.56), there shall be no "Rated beam EIRP" declaration (D.11) for the *operating band* containing that particular frequency range.NOTE 14: If a *BS type 1-H* or *BS type 1-O* is capable of 256QAM DL operation then two rated output power declarations may be made. One declaration is applicable when configured for 256QAM transmissions and the other declaration is applicable when not configured for 256QAM transmissions.NOTE 15: Parameters for contiguous or non-contiguous spectrum operation in the operating band are assumed to be the same unless they are separately declared.NOTE 16: If BS is declared to support Band n20 (D.4), the manufacturer shall declare if the BS may operate in geographical areas allocated to broadcasting (DTT). Additionally, related declarations of the emission levels and maximum output power shall be declared. NOTE 17: In case of BS type 1-H, this declaration applies per *TAB connector*. NOTE 18: If a *BS type 2-O* is capable of 256QAM DL operation, then up to three rated output power declarations may be made. One declaration is applicable when configured for 256QAM transmissions, a different declaration is applicable when configured for 64QAM transmissions and the other declaration is applicable when not configured neither for 256QAM nor 64QAM transmissions.NOTE 19: If BS is declared to support Band n24 (D.4), the manufacturer shall declare if the BS may operate in geographical areas where FCC regulations apply. Additionally, related declarations of the emission levels and maximum output power shall be declared. |

*<Next change>*

6.7.5.4.5.1 Test requirement for *BS type 1-O*

The power of any spurious emission shall not exceed the test limits in table 6.7.5.4.5-1 for a BS where requirements for co-existence with the system listed in the first column apply. For a *multi-band RIB*, the exclusions and conditions in the Note column of table 6.7.5.4.5-1 apply for each supported *operating band*.

Table 6.7.5.4.5-1: BS spurious emissions test limits for BS for co-existence with systems operating in other frequency bands

| System type for NR to co-exist with | Frequency range for co-existence requirement | Test limit | Measurement bandwidth | Notes |
| --- | --- | --- | --- | --- |
| GSM900 | 921 – 960 MHz | -45.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n8. |
|  | 876 – 915 MHz | -49.4 dBm | 100 kHz | For the frequency range 880-915 MHz, this requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| DCS1800 | 1805 – 1880 MHz | -35.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n3.  |
|  | 1710 – 1785 MHz | -49.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3. |
| PCS1900 | 1930 – 1990 MHz | -35.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n2, n25 or band n70.  |
|  | 1850 – 1910 MHz | -49.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n2 or n25 since it is already covered by the requirement in clause 6.7.5.3.  |
| GSM850 or CDMA850 | 869 – 894 MHz | -45.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n5 or n26.  |
|  | 824 – 849 MHz | -49.4 dBm | 100 kHz | This requirement does not apply to BS operating in band n5 or n26, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band I or | 2110 – 2170 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1 or n65. |
| E-UTRA Band 1 or NR Band n1 | 1920 – 1980 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1 or n65, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band II or | 1930 – 1990 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2 or n70.  |
| E-UTRA Band 2 or NR Band n2 | 1850 – 1910 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band III or | 1805 – 1880 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3. |
| E-UTRA Band 3 or NR Band n3 | 1710 – 1785 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3.  |
| UTRA FDD Band IV or | 2110 – 2155 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66. |
| E-UTRA Band 4 | 1710 – 1755 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band V or | 869 – 894 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5 or n26.  |
| E-UTRA Band 5 or NR Band n5 | 824 – 849 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5 or n26, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band VI, XIX | 860 – 890 MHz  | -40.4 dBm | 1 MHz |  |
| or E-UTRA Band 6, 18, | 815 – 830 MHz  | -37.4 dBm | 1 MHz |  |
| 19 | 830 – 845 MHz | -37.4 dBm | 1 MHz |  |
| UTRA FDD Band VII or | 2620 – 2690 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n7. |
| E-UTRA Band 7 or NR Band n7 | 2500 – 2570 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n7, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band VIII or | 925 – 960 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8. |
| E-UTRA Band 8 or NR Band n8 | 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band IX or | 1844.9 – 1879.9 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3. |
| E-UTRA Band 9 | 1749.9 – 1784.9 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band X or | 2110 – 2170 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66 |
| E-UTRA Band 10 | 1710 – 1770 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band XI or XXI or | 1475.9 – 1510.9 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| E-UTRA Band 11 or | 1427.9 – 1447.9 MHz  | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| 21 | 1447.9 – 1462.9 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| UTRA FDD Band XII or | 729 – 746 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85. |
| E-UTRA Band 12 or NR Band n12 | 699 – 716 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85, since it is already covered by the requirement in clause 6.7.5.3.For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5). |
| UTRA FDD Band XIII or | 746 – 756 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n13. |
| E-UTRA Band 13 or NR Band n13 | 777 – 787 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n13, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band XIV or | 758 – 768 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n14. |
| E-UTRA Band 14 or NR Band n14 | 788 – 798 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n14, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 17 | 734 – 746 MHz | -40.4 dBm | 1 MHz |  |
|  | 704 – 716 MHz | -37.4 dBm | 1 MHz | For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5). |
| UTRA FDD Band XX or | 791 – 821 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20 or n28. |
| E-UTRA Band 20 or NR Band n20 | 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| UTRA FDD Band XXII or | 3510 – 3590 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 22 | 3410 – 3490 MHz | -37 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 24 or NR Band n24 | 1525 – 1559 MHz | -40.4 dBm | 1 MHz |  |
|  | 1626.5 – 1660.5 MHz | -37.4 dBm | 1 MHz |  |
| UTRA FDD Band XXV or | 1930 – 1995 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2, n25 or n70. |
| E-UTRA Band 25 or NR band n25 | 1850 – 1915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n25 since it is already covered by the requirement in clause 6.7.5.3. For BS operating in Band n2, it applies for 1910 MHz to 1915 MHz, while the rest is covered in clause 6.7.5.3. |
| UTRA FDD Band XXVI or | 859 – 894 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5 or n26.  |
| E-UTRA Band 26 or NR Band n26 | 814 – 849 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n26 since it is already covered by the requirement in clause 6.7.5.3. For BS operating in Band n5, it applies for 814 MHz to 824 MHz, while the rest is covered in clause 6.7.5.3. |
| E-UTRA Band 27 | 852 – 869 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n5. |
|  | 807 – 824 MHz | -37.4 dBm | 1 MHz | This requirement also applies to BS operating in Band n28, starting 4 MHz above the Band n28 downlink *operating band* (Note 5). |
| E-UTRA Band 28 or | 758 – 803 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, n67 or n28. |
| NR Band n28 | 703 – 748 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n28, since it is already covered by the requirement in clause 6.7.5.3. For BS operating in band n67, it applies for 703 MHz to 736 MHz. |
| E-UTRA Band 29 or NR Band n29 | 717 – 728 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n29 or n85. |
| E-UTRA Band 30 or | 2350 – 2360 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n30. |
| NR Band n30 | 2305 – 2315 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n30, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 31 | 462.5 -467.5 MHz | -40.4 dBm | 1 MHz |  |
|  | 452.5 -457.5 MHz | -37.4 dBm | 1 MHz |  |
| UTRA FDD band XXXII or E-UTRA band 32 | 1452 – 1496 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| UTRA TDD Band a) or E-UTRA Band 33 | 1900 – 1920 MHz | -40.4 dBm | 1 MHz |  |
| UTRA TDD Band a) or E-UTRA Band 34 or NR band n34 | 2010 – 2025 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n34. |
| UTRA TDD Band b) or E-UTRA Band 35 | 1850 – 1910 MHz | -40.4 dBm | 1 MHz |  |
| UTRA TDD Band b) or E-UTRA Band 36 | 1930 – 1990 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n2 or n25. |
| UTRA TDD Band c) or E-UTRA Band 37 | 1910 – 1930 MHz | -40.4 dBm | 1 MHz |  |
| UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38 | 2570 – 2620 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n38.  |
| UTRA TDD Band f) or E-UTRA Band 39 or NR band n39 | 1880 – 1920MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n39. |
| UTRA TDD Band e) or E-UTRA Band 40 or NR Band n40 | 2300 – 2400MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Bands n30 or n40. |
| E-UTRA Band 41 or NR Band n41 | 2496 – 2690 MHz | -40.4 dBm | 1 MHz | This is not applicable to BS operating in Band n41. |
| E-UTRA Band 42 | 3400 – 3600 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 43 | 3600 – 3800 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 44 | 703 – 803 MHz | -40.4 dBm | 1 MHz | This is not applicable to BS operating in Band n28. |
| E-UTRA Band 45 | 1447 – 1467 MHz | -40.4 dBm | 1 MHz |  |
| E-UTRA Band 46 or NR Band n46 | 5150 – 5925 MHz | -39.5 dBm | 1 MHz | This is not applicable to BS operating in Band n46, n96 or n102. |
| E-UTRA Band 47 | 5855 – 5925 MHz | -39.5 dBm | 1 MHz |  |
| E-UTRA Band 48 | 3550 – 3700 MHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78. |
| E-UTRA Band 50 or NR Band n50 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| E-UTRA Band 51 or NR Band n51 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
| E-UTRA Band 53 or NR Band n53 | 2483.5 - 2495 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n41 or n90. |
| E-UTRA Band 65 or | 2110 – 2200 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1 or n65.  |
| NR Band n65 | 1920 – 2010 MHz | -37.4 dBm | 1 MHz | For BS operating in Band n1, it applies for 1980 MHz to 2010 MHz, while the rest is covered in clause 6.7.5.3.This requirement does not apply to BS operating in band n65, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 66 or | 2110 – 2200 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66. |
| NR Band n66 | 1710 – 1780 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 67 or NR Band n67 | 738 – 758 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n28 or n67. |
| E-UTRA Band 68 | 753 -783 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n28. |
|  | 698-728 MHz | -37.4 dBm | 1 MHz | For BS operating in Band n28, this requirement applies between 698 MHz and 703 MHz, while the rest is covered in clause 6.7.5.3. |
| E-UTRA Band 69 | 2570 – 2620 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n38. |
| E-UTRA Band 70 or | 1995 – 2020 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n2, n25 or n70 |
| NR Band n70 | 1695 – 1710 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n70, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 71 or | 617 – 652 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n71 |
| NR Band n71 | 663 – 698 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n71, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 72 | 461 – 466 MHz | -40.4 dBm | 1 MHz |  |
|  | 451 – 456 MHz | -37.4 dBm | 1 MHz |  |
| E-UTRA Band 74 or | 1475 – 1518 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n74 or n75. |
| NR Band n74 | 1427 – 1470 MHz | -37.4 dBm | 1MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| E-UTRA Band 75 or NR Band n75 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| E-UTRA Band 76 or NR Band n76 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
| NR Band n77 | 3.3 – 4.2 GHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78 |
| NR Band n78 | 3.3 – 3.8 GHz | -40 dBm | 1 MHz | This requirement does not apply to BS operating in Band n77 or n78 |
| NR Band n79 | 4.4 – 5.0 GHz | -39.5 dBm | 1 MHz | This requirement does not apply to BS operating in Band n79 |
| NR Band n80 | 1710 – 1785 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n81 | 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n82 | 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n83 | 703 – 748 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n28, since it is already covered by the requirement in clause 6.7.5.3.  |
| NR Band n84 | 1920 – 1980 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n1, since it is already covered by the requirement in clause 6.7.5.3. |
| E-UTRA Band 85 or NR Band n85 | 728 - 746 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85. |
| 698 - 716 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n12 or n85, since it is already covered by the requirement in clause 6.7.5.3.For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5). |
| NR Band n86 | 1710 – 1780 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n89 | 824 – 849 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n5, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n91 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
| 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n92 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| 832 – 862 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n93 | 1427 – 1432 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n75 or n76. |
| 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n94 | 1432 – 1517 MHz | -40.4 dBm | 1 MHz | This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76. |
| 880 – 915 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n95 | 2010 – 2025 MHz | -40.4 dBm | 1 MHz |  |
| NR Band n96 | 5925 – 7125 MHz | -39.5 dBm | 1 MHz | This requirement does not apply to BS operating in Band n46, n96 or n102. |
| NR Band n97 | 2300 – 2400MHz | -40.4 dBm | 1 MHz | NR Band n97 |
| NR Band n98 | 1880 – 1920MHz | -40.4 dBm | 1 MHz |  |
| NR Band n99 | 1626.5 – 1660.5 MHz | -37.4 dBm | 1 MHz | This requirement does not apply to BS operating in band n24, since it is already covered by the requirement in clause 6.7.5.3. |
| NR Band n101 | 1900 - 1910 MHz | -40.4 dBm | 1 MHz |  |
| NR Band n102 | 6425 – 7125 MHz | -39.5 dBm | 1 MHz | This requirement does not apply to BS operating in Band n46, n96 or n102. |
| E-UTRA Band 103 | 757 – 758 MHz | -40.4 dBm | 1 MHz |  |
|  | 787 – 788 MHz | -37.4 dBm | 1 MHz |  |

NOTE 1: As defined in the scope for spurious emissions in this clause, except for the cases where the noted requirements apply to a BS operating in Band n28, the co-existence requirements in 6.7.5.4.5-1 do not apply for the ΔfOBUE frequency range immediately outside the downlink *operating band* (see TS 38.104 [2], table 5.2-1). Emission limits for this excluded frequency range may be covered by local or regional requirements.

NOTE 2: Table 6.7.5.4.5-1 assumes that two *operating bands*, where the frequency ranges in TS 38.104 [2] table 5.2-1 would be overlapping, are not deployed in the same geographical area. For such a case of operation with overlapping frequency arrangements in the same geographical area, special co-existence requirements may apply that are not covered by the 3GPP specifications.

NOTE 3: TDD base stations deployed in the same geographical area, that are synchronized and use the same or adjacent *operating bands* can transmit without additional co-existence requirements. For unsynchronized base stations, special co-existence requirements may apply that are not covered by the 3GPP specifications.

NOTE 4: For NR Band n28 BS, specific solutions may be required to fulfil the spurious emissions limits for BS for co-existence with E-UTRA Band 27 UL *operating band*.

NOTE 5: For NR Band n29 BS, specific solutions may be required to fulfil the spurious emissions limits for NR BS for co-existence with UTRA Band XII, E-UTRA Band 12 or NR Band n12 UL operating band, E-UTRA Band 17 UL operating band or E-UTRA Band 85 UL or NR Band n85 UL operating band.

*<End of the changes>*