

Recomendación UIT-R M.2174-0 (02/2026)

Serie M: Servicios móviles, de radiodeterminación, de aficionados y otros servicios por satélite conexos

**Características de las emisiones no
deseadas procedentes de estaciones
de base que utilizan las interfaces
radioeléctricas terrenales
de las IMT-2020**

Prólogo

El Sector de Radiocomunicaciones tiene como cometido garantizar la utilización racional, equitativa, eficaz y económica del espectro de frecuencias radioeléctricas por todos los servicios de radiocomunicaciones, incluidos los servicios por satélite, y realizar, sin limitación de gamas de frecuencias, estudios que sirvan de base para la adopción de las Recomendaciones UIT-R.

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Series	Título
BO	Distribución por satélite
BR	Registro para producción, archivo y reproducción; películas en televisión
BS	Servicio de radiodifusión (sonora)
BT	Servicio de radiodifusión (televisión)
F	Servicio fijo
M	Servicios móviles, de radiodeterminación, de aficionados y otros servicios por satélite conexos
P	Propagación de las ondas radioeléctricas
RA	Radioastronomía
RS	Sistemas de detección a distancia
S	Servicio fijo por satélite
SA	Aplicaciones espaciales y meteorología
SF	Compartición de frecuencias y coordinación entre los sistemas del servicio fijo por satélite y del servicio fijo
SM	Gestión del espectro
SNG	Periodismo electrónico por satélite
TF	Emisiones de frecuencias patrón y señales horarias
V	Vocabulario y cuestiones afines

Nota: Esta Recomendación UIT-R fue aprobada en inglés conforme al procedimiento detallado en la Resolución UIT-R 1.

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RECOMENDACIÓN UIT-R M.2174-0

Características de las emisiones no deseadas procedentes de estaciones de base que utilizan las interfaces radioeléctricas terrenales de las IMT-2020

(2026)

Cometido

A partir del material presentado a la UIT por organizaciones externas, en esta Recomendación se presentan las características de las emisiones no deseadas de las estaciones de base que utilizan las interfaces radioeléctricas del componente terrenal de las IMT-2020 y que operan en las frecuencias de las bandas identificadas para las IMT.

Las Administraciones pueden utilizar estas características de emisiones no deseadas para garantizar la compatibilidad intrasistema entre las redes terrenales IMT-2020, siempre que se cumpla el Reglamento de Radiocomunicaciones.

Palabras clave

Estación de base, características de las emisiones, IMT-2020, fuera de banda, emisiones no esenciales, emisiones no deseadas

Abreviaturas

ACLR	Relación de potencia de fuga del canal adyacente (<i>adjacent channel leakage ratio</i>)
CA	Agregación de portadora (<i>carrier aggregation</i>)
CACLR	ACLR acumulada (<i>cumulative ACLR</i>)
CLTA	Antena de prueba de compartición de emplazamiento (<i>co-location test antenna</i>)
DFT	Transformada discreta de Fourier (<i>discrete fourier transform</i>)
DL	Enlace descendente (<i>downlink</i>)
EB	Estaciones de base
FR	Gama de frecuencias (<i>frequency range</i>)
GPS	Sistema de posicionamiento mundial (<i>global positioning system</i>)
IMT	Telecomunicaciones móviles internacionales (<i>international mobile telecommunications</i>)
MBW	Ancho de banda de medición (<i>measurement bandwidth</i>)
NR	Nuevas tecnologías radioeléctricas (<i>new radio</i>)
OoB	Fuera de banda (<i>out-of-band</i>)
OTA	Por vía aérea (<i>over the air</i>)
PHS	Sistema de teléfono móvil personal (<i>personal handyphone system</i>)
PIRE	Potencia isotrópica radiada equivalente
PRT	Potencia radiada total
RDN	Red de distribución radioeléctrica (<i>radio distribution network</i>)
RIB	Límite de interfaz radiada (<i>radiated interface boundary</i>)

RIT	Tecnologías de interfaz radioeléctrica (<i>radio interface technologies</i>)
RR	Reglamento de Radiocomunicaciones
SCS	Distancia entre subportadoras (<i>sub-carrier spacing</i>)
SRIT	Conjunto de tecnologías de interfaz radioeléctrica (<i>set of radio interface technologies</i>)
TAB	Límite del conjunto de transceptores (<i>transceiver array boundary</i>)
TDT	Televisión digital terrenal
TT	Tolerancias de la prueba (<i>test tolerances</i>)
UL	Enlace ascendente (<i>uplink</i>)

En el Documento 3GPP TR 21.905 «Vocabulary for 3GPP Specifications» se pueden encontrar términos adicionales.

Documentación conexas: Recomendaciones, Informes, Documentos y Manuales de la UIT¹

Recomendación UIT-R SM.329 – Emisiones no deseadas en el dominio no esencial

Recomendación UIT-R M.1036 – Disposiciones de frecuencias para la implementación de la componente terrenal de las telecomunicaciones móviles internacionales (IMT) en las bandas identificadas en el Reglamento de Radiocomunicaciones para las IMT

Recomendación UIT-R SM.1541 – Emisiones no deseadas en el dominio fuera de banda

Recomendación UIT-R M.1545 – Incertidumbre de medición aplicada a límites de prueba para el componente terrenal de las telecomunicaciones móviles internacionales-2000

Recomendación UIT-R M.2012 – Especificaciones detalladas de las interfaces radioeléctricas terrenales de las telecomunicaciones móviles internacionales avanzadas (IMT-Avanzadas)

Recomendación UIT-R M.2070 – Características de las emisiones no deseadas procedentes de estaciones de base que utilizan las interfaces radioeléctricas terrenales de las IMT-Avanzadas

Recomendación UIT-R M.2071 – Características de las emisiones no deseadas procedentes de estaciones móviles que utilizan las interfaces radioeléctricas terrenales de las IMT-Avanzadas

Recomendación UIT-R M.2150 – Especificaciones detalladas de las interfaces radioeléctricas terrenales de las telecomunicaciones móviles internacionales-2020 (IMT-2020)

La Asamblea de Radiocomunicaciones de la UIT,

considerando

a) que las emisiones no deseadas se componen de emisiones no esenciales y de emisiones fuera de banda (OoB) según el número **1.146** del Reglamento de Radiocomunicaciones (RR) y que las emisiones no esenciales y fuera de banda se definen en los números **1.145** y **1.144**, respectivamente, del RR;

b) que es necesario limitar los niveles máximos admisibles de las emisiones no deseadas de las estaciones de base (EB) IMT-2020 para proteger otros sistemas y servicios radioeléctricos contra la interferencia y para permitir la coexistencia entre distintas tecnologías;

c) que la armonización de los límites de las emisiones no deseadas facilitará la utilización a nivel mundial y el acceso a un mercado global; no obstante, pueden existir variaciones a nivel nacional/regional de los límites de las emisiones no deseadas;

¹ Debe utilizarse la versión en vigor más reciente de cada Recomendación/Informe.

d) que los límites de las emisiones no deseadas dependen entre otras cosas de las características de emisión del transmisor, de los límites de las emisiones no esenciales de la UIT y de las normas y reglamentos nacionales, así como de los servicios que funcionan en otras bandas,

reconociendo

a) la disposición 3.3 del Reglamento de Radiocomunicaciones;

b) que en la Recomendación UIT-R M.1036 se establecen las disposiciones de frecuencias para la implementación de la componente terrenal de las telecomunicaciones móviles internacionales en las bandas identificadas para las IMT en el Reglamento de Radiocomunicaciones;

c) que en la Recomendación UIT-R SM.329 se definen límites para las emisiones no deseadas en el dominio no esencial, así como los métodos de medición de las emisiones no esenciales;

d) que en la Recomendación UIT-R SM.1541 se definen límites para las emisiones no deseadas en el dominio fuera de banda y se alienta el desarrollo de límites más específicos para cada sistema y cada banda de frecuencias;

e) que en la Recomendación UIT-R M.2150 se presentan las especificaciones detalladas de las interfaces radioeléctricas terrenales de las telecomunicaciones móviles internacionales-2020 (IMT-2020) y, en particular, se recomienda que las interfaces radioeléctricas terrenales de las IMT-2020 sean «3GPP 5G-SRIT», «3GPP 5G-RIT», «5Gi-RIT» y «DECT 5G-SRIT»,

observando

que, a fin de recoger la amplia aplicabilidad de las tecnologías de las interfaces radioeléctricas de las IMT-2020 y mantener la coherencia con las especificaciones de esta tecnología, las Notas y los Anexos a la presente Recomendación, que se basan en los trabajos en curso en diversos organismos de normalización, pueden contener material que corresponda a información relativa a la utilización de estas tecnológicas en bandas distintas a las identificadas para las IMT,

recomienda

1 que las características de las emisiones no deseadas de las estaciones de base que se corresponden con las especificaciones de interfaz radioeléctrica de 3GPP-5G SRIT para la componente terrenal de las IMT-2020 en el Anexo 1² se tengan en cuenta para garantizar la compatibilidad entre las redes terrenales IMT-2020 que utilizan la interfaz radioeléctrica de 3GPP-5G SRIT;

2 que las características de las emisiones no deseadas de las estaciones de base que se corresponden con las especificaciones de interfaz radioeléctrica de 3GPP-5G RIT para la componente terrenal de las IMT-2020 en el Anexo 2, para las bandas especificadas en los Cuadros 1-2A y 1-3A³ se tengan en cuenta para garantizar la compatibilidad entre las redes terrenales IMT-2020 que utilizan la interfaz radioeléctrica de 3GPP-5G RIT;

² En lo que respecta a las estaciones de base 3GPP-5G SRIT de las bandas que no están identificadas para las IMT en el Reglamento de Radiocomunicaciones, las características de emisiones no deseadas se incluyen en el Anexo 1 únicamente a título informativo y pueden utilizarse para la adopción de decisiones a nivel nacional.

³ En lo que respecta a las estaciones de base 3GPP-5G RIT de las bandas especificadas en los Cuadros 1-2B y 1-3B, las características de emisiones no deseadas se incluyen en el Anexo 2 únicamente a título informativo y pueden utilizarse para la adopción de decisiones a nivel nacional.

3 que las características de las emisiones no deseadas de las estaciones de base que se corresponden con las especificaciones de interfaz radioeléctrica de 5Gi para la componente terrenal de las IMT-2020 en el Anexo 3⁴ se tengan en cuenta para garantizar la compatibilidad entre las redes terrenales IMT-2020 que utilizan la interfaz radioeléctrica de 5Gi;

4 que las características de las emisiones no deseadas de las estaciones de base que se corresponden con las especificaciones de interfaz radioeléctrica de la componente DECT-2020 NR-RIT para la componente terrenal de las IMT-2020 en el Anexo 4⁵ se tengan en cuenta para garantizar la compatibilidad entre las redes terrenales IMT-2020 que utilizan la interfaz radioeléctrica de la componente DECT-2020 NR-RIT.

Anexos: 4

⁴ En lo que respecta a las estaciones de base 5Gi de las bandas que no están identificadas para las IMT en el Reglamento de Radiocomunicaciones, las características de emisiones no deseadas se incluyen en el Anexo 3 únicamente a título informativo y pueden utilizarse para la adopción de decisiones a nivel nacional.

⁵ En lo que respecta a las estaciones de base de la componente DECT-2020 NR-RIT de las bandas que no están identificadas para las IMT en el Reglamento de Radiocomunicaciones, las características de emisiones no deseadas se incluyen en el Anexo 4 únicamente a título informativo y pueden utilizarse para la adopción de decisiones a nivel nacional.

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Anexo 1

3GPP 5G-SRIT⁶

3GPP 5G-SRIT es un conjunto de tecnologías de la interfaz radioeléctrica (RIT) que consta de dos RIT componentes, a saber: E-UTRA/LTE y NR. La información sobre las características de las emisiones no deseadas de las estaciones de base E-UTRA/LTE figura en el Anexo 1 de la Recomendación UIT-R M.2070. La información sobre las características de las emisiones no deseadas de las estaciones de base NR figura en el siguiente Anexo 2 «3GPP 5G-RIT» de esta Recomendación.

Anexo 2

3GPP 5G-RIT⁷

El Anexo incluye información sobre las características de las emisiones no deseadas procedentes de las portadoras NR para las estaciones de base NR.

La estructura de este Anexo es la siguiente:

- En el Capítulo 1 se especifican las gamas de frecuencias y bandas operativas para las que se presenta la información sobre las características de las emisiones no deseadas en el Anexo.
- El Capítulo 2 contiene las definiciones, símbolos y abreviaturas.
- El Capítulo 3 incluye las características de las emisiones no deseadas de las estaciones de base NR definidas en los conectores TAB individuales y/o las características OTA definidas en el RIB (para la estación de base de tipo 1-C y la estación de base de tipo 1-H).
- El Capítulo 4 incluye las características de las emisiones no deseadas de las estaciones de base NR para las estaciones de base de tipo 1-O y 2-O.
- En el Capítulo 5 se especifican las referencias.

Los valores especificados en el Anexo incorporan las tolerancias de la prueba definidas en la Recomendación UIT-R M.1545 [4].

El Anexo contiene información procedente de normas de trasposición que se abordan en cuadros y secciones.

Debería remitirse a la sección 3.3 de la Recomendación UIT-R SM.329 para la «Categoría A» y la «Categoría B» de este Anexo.

1 Bandas operativas

Las características de las emisiones no deseadas en todas las especificaciones de RF se definen en muchos casos de manera separada para diferentes gamas de frecuencias (FR). Las gamas de frecuencias en las que pueden operar las NR se describen el Cuadro A2-1.

⁶ Desarrollado por el Proponente de 3GPP como «5G, Versión 15 y posteriores – LTE+NR SRIT».

⁷ Desarrollado por el Proponente de 3GPP como «5G, Versión 15 y posteriores – NR RIT».

CUADRO A2-1

Gammas de frecuencias de NR

Designación de la gama de frecuencias		Gama de frecuencias correspondiente*
FR1		410-7 125 MHz
FR2	FR2-1	24 250-52 600 MHz
	FR2-2	52 600-71 000 MHz

* No todas las bandas de frecuencias en estas gammas están identificadas para las IMT en el RR.

Las características de las emisiones no deseadas definidas en el presente Anexo se refieren a las estaciones base NR que funcionan en al menos una de las bandas indicadas en los Cuadros A2-2 o A2-4.

CUADRO A2-2

Bandas operativas NR en FR1

Bandas de frecuencias utilizadas por NR e identificadas para las IMT en el RR

Número de banda operativa NR	Banda operativa de enlace ascendente (UL) EB receptora/ EU transmisor $F_{UL,baja} - F_{UL,alta}$	Banda operativa de enlace descendente (DL) EB transmisora/ EU receptor $F_{DL,baja} - F_{DL,alta}$	Modo dúplex	Notas en las que se identifica la banda o parte de ella para las IMT en diversos países/regiones
n1	1 920-1 980 MHz	2 110-2 170 MHz	FDD	5.388
n2	1 850-1 910 MHz	1 930-1 990 MHz	FDD	5.384A, 5.388
n3	1 710-1 785 MHz	1 805-1 880 MHz	FDD	5.384A
n5	824-849 MHz	869-894 MHz	FDD	5.317A
n7	2 500-2 570 MHz	2 620-2 690 MHz	FDD	5.384A
n8	880-915 MHz	925-960 MHz	FDD	5.317A
n12	699-716 MHz	729-746 MHz	FDD	5.313A, 5.317A
n13	777-787 MHz	746-756 MHz	FDD	5.313A, 5.317A
n14	788-798 MHz	758-768 MHz	FDD	5.313A, 5.317A
n18	815-830 MHz	860-875 MHz	FDD	5.317A
n20	832-862 MHz	791-821 MHz	FDD	5.317A
n25	1 850-1 915 MHz	1 930-1 995 MHz	FDD	5.384A, 5.388
n26	814-849 MHz	859-894 MHz	FDD	5.317A
n28	703-748 MHz	758-803 MHz	FDD	5.313A, 5.317A
n29	N/D	717-728 MHz	SDL	5.313A, 5.317A
n30	2 305-2 315 MHz	2 350-2 360 MHz	FDD	5.384A
n34	2 010-2 025 MHz	2 010-2 025 MHz	DDT	5.388
n38	2 570-2 620 MHz	2 570-2 620 MHz	DDT	5.384A
n39	1 880-1 920 MHz	1 880-1 920 MHz	DDT	5.384A, 5.388
n40	2 300-2 400 MHz	2 300-2 400 MHz	DDT	5.384A

CUADRO A2-2 (*fin*)

Número de banda operativa NR	Banda operativa de enlace ascendente (UL) EB receptora/ EU transmisor $F_{UL,baja} - F_{UL,alta}$	Banda operativa de enlace descendente (DL) EB transmisora/ EU receptor $F_{DL,baja} - F_{DL,alta}$	Modo dúplex	Notas en las que se identifica la banda o parte de ella para las IMT en diversos países/regiones
n48	3 550-3 700 MHz	3 550-3 700 MHz	DDT	5.430A, 5.431B, 5.433A, 5.433B, 5.434, 5.434B
n50	1 432-1 517 MHz	1 432-1 517 MHz	DDT	5.341A, 5.341B, 5.341C, 5.346, 5.346A
n51	1 427-1 432 MHz	1 427-1 432 MHz	DDT	5.341A, 5.341B, 5.341C
n65	1 920-2 010 MHz	2 110-2 200 MHz	FDD	5.388
n66	1 710-1 780 MHz	2 110-2 200 MHz	FDD	5.384A, 5.388
n67	N/D	738-758 MHz	SDL	5.313A, 5.317A
n71	663-698 MHz	617-652 MHz	FDD	5.296A, 5.308A, 5.307A
n74	1 427-1 470 MHz	1 475-1 518 MHz	FDD	5.341A, 5.341B, 5.341C, 5.346, 5.346A
n75	N/D	1 432-1 517 MHz	SDL	5.341A, 5.341B, 5.341C, 5.346, 5.346A
n76	N/D	1 427-1 432 MHz	SDL	5.341A, 5.341B, 5.341C
n80	1 710-1 785 MHz	N/D	SUL	5.384A
n81	880-915 MHz	N/D	SUL	5.317A
n82	832-862 MHz	N/D	SUL	5.317A
n83	703-748 MHz	N/D	SUL	5.313A, 5.317A
n84	1 920-1 980 MHz	N/D	SUL	5.388
n85	698-716 MHz	728-746 MHz	FDD	5.313A, 5.317A
n86	1 710-1 780 MHz	N/D	SUL	5.384A
n89	824-849 MHz	N/D	SUL	5.317A
n91	832-862 MHz	1 427-1 432 MHz	FDD ⁽²⁾	5.317A, 5.341A, 5.431B, 5.341C
n92	832-862 MHz	1 432-1 517 MHz	FDD ⁽²⁾	5.317A, 5.341A, 5.341B, 5.341C, 5.346, 5.346A
n93	880-915 MHz	1 427-1 432 MHz	FDD ⁽²⁾	5.317A, 5.341A, 5.431B, 5.341C
n94	880-915 MHz	1 432-1 517 MHz	FDD ⁽²⁾	5.317A, 5.341A, 5.341B, 5.341C, 5.346, 5.346A
n95 ⁽¹⁾	2 010-2 025 MHz	N/D	SUL	5.388
n97 ⁽⁵⁾	2 300-2 400 MHz	N/D	SUL	5.384A
n98 ⁽⁵⁾	1 880-1 920 MHz	N/D	SUL	5.384A, 5.388
n101	1 900-1 910 MHz	1 900-1 910 MHz	DDT	5.388
n104 ⁽⁸⁾	6 425-7 125 MHz	6 425-7 125 MHz	DDT	5.457D, 5.457E, 5.457F

CUADRO A2-3

Bandas operativas NR en FR1

Bandas de frecuencias utilizadas por NR y no identificadas,
o identificadas parcialmente, para las IMT en el RR

Número de banda operativa NR	Banda operativa de enlace ascendente (UL) EB receptora/ EU transmisor $F_{UL,baja} - F_{UL,alta}$	Banda operativa de enlace descendente (DL) EB transmisora/ EU receptor $F_{DL,baja} - F_{DL,alta}$	Modo dúplex	Notas en las que se identifica la banda o parte de ella para las IMT en diversos países/regiones
n24 ⁽⁷⁾	1 626,5-1 660,5 MHz	1 525-1 559 MHz	FDD	No identificada para las IMT en el RR
n41	2 496-2 690 MHz	2 496-2 690 MHz	DDT	5.384A
n53	2 483,5-2 495 MHz	2 483,5-2 495 MHz	DDT	No identificada para las IMT en el RR
n70	1 695-1 710 MHz	1 995-2 020 MHz	FDD	5.388
n77	3 300-4 200 MHz	3 300-4 200 MHz	DDT	5.429B, 5.429D, 5.429F, 5.430A, 5.431B, 5.432A, 5.432B, 5.433A, 5.433B, 5.434, 5.434B, 5.435B
n78	3 300-3 800 MHz	3 300-3 800 MHz	DDT	5.429B, 5.529D, 5.429F, 5.430A, 5.431B, 5.432A, 5.432B, 5.433A, 5.433B, 5.434, 5.434B, 5.435B
n79	4 400-5 000 MHz	4 400-5 000 MHz	DDT	5.441A, 5.441B
n90	2 496-2 690 MHz	2 496-2 690 MHz	DDT	5.384A
n99 ⁽⁶⁾	1 626,5-1 660,5 MHz	N/D	SUL	No identificada para las IMT en el RR
n102 ⁽⁴⁾	5 925-6 425 MHz	5925-6 425 MHz	DDT ⁽³⁾	No identificada para las IMT en el RR

(1) Nulo

(2) El funcionamiento del dúplex variable no permite una configuración en dúplex variable dinámico por la red y se utiliza de manera que las gamas de frecuencias en DL y UL son soportadas independientemente en cualquier gama de frecuencias válida para la banda.

(3) Nulo

(4) Nulo

(5) Los requisitos para esta banda se aplican exclusivamente cuando no se utilizan otras bandas operativas NR o E-UTRA TDD en la gama de frecuencias de esta banda en la misma zona geográfica. En caso de que se utilicen otras bandas operativas NR o E-UTRA TDD en la gama de frecuencias de esta banda en la misma zona geográfica, se podrán aplicar requisitos de coexistencia especiales no previstos en las especificaciones 3GPP.

(6) Nulo

(7) Nulo

CUADRO A2-4

Bandas operativas NR en FR2**Bandas de frecuencias utilizadas por NR e identificadas para las IMT en el RR**

Número de banda operativa NR	Banda operativa de enlace ascendente (UL) y descendente (DL) EB transmisora/receptora EU transmisor/receptor $F_{UL,baja} - F_{UL,alta}$ $F_{DL,baja} - F_{DL,alta}$	Modo dúplex	Notas en las que se identifica la banda o parte de ella para las IMT en diversos países/regiones
n258	24 250-27 500 MHz	DDT	5.532AB
n259	39 500-43 500 MHz	DDT	5.550B
n260	37 000-40 000 MHz	DDT	5.550B
n262	47 200-48 200 MHz	DDT	5.553B

CUADRO A2-5

Bandas operativas NR en FR2**Bandas de frecuencias utilizadas por NR y no identificadas, o identificadas parcialmente, para las IMT en el RR**

Número de banda operativa NR	Banda operativa de enlace ascendente (UL) y descendente (DL) EB transmisora/receptora EU transmisor/receptor $F_{UL,baja} - F_{UL,alta}$ $F_{DL,baja} - F_{DL,alta}$	Modo dúplex	Notas en las que se identifica la banda o parte de ella para las IMT en diversos países/regiones
n257	26 500-29 500 MHz	DDT	5.532AB
n261	27 500-28 350 MHz	DDT	No identificada para las IMT en el RR
n263	57 000-71 000 MHz	DDT	5.559AA

2 Definiciones, símbolos y abreviaturas**2.1 Definiciones**

Límite básico: límite de emisiones relacionado con la potencia suministrada por un único transmisor a una única línea de alimentación de la antena en la Recomendación UIT-R SM.329 [3] utilizado para la formulación de requisitos de emisiones no deseadas para FR1.

Conector de antena: conector en la interfaz de conducción de la EB de tipo 1-C.

EB de tipo 1-C: estación de base NR que funciona en FR1 con un conjunto de requisitos que consisten exclusivamente en los requisitos de conducción definidos en los conectores de antena individuales.

EB de tipo 1-H: estación de base NR que funciona en FR1 con un conjunto de requisitos que consisten en los requisitos de conducción definidos en los conectores TAB individuales y los requisitos OTA definidos en el RIB.

EB de tipo 1-O: estación de base NR que funciona en FR1 con un conjunto de requisitos que consisten exclusivamente en los requisitos OTA definidos en el RIB.

EB de tipo 2-O: estación de base NR que funciona en FR2 con un conjunto de requisitos que consisten exclusivamente en los requisitos OTA definidos en el RIB.

Espacio entre anchos de banda RF: frecuencia libre entre dos anchos de banda RF de la estación de base consecutivos que se encuentran dentro de dos bandas operativas soportadas.

Funcionamiento NB-IoT con NR dentro de banda: la NB-IoT funciona en banda cuando se encuentra dentro de una configuración de ancho de banda de transmisión NR más 15 kHz en cada borde, pero no dentro de la banda de guarda mínima NR GB_{Canal} .

Banda operativa: gama de frecuencias en la que funciona la estación de base NR (emparejada o desemparejada), que se define con un conjunto específico de requisitos técnicos.

NOTA – Corresponde al fabricante indicar la(s) banda(s) operativa(s) de la EB, de acuerdo con las designaciones de los Cuadros 1-2 y 1-3.

Límite de interfaz radiada: referencia de los requisitos de radiación específicos de la banda operativa cuando se aplican los requisitos de radiación.

NOTA – Para los requisitos basados en la PIRE, el límite de interfaz radiada está asociado a la región de campo lejano.

Conector TAB: conector del límite del conjunto de transceptores.

Grupo mínimo de células de recepción del conector TAB: grupo de conectores TAB declarados específicos para la banda operativa a los que se aplican los requisitos de recepción conducida de la EB de tipo 1-H.

NOTA – En esta definición, el grupo corresponde al grupo de conectores TAB que se encargan de recibir una célula cuando la configuración de la EB de tipo 1-H corresponde al número mínimo declarado de células con recepción en todos los conectores TAB que dan soporte a una banda operativa, aunque su existencia no se limita a dicha condición.

Grupo mínimo de células de transmisión de conectores TAB: grupo de conectores TAB declarados específicos para la banda operativa a los que se aplican los requisitos de transmisión conducida de la EB de tipo 1-H.

NOTA – En esta definición, el grupo corresponde al grupo de conectores TAB que se encargan de transmitir una célula cuando la configuración de la EB de tipo 1-H corresponde al número mínimo declarado de células con transmisión en todos los conectores TAB que dan soporte a una banda operativa, aunque su existencia no se limita a dicha condición.

Límite del conjunto de transceptores: interfaz de conducción entre el conjunto de unidades transceptoras y la antena compuesta.

2.2 Símbolos

BW_{config}	Configuración de anchura de banda de transmisión, expresada en MHz, siendo $BW_{Config} = N_{RB} \times SCS \times 12 \text{ kHz}$
F_{DL_baja}	La frecuencia más baja de la banda operativa de enlace descendente
F_{DL_alta}	La frecuencia más alta de la banda operativa de enlace descendente
F_{UL_baja}	La frecuencia más baja de la banda operativa de enlace ascendente
F_{UL_alta}	La frecuencia más alta de la banda operativa de enlace ascendente
Δf_{OBUE}	Desplazamiento máximo de la máscara de emisiones no deseadas de la banda operativa desde el borde de la banda operativa de enlace descendente
$\Delta f_{m\acute{a}x}$	$f_{offset_{m\acute{a}x}}$ menos la mitad del ancho de banda del filtro de medición

$f_{\text{offset}_{\text{máx}}}$	La separación hasta la frecuencia a Δf_{OBUE} fuera de la banda operativa de enlace descendente
N_{RB}	Configuración de ancho de banda de transmisión, expresada en bloques de recursos
$N_{\text{TXU,contadas}}$	Número de unidades de transmisores activos calculado en el § 3.1, que se tiene en cuenta para el límite de potencia de salida de transmisión establecido en el § 3.1.2, y para el escalado de emisiones de transmisión no deseadas
$N_{\text{TXU,contadasporcélula}}$	Número de unidades de transmisores activos que se tienen en cuenta para el escalado de emisiones de transmisión por célula, calculado en el § 3.1

2.3 Abreviaturas

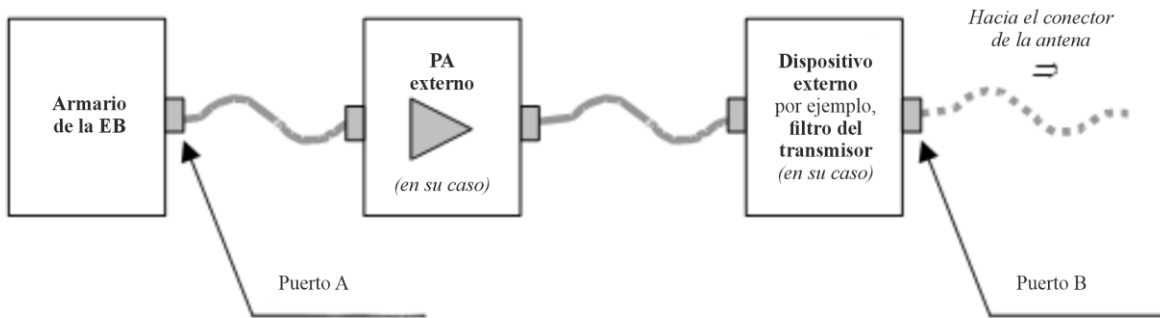
ACLR	Relación de potencia de fuga del canal adyacente (<i>adjacent channel leakage ratio</i>)
CA	Agregación de portadora (<i>carrier aggregation</i>)
CACLR	ACLR acumulada (<i>cumulative ACLR</i>)
CLTA	Antena de prueba de compartición de emplazamiento (<i>co-location test antenna</i>)
FR	Gama de frecuencias (<i>frequency range</i>)
GPS	Sistema de posicionamiento mundial (<i>global positioning system</i>)
OTA	Por vía aérea (<i>over the air</i>)
PHS	Sistema de teléfono móvil personal (<i>personal handyphone system</i>)
PIRE	Potencia isotrópica radiada efectiva
PRT	Potencia radiada total
RIB	Límite de interfaz radiada (<i>radiated interface boundary</i>)
SCS	Distancia entre subportadoras (<i>sub-carrier spacing</i>)
TAB	Límite del conjunto de transceptores (<i>transceiver array boundary</i>)
TDT	Televisión digital terrenal

2.4 Puntos de referencia de conducción y radiación

El fabricante puede declarar que la EB NR corresponde a uno de los siguientes tipos de EB:

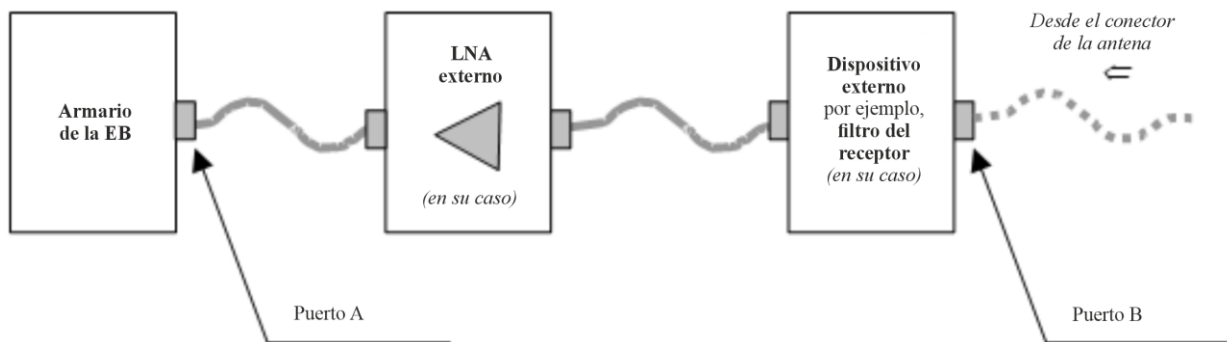
- EB de tipo 1-C: los requisitos se aplican al conector de la antena de la EB (puerto A) para un único transmisor o receptor con un complemento pleno de transceptores para la configuración en condiciones de funcionamiento normal. Si se utiliza algún aparato externo como un amplificador, un filtro o la combinación de ambos, se aplican los requisitos en el conector de antena del extremo final (puerto B).

FIGURA A2-1
Interfaz del transmisor de la EB de tipo 1-C



M.2174-A2-01

FIGURA A2-2
Interfaz del receptor de la EB de tipo 1-C

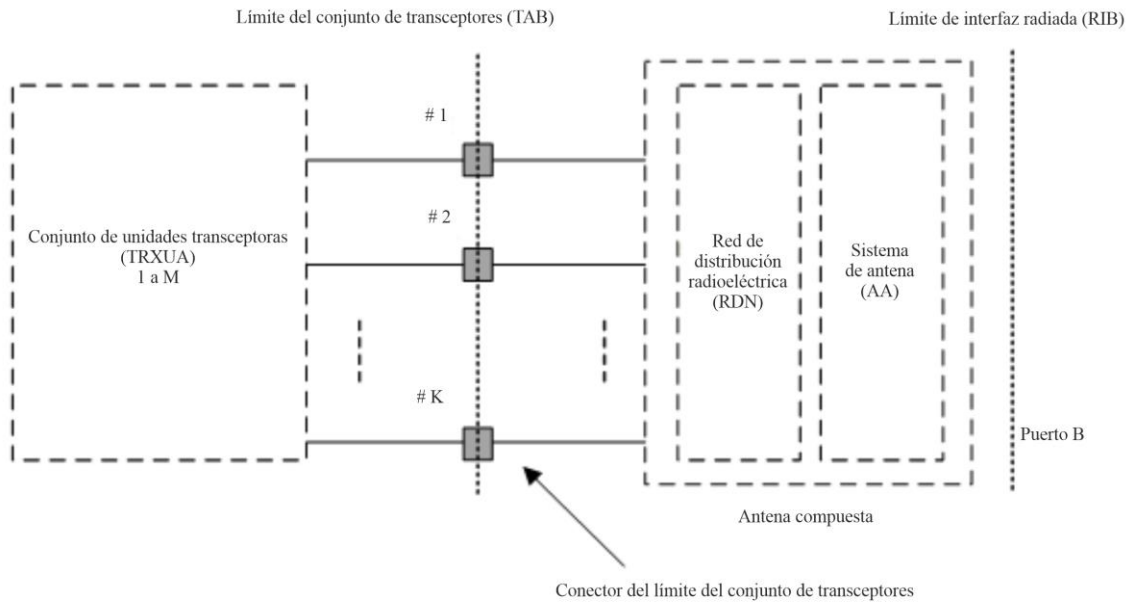


M.2174-A2-02

- EB de tipo 1-H: los requisitos se definen para dos puntos de referencia, indicados por los requisitos de radiación y los requisitos de conducción. Las características de radiación se definen por vía aérea (OTA), donde la interfaz de radiación específica de la banda operativa se denomina límite de interfaz radiada (RIB). Las características (espaciales) en las se aplican los requisitos OTA se detallan para cada requisito. Las características de conducción se definen en los conectores TAB individuales o grupos de conectores TAB en el límite del conjunto de transceptores, que es la interfaz de conducción entre el conjunto de unidades transceptoras y la antena compuesta.

FIGURA A2-3

Puntos de referencia de radiación y conducción para la EB de tipo 1-H



M.2174-A2-03

El conjunto de unidades transceptoras forma parte de la funcionalidad del transceptor compuesto que genera estructuras de señal de transmisión modulada y que lleva a cabo la combinación y demodulación del receptor.

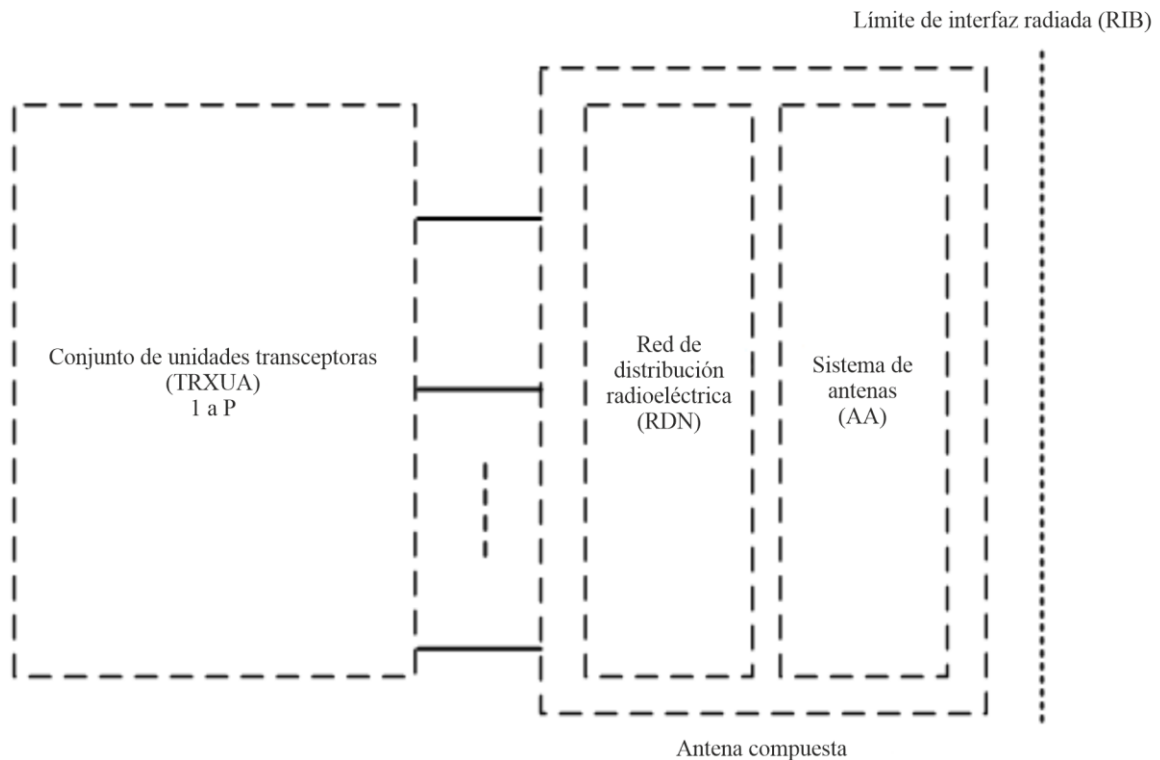
El conjunto de unidades transceptoras contiene un número determinado de unidades de transmisión para cada implementación y un número determinado de unidades de recepción para cada implementación. Las unidades transmisoras y las unidades receptoras pueden combinarse en unidades transceptoras. Las unidades transmisoras/receptoras tienen la capacidad de transmitir/recibir trenes de símbolos modulados independientes en paralelo.

La antena compuesta contiene una red de distribución radioeléctrica (RDN) y un sistema de antena. La RDN es una red pasiva lineal que distribuye la potencia RF generada por el conjunto de unidades transceptoras al sistema de antena y/o distribuye las señales radioeléctricas recogidas por el sistema de antena al conjunto de unidades transceptoras, de una manera específica para la implementación.

La manera en la que se aplica un requisito de conducción al límite del conjunto de transceptores es específica para cada requisito.

- EB de tipo 1-O: las características de radiación para la EB de tipo 1-O se definen por vía aérea (OTA), donde la interfaz de radiación específica de la banda operativa se denomina límite de interfaz radiada (RIB). Las características (espaciales) en las se aplican los requisitos OTA son específicas para cada requisito.

FIGURA A2-4
Arquitectura general de la EB de tipo 1-O y la EB de tipo 2-O



M.2174-A2-04

- EB de tipo 2-O: requisitos OTA definidos solo en el RIB, al igual que para la EB de tipo 1-O.

2.5 Clases de estaciones de base

Las EB para NR son estaciones de base de zona amplia, estaciones de base de medio alcance y estaciones de base de zona local.

Las clases de EB para la EB de tipo 1-C y la EB de tipo 1-H se definen del siguiente modo:

- Las estaciones de base de zona amplia se caracterizan por requisitos derivados de hipótesis de macrocélulas con una pérdida mínima de acoplamiento entre EB y EU equivalente a 70 dB.
- Las estaciones de base de medio alcance se caracterizan por requisitos derivados de hipótesis de microcélulas con una pérdida mínima de acoplamiento entre EB y EU equivalente a 53 dB.
- Las estaciones de base de zona local se caracterizan por requisitos derivados de hipótesis de picocélulas con una pérdida mínima de acoplamiento entre EB y EU equivalente a 45 dB.

Las clases de EB para la EB de tipo 1-O y la EB de tipo 2-O se definen del siguiente modo:

- Las estaciones de base de zona amplia se caracterizan por requisitos derivados de hipótesis de macrocélulas con una distancia mínima entre EB y EU a lo largo del suelo equivalente a 35 m.
- Las estaciones de base de medio alcance se caracterizan por requisitos derivados de hipótesis de microcélulas con una distancia mínima entre EB y EU a lo largo del suelo equivalente a 5 m.
- Las estaciones de base de zona local se caracterizan por requisitos derivados de hipótesis de picocélulas con una distancia mínima entre EB y EU a lo largo del suelo equivalente a 2 m.

3 Características de las emisiones no deseadas NR para las estaciones de base de tipo 1-C y 1-H

El desplazamiento máximo de la máscara de emisiones no deseadas de la banda operativa desde el borde de la banda operativa es Δf_{OBUE} . Las emisiones no deseadas de la banda operativa definen las emisiones no deseadas en cada banda operativa del enlace descendente soportada más las gamas de frecuencias Δf_{OBUE} por encima y Δf_{OBUE} por debajo de cada banda. Las emisiones no deseadas fuera de esta gama de frecuencias se definen por características de emisiones no esenciales.

NOTA – La separación de frecuencia Δf_{OBUE} no define el límite entre los dominios fuera de banda y no esencial establecido en la Recomendación UIT-R SM.1541. Como resultado de ello, en la gama desde el borde de la banda operativa hasta Δf_{OBUE} las características de las emisiones no deseadas presentadas en este Anexo podrían cubrir exclusivamente una parte de la gama de frecuencias del dominio fuera de banda. En dicho caso, para el resto de las gamas de frecuencias del dominio fuera de banda, se deben utilizar las características de las emisiones no esenciales.

Los valores de Δf_{OBUE} se definen en el Cuadro A2-6 para las bandas operativas NR.

CUADRO A2-6

Desplazamiento máximo de OBUE fuera de la banda operativa de enlace descendente

Tipo de EB	Características de la banda operativa	Δf_{OBUE} (MHz)
EB de tipo 1-C	$F_{DL_alta} - F_{DL_baja} \leq 200$ MHz	10
	$200 \text{ MHz} < F_{DL_alta} - F_{DL_baja} \leq 900$ MHz	40
EB de tipo 1-H	$F_{DL_alta} - F_{DL_baja} < 100$ MHz	10
	$100 \text{ MHz} \leq F_{DL_alta} - F_{DL_baja} \leq 900$ MHz	40

Para las bandas n96 y n102, los valores de Δf_{OBUE} se definen en el Cuadro A2-7.

CUADRO A2-7

Desplazamiento máximo de OBUE fuera de la banda operativa de enlace descendente

Banda operativa	Δf_{OBUE} (MHz)
n102	40
n96	50

3.1 Emisiones no deseadas en la banda operativa de conducción

3.1.1 Emisiones no deseadas en la banda operativa de conducción para la EB de tipo 1-C

Las emisiones no deseadas en la banda operativa para la EB de tipo 1-C para cada conector de antena deben estar por debajo de los límites básicos aplicables definidos en los § 3.1.3 a 3.1.8.

3.1.2 Emisiones no deseadas en la banda operativa de conducción para la EB de tipo 1-H

Las emisiones no deseadas en la banda operativa para la EB de tipo 1-H son las que corresponden a cada grupo mínimo de células de transmisión de conectores TAB y cada límite básico aplicable establecido en los § 3.1.3 a 3.1.8; la suma de las emisiones de potencia en los conectores TAB del grupo mínimo de células de transmisión de conectores TAB no debe exceder un límite de EB especificado como el límite básico + X, donde $X = 10 \log_{10}(N_{TXU, \text{contadasporcélula}})$;

$N_{\text{TXU, contadasporcélula}}$ – factor de escalado para los límites básicos. $N_{\text{TXU, contadasporcélula}} = \min.(N_{\text{TXU,activas}}, 8 \cdot N_{\text{células}}) / N_{\text{células}}$;

$N_{\text{células}}$ – el número mínimo de células geográficas soportadas está relacionado con la configuración de la EB con la cantidad mínima de división de células soportada con transmisión en todos los conectores TAB que soportan la banda operativa. El fabricante también debe declarar los grupos mínimos de células de transmisión de conectores TAB. Cada conector TAB que da soporte a la transmisión en una banda operativa debe corresponderse con un grupo mínimo de células de transmisión de conectores TAB que da soporte a la misma banda operativa. La correspondencia de los conectores TAB con las células depende de la implementación;

$N_{\text{TXU,activas}}$ – número de unidades de transmisión activas, que depende de la declaración del $N_{\text{células}}$.

NOTA – El cumplimiento del requisito relativo a las emisiones de la EB de tipo 1-H puede demostrarse reuniendo al menos uno de los siguientes criterios, según determine el fabricante:

1) La suma de la potencia de emisiones medida en cada conector TAB en el grupo mínimo de células de transmisión de conectores TAB debe ser inferior o igual al límite definido en esta cláusula para el correspondiente rango de frecuencia.

O

2) La potencia de las emisiones no deseadas en cada conector TAB debe ser inferior o igual al límite de la EB de tipo 1-H establecido en esta cláusula para el correspondiente rango de frecuencia, escalado por $-10\log_{10}(n)$, donde n es el número de conectores TAB del grupo mínimo de células de transmisión de conectores TAB.

3.1.3 Límites básicos para la EB de zona amplia (Categoría A)

Para la EB que opera en las bandas n5, n8, n12, n13, n14, n18, n26, n28, n29, n71 y n85, los límites básicos se especifican en el Cuadro 6.6.4.5.2-1 de TS 38.141-1 [1].

TABLE 6.6.4.5.2-1
**Wide Area BS operating band unwanted emission limits
 (NR bands below 1 GHz) for Category A**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-5.5 \text{ dBm} - \frac{7}{5} \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-12.5 dBm	
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-13 dBm (Note 3)	

Note 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -13 dBm/100 kHz.

Note 2: For a *multi-band connector* with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

Para la EB que opera en las bandas n1, n2, n3, n7, n24, n25, n30, n34, n38, n39, n40, n41, n50, n65, n66, n70, n74, n75, n92 y n94, los límites básicos se especifican en el Cuadro 6.6.4.5.2-2 de TS 38.141-1 [1]:

TABLE 6.6.4.5.2-2
**Wide Area BS *operating band* unwanted emission limits
 (1 GHz < NR bands ≤ 3 GHz) for Category A**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	<i>Basic limit</i> (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-5.5 \text{ dBm} - \frac{7}{5} \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-12.5 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-13 dBm (Note 3)	1 MHz

Note 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -13 dBm/1 MHz.

Note 2: For a *multi-band connector* with Inter RF Bandwidth gap < 2* Δf_{OBUE} the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

Para la EB que opera en las bandas n48, n77, n78 y n79, los límites básicos se especifican en el Cuadro 6.6.4.5.2-3 de TS 38.141-1 [1].

TABLE 6.6.4.5.2-3
**Wide Area BS *operating band* unwanted emission limits
 (NR bands > 3 GHz) for Category A**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	<i>Basic limit</i> (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-5.2 \text{ dBm} - \frac{7}{5} \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-12.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-13 dBm (Note 3)	1 MHz

Note 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -13 dBm/1 MHz.

Note 2: For a *multi-band connector* with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

3.1.4 Límites básicos para la EB de zona amplia (Categoría B)

Para las emisiones no deseadas en la banda operativa de la Categoría B, hay dos opciones para los límites básicos que pueden aplicarse a nivel regional. Se deben aplicar bien los límites básicos del § 6.6.4.2.2.1 o los del § 6.6.4.2.2.2.

3.1.4.1 Requisitos de la Categoría B (Opción 1)

Para la EB que opera en las bandas n5, n8, n12, n20, n26, n28, n29, n67, n71 y n85, los límites básicos se especifican en el Cuadro 6.6.4.5.3.1-1 de TS 38.141-1 [1].

TABLE 6.6.4.5.3.1-1

**Wide Area BS operating band unwanted emission limits
(NR bands below 1 GHz) for Category B**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-5.5 \text{ dBm} - \frac{7}{5} \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-12.5 dBm	
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-16 dBm (Note 3)	

Note 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -16 dBm/100 kHz.

Note 2: For a *multi-band connector* with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

Para la EB que opera en las bandas n1, n2, n3, n7, n25, n34, n38, n39, n40, n41, n50, n65, n66, n70, n75, n92 y n94, los límites básicos se especifican en el Cuadro 6.6.4.5.3.1-2 de TS 38.141-1 [1].

TABLE 6.6.4.5.3.1-2

**Wide Area BS operating band unwanted emission limits
(1 GHz < NR bands ≤ 3 GHz) for Category B**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-5.5 \text{ dBm} - \frac{7}{5} \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-12.5 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-15 dBm (Note 3)	1 MHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -15 dBm/1 MHz.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

Para la EB que opera en las bandas n48, n77, n78 y n79, los límites básicos se especifican en el Cuadro 6.6.4.5.3.1-3 de TS 38,141-1 [1].

TABLE 6.6.4.5.3.1-3
**Wide Area BS operating band unwanted emission limits
 (NR bands >3 GHz) for Category B**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	<i>Basic limit</i> (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-5.2 \text{ dBm} - \frac{7}{5} \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-12.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-15 dBm (Note 3)	1 MHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be $-15 \text{ dBm}/1 \text{ MHz}$.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

3.1.4.2 Requisitos de la Categoría B (Opción 2)

Para una EB que opera en las bandas n1, n3, n8 y n65, o una EB de tipo 1-C que opera en las bandas n7, n38 o n101, los límites básicos se especifican en el Cuadro 6.6.4.5.3.2-1 de TS 38.141-1 [1].

TABLE 6.6.4.5.3.2-1

Regional Wide Area BS operating band unwanted emission limits for Category B

Frequency offset of measurement filter -3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.2 \text{ MHz}$	$0.015 \text{ MHz} \leq f_{\text{offset}} < 0.215 \text{ MHz}$	-12.5 dBm	30 kHz
$0.2 \text{ MHz} \leq \Delta f < 1 \text{ MHz}$	$0.215 \text{ MHz} \leq f_{\text{offset}} < 1.015 \text{ MHz}$	$-12.5 \text{ dBm} - 15 \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.215 \right) \text{ dB}$	30 kHz
(Note 4)	$1.015 \text{ MHz} \leq f_{\text{offset}} < 1.5 \text{ MHz}$	-24.5 dBm	30 kHz
$1 \text{ MHz} \leq \Delta f \leq \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$1.5 \text{ MHz} \leq f_{\text{offset}} < \min(10.5 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-11.5 dBm	1 MHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-15 dBm (Note 3)	1 MHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band, the minimum requirement within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the minimum requirement within sub-block gaps shall be $-15 \text{ dBm}/1 \text{ MHz}$.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{\text{OBUE}}$ the minimum requirement within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

Note 4: This frequency range ensures that the range of values of f_{offset} is continuous.

3.1.5 Límites básicos para la EB de medio alcance (Categoría A y Categoría B)

Para la EB de medio alcance en las bandas $\text{NR} \leq 3 \text{ GHz}$, los límites básicos se especifican en el Cuadro 6.6.4.5.4-1 y el Cuadro 6.6.4.5.4-2 de TS 38.141-1 [1].

TABLE 6.6.4.5.4-1

Medium Range BS *operating band* unwanted emission limits, $31 < P_{\text{rated},x} \leq 38$ dBm (NR bands ≤ 3 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	<i>Basic limit</i> (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$P_{\text{rated},x} - 51.5 \text{ dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	$P_{\text{rated},x} - 58.5 \text{ dB}$	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	$\text{Min}(P_{\text{rated},x} - 60 \text{ dB}, -25 \text{ dBm})$ (Note 3)	100 kHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be $\text{Min}(P_{\text{rated},x} - 60 \text{ dB}, -25 \text{ dBm})/100 \text{ kHz}$.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

TABLE 6.6.4.5.4-2
Medium Range BS operating band unwanted emission limits,
 $P_{\text{rated},x} \leq 31$ dBm (NR bands ≤ 3 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	<i>Basic limit</i> (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-20.5 \text{ dBm} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-27.5 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-29 dBm (Note 3)	100 kHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -29 dBm/100 kHz.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

Para la EB de medio alcance en las bandas NR > 3 GHz, los límites básicos se especifican en el Cuadro 6.6.4.5.4-3 y el Cuadro 6.6.4.5.4-4 de TS 38.141-1 [1].

TABLE 6.6.4.5.4-3

**Medium Range BS operating band unwanted emission limits,
31 < P_{rated,x} ≤ 38 dBm (NR bands >3 GHz)**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
0 MHz ≤ Δf < 5 MHz	0.05 MHz ≤ f _{offset} < 5.05 MHz	$P_{rated,x} - 51.2dB - \frac{7}{5} \left(\frac{f_{offset}}{MHz} - 0.05 \right) dB$	100 kHz
5 MHz ≤ Δf < min(10 MHz, Δf _{max})	5.05 MHz ≤ f _{offset} < min(10.05 MHz, f _{offset_max})	P _{rated,x} - 58.2 dB	100 kHz
10 MHz ≤ Δf ≤ Δf _{max}	10.05 MHz ≤ f _{offset} < f _{offset_max}	Min(P _{rated,x} - 60 dB, -25 dBm) (Note 3)	100 kHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is Δf ≥ 10 MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be Min(P_{rated,x} - 60 dB, -25 dBm)/100 kHz.

Note 2: For a multi-band connector with Inter RF Bandwidth gap < 2*Δf_{OBUE} the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

Note 3: The requirement is not applicable when Δf_{max} < 10 MHz.

TABLE 6.6.4.5.4-4

Medium Range BS operating band unwanted emission limits, $P_{\text{rated},x} \leq 31$ dBm (NR bands >3 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-20.2 \text{ dBm} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-27.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-29 dBm (Note 3)	100 kHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -29 dBm/100 kHz.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

3.1.6 Límites básicos para la EB de zona local (Categoría A y Categoría B)

Para la EB de zona local en las bandas $\text{NR} \leq 3$ GHz, los límites básicos se especifican en el Cuadro 6.6.4.5.5-1 de TS 38.141-1 [1].

TABLE 6.6.4.5.5-1

Local Area BS operating band unwanted emission limits (NR bands ≤ 3 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-28.5 \text{ dBm} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-35.5 dBm	
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-37 dBm (Note 3)	

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -37 dBm/100 kHz.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

Para la EB de zona local en las bandas NR > 3 GHz, los límites básicos se especifican en el Cuadro 6.6.4.5.5-1 de TS 38.141-1 [1].

TABLE 6.6.4.5.5-1

Local Area BS operating band unwanted emission limits (NR bands >3 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-28.2 \text{ dBm} - \frac{7}{5} \cdot \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-35.2 dBm	
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-37 dBm (Note 3)	

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -37 dBm/100 kHz.

Note 2: For a multi-band connector with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

Note 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

3.1.7 Límites básicos para las EB de zona local y medio alcance para las bandas n96 y n102 (Categoría A y Categoría B)

Para las EB de zona local y medio alcance que operan en las bandas n96 y n102, los límites básicos para el ancho de banda de canal de 20 MHz, 40 MHz, 60 MHz y 80 MHz se especifican en el Cuadro 6.6.4.5.5A-2 de TS 38.141-1 [1]. Para un solo canal no transmitido, los límites básicos se especifican en el Cuadro 6.6.4.5.5A-3 de TS 38.141-1 [1], y para dos canales no transmitidos, los límites básicos se especifican en el Cuadro 6.6.4.5.5A-4 de TS 38.141-1 [1].

En el caso de que haya uno o dos canales de 20 MHz no transmitidos entre canales transmitidos, cuando se haya asignado un ancho de banda de canal NR-U de 60 MHz o 80 MHz, se aplica la máscara espectral de emisión para los canales no transmitidos que se indica en los Cuadros 6.6.4.5.5A-3 y 6.6.4.5.5A-4 de TS 38.141-1 [1] para el canal o los dos canales no transmitidos respectivamente. La potencia relativa de toda emisión de EB no debe exceder los niveles más estrictos dados en los Cuadros 6.6.4.5.5A-2 y 6.6.4.5.5A-3 de TS 38.141-1 [1] en el caso de que haya canales no transmitidos entre canales transmitidos.

TABLE 6.6.4.5.5A-2

Medium Range BS and Local Area BS operating band unwanted emission limits for 20 MHz, 40 MHz, 60 MHz and 80 MHz channel bandwidth for band n96 and n102

Frequency offset of measurement filter -3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limits (Note 1)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 1 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 1.05 \text{ MHz}$	$\text{Max}(P_{\text{rated},x} - 10 \log_{10} \left(\frac{\text{BW}_{\text{channel}}}{100 \text{ kHz}} \right) - 20 \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) + 2.2 \text{ dB}, -40 \text{ dBm})$	100 kHz
$1 \text{ MHz} \leq \Delta f < \min(0.5N \text{ MHz}, \Delta f_{\text{max}})$	$1.05 \text{ MHz} \leq f_{\text{offset}} < \min((0.5N+0.05) \text{ MHz}, f_{\text{offset,max}})$	$\text{Max}(P_{\text{rated},x} - 10 \log_{10} \left(\frac{\text{BW}_{\text{Channel}}}{100 \text{ kHz}} \right) - 17.8 - \frac{8}{0.5N - 1} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 1.05 \right) \text{ dB}, -40 \text{ dBm})$	100 kHz
$0.5N \text{ MHz} \leq \Delta f < \min(N \text{ MHz}, \Delta f_{\text{max}})$	$(0.5N+0.05) \text{ MHz} \leq f_{\text{offset}} < \min((N+0.05) \text{ MHz}, f_{\text{offset,max}})$	$\text{Max}(P_{\text{rated},x} - 10 \log_{10} \left(\frac{\text{BW}_{\text{Channel}}}{100 \text{ kHz}} \right) - 25.8 - \frac{12}{0.5N} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.5N - 0.05 \right) \text{ dB}, -40 \text{ dBm})$	100 kHz
$0 \text{ MHz} \leq \Delta f < 1 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 1.05 \text{ MHz}$	$\text{Max}(P_{\text{rated},x} - 10 \log_{10} \left(\frac{\text{BW}_{\text{channel}}}{100 \text{ kHz}} \right) - 20 \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) + 2.2 \text{ dB}, -40 \text{ dBm})$	100 kHz
$8.5N \text{ MHz} \leq \Delta f < \min(10.3N \text{ MHz}, \Delta f_{\text{max}})$	$(8.5N+0.05) \text{ MHz} \leq f_{\text{offset}} < \min((10.3N+0.05) \text{ MHz}, f_{\text{offset,max}})$	$\text{Max} \left(P_{\text{rated},x} - 10 \log_{10} \left(\frac{\text{BW}_{\text{Channel}}}{100 \text{ kHz}} \right) - 39.8 \text{ dB}, -40 \text{ dBm} \right)$	100 kHz
$10.3N \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$(10.3N+0.05) \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset,max}}$	$\text{Max} \left(P_{\text{rated},x} - 10 \log_{10} \left(\frac{\text{BW}_{\text{Channel}}}{100 \text{ kHz}} \right) - 44.8 \text{ dB}, -40 \text{ dBm} \right)$	100 kHz

Note 1: For a BS supporting non-contiguous spectrum operation within any operating band, the minimum requirement within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq N$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the minimum requirement within sub-block gaps shall be $\text{Max} \left(P_{\text{rated},x} - 10 \log_{10} \left(\frac{\text{BW}_{\text{Channel}}}{100 \text{ kHz}} \right) - 37.8 \text{ dB}, -40 \text{ dBm} \right)$.

TABLE 6.6.4.5.5A-3

Medium Range BS operating band unwanted emission limits for one non-transmitted channel for 60 MHz and 80MHz channel bandwidth for band n96 and n102

Frequency offset of measurement filter -3dB point, Δf_{BE_offset}	Frequency offset of measurement filter centre frequency, f_{BE_offset}	Basic limits	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f_{BE_offset} < 1 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{BE_offset} < 1.05 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100kHz} \right) - 20 \left(\frac{f_{BE_offset}}{MHz} - 0.05 \right) + 2.2dB$	100 kHz
$1 \text{ MHz} \leq \Delta f_{BE_offset} < 10 \text{ MHz}$	$1.05 \text{ MHz} \leq f_{BE_offset} < 10.05 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100kHz} \right) - 17.8 - \frac{1}{3} \left(\frac{f_{BE_offset}}{MHz} - 1.05 \right) dB$	100 kHz
$10 \text{ MHz} \leq \Delta f_{BE_offset} < 19 \text{ MHz}$	$10.05 \text{ MHz} \leq f_{BE_offset} < 19.05 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100kHz} \right) - 20.8 + \frac{1}{3} \left(\frac{f_{BE_offset}}{MHz} - 10.05 \right) dB$	100 kHz
$19 \text{ MHz} \leq \Delta f_{BE_offset} < 19.9 \text{ MHz}$	$19.05 \text{ MHz} \leq f_{BE_offset} < 19.95 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100kHz} \right) - 17.8 + 20 \left(\frac{f_{BE_offset}}{MHz} - 19.05 \right) dB$	100 kHz

TABLE 6.6.4.5.5A-4

Medium Range BS and Local Area BS operating band unwanted emission limits for two non-transmitted channels of 80 MHz channel bandwidth for band n96 and n102

Frequency offset of measurement filter -3dB point, Δf_{BE_offset}	Frequency offset of measurement filter centre frequency, f_{BE_offset}	Basic limits	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f_{BE_offset} < 1 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{BE_offset} < 1.05 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100 \text{ kHz}} \right) - 20 \left(\frac{f_{BE_offset}}{\text{MHz}} - 0.05 \right) + 2.2 \text{ dB}$	100 kHz
$1 \text{ MHz} \leq \Delta f_{BE_offset} < 10 \text{ MHz}$	$1.05 \text{ MHz} \leq f_{BE_offset} < 10.05 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100 \text{ kHz}} \right) - 17.8 - \frac{5}{9} \left(\frac{f_{BE_offset}}{\text{MHz}} - 1.05 \right) \text{ dB}$	100 kHz
$10 \text{ MHz} \leq \Delta f_{BE_offset} < 30 \text{ MHz}$	$10.05 \text{ MHz} \leq f_{BE_offset} < 30.05 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100 \text{ kHz}} \right) - 22.8$	100 kHz
$30 \text{ MHz} \leq \Delta f_{BE_offset} < 39 \text{ MHz}$	$30.05 \text{ MHz} \leq f_{BE_offset} < 39.05 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100 \text{ kHz}} \right) - 22.8 + \frac{5}{9} \left(\frac{f_{BE_offset}}{\text{MHz}} - 30.05 \right) \text{ dB}$	100 kHz
$39 \text{ MHz} \leq \Delta f_{BE_offset} < 39.9 \text{ MHz}$	$39.05 \text{ MHz} \leq f_{BE_offset} < 39.95 \text{ MHz}$	$P_{rated,x} - 10 \log_{10} \left(\frac{BW_{Channel}}{100 \text{ kHz}} \right) - 17.8 + 20 \left(\frac{f_{BE_offset}}{\text{MHz}} - 39.05 \right) \text{ dB}$	100 kHz

3.1.8 Límites básicos para requisitos adicionales

Es posible que en algunas regiones se apliquen los siguientes requisitos adicionales:

- Para la protección de la TDT, el requisito establecido en la cláusula 6.6.4.5.6.2 de TS 38.141-1 [1].
- Para el funcionamiento en la banda n48, el requisito establecido en la cláusula 6.6.4.5.6.3 de TS 38.141-1 [1].
- Para el funcionamiento en la banda n53, el requisito establecido en la cláusula 6.6.4.5.6.4 de TS 38,141-1 [1].
- Para la protección del GPS, el requisito establecido en la cláusula 6.6.4.5.6.5 de TS 38.141-1 [1].
- Para el funcionamiento con el acceso a los canales del espectro compartido, el requisito establecido en la cláusula 6.6.4.5.6.6 de TS 38.141-1 [1].

6.6.4.5.6.2 Protection of DTT

In certain regions the following requirement may apply for protection of DTT. For *BS type I-C* or *BS type I-H* operating in Band n20, the level of emissions in the band 470-790 MHz, measured in an 8 MHz filter bandwidth on centre frequencies F_{filter} according to Table 6.6.4.5.6.2-1, *basic limit* is $P_{\text{EM,N}}$ declared by the manufacturer. This requirement applies in the frequency range 470-790 MHz even though part of the range falls in the spurious domain.

Table 6.6.4.5.6.2-1: Declared emissions *basic limit* for protection of DTT

Filter centre frequency, F_{filter}	Measurement bandwidth	Declared emission <i>basic limit</i> (dBm)
$F_{\text{filter}} = 8*N + 306$ (MHz); $21 \leq N \leq 60$	8 MHz	$P_{\text{EM,N}}$

Note: The regional requirement is defined in terms of EIRP (effective isotropic radiated power), which is dependent on both the BS emissions at the *antenna connector* and the deployment (including antenna gain and feeder loss). The requirement defined above provides the characteristics of the BS needed to verify compliance with the regional requirement. Compliance with the regional requirement can be determined using the method outlined in TS 36.104 [22], Annex G.

6.6.4.5.6.3 Additional operating band unwanted emissions limits for Band n48

The following requirement may apply to BS operating in Band n48 in certain regions. Emissions shall not exceed the maximum levels specified in Table 6.6.4.5.6.3-1.

Table 6.6.4.5.6.3-1: Additional operating band unwanted emission limits for Band n48

Channel bandwidth	Frequency offset of measurement filter -3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Minimum requirement	Measurement bandwidth (Note)
All	$0 \text{ MHz} \leq \Delta f < 10 \text{ MHz}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 9.5 \text{ MHz}$	-13 dBm	1 MHz

NOTE: The resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

6.6.4.5.6.4 Additional operating band unwanted emissions limits for Band n53

The following requirement may apply to BS operating in Band n53 in certain regions. Emissions shall not exceed the maximum levels specified in Table 6.6.4.5.6.4-1.

Table 6.6.4.5.6.4-1: Additional operating band unwanted emission limits for Band n53

Channel bandwidth (MHz)	Frequency range (MHz)	Frequency offset of measurement filter -3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Minimum requirement	Measurement bandwidth (Note)
5	2 400-2 477.5	$6 \text{ MHz} \leq \Delta f < 83.5 \text{ MHz}$	$6.5 \text{ MHz} \leq f_{\text{offset}} < 83 \text{ MHz}$	-25 dBm	1 MHz
10	2 400-2 473.5	$10 \text{ MHz} \leq \Delta f < 83.5 \text{ MHz}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < 83 \text{ MHz}$	-25 dBm	1 MHz
5	2 477.5-2 478.5	$5 \text{ MHz} \leq \Delta f < 6 \text{ MHz}$	5.5 MHz	-13 dBm	1 MHz
10	2 473.5-2 478.5	$5 \text{ MHz} \leq \Delta f < 10 \text{ MHz}$	$5.5 \text{ MHz} \leq f_{\text{offset}} < 9.5 \text{ MHz}$	-13 dBm	1 MHz
All	2 478.5-2 483.5	$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 4.5 \text{ MHz}$	-10 dBm	1 MHz
5	2 495-2 501	$0 \text{ MHz} \leq \Delta f < 6 \text{ MHz}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 5.5 \text{ MHz}$	-13 dBm	1 MHz
10	2 495-2 505	$0 \text{ MHz} \leq \Delta f < 10 \text{ MHz}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 9.5 \text{ MHz}$	-13 dBm	1 MHz
5	2 501-2 690	$6 \text{ MHz} \leq \Delta f < 195 \text{ MHz}$	$6.5 \text{ MHz} \leq f_{\text{offset}} < 194.5 \text{ MHz}$	-25 dBm	1 MHz

10	2 505-2 690	$10 \text{ MHz} \leq \Delta f < 195 \text{ MHz}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < 194.5 \text{ MHz}$	-25 dBm	1 MHz
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NOTE: The resolution bandwidth of the measuring equipment should be equal to the *measurement bandwidth*. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the *measurement bandwidth*. When the resolution bandwidth is smaller than the *measurement bandwidth*, the result should be integrated over the *measurement bandwidth* in order to obtain the equivalent noise bandwidth of the *measurement bandwidth*.

6.6.4.5.6.5 Protection of GPS

The level of emissions in the 1 541-1 650 MHz band, measured in measurement bandwidth according to Table 6.6.4.5.6.5-1 shall not exceed the *basic limits* $P_{EM_B24,a}$, $P_{EM_B24,b}$, $P_{EM_B24,c}$, $P_{EM_B24,d}$, $P_{EM_B24,e}$, and $P_{EM_B24,f}$ declared by the manufacturer.

Table 6.6.4.5.6.5-1: Declared emissions *basic limits* for protection of GPS

Operating Band	Frequency range (MHz)	Declared emission level (dBW) (Measurement bandwidth = 1 MHz)	Declared emission <i>basic limit</i> (dBW) of discrete emissions of less than 700 Hz bandwidth (Measurement bandwidth = 1 kHz)	Declared emission <i>basic limit</i> (dBW) of discrete emissions of less than 2 kHz bandwidth (Measurement bandwidth = 1 kHz)
n24	1 541-1 559	$P_{EM_B24,a}$		$P_{EM_B24,f}$
	1 559-1 610	$P_{EM_B24,b}$	$P_{EM_B24,d}$	
	1 610-1 650	$P_{EM_B24,c}$	$P_{EM_B24,e}$	

6.6.4.5.6.6 Additional operating band unwanted emissions limits for operation with shared spectrum channel access

In addition, for operation with shared spectrum channel access, the BS may have to comply with the applicable operating band unwanted emission limits established regionally, when deployed in regions where those limits apply and under the conditions declared by the manufacturer. The regional requirements may be in the form of conducted power, power spectral density, EIRP and other types of limits. In case of regulatory limits based on EIRP, assessment of the EIRP level is described in Annex F.2.

3.2 Relación de potencia de fuga conducida del canal adyacente (ACLR)

3.2.1 Requisitos generales

La relación de potencia de fuga del canal adyacente (ACLR) es el cociente entre la potencia media filtrada centrada en la frecuencia del canal asignado y la potencia media filtrada centrada en la frecuencia de canal adyacente.

El filtro supuesto para la frecuencia del canal adyacente se define en los Cuadros 6.6.3.5.2-1, 6.6.3.5.2-1a, 6.6.3.5.2-3 y 6.6.3.5.2-3a de TS 38.141-1 [1] y un filtro cuadrado cuyo ancho de banda sea igual al ancho de banda configurado para la transmisión de la señal transmitida (BW_{config}), centrado en la frecuencia del canal asignado.

Table 6.6.3.5.2-1: Base station ACLR limit

BS channel bandwidth of lowest/highest NR carrier transmitted $BW_{Channel}$ (MHz)	BS adjacent channel centre frequency offset below the lowest or above the highest carrier centre frequency transmitted	Assumed adjacent channel carrier (informative)	Filter on the adjacent channel frequency and corresponding filter bandwidth	ACLR limit
5, 10, 15, 20	$BW_{Channel}$	NR of same BW (Note 2)	Square (BW_{Config})	44.2 dB
	$2 \times BW_{Channel}$	NR of same BW (Note 2)	Square (BW_{Config})	44.2 dB
	$BW_{Channel} / 2 + 2.5$ MHz	5 MHz E-UTRA	Square (4.5 MHz)	44.2 dB (NOTE 3)
	$BW_{Channel} / 2 + 7.5$ MHz	5 MHz E-UTRA	Square (4.5 MHz)	44.2 dB (NOTE 3)
25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	$BW_{Channel}$	NR of same BW (Note 2)	Square (BW_{Config})	43.8 dB
	$2 \times BW_{Channel}$	NR of same BW (Note 2)	Square (BW_{Config})	43.8 dB
	$BW_{Channel} / 2 + 2.5$ MHz	5 MHz E-UTRA	Square (4.5 MHz)	43.8 dB (NOTE 3)
	$BW_{Channel} / 2 + 7.5$ MHz	5 MHz E-UTRA	Square (4.5 MHz)	43.8 dB (NOTE 3)

Note 1: $BW_{Channel}$ and BW_{Config} are the *BS channel bandwidth* and transmission bandwidth configuration of the lowest/highest NR carrier transmitted on the assigned channel frequency.

Note 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

Note 3: The requirements are applicable when the band is also defined for E-UTRA or UTRA.

Table 6.6.3.5.2-1a: Base station ACLR limit for band n96 and n102

BS channel bandwidth of lowest/highest NR carrier transmitted $BW_{Channel}$ (MHz)	BS adjacent channel centre frequency offset below the lowest or above the highest carrier centre frequency transmitted	Assumed adjacent channel carrier (informative)	Filter on the adjacent channel frequency and corresponding filter bandwidth	ACLR limit
10, 20, 40, 60, 80	$BW_{Channel}$	NR of same BW (Note 2)	Square (BW_{Config})	35 dB
	$2 \times BW_{Channel}$	NR of same BW (Note 2)	Square (BW_{Config})	40 dB

Note 1: $BW_{Channel}$ and BW_{Config} are the *BS channel bandwidth* and transmission bandwidth configuration of the lowest/highest NR carrier transmitted on the assigned channel frequency.

Note 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

Table 6.6.3.5.2-3: Base Station ACLR limit in non-contiguous spectrum or multiple bands

BS channel bandwidth of lowest/highest NR carrier transmitted $BW_{Channel}$ (MHz)	Sub-block or Inter RF Bandwidth gap size (W_{gap}) where the limit applies (MHz)	BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap)	Assumed adjacent channel carrier	Filter on the adjacent channel frequency and corresponding filter bandwidth	ACLR limit
5, 10, 15, 20	$W_{gap} \geq 15$ (Note 3) $W_{gap} \geq 45$ (Note 4)	2.5 MHz	5 MHz NR (Note 2)	Square (BW_{Config})	44.2 dB
	$W_{gap} \geq 20$ (Note 3) $W_{gap} \geq 50$ (Note 4)	7.5 MHz	5 MHz NR (Note 2)		
25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	$W_{gap} \geq 60$ (Note 4) $W_{gap} \geq 30$ (Note 3)	10 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	43.8 dB

	$W_{\text{gap}} \geq 80$ (Note 4) $W_{\text{gap}} \geq 50$ (Note 3)	30 MHz	20 MHz NR (Note 2)		
<p>Note 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.</p> <p>Note 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).</p> <p>Note 3: Applicable in case the <i>BS channel bandwidth</i> of the NR carrier transmitted at the other edge of the gap is 5, 10, 15, 20 MHz.</p> <p>Note 4: Applicable in case the <i>BS channel bandwidth</i> of the NR carrier transmitted at the other edge of the gap is 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 MHz.</p>					
Table 6.6.3.5.2-3a: Base Station ACLR limit in non-contiguous spectrum for band n96 and n102					
<i>BS channel bandwidth of lowest/highest NR carrier transmitted</i> BW_{Channel} (MHz)	Sub-block or Inter RF Bandwidth gap size (W_{gap}) where the limit applies (MHz)	BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap)	Assumed adjacent channel carrier	Filter on the adjacent channel frequency and corresponding filter bandwidth	ACLR limit
10, 20, 40, 60, 80	$W_{\text{gap}} \geq 60$	10 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	35 dB
	$W_{\text{gap}} \geq 80$	30 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	40 dB
<p>Note 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.</p> <p>Note 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).</p>					

3.2.2 Límites y límites básicos

Para funcionar en un espectro de frecuencias apareadas y no apareadas salvo para las bandas n96 y n102, la ACLR debe ser mayor al valor especificado en el Cuadro 6.6.3.5.2-1 de TS 38.141-1 [1].

Para el funcionamiento en espectro no contiguo o en múltiples bandas, salvo para las bandas n96 y n102, la ACLR debe ser mayor al valor especificado en el Cuadro 6.6.3.5.2-3 de TS 38.141-1 [1].

Para las bandas n96 y n102, la ACLR debe ser mayor al valor especificado en el Cuadro 6.6.3.5.2-1a de TS 38.141-1 [1].

El límite básico absoluto de ACLR se especifica en el Cuadro 6.6.3.5.2-2 de TS 38.141-1 [1].

Table 6.6.3.5.2-2: Base station ACLR absolute <i>basic limit</i>	
BS category / BS class	ACLR absolute <i>basic limit</i>
Category A Wide Area BS	-13 dBm/MHz
Category B Wide Area BS	-15 dBm/MHz
Medium Range BS	-25 dBm/MHz
Local Area BS	-32 dBm/MHz

3.2.3 EB de tipo 1-C

Para funcionar en un espectro de frecuencias apareadas y no apareadas, salvo para las bandas n96 y n102, los requisitos de prueba para la EB de tipo 1-C que se indican en los Cuadros 6.6.3.5.2-1 o 6.6.3.5.2-3 de TS 38.141-1 [1] se aplican por cada conector de antena. La conformidad puede demostrarse cumpliendo el límite de ACLR establecido en los Cuadros 6.6.3.5.2-1 o 6.6.3.5.2-3 de TS 38.141-1 [1], o los límites básicos absolutos del Cuadro 6.6.3.5.2-2 de TS 38.141-1 [1], aplicándose el menos estricto.

Para funcionar en las bandas n96 y n102, los requisitos de prueba para la EB de tipo 1-C que se indican en los Cuadros 6.6.3.5.2-1a o 6.6.3.5.2-3a de TS 38.141-1 [1] se aplican por cada conector de antena. La conformidad puede demostrarse cumpliendo el límite de ACLR establecido en los Cuadros 6.6.3.5.2-1a o 6.6.3.5.2-3a de TS 38.141-1 [1], o los límites básicos absolutos del Cuadro 6.6.3.5.2-2 de TS 38.141-1 [1], aplicándose el menos estricto.

3.2.4 EB de tipo 1-H

Los límites básicos absolutos de ACLR establecidos en el Cuadro 6.6.3.5.2-2 de TS 38.141-1 [1] + X (donde $X = 10\log_{10}(N_{\text{TXU, contadasporcélula}})$) o los límites de ACLR del Cuadro 6.6.3.5.2-1 o 6.6.3.5.2-3 de TS 38.141-1 [1], aplicándose el menos estricto, deben aplicarse a cada grupo mínimo de células de transmisión de conectores TAB.

El cumplimiento del límite ACLR de la EB de tipo 1-H puede demostrarse reuniendo al menos uno de los siguientes criterios, según determine el fabricante:

- 1) La relación entre la suma de la potencia media filtrada medida en cada conector TAB del grupo mínimo de células de transmisión de conectores TAB en la frecuencia del canal asignado y la suma de la potencia media filtrada medida en cada conector TAB del grupo mínimo de células de transmisión de conectores TAB en la frecuencia del canal adyacente debe ser mayor o igual que el límite ACLR de la EB. Esto debe aplicarse a cada grupo mínimo de células de transmisión de conectores TAB.

O

- 2) La relación entre la potencia media filtrada en el conector TAB centrada en la frecuencia del canal asignado y la potencia media filtrada en dicho conector TAB centrada en la frecuencia del canal adyacente debe ser mayor o igual que el límite ACLR de la EB para cada conector TAB del grupo mínimo de células de transmisión de conectores TAB, para cada grupo mínimo de células de transmisión de conectores TAB.

En el caso de que se aplique el límite básico absoluto de ACLR de la EB de tipo 1-H, el cumplimiento puede demostrarse reuniendo al menos uno de los siguientes criterios, según determine el fabricante:

- 1) La suma de la potencia media filtrada medida en cada conector TAB del grupo mínimo de células de transmisión de conectores TAB en la frecuencia del canal adyacente debe ser inferior o igual al límite básico absoluto de ACLR + X (donde $X = 10\log_{10}(N_{\text{TXU, contadasporcélula}})$) de la EB. Esto debe aplicarse a cada grupo mínimo de células de transmisión de conectores TAB.

O

- 2) La potencia media filtrada en cada conector TAB centrada en la frecuencia del canal adyacente debe ser inferior o igual al límite básico absoluto de ACLR de la EB escalado por $X - 10\log_{10}(n)$ para cada conector TAB del grupo mínimo de células de transmisión de conectores TAB, para cada grupo mínimo de células de transmisión de conectores TAB, donde n es el número de conectores TAB del grupo mínimo de células de transmisión de conectores TAB.

3.3 Relación de potencia de fuga conducida del canal adyacente acumulada (CACLR)

3.3.1 Requisitos generales

La relación de potencia de fuga del canal adyacente acumulada (CACLR) en un espacio de subbloque o espacio entre anchos de banda RF es la relación entre:

- la suma de la potencia media filtrada centrada en las frecuencias de canal asignadas de dos portadoras adyacentes a cada uno de los lados del espacio de subbloque o el espacio entre anchos de banda RF; y
- la potencia media filtrada centrada en el canal adyacente a uno de los dos extremos del subbloque o en ancho de banda RF de la estación base en cuestión.

El filtro supuesto para la frecuencia del canal adyacente se define en el Cuadro 6.6.3.5.2-4 de TS 38.141-1 [1] y los filtros en los canales asignados se definen en el Cuadro 6.6.3.5.2-6 de TS 38.141-1 [1].

Table 6.6.3.5.2-4: Base station CACLR limit

<i>BS channel bandwidth of lowest/highest NR carrier transmitted</i> BW_{Channel} (MHz)	Sub-block or Inter RF Bandwidth gap size (W_{gap}) where the limit applies (MHz)	BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap)	Assumed adjacent channel carrier	Filter on the adjacent channel frequency and corresponding filter bandwidth	CACLR limit
5, 10, 15, 20	$5 \leq W_{\text{gap}} < 15$ (Note 3)	2.5 MHz	5 MHz NR (Note 2)	Square (BW_{Config})	44.2 dB
	$5 \leq W_{\text{gap}} < 45$ (Note 4)				
	$10 < W_{\text{gap}} < 20$ (Note 3)	7.5 MHz	5 MHz NR (Note 2)		
	$10 \leq W_{\text{gap}} < 50$ (Note 4)				
25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	$20 \leq W_{\text{gap}} < 60$ (Note 4)	10 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	43.8 dB
	$20 \leq W_{\text{gap}} < 30$ (Note 3)				
	$40 < W_{\text{gap}} < 80$ (Note 4)	30 MHz	20 MHz NR (Note 2)		
	$40 \leq W_{\text{gap}} < 50$ (Note 3)				

Note 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.

Note 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

Note 3: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 5, 10, 15, 20 MHz.

Note 4: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 MHz.

Table 6.6.3.5.2-6: Filter parameters for the assigned channel

RAT of the carrier adjacent to the sub-block or Inter RF Bandwidth gap	Filter on the assigned channel frequency and corresponding filter bandwidth
NR	NR of same BW with SCS that provides largest transmission bandwidth configuration

3.3.2 Límites y límites básicos

Para el funcionamiento en espectro no contiguo o en múltiples bandas, salvo para las bandas n96 y n102, la CACLR de las portadoras NR situadas a cada lado del espacio de subbloque o el espacio entre anchos de banda RF debe ser mayor que el valor especificado en el Cuadro 6.6.3.5.2-4 de TS 38.141-1 [1].

Para el funcionamiento en espectro no contiguo para las bandas n96 y n102, la CACLR de las portadoras NR situadas a cada lado del espacio de subbloque debe ser mayor que el valor especificado en el Cuadro 6.6.3.5.2-4a de TS 38.141-1 [1].

Table 6.6.3.5.2-4a: Base Station CACLR limit for band n96 and n102

<i>BS channel bandwidth of lowest/highest NR carrier transmitted</i> BW_{Channel} (MHz)	Sub-block or Inter RF Bandwidth gap size (W_{gap}) where the limit applies (MHz)	BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap)	Assumed adjacent channel carrier	Filter on the adjacent channel frequency and corresponding filter bandwidth	CACLR limit
10, 20, 40, 60, 80	20 ≤ W _{gap} < 60	10 MHz	20 MHz NR (Note 2)	Square (BW _{Config})	35 dB
	40 < W _{gap} < 80	30 MHz	20 MHz NR (Note 2)	Square (BW _{Config})	40 dB

Note 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.
 Note 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

El límite básico absoluto de CACLR se especifica en el Cuadro 6.6.3.5.2-5 de TS 38.141-1 [1].

Table 6.6.3.5.2-5: Base station CACLR absolute basic limit

BS category / BS class	CACLR absolute basic limit
Category A Wide Area BS	-13 dBm/MHz
Category B Wide Area BS	-15 dBm/MHz
Medium Range BS	-25 dBm/MHz
Local Area BS	-32 dBm/MHz

3.3.3 EB de tipo 1-C

Los requisitos de prueba para la EB de tipo 1-C que se indican en el Cuadro 6.6.3.5.2-4 de TS 38.141-1 [1] se aplican por cada conector de antena. La conformidad puede demostrarse cumpliendo el límite de CACLR establecido en el Cuadro 6.6.3.5.2-4 de TS 38.141-1 [1], o los límites básicos absolutos del Cuadro 6.6.3.5.2-5 de TS 38.141-1 [1], aplicándose el menos estricto.

3.3.4 EB de tipo 1-H

Los límites básicos absolutos de CACLR establecidos en el Cuadro 6.6.3.5.2-5 de TS 38.141-1 [1] + X (donde X = 10log₁₀(NTXU, contadasporcélula)) o los límites de CACLR del Cuadro 6.6.3.5.2-4 de TS 38.141-1 [1], aplicándose el menos estricto, deben aplicarse a cada grupo mínimo de células de transmisión de conectores TAB.

El cumplimiento del límite CACLR de la EB de tipo 1-H puede demostrarse reuniendo al menos uno de los siguientes criterios, según determine el fabricante:

- 1) La relación entre la suma de la potencia media filtrada medida en cada conector TAB del grupo mínimo de células de transmisión de conectores TAB en la frecuencia del canal asignado y la suma de la potencia media filtrada medida en cada conector TAB del grupo

mínimo de células de transmisión de conectores TAB en la frecuencia del canal adyacente debe ser mayor o igual que el límite CACLR de la EB. Esto debe aplicarse a cada grupo mínimo de células de transmisión de conectores TAB.

O

- 2) La relación entre la potencia media filtrada en el conector TAB centrada en la frecuencia del canal asignado y la potencia media filtrada en dicho conector TAB centrada en la frecuencia del canal adyacente debe ser mayor o igual que el límite CACLR de la EB para cada conector TAB del grupo mínimo de células de transmisión de conectores TAB, para cada grupo mínimo de células de transmisión de conectores TAB.

En el caso de que se aplique el límite básico absoluto de CACLR de la EB de tipo 1-H, el cumplimiento puede demostrarse reuniendo al menos uno de los siguientes criterios, según determine el fabricante:

- 1) La suma de la potencia media filtrada medida en cada conector TAB del grupo mínimo de células de transmisión de conectores TAB en la frecuencia del canal adyacente debe ser inferior o igual al límite básico absoluto de CACLR + X (donde $X = 10 \log_{10}(NTXU_{\text{contadasporcélula}})$) de la EB. Esto debe aplicarse a cada grupo mínimo de células de transmisión de conectores TAB.

O

- 2) La potencia media filtrada en cada conector TAB centrada en la frecuencia del canal adyacente debe ser inferior o igual al límite básico absoluto de CACLR de la EB escalado por $X - 10 \log_{10}(n)$ para cada conector TAB del grupo mínimo de células de transmisión de conectores TAB, para cada grupo mínimo de células de transmisión de conectores TAB, donde n es el número de conectores TAB del grupo mínimo de células de transmisión de conectores TAB.

3.4 Emisiones no esenciales del transmisor conducidas

3.4.1 Emisiones no esenciales del transmisor conducidas para la EB de tipo 1-C

Las emisiones no esenciales del transmisor para la EB de tipo 1-C para cada conector de antena no deben exceder los límites básicos aplicables definidos en los § 3.4.3-3.4.6.

3.4.2 Emisiones no esenciales del transmisor conducidas para la EB de tipo 1-H

Los requisitos de las emisiones no esenciales del transmisor para la EB de tipo 1-H son los que corresponden a cada grupo mínimo de células de transmisión de conectores TAB y cada límite básico aplicable establecido en los § 3.4.3-3.4.6; la suma de las emisiones de potencia en los conectores TAB del grupo mínimo de células de transmisión de conectores TAB no debe exceder un límite especificado como el límite básico + X, donde $X = 10 \log_{10}(NTXU_{\text{contadasporcélula}})$, a menos que se indique otra cosa en una norma regional.

NOTA – El cumplimiento del requisito relativo a las emisiones no esenciales de la EB de tipo 1-H puede demostrarse reuniendo al menos uno de los siguientes criterios, según determine el fabricante:

- 1) La suma de la potencia de emisiones medida en cada conector TAB en el grupo mínimo de células de transmisión de conectores TAB debe ser inferior o igual al límite definido en esta cláusula para el correspondiente rango de frecuencia.

O

- 2) La potencia de las emisiones no deseadas en cada conector TAB debe ser inferior o igual al límite de la EB de tipo 1-H establecido en esta cláusula para el correspondiente rango de frecuencia, escalado por $-10 \log_{10}(n)$, donde n es el número de conectores TAB del grupo mínimo de células de transmisión de conectores TAB.

3.4.3 Límites básicos para las emisiones no esenciales del transmisor

Se deben aplicar los límites del Cuadro 6.6.5.5.1.1-1 en TS 38.141-1 [1] para la Categoría A o el Cuadro 6.6.5.5.1.1-2 en TS 38.141-1 [1] para la Categoría B. La aplicación de los límites para la Categoría A o la Categoría B debe ser la misma que para las emisiones no deseadas en la banda operativa que se señala en el § 3.1, conforme a la declaración del fabricante.

Table 6.6.5.5.1.1-1: General BS transmitter spurious emission limits in FR1, Category A

Spurious frequency range	Basic limit	Measurement bandwidth	Notes
9 kHz – 150 kHz	-13 dBm	1 kHz	Note 1, Note 4
150 kHz – 30 MHz		10 kHz	Note 1, Note 4
30 MHz – 1 GHz		100 kHz	Note 1
1 GHz – 12.75 GHz		1 MHz	Note 1, Note 2
12.75 GHz – 5 th harmonic of the upper frequency edge of the DL <i>operating band</i> in GHz		1 MHz	Note 1, Note 2, Note 3
12.75 GHz - 26 GHz	-13 dBm	1 MHz	Note 1, Note 2, Note 5

NOTE 1: Measurement bandwidths as in ITU-R SM.329 [5], s4.1.

NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the DL *operating band* is reaching beyond 12.75 GHz.

NOTE 4: This spurious frequency range applies only to *BS type 1-C* and *BS type 1-H*.

NOTE 5: Applies only for band n96 and n102.

Table 6.6.5.5.1.1-2: General BS transmitter spurious emission limits in FR1, Category B

Spurious frequency range	Basic limit	Measurement bandwidth	Notes
9 kHz – 150 kHz	-36 dBm	1 kHz	Note 1, Note 4
150 kHz – 30 MHz		10 kHz	Note 1, Note 4
30 MHz – 1 GHz		100 kHz	Note 1
1 GHz – 12.75 GHz	-30 dBm	1 MHz	Note 1, Note 2
12.75 GHz – 5 th harmonic of the upper frequency edge of the DL <i>operating band</i> in GHz		1 MHz	Note 1, Note 2, Note 3
12.75 GHz - 26 GHz	-30 dBm	1 MHz	Note 1, Note 2, Note 5

NOTE 1: Measurement bandwidths as in ITU-R SM.329 [5], s4.1.

NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the DL *operating band* is reaching beyond 12.75 GHz.

NOTE 4: This spurious frequency range applies only to *BS type 1-C* and *BS type 1-H*.

NOTE 5: Applies only for band n102.

3.4.4 Protección del receptor de una EB frente a la propia EB o a otra distinta

Este requisito se debe aplicar al funcionamiento en DDF NR a fin de evitar que los receptores de las EB pierdan sensibilidad debido a las emisiones del transmisor de una EB. Se mide en el conector de la antena de transmisión para la EB de tipo 1-C o en el conector TAB para la EB de tipo 1-H para cualquier tipo de EB que tenga conectores de antena de transmisión/recepción/conectores TAB comunes o independientes.

Los límites básicos se proporcionan en el Cuadro 6.6.5.5.1.2-1 en TS 38.141-1 [1].

Table 6.6.5.5.1.2-1: BS spurious emissions *basic limits* for protection of the BS receiver

BS class	Frequency range	Basic limit	Measurement bandwidth
Wide Area BS	F _{UL_low} – F _{UL_high}	–96 dBm	100 kHz
Medium Range BS		–91 dBm	
Local Area BS		–88 dBm	

3.4.5 Requisitos adicionales para las emisiones no esenciales

Es posible que en algunas regiones se apliquen los siguientes requisitos adicionales de TS 38.141-1 [1]:

- Para la coexistencia con sistemas que funcionan en otras bandas de frecuencias, el requisito establecido en el Cuadro 6.6.5.5.1.3-1.
- Para la protección del PHS, el requisito establecido en el Cuadro 6.6.5.5.1.3-2.
- Para la EB que funcione en las bandas n50 y n75 en 1 432-1 452 MHz, y en las bandas n51 y n76, el requisito del Cuadro 6.6.5.5.1.3-4.
- Para la EB que funcione en las bandas NR n50 y n75 en 1 492-1 517 MHz, y en la banda n74 en 1 492-1 518 MHz, los requisitos del Cuadro 6.6.5.5.1.3-5.
- Para la EB que funcione en las bandas n13 y n14, los requisitos del Cuadro 6.6.5.5.1.3-6.
- Para la EB que funcione en la banda n30, los requisitos del Cuadro 6.6.5.5.1.3-7.
- Para la EB que funcione en la banda n48, los requisitos del Cuadro 6.6.5.5.1.3-8.
- Para la EB que funcione en la banda n26 para la protección de las operaciones de seguridad pública en 800 MHz, los requisitos del Cuadro 6.6.5.5.1.3-9.
- Para la EB que funcione en 3,45-3,55 GHz en la banda n77 en determinadas regiones, los requisitos del Cuadro 6.6.5.5.1.3-11.
- Para la EB que funcione en la banda n101 en los países de la CEPT, los requisitos del Cuadro 6.6.5.5.1.3-12.
- Para la EB que funcione en la banda n100 en los países de la CEPT, los requisitos del Cuadro 6.6.5.5.1.3-13.

**Table 6.6.5.5.1.3-1:
BS spurious emissions 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	Basic limit	Measurement bandwidth	Note
GSM900	921-960 MHz	–57 dBm	100 kHz	This requirement does not apply to BS operating in band n8
	876-915 MHz	–61 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 6.6.5.5.1.2.
DCS1800	1 805-1 880 MHz	–47 dBm	100 kHz	This requirement does not apply to BS operating in band n3.
	1 710-1 785 MHz	–61 dBm	100 kHz	This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.6.5.5.1.2.

PCS1900	1 930-1 990 MHz	-47 dBm	100 kHz	This requirement does not apply to BS operating in band n2, n25 or band n70.
	1 850-1 910 MHz	-61 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 6.6.5.5.1.2.
GSM850 or CDMA850	869-894 MHz	-57 dBm	100 kHz	This requirement does not apply to BS operating in band n5 or n26.
	824-849 MHz	-61 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 6.6.5.5.1.2.
UTRA FDD Band I or E-UTRA Band 1 or NR Band n1	2 110-2 170 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n1 or n65
	1 920-1 980 MHz	-49 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 6.6.5.5.1.2.
UTRA FDD Band II or E-UTRA Band 2 or NR Band n2	1 930-1 990 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n2 or n70.
	1 850-1 910 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n2, since it is already covered by the requirement in clause 6.6.5.5.1.2.
UTRA FDD Band III or E-UTRA Band 3 or NR Band n3	1 805-1 880 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n3.
	1 710-1 785 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.6.5.5.1.2.
UTRA FDD Band IV or E-UTRA Band 4	2 110-2 155 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n66
	1 710-1 755 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.6.5.5.1.2.
UTRA FDD Band V or E-UTRA Band 5 or NR Band n5	869-894 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n5 or n26.
	824-849 MHz	-49 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 6.6.5.5.1.2.
UTRA FDD Band VI, XIX or E-UTRA Band 6, 18, 19 or NR Band n18	860-890 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n18.
	815-830 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n18, since it is already covered by the requirement in clause 6.6.5.2.2.
	830-845 MHz	-49 dBm	1 MHz	
UTRA FDD Band VII or E-UTRA Band 7 or NR Band n7	2 620-2 690 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n7.
	2 500-2 570 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n7, since it is already covered by the requirement in clause 6.6.5.5.1.2.
UTRA FDD Band VIII or E-UTRA Band 8 or NR Band n8	925-960 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n8 or n100.
	880-915 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.6.5.5.1.2.
UTRA FDD Band IX or E-UTRA Band 9	1 844.9-1 879.9 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n3.
	1 749.9-1 784.9 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.6.5.5.1.2.

UTRA FDD Band X or E-UTRA Band 10	2 110-2 170 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n66
	1 710-1 770 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.6.5.5.1.2.
UTRA FDD Band XI or XXI or E-UTRA Band 11 or 21	1 475.9-1 510.9 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n74, n75, n92 or n94.
	1 427.9-1 447.9 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n74, n75, n76, n91, n92, n93 or n94.
	1 447.9-1 462.9 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n74, n75, n92 or n94.
UTRA FDD Band XII or E-UTRA Band 12 or NR Band n12	729-746 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n12 or n85.
	699-716 MHz	-49 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 6.6.5.5.1.2. For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5).
UTRA FDD Band XIII or E-UTRA Band 13 or NR Band n13	746-756 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n13.
	777-787 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n13, since it is already covered by the requirement in clause 6.6.5.5.1.2
UTRA FDD Band XIV or E-UTRA Band 14 or NR Band n14	758-768 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n14.
	788-798 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n14, since it is already covered by the requirement in clause 6.6.5.5.1.2
E-UTRA Band 17	734-746 MHz	-52 dBm	1 MHz	
	704-716 MHz	-49 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 E-UTRA Band 20 or NR Band n20	791-821 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n20 or n28.
	832-862 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.6.5.5.1.2.
UTRA FDD Band XXII or E-UTRA Band 22	3 510-3 590 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n48, n77 or n78.
	3 410-3 490 MHz	-49 dBm	1 MHz	This is not applicable to BS operating in Band n77 or n78.
E-UTRA Band 24 or NR Band n24	1 525-1 559 MHz	-52 dBm	1 MHz	
	1 626.5-1 660.5 MHz	-49 dBm	1 MHz	
UTRA FDD Band XXV or E-UTRA Band 25 or NR band n25	1 930-1 995 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n2, n25 or n70.
	1 850-1 915 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n25 since it is already covered by the requirement in clause 6.6.5.5.1.2. For BS operating in Band n2, it

				applies for 1 910 MHz to 1915 MHz, while the rest is covered in clause 6.6.5.5.1.2.
UTRA FDD Band XXVI or E-UTRA Band 26 or NR Band n26	859-894 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n5 or n26.
	814-849 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n26 since it is already covered by the requirement in clause 6.6.5.5.1.2. For BS operating in Band n5, it applies for 814 MHz to 824 MHz, while the rest is covered in clause 6.6.5.5.1.2.
E-UTRA Band 27	852-869 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n5.
	807-824 MHz	-49 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 NR Band n28	758-803 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n20, n67 or n28.
	703-748 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n28, since it is already covered by the requirement in clause 6.6.5.5.1.2. 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	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n29 or n85.
E-UTRA Band 30 or NR Band n30	2 350-2 360 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n30.
	2 305-2 315 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n30, since it is already covered by the requirement in clause 6.6.5.5.1.2.
E-UTRA Band 31	462.5-467.5 MHz	-52 dBm	1 MHz	
	452.5-457.5 MHz	-49 dBm	1 MHz	
UTRA FDD band XXXII or E-UTRA band 32	1 452-1 496 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n74, n75, n92 or n94.
UTRA TDD Band a) or E-UTRA Band 33	1 900-1 920 MHz	-52 dBm	1 MHz	
UTRA TDD Band a) or E-UTRA Band 34 or NR band n34	2 010-2 025 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n34.
UTRA TDD Band b) or E-UTRA Band 35	1 850-1 910 MHz	-52 dBm	1 MHz	
UTRA TDD Band b) or E-UTRA Band 36	1 930-1 990 MHz	-52 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	1 910-1 930 MHz	-52 dBm	1 MHz	

UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38	2 570-2 620 MHz	-52 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	1 880-1 920 MHz	-52 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	2 300-2 400 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Bands n30 or n40.
E-UTRA Band 41 or NR Band n41	2 496-2 690 MHz	-52 dBm	1 MHz	This is not applicable to BS operating in Band n41 or n53.
E-UTRA Band 42	3 400-3 600 MHz	-52 dBm	1 MHz	This is not applicable to BS operating in Band n48, n77 or n78.
E-UTRA Band 43	3 600-3 800 MHz	-52 dBm	1 MHz	This is not applicable to BS operating in Band n48, n77 or n78.
E-UTRA Band 44	703-803 MHz	-52 dBm	1 MHz	This is not applicable to BS operating in Band n28.
E-UTRA Band 45	1447-1467 MHz	-52 dBm	1 MHz	
E-UTRA Band 47	5 855-5 925 MHz	-52 dBm	1 MHz	
E-UTRA Band 48 or NR Band n48	3 550-3 700 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n48, n77 and n78.
E-UTRA Band 50 or NR band n50	1 432-1 517 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n74, n75, n76, n91, n92, n93 or n94.
E-UTRA Band 51 or NR Band n51	1 427-1 432 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n75, n76, n91, n92, n93 or n94.
E-UTRA Band 53 or NR Band n53	2 483.5-2 495 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n41, n53 or n90.
E-UTRA Band 65 or NR Band n65	2 110-2 200 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n1 or n65
	1 920-2 010 MHz	-49 dBm	1 MHz	For BS operating in Band n1, it applies for 1 980 MHz to 2010 MHz, while the rest is covered in clause 6.6.5.5.1.2. This requirement does not apply to BS operating in band n65, since it is already covered by the requirement in clause 6.6.5.5.1.2.
E-UTRA Band 66 or NR Band n66	2 110-2 200 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n66.
	1 710-1 780 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.6.5.5.1.2.
E-UTRA Band 67 or NR Band n67	738-758 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n28 or n67.

E-UTRA Band 68	753-783 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n28.
	698-728 MHz	-49 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 6.6.5.5.1.2.
E-UTRA Band 69	2 570-2 620 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n38.
E-UTRA Band 70 or NR Band n70	1 995-2 020 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n2, n25 or n70
	1 695-1 710 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n70, since it is already covered by the requirement in clause 6.6.5.5.1.2.
E-UTRA Band 71 or NR Band n71	617-652 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n71
	663-698 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n71, since it is already covered by the requirement in clause 6.6.5.5.1.2.
E-UTRA Band 72	461-466 MHz	-52 dBm	1 MHz	
	451-456 MHz	-49 dBm	1 MHz	
E-UTRA Band 74 or NR Band n74	1 475-1 518 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n75, n75, n92 or n94.
	1 427-1 470 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n74, n75, n76, n91, n92, n93 or n94.
E-UTRA Band 75 or NR Band n75	1 432-1 517 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n74, n75, n76, n91, n92, n93 or n94.
E-UTRA Band 76 or NR Band n76	1 427-1 432 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n75, n76, n91, n92, n93 or n94.
NR Band n77	3.3-4.2 GHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n48, n77 or n78
NR Band n78	3.3-3.8 GHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n48, n77 or n78
NR Band n79	4.4-5.0 GHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n79
NR Band n80	1 710-1 785 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n3, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n81	880-915 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n82	832-862 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n83	703-748 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n28, since it is already covered by the requirement in clause 6.6.5.5.1.2. For BS operating in Band n67, it applies for 703 MHz to 736 MHz.
NR Band n84	1 920-1 980 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n1, since it is already covered by the requirement in clause 6.6.5.5.1.2.
E-UTRA Band 85 or NR Band n85	728-746 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in band n12 or n85.

	698-716 MHz	-49 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 6.6.5.5.1.2. For NR BS operating in n29, it applies 1 MHz below the Band n29 downlink operating band (Note 5).
NR Band n86	1 710-1 780 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n66, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n89	824-849 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n5, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n91	1 427-1 432 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n75 or n76.
	832-862 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n92	1 432-1 517 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76.
	832-862 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n20, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n93	1 427-1 432 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n75 or n76.
	880-915 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n94	1 432-1 517 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76.
	880-915 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n8, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n95	2 010-2 025 MHz	-52 dBm	1 MHz	
NR Band n96	5 925-7 125 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n96 or n102.
NR Band n97	2 300-2 400 MHz	-52 dBm	1 MHz	
NR Band n98	1 880-1 920 MHz	-52 dBm	1 MHz	
NR Band n99	1 626.5-1 660.5 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n24, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n100	919.4-925 MHz	-52 dBm	1 MHz	This requirement does not apply to E-UTRA BS operating in Band n8 or n100.
	874.4-880 MHz	-49 dBm	1 MHz	This requirement does not apply to BS operating in band n100, since it is already covered by the requirement in clause 6.6.5.5.1.2.
NR Band n101	1 900-1 910 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n101.
NR Band n102	5 925-6 425 MHz	-52 dBm	1 MHz	This requirement does not apply to BS operating in Band n96 or n102.
E-UTRA Band 103	757-758 MHz	-52 dBm	1 MHz	
	787-788 MHz	-49 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 Table 6.6.5.5.1.3-1 do not apply for the Δf_{OBUE} 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 6.6.5.5.1.3-1 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 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.

Table 6.6.5.5.1.3-2: BS spurious emissions *basic limits* for BS for co-existence with PHS

Frequency range	Basic limit	Measurement bandwidth	Note
1 884.5-1 915.7 MHz	-41 dBm	300 kHz	Applicable when co-existence with PHS system operating in 1 884.5-1 915.7 MHz

Table 6.6.5.5.1.3-4: Additional operating band unwanted emission *basic limits* for BS operating in Band n50 and n75 within 1432-1452 MHz, and in Band 51 and 76

Filter centre frequency, filter	Basic limit	Measurement bandwidth
$F_{\text{filter}} = 1\ 413.5\ \text{MHz}$	-42 dBm	27 MHz

Table 6.6.5.5.1.3-5: Operating band n50, n74 and n75 declared emission above 1518 MHz

Filter centre frequency, F_{filter}	Declared emission <i>basic limit</i> (dBm)	Measurement bandwidth
$1\ 518.5\ \text{MHz} \leq F_{\text{filter}} \leq 1\ 519.5\ \text{MHz}$	$P_{\text{EM}, n50, a}$	1 MHz
$1\ 520.5\ \text{MHz} \leq F_{\text{filter}} \leq 1\ 558.5\ \text{MHz}$	$P_{\text{EM}, n50, b}$	1 MHz

Table 6.6.5.5.1.3-6: BS Spurious emissions limits for protection of 700 MHz public safety operations

Operating Band	Frequency range	Maximum Level	Measurement Bandwidth
n13	763-775 MHz	-46 dBm	6.25 kHz
n13	793-805 MHz	-46 dBm	6.25 kHz
n14	769-775 MHz	-46 dBm	6.25 kHz
n14	799-805 MHz	-46 dBm	6.25 kHz

Table 6.6.5.5.1.3-7: Additional NR BS Spurious emissions limits for Band n30

Frequency range	Basic limit	Measurement bandwidth
2 200-2 345 MHz	-45 dBm	1 MHz
2 362.5-2 365 MHz	-25 dBm	
2 365-2 367.5 MHz	-40 dBm	
2 367.5-2 370 MHz	-42 dBm	
2 370-2 395 MHz	-45 dBm	

Table 6.6.5.2.3-8: Additional BS Spurious emissions limits for Band n48

Frequency range	Maximum Level	Measurement Bandwidth (NOTE)	Note
3 530-3 720 MHz	-25 dBm	1 MHz	Applicable 10 MHz from the assigned channel edge
3 100-3 530 MHz 3 720-4 200 MHz	-40 dBm	1 MHz	

NOTE: The resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

Table 6.6.5.2.3-9: BS Spurious emissions limits for protection of 800 MHz public safety operations

Operating Band	Frequency range	Maximum Level	Measurement Bandwidth	Note
n26	851-859 MHz	-13 dBm	100 kHz	Applicable for offsets > 37.5 kHz from the channel edge

Table 6.6.5.5.1.3-10: Additional BS Spurious emissions limits for Band n41 and n90

Frequency range	Basic limit	Measurement Bandwidth
2 505-2 535 MHz	-42 dBm	1 MHz
NOTE: This requirement applies for carriers allocated within 2 545-2 645 MHz.		

Table 6.6.5.5.1.3-11: Additional BS spurious emissions limits for Band n77

Channel bandwidth [MHz]	Frequency range [MHz]	Filter centre frequency, F_{filter} [MHz]	Minimum requirement [dBm]	Measurement bandwidth [MHz]
All	3 430-3 440	$3430.5 \leq F_{\text{filter}} < 3 439.5$	-25	1
	3 560-3 570	$3560.5 \leq F_{\text{filter}} < 3 569.5$		
All	$\leq 3 430$ $> 3 570$	$F_{\text{filter}} < 3 429.5$ $3570.5 \leq F_{\text{filter}}$	-40	1

NOTE: The resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. However, to improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth may be smaller than the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth in order to obtain the equivalent noise bandwidth of the measurement bandwidth.

Table 6.6.5.5.1.3-12: Additional BS Spurious emissions limits for Band n101

Frequency range	Maximum Level	Measurement Bandwidth	Note
1 920-1 980 MHz	-57 dBm	5 MHz	

Table 6.6.5.5.1.3-13: Additional BS Spurious emissions limits for Band n100

Frequency range	Maximum Level	Measurement Bandwidth	Note
880-915 MHz	-62 dBm	5 MHz	

3.4.6 Compartición de emplazamiento con otras estaciones de base

Estos requisitos podrán aplicarse para proteger los receptores de otras EB cuando haya EB GSM900, DCS1800, PCS1900, GSM850, CDMA850, DDF UTRA, DDT UTRA, E-UTRA y/o NR compartiendo emplazamiento con una EB.

En estos requisitos se suponen unas pérdidas de acoplamiento entre transmisor y receptor de 30 dB, correspondientes a la compartición de emplazamiento con estaciones base de la misma clase.

Los límites básicos figuran en el Cuadro 6.6.5.5.1.4-1 de TS 38-141-1 [1] para las EB a las que se apliquen los requisitos de compartición de emplazamiento con una EB del tipo indicado en la primera columna, dependiendo de la clase de estación base declarada. Para un conector multibanda, se deben aplicar las exclusiones y condiciones de la columna Nota del Cuadro 6.6.5.5.1.4-1 a cada banda operativa soportada.

Table 6.6.5.5.1.4-1: BS spurious emissions *basic limits* for BS co-located with another BS

Type of co-located BS	Frequency range for co-location requirement	Basic limit			Measurement bandwidth	Note
		WA BS	MR BS	LA BS		
GSM900	876-915 MHz	-98 dBm	-91 dBm	-70 dBm	100 kHz	
DCS1800	1 710-1785 MHz	-98 dBm	-91 dBm	-80 dBm	100 kHz	
PCS1900	1 850-1 910 MHz	-98 dBm	-91 dBm	-80 dBm	100 kHz	
GSM850 or CDMA850	824-849 MHz	-98 dBm	-91 dBm	-70 dBm	100 kHz	
UTRA FDD Band I or E-UTRA Band 1 or NR Band n1	1 920-1 980 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band II or E-UTRA Band 2 or NR Band n2	1 850-1 910 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band III or E-UTRA Band 3 or NR Band n3	1 710-1 785 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band IV or E-UTRA Band 4	1 710-1 755 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band V or E-UTRA Band 5 or NR Band n5	824-849 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band VI, XIX or E-UTRA Band 6, 19	830-845 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band VII or E-UTRA Band 7 or NR Band n7	2 500-2 570 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band VIII or E-UTRA Band 8 or NR Band n8	880-915 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band IX or E-UTRA Band 9	1 749.9-1 784.9 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band X or E-UTRA Band 10	1 710-1 770 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band XI or E-UTRA Band 11	1 427.9-1 447.9 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n50, n75, n91, n92, n93 or n94
UTRA FDD Band XII or E-UTRA Band 12 or NR Band n12	699-716 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band XIII or E-UTRA Band 13 or NR Band n13	777-787 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band XIV or E-UTRA Band 14 or NR Band n14	788-798 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 17	704-716 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 18 or NR Band n18	815-830 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band XX or E-UTRA Band 20 or NR Band n20	832-862 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	

UTRA FDD Band XXI or E-UTRA Band 21	1 447.9-1 462.9 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n50, n75, n92 or n94
UTRA FDD Band XXII or E-UTRA Band 22	3 410-3 490 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n48, n77 or n78
E-UTRA Band 24 or NR Band n24	1 626.5-1 660.5 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band XXV or E-UTRA Band 25 or NR Band n25	1 850-1 915 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA FDD Band XXVI or E-UTRA Band 26 or NR Band n26	814-849 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 27	807-824 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 28 or NR Band n28	703-748 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 30 or NR Band n30	2 305-2 315 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 31	452.5-457.5 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA TDD Band a) or E-UTRA Band 33	1 900-1 920 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA TDD Band a) or E-UTRA Band 34 or NR band n34	2 010-2 025 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n34
UTRA TDD Band b) or E-UTRA Band 35	1 850-1 910 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA TDD Band b) or E-UTRA Band 36	1 930-1 990 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n2 or band n25
UTRA TDD Band c) or E-UTRA Band 37	1910-1 930 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38	2 570-2620 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n38.
UTRA TDD Band f) or E-UTRA Band 39 or NR band n39	1 880-1 920 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n39
UTRA TDD Band e) or E-UTRA Band 40 or NR Band n40	2 300-2 400 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Bands n30 or n40.
E-UTRA Band 41 or NR Band n41	2 496-2 690 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n41 or n53
E-UTRA Band 42	3 400-3 600 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n48, n77 or n78

E-UTRA Band 43	3 600-3 800 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n48, n77 or n78
E-UTRA Band 44	703-803 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n28
E-UTRA Band 45	1 447-1 467 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 48 or NR Band n48	3 550-3 700 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n48, n77 or n78
E-UTRA Band 50 or NR band n50	1 432-1 517 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n51, n74, n75, n91, n92, n93 or n94
E-UTRA Band 51 or NR Band n51	1 427-1 432 MHz	N/A	N/A	-88 dBm	100 kHz	This is not applicable to BS operating in Band n50, n74, n75, n76, n91, n92, n93 or n94
E-UTRA Band 53 or NR Band n53	2 483.5-2 495 MHz	N/A	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n41, n53 or n90
E-UTRA Band 65 or NR Band n65	1 920-2 010 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 66 or NR Band n66	1 710-1 780 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 68	698-728 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 70 or NR Band n70	1 695-1 710 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 71 or NR Band n71	663-698 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 72	451-456 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
E-UTRA Band 74 or NR Band n74	1 427-1 470 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n50, n51, n91, n92, n93 or n94
NR Band n77	3.3-4.2 GHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n48, n77 or n78
NR Band n78	3.3-3.8 GHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	This is not applicable to BS operating in Band n48, n77 or n78
NR Band n79	4.4-5.0 GHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n80	1 710-1 785 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n81	880-915 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n82	832-862 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n83	703-748 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n84	1 920-1 980 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	

E-UTRA Band 85 or NR Band n85	698-716 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n86	1 710-1 780 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n89	824-849 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n91	832-862 MHz	N/A	N/A	-88 dBm	100 kHz	
NR Band n92	832-862 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n93	880-915 MHz	N/A	N/A	-88 dBm	100 kHz	
NR Band n94	880-915 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n95	2 010-2 025 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n96	5 925-7 125 MHz	N/A	-90 dBm	-87 dBm	100 kHz	This is not applicable to BS operating in Band n96 or n102
NR Band n97	2 300-2 400 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n98	1 880-1 920 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n99	1 626.5-1 660.5 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	
NR Band n100	874.4-880 MHz	-96 dBm	N/A	N/A	100 kHz	
NR Band n101	1 900-1 910 MHz	-96 dBm	N/A	N/A	100 kHz	
NR Band n102	5 925-6 425 MHz	N/A	-90 dBm	-87 dBm	100 kHz	This is not applicable to BS operating in Band n96 or n102
E-UTRA Band 103	787-788 MHz	-96 dBm	-91 dBm	-88 dBm	100 kHz	

NOTE 1: As defined in the scope for spurious emissions in this clause, the co-location requirements in table 6.6.5.5.1.4-1 do not apply for the frequency range extending Δf_{OBUE} immediately outside the BS transmit frequency range of a downlink *operating band* (see TS 38.104 [2] Table 5.2-1). The current state-of-the-art technology does not allow a single generic solution for co-location with other system on adjacent frequencies for 30dB BS-BS minimum coupling loss. However, there are certain site-engineering solutions that can be used. These techniques are addressed in TR 25.942 [15].

NOTE 2: Table 6.6.5.5.1.4-1 assumes that two *operating bands*, where the corresponding BS transmit and receive 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-location requirements may apply that are not covered by the 3GPP specifications.

NOTE 3: Co-located TDD base stations that are synchronized and using the same or adjacent *operating band* can transmit without special co-locations requirements. For unsynchronized base stations, special co-location requirements may apply that are not covered by the 3GPP specifications.

3.5 Emisiones no esenciales del receptor conducidas

3.5.1 Emisiones no esenciales del receptor conducidas para la EB de tipo 1-C

Las emisiones no esenciales del receptor para la EB de tipo 1-C para cada conector de antena deben ser inferiores a los límites básicos aplicables definidos en el § 3.5.3.

3.5.2 Emisiones no esenciales del receptor conducidas para la EB de tipo 1-H

Los requisitos de las emisiones no esenciales del receptor para la EB de tipo 1-H son los que corresponden a cada grupo mínimo de células de transmisión de conectores TAB y cada límite básico aplicable establecido en el § 3.5.3; la suma de las emisiones de potencia en los conectores TAB del grupo mínimo de células de transmisión de conectores TAB no debe exceder un límite de EB

especificado como el límite básico + X, donde $X = 10 \log_{10}(N_{\text{TXU, contadasporcélula}})$, a menos que se indique otra cosa en una norma regional.

NOTA – El cumplimiento del requisito relativo a las emisiones de la EB de tipo 1-H puede demostrarse reuniendo al menos uno de los siguientes criterios, según determine el fabricante:

- 1) La suma de la potencia de emisiones medida en cada conector TAB en el grupo mínimo de células de transmisión de conectores TAB debe ser inferior o igual al límite definido en esta cláusula para el correspondiente rango de frecuencia.

o

- 2) La potencia de las emisiones no deseadas en cada conector TAB debe ser inferior o igual al límite de la EB de tipo 1-H establecido en esta cláusula para el correspondiente rango de frecuencia, escalado por $-10\log_{10}(n)$, donde n es el número de conectores TAB del grupo mínimo de células de transmisión de conectores TAB.

3.5.3 Límites básicos para las emisiones no esenciales del receptor

Los límites básicos para las emisiones no esenciales del receptor se especifican en el Cuadro 7.6.5.1-1 de TS 38.141-1 [1].

Table 7.6.5.1-1: General BS receiver spurious emissions limits

Spurious frequency range	Basic limit	Measurement bandwidth	Notes
30 MHz-1 GHz	-57 dBm	100 kHz	Note 1
1 GHz-12.75 GHz	-47 dBm	1 MHz	Note 1, Note 2
12.75 GHz – 5 th harmonic of the upper frequency edge of the UL <i>operating band</i> in GHz	-47 dBm	1 MHz	Note 1, Note 2, Note 3
12.75 GHz - 26 GHz	-47 dBm	1 MHz	Note 1, Note 2, Note 6

NOTE 1: Measurement bandwidths as in ITU-R SM.329 [5], s4.1.

NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the UL *operating band* is reaching beyond 12.75 GHz.

NOTE 4: The frequency range from Δf_{OBUE} below the lowest frequency of the BS transmitter operating band to Δf_{OBUE} above the highest frequency of the BS transmitter *operating band* may be excluded from the requirement. Δf_{OBUE} is defined in clause 6.6.1. For *multi-band connectors*, the exclusion applies for all supported *operating bands*.

NOTE 5: Void.

NOTE 6: Applies only for band n96 and n102.

4 Características de las emisiones no deseadas NR para las estaciones de base de tipo 1-O y 2-O

El desplazamiento máximo de la máscara de emisiones no deseadas de la banda operativa desde el borde de la banda operativa es Δf_{OBUE} . Las emisiones no deseadas de la banda operativa definen las emisiones no deseadas en cada banda operativa del enlace descendente soportada más las gamas de frecuencias Δf_{OBUE} por encima y Δf_{OBUE} por debajo de cada banda. Las emisiones no deseadas fuera de esta gama de frecuencias se definen por características de emisiones no esenciales.

NOTA – La separación de frecuencia Δf_{OBUE} no define el límite entre los dominios fuera de banda y no esencial establecido en la Recomendación UIT-R SM.1541. Como resultado de ello, en la gama desde el borde de la banda operativa hasta Δf_{OBUE} las características de las emisiones no deseadas presentadas en este Anexo podrían cubrir exclusivamente una parte de la gama de frecuencias del dominio fuera de banda. En dicho caso, para el resto de las gamas de frecuencias del dominio fuera de banda, se deben utilizar las características de las emisiones no esenciales.

El valor de Δf_{OBUE} se define en el Cuadro A2-8 para la EB de tipo 1-O y la EB de tipo 2-O para las bandas operativas NR.

CUADRO A2-8

Desplazamiento máximo de Δf_{OBUE} fuera de la banda operativa de enlace descendente

Tipo de EB	Características de la banda operativa	Δf_{OBUE} (MHz)
EB de tipo 1-O	$F_{\text{DL_alta}} - F_{\text{DL_baja}} < 100 \text{ MHz}$	10
	$100 \text{ MHz} \leq F_{\text{DL_alta}} - F_{\text{DL_baja}} \leq 900 \text{ MHz}$	40
EB de tipo 2-O	$F_{\text{DL_alta}} - F_{\text{DL_baja}} \leq 4\,000 \text{ MHz}$	1 500

4.1 Emisiones no deseadas en la banda operativa OTA

4.1.1 Emisiones no deseadas en la banda operativa OTA para la EB de tipo 1-O

Respecto de la EB de tipo 1-O, para un RIB que opere en CA multiportadora o contigua, los requisitos se aplican a los anchos de banda de canal de la EB de la portadora más externa. Además, para un RIB que opere en espectro no contiguo, los requisitos serán de aplicación dentro de los espacios de subbloque. Además, para un RIB en múltiples bandas, los requisitos deben aplicarse dentro de los espacios entre anchos de banda RF.

4.1.1.1 EB de zona amplia (Categoría A)

Para un RIB que opera en las bandas n5, n8, n12, n13, n14, n26, n28, n29, n71 y n85, las emisiones no deben exceder los niveles máximos establecidos en el Cuadro 6.7.4.5.1.1-1 de TS 38.141-2 [2].

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$3.8 \text{ dBm} - 7/5(f_{\text{offset}}/\text{MHz} - 0.05) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-3.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-4 dBm (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -4 dBm/100 kHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void

Para un RIB que opere en las bandas n1, n2, n3, n7, n25, n30, n34, n38, n39, n40, n41, n50, n65, n66, n70, n74, n75, n77, n78 y n79, las emisiones no deben exceder los niveles máximos establecidos en los Cuadros 6.7.4.5.1.1-2 a 6.7.4.5.1.1-4 de TS 38.141-2 [2].

**Table 6.7.4.5.1.1-2: Wide Area BS *operating band* unwanted emission limits
(1 GHz < NR bands ≤ 3 GHz) for Category A**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$3.8 \text{ dBm} - 7/5(f_{\text{offset}}/\text{MHz} - 0.05)\text{dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-3.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-4 dBm (Note 3)	1 MHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -4 dBm/1 MHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < $2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

**Table 6.7.4.5.1.1-4: Wide Area BS *operating band* unwanted emission limits
(4.2 GHz < NR bands ≤ 6 GHz) for Category A**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$4 \text{ dBm} - 7/5(f_{\text{offset}}/\text{MHz} - 0.05)\text{dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-3 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-4 dBm (Note 3)	1 MHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -4 dBm/1 MHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < $2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

4.1.1.2 EB de zona amplia, Categoría B (Opción 1)

Para un RIB que opera en las bandas n5, n8, n12, n20, n26, n28, n29, n67, n71 y n85, las emisiones no deben exceder los niveles máximos establecidos en el Cuadro 6.7.4.5.1.2-1 de TS 38.141-2 [2].

**Table 6.7.4.5.1.2-1: Wide Area BS operating band unwanted emission limits
(NR bands ≤ 1 GHz) for Category B**

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$3.8 \text{ dBm} - 7/5(f_{\text{offset}}/\text{MHz} - 0.05)\text{dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-3.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-7 dBm (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -7 dBm/ 100 kHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

Para un RIB que opere en las bandas n1, n2, n3, n7, n25, n34, n38, n39, n40, n41, n50, n65, n66, n70, n75, n77, n78 y n79, las emisiones no deben exceder los niveles máximos establecidos en los Cuadros 6.7.4.5.1.2-2 a 6.7.4.5.1.2-4 de TS 38.141-2 [2].

**Table 6.7.4.5.1.2-2: Wide Area BS operating band unwanted emission limits
(1 GHz < NR bands ≤ 3 GHz) for Category B**

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$3.8 \text{ dBm} - 7/5(f_{\text{offset}}/\text{MHz} - 0.05)\text{dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset,max}})$	–3.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset,max}}$	–6 dBm (Note 3)	1 MHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be –6 dBm/1 MHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < $2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

**Table 6.7.4.5.1.2-3: Wide Area BS operating band unwanted emission limits
(3 GHz < NR bands ≤ 4.2 GHz) for Category B**

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$4 \text{ dBm} - 7/5(f_{\text{offset}}/\text{MHz} - 0.05)\text{dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset,max}})$	–3 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset,max}}$	–6 dBm (Note 3)	1 MHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be –6 dBm/1 MHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < $2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void

**Table 6.7.4.5.1.2-4: Wide Area BS operating band unwanted emission limits
(4.2 GHz < NR bands ≤ 6 GHz) for Category B**

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$4 \text{ dBm} - 7/5(f_{\text{offset}}/\text{MHz} - 0.05)\text{dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset,max}})$	–3 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset,max}}$	–6 dBm (Note 3)	1 MHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band*, the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block

gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -6 dBm/1 MHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{OBUE}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

NOTE 3: The requirement is not applicable when $\Delta f_{max} < 10$ MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void

4.1.1.3 EB de zona amplia, Categoría B (Opción 2)

Para un RIB que opera en las bandas n1, n3, n8 y n65, las emisiones no deben exceder los niveles máximos establecidos en el Cuadro 6.7.4.5.1.3-1 de TS 38.141-2 [2].

Table 6.7.4.5.1.3-1: Regional Wide Area BS operating band unwanted emission limits for Category B

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Basic limit (Note 1, 2, 5)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.2 \text{ MHz}$	$0.015 \text{ MHz} \leq f_{offset} < 0.215 \text{ MHz}$	-3.2 dBm	30 kHz
$0.2 \text{ MHz} \leq \Delta f < 1 \text{ MHz}$	$0.215 \text{ MHz} \leq f_{offset} < 1.015 \text{ MHz}$	$-3.2 \text{ dBm} - 15 \cdot \left(\frac{f_{offset}}{\text{MHz}} - 0.215 \right) \text{ dB}$	30 kHz
(Note 4)	$1.015 \text{ MHz} \leq f_{offset} < 1.5 \text{ MHz}$	-15.2 dBm	30 kHz
$1 \text{ MHz} \leq \Delta f \leq \min(10 \text{ MHz}, \Delta f_{max})$	$1.5 \text{ MHz} \leq f_{offset} < \min(10.5 \text{ MHz}, f_{offset_{max}})$	-2.2 dBm	1 MHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{max}$	$10.5 \text{ MHz} \leq f_{offset} < f_{offset_{max}}$	-6 dBm (Note 3)	1 MHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any operating band, the minimum requirement within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the minimum requirement within sub-block gaps shall be -6 dBm/1 MHz.

NOTE 2: For a *multi-band connector* with Inter RF Bandwidth gap $< 2 \cdot \Delta f_{OBUE}$ the minimum requirement within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap, where the contribution from the far-end sub-block or RF Bandwidth shall be scaled according to the measurement bandwidth of the near-end sub-block or RF Bandwidth.

NOTE 3: The requirement is not applicable when $\Delta f_{max} < 10$ MHz.

NOTE 4: This frequency range ensures that the range of values of f_{offset} is continuous.

NOTE 5: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 6: Void.

4.1.1.4 EB de medio alcance (Categoría A y Categoría B)

Para la clase de EB de medio alcance en las bandas $NR \leq 3$ GHz, las emisiones no deberán superar los niveles máximos especificados en los Cuadros 6.7.4.5.1.4-1 y 6.7.4.5.1.4-4 de TS 38.141-2 [2].

Table 6.7.4.5.1.4-1: Medium Range BS *operating band* unwanted emission limits, $40 < P_{\text{rated,c,TRP}} \leq 47$ dBm (NR bands ≤ 3 GHz)

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$P_{\text{rated,c,TRP}} - 51.2 \text{ dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	$P_{\text{rated,c,TRP}} - 58.2 \text{ dB}$	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	$\text{Min}(P_{\text{rated,c,TRP}} - 60 \text{ dB}, -16 \text{ dBm})$ (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be $\text{Min}(P_{\text{rated,c,TRP}} - 60 \text{ dB}, -16 \text{ dBm})/100 \text{ kHz}$.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

Table 6.7.4.5.1.4-4: Medium Range BS *operating band* unwanted emission limits, $P_{\text{rated,c,TRP}} \leq 40$ dBm (NR bands ≤ 3 GHz)

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-11.2 \text{ dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-18.2 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-20 dBm (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be $-20 \text{ dBm}/100 \text{ kHz}$.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

Para la clase de EB de medio alcance en las bandas NR de 3 GHz a 4,2 GHz, las emisiones no deberán superar los niveles máximos especificados en los Cuadros 6.7.4.5.1.4-2 y 6.7.4.5.1.4-5 de TS 38.141-2 [2].

Table 6.7.4.5.1.4-2: Medium Range BS *operating band* unwanted emission limits, $40 < P_{\text{rated,c,TRP}} \leq 47$ dBm (3 GHz < NR bands ≤ 4.2 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$P_{\text{rated,c,TRP}} - 51 \text{ dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offsetmax}})$	$P_{\text{rated,c,TRP}} - 58 \text{ dB}$	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offsetmax}}$	$\text{Min}(P_{\text{rated,c,TRP}} - 60 \text{ dB}, -16 \text{ dBm})$ (Note 3)	100 kHz

- NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be $\text{Min}(P_{\text{rated,c,TRP}} - 60 \text{ dB}, -16 \text{ dBm})/100 \text{ kHz}$.
- NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.
- NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.
- NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.
- NOTE 5: Void.

Table 6.7.4.5.1.4-5: Medium Range BS *operating band* unwanted emission limits, $P_{\text{rated,c,TRP}} \leq 40$ dBm (3 GHz < NR bands ≤ 4.2 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-11 \text{ dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offsetmax}})$	-18 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offsetmax}}$	-20 dBm (Note 3)	100 kHz

- NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -20 dBm/100 kHz.
- NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.
- NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.
- NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.
- NOTE 5: Void.

Para la clase de EB de medio alcance en las bandas NR de 4,2 GHz a 6 GHz, las emisiones no deberán superar los niveles máximos especificados en los Cuadros 6.7.4.5.1.4-3 y 6.7.4.5.1.4-6 de TS 38.141-2 [2].

Table 6.7.4.5.1.4-3: Medium Range BS operating band unwanted emission limits, $40 < P_{\text{rated,c,TRP}} \leq 47$ dBm (4.2 GHz < NR bands ≤ 6 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$P_{\text{rated,c,TRP}} - 51 \text{ dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset,max}})$	$P_{\text{rated,c,TRP}} - 58 \text{ dB}$	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset,max}}$	$\text{Min}(P_{\text{rated,c,TRP}} - 60 \text{ dB}, -16 \text{ dBm})$ (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be $\text{Min}(P_{\text{rated,c,TRP}} - 60 \text{ dB}, -16 \text{ dBm})/100 \text{ kHz}$.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

Table 6.7.4.5.1.4-6: Medium Range BS operating band unwanted emission limits, $P_{\text{rated,c,TRP}} \leq 40$ dBm (4.2 GHz < NR bands ≤ 6 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-11 \text{ dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{ dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset,max}})$	-18 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset,max}}$	-20 dBm (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10$ MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be $-20 \text{ dBm}/100 \text{ kHz}$.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap $< 2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap.

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10$ MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

4.1.1.5 EB de zona local (Categoría A y Categoría B)

Para la clase de EB de zona local en las bandas NR ≤ 3 GHz, las emisiones no deberán superar los niveles máximos especificados en el Cuadro 6.7.4.5.1.5-1 de TS 38.141-2 [2].

Table 6.7.4.5.1.5-1: Local Area BS operating band unwanted emission limits (NR bands ≤ 3 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Test requirement (Note 1, 2, 4)	Measurement bandwidth
0 MHz ≤ Δf < 5 MHz	0.05 MHz ≤ f_offset < 5.05 MHz	$-19.2dB - \frac{7}{5} \left(\frac{f_offset}{MHz} - 0.05 \right) dB$	100 kHz
5 MHz ≤ Δf < min(10 MHz, Δf_max)	5.05 MHz ≤ f_offset < min(10.05 MHz, f_offset_max)	-26.2 dBm	100 kHz
10 MHz ≤ Δf ≤ Δf_max	10.05 MHz ≤ f_offset < f_offset_max	-28 dBm (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is Δf ≥ 10 MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -28 dBm/100 kHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2*Δf_{OBUE} the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap

NOTE 3: The requirement is not applicable when Δf_{max} < 10 MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

Para la clase de EB de zona local en las bandas NR de 3 GHz a 4,2 GHz, las emisiones no deberán superar los niveles máximos especificados en el Cuadro 6.7.4.5.1.5-2 de TS 38.141-2 [2].

Table 6.7.4.5.1.5-2: Local Area BS operating band unwanted emission limits (3 GHz < NR bands ≤ 4.2 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_offset	Test requirement (Note 1, 2, 4)	Measurement bandwidth
0 MHz ≤ Δf < 5 MHz	0.05 MHz ≤ f_offset < 5.05 MHz	$-19dB - \frac{7}{5} \left(\frac{f_offset}{MHz} - 0.05 \right) dB$	100 kHz
5 MHz ≤ Δf < min(10 MHz, Δf_max)	5.05 MHz ≤ f_offset < min(10.05 MHz, f_offset_max)	-26 dBm	100 kHz
10 MHz ≤ Δf ≤ Δf_max	10.05 MHz ≤ f_offset < f_offset_max	-28 dBm (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is Δf ≥ 10 MHz from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -28 dBm/100 kHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < 2*Δf_{OBUE} the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap

NOTE 3: The requirement is not applicable when Δf_{max} < 10 MHz.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

Para la clase de EB de zona local en las bandas NR de 4,2 GHz a 6 GHz, las emisiones no deberán superar los niveles máximos especificados en el Cuadro 6.7.4.5.1.5-3 de TS 38.141-2 [2].

Table 6.7.4.5.1.5-3: Local Area BS operating band unwanted emission limits (4.2 GHz < NR bands ≤ 6 GHz)

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test requirement (Note 1, 2, 4)	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 5 \text{ MHz}$	$0.05 \text{ MHz} \leq f_{\text{offset}} < 5.05 \text{ MHz}$	$-19\text{dB} - \frac{7}{5} \left(\frac{f_{\text{offset}}}{\text{MHz}} - 0.05 \right) \text{dB}$	100 kHz
$5 \text{ MHz} \leq \Delta f < \min(10 \text{ MHz}, \Delta f_{\text{max}})$	$5.05 \text{ MHz} \leq f_{\text{offset}} < \min(10.05 \text{ MHz}, f_{\text{offset}_{\text{max}}})$	-26 dBm	100 kHz
$10 \text{ MHz} \leq \Delta f \leq \Delta f_{\text{max}}$	$10.05 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-28 dBm (Note 3)	100 kHz

NOTE 1: For a BS supporting non-contiguous spectrum operation within any *operating band* the emission limits within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap. Exception is $\Delta f \geq 10 \text{ MHz}$ from both adjacent sub blocks on each side of the sub-block gap, where the emission limits within sub-block gaps shall be -28 dBm/100 kHz.

NOTE 2: For a *multi-band RIB* with Inter RF Bandwidth gap < $2 * \Delta f_{\text{OBUE}}$ the emission limits within the Inter RF Bandwidth gaps is calculated as a cumulative sum of contributions from adjacent sub-blocks or RF Bandwidth on each side of the Inter RF Bandwidth gap

NOTE 3: The requirement is not applicable when $\Delta f_{\text{max}} < 10 \text{ MHz}$.

NOTE 4: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 5: Void.

4.1.1.6 Requisitos adicionales

Es posible que en algunas regiones se apliquen los siguientes requisitos adicionales:

- Para la protección de la TDT, el requisito establecido en la cláusula 6.7.4.5.1.6.2 de TS 38.141-2 [2].
- Para la protección del GPS, el requisito establecido en la cláusula 6.7.4.5.1.6.3 de TS 38.141-2 [2].
- Para el funcionamiento en las bandas n50, n51, n74, n75 y n76, el requisito de la cláusula 6.7.4.5.1.6.4 de TS 38.141-2 [2].

6.7.4.5.1.6.2 Protection of DTT

In certain regions the following requirement may apply for protection of DTT. For *BS type 1-O* operating in Band n20, the level of emissions in the band 470-790 MHz, measured in an 8 MHz filter bandwidth on centre frequencies F_{filter} according to Table 6.7.4.5.1.6.2-1, shall not exceed the maximum emission TRP level shown in the table. This requirement applies in the frequency range 470-790 MHz even though part of the range falls in the spurious domain.

Table 6.7.4.5.1.6.2-1: Declared emissions levels for protection of DTT

Case	Measurement filter centre frequency	Condition on BS maximum aggregate EIRP / 10 MHz, $P_{\text{EIRP}_{10\text{MHz}}}$ (NOTE)	Maximum level $P_{\text{EIRP},N,\text{MAX}}$	Measurement bandwidth
A: for DTT frequencies where broadcasting is protected	$N*8 + 306 \text{ MHz}$, $21 \leq N \leq 60$	$P_{\text{EIRP}_{10\text{MHz}}} \geq 59 \text{ dBm}$	0 dBm	8 MHz
	$N*8 + 306 \text{ MHz}$, $21 \leq N \leq 60$	$36 \leq P_{\text{EIRP}_{10\text{MHz}}} < 59 \text{ dBm}$	$P_{\text{EIRP}_{10\text{MHz}}} - 59 \text{ dBm}$	8 MHz
	$N*8 + 306 \text{ MHz}$, $21 \leq N \leq 60$	$P_{\text{EIRP}_{10\text{MHz}}} < 36 \text{ dBm}$	-23 dBm	8 MHz
B: for DTT frequencies where broadcasting is subject to an intermediate level of protection	$N*8 + 306 \text{ MHz}$, $21 \leq N \leq 60$	$P_{\text{EIRP}_{10\text{MHz}}} \geq 59 \text{ dBm}$	10 dBm	8 MHz
	$N*8 + 306 \text{ MHz}$, $21 \leq N \leq 60$	$36 \leq P_{\text{EIRP}_{10\text{MHz}}} < 59 \text{ dBm}$	$P_{\text{EIRP}_{10\text{MHz}}} - 49 \text{ dBm}$	8 MHz
	$N*8 + 306 \text{ MHz}$, $21 \leq N \leq 60$	$P_{\text{EIRP}_{10\text{MHz}}} < 36 \text{ dBm}$	-13 dBm	8 MHz
C: for DTT frequencies where broadcasting is not protected	$N*8 + 306 \text{ MHz}$, $21 \leq N \leq 60$	N.A.	22 dBm	8 MHz

NOTE: $P_{\text{EIRP}_{10\text{MHz}}}$ (dBm) is defined by $P_{\text{EIRP}_{10\text{MHz}}} = P_{10\text{MHz}} + G_{\text{ant}} + 9\text{dB}$, where G_{ant} is 17 dBi.

6.7.4.5.1.6.3 Protection of GPS

The level of emissions in the 1 541-1 650 MHz band, measured in measurement bandwidth according to Table 6.7.4.5.1.6.3-1 shall not exceed the maximum emission TRP limits indicated in the table. This requirement applies in the frequency range 1 541-1 650 MHz even though part of the range falls in the spurious domain.

Table 6.7.4.5.1.6.3-1: Emissions levels for protection of GPS

Operating Band	Frequency range (MHz)	Emission level (dBW) (Measurement bandwidth = 1 MHz)	Emission level (dBW) of discrete emissions of less than 700 Hz bandwidth (Measurement bandwidth = 1 kHz)	Emission level (dBW) of discrete emissions of less than 2 kHz bandwidth (Measurement bandwidth = 1 kHz)
n24	1 541-1 559	$P_{\text{EIRP}} - 17 \text{ dBi} + 9 \text{ dB}$		$P_{\text{EIRP}} - 17 \text{ dBi} + 9 \text{ dB}$
	1 559-1 610	$P_{\text{EIRP}} - 17 \text{ dBi} + 9 \text{ dB}$	$P_{\text{EIRP}} - 17 \text{ dBi} + 9 \text{ dB}$	
	1 610-1 650	$P_{\text{EIRP}} - 17 \text{ dBi} + 9 \text{ dB}$	$P_{\text{EIRP}} - 17 \text{ dBi} + 9 \text{ dB}$	

6.7.4.5.1.6.4 Additional limits for BS operating in Bands n50, n51, n74, n75, n76

For BS operating in bands n50, n51, n74, n75 and n76 additional emission limits that might be applicable in the OBUE frequency domain are specified in clause 6.7.5.4.5.

4.1.2 Emisiones no deseadas en la banda operativa OTA para la EB de tipo 2-O

Respecto de la EB de tipo 2-O, para un RIB que opere en CA multiportadora o contigua, los requisitos se aplican a las frecuencias a partir del borde del ancho de banda de transmisión contiguo. Además, para un RIB que opere en espectro no contiguo, los requisitos son de aplicación dentro de los espacios de subbloque.

4.1.2.1 Límites de emisiones no deseadas en la banda operativa OTA (Categoría A)

La potencia de las emisiones no deseada no debe exceder los límites establecidos en los Cuadros 6.7.4.5.2.2-1, 6.7.4.5.2.2-2 o 6.7.4.5.2.2-3 de TS 38.141-2 [2].

Table 6.7.4.5.2.2-1: OBUE limits applicable in the frequency range 24.25 – 33.4 GHz

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test limit	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.1 * \text{BW}_{\text{contiguous}}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz}$	Min(-2.3 dBm, Max($P_{\text{rated,t,TRP}} - 32.3 \text{ dB}$, -9.3 dBm))	1 MHz
$0.1 * \text{BW}_{\text{contiguous}} \leq \Delta f < \Delta f_{\text{max}}$	$0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	Min(-13 dBm, Max($P_{\text{rated,t,TRP}} - 43 \text{ dB}$, -20 dBm))	1 MHz

NOTE: For non-contiguous spectrum operation within any operating band the limit within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap.

Table 6.7.4.5.2.2-2: OBUE limits applicable in the frequency range 37 GHz – 43.5 GHz

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test limit	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.1 * \text{BW}_{\text{contiguous}}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz}$	Min(-2.3 dBm, Max($P_{\text{rated,t,TRP}} - 30.3 \text{ dB}$, -9.3 dBm))	1 MHz
$0.1 * \text{BW}_{\text{contiguous}} \leq \Delta f < \Delta f_{\text{max}}$	$0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	Min(-13 dBm, Max($P_{\text{rated,t,TRP}} - 41 \text{ dB}$, -20 dBm))	1 MHz

NOTE: For non-contiguous spectrum operation within any operating band the limit within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap.

Table 6.7.4.5.2.2-3: OBUE limits applicable in the frequency range 43.5 GHz – 48.2 GHz

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test limit	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.1 * \text{BW}_{\text{contiguous}}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz}$	Min(-2.1 dBm, Max($P_{\text{rated,t,TRP}} - 30.1 \text{ dB}$, -9.1 dBm))	1 MHz
$0.1 * \text{BW}_{\text{contiguous}} \leq \Delta f < \Delta f_{\text{max}}$	$0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	Min(-13 dBm, Max($P_{\text{rated,t,TRP}} - 41 \text{ dB}$, -20 dBm))	1 MHz

NOTE: For non-contiguous spectrum operation within any operating band the limit within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap.

4.1.2.2 Límites de emisiones no deseadas en la banda operativa OTA (Categoría B)

La potencia de las emisiones no deseada no debe exceder los límites establecidos en los Cuadros 6.7.4.5.2.3-1, 6.7.4.5.2.3-2 o 6.7.4.5.2.3-3 de TS 38.141-2 [2].

Table 6.7.4.5.2.3-1: OBUE limits applicable in the frequency range 24.25 – 33.4 GHz

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test limit	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.1 * \text{BW}_{\text{contiguous}}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz}$	Min(–2.3 dBm, Max($P_{\text{rated,t,TRP}} - 32.3 \text{ dB}$, –9.3 dBm))	1 MHz
$0.1 * \text{BW}_{\text{contiguous}} \leq \Delta f < \Delta f_{\text{B}}$	$0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz} \leq f_{\text{offset}} < \Delta f_{\text{B}} + 0.5 \text{ MHz}$	Min(–13 dBm, Max($P_{\text{rated,t,TRP}} - 43 \text{ dB}$, –20 dBm))	1 MHz
$\Delta f_{\text{B}} \leq \Delta f < \Delta f_{\text{max}}$	$\Delta f_{\text{B}} + 5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	Min(–5 dBm, Max($P_{\text{rated,t,TRP}} - 33 \text{ dB}$, –10 dBm))	10 MHz

NOTE 1: For non-contiguous spectrum operation within any *operating band* the limit within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block.

NOTE 2: $\Delta f_{\text{B}} = 2 * \text{BW}_{\text{contiguous}}$ when $\text{BW}_{\text{contiguous}} \leq 500 \text{ MHz}$, otherwise $\Delta f_{\text{B}} = \text{BW}_{\text{contiguous}} + 500 \text{ MHz}$.

Table 6.7.4.5.2.3-2: OBUE limits applicable in the frequency range 37 – 43.5 GHz

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test limit	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.1 * \text{BW}_{\text{contiguous}}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz}$	Min(–2.3 dBm, Max($P_{\text{rated,t,TRP}} - 30.3 \text{ dB}$, –9.3 dBm))	1 MHz
$0.1 * \text{BW}_{\text{contiguous}} \leq \Delta f < \Delta f_{\text{B}}$	$0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz} \leq f_{\text{offset}} < \Delta f_{\text{B}} + 0.5 \text{ MHz}$	Min(–13 dBm, Max($P_{\text{rated,t,TRP}} - 41 \text{ dB}$, –20 dBm))	1 MHz
$\Delta f_{\text{B}} \leq \Delta f < \Delta f_{\text{max}}$	$\Delta f_{\text{B}} + 5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	Min(–5 dBm, Max($P_{\text{rated,t,TRP}} - 31 \text{ dB}$, –10 dBm))	10 MHz

NOTE 1: For non-contiguous spectrum operation within any *operating band* the limit within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block.

NOTE 2: $\Delta f_{\text{B}} = 2 * \text{BW}_{\text{contiguous}}$ when $\text{BW}_{\text{contiguous}} \leq 500 \text{ MHz}$, otherwise $\Delta f_{\text{B}} = \text{BW}_{\text{contiguous}} + 500 \text{ MHz}$.

Table 6.7.4.5.2.3-3: OBUE limits applicable in the frequency range 43.5 – 48.2 GHz

Frequency offset of measurement filter –3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Test limit	Measurement bandwidth
$0 \text{ MHz} \leq \Delta f < 0.1 * \text{BW}_{\text{contiguous}}$	$0.5 \text{ MHz} \leq f_{\text{offset}} < 0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz}$	Min(–2.1 dBm, Max($P_{\text{rated,t,TRP}} - 30.1 \text{ dB}$, –9.1 dBm))	1 MHz
$0.1 * \text{BW}_{\text{contiguous}} \leq \Delta f < \Delta f_{\text{B}}$	$0.1 * \text{BW}_{\text{contiguous}} + 0.5 \text{ MHz} \leq f_{\text{offset}} < \Delta f_{\text{B}} + 0.5 \text{ MHz}$	Min(–13 dBm, Max($P_{\text{rated,t,TRP}} - 41 \text{ dB}$, –20 dBm))	1 MHz
$\Delta f_{\text{B}} \leq \Delta f < \Delta f_{\text{max}}$	$\Delta f_{\text{B}} + 5 \text{ MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	Min(–5 dBm, Max($P_{\text{rated,t,TRP}} - 31 \text{ dB}$, –10 dBm))	10 MHz

NOTE 1: For non-contiguous spectrum operation within any *operating band* the limit within sub-block gaps is calculated as a cumulative sum of contributions from adjacent sub blocks on each side of the sub block gap, where the contribution from the far-end sub-block shall be scaled according to the measurement bandwidth of the near-end sub-block.

NOTE 2: $\Delta f_{\text{B}} = 2 * \text{BW}_{\text{contiguous}}$ when $\text{BW}_{\text{contiguous}} \leq 500 \text{ MHz}$, otherwise $\Delta f_{\text{B}} = \text{BW}_{\text{contiguous}} + 500 \text{ MHz}$.

4.1.2.3 Límites adicionales de emisiones no deseadas en la banda operativa OTA

Debe aplicarse el siguiente requisito adicional:

- Respecto de la EB que opere en la gama de frecuencias 24,25-27,5 GHz, para la protección del servicio de exploración de la Tierra por satélite, el requisito establecido en el Cuadro 6.7.4.5.2.4.1-1 de TS 38.141-2 [2].

Table 6.7.4.5.2.4.1-1: BS radiated limits for protection of EESS

Frequency range	Measurement filter centre frequency range	Limit	Measurement Bandwidth
23.6-24 GHz	23.7-23.9 GHz	-3 dBm (Note 1)	200 MHz
23.6-24 GHz	23.7-23.9 GHz	-9 dBm (Note 2)	200 MHz

NOTE 1: This limit applies to BS brought into use on or before 1 September 2027.

NOTE 2: This limit applies to BS brought into use after 1 September 2027.

4.2 Relación de potencia de fuga del canal adyacente OTA (ACLR)

4.2.1 EB de tipo 1-O

Para el requisito de la ACLR OTA, se deben aplicar los límites de ACLR OTA establecidos en los Cuadros 6.7.3.5.1-1/2a de TS 38.141-2 [2] o los límites absolutos de ACLR OTA establecidos en el Cuadro 6.7.3.5.1-2 de TS 38.141-2 [2], los que sean menos estrictos.

Cuadro 6.7.3.5.1-1: EB de tipo 1-O Límite ACLR

Ancho de banda del canal de la EB de la menor/mayor portadora NR transmitida (BW_{canal}) (MHz)	Separación de la frecuencia central del canal adyacente de la EB por debajo de la frecuencia central de la portadora transmitida más baja o por encima de la más alta	Portadora de canal adyacente supuesta (informativo)	Filtro en la frecuencia del canal adyacente y ancho de banda del filtro correspondiente	Límite de ACLR OTA (0-3 GHz)	Límite de ACLR OTA (3-6 GHz)
5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	BW_{canal}	NR del mismo BW (Nota 2)	Cuadrado (BW_{config})	44 dB	43,8 dB
	$2 \times BW_{\text{canal}}$	NR del mismo BW (Nota 2)	Cuadrado (BW_{config})	44 dB	43,8 dB
	$BW_{\text{canal}} / 2 + 2,5 \text{ MHz}$	E-UTRA de 5 MHz	Cuadrado (4,5 MHz)	44 dB (Nota 3)	43,8 dB (Nota 3)
	$BW_{\text{canal}} / 2 + 7,5 \text{ MHz}$	E-UTRA de 5 MHz	Cuadrado (4,5 MHz)	44 dB (Nota 3)	43,8 dB (Nota 3)

NOTA 1: BW_{canal} y BW_{config} son la anchura de banda del canal de la EB y la anchura de banda de la transmisión configuradas para la portadora NR más alta/más baja transmitida en la frecuencia de canal asignada.

NOTA 2: Con el SCS que proporciona la configuración de ancho de banda de transmisión más grande (BW_{config}).

NOTA 3: Los requisitos se aplican cuando la banda también se define para E-UTRA o UTRA.

Table 6.7.3.5.1-2a: BS type 1-O ACLR limit in non-contiguous spectrum or multiple bands

<i>BS channel bandwidth of lowest/highest NR carrier transmitted</i> $BW_{Channel}$ (MHz)	<i>Sub-block or Inter RF Bandwidth gap size (W_{gap}) where the limit applies</i> (MHz)	<i>BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap)</i>	<i>Assumed adjacent channel carrier</i>	<i>Filter on the adjacent channel frequency and corresponding filter bandwidth</i>	<i>OTA ACLR limit (0-3 GHz)</i>	<i>OTA ACLR limit (3-6 GHz)</i>
5, 10, 15, 20	$W_{gap} \geq 15$ (Note 3) $W_{gap} \geq 45$ (Note 4)	2.5 MHz	5 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB
	$W_{gap} \geq 20$ (Note 3) $W_{gap} \geq 50$ (Note 4)	7.5 MHz	5 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB
25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	$W_{gap} \geq 60$ (Note 4) $W_{gap} \geq 30$ (Note 3)	10 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB
	$W_{gap} \geq 80$ (Note 4) $W_{gap} \geq 50$ (Note 3)	30 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB

NOTE 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.

NOTE 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

NOTE 3: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 5, 10, 15, 20 MHz.

NOTE 4: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 MHz.

Table 6.7.3.5.1-2: BS type 1-O ACLR absolute limit

BS category / BS class	OTA ACLR absolute limit
Category A Wide Area BS	-4 dBm/MHz
Category B Wide Area BS	-6 dBm/MHz
Medium Range BS	-16 dBm/MHz
Local Area BS	-23 dBm/MHz

NOTE 1: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 2: Void.

El filtro supuesto para la frecuencia del canal adyacente se define en el Cuadro 6.7.3.5.1-3 de TS 38.141-2 [2] y los filtros en los canales asignados se definen en el Cuadro 6.7.3.5.1-4 de TS 38.141-2 [2].

Table 6.7.3.5.1-3: *BS type 1-O* ACLR limit

<i>BS channel bandwidth of lowest/highest NR carrier transmitted</i> BW_{Channel} (MHz)	Sub-block or Inter RF Bandwidth gap size (W_{gap}) where the limit applies (MHz)	BS adjacent channel centre frequency offset below or above the sub-block or Base Station RF Bandwidth edge (inside the gap)	Assumed adjacent channel carrier	Filter on the adjacent channel frequency and corresponding filter bandwidth	OTA ACLR limit (0-3 GHz)	OTA ACLR limit (3-6 GHz)
5, 10, 15, 20	$5 \leq W_{\text{gap}} < 15$ (Note 3) $5 \leq W_{\text{gap}} < 45$ (Note 4)	2.5 MHz	5 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB
	$10 < W_{\text{gap}} < 20$ (Note 3) $10 \leq W_{\text{gap}} < 50$ (Note 4)	7.5 MHz	5 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB
25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100	$20 \leq W_{\text{gap}} < 60$ (Note 4) $20 \leq W_{\text{gap}} < 30$ (Note 3)	10 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB
	$40 < W_{\text{gap}} < 80$ (Note 4) $40 \leq W_{\text{gap}} < 50$ (Note 3)	30 MHz	20 MHz NR (Note 2)	Square (BW_{Config})	44 dB	43.8 dB

NOTE 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.

NOTE 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

NOTE 3: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 5, 10, 15, 20 MHz.

NOTE 4: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100 MHz.

Table 6.7.3.5.1-4: Filter parameters for the assigned channel

RAT of the carrier adjacent to the sub-block or Inter RF Bandwidth gap	Filter on the assigned channel frequency and corresponding filter bandwidth
NR	NR of same BW with SCS that provides largest transmission bandwidth configuration

Para funcionar en un espectro de frecuencias apareadas y no apareadas, el resultado de la medición de la ACLR OTA no debe ser inferior al límite de ACLR OTA especificado en el Cuadro 6.7.3.5.1-1 de TS 38.141-2 [2].

La medición de la potencia absoluta total no debe exceder el límite absoluto de ACLR OTA especificado en el Cuadro 6.7.3.5.1-2 de TS 38.141-2 [2].

Para funcionar en un espectro no contiguo o en múltiples bandas, el resultado de la medición de la ACLR OTA no debe ser inferior al límite de ACLR OTA especificado en el Cuadro 6.7.3.5.1-2a de TS 38.141-2 [2].

4.2.2 EB de tipo 2-O

Para el requisito de la ACLR OTA, se deben aplicar los límites de ACLR OTA establecidos en los Cuadros 6.7.3.5.2-1/3 de TS 38.141-2 [2] o los límites absolutos de ACLR OTA establecidos en el Cuadro 6.7.3.5.2-2 de TS 38.141-2 [2], los que sean menos estrictos.

Table 6.7.3.5.2-1: BS type 2-O ACLR limit

<i>BS channel bandwidth of lowest/highest NR carrier transmitted</i> BW_{Channel} (MHz)	BS adjacent channel centre frequency offset below the lowest or above the highest carrier centre frequency transmitted	Assumed adjacent channel carrier	Filter on the adjacent channel frequency and corresponding filter bandwidth	OTA ACLR limit (dB)
50, 100, 200, 400	BW _{Channel}	NR of same BW (Note 2)	Square (BW _{Config})	25.7 (Note 3) 23.4 (Note 4) 23.2 (Note 5)

NOTE 1: BW_{Channel} and BW_{Config} are the *BS channel bandwidth* and transmission bandwidth configuration of the lowest/highest NR carrier transmitted on the assigned channel frequency.

NOTE 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

NOTE 3: Applicable to bands defined within the frequency spectrum range of 24.25-33.4 GHz

NOTE 4: Applicable to bands defined within the frequency spectrum range of 37-43.5 GHz

NOTE 5: Applicable to bands defined within the frequency spectrum range of 43.5-48.2 GHz

Table 6.7.3.5.2-2: BS type 2-O ACLR absolute limit

BS class	ACLR absolute limit (Note 1)	ACLR absolute limit (Note 2)
Wide-area BS	-10.3 dBm/MHz	-10.1 dBm/MHz
Medium-range BS	-17.3 dBm/MHz	-17.1 dBm/MHz
Local-area BS	-17.3 dBm/MHz	-17.1 dBm/MHz

NOTE 1: Applicable to bands defined within the frequency spectrum range of 24.25-43.5 GHz

NOTE 2: Applicable to bands defined within the frequency spectrum range of 43.5-48.2 GHz

Table 6.7.3.5.2-3: BS type 2-O ACLR limit in non-contiguous spectrum

<i>BS channel bandwidth of lowest/highest NR carrier transmitted</i> (MHz)	Sub-block gap size (W_{gap}) where the limit applies (MHz)	BS adjacent channel centre frequency offset below or above the sub-block edge (inside the gap)	Assumed adjacent channel carrier	Filter on the adjacent channel frequency and corresponding filter bandwidth	OTA ACLR limit (MHz)
50, 100	W _{gap} ≥ 100 (Note 5) W _{gap} ≥ 250 (Note 6)	25 MHz	50 MHz NR (Note 2)	Square (BW _{Config})	25.7 (Note 3) 23.4 (Note 4) 23.2 (Note 7)
200, 400	W _{gap} ≥ 400 (Note 6) W _{gap} ≥ 250 (Note 5)	100 MHz	200 MHz NR (Note 2)	Square (BW _{Config})	25.7 (Note 3) 23.4 (Note 4) 23.2 (Note 7)

NOTE 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.

NOTE 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

NOTE 3: Applicable to bands defined within the frequency spectrum range of 24.24-33.4 GHz.

NOTE 4: Applicable to bands defined within the frequency spectrum range of 37-43.5 GHz.

NOTE 5: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 50 or 100 MHz.

NOTE 6: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 200 or 400 MHz.

NOTE 7: Applicable to bands defined within the frequency spectrum range of 43.5-48.2 GHz.

El filtro supuesto para la frecuencia del canal adyacente se define en el Cuadro 6.7.3.5.2-4 de TS 38.141-2 [2] y los filtros en los canales asignados se definen en el Cuadro 6.7.3.5.2-5 de TS 38.141-2 [2].

Table 6.7.3.5.2-4: BS type 2-O CACLR limit in non-contiguous spectrum

<i>BS channel bandwidth of lowest/highest NR carrier transmitted (MHz)</i>	<i>Sub-block gap size (Wgap) where the limit applies (MHz)</i>	<i>BS adjacent channel centre frequency offset below or above the sub-block edge (inside the gap)</i>	<i>Assumed adjacent channel carrier</i>	<i>Filter on the adjacent channel frequency and corresponding filter bandwidth</i>	<i>OTA CACLR limit (dB)</i>
50, 100	$50 \leq W_{\text{gap}} < 100$ (Note 5) $50 \leq W_{\text{gap}} < 250$ (Note 6)	25 MHz	50 MHz NR (Note 2)	Square (BW_{Config})	25.7 (Note 3) 23.4 (Note 4) 23.2 (Note 7)
200, 400	$200 \leq W_{\text{gap}} < 400$ (Note 6) $200 \leq W_{\text{gap}} < 250$ (Note 5)	100 MHz	200 MHz NR (Note 2)	Square (BW_{Config})	25.7 (Note 3) 23.4 (Note 4) 23.2 (Note 7)

NOTE 1: BW_{Config} is the transmission bandwidth configuration of the assumed adjacent channel carrier.

NOTE 2: With SCS that provides largest transmission bandwidth configuration (BW_{Config}).

NOTE 3: Applicable to bands defined within the frequency spectrum range of 24.24-33.4 GHz.

NOTE 4: Applicable to bands defined within the frequency spectrum range of 37-43.5 GHz.

NOTE 5: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 50 or 100 MHz.

NOTE 6: Applicable in case the *BS channel bandwidth* of the NR carrier transmitted at the other edge of the gap is 200 or 400 MHz.

NOTE 7: Applicable to bands defined within the frequency spectrum range of 43.5-48.2 GHz.

Table 6.7.3.5.2-5: Filter parameters for the assigned channel

RAT of the carrier adjacent to the sub-block gap	Filter on the assigned channel frequency and corresponding filter bandwidth
NR	NR of same BW with SCS that provides largest transmission bandwidth configuration

El resultado de la medición de la ACLR OTA no debe ser inferior al límite de ACLR OTA especificado en el Cuadro 6.7.3.5.2-1 de TS 38.141-2 [2].

La medición de la potencia absoluta total no debe exceder el límite absoluto de ACLR OTA especificado en el Cuadro 6.7.3.5.2-2 de TS 38.141-2 [2].

Para funcionar en un espectro no contiguo, el resultado de la medición de la ACLR OTA no debe ser inferior al límite de ACLR OTA especificado en el Cuadro 6.7.3.5.2-3 de TS 38.141-2 [2].

4.3 Relación de potencia de fuga del canal adyacente acumulada OTA (CACLR)

4.3.1 EB de tipo 1-O

Se deben aplicar los límites de CACLR OTA establecidos en el Cuadro 6.7.3.5.1-3 de TS 38.141-2 [2] o los límites absolutos de CACLR OTA establecidos en el Cuadro 6.7.3.5.1-3a de TS 38.141-2 [2], los que sean menos estrictos.

Table 6.7.3.5.1-3a: BS type 1-O CACLR absolute limit

BS category / BS class	OTA CACLR absolute limit
Category A Wide Area BS	-4 dBm/MHz
Category B Wide Area BS	-6 dBm/MHz
Medium Range BS	-16 dBm/MHz
Local Area BS	-23 dBm/MHz

NOTE 1: The test requirement is derived from the basic limit a scaling factor of 9 dB and any applicable TT.

NOTE 2: Void

La CACLR en un espacio de subbloque o espacio entre anchos de banda RF es la relación entre:

- a) la suma de la potencia media filtrada centrada en las frecuencias de canal asignadas de dos portadoras adyacentes a cada uno de los lados del espacio de subbloque o el espacio entre anchos de banda RF, y
- b) la potencia media filtrada centrada en el canal adyacente a uno de los dos extremos del subbloque o en ancho de banda RF de la estación base en cuestión.

El filtro supuesto para la frecuencia del canal adyacente se define en el Cuadro 6.7.3.5.1-3 de TS 38.141-2 [2] y los filtros en los canales asignados se definen en el Cuadro 6.7.3.5.1-4 de TS 38.141-2 [2].

El resultado de la medición de la CACLR OTA no debe ser inferior al límite de CACLR OTA especificado en el Cuadro 6.7.3.5.1-3 de TS 38.141-2 [2].

La medición de la potencia absoluta total no debe exceder el límite absoluto de CACLR OTA especificado en el Cuadro 6.7.3.5.1-3a de TS 38.141-2 [2].

4.3.2 EB de tipo 2-O

Se deben aplicar los límites de CACLR OTA establecidos en el Cuadro 6.7.3.5.2-4 de TS 38.141-2 [2] o los límites absolutos de CACLR OTA establecidos en el Cuadro 6.7.3.5.2-4a de TS 38.141-2 [2], los que sean menos estrictos.

Table 6.7.3.5.2-4a: BS type 2-O CACLR absolute limit

BS class	CACLR absolute limit (Note 1)	ACL absolute limit (Note 2)
Wide area BS	-10.3 dBm/MHz	-10.1 dBm/MHz
Medium range BS	-17.3 dBm/MHz	-17.1 dBm/MHz
Local area BS	-17.3 dBm/MHz	-17.1 dBm/MHz

NOTE 1: Applicable to bands defined within the frequency spectrum range of 24.25-43.5 GHz

NOTE 2: Applicable to bands defined within the frequency spectrum range of 43.5-48.2 GHz

La CACLR en un espacio de subbloque es la relación entre:

- a) la suma de la potencia media filtrada centrada en las frecuencias de canal asignadas de dos portadoras adyacentes a cada uno de los lados del espacio de subbloque; y
- b) la potencia media filtrada centrada en el canal adyacente a uno de los dos extremos del subbloque en cuestión.

El filtro supuesto para la frecuencia del canal adyacente se define en el Cuadro 6.7.3.5.2-4 de TS 38.141-2 [2] y los filtros en los canales asignados se definen en el Cuadro 6.7.3.5.2-5 de TS 38.141-2 [2].

Para el funcionamiento en espectro no contiguo, la CACLR de las portadoras situadas a cada lado del espacio de subbloque debe ser menor que el valor especificado en el Cuadro 6.7.3.5.2-4 de TS 38.141-2 [2].

La medición de la potencia absoluta total no debe exceder el límite absoluto de CACLR OTA especificado en el Cuadro 6.7.3.5.2-4a de TS 38.141-2 [2].

4.4 Emisiones no esenciales del transmisor OTA

4.4.1 Emisiones no esenciales del transmisor OTA para la EB de tipo 1-O

Para la EB de Categoría A, la PRT de toda emisión no esencial no debe exceder los límites establecidos en el Cuadro 6.7.5.2.5.1-1 de TS 38.141-2 [2]. Para la EB de Categoría B, la PRT de toda emisión no esencial no debe exceder los límites establecidos en el Cuadro 6.7.5.2.5.1-2 de TS 38.141-2 [2].

Table 6.7.5.2.5.1-1: General OTA BS transmitter spurious emission limits for *BS type 1-O*, Category A

Spurious frequency range	Test limit	Measurement bandwidth	Notes
30 MHz – 1 GHz	-13 + X dBm	100 kHz	Note 1, Note 6
1 GHz – 12.75 GHz		1 MHz	Note 1, Note 2, Note 6
12.75 GHz – 5 th harmonic of the upper frequency edge of the DL <i>operating band</i> in GHz		1 MHz	Note 1, Note 2, Note 3, Note 6

NOTE 1: Measurement bandwidths as in ITU-R SM.329 [5], s4.1.

NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the DL *operating band* is reaching beyond 12.75 GHz.

NOTE 4: Void.

NOTE 5: Void.

NOTE 6: X = 9 dB, unless stated differently in regional regulation.

Table 6.7.5.2.5.1-2: General OTA BS transmitter spurious emission limits for *BS type 1-O*, Category B

Spurious frequency range	Test limit	Measurement bandwidth	Notes
30 MHz – 1 GHz	-36 + X dBm	100 kHz	Note 1, Note 5
1 GHz – 12.75 GHz	-30 + X dBm	1 MHz	Note 1, Note 2, Note 5
12.75 GHz – 5 th harmonic of the upper frequency edge of the DL <i>operating band</i> in GHz		1 MHz	Note 1, Note 2, Note 3, Note 5

NOTE 1: Measurement bandwidths as in ITU-R SM.329 [5], s4.1.

NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the DL *operating band* is reaching beyond 12.75GHz.

NOTE 4: Void.

NOTE 5: X = 9 dB, unless stated differently in regional regulation.

4.4.2 Emisiones no esenciales del transmisor OTA para la EB de tipo 2-O

Para la EB de Categoría A, la potencia de toda emisión no esencial no debe exceder los límites establecidos en el Cuadro 6.7.5.2.5.2.2-1 de TS 38.141-2 [2]. Para la EB de Categoría B, la potencia de toda emisión no esencial no debe exceder los límites establecidos en el Cuadro 6.7.5.2.5.2.3-1 de TS 38.141-2 [2].

Table 6.7.5.2.5.2.2-1: General OTA BS transmitter spurious emission limits for BS type 2-O

Spurious frequency range	Test limit	Measurement bandwidth	Notes
30 MHz – 1 GHz	-13 dBm	100 kHz	Note 1
1 GHz – min(2 nd harmonic of the upper frequency edge of the DL operating band in GHz; 60 GHz)		1 MHz	Note 1, Note 2

NOTE 1: Measurement bandwidth as in ITU-R SM.329 [5], s4.1.

NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

Table 6.7.5.2.5.2.3-1: BS radiated Tx spurious emission limits in FR2 (Category B)

Frequency range (Note 4)	Test limit	Measurement Bandwidth	Note
30 MHz ↔ 1 GHz	-36 dBm	100 kHz	Note 1
1 GHz ↔ 18 GHz	-30 dBm	1 MHz	Note 1
18 GHz ↔ F _{step,1}	-20 dBm	10 MHz	Note 2
F _{step,1} ↔ F _{step,2}	-15 dBm	10 MHz	Note 2
F _{step,2} ↔ F _{step,3}	-10 dBm	10 MHz	Note 2
F _{step,4} ↔ F _{step,5}	-10 dBm	10 MHz	Note 2
F _{step,5} ↔ F _{step,6}	-15 dBm	10 MHz	Note 2
F _{step,6} ↔ min(2 nd harmonic of the upper frequency edge of the DL operating band in GHz; 60 GHz)	-20 dBm	10 MHz	Note 2, Note 3

NOTE 1: Bandwidth as in ITU-R SM.329 [5], s4.1

NOTE 2: Limit and bandwidth as in ERC Recommendation 74-01 [26], annex 2.

NOTE 3: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

NOTE 4: The step frequencies F_{step,X} are defined in Table 6.7.5.2.5.2.3-2.

4.4.3 Protección del receptor de una EB frente a la propia EB o a otra distinta

Este requisito se debe aplicar al funcionamiento en DDF NR a fin de evitar que los receptores de la EB propia o una EB diferente de la misma banda pierdan sensibilidad debido a las emisiones de una EB de tipo 1-O.

Este requisito es un requisito de compartición de emplazamiento definido en la cláusula 4.9, en TS 38.104 [6]. Los niveles de potencia se especifican en la salida CLTA, como se describe en el punto 4.12.2 de TS 38.141-2 [2].

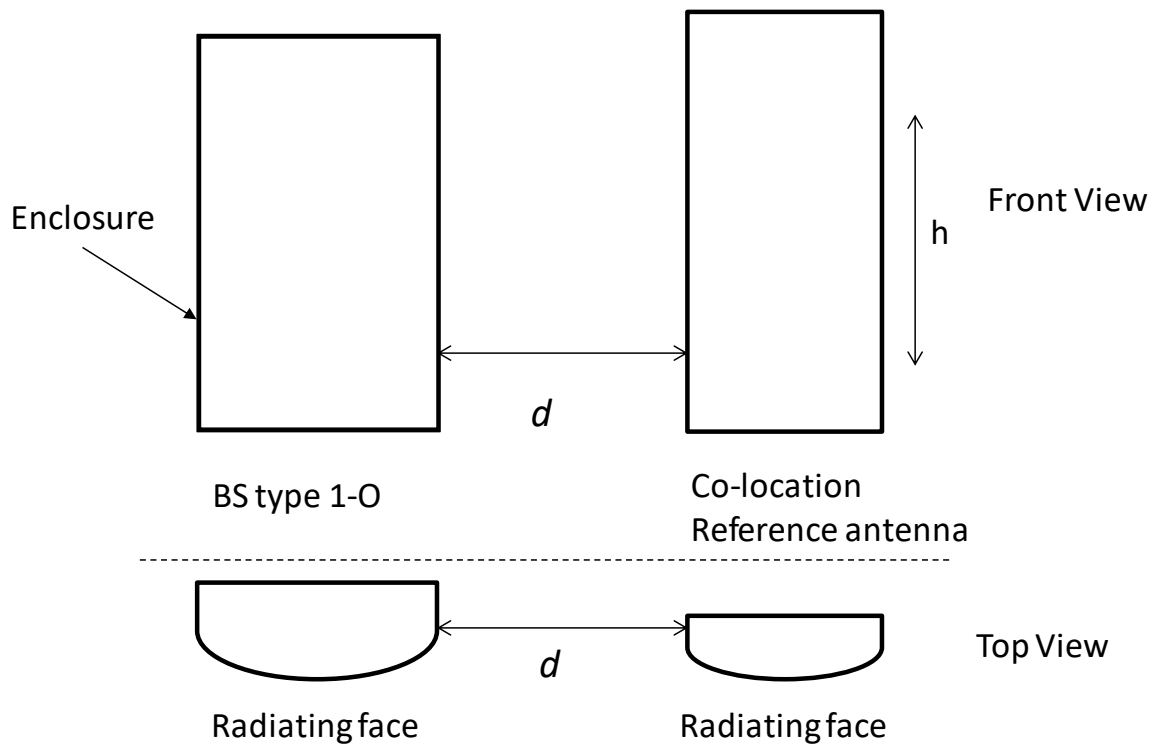
4.9 OTA co-location with other base stations

Co-location requirements are requirements which are based on assuming the *BS type I-O* is co-located with another BS of the same base station class, they ensure that both co-located systems can operate with minimal degradation to each other.

Unwanted emission and out of band blocking co-location requirements are optional requirements based on declaration. TX OFF and TX IMD are mandatory requirements and have the form of a co-location requirement as it represents the worst-case scenario of all the interference cases.

NOTE: Due to the low level of the unwanted emissions for the spurious emissions and TX OFF level co-location is the most suitable method to show conformance.

The *co-location reference antenna* shall be a single column passive antenna which has the same vertical radiating dimension (h), frequency range, polarization, as the composite antenna of the *BS type I-O* and nominal 65° horizontal half-power beamwidth (suitable for 3-sector deployment) and is placed at a distance d from the edge of the *BS type I-O*, as shown in Figure 4.9-1.

Figure 4.9-1: Illustration of *BS type 1-O* enclosure and co-location reference antenna

Edge-to-edge separation d between the *BS type 1-O* and the *co-location reference antenna* shall be set to 0.1 m.

The *BS type 1-O* and the *co-location reference antenna* shall be aligned in a common plane perpendicular to the mechanical bore-sight direction, as shown in Figure 4.9-1.

The *co-location reference antenna* and the *BS type 1-O* can have different width.

The vertical radiating regions of the *co-location reference antenna* and the *BS type 1-O* composite antenna shall be aligned.

For co-location requirements where the frequency range of the signal at the *co-location reference antenna* is different from the *BS type 1-O*, a *co-location reference antenna* suitable for the frequency stated in the requirement is assumed.

OTA co-location requirements are based on the power at the conducted interface of a *co-location reference antenna*, depending on the requirement this interface is either an input or an output. For *BS type 1-O* with dual polarization the *co-location reference antenna* has two conducted interfaces each representing one polarization.

4.12.2 Co-location test antenna

4.12.2.1 General

Co-location requirements are specified as power levels into or out of the conducted interface of the *co-location reference antenna*. For conformance testing the requirements are translated to the input or output of a *co-location test antenna* (CLTA).

A CLTA is a practical antenna which can be used to test conformance to the co-location requirements.

4.12.2.2 Co-location test antenna characteristics

A *co-location test antenna* is a practical passive antenna that is used for conformance testing of the co-location requirements and is based on the definition of the *co-location reference antenna*. A CLTA shall comply with the requirements specified in Table 4.12.2.2-1.

Translation of the requirements to other test antennas are not precluded but suitable translations between the co-location reference antenna and test antenna must be provided to demonstrate that the method is within the specified MU.

NOTE: The currently defined CLTAs are suitable for testing *BS type 1-O* implemented with a planar antenna array. The method for testing BS with other antenna array implementations is not covered by the present release of this specification.

Table 4.12.2.2-1: CLTA characteristics

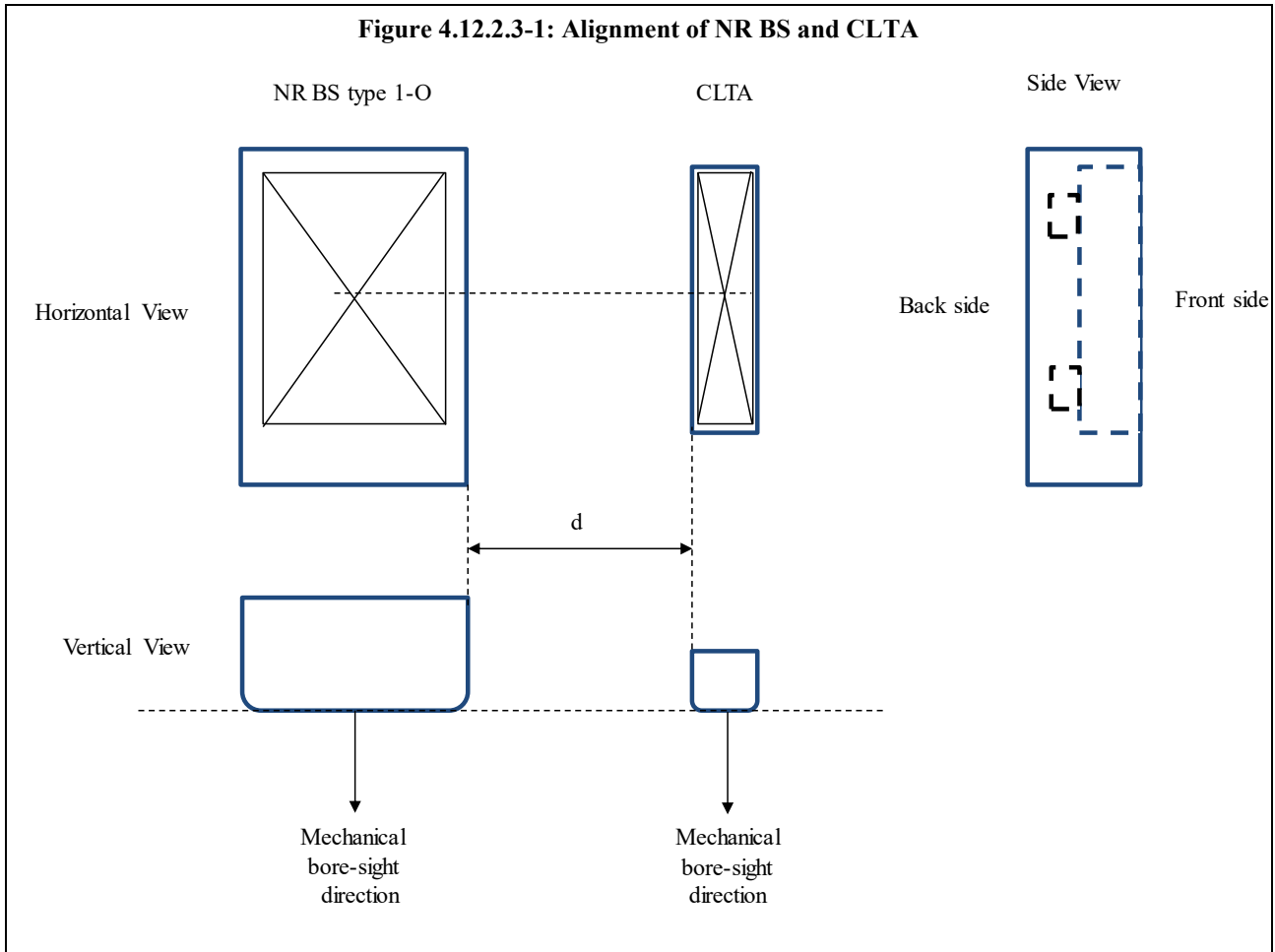
Parameter	In-band CLTA	Out-of-band CLTAs
Vertical radiating dimension (h)	Test object vertical radiating length $\pm 30\%$	Test object vertical radiating length $\pm 30\%$ (Note 2)
Horizontal beam width	$65^\circ \pm 10^\circ$	$65^\circ \pm 10^\circ$
Vertical beam width	N/A	The half-power vertical beam width of the CLTA equals the narrowest declared (D.3) vertical beamwidth $\pm 3^\circ$ (Note 2)
Polarization (Note 3)	Match (Note 4)	Match to in-band (Note 4)
Conducted interface return loss	> 10 dB	> 10 dB
NOTE 1: If a multi-column or multi-band antenna is used the column closest to the NR BS shall be selected while other columns are terminated during testing.		
NOTE 2: The vertical radiating dimension definition shall be used instead of the vertical beam width definition when the test chamber dimensions limit the use of vertical beam width definition. Otherwise the vertical beam width definition shall be used.		
NOTE 3: For <i>BS type I-O</i> with dual polarization the CLTA has two conducted interfaces each representing one polarization.		
NOTE 4: Matched to the polarization of EUT antenna.		

4.12.2.3 Co-location test antenna alignment

The alignment between the NR BS under test and the *co-location test antenna* is described in Table 4.12.2.3-1 and Figure 4.12.2.3-1. The same physical alignment applies to in-band and out-of-band co-location requirements.

Table 4.12.2.3-1: CLTA alignment tolerances

Parameter	
Edge-to-edge separation between the NR BS and the CLTA, d	$0.1 \text{ m} \pm 0.01 \text{ m}$
Vertical alignment	Centre $\pm 0.01 \text{ m}$
Front alignment	Radome front $\pm 0.01 \text{ m}$



La potencia total de toda emisión no esencial procedente de ambas polarizaciones de la salida del conector CLTA no debe exceder los límites establecidos en el Cuadro 6.7.5.3.5.1-1 de TS 38.141-2 [2].

Table 6.7.5.3.5.1-1: BS type 1-O OTA spurious emissions limits for protection of the BS receiver

BS class	Frequency range	Maximum Level for bands below 3GHz	Maximum Level for bands between 3 and 4.2GHz	Maximum Level for bands between 4.2 and 6GHz	Measurement bandwidth
Wide Area BS	$F_{UL_low} - F_{UL_high}$	-113.9 dBm	-113.7 dBm	-113.6 dBm	100 kHz
Medium Range BS		-108.9 dBm	-108.7 dBm	-108.6 dBm	
Local Area BS		-105.9 dBm	-105.7 dBm	-105.6 dBm	

4.4.4 Requisitos adicionales para las emisiones no esenciales

Es posible que en algunas regiones se apliquen los siguientes requisitos adicionales de TS 38.141-2 [2]:

Para la coexistencia con sistemas que funcionan en otras bandas de frecuencias, el requisito establecido en el Cuadro 6.7.5.4.5-1.

Para la protección del PHS, el requisito establecido en el Cuadro 6.7.5.4.5-2.

Para la EB que funcione en las bandas n50 y n75 en 1 432-1 452 MHz, y en las bandas n51 y n76, el requisito del Cuadro 6.7.5.4.5-3.

Para la EB que funcione en las bandas NR n50 y n75 en 1 492-1 517 MHz, y en la banda n74 en 1 492-1 518 MHz, los requisitos del Cuadro 6.7.5.4.5-4.

Para la EB que funcione en las bandas n13 y n14 para proteger adecuadamente las operaciones de seguridad pública en 700 MHz frente a las interferencias, los requisitos del Cuadro 6.7.5.4.5-5.

Para la EB que funcione en la banda n30, los requisitos del Cuadro 6.7.5.4.5-6.

Para la EB que funcione en la banda n26 para proteger adecuadamente las operaciones de seguridad pública en 800 MHz frente a las interferencias, los requisitos del Cuadro 6.7.5.4.5-7.

**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	1 805-1 880 MHz	-35.4 dBm	100 kHz	This requirement does not apply to BS operating in band n3.
	1 710-1 785 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	1 930-1 990 MHz	-35.4 dBm	100 kHz	This requirement does not apply to BS operating in band n2, n25 or band n70.
	1 850-1 910 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 E-UTRA Band 1 or NR Band n1	2 110-2 170 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n1 or n65.
UTRA FDD Band II or E-UTRA Band 2 or NR Band n2	1 920-1 980 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 III or E-UTRA Band 3 or NR Band n3	1 930-1 990 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n2 or n70.
UTRA FDD Band IV or E-UTRA Band 4	1 850-1 910 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 V or E-UTRA Band 5 or NR Band n5	1 805-1 880 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n3.
UTRA FDD Band VI, XIX or E-UTRA Band 6, 18, 19	1 710-1 785 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 E-UTRA Band 4	2 110-2 155 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n66.
	1 710-1 755 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 E-UTRA Band 5 or NR Band n5	869-894 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n5 or n26.
	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 or E-UTRA Band 6, 18, 19	860-890 MHz	-40.4 dBm	1 MHz	
	815-830 MHz	-37.4 dBm	1 MHz	
	830-845 MHz	-37.4 dBm	1 MHz	

UTRA FDD Band VII or	2 620-2 690 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	2 500-2 570 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	1 844.9-1 879.9 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n3.
E-UTRA Band 9	1 749.9-1 784.9 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	2 110-2 170 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n66
E-UTRA Band 10	1 710-1 770 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	1 475.9-1 510.9 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	1 427.9-1 447.9 MHz	-37.4 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n51, n74, n75 or n76.
21	1 447.9-1 462.9 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	3 510-3 590 MHz	-40 dBm	1 MHz	This requirement does not apply to BS operating in Band n77 or n78.
E-UTRA Band 22	3 410-3 490 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	1 525-1 559 MHz	-40.4 dBm	1 MHz	
	1 626.5-1 660.5 MHz	-37.4 dBm	1 MHz	
UTRA FDD Band XXV or E-UTRA Band 25 or NR band n25	1 930-1 995 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n2, n25 or n70.
	1 850-1 915 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 E-UTRA Band 26 or NR Band n26	859-894 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n5 or 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 NR Band n28	758-803 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n20, n67 or 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 NR Band n30	2 350-2 360 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n30.
	2 305-2 315 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	1 452-1 496 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	1 900-1 920 MHz	-40.4 dBm	1 MHz	
UTRA TDD Band a) or E-UTRA Band 34 or NR band n34	2 010-2 025 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	1 850-1 910 MHz	-40.4 dBm	1 MHz	

UTRA TDD Band b) or E-UTRA Band 36	1 930-1 990 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	1 910-1 930 MHz	-40.4 dBm	1 MHz	
UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38	2 570-2 620 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	1 880-1 920 MHz	-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	2 300-2 400 MHz	-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	2 496-2 690 MHz	-40.4 dBm	1 MHz	This is not applicable to BS operating in Band n41.
E-UTRA Band 42	3 400-3 600 MHz	-40 dBm	1 MHz	This requirement does not apply to BS operating in Band n77 or n78.
E-UTRA Band 43	3 600-3 800 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	1 447-1 467 MHz	-40.4 dBm	1 MHz	
E-UTRA Band 47	5 855-5 925 MHz	-39.5 dBm	1 MHz	
E-UTRA Band 48	3 550-3 700 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	1 432-1 517 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	1 427-1 432 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	2 483.5-2 495 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in Band n41 or n90.
E-UTRA Band 65 or NR Band n65	2 110-2 200 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n1 or n65.
	1 920-2 010 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	2 110-2 200 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n66.

NR Band n66	1 710-1 780 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	2 570-2 620 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in Band n38.
E-UTRA Band 70 or NR Band n70	1 995-2 020 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in band n2, n25 or n70
	1 695-1 710 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 NR Band n71	617-652 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in 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 NR Band n74	1 475-1 518 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in Band n50, n74 or n75.
	1 427-1 470 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	1 432-1 517 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	1 427-1 432 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	1 710-1 785 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	1 920-1 980 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	1 710-1 780 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	1 427-1 432 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	1 432-1 517 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	1 427-1 432 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	1 432-1 517 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	2 010-2 025 MHz	-40.4 dBm	1 MHz	
NR Band n96	5 925-7 125 MHz	-39.5 dBm	1 MHz	This requirement does not apply to BS operating in Band n96 or n102.
NR Band n97	2 300-2 400 MHz	-40.4 dBm	1 MHz	NR Band n97
NR Band n98	1 880-1 920 MHz	-40.4 dBm	1 MHz	
NR Band n99	1 626.5-1 660.5 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 n100	919.4-925 MHz	-40.4 dBm	1 MHz	This requirement does not apply to BS operating in Band n8.
	874.4-880 MHz	-37.4 dBm	1 MHz	
NR Band n101	1 900-1 910 MHz	-40.4 dBm	1 MHz	
NR Band n102	6 425-7 125 MHz	-39.5 dBm	1 MHz	This requirement does not apply to BS operating in Band 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 Δf_{OBUE} 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.

Table 6.7.5.4.5-2: BS spurious emissions test limits for BS for co-existence with PHS

Frequency range	Test limit	Measurement bandwidth	Note
1 884.5-1 915.7 MHz	-32 dBm	300 kHz	Applicable when co-existence with PHS system operating in 1 884.5-1 915.7 MHz

Table 6.7.5.4.5-3: Additional emission test limit for BS operating in Band n50 and n75 within 1432-1452 MHz, and in Band n51 and n76

Filter centre frequency, F_{filter}	Test limit (dBm)	Measurement bandwidth
$F_{\text{filter}} = 1\,413.5\text{ MHz}$	-42	27 MHz

Table 6.7.5.4.5-4: Operating band n50, n74 and n75 emission test limits above 1518 MHz

Filter centre frequency, F_{filter}	EIRP limit (dBm)	Measurement bandwidth
$1\,518.5\text{ MHz} \leq F_{\text{filter}} \leq 1\,519.5\text{ MHz}$	-0.8	1 MHz
$1\,520.5\text{ MHz} \leq F_{\text{filter}} \leq 1\,558.5\text{ MHz}$	-30	1 MHz

Table 6.7.5.4.5-5: BS Spurious emissions limits for protection of 700 MHz public safety operations

Operating Band	Frequency range	Maximum Level	Measurement Bandwidth
n13	763-775 MHz	-37 dBm	6.25 kHz
n13	793-805 MHz	-37 dBm	6.25 kHz
n14	769-775 MHz	-37 dBm	6.25 kHz
n14	799-805 MHz	-37 dBm	6.25 kHz

Table 6.7.5.4.5-6: Additional NR BS Spurious emissions limits for Band n30

Frequency range	Basic limit	Measurement bandwidth
2 200-2 345 MHz	-33.4 dBm	1 MHz
2 362.5-2 365 MHz	-13.4 dBm	
2 365-2 367.5 MHz	-28.4 dBm	
2 367.5-2 370 MHz	-30.4 dBm	
2 370-2 395 MHz	-33.4 dBm	

Table 6.7.5.4.5-7: BS OTA Spurious emissions limits for protection of 800 MHz public safety operations

Operating Band	Frequency range	Maximum Level	Measurement Bandwidth	Note
n26	851-859 MHz	-4 dBm	100 kHz	Applicable for offsets > 37.5 kHz from the channel edge

Table 6.7.5.4.5-8: Additional BS Spurious emissions limits for Band n41 and n90

Frequency range	Test limit	Measurement Bandwidth
2 505-2 535 MHz	-33 dBm	1 MHz

NOTE: This requirement applies for carriers allocated within 2 545-2 645 MHz.

Debe aplicarse el siguiente requisito adicional:

Respecto de la EB que opere en la gama de frecuencias 24,25-27,5 GHz, para la protección del servicio de exploración de la Tierra por satélite, los requisitos establecidos en el Cuadro 6.7.5.4.5.2-1 de TS 38.141-2 [2].

Table 6.7.5.4.5.2-1: BS spurious emissions test limits for protection of Earth Exploration Satellite Service

Frequency range	Limit	Measurement Bandwidth	Note
23.6-24 GHz	-3 dBm	200 MHz	Note 1
23.6-24 GHz	-9 dBm	200 MHz	Note 2

NOTE 1: This limit applies to BS brought into use on or before 1 September 2027.

NOTE 2: This limit applies to BS brought into use after 1 September 2027.

4.4.5 Requisitos de compartición de emplazamiento

Estos requisitos podrán aplicarse para proteger los receptores de otras EB cuando haya EB GSM900, DCS1800, PCS1900, GSM850, CDMA850, DDF UTRA, DDT UTRA, E-UTRA y/o NR compartiendo emplazamiento con una EB.

Los requisitos presuponen la compartición de emplazamiento con estaciones de base de la misma clase.

NOTA – Para la compartición de emplazamiento con UTRA, los requisitos se basan en la compartición de emplazamiento con estaciones de base FDD o TDD UTRA.

Este requisito es un requisito de compartición de emplazamiento definido en la cláusula 4.9, en TS 38.104 [6]. Los niveles de potencia se especifican en la salida CLTA, como se describe en el punto 4.12.2 de TS 38.141-2 [2].

La salida de la CLTA de toda emisión no esencial no debe exceder el límite de prueba establecido en el Cuadro 6.7.5.5.5.1-1 de TS 38.141-2 [2].

Para un RIB multibanda, se aplican las exclusiones y condiciones de la columna Nota del Cuadro 6.7.5.5.5.1-1 a cada banda operativa soportada.

Table 6.7.5.5.1-1: BS type I-O OTA spurious emissions limits for BS co-located with another BS

Type of co-located BS	Frequency range for co-location requirement	Test limit			Measurement bandwidth	Note
		WA BS	MR BS	LA BS		
GSM900	876-915 MHz	-115.9 dBm	-108.9 dBm	-87.9 dBm	100 kHz	
DCS1800	1 710-1 785 MHz	-115.9 dBm	-108.9 dBm	-97.9 dBm	100 kHz	
PCS1900	1 850-1 910 MHz	-115.9 dBm	-108.9 dBm	-97.9 dBm	100 kHz	
GSM850 or CDMA850	824-849 MHz	-115.9 dBm	-108.9 dBm	-87.9 dBm	100 kHz	
UTRA FDD Band I or E-UTRA Band 1 or NR Band n1	1 920-1 980 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band II or E-UTRA Band 2 or NR Band n2	1 850-1 910 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band III or E-UTRA Band 3 or NR Band n3	1 710-1 785 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band IV or E-UTRA Band 4	1 710-1 755 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band V or E-UTRA Band 5 or NR Band n5	824-849 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band VI, XIX or E-UTRA Band 6, 19	830-845 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band VII or E-UTRA Band 7 or NR Band n7	2 500-2 570 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band VIII or E-UTRA Band 8 or NR Band n8	880-915 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band IX or E-UTRA Band 9	1 749.9-1 784.9 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band X or E-UTRA Band 10	1 710-1 770 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band XI or E-UTRA Band 11	1 427.9-1 447.9 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n50 or n75
UTRA FDD Band XII or E-UTRA Band 12	699-716 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band XIII or E-UTRA Band 13 or NR Band n13	777-787 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band XIV or E-UTRA Band 14 or NR Band n14	788-798 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 17	704-716 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 18	815-830 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band XX or E-UTRA Band 20 or NR Band n20	832-862 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	

UTRA FDD Band XXI or E-UTRA Band 21	1 447.9-1 462.9 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n50 or n75
UTRA FDD Band XXII or E-UTRA Band 22	3 410-3 490 MHz	-113.7 dBm	-108.7 dBm	-105.7 dBm	100 kHz	This is not applicable to BS operating in Band n77 or n78
E-UTRA Band 24 or NR Band n24	1 626.5-1 660.5 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band XXV or E-UTRA Band 25	1 850-1 915 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA FDD Band XXVI or E-UTRA Band 26 or NR Band n26	814-849 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 27	807-824 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 28 or NR Band n28	703-748 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 30 or NR Band n30	2 305-2 315 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 31	452.5-457.5 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA TDD Band a) or E-UTRA Band 33	1 900-1 920 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA TDD Band a) or E-UTRA Band 34	2 010-2 025 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA TDD Band b) or E-UTRA Band 35	1 850-1 910 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA TDD Band b) or E-UTRA Band 36	1 930-1 990 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n2
UTRA TDD Band c) or E-UTRA Band 37	1 910-1 930 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA TDD Band d) or E-UTRA Band 38 or NR Band n38	2 570-2 620 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n38.
UTRA TDD Band f) or E-UTRA Band 39	1 880-1 920 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
UTRA TDD Band e) or E-UTRA Band 40	2 300-2 400 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 41 or NR Band n41	2 496-2 690 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n41
E-UTRA Band 42	3 400-3 600 MHz	-113.7 dBm	-108.7 dBm	-105.7 dBm	100 kHz	This is not applicable to BS operating in Band n77 or n78
E-UTRA Band 43	3 600-3 800 MHz	-113.7 dBm	-108.7 dBm	-105.7 dBm	100 kHz	This is not applicable to BS operating in Band n77 or n78

E-UTRA Band 44	703-803 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n28
E-UTRA Band 45	1 447-1 467 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 48	3 550-3 700 MHz	-113.7 dBm	-108.7 dBm	-105.7 dBm	100 kHz	This is not applicable to BS operating in Band n77 or n78
E-UTRA Band 50 or NR Band n50	1 432-1 517 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n74 or n75
E-UTRA Band 51 or NR Band n51	1 427-1 432 MHz	N/A	N/A	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n50, n75 or n76
E-UTRA Band 53 or NR Band n53	2 483.5-2 495 MHz	N/A	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n41 or n90
E-UTRA Band 65 or NR Band n65	1 920-2 010 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 66 or NR Band n66	1 710-1 780 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 68	698-728 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 70 or NR Band n70	1 695-1 710 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 71 or NR Band n71	663-698 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 72	451-456 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 74 or NR Band n74	1 427-1 470 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	This is not applicable to BS operating in Band n50
NR Band n77	3.3-4.2 GHz	-113.7 dBm	-108.7 dBm	-105.7 dBm	100 kHz	This is not applicable to BS operating in Band n77 or n78
NR Band n78	3.3-3.8 GHz	-113.7 dBm	-108.7 dBm	-105.7 dBm	100 kHz	This is not applicable to BS operating in Band n77 or n78
NR Band n79	4.4-5.0 GHz	-113.6 dBm	-108.6 dBm	-105.6 dBm	100 kHz	
NR Band n80	1 710-1 785 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n81	880-915 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n82	832-862 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n83	703-748 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n84	1 920-1 980 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
E-UTRA Band 85 or NR Band n85	698-716 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n86	1 710-1 780 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	

NR Band n89	824-849 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n95	2 010-2 025 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band 96	5 925-7 125 MHz	N/A	-107.6 dBm	-104.6 dBm	100 kHz	This is not applicable to BS operating in Band n96 or n102
NR Band n97	2 300-2 400 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n98	1 880-1 920 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR Band n99	1 626.5-1 660.5 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	
NR band n100	874.4-880 MHz	-113.9 dBm	NA	NA	100 kHz	
NR band n101	1 900-1 910 MHz	-113.9 dBm	NA	NA	100 kHz	
NR Band n102	6 425-7 125 MHz	N/A	-107.6 dBm	-104.6 dBm	100 kHz	This is not applicable to BS operating in Band n96 or n102
E-UTRA Band 103	787-788 MHz	-113.9 dBm	-108.9 dBm	-105.9 dBm	100 kHz	

NOTE 1: As defined in the scope for spurious emissions in this clause, the co-location requirements in Table 6.7.5.5.1-1 do not apply for the frequency range extending Δf_{OBUE} immediately outside the BS transmit frequency range of a downlink *operating band* (see Table 5.2-1 in TS 38.104 [2]). The current state-of-the-art technology does not allow a single generic solution for co-location with other system on adjacent frequencies for 30 dB BS-BS minimum coupling loss. However, there are certain site-engineering solutions that can be used. These techniques are addressed in TR 25.942 [27].

NOTE 2: Table 6.7.5.5.1-1 assumes that two *operating bands*, where the corresponding BS transmit and receive frequency ranges in Table 5.2-1 in TS 38.104 [2] 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-location requirements may apply that are not covered by the 3GPP specifications.

NOTE 3: Co-located TDD base stations that are synchronized and using the same or adjacent *operating band* can transmit without special co-locations requirements. For unsynchronized base station), special co-location requirements may apply that are not covered by the 3GPP specifications.

4.5 Emisiones no esenciales del receptor OTA

4.5.1 Emisiones no esenciales del receptor OTA para la EB de tipo 1-O

Las emisiones no esenciales del receptor para la EB de tipo 1-O en la interfaz RIB deben ser inferiores a los límites aplicables definidos en el Cuadro 7.7.5.1-1 de TS 38.141-2 [2].

Table 7.7.5.1-1: General OTA BS receiver spurious emission limits for *BS type 1-O*

Spurious frequency range	Test limits (Note 6, Note 8)	Measurement bandwidth	Notes
30 MHz – 1 GHz	$-36 + X$ dBm	100 kHz	Note 1, Note 6
1 GHz – 6 GHz	$-30 + X$ dBm	1 MHz	Note 1, Note 2, Note 6
12.75 GHz – 5 th harmonic of the upper frequency edge of the UL <i>operating band</i> in GHz	$-30 + X$ dBm	1 MHz	Note 1, Note 2, Note 3, Note 6

NOTE 1: Measurement bandwidths as in ITU-R SM.329 [5], s4.1.

NOTE 2: Upper frequency as in ITU-R SM.329 [5], s2.5 Table 1.

NOTE 3: This spurious frequency range applies only for *operating bands* for which the 5th harmonic of the upper frequency edge of the UL *operating band* is reaching beyond 12.75 GHz.

NOTE 4: The frequency range from Δf_{OBUE} below the lowest frequency of the BS transmitter operating band to Δf_{OBUE} above the highest frequency of the BS transmitter *operating band* may be excluded from the requirement. Δf_{OBUE} is defined in clause 6.7.1. For *multi-band RIBs*, the exclusion applies for all supported *operating bands*.

NOTE 5: Void.

NOTE 6: $X = 9$ dB, unless stated differently in regional regulation.

NOTE 7: Void.

NOTE 8: Additional limits may apply regionally.

4.5.2 Emisiones no esenciales del receptor OTA para la EB de tipo 2-O

Las emisiones no esenciales del receptor para la EB de tipo 2-O en la interfaz RIB deben ser inferiores a los límites aplicables definidos en el Cuadro 7.7.5.2-1 de TS 38.141-2 [2], con los saltos de frecuencia definidos en el Cuadro 7.7.5.2-2 de TS 38.141-2 [2]. Además, el requisito para proteger el servicio de exploración de la Tierra por satélite debe aplicarse para la EB que funcione en la gama de frecuencias 24,25-27,5 GHz, como se define en el Cuadro 7.7.5.2-3 de TS 38.141-2 [2].

Table 7.7.5.2-1: Radiated Rx spurious emission limits for BS type 2-O

Spurious frequency range (Note 4)	Limit (Note 5)	Measurement Bandwidth	Note
30 MHz ↔ 1 GHz	-36 dBm	100 kHz	Note 1
1 GHz ↔ 18 GHz	-30 dBm	1 MHz	Note 1
18 GHz ↔ $F_{\text{step},1}$	-20 dBm	10 MHz	Note 2
$F_{\text{step},1}$ ↔ $F_{\text{step},2}$	-15 dBm	10 MHz	Note 2
$F_{\text{step},2}$ ↔ $F_{\text{step},3}$	-10 dBm	10 MHz	Note 2
$F_{\text{step},4}$ ↔ $F_{\text{step},5}$	-10 dBm	10 MHz	Note 2
$F_{\text{step},5}$ ↔ $F_{\text{step},6}$	-15 dBm	10 MHz	Note 2
$F_{\text{step},6}$ ↔ min(2 nd harmonic of the upper frequency edge of the UL operating band in GHz; 60 GHz)	-20 dBm	10 MHz	Note 2, Note 3

NOTE 1: Bandwidth as in ITU-R SM.329 [2], s4.1.

NOTE 2: Limit and bandwidth as in ERC Recommendation 74-01 [19], Annex 2.

NOTE 3: Upper frequency as in ITU-R SM.329 [2], s2.5 Table 1.

NOTE 4: The step frequencies $F_{\text{step},X}$ are defined in Table 7.7.5.2-2.

NOTE 5: Additional limits may apply regionally.

Table 7.7.5.2-2: Step frequencies for defining the radiated Rx spurious emission limits for BS type 2-O

Operating band	$F_{\text{step},1}$ (GHz)	$F_{\text{step},2}$ (GHz)	$F_{\text{step},3}$ (GHz)	$F_{\text{step},4}$ (GHz)	$F_{\text{step},5}$ (GHz)	$F_{\text{step},6}$ (GHz)
n257	18	23.5	25	31	32.5	41.5
n258	18	21	22.75	29	30.75	40.5
n259	23.5	35.5	38	45	47.5	59.5
n260	25	34	35.5	41.5	43	52
n261	18	25.5	26.0	29.85	30.35	38.35
n262	37.2	45.2	45.7	49.7	50.2	58.2

Table 7.7.5.2-3: Limits for protection of Earth Exploration Satellite Service

Frequency range	Limit	Measurement Bandwidth	Note
23.6 – 24 GHz	-3 dBm	200 MHz	Note 1
23.6 – 24 GHz	-9 dBm	200 MHz	Note 2

NOTE 1: This limit applies to BS brought into use on or before 1 September 2027.

NOTE 2: This limit applies to BS brought into use after 1 September 2027.

5 Referencias

- [1] ARIB STD-T120-38.141-1 V17.6.0, ETSI TS 138 141-1 V17.6.0 o TTA TTAT.3G-38.141-1V17.6.0: estas normas hacen referencia a 3GPP TS 38.141-1 V17.6.0 (2022-06), «Proyecto de asociación de tercera generación; Especificación técnica del grupo de la red de acceso radioeléctrico; NR; Pruebas de conformidad de la estación de base (EB), Parte 1: pruebas de conformidad de conducción (N.º 17)».

- [2] ARIB STD-T120-38.141-2 V.17.6.0, ETSI TS 138 141-2 V17.6.0 o TTA TTAT.3G-38.141-2V17.6.0: estas normas hacen referencia a 3GPP TS 38.141-2 V17.6.0 (2022-06), «Proyecto de asociación de tercera generación; Especificación técnica del grupo de la red de acceso radioeléctrico; NR; Pruebas de conformidad de la estación de base (EB), Parte 2: pruebas de conformidad de radiación (N.º 17)».
- [3] Recomendación UIT-R SM.329: *Emisiones no deseadas en el dominio no esencial*.
- [4] Recomendación UIT-R M.1545: *Incertidumbre de medición aplicada a límites de prueba para el componente terrenal de las telecomunicaciones móviles internacionales-2000*.
- [5] ARIB STD-T120-38.104 V17.6.0, ETSI TS 138 104-2 V17.6.0 o TTAT.3G-38.104V17.6.0: estas normas hacen referencia a 3GPP TS 38.104 V17.6.0 (2022-06), «Proyecto de asociación de tercera generación; Especificación técnica del grupo de la red de acceso radioeléctrico; NR; transmisión y recepción radioeléctricas desde la estación de base (BS) (N.º 17)».

Adjunto 1 al Anexo 2

Definición de tolerancia de la prueba

Tolerancias de la prueba

Según la Recomendación UIT-R M.1545 [4], la «tolerancia de la prueba» es la relajación del valor a que se refiere el *recomienda 2* de la Recomendación UIT-R M.1545, es decir, la diferencia entre el valor de especificación esencial y el límite de la prueba, evaluado según el principio de riesgo compartido, como se muestra en las Figs. 2 y 3 del Anexo 1 a la Recomendación UIT-R M.1545. Cuando el valor de especificación esencial es igual a límite de la prueba (Fig. 3 del Anexo 2 a la Recomendación UIT-R M.1545) la «tolerancia de la prueba» es igual a 0 dB.

Anexo 3

5Gi RIT⁸

Las características de las emisiones no deseadas establecidas en el Anexo 2 deben aplicarse a 5Gi RIT.

⁸ Desarrollado por TSDSI como «5Gi RIT».

Anexo 4

Componente DECT-2020 NR-RIT

Introducción

DECT 5G-SRIT consta de dos componentes:

- Componente DECT-2020 NR-RIT
- Componente 3GPP NR-RIT

Este Anexo proporciona las características de las emisiones no deseadas de las estaciones de base (equipo radioeléctrico en modo FT) que utilizan la interfaz radioeléctrica DECT-2020 NR.

Las características de las emisiones no deseadas procedentes de estaciones de base que utilizan la interfaz radioeléctrica 3GPP NR se proporcionan en el Anexo 2 de esta Recomendación.

1 Características de las emisiones no deseadas para DECT-2020 NR

1.1 Bandas operativas

La numeración de las bandas operativas se define en los Cuadros A4-1 y A4-2. El dispositivo radioeléctrico puede implementar uno o más soportes de banda en función de sus capacidades.

CUADRO A4-1

Numeración de bandas operativas

Bandas de frecuencias utilizadas por DECT-2020 NR e identificadas para las IMT en el RR

Número de la banda	Banda receptora (MHz)	Banda transmisora (MHz)	Notas en las que se identifica la banda o parte de ella para las IMT en diversos países/regiones
1	1 880 a 1 900	1 880 a 1 900	5.388
2	1 900 a 1 920	1 900 a 1 920	5.388
5	450 a 470	450 a 470	5.286AA
6	698 a 806	698 a 806	5.312B, 5.317A
7	716 a 728	716 a 728	5.312B, 5.317A
8	1 432 a 1 517	1 432 a 1 517	5.341A, 5.341B, 5.341C
9	1 920 a 1 930	1 920 a 1 930	5.388
10	2 010 a 2 025	2 010 a 2 025	5.388
11	2 300 a 2 400	2 300 a 2 400	5.384A
12	2 500 a 2 620	2 500 a 2 620	5.384A
13	3 300 a 3 400	3 300 a 3 400	5.429G
14	3 400 a 3 600	3 400 a 3 600	5.431A, 5.431B
15	3 600 a 3 700	3 600 a 3 700	5.434
16	4 800 a 4 990	4 800 a 4 990	5.440A, 5.441A, 5.441B
21	3 700 a 3 800	3 700 a 3 800	5.435B
22	1 910 a 1 930	1 910 a 1 930	5.388

CUADRO A4-2

Numeración de bandas operativas

Bandas de frecuencias utilizadas por DECT-2020 NR
y no identificadas para las IMT en el RR

Número de la banda	Banda receptora (MHz)	Banda transmisora (MHz)
3	2 400 a 2 483,5	2 400 a 2 483,5
4	902 a 928	902 a 928
17	5 725 a 5 875	5 725 a 5 875
18	5 150 a 5 350	5 150 a 5 350
19	5 470 a 5 725	5 470 a 5 725
20	3 800 a 4 200	3 800 a 4 200

1.2 Definiciones, símbolos y abreviaturas

1.2.1 Símbolos

β	Factor de escalado de la transformada de Fourier [2]
μ	Factor de escalado de subportadoras [2]
Δf_{oob}	Frecuencia Δ de las emisiones fuera de banda [1]
B_N	Anchura de banda nominal del canal
B_G	Diferencia entre la anchura de banda nominal del canal y la anchura de banda de transmisión
F_c	Frecuencia central portadora
$P_{m\acute{a}x}$	Potencia de transmisión máxima de la categoría del dispositivo radioeléctrico

1.2.2 Abreviaturas

ACLR	Relación de potencia de fuga del canal adyacente (<i>adjacent channel leakage ratio</i>)
DFT	Transformada discreta de Fourier (<i>discrete fourier transform</i>)
MBW	Ancho de banda de medición (<i>measurement bandwidth</i>)

2 Características de las emisiones del espectro del transmisor para DECT-2020

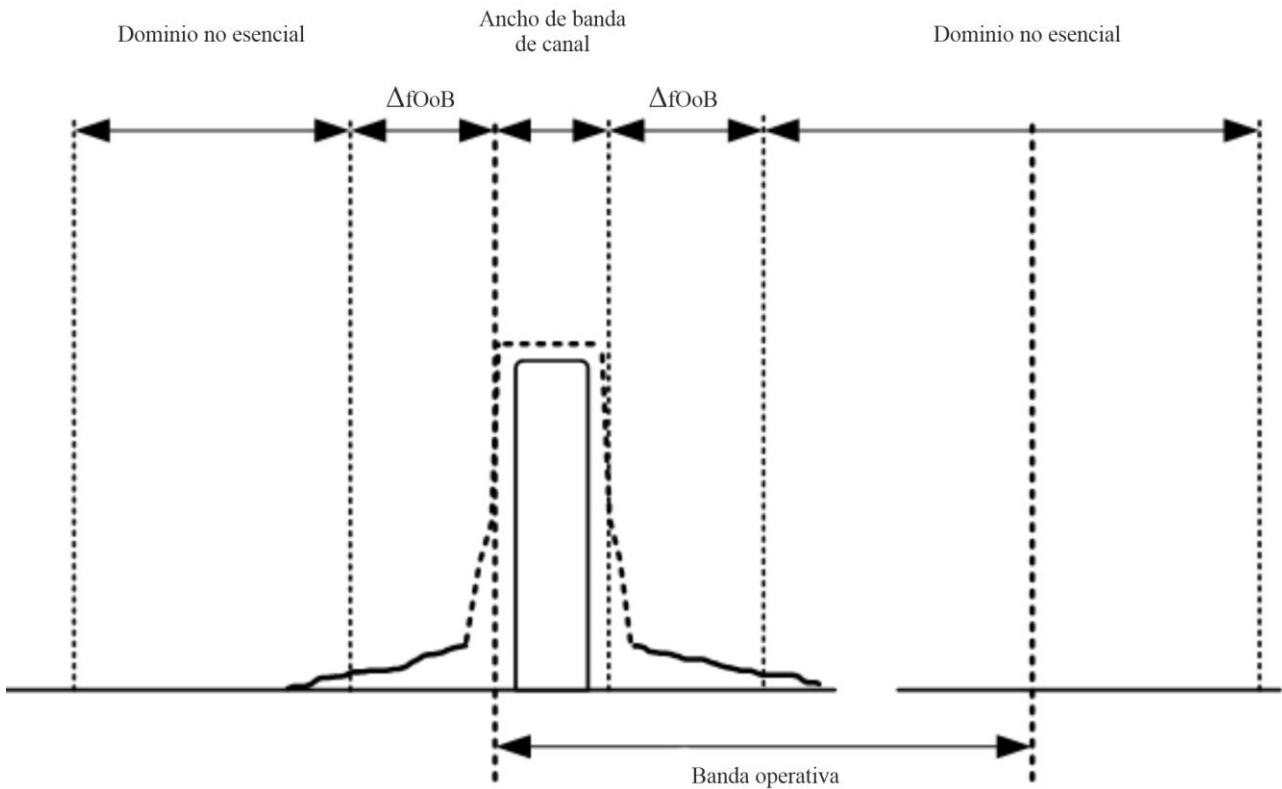
2.1 Generalidades

Las emisiones del espectro del transmisor de los equipos radioeléctricos son emisiones de canal ocupado, emisiones fuera de banda y emisiones no esenciales. La relación de estos componentes de emisiones se ilustra en la Fig. A4-1.

Las características del transmisor se especifican en los conectores de antena del equipo radioeléctrico. Para los equipos radioeléctricos con una única antena integral, deberá presuponerse una antena de referencia con una ganancia de 0 dBi para cada puerto de antena.

Los valores de potencia se aplican al funcionamiento sin AAS.

FIGURA A4-1
Espectro RF del transmisor



M.2174-A4-01

2.2 Ancho de banda del canal ocupado

El ancho de banda ocupado es el ancho de la banda de frecuencias tal que, por debajo de su frecuencia límite inferior y por encima de su frecuencia límite superior, se emitan potencias medias iguales cada una al 0,5 % de la potencia media total transmitida.

El ancho de banda ocupado debe ser inferior al ancho de banda nominal del canal definido en el Cuadro A4-3.

CUADRO A4-3

Ancho de banda del canal

Parámetro	Ancho de banda de canal operativo I	Ancho de banda de canal operativo II	Ancho de banda de canal operativo III		
			(2,1)	(1,4)	(2,2)
Ancho de banda nominal del canal (MHz)	1 728	3 456	6 912		
(μ, β)	(1,1)	(1,2)	(2,1)	(1,4)	(2,2)
Ancho de banda del canal de transmisión (MHz)	1 539	3 051	6 075	6 102	6 156

2.3 Potencia máxima de salida

La potencia máxima de salida ($P_{m\acute{a}x}$) se define como la potencia media del paquete transmitido. La potencia máxima de salida del transmisor se define en el Cuadro A4-4. El dispositivo radioel\u00e9ctrico puede utilizar una o m\u00e1s categor\u00edas de potencia en su funcionamiento.

CUADRO A4-4

Potencia m\u00e1xima de salida

Categor\u00eda de potencia del dispositivo radioel\u00e9ctrico	Ancho de banda de canal operativo (MHz)		
	1 728	3 456	6 912
	Potencia de salida (dBm)		
Categor\u00eda I	23	23	23
Categor\u00eda II	21	21	21
Categor\u00eda III	19	19	19
Categor\u00eda IV	10	10	10

NOTA 1: El ancho de banda de medici\u00f3n equivale al ancho de banda de transmisi\u00f3n del ancho de banda del canal operativo definido en el Cuadro A4-3.

2.4 Emisiones fuera de banda

Las emisiones fuera de banda son emisiones no deseadas que quedan inmediatamente fuera del ancho de banda del canal asignado como resultado del proceso de modulaci\u00f3n y la no linealidad del transmisor pero con exclusi\u00f3n de las emisiones no esenciales.

La m\u00e1scara espectral de emisi\u00f3n del dispositivo radioel\u00e9ctrico (RD) se aplica a las frecuencias (Δf_{OOB}) a partir del \pm borde (desde $F_c + B_N/2$ o desde $F_c - B_N/2$) del canal asignado. Para los desplazamientos de frecuencias superiores a Δf_{OOB} , como se especifica en el Cuadro A4-5, se aplican los requisitos no esenciales del \u00a7 2.5.

CUADRO A4-5

Ancho de banda de medici\u00f3n de 30 kHz de los l\u00edmites del espectro de emisi\u00f3n

Δf_{oob}		L\u00edmite (dBm)	Ancho de banda de medici\u00f3n (kHz)
$B_G/2 \text{ 1 MHz} \geq$	$B_G/2 < 1 \text{ MHz}$		
–	0 a $B_G/2$	$-10 - 10 \log_{10}(B_N/1,728)$	30
–	-0 a $-B_G/2$	$-10 - 10 \log_{10}(B_N/1,728)$	30
0 a 1 MHz	$B_G/2$ a 1 MHz	$-21 - 10 \log_{10}(B_N/1,728)$	30
0 a 1 MHz	$-B_G/2$ a -1 MHz	$-21 - 10 \log_{10}(B_N/1,728)$	30

NOTA 1: La primera frecuencia central para un filtro de medici\u00f3n de 30 kHz est\u00e1 en $\Delta f_{oob} = 0,015 \text{ MHz}$, lo que corresponde a $B_N/2 + 0,015 \text{ MHz}$ desde la frecuencia central de la portadora.

NOTA 2: La primera frecuencia central para un filtro de medici\u00f3n de 30 kHz en el rango de $B_G/2$ a 1 MHz est\u00e1 en $\Delta f_{oob} = B_G/2 + 0,015 \text{ MHz}$, lo que corresponde a $B_N/2 + B_G/2 + 0,015 \text{ MHz}$ desde la frecuencia central de la portadora.

NOTA 3: Sim\u00e9tricamente similar a lo indicado en las Notas 1 y 2 en las frecuencias negativas Δf_{oob} .

CUADRO A4-6

Medición de 1 MHz de los límites del espectro de emisión

Δf_{oob}	Límite (dBm)		Ancho de banda de medición (MBW)
	$B_N \leq 6,912 \text{ MHz}$	$B_N > 6,912 \text{ MHz}$	
1 MHz a B_N	-10	$-10 - 10 \log_{10}(B_N/6,912)$	1 MHz
-1 MHz a $-B_N$	-10	$-10 - 10 \log_{10}(B_N/6,912)$	1 MHz
B_N a $2B_N$	-25	$-25 - 10 \log_{10}(B_N/6,912)$	1 MHz
$-B_N$ a $-2B_N$	-25	$-25 - 10 \log_{10}(B_N/6,912)$	1 MHz

NOTA 1: La primera frecuencia central para un filtro de medición de 1 MHz en el rango de 1 MHz a B_N está en $\Delta f_{oob} = 1,5 \text{ MHz}$.

NOTA 2: La primera frecuencia central para un filtro de medición de 1 MHz en el rango de B_N a $2B_N$ está en $\Delta f_{oob} = B_N + 0,5 \text{ MHz}$.

NOTA 3: Simétricamente similar a lo indicado en las NOTAS 1 y 2 en las frecuencias negativas Δf_{oob} .

El ancho de banda de resolución del equipo de medición debe ser igual al ancho de banda de medición (MBW). No obstante, para mejorar la precisión, la sensibilidad y la eficacia de la medición, el ancho de banda de resolución podrá ser menor que el MBW o se puede utilizar un filtro de canal de tipo rectangular con respuesta de transición muy abrupta. Cuando el ancho de banda de resolución es inferior al MBW, debe integrarse el resultado a lo largo del MBW para obtener el ancho de banda de ruido equivalente del MBW.

2.5 Emisiones no esenciales

Las emisiones no esenciales son emisiones causadas por efectos no deseados del transmisor, como las emisiones armónicas, las emisiones parásitas, los productos de intermodulación y los productos de la conversión de frecuencias, pero no son emisiones fuera de banda, a menos que se indique lo contrario. Los límites de las emisiones no esenciales se especifican en términos de requisitos generales conformes con la Recomendación UIT-R SM.329.

A menos que se indique lo contrario, los límites de emisiones no esenciales se aplican a las gamas de frecuencias que están separadas más de Δf_{oob} (MHz) del borde del ancho de banda del canal (Cuadro A4-4). Los límites de emisiones no esenciales del Cuadro A4-5 se aplican a todas las bandas del transmisor y todos los anchos de banda de canal.

Las emisiones no esenciales se deben medir durante el periodo de tiempo en el que el transmisor está activo, con exclusión de los periodos transitorios.

Las condiciones de la medición que rigen en los límites de cada gama de frecuencias son las siguientes: la frecuencia más baja de la posición de medición en cada gama de frecuencias debe fijarse en el límite inferior de la gama de frecuencias más $MBW/2$. La frecuencia más alta de la posición de medición en cada gama de frecuencias debe fijarse en el límite superior de la gama de frecuencias menos $MBW/2$. En este contexto, MBW es el ancho de banda de medición definido para la banda protegida.

CUADRO A4-7

Límites de emisiones no esenciales

Gama de frecuencias	Nivel máximo (dBm)	Ancho de banda de medición
$9 \text{ kHz} \leq f < 150 \text{ kHz}$	-36	1 kHz
$150 \text{ kHz} \leq f < 30 \text{ MHz}$	-36	10 kHz
$30 \text{ MHz} \leq f < 1\,000 \text{ MHz}$	-36	100 kHz
$1 \text{ GHz} \leq f < 12,75 \text{ GHz}$	-30	1 MHz
$12,75 \text{ GHz} \leq f < 5^\circ$ armónico del límite superior de frecuencia en GHz	-30	1 MHz

2.6 Relación de potencia de fuga del canal adyacente

La relación de potencia de fuga del canal adyacente (ACLR) se utiliza como medida de la cantidad de potencia de transmisión que se pierde en los canales adyacentes. La ACLR es el cociente entre la potencia media filtrada centrada en la frecuencia del canal asignado y la potencia media filtrada centrada en la frecuencia de canal adyacente con un ancho de banda de medición igual al ancho de banda de transmisión.

La ACLR se mide con una ventana cuadrada en el canal adyacente. Se toma una DFT de la señal de transmisión y la energía de los bins apropiados utilizados para calcular la potencia del canal adyacente.

El requisito de ACLR del Cuadro A4-8 debe cumplirse para todas las potencias de transmisión desde -40 dBm hasta la categoría de potencia máxima $PM_{\text{Máx}}$.

CUADRO A4-8

Límite de la relación de potencia de fuga del canal adyacente

Límite (dBc)
-30

3 Referencias

- [1] ETSI TS 103 636-2 v1.5.1: DECT-2020 NR Nuevas tecnologías radioeléctricas (NR); Parte 2: Requisitos de recepción y transmisión radioeléctrica, N.º 1
- [2] ETSI TS 103 636-3 v 1.5.1: DECT-2020 NR Nuevas tecnologías radioeléctricas (NR); Parte 3: Capa física, N.º 1
- [3] Recomendación UIT-R SM.329: *Emisiones no deseadas en el dominio no esencial*
- [4] Recomendación UIT-R M.1545: *Incertidumbre de medición aplicada a límites de prueba para el componente terrenal de las telecomunicaciones móviles internacionales-2000*

Adjunto 1 al Anexo 4

Definición de tolerancia de la prueba

Tolerancias de la prueba

Según la Recomendación UIT-R M.1545 [10], la «tolerancia de la prueba» es la relajación del valor a que se refiere el *recomienda 2* de la Recomendación UIT-R M.1545 [10], es decir, la diferencia entre el valor de especificación esencial y el límite de la prueba, evaluado según el principio de riesgo compartido, como se muestra en las Figs. 2 y 3 del Anexo 1 a la Recomendación UIT-R M.1545 [10]. Cuando el valor de especificación esencial es igual a límite de la prueba (Fig. 3 del Anexo 1 a la Recomendación UIT-R M.1545 [10]) la «tolerancia de la prueba» es igual a 0.
