

#### Test data, continued



#### Figure 8.5-32: Conducted emission at the lower band edge





Figure 8.5-34: Conducted emission at the upper band edge

Frequency:	1990 MHz	Mode:	2-carrier operation
Meas. BW:	1% of EBW	Tech.:	WCDMA
Limit:	–19 dBm/50 kHz	Notes:	None



Figure 8.5-33: Conducted emission 1 MHz away from the lower band edge

Frequency:	2109 MHz	Mode:	2-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None
CCDF	UBE 1PC	UBE 1M	PSD



Figure 8.5-35: Conducted emission 1 MHz away from the upper band edge

Frequency:	1991 MHz
Meas. BW:	1 MHz
Limit:	–19 dBm/MHz

Mode: 2-carrier operation Tech.: WCDMA Notes: None



#### Test data, continued



#### Figure 8.5-36: Conducted emission at the lower band edge

Frequency: Meas. BW: Limit:	1930 N 1% of I –19 dB	ЛНz EBW Sm/50	kHz	M T N	ode: ech.: otes:	2-carrier o <sub>l</sub> WCDMA Full span -	peration, nonc	ontiguous
OBW Occupied BW		CSE Swept SA			BE 1 PC Channel	Power	BE 1 MHz Channel Power	· +
KEYSIGHT Input RF	DC Corr	Ζ: 50 Ω	Atten: 10 dB Preamp: Off	Trig: Fi Gate: (	ee Run	Center Freq: 1.928500000 AvaiHold: 100/100	GHz	



#### Figure 8.5-38: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	2-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-37: Conducted emission at the lower band edge

Frequency:	1930 MHz
Meas. BW:	1% of EBW
Limit:	–19 dBm/50 kHz

 Mode:
 2-carrier operation, noncontiguous

 Tech.:
 WCDMA

 Notes:
 Zoomed in view, final measurement



#### Test data, continued



#### Figure 8.5-39: Conducted emission at the upper band edge

Frequency: Meas. BW: Limit:	1990   1% of –19 di	MHz EBW Bm/50	kHz	M Ta Na	ode: ech.: otes:	2-c Wo Fui	carrier o <sub>l</sub> CDMA II span -	peratior overviev	n, nonc w	ontiguous
CCDF Power Stat CCDF		UBE 1PC Channel Po	wer		UBE 1N Channel	Power		PSD Swept SA		+
KEYSIGHT Input +++ Coup Align	RF Inpu king DC Corr Auto Freq NFE	t Z: 50 Ω Ref: Ext (S)	Atten: 10 dB Preamp: Off µW Path: Standard #PNO: Fast	Trig: Fr Gate: 0 #IF Ga	ree Run Off in: Low	Center Fr Avg Hold Radio Sto	eq: 1.991500000 100/100 I: None	GHz		
1 Graph Scale/Div 10.0 dB	•			Ref Va	lue 36.4	) dBm			Mkr1 1.	991000000 GHz -32.47 dBm
26.4 16.4					η					
6.40									_	
-13.6										

# Total Power Spectral Density -33.54 dBm/Hz

#Video BW 3

Figure 8.5-41: Conducted emission 1 MHz away from the upper band edge

Frequency:	1991 MHz	Mode:	2-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None

-23.54 dBm / 1.00 MHz



#### Figure 8.5-40: Conducted emission at the upper band edge

Frequency:	1990 MHz
Meas. BW:	1% of EBW
Limit:	–19 dBm/50 kHz

Span 130 MH Sweep 16.1 ms (1001 pts 
 Mode:
 2-carrier operation, noncontiguous

 Tech.:
 WCDMA

 Notes:
 Zoomed in view, final measurement

Center 1.99150 GHz #Res BW 100.00 kHz

Total Channel Pou

Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



Figure 8.5-42: Conducted emission at the lower band edge



#Video BW 30.000 kHz



Figure 8.5-43: Conducted emission 1 MHz away from the lower band edge

Frequency: Meas. BW: Limit:	1929 MHz 1 MHz –19 dBm/MHz	Mode: Tech.: Notes:	3-carrier WCDMA None	operation	
CCDF Power Stat CCDF	UBE 1PC Channel Power	UBE 1M Channel Po	wer	PSD Swept SA	+
KEYSIGHT Input RF Coupling DC Align: Auto	Input Z: 50 Ω Aften: 10 dB Corr Preamp: Off Freq Ref: Ext (S) μW Path: Standard NFE: Off #PNO: Fast	Trig: Free Run Gete: Off #IF Gein: Low	Center Freq: 1.99150000 Avg[Hold: 100/100 Radio Std: None	0 GHz	
1 Graph V Scale/Div 10.0 dB		Ref Value 36.40 d	Bm	Mkr1 1	.991000000 GHz -32.40 dBm
26.4	n				
16.4	$\gamma = \gamma = \gamma = \gamma = \gamma$				
6.40	$-\gamma$				
-3.60					
-13.6					
-23.6		1			



Figure 8.5-45: Conducted emission 1 MHz away from the upper band edge

Frequency:	1991 MHz
Meas. BW:	1 MHz
Limit:	–19 dBm/MHz

Span 35 MH Sweep 432 ms (1001 pts

Mode:	3-carrier operation
Tech.:	WCDMA
Notes:	None

1990 MHz Frequency: Meas. BW: 1% of EBW Limit: –19 dBm/50 kHz

Center 1.99003 GHz #Res BW 10.000 kHz

Total Channel Pou

Total Power Spectral D

**■**? Jan 23, 2024 12:40:55 PM

-22.71 dBm / 50.0 kHz

-69.70 dBm/Hz

3-carrier operation Mode: Tech.: WCDMA Notes: None

Figure 8.5-44: Conducted emission at the upper band edge



#### Test data, continued



#### Figure 8.5-46: Conducted emission at the lower band edge

Frequency: Meas. BW: Limit:	1930 N 1% of I –19 dB	1Hz EBW m/50 kl	Hz	M Te No	ode: ech.: otes:	3-carrier op WCDMA Full span - c	eration, nonco overview	ontiguous
OBW Occupied BW		CSE Swept SA			BE 1 PC Channel Po	ower	BE 1 MHz Channel Power	· +
KEYSIGHT Input: RF	DC Corr to Freq F	2:50 Ω A1 Pr tef:Ext(S) μV	tten: 10 dB reamp: Off W Path: Standard PNO: Fast	Trig: Fr Gate: 0 #IF Ga	ee Run Off in: Low	Center Freq: 1.928500000 C Avg Hold: 100/100 Radio Std: None	Hz	



#### Figure 8.5-48: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	3-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-47: Conducted emission at the lower band edge

Frequency:	1930 MHz
Meas. BW:	1% of EBW
Limit:	–19 dBm/50 kHz

 Mode:
 3-carrier operation, noncontiguous

 Tech.:
 WCDMA

 Notes:
 Zoomed in view, final measurement



#### Test data, continued



#### Figure 8.5-49: Conducted emission at the upper band edge

Frequen Meas. B Lin	ncy: 1 19W: 1 19hit: -	1990 MHz 1% of EBW -19 dBm/50	kHz	M Te No	ode: ech.: otes:	3-carrier WCDMA Full span	operation, - overview	noncontiguous /
CCDF Power Stat	CCDF	UBE 1PC Channel F	ower		UBE 1M Channel	Power	PSD Swept SA	+
	Input RF Coupling DC Align: Auto	Input Z: 50 Ω Corr Freq Ref: Ext (S) NFE: Off	Atten: 10 dB Preamp: Off µW Path: Standard #PNO: Fast	Trig: En Gate: C #IF Gai	ee Run off n: Low	Center Freq: 1.991500 Avg[Hold: 100/100 Radio Std: None	0000 GHz	
1 Graph Scale/Div 10.0	r) dB		F	Ref Val	lue 36.40	dBm		vlkr1 1.991000000 GH: -30.19 dBn
Log 26.4 16.4 6.40 -3.60 -13.6 -23.6								

 Total Power Spectral Density
 -40.96 dBm/Hz

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. #Video BW 30

Figure 8.5-51: Conducted emission 1 MHz away from the upper band edge

Frequency:	1991 MHz	Mode:	3-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None

-20.96 dBm / 1.00 MHz



#### Figure 8.5-50: Conducted emission at the upper band edge

Frequency:	1990 MHz
Meas. BW:	1% of EBW
Limit:	–19 dBm/50 kHz

Span 130 MH Sweep 16.1 ms (1001 pt 
 Mode:
 3-carrier operation, noncontiguous

 Tech.:
 WCDMA

 Notes:
 Zoomed in view, final measurement

Center 1.99150 GHz #Res BW 100.00 kHz

Total Channel Pou

Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-52: Conducted emission at the lower band edge





Figure 8.5-54: Conducted emission at the upper band edge

Frequency:	1990 MHz	Mode:	6-carrier operation
Meas. BW:	1% of EBW	Tech.:	WCDMA
Limit:	–19 dBm/50 kHz	Notes:	None



Figure 8.5-53: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	6-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None



Figure 8.5-55: Conducted emission 1 MHz away from the upper band edge

Frequency:	1991 MHz
Meas. BW:	1 MHz
Limit:	–19 dBm/MHz

Mode: 6-carrier operation Tech.: WCDMA Notes: None



#### Test data, continued



#### Figure 8.5-56: Conducted emission at the lower band edge

Frequency: Meas. BW: Limit:	1930 MHz 1% of EBW –19 dBm/50	kHz	M To No	ode: ech.: otes:	6-carrier op WCDMA Full span - c	eration, nonc overview	ontiguous
OBW Occupied BW	CSE Swept SA			BE 1 PC Channel P	ower	BE 1 MHz Channel Power	· +
KEYSIGHT Input: RF Coupling Align: Aut	DC Corr b Freq Ref: Ext (S)	Atten: 10 dB Preamp: Off µW Path: Standard	Trig: Fr Gate: 0 #IF Ga	ee Run Off in: Low	Center Freq: 1.928500000 C Avg[Hold: 100/100 Radio Std: None	GHz	



Figure 8.5-58: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	6-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-57: Conducted emission at the lower band edge

Frequency:	1930 MHz
Meas. BW:	1% of EBW
Limit:	–19 dBm/50 kHz

Mode: 6-carrier operation, noncontiguous WCDMA Tech.: Notes: Zoomed in view, final measurement



#### Test data, continued



#### Figure 8.5-59: Conducted emission at the upper band edge



 335
 Center 159150 GHz
 Span 130 MHz
 Span 130 MHz

Figure 8.5-61: Conducted emission 1 MHz away from the upper band edge

Frequency:	1991 MHz	Mode:	6-carrier operation
Meas. BW:	1 MHz	Tech.:	WCDMA
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-60: Conducted emission at the upper band edge

Frequency:	1990 MHz
Meas. BW:	1% of EBW
Limit:	–19 dBm/50 kHz

 Mode:
 6-carrier operation, noncontiguous

 Tech.:
 WCDMA

 Notes:
 Zoomed in view, final measurement

Section 8Testing dataTest nameSpurious out-of-banSpecificationFCC Part 24 and RSS

Testing data Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-62: Conducted emission at the lower band edge





Figure 8.5-64: Conducted emission at the upper band edge

Frequency: 1995 MHz Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz 
 Mode:
 2-carrier operation, multi-RAT

 Tech.:
 WCDMA and LTE 5 MHz

 Notes:
 Zoomed in view, final measurement



Figure 8.5-63: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	2-carrier operation, multi-RAT
Meas. BW:	1 MHz	Tech.:	WCDMA and LTE 5 MHz
Limit:	–19 dBm/MHz	Notes:	None



Figure 8.5-65: Conducted emission 1 MHz away from the upper band edge
Freauency: 1996 MHz Mode: 2-carrier operation, multi-RAT

Tech.:

Notes:

Frequency: 1996 MHz Meas. BW: 1 MHz Limit: -19 dBm/MHz 2-carrier operation, multi-RAT WCDMA and LTE 5 MHz None Section 8TestingTest nameSpuriorSpecificationFCC Pa

Testing data Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-66: Conducted emission at the lower band edge

Frequency:	1930 MHz	Mode:	2-carrier operation, multi-RAT
Meas. BW:	1% of EBW	Tech.:	WCDMA and LTE 5 MHz, noncontig.
Limit:	–19 dBm/50 kHz	Notes:	Zoomed in view, final measurement



## Figure 8.5-68: Conducted emission at the upper band edge cv: 1995 MHz Mode: 2-carrier operation, multi-R.

Tech.:

Notes:

Frequency: 1995 MHz Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz 2-carrier operation, multi-RAT WCDMA and LTE 5 MHz, noncontig. Zoomed in view, final measurement



Figure 8.5-70: Conducted emission at the low band edge

 Frequency:
 1930 MHz
 Mode:
 2-carrier operation, multi-RAT

 Meas. BW:
 1% of EBW
 Tech.:
 WCDMA and LTE 5 MHz, noncontig.

 Limit:
 -19 dBm/50 kHz
 Notes:
 Full span - overview

knz wotes. Funspun ow



Figure 8.5-67: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	2-carrier operation, multi-RAT
Meas. BW:	1 MHz	Tech.:	WCDMA and LTE 5 MHz, noncontig.
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-69: Conducted emission 1 MHz away from the upper band edge

 Frequency:
 1996 MHz
 Mode:
 2-carrier operation, multi-RAT

 Meas. BW:
 1 MHz
 Tech.:
 WCDMA and LTE 5 MHz, noncontig.

 Limit:
 -19 dBm/MHz
 Notes:
 None

CODE Prover des code: VEXPSGNT Prover VEXPSGNT Prove VEXPS

## Figure 8.5-71: Conducted emission at the upper band edge

Tech.:

Notes:

Frequency: 1995 MHz Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz 2-carrier operation, multi-RAT WCDMA and LTE 5 MHz, noncontig. Full span - overview

Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-72: Conducted emission at the lower band edge





Figure 8.5-74: Conducted emission at the upper band edge

1995 MHz Frequency: Meas. BW: 1% of EBW Limit: –19 dBm/50 kHz Mode: 2-carrier operation, multi-RAT Tech.: WCDMA and NR 5 MHz Zoomed in view, final measurement Notes:



Figure 8.5-73: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	2-carrier operation, multi-RAT
Meas. BW:	1 MHz	Tech.:	WCDMA and NR 5 MHz
Limit:	–19 dBm/MHz	Notes:	None



Figure 8.5-75: Conducted emission 1 MHz away from the upper band edge

1996 MHz Frequency: Meas. BW: 1 MHz –19 dBm/MHz Limit:

Mode: 2-carrier operation, multi-RAT Tech.: WCDMA and NR 5 MHz Notes: None

Section 8 Test name Specification

Testing data Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



Figure 8.5-76: Conducted emission at the lower band edge

Limit:	–19 dBm/50 kHz	Notes:	Zoomed in view, final measurement
Meas. BW:	1% of EBW	Tech.:	WCDMA and NR 5 MHz, noncontig.
Frequency:	1930 MHz	Mode:	2-carrier operation, multi-RAT



Figure 8.5-78: Conducted emission at the upper band edge

Tech.:

Notes:

1995 MHz Frequency: Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz Mode: 2-carrier operation, multi-RAT WCDMA and NR 5 MHz, noncontig. Zoomed in view, final measurement

noncontig.



Figure 8.5-80: Conducted emission at the low band edge

Frequency:	1930 MHz	Mode:	2-carrier operation, multi-RAT
Meas. BW:	1% of EBW	Tech.:	WCDMA and NR 5 MHz, nonco
Limit:	–19 dBm/50 kHz	Notes:	Full span - overview

OBW Occupied BW BE 1 MHz Channel Power CSE Swept SA BE 1 PC Channel Power · + KEYSIGHT Input RE nput Z: 50 Ω e Run Cente Tria: eg: 1.928 -Align: Auto Freq Ref: Ext (S) NFE: Off Mkr1 1.929000000 GHz Grapt -31.65 dE scale/Div 10.0 dB og Center 1.92850 GHz #Res BW 100.00 kHz Span 180 MHz Sweep 22.3 ms (1001 pts) #Video BW 300.00 kHz\* -23.37 dBm / 1.00 MHz Total Channel Pov Total Power Spectral Density -83.37 dBm/Hz 

Figure 8.5-77: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	2-carrier operation, multi-RAT
Meas. BW:	1 MHz	Tech.:	WCDMA and NR 5 MHz, noncontig.
Limit:	–19 dBm/MHz	Notes:	None



Figure 8.5-79: Conducted emission 1 MHz away from the upper band edge

Frequency:	1996 MHz	Mode:	2-carrier operation, multi-RAT
Meas. BW:	1 MHz	Tech.:	WCDMA and NR 5 MHz, noncontig.
Limit:	–19 dBm/MHz	Notes:	None



Figure 8.5-81: Conducted emission at the upper band edge Mode:

Tech.:

Notes:

1995 MHz Frequency: Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz 2-carrier operation, multi-RAT WCDMA and NR 5 MHz, noncontig. Full span - overview

Section 8 Test name Specification Testing data Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-82: Conducted emission at the lower band edge

Frequency:	1930 MHz	Mode:	Multi-RAT operation
Meas. BW:	1% of EBW	Tech.:	NR 5MHz, WCDMA, LTE 5 MHz
Limit:	–19 dBm/50 kHz	Notes:	Zoomed in view, final measurement



#### Figure 8.5-84: Conducted emission at the upper band edge

Frequency: 1995 MHz Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz Mode: Multi-RAT operation Tech.: WCDMA, NR 5MHz, LTE 5 MHz Notes: Zoomed in view, final measurement



Figure 8.5-86: Conducted emission at the low band edge

Frequency:	1930 MHz	Mode:	Multi-RAT operation
Meas. BW:	1% of EBW	Tech.:	NR 5MHz, WCDMA, LTE 5 MHz
Limit:	–19 dBm/50 kHz	Notes:	Full span - overview

OBW Occupied BW BE 1 MHz Channel Power CSE Swept SA BE 1 PC Channel · + KEYSIGHT Input RE nput Z: 50 Ω Run Cente Tria: eg: 1.928 -Align: Auto Freq Ref: Ext (S) NFE: Off Mkr1 1.929000000 GHz Grapt scale/Div 10.0 dB -30.45 di 26 40 48og Center 1.92850 GHz #Res BW 100.00 kHz #Video BW 300.00 kHz\* Span 180 MHz Sweep 22.3 ms (1001 pts) -21.27 dBm / 1.00 MHz Total Channel Powe Total Power Spectral Density -81.27 dBm/Hz 📲 🕤 (~ 🔳 ? Jan 24, 2024 🗩 

Figure 8.5-83: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	NR 5MHz, WCDMA, LTE 5 MHz
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-85: Conducted emission 1 MHz away from the upper band edge

Frequency:	1996 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	WCDMA, NR 5MHz, LTE 5 MHz
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-87: Conducted emission at the upper band edge

Frequency: 1995 MHz Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz 
 Mode:
 Multi-RAT operation

 Tech.:
 NR 5MHz, WCDMA, LTE 5 MHz

 Notes:
 Full span - overview

Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-88: Conducted emission at the lower band edge

Frequency: Meas. BW: Limit:	1930 MHz 1% of EBW –19 dBm/50 kHz	Mode: Tech.: Notes:	Multi-RAT operation 2× (WCDMA, NR 5MHz, Zoomed in view, final m	LTE 5 MHz) easurement
CCDF	UBE 1PC	UBE 1M	PSD	+
Power Stat CCDF	Channel Power	Channel Po	Swept SA	



#### Figure 8.5-90: Conducted emission at the upper band edge

1995 MHz Frequency: Meas. BW: 1% of EBW -19 dBm/50 kHz Limit:

Multi-RAT operation Mode: Tech.: 2× (WCDMA, NR 5MHz, LTE 5 MHz) Zoomed in view, final measurement Notes:



Figure 8.5-92: Conducted emission at the low band edge



Full span - overview



Figure 8.5-89: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	2× (WCDMA, NR 5MHz, LTE 5 MHz)
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-91: Conducted emission 1 MHz away from the upper band edge

Frequency:	1996 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	2× (WCDMA, NR 5MHz, LTE 5 MHz)
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-93: Conducted emission at the upper band edge

1995 MHz Frequency: Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz Mode: Multi-RAT operation Tech.: 2× (WCDMA, NR 5MHz, LTE 5 MHz) Notes: Full span - overview

Section 8TestTest nameSpotSpecificationFCC

Testing data Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-94: Conducted emission at the lower band edge

Frequency:	1930 MHz	Mode:	Multi-RAT operation
Meas. BW:	1% of EBW	Tech.:	NR 5MHz, WCDMA, LTE 5 MHz
Limit:	–19 dBm/50 kHz	Notes:	Zoomed in view, final measurement



#### Figure 8.5-96: Conducted emission at the upper band edge

Frequency: 1995 MHz Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz 
 Mode:
 Multi-RAT operation

 Tech.:
 NR 5MHz, WCDMA, LTE 5 MHz

 Notes:
 Zoomed in view, final measurement



Figure 8.5-98: Conducted emission at the low band edge

Frequency:	1930 MHz	Mode:	Multi-RAT operation
Meas. BW:	1% of EBW	Tech.:	NR 5MHz, WCDMA, LTE 5 MHz
Limit:	–19 dBm/50 kHz	Notes:	Full span - overview

OBW Occupied BW BE 1 MHz Channel Power CSE Swept SA BE 1 PC Channel Power · + KEYSIGHT Input RE nput Z: 50 Ω e Run Center eg: 1.928 Tria: -Align: Auto Freq Ref: Ext (S) NFE: Off Mkr1 1.929000000 GHz Grapt Scale/Div 10.0 dB -29.43 di og Center 1.92850 GHz #Res BW 100.00 kHz #Video BW 300.00 kHz\* Span 180 MHz Sweep 22.3 ms (1001 pts) -20.52 dBm / 1.00 MHz Total Channel Powe Total Power Spectral Density -80.52 dBm/Hz 1 5 C 1 24 2024 S 44 4 

Figure 8.5-95: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	NR 5MHz, WCDMA, LTE 5 MHz
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-97: Conducted emission 1 MHz away from the upper band edge

Frequency:	1996 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	NR 5MHz, WCDMA, LTE 5 MHz
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-99: Conducted emission at the upper band edge

Frequency: 1995 MHz Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz 
 Mode:
 Multi-RAT operation

 Tech.:
 NR 5MHz, WCDMA, LTE 5 MHz

 Notes:
 Full span - overview

Spurious out-of-band emissions (Band 2/25) FCC Part 24 and RSS-133, Issue 6



#### Test data, continued



#### Figure 8.5-100: Conducted emission at the lower band edge

Frequen	cy: 1	930 MHz		Μ	ode:	Multi-RAT	operatio	1	
Meas. B	W: 1	% of EBW		T	ech.:	2× (NR 5M	Hz, WCD	MA, LTE 5	5 MHz)
Lim	nit:	19 dBm/5	0 kHz	N	otes:	Zoomed in	view, fin	al measu	rement
CCDF Power Stat	CCDF	UBE 1 Chann	PC el Power	,	UBE 1M Channel F	ower	PSD Swept SA		+
KEYSIGHT	Input: RF Coupling: DC Align: Auto	Input Z: 50 Ω Corr Freq Ref: Ext NFE: Off	Atten: 10 dB Preamp: Off S) µW Path: Standard #PNO. Fast	Trig: Fi Gate: 0 #IF Ga	ee Run Off in: Law	Center Freq: 1.995025000 Avg[Hold: 38/200 Radio Std: None	GHz		
1 Graph Scale/Div 10.0	dB.			Rof Va	100 26 40	(Bm	N	/kr1 1.9950	00000 GHz
Log 16.4 6.40	~								



#### Figure 8.5-102: Conducted emission at the upper band edge

1995 MHz Frequency: Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz

Mode: Multi-RAT operation Tech.: 2× (NR 5MHz, WCDMA, LTE 5 MHz) Zoomed in view, final measurement Notes:



Figure 8.5-104: Conducted emission at the low band edge

Frequency:	1930 MHz	Mode:	Multi-RAT operation
Meas. BW: Limit:	1% of EBW –19 dBm/50 kHz	Tech.: Notes:	2× (NR 5MHz, WCDMA, LTE 5 MHz) Full span - overview
			1

span - overview



Figure 8.5-101: Conducted emission 1 MHz away from the lower band edge

Frequency:	1929 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	2× (NR 5MHz, WCDMA, LTE 5 MHz)
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-103: Conducted emission 1 MHz away from the upper band edge

Frequency:	1996 MHz	Mode:	Multi-RAT operation
Meas. BW:	1 MHz	Tech.:	2× (NR 5MHz, WCDMA, LTE 5 MHz)
Limit:	–19 dBm/MHz	Notes:	None



#### Figure 8.5-105: Conducted emission at the upper band edge

1995 MHz Frequency: Meas. BW: 1% of EBW Limit: -19 dBm/50 kHz Mode: Multi-RAT operation Tech.: 2× (NR 5MHz, WCDMA, LTE 5 MHz) Notes: Full span - overview



## 8.6 Frequency stability (Band 4/66)

#### 8.6.1 Definitions and limits

#### FCC 27.54:

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

#### RSS-139, Section 5.4:

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

8.6.2	Test sumn	nary
Test date		June 29, 2023
8.6.3	Observatio	ons, settings and special notes

Testing was performed per ANSI C63.26 Paragraphs 5.6.3, 5.6.4 and 5.6.5 methods. 26 dBc points including frequency tolerance were assessed to remain within assigned band.

#### 8.6.4 Test data

Table 8.6-1: Frequency error results

Temperature, °C	Voltage, V <sub>DC</sub>	Frequency error, Hz
-40	48.0	-8.864
-30	48.0	7.411
-20	48.0	-7.073
-10	48.0	-7.874
0	48.0	-7.035
+10	48.0	-9.086
+20	40.8	7.361
+20	48.0	-7.565
+20	55.2	-7.868
+30	48.0	7.604
+40	48.0	-9.472
+50	48.0	9.757
+55	48.0	6.463

Max negative drift: -9.472 Hz, Max positive drift: +9.757 Hz.



## 8.7 Frequency stability (Band 2/25)

#### 8.7.1 Definitions and limits

#### FCC 24.235:

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### RSS-133, Section 6.3:

The carrier frequency shall not depart from the reference frequency, in excess of ±2.5 ppm for mobile stations and ±1.0 ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

#### 8.7.2 Test summary

Test date	June 29, 2023

### 8.7.3 Observations, settings and special notes

Testing was performed per ANSI C63.26 Paragraphs 5.6.3, 5.6.4 and 5.6.5 methods. 26 dBc points including frequency tolerance were assessed to remain within assigned band. The maximum allowed drift (±1.0 ppm) is ±1935 Hz

#### 8.7.4 Test data

#### Table 8.7-1: Frequency error results

Temperature, °C	Voltage, V <sub>DC</sub>	Frequency error, Hz
-40	48.0	-8.485
-30	48.0	10.364
-20	48.0	-7.470
-10	48.0	7.304
0	48.0	6.986
+10	48.0	-7.176
+20	40.8	7.725
+20	48.0	-7.628
+20	55.2	7.162
+30	48.0	-9.177
+40	48.0	11.728
+50	48.0	-7.192
+55	48.0	-6.318

Max negative drift: – 9.177 Hz, Max positive drift: +11.728 Hz.



### 8.8 Occupied bandwidth (Band 4/66)

#### 8.8.1 Definitions and limits

#### FCC §2.1049:

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### RSS-Gen, 6.7

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

#### 8.8.2 Test summary

Test date	January 23, 2024
Test engineer	Andrey Adelberg

#### 8.8.3 Observations, settings and special notes

Testing was performed per ANSI C63.26 Paragraphs 5.4.3 and 5.4.4 methods.

#### Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	≥1% of EBW
Video bandwidth	RBW × 3
Trace mode	Max Hold

#### 8.8.4 Test data

#### Table 8.8-1: Occupied bandwidth results for CDMA

Frequency, MHz	26 dB BW, MHz	99% OBW, MHz
2112.4	4.685	4.1727
2132.4	4.684	4.1723
2152.6	4.685	4.1732

Section 8	Testing data
Test name	Occupied bandwidth (Band 4/66)
Specification	FCC Part 2, RSS-Gen, Issue 5



#### Test data, continued



Figure 8.8-1: Occupied bandwidth, low channel

Figure 8.8-2: Occupied bandwidth, mid channel



Figure 8.8-3: Occupied bandwidth, top channel



## 8.9 Occupied bandwidth (Band 2/25)

#### 8.9.1 Definitions and limits

#### FCC §2.1049:

The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### RSS-Gen, 6.7

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

#### 8.9.2 Test summary

Test date	January 23, 2024
Test engineer	Andrey Adelberg

#### 8.9.3 Observations, settings and special notes

Testing was performed per ANSI C63.26 Paragraphs 5.4.3 and 5.4.4 methods.

#### Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	≥1% of EBW
Video bandwidth	RBW × 3
Trace mode	Max Hold

#### 8.9.4 Test data

#### Table 8.9-1: Occupied bandwidth results for WCDMA

Frequency, MHz	26 dB BW, MHz	99% OBW, MHz
1932.4	4.698	4.1869
1960.0	4.695	4.1765
1987.6	4.692	4.1820

Section 8	Testing data
Test name	Occupied bandwidth (Band 2/25)
Specification	FCC Part 2, RSS-Gen, Issue 5



#### Test data, continued



Figure 8.9-1: Occupied bandwidth, low channel

Figure 8.9-2: Occupied bandwidth, mid channel



Figure 8.9-3: Occupied bandwidth, top channel



## Section 9. Block diagrams of test setups

## 9.1 Radiated emissions set-up for frequencies below 1 GHz



## 9.2 Radiated emissions set-up for frequencies above 1 GHz



End of report