



Channel: BOTTOM, Modulation: 64QAM, BW=10MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=10MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=10MHz, Channel Power



Channel: BOTTOM, Modulation: 64QAM, BW=10MHz, CCDF



Channel: MIDDLE, Modulation: 64QAM, BW=10MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=10MHz, CCDF





Channel: BOTTOM, Modulation: 64QAM, BW=15MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=15MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=15MHz, Channel Power







Channel: MIDDLE, Modulation: 64QAM, BW=15MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=15MHz, CCDF





Channel: BOTTOM, Modulation: 64QAM, BW=20MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=20MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=20MHz, Channel Power



Channel: BOTTOM, Modulation: 64QAM, BW=20MHz, CCDF



Channel: MIDDLE, Modulation: 64QAM, BW=20MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=20MHz, CCDF





Channel: BOTTOM, Modulation: 64QAM, BW=25MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=25MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=25MHz, Channel Power



Channel: BOTTOM, Modulation: 64QAM, BW=25MHz, CCDF



Channel: MIDDLE, Modulation: 64QAM, BW=25MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=25MHz, CCDF





Channel: BOTTOM, Modulation: 64QAM, BW=30MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=30MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=30MHz, Channel Power







Channel: MIDDLE, Modulation: 64QAM, BW=30MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=30MHz, CCDF





Channel: BOTTOM, Modulation: 64QAM, BW=40MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=40MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=40MHz, Channel Power



Channel: BOTTOM, Modulation: 64QAM, BW=40MHz, CCDF



Channel: MIDDLE, Modulation: 64QAM, BW=40MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=40MHz, CCDF





Channel: BOTTOM, Modulation: 64QAM, BW=50MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=50MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=50MHz, Channel Power



Channel: BOTTOM, Modulation: 64QAM, BW=50MHz, CCDF



Channel: MIDDLE, Modulation: 64QAM, BW=50MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=50MHz, CCDF





Channel: BOTTOM, Modulation: 64QAM, BW=60MHz, Channel Power



Channel: MIDDLE, Modulation: 64QAM, BW=60MHz, Channel Power



Channel: TOP, Modulation: 64QAM, BW=60MHz, Channel Power



Channel: BOTTOM, Modulation: 64QAM, BW=60MHz, CCDF



Channel: MIDDLE, Modulation: 64QAM, BW=60MHz, CCDF



Channel: TOP, Modulation: 64QAM, BW=60MHz, CCDF



Clause 96.41(e)(1)(2)(3) Spurious emissions at RF antenna connector
(e) 3.5 GHz Emissions and Interference Limits—
(1) General protection levels. Except as otherwise specified in paragraph (e)(2) of this section, for channel and frequency assignments made by the SAS to CBSDs, the conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed −13 dBm/MHz
within 0-10 megahertz above the upper SAS-assigned channel edge and within 0-10 megahertz below the lower SAS-assigned channel edge. At all frequencies greater than 10 megahertz above the upper SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edge and less than 10 MHz below the lower SAS assigned channel edges are the upper and lower SAS assigned channel edges are the upper and lower limits of any channel assigned to a CBSD by an SAS, or in the case of multiple contiguous channels, the upper and lower limits of the combined contiguous channels.
(2) Additional protection levels. Notwithstanding paragraph (d)(1) of this section, the conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.
(3) <i>Measurement procedure.</i> (i) Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and
adjacent to the licensee's authorized frequency channel, a resolution bandwidth of no less than one percent of the fundamental emission bandwidth may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full reference bandwidth (<i>i.e.</i> , 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, and below the corrier context frequency, and one obvio the corrier context frequency.
outside of which all emissions are attenuated at least 26 dB below the transmitter power.
T / 1 / 10/10/0000 / 11/10/0000
lest date: 10/12/2022 to 11/04/2022

Special notes

Test results: Pass

Limit of spurious emission at RF connector has been calculated following the indication in the "662911 D01 Multiple Transmitter Output v02r01" Clause 3) a) iii) with N Ant = 2.

10Log(N Ant) = 10Log(2) = 3 dBLimit= -40dBm - 3dBm=-43dBm

Note: measurements were performed for all modulation types. As an example, only measurements for 64 QAM modulation type are reported

Test equipment

Equipment	Manufacturer	Model No.	Asset/Serial No.
Spectrum Analyzer	Keysight	N9030B PXA	MY61330632
Spectrum Analyzer	Keysight	N9041B UXA	US57220208



Clause 96.41(e)(1)(2)(3) Spurious emissions at RF antenna connector

Test data

See Plots below



Test data: Spurious Emissions at antenna terminal **RF PORT 1**



Channel: BOTTOM, Modulation: 64QAM, BW=5MHz, Range: 30 MHz - 1000 MHz



Channel: BOTTOM, Modulation: 64QAM, BW=5MHz, Range: 1000 MHz - 3530 MHz



Channel: BOTTOM, Modulation: 64QAM, BW=5MHz, Range: 3720 MHz - 18 GHz



Channel: BOTTOM, Modulation: 64QAM, BW=5MHz, Range: 18 GHz - 37 GHz





Channel: MIDDLE, Modulation: 64QAM, BW=5MHz, Range: 30 MHz - 1000 MHz

KEY	'SIGHT T	Input: RF Coupling: AC Align: Auto	Input Z: Corr CC Freq Re NFE: OI	50 Ω orr RCal f: Int (S) f	#Atten: 6 dB Preamp: Off µW Path: Star	PNO: Gate: ndard IF Gai Sig Tr	Fast Off n: Low ack: Off	Avg Type: Po Avg Hold:>10 Trig: Free Ru	ower (RMS) 1 00/100 in	2 3 4 5 6 WWWWW NNNNN
1 Spe Scale	ctrum e/Div 10 d	T B		Re Re	f Lvi Offset f Level 0.00	20.00 dB dBm		Μ	kr1 17.9 -52.7	949 GHz ′64 dBm
-10.0										
-20.0										
-40.0										11-43.00 dBm
-50.0									~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1
-60.0 -70.0	$\sim\sim$			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						
-80.0										
-90.0 Start	3 720 GH				Video BW/3	0.00			Stop	18 000 GHz
#Res	#Res BW 1.0 MHz Stop 13.000 GHZ Sweep ~38.0 ms (1413 pts)								(1413 pts)	

Channel: MIDDLE, Modulation: 64QAM, BW=5MHz, Range: 3720 MHz - 18 GHz



Channel: MIDDLE, Modulation: 64QAM, BW=5MHz, Range: 1000 MHz - 3530 MHz



Channel: MIDDLE, Modulation: 64QAM, BW=5MHz, Range: 18 GHz - 37 GHz





Channel: TOP, Modulation: 64QAM, BW=5MHz, Range: 30 MHz - 1000 MHz

KEY	'SIGHT T	Input: RF Coupling: AC Align: Auto	Input Z: Corr CC Freq Re NFE: O	50 Ω corr RCal of: Int (S) ff	#Atten: 6 dB Preamp: Off µW Path: Sta	PNO: I Gate: I ndard IF Gail Sig Tra	Fast Off n: Low ack: Off	Avg Type: Po Avg Hold:>10 Trig: Free Ru	ower (RMS) 1 00/100 Jn	23456 WWWWW NNNNN
1 Spe Scale	ctrum e/Div 10 d	T B		Re	of LvI Offset of Level 0.00	20.00 dB dBm		N	lkr1 17.9 -52.6	949 GHz 67 dBm
Log -10.0										
-20.0										
-30.0										
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-60.0	\sim	~~~~~		~~~~						
-70.0										
-80.0										
Start #Res	3.720 GH BW 1.0 N	z 1Hz		#	Video BW 3	.0 MHz*		Swee	Stop ap ~38.0 ms	18.000 GHz (1413 pts)

Channel: TOP, Modulation: 64QAM, BW=5MHz, Range: 3720 MHz - 18 GHz
KEYSIGHT
Imput Z 50 0 Coupling AC Argin Auto
Imput Z 50 0 Coupling AC Argin Auto
Imput Z 50 0 Coupling AC Freq Rel Ext (s)
Imput Z 30 0 Preamp Off put Path Standard IF Gam. Low Sg Track Off
Ang Type Power (RMS) Argin Auto
2 3 4 5 6 Argin Auto

11 Spectrum
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Ref Lvi Offset 20.00 dB Ref Level 0.00 dBm
Mkr1 3.162 7 GHz

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Ref Lvi Offset 20.00 dB
Mkr1 3.162 7 GHz

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Ref Lvi Offset 20.00 dB
Mkr1 3.162 7 GHz

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> Channel: TOP, Modulation: 64QAM, BW=5MHz, Range: 1000 MHz - 3530 MHz



Channel: TOP, Modulation: 64QAM, BW=5MHz, Range: 18 GHz - 37 GHz





Channel: BOTTOM, Modulation: 64QAM, BW=10MHz, Range: 30 MHz - 1000 MHz

KEY	'SIGHT T	Input: RF Coupling: AC Align: Auto	Input Z: Corr CC Freq Re NFE: O	50 Ω forr RCal ff: Int (S) ff	#Atten: 6 dB Preamp: Off μW Path: Star	PNO: I Gate: I ndard IF Gail Sig Tra	Fast Off n: Low ack: Off	Avg Type: Po Avg Hold:>10 Trig: Free Ru	ower (RMS) 1 00/100 in	23456 WWWWW NNNNN
1 Spe Scale	ctrum e/Div 10 d	₹ B		Re	f LvI Offset f Level 0.00	20.00 dB dBm		Μ	kr1 17.9 -52.6	949 GHz 74 dBm
Log										
-20.0										
-30.0										
-40.0										L1 -43.00 dBm
-50.0										1
-60.0 -70.0	~~~~	~~~~~		~~~~						
-80.0										
-90.0										
Start #Res	3.720 GH BW 1.0 N	z IHz		#	Video BW 3	.0 MHz*		Swee	Stop p ~38.0 ms	18.000 GHz (1413 pts)

Channel: BOTTOM, Modulation: 64QAM, BW=10MHz, Range: 3720 MHz - 18 GHz



Channel: BOTTOM, Modulation: 64QAM, BW=10MHz, Range: 1000 MHz - 3530 MHz



Channel: BOTTOM, Modulation: 64QAM, BW=10MHz, Range: 18 GHz - 37 GHz





Channel: MIDDLE, Modulation: 64QAM, BW=10MHz, Range: 30 MHz - 1000 MHz

Channel: MIDDLE, Modulation: 64QAM, BW=10MHz, Range: 3720 MHz - 18 GHz

Channel: MIDDLE, Modulation: 64QAM, BW=10MHz, Range: 1000 MHz - 3530 MHz

Channel: MIDDLE, Modulation: 64QAM, BW=10MHz, Range: 18 GHz - 37 GHz