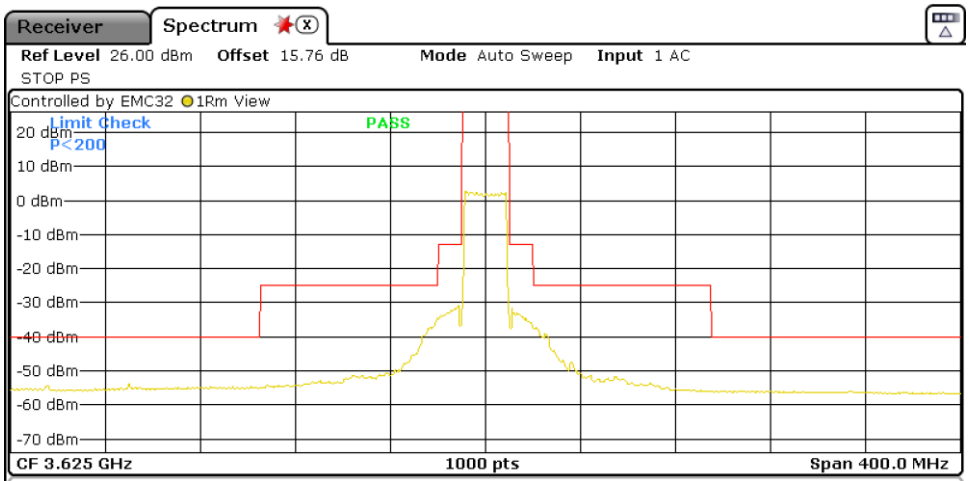
TEST RESULTS (Cont.):

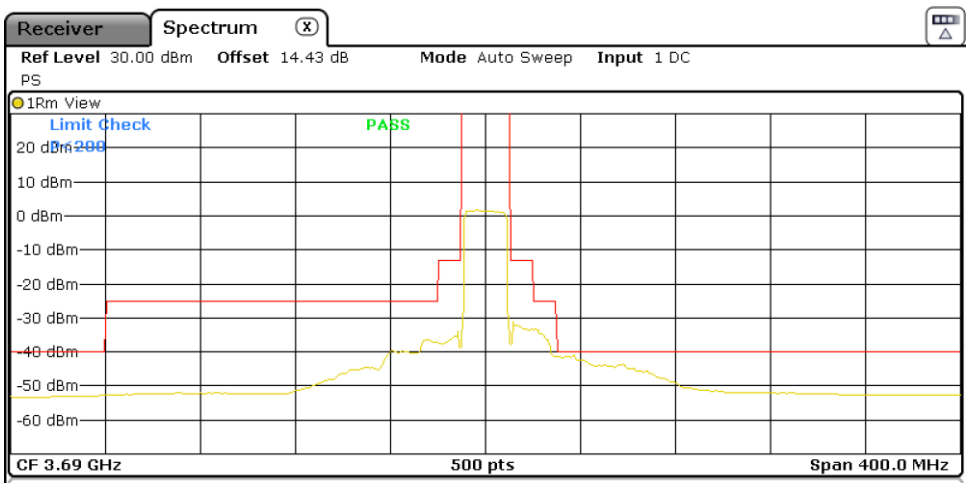
Middle Channel (3625 MHz)



Spectrum Emission Mask — Standard: None
Tx Power 21.14 dBm — Tx Bandwidth 20.000 MHz — RBW 200.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.47490 GHz	-53.83 dBm	-74.97 dB	-13.83 dB
-95.000 MHz	-20.000 MHz	1.000 MHz	3.60480 GHz	-34.53 dBm	-55.67 dB	-9.53 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.61380 GHz	-30.82 dBm	-51.96 dB	-17.82 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	3.61475 GHz	-31.88 dBm	-53.02 dB	-18.88 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.63525 GHz	-33.67 dBm	-54.81 dB	-20.67 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.63620 GHz	-31.58 dBm	-52.72 dB	-18.58 dB
20.000 MHz	95.000 MHz	1.000 MHz	3.64640 GHz	-37.25 dBm	-58.39 dB	-12.25 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.77911 GHz	-55.81 dBm	-76.95 dB	-15.81 dB

Highest Channel (3690 MHz)



Spectrum Emission Mask — Standard: None
Tx Power 13.98 dBm — Tx Bandwidth 3.840 MHz — RBW 200.000 kHz

Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	ΔLimit
-200.000 MHz	-160.000 MHz	1.000 MHz	3.52960 GHz	-52.81 dBm	-66.79 dB	-12.81 dB
-160.000 MHz	-20.000 MHz	1.000 MHz	3.66560 GHz	-36.41 dBm	-50.39 dB	-11.41 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.67859 GHz	-33.97 dBm	-47.95 dB	-20.97 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	3.67950 GHz	-38.95 dBm	-52.93 dB	-25.95 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.70050 GHz	-37.79 dBm	-51.77 dB	-24.79 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.70141 GHz	-31.14 dBm	-45.12 dB	-18.14 dB
20.000 MHz	30.000 MHz	1.000 MHz	3.71125 GHz	-33.15 dBm	-47.13 dB	-8.15 dB
30.000 MHz	200.000 MHz	1.000 MHz	3.72762 GHz	-41.09 dBm	-55.07 dB	-1.09 dB

TEST A.6: SPURIOUS EMISSIONS AT ANTENNA TERMINALS

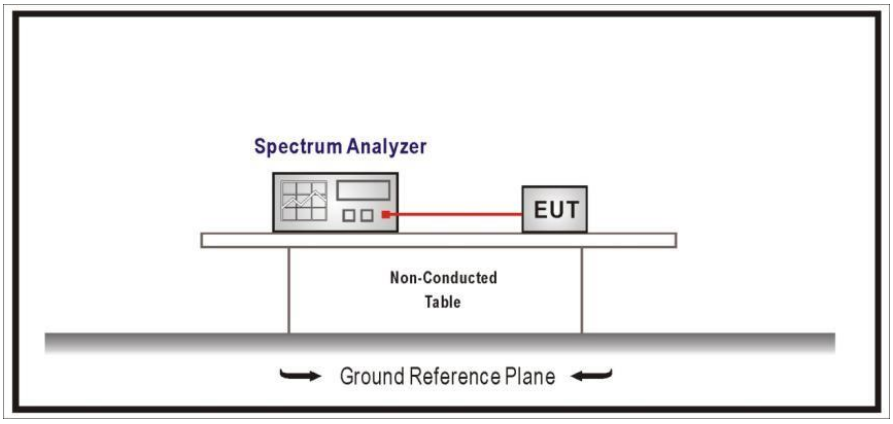
LIMITS:	Product standard:	Part 2.1051 and 96.41 Subclause (e)
	Test standard:	ANSI C63.26-2015

LIMITS

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in § 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

The limits for emission outside the fundamental for any emission below 3530 MHz and above 3720 MHz are -40 dBm/MHz.

TEST SETUP



The following duty cycle correction was added in RF level offset to get the accurate measured emission level in the average power measurement.

The duty cycle correction = 10 log (1/0.40) = 4.01 (dB)

TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 (Band 48)
TEST RESULTS:	PASS

Results:

5 MHz BW

Lowest 3552.5 MHz		Middle 3625 MHz		Highest 3697.5 MHz	
Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)
3300.08	-41.50	3299.46	-43.68	3300.16	-42.05
7106.18	-54.71	7249.68	-48.55	7395.18	-45.40

10 MHz BW

Lowest 3555 MHz		Middle 3625 MHz		Highest 3695 MHz	
Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)
3229.93	-43.71	3300.08	-43.40	3300.08	-43.31
7112.18	-55.54	7245.68	-52.95	7392.68	-48.42

15 MHz BW

Lowest 3557.5 MHz		Middle 3625 MHz		Highest 3692.5 MHz	
Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)
3300.08	-51.51	3300.08	-49.66	3300.58	-53.11
		7253.68	-52.07	3440.51	-52.63
				7383.18	-49.27

20 MHz BW

Lowest 3560 MHz		Middle 3625 MHz		Highest 3690 MHz	
Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)	Spurious Frequency (MHz)	Emission Level (dBm/MHz)
3299.58	-52.74	3300.08	-51.32	3300.08	-52.05
3870.79	-53.43	3440.51	-52.52	7381.68	-49.85
		7250.18	-53.32		

Verdict: PASS

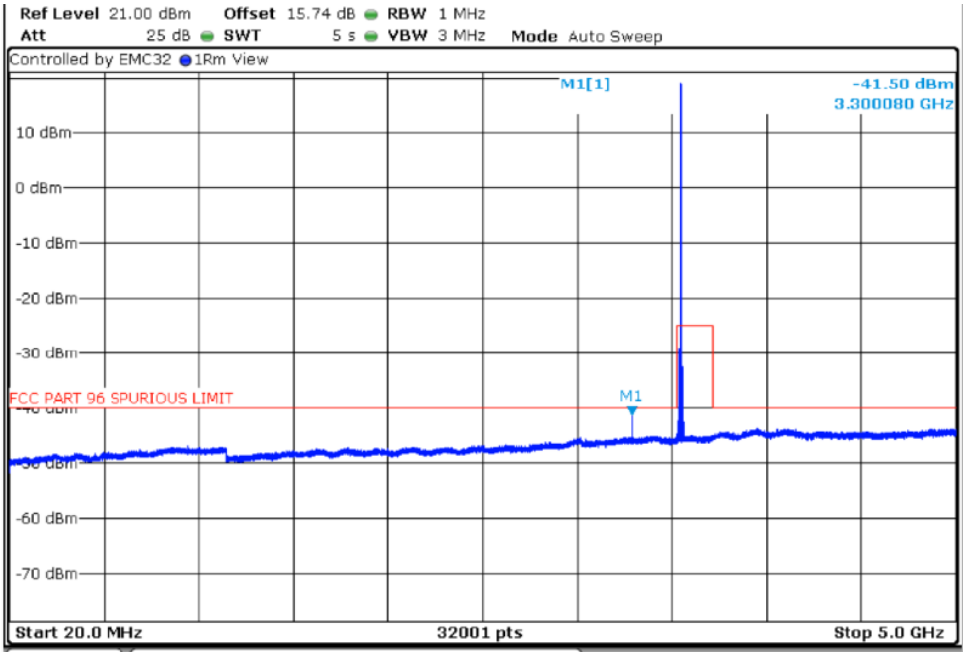
(See next plots)

TEST RESULTS (Cont.):

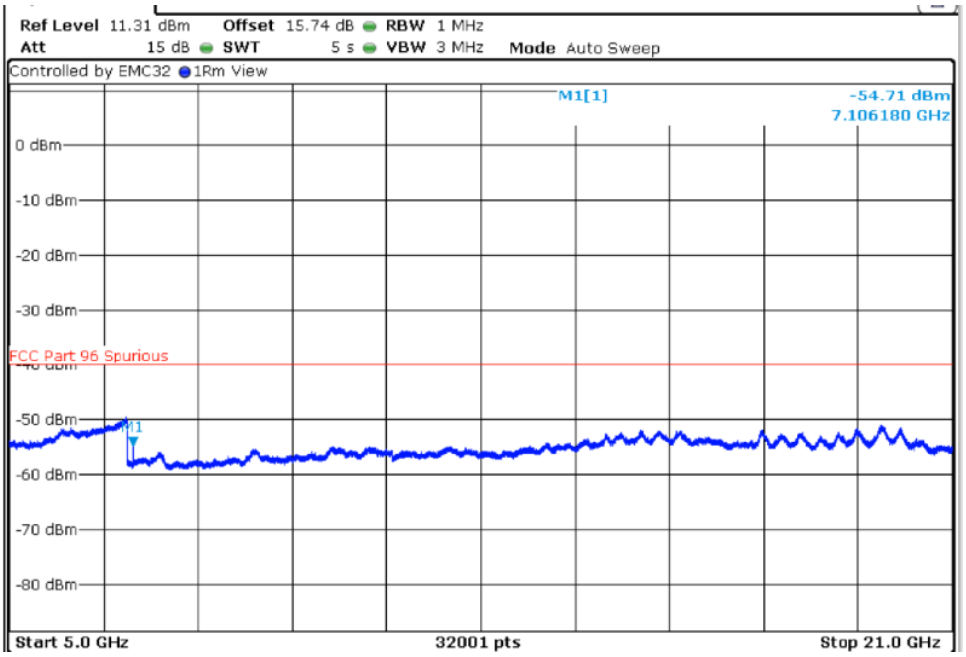
5 MHz BW

Lowest Channel (3552.5 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

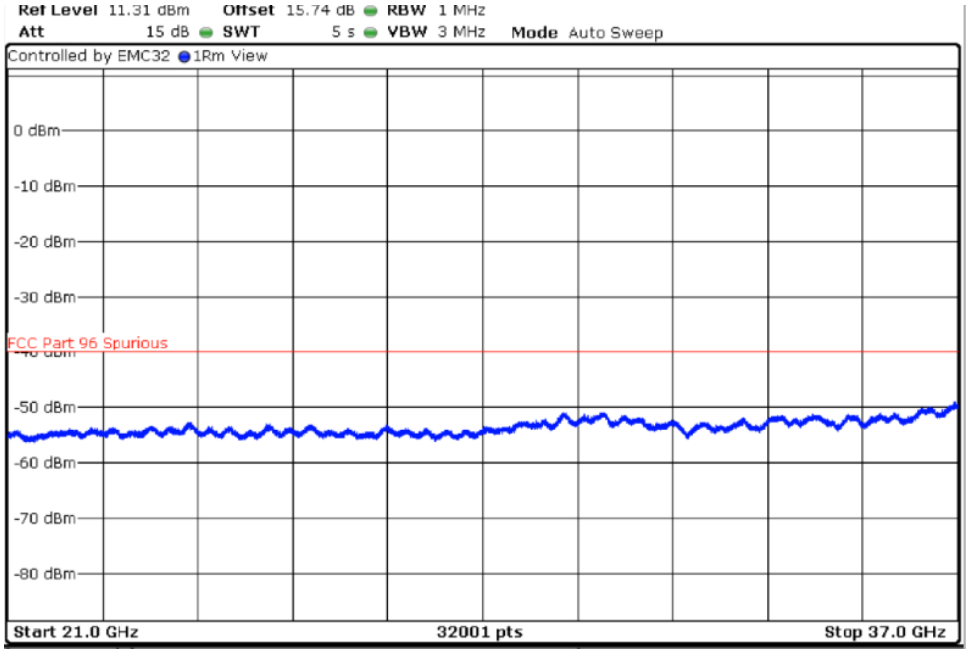


FREQUENCY RANGE 5-21 GHz



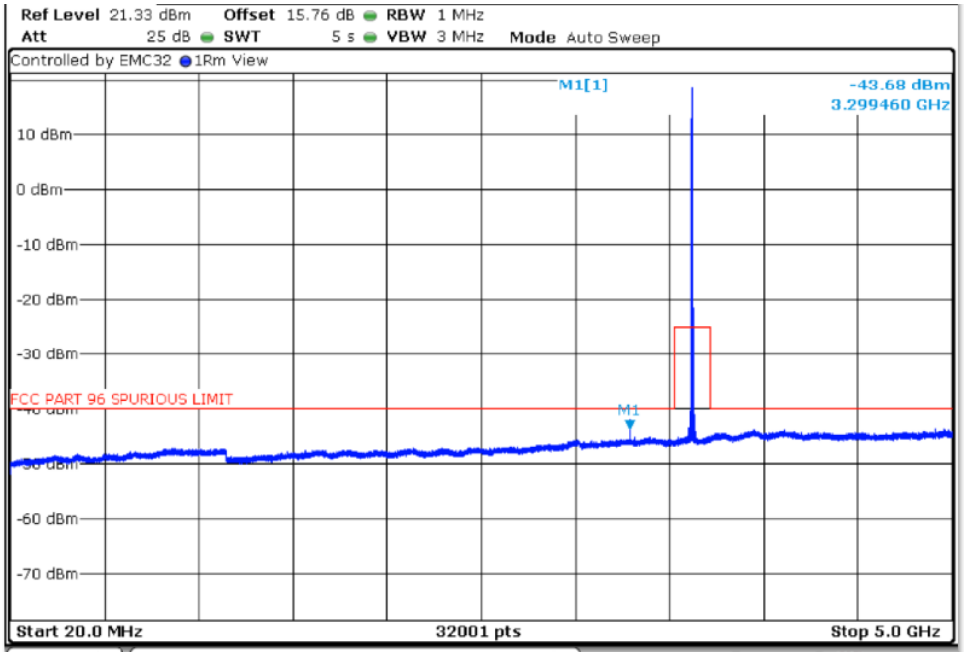
TEST RESULTS (Cont.):

FREQUENCY RANGE 21-37 GHz



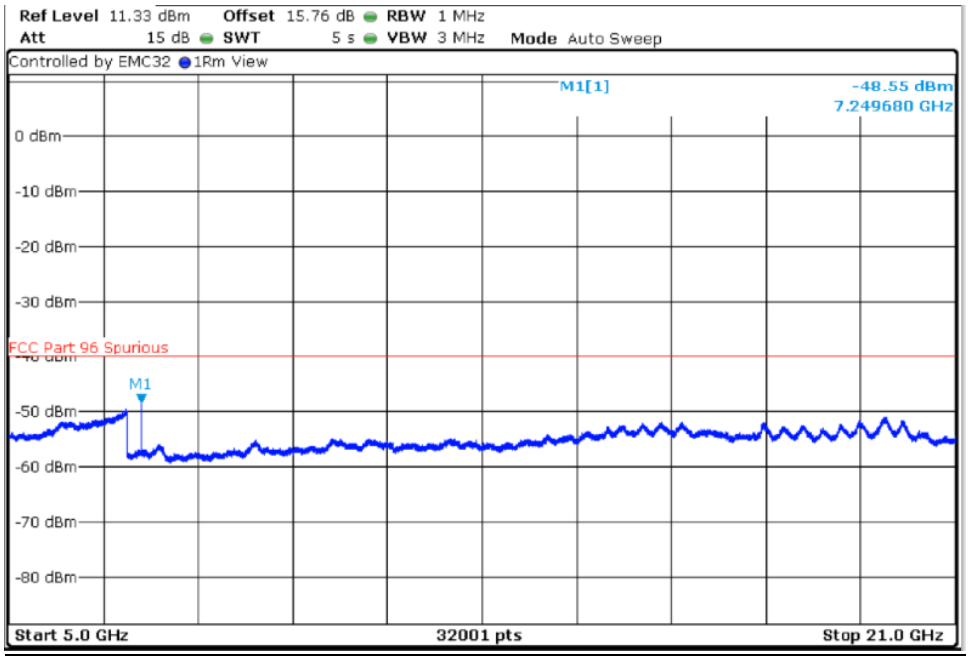
Middle Channel (3625 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

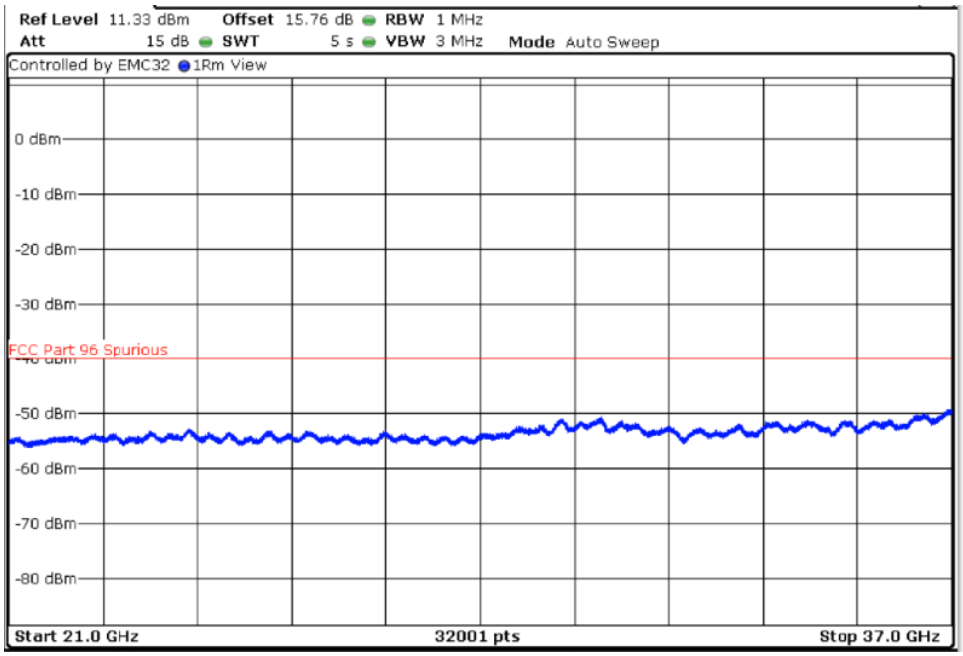


TEST RESULTS (Cont.):

FRQUENCY RANGE 5-21 GHz



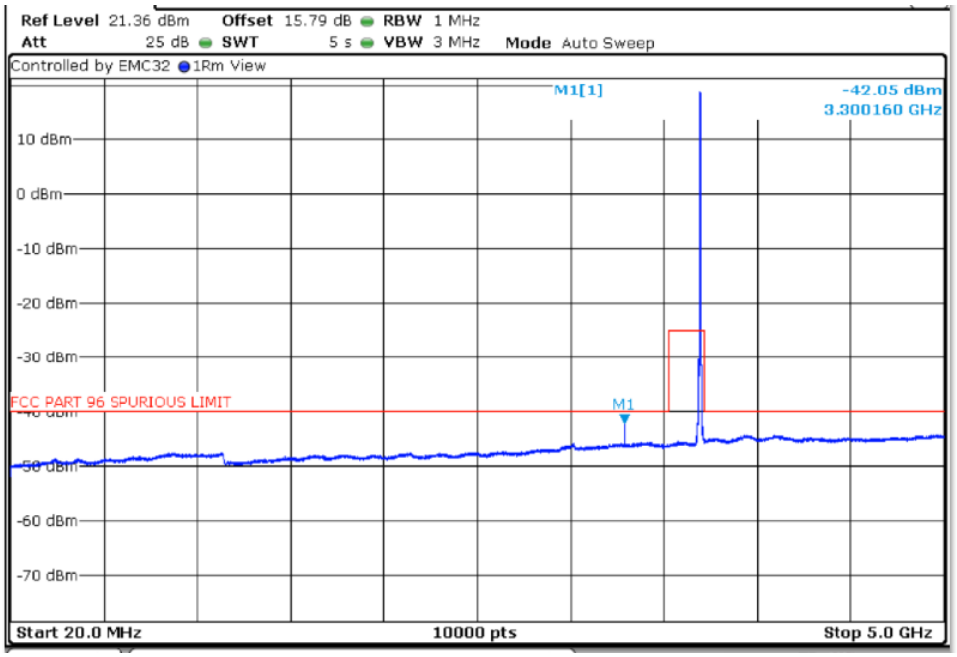
FREQUENCY RANGE 21-37 GHz



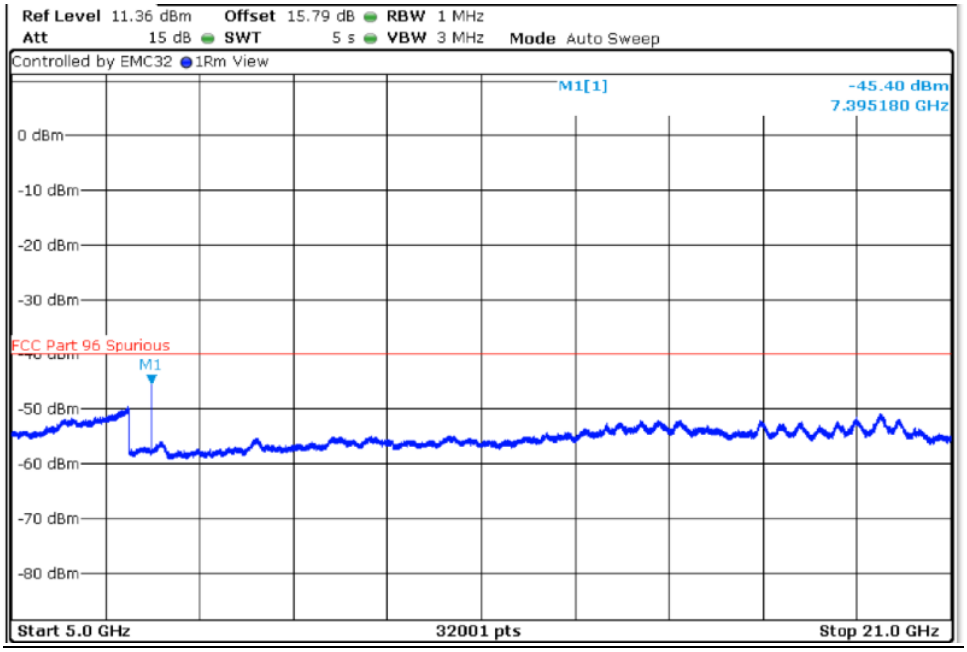
TEST RESULTS (Cont.):

Highest Channel (3697.5 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

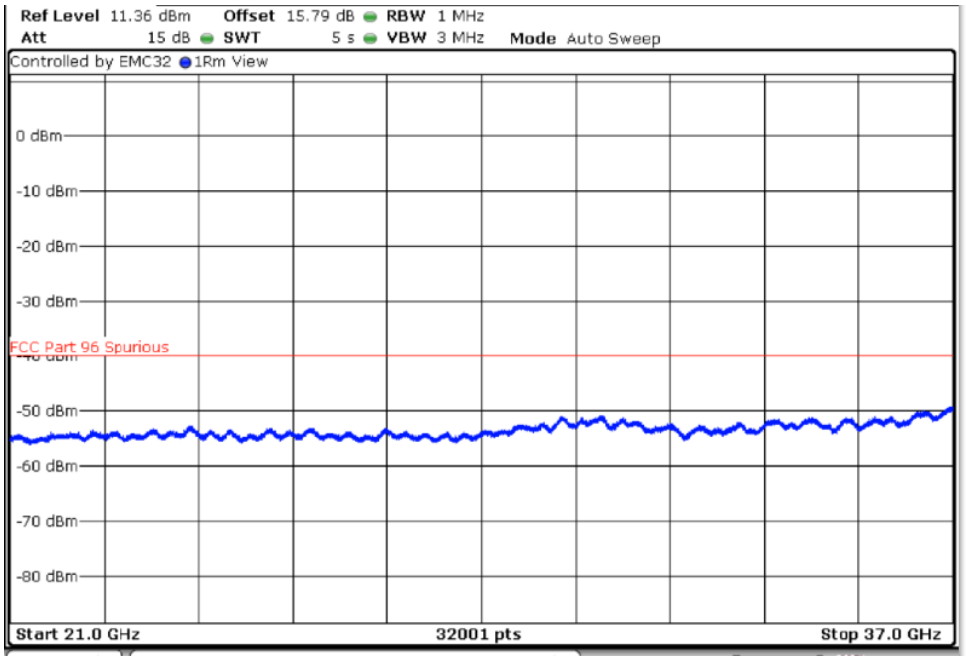


FREQUENCY RANGE 5-21 GHz



TEST RESULTS (Cont.):

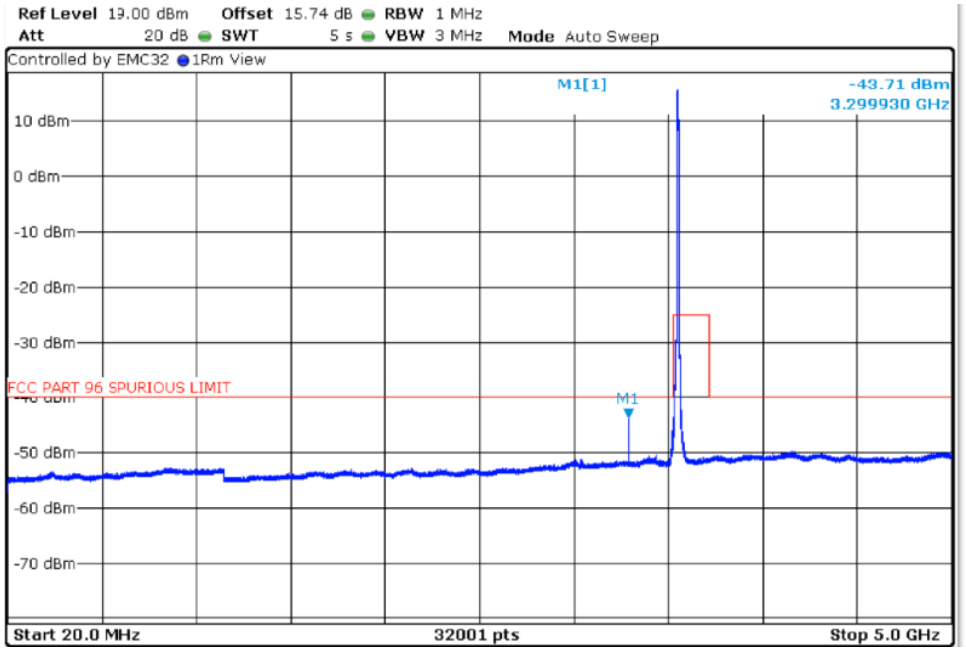
FREQUENCY RANGE 21-37 GHz



10 MHz BW

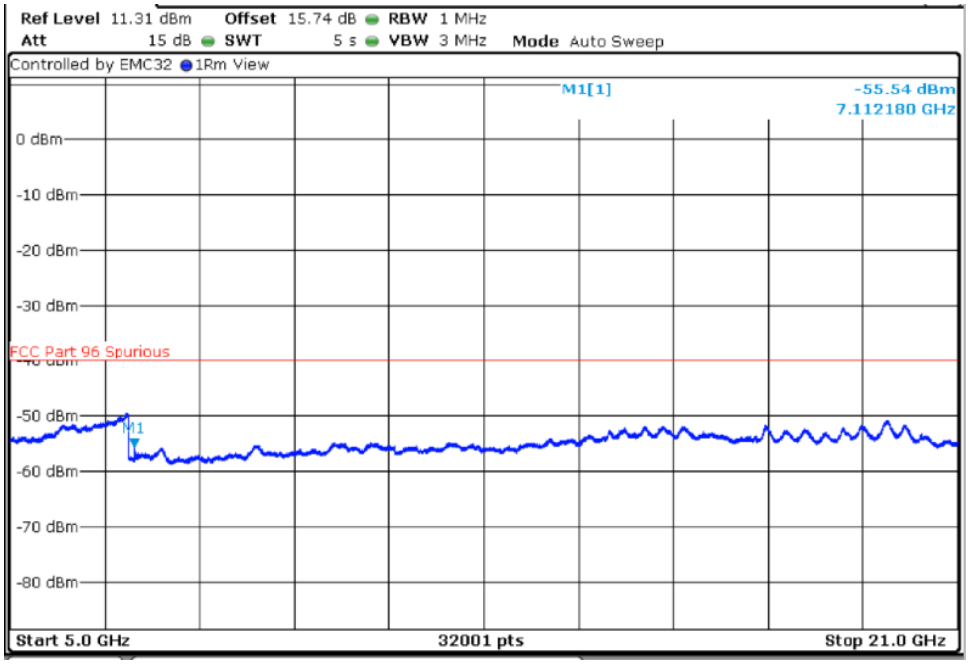
Lowest Channel (3555 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

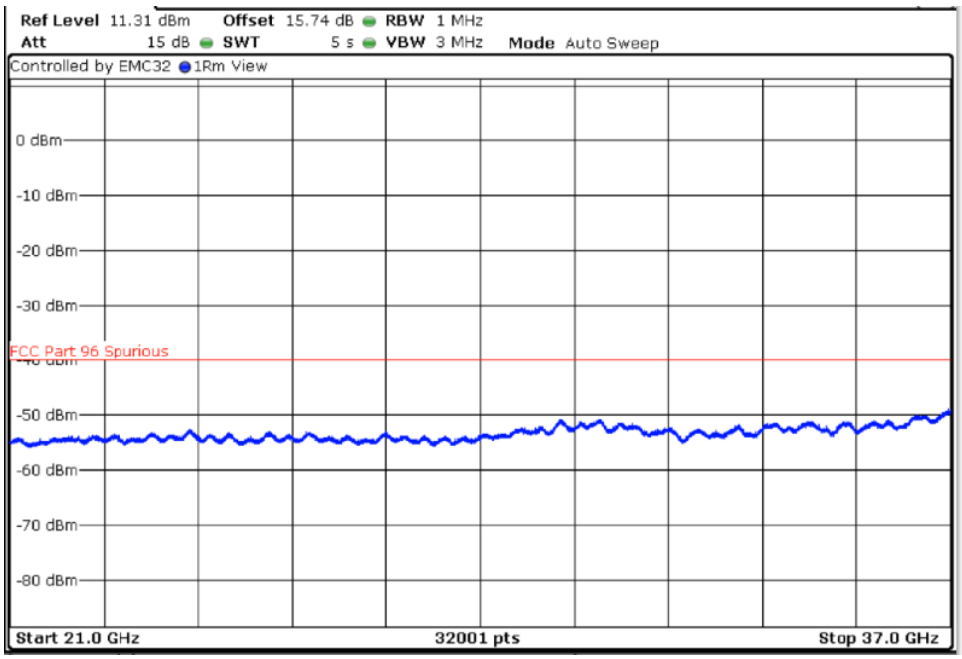


TEST RESULTS (Cont.):

FREQUENCY RANGE 5-21 GHz



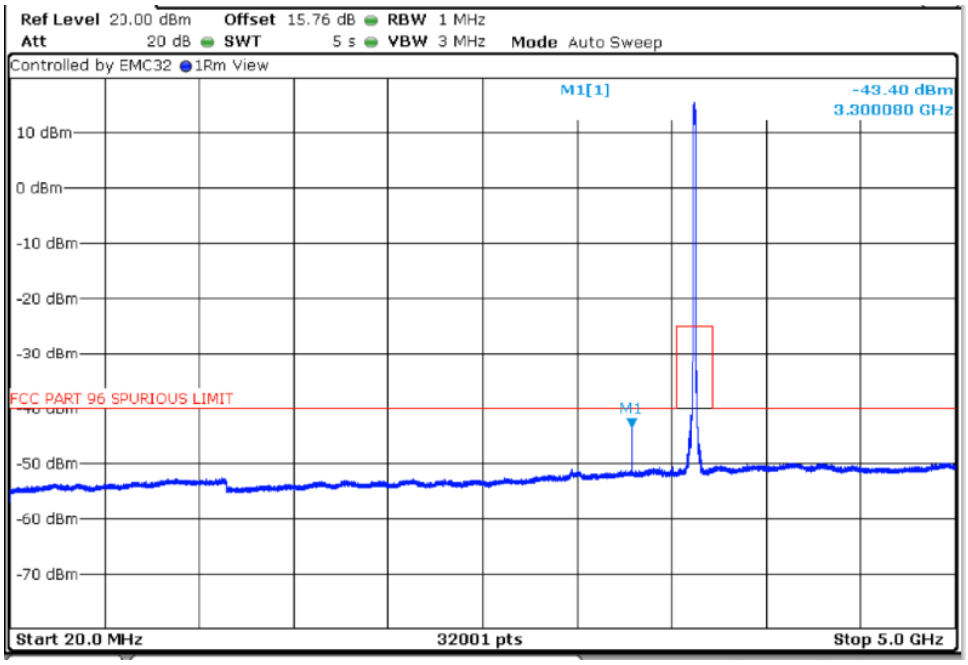
FREQUENCY RANGE 21-37 GHz



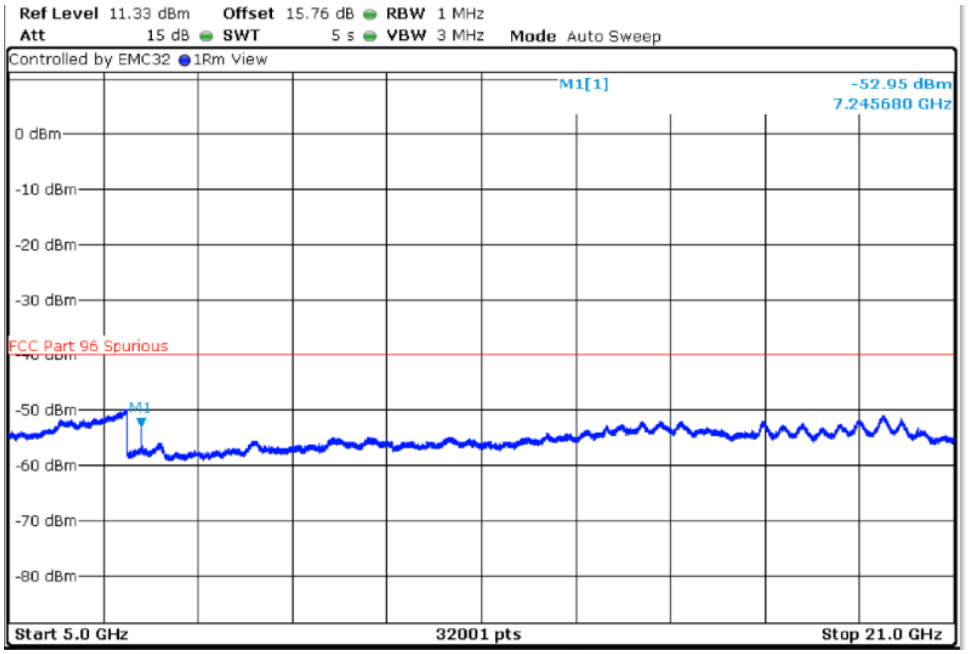
TEST RESULTS (Cont.):

Middle Channel (3625 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

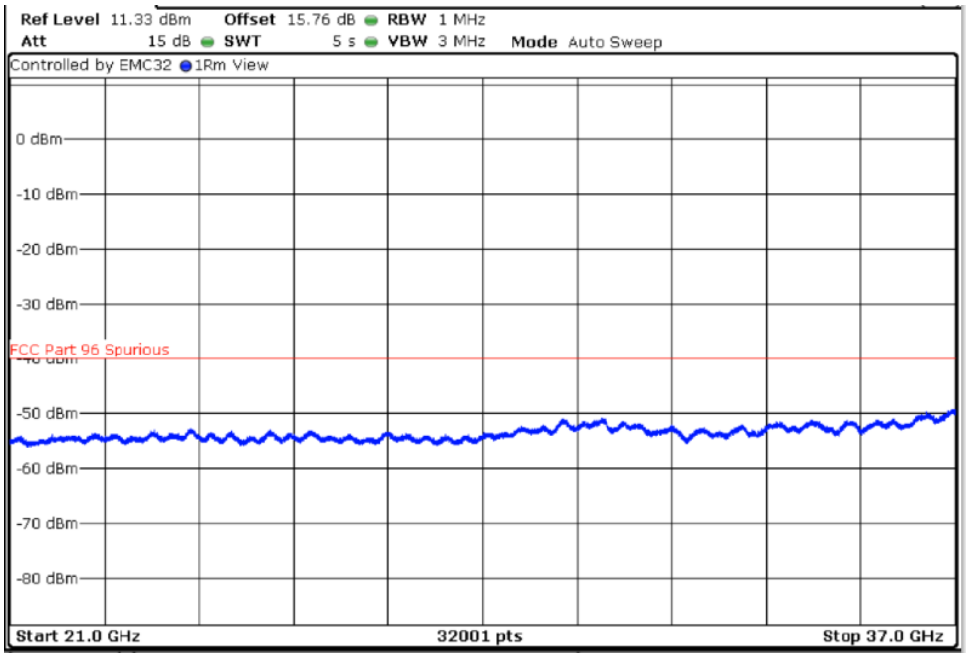


FREQUENCY RANGE 5-21 GHz



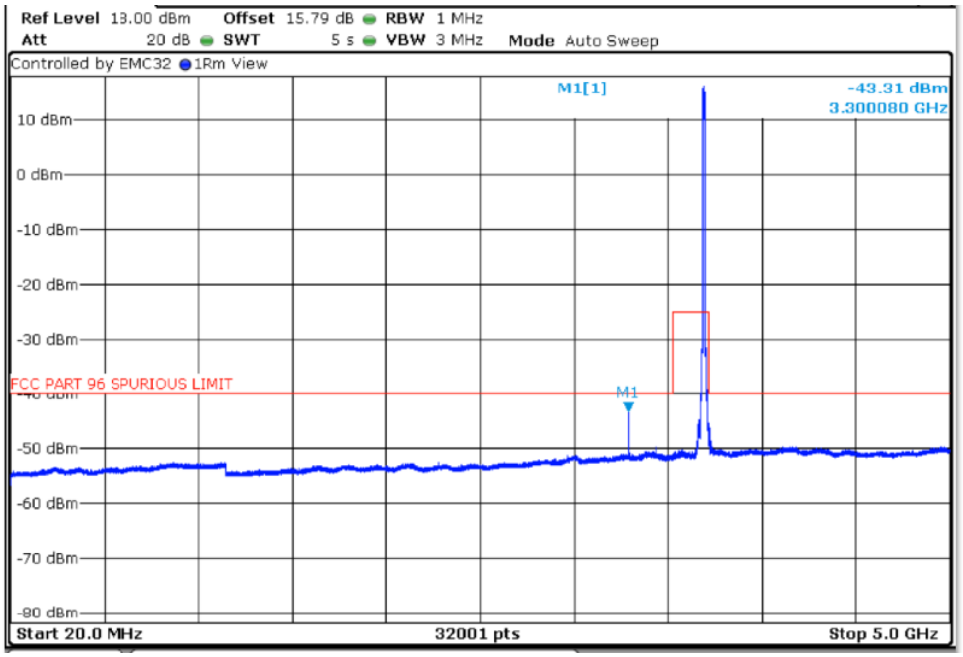
TEST RESULTS (Cont.):

FREQUENCY RANGE 21-37 GHz



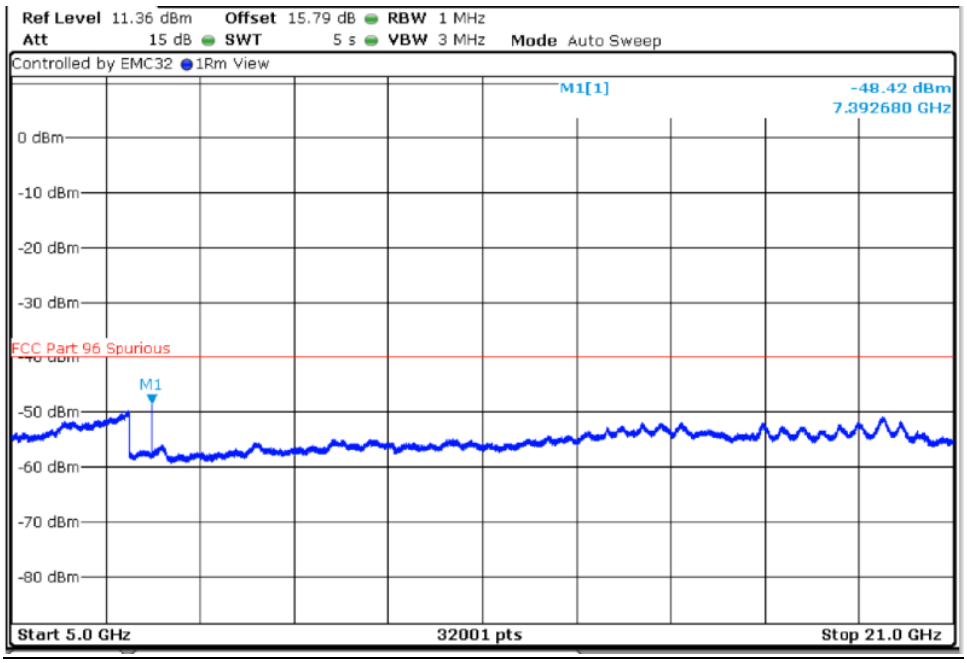
Highest Channel (3695 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

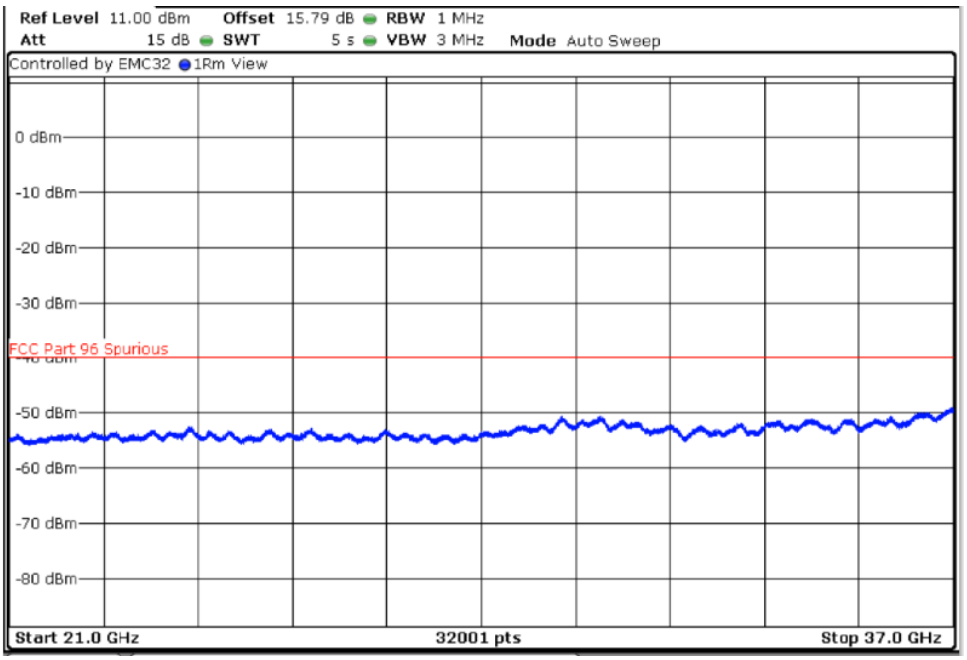


TEST RESULTS (Cont.):

FREQUENCY RANGE 5-21 GHz



FREQUENCY RANGE 21-37 GHz

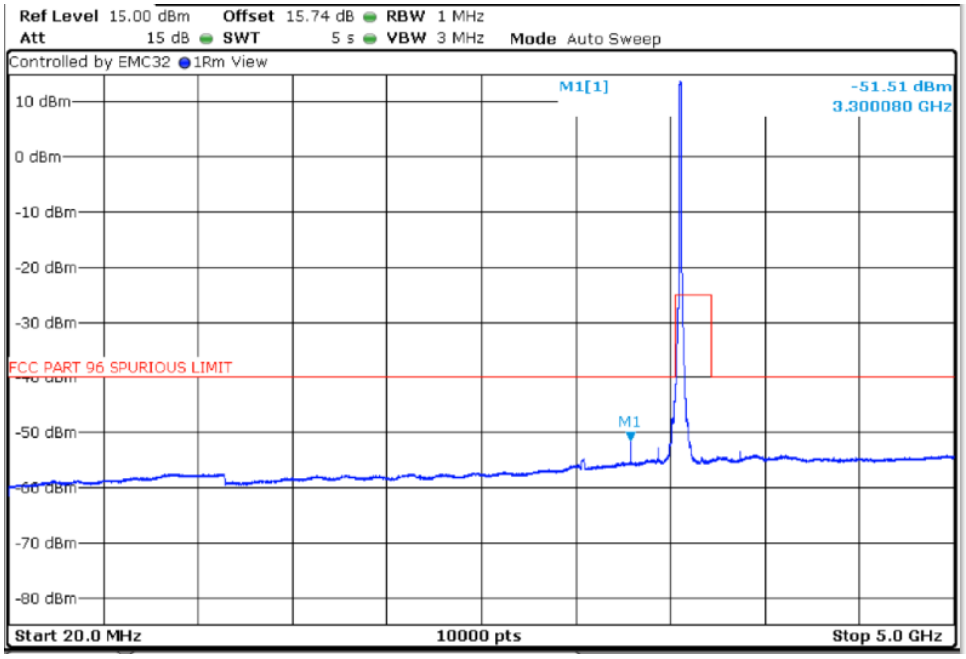


TEST RESULTS (Cont.):

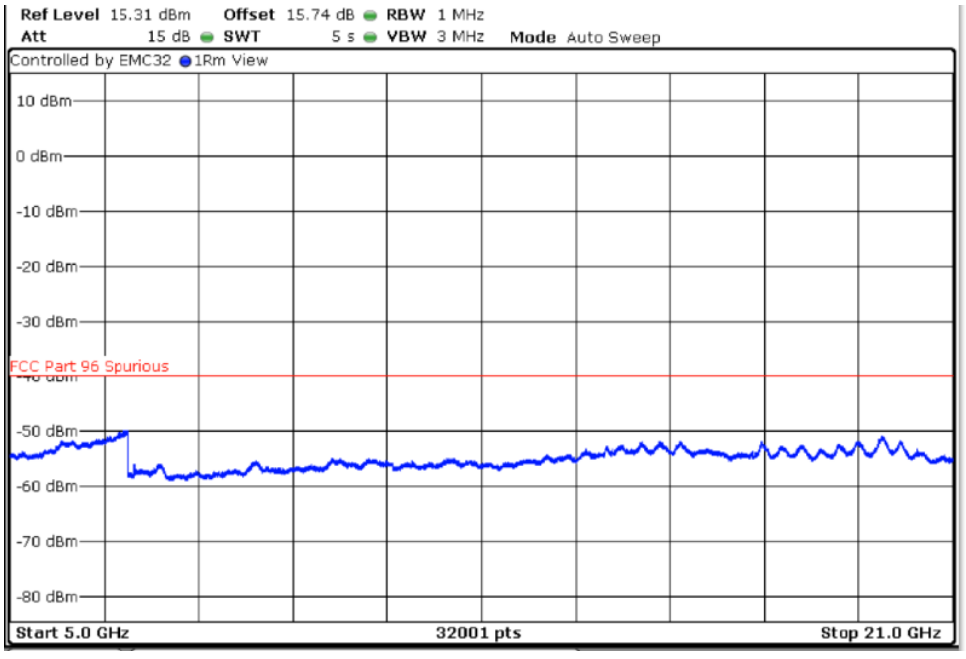
15 MHz BW

Lowest Channel (3557.5 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

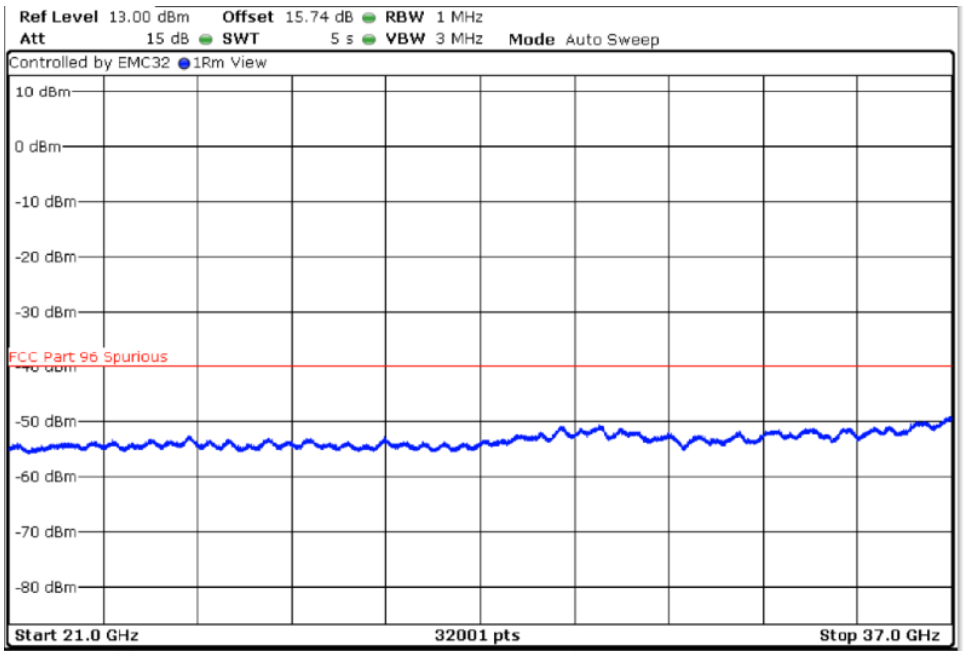


FREQUENCY RANGE 5-21 GHz



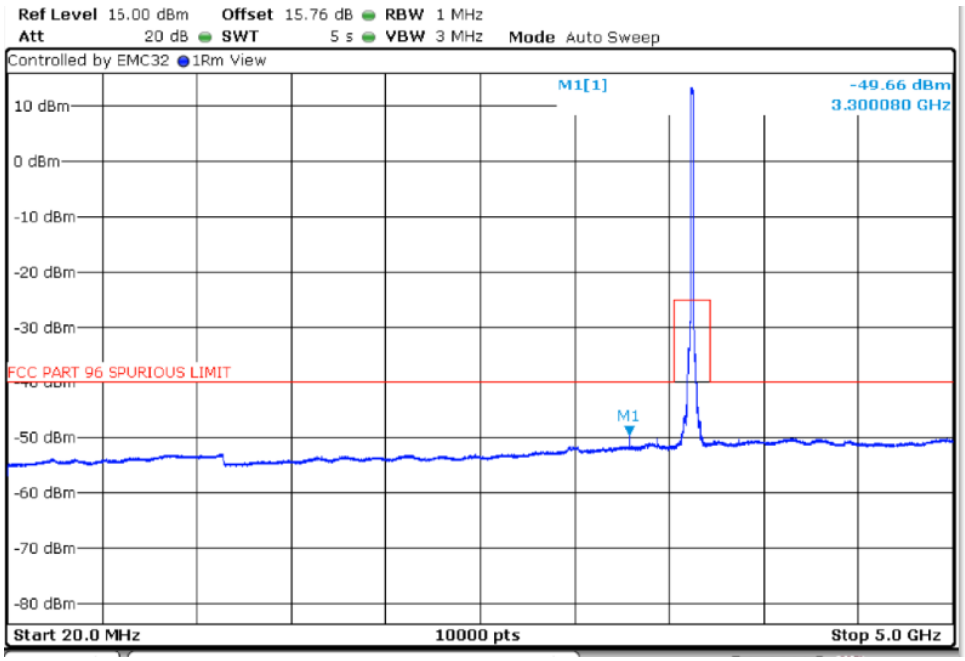
TEST RESULTS (Cont.):

FREQUENCY RANGE 21-37 GHz



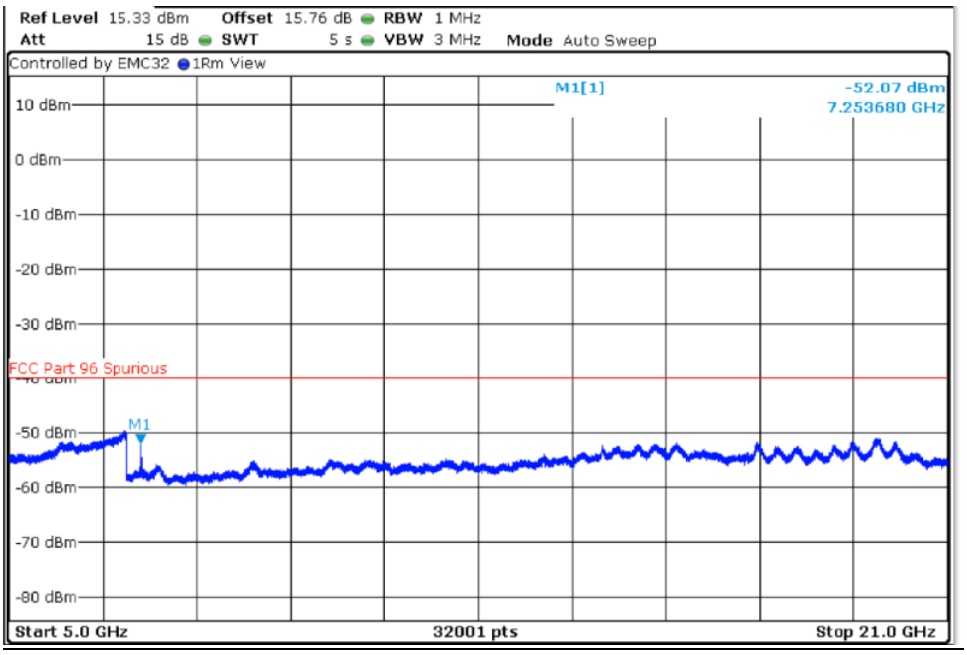
Middle Channel (3625 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

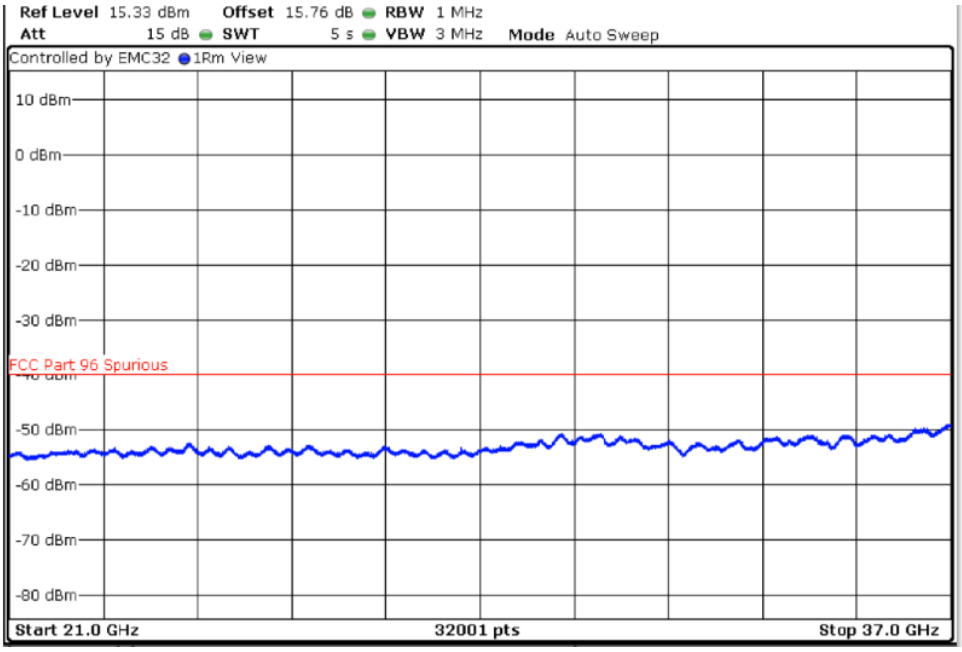


TEST RESULTS (Cont.):

FREQUENCY RANGE 5-21 GHz



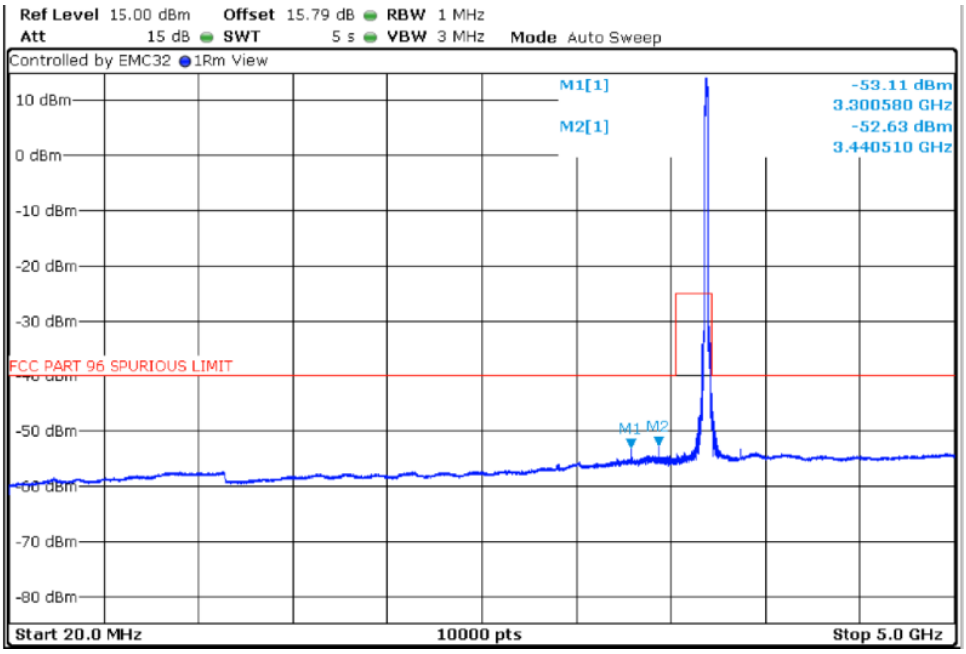
FREQUENCY RANGE 21-37 GHz



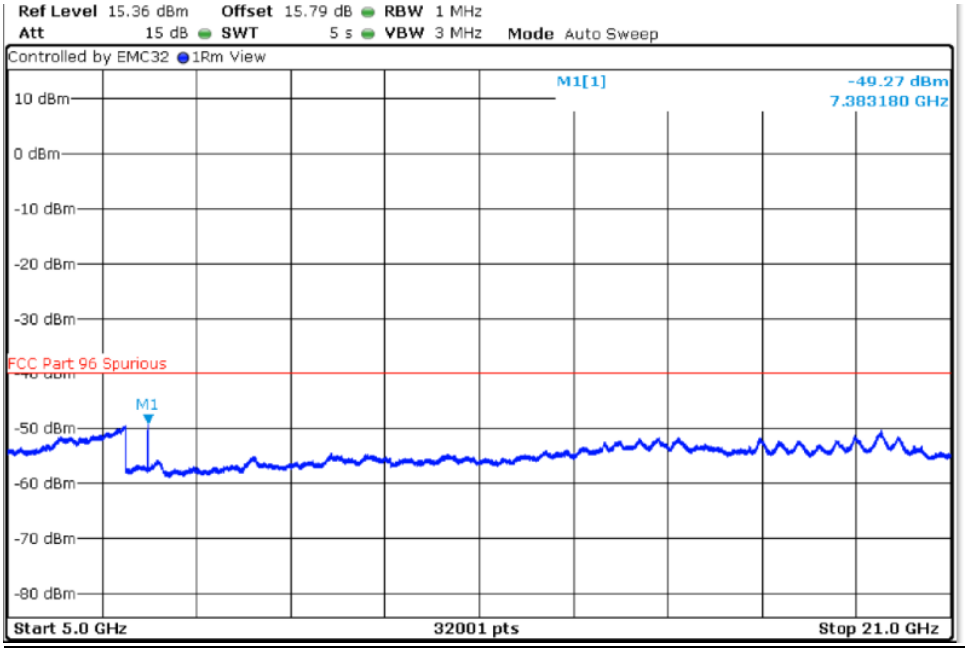
TEST RESULTS (Cont.):

Highest Channel (3692.5 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

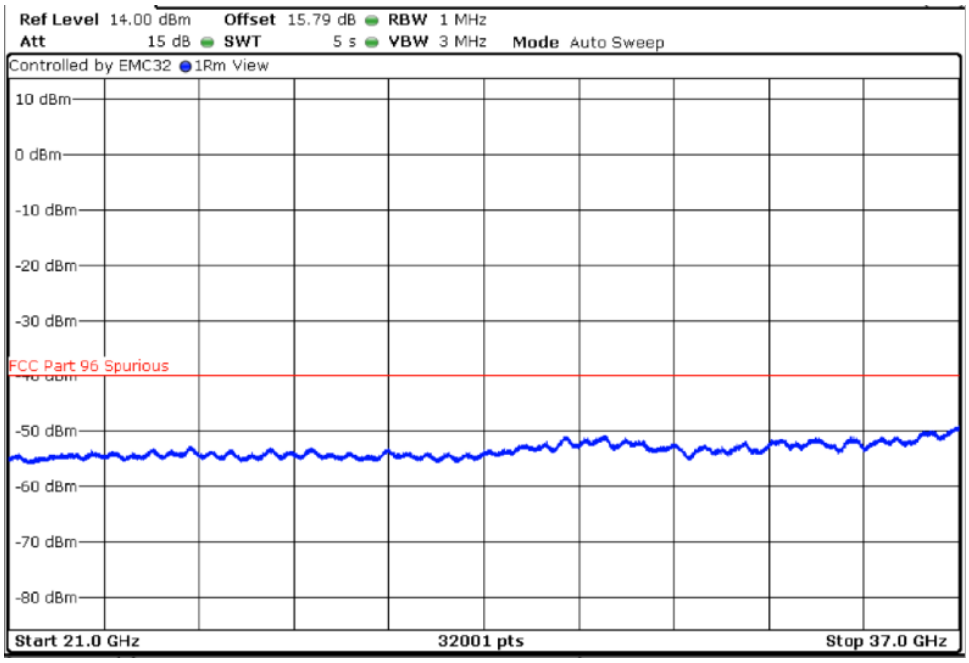


FREQUENCY RANGE 5-21 GHz



TEST RESULTS (Cont.):

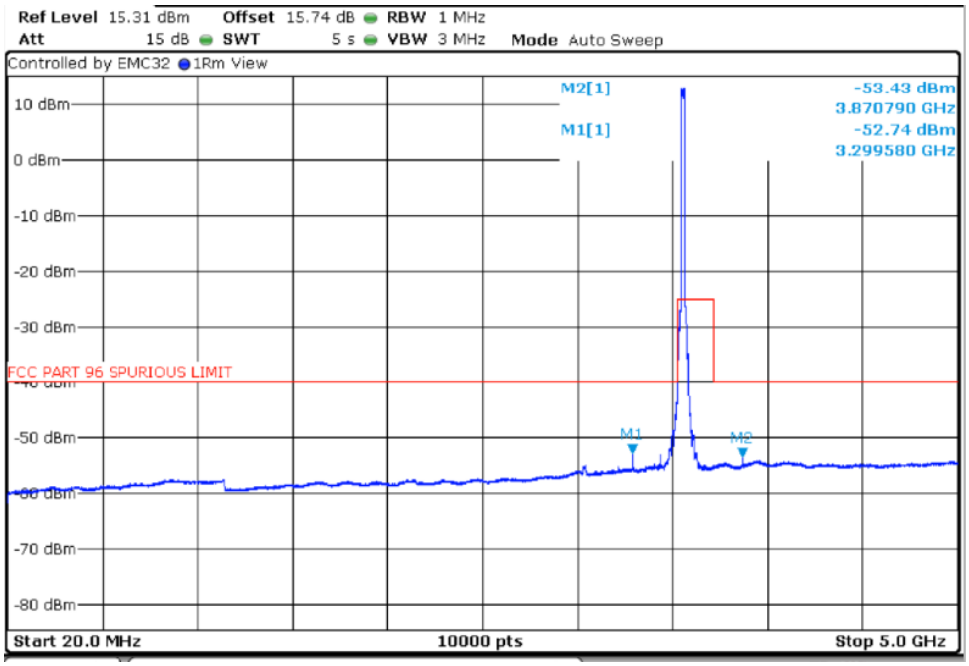
FREQUENCY RANGE 21-37 GHz



20 MHz BW

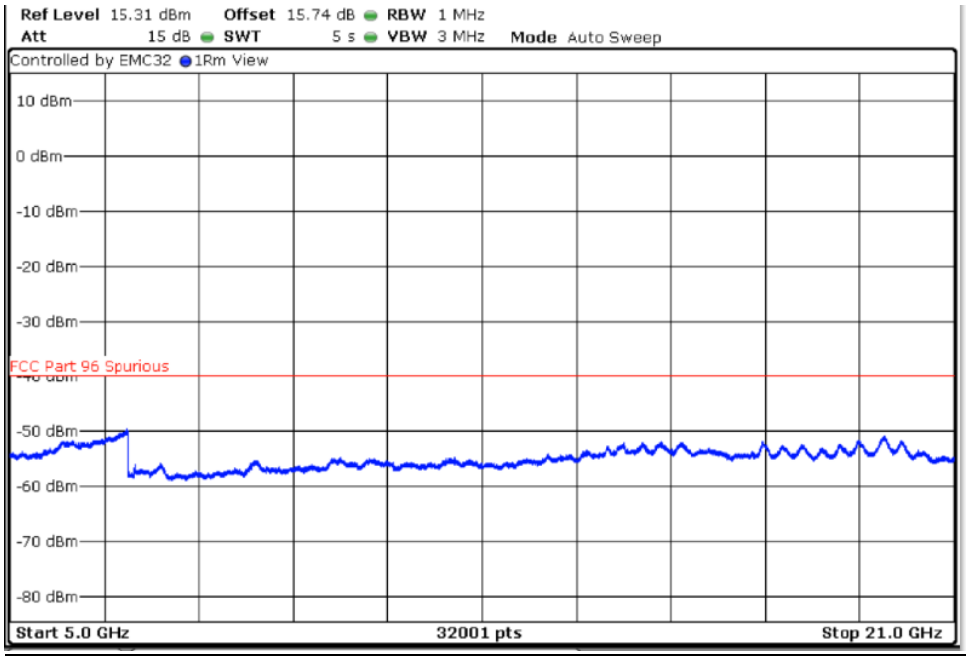
Lowest Channel (3560 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

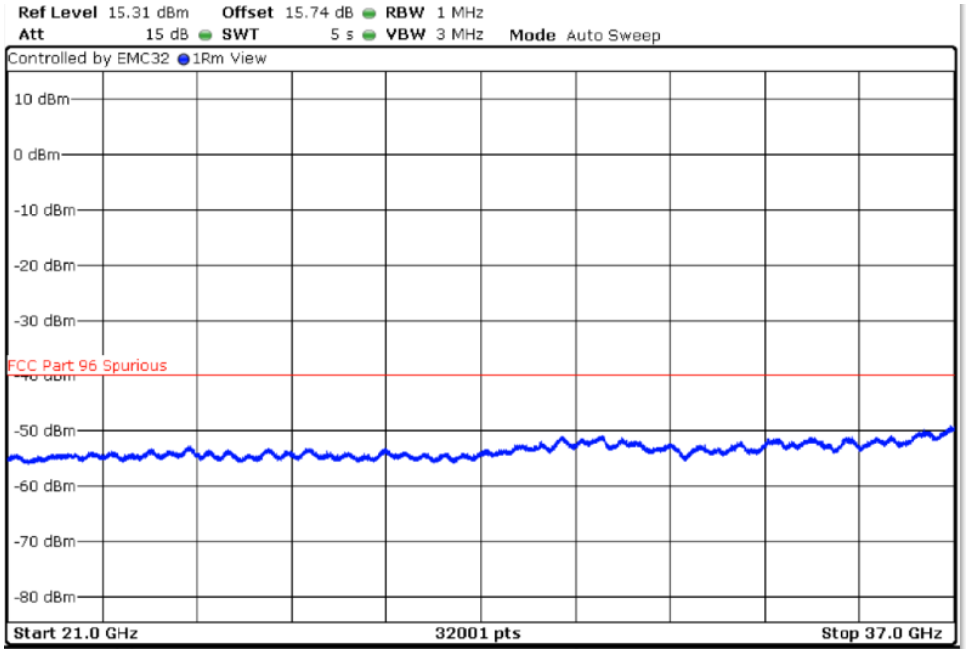


TEST RESULTS (Cont.):

FREQUENCY RANGE 5-21 GHz



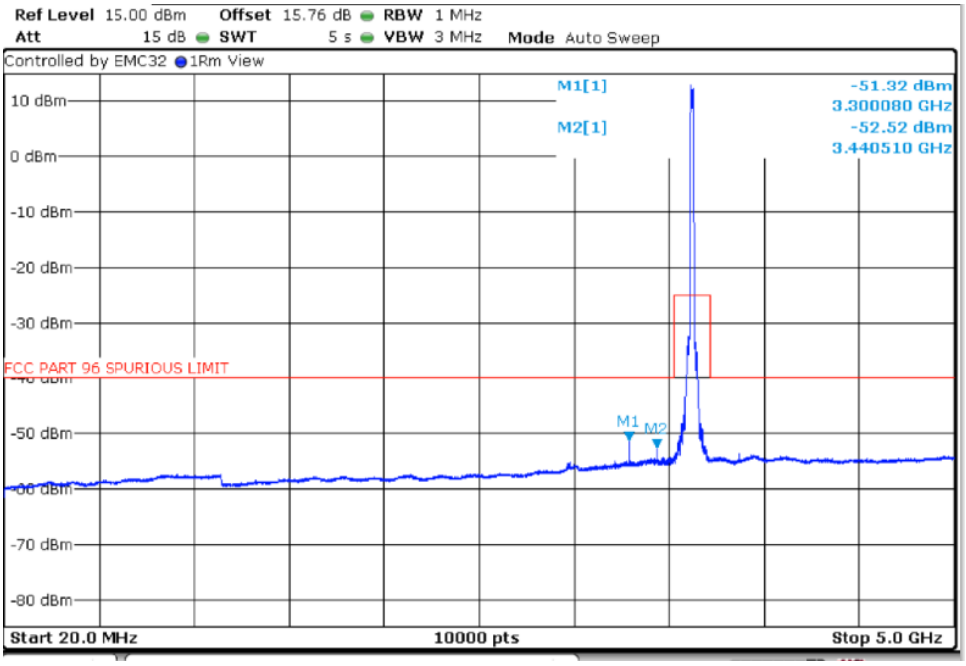
FREQUENCY RANGE 21-37 GHz



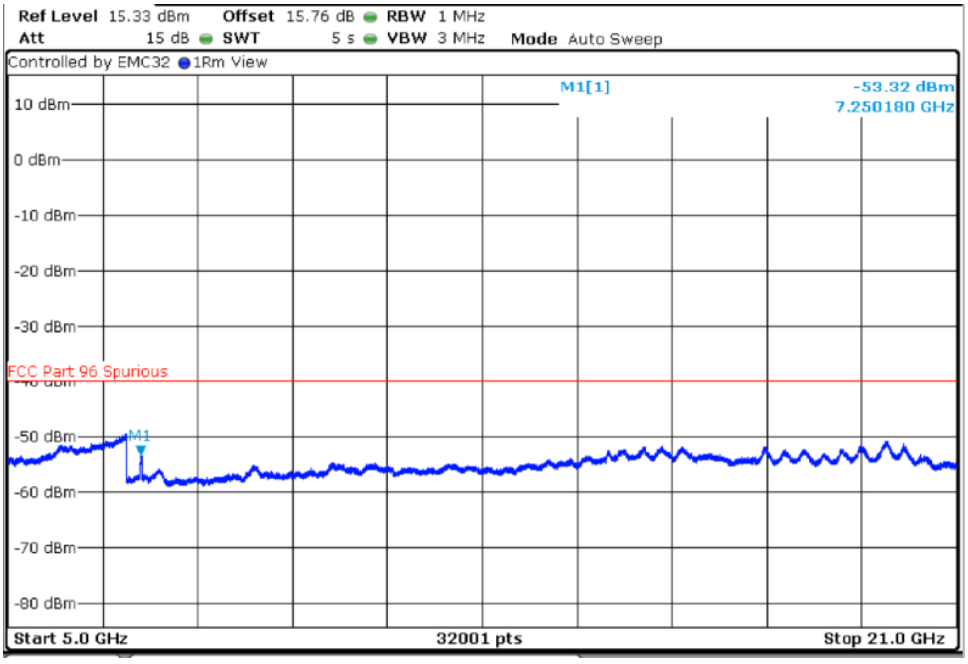
TEST RESULTS (Cont.):

Middle Channel (3625 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

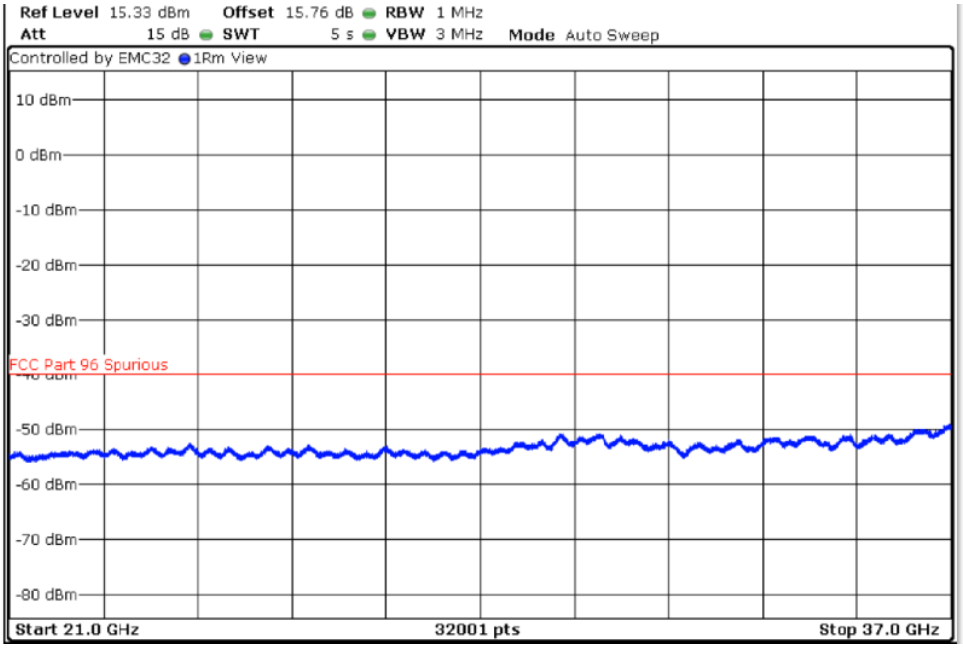


FREQUENCY RANGE 5-21 GHz



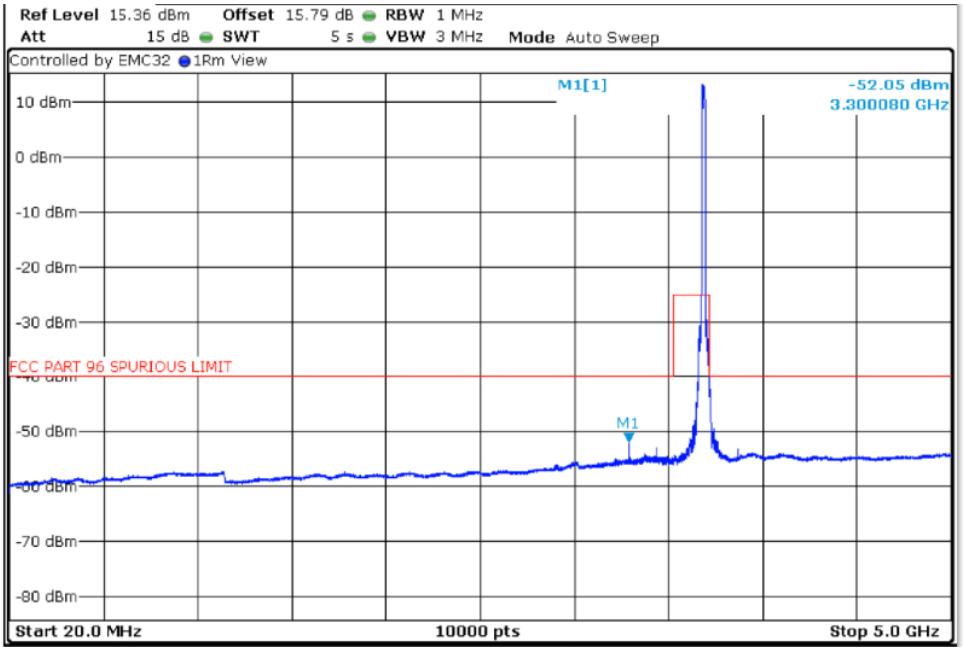
TEST RESULTS (Cont.):

FREQUENCY RANGE 21-37 GHz



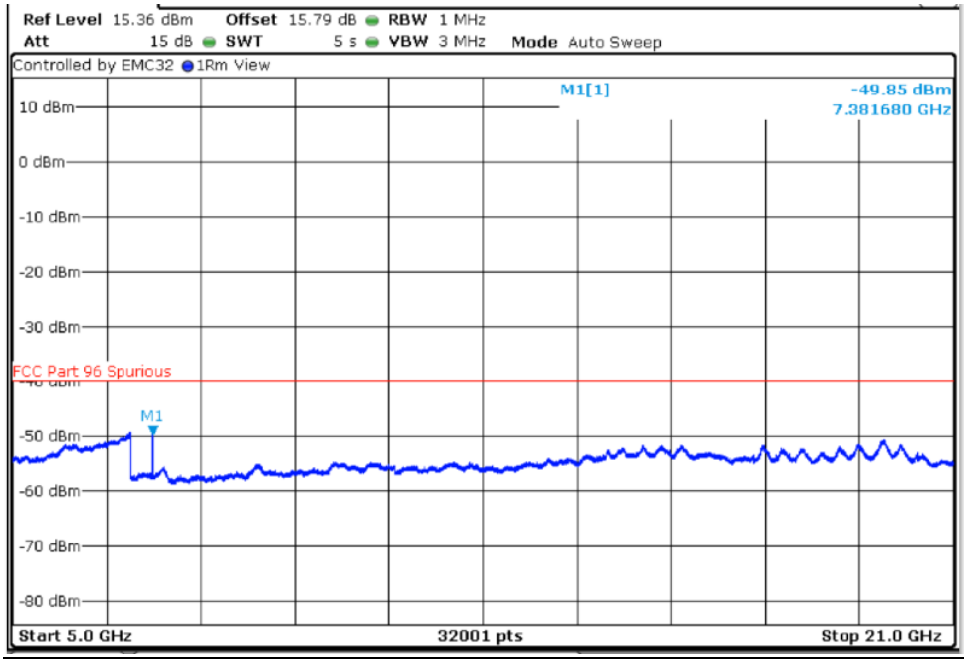
Highest Channel (3690 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

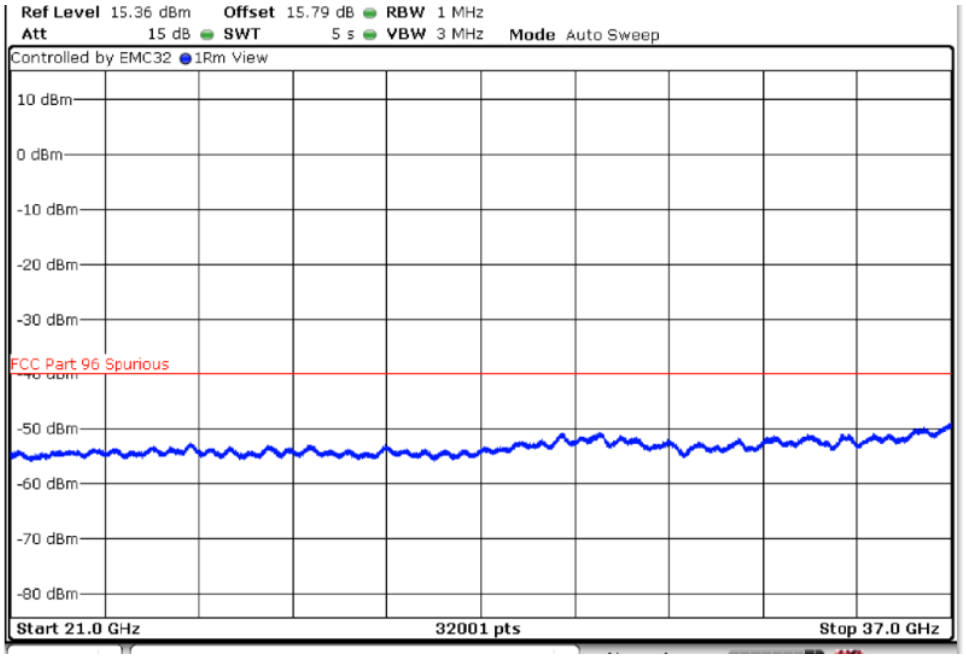


TEST RESULTS (Cont.):

FREQUENCY RANGE 5-21 GHz



FREQUENCY RANGE 21-37 GHz



TEST A.7: RADIATED SPURIOUS EMISSION

LIMITS:	Product standard:	Part 2.1053
	Test standard:	ANSI C63.26-2015

LIMITS

Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation.

Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of § 2.1049, as appropriate.

The limits for radiated emissions are stated below.

•greater than 10 MHz above and below the assigned channel ≤ 70.2 dBµV/m (-25 dBm/MHz: conducted limit)

•any emission below 3530 MHz and above 3720 MHz ≤ 55.2 dBµV/m (-40 dBm/MHz: conducted limit)

TEST SETUP

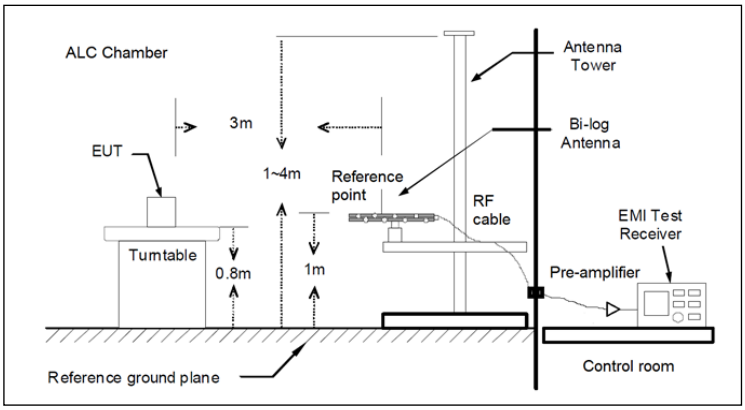
All radiated tests were performed in a semi-anechoic chamber. The measurement antenna is situated at a distance of 3 m for the frequency ranges 30-1000 MHz (Bilog antenna) and 1-18 GHz (Double ridge horn antenna), and at a distance of 1m for the frequency range 1-40 GHz (Double ridge horn antennas).

For radiated emissions in the range 18-40 GHz that is performed at a distance closer than the specified distance, an inverse proportionality factor of 20 dB per decade is used to normalize the measured data for determining compliance.

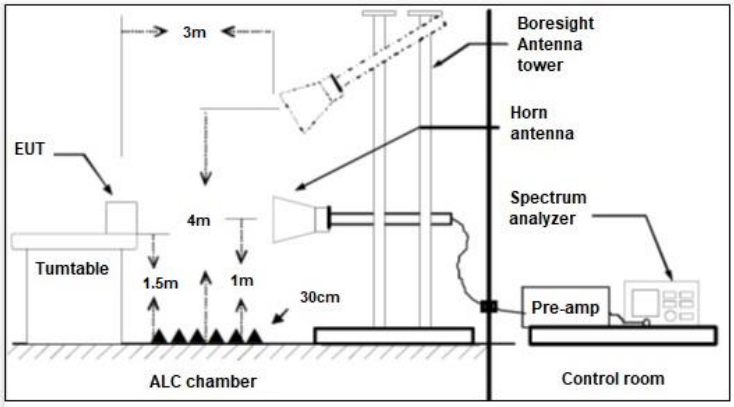
Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded. The radiated emissions were measured with RMS detector.

TEST SETUP (Cont.)

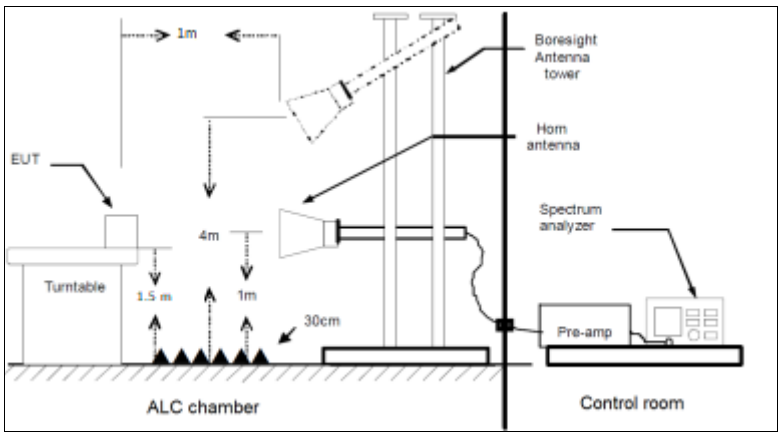
Radiated measurements Setup f < 1 GHz



Radiated measurements Setup 1-18 GHz



Radiated measurements setup f > 18 GHz



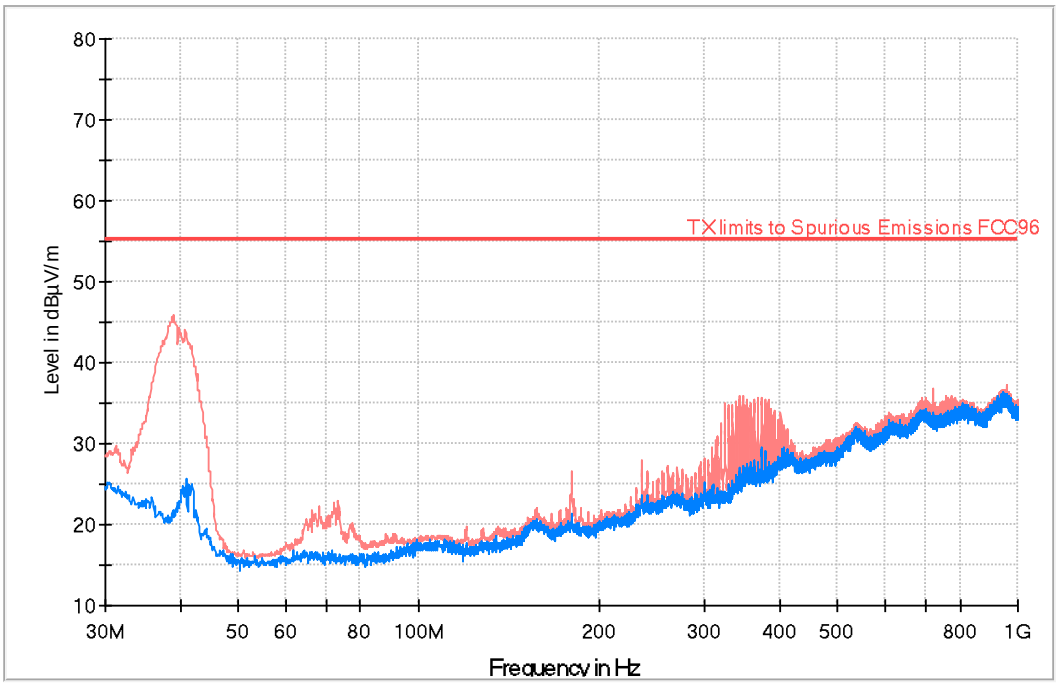
TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 (Band 48)
TEST RESULTS:	**20 MHz BW** FREQUENCY RANGE 30 MHz-1 GHz

Results:

20 MHz BW
The plots are shown only for 20 MHz BW as a worst case.

Frequency range 30 MHz – 1000 MHz
The spurious emissions below 1 GHz do not depend on either the operating channel or the modulation mode selected in the EUT.

Middle Channel (3625 MHz)

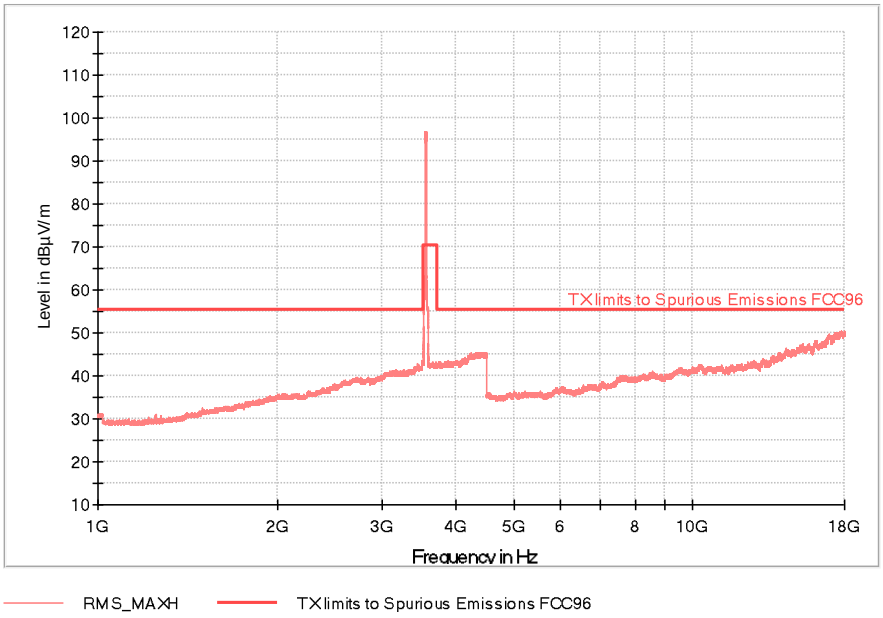


Frequency (MHz)	RMS_CLRWR (dBµV/m)	RMS_MAXH (dBµV/m)	Pol	Margin - RMS (dB)	Limit - RMS (dBµV/m)
39.021000	21.7	46.0	V	9.2	55.2
348.742000	26.6	35.8	H	19.4	55.2
368.724000	27.3	35.7	H	19.5	55.2
674.177000	32.5	34.1	H	21.1	55.2
719.864000	33.2	36.9	V	18.3	55.2
960.036000	35.7	37.2	V	18.0	55.2

TEST RESULTS (Cont.):	**20 MHz BW** FREQUENCY RANGE 1-18 GHz

FREQUENCY RANGE 1-18 GHz

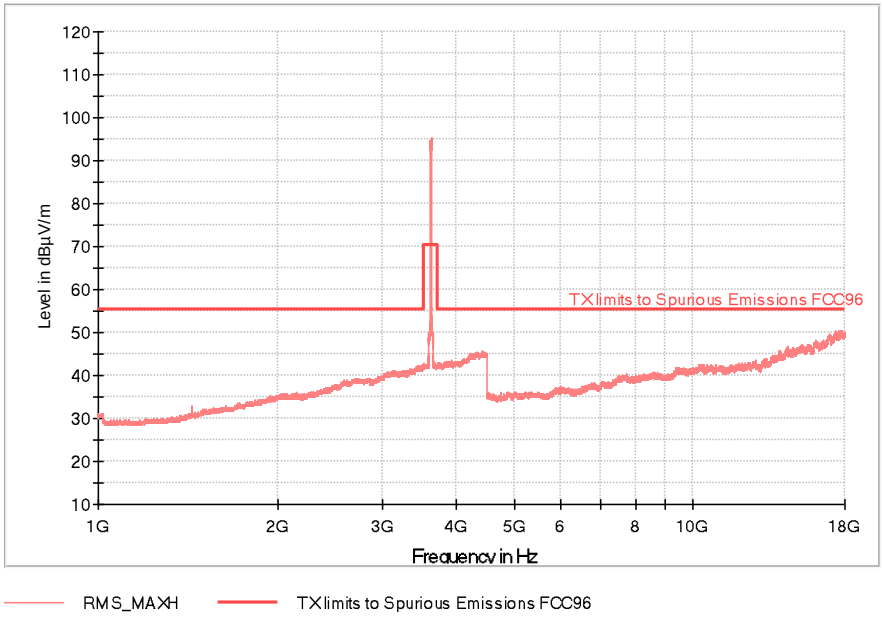
Lowest Channel (3560 MHz)



Frequency (MHz)	RMS_MAXH (dBµV/m)	Pol	Margin - RMS (dB)	Limit - RMS (dBµV/m)	Comment
3556.225000	96.8	V	---	---	Fundamental
10260.642857	42.6	H	12.6	55.2	

TEST RESULTS (Cont.):	**20 MHz BW** FREQUENCY RANGE 1-18 GHz

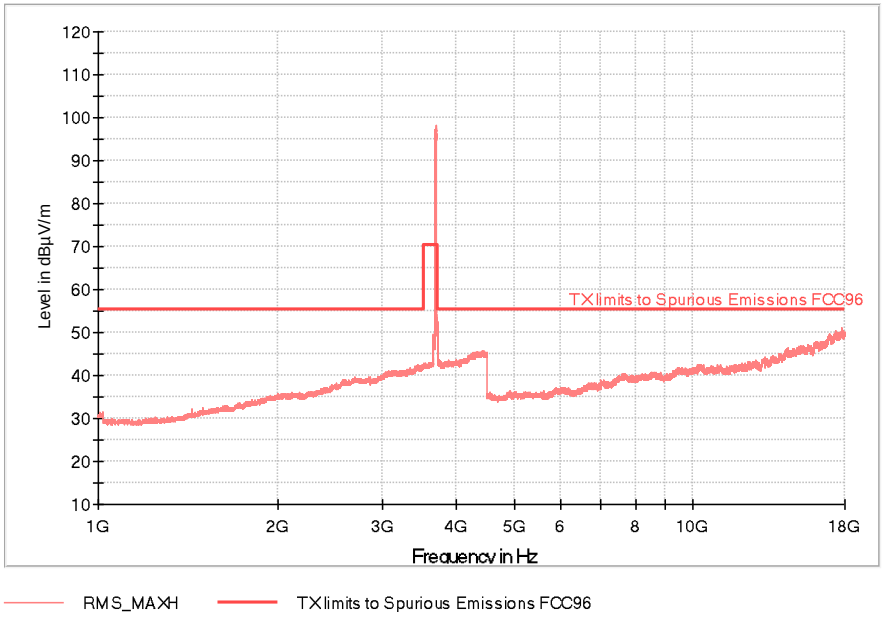
Middle Channel (3625 MHz)



Frequency (MHz)	RMS_MAXH (dBµV/m)	Pol	Margin - RMS (dB)	Limit - RMS (dBµV/m)	Comment
1440.300000	32.9	V	22.3	55.2	
3628.500000	95.3	H	---	---	Fundamental
17950.339286	50.1	H	5.1	55.2	

TEST RESULTS (Cont.):	**20 MHz BW** FREQUENCY RANGE 1-18 GHz

Highest Channel (3690 MHz)

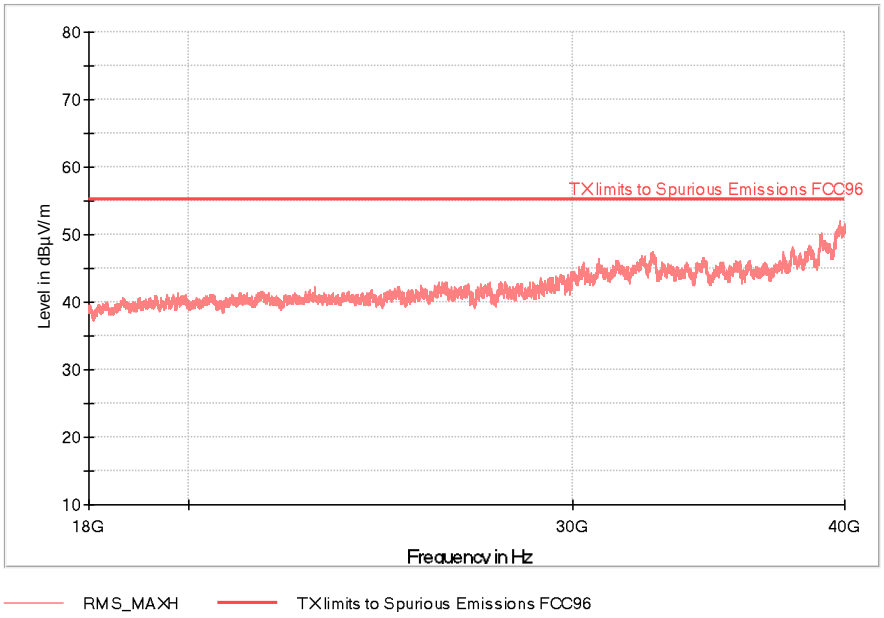


Frequency (MHz)	RMS_MAXH (dBµV/m)	Pol	Margin - RMS (dB)	Limit - RMS (dBµV/m)	Comment
1650.300000	32.8	H	22.4	55.2	
3697.975000	98.2	H	---	---	Fundamental
17739.642857	51.0	V	4.2	55.2	

TEST RESULTS (Cont.):	**20 MHz BW** FREQUENCY RANGE 18 - 40 GHz

FREQUENCY RANGE 18-40 GHz

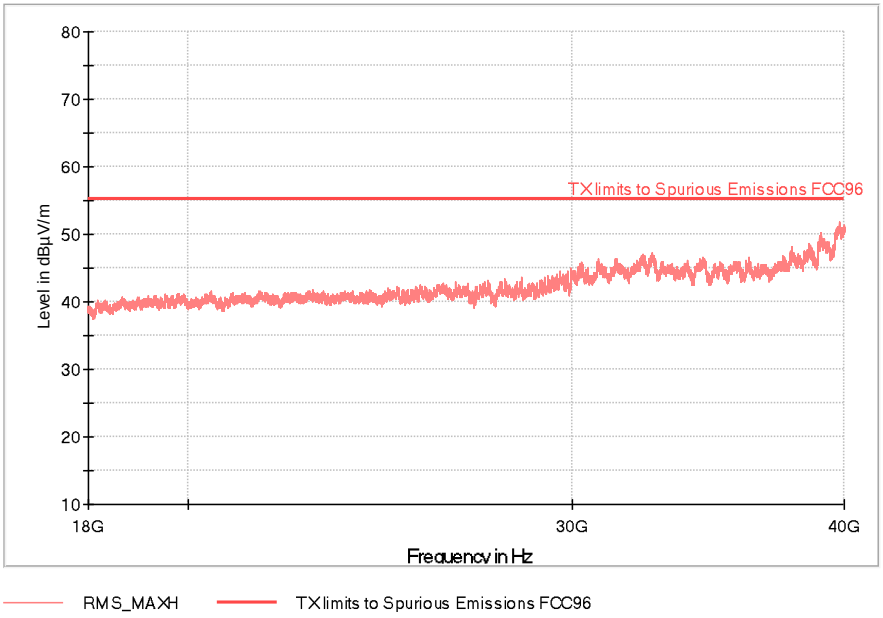
Lowest Channel (3560 MHz)



Frequency (MHz)	RMS_MAXH (dBµV/m)	Pol	Margin - RMS (dB)	Limit - RMS (dBµV/m)
22855.812500	42.2	V	13.0	55.2
32642.375000	47.4	H	7.8	55.2
39828.125000	51.9	H	3.3	55.2

TEST RESULTS (Cont.):	**20 MHz BW** FREQUENCY RANGE 18-40 GHz

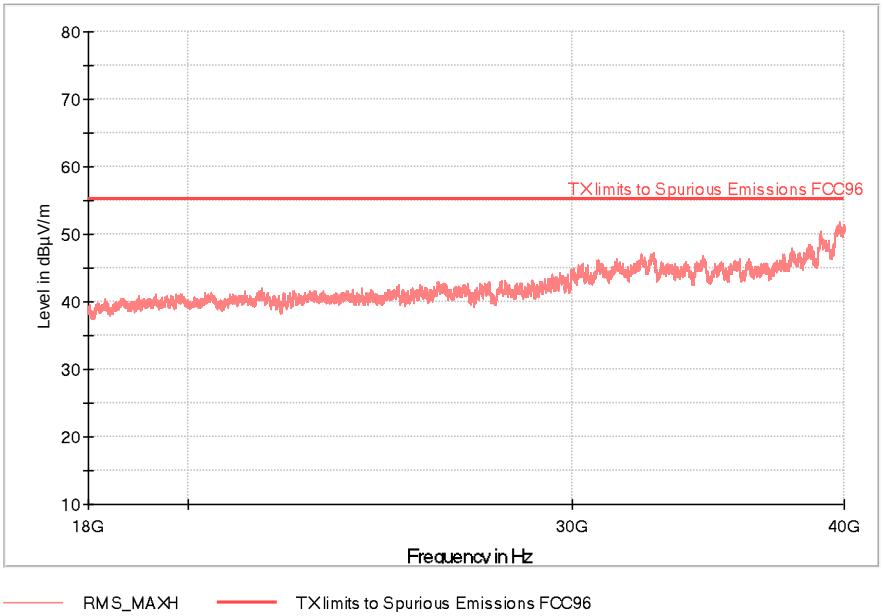
Middle Channel (3625 MHz)



Frequency (MHz)	RMS_MAXH (dBµV/m)	Pol	Margin - RMS (dB)	Limit - RMS (dBµV/m)
24958.187500	42.3	H	12.9	55.2
32660.250000	47.3	V	7.9	55.2
39805.437500	51.8	H	3.4	55.2

TEST RESULTS (Cont.):	**20 MHz BW** FREQUENCY RANGE 18-40 GHz

Highest Channel (3690 MHz)



Frequency (MHz)	RMS_MAXH (dBµV/m)	Pol	Margin - RMS (dB)	Limit - RMS (dBµV/m)
24971.250000	42.5	V	12.7	55.2
32636.187500	47.1	H	8.1	55.2
39828.125000	51.8	H	3.4	55.2

Verdict: PASS

TEST A.8: FREQUENCY STABILITY

LIMITS:	Product standard:	Part 2.1055
	Test standard:	ANSI C63.26-2015

LIMITS

The frequency stability shall be measured with variation of ambient temperature from -30° to +50° centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

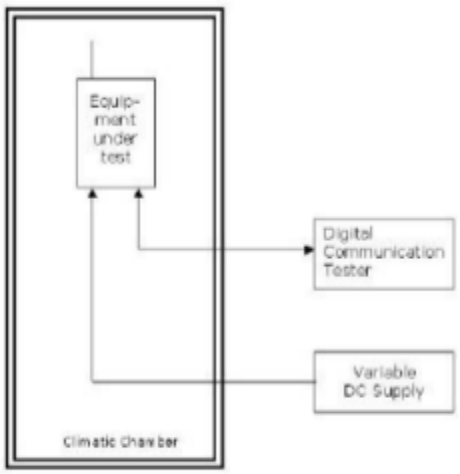
The frequency stability was measured under the following conditions:

a) At 10°C intervals of temperatures between -30°C and +50°C at the manufacturer's rated supply voltage, and

b) At +20°C temperature and ±15% supply voltage variations. If a product is specified to operate over a range of input voltage, then the -15% variation is applied to the lowermost voltage and the +15% is applied to the uppermost voltage.

TEST SETUP

The frequency stability was measured by following the procedure stated in the section 5.6 of ANSI C63.26-2015 and the section 9of FCC KDB 971168 D01 v03 r01.



TESTED SAMPLES:	S/01
TESTED CONDITIONS MODES:	TC#01 (Band 48)
TEST RESULTS:	PASS

10 MHz BW

Temperature (°C)	Input Voltage (V)	Lowest Frequency 3555 MHz			
		Frequency (MHz)	Delta to Tnom-Vnom (%)	Frequency (MHz)	Delta to Tnom-Vnom (%)
65	3.3	3550.731	0.006788	3559.414	-0.002135
60	3.3	3550.731	0.006788	3559.269	-0.006209
50	3.3	3550.530	0.001127	3559.530	0.001124
40	3.3	3550.470	-0.000563	3559.510	0.000562
30	3.3	3550.510	0.000563	3559.470	-0.000562
20 (Tnom)	3.3	3550.490	----	3559.490	----
20	3.2	3550.530	0.001127	3559.410	-0.002248
20	4.6	3550.510	0.000563	3559.450	-0.001124
10	3.3	3550.510	0.000563	3559.470	-0.000562
0	3.3	3550.530	0.001127	3559.450	-0.001124
-10	3.3	3550.570	0.002253	3559.370	-0.003371
-20	3.3	3550.590	0.002817	3559.390	-0.002809
-30	3.3	3550.610	0.003380	3559.410	-0.002248
-40	3.3	3550.658	0.249318	3559.342	-0.004158

TEST RESULTS (Cont.):	

10 MHz BW

Temperature (°C)	Input Voltage (V)	Highest Frequency 3695 MHz			
		Frequency (MHz)	Delta to Tnom-Vnom (%)	Frequency (MHz)	Delta to Tnom-Vnom (%)
65	3.3	3690.803	0.007397	3699.342	-0.004001
60	3.3	3690.803	0.007397	3699.269	
50	3.3	3690.510	-0.000542	3699.450	-0.001081
40	3.3	3690.490	-0.001084	3699.430	-0.001622
30	3.3	3690.510	-0.000542	3699.450	-0.001081
20 (Tnom)	3.3	3690.530	----	3699.490	----
20	3.2	3690.510	-0.000542	3699.450	-0.001081
20	4.6	3690.590	0.001626	3699.470	-0.000541
10	3.3	3690.550	0.000542	3699.510	0.000541
0	3.3	3690.510	-0.000542	3699.450	-0.001081
-10	3.3	3690.590	0.001626	3699.450	-0.001081
-20	3.3	3690.550	0.000542	3699.470	-0.000541
-30	3.3	3690.570	0.001084	3699.450	-0.241114
-40	3.3	3690.803	0.007397	3699.342	-0.234816

Verdict: PASS