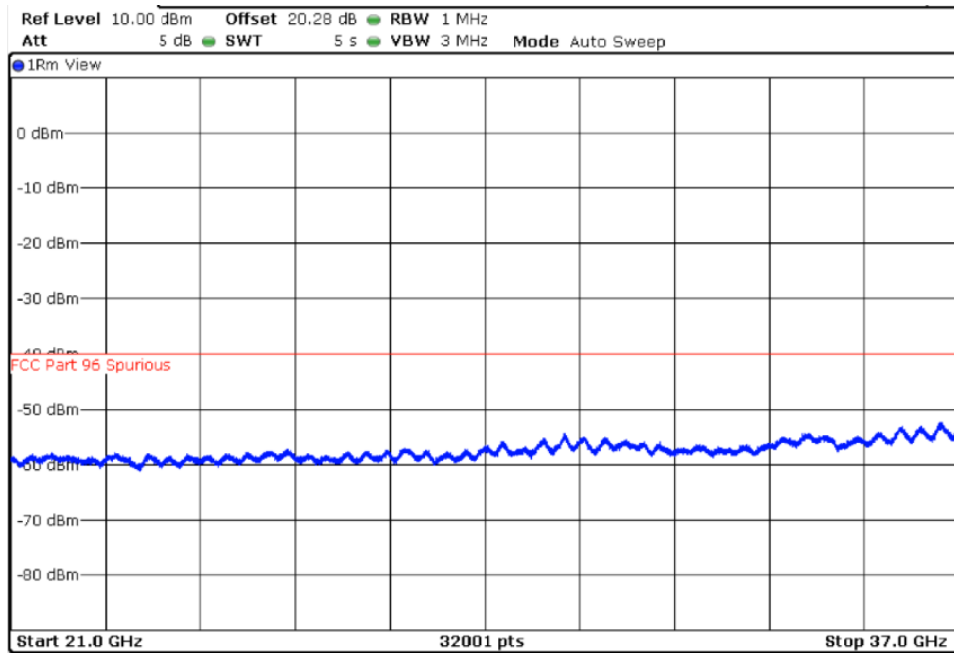


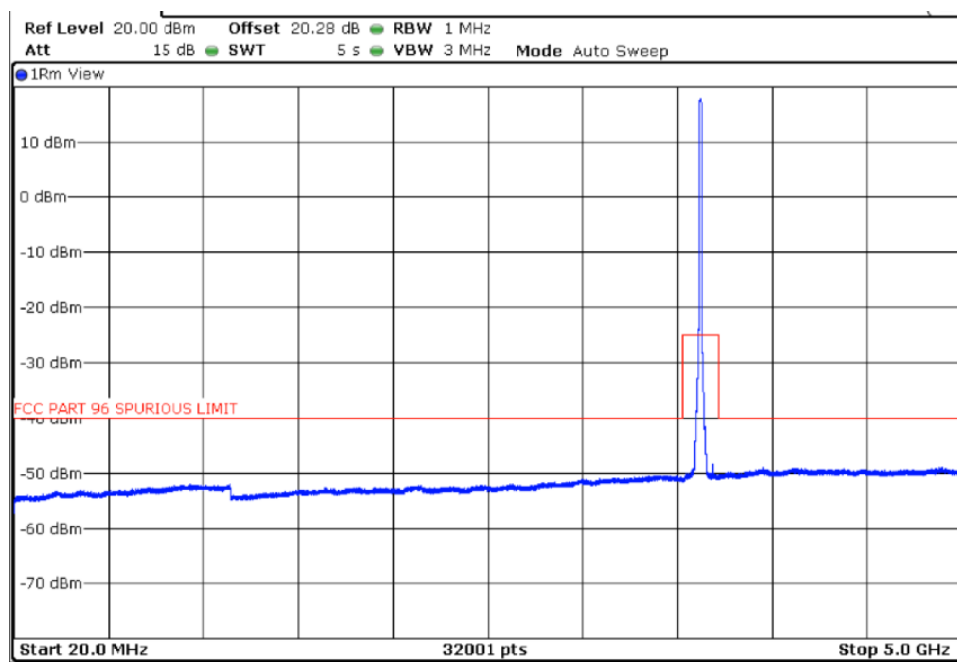
**TEST RESULTS (Cont.):**

**FREQUENCY RANGE 21-37 GHz**



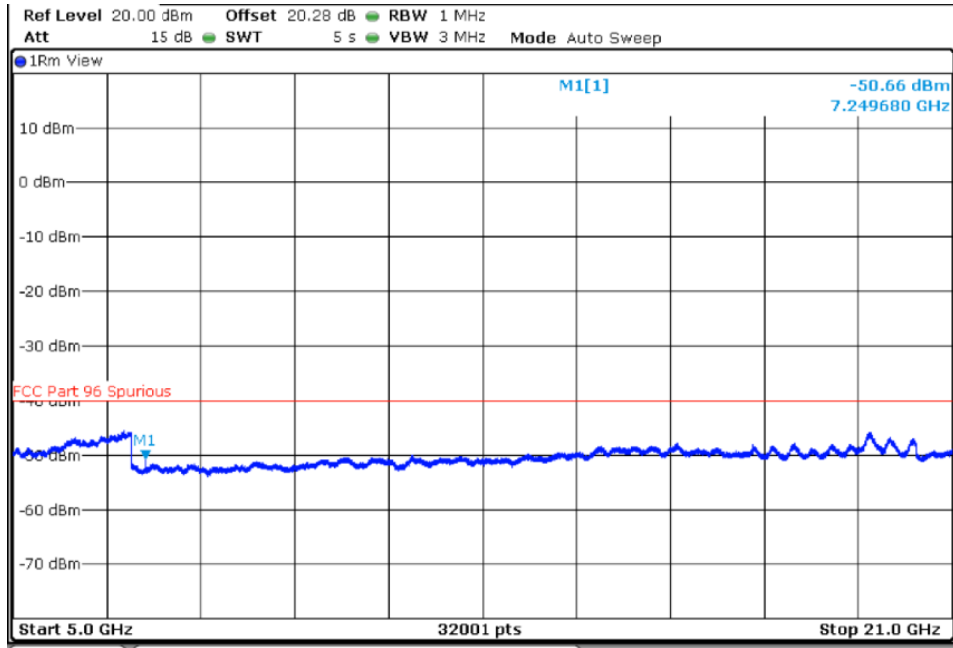
**Middle Channel (3625 MHz)**

**FREQUENCY RANGE 20 MHz-5 GHz**

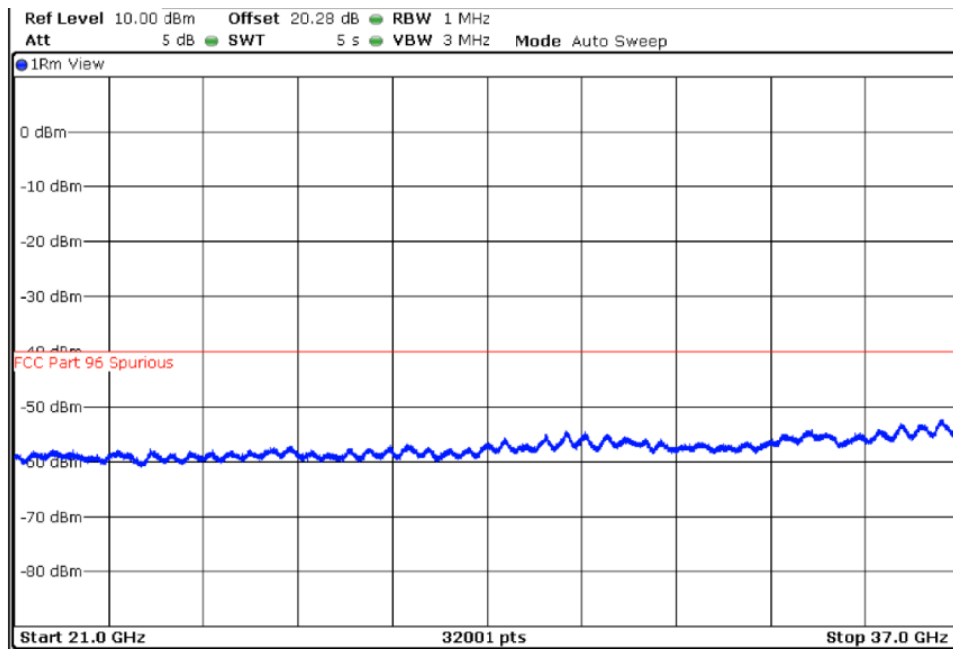


**TEST RESULTS (Cont.):**

**FREQUENCY RANGE 5-21 GHz**



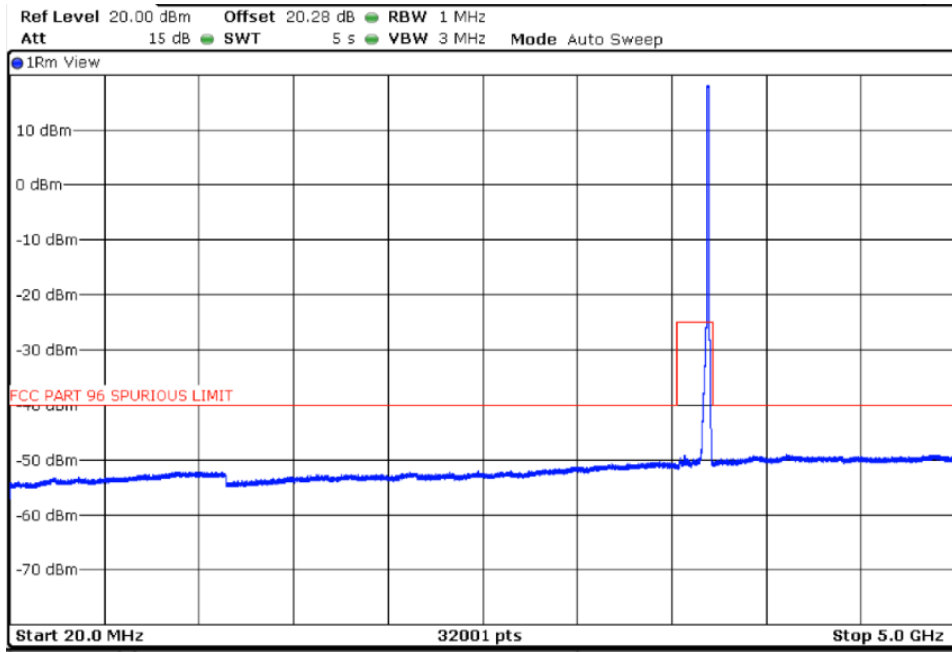
**FREQUENCY RANGE 21-37 GHz**



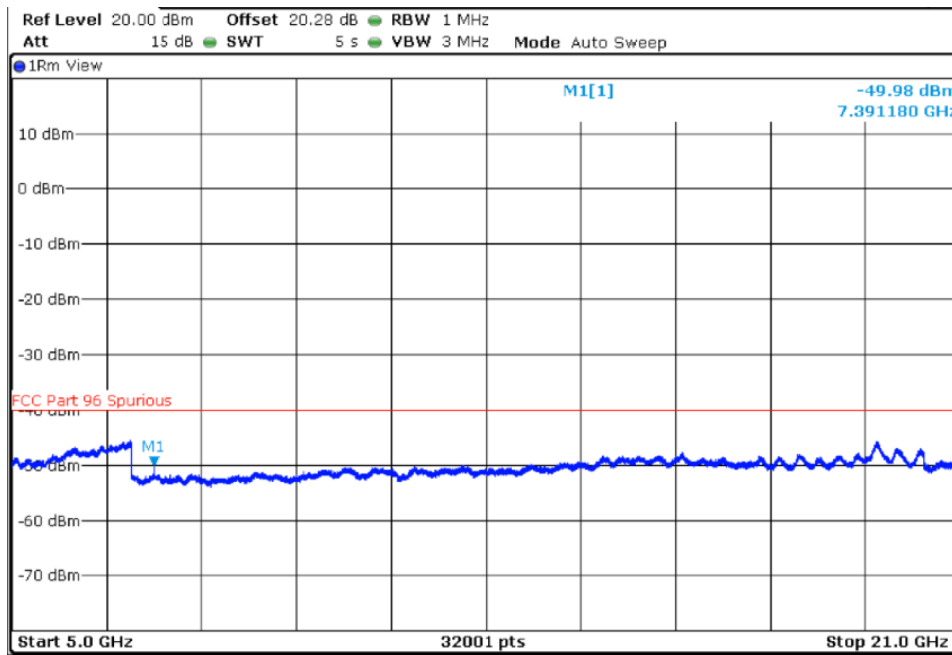
**TEST RESULTS (Cont.):**

**Highest Channel (3695 MHz)**

FREQUENCY RANGE 20 MHz-5 GHz

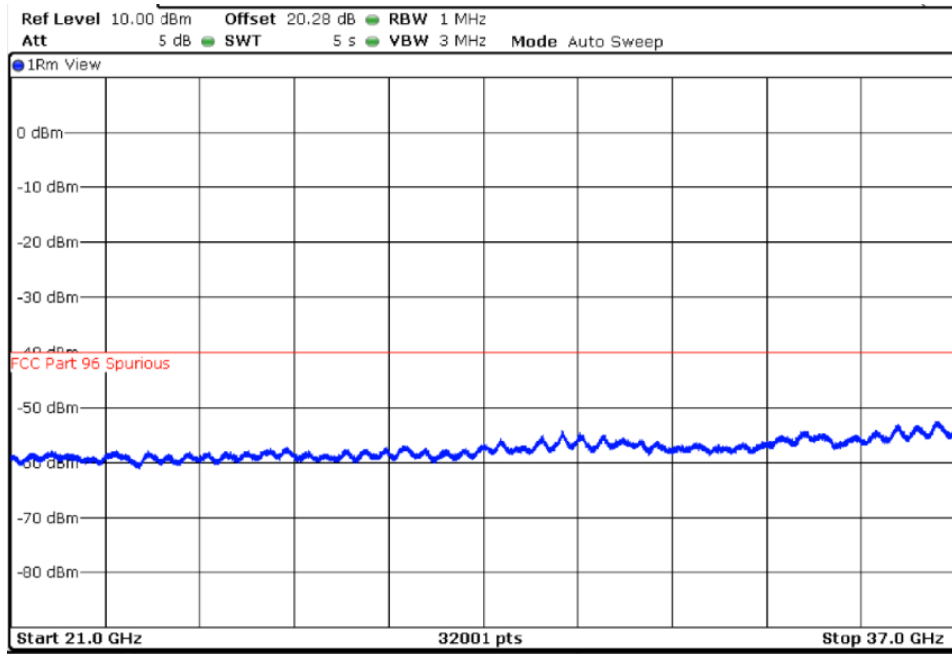


FREQUENCY RANGE 5-21 GHz



**TEST RESULTS (Cont.):**

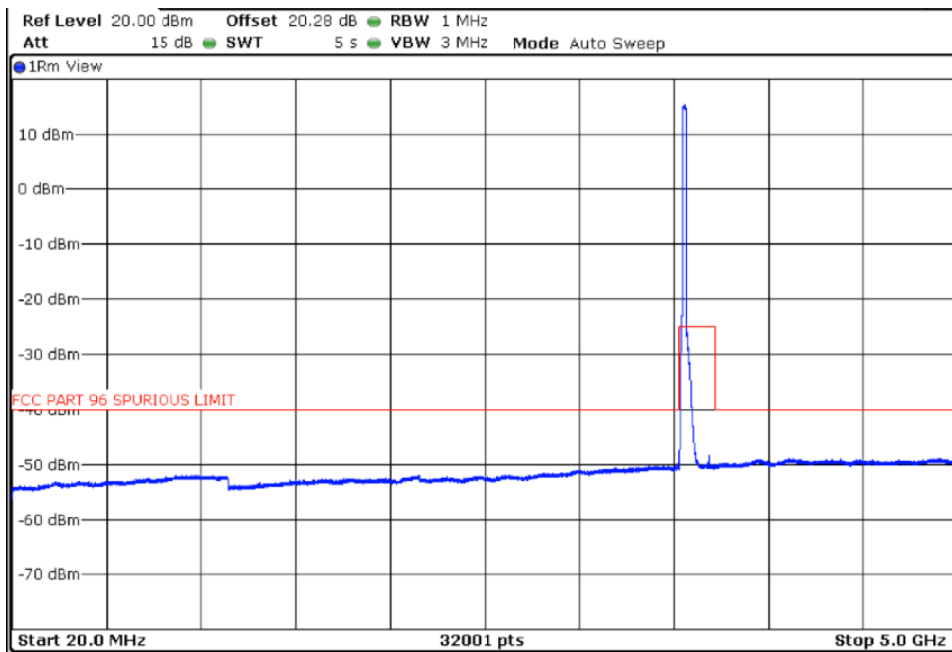
**FREQUENCY RANGE 21-37 GHz**



**20 MHz BW**

**Lowest Channel (3560 MHz)**

**FREQUENCY RANGE 20 MHz-5 GHz**

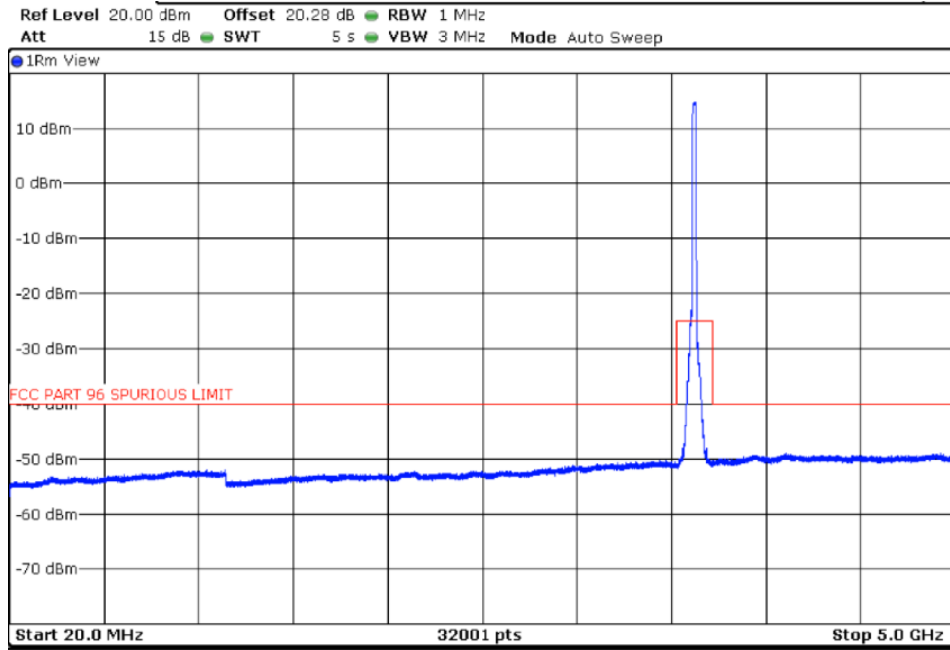




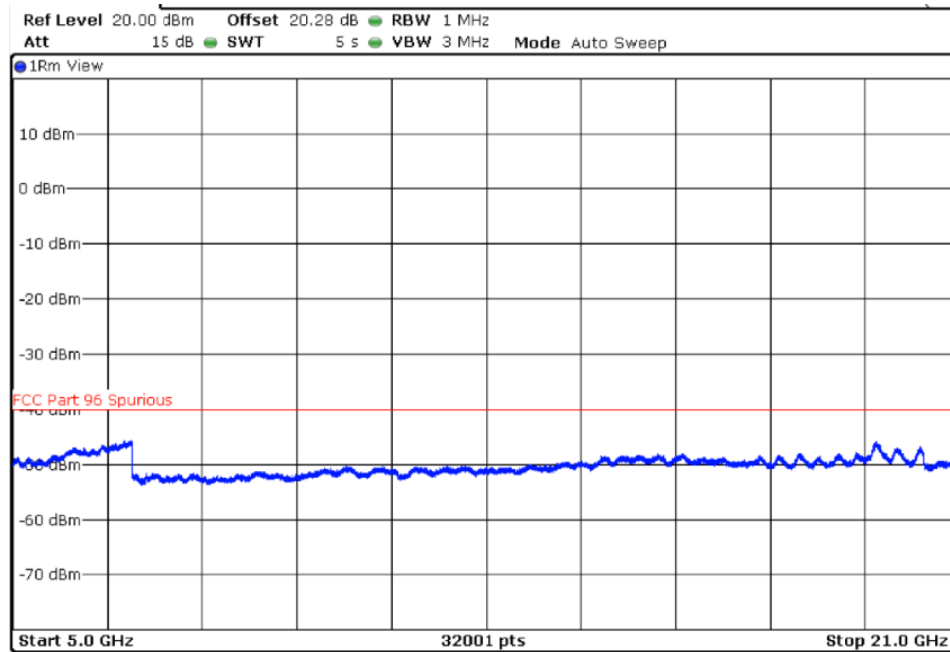
TEST RESULTS (Cont.):

Middle Channel (3625 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

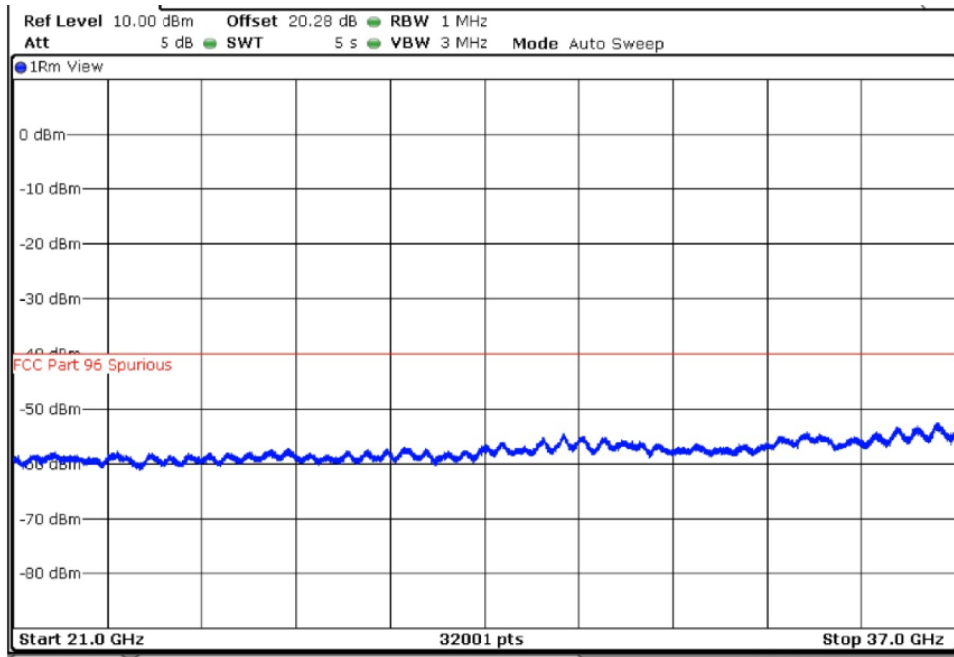


FREQUENCY RANGE 5-21 GHz



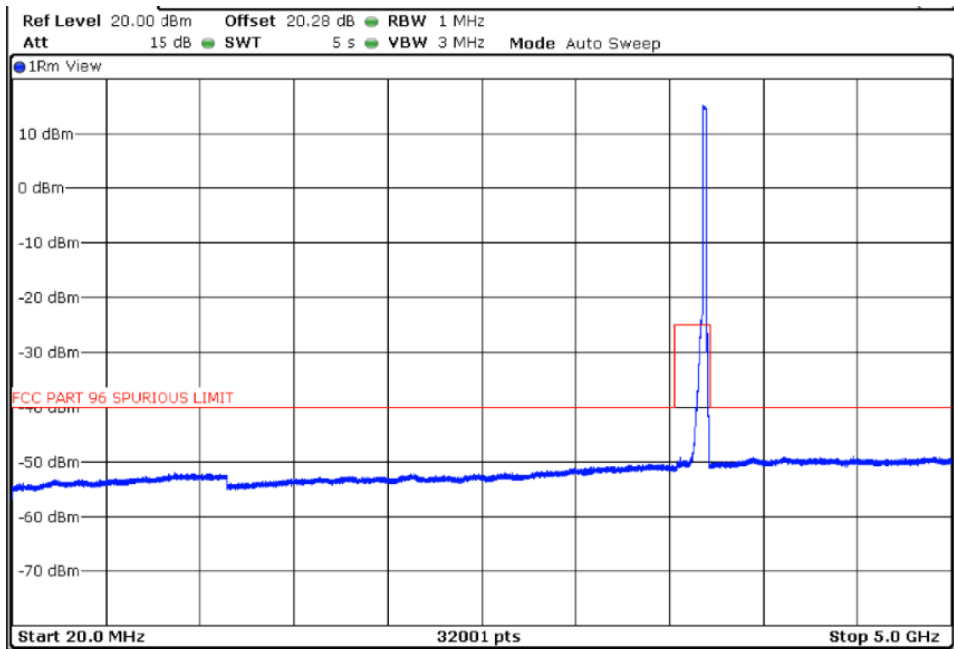
**TEST RESULTS (Cont.):**

**FREQUENCY RANGE 21-37 GHz**



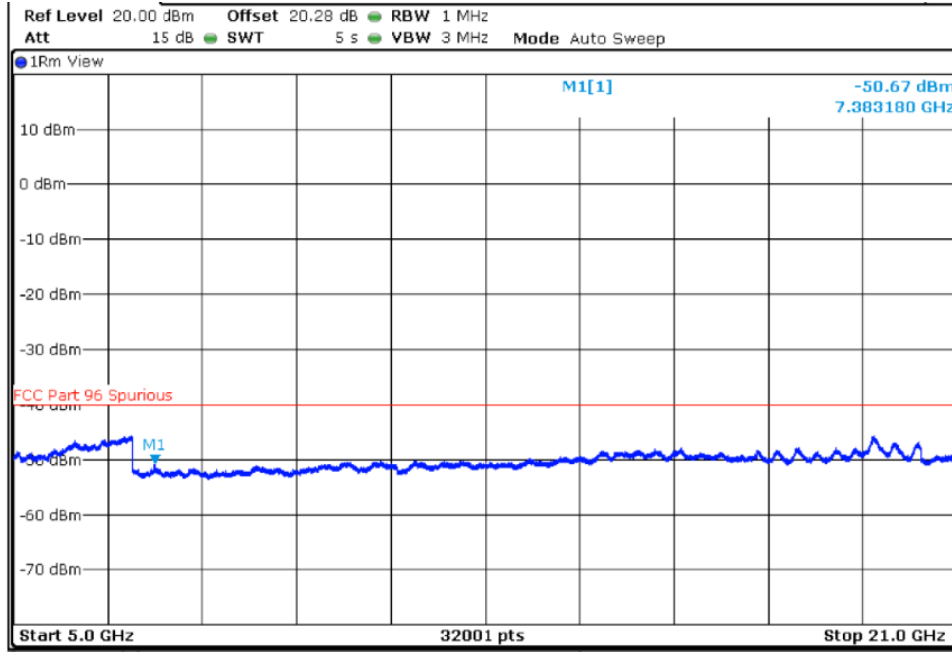
**Highest Channel (3690 MHz)**

**FREQUENCY RANGE 20 MHz-5 GHz**

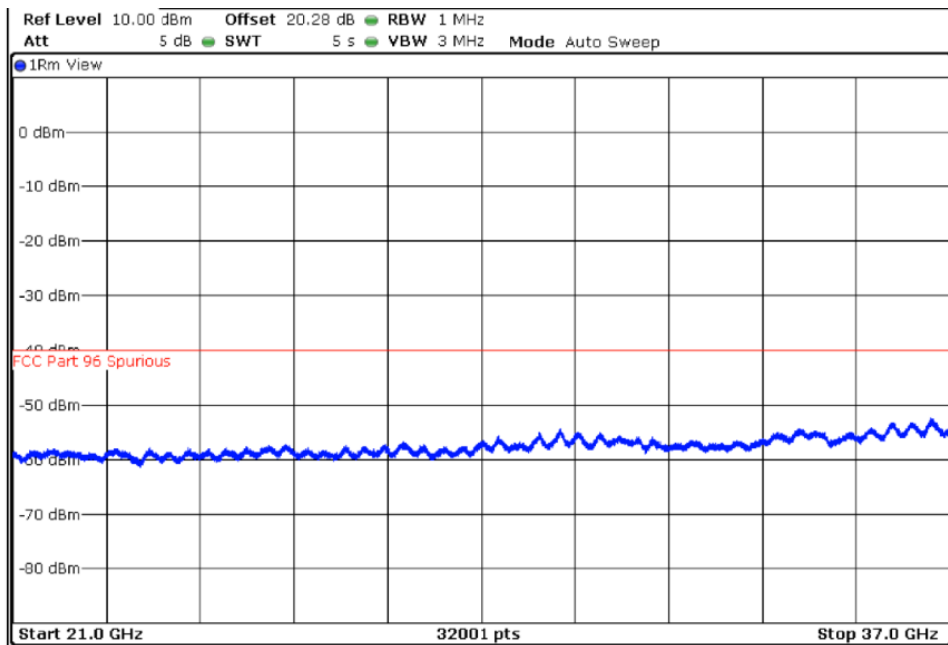


TEST RESULTS (Cont.):

FREQUENCY RANGE 5-21 GHz



FREQUENCY RANGE 21-37 GHz





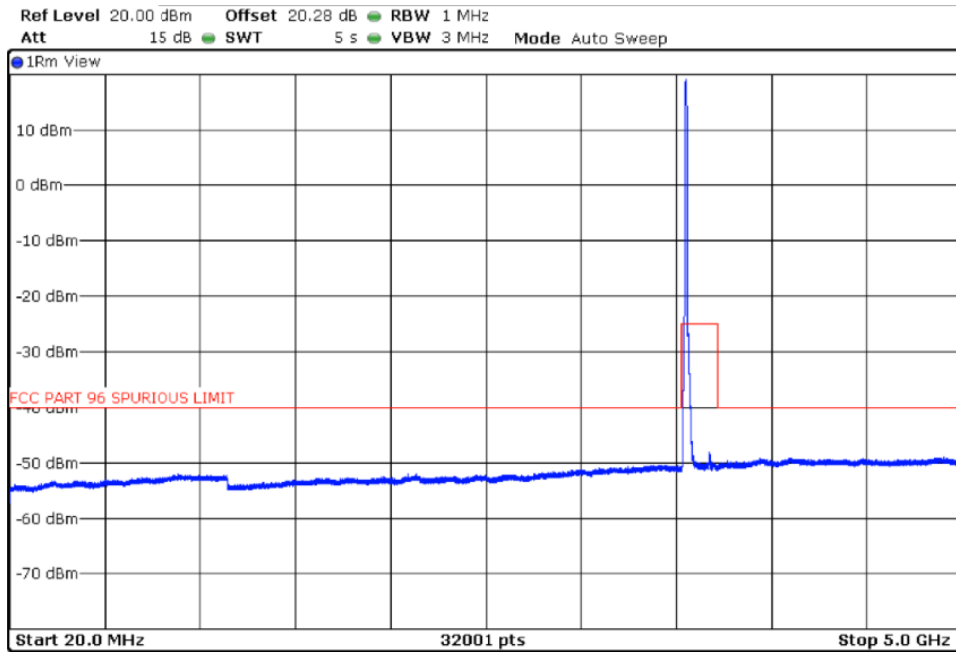
**TEST RESULTS (Cont.):**

**Port 2:**

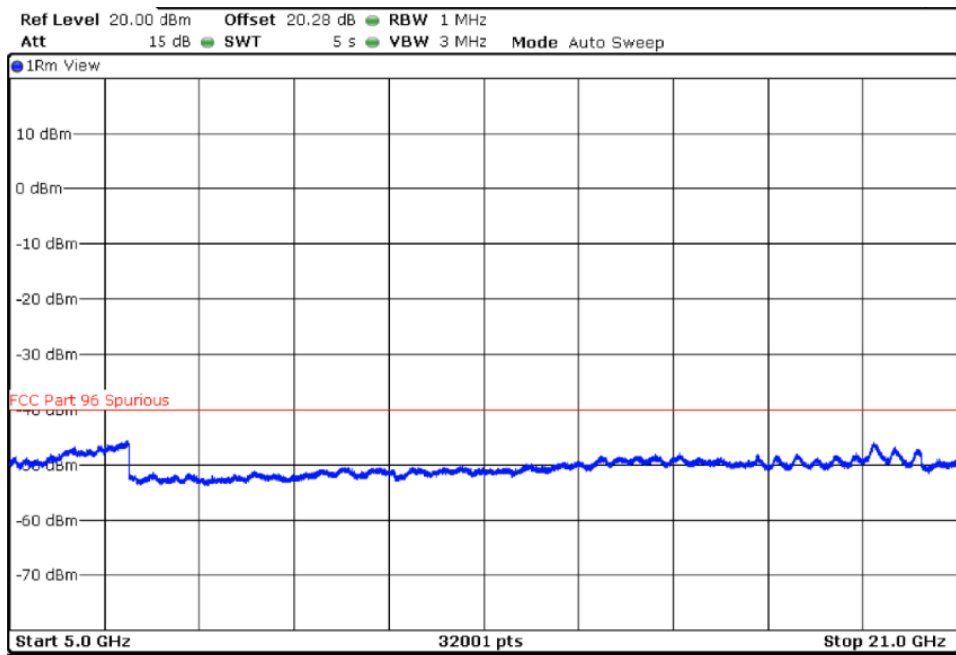
**10MHz BW**

**Lowest Channel (3555 MHz)**

**FREQUENCY RANGE 20 MHz-5 GHz**

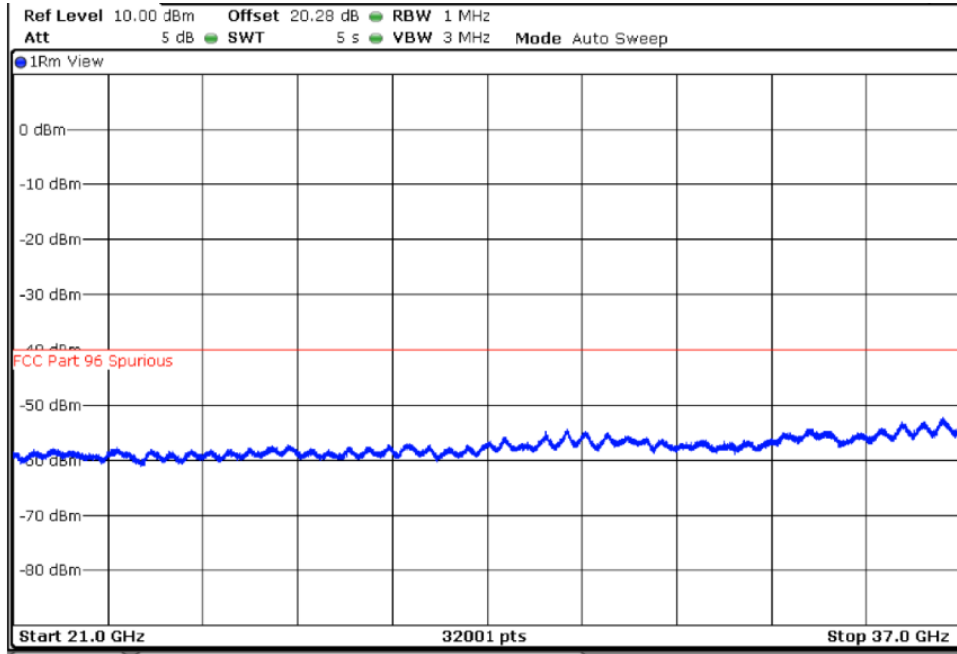


**FREQUENCY RANGE 5-21 GHz**



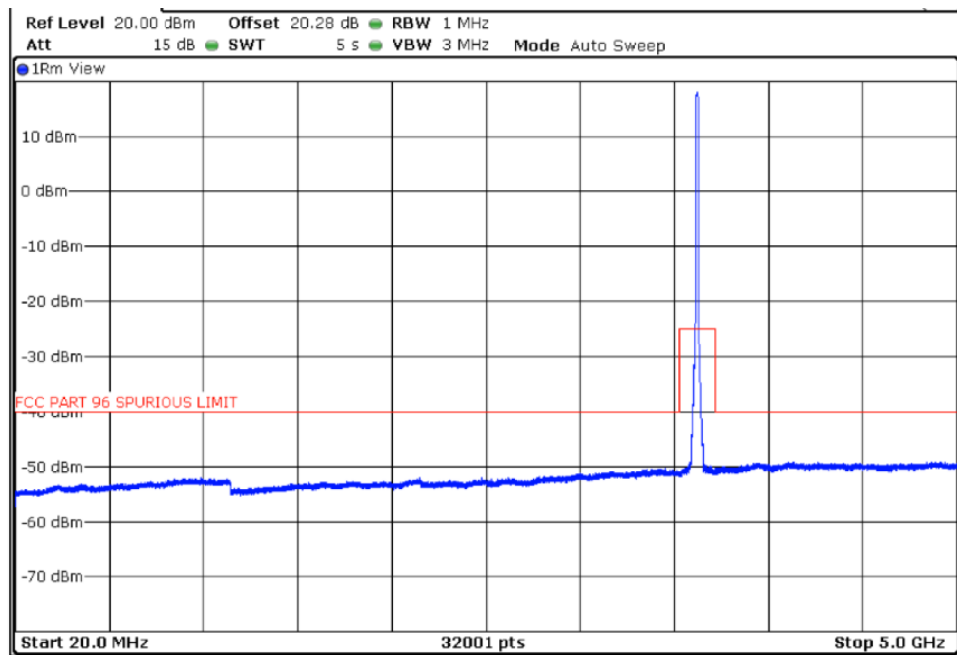
**TEST RESULTS (Cont.):**

FREQUENCY RANGE 21-37 GHz



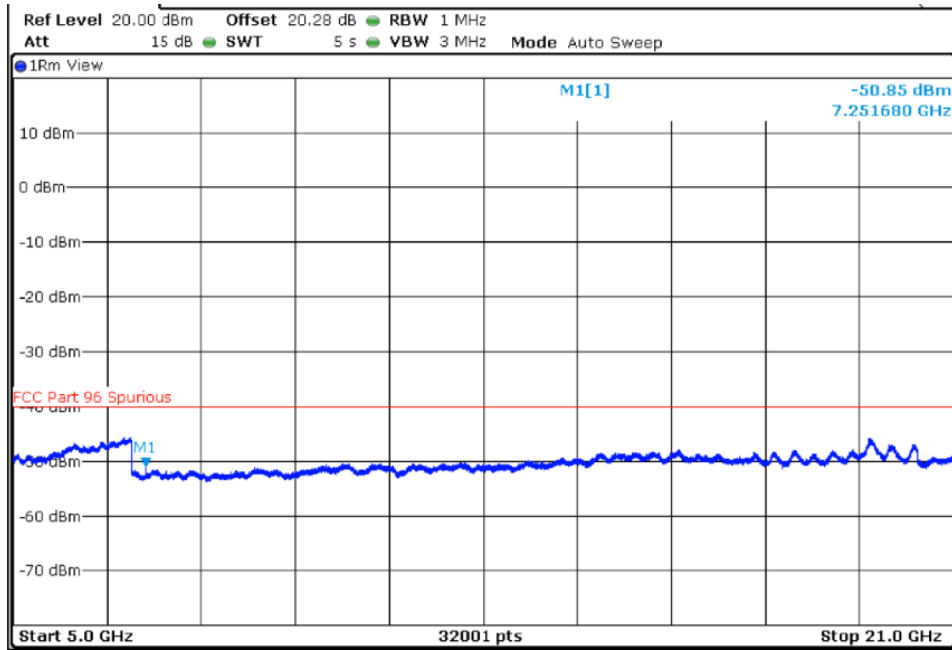
**Middle Channel (3625 MHz)**

FREQUENCY RANGE 20 MHz-5 GHz

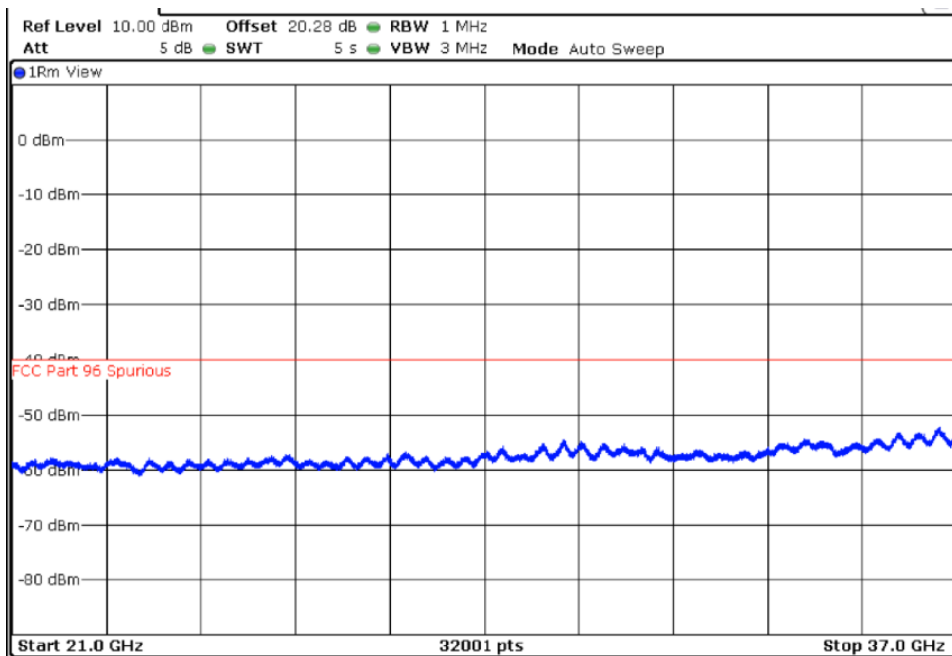


**TEST RESULTS (Cont.):**

**FREQUENCY RANGE 5-21 GHz**



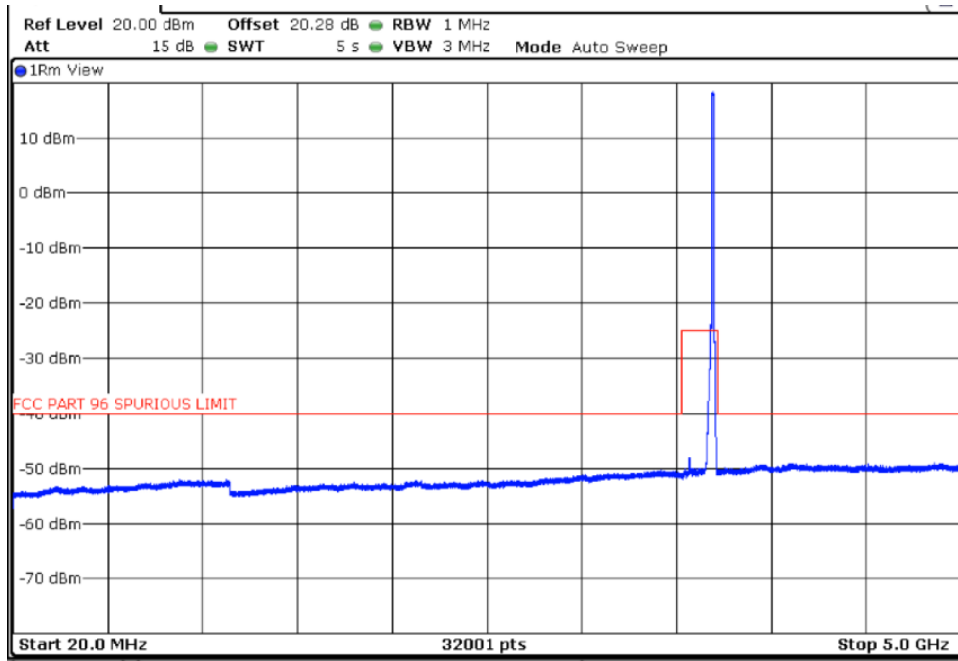
**FREQUENCY RANGE 21-37 GHz**



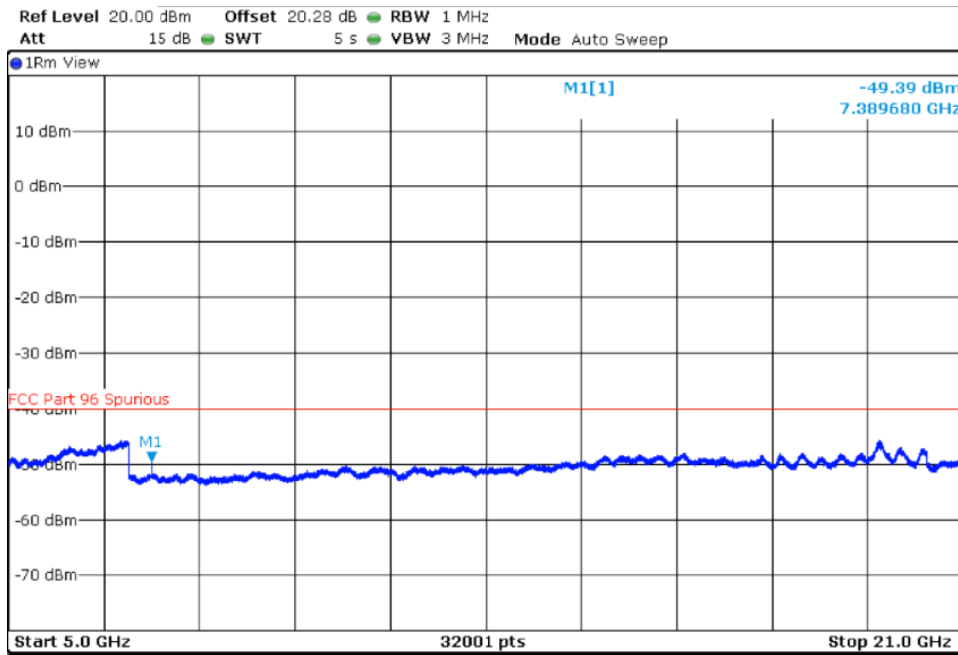
**TEST RESULTS (Cont.):**

**Highest Channel (3695 MHz)**

FREQUENCY RANGE 20 MHz-5 GHz

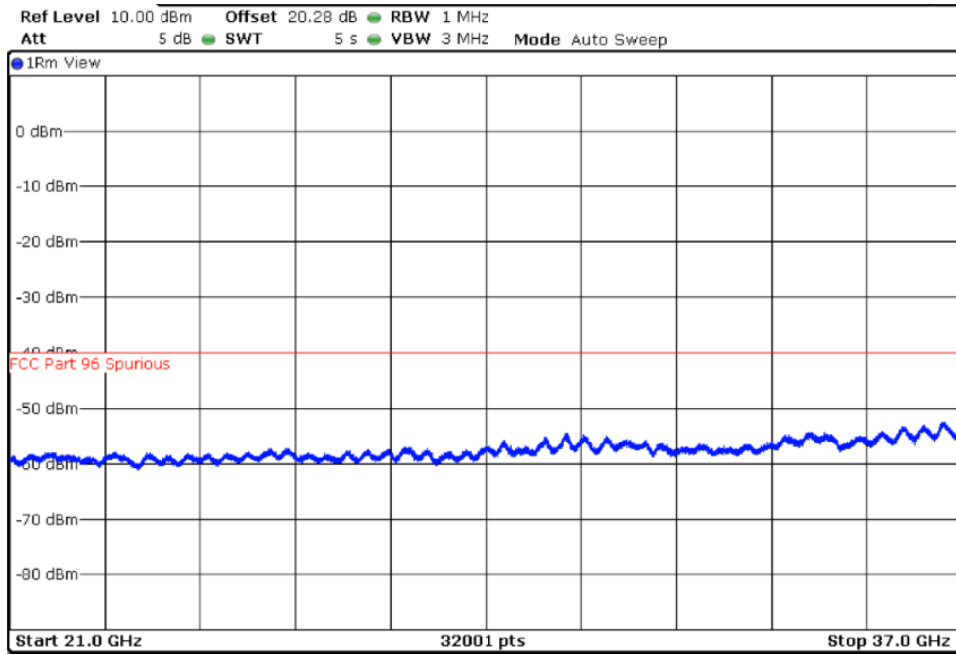


FREQUENCY RANGE 5-21 GHz



**TEST RESULTS (Cont.):**

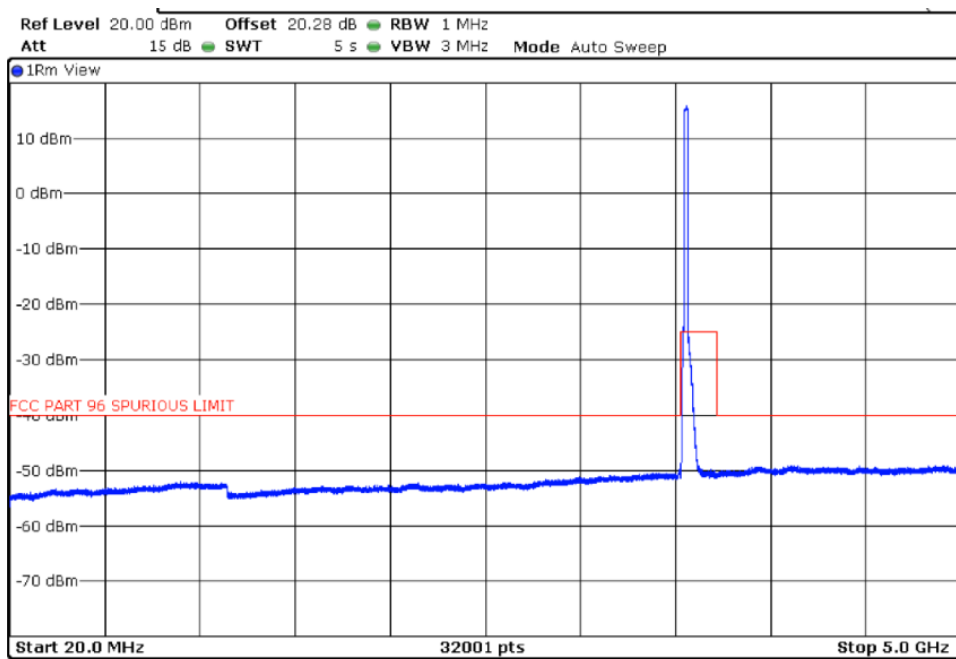
**FREQUENCY RANGE 21-37 GHz**



**20 MHz BW**

**Lowest Channel (3560 MHz)**

**FREQUENCY RANGE 20 MHz-5 GHz**

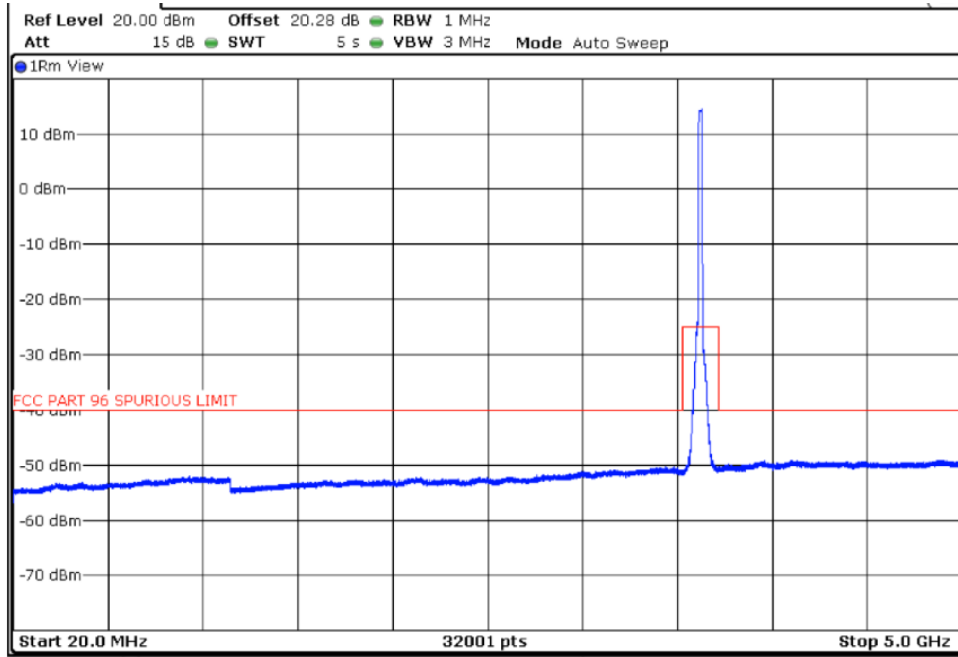




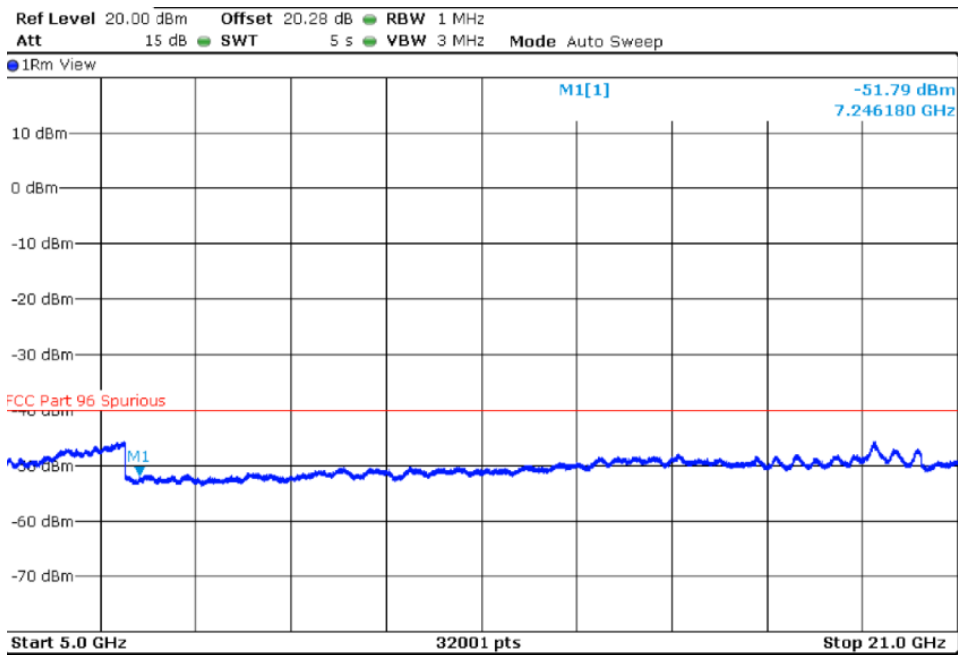
TEST RESULTS (Cont.):

Middle Channel (3625 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

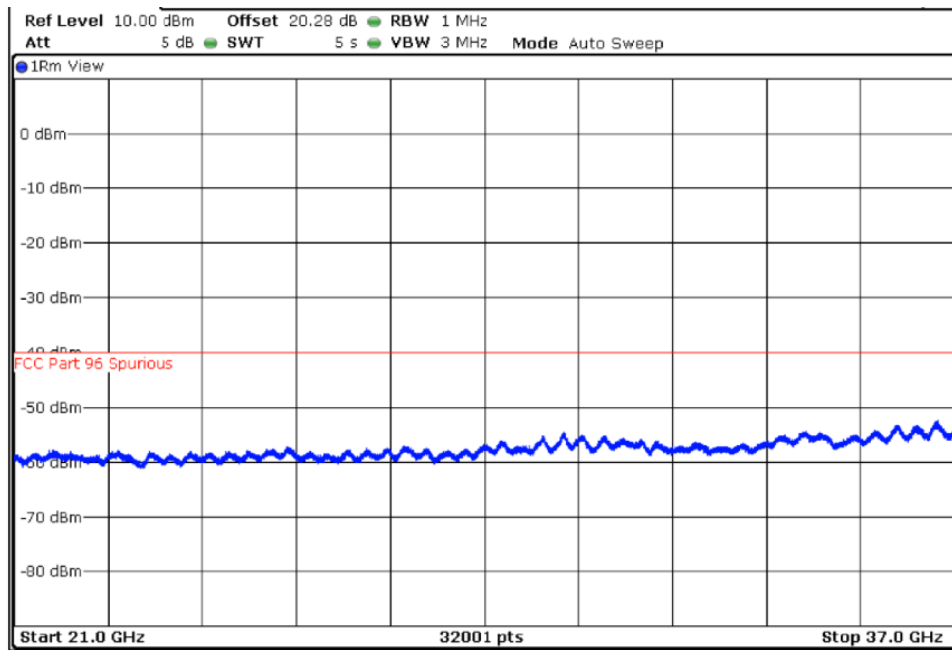


FREQUENCY RANGE 5-21 GHz



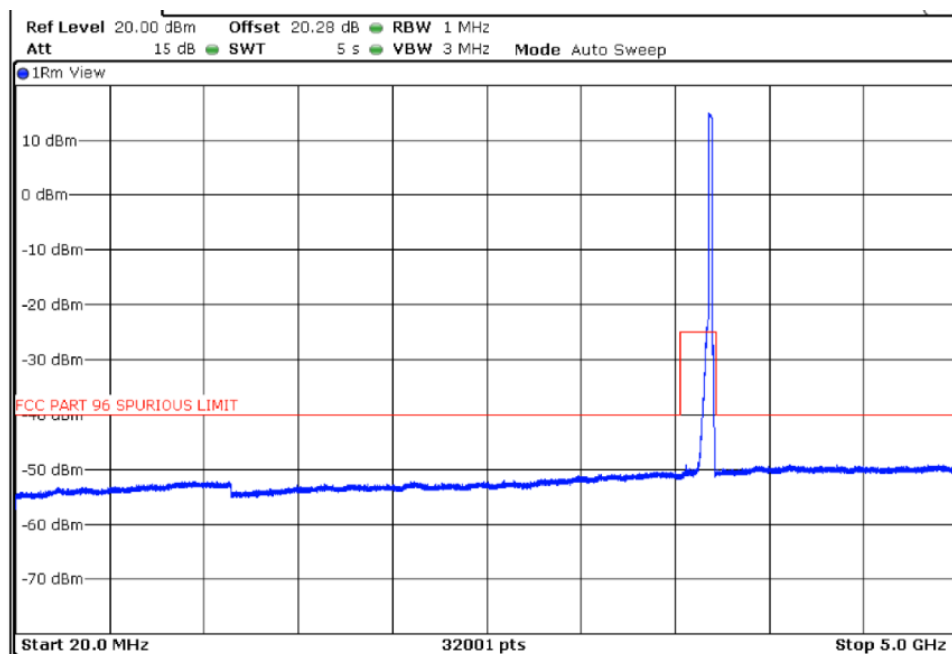
**TEST RESULTS (Cont.):**

**FREQUENCY RANGE 21-37 GHz**



**Highest Channel (3690 MHz)**

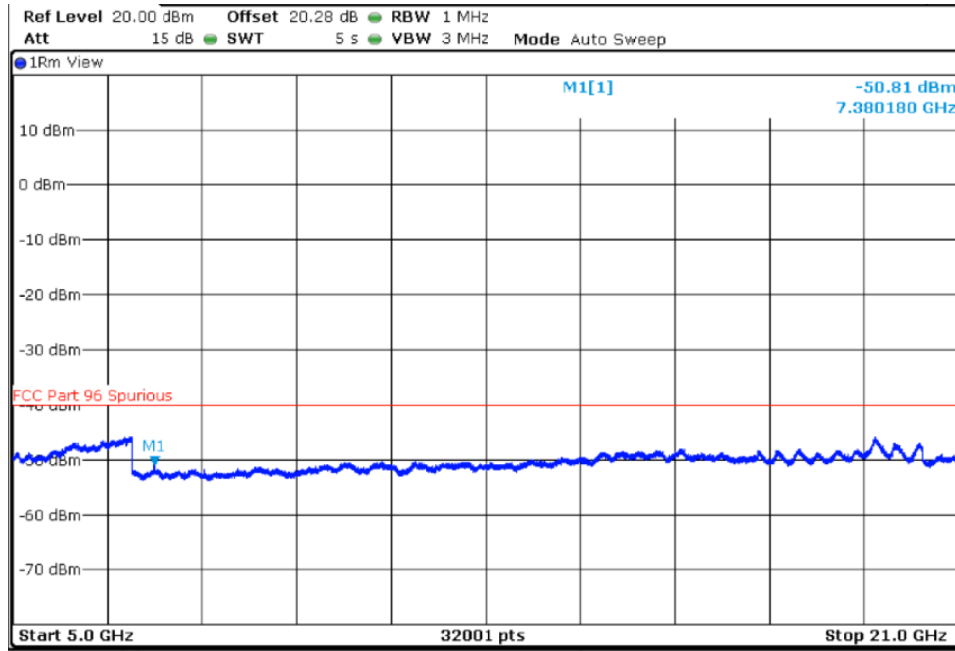
**FREQUENCY RANGE 20 MHz-5 GHz**



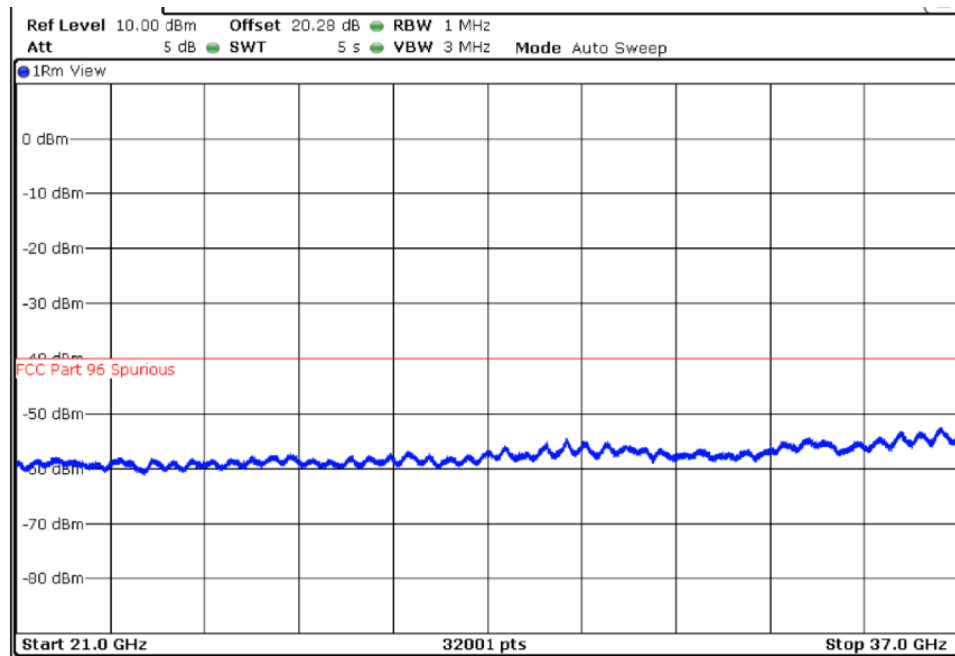


**TEST RESULTS (Cont.):**

**FREQUENCY RANGE 5-21 GHz**



**FREQUENCY RANGE 21-37 GHz**



## TEST A.8: RADIATED SPURIOUS EMISSION

<b>LIMITS:</b>	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  $\leq 70.2 \text{ dB}\mu\text{V/m}$  (-25 dBm/MHz: conducted limit)
- any emission below 3530 MHz and above 3720 MHz  $\leq 55.2 \text{ dB}\mu\text{V/m}$  (-40 dBm/MHz: conducted limit)

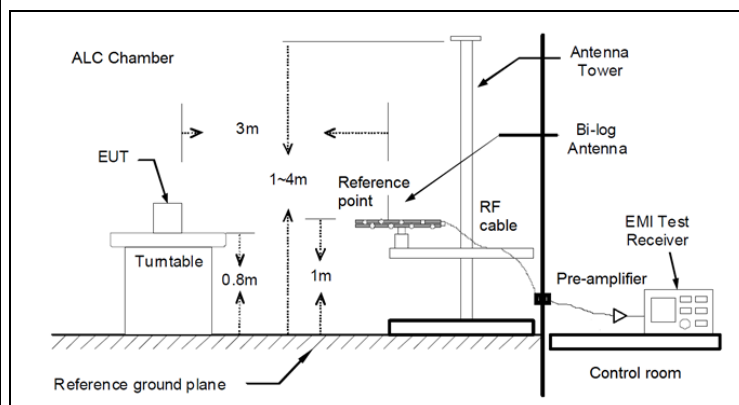
### TEST SETUP

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

For radiated emissions in the range 1-40 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

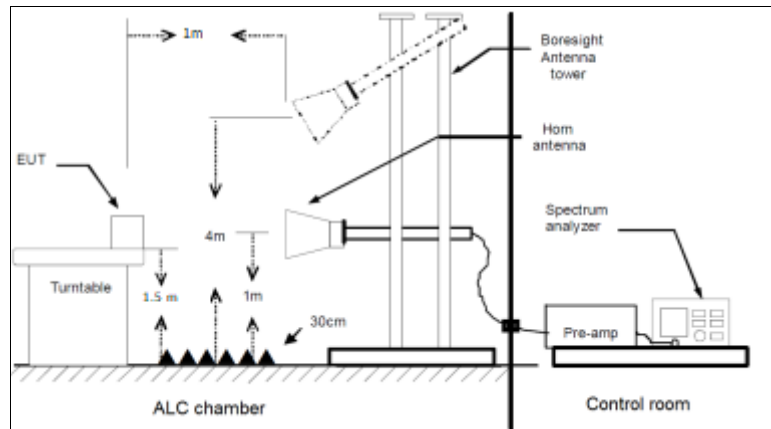
Detected emissions were maximized at each frequency by rotating the EUT and adjusting the measuring antenna height and polarization. The maximum meter reading was recorded. The radiated emissions were measured with RMS detector.

### Radiated measurements Setup $f < 1 \text{ GHz}$



### TEST SETUP (Cont.)

#### Radiated measurements setup $f > 1$ GHz



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 =  $10 \log (1/0.68) = 1.67$  (dB)

The following measurements were performed at 3-meter distance when two ports transmitting at the same time in 2X2 MIMO mode and the spurious emissions and plots of worst cases are shown below.

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

**Frequency range 30 MHz – 1000 MHz**

**10 MHz BW**

Lowest Channel (3555 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
66.181000	RMS	38.11	V	± 4.87
111.480000	RMS	36.54	V	
499.868000	RMS	36.42	V	

Middle Channel (3625 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
66.181000	RMS	37.78	V	± 4.87
99.743000	RMS	38.64	V	
444.384000	RMS	32.37	V	
500.159000	RMS	36.31	H	

High Channel (3695 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
64.629000	RMS	38.63	V	± 4.87
81.313000	RMS	37.01	V	
500.062000	RMS	34.90	V	

**20 MHz BW**

Lowest Channel (3560 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
64.241000	RMS	38.98	V	± 4.87
81.313000	RMS	38.41	V	
499.965000	RMS	34.75	V	

Middle Channel (3625 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
63.077000	RMS	40.85	V	± 4.87
96.736000	RMS	37.18	V	
499.771000	RMS	34.98	V	

High Channel (3690 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
62.980000	RMS	40.05	V	± 4.87
81.216000	RMS	37.55	V	
499.965000	RMS	35.07	V	

**TEST RESULTS (Cont.):**

**Frequency range 1GHz – 18GHz**

**10 MHz BW**

Lowest Channel (3555 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
5124.857143	RMS	38.21	V	± 4.87
10515.696429	RMS	37.25	V	

Middle Channel (3625 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
6975.321429	RMS	46.16	V	± 4.87
12329.517857	RMS	38.19	V	

High Channel (3695 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
5111.357143	RMS	38.38	V	± 4.87
12277.928572	RMS	38.00	V	

**Frequency range 1 GHz – 18GHz**

**20 MHz BW**

Lowest Channel (3560 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
5129.678572	RMS	38.05	H	± 4.87
11786.142857	RMS	38.05	V	

Middle Channel (3625 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
5095.446429	RMS	37.83	V	± 4.87
12298.660714	RMS	38.28	V	

High Channel (3690 MHz)

Spurious Frequency (MHz)	Detector	Emission Level (dB $\mu$ V/m)	Polarization	Measurement Uncertainty (dB)
6413.625000	RMS	44.33	V	± 4.87
12278.892857	RMS	38.22	V	

**Frequency range 18 GHz – 40 GHz**

Radiated spurious signals detected were more than 10 dB below the reference limit for the lowest, middle and highest channels in all two BWs.

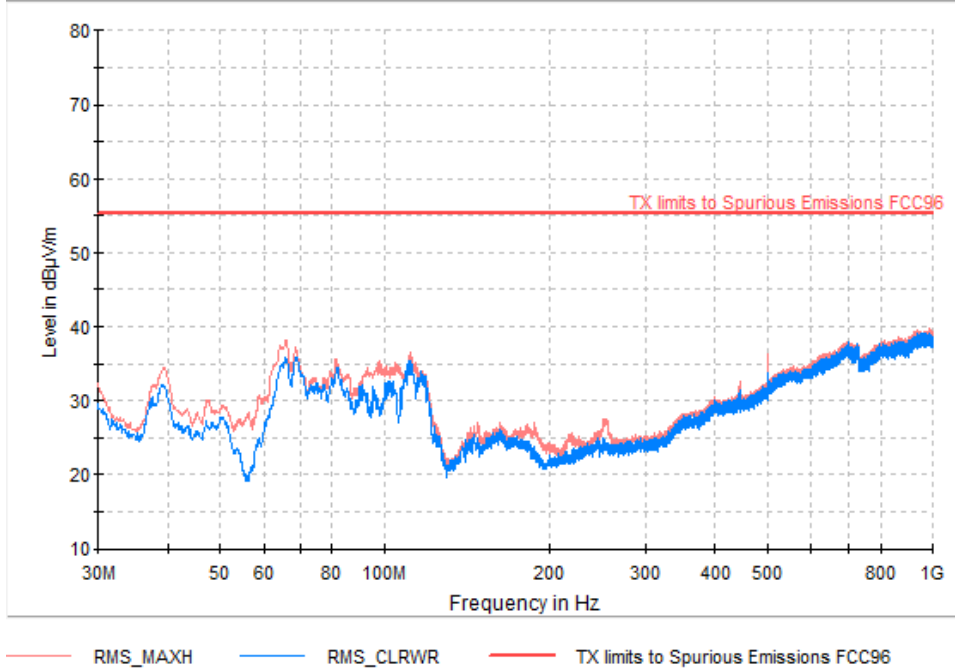
See plots below

**TEST RESULTS (Cont.):**

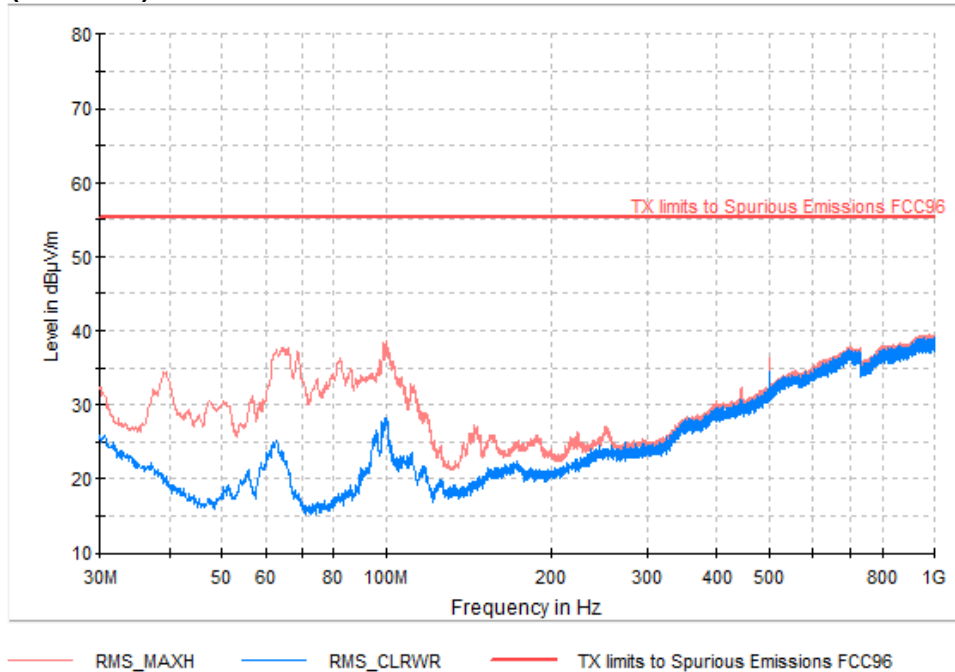
FREQUENCY RANGE 30 MHz-1 GHz

**10 MHz BW**

**Lowest Channel (3555 MHz)**

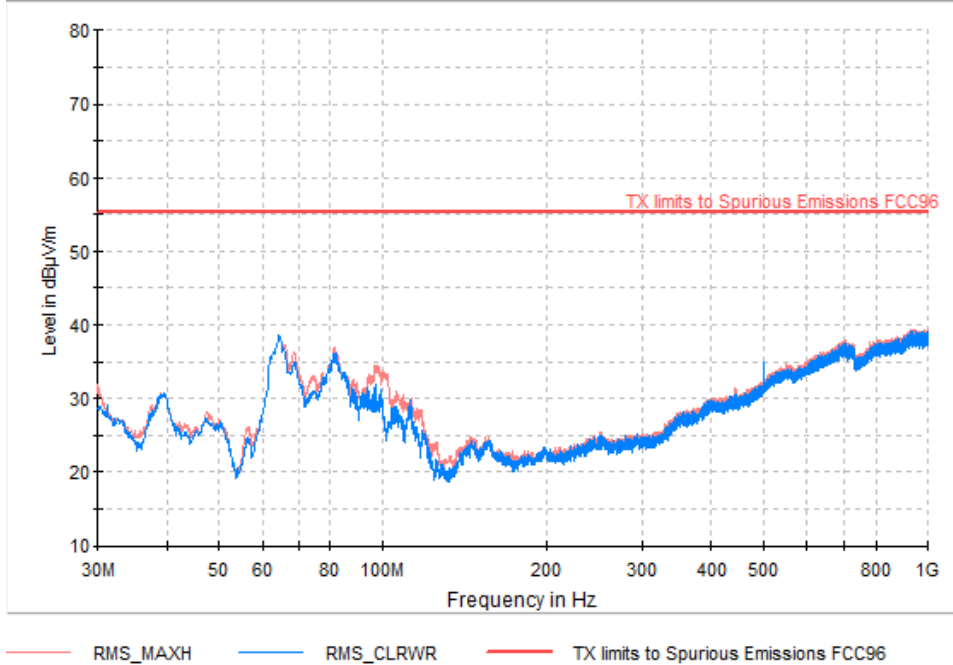


**Middle Channel (3625 MHz)**



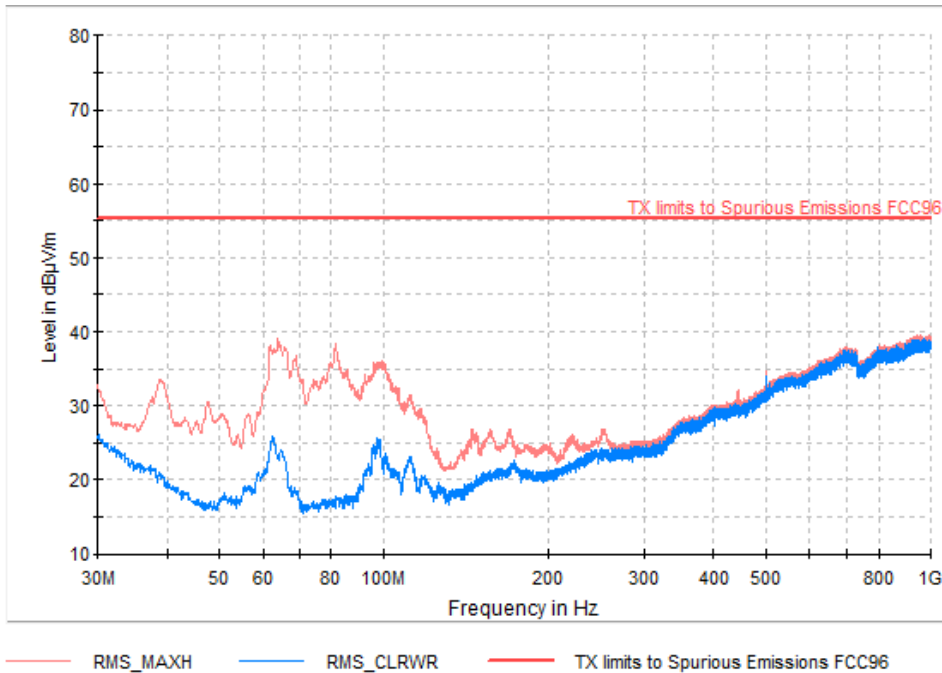
TEST RESULTS (Cont.):

Highest Channel (3695 MHz)



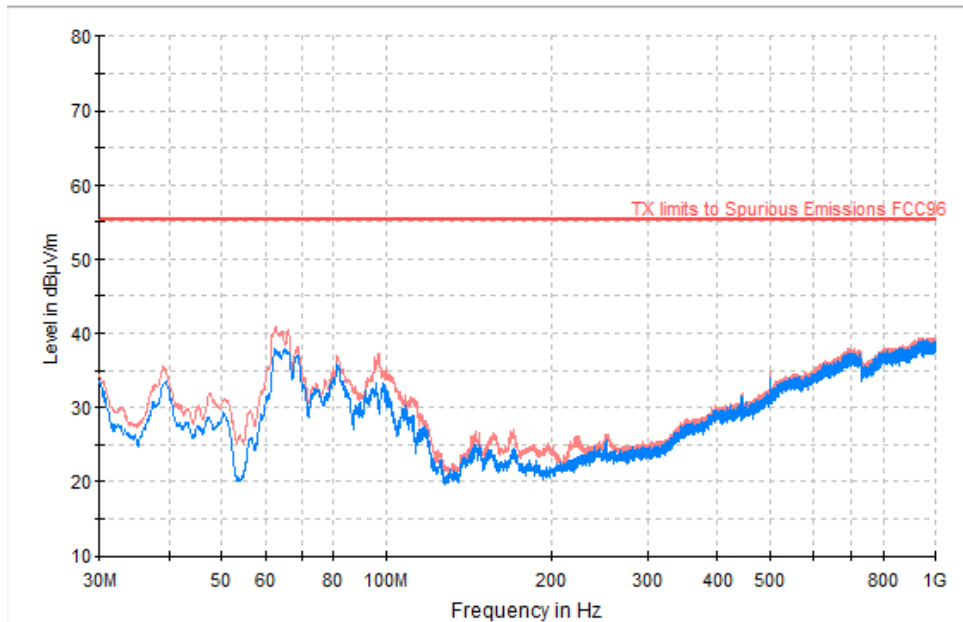
20 MHz BW

Lowest Channel (3560 MHz)



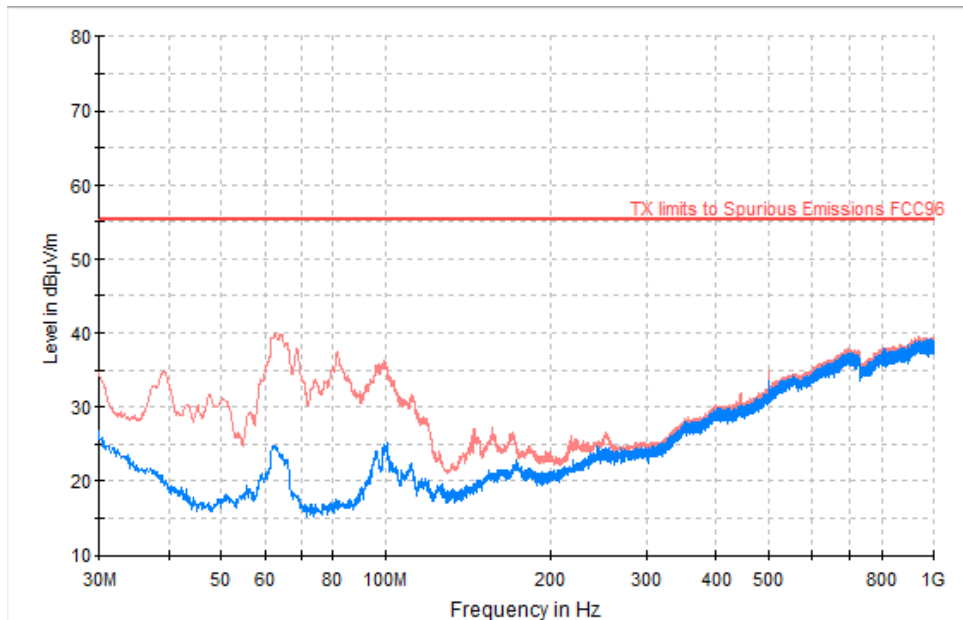
**TEST RESULTS (Cont.):**

**Middle Channel (3625 MHz)**



— RMS\_MAXH    — RMS\_CLRWR    — TX limits to Spurious Emissions FCC96

**Highest Channel (3690 MHz)**



— RMS\_MAXH    — RMS\_CLRWR    — TX limits to Spurious Emissions FCC96

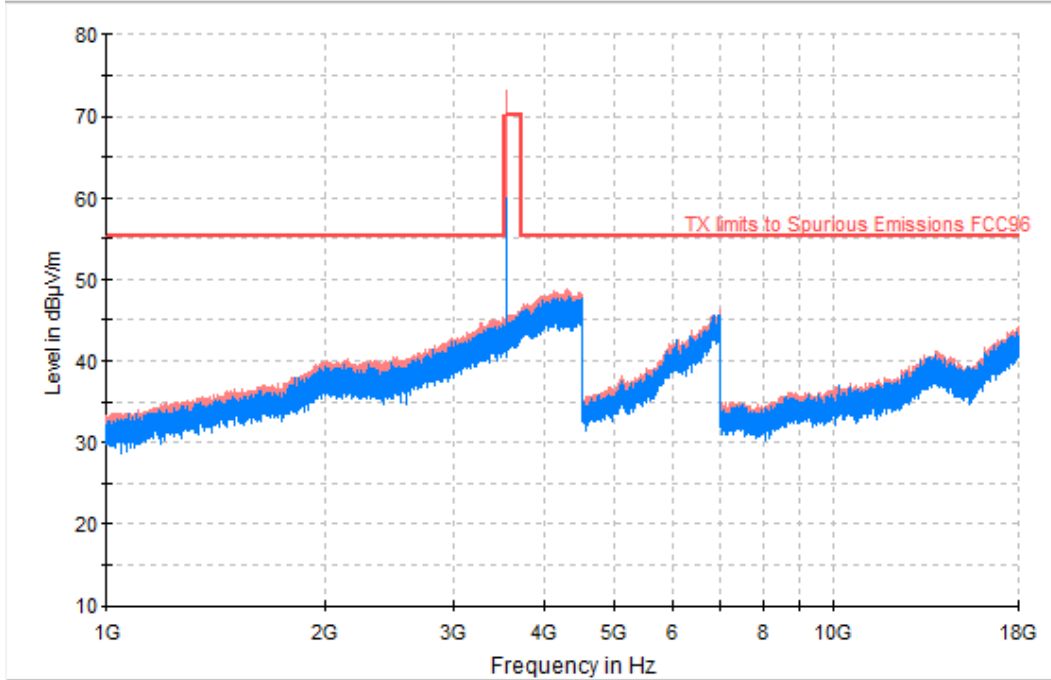


TEST RESULTS (Cont.):

FREQUENCY RANGE 1-18 GHz

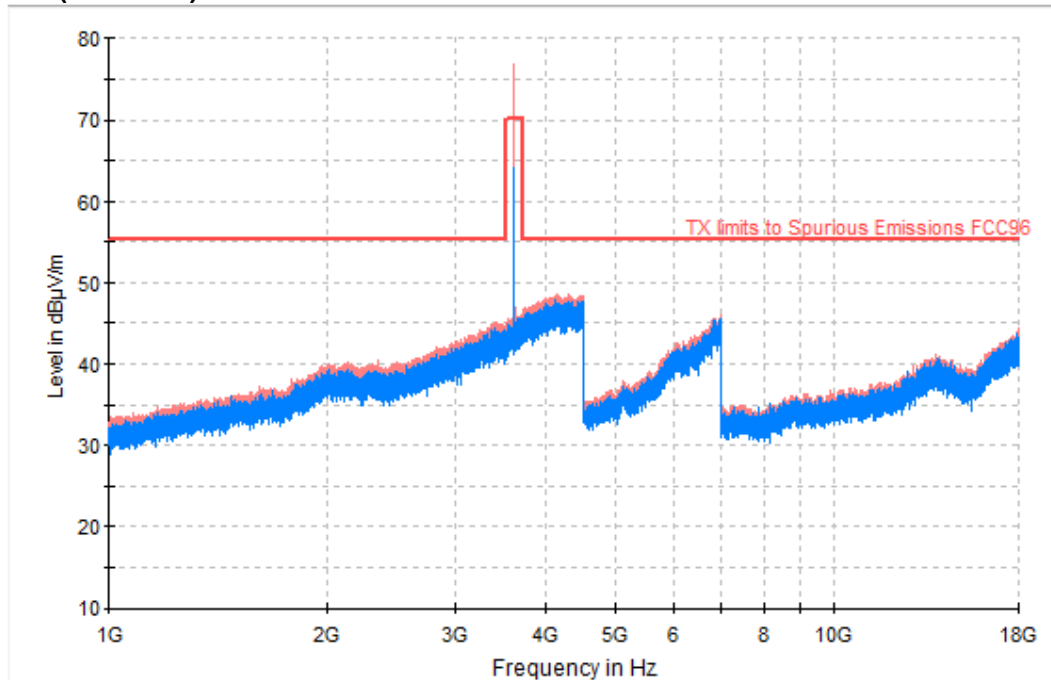
**10 MHz BW**

**Lowest Channel (3555 MHz)**



— RMS\_MAXH — RMS\_CLRWR — TX limits to Spurious Emissions FCC96

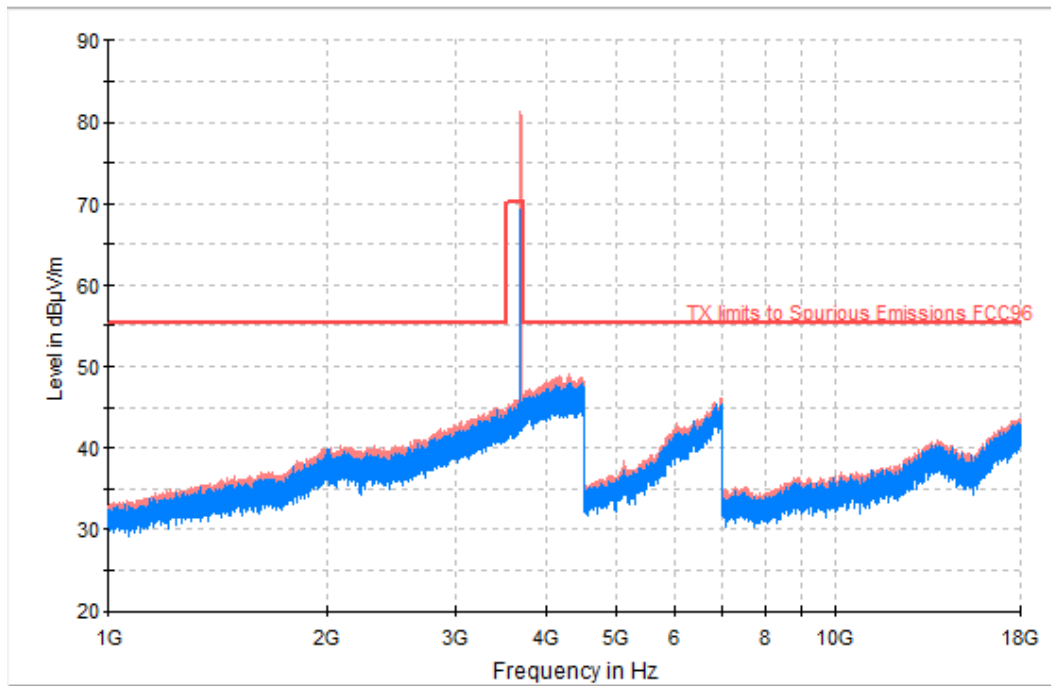
**Middle Channel (3625 MHz)**



— RMS\_MAXH — RMS\_CLRWR — TX limits to Spurious Emissions FCC96

TEST RESULTS (Cont.):

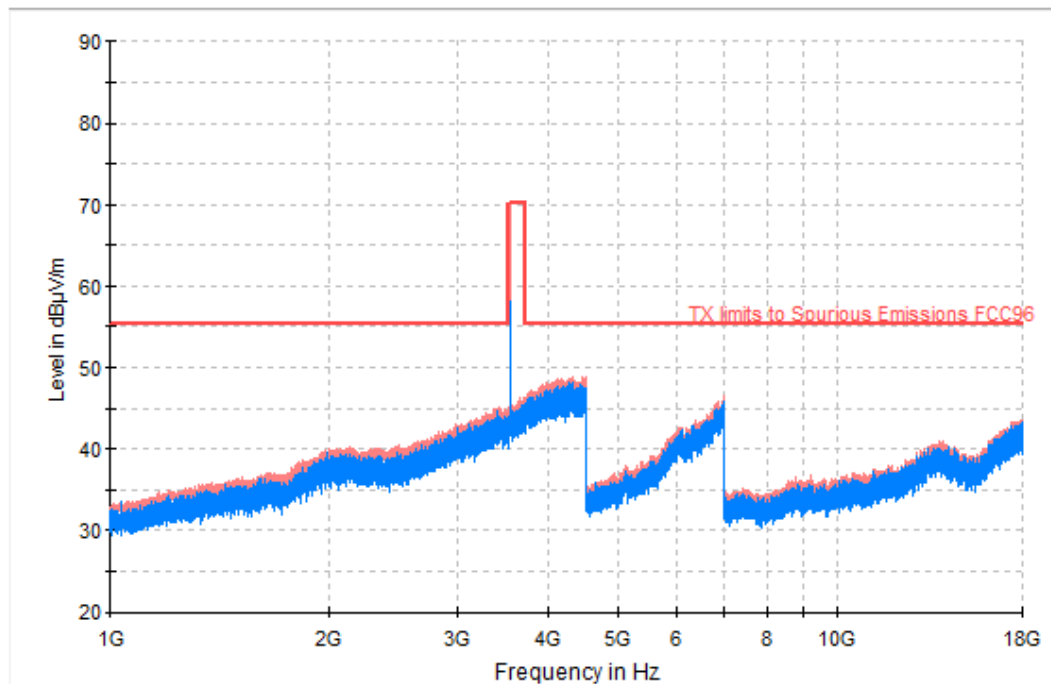
High Channel (3695 MHz)



— RMS\_MAXH    — RMS\_CLRWR    — TX limits to Spurious Emissions FCC96

**20 MHz BW**

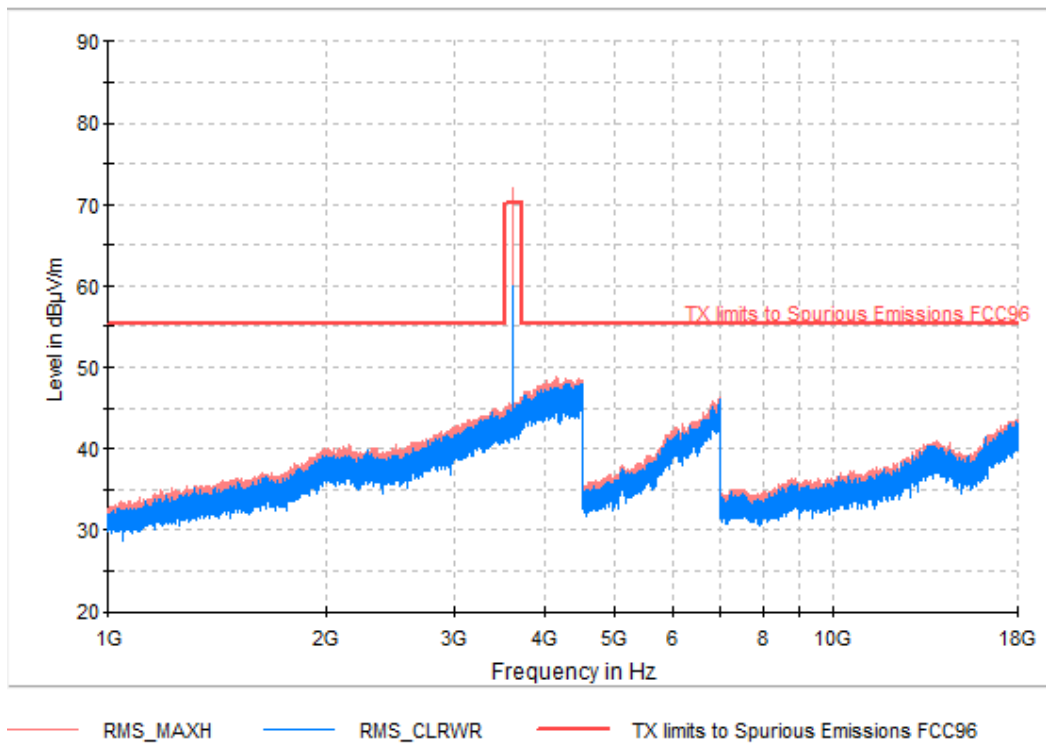
Lowest Channel (3560 MHz)



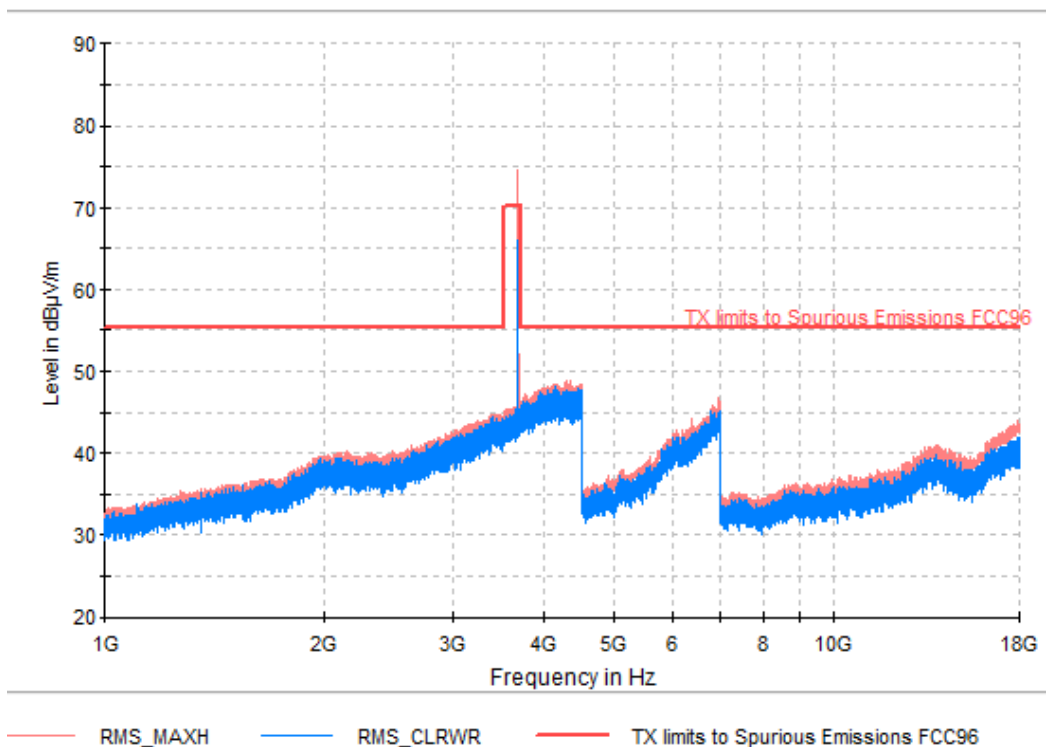
— RMS\_MAXH    — RMS\_CLRWR    — TX limits to Spurious Emissions FCC96

TEST RESULTS (Cont.):

**Middle Channel (3625 MHz)**



**High Channel (3690 MHz)**

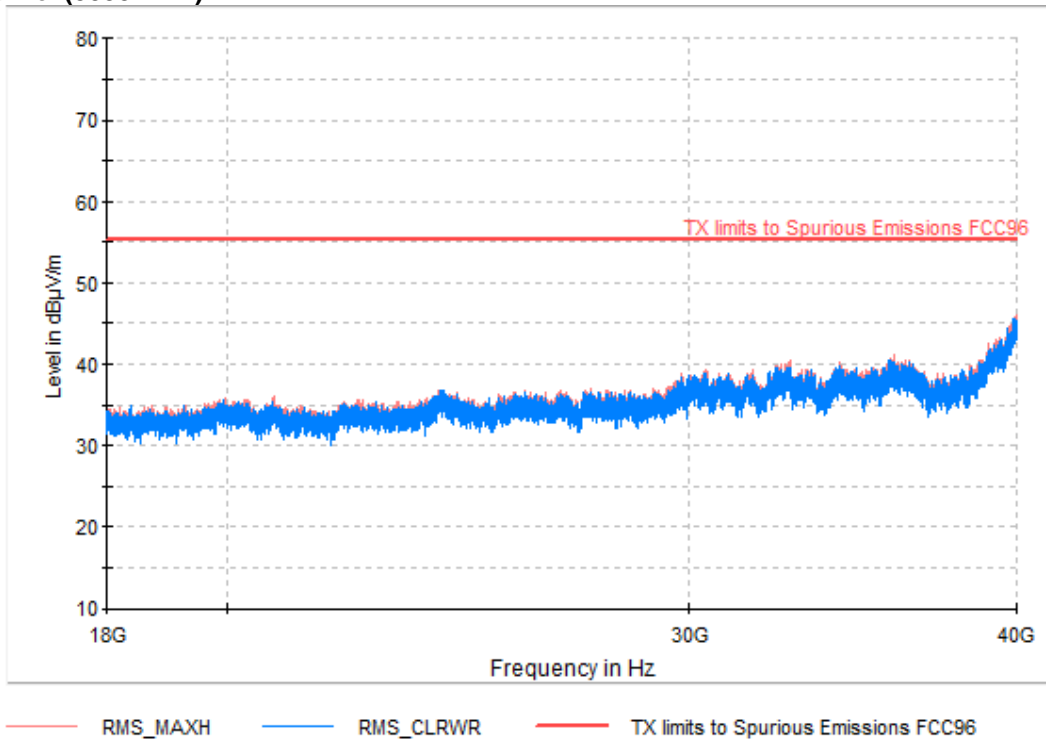


TEST RESULTS (Cont.):

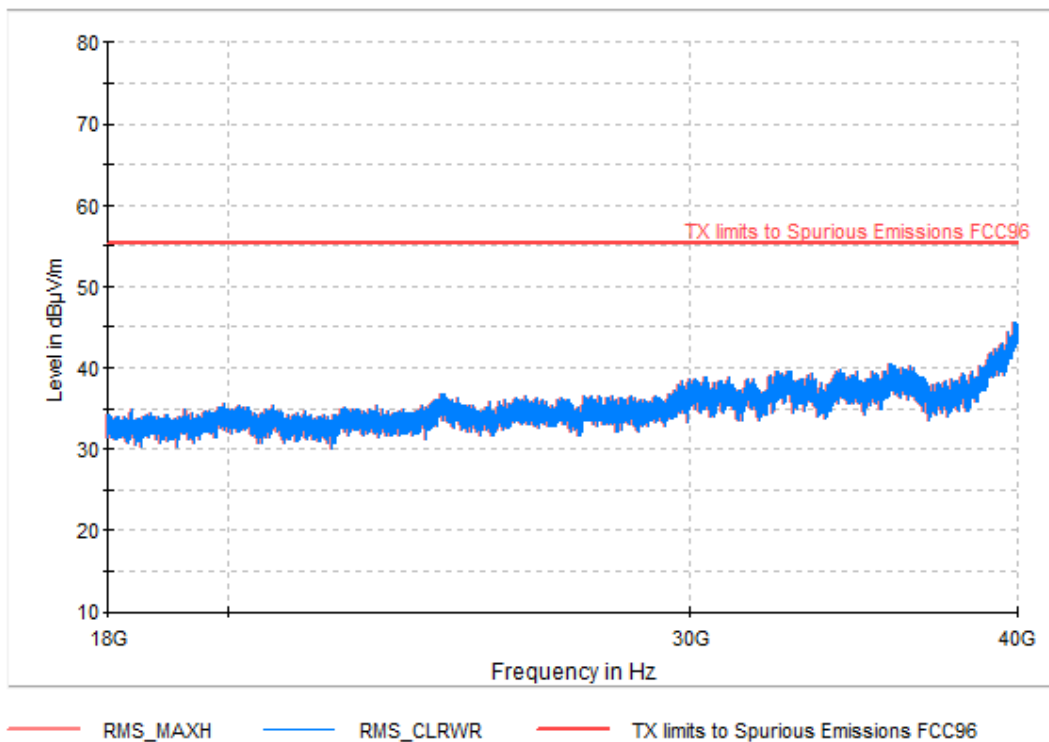
FREQUENCY RANGE 18-40 GHz

**10 MHz BW**

**Lowest Channel (3555 MHz)**

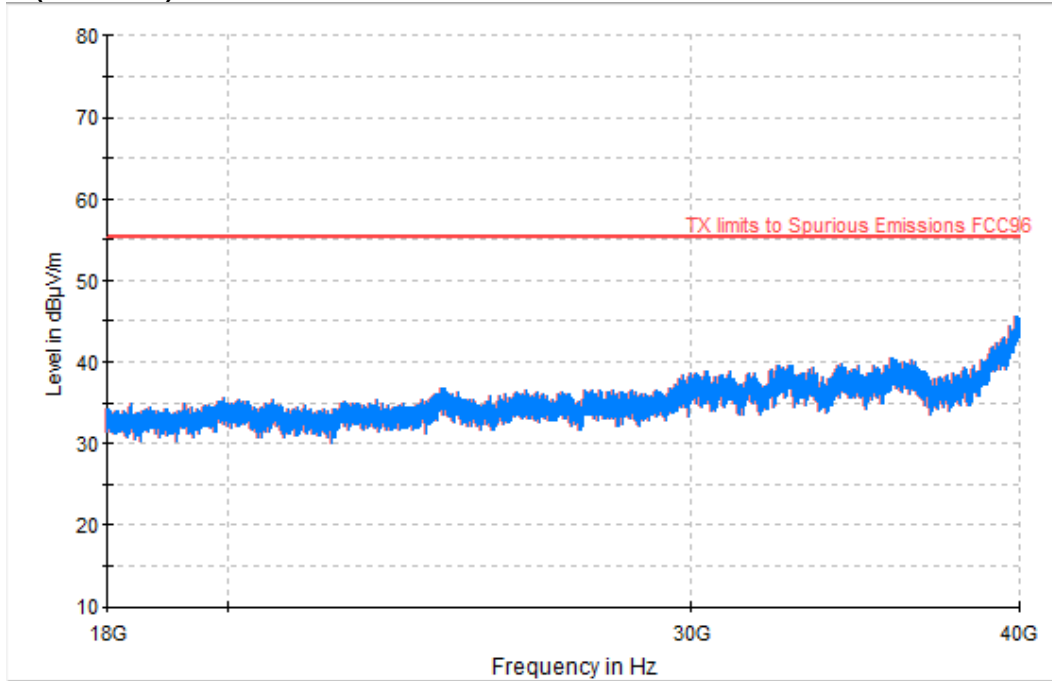


**Middle Channel (3625 MHz)**



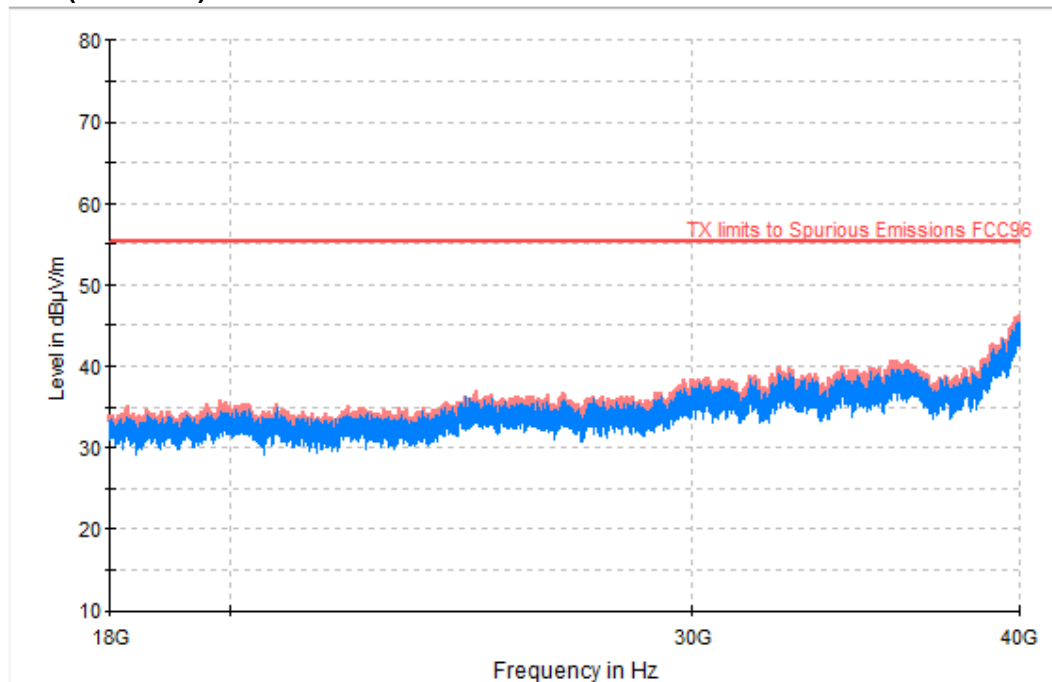
TEST RESULTS (Cont.):

High Channel (3695 MHz)



RMS\_MAXH    RMS\_CLRWR    TX limits to Spurious Emissions FCC96

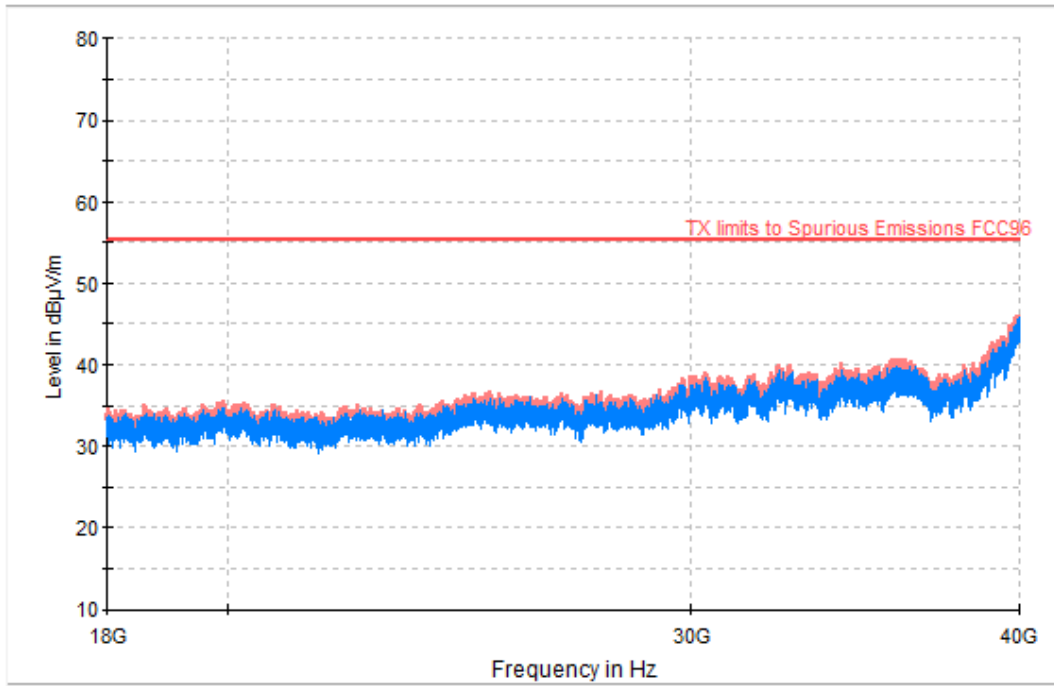
20 MHz BW  
Lowest Channel (3560 MHz)



RMS\_MAXH    RMS\_CLRWR    TX limits to Spurious Emissions FCC96

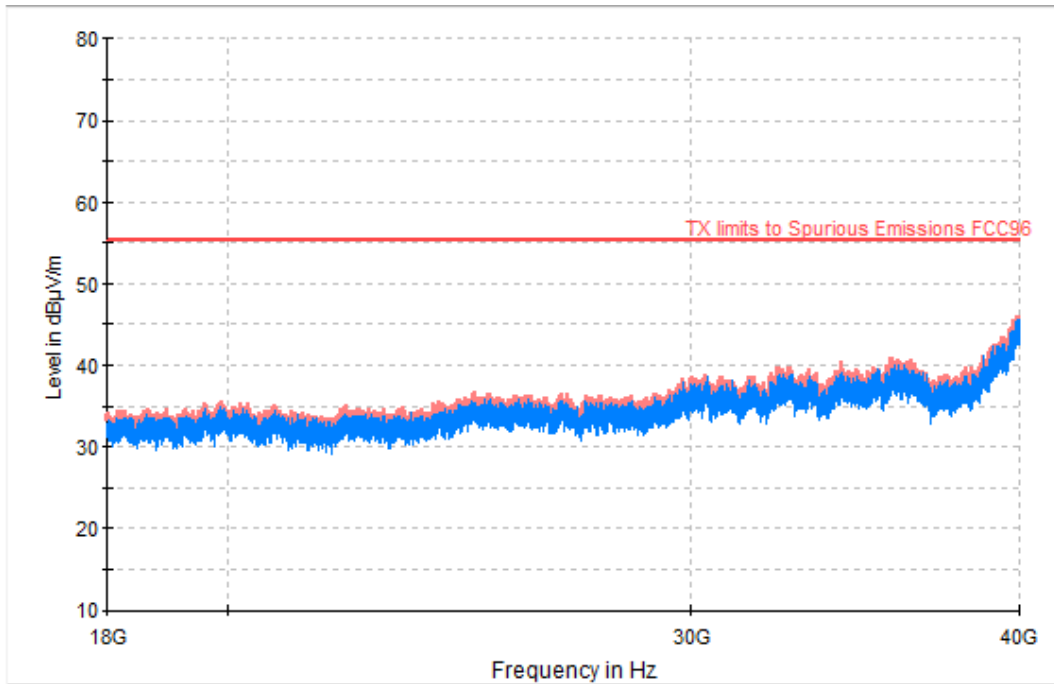
TEST RESULTS (Cont.):

Middle Channel (3625 MHz)



— RMS\_MAXH — RMS\_CLRWR — TX limits to Spurious Emissions FCC96

High Channel (3690 MHz)



— RMS\_MAXH — RMS\_CLRWR — TX limits to Spurious Emissions FCC96

## TEST A.9: FREQUENCY STABILITY

<b>LIMITS:</b>	Product standard:	Part 2.1055
	Test standard:	ANSI C63.26-2015

### LIMITS

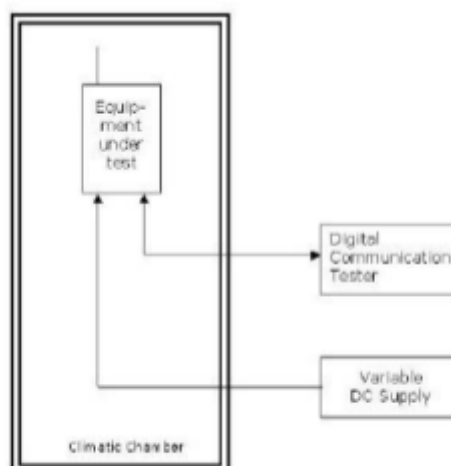
The frequency stability shall be measured with variation of ambient temperature from -30° to +50° centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

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 9 of FCC KDB 971168 D01 v03 r01.



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

**10 MHz BW**

Temperature (°C)	Input Voltage (V)	Lowest Frequency 3555 MHz			
		Frequency Low (MHz)	Delta to Tnom-Vnom (%)	Frequency High (MHz)	Delta to Tnom-Vnom (%)
50	48	3550.581	0.000000	3559.442	0.001124
40	48	3550.541	-0.001127	3559.482	0.002248
30	48	3550.561	-0.000563	3559.462	0.001686
20 (Tnom)	48	3550.581	----	3559.402	----
20	40.8	3550.561	-0.000563	3559.462	0.001686
20	55	3550.541	-0.001127	3559.442	0.001124
10	48	3550.541	-0.001127	3559.482	0.002248
0	48	3550.561	-0.000563	3559.462	0.001686
-10	48	3550.541	-0.001127	3559.482	0.002248
-20	48	3550.521	-0.001690	3559.502	0.002809
-30	48	3550.541	-0.001127	3559.422	0.000562



**TEST RESULTS (Cont.):**

**10 MHz BW**

Temperature (°C)	Input Voltage (V)	Highest Frequency 3695 MHz			
		Frequency Low (MHz)	Delta to Tnom-Vnom (%)	Frequency High (MHz)	Delta to Tnom-Vnom (%)
50	48	3690.570	-0.000542	3699.390	0.001081
40	48	3690.550	-0.001084	3699.410	0.001622
30	48	3690.530	-0.001626	3699.430	0.002163
20 (Tnom)	48	3690.590	----	3699.350	----
20	40.8	3690.510	-0.002168	3699.430	0.002163
20	55	3690.490	-0.002710	3699.450	0.002703
10	48	3690.530	-0.001626	3699.430	0.002163
0	48	3690.530	-0.001626	3699.470	0.003244
-10	48	3690.510	-0.002168	3699.490	0.003784
-20	48	3690.490	-0.002710	3699.470	0.003244
-30	48	3690.510	-0.002168	3699.510	0.004325