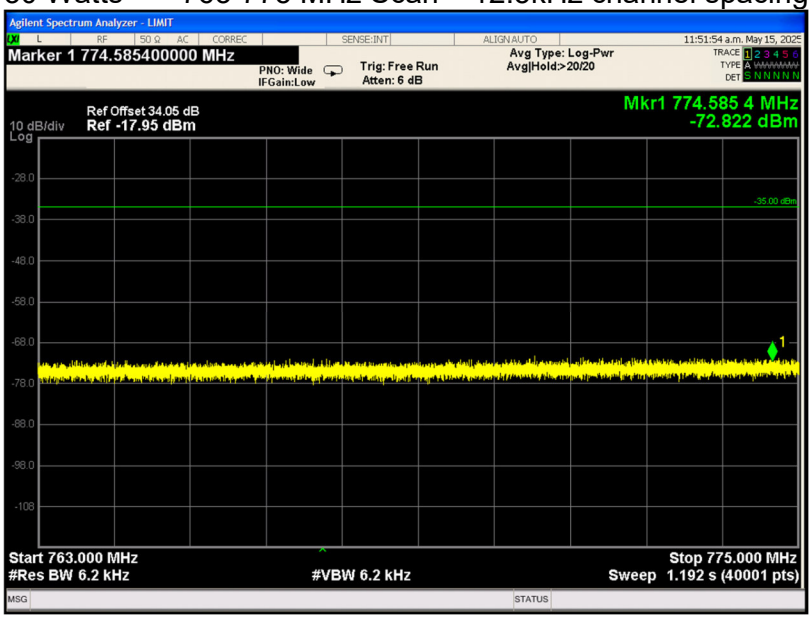
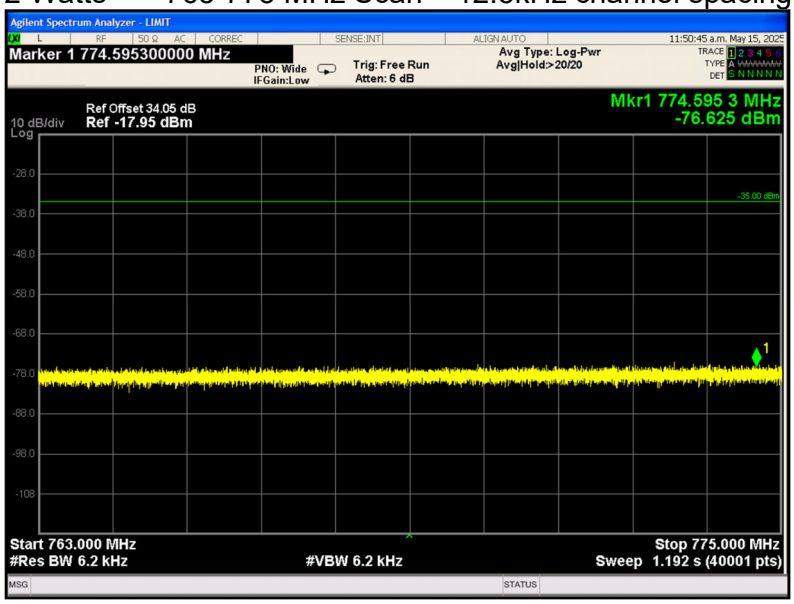
Spurious Emissions (Tx conducted) – Part27 Continued

30 Watts 763-775 MHz Scan 12.5kHz channel spacing

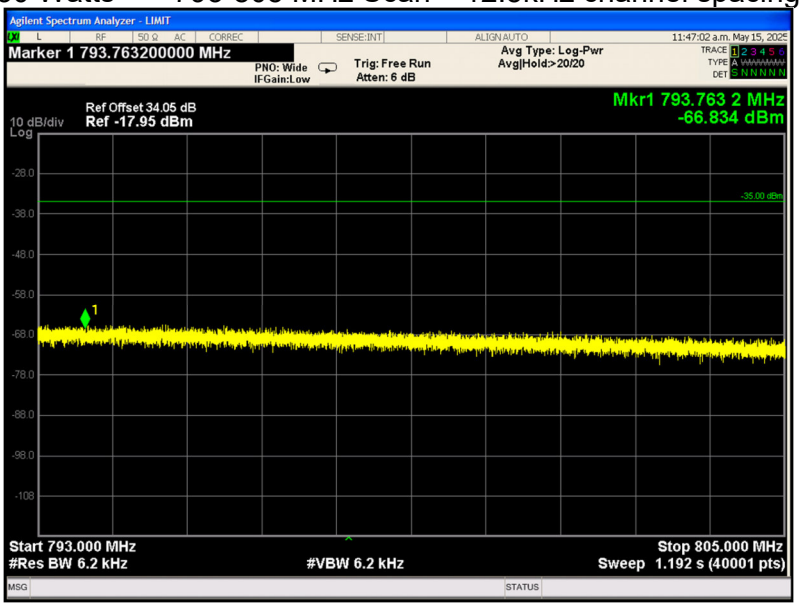


2 Watts 763-775 MHz Scan 12.5kHz channel spacing

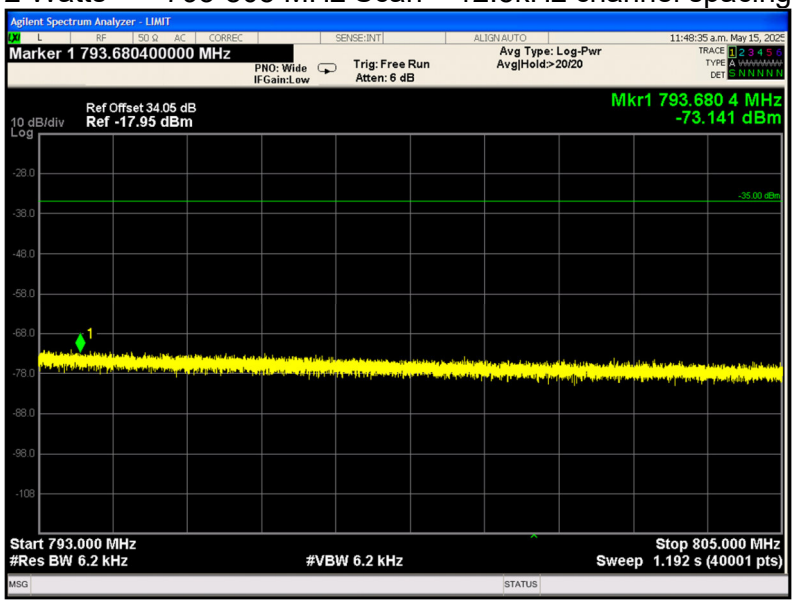


Spurious Emissions (Tx conducted) – Part27 Continued

30 Watts 793-805 MHz Scan 12.5kHz channel spacing



2 Watts 793-805 MHz Scan 12.5kHz channel spacing



TRANSMITTER FREQUENCY STABILITY - TEMPERATURE

SPECIFICATION: FCC 47 CFR 2.1055 (a) (1) RSS-119 5.3

GUIDE: ANSI C63.26 5.6.4

MEASUREMENT PROCEDURE:
1. Refer Annex A for equipment set up.
2. The EUT was tested for frequency error from –30° C to +50° C in 10° C increments
3. The frequency error was recorded in parts per million (ppm).

MEASUREMENT RESULTS:
See the plots on the following pages for 12.5 kHz channel spacing.

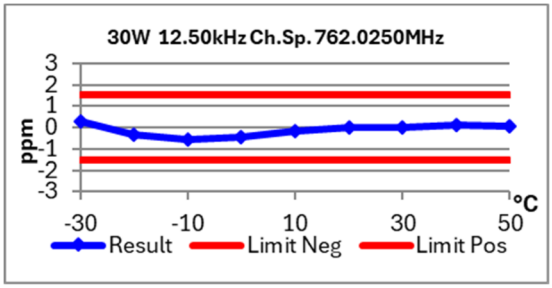
	Error (ppm)							
Temperature (ºC)	762.025 MHz	768.025 MHz	769.075 MHz	774.9 MHz	775.975 MHz	787.5 MHz	798.025 MHz	799.075 MHz
-30	0.3	0.13	-0.07	-0.24	-0.38	-0.47	-0.51	-0.5
-20	-0.34	-0.38	-0.49	-0.5	-0.47	-0.46	-0.43	-0.39
-10	-0.57	-0.51	-0.46	-0.42	-0.33	-0.27	-0.26	-0.22
0	-0.44	-0.33	-0.29	-0.22	-0.1	-0.08	-0.03	0
10	-0.17	-0.08	-0.05	-0.01	0.03	0.01	-0.01	-0.01
20	-0.01	-0.02	-0.01	-0.02	0	-0.01	0.04	0.07
30	0.01	0	0.06	0.06	0.14	0.16	0.15	0.15
40	0.13	0.14	0.14	0.12	0.12	0.07	-0.01	-0.07
50	0.08	0.04	-0.04	-0.12	-0.24	-0.32	-0.36	-0.39
Measurement Uncertainty				± 5 x 10^{-8}				

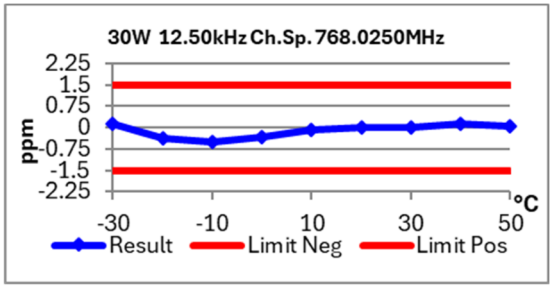
	Error (ppm)							
Temperature (ºC)	804.9 MHz	805.975 MHz	806.025 MHz	815.025 MHz	823.975 MHz	851.025 MHz	860.025 MHz	868.975 MHz
-30	-0.51	-0.51	-0.01	-0.18	-0.32	-0.45	-0.53	-0.58
-20	-0.37	-0.34	-0.36	-0.41	-0.49	-0.5	-0.48	-0.48
-10	-0.18	-0.14	-0.57	-0.55	-0.48	-0.46	-0.4	-0.35
0	0.01	0.03	-0.4	-0.36	-0.29	-0.23	-0.15	-0.13
10	-0.03	-0.01	-0.17	-0.11	-0.06	-0.04	0.01	0
20	0.09	0.12	0.02	0.05	0.04	0	0	0
30	0.13	0.1	0.01	0.02	0.07	0.08	0.11	0.11
40	-0.16	-0.23	0.15	0.18	0.2	0.19	0.15	0.1
50	-0.39	-0.38	0.09	0.07	0.01	-0.12	-0.22	-0.33
Measurement Uncertainty					± 5 x 10^{-8}			

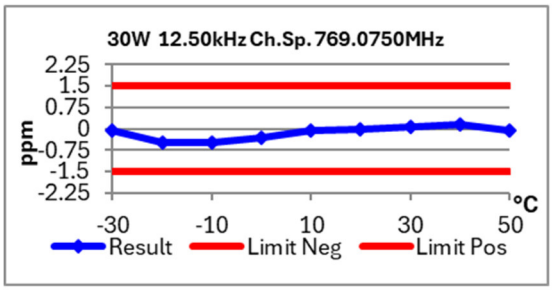
LIMIT: FCC 47 CFR 90.213 RSS-119 5.3

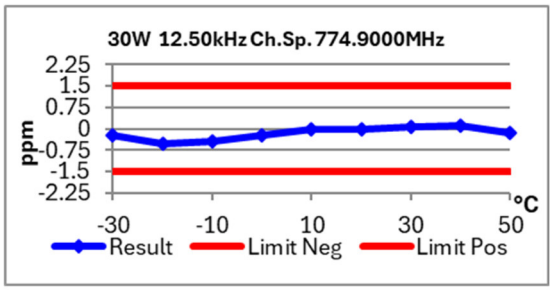
Channel Spacing (kHz)	Frequency Error (ppm)
12.5	1.5

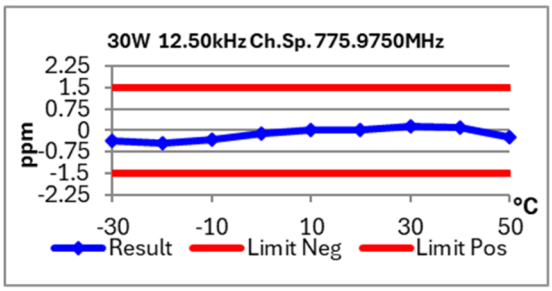
Transmitter Frequency Stability – Temperature

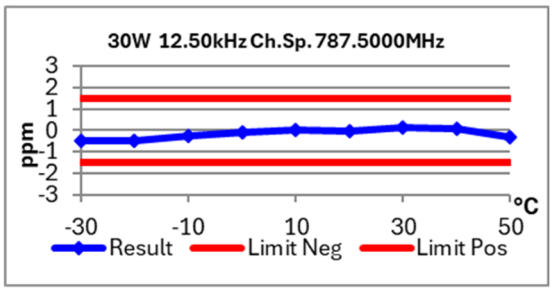


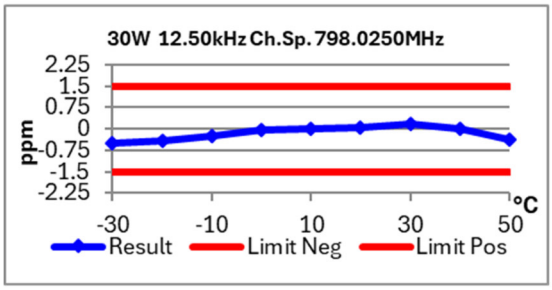


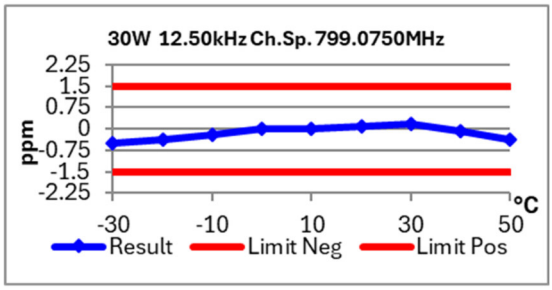


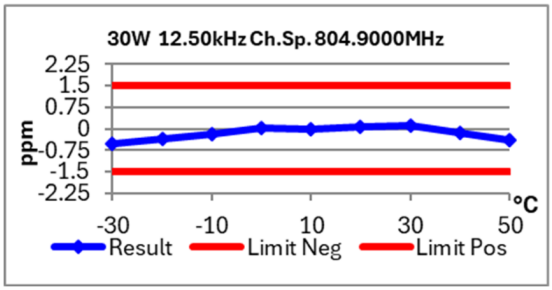


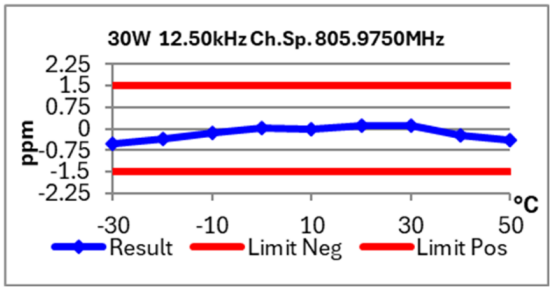




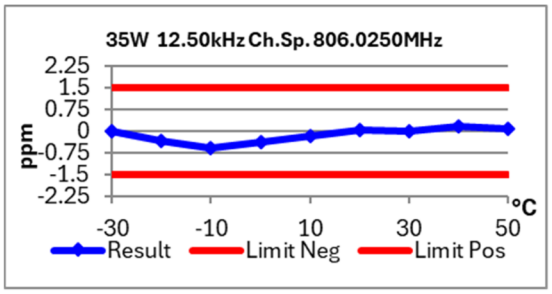


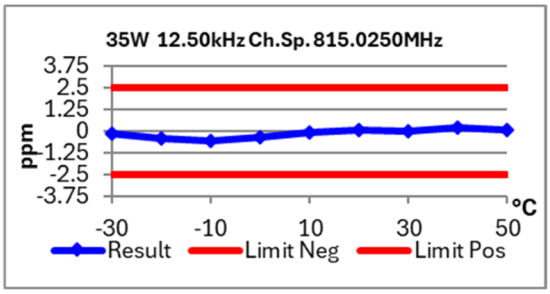


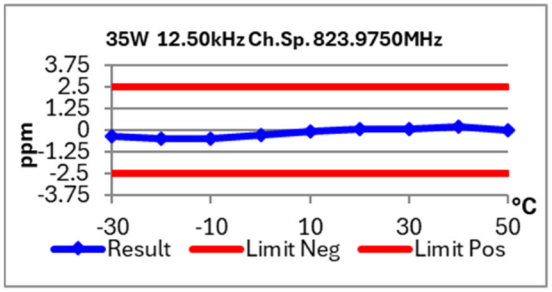


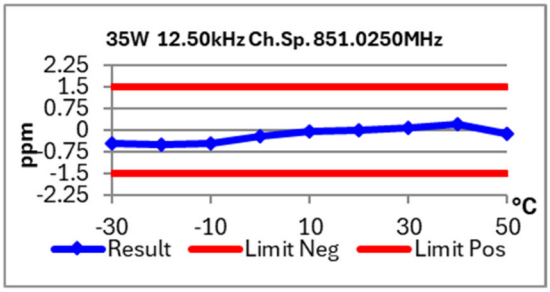


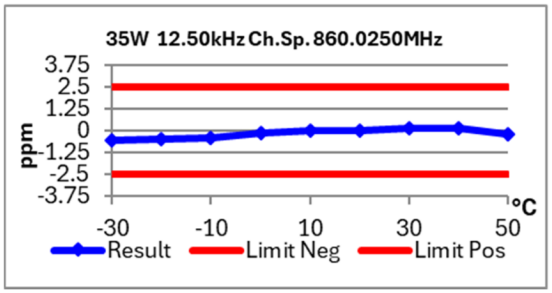
Transmitter Frequency Stability – Temperature

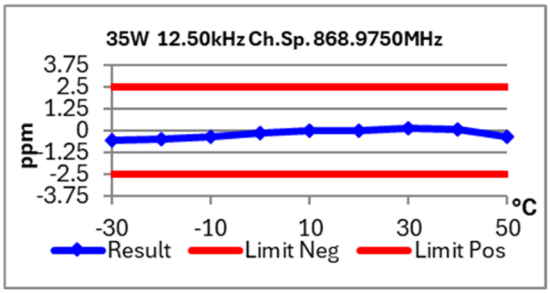












TRANSMITTER FREQUENCY STABILITY - VOLTAGE

SPECIFICATION: FCC 47 CFR 2.1055 (d) (1) RSS-119 5.3

GUIDE: ANSI C63.26 5.6.5

MEASUREMENT PROCEDURE:
1. Refer Annex A for equipment set up.
2. The EUT was tested for frequency error at an input voltage to the radio of 85% to 115%.
3. The frequency error was recorded in parts per million (ppm).

MEASUREMENT RESULTS:

	FREQUENCY ERROR (ppm) for 12.5 kHz		
	13.8 V_{DC}	11.73 V_{DC}	15.87 V_{DC}
762.025 MHz	-0.05	-0.04	-0.02
768.025 MHz	-0.03	-0.02	-0.01
769.075 MHz	-0.01	0.02	0.02
774.9 MHz	0.02	0.06	0.07
775.975 MHz	0.12	0.13	0.13
787.5 MHz	0.16	0.15	0.17
798.025 MHz	0.17	0.18	0.19
799.075 MHz	0.18	0.20	0.20
804.9 MHz	0.18	0.17	0.16
805.975 MHz	0.16	0.15	0.13
806.025 MHz	0.21	0.21	0.21
815.025 MHz	0.18	0.15	0.14
823.975 MHz	0.11	0.09	0.08
851.025 MHz	-0.02	-0.03	-0.06
860.025 MHz	-0.11	-0.16	-0.18
868.975 MHz	-0.24	-0.26	-0.29
Measurement Uncertainty		± 5 x 10^{-8}	

LIMIT CLAUSES: FCC 47 CFR 90.213 RSS-119 5.3

Channel Spacing (kHz)	Frequency Error (ppm)
12.5	1.5

RECEIVER SPURIOUS EMISSIONS (CONDUCTED)

SPECIFICATION: RSS-Gen 7.4

GUIDE: TIA-603-E 2.1.2 (analogue)
TIA-102-CAAA-C 2.1.2 (digital)

MEASUREMENT PROCEDURE:
1. Refer Annex A for Equipment set up diagram.
2. The frequency range examined was from 30 MHz to 3 times highest tunable frequency.
3. Spurious emissions which were attenuated more than 20 dB below the limit were not recorded.
4. A scan is performed with a resolution bandwidth of 100 kHz and a video bandwidth of 300 kHz for frequencies up to 1 GHz, and a resolution bandwidth of 1 MHz and a video bandwidth of 3 MHz for frequencies above 1 GHz
5. For each frequency range the spectrum analyser was loaded with the appropriate calibration figures to compensate for the cables and attenuator losses allowing the emission levels to be read directly with no further calculation.
   The calibrations are loaded as an overall reference level offset plus a set of correction factors for the required frequency band.

Spurious emissions which were attenuated by more than 20 dB below the limit were not recorded.

Example of attenuation correction:

E5015 3m Blue 503429	0.9	
Total Attenuation @ 1000 MHz	0.9	Sum of component attenuation (a)
Amplitude offset	1.56	(b)
Correction @ 1000 MHz	-0.66	(a-b)

Measurement Uncertainty	≤12.75 GHz ± 2.8 dB

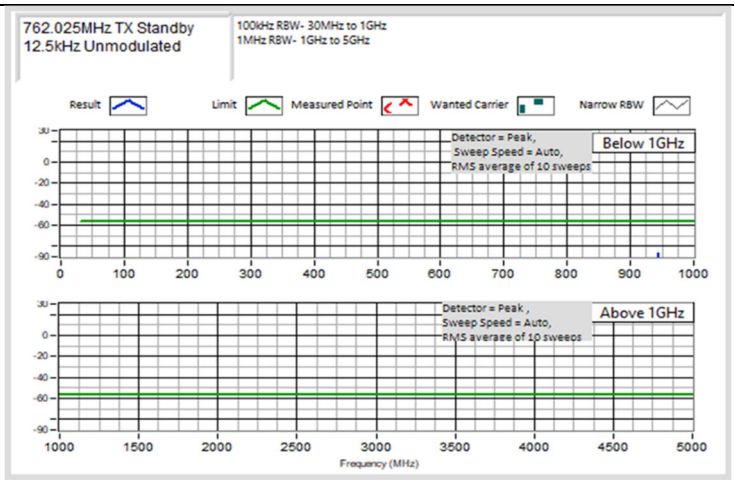
LIMIT CLAUSE: RSS-Gen 7.4

LIMIT	30 → 1000 MHz	2 nW	- 57 dBm
	> 1000 MHz	5 nW	- 53 dBm

Receiver Spurious Emissions (Conducted) – Continued

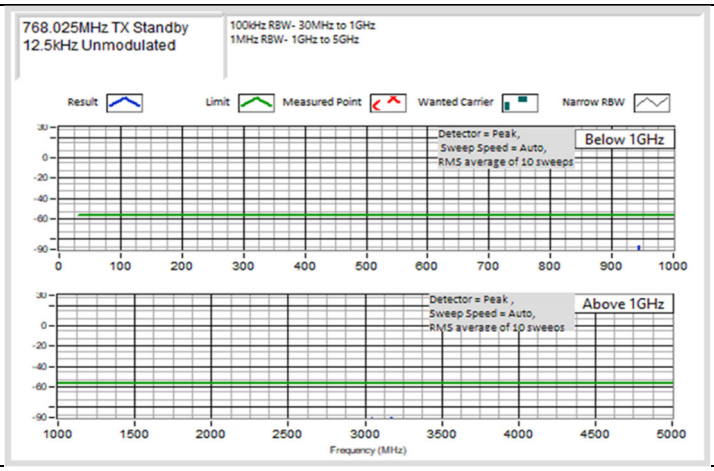
762.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

762.025 MHz



768.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

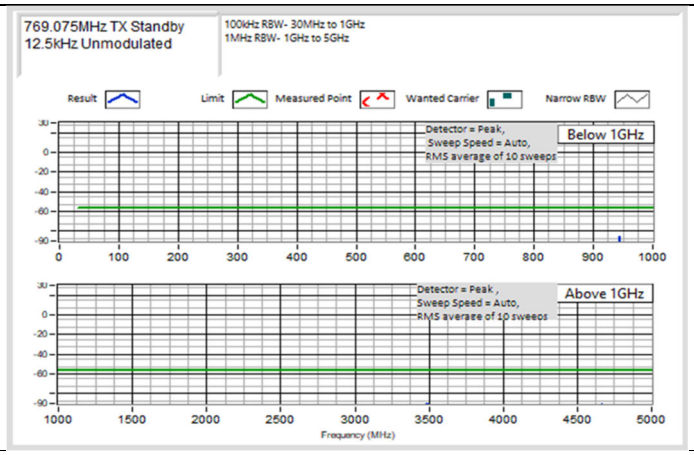
768.025 MHz



Receiver Spurious Emissions (Conducted) – Continued

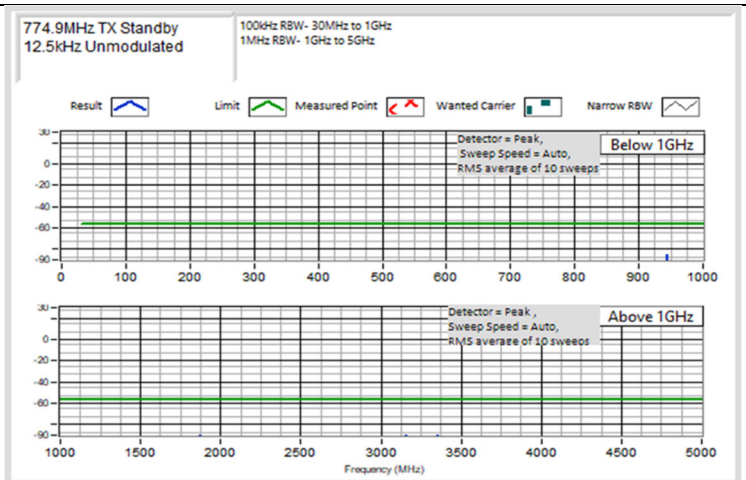
769.075 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

769.075 MHz



774.9 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

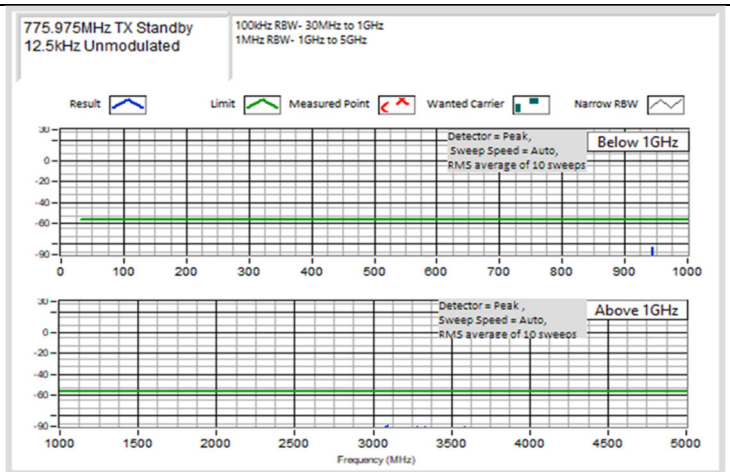
774.9 MHz



Receiver Spurious Emissions (Conducted) – Continued

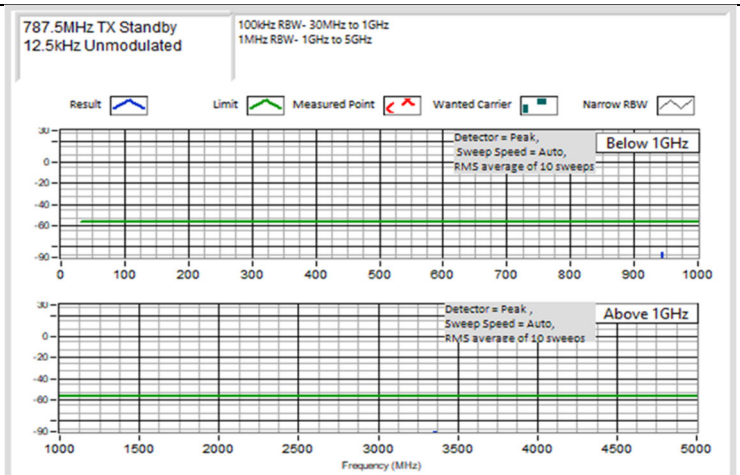
775.975 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

775.975 MHz



787.5 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

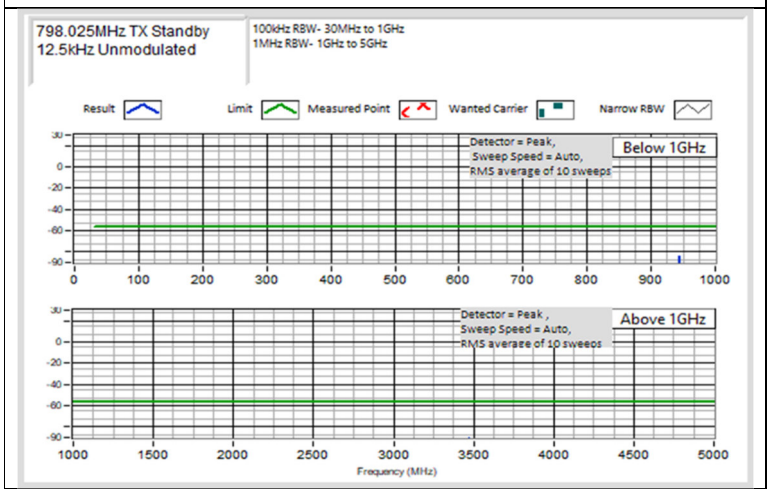
787.5 MHz



Receiver Spurious Emissions (Conducted) – Continued

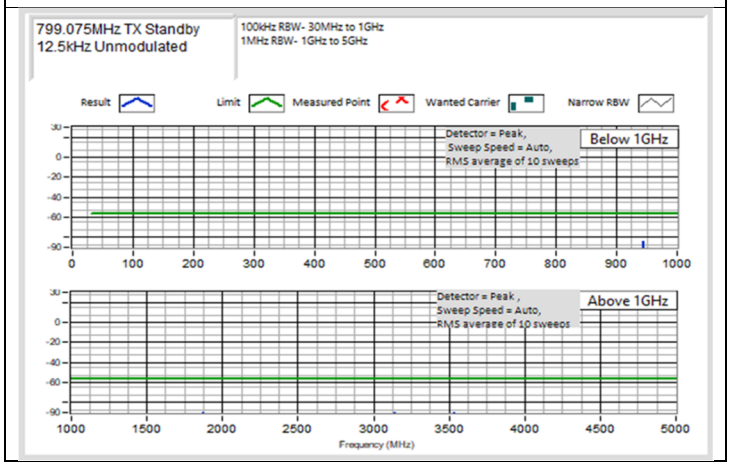
798.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

798.025 MHz



799.075 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

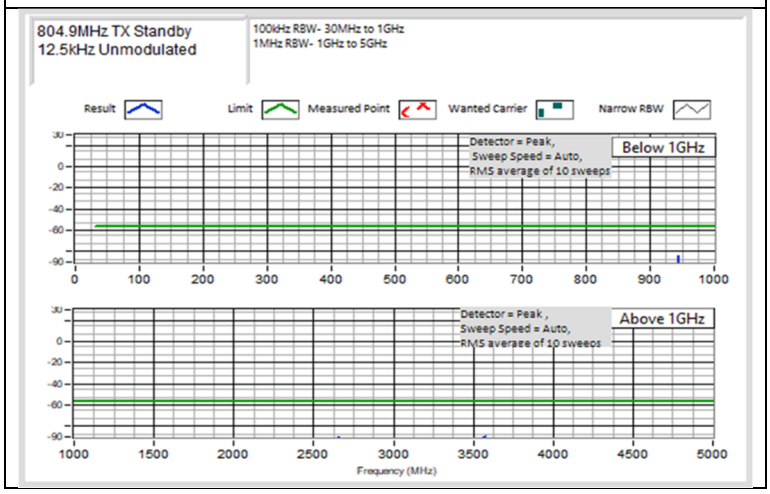
799.075 MHz



Receiver Spurious Emissions (Conducted) – Continued

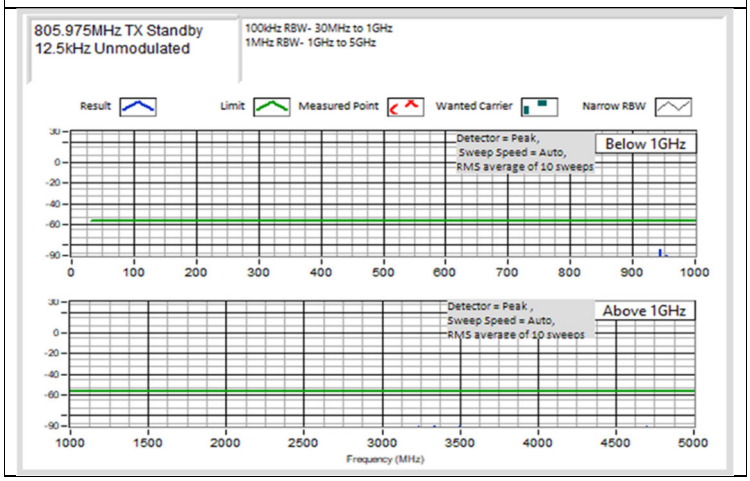
804.9 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

804.9 MHz



805.975 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

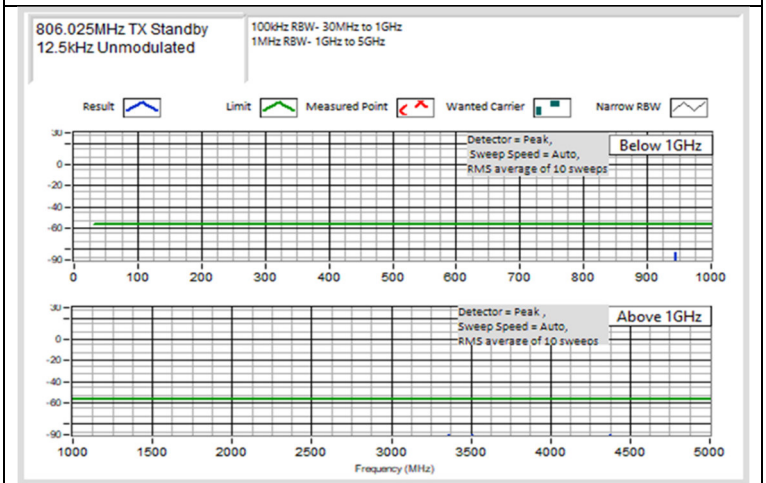
805.975 MHz



Receiver Spurious Emissions (Conducted) – Continued

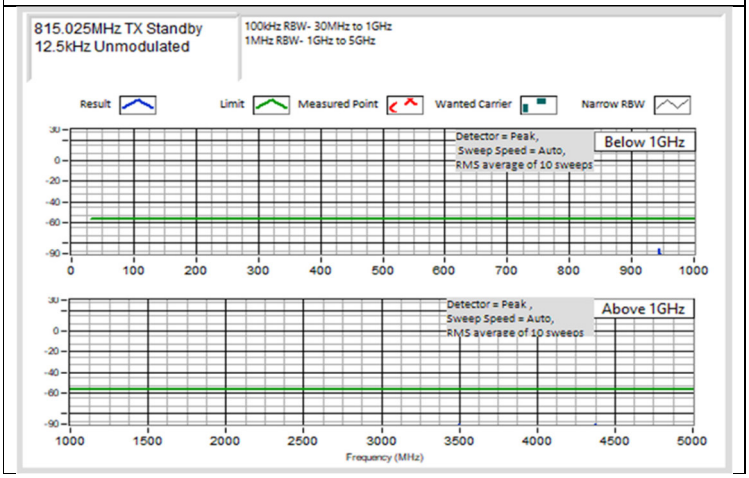
806.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

806.025 MHz



815.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

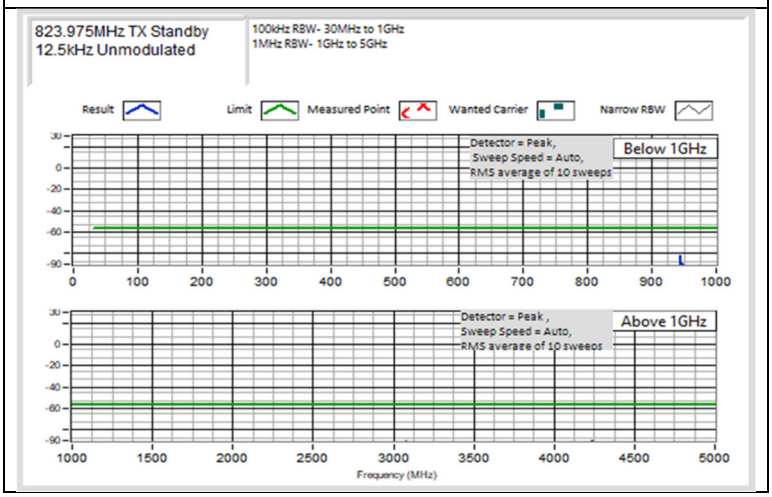
815.025 MHz

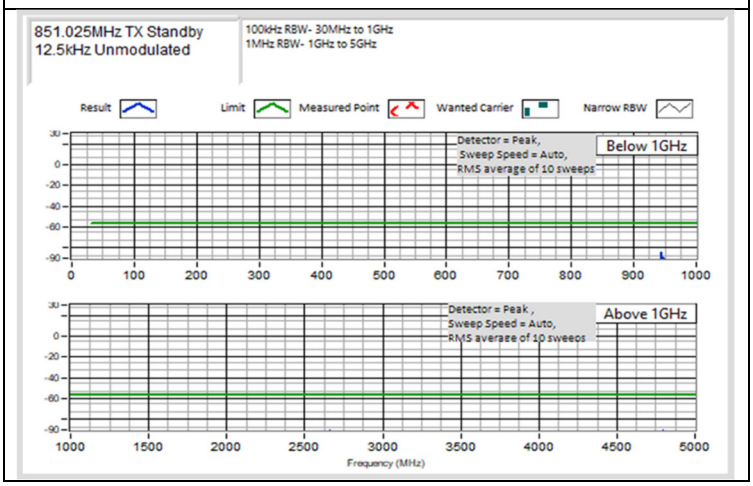


Receiver Spurious Emissions (Conducted) – Continued

823.975 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

823.975 MHz



851.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
~	~	~
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No emissions were detected within 20 dB of Limit.		

851.025 MHz