LABORATORY TEST REPORT

RADIO PERFORMANCE MEASUREMENTS

for the

TPHN0A Handportable Transceiver

Tested in accordance with:

FCC 47 CFR Parts 22, 27, 90 and 90R

RSS-119 Issue 12
RSS-Gen Issue 5

Report Section:	C of three sections
Report Revision:	1
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PREPARED BY: L. M. White
Test Technician

CHECKED & APPROVED BY: M. C. James
Laboratory Technical Manager

ACCREDITED
TESTING LABORATORY
№ 9, 577

FCC Registration: 838288
ISED Registration: 737A

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation.

TELTEST Laboratories (A Division of Tait International Ltd)
PO Box 1645, 558 Wairakei Road, Christchurch, New Zealand.
Telephone: 64 3 358 3399
FAX: 64 3 359 4632

TABLE OF CONTENTS

For convenience, this test report is divided into 3 sections due to size limitations. This is section C.

Section A contains: Revision History
Introduction
Test Requirements and Result Summary
Statement of Compliance
Channel Table
List of Antennae Intended for use with the Device
Modulation types, Necessary Bandwidth & Emission Designators
Transmitter Output Power(Conducted)
Transmitter Audio Frequency Response – Pre-emphasis
Transmitter Modulation Limiting
Transmitter Occupied (99%) Bandwidth

Section B contains: Transmitter Spectrum Masks

Section C contains: Adjacent Channel Power Ratio
Transmitter Spurious Emissions (Conducted)
Transmitter Spurious Emissions (Radiated)
Transmitter Radiated Emissions in the GNSS Band
Transmitter Conducted Emissions in the GNSS Band
Transient Frequency Behavior
Transmitter Frequency Stability – Temperature
Transmitter Frequency Stability – Voltage
Receiver Spurious Emissions (Conducted)
Test Equipment List
Annex A – Test Setup Details

SAMPLE INFORMATION

DESCRIPTION OF SAMPLE
Manufacturer Tait International Limited
Equipment: Handportable Transceiver
Type: TPHN0A
Product Code: T03-00071-NBAC
Serial Number(s): 26637742

Transmit Frequency range (MHz)	136 → 174	378 → 520	757 → 870	896 → 941
Rated Transmit Power (Watts)	6	5	3	3

TEST RESULTS

ADJACENT CHANNEL POWER RATIO

SPECIFICATION: FCC 47 CFR 90.543 RSS-119 5.8.9

MEASUREMENT PROCEDURE:
1. Refer Annex A for equipment set up.
2. The transmitter is modulated with the standard test pattern for digital modulation.
3. The test is performed in accordance with 47 CFR 90.543

LIMIT CLAUSE: FCC 47 CFR 90.543 RSS-119 5.8.9

MEASUREMENT UNCERTAINTY: ≤12.75 GHz ± 3.0 dB

MEASUREMENT RESULTS:

ANALOGUE
Tx FREQUENCY: 769.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-46.4	-46.4	-40
15.625 kHz	6.25 kHz	-74.8	-74.7	-60
21.875 kHz	6.25 kHz	-77.5	-77.5	-60
37.5 kHz	25 kHz	-72.7	-72.7	-60
62.5 kHz	25 kHz	-74.4	-74.5	-65
87.5 kHz	25 kHz	-76	-76.1	-65
150 kHz	100 kHz	-72.9	-73	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.9	-80.6	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.728		-75
12 MHz to paired receive band	30 kHz (swept)	-103.019		-75
In the paired receive band	30 kHz (swept)	-105.169		-100

ANALOGUE
Tx FREQUENCY: 774.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-46.5	-46.4	-40
15.625 kHz	6.25 kHz	-74.9	-74.7	-60
21.875 kHz	6.25 kHz	-77.5	-77.4	-60
37.5 kHz	25 kHz	-72.7	-72.8	-60
62.5 kHz	25 kHz	-74.4	-74.5	-65
87.5 kHz	25 kHz	-75.9	-76	-65
150 kHz	100 kHz	-72.8	-73	-65
250 kHz	100 kHz	-77.2	-77.6	-65
350 kHz	100 kHz	-79.8	-80.5	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.488		-75
12 MHz to paired receive band	30 kHz (swept)	-103.898		-75
In the paired receive band	30 kHz (swept)	-103.5		-100

Adjacent Channel Power Ratio - Continued

ANALOGUE
Tx FREQUENCY: 799.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-46.5	-46.4	-40
15.625 kHz	6.25 kHz	-75.2	-75.1	-60
21.875 kHz	6.25 kHz	-77.2	-77	-60
37.5 kHz	25 kHz	-72.5	-72.6	-60
62.5 kHz	25 kHz	-74.1	-74.2	-65
87.5 kHz	25 kHz	-75.5	-75.6	-65
150 kHz	100 kHz	-72.3	-72.5	-65
250 kHz	100 kHz	-76.8	-77.1	-65
350 kHz	100 kHz	-79.3	-80	-65
>400 kHz to 12 MHz	30 kHz (swept)	-84.463		-75
12 MHz to paired receive band	30 kHz (swept)	-100.329		-75
In the paired receive band	30 kHz (swept)	-101.372		-100

ANALOGUE
Tx FREQUENCY: 804.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-46.4	-46.4	-40
15.625 kHz	6.25 kHz	-71	-71	-60
21.875 kHz	6.25 kHz	-72.6	-72.6	-60
37.5 kHz	25 kHz	-67.7	-67.7	-60
62.5 kHz	25 kHz	-70.6	-70.7	-65
87.5 kHz	25 kHz	-74.3	-74.5	-65
150 kHz	100 kHz	-72.5	-72.6	-65
250 kHz	100 kHz	-77.2	-77.6	-65
350 kHz	100 kHz	-79.6	-80.4	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.714		-75
12 MHz to paired receive band	30 kHz (swept)	-96.781		-75
In the paired receive band	30 kHz (swept)	-101.056		-100

ANALOGUE
Tx FREQUENCY: 769.075 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-70.8	-70.8	-40
21.875 kHz	6.25 kHz	-77.2	-77	-60
37.5 kHz	25 kHz	-72.2	-72.2	-60
62.5 kHz	25 kHz	-74	-74.1	-65
87.5 kHz	25 kHz	-75.8	-76	-65
150 kHz	100 kHz	-72.8	-73	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.9	-80.6	-65
>400 kHz to 12 MHz	30 kHz (swept)	-84.762		-75
12 MHz to paired receive band	30 kHz (swept)	-103.153		-75
In the paired receive band	30 kHz (swept)	-105.187		-100

Adjacent Channel Power Ratio - Continued

ANALOGUE
Tx FREQUENCY: 774.9 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-70.7	-70.7	-40
21.875 kHz	6.25 kHz	-77.2	-77.2	-60
37.5 kHz	25 kHz	-72.3	-72.3	-60
62.5 kHz	25 kHz	-74.1	-74.1	-65
87.5 kHz	25 kHz	-75.8	-76	-65
150 kHz	100 kHz	-72.7	-72.9	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.8	-80.5	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.58		-75
12 MHz to paired receive band	30 kHz (swept)	-103.641		-75
In the paired receive band	30 kHz (swept)	-103.944		-100

ANALOGUE
Tx FREQUENCY: 799.075 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-70.9	-70.8	-40
21.875 kHz	6.25 kHz	-77	-76.9	-60
37.5 kHz	25 kHz	-72.1	-72.1	-60
62.5 kHz	25 kHz	-73.8	-73.9	-65
87.5 kHz	25 kHz	-75.4	-75.5	-65
150 kHz	100 kHz	-72.2	-72.3	-65
250 kHz	100 kHz	-76.7	-77.1	-65
350 kHz	100 kHz	-79.2	-80	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.076		-75
12 MHz to paired receive band	30 kHz (swept)	-99.984		-75
In the paired receive band	30 kHz (swept)	-101.35		-100

ANALOGUE
Tx FREQUENCY: 804.9 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-68.9	-68.7	-40
21.875 kHz	6.25 kHz	-72.4	-72.4	-60
37.5 kHz	25 kHz	-67.5	-67.5	-60
62.5 kHz	25 kHz	-70.3	-70.4	-65
87.5 kHz	25 kHz	-74.1	-74.4	-65
150 kHz	100 kHz	-72.3	-72.4	-65
250 kHz	100 kHz	-77.1	-77.5	-65
350 kHz	100 kHz	-79.6	-80.3	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.668		-75
12 MHz to paired receive band	30 kHz (swept)	-97.534		-75
In the paired receive band	30 kHz (swept)	-100.857		-100

Adjacent Channel Power Ratio - Continued

FFSK 1200 bps
Tx FREQUENCY: 769.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-49	-48.8	-40
15.625 kHz	6.25 kHz	-75.3	-75.1	-60
21.875 kHz	6.25 kHz	-77.5	-77.5	-60
37.5 kHz	25 kHz	-72.6	-72.6	-60
62.5 kHz	25 kHz	-74.4	-74.5	-65
87.5 kHz	25 kHz	-76	-76.1	-65
150 kHz	100 kHz	-72.9	-73.1	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.9	-80.6	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.006		-75
12 MHz to paired receive band	30 kHz (swept)	-103.568		-75
In the paired receive band	30 kHz (swept)	-104.348		-100

FFSK 1200 bps
Tx FREQUENCY: 774.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-49	-48.9	-40
15.625 kHz	6.25 kHz	-75.2	-75	-60
21.875 kHz	6.25 kHz	-77.5	-77.4	-60
37.5 kHz	25 kHz	-72.8	-72.8	-60
62.5 kHz	25 kHz	-74.4	-74.5	-65
87.5 kHz	25 kHz	-75.9	-76.1	-65
150 kHz	100 kHz	-72.9	-73	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.8	-80.6	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.97		-75
12 MHz to paired receive band	30 kHz (swept)	-103.198		-75
In the paired receive band	30 kHz (swept)	-104.037		-100

FFSK 1200 bps
Tx FREQUENCY: 799.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-49	-48.9	-40
15.625 kHz	6.25 kHz	-75.5	-75.3	-60
21.875 kHz	6.25 kHz	-77.1	-77.1	-60
37.5 kHz	25 kHz	-72.5	-72.5	-60
62.5 kHz	25 kHz	-74.1	-74.1	-65
87.5 kHz	25 kHz	-75.4	-75.6	-65
150 kHz	100 kHz	-72.3	-72.5	-65
250 kHz	100 kHz	-76.7	-77.1	-65
350 kHz	100 kHz	-79.3	-80	-65
>400 kHz to 12 MHz	30 kHz (swept)	-84.878		-75
12 MHz to paired receive band	30 kHz (swept)	-100.75		-75
In the paired receive band	30 kHz (swept)	-101.141		-100

Adjacent Channel Power Ratio - Continued

FFSK 1200 bps
Tx FREQUENCY: 804.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-48.8	-48.8	-40
15.625 kHz	6.25 kHz	-71	-71	-60
21.875 kHz	6.25 kHz	-72.5	-72.5	-60
37.5 kHz	25 kHz	-67.8	-67.8	-60
62.5 kHz	25 kHz	-70.5	-70.5	-65
87.5 kHz	25 kHz	-74.2	-74.5	-65
150 kHz	100 kHz	-72.4	-72.5	-65
250 kHz	100 kHz	-77.2	-77.6	-65
350 kHz	100 kHz	-79.6	-80.3	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.343		-75
12 MHz to paired receive band	30 kHz (swept)	-96.871		-75
In the paired receive band	30 kHz (swept)	-100.785		-100

FFSK 1200 bps
Tx FREQUENCY: 769.075 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-72.8	-72.7	-40
21.875 kHz	6.25 kHz	-77	-77	-60
37.5 kHz	25 kHz	-72.2	-72.3	-60
62.5 kHz	25 kHz	-74.2	-74.2	-65
87.5 kHz	25 kHz	-75.9	-76	-65
150 kHz	100 kHz	-72.8	-73	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.9	-80.6	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.378		-75
12 MHz to paired receive band	30 kHz (swept)	-103.744		-75
In the paired receive band	30 kHz (swept)	-104.649		-100

FFSK 1200 bps
Tx FREQUENCY: 774.9 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-72.6	-72.6	-40
21.875 kHz	6.25 kHz	-77.2	-77.1	-60
37.5 kHz	25 kHz	-72.3	-72.3	-60
62.5 kHz	25 kHz	-74.2	-74.2	-65
87.5 kHz	25 kHz	-75.8	-75.9	-65
150 kHz	100 kHz	-72.8	-72.9	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.8	-80.5	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.001		-75
12 MHz to paired receive band	30 kHz (swept)	-103.001		-75
In the paired receive band	30 kHz (swept)	-104.055		-100

Adjacent Channel Power Ratio - Continued

FFSK 1200 bps
Tx FREQUENCY: 799.075 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-72.8	-72.8	-40
21.875 kHz	6.25 kHz	-76.8	-76.8	-60
37.5 kHz	25 kHz	-72.1	-72.1	-60
62.5 kHz	25 kHz	-73.9	-73.9	-65
87.5 kHz	25 kHz	-75.4	-75.6	-65
150 kHz	100 kHz	-72.2	-72.4	-65
250 kHz	100 kHz	-76.8	-77.1	-65
350 kHz	100 kHz	-79.3	-80	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.922		-75
12 MHz to paired receive band	30 kHz (swept)	-100.192		-75
In the paired receive band	30 kHz (swept)	-101.812		-100

FFSK 1200 bps
Tx FREQUENCY: 804.9 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-70	-69.8	-40
21.875 kHz	6.25 kHz	-72.4	-72.3	-60
37.5 kHz	25 kHz	-67.7	-67.8	-60
62.5 kHz	25 kHz	-70.3	-70.3	-65
87.5 kHz	25 kHz	-74.2	-74.4	-65
150 kHz	100 kHz	-72.3	-72.4	-65
250 kHz	100 kHz	-77.2	-77.6	-65
350 kHz	100 kHz	-79.6	-80.4	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.188		-75
12 MHz to paired receive band	30 kHz (swept)	-96.841		-75
In the paired receive band	30 kHz (swept)	-101.023		-100

FFSK 2400 bps
Tx FREQUENCY: 769.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-49.06	-48.89	-40
15.625 kHz	6.25 kHz	-71.79	-72.19	-60
21.875 kHz	6.25 kHz	-73.45	-72.98	-60
37.5 kHz	25 kHz	-68.99	-68.88	-60
62.5 kHz	25 kHz	-71.44	-71.57	-65
87.5 kHz	25 kHz	-74.21	-73.94	-65
150 kHz	100 kHz	-71.9	-71.81	-65
250 kHz	100 kHz	-77.17	-77.26	-65
350 kHz	100 kHz	-80.87	-80.87	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.4		-75
12 MHz to paired receive band	30 kHz (swept)	-91.08		-75
In the paired receive band	30 kHz (swept)	-100.9		-100

Adjacent Channel Power Ratio - Continued

FFSK 2400 bps
Tx FREQUENCY: 774.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-48.45	-49.33	-40
15.625 kHz	6.25 kHz	-72.21	-72.4	-60
21.875 kHz	6.25 kHz	-73.59	-73.63	-60
37.5 kHz	25 kHz	-68.92	-69.03	-60
62.5 kHz	25 kHz	-71.47	-71.48	-65
87.5 kHz	25 kHz	-73.89	-73.87	-65
150 kHz	100 kHz	-71.56	-71.65	-65
250 kHz	100 kHz	-77.13	-76.98	-65
350 kHz	100 kHz	-80.86	-80.78	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.6		-75
12 MHz to paired receive band	30 kHz (swept)	-92.7		-75
In the paired receive band	30 kHz (swept)	-104.1		-100

FFSK 2400 bps
Tx FREQUENCY: 799.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-48.35	-48.38	-40
15.625 kHz	6.25 kHz	-72.54	-72.09	-60
21.875 kHz	6.25 kHz	-73.26	-73.53	-60
37.5 kHz	25 kHz	-68.92	-68.91	-60
62.5 kHz	25 kHz	-71.25	-71.34	-65
87.5 kHz	25 kHz	-73.55	-73.91	-65
150 kHz	100 kHz	-71.24	-71.48	-65
250 kHz	100 kHz	-76.33	-76.63	-65
350 kHz	100 kHz	-80.29	-80.49	-65
>400 kHz to 12 MHz	30 kHz (swept)	-87.4		-75
12 MHz to paired receive band	30 kHz (swept)	-82.6		-75
In the paired receive band	30 kHz (swept)	-100.9		-100

FFSK 2400 bps
Tx FREQUENCY: 804.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-48.19	-48.14	-40
15.625 kHz	6.25 kHz	-70.98	-70.51	-60
21.875 kHz	6.25 kHz	-71.42	-71.04	-60
37.5 kHz	25 kHz	-66.36	-66.34	-60
62.5 kHz	25 kHz	-69.05	-69.24	-65
87.5 kHz	25 kHz	-72.79	-73.09	-65
150 kHz	100 kHz	-71.71	-71.97	-65
250 kHz	100 kHz	-76.68	-76.99	-65
350 kHz	100 kHz	-80.72	-81.03	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.8		-75
12 MHz to paired receive band	30 kHz (swept)	-92.2		-75
In the paired receive band	30 kHz (swept)	-101.1		-100

Adjacent Channel Power Ratio - Continued

FFSK 2400 bps
Tx FREQUENCY: 769.075 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-70.76	-70.72	-40
21.875 kHz	6.25 kHz	-73.43	-73.07	-60
37.5 kHz	25 kHz	-74.92	-74.7	-60
62.5 kHz	25 kHz	-71.45	-71.31	-65
87.5 kHz	25 kHz	-73.98	-73.95	-65
150 kHz	100 kHz	-71.54	-71.92	-65
250 kHz	100 kHz	-77.21	-77.31	-65
350 kHz	100 kHz	-81.04	-81.25	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.2		-75
12 MHz to paired receive band	30 kHz (swept)	-92.2		-75
In the paired receive band	30 kHz (swept)	-105.7		-100

FFSK 2400 bps
Tx FREQUENCY: 774.9 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-69.98	-70.92	-40
21.875 kHz	6.25 kHz	-73.44	-73.18	-60
37.5 kHz	25 kHz	-74.6	-74.4	-60
62.5 kHz	25 kHz	-71.18	-71.24	-65
87.5 kHz	25 kHz	-73.71	-73.57	-65
150 kHz	100 kHz	-71.46	-71.62	-65
250 kHz	100 kHz	-77.46	-77.16	-65
350 kHz	100 kHz	-80.88	-80.98	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.3		-75
12 MHz to paired receive band	30 kHz (swept)	-91.6		-75
In the paired receive band	30 kHz (swept)	-105.3		-100

FFSK 2400 bps
Tx FREQUENCY: 799.075 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-70.68	-71.01	-40
21.875 kHz	6.25 kHz	-73.22	-73.09	-60
37.5 kHz	25 kHz	-74.84	-75.1	-60
62.5 kHz	25 kHz	-71.24	-71.36	-65
87.5 kHz	25 kHz	-73.76	-73.55	-65
150 kHz	100 kHz	-71.44	-71.26	-65
250 kHz	100 kHz	-76.85	-76.64	-65
350 kHz	100 kHz	-80.24	-80.41	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.7		-75
12 MHz to paired receive band	30 kHz (swept)	-92.7		-75
In the paired receive band	30 kHz (swept)	-101		-100

Adjacent Channel Power Ratio - Continued

FFSK 2400 bps
Tx FREQUENCY: 804.9 MHz 3 W 25 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
15.625 kHz	6.25 kHz	-69.84	-69.3	-40
21.875 kHz	6.25 kHz	-71.1	-71.39	-60
37.5 kHz	25 kHz	-72.76	-72.57	-60
62.5 kHz	25 kHz	-68.78	-68.95	-65
87.5 kHz	25 kHz	-72.85	-72.77	-65
150 kHz	100 kHz	-70.93	-70.96	-65
250 kHz	100 kHz	-76.57	-76.57	-65
350 kHz	100 kHz	-80.72	-80.83	-65
>400 kHz to 12 MHz	30 kHz (swept)	-86.9		-75
12 MHz to paired receive band	30 kHz (swept)	-92.6		-75
In the paired receive band	30 kHz (swept)	-101.1		-100

DMR
Tx FREQUENCY: 769.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-43	-43	-40
15.625 kHz	6.25 kHz	-73.1	-72.9	-60
21.875 kHz	6.25 kHz	-76.9	-76.8	-60
37.5 kHz	25 kHz	-72.6	-72.6	-60
62.5 kHz	25 kHz	-74.4	-74.5	-65
87.5 kHz	25 kHz	-76	-76.1	-65
150 kHz	100 kHz	-72.9	-73.1	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-79.9	-80.6	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.577		-75
12 MHz to paired receive band	30 kHz (swept)	-102.99		-75
In the paired receive band	30 kHz (swept)	-104.346		-100

DMR
Tx FREQUENCY: 774.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-42.8	-42.8	-40
15.625 kHz	6.25 kHz	-73.1	-72.9	-60
21.875 kHz	6.25 kHz	-76.8	-76.8	-60
37.5 kHz	25 kHz	-72.7	-72.7	-60
62.5 kHz	25 kHz	-74.4	-74.5	-65
87.5 kHz	25 kHz	-75.9	-76.1	-65
150 kHz	100 kHz	-72.8	-73	-65
250 kHz	100 kHz	-77.2	-77.6	-65
350 kHz	100 kHz	-79.8	-80.5	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.334		-75
12 MHz to paired receive band	30 kHz (swept)	-104.018		-75
In the paired receive band	30 kHz (swept)	-103.836		-100

Adjacent Channel Power Ratio - Continued

DMR
Tx FREQUENCY: 799.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-42.6	-42.7	-40
15.625 kHz	6.25 kHz	-73.2	-73.1	-60
21.875 kHz	6.25 kHz	-76.5	-76.5	-60
37.5 kHz	25 kHz	-72.4	-72.4	-60
62.5 kHz	25 kHz	-74	-74.1	-65
87.5 kHz	25 kHz	-75.4	-75.6	-65
150 kHz	100 kHz	-72.3	-72.5	-65
250 kHz	100 kHz	-76.7	-77.1	-65
350 kHz	100 kHz	-79.3	-80	-65
>400 kHz to 12 MHz	30 kHz (swept)	-84.622		-75
12 MHz to paired receive band	30 kHz (swept)	-100.448		-75
In the paired receive band	30 kHz (swept)	-100.89		-100

DMR
Tx FREQUENCY: 804.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-42.9	-42.8	-40
15.625 kHz	6.25 kHz	-70	-69.9	-60
21.875 kHz	6.25 kHz	-72.2	-72.1	-60
37.5 kHz	25 kHz	-67.9	-67.9	-60
62.5 kHz	25 kHz	-70.6	-70.6	-65
87.5 kHz	25 kHz	-74.2	-74.5	-65
150 kHz	100 kHz	-72.4	-72.5	-65
250 kHz	100 kHz	-77.2	-77.6	-65
350 kHz	100 kHz	-79.6	-80.4	-65
>400 kHz to 12 MHz	30 kHz (swept)	-84.861		-75
12 MHz to paired receive band	30 kHz (swept)	-97.039		-75
In the paired receive band	30 kHz (swept)	-101.342		-100

P25 Phase I C4FM
Tx FREQUENCY: 769.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-40.5	-40.4	-40
15.625 kHz	6.25 kHz	-75.1	-75.1	-60
21.875 kHz	6.25 kHz	-77.2	-77.2	-60
37.5 kHz	25 kHz	-72.5	-72.5	-60
62.5 kHz	25 kHz	-74.2	-74.3	-65
87.5 kHz	25 kHz	-75.9	-76	-65
150 kHz	100 kHz	-72.8	-73	-65
250 kHz	100 kHz	-77.3	-77.6	-65
350 kHz	100 kHz	-80	-80.7	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.419		-75
12 MHz to paired receive band	30 kHz (swept)	-103.171		-75
In the paired receive band	30 kHz (swept)	-105.006		-100

Adjacent Channel Power Ratio - Continued

P25 Phase I C4FM
Tx FREQUENCY: 774.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-40.5	-40.4	-40
15.625 kHz	6.25 kHz	-75.1	-75	-60
21.875 kHz	6.25 kHz	-77.6	-77.5	-60
37.5 kHz	25 kHz	-72.7	-72.7	-60
62.5 kHz	25 kHz	-74.3	-74.4	-65
87.5 kHz	25 kHz	-75.9	-76	-65
150 kHz	100 kHz	-72.7	-72.9	-65
250 kHz	100 kHz	-77.1	-77.5	-65
350 kHz	100 kHz	-79.8	-80.5	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.836		-75
12 MHz to paired receive band	30 kHz (swept)	-102.906		-75
In the paired receive band	30 kHz (swept)	-103.498		-100

P25 Phase I C4FM
Tx FREQUENCY: 799.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-40.5	-40.4	-40
15.625 kHz	6.25 kHz	-75.3	-75.2	-60
21.875 kHz	6.25 kHz	-77.1	-77.1	-60
37.5 kHz	25 kHz	-72.5	-72.5	-60
62.5 kHz	25 kHz	-74.1	-74.1	-65
87.5 kHz	25 kHz	-75.5	-75.6	-65
150 kHz	100 kHz	-72.2	-72.3	-65
250 kHz	100 kHz	-76.7	-77	-65
350 kHz	100 kHz	-79.2	-80	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.183		-75
12 MHz to paired receive band	30 kHz (swept)	-99.984		-75
In the paired receive band	30 kHz (swept)	-101.16		-100

P25 Phase I C4FM
Tx FREQUENCY: 804.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-40.5	-40.3	-40
15.625 kHz	6.25 kHz	-71	-71.1	-60
21.875 kHz	6.25 kHz	-72.6	-72.7	-60
37.5 kHz	25 kHz	-68	-68	-60
62.5 kHz	25 kHz	-70.7	-70.8	-65
87.5 kHz	25 kHz	-74.2	-74.4	-65
150 kHz	100 kHz	-72.5	-72.7	-65
250 kHz	100 kHz	-77.2	-77.5	-65
350 kHz	100 kHz	-79.6	-80.4	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.197		-75
12 MHz to paired receive band	30 kHz (swept)	-96.847		-75
In the paired receive band	30 kHz (swept)	-100.988		-100

Adjacent Channel Power Ratio - Continued

P25 Phase II HCPM
Tx FREQUENCY: 769.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-42.5	-42.7	-40
15.625 kHz	6.25 kHz	-75.2	-75.1	-60
21.875 kHz	6.25 kHz	-77.4	-77.3	-60
37.5 kHz	25 kHz	-72.6	-72.6	-60
62.5 kHz	25 kHz	-74.3	-74.3	-65
87.5 kHz	25 kHz	-75.9	-76	-65
150 kHz	100 kHz	-72.8	-72.9	-65
250 kHz	100 kHz	-77.2	-77.6	-65
350 kHz	100 kHz	-80	-80.7	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.852		-75
12 MHz to paired receive band	30 kHz (swept)	-102.345		-75
In the paired receive band	30 kHz (swept)	-104.573		-100

P25 Phase II HCPM
Tx FREQUENCY: 774.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-42.4	-42.7	-40
15.625 kHz	6.25 kHz	-74.9	-74.8	-60
21.875 kHz	6.25 kHz	-77.5	-77.4	-60
37.5 kHz	25 kHz	-72.7	-72.7	-60
62.5 kHz	25 kHz	-74.3	-74.4	-65
87.5 kHz	25 kHz	-75.9	-76	-65
150 kHz	100 kHz	-72.7	-72.8	-65
250 kHz	100 kHz	-77.2	-77.5	-65
350 kHz	100 kHz	-79.8	-80.5	-65
>400 kHz to 12 MHz	30 kHz (swept)	-85.072		-75
12 MHz to paired receive band	30 kHz (swept)	-102.735		-75
In the paired receive band	30 kHz (swept)	-103.981		-100

P25 Phase II HCPM
Tx FREQUENCY: 799.075 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-42.4	-42.7	-40
15.625 kHz	6.25 kHz	-75.2	-75.2	-60
21.875 kHz	6.25 kHz	-77.2	-77.1	-60
37.5 kHz	25 kHz	-72.5	-72.5	-60
62.5 kHz	25 kHz	-74.1	-74.1	-65
87.5 kHz	25 kHz	-75.5	-75.6	-65
150 kHz	100 kHz	-72.3	-72.4	-65
250 kHz	100 kHz	-76.7	-77	-65
350 kHz	100 kHz	-79.3	-80	-65
>400 kHz to 12 MHz	30 kHz (swept)	-84.863		-75
12 MHz to paired receive band	30 kHz (swept)	-100.695		-75
In the paired receive band	30 kHz (swept)	-100.991		-100

Adjacent Channel Power Ratio - Continued

P25 Phase II HCPM
Tx FREQUENCY: 804.9 MHz 3 W 12.5 kHz Channel Spacing

Frequency Offset	Measurement Bandwidth	ACP Measured Lower (dBc)	ACP Measured Upper (dBc)	Maximum ACP(dBc)
9.375 kHz	6.25 kHz	-42.3	-42.7	-40
15.625 kHz	6.25 kHz	-70.9	-70.9	-60
21.875 kHz	6.25 kHz	-72.4	-72.5	-60
37.5 kHz	25 kHz	-68.1	-68	-60
62.5 kHz	25 kHz	-70.6	-70.7	-65
87.5 kHz	25 kHz	-74.2	-74.5	-65
150 kHz	100 kHz	-72.5	-72.6	-65
250 kHz	100 kHz	-77.2	-77.5	-65
350 kHz	100 kHz	-79.6	-80.3	-65
>400 kHz to 12 MHz	30 kHz (swept)	-84.779		-75
12 MHz to paired receive band	30 kHz (swept)	-96.946		-75
In the paired receive band	30 kHz (swept)	-100.597		-100

TRANSMITTER SPURIOUS EMISSIONS (CONDUCTED)

SPECIFICATIONS: FCC 47 CFR 2.1051 RSS-119 5.8

GUIDE: TIA-603-E 2.2.13 (analogue)
TIA-102-CAAA-C 2.2.7 (digital)

MEASUREMENT PROCEDURE:

1. Refer Annex A for equipment set up.
2. The frequency range examined was from the lowest frequency generated within the EUT, to a frequency higher than the 10th Harmonic.
3. The EUT was set to transmit high or low power. 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.
4. For frequencies close to the carrier the spectrum was measured using a resolution bandwidth of 1kHz, the results were then integrated to give measurements for 100kHz bandwidth.
5. A low-pass filter was used for frequencies from less than two times the carrier to frequencies as stated on the following graphs.
6. For each frequency range the spectrum analyser was loaded with the appropriate calibration figures to compensate for the cables, attenuator, and filter 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.
7. The results of the various sweeps were combined programmatically to give charts for frequencies near the carrier, up to 1GHz and above 1GHz.

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

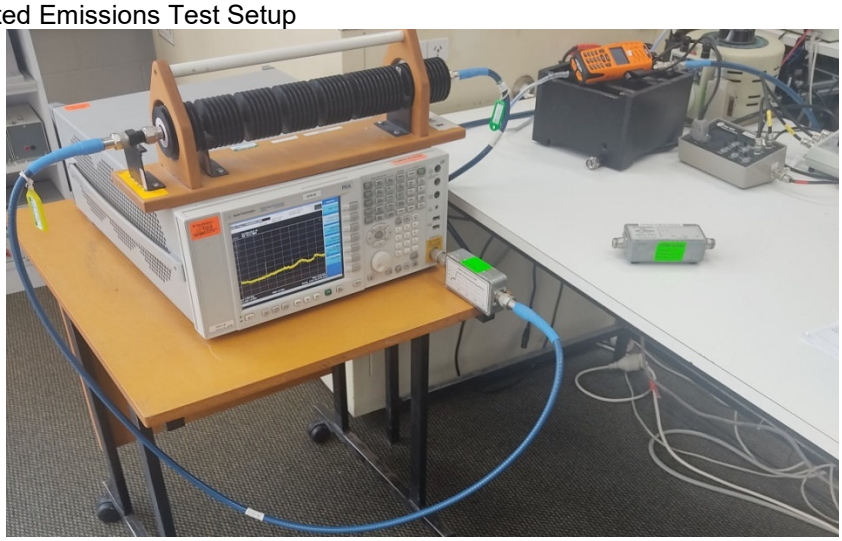
Example of attenuation correction: (dB)

E5023 30dB 350W CK9178	31.87	
E5015 3m Blue 503429	0.34	
E5028 1m5 Blue 501868	0.15	
Total Attenuation @ 138 MHz	0.01	Sum of component attenuation (a)
Amplitude offset	32.36	(b)
Correction @ 138 MHz	0.01	(a-b)

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

LIMIT CLAUSES: FCC 47 CFR 90.210 RSS-119 5.8

Photo: Conducted Emissions Test Setup



Spurious Emissions (Tx Conducted)

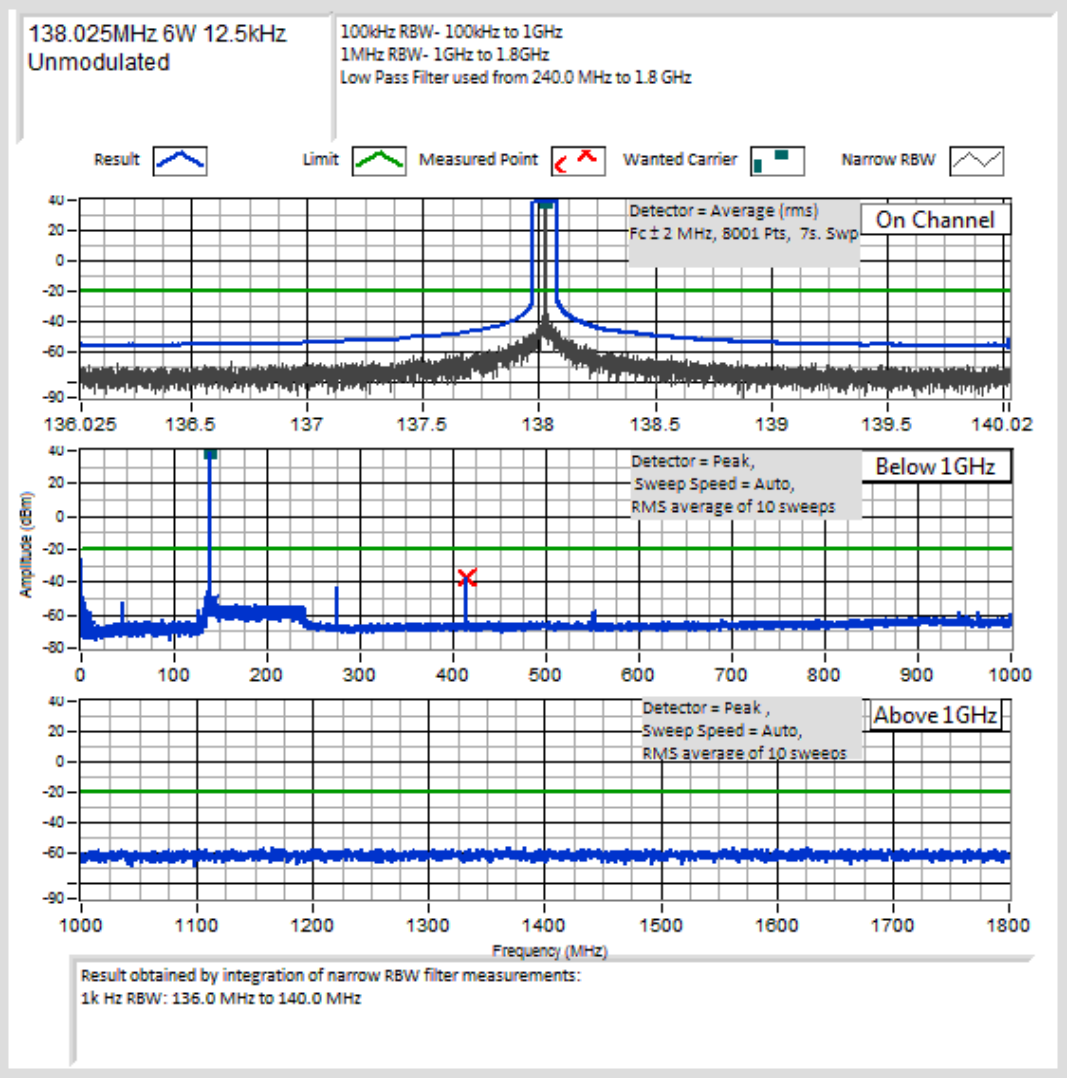
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 138.025 MHz @ 6 W Emission Mask D

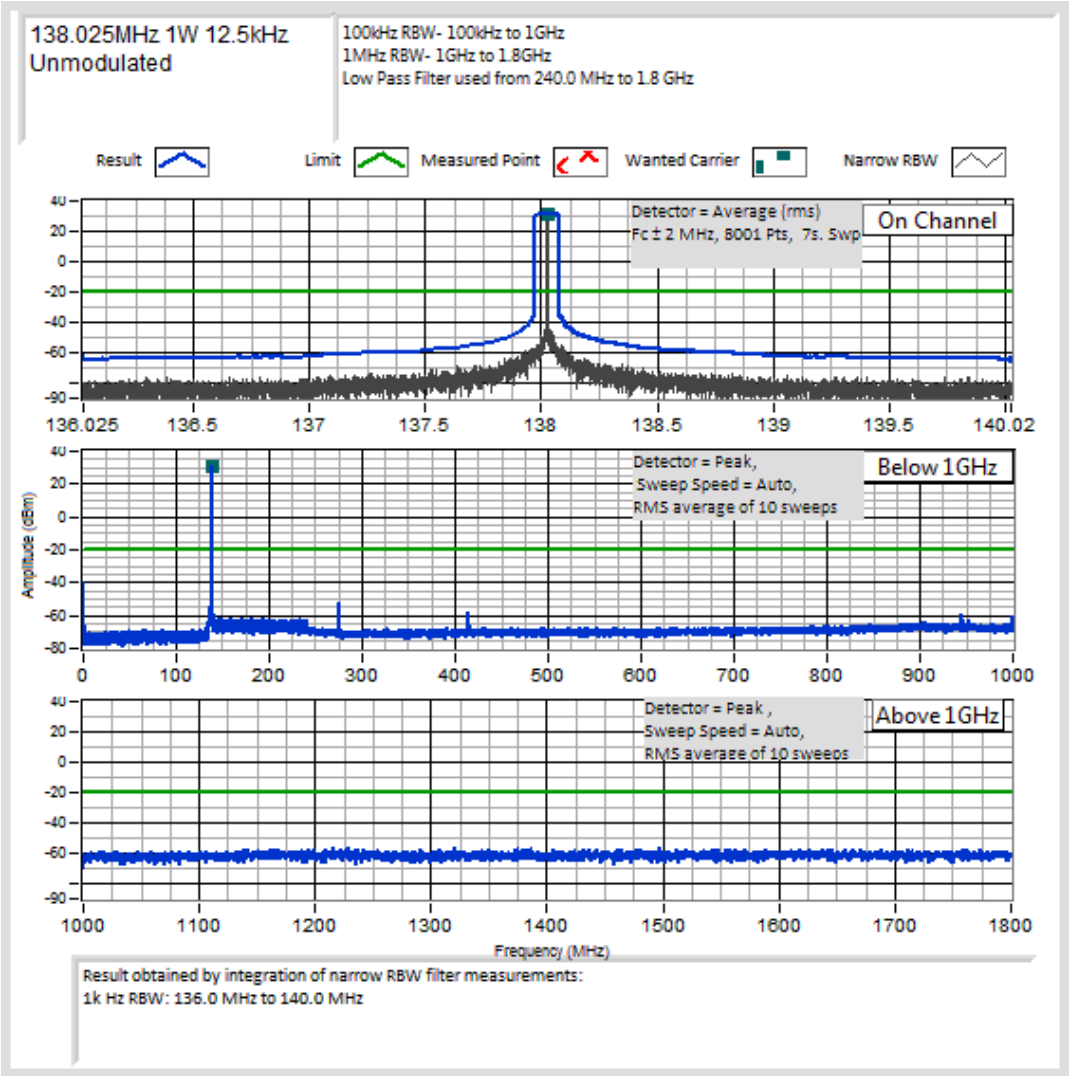
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
414.0642168	-37.1	-75.1

12.5 kHz Channel Spacing 138.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

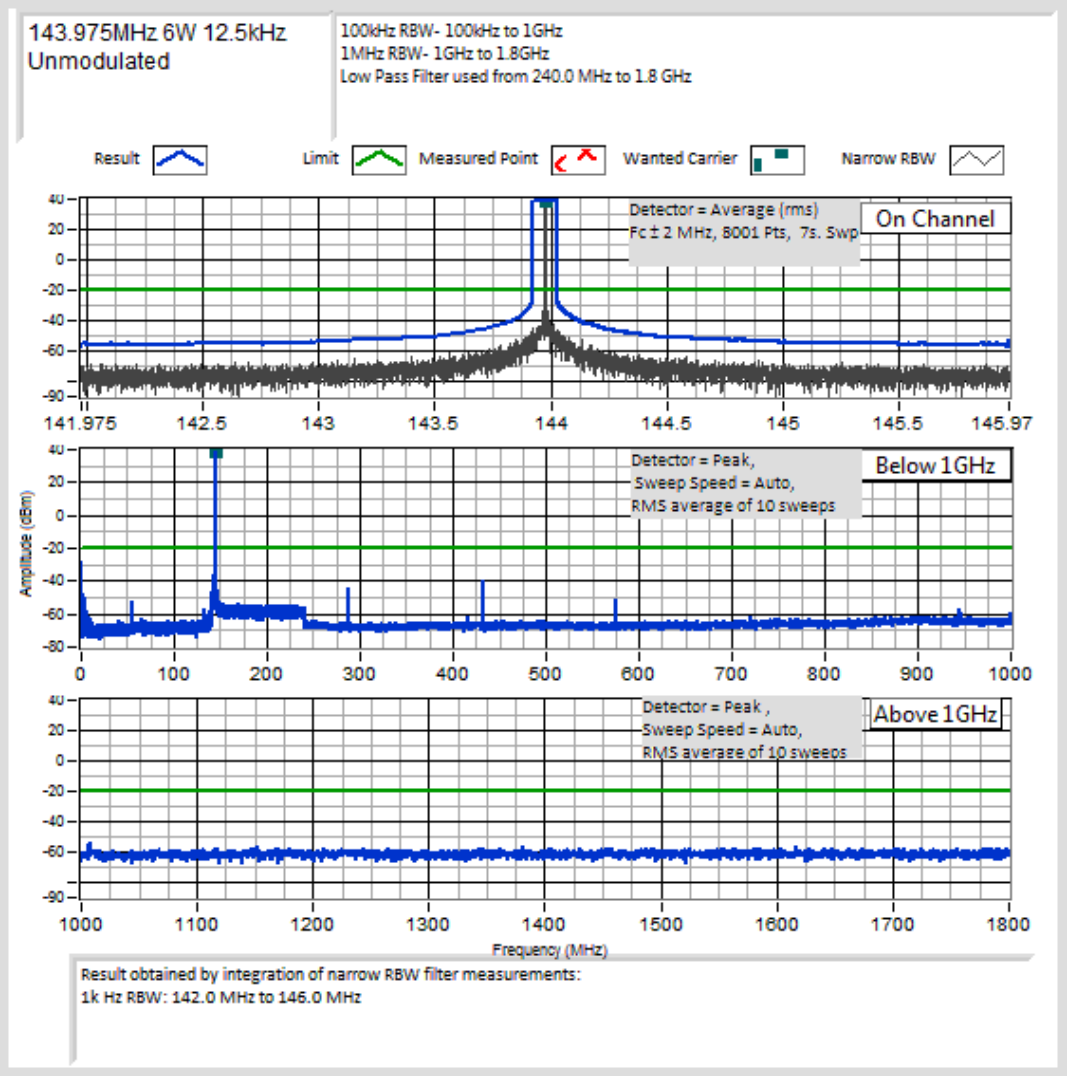
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 143.975 MHz @ 6 W Emission Mask D

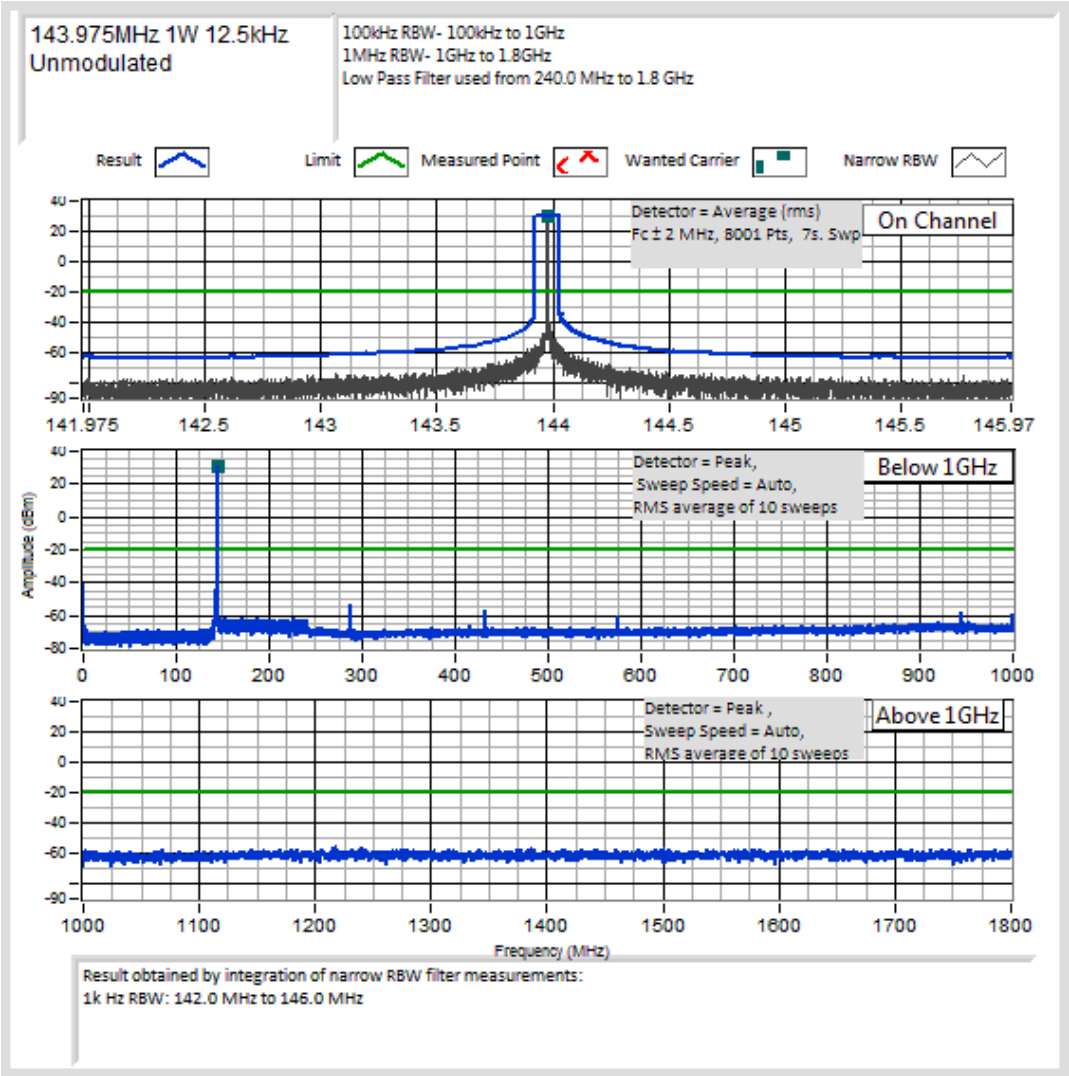
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 143.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

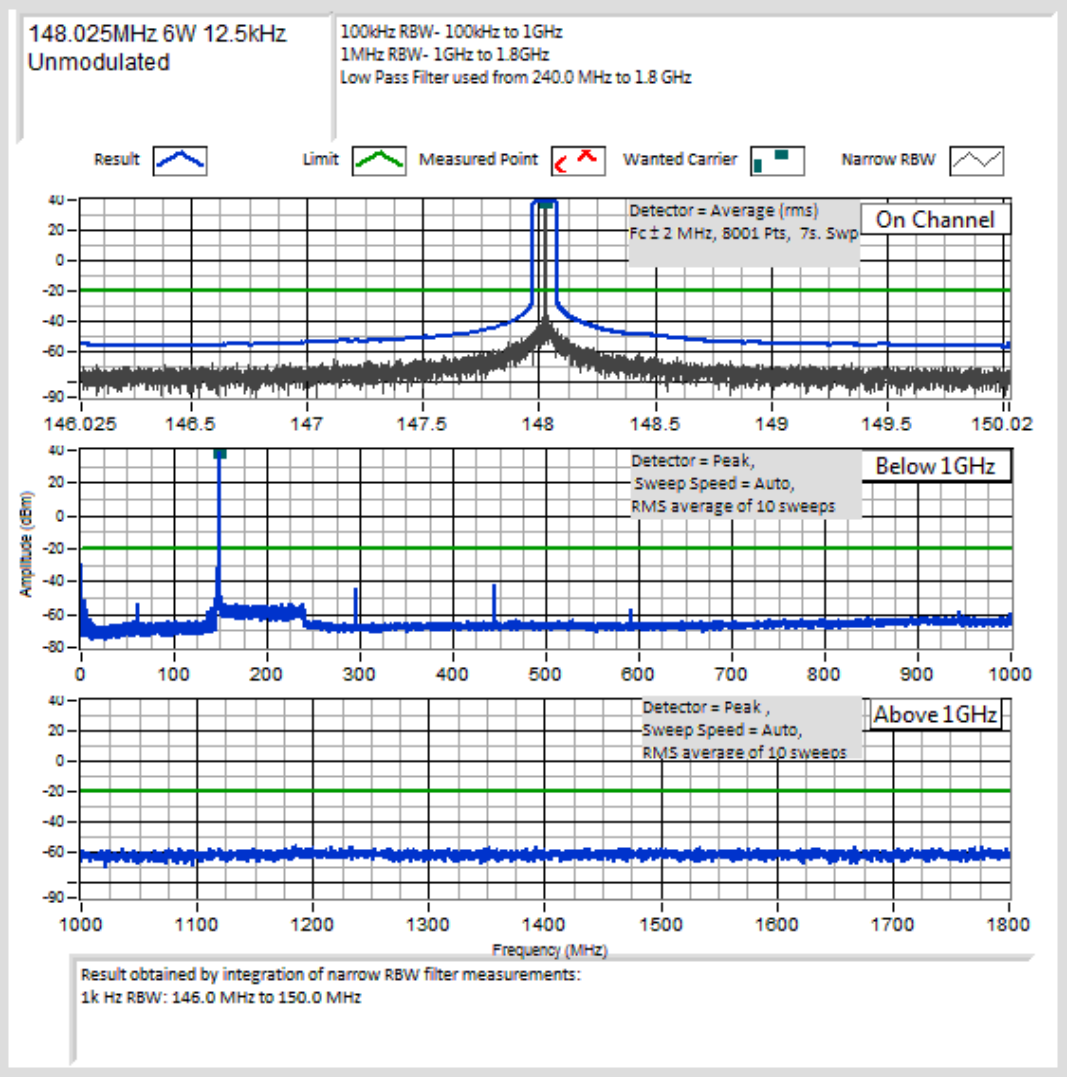
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 148.025 MHz @ 6 W Emission Mask D

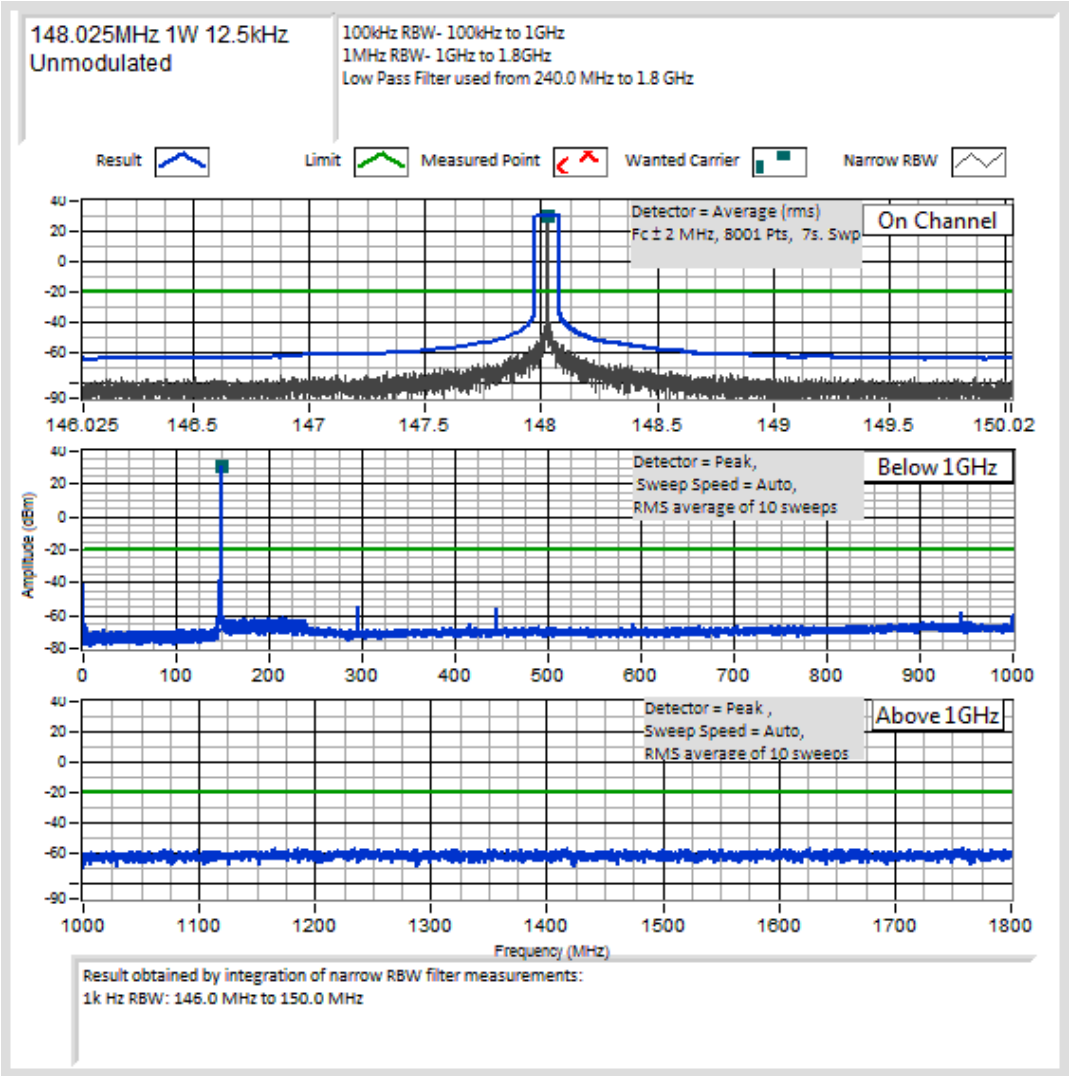
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 148.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

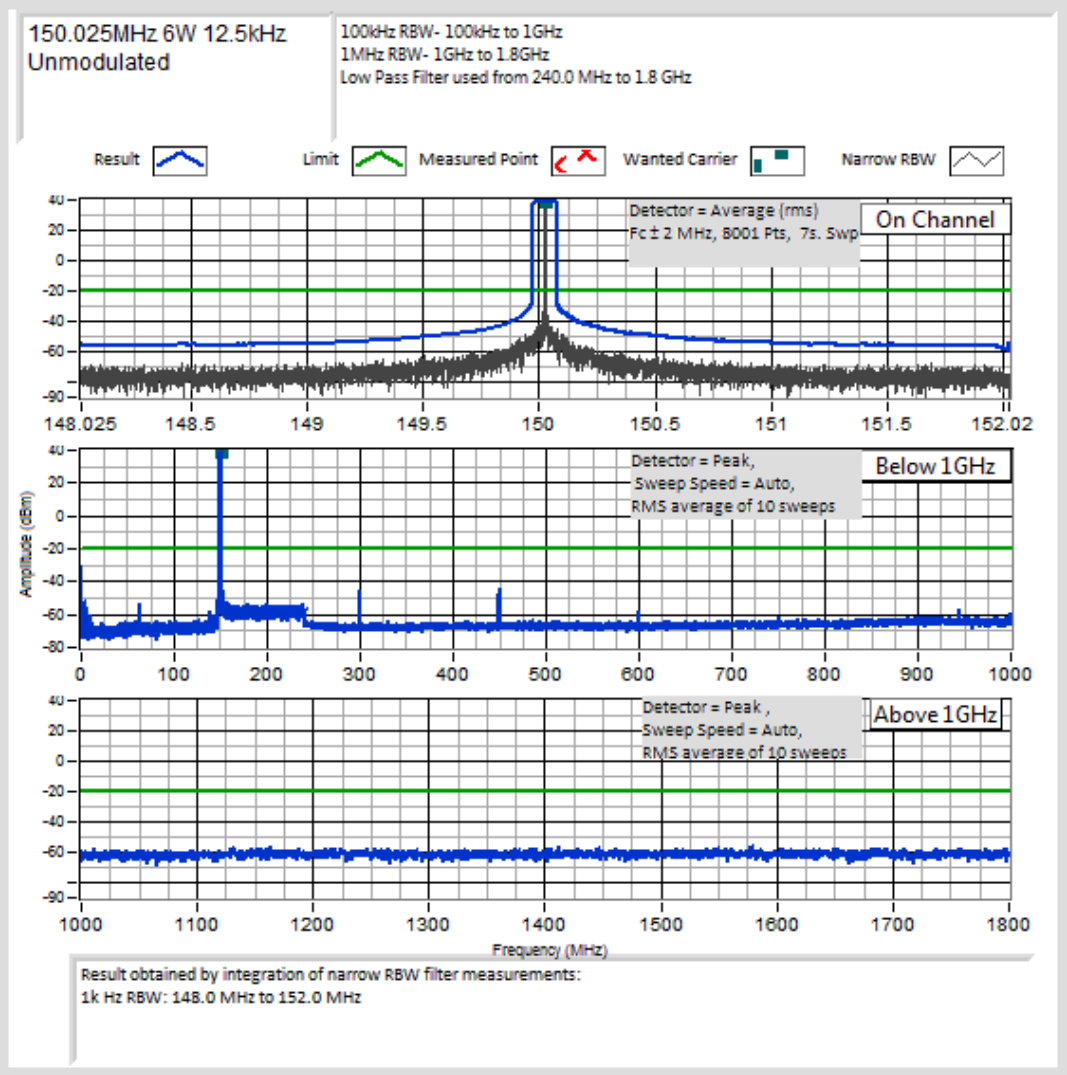
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 150.025 MHz @ 6 W Emission Mask D

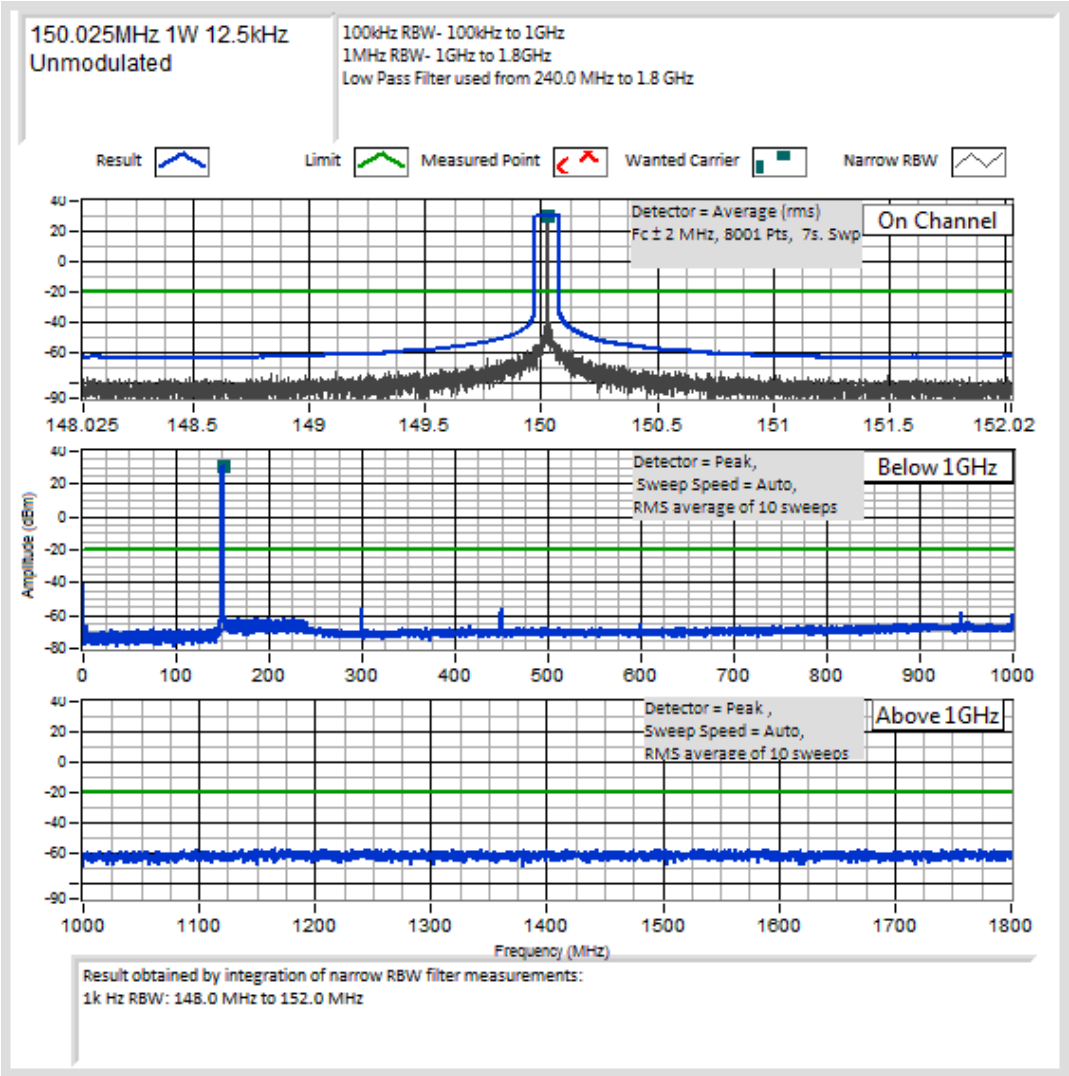
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 150.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

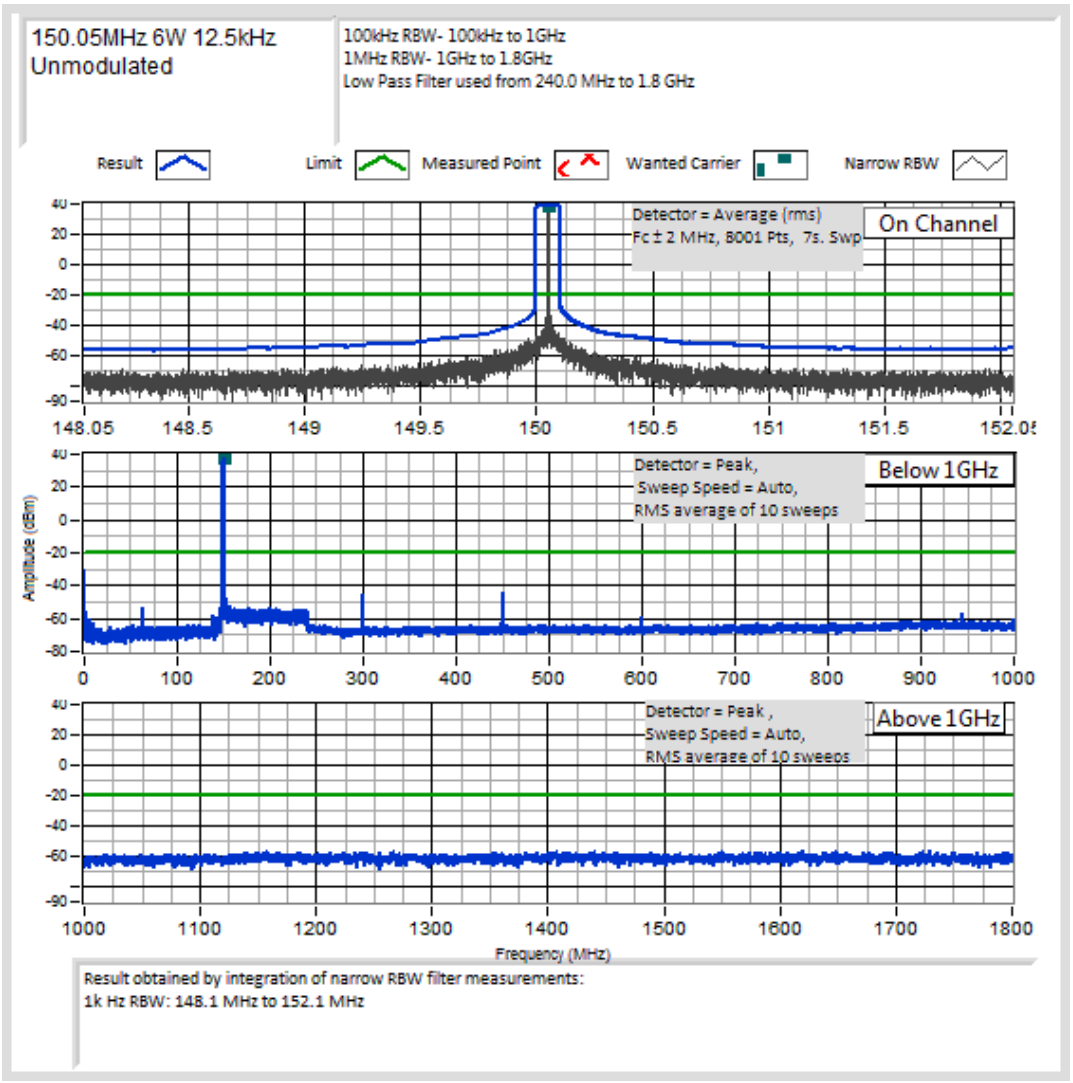
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 150.05 MHz @ 6 W Emission Mask D

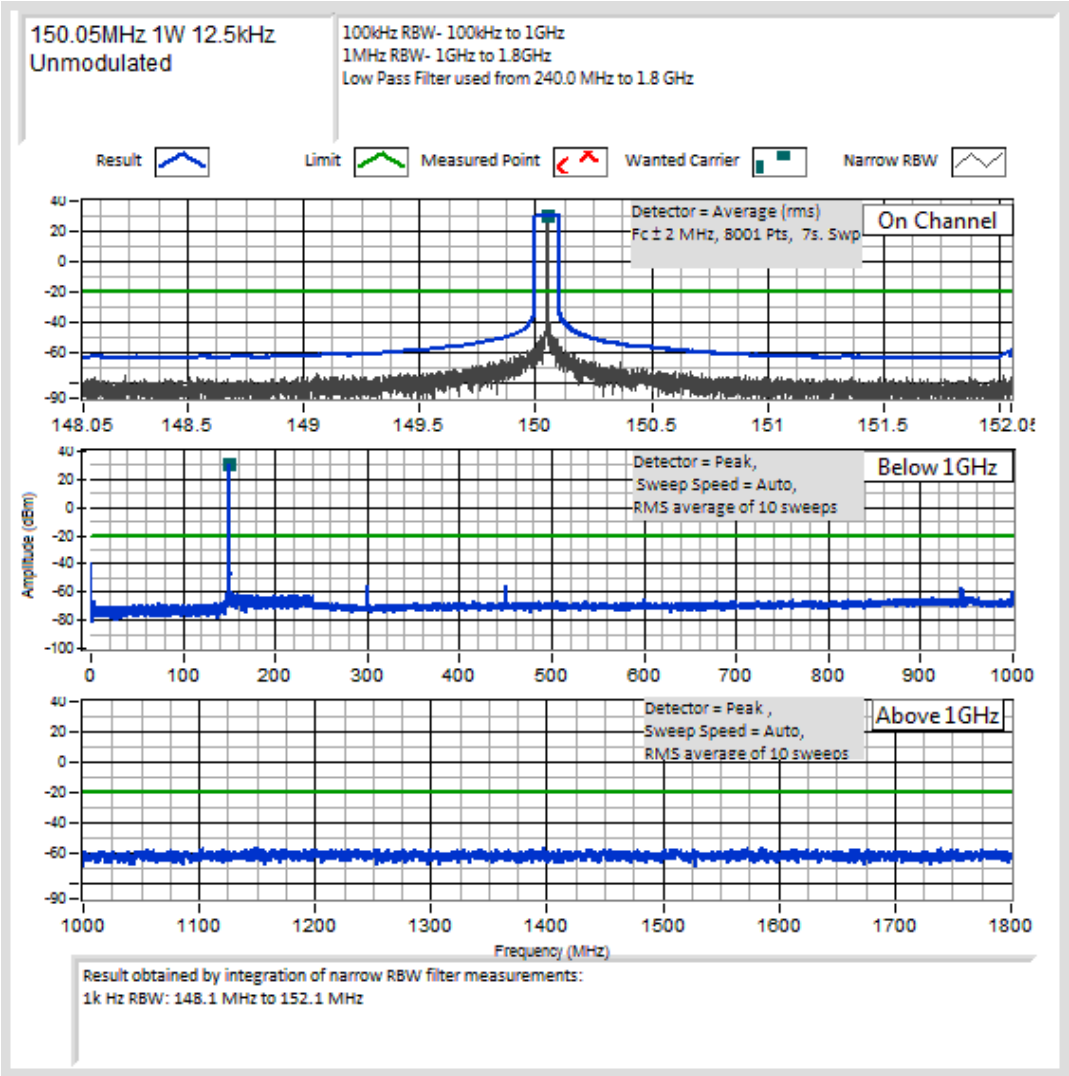
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 150.05 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

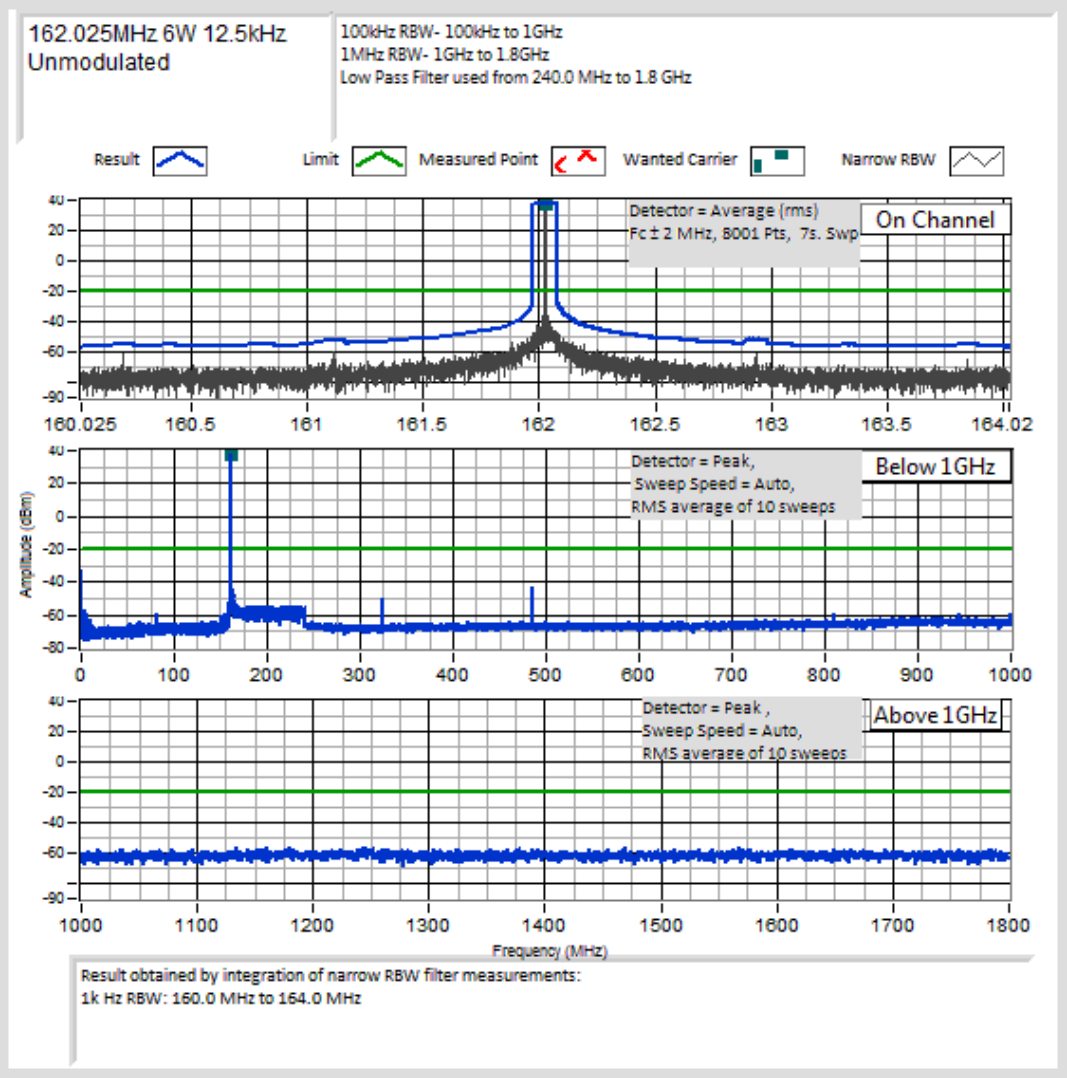
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 162.025 MHz @ 6 W Emission Mask D

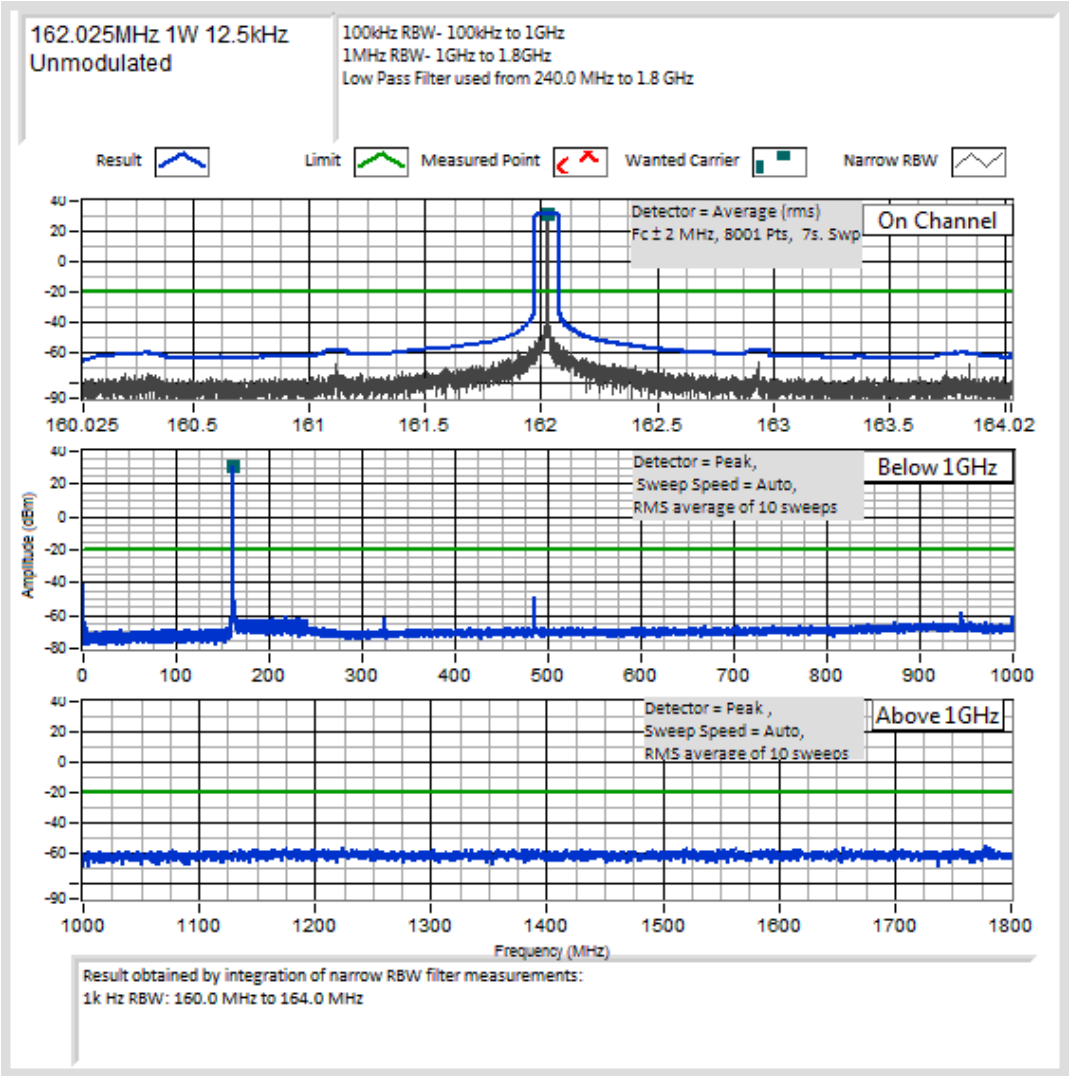
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 162.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

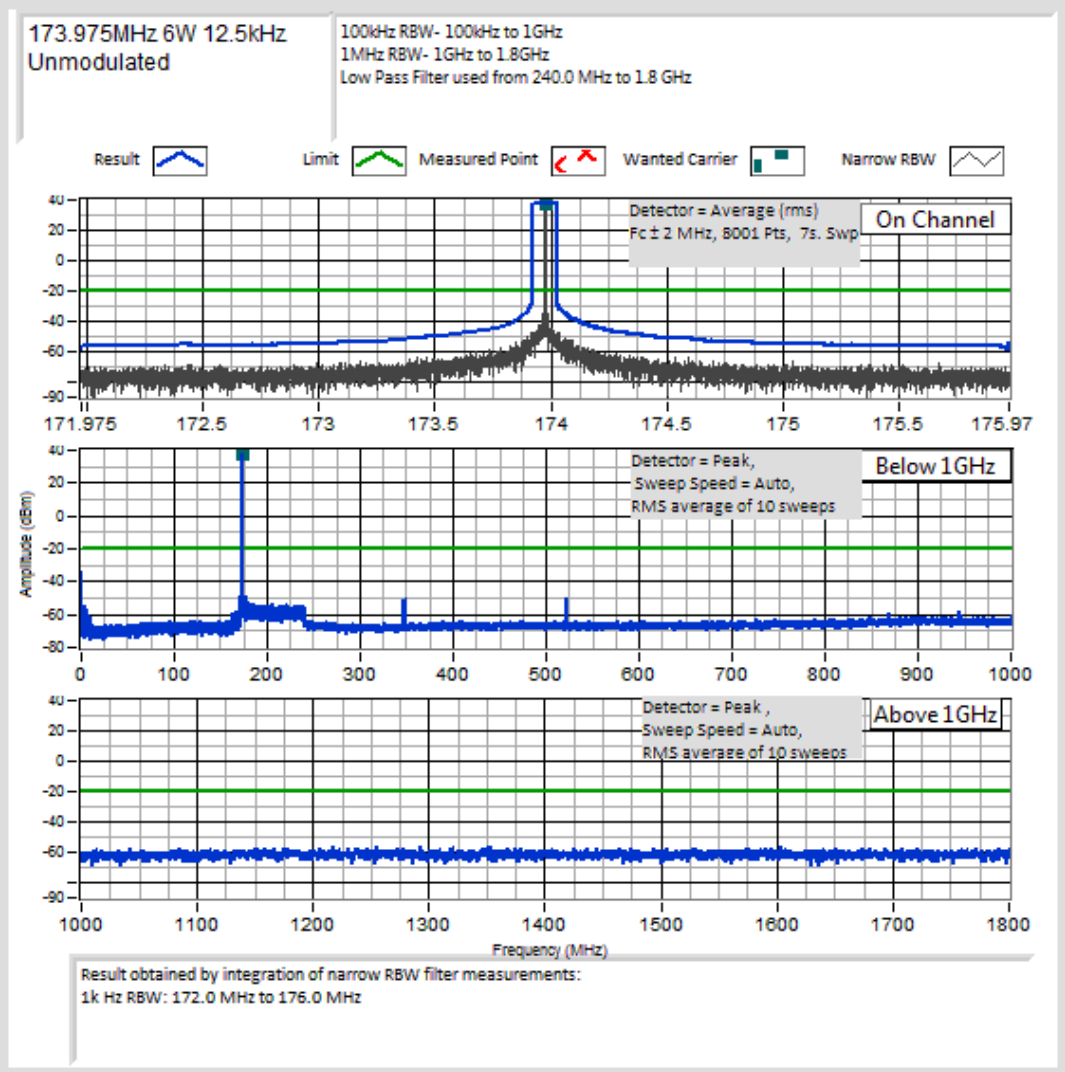
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 173.975 MHz @ 6 W Emission Mask D

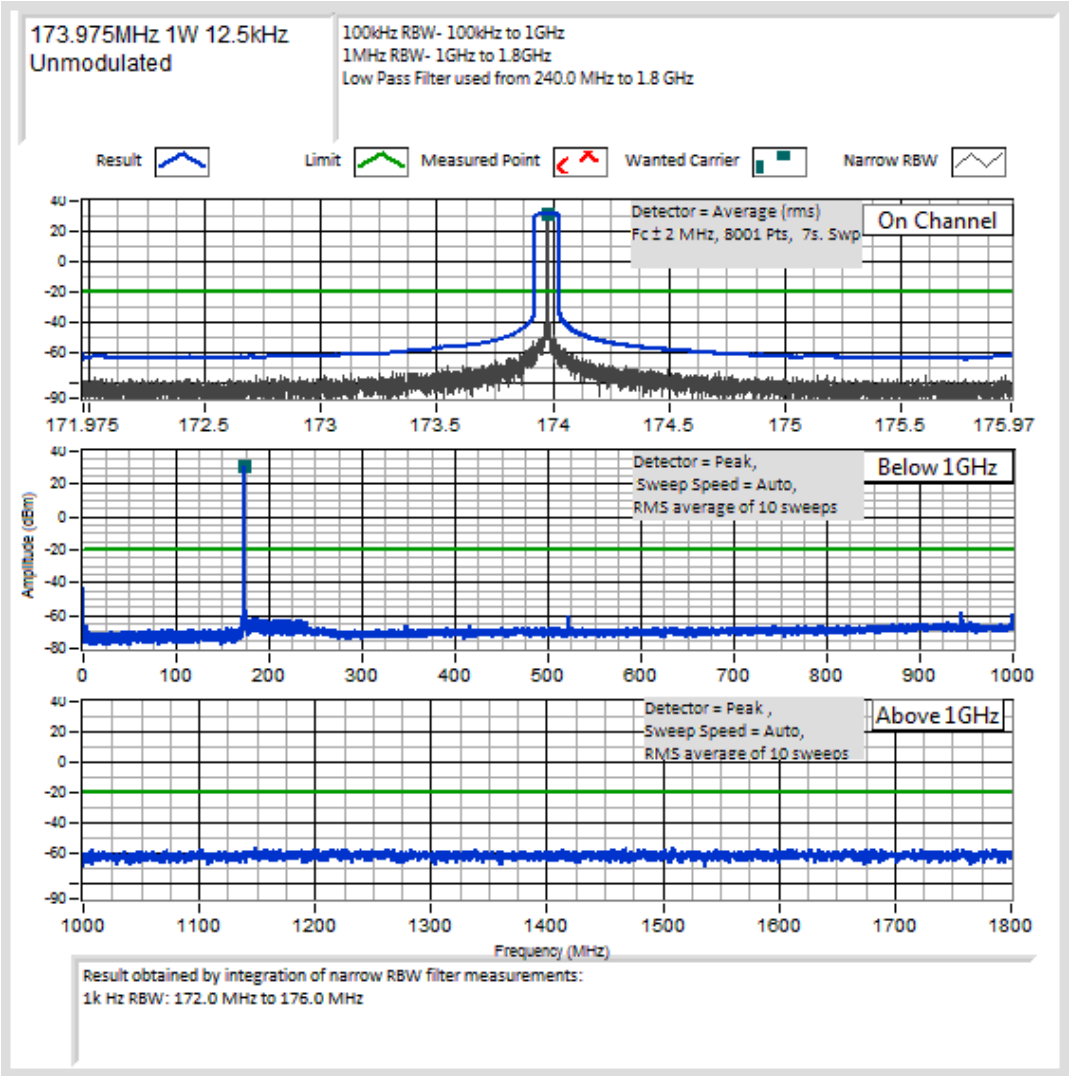
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 173.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

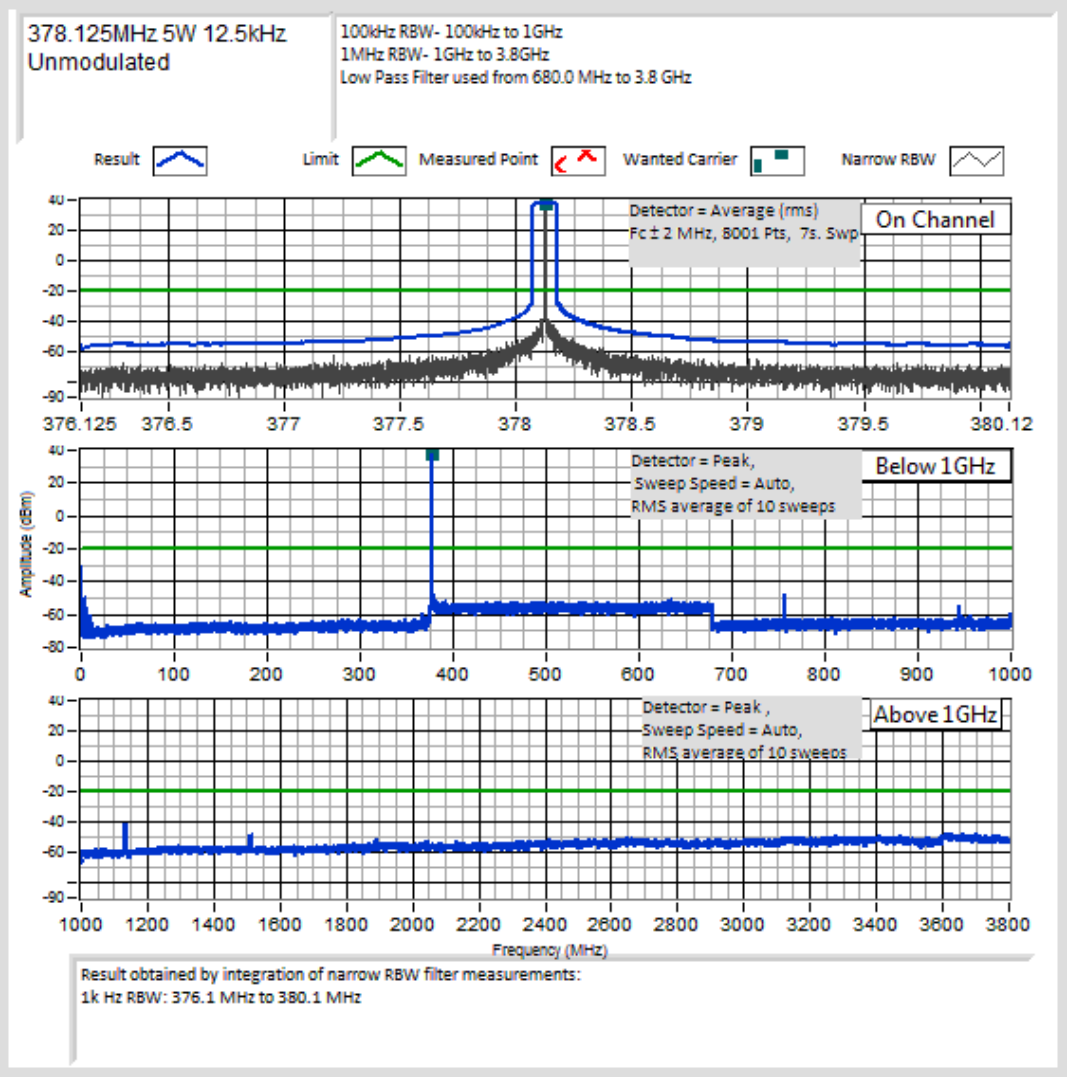
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 378.125 MHz @ 5 W Emission Mask D

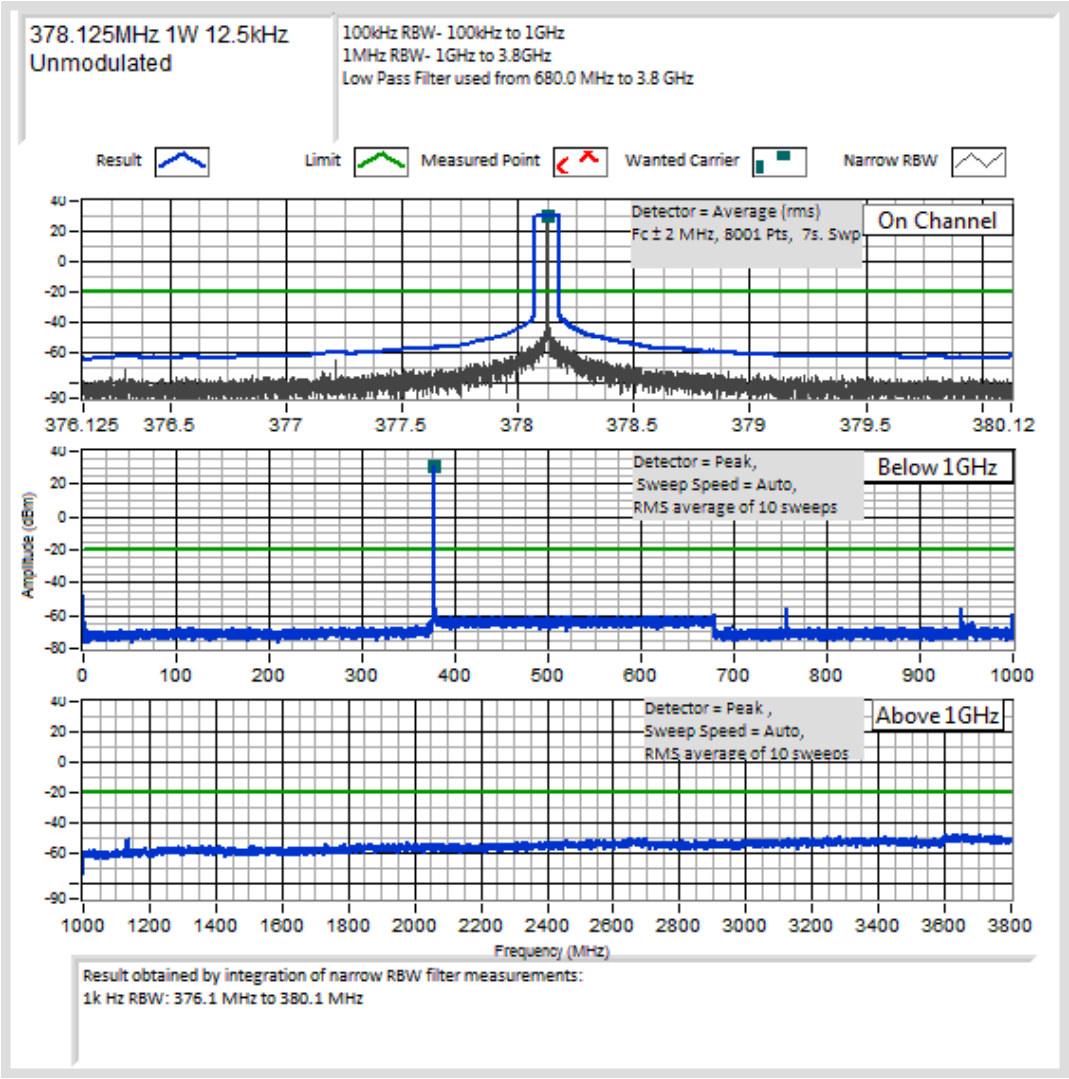
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 378.125 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

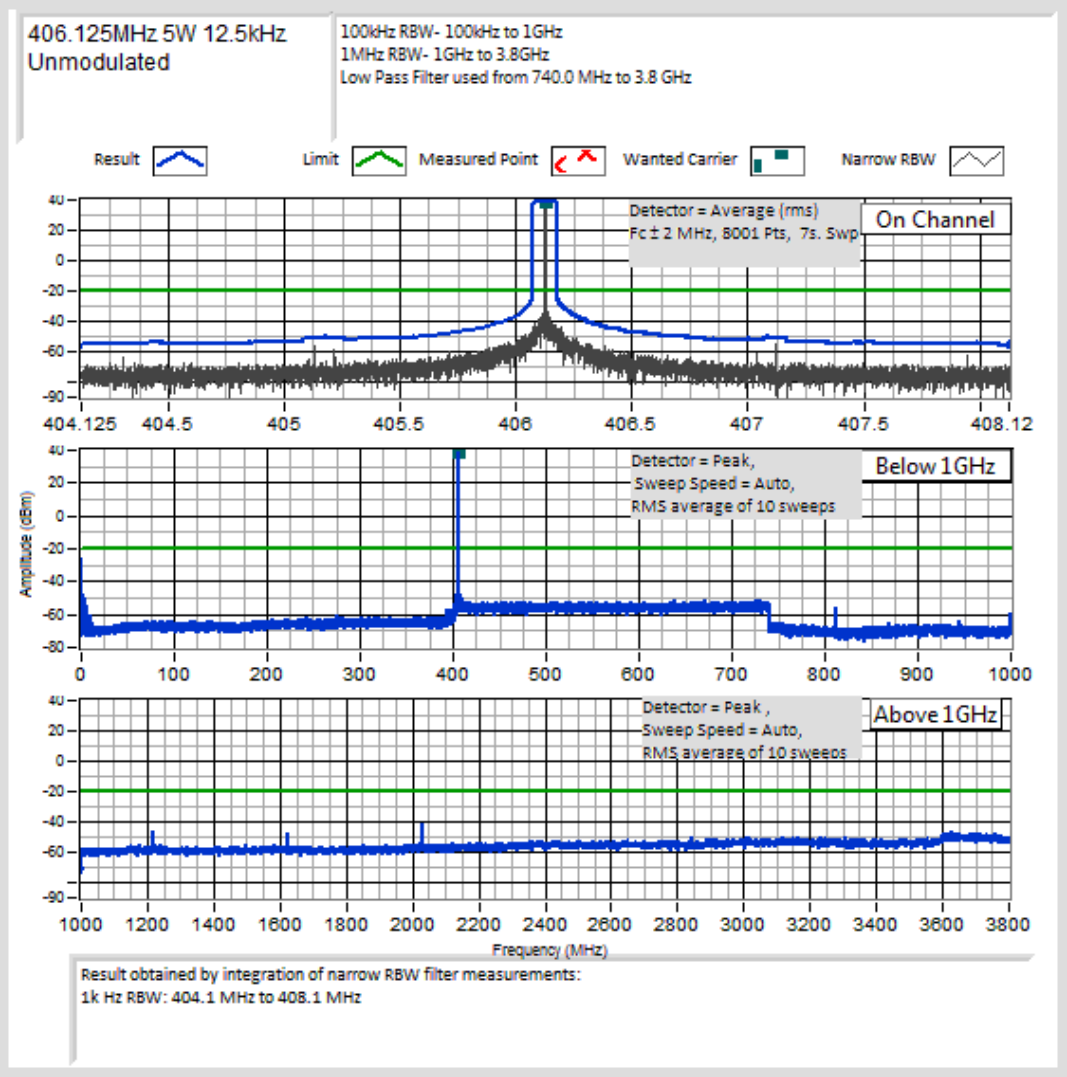
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 406.125 MHz @ 5 W Emission Mask D

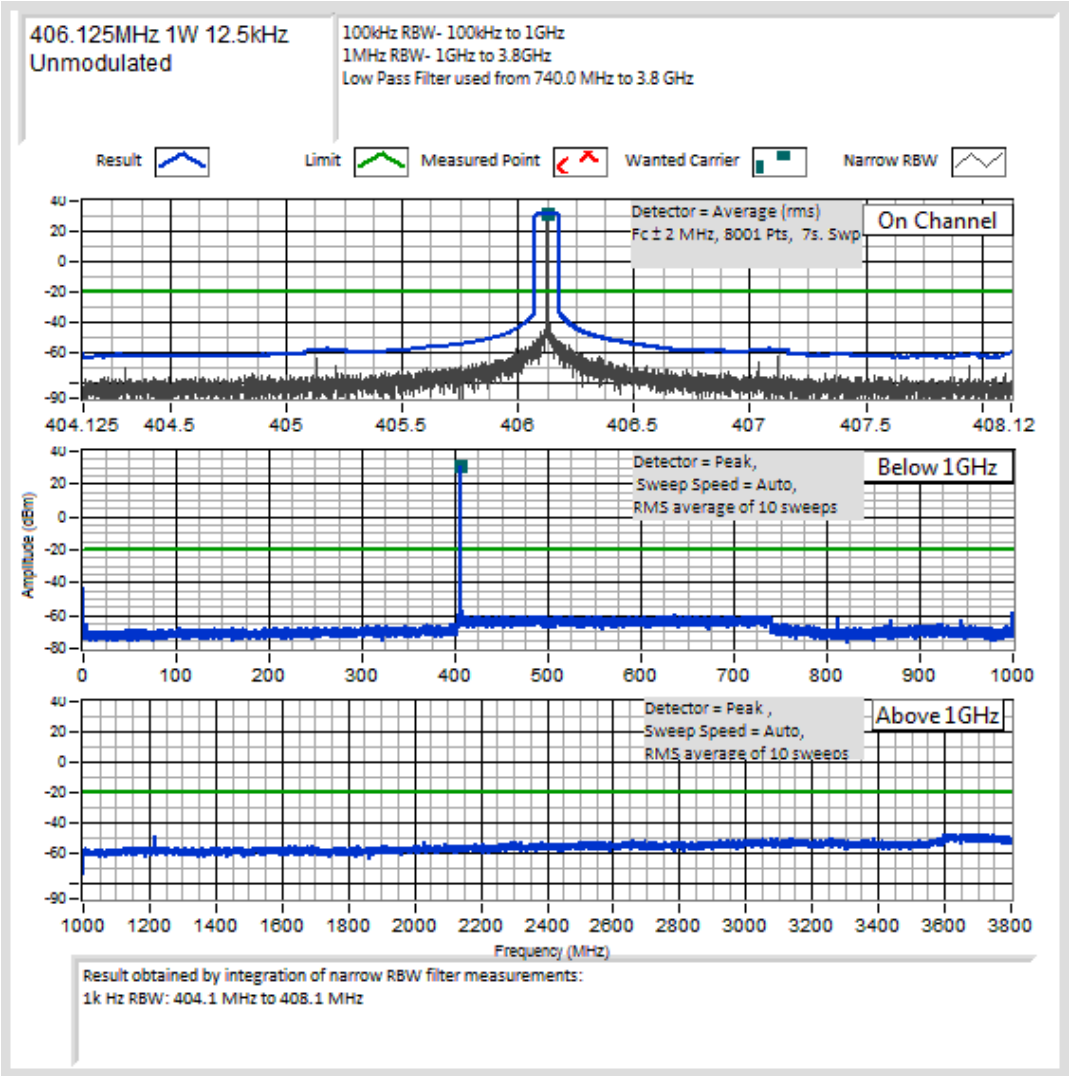
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 406.125 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

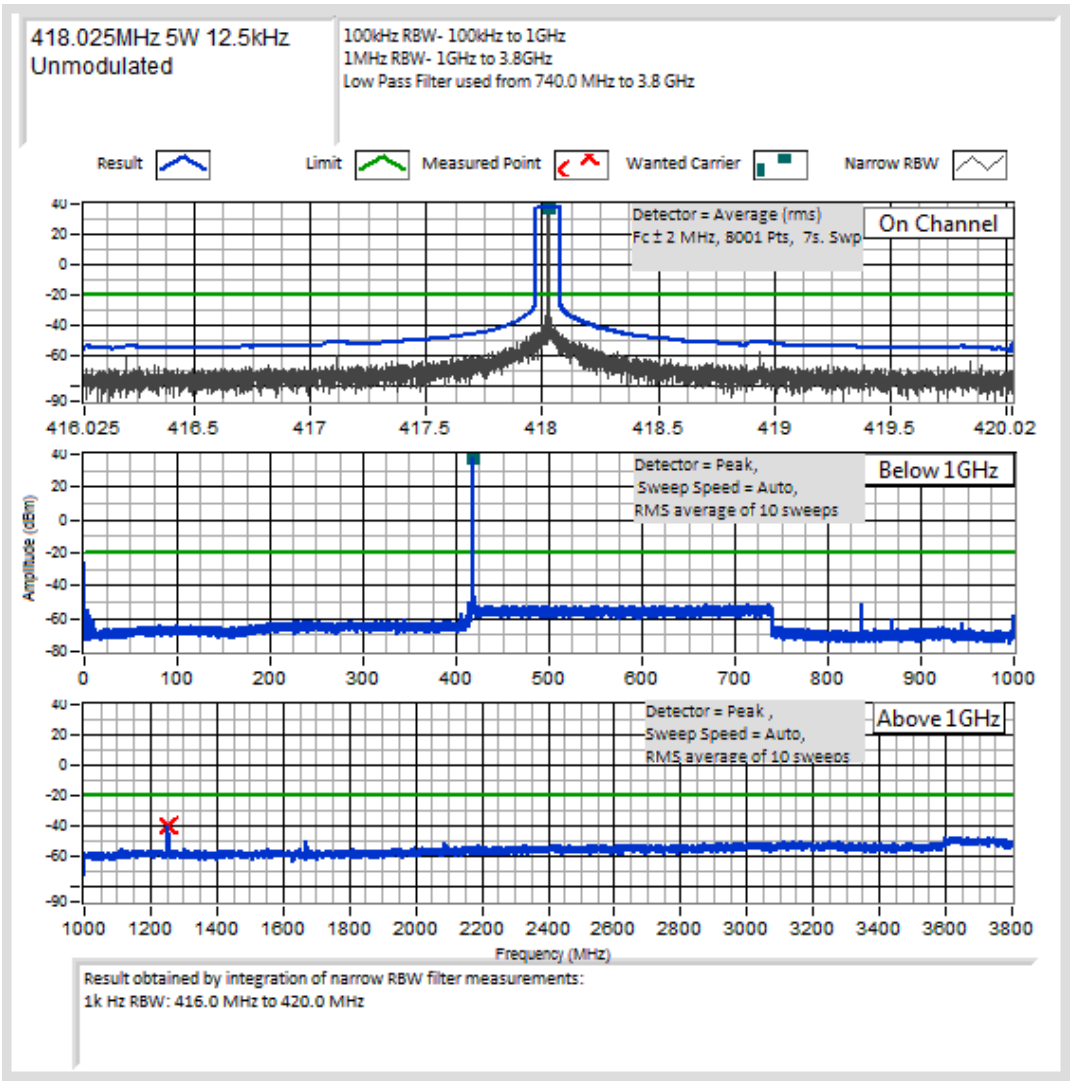
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 418.025 MHz @ 5 W Emission Mask D

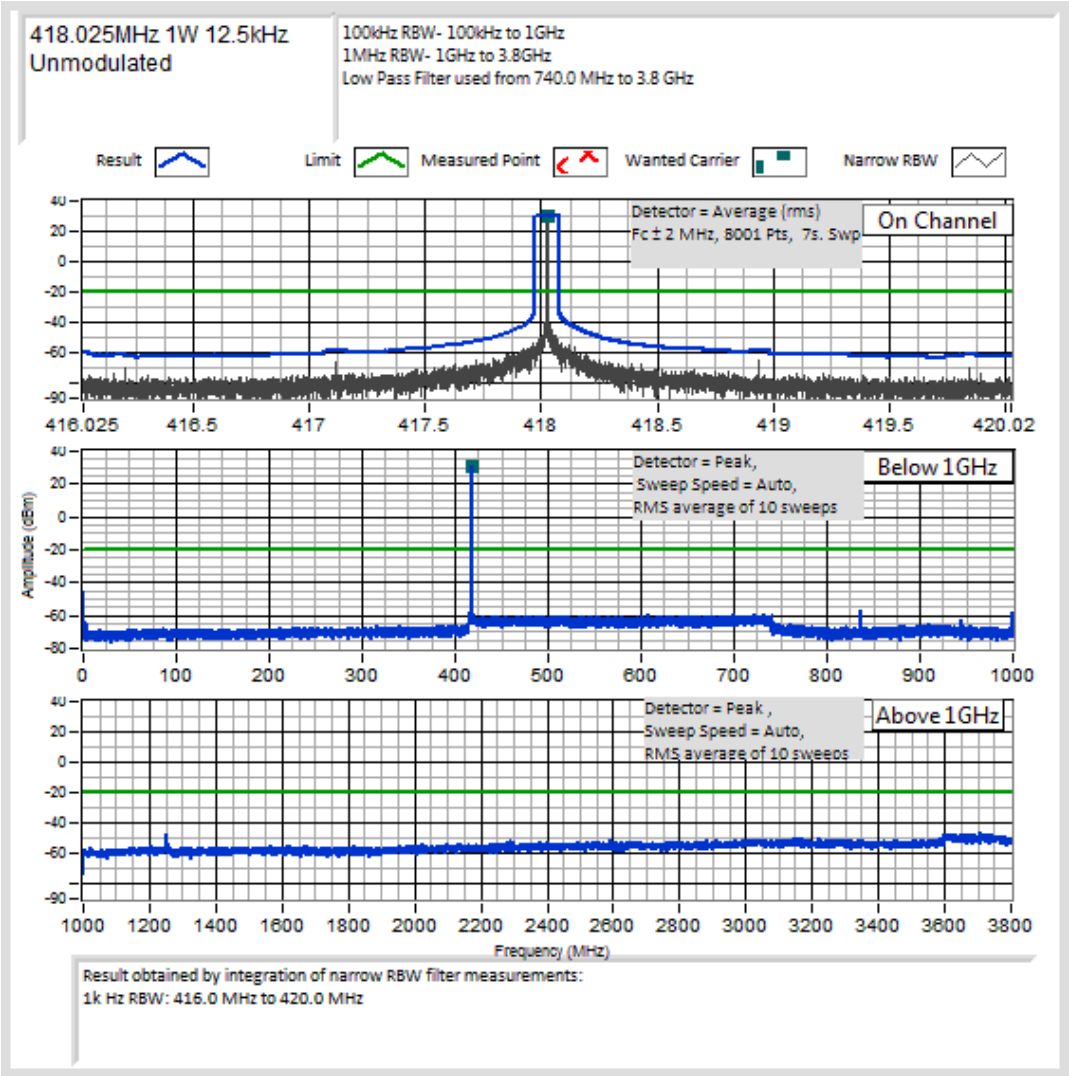
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1253.986082	-39.9	-76.9

12.5 kHz Channel Spacing 418.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

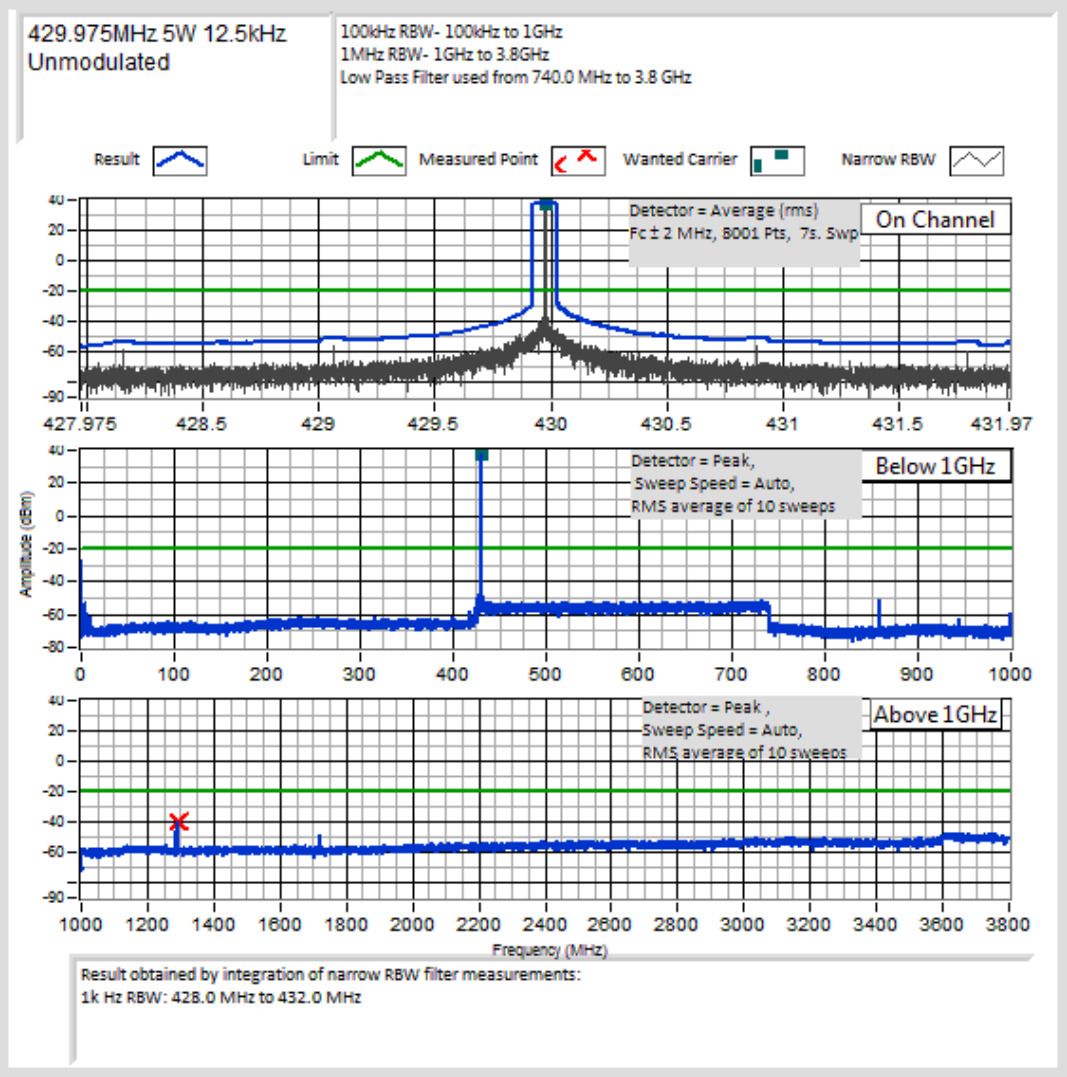
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 429.975 MHz @ 5 W Emission Mask D

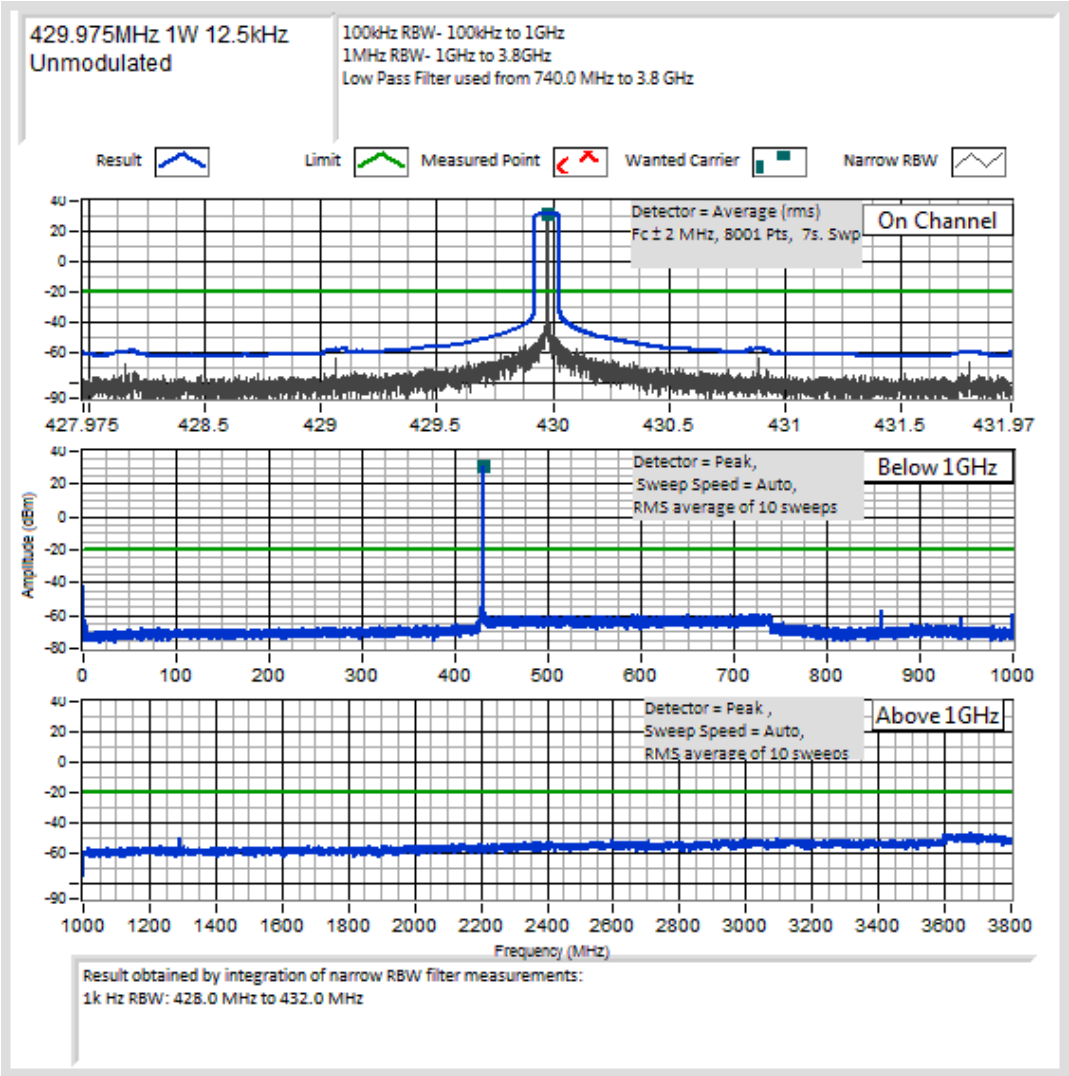
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1289.879136	-39.4	-76.4

12.5 kHz Channel Spacing 429.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

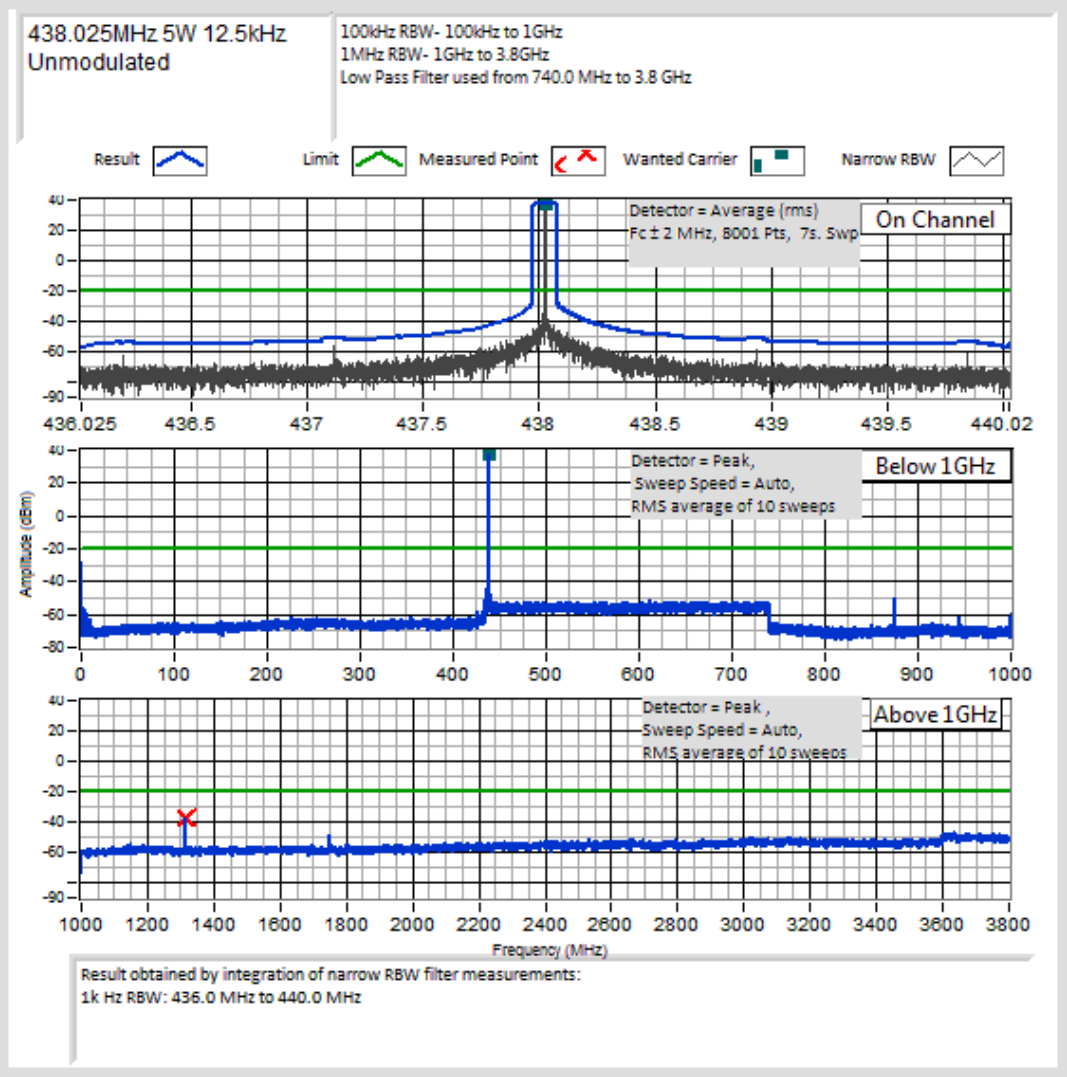
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 438.025 MHz @ 5 W Emission Mask D

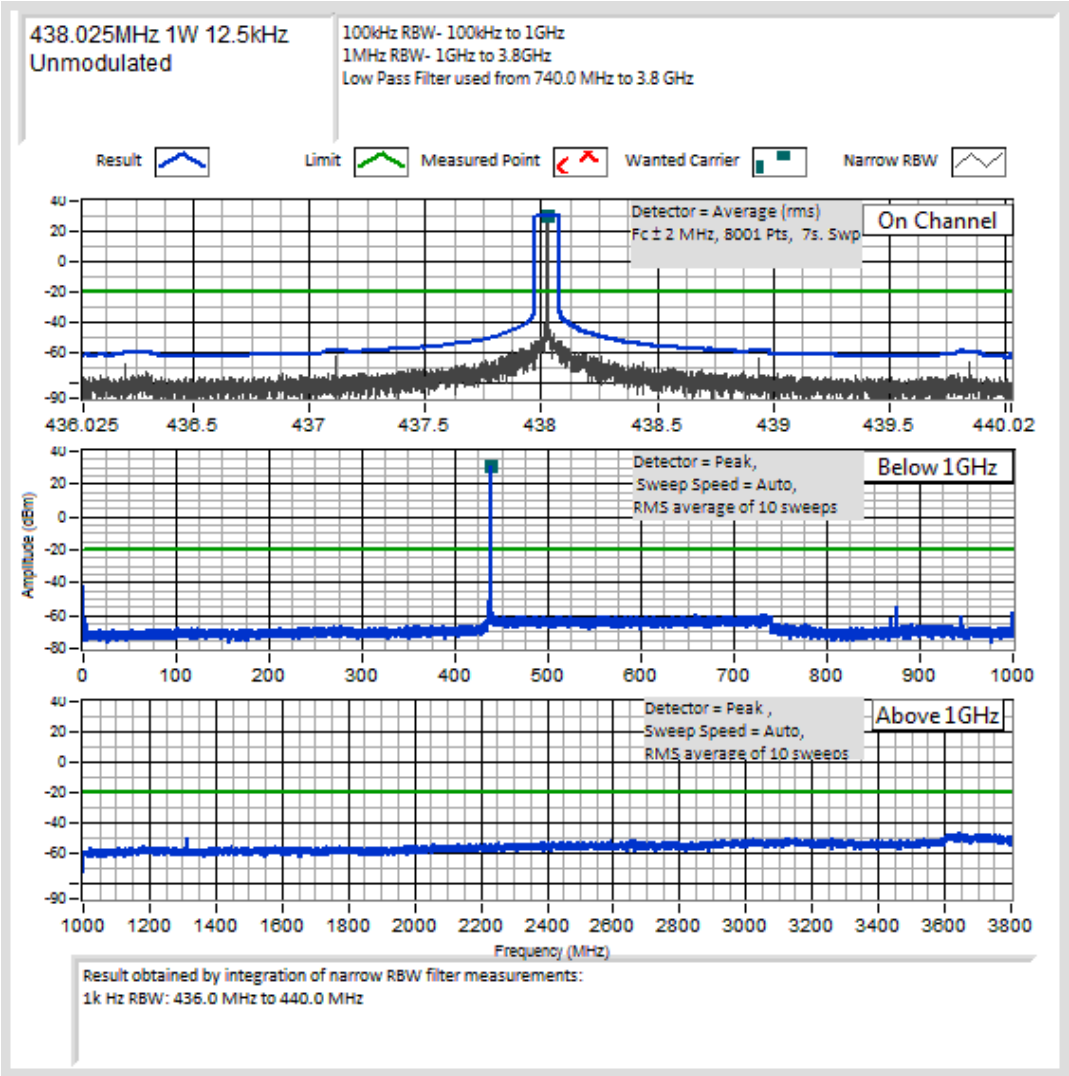
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1313.807838	-37.5	-74.5

12.5 kHz Channel Spacing 438.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

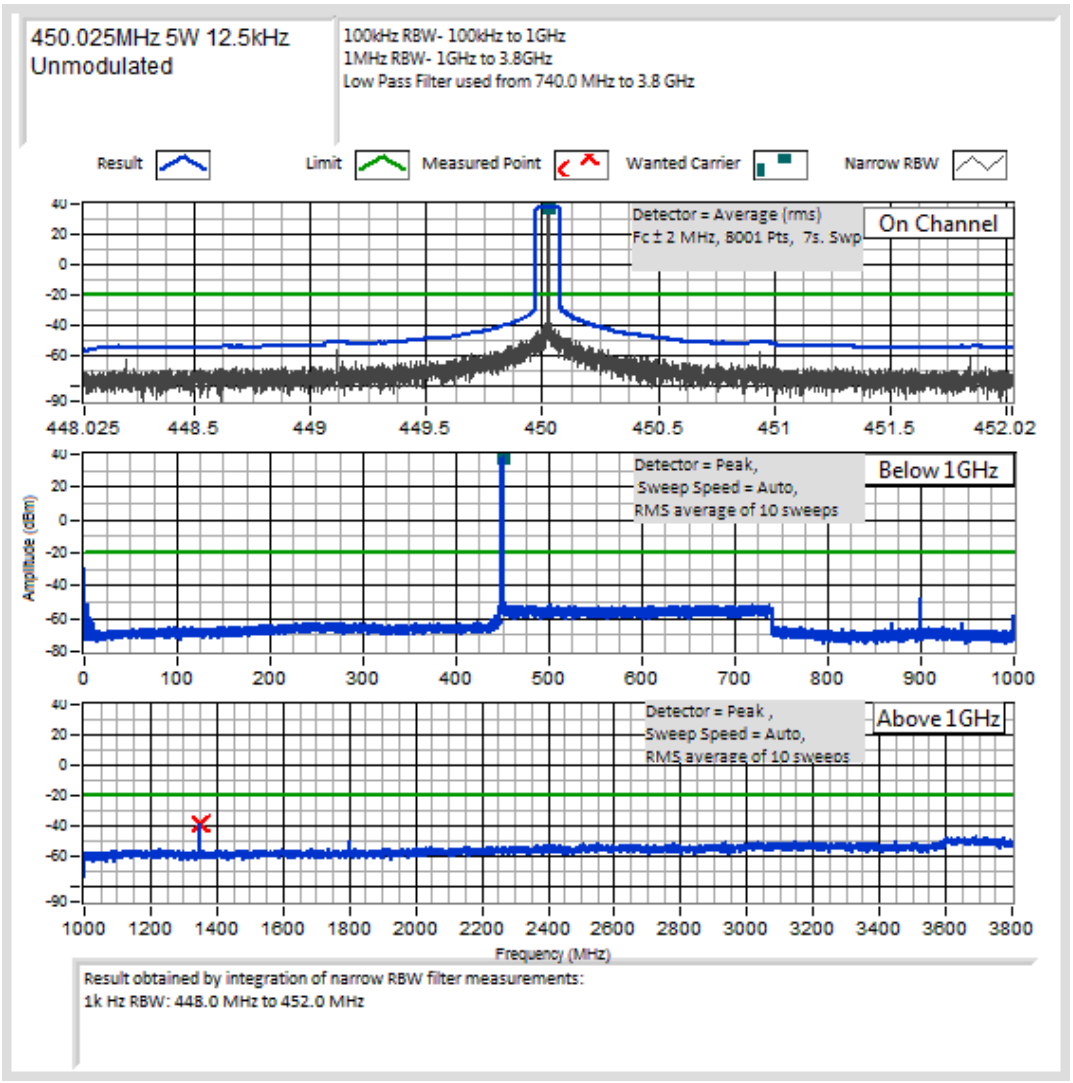
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 450.025 MHz @ 5 W Emission Mask D

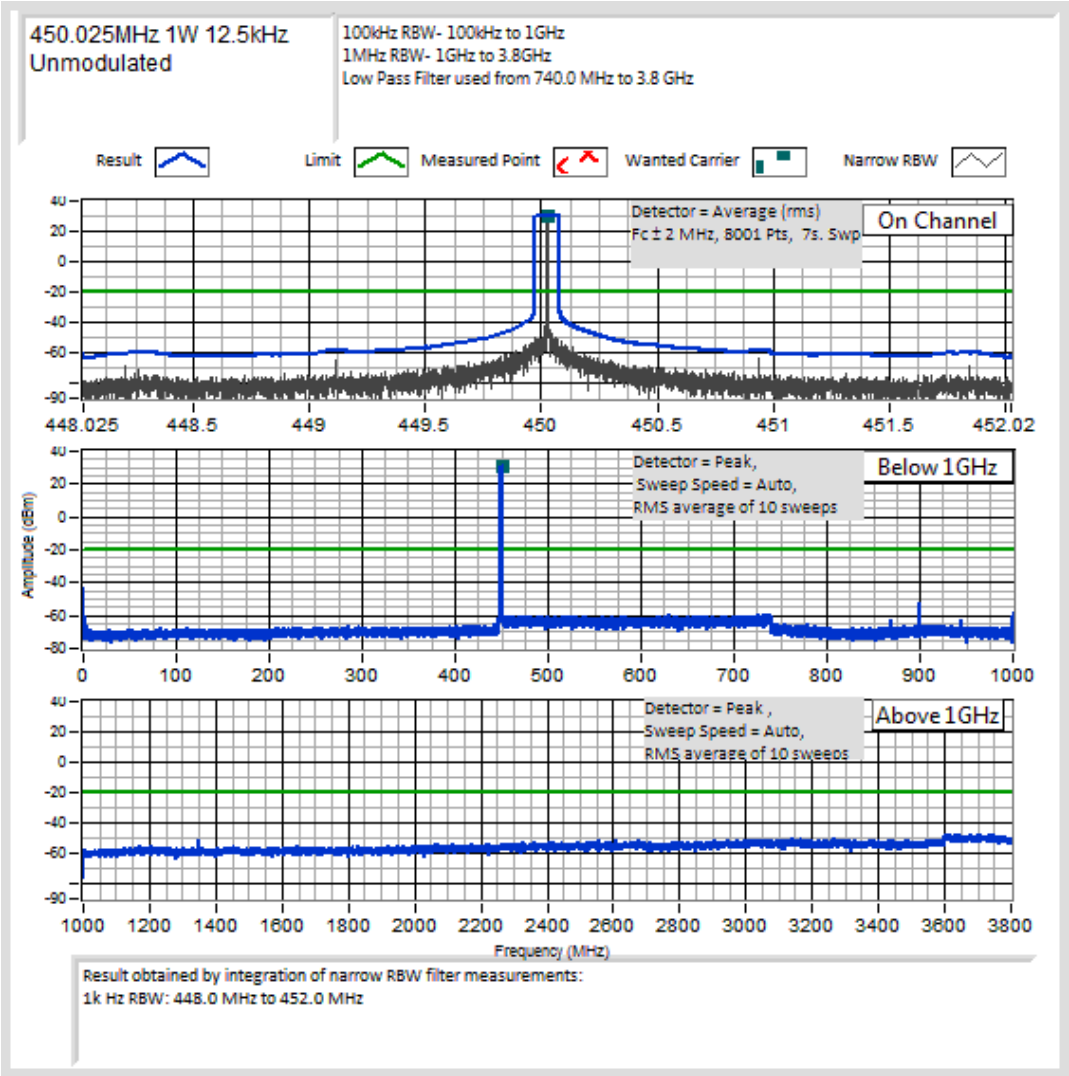
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1350.042730	-38.5	-75.5

12.5 kHz Channel Spacing 450.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

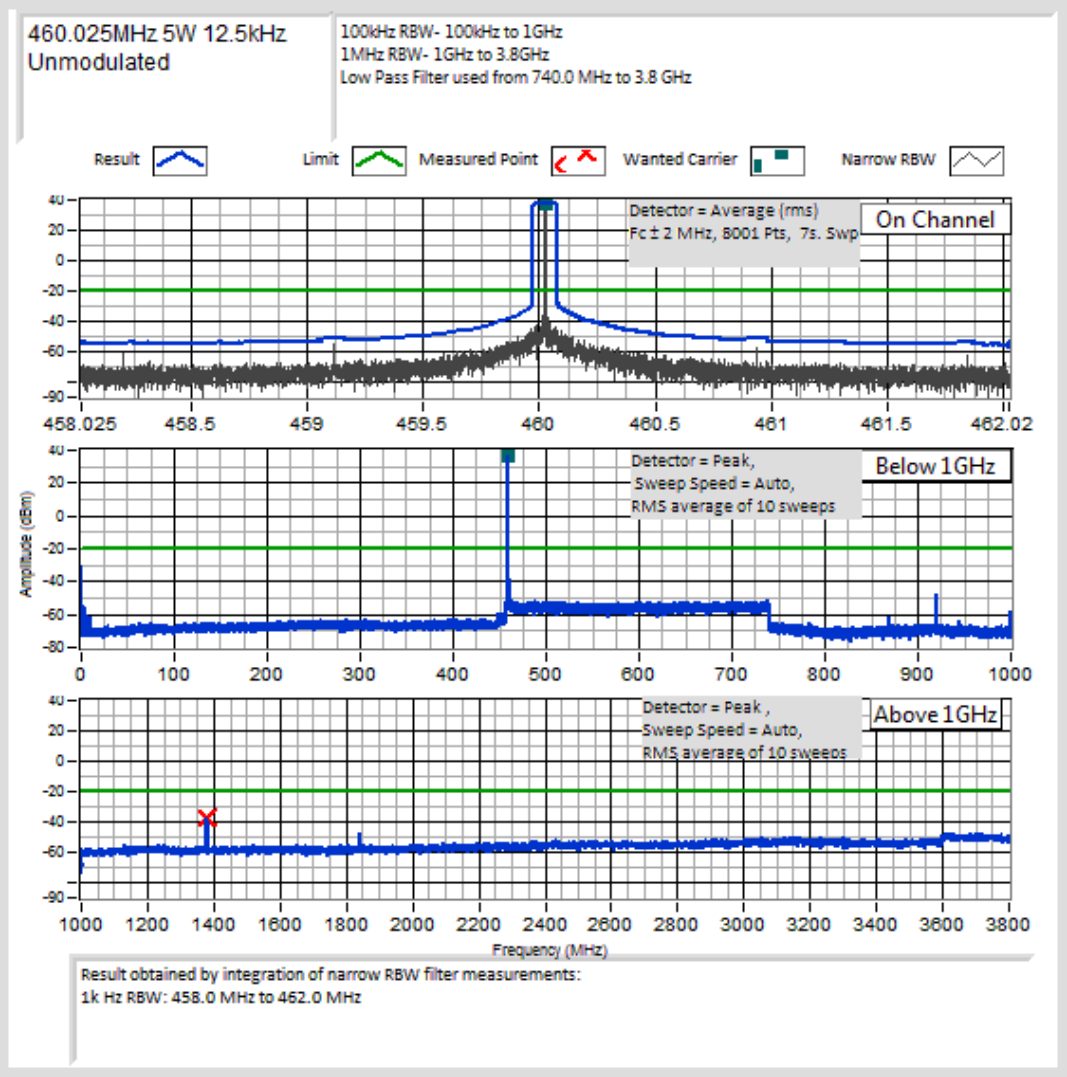
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 460.025 MHz @ 5 W Emission Mask D

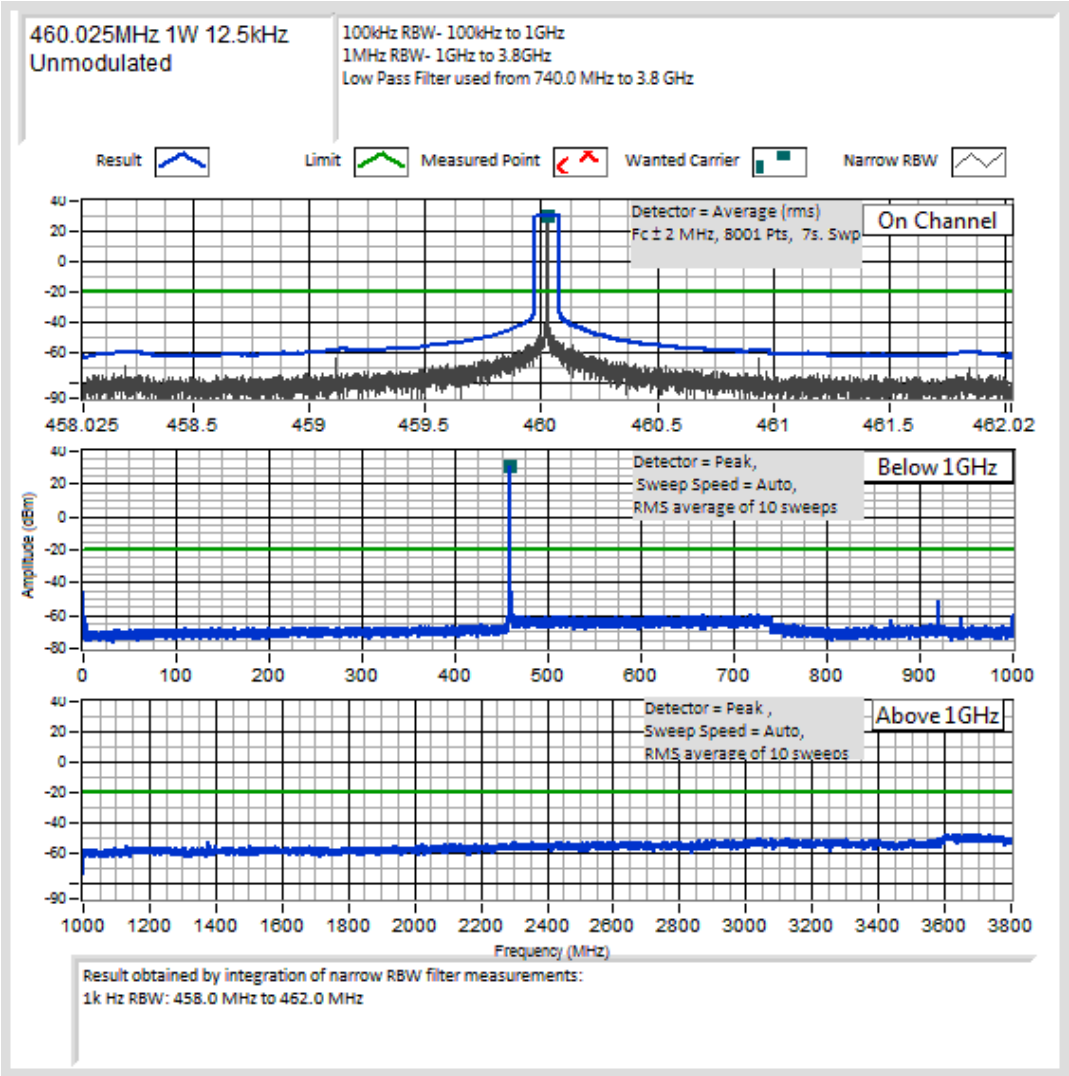
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1379.782688	-37.6	-74.6

12.5 kHz Channel Spacing 460.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

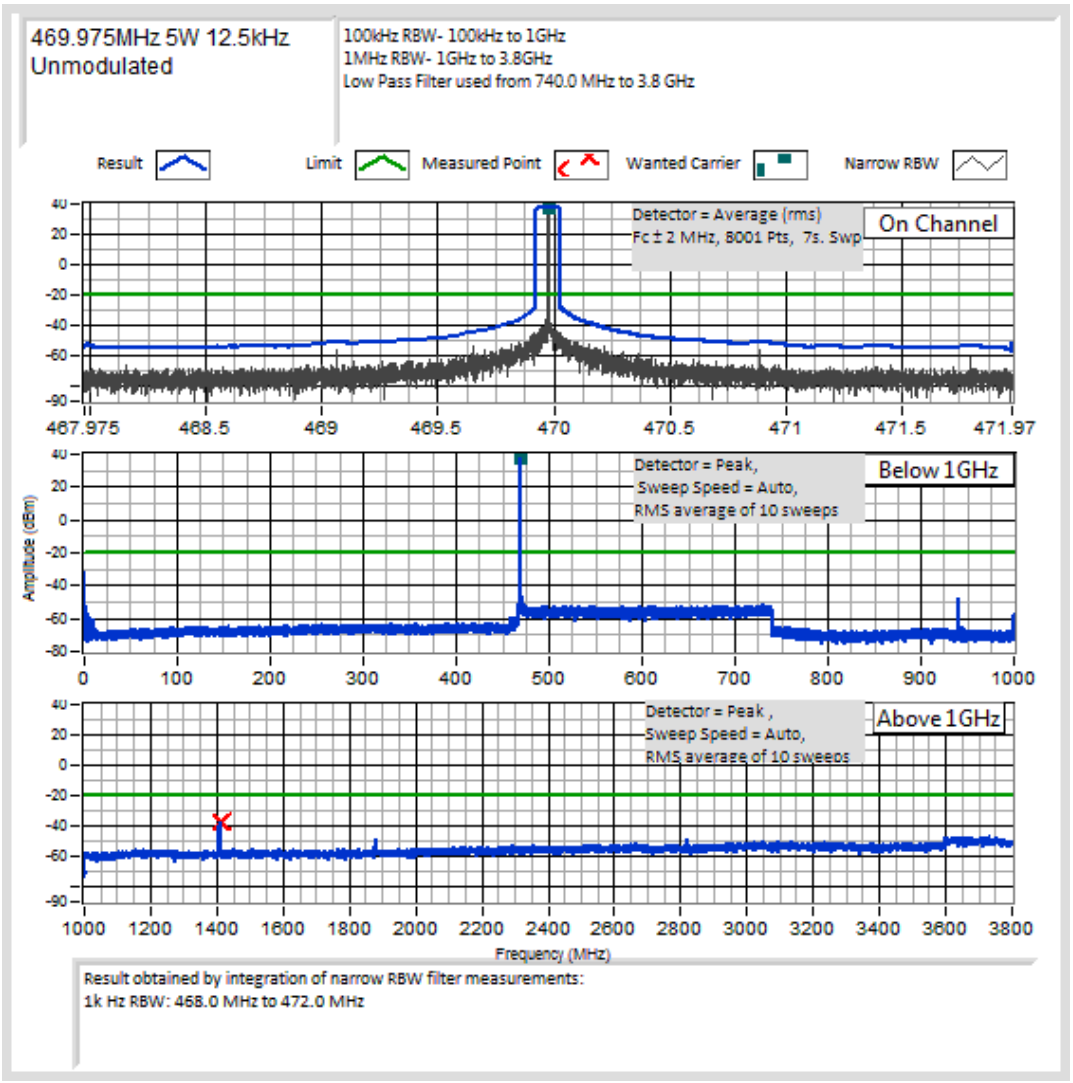
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 469.975 MHz @ 5 W Emission Mask D

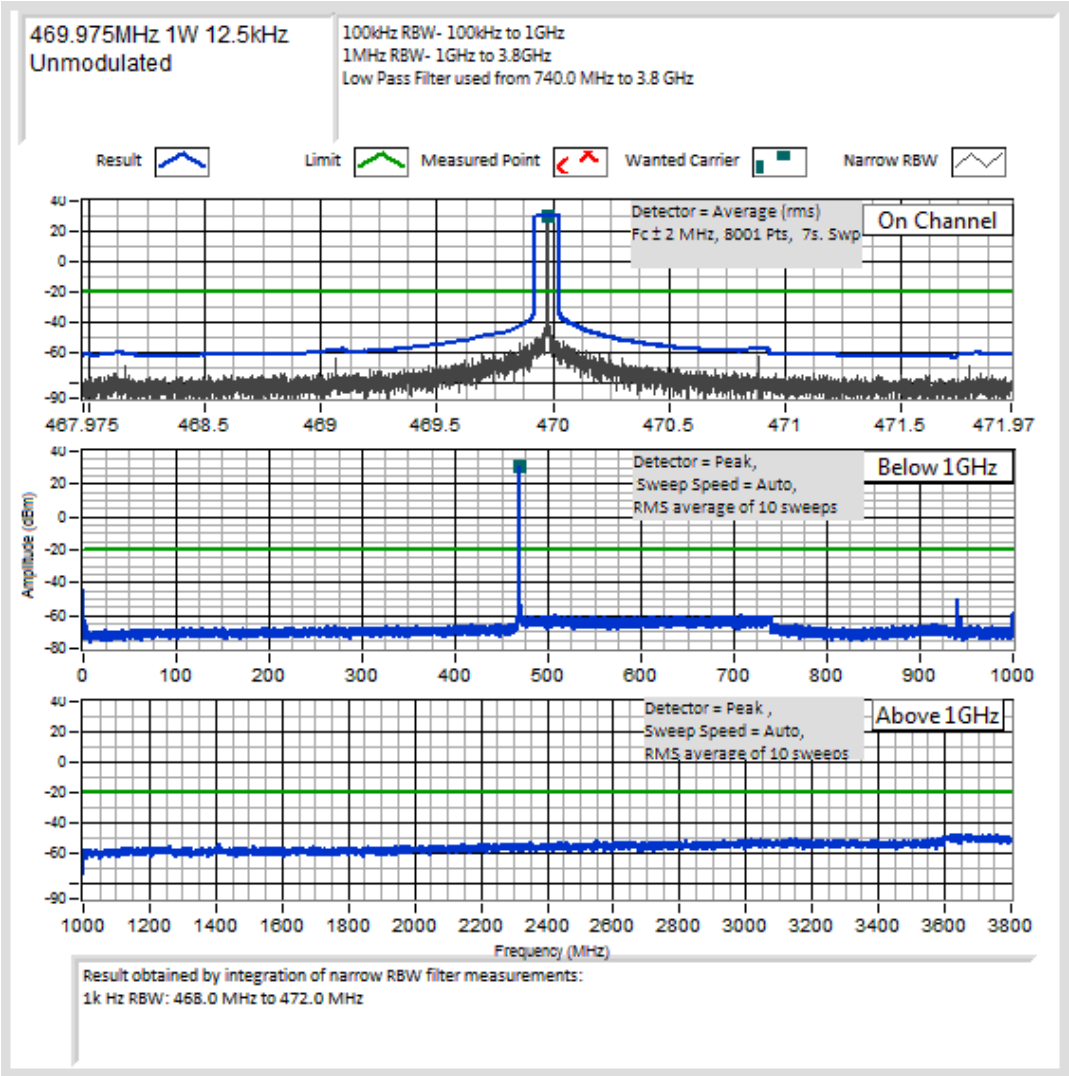
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1409.864485	-37.7	-74.7

12.5 kHz Channel Spacing 469.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

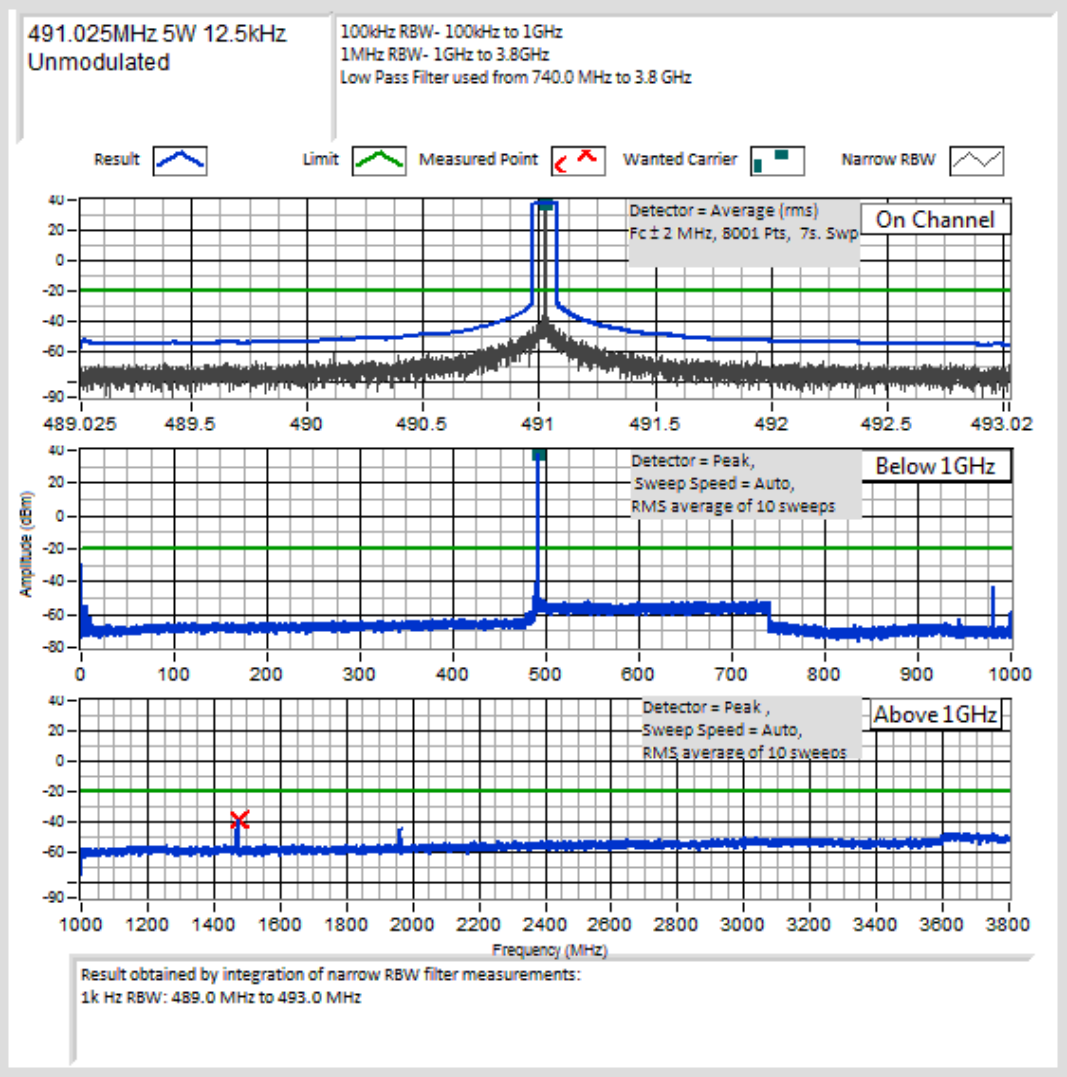
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 491.025 MHz @ 5 W Emission Mask D

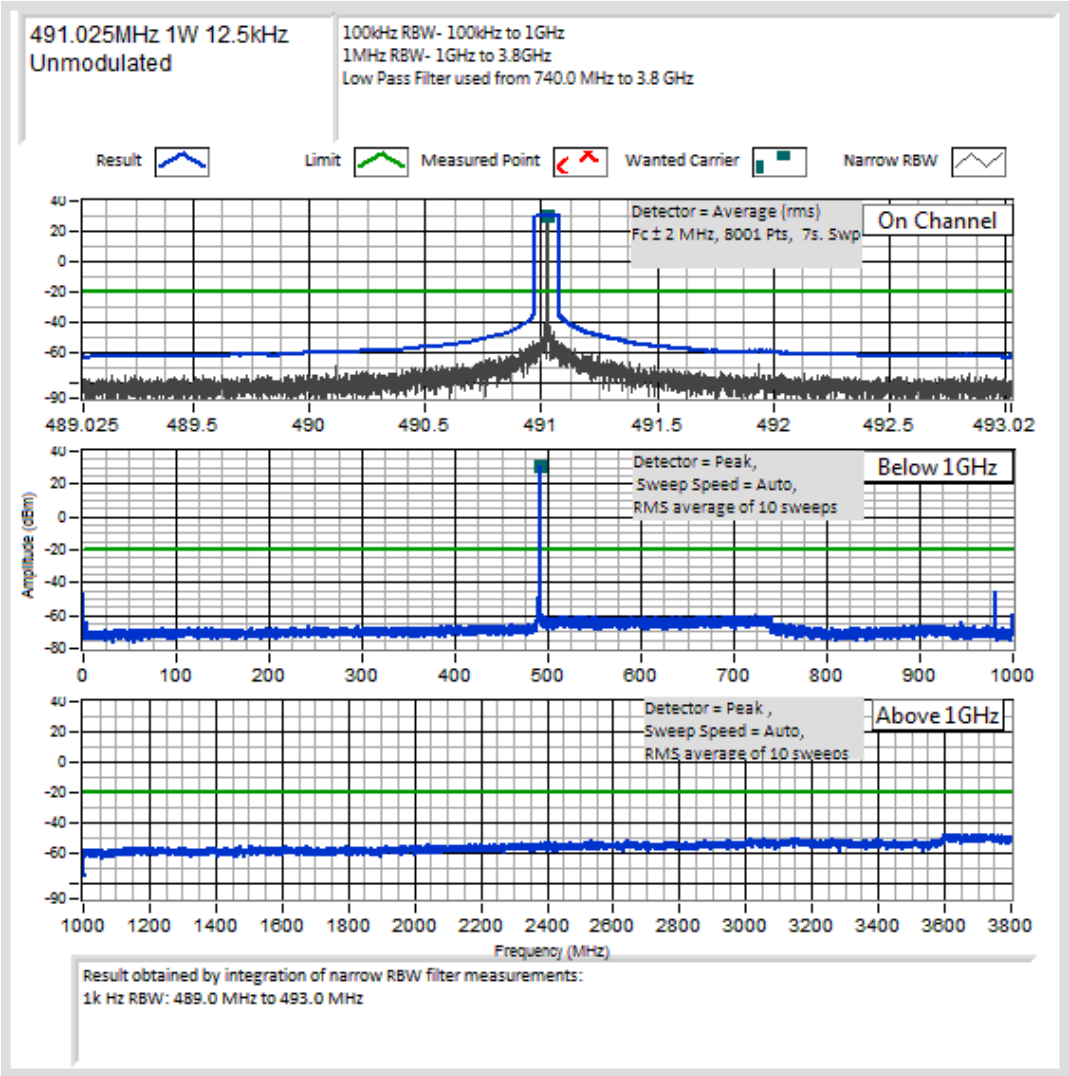
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1473.104627	-39.4	-76.4

12.5 kHz Channel Spacing 491.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

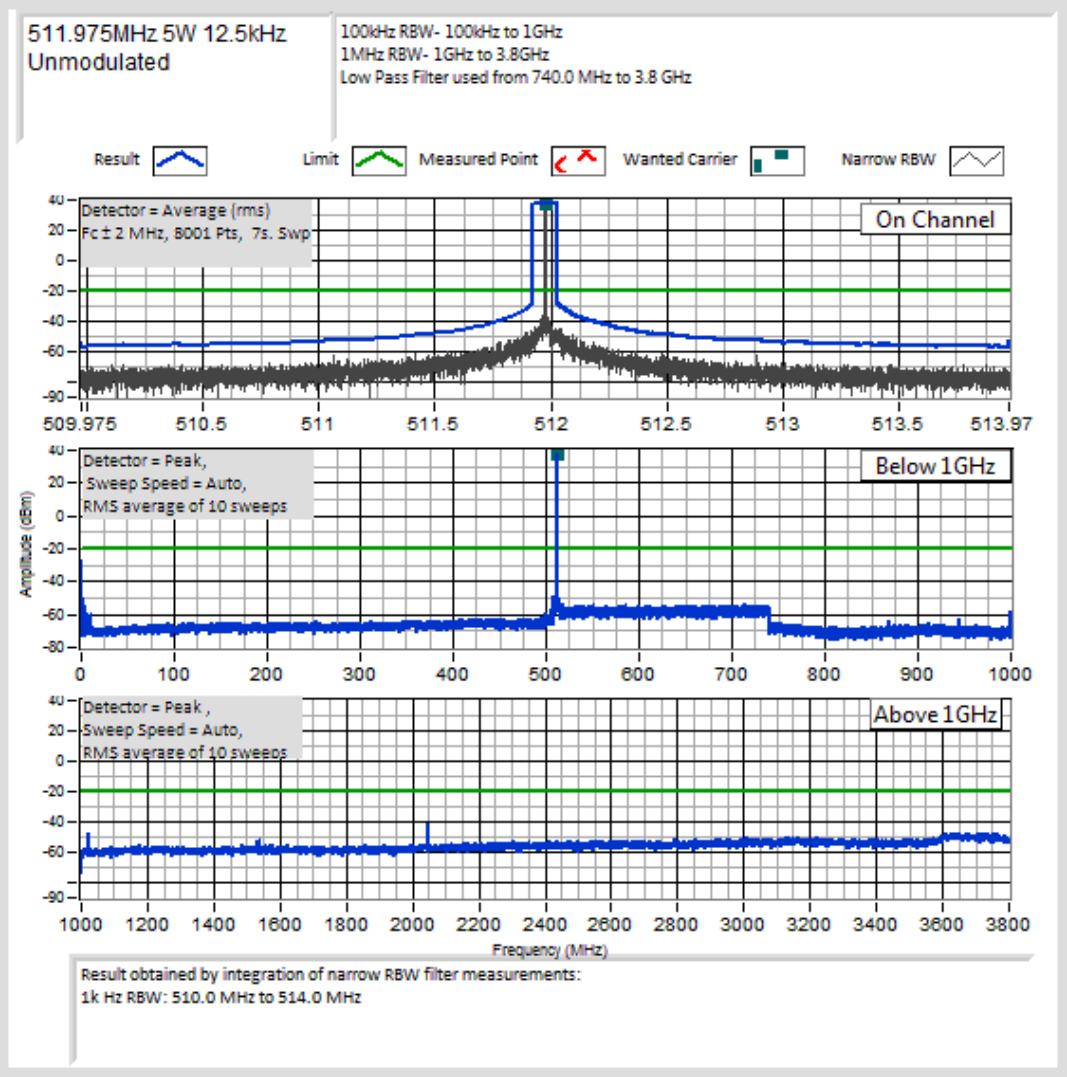
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 511.975 MHz @ 5 W Emission Mask D

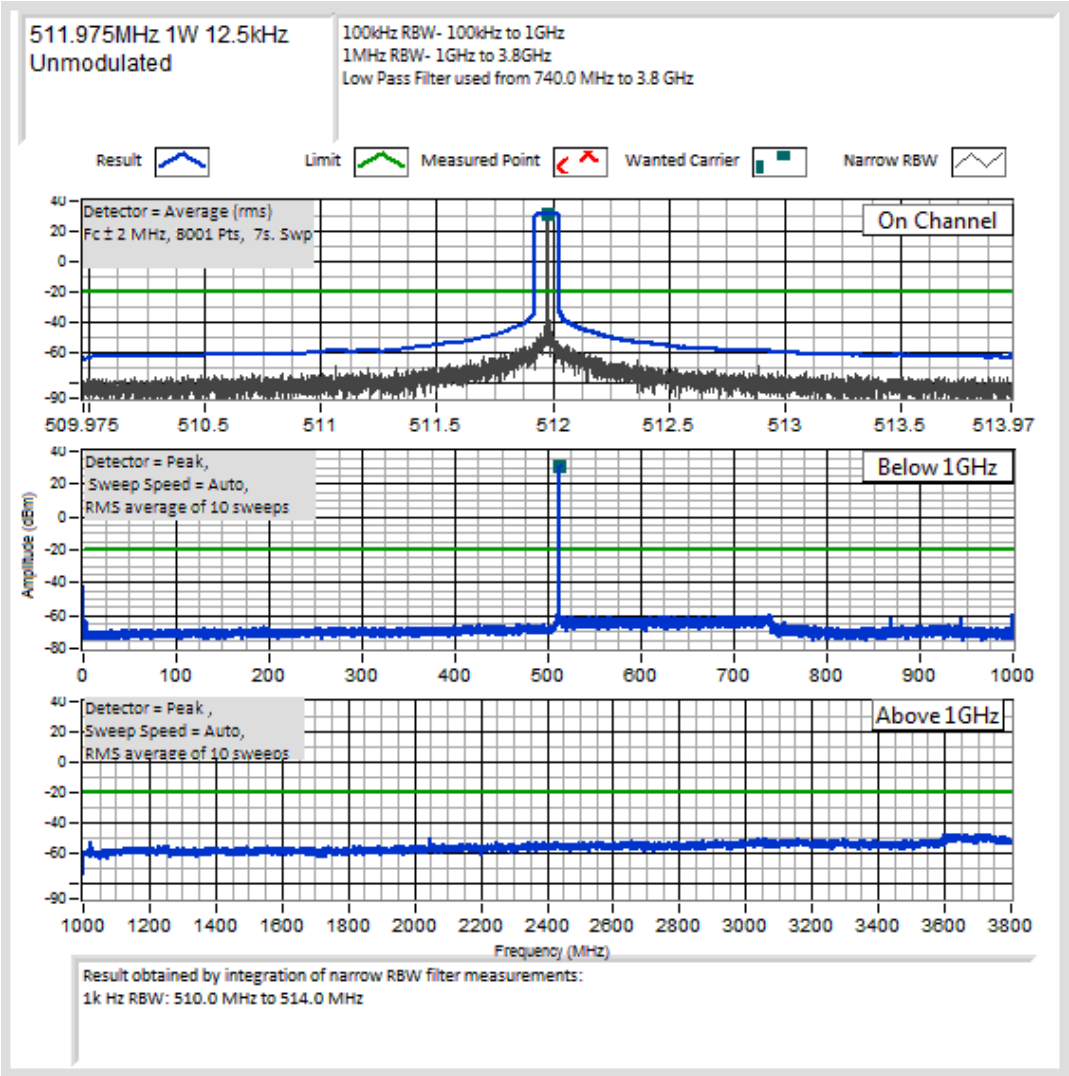
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 511.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

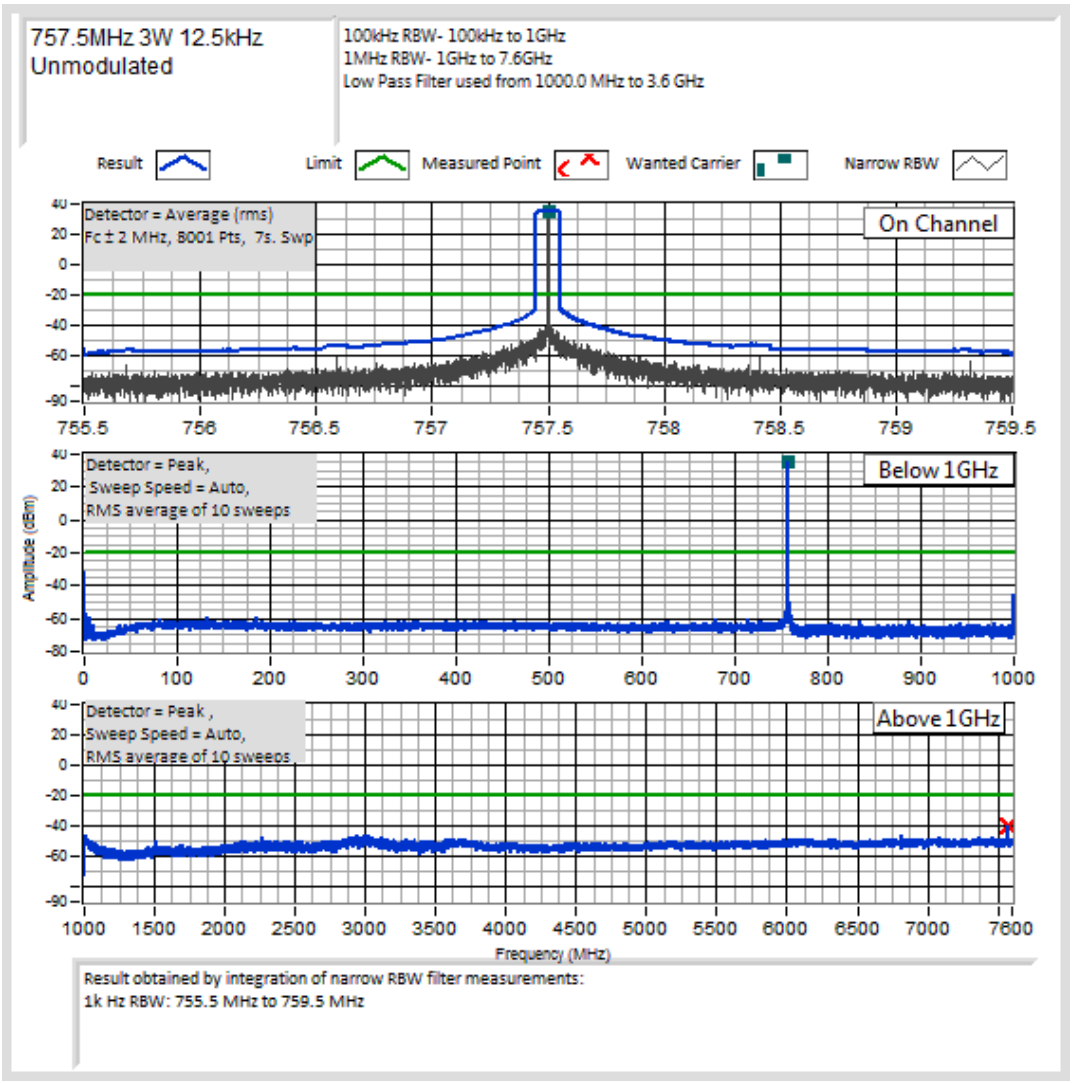
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 757.5 MHz @ 3 W Emission Mask D

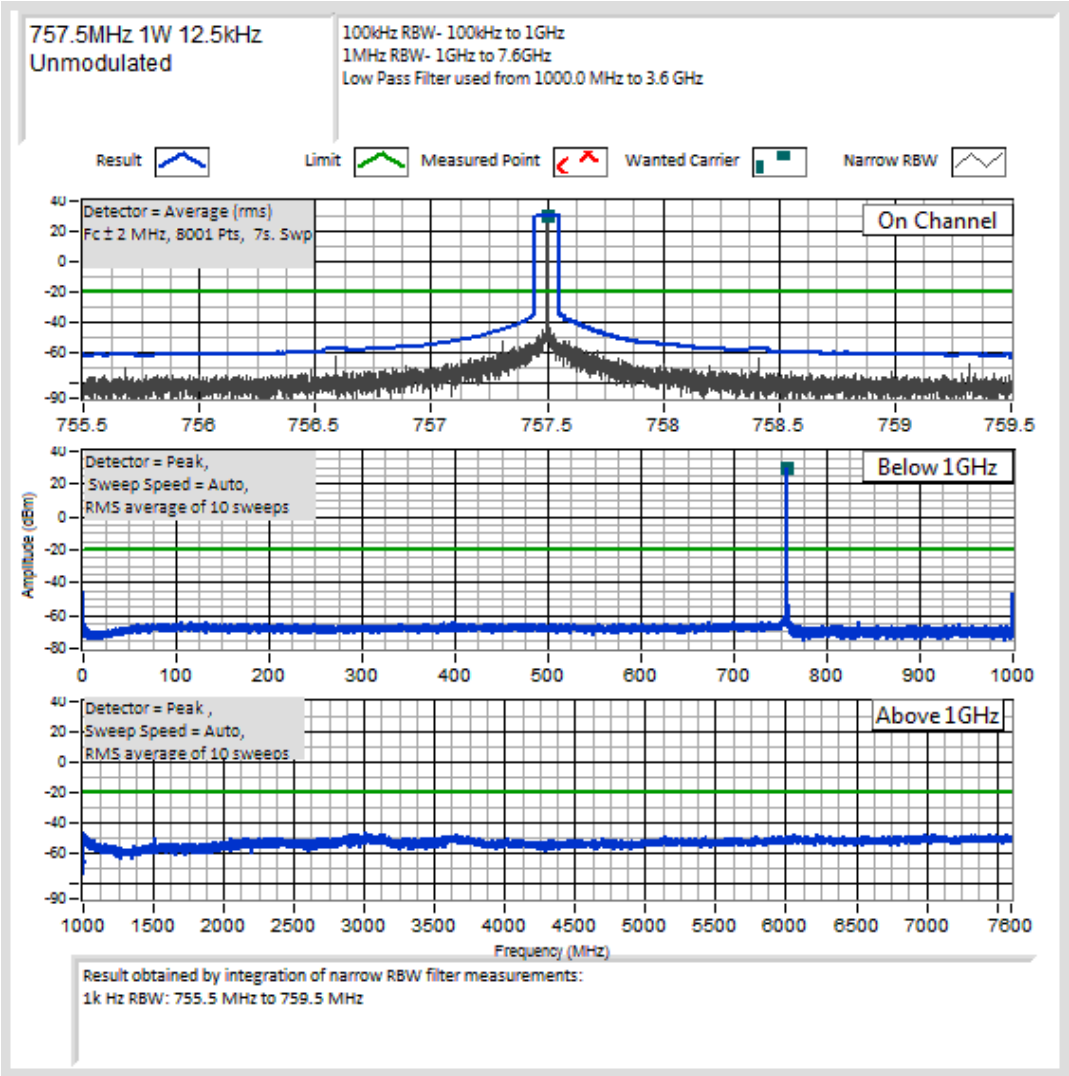
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7575.094616	-39.5	-74.5

12.5 kHz Channel Spacing 757.5 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

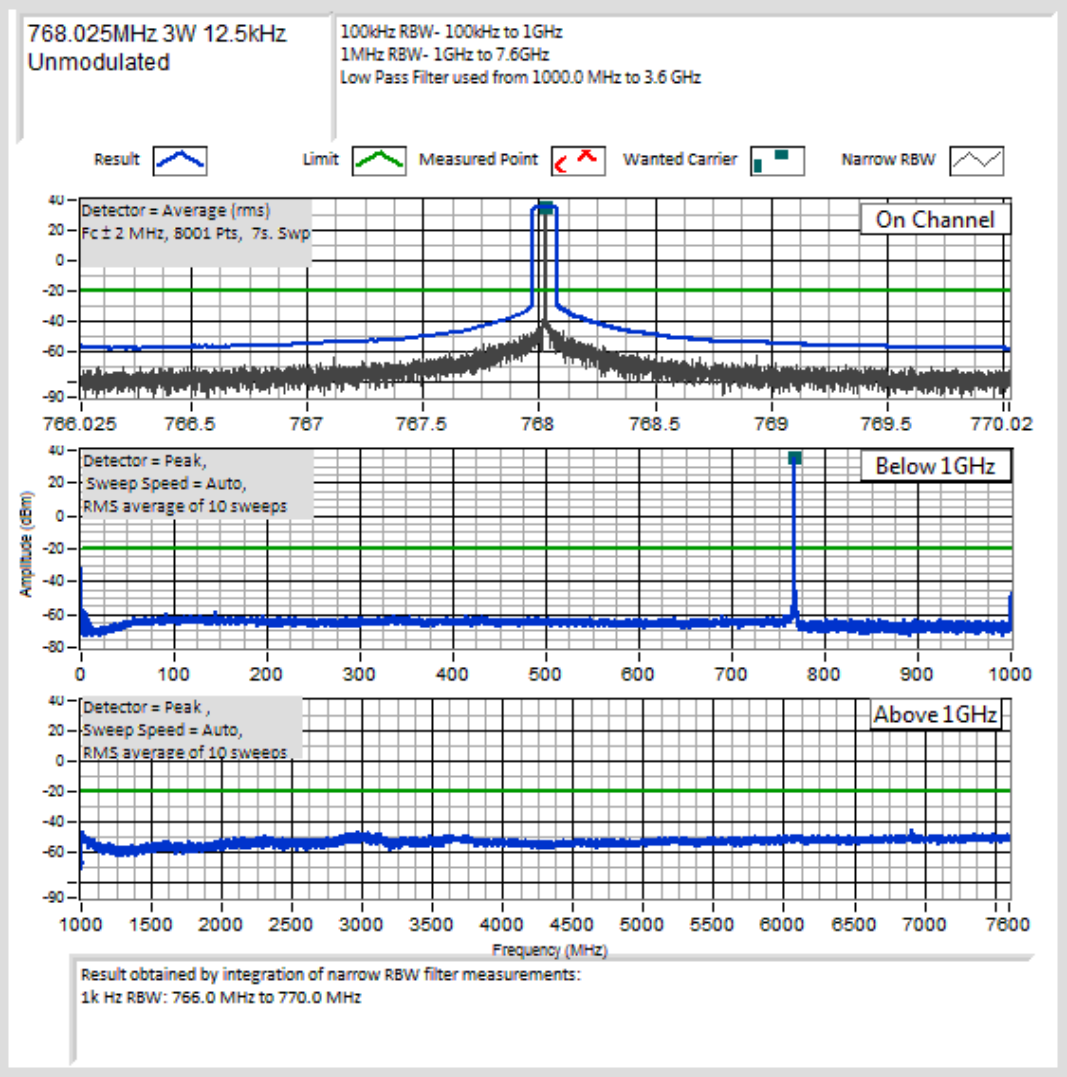
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 768.025 MHz @ 3 W Emission Mask D

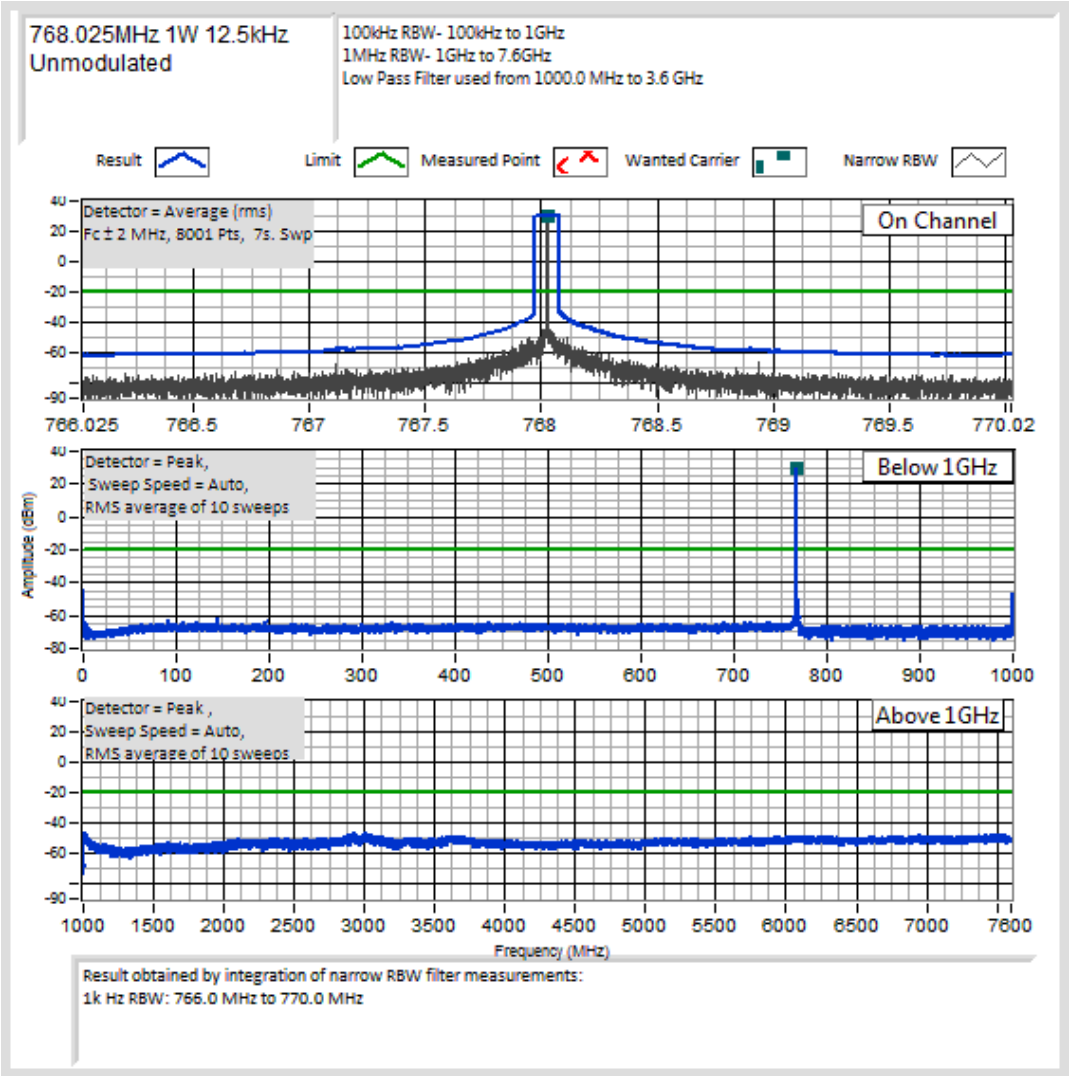
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 768.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

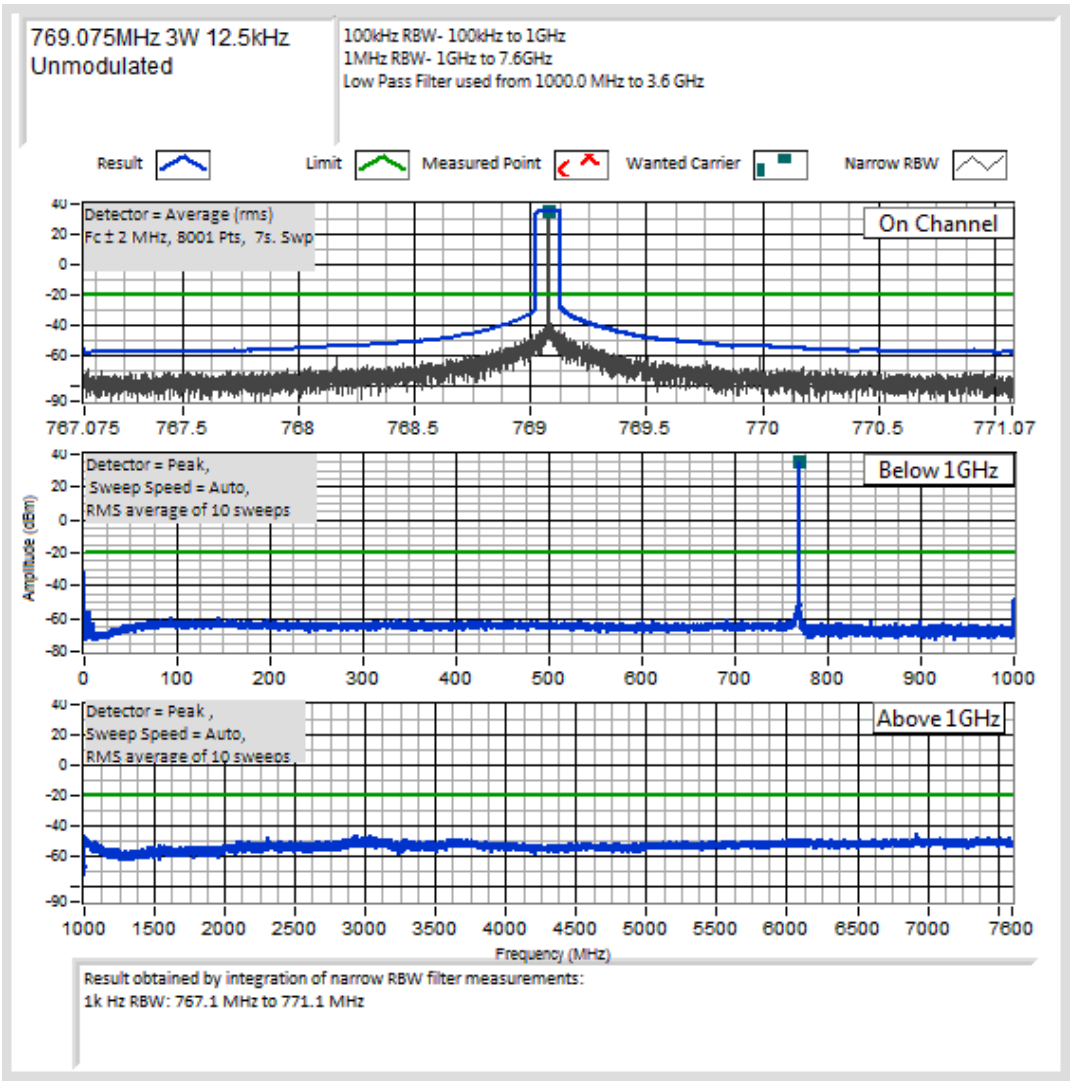
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 769.075 MHz @ 3 W Emission Mask D

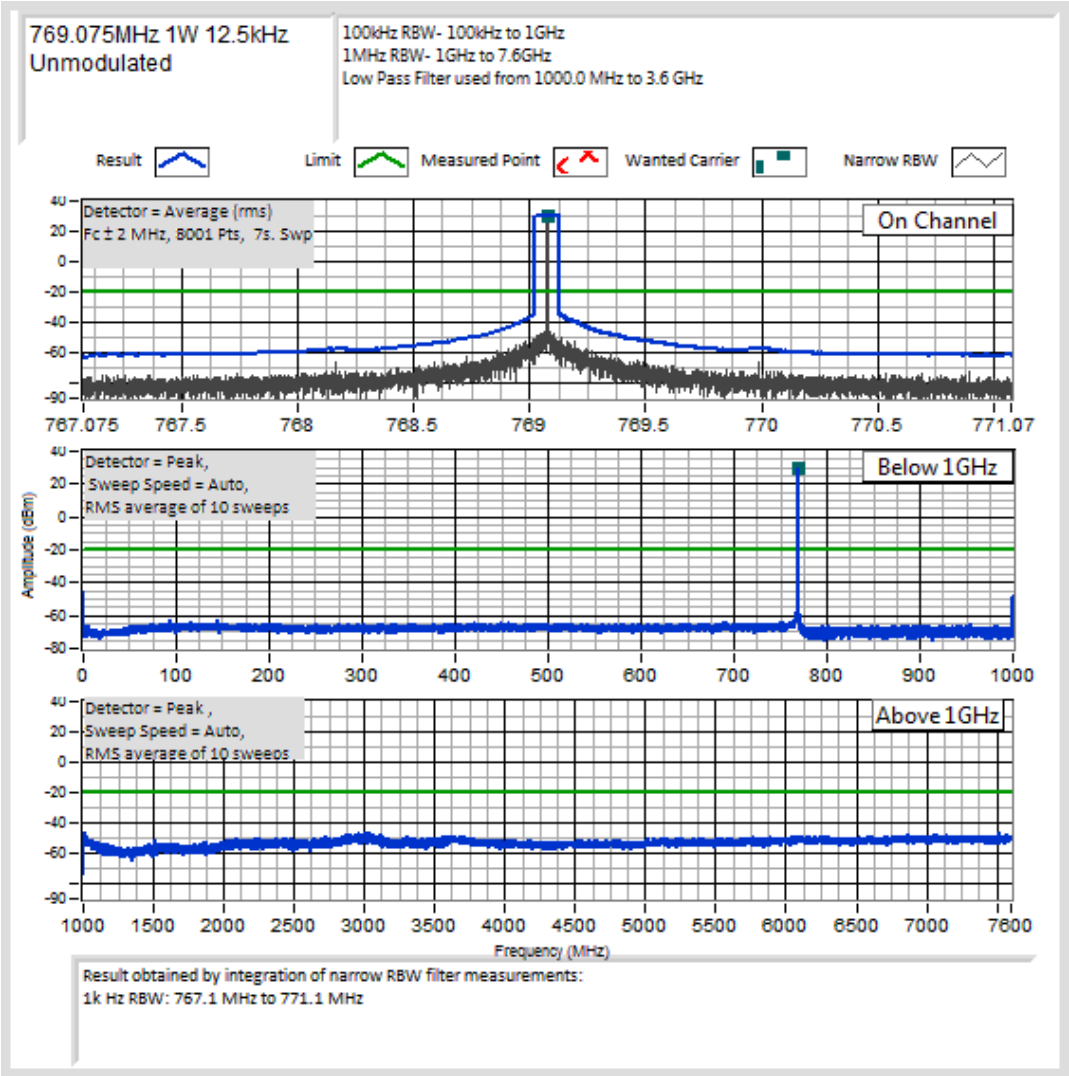
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 769.075 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

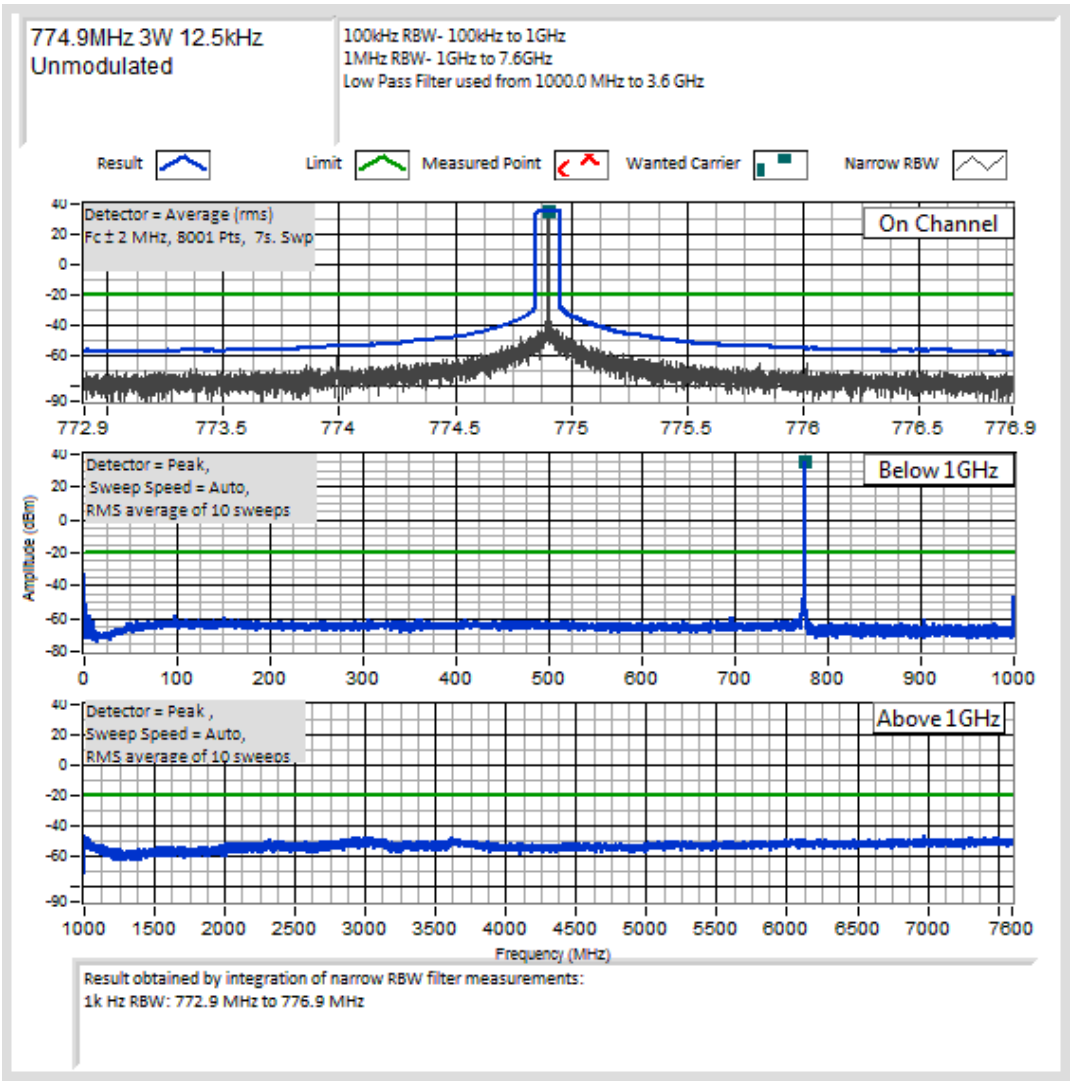
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 774.9 MHz @ 3 W Emission Mask D

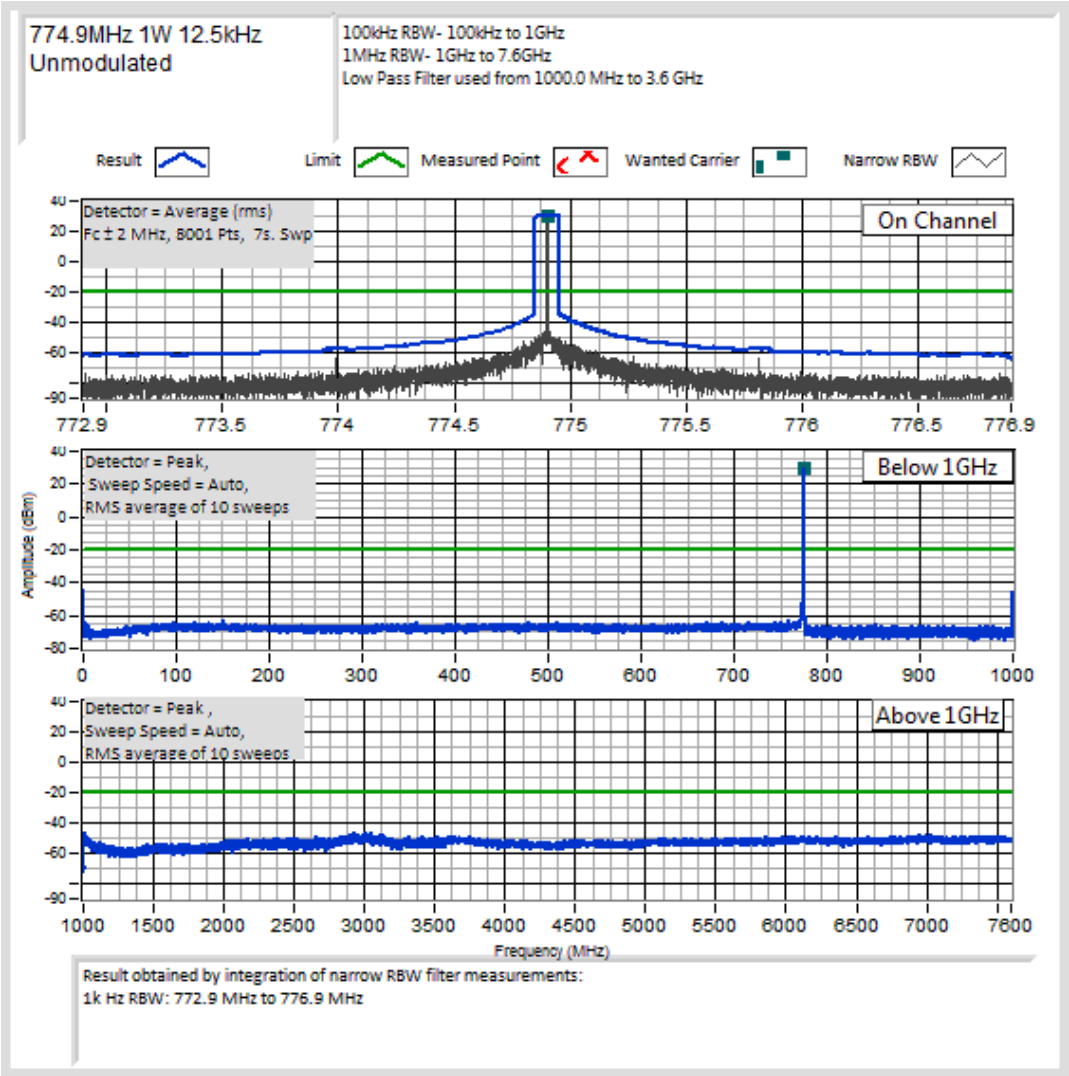
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 774.9 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

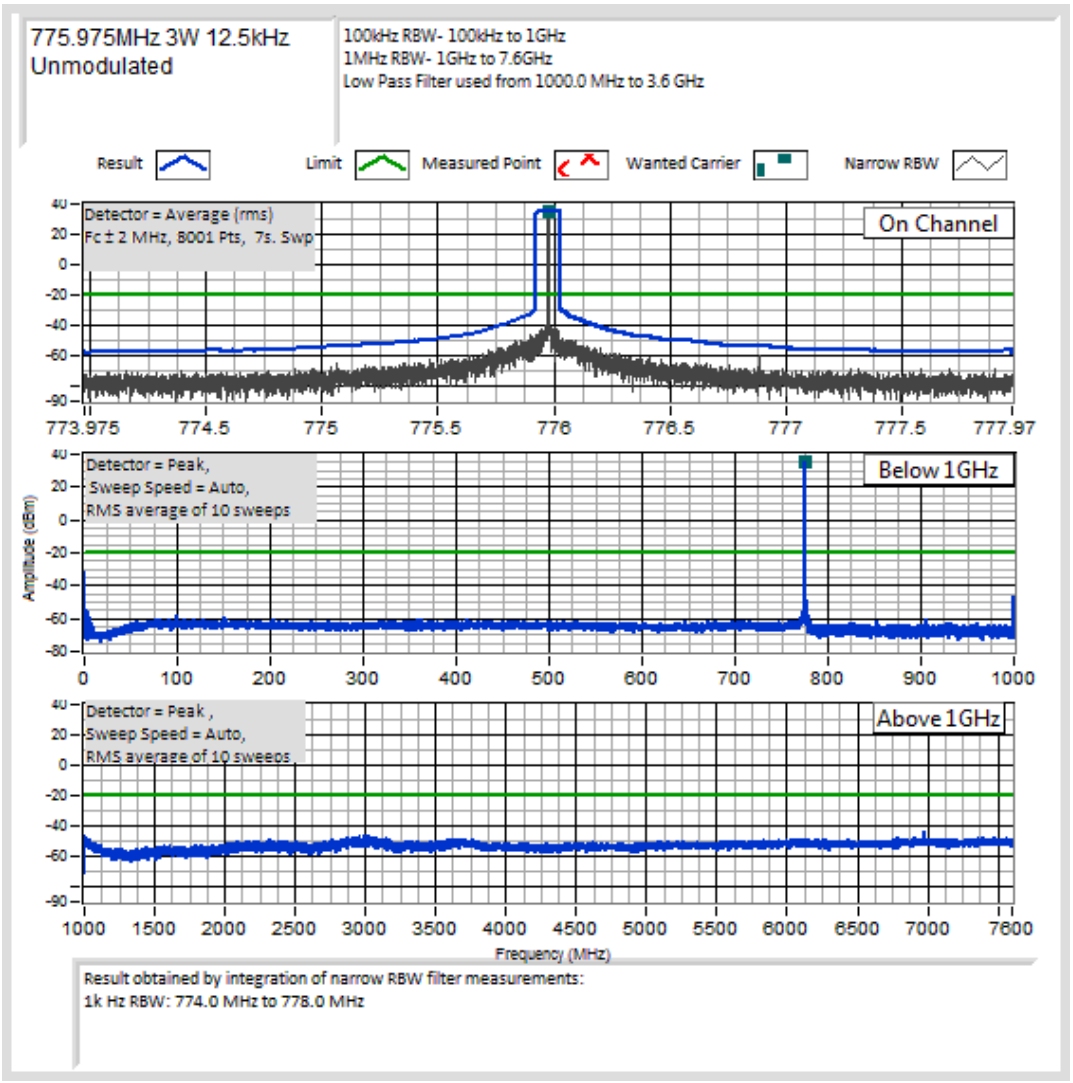
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 775.975 MHz @ 3 W Emission Mask D

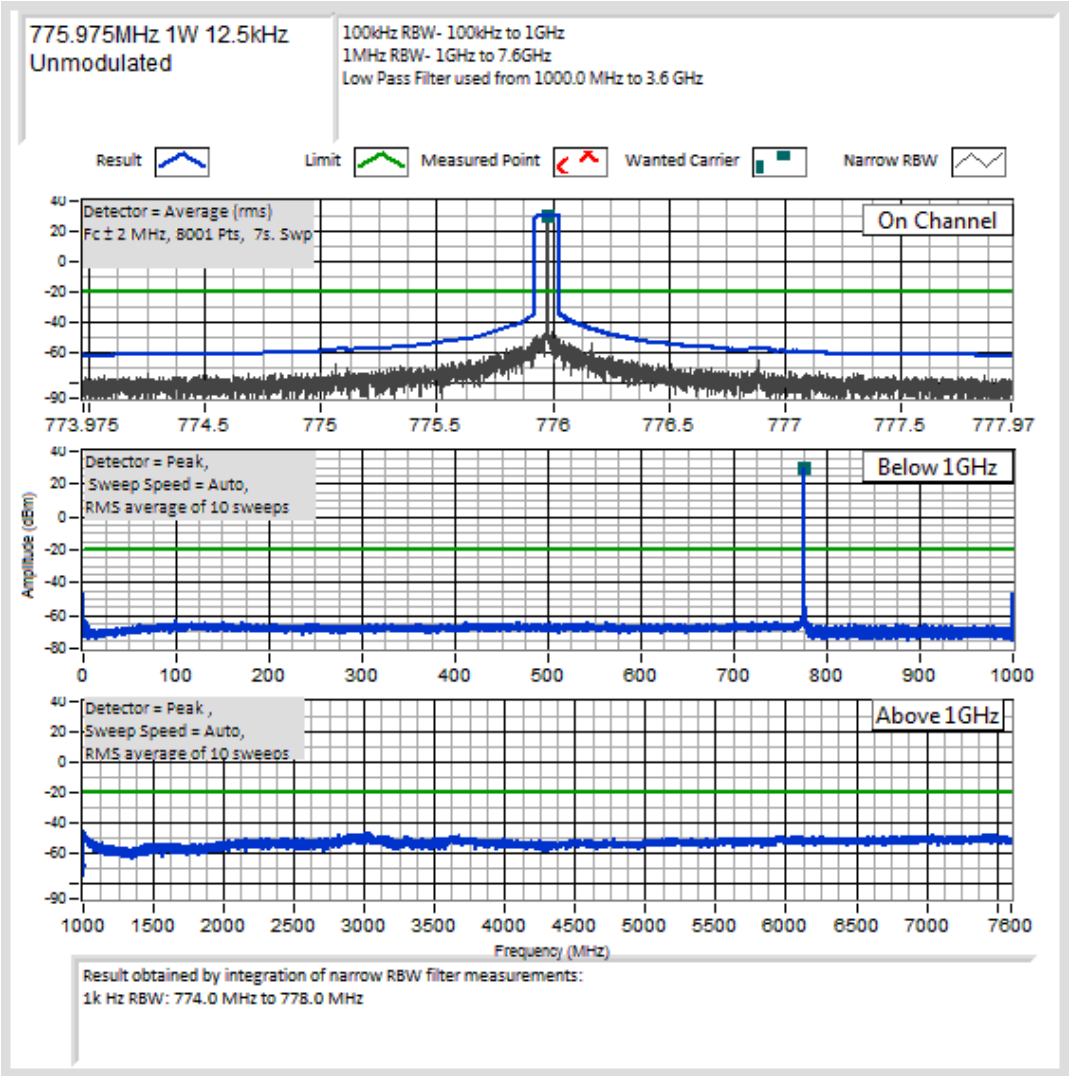
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 775.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

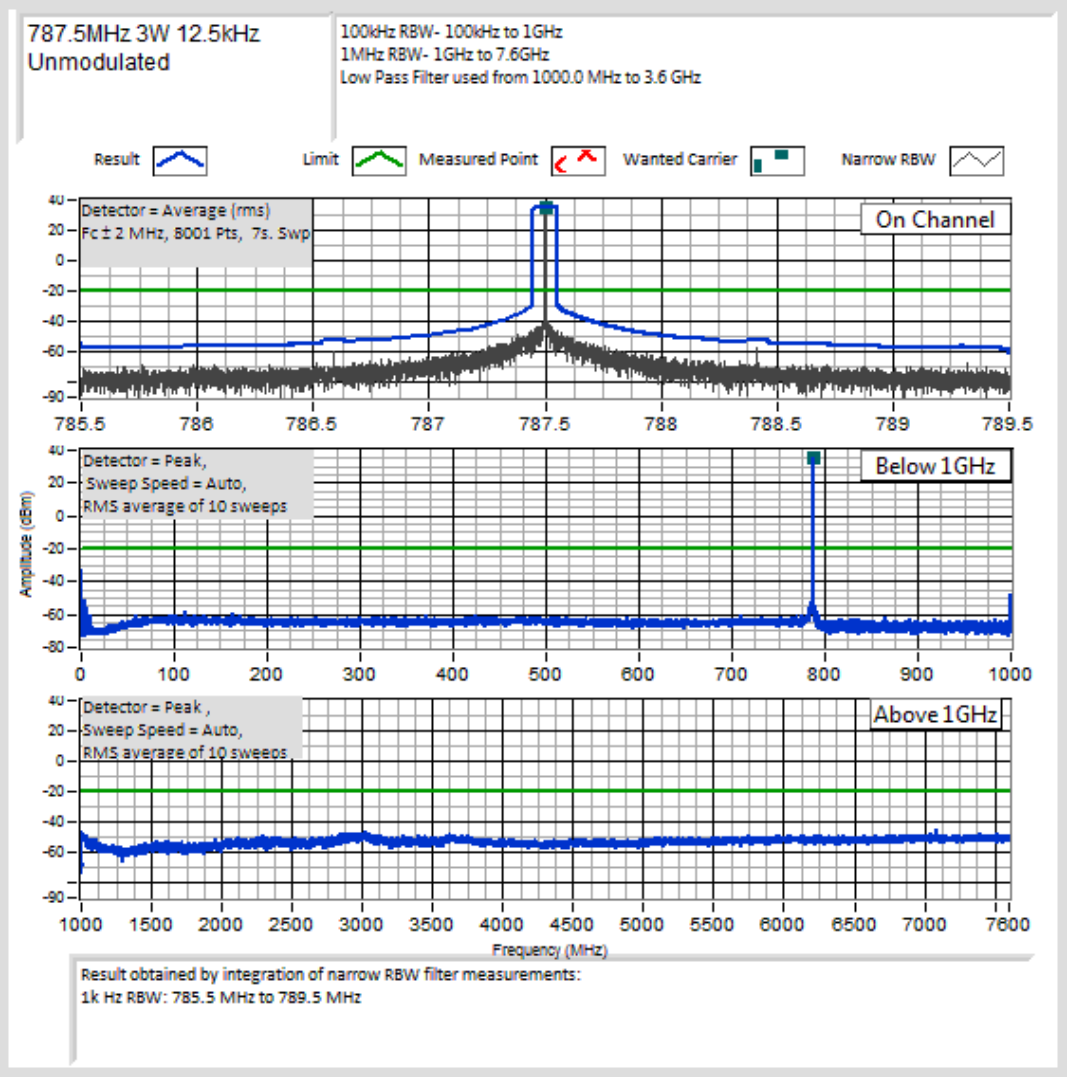
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 787.5 MHz @ 3 W Emission Mask D

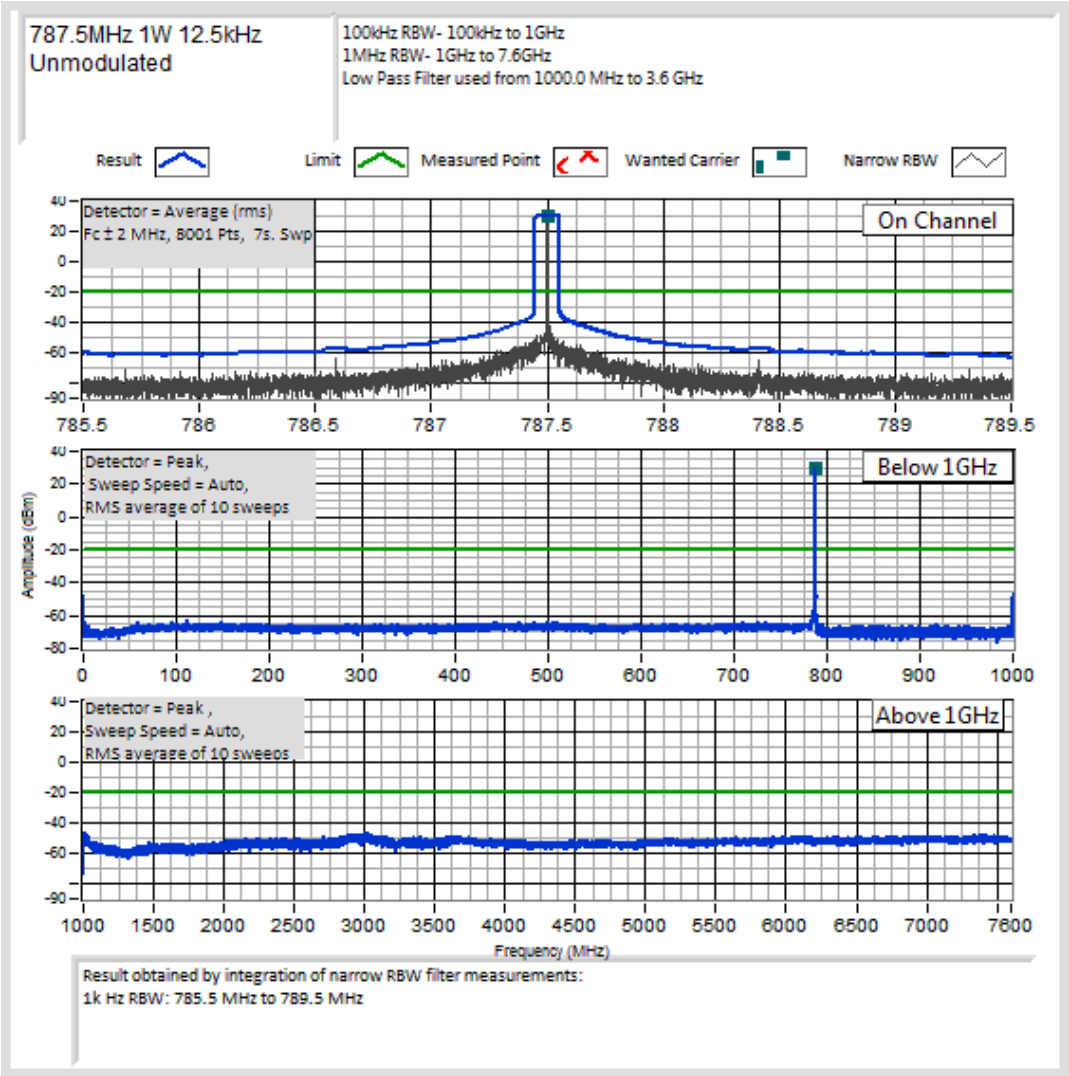
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 787.5 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

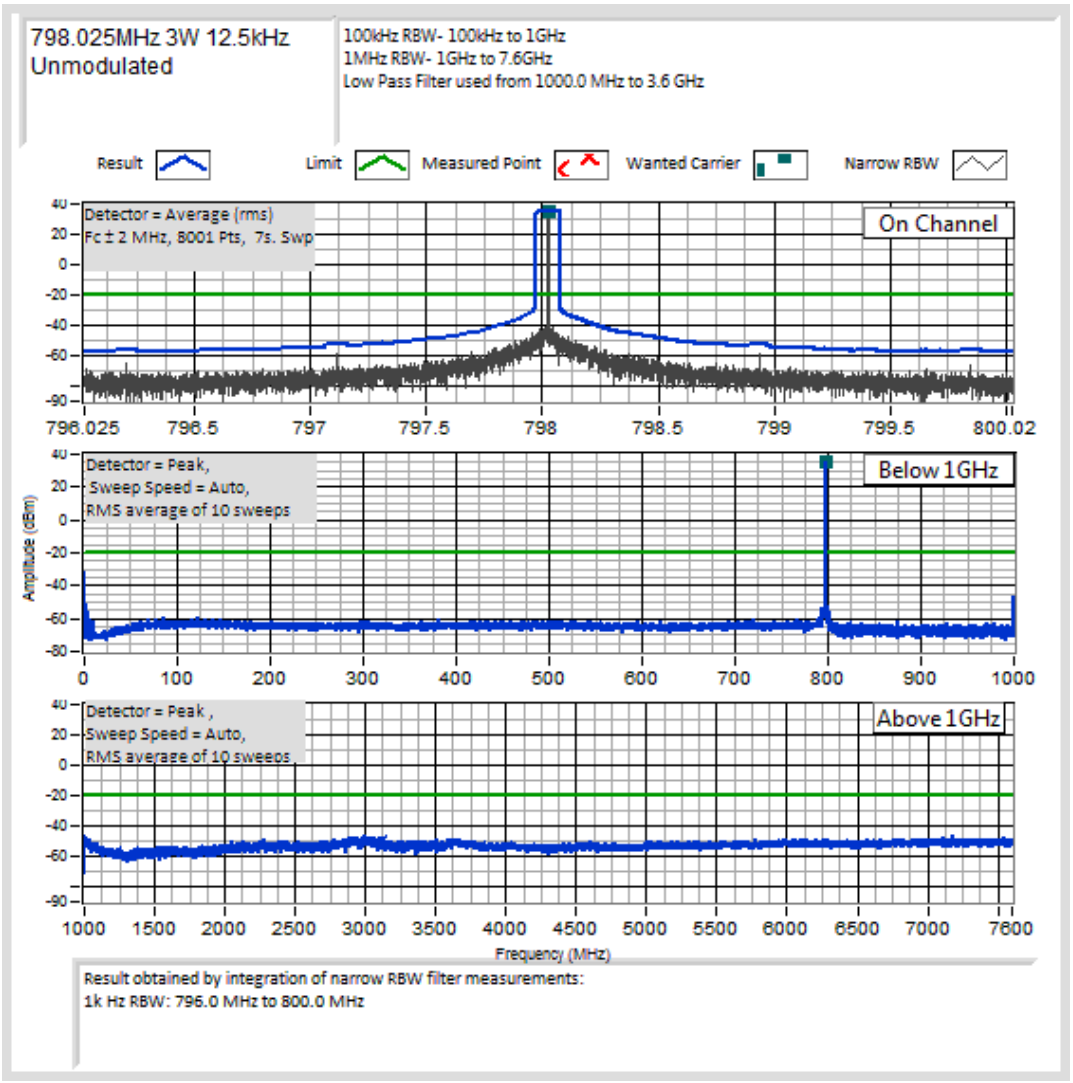
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 798.025 MHz @ 3 W Emission Mask D

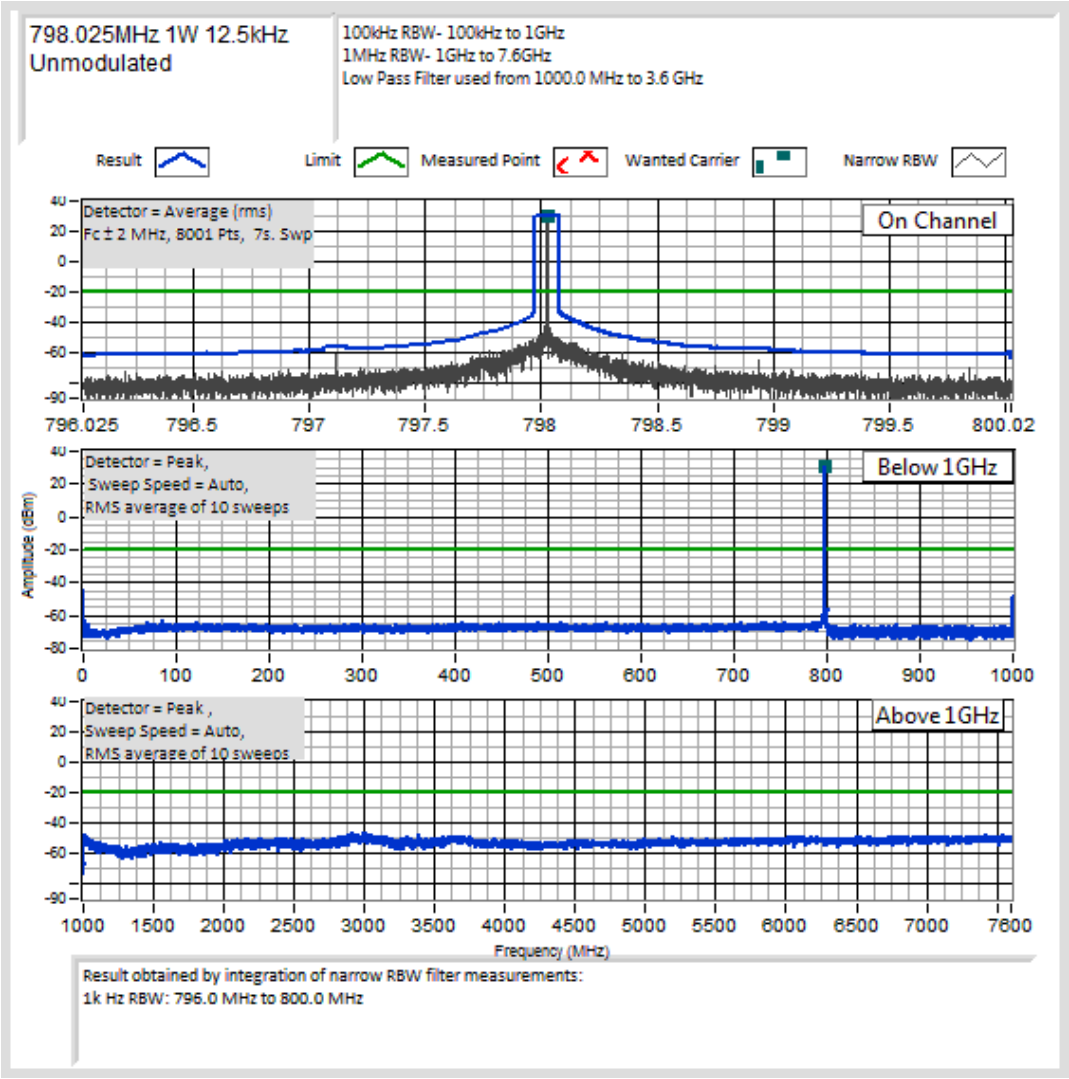
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 798.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

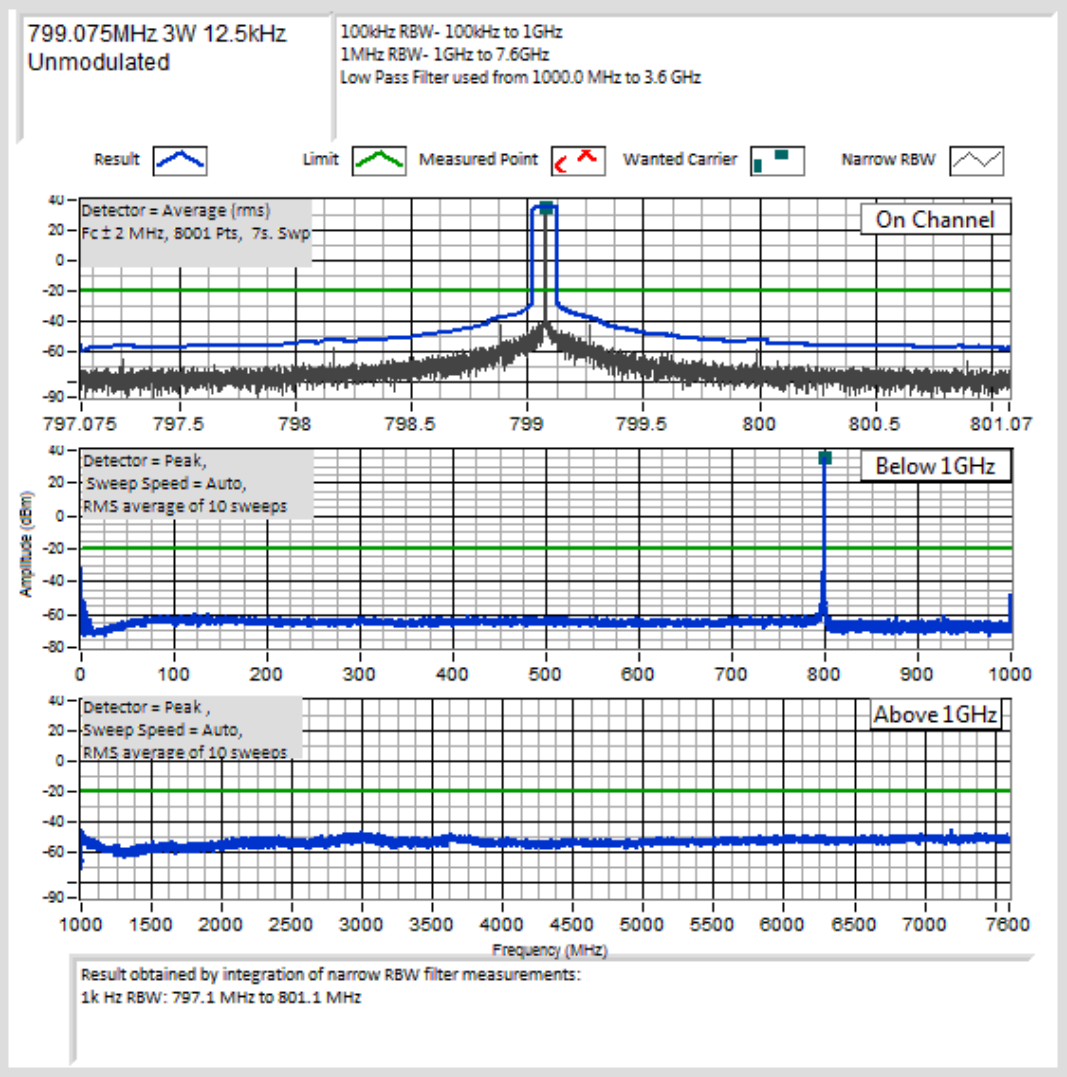
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 799.075 MHz @ 3 W Emission Mask D

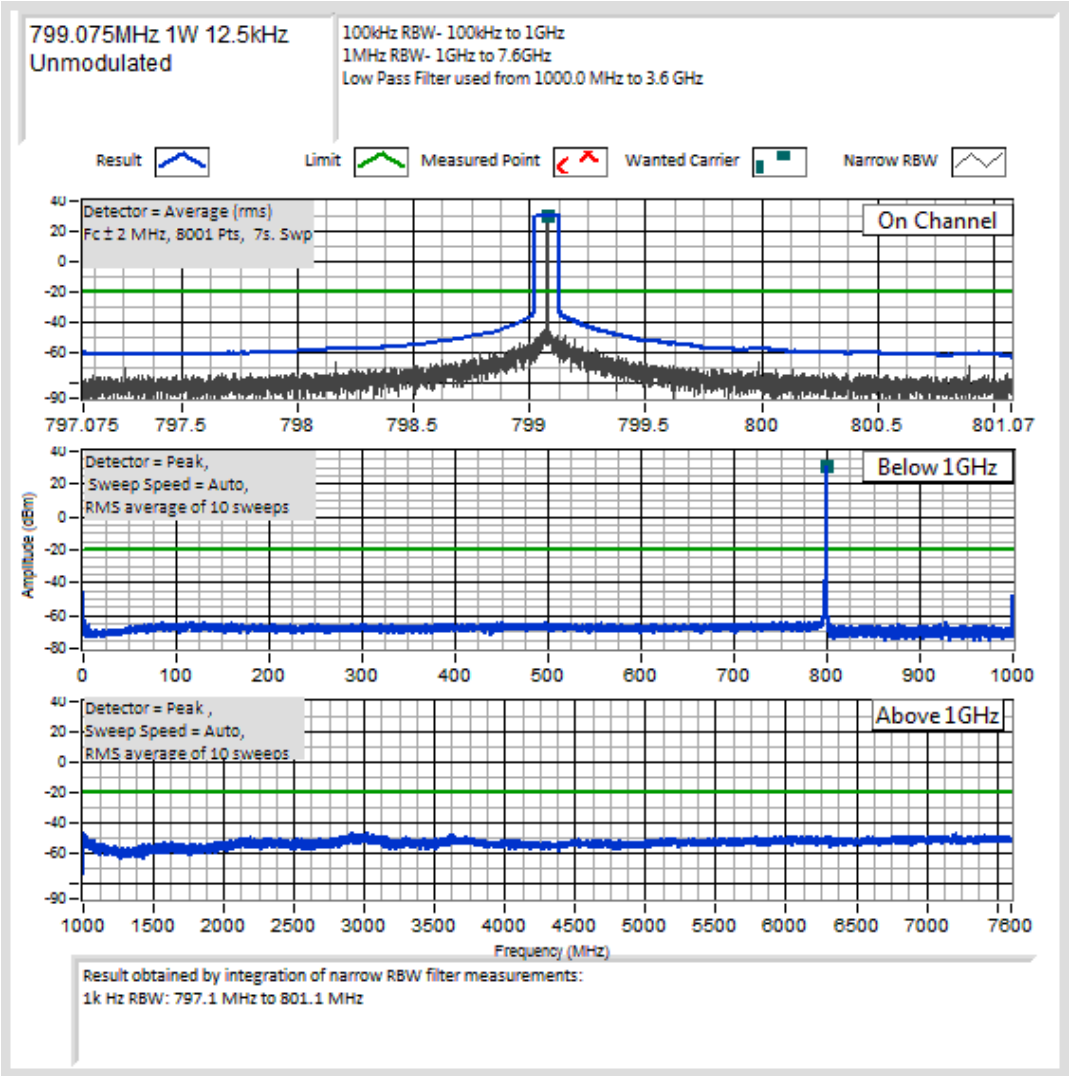
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 799.075 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

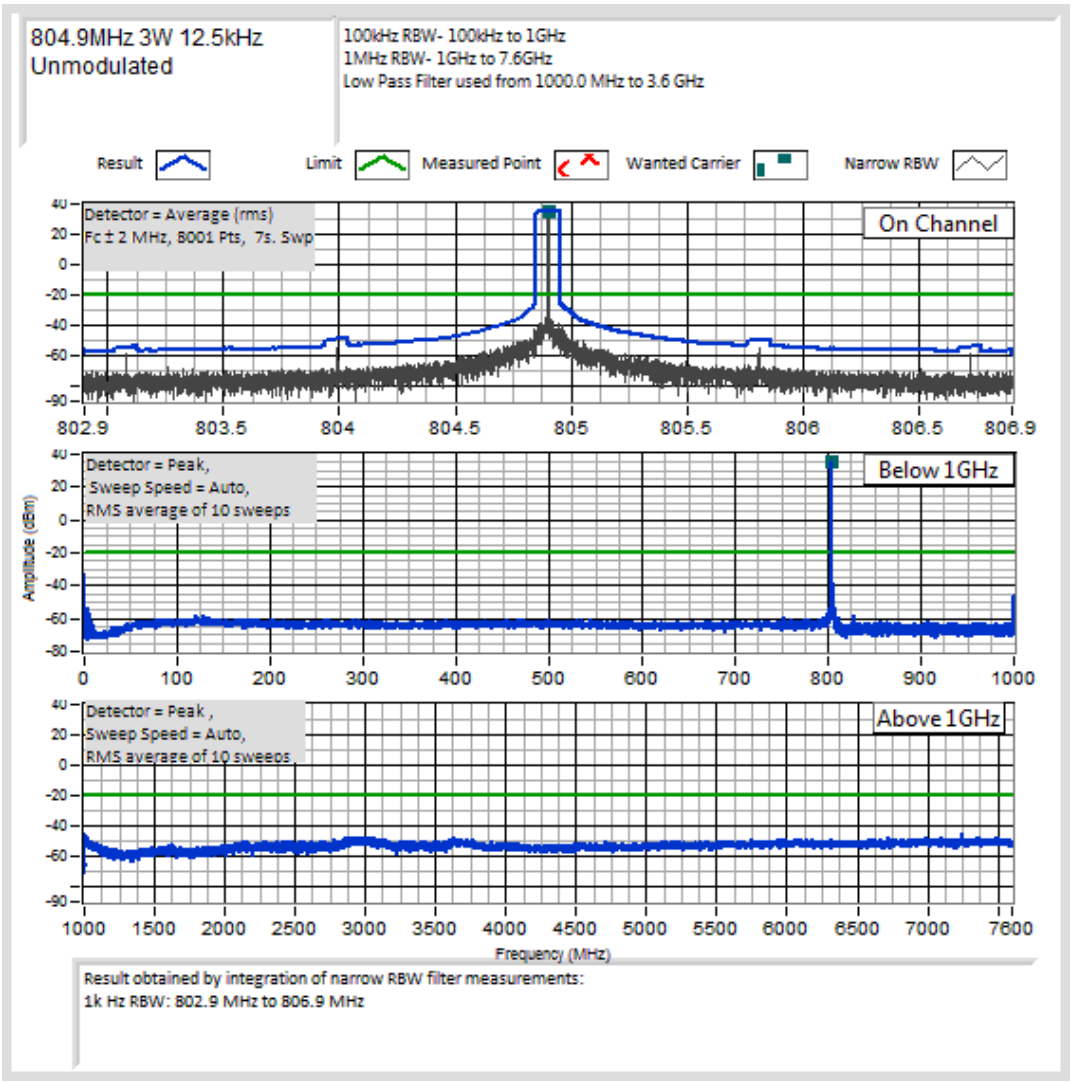
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 804.9 MHz @ 3 W Emission Mask D

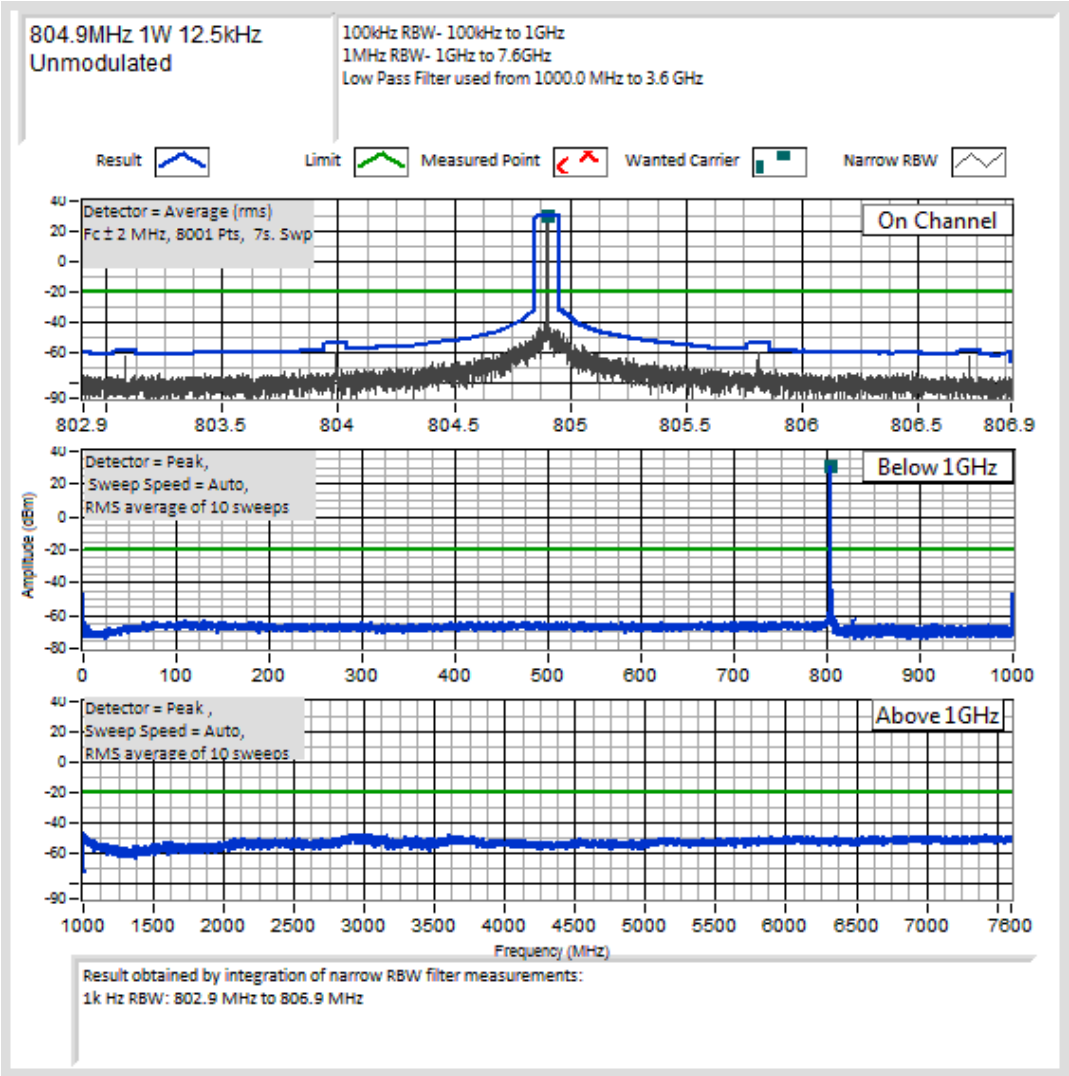
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 804.9 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

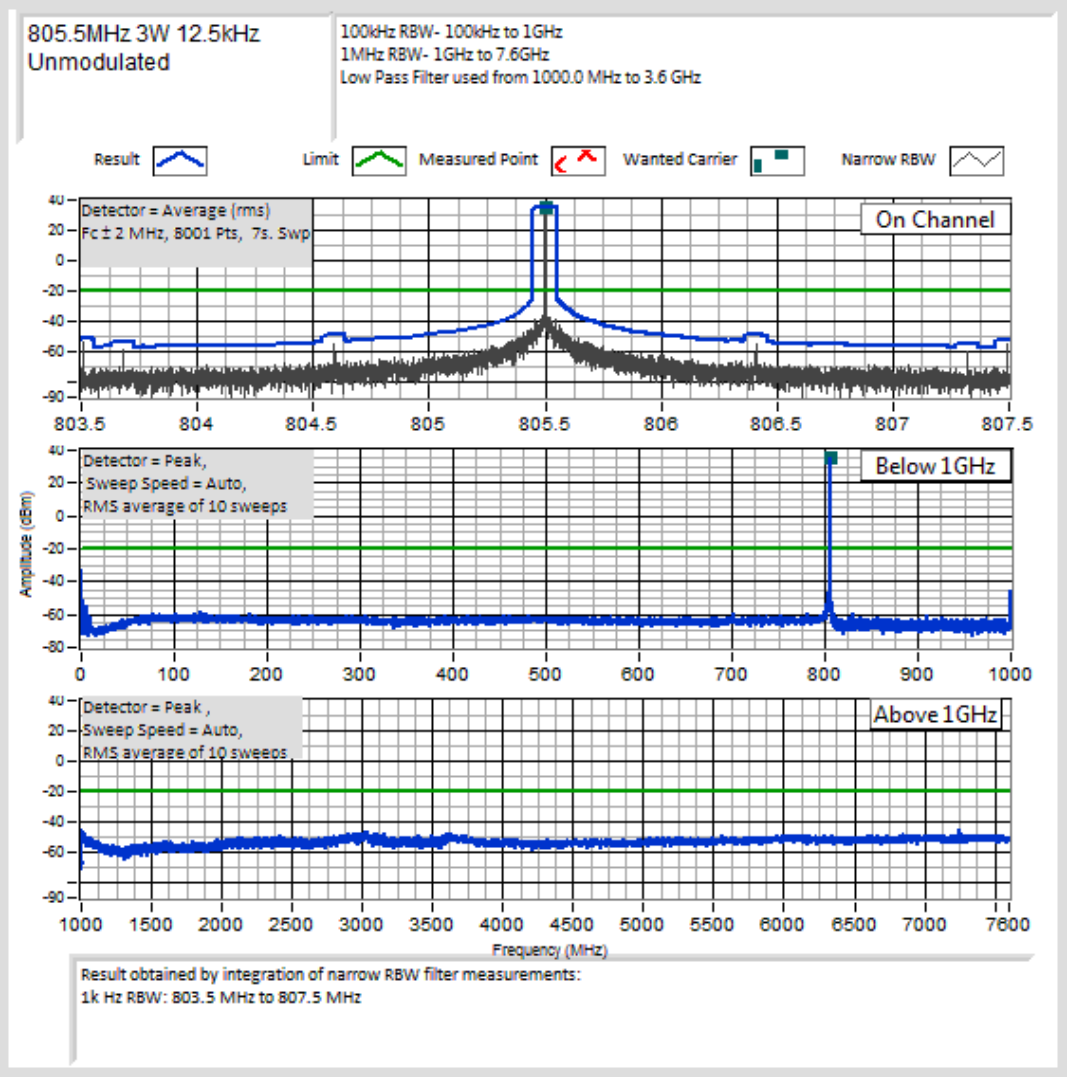
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 805.5 MHz @ 3 W Emission Mask D

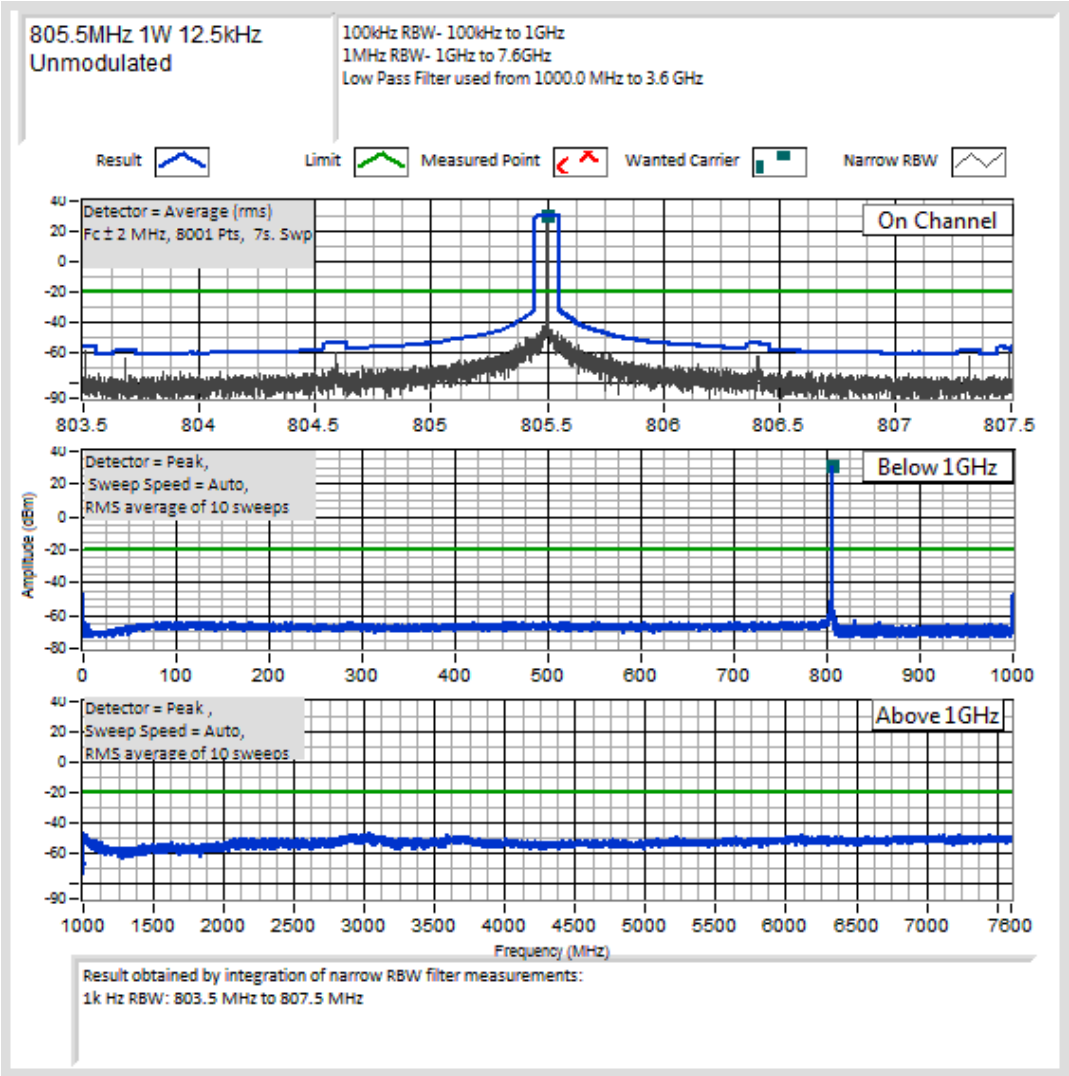
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 805.5 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

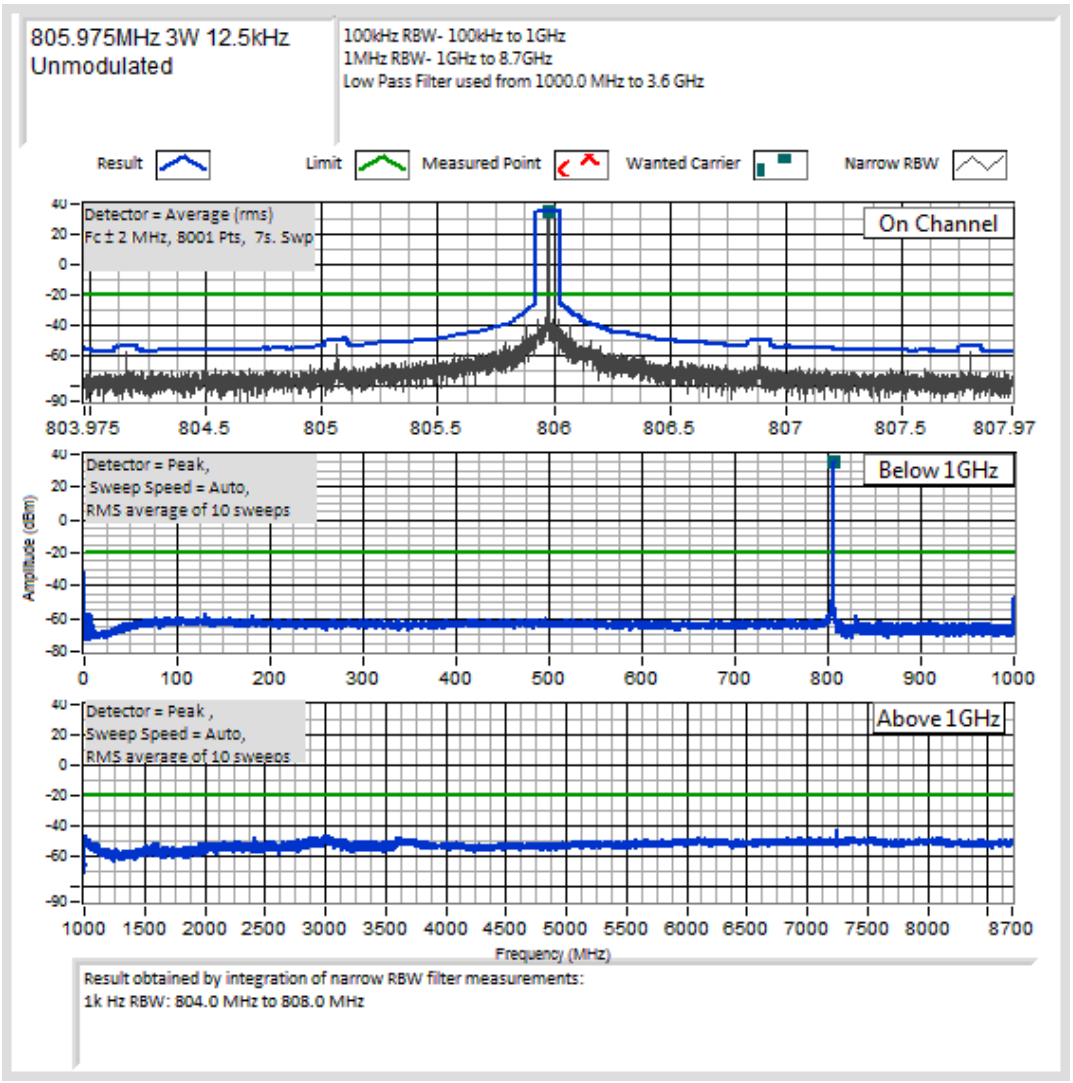
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 805.975 MHz @ 3 W Emission Mask D

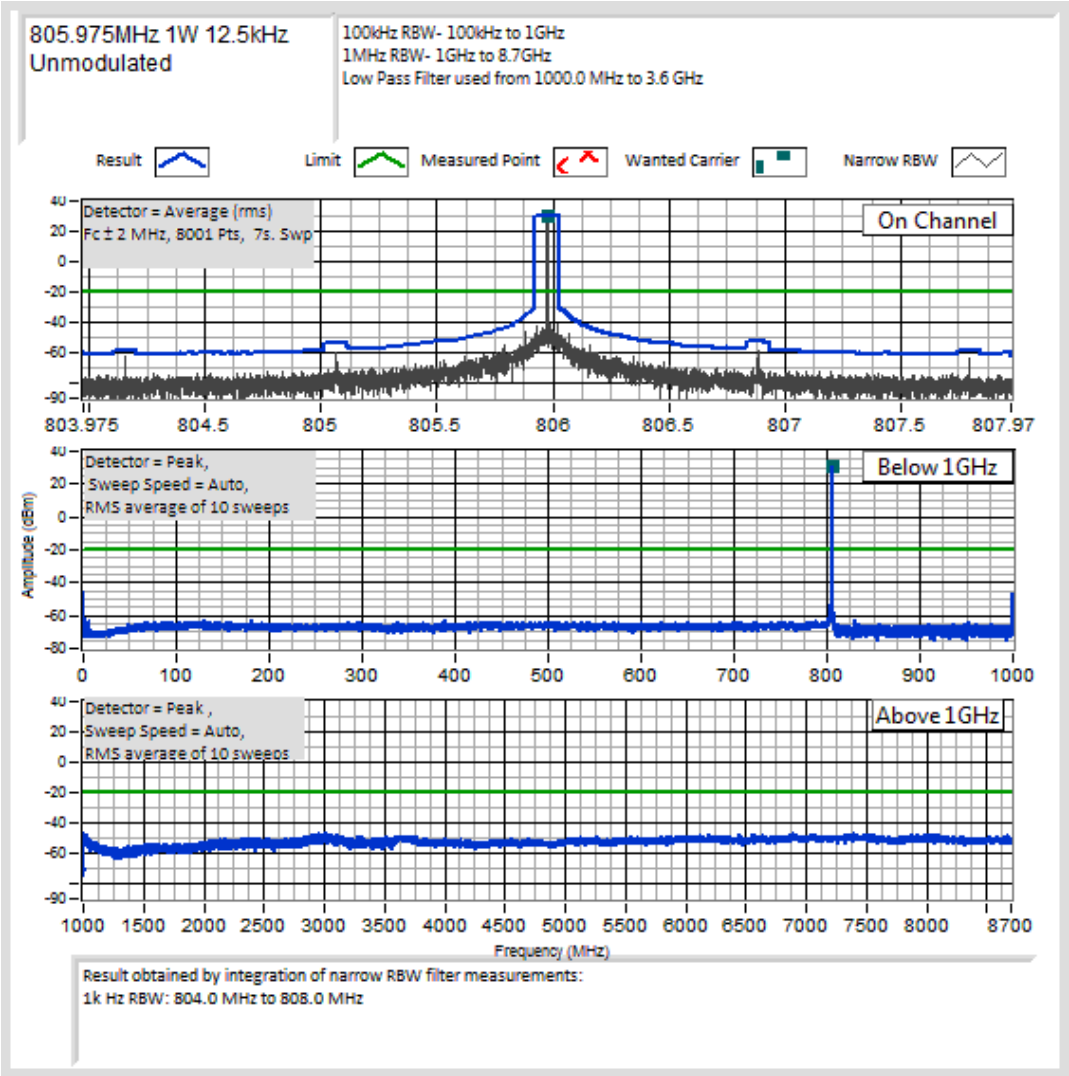
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 805.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

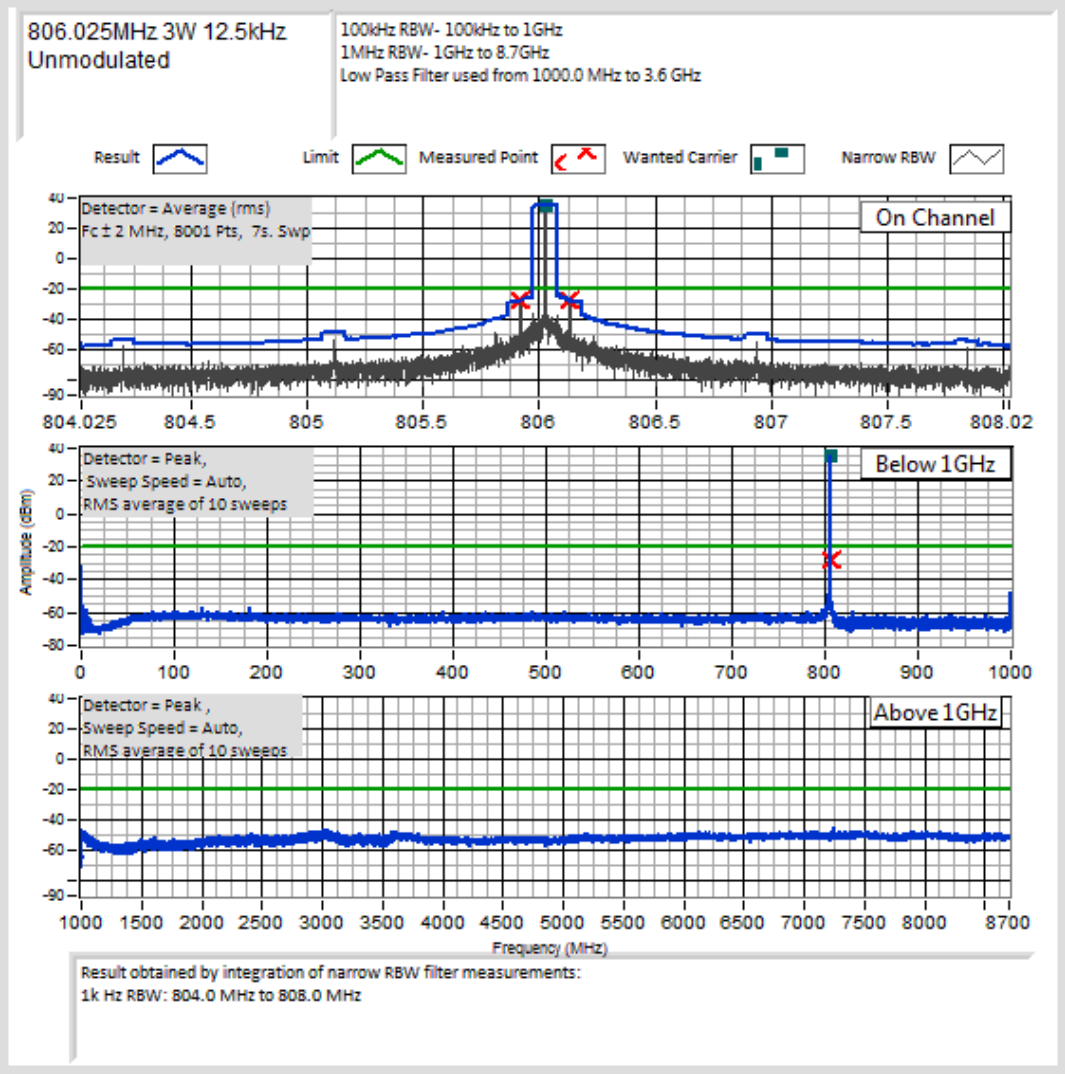
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 806.025 MHz @ 3 W Emission Mask D

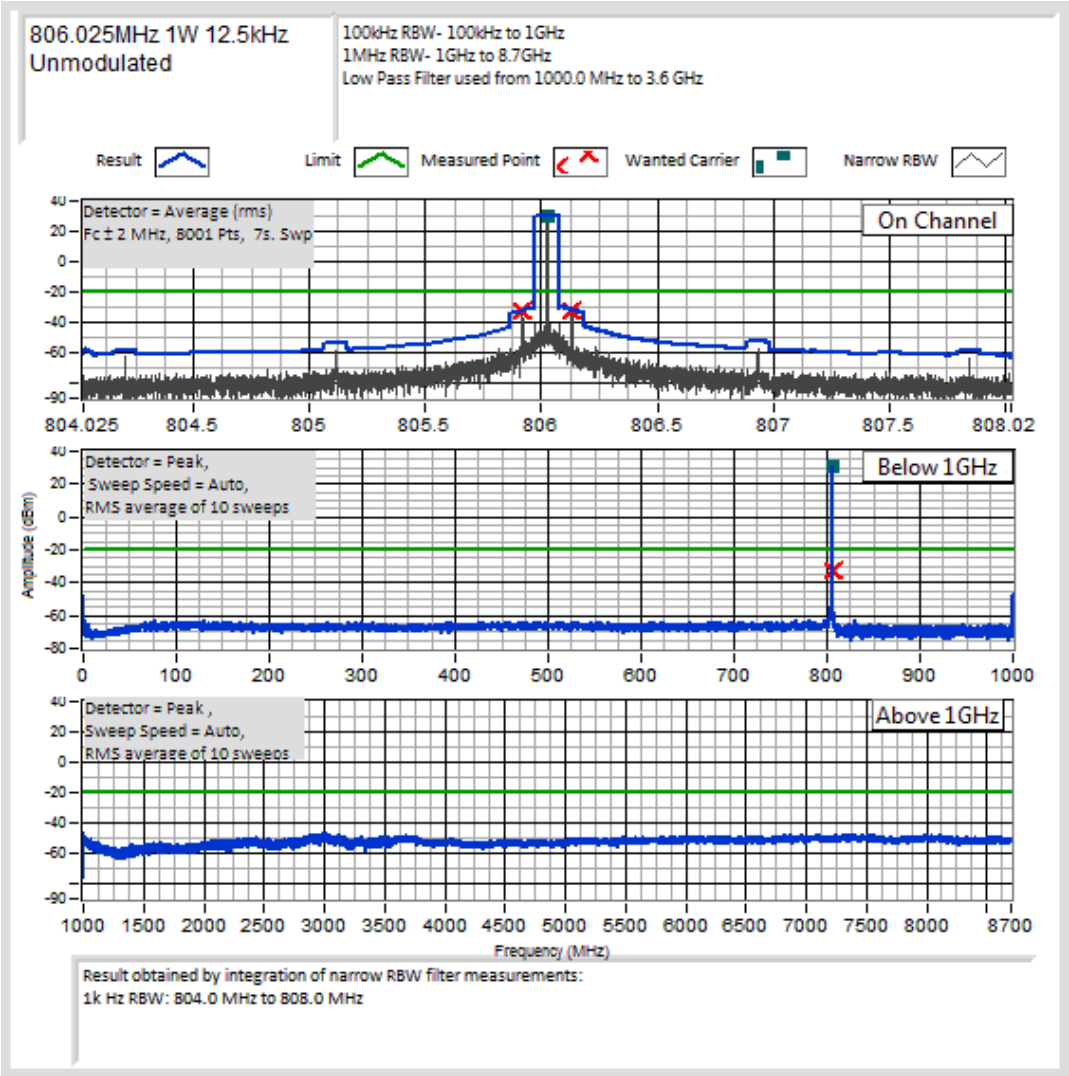
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
805.9185	-27.8	-62.8
806.1310	-27.9	-62.9

12.5 kHz Channel Spacing 806.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
805.9185	-32.8	-62.8
806.1310	-32.5	-62.5
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

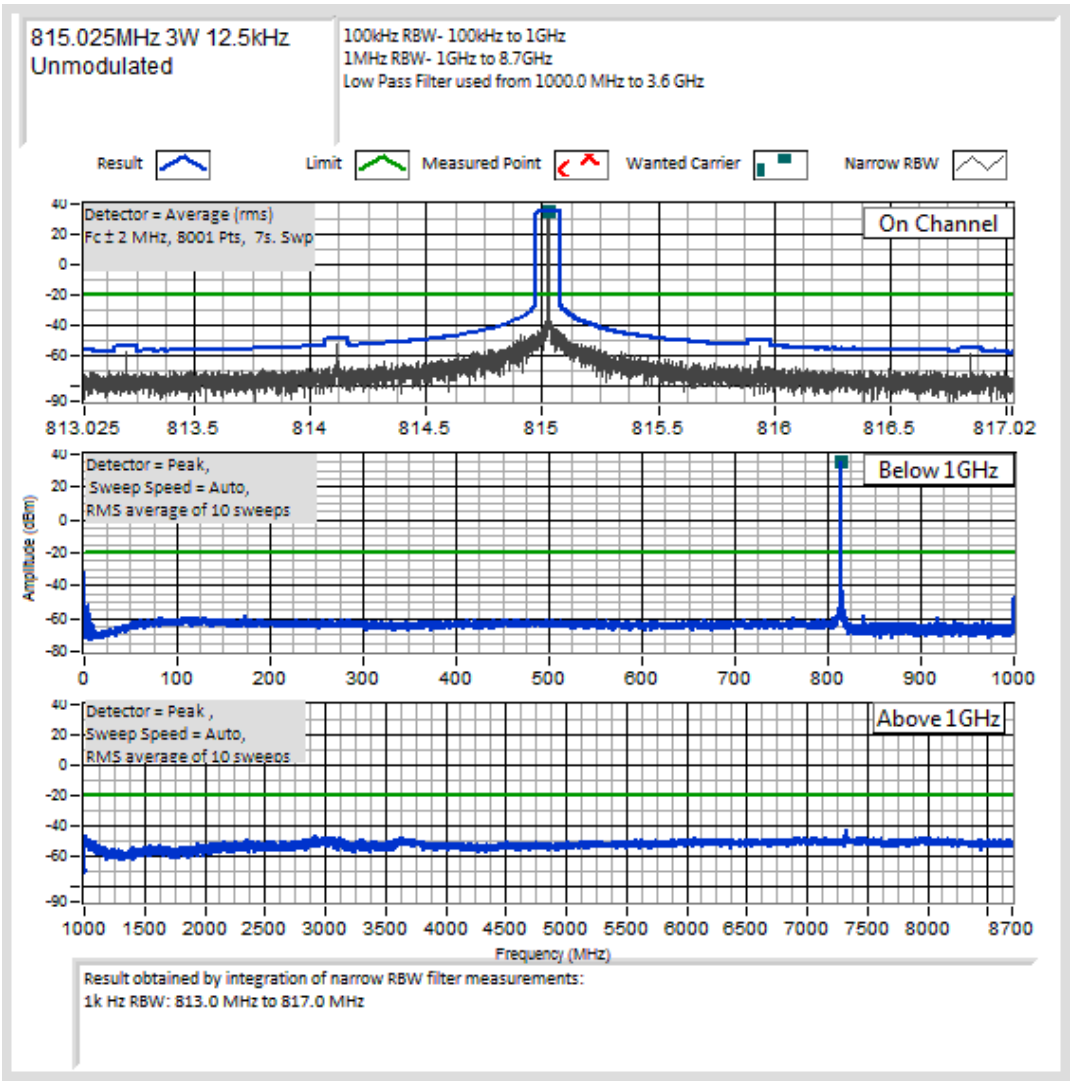
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 815.025 MHz @ 3 W Emission Mask D

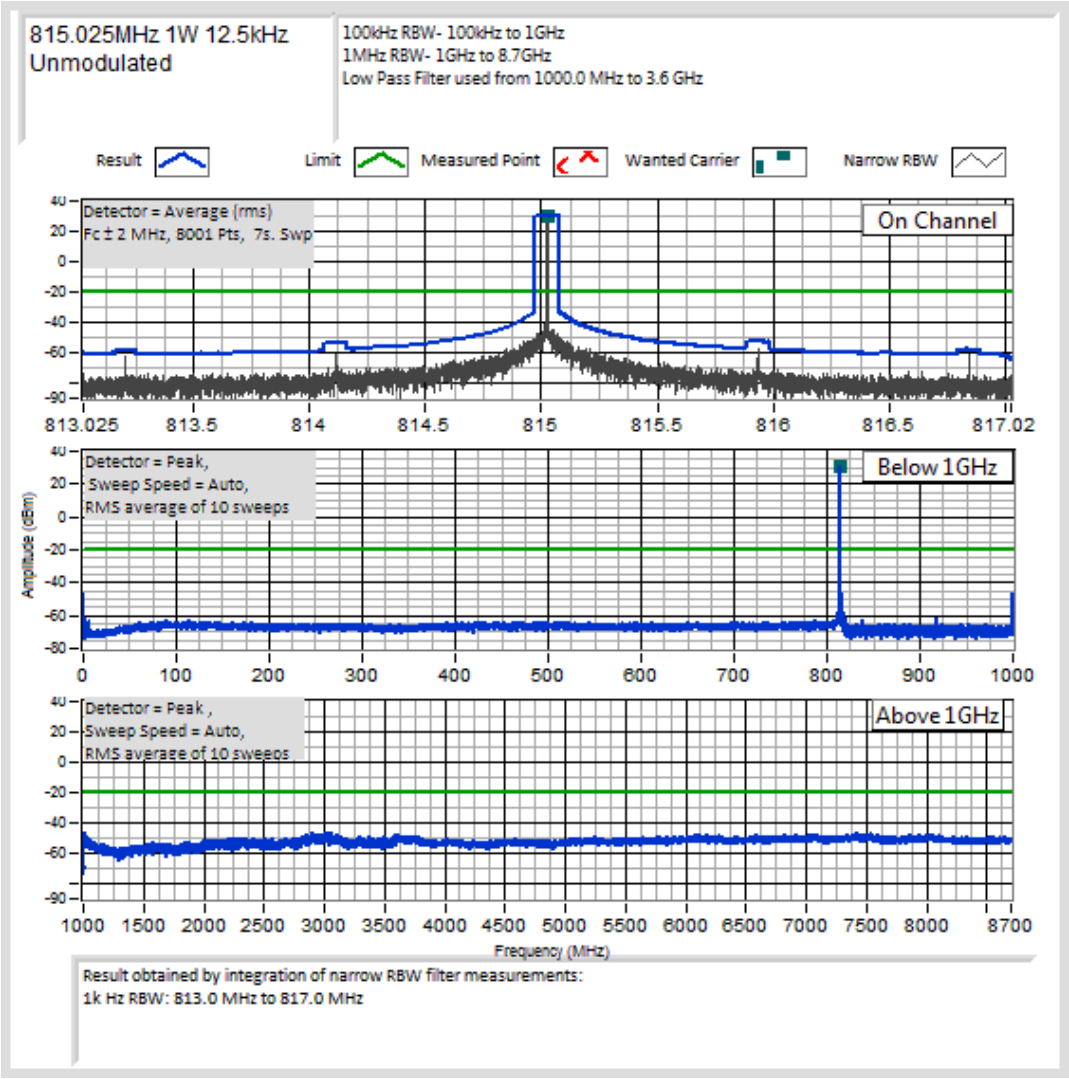
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 815.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

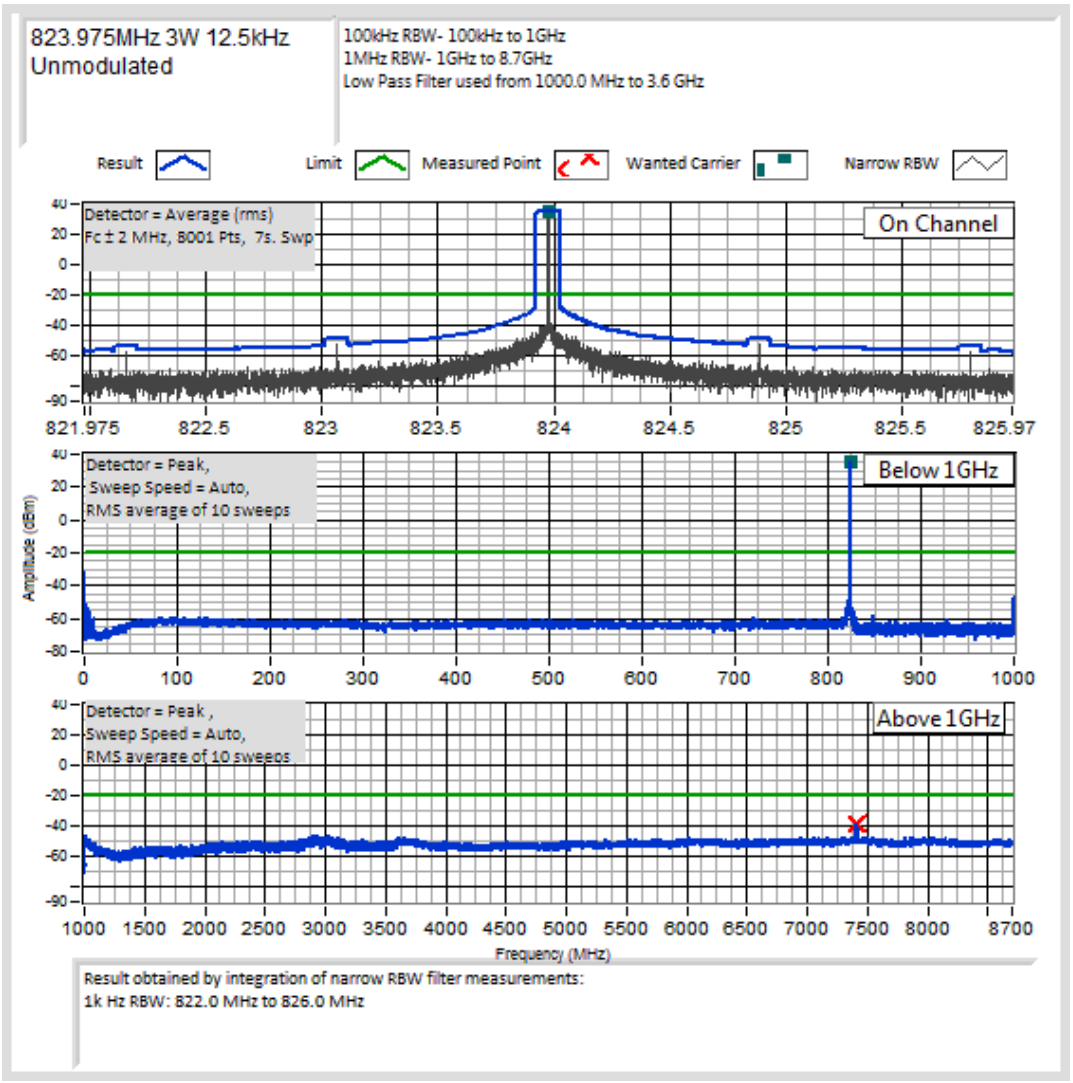
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 823.975 MHz @ 3 W Emission Mask D

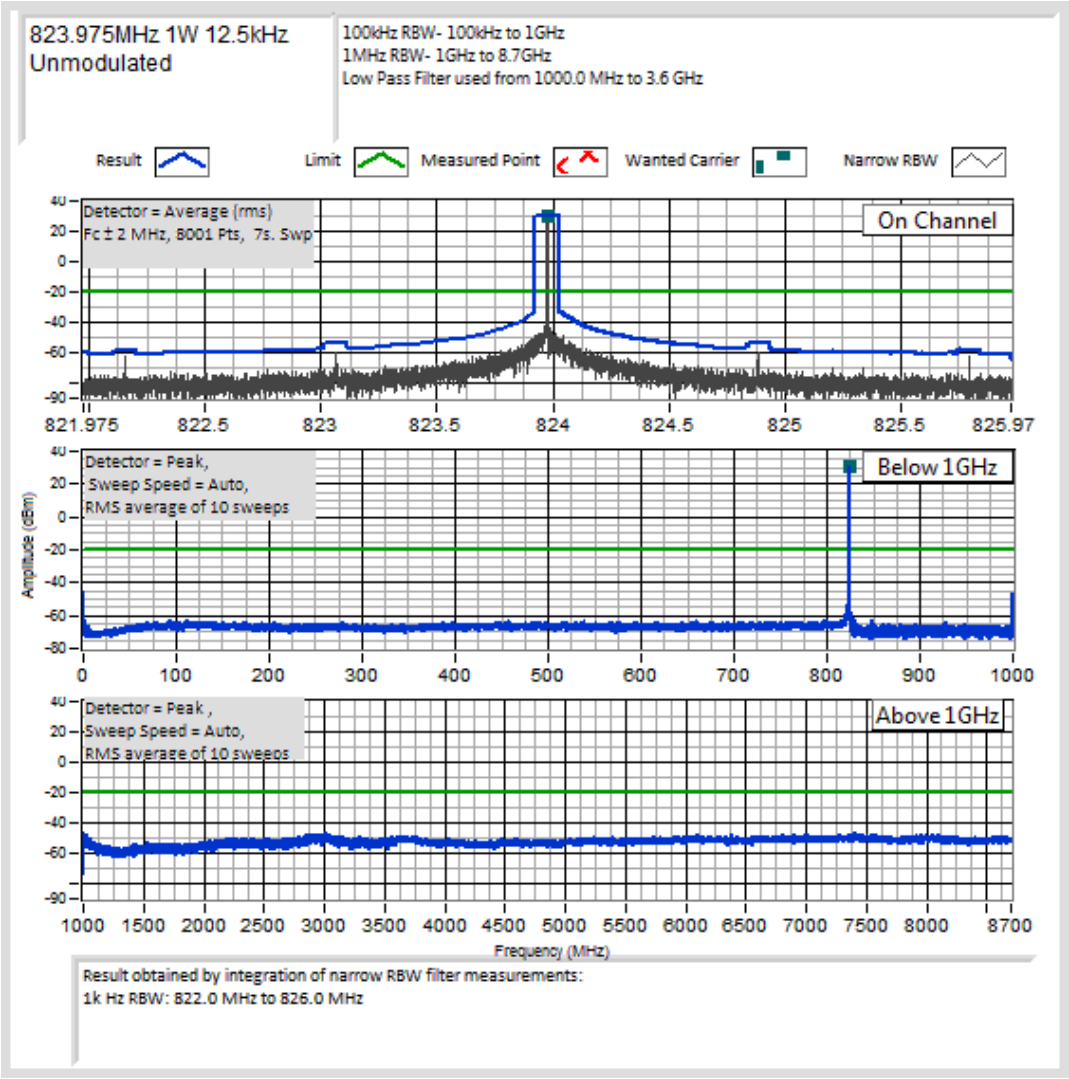
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7415.504822	-39.1	-74.1

12.5 kHz Channel Spacing 823.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

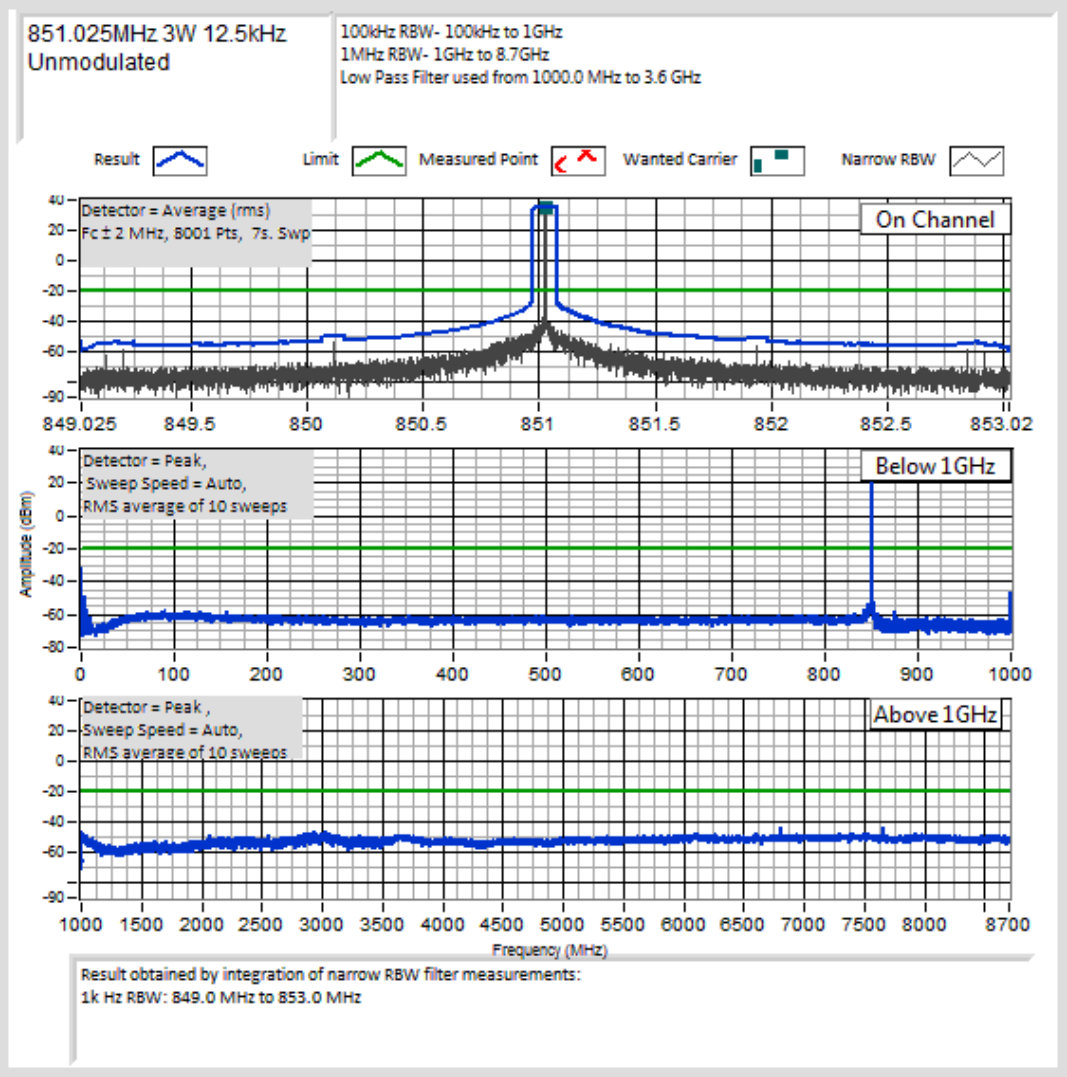
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 851.025 MHz @ 3 W Emission Mask D

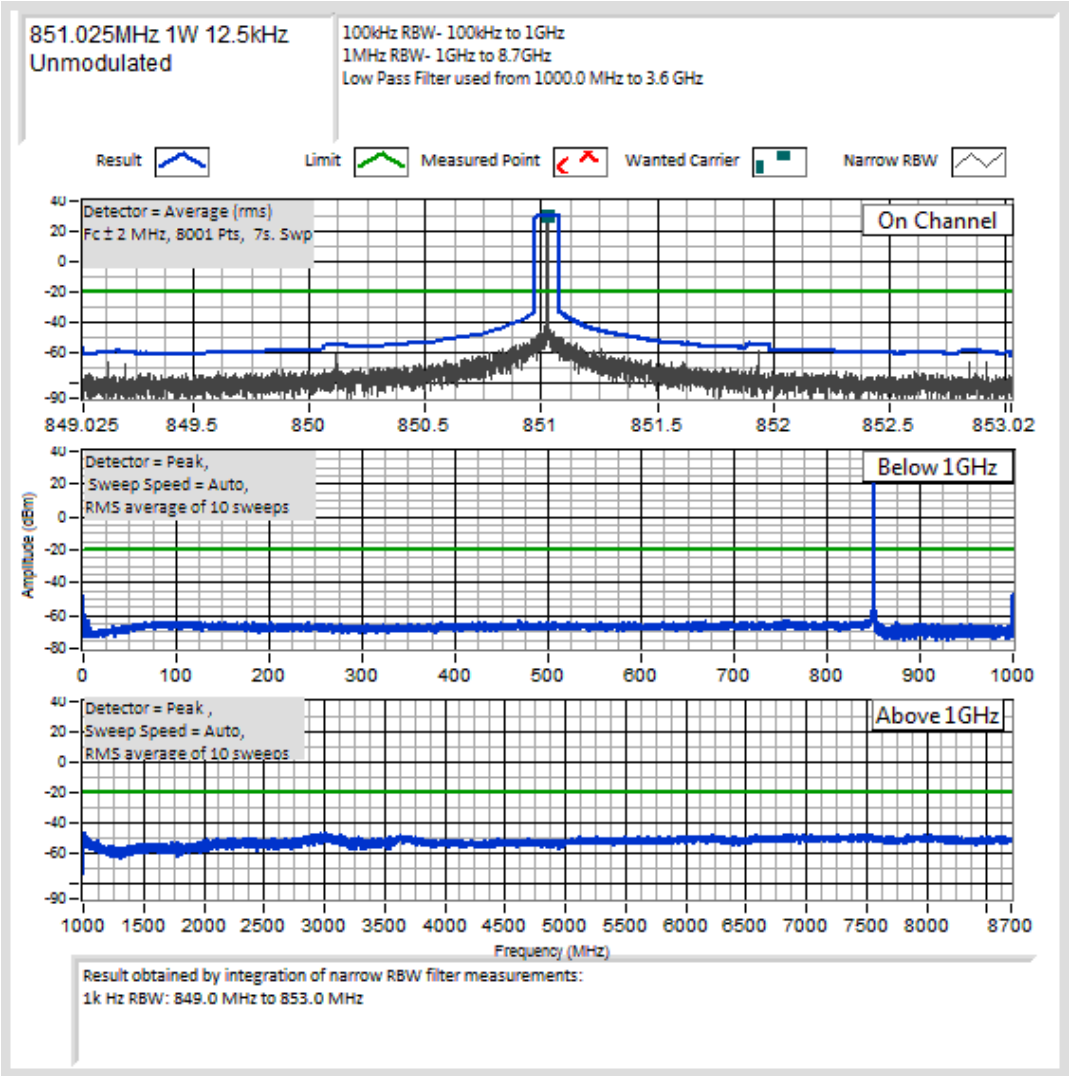
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 851.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

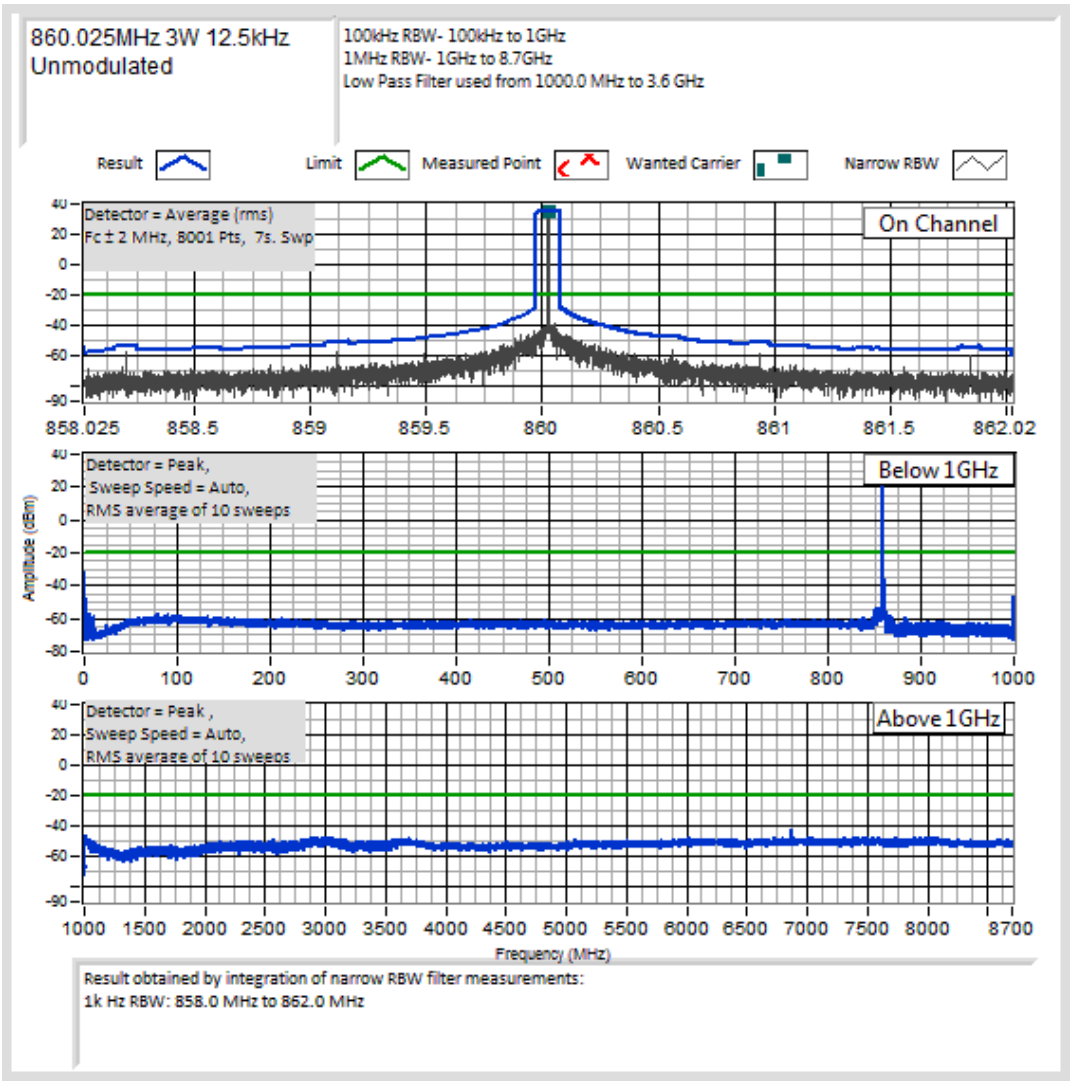
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 860.025 MHz @ 3 W Emission Mask D

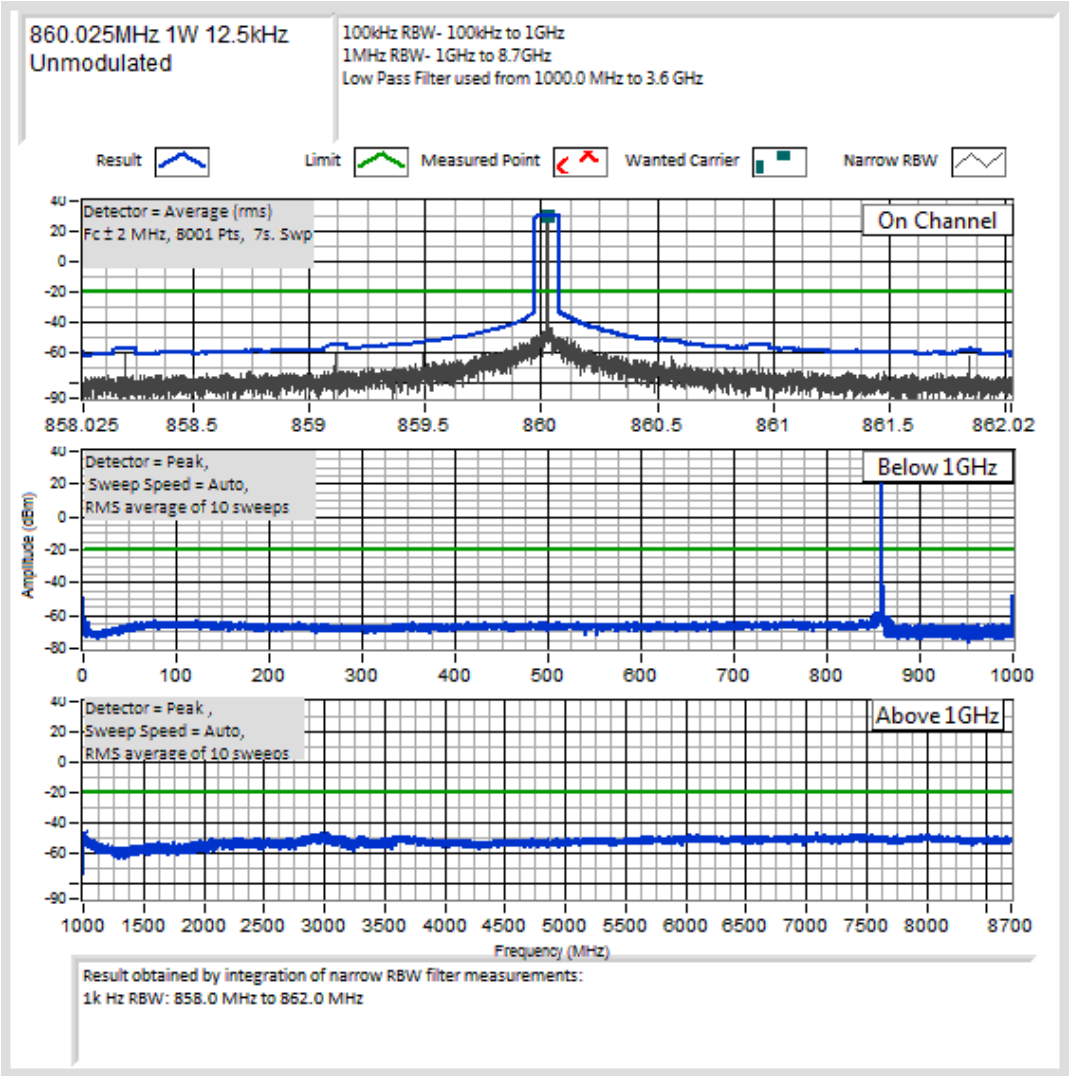
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 860.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

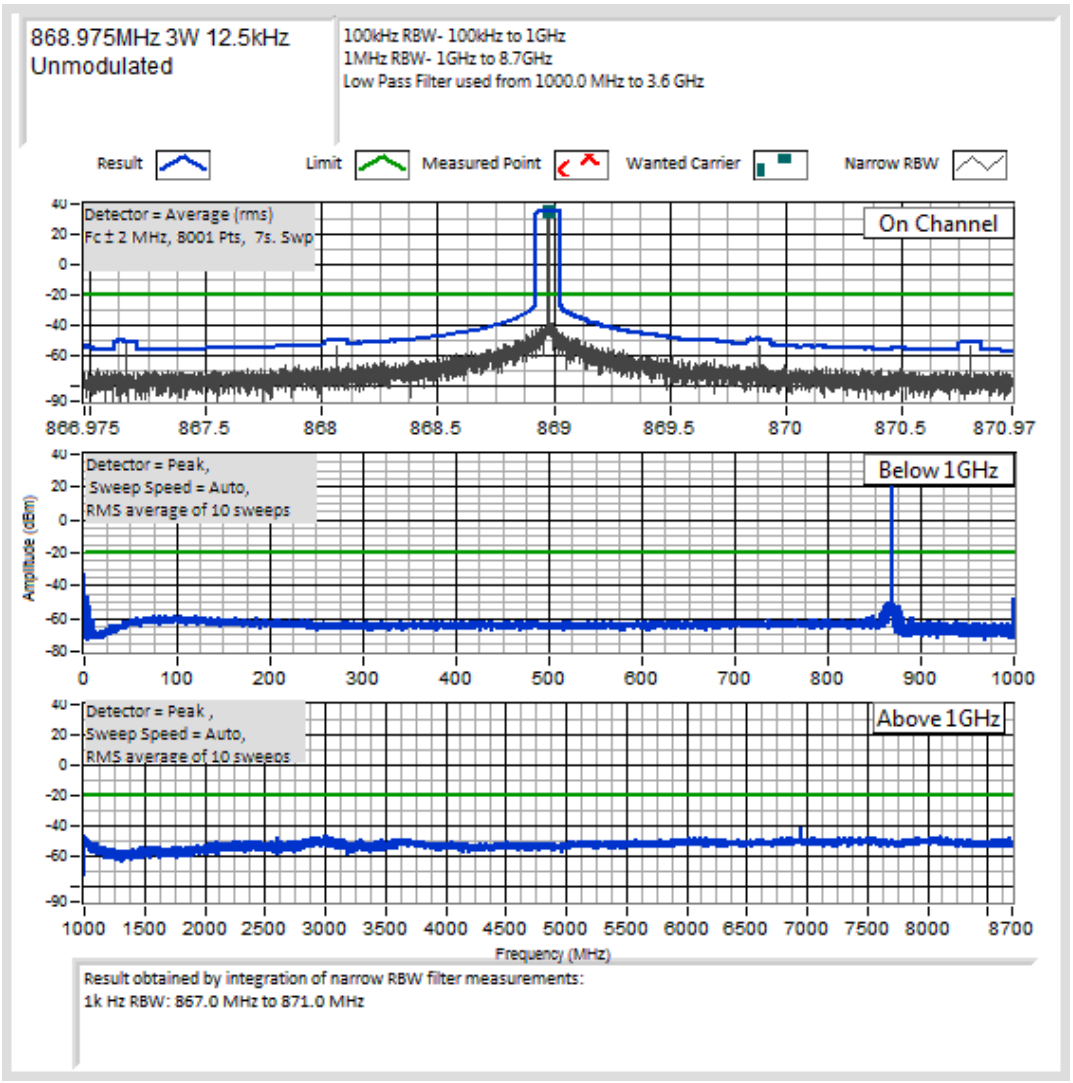
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 868.975 MHz @ 3 W Emission Mask D

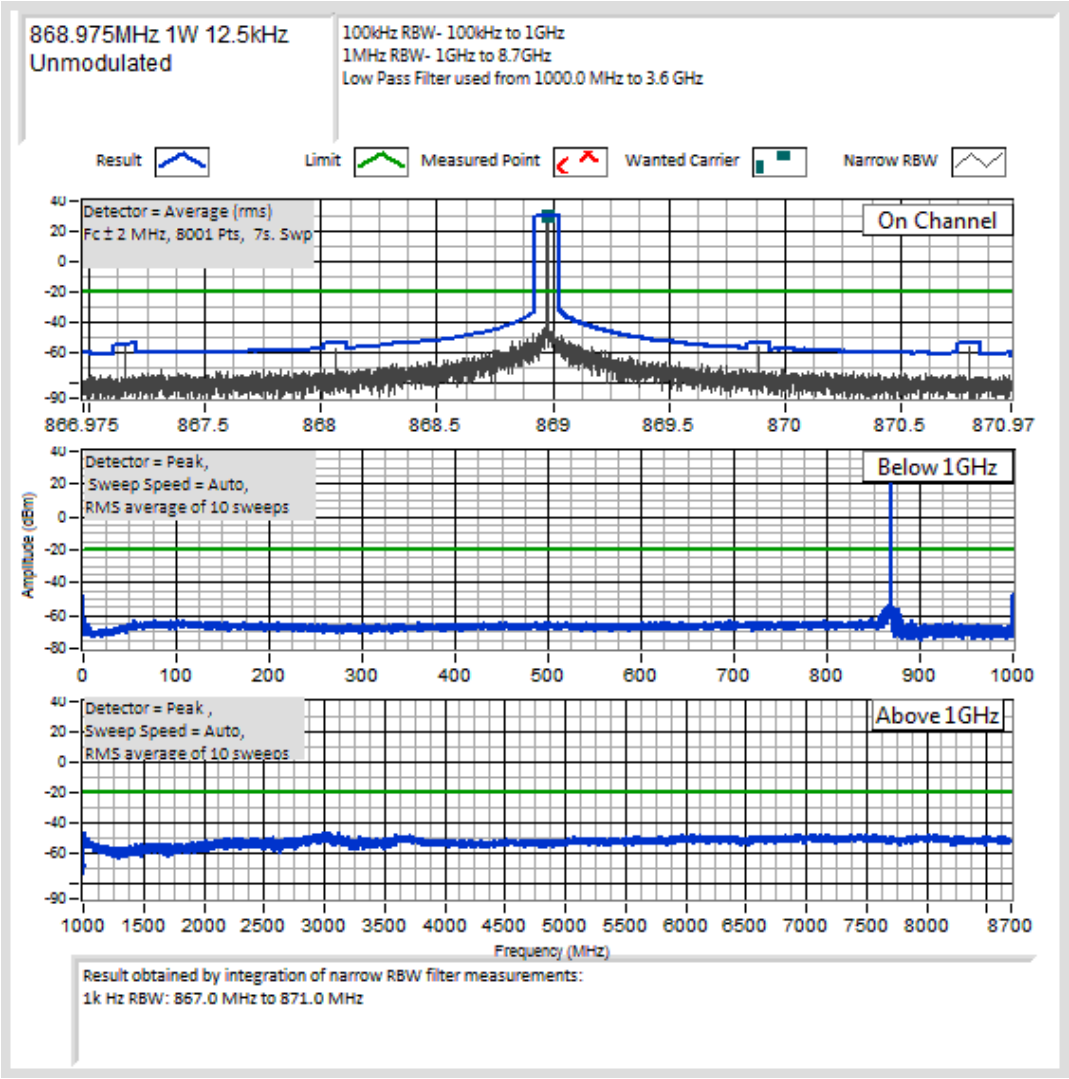
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 868.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

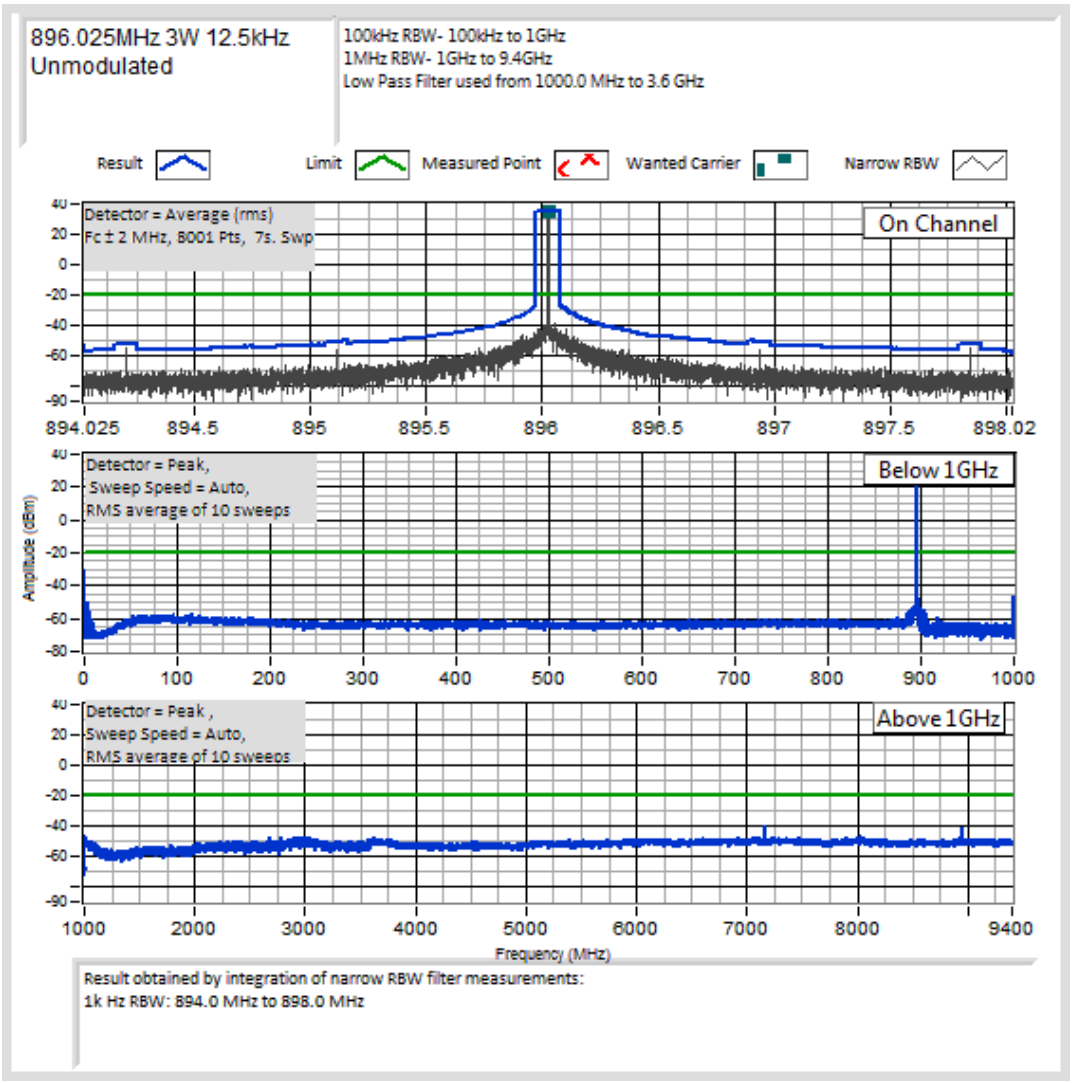
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 896.025 MHz @ 3 W Emission Mask D

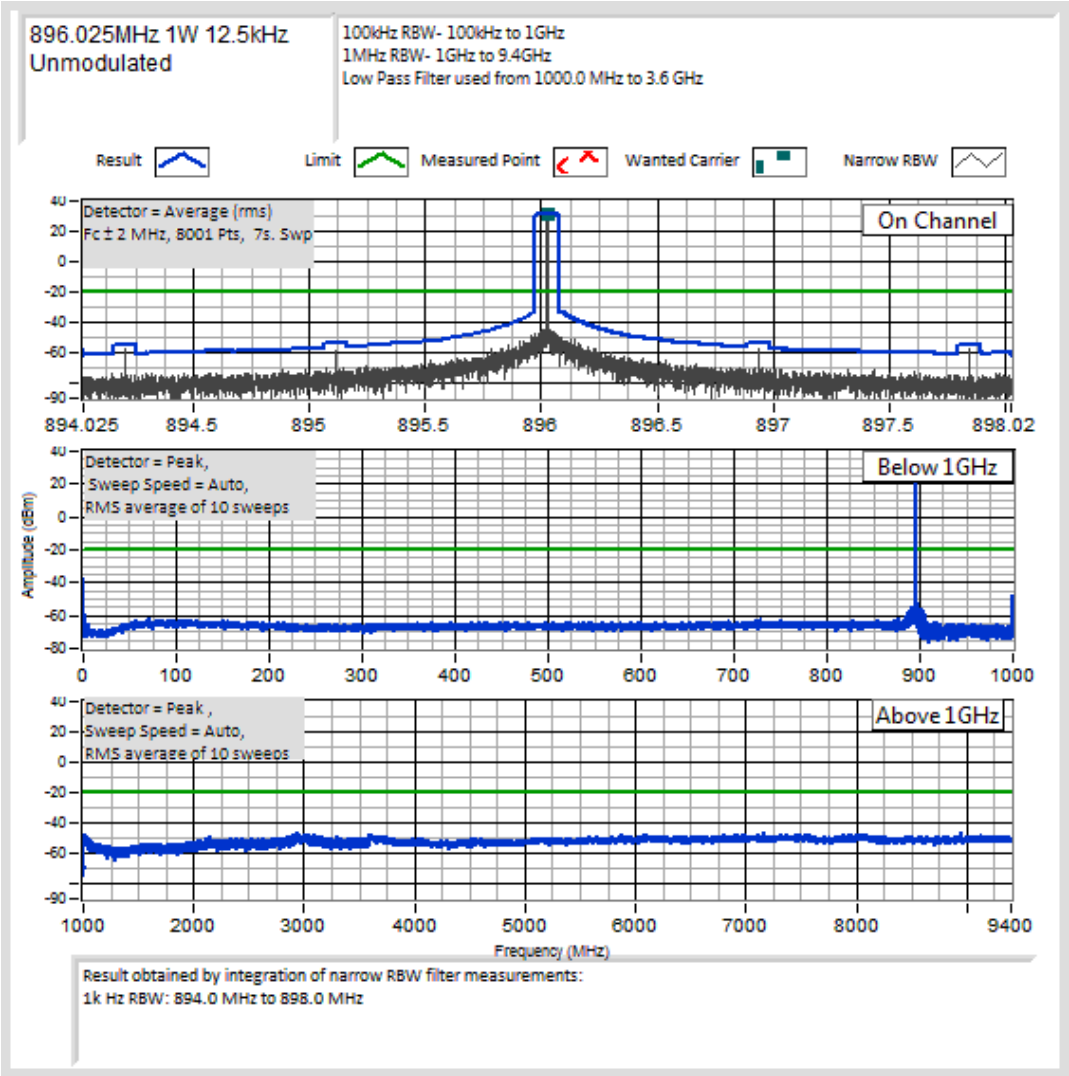
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 896.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

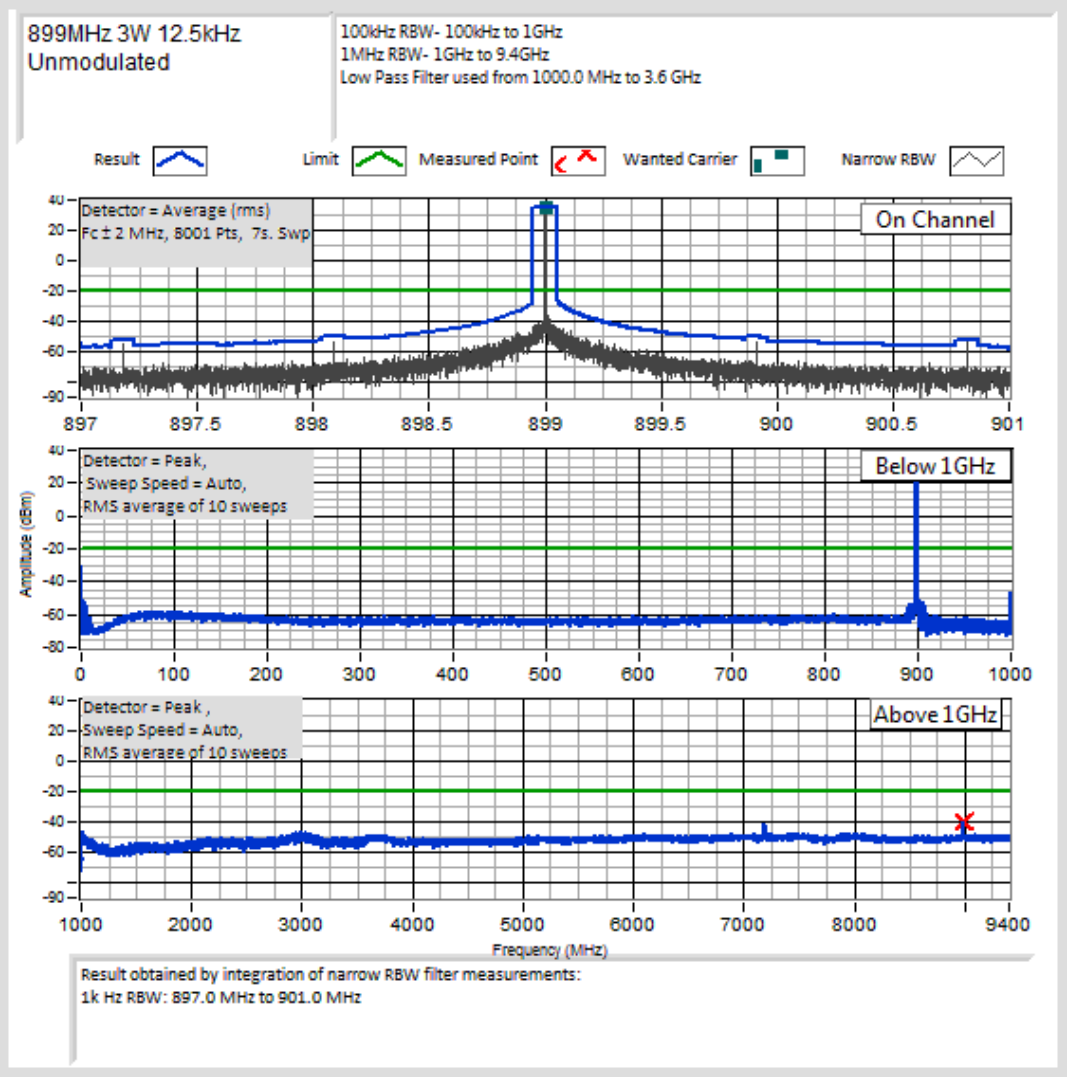
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 899.0 MHz @ 3 W Emission Mask D

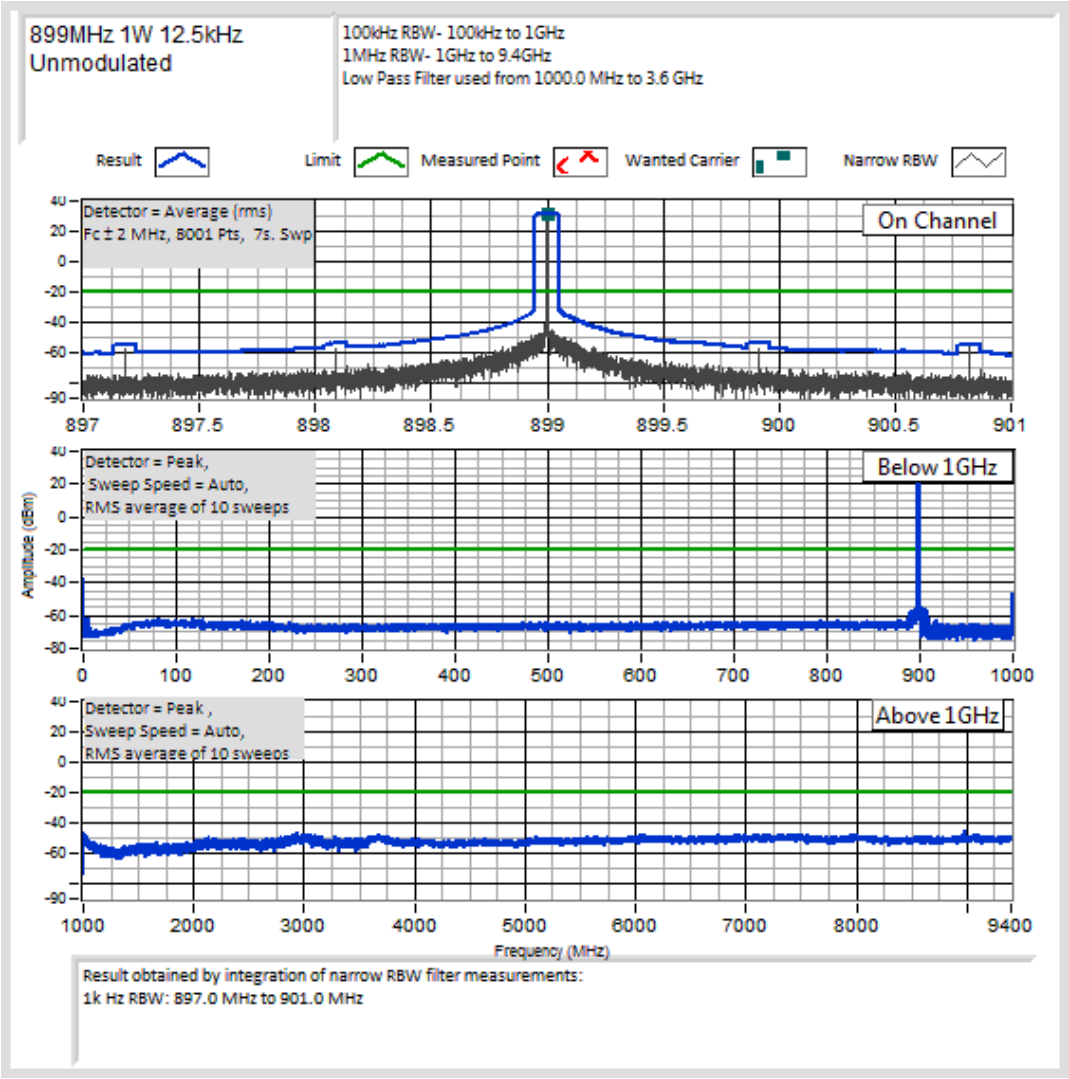
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
8990.013429	-39.6	-74.6

12.5 kHz Channel Spacing 899.0 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

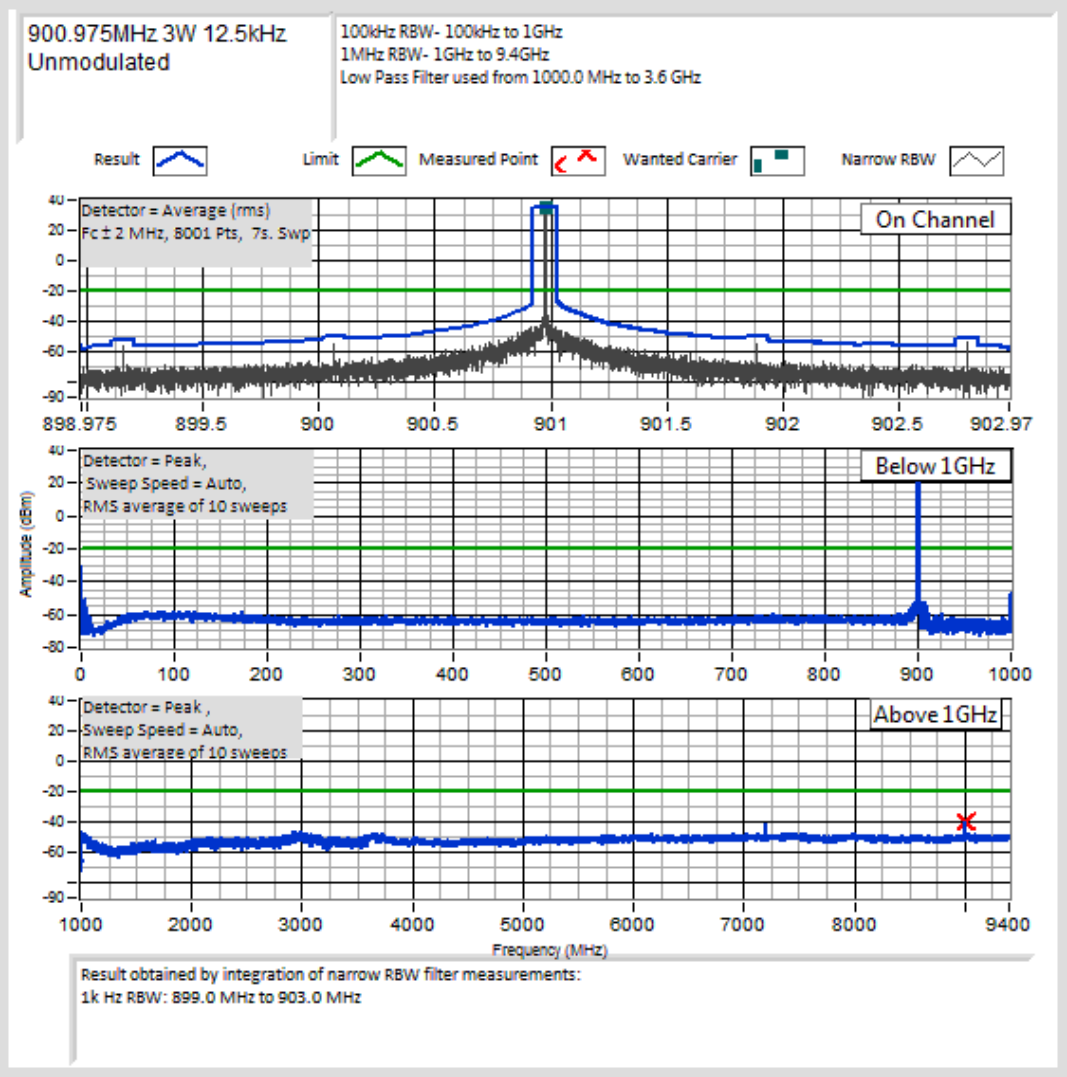
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 900.975 MHz @ 3 W Emission Mask D

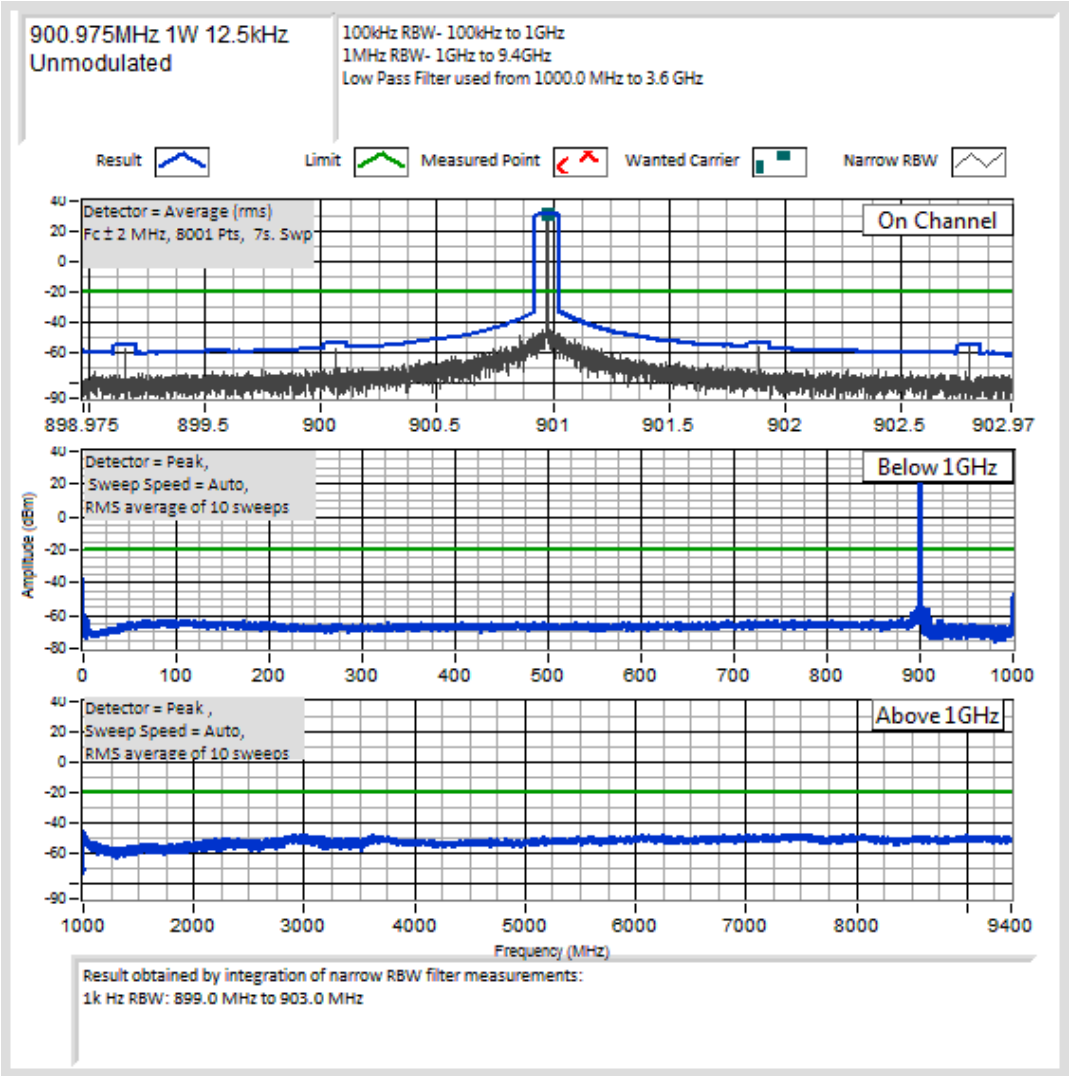
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
9009.840068	-39.4	-74.4

12.5 kHz Channel Spacing 900.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

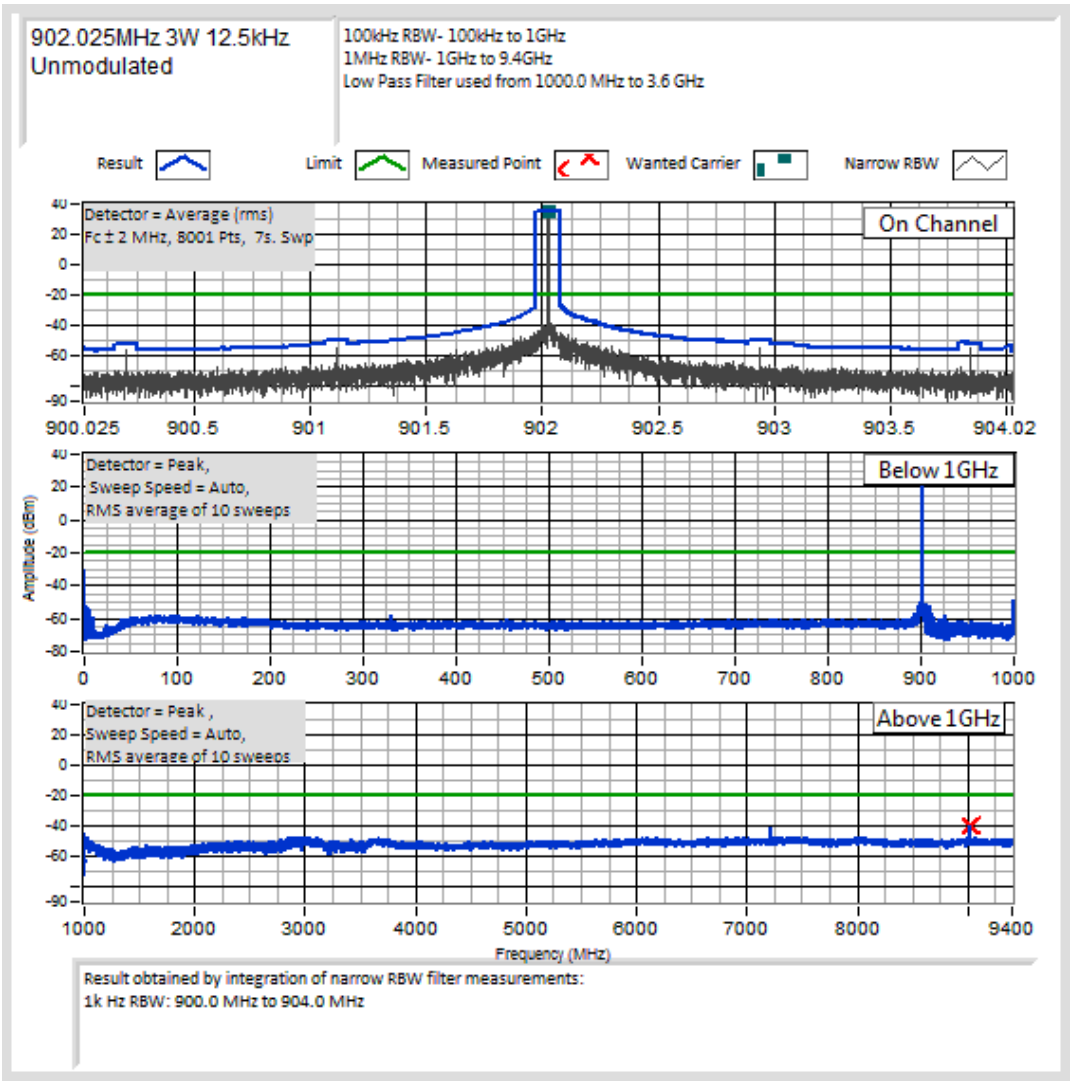
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 902.025 MHz @ 3 W Emission Mask D

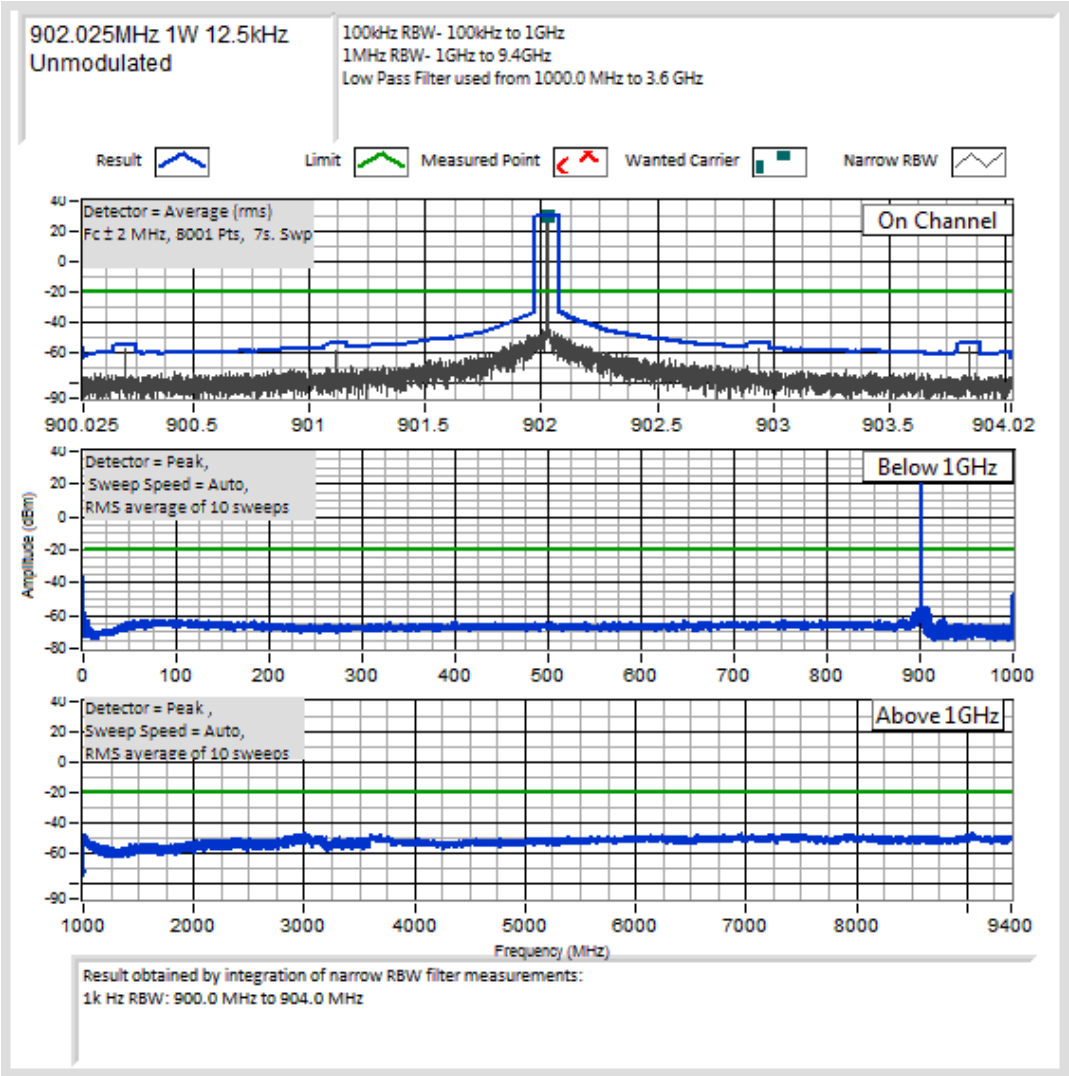
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
9020.461482	-39.6	-74.6

12.5 kHz Channel Spacing 902.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

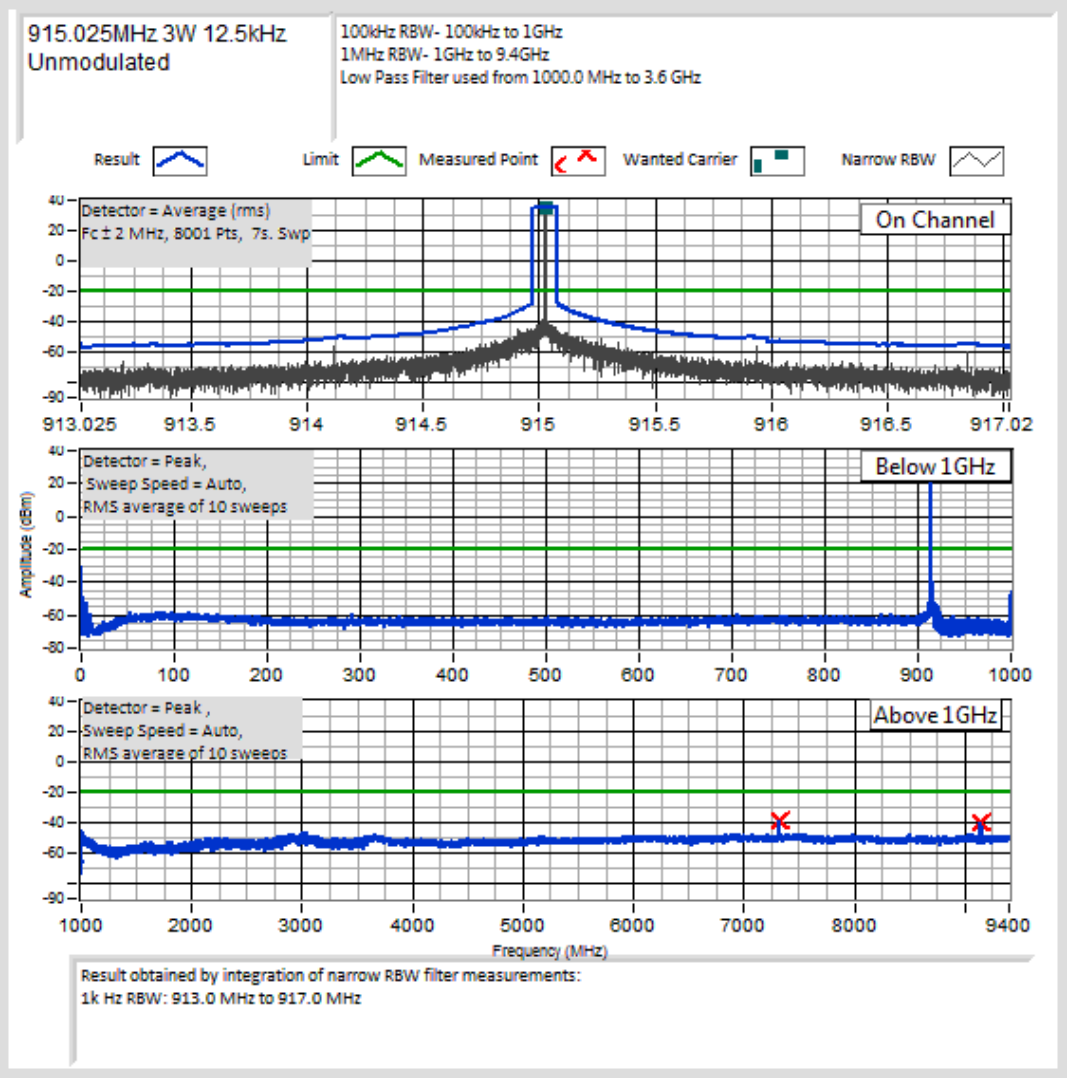
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 915.025 MHz @ 3 W Emission Mask D

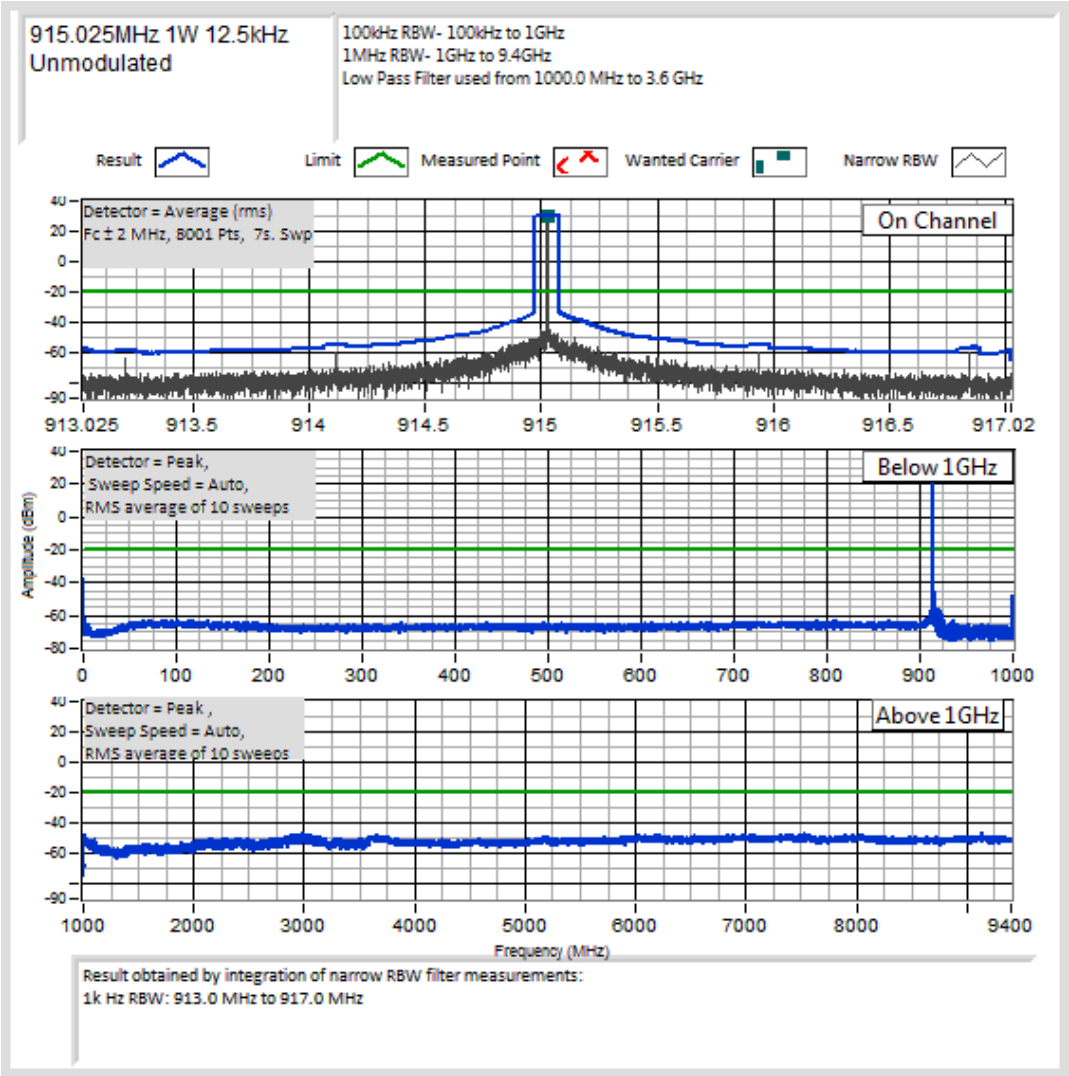
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7320.32719	-39.1	-74.1
9150.04273	-39.8	-74.8

12.5 kHz Channel Spacing 915.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

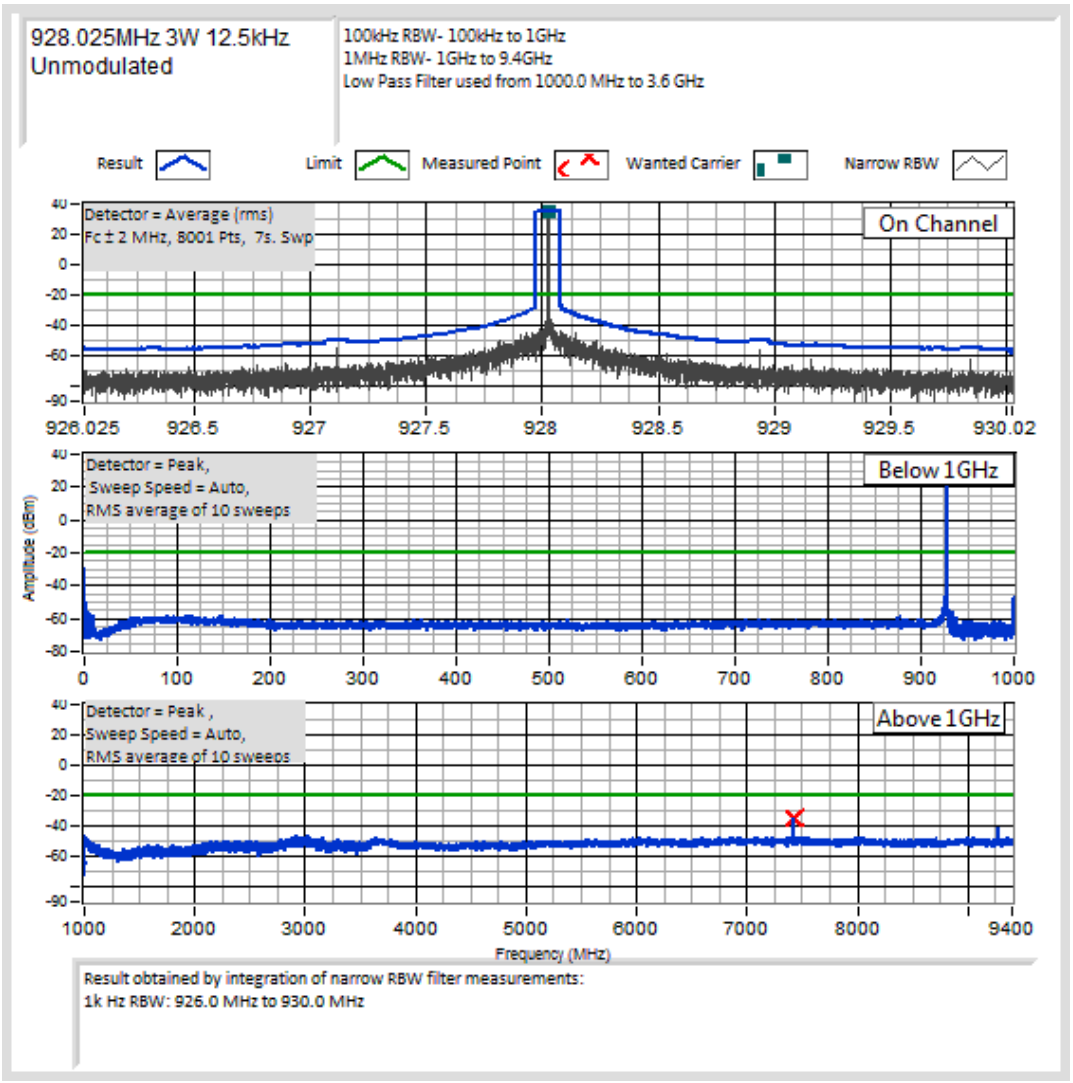
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 928.025 MHz @ 3 W Emission Mask D

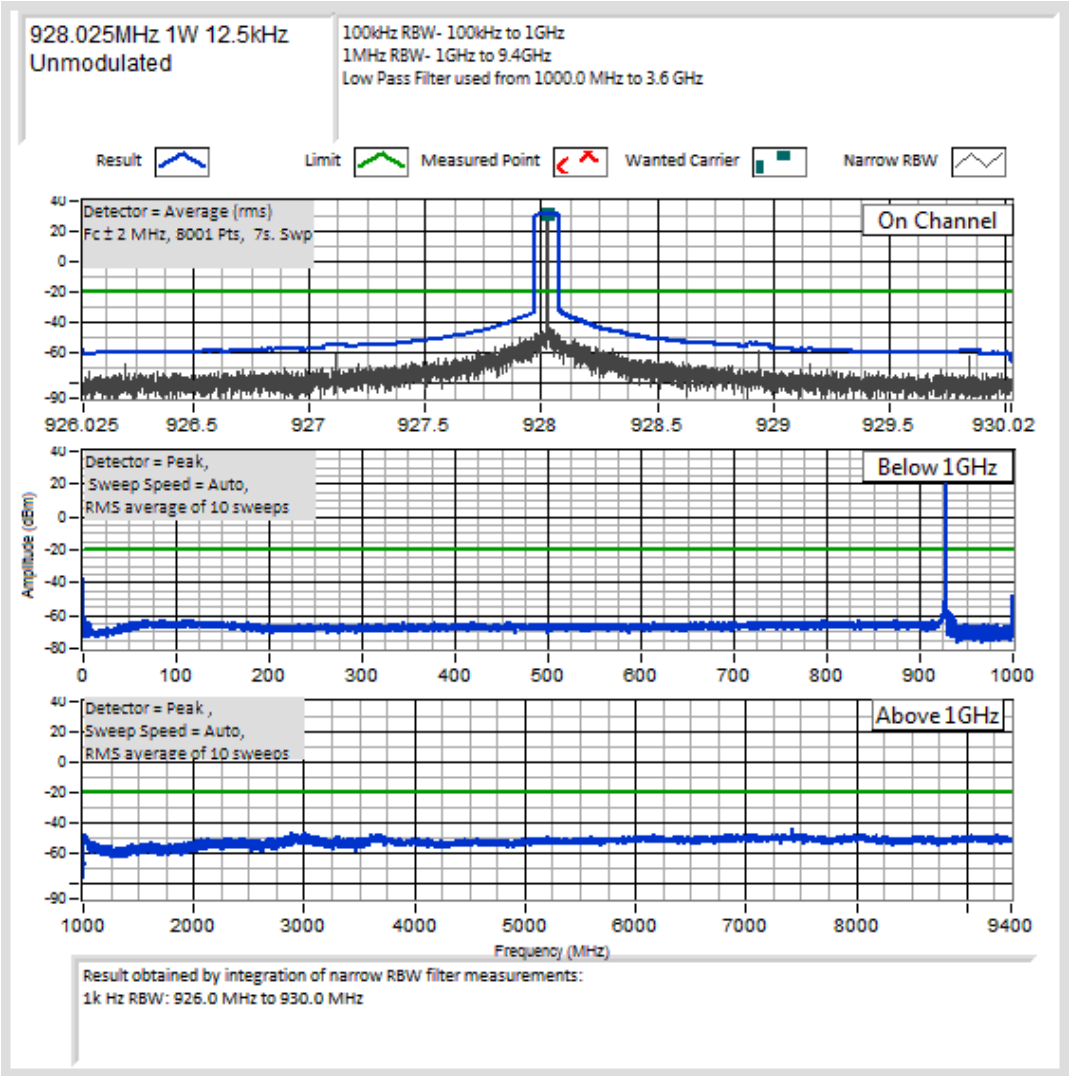
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7423.708949	-34.5	-69.5

12.5 kHz Channel Spacing 928.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

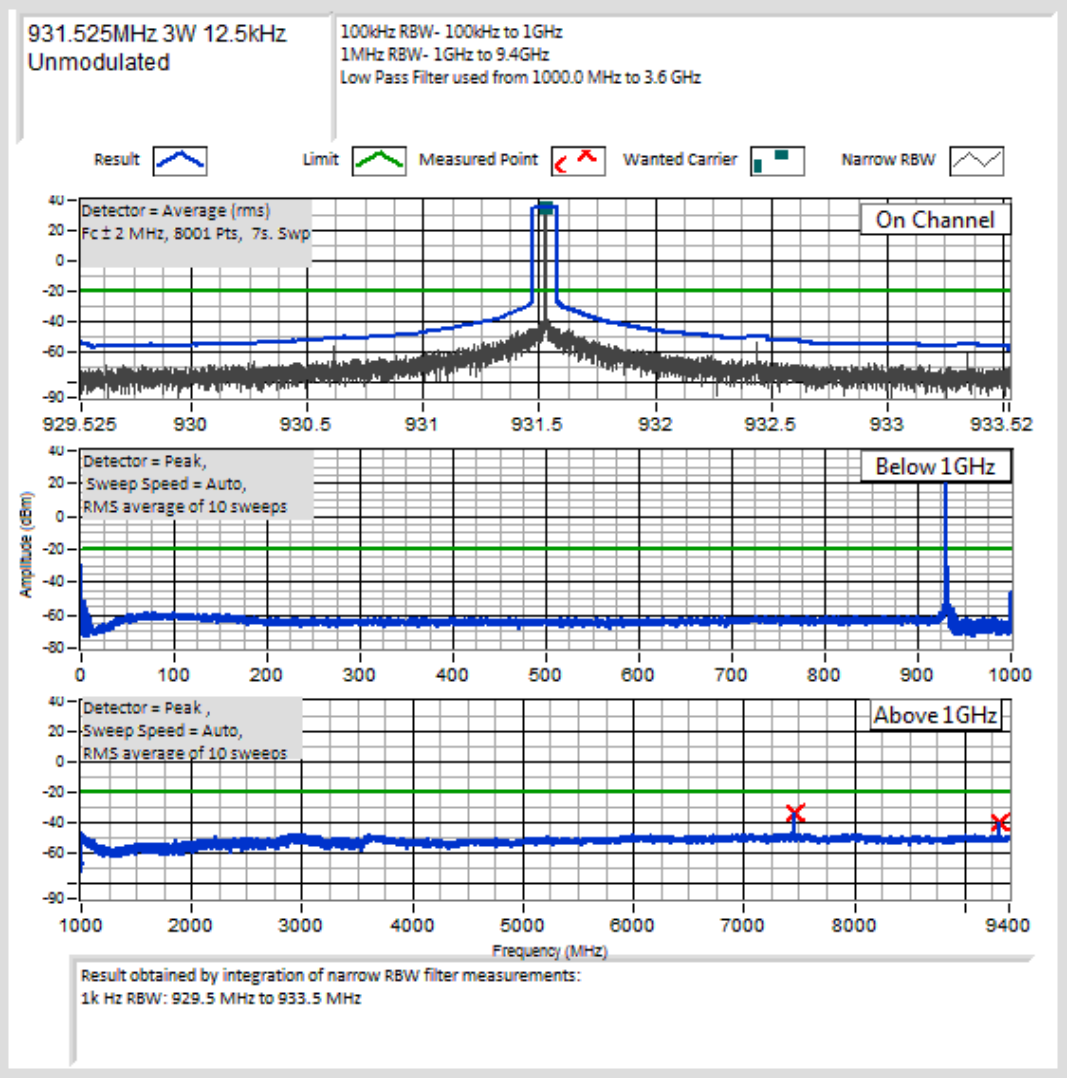
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 931.525 MHz @ 3 W Emission Mask D

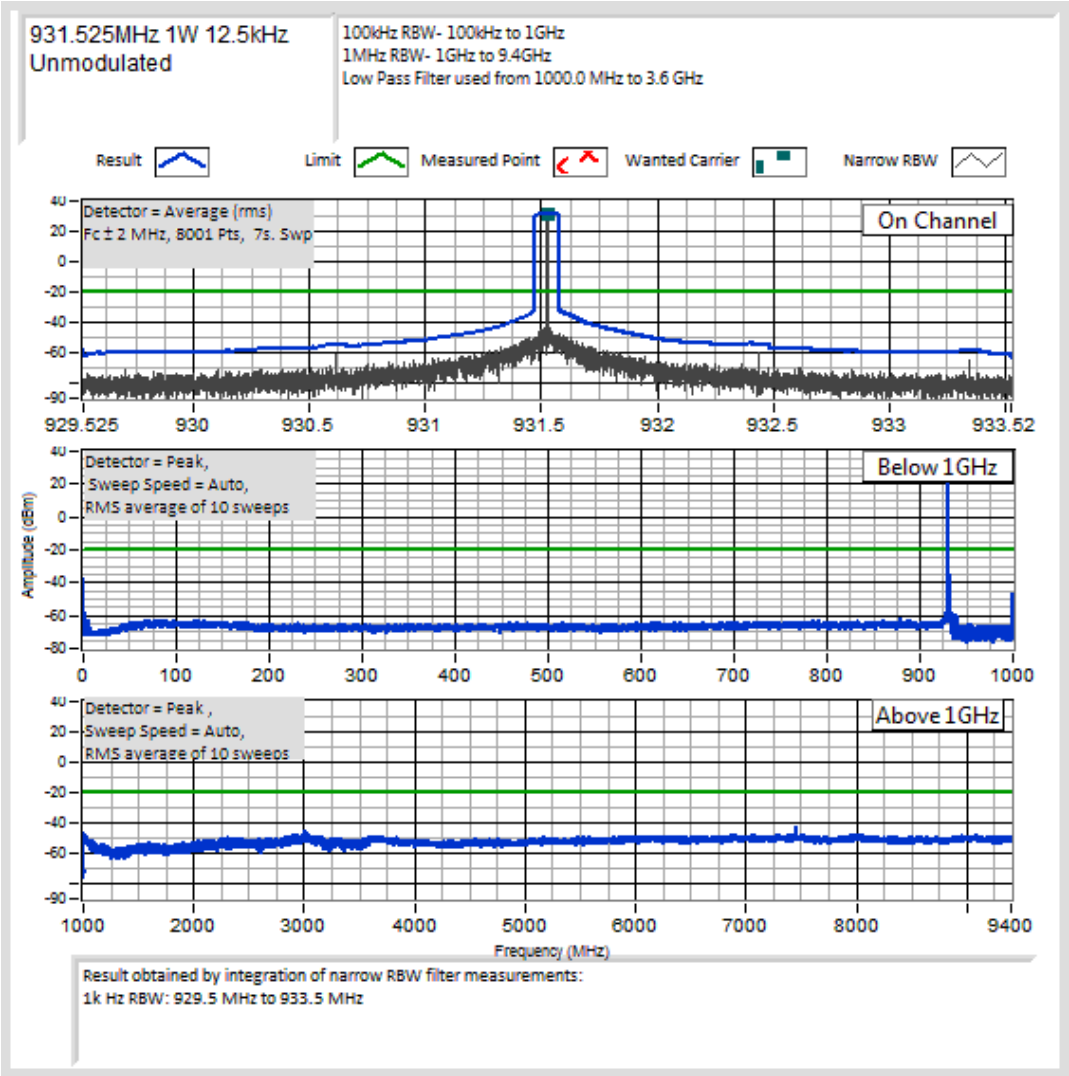
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7452.032719	-34.0	-69.0
9315.028690	-39.7	-74.7

12.5 kHz Channel Spacing 931.525 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

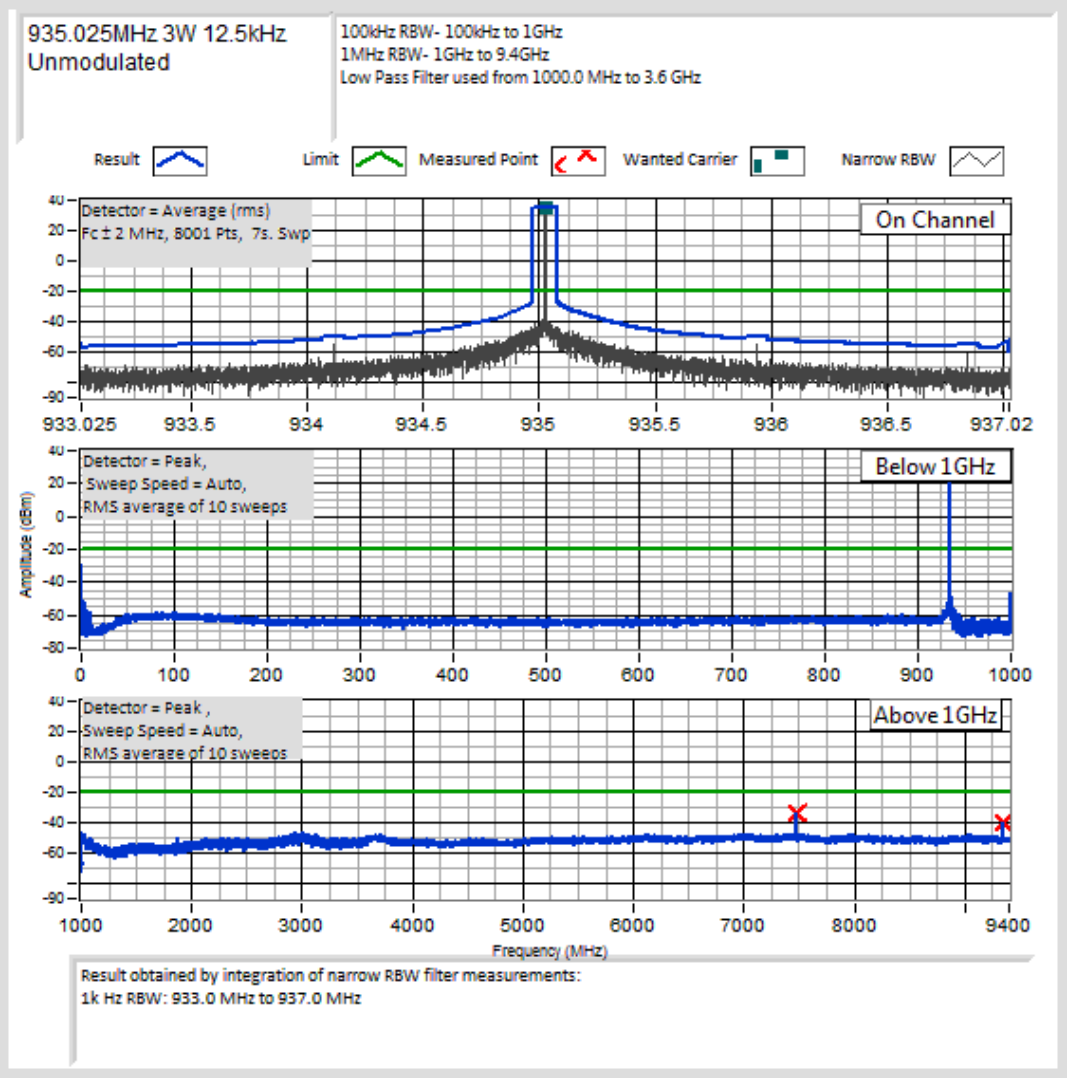
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 935.025 MHz @ 3 W Emission Mask D

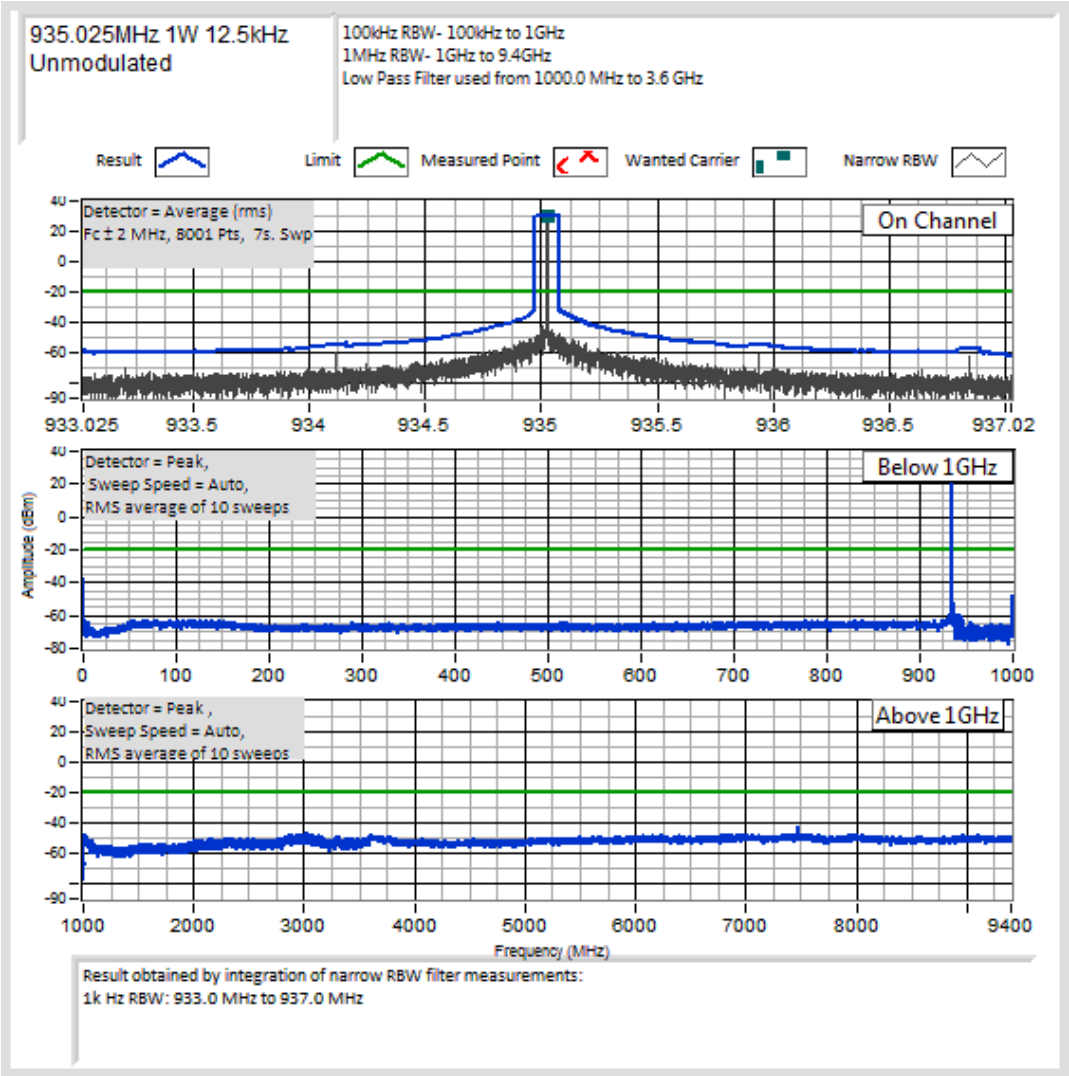
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7480.356489	-33.2	-68.2
9349.725308	-39.5	-74.5

12.5 kHz Channel Spacing 935.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

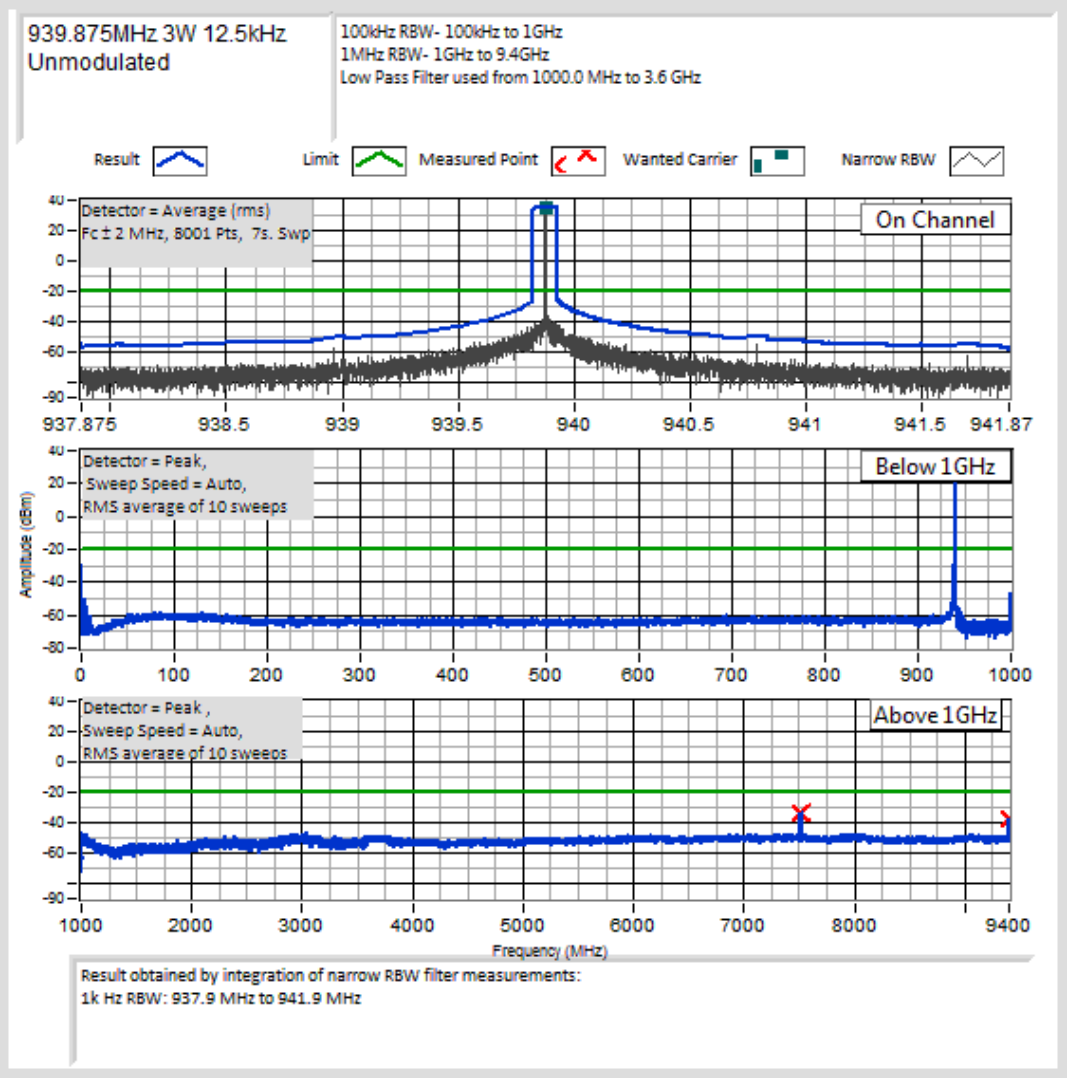
SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

12.5 kHz Channel Spacing 939.875 MHz @ 3 W Emission Mask D

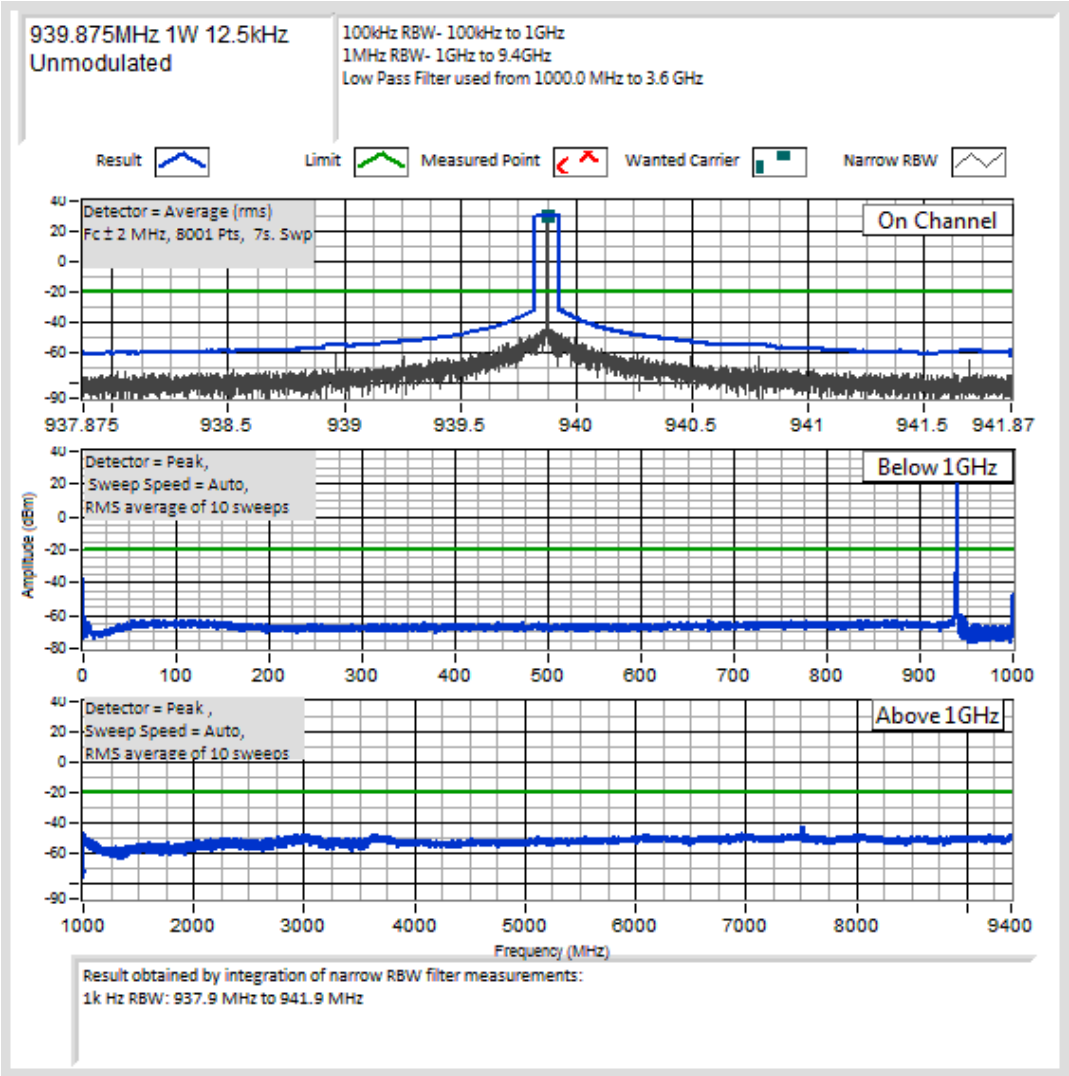
Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7518.593578	-33.3	-68.3
9398.583812	-38.1	-73.1

12.5 kHz Channel Spacing 939.875 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty:	≤12.75 GHz ± 3.0 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		



Spurious Emissions (Tx Conducted)



Spurious Emissions (Tx Conducted)

SPECIFICATION: FCC 47 CFR 2.1051 RSS-119 5.8

LIMITS: FCC 47 CFR 90.210 RSS-119 5.8

Carrier Output Power	Emission Mask D 12.5 kHz Channel Spacing $50 + 10 \text{ Log}_{10} (P_{Watts})$	
6 W	-20 dBm	-57.8 dBc
5 W	-20 dBm	-57.0 dBc
3 W	-20 dBm	-54.8 dBc
1 W	-20 dBm	-50.0 dBc

TRANSMITTER SPURIOUS EMISSIONS (RADIATED)

SPECIFICATION: FCC 47 CFR 2.1053

GUIDE: TIA/EIA-603E 2.2.12

MEASUREMENT PROCEDURE:
Initial Scan:

1. The EUT is placed in the S-Line TEM cell and emissions are measured from 30 MHz to 800 MHz. Any emission within 20 dB of the limit is then re-tested on the OATS.
2. The EUT is placed in the reverberation chamber and emissions are measured from 800 MHz to the upper frequency required (10 x Fc). Any emission within 20 dB of the limit is then re-tested on the OATS.
3. The harmonics emissions up to the 6th harmonic of the fundamental frequency are measured on the OATS

OATS Measurement:

1. The EUT is placed on a wooden turntable at a distance of three metres from the test antenna. The output terminal is connected to an RF dummy load.
2. The test antenna is raised from 1 m to 4 m to obtain a maximum reading; the turntable is then rotated through 360^{o} to obtain the maximum response of each spurious emission. Valid emissions are determined by switching the EUT on and off.
3. The EUT is then replaced by a signal generator and substitution antenna to make measurements by the substitution method.

MEASUREMENT RESULTS:
See the tables on the following pages

LIMIT CLAUSE: FCC 47 CFR 90.210

Spurious Emissions (Tx Radiated) - Continued

SPECIFICATION: FCC 47 CFR 2.1053

12.5 kHz Channel Spacing 138.025 MHz @ 6 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 138.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 143.975 MHz @ 6 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 143.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 148.025 MHz @ 6 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 148.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 150.025 MHz @ 6 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 150.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 150.05 MHz @ 6 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 150.05 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 162.025 MHz @ 6 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 162.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 173.975 MHz @ 6 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 173.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 378.125 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 378.125 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 406.125 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 406.125 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 418.025 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 418.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 429.975 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 429.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 438.025 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 438.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 450.025 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 450.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 460.025 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 460.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 469.975 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 469.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 491.025 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 491.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 511.975 MHz @ 5 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 511.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 757.5 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 757.5 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 768.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 768.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 769.075 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 769.075 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 774.9 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 774.9 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 775.975 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 775.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 787.5 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 787.5 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 798.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 798.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 799.075 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 799.075 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 804.9 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 804.9 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 805.5 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 805.5 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 805.975 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 805.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 806.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 806.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 815.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 815.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 823.975 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 823.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 851.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 851.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 860.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 860.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 868.975 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 868.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 896.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 896.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 899.0 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 899.0 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 900.975 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 900.975 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 902.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 902.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 915.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 915.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 928.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~

12.5 kHz Channel Spacing 928.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 931.525 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7452.2	-31.93	-66.93
~	~	~

12.5 kHz Channel Spacing 931.525 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		

12.5 kHz Channel Spacing 935.025 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7480.2	-33.36	-68.36
~	~	~

12.5 kHz Channel Spacing 935.025 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		

Spurious Emissions (Tx Radiated) - Continued

12.5 kHz Channel Spacing 939.875 MHz @ 3 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
7519.0	-35.77	-70.77
~	~	~

12.5 kHz Channel Spacing 939.875 MHz @ 1 W Emission Mask D

Emission Frequency (MHz)	Level (dBm)	Level (dBc)
~	~	~
Measurement Uncertainty	± 4.6 dB	
No other emissions were detected at a level greater than 20 dB below the limit.		

LIMITS: FCC 47 CFR 2.1053

Carrier Output Power	Emission Mask D 12.5 kHz Channel Spacing $50 + 10 \text{Log}_{10} (P_{Watts})$	
6 W	-20 dBm	-57.8 dBc
5 W	-20 dBm	-57.0 dBc
3 W	-20 dBm	-54.8 dBc
1 W	-20 dBm	-50.0 dBc

Spurious Emissions (Tx Radiated) - Continued

Open Area Test Site Results:

12.5 kHz Channel Spacing | 150.05 MHz @ 6 W | Emission Mask D

Harmonics Emission Frequency (MHz)	Level (dBm)	Level (dBc)
300.10	-46.73	-84.73
450.15	-55.23	-93.23
600.20	-69.55	-107.55
750.25	-70.59	-108.59
900.30	-59.38	-97.38
1050.35	-69.20	-107.20
Measurement Uncertainty	± 4.6 dB	

Sample Calculation

	Measurement					
	Reference	Substitution				Result
Emission Frequency (MHz)	Reference Level (dBm)	Sig-gen Level	Cable and Attenuator Gain	Antenna Gain (dBd)	Path and Boresight corrections	dBm
300.1	-68.75	-34.47	-12.91	-0.39	1.03	-46.73
		A	B	C	D	E

Result (E) = A+B+C+D Result

Open Area Test Site Results:

12.5 kHz Channel Spacing | 511.975 MHz @ 5 W | Emission Mask D

Harmonics Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1023.950	-53.42	-90.42
1535.925	-62.18	-99.18
2047.900	-58.28	-95.28
2559.875	-52.95	-89.95
3071.850	-58.61	-95.61
3583.825	-60.34	-97.34
Measurement Uncertainty	± 4.6 dB	

Spurious Emissions (Tx Radiated) - Continued

Open Area Test Site Results:
12.5 kHz Channel Spacing 815.025 MHz @ 3 W Emission Mask D

Harmonics Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1630.050	-55.13	-90.13
2445.075	-43.12	-78.12
3260.100	-57.64	-92.64
4075.125	-62.61	-97.61
4890.150	-51.98	-86.98
5705.175	-42.88	-77.88
Measurement Uncertainty	± 4.6 dB	

Open Area Test Site Results:
12.5 kHz Channel Spacing 939.875 MHz @ 3 W Emission Mask D

Harmonics Emission Frequency (MHz)	Level (dBm)	Level (dBc)
1879.750	-60.13	-95.13
2819.625	-47.83	-82.83
3759.500	-59.70	-94.70
4699.375	-54.64	-89.64
5639.250	-47.18	-82.18
6579.125	-45.20	-80.20
7519.000	-35.77	-70.77
Measurement Uncertainty	± 4.6 dB	

Photo: OATS Setup

TRANSMITTER RADIATED EMISSIONS IN THE GNSS BAND

SPECIFICATION: FCC 47 CFR 90.543

GUIDE: TIA/EIA-603E 2.2.12

MEASUREMENT PROCEDURE:
1. Refer Annex A for equipment set up.
2. Spurious emissions were measured in the GNSS band. (1559 – 1610 MHz)
3. The EUT was placed on a wooden turntable at a distance of three metres from the test antenna.
4. The test antenna was raised from 1m to 4m to obtain a maximum reading; the turntable was then rotated through 360° to obtain the maximum response of each spurious emission.
5. Valid emissions were determined by switching the EUT on and off.
6. The EUT was replaced by a signal generator and substitution antenna to make measurements by the substitution method.
7. The test was performed with a representative antenna connected to the EUT, at low and high output power settings.

Channel Frequency: 779.5 MHz

Emission Frequency		Antenna fitted	Antenna Polarity	Level dBW / MHz EIRP
1559 MHz	3 W	Multiband antenna	Vertical	-92.22
			Horizontal	-90.52
1559 MHz	1 W	Multiband antenna	Vertical	-93.52
			Horizontal	-93.82

Channel Frequency: 798.025 MHz

Emission Frequency		Antenna fitted	Antenna Polarity	Level dBW / MHz EIRP
1596.05 MHz	3 W	Multiband antenna	Vertical	-84.83
			Horizontal	-82.33
1596.05 MHz	1 W	Multiband antenna	Vertical	-88.33
			Horizontal	-86.83

Channel Frequency: 804.9 MHz

Emission Frequency		Antenna fitted	Antenna Polarity	Level dBW / MHz EIRP
1609.8 MHz	3 W	Multiband antenna	Vertical	-84.13
			Horizontal	-81.23
1609.8 MHz	1 W	Multiband antenna	Vertical	-87.83
			Horizontal	-86.03

Transmitter Radiated Emissions in the GNSS Band - Continued

LIMIT CLAUSE FCC 47 CFR 90.543 (f)	-70 dBW / MHz EIRP

(f) For operations in the 763-775 MHz and 793-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

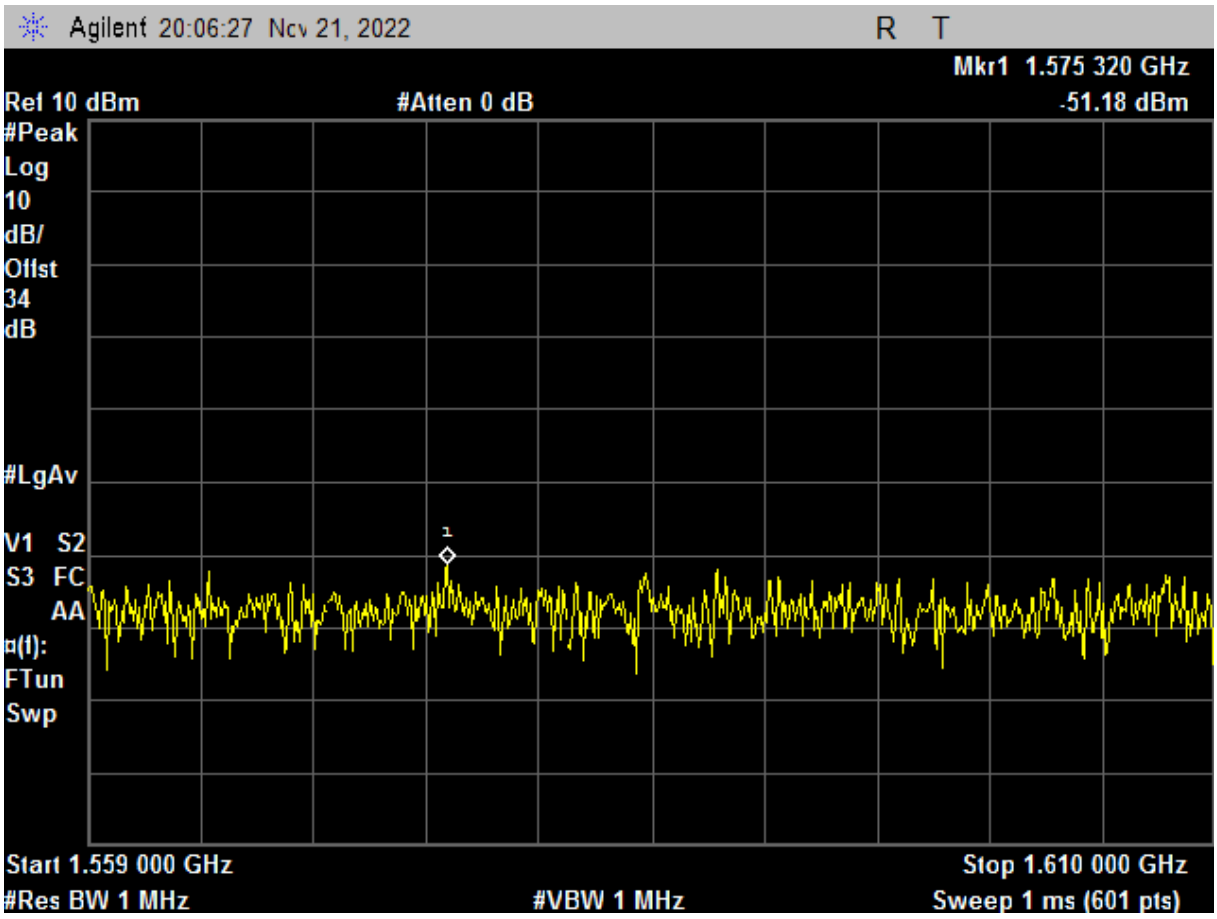
TRANSMITTER CONDUCTED EMISSIONS IN THE GNSS BAND

SPECIFICATION: RSS-119 5.8

MEASUREMENT PROCEDURE:
1. Refer Annex A for equipment set up.
2. Spurious emissions were measured in the GNSS band. (1559 – 1610 MHz)
3. The EUT was connected via an attenuator to a spectrum analyser.
4. The spectrum analyser was loaded with the appropriate calibration figures to compensate for the cables, attenuator, and filter losses, allowing the emission levels to be read directly with no further calculation. The calibrations are loaded as an overall reference level offset
5. Allowance was made for a theoretical dipole with a gain of 2.15dBm isotropic.
6. The emission at the frequency of the second harmonic was measured.

Channel Frequency: 787.5 MHz 3 W

Emission Frequency	Level dBm / MHz EIRP	Level dBW / MHz EIRP
1575 MHz	-51.18	-81.18



LIMIT CLAUSE RSS-119 5.8.9.2	-70 dBW / MHz EIRP

TRANSIENT FREQUENCY BEHAVIOR

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

GUIDE: TIA/EIA-603E 2.2.19

MEASUREMENT PROCEDURE:
1. Refer Annex A for equipment set up.
2. Measurements and plots were made following the TIA/EIA procedure.

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

LIMIT CLAUSES: FCC 47 CFR 90.214 RSS-119 5.9

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 138.025 MHz 6 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.4	N/A
t2	-0.3	N/A
t3	N/A	-1.0

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

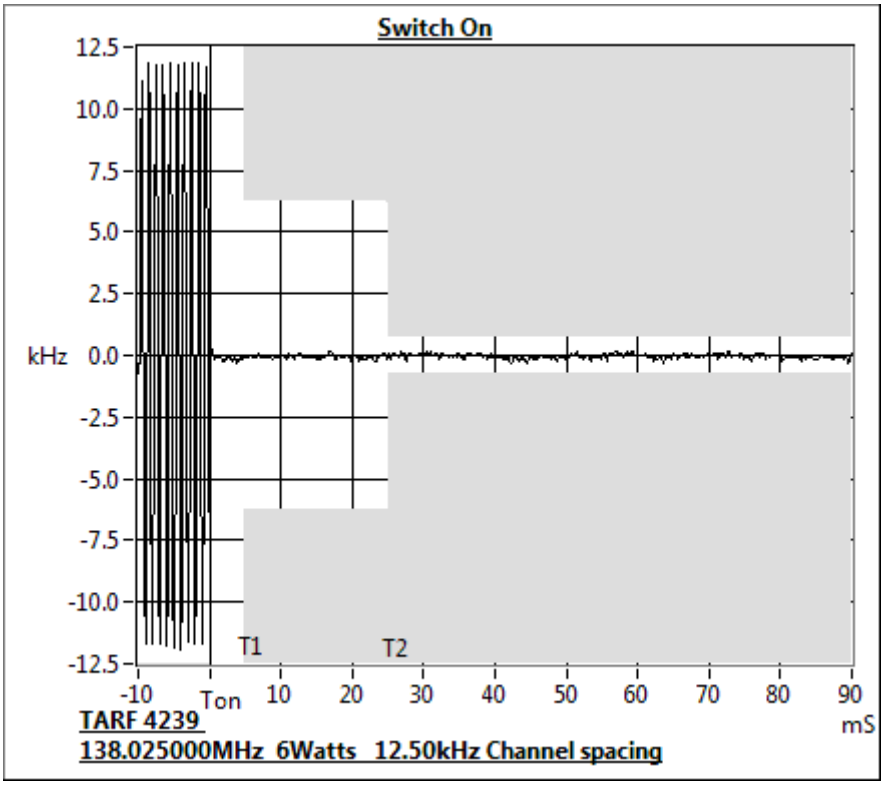
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

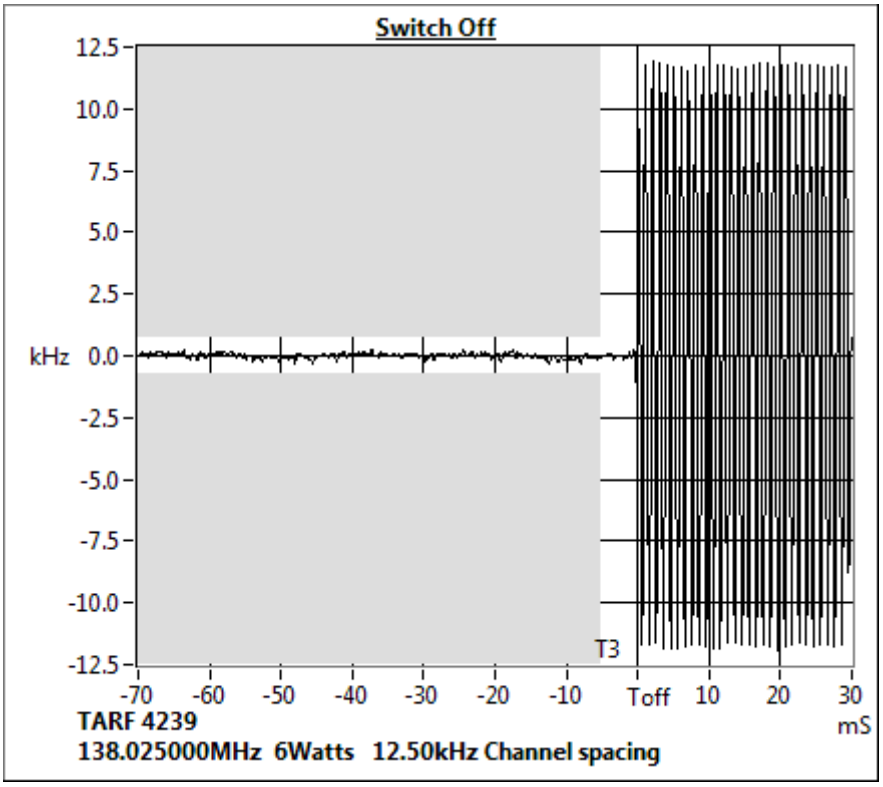
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 138.025 MHz 6 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214

Tx FREQUENCY: 143.975 MHz 6 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.6	N/A
t2	-0.4	N/A
t3	N/A	0.5

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

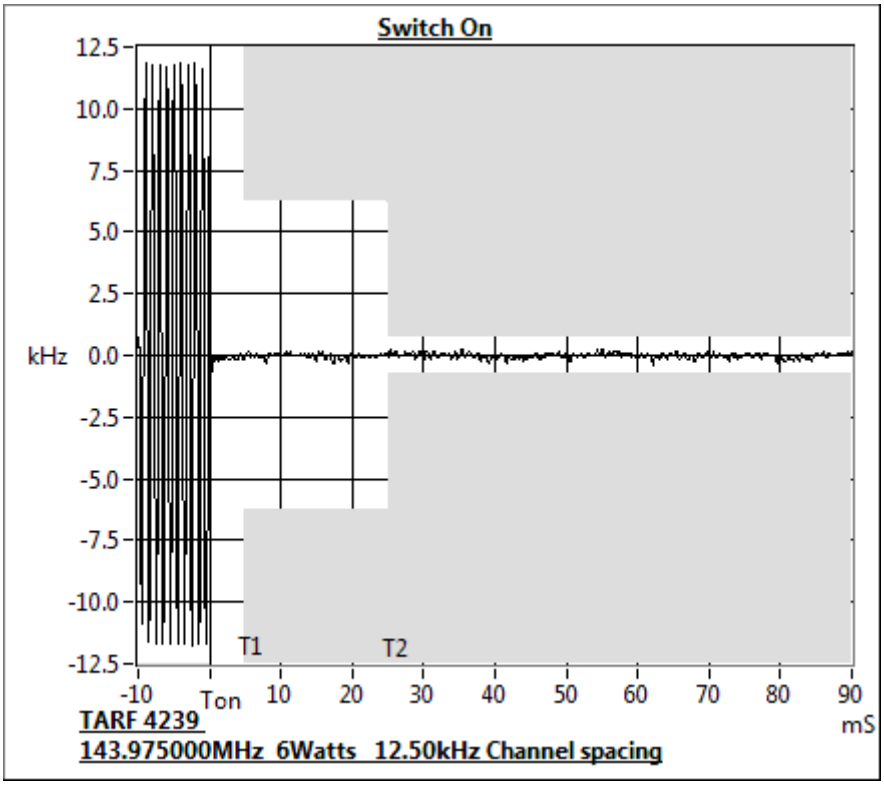
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

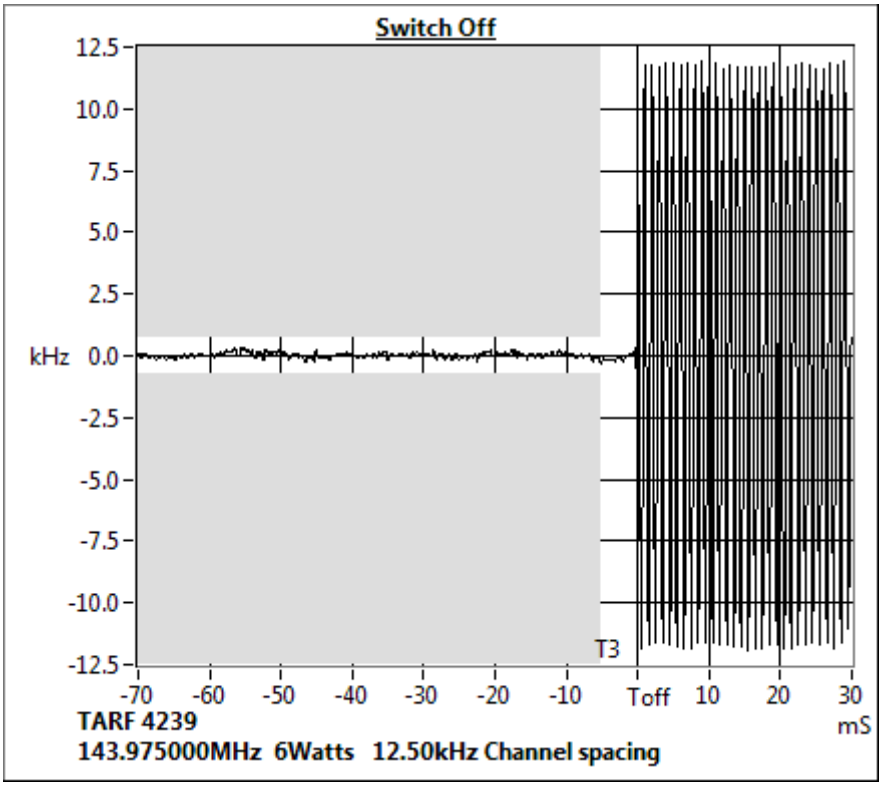
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods,

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214

Tx FREQUENCY: 143.975 MHz 6 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 148.025 MHz 6 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.3	N/A
t2	-0.5	N/A
t3	N/A	-1.0

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

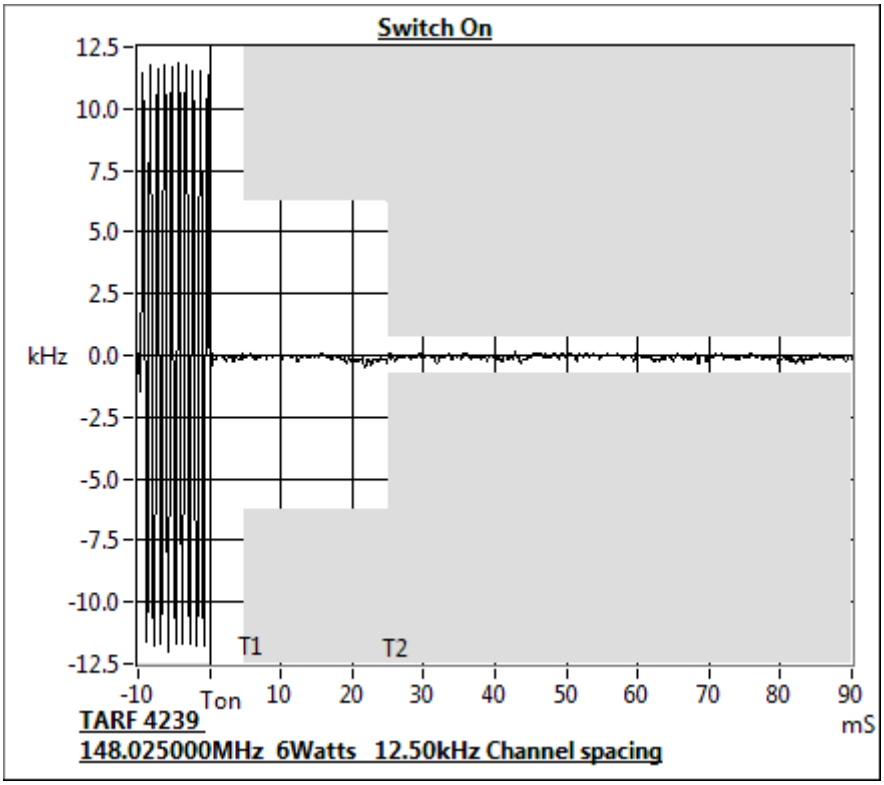
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

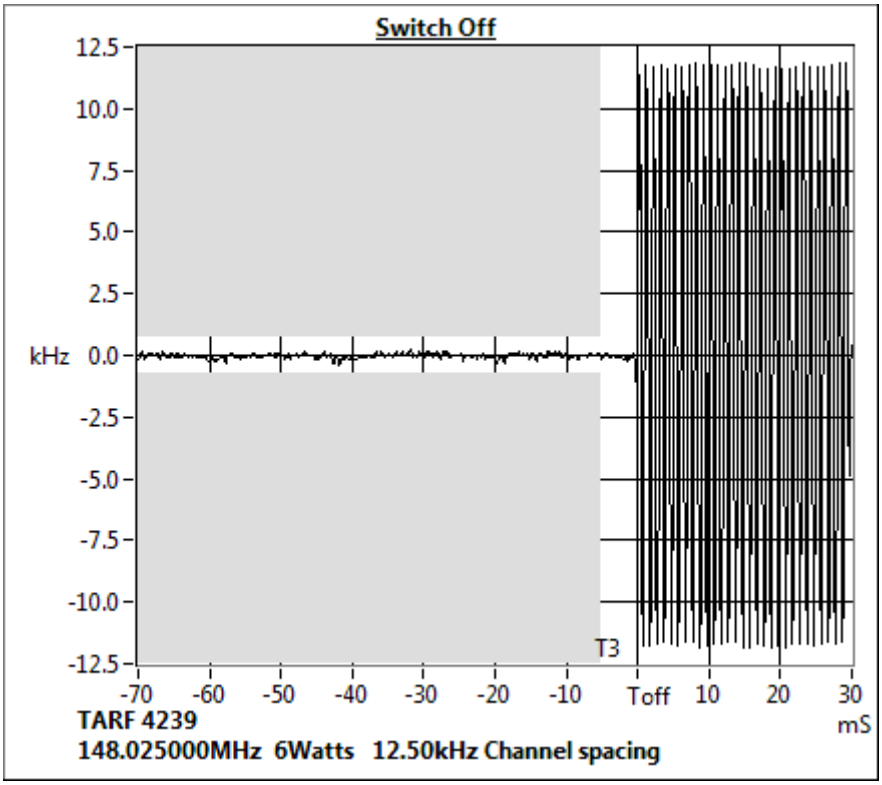
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 148.025 MHz 6 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 150.025 MHz 6 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.8	N/A
t2	-0.4	N/A
t3	N/A	-0.8

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

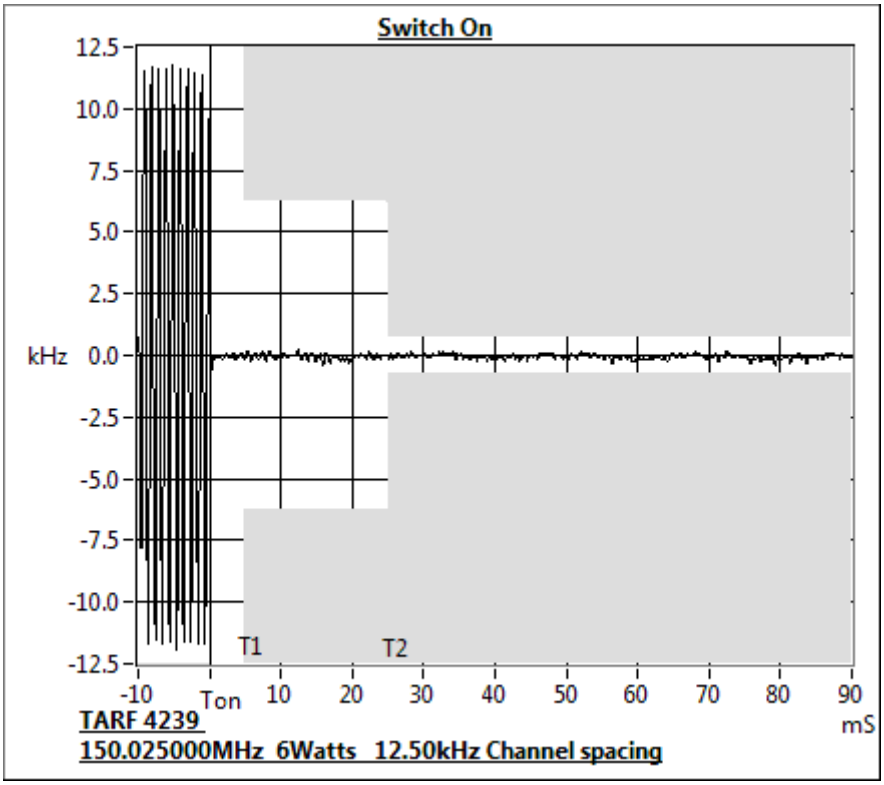
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

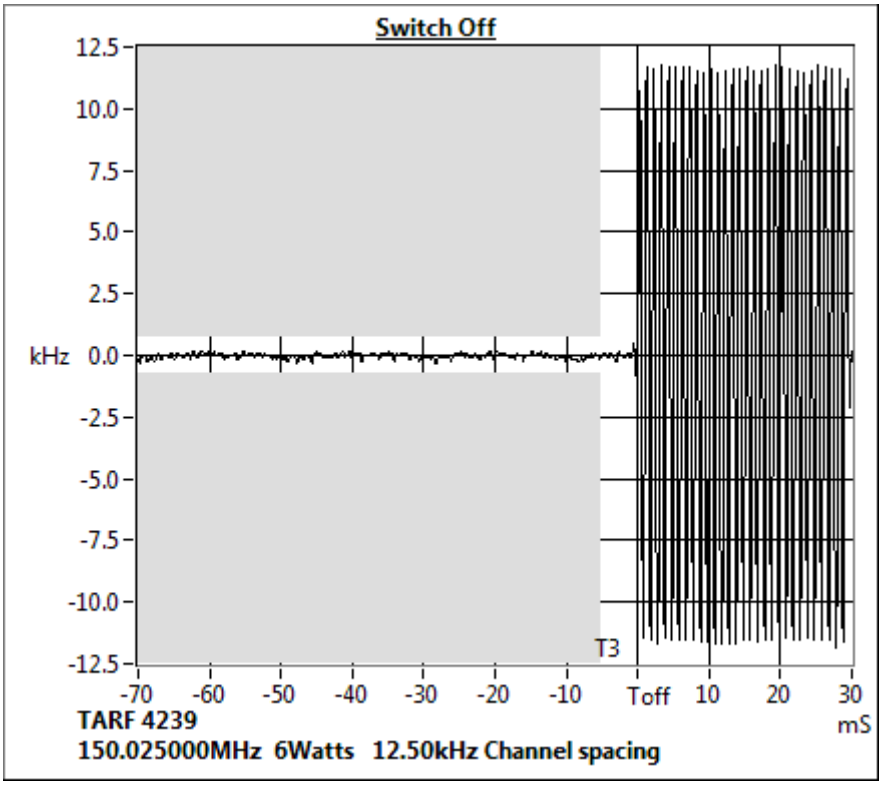
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 150.025 MHz 6 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 150.05 MHz 6 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.3	N/A
t2	-0.3	N/A
t3	N/A	1.2

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

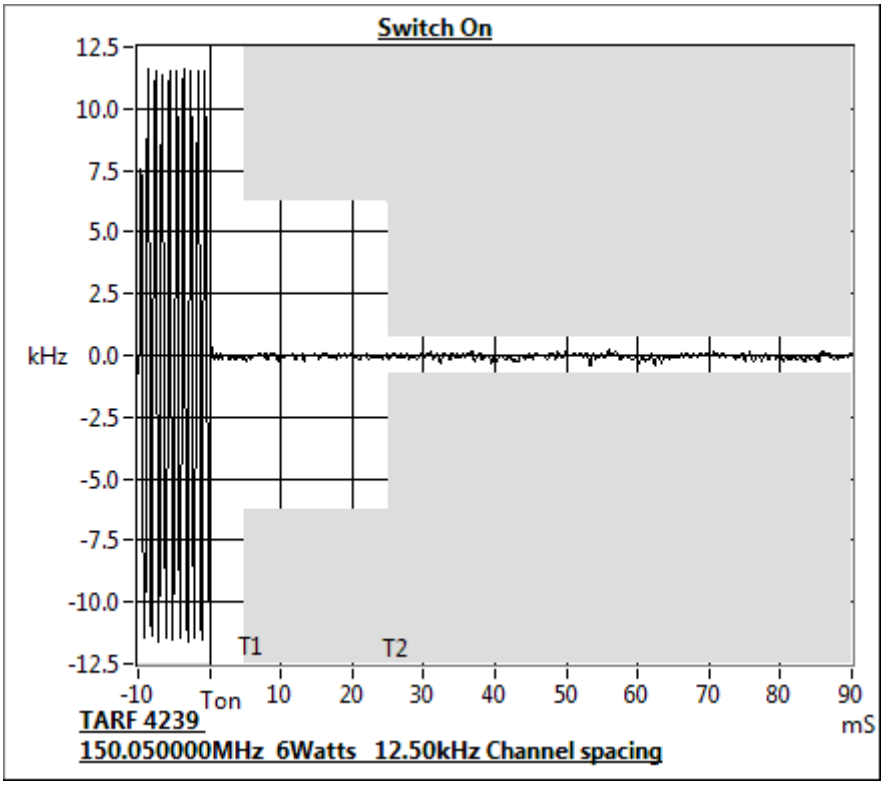
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

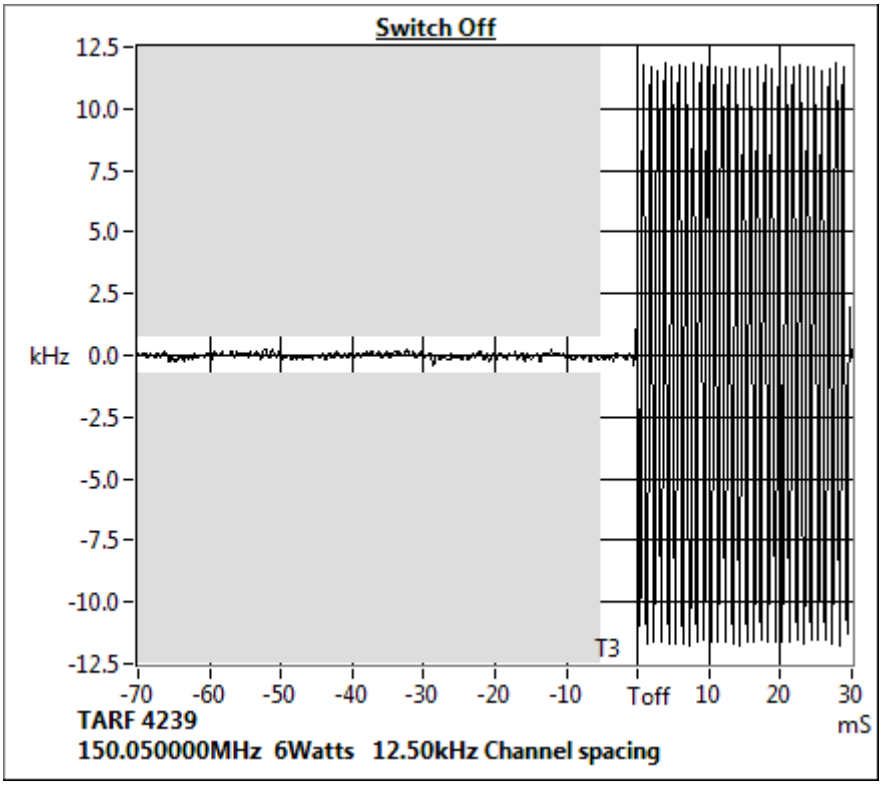
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 150.05 MHz 6 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 162.025 MHz 6 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.2	N/A
t2	-0.4	N/A
t3	N/A	0.4

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	YES	NO
	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	YES	NO
	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

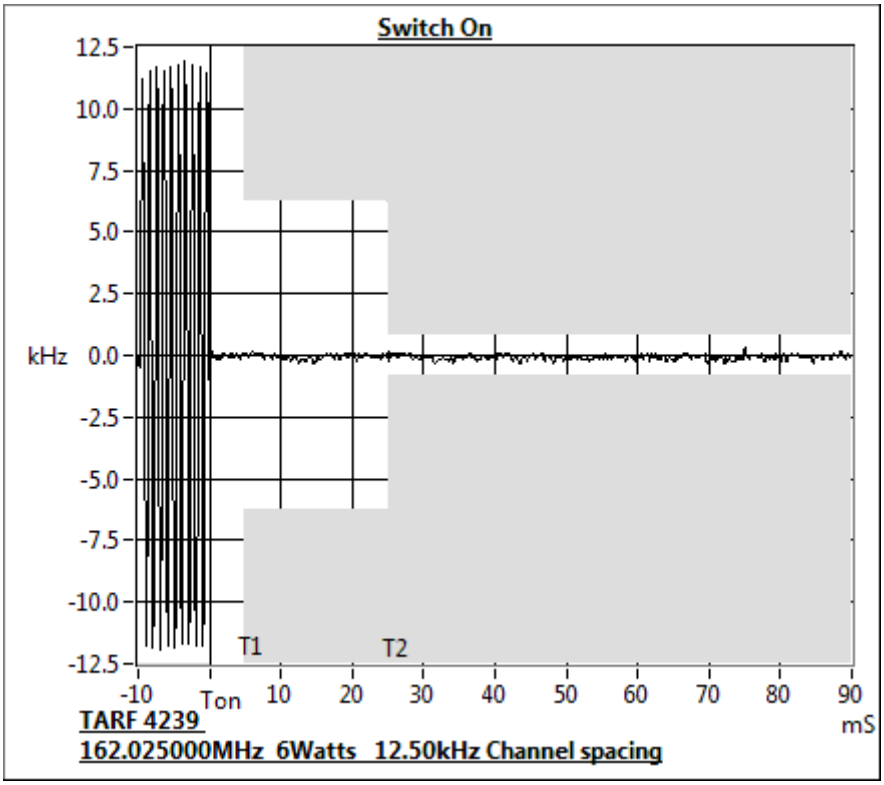
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

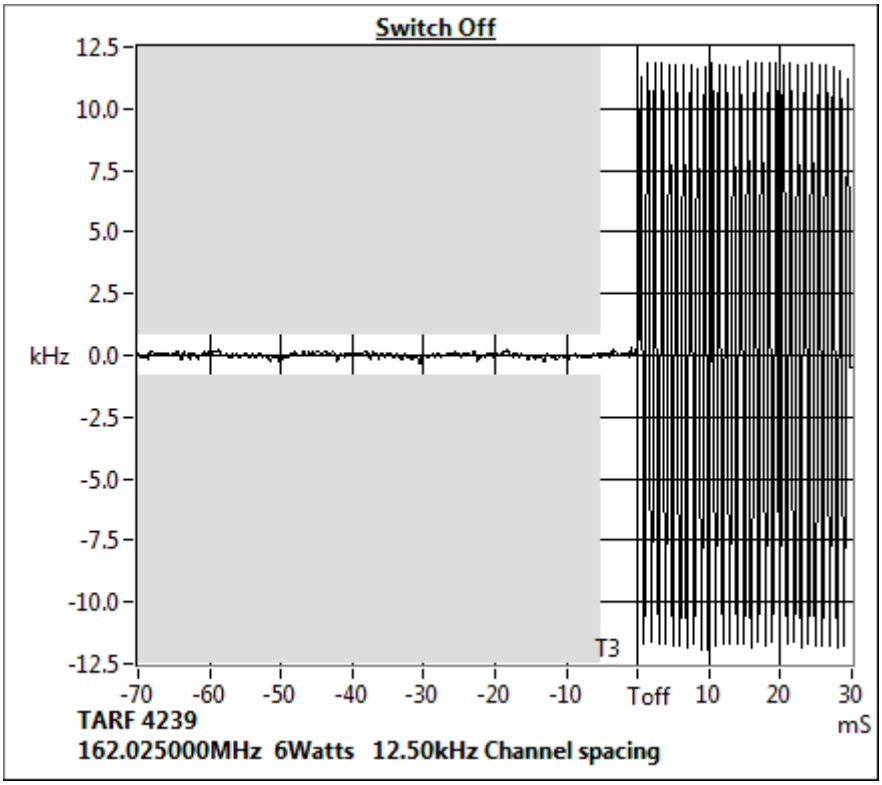
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 162.025 MHz 6 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 173.975 MHz 6 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.8	N/A
t2	-0.4	N/A
t3	N/A	-1.3

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

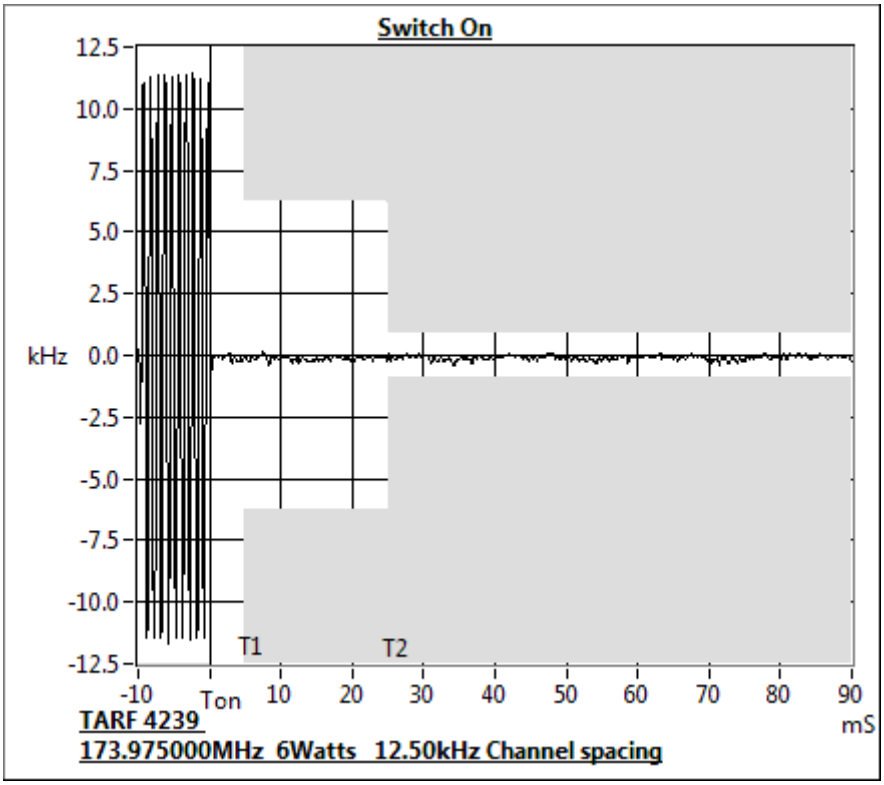
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

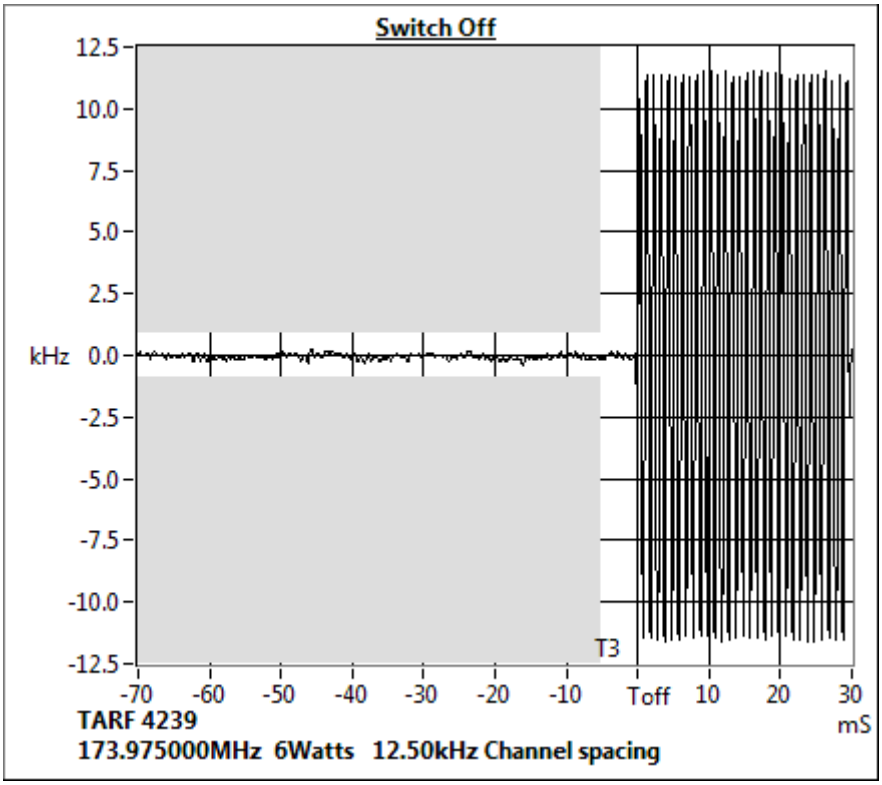
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 173.975 MHz 6 W 12.5 kHz Channel Spacing





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Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 406.125 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	0.4	N/A
t2	-0.4	N/A
t3	N/A	-1.0

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

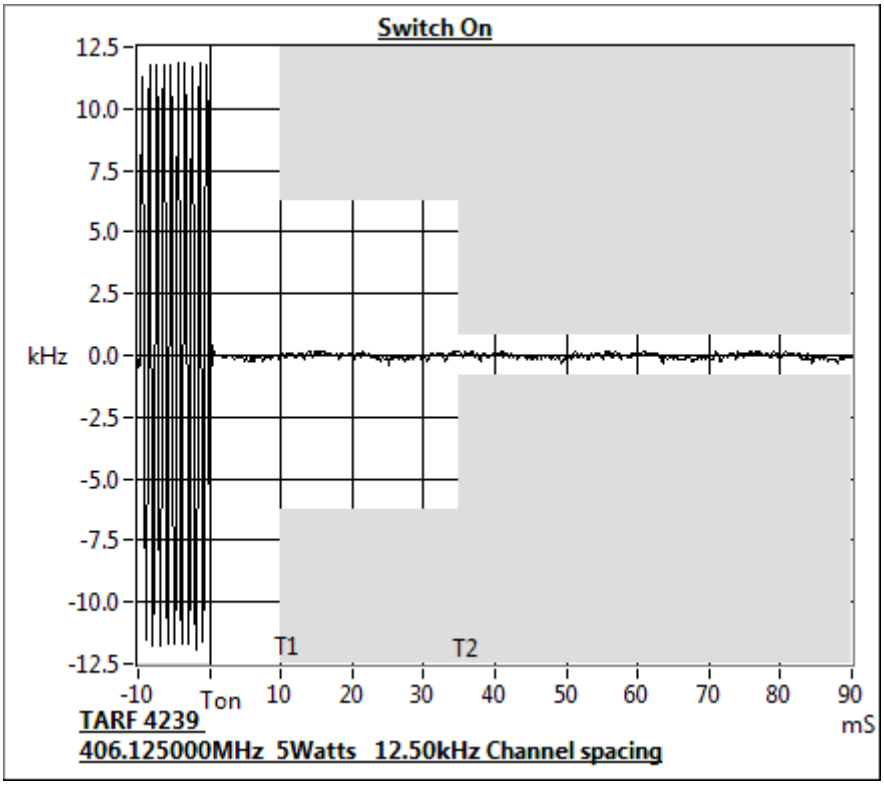
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

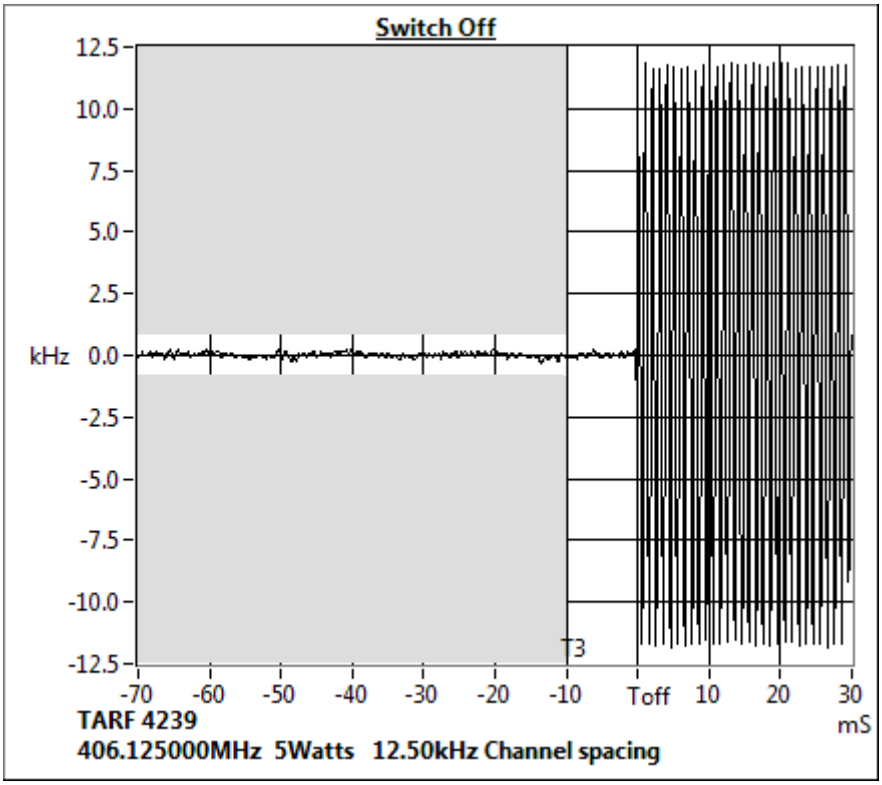
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 406.125 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 418.025 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.5	N/A
t2	0.3	N/A
t3	N/A	0.7

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

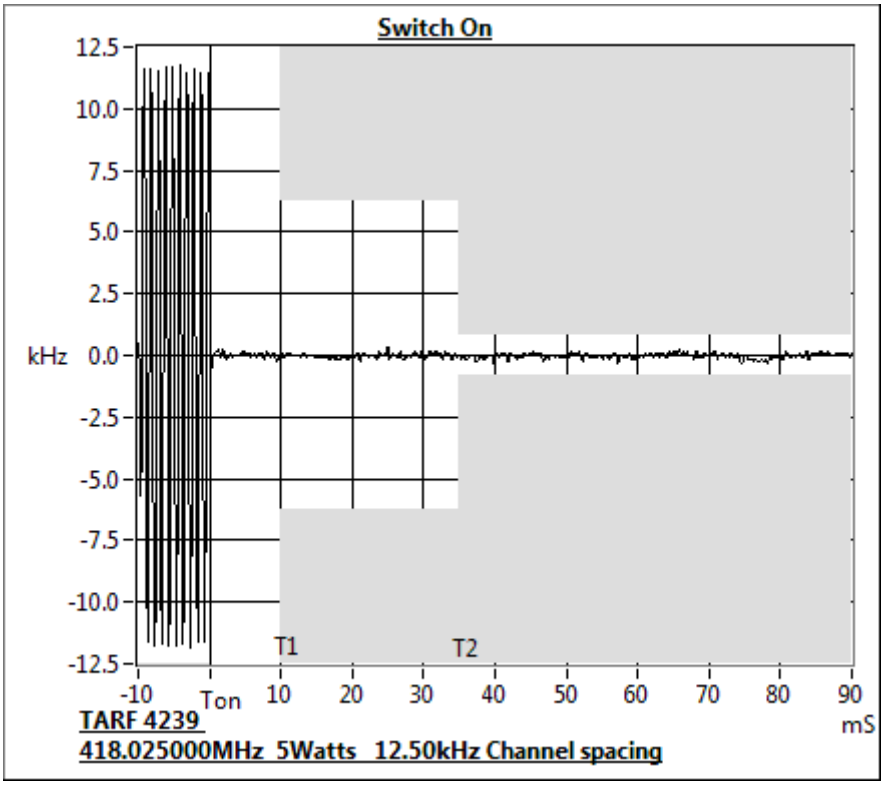
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

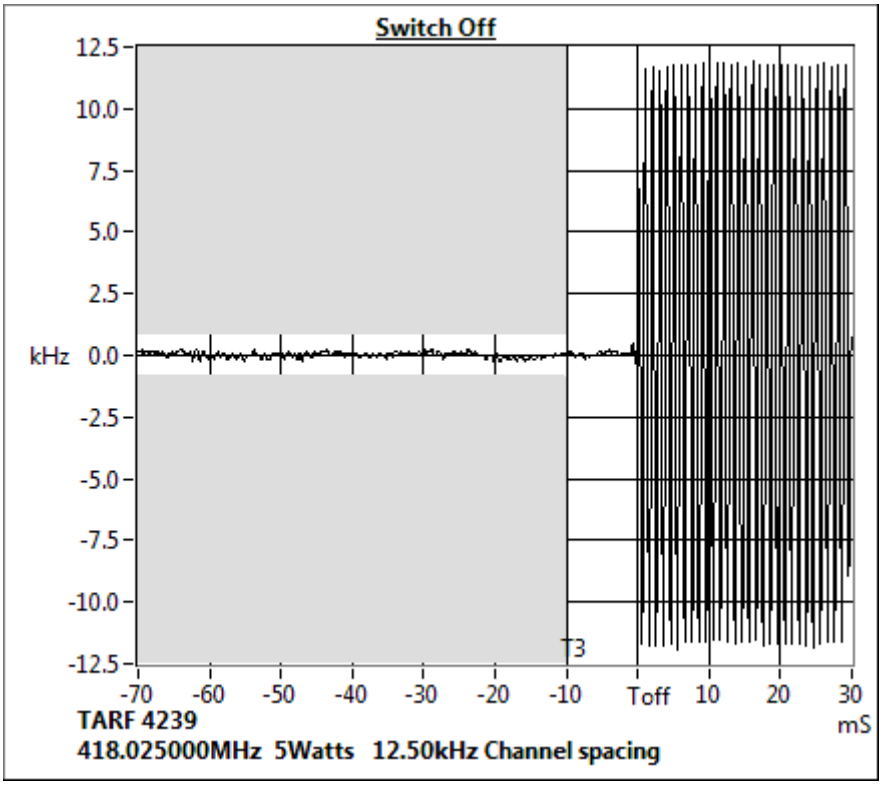
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 418.025 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 429.975 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	0.3	N/A
t2	-0.3	N/A
t3	N/A	-0.4

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

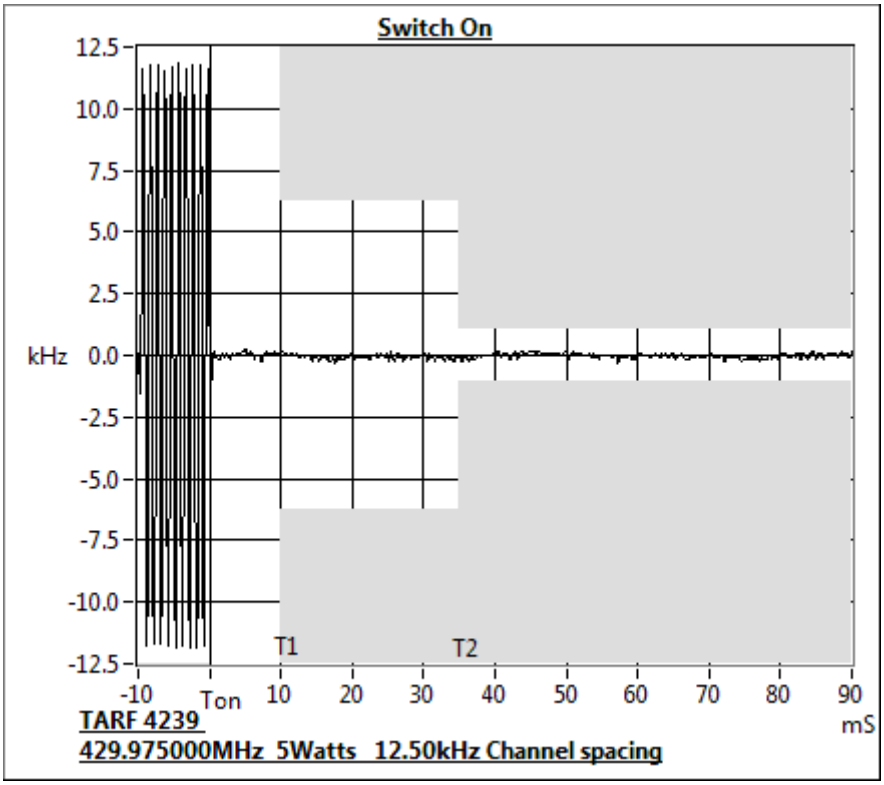
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

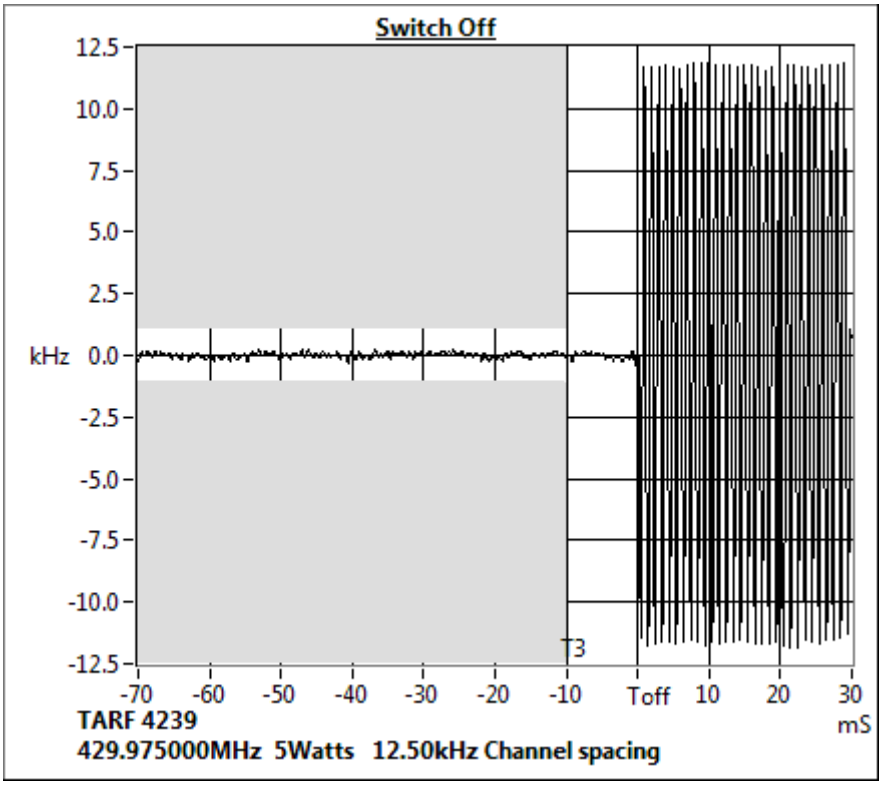
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 429.975 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 438.025 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	0.4	N/A
t2	-0.4	N/A
t3	N/A	-0.9

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

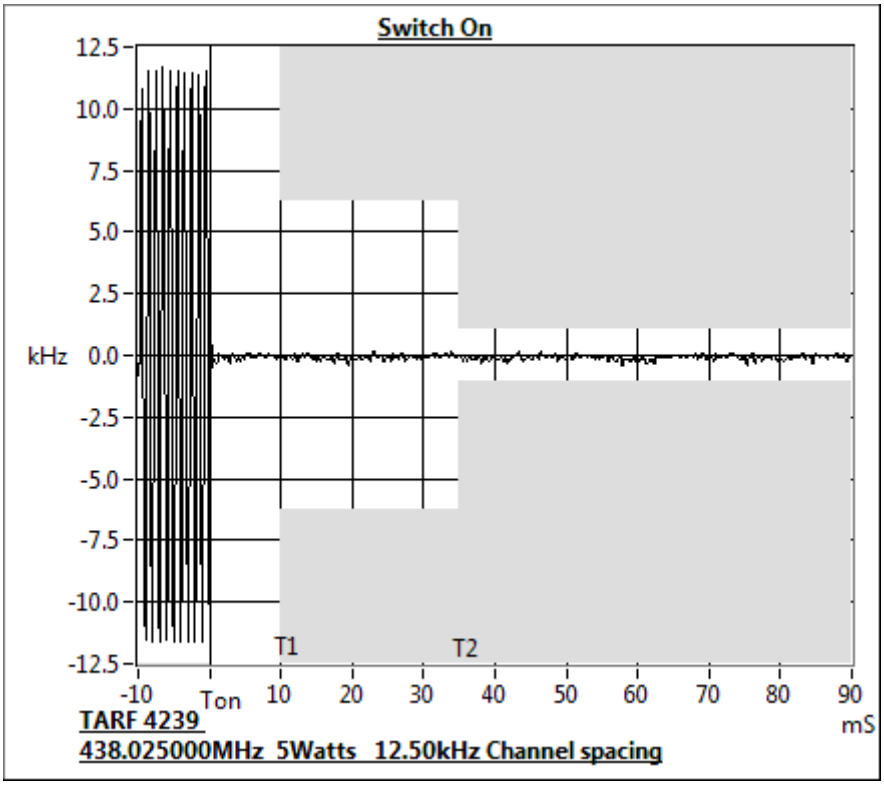
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

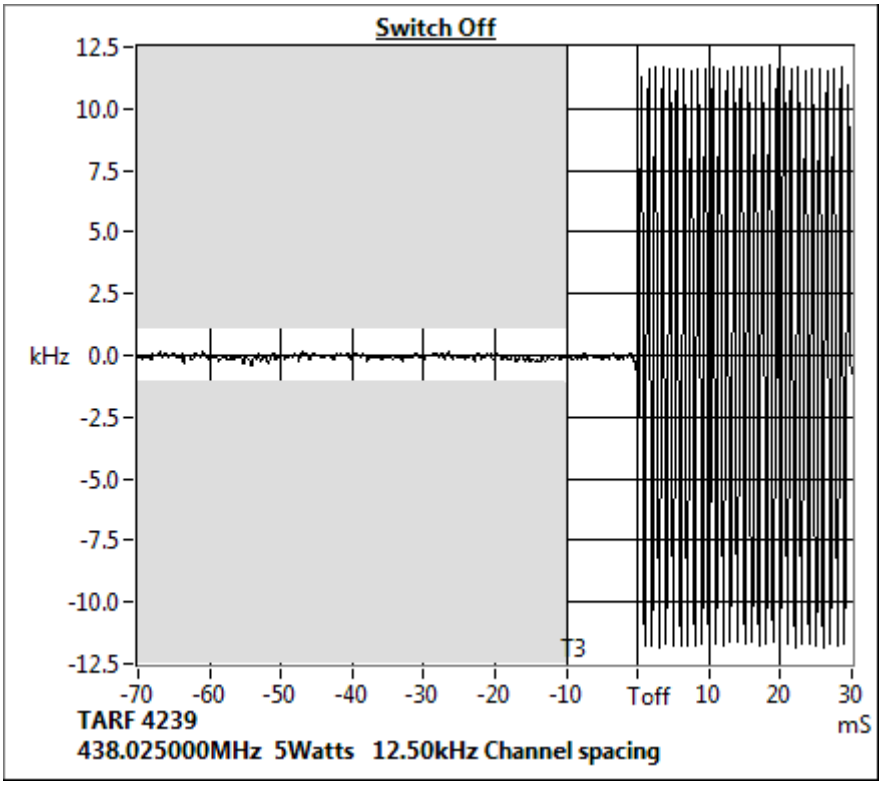
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 438.025 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 450.025 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	0.4	N/A
t2	-0.4	N/A
t3	N/A	-1.1

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

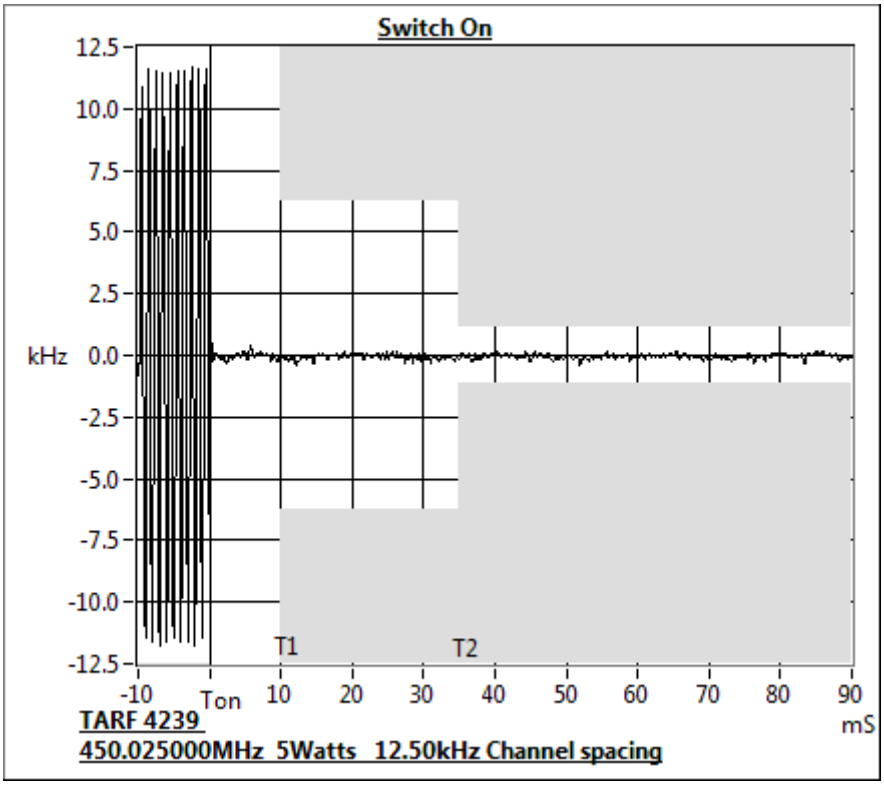
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

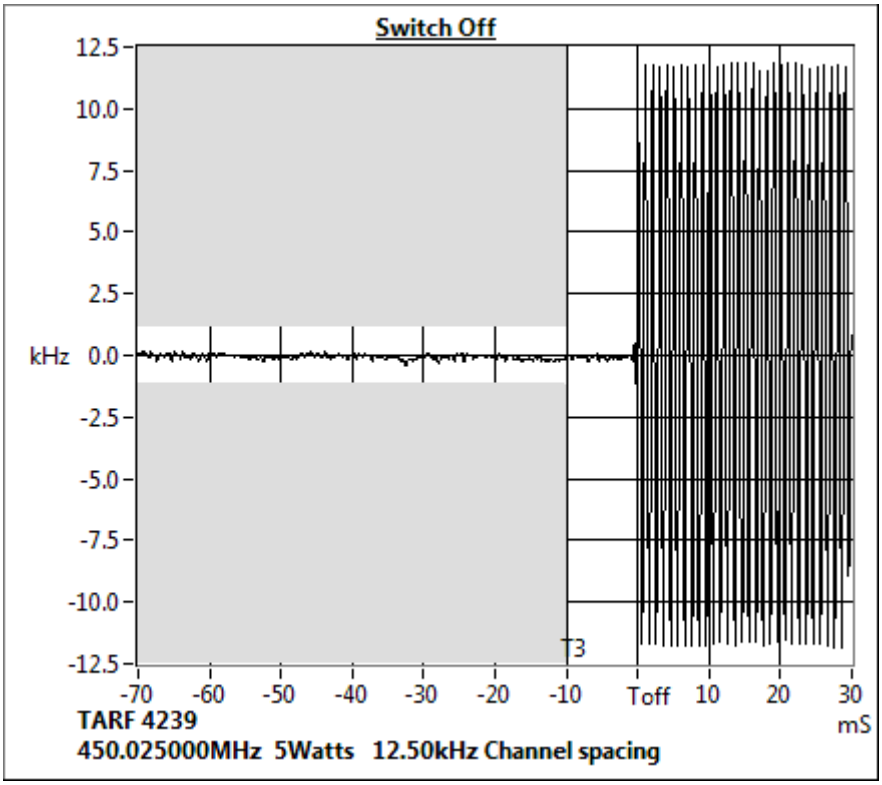
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 450.025 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 460.025 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.9	N/A
t2	-0.4	N/A
t3	N/A	-0.6

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

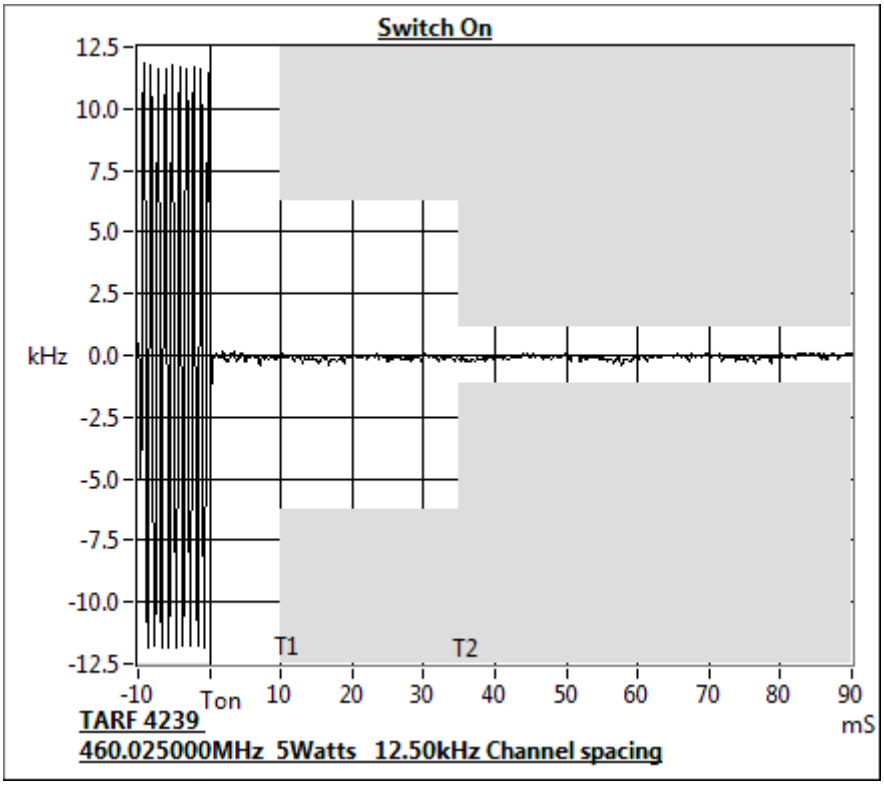
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

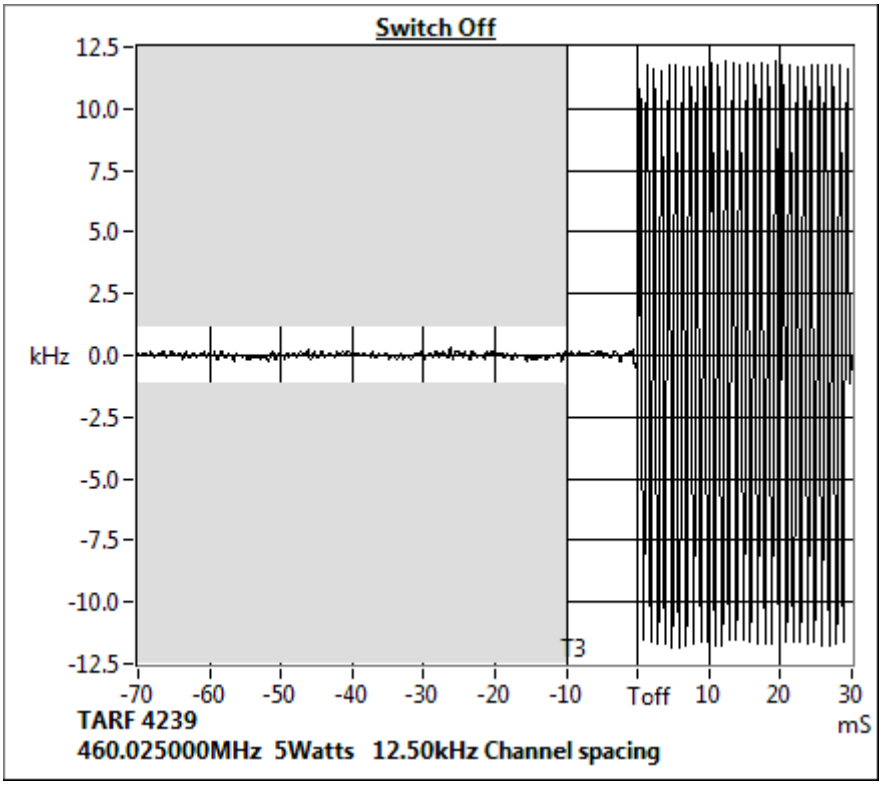
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 460.025 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 469.975 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.5	N/A
t2	-0.5	N/A
t3	N/A	-0.8

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

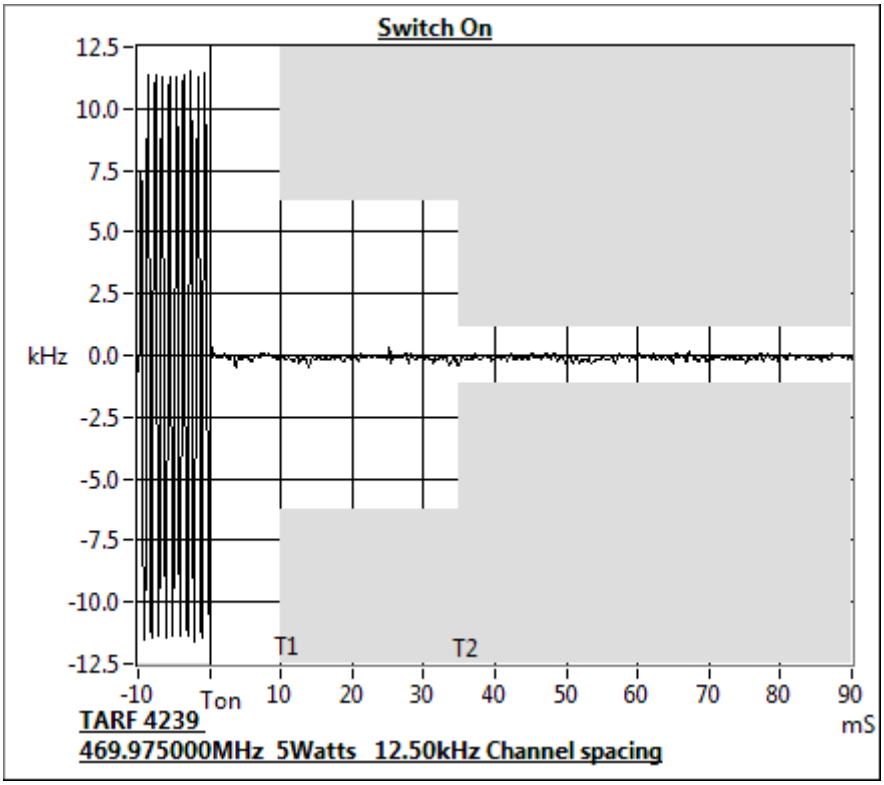
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

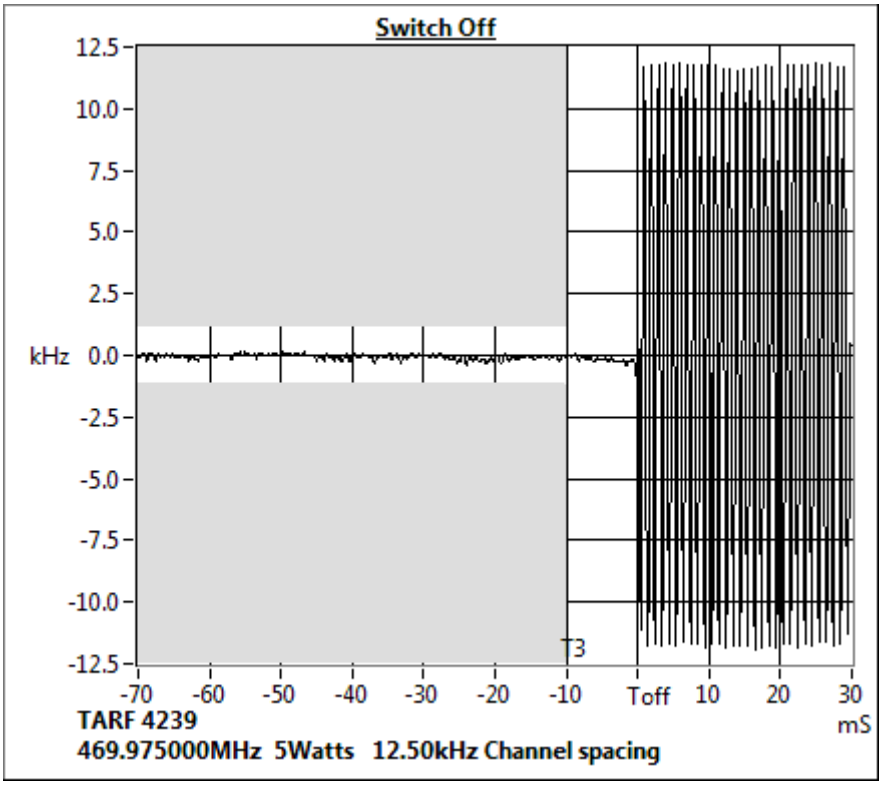
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 469.975 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 491.025 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	0.5	N/A
t2	-0.4	N/A
t3	N/A	2.0

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

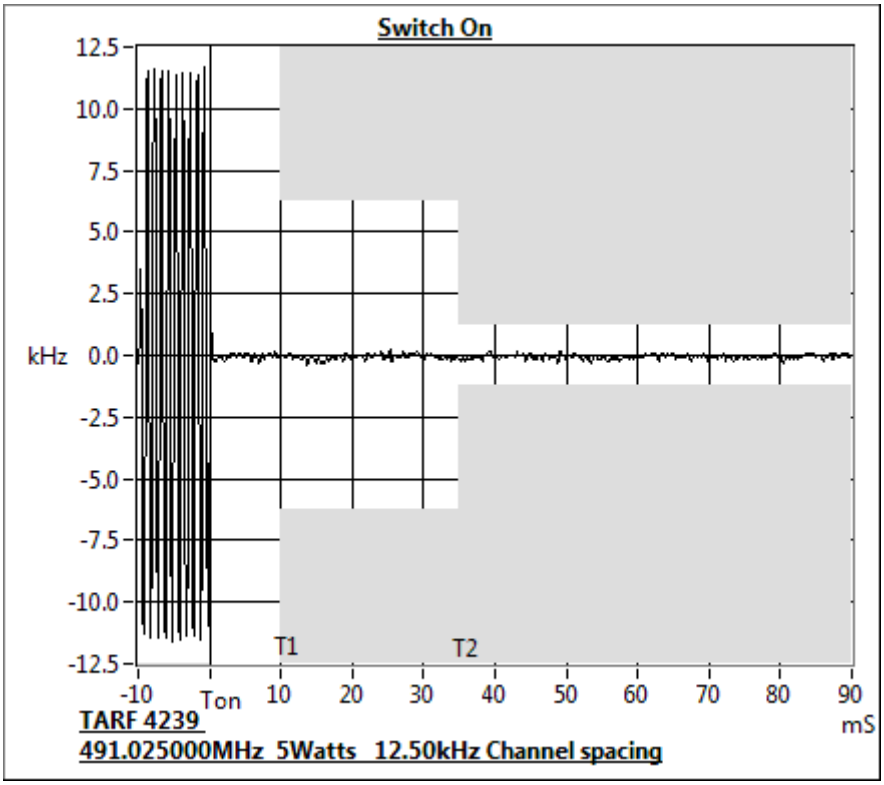
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

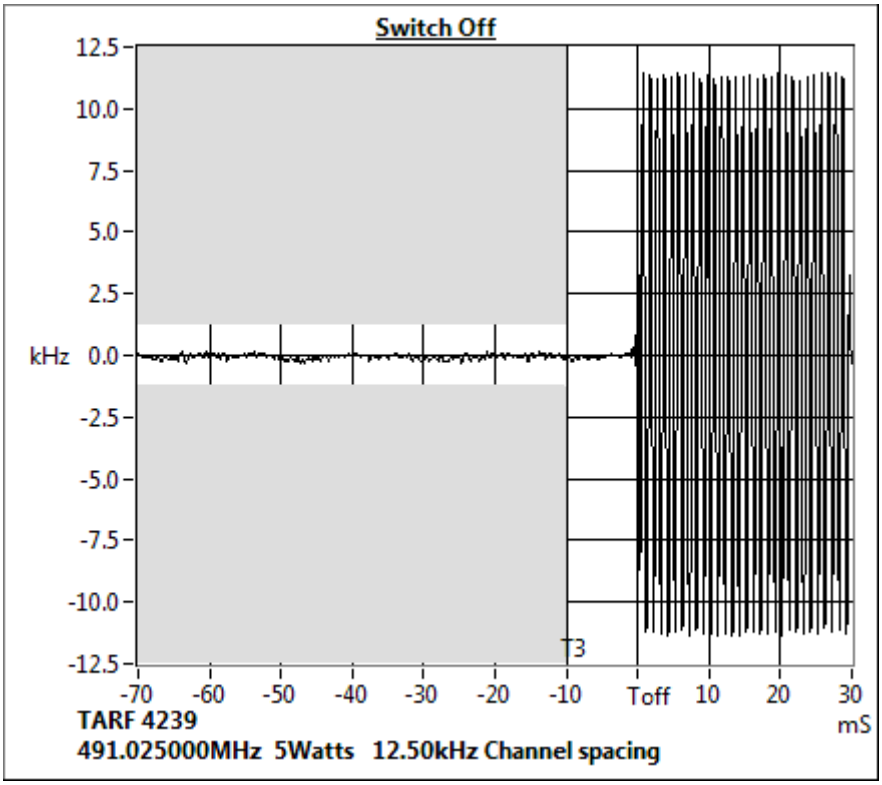
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 491.025 MHz 5 W 12.5 kHz Channel Spacing





Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 511.975 MHz 5 W 12.5 kHz Channel Spacing

TRANSIENT RESPONSE PERIOD	CARRIER PEAK VARIATION FROM NORMAL	
	Key ON (kHz)	Key OFF (kHz)
t1	-0.3	N/A
t2	-0.4	N/A
t3	N/A	-0.9

	YES	NO
Confirm that during periods t1 and t3 the frequency difference does not exceed the value of one channel separation.	✓	☐
Confirm that during the period t2 the frequency difference does not exceed half a channel separation.	✓	☐
Confirm that during the period t2 to t3 the frequency difference does not exceed the frequency error limit.	✓	☐

Measurement Uncertainty: Frequency ± 130 Hz; Time ± 0.2%

LIMIT: FCC 47 CFR 90.214

TRANSIENT PERIODS	FREQUENCY RANGE	
	150 MHz – 174 MHz	421 MHz – 512 MHz
t1 (ms)	5 ms	10 ms
t2 (ms)	20 ms	25 ms
t3 (ms)	5 ms	10 ms

LIMIT: RSS-119 5.9

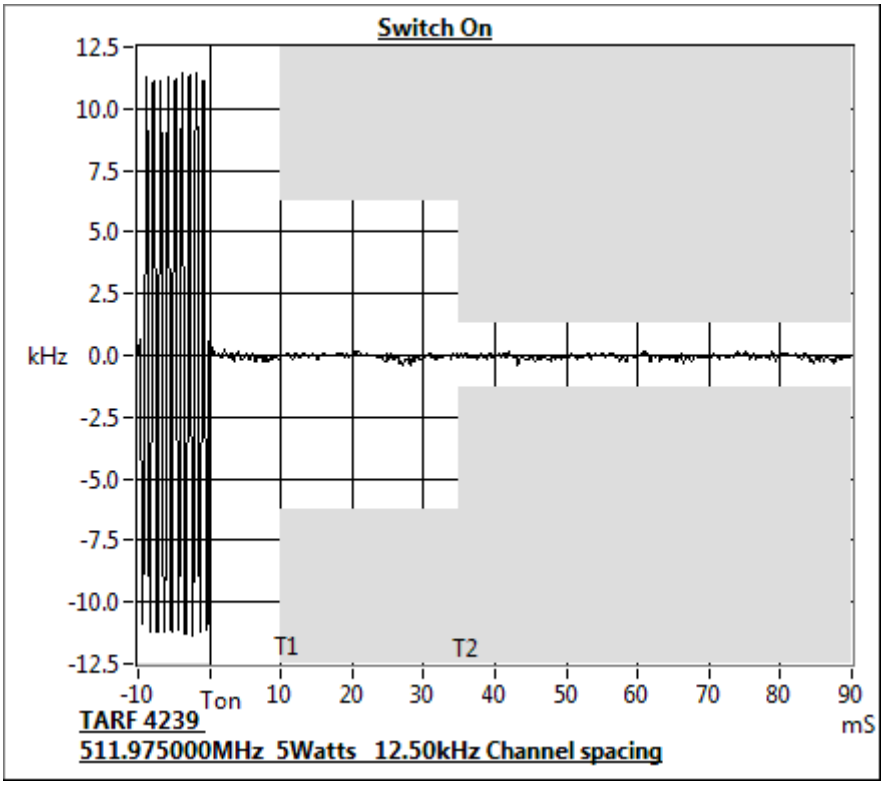
Transient Frequency Behaviour for Equipment Designed to Operate on 12.5 kHz Channels			
TRANSIENT PERIODS	Maximum Frequency Difference	FREQUENCY RANGE	
		138 – 174 MHz	406.1 – 470 MHz
t1 (ms)	± 12.5 kHz	5 ms	10 ms
t2 (ms)	± 6.25 kHz	20 ms	25 ms
t3 (ms)	± 12.5 kHz	5 ms	10 ms

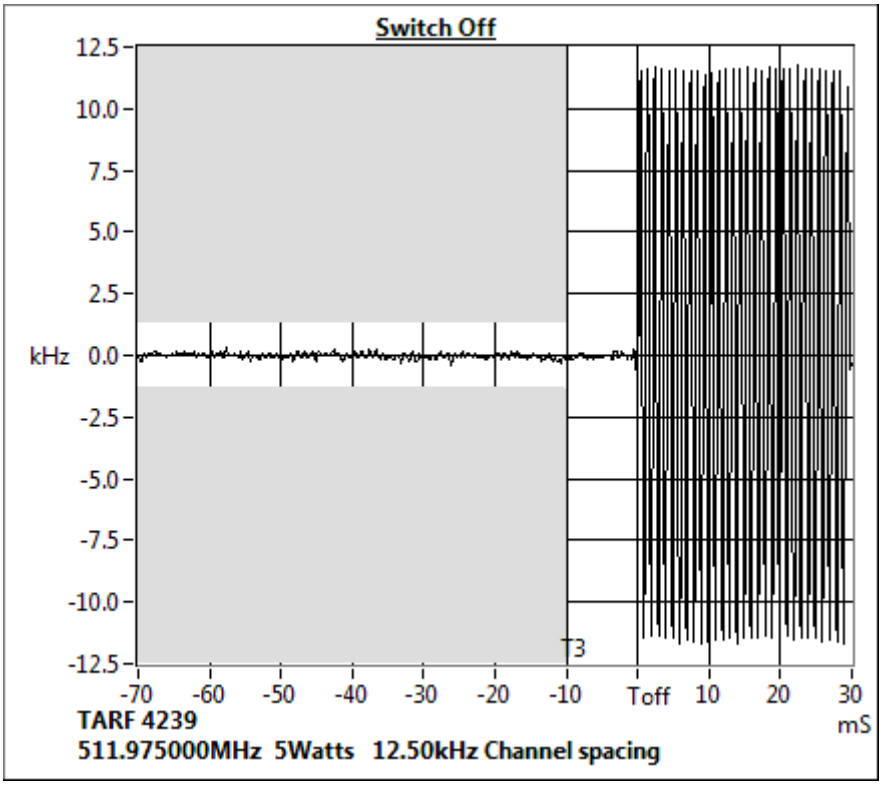
Note: RSS-119 5.9 - If the transmitter carrier output power rating is 6 Watts or less, the frequency difference during the time periods t1 and t3 may exceed the maximum frequency difference for these time periods.

Transient Frequency Behaviour

SPECIFICATION: FCC 47 CFR 90.214 RSS-119 5.9

Tx FREQUENCY: 511.975 MHz 5 W 12.5 kHz 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)	138.025 MHz	143.975 MHz	148.025 MHz	150.025 MHz	150.05 MHz	162.025 MHz	173.975 MHz	378.125 MHz
-30	0.28	0.24	0.18	0.13	0.09	0.06	0.02	0.3
-20	-0.09	-0.11	-0.11	-0.13	-0.15	-0.15	-0.16	-0.08
-10	-0.26	-0.25	-0.26	-0.26	-0.27	-0.28	-0.3	-0.24
0	-0.35	-0.33	-0.32	-0.29	-0.27	-0.26	-0.24	-0.35
10	-0.18	-0.15	-0.14	-0.13	-0.13	-0.12	-0.11	-0.28
20	-0.16	-0.14	-0.11	-0.1	-0.09	-0.09	-0.06	-0.15
30	-0.04	-0.01	0.04	0.06	0.08	0.11	0.12	-0.05
40	0.13	0.14	0.16	0.16	0.18	0.17	0.17	0.1
50	0.12	0.1	0.07	0.06	0.05	0.04	0.02	0.13
Measurement Uncertainty				± 5 x 10^{-8}				

	Error (ppm)							
Temperature (ºC)	406.125 MHz	418.025 MHz	429.975 MHz	438.025 MHz	450.025 MHz	460.025 MHz	469.975 MHz	491.025 MHz
-30	0.22	0.16	0.11	0.06	0.02	-0.02	-0.04	-0.07
-20	-0.09	-0.1	-0.12	-0.14	-0.16	-0.18	-0.2	-0.23
-10	-0.23	-0.24	-0.27	-0.27	-0.28	-0.29	-0.3	-0.3
0	-0.32	-0.3	-0.29	-0.28	-0.27	-0.26	-0.24	-0.24
10	-0.22	-0.19	-0.17	-0.17	-0.16	-0.16	-0.15	-0.14
20	-0.12	-0.11	-0.09	-0.08	-0.07	-0.05	-0.03	0
30	-0.02	0.02	0.04	0.06	0.08	0.1	0.12	0.13
40	0.13	0.15	0.16	0.15	0.15	0.15	0.13	0.11
50	0.1	0.07	0.05	0.03	0.01	0	-0.02	-0.02
Measurement Uncertainty				± 5 x 10^{-8}				

Transmitter Frequency Stability - Temperature

	Error (ppm)							
Temperature (ºC)	511.975 MHz	757.5 MHz	768.025 MHz	769.075 MHz	774.9 MHz	775.975 MHz	787.5 MHz	798.025 MHz
-30	-0.17	0.29	0.17	0.06	-0.02	-0.08	-0.12	-0.13
-20	-0.3	-0.15	-0.18	-0.18	-0.2	-0.24	-0.26	-0.28
-10	-0.3	-0.29	-0.3	-0.3	-0.3	-0.3	-0.3	-0.27
0	-0.21	-0.39	-0.33	-0.31	-0.29	-0.23	-0.22	-0.2
10	-0.14	-0.3	-0.24	-0.19	-0.17	-0.16	-0.13	-0.13
20	0.01	-0.19	-0.16	-0.14	-0.1	-0.06	-0.03	0.02
30	0.14	-0.04	0.02	0.07	0.09	0.15	0.12	0.17
40	0.05	0.08	0.12	0.13	0.12	0.11	0.06	0.05
50	-0.04	0.07	0.01	-0.02	-0.05	-0.05	-0.07	-0.06
Measurement Uncertainty				± 5 x 10^{-8}				

	Error (ppm)							
Temperature (ºC)	799.075 MHz	804.9 MHz	805.5 MHz	805.975 MHz	806.025 MHz	815.025 MHz	823.975 MHz	851.025 MHz
-30	-0.16	-0.19	-0.2	-0.02	-0.07	0.2	0.07	-0.04
-20	-0.3	-0.31	-0.31	-0.2	-0.24	-0.16	-0.19	-0.2
-10	-0.26	-0.23	-0.31	-0.32	-0.31	-0.28	-0.28	-0.31
0	-0.2	-0.19	-0.21	-0.22	-0.18	-0.4	-0.31	-0.29
10	-0.13	-0.1	-0.16	-0.13	-0.1	-0.3	-0.2	-0.2
20	0.06	0.09	0	-0.04	0.01	-0.2	-0.17	-0.12
30	0.14	0.16	0.13	0.15	0.19	-0.07	-0.02	0.04
40	0.02	-0.01	0.05	0.13	0.09	0.09	0.11	0.13
50	-0.05	-0.05	-0.05	0	-0.01	0.07	0.04	-0.02
Measurement Uncertainty				± 5 x 10^{-8}				

Transmitter Frequency Stability - Temperature

	Error (ppm)							
Temperature (ºC)	860.025 MHz	868.975 MHz	896.025 MHz	899.0 MHz	900.975 MHz	902.025 MHz	915.025 MHz	928.025 MHz
-30	-0.12	-0.16	0.25	0.1	-0.03	-0.1	-0.15	-0.2
-20	-0.25	-0.28	-0.14	-0.19	-0.19	-0.24	-0.26	-0.27
-10	-0.29	-0.3	-0.34	-0.34	-0.36	-0.35	-0.32	-0.3
0	-0.23	-0.22	-0.45	-0.36	-0.3	-0.25	-0.2	-0.21
10	-0.16	-0.16	-0.27	-0.22	-0.16	-0.15	-0.14	-0.1
20	-0.07	-0.03	-0.19	-0.18	-0.12	-0.07	-0.03	0.02
30	0.08	0.11	-0.11	-0.03	0.04	0.08	0.13	0.13
40	0.11	0.07	0.09	0.13	0.14	0.1	0.07	0.05
50	-0.02	-0.04	0.09	-0.02	-0.03	-0.07	-0.08	-0.04
Measurement Uncertainty				± 5 x 10^{-8}				

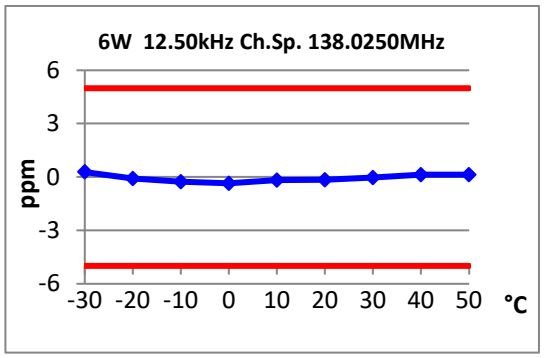
	Error (ppm)		
Temperature (ºC)	931.525 MHz	935.025 MHz	939.875 MHz
-30	-0.22	-0.26	-0.28
-20	-0.28	-0.32	-0.28
-10	-0.28	-0.25	-0.23
0	-0.2	-0.17	-0.14
10	-0.08	-0.07	-0.04
20	0.05	0.08	0.1
30	0.11	0.1	0.08
40	0.04	0.01	-0.02
50	-0.05	-0.04	-0.02
Measurement Uncertainty		± 5 x 10^{-8}	

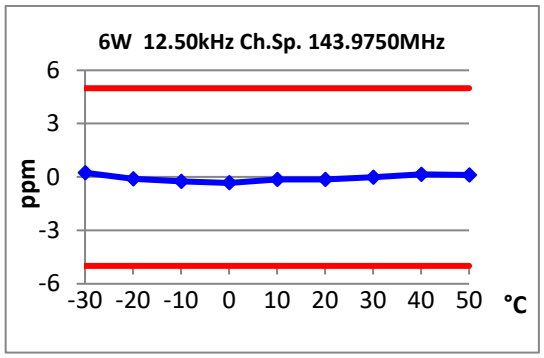
Transmitter Frequency Stability - Temperature

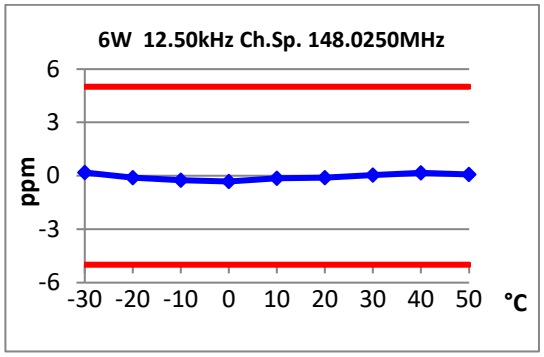
LIMIT:

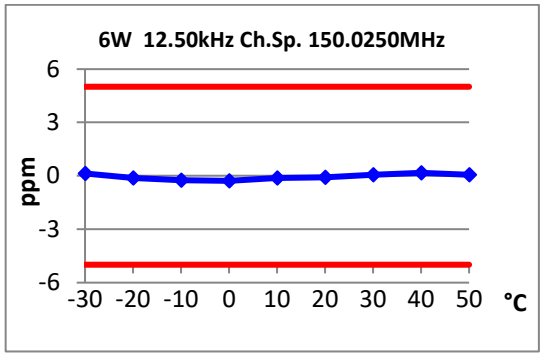
	Frequency Error (ppm)	
Frequency (MHz)	FCC 47 CFR 90.213	RSS-119 5.3
138-174		5.0
150-174	5.0	
406.1-430 & 450-470		2.5
421-512	2.5	
768-776 &798-806		1.5
806-821/851-866 & 821-824/866-869		1.5
806-809	1.5	
809-824	2.5	
851-854	1.5	
854-869	2.5	
896-901/935-940		1.5
928-929/952-953 & 932-932.5/941-941.5		3
896-901	1.5	
902-928	2.5	
935-940	1.5	

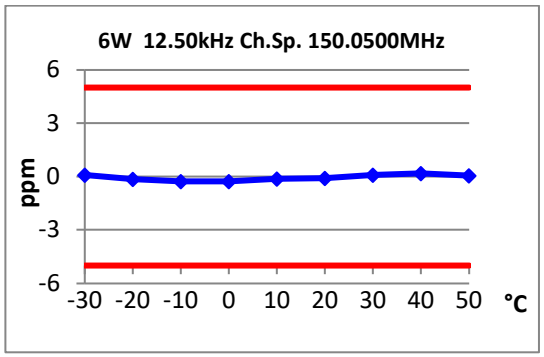
Transmitter Frequency Stability - Temperature

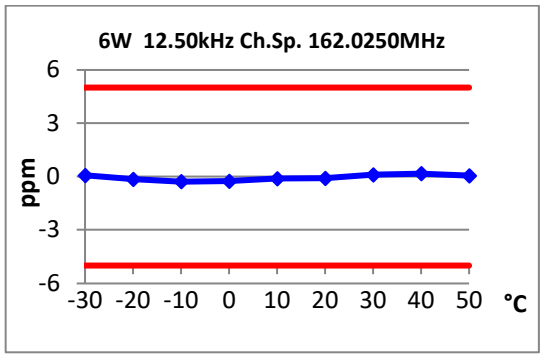


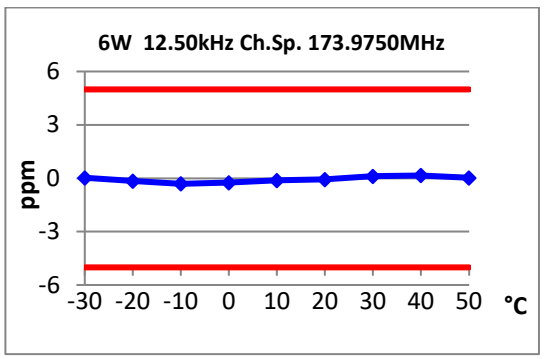


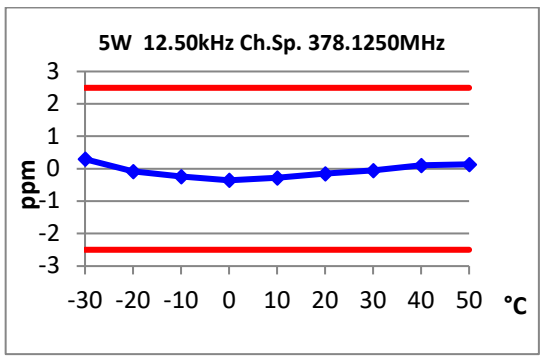




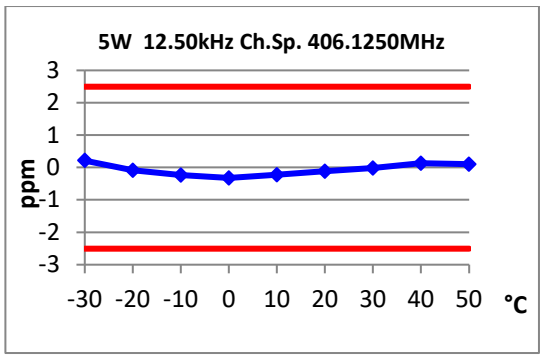


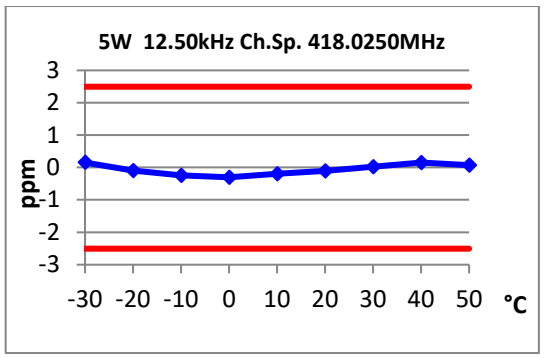


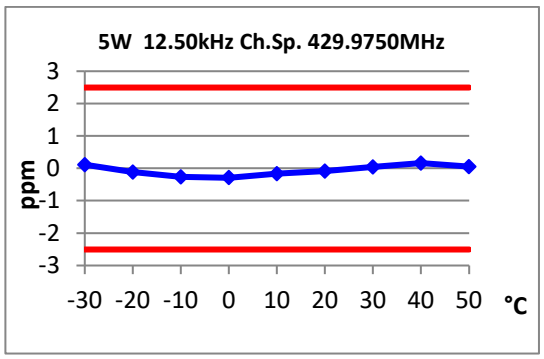


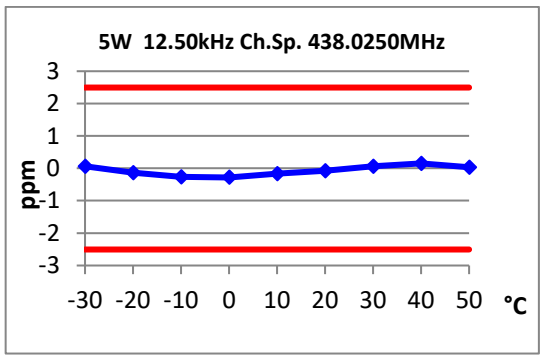


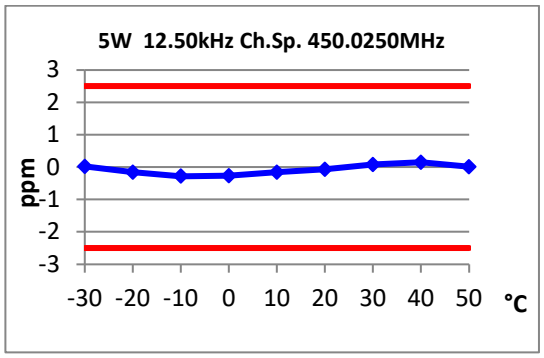
Transmitter Frequency Stability – Temperature

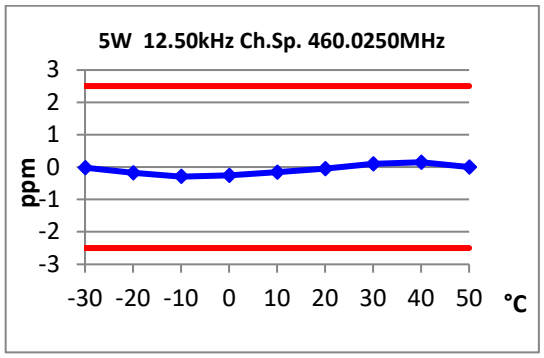


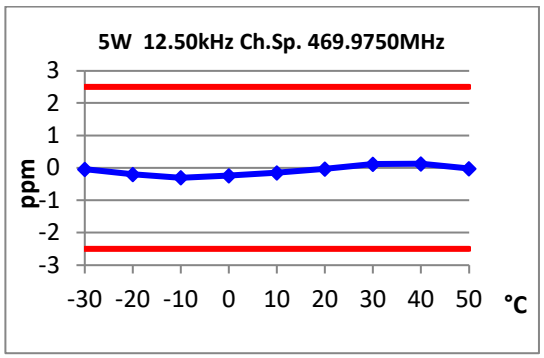


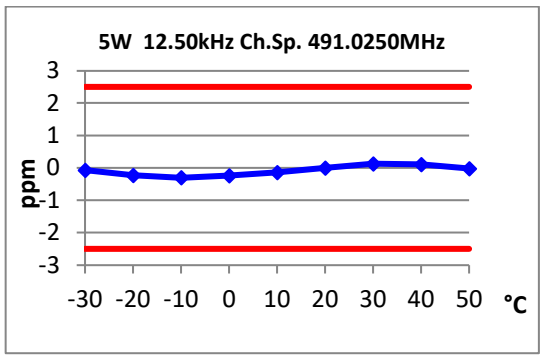




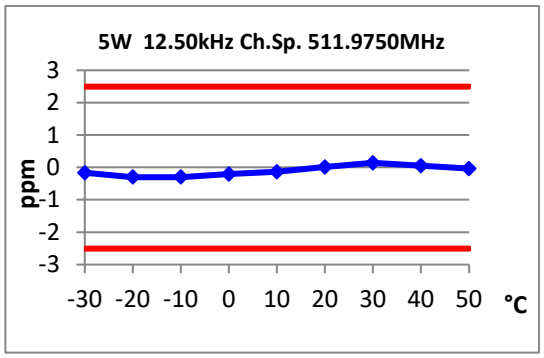


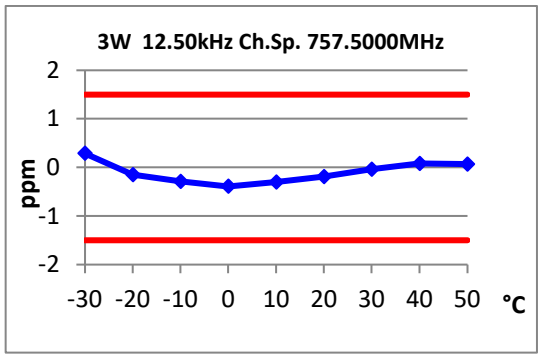


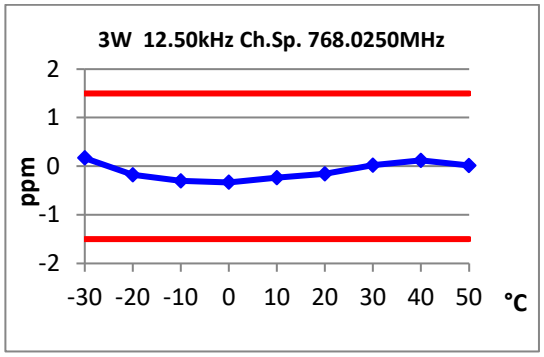


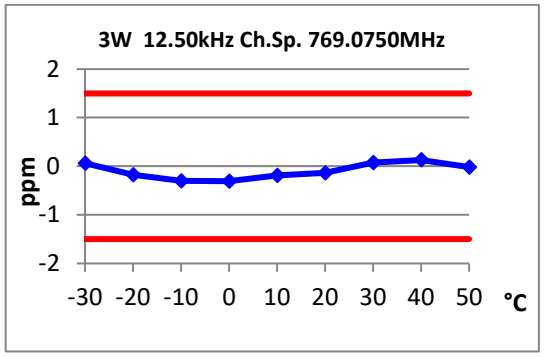


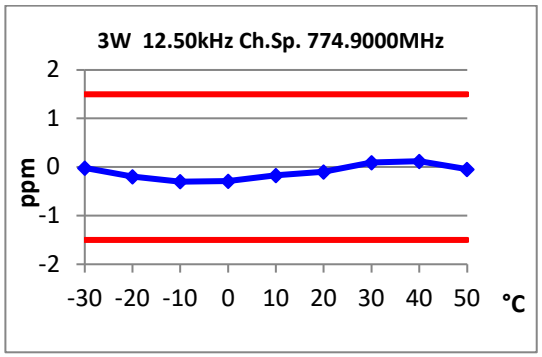
Transmitter Frequency Stability - Temperature

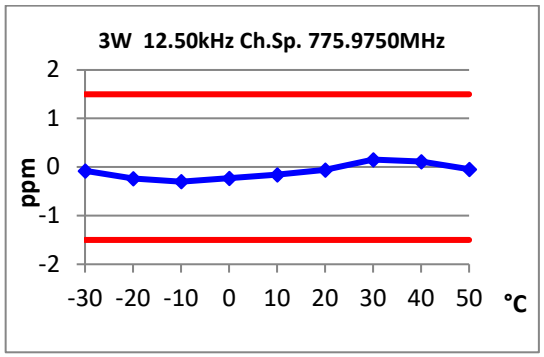


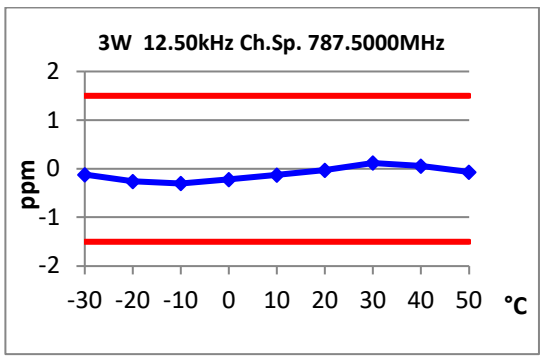


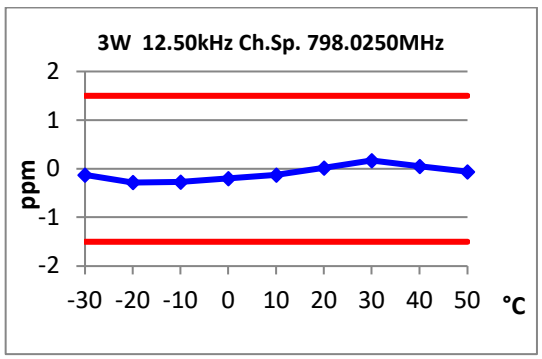




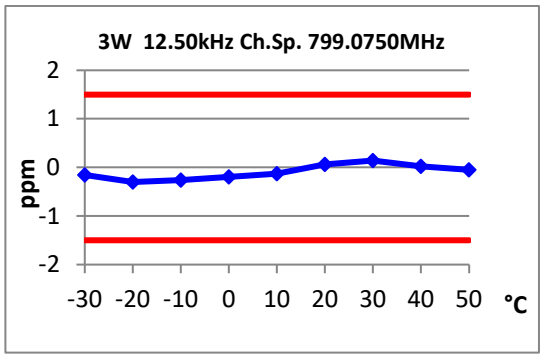


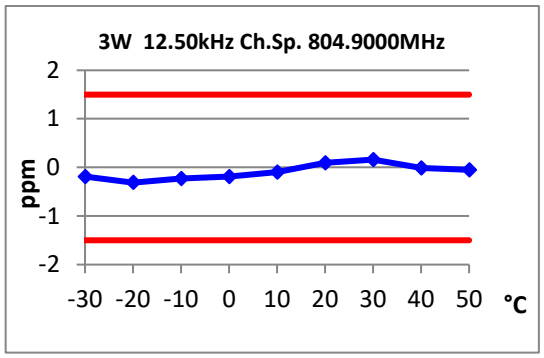


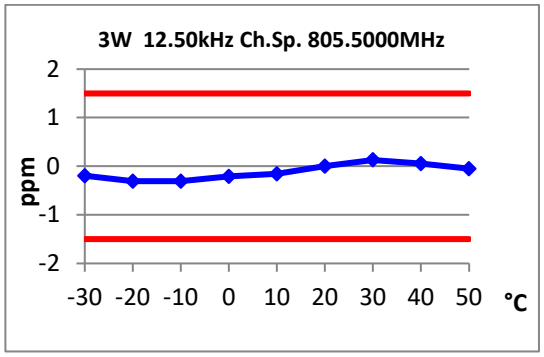


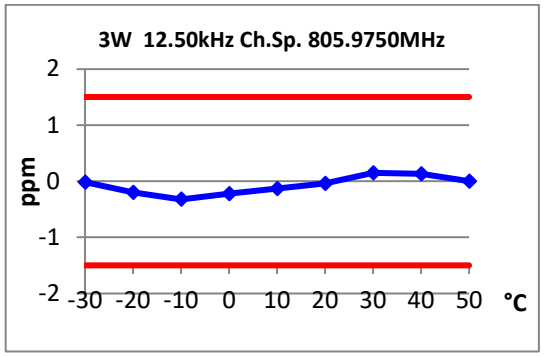


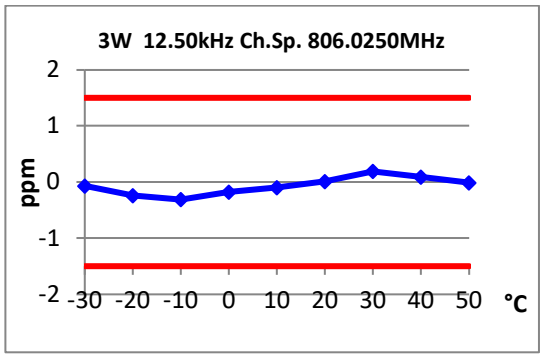
Transmitter Frequency Stability - Temperature

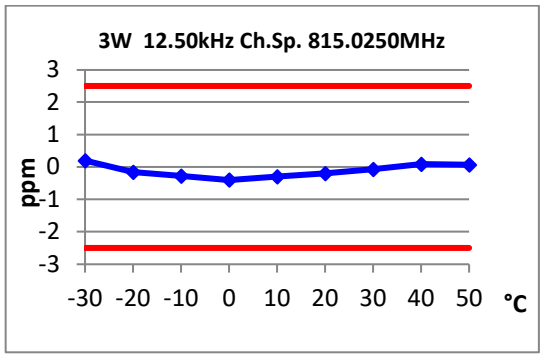


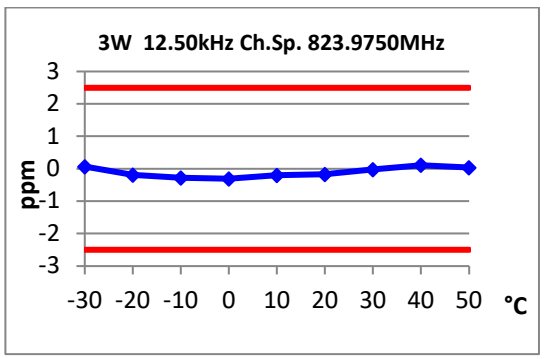


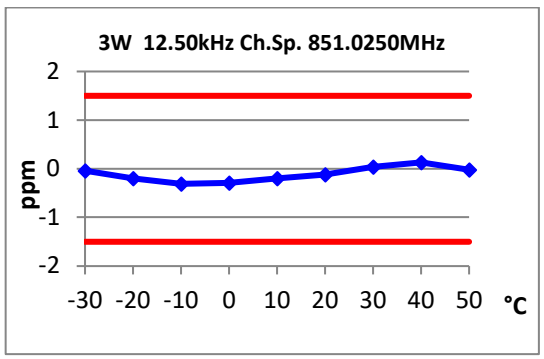




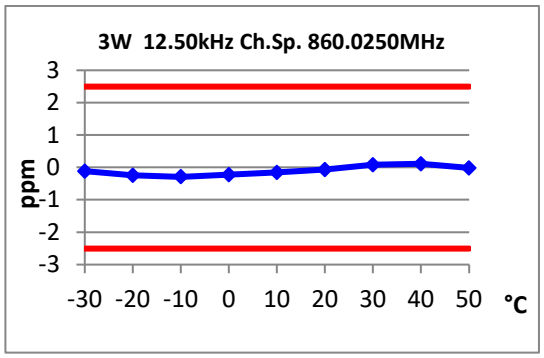


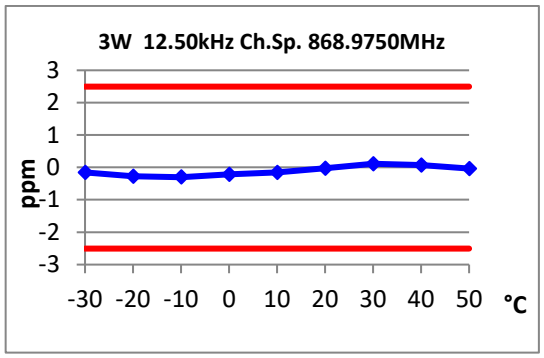


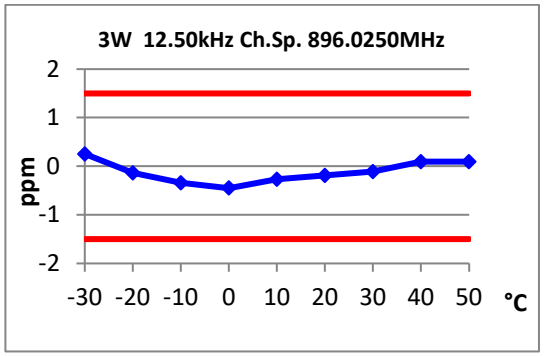


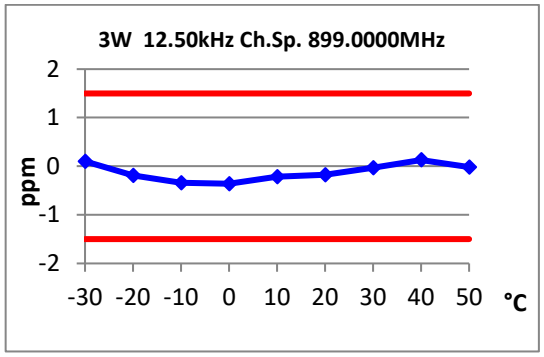


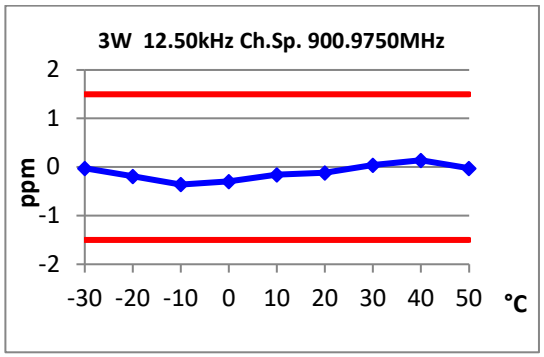
Transmitter Frequency Stability - Temperature

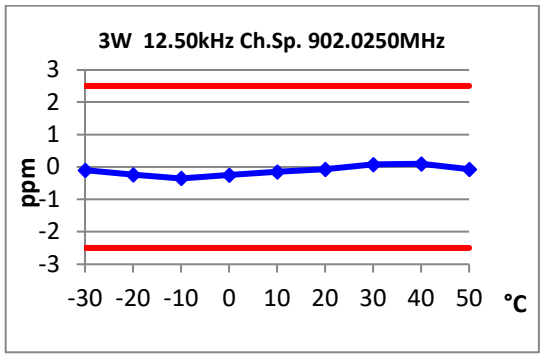


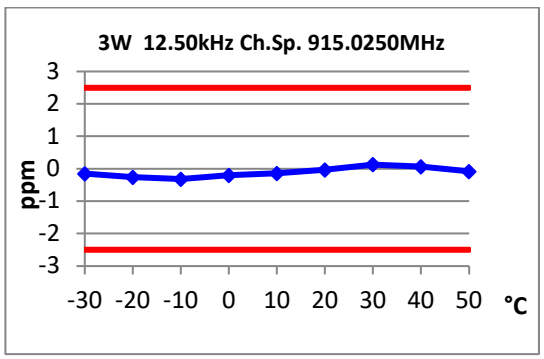


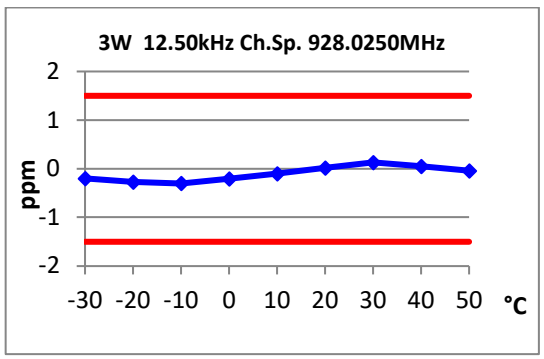




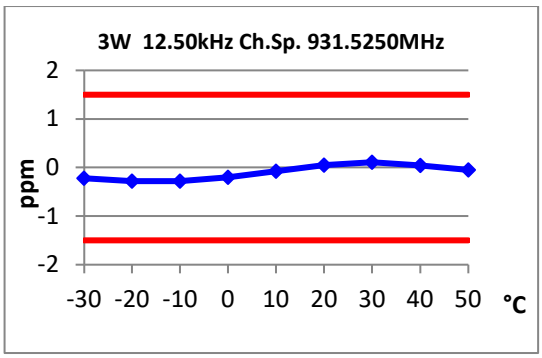


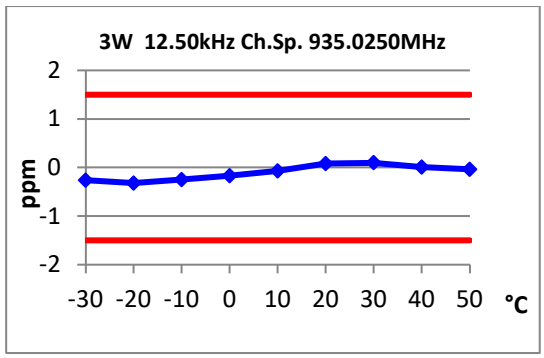


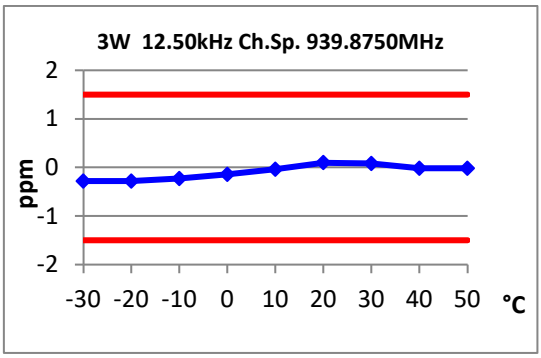




Transmitter Frequency Stability – Temperature







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		
	7.5 V_{DC}	6.375 V_{DC}	7.5 V_{DC}
138.025 MHz	0.20	0.20	0.20
143.975 MHz	0.18	0.19	0.17
148.025 MHz	0.10	0.08	0.09
150.025 MHz	0.05	0.03	0.05
150.05 MHz	0.01	0.01	0.01
162.025 MHz	0.00	-0.01	0.00
173.975 MHz	0.01	0.01	0.00
378.125 MHz	0.16	0.16	0.15
406.125 MHz	0.15	0.15	0.14
418.025 MHz	0.15	0.14	0.14
429.975 MHz	0.13	0.13	0.12
438.025 MHz	0.12	0.12	0.11
450.025 MHz	0.11	0.11	0.10
460.025 MHz	0.10	0.10	0.10
469.975 MHz	0.10	0.09	0.08
491.025 MHz	0.08	0.08	0.07
511.975 MHz	0.05	0.05	0.05
757.5 MHz	0.09	0.11	0.11
768.025 MHz	0.07	0.08	0.12
769.075 MHz	0.12	0.14	0.14
774.9 MHz	0.11	0.14	0.16
775.975 MHz	0.19	0.16	0.17
787.5 MHz	0.08	0.14	0.13
798.025 MHz	0.15	0.16	0.15
799.075 MHz	0.10	0.13	0.14
804.9 MHz	0.15	0.14	0.14
805.5 MHz	0.13	0.13	0.13
805.975 MHz	0.17	0.17	0.15
Measurement Uncertainty		± 5 x 10^{-8}	

Transmitter Frequency Stability - Voltage

	FREQUENCY ERROR (ppm) for 12.5 kHz		
	7.5 V_{DC}	6.375 V_{DC}	7.5 V_{DC}
806.025 MHz	-0.01	-0.02	-0.03
815.025 MHz	0.02	0.01	0.01
823.975 MHz	-0.05	-0.06	-0.05
851.025 MHz	0.00	0.00	0.00
860.025 MHz	0.01	-0.02	-0.04
868.975 MHz	0.00	-0.01	-0.03
896.025 MHz	0.15	0.13	0.12
899.0 MHz	-0.03	-0.04	-0.02
900.975 MHz	-0.03	-0.03	-0.02
902.025 MHz	0.00	0.00	0.00
915.025 MHz	0.00	0.01	0.01
928.025 MHz	-0.02	-0.03	-0.03
931.525 MHz	-0.02	-0.02	-0.03
935.025 MHz	-0.02	-0.02	0.00
939.875 MHz	-0.02	-0.02	-0.03
Measurement Uncertainty		± 5 x 10^{-8}	

LIMIT CLAUSES: FCC 47 CFR 90.213 RSS-119 5.3

	Frequency Error (ppm)	
Frequency (MHz)	FCC 47 CFR 90.213	RSS-119 5.3
138-174		5.0
150-174	5.0	
406.1-430 & 450-470		2.5
421-512	2.5	
768-776 &798-806		1.5
806-821/851-866 & 821-824/866-869		1.5
806-809	1.5	
809-824	2.5	
851-854	1.5	
854-869	2.5	
896-901/935-940		1.5
928-929/952-953 & 932-932.5/941-941.5		3
896-901	1.5	
902-928	2.5	
935-940	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. 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
4. 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: (dB)

E5028 1m5 Blue 501868	0.15	
Total Attenuation @ 138 MHz	0.15	Sum of component attenuation (a)
Amplitude offset	0.15	(b)
Correction @ 138 MHz	0.0	(a-b)

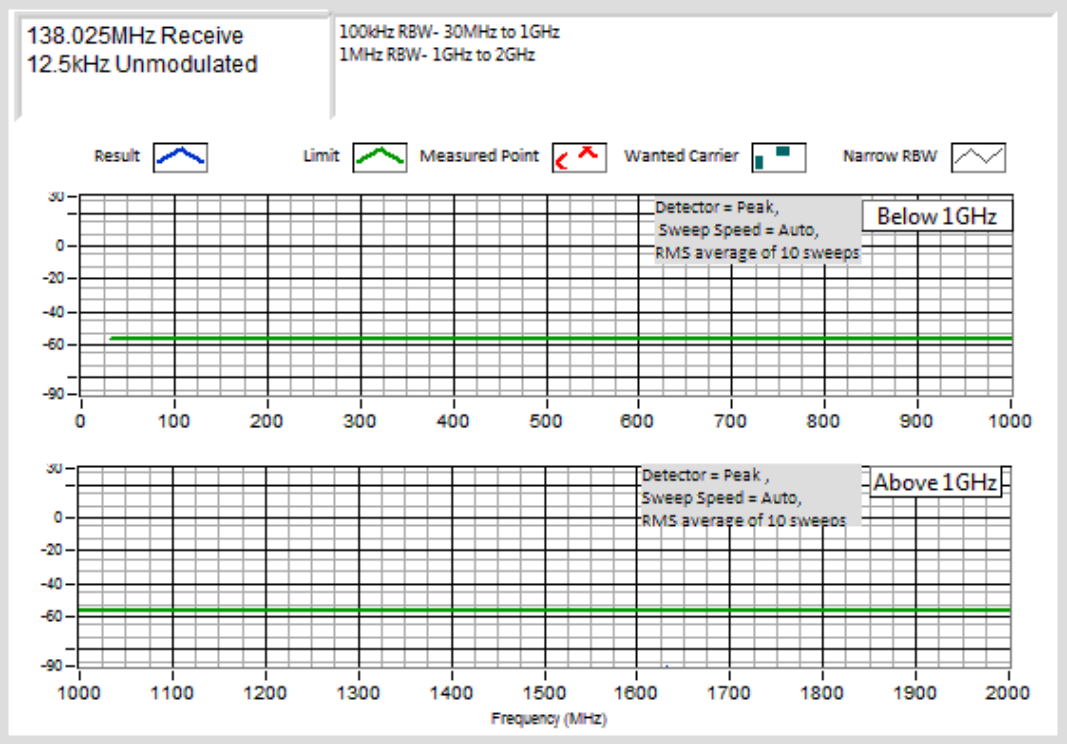
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB

LIMIT CLAUSE: RSS-Gen 7.4

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

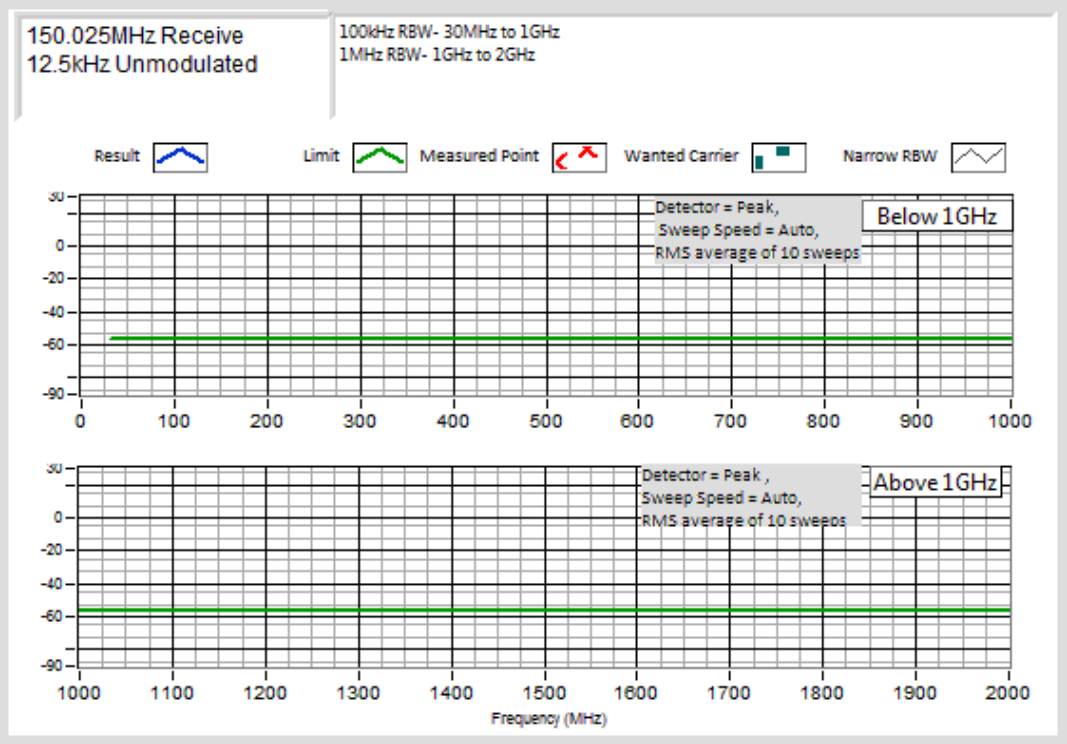
Receiver Spurious Emissions (Conducted) – Continued

138.025 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.		



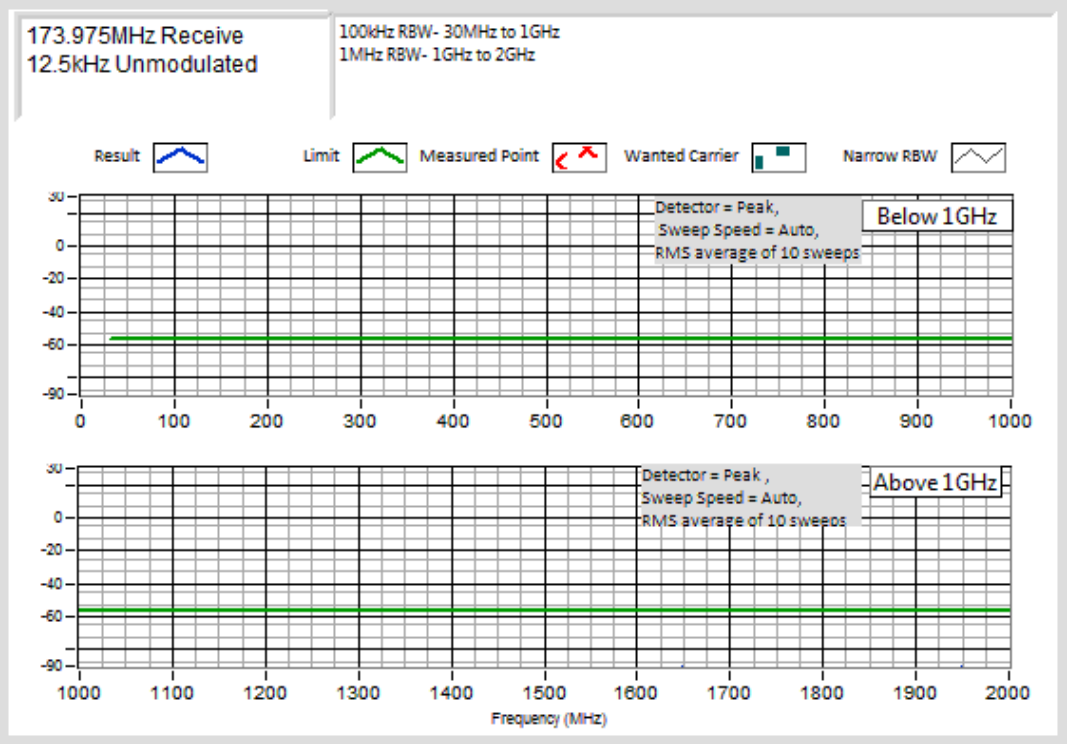
Receiver Spurious Emissions (Conducted) – Continued

150.025 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.		



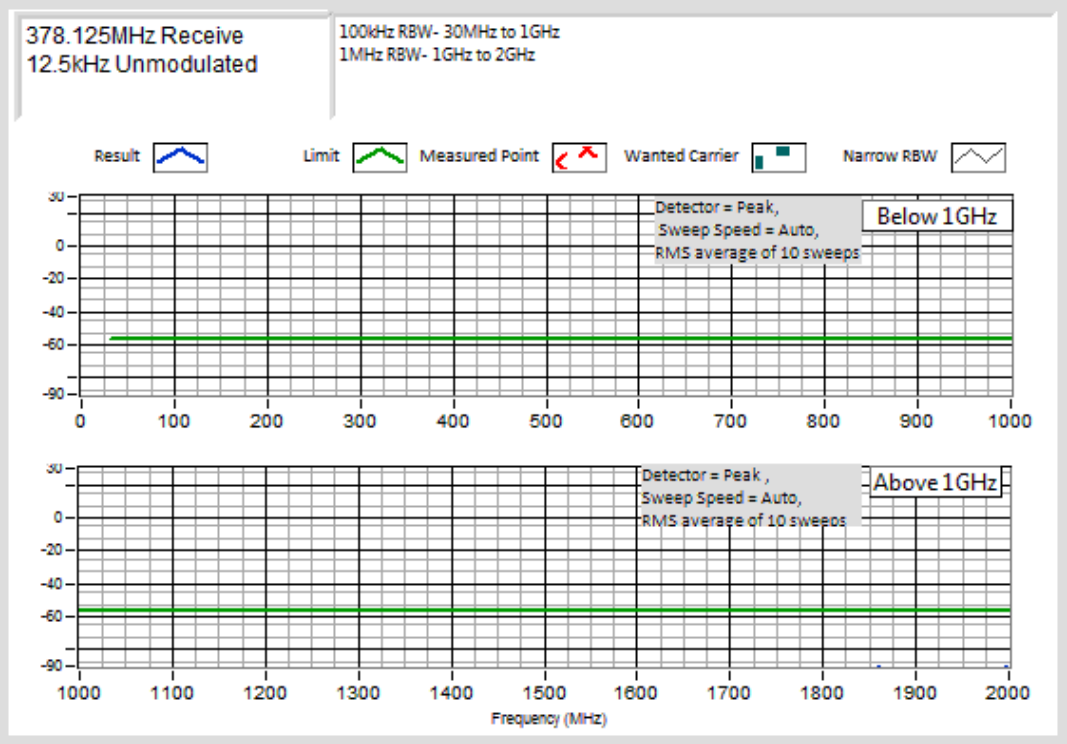
Receiver Spurious Emissions (Conducted) – Continued

173.975 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.		



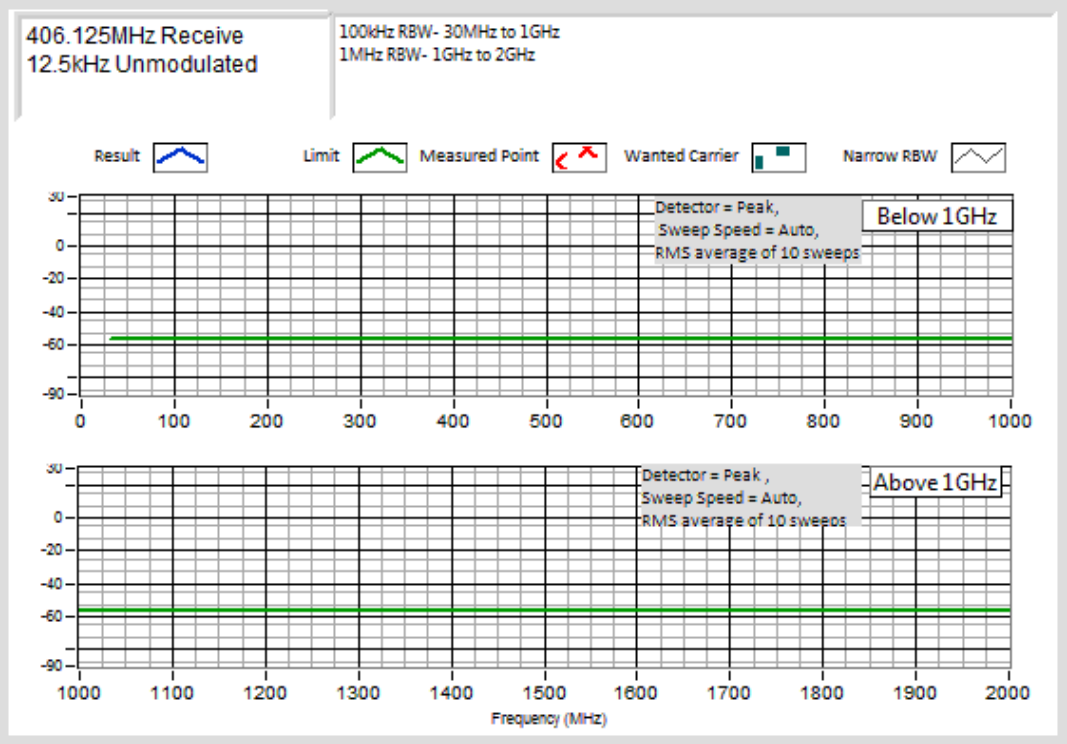
Receiver Spurious Emissions (Conducted) – Continued

378.125 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.		



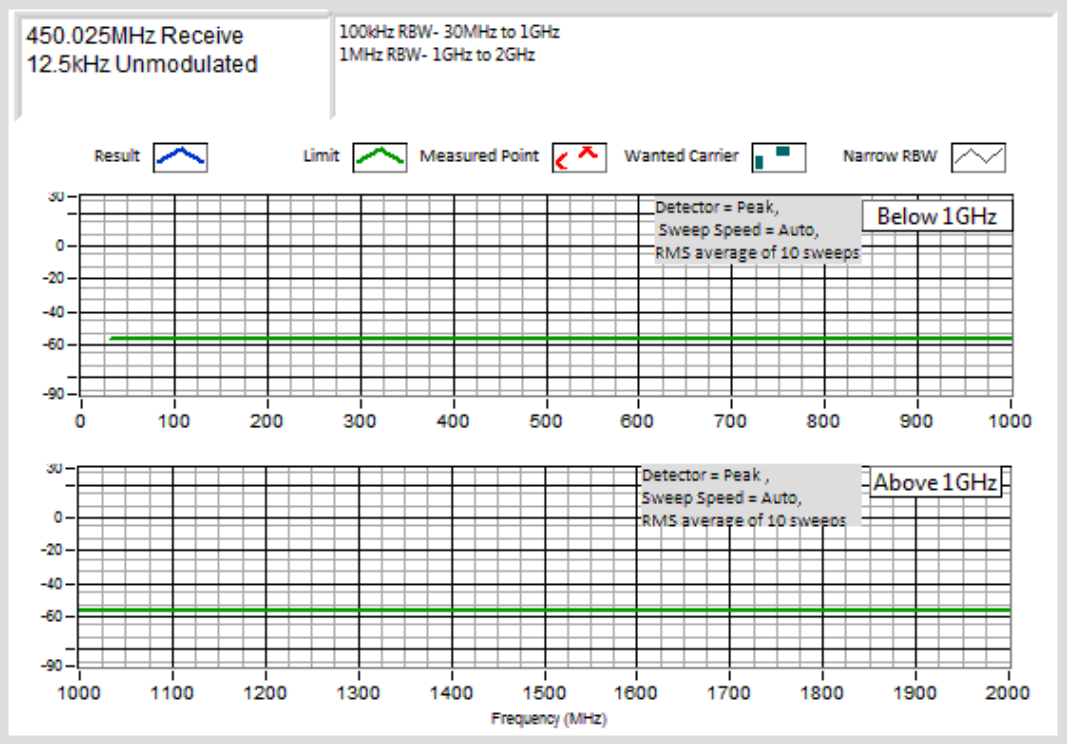
Receiver Spurious Emissions (Conducted) – Continued

406.125 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.		



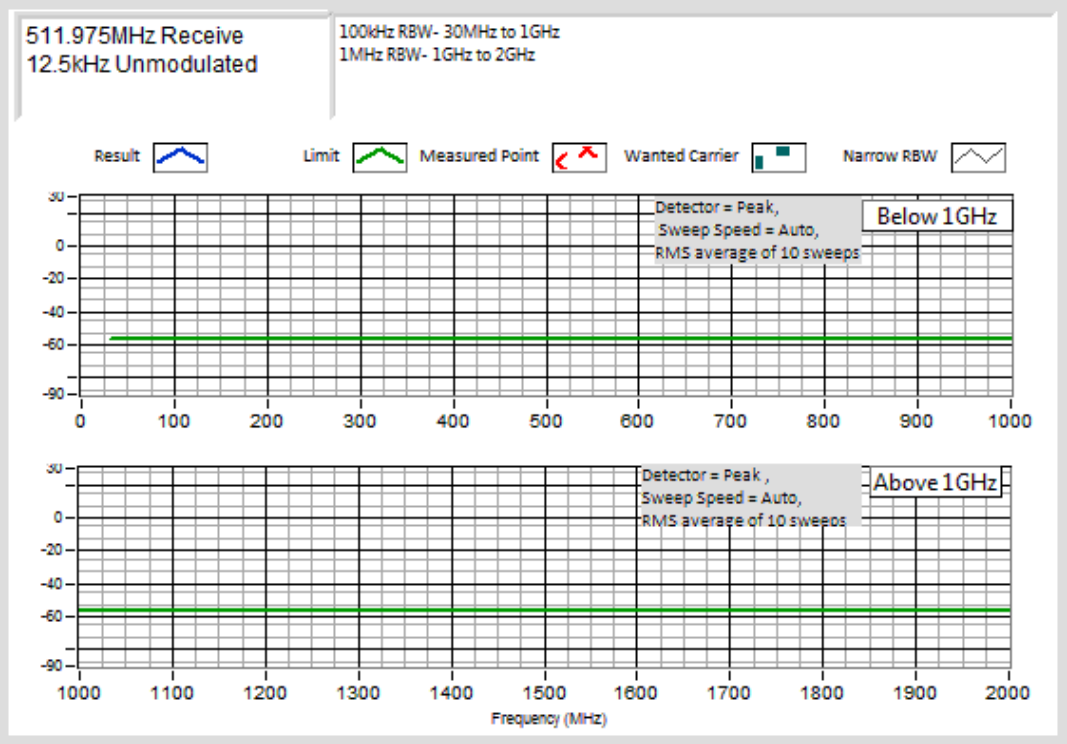
Receiver Spurious Emissions (Conducted) – Continued

450.025 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.		



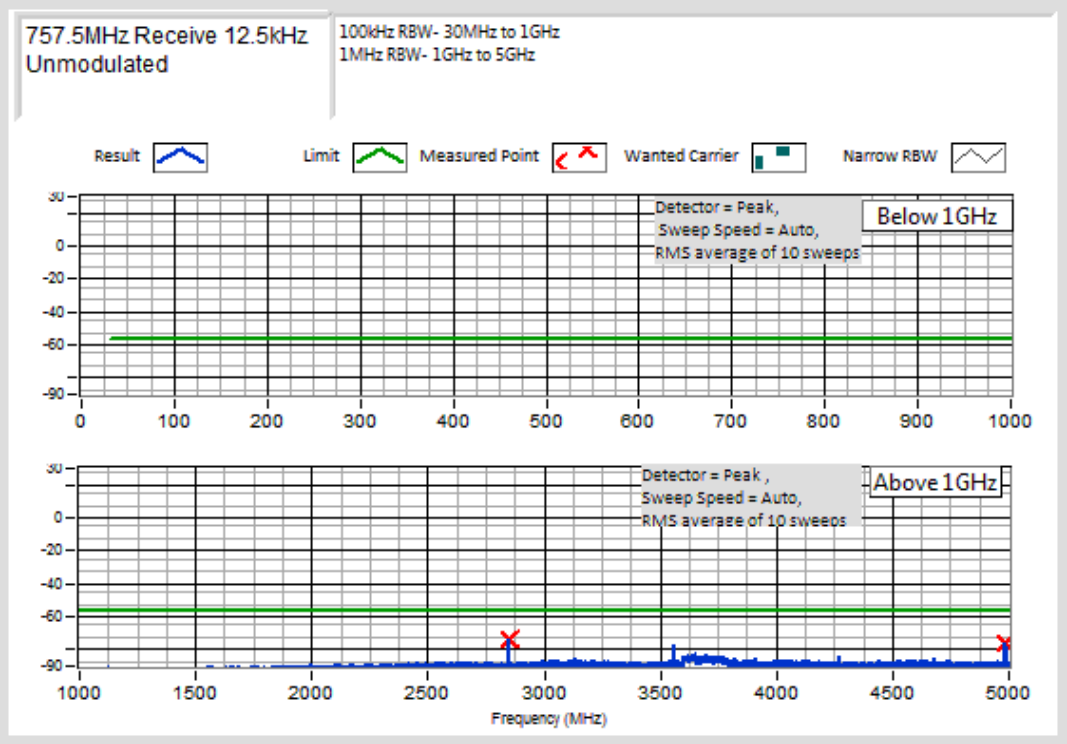
Receiver Spurious Emissions (Conducted) – Continued

511.975 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.		



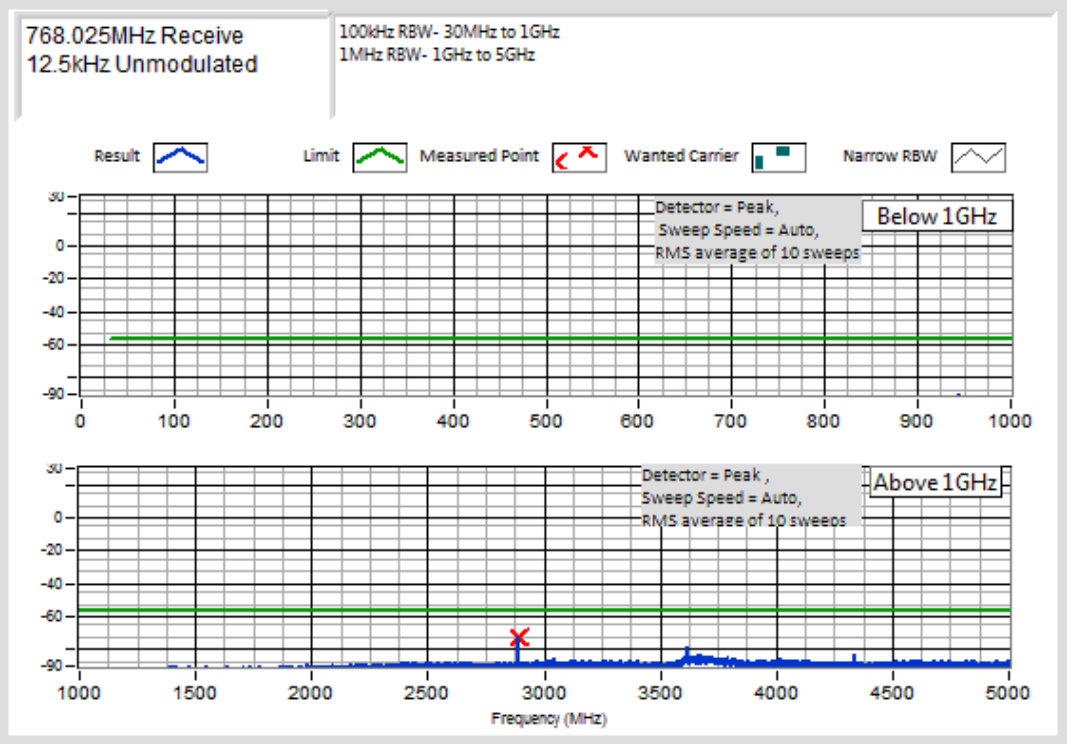
Receiver Spurious Emissions (Conducted) – Continued

757.5 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
2849.835185	0.04	-74.2
4986.814797	0.02	-76.3
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



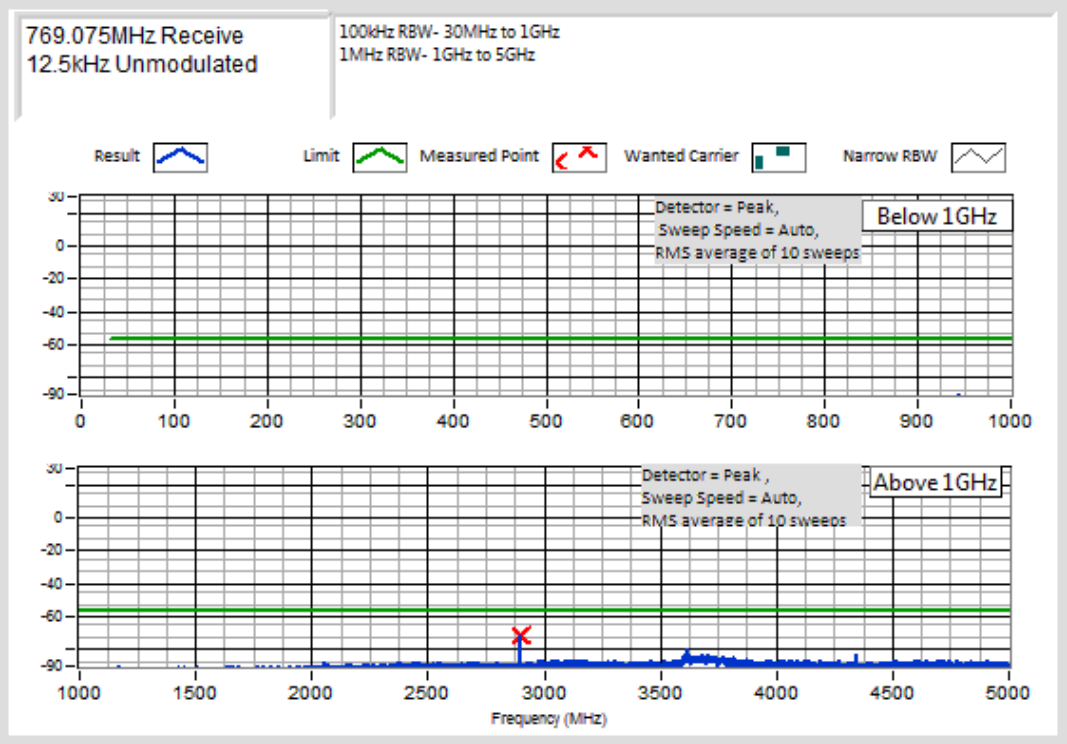
Receiver Spurious Emissions (Conducted) – Continued

768.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
2891.832499	0.06	-72.2
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



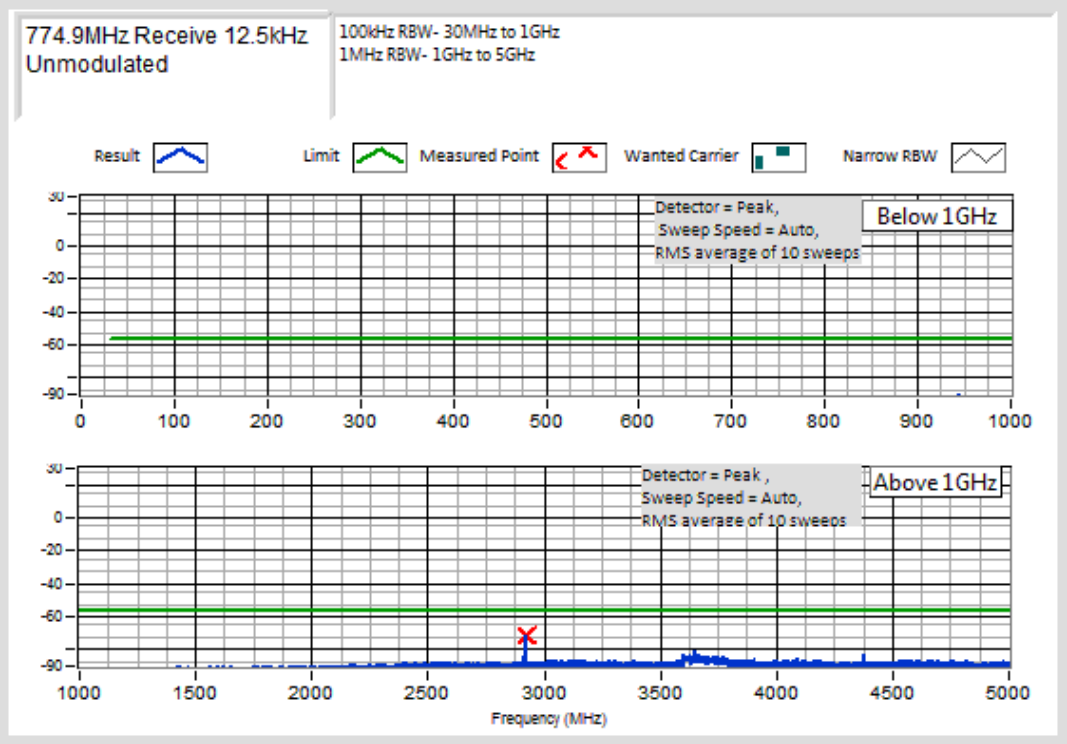
Receiver Spurious Emissions (Conducted) – Continued

769.075 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
2895.739226	0.07	-71.5
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



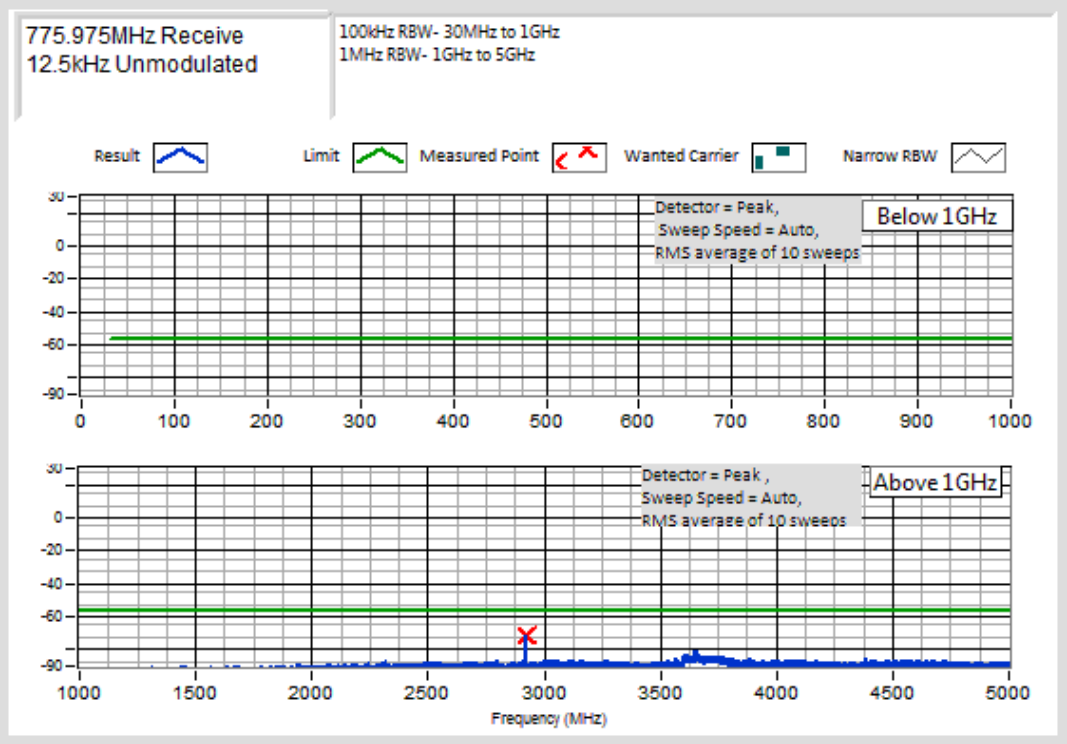
Receiver Spurious Emissions (Conducted) – Continued

774.9 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
2919.179587	0.07	-71.7
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



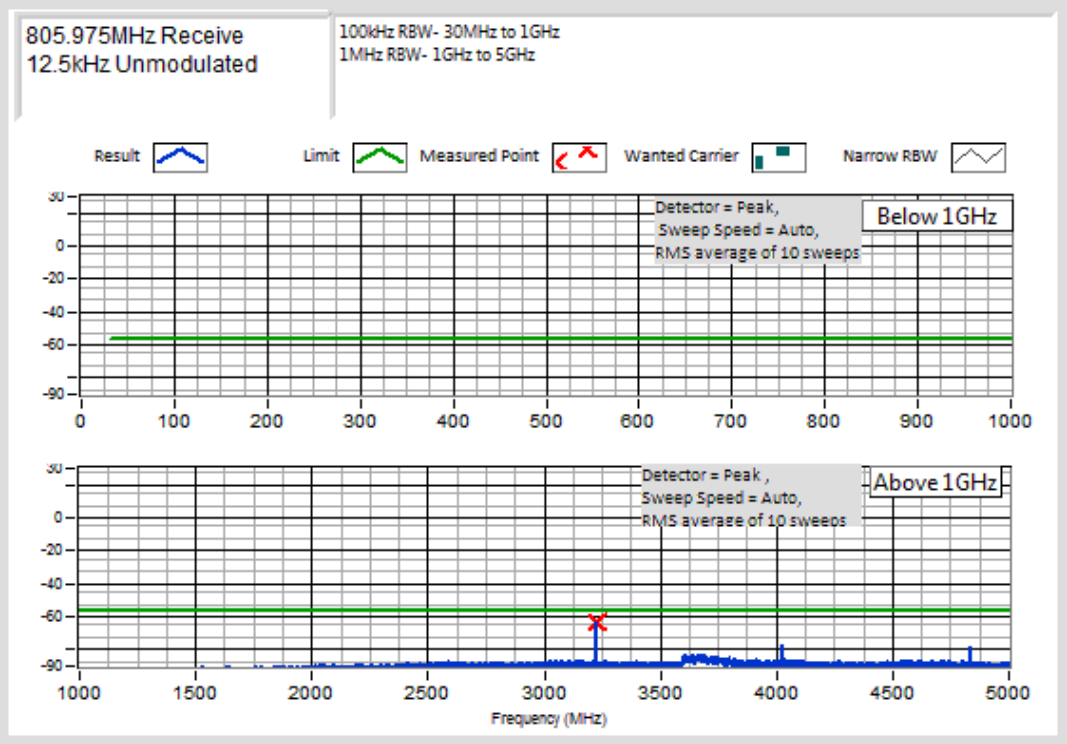
Receiver Spurious Emissions (Conducted) – Continued

775.975 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
2923.086314	0.08	-71.2
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



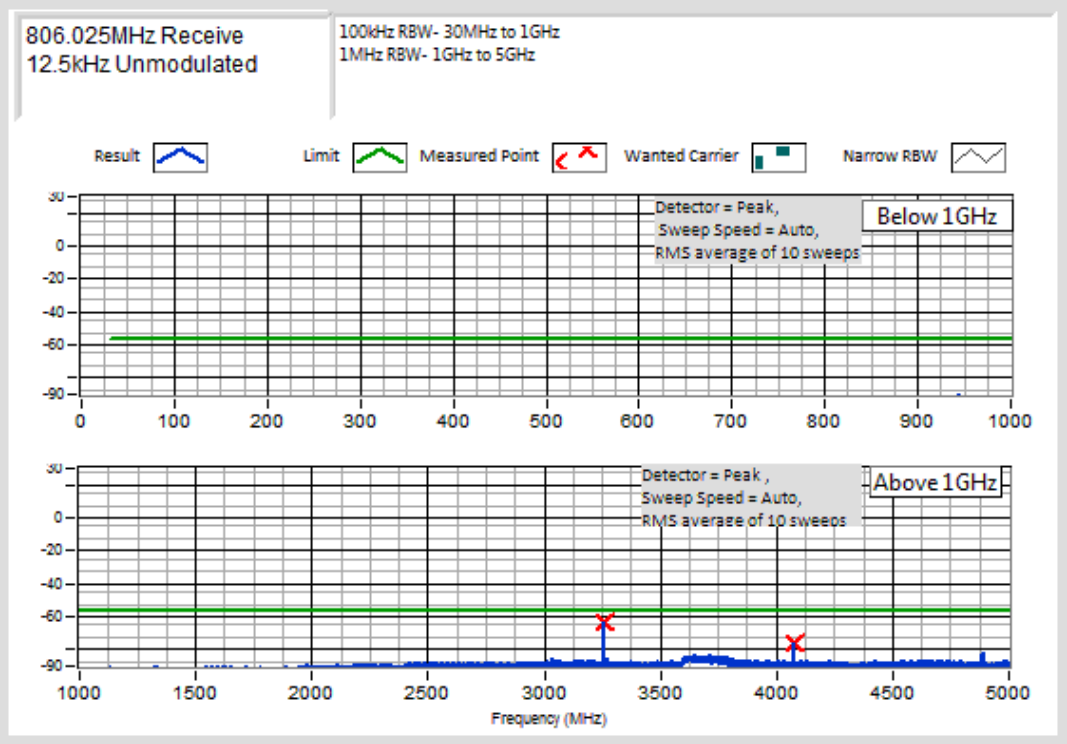
Receiver Spurious Emissions (Conducted) – Continued

805.975 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
3223.904285	0.42	-63.8
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



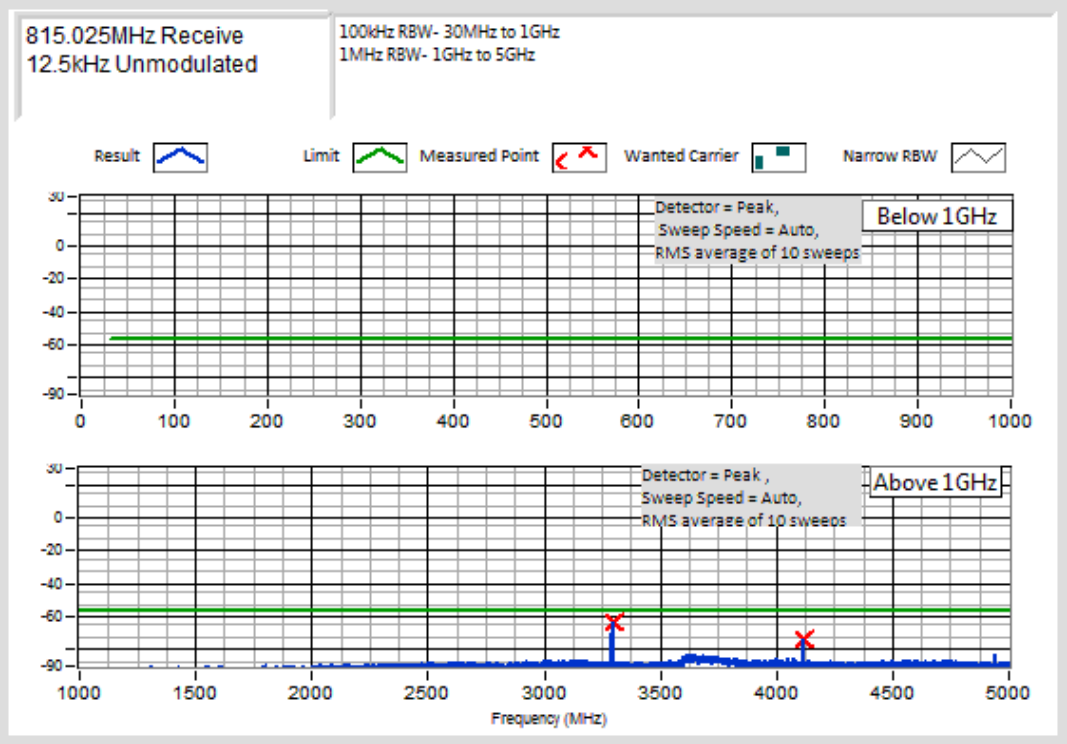
Receiver Spurious Emissions (Conducted) – Continued

806.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
3259.553168	0.45	-63.5
4074.594067	0.03	-75.7
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



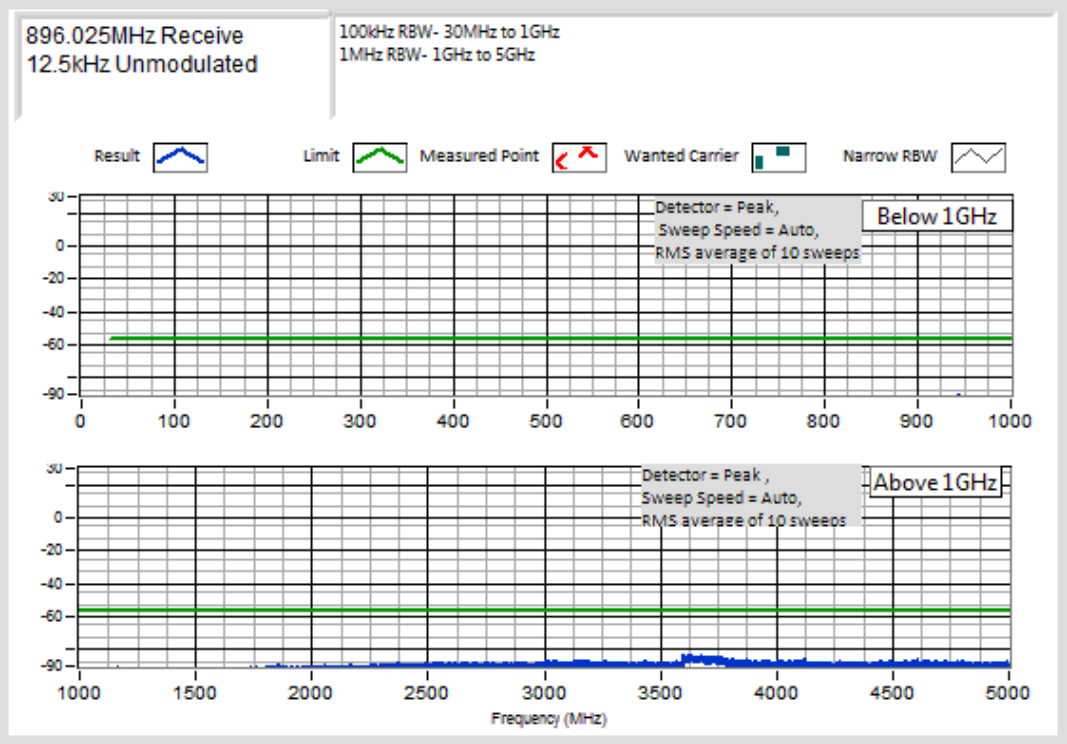
Receiver Spurious Emissions (Conducted) – Continued

815.025 MHz Receive		
Emission Frequency (MHz)	Level (nW)	Level (dBm)
3295.202051	0.43	-63.7
4119.033085	0.04	-74.1
Measurement Uncertainty	≤12.75 GHz ± 2.8 dB	
No other emissions were detected within 20 dB of Limit.		



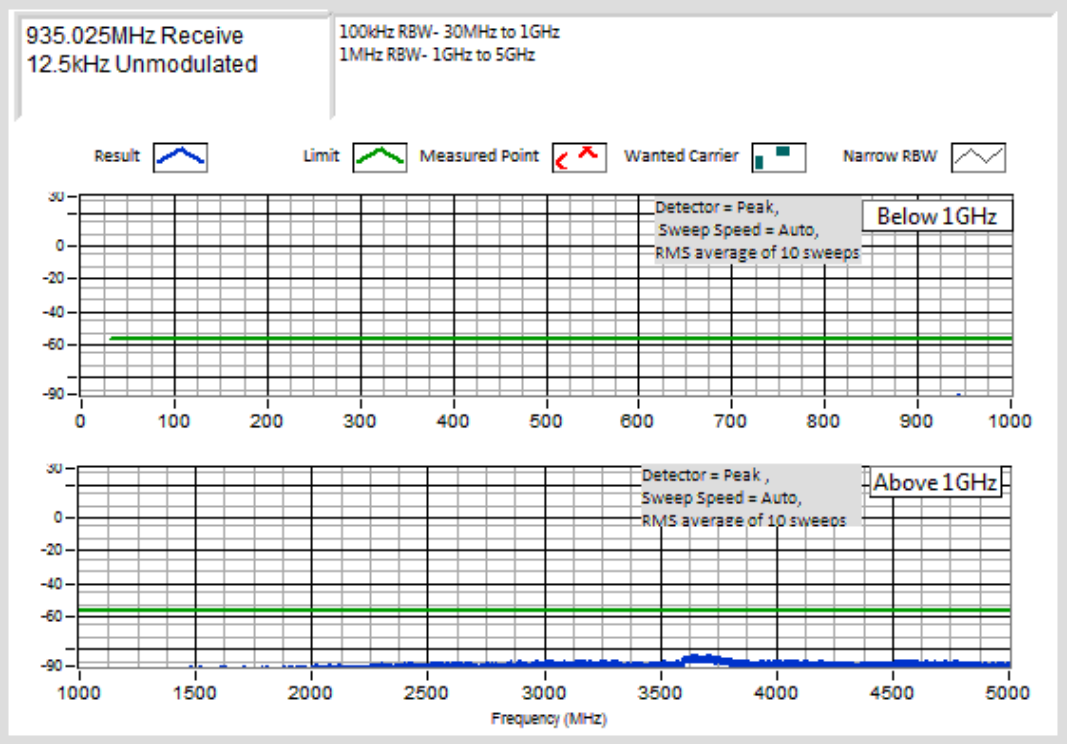
Receiver Spurious Emissions (Conducted) – Continued

896.025 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.		



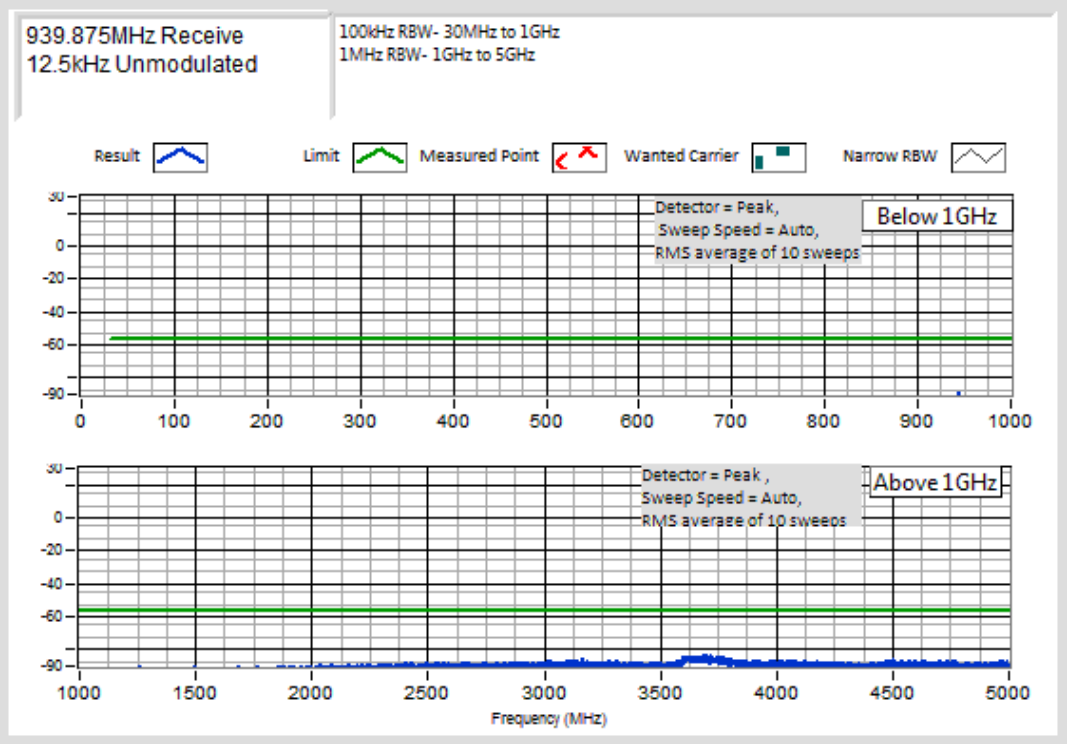
Receiver Spurious Emissions (Conducted) – Continued

935.025 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.		



Receiver Spurious Emissions (Conducted) – Continued

939.875 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.		



TEST EQUIPMENT LIST

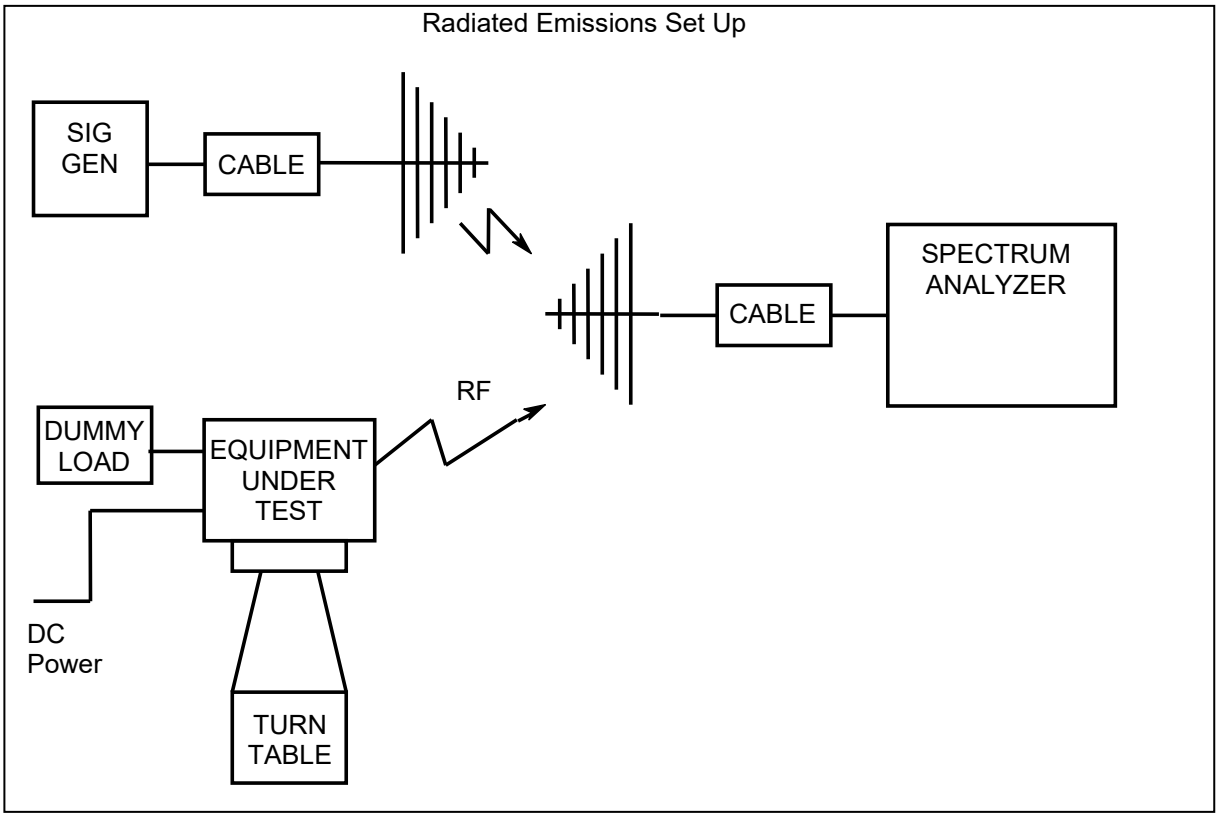
Equipment Type	Information	Manufacturer	Model No	Serial No#	Tait ID	Cal Due
Antenna	18GHz DRG	Emco	DRG3115	2084	E3076	12-Jul-24
Antenna	Reference Dipoles	Emco	3121C DB1	9510-1164	E3559	
Antenna	18GHz DRG	Emco	DRG3115	9512-4638	E3560	
Antenna	Log Periodic	Schwarzbeck	VUSLP	9111-219	E4617	
Antenna	Reverb - 1-18GHz DRG	Schwarzbeck	BBHA 9120 D	9120D-885	E4857	
Antenna	Reverb - 1-18GHz DRG	Schwarzbeck	BBHA 9120 D	9120D-884	E4858	
Audio Analyser	TREVA2	Hewlett Packard	HP8903B	2818A04275	E3710	8-Oct-23
Audio Analyser	TREVA1	Hewlett Packard	HP8903A	2437A04625	E4986	13-Oct-23
Coax Cable	OATS Turntable Cable 1	Intelcom	RG214	OATS1	E4621	27-Oct-23
Coax Cable	OATS Tower Cable	Intelcom	RG214	OATS2	E4622	27-Oct-23
Coax Cable	2m Black	Suhner	RG214HF/Nm/ Nm/2000	TeltestBlack2	E4623	26-Oct-23
Coax Cable	2m Black	Suhner	RG214HF/Nm/ Nm/2000	TeltestBlack3	E4624	26-Oct-23
Coax Cable	2m Black	Suhner	RG214HF/Nm/ Nm/2000	TeltestBlack4	E4653	25-Oct-23
Coax Cable	Reverb - 4.5m Multiflex 141	TeltestBlue6	MF 141	TeltestBlue6	E4843	26-Oct-23
Coax Cable	Reverb - 2m Multiflex 141	TeltestBlue5	MF 141	TeltestBlue5	E4844	26-Oct-23
Coax Cable	Reverb - 2m Multiflex 141	TeltestBlue4	MF 141	TeltestBlue4	E4845	26-Oct-23
Coax Cable	Reverb - 1m Multiflex 141	TeltestBlue3	MF 141	TeltestBlue3	E4846	26-Oct-23
Coax Cable	Reverb - 1m Multiflex 141	TeltestBlue2	MF 141	TeltestBlue2	E4847	26-Oct-23
Coax Cable	Reverb - 1m Multiflex 141	TeltestBlue1	MF 141	TeltestBlue1	E4848	26-Oct-23
Coax Cable	2m Black	Suhner	RG214HF/Nm/ Nm/2000	TeltestBlack6	E4849	25-Oct-23
Coax Cable	2m Black	Suhner	RG214HF/Nm/ Nm/2000	TeltestBlack5	E4850	25-Oct-23
Coax Cable	OATS Turntable Cable 2	Intelcom	RG215	OATS3	E4995	27-Oct-23
Coax Cable	2m Black	Suhner	RG214HF/Nm/ Nm/2000	TeltestBlack7	E5004	26-Oct-23
Coax Cable	2m Black	Suhner	RG214HF/Nm/ Nm/2000	TeltestBlack8	E5005	25-Oct-23
Coax Cable	3m Blue	Suhner	Sucoflex 126EA	503429/126EA	E5015	25-Oct-23
Coax Cable	1.5m Blue	Suhner	Sucoflex 126EA	502868/126EA	E5028	25-Oct-23
Environ. Chamber	Chest	Contherm	Chest	E3397	E3397	28-Nov-24
Filter High Pass/ Notch	135 to 175MHz	Tait		N/A	E3382	27-Jun-23
Filter High Pass/ Notch	235 to 370MHz	Tait		N/A	E3784	28-Jun-23
Filter High Pass/ Notch	400 to 520MHz	Tait		N/A	E3384	27-Jun-23
Filter High Pass/ Notch	550 to 885MHz	Tait		N/A	E3785	27-Jun-23
Modulation Analyser	TREVA2	Hewlett Packard	HP8901B (Opt 002)	2441A00393	E3073	10-Oct-23
Modulation Analyser	Includes Audio Analyser	Rohde & Schwarz	FMA0852.8500.52	842541/001	E3554	19-Mar-23
Modulation Analyser	TREVA1	Hewlett Packard	HP8901B (Opt 002)	3704A05837	E3786	17-Oct-23
OATS	Controller	Electrometrics	EM-4700	119	E4445	

Equipment Type	Information	Manufacturer	Model No	Serial No#	Tait ID	Cal Due
OATS	Turntable	Electrometrics	EM-4704A	105	E4446	
OATS	Antenna Tower	Electrometrics	EM-4720-2	112	E4447	
Oscilloscope	100MHz Digital	Tektronics	TDS340	B013611	E3585	16-Oct-23
Oscilloscope	400MHz	Tektronics	TDS380	B017095	E3782	9-Oct-23
Power Meter	TREVA2 Power Head for HP8901	Hewlett Packard	HP11722A	2716A02037	1575	7-Oct-23
Power Meter	TREVA1 Power Head for HP8901	Hewlett Packard	HP11722A	3111A05573	E7054	13-Oct-23
Power Supply		Rohde & Schwarz	NGS M32/10 192.0810.31	Fnr 434	E3556	6-May-23
Power Supply	TREVA2 60V/25A	Agilent	N5767A	US09F4901H	E4656	8-Oct-23
Power Supply	40V/38A	Agilent	N5766A	US09E4663L	E4719	4-Oct-23
Power Supply	60V/25A	Agilent	N5767A	3111A05573	E4979	9-Oct-24
RF Amplifier	+21.7 dB 1GHz	Tait	ZFL-1000LN	E3660	E3360	5-Aug-23
RF Amplifier	Pre-amplifier	Agilent	87405C	MY47010688	E4941	11-Oct-24
RF Attenuator	30dB 250W	Weinschel	45-30-34	JW663	E3386	25-Oct-23
RF Attenuator	10dB 50W	Weinschel	24-10-34	AZ0401	E3388	25-Oct-23
RF Attenuator	TREVA2 20dB 150W	Weinschel	40-20-33	CJ405	E3733	26-Oct-23
RF Attenuator	30+3dB 350W	Weinschel	67-30-33 & BW-N3W5+	CK9178	E5023	25-Oct-23
RF Attenuator	10dB 50W	Weinschel	24-10-34	BC3293	E4364	25-Oct-23
RF Attenuator	TREVA2 3dB	Weinschel	Model 1	BL9950	E4080	26-Oct-23
RF Attenuator	TREVA1 3dB	Weinschel	Model 1	BL9958	E4081	26-Oct-23
RF Attenuator	TREVA1 20dB 150W	Weinschel	40-20-23	MF817	E4082	26-Oct-23
RF Attenuator	3dB 0.5W	Weinschel	Model 1	CH6863	E5013	26-Oct-23
RF Chamber	S-LINE TEM CELL	Rohde & Schwarz	1089.9296.02	338232/003	E3636	
RF Chamber	Reverb - Stirrer controller for reverb chamber	Teseq	Stirrer Controller	29765.1	E4854	
RF Chamber	Reverb - 0.5 - 18GHz Reverberation Chamber	Teseq	RVC XS	29765	E4855	
RF Combiner	TREVA1	Minicircuits	ZFSC-4-1	-	E4083	
RF Combiner	TREVA2	Minicircuits	ZFSC-4-1	-	E4084	
RF Load	50W	Weinschel	F1426	BF0487	E3675	26-Oct-23
Signal Generator	Analog 3.2GHz	Hewlett Packard	HP8648C	3443U00543	E3558	8-Oct-23
Signal Generator	Analog 1GHz	Hewlett Packard	HP8648A	3430U00344	E3579	8-Oct-23
Signal Generator	Analog 4GHz	Agilent	E4422B	GB40050320	E3788	8-Oct-23
Signal Generator	Digital 3GHz	Agilent	E4438C	MY45093154	E4600	2-Feb-24
Signal Generator	Digital 3GHz	Agilent	E4438C	MY49070242	E4657	2-Feb-24
Signal Generator	Digital 4GHz	Agilent	E4437B	US39260389	E4764	19-Oct-23
Signal Generator	TREVA1 Analog 3.2GHz	Agilent	E8663D	MY50420224	E4908	18-Oct-24
Signal Generator	Analog 12.75GHz	Rohde & Schwarz	SMB100A	183236	E11369	24-Oct-23
Spectrum Analyser	13.2GHz	Hewlett Packard	HP8562E	3821A00779	E3715	18-Oct-23
Spectrum Analyser	13.2GHz	Agilent	PSA E4445A	MY42510072	E4139	18-Oct-24
Spectrum Analyser	26.5GHz	Agilent	PXA N9030A	MY49432161	E4907	18-Feb-23

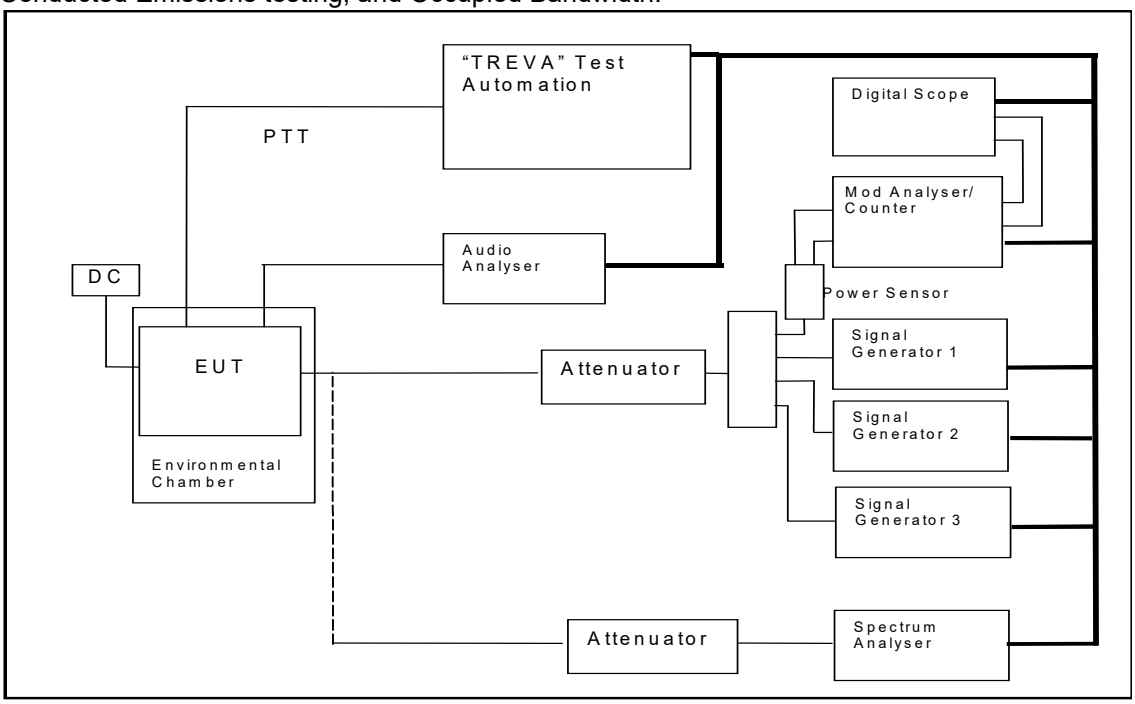
Equipment Type	Information	Manufacturer	Model No	Serial No#	Tait ID	Cal Due
Temp & Humidity datalogger		Hobo	U21-011	10134276	E4981	26-Jul-23
TREVA 1		Teltest	-	1	-	
TREVA 2		Teltest	-	2	-	
Testware	Conducted Emissions		March 2018	-	-	
Testware	Frequency Vs Temperature		April 2018	-	-	
Testware	Occupied Bandwidth		TTEL_OCCBW 2.00.01	-	-	
Testware	Radiated Emissions		APRIL 2018	-	-	
Testware	Reverb Emissions		TTEL_REVEMIS 2.00.03	-	-	
Testware	Sideband Spectrum		February 2017	-	-	
Testware	S-Line Radiated Emissions		TTEL_SLINERADEM 2.00.01	-	-	
Testware	TREVA		TTEL_TREVA 2.00.00	-	-	
Testware	Spec An Correction Loader		June 2019	-	-	

* NOTE: Items without calibration dates are calibrated immediately before use, or set using calibrated instruments.

ANNEX A – TEST SETUP DETAILS



All other testing is performed using the **T**eltest **R**adio **EVA**luation system (TREVA), which is configured as shown below. The Spectrum Analyser is connected to the EUT via the attenuator network for Conducted Emissions testing, and Occupied Bandwidth.



END OF REPORT 4239 SECTION C