F2 Labs
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United States of America
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CERTIFICATION TEST REPORT

Manufacturer:	**TimeKeeping Systems, Inc.** **30700 Bainbridge Road, Suite H** **Solon, Ohio 44139** **United States of America**
Applicant:	**Same As Above**
Product:	**Guard1 Tracking Wristband Tag**
Model:	**TAG-001**
FCC ID:	**MTD-TAG-001**
Testing Commenced:	**Aug. 12, 2014**
Testing Ended:	**Aug. 13, 2014**
Summary of Test Results:	**Page 4**

Standards:

- **FCC Part 15 Subpart C, Section 15.247**

Evaluation Conducted by: Joe Knepper, EMC Proj. Eng.

Report Reviewed by: Ken Littell, EMC Tech. Mgr.

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1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD**.**

1.2 Measurement Procedure:

All measurements were performed according to the 2009 version of ANSI C63.4 and recommended FCC procedure of measurement of DTS operating under Section 15.247 and in KDB558074. A list of the measurement equipment can be found in Section 6.

1.3 Uncertainty Budget:

Radiated Emission

- Combined Uncertainty (+ or -) 2.24 dB
- Expanded Uncertainty (+ or -) 4.48 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.4 Document History

Document Number	Description	Issue Date	Approved By
F2LQ5728C-01E	First Issue	Aug. 22, 2014	K. Littell

2 SUMMARY OF TEST RESULTS

Test Name	Standard(s)	Results
-6dB Occupied Bandwidth	CFR 47 Part 15.247(a)(2) / KDB558074	Complies
Conducted Output Power	CFR 47 Part 15.247(b)(3) / KDB558074	Complies
Conducted Spurious Emissions	CFR 47 Part 15.247(d) / Part 15.209 / KDB558074	Complies
Radiated Spurious Emission with 0dBi Integral Antenna	CFR 47 Part 15.247(d) / Part 15.209 / KDB558074	Complies
Peak Power Spectral Density	CFR 47 Part 15.247(e) / KDB558074	Complies

Note: The product was operated using internal battery. The product gets molded and the battery cannot be recharged or replaced. The EUT is disposed of when the battery dies. Requirements of 15.31 were met by using new batteries.

Modifications Made to the Equipment
None

3 TABLE OF MEASURED RESULTS

Test	High Channel 2.480GHz	Mid Channel 2.425GHz	Low Channel 2.402GHz
Conducted Output Power	0.176mW -7.54Bm	0.0479mW -13.2dBm	0.1746mW -7.58dBm
Conducted Output Power Limit	1 Watt, (30dBm)	1 Watt, (30dBm)	1 Watt, (30dBm)
E.I.R.P. with 0dBi Integral Antenna	0.176mW (-7.54dBm)	0.0479mW (-13.2dBm)	0.1746mW (-7.58dBm)
E.I.R.P. Limit	1 Watt, (30dBm)	1 Watt, (30dBm)	1 Watt, (30dBm)
Peak Power Spectral Density	-19.55dBm	-26.23dBm	-20.80dBm
Peak Power Spectral Density Limit	8 dBm	8 dBm	8 dBm
-6dB Occupied bandwidth	0.778 MHz	0.862 MHz	0.775 MHz
-6dB Occupied Bandwidth Limit	≥ 500KHz	≥ 500KHz	≥ 500KHz

4 ENGINEERING STATEMENT

This report has been prepared on behalf of TimeKeeping Systems, Inc., to provide documentation for the testing described herein. This equipment has been tested and found to comply with Part 15.247 of the FCC Rules using ANSI C63.4 2009 and KDB558074 standards. The test results found in this test report relate only to the items tested.

5 EUT INFORMATION AND DATA

5.1 Equipment Under Test:

Product: Guard1 Tracking Wristband Tag
Model: TAG-001
Serial No.: None Spec.
FCC ID: MTD-TAG-001

5.2 Trade Name:

TimeKeeping Systems, Inc.

5.3 Power Supply:

Internal Battery

5.4 Applicable Rules:

CFR 47, Part 15.247, subpart C

5.5 Equipment Category:

Radio Transmitter-DTS

5.6 Antenna:

0dBi Integral

5.7 Accessories:

N/A

5.8 Test Item Condition:

The equipment to be tested was received in good condition.

5.9 Testing Algorithm:

The EUT was configured to permit frequency changes from low-mid-upper transmission channel using digital modulation (required for digital transmission systems). For RF antenna conducted tests, the EUT was equipped with an SMA connector for connection to the measuring equipment. For radiated emissions tests, in a semi-anechoic chamber and on the OATS, the EUT was equipped with integral/internal chip antenna. The highest emissions were recorded in the data tables.

6 LIST OF MEASUREMENT INSTRUMENTATION

Equipment Type	Asset Number	Manufacturer	Model	Serial Number	Calibration Due Date
Shield Room	0175	Ray Proof	N/A	11645	Aug. 29, 2014
Temp/Hum. Recorder	CL137	Extech	RH520	CH16992	May 5, 2015
OATS-3m	CL017	Compliance Labs	N/A	001	Dec. 13, 2014
Spectrum Analyzer	CL138	Agilent Technologies	E4407B	US41192779	Oct. 29, 2014
Receiver	CL151	Rohde & Schwarz	ESU40	100319	Oct. 30, 2014
Antenna 1-Chamber	0142	ETS/EMCO	3142B	9811-1330	Verified
Antenna 2-OATS	0105	Sunol Sciences	JB1	A101101	May 7, 2015
Pre-Amplifier	CL045	Hewlett Packard	8447D	2944A08445	Nov. 15, 2015
Pre-Amplifier	CL153	Agilent	83006-69007	MY39500900	Jan. 9, 2015
Antenna, Horn	CL114	A. H. Systems, Inc.	SAS-572	237	Sept. 6, 2014
Active 18” Loop Antenna	CL082	A.H. Systems, Inc.	SAS-562B	241	Sept. 6, 2014
Antenna, Horn	CL098	Emco	3115	9809-5580	Dec. 3, 2015
Software:	Tile Version 1.0		Software Verified: Aug. 12, 2014		
Software:	EMC 32, Version 5.20.2		Software Verified: Aug. 12, 2014		

7 FCC PART 15.247(a)(2) – OCCUPIED BANDWIDTH

7.1 Requirements:

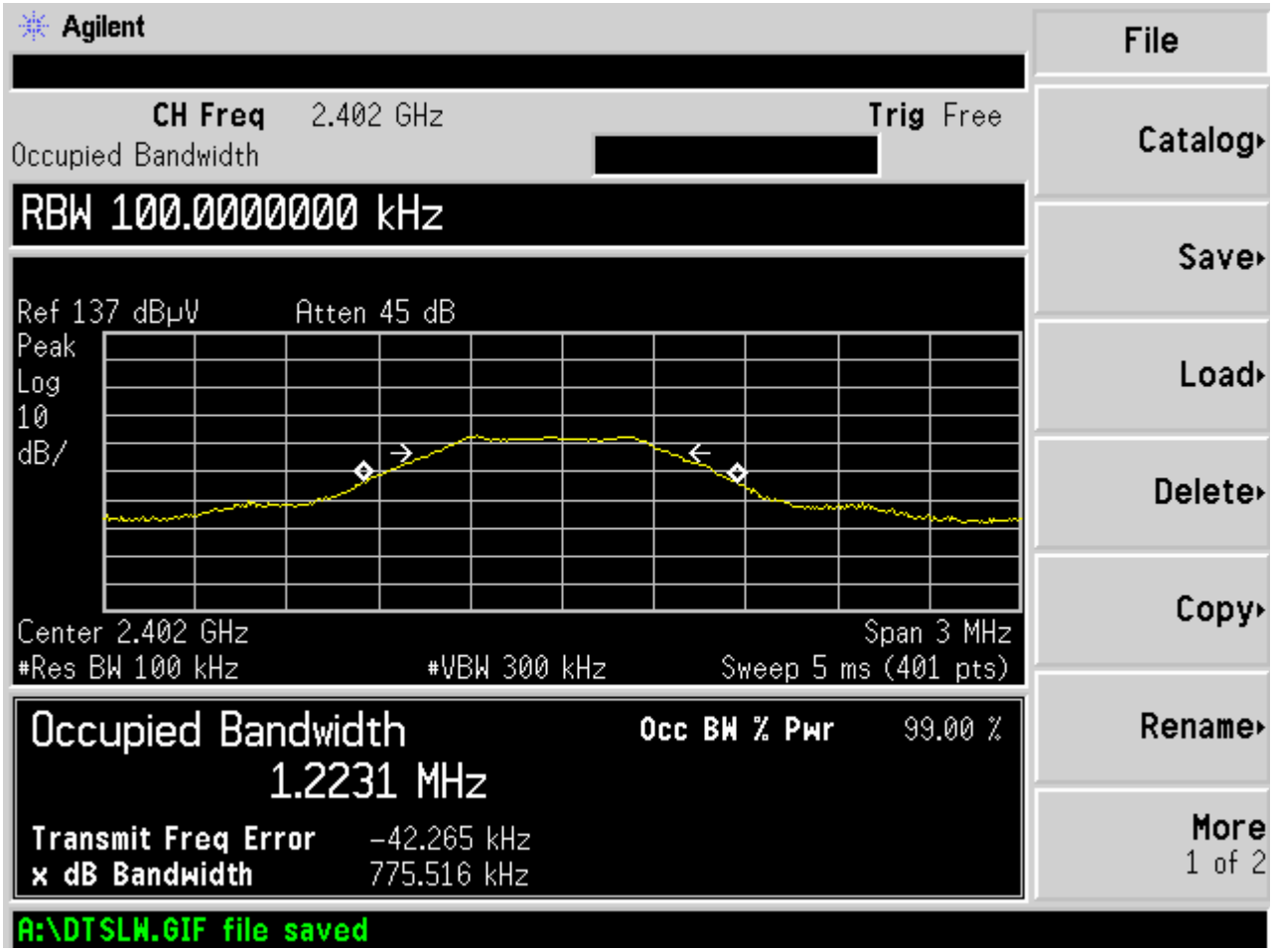
The 6dB bandwidth shall be greater than 500 kHz.

Bandwidth measurements were made at the low (2.402 GHz), mid (2.426 GHz) and upper (2.480 GHz) frequencies. The bandwidth was measured using the analyzer's marker function.

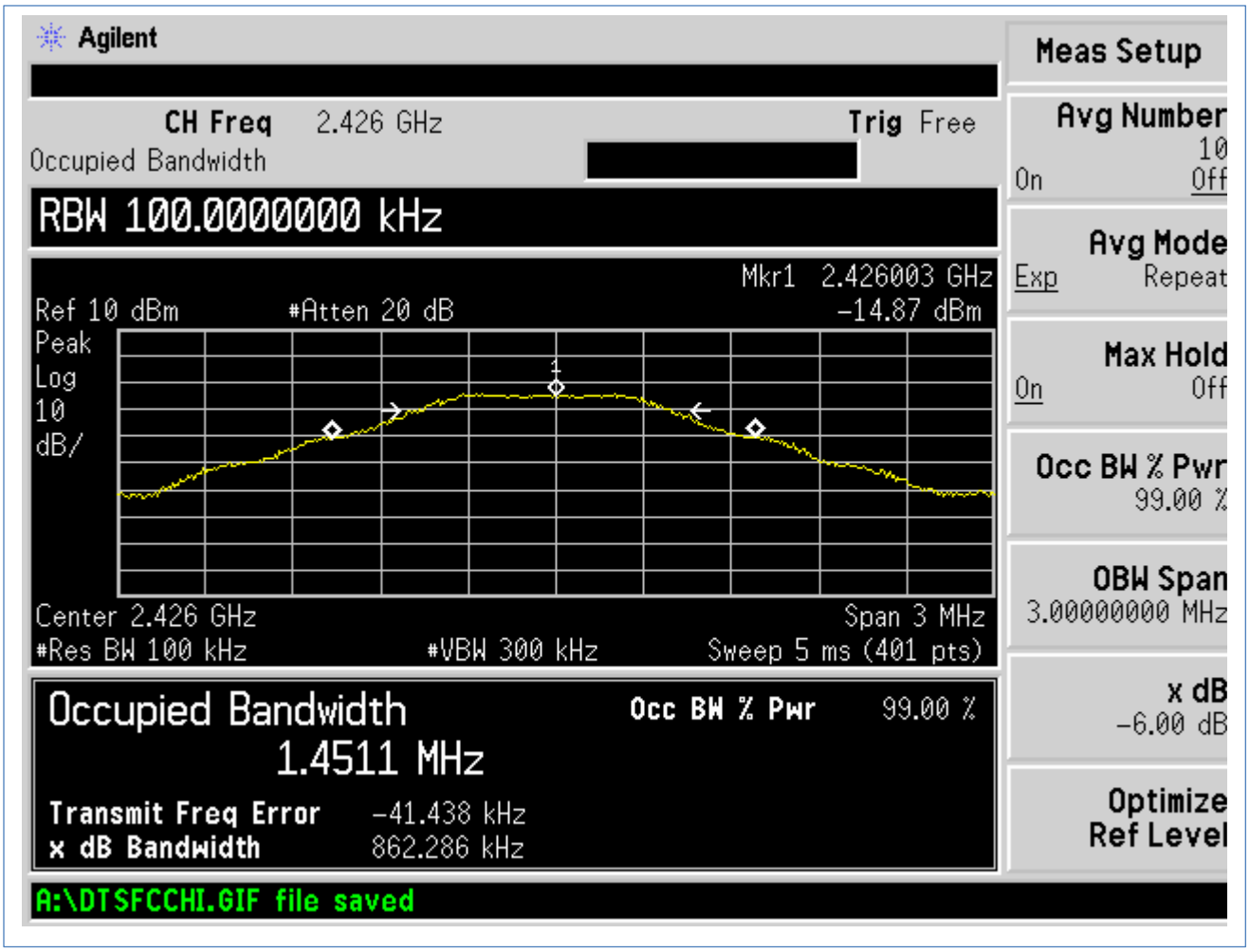
7.2 Occupied Bandwidth Test Data

Test Date:	Aug. 12, 2014	**Test Engineer:**	J. Knepper
Standards:	CFR 47 Part 15.247(a)(2); KDB558074	**Air Temperature:**	22.8ºC
		Relative Humidity:	50%

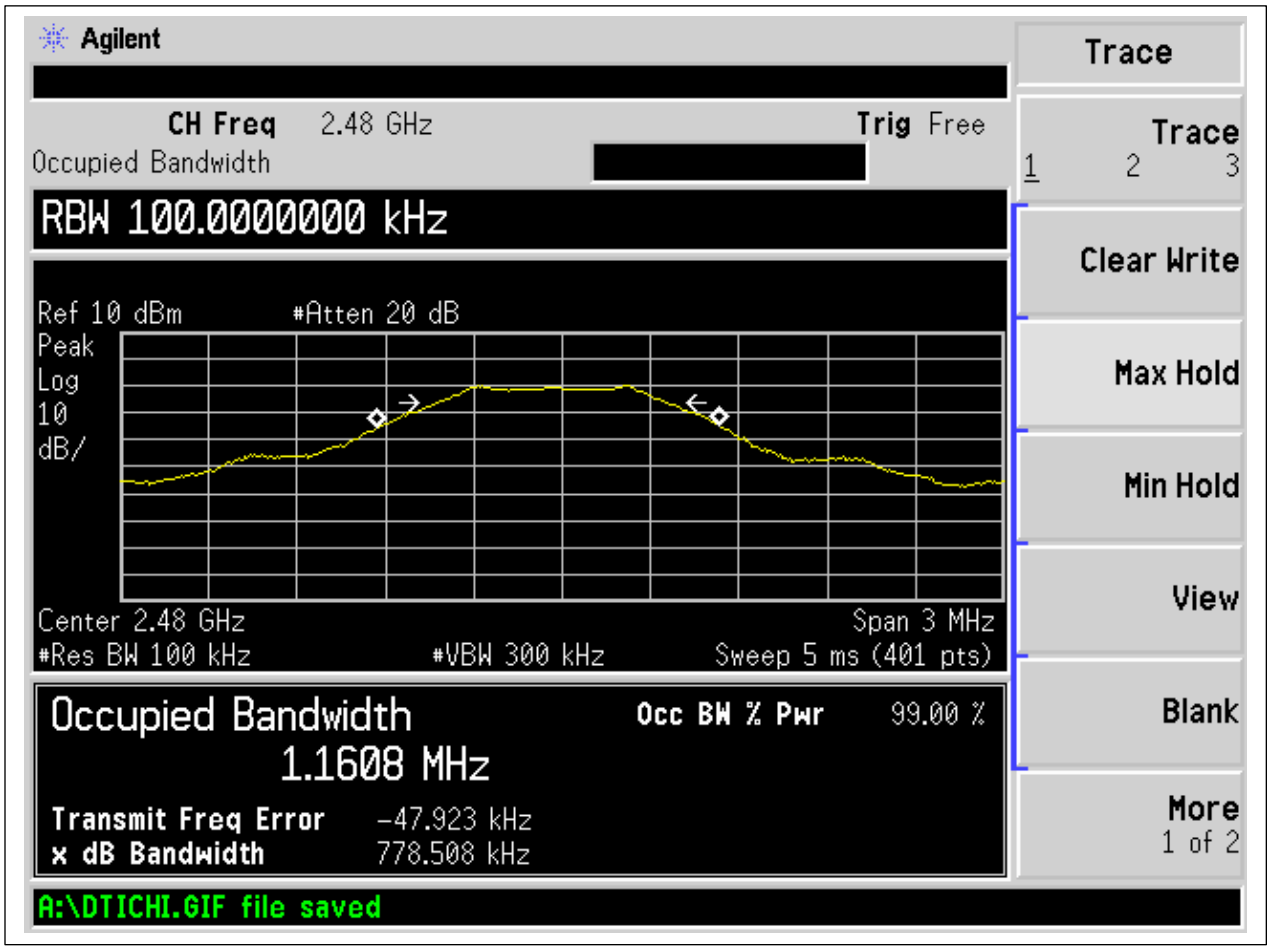
Low Channel



Mid Channel


Agilent
CH Freq 2.426 GHz
Trig Free
Occupied Bandwidth
RBW 100.0000000 kHz
Mkr1 2.426003 GHz
Ref 10 dBm
#Atten 20 dB
-14.87 dBm
Peak
Log
10
dB/
Center 2.426 GHz
Span 3 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 5 ms (401 pts)
Occupied Bandwidth
1.4511 MHz
Occ BW % Pwr 99.00 %
Transmit Freq Error -41.438 kHz
x dB Bandwidth 862.286 kHz
A:\DTSFCCHI.GIF file saved
Meas Setup
Avg Number
10
On Off
Avg Mode
Exp Repeat
Max Hold
On Off
Occ BW % Pwr
99.00 %
OBW Span
3.00000000 MHz
x dB
-6.00 dB
Optimize
Ref Level

High Channel



8 FCC PART 15.247(b)(3) – CONDUCTED OUTPUT POWER

The EUT antenna port was fitted with an SMA connector and directly connected to the input of the receiver. The peak power output was measured.

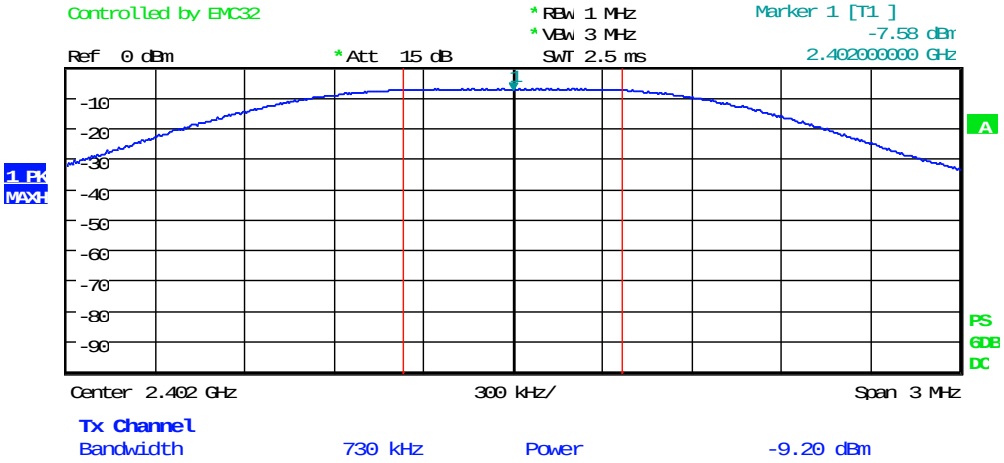
8.1 Requirements:

The peak power output shall be 1 watt (30 dBm) or less when using an antenna with a gain of less than 6dBi. For antennas having a gain of more than 6dBi, the limit is reduced by 1dB for every dB the antenna gain is over 6dBi.

8.2 Conducted Output Power Test Data

Test Date:	Aug. 12-13, 2014	**Test Engineer:**	J. Knepper
Standards:	CFR 47 Part 15.247(b)(3); KDB558074	**Air Temperature:**	23.1ºC
		Relative Humidity:	49%

Low Channel



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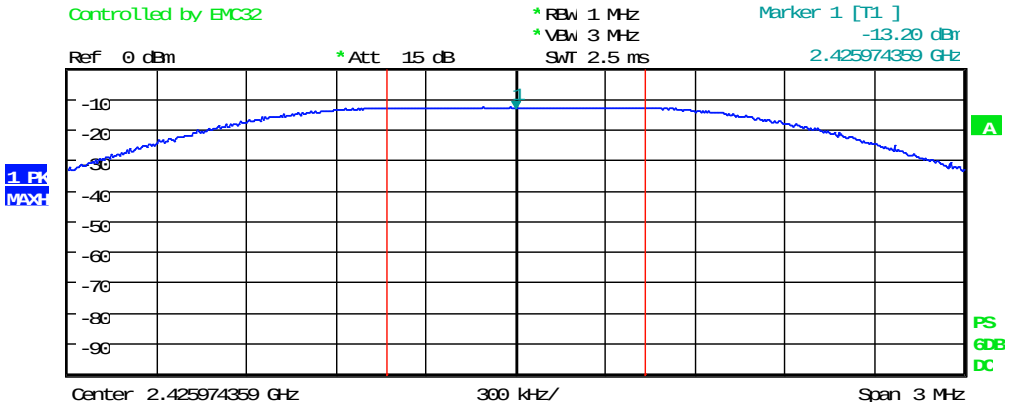
Mid Channel



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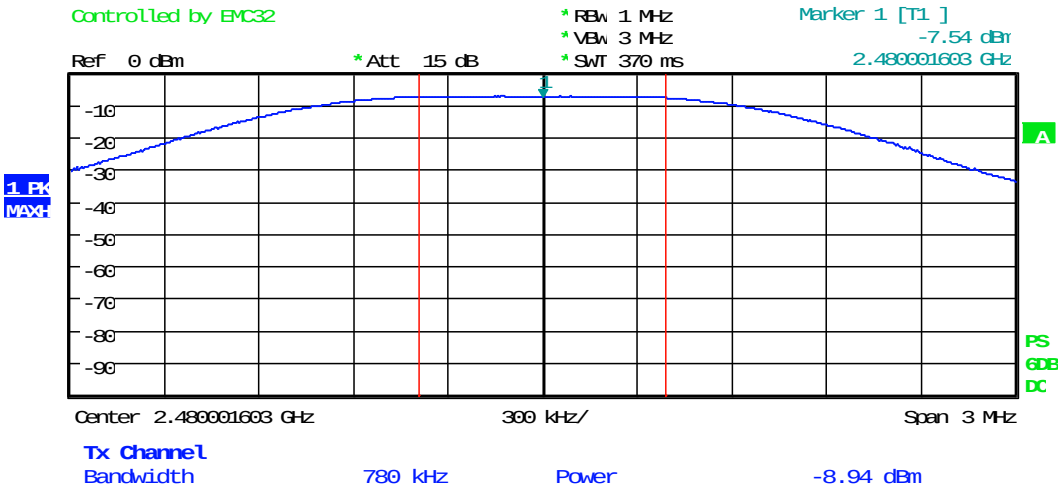
High Channel



Date: 13.AUG.2014 07:56:18

9 FCC Part 15.247(c) – CONDUCTED SPURIOUS EMISSIONS

The following tests were performed to demonstrate compliance.

RF Antenna Conducted Test

The EUT antenna port was fitted with an SMA connector and directly connected to the input of the spectrum analyzer.

9.1 Requirements:

All Spurious Emissions must be at least 20dB down from the highest emission level measured within the authorized band up through the tenth harmonic.

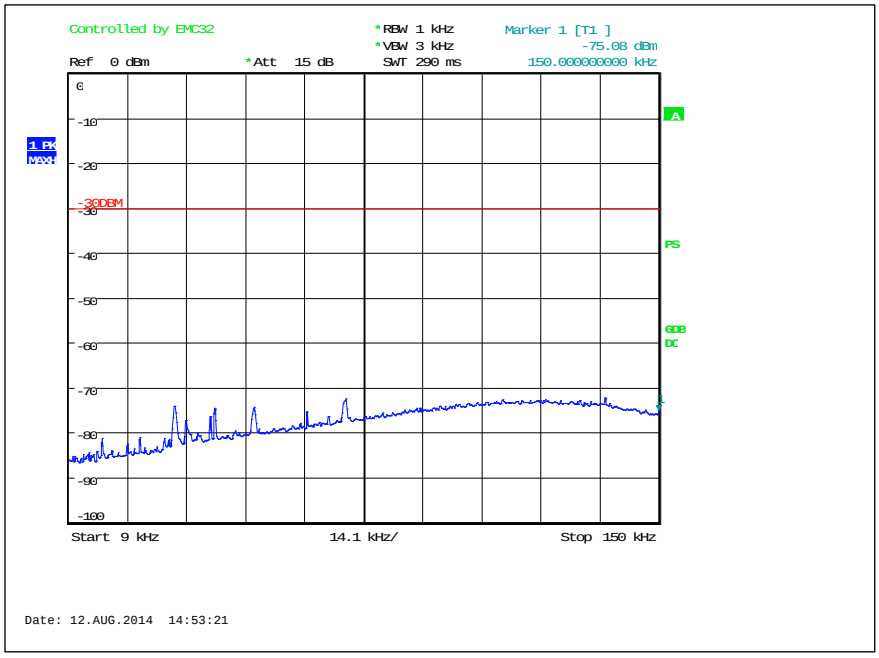
Spurious emissions measurements were made at the low, mid, and upper channels with the appropriate spectrum analyzer impulse bandwidth. Additionally, 20dB down points were measured for the low and high channels to verify band edge compliance.

9.2 Test Data – CONDUCTED SPURIOUS EMISSIONS

Test Date:	Aug. 12-13, 2014	**Test Engineer:**	J. Knepper
Standards:	CFR 47 Part 15.247(d) / Part 15.209; KDB558074	**Air Temperature:**	23.1ºC
		Relative Humidity:	49%

Low Channel: .009 MHz to 0.15 MHz

.



Low Channel: 0.15 MHz to 30.0 MHz

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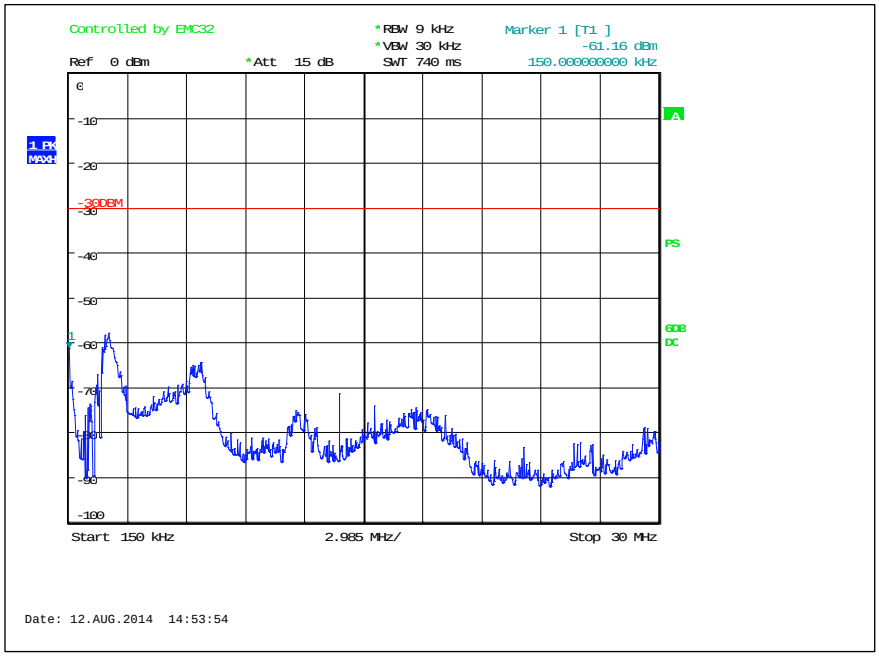
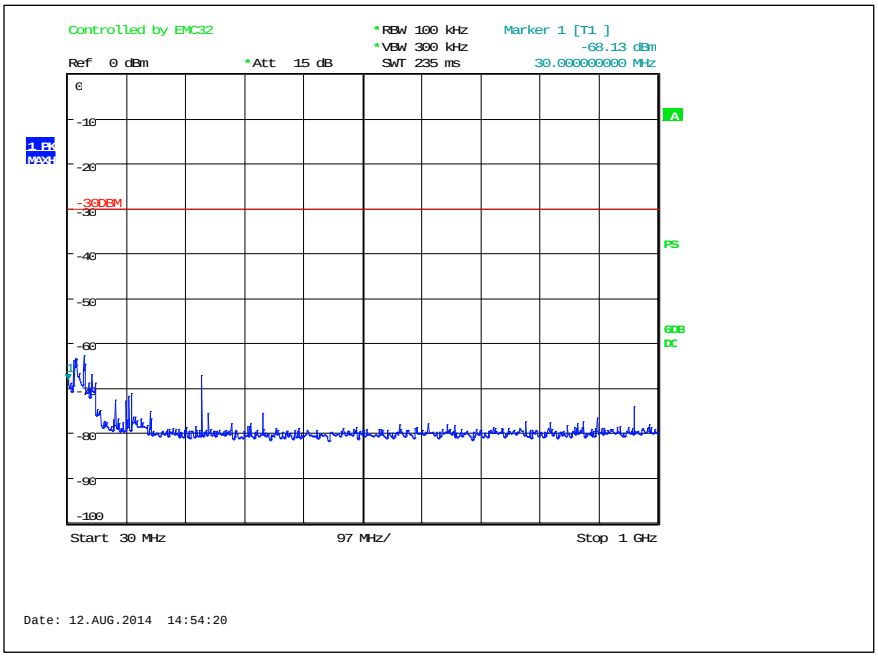


Low Channel: 30 MHz to 1000 MHz

.



Low Channel: 1 GHz to 2.3 GHz

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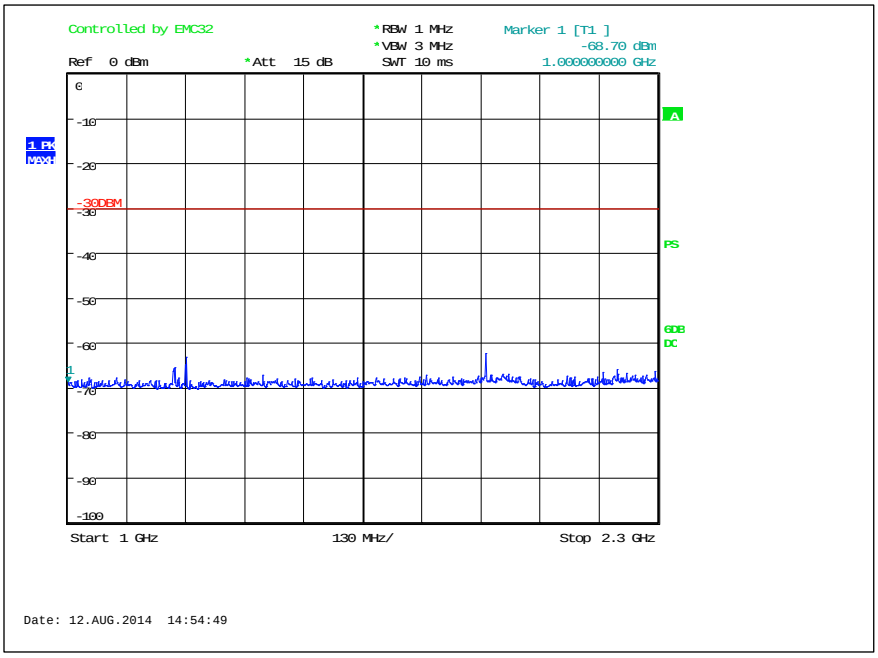

Low Channel: 2.3 GHz to 2.5 GHz

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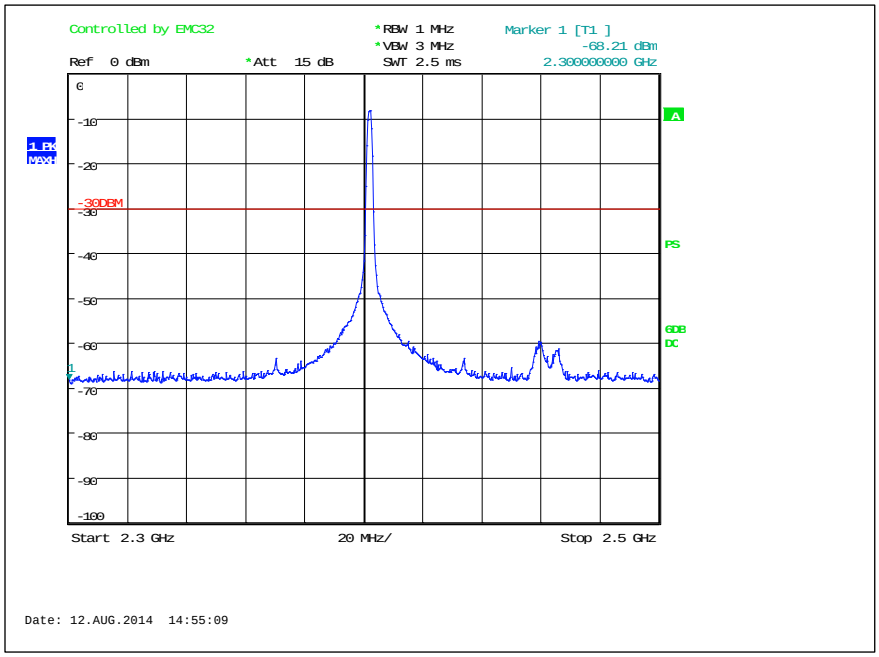

Low Channel: 2.5 GHz to 12 GHz

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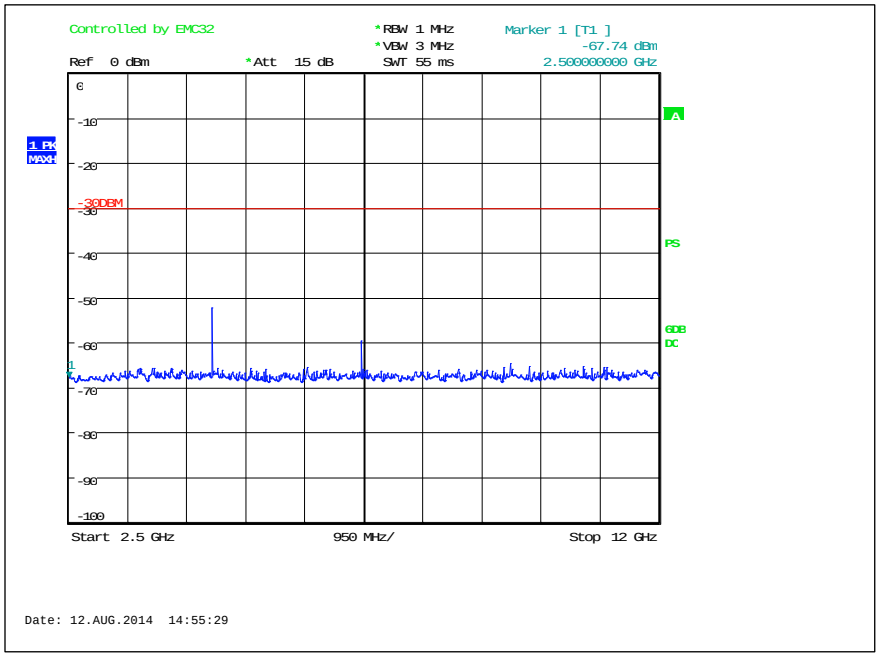

Low Channel: 12 GHz to 25 GHz

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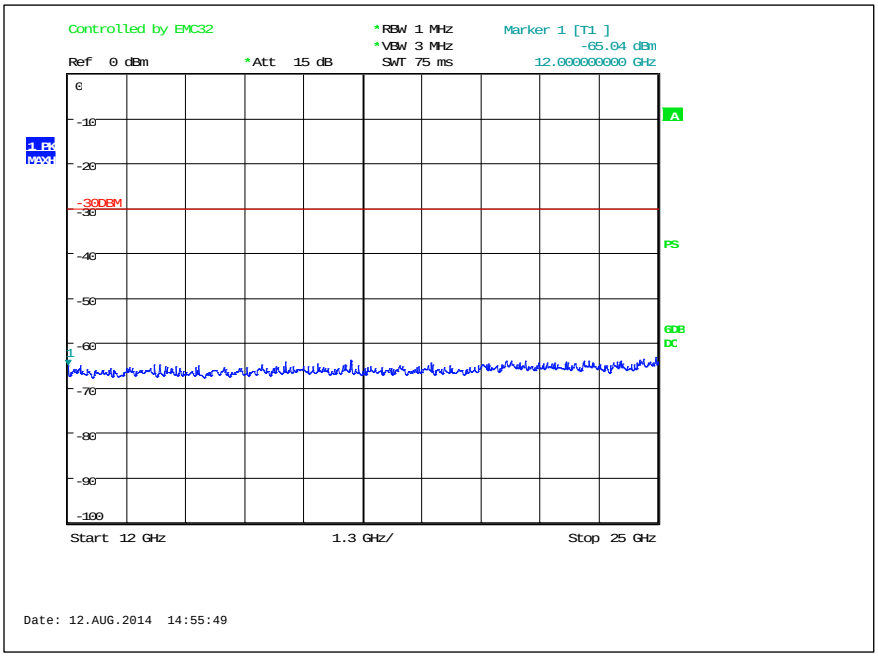

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Mid Channel: .009 MHz to 0.15 MHz

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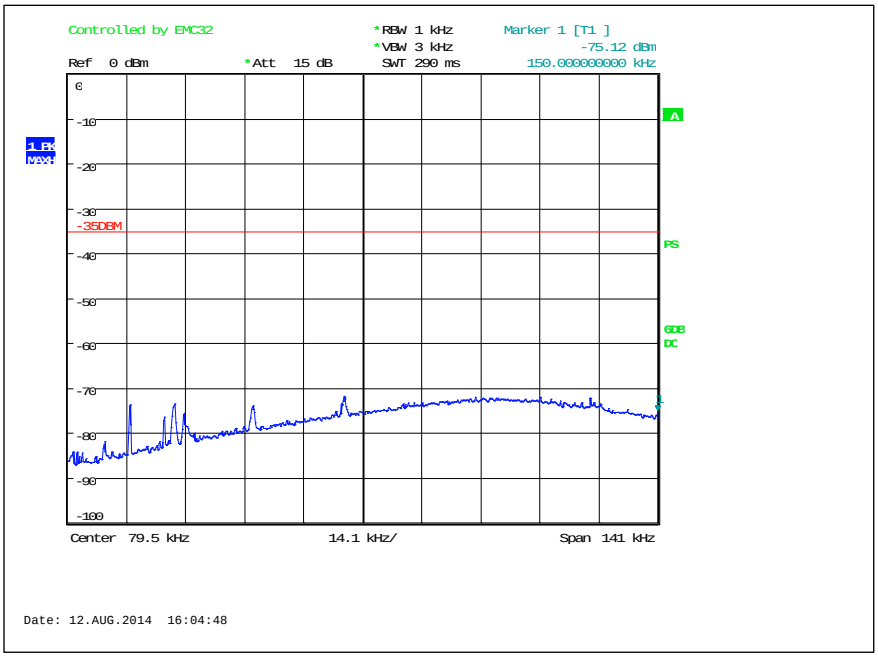

Mid Channel: 0.15 MHz to 30.0 MHz

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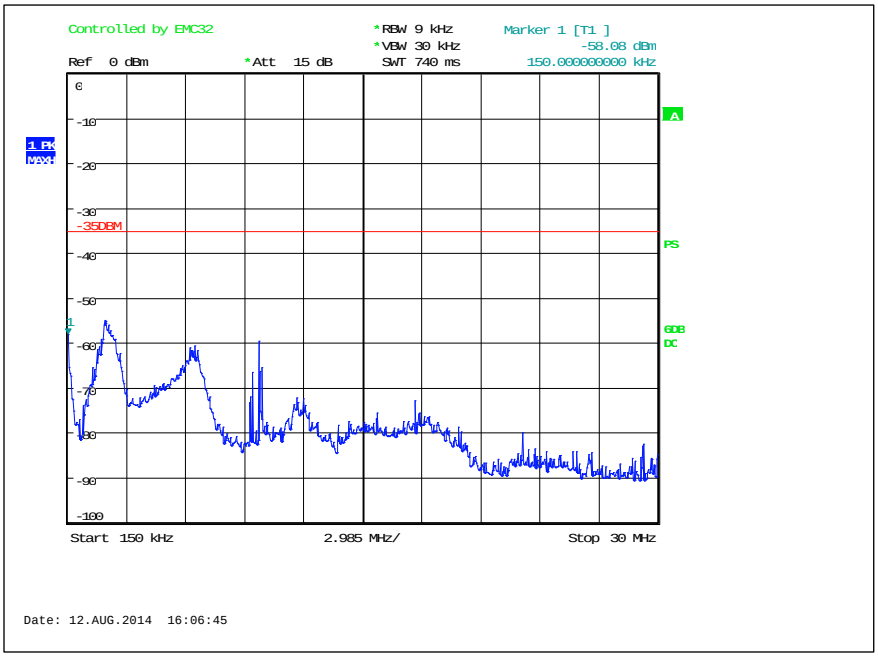

Mid Channel: 30 MHz to 1000 MHz

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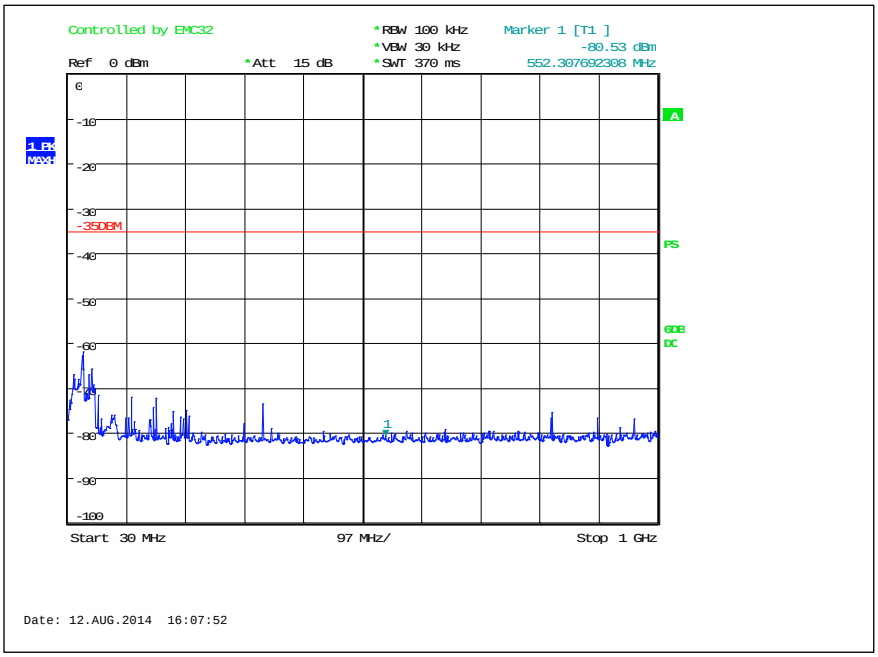

Mid Channel: 1 GHz to 2.3 GHz

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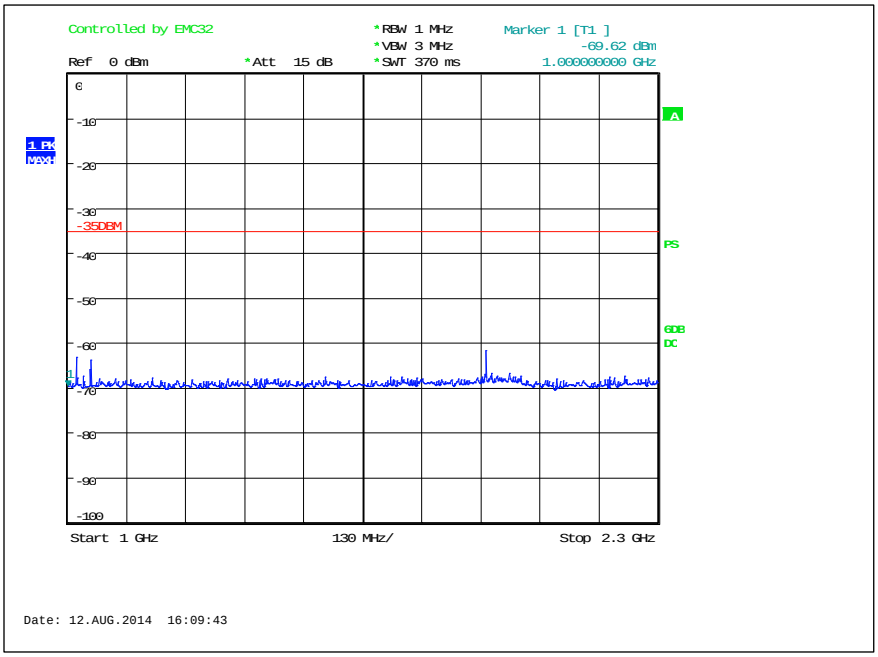
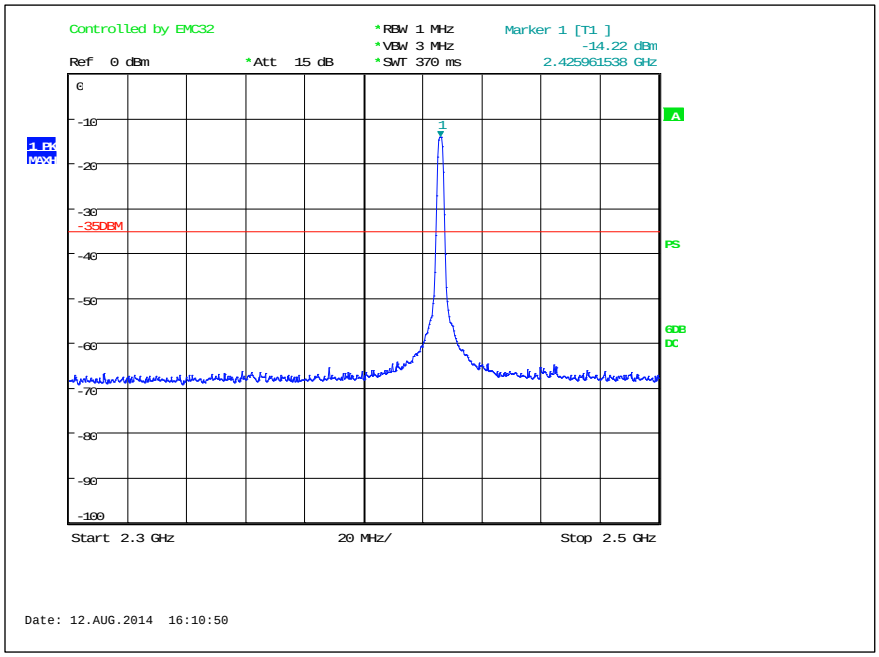
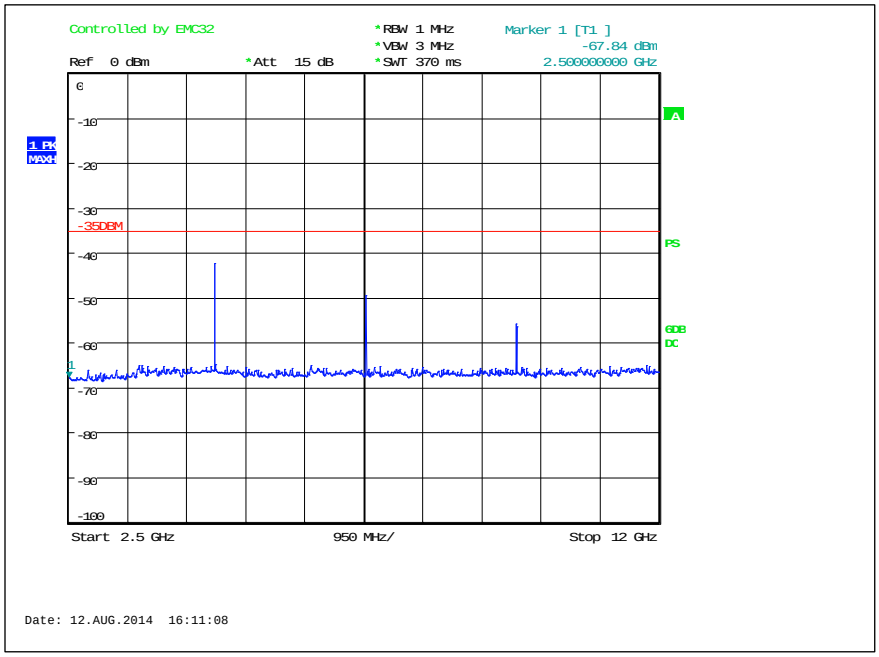


Mid Channel: 2.3 GHz to 2.5 GHz

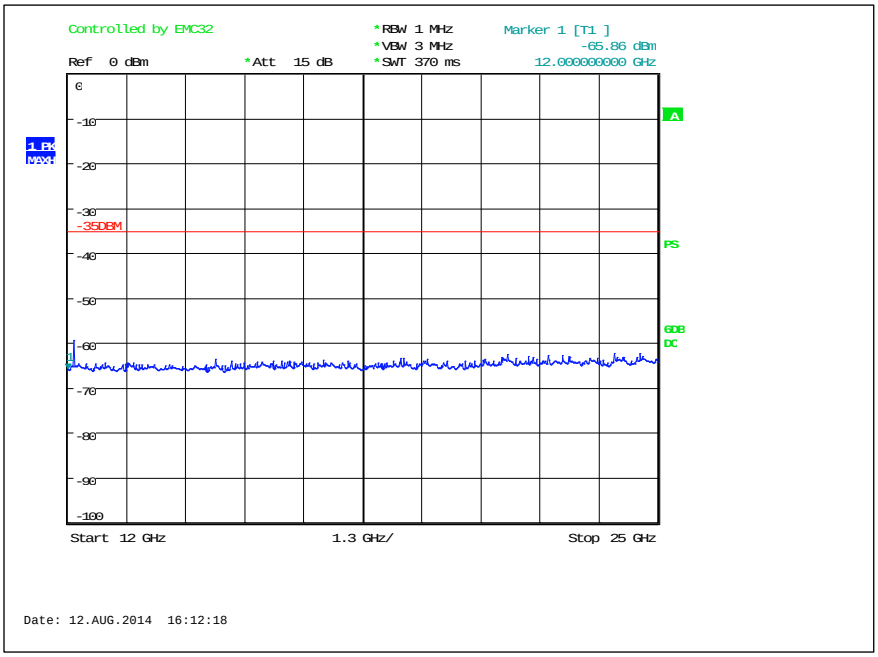


Mid Channel: 2.5 GHz to 12 GHz

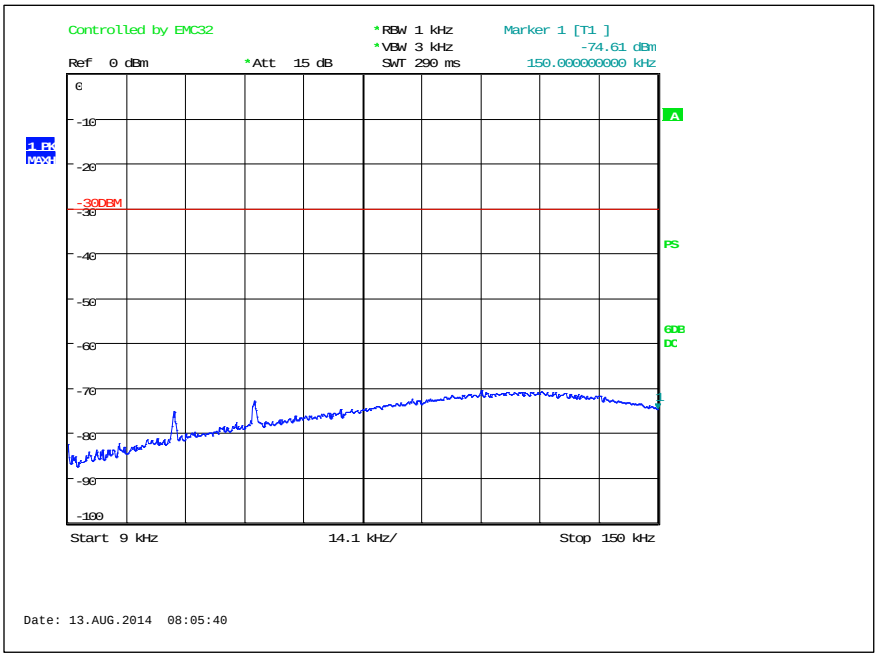


Mid Channel: 12 GHz to 25 GHz

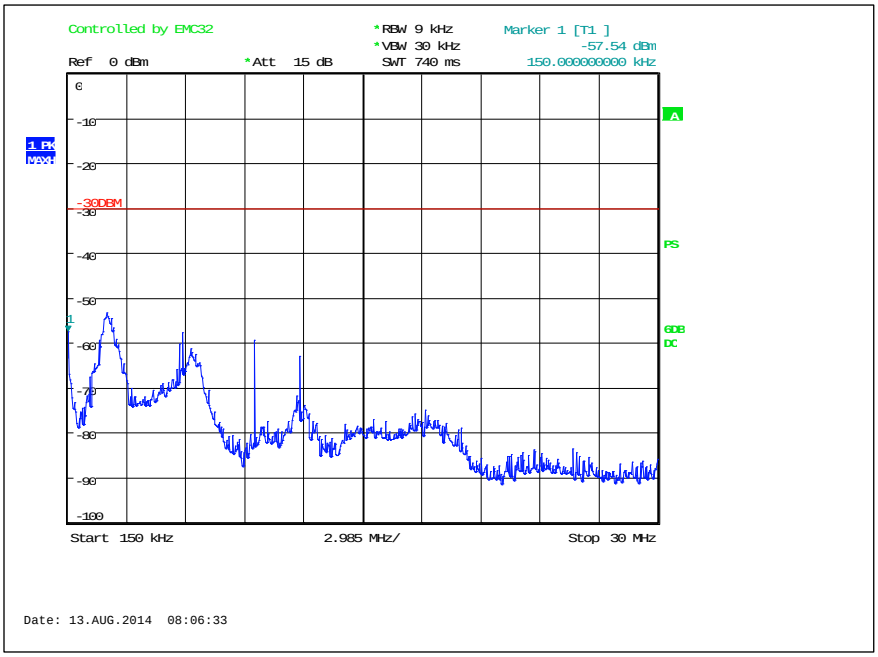
.



High Channel: .009 MHz to 0.15 MHz

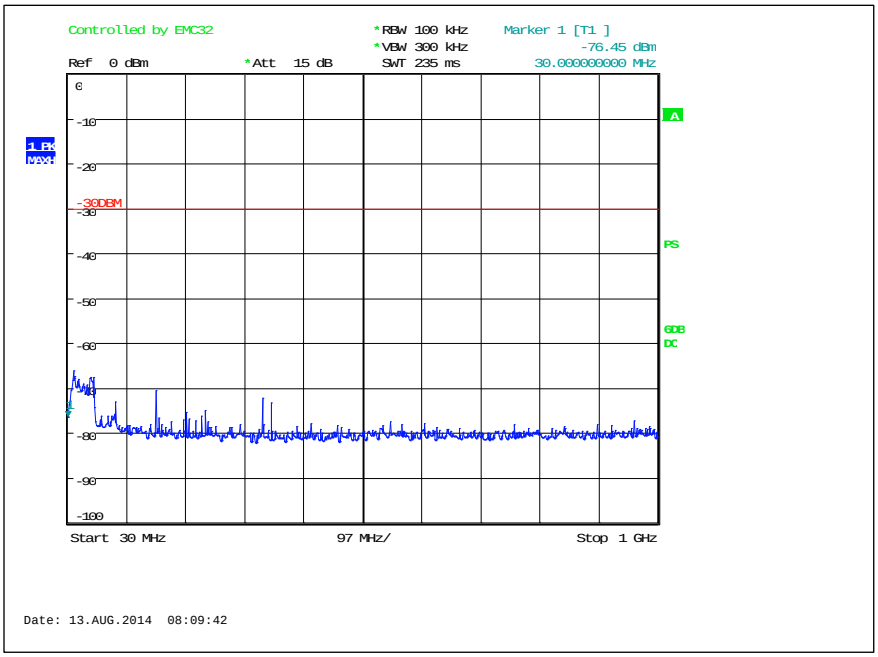


High Channel: 0.15 MHz to 30.0 MHz



High Channel: 30 MHz to 1000 MHz

.



High Channel: 1 GHz to 2.3 GHz

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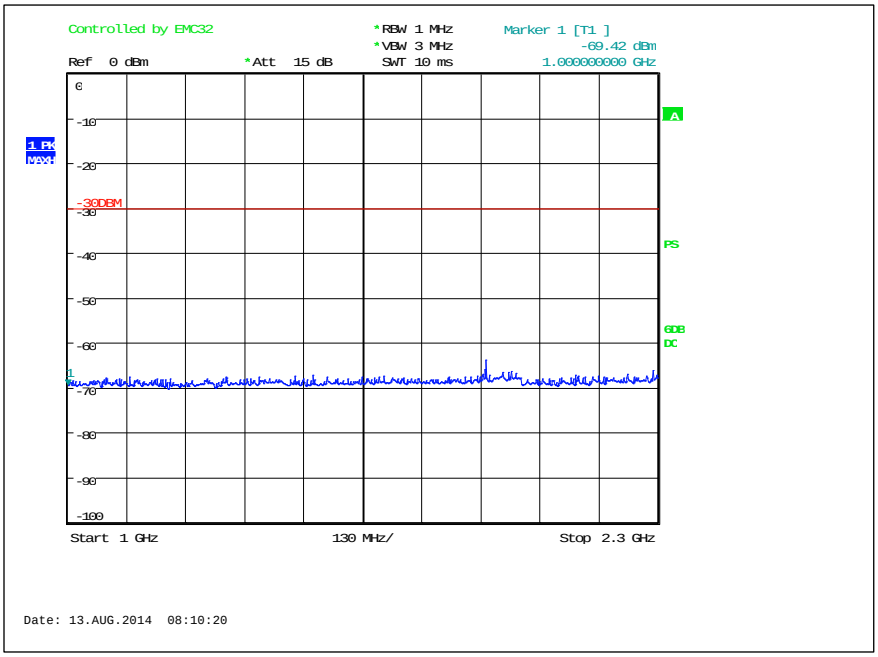
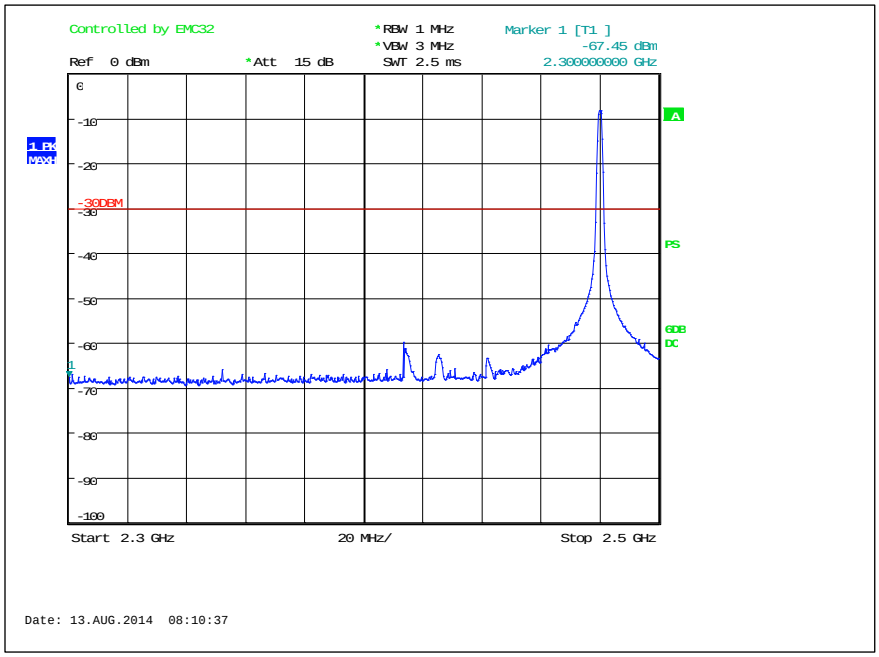
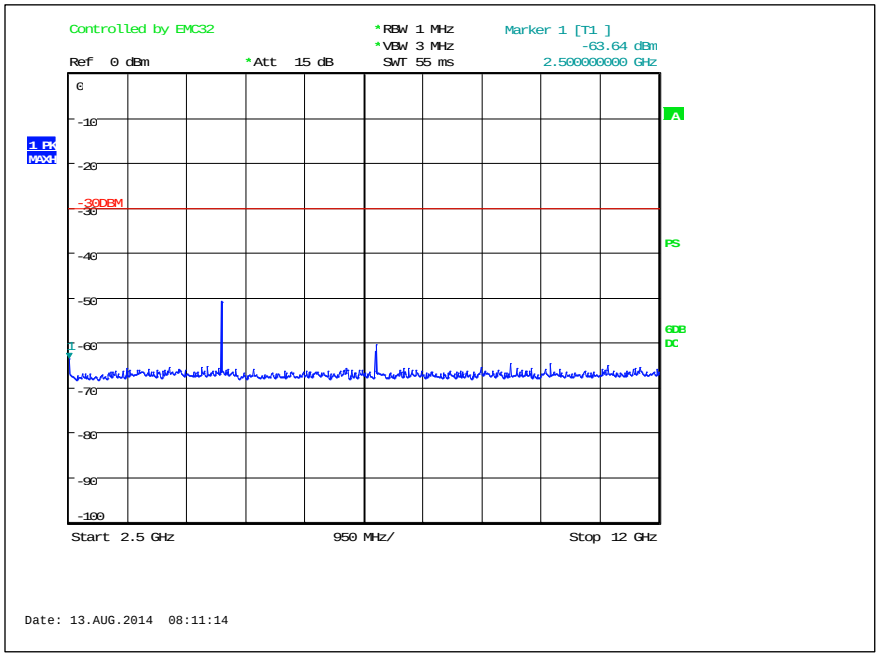


High Channel: 2.3 GHz to 2.5 GHz

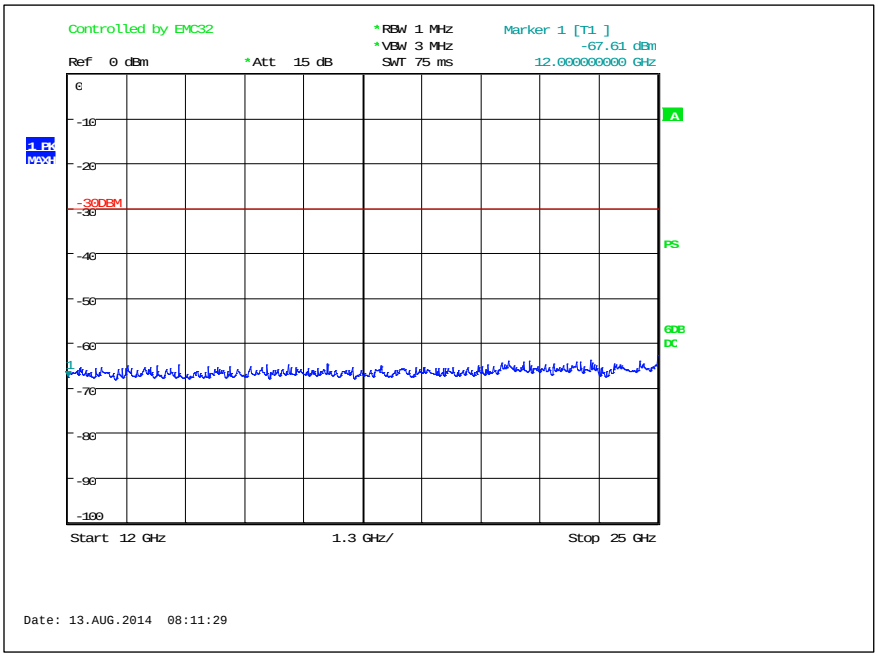


High Channel: 2.5 GHz to 12 GHz



High Channel: 12 GHz to 25 GHz

.



10 RADIATED SPURIOUS EMISSION

The EUT antenna port was fitted with its integral/internal chip antenna. Radiated emissions were measured on the Open Area Test Site (OATS). All emissions generated that fall in the restricted bands per FCC Part 15.205 were examined.

10.1 Requirements:

All emissions that fall in the restricted bands defined in FCC Part 15.205 shall not exceed the maximum field strength listed in FCC Part 15.209(a).

10.2 Radiated Spurious Emission Test Data

Test Date(s):	Aug. 13, 2014	**Test Engineer:**	J. Knepper
Standards:	CFR 47 Part 15.247(d); Part 15.209 / KDB558074	**Air Temperature:**	23.4ºC
		Relative Humidity:	60%

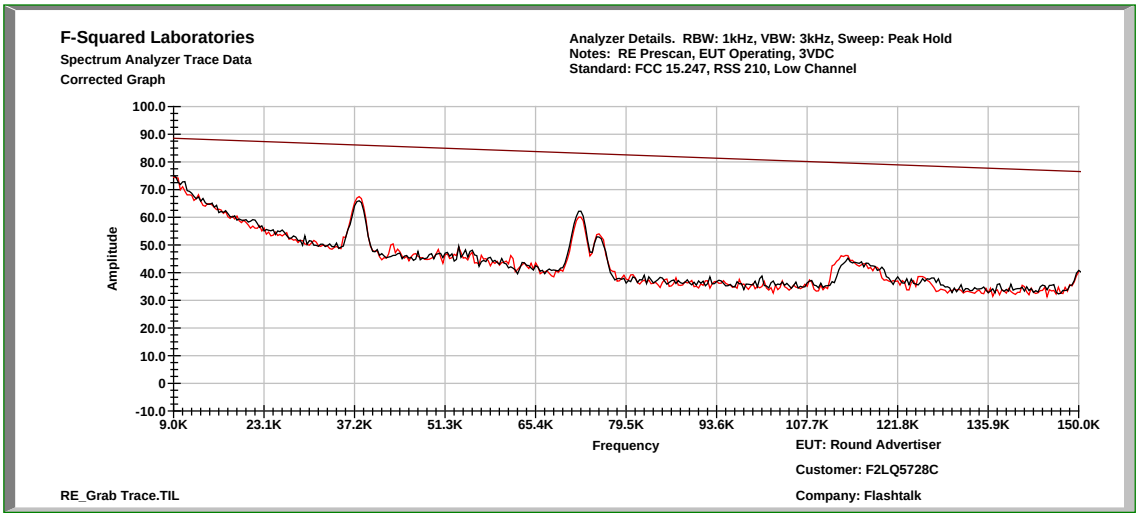
Notes: Plots are peak, max hold prescan data included only to determine what frequencies to investigate and measure. The EUT was initially placed in a semi-anechoic chamber, and rotated in all three orthogonal positions to maximize the emissions. Characterization measurements were then performed to determine at which frequencies significant emissions occurred. These graphs are shown below.

The equipment was fully exercised with all cabling attached to the EUT and was positioned on the OATS for maximum emissions. While the equipment was energized, the receiving antenna was scanned from 1.0 meter to 4.0 meters in both vertical and horizontal polarities while the turntable was adjusted 360 degrees to determine the maximum field strength. The tables of measured results can be found below.

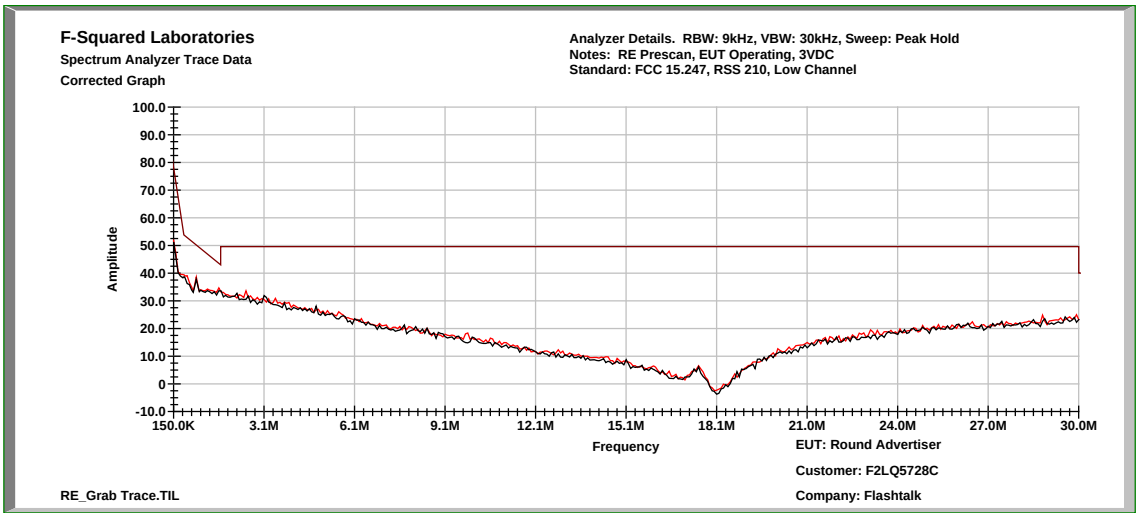
Some of the frequencies did not change with the EUT on or off. At those frequencies, the test distance was shortened to 1 meter and still no emissions from the EUT were visible or over the ambient or limit.

In the following plots, the black line indicates ambient noise and the red line indicates the measurement with the EUT on. Emissions to be found by the EUT were measured and listed in tables. The plots are for reference only and the limit lines are not actual limit lines but merely a guide.

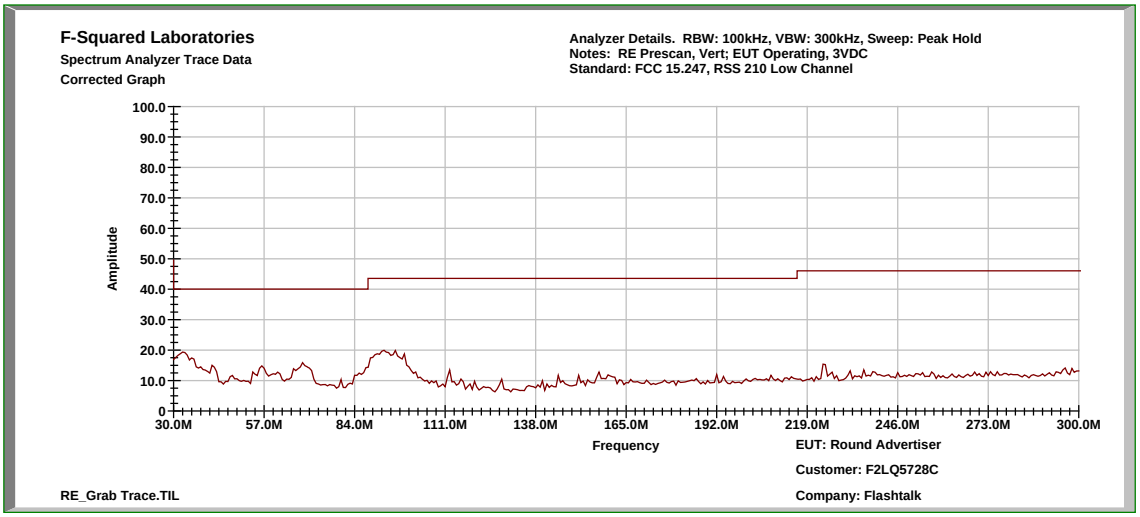
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: .009 MHz to 0.15 MHz



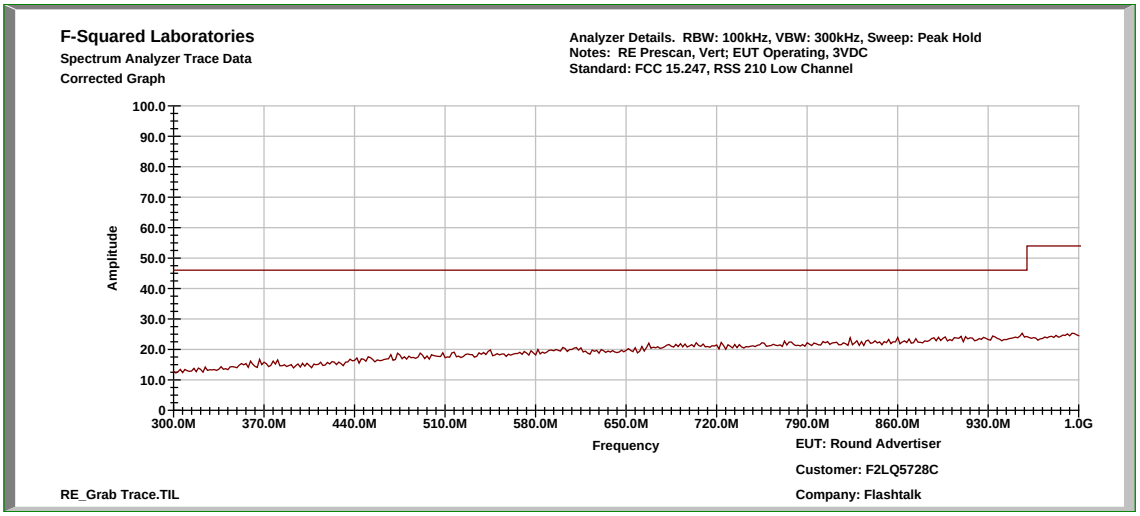
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 0.15 MHz to 30 MHz



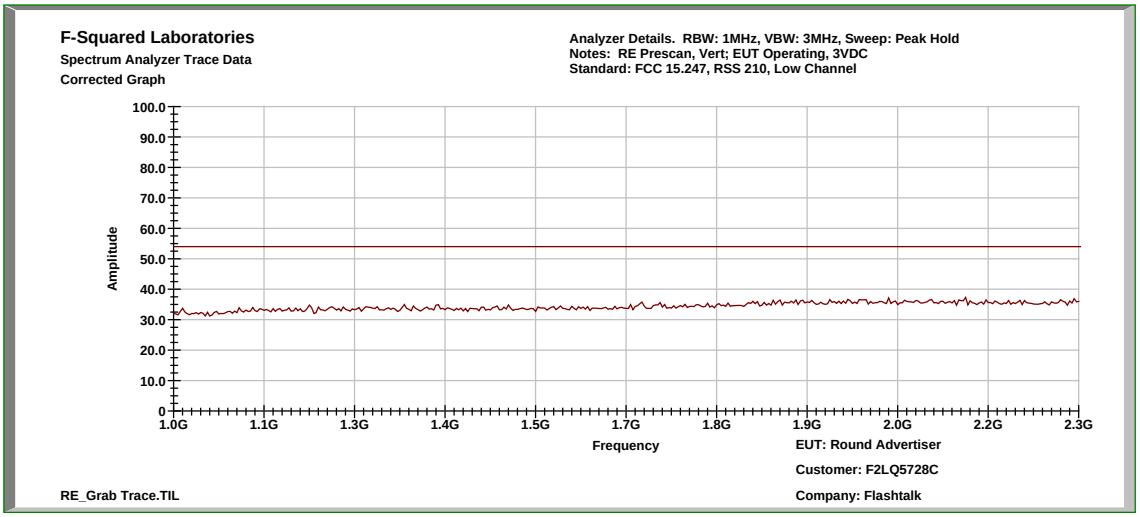
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 30 MHz to 300 MHz, Vertical



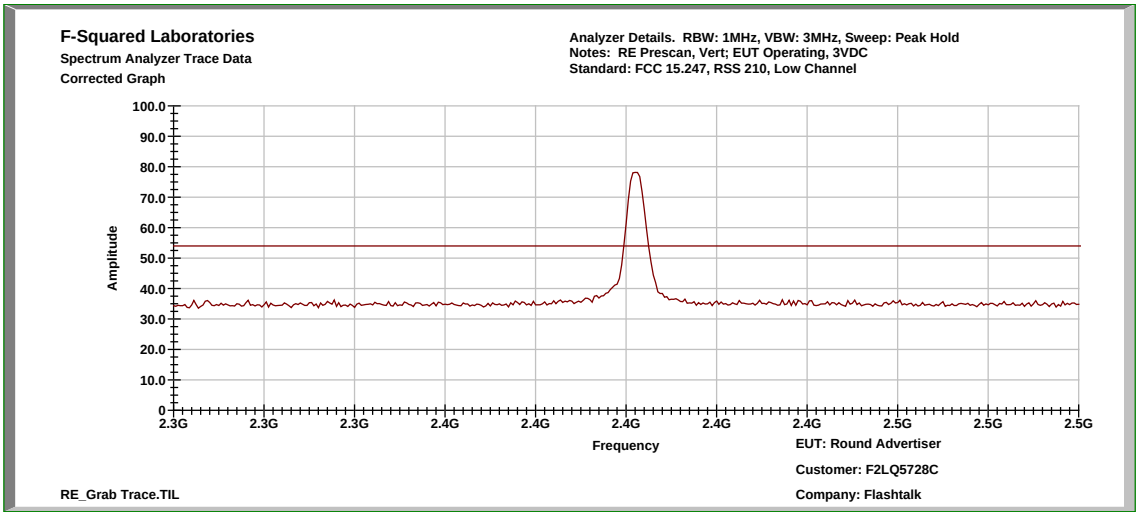
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 300 MHz to 1000 MHz, Vertical



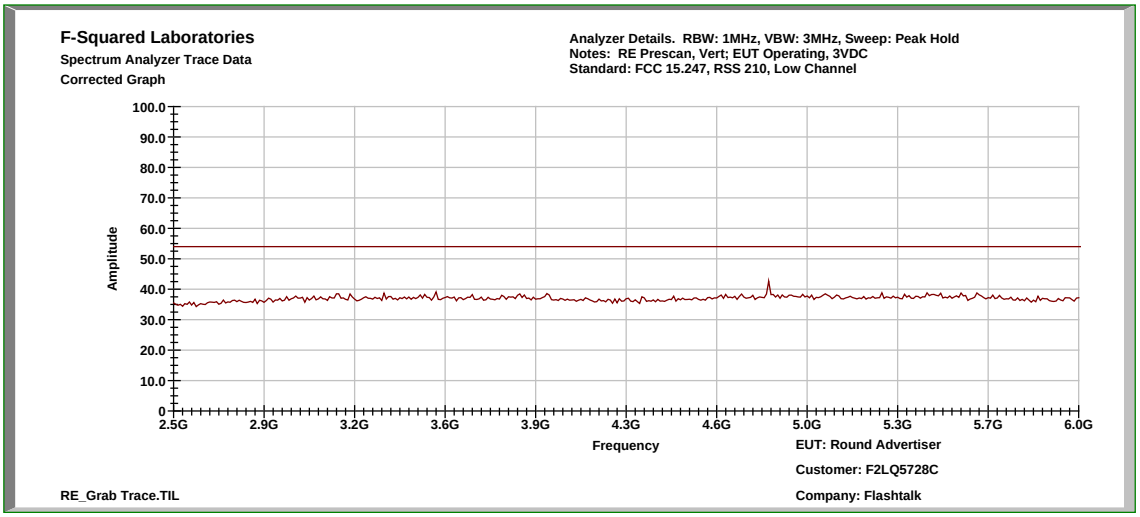
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 1 GHz to 2.3 GHz, Vertical



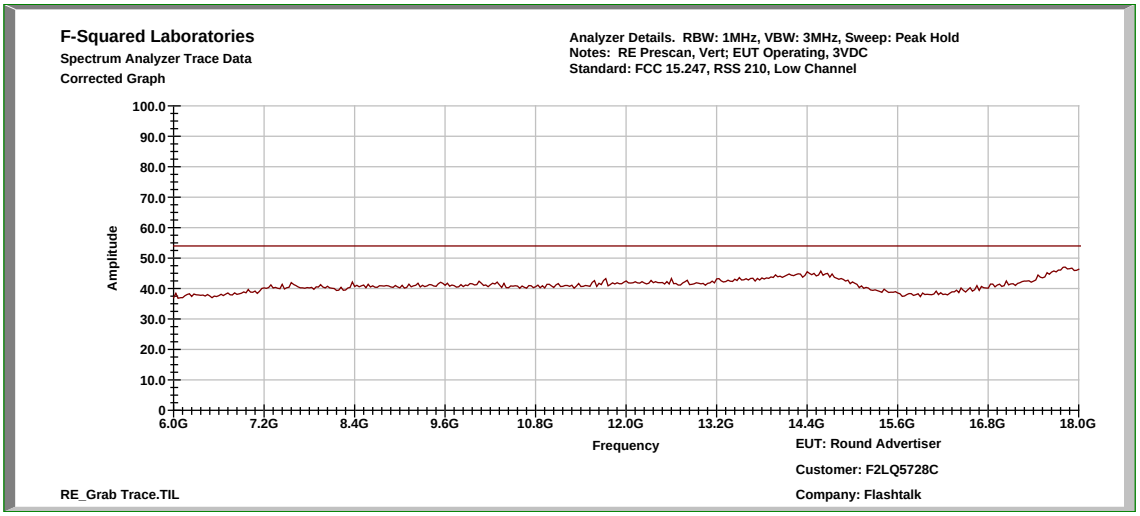
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 2.3 GHz to 2.5 GHz, Vertical



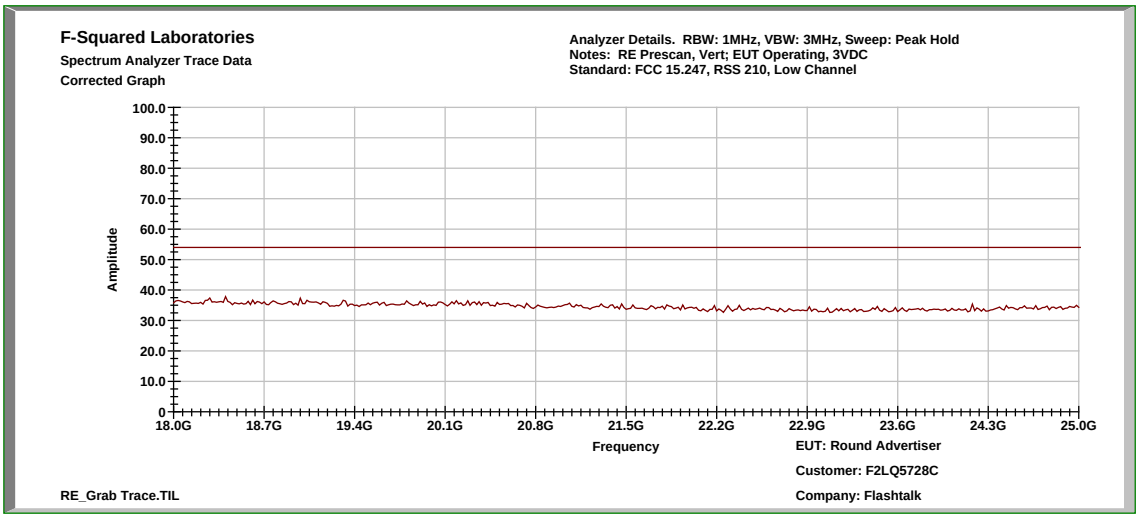
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 2.5 GHz to 6 GHz, Vertical



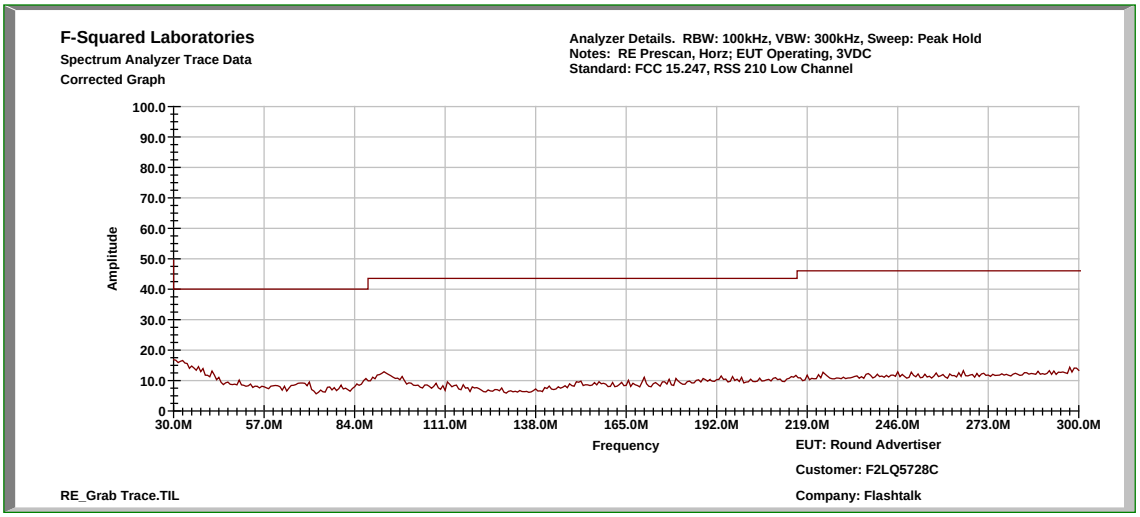
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 6 GHz to 18 GHz, Vertical



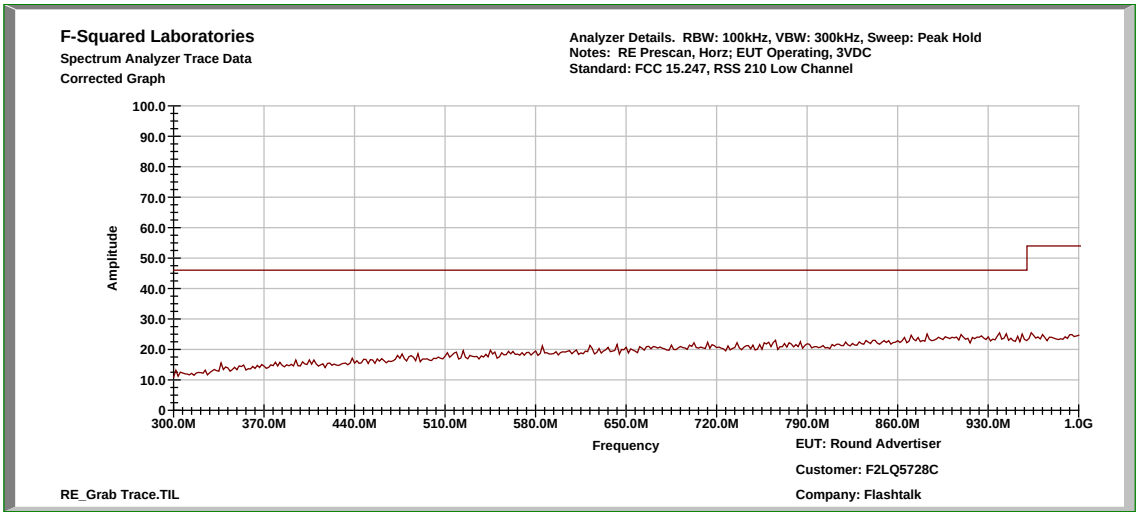
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 18 GHz to 25 GHz, Vertical



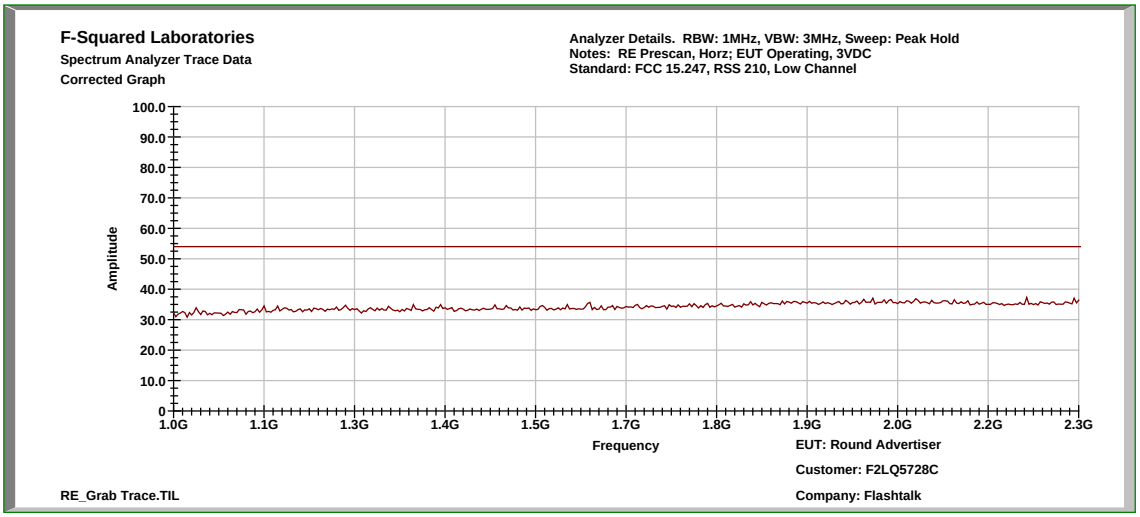
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 30 MHz to 300 MHz, Horizontal



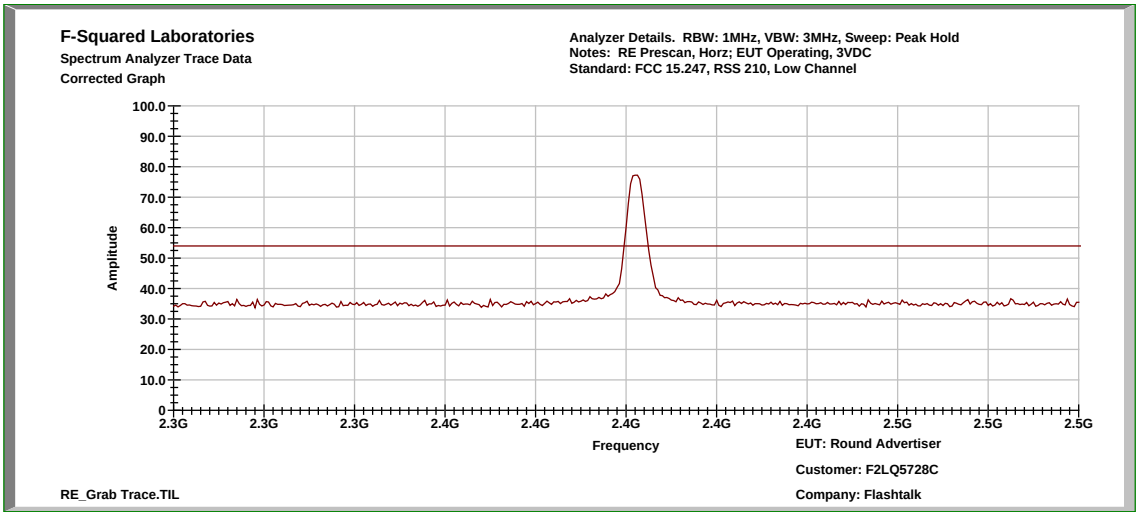
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 300 MHz to 1000 MHz, Horizontal



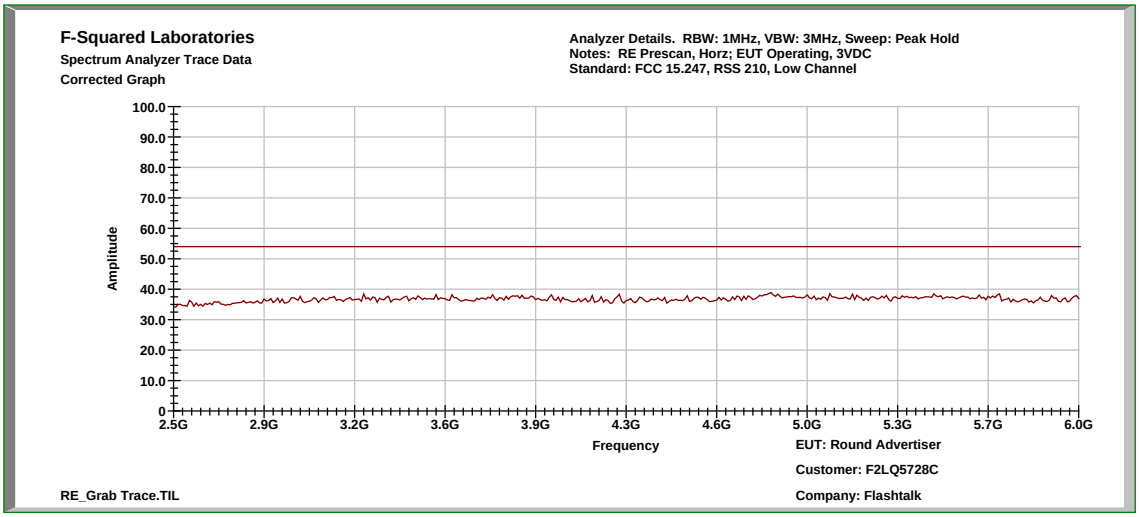
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 1 GHz to 2.3 GHz, Horizontal



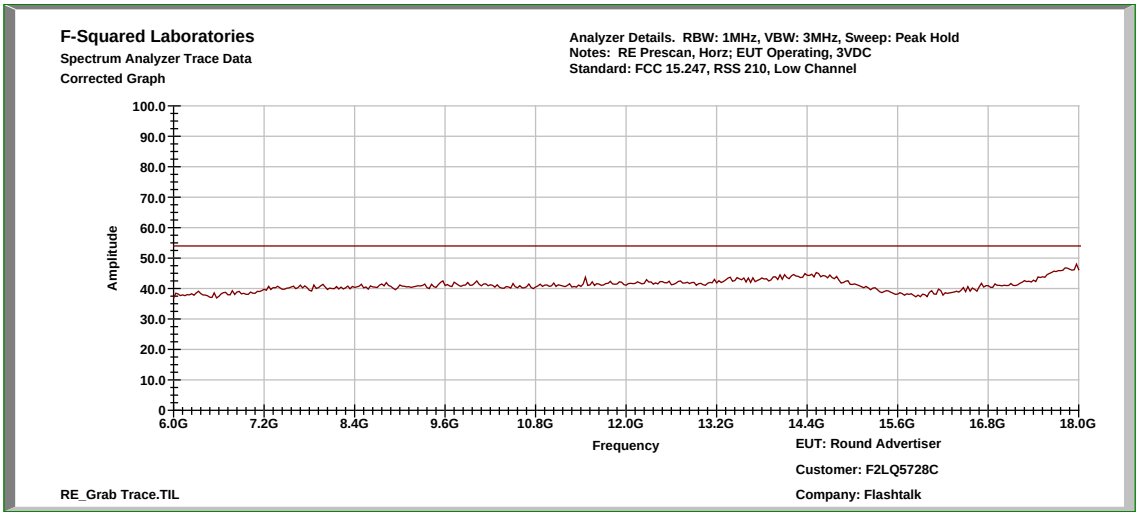
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 2.3 GHz to 2.5 GHz, Horizontal



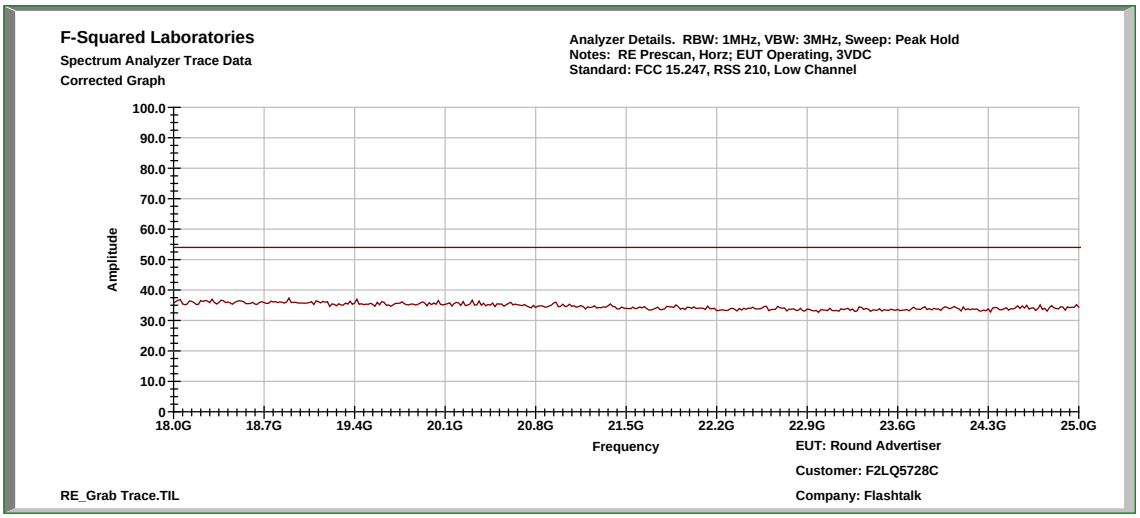
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 2.5 GHz to 6 GHz, Horizontal



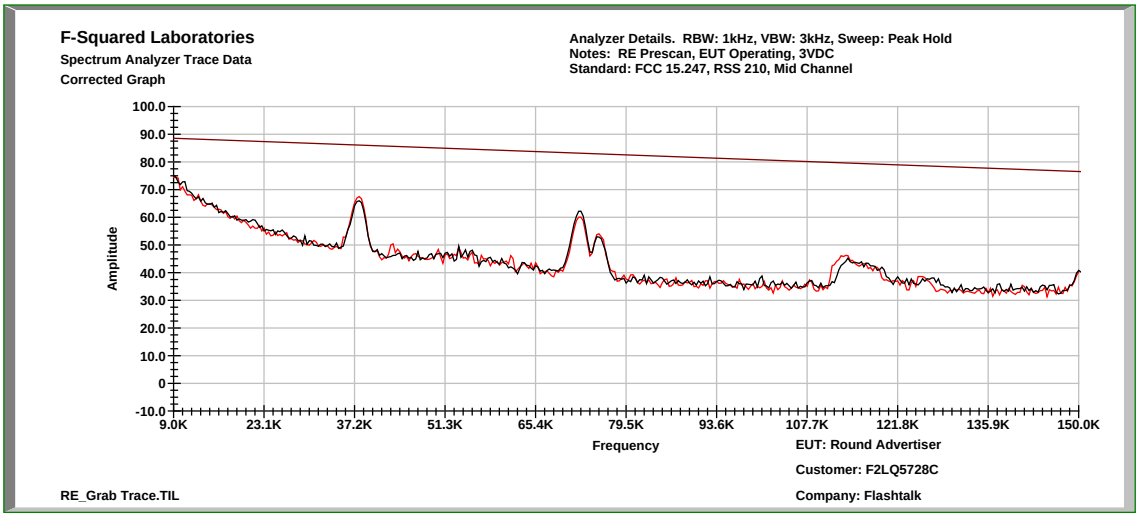
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 6 GHz to 18 GHz, Horizontal



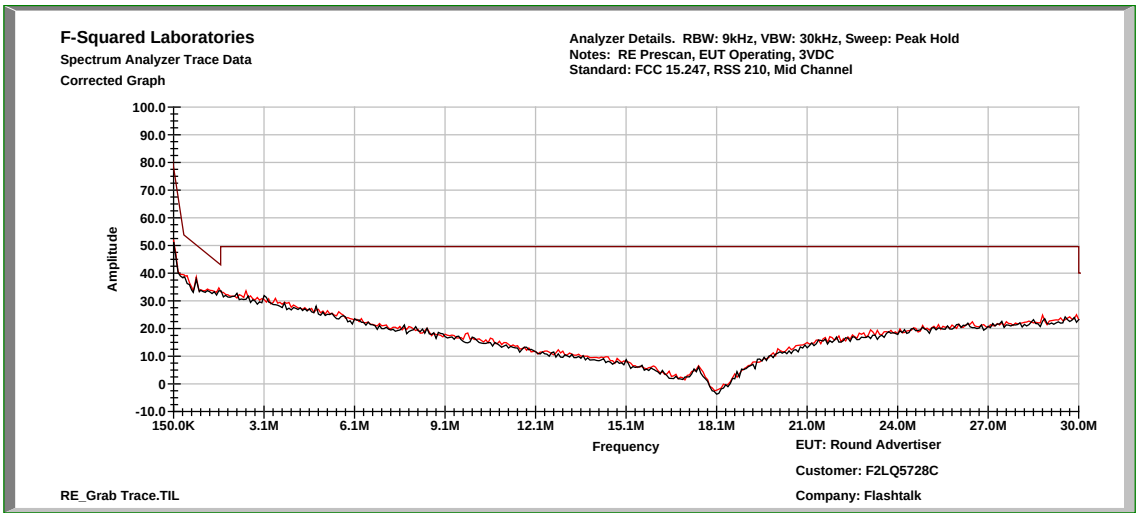
Radiated Spurious Emission, 0dBi Integral Antenna
Low Channel: 18 GHz to 25 GHz, Horizontal



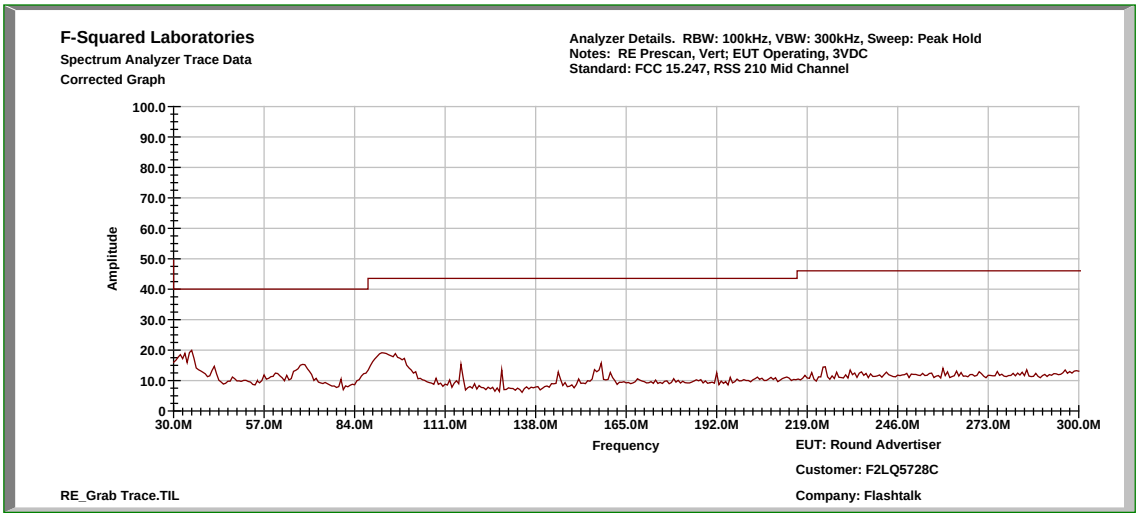
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: .009 MHz to 0.15 MHz



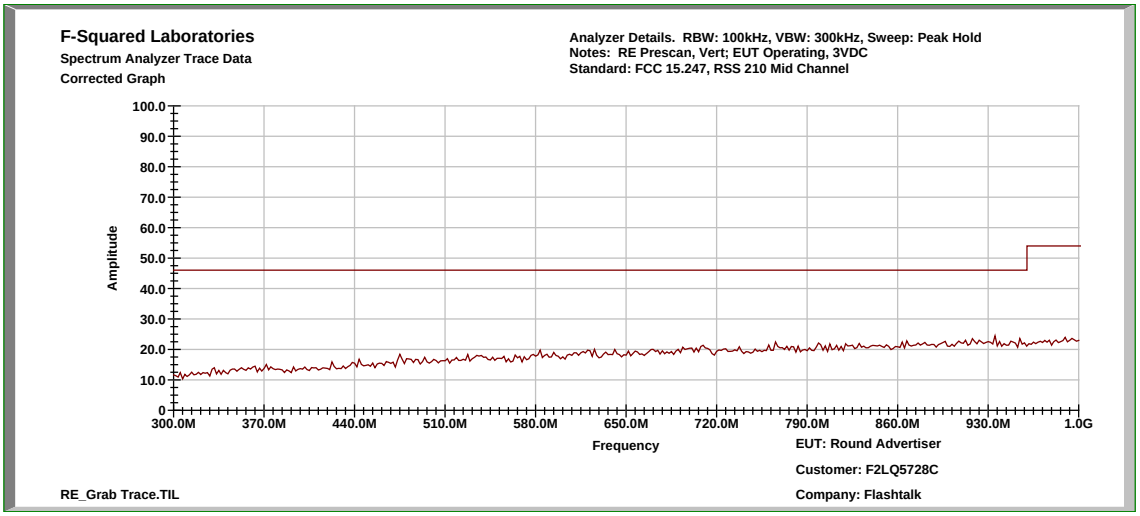
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 0.15 MHz to 30 MHz



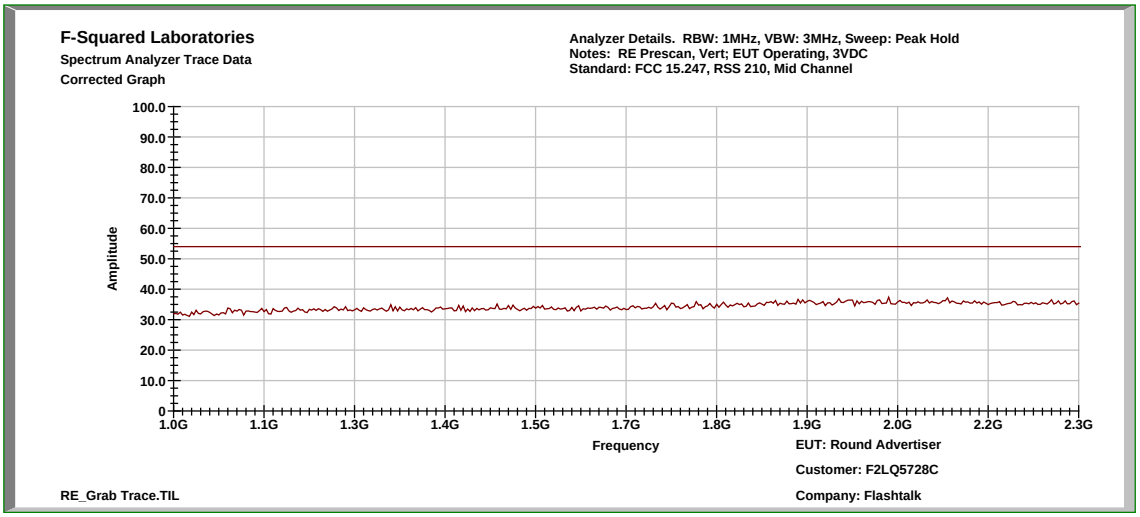
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 30 MHz to 300 MHz, Vertical



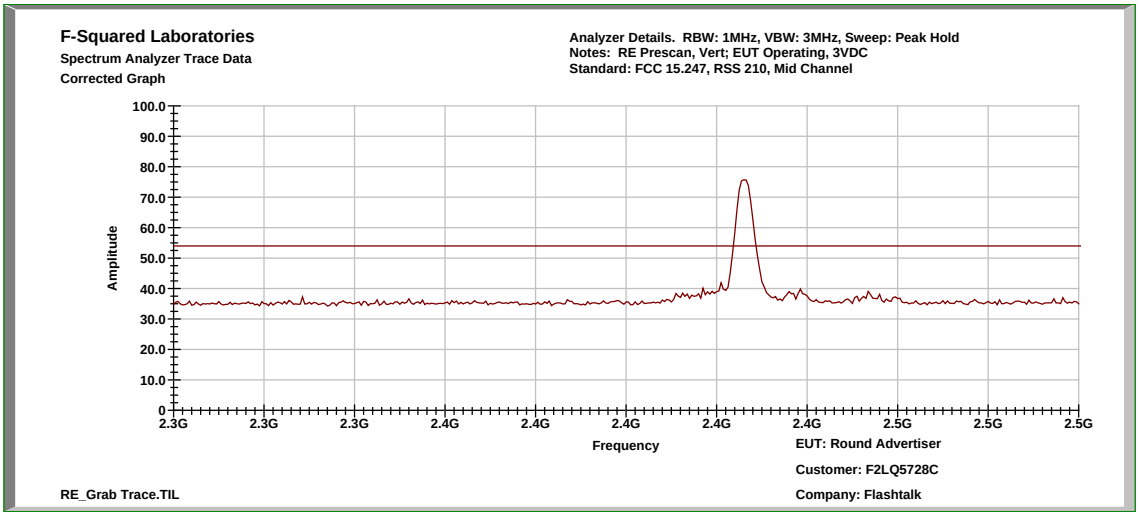
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 300 MHz to 1000 MHz, Vertical



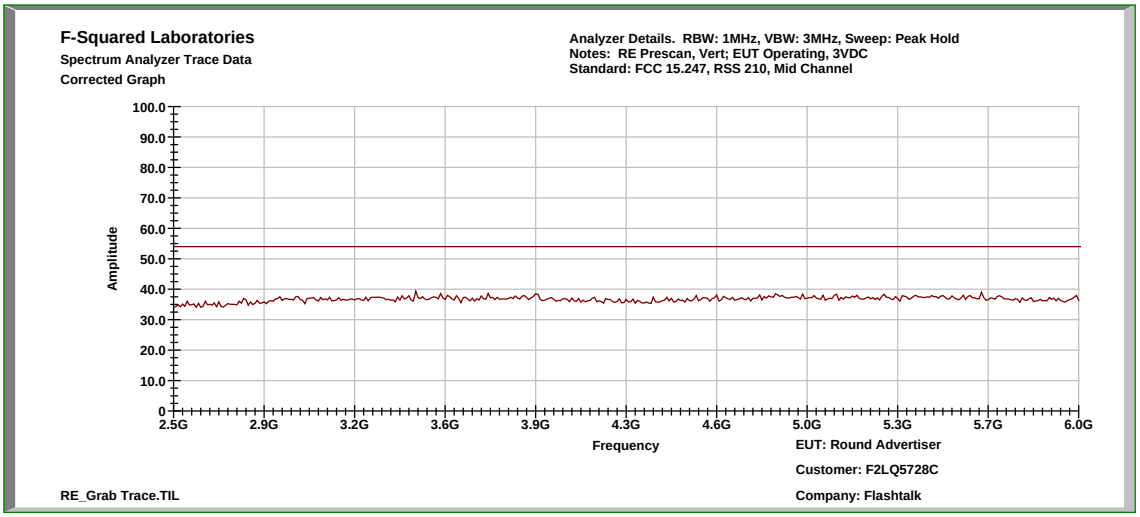
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 1 GHz to 2.3 GHz, Vertical



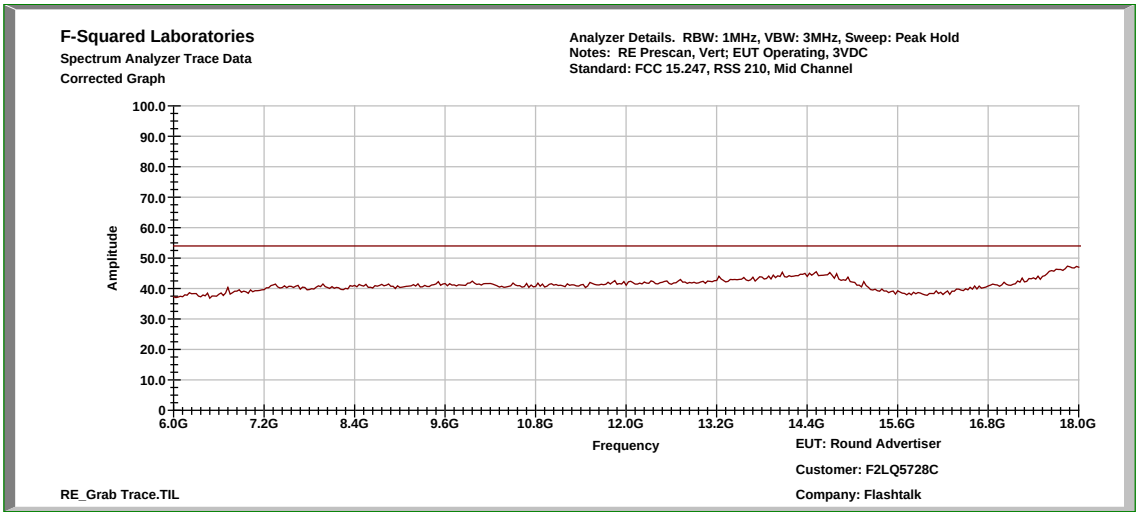
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 2.3 GHz to 2.5 GHz, Vertical



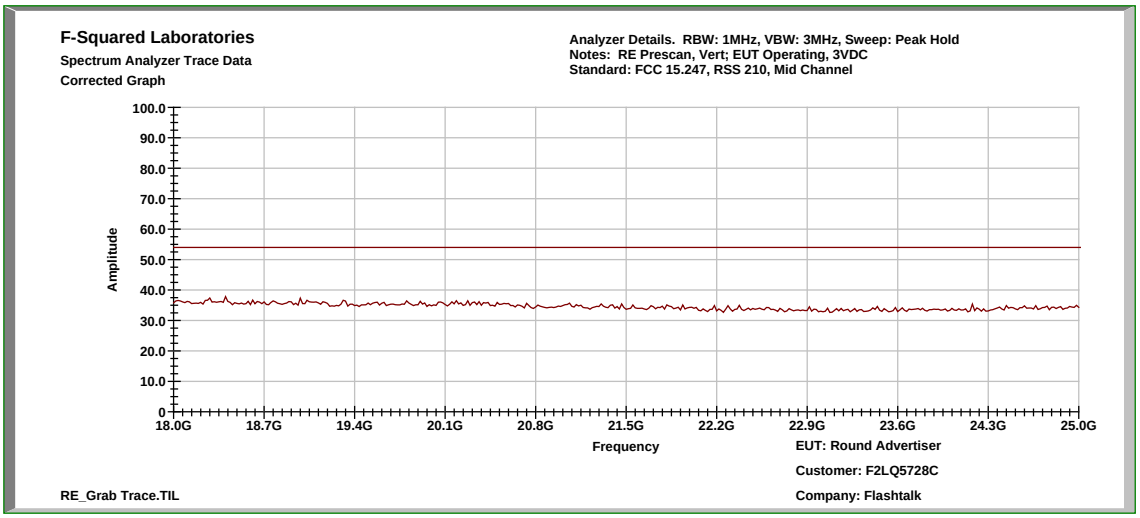
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 2.5 GHz to 6 GHz, Vertical



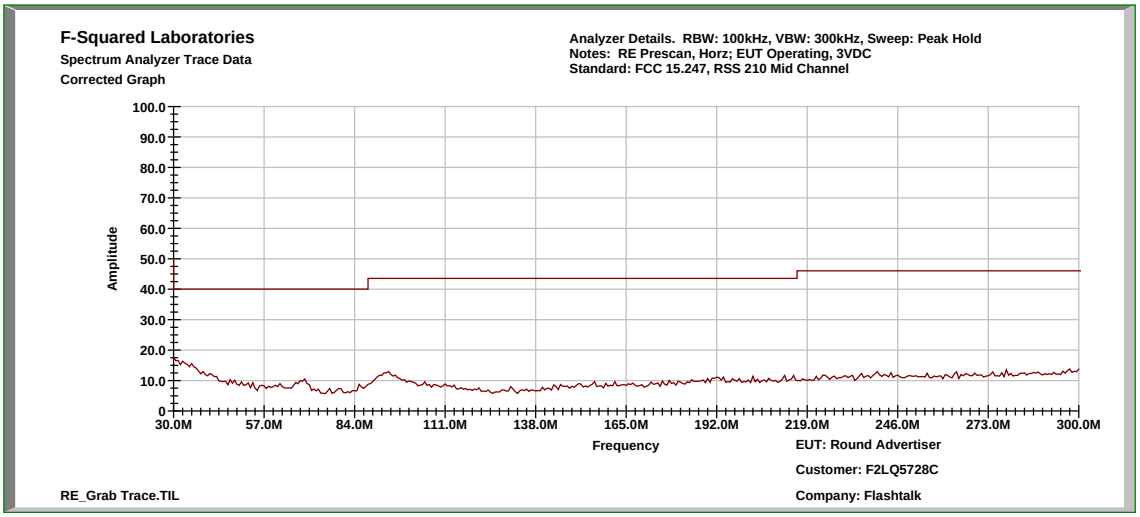
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 6 GHz to 18 GHz, Vertical



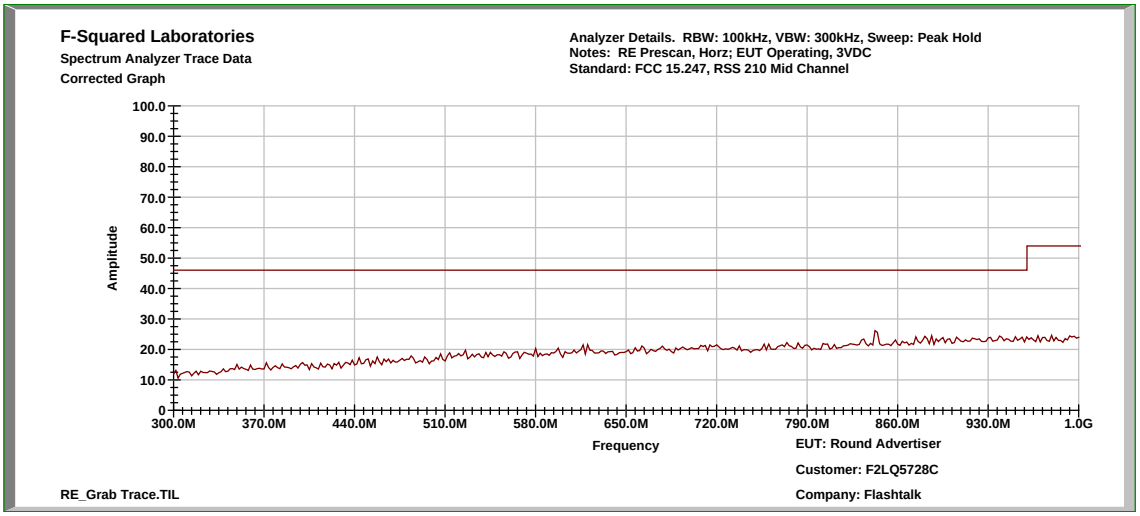
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 18 GHz to 25 GHz, Vertical



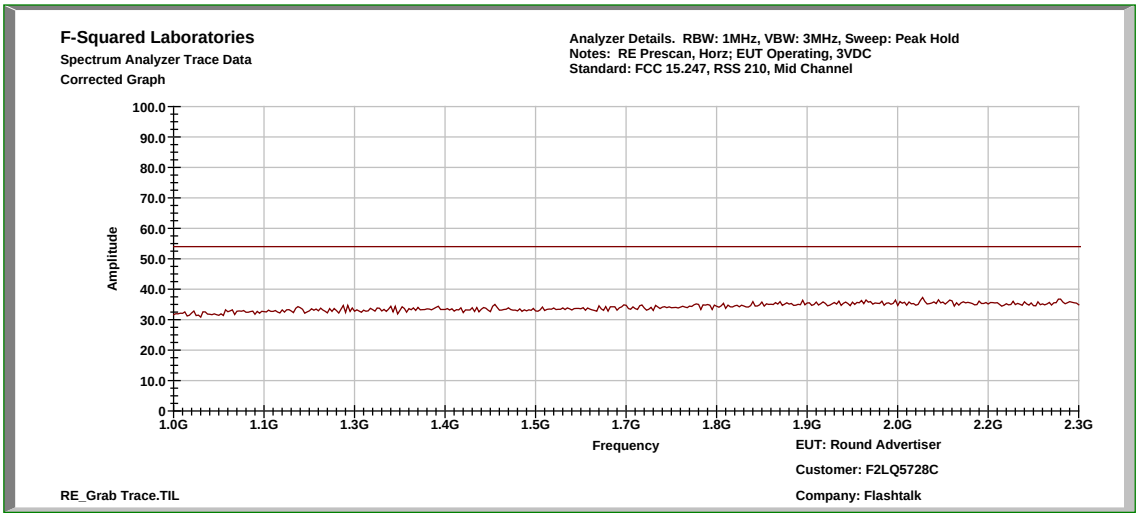
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 30 MHz to 300 MHz, Horizontal



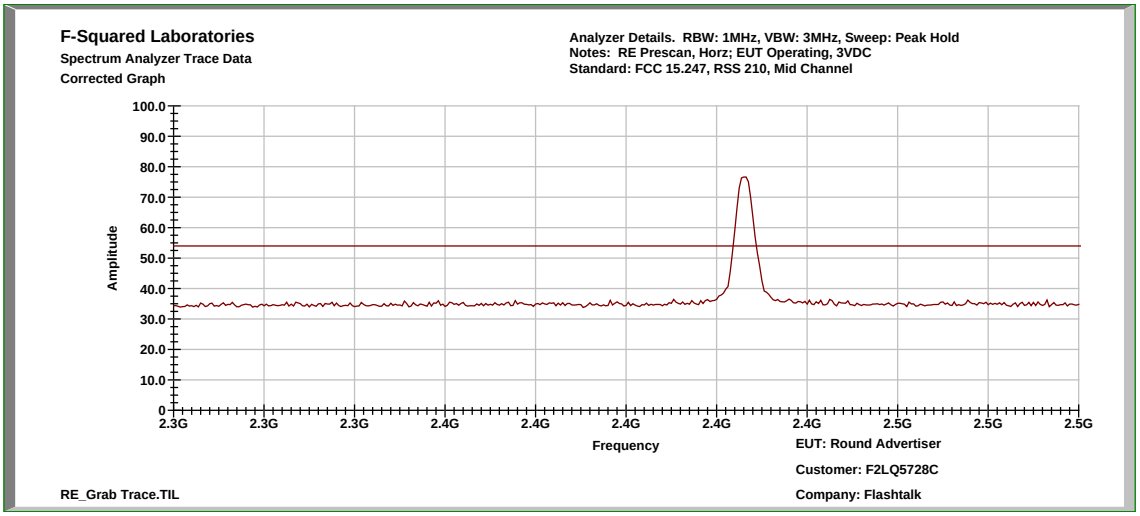
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 300 MHz to 1000 MHz, Horizontal



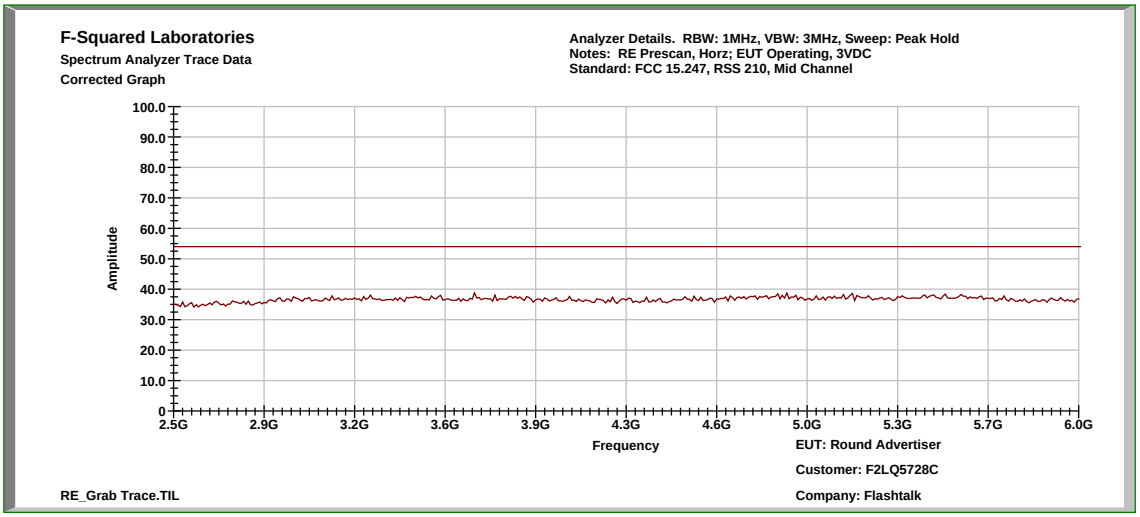
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 1 GHz to 2.3 GHz, Horizontal



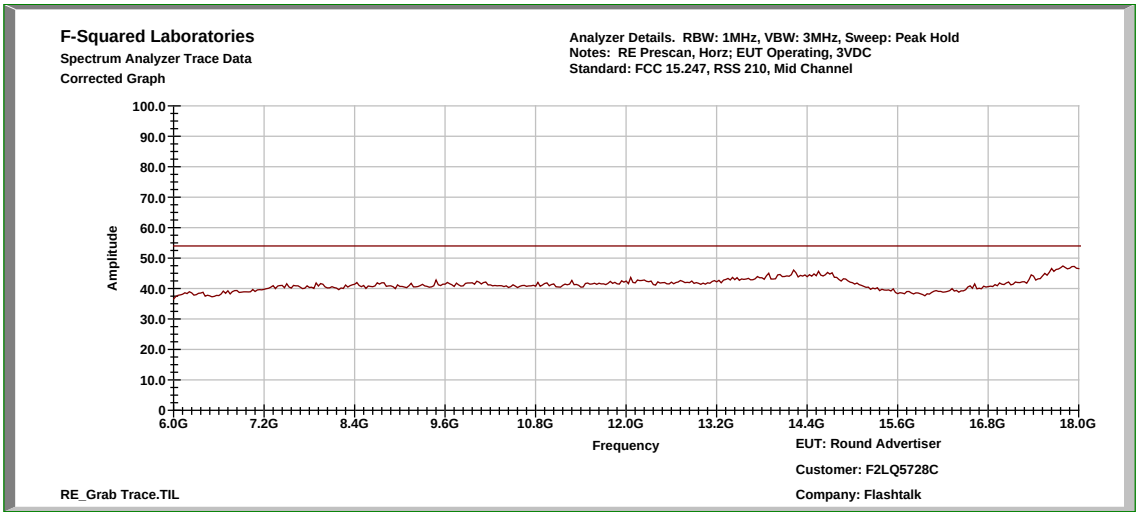
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 2.3 GHz to 2.5 GHz, Horizontal



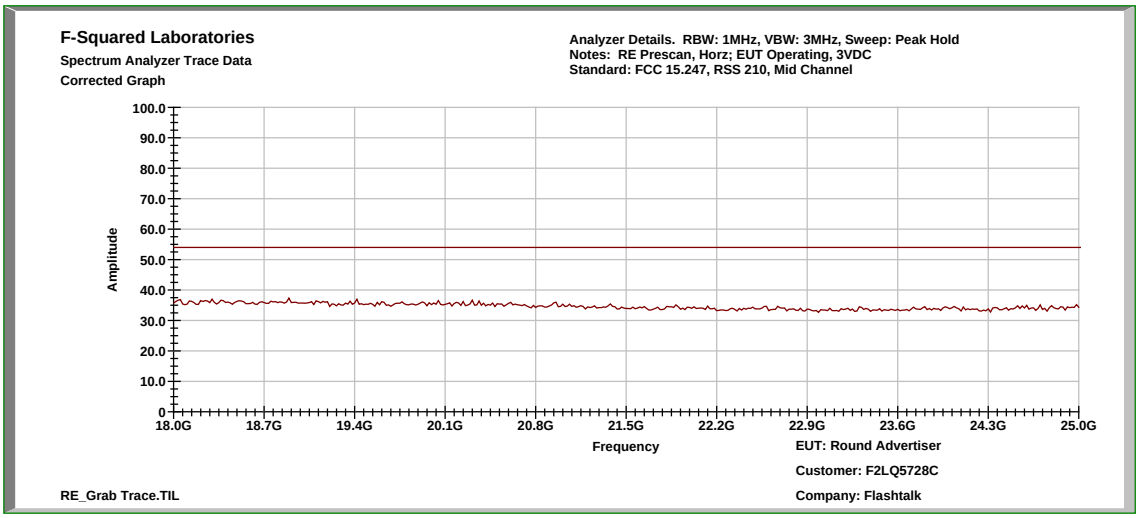
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 2.5 GHz to 6 GHz, Horizontal



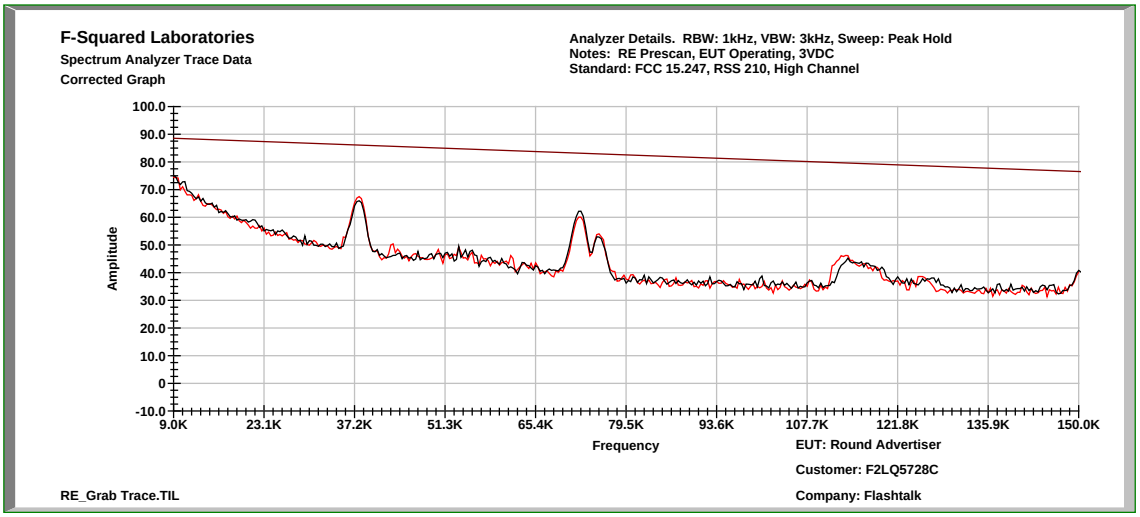
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 6 GHz to 18 GHz, Horizontal



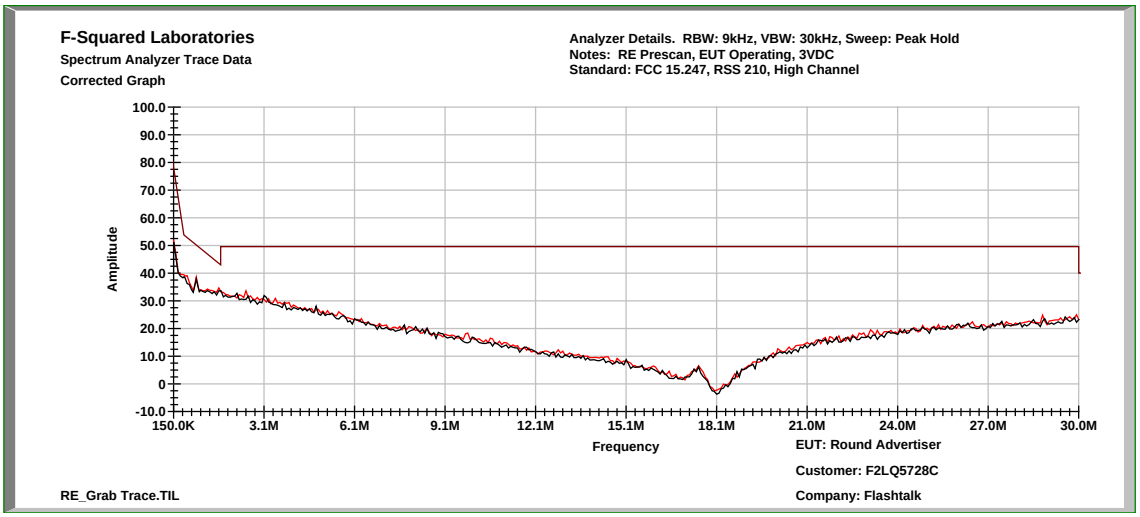
Radiated Spurious Emission, 0dBi Integral Antenna
Mid Channel: 18 GHz to 25 GHz, Horizontal



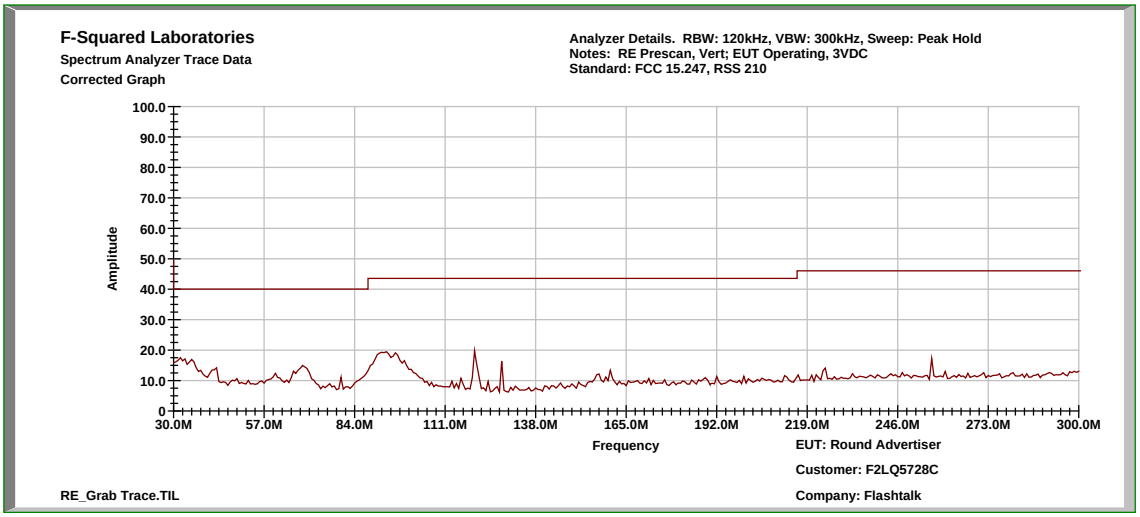
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: .009 MHz to 0.15 MHz



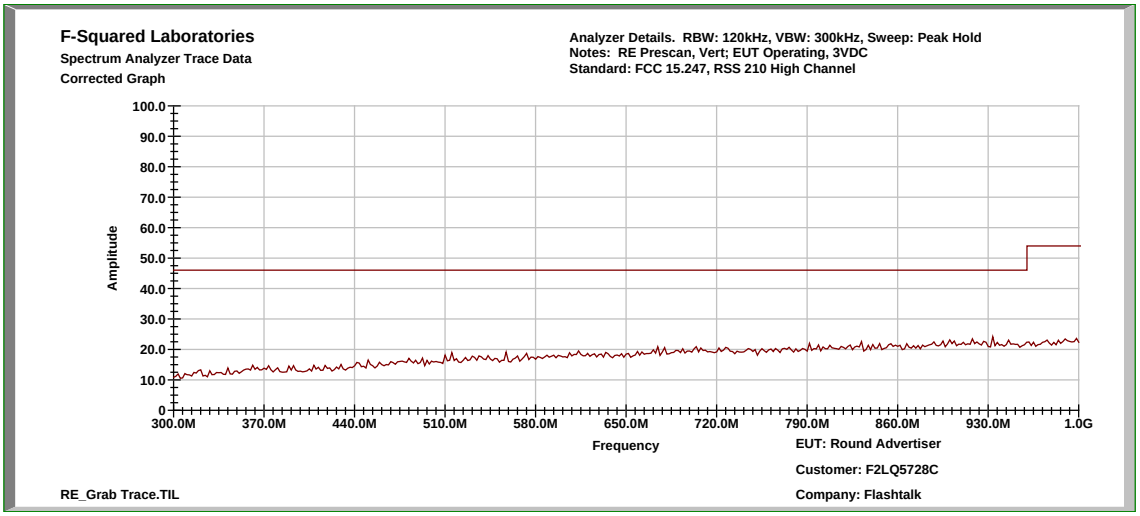
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 0.15 MHz to 30 MHz



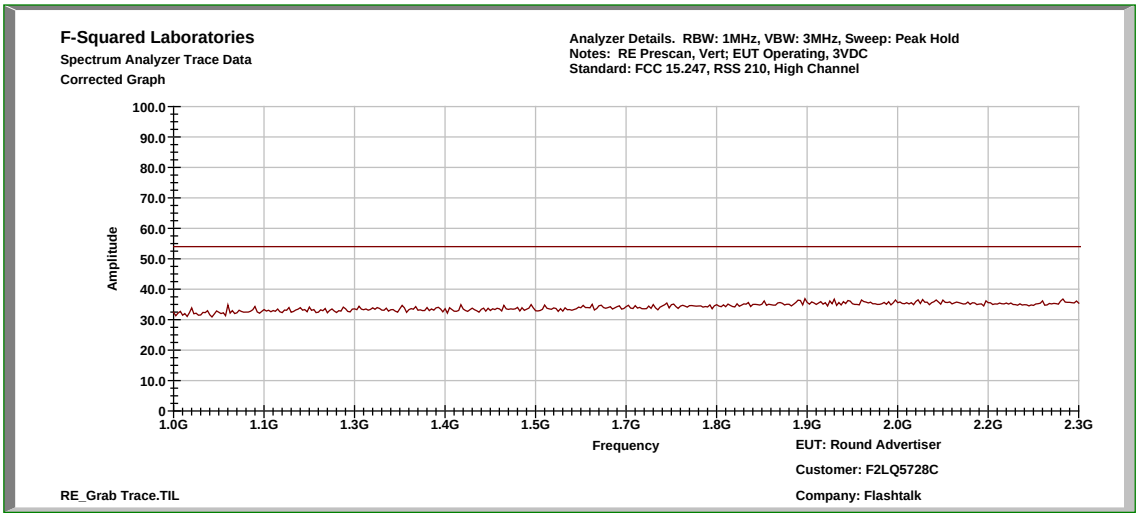
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 30 MHz to 300 MHz, Vertical



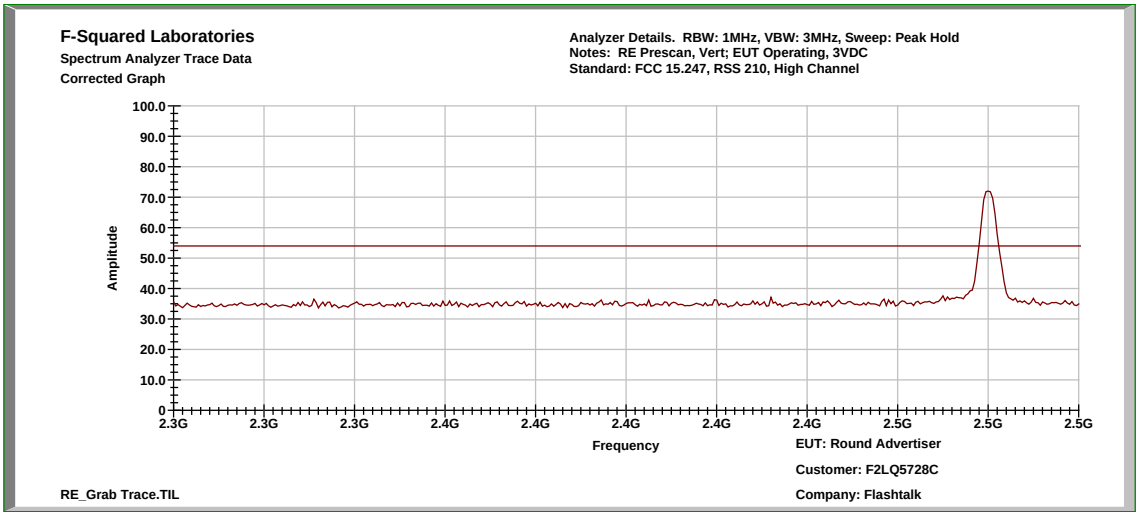
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 300 MHz to 1000 MHz, Vertical



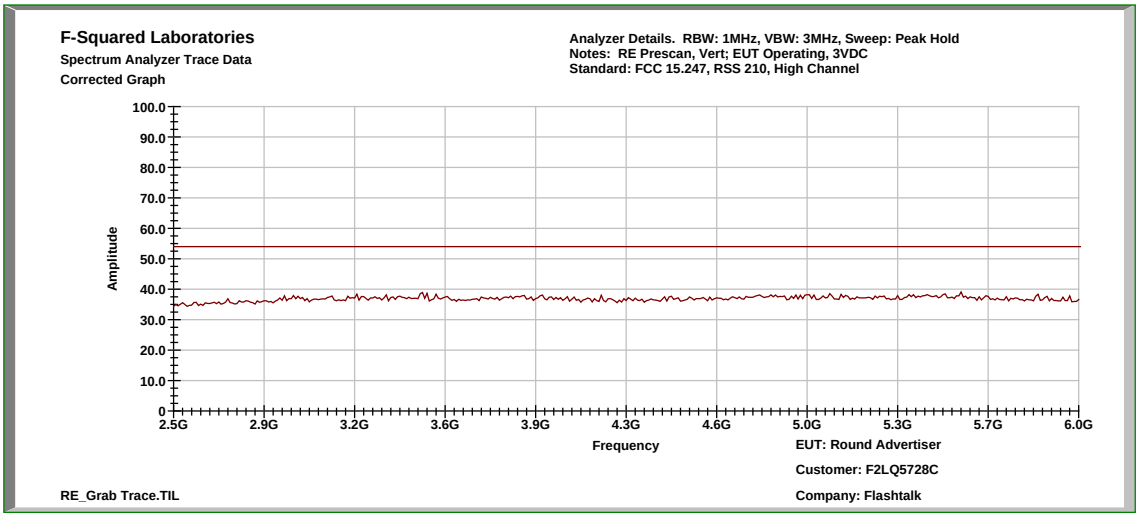
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 1 GHz to 2.3 GHz, Vertical



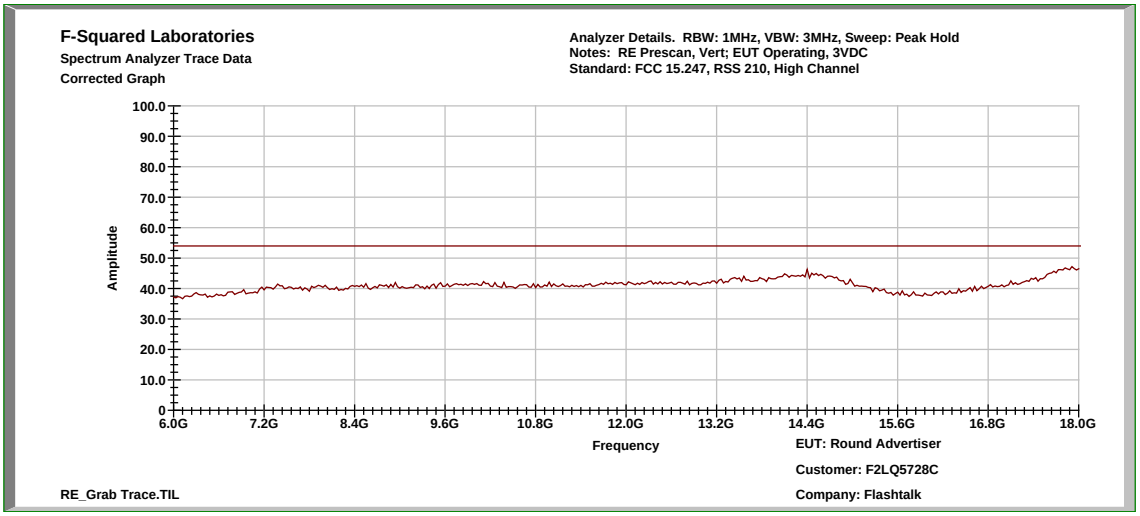
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 2.3 GHz to 2.5 GHz, Vertical



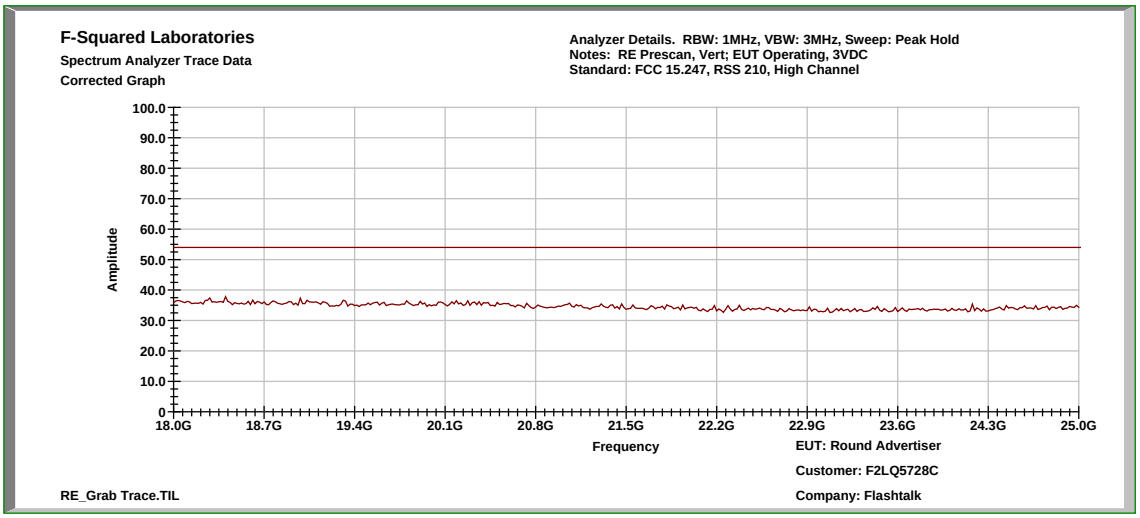
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 2.5 GHz to 6 GHz, Vertical



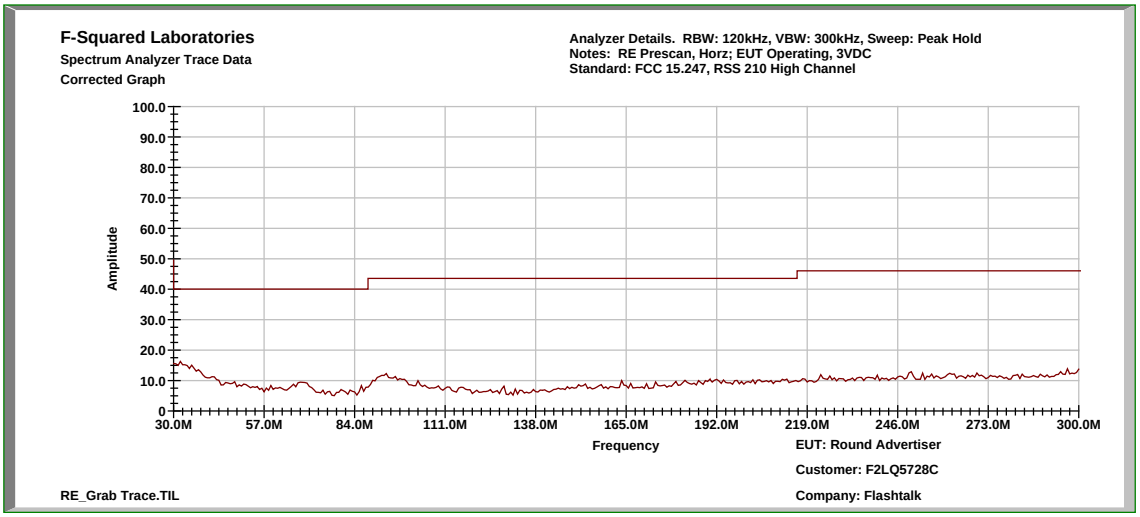
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 6 GHz to 18 GHz, Vertical



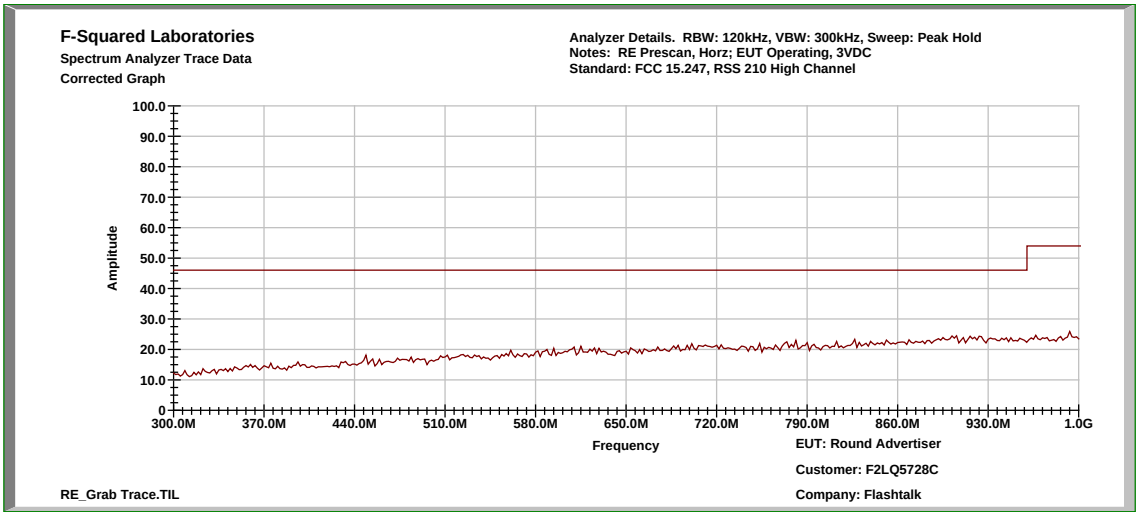
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 18 GHz to 25 GHz, Vertical



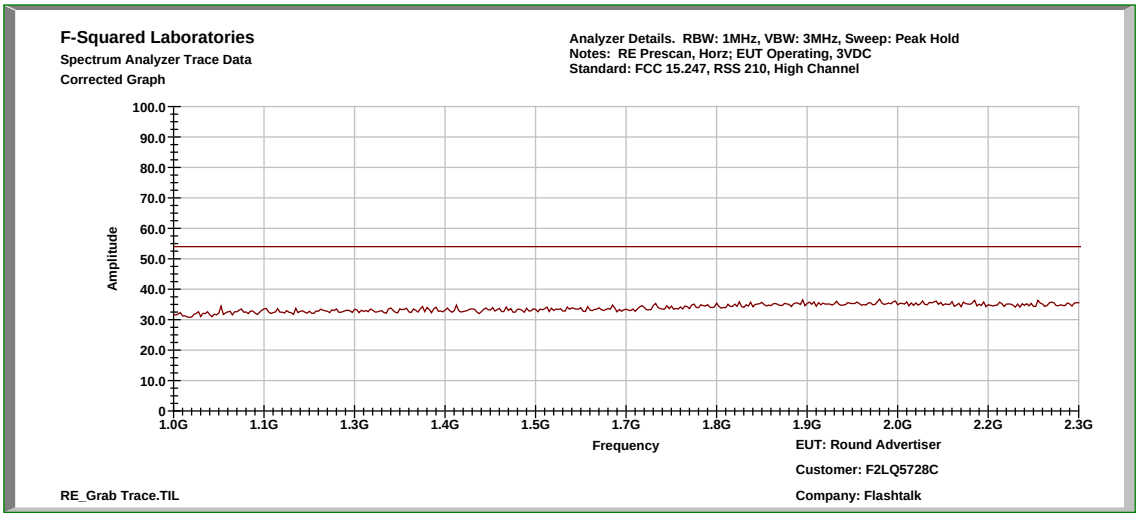
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 30 MHz to 300 MHz, Horizontal



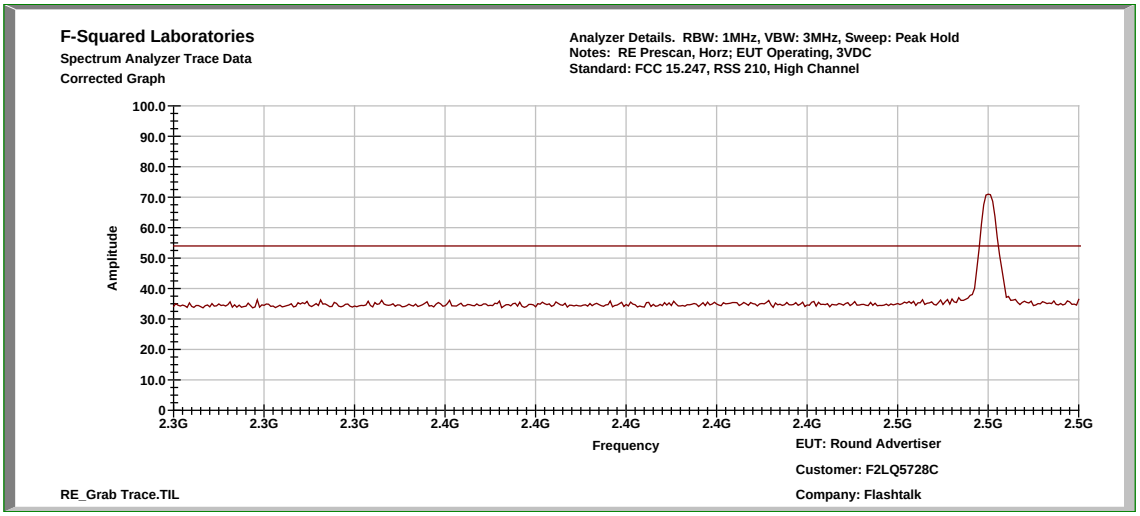
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 300 MHz to 1000 MHz, Horizontal



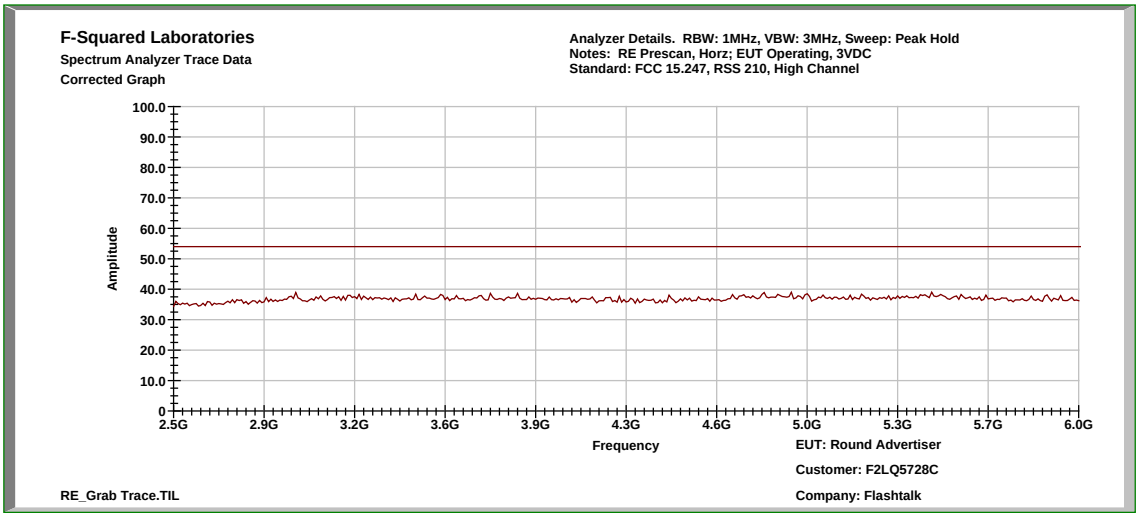
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 1 GHz to 2.3 GHz, Horizontal



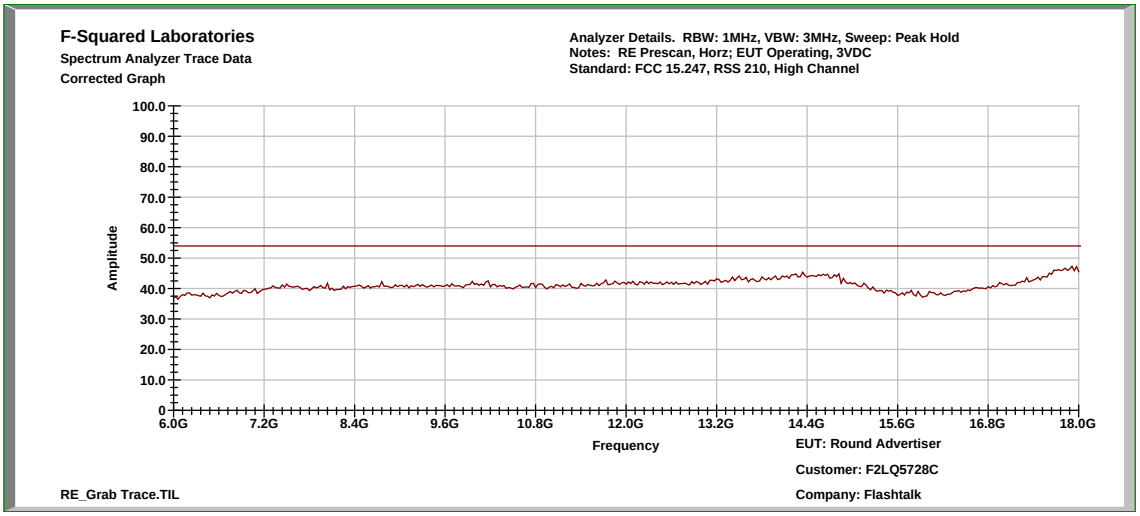
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 2.3 GHz to 2.5 GHz, Horizontal



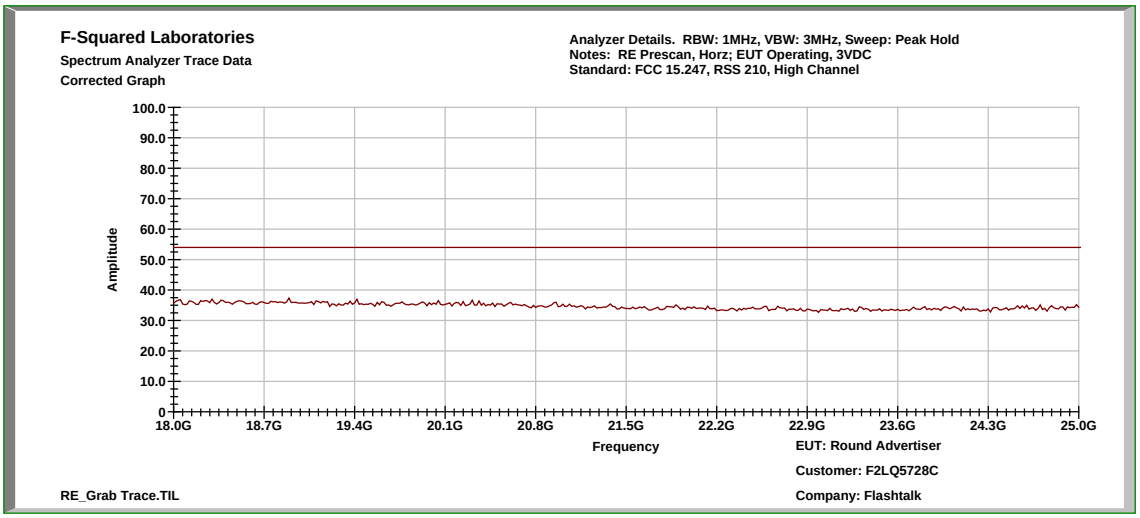
Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 2.5 GHz to 6 GHz, Horizontal



Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 6 GHz to 18 GHz, Horizontal



Radiated Spurious Emission, 0dBi Integral Antenna
High Channel: 18 GHz to 25 GHz, Horizontal



Measurements

Low Channel - MaxPeak

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2390.000000	H	37.4	-5.9	31.50	74.0	-42.5
2390.000000	V	37.9	-5.9	32.00	74.0	-42.0
2484.000000	H	37.6	-5.8	31.80	74.0	-42.2
2484.000000	V	37.6	-5.8	31.80	74.0	-42.2

Low Channel - Average

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2390.000000	H	24.3	-5.9	18.40	54.0	-35.6
2390.000000	V	24.8	-5.9	18.90	54.0	-35.1
2484.000000	H	24.4	-5.8	18.60	54.0	-35.4
2484.000000	V	24.4	-5.8	18.60	54.0	-35.4

Low Channel - QuasiPeak

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
32.510000	V	7.2	19.0	26.20	40.0	-13.8
33.400000	H	6.4	19.3	25.70	40.0	-14.3
56.390000	V	15.6	9.0	24.60	40.0	-15.4
57.100000	H	6.3	8.9	15.20	40.0	-24.8
61.880000	H	7.0	9.3	16.30	40.0	-23.7
62.480000	V	13.8	8.9	22.70	40.0	-17.3
77.450000	H	7.9	9.3	17.20	40.0	-22.8
78.900000	V	16.2	9.3	25.50	40.0	-14.5
92.770000	H	7.8	10.3	18.10	43.5	-25.4
92.770000	V	10.8	10.8	21.60	43.5	-21.9
112.540000	V	8.8	14.6	23.40	43.5	-20.1
114.740000	H	6.1	15.4	21.50	43.5	-22.0

Mid Channel - MaxPeak

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2390.000000	V	37.6	-5.9	31.70	74.0	-42.3
2390.000000	H	36.9	-5.9	31.00	74.0	-43.0
2484.000000	V	38.0	-5.8	32.20	74.0	-41.8
2484.000000	H	37.1	-5.8	31.30	74.0	-42.7

Mid Channel - Average

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2390.000000	V	24.3	-5.9	18.40	54.0	-35.6
2390.000000	H	24.2	-5.9	18.30	54.0	-35.7
2484.000000	V	24.4	-5.8	18.60	54.0	-35.4
2484.000000	H	24.3	-5.8	18.50	54.0	-35.5

Mid Channel - QuasiPeak

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
32.510000	V	7.8	19.0	26.80	40.0	-13.2
33.400000	H	6.3	19.3	25.60	40.0	-14.4
56.390000	V	15.7	9.0	24.70	40.0	-15.3
57.100000	H	6.2	8.9	15.10	40.0	-24.9
61.880000	H	7.4	9.3	16.70	40.0	-23.3
62.480000	V	13.6	8.9	22.50	40.0	-17.5
77.450000	H	8.3	9.3	17.60	40.0	-22.4
78.900000	V	16.4	9.3	25.70	40.0	-14.3
92.770000	H	8.5	10.3	18.80	43.5	-24.7
92.770000	V	10.4	10.8	21.20	43.5	-22.3
112.540000	V	8.8	14.6	23.40	43.5	-20.1
114.740000	H	5.7	15.4	21.10	43.5	-22.4

High Channel - MaxPeak

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2390.000000	H	37.6	-5.9	31.70	74.0	-42.3
2390.000000	V	37.7	-5.9	31.80	74.0	-42.2
2484.000000	H	39.6	-5.8	33.80	74.0	-40.2
2484.000000	V	42.5	-5.8	36.70	74.0	-37.3

High Channel - Average

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
2390.000000	H	24.2	-5.9	18.30	54.0	-35.7
2390.000000	V	24.2	-5.9	18.30	54.0	-35.7
2484.000000	H	26.0	-5.8	20.20	54.0	-33.8
2484.000000	V	30.2	-5.8	24.40	54.0	-29.6

High Channel - QuasiPeak

Frequency (MHz)	Antenna Polarization	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
32.510000	V	7.4	19.0	26.40	40.0	-13.6
33.400000	H	6.5	19.3	25.80	40.0	-14.2
56.390000	V	15.6	9.0	24.60	40.0	-15.4
57.100000	H	6.8	8.9	15.70	40.0	-24.3
61.880000	H	6.8	9.3	16.10	40.0	-23.9
62.480000	V	13.8	8.9	22.70	40.0	-17.3
77.450000	H	8.2	9.3	17.50	40.0	-22.5
78.900000	V	16.3	9.3	25.60	40.0	-14.4
92.770000	H	8.4	10.3	18.70	43.5	-24.8
92.770000	V	11.1	10.8	21.90	43.5	-21.6
112.540000	V	8.4	14.6	23.00	43.5	-20.5
114.740000	H	6.5	15.4	21.90	43.5	-21.6

11 FCC PART 15.247 – PEAK POWER SPECTRAL DENSITY (PSD)

Peak power spectral density measurements were performed.

11.1 Requirements:

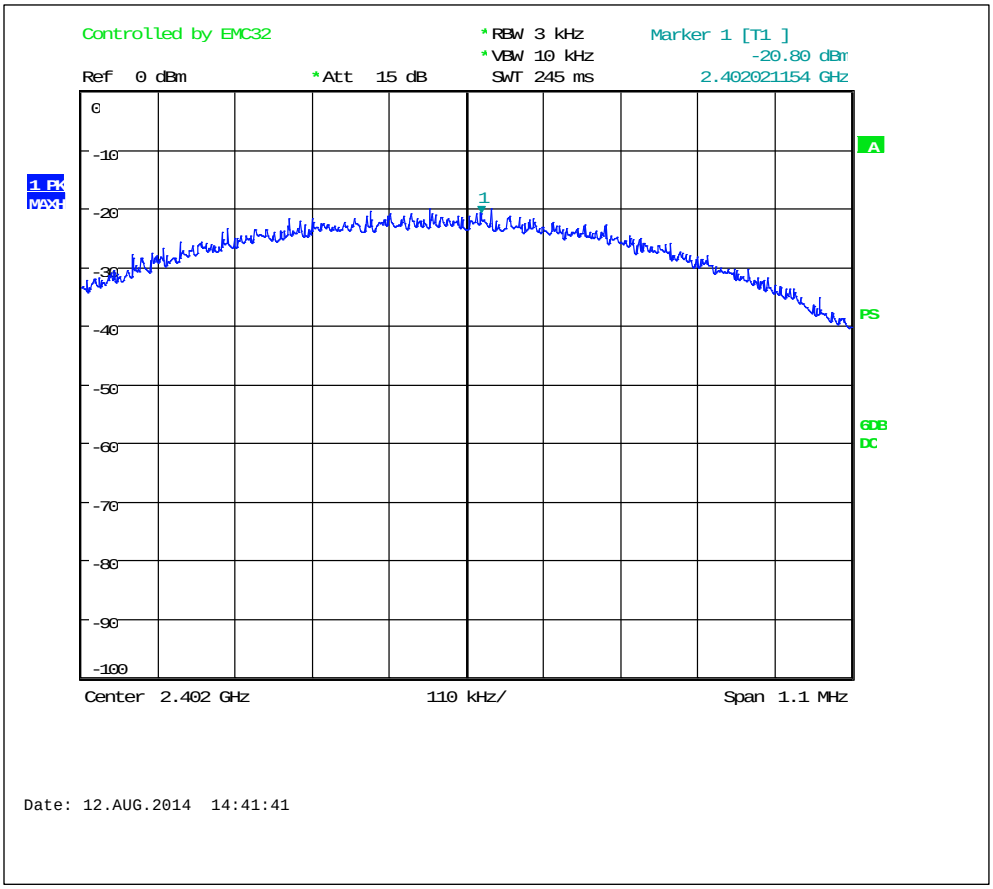
The peak power spectral density shall not exceed +8dBm in any 3 kHz band during any time interval of continuous transmission.

Power spectral density measurements were performed at a resolution bandwidth of 3 kHz (video bandwidth set at 10 KHz). The peak spectral densities were measured at the low, mid, and upper channels.

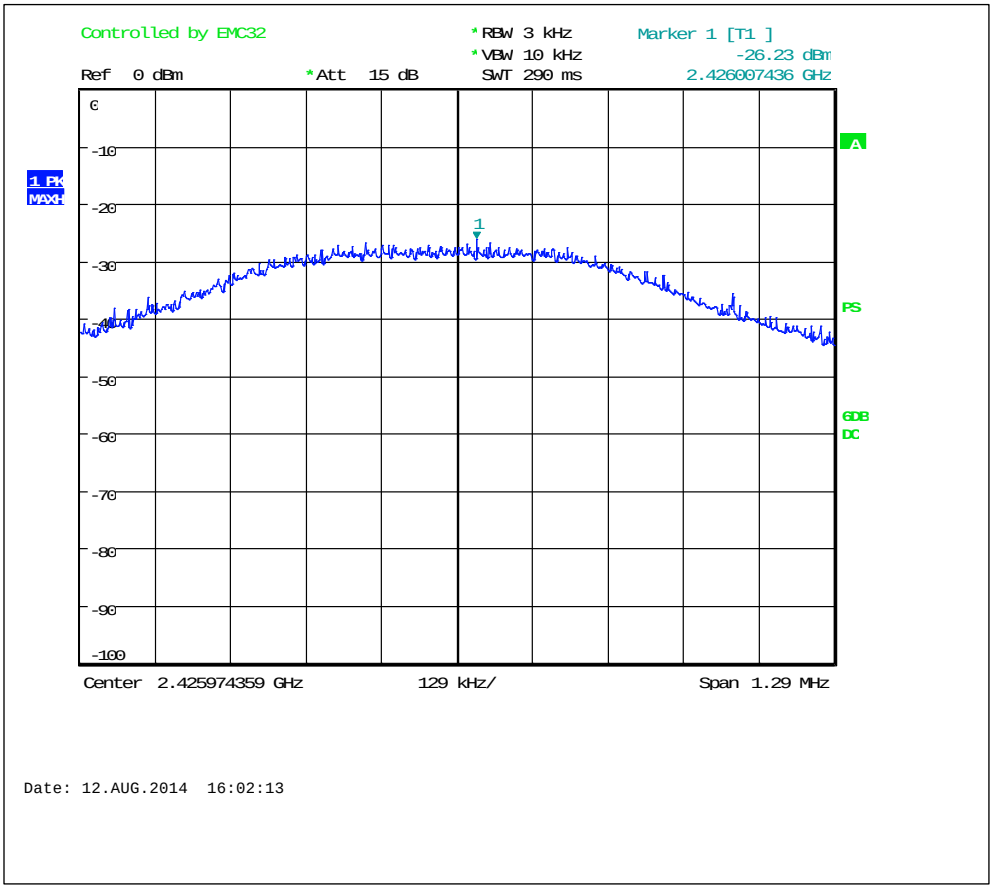
11.2 Peak Power Spectral Density Test Data

Test Date(s):	Aug. 12, 2014	Test Engineer:	J. Knepper
Standards:	CFR 47 Part 15.247; KDB558074	Air Temperature:	22.1ºC
		Relative Humidity:	49%

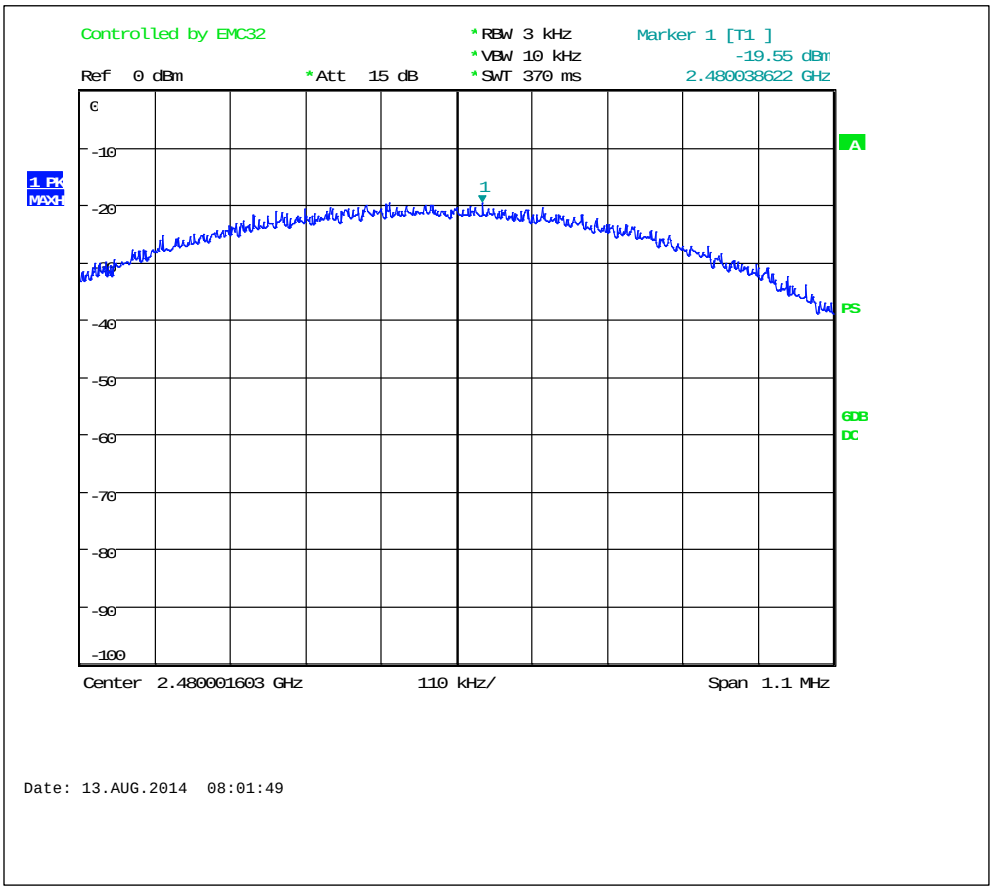
Low Channel



Mid Channel

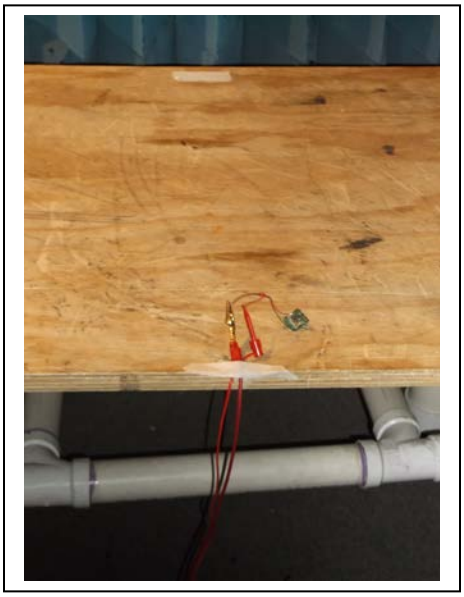

Controlled by EMC32
*RBW 3 kHz
*VBW 10 kHz
SWT 290 ms
Marker 1 [T1]
-26.23 dBm
2.426007436 GHz
Ref 0 dBm
*Att 15 dB
1 PK
MAXH
A
PS
6DB
DC
Center 2.425974359 GHz
129 kHz/
Span 1.29 MHz
Date: 12.AUG.2014 16:02:13

High Channel

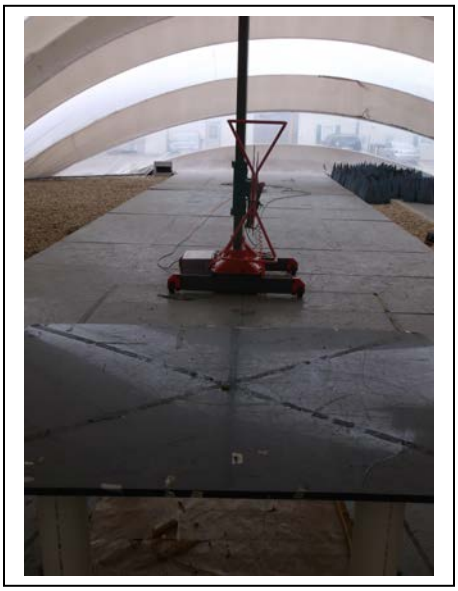


12 PHOTOGRAPHS/EXHIBITS – PRODUCT PHOTOS, TEST SETUPS

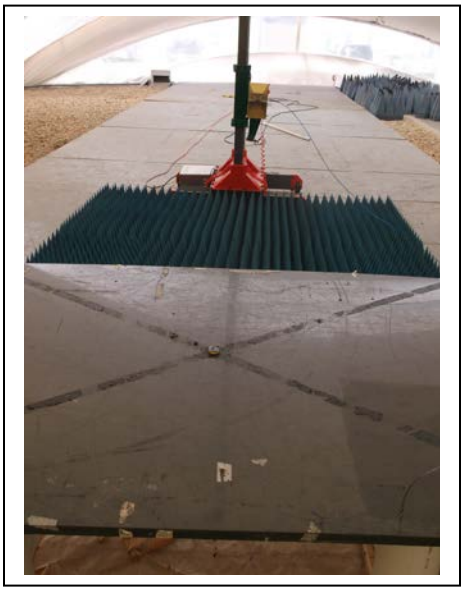
Radiated Spurious Emission: Prescan



Radiated Spurious Emission: OATS



Radiated Spurious Emission: OATS >1 GHz



Conducted Output Power, Peak Power Spectral Density, -6dB Occupied Bandwidth, and Conducted Spurious Emissions