



FCC CFR47 PART 15 SUBPART C

**BLUETOOTH LOW ENERGY
CERTIFICATION TEST REPORT**

FOR

CDMA WATCH + Bluetooth, DTS b/g

MODEL NUMBER: LG-VC110, LGVC110, VC110

FCC ID: ZNFVC110

REPORT NUMBER: 15I21068-E3

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Prepared for

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NVLAP LAB CODE 200065-0

Revision History

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---	7/27/15	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION: CDMA WATCH + Bluetooth, DTS b/g
MODEL: LG-VC110, LGVC110, VC110
SERIAL NUMBER: 1Z822 (Conducted), 1Z821 (Radiated)
DATE TESTED: JUNE 24-29, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, and KDB 558074 D01 v03r03, ANSI C63.10-2009 for FCC.

ANSI C63.10-2009 Deviation

Radiated spurious emission above 1GHz EUT height is 1.5m not 0.8m.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 2324B-4)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 2324B-5)
<input checked="" type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 2324B-6)
	<input type="checkbox"/> Chamber G(IC: 2324B-7)
	<input type="checkbox"/> Chamber H(IC: 2324B-8)

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\begin{aligned} \text{Field Strength (dBuV/m)} &= \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable} \\ &\text{Loss (dB)} - \text{Preamp Gain (dB)} \\ 36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} &= 28.9 \text{ dBuV/m} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 18000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is CDMA WATCH + Bluetooth, DTS b/g

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402-2480	BLE	8.03	6.36

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an LMA antenna, with a maximum gain of -0.14dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	STA-U17WD	DS542312055	N/A

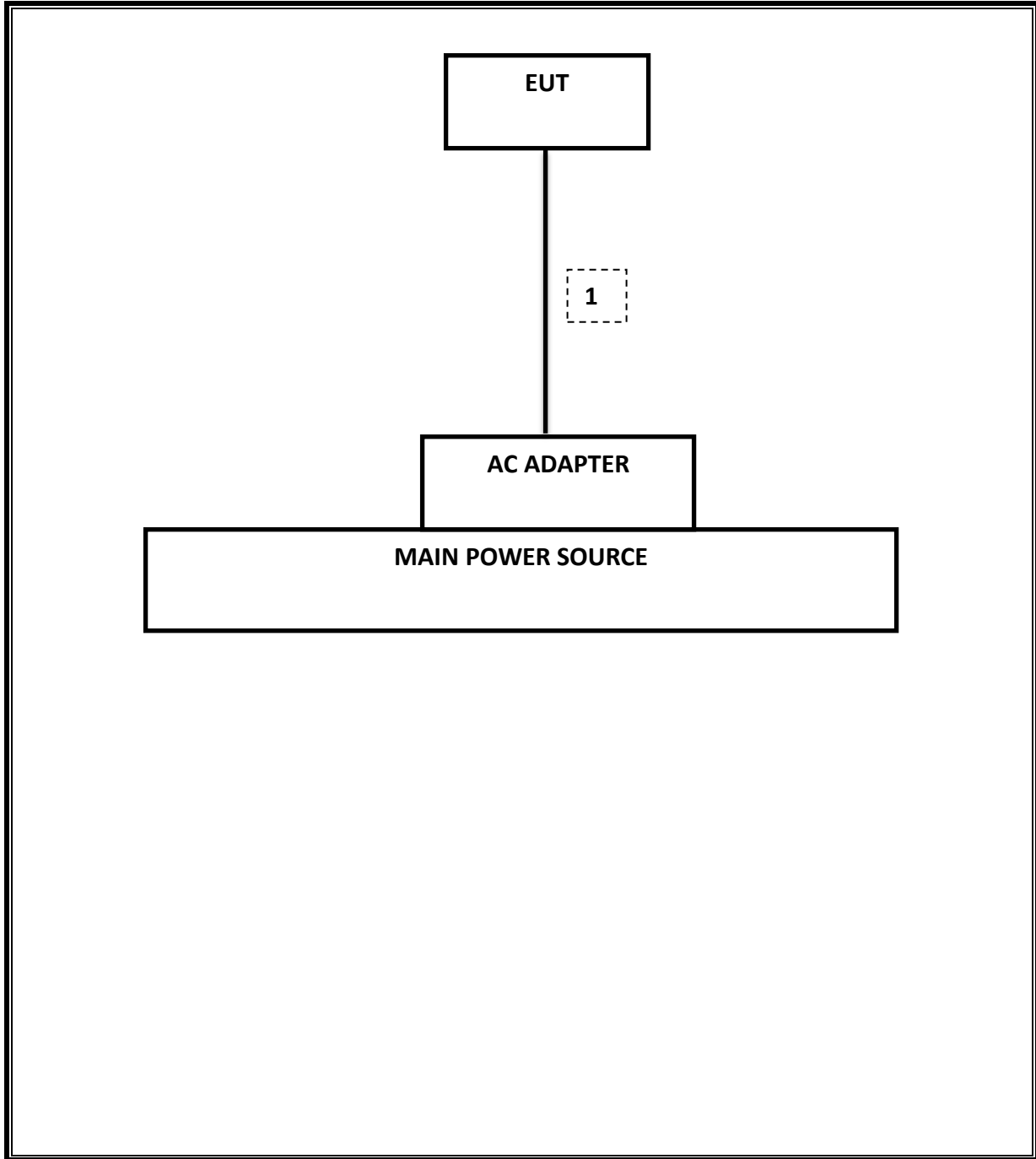
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A
2	Audio	1	Mini-Jack	Unshielded	1m	N/A

TEST SETUP

EUT was set in the Hidden menu mode to enable BLE communications.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer, 9KHz-40GHz	HP	8564E	C00986	04/01/16
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/16
Antenna, Horn, 18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640/B	T446	05/12/16
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/16
RF Pre-amplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Pre-amplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/15
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Pre-amplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	F00219	05/23/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	F00222	05/22/16
High Pass Filter 3GHz	Micro-Tronics	HPM17543	F00224	05/22/16

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Version 9.5, 07/22/14
Conducted Software	UL	UL EMC	Version 9.5, 05/17/14
CLT Software	UL	UL RF	Version 1.0, 02/02/15
Antenna Port Software	UL	UL RF	Version 2.1.1.1, 1/20/15

7. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

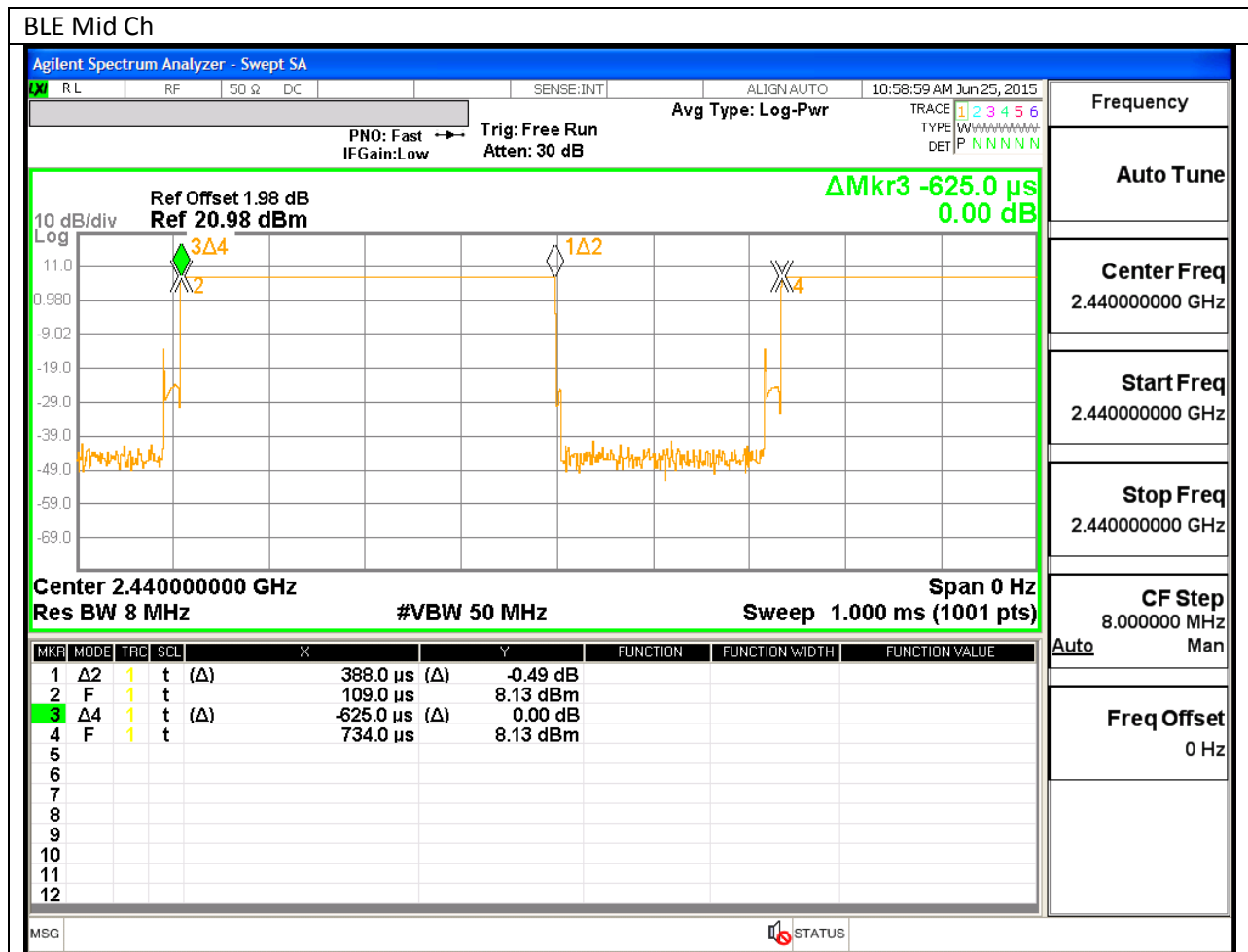
LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
BLE	0.388	0.625	0.621	62.08%	2.07	2.577



8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-247 5.2.1	Occupied Band width (6dB)	>500KHz	Conducted	Pass	689 kHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-51.027dBm
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass	8.033dBm
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass	-7.18dBm
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	40.71 dBuV
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	44.16dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

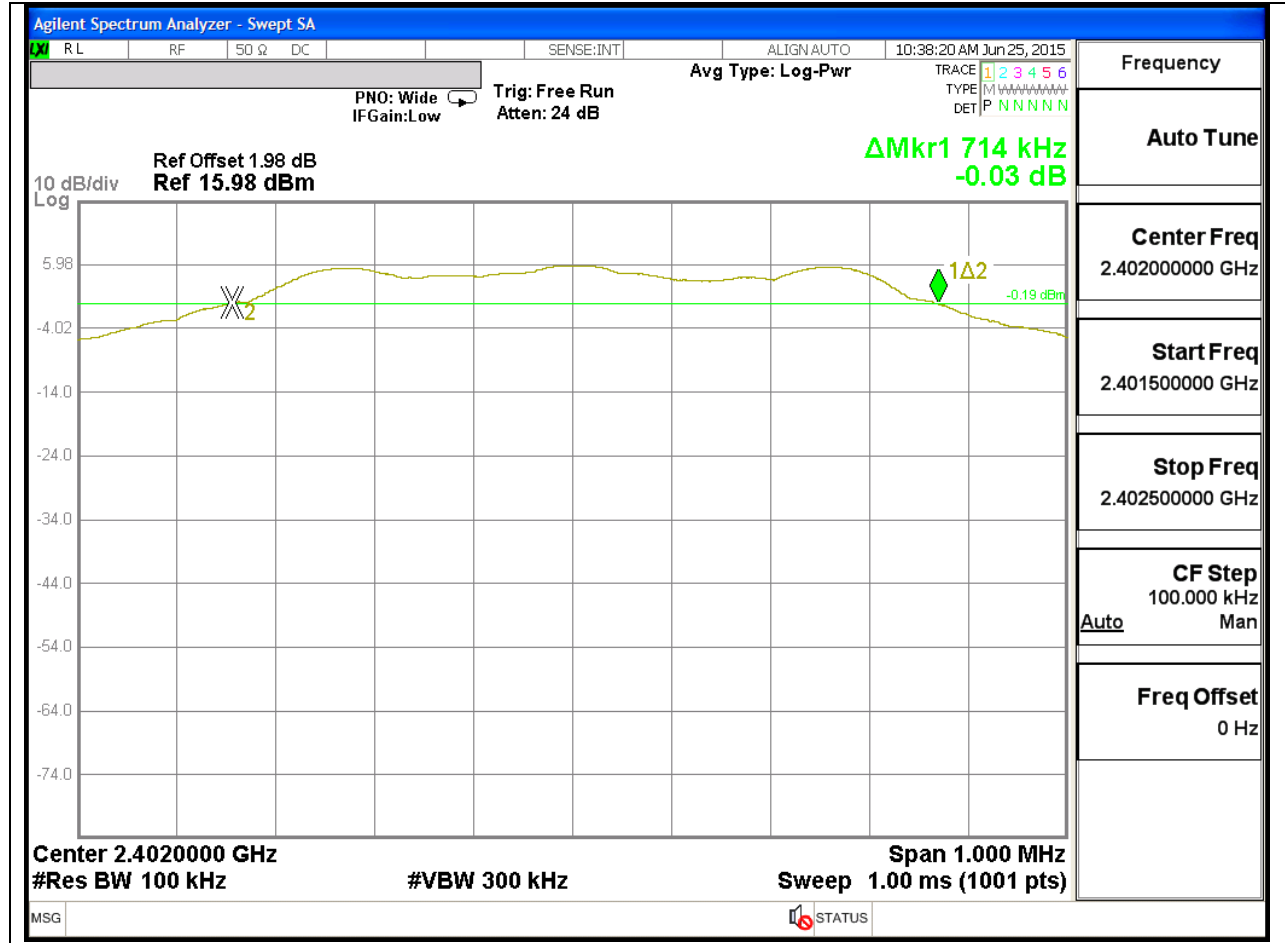
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

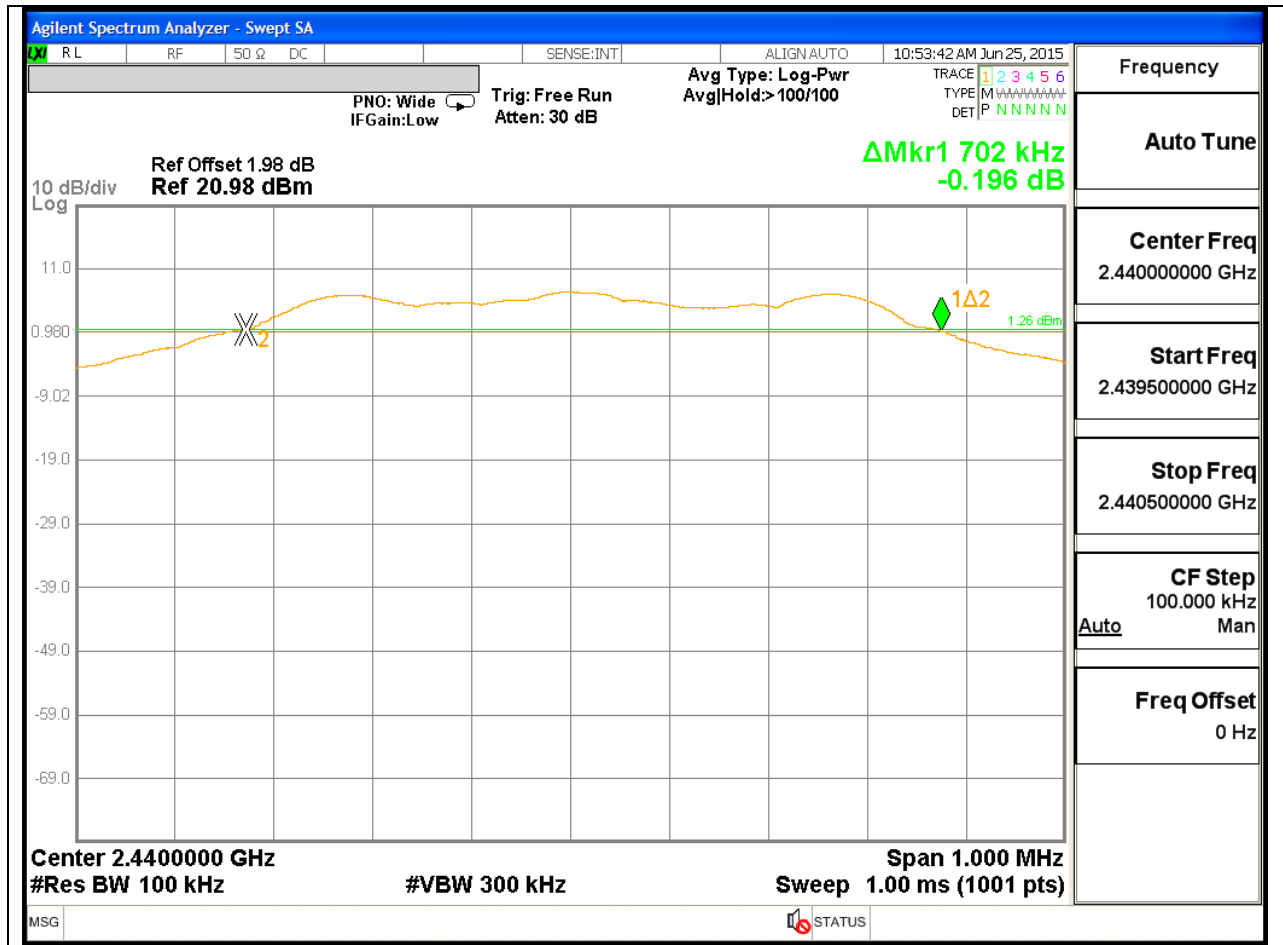
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.714	0.5
Middle	2440	0.702	0.5
High	2480	0.689	0.5

6 dB BANDWIDTH PLOTS

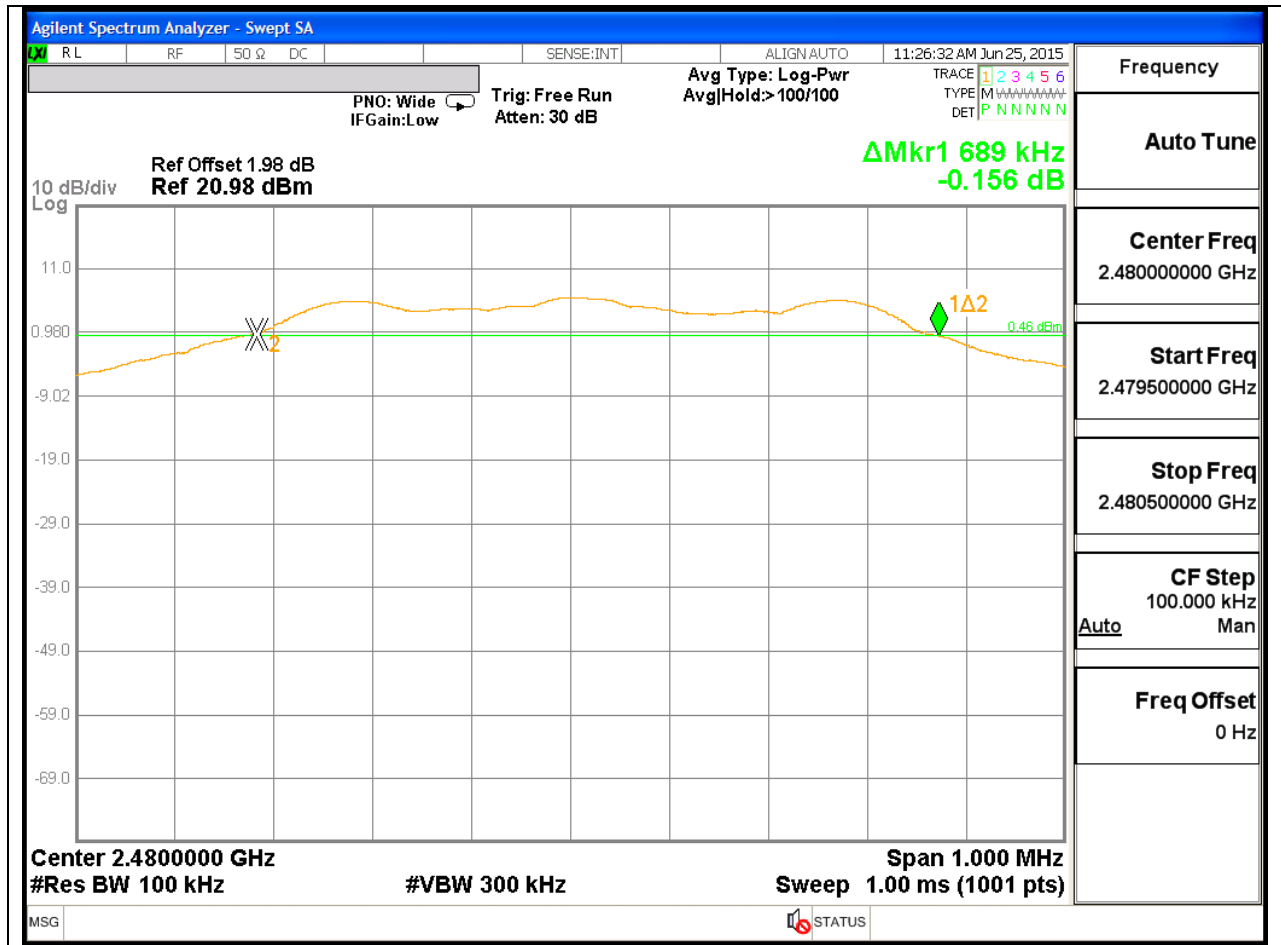
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

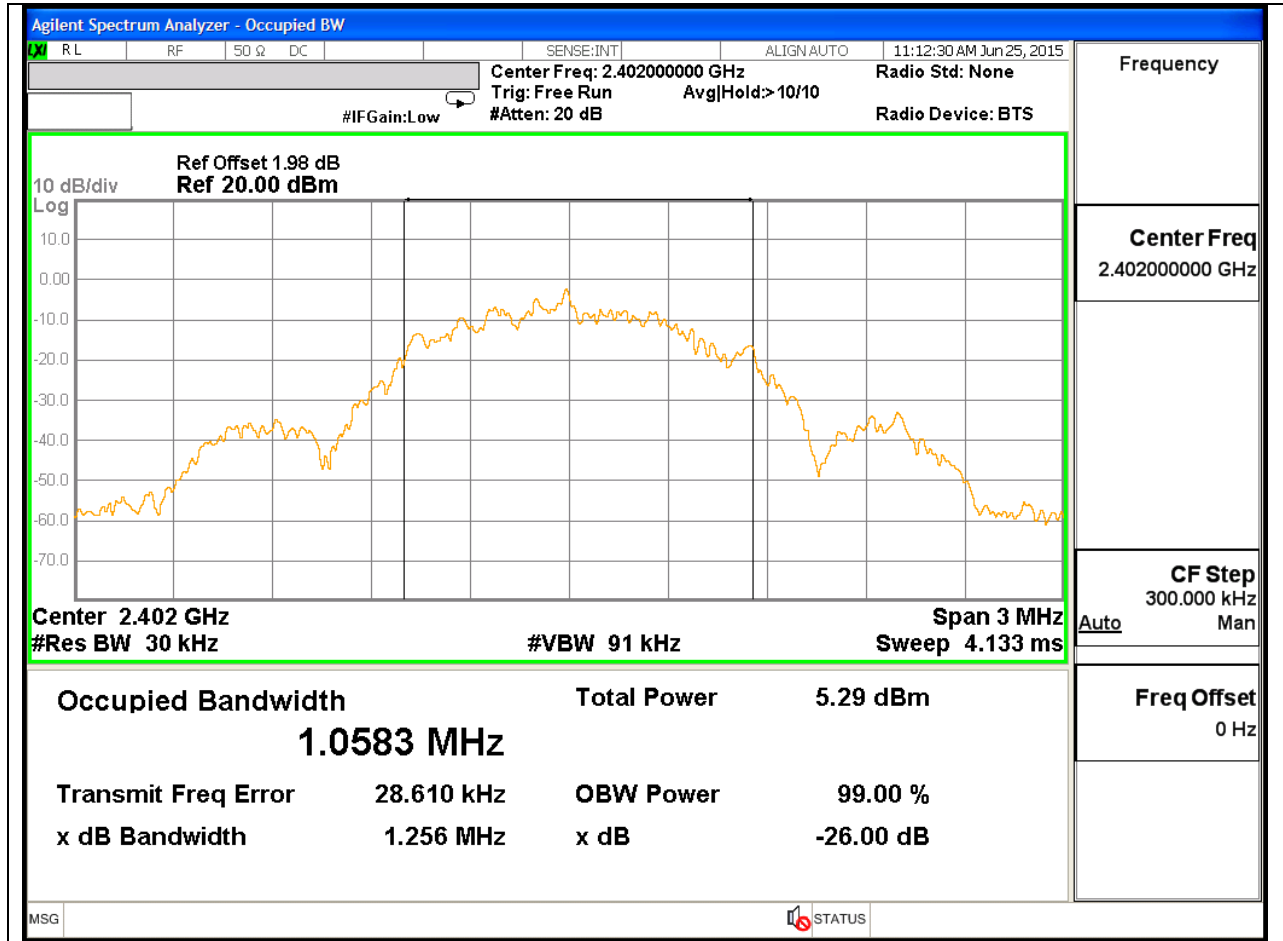
Reference to KDB558074 D01 DTS Meas Guidance v03r03: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

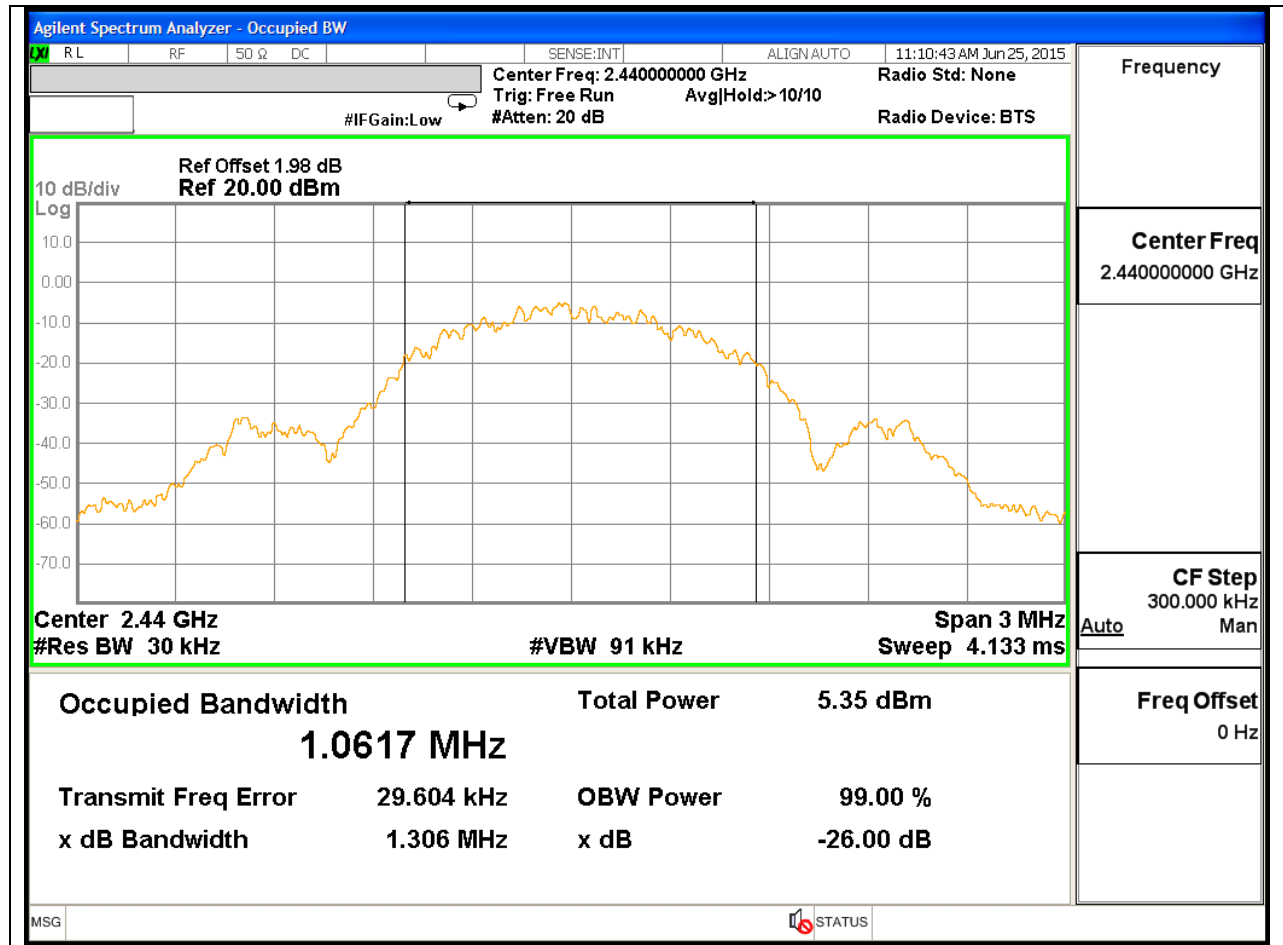
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.058
Middle	2440	1.062
High	2480	1.073

99% BANDWIDTH PLOTS

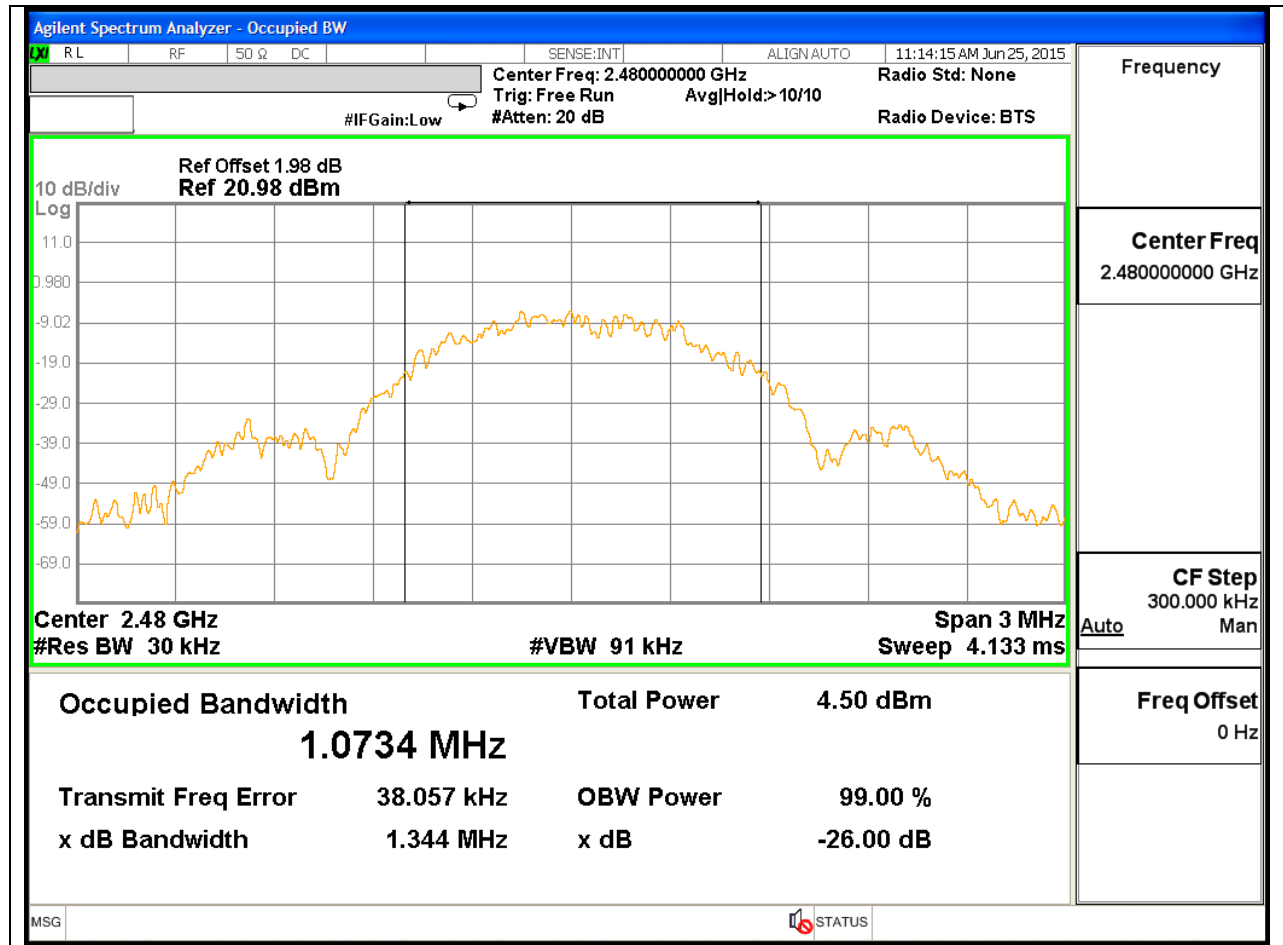
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.3. OUTPUT POWER LIMITS

FCC §15.247 (b)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

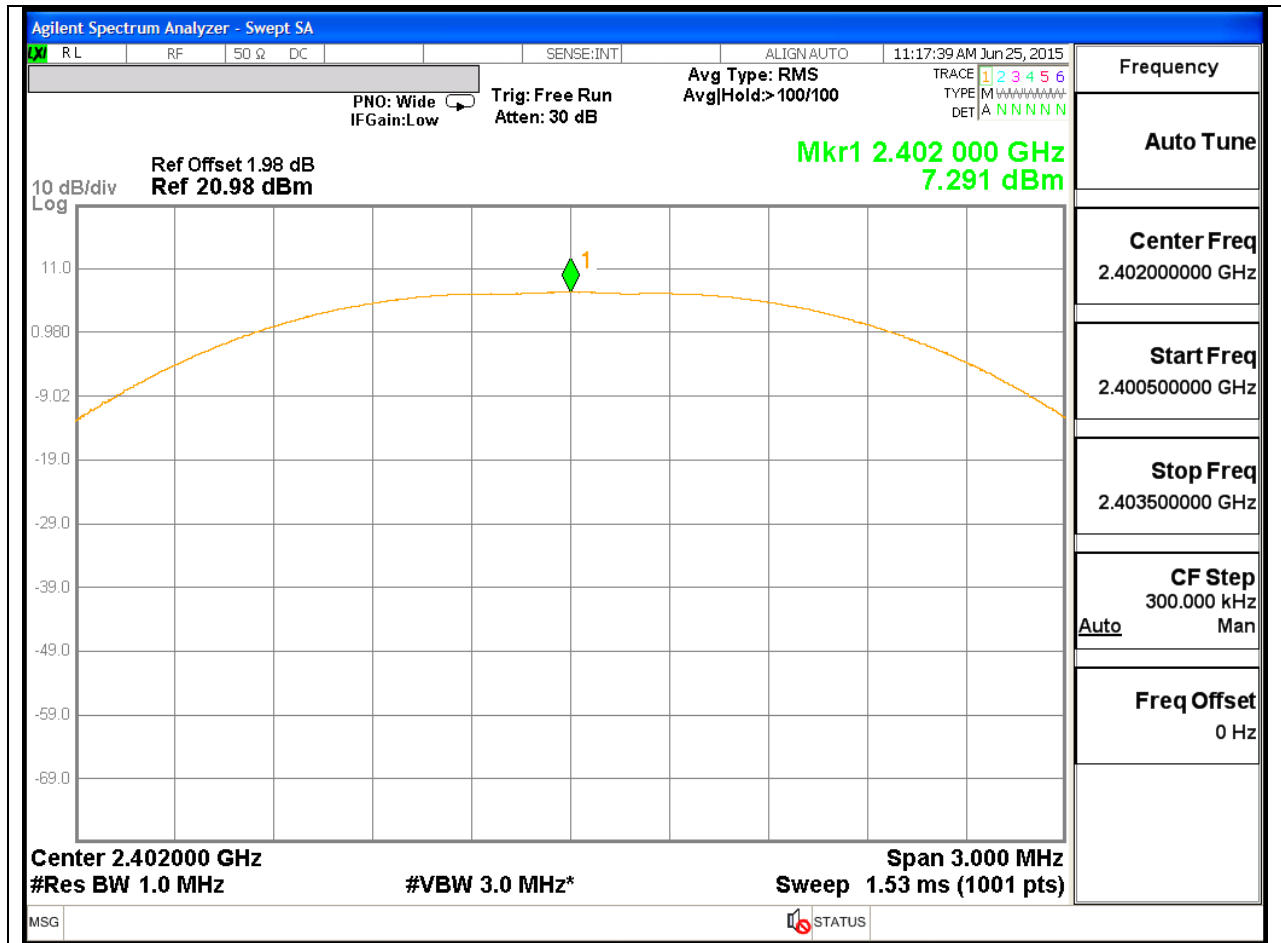
Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r03 utilizing spectrum analyzer.

RESULTS

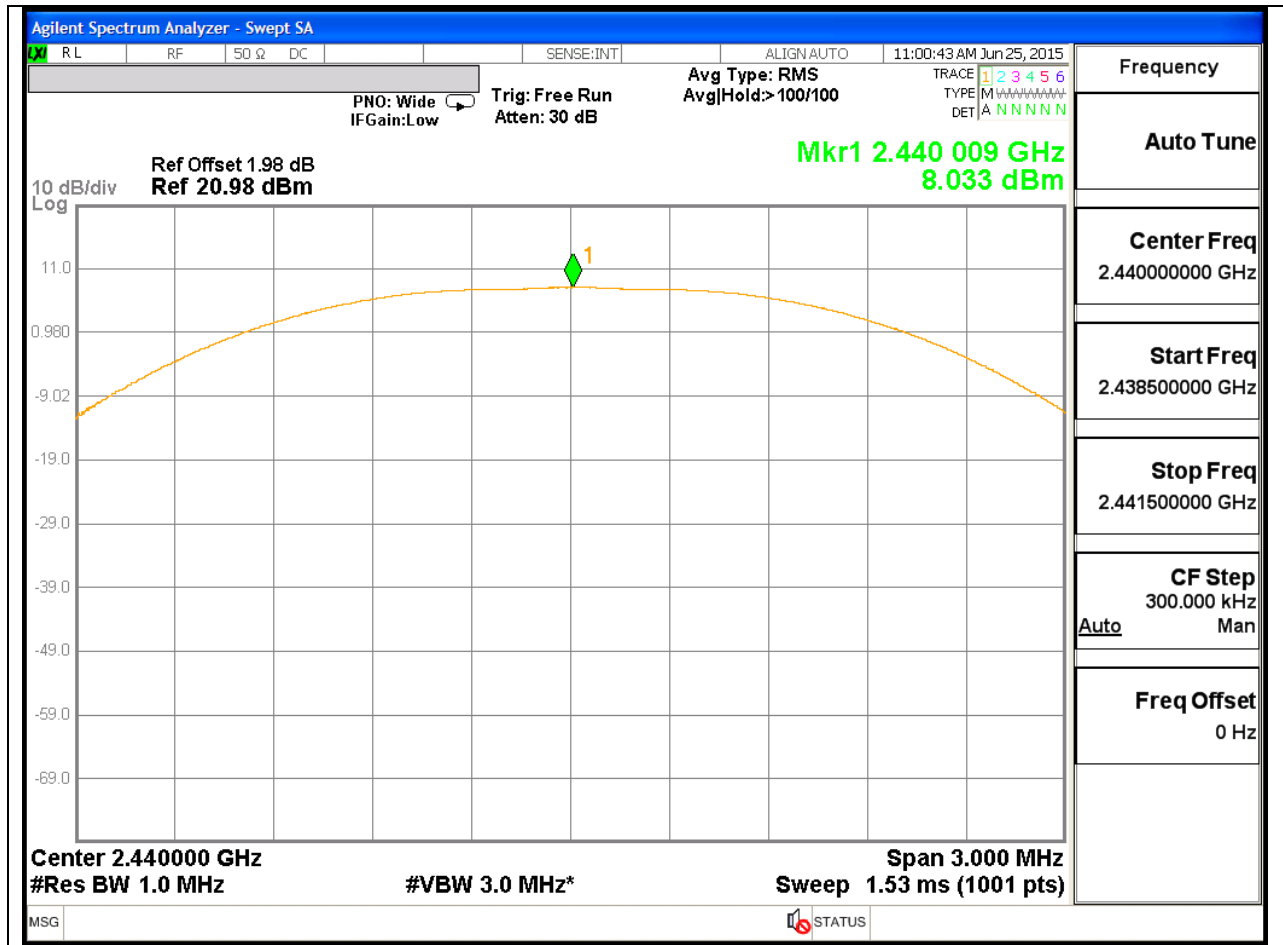
Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	7.291	30	-22.709
Middle	2440	8.033	30	-21.967
High	2480	7.356	30	-22.644

OUTPUT POWER PLOTS

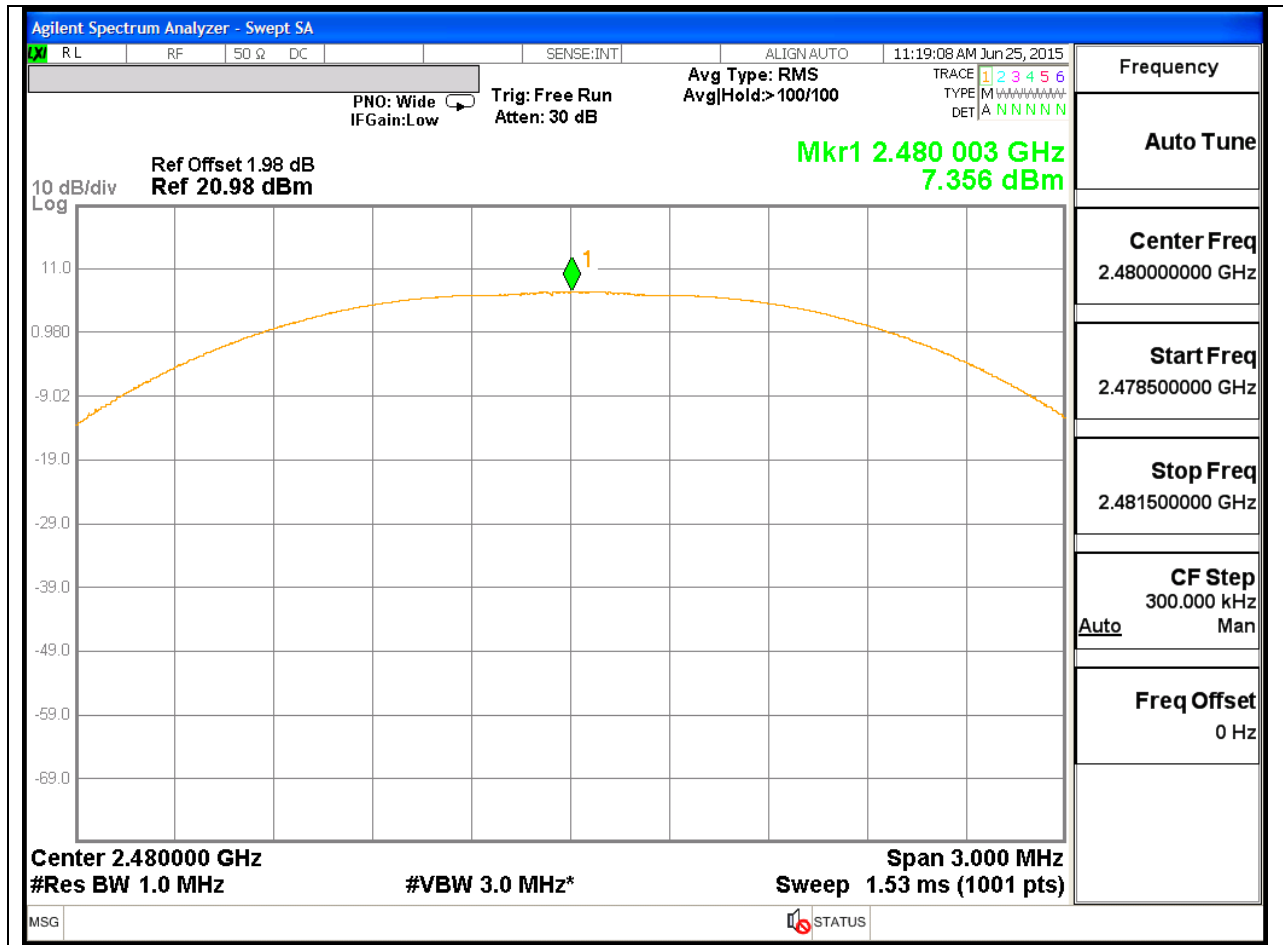
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	7.24
Middle	2440	7.51
High	2480	7.04

9.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

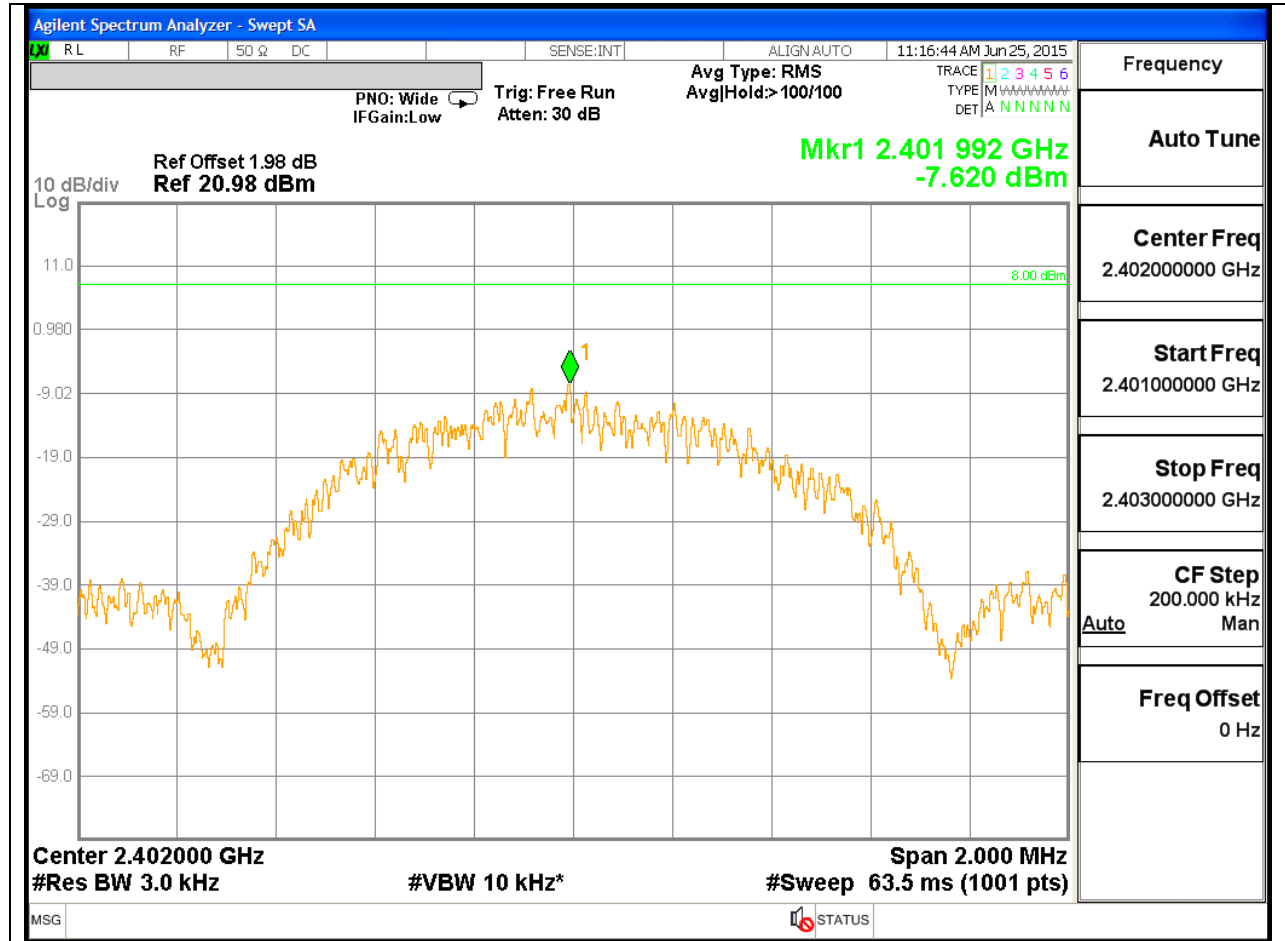
Power Spectral Density was performed utilizing the “Method PKPSD (Peak PSD)” under KDB558074 D01 DTS Meas Guidance v03r03.

RESULTS

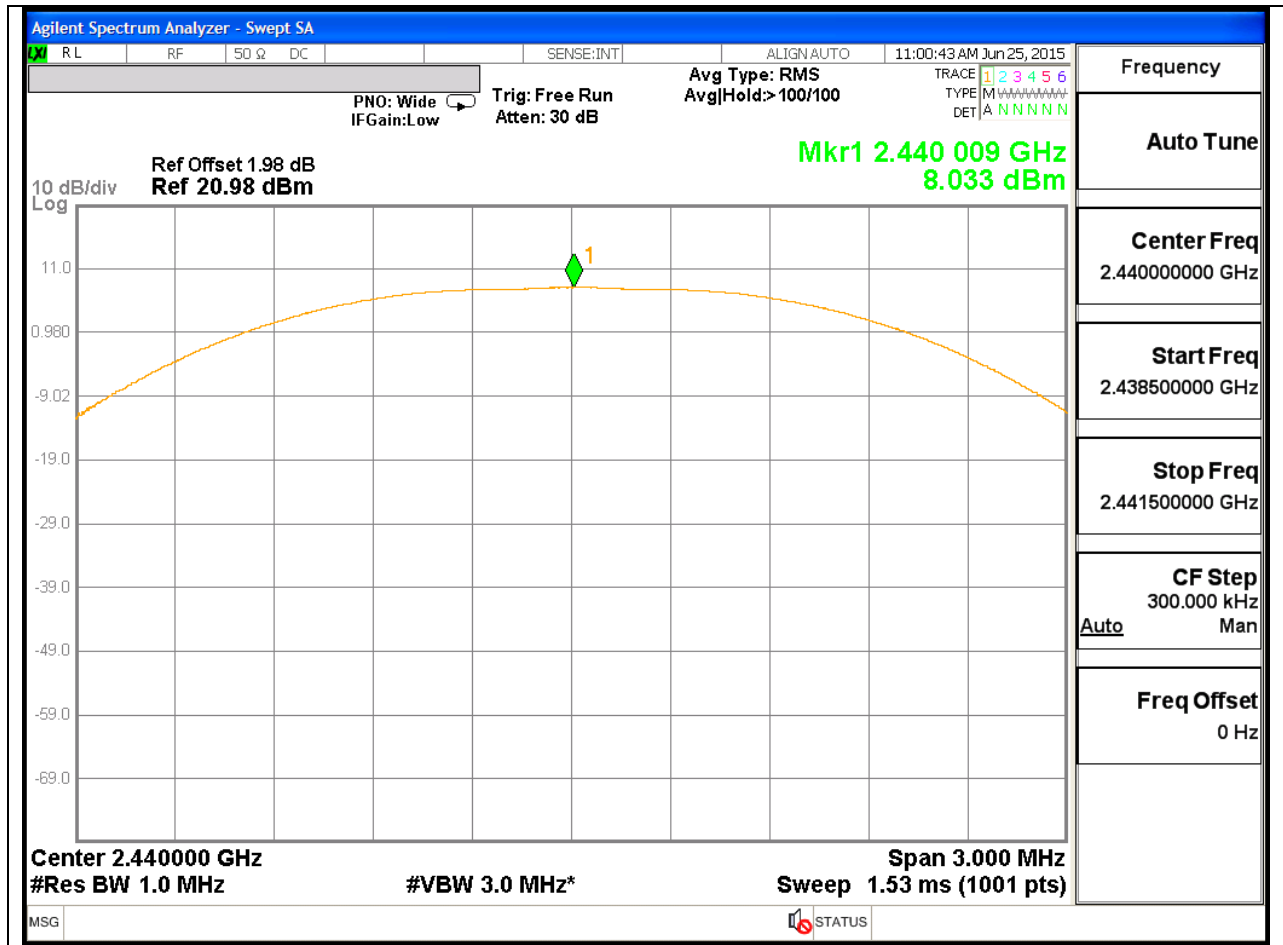
Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-7.62	8	-15.62
Middle	2440	-7.18	8	-15.18
High	2480	-7.73	8	-15.73

POWER SPECTRAL DENSITY PLOTS

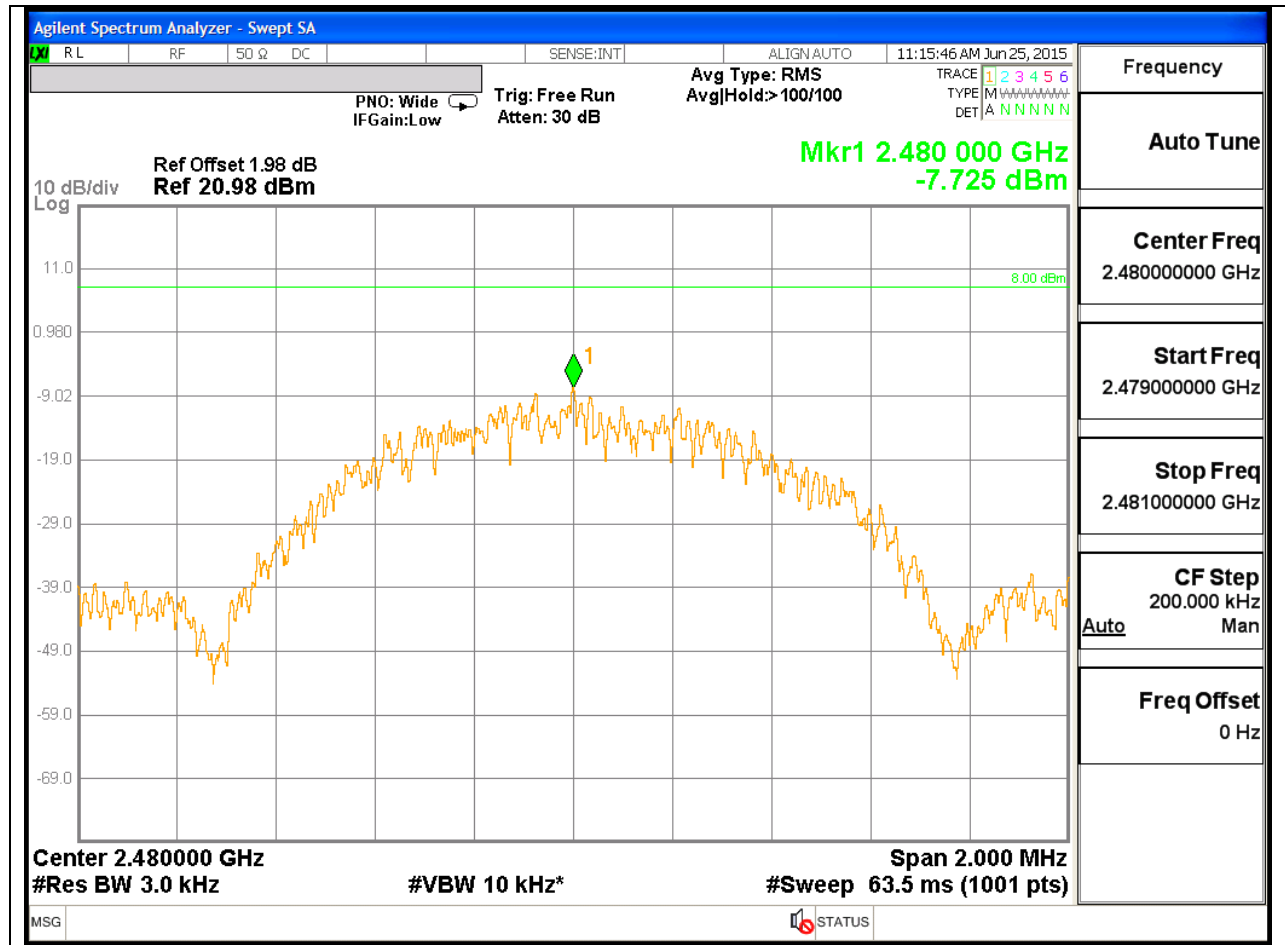
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

TEST PROCEDURE

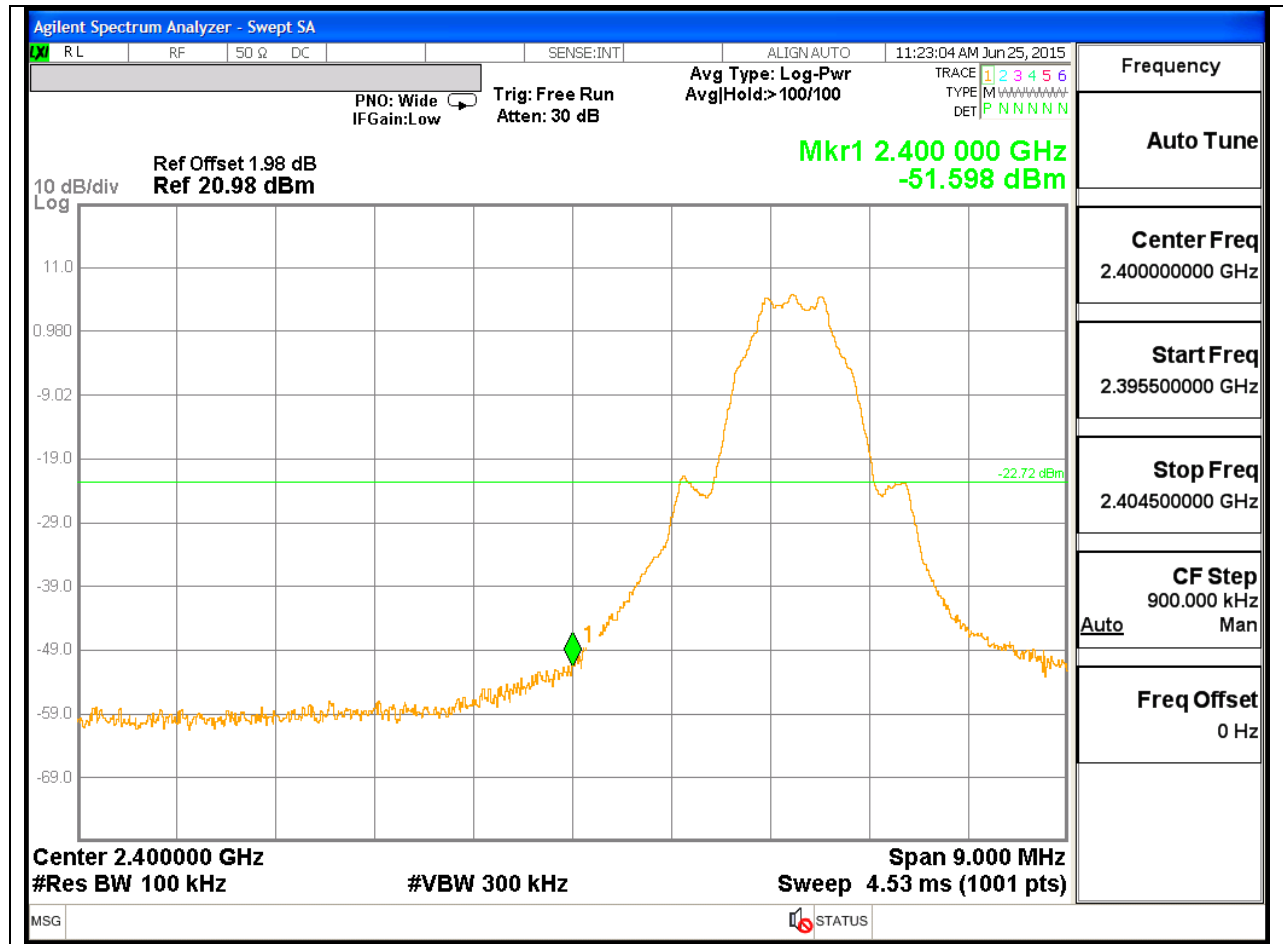
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

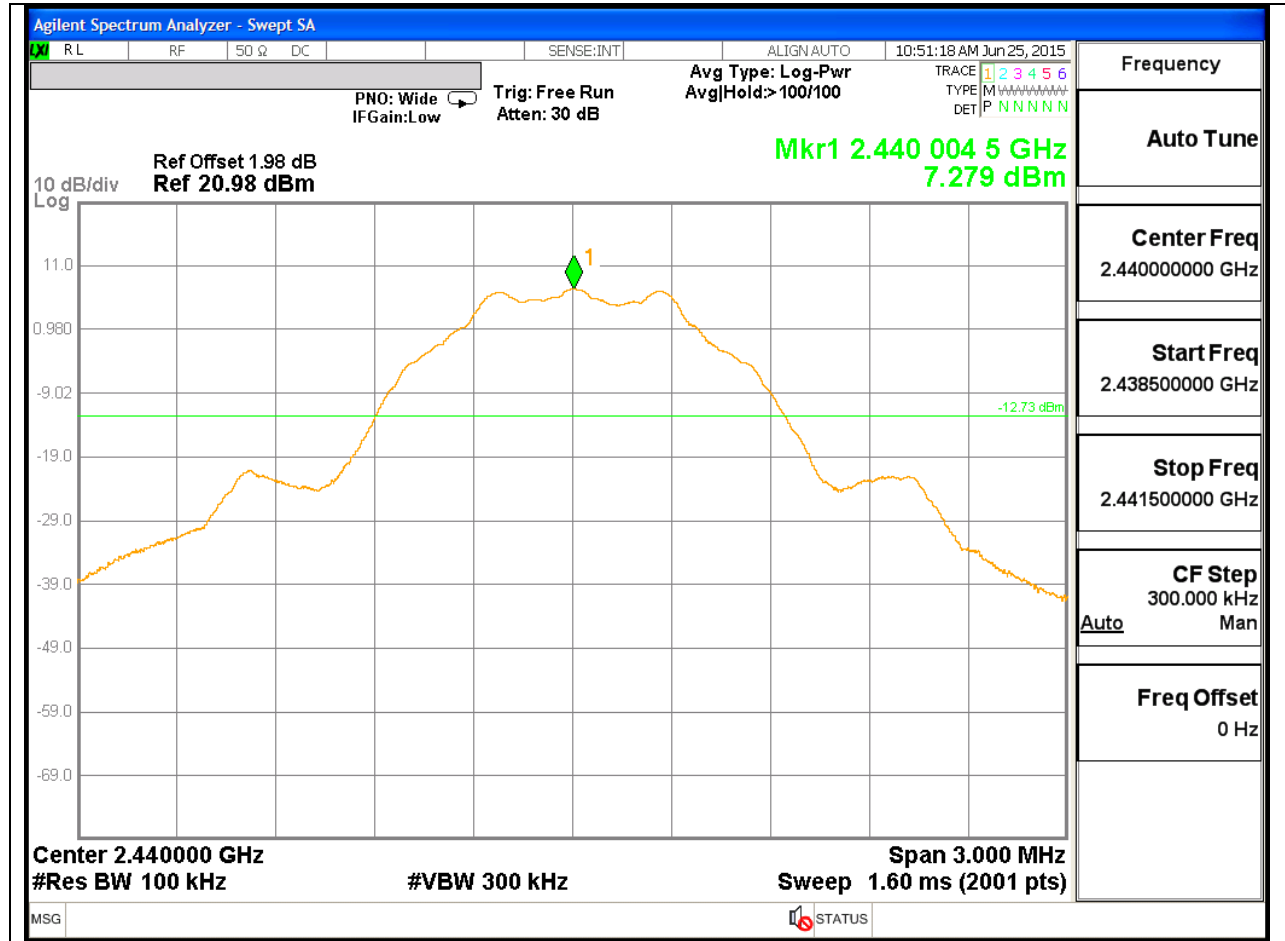
SPURIOUS EMISSIONS, LOW CHANNEL

LOW CHANNEL BANDEDGE



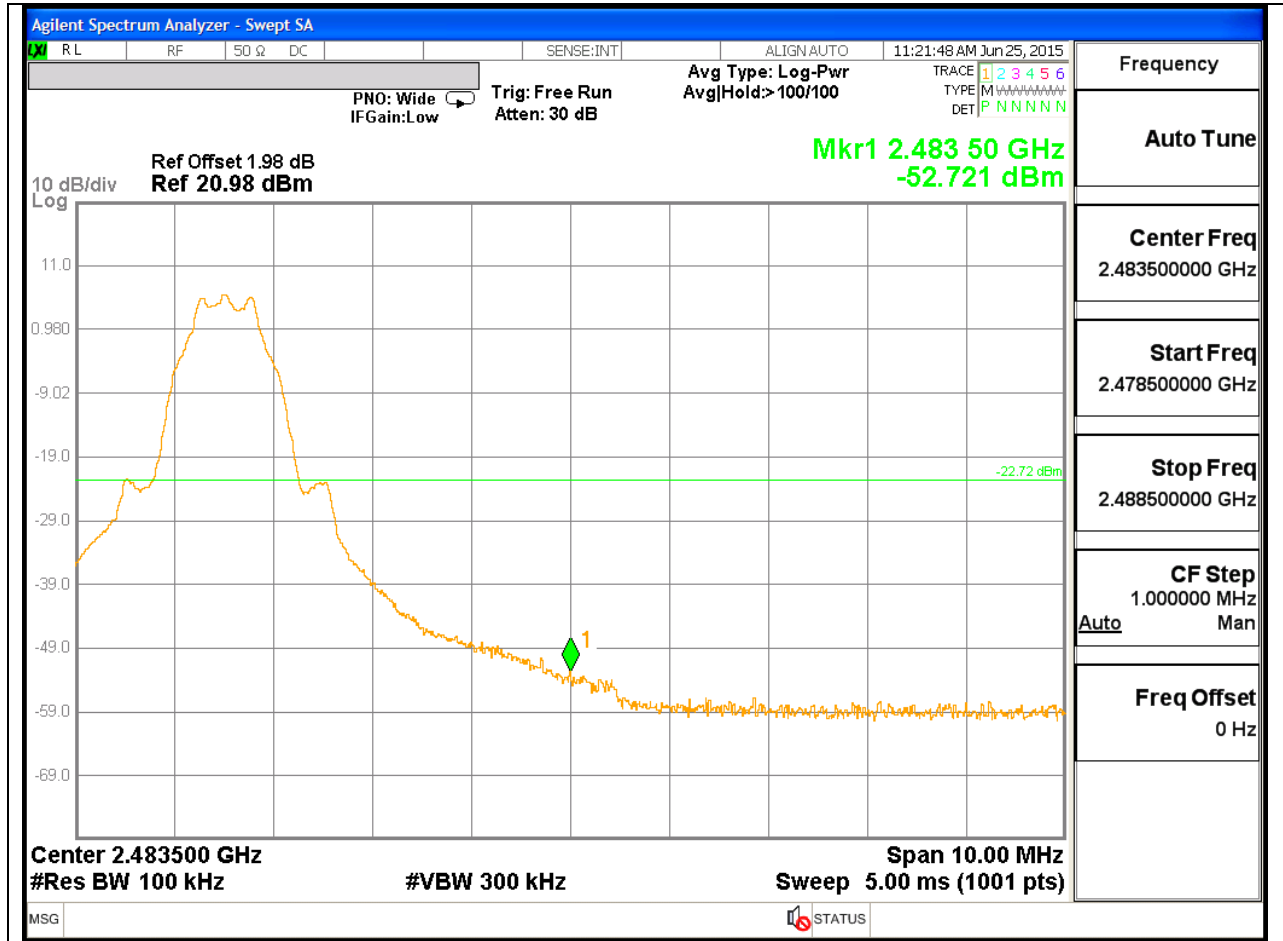
SPURIOUS EMISSIONS, MID CHANNEL

MID CHANNEL REFERENCE



SPURIOUS EMISSIONS, HIGH CHANNEL

HIGH CHANNEL BANDEDGE



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = $10 \log (1/x)$. For this sample: DCF = $10 \log (1/0.621) = 2.07 \text{ dB}$

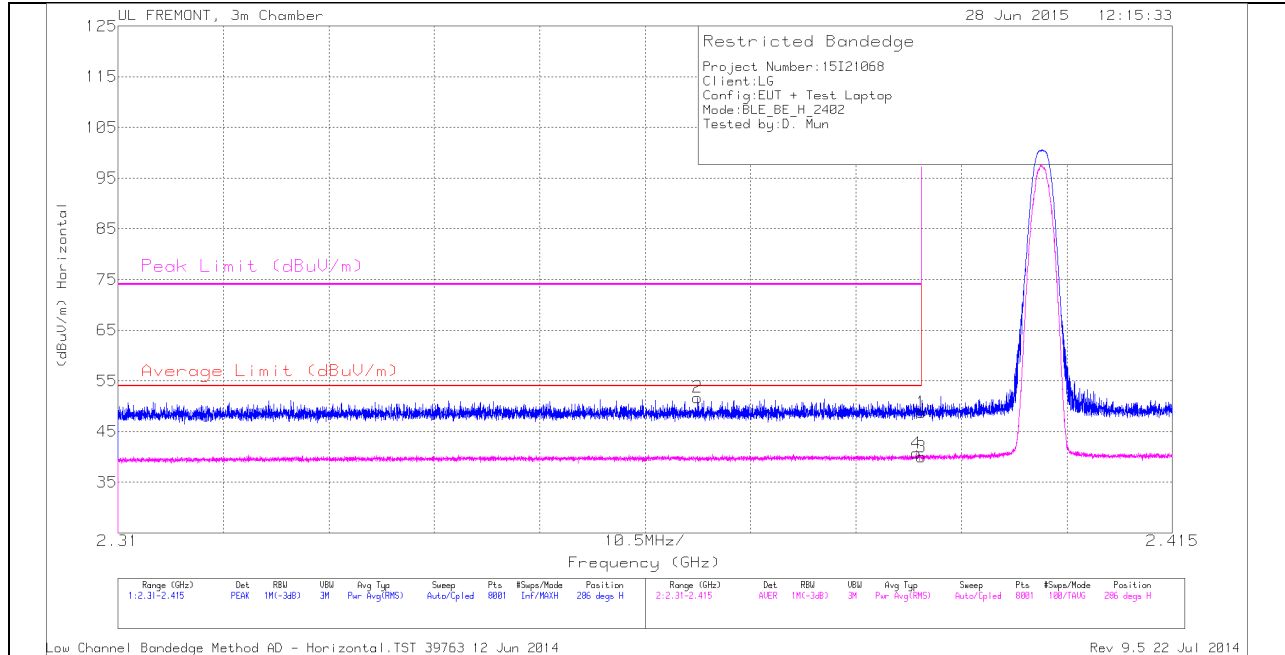
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

10.2. TRANSMITTER ABOVE 1 GHz RESTRICTED BANDEGE (LOW CHANNEL)

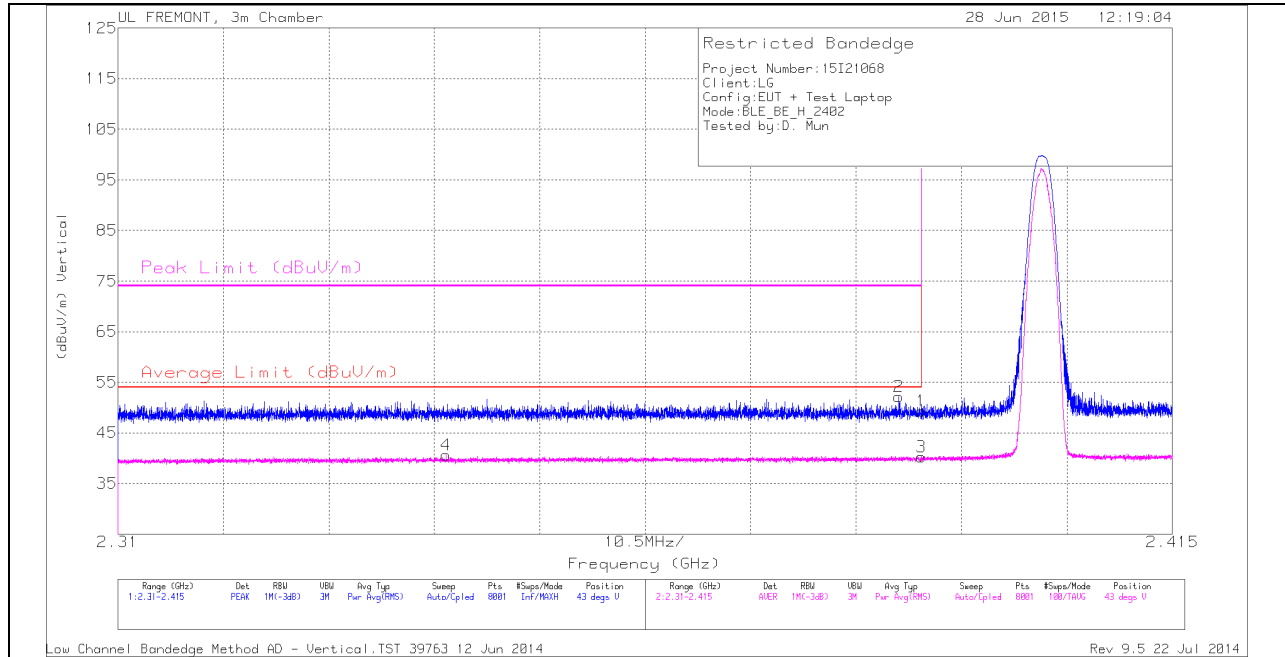
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.368	42.22	PK	31.9	-22.4	51.72	-	-	74	-22.28	286	100	H
4	2.389	31.13	RMS	32	-22.4	40.73	54	-13.27	-	-	286	100	H
1	2.39	39.19	PK	32	-22.4	48.79	-	-	74	-25.21	286	100	H
3	2.39	30.34	RMS	32	-22.4	39.94	54	-14.06	-	-	286	100	H

VERTICAL PEAK AND AVERAGE PLOT

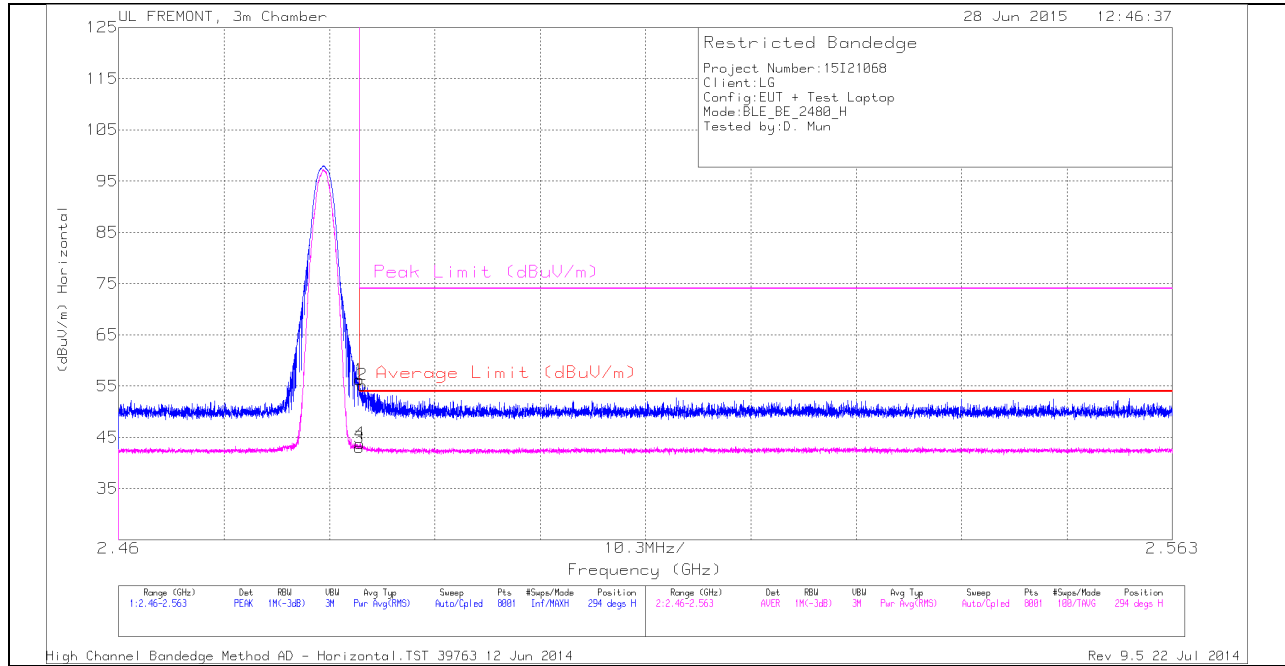


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.343	31.26	RMS	31.8	-22.4	40.66	54	-13.34	-	-	43	100	V
2	2.388	42.5	PK	32	-22.4	52.1	-	-	74	-21.9	43	100	V
1	2.39	39.67	PK	32	-22.4	49.27	-	-	74	-24.73	43	100	V
3	2.39	30.59	RMS	32	-22.4	40.19	54	-13.81	-	-	43	100	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

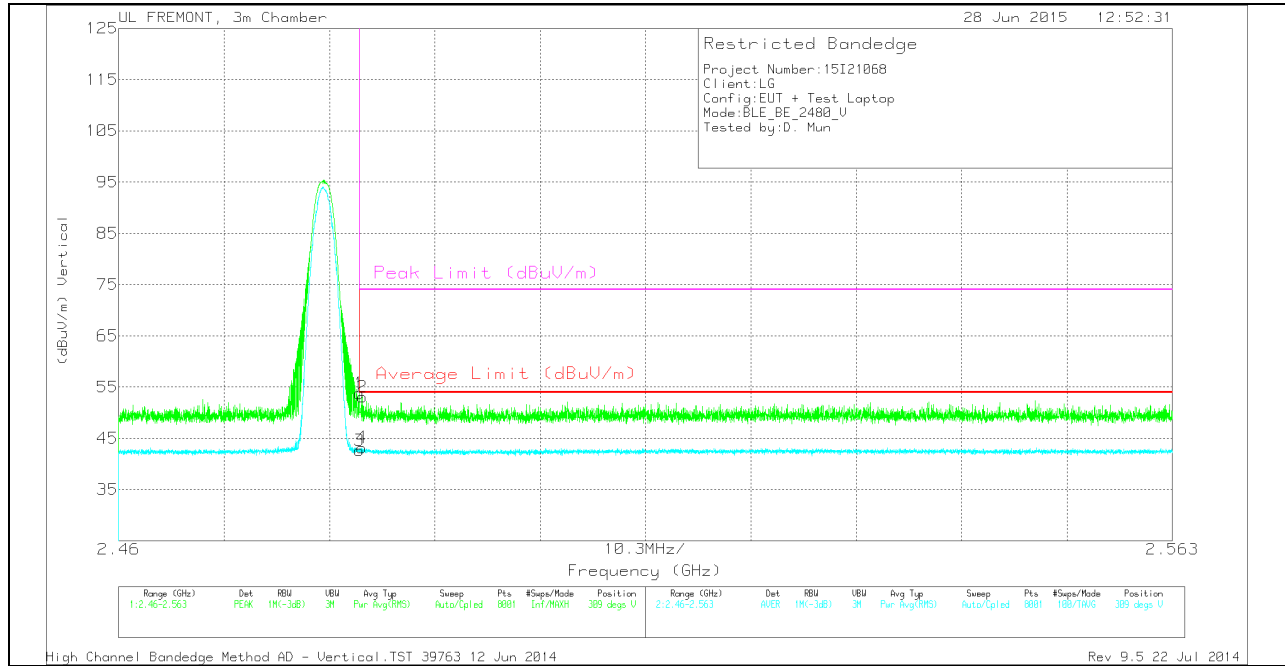
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	46.07	PK	32.3	-22.1	0	56.27	-	-	74	-17.73	294	100	H
2	2.484	45.02	PK	32.3	-22.1	0	55.22	-	-	74	-18.78	294	100	H
3	2.484	30.78	RMS	32.3	-22.1	2.07	43.05	54	-10.95	-	-	294	100	H
4	2.484	31.56	RMS	32.3	-22.1	2.02	43.83	54	-10.17	-	-	294	100	H

VERTICAL PEAK AND AVERAGE PLOT

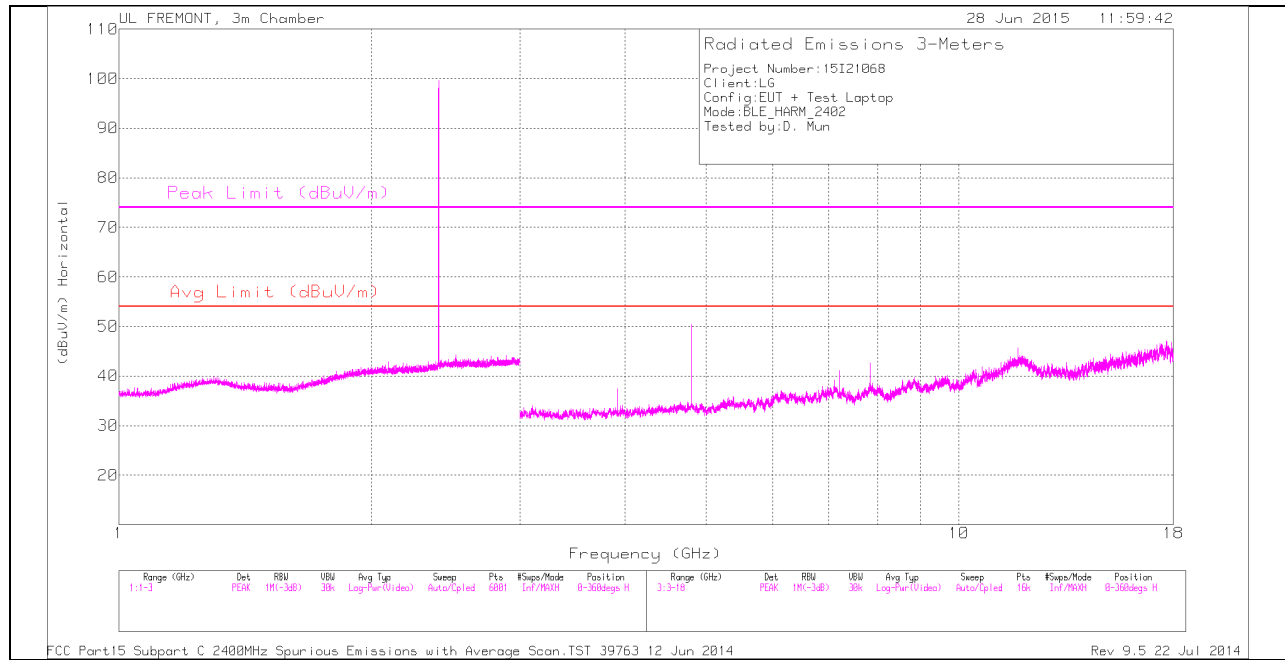


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	43.57	PK	32.3	-22.1	0	53.77	-	-	74	-20.23	309	100	V
2	2.484	42.87	PK	32.3	-22.1	0	53.07	-	-	74	-20.93	309	100	V
3	2.484	30.41	RMS	32.3	-22.1	2.07	42.68	54	-11.32	-	-	309	100	V
4	2.484	30.96	RMS	32.3	-22.1	2.07	43.23	54	-10.77	-	-	309	100	V

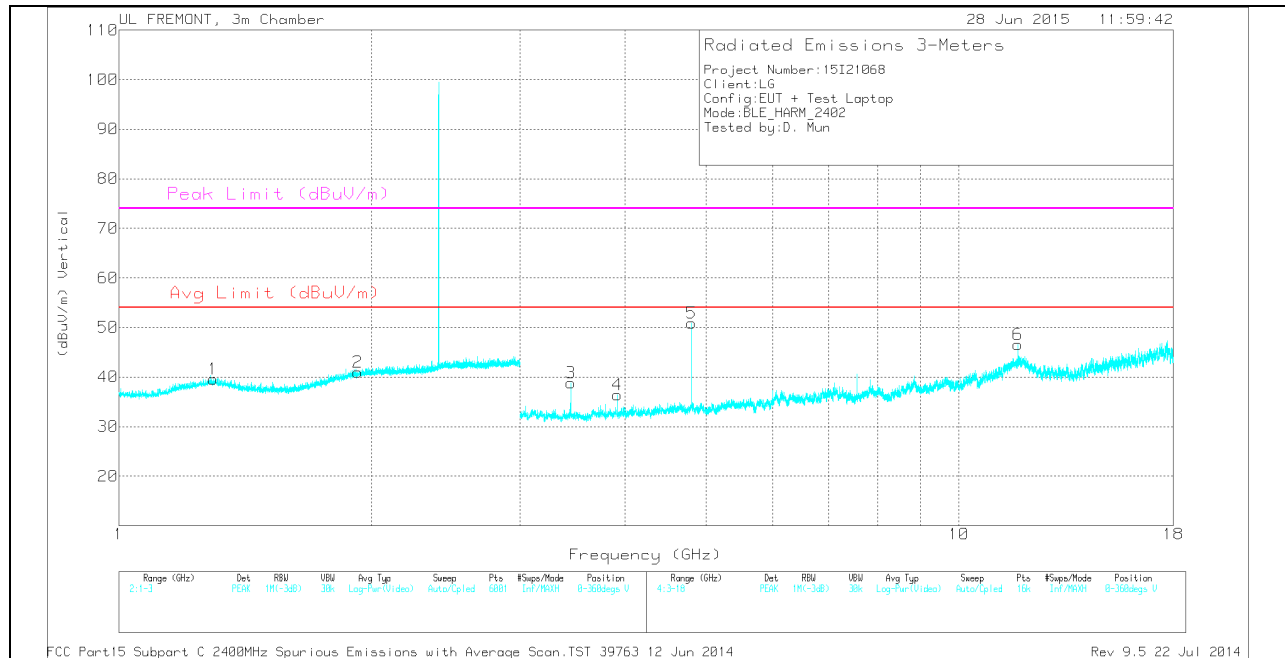
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

TRACE MARKERS

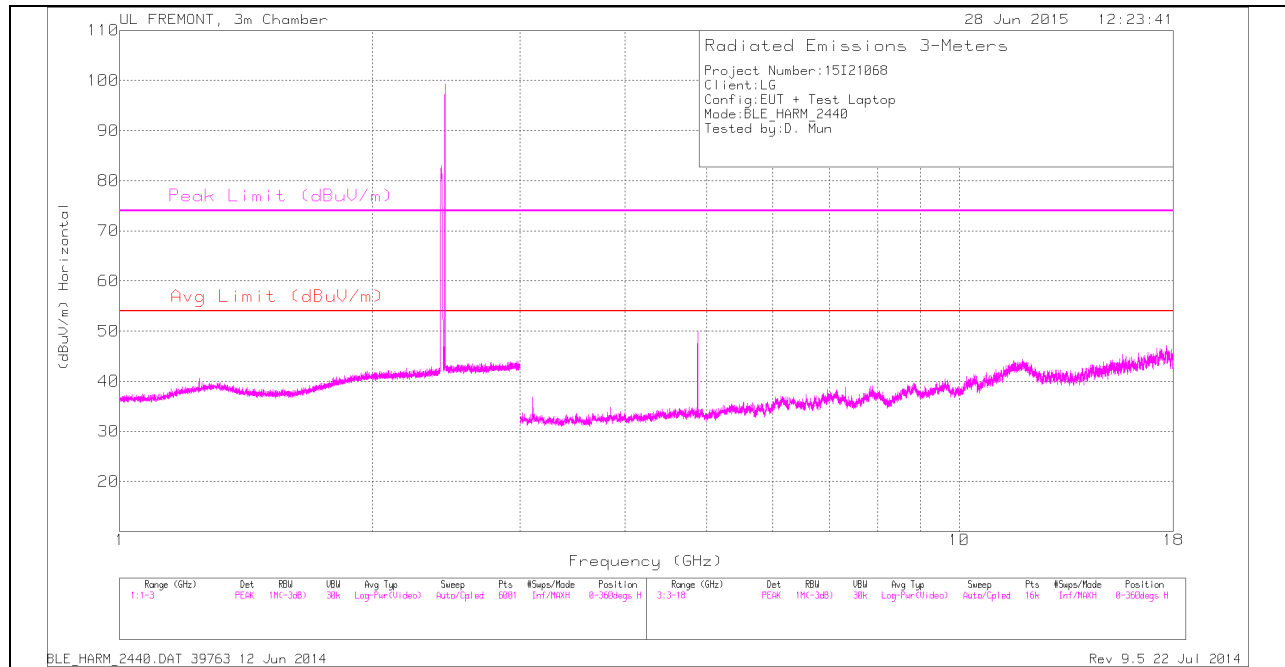
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.294	32.96	PK	29.8	-23.2	0	39.56	-	-	74	-34.44	0-360	100	V
2	1.926	32.41	PK	31.2	-22.6	0	41.01	-	-	-	-	0-360	100	V
3	3.45	36.64	PK	32.7	-30.5	0	38.84	-	-	-	-	0-360	100	V
4	3.92	33.73	PK	33.2	-30.5	0	36.43	-	-	74	-37.57	0-360	100	V
5	4.805	46.24	PK	34	-29.4	0	50.84	-	-	74	-23.16	0-360	100	V
6	11.76	29.85	PK	38.9	-22.2	0	46.55	-	-	74	-27.45	0-360	100	V

PK - Peak detector

RADIATED EMISSIONS

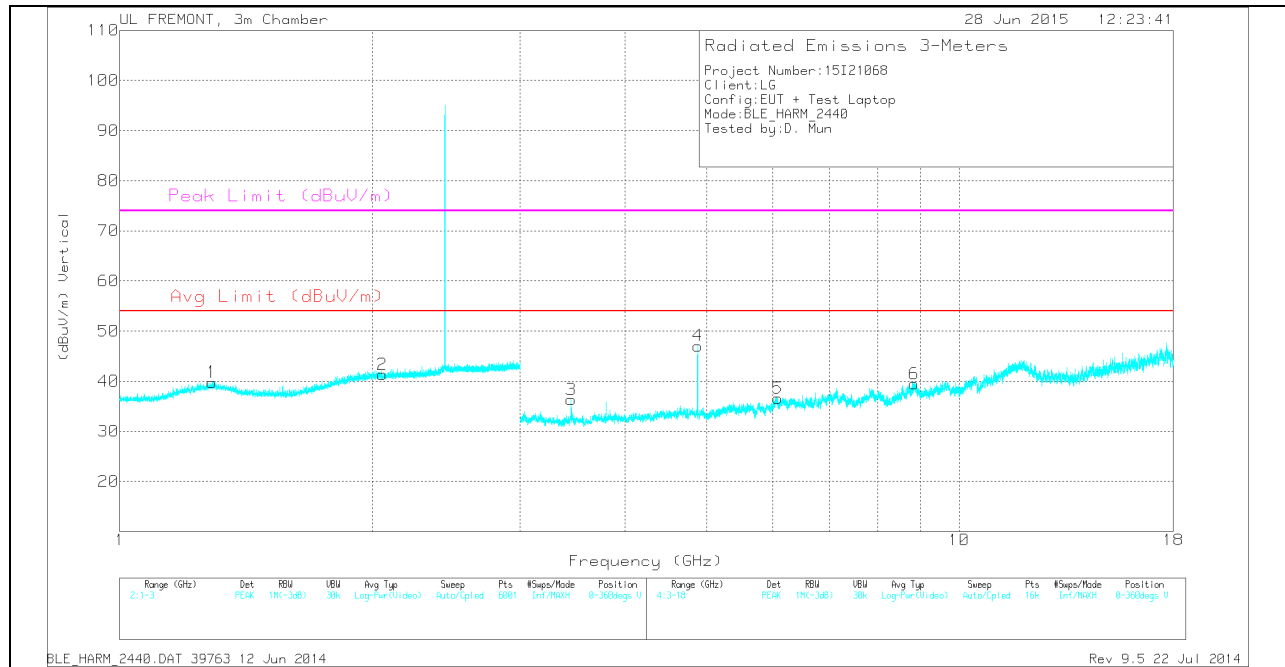
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.293	30.91	MAV1	29.8	-23.1	2.07	39.68	54	-14.32	-	-	360	100	V
1.294	42.78	PK2	29.8	-23.2	0	49.38	-	-	74	-24.62	360	100	V
1.924	30.63	MAV1	31.2	-22.6	2.07	41.13	-	-	-	-	360	100	V
1.926	42.61	PK2	31.2	-22.6	0	51.21	-	-	-	-	360	100	V
3.448	29.25	MAV1	32.7	-30.5	2.07	33.47	-	-	-	-	360	100	V
3.449	40.3	PK2	32.7	-30.5	0	42.5	-	-	-	-	360	100	V
3.918	40.17	PK2	33.2	-30.5	0	42.87	-	-	74	-31.13	360	100	V
3.919	28.69	MAV1	33.2	-30.5	2.07	33.41	54	-20.59	-	-	360	100	V
4.804	43.88	PK2	34	-29.4	0	48.48	-	-	74	-25.52	360	100	V
4.804	34.71	MAV1	34	-29.4	2.07	41.33	54	-12.67	-	-	360	100	V
11.759	36.57	PK2	38.9	-22.2	0	53.27	-	-	74	-20.73	360	100	V
11.759	25.39	MAV1	38.9	-22.2	2.07	44.16	54	-9.84	-	-	360	100	V

MID CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

TRACE MARKERS

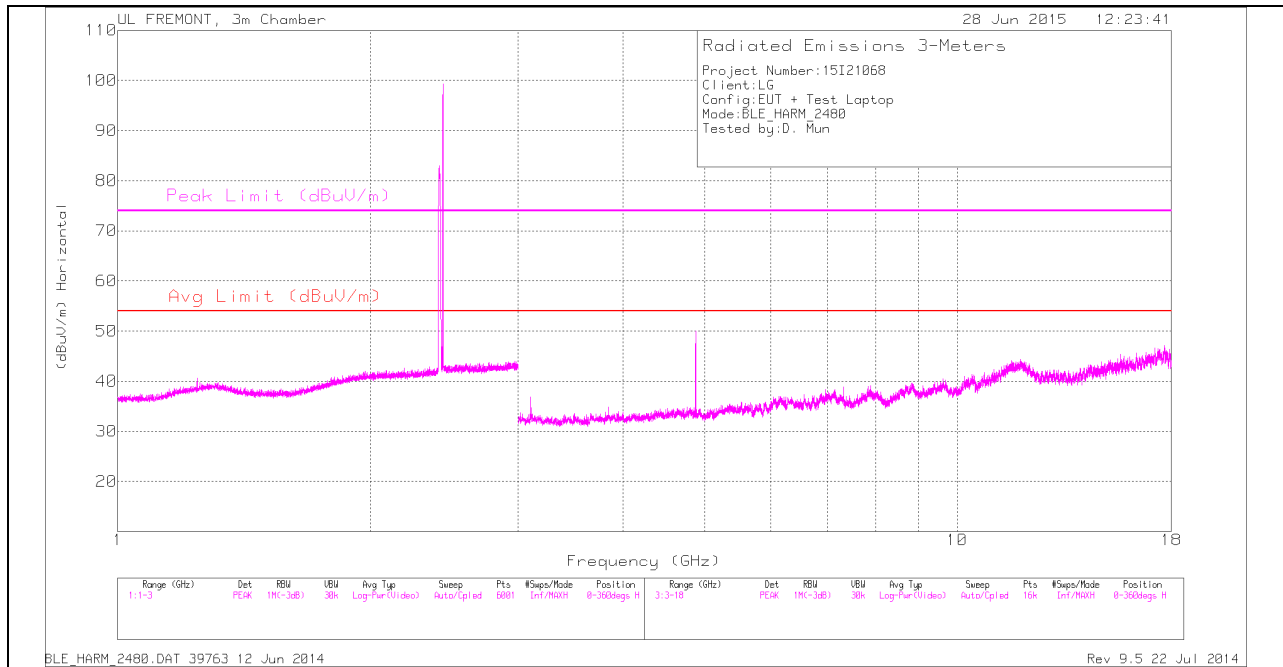
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.288	33.08	PK	29.8	-23.1	0	39.78	-	-	74	-34.22	0-360	100	V
2	2.055	32.35	PK	31.5	-22.5	0	41.35	-	-	-	-	0-360	100	V
3	3.45	34.14	PK	32.7	-30.5	0	36.34	-	-	-	-	0-360	100	V
4	4.881	42.17	PK	34	-29.1	0	47.07	-	-	74	-26.93	0-360	100	V
5	6.076	29.5	PK	35.2	-28.1	0	36.6	-	-	-	-	0-360	100	V
6	8.839	28.6	PK	35.9	-25	0	39.5	-	-	-	-	0-360	100	V

PK - Peak detector

RADIATED EMISSIONS

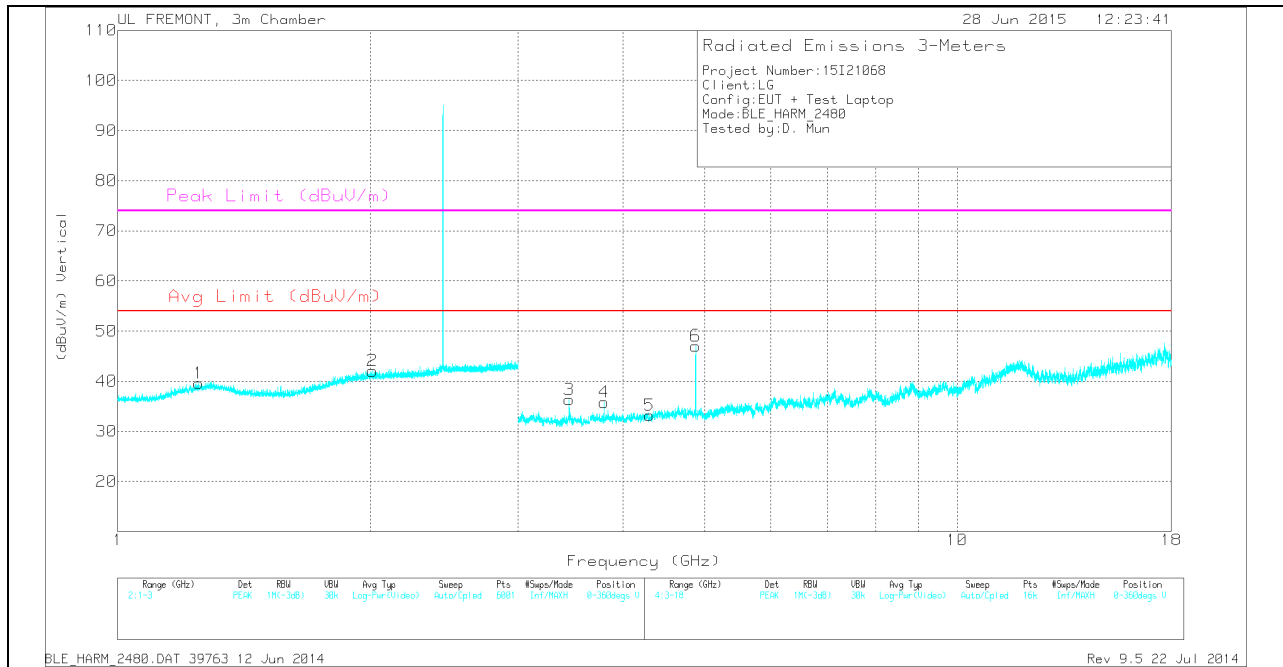
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.287	42.52	PK2	29.8	-23.1	0	49.22	-	-	74	-24.78	0	100	V
1.288	30.96	MAV1	29.8	-23.1	0	37.66	54	-16.34	-	-	0	100	V
2.055	42.17	PK2	31.5	-22.5	0	51.17	-	-	-	-	0	100	V
2.057	30.68	MAV1	31.5	-22.5	0	39.68	-	-	-	-	0	100	V
3.449	29.15	MAV1	32.7	-30.5	0	31.35	-	-	-	-	0	100	V
3.452	40.69	PK2	32.7	-30.5	0	42.89	-	-	-	-	0	100	V
4.88	42.21	PK2	34	-29.1	0	47.11	-	-	74	-26.89	0	100	V
4.88	31.7	MAV1	34	-29.1	0	36.6	54	-17.4	-	-	0	100	V
6.077	38.88	PK2	35.2	-28.1	0	45.98	-	-	-	-	0	100	V
6.078	27.37	MAV1	35.2	-28.2	0	34.37	-	-	-	-	0	100	V
8.84	37.58	PK2	35.9	-25	0	48.48	-	-	-	-	0	100	V
8.84	25.89	MAV1	35.9	-25	0	36.79	-	-	-	-	0	100	V

HIGH CHANNEL HORIZONTAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL VERTICAL



Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.249	33.39	PK	29.4	-23.2	0	39.59	-	-	74	-34.41	0-360	100	V
2	2.011	33.06	PK	31.5	-22.5	0	42.06	-	-	-	-	0-360	100	V
3	3.45	34.14	PK	32.7	-30.5	0	36.34	-	-	-	-	0-360	100	V
4	3.795	33.1	PK	33.1	-30.4	0	35.8	-	-	74	-38.2	0-360	100	V
5	4.3	29.81	PK	33.5	-30.1	0	33.21	-	-	74	-40.79	0-360	100	V
6	4.88	42.14	PK	34	-29.1	0	47.04	-	-	74	-26.96	0-360	100	V

PK - Peak detector

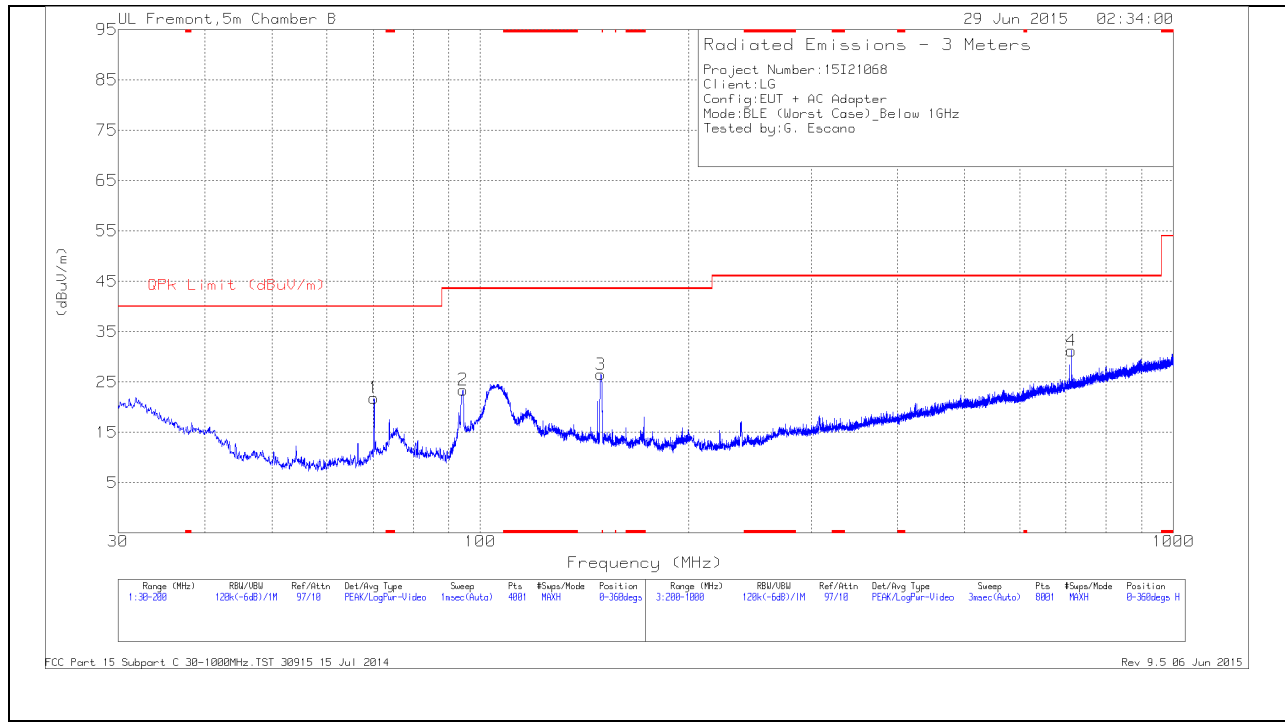
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1.248	42.89	PK2	29.4	-23.2	0	49.09	-	-	74	-24.91	0	100	V
1.249	31.12	MAv1	29.4	-23.2	0	37.32	54	-16.68	-	-	0	100	V
2.01	42.6	PK2	31.5	-22.5	0	51.6	-	-	-	-	0	100	V
2.013	30.76	MAv1	31.5	-22.5	0	39.76	-	-	-	-	0	100	V
3.448	29.27	MAv1	32.7	-30.5	0	31.47	-	-	-	-	0	100	V
3.449	29.15	MAv1	32.7	-30.5	0	31.35	-	-	-	-	0	100	V
3.793	39.52	PK2	33.1	-30.4	0	42.22	-	-	74	-31.78	0	100	V
3.795	28.16	MAv1	33.1	-30.4	0	30.86	54	-23.14	-	-	0	100	V
4.299	39.54	PK2	33.5	-30.2	0	42.84	-	-	74	-31.16	0	100	V
4.302	28.36	MAv1	33.5	-30.1	0	31.76	54	-22.24	-	-	0	100	V
4.88	42.21	PK2	34	-29.1	0	47.11	-	-	74	-26.89	0	100	V
4.88	31.7	MAv1	34	-29.1	0	36.6	54	-17.4	-	-	0	100	V

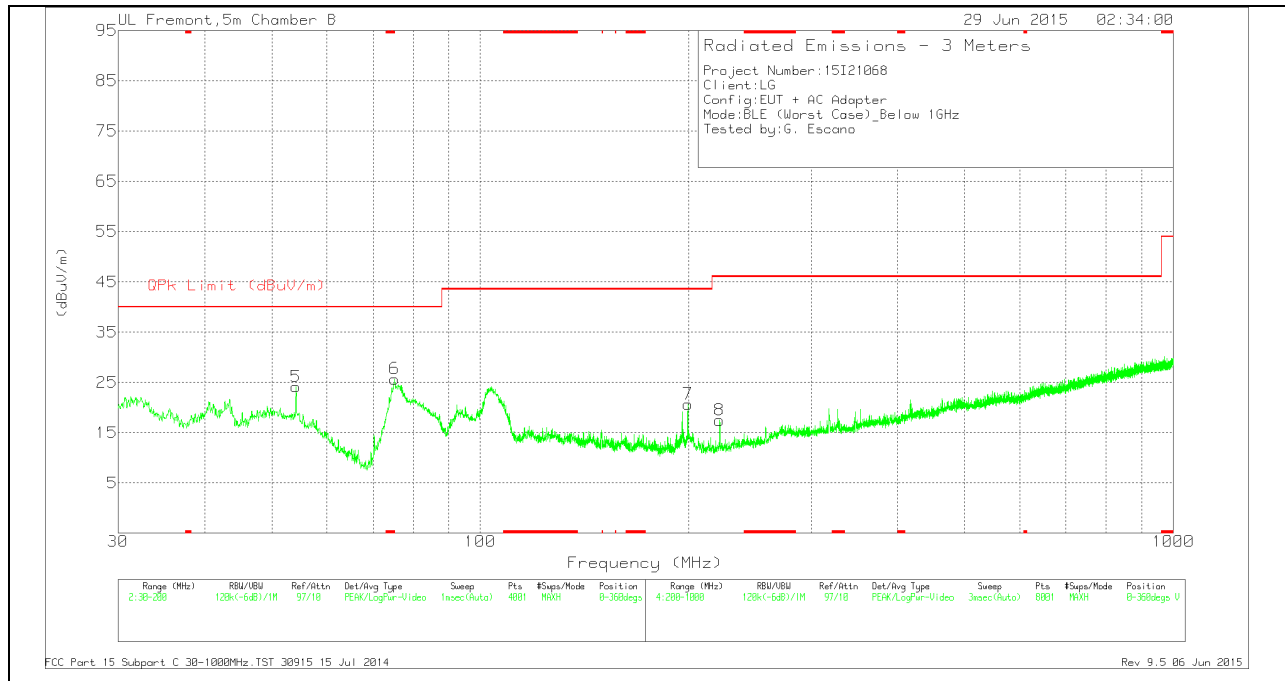
10.3. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION)

HORIZONTAL PLOT



VERTICAL PLOT



BELOW 1 GHz TABLE

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 75.1775	46.01	Pk	8	-28.3	25.71	40	-14.29	0-360	101	V
5	54.1825	45.25	Pk	7.4	-28.5	24.15	40	-15.85	0-360	101	V
1	70.2475	42.05	Pk	8.1	-28.3	21.85	40	-18.15	0-360	100	H
2	94.3875	42.74	Pk	8.7	-28	23.44	43.52	-20.08	0-360	199	H
3	149.17	41.41	Pk	12.5	-27.4	26.51	43.52	-17.01	0-360	199	H
7	199.2775	34.97	Pk	12.6	-26.9	20.67	43.52	-22.85	0-360	101	V
8	221.5	33.28	Pk	10.8	-26.6	17.48	46.02	-28.54	0-360	199	V
4	713.3	35.13	Pk	20.4	-24.3	31.23	46.02	-14.79	0-360	299	H

PK - Peak detector

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

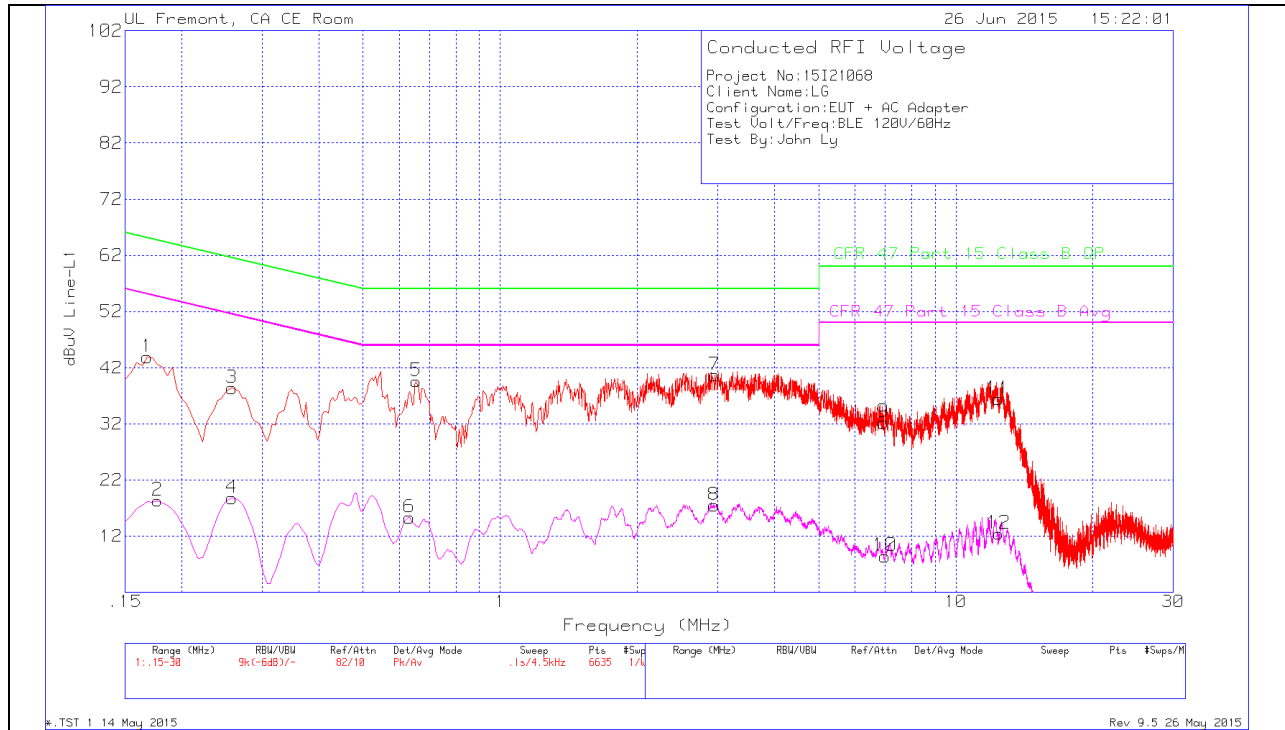
TEST PROCEDURE

ANSI C63.10

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



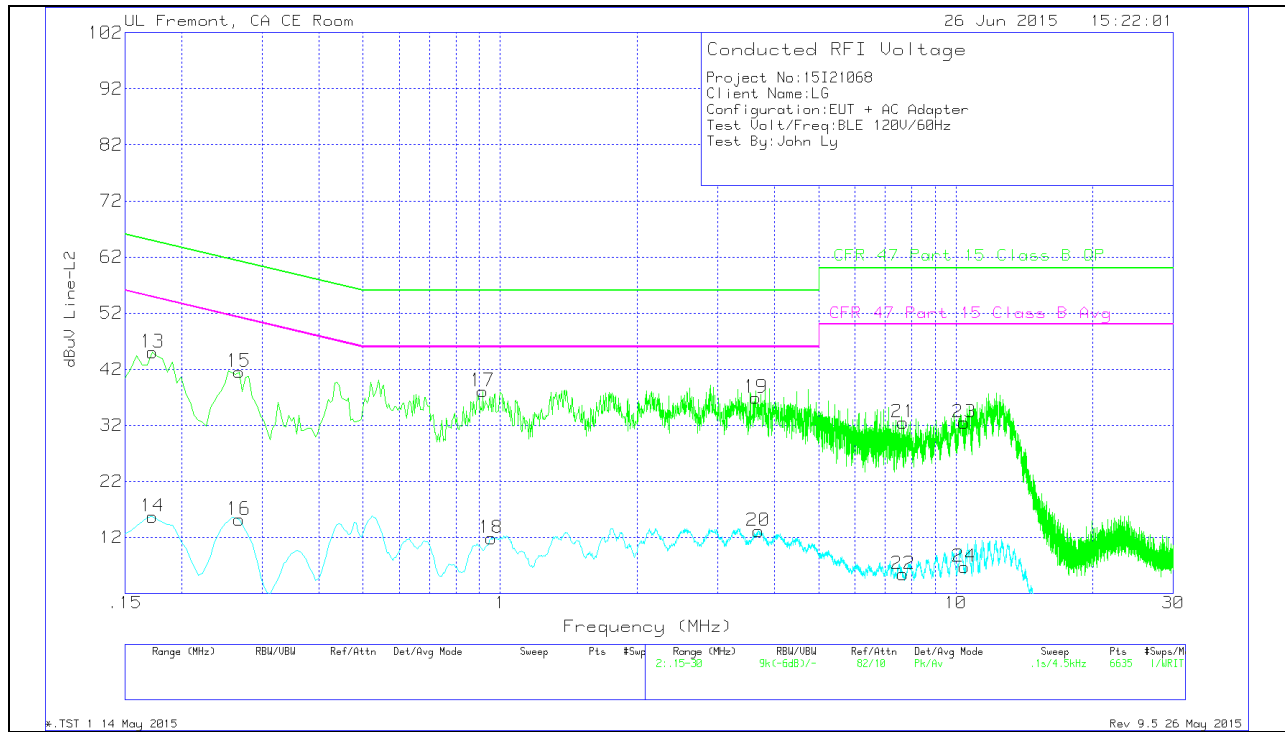
LINE 1 RESULTS

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
1	.168	42.71	Pk	1.2	0	43.91	65.06	-21.15		
2	.177	17.23	Av	1.1	0	18.33	-	-	54.63	-36.3
3	.258	37.67	Pk	.7	0	38.37	61.5	-23.13		
4	.258	18.11	Av	.7	0	18.81	-	-	51.5	-32.69
5	.654	39.28	Pk	.3	0	39.58	56	-16.42		
6	.6315	15.04	Av	.3	0	15.34	-	-	46	-30.66
7	2.958	40.41	Pk	.2	.1	40.71	56	-15.29		
8	2.9445	17.19	Av	.2	.1	17.49	-	-	46	-28.51
9	6.945	31.97	Pk	.2	.1	32.27	60	-27.73		
10	6.99	8.15	Av	.2	.1	8.45	-	-	50	-41.55
11	12.3945	36.06	Pk	.2	.2	36.46	60	-23.54		
12	12.426	12.04	Av	.2	.2	12.44	-	-	50	-37.56

Pk - Peak detector
 Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
13	.1725	43.8	Pk	1.2	0	45	64.84	-19.84		
14	.1725	14.51	Av	1.2	0	15.71	-	-	54.84	-39.13
15	.267	40.82	Pk	.7	0	41.52	61.21	-19.69		
16	.267	14.46	Av	.7	0	15.16	-	-	51.21	-36.05
17	.915	37.75	Pk	.3	0	38.05	56	-17.95		
18	.9555	11.55	Av	.3	0	11.85	-	-	46	-34.15
19	3.642	36.61	Pk	.2	.1	36.91	56	-19.09		
20	3.687	12.84	Av	.2	.1	13.14	-	-	46	-32.86
21	7.665	32.22	Pk	.2	.1	32.52	60	-27.48		
22	7.665	5.15	Av	.2	.1	5.45	-	-	50	-44.55
23	10.4325	32.07	Pk	.2	.2	32.47	60	-27.53		
24	10.446	6.37	Av	.2	.2	6.77	-	-	50	-43.23

Pk - Peak detector
 Av - Average detection