



FCC CFR47 PART 15 SUBPART C

**BLUETOOTH LOW ENERGY
CERTIFICATION TEST REPORT**

FOR

GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n and NFC

MODEL NUMBER: LG-D725, D725, LGD725

FCC ID: ZNFD725

REPORT NUMBER: 14U17493-3

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NVLAP LAB CODE 200065-0

Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION: GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n and NFC
MODEL: LG-D725, D725, LGD725
SERIAL NUMBER: 403KPVH000431 (Radiated) & 403KPXV000426 (Conducted)
DATE TESTED: APRIL 2 – 25, 2014

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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TEST ENGINEER
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

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:

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

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 a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n and NFC

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	9.23	8.38

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIF antenna, with a maximum gain of -0.4 dBi.

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 Z 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	MCS-01WD	DB390078751	N/A
Earphone	LG	N/A	N/A	N/A

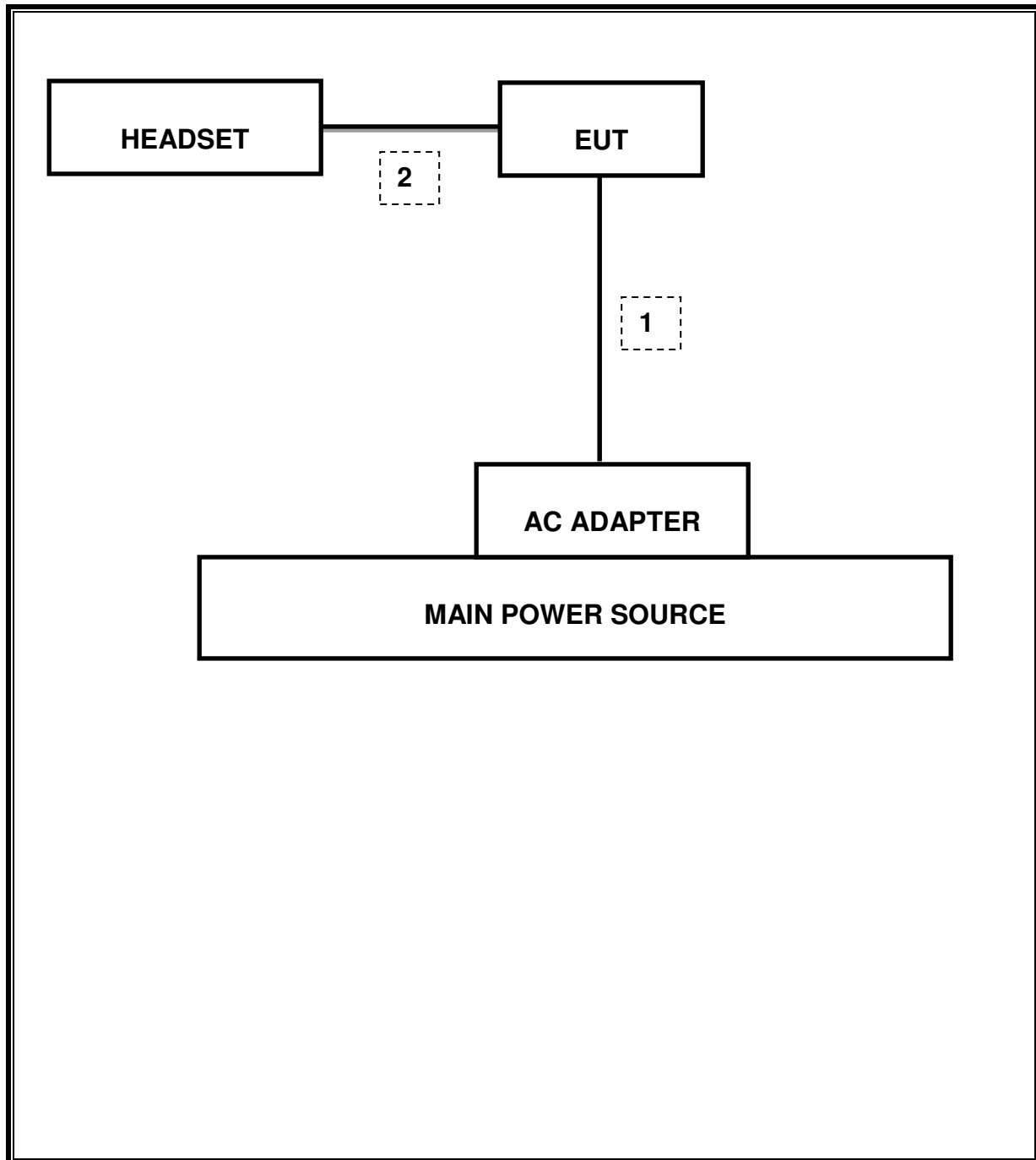
I/O CABLES

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

The EUT is continuously communicating to the Bluetooth tester during the tests. 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	C00986	4/1/2015
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	2/26/2015
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	8/8/2014
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	5/8/2014
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/2014
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	N/A	3/6/2015
Antenna, Horn, 18 GHz	ETS	3117	C01022	2/21/2015
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00589	12/17/2014
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/2014
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/2014
LISN, 30 MHz	FCC	50/250-25-2	C00626	1/14/2015

7. SUMMARY

8.

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	0.7459MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-51.28dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	9.23dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-4.76dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	51.19dBuV
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	45.71dBuV/m

ANTENNA PORT TEST RESULTS

8.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

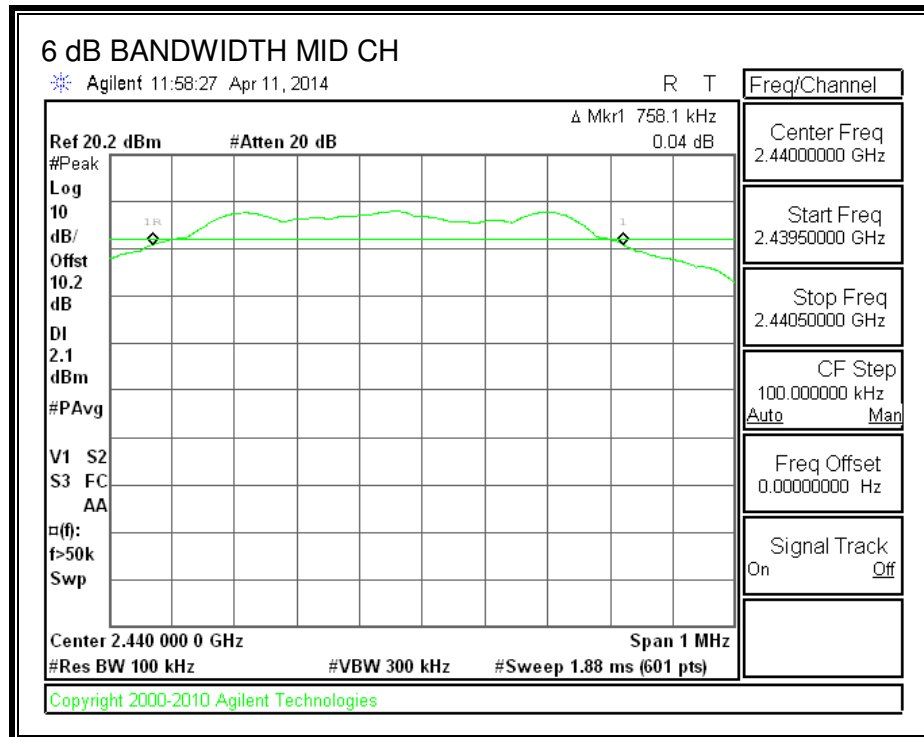
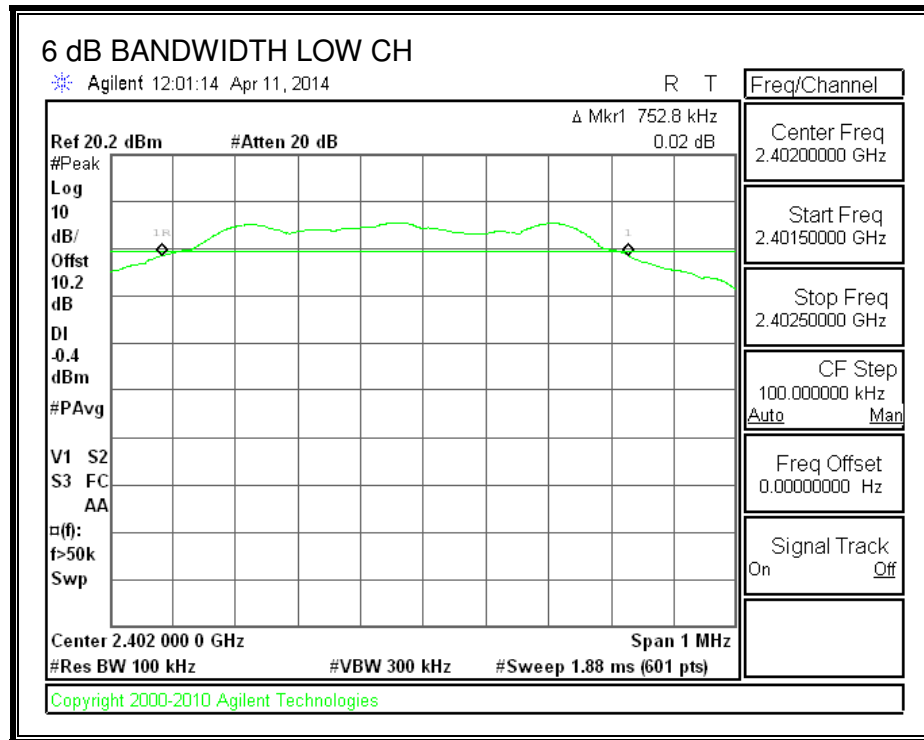
TEST PROCEDURE

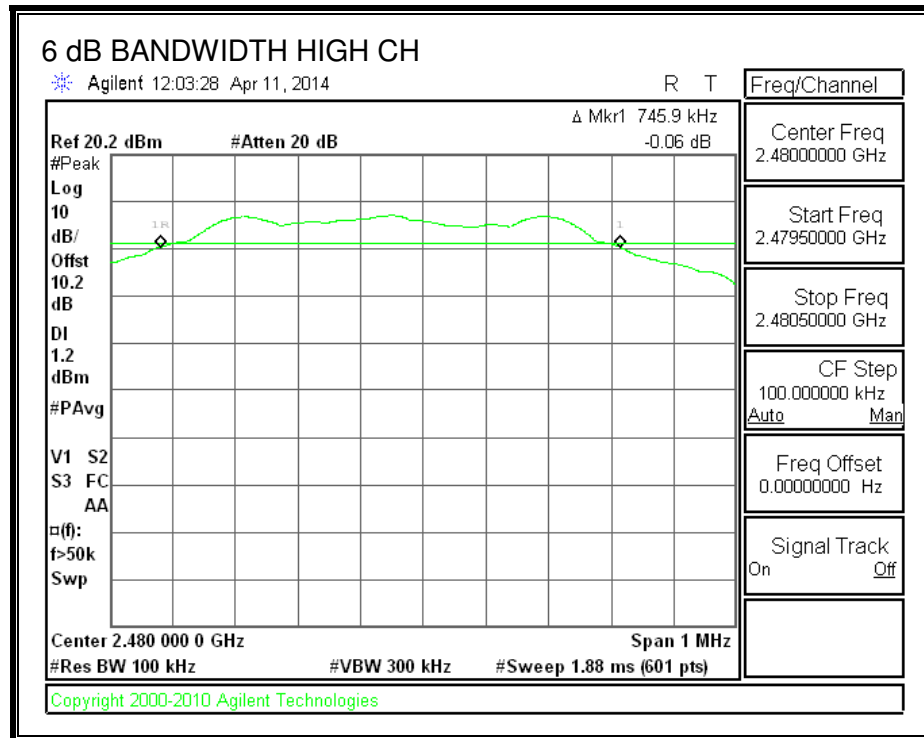
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.7528	0.5
Middle	2440	0.7581	0.5
High	2480	0.7459	0.5

6 dB BANDWIDTH





8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

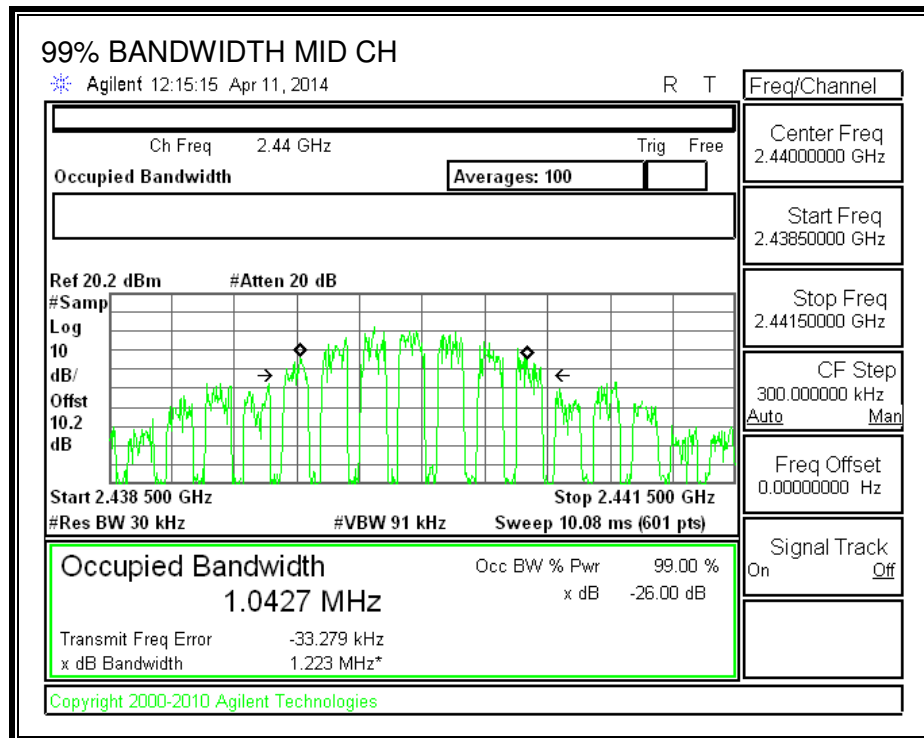
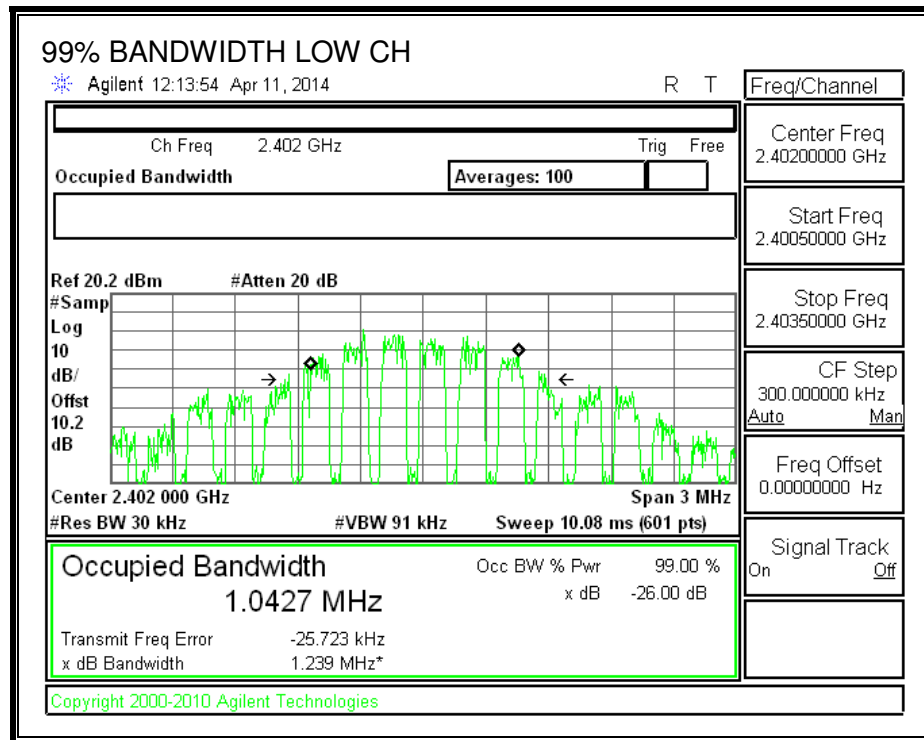
TEST PROCEDURE

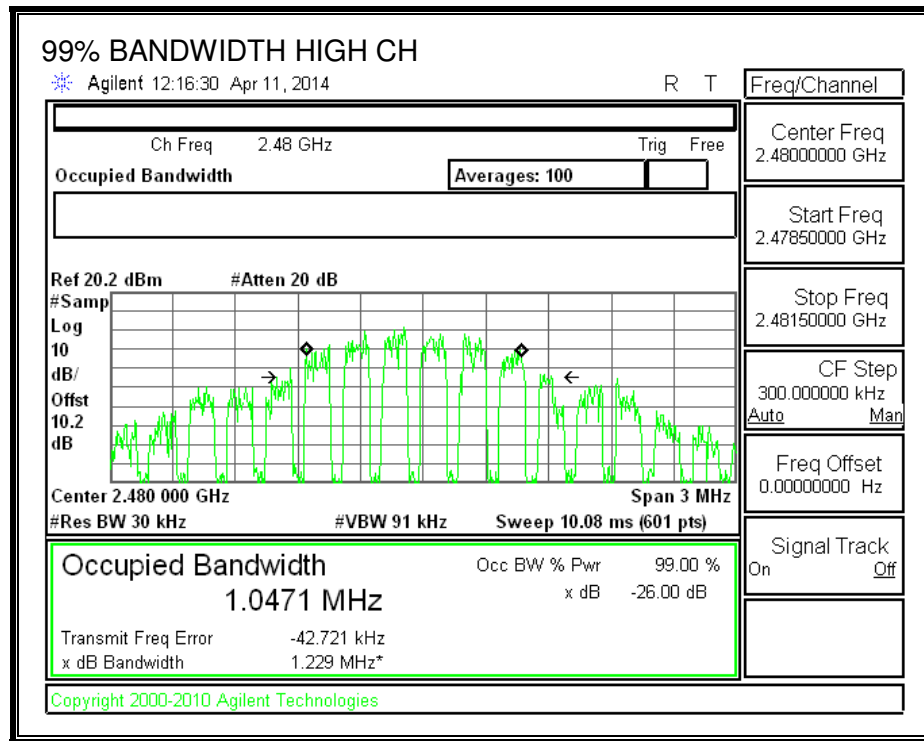
Reference to KDB558074 D01 DTS Meas Guidance v03r01: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0427
Middle	2440	1.0427
High	2480	1.0471

99% BANDWIDTH





8.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

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

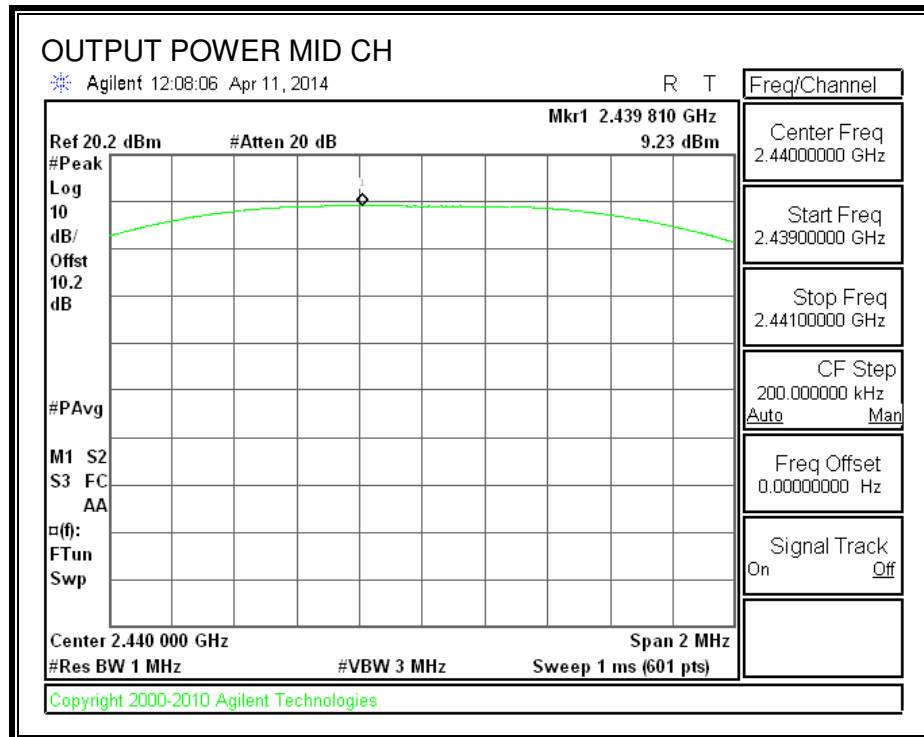
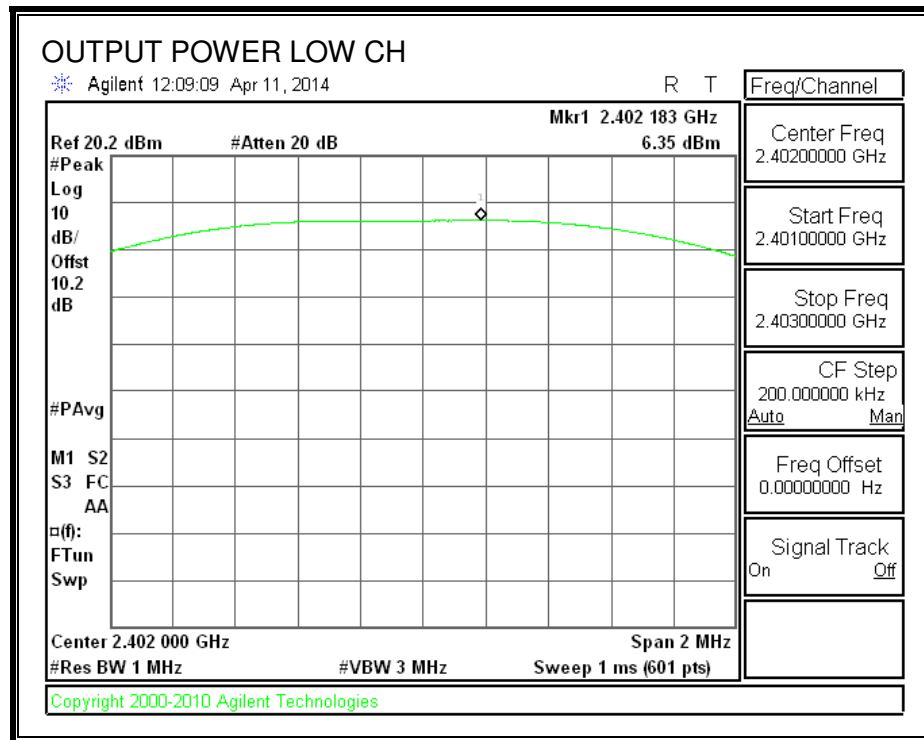
TEST PROCEDURE

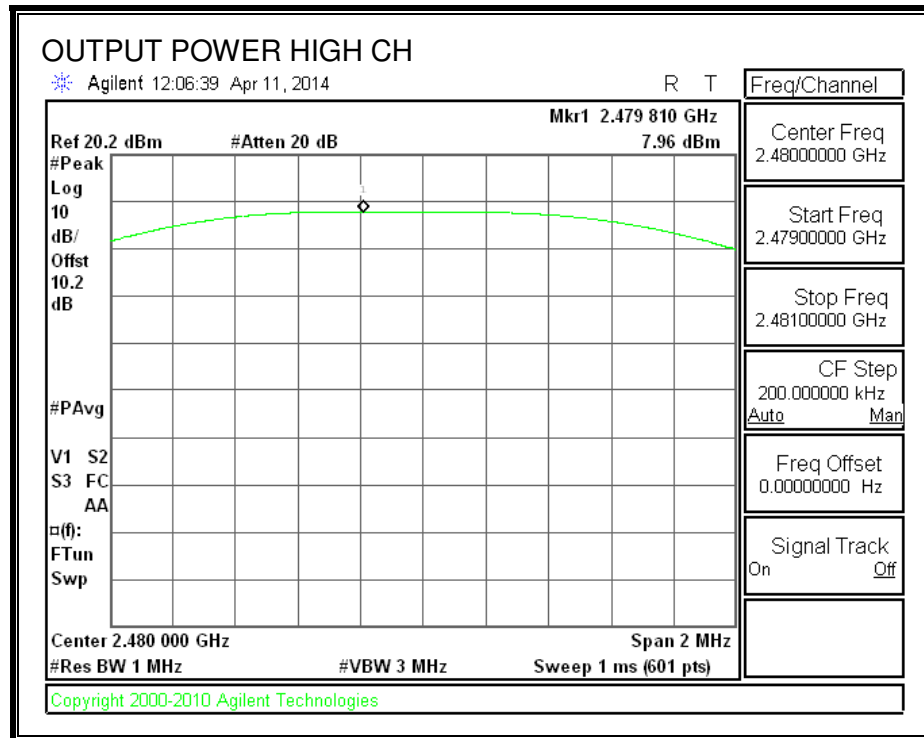
Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r01 April 9, 2013 under section 9.1.1 utilizing spectrum analyzer.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	6.350	30	-23.650
Middle	2440	9.230	30	-20.770
High	2480	7.960	30	-22.040

OUTPUT POWER





8.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

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.

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	4.69
Middle	2440	7.39
High	2480	6.21

8.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

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.

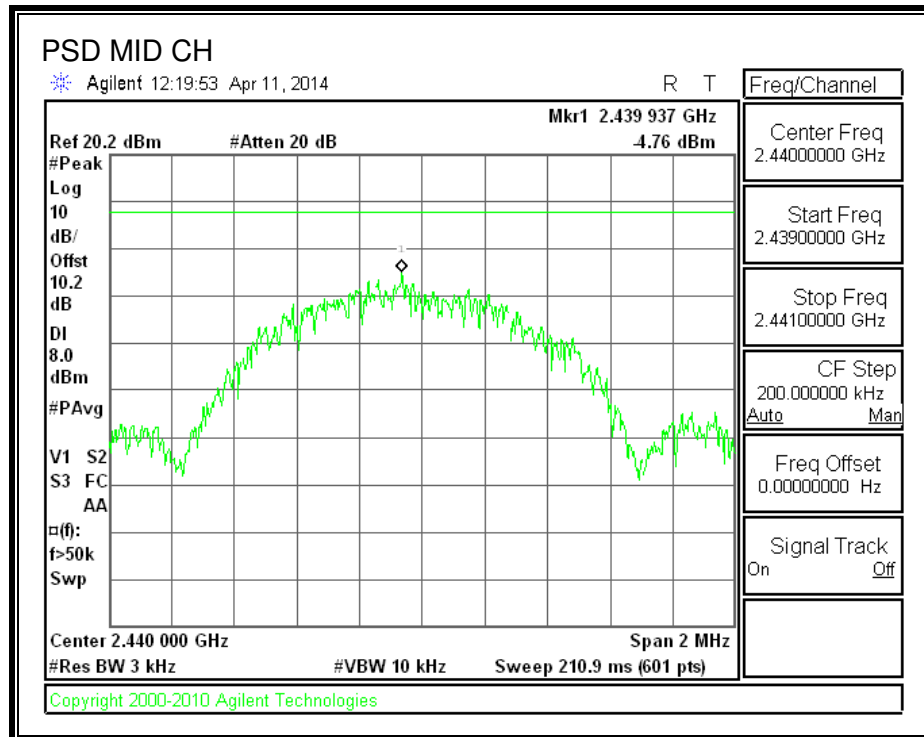
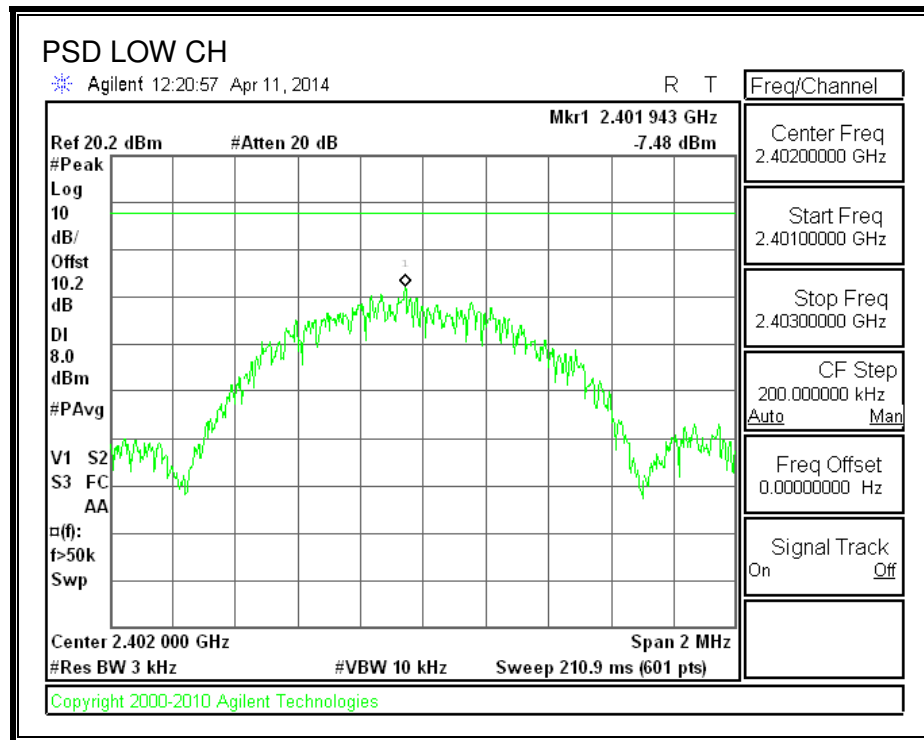
TEST PROCEDURE

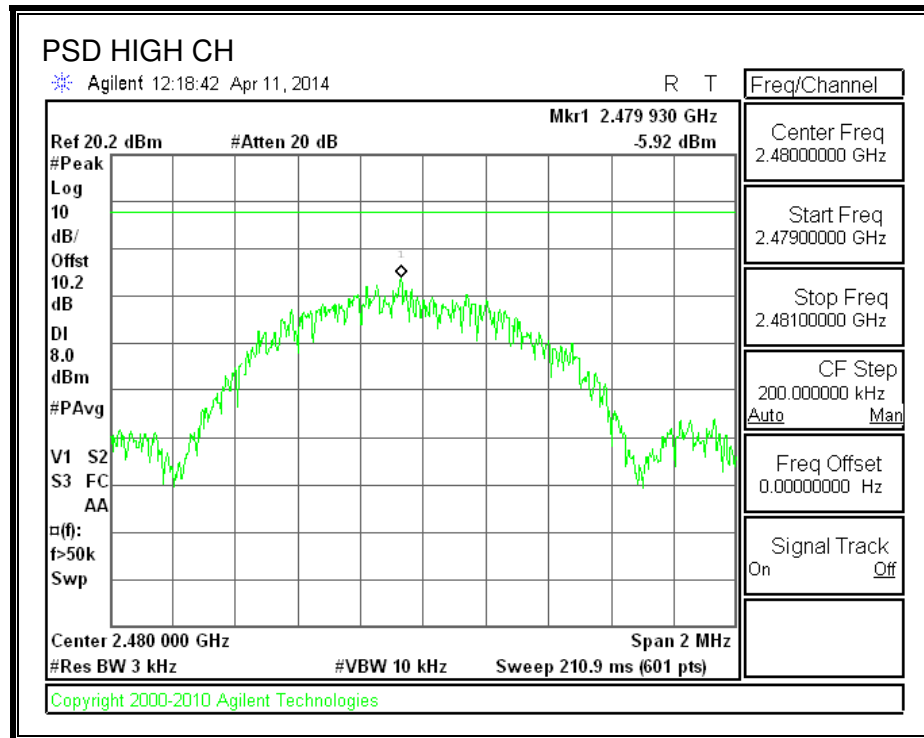
Power Spectral Density was performed utilizing the "Method PKPSD (Peak PSD)" under KDB558074 D01 DTS Meas Guidance v03r01, April 9, 2013

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-7.48	8	-15.48
Middle	2440	-4.76	8	-12.76
High	2480	-5.92	8	-13.92

POWER SPECTRAL DENSITY





8.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

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

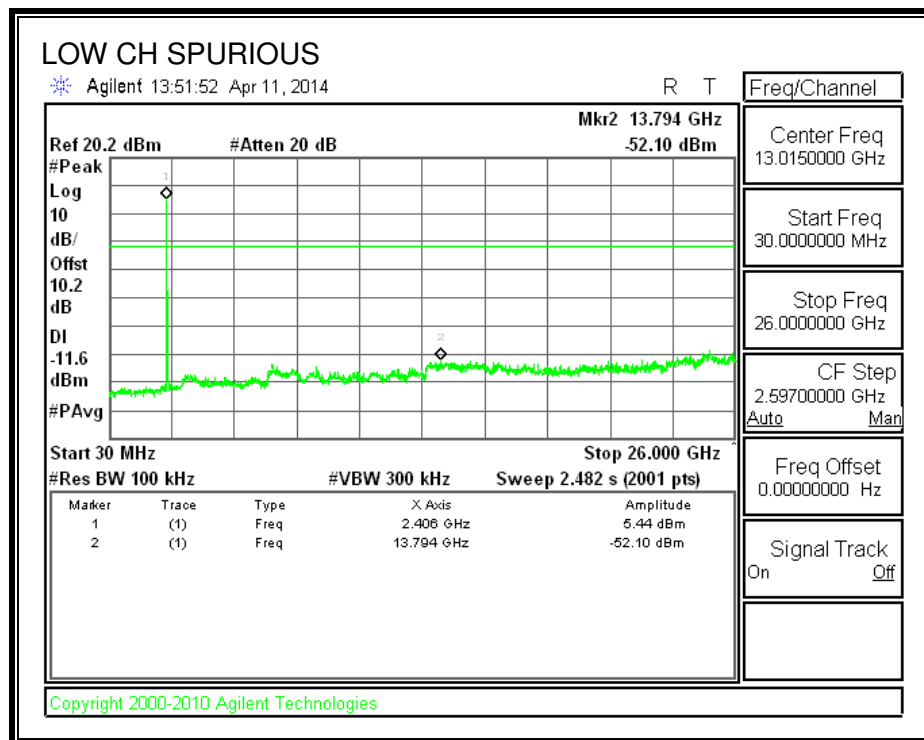
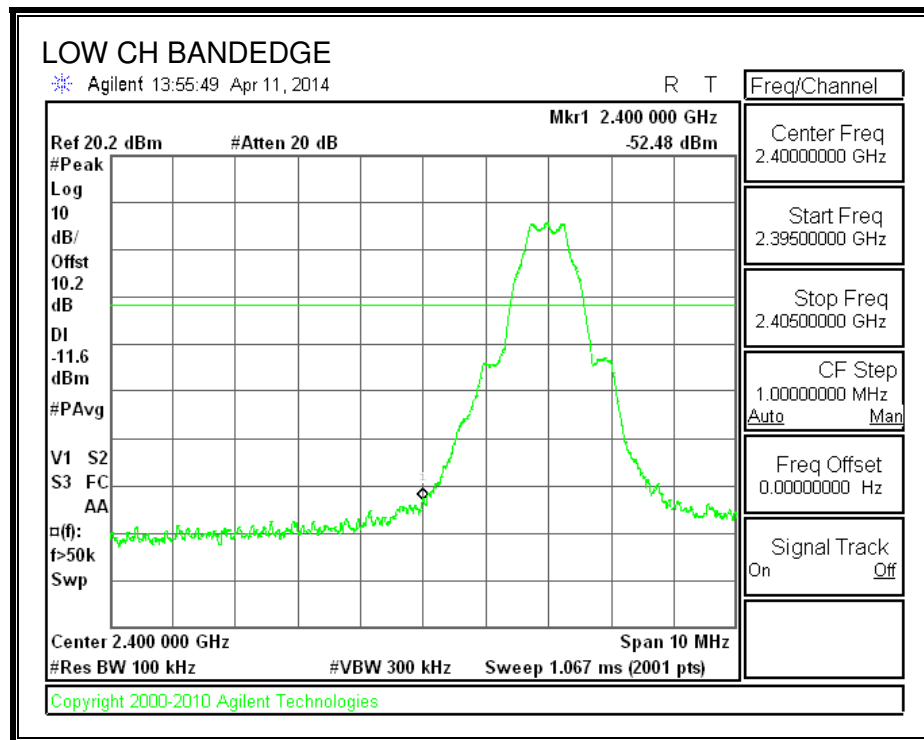
TEST PROCEDURE

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.

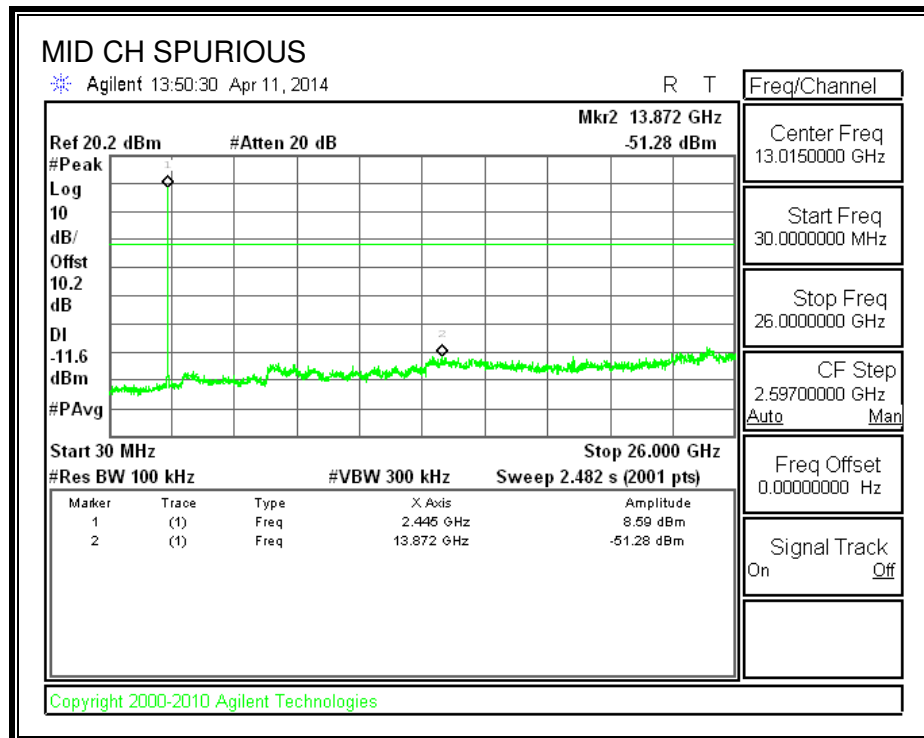
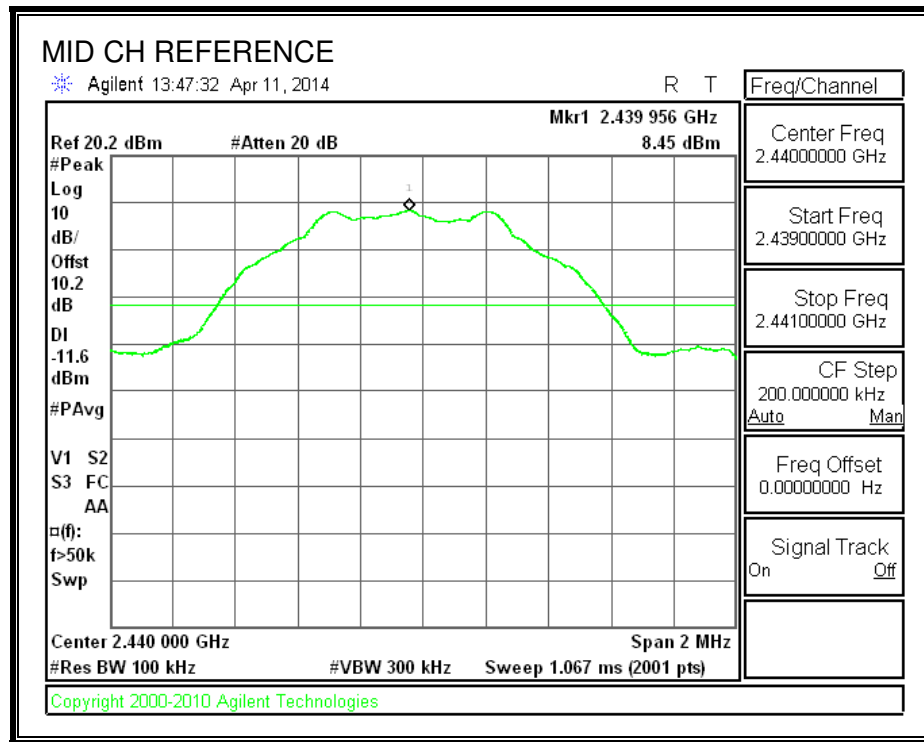
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

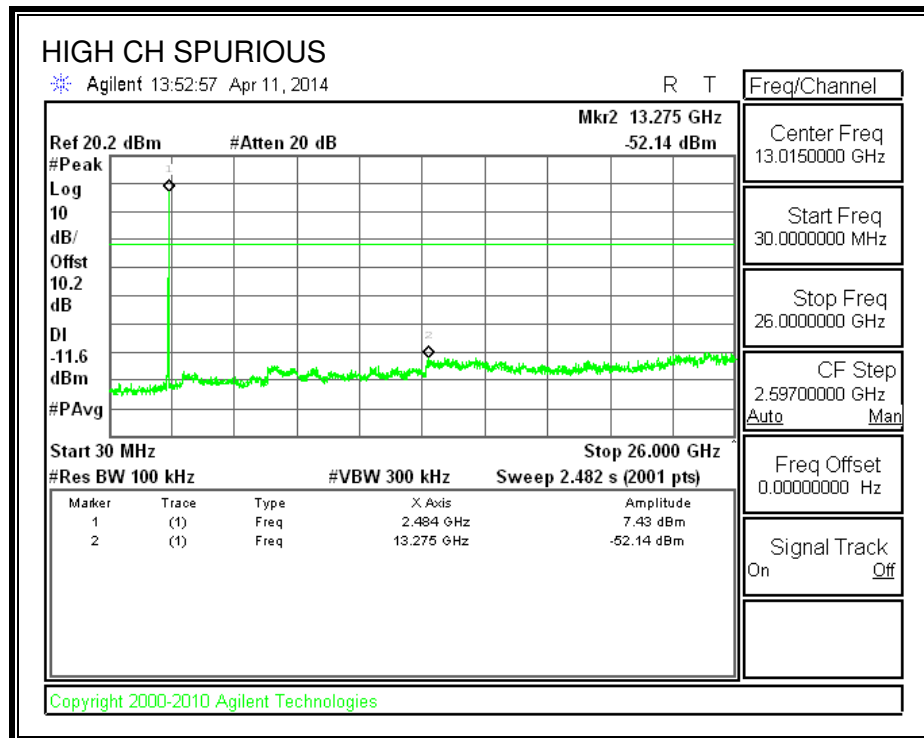
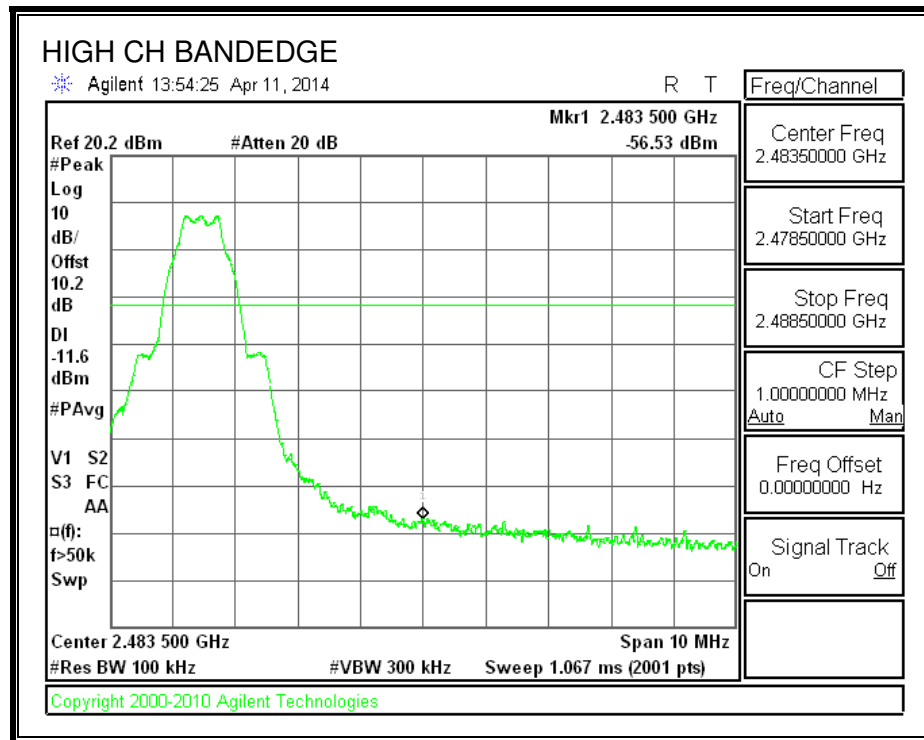
SPURIOUS EMISSIONS, LOW CHANNEL



SPURIOUS EMISSIONS, MID CHANNEL



SPURIOUS EMISSIONS, HIGH CHANNEL



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4 - 2009. 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 = 2.04dB (Spectrum Analyzer round it up to 2dB)

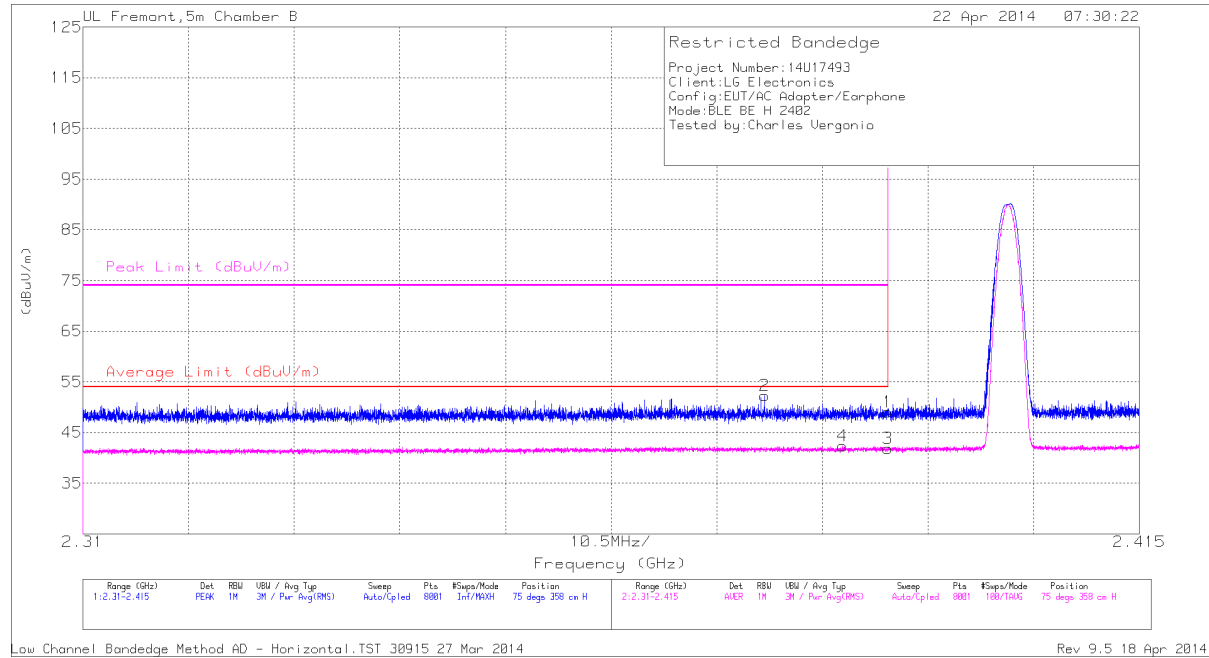
For spurious emission measurement refer to MAV1 - KDB558074 Option 1 Maximum RMS Average

The spectrum from 1GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz 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.

9.2. TRANSMITTER ABOVE 1 GHz

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



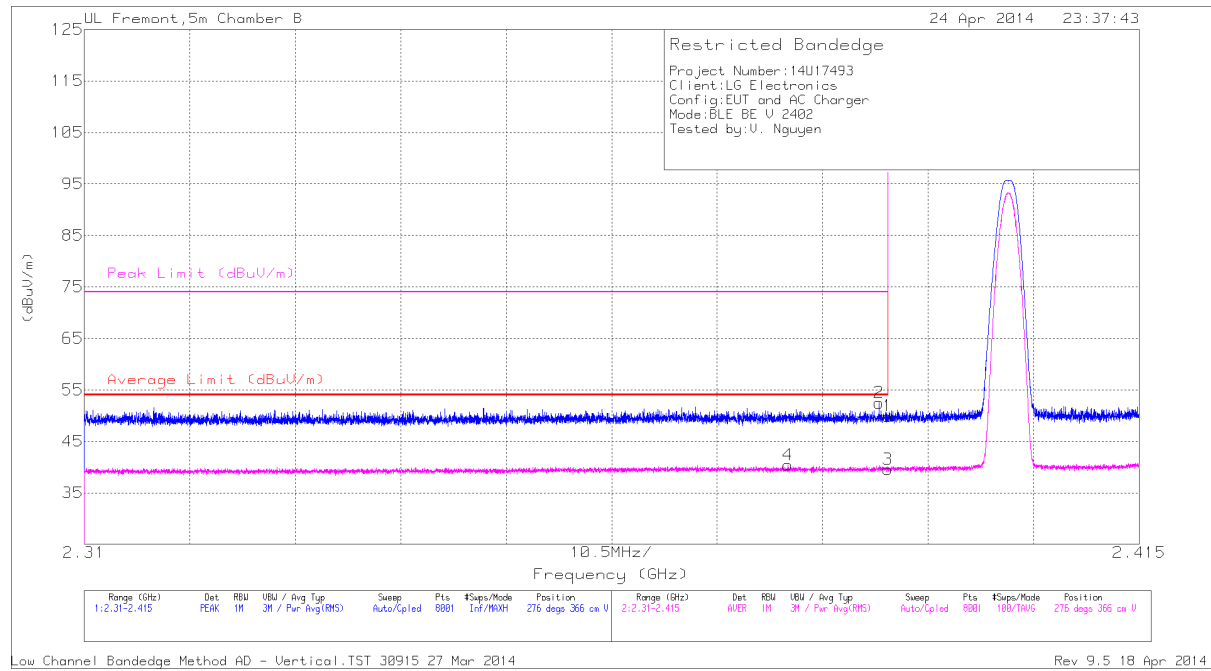
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.86	PK	32.1	-22.9	0	49.06	-	-	74	-24.94	75	358	H
2	* 2.378	43.19	PK	32	-22.9	0	52.29	-	-	74	-21.71	75	358	H
3	* 2.39	30.69	RMS	32.1	-22.9	2	41.89	54	-12.11	-	-	75	358	H
4	* 2.386	31.18	RMS	32.1	-22.9	2	42.38	54	-11.62	-	-	75	358	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



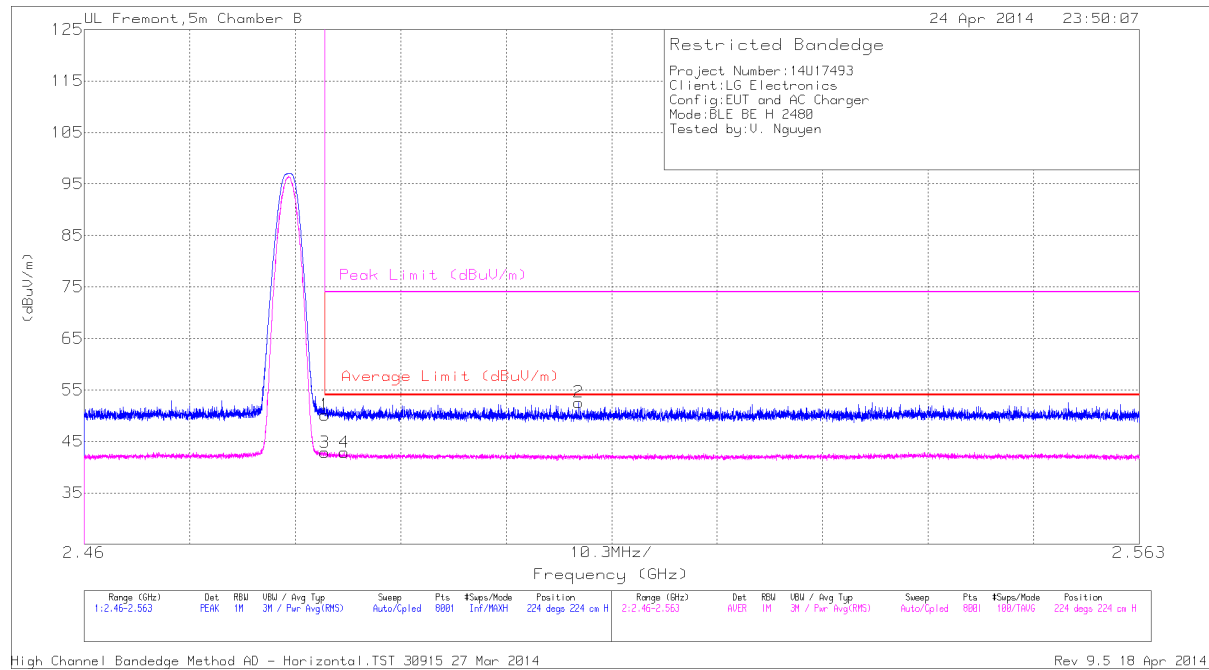
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.38	31.32	RMS	32	-22.9	2	40.42	54	-11.58	-	-	276	366	V
2	* 2.389	43.29	PK	32.1	-22.9	0	52.49	-	-	74	-21.51	276	366	V
1	* 2.39	40.7	PK	32.1	-22.9	0	49.9	-	-	74	-24.1	276	366	V
3	* 2.39	30.38	RMS	32.1	-22.9	2	39.58	54	-12.42	-	-	276	366	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



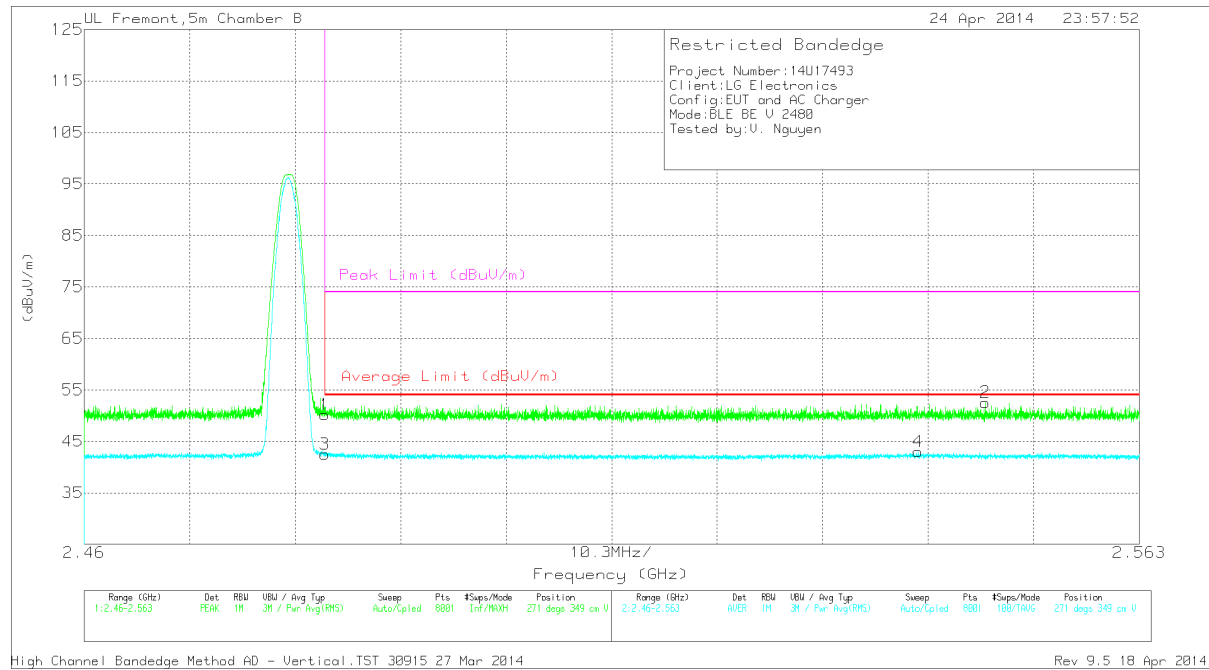
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.33	PK	32.4	-22.6	0	50.13	-	-	74	-23.87	224	224	H
3	* 2.484	31.08	RMS	32.4	-22.6	2	42.88	54	-11.12	-	-	224	224	H
4	* 2.485	31.07	RMS	32.4	-22.6	2	42.87	54	-11.13	-	-	224	224	H
2	2.508	42.98	PK	32.4	-22.8	0	52.58	-	-	74	-21.42	224	224	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)

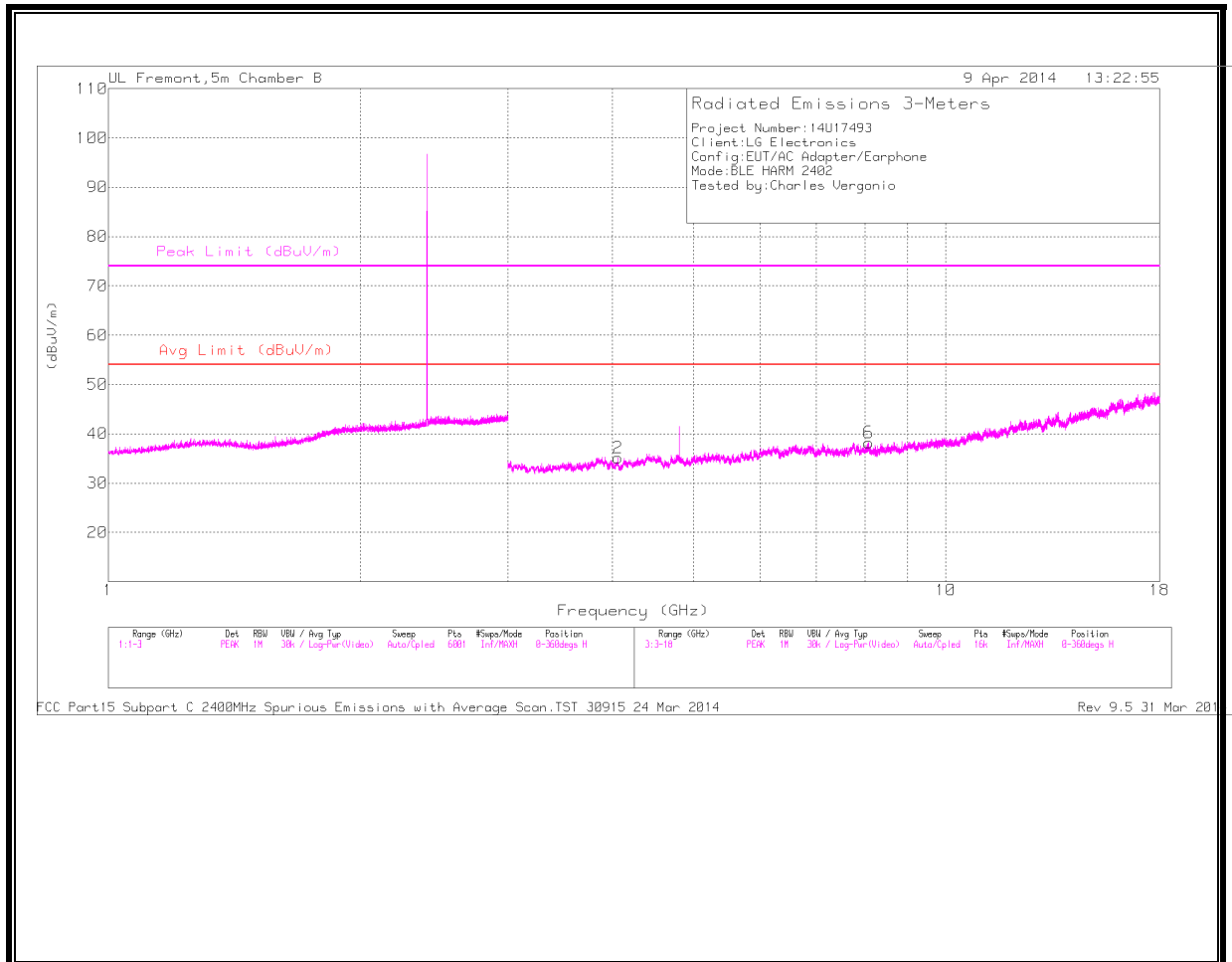


Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.37	PK	32.4	-22.6	0	50.17	-	-	74	-23.83	271	349	V
3	* 2.484	30.72	RMS	32.4	-22.6	2	42.52	54	-11.48	-	-	271	349	V
4	2.541	30.97	RMS	32.5	-22.5	2	42.97	54	-11.03	-	-	271	349	V
2	2.548	42.64	PK	32.5	-22.6	0	52.54	-	-	74	-21.46	271	349	V

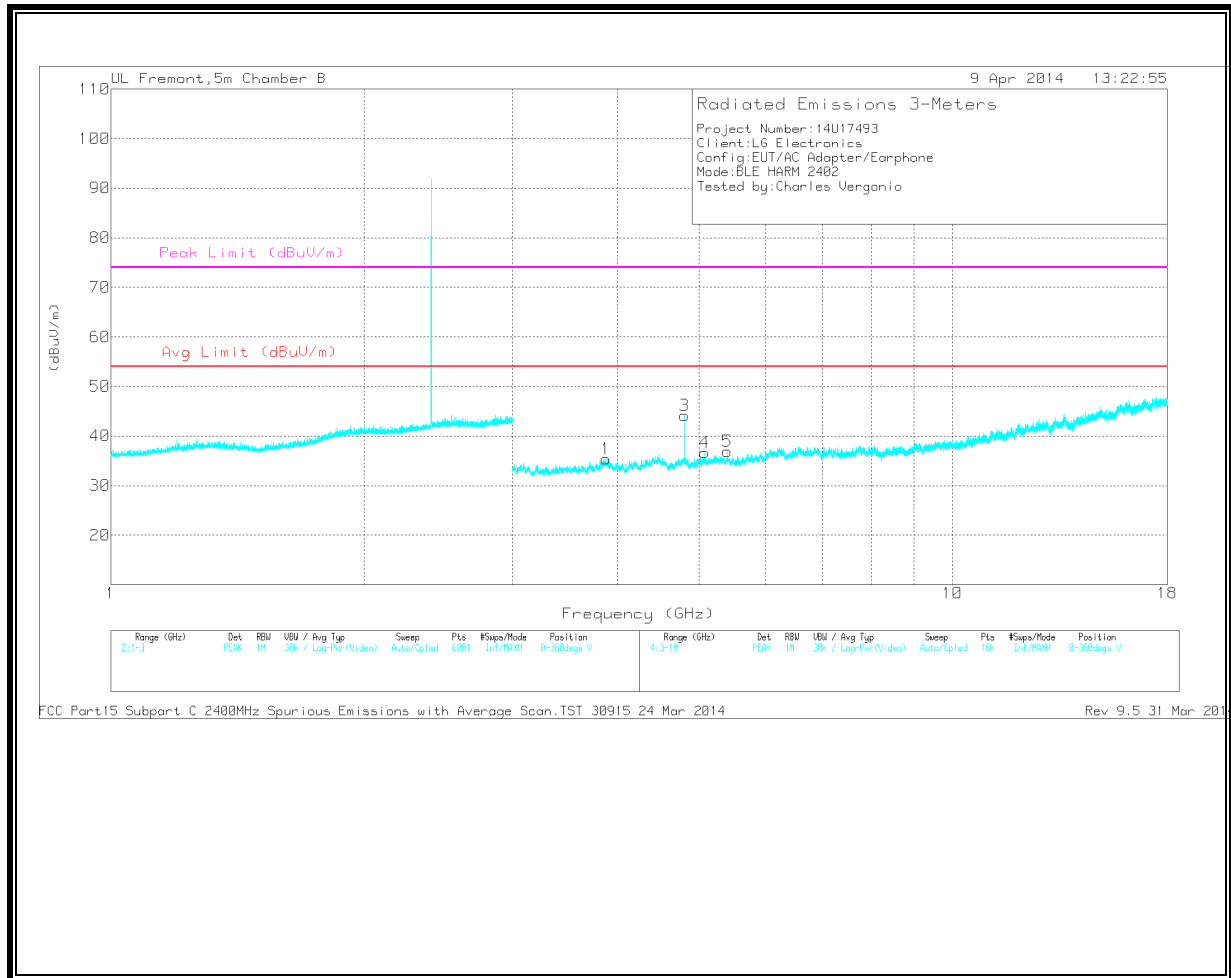
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector
RMS - RMS detection

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.



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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
2	* 4.057	32.38	PK	33.6	-30.8	0	35.18	-	-	74	-38.82	0-360	202	H
6	* 8.094	28.55	PK	35.7	-26	0	38.25	-	-	74	-35.75	0-360	202	H
1	* 3.877	31.8	PK	33.8	-30.2	0	35.4	-	-	74	-38.6	0-360	99	V
3	* 4.805	38.72	PK	34.2	-28.8	0	44.12	-	-	74	-29.88	0-360	202	V
4	* 5.075	31.28	PK	34.2	-28.8	0	36.68	-	-	74	-37.32	0-360	202	V
5	* 5.404	31.31	PK	34.5	-28.9	0	36.91	-	-	74	-37.09	0-360	99	V

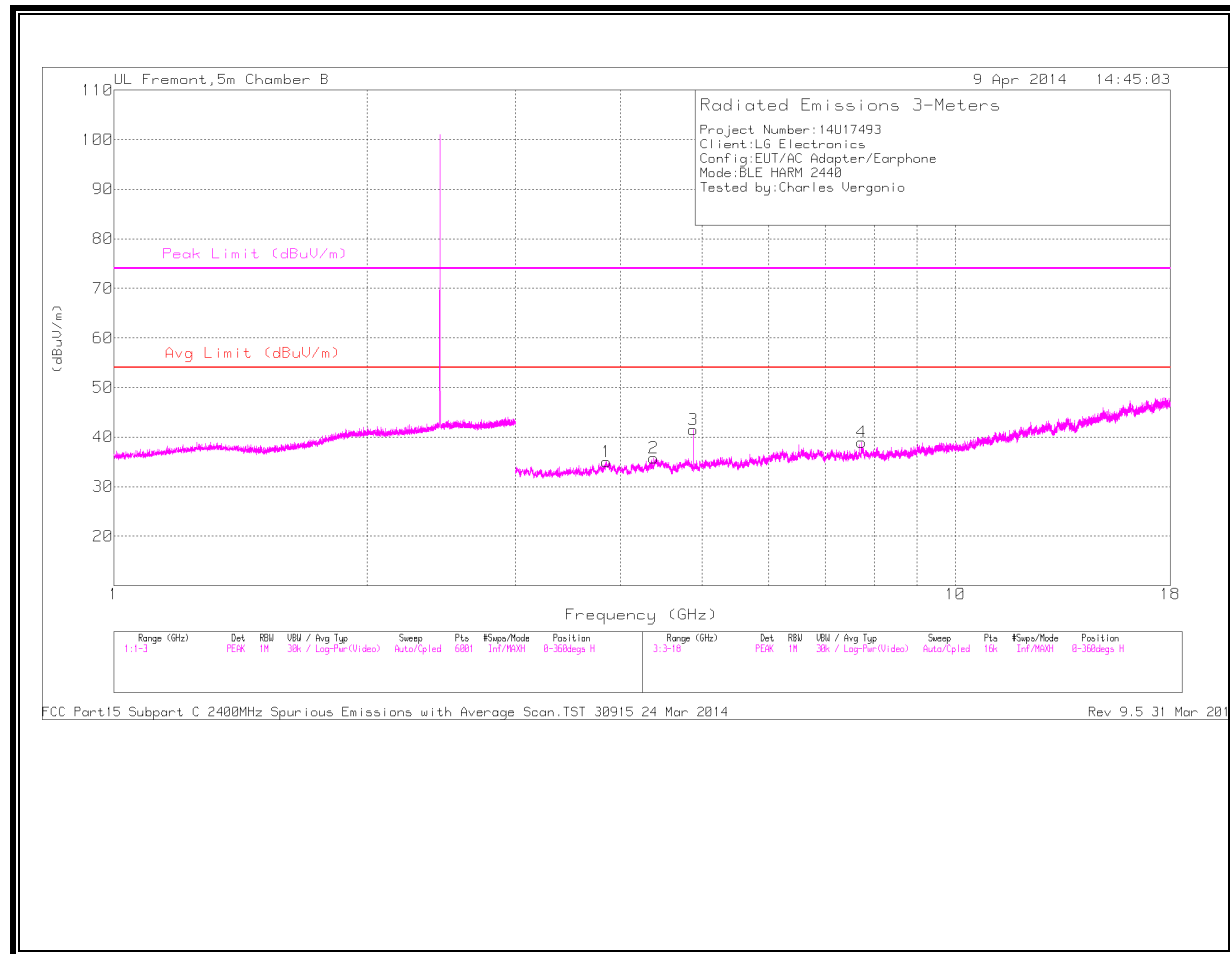
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

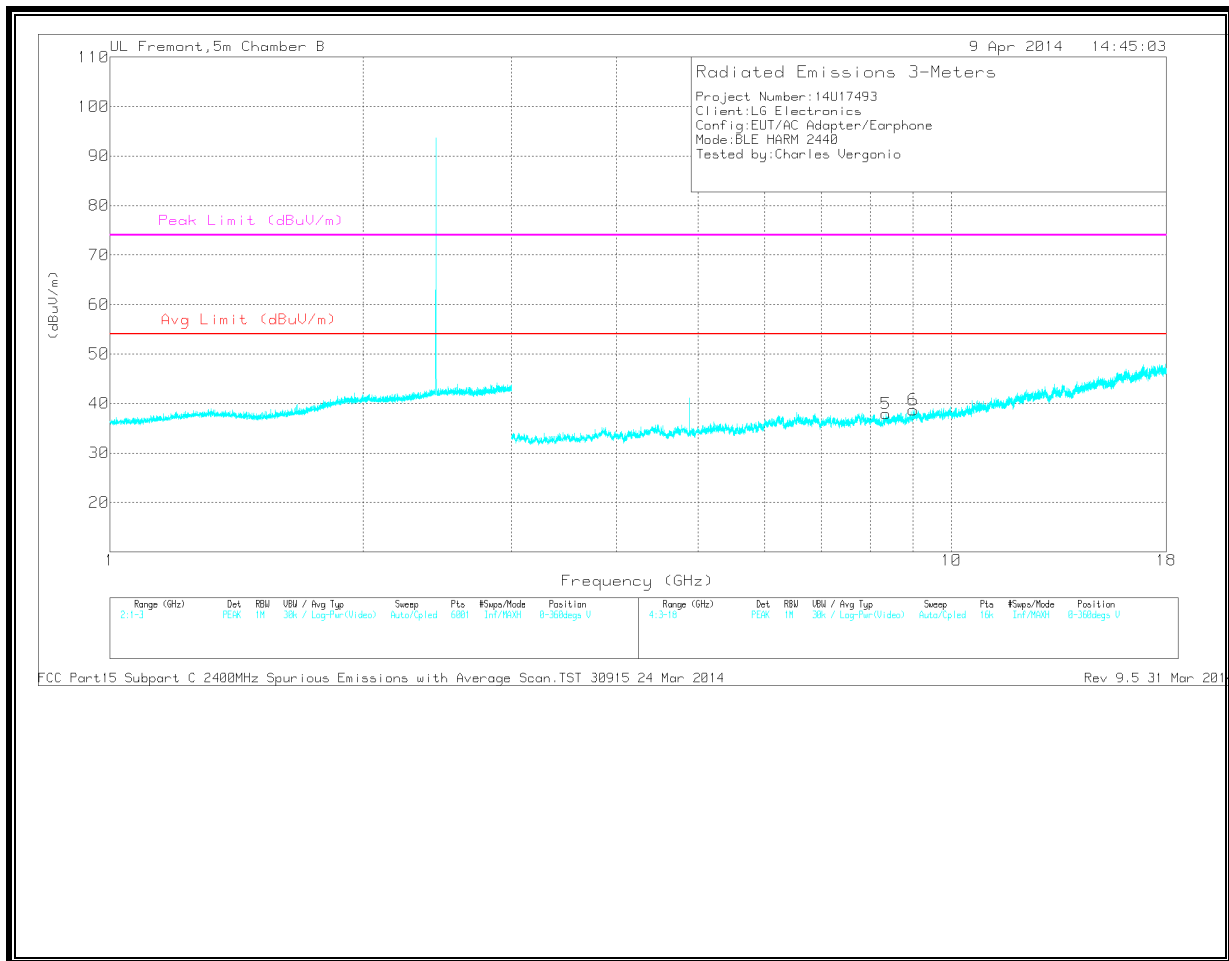
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 4.058	40.83	PK2	33.6	-30.8	0	43.63	54	-10.37	74	-30.37	1	100	H
* 8.095	37.65	PK2	35.7	-26	0	47.35	54	-6.65	74	-26.65	1	100	H
* 3.878	39.85	PK2	33.8	-30.2	0	43.45	54	-10.55	74	-30.55	1	100	V
* 5.075	39.2	PK2	34.2	-28.8	0	44.6	54	-9.4	74	-29.4	1	100	V
* 5.404	39.49	PK2	34.5	-28.9	0	45.09	54	-8.91	74	-28.91	1	100	V
* 4.804	44.69	PK2	34.2	-28.8	0	50.09	54	-3.91	74	-23.91	72	204	V
* 4.804	37.48	MAv1	34.2	-28.8	2	44.98	54	-9.02	-	-	72	204	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band



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



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

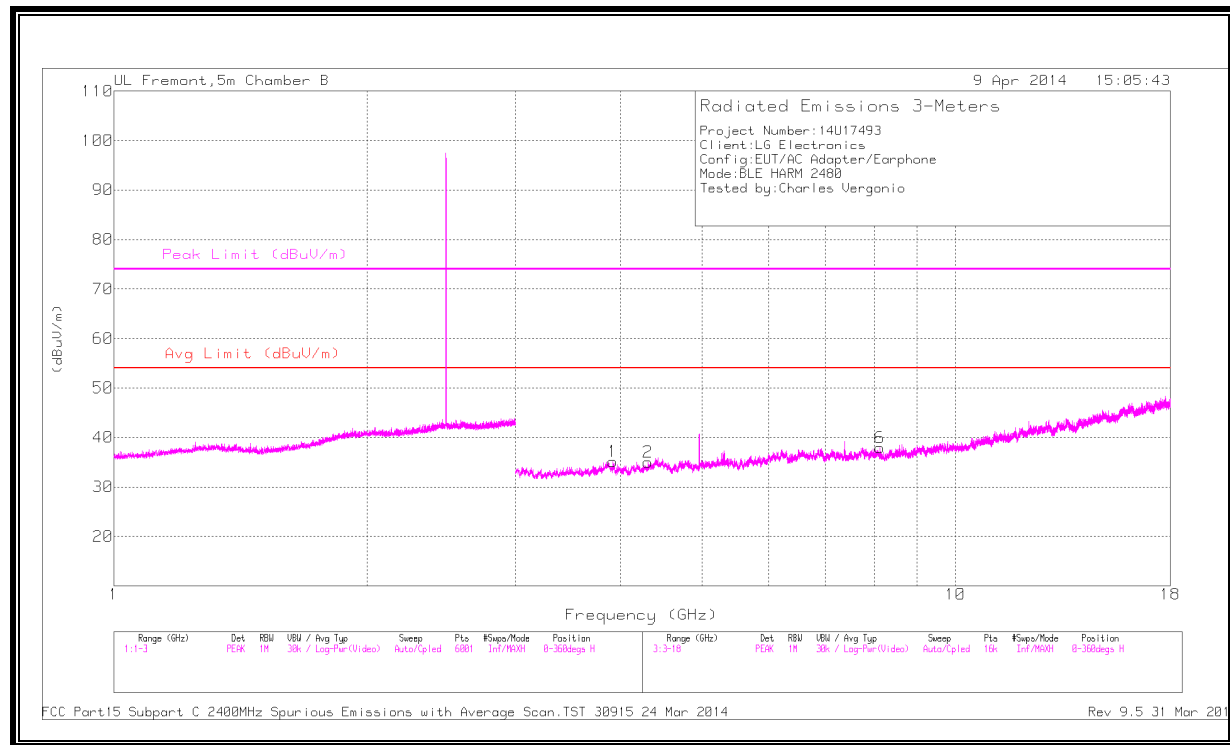
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.847	31.55	PK	33.7	-30.2	0	35.05	-	-	74	-38.95	0-360	201	H
2	* 4.376	32.58	PK	33.8	-30.6	0	35.78	-	-	74	-38.22	0-360	201	H
3	* 4.88	37.91	PK	34.2	-30.6	0	41.51	-	-	74	-32.49	0-360	99	H
4	* 7.739	29.25	PK	35.7	-26	0	38.95	-	-	74	-35.05	0-360	201	H
5	* 8.361	27.69	PK	35.7	-25.5	0	37.89	-	-	74	-36.11	0-360	202	V
6	* 9.007	27.4	PK	36.2	-24.9	0	38.7	-	-	74	-35.3	0-360	99	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

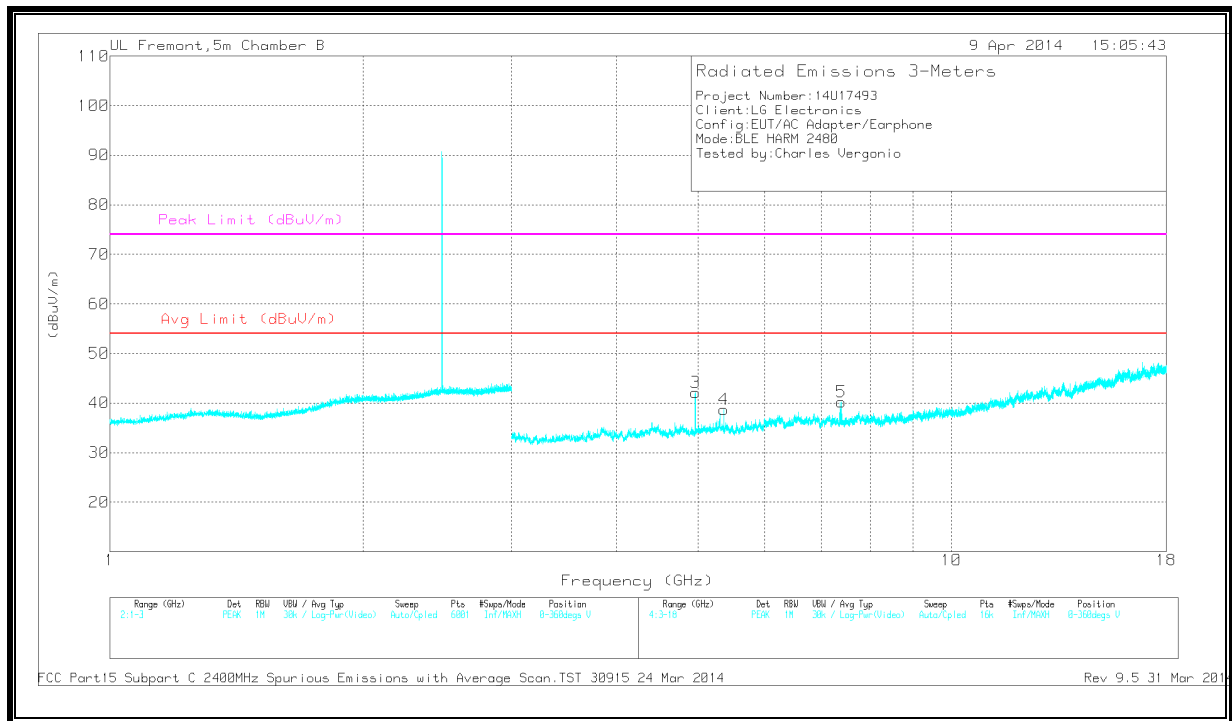
PK - Peak detector
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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
* 3.848	40.3	PK2	33.7	-30.2	0	43.8	54	-10.2	74	-30.2	1	100	H
* 4.378	40.29	PK2	33.8	-30.6	0	43.49	54	-10.51	74	-30.51	1	100	H
* 7.738	37.61	PK2	35.7	-26	0	47.31	54	-6.69	74	-26.69	1	100	H
* 4.881	43.87	PK2	34.2	-30.6	0	47.47	54	-6.53	74	-26.53	72	292	H
* 4.88	35.21	MAV1	34.2	-30.6	2	40.91	54	-13.09	-	-	72	292	H
* 8.361	36.55	PK2	35.7	-25.5	0	46.75	54	-7.25	74	-27.25	1	100	V
* 9.008	35.56	PK2	36.2	-24.9	0	46.86	54	-7.14	74	-27.14	1	100	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band



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



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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fil tr/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	* 3.917	31.82	PK	33.8	-30.5	0	35.12	-	-	74	-38.88	0-360	202	H
2	* 4.31	32.42	PK	33.7	-31.1	0	35.02	-	-	74	-38.98	0-360	99	H
6	* 8.129	28.48	PK	35.7	-26.3	0	37.88	-	-	74	-36.12	0-360	202	H
3	* 4.96	38.17	PK	34.2	-30.2	0	42.17	-	-	74	-31.83	0-360	202	V
4	* 5.362	33.08	PK	34.5	-28.9	0	38.68	-	-	74	-35.32	0-360	99	V
5	* 7.4	31.88	PK	35.6	-27.3	0	40.18	-	-	74	-33.82	0-360	99	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

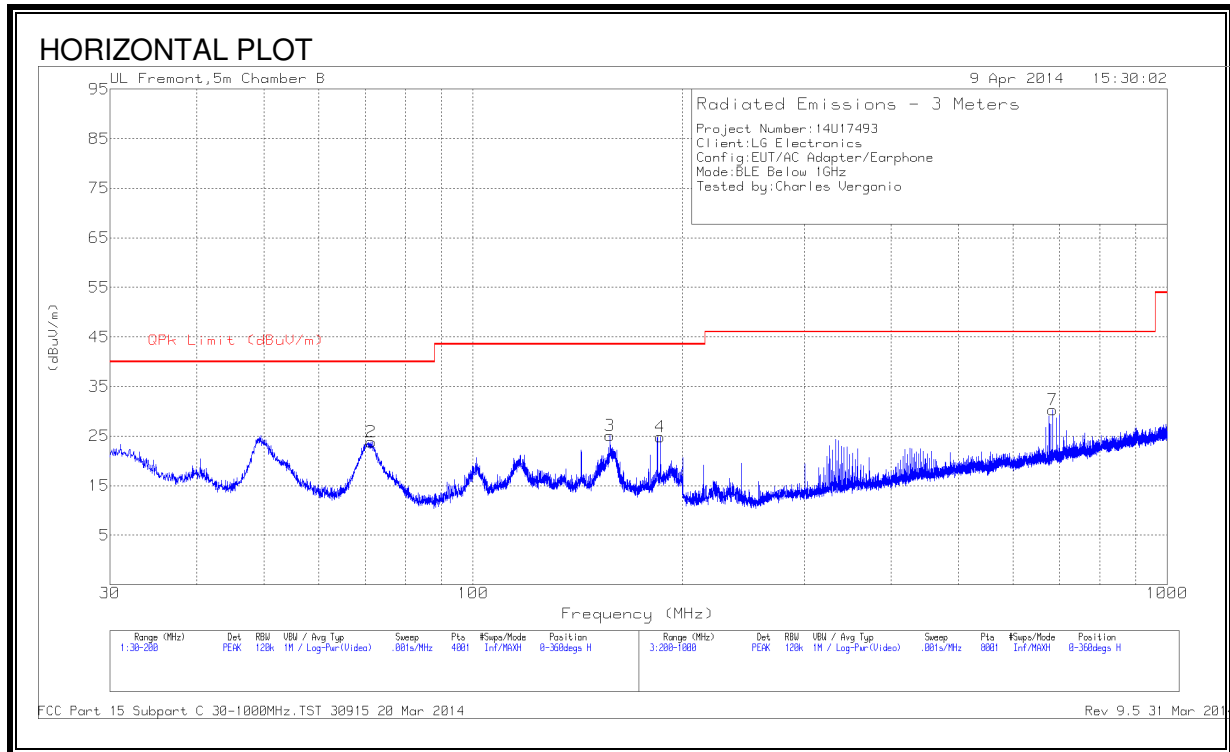
Radiated Emissions

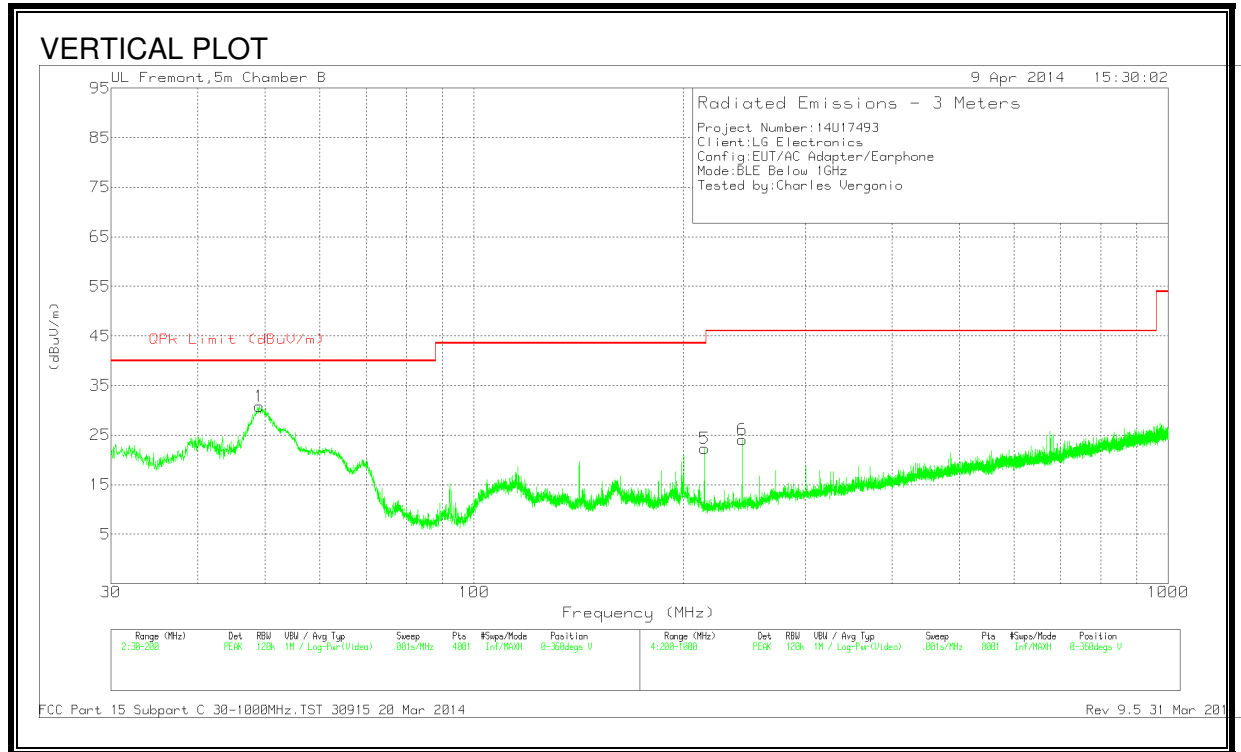
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fil tr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.916	40.6	PK2	33.8	-30.6	0	43.8	54	-10.2	74	-30.2	1	100	H
* 4.308	41.39	PK2	33.7	-31.1	0	43.99	54	-10.01	74	-30.01	1	100	H
* 8.128	36.52	PK2	35.7	-26.3	0	45.92	54	-8.08	74	-28.08	1	100	H
* 4.96	46.52	PK2	34.2	-30.2	0	50.52	54	-3.48	74	-23.48	76	269	V
* 4.96	39.61	MAV1	34.2	-30.2	2	45.71	54	-8.29	-	-	76	269	V
* 5.362	38.45	PK2	34.5	-28.9	0	44.05	54	-9.95	74	-29.95	18	269	V
* 5.362	28.01	MAV1	34.5	-28.9	2	35.71	54	-18.29	-	-	18	269	V
* 7.4	37.5	PK2	35.6	-27.3	0	45.8	54	-8.2	74	-28.2	299	242	V
* 7.401	27.13	MAV1	35.6	-27.3	2	37.53	54	-16.47	-	-	299	242	V

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

9.3. WORST-CASE BELOW 1 GHz

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





Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 243.4	39.09	PK	11.5	-26.5	24.09	46.02	-21.93	0-360	200	V
1	49.04	51.19	PK	8.2	-28.6	30.79	40	-9.21	0-360	101	V
2	71.3525	44.04	PK	8.2	-28.4	23.84	40	-16.16	0-360	400	H
3	157.5	40.18	PK	12.3	-27.4	25.08	43.52	-18.44	0-360	200	H
4	186.145	40.65	PK	11.3	-27.1	24.85	43.52	-18.67	0-360	100	H
5	214.8	38.73	PK	10.4	-26.8	22.33	43.52	-21.19	0-360	200	V
7	684	35.62	PK	19.6	-24.9	30.32	46.02	-15.7	0-360	200	H

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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 C63.4 - 2009

RESULTS

WORST EMISSIONS

Line-L1 .15 - 30MHz

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.1905	38.03	PK	1	0	39.03	64	-24.97	-	-
2	.1905	25.6	Av	1	0	26.6	-	-	54	-27.4
3	.339	41.29	PK	.5	0	41.79	59.2	-17.41	-	-
4	.339	27.09	Av	.5	0	27.59	-	-	49.2	-21.61
5	.5055	48.75	PK	.3	0	49.05	56	-6.95	-	-
6	.5055	37.62	Av	.3	0	37.92	-	-	46	-8.08
7	.861	47.03	PK	.3	0	47.33	56	-8.67	-	-
8	.861	31.75	Av	.3	0	32.05	-	-	46	-13.95
9	1.5855	45.34	PK	.2	.1	45.64	56	-10.36	-	-
10	1.5855	30.11	Av	.2	.1	30.41	-	-	46	-15.59
11	1.9005	45.56	PK	.2	.1	45.86	56	-10.14	-	-
12	1.9005	30	Av	.2	.1	30.3	-	-	46	-15.7
13	2.7555	50.81	PK	.2	.1	51.11	56	-4.89	-	-
14	2.7555	38.63	Av	.2	.1	38.93	-	-	46	-7.07
15	6.162	46.9	PK	.2	.1	47.2	60	-12.8	-	-
16	6.162	29.65	Av	.2	.1	29.95	-	-	50	-20.05
17	13.5645	50.79	PK	.2	.2	51.19	60	-8.81	-	-
18	13.5645	28.62	Av	.2	.2	29.02	-	-	50	-20.98

Line-L2 .15 - 30MHz

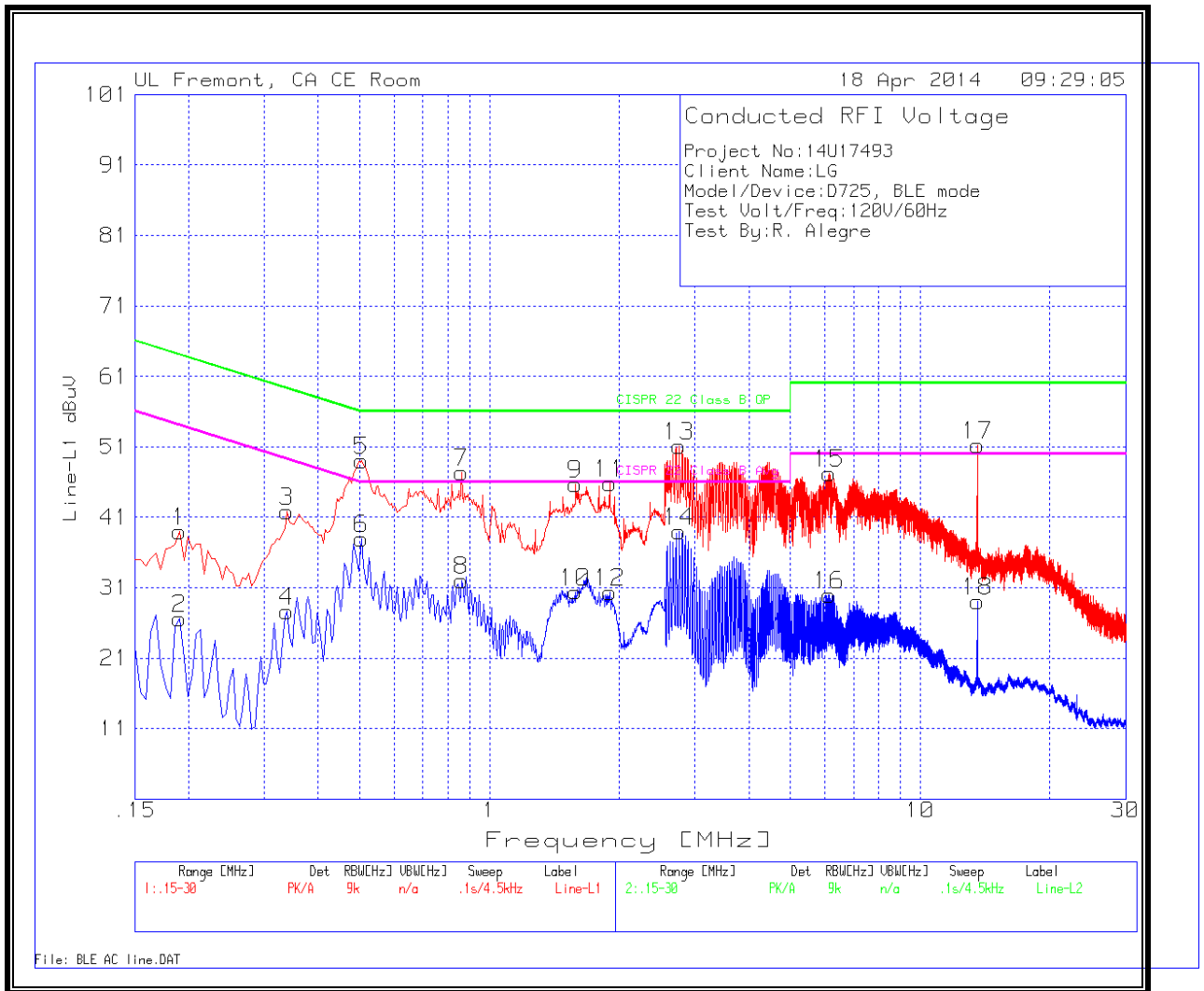
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
19	.1815	42.18	PK	1.2	0	43.38	64.4	-21.02	-	-
20	.1815	32.48	Av	1.2	0	33.68	-	-	54.4	-20.72
21	.3615	46.41	PK	.5	0	46.91	58.7	-11.79	-	-
22	.3615	36.94	Av	.5	0	37.44	-	-	48.7	-11.26
23	.456	48.41	PK	.4	0	48.81	56.8	-7.99	-	-
24	.456	30.49	Av	.4	0	30.89	-	-	46.8	-15.91
25	.4875	50.01	PK	.4	0	50.41	56.2	-5.79	-	-
26	.4875	34.12	Av	.4	0	34.52	-	-	46.2	-11.68
29	.546	49.19	PK	.3	0	49.49	56	-6.51	-	-
30	.546	31.48	Av	.3	0	31.78	-	-	46	-14.22
27	.708	49.52	PK	.3	0	49.82	56	-6.18	-	-
28	.708	29.11	Av	.3	0	29.41	-	-	46	-16.59
31	.9015	49.19	PK	.3	0	49.49	56	-6.51	-	-
32	.9015	38.08	Av	.3	0	38.38	-	-	46	-7.62
33	1.941	48	PK	.2	.1	48.3	56	-7.7	-	-
34	1.941	32.8	Av	.2	.1	33.1	-	-	46	-12.9
35	2.65875	47.49	PK	.2	.1	47.79	56	-8.21	-	-
36	2.65875	31.02	Av	.2	.1	31.32	-	-	46	-14.68
37	3.5655	46.87	PK	.2	.1	47.17	56	-8.83	-	-
38	3.5655	30.53	Av	.2	.1	30.83	-	-	46	-15.17
39	6.081	44.2	PK	.2	.1	44.5	60	-15.5	-	-
40	6.081	26.87	Av	.2	.1	27.17	-	-	50	-22.83
41	6.135	43.92	PK	.2	.1	44.22	60	-15.78	-	-
42	6.135	26.34	Av	.2	.1	26.64	-	-	50	-23.36
43	6.9945	44.26	PK	.2	.1	44.56	60	-15.44	-	-
44	6.9945	26.77	Av	.2	.1	27.07	-	-	50	-22.93
45	8.4525	44.07	PK	.2	.1	44.37	60	-15.63	-	-
46	8.4525	26.59	Av	.2	.1	26.89	-	-	50	-23.11
47	8.52	43.91	PK	.2	.1	44.21	60	-15.79	-	-
48	8.52	26.54	Av	.2	.1	26.84	-	-	50	-23.16

PK - Peak detector

Av - average detection

LINE 1 RESULTS



LINE 2 RESULTS

