



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8**

**BLUETOOTH LOW ENERGY
CERTIFICATION TEST REPORT**

FOR

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

MODEL NUMBER: LG-VS985, VS985, LGVS985, AS985, LG-AS985 & LGAS985

FCC ID: ZNFVS985

IC: 2703C-VS985

REPORT NUMBER: 14U17502-3

ISSUE DATE: MAY 7, 2014

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	5/7/14	Initial Issue	P. Kim

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.

EUT DESCRIPTION: GSM/CDMA/WCDMA/LTE Phone + Bluetooth, DTS/UNII
a/b/g/n/ac and NFC.

MODEL: LG-VS985, VS985, LGVS985, AS985, LG-AS985 & LGAS985

SERIAL NUMBER: 14ZMN (Conducted), 14ZK7 (Radiated)

DATE TESTED: APRIL 17 – MAY 7, 2014

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 3	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 ANSI C63.4-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, 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/CDMA/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac 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	3.18	2.08

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.74dBi.

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	MCS-04WT2	TA350000050	N/A
Earphone	LG	N/A	N/A	N/A
WPC Cover	LG	N/A	N/A	N/A
WPC Charger	LG	WPC-300	304HYBF00069	BEJWCP300

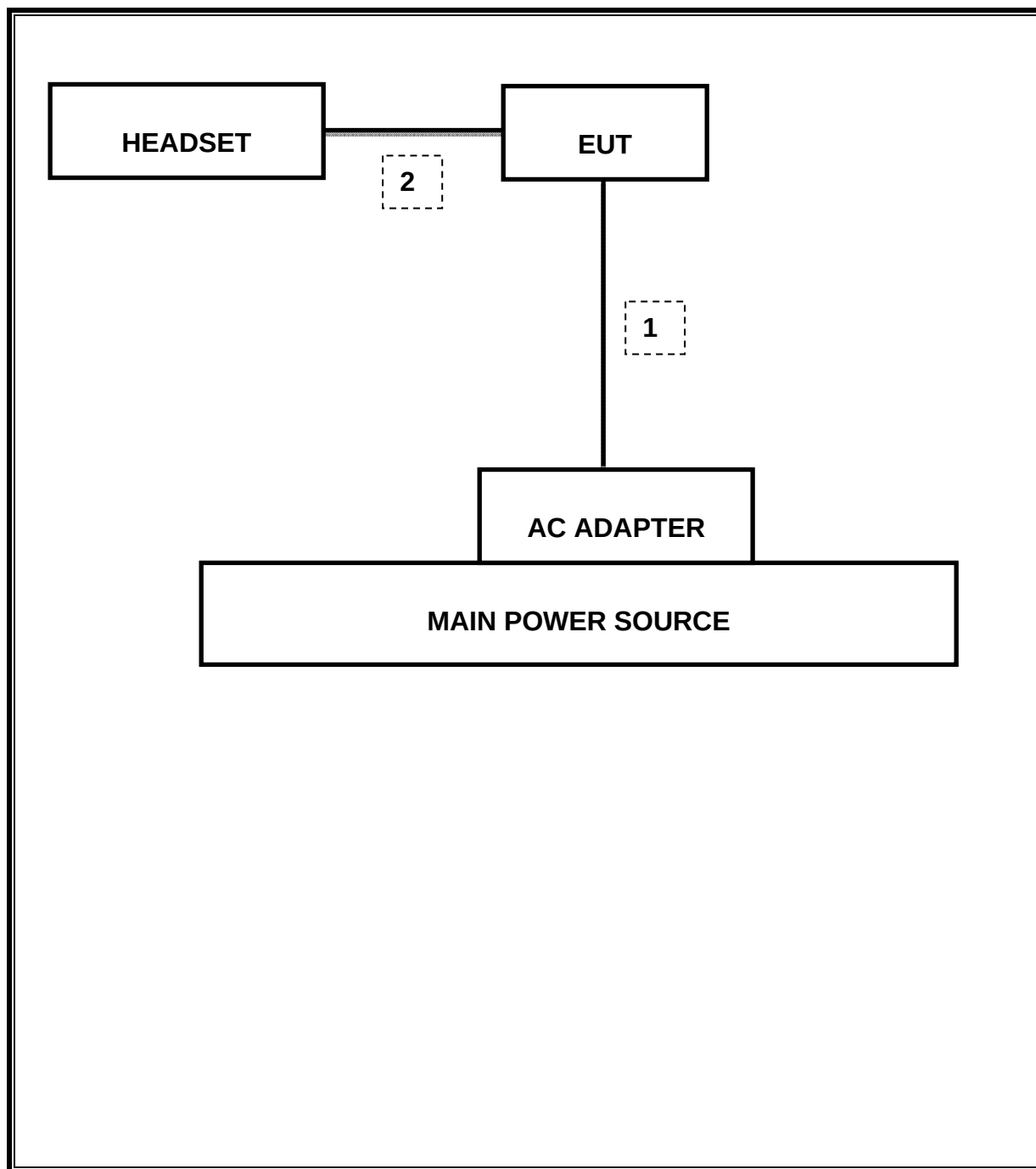
I/O CABLES

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	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	671.2kHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-54.02 dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	3.18dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-11.98 dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	43.57dBuV
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	38.63 dBuV/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.

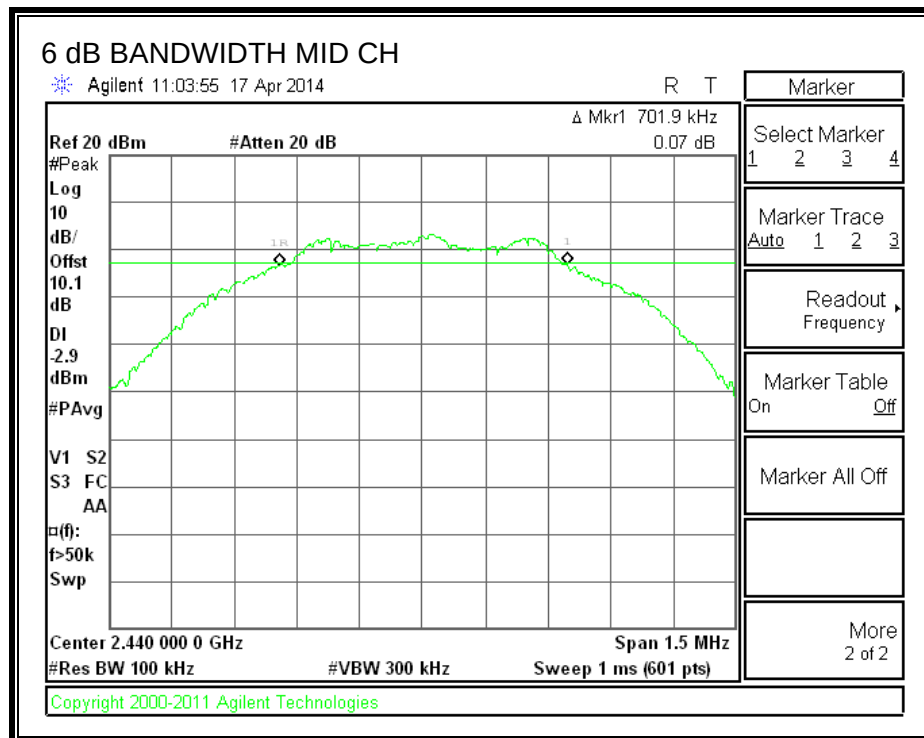
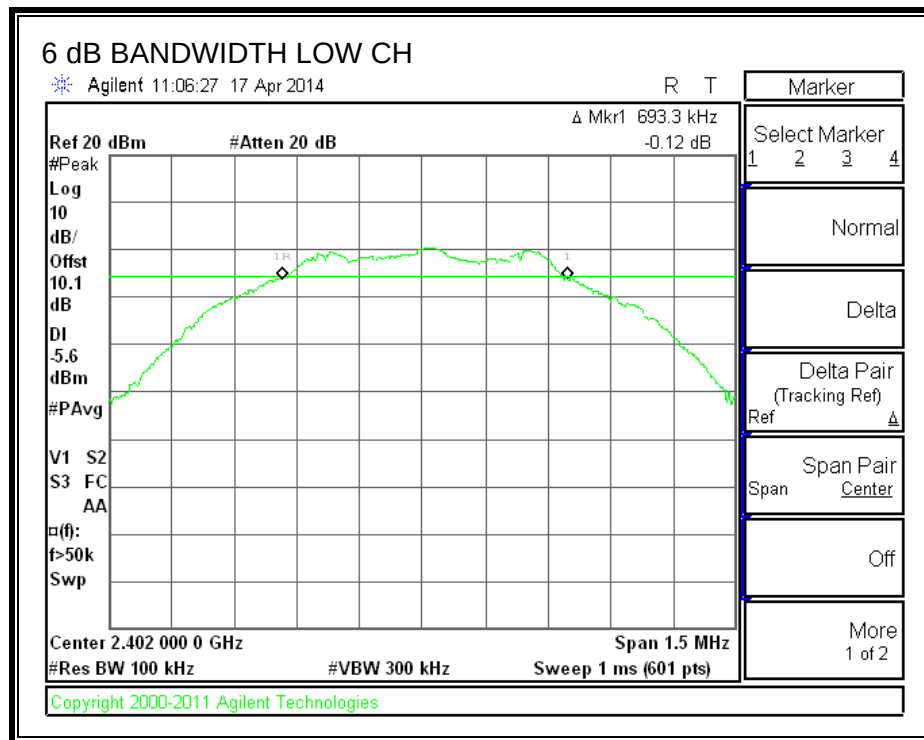
TEST PROCEDURE

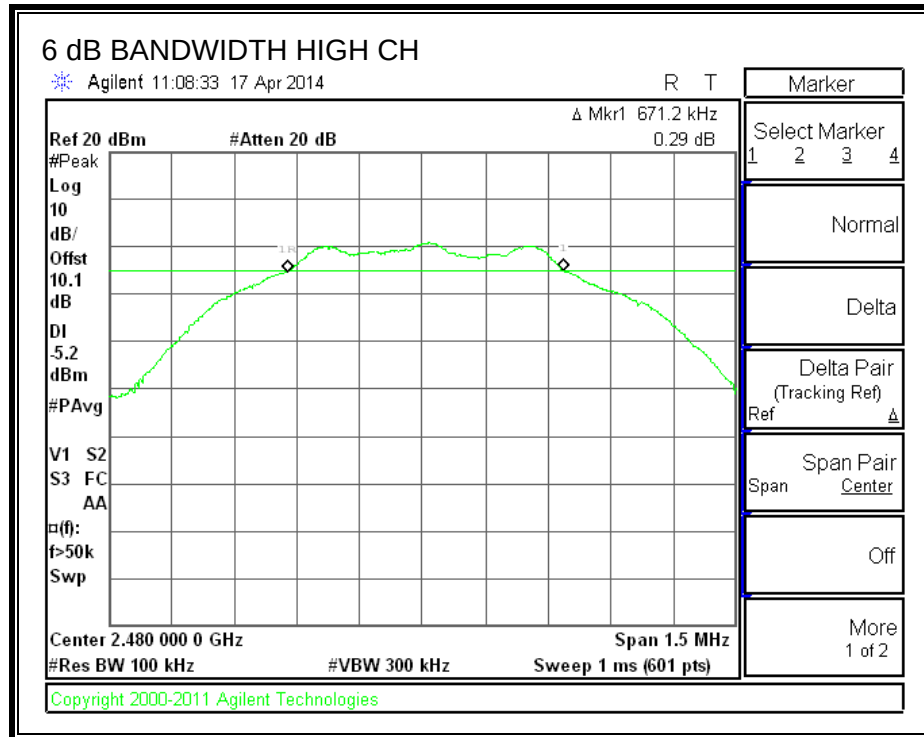
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.6933	0.5
Middle	2440	0.7019	0.5
High	2480	0.6712	0.5

6 dB BANDWIDTH





8.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

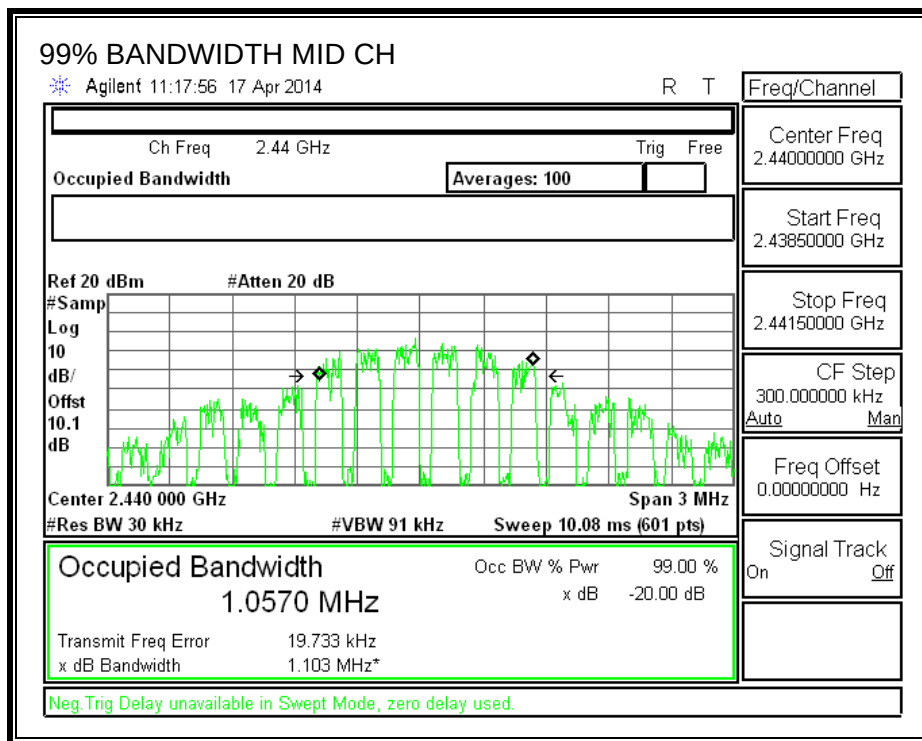
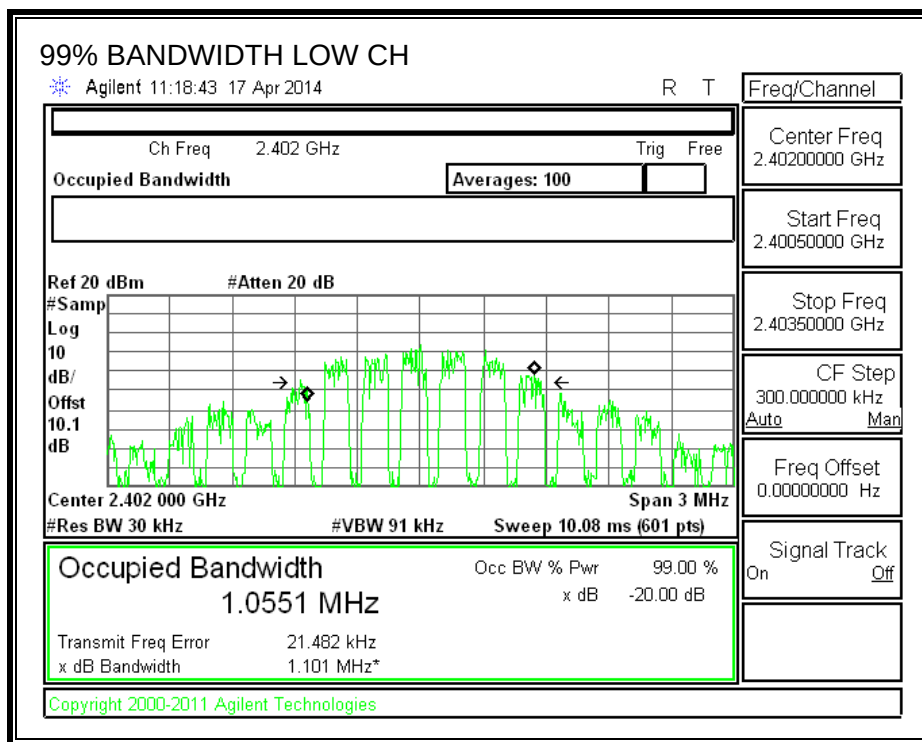
TEST PROCEDURE

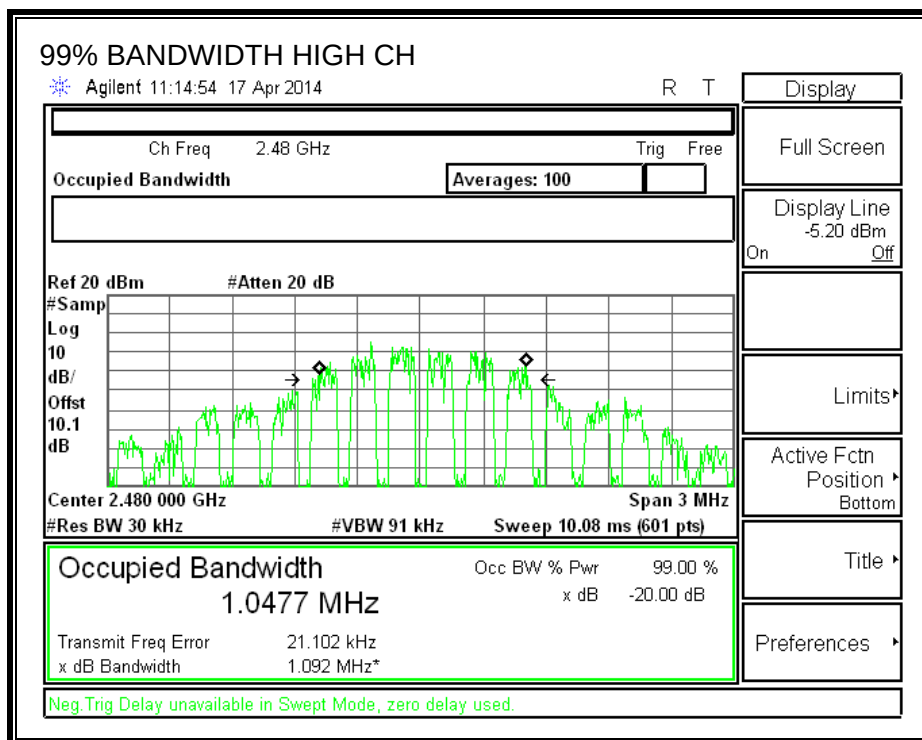
Reference to KDB558074 D01 DTS Meas Guidance v03r01: The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function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

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0551
Middle	2440	1.0570
High	2480	1.0477

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.

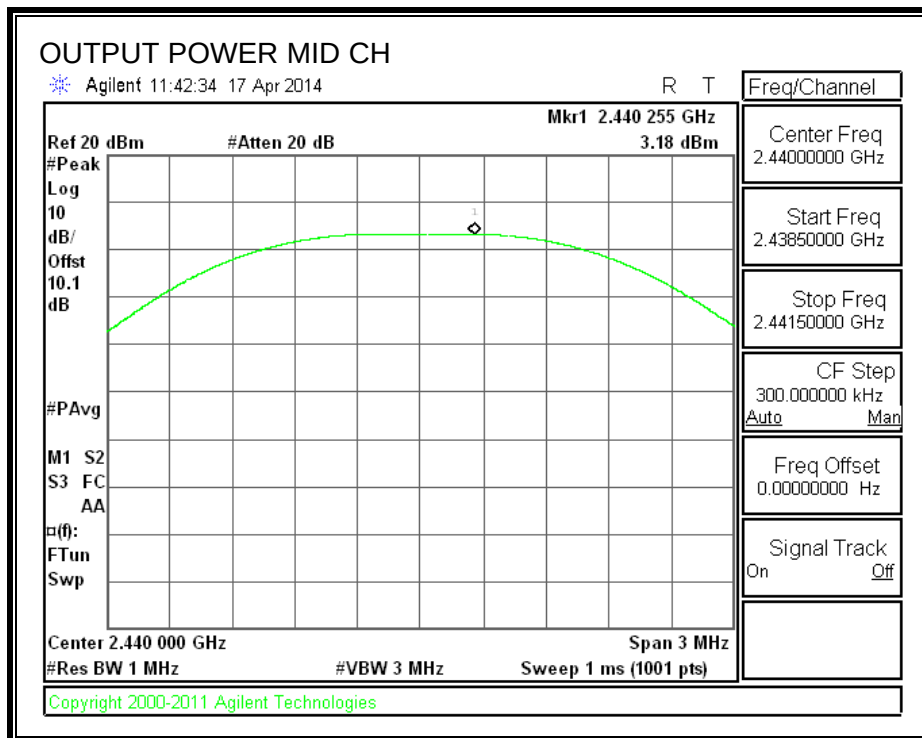
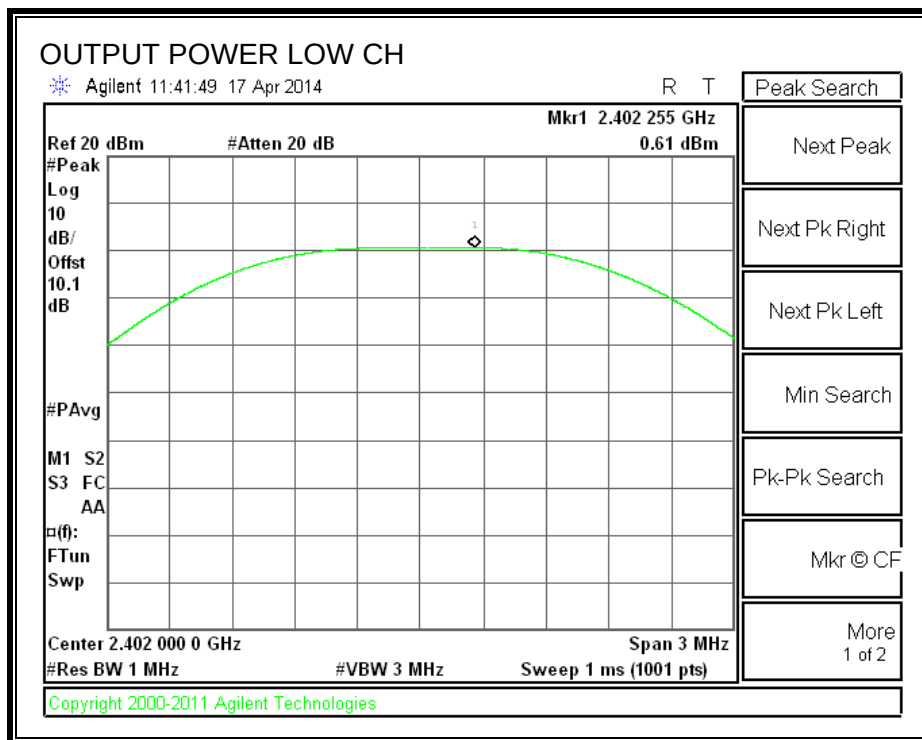
TEST PROCEDURE

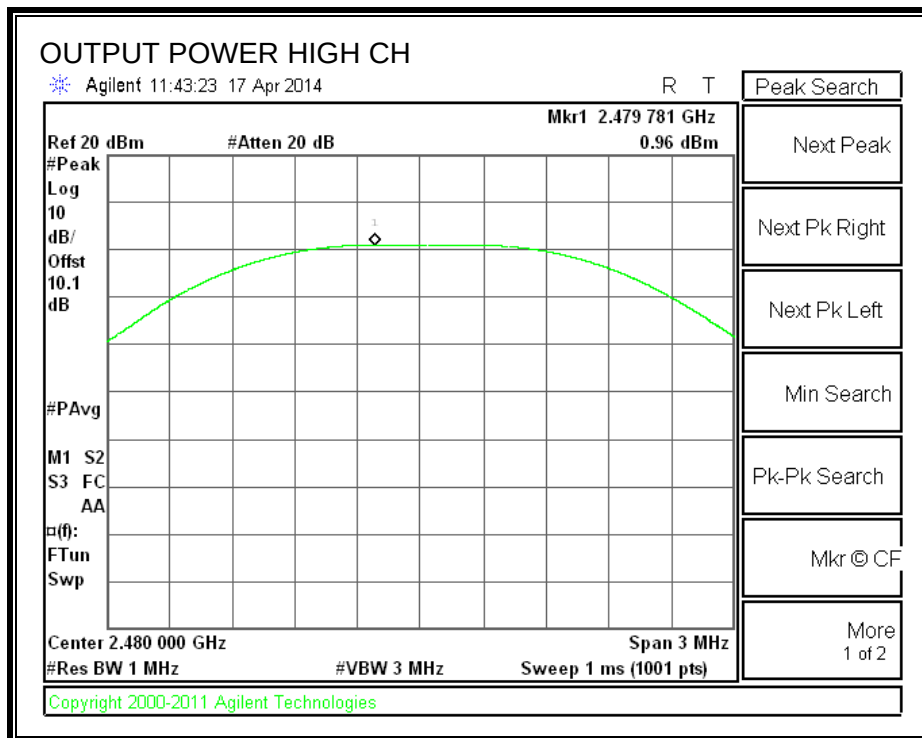
Peak power is measured using KDB558074 D01 DTS Meas Guidance v03r01 April 9, 2013 under section 9.1.1 utilizing spectrum analyzer.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	0.610	30	-29.390
Middle	2440	3.180	30	-26.820
High	2480	0.960	30	-29.040

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	0.60
Middle	2440	2.95
High	2480	0.78

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.

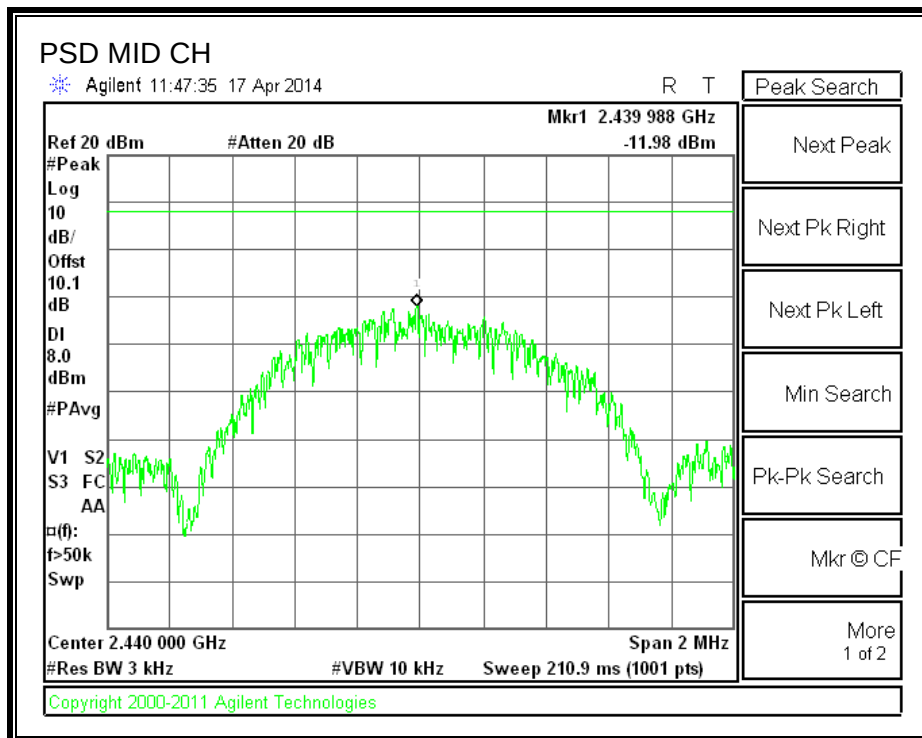
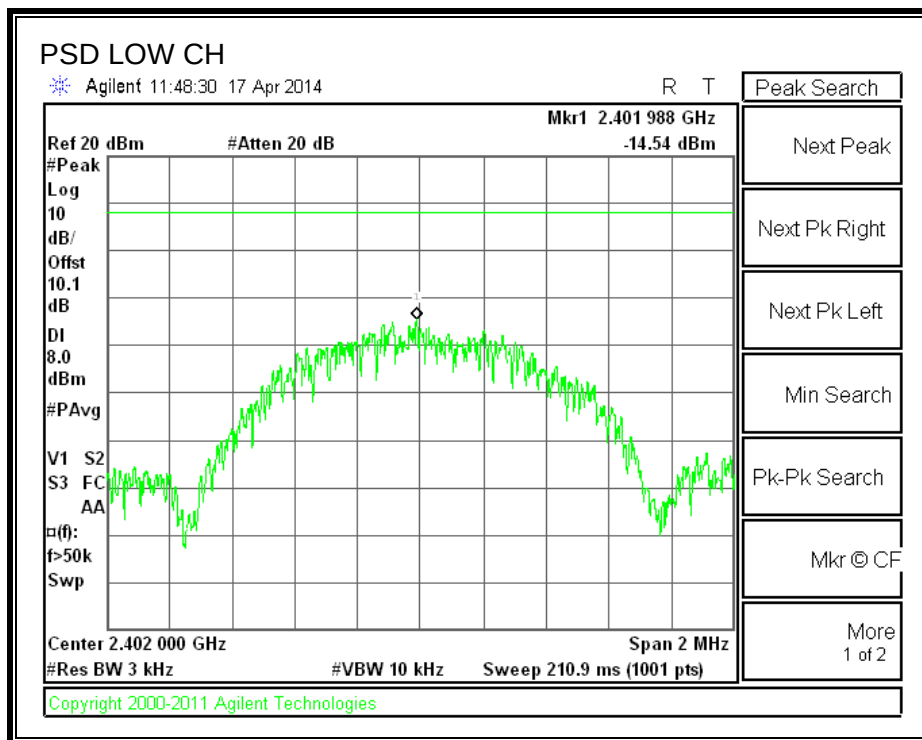
TEST PROCEDURE

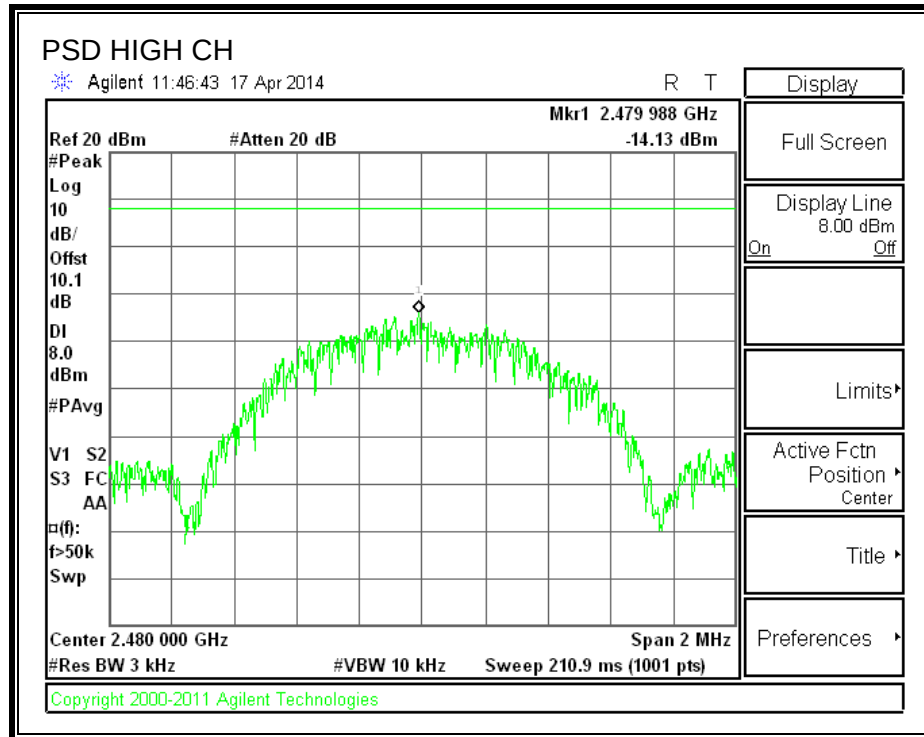
Power Spectral Density was performed utilizing the "Method PKPSD (Peak PSD)" under KDB558074 D01 DTS Meas Guidance v03r01, April 9, 2013

RESULTS

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2402	-14.54	8	-22.54
Middle	2440	-11.98	8	-19.98
High	2480	-15.42	8	-23.42

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.

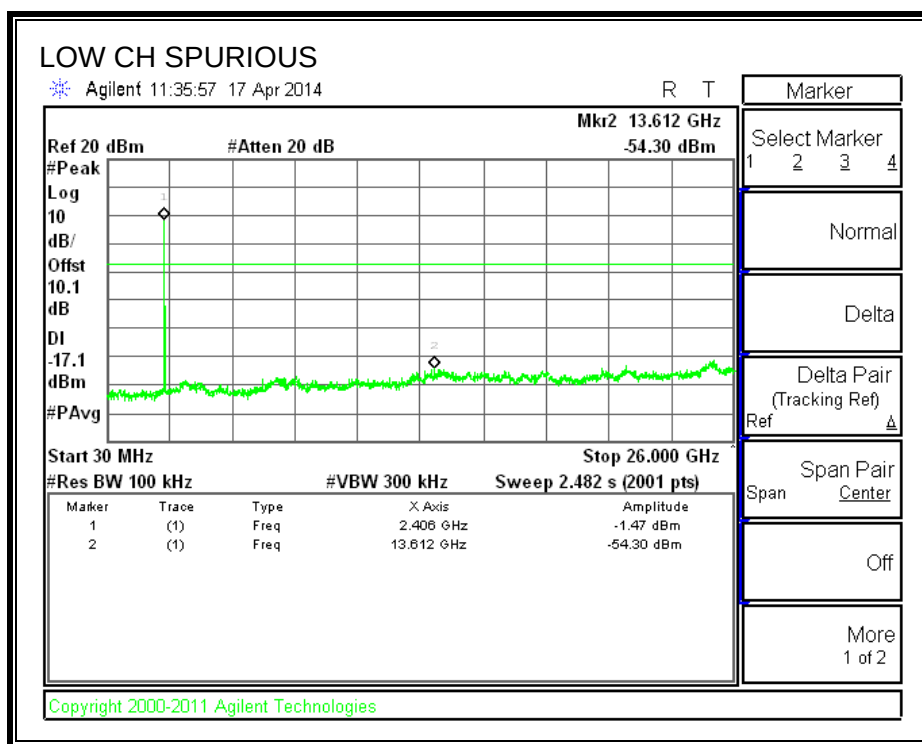
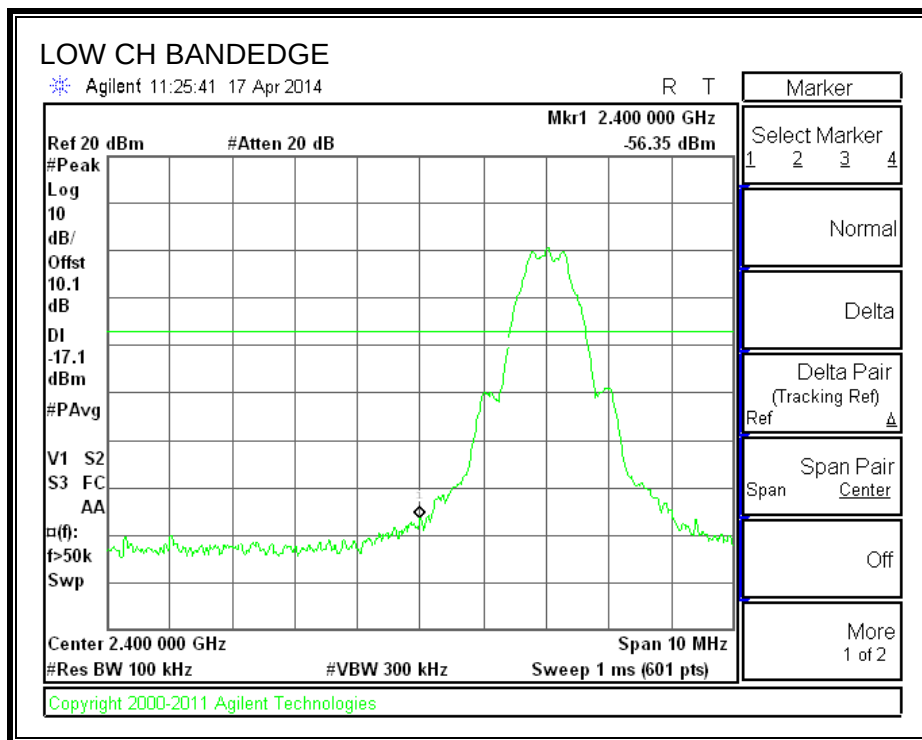
TEST PROCEDURE

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.

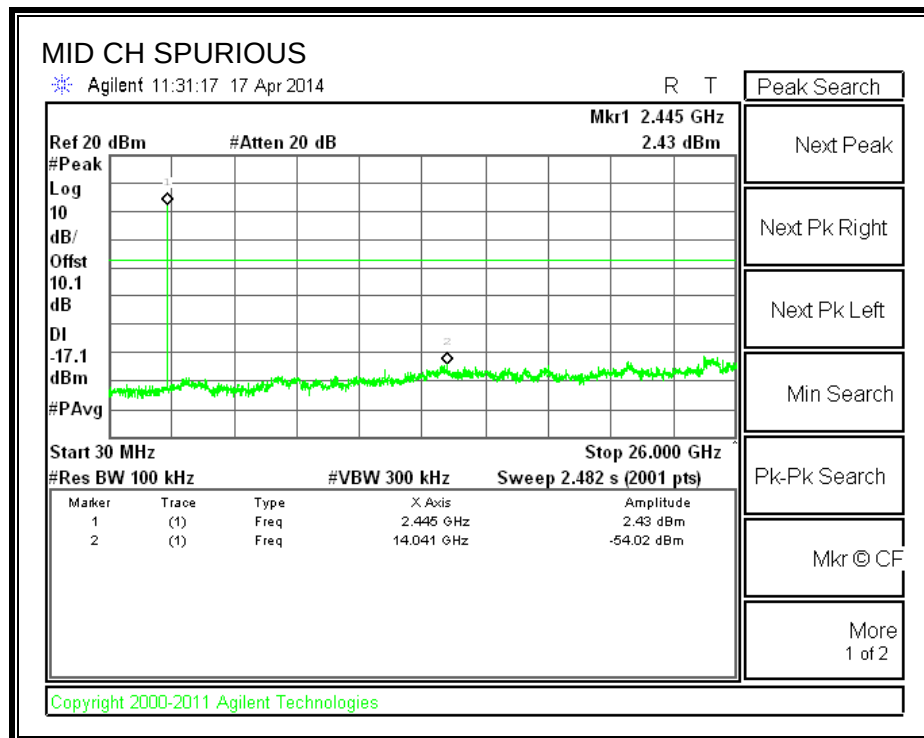
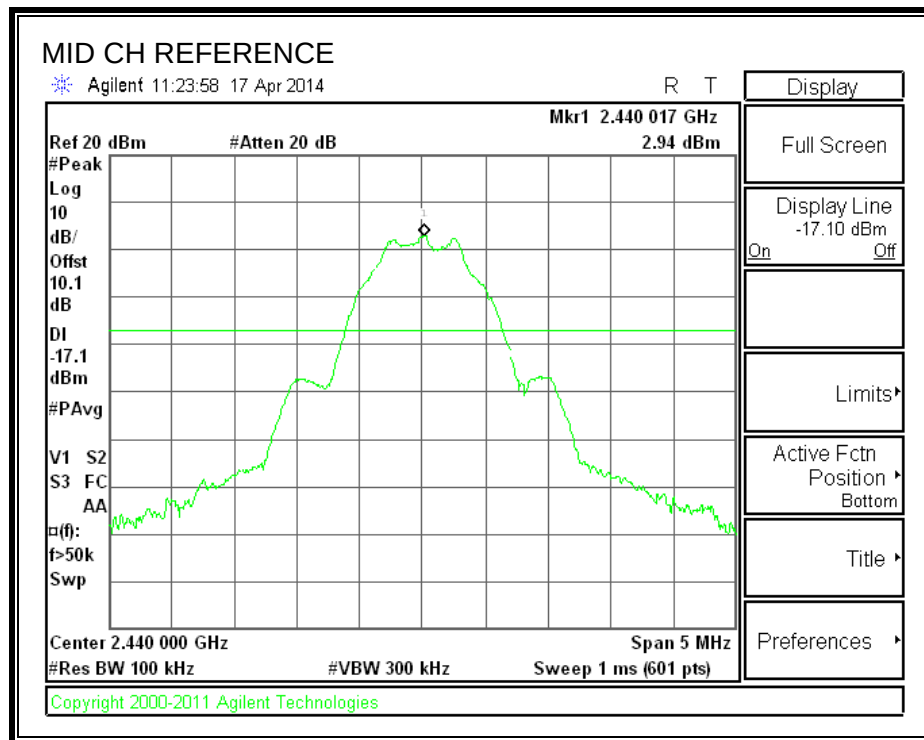
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

RESULTS

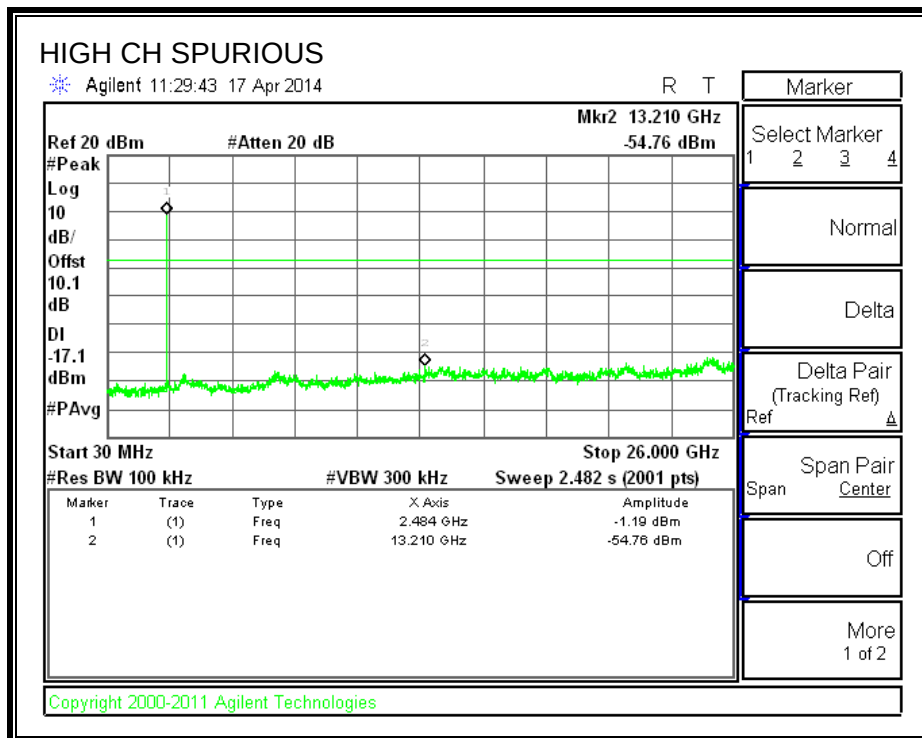
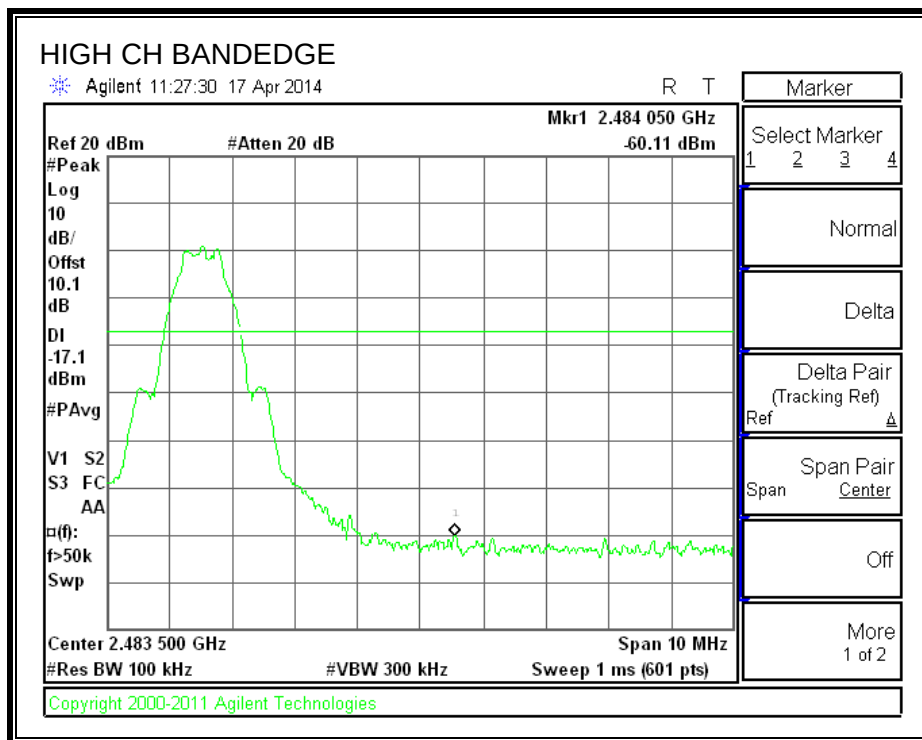
SPURIOUS EMISSIONS, LOW CHANNEL



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 = $10 \log(1/x) = 2.1 \text{ dB}$

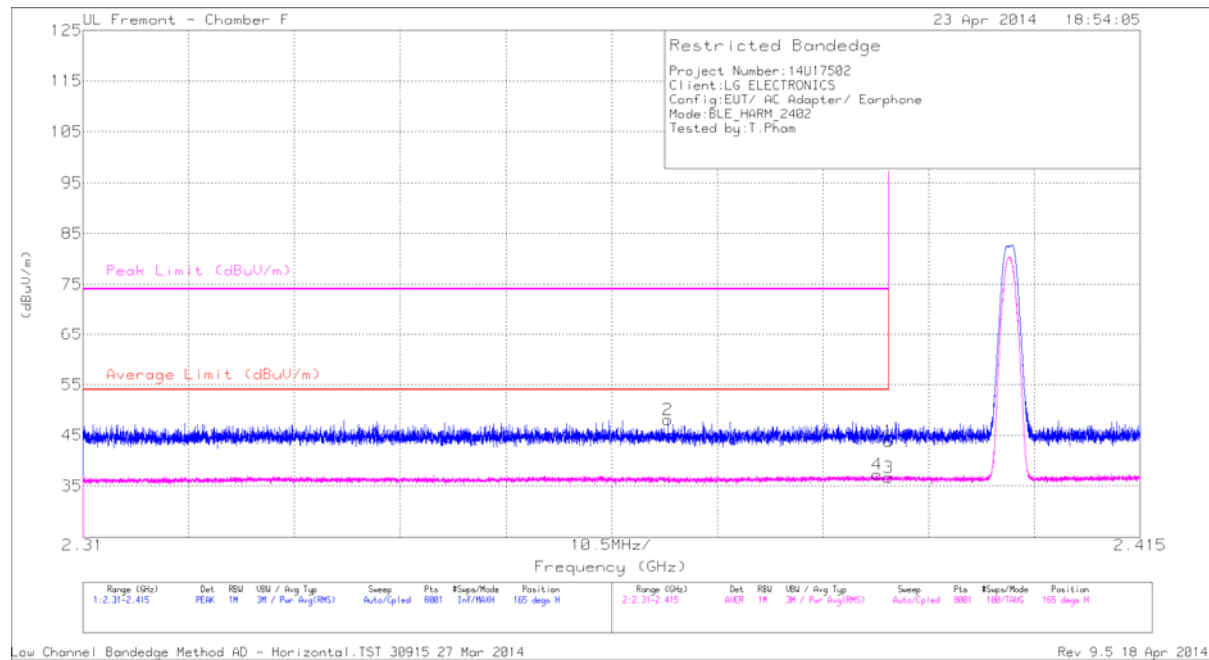
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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.

9.2. TRANSMITTER ABOVE 1 GHz

RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Filt/Pad (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	35.47	PK	32.2	-23.8	43.87	-	-	74	-30.13	165	221	H
2	* 2.368	39.8	PK	32.1	-23.9	48	-	-	74	-26	165	221	H
3	* 2.39	28.23	RMS	32.2	-23.8	36.63	54	-17.37	-	-	165	221	H
4	* 2.389	28.85	RMS	32.2	-23.8	37.25	54	-16.75	-	-	165	221	H

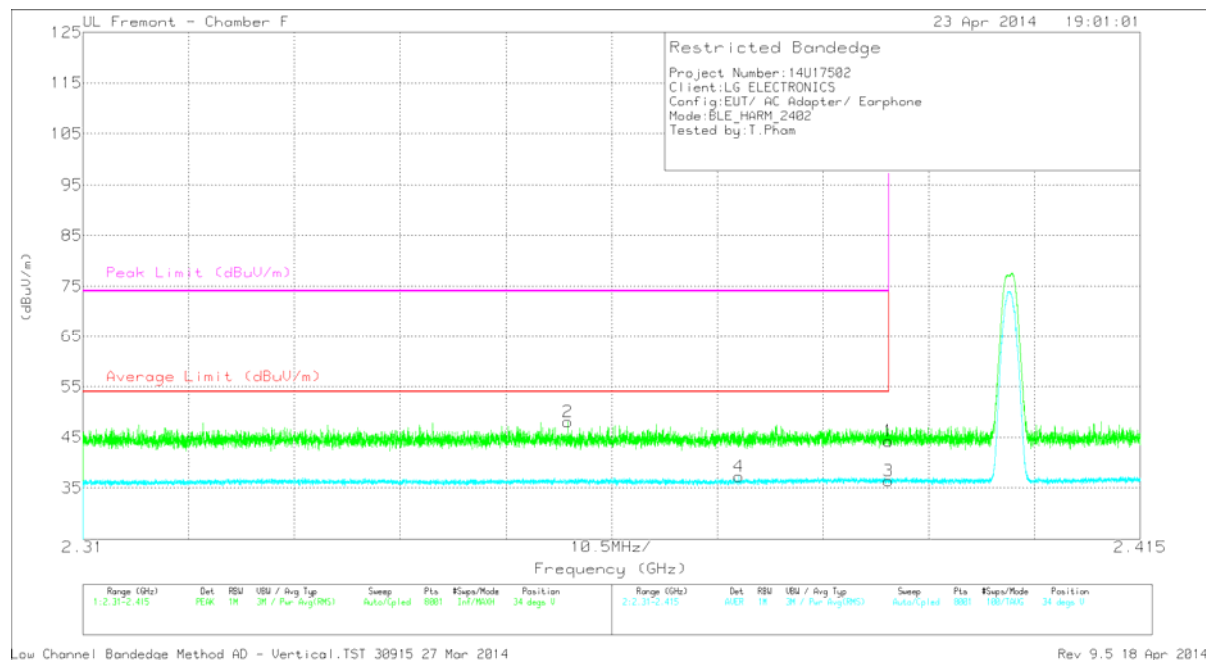
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

Low Channel Bandedge Method AD - Horizontal.TST 30915 27 Mar 2014

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



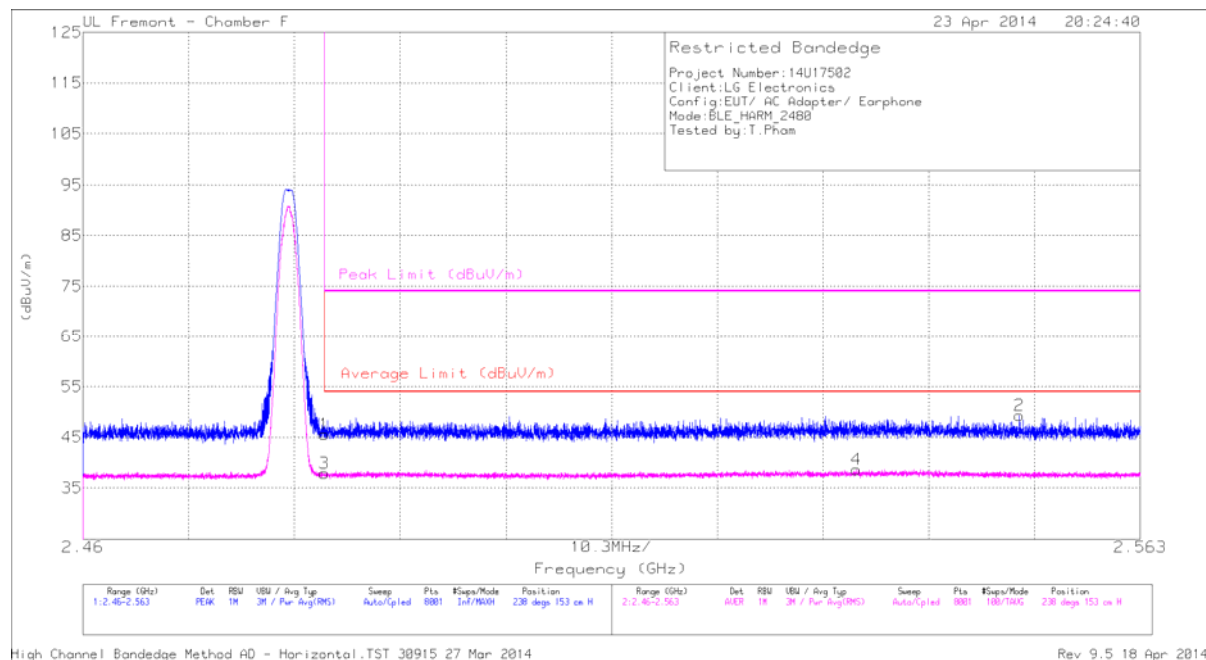
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	35.87	PK	32.2	-23.8	44.27	-	-	74	-29.73	34	397	V
2	* 2.358	39.65	PK	32	-23.6	48.05	-	-	74	-25.95	34	397	V
3	* 2.39	28.04	RMS	32.2	-23.8	36.44	54	-17.56	-	-	34	397	V
4	* 2.375	29.05	RMS	32.1	-23.9	37.25	54	-16.75	-	-	34	397	V

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

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



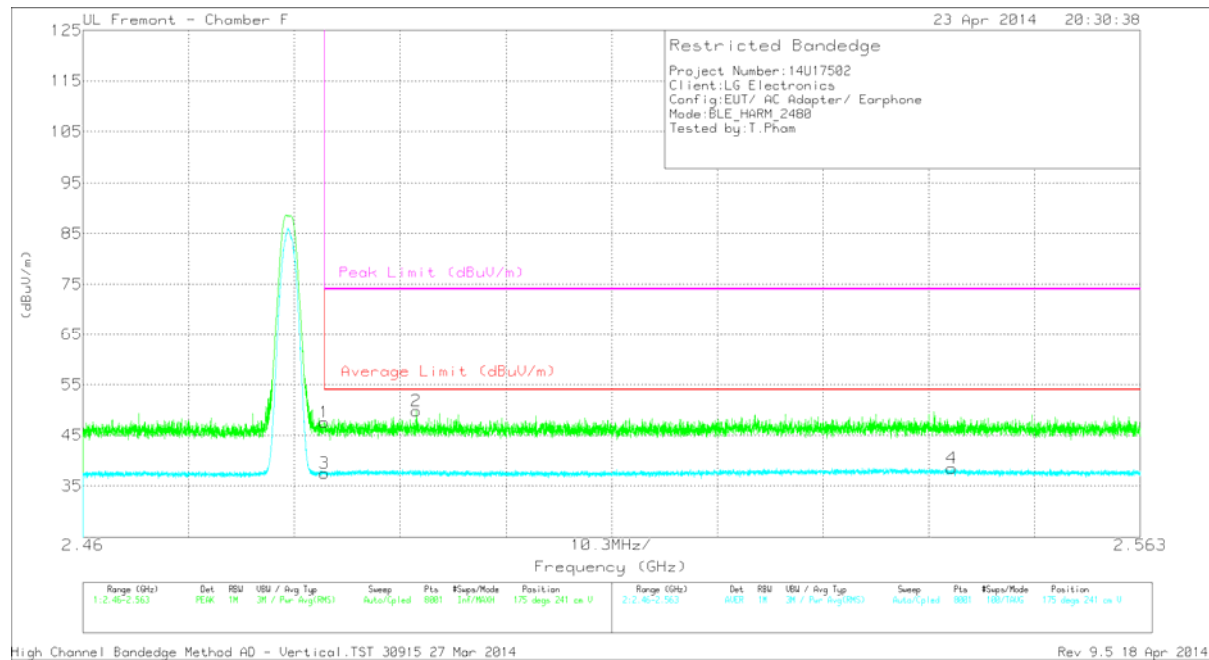
Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBUV/m)	Average Limit (dBUV/m)	Margin (dB)	Peak Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	36.01	PK	32.6	-23	45.61	-	-	74	-28.39	238	153	H
2	2.551	39.77	PK	32.7	-23.2	49.27	-	-	74	-24.73	238	153	H
3	* 2.484	28.33	RMS	32.6	-23	37.93	54	-16.07	-	-	238	153	H
4	2.535	28.73	RMS	32.7	-22.8	38.63	54	-15.37	-	-	238	153	H

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

PK - Peak detector

RMS - RMS detection

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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
1	* 2.484	37.91	PK	32.6	-23	47.51	-	-	74	-26.49	175	241	V
2	* 2.492	40.08	PK	32.6	-22.9	49.78	-	-	74	-24.22	175	241	V
3	* 2.484	27.87	RMS	32.6	-23	37.47	54	-16.53	-	-	175	241	V
4	2.545	28.83	RMS	32.7	-23	38.53	54	-15.47	-	-	175	241	V

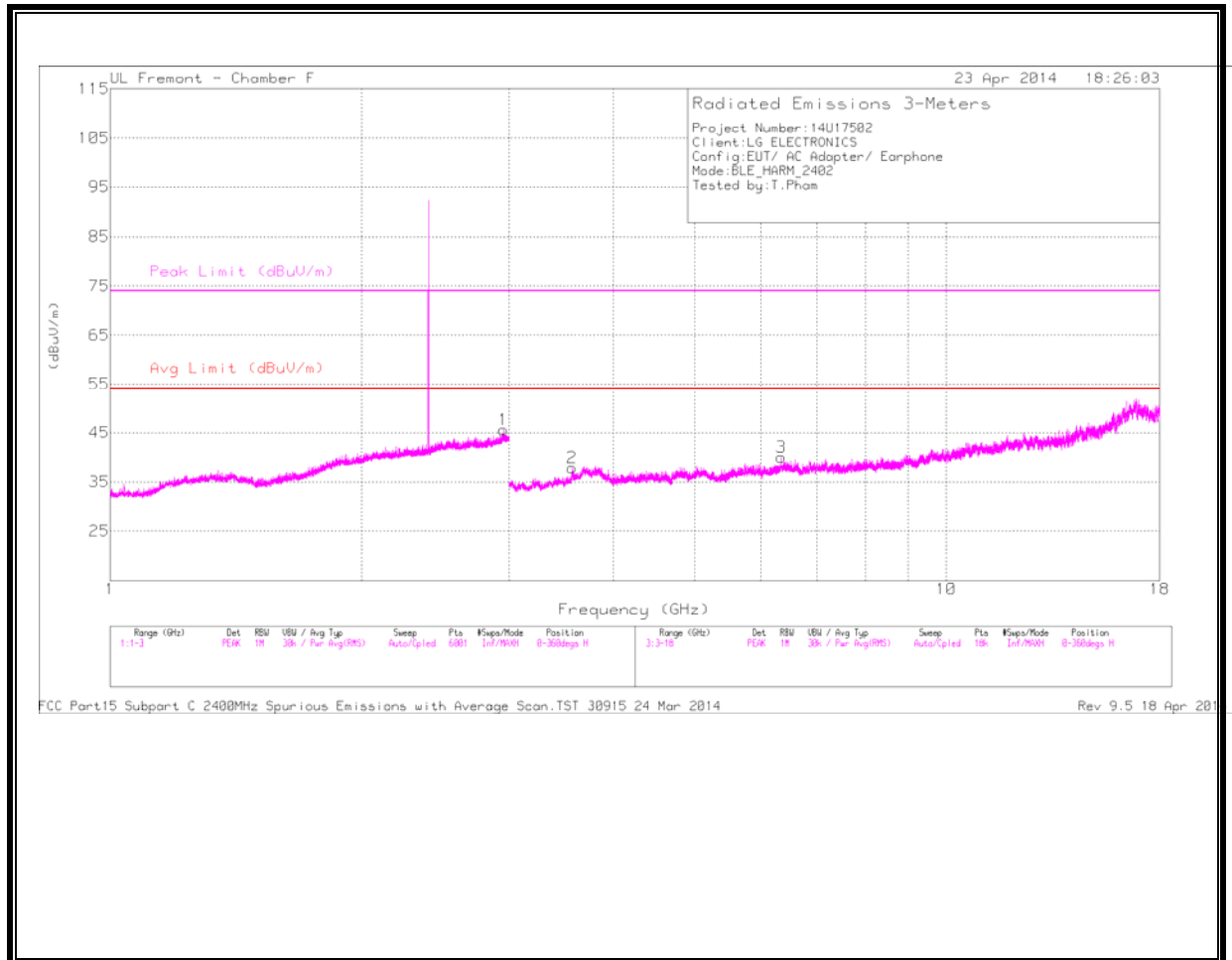
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

RMS - RMS detection

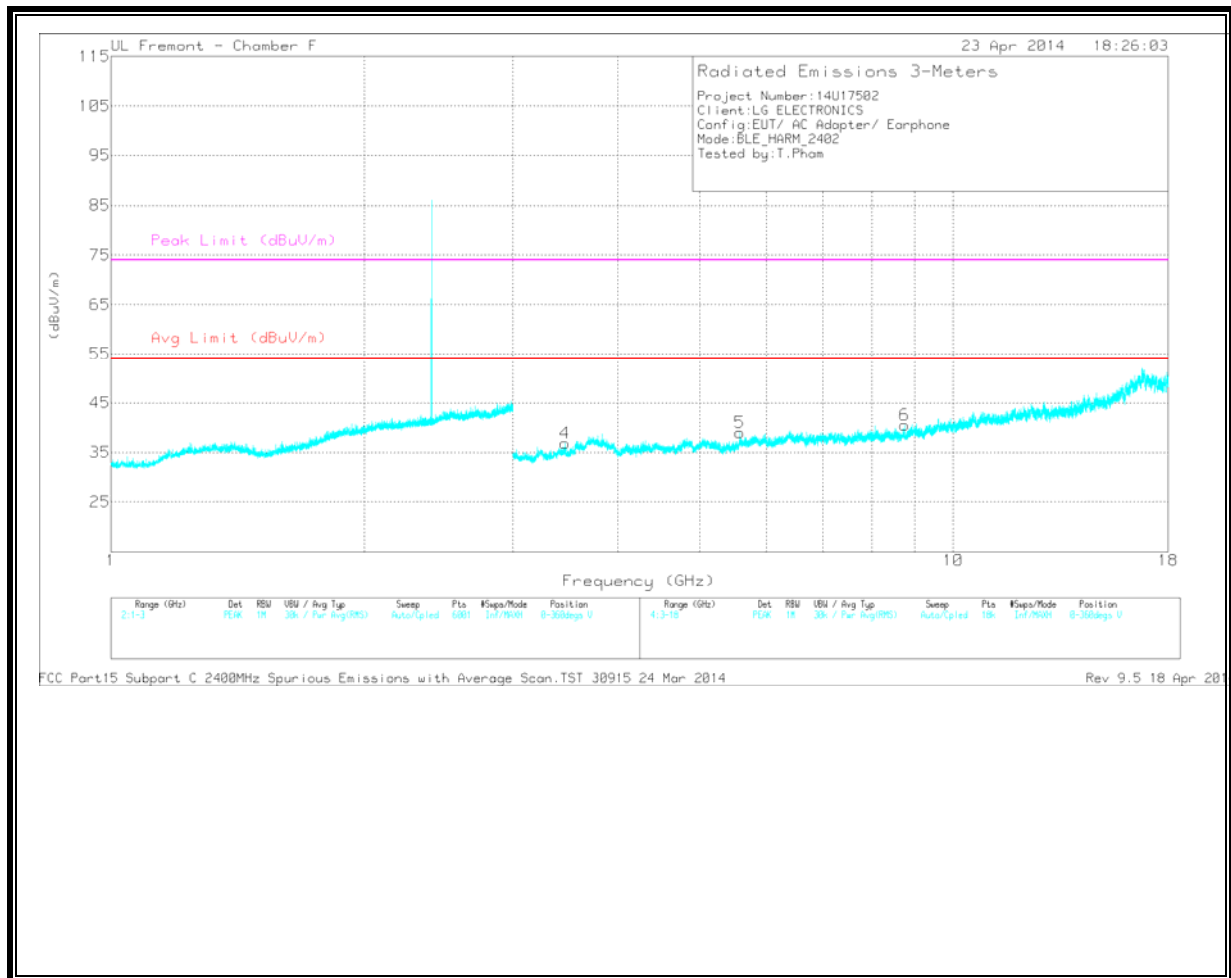
HARMONICS AND SPURIOUS EMISSIONS

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.

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 T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.954	34.15	PK	33.3	-21.9	45.55	54	-8.45	74	-28.45	0-360	201	H
2	* 3.571	31.45	PK	34.8	-28.4	37.85	54	-16.15	74	-36.15	0-360	101	H
3	6.352	31.8	PK	35.6	-27.4	40	54	-14	74	-34	0-360	101	H
4	3.457	31.57	PK	34.2	-28.9	36.87	54	-17.13	74	-37.13	0-360	200	V
5	5.577	33.13	PK	34.6	-28.7	39.03	54	-14.97	74	-34.97	0-360	200	V
6	8.758	28.57	PK	35.9	-24	40.47	54	-13.53	74	-33.53	0-360	101	V

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

PK - Peak detector

Radiated Emissions

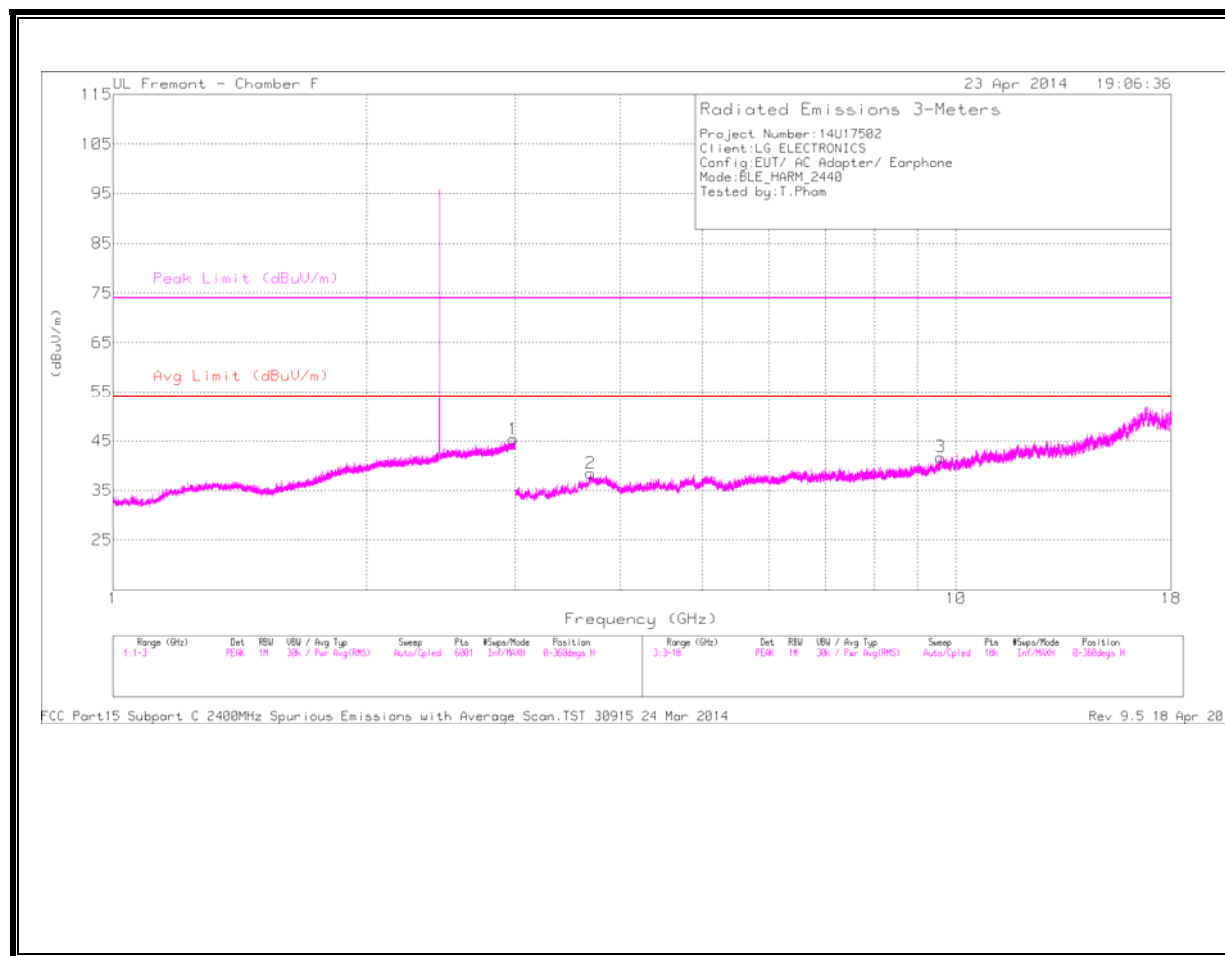
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.571	32	PK2	34.8	-28.4	38.4	-	-	74	-35.6	275	103	V

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

PK2 – KDB558074 Method: Maximum Peak

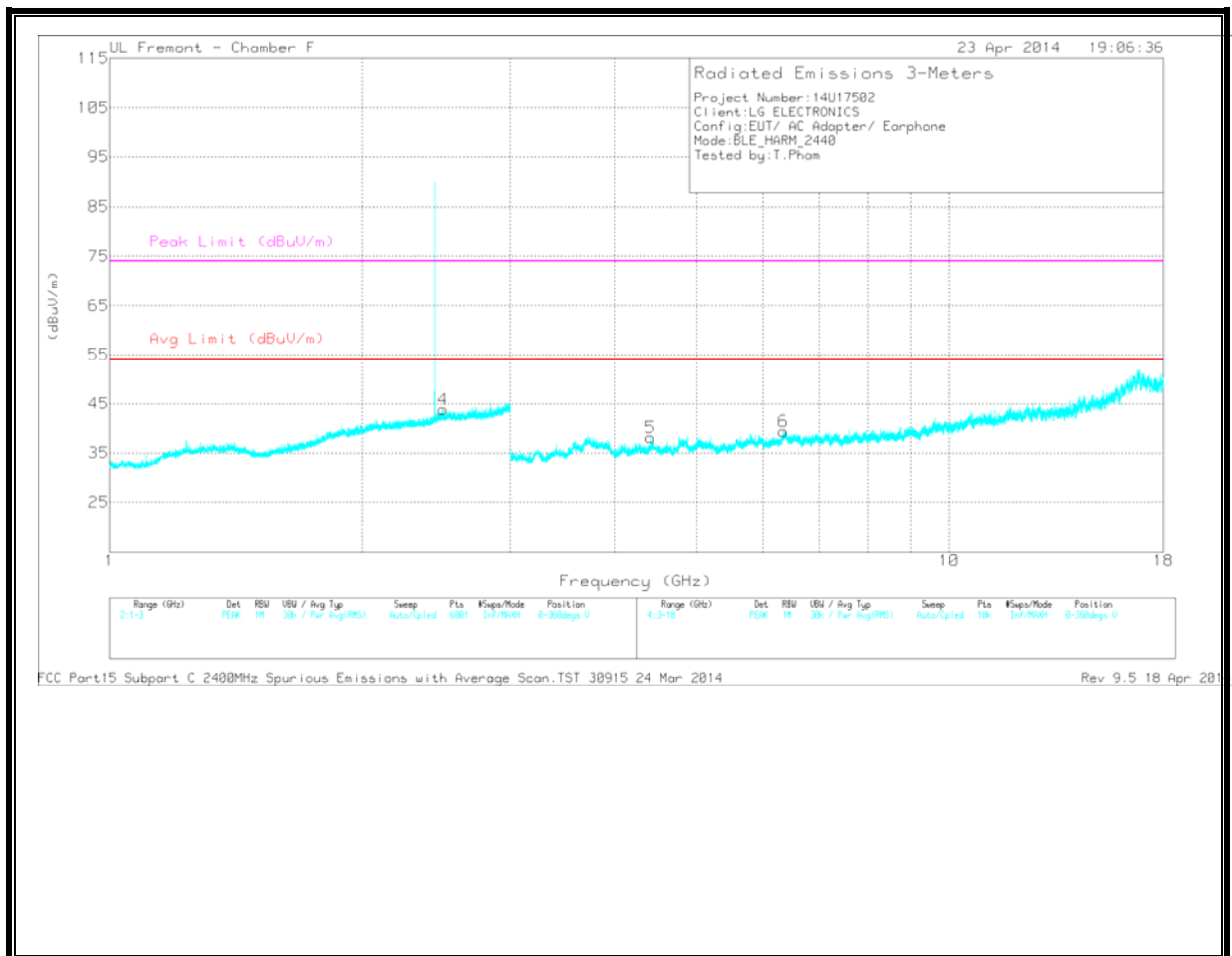
MID CHANNEL

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.

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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.983	34.04	PK	33.3	-22	45.34	54	-8.66	74	-28.66	0-360	397	H
4	* 2.496	34.23	PK	32.6	-23	43.83	54	-10.17	74	-30.17	0-360	101	V
2	* 3.685	32.84	PK	34.9	-29.2	38.54	54	-15.46	74	-35.46	0-360	199	H
3	9.593	26.33	PK	36.9	-21.5	41.73	54	-12.27	74	-32.27	0-360	101	H
5	4.407	33.47	PK	33.8	-29.1	38.17	54	-15.83	74	-35.83	0-360	101	V
6	6.348	31.03	PK	35.6	-27.3	39.33	54	-14.67	74	-34.67	0-360	201	V

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

PK - Peak detector

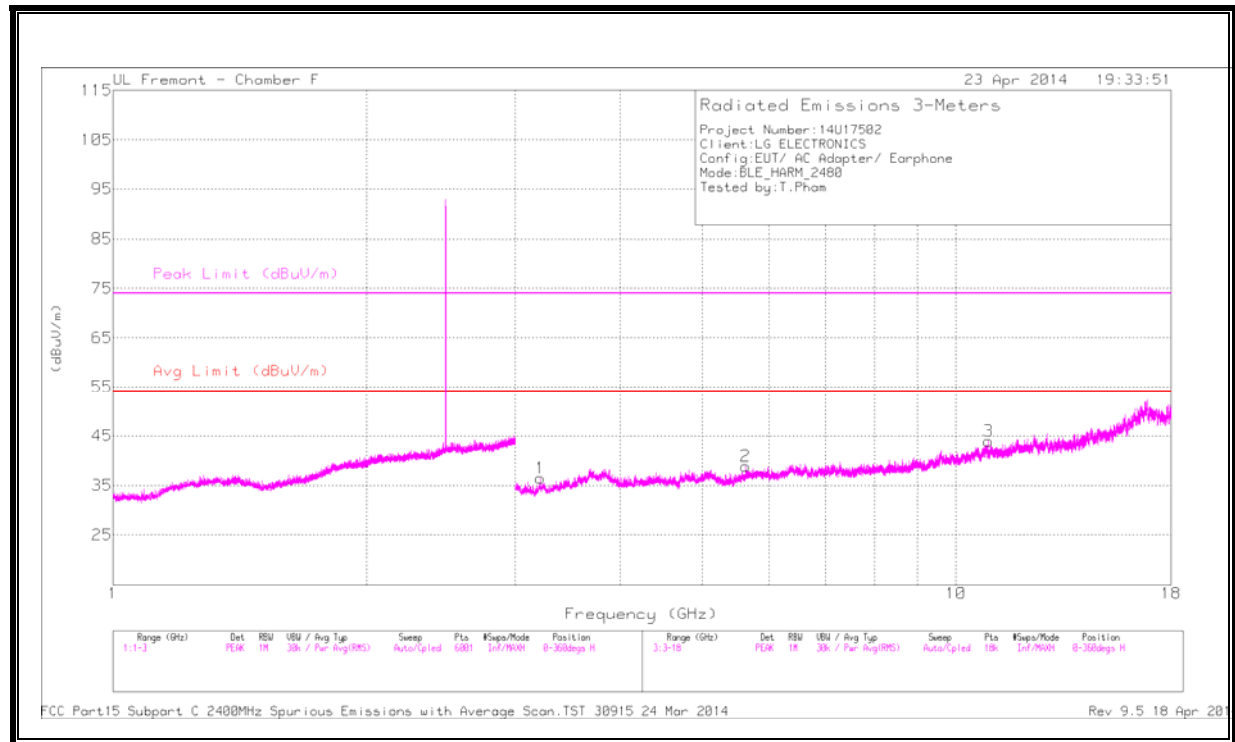
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.496	42.59	PK2	32.6	-23	52.19	54	-1.81	74	-21.81	0	101	V
* 3.687	38.82	PK2	34.9	-29.2	44.52	54	-9.48	74	-29.48	0	101	H

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

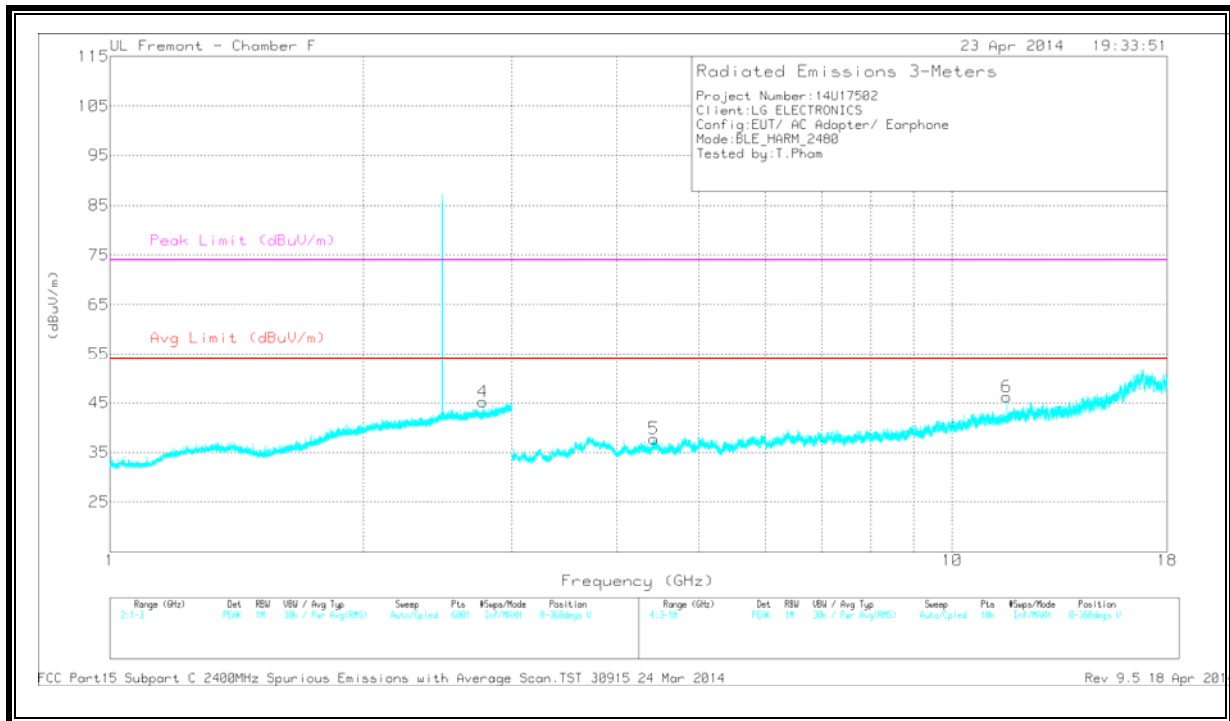
PK2 - KDB558074 Method: Maximum Peak

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.

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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.772	35.07	PK	32.8	-22.7	45.17	54	-8.83	74	-28.83	0-360	201	V
1	3.215	32.27	PK	33.4	-29.2	36.47	54	-17.53	74	-37.53	0-360	101	H
2	5.629	32.15	PK	34.7	-28	38.85	54	-15.15	74	-35.15	0-360	101	H
3	* 10.93	28.36	PK	38.1	-22.5	43.96	54	-10.04	74	-30.04	0-360	101	H
5	4.422	32.69	PK	33.9	-28.8	37.79	54	-16.21	74	-36.21	0-360	201	V
6	* 11.61	30.39	PK	38.5	-22.6	46.29	54	-7.71	74	-27.71	0-360	101	V

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

PK - Peak detector

Radiated Emissions

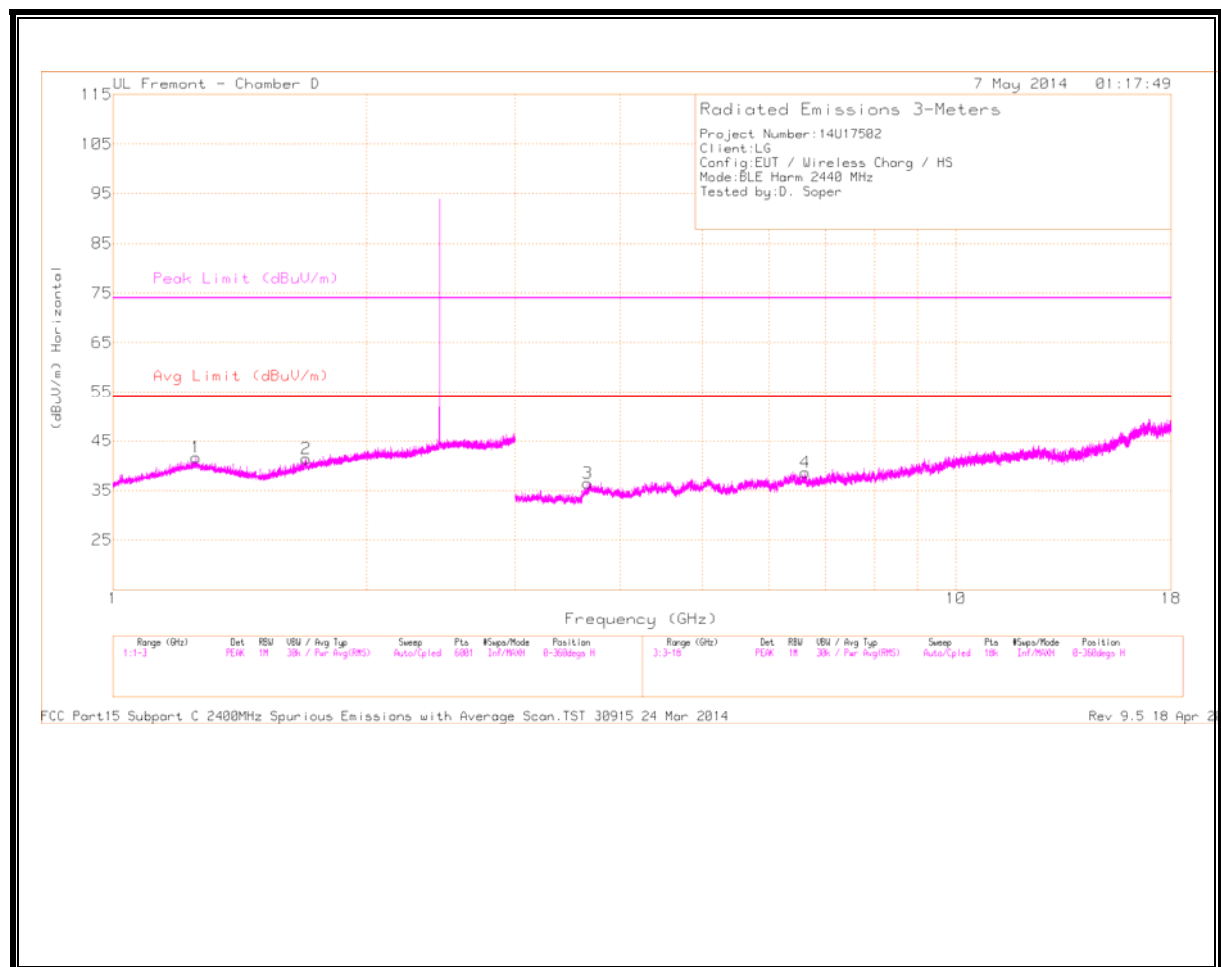
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.773	41.49	PK2	32.8	-22.7	51.59	54	-2.41	74	-22.41	0	101	V
* 10.937	34.68	PK2	38.1	-22.6	50.18	54	-3.82	74	-23.82	0	101	H
* 11.61	35.21	PK2	38.5	-22.6	51.11	54	-2.89	74	-22.89	0	101	V

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

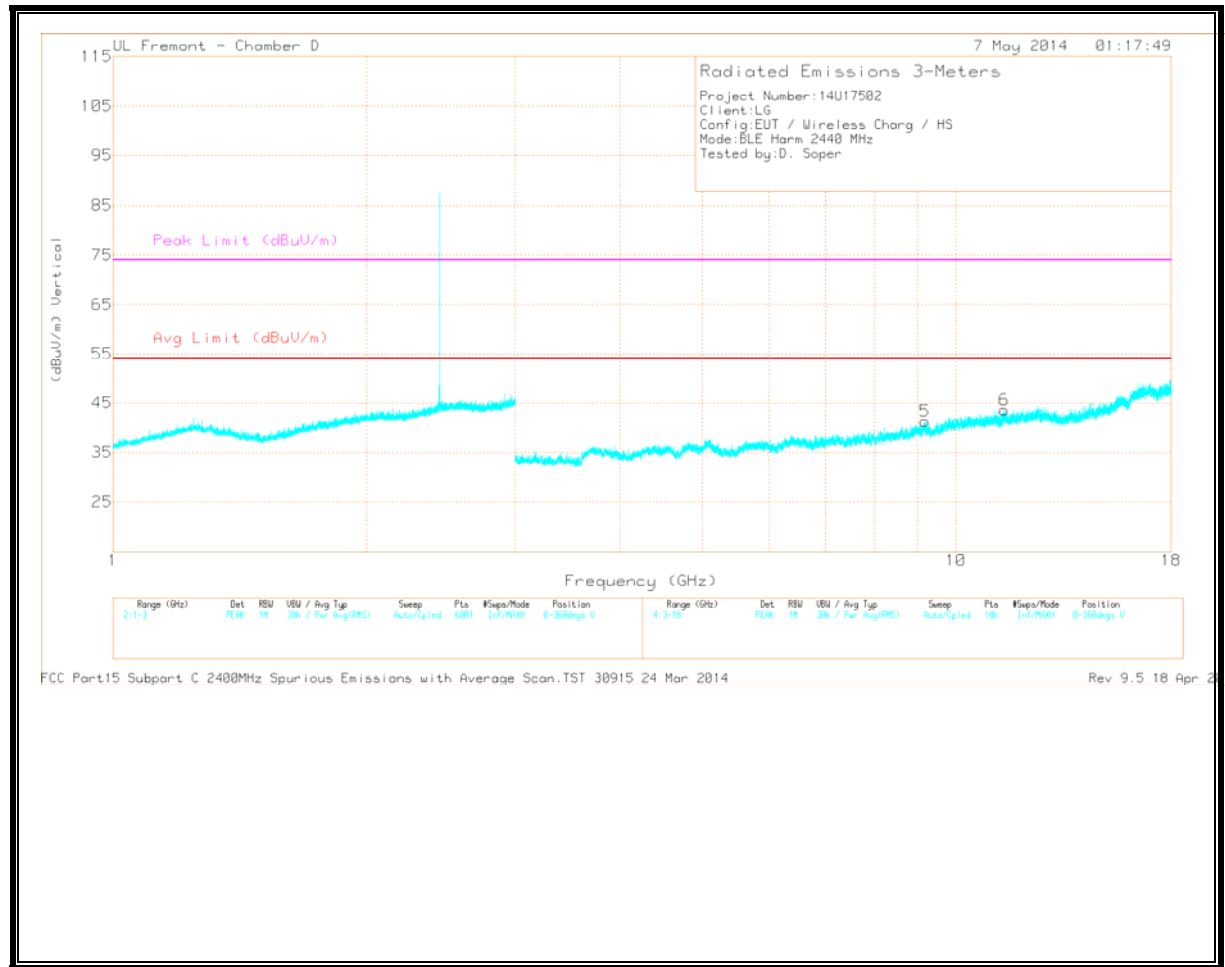
PK2 - KDB558074 Method: Maximum Peak

WORST CASE HARMONICS AND SPURIOUS EMISSIONS WITH WPC CHARGER AND COVER

HORIZONTAL



VERTICAL



CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (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	* 1.255	34.22	PK	29.5	-22.1	0	41.62	-	-	74	-32.38	0-360	201	H
2	* 1.694	33.87	PK	28.8	-21.3	0	41.37	-	-	74	-32.63	0-360	201	H
3	* 3.658	31.99	PK	32.6	-28.1	0	36.49	-	-	74	-37.51	0-360	100	H
5	* 9.186	26.57	PK	35.9	-21.2	0	41.27	-	-	74	-32.73	0-360	100	V
6	* 11.412	26.79	PK	37.6	-20.8	0	43.59	-	-	74	-30.41	0-360	100	V
4	6.631	29.22	PK	35	-25.6	0	38.62	-	-	-	-	0-360	201	H

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

PK - Peak detector

Radiated Emissions

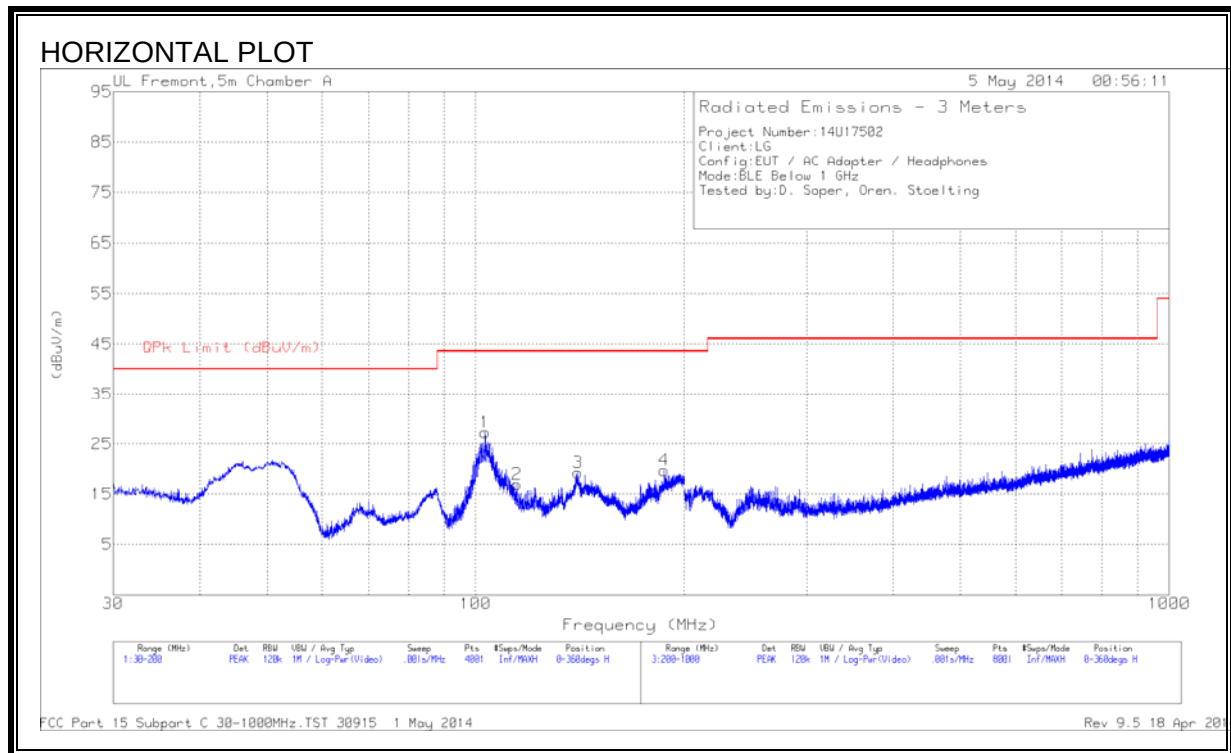
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.254	41.59	PK2	29.6	-22.1	0	49.09	-	-	74	-24.91	0	100	H
* 1.253	30.3	MAV1	29.6	-22.1	2.1	39.8	54	-14.2	-	-	0	100	H

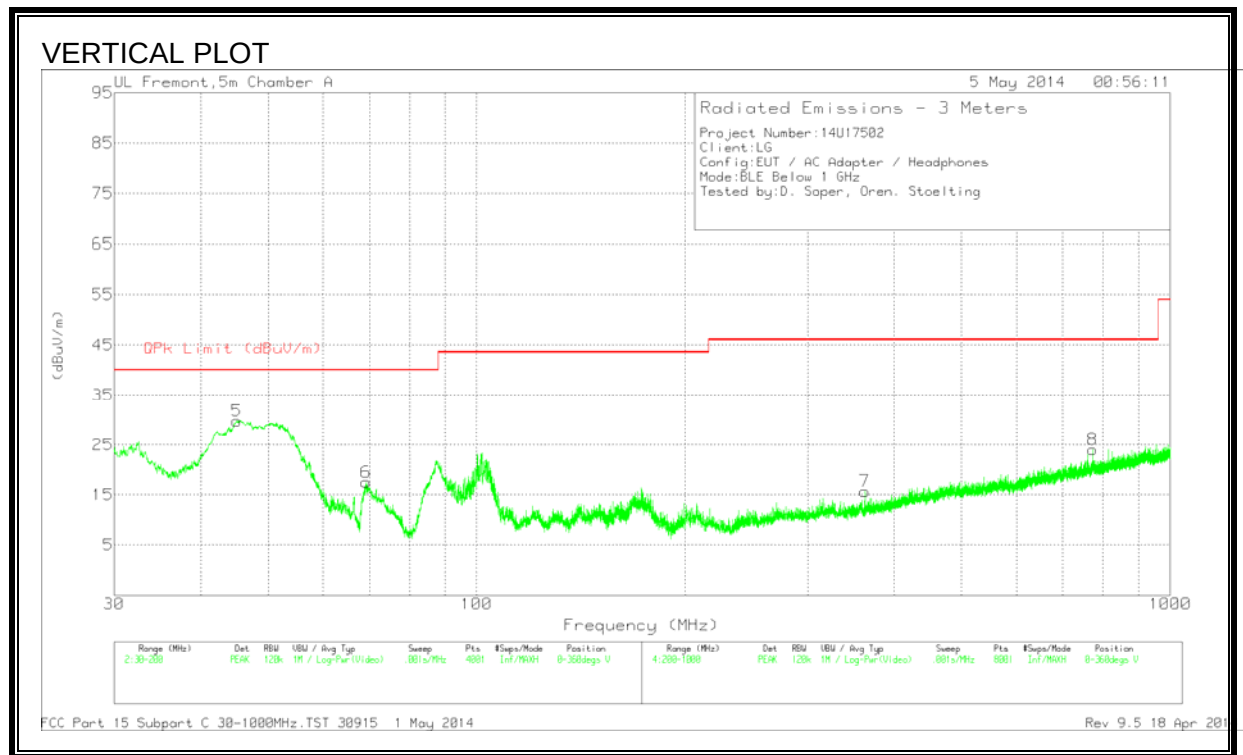
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

WORST-CASE BELOW 1 GHz

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





Trace Markers

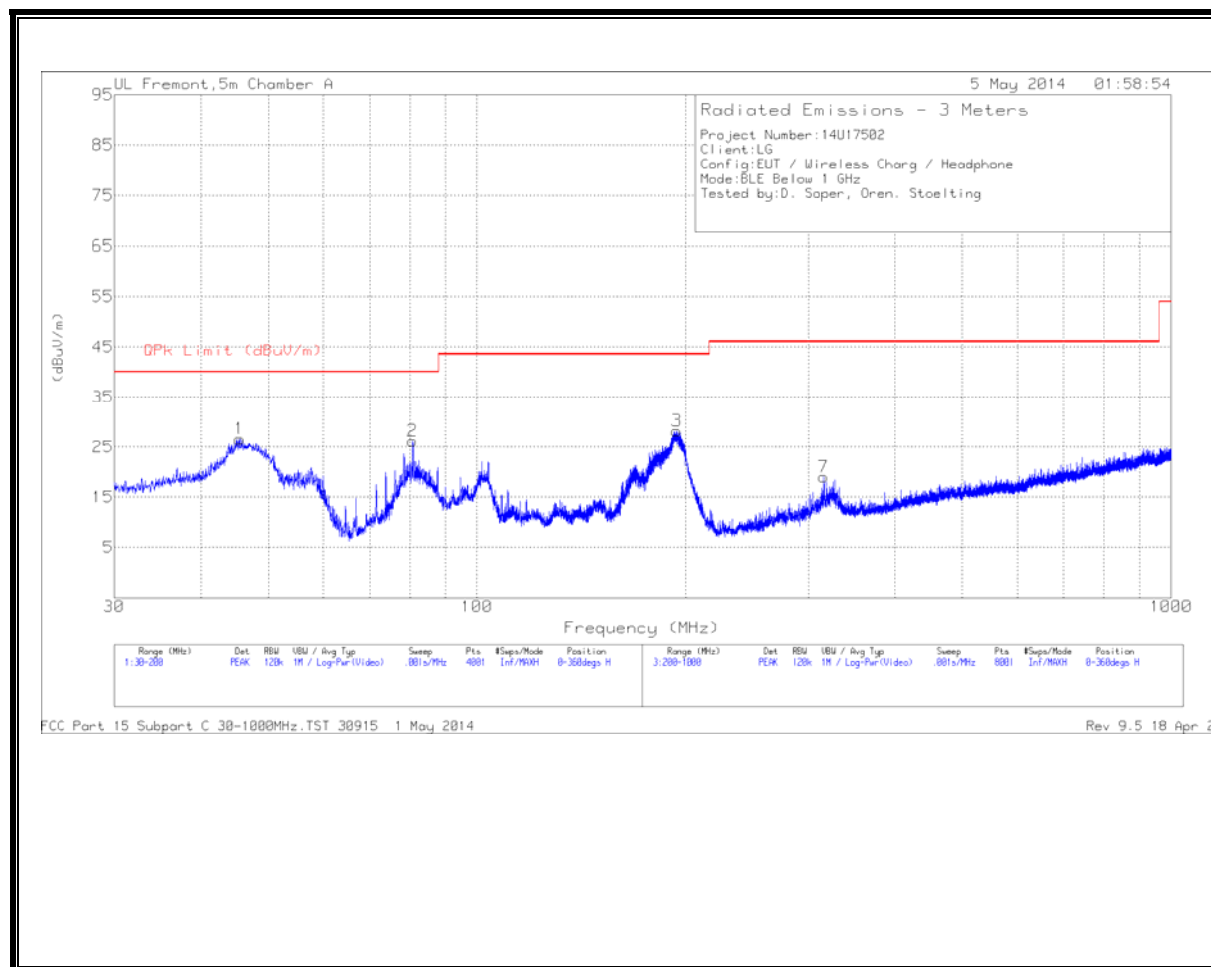
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 114.6175	33.93	PK	13.4	-30.4	16.93	43.52	-26.59	0-360	200	H
5	45.0875	50.02	PK	10.5	-30.8	29.72	40	-10.28	0-360	101	V
6	69.27	40.02	PK	8.3	-30.8	17.52	40	-22.48	0-360	101	V
1	103.185	46.48	PK	11.1	-30.3	27.28	43.52	-16.24	0-360	300	H
3	140.3725	36.16	PK	13.3	-30.2	19.26	43.52	-24.26	0-360	200	H
4	186.9525	38.24	PK	11.3	-29.8	19.74	43.52	-23.78	0-360	200	H
7	362.8	30.09	PK	14.8	-29.2	15.69	46.02	-30.33	0-360	300	V
8	773.2	30.4	PK	21.3	-27.7	24	46.02	-22.02	0-360	200	V

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

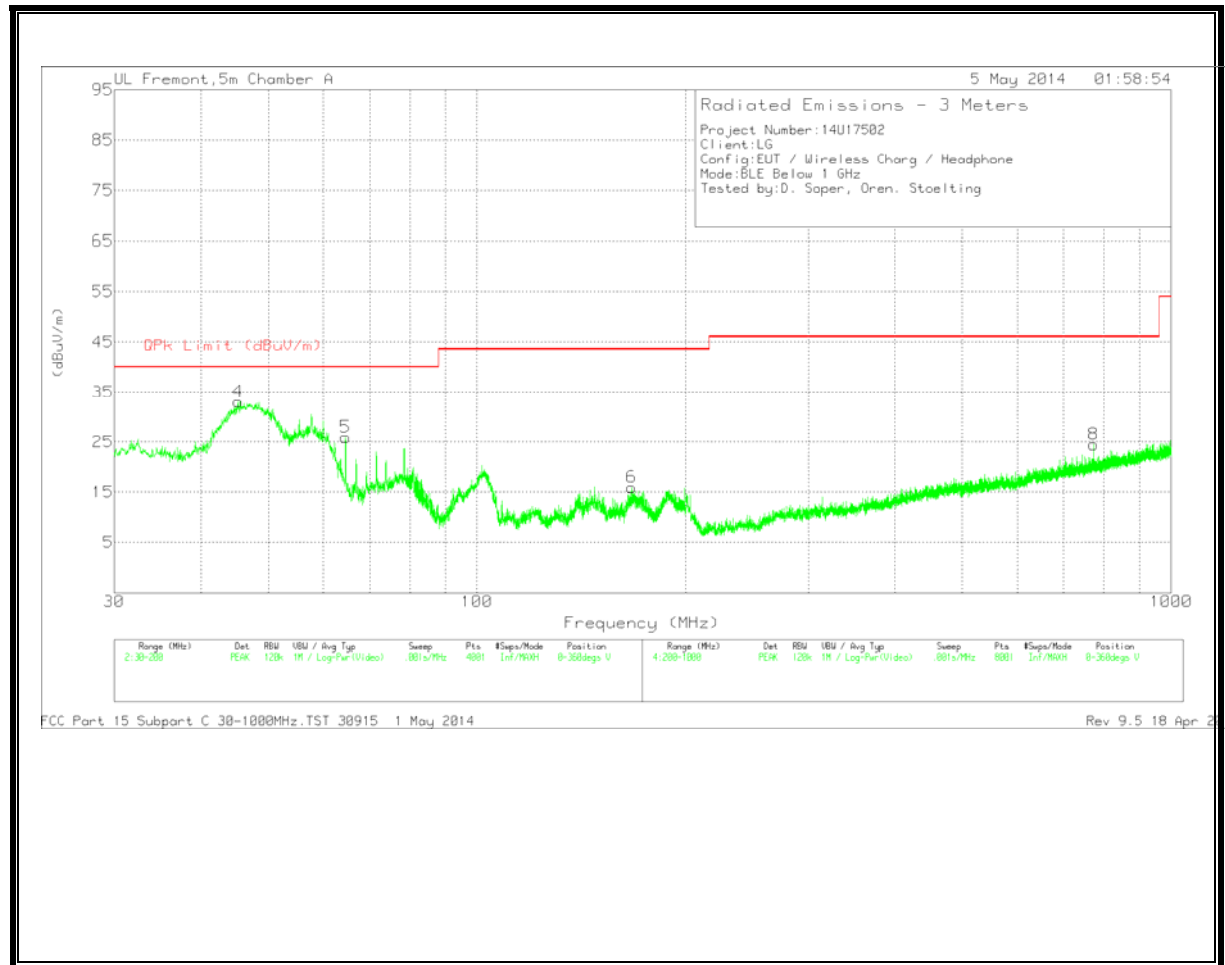
PK - Peak detector

WORST CASE HARMONICS AND SPURIOUS EMISSIONS WITH WPC CHARGER AND COVER

HORIZONTAL



VERTICAL



CHANNEL DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 167.0625	34.07	PK	12	-30.1	15.97	43.52	-27.55	0-360	101	V
4	45.2575	53.47	PK	10.4	-30.8	33.07	40	-6.93	0-360	101	V
1	45.5125	47.18	PK	10.2	-30.8	26.58	40	-13.42	0-360	300	H
5	64.6375	48.52	PK	8.1	-30.7	25.92	40	-14.08	0-360	101	V
2	80.7875	49.28	PK	7.5	-30.6	26.18	40	-13.82	0-360	200	H
3	193.88	46.39	PK	11.8	-30	28.19	43.52	-15.33	0-360	100	H
7	315.9	34.2	PK	13.9	-29.1	19	46.02	-27.02	0-360	101	H
8	773.2	30.89	PK	21.3	-27.7	24.49	46.02	-21.53	0-360	300	V

* - 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

6 WORST EMISSIONS

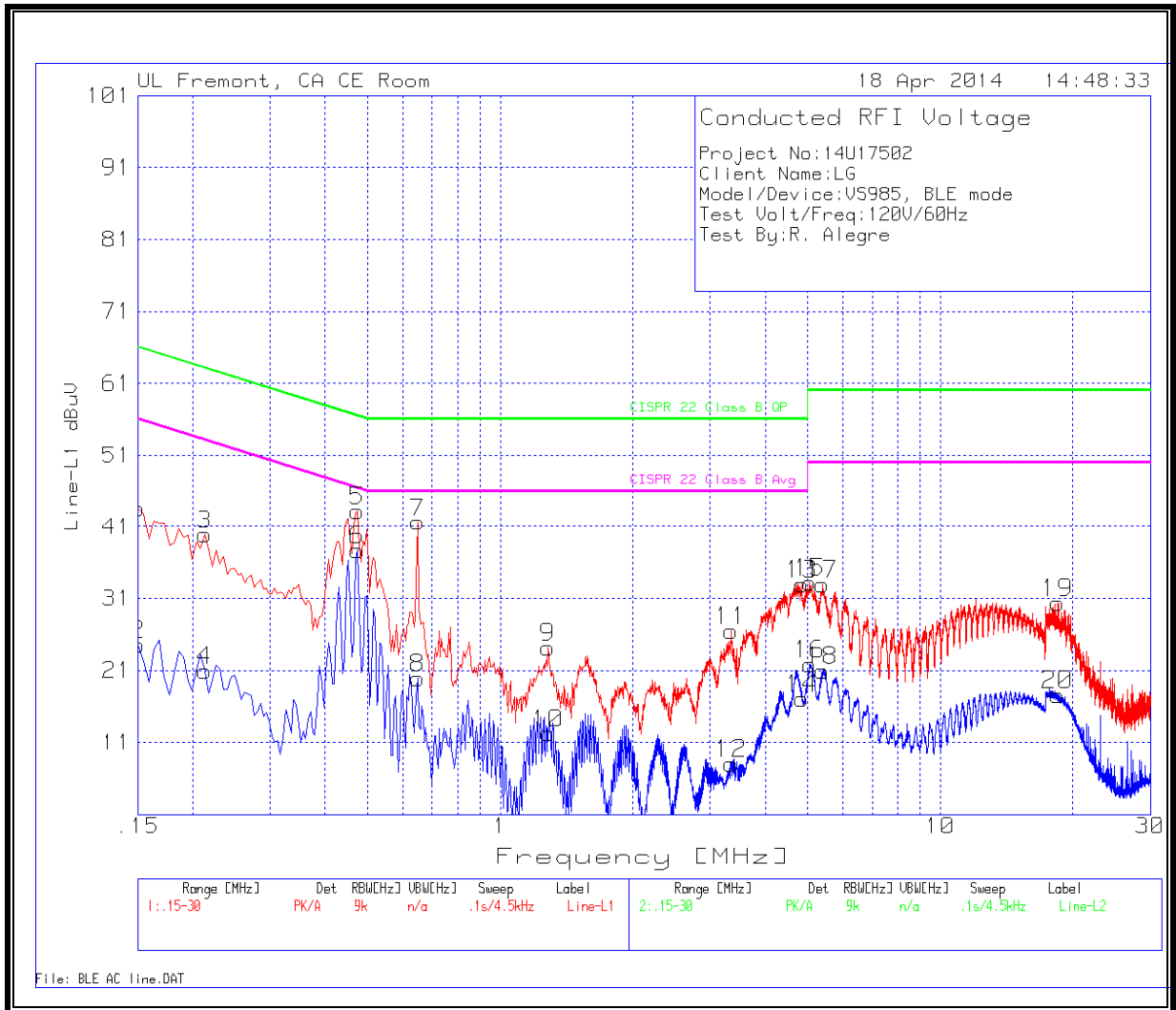
Line-L1 .15 - 30MHz

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	.15	42.17	PK	1.4	0	43.57	66	-22.43	-	-
2	.15	23.14	Av	1.4	0	24.54	-	-	56	-31.46
3	.213	39	PK	.9	0	39.9	63.1	-23.2	-	-
4	.213	20.02	Av	.9	0	20.92	-	-	53.1	-32.18
5	.474	42.86	PK	.4	0	43.26	56.4	-13.14	-	-
6	.474	37.34	Av	.4	0	37.74	-	-	46.4	-8.66
7	.6495	41.33	PK	.3	0	41.63	56	-14.37	-	-
8	.6495	19.64	Av	.3	0	19.94	-	-	46	-26.06
9	1.284	23.92	PK	.2	.1	24.22	56	-31.78	-	-
10	1.284	11.94	Av	.2	.1	12.24	-	-	46	-33.76
11	3.354	26.23	PK	.2	.1	26.53	56	-29.47	-	-
12	3.354	7.8	Av	.2	.1	8.1	-	-	46	-37.9
13	4.8525	32.67	PK	.2	.1	32.97	56	-23.03	-	-
14	4.8525	16.73	Av	.2	.1	17.03	-	-	46	-28.97
15	5.0505	32.88	PK	.2	.1	33.18	60	-26.82	-	-
16	5.0505	21.5	Av	.2	.1	21.8	-	-	50	-28.2
17	5.3925	32.67	PK	.2	.1	32.97	60	-27.03	-	-
18	5.3925	20.59	Av	.2	.1	20.89	-	-	50	-29.11
19	18.4515	29.87	PK	.3	.2	30.37	60	-29.63	-	-
20	18.4515	17.07	Av	.3	.2	17.57	-	-	50	-32.43

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)
21	.159	41.08	PK	1.4	0	42.48	65.5	-23.02	-	-
22	.159	19.35	Av	1.4	0	20.75	-	-	55.5	-34.75
23	.2085	41.07	PK	1	0	42.07	63.3	-21.23	-	-
24	.2085	17.92	Av	1	0	18.92	-	-	53.3	-34.38
25	.4785	35.38	PK	.4	0	35.78	56.4	-20.62	-	-
26	.4785	28.46	Av	.4	0	28.86	-	-	46.4	-17.54
27	.5055	28.52	PK	.4	0	28.92	56	-27.08	-	-
28	.5055	15.52	Av	.4	0	15.92	-	-	46	-30.08
29	.573	25.71	PK	.3	0	26.01	56	-29.99	-	-
30	.573	7.8	Av	.3	0	8.1	-	-	46	-37.9
31	.9645	25.54	PK	.3	0	25.84	56	-30.16	-	-
32	.9645	6.38	Av	.3	0	6.68	-	-	46	-39.32
33	1.734	25.53	PK	.2	.1	25.83	56	-30.17	-	-
34	1.734	9.33	Av	.2	.1	9.63	-	-	46	-36.37
35	2.274	24.99	PK	.2	.1	25.29	56	-30.71	-	-
36	2.274	9.52	Av	.2	.1	9.82	-	-	46	-36.18
37	4.9695	34.84	PK	.2	.1	35.14	56	-20.86	-	-
38	4.9695	17.98	Av	.2	.1	18.28	-	-	46	-27.72
39	5.6985	36.62	PK	.2	.1	36.92	60	-23.08	-	-
40	5.6985	15.48	Av	.2	.1	15.78	-	-	50	-34.22
41	16.4355	33.87	PK	.3	.2	34.37	60	-25.63	-	-
42	16.4355	16.58	Av	.3	.2	17.08	-	-	50	-32.92
43	24.486	25.56	PK	.3	.2	26.06	60	-33.94	-	-
44	24.486	7.67	Av	.3	.2	8.17	-	-	50	-41.83

LINE 1 RESULTS



LINE 2 RESULTS

