FCC 47 CFR PART 15 SUBPART C

C2PC CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n & NFC

MODEL NUMBER: LG-H443, H443, LGH443, LG-H445, LGH445, H445

FCC ID: ZNFH443

REPORT NUMBER: 15I19922-E2 REVISION A

ISSUE DATE: MARCH 18, 2015

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	02/20/15	Initial Issue	D. Coronia
A	3/18/15	Updated antenna information	P. Zhang

TABLE OF CONTENTS

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 & NFC
MODEL:	LG-H443, H443, LGH443, LG-H445, LGH445, H445
SERIAL NUMBER:	000787-3 (Radiated)
DATE TESTED:	FEBRUARY 10, 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 ANSI C63.4-2009, FCC CFR 47 Part 2, and FCC CFR 47 Part 15C.

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
☐ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☐ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☐ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☒ Chamber G(IC: 2324B-7)
	☐ 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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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

GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n & NFC

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:
See original report for details.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -2 dBi.

5.5. 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 Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	LG	MCS-02WR	RA4Y1031433	N/A
Earphone	LG	N/A	N/A	N/A

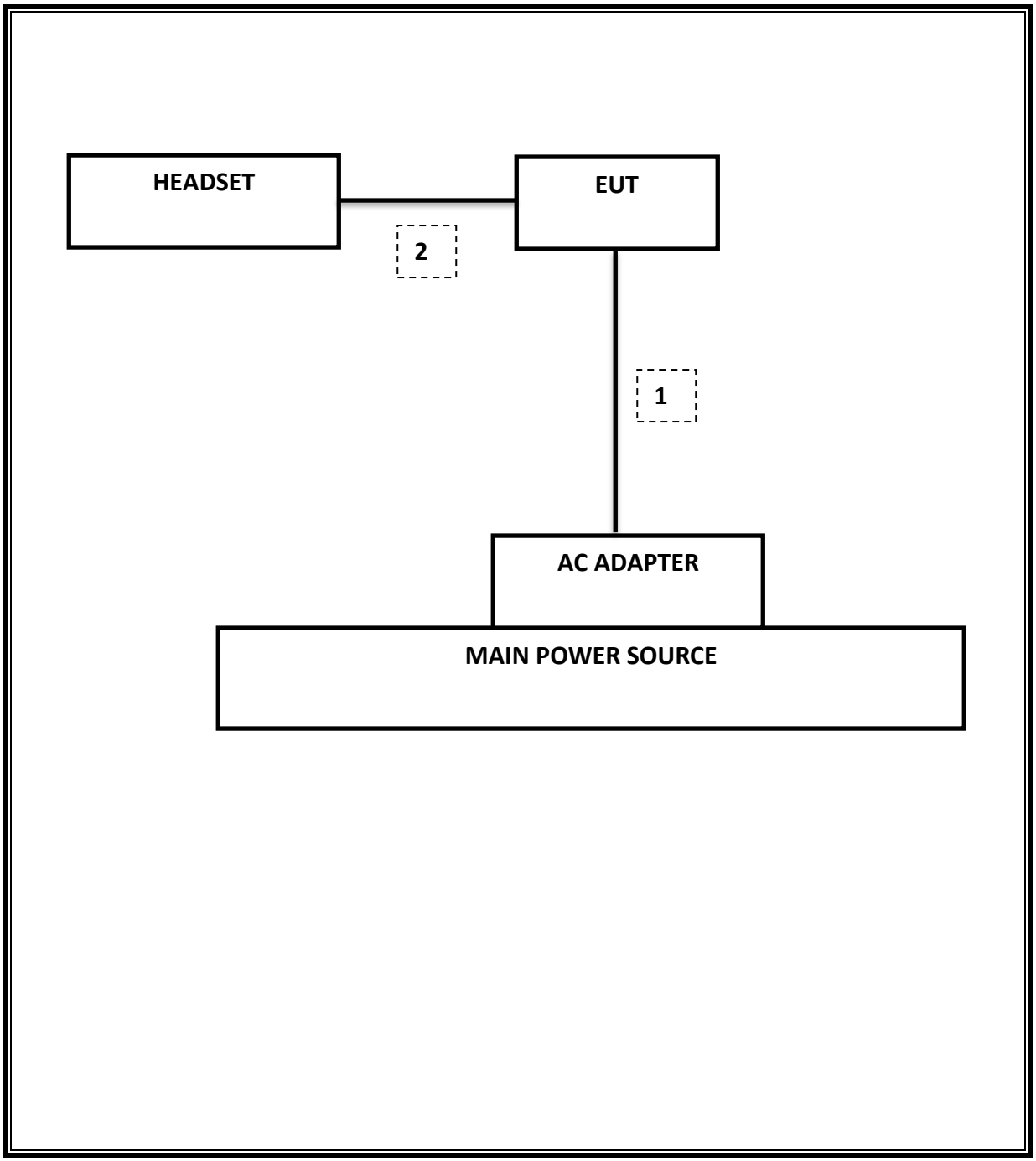
I/O CABLES

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.

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**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	02/13/15
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/15
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	04/28/15
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/15
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
CBT Bluetooth Tester	R & S	CBT	None	07/12/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/16/16
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR

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. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	RSS-GEN 4.6	Occupied Band width (99%)	N/A	Conducted	Pass	See Original
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	See Original
15.247 (b)(1)	RSS-210 A8.4	TX conducted output power	<21dBm		Pass	See Original
15.247 (a)(1)	RSS-210 A8.1(b)	Hopping frequency separation	> 25KHz		Pass	See Original
15.247 (a)(1)(iii)	RSS-210 A8.1(d)	Number of Hopping channels	More than 15 non-overlapping channels		Pass	See Original
15.247 (a)(1)(iii)	RSS-210 A8.1(d)	Avg Time of Occupancy	< 0.4sec		Pass	See Original
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	See Original
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	37.86 dBuV/m

8. RADIATED TEST RESULTS

8.1. 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. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. 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 band edge 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 1/T (on time) for average measurement.
GFSK = 1/T = 1 / 0.0038S = 260Hz.

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

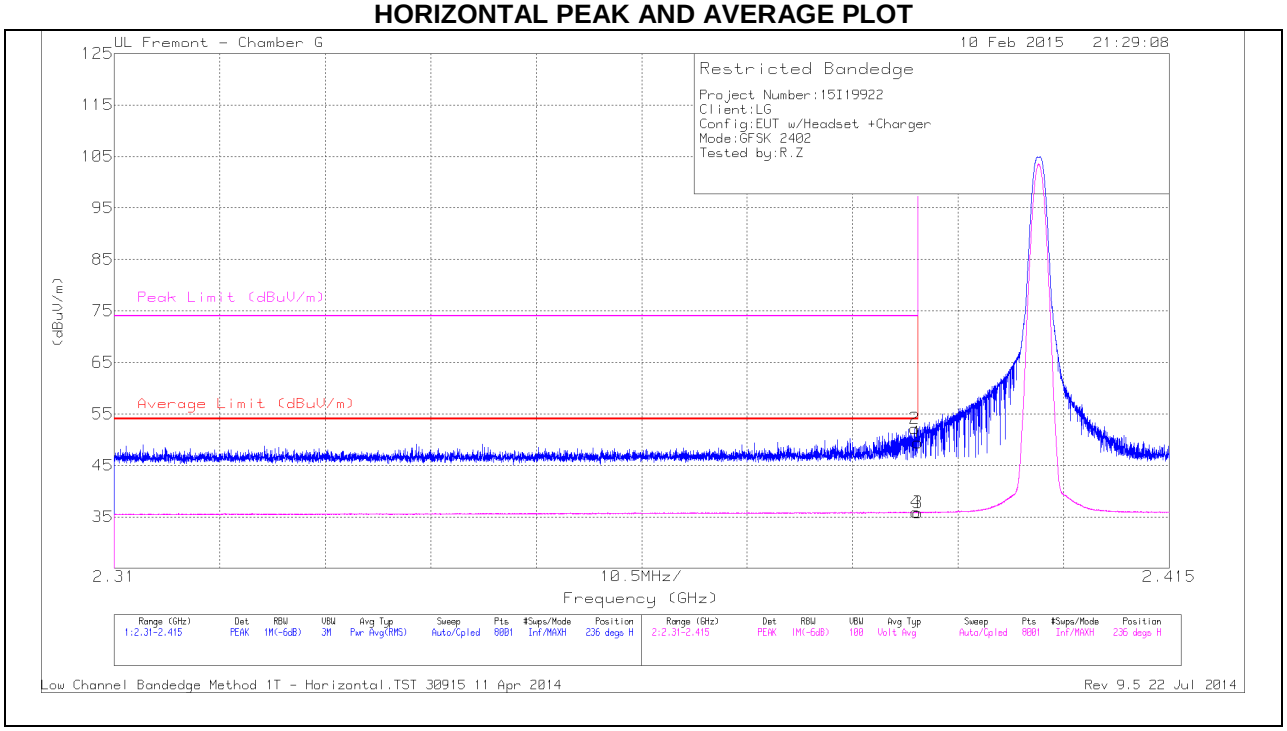
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. BASIC DATA RATE GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

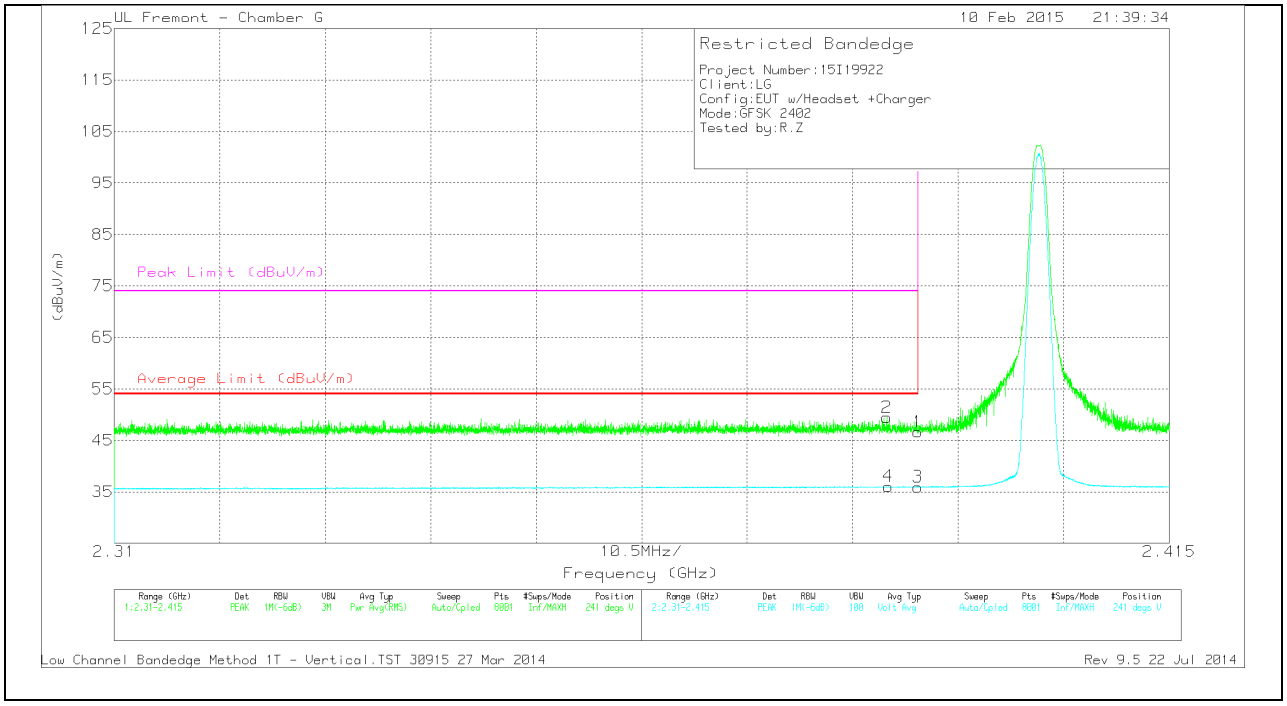
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	42.53	PK	31.8	-24.9	49.43	-	-	74	-24.57	236	237	H
2	* 2.39	45.25	PK	31.8	-24.9	52.15	-	-	74	-21.85	236	237	H
3	* 2.39	28.92	VB1T	31.8	-24.9	35.82	54	-18.18	-	-	236	237	H
4	* 2.39	29.02	VB1T	31.8	-24.9	35.92	54	-18.08	-	-	236	237	H

VERTICAL PEAK AND AVERAGE PLOT

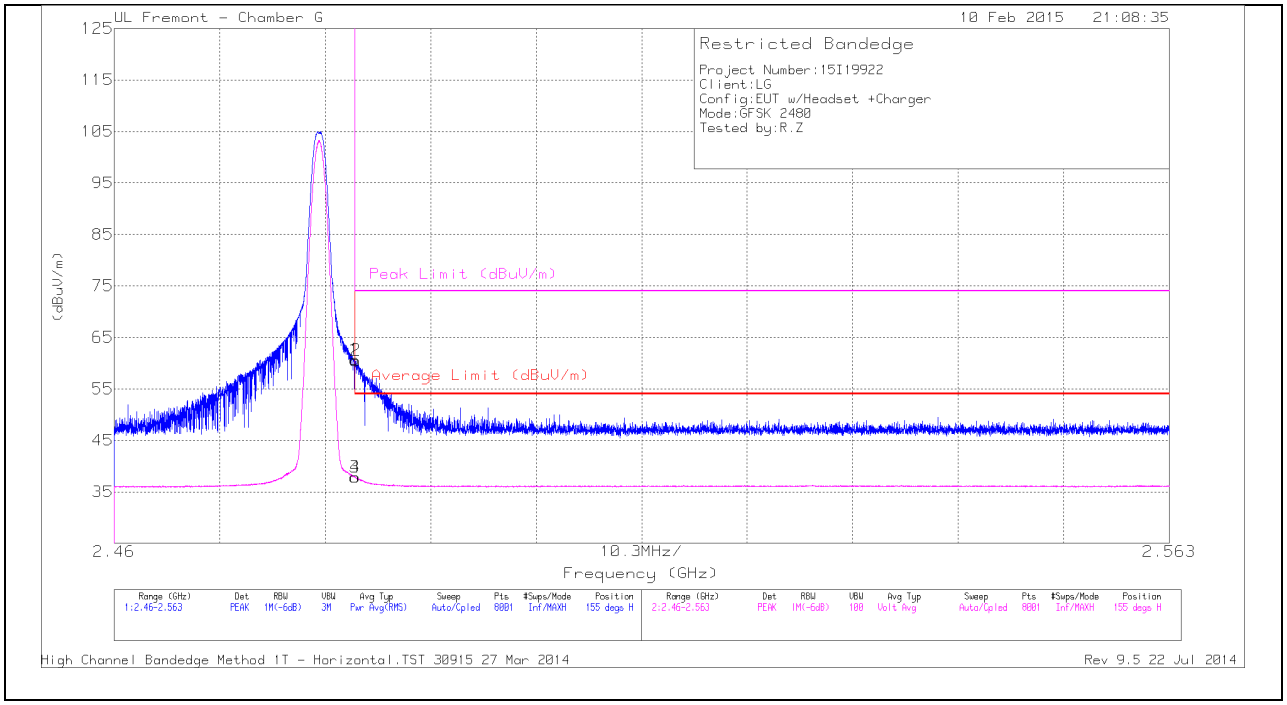


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	39.75	PK	31.8	-24.9	46.65	-	-	74	-27.35	241	366	V
2	* 2.387	42.55	PK	31.8	-24.9	49.45	-	-	74	-24.55	241	366	V
3	* 2.39	29.06	VB1T	31.8	-24.9	35.96	54	-18.04	-	-	241	366	V
4	* 2.387	29.18	VB1T	31.8	-24.9	36.08	54	-17.92	-	-	241	366	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

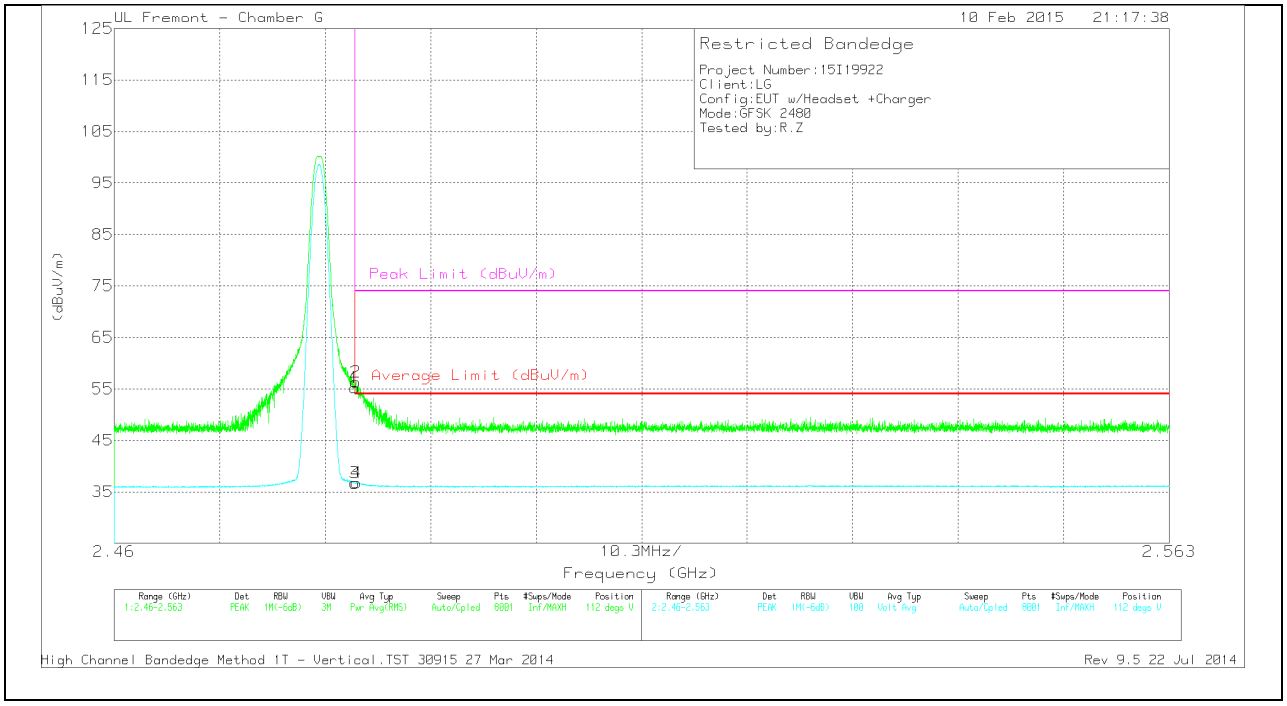
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	53.58	PK	32	-24.9	60.68	-	-	74	-13.32	155	215	H
2	* 2.484	53.4	PK	32	-24.9	60.5	-	-	74	-13.5	155	215	H
3	* 2.484	30.75	VB1T	32	-24.9	37.85	54	-16.15	-	-	155	215	H
4	* 2.484	30.76	VB1T	32	-24.9	37.86	54	-16.14	-	-	155	215	H

VERTICAL PEAK AND AVERAGE PLOT

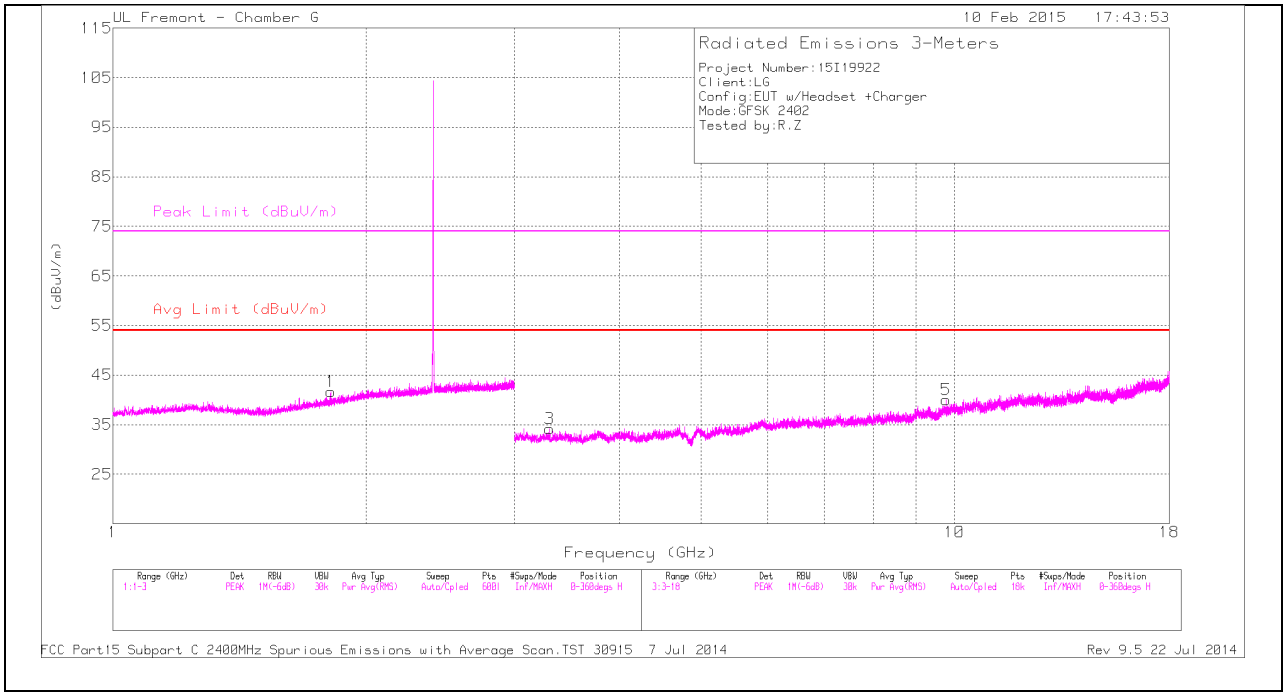


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	48.09	PK	32	-24.9	55.19	-	-	74	-18.81	112	245	V
2	* 2.484	49.19	PK	32	-24.9	56.29	-	-	74	-17.71	112	245	V
3	* 2.484	29.63	VB1T	32	-24.9	36.73	54	-17.27	-	-	112	245	V
4	* 2.484	29.64	VB1T	32	-24.9	36.74	54	-17.26	-	-	112	245	V

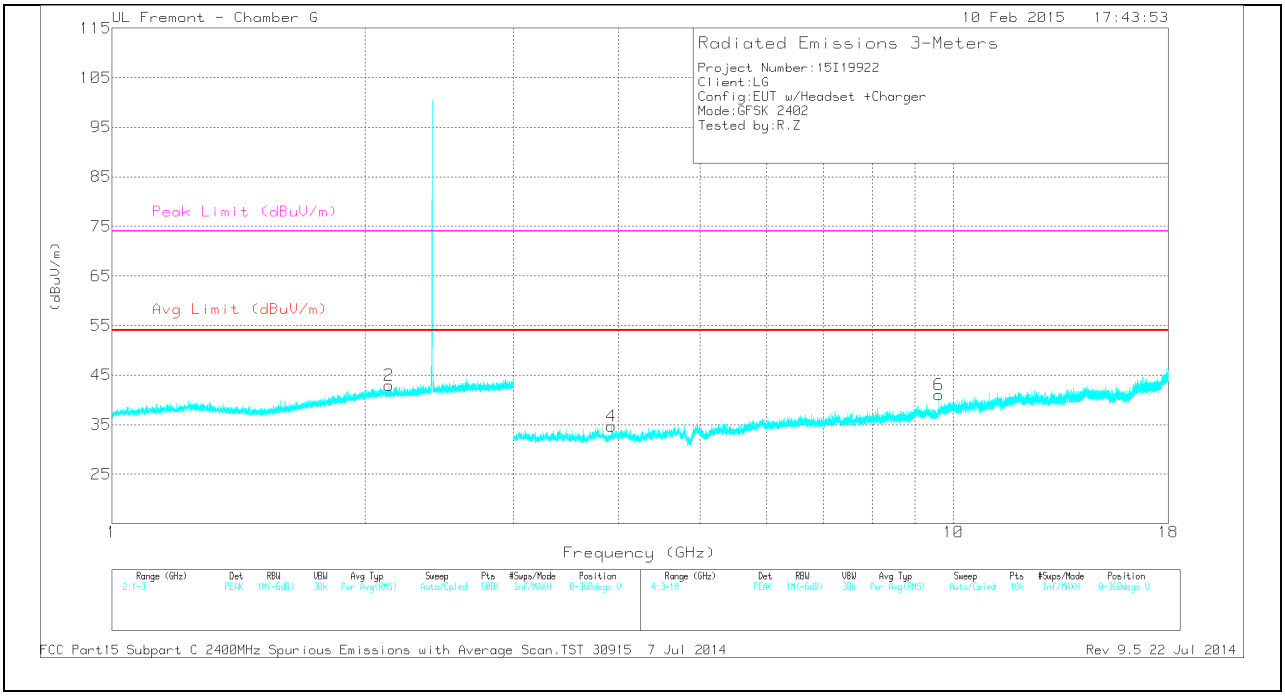
HARMONICS AND SPURIOUS EMISSIONS

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

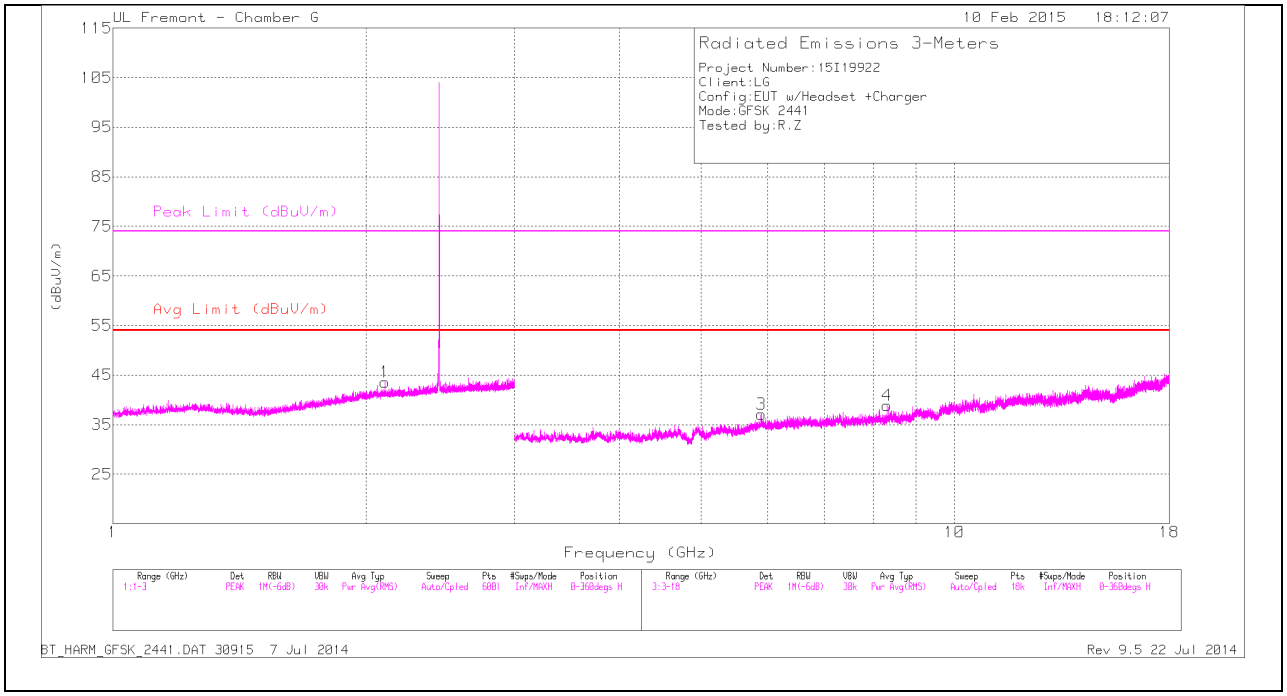
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.925	35.14	PK	33.2	-33.6	34.74	-	-	74	-39.26	0-360	101	V
1	1.814	37.08	PK	30	-25.4	41.68	-	-	-	-	0-360	201	H
2	2.134	36.62	PK	31.4	-25.1	42.92	-	-	-	-	0-360	101	V
3	3.305	34.96	PK	33	-33.8	34.16	-	-	-	-	0-360	101	H
6	9.608	32.31	PK	36.8	-28.1	41.01	-	-	-	-	0-360	201	V
5	9.767	31.4	PK	37	-28.4	40	-	-	-	-	0-360	101	H

PK - Peak detector

RADIATED EMISSIONS

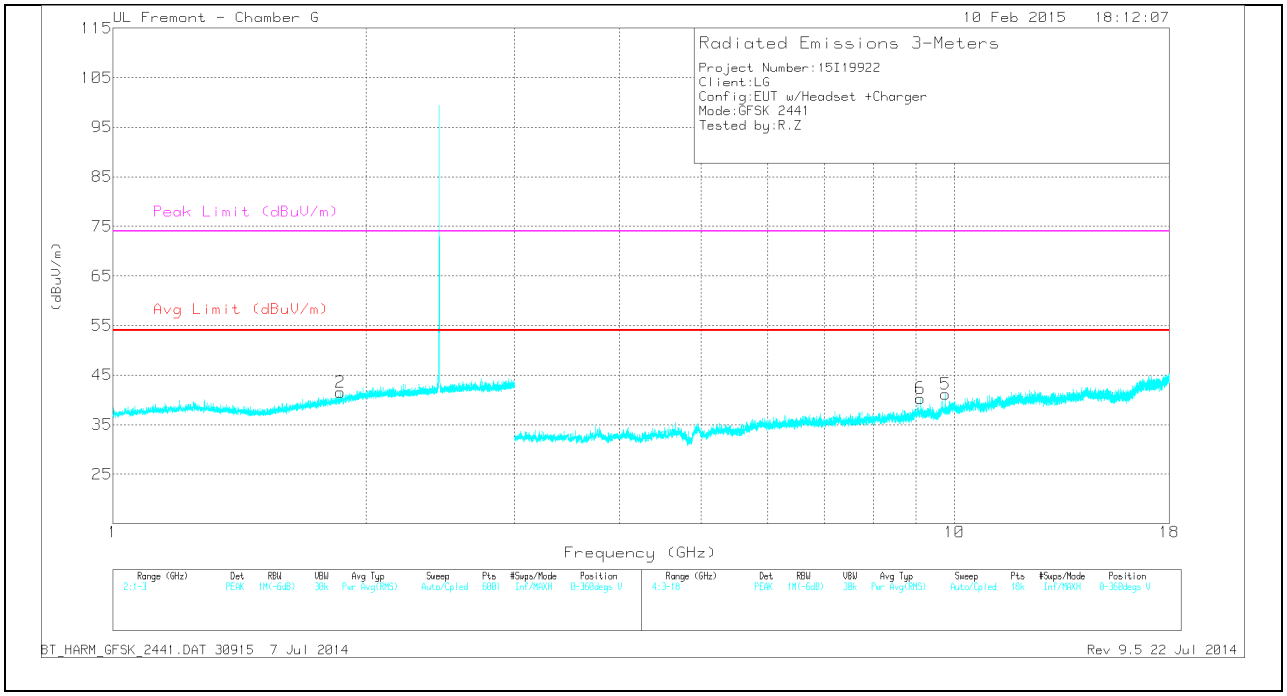
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.926	41.85	PK3	33.3	-33.5	41.65	-	-	74	-32.35	170	171	V
* 3.923	28.9	VB10	33.2	-33.6	28.5	54	-25.5	-	-	170	171	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

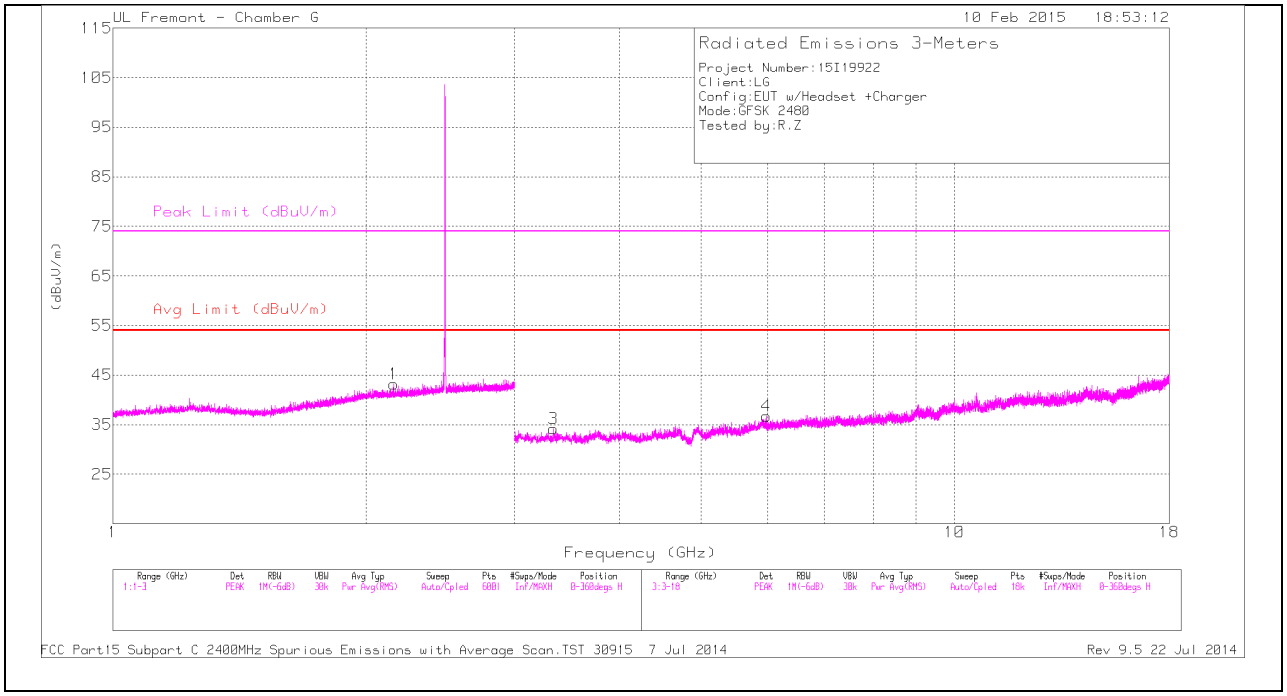
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 8.315	33.4	PK	35.8	-30.3	38.9	-	-	74	-35.1	0-360	101	H
6	* 9.114	32.73	PK	36.4	-28.8	40.33	-	-	74	-33.67	0-360	201	V
2	1.863	36.64	PK	30.4	-25.5	41.54	-	-	-	-	0-360	101	V
1	2.106	37.27	PK	31.4	-25.1	43.57	-	-	-	-	0-360	101	H
3	5.892	34.95	PK	35	-32.9	37.05	-	-	-	-	0-360	101	H
5	9.764	32.44	PK	37	-28.3	41.14	-	-	-	-	0-360	201	V

PK - Peak detector

RADIATED EMISSIONS

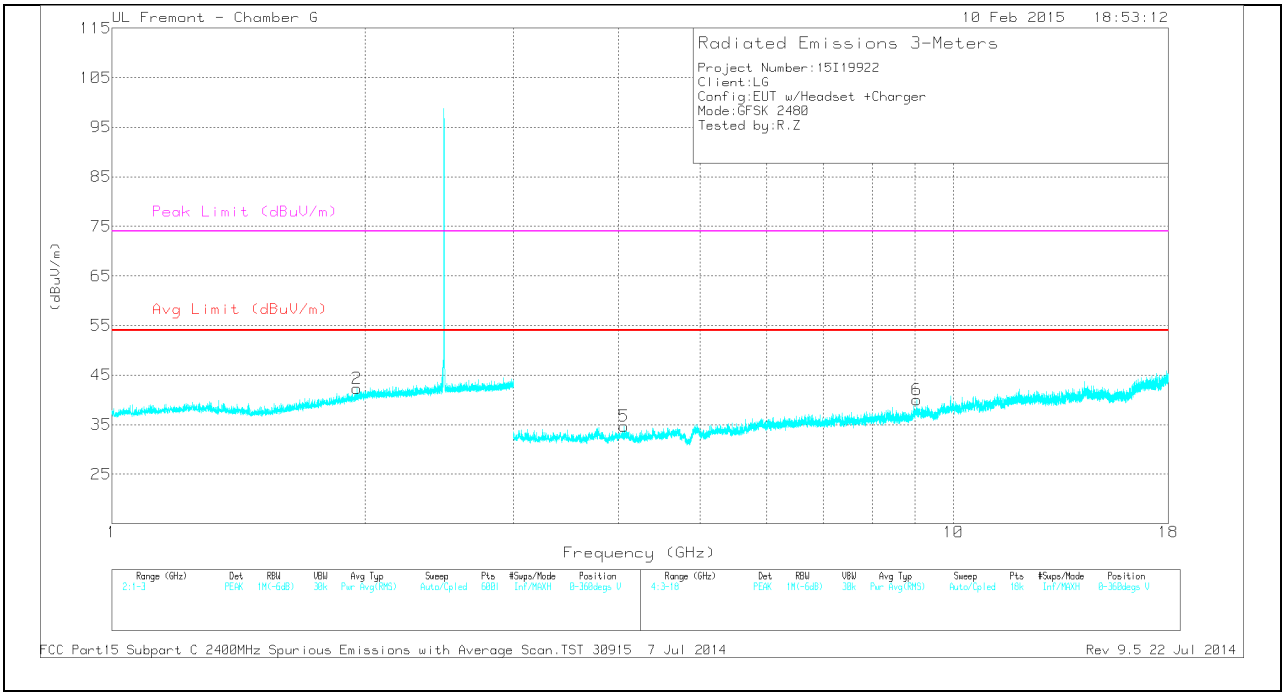
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 8.314	38.89	PK3	35.8	-30.3	44.39	-	-	74	-29.61	359	171	H
* 8.316	26.63	VB10	35.8	-30.3	32.13	54	-21.87	-	-	359	171	H
* 9.112	38.56	PK3	36.4	-28.8	46.16	-	-	74	-27.84	44	194	V
* 9.114	25.68	VB10	36.4	-28.8	33.28	54	-20.72	-	-	44	194	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 T862 (dB/m)	Amp/Cbl/Fltr/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	* 3.338	34.92	PK	32.9	-33.7	34.12	-	-	74	-39.88	0-360	101	H
5	* 4.062	34.08	PK	33.4	-32.8	34.68	-	-	74	-39.32	0-360	101	V
6	* 9.04	31.8	PK	36.4	-28.2	40	-	-	74	-34	0-360	201	V
2	1.955	36.66	PK	31	-25.4	42.26	-	-	-	-	0-360	201	V
1	2.156	36.92	PK	31.4	-25.1	43.22	-	-	-	-	0-360	101	H
4	5.981	33.48	PK	35.2	-32	36.68	-	-	-	-	0-360	201	H

PK - Peak detector

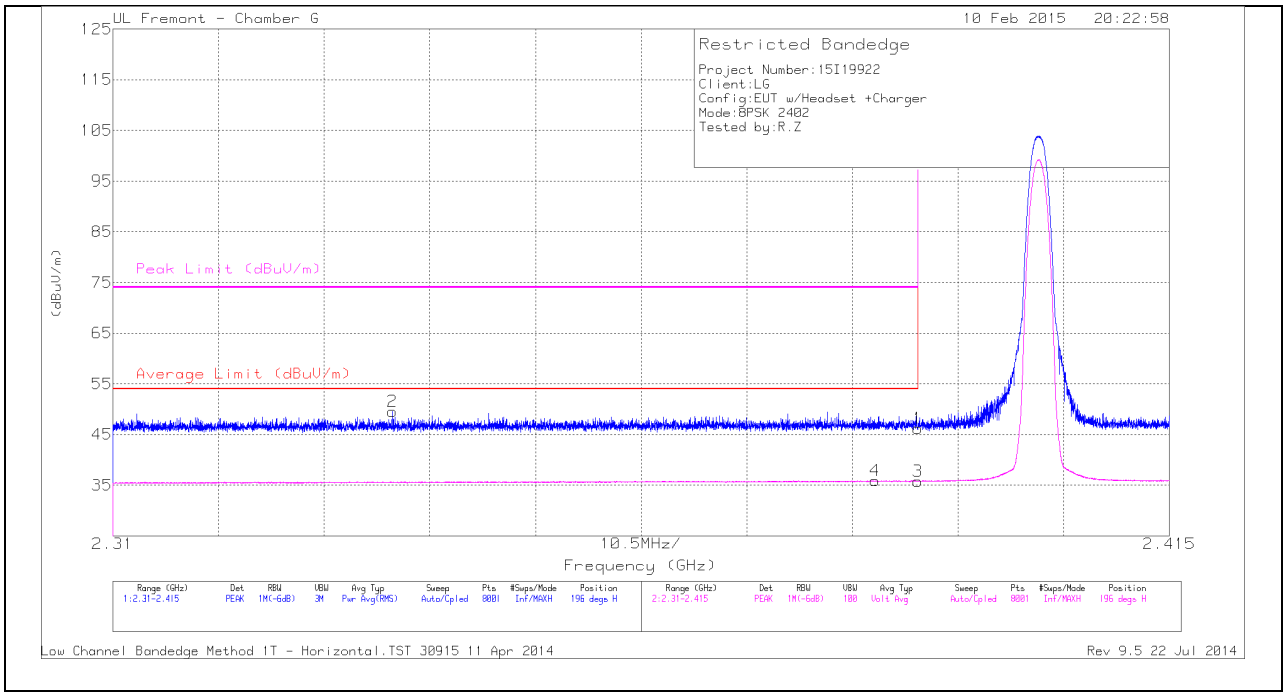
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.338	42.3	PK3	32.9	-33.7	41.5	-	-	74	-32.5	4	203	H
* 3.339	29.02	VB10	32.9	-33.6	28.32	54	-25.68	-	-	4	203	H
* 4.061	40.97	PK3	33.4	-32.8	41.57	-	-	74	-32.43	4	102	V
* 4.064	27.9	VB10	33.4	-32.7	28.6	54	-25.4	-	-	4	102	V
* 9.038	38.17	PK3	36.4	-28.2	46.37	-	-	74	-27.63	4	202	V
* 9.04	25.28	VB10	36.4	-28.2	33.48	54	-20.52	-	-	4	202	V

8.2.2. ENHANCED DATA RATE 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

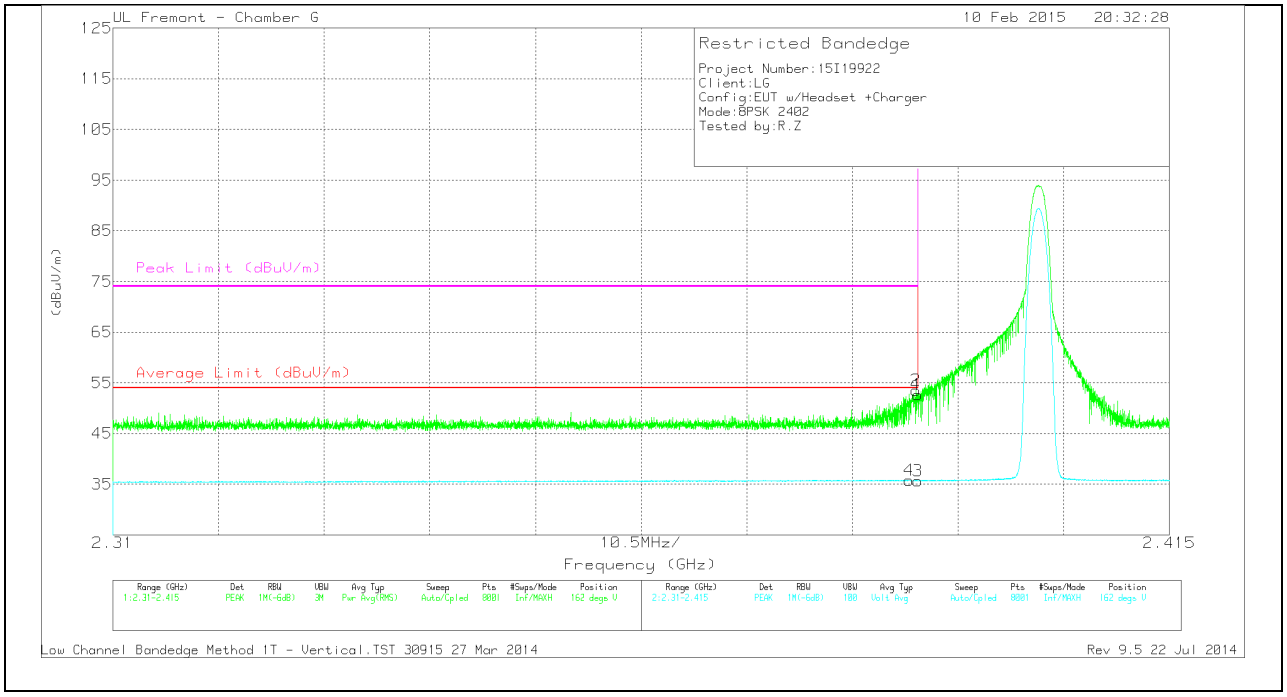
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	39.24	PK	31.8	-24.9	46.14	-	-	74	-27.86	196	110	H
2	* 2.338	42.88	PK	31.7	-25	49.58	-	-	74	-24.42	196	110	H
3	* 2.39	28.9	VB1T	31.8	-24.9	35.8	54	-18.2	-	-	196	110	H
4	* 2.386	29.01	VB1T	31.8	-24.9	35.91	54	-18.09	-	-	196	110	H

VERTICAL PEAK AND AVERAGE PLOT

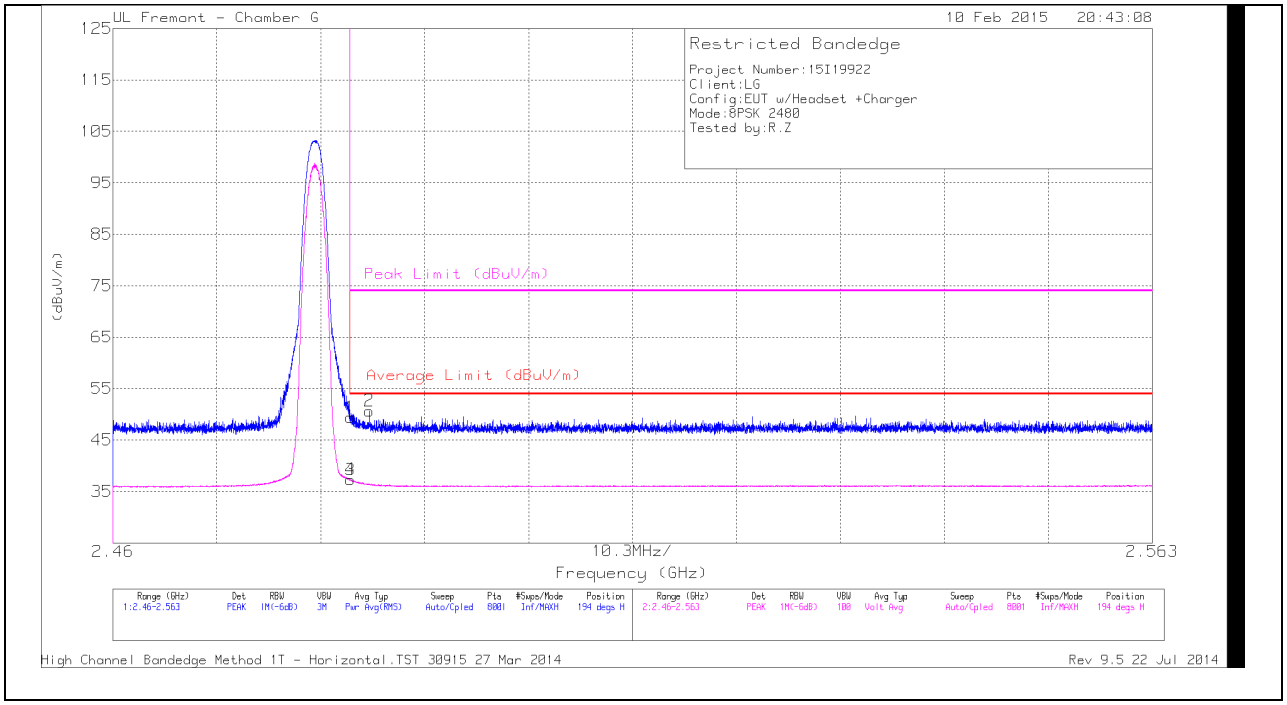


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	45.72	PK	31.8	-24.9	52.62	-	-	74	-21.38	162	120	V
2	* 2.39	46.66	PK	31.8	-24.9	53.56	-	-	74	-20.44	162	120	V
3	* 2.39	28.78	VB1T	31.8	-24.9	35.68	54	-18.32	-	-	162	120	V
4	* 2.389	28.91	VB1T	31.8	-24.9	35.81	54	-18.19	-	-	162	120	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

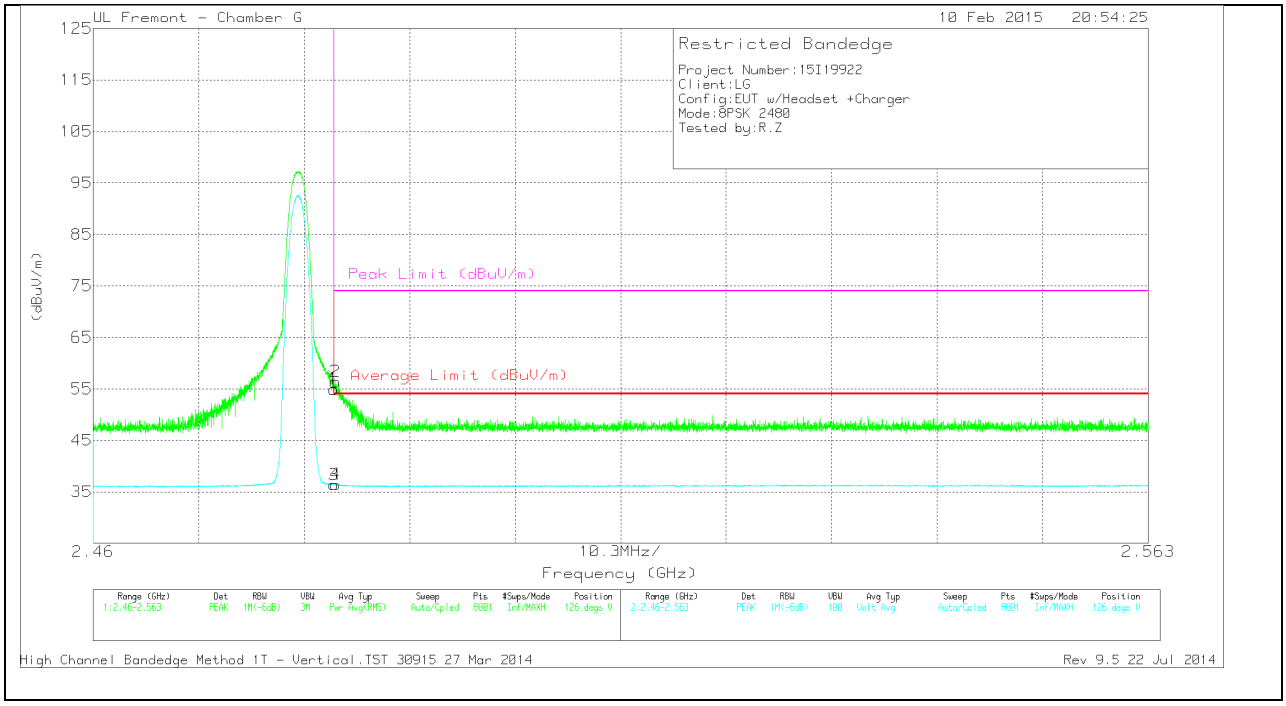
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	42.32	PK	32	-24.9	49.42	-	-	74	-24.58	194	102	H
2	* 2.485	43.58	PK	32	-24.9	50.68	-	-	74	-23.32	194	102	H
3	* 2.484	30.2	VB1T	32	-24.9	37.3	54	-16.7	-	-	194	102	H
4	* 2.484	30.22	VB1T	32	-24.9	37.32	54	-16.68	-	-	194	102	H

VERTICAL PEAK AND AVERAGE PLOT

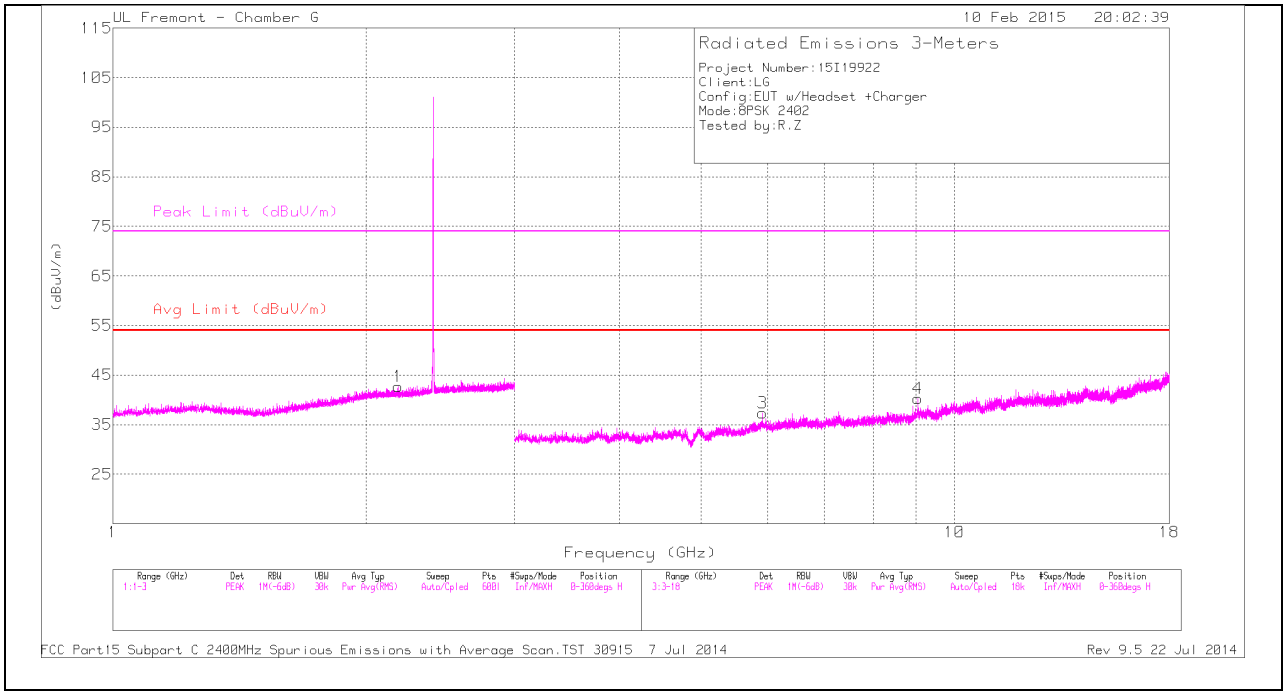


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/ Fltr/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	47.83	PK	32	-24.9	54.93	-	-	74	-19.07	126	164	V
2	* 2.484	49.29	PK	32	-24.9	56.39	-	-	74	-17.61	126	164	V
3	* 2.484	29.27	VB1T	32	-24.9	36.37	54	-17.63	-	-	126	164	V
4	* 2.484	29.34	VB1T	32	-24.9	36.44	54	-17.56	-	-	126	164	V

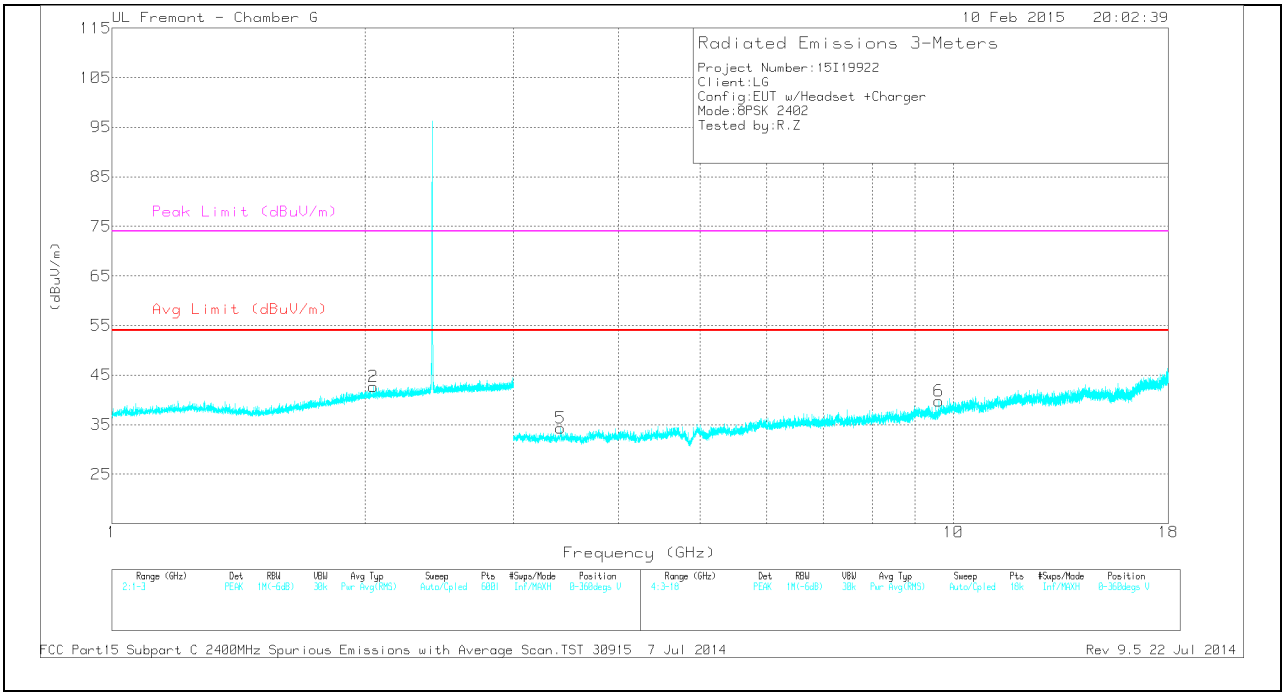
HARMONICS AND SPURIOUS EMISSIONS

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

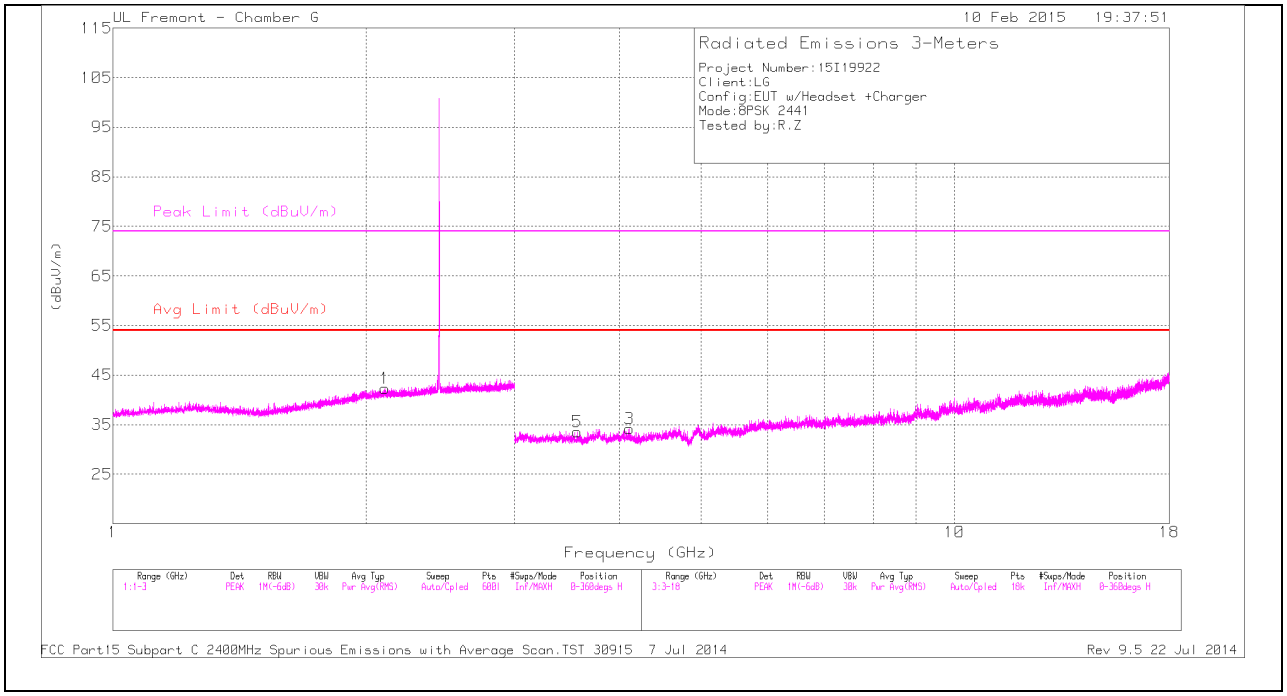
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 9.05	32.15	PK	36.4	-28.3	40.25	-	-	74	-33.75	0-360	101	H
2	2.045	36.57	PK	31.3	-25.2	42.67	-	-	-	-	0-360	201	V
1	2.184	36.35	PK	31.4	-25.1	42.65	-	-	-	-	0-360	101	H
5	3.413	34.67	PK	32.9	-33.3	34.27	-	-	-	-	0-360	101	V
3	5.917	34.61	PK	35.1	-32.4	37.31	-	-	-	-	0-360	101	H
6	9.607	31.07	PK	36.8	-28.1	39.77	-	-	-	-	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

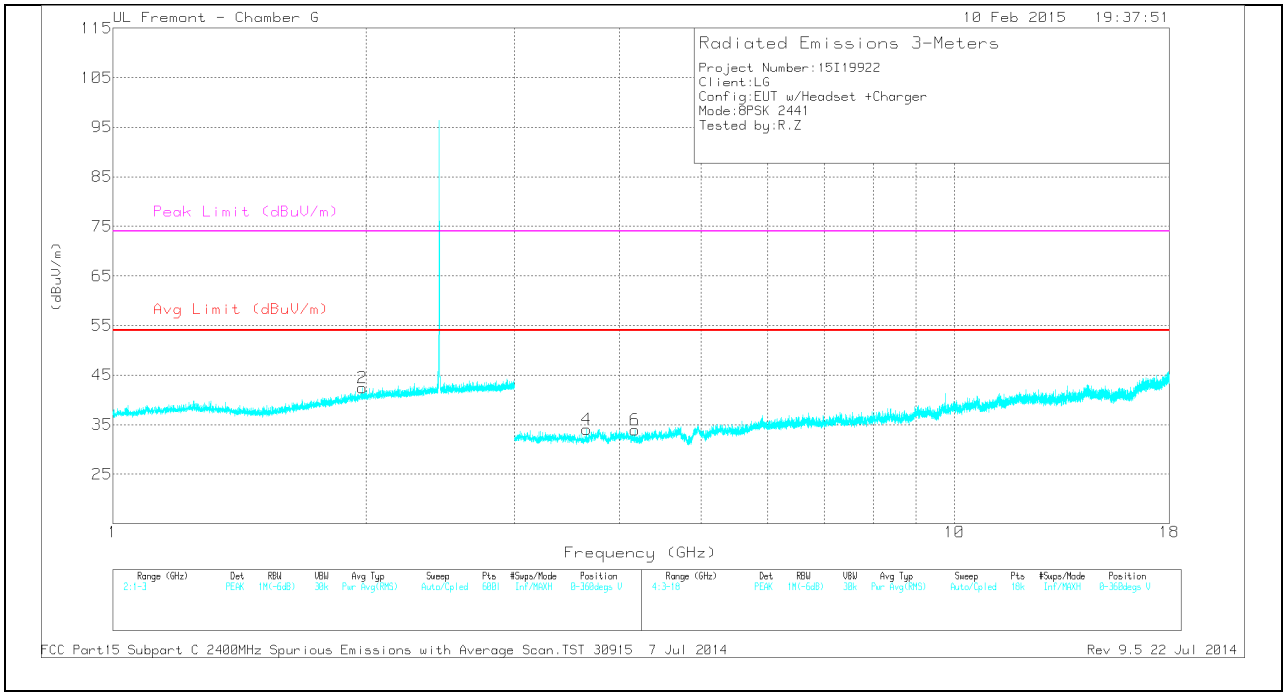
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 9.052	37.87	PK3	36.4	-28.3	45.97	-	-	74	-28.03	0	101	H
* 9.049	25.19	VB10	36.4	-28.3	33.29	54	-20.71	-	-	0	101	H

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

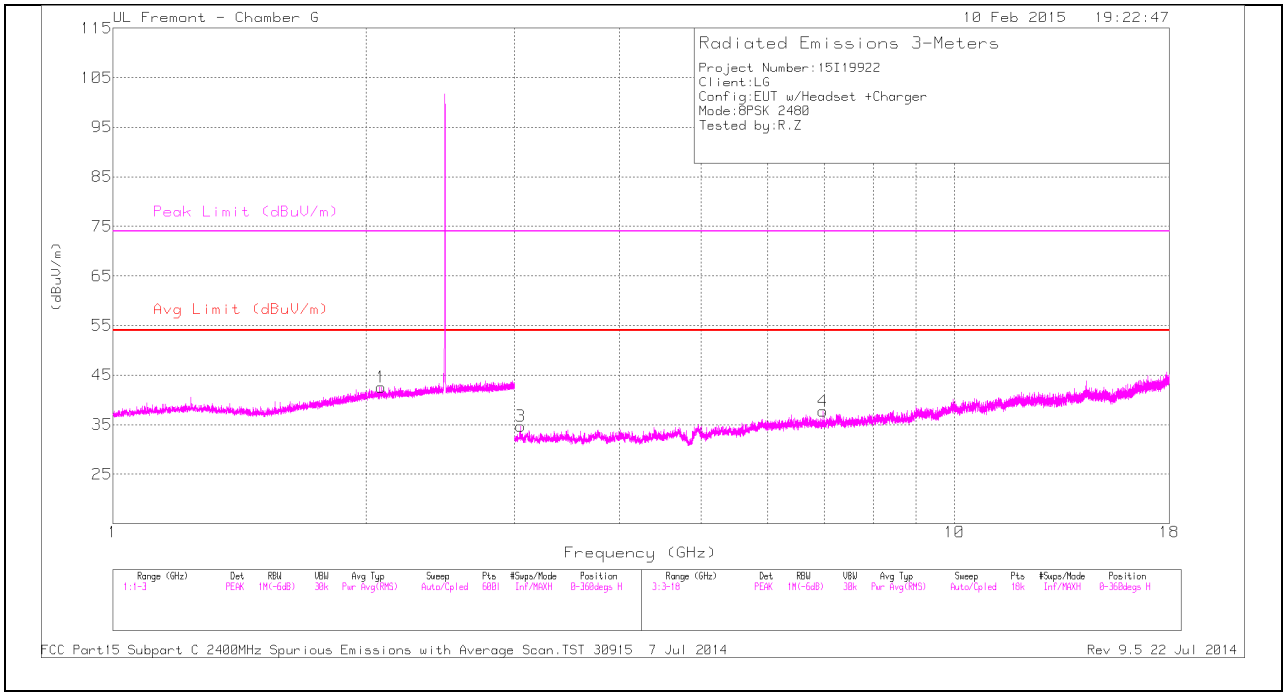
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.111	34.14	PK	33.4	-33.4	34.14	-	-	74	-39.86	0-360	101	H
5	* 3.56	34.68	PK	32.8	-33.9	33.58	-	-	74	-40.42	0-360	101	H
4	* 3.652	33.86	PK	32.9	-32.7	34.06	-	-	74	-39.94	0-360	101	V
6	* 4.171	34.28	PK	33.4	-33.8	33.88	-	-	74	-40.12	0-360	201	V
2	1.98	36.63	PK	31.2	-25.4	42.43	-	-	-	-	0-360	101	V
1	2.106	36.05	PK	31.4	-25.1	42.35	-	-	-	-	0-360	101	H

PK - Peak detector

RADIATED EMISSIONS

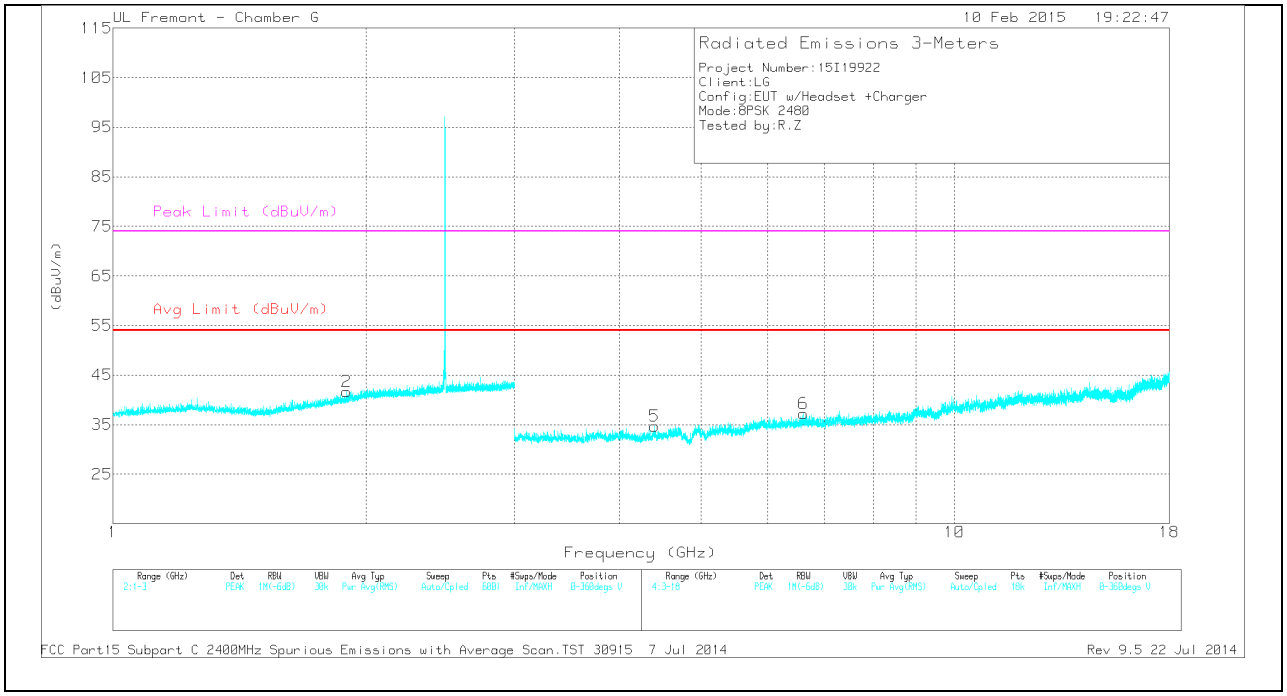
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.109	40.97	PK3	33.4	-33.4	40.97	-	-	74	-33.03	0	100	H
* 4.109	28.44	VB10	33.4	-33.4	28.44	54	-25.56	-	-	0	100	H
* 3.561	42.6	PK3	32.8	-33.9	41.5	-	-	74	-32.5	0	100	H
* 3.562	28.99	VB10	32.8	-33.9	27.89	54	-26.11	-	-	0	100	H
* 3.652	41.29	PK3	32.9	-32.7	41.49	-	-	74	-32.51	0	100	V
* 3.654	28.05	VB10	32.9	-32.7	28.25	54	-25.75	-	-	0	100	V
* 4.17	41.57	PK3	33.4	-33.8	41.17	-	-	74	-32.83	0	202	V
* 4.17	28.58	VB10	33.4	-33.8	28.18	54	-25.82	-	-	0	202	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

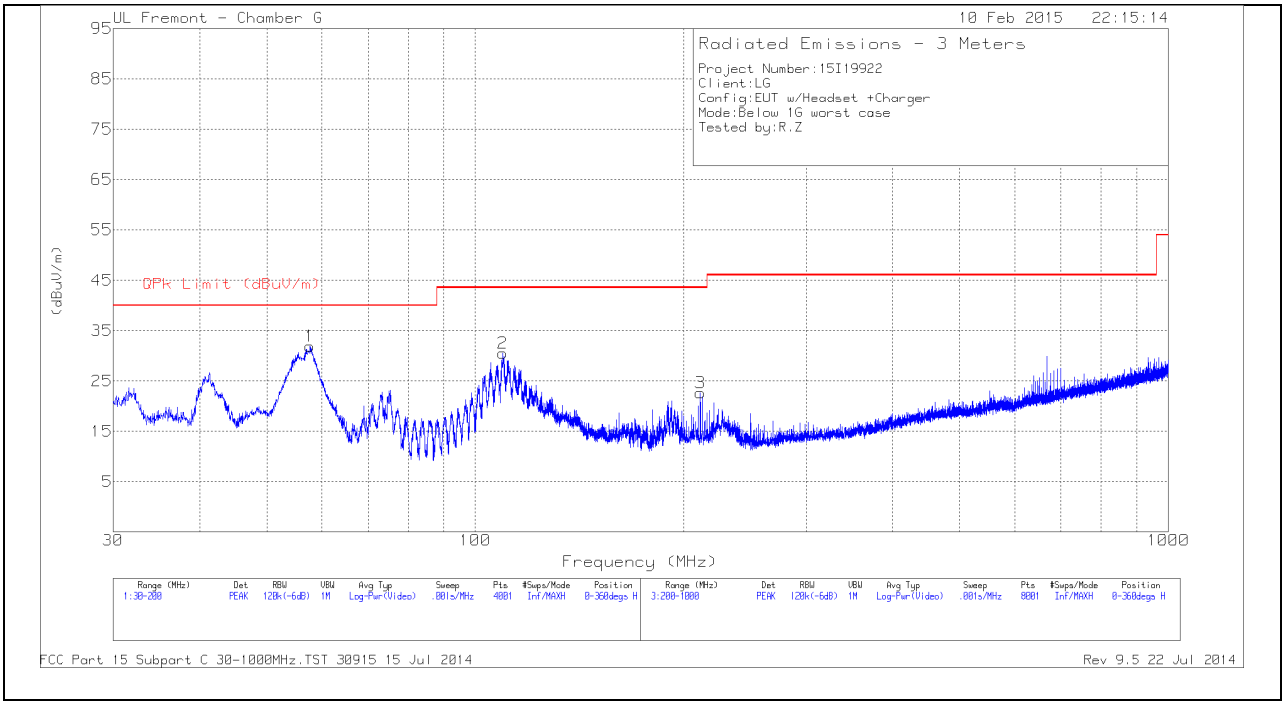
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	1.895	36.53	PK	30.6	-25.5	41.63	-	-	-	-	0-360	201	V
1	2.083	36.27	PK	31.4	-25.1	42.57	-	-	-	-	0-360	101	H
3	3.049	34.74	PK	32.5	-32.6	34.64	-	-	-	-	0-360	100	H
5	4.403	34.06	PK	33.6	-33	34.66	-	-	-	-	0-360	201	V
6	6.614	33.12	PK	35.6	-31.5	37.22	-	-	-	-	0-360	201	V
4	6.976	33.58	PK	35.6	-31.5	37.68	-	-	-	-	0-360	100	H

PK - Peak detector

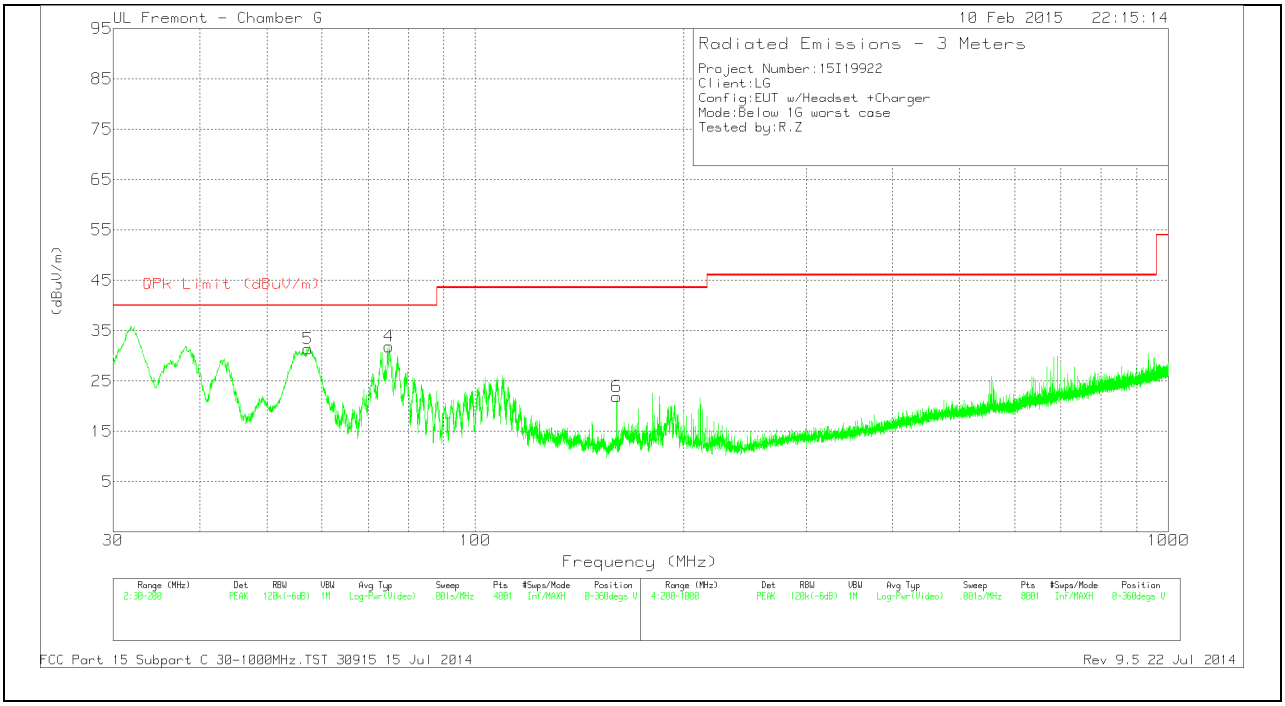
8.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



BELOW 1 GHz TABLE

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Hybrid	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 109.475	45.61	PK	15.3	-30.4	30.51	43.52	-13.01	0-360	301	H
4	* 75.0925	51.66	PK	10.9	-30.7	31.86	40	-8.14	0-360	100	V
5	57.37	52	PK	10.3	-30.9	31.4	40	-8.6	0-360	100	V
1	57.71	52.38	PK	10.4	-30.9	31.88	40	-8.12	0-360	401	H
6	160.0075	36.69	PK	15.2	-30	21.89	43.52	-21.63	0-360	100	V
3	211.2	37.83	PK	14.4	-29.6	22.63	43.52	-20.89	0-360	100	H

PK - Peak detector