FCC CFR47 PART 15 SUBPART C

C2PC CERTIFICATION TEST REPORT

FOR

CDMA WATCH + Bluetooth, DTS b/g

MODEL NUMBER: LG-VC110 LGVC110, VC110, LG-VC110B, LGVC110B, VC110B

FCC ID: ZNFVC110

REPORT NUMBER: 15I21553-E4V1

ISSUE DATE: SEPTEMBER 28, 2015

Prepared for

LG ELECTRONICS MOBILECOMM U.S.A., INC
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS,
NEW JERSEY, 07632, U.S.A

Prepared by

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/28/15	Initial Issue	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 4

2. TEST METHODOLOGY 6

3. FACILITIES AND ACCREDITATION 6

4. CALIBRATION AND UNCERTAINTY 6

4.1. MEASURING INSTRUMENT CALIBRATION 6

4.2. SAMPLE CALCULATION 6

4.3. MEASUREMENT UNCERTAINTY 7

5. EQUIPMENT UNDER TEST 8

5.1. DESCRIPTION OF EUT 8

5.2. MAXIMUM OUTPUT POWER 8

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 8

5.4. WORST-CASE CONFIGURATION AND MODE 9

5.5. DESCRIPTION OF TEST SETUP 10

6. TEST AND MEASUREMENT EQUIPMENT 12

7. MEASUREMENT METHODS 13

8. SUMMARY TABLE 14

9. RADIATED TEST RESULTS 15

9.1. LIMITS AND PROCEDURE 15

9.2. TRANSMITTER ABOVE 1 GHz 16

9.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND 16

9.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND 29

9.3. WORST-CASE BELOW 1 GHz 42

10. SETUP PHOTOS 44

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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, LG-VC110B, LGVC110B, VC110B
SERIAL NUMBER:	20KFP (Conducted), 23F9Z (Radiated)
DATE TESTED:	SEPTEMBER 7-16, 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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

Approved & Released For
UL Verification Services Inc. By:

Huda Mustapha

HUDA MUSTAPHA
CONSUMER TECHNOLOGY DIVISION
WiSE PROJECT LEAD
UL VERIFICATION SERVICES INC

DAN CORONIA
CONSUMER TECHNOLOGY DIVISION
WiSE PROJECT LEAD
UL VERIFICATION SERVICES INC

Tested By:

OREN STOELTING
CONSUMER TECHNOLOGY DIVISION
WiSE LAB ENGINEER
UL VERIFICATION SERVICES INC

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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 was performed with the EUT elevated at 1.5m instead of 0.8m. 1.5m is the required height in ANSI C63.10:2013.

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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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%.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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 conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	6.6	4.57
2412 - 2462	802.11g	5.3	3.39

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an LMA antenna, with a maximum gain of -2.12dBi.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1 GHz 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.

Based on the baseline scan, the worst-case data rates were:

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

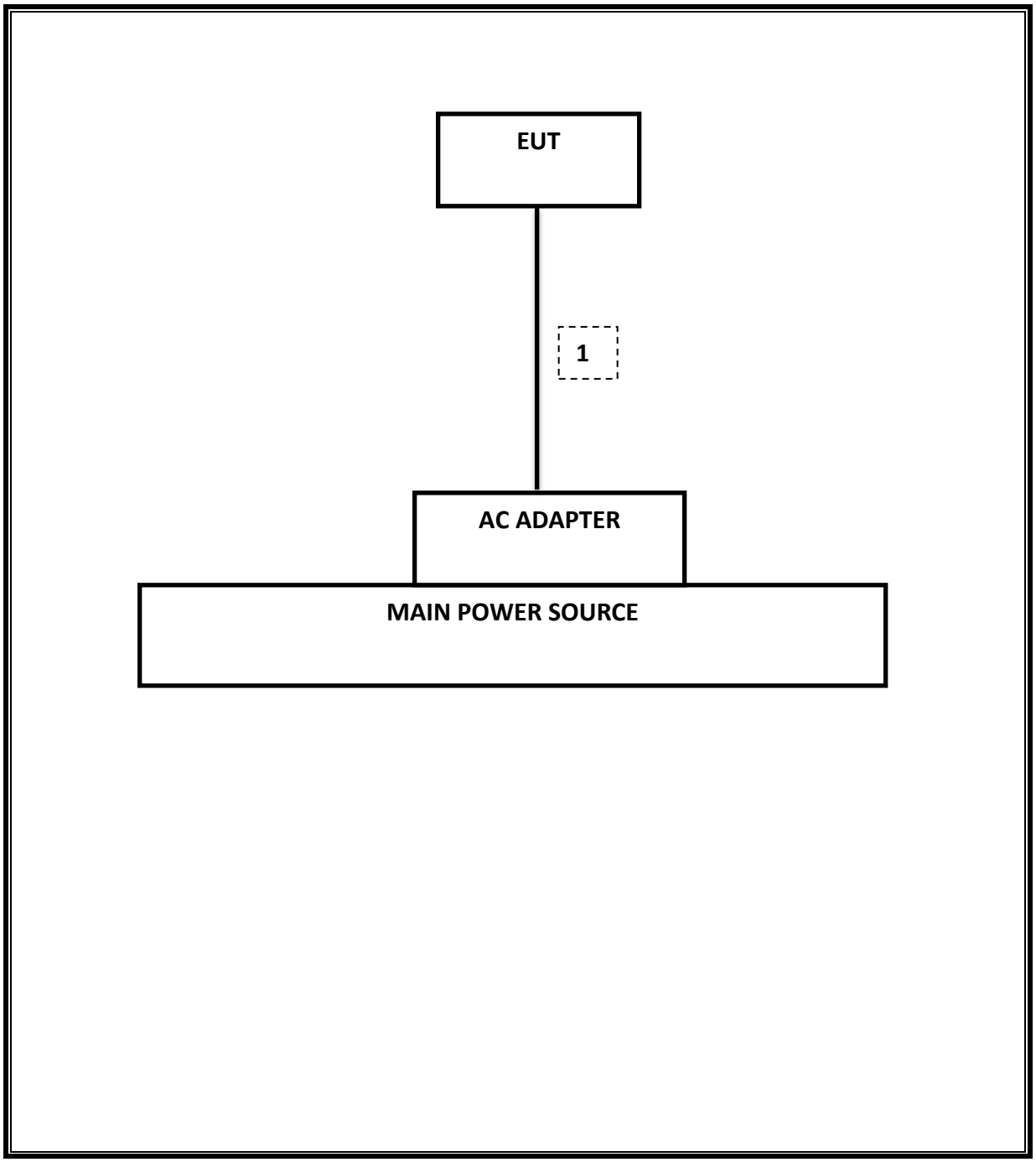
I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	DC Power	1	Mini-USB	Shielded	1.2m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

SETUP DIAGRAM FOR TESTS



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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
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	C00891	06/28/16
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/16
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	T404	06/29/16
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/16
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/16
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/16
Radiated Software	UL	UL EMC	Ver 9.5, Jul 22, 2014	
Conducted Software	UL	UL EMC	Ver 9.5, May 17 2012	
CLT Software	UL	UL RF	Ver 1.0, Feb 2 2015	
Antenna Port Software	UL	UL RF	Ver 2.1.1.1, Jan 20 2015	

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r03: Measurement Procedure AVGPM-G is used for power and AVGPSD-3 is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

8. SUMMARY TABLE

C2PC Reason: Please see LG-VC110 FCC Class II change description for details.

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	See original
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	See original
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass	See original
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass	See original
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	See original
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	43.94dBuV/m

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9. RADIATED TEST RESULTS

9.1. 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 150 cm for above 1GHz. The antenna to EUT distance is 3 meters.

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; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor= 10log (1/x). For this sample b mode = 0.22dB (duty cycle >98%); g mode = 1.54dB; n mode = N/A.

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.

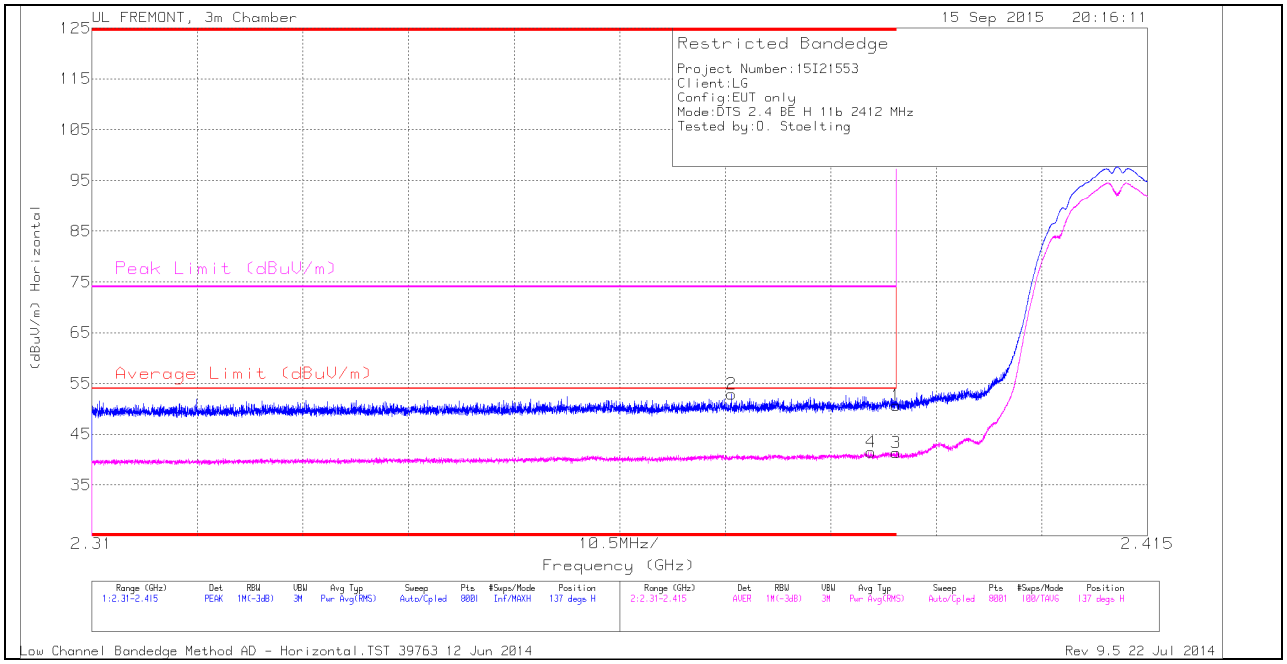
This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

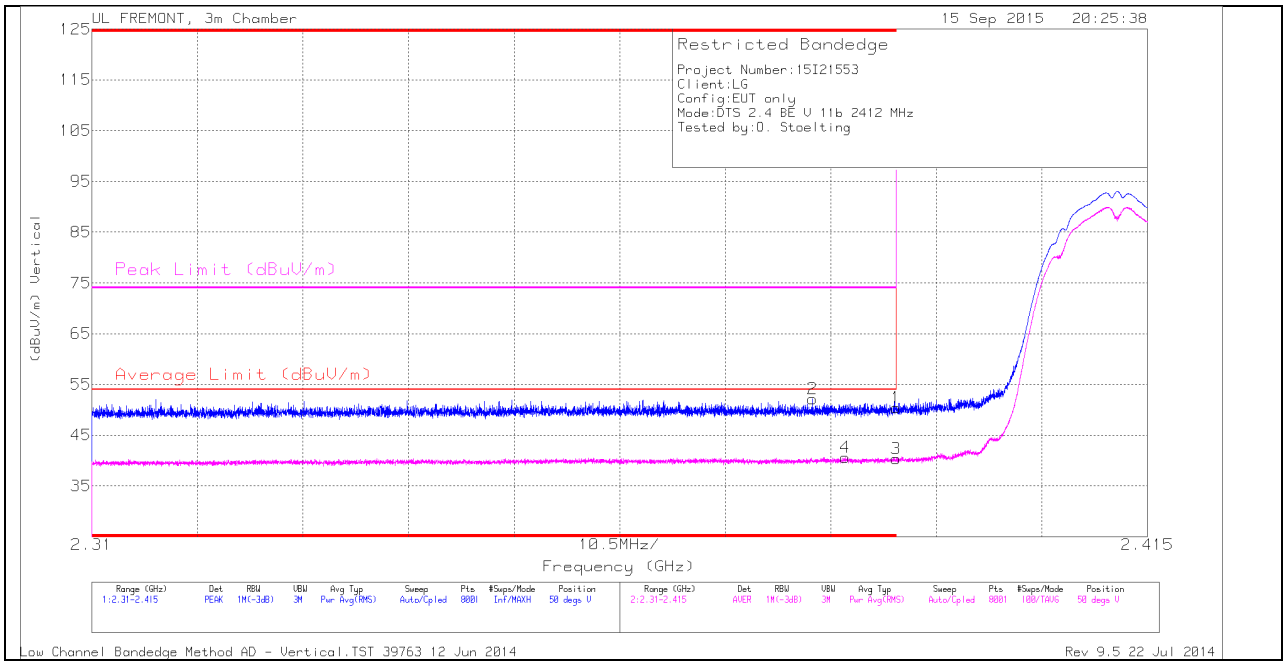


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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
2	* 2.374	43.35	PK	31.9	-22.4	0	52.85	-	-	74	-21.15	137	321	H
4	* 2.387	31.61	RMS	32	-22.4	.22	41.43	54	-12.57	-	-	137	321	H
1	* 2.39	41.09	PK	32	-22.4	0	50.69	-	-	74	-23.31	137	321	H
3	* 2.39	31.56	RMS	32	-22.4	.22	41.38	54	-12.62	-	-	137	321	H

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL PEAK AND AVERAGE PLOT



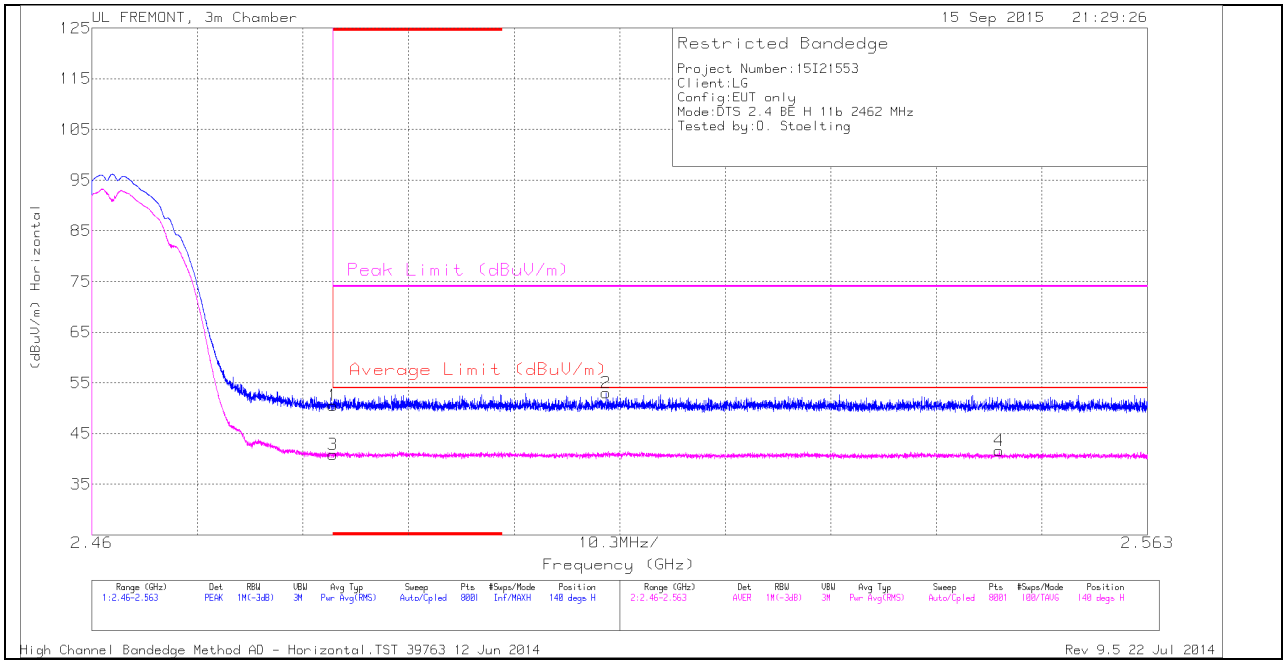
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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
2	* 2.382	42.57	PK	32	-22.4	0	52.17	-	-	74	-21.83	50	258	V
4	* 2.385	30.8	RMS	32	-22.4	.22	40.62	54	-13.38	-	-	50	258	V
1	* 2.39	40.8	PK	32	-22.4	0	50.4	-	-	74	-23.6	50	258	V
3	* 2.39	30.56	RMS	32	-22.4	.22	40.38	54	-13.62	-	-	50	258	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

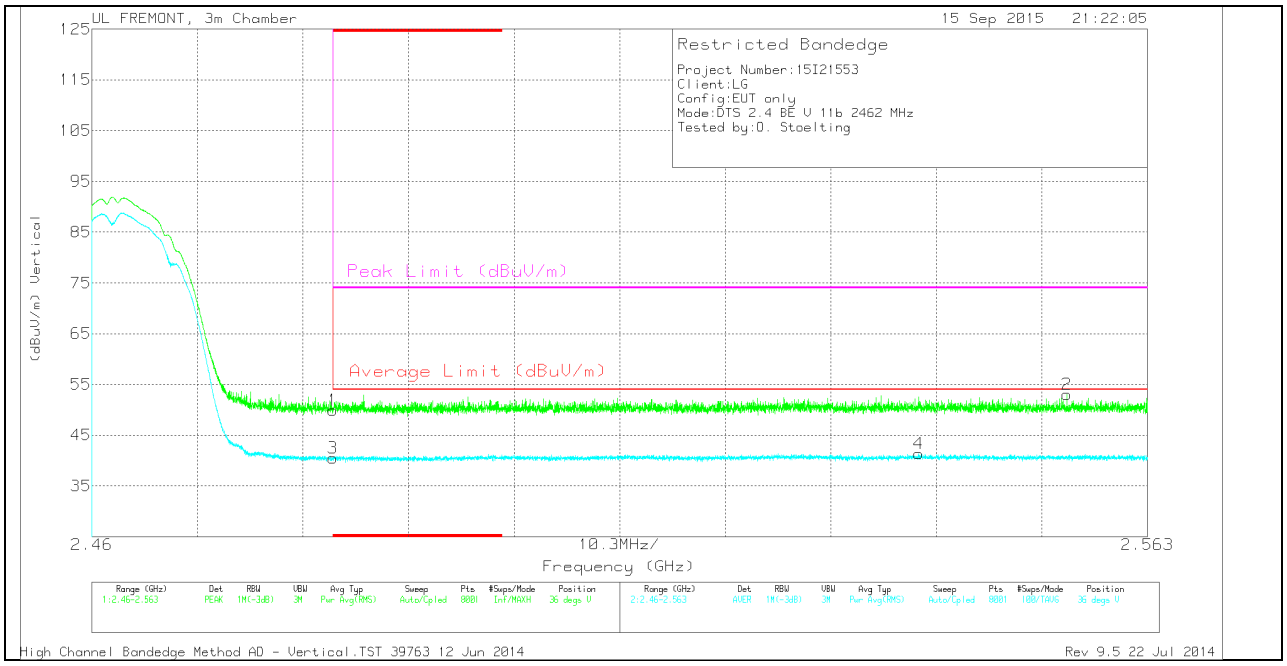


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	40.39	PK	32.3	-22.1	0	50.59	-	-	74	-23.41	140	345	H
3	* 2.484	30.42	RMS	32.3	-22.1	.22	40.84	54	-13.16	-	-	140	345	H
2	2.51	42.82	PK	32.3	-22.1	0	53.02	-	-	74	-20.98	140	345	H
4	2.549	31.02	RMS	32.4	-22	.22	41.64	54	-12.36	-	-	140	345	H

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL PEAK AND AVERAGE PLOT



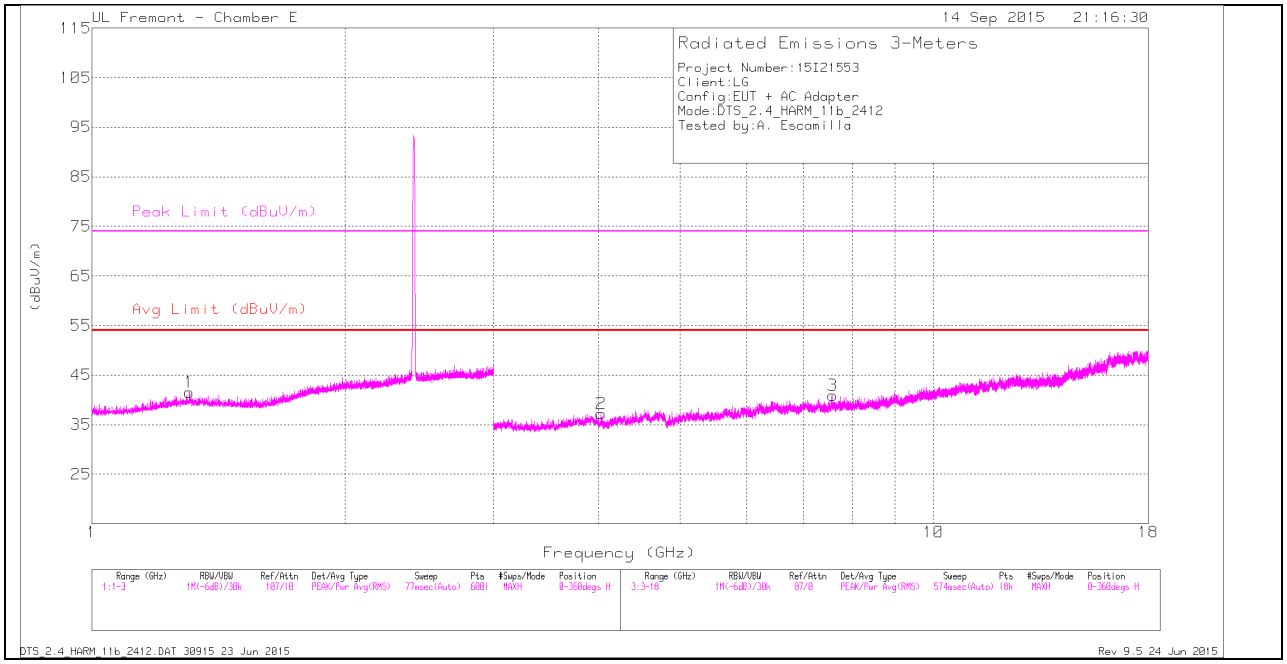
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	39.7	PK	32.3	-22.1	0	49.9	-	-	74	-24.1	36	200	V
3	* 2.484	30.03	RMS	32.3	-22.1	.22	40.45	54	-13.55	-	-	36	200	V
4	2.541	30.68	RMS	32.4	-21.9	.22	41.4	54	-12.6	-	-	36	200	V
2	2.555	42.63	PK	32.4	-22	0	53.03	-	-	74	-20.97	36	200	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HARMONICS AND SPURIOUS EMISSIONS

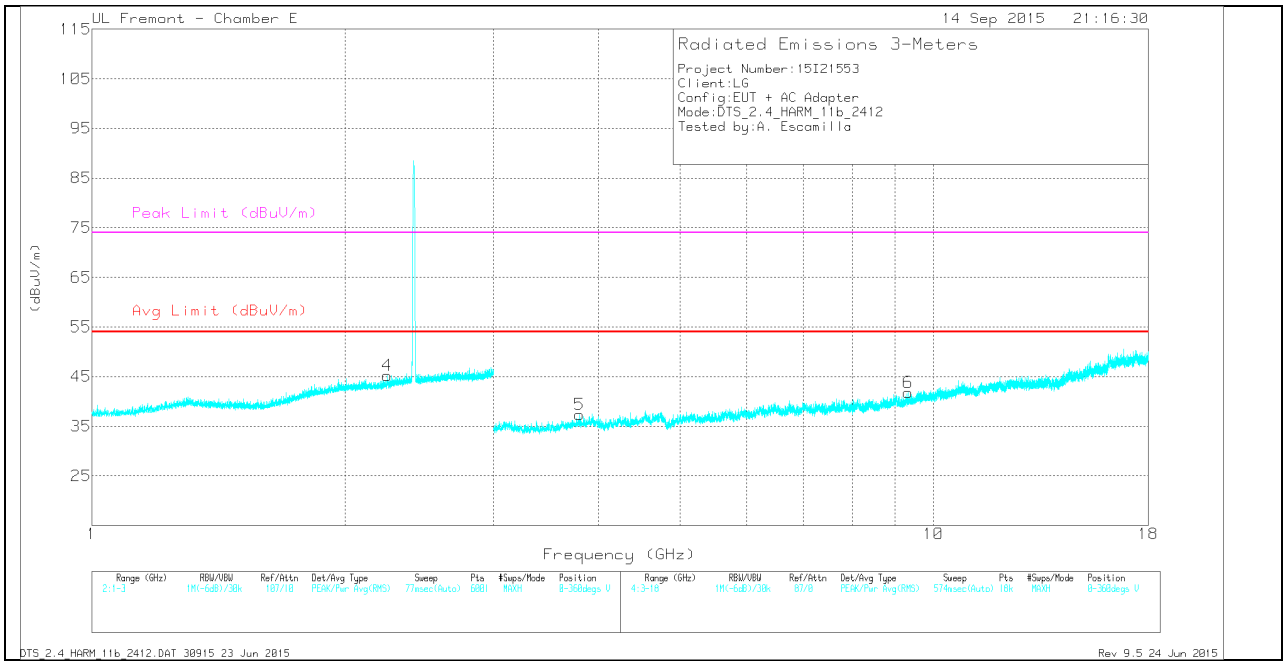
LOW CHANNEL HORIZONTAL



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /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	* 1.306	38.15	Pk	29	-25.6	0	41.55	-	-	74	-32.45	0-360	200	H
4	* 2.242	37.09	Pk	31.6	-23.5	0	45.19	-	-	74	-28.81	0-360	200	V
2	* 4.028	34.17	Pk	33.4	-30.4	0	37.17	-	-	74	-36.83	0-360	200	H
3	* 7.597	31.4	Pk	35.7	-26.2	0	40.9	-	-	74	-33.1	0-360	200	H
5	* 3.793	34.56	Pk	33.5	-30.7	0	37.36	-	-	74	-36.64	0-360	101	V
6	* 9.335	30.78	Pk	36.6	-25.6	0	41.78	-	-	74	-32.22	0-360	101	V

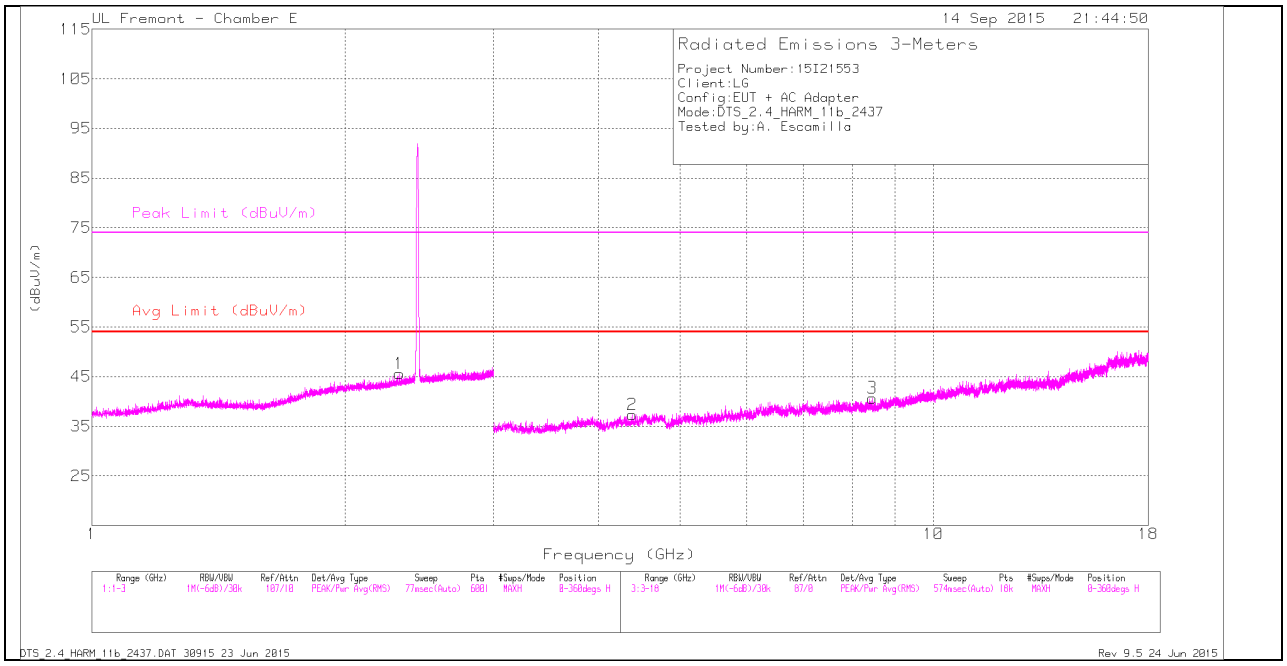
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/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
* 1.306	45.14	PK2	29	-25.6	0	48.54	-	-	74	-25.46	326	158	H
* 1.307	33.75	MAv1	29	-25.6	.22	37.37	54	-16.63	-	-	326	158	H
* 2.242	44.05	PK2	31.6	-23.5	0	52.15	-	-	74	-21.85	354	164	V
* 2.241	32.35	MAv1	31.5	-23.5	.22	40.57	54	-13.43	-	-	354	164	V
* 4.029	41.37	PK2	33.4	-30.4	0	44.37	-	-	74	-29.63	185	190	H
* 4.03	30.1	MAv1	33.4	-30.4	.22	33.32	54	-20.68	-	-	185	190	H
* 7.596	38.34	PK2	35.7	-26.2	0	47.84	-	-	74	-26.16	185	199	H
* 7.599	26.88	MAv1	35.7	-26.2	.22	36.6	54	-17.4	-	-	185	199	H
* 3.794	41.81	PK2	33.5	-30.7	0	44.61	-	-	74	-29.39	58	173	V
* 3.795	30.5	MAv1	33.5	-30.7	.22	33.52	54	-20.48	-	-	58	173	V
* 9.337	37.98	PK2	36.6	-25.7	0	48.88	-	-	74	-25.12	44	137	V
* 9.337	26.96	MAv1	36.6	-25.7	.22	38.08	54	-15.92	-	-	44	137	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

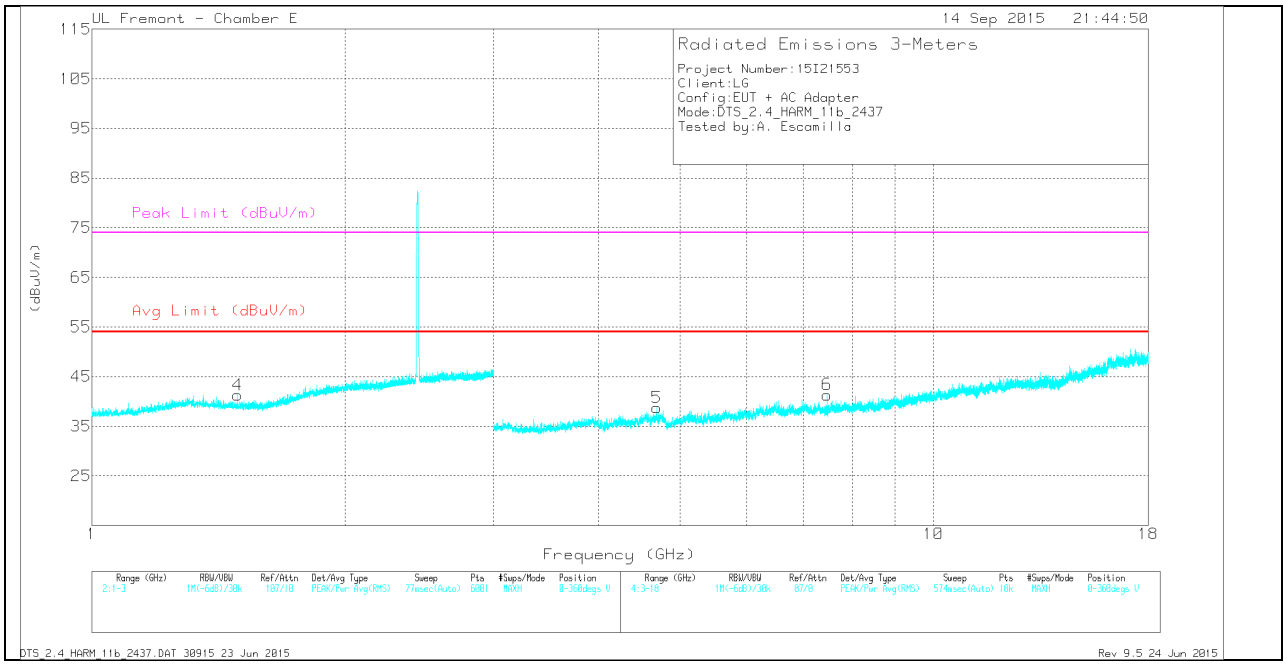
MID CHANNEL HORIZONTAL



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /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	* 2.32	37	Pk	31.9	-23.3	0	45.6	-	-	74	-28.4	0-360	200	H
4	* 1.49	38.25	Pk	28.2	-25.2	0	41.25	-	-	74	-32.75	0-360	200	V
2	* 4.385	34.4	Pk	33.7	-30.7	0	37.4	-	-	74	-36.6	0-360	100	H
3	* 8.457	31.01	Pk	35.8	-26.1	0	40.71	-	-	74	-33.29	0-360	100	H
5	* 4.689	34.29	Pk	34.2	-29.7	0	38.79	-	-	74	-35.21	0-360	200	V
6	* 7.47	32.95	Pk	35.6	-27.2	0	41.35	-	-	74	-32.65	0-360	100	V

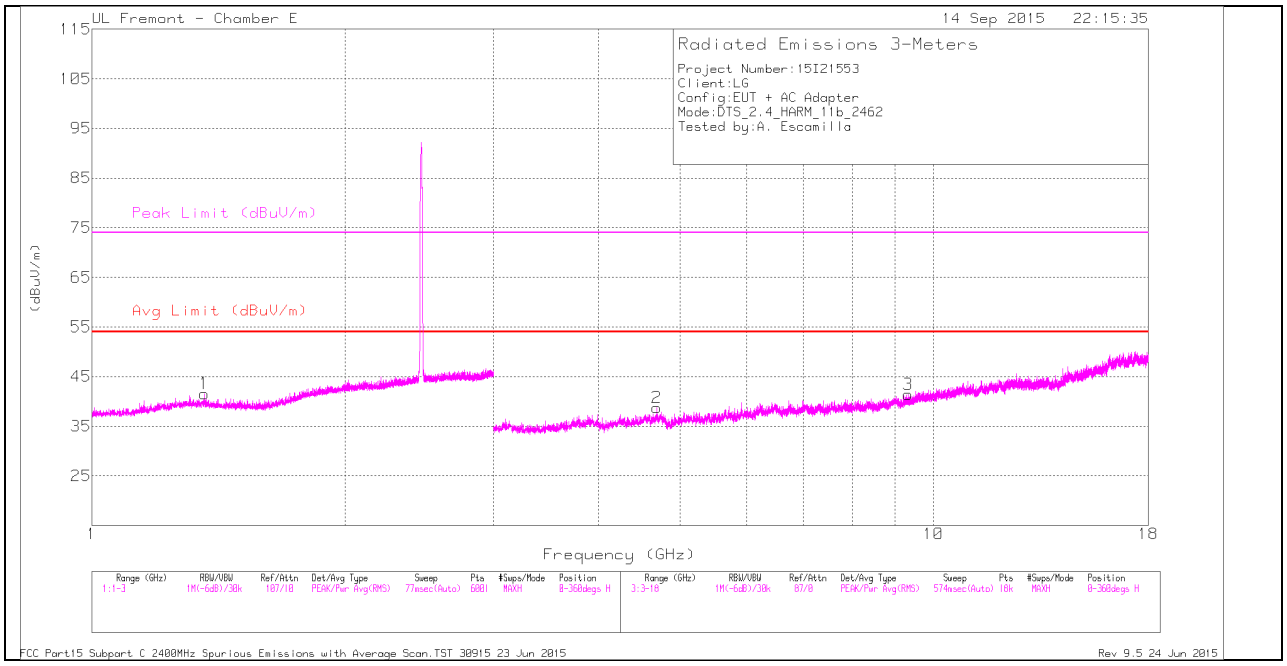
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/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
* 2.321	44.12	PK2	31.9	-23.3	0	52.72	-	-	74	-21.28	10	142	H
* 2.318	32.2	MAv1	31.9	-23.3	.22	41.02	54	-12.98	-	-	10	142	H
* 1.492	44.9	PK2	28.2	-25.2	0	47.9	-	-	74	-26.1	37	160	V
* 1.491	33.2	MAv1	28.2	-25.2	.22	36.42	54	-17.58	-	-	37	160	V
* 4.385	41.97	PK2	33.7	-30.7	0	44.97	-	-	74	-29.03	81	155	H
* 4.386	30.65	MAv1	33.7	-30.7	.22	33.87	54	-20.13	-	-	81	155	H
* 8.459	38.34	PK2	35.8	-26.2	0	47.94	-	-	74	-26.06	180	139	H
* 8.458	26.97	MAv1	35.8	-26.1	.22	36.89	54	-17.11	-	-	180	139	H
* 4.69	41.77	PK2	34.2	-29.7	0	46.27	-	-	74	-27.73	169	192	V
* 4.691	30.08	MAv1	34.2	-29.7	.22	34.8	54	-19.20	-	-	169	192	V
* 7.471	38.92	PK2	35.6	-27.2	0	47.32	-	-	74	-26.68	173	180	V
* 7.469	27.45	MAv1	35.6	-27.2	.22	36.07	54	-17.93	-	-	173	180	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

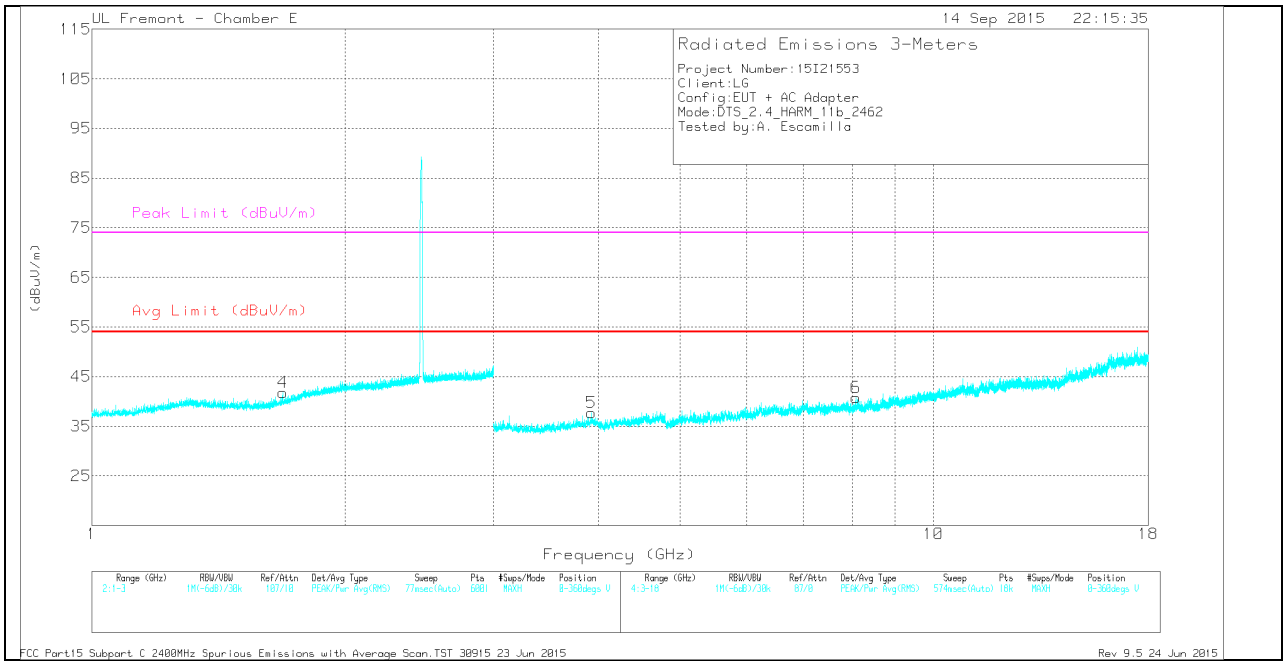
HIGH CHANNEL HORIZONTAL



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /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	* 1.359	38.4	Pk	28.7	-25.5	0	41.6	-	-	74	-32.4	0-360	200	H
4	* 1.686	37.57	Pk	28.8	-24.6	0	41.77	-	-	74	-32.23	0-360	100	V
2	* 4.688	34.25	Pk	34.2	-29.7	0	38.75	-	-	74	-35.25	0-360	200	H
3	* 9.326	30.31	Pk	36.6	-25.5	0	41.41	-	-	74	-32.59	0-360	200	H
5	* 3.922	34.06	Pk	33.5	-29.8	0	37.76	-	-	74	-36.24	0-360	200	V
6	* 8.083	31.22	Pk	35.7	-26.2	0	40.72	-	-	74	-33.28	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

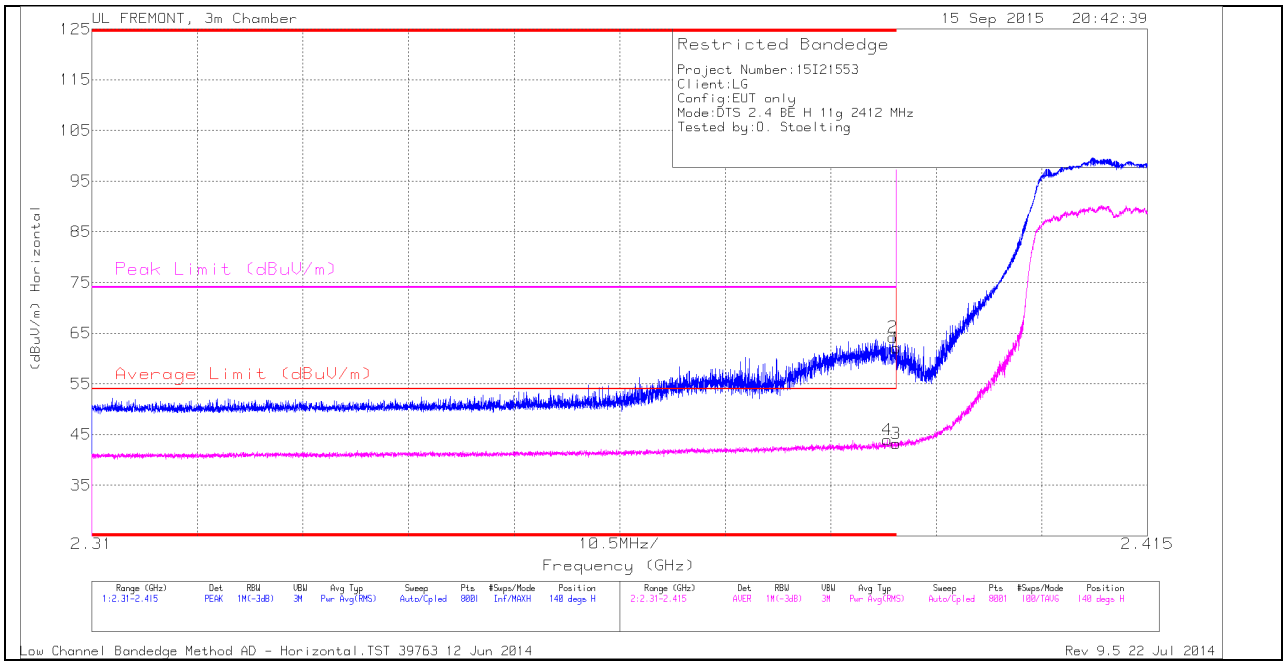
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.358	45.83	PK2	28.7	-25.5	0	49.03	-	-	74	-24.97	6	170	H
* 1.361	33.59	MAv1	28.7	-25.5	.22	37.01	54	-16.99	-	-	6	170	H
* 1.687	44.82	PK2	28.8	-24.6	0	49.02	-	-	74	-24.98	41	157	V
* 1.687	33.08	MAv1	28.8	-24.6	.22	37.5	54	-16.50	-	-	41	157	V
* 4.687	42.13	PK2	34.2	-29.8	0	46.53	-	-	74	-27.47	34	167	H
* 4.689	30.2	MAv1	34.2	-29.7	.22	34.92	54	-19.08	-	-	34	167	H
* 9.325	37.49	PK2	36.6	-25.5	0	48.59	-	-	74	-25.41	165	200	H
* 9.328	26.63	MAv1	36.6	-25.5	.22	37.95	54	-16.05	-	-	165	200	H
* 3.922	42.21	PK2	33.5	-29.8	0	45.91	-	-	74	-28.09	187	211	V
* 3.921	30.08	MAv1	33.5	-29.8	.22	34	54	-20.00	-	-	187	211	V
* 8.084	37.9	PK2	35.7	-26.2	0	47.4	-	-	74	-26.6	112	185	V
* 8.081	27.07	MAv1	35.7	-26.3	.22	36.69	54	-17.31	-	-	112	185	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

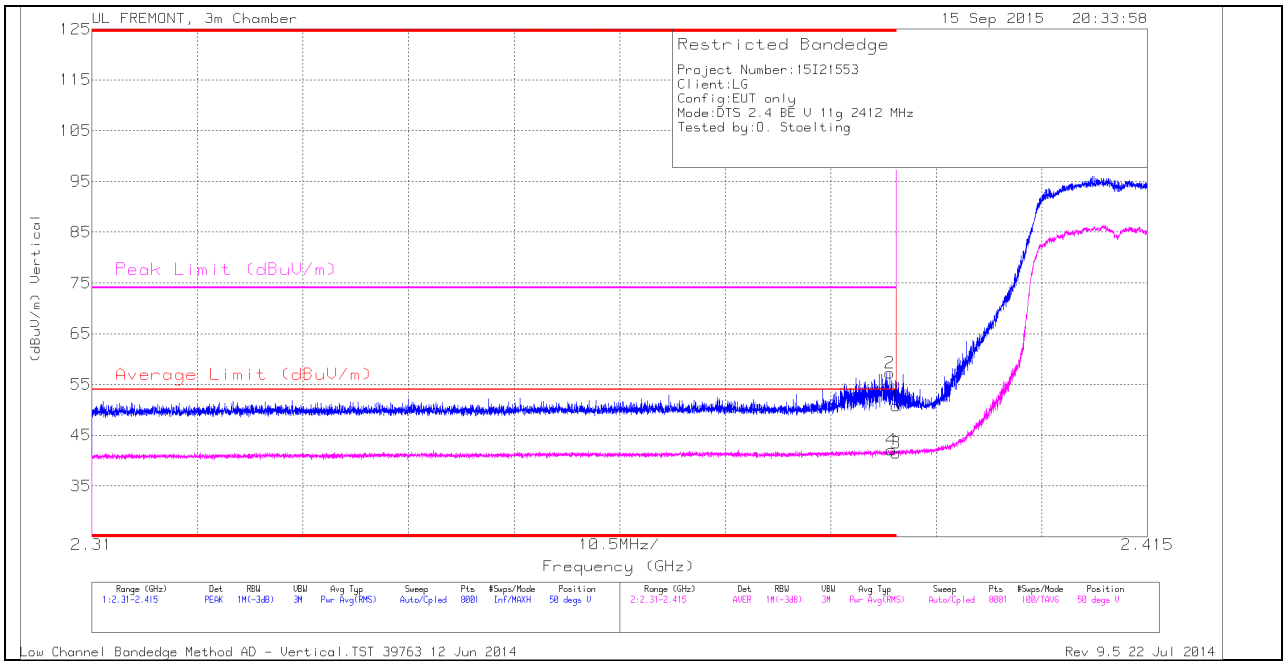


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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
4	* 2.389	32.8	RMS	32	-22.4	1.54	43.94	54	-10.06	-	-	140	288	H
1	* 2.39	52.46	PK	32	-22.4	0	62.06	-	-	74	-11.94	140	288	H
2	* 2.39	54.64	PK	32	-22.4	0	64.24	-	-	74	-9.76	140	288	H
3	* 2.39	32.06	RMS	32	-22.4	1.54	43.2	54	-10.8	-	-	140	288	H

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL PEAK AND AVERAGE PLOT



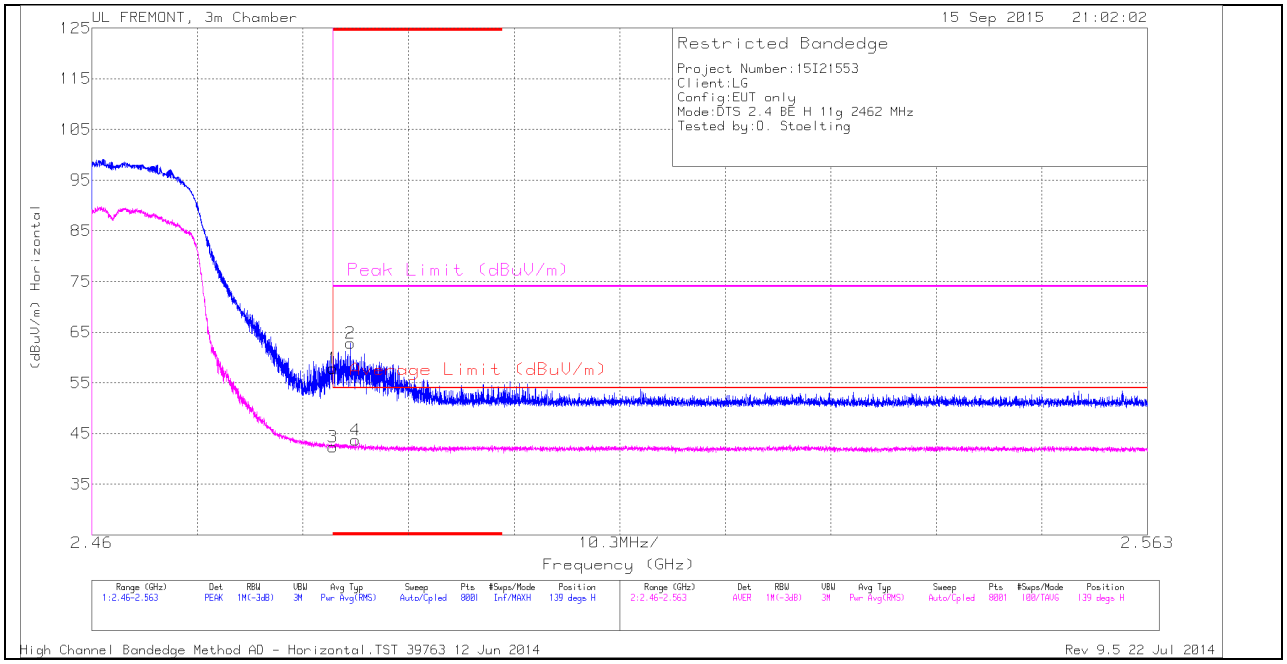
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt 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
2	* 2.389	47.64	PK	32	-22.4	0	57.24	-	-	74	-16.76	50	258	V
1	* 2.39	41.17	PK	32	-22.4	0	50.77	-	-	74	-23.23	50	258	V
3	* 2.39	30.33	RMS	32	-22.4	1.54	41.47	54	-12.53	-	-	50	258	V
4	* 2.39	30.97	RMS	32	-22.4	1.54	42.11	54	-11.89	-	-	50	258	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT

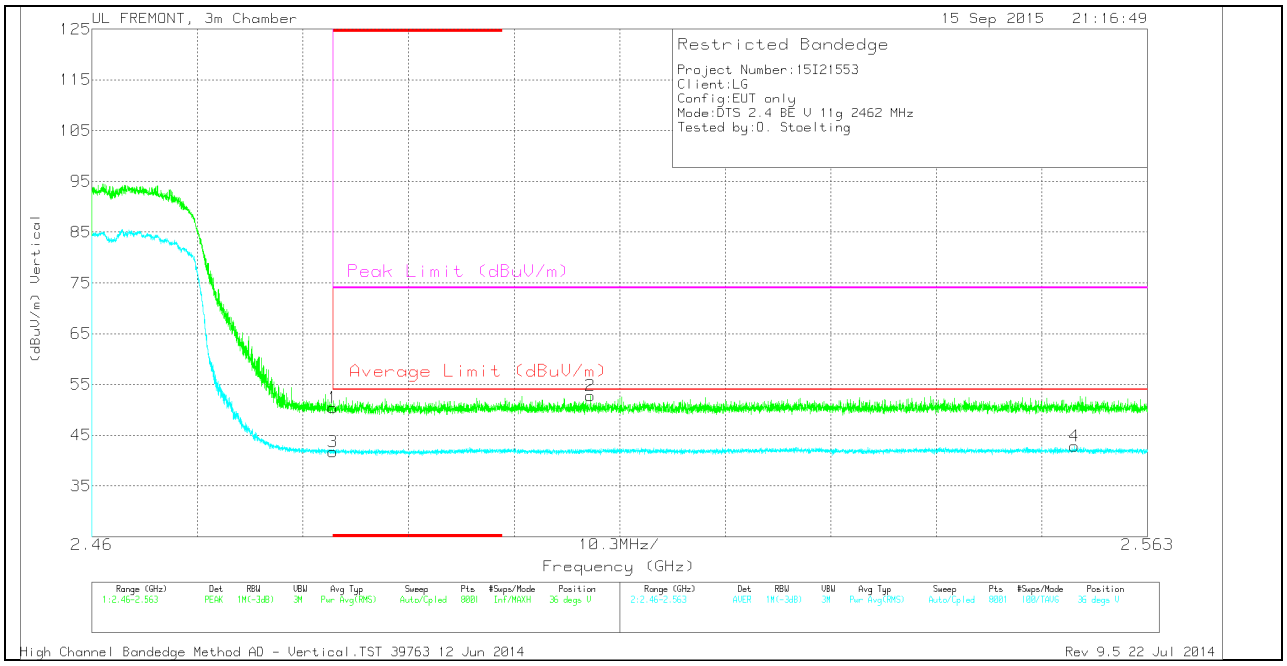


HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Flt 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	47.66	PK	32.3	-22.1	0	57.86	-	-	74	-16.14	139	348	H
3	* 2.484	30.59	RMS	32.3	-22.1	1.54	42.33	54	-11.67	-	-	139	348	H
2	* 2.485	52.58	PK	32.3	-22.1	0	62.78	-	-	74	-11.22	139	348	H
4	* 2.486	31.97	RMS	32.3	-22.1	1.54	43.71	54	-10.29	-	-	139	348	H

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

VERTICAL PEAK AND AVERAGE PLOT



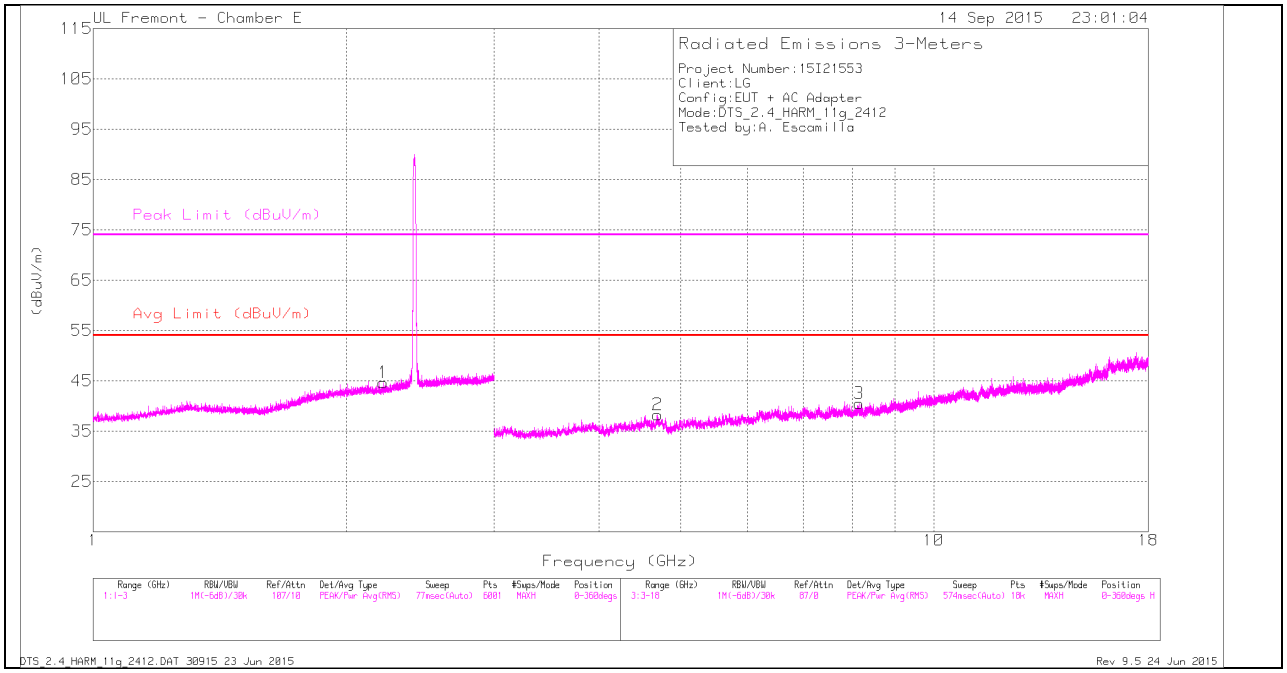
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/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	40.18	PK	32.3	-22.1	0	50.38	-	-	74	-23.62	36	200	V
3	* 2.484	29.93	RMS	32.3	-22.1	1.54	41.67	54	-12.33	-	-	36	200	V
2	2.509	42.54	PK	32.3	-22.1	0	52.74	-	-	74	-21.26	36	200	V
4	2.556	30.88	RMS	32.4	-22	1.54	42.82	54	-11.18	-	-	36	200	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HARMONICS AND SPURIOUS EMISSIONS

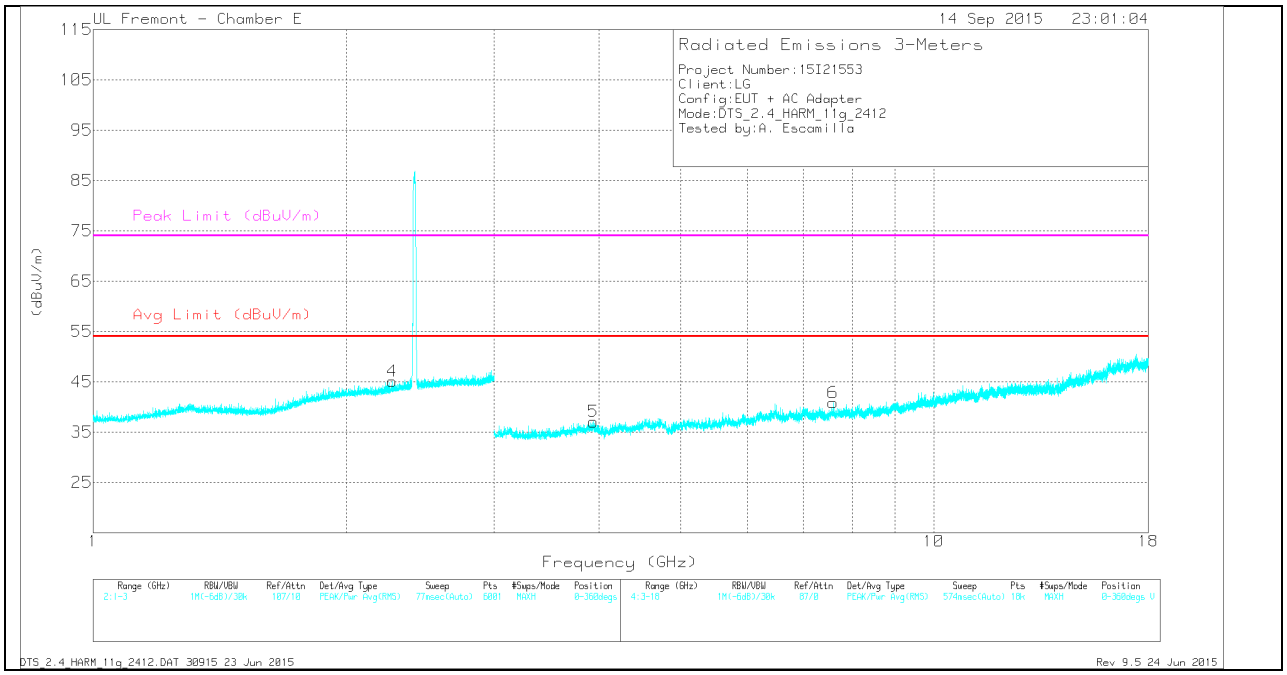
LOW CHANNEL HORIZONTAL



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /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	* 2.214	36.71	Pk	31.4	-23.5	0	44.61	-	-	74	-29.39	0-360	200	H
4	* 2.27	36.76	Pk	31.7	-23.4	0	45.06	-	-	74	-28.94	0-360	200	V
2	* 4.696	33.66	Pk	34.2	-29.6	0	38.26	-	-	74	-35.74	0-360	100	H
3	* 8.151	30.29	Pk	35.7	-25.5	0	40.49	-	-	74	-33.51	0-360	100	H
5	* 3.937	33.05	Pk	33.5	-29.5	0	37.05	-	-	74	-36.95	0-360	100	V
6	* 7.592	31.25	Pk	35.7	-26.1	0	40.85	-	-	74	-33.15	0-360	200	V

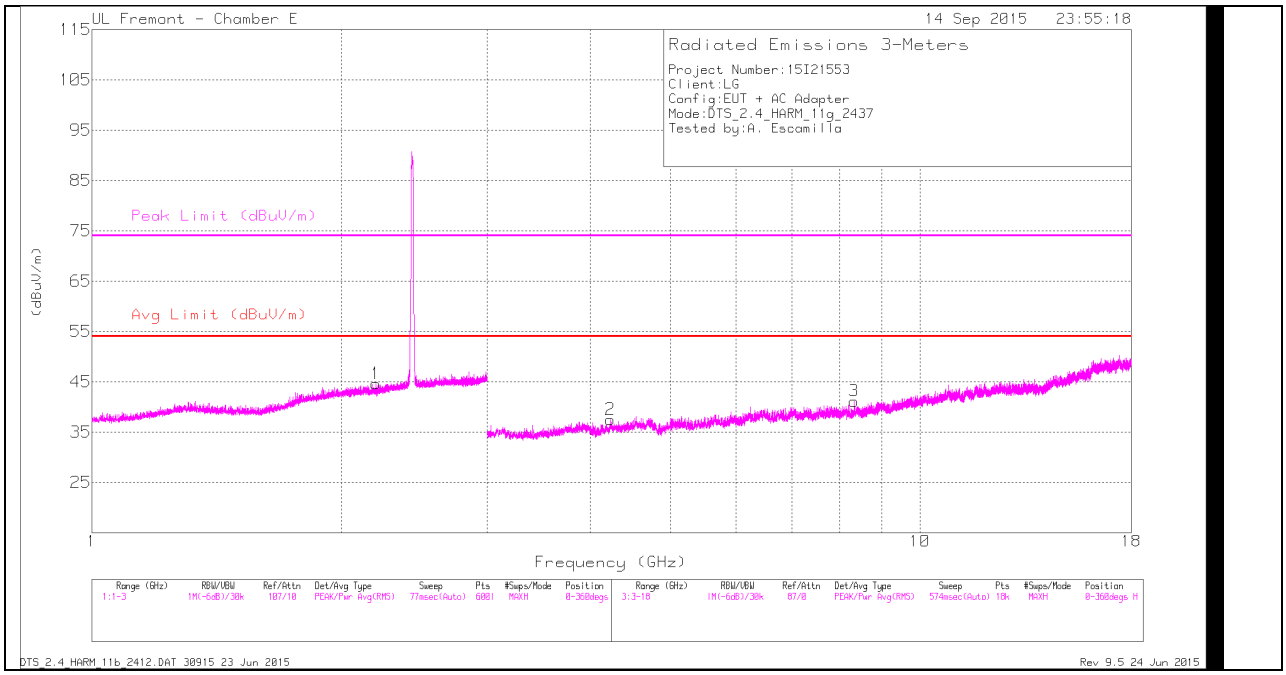
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/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
* 2.212	43.95	PK2	31.4	-23.5	0	51.85	-	-	74	-22.15	20	138	H
* 2.213	32.24	MAv1	31.4	-23.5	1.54	41.68	54	-12.32	-	-	20	138	H
* 2.27	44.02	PK2	31.7	-23.4	0	52.32	-	-	74	-21.68	14	196	V
* 2.269	32.25	MAv1	31.7	-23.4	1.54	42.09	54	-11.91	-	-	14	196	V
* 4.694	41.44	PK2	34.2	-29.7	0	45.94	-	-	74	-28.06	101	188	H
* 4.696	29.92	MAv1	34.2	-29.6	1.54	36.06	54	-17.94	-	-	101	188	H
* 8.152	37.62	PK2	35.7	-25.6	0	47.72	-	-	74	-26.28	200	173	H
* 8.15	26.56	MAv1	35.7	-25.5	1.54	38.3	54	-15.70	-	-	200	173	H
* 3.937	41.27	PK2	33.5	-29.6	0	45.17	-	-	74	-28.83	182	166	V
* 3.936	29.96	MAv1	33.5	-29.6	1.54	35.4	54	-18.60	-	-	182	166	V
* 7.593	38.29	PK2	35.7	-26.1	0	47.89	-	-	74	-26.11	37	187	V
* 7.594	26.69	MAv1	35.7	-26.2	1.54	37.73	54	-16.27	-	-	37	187	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

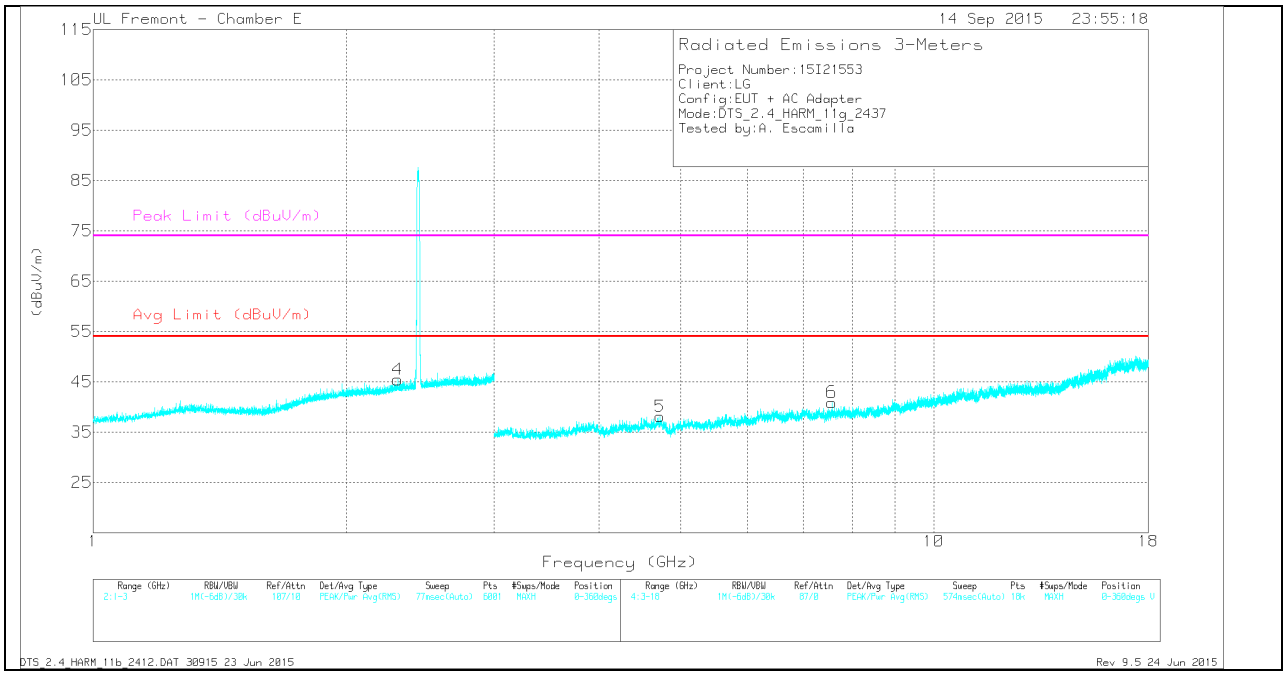
MID CHANNEL HORIZONTAL



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /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	* 2.205	36.81	Pk	31.3	-23.5	0	44.61	-	-	74	-29.39	0-360	200	H
2	* 4.227	33.1	Pk	33.5	-29.1	0	37.5	-	-	74	-36.5	0-360	200	H
3	* 8.336	31.95	Pk	35.7	-26.5	0	41.15	-	-	74	-32.85	0-360	200	H
5	* 4.722	32.99	Pk	34.2	-29.1	0	38.09	-	-	74	-35.91	0-360	200	V
6	* 7.566	30.98	Pk	35.7	-25.8	0	40.88	-	-	74	-33.12	0-360	200	V
4	2.303	36.82	Pk	31.9	-23.3	0	45.42	-	-	74	-28.58	0-360	200	V

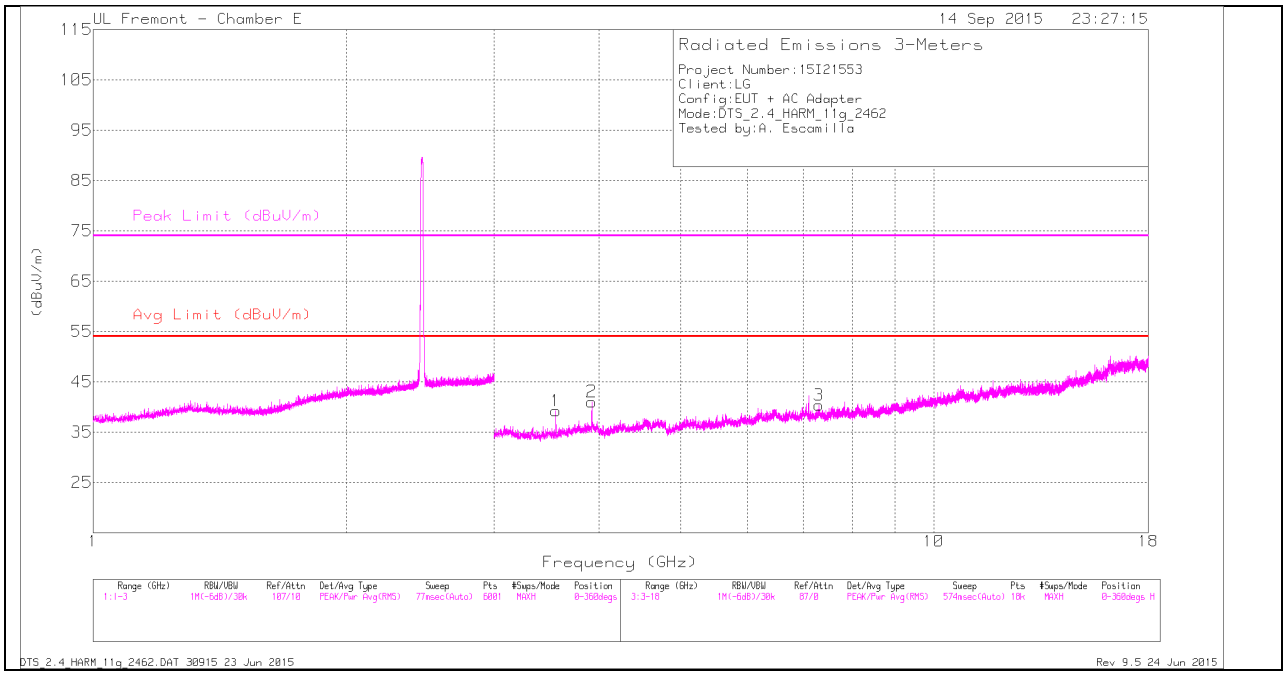
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/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
* 2.203	44.07	PK2	31.3	-23.5	0	51.87	-	-	74	-22.13	121	140	H
* 2.206	32.31	MAv1	31.3	-23.5	1.54	41.65	54	-12.35	-	-	121	140	H
* 4.227	40.85	PK2	33.5	-29.1	0	45.25	-	-	74	-28.75	138	210	H
* 4.225	29.41	MAv1	33.5	-29.1	1.54	35.35	54	-18.65	-	-	138	210	H
* 8.336	38.47	PK2	35.7	-26.5	0	47.67	-	-	74	-26.33	185	215	H
* 8.336	27.46	MAv1	35.7	-26.5	1.54	38.2	54	-15.80	-	-	185	215	H
* 4.721	40.61	PK2	34.2	-29.1	0	45.71	-	-	74	-28.29	162	201	V
* 4.721	29.5	MAv1	34.2	-29.1	1.54	36.14	54	-17.86	-	-	162	201	V
* 7.566	37.79	PK2	35.7	-25.8	0	47.69	-	-	74	-26.31	91	150	V
* 7.567	26.69	MAv1	35.7	-25.7	1.54	38.23	54	-15.77	-	-	91	150	V
2.304	44.38	PK2	31.9	-23.3	0	52.98	-	-	74	-21.02	112	160	V
2.304	32.31	MAv1	31.9	-23.3	1.54	42.45	54	-11.55	-	-	112	160	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

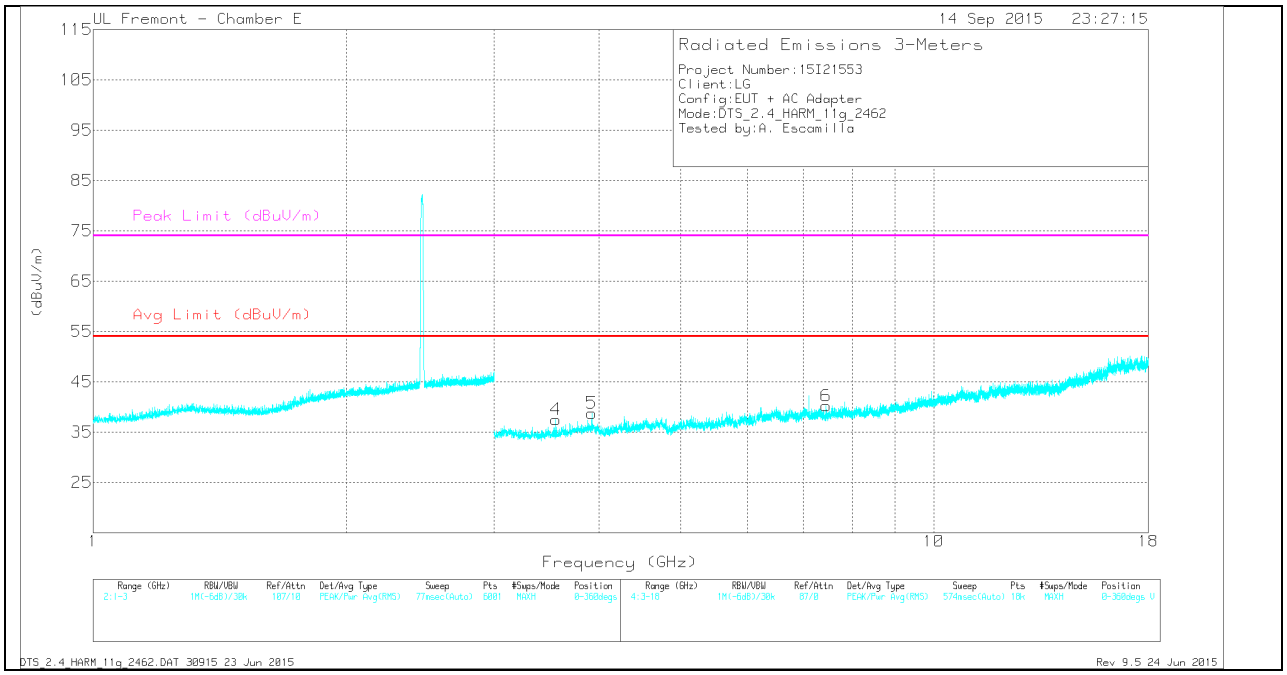
HIGH CHANNEL HORIZONTAL



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

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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.

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fltr /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	* 3.553	37.63	Pk	33	-31.4	0	39.23	-	-	74	-34.77	0-360	100	H
2	* 3.92	37.32	Pk	33.5	-29.8	0	41.02	-	-	74	-32.98	0-360	100	H
3	* 7.304	30.91	Pk	35.5	-26.1	0	40.31	-	-	74	-33.69	0-360	200	H
4	* 3.553	35.89	Pk	33	-31.4	0	37.49	-	-	74	-36.51	0-360	100	V
5	* 3.92	35.06	Pk	33.5	-29.8	0	38.76	-	-	74	-35.24	0-360	100	V
6	* 7.448	32.01	Pk	35.6	-27.4	0	40.21	-	-	74	-33.79	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

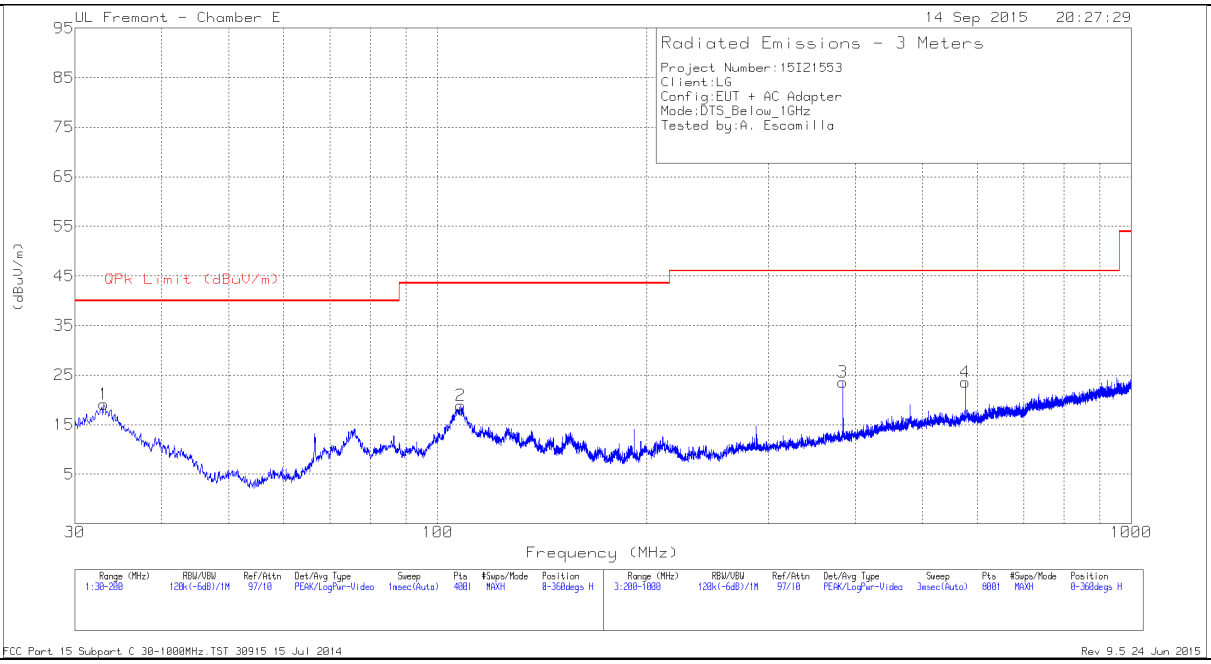
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.92	43.85	PK2	33.5	-29.8	0	47.55	-	-	74	-26.45	120	219	H
* 3.92	30.51	MAv1	33.5	-29.8	1.54	35.75	54	-18.25	-	-	120	219	H
* 3.555	41.76	PK2	33	-31.4	0	43.36	-	-	74	-30.64	115	212	H
* 3.553	30.47	MAv1	33	-31.4	1.54	33.61	54	-20.39	-	-	115	212	H
* 7.306	38.03	PK2	35.5	-26	0	47.53	-	-	74	-26.47	155	201	H
* 7.302	27.17	MAv1	35.5	-26.1	1.54	38.11	54	-15.89	-	-	155	201	H
* 3.552	42.37	PK2	32.9	-31.4	0	43.87	-	-	74	-30.13	109	195	V
* 3.554	30.49	MAv1	33	-31.4	1.54	33.63	54	-20.37	-	-	109	195	V
* 3.919	41.46	PK2	33.5	-29.9	0	45.06	-	-	74	-28.94	133	210	V
* 3.921	30.15	MAv1	33.5	-29.8	1.54	35.39	54	-18.61	-	-	133	210	V
* 7.45	39.01	PK2	35.6	-27.3	0	47.31	-	-	74	-26.69	120	186	V
* 7.448	27.58	MAv1	35.6	-27.4	1.54	37.32	54	-16.68	-	-	120	186	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

9.3. WORST-CASE BELOW 1 GHz

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

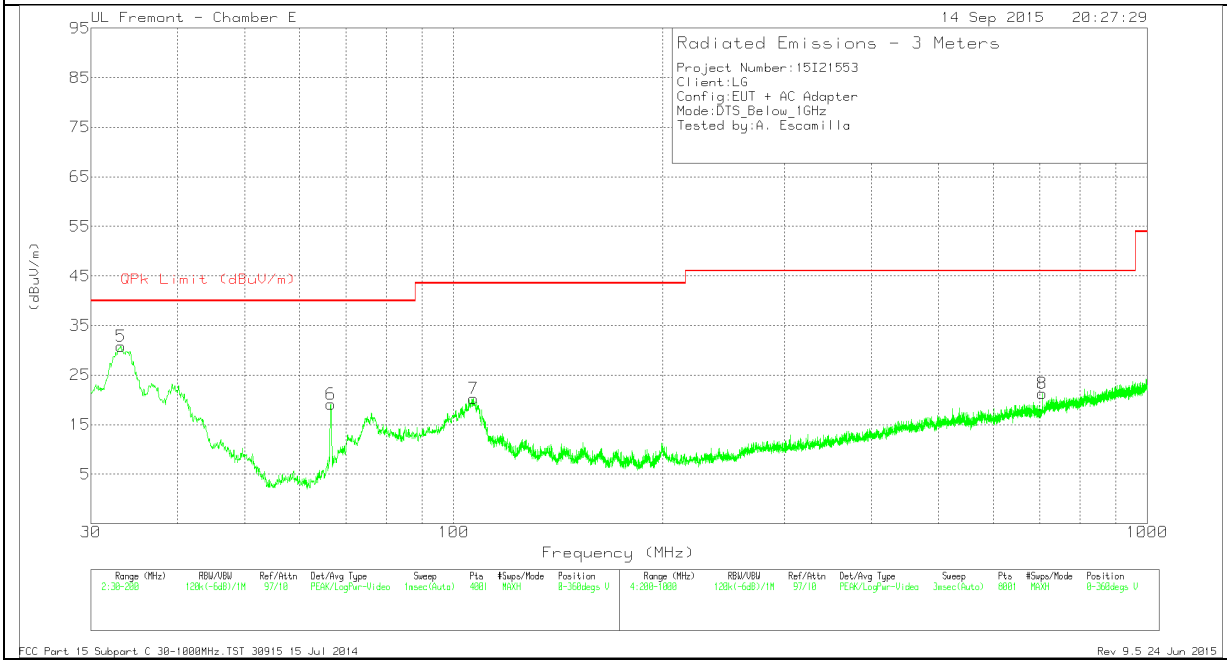
HORIZONTAL PLOT



This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.

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

VERTICAL PLOT



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T408 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	33.0175	31.57	Pk	19.4	-31.9	19.07	40	-20.93	0-360	201	H
5	33.145	43.34	Pk	19.3	-31.8	30.84	40	-9.16	0-360	100	V
6	66.5075	42.2	Pk	8.4	-31.5	19.1	40	-20.9	0-360	100	V
7	106.755	39.89	Pk	11.7	-31.3	20.29	43.52	-23.23	0-360	100	V
2	107.945	38.31	Pk	11.9	-31.3	18.91	43.52	-24.61	0-360	301	H
3	384	38.37	Pk	15.1	-29.9	23.57	46.02	-22.45	0-360	100	H
4	576	34.28	Pk	18.8	-29.5	23.58	46.02	-22.44	0-360	201	H
8	705.7	30.84	Pk	19.6	-29.1	21.34	46.02	-24.68	0-360	100	V

This report shall not be reproduced except in full, without the written approval of UL Verification Services Inc.