



FCC CFR47 PART 15 SUBPART C

C2PC CERTIFICATION TEST REPORT

FOR

CDMA/LTE PHONE + BLUETOOTH, DTS/b/g/n

MODEL NUMBER: LGLS751, LG-LS751, LS751

FCC ID: ZNFLS751

REPORT NUMBER: 15I20527-E4

ISSUE DATE: MAY 6, 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

Issue			
Rev.	Date	Revisions	Revised By
---	05/6/15	Initial Issue	D. Corona

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	4
2. TEST METHODOLOGY	5
3. FACILITIES AND ACCREDITATION	5
4. CALIBRATION AND UNCERTAINTY	5
4.1. MEASURING INSTRUMENT CALIBRATION	5
4.2. SAMPLE CALCULATION	5
4.3. MEASUREMENT UNCERTAINTY	6
5. EQUIPMENT UNDER TEST	7
5.1. DESCRIPTION OF EUT	7
5.2. MAXIMUM OUTPUT POWER.....	7
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	7
5.4. WORST-CASE CONFIGURATION AND MODE	7
5.5. DESCRIPTION OF TEST SETUP.....	8
6. TEST AND MEASUREMENT EQUIPMENT	10
7. MEASUREMENT METHODS	11
8. SUMMARY TABLE	12
9. RADIATED TEST RESULTS.....	13
9.1. LIMITS AND PROCEDURE	13
9.2. TRANSMITTER ABOVE 1 GHz	14
9.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND	14
9.2.1. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND	27
9.2.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND.....	40
9.3. TRANSMITTER BELOW 1 GHz.....	53
10. SETUP PHOTOS	55
11. APPENDIX A GEO-LOCATION VALIDATION DATA.....	57

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC
EUT DESCRIPTION: CDMA/LTE PHONE + BLUETOOTH, DTS/b/g/n
MODEL: LGLS751, LG-LS751, LS751
SERIAL NUMBER: 1WEAD (Radiated), 1WEAC (Conducted)
DATE TESTED: APRIL 17-18, 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.

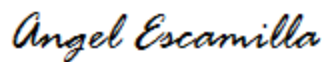
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. 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.

Approved & Released For
UL Verification Services Inc. By:



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

Tested By:



ANGEL ESCAMILLA
CONSUMER TECHNOLOGY DIVISION
WISE LAB ENGINEER
UL VERIFICATION SERVICES INC

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:

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a CDMA/LTE PHONE + BLUETOOTH, DTS/b/g/n.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

See original report for details.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna, with a maximum gain of -2.9dBi.

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.

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

802.11b mode: 1 Mbps

802.11g mode: 6 Mbps

802.11n HT20mode: MCS0

5.5. 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

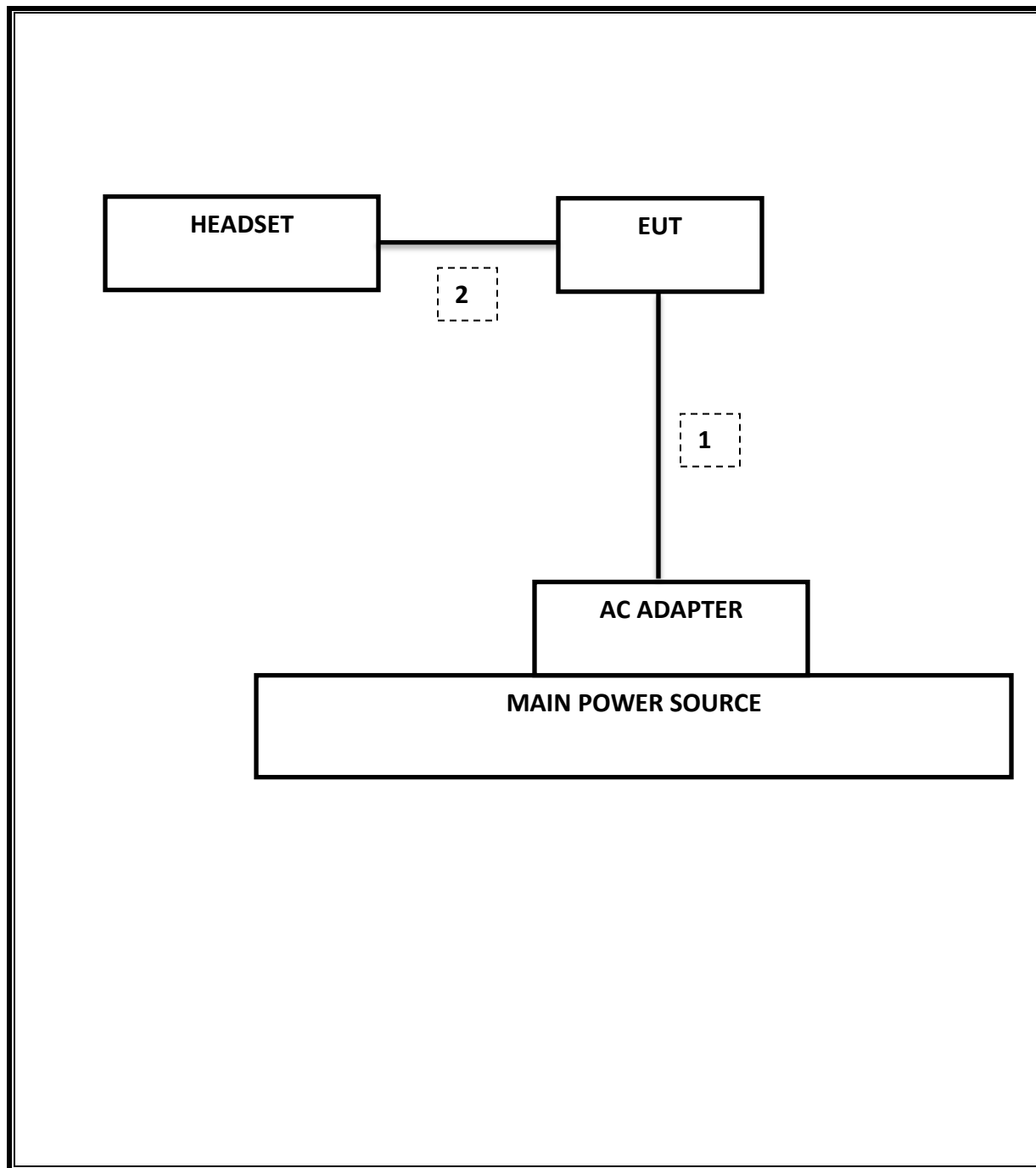
I/O CABLES

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

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer, 9KHz-40GHz	HP	8564E	106	08/06/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	100773	08/15/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 18GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/15
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	12/08/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/15
RF Preamplifier, 26GHz - 40GHz	Miteq	NSP4000-SP2	86	04/07/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/15
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 18GHz	Miteq	AFS42-00101800-25-S-42	1818466	05/09/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/15

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. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r02: Measurement Procedure AVGPM-G is used for power and AVGPS-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.

8. SUMMARY TABLE

C2PC reason: Please see LG FCC Class II cover letter for details.

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	See original
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	See original
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	See original
15.247	RSS-210 A8.2	PSD	<8dBm		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	43.54 dBuV/m

9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Frequency Range (MHz)	Field Strength Limit ($\mu\text{V}/\text{m}$) at 3 m	Field Strength Limit (dB $\mu\text{V}/\text{m}$) 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.

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 = $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.2dB; N mode = 0.32dB.

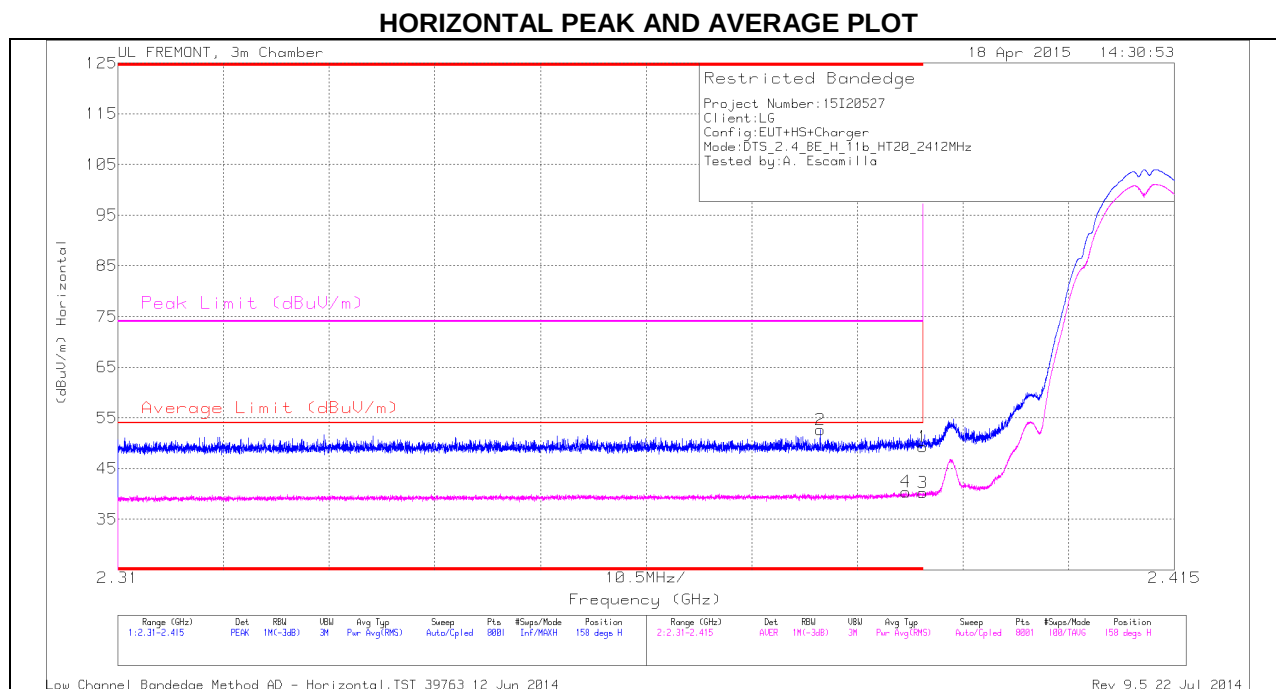
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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

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

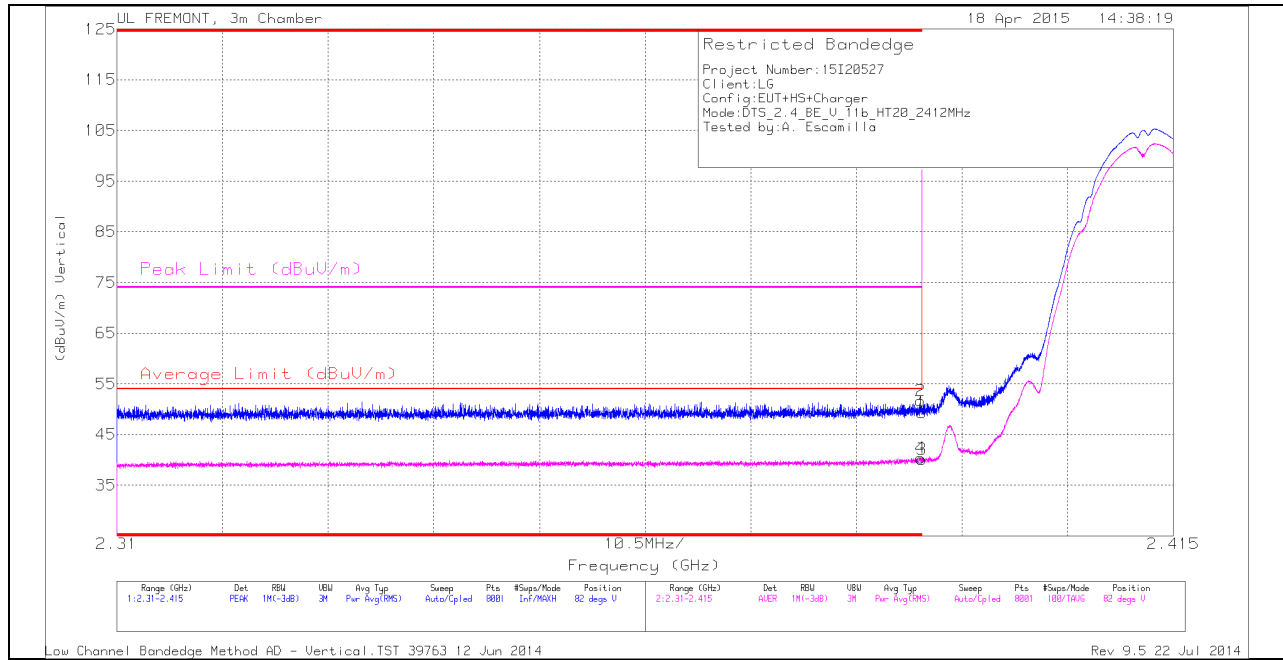
RESTRICTED BANDEDGE (LOW CHANNEL)



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.38	43.82	PK	31.9	-23.1	0	52.62	-	-	74	-21.38	158	320	H
4	* 2.388	31.48	RMS	32	-23.1	.04	40.42	54	-13.58	-	-	158	320	H
1	* 2.39	40.39	PK	32	-23.1	0	49.29	-	-	74	-24.71	158	320	H
3	* 2.39	31.32	RMS	32	-23.1	.04	40.26	54	-13.74	-	-	158	320	H

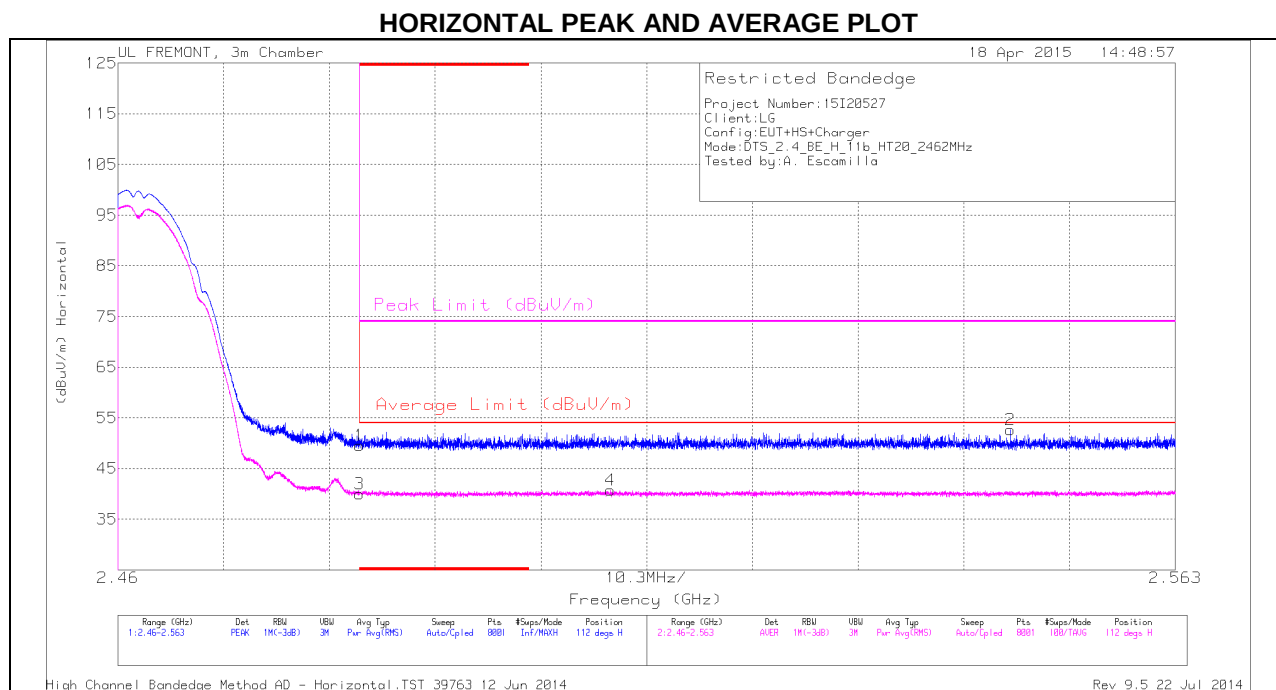
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT119 (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	40.4	PK	32	-23.1	49.3	-	-	74	-24.7	82	332	V
2	* 2.39	42.72	PK	32	-23.1	51.62	-	-	74	-22.38	82	332	V
3	* 2.39	31.19	RMS	32	-23.1	40.09	54	-13.91	-	-	82	332	V
4	* 2.39	31.41	RMS	32	-23.1	40.31	54	-13.69	-	-	82	332	V

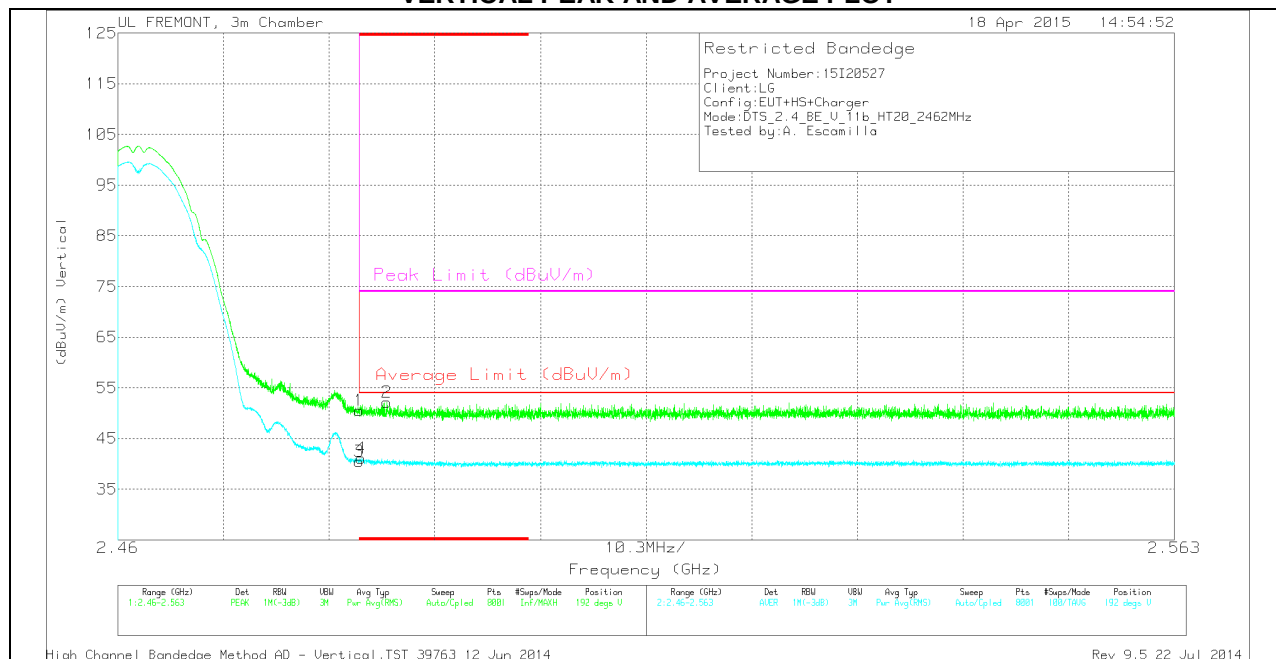
AUTHORIZED BANDEDGE (HIGH CHANNEL)



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40	PK	32.3	-22.8	0	49.5	-	-	74	-24.5	112	346	H
3	* 2.484	30.41	RMS	32.3	-22.8	.04	39.95	54	-14.05	-	-	112	346	H
4	2.508	31.24	RMS	32.3	-22.8	.04	40.78	54	-13.22	-	-	112	346	H
2	2.547	42.99	PK	32.4	-22.7	0	52.69	-	-	74	-21.31	112	346	H

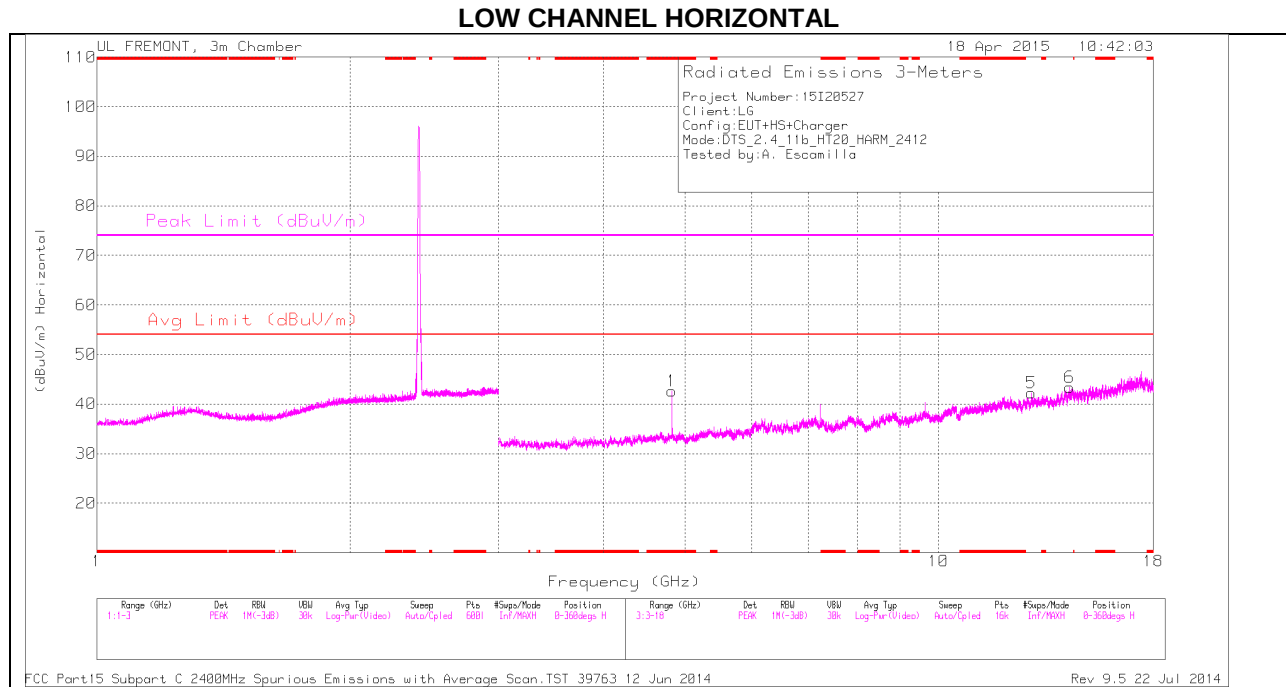
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

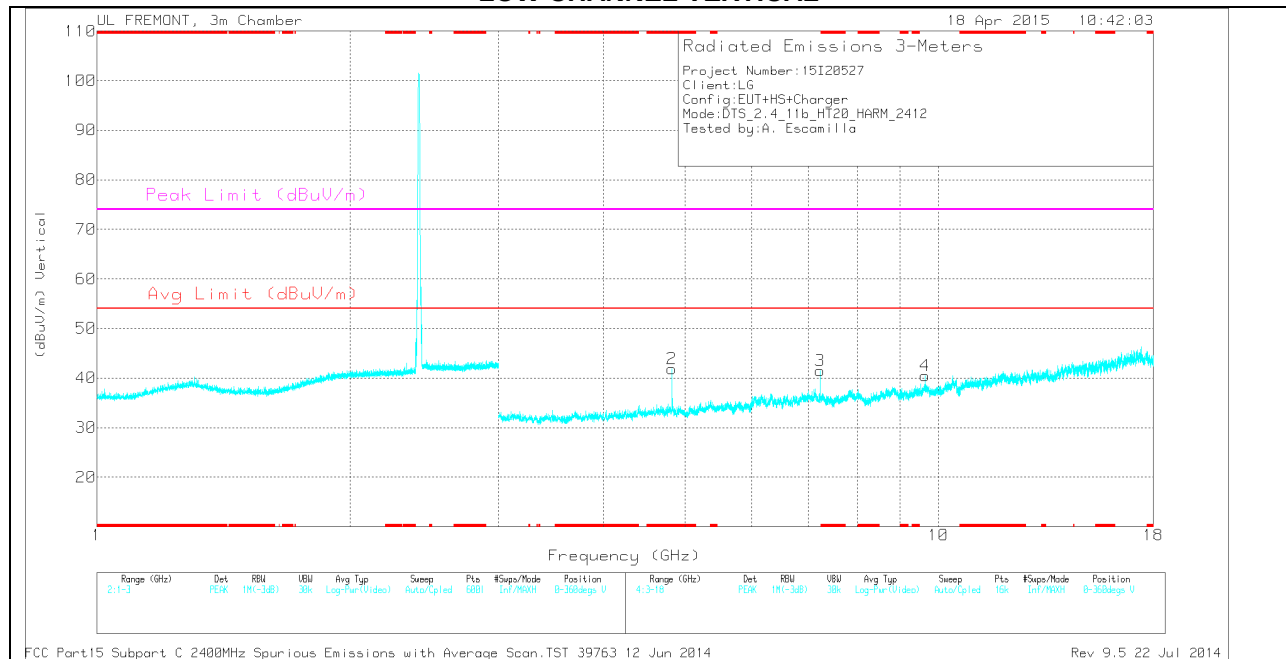
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Flt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	41.09	PK	32.3	-22.8	0	50.59	-	-	74	-23.41	192	276	V
3	* 2.484	30.96	RMS	32.3	-22.8	.04	40.5	54	-13.5	-	-	192	276	V
4	* 2.484	31.53	RMS	32.3	-22.8	.04	41.07	54	-12.93	-	-	192	276	V
2	* 2.486	42.6	PK	32.3	-22.8	0	52.1	-	-	74	-21.9	192	276	V

HARMONICS AND SPURIOUS EMISSIONS



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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

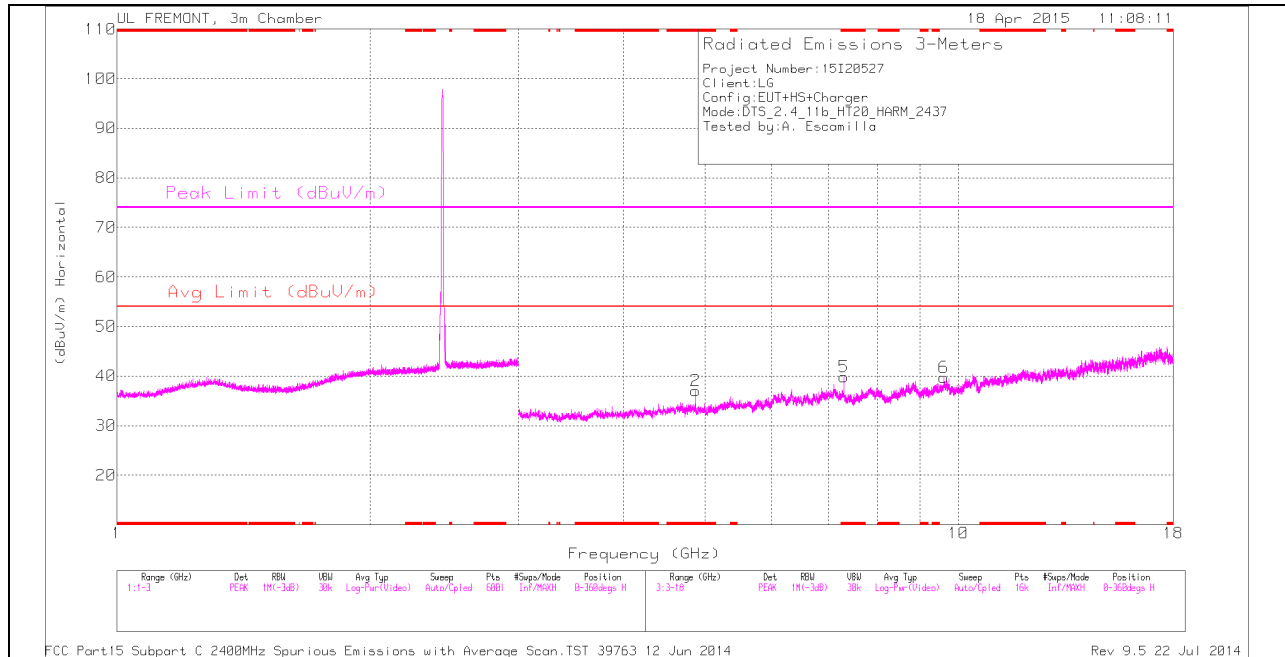
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.824	38.78	PK	34	-30.2	0	42.58	-	-	74	-31.42	0-360	100	H
2	* 4.824	38.08	PK	34	-30.2	0	41.88	-	-	74	-32.12	0-360	100	V
3	7.235	35.6	PK	35.6	-29.7	0	41.5	-	-	-	-	0-360	200	V
4	9.647	29.22	PK	36.8	-25.6	0	40.42	-	-	-	-	0-360	100	V
5	12.894	30.2	PK	39.1	-27	0	42.3	-	-	-	-	0-360	200	H
6	14.306	31.15	PK	39.4	-27.2	0	43.35	-	-	-	-	0-360	100	H

PK - Peak detector

RADIATED EMISSIONS

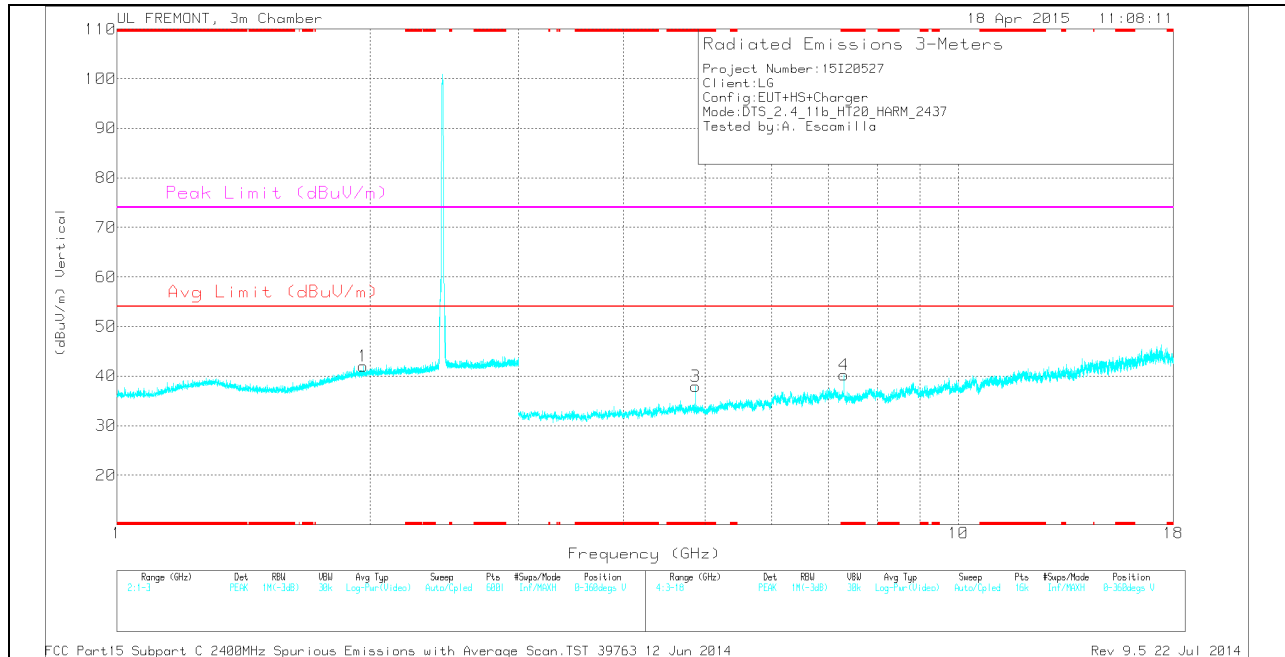
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.824	45.76	PK2	34	-30.3	0	49.46	-	-	74	-24.54	262	110	H
* 4.824	39.97	MAV1	34	-30.3	0	43.67	54	-10.33	-	-	262	110	H
* 4.824	44.63	PK2	34	-30.3	0	48.33	-	-	74	-25.67	233	100	V
* 4.824	38.6	MAV1	34	-30.3	0	42.3	54	-11.7	-	-	233	100	V

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA

TRACE MARKERS

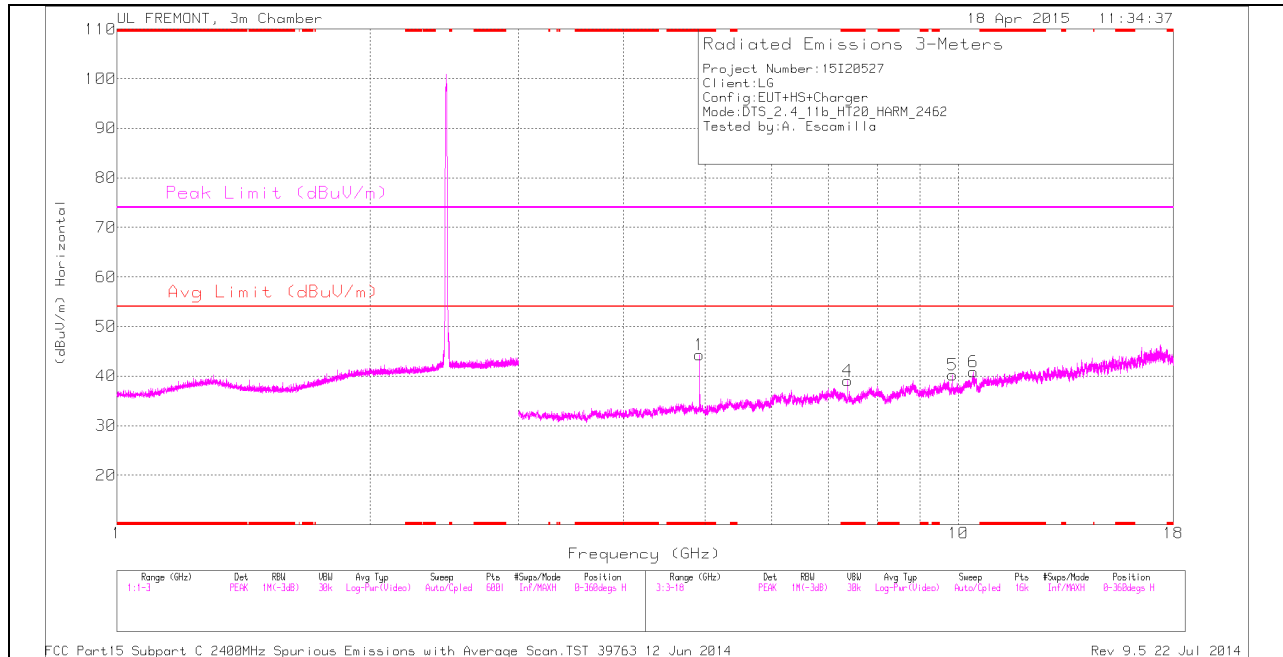
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.874	33.1	PK	34	-30.1	0	37	-	-	74	-37	0-360	100	H
5	* 7.31	32.84	PK	35.6	-28.6	0	39.84	-	-	74	-34.16	0-360	100	H
3	* 4.874	33.98	PK	34	-30.1	0	37.88	-	-	74	-36.12	0-360	200	V
4	* 7.309	33.22	PK	35.6	-28.6	0	40.22	-	-	74	-33.78	0-360	200	V
1	1.961	33.95	PK	31.4	-23.3	0	42.05	-	-	-	-	0-360	200	V
6	9.609	28.31	PK	36.7	-25.3	0	39.71	-	-	-	-	0-360	200	H

PK - Peak detector

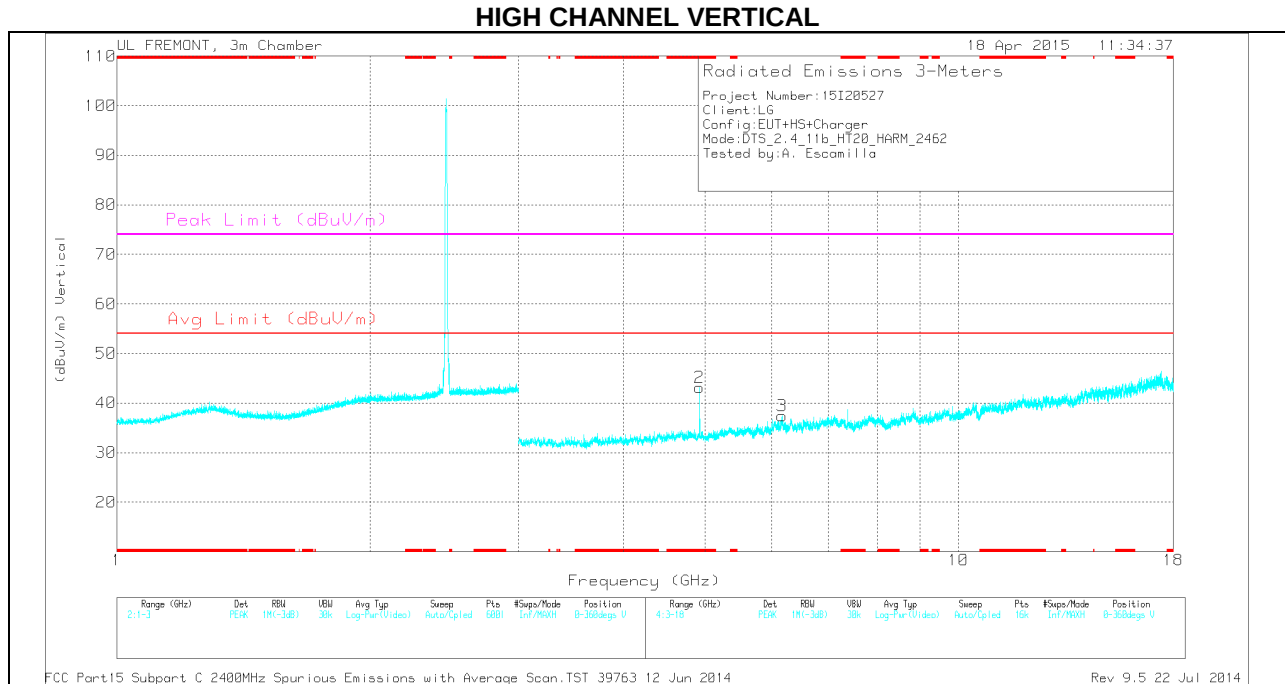
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	41.44	PK2	34	-30.1	0	45.34	-	-	74	-28.66	343	101	H
* 4.874	32.62	MAV1	34	-30.1	0	36.52	54	-17.48	-	-	343	101	H
* 7.311	42.09	PK2	35.6	-28.6	0	49.09	-	-	74	-24.91	287	346	H
* 7.312	33.11	MAV1	35.6	-28.6	0	40.11	54	-13.89	-	-	287	346	H
* 4.874	42.72	PK2	34	-30.1	0	46.62	-	-	74	-27.38	262	207	V
* 4.874	34.17	MAV1	34	-30.1	0	38.07	54	-15.93	-	-	262	207	V
* 7.31	41.64	PK2	35.6	-28.6	0	48.64	-	-	74	-25.36	226	195	V
* 7.31	31.87	MAV1	35.6	-28.6	0	38.87	54	-15.13	-	-	226	195	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.



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /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	* 4.924	40.67	PK	34	-30.4	0	44.27	-	-	74	-29.73	0-360	100	H
4	* 7.386	31.78	PK	35.6	-28.3	0	39.08	-	-	74	-34.92	0-360	100	H
2	* 4.924	39.59	PK	34	-30.4	0	43.19	-	-	74	-30.81	0-360	200	V
3	6.17	31.97	PK	35.3	-29.8	0	37.47	-	-	-	-	0-360	100	V
5	9.847	29.27	PK	36.9	-25.9	0	40.27	-	-	-	-	0-360	200	H
6	10.412	28.66	PK	37.3	-25.1	0	40.86	-	-	-	-	0-360	100	H

PK - Peak detector

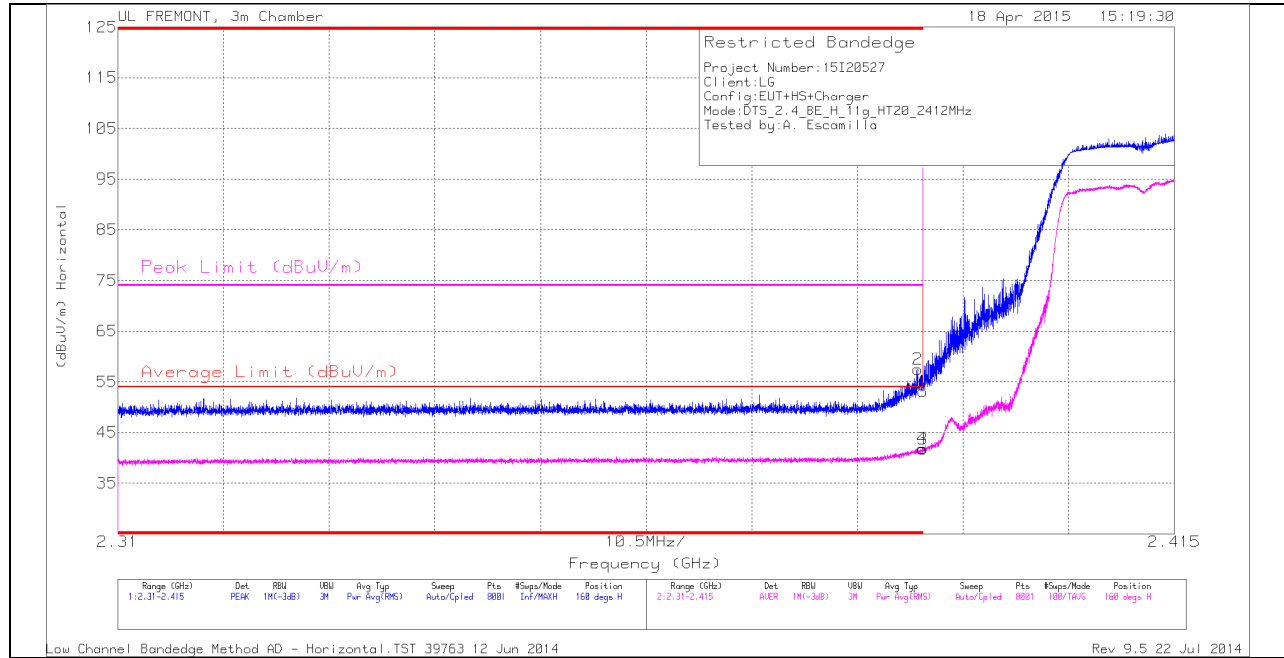
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.924	46.39	PK2	34	-30.4	0	49.99	-	-	74	-24.01	263	120	H
* 4.924	40.87	MAV1	34	-30.4	0	44.47	54	-9.53	-	-	263	120	H
* 7.387	42.08	PK2	35.6	-28.3	0	49.38	-	-	74	-24.62	290	360	H
* 7.387	32.83	MAV1	35.6	-28.3	0	40.13	54	-13.87	-	-	290	360	H
* 4.924	46.17	PK2	34	-30.4	0	49.77	-	-	74	-24.23	278	222	V
* 4.924	39.62	MAV1	34	-30.4	0	43.22	54	-10.78	-	-	278	222	V

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

RESTRICTED BANDEDGE (LOW CHANNEL)

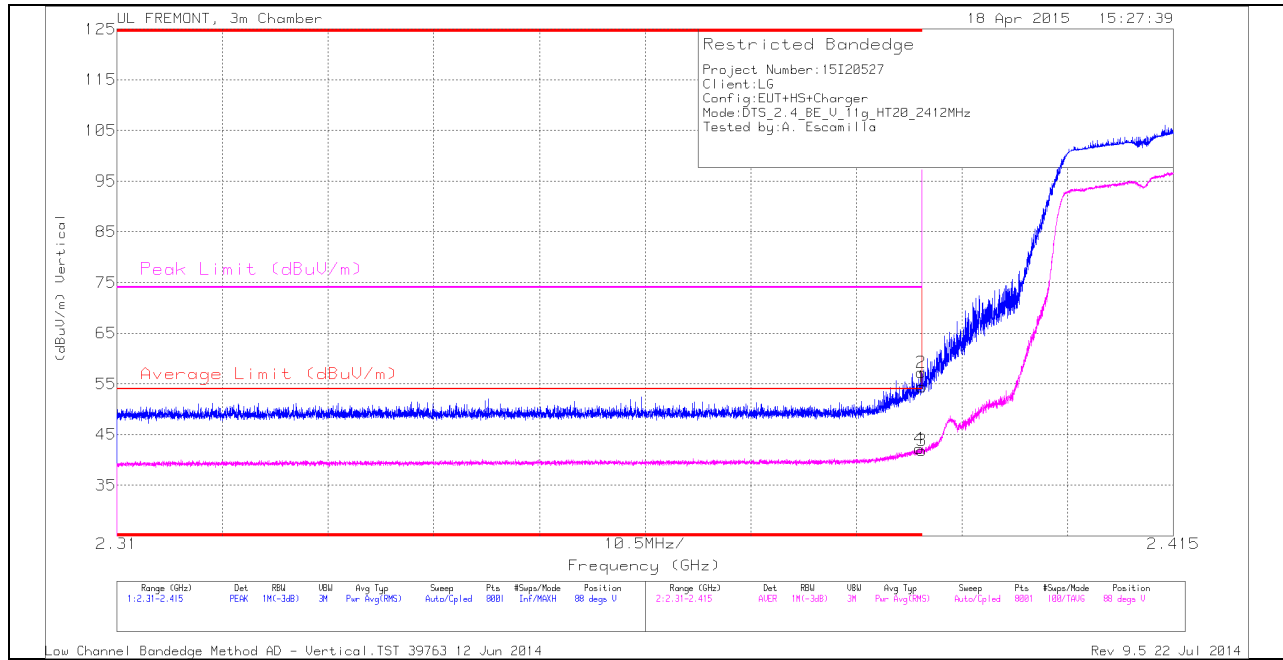
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.389	48.55	PK	32	-23.1	0	57.45	-	-	74	-16.55	160	321	H
1	* 2.39	44.21	PK	32	-23.1	0	53.11	-	-	74	-20.89	160	321	H
3	* 2.39	32.68	RMS	32	-23.1	.2	41.78	54	-12.22	-	-	160	321	H
4	* 2.39	32.75	RMS	32	-23.1	.2	41.85	54	-12.15	-	-	160	321	H

VERTICAL PEAK AND AVERAGE PLOT

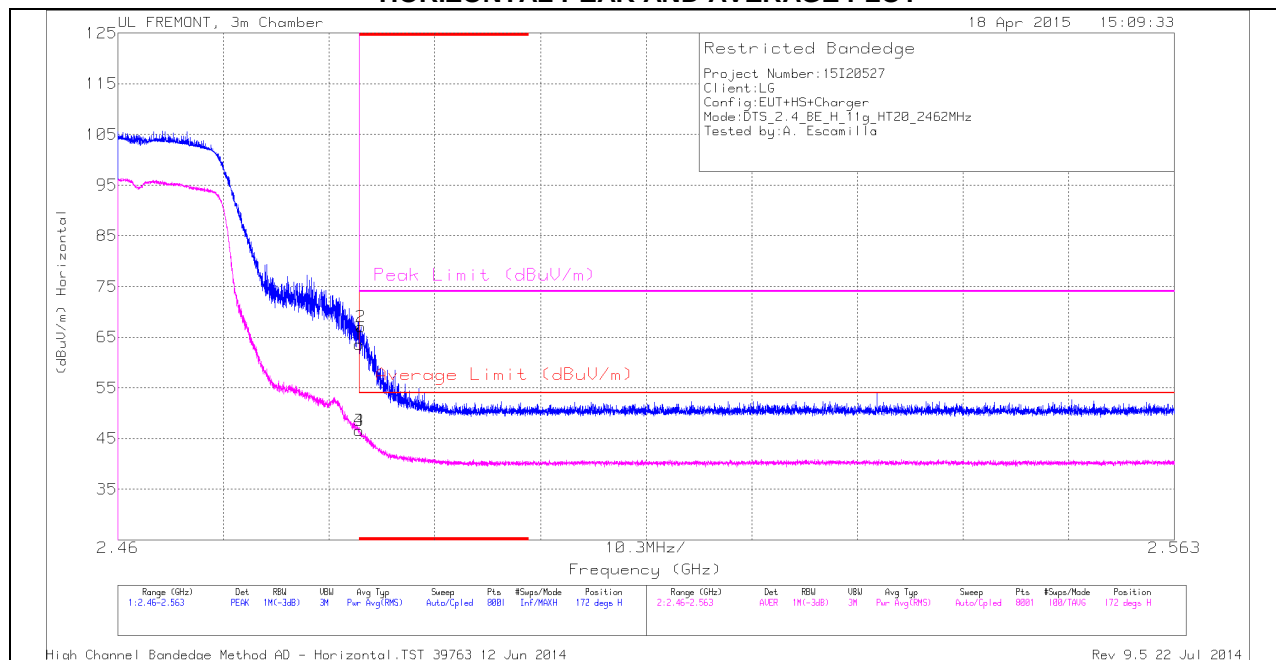


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.45	PK	32	-23.1	0	54.35	-	-	74	-19.65	88	332	V
2	* 2.39	48.29	PK	32	-23.1	0	57.19	-	-	74	-16.81	88	332	V
3	* 2.39	32.74	RMS	32	-23.1	.2	41.84	54	-12.16	-	-	88	332	V
4	* 2.39	33.09	RMS	32	-23.1	.2	42.19	54	-11.81	-	-	88	332	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

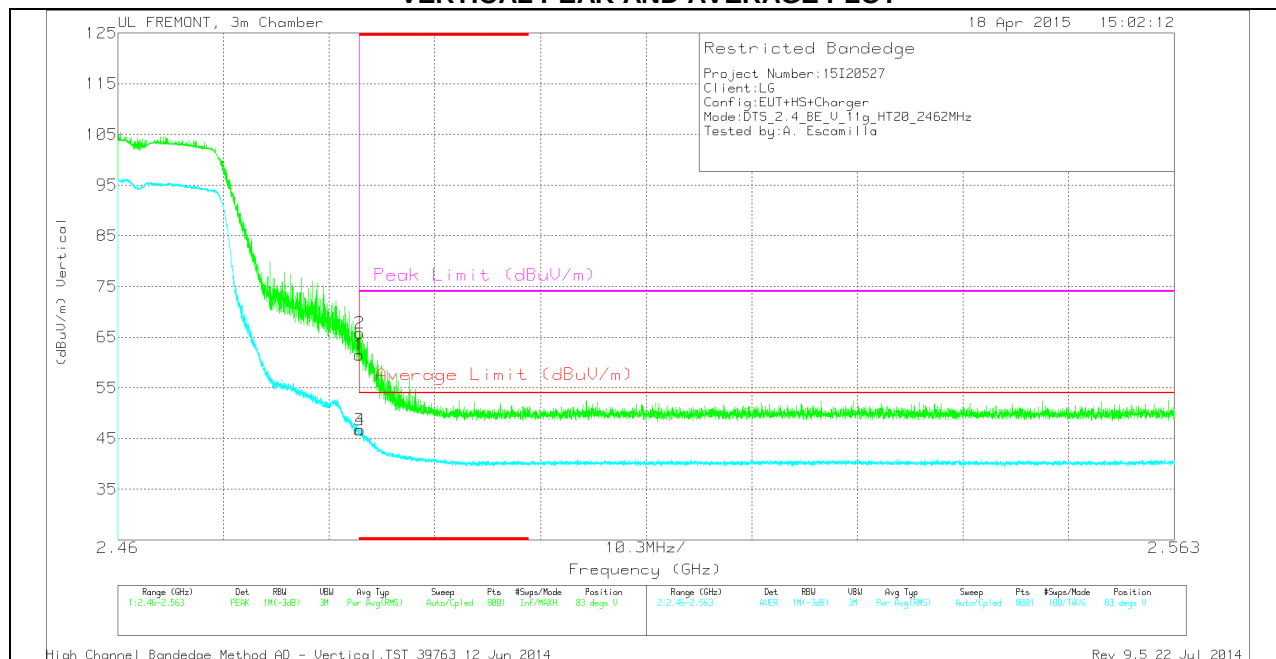
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	54.14	PK	32.3	-22.8	0	63.64	-	-	74	-10.36	172	263	H
2	* 2.484	57.51	PK	32.3	-22.8	0	67.01	-	-	74	-6.99	172	263	H
3	* 2.484	36.88	RMS	32.3	-22.8	.2	46.58	54	-7.42	-	-	172	263	H
4	* 2.484	36.88	RMS	32.3	-22.8	.2	46.58	54	-7.42	-	-	172	263	H

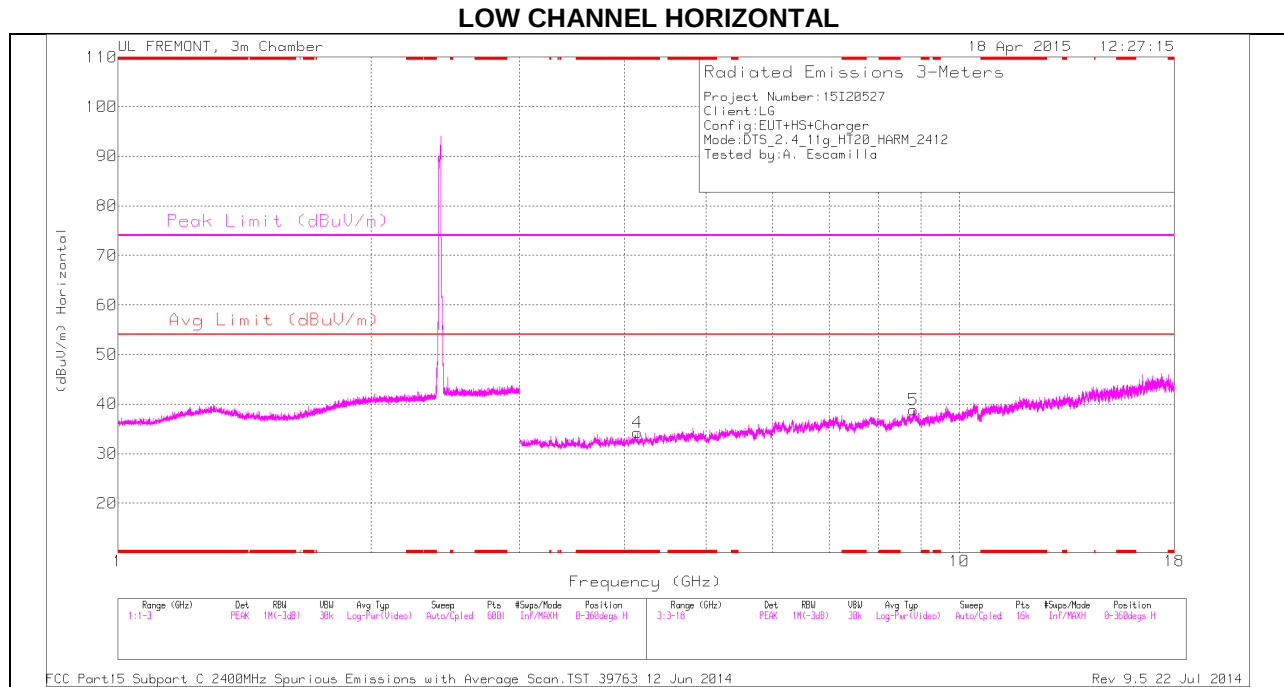
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

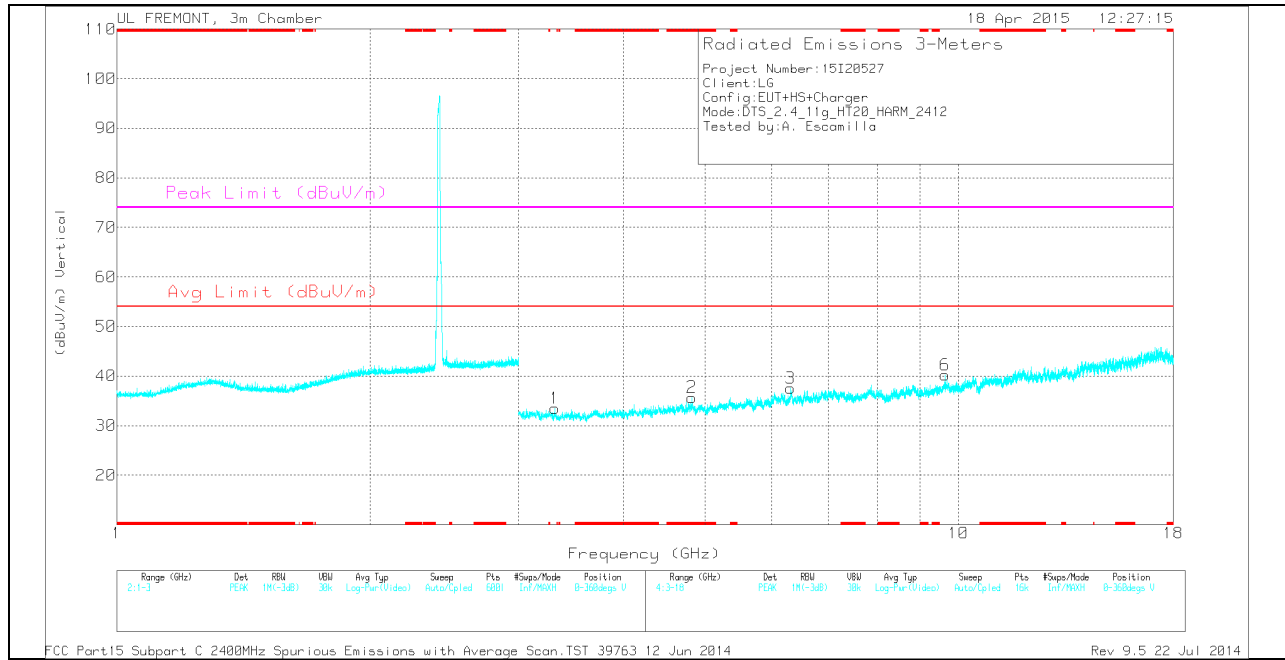
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	51.97	PK	32.3	-22.8	0	61.47	-	-	74	-12.53	83	267	V
2	* 2.484	56.32	PK	32.3	-22.8	0	65.82	-	-	74	-8.18	83	267	V
3	* 2.484	37.02	RMS	32.3	-22.8	.2	46.72	54	-7.28	-	-	83	267	V
4	* 2.484	37.02	RMS	32.3	-22.8	.2	46.72	54	-7.28	-	-	83	267	V

HARMONICS AND SPURIOUS EMISSIONS



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

LOW CHANNEL VERTICAL



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

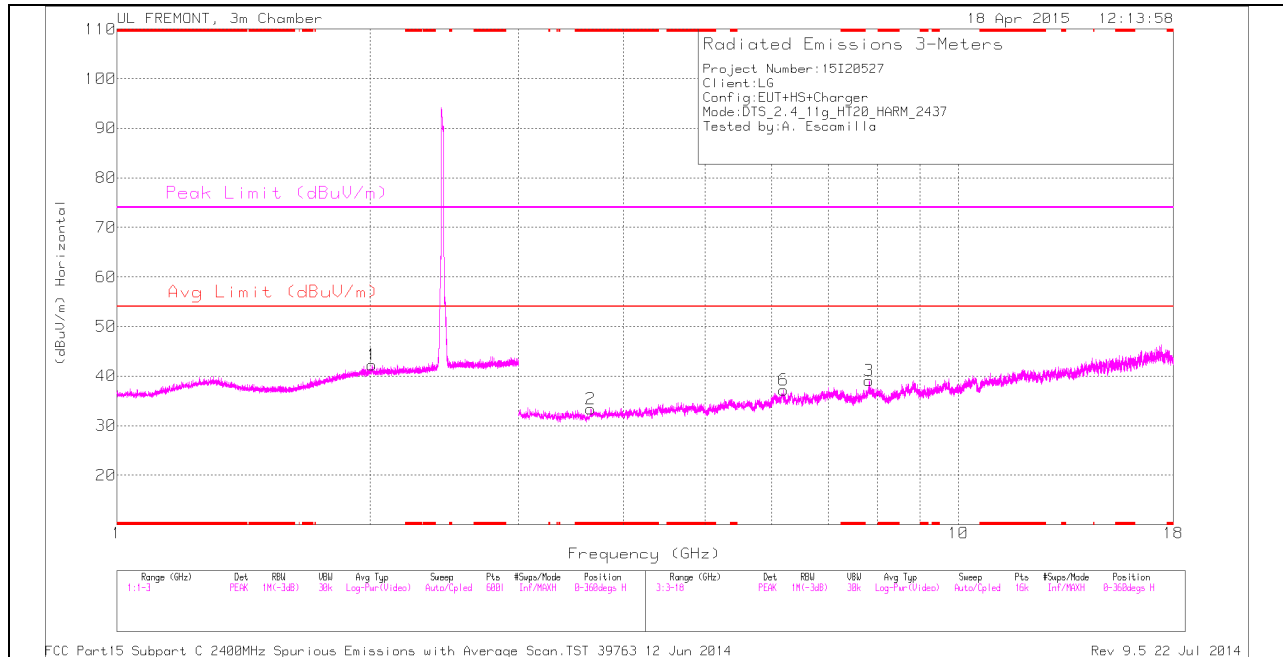
LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.143	32	PK	33.3	-31	0	34.3	-	-	74	-39.7	0-360	100	H
2	* 4.822	32.01	PK	34	-30.3	0	35.71	-	-	74	-38.29	0-360	100	V
1	3.312	32.29	PK	32.6	-31.4	0	33.49	-	-	-	-	0-360	200	V
3	6.32	31.61	PK	35.4	-29.4	0	37.61	-	-	-	-	0-360	100	V
5	8.819	29.48	PK	35.9	-26.6	0	38.78	-	-	-	-	0-360	200	H
6	9.647	28.99	PK	36.8	-25.6	0	40.19	-	-	-	-	0-360	100	V

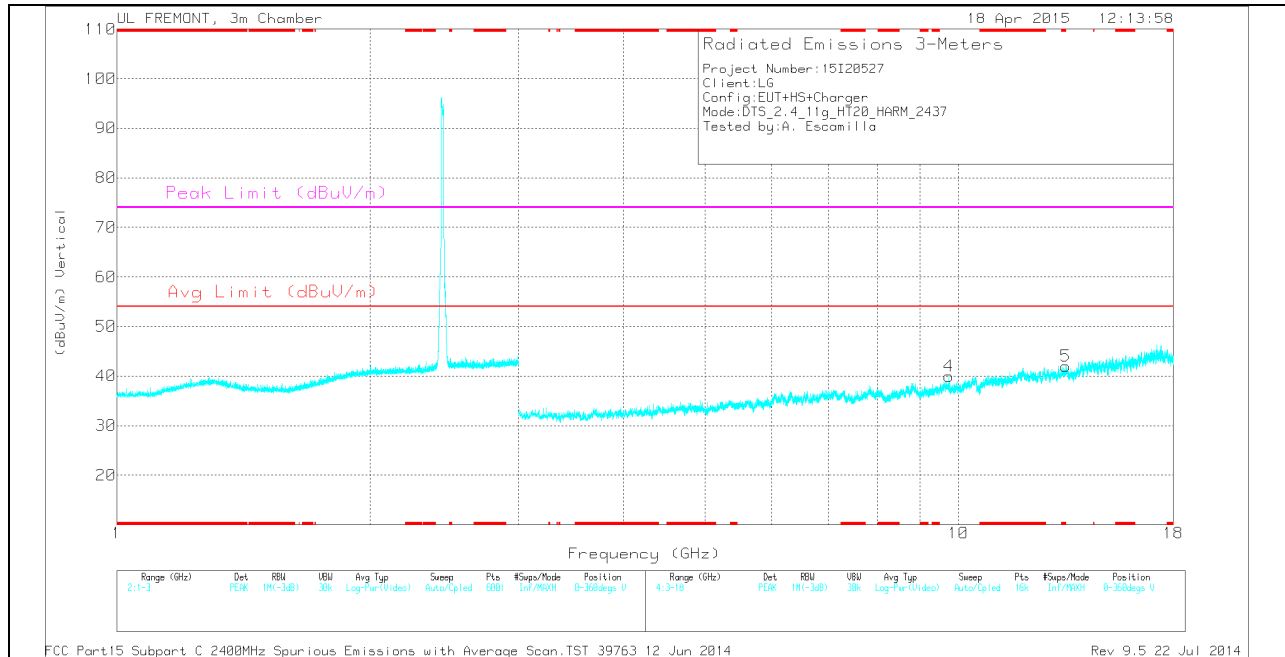
PK - Peak detector

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

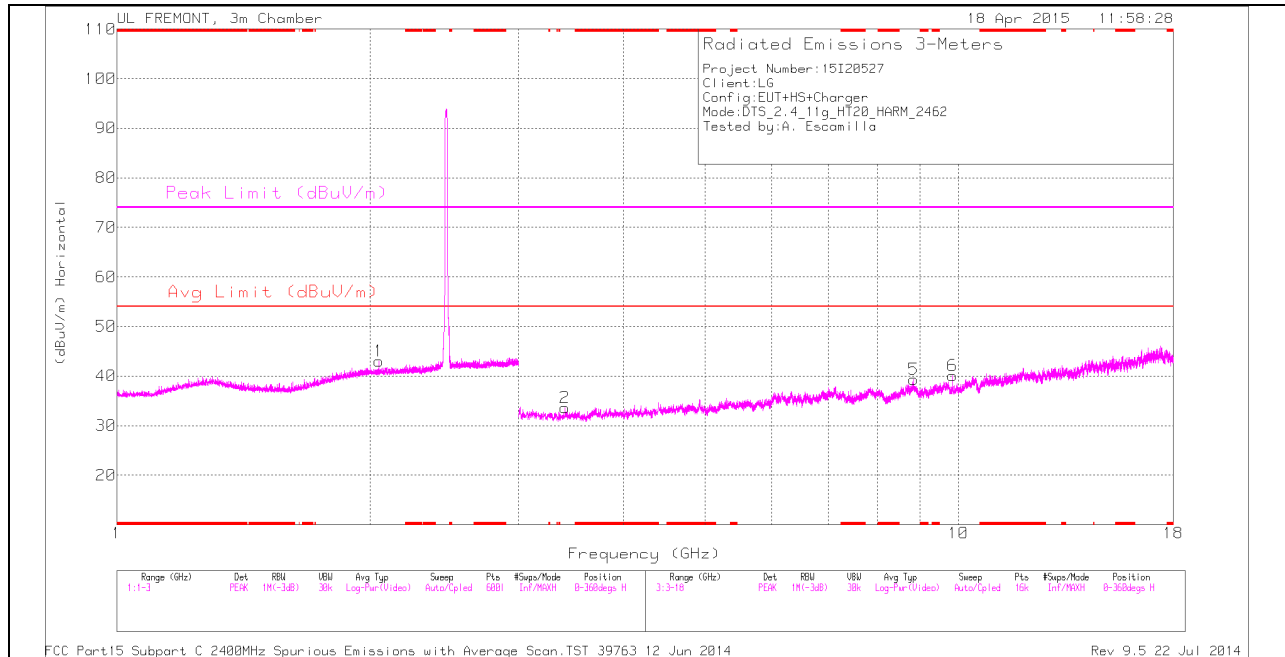
MID CHANNEL DATA

TRACE MARKERS

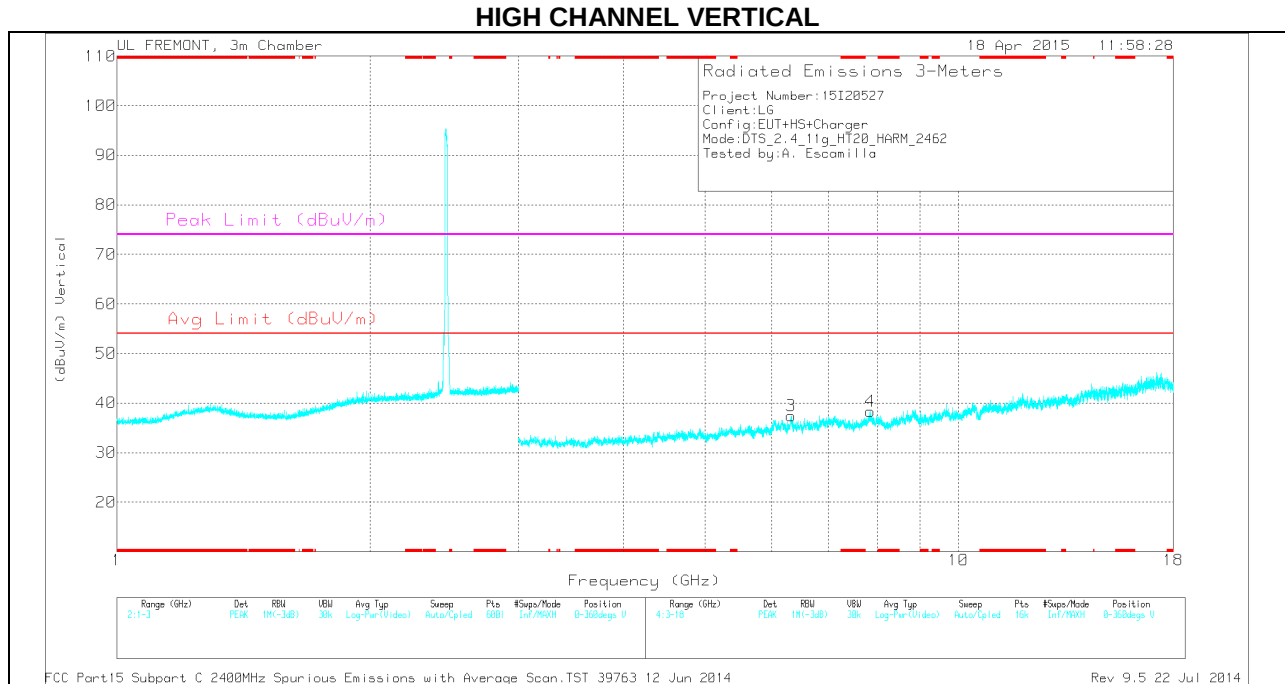
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filt /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.658	31.58	PK	32.9	-31.1	0	33.38	-	-	74	-40.62	0-360	200	H
1	2.008	33.94	PK	31.5	-23.2	0	42.24	-	-	-	-	0-360	200	H
6	6.195	32.03	PK	35.3	-30.2	0	37.13	-	-	-	-	0-360	100	H
3	7.835	30.72	PK	35.8	-27.5	0	39.02	-	-	-	-	0-360	100	H
4	9.748	28.73	PK	36.9	-25.7	0	39.93	-	-	-	-	0-360	100	V
5	13.407	30.02	PK	39	-27	0	42.02	-	-	-	-	0-360	100	V

PK - Peak detector

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.



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

HIGH CHANNEL DATA

TRACE MARKERS

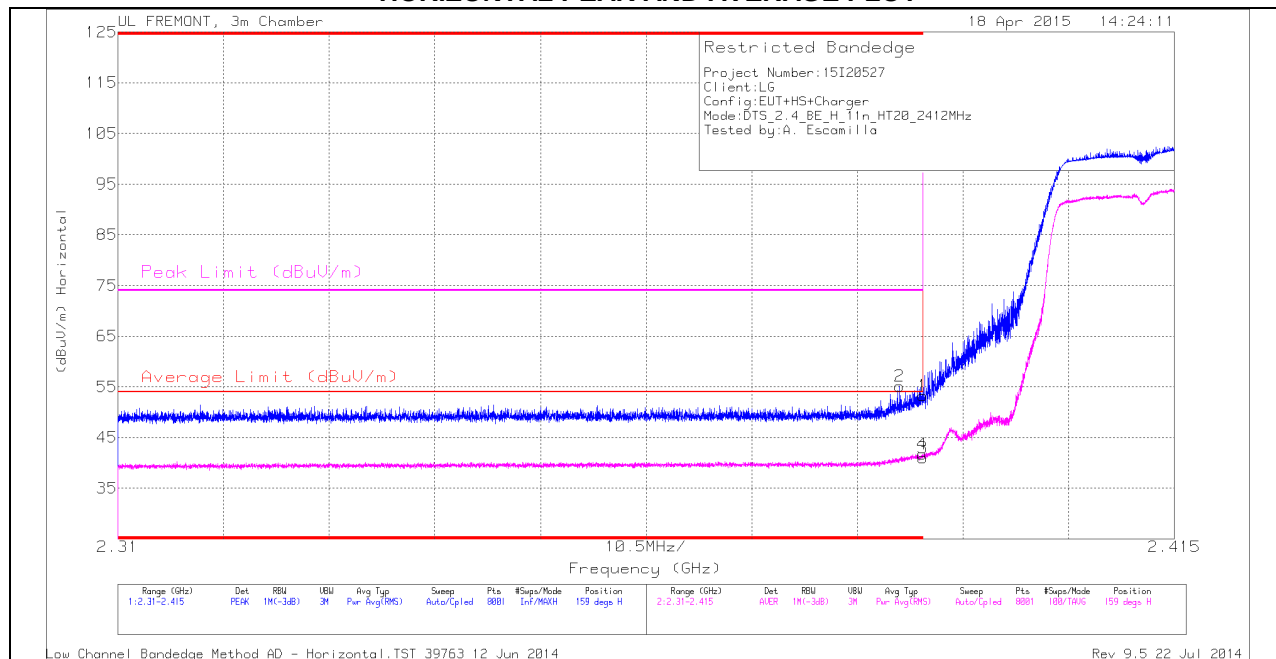
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.049	34.57	PK	31.5	-23.1	0	42.97	-	-	-	-	0-360	100	H
2	3.406	32.61	PK	32.7	-31.7	0	33.61	-	-	-	-	0-360	100	H
3	6.321	31.27	PK	35.4	-29.3	0	37.37	-	-	-	-	0-360	100	V
4	7.859	29.82	PK	35.8	-27.3	0	38.32	-	-	-	-	0-360	100	V
5	8.844	30.01	PK	35.9	-26.6	0	39.31	-	-	-	-	0-360	100	H
6	9.847	29.04	PK	36.9	-25.9	0	40.04	-	-	-	-	0-360	100	H

PK - Peak detector

9.2.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

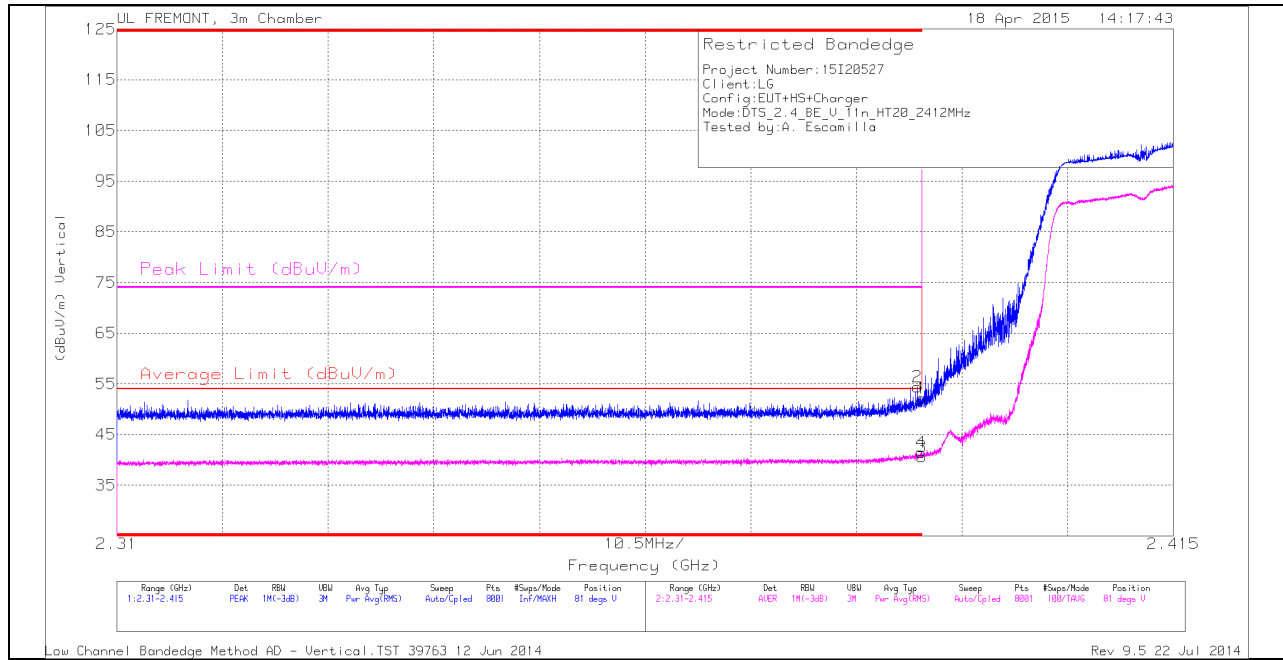
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.388	46.2	PK	32	-23.1	0	55.1	-	-	74	-18.9	159	319	H
1	* 2.39	44.35	PK	32	-23.1	0	53.25	-	-	74	-20.75	159	319	H
3	* 2.39	31.71	RMS	32	-23.1	.32	40.93	54	-13.07	-	-	159	319	H
4	* 2.39	32.5	RMS	32	-23.1	.32	41.72	54	-12.28	-	-	159	319	H

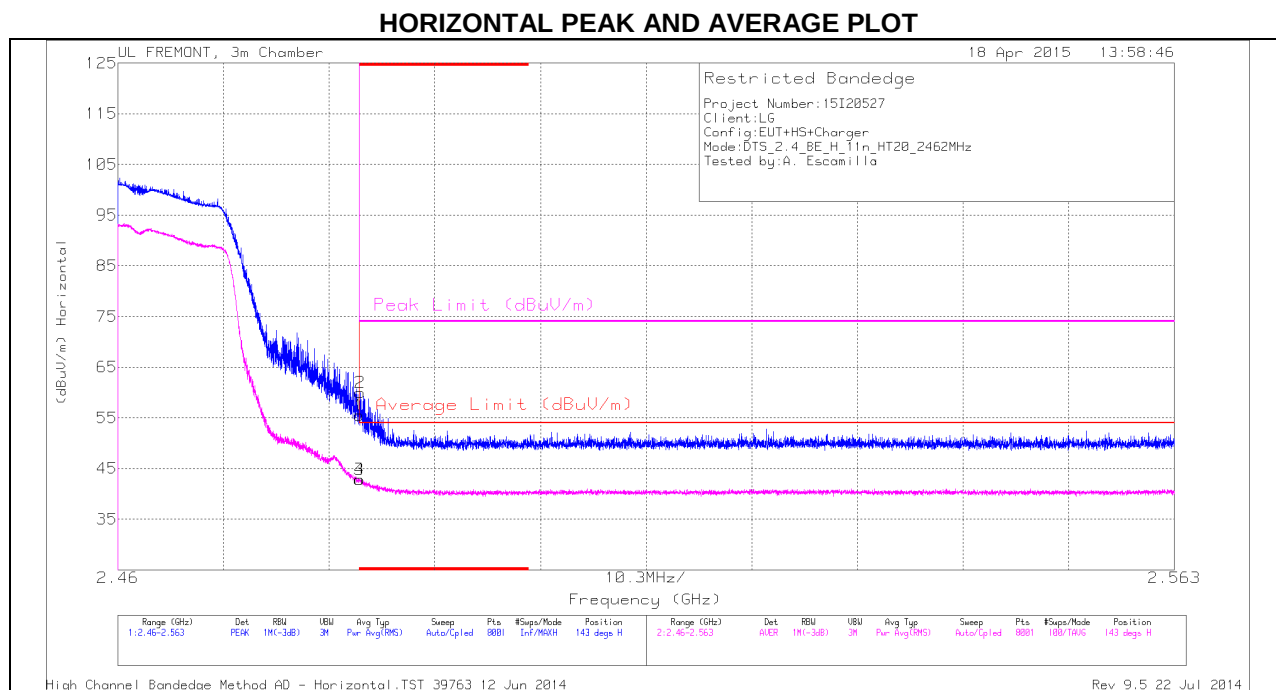
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	43.28	PK	32	-23.1	0	52.18	-	-	74	-21.82	81	332	V
2	* 2.39	45.44	PK	32	-23.1	0	54.34	-	-	74	-19.66	81	332	V
3	* 2.39	31.41	RMS	32	-23.1	.32	40.63	54	-13.37	-	-	81	332	V
4	* 2.39	32.24	RMS	32	-23.1	.32	41.46	54	-12.54	-	-	81	332	V

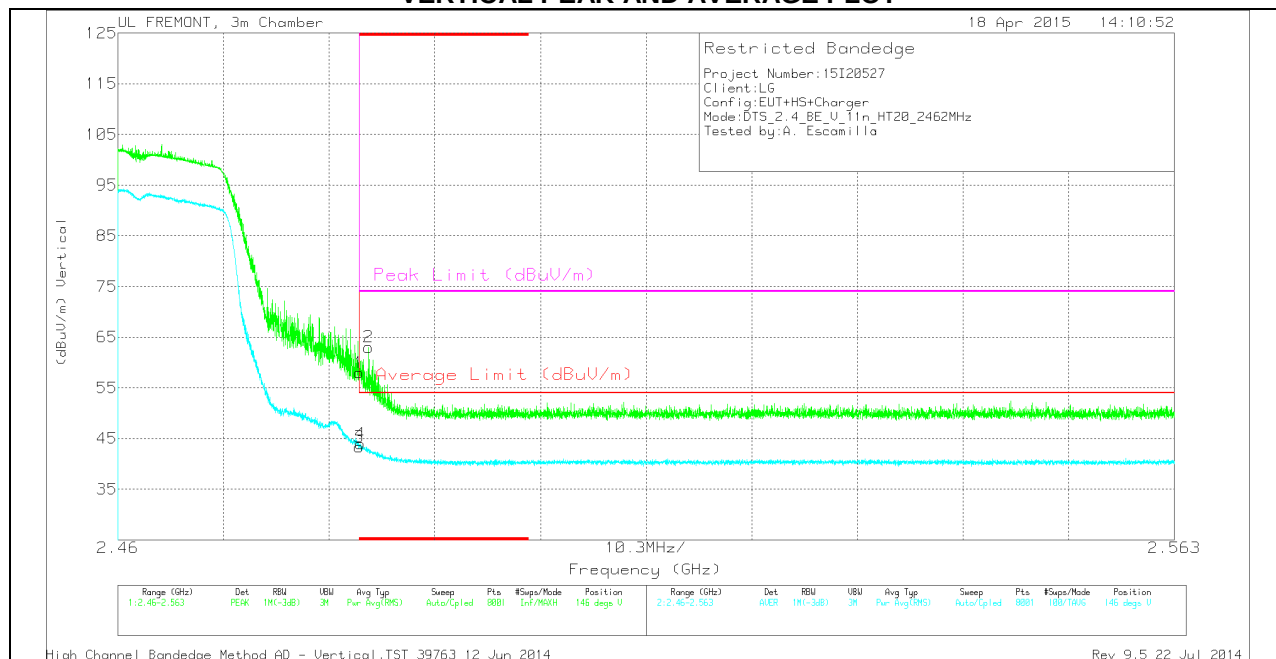
AUTHORIZED BANDEDGE (HIGH CHANNEL)



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	46.02	PK	32.3	-22.8	0	55.52	-	-	74	-18.48	143	308	H
2	* 2.484	50.5	PK	32.3	-22.8	0	60	-	-	74	-14	143	308	H
3	* 2.484	33.03	RMS	32.3	-22.8	.32	42.85	54	-11.15	-	-	143	308	H
4	* 2.484	33.06	RMS	32.3	-22.8	.32	42.88	54	-11.12	-	-	143	308	H

VERTICAL PEAK AND AVERAGE PLOT

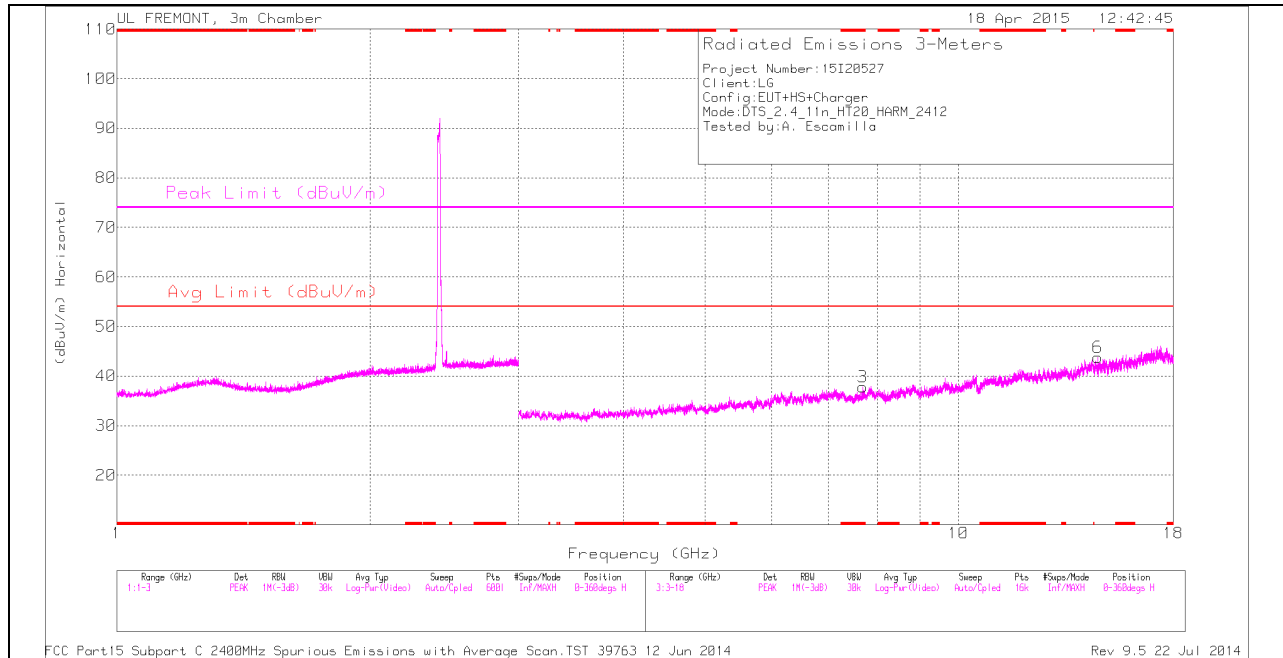


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/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	48.44	PK	32.3	-22.8	0	57.94	-	-	74	-16.06	146	324	V
2	* 2.484	53.52	PK	32.3	-22.8	0	63.02	-	-	74	-10.98	146	324	V
3	* 2.484	33.57	RMS	32.3	-22.8	.32	43.39	54	-10.61	-	-	146	324	V
4	* 2.484	34.17	RMS	32.3	-22.8	.32	43.99	54	-10.01	-	-	146	324	V

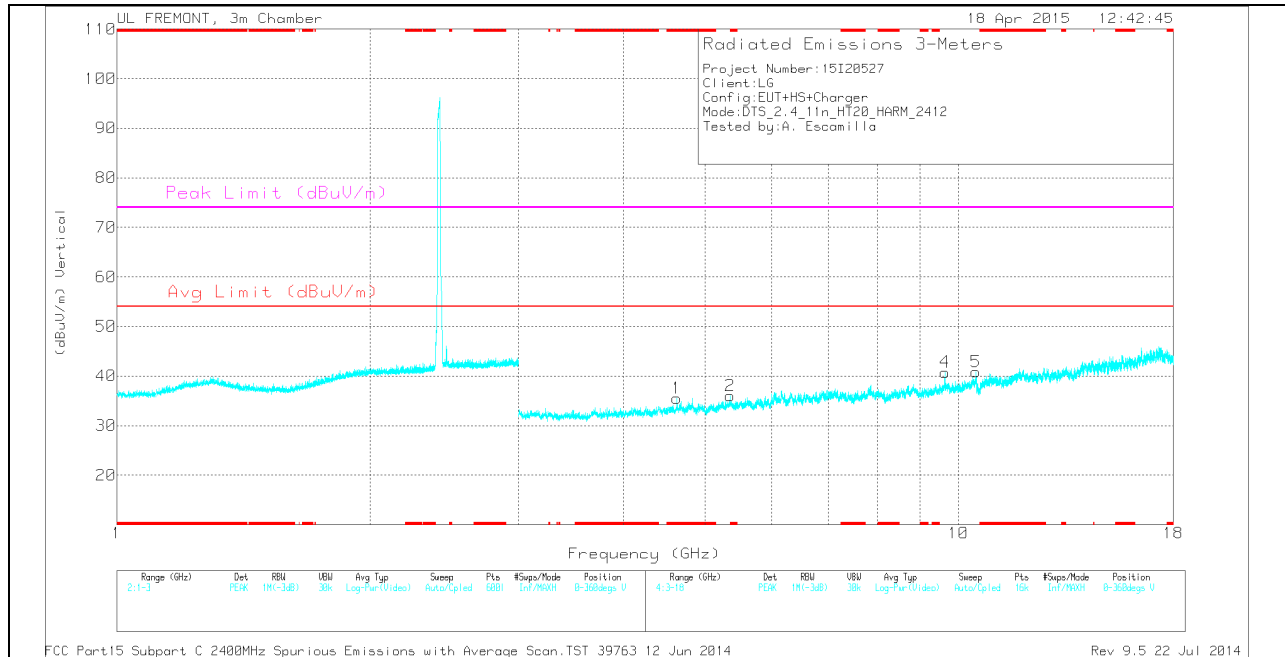
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

LOW CHANNEL VERTICAL



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

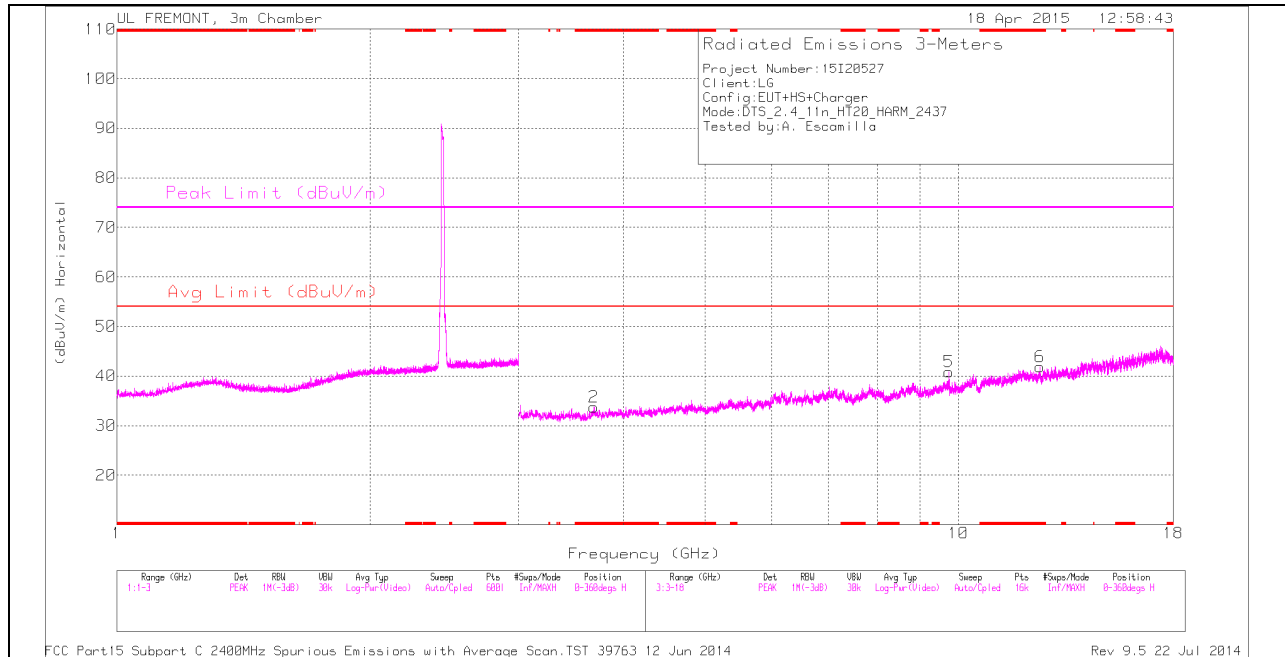
LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.626	32.23	PK	33.9	-30.6	0	35.53	-	-	74	-38.47	0-360	200	V
2	* 5.35	31.39	PK	34.5	-29.9	0	35.99	-	-	74	-38.01	0-360	100	V
3	* 7.7	30.96	PK	35.8	-29	0	37.76	-	-	74	-36.24	0-360	200	H
5	10.496	28.9	PK	37.5	-25.6	0	40.8	-	-	-	-	0-360	100	V
6	14.647	31.03	PK	39.8	-27	0	43.83	-	-	-	-	0-360	100	H
4	9.647	29.59	PK	36.8	-25.6	0	40.79	-	-	-	-	0-360	200	V

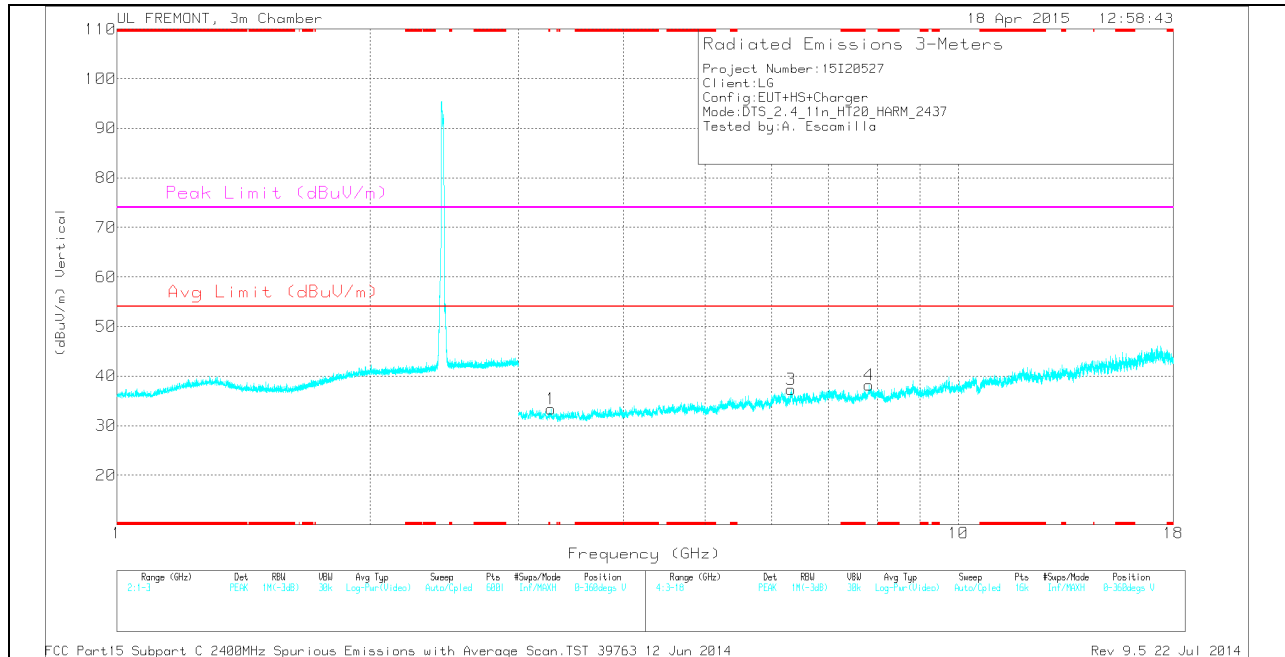
PK - Peak detector

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

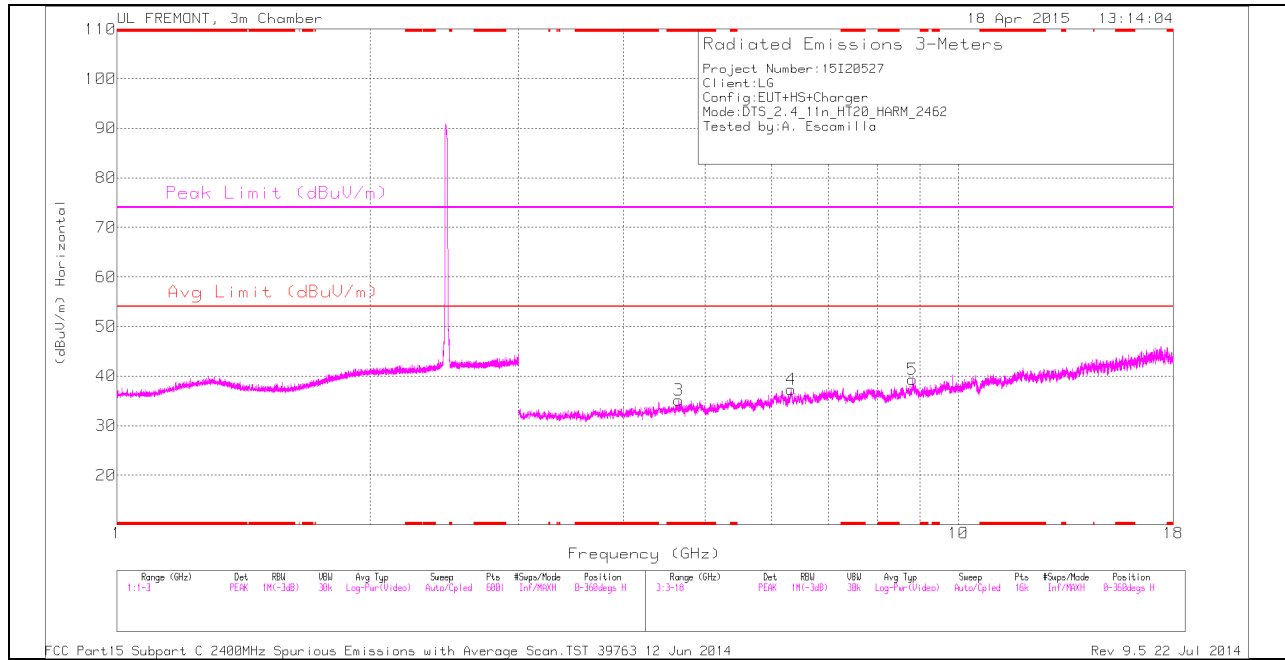
MID CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filt /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
6	* 12.49	29.58	PK	39	-26.7	0	41.88	-	-	74	-32.12	0-360	100	H
2	* 3.684	31.49	PK	33	-30.7	0	33.79	-	-	74	-40.21	0-360	100	H
1	3.279	32.5	PK	32.6	-31.7	0	33.4	-	-	-	-	0-360	100	V
3	6.323	31.17	PK	35.4	-29.3	0	37.27	-	-	-	-	0-360	200	V
4	7.832	29.97	PK	35.8	-27.6	0	38.17	-	-	-	-	0-360	100	V
5	9.748	29.7	PK	36.9	-25.7	0	40.9	-	-	-	-	0-360	200	H

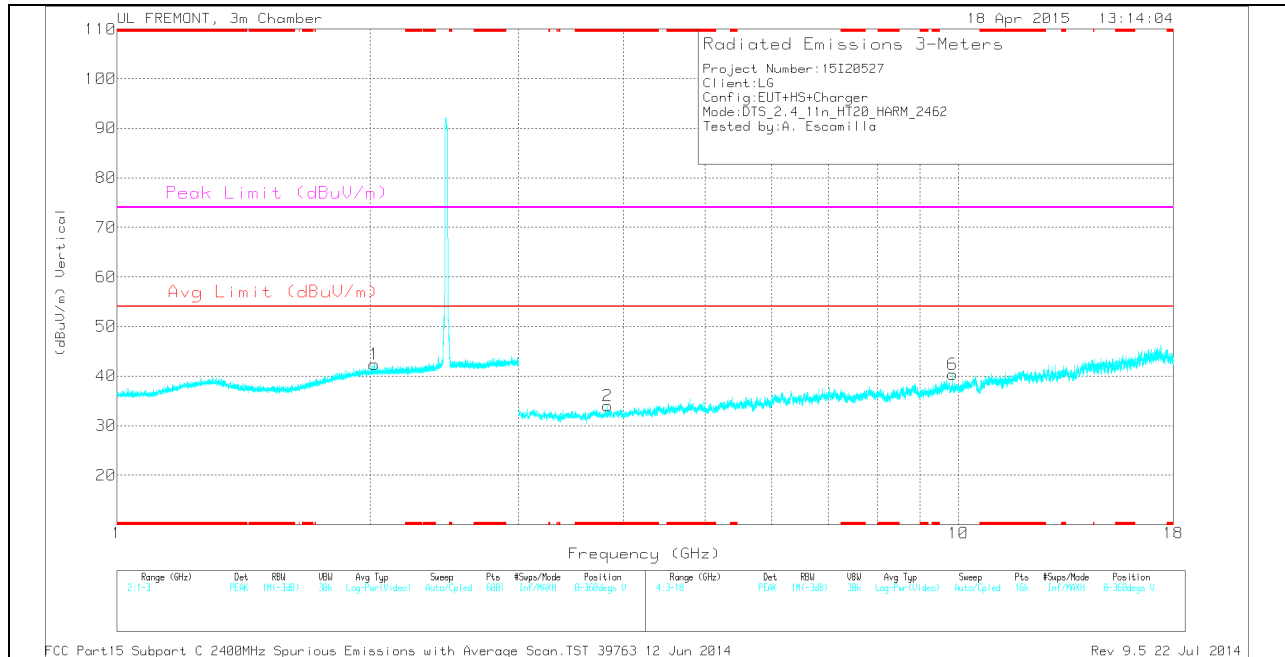
PK - Peak detector

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

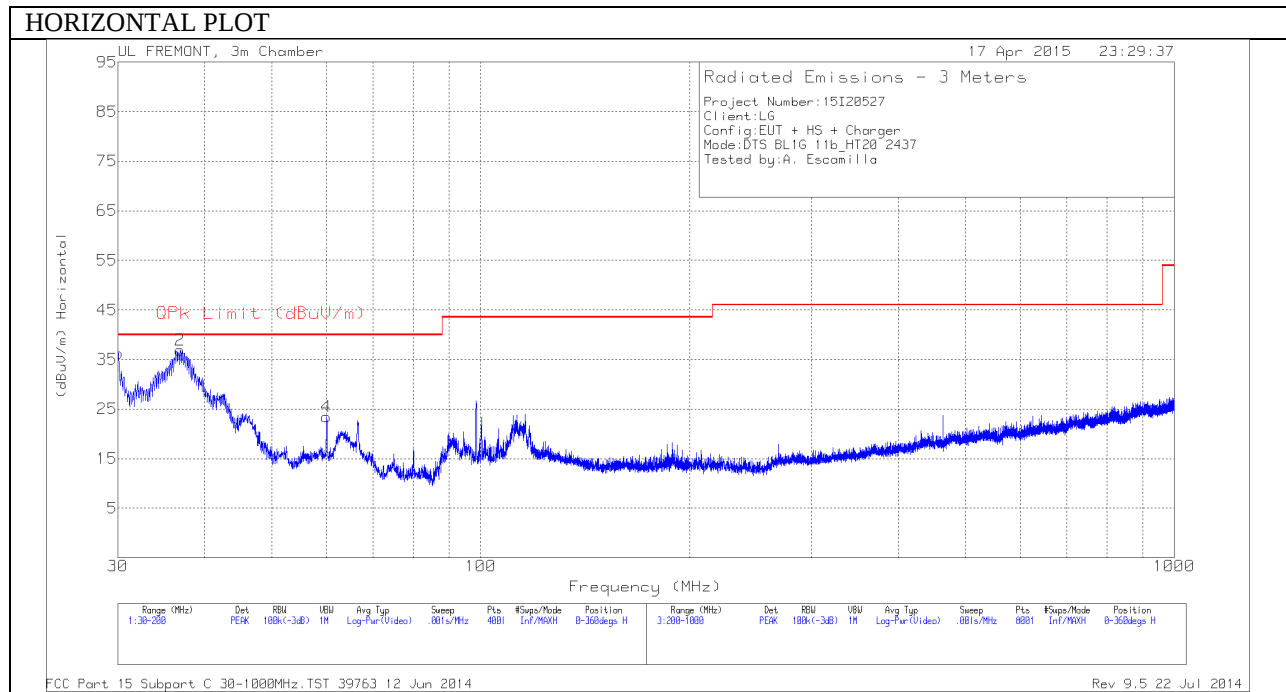
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Fitr /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	* 4.648	32.18	PK	34	-31	0	35.18	-	-	74	-38.82	0-360	100	H
2	* 3.829	32.06	PK	33.1	-31.2	0	33.96	-	-	74	-40.04	0-360	100	V
1	2.022	34.05	PK	31.5	-23.2	0	42.35	-	-	-	-	0-360	100	V
4	6.323	31.16	PK	35.4	-29.3	0	37.26	-	-	-	-	0-360	200	H
5	8.817	30	PK	35.9	-26.6	0	39.3	-	-	-	-	0-360	200	H
6	9.848	29.3	PK	36.9	-25.9	0	40.3	-	-	-	-	0-360	200	V

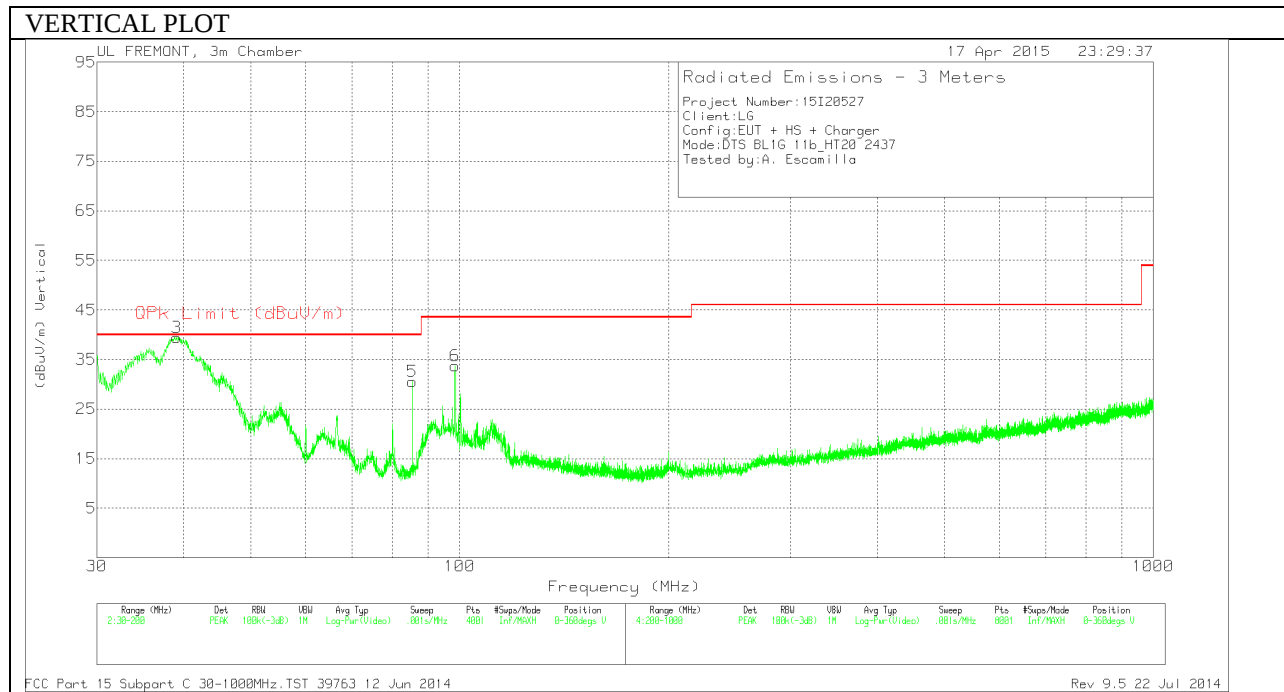
PK - Peak detector

9.3. TRANSMITTER BELOW 1 GHz

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



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



Below 1G 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
5	36.46	43.77	PK	16.7	-31.2	29.27	40	-10.73	0-360	101	V
6	54.9475	48.26	PK	7	-31	24.26	40	-15.74	0-360	101	V
3	63.745	31.88	PK	7.9	-30.9	8.88	40	-31.12	0-360	400	H
1	93.24	49.28	PK	8.3	-30.6	26.98	43.52	-16.54	0-360	200	H
2	194.9425	32.44	PK	12	-30	14.44	43.52	-29.08	0-360	100	H
4	412.6	27.88	PK	15.7	-29.1	14.48	46.02	-31.54	0-360	300	H
7	793	29.61	PK	21.2	-28.1	22.71	46.02	-23.31	0-360	101	V