



FCC CFR47 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-E4 REVISION A

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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. Corona
A	3/18/15	Update antenna information	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC
EUT DESCRIPTION: GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n & NFC
MODEL: LG-H443, LGH443, H443, LG-H445, LGH445, H445
SERIAL NUMBER: 357494-06-000787-3 (Radiated)
DATE TESTED: February 5, 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 C63.10-2009, 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 GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n & NFC.

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

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z it was determined that 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

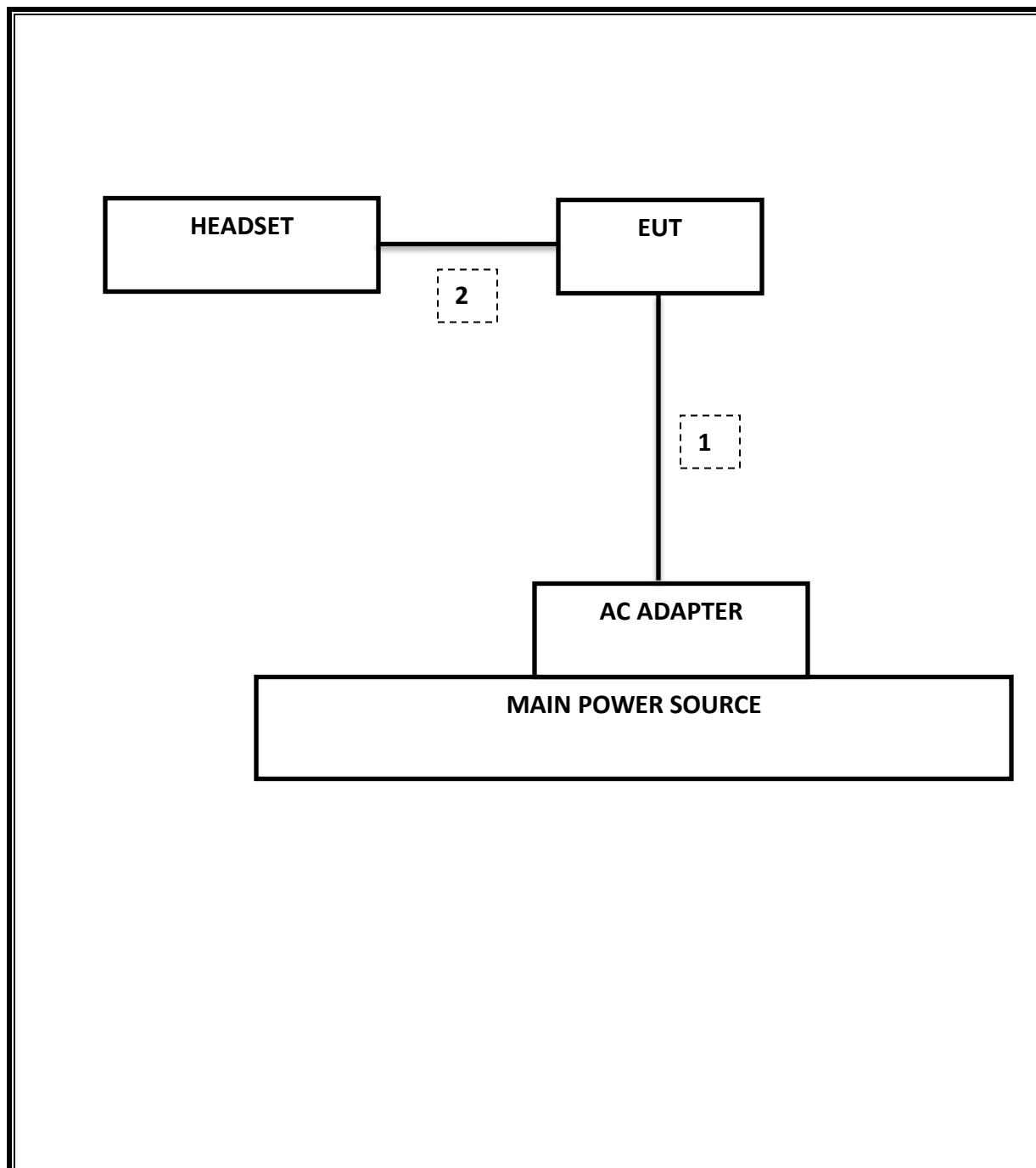
I/O CABLES

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	C00986	04/01/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
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	02/21/15
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	03/06/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/15
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/15
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 - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/15
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 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.

8. SUMMARY TABLE

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	42.90 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 = 0.3dB; N mode = 0.13dB.

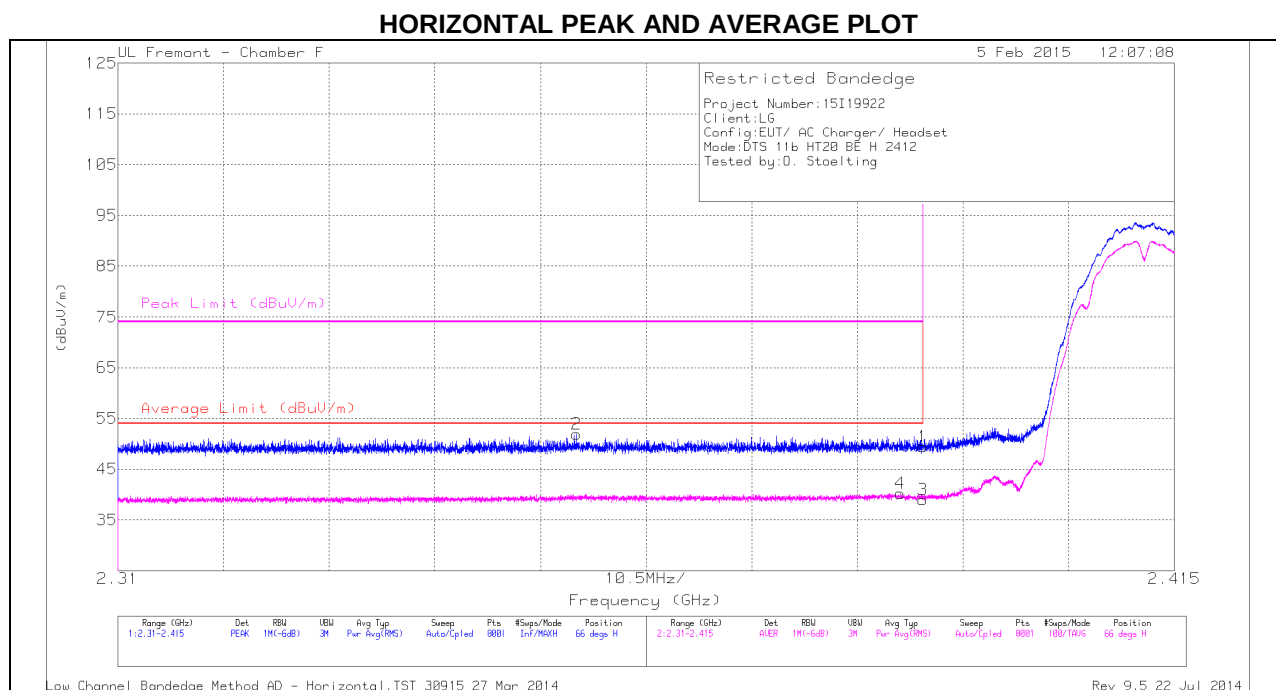
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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

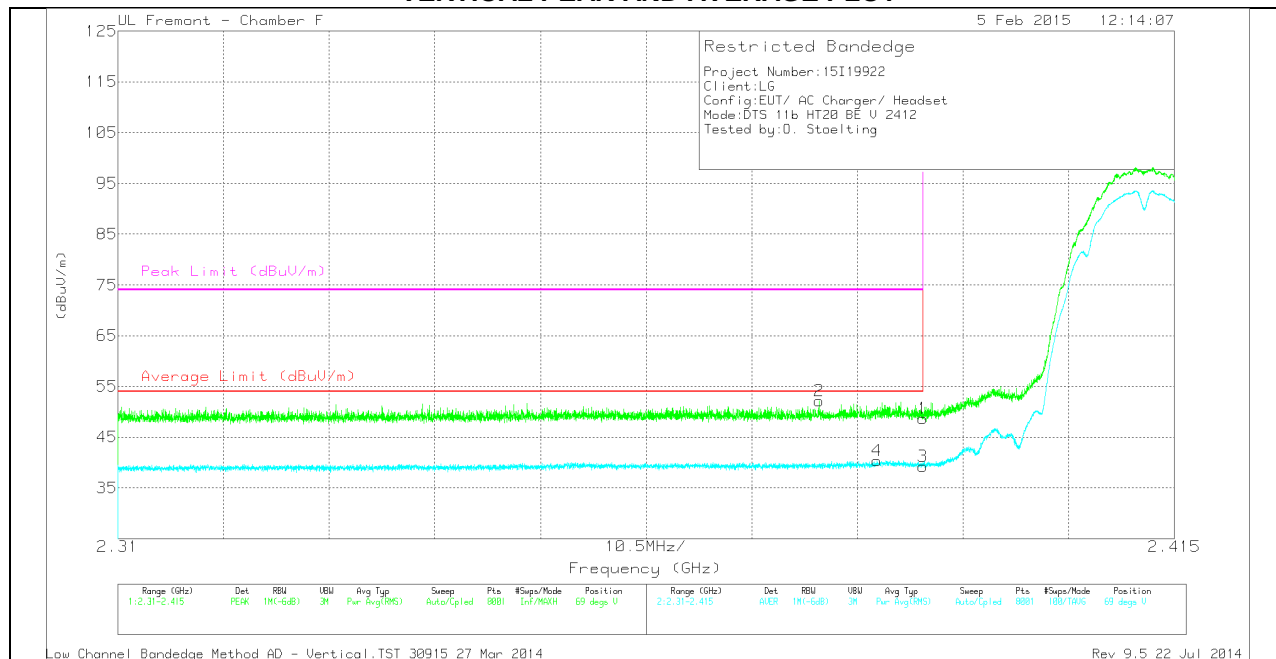
RESTRICTED BANDEDGE (LOW CHANNEL)



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.1	PK	32.2	-20.9	49.4	-	-	74	-24.6	66	284	H
2	* 2.356	40.85	PK	32	-20.9	51.95	-	-	74	-22.05	66	284	H
3	* 2.39	27.64	RMS	32.2	-20.9	38.94	54	-15.06	-	-	66	284	H
4	* 2.388	28.96	RMS	32.2	-20.9	40.26	54	-13.74	-	-	66	284	H

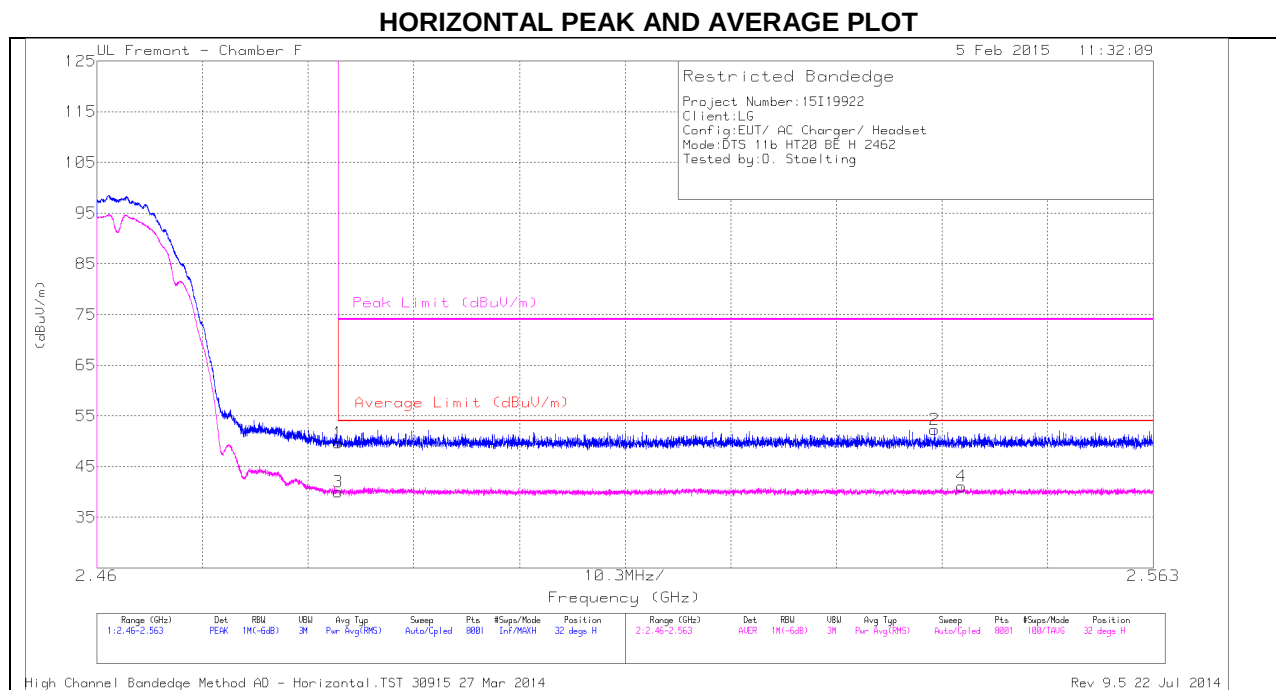
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.43	PK	32.2	-20.9	48.73	-	-	74	-25.27	69	284	V
2	* 2.38	40.91	PK	32.1	-20.9	52.11	-	-	74	-21.89	69	284	V
3	* 2.39	27.97	RMS	32.2	-20.9	39.27	54	-14.73	-	-	69	284	V
4	* 2.385	29.19	RMS	32.1	-20.9	40.39	54	-13.61	-	-	69	284	V

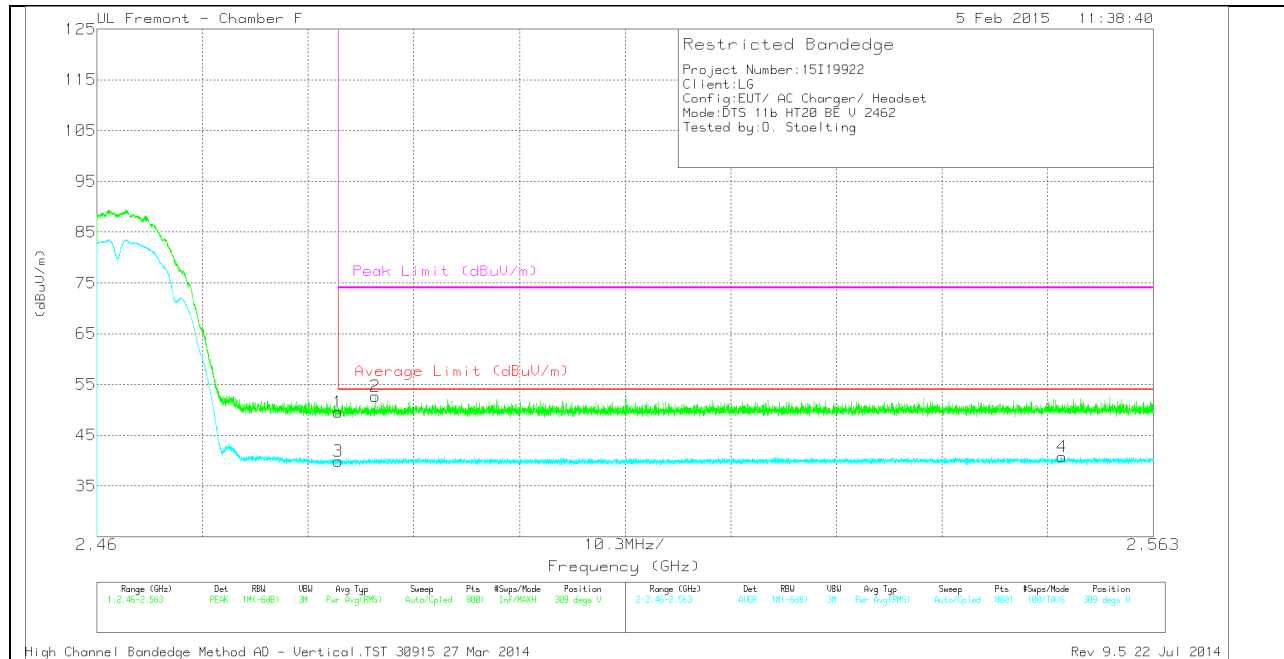
AUTHORIZED BANDEDGE (HIGH CHANNEL)



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.96	PK	32.6	-20.9	49.66	-	-	74	-24.34	32	133	H
2	2.542	40.48	PK	32.7	-20.9	52.28	-	-	74	-21.72	32	133	H
3	* 2.484	28.32	RMS	32.6	-20.9	40.02	54	-13.98	-	-	32	133	H
4	2.544	29.34	RMS	32.7	-20.9	41.14	54	-12.86	-	-	32	133	H

VERTICAL PEAK AND AVERAGE PLOT

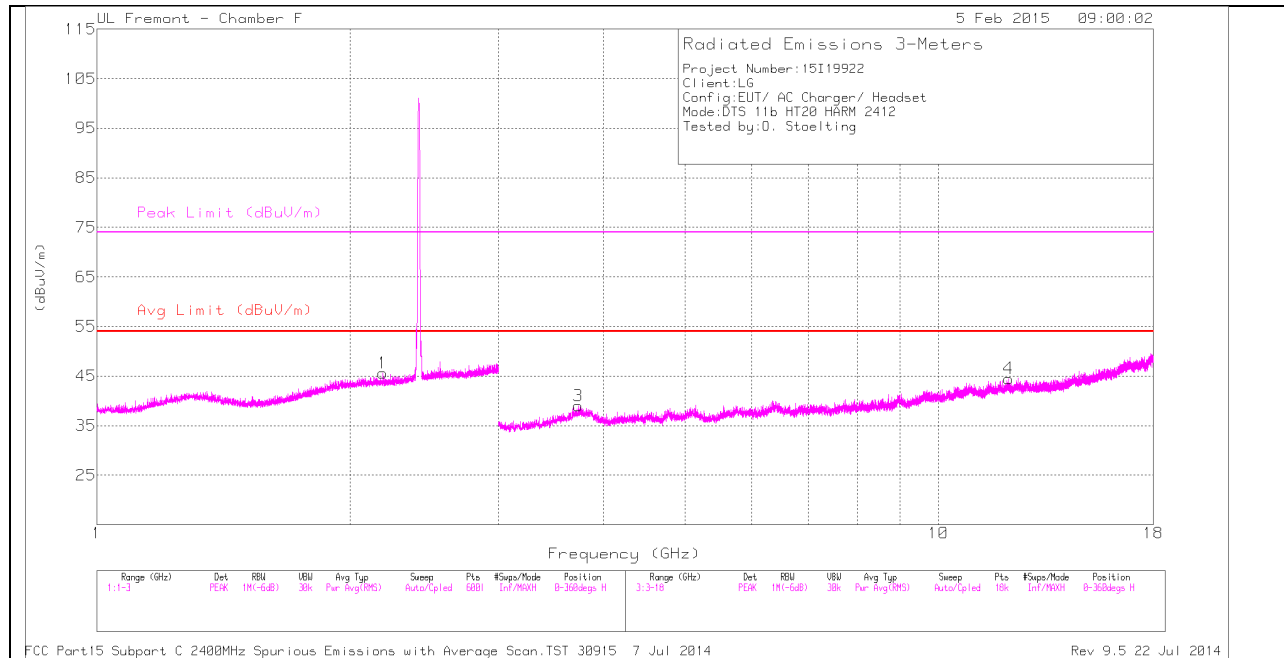


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.89	PK	32.6	-20.9	49.59	-	-	74	-24.41	309	125	V
2	* 2.487	40.97	PK	32.6	-20.9	52.67	-	-	74	-21.33	309	125	V
3	* 2.484	28.14	RMS	32.6	-20.9	39.84	54	-14.16	-	-	309	125	V
4	2.554	28.95	RMS	32.7	-20.9	40.75	54	-13.25	-	-	309	125	V

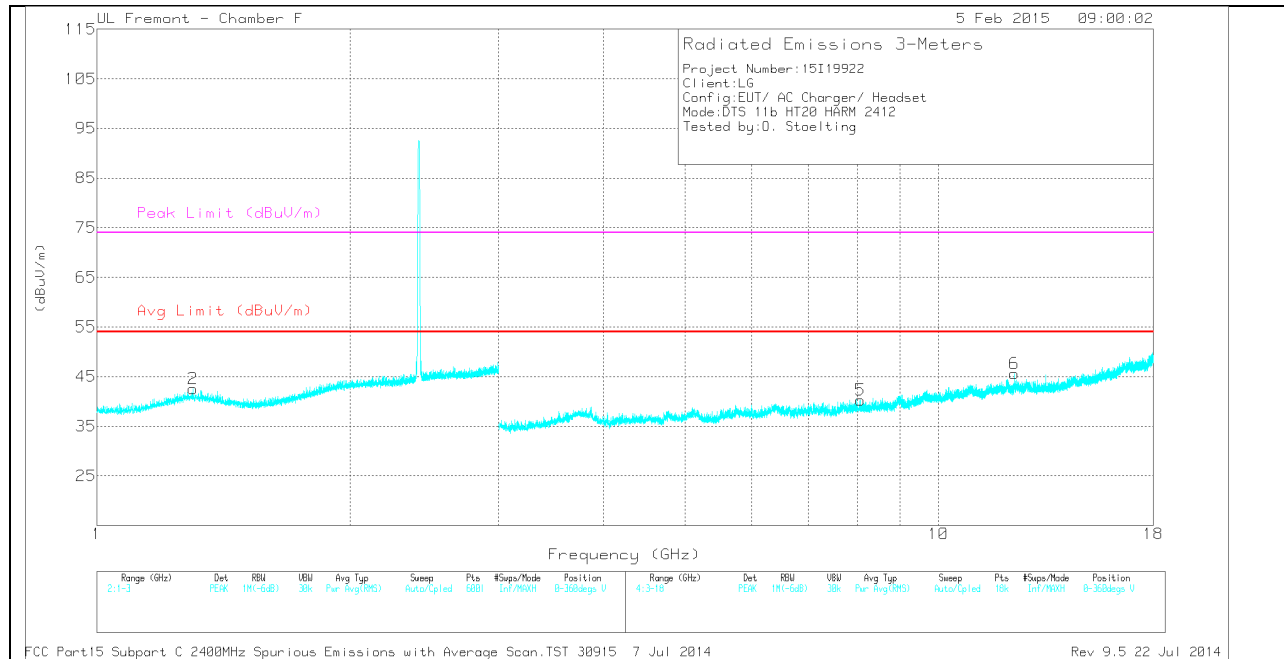
HARMONICS AND SPURIOUS EMISSIONS

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

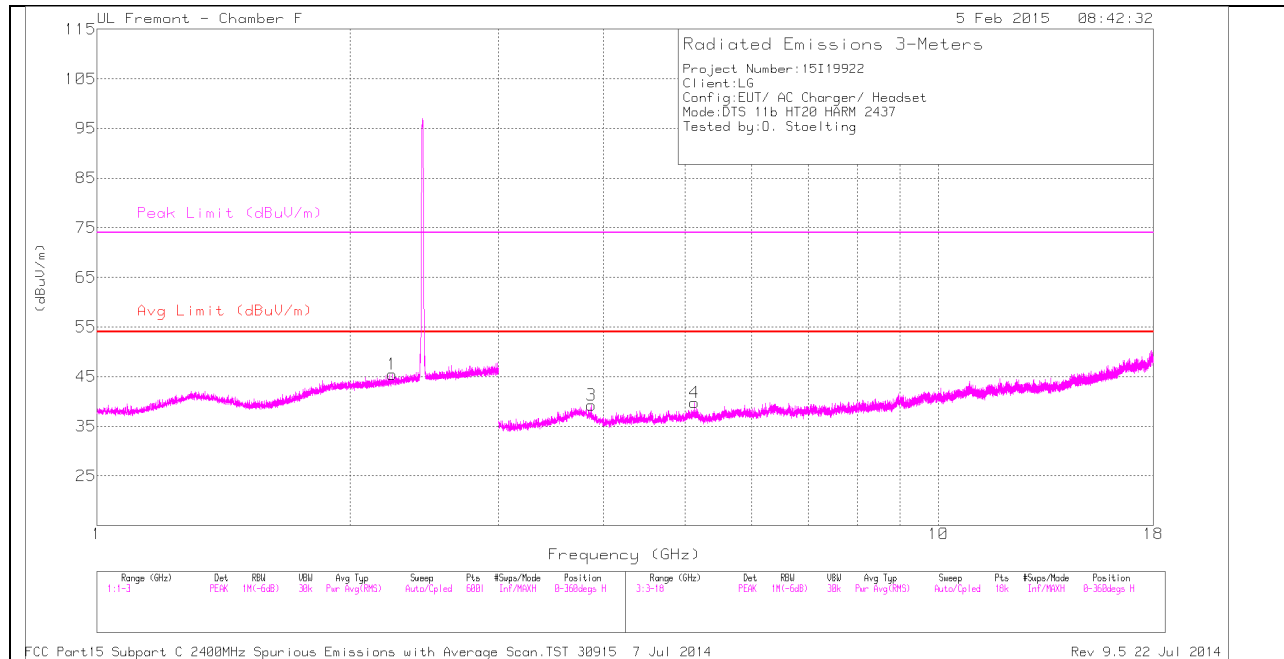
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.187	34.94	PK	31.8	-21.1	45.64	-	-	-	-	0-360	201	H
2	* 1.3	34.62	PK	30.1	-22.2	42.52	-	-	74	-31.48	0-360	101	V
3	* 3.731	33.46	PK	34.7	-29.2	38.96	-	-	74	-35.04	0-360	201	H
4	* 12.111	27.62	PK	39	-22.1	44.52	-	-	74	-29.48	0-360	201	H
5	* 8.072	29.45	PK	35.7	-24.9	40.25	-	-	74	-33.75	0-360	201	V
6	* 12.306	29.26	PK	38.9	-22.6	45.56	-	-	74	-28.44	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

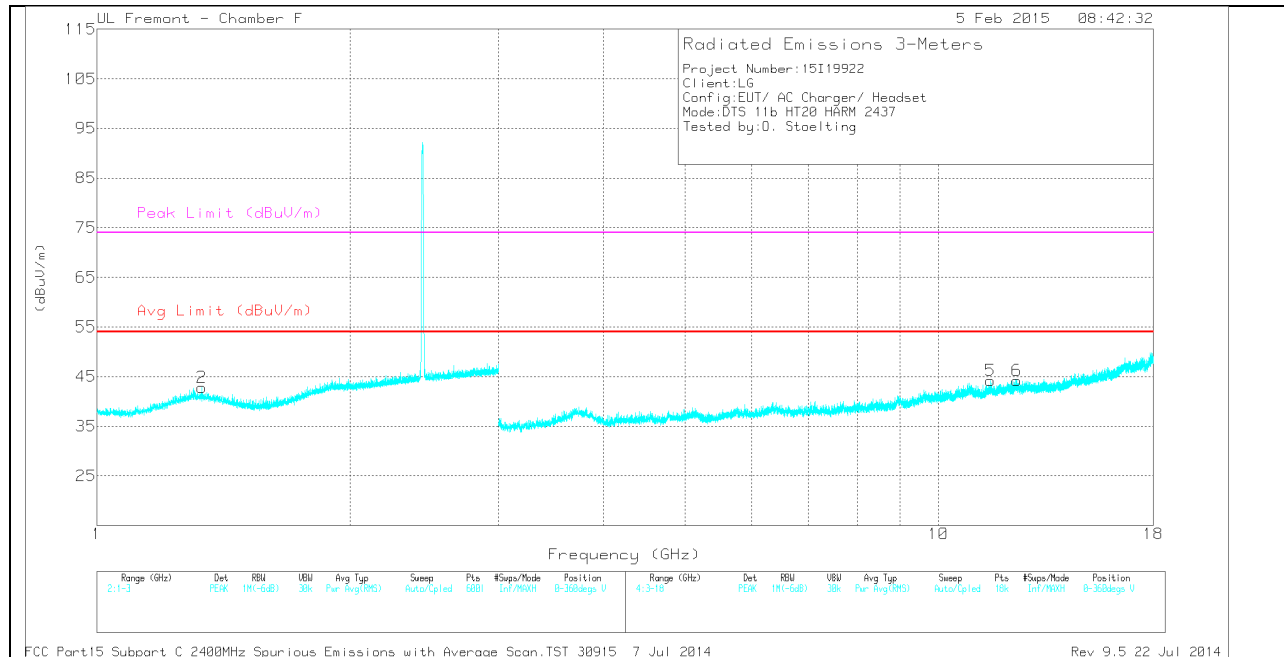
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (db)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 12.307	35.07	PK2	38.9	-22.6	51.37	-	-	74	-22.63	122	175	V
* 12.307	23.46	MAV1	38.9	-22.6	39.76	54	-14.24	-	-	122	175	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

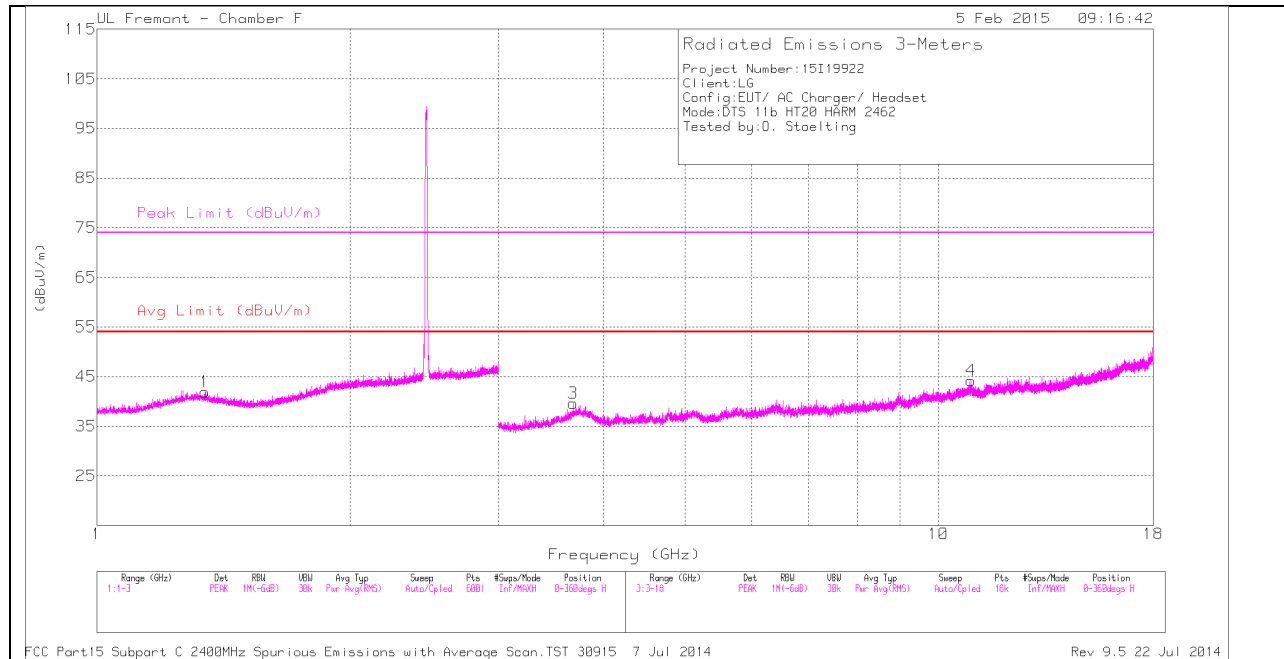
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.244	34.81	PK	31.8	-21.1	45.51	-	-	74	-28.49	0-360	201	H
2	* 1.332	35.19	PK	29.8	-22.2	42.79	-	-	74	-31.21	0-360	201	V
3	* 3.867	33.95	PK	34.1	-28.8	39.25	-	-	74	-34.75	0-360	100	H
4	* 5.132	32.12	PK	34.4	-26.7	39.82	-	-	74	-34.18	0-360	100	H
5	* 11.537	27.12	PK	38.4	-21.3	44.22	-	-	74	-29.78	0-360	101	V
6	* 12.381	27.23	PK	38.9	-21.9	44.23	-	-	74	-29.77	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

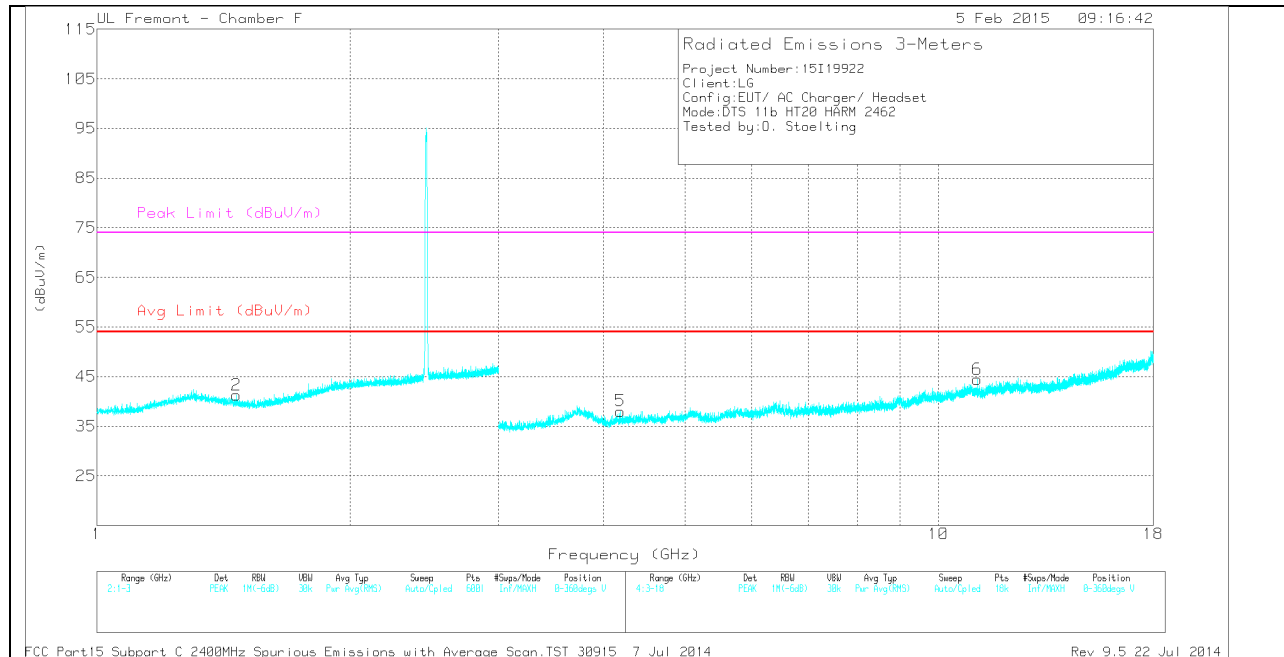
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.243	41.76	PK2	31.8	-21.1	52.46	-	-	74	-21.54	204	242	H
* 2.244	29.85	MAV1	31.8	-21.1	40.55	54	-13.45	-	-	204	242	H

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 T120 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.344	34.46	PK	29.7	-22.2	41.96	-	-	74	-32.04	0-360	100	H
2	* 1.466	34.68	PK	28.6	-22	41.28	-	-	74	-32.72	0-360	101	V
3	* 3.682	33.94	PK	34.9	-29.2	39.64	-	-	74	-34.36	0-360	100	H
4	* 10.924	27.45	PK	38.1	-21.4	44.15	-	-	74	-29.85	0-360	100	H
5	* 4.188	32.75	PK	33.6	-28.3	38.05	-	-	74	-35.95	0-360	101	V
6	* 11.112	28.52	PK	38.1	-22.2	44.42	-	-	74	-29.58	0-360	101	V

PK - Peak detector

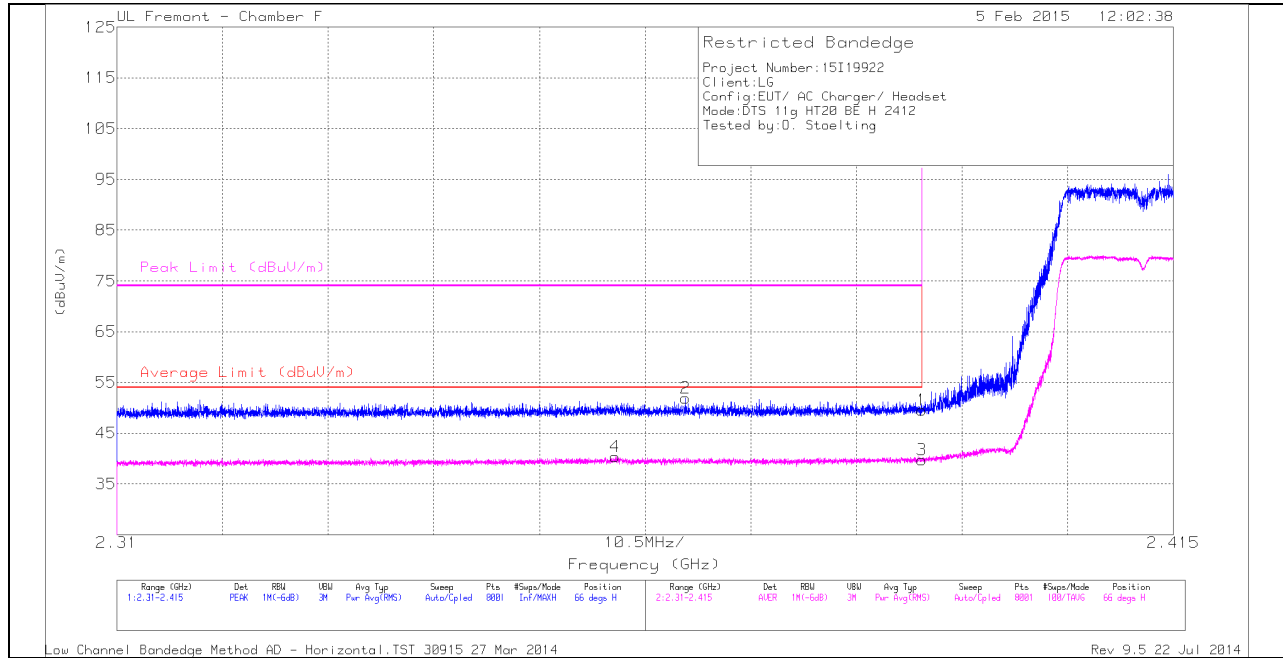
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/Pad (db)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 11.111	34.12	PK2	38.1	-22.2	50.02	-	-	74	-23.98	97	275	V
* 11.112	22.81	MAV1	38.1	-22.2	38.71	54	-15.29	-	-	97	275	V

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

RESTRICTED BANDEDGE (LOW CHANNEL)

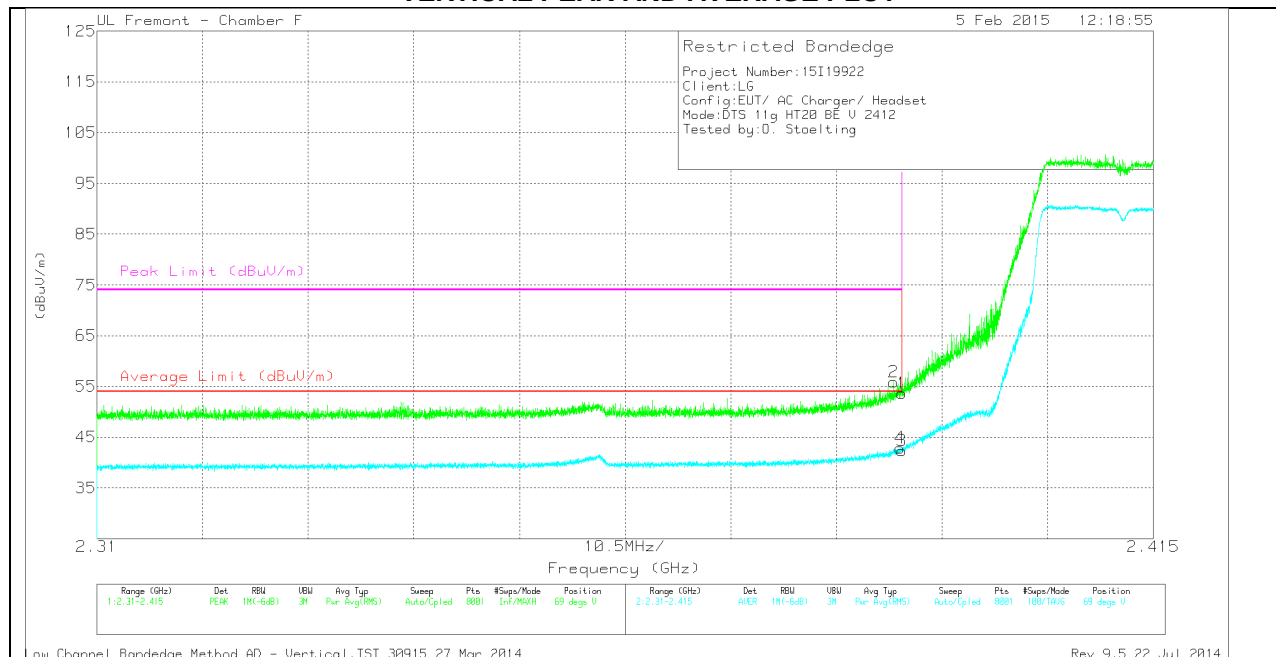
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	* 2.39	38.3	PK	32.2	-20.9	0	49.6	-	-	74	-24.4	66	284	H
2	* 2.367	40.74	PK	32.1	-20.9	0	51.94	-	-	74	-22.06	66	284	H
3	* 2.39	28.18	RMS	32.2	-20.9	.24	39.72	54	-14.28	-	-	66	284	H
4	* 2.36	29.02	RMS	32	-20.9	.24	40.36	54	-13.64	-	-	66	284	H

VERTICAL PEAK AND AVERAGE PLOT

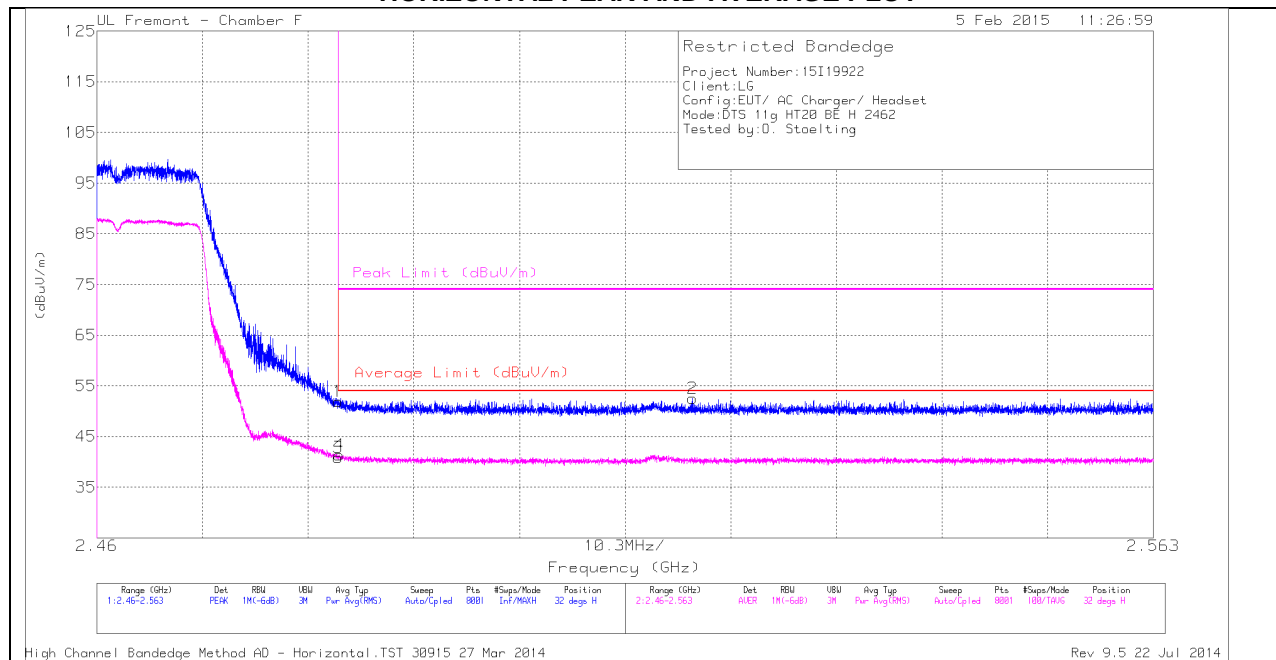


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT120 (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	* 2.39	42.3	PK	32.2	-20.9	0	53.6	-	-	74	-20.4	69	284	V
2	* 2.389	44.56	PK	32.2	-20.9	0	55.86	-	-	74	-18.14	69	284	V
3	* 2.39	30.75	RMS	32.2	-20.9	.24	42.29	54	-11.71	-	-	69	284	V
4	* 2.39	31.36	RMS	32.2	-20.9	.24	42.9	54	-11.1	-	-	69	284	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

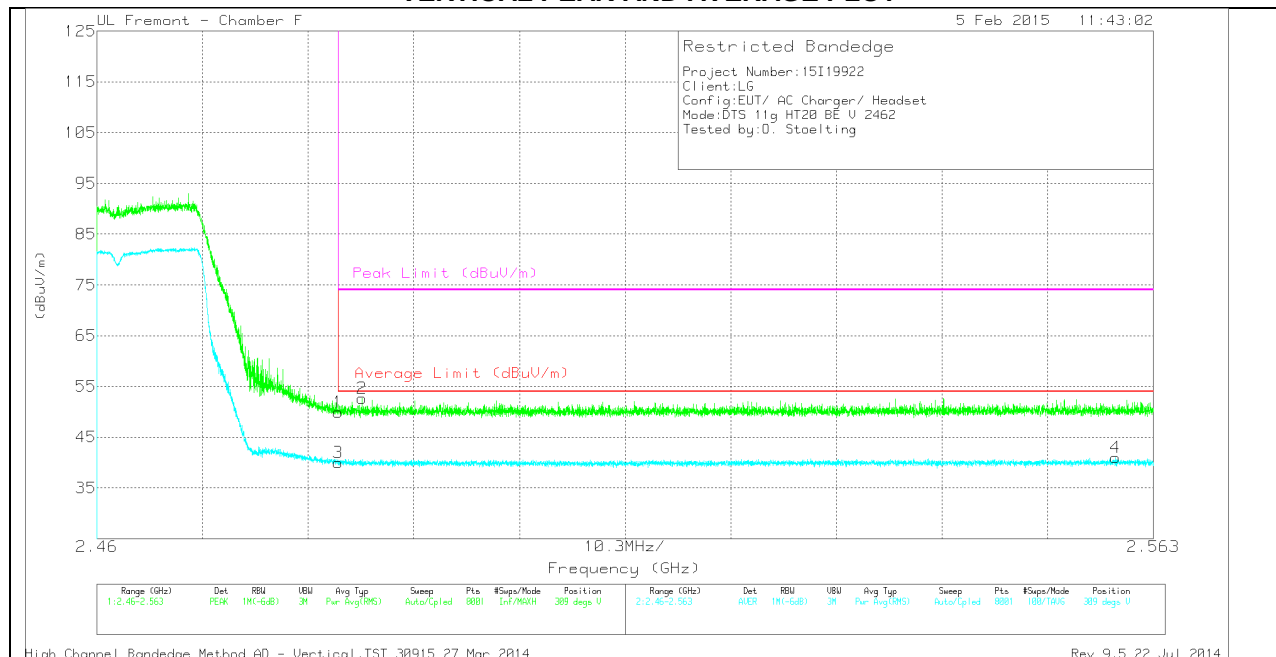
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	* 2.484	40.2	PK	32.6	-20.9	0	51.9	-	-	74	-22.1	32	133	H
2	2.518	40.72	PK	32.7	-20.9	0	52.52	-	-	74	-21.48	32	133	H
3	* 2.484	28.92	RMS	32.6	-20.9	.24	40.86	54	-13.14	-	-	32	133	H
4	* 2.484	29.42	RMS	32.6	-20.9	.24	41.36	54	-12.64	-	-	32	133	H

VERTICAL PEAK AND AVERAGE PLOT

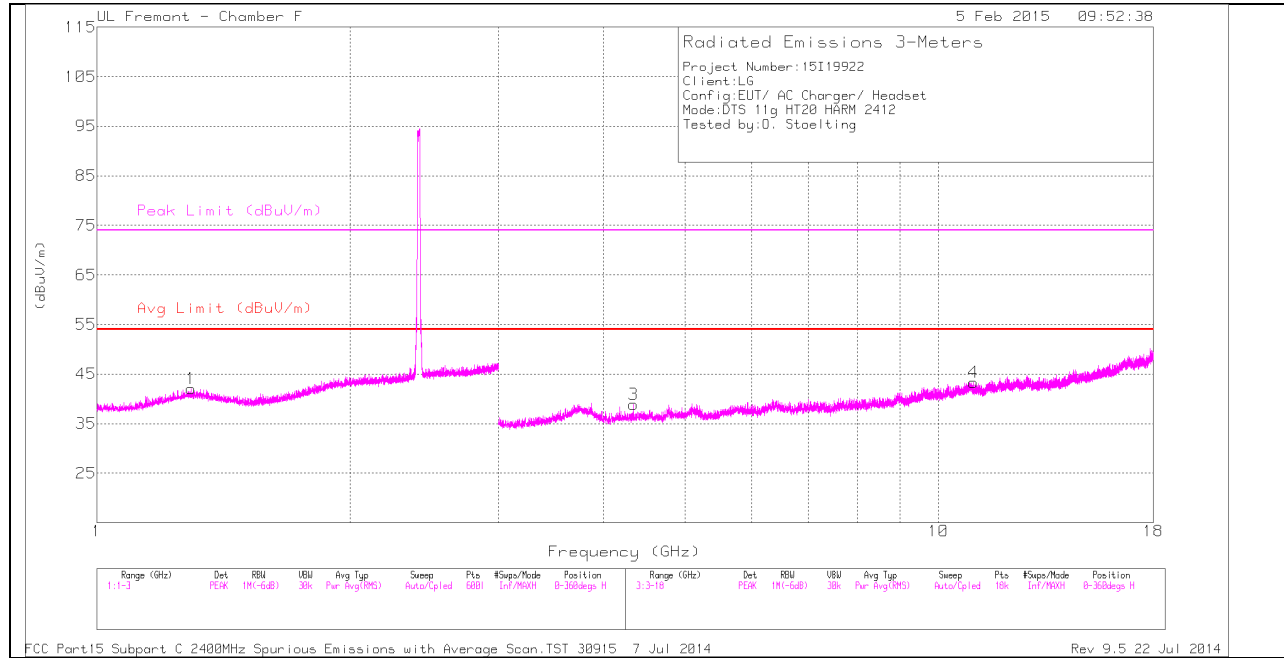


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	38.18	PK	32.6	-20.9	0	49.88	-	-	74	-24.12	309	125	V
2	* 2.486	40.97	PK	32.6	-20.9	0	52.67	-	-	74	-21.33	309	125	V
3	* 2.484	28.08	RMS	32.6	-20.9	.24	40.02	54	-13.98	-	-	309	125	V
4	2.559	28.79	RMS	32.7	-20.8	.24	40.93	54	-13.07	-	-	309	125	V

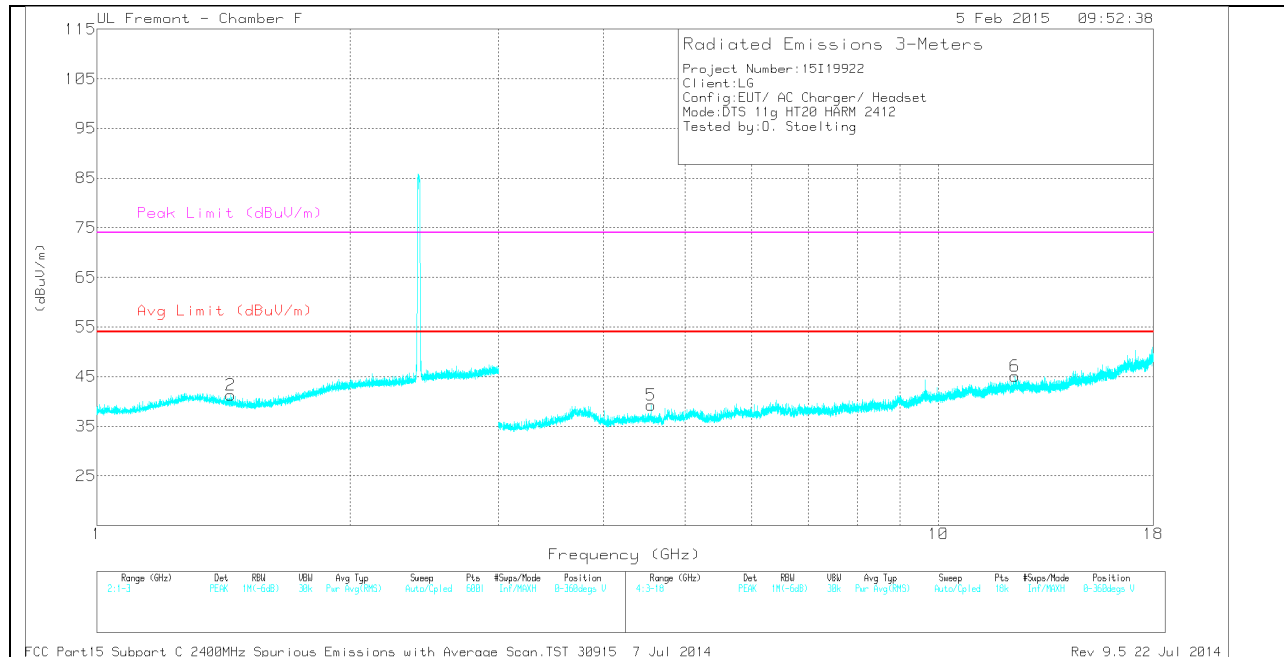
HARMONICS AND SPURIOUS EMISSIONS

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

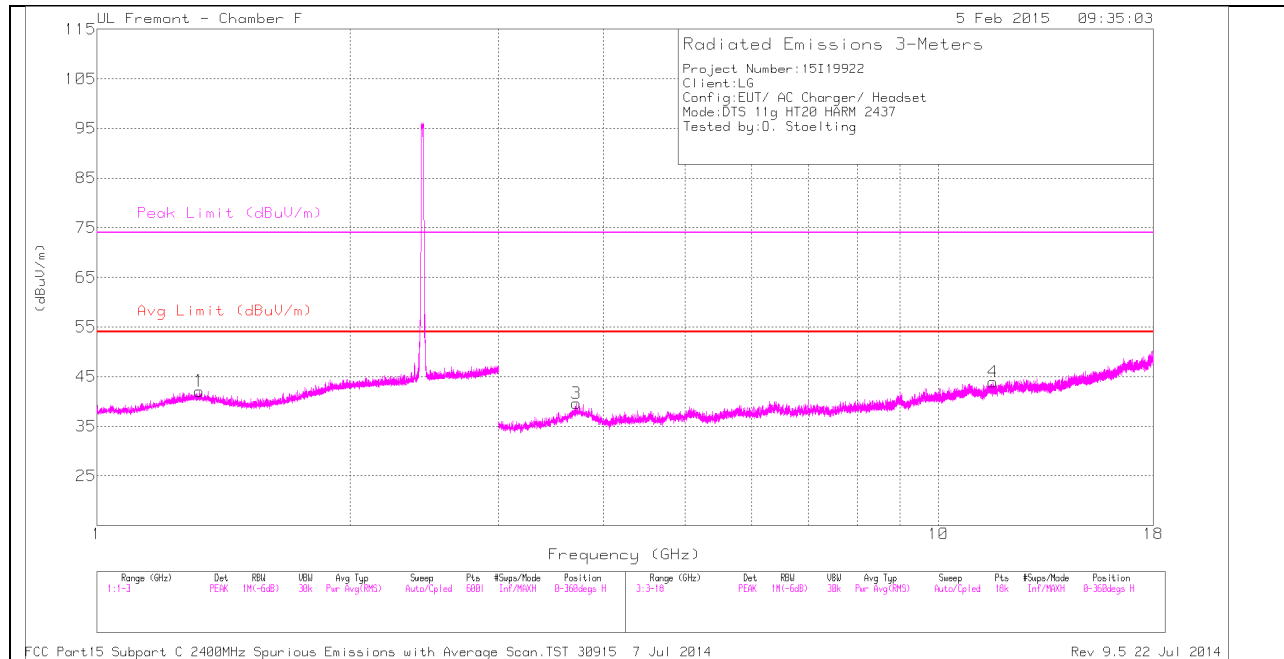
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.293	34.2	PK	30	-22.2	0	42	-	-	74	-32	0-360	201	H
2	* 1.442	34.44	PK	28.9	-22.1	0	41.24	-	-	74	-32.76	0-360	201	V
3	* 4.343	34.16	PK	33.7	-29	0	38.86	-	-	74	-35.14	0-360	201	H
4	* 11.002	27.5	PK	38.1	-22.3	0	43.3	-	-	74	-30.7	0-360	101	H
5	* 4.555	33.12	PK	34	-27.9	0	39.22	-	-	74	-34.78	0-360	101	V
6	* 12.335	28.78	PK	38.9	-22.6	0	45.08	-	-	74	-28.92	0-360	101	V

PK - Peak detector

RADIATED EMISSIONS

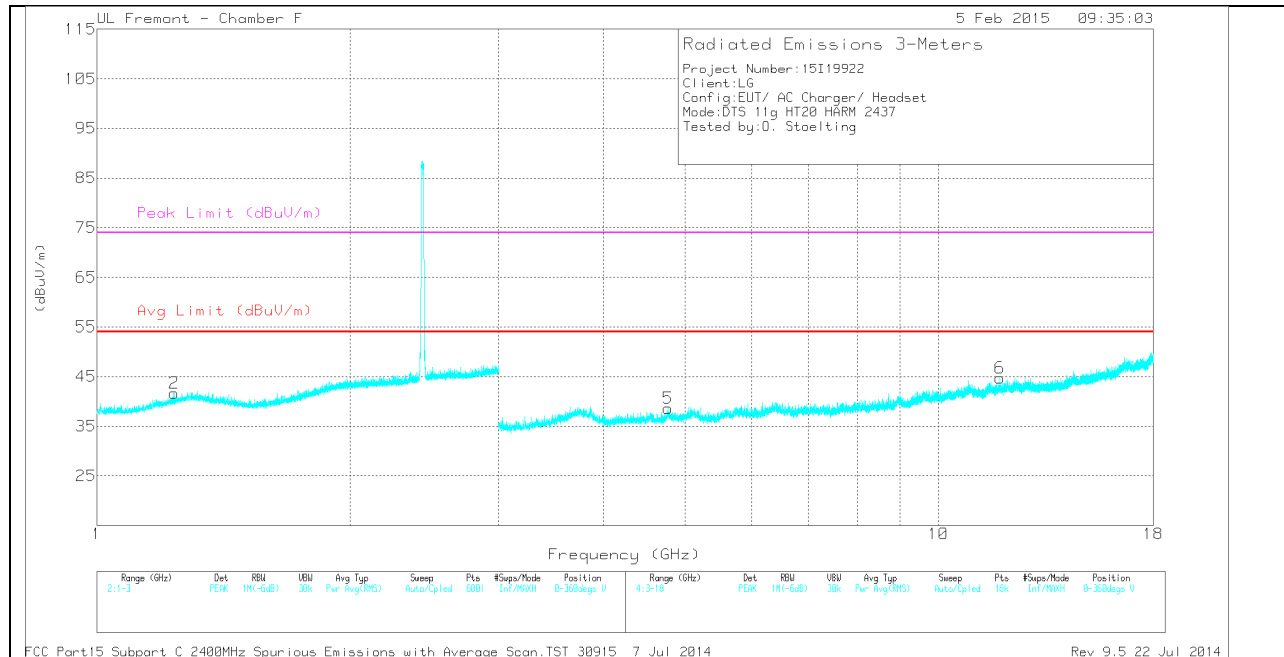
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 12.334	34.67	PK2	38.9	-22.6	0	50.97	-	-	74	-23.03	56	188	V
* 12.334	23.41	MAv1	38.9	-22.6	.24	39.95	54	-14.05	-	-	56	188	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

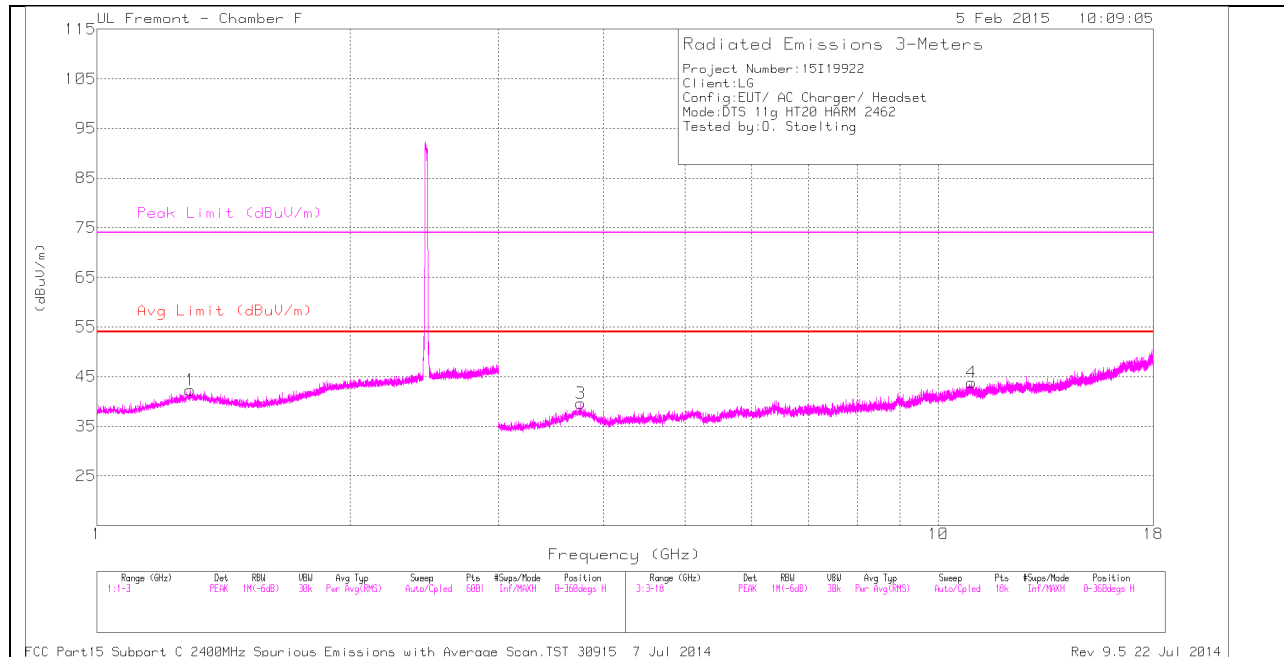
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.323	34.41	PK	29.9	-22.2	0	42.11	-	-	74	-31.89	0-360	101	H
2	* 1.236	34.69	PK	29.3	-22.3	0	41.69	-	-	74	-32.31	0-360	201	V
3	* 3.71	34.1	PK	34.8	-29.3	0	39.6	-	-	74	-34.4	0-360	100	H
4	* 11.602	27.58	PK	38.5	-22.1	0	43.98	-	-	74	-30.02	0-360	201	H
5	* 4.771	31.91	PK	34.1	-27.4	0	38.61	-	-	74	-35.39	0-360	201	V
6	* 11.835	27.6	PK	38.8	-21.7	0	44.7	-	-	74	-29.3	0-360	201	V

PK - Peak detector

RADIATED EMISSIONS

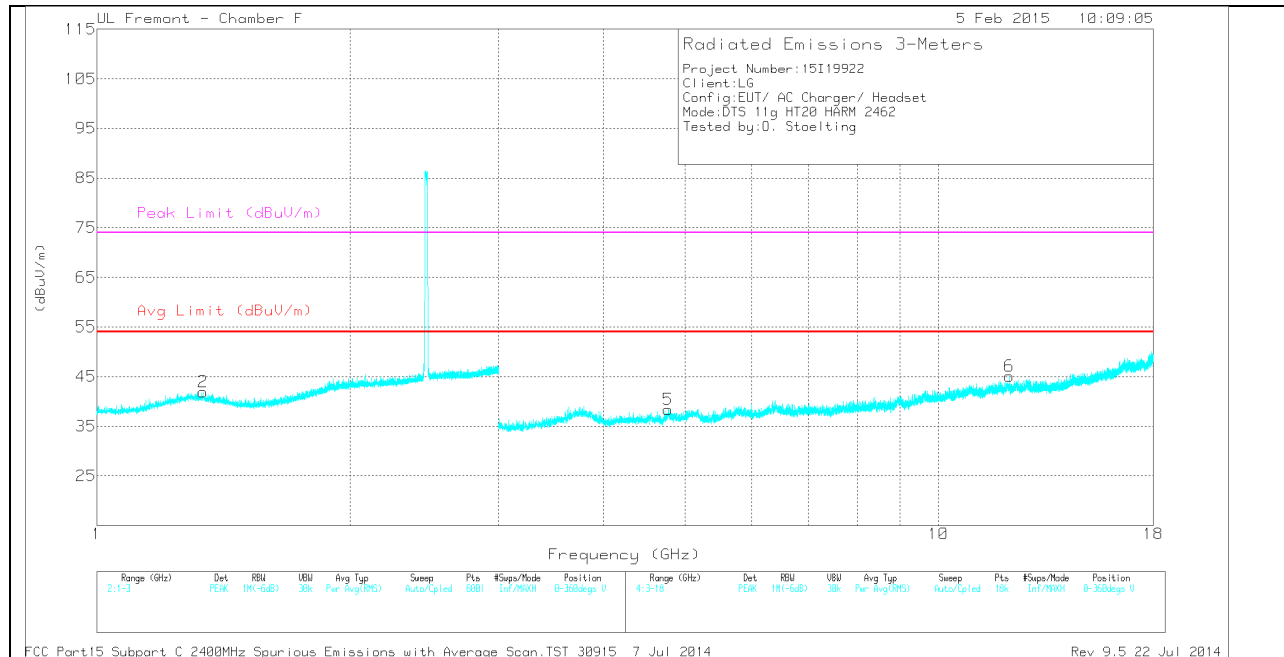
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 11.836	35.5	PK2	38.8	-21.7	0	52.6	-	-	74	-21.4	98	204	V
* 11.835	22.83	MAv1	38.8	-21.7	.24	40.17	54	-13.83	-	-	98	204	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 T120 (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	* 1.291	34.5	PK	30	-22.2	0	42.3	-	-	74	-31.7	0-360	101	H
2	* 1.337	34.28	PK	29.8	-22.2	0	41.88	-	-	74	-32.12	0-360	101	V
3	* 3.758	33.83	PK	34.6	-28.8	0	39.63	-	-	74	-34.37	0-360	100	H
4	* 10.949	27.37	PK	38.1	-21.6	0	43.87	-	-	74	-30.13	0-360	100	H
5	* 4.769	31.65	PK	34.1	-27.4	0	38.35	-	-	74	-35.65	0-360	201	V
6	* 12.13	28.16	PK	39	-22.1	0	45.06	-	-	74	-28.94	0-360	101	V

PK - Peak detector

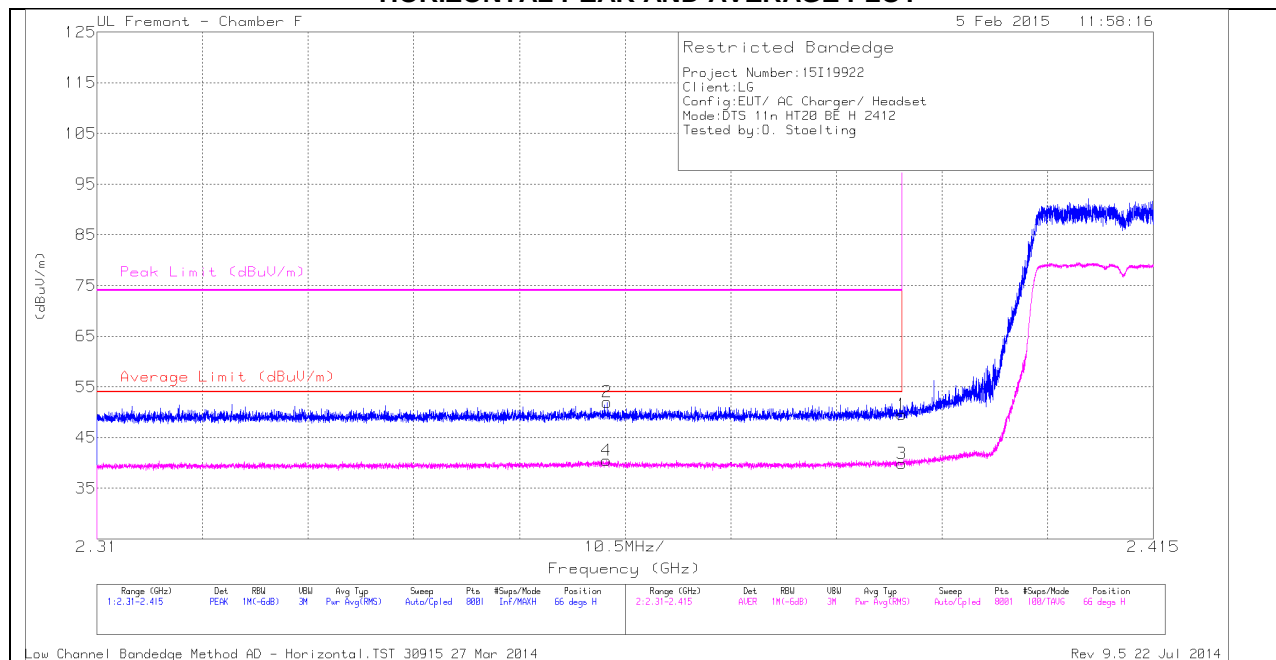
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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
* 12.132	34.43	PK2	39	-22	0	51.43	-	-	74	-22.57	261	392	V
* 12.131	22.85	MAV1	39	-22	.24	40.09	54	-13.91	-	-	261	392	V

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

RESTRICTED BANDEDGE (LOW CHANNEL)

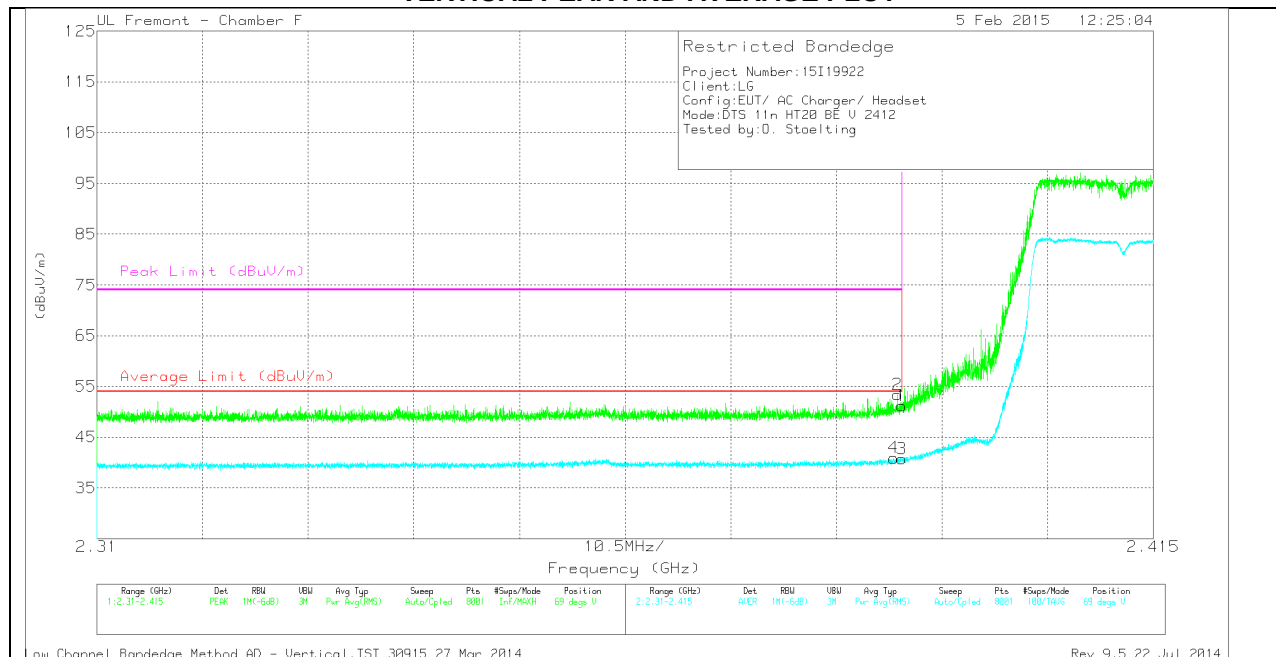
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	* 2.39	38.2	PK	32.2	-20.9	0	49.5	-	-	74	-24.5	66	284	H
2	* 2.361	40.87	PK	32	-20.9	0	51.97	-	-	74	-22.03	66	284	H
3	* 2.39	28.27	RMS	32.2	-20.9	.25	39.82	54	-14.18	-	-	66	284	H
4	* 2.361	29.14	RMS	32	-20.9	.25	40.49	54	-13.51	-	-	66	284	H

VERTICAL PEAK AND AVERAGE PLOT

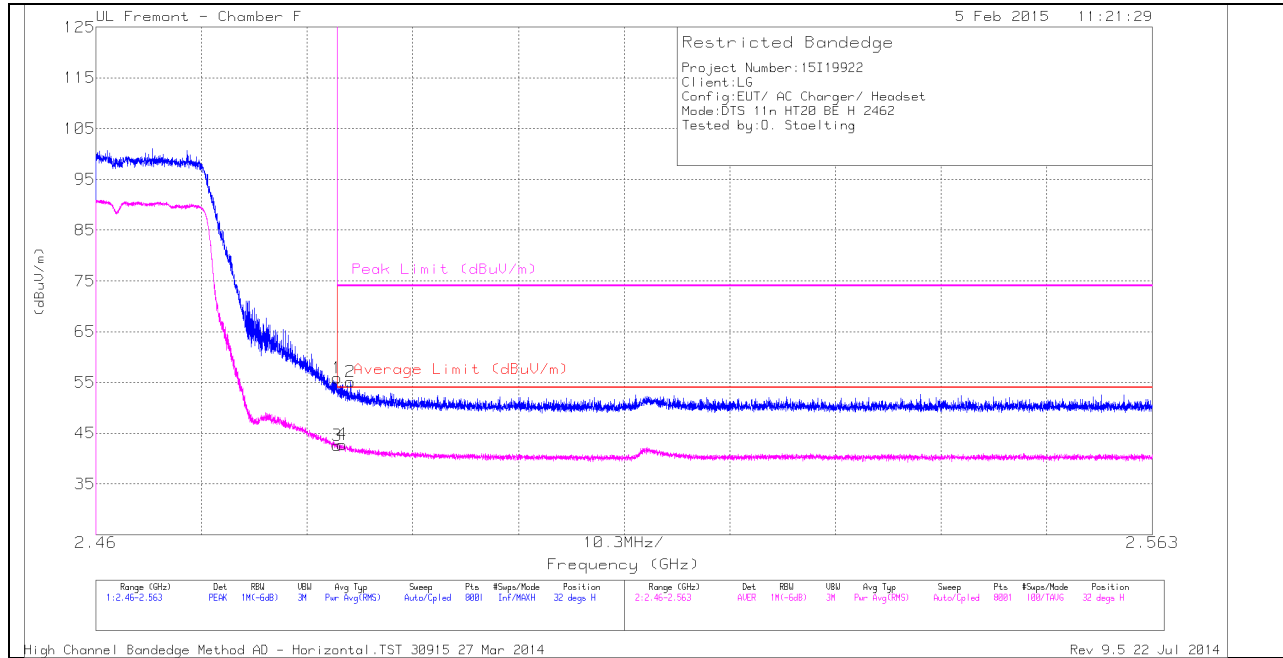


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	* 2.39	39.86	PK	32.2	-20.9	0	51.16	-	-	74	-22.84	69	284	V
2	* 2.39	42.1	PK	32.2	-20.9	0	53.4	-	-	74	-20.6	69	284	V
3	* 2.39	29.14	RMS	32.2	-20.9	.25	40.69	54	-13.31	-	-	69	284	V
4	* 2.389	29.37	RMS	32.2	-20.9	.25	40.92	54	-13.08	-	-	69	284	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

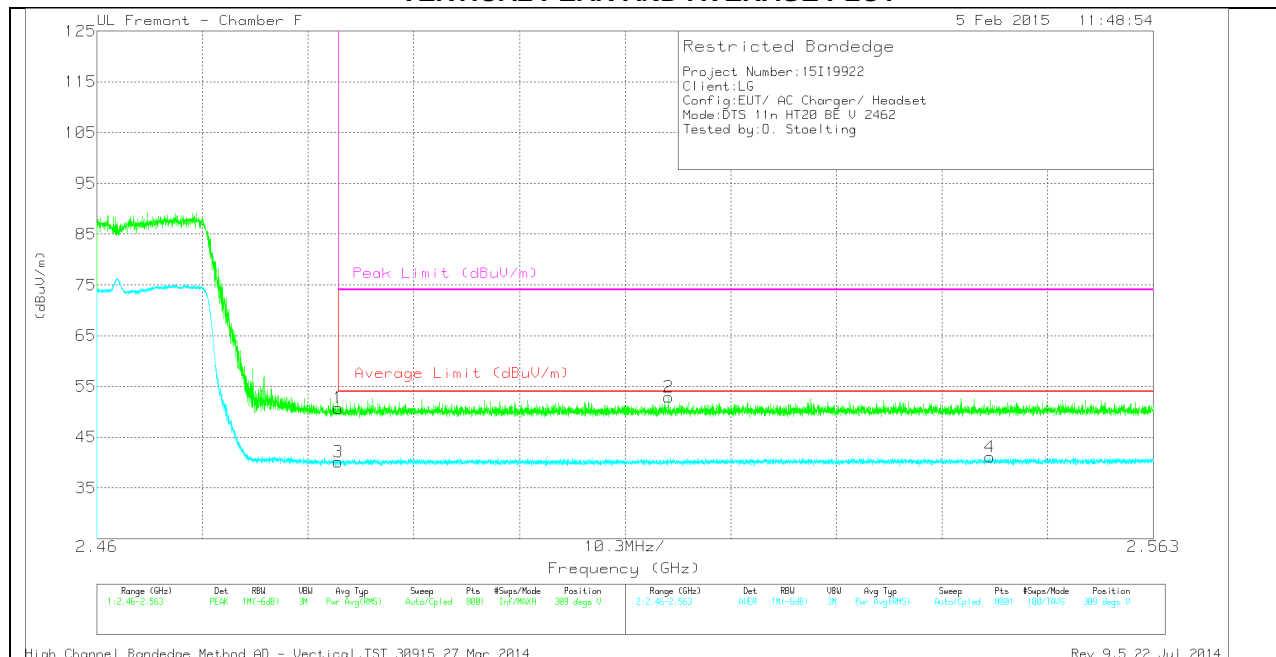
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitter/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	44.21	PK	32.6	-20.9	0	55.91	-	-	74	-18.09	32	133	H
2	* 2.485	43.48	PK	32.6	-20.9	0	55.18	-	-	74	-18.82	32	133	H
3	* 2.484	30.63	RMS	32.6	-20.9	.25	42.58	54	-11.42	-	-	32	133	H
4	* 2.484	30.83	RMS	32.6	-20.9	.25	42.78	54	-11.22	-	-	32	133	H

VERTICAL PEAK AND AVERAGE PLOT

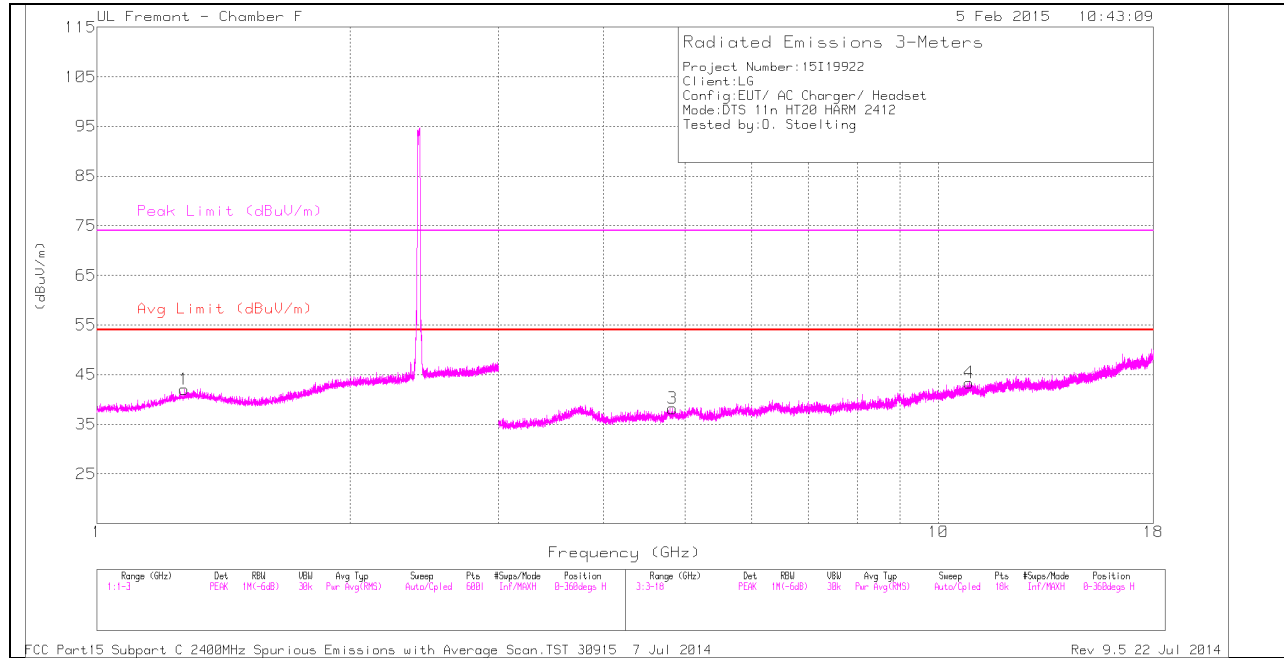


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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	39.03	PK	32.6	-20.9	0	50.73	-	-	74	-23.27	309	125	V
2	2.516	41.11	PK	32.7	-20.9	0	52.91	-	-	74	-21.09	309	125	V
3	* 2.484	28.17	RMS	32.6	-20.9	.25	40.12	54	-13.88	-	-	309	125	V
4	2.547	29.07	RMS	32.7	-20.9	.25	41.12	54	-12.88	-	-	309	125	V

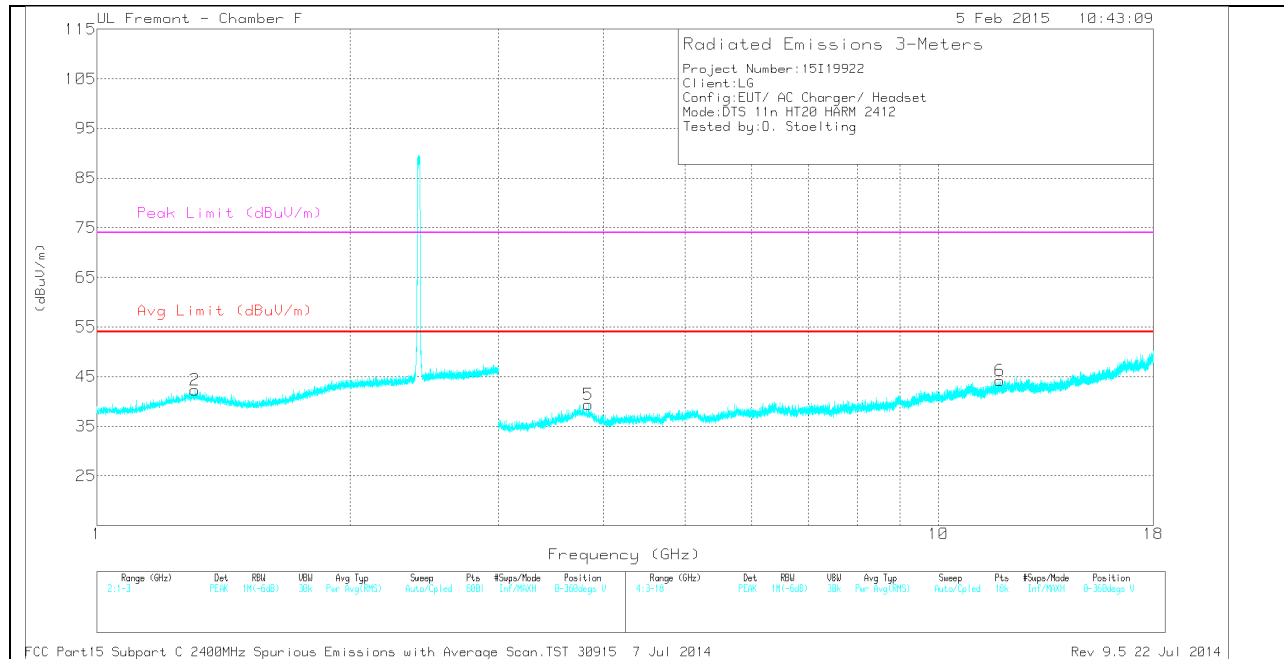
HARMONICS AND SPURIOUS EMISSIONS

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

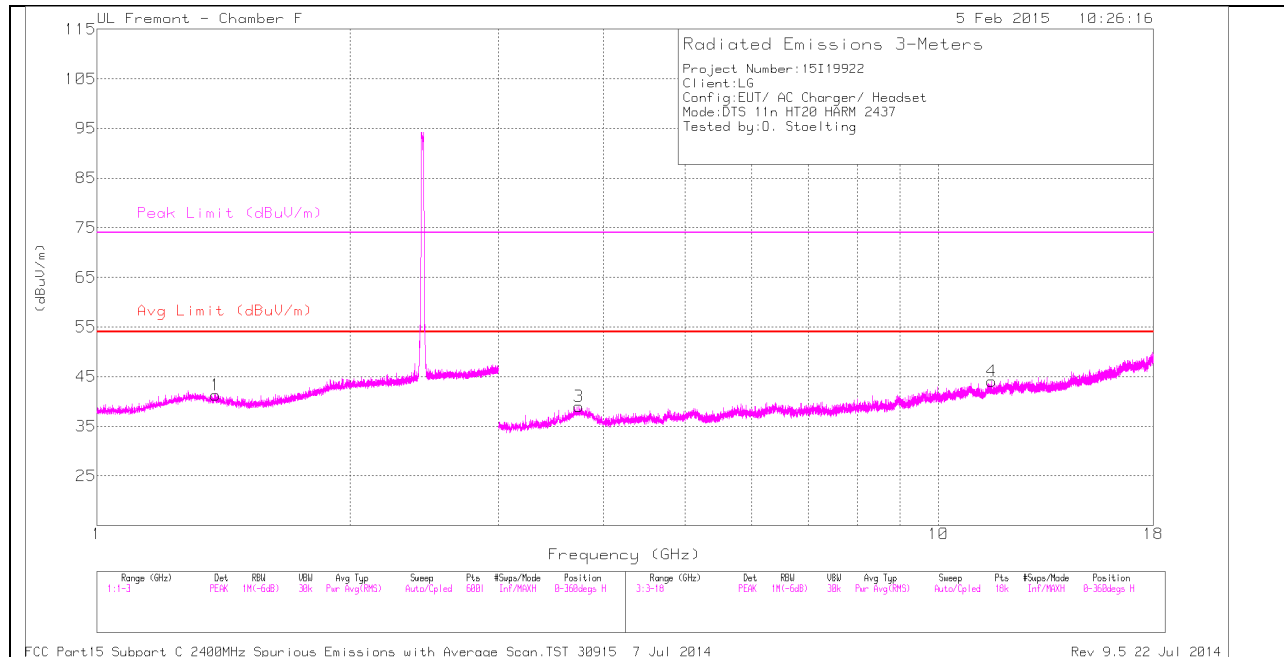
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.269	34.63	PK	29.7	-22.3	0	42.03	-	-	74	-31.97	0-360	102	H
2	* 1.308	34.45	PK	30	-22.2	0	42.25	-	-	74	-31.75	0-360	201	V
3	* 4.83	31.78	PK	34.1	-27.7	0	38.18	-	-	74	-35.82	0-360	100	H
4	* 10.868	26.68	PK	38.1	-21.4	0	43.38	-	-	74	-30.62	0-360	100	H
5	* 3.837	33.81	PK	34.2	-28.6	0	39.41	-	-	74	-34.59	0-360	101	V
6	* 11.835	27.16	PK	38.8	-21.7	0	44.26	-	-	74	-29.74	0-360	201	V

PK - Peak detector

RADIATED EMISSIONS

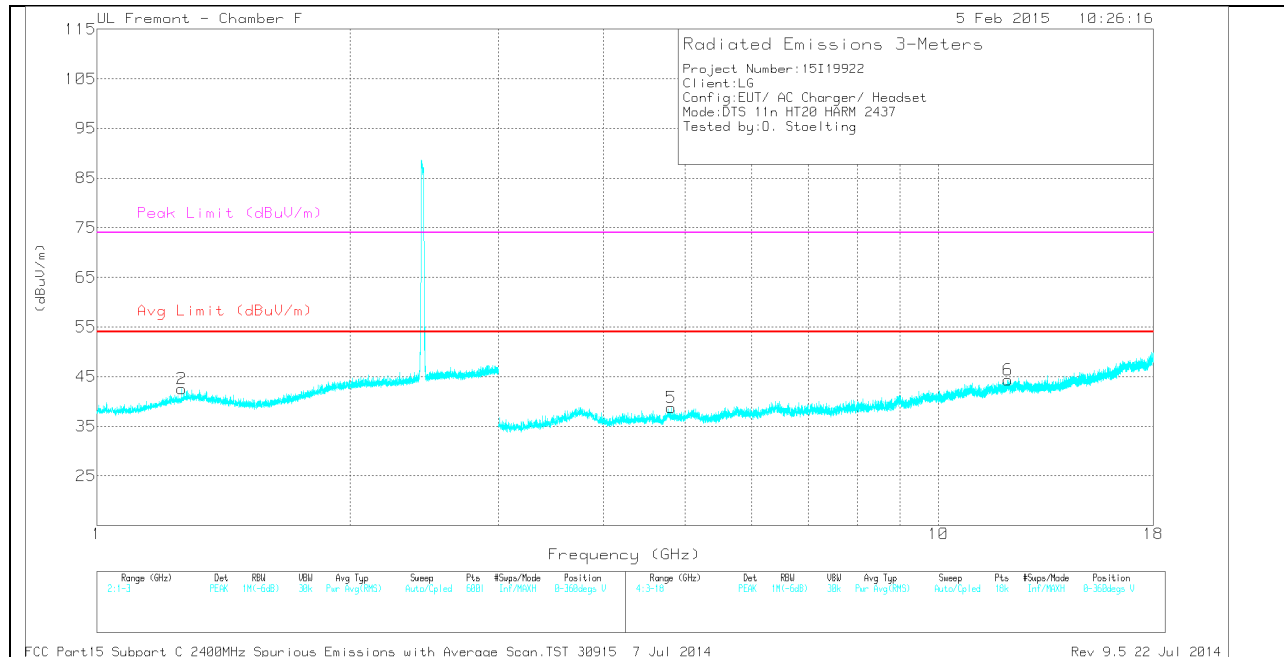
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 11.835	34.44	PK2	38.8	-21.7	0	51.54	-	-	74	-22.46	313	226	V
* 11.835	22.84	MAv1	38.8	-21.7	.25	40.19	54	-13.81	-	-	313	226	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

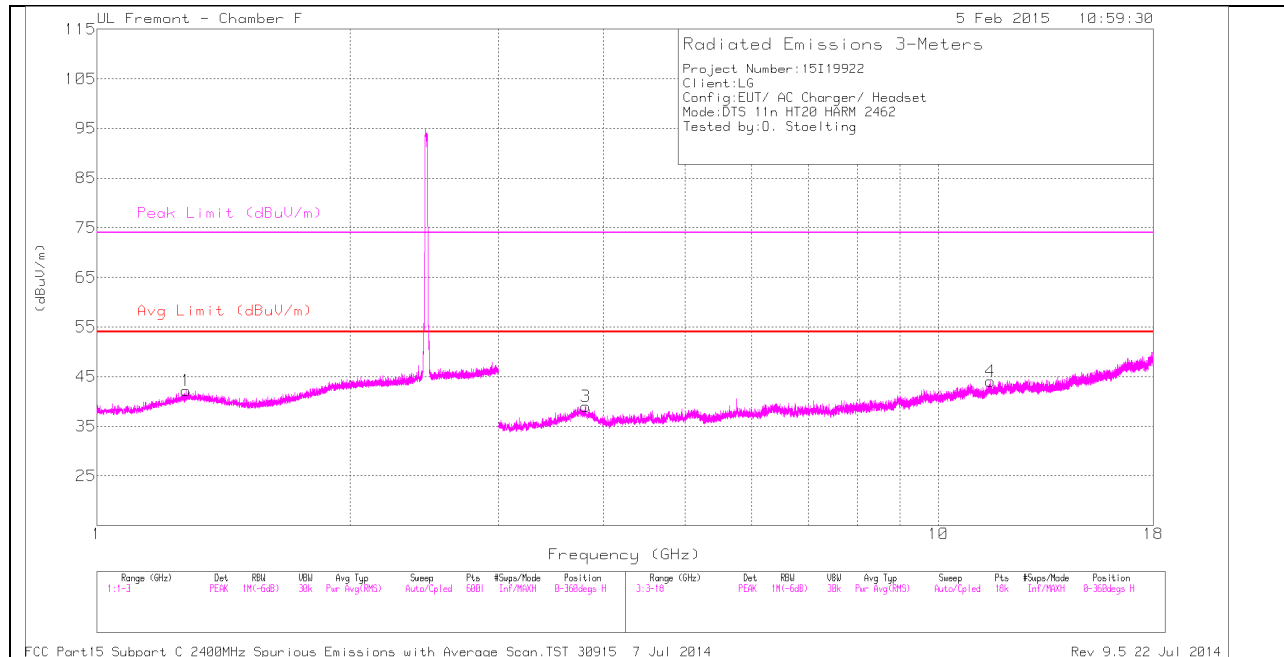
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.384	33.98	PK	29.4	-22.1	0	41.28	-	-	74	-32.72	0-360	201	H
2	* 1.261	35.25	PK	29.6	-22.3	0	42.55	-	-	74	-31.45	0-360	201	V
3	* 3.737	33.54	PK	34.7	-29.2	0	39.04	-	-	74	-34.96	0-360	201	H
4	* 11.57	27.57	PK	38.4	-21.9	0	44.07	-	-	74	-29.93	0-360	101	H
5	* 4.811	32.19	PK	34.1	-27.5	0	38.79	-	-	74	-35.21	0-360	201	V
6	* 12.097	27.33	PK	39	-22	0	44.33	-	-	74	-29.67	0-360	201	V

PK - Peak detector

RADIATED EMISSIONS

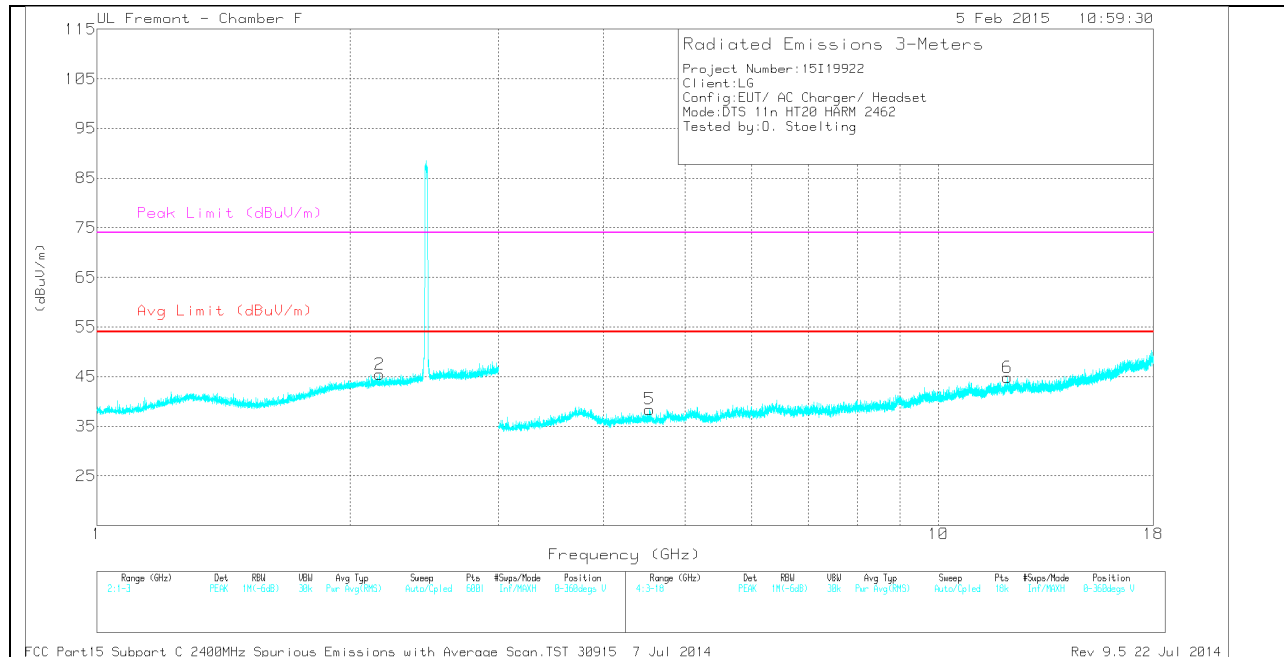
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 12.097	34.26	PK2	39	-22	0	51.26	-	-	74	-22.74	179	102	V
* 12.096	22.98	MAv1	39	-22	.25	40.23	54	-13.77	-	-	179	102	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 T120 (dB/m)	Amp/Cbl/Filtr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.276	34.63	PK	29.8	-22.3	0	42.13	-	-	74	-31.87	0-360	101	H
2	2.168	34.84	PK	31.8	-21.2	0	45.44	-	-	-	-	0-360	101	V
3	* 3.808	33.3	PK	34.3	-28.6	0	39	-	-	74	-35	0-360	101	H
4	* 11.529	27.08	PK	38.4	-21.4	0	44.08	-	-	74	-29.92	0-360	101	H
5	* 4.536	32.33	PK	34	-27.9	0	38.43	-	-	74	-35.57	0-360	201	V
6	* 12.068	27.64	PK	39	-21.8	0	44.84	-	-	74	-29.16	0-360	101	V

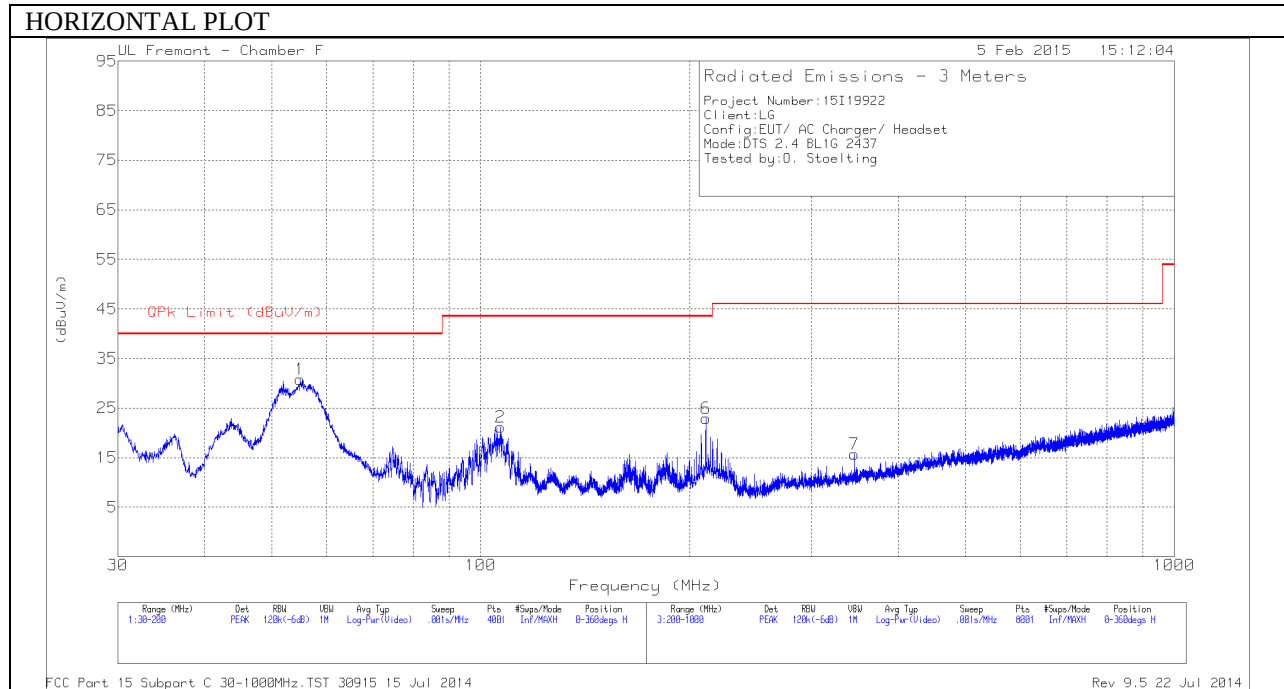
PK - Peak detector

RADIATED EMISSIONS

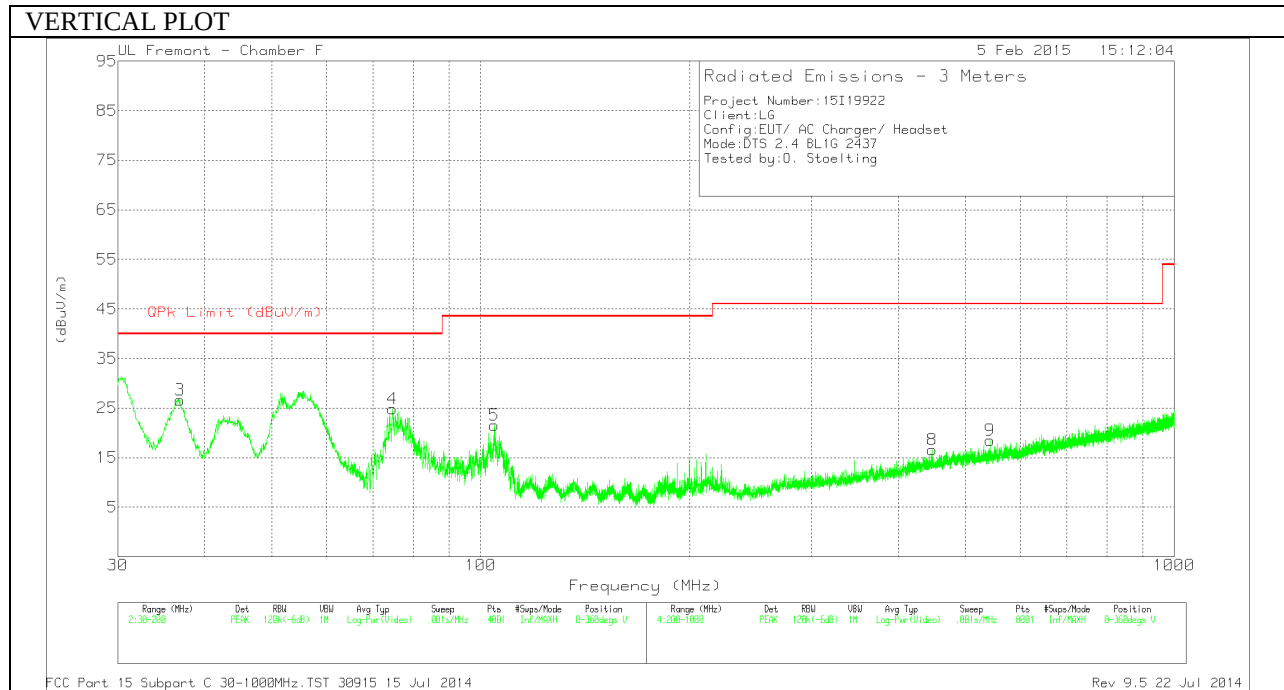
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 12.068	33.93	PK2	39	-21.8	0	51.13	-	-	74	-22.87	191	142	V
* 12.067	23.11	MAv1	39	-21.8	.25	40.56	54	-13.44	-	-	191	142	V

9.3. WORST-CASE 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 T477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	54.905	55.39	PK	7.2	-31.8	30.79	40	-9.21	0-360	401	H
2	106.8825	40.57	PK	12.1	-31.5	21.17	43.52	-22.35	0-360	401	H
3	36.8425	42.31	PK	16.2	-31.9	26.61	40	-13.39	0-360	100	V
4	* 74.5825	48.39	PK	8.1	-31.7	24.79	40	-15.21	0-360	100	V
5	104.715	41.49	PK	11.6	-31.6	21.49	43.52	-22.03	0-360	100	V
6	211.2	43.67	PK	10.4	-31.1	22.97	43.52	-20.55	0-360	100	H
7	345.6	31.89	PK	14.2	-30.4	15.69	46.02	-30.33	0-360	100	H
8	447.5	29.89	PK	16.9	-30.2	16.59	46.02	-29.43	0-360	100	V
9	542.2	30.33	PK	18.2	-30	18.53	46.02	-27.49	0-360	100	V