



FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8

C2PC CERTIFICATION TEST REPORT
FOR

SMART WATCH with BT and BLE

MODEL NUMBER: LG-W100, W100, LGW100

FCC ID: ZNFW100
IC ID: 2703C-W100

REPORT NUMBER: 14U17754-1 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
--	5/9/14	Initial issue	P. Kim
A	5/20/14	Updated equipment list	P. Zhang

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION: Smart Watch with BT and BLE
MODEL: LG-W100, W100, LGW100
SERIAL NUMBER: 178J2 (Radiated)
DATE TESTED: May 9, 2014

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 ISSUE 8	Pass
INDUSTRY CANADA RSS-GEN ISSUE 3	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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 Smart Watch with BT and BLE.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	Basic GFSK	9.31	8.53
2402 - 2480	Enhanced 8PSK	10.51	11.24

Note: GFSK, Pi/4-DQPSK, 8PSK average Power are all investigated, The GFSK & 8PSK Power are the worst case. Testing is based on this mode to showing compliance. For average power data please refer to section 8.6.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an metal antenna, with a maximum gain of -4 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.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-02WD	DB390078751	N/A
Cradle	LG	SDT-310	N/A	N/A

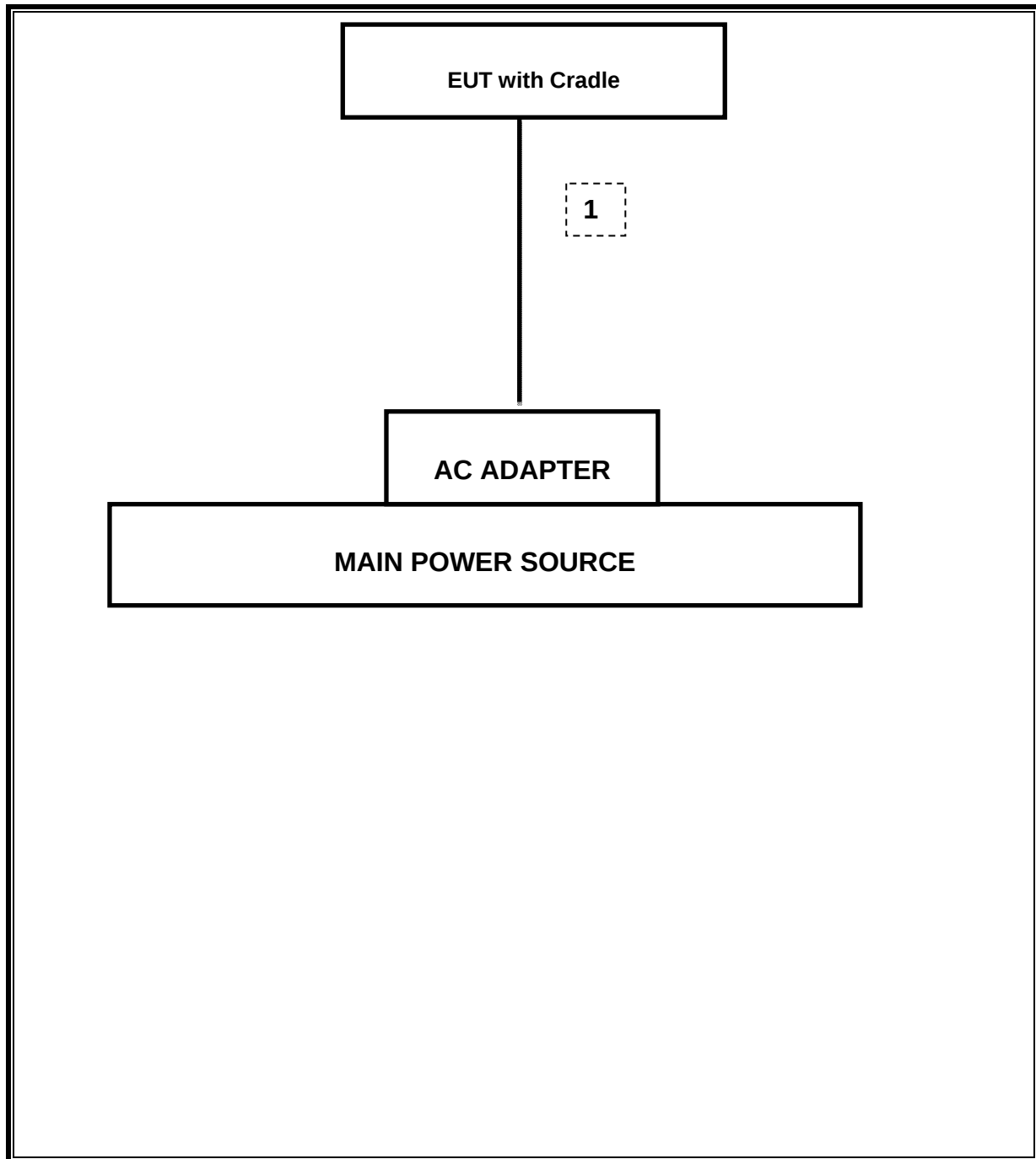
I/O CABLES

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

TEST SETUP

The EUT is continuously communicating to the Bluetooth tester during the tests. EUT was set in the Hidden menu mode to enable BT communications.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

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

7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
2.1049	RSS-GEN 4.6	Occupied Band width (99%)	N/A	Conducted	Pass	see original
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	see original
15.247 (b)(1)	RSS-210 A8.4	TX conducted output power	<21dBm		Pass	see original
15.247 (a)(1)	RSS-210 A8.1(b)	Hopping frequency separation	> 25KHz		Pass	see original
15.247 (a)(1)(iii)	RSS-210 A8.1(d)	Number of Hopping channels	More than 15 non-overlapping channels		Pass	see original
15.247 (a)(1)(iii)	RSS-210 A8.1(d)	Avg Time of Occupancy	< 0.4sec		Pass	see original
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	see original
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	50.68dBuV/m

8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For band edge measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 1/T (on time) for average measurement. $GFSK = 1/T = 1 / 0.0029S = 350Hz$.

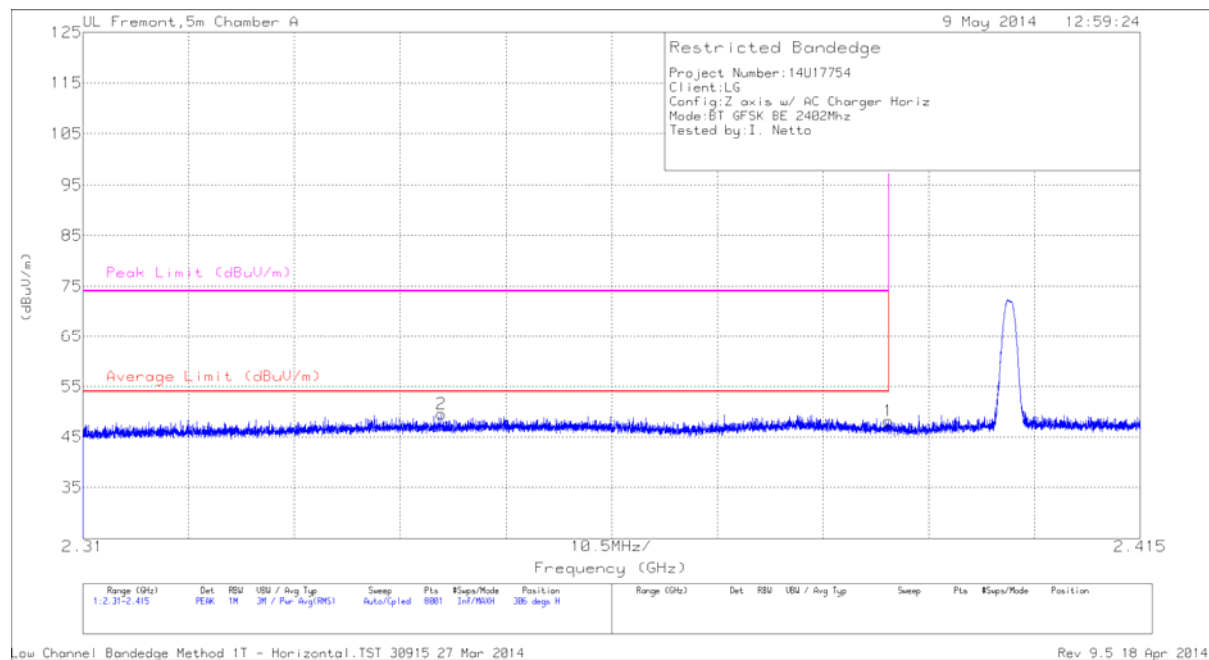
The spectrum from 1GHzHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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

8.2. TRANSMITTER ABOVE 1 GHz

8.2.1. BASIC DATA RATE GFSK MODULATION

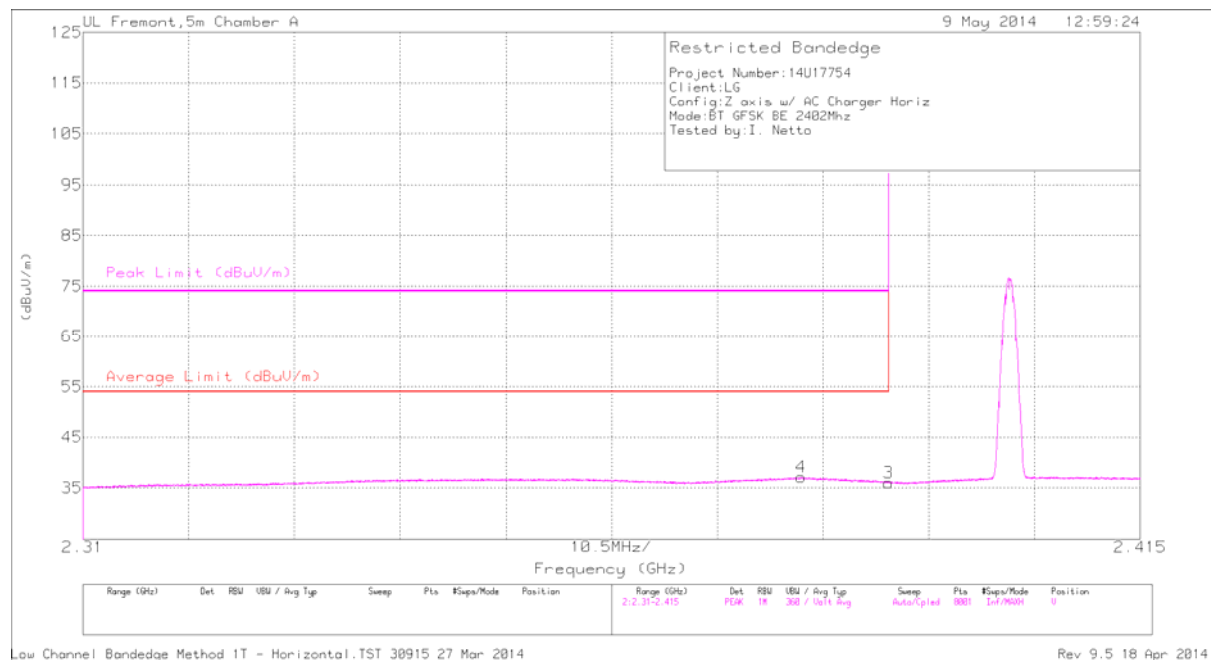
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/F ltr/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	40.36	PK	32.2	-24.4	48.16	-	-	74	-25.84	306	372	H
2	* 2.346	41.41	PK	31.9	-23.8	49.51	-	-	74	-24.49	306	372	H

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

PK - Peak detector

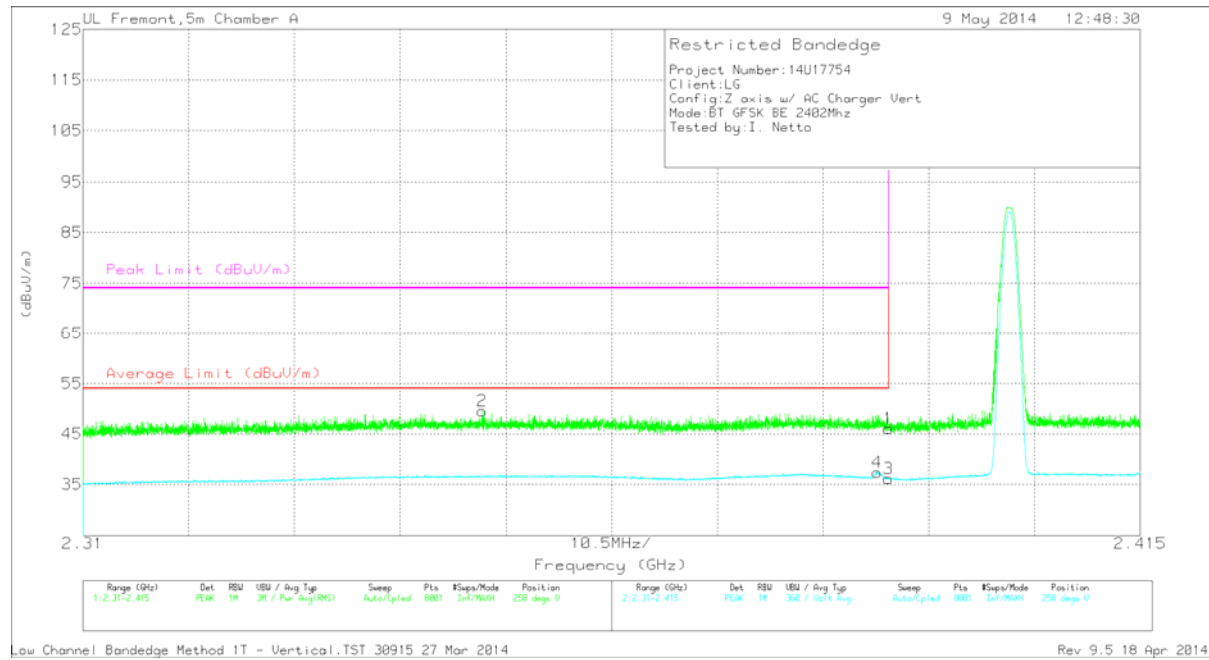


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Height (cm)	Polarity
4	* 2.381	28.39	VB1T	32.2	-23.5	37.09	54	-16.91	-	-	100	V
3	* 2.39	28.2	VB1T	32.2	-24.4	36	54	-18	-	-	100	V

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

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



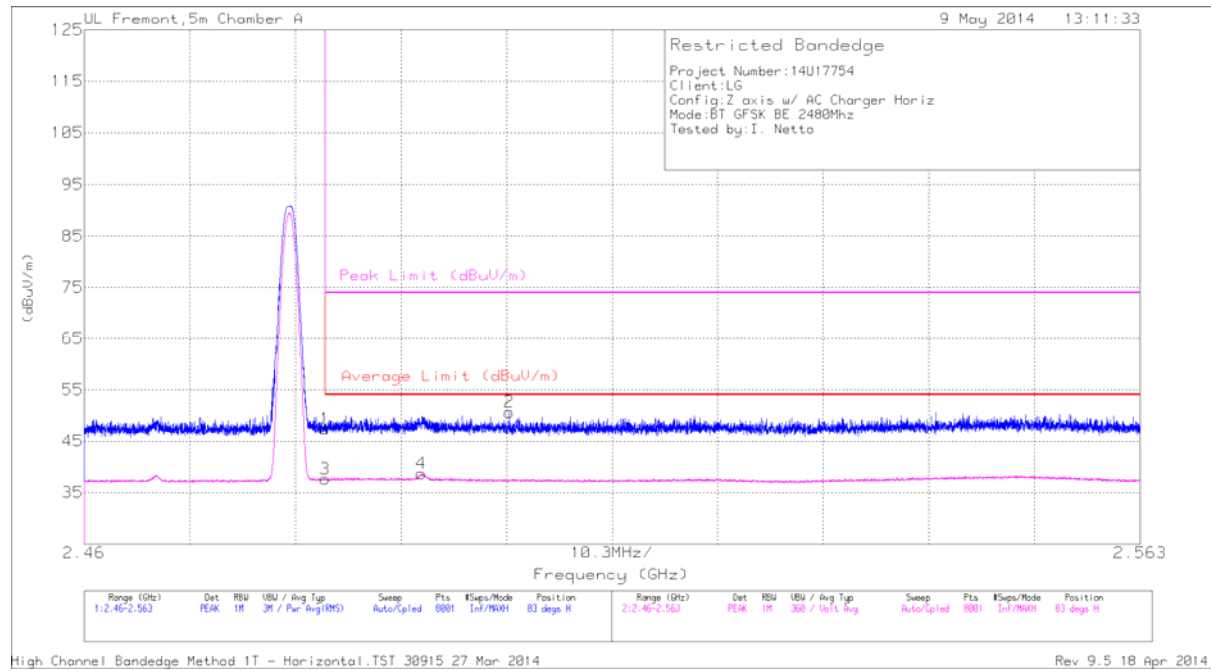
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.25	PK	32.2	-24.4	46.05	-	-	74	-27.95	258	328	V
2	* 2.35	41.36	PK	31.9	-23.7	49.56	-	-	74	-24.44	258	328	V
3	* 2.39	28.33	VB1T	32.2	-24.4	36.13	54	-17.87	-	-	258	328	V
4	* 2.389	29.49	VB1T	32.2	-24.3	37.39	54	-16.61	-	-	258	328	V

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

RESTRICTED BANDEGE (HIGH CHANNEL, HORIZONTAL)



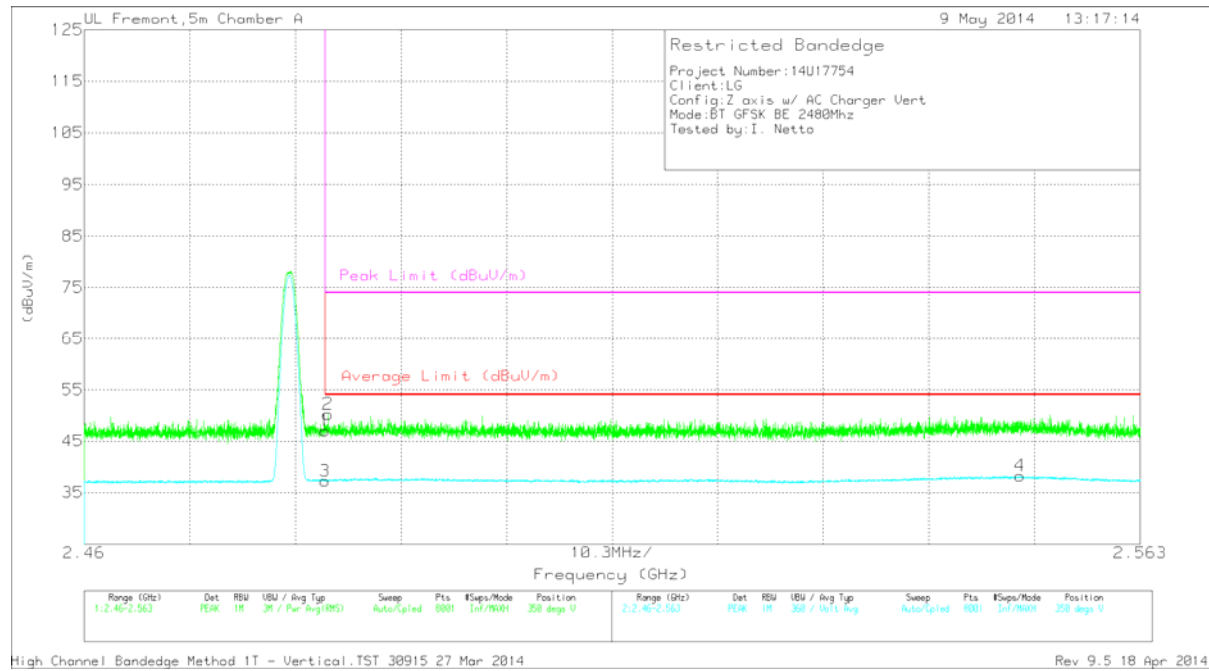
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.16	PK	32.7	-23.5	47.36	-	-	74	-26.64	83	101	H
3	* 2.484	28.41	VB1T	32.7	-23.5	37.61	54	-16.39	-	-	83	101	H
4	* 2.493	29.38	VB1T	32.8	-23.5	38.68	54	-15.32	-	-	83	101	H
2	2.501	41.54	PK	32.8	-23.7	50.64	-	-	74	-23.36	83	101	H

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	37.82	PK	32.7	-23.5	47.02	-	-	74	-26.98	350	282	V
2	* 2.484	41.04	PK	32.7	-23.5	50.24	-	-	74	-23.76	350	282	V
3	* 2.484	28.06	VB1T	32.7	-23.5	37.26	54	-16.74	-	-	350	282	V
4	2.551	28.47	VB1T	32.9	-23.1	38.27	54	-15.73	-	-	350	282	V

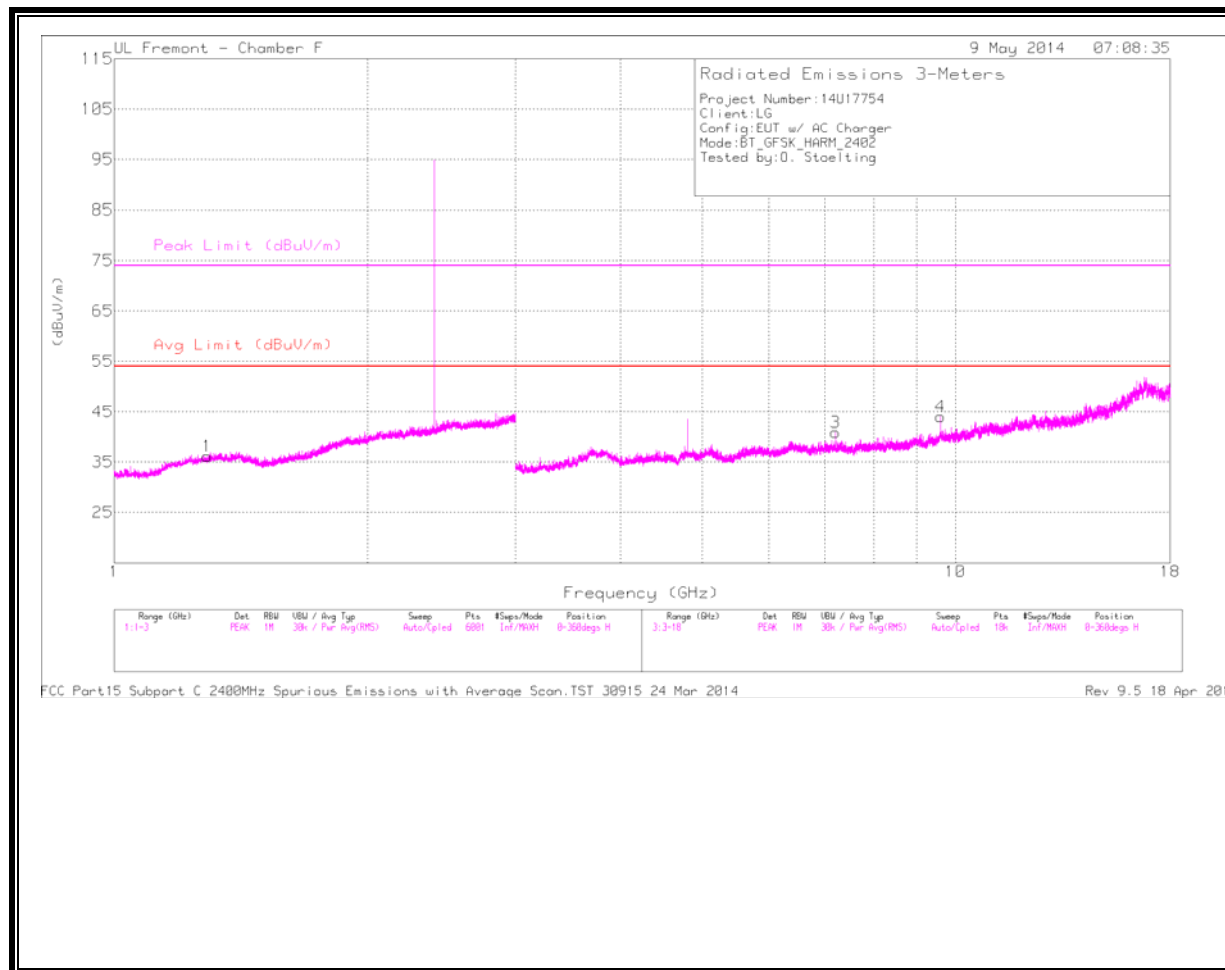
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

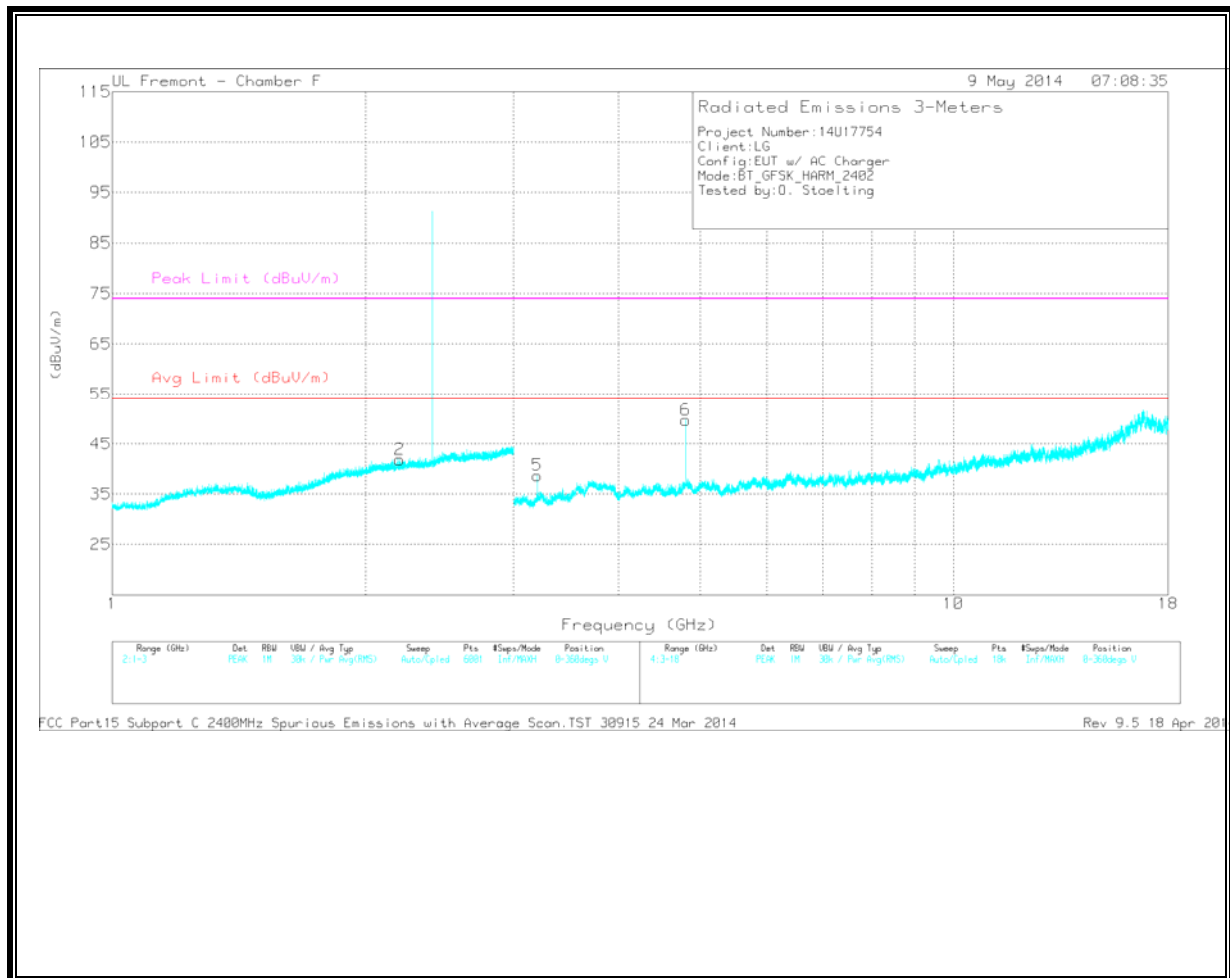
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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.



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

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	* 1.29	33.36	PK	29.9	-27.1	36.16	-	-	74	-37.84	0-360	101	H
2	2.197	33.96	PK	31.8	-23.9	41.86	-	-	-	-	0-360	199	V
3	7.206	32.19	PK	35.5	-26.8	40.89	-	-	-	-	0-360	201	H
4	9.608	28.54	PK	36.9	-21.4	44.04	-	-	-	-	0-360	201	H
5	3.202	34.82	PK	33.3	-29.4	38.72	-	-	-	-	0-360	200	V
6	* 4.804	43.02	PK	34.1	-27.4	49.72	-	-	74	-24.28	0-360	200	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.804	45.45	PK3	34.1	-27.4	52.15	-	-	74	-21.85	137	204	V
* 4.804	40.69	VB1T	34.1	-27.4	47.39	54	-6.61	-	-	137	204	V

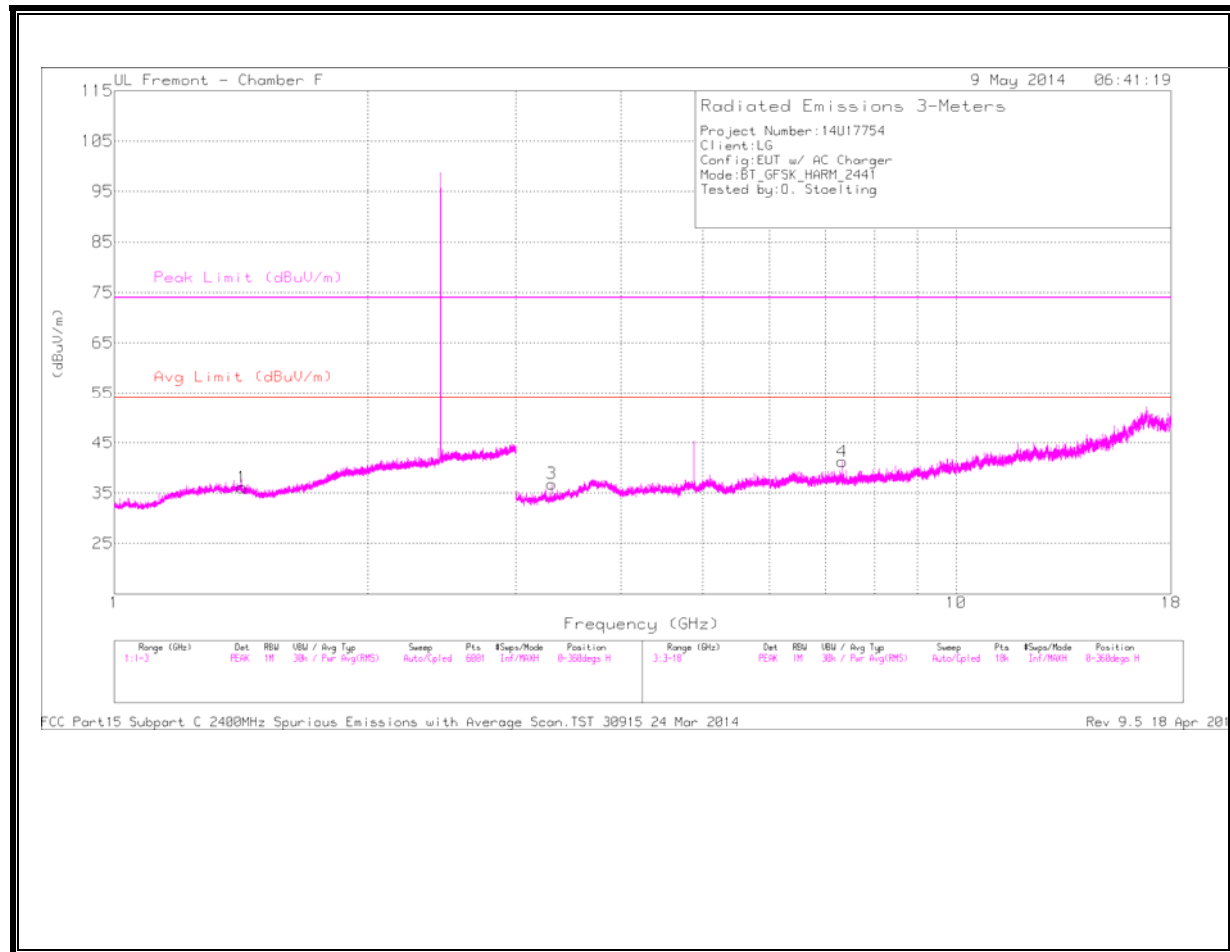
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

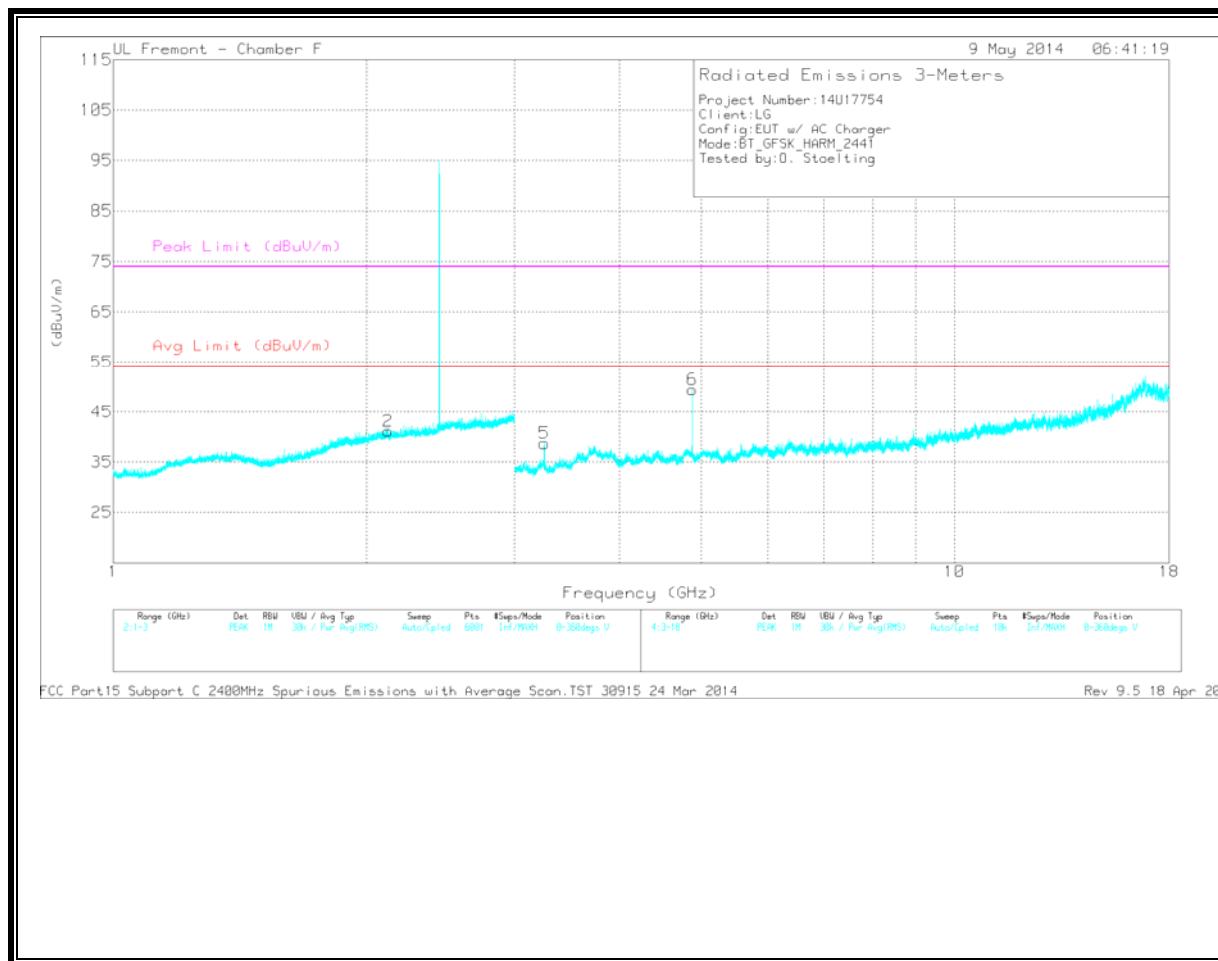
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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.



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

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	* 1.42	32.51	PK	29.1	-25.5	36.11	-	-	74	-37.89	0-360	200	H
2	2.121	33.36	PK	31.8	-24	41.16	-	-	-	-	0-360	199	V
3	3.307	32.54	PK	33.7	-29.4	36.84	-	-	-	-	0-360	201	H
4	* 7.323	32.36	PK	35.6	-26.7	41.26	-	-	74	-32.74	0-360	201	H
5	3.255	34.43	PK	33.5	-29.2	38.73	-	-	-	-	0-360	101	V
6	* 4.882	43.13	PK	34.2	-27.9	49.43	-	-	74	-24.57	0-360	199	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/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
* 4.882	46.76	PK3	34.2	-27.9	53.06	-	-	74	-20.94	137	167	V
* 4.882	42.41	VB1T	34.2	-27.9	48.71	54	-5.29	-	-	137	167	V

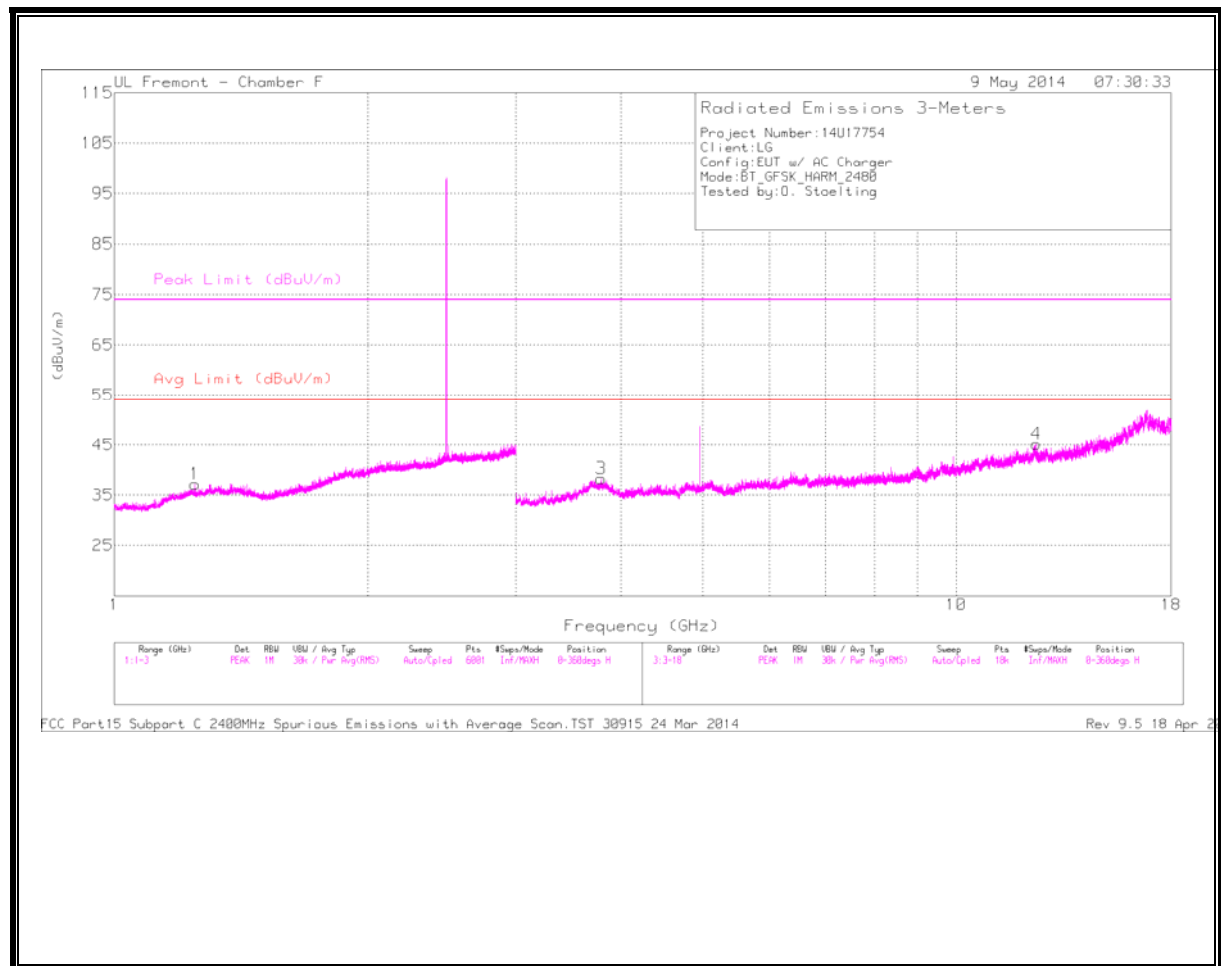
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

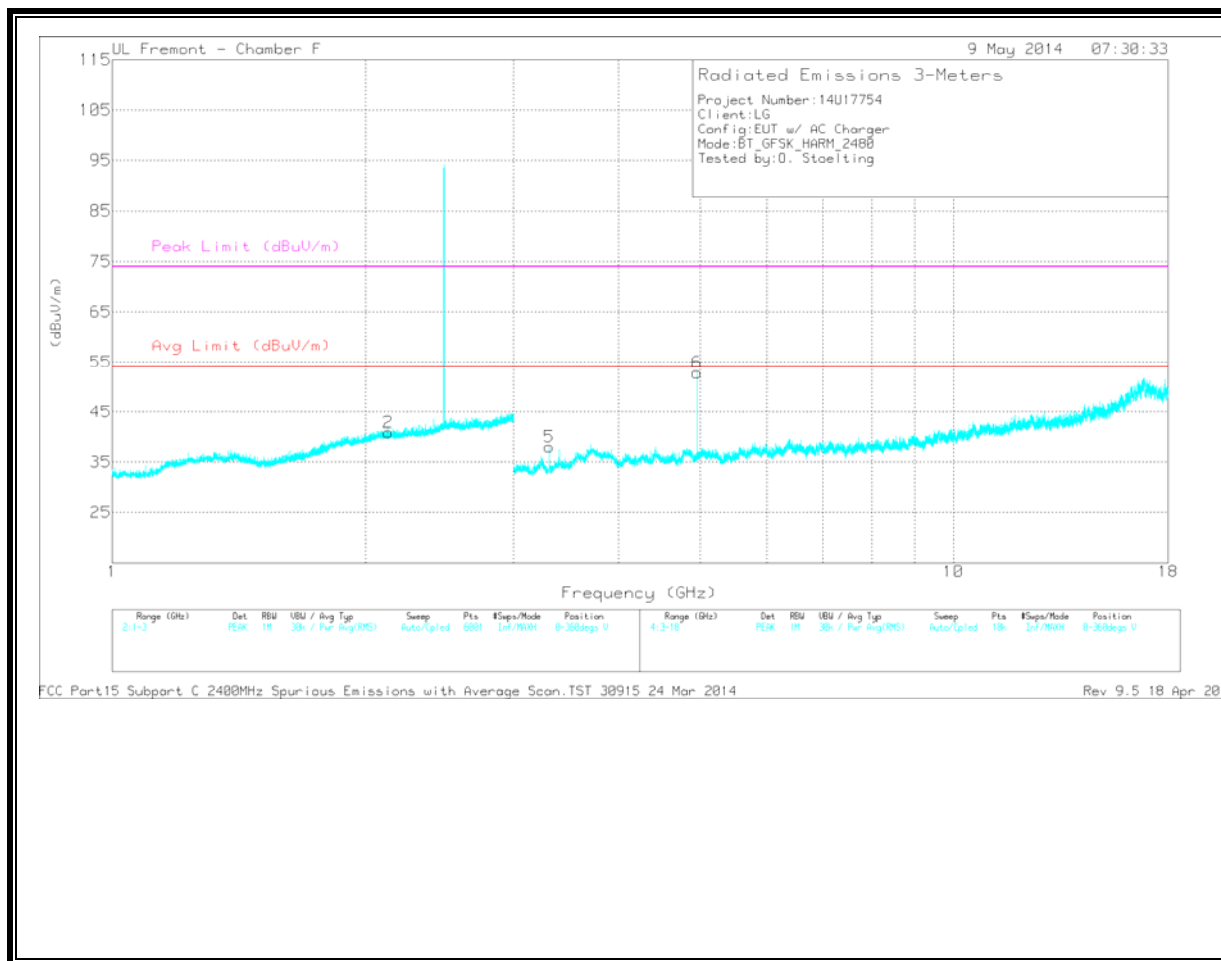
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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.



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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	* 1.248	34.3	PK	29.5	-26.6	37.2	-	-	74	-36.8	0-360	202	H
2	2.128	33.2	PK	31.8	-24.1	40.9	-	-	-	-	0-360	200	V
3	* 3.787	33	PK	34.4	-29.1	38.3	-	-	74	-35.7	0-360	101	H
4	* 12.456	28.38	PK	38.9	-22.1	45.18	-	-	74	-28.82	0-360	101	H
5	3.307	33.72	PK	33.7	-29.4	38.02	-	-	-	-	0-360	199	V
6	* 4.96	47.85	PK	34.2	-29.2	52.85	-	-	74	-21.15	0-360	199	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	49.44	PK3	34.2	-29.2	54.44	-	-	74	-19.56	134	233	V
* 4.96	45.68	VB1T	34.2	-29.2	50.68	54	-3.32	-	-	134	233	V

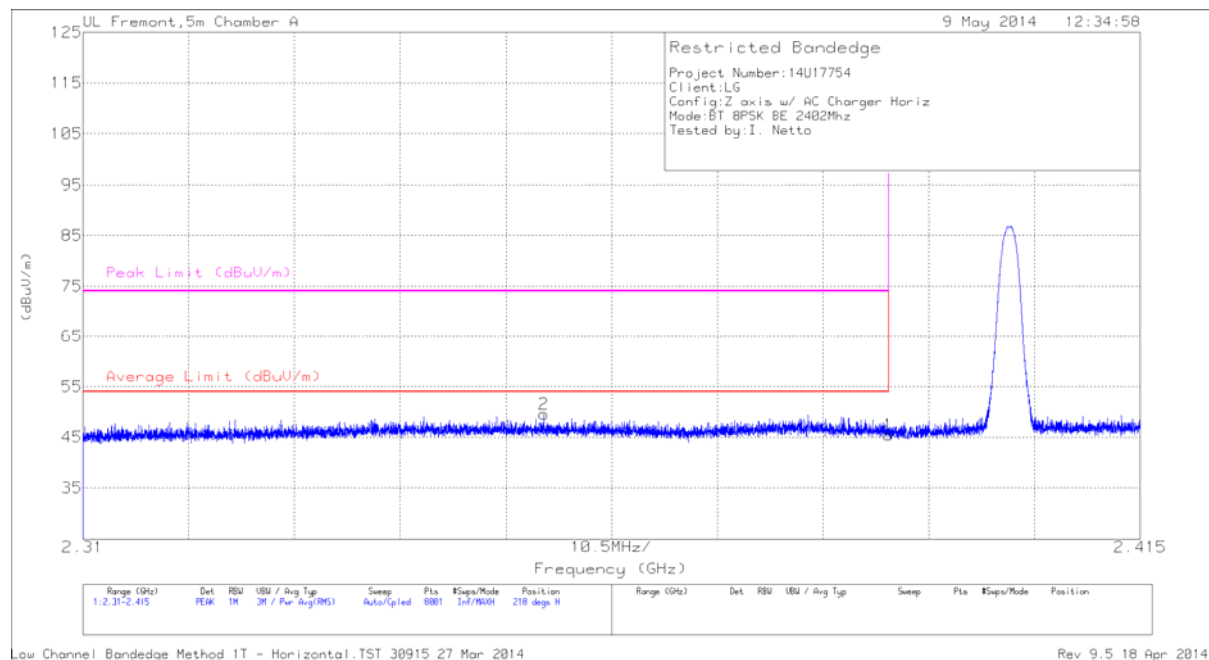
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

8.2.2. ENHANCED DATA RATE 8PSK MODULATION

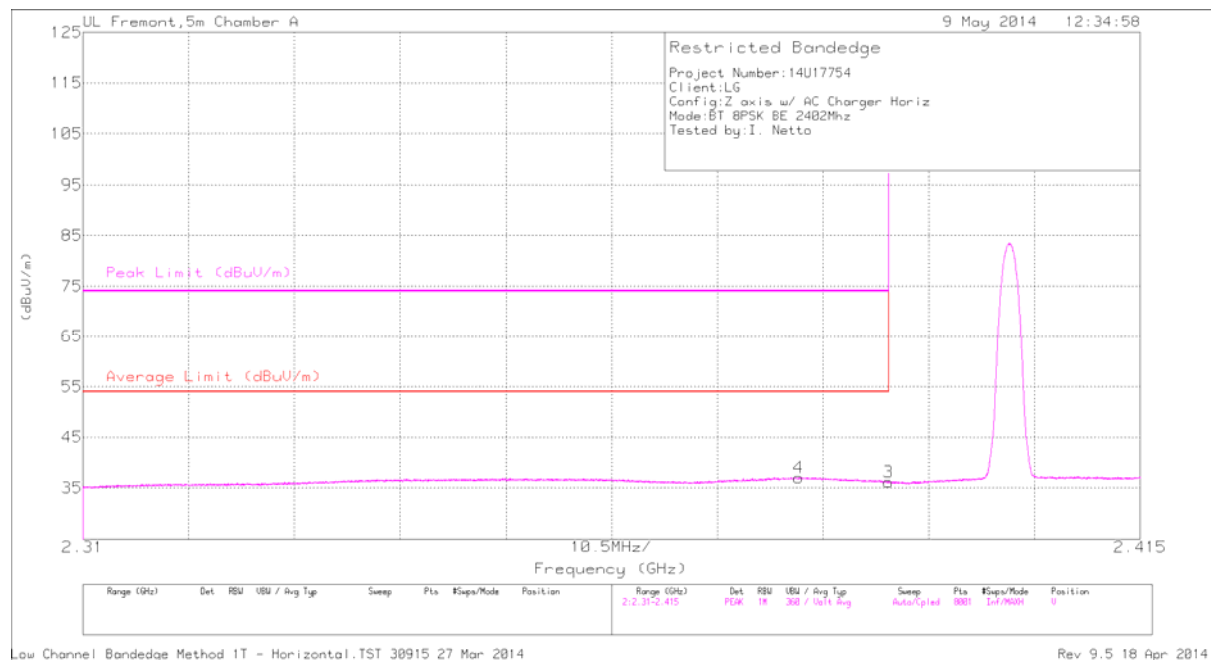
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/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	37.61	PK	32.2	-24.4	45.41	-	-	74	-28.59	218	125	H
2	* 2.356	41.47	PK	31.9	-23.8	49.57	-	-	74	-24.43	218	125	H

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

PK - Peak detector

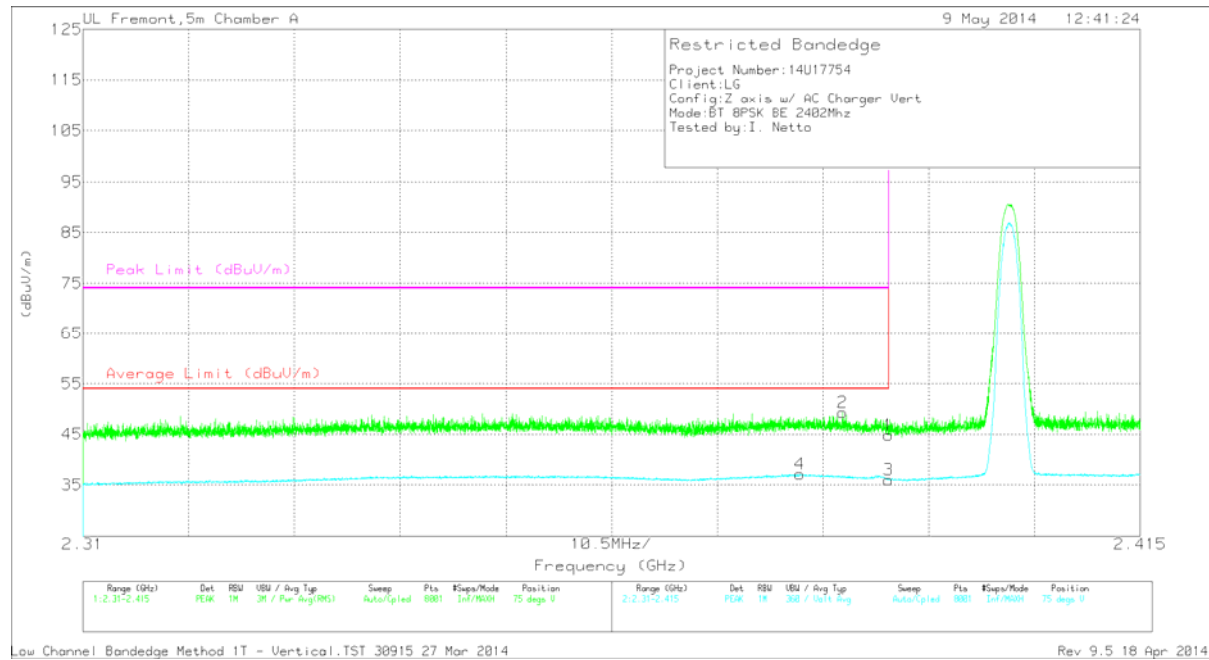


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Height (cm)	Polarity
4	* 2.381	28.36	VB1T	32.2	-23.5	37.06	54	-16.94	-	-	100	V
3	* 2.39	28.33	VB1T	32.2	-24.4	36.13	54	-17.87	-	-	100	V

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

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



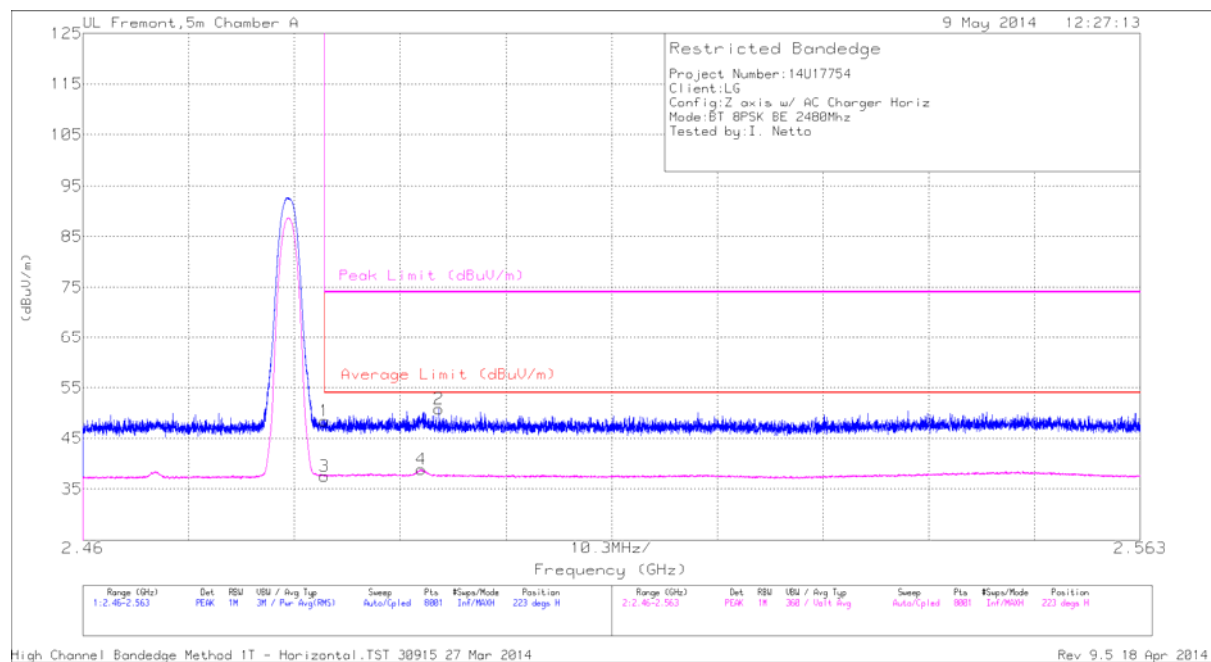
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37	PK	32.2	-24.4	44.8	-	-	74	-29.2	75	102	V
2	* 2.385	41.12	PK	32.2	-24	49.32	-	-	74	-24.68	75	102	V
3	* 2.39	28.24	VB1T	32.2	-24.4	36.04	54	-17.96	-	-	75	102	V
4	* 2.381	28.46	VB1T	32.2	-23.5	37.16	54	-16.84	-	-	75	102	V

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)



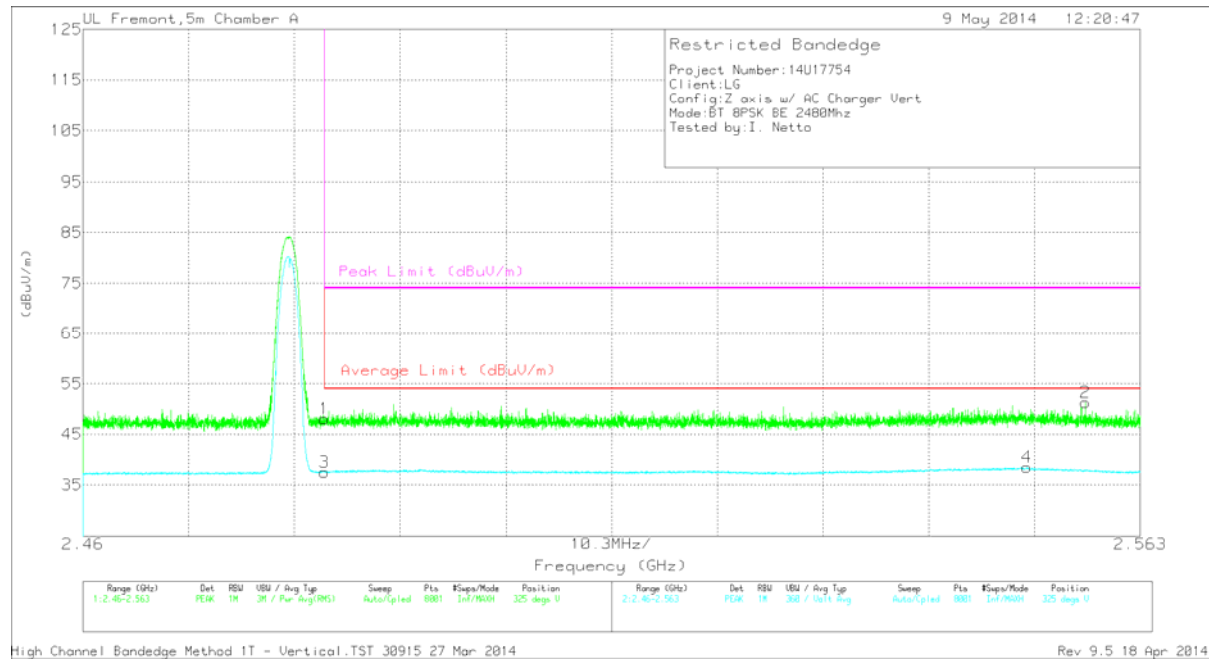
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.21	PK	32.7	-23.5	48.41	-	-	74	-25.59	223	196	H
2	* 2.495	41.52	PK	32.8	-23.5	50.82	-	-	74	-23.18	223	196	H
3	* 2.484	28.31	VB1T	32.7	-23.5	37.51	54	-16.49	-	-	223	196	H
4	* 2.493	29.52	VB1T	32.8	-23.5	38.82	54	-15.18	-	-	223	196	H

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

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 2.484	38.85	PK	32.7	-23.5	48.05	-	-	74	-25.95	325	365	V
3	* 2.484	28.25	VB1T	32.7	-23.5	37.45	54	-16.55	-	-	325	365	V
4	2.552	28.7	VB1T	32.9	-23.1	38.5	54	-15.5	-	-	325	365	V
2	2.558	41.94	PK	32.9	-23.5	51.34	-	-	74	-22.66	325	365	V

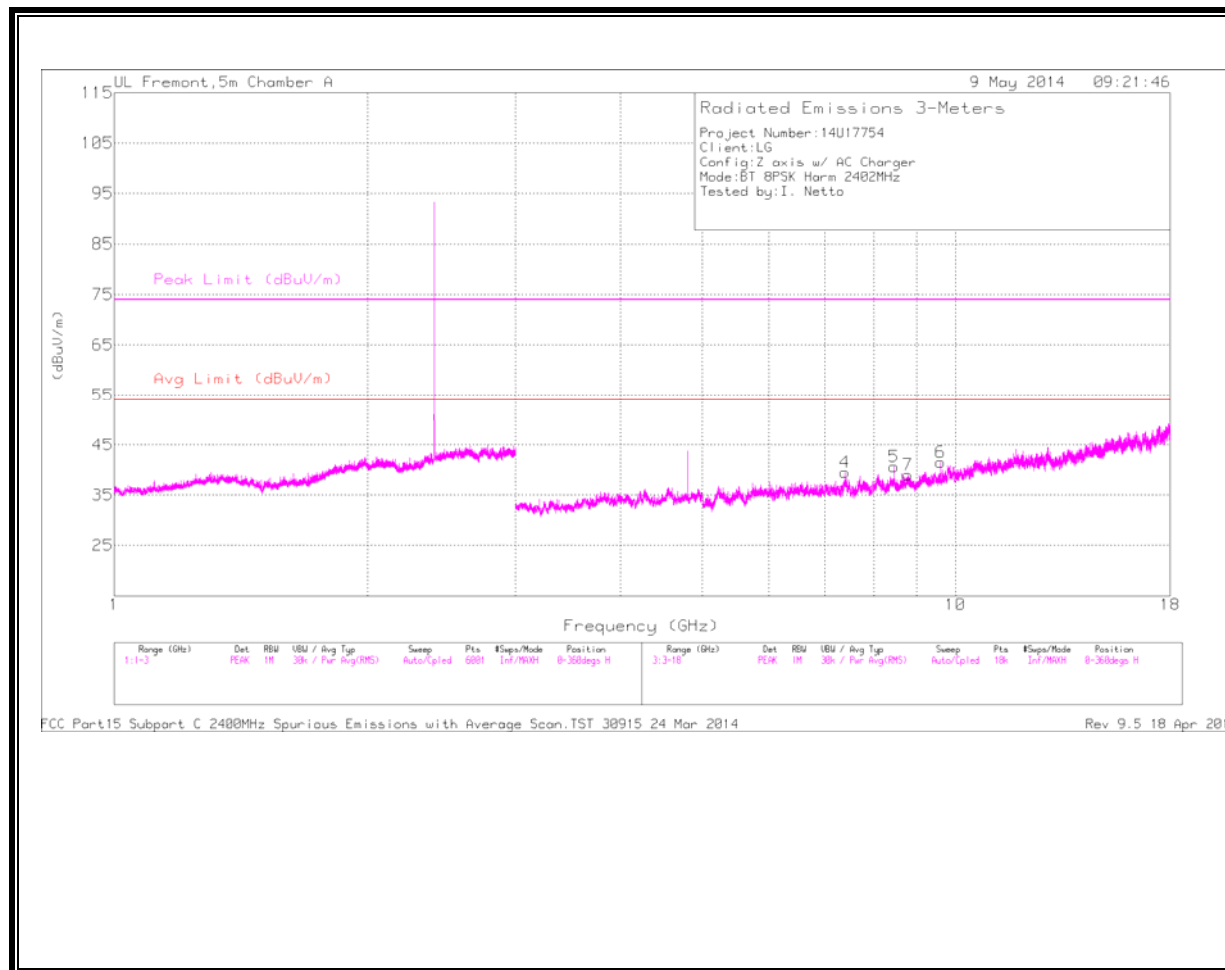
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

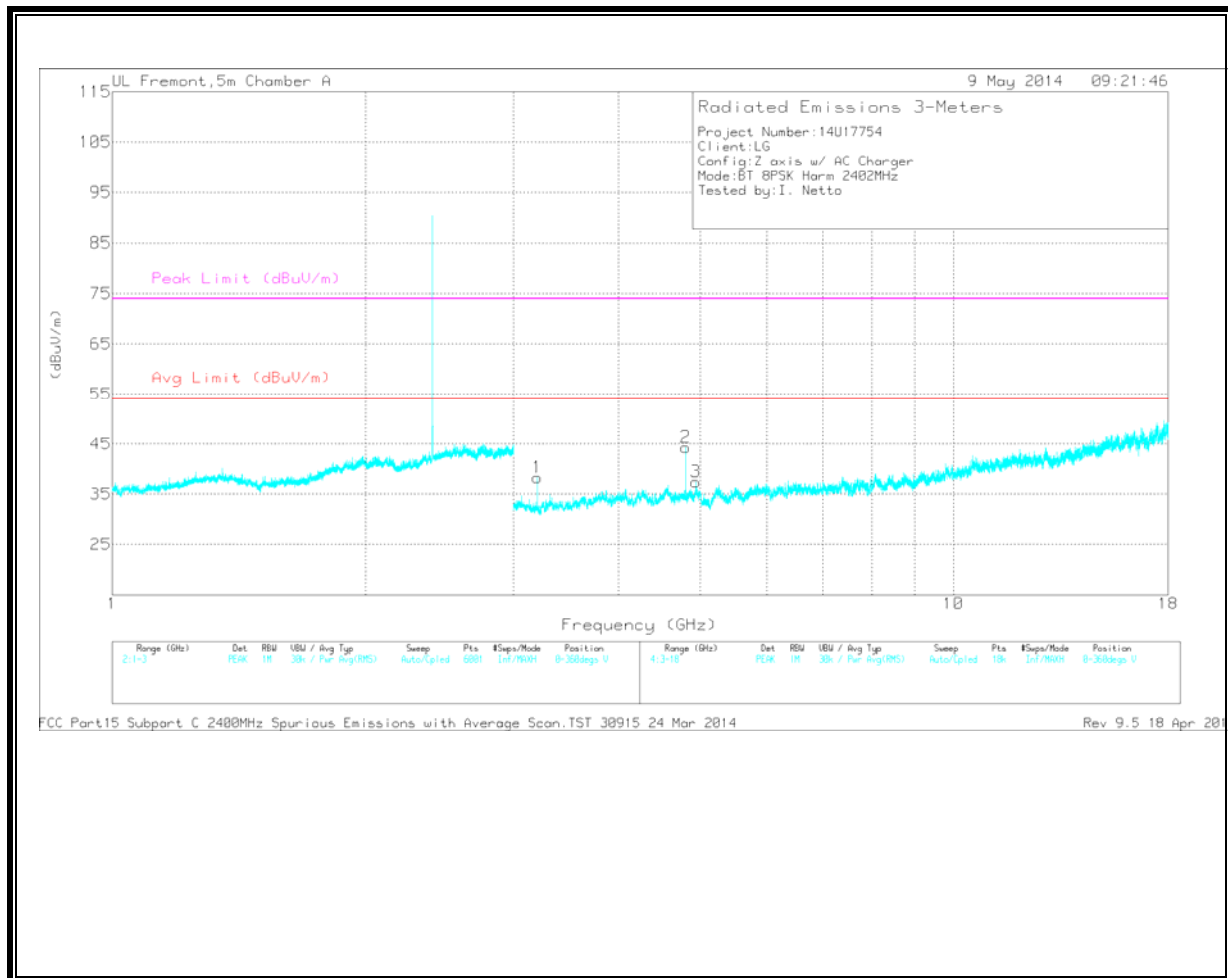
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

VERTICAL



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

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 7.39	28.7	PK	35.3	-24.5	39.5	-	-	74	-34.5	0-360	201	H
5	* 8.449	29.32	PK	35.7	-24.4	40.62	-	-	74	-33.38	0-360	201	H
2	* 4.804	40.3	PK	34	-30	44.3	-	-	74	-29.7	0-360	200	V
3	* 4.944	32.46	PK	33.9	-28.9	37.46	-	-	74	-36.54	0-360	100	V
1	3.202	37.62	PK	32.6	-31.9	38.32	-	-	-	-	0-360	200	V
7	8.783	26.83	PK	35.8	-23.6	39.03	-	-	-	-	0-360	100	H
6	9.608	29.32	PK	36.8	-24.6	41.52	-	-	-	-	0-360	201	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
* 7.389	35.42	PK3	35.3	-24.5	46.22	-	-	74	-27.78	1	100	H
* 8.449	35.12	PK3	35.7	-24.4	46.42	-	-	74	-27.58	1	100	H
* 4.946	39.47	PK3	33.9	-29	44.37	-	-	74	-29.63	1	100	V
* 4.804	47.56	PK3	34	-30	51.56	-	-	74	-22.44	233	247	V
* 4.804	39.54	VB1T	34	-30	43.54	54	-10.46	-	-	233	247	V
3.203	44.36	PK3	32.6	-31.9	45.06	-	-	-	-	196	193	V
3.203	36.76	VB1T	32.6	-31.9	37.46	-	-	-	-	196	193	V
8.783	35.05	PK3	35.8	-23.6	47.25	-	-	-	-	1	100	H
9.608	35.61	PK3	36.8	-24.6	47.81	-	-	-	-	1	100	H

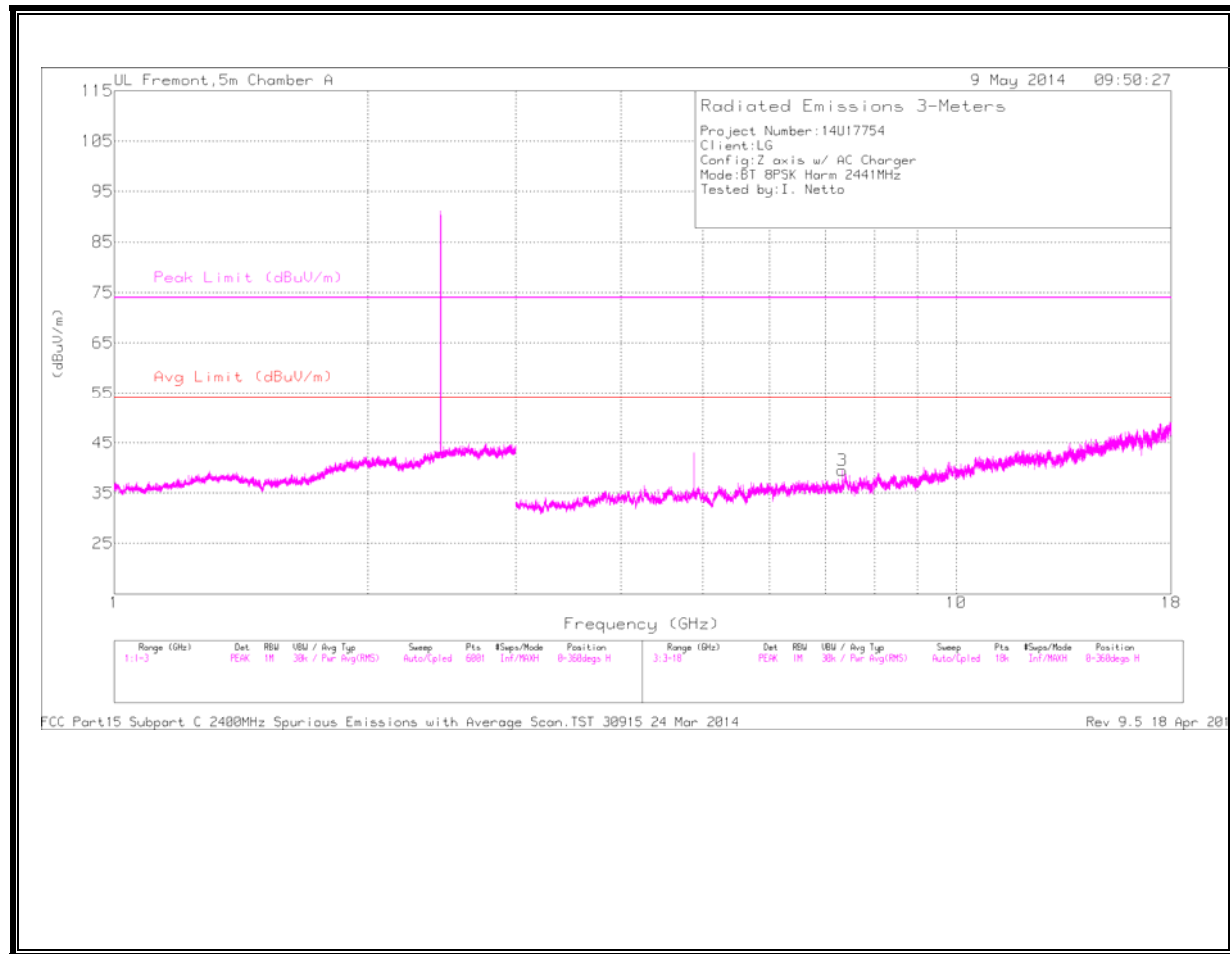
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

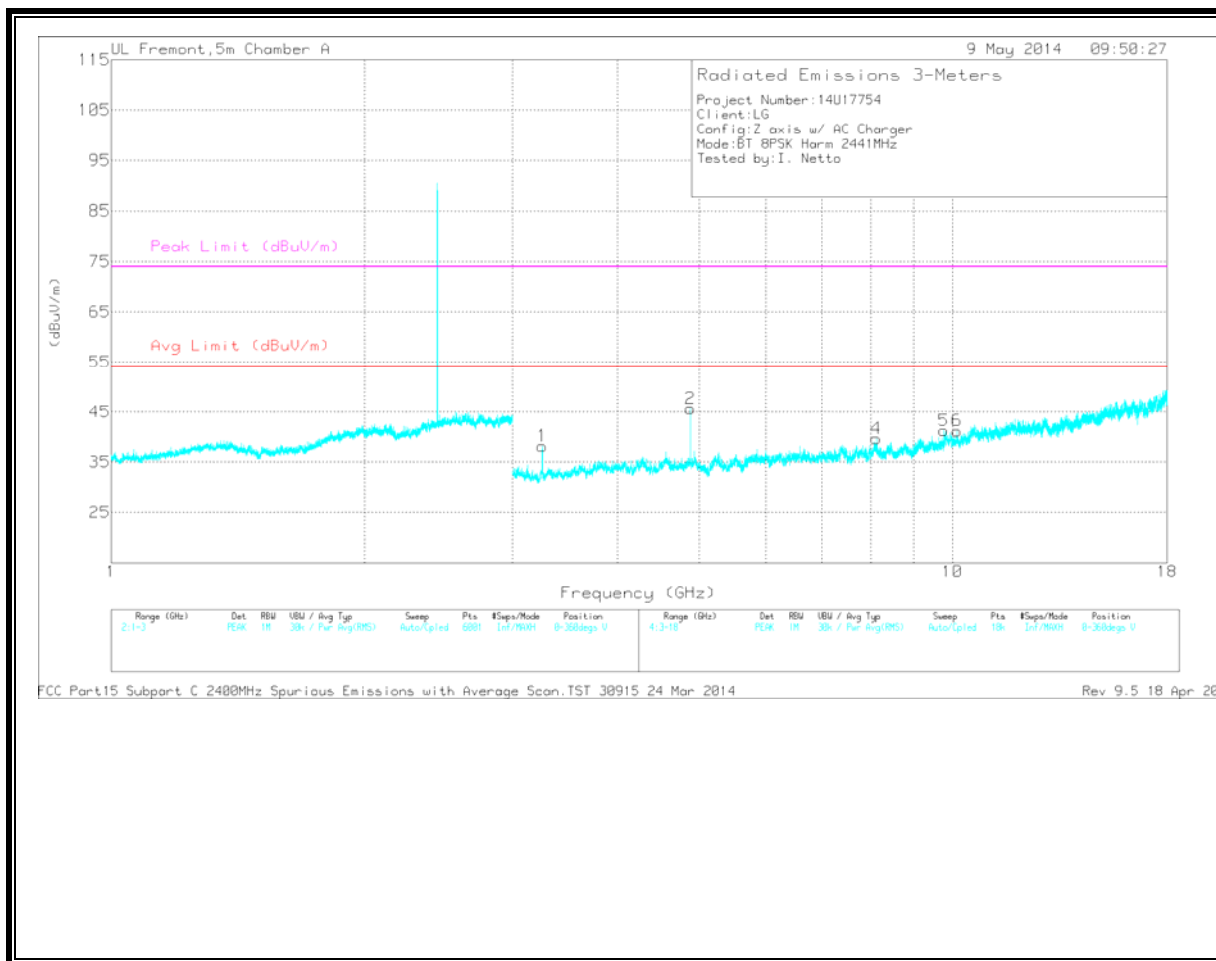
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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.



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

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 7.322	30.91	PK	35.2	-26.6	39.51	-	-	74	-34.49	0-360	201	H
2	* 4.882	39.95	PK	34	-28.3	45.65	-	-	74	-28.35	0-360	100	V
4	* 8.119	28.77	PK	35.5	-24.6	39.67	-	-	74	-34.33	0-360	100	V
1	3.255	37.2	PK	32.8	-31.8	38.2	-	-	-	-	0-360	100	V
5	9.764	28.28	PK	36.9	-23.9	41.28	-	-	-	-	0-360	200	V
6	10.134	27.02	PK	37.1	-22.9	41.22	-	-	-	-	0-360	100	V

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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
* 7.324	36.92	PK3	35.2	-26.5	45.62	-	-	74	-28.38	359	100	H
* 8.12	35.91	PK3	35.5	-24.7	46.71	-	-	74	-27.29	359	100	V
* 4.882	46.97	PK3	34	-28.3	52.67	-	-	74	-21.33	225	174	V
* 4.882	38.68	VB1T	34	-28.3	44.38	54	-9.62	-	-	225	174	V
3.255	42.84	PK3	32.8	-31.8	43.84	-	-	-	-	211	308	V
3.255	34.54	VB1T	32.8	-31.8	35.54	-	-	-	-	211	308	V
9.764	34.15	PK3	36.9	-23.9	47.15	-	-	-	-	359	100	V
10.134	34.26	PK3	37.1	-22.9	48.46	-	-	-	-	359	100	V

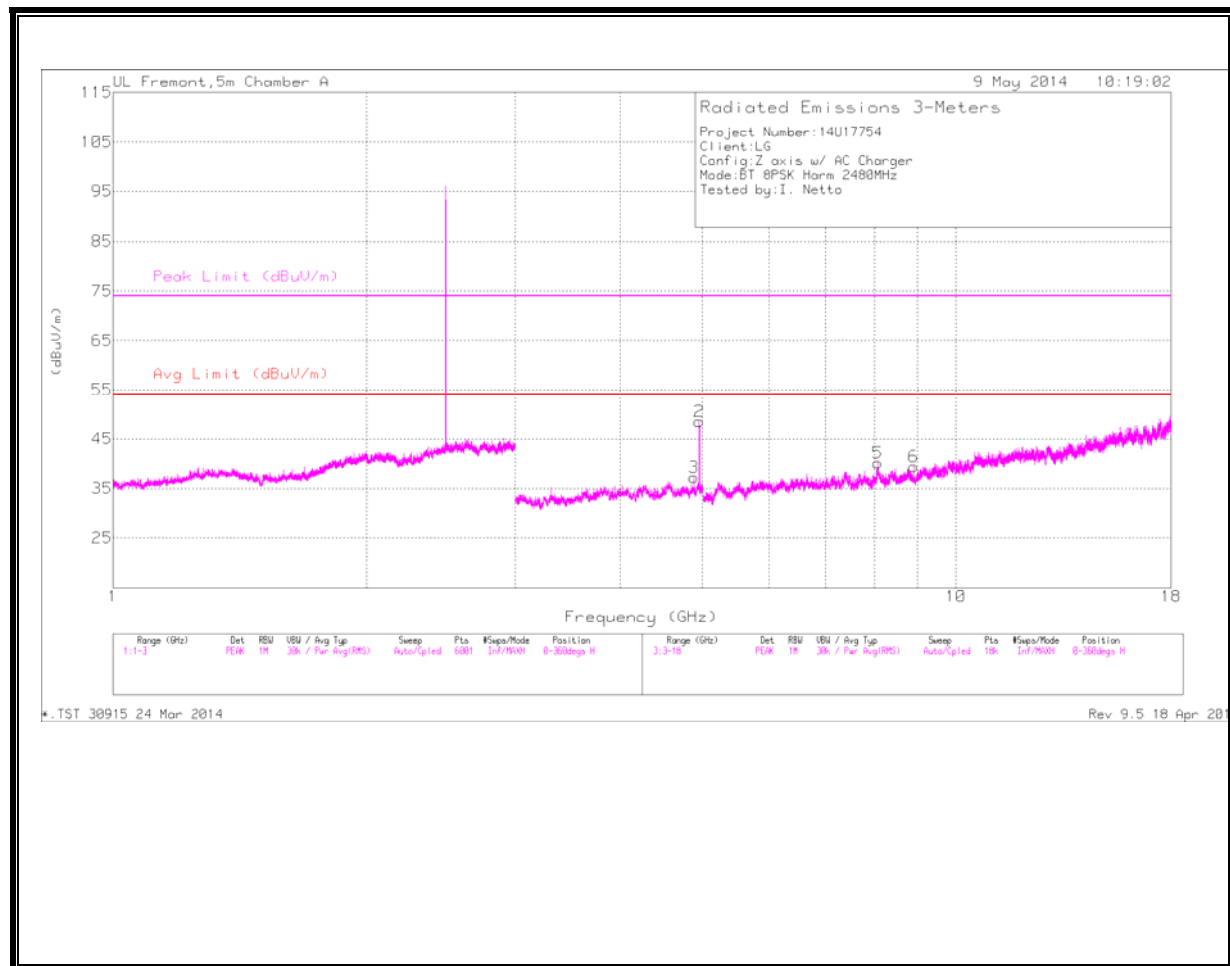
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK3 - FHSS Method: Maximum Peak

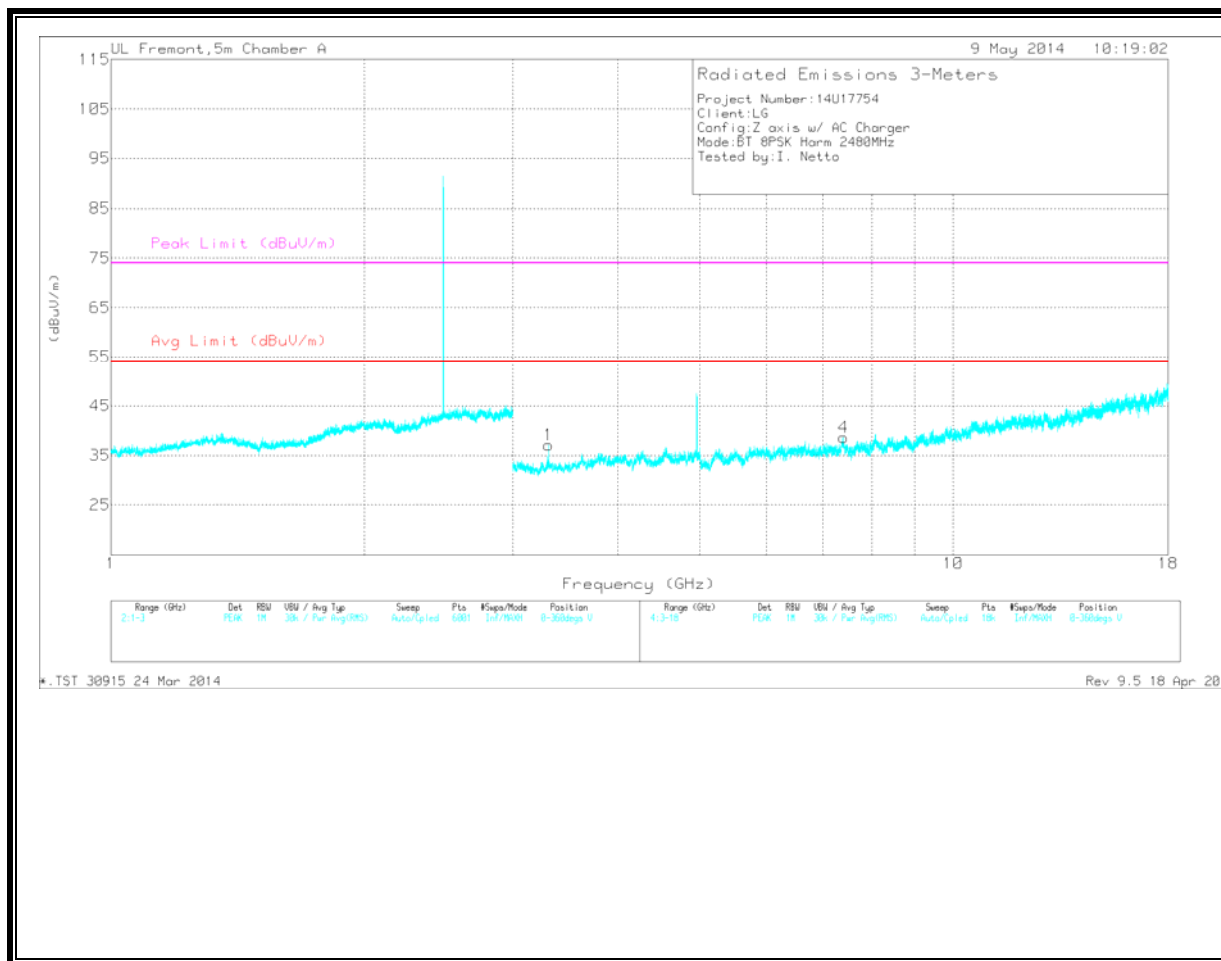
VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

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.

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (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	* 4.96	44.33	PK	33.9	-29.7	48.53	-	-	74	-25.47	0-360	100	H
3	* 4.887	31.84	PK	34	-28.6	37.24	-	-	74	-36.76	0-360	201	H
5	* 8.076	28.05	PK	35.5	-23.4	40.15	-	-	74	-33.85	0-360	100	H
4	* 7.405	28.43	PK	35.3	-25.1	38.63	-	-	74	-35.37	0-360	200	V
1	3.307	35.05	PK	32.9	-30.8	37.15	-	-	-	-	0-360	100	V
6	8.907	29.62	PK	35.8	-26	39.42	-	-	-	-	0-360	201	H

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

PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.885	39.21	PK3	34	-28.5	44.71	-	-	74	-29.29	359	100	H
* 8.074	36.01	PK3	35.5	-23.6	47.91	-	-	74	-26.09	359	100	H
* 7.407	35.81	PK3	35.3	-25.1	46.01	-	-	74	-27.99	359	100	V
* 4.96	50.69	PK3	33.9	-29.7	54.89	-	-	74	-19.11	225	263	V
* 4.96	43.35	VB1T	33.9	-29.7	47.55	54	-6.45	-	-	225	263	V
3.306	42.31	PK3	32.9	-30.8	44.41	-	-	-	-	236	228	V
3.307	34.73	VB1T	32.9	-30.8	36.83	-	-	-	-	236	228	V
8.906	36.76	PK3	35.8	-26	46.56	-	-	-	-	359	100	H

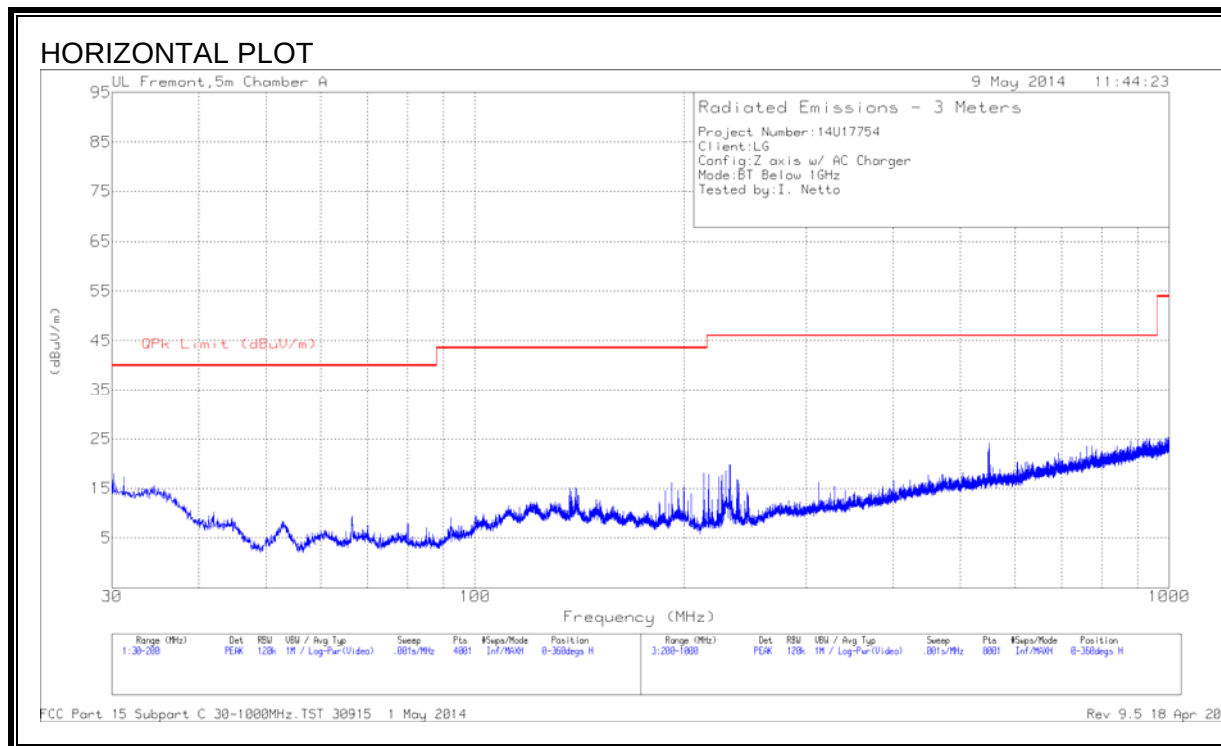
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

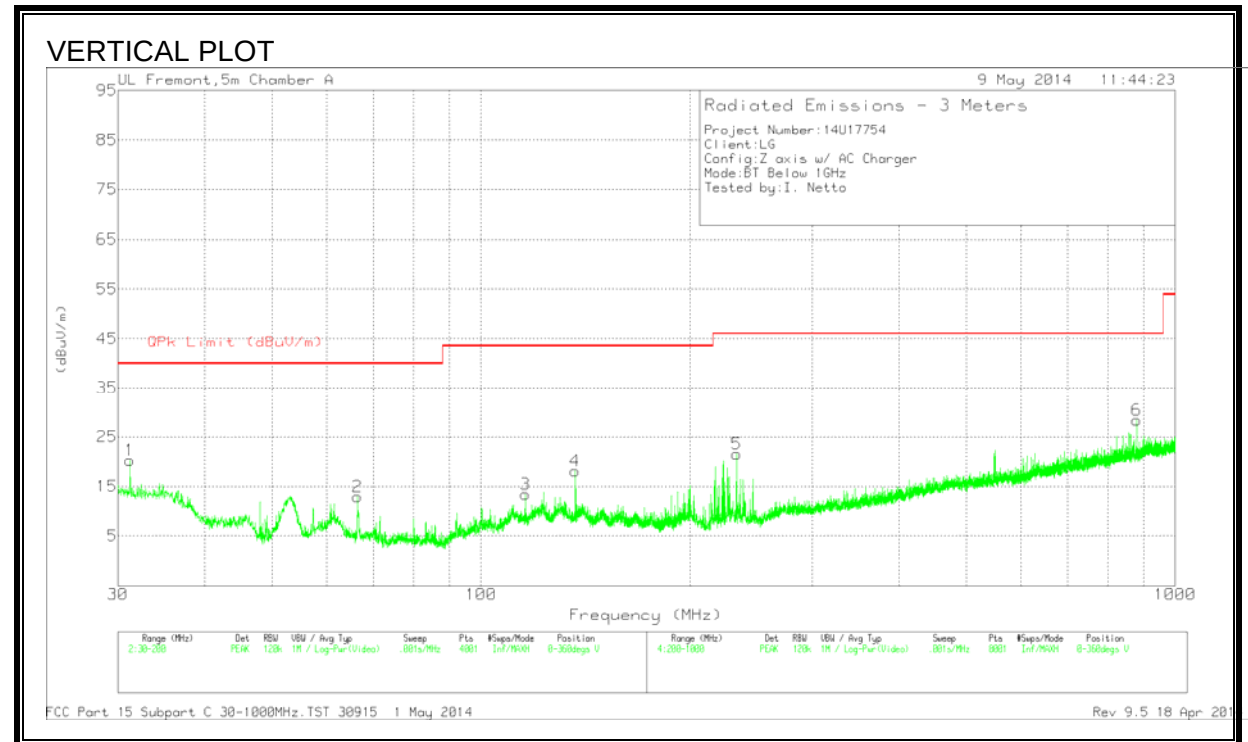
PK3 - FHSS Method: Maximum Peak

VB1T - FHSS Method: VB=1/Ton, Voltage Averaging Max Hold where: Ton is the duration of the packet

8.3. WORST-CASE BELOW 1 GHz

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





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
3	* 115.85	30.25	PK	13.5	-30.3	13.45	43.52	-30.07	0-360	101	V
4	* 136.6325	35.01	PK	13.5	-30.4	18.11	43.52	-25.41	0-360	101	V
1	31.2325	30.88	PK	20.6	-31.2	20.28	40	-19.72	0-360	101	V
2	66.38	35.35	PK	8.2	-30.6	12.95	40	-27.05	0-360	101	V
5	233.4	39.87	PK	11.3	-29.6	21.57	46.02	-24.45	0-360	101	V
6	880	33.84	PK	21.9	-27.4	28.34	46.02	-17.68	0-360	200	V

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

PK - Peak detector