FCC 47 CFR PART 15 SUBPART C

C2PC CERTIFICATION TEST REPORT

FOR

WALKIE-TALKIE ACCESSORY

MODEL NAME: GVC200WTH

MODEL NUMBER: LG-VC200, LGVC200, VC200, LG-VC200B, LGVC200B, VC200B

FCC ID: ZNFVC200

REPORT NUMBER: 16I22629-E2V2

ISSUE DATE: 2/15/2016

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	1/26/2016	Initial Issue	D. CORONIA
V2	2/15/2016	Updated EUT Description	D. CORONIA

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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 5

5. EQUIPMENT UNDER TEST 6

5.1. DESCRIPTION OF EUT 6

5.2. MAXIMUM OUTPUT POWER 6

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 6

5.4. WORST-CASE CONFIGURATION AND MODE 6

5.5. DESCRIPTION OF TEST SETUP 7

6. TEST AND MEASUREMENT EQUIPMENT 9

7. SUMMARY TABLE 10

8. ANTENNA PORT TEST RESULTS 11

8.1. ON TIME, DUTY CYCLE 11

9. RADIATED EMISSION TEST 12

9.1. TRANSMITTER ABOVE 1 GHz 13

9.1.1. GFSK MODULATION 13

9.1.2. 8PSK MODULATION 23

9.2. WORST-CASE BELOW 1 GHz 33

10. SETUP PHOTOS 35

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION:	WALKIE-TALKIE ACCESSORY
MODEL NAME:	GVC200WTH
MODEL #:	LG-VC200, LGVC200, VC200, LG-VC200B, LGVC200B, VC200B
SERIAL NUMBER:	A1000040E03DCD, A1000040E03DCE, A1000040E03DC9
DATE TESTED:	JANUARY 13-14, 2016

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 revision 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
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WiSE ENGINEER
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2013 for FCC, FCC CFR 47 Part 2, and FCC CFR 47 Part 15.

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	☐ Chamber D
☒ Chamber B	☐ Chamber E
☐ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a WALKIE-TALKIE ACCESSORY.

5.2. MAXIMUM OUTPUT POWER

See original report for details.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an LMA antenna, with a maximum gain of -0.14 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit on the channel with higher 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.

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	DC1507	EAD62377906	N/A

I/O CABLES

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

TEST SETUP

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

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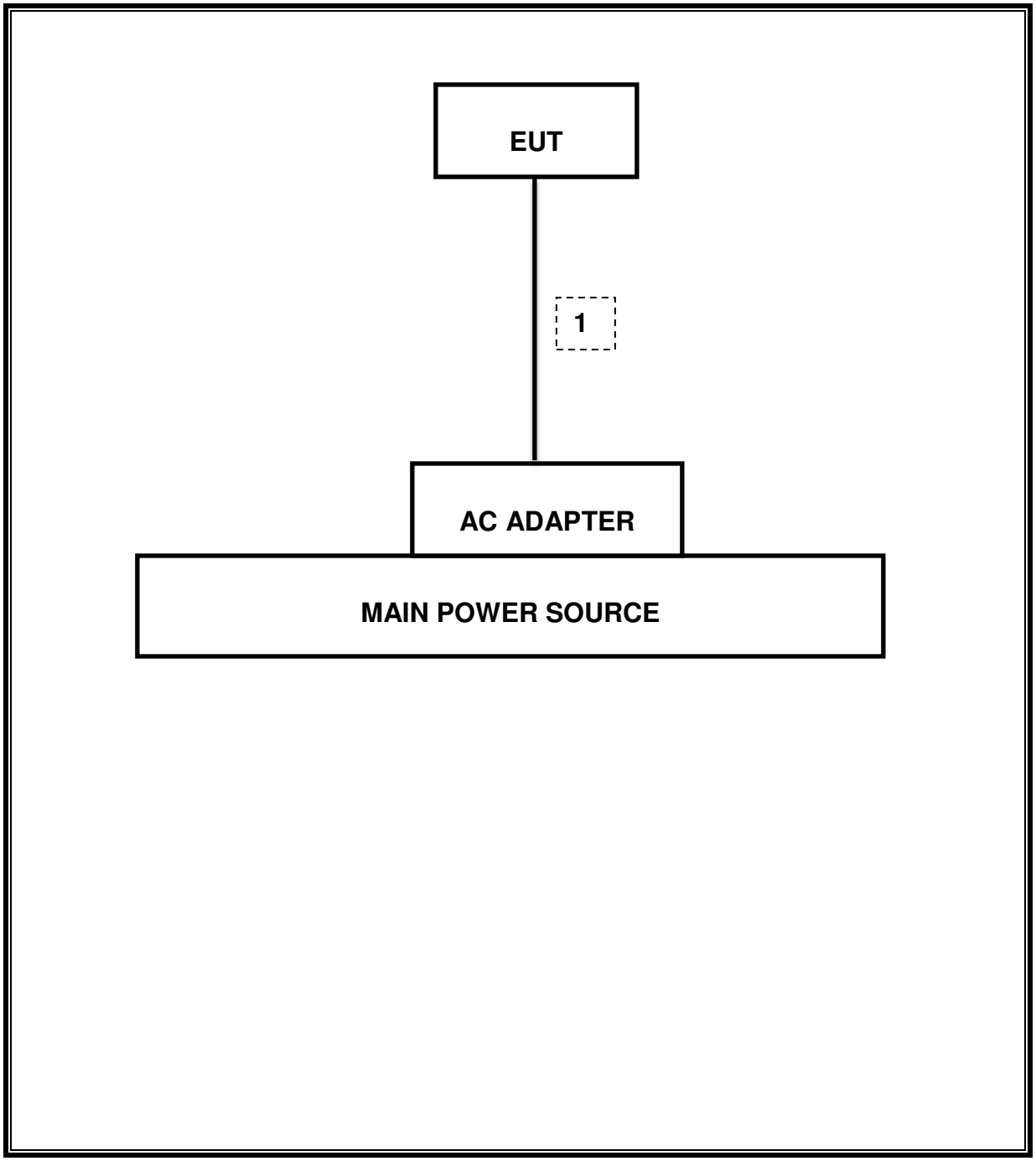
SETUP DIAGRAM FOR TESTS



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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**	**T Number**	**Cal Due**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	130	09/01/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	345	03/03/16
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/12/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	88	04/07/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
Amplifier, 10KHz to 1 GHz	Keysight	8447D	15	08/14/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	907	01/06/17
Bluetooth Tester	Rohde & Schwarz	CBT	438	04/24/16
Directional Coupler	Mini-Circuits	ZUDC10-183+	1140	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	417	05/04/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	893	04/25/16
High Pass Filter 3GHz	Micro-Tronics	HPS17543	898	04/25/16

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015

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7. SUMMARY TABLE

2PC Reason: Please see LG-VC200 FCC Class II change description for details.

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049	RSS-GEN 6.6	20 dB Occupied Bandwidth & (99%)	N/A	Conducted	See Original
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		See Original
15.247 (b)(1)	RSS-247 5.4.2	TX conducted output power	<21dBm		See Original
15.247 (a)(1)	RSS-247 5.1.2	Hopping frequency separation	> 25KHz		See Original
15.247 (a)(1)(iii)	RSS-247 5.1.4	Number of Hopping Channels	More than 15 non-overlapping channels		See Original
15.247 (a)(1)(iii)	RSS-247 5.1.4	Avg Time of Occupancy	< 0.4sec		See Original
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	See Original
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME, DUTY CYCLE

LIMITS

None; for reporting purposes only

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method

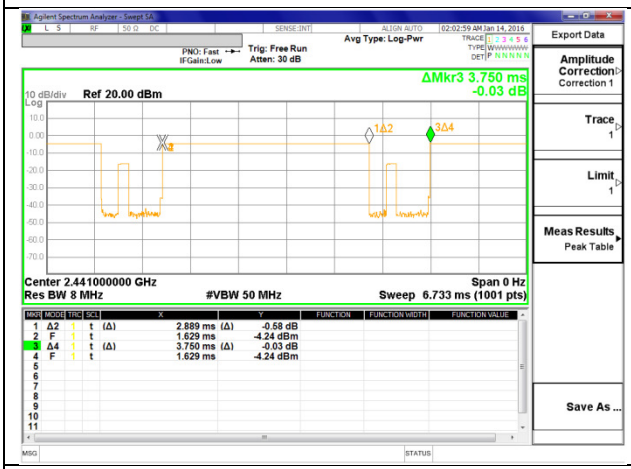
RESULTS

ON TIME AND DUTY CYCLE RESULTS

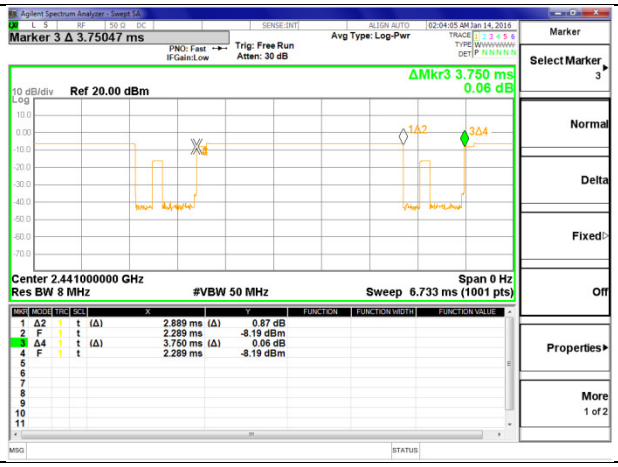
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
GFSK	2.899	3.750	0.773	77.31%	1.12	0.345
8PSK	2.899	3.75	0.773	77.31%	1.12	0.345

DUTY CYCLE PLOTS

GFSK



8PSK



NOTE: --

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9. RADIATED EMISSION TEST

LIMITS

FCC §15.205 and §15.209

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. 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. For example, GFSK = 1/T = 1 / 0.00288S = 347Hz.

The spectrum from 30 MHz 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.

RESULTS

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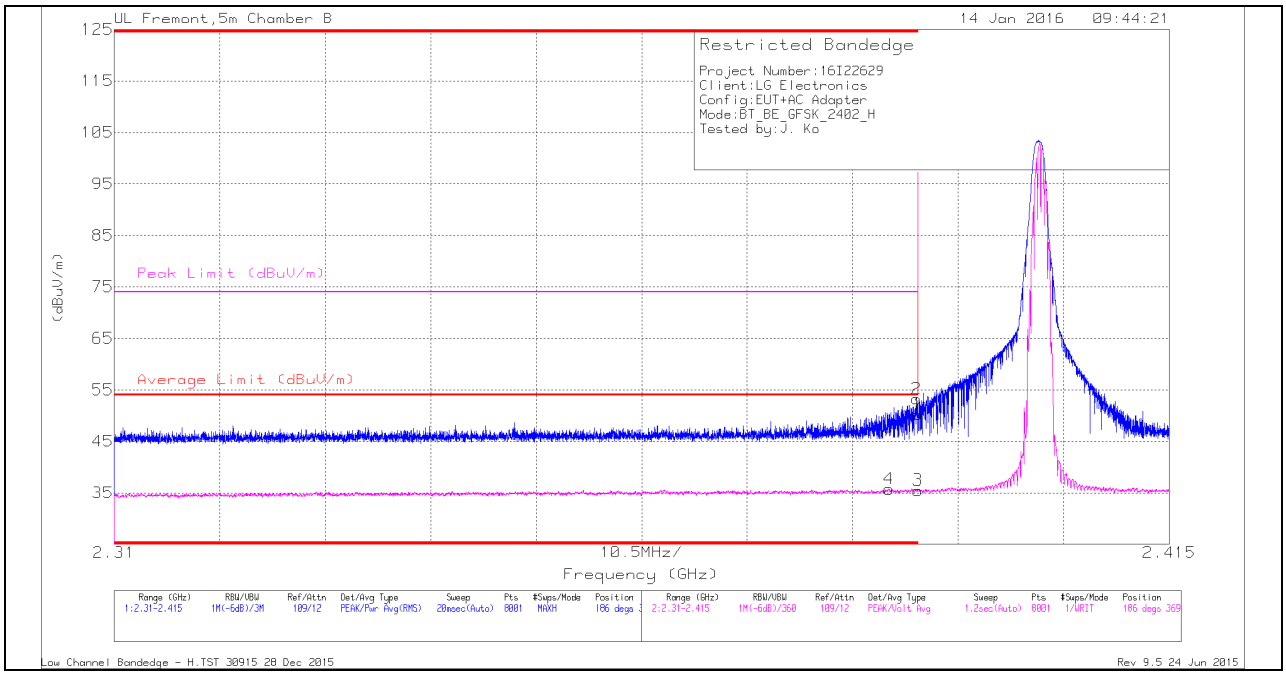
9.1. TRANSMITTER ABOVE 1 GHz

9.1.1. GFSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	40.13	Pk	32	-21.9	50.23	-	-	74	-23.77	186	369	H
2	* 2.39	43.14	Pk	32	-21.9	53.24	-	-	74	-20.76	186	369	H
3	* 2.39	25.37	VA1T	32	-21.9	35.47	54	-18.53	-	-	186	369	H
4	* 2.387	25.65	VA1T	32	-21.9	35.75	54	-18.25	-	-	186	369	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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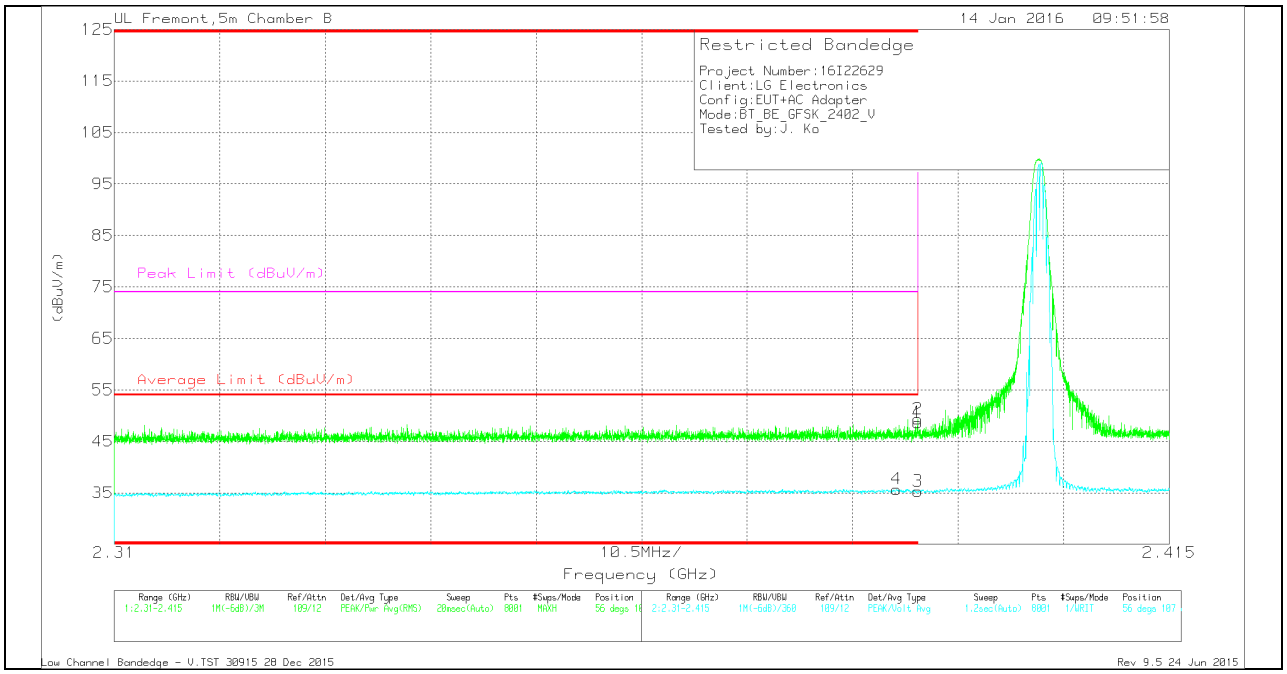
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	38.58	Pk	32	-21.9	48.68	-	-	74	-25.32	56	107	V
2	* 2.39	39.24	Pk	32	-21.9	49.34	-	-	74	-24.66	56	107	V
3	* 2.39	25.22	VA1T	32	-21.9	35.32	54	-18.68	-	-	56	107	V
4	* 2.388	25.63	VA1T	32	-21.9	35.73	54	-18.27	-	-	56	107	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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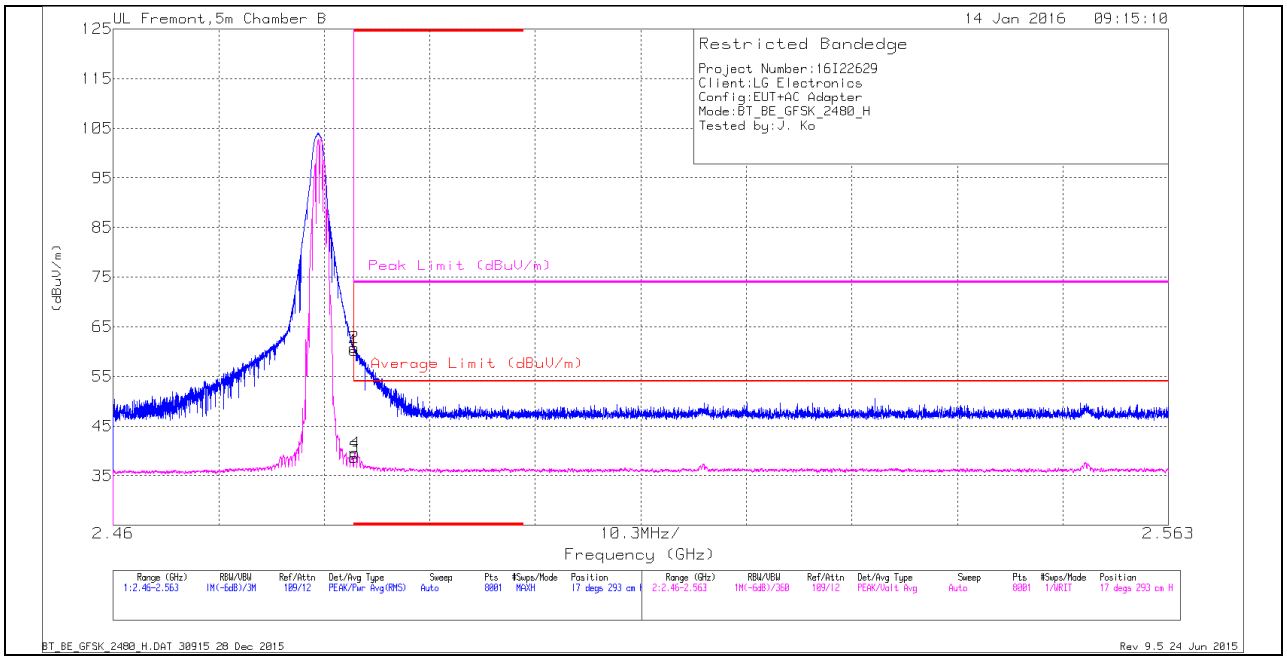
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	49.5	Pk	32.5	-21.8	60.2	-	-	74	-13.8	17	293	H
2	* 2.484	50.15	Pk	32.5	-21.8	60.85	-	-	74	-13.15	17	293	H
3	* 2.484	27.96	VA1T	32.5	-21.8	38.66	54	-15.34	-	-	17	293	H
4	* 2.484	28.9	VA1T	32.5	-21.8	39.6	54	-14.4	-	-	17	293	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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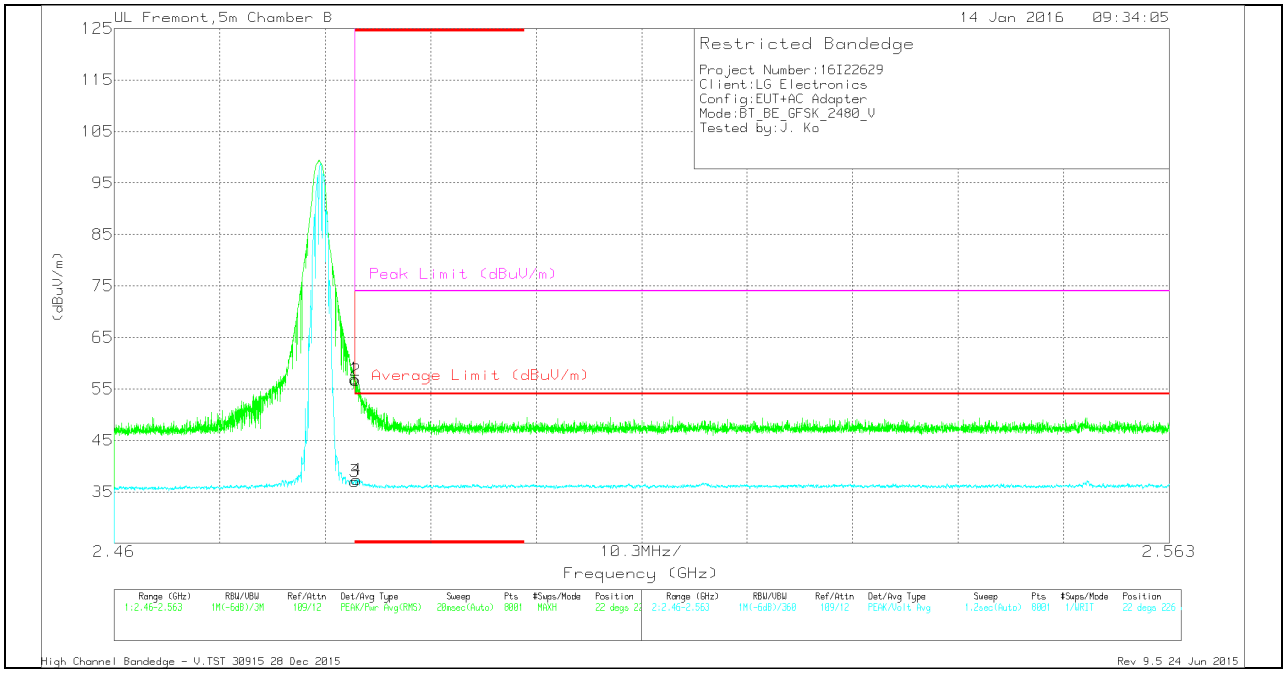
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	46.25	Pk	32.5	-21.8	56.95	-	-	74	-17.05	22	226	V
2	* 2.484	45.97	Pk	32.5	-21.8	56.67	-	-	74	-17.33	22	226	V
3	* 2.484	26.36	VA1T	32.5	-21.8	37.06	54	-16.94	-	-	22	226	V
4	* 2.484	26.68	VA1T	32.5	-21.8	37.38	54	-16.62	-	-	22	226	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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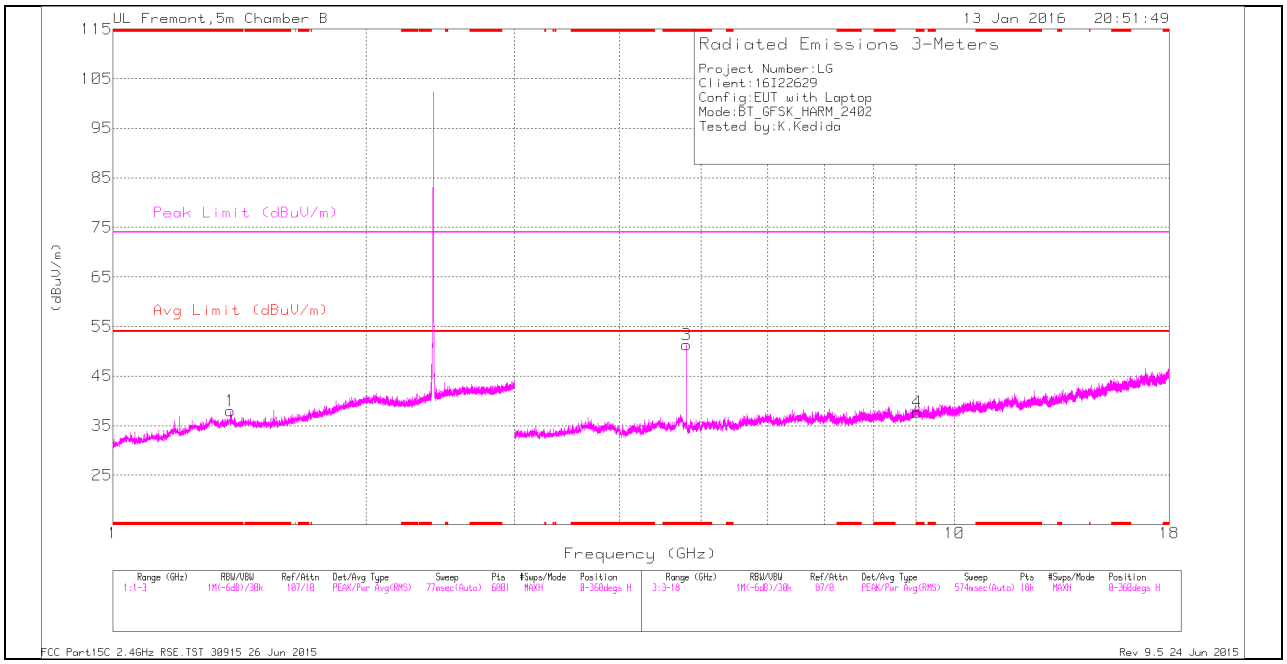
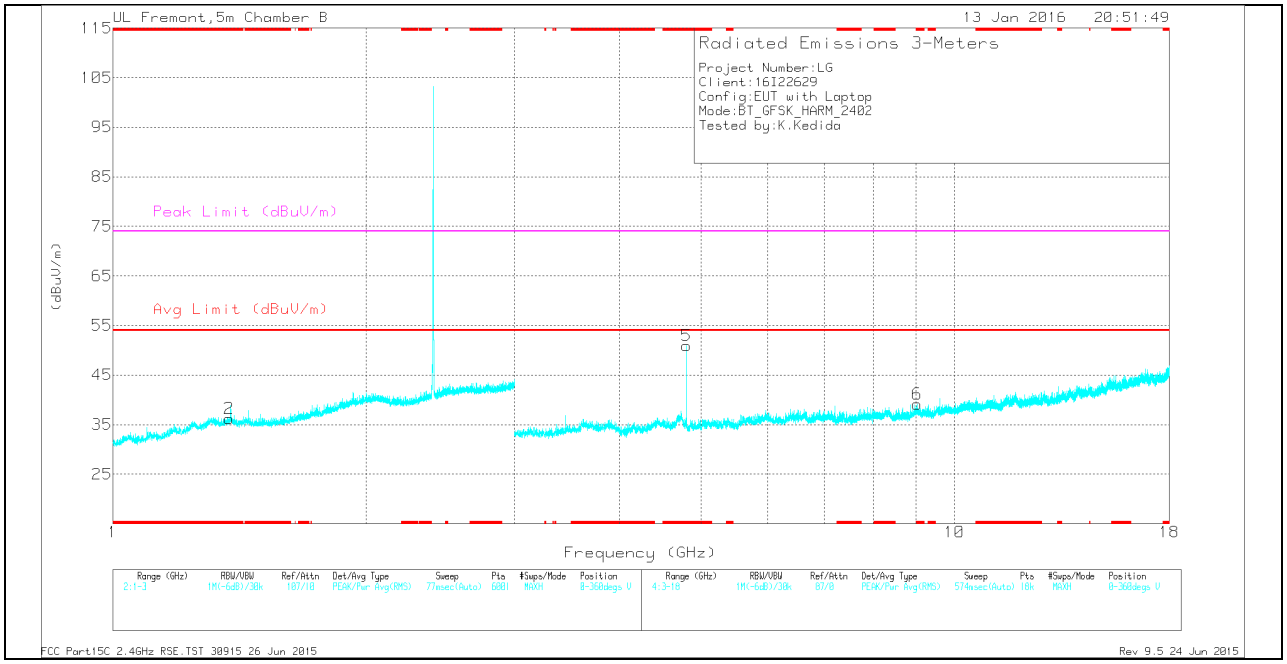
HARMONICS AND SPURIOUS EMISSIONS

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.

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LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.38	30.87	Pk	29.4	-22.3	37.97	-	-	74	-36.03	0-360	101	H
2	* 1.373	29.12	Pk	29.4	-22.3	36.22	-	-	74	-37.78	0-360	199	V
3	* 4.804	47.99	Pk	34.3	-31	51.29	-	-	74	-22.71	0-360	200	H
4	* 9.026	28.59	Pk	36.1	-27	37.69	-	-	74	-36.31	0-360	200	H
5	* 4.804	47.58	Pk	34.3	-31	50.88	-	-	74	-23.12	0-360	200	V
6	* 9.028	29.97	Pk	36.1	-27	39.07	-	-	74	-34.93	0-360	200	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.377	37.83	PK2	29.4	-22.3	44.93	-	-	74	-29.07	360	101	H
* 1.376	24.14	VA1T	29.4	-22.3	31.24	54	-22.76	-	-	360	101	H
* 1.373	37.16	PK2	29.4	-22.3	44.26	-	-	74	-29.74	360	198	V
* 1.375	24.05	VA1T	29.4	-22.3	31.15	54	-22.85	-	-	360	198	V
* 4.804	51.59	PK2	34.3	-31	54.89	-	-	74	-19.11	167	288	H
* 4.804	46.91	VA1T	34.3	-31	50.21	54	-3.79	-	-	167	288	H
* 9.025	36.67	PK2	36.1	-27	45.77	-	-	74	-28.23	167	201	H
* 9.028	24.17	VA1T	36.1	-27	33.27	54	-20.73	-	-	167	201	H
* 4.804	51.65	PK2	34.3	-31	54.95	-	-	74	-19.05	173	236	V
* 4.804	47.16	VA1T	34.3	-31	50.46	54	-3.54	-	-	173	236	V
* 9.028	37.59	PK2	36.1	-27	46.69	-	-	74	-27.31	173	201	V
* 9.028	24.31	VA1T	36.1	-27	33.41	54	-20.59	-	-	173	201	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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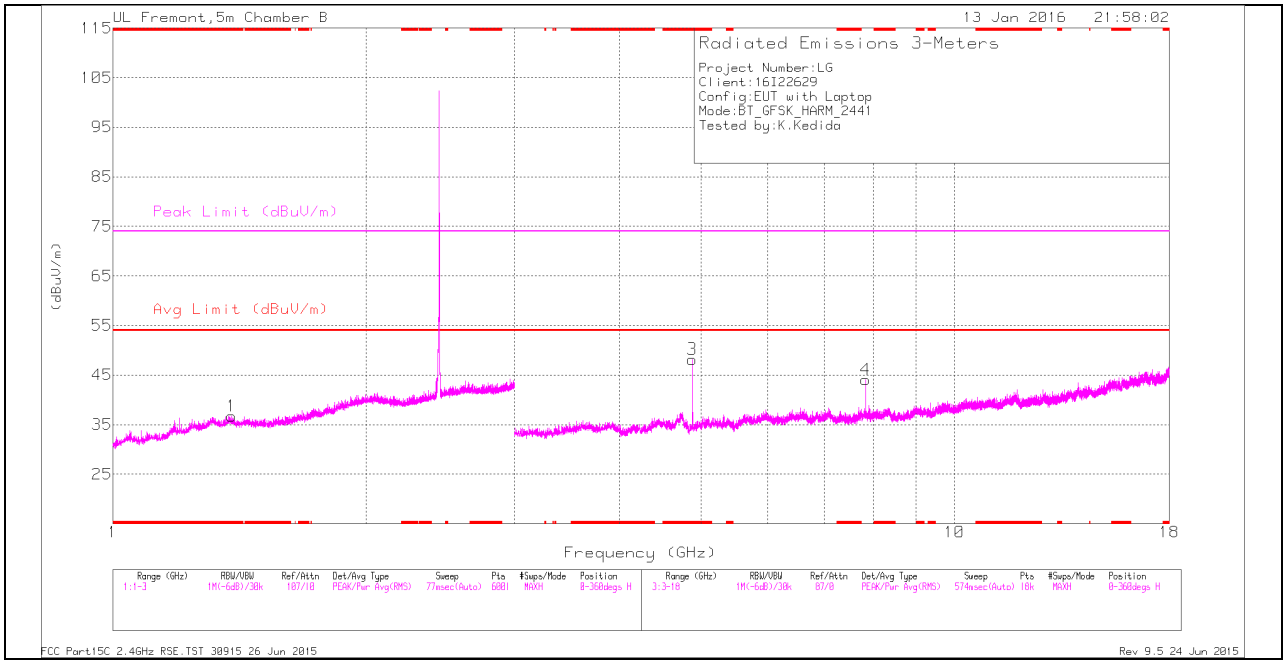
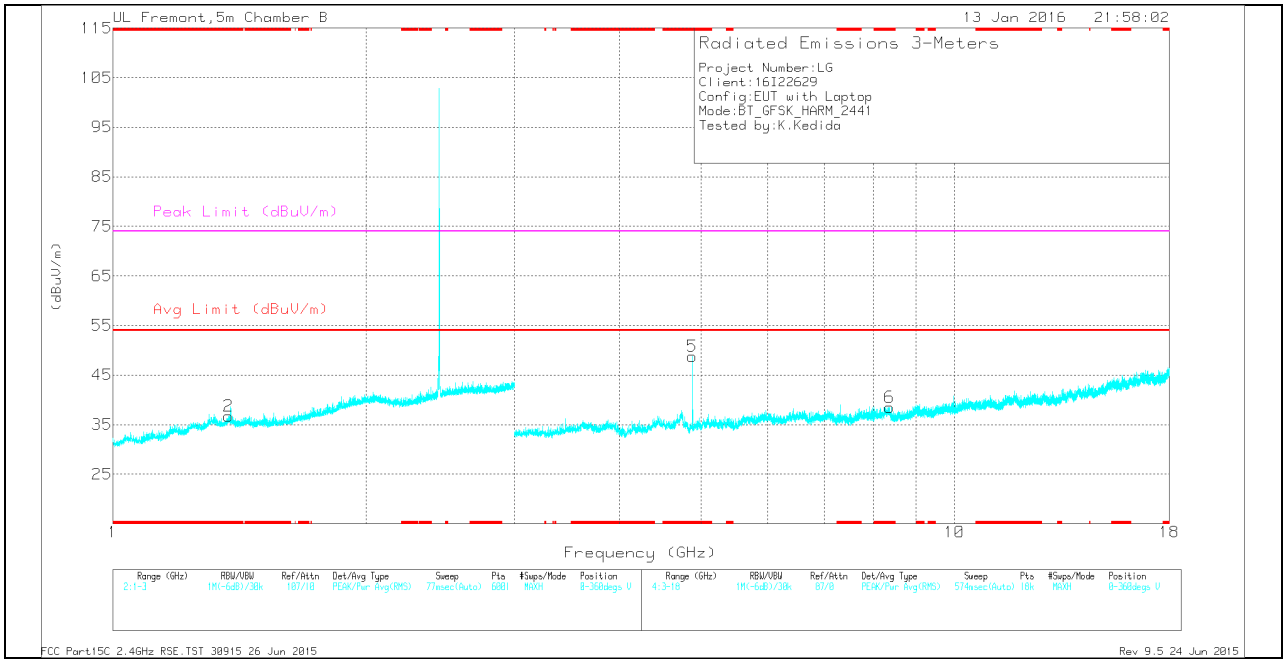
MID CHANNEL HORIZONTAL



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.

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MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.383	29.5	Pk	29.4	-22.2	36.7	-	-	74	-37.3	0-360	200	H
2	* 1.371	29.46	Pk	29.4	-22.2	36.66	-	-	74	-37.34	0-360	101	V
3	* 4.882	46.6	Pk	34.2	-32.6	48.2	-	-	74	-25.8	0-360	101	H
5	* 4.882	47.16	Pk	34.2	-32.6	48.76	-	-	74	-25.24	0-360	200	V
6	* 8.371	30.34	Pk	35.7	-27.5	38.54	-	-	74	-35.46	0-360	200	V
4	7.84	37.69	Pk	35.6	-29.2	44.09	-	-	-	-	0-360	200	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.383	37.34	PK2	29.4	-22.2	44.54	-	-	74	-29.46	179	200	H
* 1.384	24.27	VA1T	29.4	-22.3	31.37	54	-22.63	-	-	179	200	H
* 1.372	37	PK2	29.4	-22.2	44.2	-	-	74	-29.8	179	102	V
* 1.372	23.98	VA1T	29.4	-22.2	31.18	54	-22.82	-	-	179	102	V
* 4.882	49.26	PK2	34.2	-32.6	50.86	-	-	74	-23.14	155	145	H
* 4.882	44.34	VA1T	34.2	-32.6	45.94	54	-8.06	-	-	155	145	H
* 4.882	49.46	PK2	34.2	-32.6	51.06	-	-	74	-22.94	142	200	V
* 4.882	44.62	VA1T	34.2	-32.6	46.22	54	-7.78	-	-	142	200	V
* 8.37	38.48	PK2	35.7	-27.5	46.68	-	-	74	-27.32	142	200	V
* 8.37	25.23	VA1T	35.7	-27.5	33.43	54	-20.57	-	-	142	200	V
7.838	39.38	PK2	35.6	-29.2	45.78	-	-	74	-28.22	155	200	H
7.84	26.5	VA1T	35.6	-29.2	32.9	54	-21.1	-	-	155	200	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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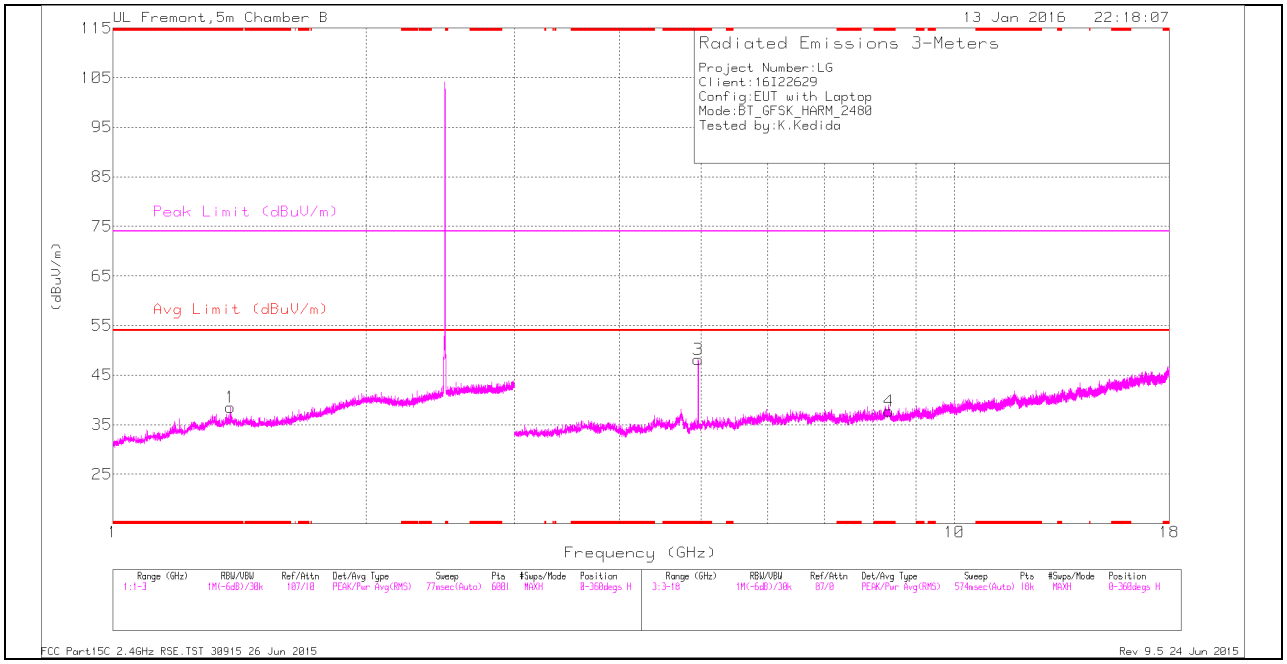
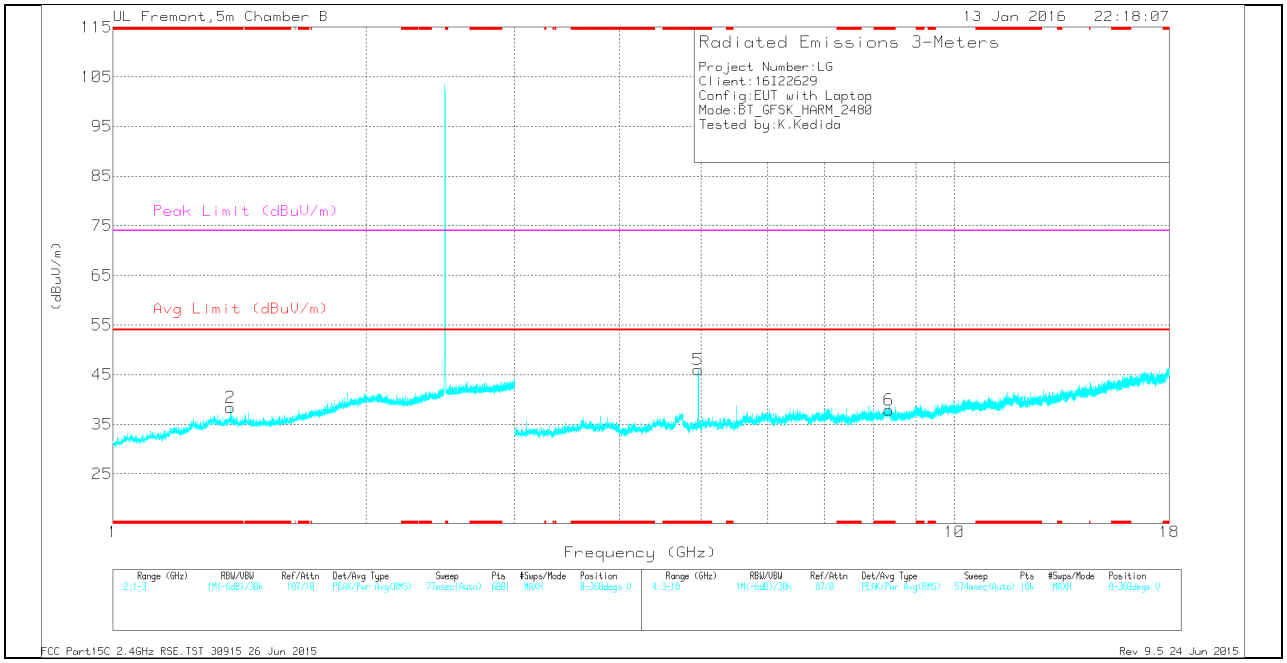
HIGH CHANNEL HORIZONTAL



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.

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HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.38	31.38	Pk	29.4	-22.3	38.48	-	-	74	-35.52	0-360	200	H
2	* 1.38	31.23	Pk	29.4	-22.3	38.33	-	-	74	-35.67	0-360	200	V
3	* 4.96	45.89	Pk	34.1	-31.9	48.09	-	-	74	-25.91	0-360	200	H
4	* 8.361	29.36	Pk	35.7	-27.3	37.76	-	-	74	-36.24	0-360	200	H
5	* 4.96	43.77	Pk	34.1	-31.9	45.97	-	-	74	-28.03	0-360	200	V
6	* 8.357	29.43	Pk	35.7	-27.3	37.83	-	-	74	-36.17	0-360	200	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.38	37.15	PK2	29.4	-22.3	44.25	-	-	74	-29.75	1	200	H
* 1.381	24.24	VA1T	29.4	-22.3	31.34	54	-22.66	-	-	1	200	H
* 1.379	37.59	PK2	29.4	-22.3	44.69	-	-	74	-29.31	1	200	V
* 1.38	25.51	VA1T	29.4	-22.3	32.61	54	-21.39	-	-	1	200	V
* 4.96	50.74	PK2	34.1	-31.9	52.94	-	-	74	-21.06	168	281	H
* 4.96	46.19	VA1T	34.1	-31.9	48.39	54	-5.61	-	-	168	281	H
* 8.361	37.53	PK2	35.7	-27.3	45.93	-	-	74	-28.07	168	201	H
* 8.363	25.08	VA1T	35.7	-27.4	33.38	54	-20.62	-	-	168	201	H
* 4.96	47.81	PK2	34.1	-31.9	50.01	-	-	74	-23.99	122	229	V
* 4.96	41.79	VA1T	34.1	-31.9	43.99	54	-10.01	-	-	122	229	V
* 8.359	38.13	PK2	35.7	-27.3	46.53	-	-	74	-27.47	122	201	V
* 8.357	25.18	VA1T	35.7	-27.3	33.58	54	-20.42	-	-	122	201	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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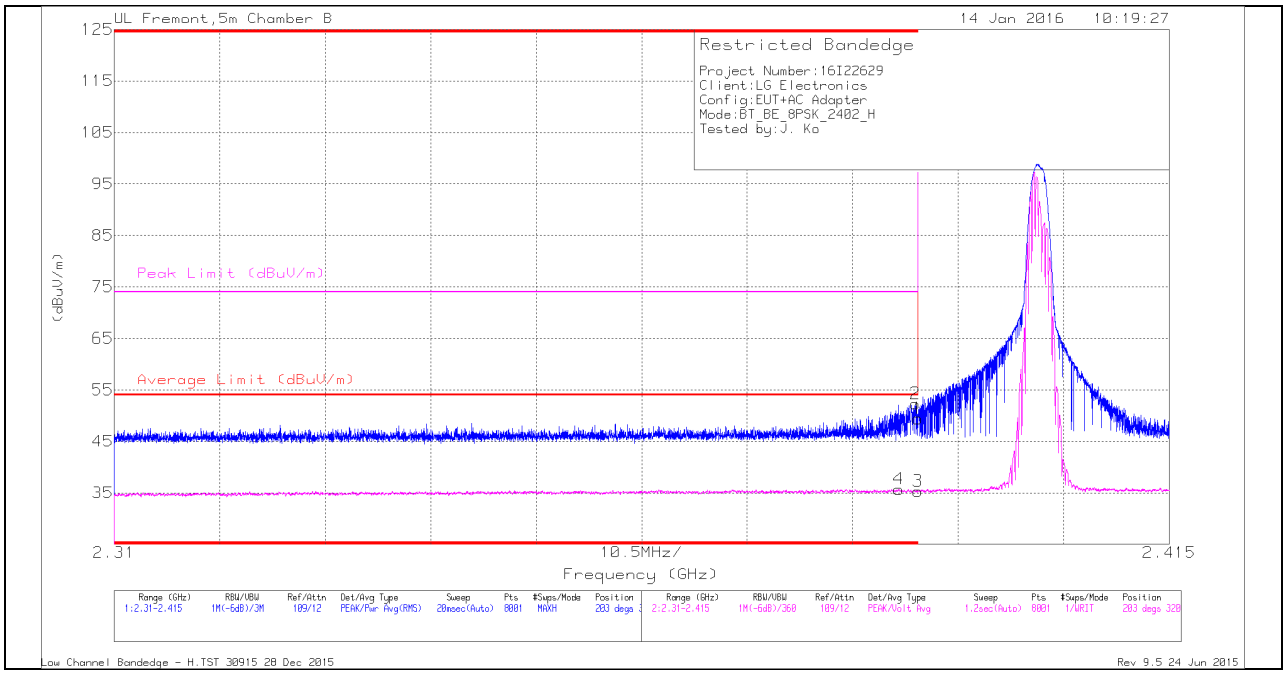
9.1.2. 8PSK MODULATION

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.32	Pk	32	-21.9	49.42	-	-	74	-24.58	203	320	H
2	* 2.39	42.22	Pk	32	-21.9	52.32	-	-	74	-21.68	203	320	H
3	* 2.39	25.23	VA1T	32	-21.9	35.33	54	-18.67	-	-	203	320	H
4	* 2.388	25.62	VA1T	32	-21.9	35.72	54	-18.28	-	-	203	320	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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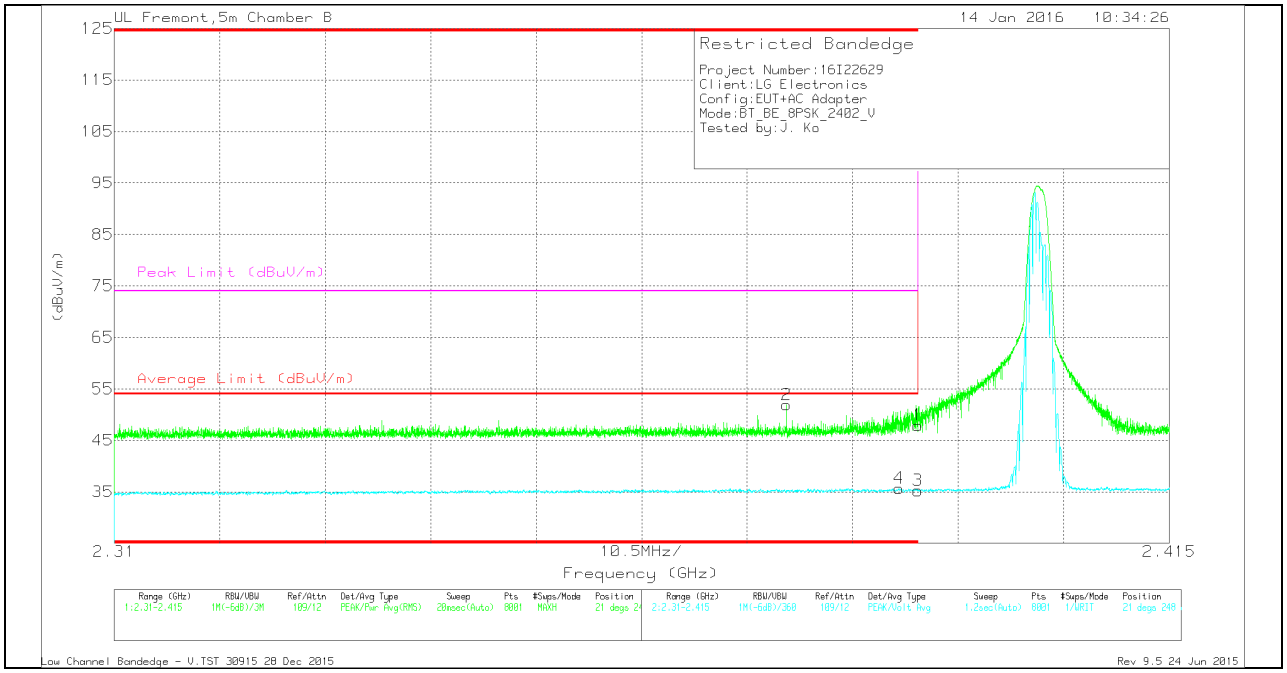
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	37.84	Pk	32	-21.9	47.94	-	-	74	-26.06	21	248	V
2	* 2.377	41.88	Pk	31.9	-21.9	51.88	-	-	74	-22.12	21	248	V
3	* 2.39	25.15	VA1T	32	-21.9	35.25	54	-18.75	-	-	21	248	V
4	* 2.388	25.6	VA1T	32	-21.9	35.7	54	-18.3	-	-	21	248	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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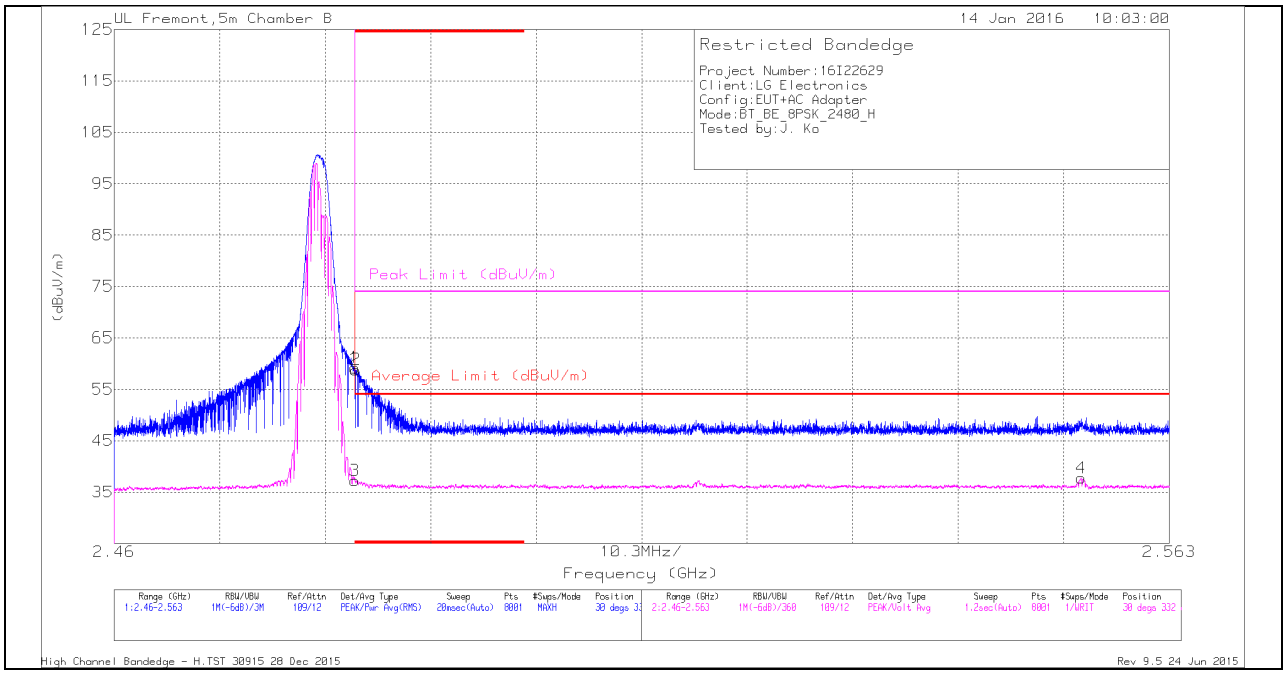
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	48.5	Pk	32.5	-21.8	59.2	-	-	74	-14.8	30	332	H
2	* 2.484	48.11	Pk	32.5	-21.8	58.81	-	-	74	-15.19	30	332	H
3	* 2.484	26.55	VA1T	32.5	-21.8	37.25	54	-16.75	-	-	30	332	H
4	2.554	26.93	VA1T	32.7	-21.9	37.73	54	-16.27	-	-	30	332	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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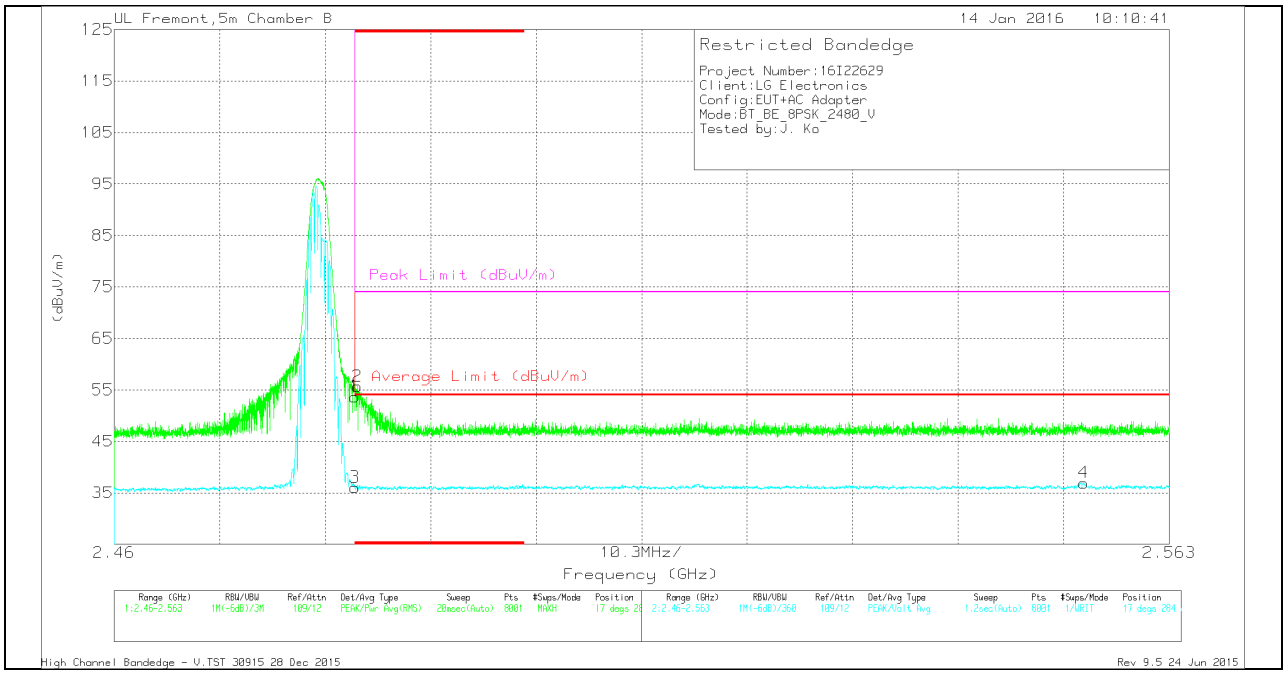
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	42.96	Pk	32.5	-21.8	53.66	-	-	74	-20.34	17	284	V
2	* 2.484	44.98	Pk	32.5	-21.8	55.68	-	-	74	-18.32	17	284	V
3	* 2.484	25.37	VA1T	32.5	-21.8	36.07	54	-17.93	-	-	17	284	V
4	2.555	26.15	VA1T	32.7	-21.9	36.95	54	-17.05	-	-	17	284	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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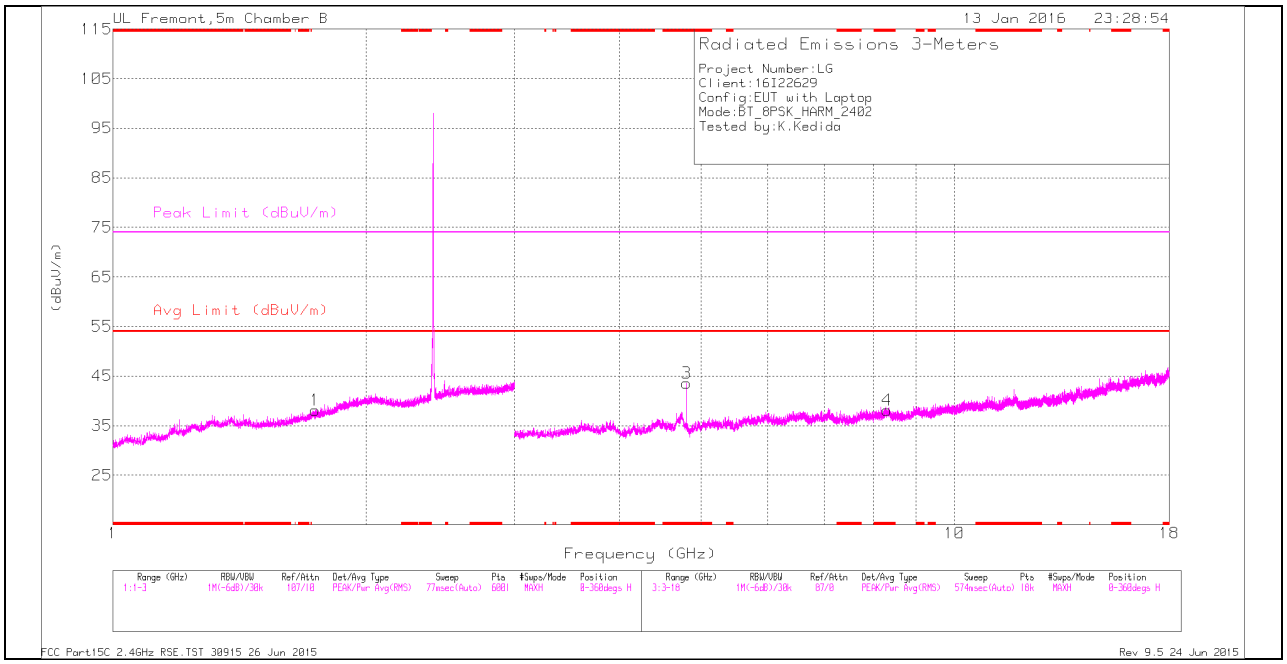
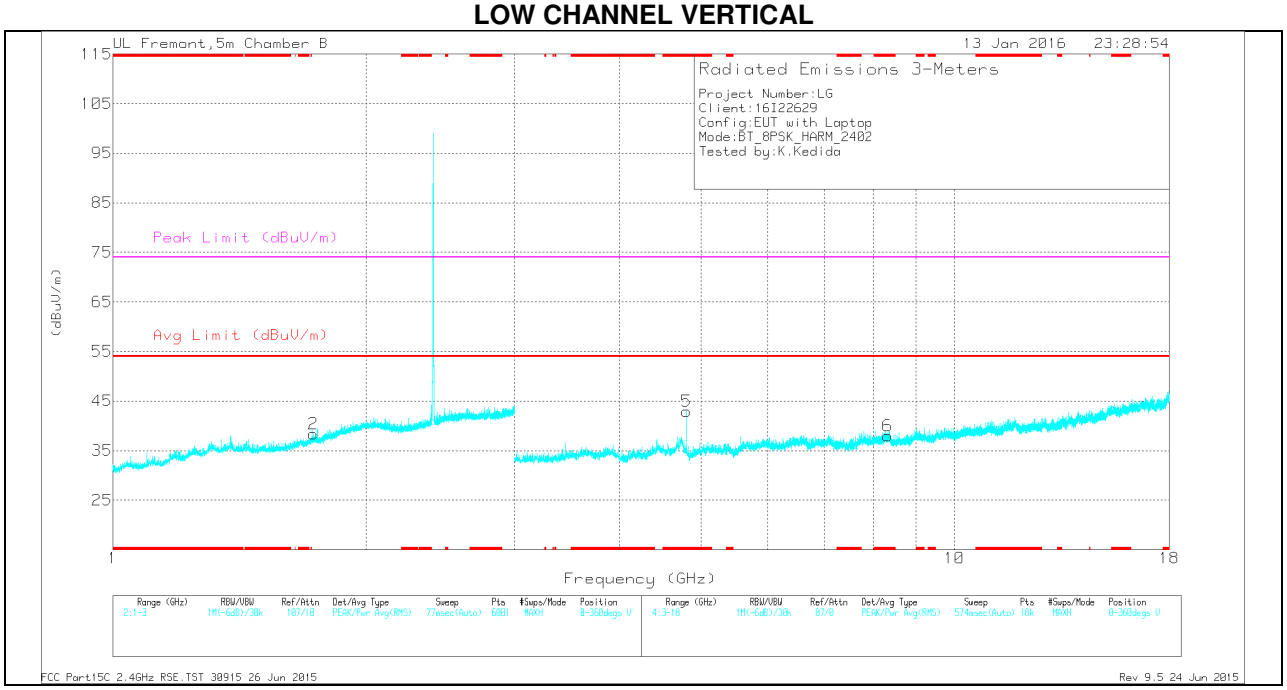
HARMONICS AND SPURIOUS EMISSIONS

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.

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LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.803	40.29	Pk	34.3	-31	43.59	-	-	74	-30.41	0-360	199	H
4	* 8.32	30.27	Pk	35.7	-27.9	38.07	-	-	74	-35.93	0-360	199	H
5	* 4.803	39.67	Pk	34.3	-31	42.97	-	-	74	-31.03	0-360	199	V
6	* 8.332	29.88	Pk	35.7	-27.6	37.98	-	-	74	-36.02	0-360	199	V
2	1.73	30.1	Pk	30.1	-21.8	38.4	-	-	-	-	0-360	102	V
1	1.741	29.75	Pk	30.2	-21.8	38.15	-	-	-	-	0-360	101	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.803	46.77	PK2	34.3	-31	50.07	-	-	74	-23.93	170	249	H
* 4.803	38.94	VA1T	34.3	-31	42.24	54	-11.76	-	-	170	249	H
* 8.318	39.59	PK2	35.7	-27.9	47.39	-	-	74	-26.61	170	200	H
* 8.319	25.65	VA1T	35.7	-27.9	33.45	54	-20.55	-	-	170	200	H
* 4.804	47.18	PK2	34.3	-31	50.48	-	-	74	-23.52	174	234	V
* 4.803	39.85	VA1T	34.3	-31	43.15	54	-10.85	-	-	174	234	V
* 8.333	38.1	PK2	35.7	-27.6	46.2	-	-	74	-27.8	174	200	V
* 8.332	25.58	VA1T	35.7	-27.7	33.58	54	-20.42	-	-	174	200	V
1.728	23.99	VA1T	30	-21.7	32.29	54	-21.71	-	-	1	102	V
1.732	37.41	PK2	30.1	-21.7	45.81	-	-	74	-28.19	1	102	V
1.74	23.78	VA1T	30.1	-21.8	32.08	54	-21.92	-	-	1	102	H
1.741	37.35	PK2	30.2	-21.8	45.75	-	-	74	-28.25	1	102	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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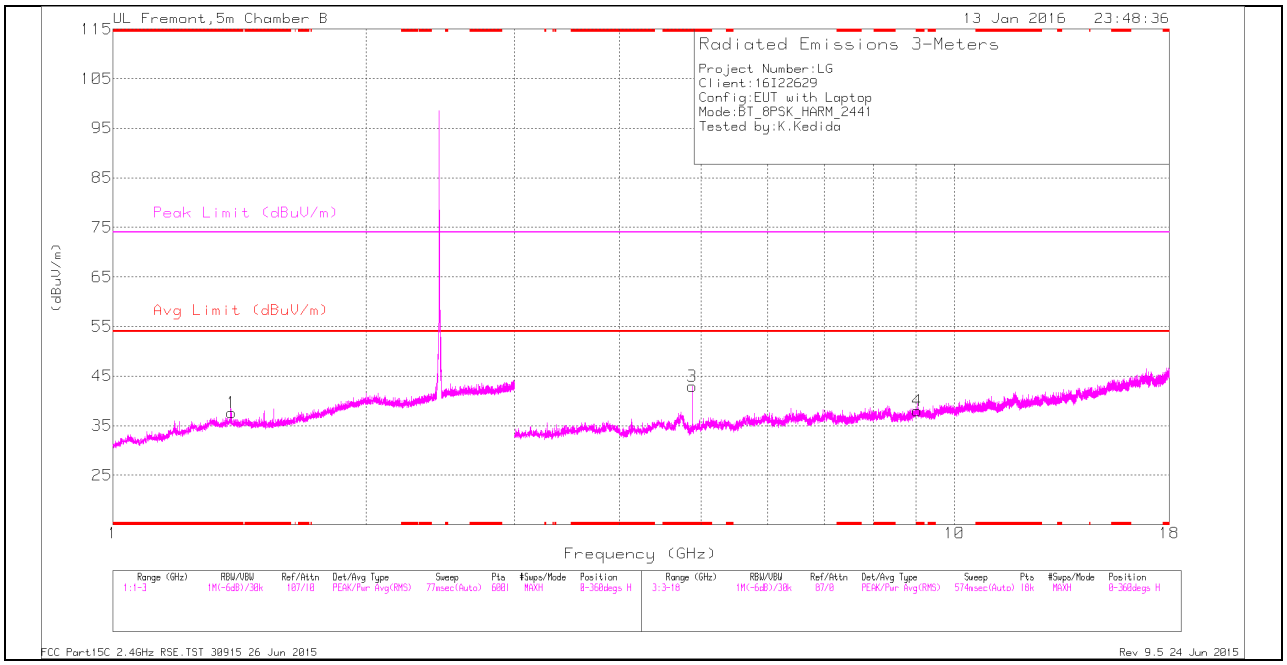
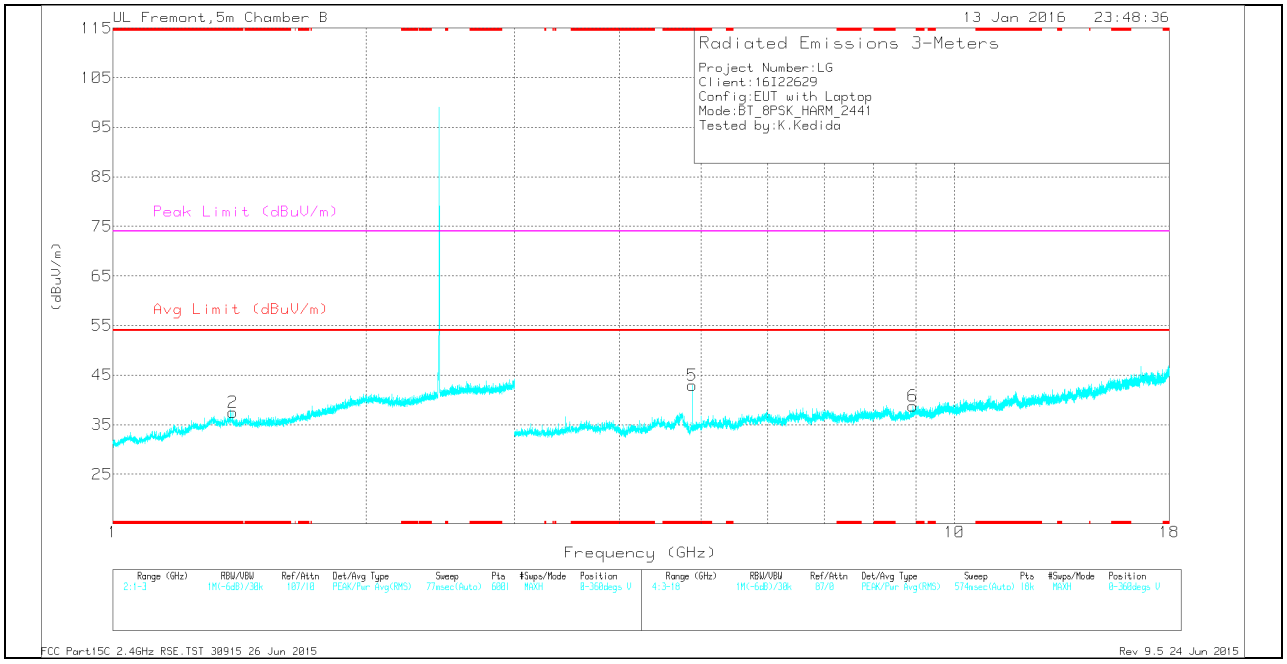
MID CHANNEL HORIZONTAL



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.

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MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.384	30.4	Pk	29.4	-22.2	37.6	-	-	74	-36.4	0-360	199	H
2	* 1.387	30.37	Pk	29.4	-22.3	37.47	-	-	74	-36.53	0-360	199	V
3	* 4.882	41.28	Pk	34.2	-32.6	42.88	-	-	74	-31.12	0-360	200	H
4	* 9.032	28.86	Pk	36.1	-27	37.96	-	-	74	-36.04	0-360	200	H
5	* 4.881	41.25	Pk	34.2	-32.5	42.95	-	-	74	-31.05	0-360	200	V
6	8.917	29.98	Pk	35.9	-27.1	38.78	-	-	-	-	0-360	200	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.385	37.53	PK2	29.4	-22.3	44.63	-	-	74	-29.37	1	199	H
* 1.386	24.33	VA1T	29.4	-22.3	31.43	54	-22.57	-	-	1	199	H
* 1.389	37.37	PK2	29.4	-22.3	44.47	-	-	74	-29.53	1	199	V
* 1.386	23.98	VA1T	29.4	-22.3	31.08	54	-22.92	-	-	1	199	V
* 9.032	37.44	PK2	36.1	-27	46.54	-	-	74	-27.46	170	201	H
* 9.032	24.65	VA1T	36.1	-27	33.75	54	-20.25	-	-	170	201	H
* 4.882	45.85	PK2	34.2	-32.6	47.45	-	-	74	-26.55	175	189	V
* 4.881	38.37	VA1T	34.2	-32.5	40.07	54	-13.93	-	-	175	189	V
8.917	37.05	PK2	35.9	-27.1	45.85	-	-	74	-	175	200	V
8.918	24.41	VA1T	35.9	-27.1	33.21	54	-20.79	-	-	175	200	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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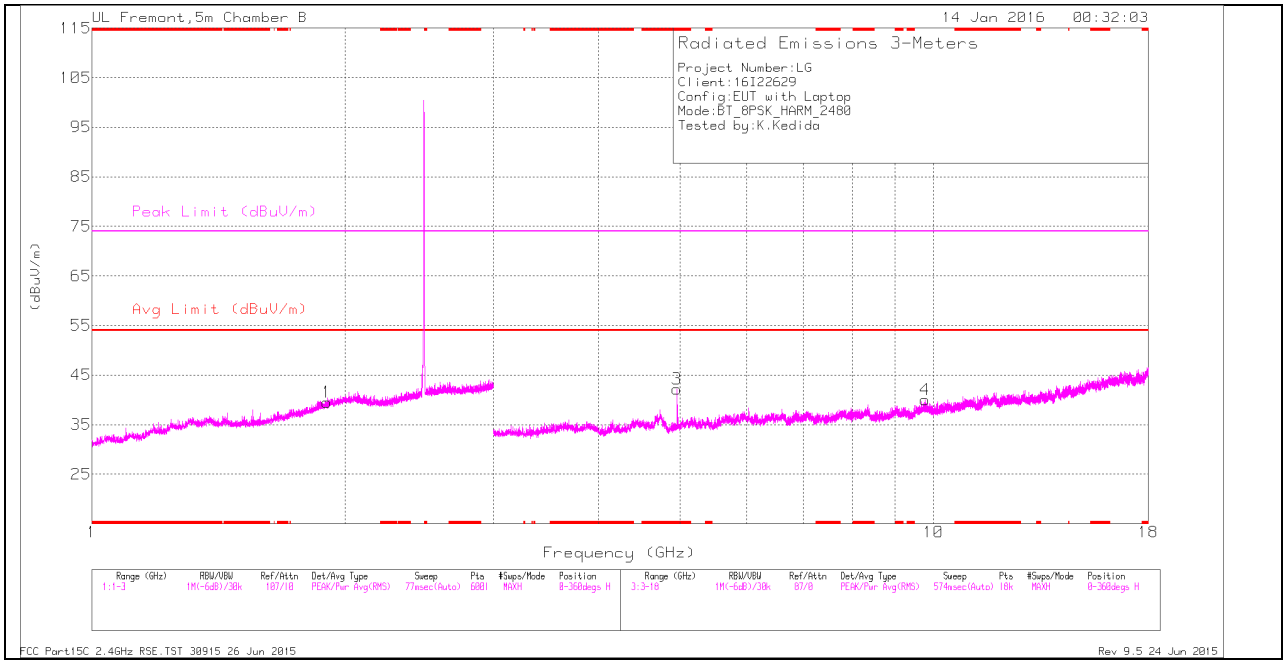
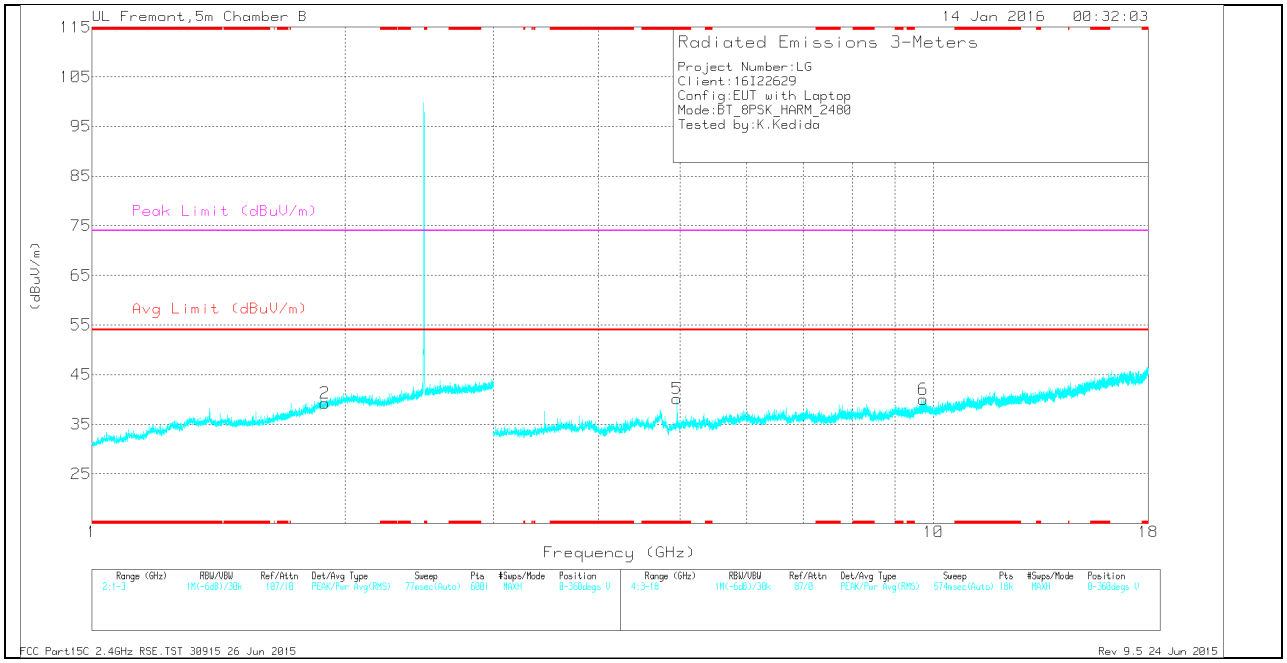
HIGH CHANNEL HORIZONTAL



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.

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HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.959	39.98	Pk	34.1	-31.9	42.18	-	-	74	-31.82	0-360	199	H
5	* 4.959	37.92	Pk	34.1	-31.9	40.12	-	-	74	-33.88	0-360	199	V
2	1.891	29.22	Pk	31.7	-21.7	39.22	-	-	-	-	0-360	101	V
1	1.901	29.51	Pk	31.8	-21.8	39.51	-	-	-	-	0-360	199	H
6	9.723	29.37	Pk	36.8	-26.2	39.97	-	-	-	-	0-360	199	V
4	9.78	29.08	Pk	36.9	-26	39.98	-	-	-	-	0-360	101	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	46.82	PK2	34.1	-31.9	49.02	-	-	74	-24.98	171	227	H
* 4.959	38.91	VA1T	34.1	-31.9	41.11	54	-12.89	-	-	171	227	H
* 4.96	44.67	PK2	34.1	-31.9	46.87	-	-	74	-27.13	177	170	V
* 4.959	34.9	VA1T	34.1	-31.9	37.1	54	-16.9	-	-	177	170	V
1.89	37.15	PK2	31.7	-21.8	47.05	-	-	74	-26.95	1	102	V
1.892	23.85	VA1T	31.7	-21.6	33.95	54	-20.05	-	-	1	102	V
1.902	37.1	PK2	31.8	-21.8	47.1	-	-	74	-26.9	1	200	H
1.902	23.97	VA1T	31.8	-21.7	34.07	54	-19.93	-	-	1	200	H
9.722	36	PK2	36.8	-26.2	46.6	-	-	74	-27.4	177	198	V
9.725	23.44	VA1T	36.9	-26.2	34.14	54	-19.86	-	-	177	198	V
9.778	23.16	VA1T	36.9	-26	34.06	54	-19.94	-	-	170	102	H
9.781	36.59	PK2	37	-26	47.59	-	-	74	-26.41	170	102	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

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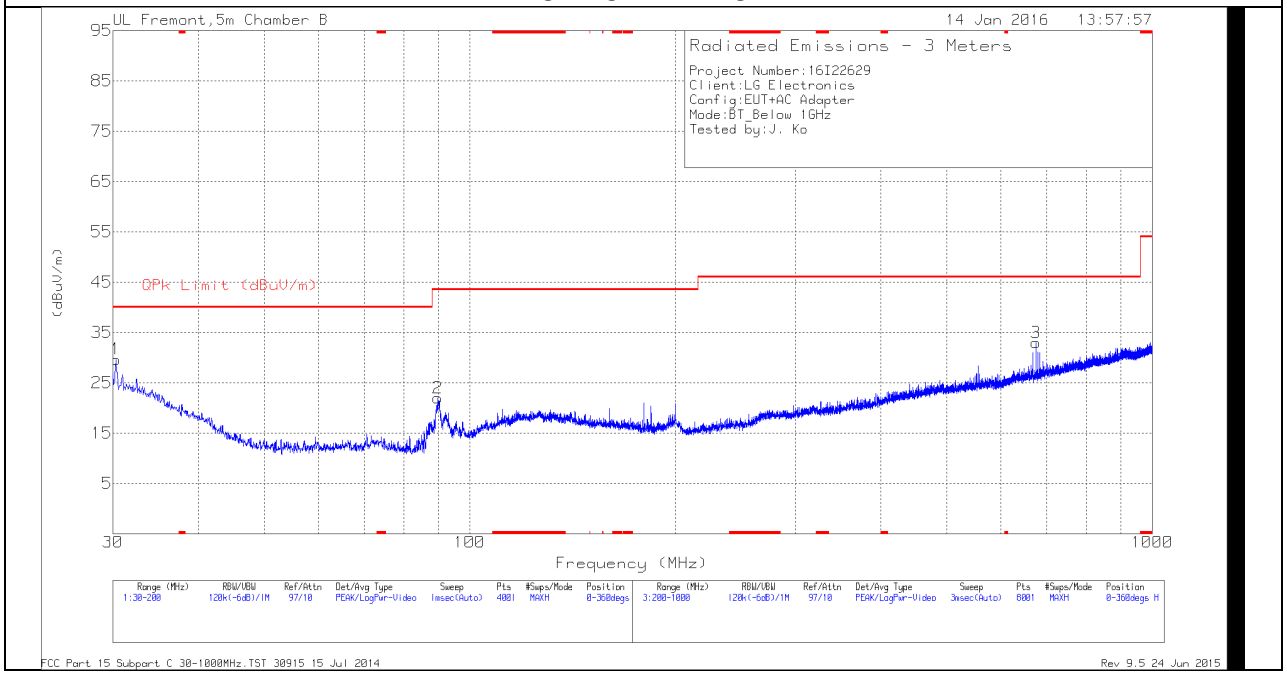
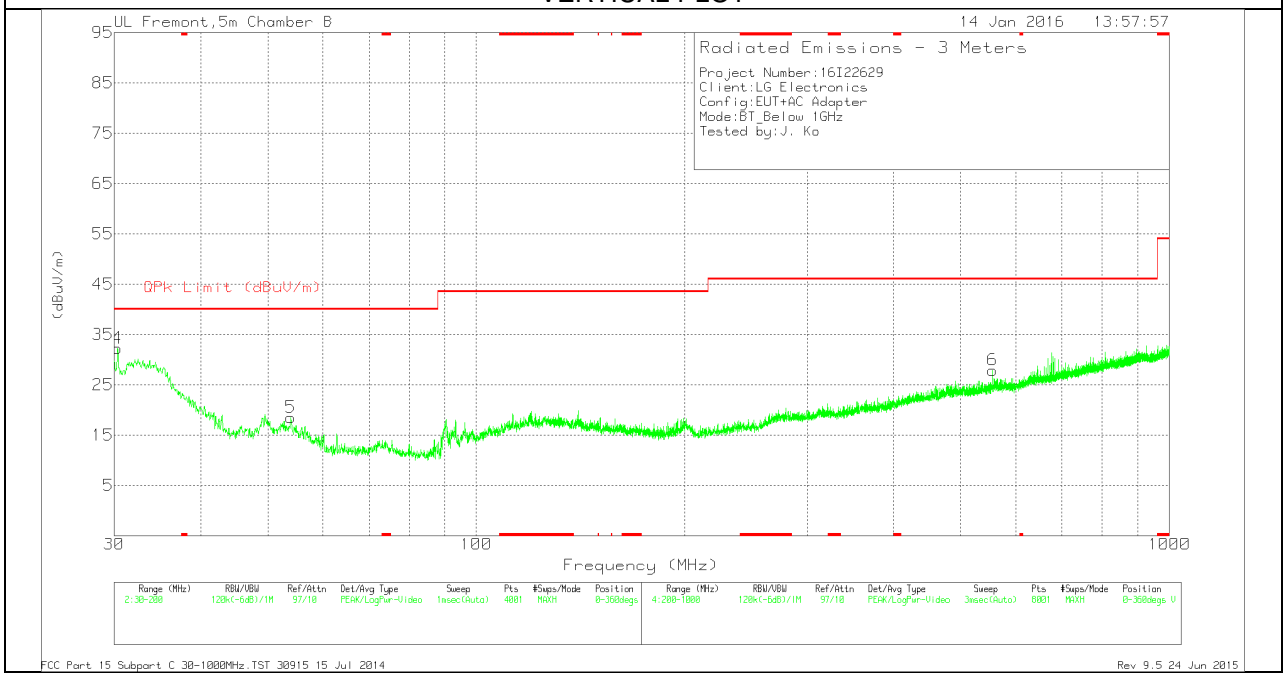
9.2. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



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BELOW 1 GHz TABLE

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.2975	33.46	Pk	25	-28.8	29.66	40	-10.34	0-360	199	H
4	30.34	36.14	Pk	24.9	-28.8	32.24	40	-7.76	0-360	101	V
5	53.97	36.01	Pk	11	-28.5	18.51	40	-21.49	0-360	101	V
2	89.7975	38.47	Pk	11.7	-28.2	21.97	43.52	-21.55	0-360	199	H
6	556	31.61	Pk	22.4	-26.1	27.91	46.02	-18.11	0-360	199	V
3	676	34.65	Pk	23.8	-25.5	32.95	46.02	-13.07	0-360	199	H

Pk - Peak detector

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