FCC 47 CFR PART 15 SUBPART C

C2PC CERTIFICATION TEST REPORT

FOR

CDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC

MODEL NUMBER: LG-VS876, LGVS876, VS876, LG-AS876, AS876 and LGAS876

FCC ID: ZNFVS876

REPORT NUMBER: 14U16955-2

ISSUE DATE: February 11, 2014

Prepared for
LG ELECTRONICS MOBILECOMM U.S.A., INC
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	2/11/14	Initial Issue	P. Kim

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	**LG ELECTRONICS MOBILECOMM U.S.A., INC**
EUT DESCRIPTION:	**CDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC**
MODEL:	**LG-VS876, LGVS876, VS876, LG-AS876, AS876 & LGAS876**
SERIAL NUMBER:	**1801187-VS**
DATE TESTED:	**FEBRUARY 7 - 11, 2014**

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart C	Pass

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

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

Approved & Released For
UL Verification Services Inc. By:

PHILIP KIM
WiSE PROGRAM MANAGER
UL Verification Services Inc.

Tested By:

CHARLES VERGONIO
WiSE LAB TECHNICIAN
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 15.

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:

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%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a CDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -2.09 dBi

5.3. 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.

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	LG	MCS-02WD	DA3Y0035121	N/A
Earphone	LG	EAB62209201	N/A	N/A

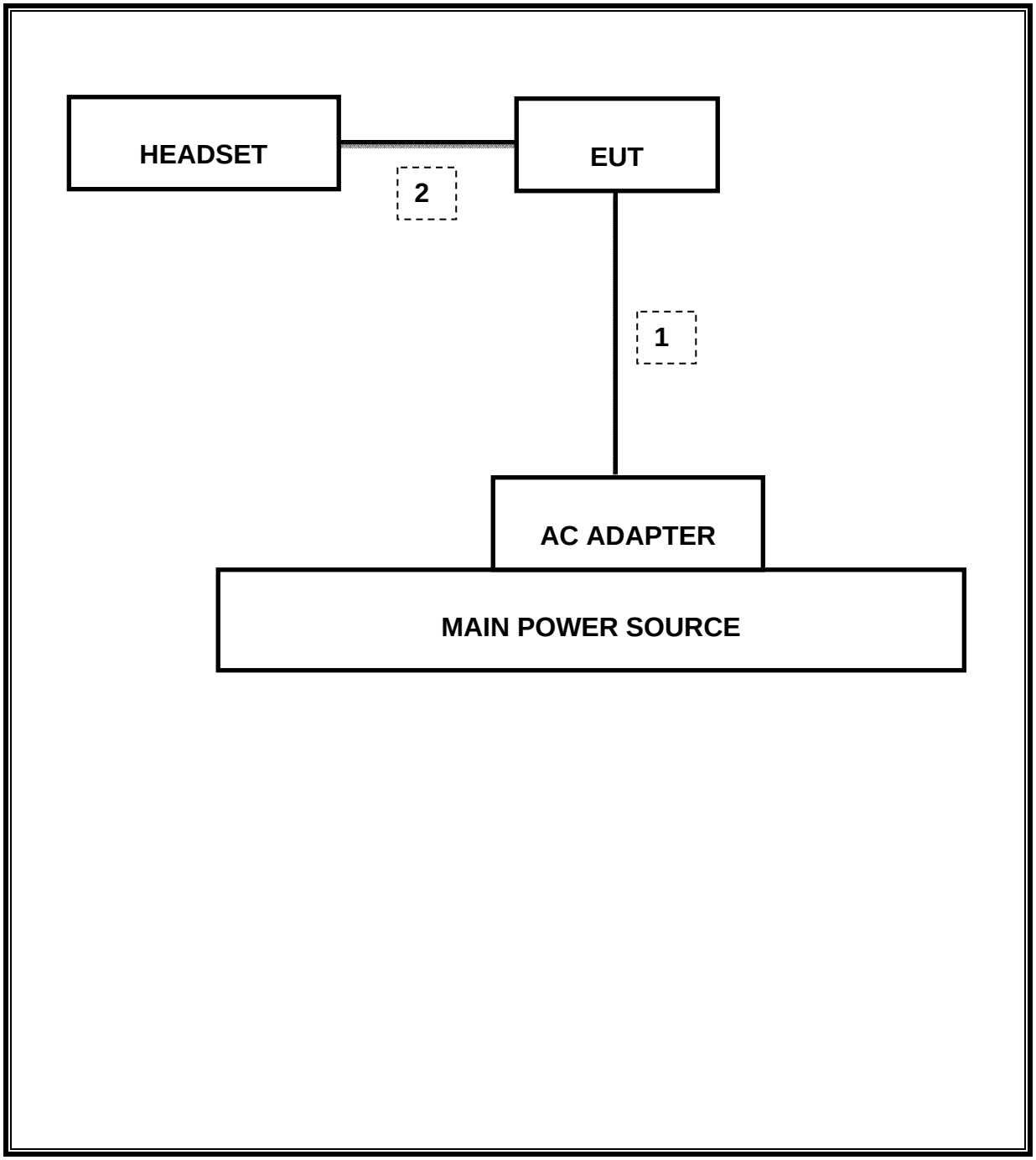
I/O CABLES

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 Date**	**Cal Due**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	03/23/13	02/13/14
Antenna, Horn, 18GHz	EMCO	3115	C00783	10/25/13	10/25/14
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/13	11/14/14
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	01/28/14	01/28/15
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	10/22/13	10/22/14
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/13	12/20/14
CBT Bluetooth Tester	R & S	CBT	None	07/12/13	07/12/14
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/13	12/13/14
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/13	12/13/14
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/14	01/14/15
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR	CNR

7. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	43.62dBuV

43.62dBuV was based on the Worst Case average result.

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 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 = 620Hz.

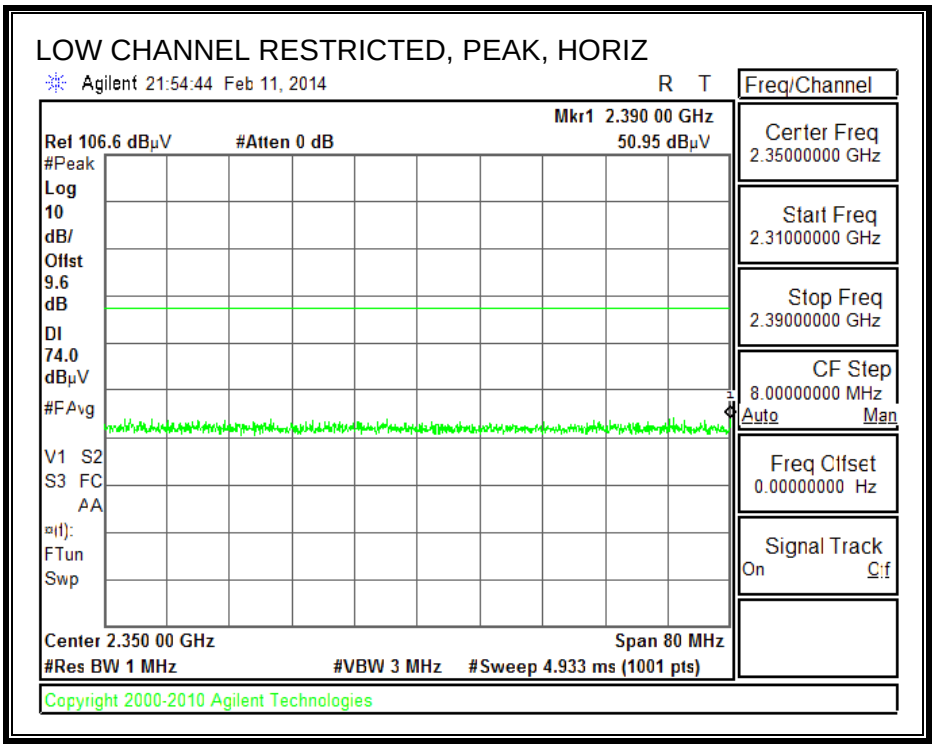
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

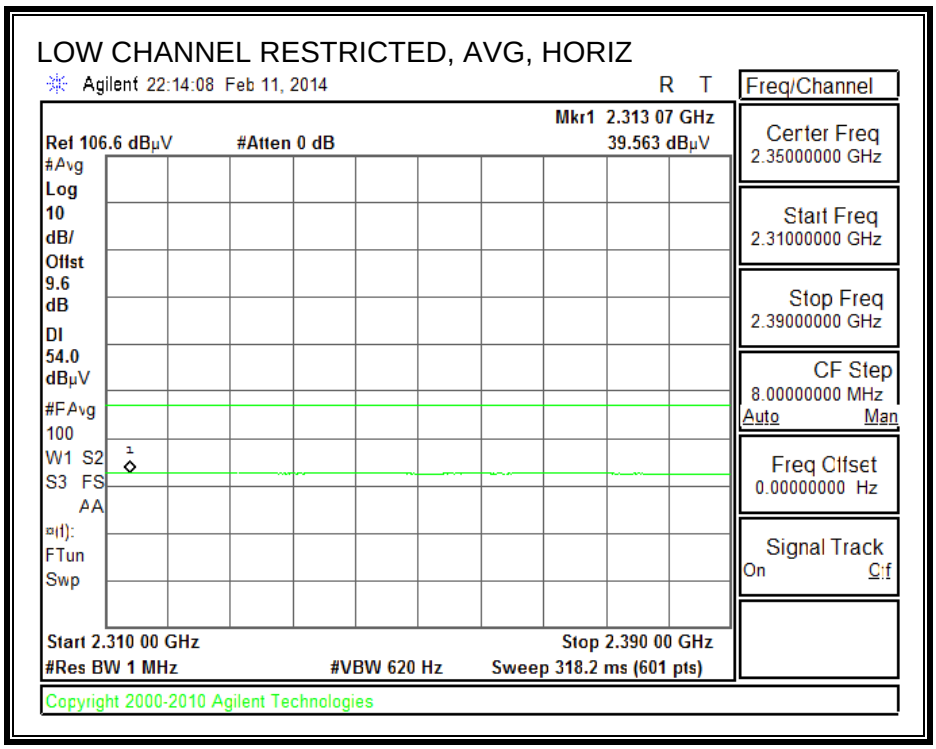
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

8.2. TRANSMITTER ABOVE 1 GHz

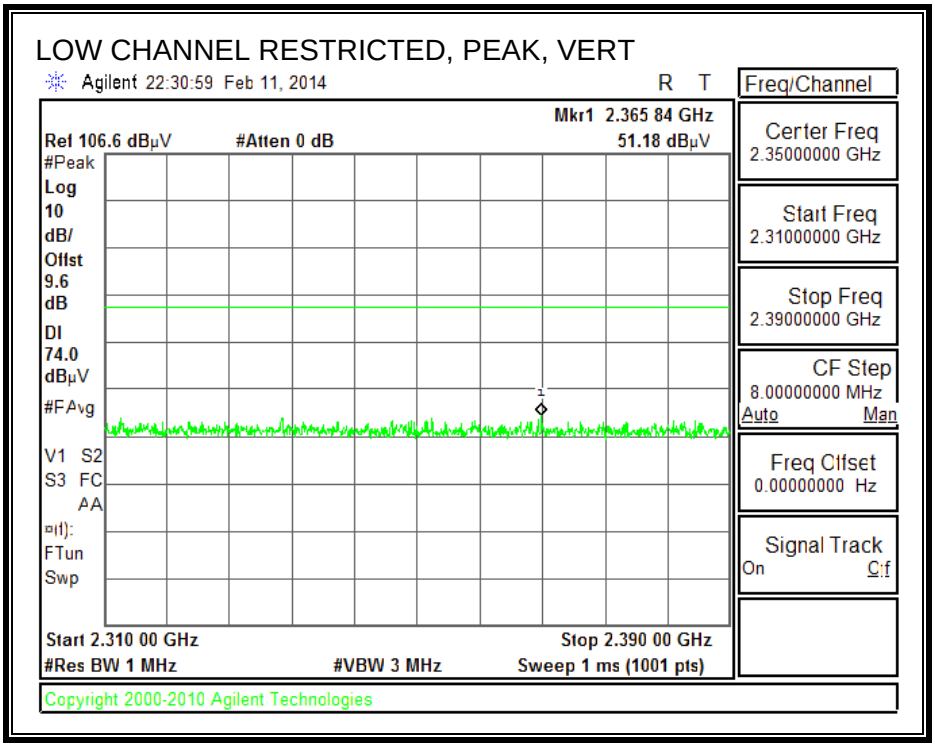
8.2.1. BASIC DATA RATE GFSK MODULATION

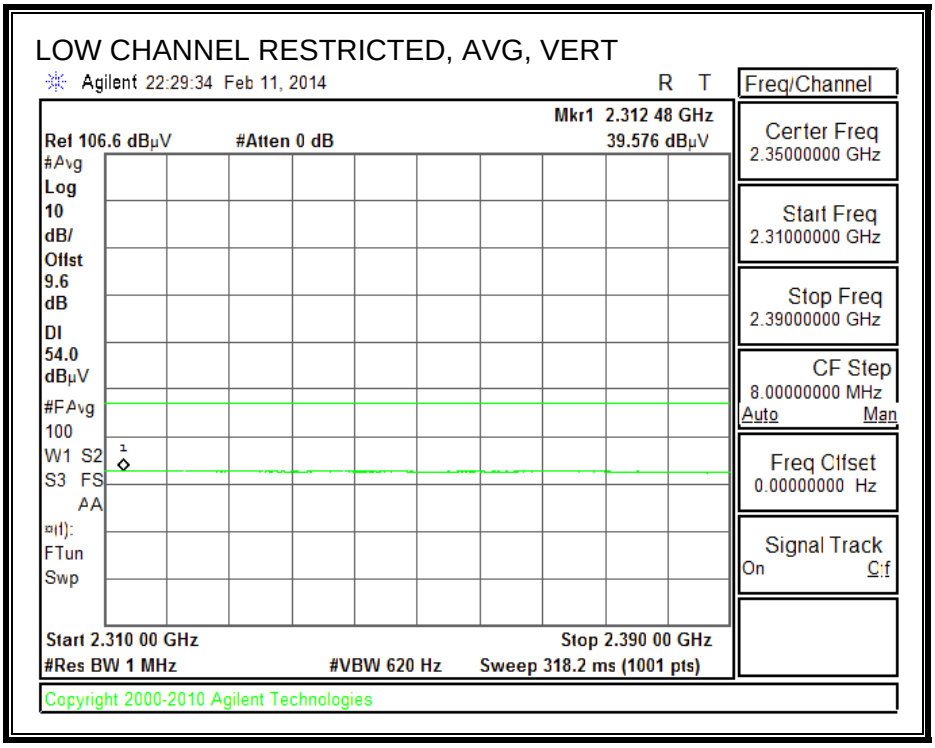
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



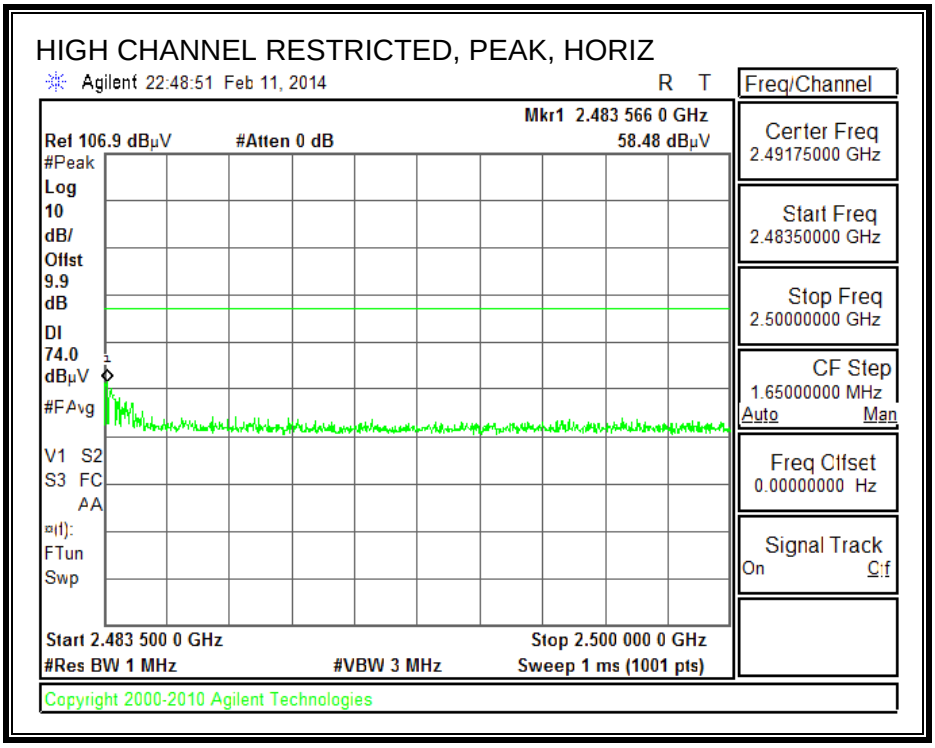


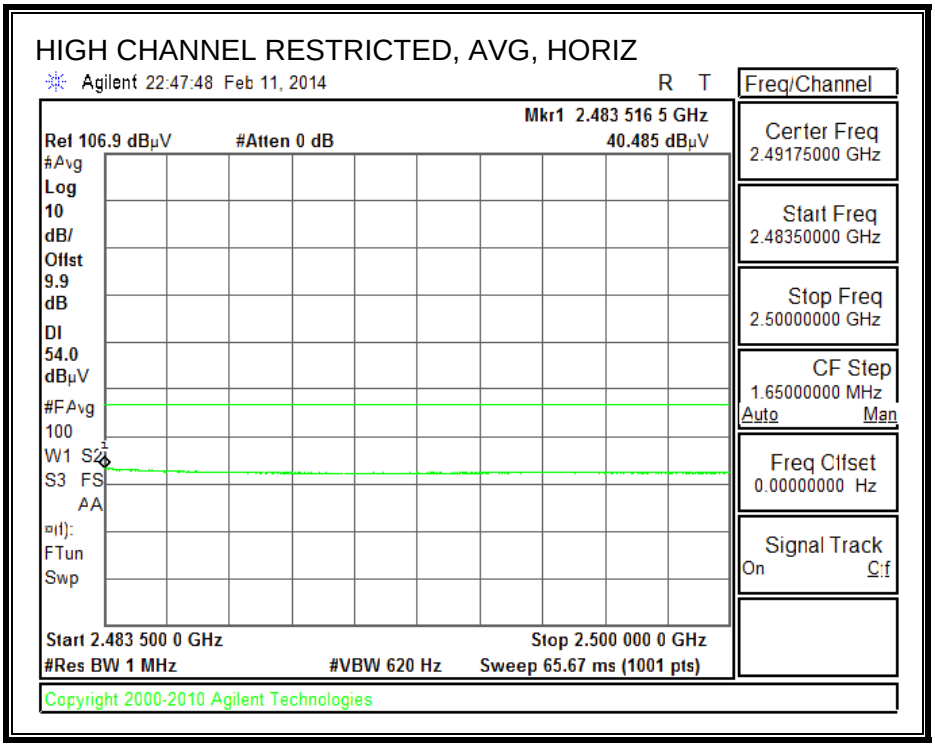
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



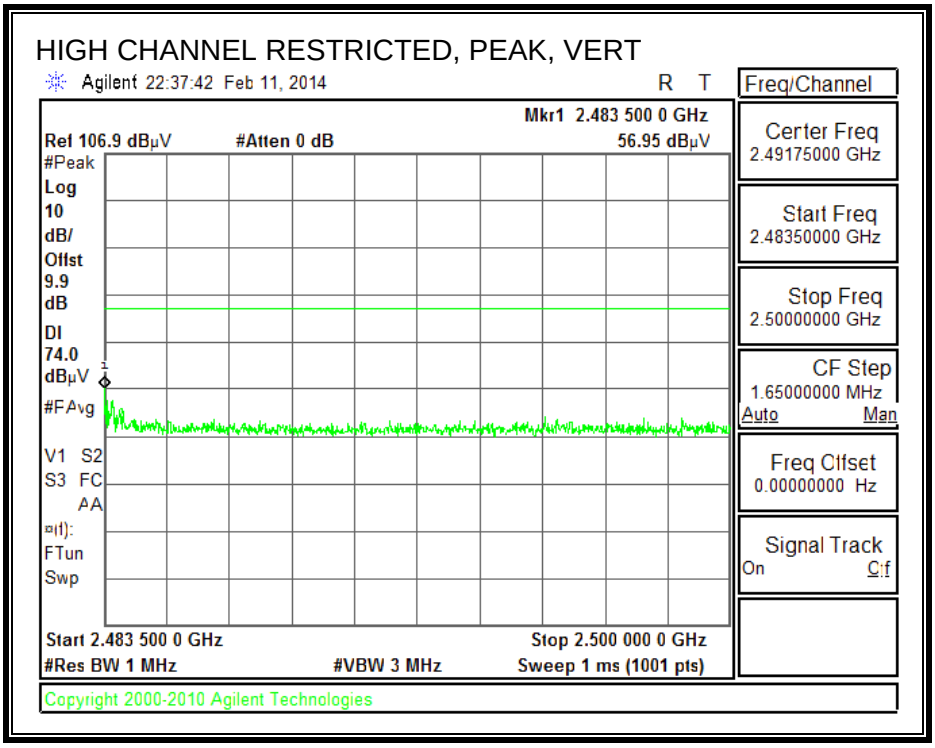


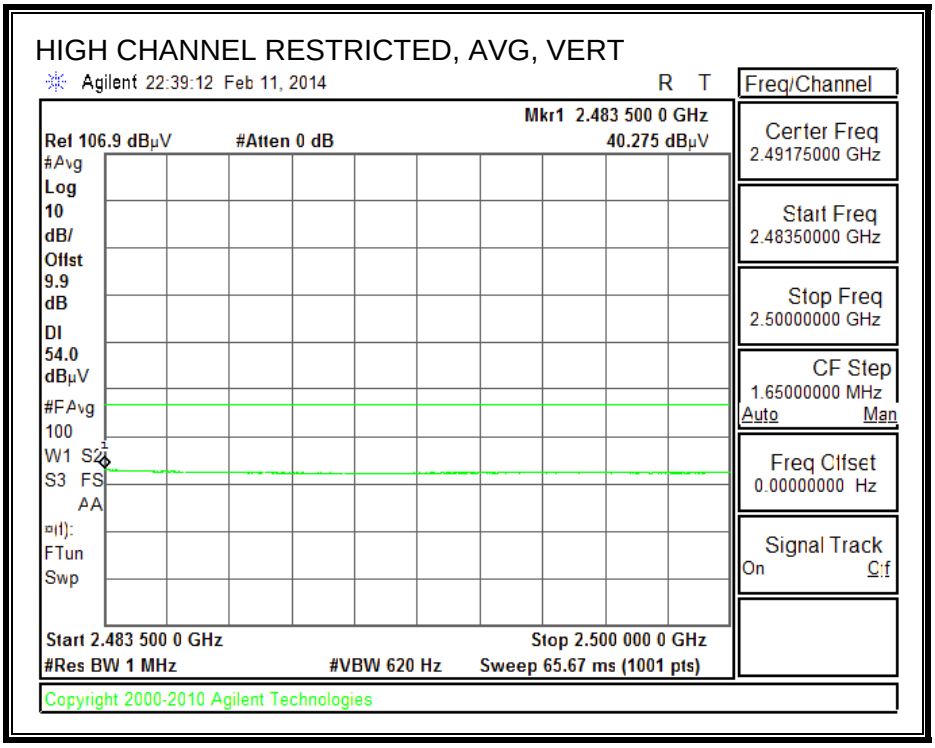
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





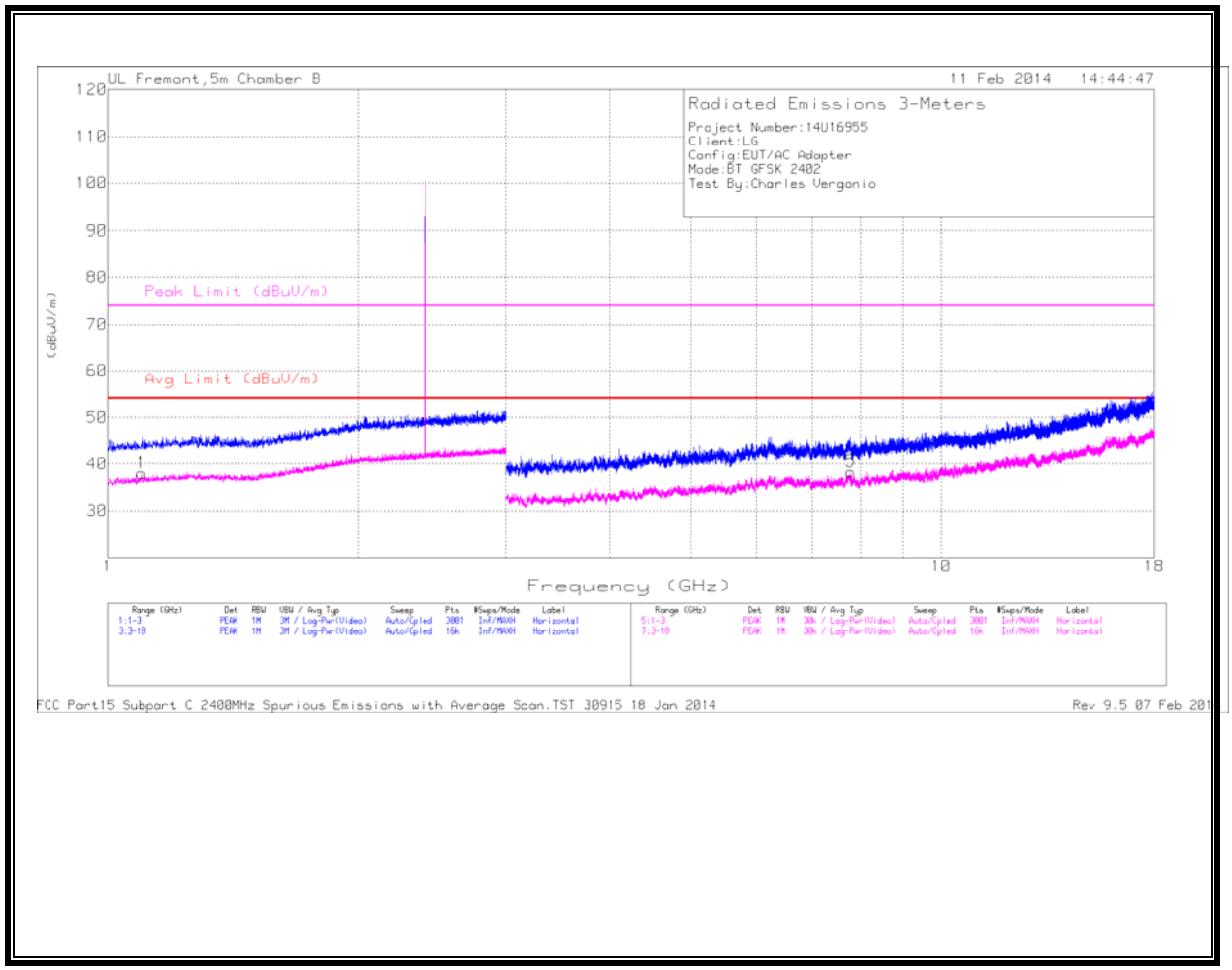
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





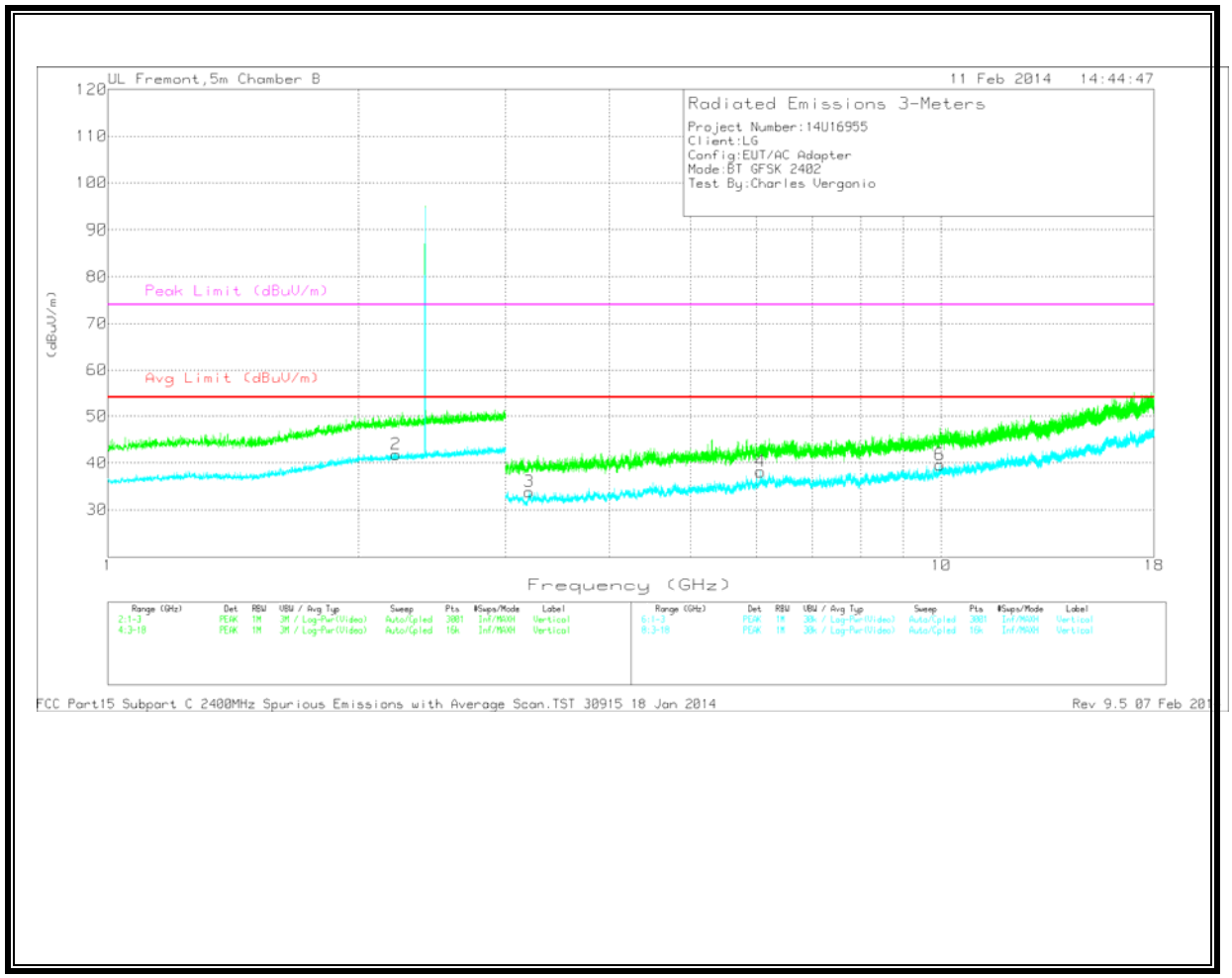
HARMONICS AND SPURIOUS EMISSIONS

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



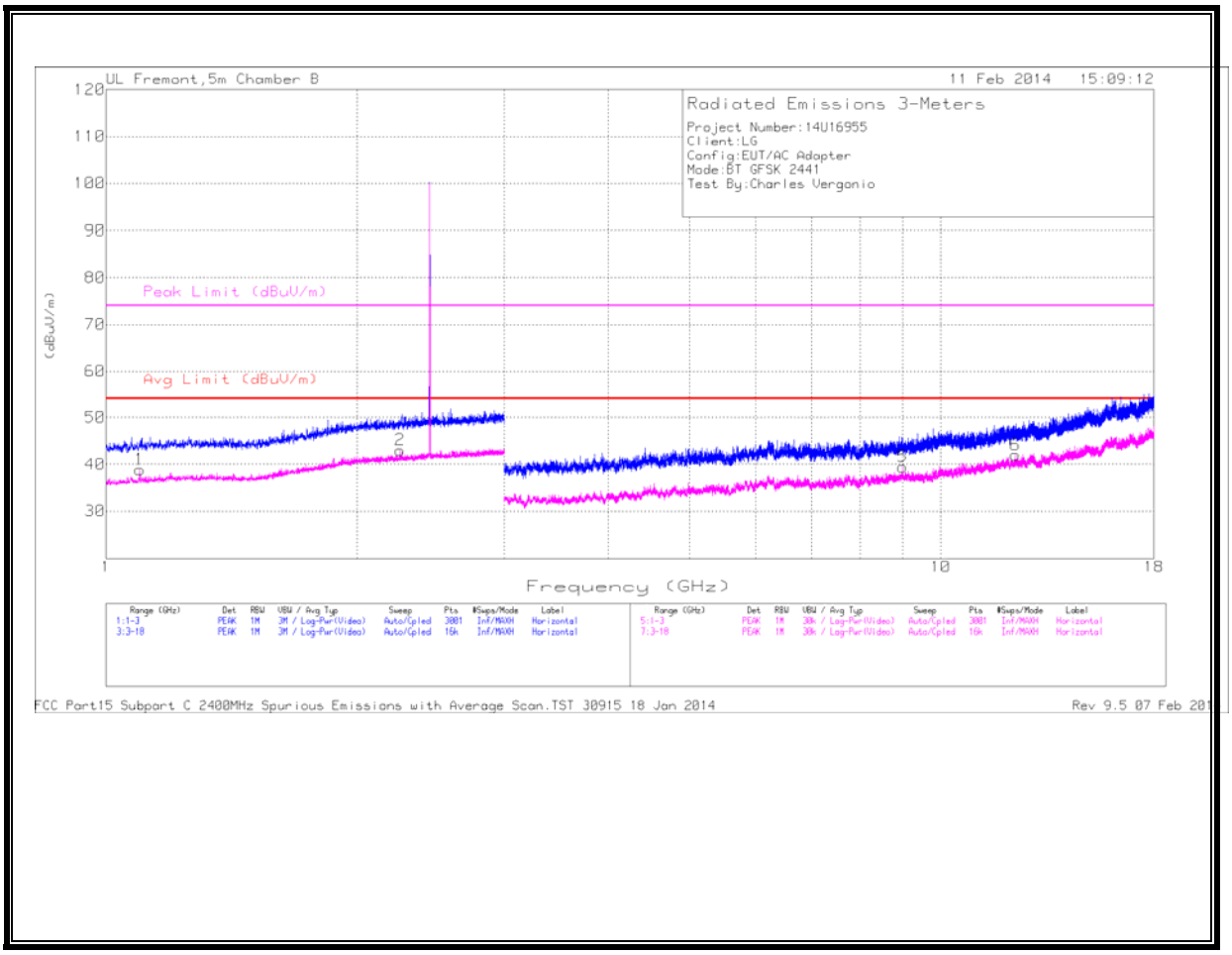
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 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	1.098	34.9	Avg	27.9	-24.8	38	54	-16	-	-	0-360	99	H
2	2.217	32.9	Avg	32.1	-23.2	41.8	54	-12.2	-	-	0-360	99	V
3	3.202	31.73	Avg	33.3	-31.2	33.83	54	-20.17	-	-	0-360	202	V
4	6.072	31.45	Avg	35.9	-29.2	38.15	54	-15.85	-	-	0-360	99	V
5	7.788	28.54	Avg	36.2	-26.4	38.34	54	-15.66	-	-	0-360	99	H
6	9.966	25.81	Avg	37.8	-24	39.61	54	-14.39	-	-	0-360	99	V

All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

MID CHANNEL
HORIZONTAL



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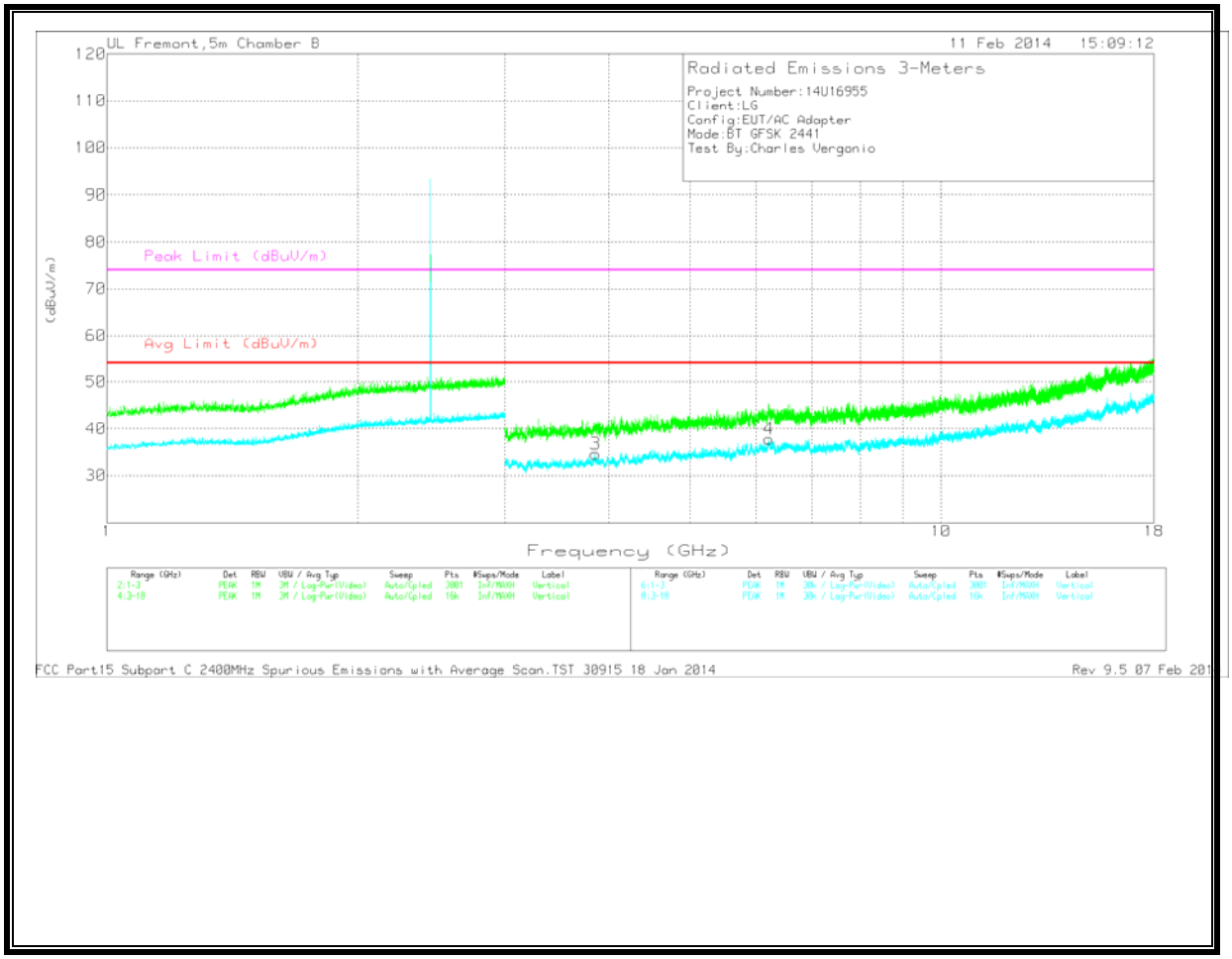
VERTICAL



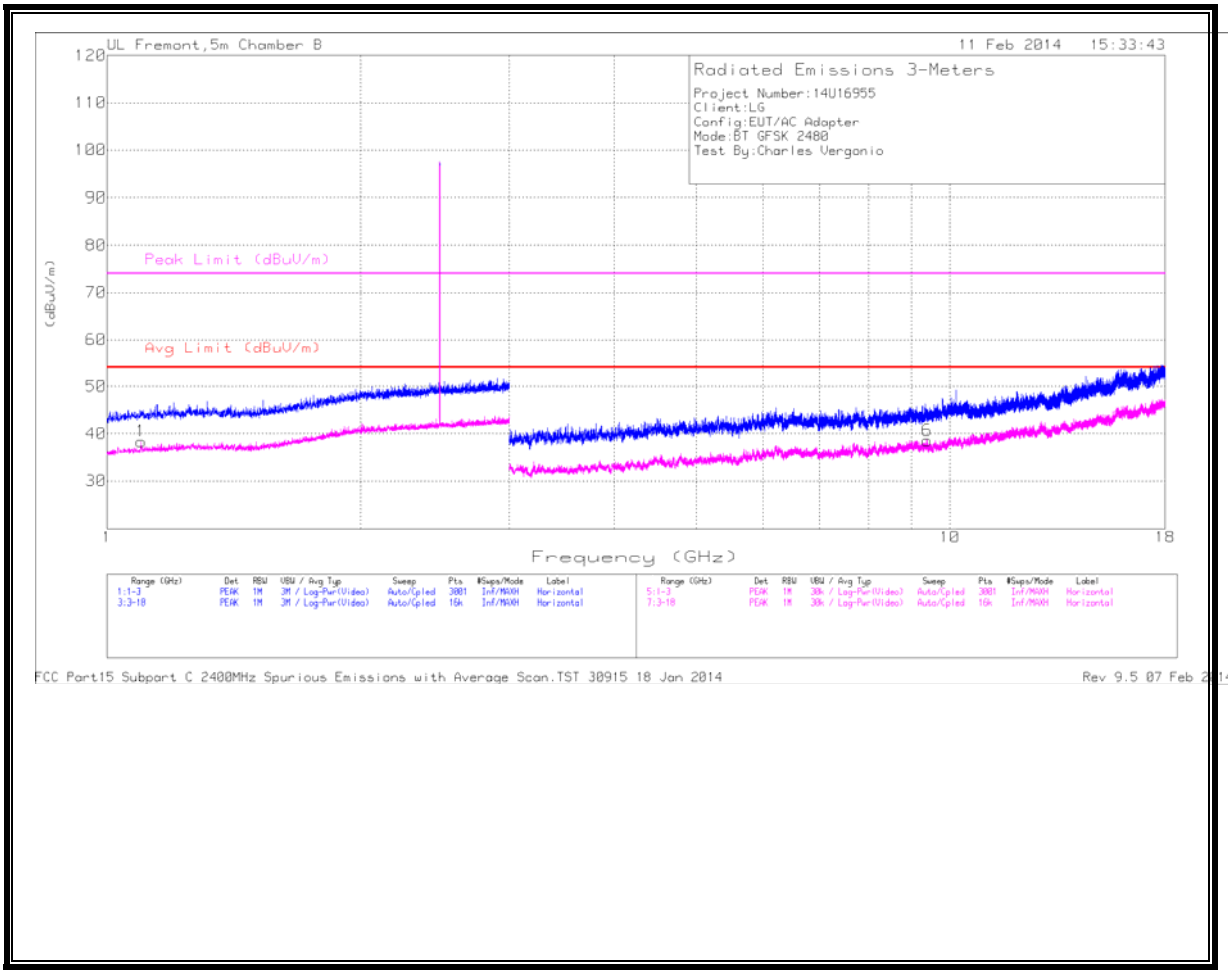
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

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	1.098	35.75	Avg	27.9	-24.8	38.85	54	-15.15	-	-	0-360	202	H
2	2.251	34	Avg	32.1	-23.1	43	54	-11	-	-	0-360	99	H
3	3.852	30.98	Avg	33.8	-30.2	34.58	54	-19.42	-	-	0-360	99	V
4	6.216	29.48	Avg	36	-27.7	37.78	54	-16.22	-	-	0-360	99	V
5	9.002	27.55	Avg	36.8	-24.9	39.45	54	-14.55	-	-	0-360	202	H
6	12.288	24.8	Avg	39.2	-22	42	54	-12	-	-	0-360	202	H

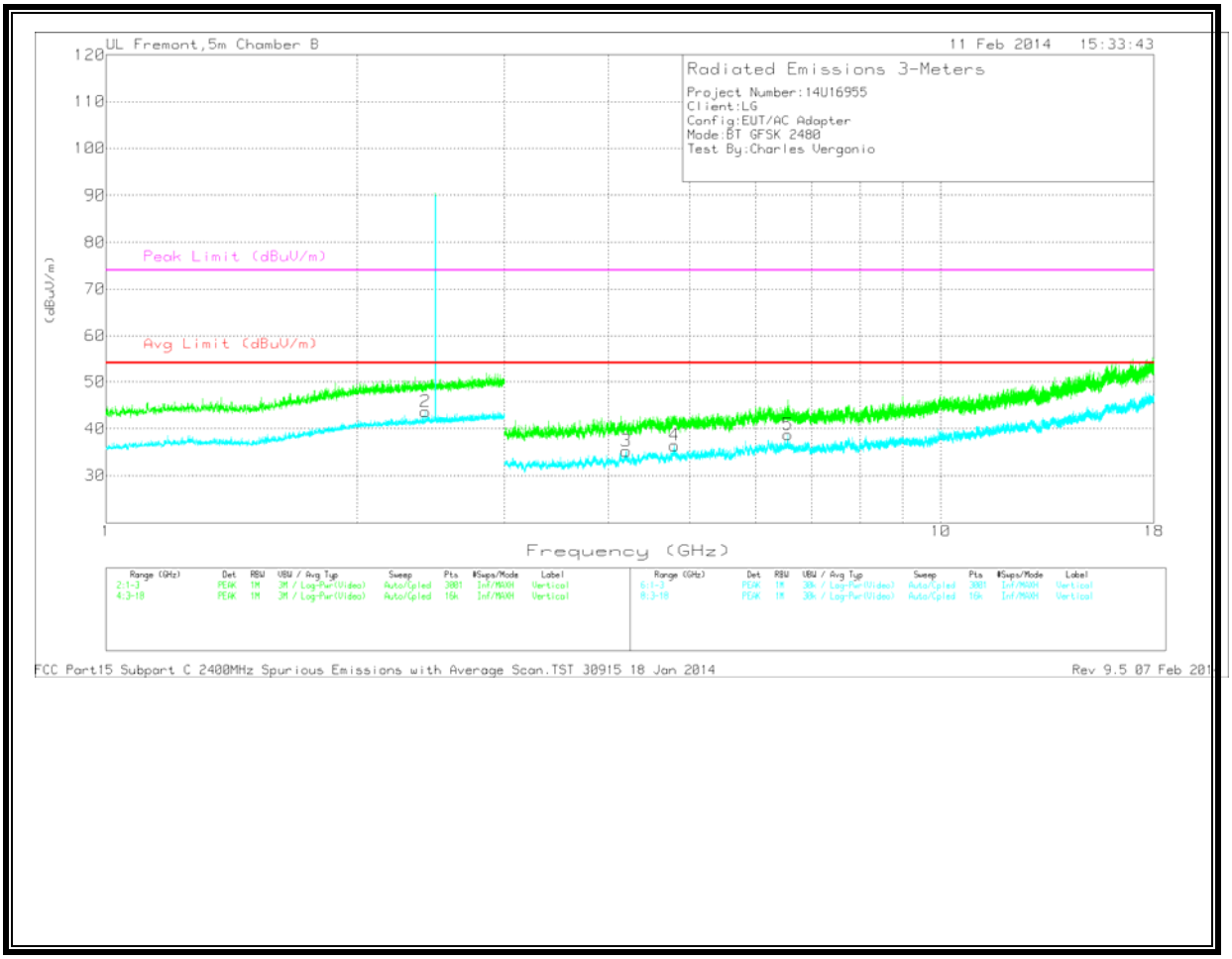
All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

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.

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.

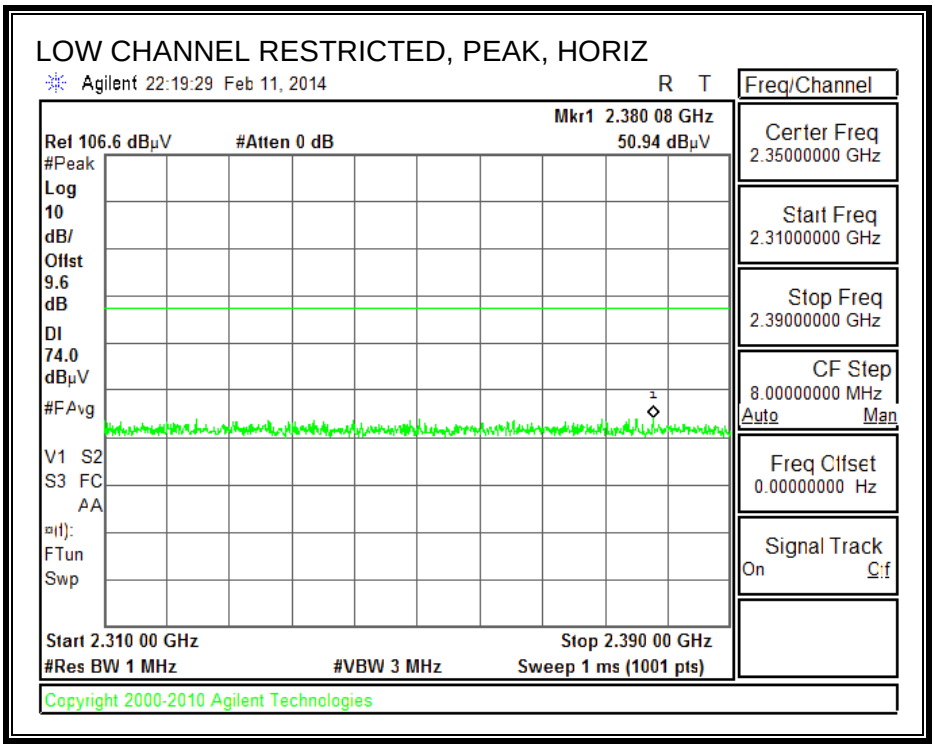
HIGH CHANNEL DATA

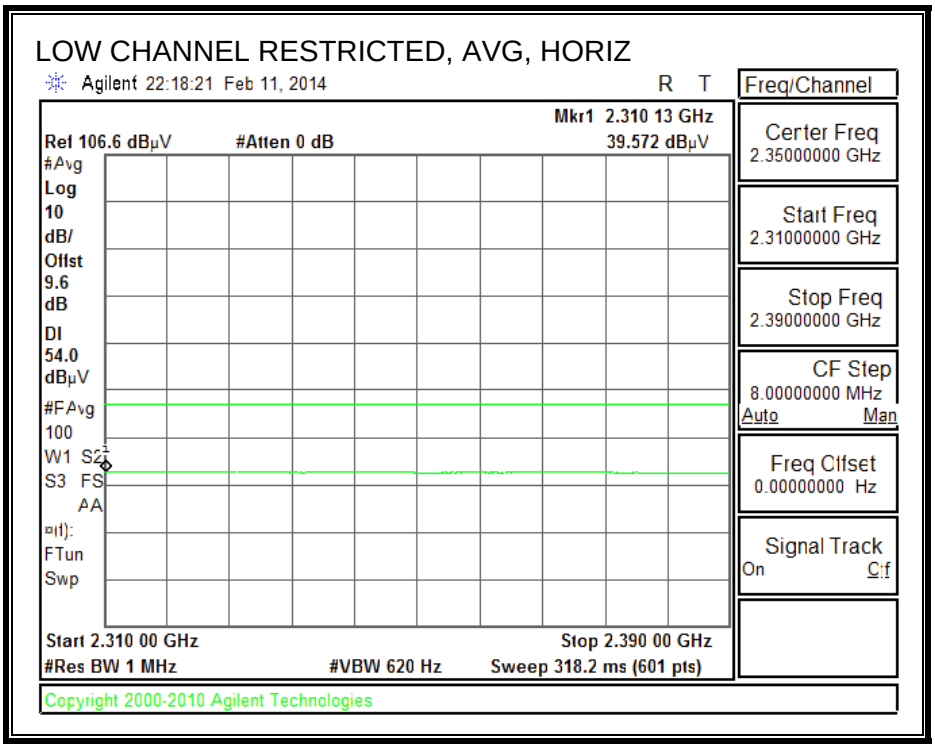
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.098	35.26	Avg	27.9	-24.8	38.36	54	-15.64	-	-	0-360	202	H
2	2.414	33.92	Avg	32.4	-22.7	43.62	54	-10.38	-	-	0-360	202	V
3	4.199	31.03	Avg	34.1	-29.9	35.23	54	-18.77	-	-	0-360	202	V
4	4.795	30.5	Avg	34.7	-28.8	36.4	54	-17.6	-	-	0-360	99	V
5	6.562	30.14	Avg	35.9	-27.3	38.74	54	-15.26	-	-	0-360	202	V
6	9.395	26.22	Avg	37.1	-24.8	38.52	54	-15.48	-	-	0-360	201	H

All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

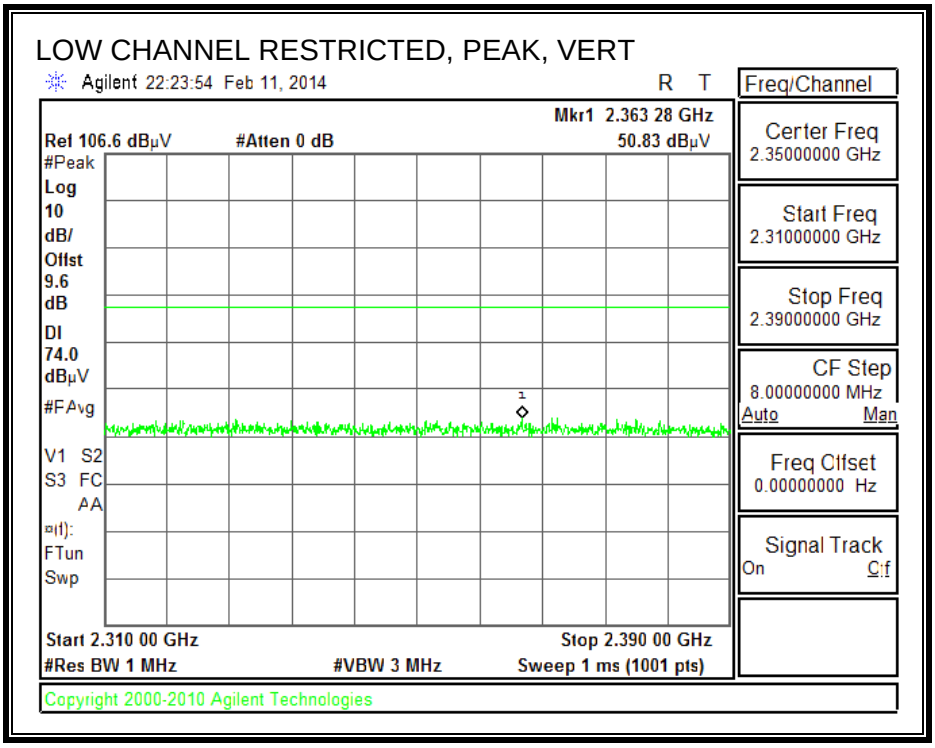
8.2.2. ENHANCED DATA RATE 8PSK MODULATION

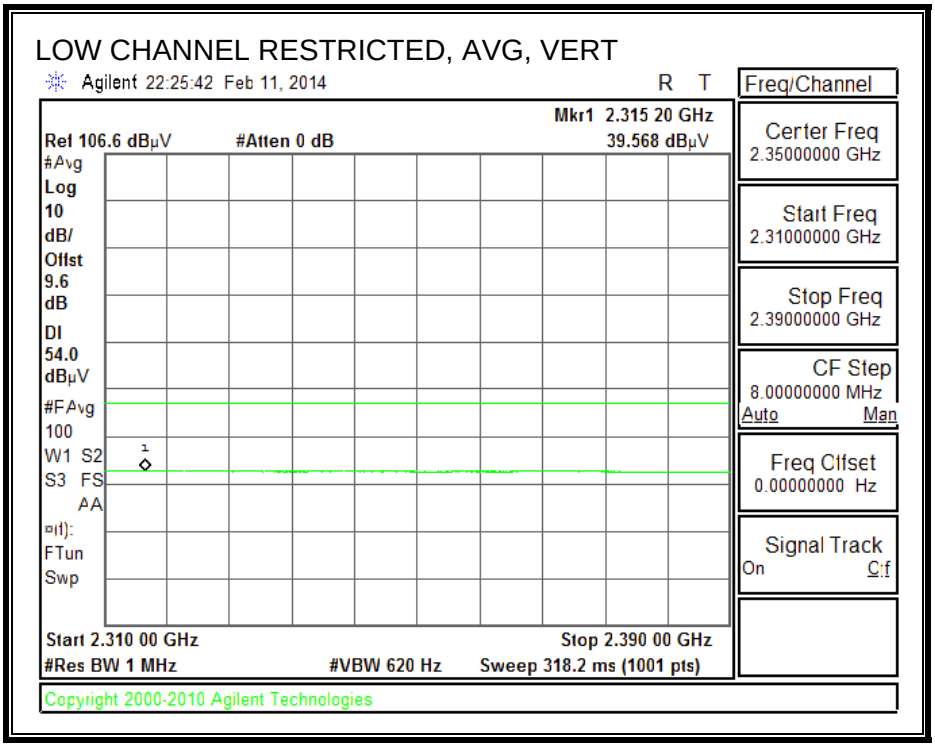
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



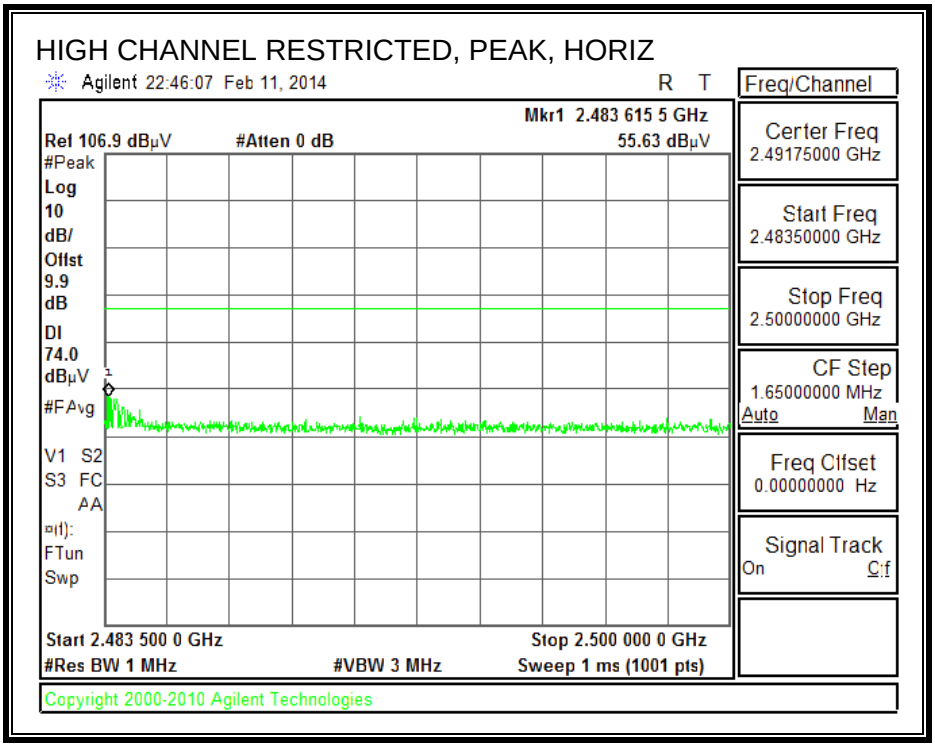


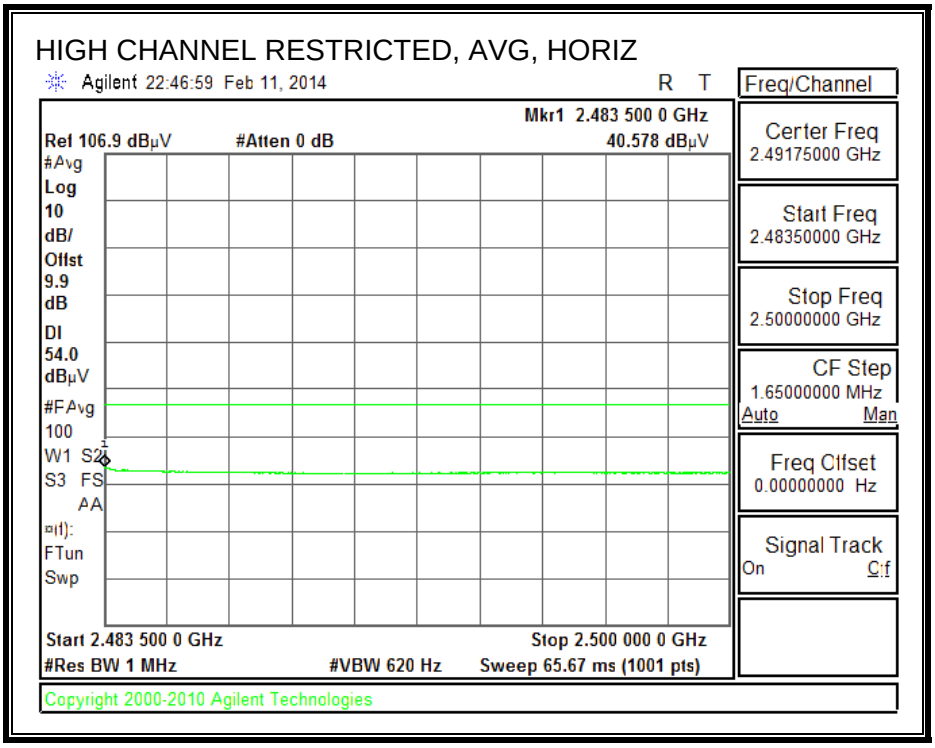
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



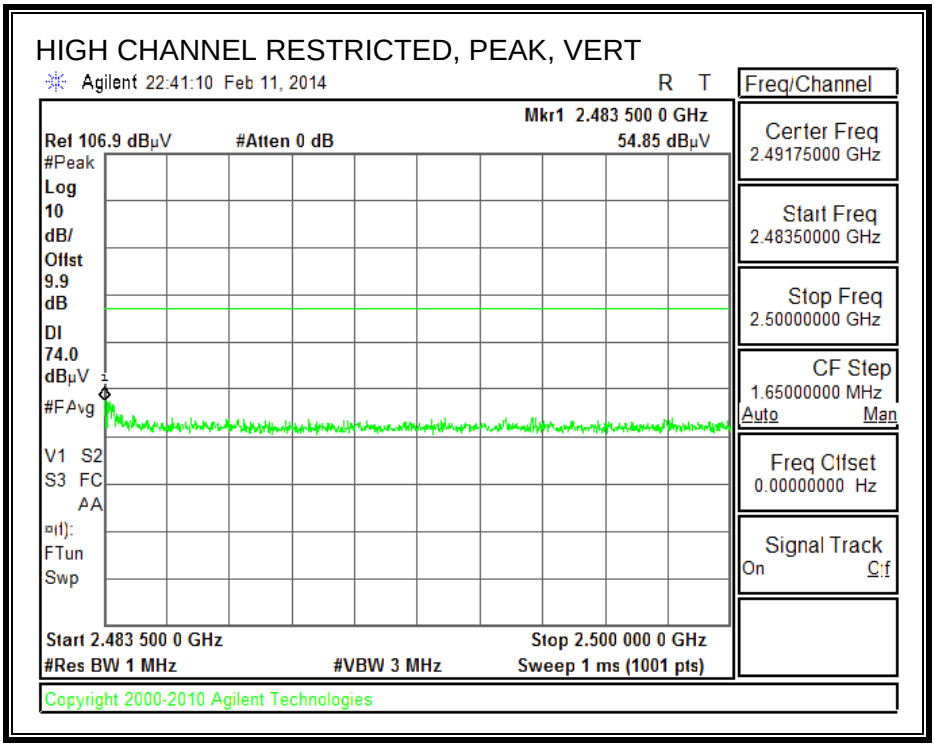


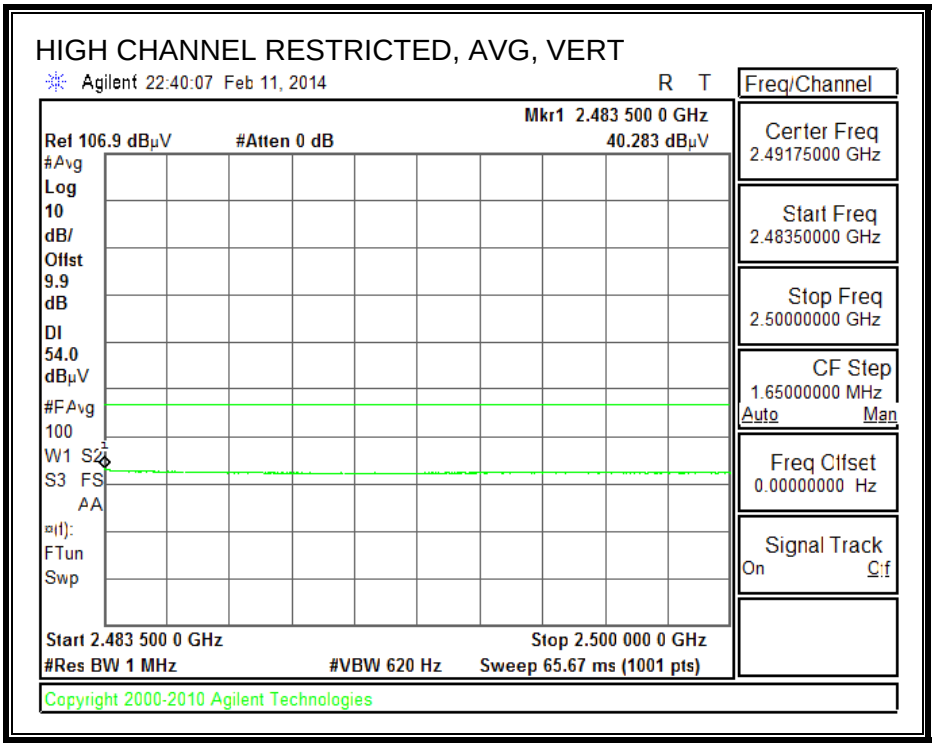
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





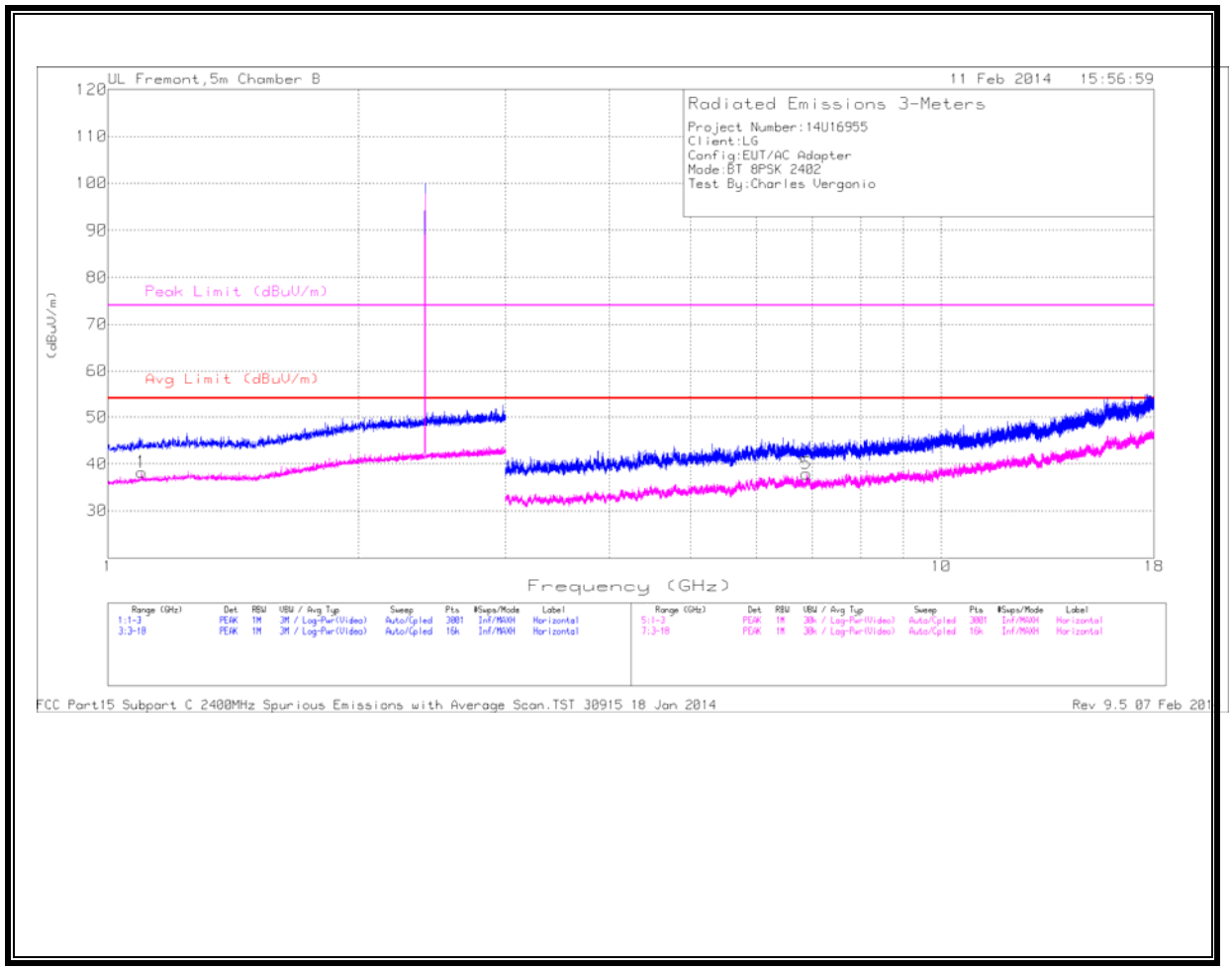
RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





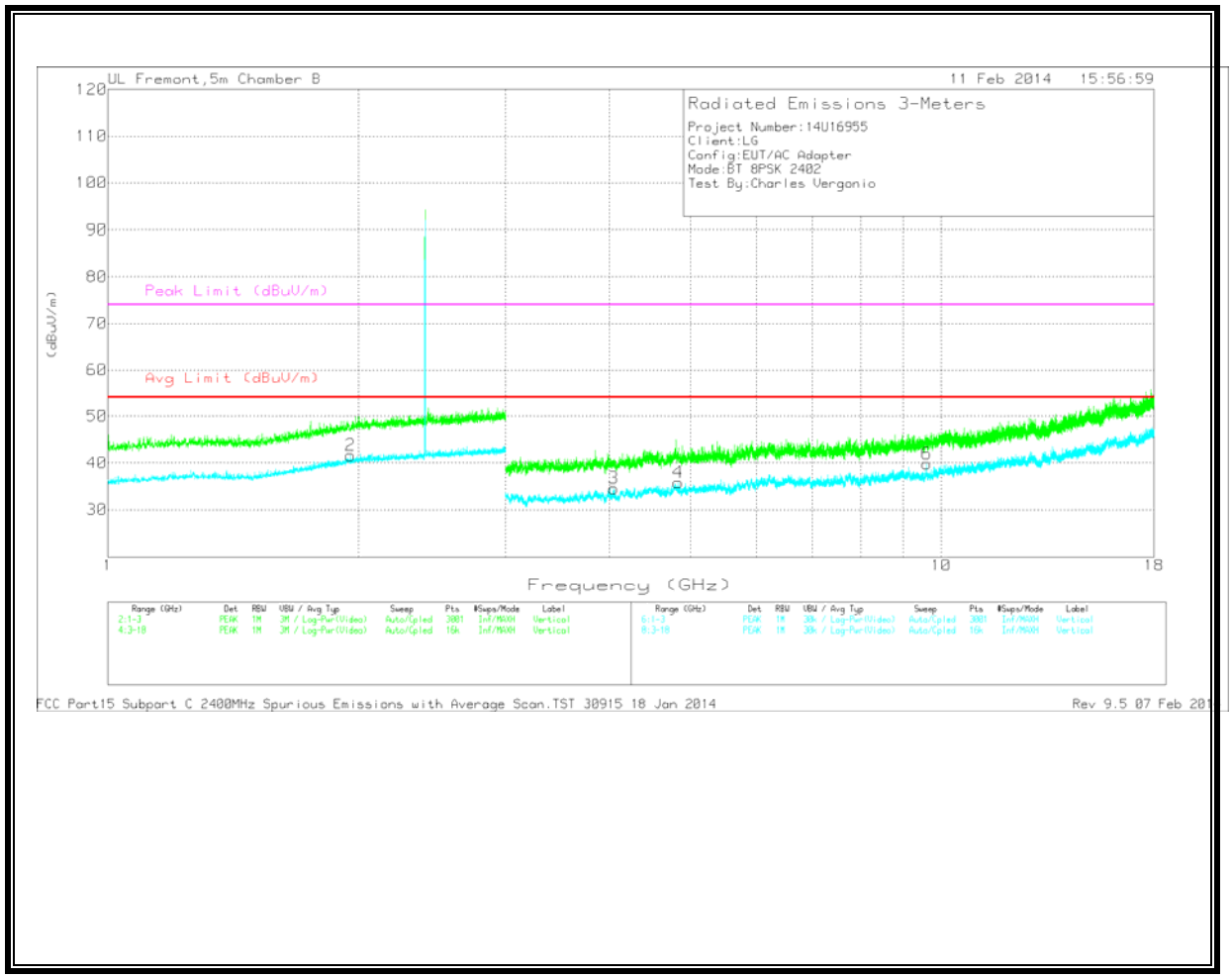
HARMONICS AND SPURIOUS EMISSIONS

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



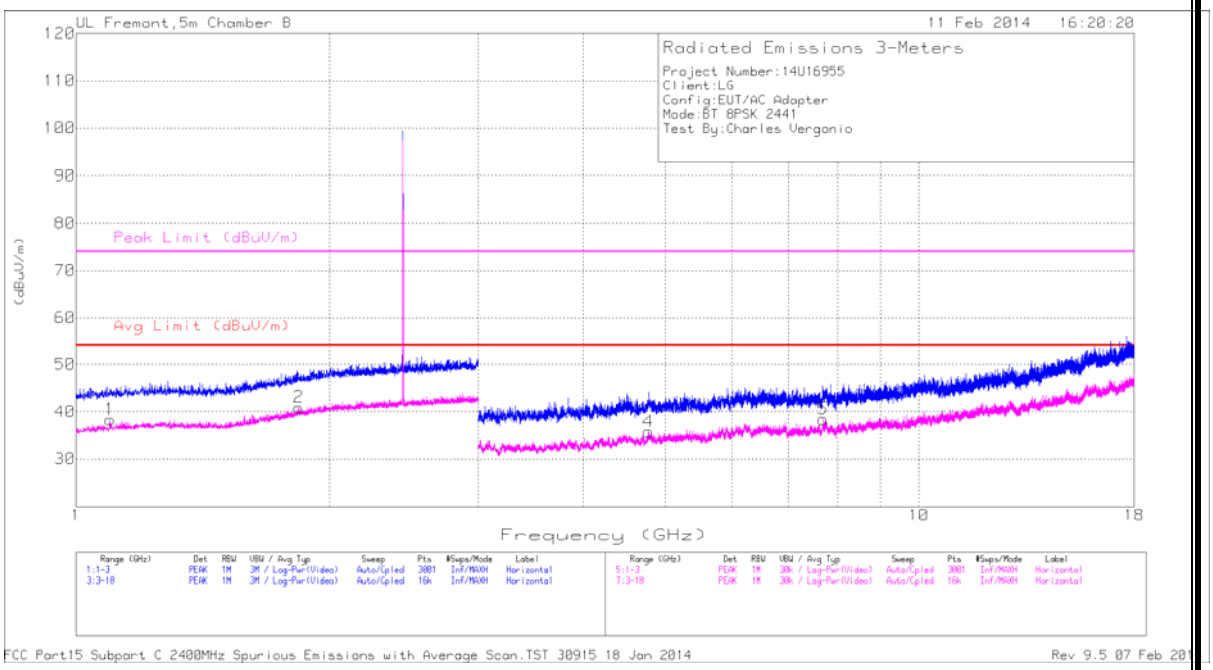
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF 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	1.098	35.06	Avg	27.9	-24.8	38.16	54	-15.84	-	-	0-360	201	H
2	1.955	33.68	Avg	31.5	-23.6	41.58	54	-12.42	-	-	0-360	202	V
3	4.045	31.55	Avg	33.9	-30.9	34.55	54	-19.45	-	-	0-360	202	V
4	4.835	30.81	Avg	34.7	-29.7	35.81	54	-18.19	-	-	0-360	99	V
5	6.889	29.46	Avg	35.9	-27.5	37.86	54	-16.14	-	-	0-360	202	H
6	9.607	26.6	Avg	37.3	-24.1	39.8	54	-14.2	-	-	0-360	202	V

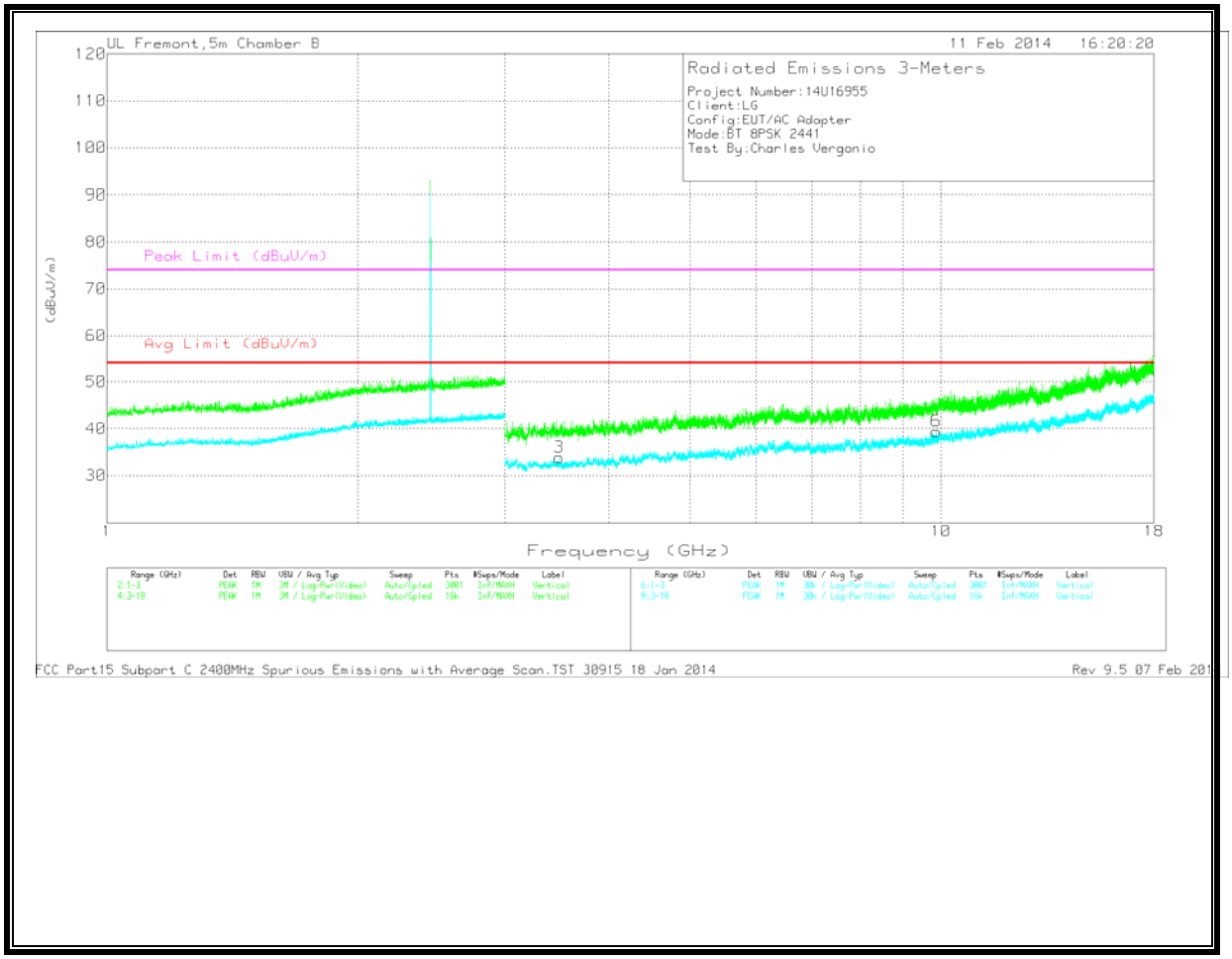
All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

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.

VERTICAL



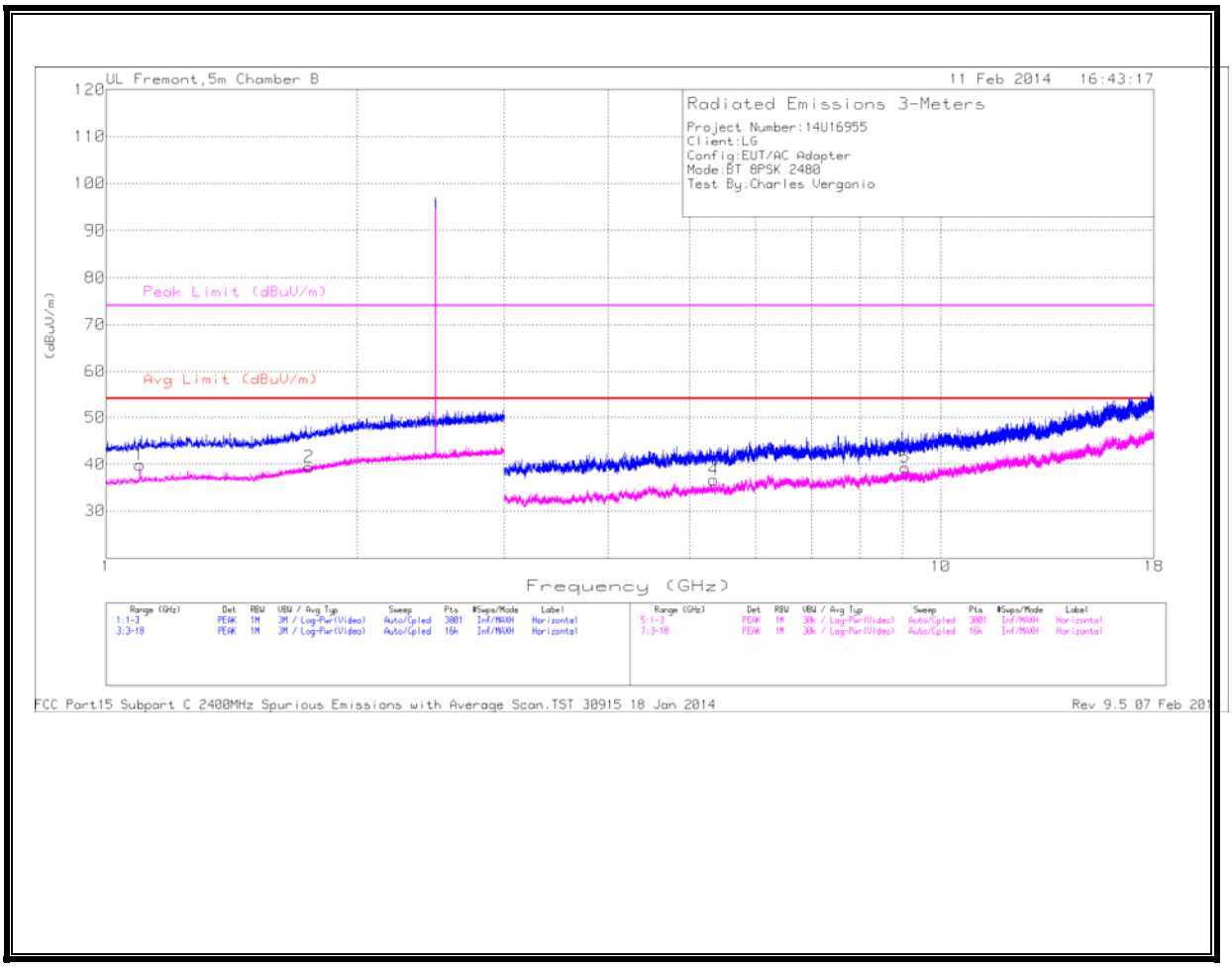
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

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	1.098	35.19	Avg	27.9	-24.8	38.29	54	-15.71	-	-	0-360	202	H
2	1.838	33.77	Avg	30.7	-23.6	40.87	54	-13.13	-	-	0-360	202	H
3	3.486	32.06	Avg	33.2	-31.4	33.86	54	-20.14	-	-	0-360	202	V
4	4.777	30.23	Avg	34.7	-29.2	35.73	54	-18.27	-	-	0-360	202	H
5	7.698	28.89	Avg	36.2	-26.7	38.39	54	-15.61	-	-	0-360	99	H
6	9.868	26.03	Avg	37.6	-24.2	39.43	54	-14.57	-	-	0-360	99	V

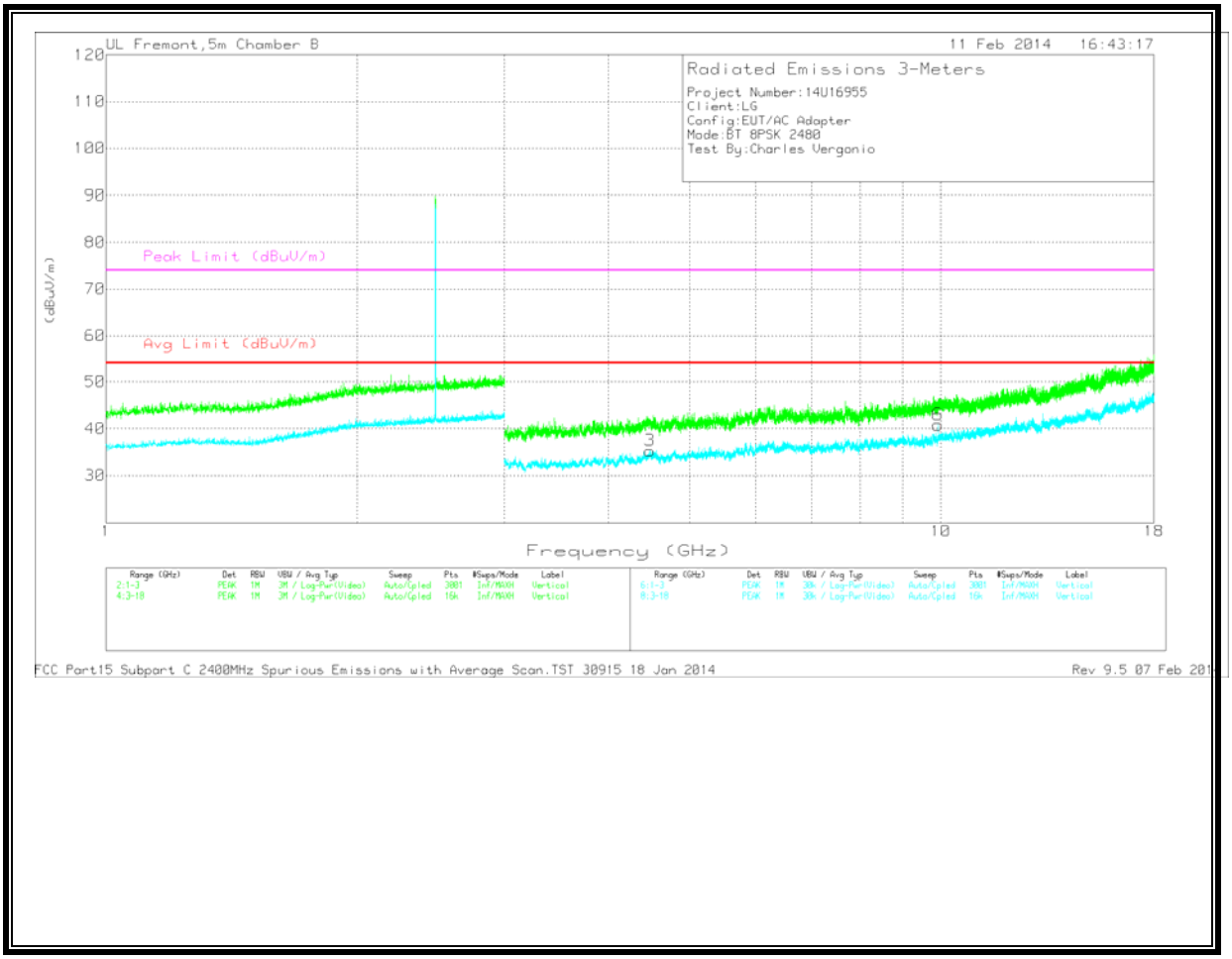
All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

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.

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

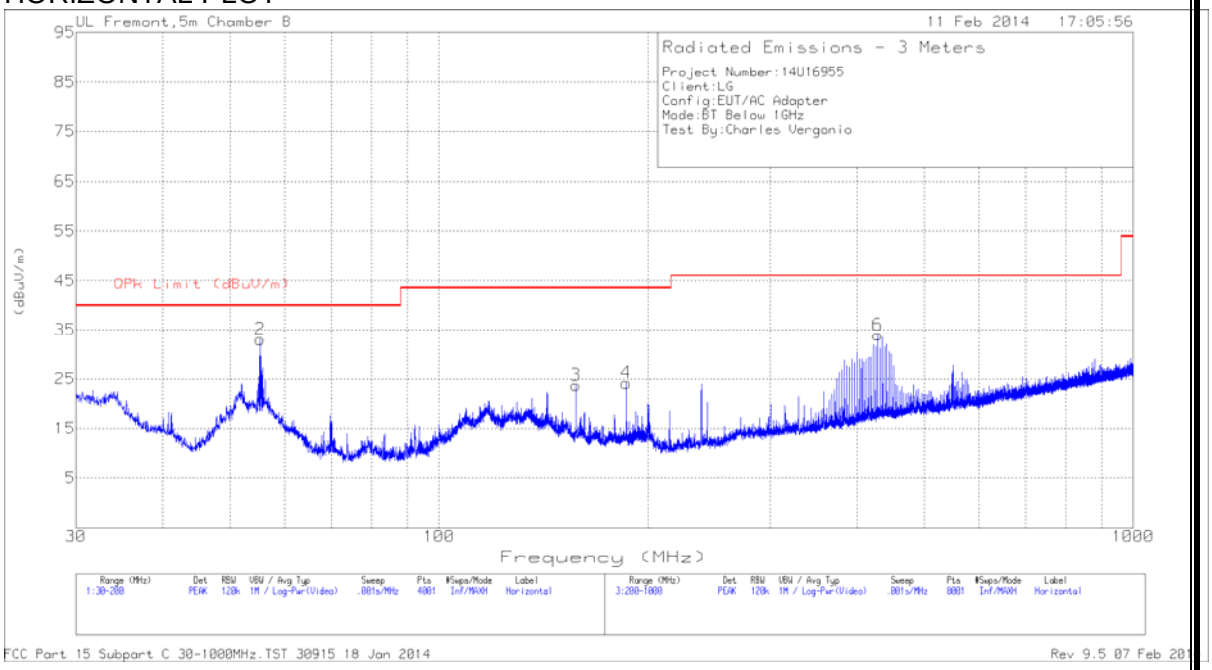
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.098	36.74	Avg	27.9	-24.8	39.84	54	-14.16	-	-	0-360	202	H
2	1.752	33.08	Avg	30.1	-23.8	39.38	54	-14.62	-	-	0-360	202	H
3	4.482	30.01	Avg	34.5	-29.2	35.31	54	-18.69	-	-	0-360	99	V
4	5.344	30.46	Avg	34.9	-28.7	36.66	54	-17.34	-	-	0-360	202	H
5	9.062	27.19	Avg	36.8	-24.7	39.29	54	-14.71	-	-	0-360	99	H
6	9.919	27.1	Avg	37.7	-24	40.8	54	-13.2	-	-	0-360	202	V

All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

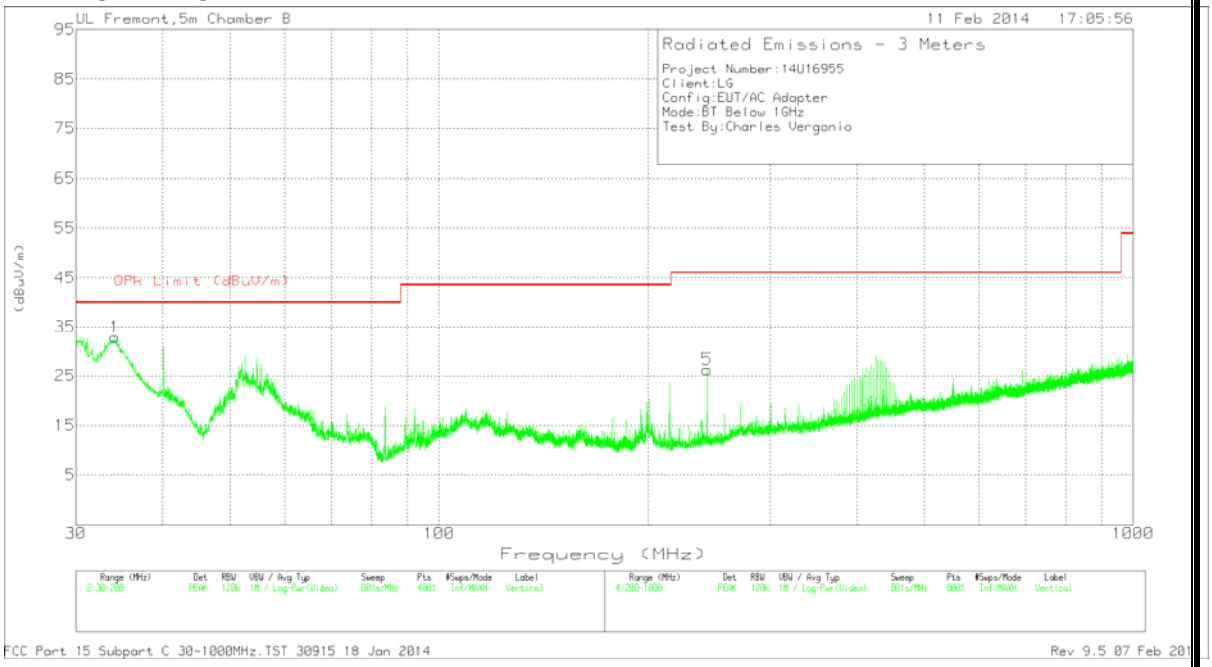
8.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	34.1225	43.62	PK	18	-28.8	32.82	-	-	0-360	101	V
2	55.2875	54.86	PK	6.8	-28.6	33.06	-	-	0-360	300	H
3	157.5	38.88	PK	12.2	-27.4	23.68	-	-	0-360	200	H
4	186.145	40.26	PK	11	-27.1	24.16	-	-	0-360	101	H
5	243.4	41.14	PK	11.6	-26.5	26.24	-	-	0-360	200	V
6	428.8	43.38	PK	16.5	-25.9	33.98	-	-	0-360	101	H

PK - Peak detector