



FCC CFR47 PART 15 SUBPART C

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: 14U16955-4

ISSUE DATE: FEBRUARY 11, 2014

Prepared for
LG ELECTRONICS MOBILECOMM U.S.A., INC
1000 SYLVAN AVENUE
ENGELWOOD CLIFFS,
NEW JERSEY, 07632, U.S.A.

Prepared by
UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888



NVLAP LAB CODE 200065-0

Revision History

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

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. DESCRIPTION OF AVAILABLE ANTENNAS	6
5.3. WORST-CASE CONFIGURATION AND MODE.....	7
5.4. DESCRIPTION OF TEST SETUP.....	8
6. TEST AND MEASUREMENT EQUIPMENT	10
7. MEASUREMENT METHODS.....	11
8. SUMMARY TABLE	12
9. ANTENNA PORT TEST RESULTS	13
9.1. AVERAGE POWER.....	13
9.1.1. 802.11b MODE IN THE 2.4 GHz BAND.....	14
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND.....	14
9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND	14
9.1.4. 802.11a MODE IN THE 5.8 GHz BAND.....	14
9.1.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND.....	14
9.1.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND.....	15
10. RADIATED TEST RESULTS.....	16
10.1. LIMITS AND PROCEDURE.....	16
10.2. TRANSMITTER ABOVE 1 GHz.....	17
10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND	17
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND	34
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND	51
10.2.1. TX ABOVE 1 GHz 802.11A HT20 MODE IN THE 5.8 GHz BAND.....	68
10.2.1. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND	77
10.2.1. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND	86
10.3. WORST-CASE BELOW 1 GHz	92
11. SETUP PHOTOS.....	95

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 and 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:

Tested By:



PHILIP KIM
WiSE PROGRAM MANAGER
UL Verification Services Inc.



CHARLES VERGONIO
WiSE LAB TECHNICIAN
UL Verification Services Inc.

2. TEST METHODOLOGY

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

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:

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a CDMA/LTE Phone + Bluetooth & DTS/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 (2.4GHz) and 1.79 dBi (5.8GHz).

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.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11a mode: 6 Mbps
802.11n HT20mode: MCS0
802.11n HT40mode: MCS0

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

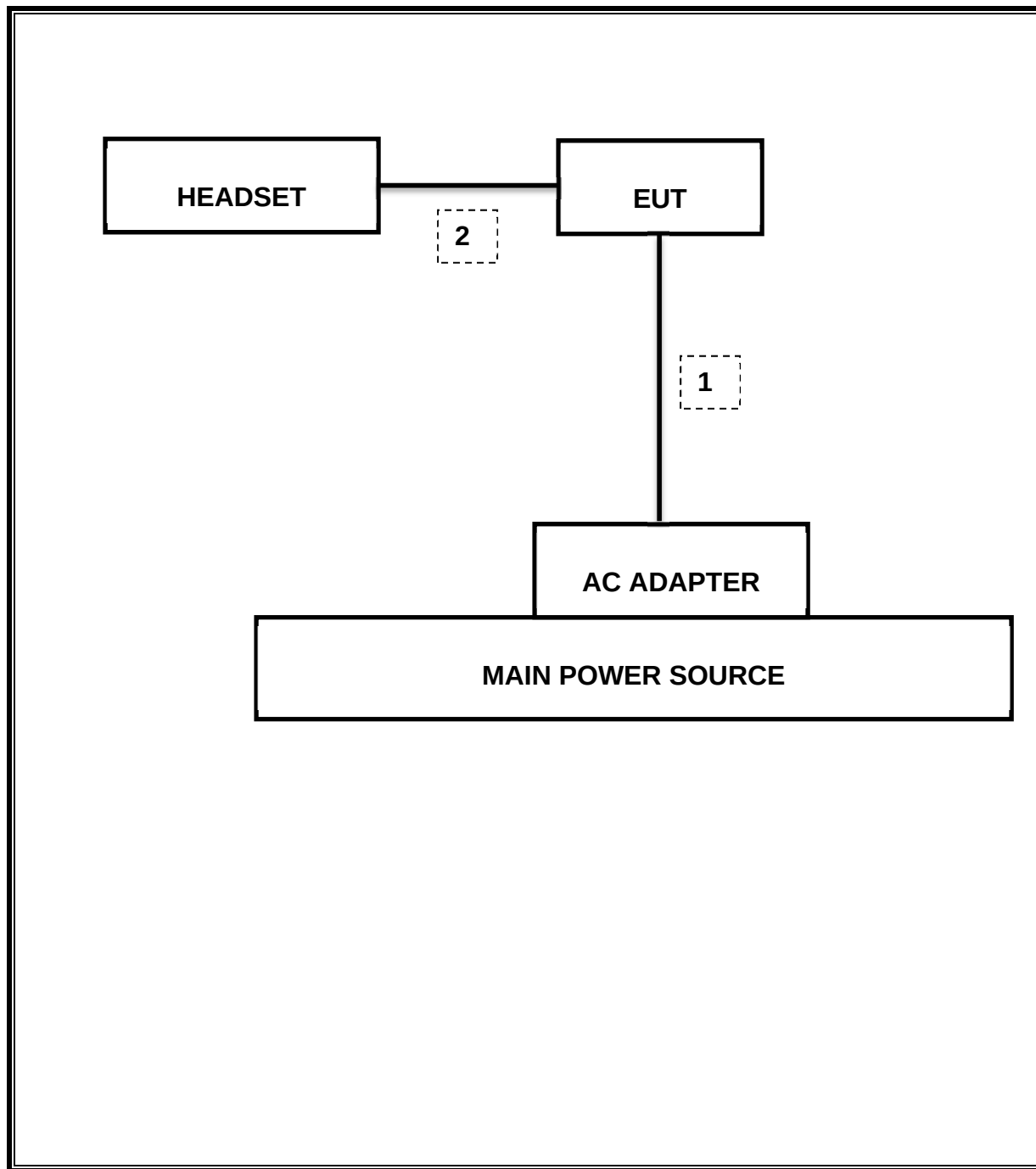
I/O CABLES

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 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 Date	Cal Due
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01016	08/14/13	08/14/14
Antenna, Horn, 18 GHz	ETS	3117	C01006	12/11/13	12/11/14
Antenna, Horn, 25.5 GHz	ARA	MWH-1826/B	C00980	11/14/13	11/14/14
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/16/14	01/16/15
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/13	10/22/14
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01012	10/21/13	10/21/14
PXA SIGNAL ANALYZER	Agilent / HP	N9030A	N/A		05/09/14
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/08/13	08/08/14
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
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/2013	12/13/2014
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/2013	12/13/2014

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r01:Measurement Procedure PK2 is used for power and PKPSD is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

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	51.64dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 0.2 dB (including 10 dB pad and 0.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	15.00
Mid	2437	15.00
High	2462	14.90
Worst		15.000

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	10.40
Mid	2437	10.50
High	2462	10.40
Worst		10.500

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	9.50
Mid	2437	9.60
High	2462	9.50
Worst		9.600

9.1.4. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	13.000
Mid	5785	13.000
High	5825	12.800
Worst		13.000

9.1.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	12.000
Mid	5785	12.300
High	5825	12.000
Worst		12.300

9.1.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5755	10.2
High	5795	11.0
Worst		11.0

10. RADIATED TEST RESULTS

10.1. 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.

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.

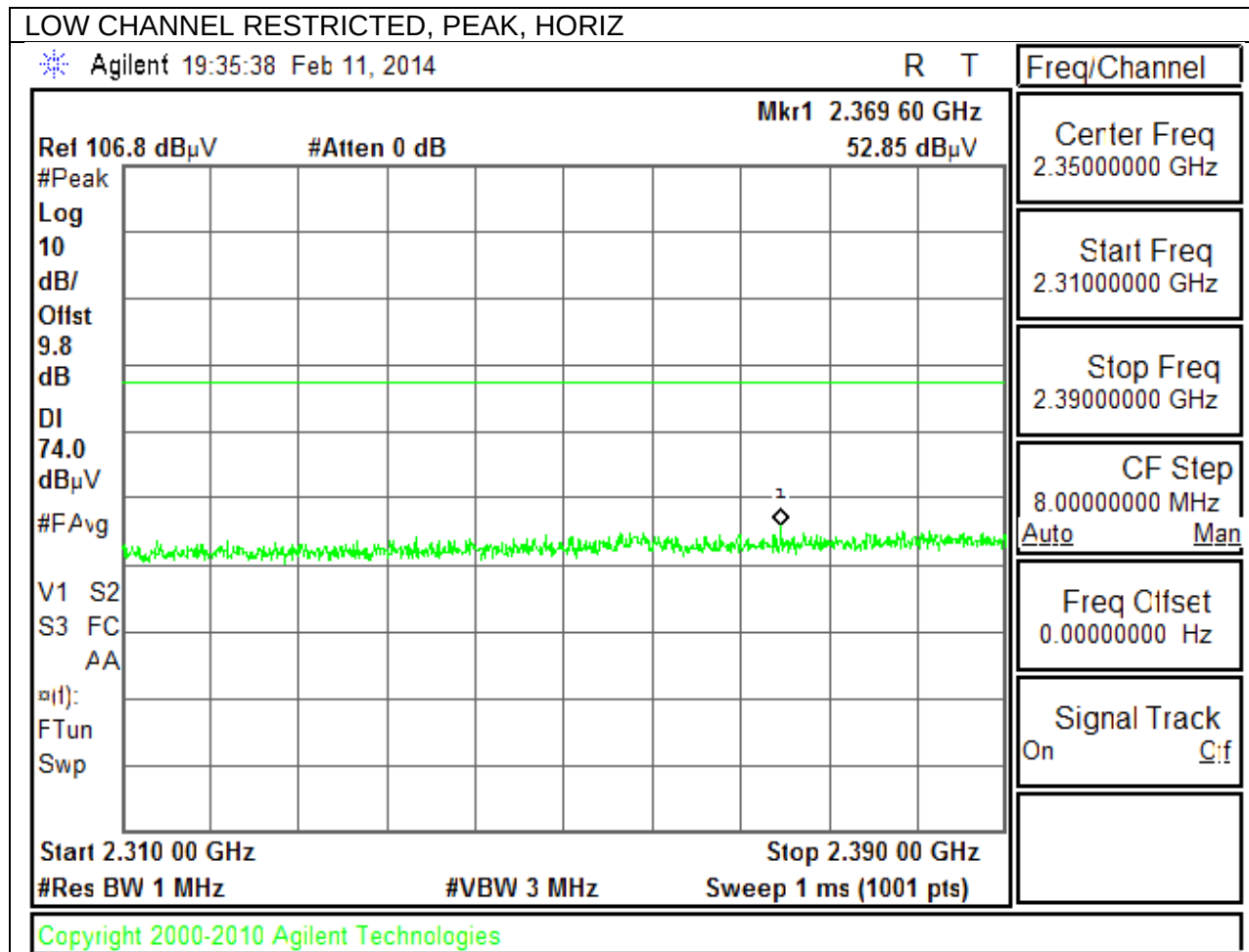
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor= $10\log(1/x)$

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.

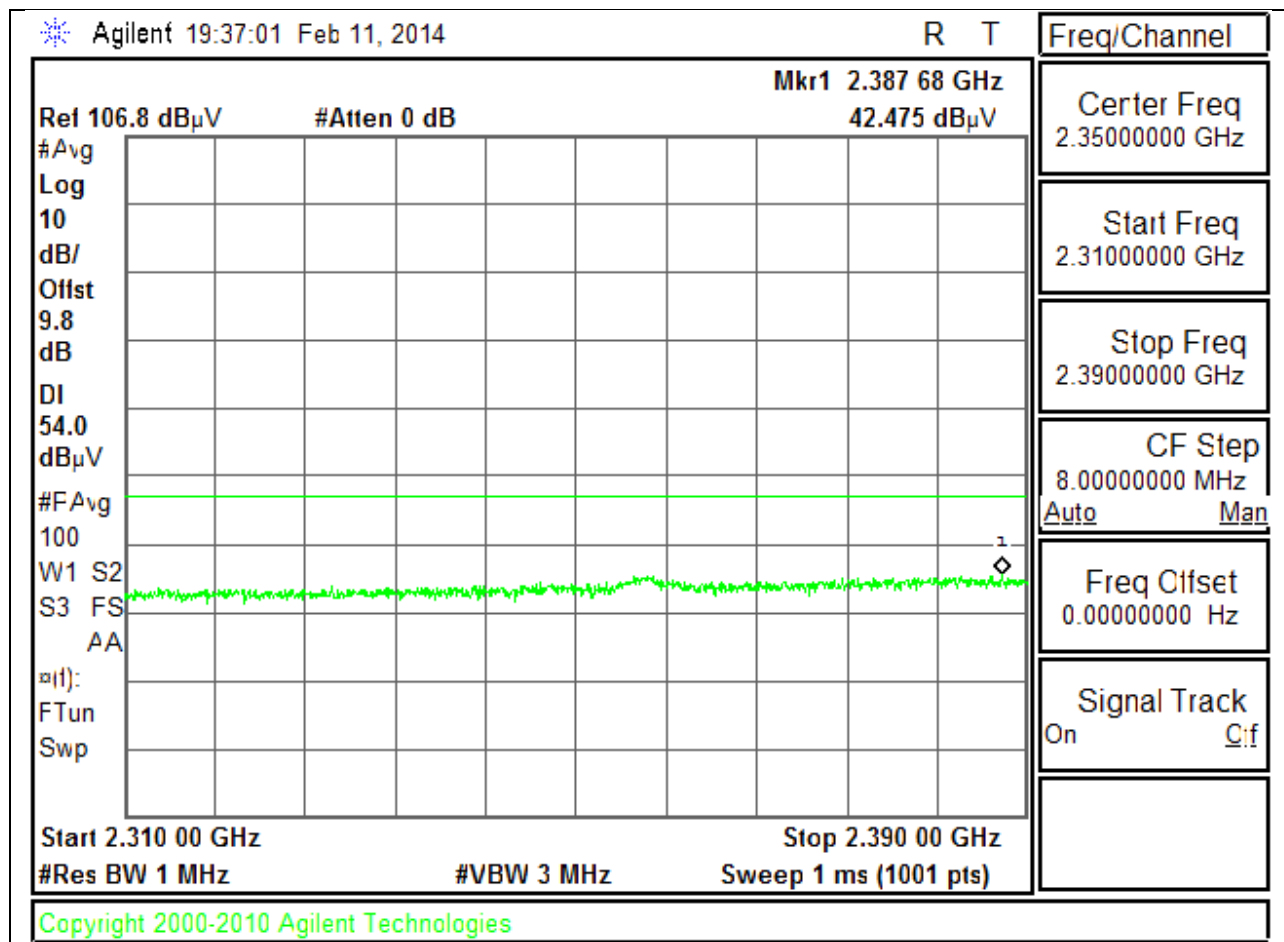
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

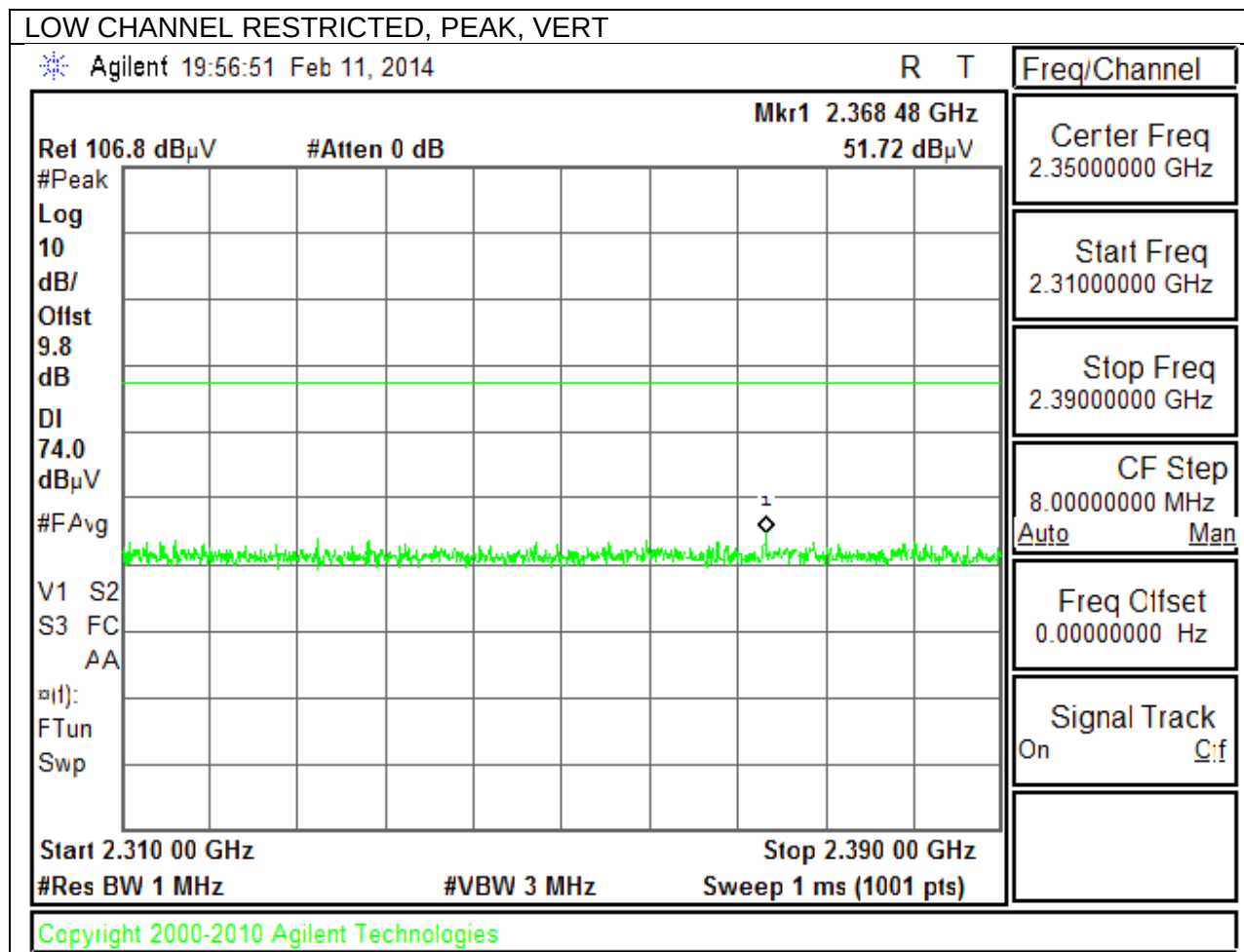
10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

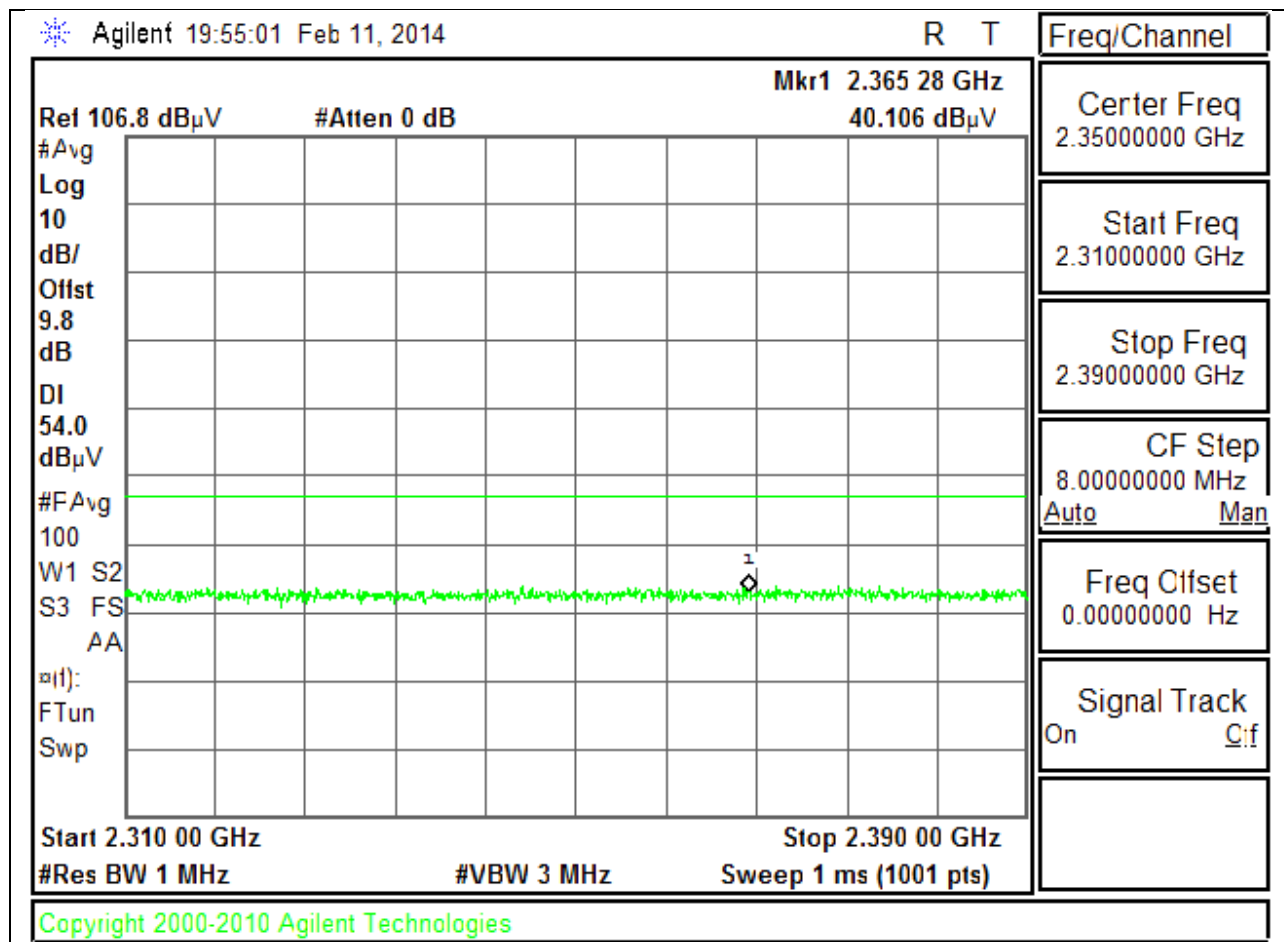


LOW CHANNEL RESTRICTED, AVERAGE, HORIZ

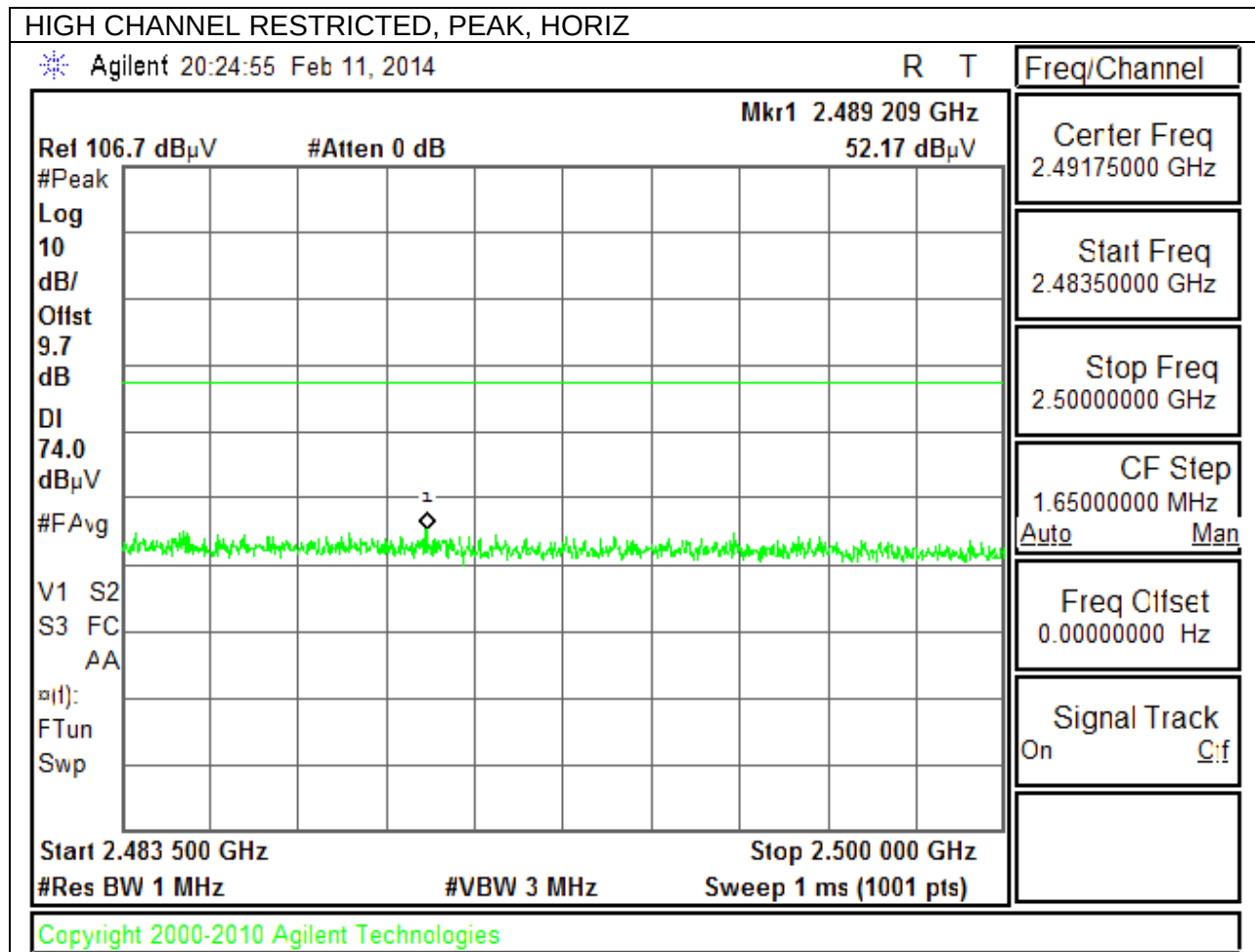




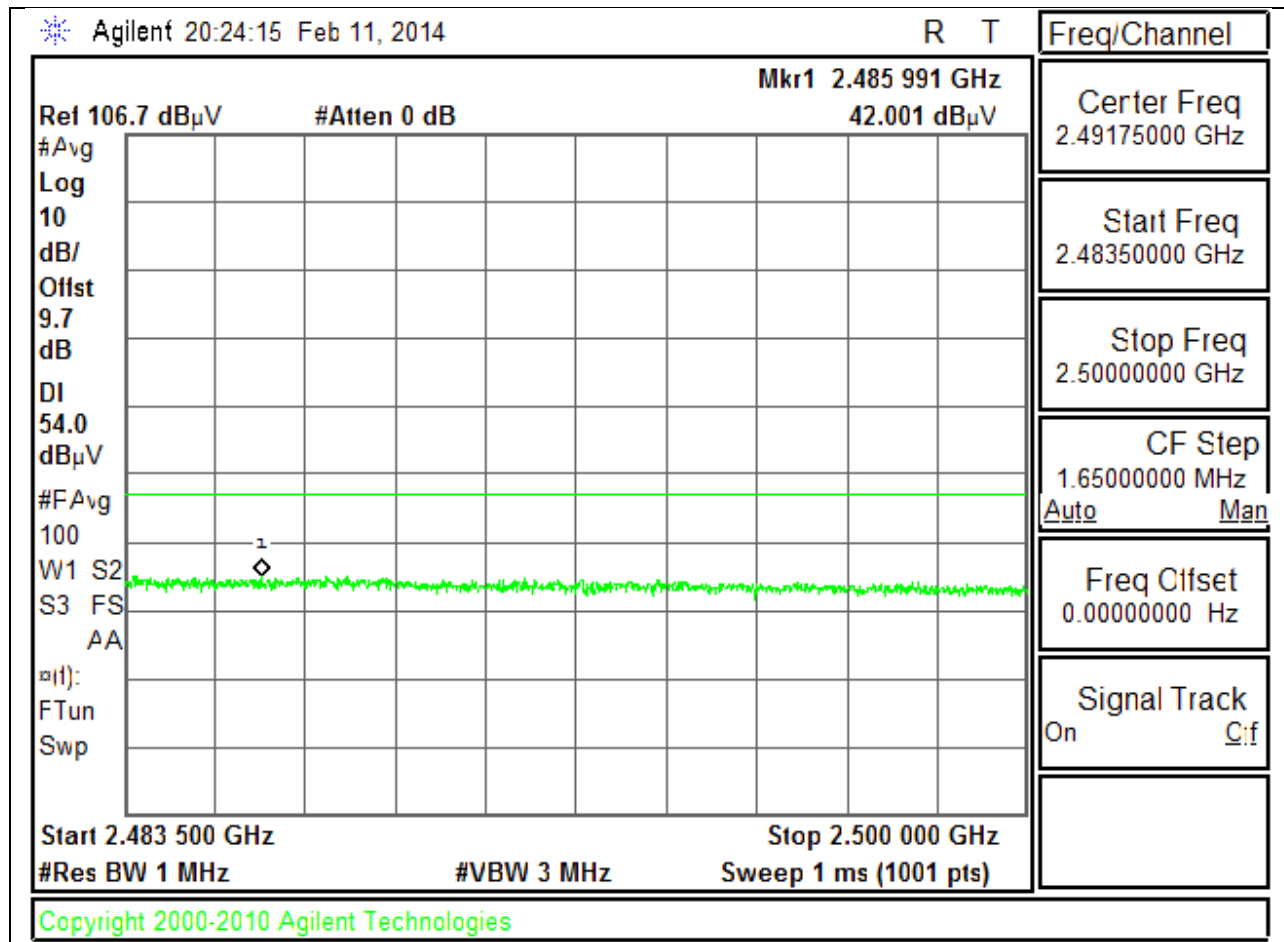
LOW CHANNEL RESTRICTED, AVERAGE, VERT



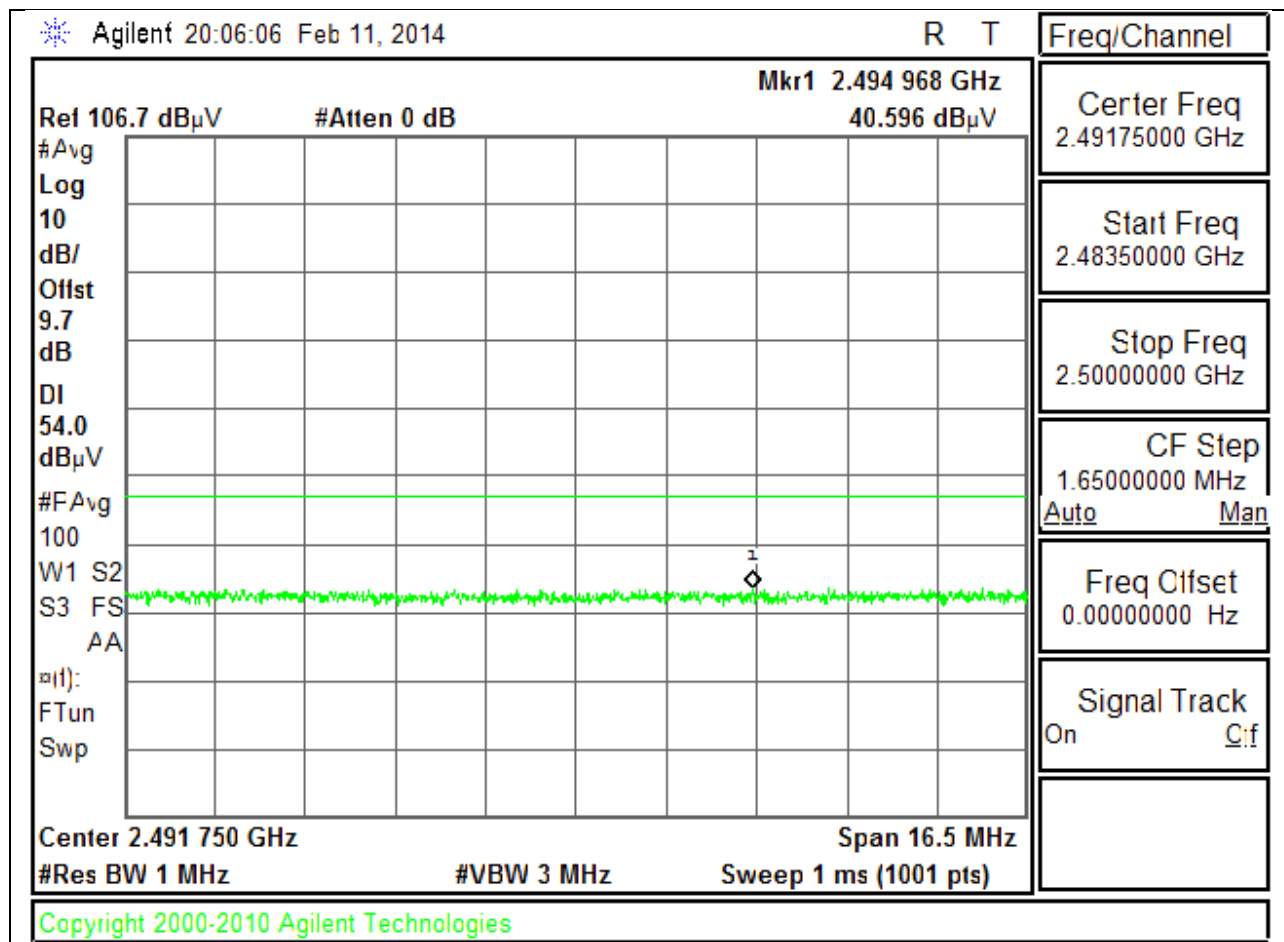
AUTHORIZED BANDEDGE (HIGH CHANNEL)



HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ

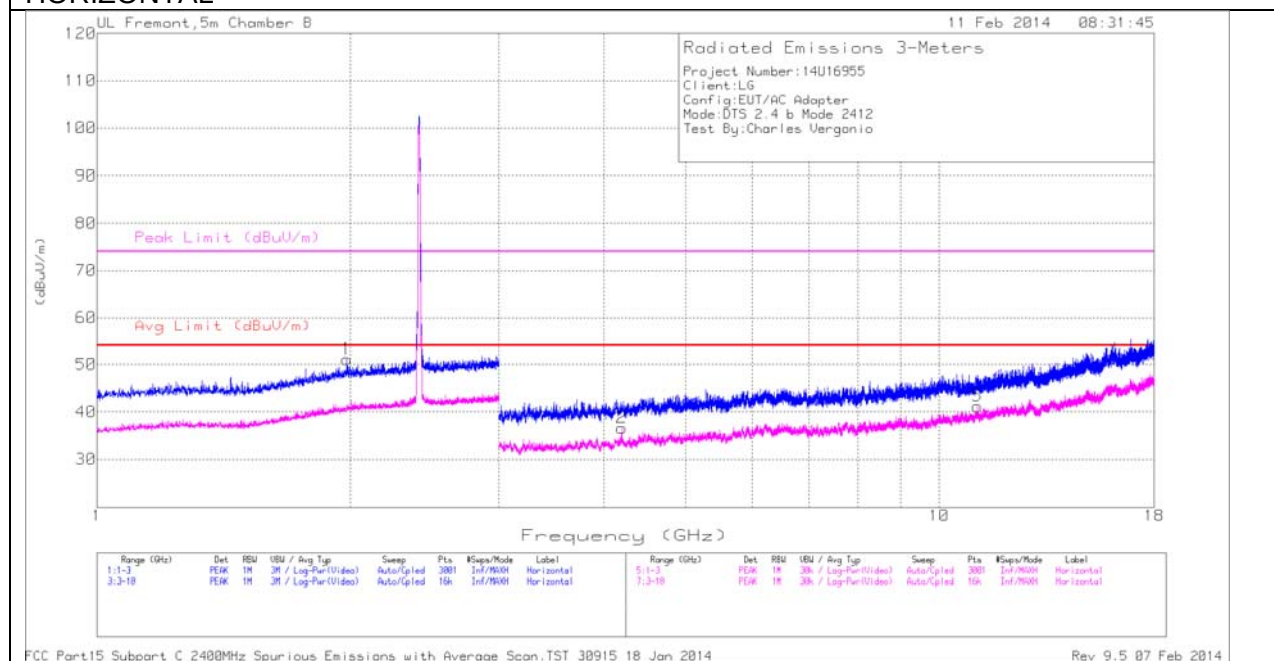


HIGH CHANNEL BANDEDGE, AVERAGE, VERT



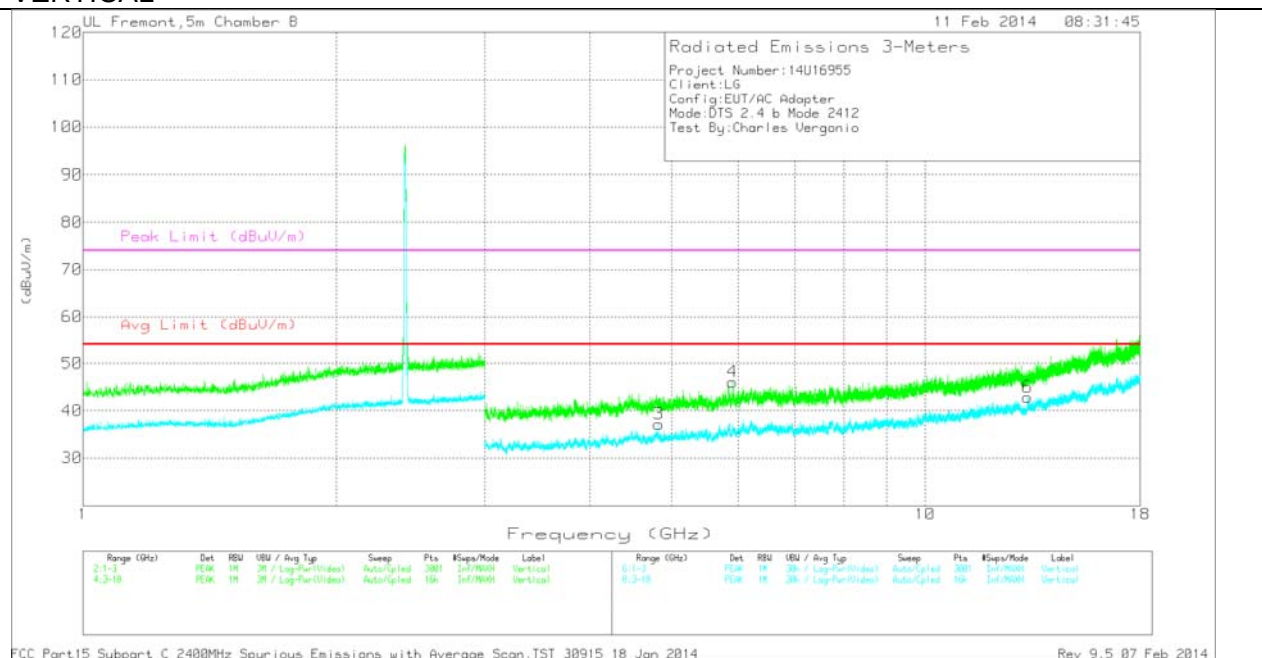
HARMONICS AND SPURIOUS EMISSIONS

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



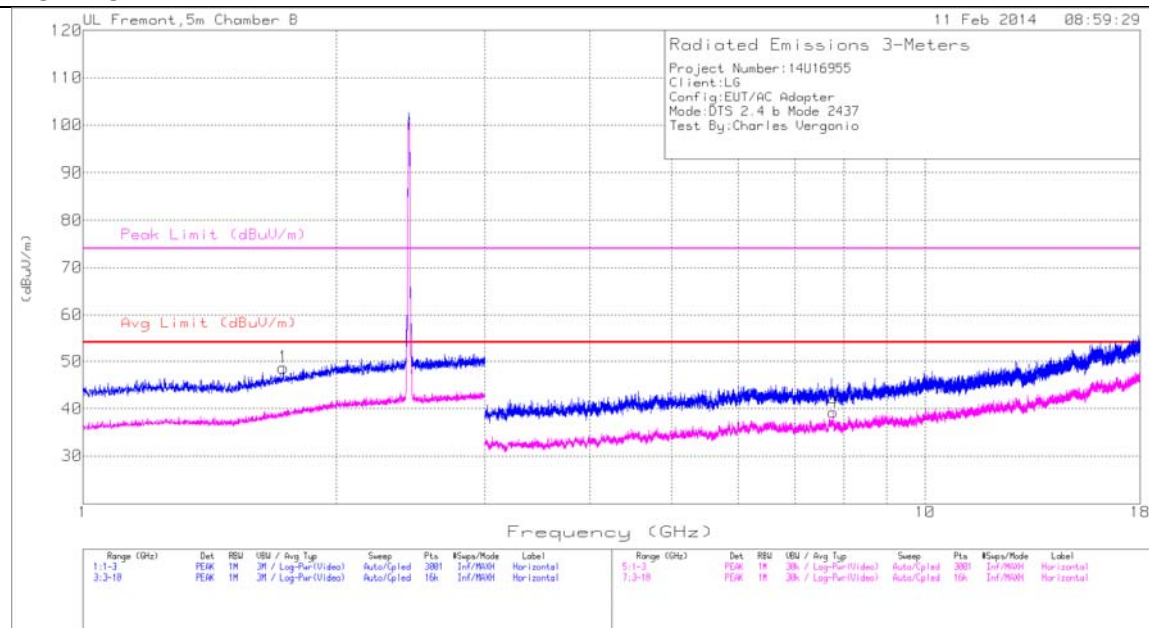
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F lter/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	1.98	42.88	PK	31.7	-23.5	51.08	-	-	74	-22.92	0-360	201	H
2	4.199	32.42	Avg	34.1	-29.9	36.62	54	-17.38	-	-	0-360	202	H
3	4.824	31.75	Avg	34.7	-29.3	37.15	54	-16.85	-	-	0-360	99	V
4	5.908	38.97	PK	35.6	-28.5	46.07	-	-	74	-27.93	0-360	202	V
5	11.099	25.49	Avg	38.4	-22.7	41.19	54	-12.81	-	-	0-360	202	H
6	13.229	26.02	Avg	39.1	-22.3	42.82	54	-11.18	-	-	0-360	202	V

PK - Peak detector

MID CHANNEL HORIZONTAL

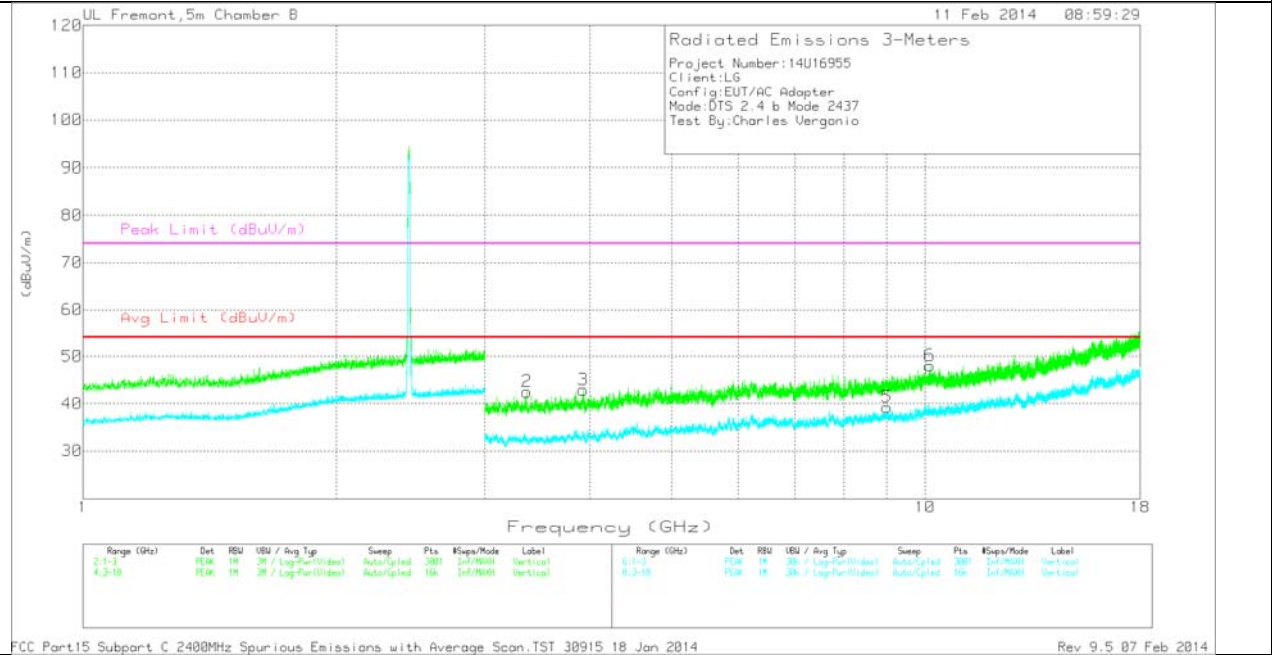


FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014

Rev 9.5 07 Feb 2014

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



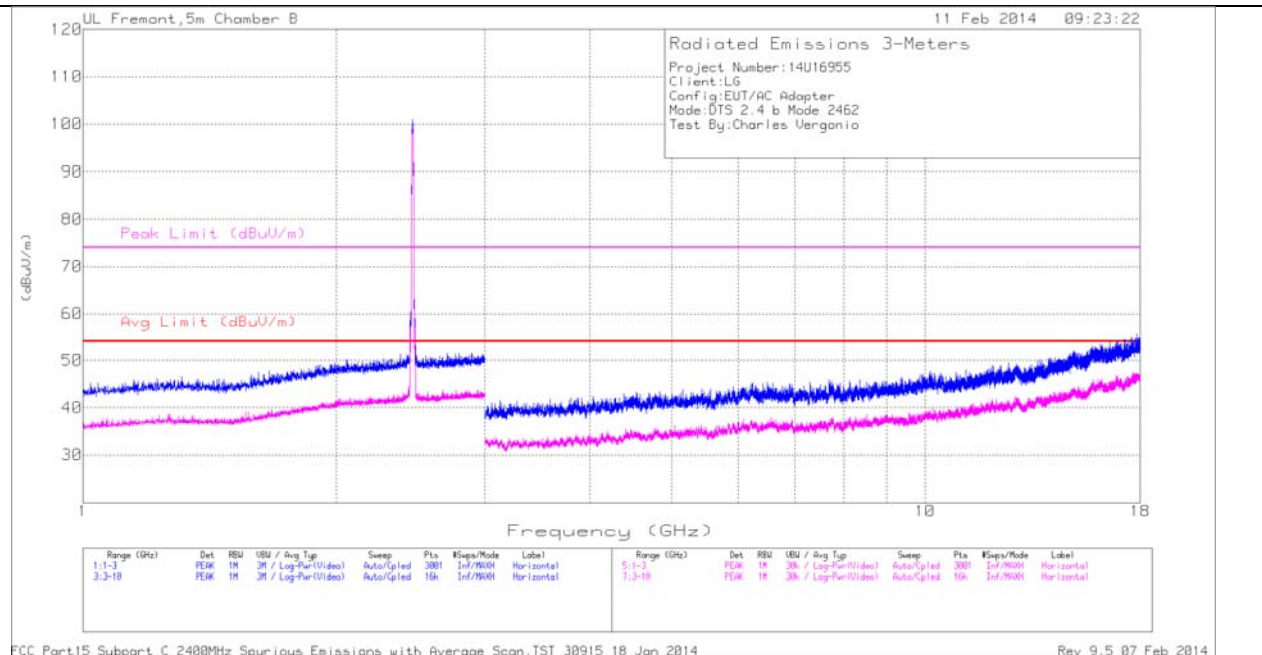
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	1.729	42.44	PK	29.9	-23.7	48.64	-	-	74	-25.36	0-360	202	H
2	3.366	40.61	PK	33.3	-31.4	42.51	-	-	74	-31.49	0-360	99	V
3	3.926	39.5	PK	33.9	-30.5	42.9	-	-	74	-31.1	0-360	202	V
4	7.779	29.17	Avg	36.2	-26.1	39.27	54	-14.73	-	-	0-360	99	H
5	9.007	27.37	Avg	36.8	-24.9	39.27	54	-14.73	-	-	0-360	99	V
6	10.127	34.02	PK	37.9	-23.9	48.02	-	-	74	-25.98	0-360	202	V

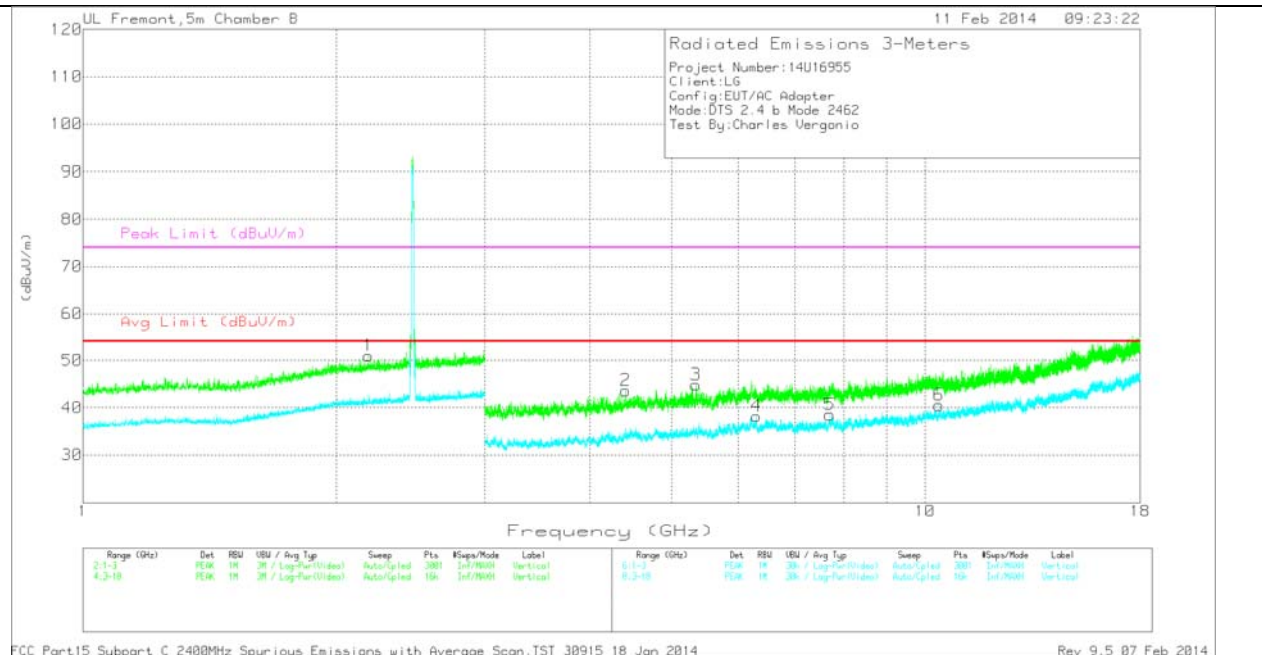
PK - Peak detector

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



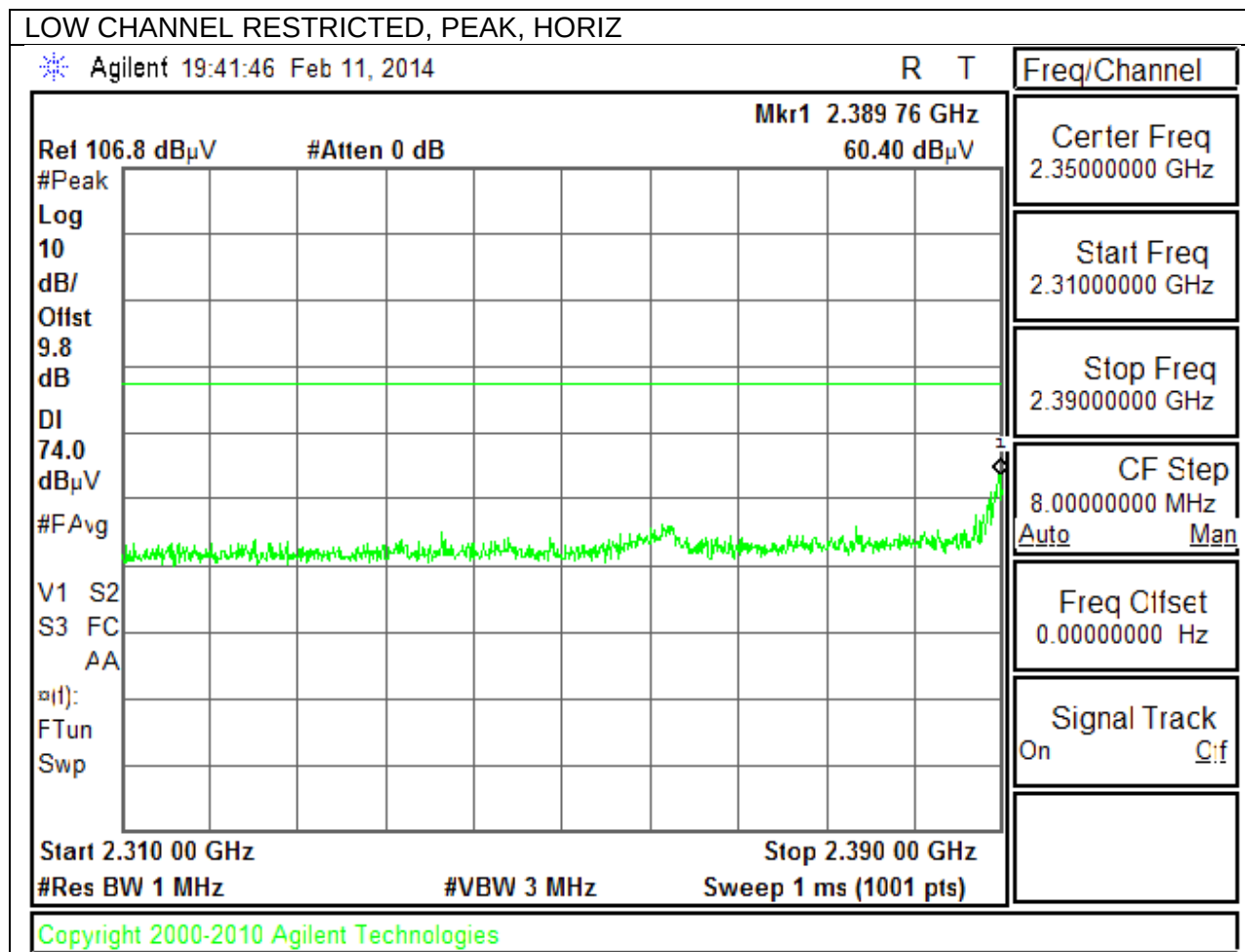
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

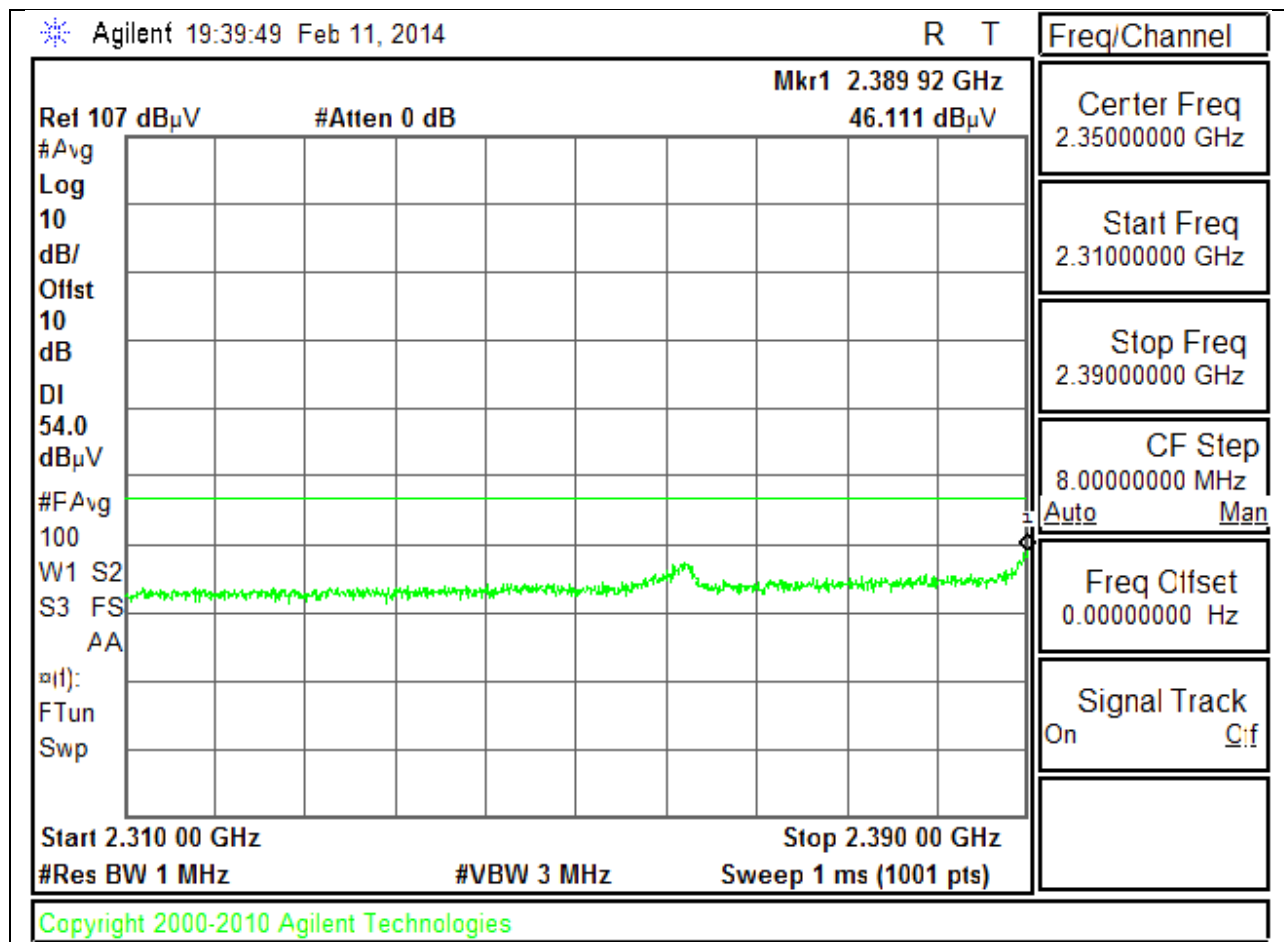
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F lter/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.183	42.18	PK	32	-23.2	50.98	-	-	74	-23.02	0-360	202	V
2	4.409	38.8	PK	34.4	-29.6	43.6	-	-	74	-30.4	0-360	99	V
3	5.341	38.73	PK	34.9	-28.8	44.83	-	-	74	-29.17	0-360	202	V
4	6.303	30.4	Avg	36	-28.2	38.2	54	-15.8	-	-	0-360	202	V
5	7.704	29.01	Avg	36.2	-26.7	38.51	54	-15.49	-	-	0-360	99	V
6	10.38	25.83	Avg	38.1	-23.4	40.53	54	-13.47	-	-	0-360	202	V

PK - Peak detector

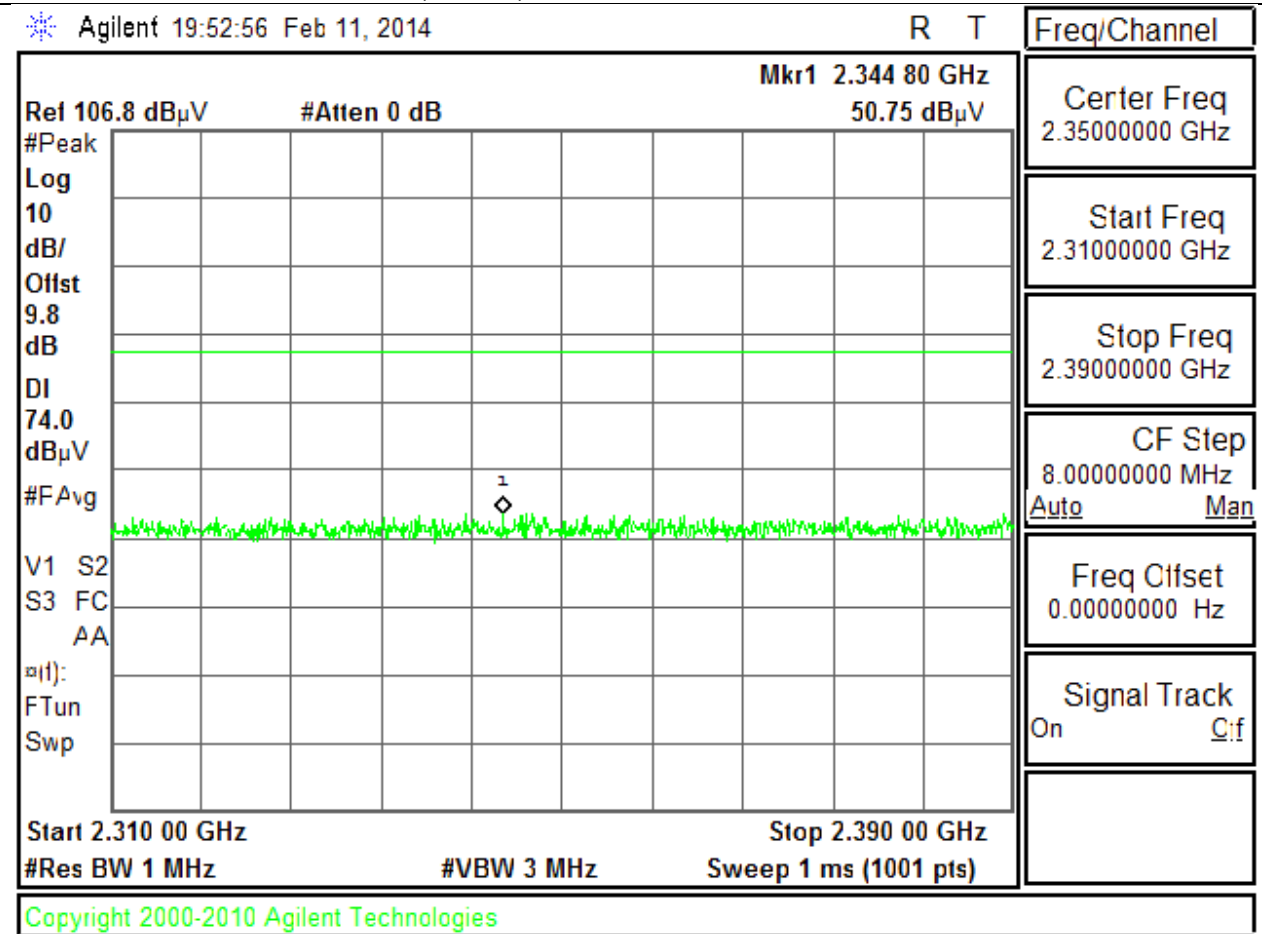
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)



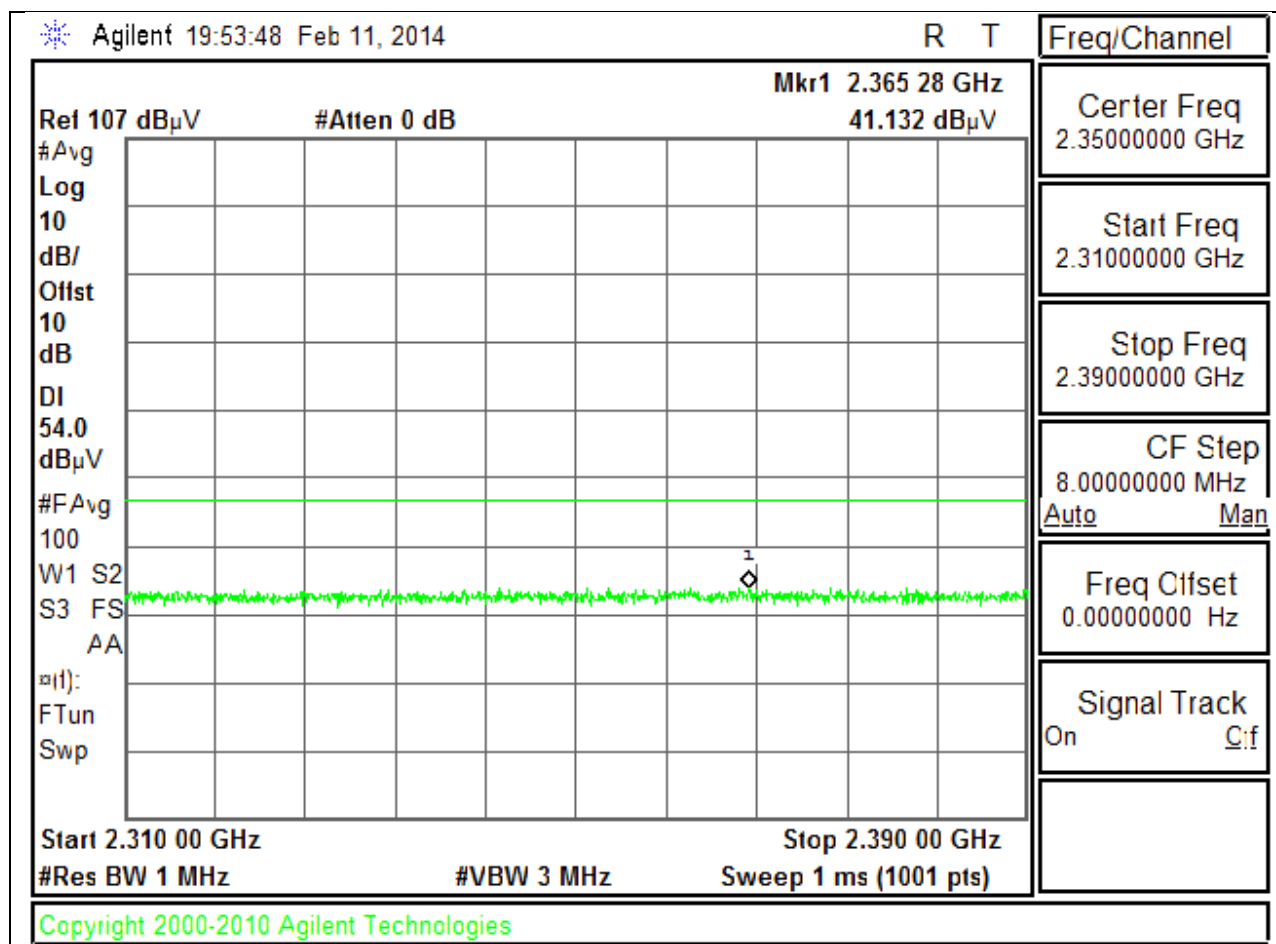
LOW CHANNEL RESTRICTED, AVERAGE, HORIZ



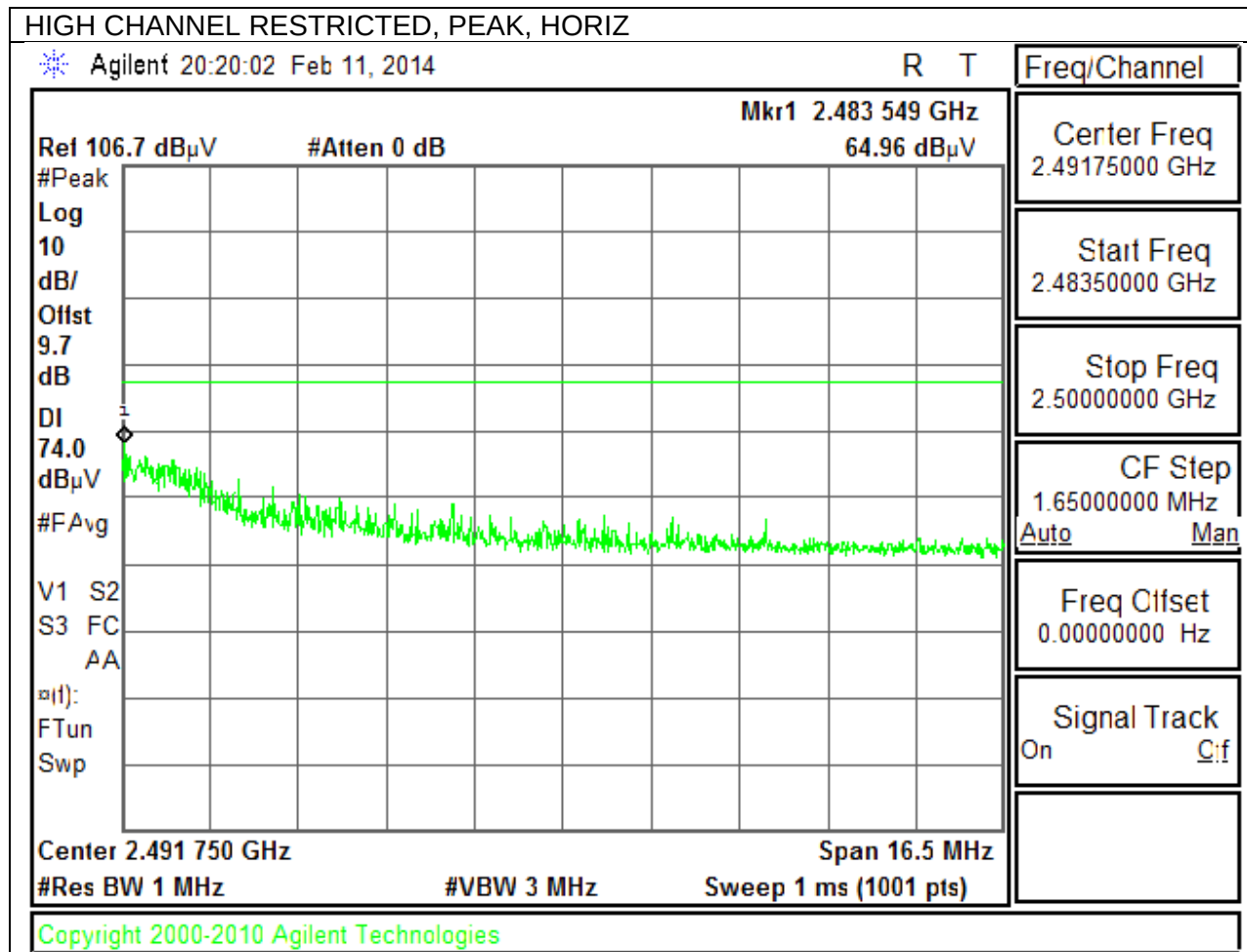
LOW CHANNEL RESTRICTED, PEAK, VERT



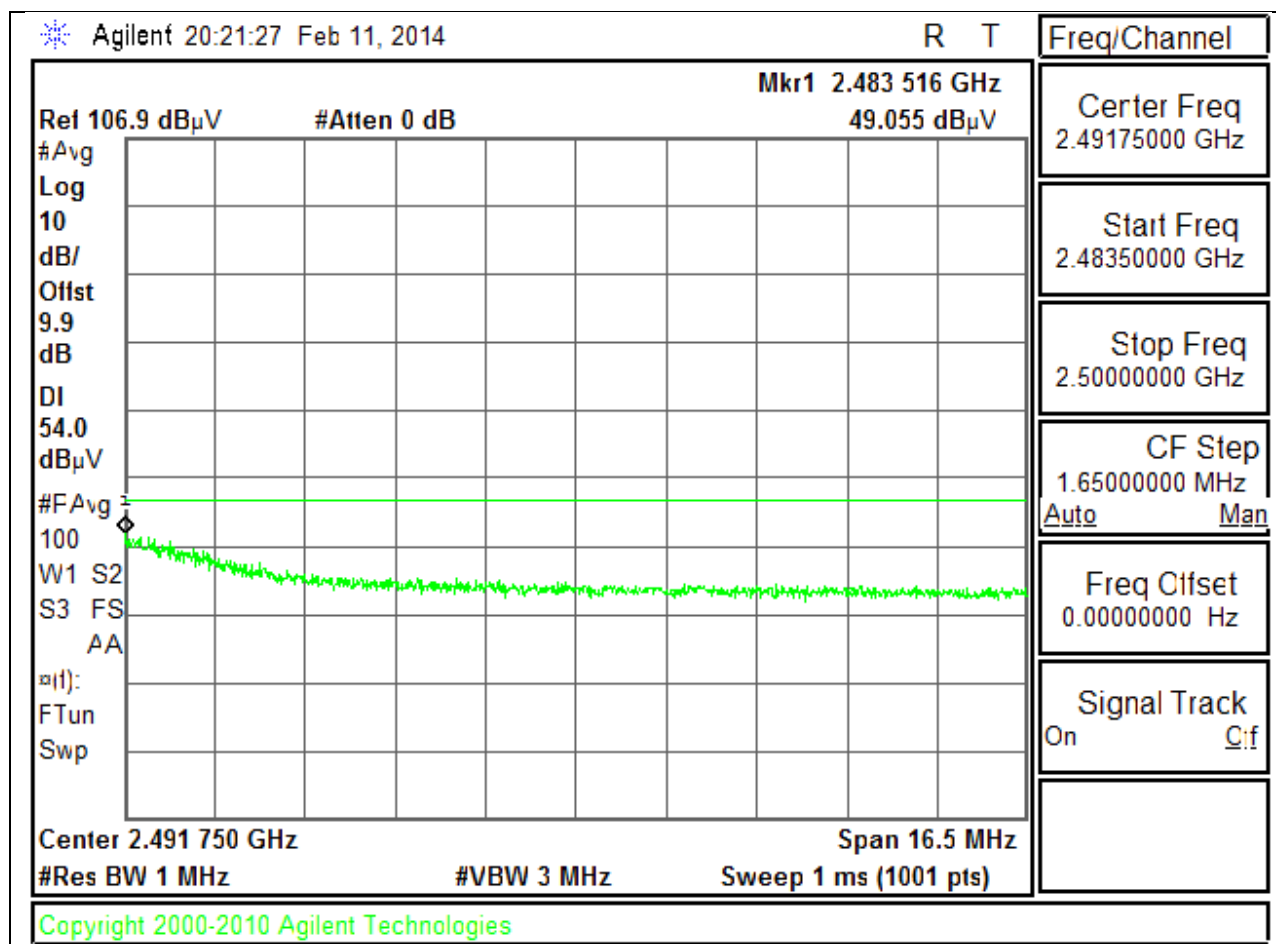
LOW CHANNEL RESTRICTED, AVERAGE, VERT

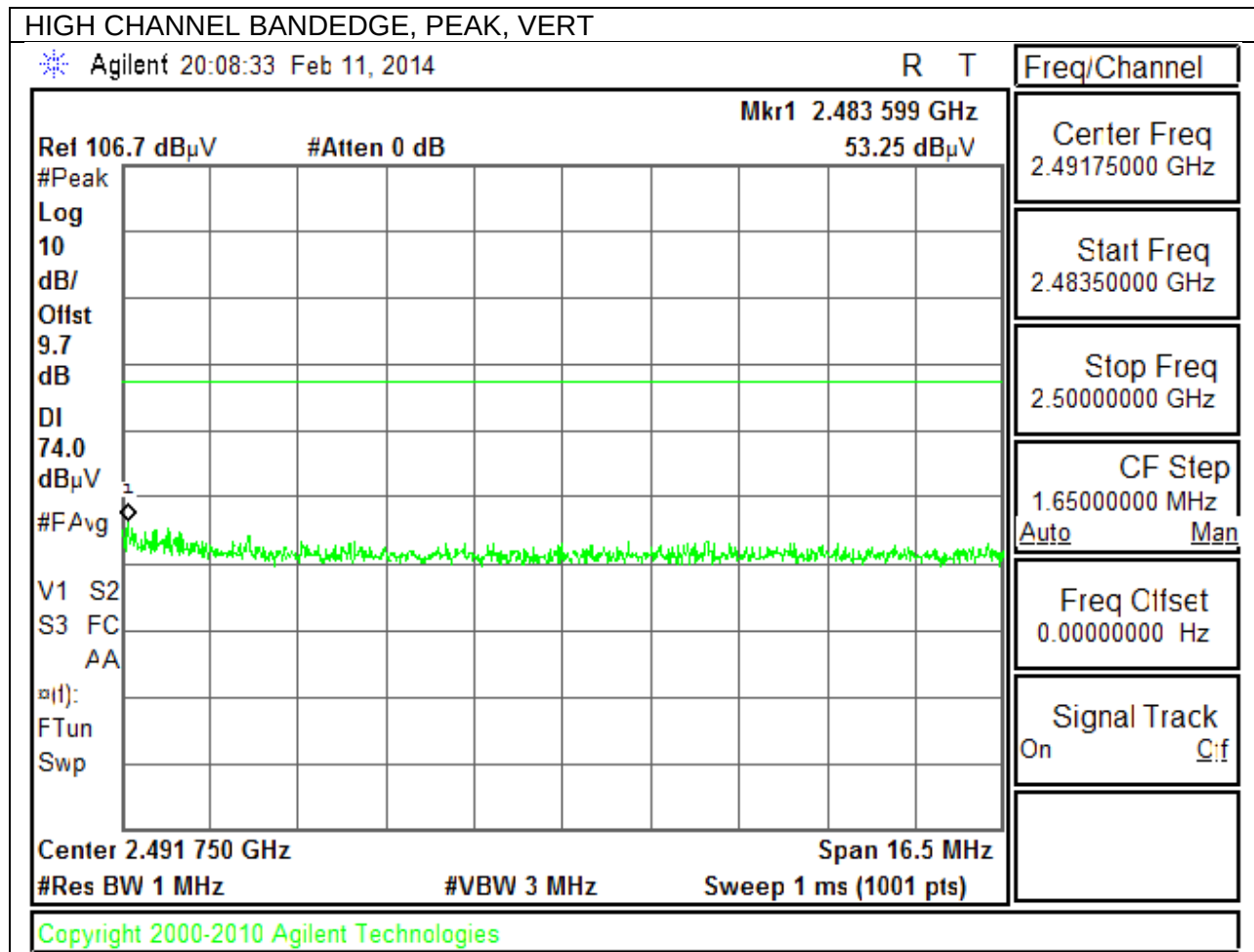


AUTHORIZED BANDEDGE (HIGH CHANNEL)

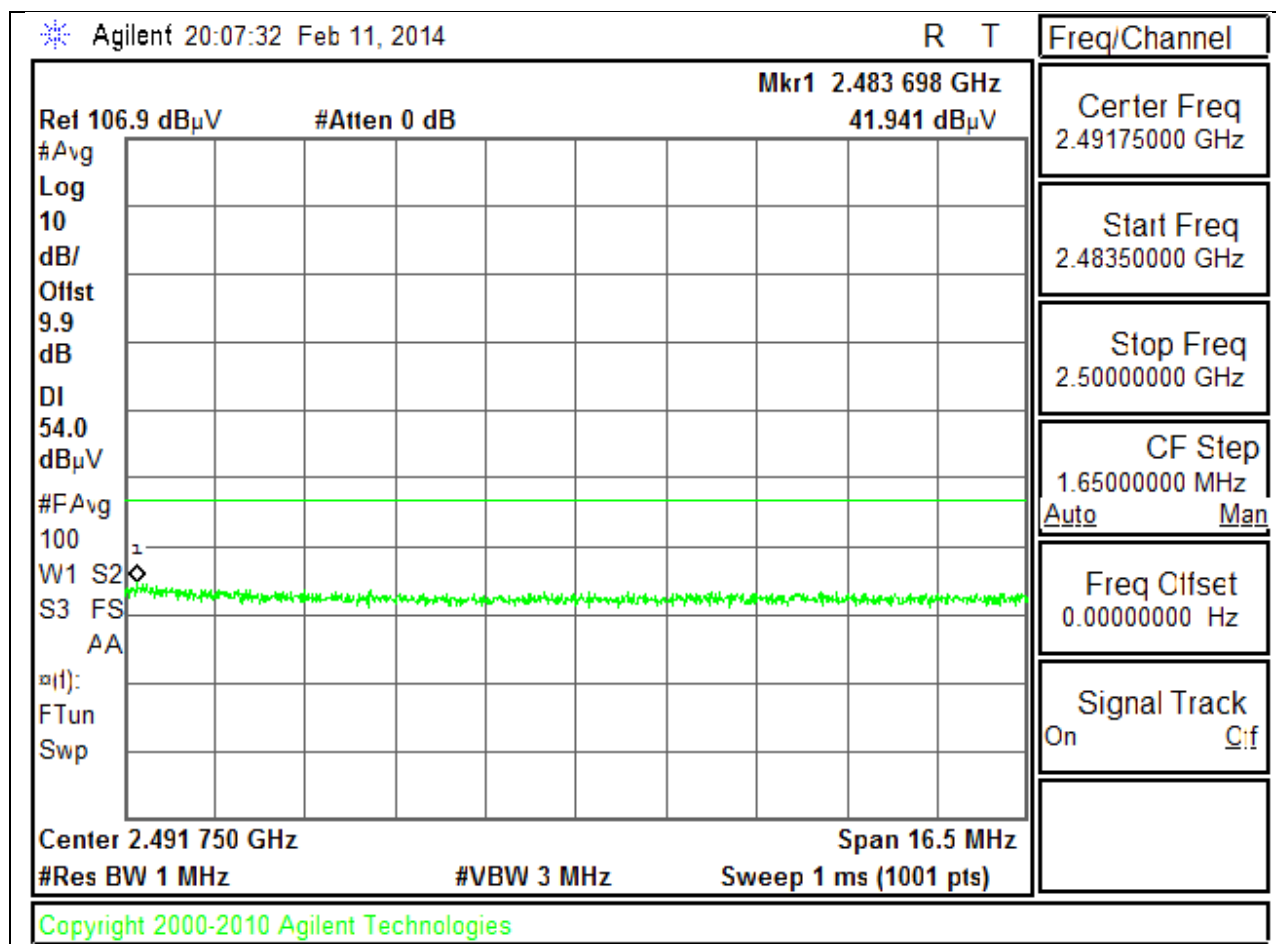


HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



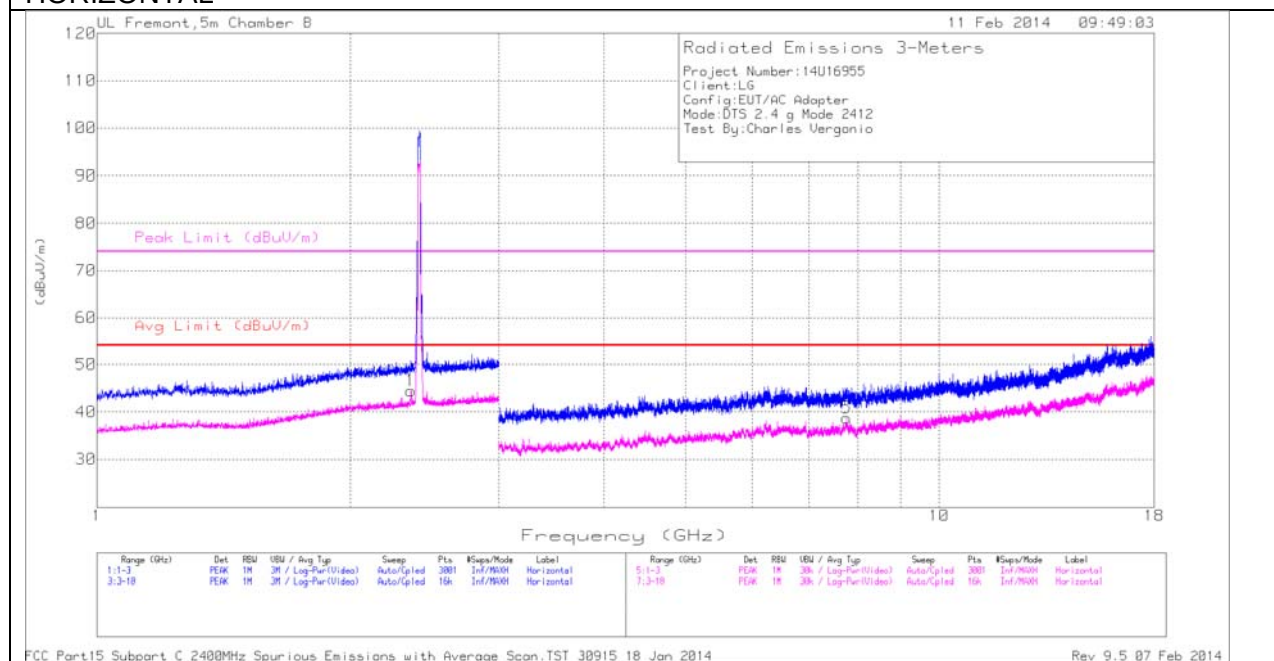


HIGH CHANNEL BANDEDGE, AVERAGE, VERT



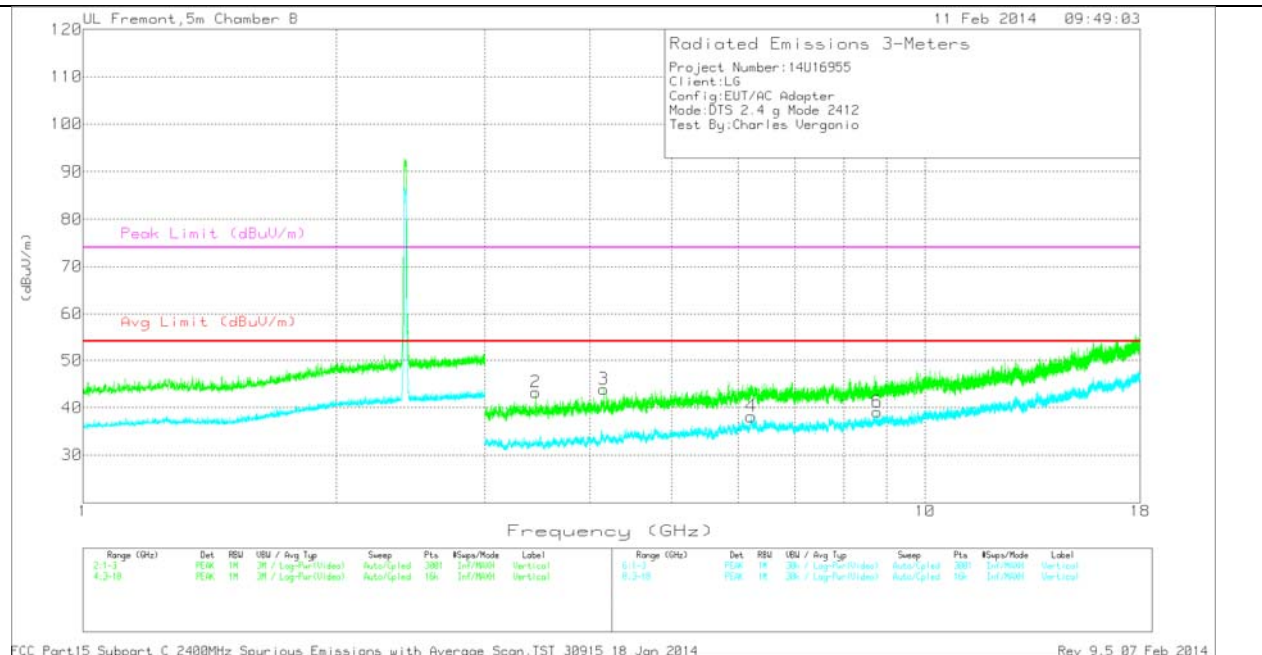
HARMONICS AND SPURIOUS EMISSIONS

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



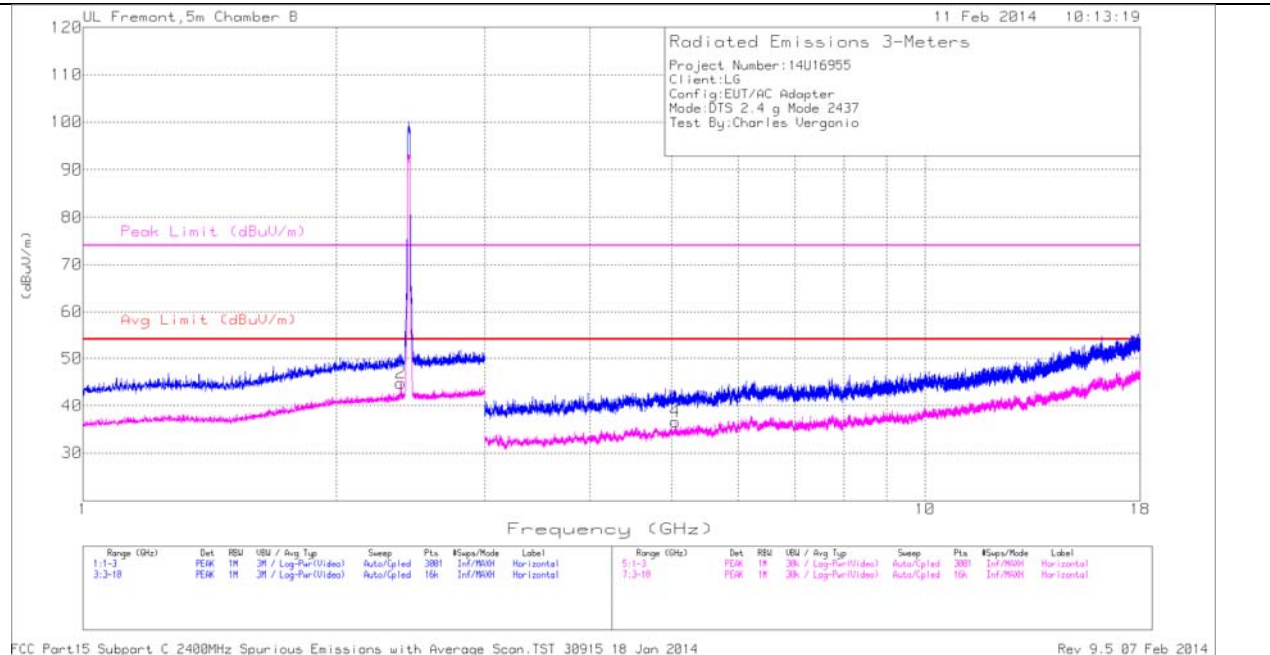
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F lter/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	2.36	35.03	Avg	32.3	-22.9	44.43	54	-9.57	-	-	0-360	99	H
2	3.448	41.18	PK	33.2	-31.1	43.28	-	-	74	-30.72	0-360	99	V
3	4.15	39.71	PK	34	-29.8	43.91	-	-	74	-30.09	0-360	99	V
4	6.214	29.94	Avg	36	-27.8	38.14	54	-15.86	-	-	0-360	99	V
5	7.767	28.53	Avg	36.2	-26	38.73	54	-15.27	-	-	0-360	99	H
6	8.775	28.52	Avg	36.4	-25.8	39.12	54	-14.88	-	-	0-360	202	V

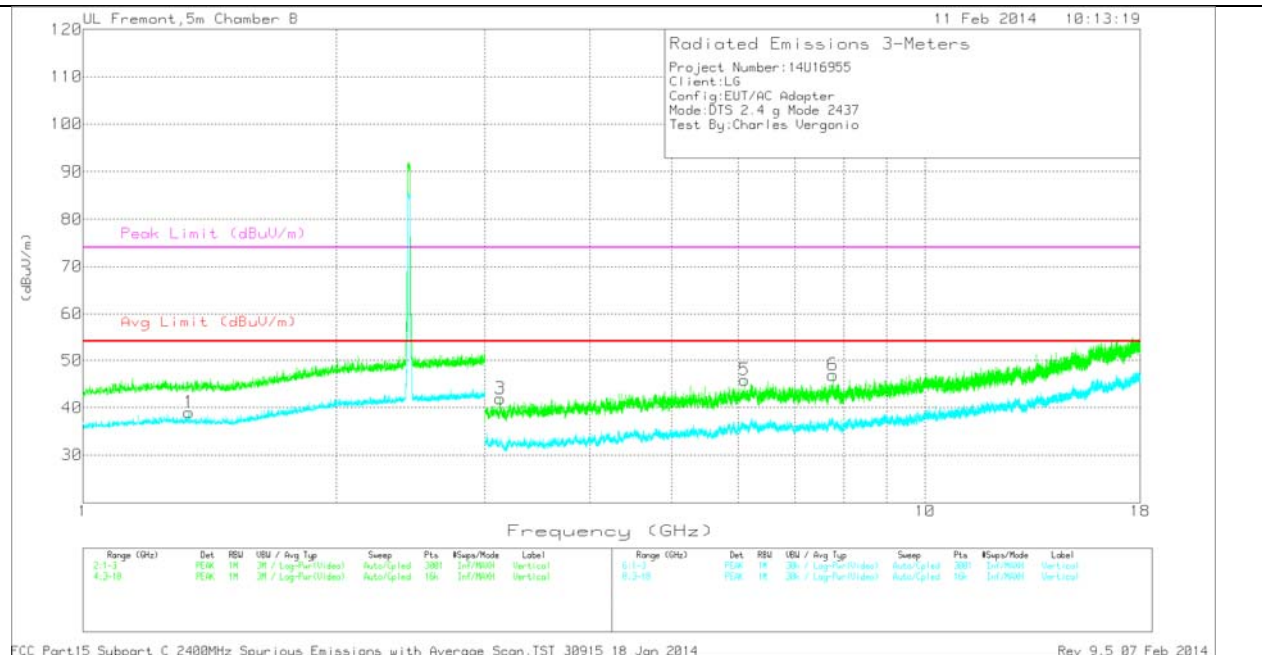
PK - Peak detector

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

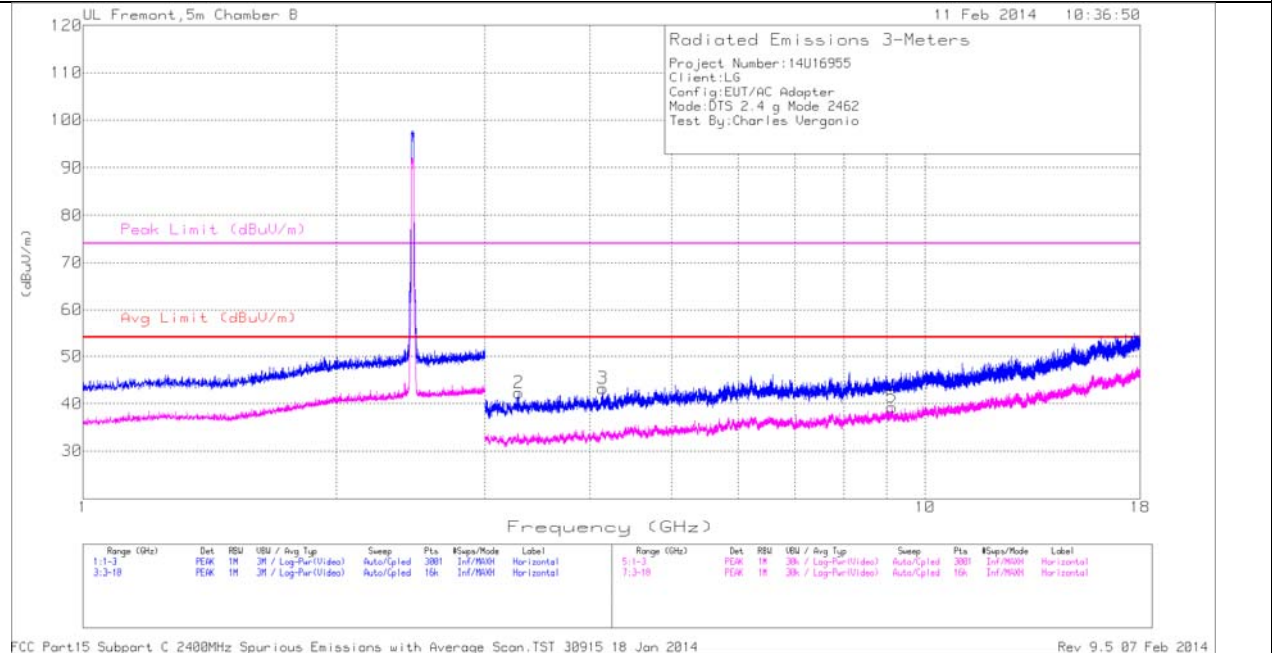
MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	1.336	35.07	Avg	28.5	-24.6	38.97	54	-15.03	-	-	0-360	99	V
2	2.385	35.38	Avg	32.3	-22.9	44.78	54	-9.22	-	-	0-360	99	H
3	3.128	40.13	PK	33.2	-31.4	41.93	-	-	74	-32.07	0-360	99	V
4	5.05	30.69	Avg	34.7	-28.8	36.59	54	-17.41	-	-	0-360	202	H
5	6.101	39.16	PK	35.9	-29.2	45.86	-	-	74	-28.14	0-360	99	V
6	7.771	36.7	PK	36.2	-26	46.9	-	-	74	-27.1	0-360	99	V

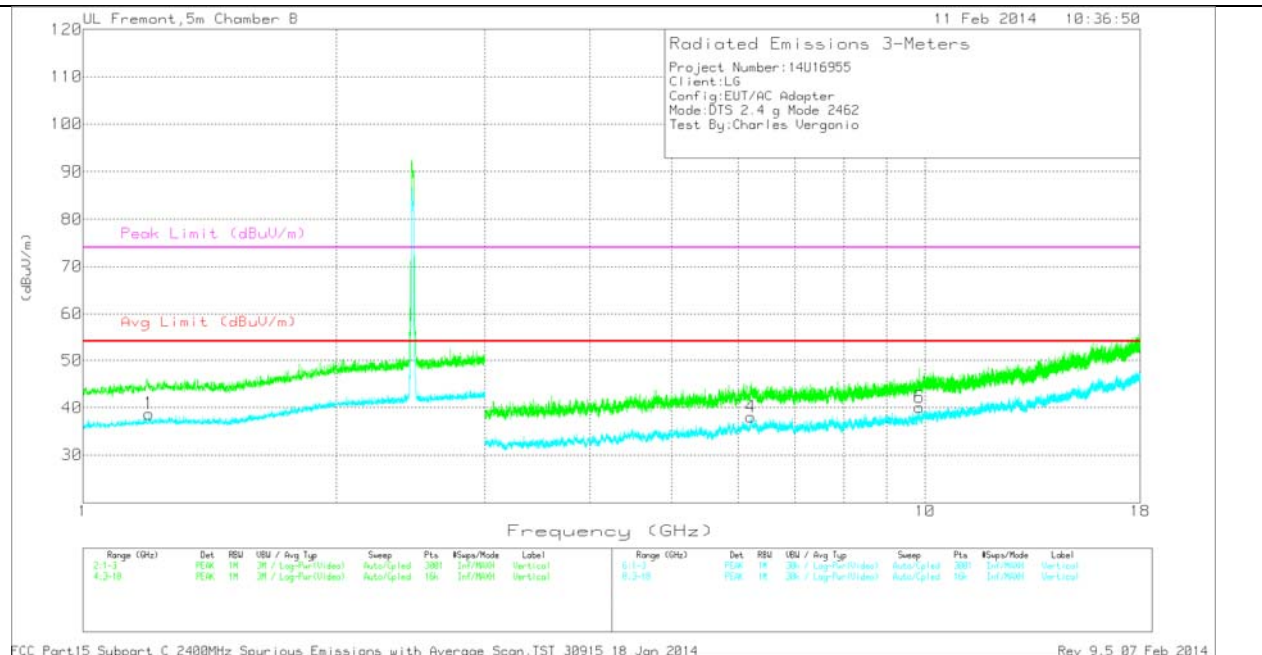
PK - Peak detector

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



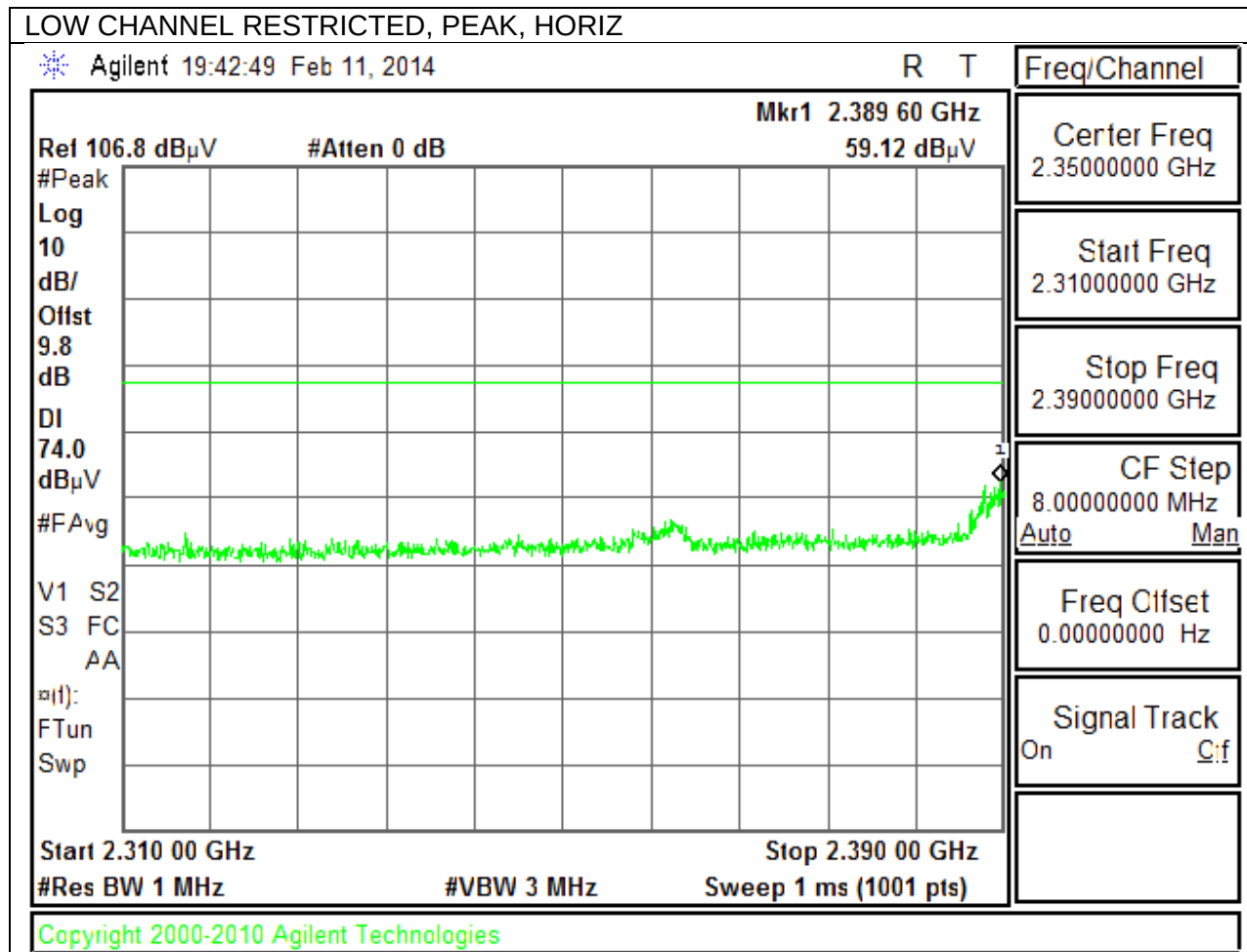
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

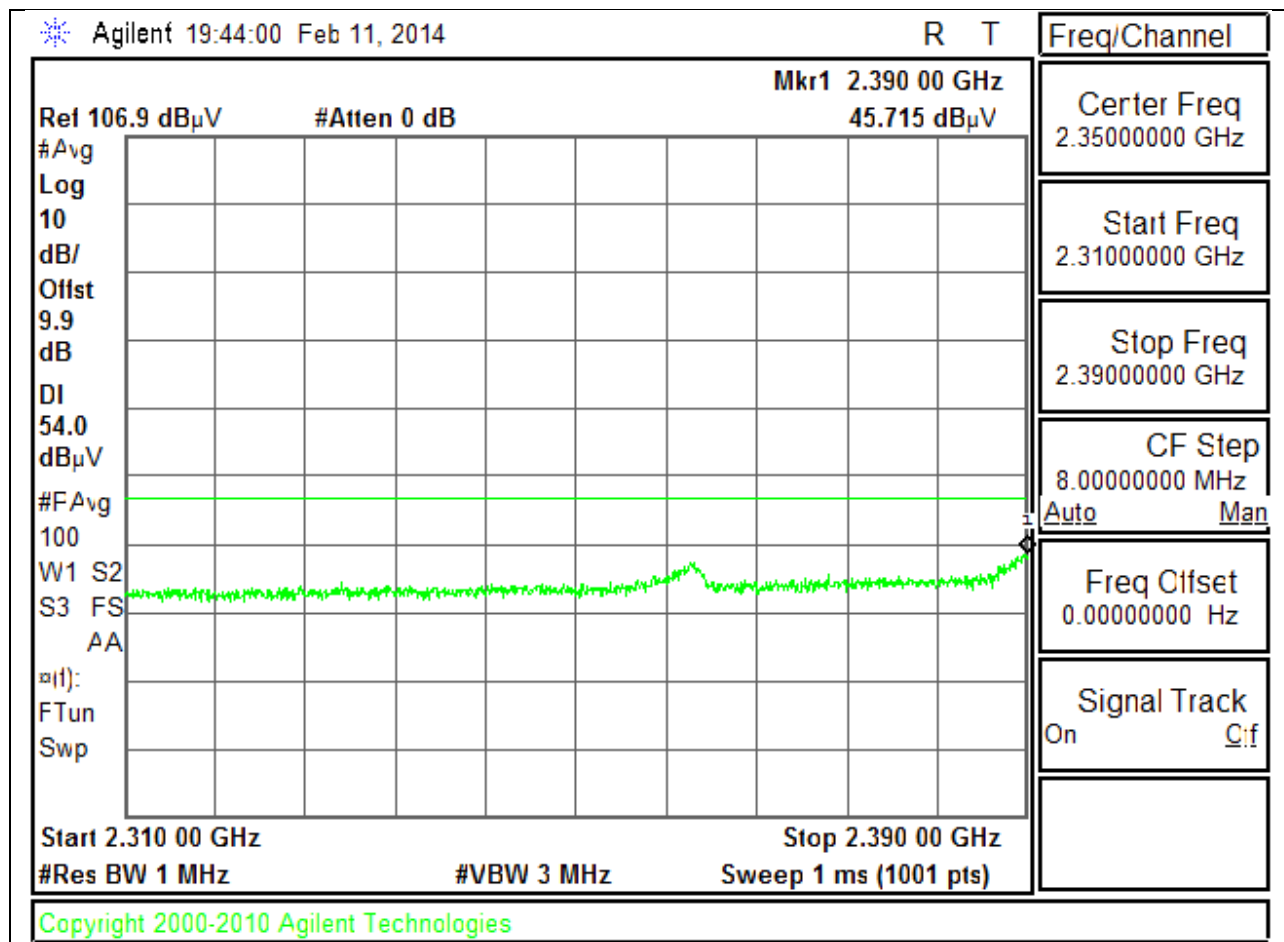
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.197	35.08	Avg	28.3	-24.7	38.68	54	-15.32	-	-	0-360	202	V
2	3.291	40.08	PK	33.3	-31.1	42.28	-	-	74	-31.72	0-360	99	H
3	4.141	38.95	PK	34	-29.7	43.25	-	-	74	-30.75	0-360	202	H
4	6.209	29.83	Avg	36	-27.8	38.03	54	-15.97	-	-	0-360	99	V
5	9.132	27.26	Avg	36.9	-24.9	39.26	54	-14.74	-	-	0-360	99	H
6	9.847	26.53	Avg	37.6	-24.1	40.03	54	-13.97	-	-	0-360	202	V

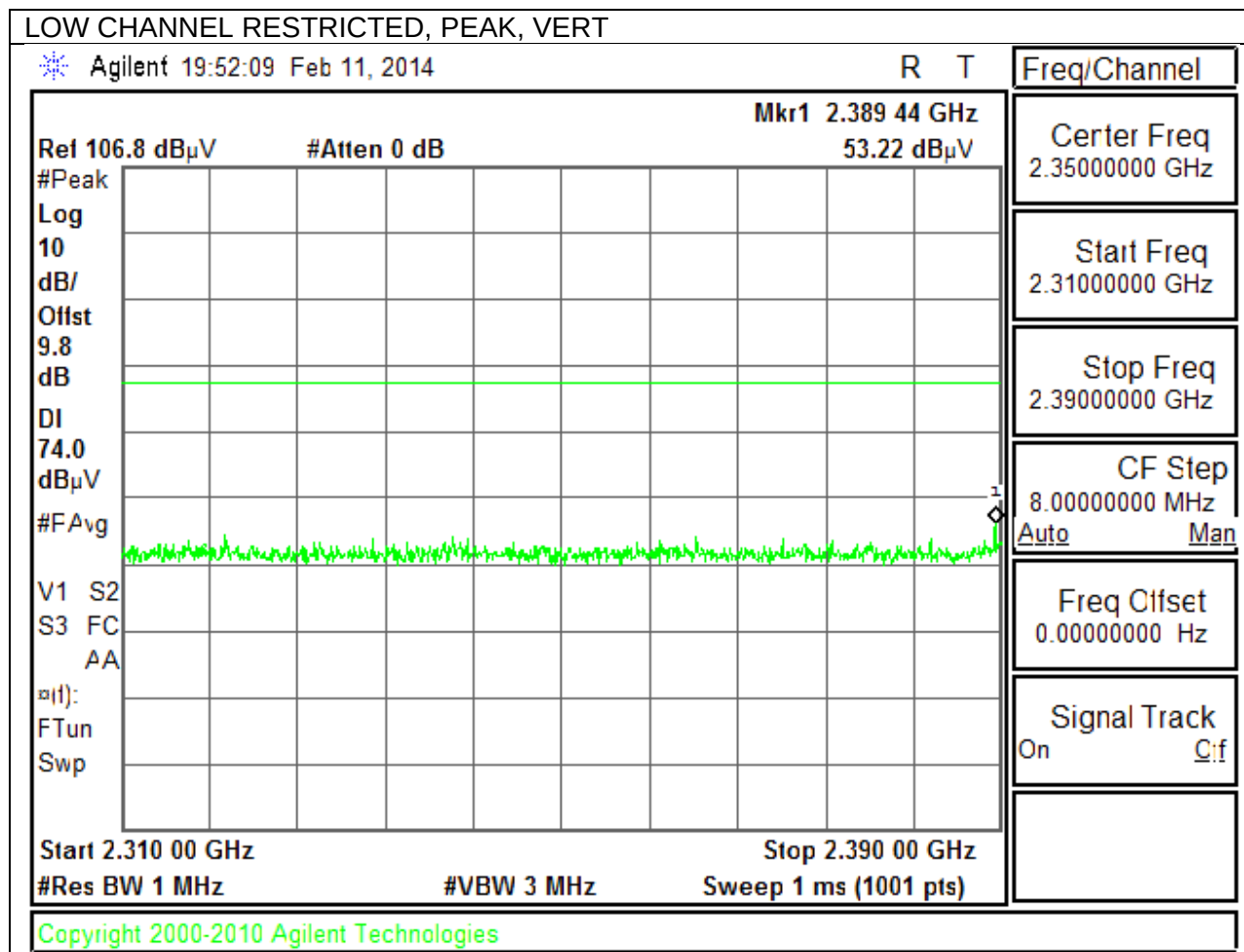
PK - Peak detector

10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

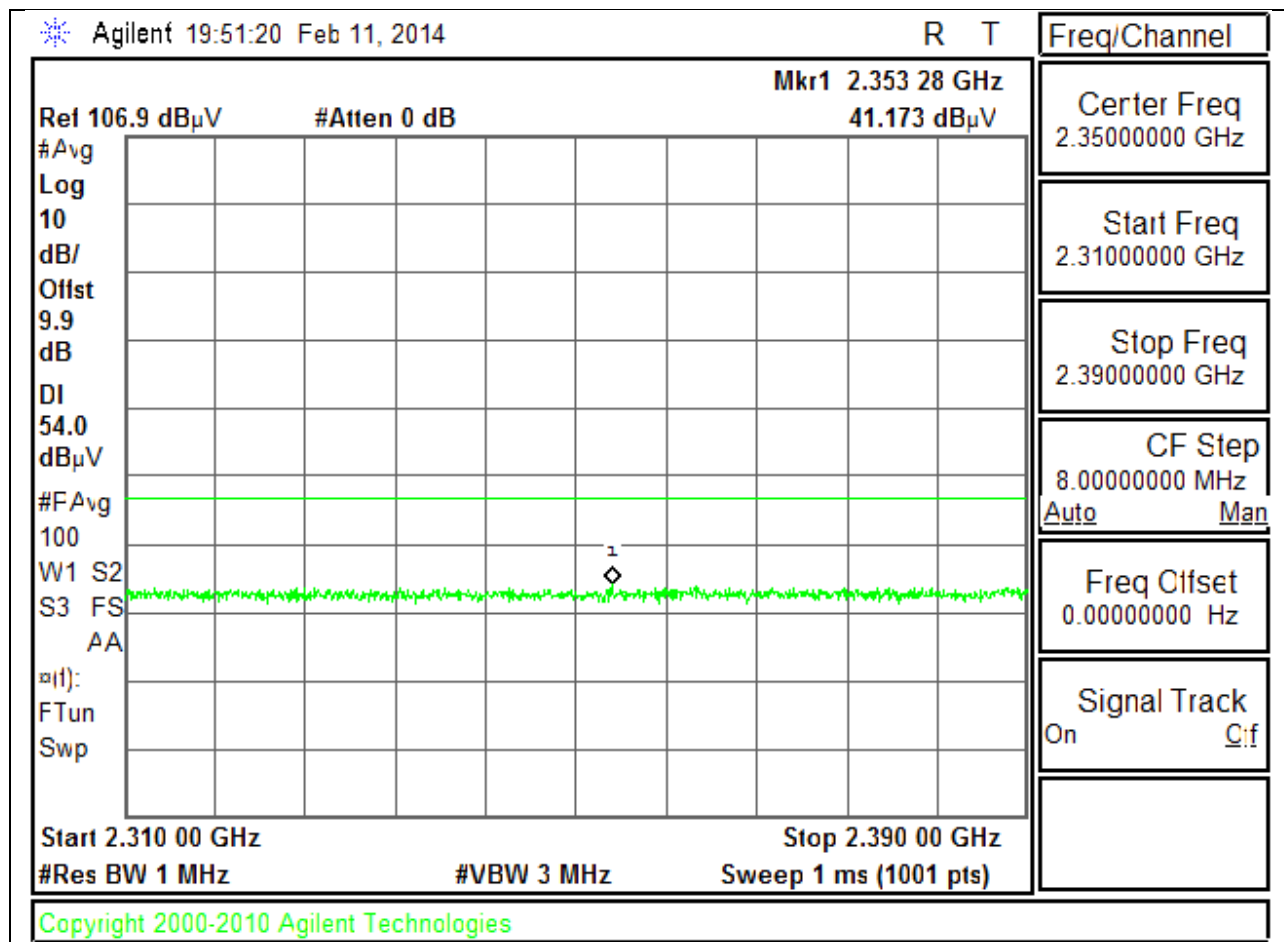


LOW CHANNEL RESTRICTED, AVERAGE, HORIZ

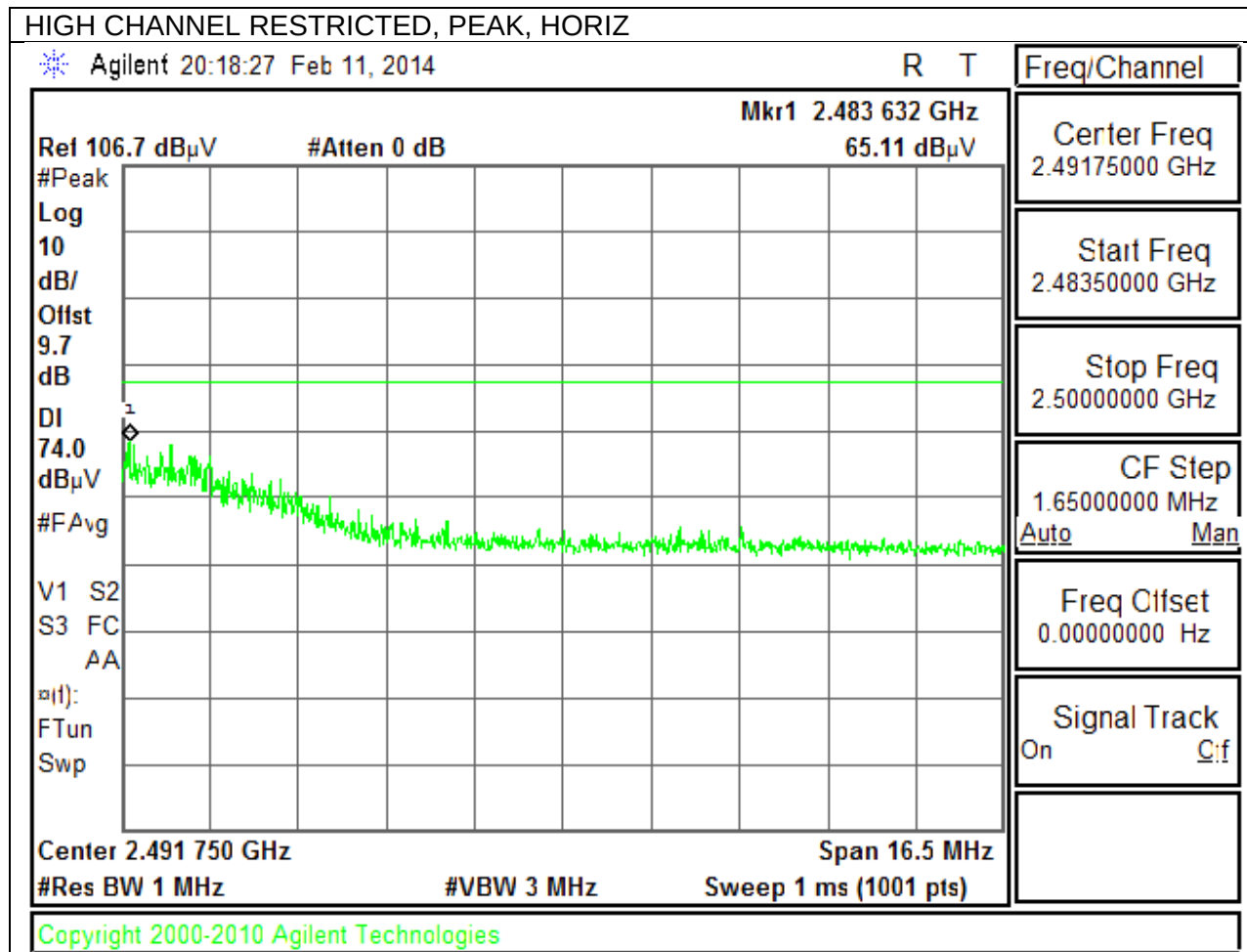




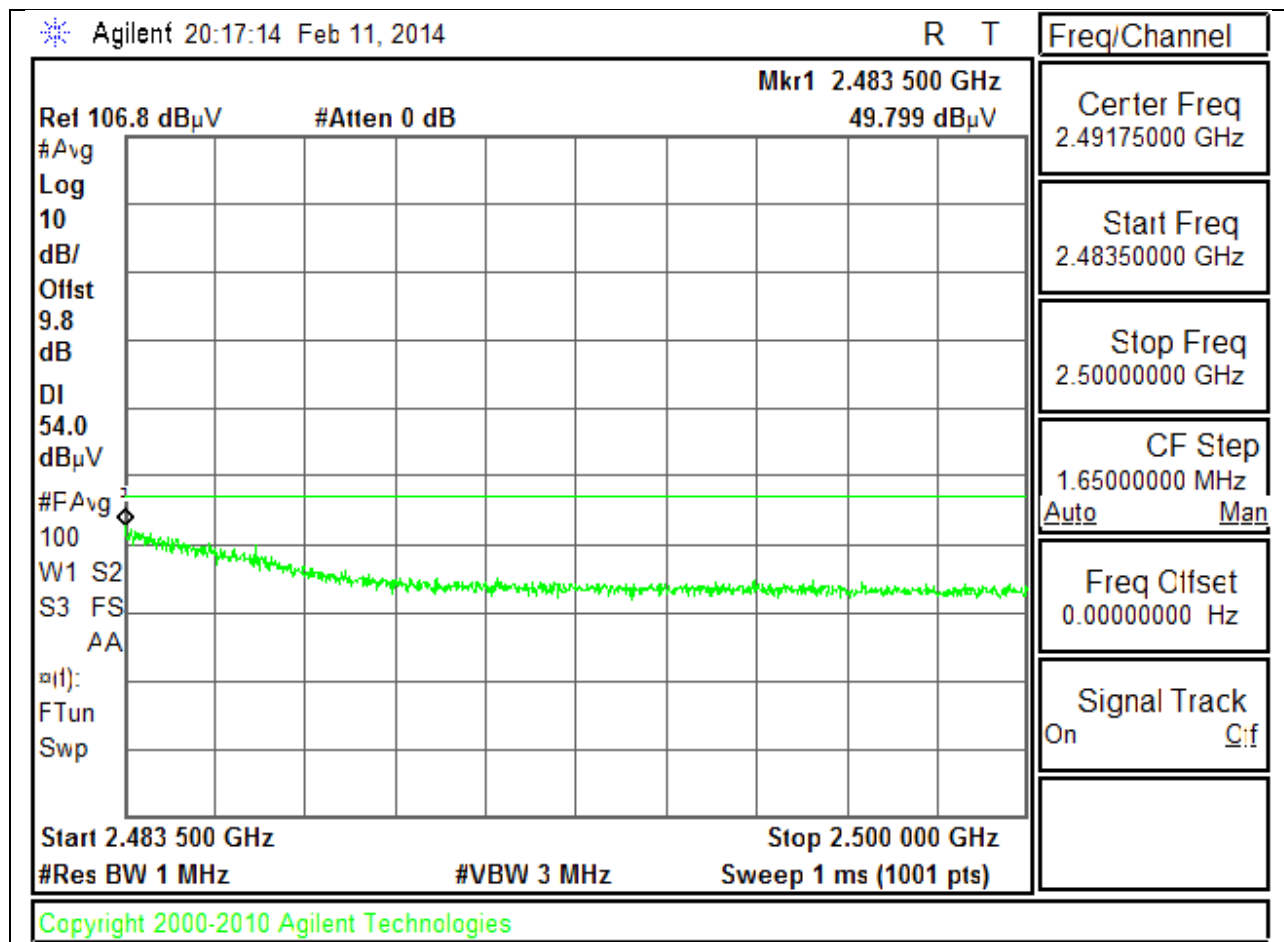
LOW CHANNEL RESTRICTED, AVERAGE, VERT

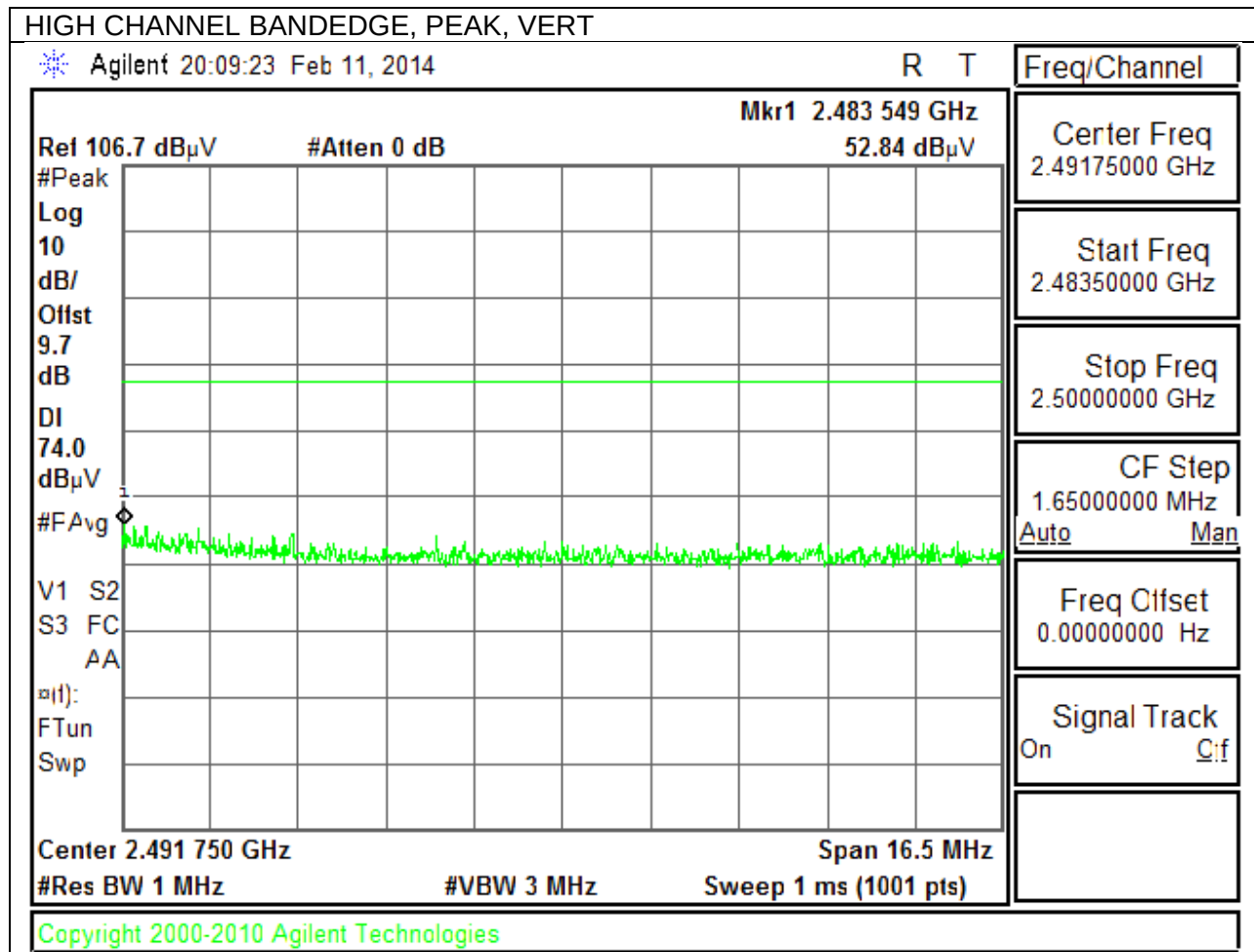


AUTHORIZED BANDEDGE (HIGH CHANNEL)

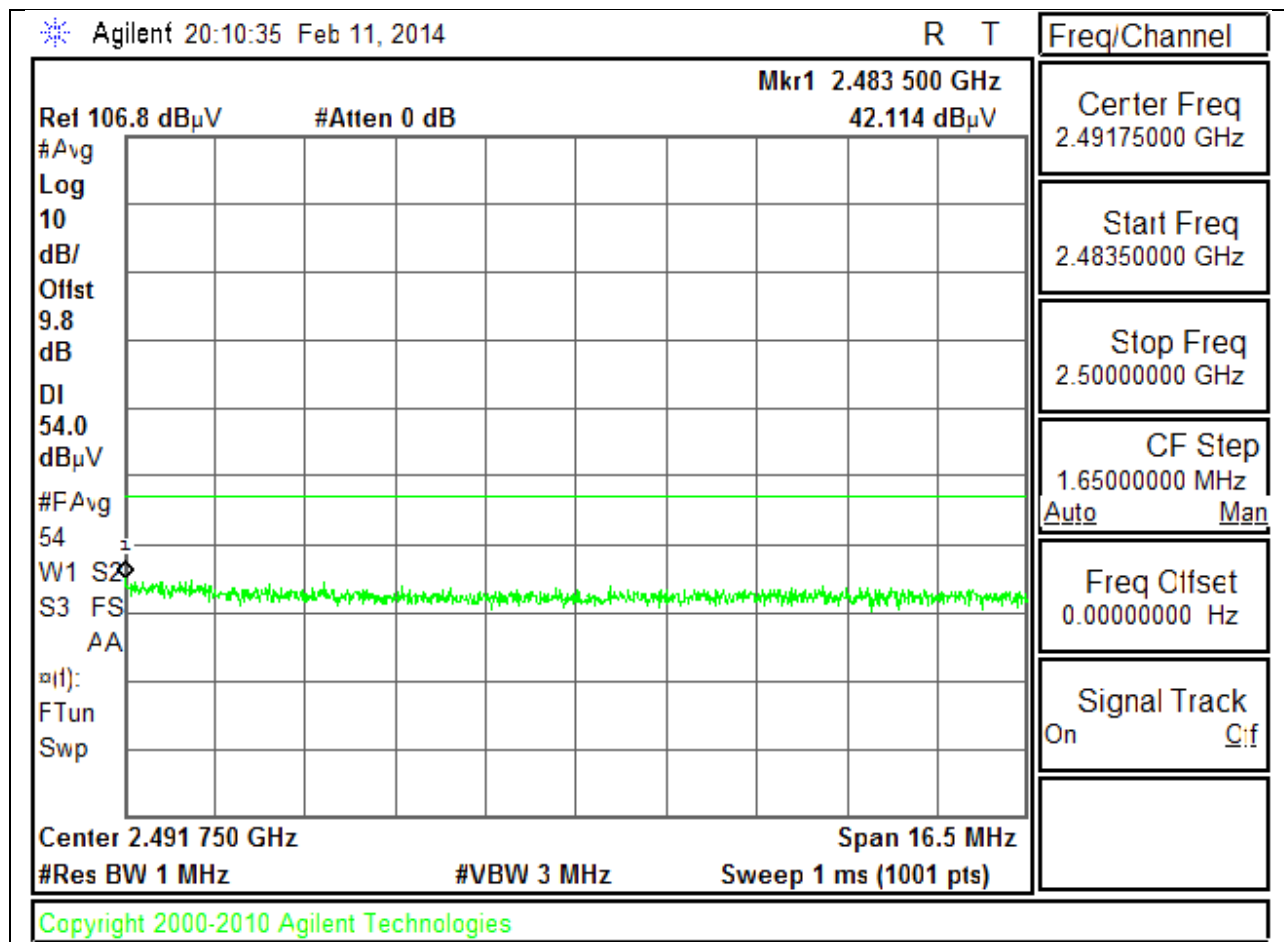


HIGH CHANNEL RESTRICTED, AVERAGE, HORIZ



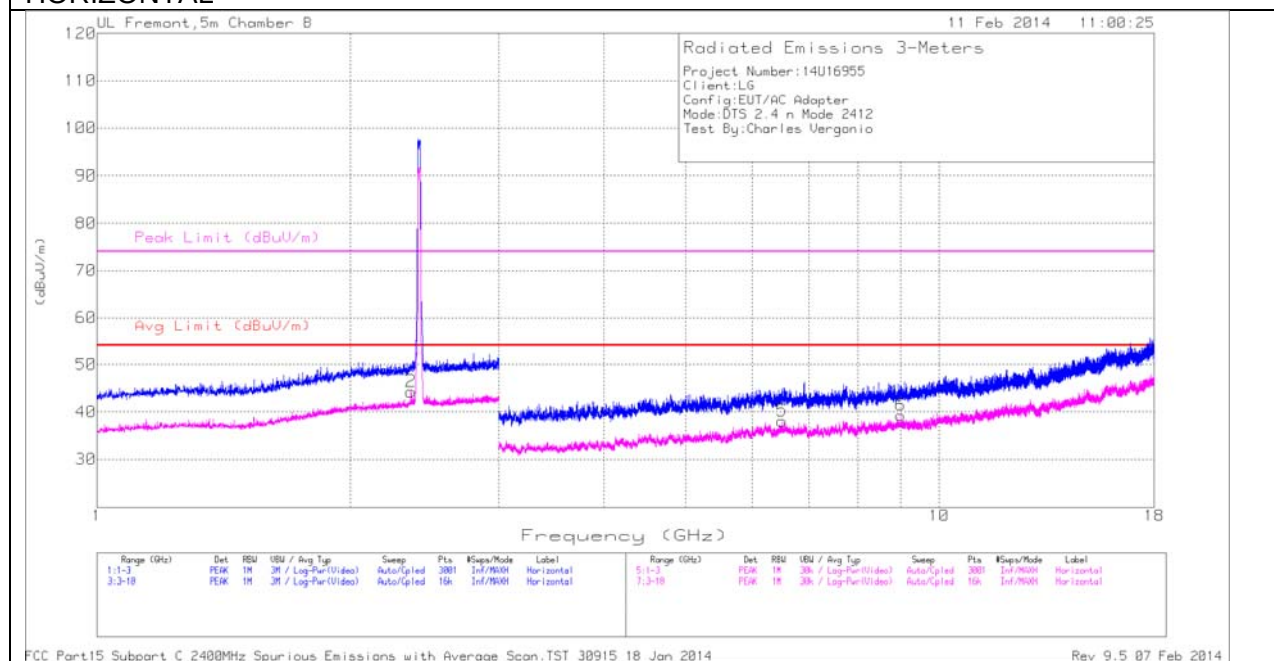


HIGH CHANNEL BANDEDGE, AVERAGE, VERT



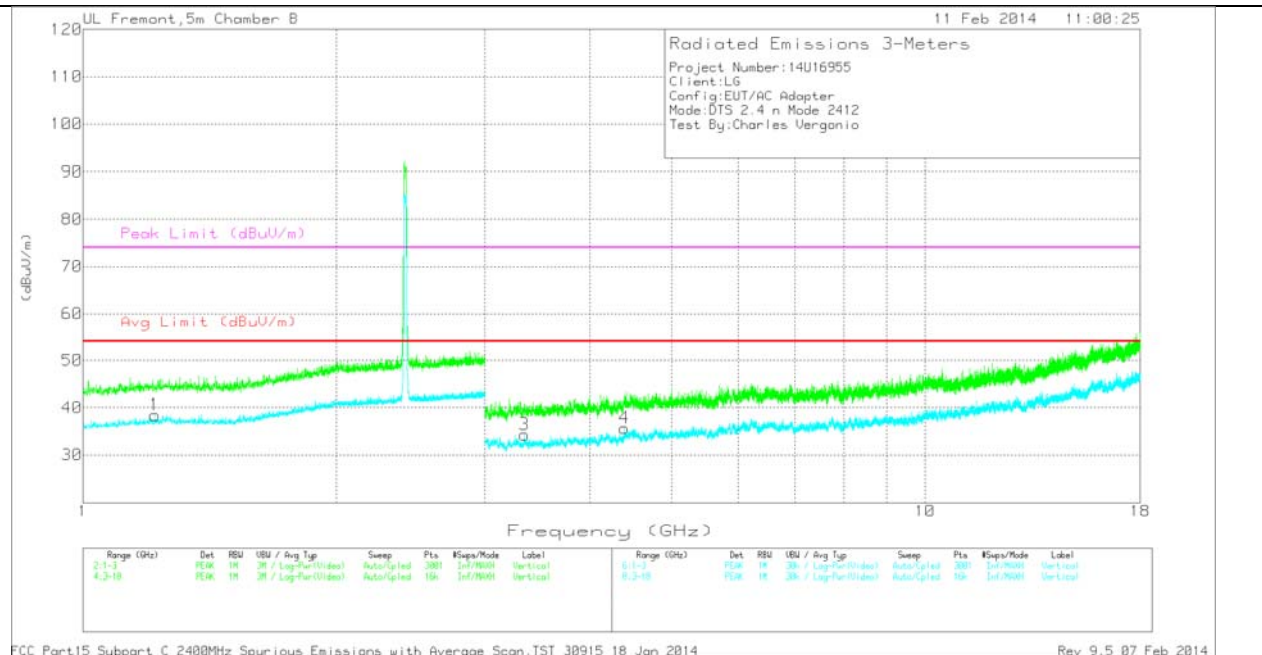
HARMONICS AND SPURIOUS EMISSIONS

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



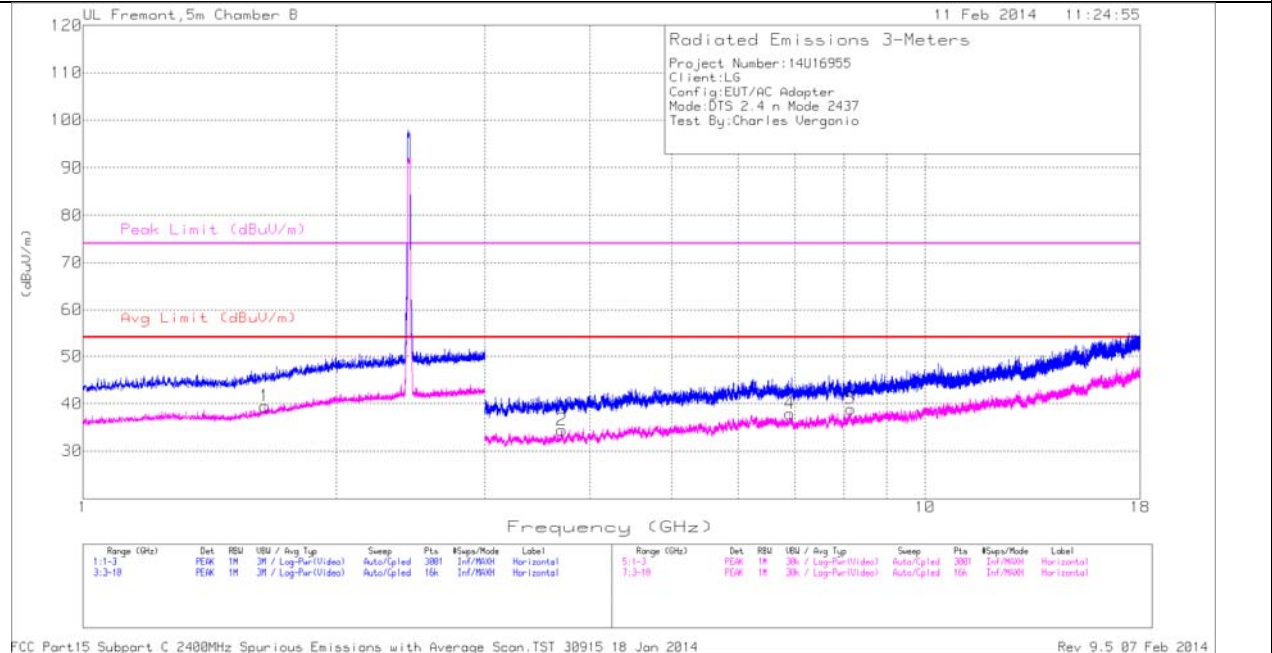
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F lter/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	1.217	34.72	Avg	28.4	-24.7	38.42	54	-15.58	-	-	0-360	99	V
2	2.359	34.86	Avg	32.3	-22.9	44.26	54	-9.74	-	-	0-360	99	H
3	3.343	32.47	Avg	33.3	-31.5	34.27	54	-19.73	-	-	0-360	202	V
4	4.396	31.37	Avg	34.3	-30	35.67	54	-18.33	-	-	0-360	202	V
5	6.511	29.77	Avg	35.9	-27.6	38.07	54	-15.93	-	-	0-360	202	H
6	9.004	27.4	Avg	36.8	-24.9	39.3	54	-14.7	-	-	0-360	99	H

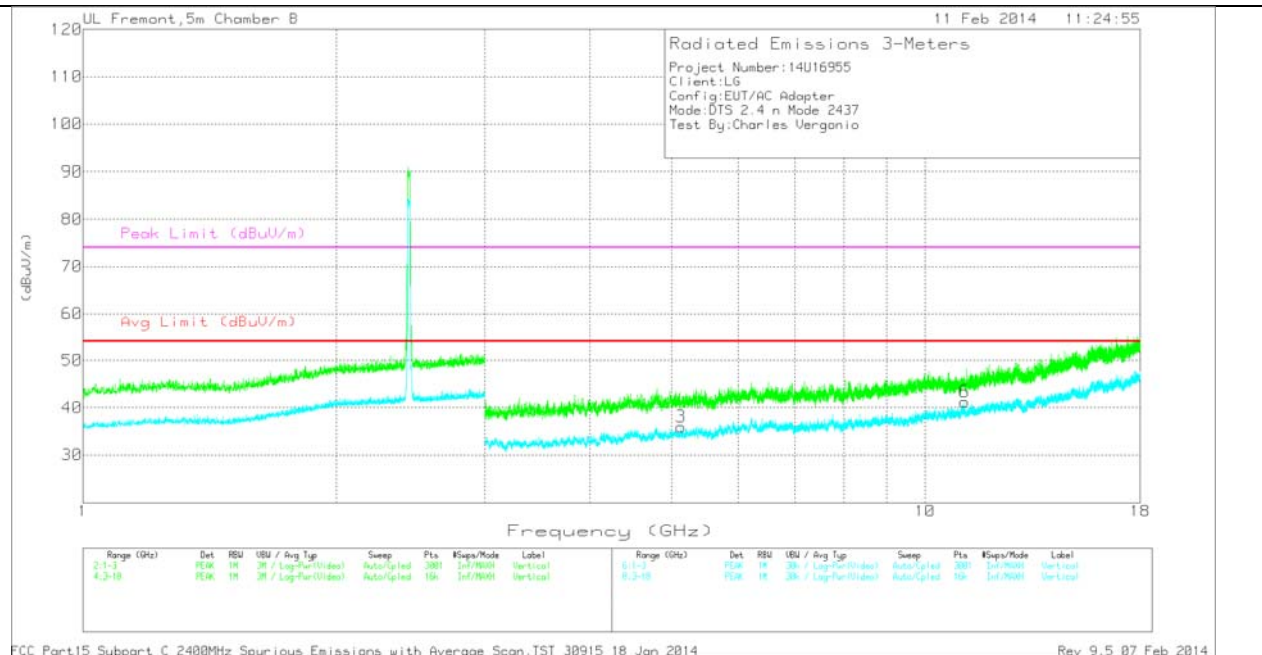
All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

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



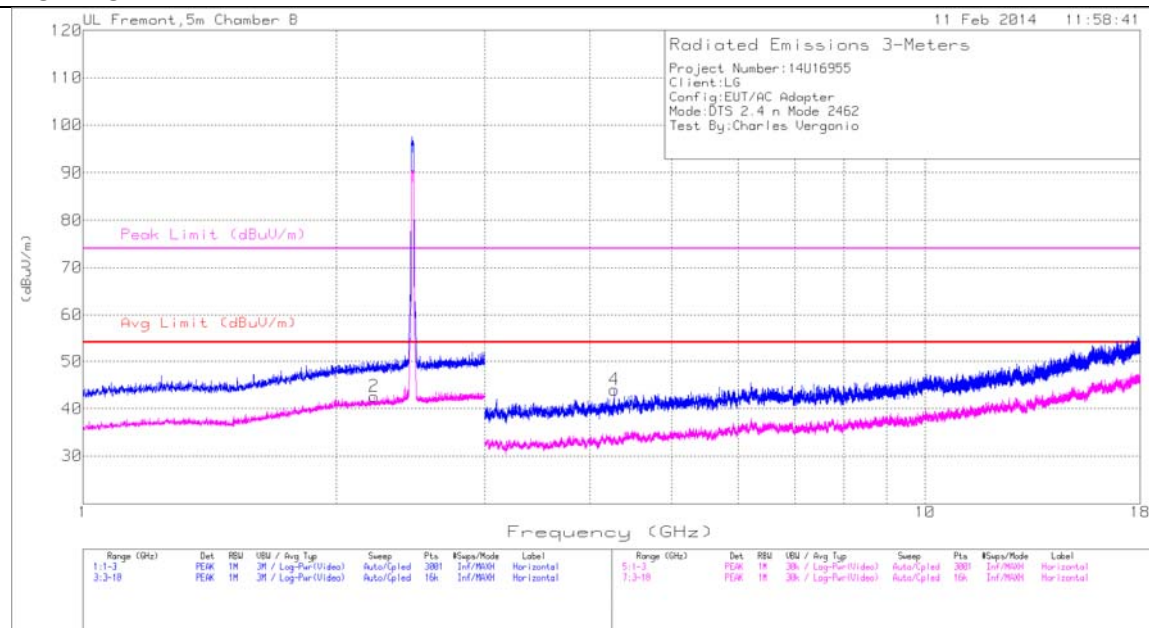
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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	1.645	34.07	Avg	29.3	-23.9	39.47	54	-14.53	-	-	0-360	201	H
2	3.704	31.91	Avg	33.7	-31.2	34.41	54	-19.59	-	-	0-360	99	H
3	5.129	30.23	Avg	34.8	-29.1	35.93	54	-18.07	-	-	0-360	99	V
4	6.909	29.16	Avg	35.9	-27.2	37.86	54	-16.14	-	-	0-360	202	H
5	8.162	29.6	Avg	36.1	-26.8	38.9	54	-15.1	-	-	0-360	99	H
6	11.144	25.75	Avg	38.4	-22.9	41.25	54	-12.75	-	-	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.

HIGH CHANNEL HORIZONTAL

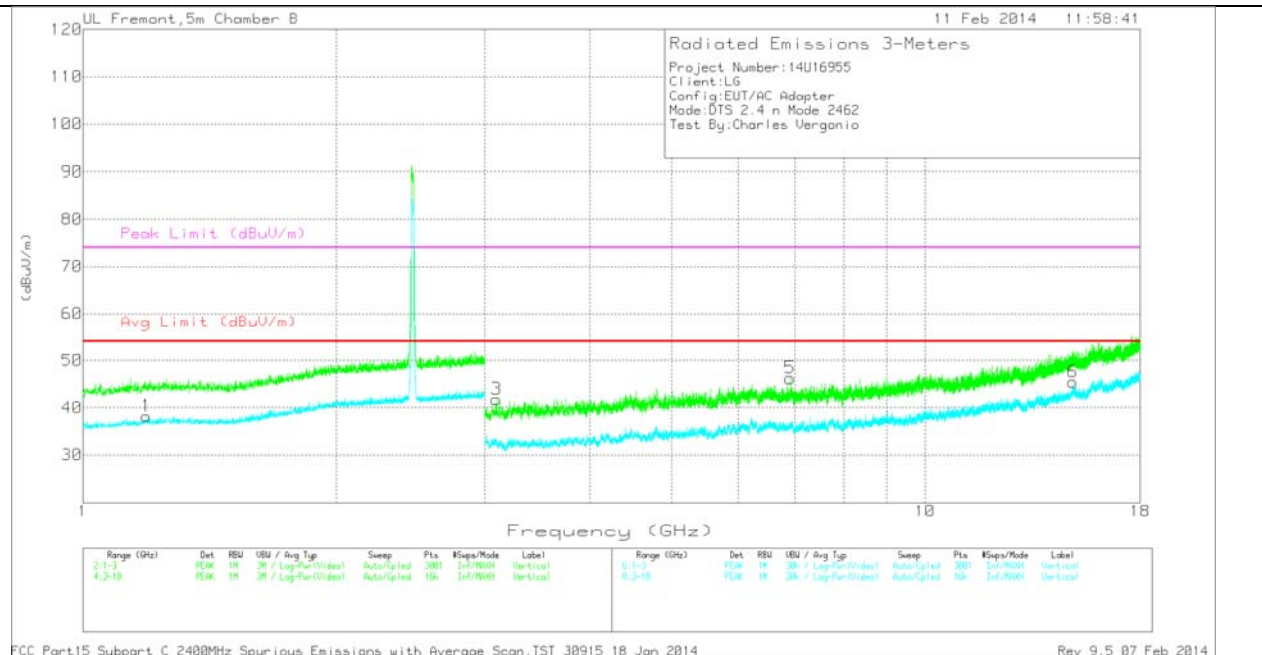


FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 18 Jan 2014

Rev 9.5 07 Feb 2014

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



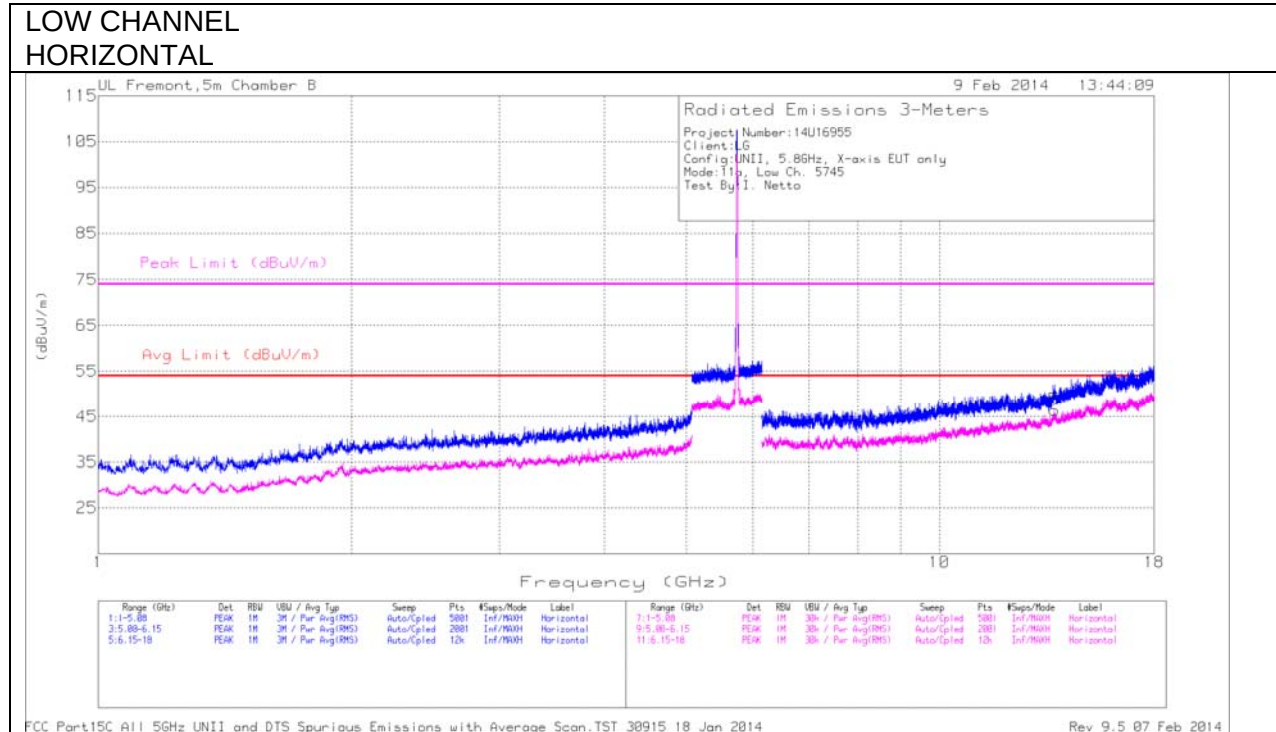
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

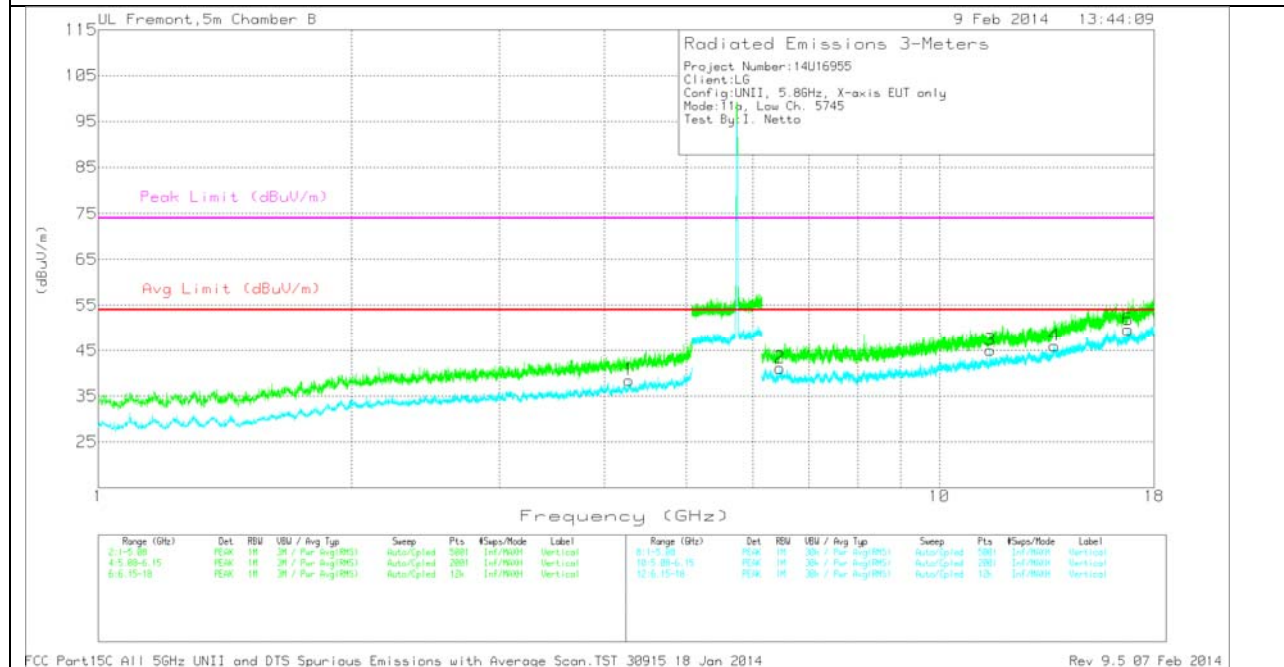
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F lter/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.189	34.57	Avg	28.3	-24.7	38.17	54	-15.83	-	-	0-360	99	V
2	2.216	33.69	Avg	32.1	-23.2	42.59	54	-11.41	-	-	0-360	201	H
3	3.097	40.09	PK	33.2	-31.5	41.79	-	-	74	-32.21	0-360	99	V
4	4.275	40.9	PK	34.1	-31	44	-	-	74	-30	0-360	99	H
5	6.913	37.63	PK	35.9	-27.3	46.23	-	-	74	-27.77	0-360	202	V
6	14.966	25.92	Avg	40	-20.5	45.42	54	-8.58	-	-	0-360	202	V

PK - Peak detector

10.2.1. TX ABOVE 1 GHz 802.11A HT20 MODE IN THE 5.8 GHz BAND RADIATED HARMONICS



LOW CHANNEL VERTICAL

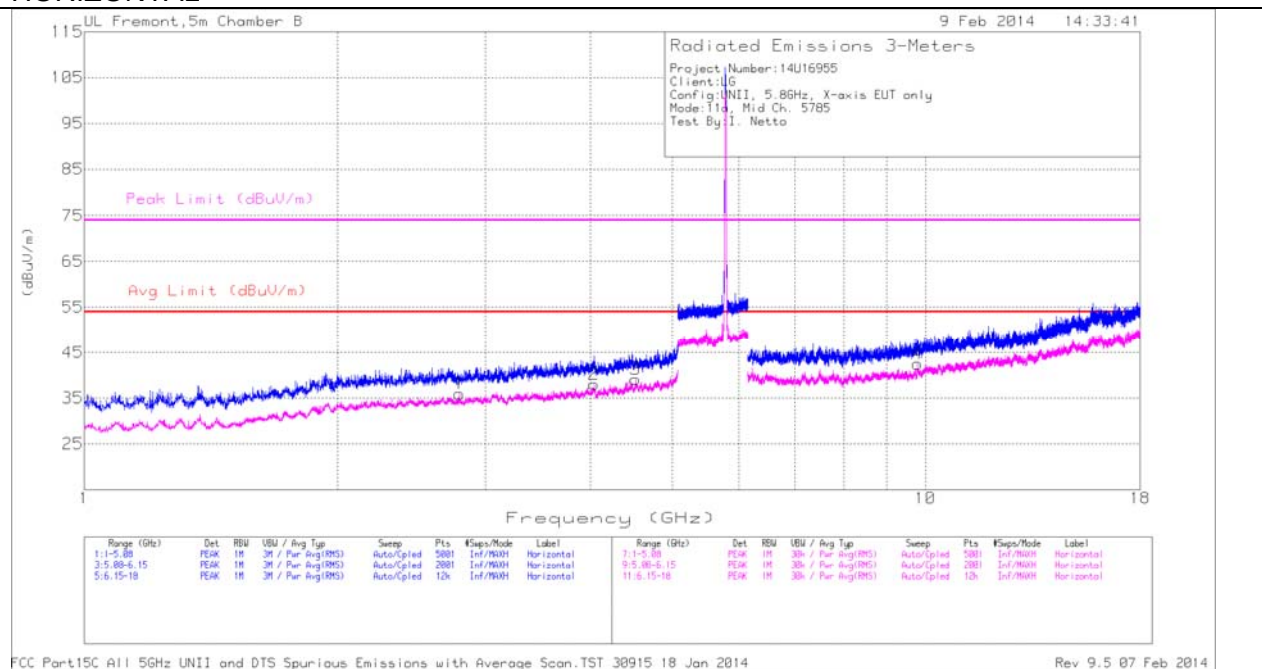


LOW CHANNEL DATA

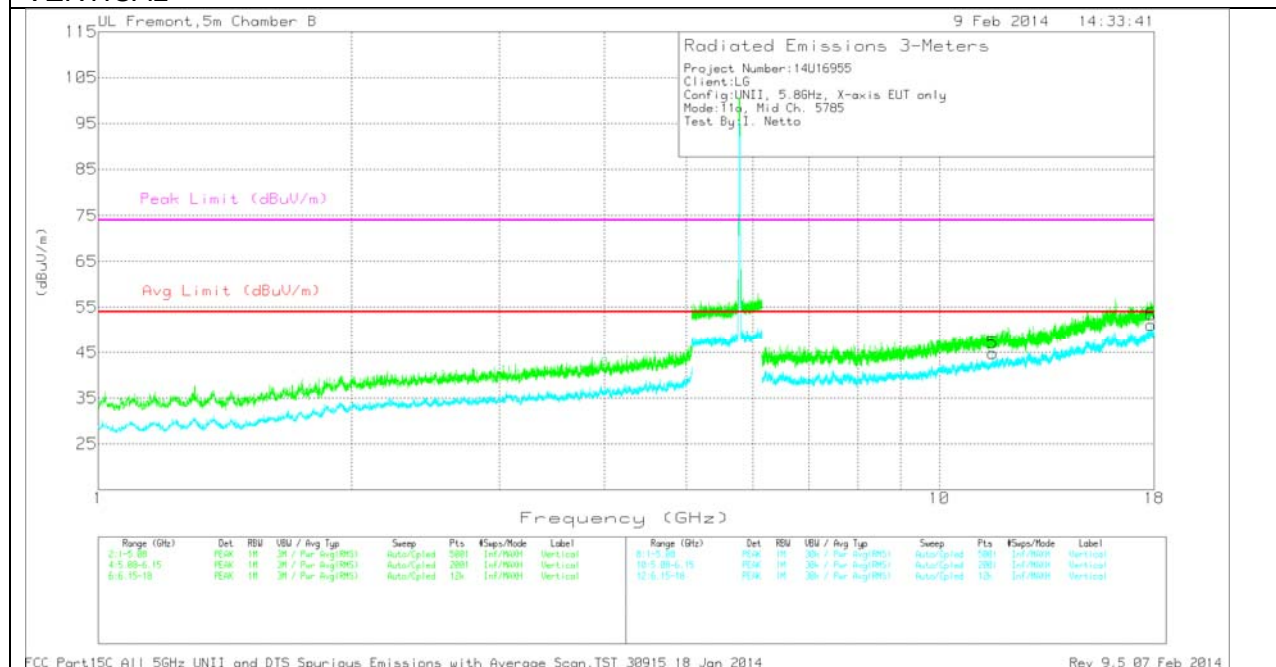
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	4.276	34.47	Avg	34.1	-30.1	38.47	54	-15.53	-	-	0-360	99	V
2	6.464	33.9	Avg	35.9	-28.7	41.1	54	-12.9	-	-	0-360	99	V
3	11.49	29.37	Avg	38.7	-23	45.07	54	-8.93	-	-	0-360	202	V
5	13.695	28.93	Avg	39.1	-21.6	46.43	54	-7.57	-	-	0-360	202	H
4	13.698	28.52	Avg	39.1	-21.6	46.02	54	-7.98	-	-	0-360	202	V
6	16.755	27.63	Avg	41.6	-19.6	49.63	54	-4.37	-	-	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



MID CHANNEL VERTICAL

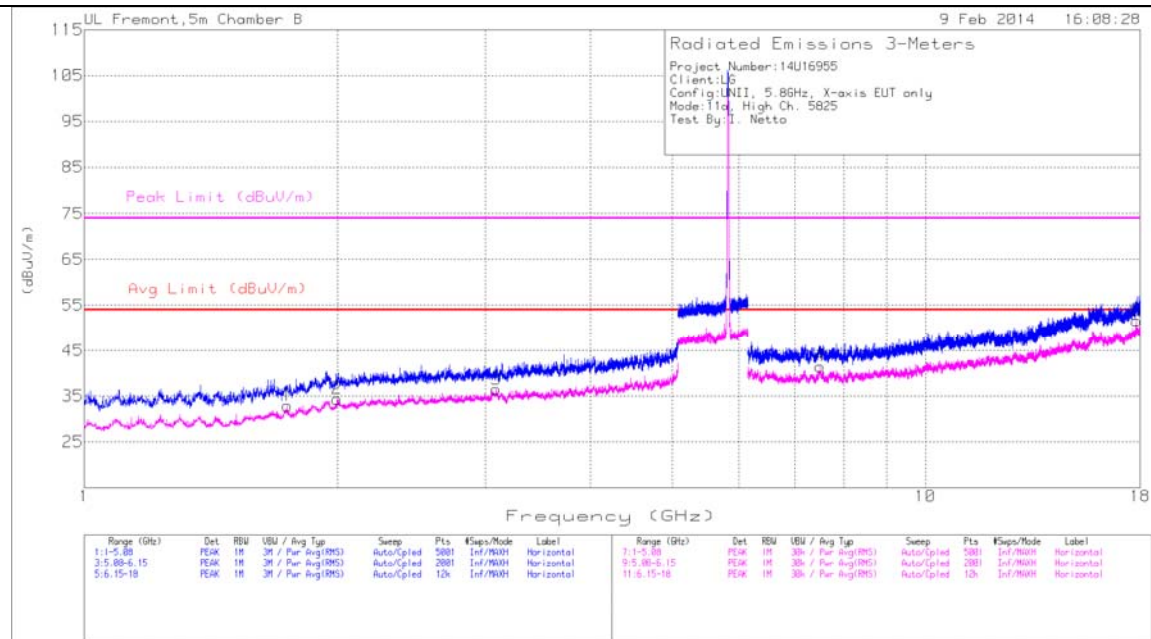


MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.794	35.43	Avg	32.9	-32.4	35.93	54	-18.07	-	-	0-360	99	H
2	4.039	33.92	Avg	33.9	-29.8	38.02	54	-15.98	-	-	0-360	202	H
3	4.524	35.22	Avg	34.5	-30.6	39.12	54	-14.88	-	-	0-360	202	H
4	9.787	28.4	Avg	37.5	-23.4	42.5	54	-11.5	-	-	0-360	99	H
5	11.57	28.85	Avg	38.8	-22.8	44.85	54	-9.15	-	-	0-360	202	V
6	17.844	27.87	Avg	42.2	-18.9	51.17	54	-2.83	-	-	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.

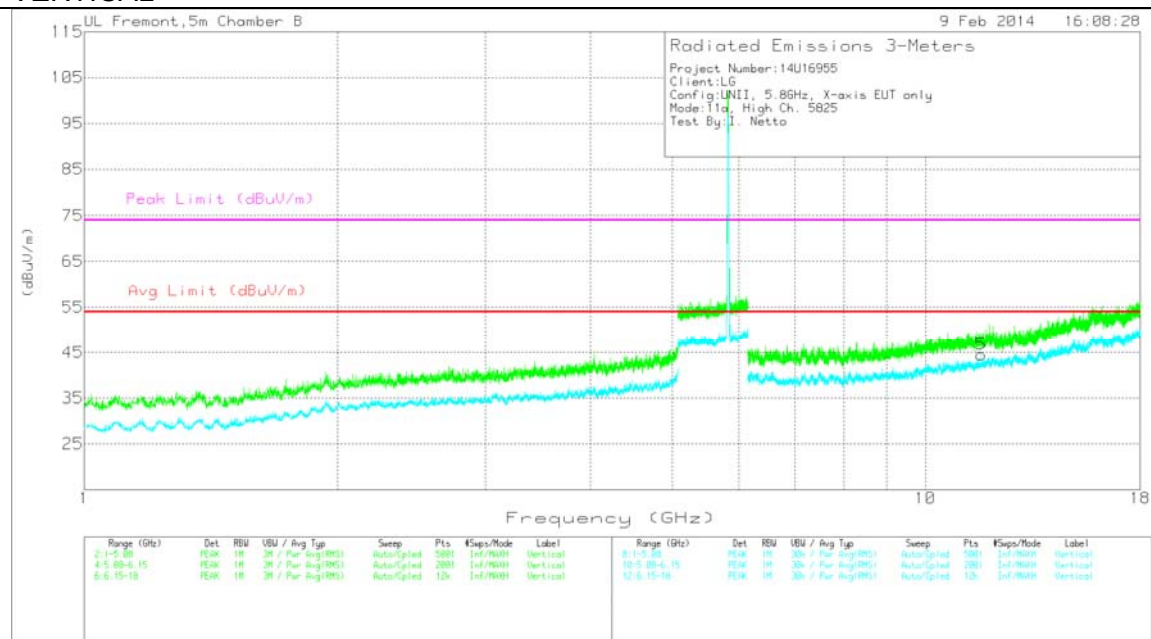
HIGH CHANNEL HORIZONTAL



FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 38915 18 Jan 2014

Rev 9.5 07 Feb 2014

HIGH CHANNEL VERTICAL



FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 38915 18 Jan 2014

Rev 9.5 07 Feb 2014

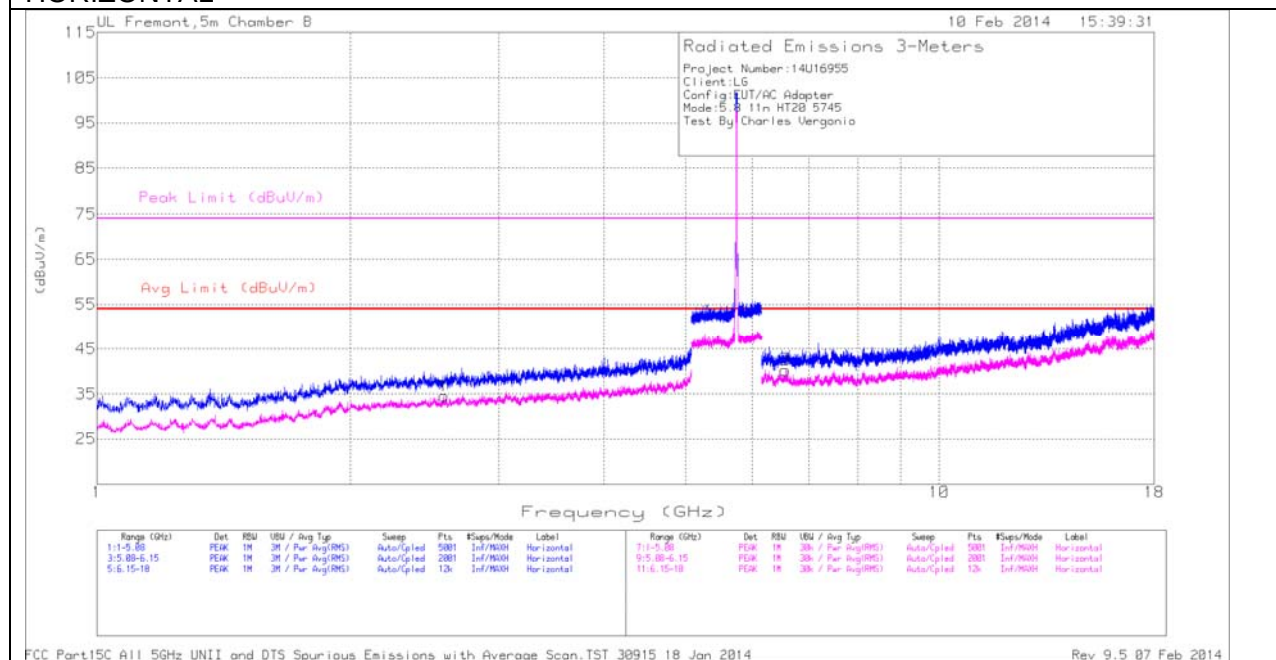
HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	1.744	36.54	Avg	30.1	-33.7	32.94	54	-21.06	-	-	0-360	202	H
2	1.999	35.58	Avg	31.8	-33	34.38	54	-19.62	-	-	0-360	202	H
3	3.089	35.21	Avg	33.2	-31.9	36.51	54	-17.49	-	-	0-360	202	H
4	7.497	31.3	Avg	36	-25.8	41.5	54	-12.5	-	-	0-360	99	H
5	11.649	28.73	Avg	38.9	-23.1	44.53	54	-9.47	-	-	0-360	202	V
6	17.823	28.54	Avg	42.2	-19.1	51.64	54	-2.36	-	-	0-360	99	H

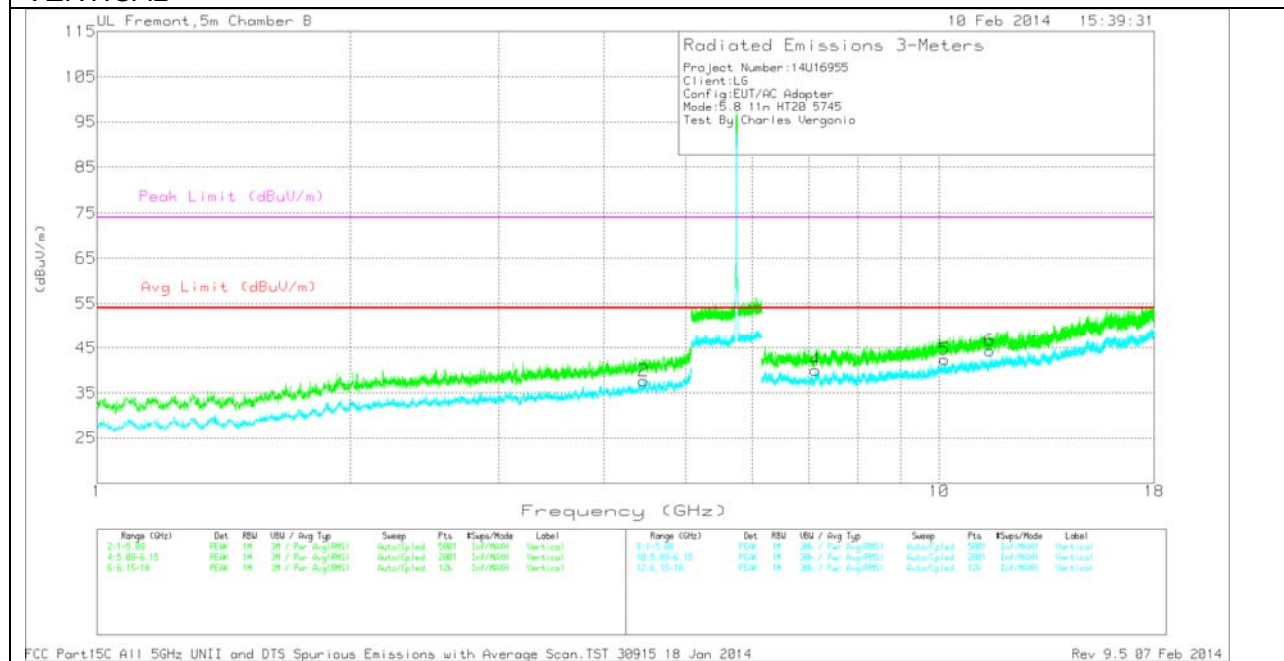
All peak readings were 20dB below the peak limit. Average measurements at discrete frequencies are provided in the table below for frequencies that are within 6dB of the average limit.

10.2.1. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND RADIATED HARMONICS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



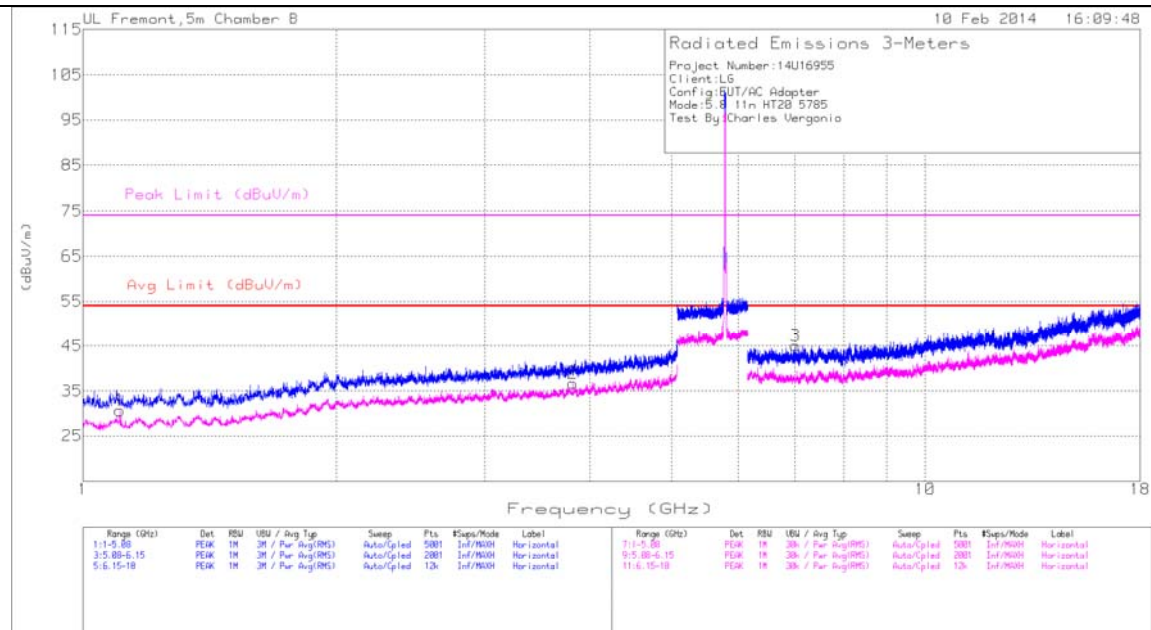
LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 11.49	28.7	Avg	38.7	-23	44.4	54	-9.6	-	-	0-360	202	V
1	2.583	34.73	Avg	32.6	-32.8	34.53	54	-19.47	-	-	0-360	202	H
2	4.457	32.69	Avg	34.4	-29.4	37.69	54	-16.31	-	-	0-360	202	V
3	6.566	31.36	Avg	35.9	-27	40.26	54	-13.74	-	-	0-360	99	H
4	7.128	32.21	Avg	35.8	-28	40.01	54	-13.99	-	-	0-360	99	V
5	10.148	28.73	Avg	37.9	-24.2	42.43	54	-11.57	-	-	0-360	99	V

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

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.

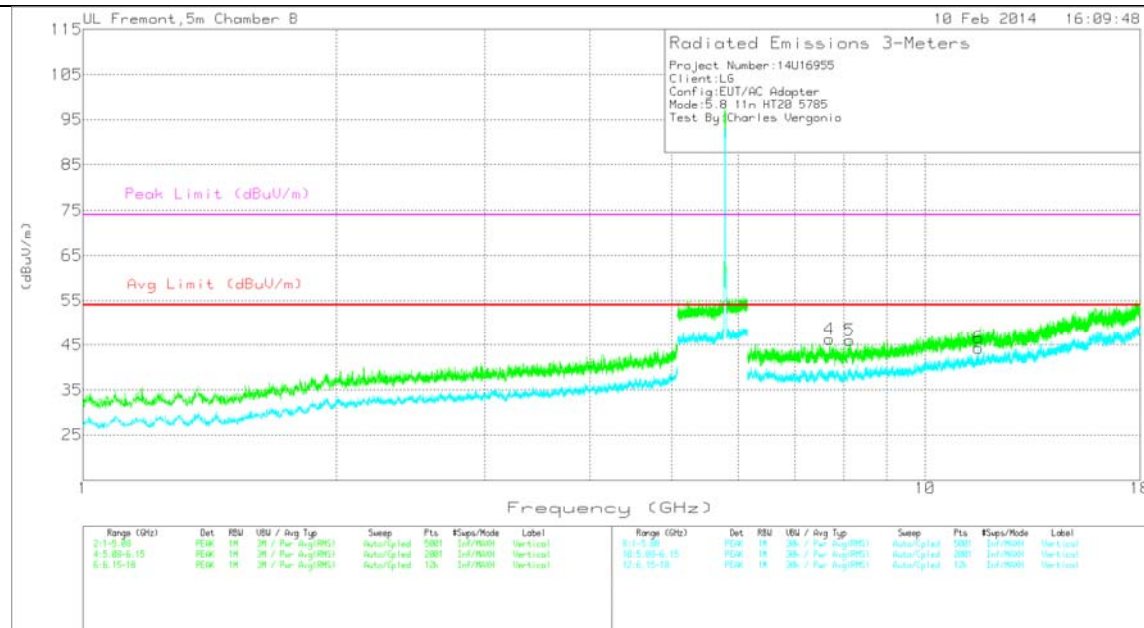
MID CHANNEL HORIZONTAL



FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 18 Jan 2014

Rev 9.5 07 Feb 2014

MID CHANNEL VERTICAL



FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 18 Jan 2014

Rev 9.5 07 Feb 2014

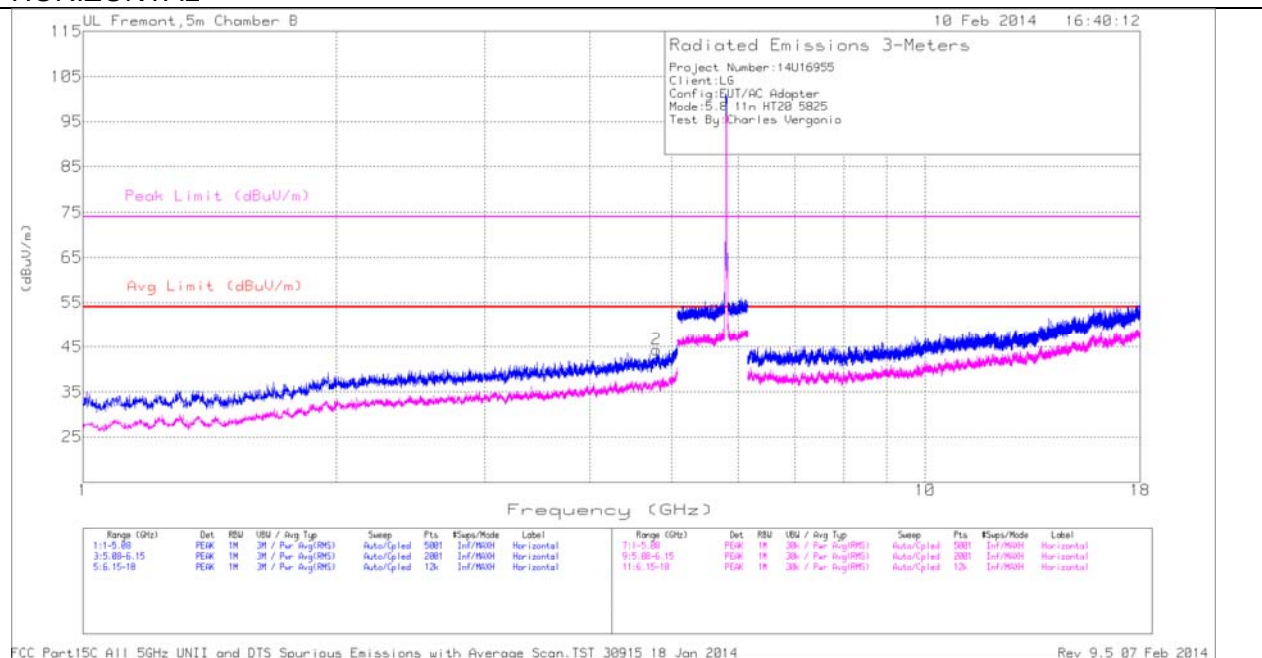
MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 7.695	37.8	PK	36.2	-27.7	46.3	54	-7.7	74	-27.7	0-360	202	V
5	* 8.133	36.54	PK	36.1	-26.6	46.04	54	-7.96	74	-27.96	0-360	99	V
1	* 1.106	37.26	Avg	27.9	-34.5	30.66	54	-23.34	-	-	0-360	202	H
2	* 3.816	34.01	Avg	33.8	-31.1	36.71	54	-17.29	-	-	0-360	99	H
6	* 11.57	28.3	Avg	38.8	-22.8	44.3	54	-9.7	-	-	0-360	202	V
3	7.013	36.75	PK	35.9	-27.6	45.05	54	-8.95	74	-28.95	0-360	99	H

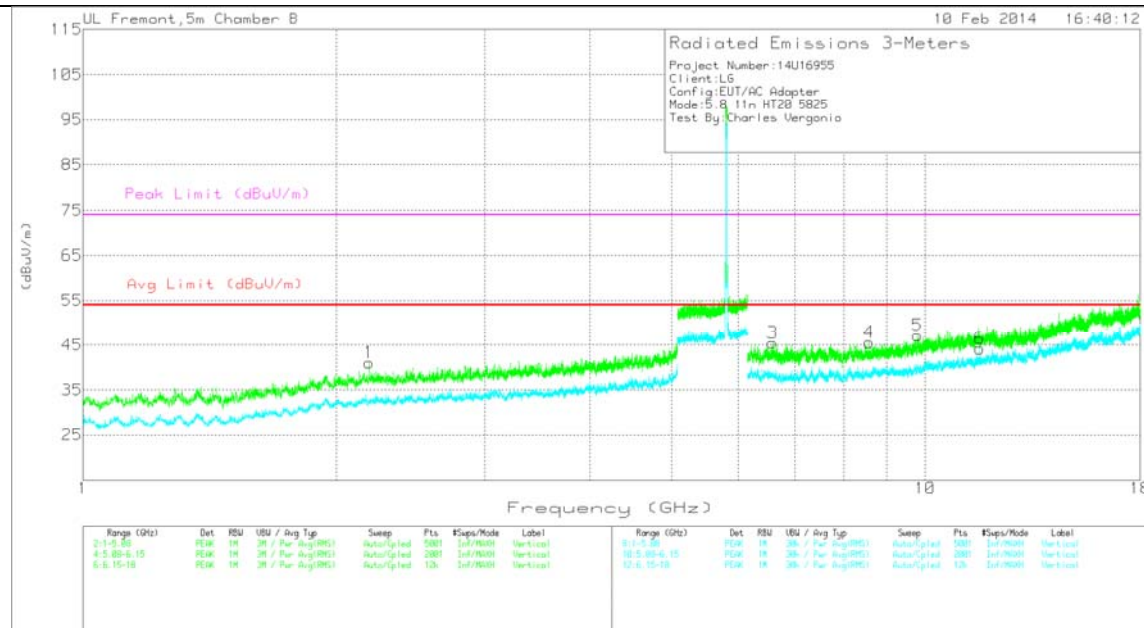
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 18 Jan 2014

Rev 9.5 07 Feb 2014

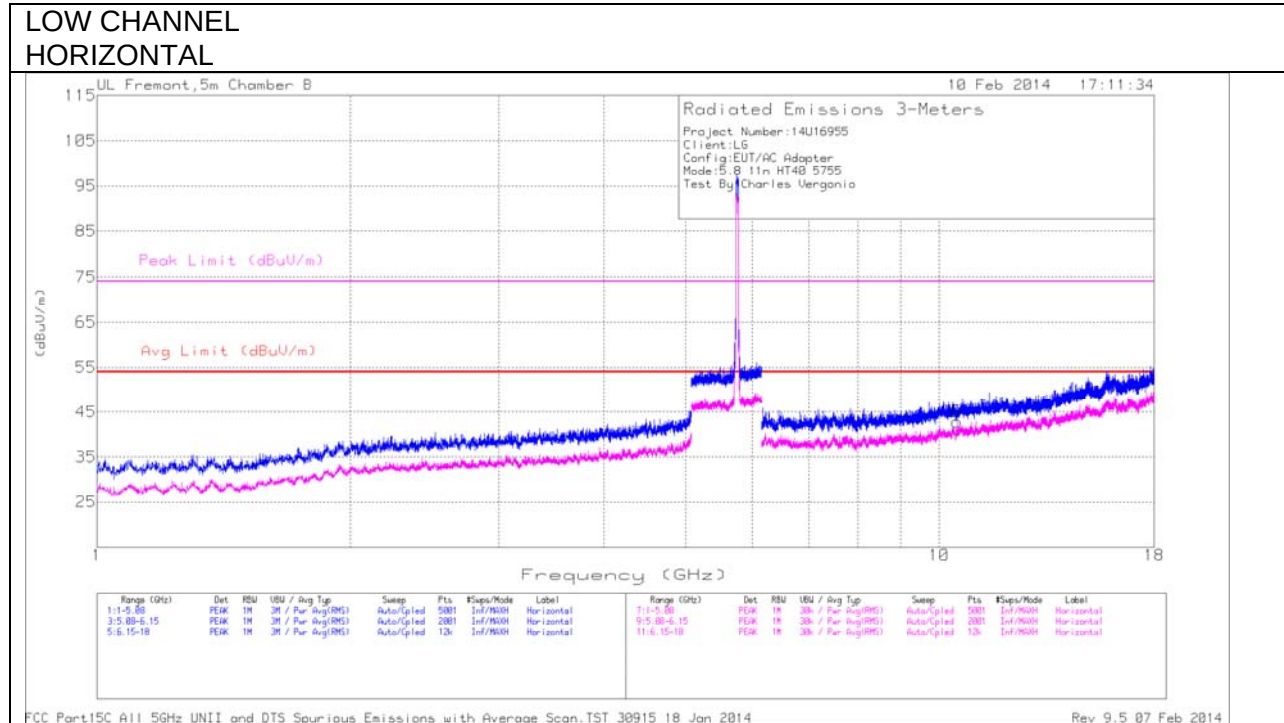
HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.797	38.81	PK	34.7	-29.1	44.41	54	-9.59	74	-29.59	0-360	99	H
6	* 11.609	28.29	Avg	38.8	-22.9	44.19	54	-9.81	-	-	0-360	202	V
1	2.186	41.51	PK	32	-32.5	41.01	54	-12.99	74	-32.99	0-360	99	V
3	6.587	36.95	PK	35.9	-27.4	45.45	54	-8.55	74	-28.55	0-360	202	V
4	8.579	35.48	PK	36.3	-26.2	45.58	54	-8.42	74	-28.42	0-360	202	V
5	9.792	33.19	PK	37.6	-23.6	47.19	54	-6.81	74	-26.81	0-360	202	V

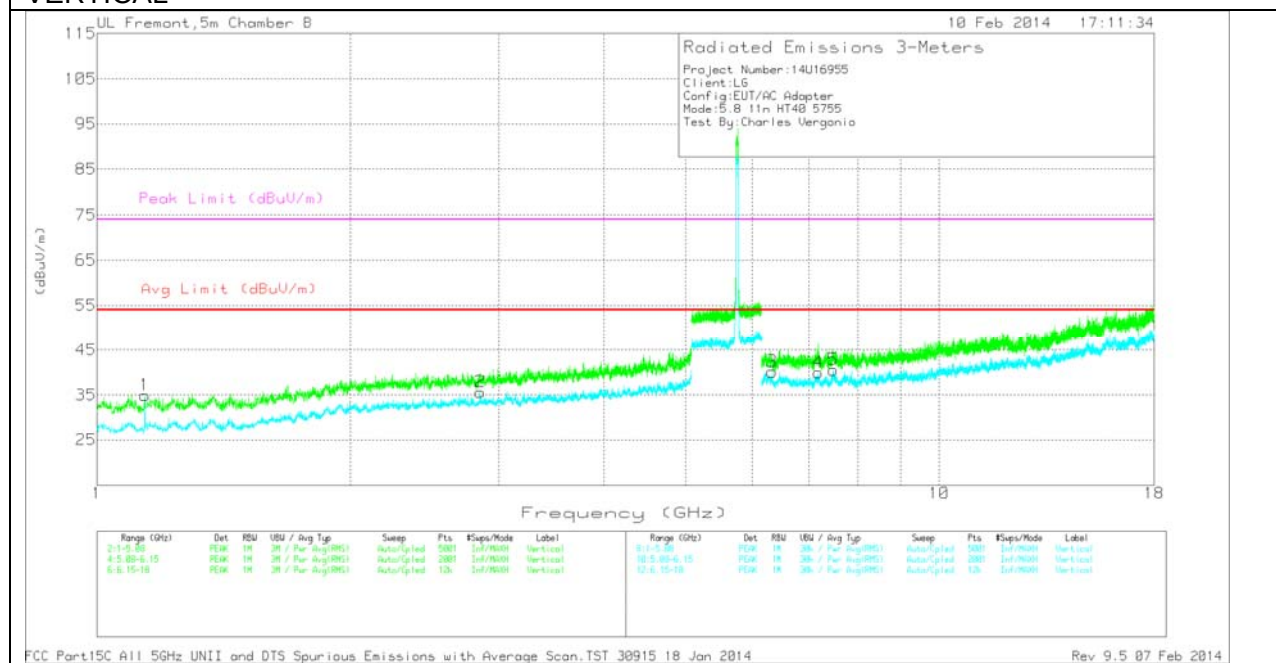
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK - Peak detector

10.2.1. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND RADIATED HARMONICS



LOW CHANNEL VERTICAL



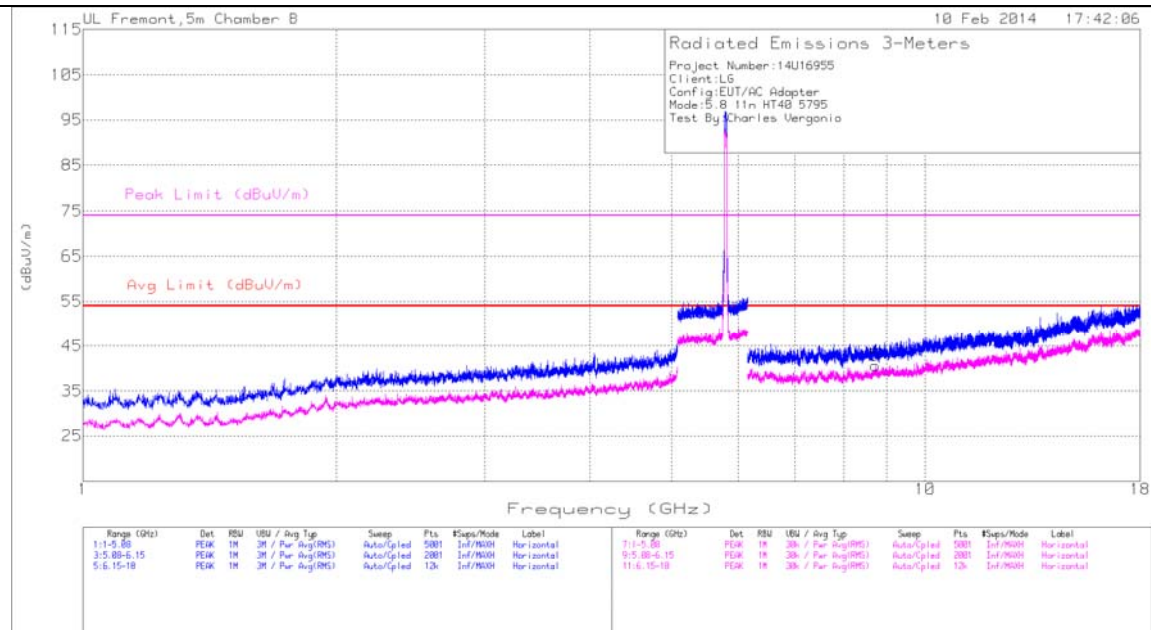
LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.14	41.12	Avg	28.1	-34.3	34.92	54	-19.08	-	-	0-360	202	V
2	* 2.851	35.13	Avg	32.9	-32.4	35.63	54	-18.37	-	-	0-360	202	V
5	* 7.487	30.35	Avg	36	-25.8	40.55	54	-13.45	-	-	0-360	99	V
3	6.332	31.84	Avg	36	-27.7	40.14	54	-13.86	-	-	0-360	202	V
4	7.186	30.66	Avg	35.8	-26.5	39.96	54	-14.04	-	-	0-360	202	V
6	10.5	28.59	Avg	38.2	-24	42.79	54	-11.21	-	-	0-360	99	H

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

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.

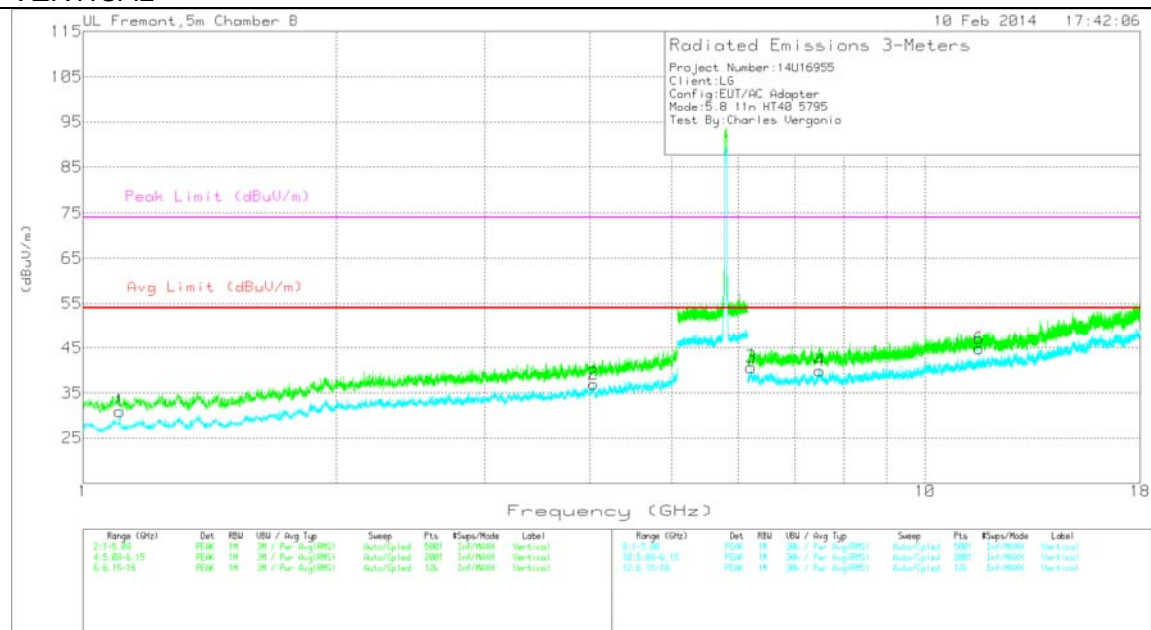
HIGH CHANNEL HORIZONTAL



FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 18 Jan 2014

Rev. 9.5 07 Feb 2014

HIGH CHANNEL VERTICAL



FCC Part15C All 5GHz UNII and DTS Spurious Emissions with Average Scan.TST 30915 18 Jan 2014

Rev. 9.5 07 Feb 2014

HIGH CHANNEL DATA

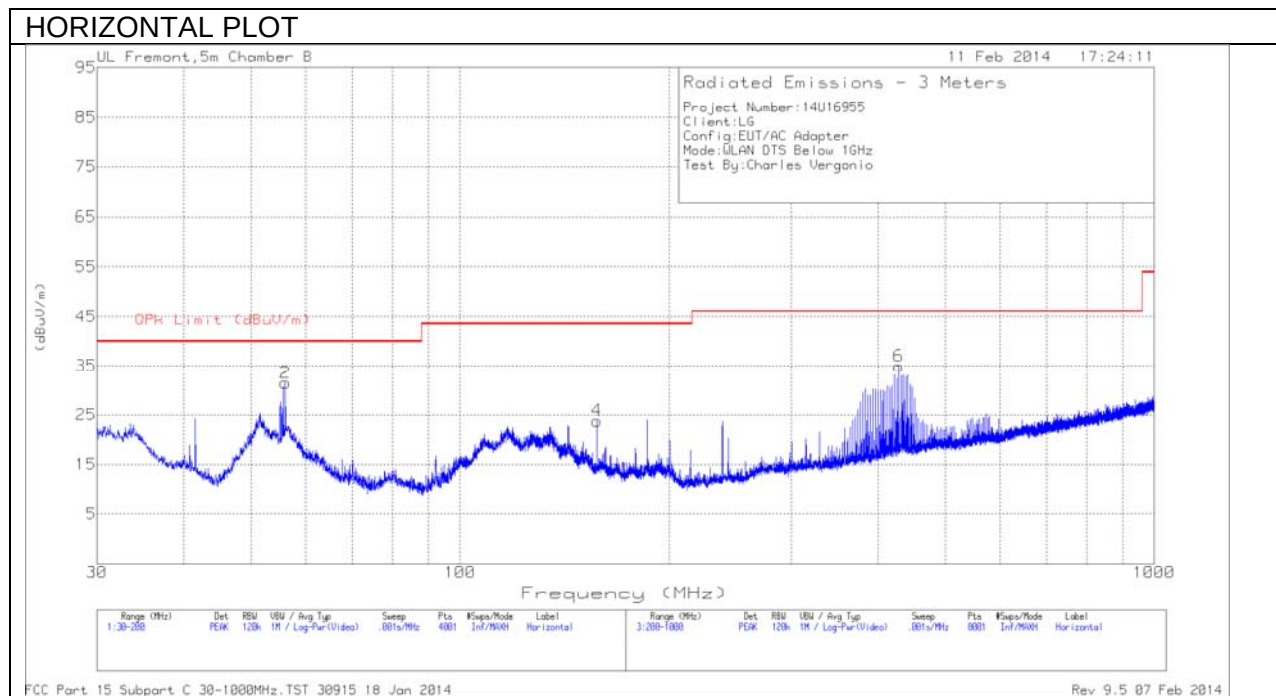
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.106	37.53	Avg	27.9	-34.5	30.93	54	-23.07	-	-	0-360	202	V
2	* 4.04	32.88	Avg	33.9	-29.8	36.98	54	-17.02	-	-	0-360	99	V
4	* 7.497	29.68	Avg	36	-25.8	39.88	54	-14.12	-	-	0-360	202	V
6	* 11.59	28.97	Avg	38.8	-22.9	44.87	54	-9.13	-	-	0-360	202	V
3	6.213	32.38	Avg	36	-27.7	40.68	54	-13.32	-	-	0-360	99	V
5	8.73	30	Avg	36.4	-25.8	40.6	54	-13.4	-	-	0-360	202	H

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

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.

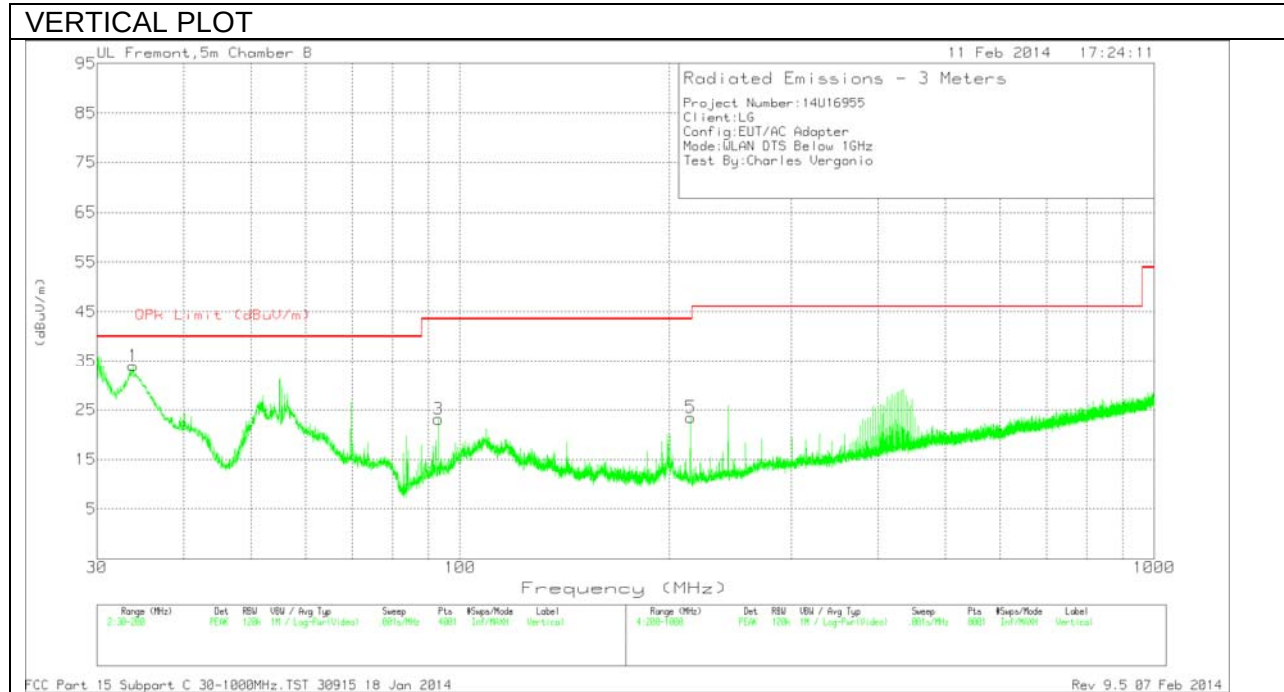
10.3. WORST-CASE BELOW 1 GHz

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



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

VERTICAL PLOT



Below 1G Data

Marker	Frequenc y (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Correcte d Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	33.825	44.58	PK	18.2	-28.8	33.98	-	-	0-360	101	V
2	56.01	53.21	PK	6.9	-28.6	31.51	-	-	0-360	400	H
3	93.07	43.13	PK	8.1	-28.1	23.13	-	-	0-360	101	V
4	157.5	38.97	PK	12.2	-27.4	23.77	-	-	0-360	100	H
5	214.8	39.75	PK	10.5	-26.8	23.45	-	-	0-360	200	V
6	428.8	44.3	PK	16.5	-25.9	34.9	-	-	0-360	101	H

PK - Peak detector

FCC Part 15 Subpart C 30-1000MHz.TST 30915 18 Jan 2014

Rev 9.5 07 Feb 2014