



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 8**

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/CDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n/ac & NFC

MODEL NUMBER: LG-VS986, VS986, LGVS986, LG-AS986, AS986, LGAS986

FCC ID: ZNFVS986

IC: 2703C-VS986

REPORT NUMBER: 15I20402 – E4

ISSUE DATE: April 16, 2015

Prepared for
**LG ELECTRONICS MOBILECOMM U.S.A., INC
1000 SYLVAN AVENUE
ENGLEWOOD 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

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

Revision History

Issue			
Rev.	Date	Revisions	Revised By
--	4/16/15	Initial Issue	P. Zhang

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	6
4.1. MEASURING INSTRUMENT CALIBRATION	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	7
5. EQUIPMENT UNDER TEST	8
5.1. DESCRIPTION OF EUT	8
5.2. MAXIMUM OUTPUT POWER.....	8
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	8
5.4. WORST-CASE CONFIGURATION AND MODE	9
5.5. DESCRIPTION OF TEST SETUP.....	10
6. TEST AND MEASUREMENT EQUIPMENT	12
7. MEASUREMENT METHODS	13
8. SUMMARY TABLE	14
9. ANTENNA PORT TEST RESULTS	15
9.1. 6 dB BANDWIDTH.....	15
9.1.1. 802.11b MODE IN THE 2.4 GHz BAND.....	16
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND.....	16
9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND	16
9.1.4. 6 dB BANDWIDTH MID CH PLOTS.....	17
9.2. 99% BANDWIDTH.....	18
9.2.1. 802.11b MODE IN THE 2.4 GHz BAND.....	18
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND.....	18
9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND	18
9.2.4. 99% BANDWIDTH MID CH PLOTS.....	19
9.3. OUTPUT POWER.....	20
9.3.1. 802.11b MODE IN THE 2.4 GHz BAND.....	21
9.3.2. 802.11g MODE IN THE 2.4 GHz BAND.....	22
9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND	23
9.3.4. 802.11ac VHT20 MODE IN THE 2.4 GHz BAND	24
9.4. PSD	25
9.4.1. 802.11b MODE IN THE 2.4 GHz BAND.....	26

9.4.2.	802.11g MODE IN THE 2.4 GHz BAND	26
9.4.3.	802.11n HT20 MODE IN THE 2.4 GHz BAND	26
9.4.4.	PSD Chain 0 MID CH PLOTS	27
9.5.	OUT-OF-BAND EMISSIONS	28
9.5.1.	802.11b MODE IN THE 2.4 GHz BAND	29
9.5.2.	802.11g MODE IN THE 2.4 GHz BAND	35
9.5.3.	802.11n HT20 MODE IN THE 2.4 GHz BAND	41
10.	RADIATED TEST RESULTS	47
10.1.	LIMITS AND PROCEDURE	47
10.2.	TRANSMITTER ABOVE 1 GHz	49
10.2.1.	TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND	49
10.2.2.	TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND	62
10.2.3.	TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND	75
10.3.	WORST-CASE BELOW 1 GHz	91
11.	AC POWER LINE CONDUCTED EMISSIONS	100
12.	SETUP PHOTOS	105

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION: GSM/WCDMA/CDMA/LTE Phablet + Bluetooth, DTS/UNII
a/b/g/n/ac & NFC.
MODEL: LG-VS986, VS986, LGVS986, LG-AS986, AS986, LGAS986
SERIAL NUMBER: 0298-0469 (Conducted), 0298-0454 (Radiated)
DATE TESTED: MAR 25 – APR 16, 2015

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass
INDUSTRY CANADA RSS-GEN Issue 4	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:



PENG ZHANG

CONSUMER TECHNOLOGY DIVISION
PROJECT LEAD
UL Verification Services Inc.



JONATHAN HSU

CONSUMER TECHNOLOGY DIVISION
LAB ENGINEER
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 C63.10-2013, RSS-GEN Issue 4, and RSS-210 Issue 8.

Deviation -Radiated spurious emission above 1GHz EUT height is 1.5m not 0.8m.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☐ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☒ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☐ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☐ Chamber G(IC: 2324B-7)
	☐ Chamber H(IC: 2324B-8)

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

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 26000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

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

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	16.94	49.43
2412 - 2462	802.11g	15.44	34.99
2412 - 2462	802.11n HT20	14.25	26.61
2412 - 2462	802.11ac VHT20	12.09	16.18

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -0.52 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

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

802.11n HT20 mode has a higher power than the 802.11ac VHT20 mode. Conducted testing performed at the worst case (11n HT20) mode to cover the tests needed for 11ac VHT20 mode.

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.

Spots check also performed on SMART COVER and CHARGING DOCK station

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

802.11ac VHT20: MCS0

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

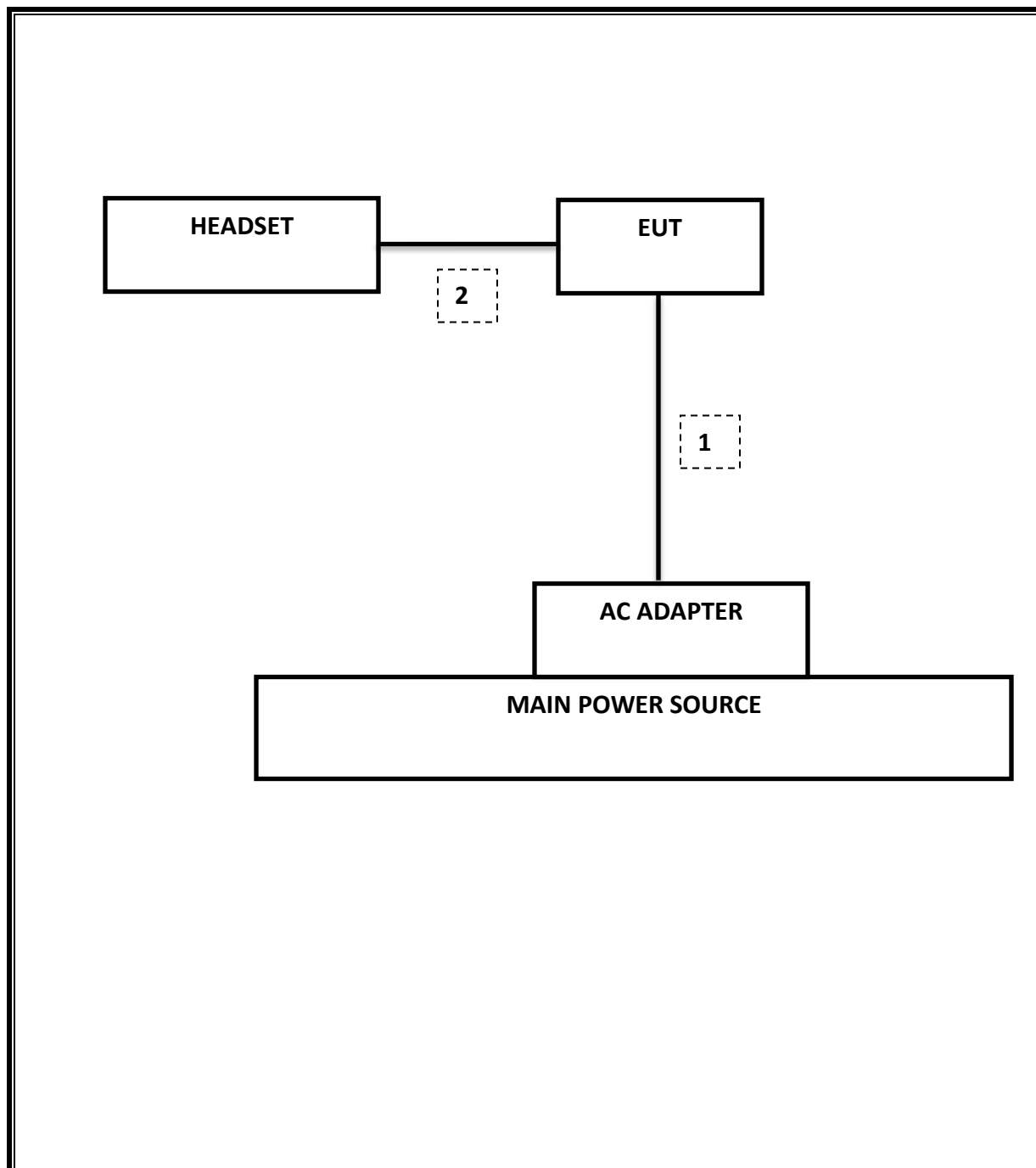
Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-04WD2	EAY62991904	N/A
Smart Case Cover	LG	LG-P1	DK0227	N/A
Wireless Charger	LG	WCD-110	LF1212625283010049	N/A
Earphone	LG	N/A	N/A	N/A

I/O CABLES

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

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer, 9KHz-40GHz	HP	8564E	C00986	04/01/16
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/16
Antenna, Horn, 18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/15
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/16
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/15
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/15
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/15
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/15
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/15

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Version 9.5, 07/22/14
Conducted Software	UL	UL EMC	Version 9.5, 05/17/14
CLT Software	UL	UL RF	Version 1.0, 02/02/15
Antenna Port Software	UL	UL RF	Version 2.1.1.1, 1/20/15

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r02: Measurement Procedure AVGPM-G is used for power and AVGPSD-3 is used for power spectral density.

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

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	7.12 MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-30.32 dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	16.94 dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-4.5 dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	50.34 dBuV
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	48.83 dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v03r02: The transmitter output is connected to a spectrum analyzer with the RBW set to 100kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.07	0.5
Mid	2437	8.06	0.5
High	2462	7.12	0.5
Worst		7.12	

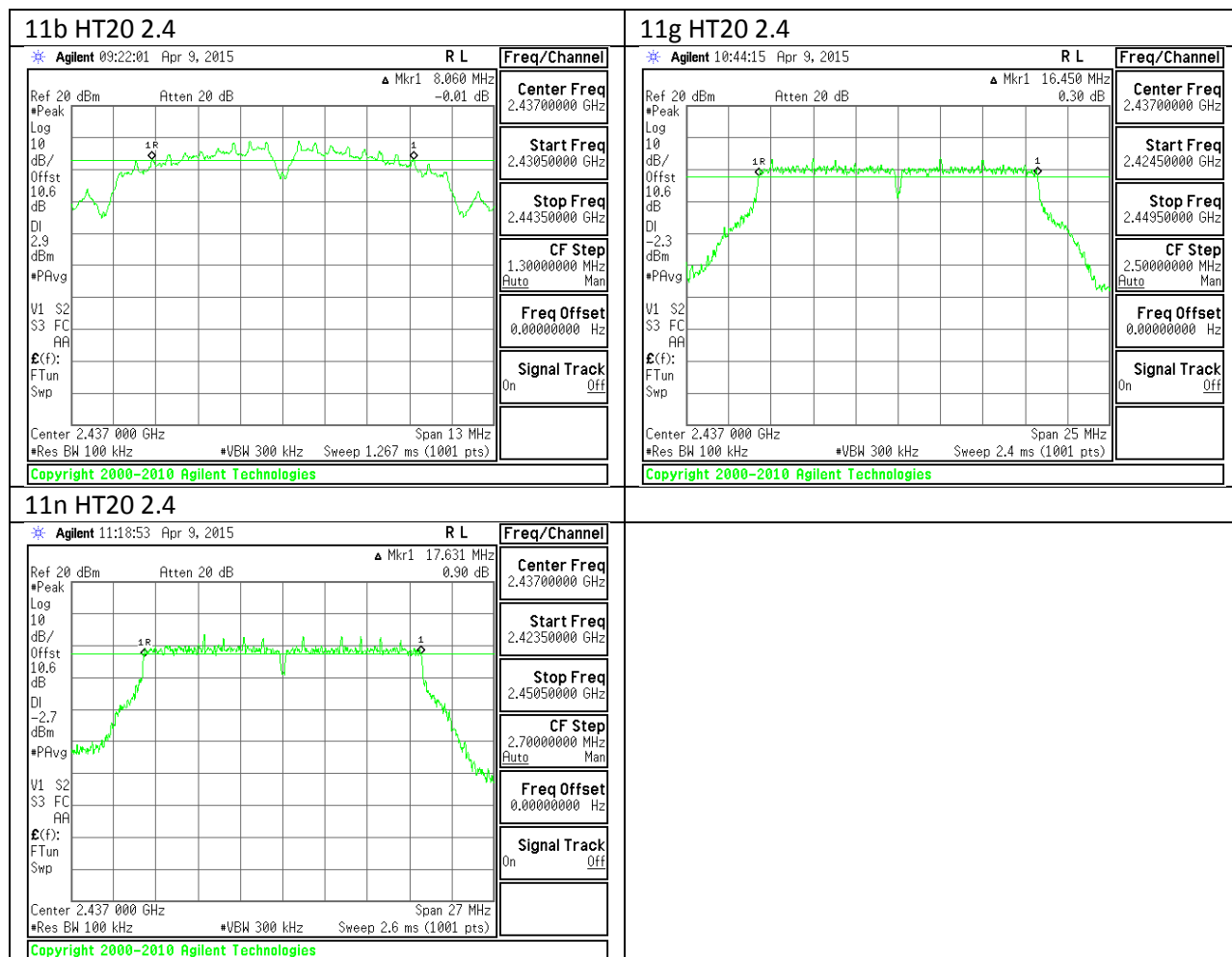
9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	13.87	0.5
Mid	2437	16.45	0.5
High	2462	12.63	0.5
Worst		12.63	

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.12	0.5
Mid	2437	17.63	0.5
High	2462	14.97	0.5
Worst		14.97	

9.1.4. 6 dB BANDWIDTH MID CH PLOTS



9.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	10.44
Mid	2437	10.65
High	2462	10.22
Worst		10.65

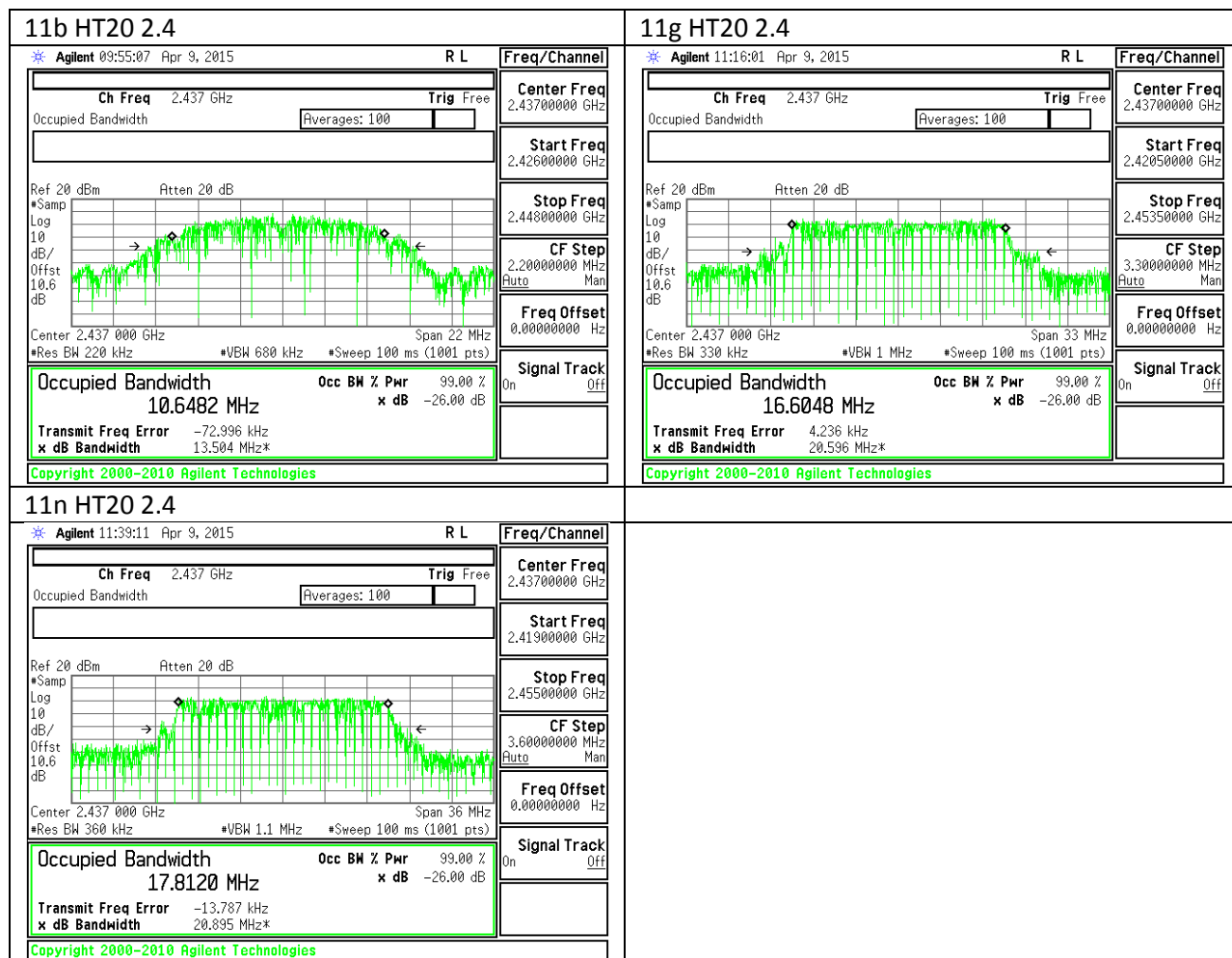
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.35
Mid	2437	16.60
High	2462	16.12
Worst		16.60

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.52
Mid	2437	17.81
High	2462	17.27
Worst		17.81

9.2.4. 99% BANDWIDTH MID CH PLOTS



9.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-210 A8.4

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

DIRECTIONAL ANTENNA GAIN

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-0.52	30.00	30	36	30.00
Mid	2437	-0.52	30.00	30	36	30.00
High	2462	-0.52	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	16.88	16.88	30.00	-13.12
Mid	2437	16.94	16.94	30.00	-13.06
High	2462	16.78	16.78	30.00	-13.22
Worst			16.94		

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-0.52	30.00	30	36	30.00
Mid	2437	-0.52	30.00	30	36	30.00
High	2462	-0.52	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	15.38	15.38	30.00	-14.62
Mid	2437	15.44	15.44	30.00	-14.56
High	2462	15.01	15.01	30.00	-14.99
Worst			15.44		

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-0.52	30.00	30	36	30.00
Mid	2437	-0.52	30.00	30	36	30.00
High	2462	-0.52	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	14.08	14.08	30.00	-15.92
Mid	2437	14.25	14.25	30.00	-15.75
High	2462	13.58	13.58	30.00	-16.42
Worst			14.25		

9.3.4. 802.11ac VHT20 MODE IN THE 2.4 GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-0.52	30.00	30	36	30.00
Mid	2437	-0.52	30.00	30	36	30.00
High	2462	-0.52	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	12.09	12.09	30.00	-17.91
Mid	2437	11.94	11.94	30.00	-18.06
High	2462	11.56	11.56	30.00	-18.44
Worst			12.09		

9.4. PSD

LIMITS

FCC §15.247

IC RSS-210 A8.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

RESULTS

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-4.94	8.0	-12.9
Mid	2437	-4.57	8.0	-12.6
High	2462	-4.50	8.0	-12.5

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

PSD Results

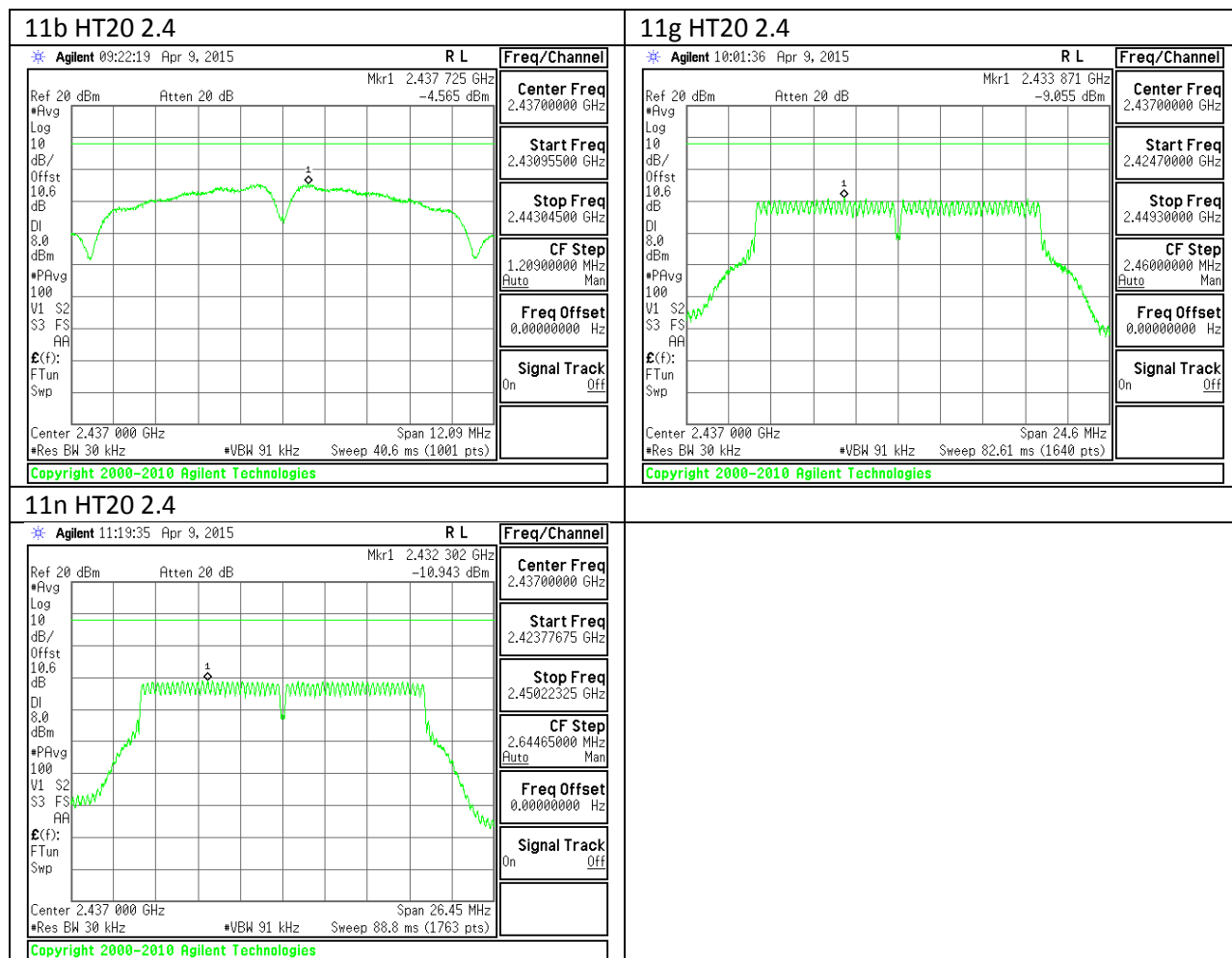
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-8.09	8.0	-16.1
Mid	2437	-9.06	8.0	-17.1
High	2462	-10.13	8.0	-18.1

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-10.13	8.0	-18.1
Mid	2437	-10.94	8.0	-18.9
High	2462	-10.05	8.0	-18.1

9.4.4. PSD Chain 0 MID CH PLOTS



9.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

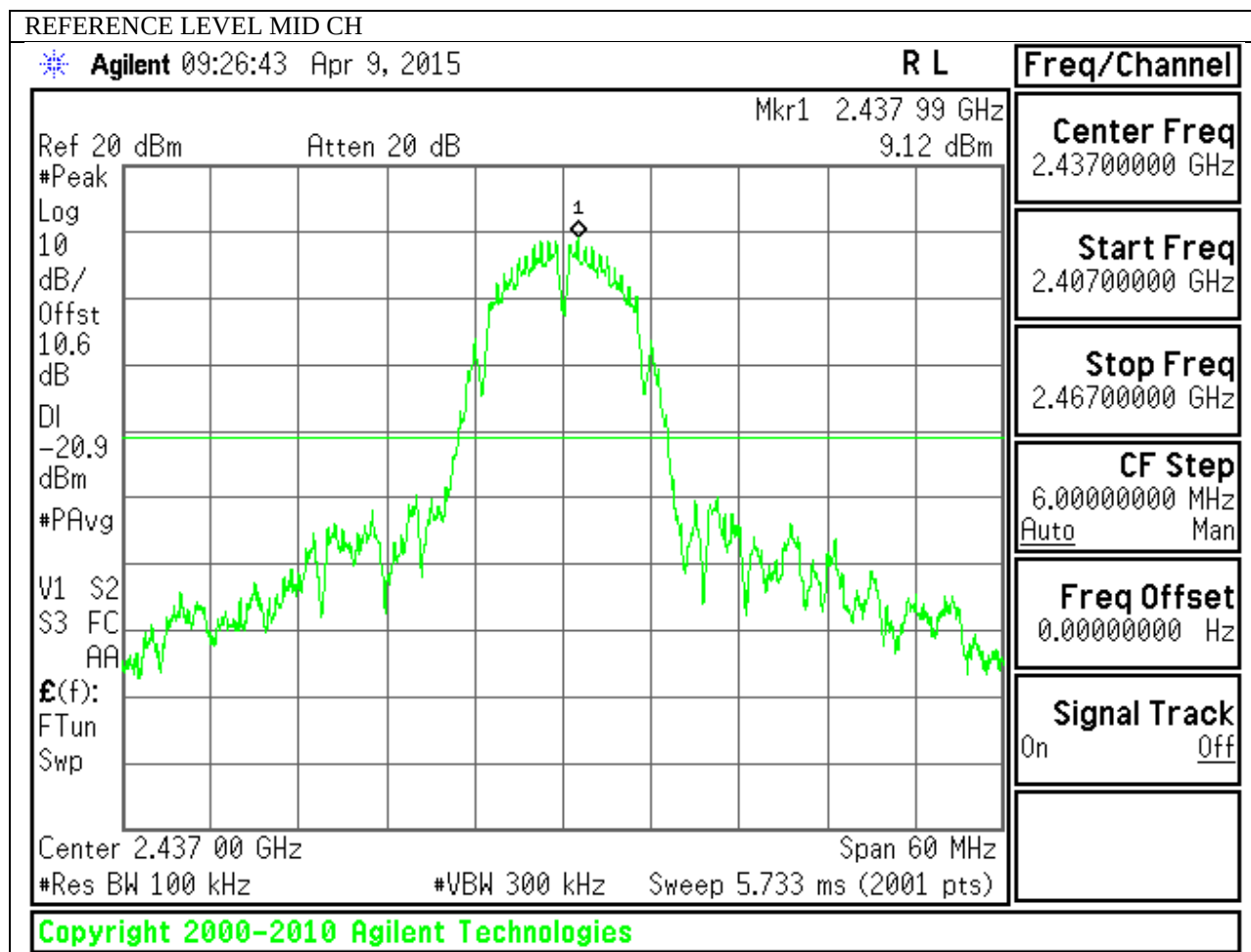
TEST PROCEDURE

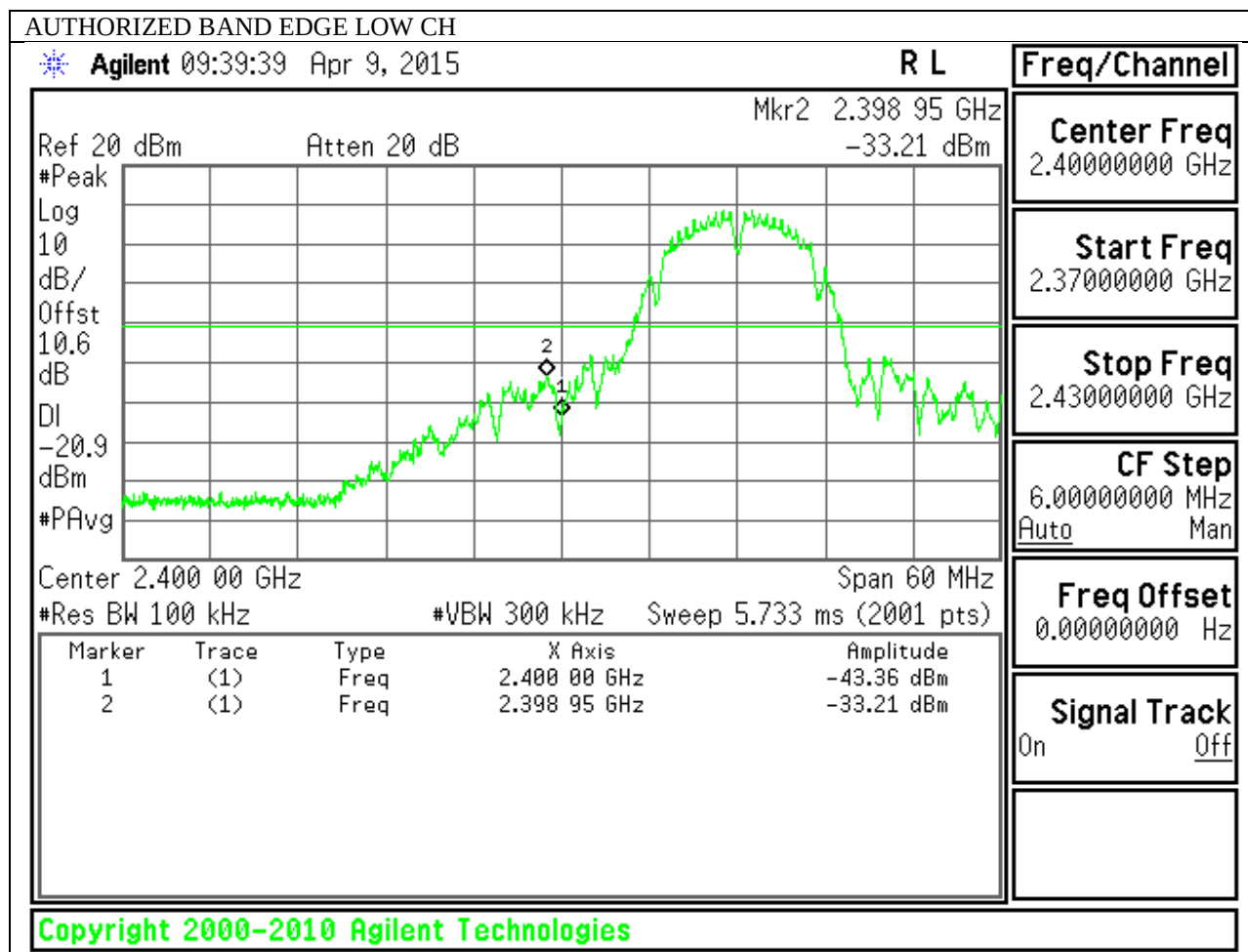
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

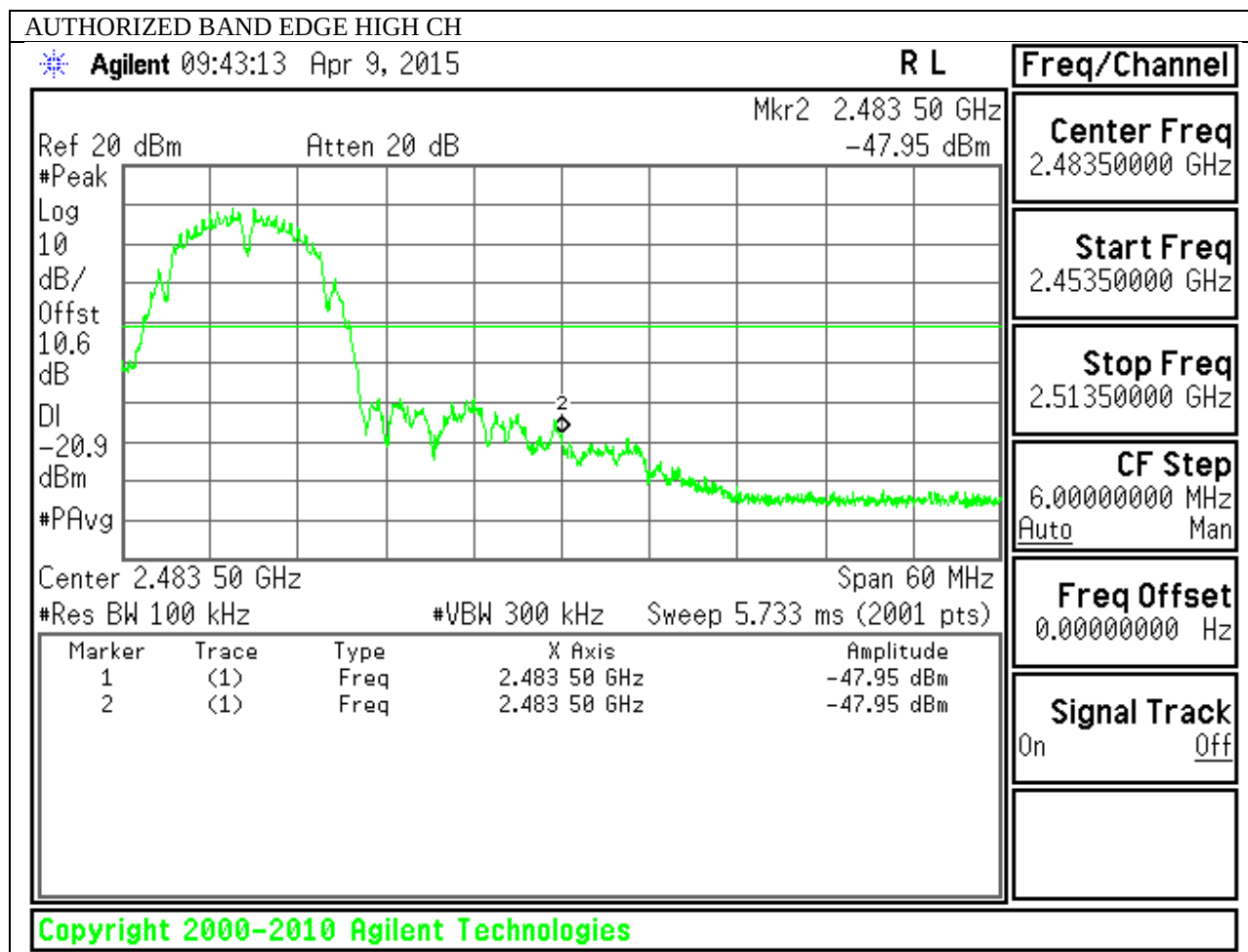
RESULTS

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

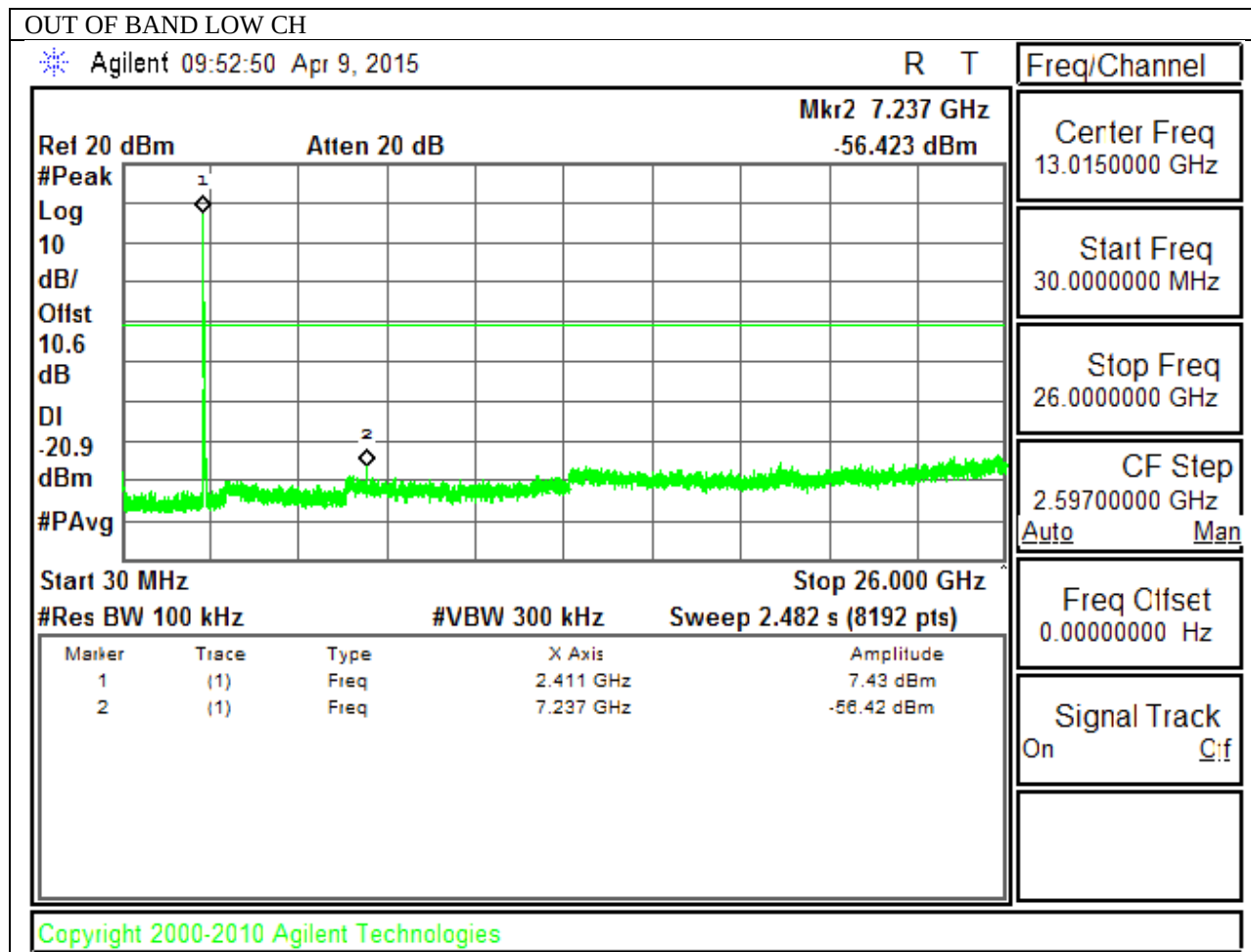
IN-BAND REFERENCE LEVEL

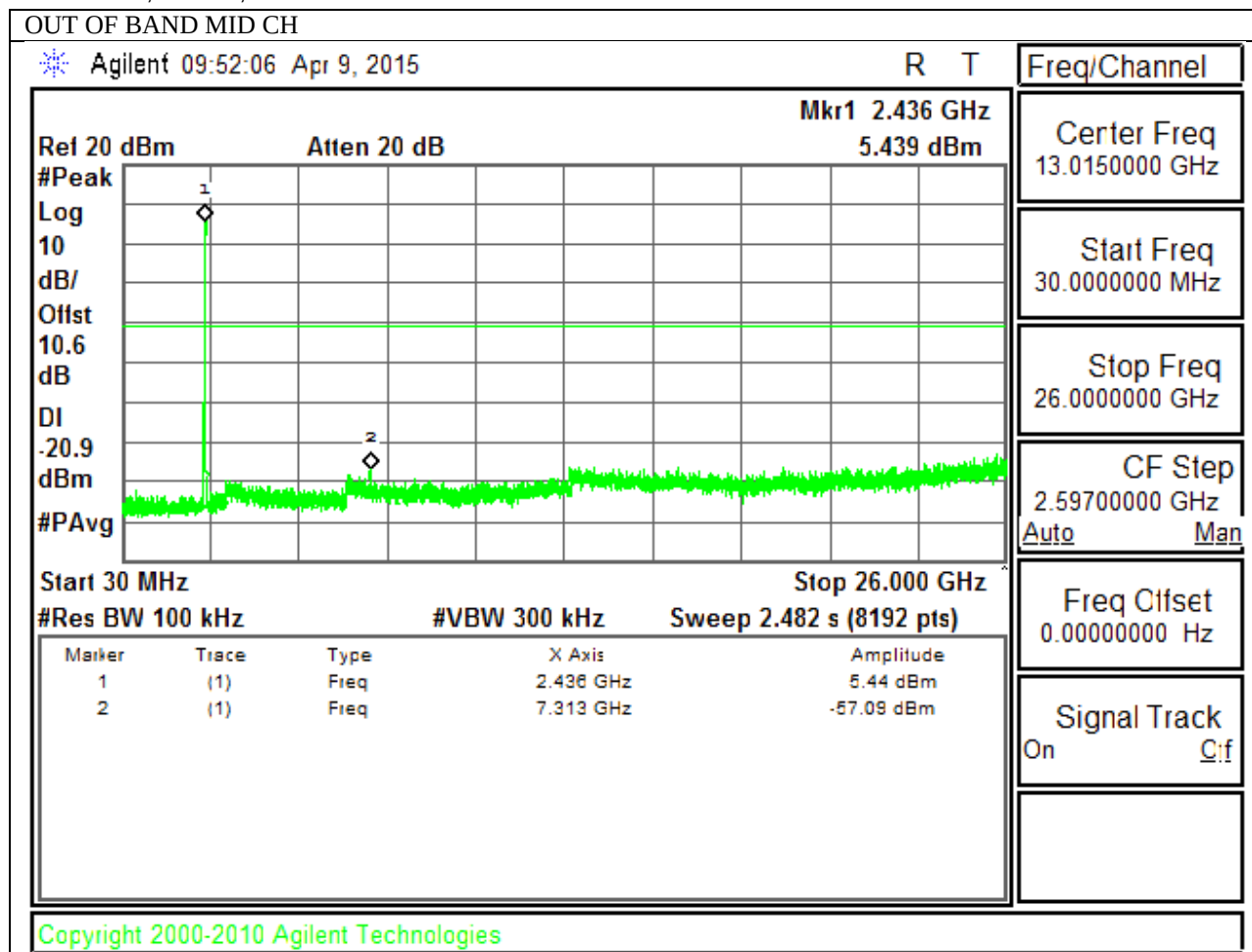


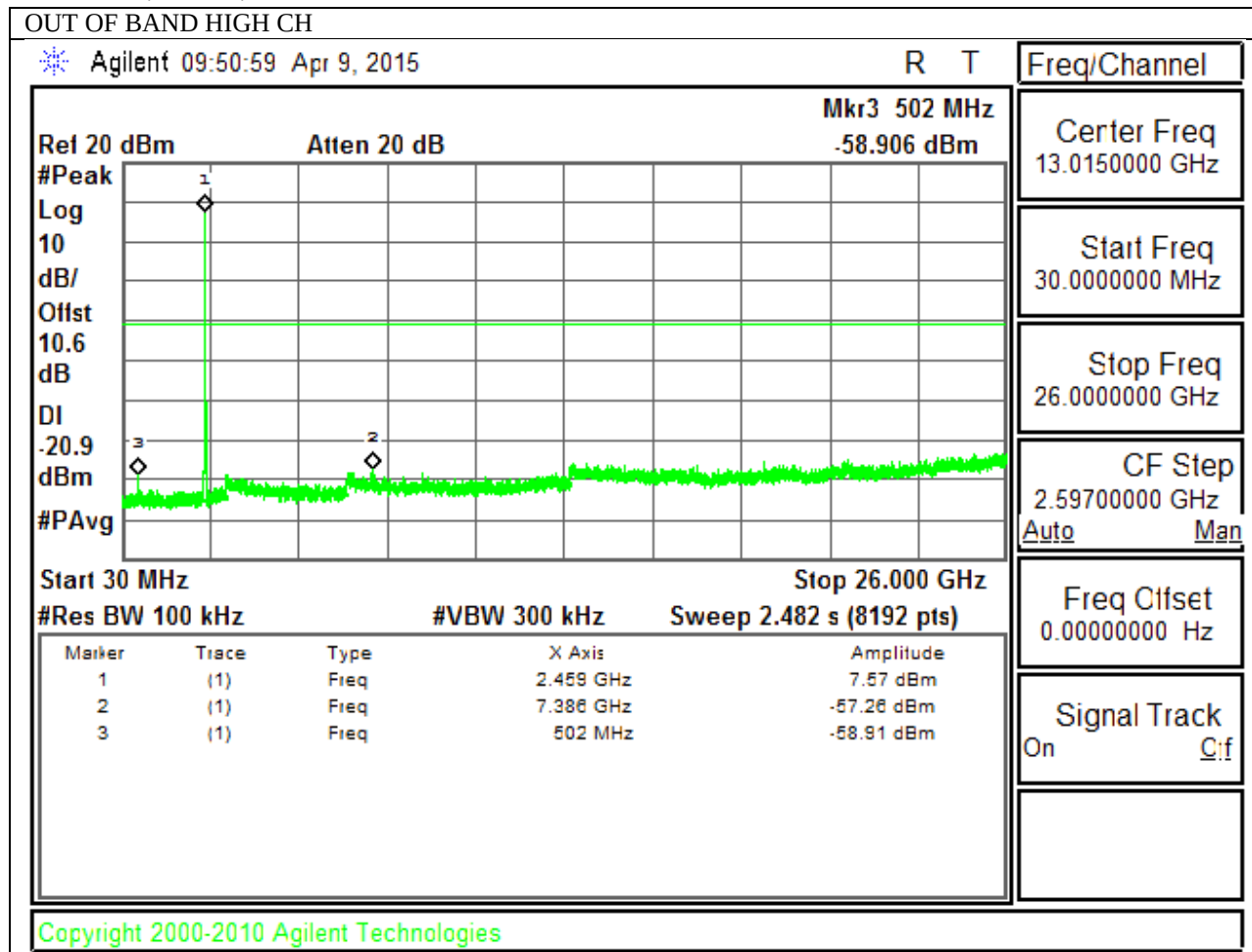




OUT-OF-BAND EMISSIONS

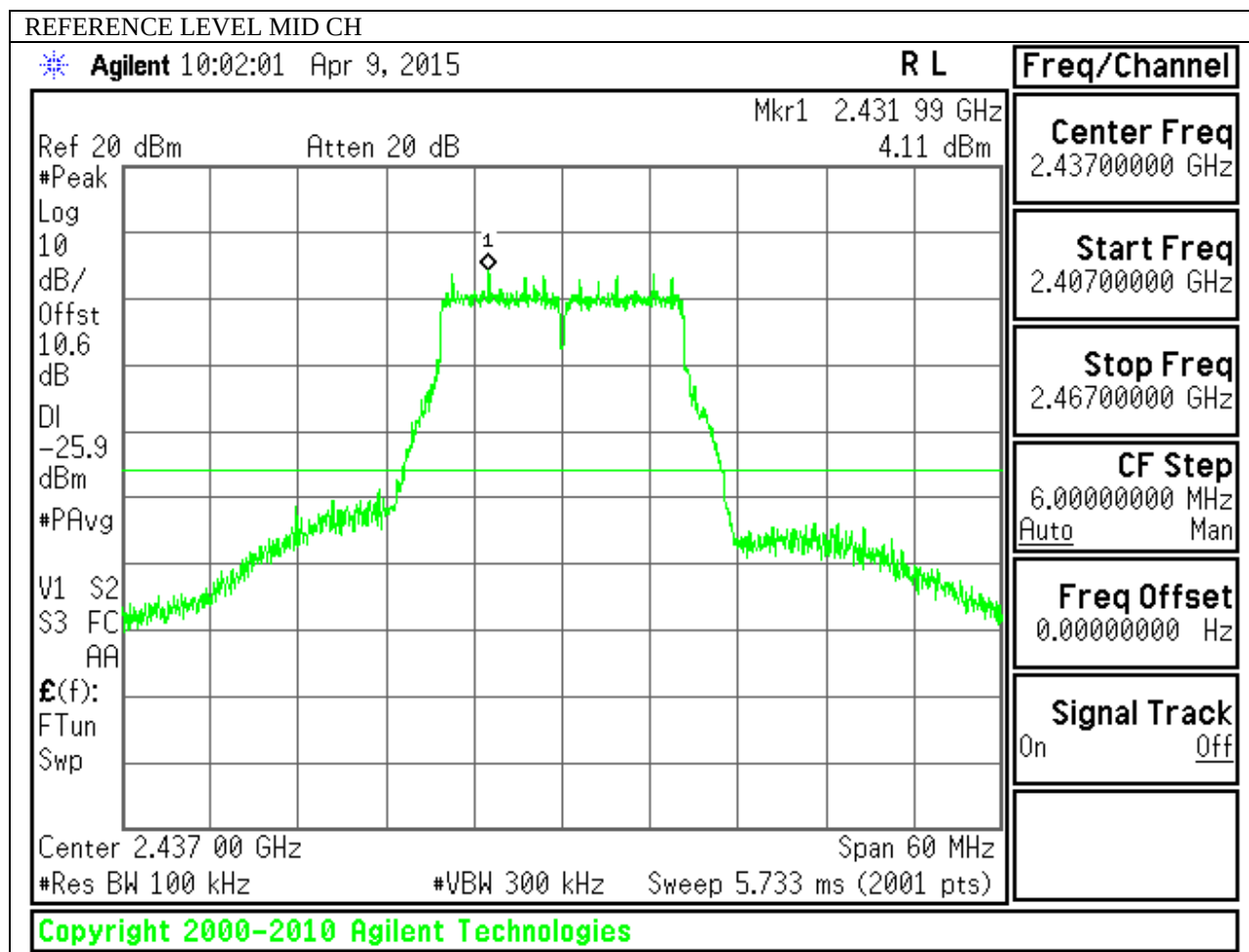


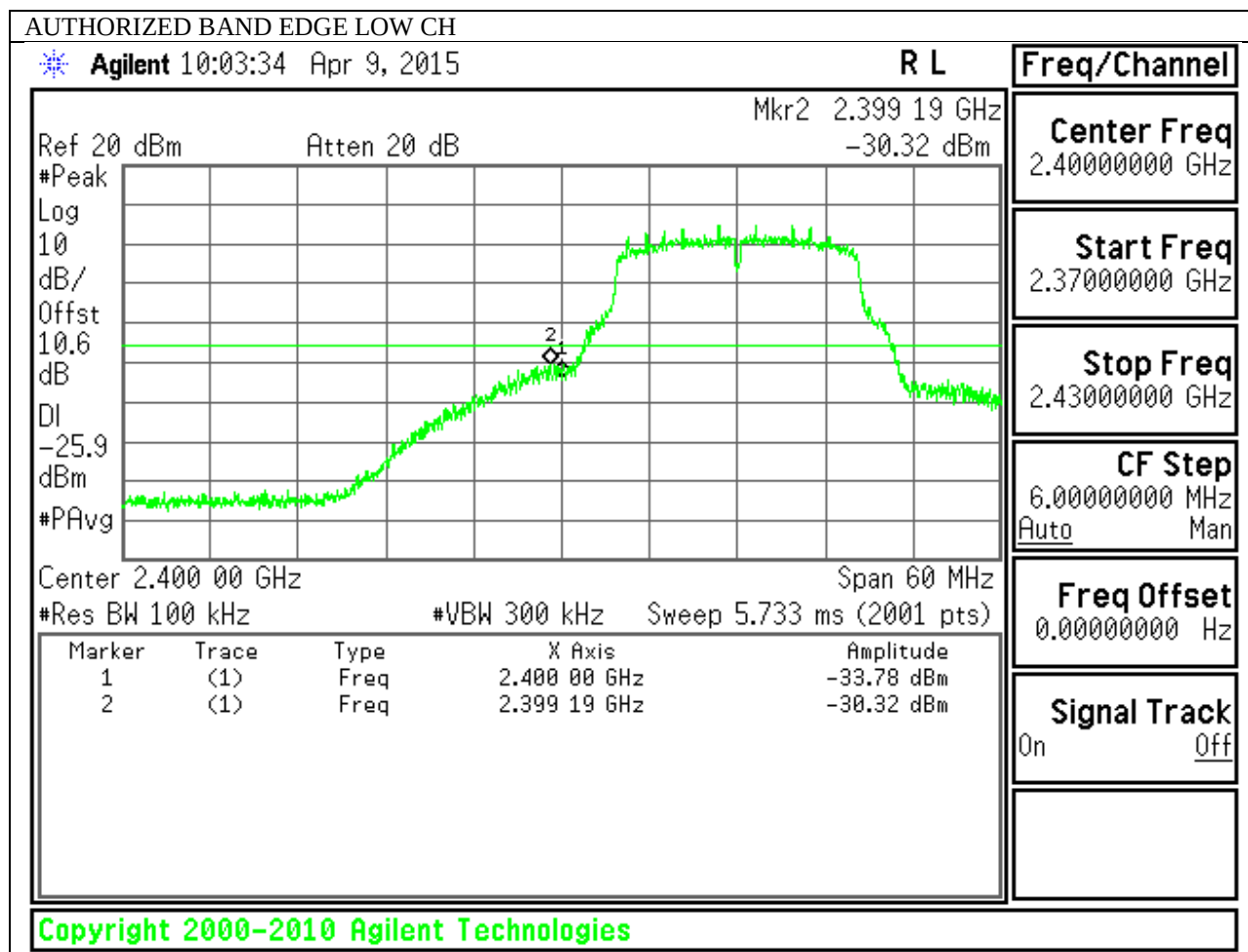


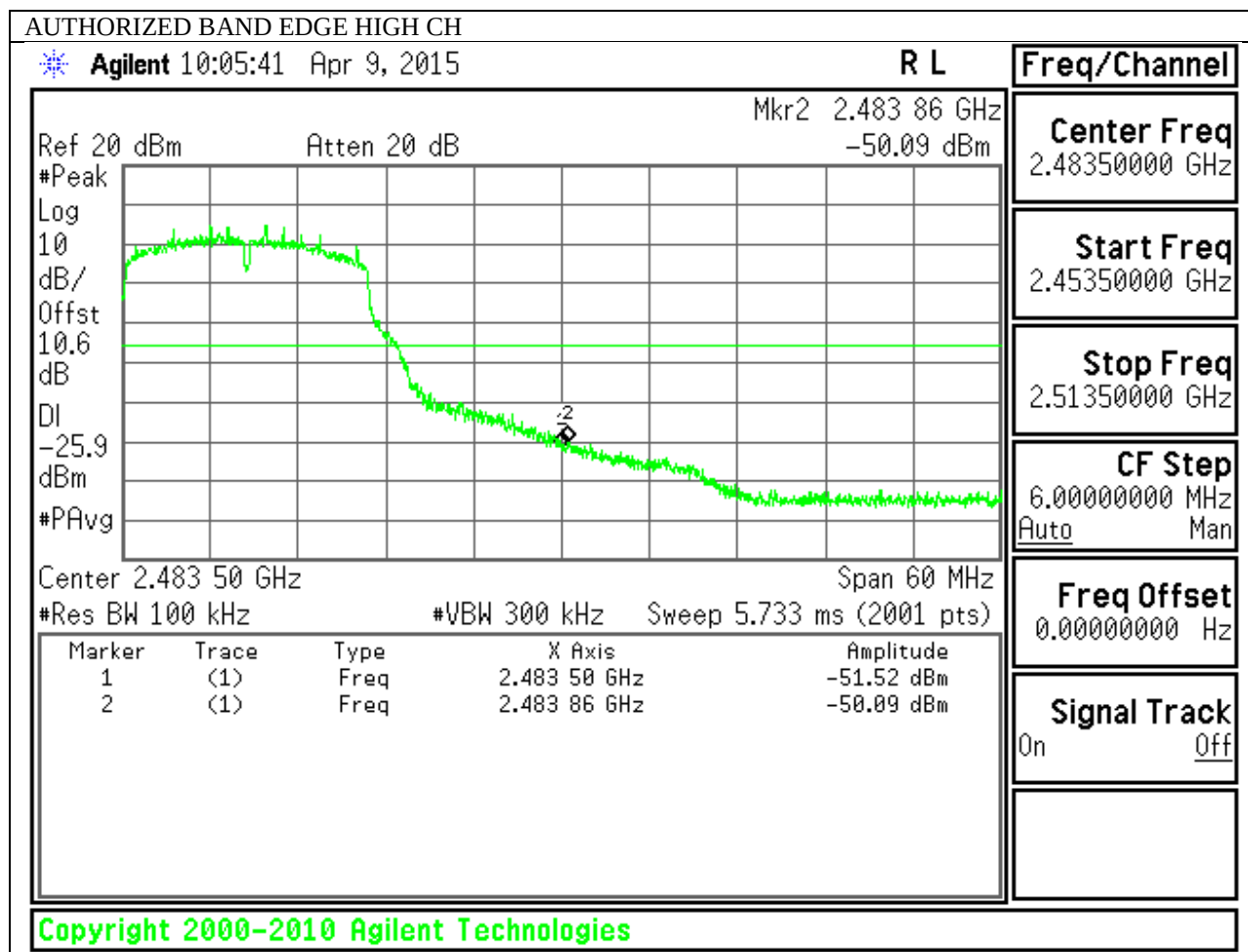


9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

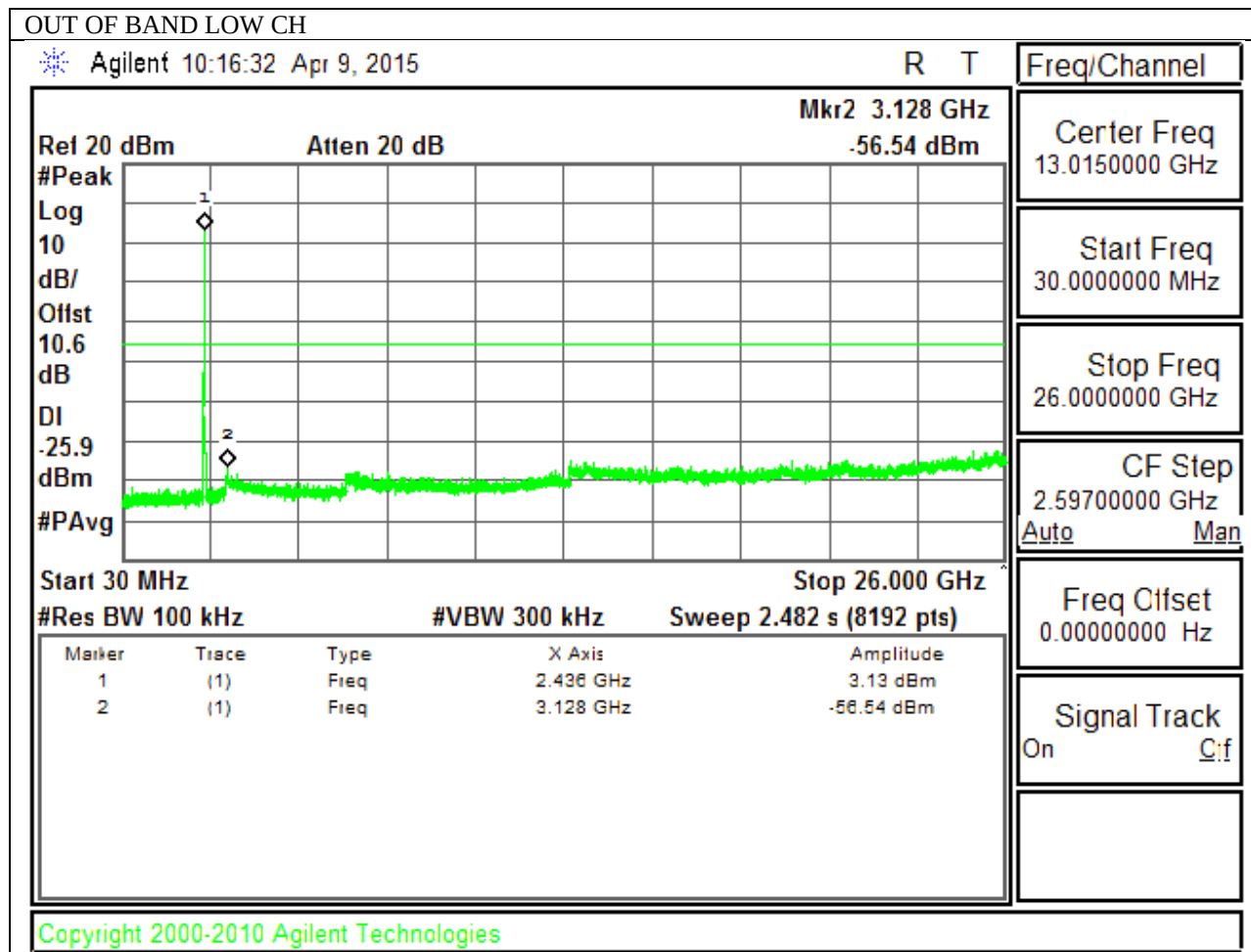
IN-BAND REFERENCE LEVEL

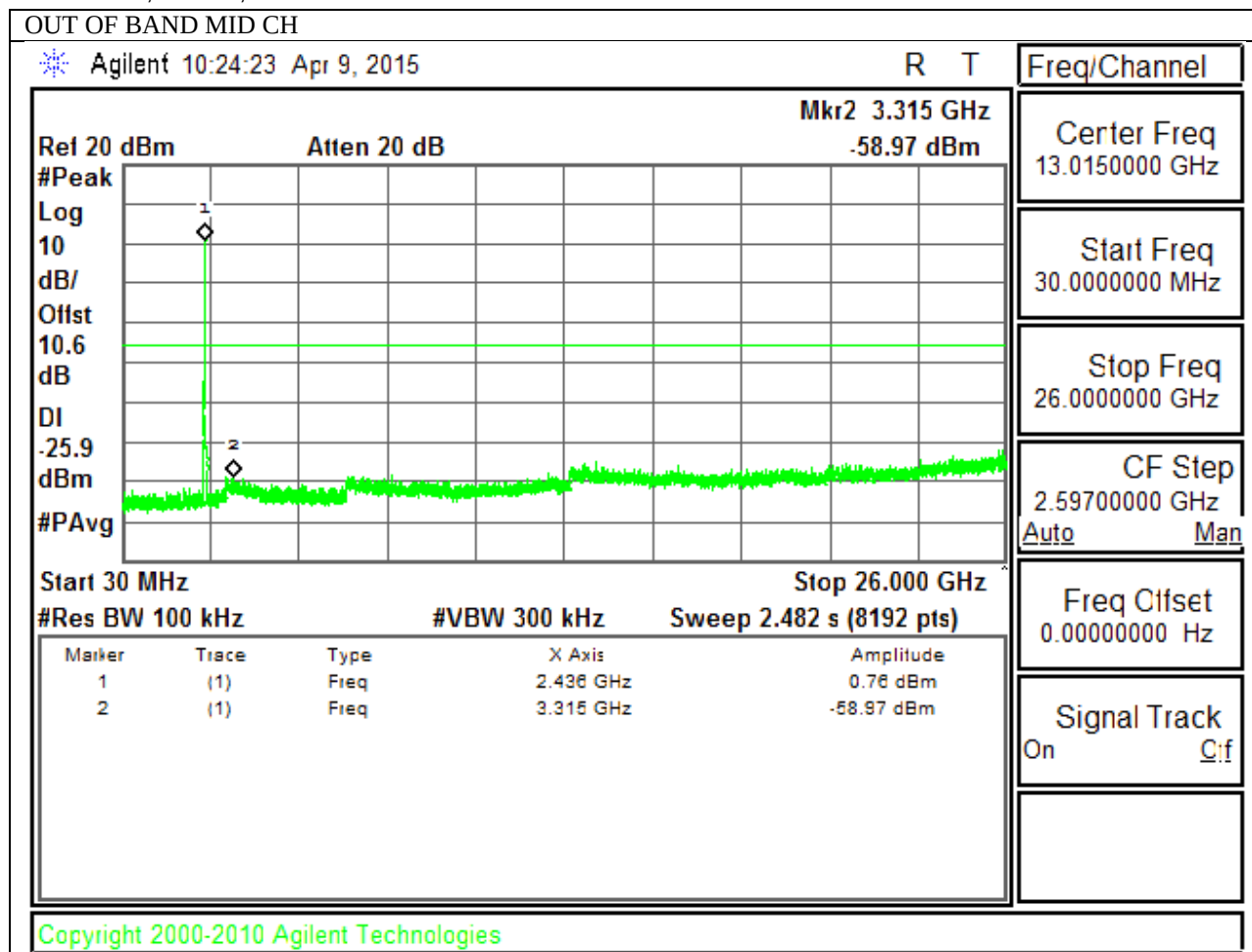


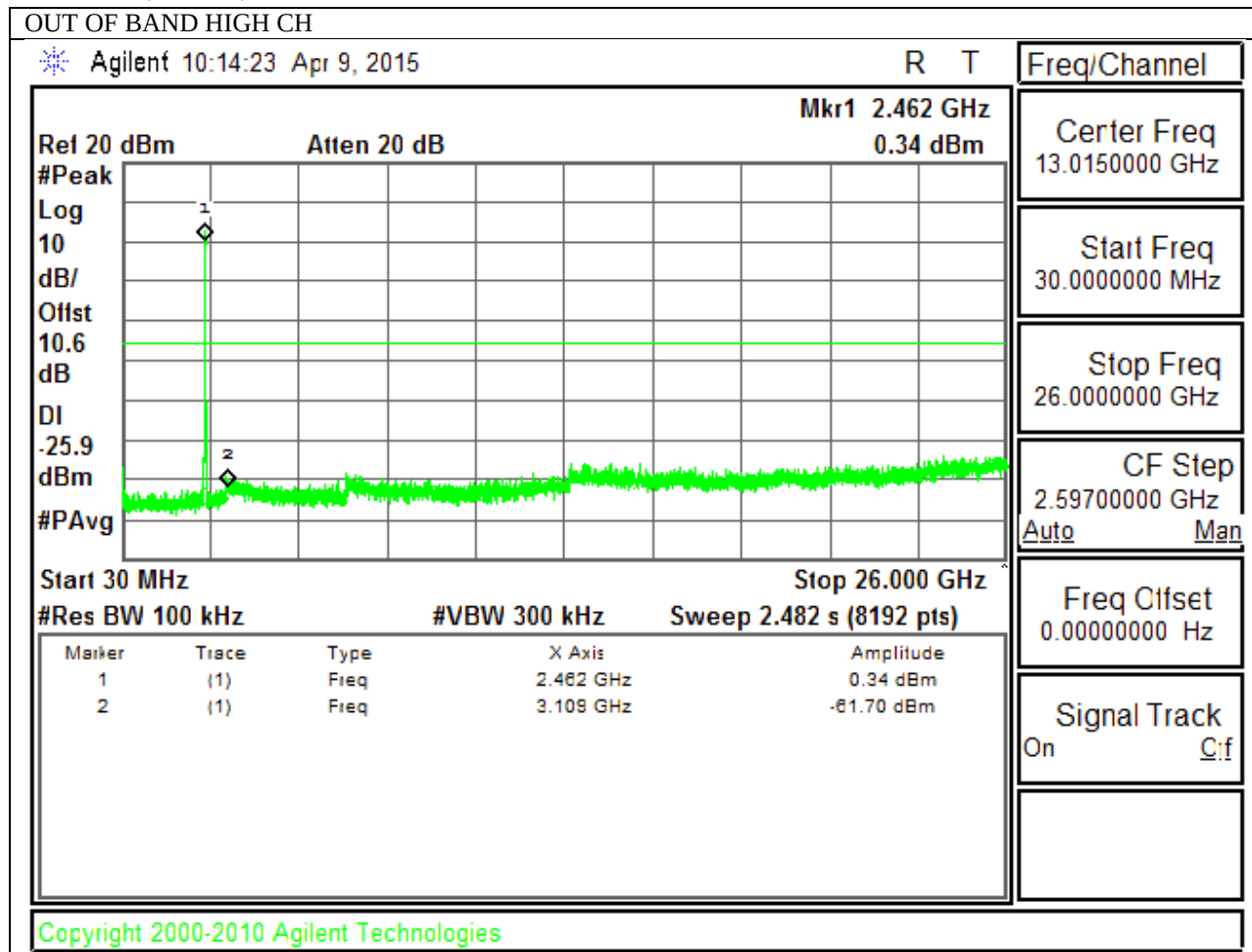




OUT-OF-BAND EMISSIONS

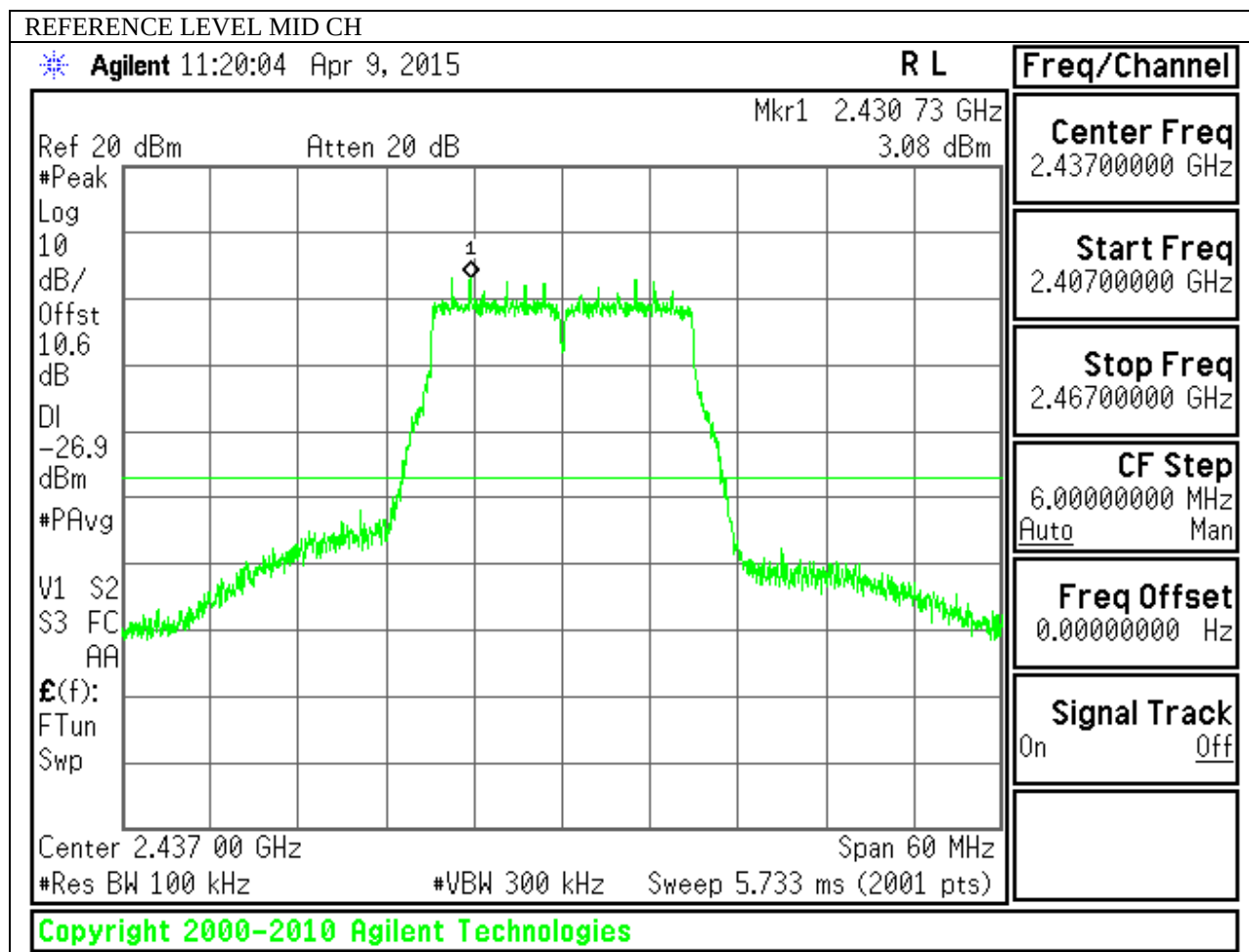


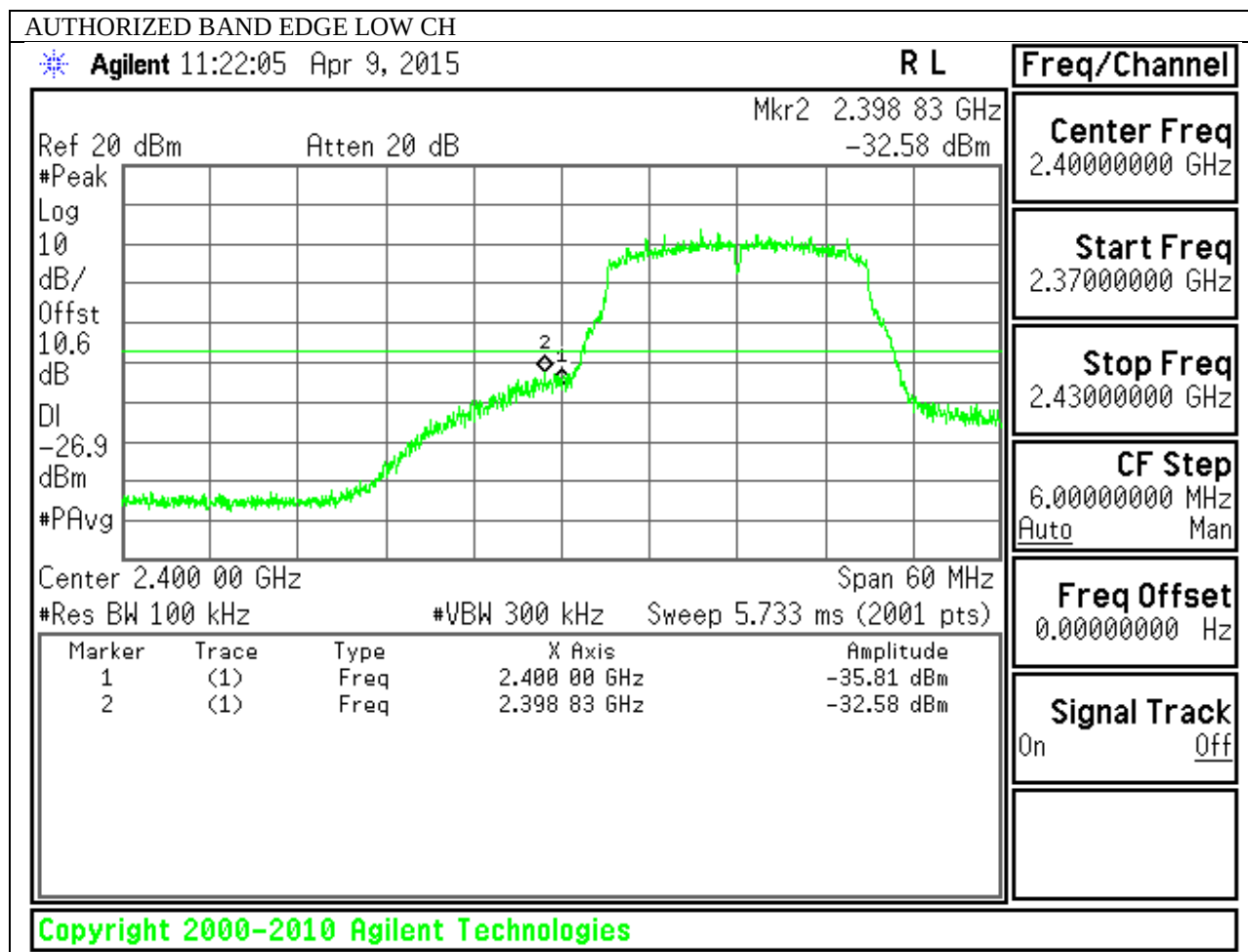


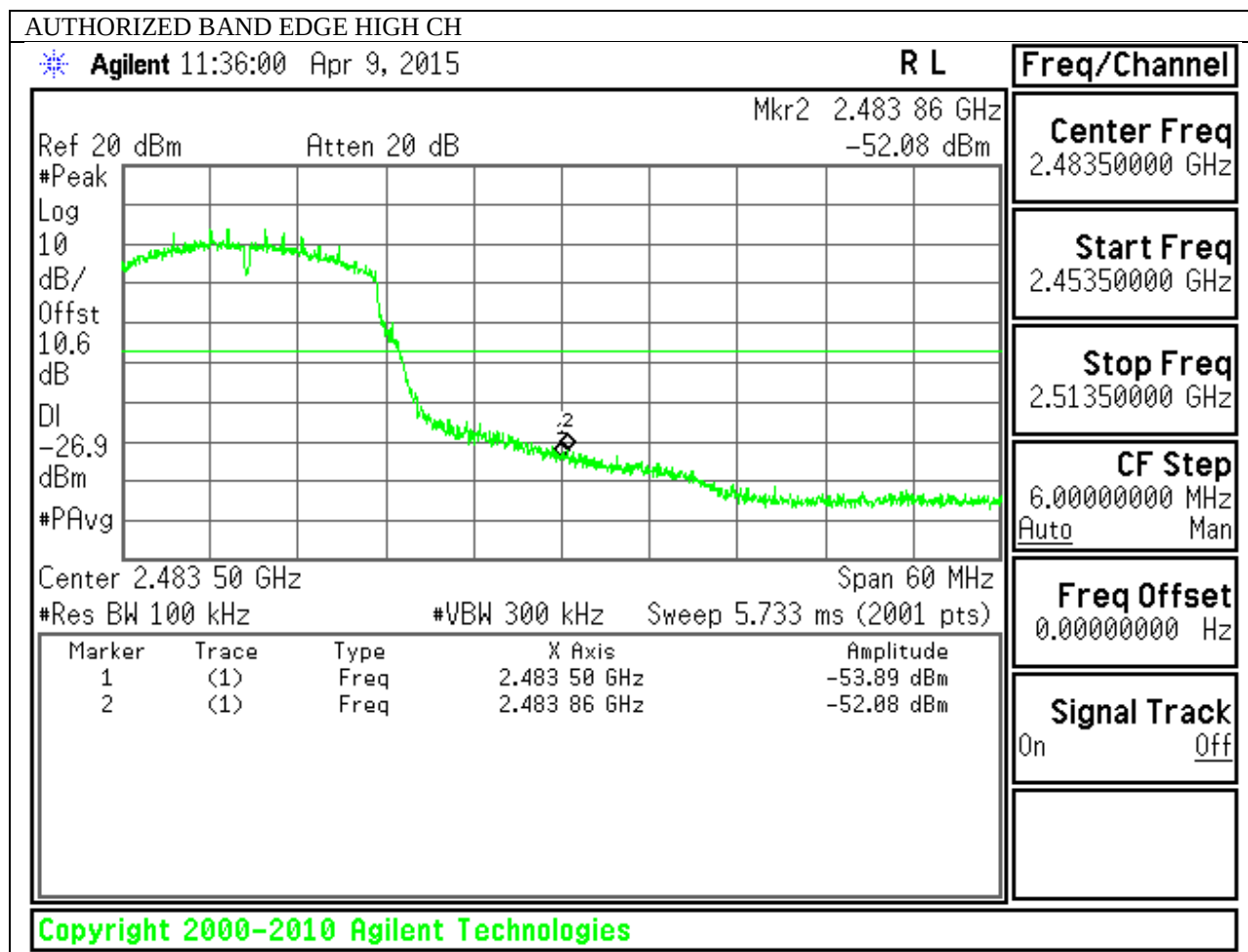


9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

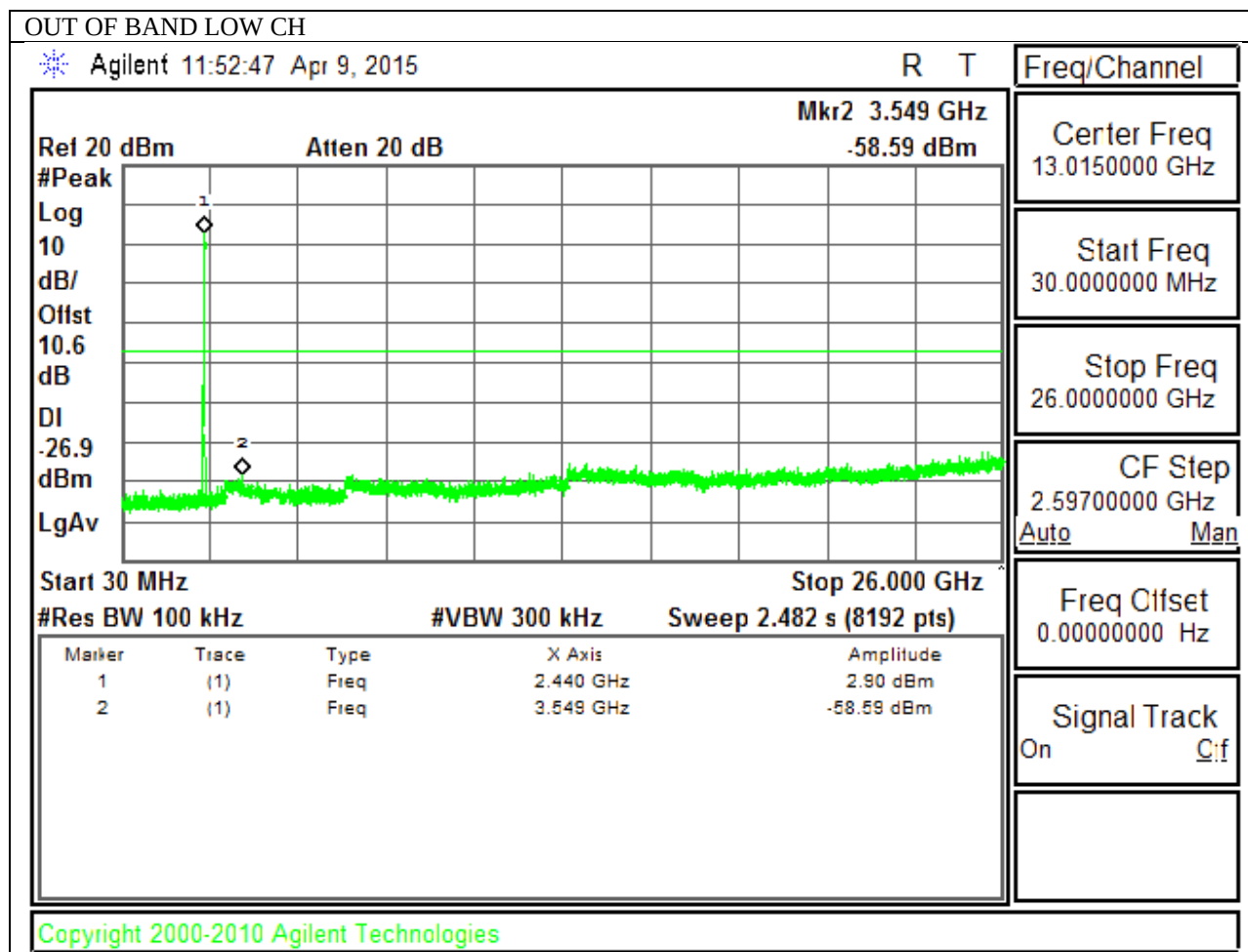
IN-BAND REFERENCE LEVEL

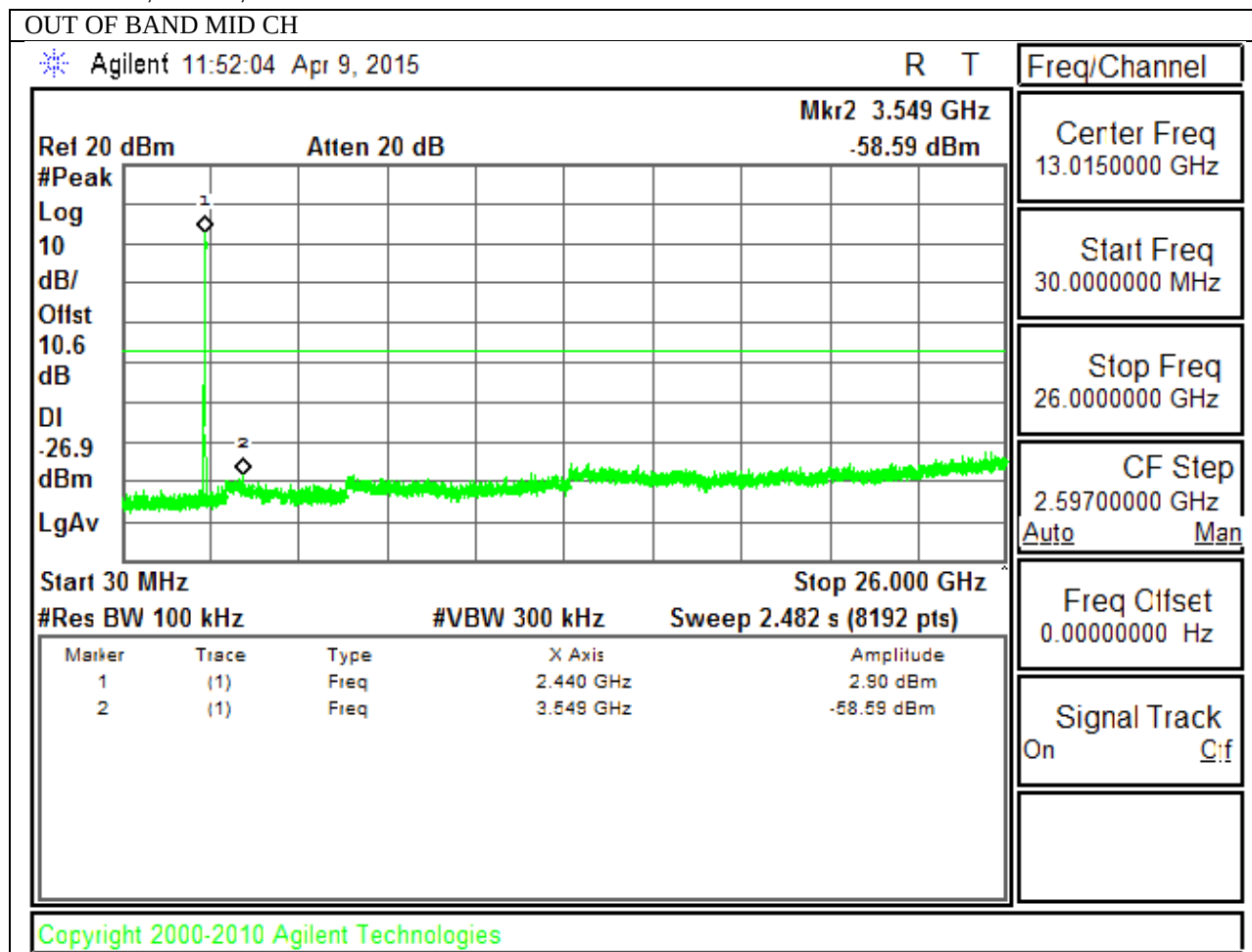


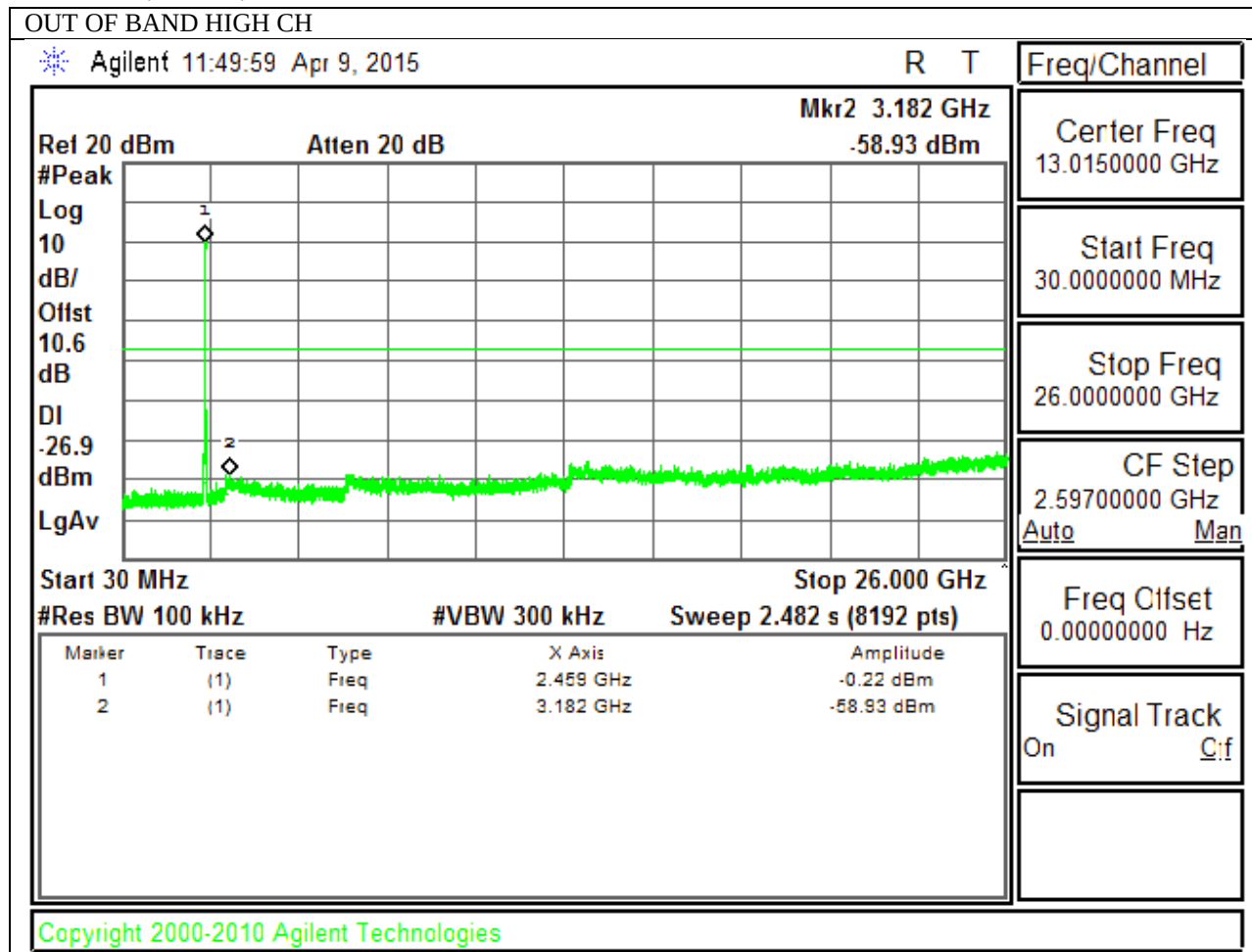




OUT-OF-BAND EMISSIONS







10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

IC RSS-GEN Clause 7 (Receiver)

Frequency Range (MHz)	Field Strength Limit ($\mu\text{V/m}$) at 3 m	Field Strength Limit (dB $\mu\text{V/m}$) 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.

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor = $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.22dB; N mode = 0.23dB.

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.

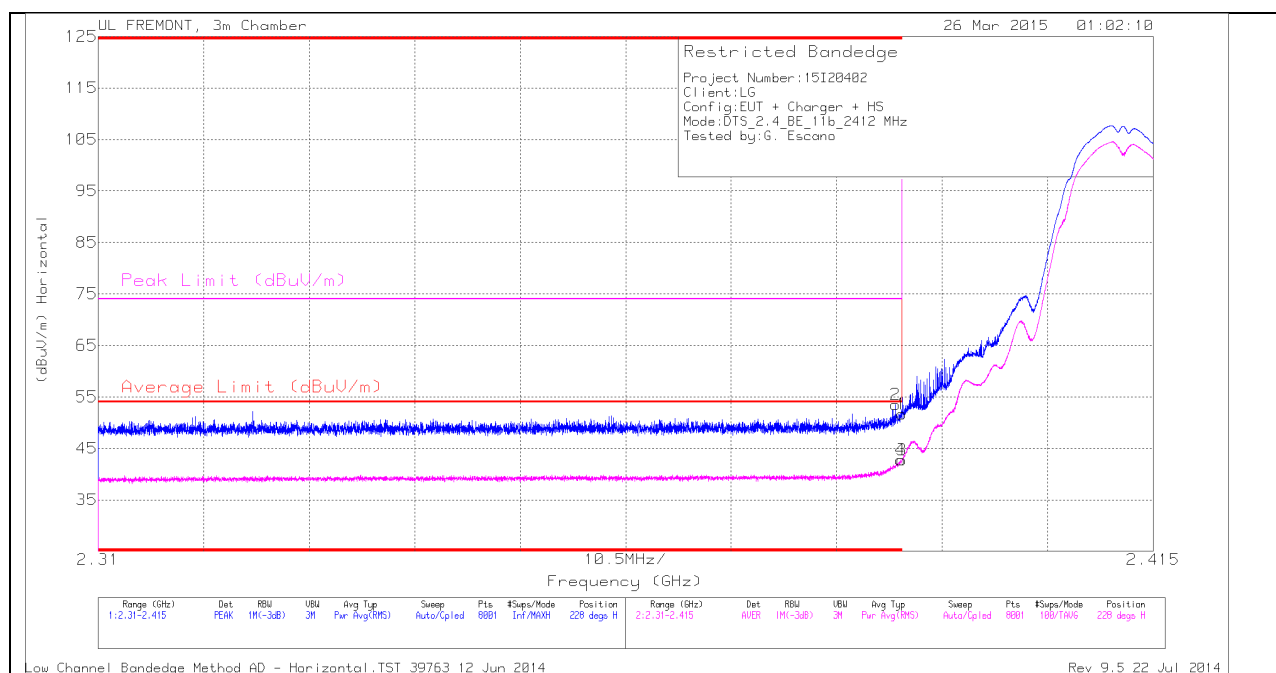
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

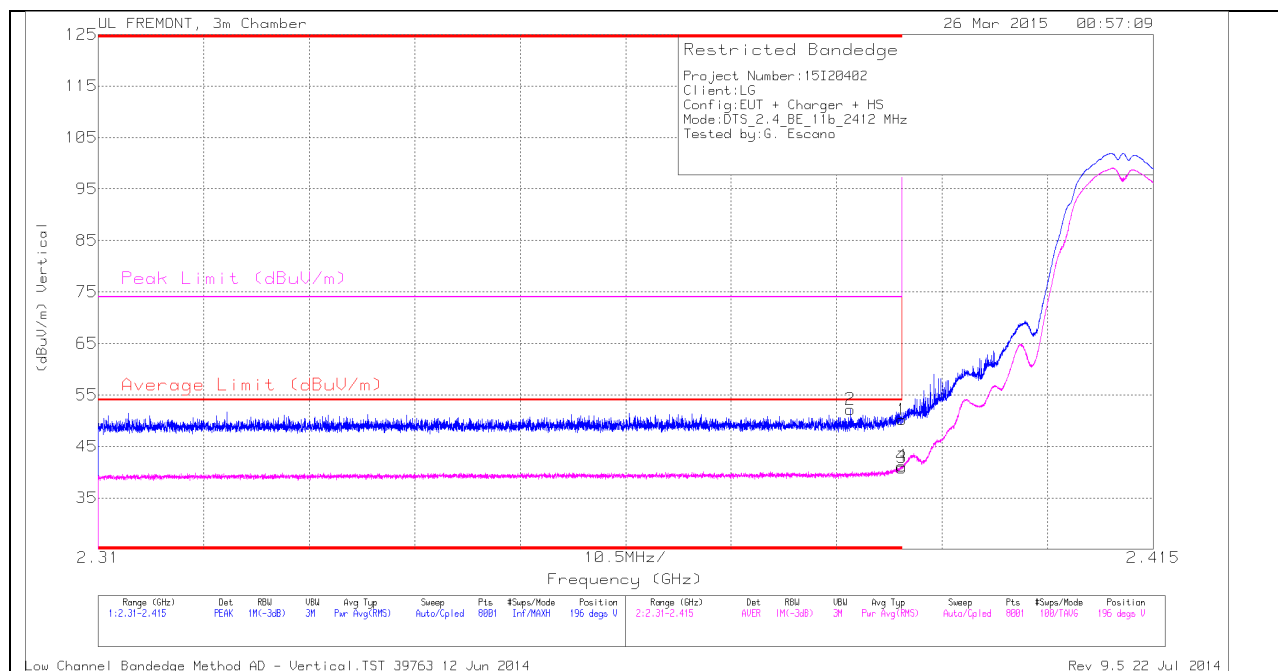
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.389	44.57	PK	32	-23.1	0	53.47	-	-	74	-20.53	228	306	H
1	* 2.39	42.78	PK	32	-23.1	0	51.68	-	-	74	-22.32	228	306	H
3	* 2.39	33.84	RMS	32	-23.1	0	42.74	54	-11.26	-	-	228	306	H
4	* 2.39	33.82	RMS	32	-23.1	0	42.72	54	-11.28	-	-	228	306	H

VERTICAL PEAK AND AVERAGE PLOT

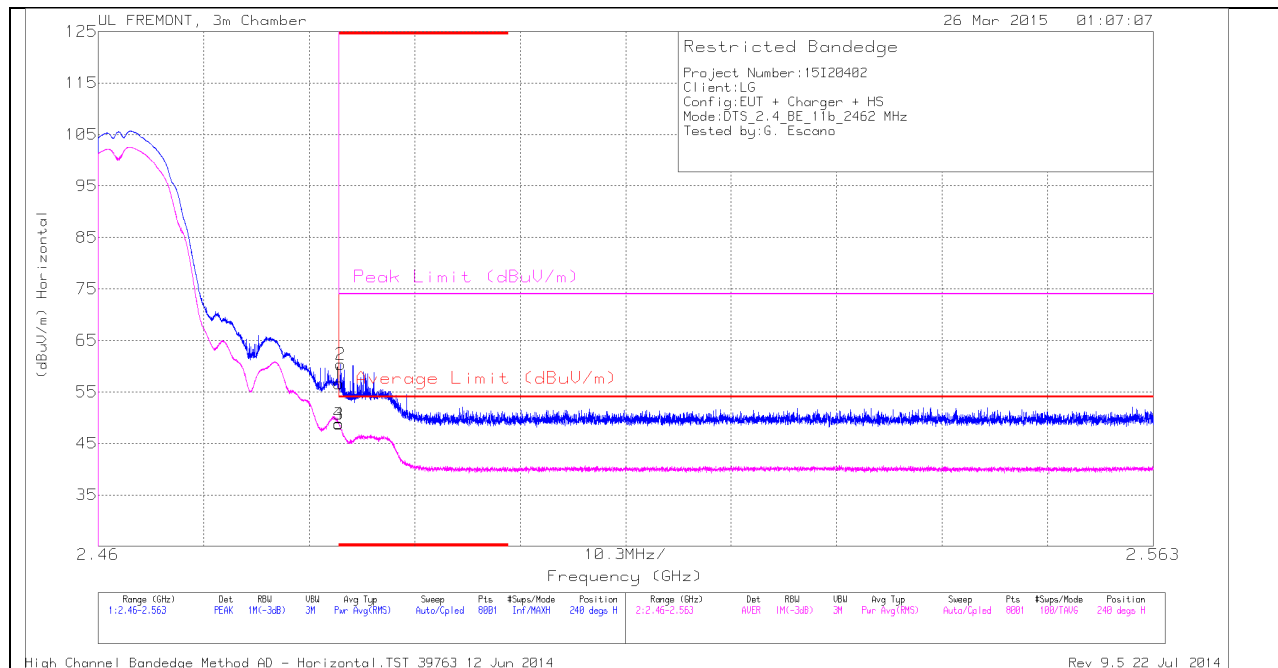


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.385	43.3	PK	32	-23.1	0	52.2	-	-	74	-21.8	196	388	V
1	* 2.39	41.31	PK	32	-23.1	0	50.21	-	-	74	-23.79	196	388	V
3	* 2.39	31.98	RMS	32	-23.1	0	40.88	54	-13.12	-	-	196	388	V
4	* 2.39	32.28	RMS	32	-23.1	0	41.18	54	-12.82	-	-	196	388	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

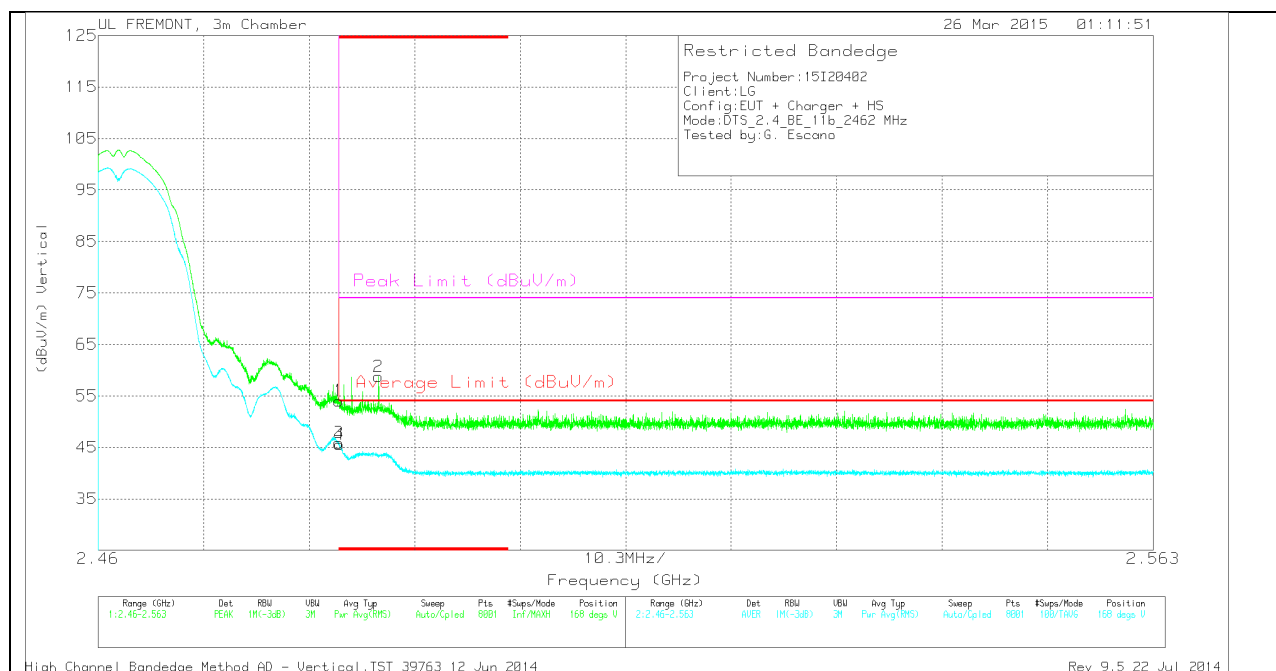
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	47.13	PK	32.3	-22.8	0	56.63	-	-	74	-17.37	240	362	H
2	* 2.484	50.86	PK	32.3	-22.8	0	60.36	-	-	74	-13.64	240	362	H
3	* 2.484	39.25	RMS	32.3	-22.8	0	48.75	54	-5.25	-	-	240	362	H
4	* 2.484	39.33	RMS	32.3	-22.8	0	48.83	54	-5.17	-	-	240	362	H

VERTICAL PEAK AND AVERAGE PLOT

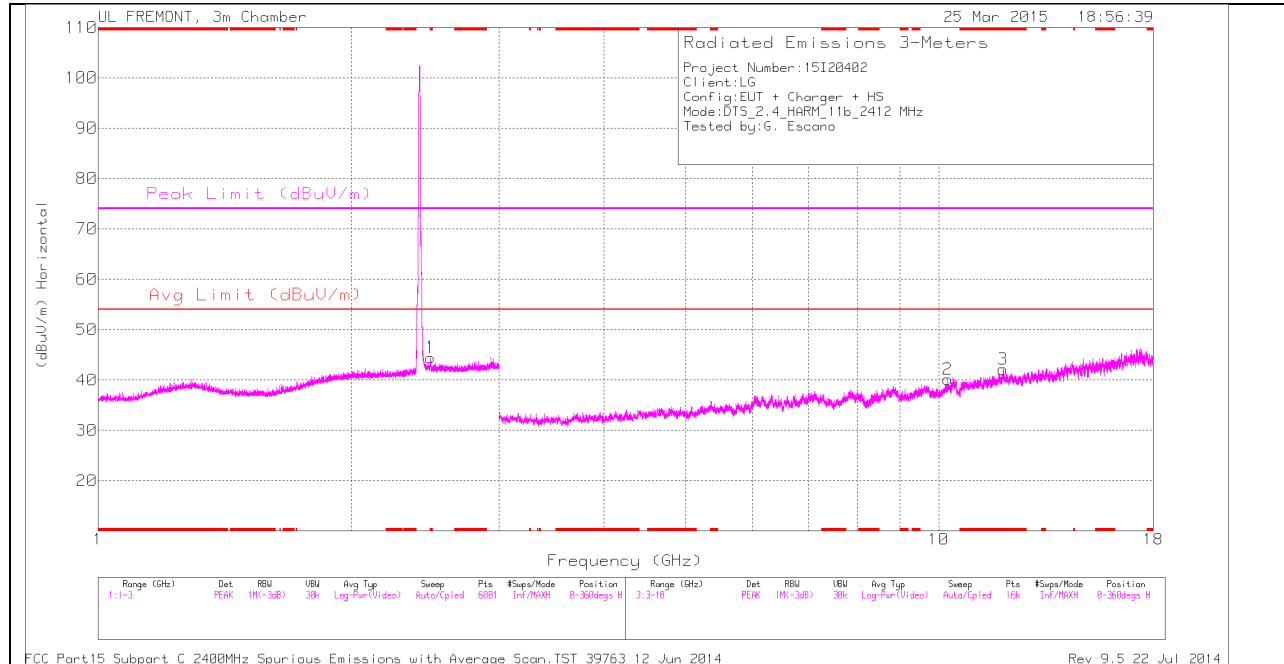


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filt r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	44.53	PK	32.3	-22.8	0	54.03	-	-	74	-19.97	168	360	V
3	* 2.484	36.38	RMS	32.3	-22.8	0	45.88	54	-8.12	-	-	168	360	V
4	* 2.484	36.07	RMS	32.3	-22.8	0	45.57	54	-8.43	-	-	168	360	V
2	* 2.487	49.24	PK	32.3	-22.8	0	58.74	-	-	74	-15.26	168	360	V

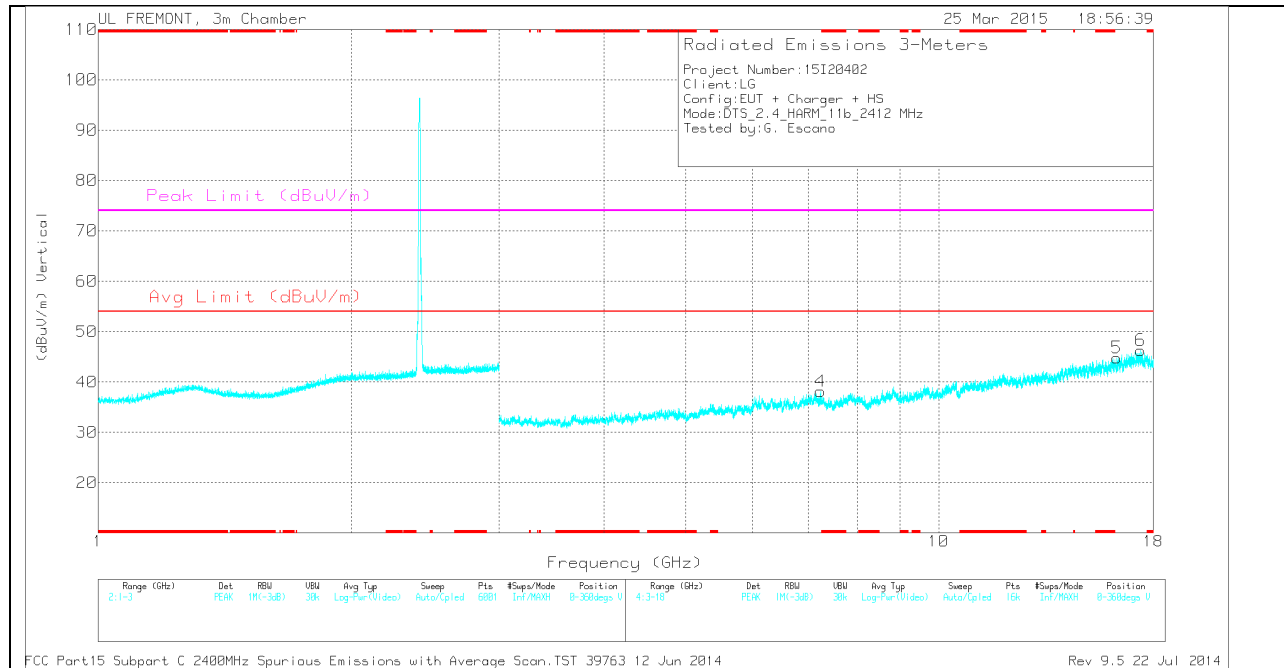
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.486	34.94	PK	32.3	-22.8	0	44.44	-	-	74	-29.56	0-360	100	H
3	* 11.928	29.11	PK	39.1	-26.1	0	42.11	-	-	74	-31.89	0-360	100	H
4	7.234	32.24	PK	35.6	-29.7	0	38.14	-	-	-	-	0-360	200	V
2	10.245	28.22	PK	37	-25.1	0	40.12	-	-	-	-	0-360	100	H
5	16.284	29.79	PK	40.5	-25.5	0	44.79	-	-	-	-	0-360	100	V
6	17.389	27.5	PK	41.4	-22.6	0	46.3	-	-	-	-	0-360	100	V

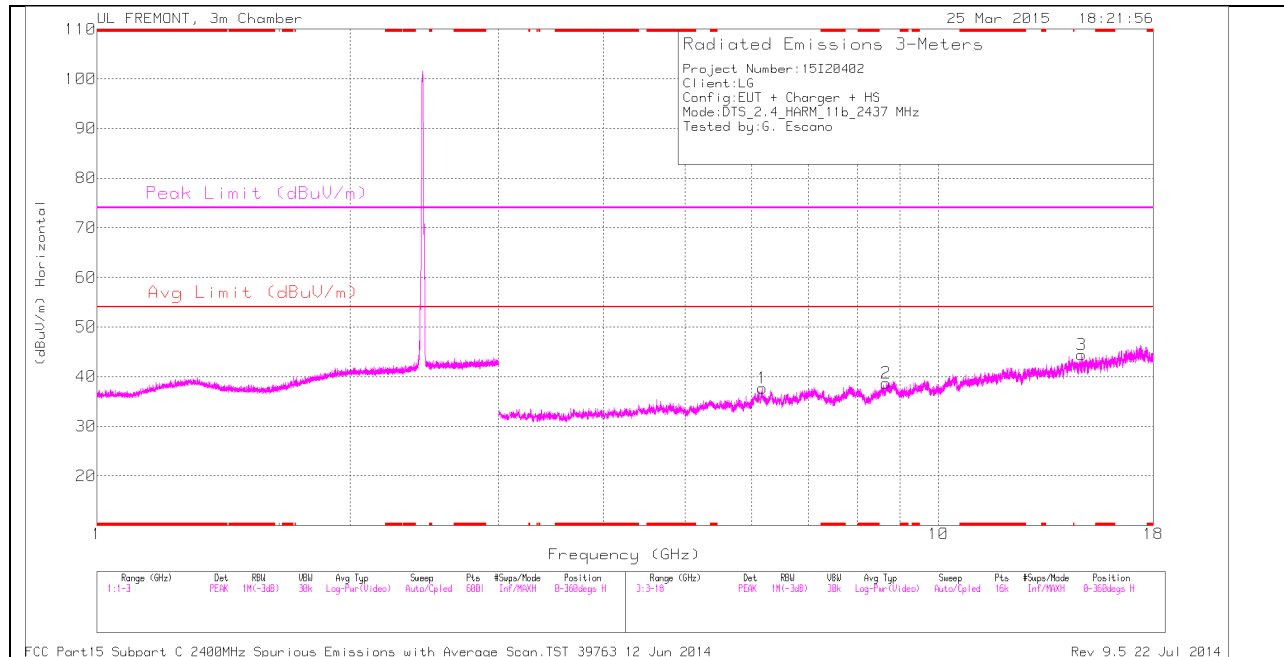
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.486	44.49	PK2	32.3	-22.8	0	53.99	-	-	74	-20.01	14	145	H
* 2.486	32.58	MAV1	32.3	-22.8	0	42.08	54	-11.92	-	-	14	145	H
* 11.928	38.33	PK2	39.1	-26.1	0	51.33	-	-	74	-22.67	62	311	H
* 11.929	25.94	MAV1	39.1	-26.1	0	38.94	54	-15.06	-	-	62	311	H

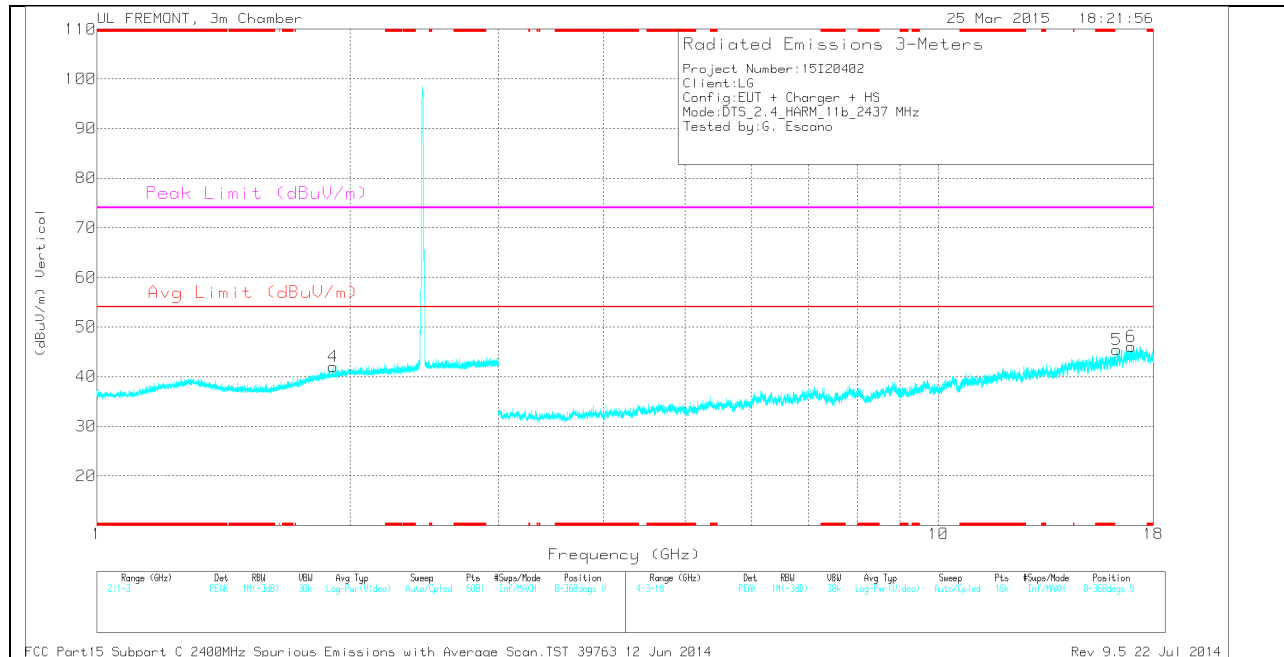
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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.

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

MID CHANNEL DATA

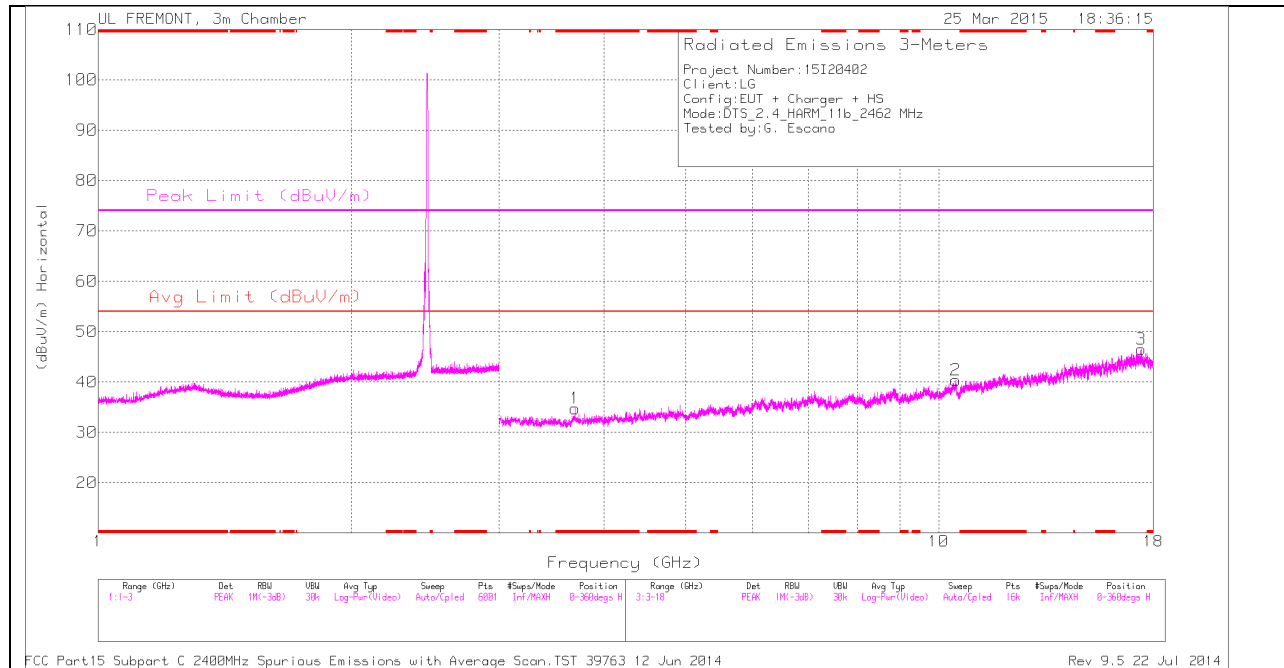
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	1.91	34.06	PK	31.1	-23.2	0	41.96	-	-	-	-	0-360	100	V
1	6.176	32.48	PK	35.3	-30.1	0	37.68	-	-	-	-	0-360	100	H
2	8.662	29.74	PK	35.9	-26.9	0	38.74	-	-	-	-	0-360	100	H
3	14.801	31.73	PK	39.8	-27.1	0	44.43	-	-	-	-	0-360	200	H
5	16.28	30.57	PK	40.5	-25.6	0	45.47	-	-	-	-	0-360	100	V
6	16.949	27.97	PK	41.3	-23.2	0	46.07	-	-	-	-	0-360	200	V

PK - Peak detector

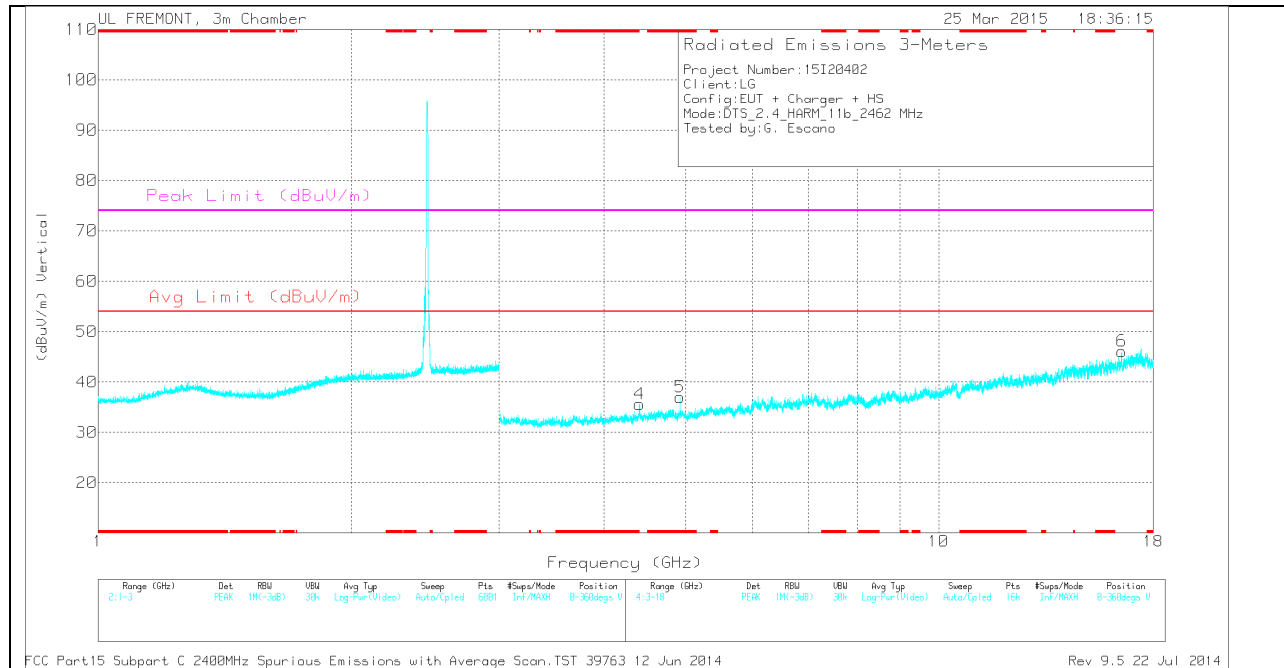
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.693	32.54	PK	33	-30.8	0	34.74	-	-	74	-39.26	0-360	100	H
5	* 4.924	33.39	PK	34	-30.4	0	36.99	-	-	74	-37.01	0-360	200	V
2	10.475	28.05	PK	37.4	-25.1	0	40.35	-	-	-	-	0-360	100	H
6	16.503	28.99	PK	41	-23.9	0	46.09	-	-	-	-	0-360	200	V
3	17.414	27.2	PK	41.4	-22.1	0	46.5	-	-	-	-	0-360	200	H
4	4.406	32.21	PK	33.6	-30.2	0	35.61	-	-	-	-	0-360	100	V

PK - Peak detector

RADIATED EMISSIONS

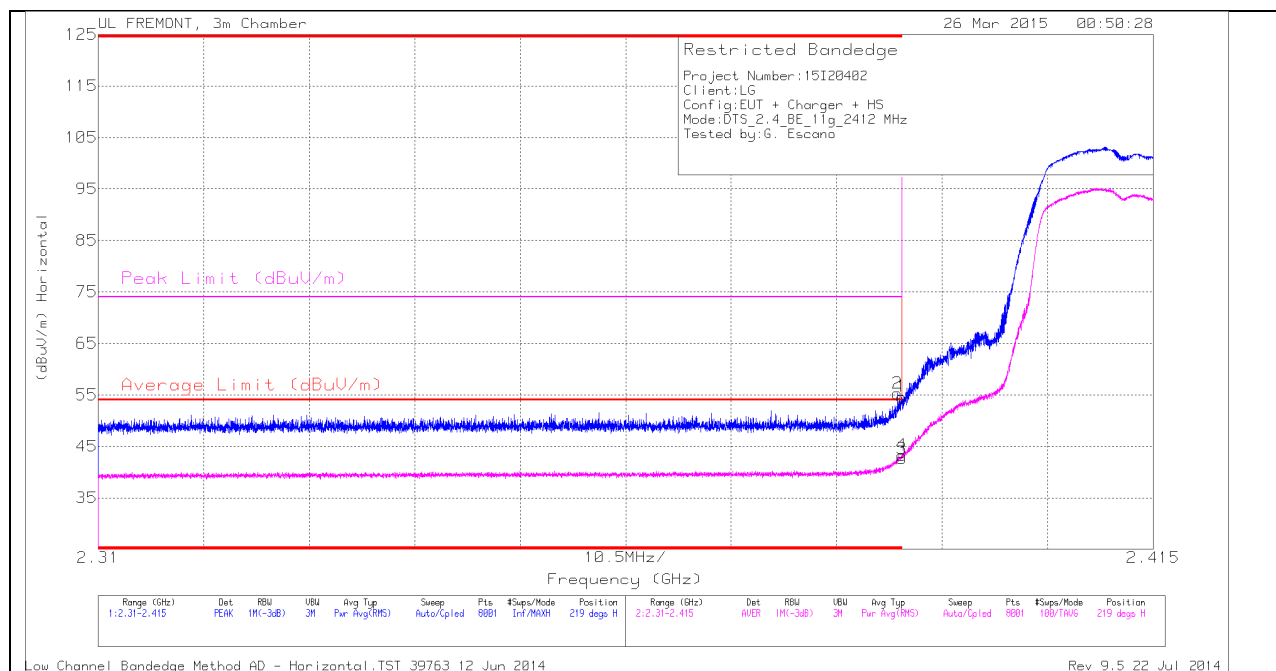
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.693	41.3	PK2	33	-30.8	0	43.5	-	-	74	-30.5	72	271	H
* 3.693	30.7	MAV1	33	-30.8	0	32.9	54	-21.1	-	-	72	271	H
* 4.924	42.4	PK2	34	-30.4	0	46	-	-	74	-28	144	330	V
* 4.924	32.91	MAV1	34	-30.4	0	36.51	54	-17.49	-	-	144	330	V

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

RESTRICTED BANDEDGE (LOW CHANNEL)

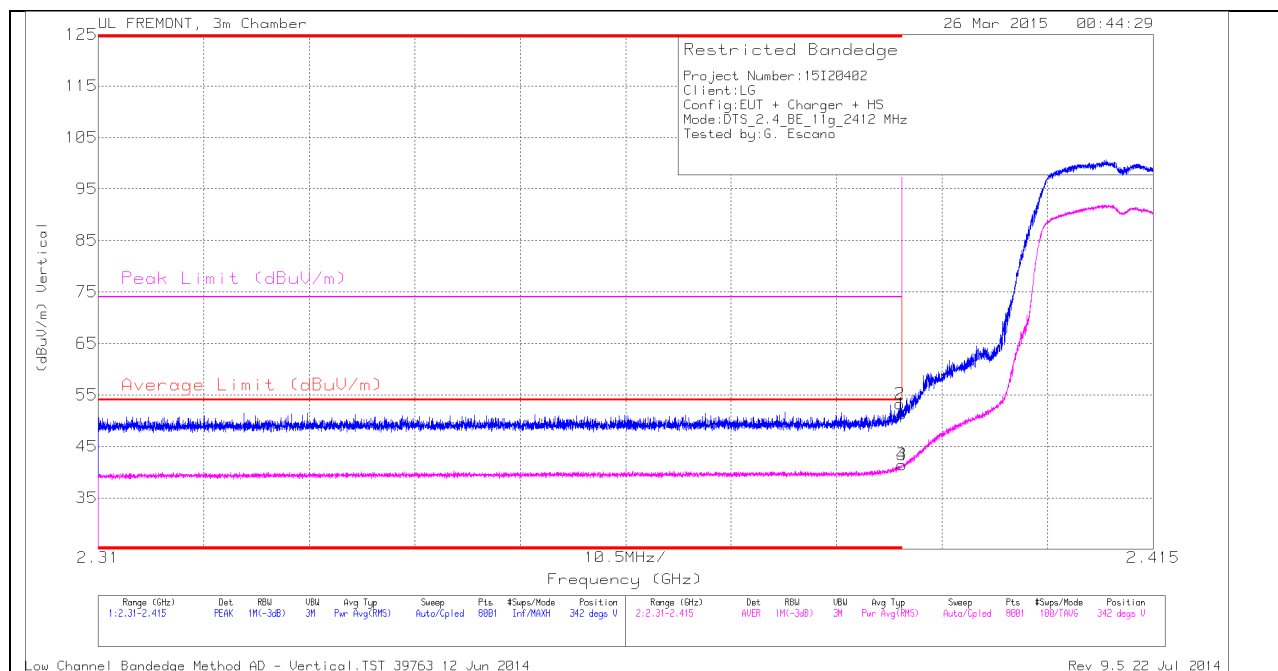
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/r/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.76	PK	32	-23.1	0	54.66	-	-	74	-19.34	219	395	H
2	* 2.39	46.39	PK	32	-23.1	0	55.29	-	-	74	-18.71	219	395	H
3	* 2.39	33.51	RMS	32	-23.1	.22	42.63	54	-11.37	-	-	219	395	H
4	* 2.39	34.17	RMS	32	-23.1	.22	43.29	54	-10.71	-	-	219	395	H

VERTICAL PEAK AND AVERAGE PLOT

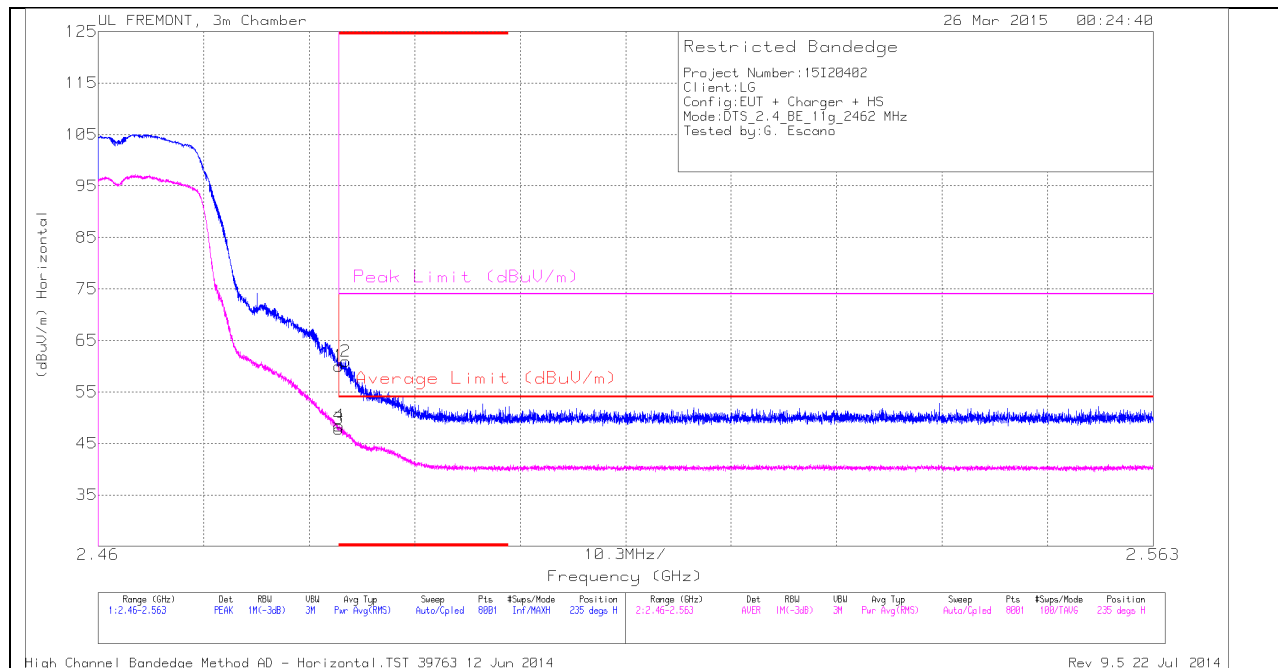


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	42.4	PK	32	-23.1	0	51.3	-	-	74	-22.7	342	360	V
2	* 2.39	44.35	PK	32	-23.1	0	53.25	-	-	74	-20.75	342	360	V
3	* 2.39	32.34	RMS	32	-23.1	.22	41.46	54	-12.54	-	-	342	360	V
4	* 2.39	32.31	RMS	32	-23.1	.22	41.43	54	-12.57	-	-	342	360	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

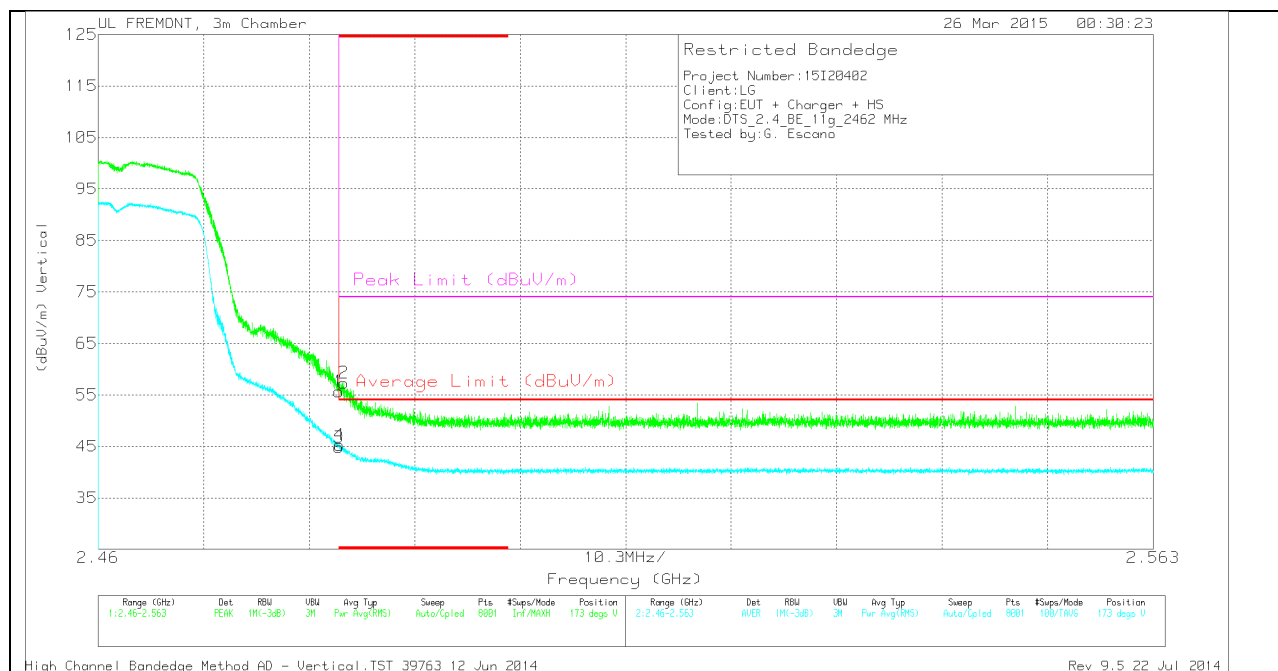
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	50.5	PK	32.3	-22.8	0	60	-	-	74	-14	235	297	H
2	* 2.484	51.44	PK	32.3	-22.8	0	60.94	-	-	74	-13.06	235	297	H
3	* 2.484	38.1	RMS	32.3	-22.8	.22	47.82	54	-6.18	-	-	235	297	H
4	* 2.484	38.71	RMS	32.3	-22.8	.22	48.43	54	-5.57	-	-	235	297	H

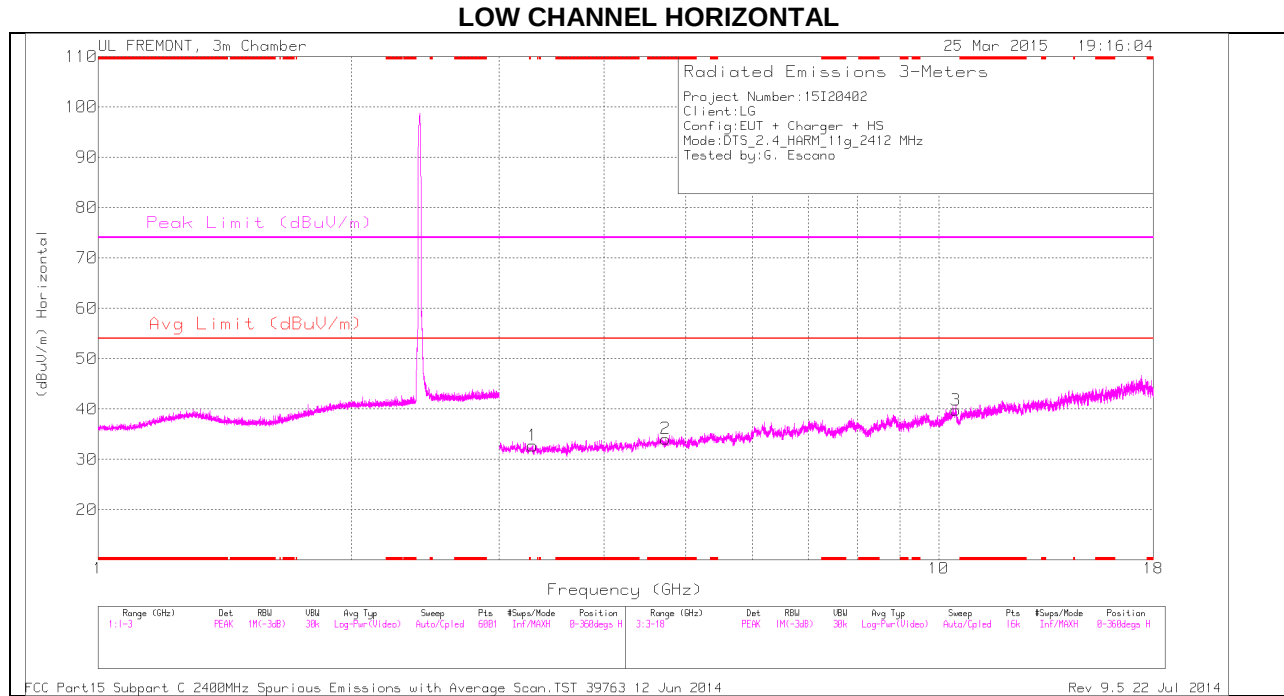
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

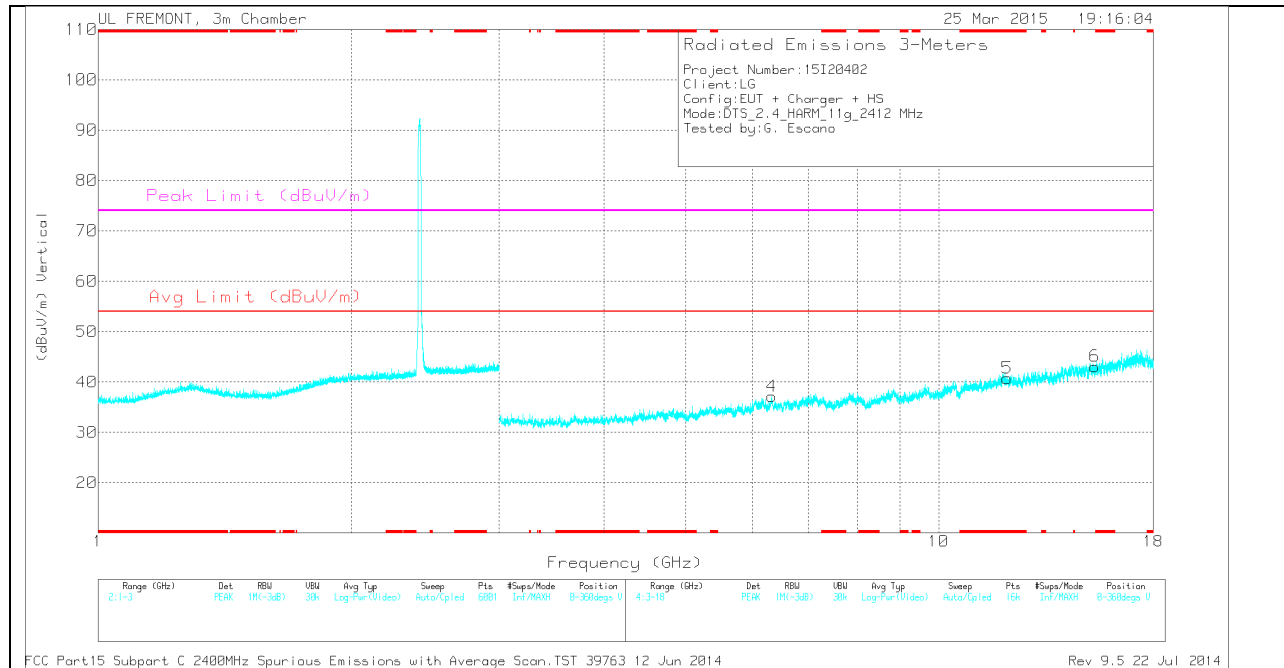
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	46.15	PK	32.3	-22.8	0	55.65	-	-	74	-18.35	173	359	V
2	* 2.484	47.84	PK	32.3	-22.8	0	57.34	-	-	74	-16.66	173	359	V
3	* 2.484	35.08	RMS	32.3	-22.8	.22	44.8	54	-9.2	-	-	173	359	V
4	* 2.484	35.55	RMS	32.3	-22.8	.22	45.27	54	-8.73	-	-	173	359	V

HARMONICS AND SPURIOUS EMISSIONS



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.

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

LOW CHANNEL DATA

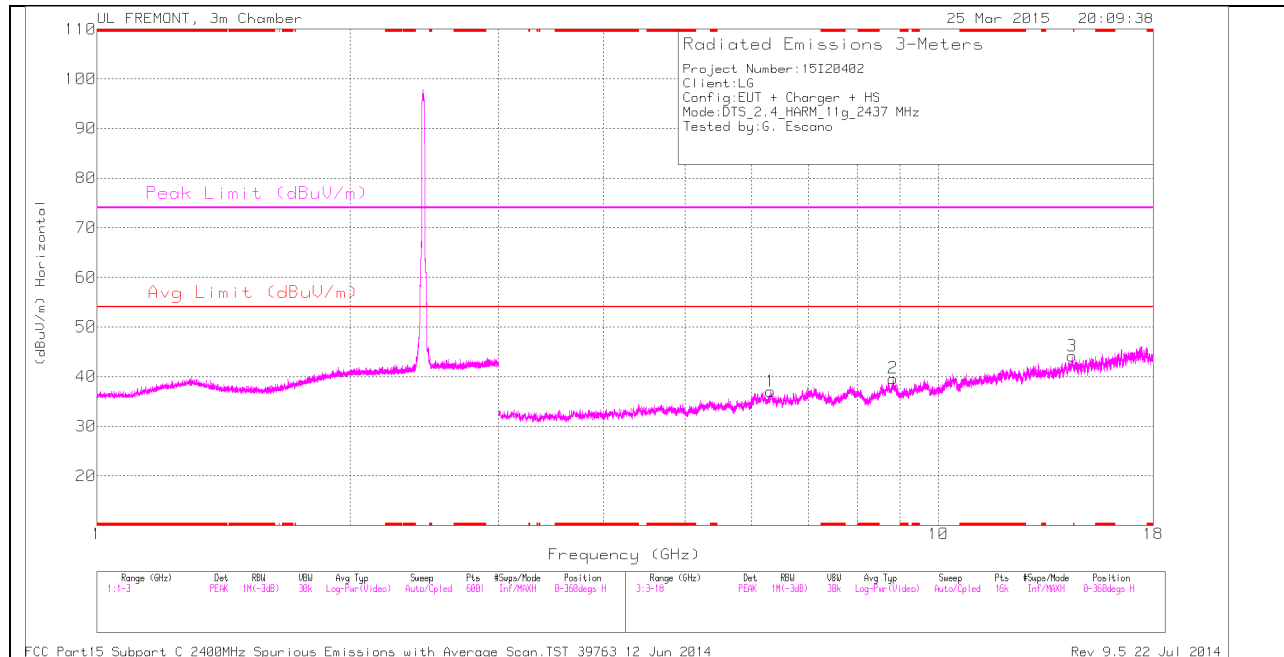
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.733	31.09	PK	34	-31	0	34.09	-	-	74	-39.91	0-360	200	H
5	* 12.063	27.93	PK	39	-26.2	0	40.73	-	-	74	-33.27	0-360	200	V
1	3.289	31.64	PK	32.6	-31.5	0	32.74	-	-	-	-	0-360	100	H
4	6.333	30.84	PK	35.4	-29.1	0	37.14	-	-	-	-	0-360	200	V
3	10.488	27.76	PK	37.4	-25.4	0	39.76	-	-	-	-	0-360	200	H
6	15.341	29.99	PK	40	-26.9	0	43.09	-	-	-	-	0-360	200	V

PK - Peak detector

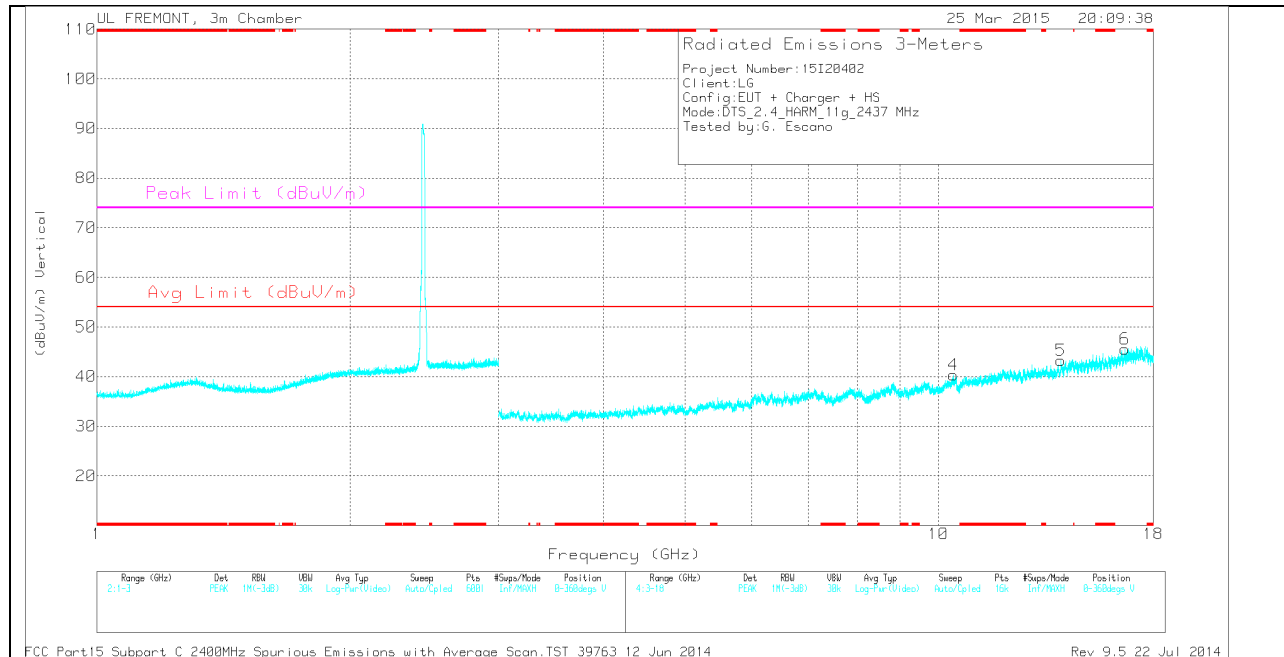
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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.

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

MID CHANNEL DATA

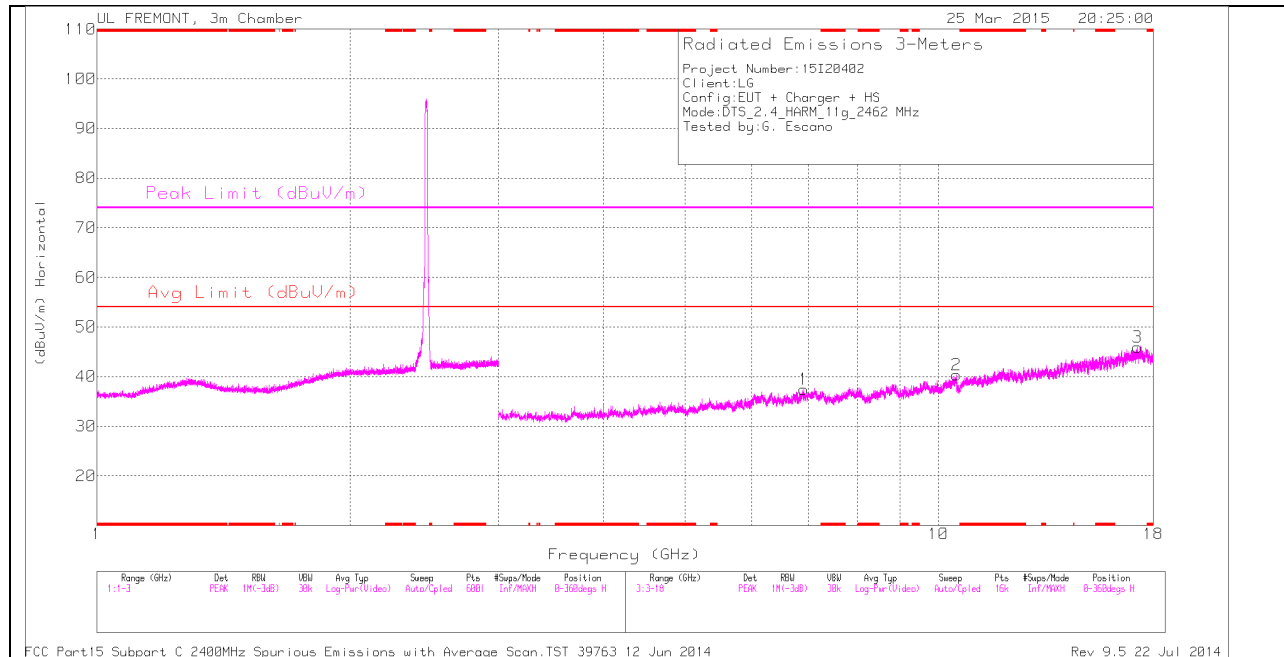
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	6.32	31.1	PK	35.4	-29.4	37.1	-	-	-	-	0-360	100	H
2	8.837	30.25	PK	35.9	-26.5	39.65	-	-	-	-	0-360	100	H
4	10.409	28.09	PK	37.3	-25	40.39	-	-	-	-	0-360	100	V
5	13.981	32	PK	38.8	-27.5	43.3	-	-	-	-	0-360	100	V
3	14.414	30.71	PK	39.6	-26.2	44.11	-	-	-	-	0-360	100	H
6	16.659	29.25	PK	41.1	-24.8	45.55	-	-	-	-	0-360	100	V

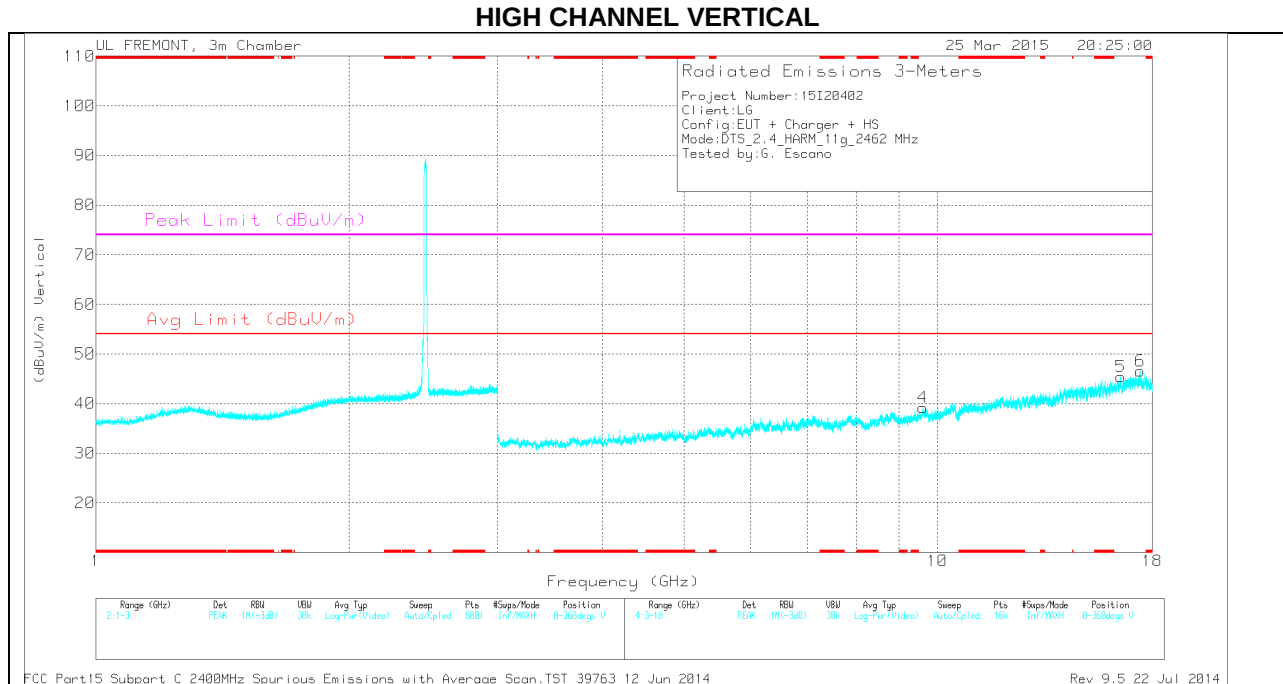
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

HIGH CHANNEL HORIZONTAL



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



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

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.913	30.57	PK	35.6	-28.7	0	37.47	-	-	-	-	0-360	200	H
4	9.613	27.83	PK	36.7	-25.3	0	39.23	-	-	-	-	0-360	200	V
2	10.499	28.4	PK	37.5	-25.6	0	40.3	-	-	-	-	0-360	100	H
5	16.507	28.37	PK	41	-23.9	0	45.47	-	-	-	-	0-360	100	V
3	17.233	28.25	PK	41.3	-23.6	0	45.95	-	-	-	-	0-360	100	H
6	17.41	27.02	PK	41.4	-21.9	0	46.52	-	-	-	-	0-360	200	V

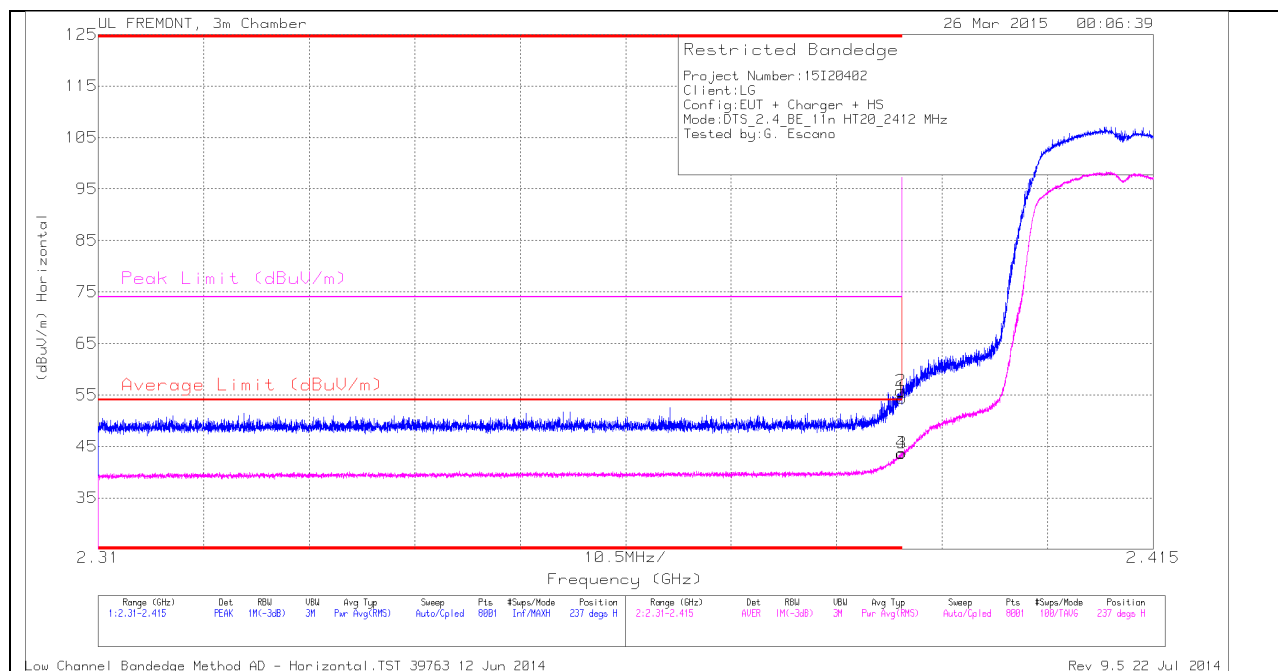
PK - Peak detector

FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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

RESTRICTED BANDEDGE (LOW CHANNEL)

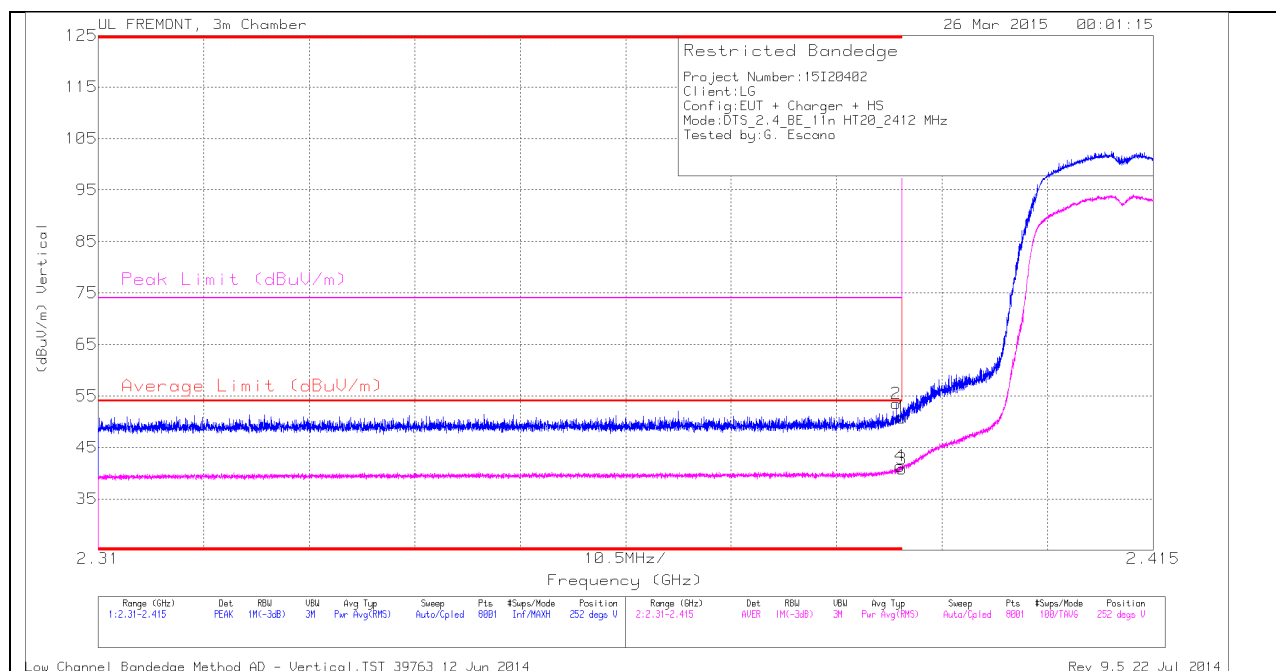
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	45.43	PK	32	-23.1	0	54.33	-	-	74	-19.67	237	313	H
2	* 2.39	46.88	PK	32	-23.1	0	55.78	-	-	74	-18.22	237	313	H
3	* 2.39	34.61	RMS	32	-23.1	.23	43.74	54	-10.26	-	-	237	313	H
4	* 2.39	34.54	RMS	32	-23.1	.23	43.67	54	-10.33	-	-	237	313	H

VERTICAL PEAK AND AVERAGE PLOT

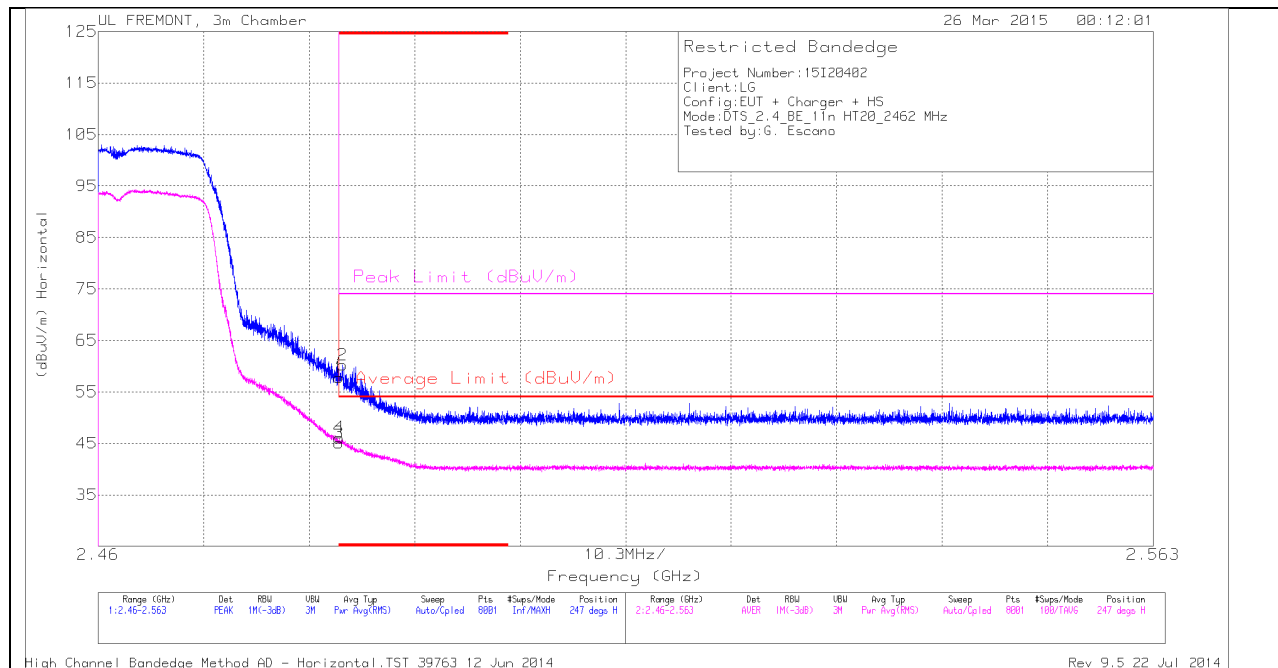


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.389	44.59	PK	32	-23.1	0	53.49	-	-	74	-20.51	252	311	V
1	* 2.39	41.87	PK	32	-23.1	0	50.77	-	-	74	-23.23	252	311	V
3	* 2.39	31.64	RMS	32	-23.1	.23	40.77	54	-13.23	-	-	252	311	V
4	* 2.39	32.23	RMS	32	-23.1	.23	41.36	54	-12.64	-	-	252	311	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)

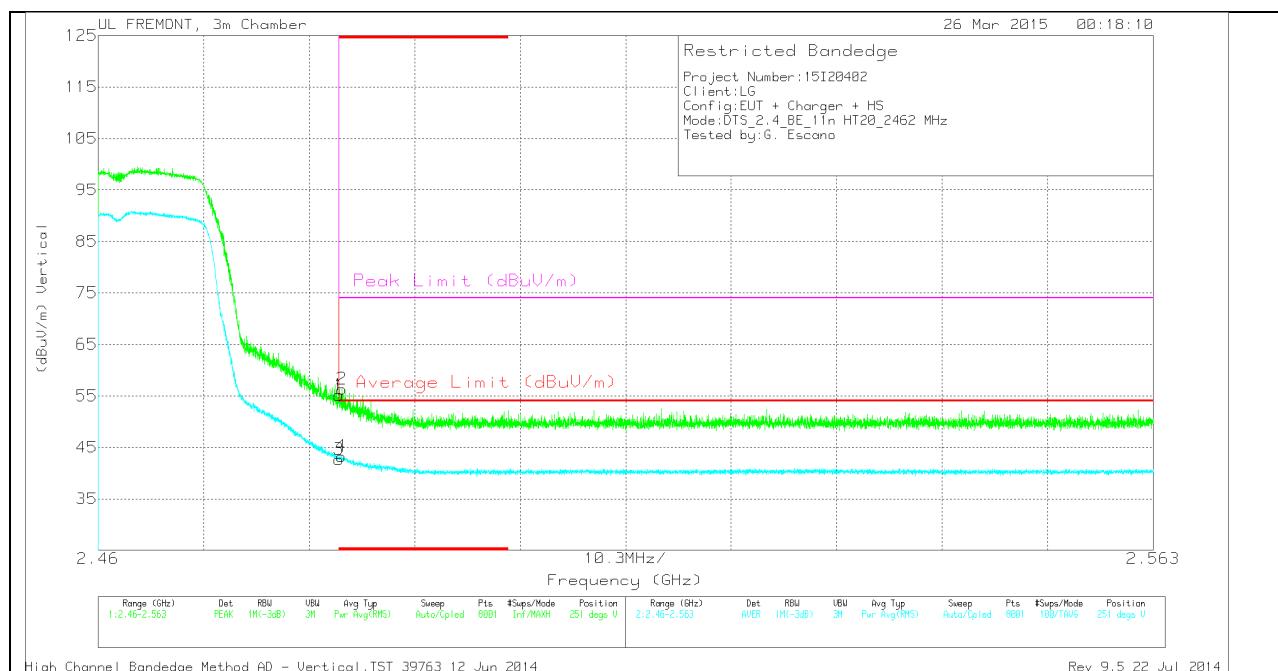
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	48.25	PK	32.3	-22.8	0	57.75	-	-	74	-16.25	247	290	H
2	* 2.484	50.69	PK	32.3	-22.8	0	60.19	-	-	74	-13.81	247	290	H
3	* 2.484	35.36	RMS	32.3	-22.8	.23	45.09	54	-8.91	-	-	247	290	H
4	* 2.484	36.35	RMS	32.3	-22.8	.23	46.08	54	-7.92	-	-	247	290	H

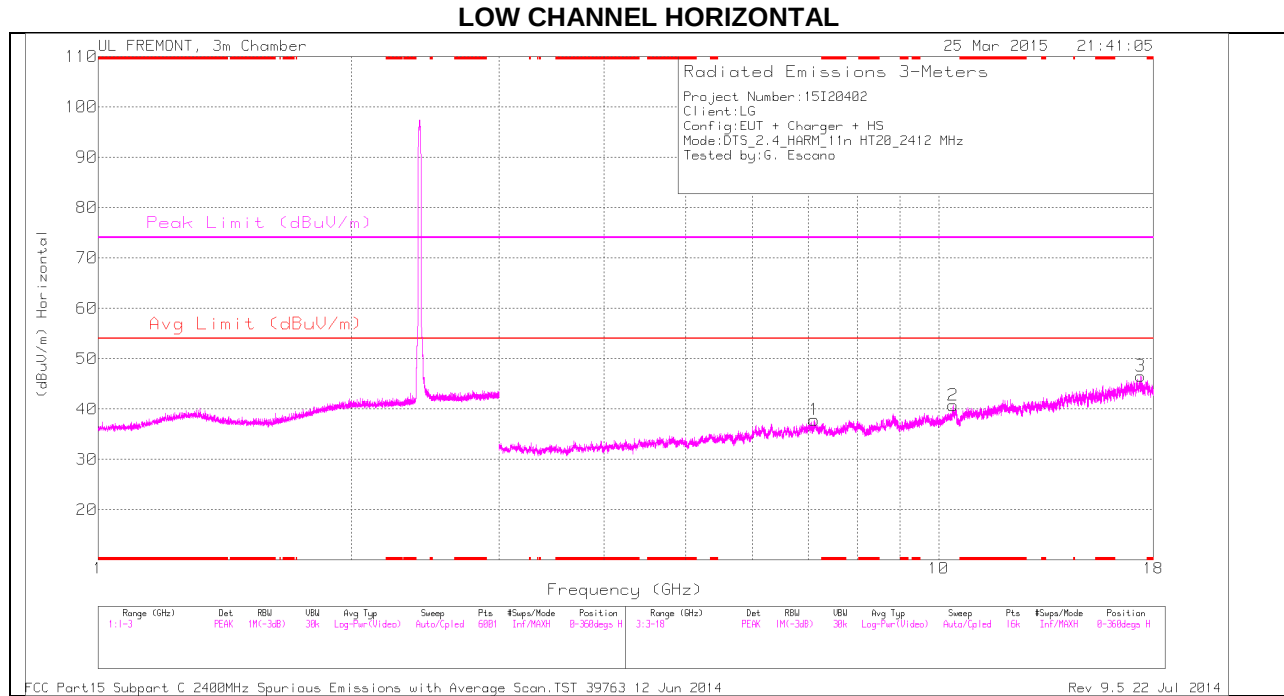
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

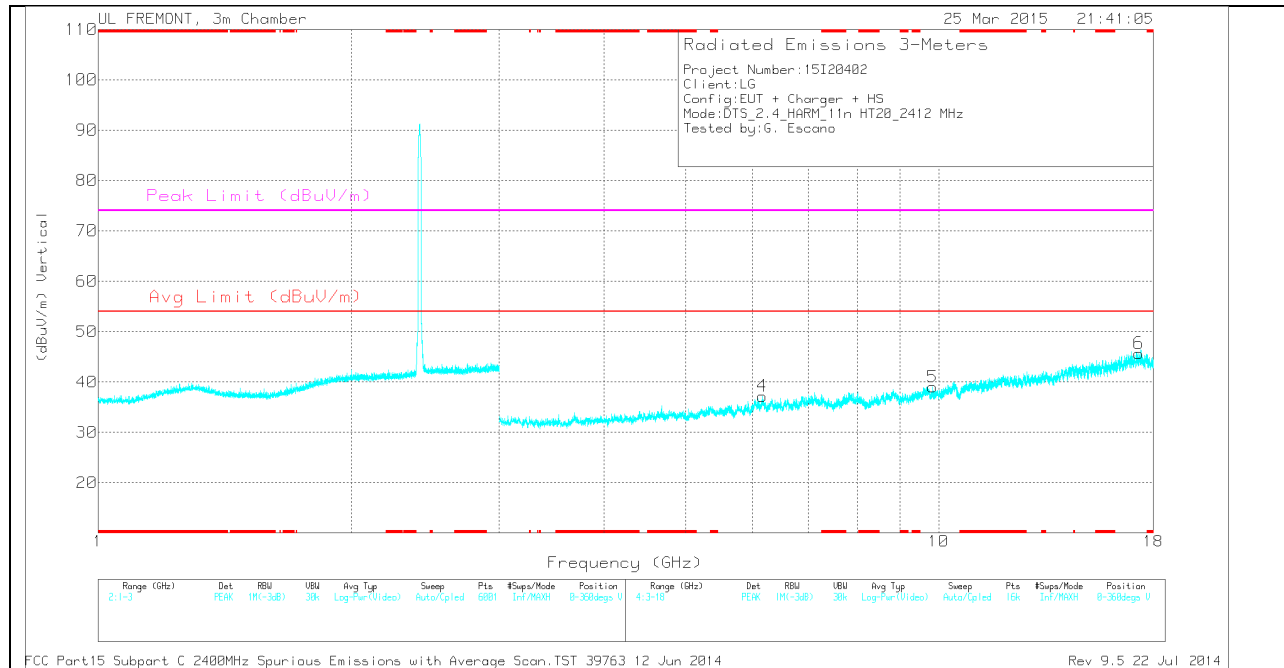
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	45.67	PK	32.3	-22.8	0	55.17	-	-	74	-18.83	251	295	V
2	* 2.484	46.85	PK	32.3	-22.8	0	56.35	-	-	74	-17.65	251	295	V
3	* 2.484	32.95	RMS	32.3	-22.8	.23	42.68	54	-11.32	-	-	251	295	V
4	* 2.484	33.55	RMS	32.3	-22.8	.23	43.28	54	-10.72	-	-	251	295	V

HARMONICS AND SPURIOUS EMISSIONS



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.

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

LOW CHANNEL DATA

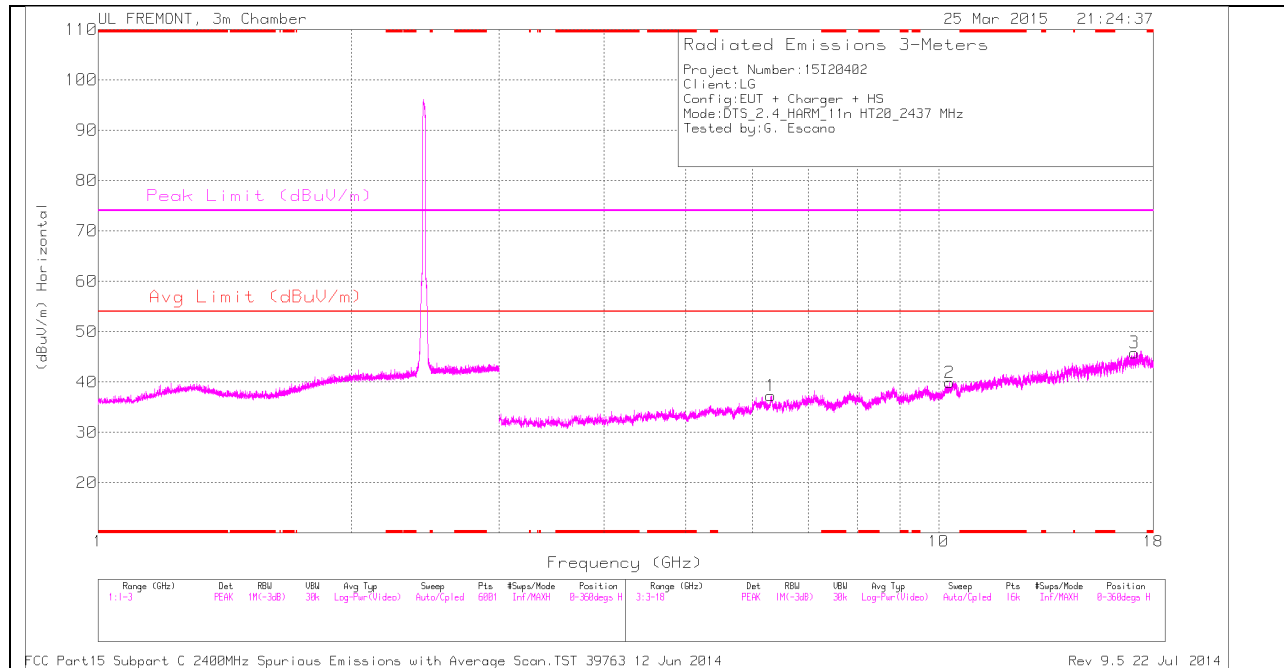
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	6.167	31.7	PK	35.3	-29.8	0	37.2	-	-	-	-	0-360	100	V
1	7.111	30.25	PK	35.6	-28	0	37.85	-	-	-	-	0-360	100	H
5	9.833	28.12	PK	36.9	-26	0	39.02	-	-	-	-	0-360	100	V
2	10.402	28.64	PK	37.3	-25.2	0	40.74	-	-	-	-	0-360	200	H
6	17.296	27.89	PK	41.4	-23.6	0	45.69	-	-	-	-	0-360	100	V
3	17.391	27.65	PK	41.4	-22.5	0	46.55	-	-	-	-	0-360	200	H

PK - Peak detector

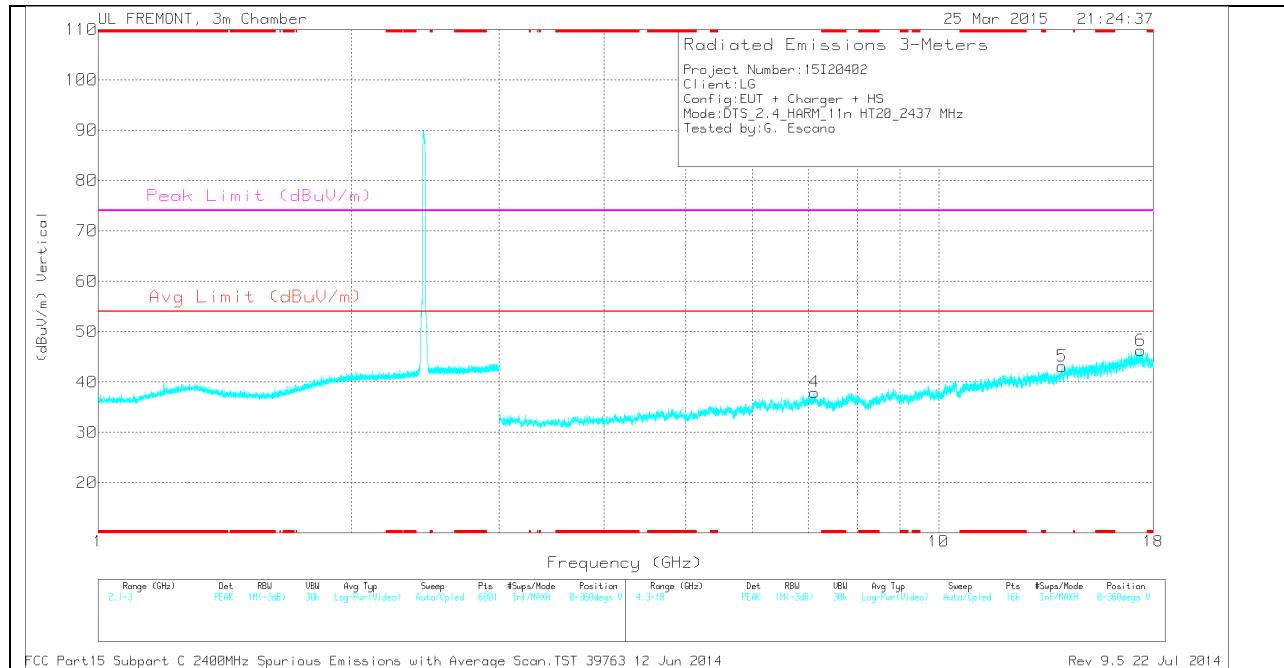
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

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.

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

MID CHANNEL DATA

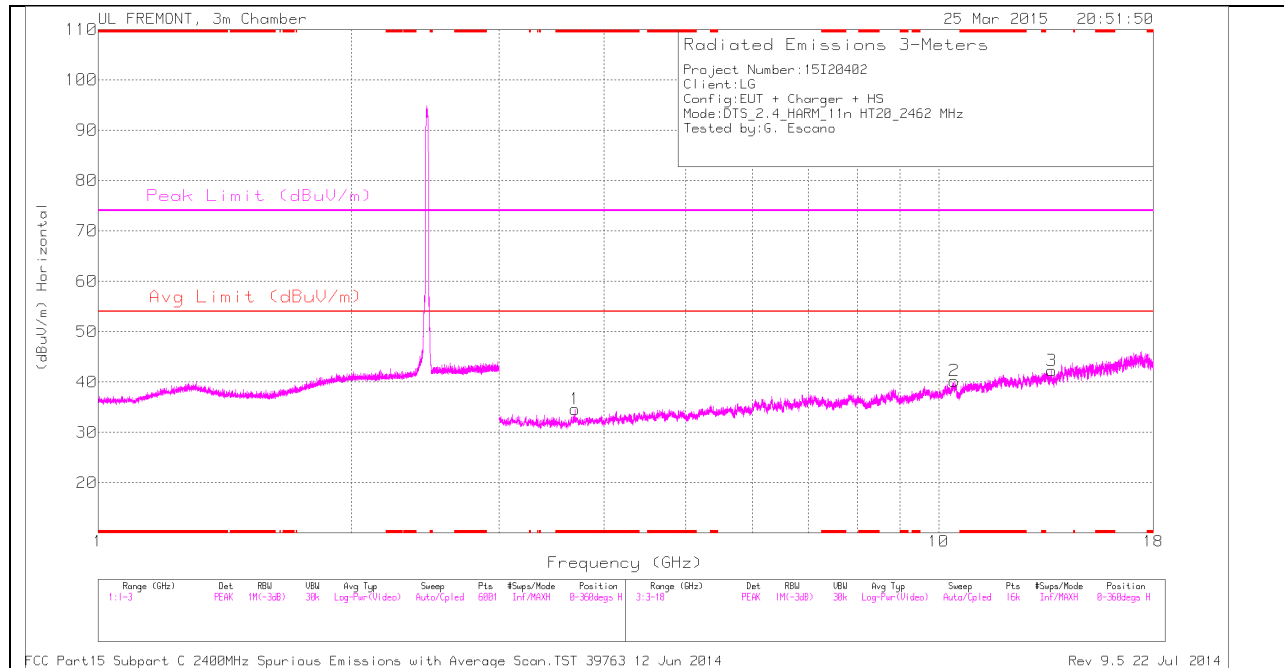
TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.315	31.38	PK	35.4	-29.5	0	37.28	-	-	-	-	0-360	200	H
4	7.114	30.47	PK	35.6	-28.1	0	37.97	-	-	-	-	0-360	100	V
2	10.302	28.28	PK	37.1	-25.5	0	39.88	-	-	-	-	0-360	100	H
5	14.017	31.7	PK	38.8	-27.4	0	43.1	-	-	-	-	0-360	200	V
3	17.082	29.02	PK	41.4	-24.6	0	45.82	-	-	-	-	0-360	200	H
6	17.395	27.04	PK	41.4	-22.2	0	46.24	-	-	-	-	0-360	100	V

PK - Peak detector

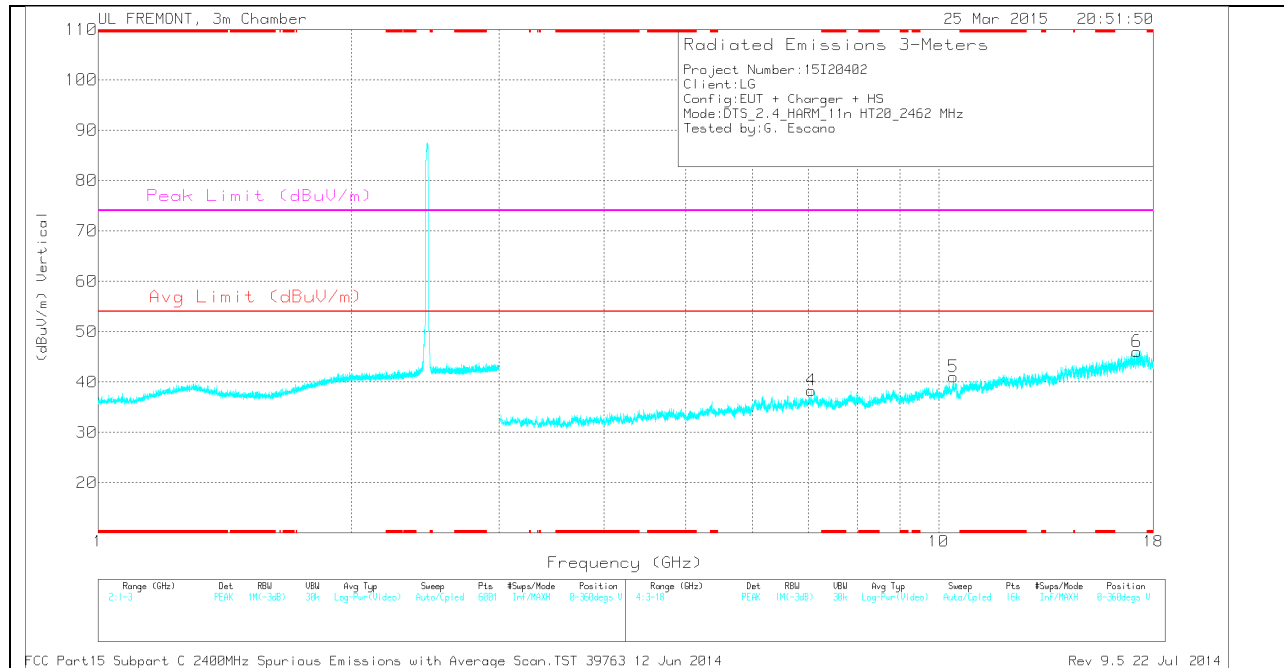
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

TRACE MARKERS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.693	32.4	PK	33	-30.8	0	34.6	-	-	74	-39.4	0-360	100	H
4	7.053	31.34	PK	35.6	-28.6	0	38.34	-	-	-	-	0-360	100	V
5	10.408	28.74	PK	37.3	-25	0	41.04	-	-	-	-	0-360	200	V
2	10.436	28.22	PK	37.3	-25.3	0	40.22	-	-	-	-	0-360	100	H
3	13.628	30.64	PK	38.7	-27.1	0	42.24	-	-	-	-	0-360	200	H
6	17.199	28.14	PK	41.3	-23.4	0	46.04	-	-	-	-	0-360	100	V

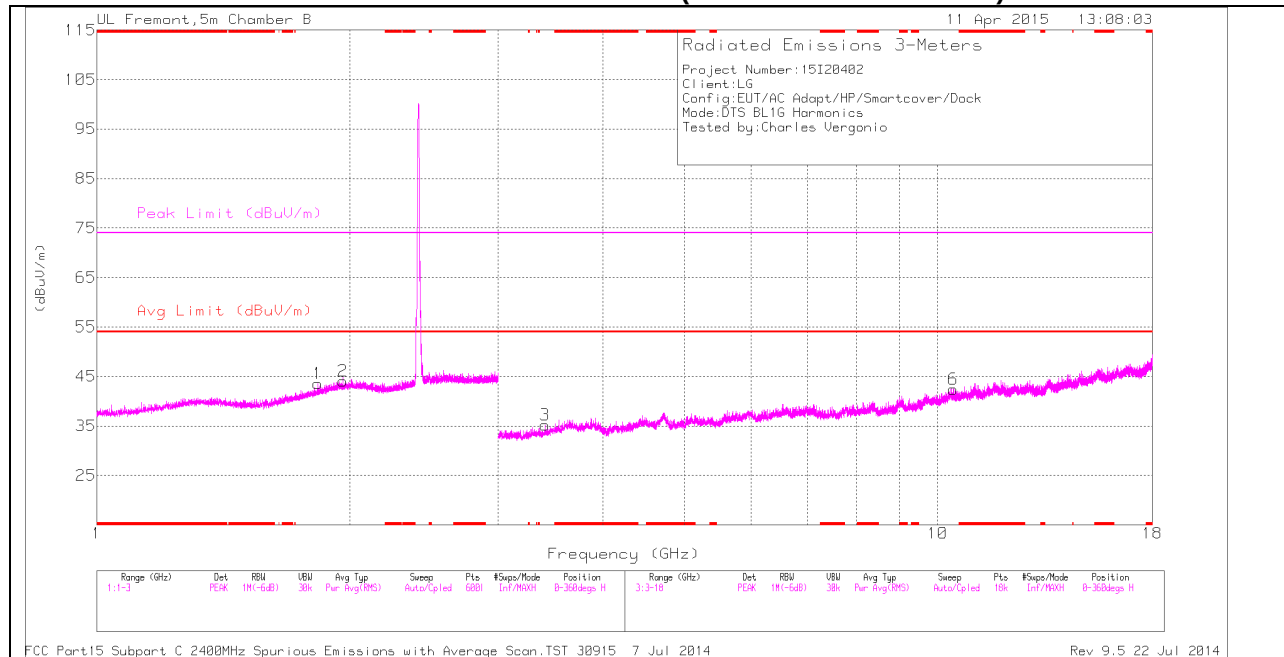
PK - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.693	42.19	PK2	33	-30.8	0	44.39	-	-	74	-29.61	147	183	H
* 3.693	31.66	MAv1	33	-30.8	0	34.09	54	-19.91	-	-	147	183	H

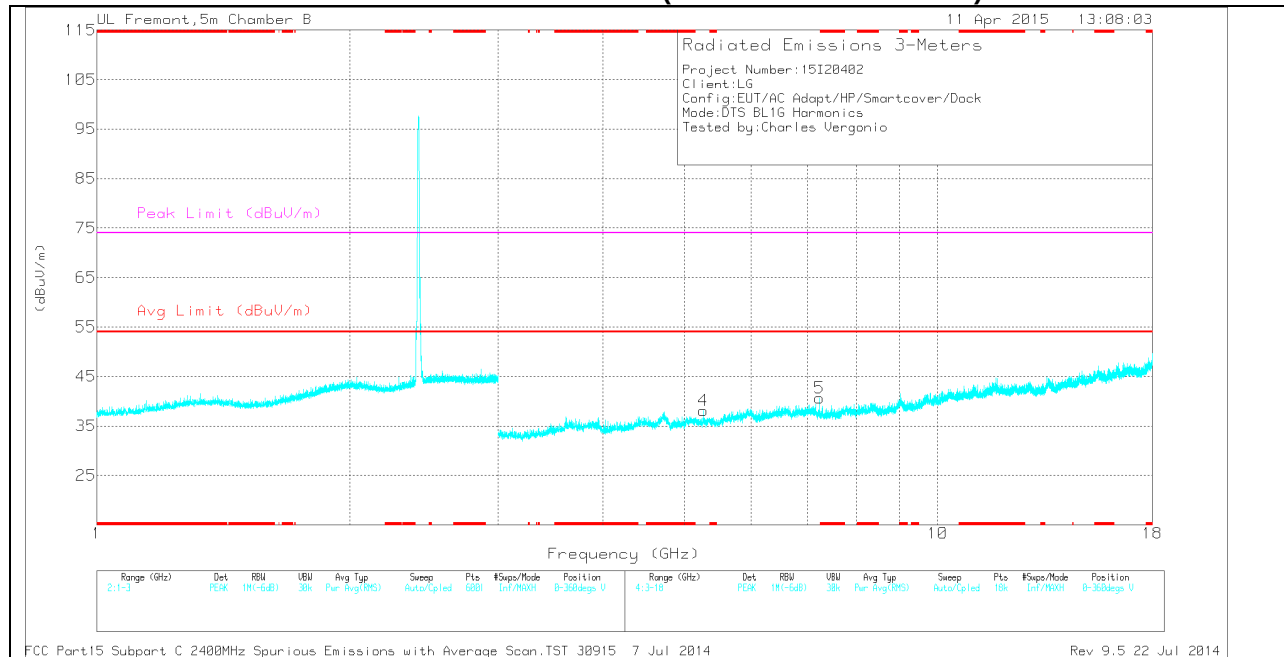
FCC Part15 Subpart C T186 2400MHz Spurious Emissions.TST 12746Rev 9.5 12 Jun 2013

LOW CHANNEL HORIZONTAL (With Smartcover + Dock)



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 (with Smartcover + Dock)



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

REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

LOW CHANNEL DATA (With Smartcover + Dock)

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	1.833	35.72	PK	31.1	-23.3	43.52	-	-	-	-	0-360	200	H
2	1.961	35.12	PK	32.1	-23.2	44.02	-	-	-	-	0-360	200	H
3	3.413	32.99	PK	33.1	-30.9	35.19	-	-	-	-	0-360	199	H
4	5.265	33.47	PK	34.3	-29.7	38.07	-	-	-	-	0-360	101	V
5	7.235	33.04	PK	35.3	-27.7	40.64	-	-	-	-	0-360	101	V
6	10.431	28.09	PK	37.4	-23.1	42.39	-	-	-	-	0-360	199	H

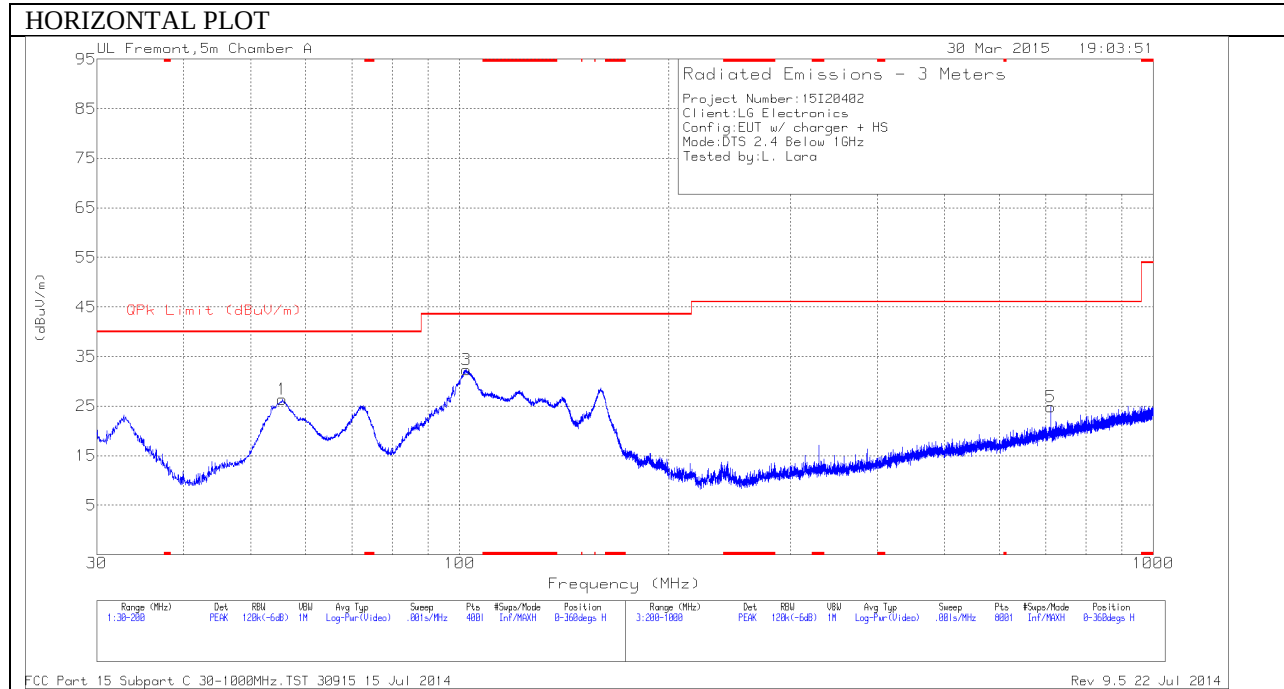
PK - Peak detector

FCC Part15 Subpart C 2400MHz Spurious Emissions with Average Scan.TST 30915 7 Jul 2014

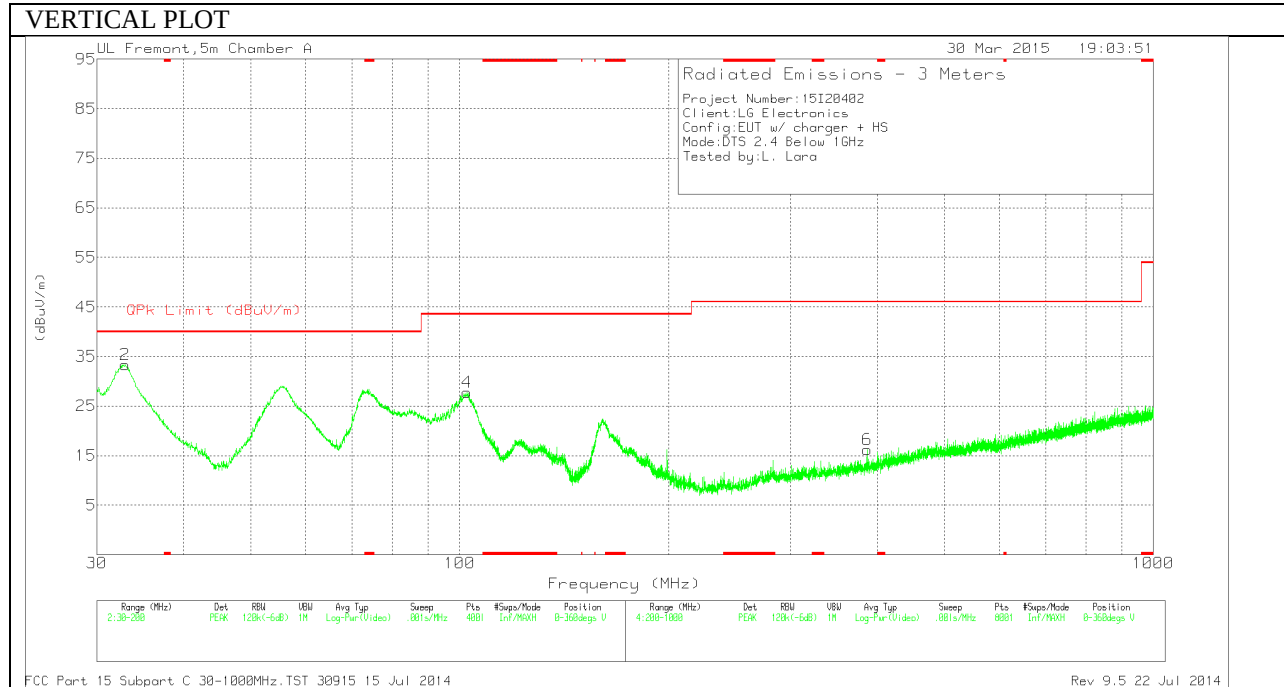
Rev 9.5 22 Jul 2014

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)



REPORT NO: 15I20402 – E4
MODEL NUMBER: LG-VS986, VS986, LGVS986,
LG-AS986, AS986, LGAS986

DATE: APRIL 16, 2015

FCC ID: ZNFVS986

Below 1G Data

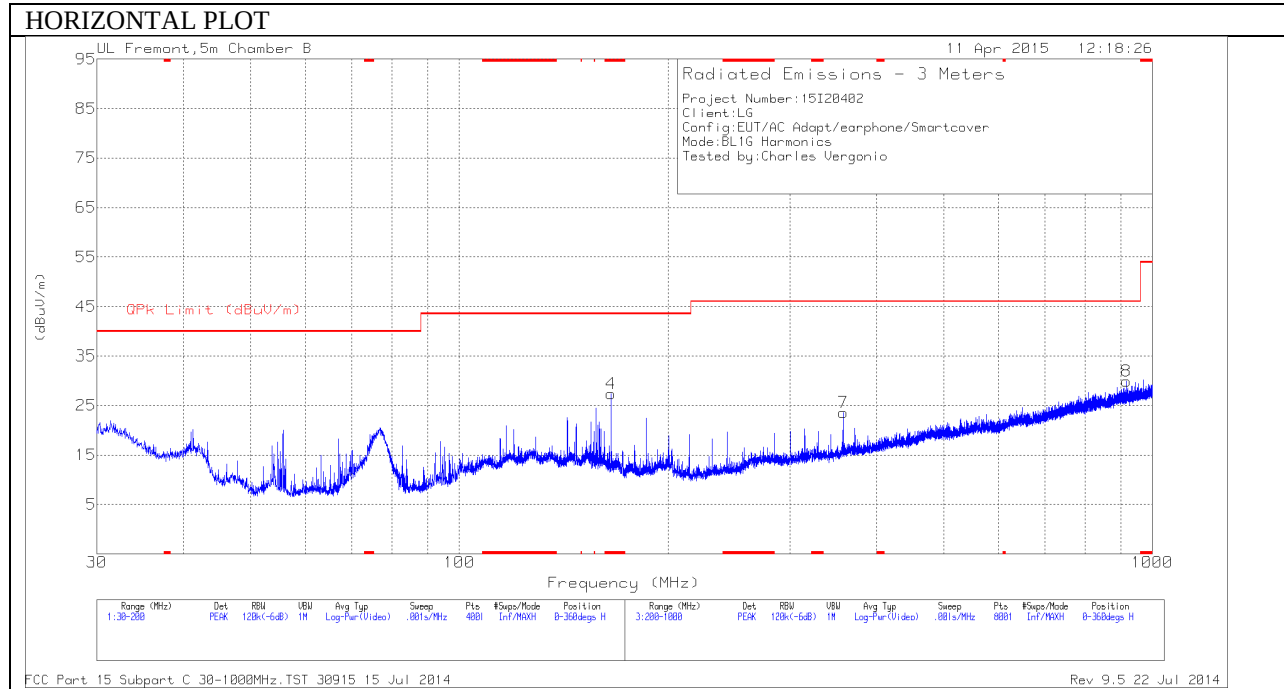
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	32.9325	45.41	PK	19.1	-31.2	33.31	40	-6.69	0-360	101	V
1	55.5425	50.23	PK	7.1	-31	26.33	40	-13.67	0-360	400	H
3	102.2925	52.42	PK	10.4	-30.5	32.32	43.52	-11.2	0-360	200	H
4	102.4625	47.75	PK	10.5	-30.5	27.75	43.52	-15.77	0-360	101	V
6	386.6	30.43	PK	14.9	-29.1	16.23	46.02	-29.79	0-360	300	V
5	711.5	32.96	PK	20.2	-28.3	24.86	46.02	-21.16	0-360	101	H

PK - Peak detector

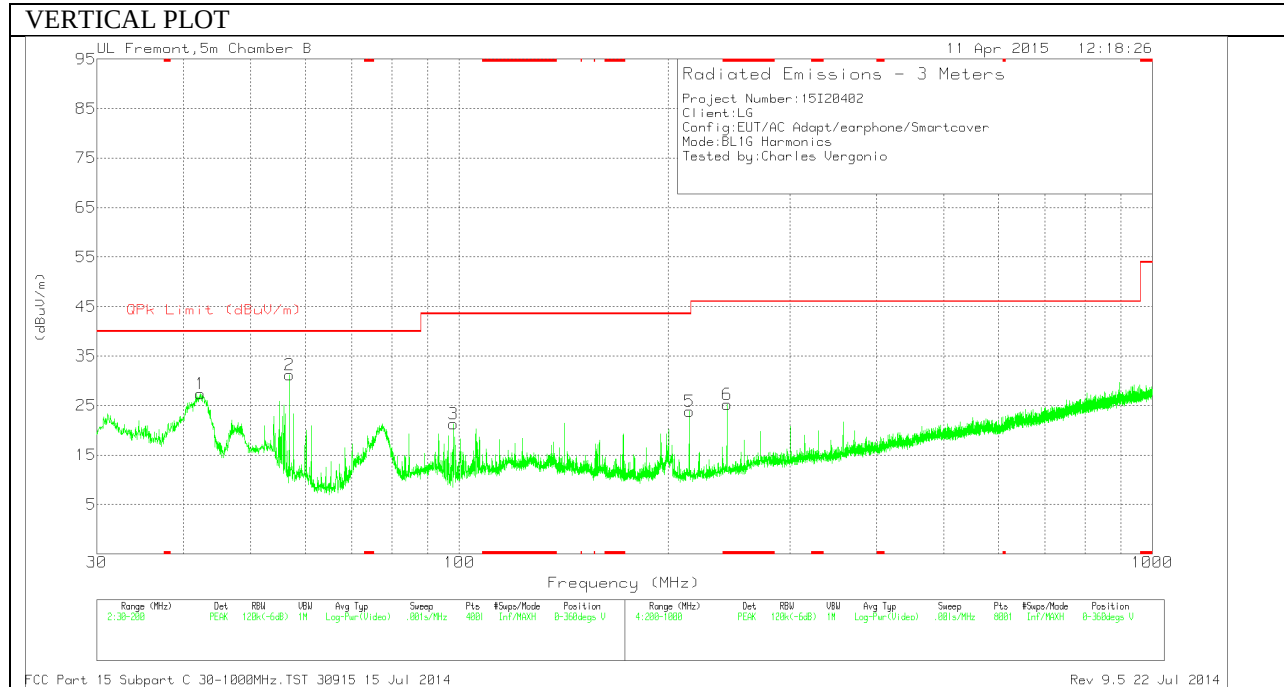
FCC Part 15 Subpart C 30-1000MHz.TST 30915 15 Jul 2014

Rev 9.5 22 Jul 2014

SPURIOUS EMISSIONS 30 TO 1000 MHz (WITH SMARTCOVER, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WITH SMARTCOVER, VERTICAL)



Trace Markers

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
4	* 165.6175	42.82	PK	11.9	-27.3	27.42	43.52	-16.1	0-360	200	H
6	* 243.4	40.16	PK	11.6	-26.5	25.26	46.02	-20.76	0-360	300	V
1	42.2825	43.62	PK	12.4	-28.7	27.32	40	-12.68	0-360	101	V
2	56.9025	52.23	PK	7.4	-28.5	31.13	40	-8.87	0-360	101	V
3	98.085	39.68	PK	9.7	-28.1	21.28	43.52	-22.24	0-360	101	V
5	214.8	40	PK	10.6	-26.8	23.8	43.52	-19.72	0-360	200	V
7	357.9	34.72	PK	14.8	-25.9	23.62	46.02	-22.4	0-360	200	H
8	918.5	30.13	PK	22.6	-22.8	29.93	46.02	-16.09	0-360	300	H

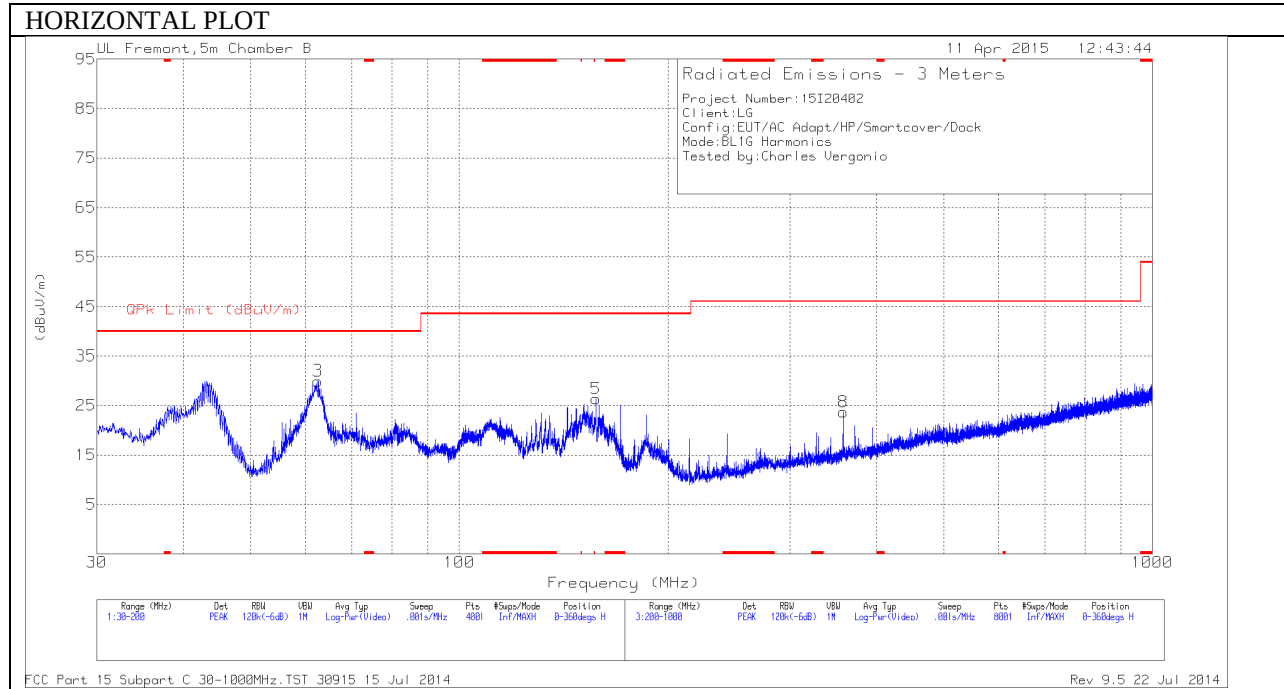
* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

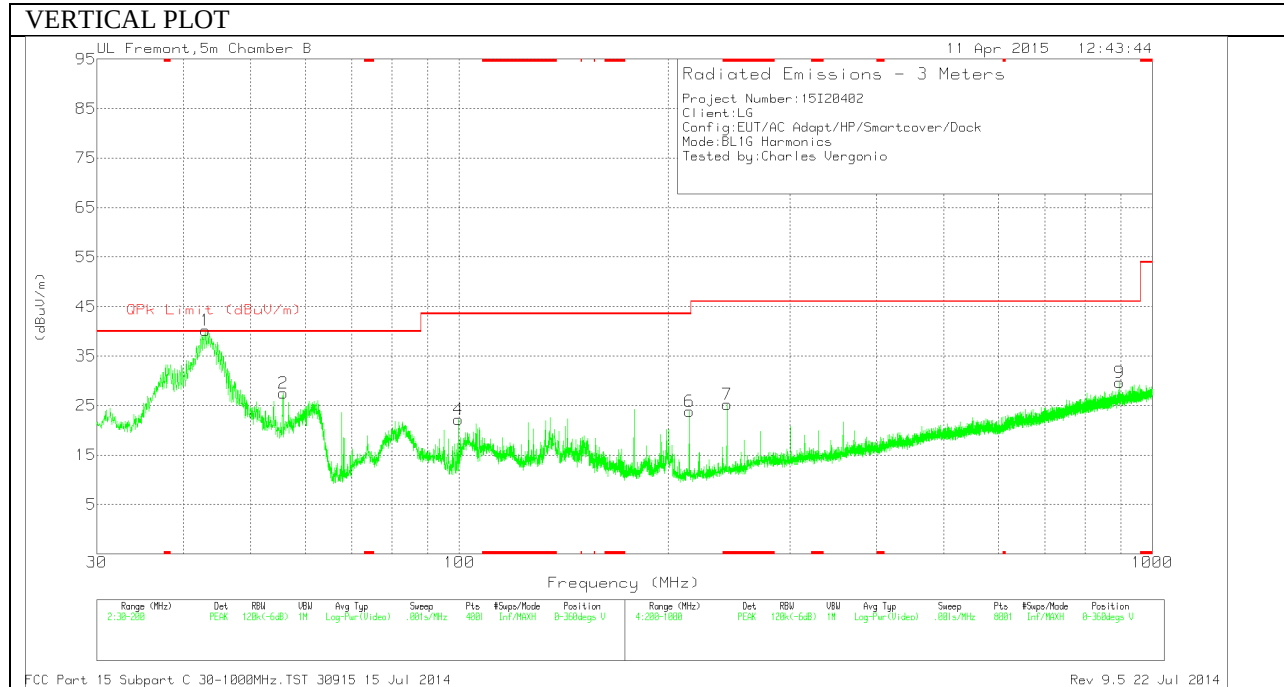
FCC Part 15 Subpart C 30-1000MHz.TST 30915 15 Jul 2014

Rev 9.5 22 Jul 2014

SPURIOUS EMISSIONS 30 TO 1000 MHz (WITH SMARTCOVER + DOCK, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WITH SMARTCOVER + DOCK, VERTICAL)



Below 1G Data (With Smartcove r+ Dock)

Trace Markers

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
7	* 243.4	40.16	PK	11.6	-26.5	25.26	46.02	-20.76	0-360	300	V
1	43.005	57.04	PK	11.9	-28.7	40.24	40	.24	0-360	101	V
2	55.7125	48.82	PK	7.3	-28.6	27.52	40	-12.48	0-360	101	V
3	62.555	50.78	PK	7.7	-28.5	29.98	40	-10.02	0-360	400	H
4	99.7425	40.05	PK	10.2	-28.1	22.15	43.52	-21.37	0-360	101	V
5	157.5	41.47	PK	12.3	-27.4	26.37	43.52	-17.15	0-360	100	H
6	214.8	40	PK	10.6	-26.8	23.8	43.52	-19.72	0-360	200	V
8	358	34.78	PK	14.8	-25.9	23.68	46.02	-22.34	0-360	300	H
9	896.8	30.12	PK	22.5	-22.9	29.72	46.02	-16.3	0-360	101	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

PK - Peak detector

Radiated Emissions

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
43.1205	52.21	QP	11.8	-28.7	35.31	40	-4.69	330	102	V

* - indicates frequency in CFR 47, Part 15 and Industry Canada RSS-Restricted Band.

QP - Quasi-Peak detector

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

Rev 9.5 22 Jul 2014

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 [*]	56 to 46 [*]
0.5-5	56	46
5-30	60	50

^{*} Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10 2013.

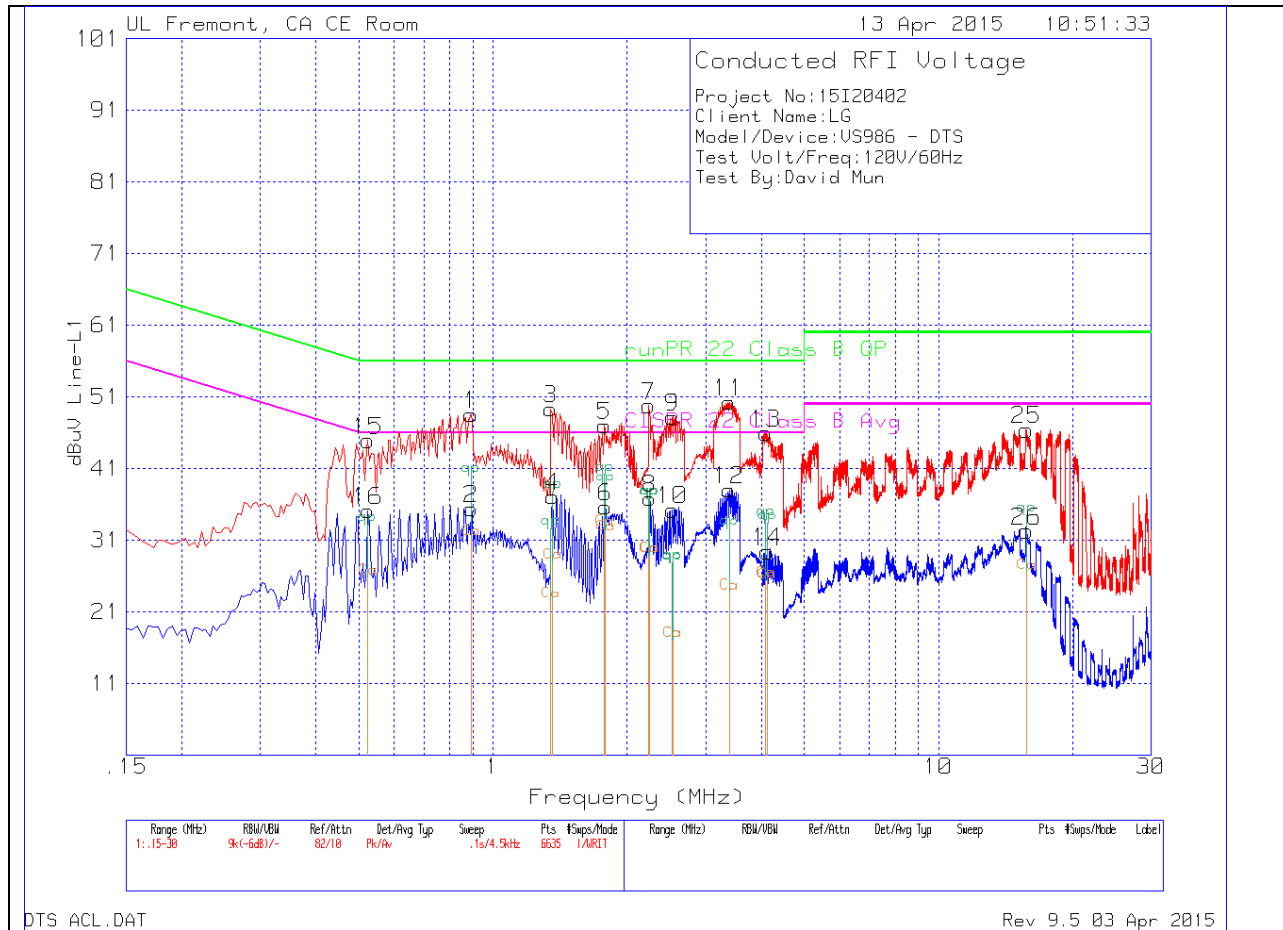
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

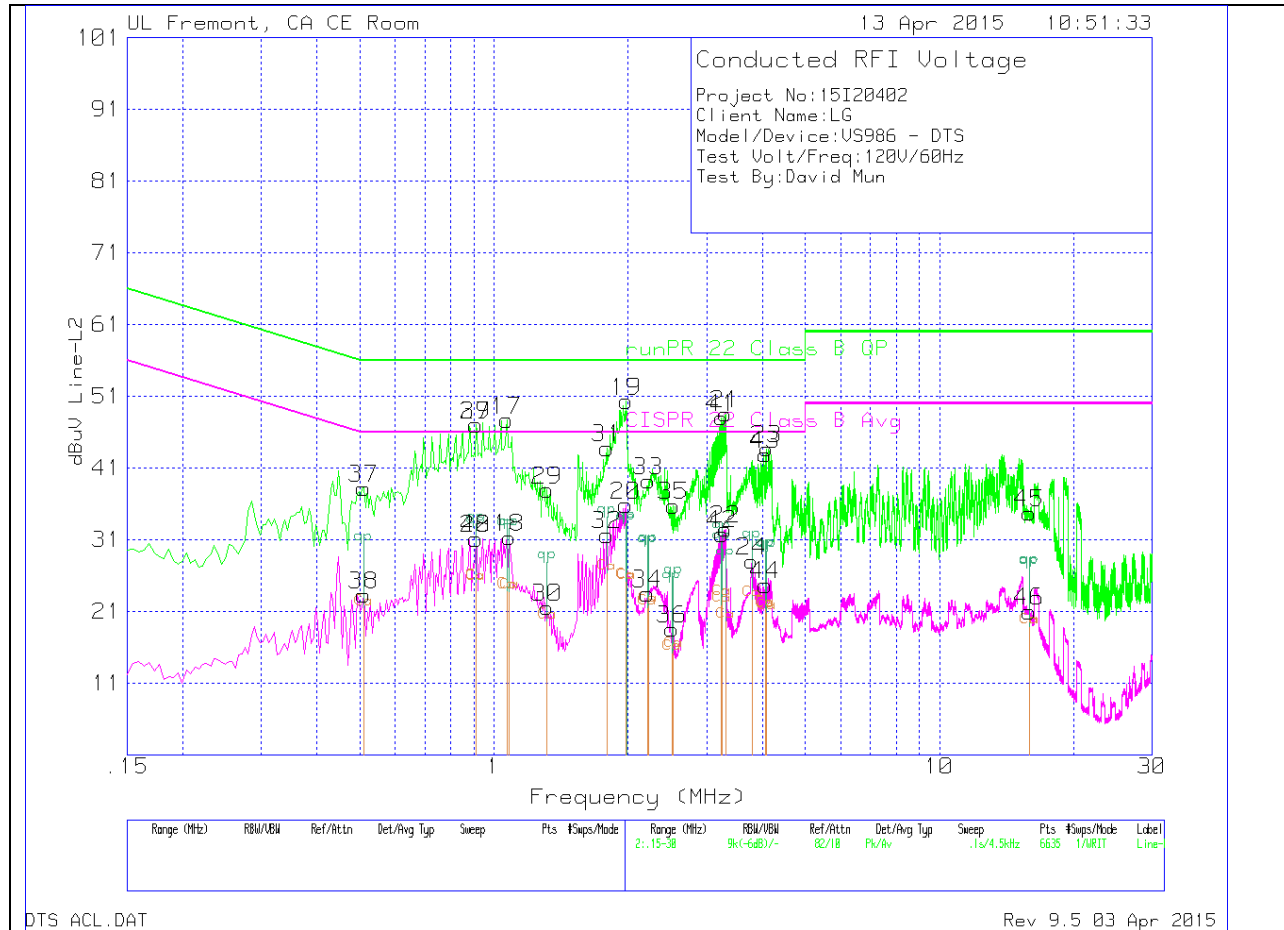
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Corrected Reading dBuV	runPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.8925	48.24	Pk	.3	0	48.54	56	-7.46	-	-
2	.8925	35.09	Av	.3	0	35.39	-	-	46	-10.61
3	1.347	49.03	Pk	.2	.1	49.33	56	-6.67	-	-
4	1.3605	36.78	Av	.2	.1	37.08	-	-	46	-8.92
5	1.779	46.71	Pk	.2	.1	47.01	56	-8.99	-	-
6	1.788	35.33	Av	.2	.1	35.63	-	-	46	-10.37
7	2.238	49.49	Pk	.2	.1	49.79	56	-6.21	-	-
8	2.247	36.53	Av	.2	.1	36.83	-	-	46	-9.17
9	2.5305	47.89	Pk	.2	.1	48.19	56	-7.81	-	-
10	2.526	34.93	Av	.2	.1	35.23	-	-	46	-10.77
11	3.39	49.99	Pk	.2	.1	50.29	56	-5.71	-	-
12	3.39	37.71	Av	.2	.1	38.01	-	-	46	-7.99
13	4.0965	45.67	Pk	.2	.1	45.97	56	-10.03	-	-
14	4.128	29.11	Av	.2	.1	29.41	-	-	46	-16.59
15	.5235	44.64	Pk	.3	0	44.94	56	-11.06	-	-
16	.5235	34.82	Av	.3	0	35.12	-	-	46	-10.88
25	15.774	45.92	Pk	.3	.2	46.42	60	-13.58	-	-
26	15.774	31.8	Av	.3	.2	32.3	-	-	50	-17.7

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	Corrected Reading dBuV	runPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
17	1.068	47.28	Pk	.3	.1	47.68	56	-8.32	-	-
18	1.0815	31	Av	.3	0	31.3	-	-	46	-14.7
19	1.9815	50.04	Pk	.2	.1	50.34	56	-5.66	-	-
20	1.977	35.54	Av	.2	.1	35.84	-	-	46	-10.16
21	3.309	48.28	Pk	.2	.1	48.58	56	-7.42	-	-
22	3.309	32.17	Av	.2	.1	32.47	-	-	46	-13.53
23	4.092	43.41	Pk	.2	.1	43.71	56	-12.29	-	-
24	3.7905	27.71	Av	.2	.1	28.01	-	-	46	-17.99
27	.9105	46.73	Pk	.3	0	47.03	56	-8.97	-	-
28	.9105	30.83	Av	.3	0	31.13	-	-	46	-14.87
29	1.3155	37.64	Pk	.2	.1	37.94	56	-18.06	-	-
30	1.3155	21.28	Av	.2	.1	21.58	-	-	46	-24.42
31	1.7925	43.49	Pk	.2	.1	43.79	56	-12.21	-	-
32	1.7925	31.37	Av	.2	.1	31.67	-	-	46	-14.33
33	2.22	38.9	Pk	.2	.1	39.2	56	-16.8	-	-
34	2.211	23.19	Av	.2	.1	23.49	-	-	46	-22.51
35	2.526	35.44	Pk	.2	.1	35.74	56	-20.26	-	-
36	2.508	18.26	Av	.2	.1	18.56	-	-	46	-27.44
37	.51	37.79	Pk	.4	0	38.19	56	-17.81	-	-
38	.51	22.91	Av	.4	0	23.31	-	-	46	-22.69
39	.9105	46.73	Pk	.3	0	47.03	56	-8.97	-	-
40	.9105	30.83	Av	.3	0	31.13	-	-	46	-14.87
41	3.2415	47.73	Pk	.2	.1	48.03	56	-7.97	-	-
42	3.246	31.5	Av	.2	.1	31.8	-	-	46	-14.2
43	4.0605	42.58	Pk	.2	.1	42.88	56	-13.12	-	-
44	4.065	24.4	Av	.2	.1	24.7	-	-	46	-21.3
45	15.927	34.23	Pk	.3	.2	34.73	60	-25.27	-	-
46	15.9	20.5	Av	.3	.2	21	-	-	50	-29

Pk - Peak detector

Av - Average detection