FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE + BLUETOOTH + WLAN b/g/n & NFC WATCH

MODEL NUMBER: LG-W200A, LGW200A, W200A

FCC ID: ZNFW200A

REPORT NUMBER: 15I21604-E4V3

ISSUE DATE: OCTOBER 02, 2015

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/29/15	Initial Issue	
V2	10/01/15	Removed EMI Receiver from the Test Equipment list because it wasn't used in the testing. Updated the calibration date of the RF Preamplifier (1-40GHz).	I.Netto
V3	10/02/15	Updated Section 6	D. Coronia

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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 19

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND 19
9.2.2. 802.11g MODE IN THE 2.4 GHz BAND 19
9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 19
9.2.4. 99% BANDWIDTH MID CH PLOTS 20

9.3. OUTPUT POWER 22

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND 23
9.3.2. 802.11g MODE IN THE 2.4 GHz BAND 23
9.3.3. 802.11n HT20 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

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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 29
9.5.1. 802.11b MODE IN THE 2.4 GHz BAND 30
9.5.2. 802.11g MODE IN THE 2.4 GHz BAND 36
9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 42

10. RADIATED TEST RESULTS 48

10.1. LIMITS AND PROCEDURE 48

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 88

11. AC POWER LINE CONDUCTED EMISSIONS 90

12. SETUP PHOTOS 93

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION:	GSM/WCDMA/LTE + BLUETOOTH + WLAN b/g/n & NFC WATCH
MODEL:	LG-W200A, LGW200A, W200A
SERIAL NUMBER:	223B9
DATE TESTED:	JULY 6-27, 2015, AUGUST 28 – 29, 2015

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.

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, and KDB 558074 D01 v03r03, ANSI C63.10-2009 for FCC.

ANSI C63.10-2009 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:

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

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

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4.3. MEASUREMENT UNCERTAINTY

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

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

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE + BLUETOOTH + WLAN b/g/n & NFC WATCH

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	16.9	48.98
2412 - 2462	802.11g	13.1	20.42
2412 - 2462	802.11n HT20	11.9	15.49

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -1.9 dBi.

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5.4. WORST-CASE CONFIGURATION AND MODE

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

The fundamental of the EUT was investigated in three orthogonal orientations X, Y, Z it was determined that Y orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Y orientation.

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

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

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5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
AC Adapter	LG	MCS-02WRE	RB550800170	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

TEST SETUP

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

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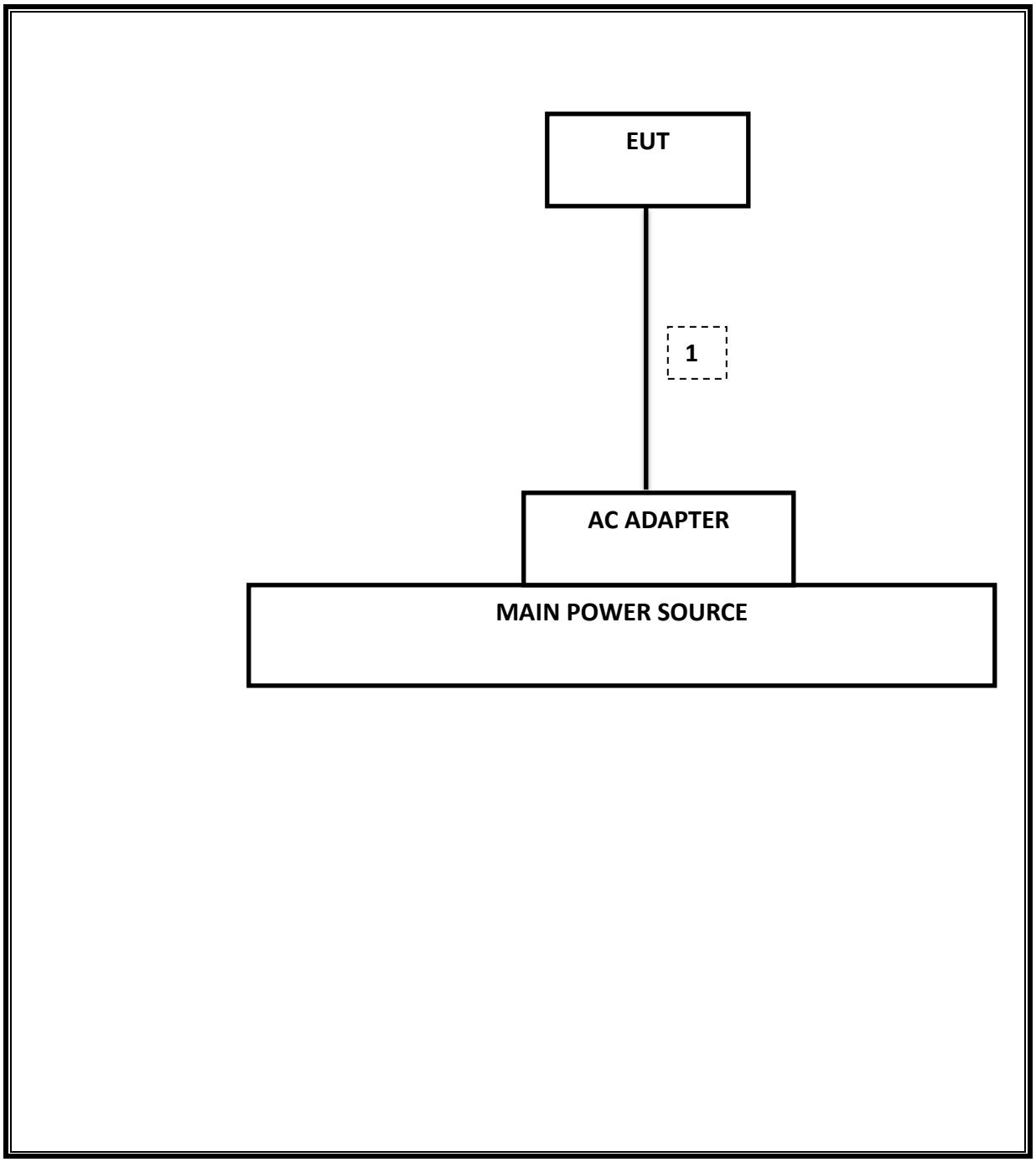
SETUP DIAGRAM FOR TESTS



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6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	**Manufacturer**	**Model**	**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	100773	08/07/16
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/15/16
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	06/28/16
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/16
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	T404	06/29/16
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/16
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/16
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/16
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/16
Radiated Software	UL	UL EMC	Ver 9.5, Jul 22, 2014	
Conducted Software	UL	UL EMC	Ver 9.5, May 17 2012	
CLT Software	UL	UL RF	Ver 1.0, Feb 2 2015	
Antenna Port Software	UL	UL RF	Ver 2.1.1.1, Jan 20 2015	

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7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r03: 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.

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8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-247 5.2.1	Occupied Band width (6dB)	>500KHz	Conducted	Pass	7.88 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-40.54 dBm
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass	16.90 dBm
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass	-4.75 dBm
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	54.86 dBuV
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	42.98 dBuV/m

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9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v03r03: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

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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	9.09	0.5
High	2462	9.02	0.5
Worst		8.07	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.31	0.5
Mid	2437	8.86	0.5
High	2462	7.88	0.5
Worst		7.88	

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	15.07	0.5
Mid	2437	16.05	0.5
High	2462	14.52	0.5
Worst		14.52	

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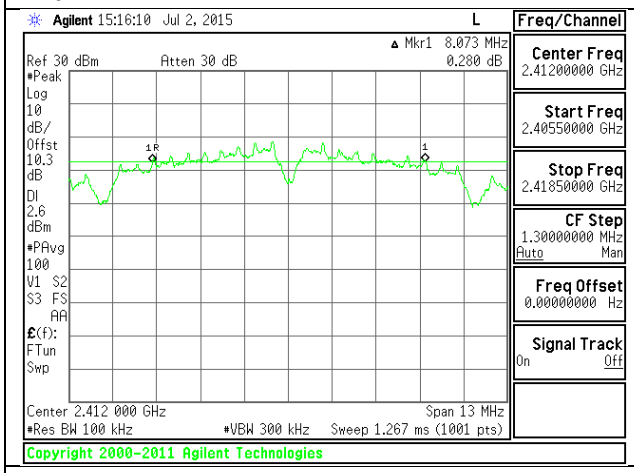
9.1.4. 6 dB BANDWIDTH MID CH PLOTS

11b 2.4



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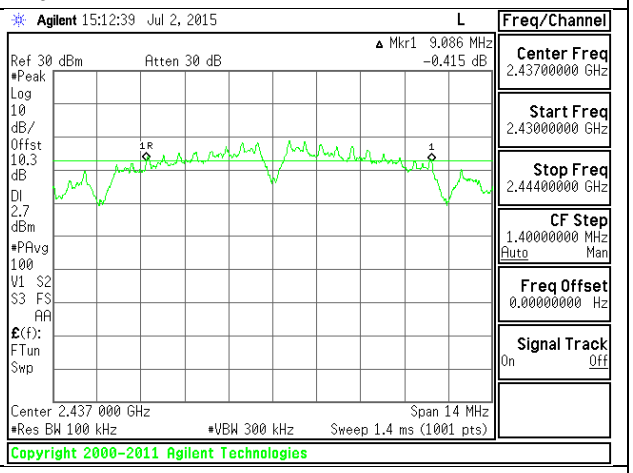

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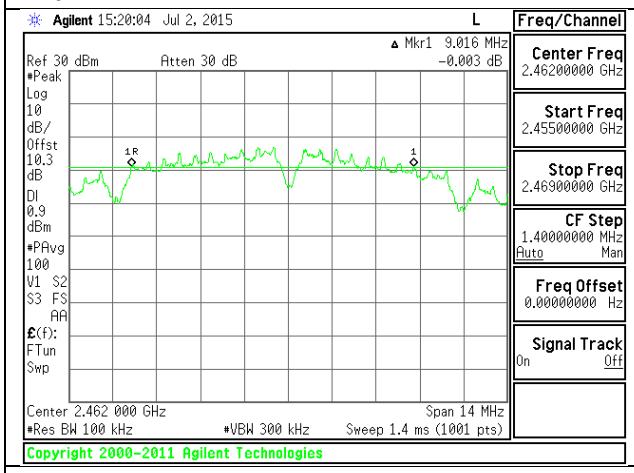

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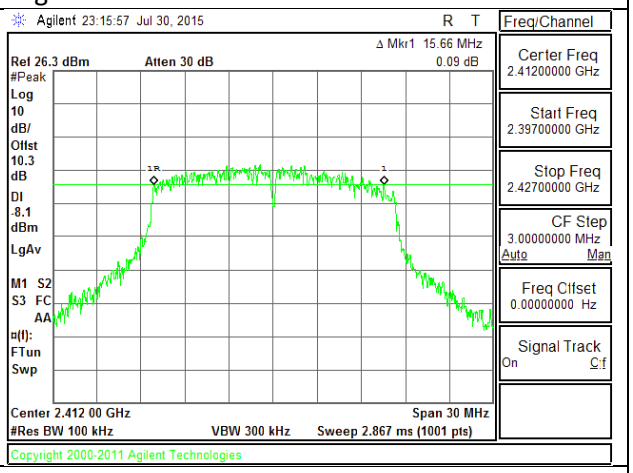

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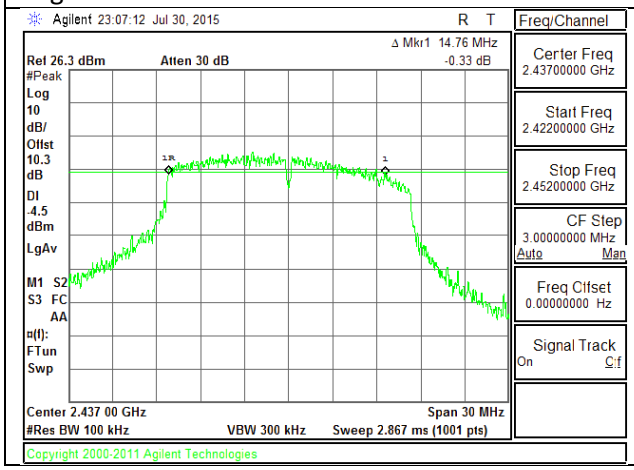

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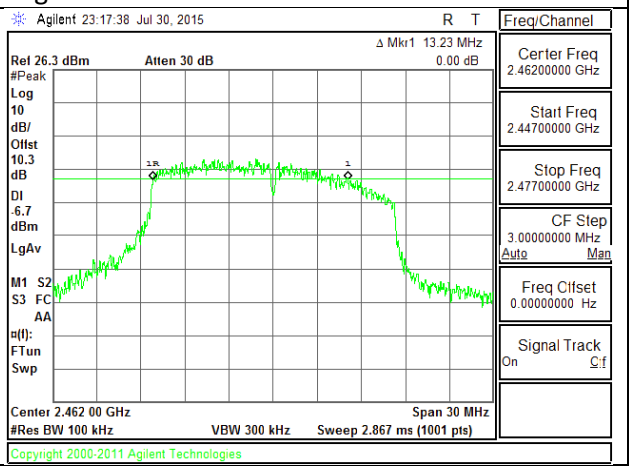

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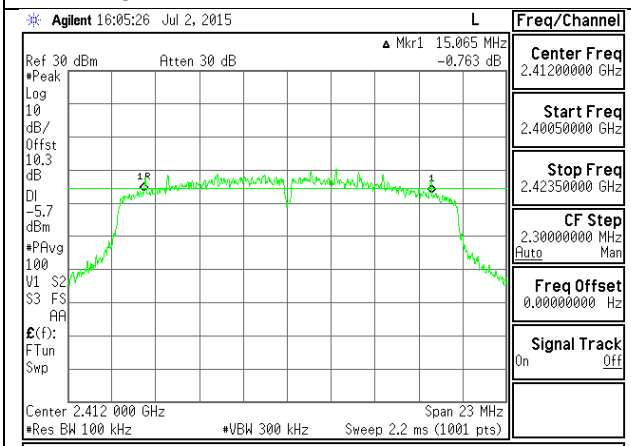
11n HT20 2.4



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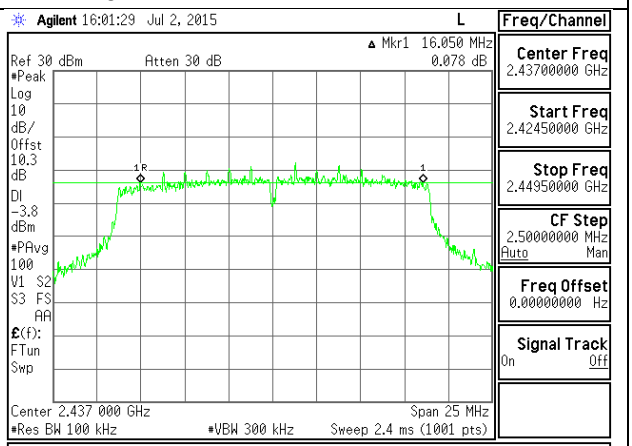

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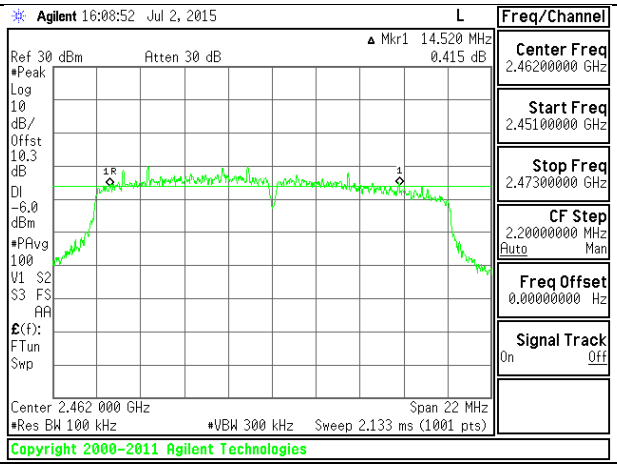

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9.2. 99% BANDWIDTH

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	13.79
Mid	2437	14.22
High	2462	14.25
Worst		14.25

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	13.34
Mid	2437	13.75
High	2462	13.84
Worst		13.84

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.13
Mid	2437	17.44
High	2462	17.29
Worst		17.44

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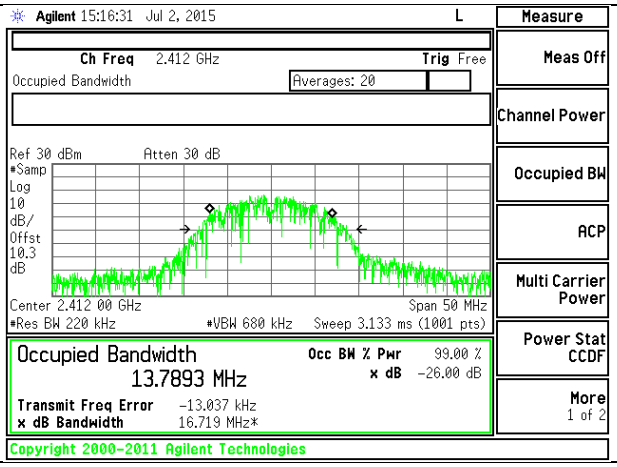
9.2.4. 99% BANDWIDTH MID CH PLOTS

11b 2.4



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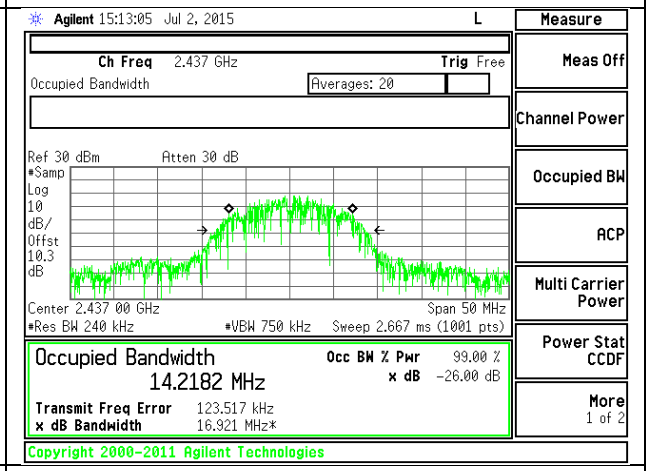

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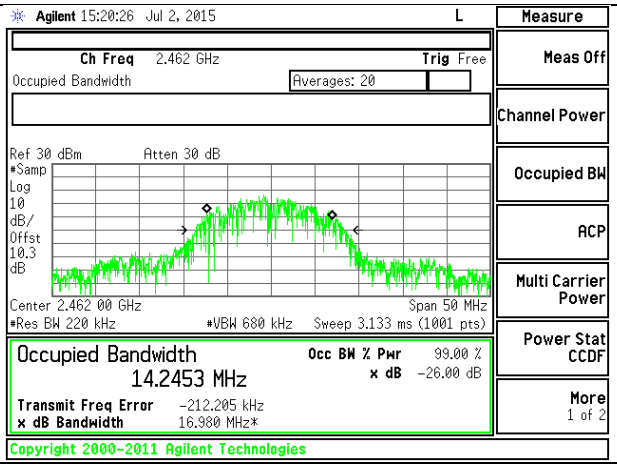

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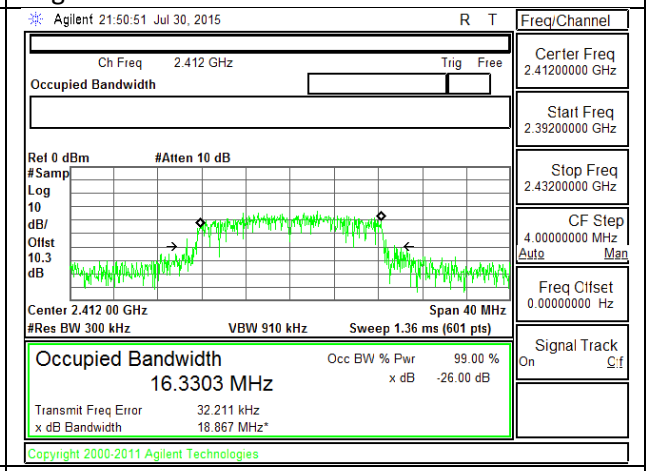

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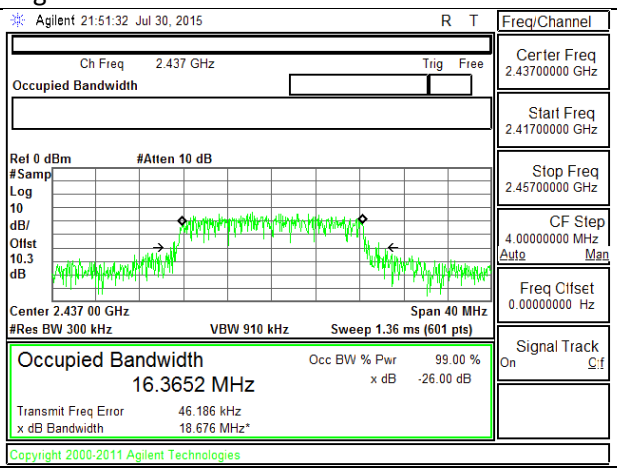

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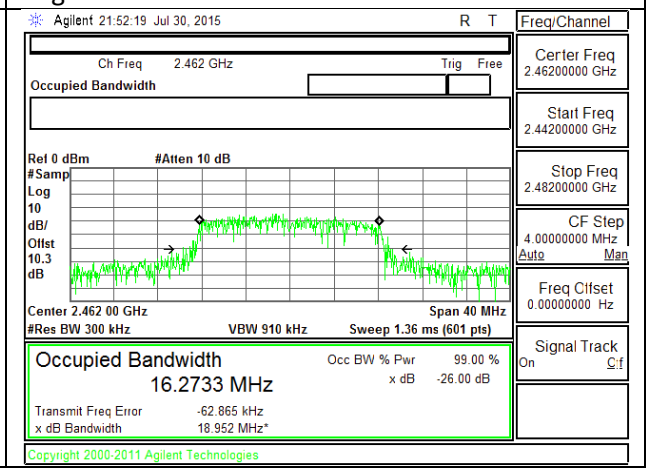

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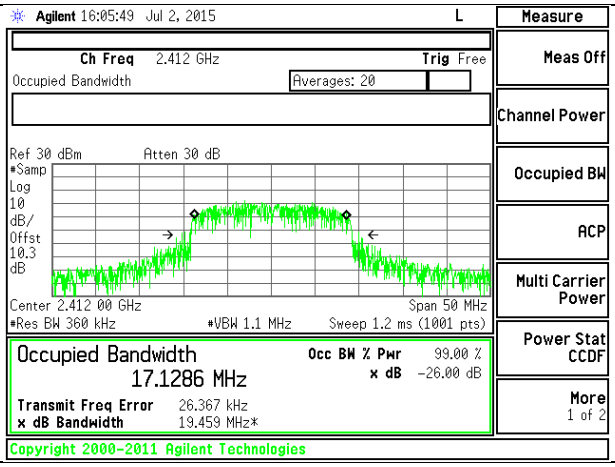
11n HT20 2.4



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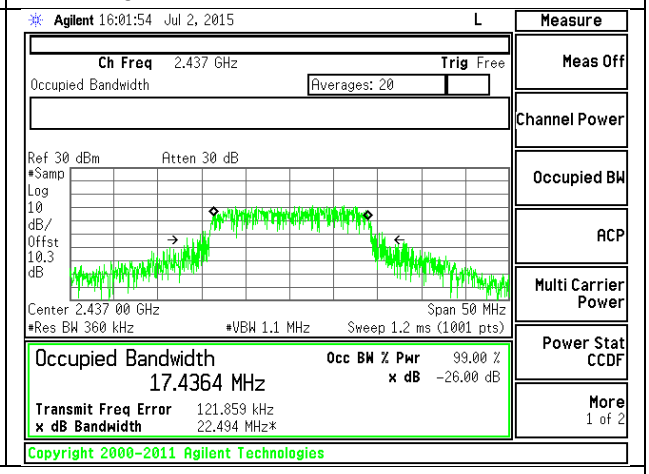

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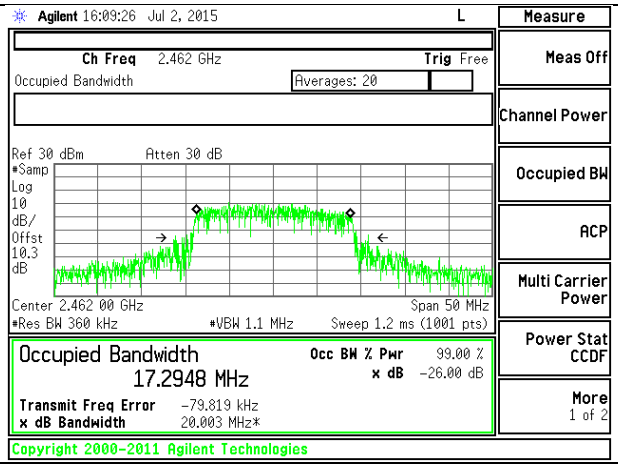

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9.3. OUTPUT POWER

LIMITS

FCC §15.247

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

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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		30.00	30	36	30.00
Mid	2437		30.00	30	36	30.00
High	2462		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	16.40	16.40	30.00	-13.60
Mid	2437	16.90	16.90	30.00	-13.10
High	2462	15.70	15.70	30.00	-14.30
Worst			16.90		

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		30.00	30	36	30.00
Mid	2437		30.00	30	36	30.00
High	2462		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	12.40	12.40	30.00	-17.60
Mid	2437	13.10	13.10	30.00	-16.90
High	2462	11.70	11.70	30.00	-18.30
Worst			13.10		

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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		30.00	30	36	30.00
Mid	2437		30.00	30	36	30.00
High	2462		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	11.20	11.20	30.00	-18.80
Mid	2437	11.90	11.90	30.00	-18.10
High	2462	10.30	10.30	30.00	-19.70
Worst			11.90		

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9.4. PSD

LIMITS

FCC §15.247

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

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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	-5.07	8.0	-13.1
Mid	2437	-4.75	8.0	-12.7
High	2462	-6.03	8.0	-14.0

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	-5.85	8.0	-13.9
Mid	2437	-5.57	8.0	-13.6
High	2462	-6.99	8.0	-15.0

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	-12.42	8.0	-20.4
Mid	2437	-12.34	8.0	-20.3
High	2462	-13.58	8.0	-21.6

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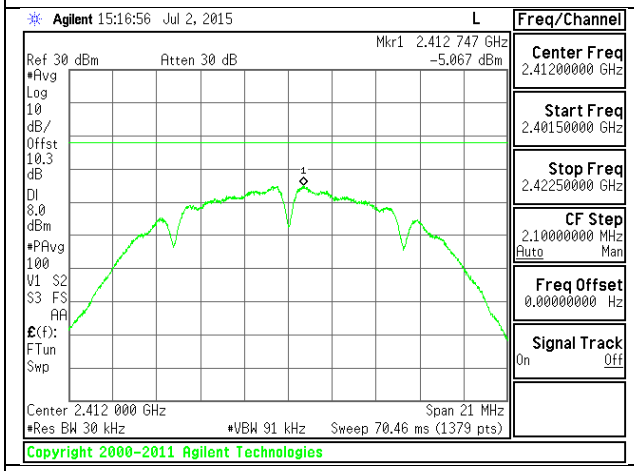
9.4.4. PSD Chain 0 MID CH PLOTS

11b 2.4



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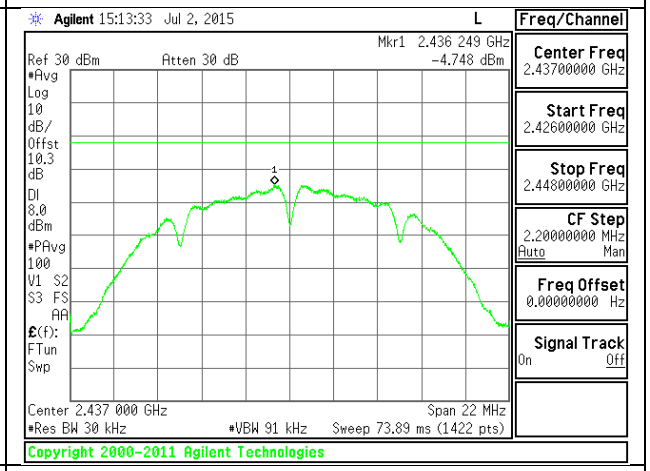

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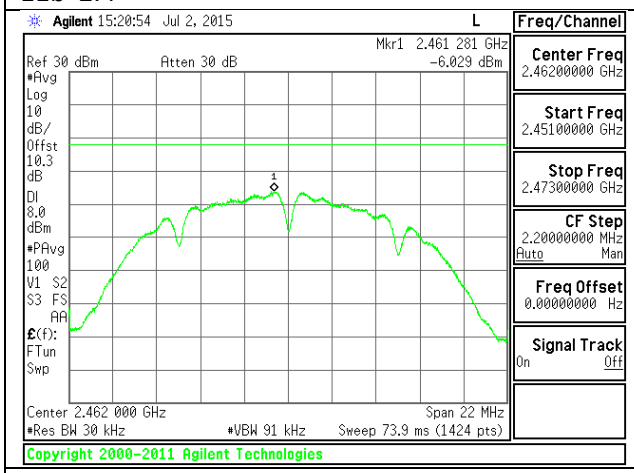

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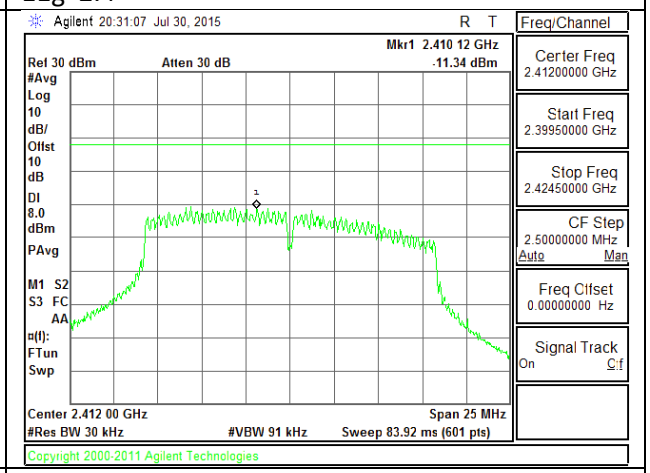

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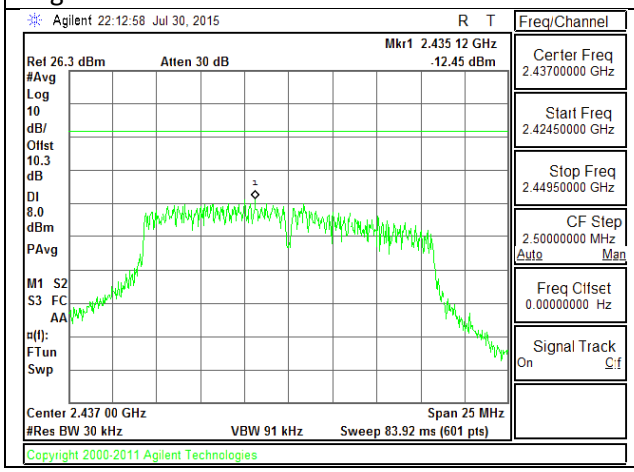

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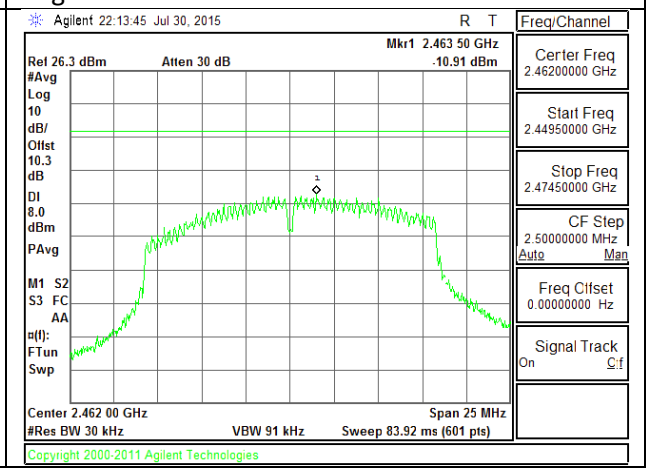

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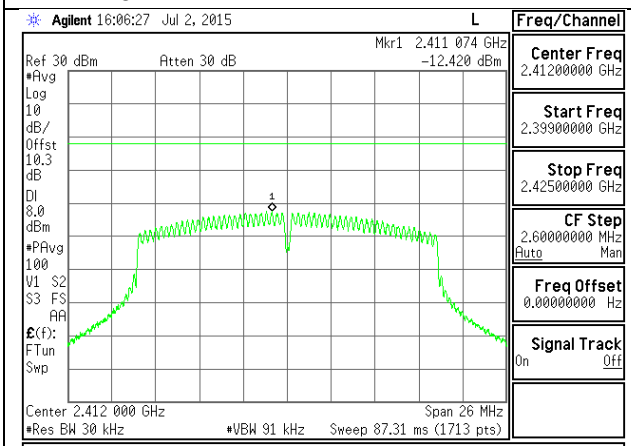
11n HT20 2.4



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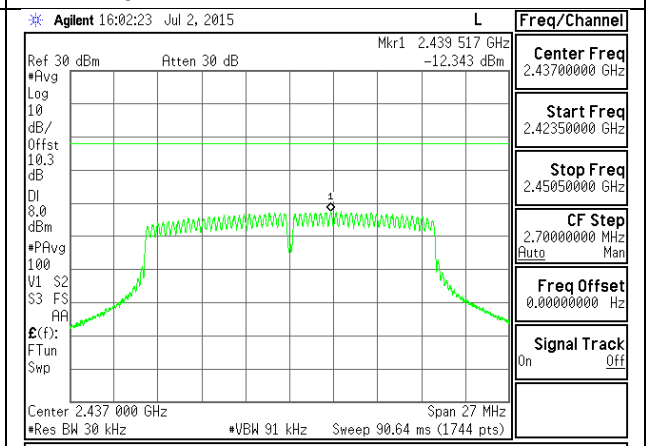

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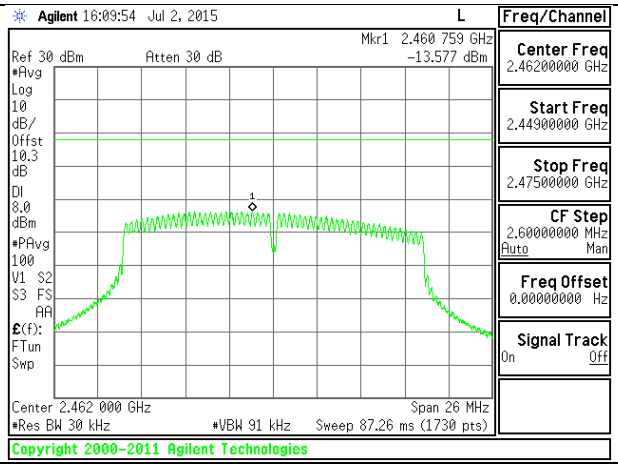

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9.5. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

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

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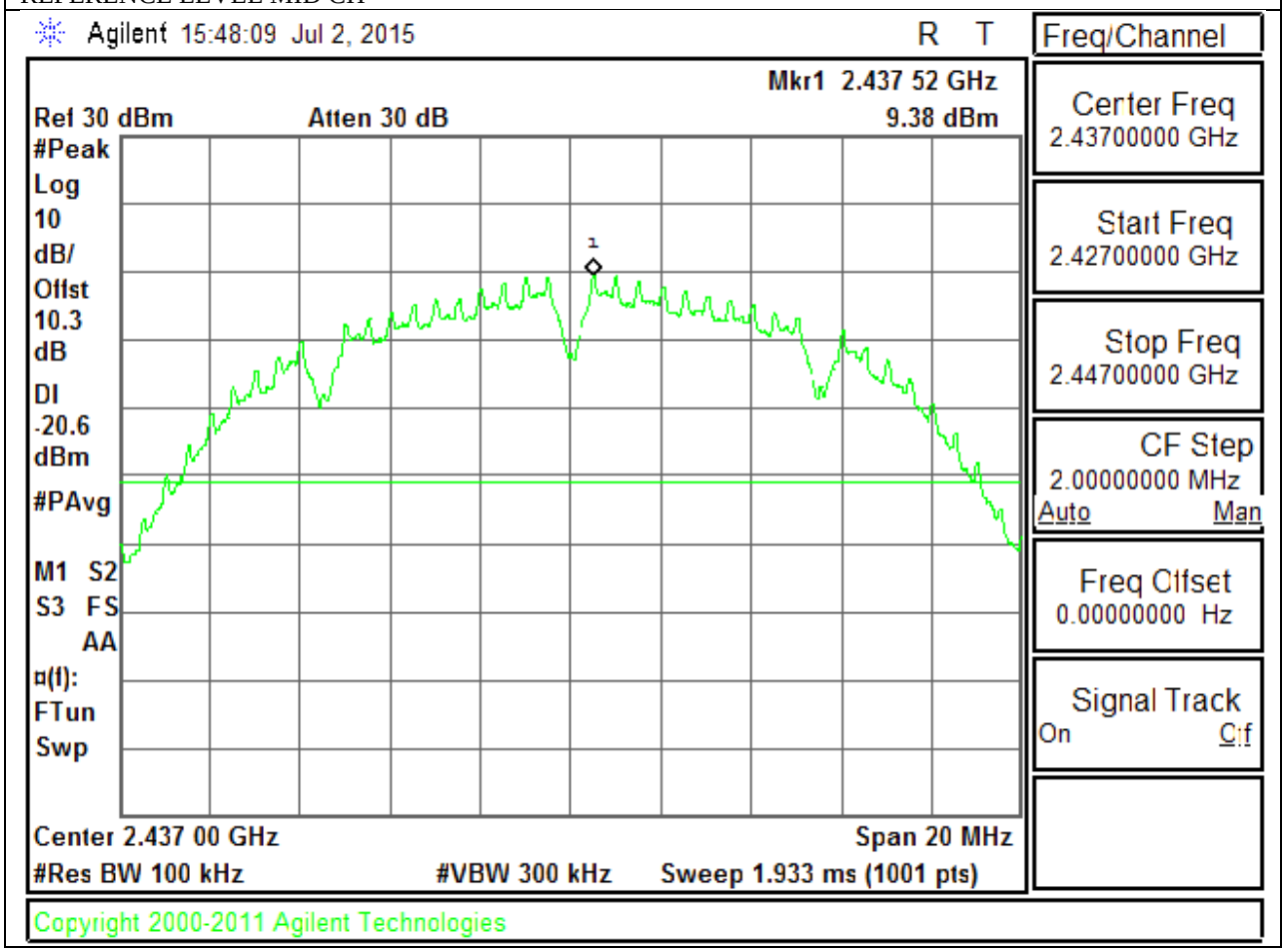
9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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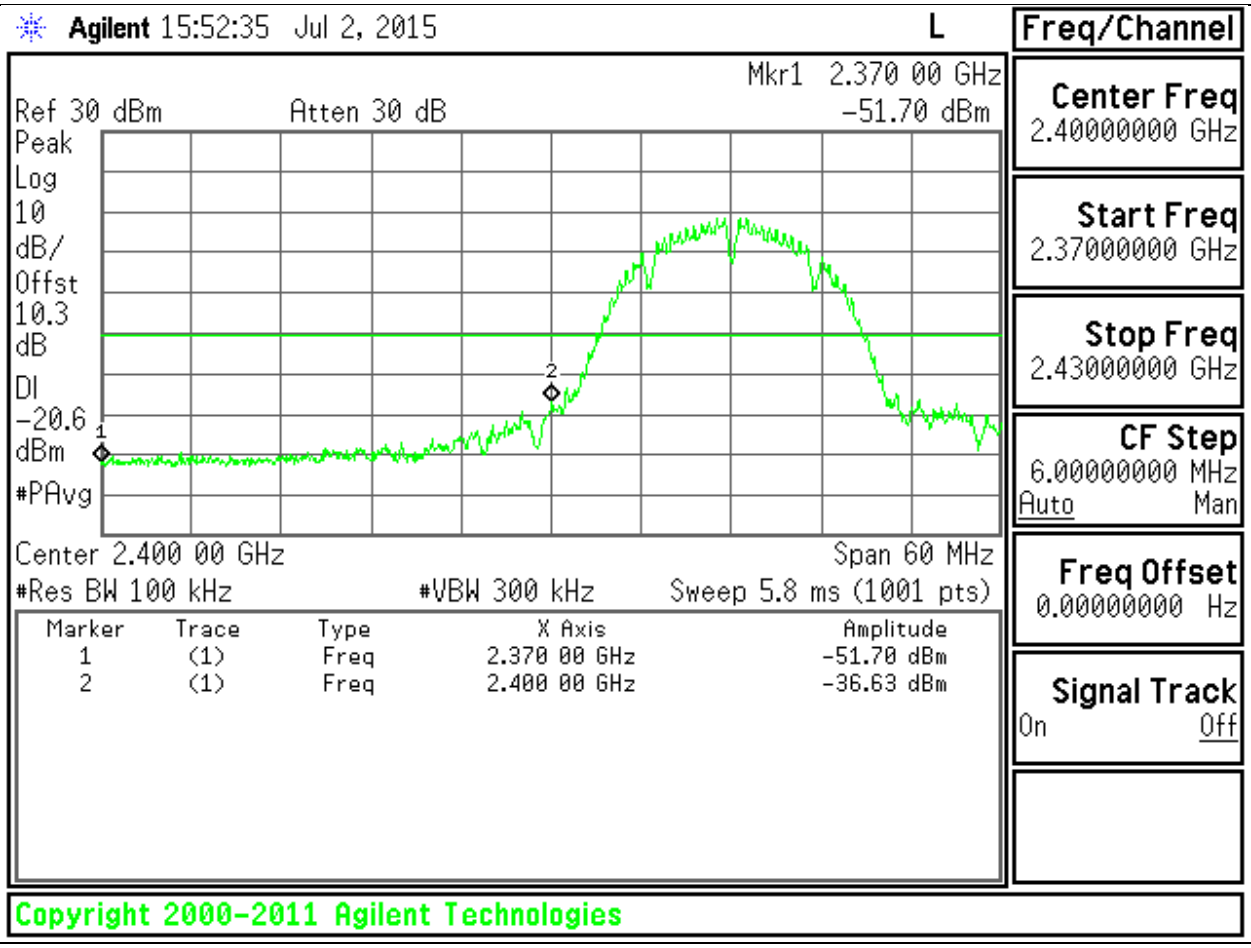
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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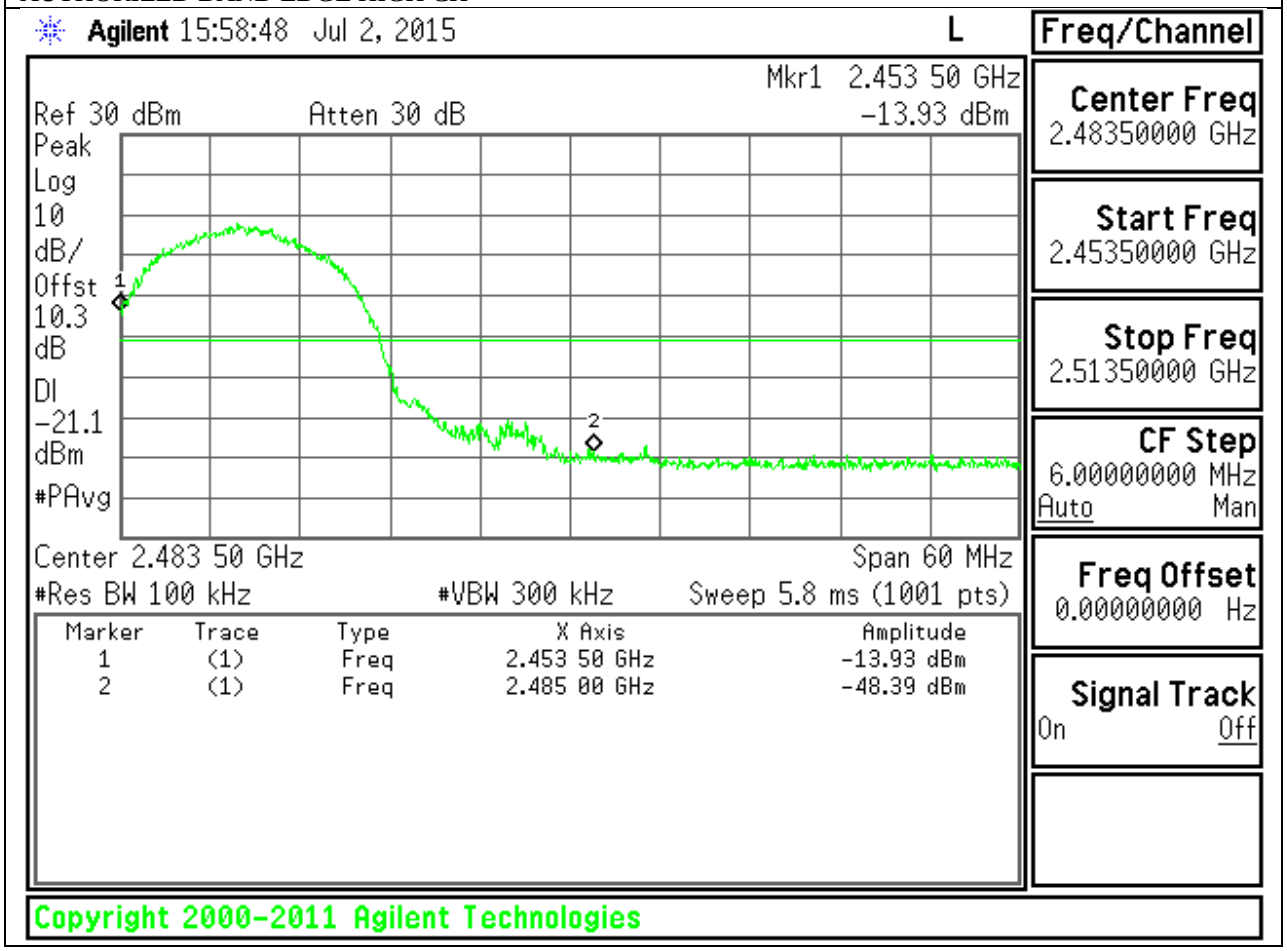
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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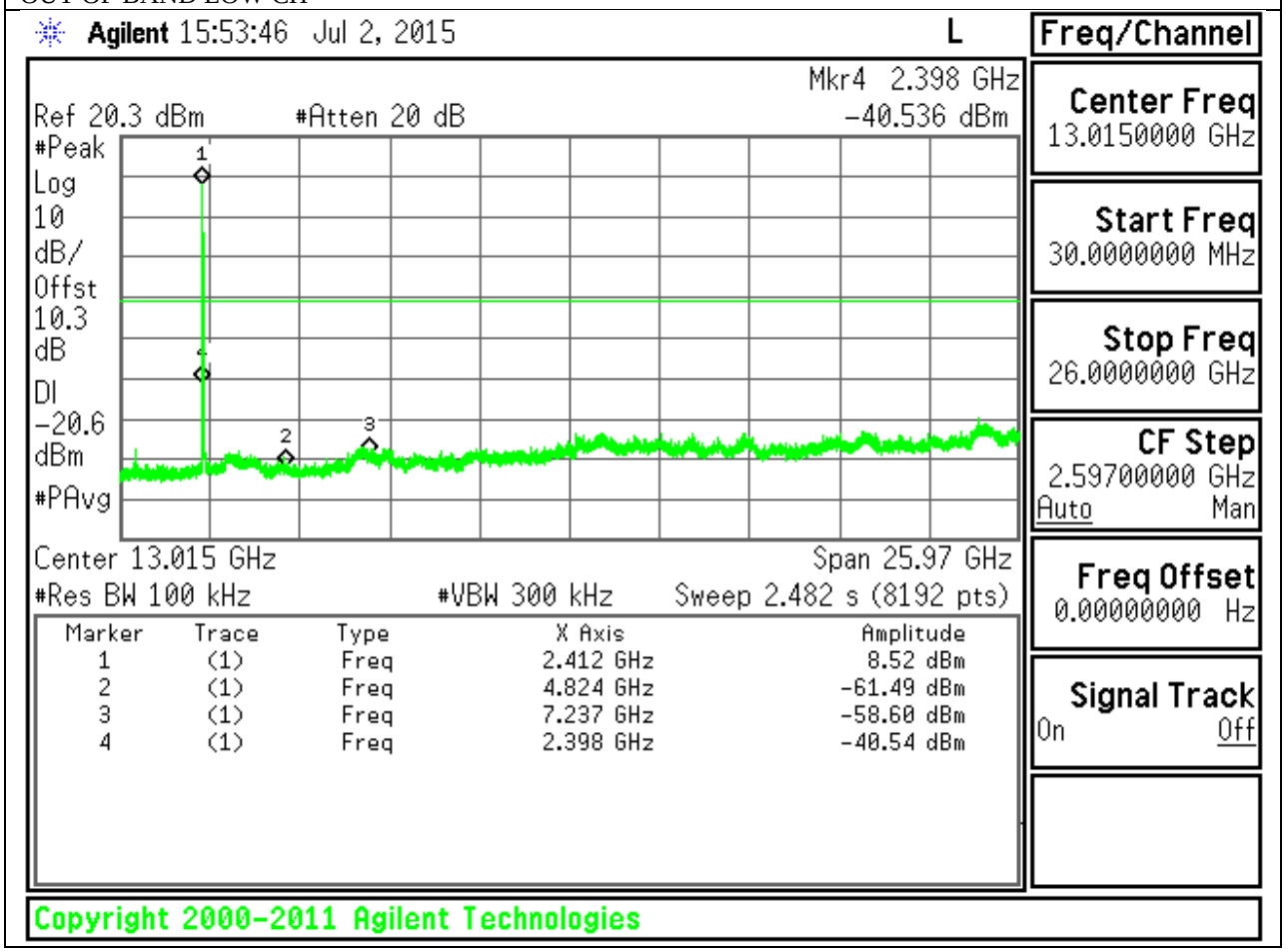
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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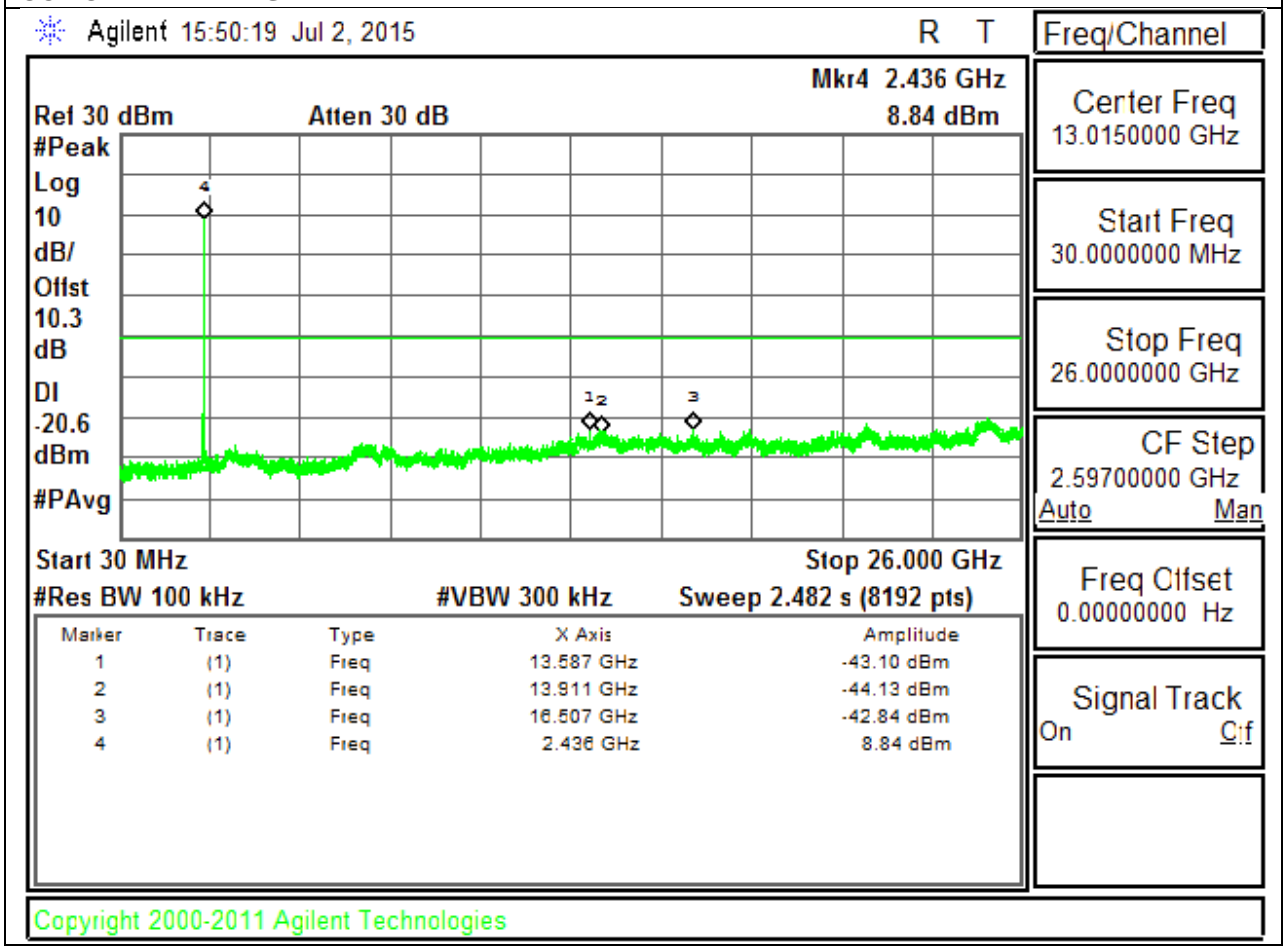
OUT OF BAND MID CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	13.587 GHz	-43.10 dBm
2	(1)	Freq	13.911 GHz	-44.13 dBm
3	(1)	Freq	16.507 GHz	-42.84 dBm
4	(1)	Freq	2.436 GHz	8.84 dBm

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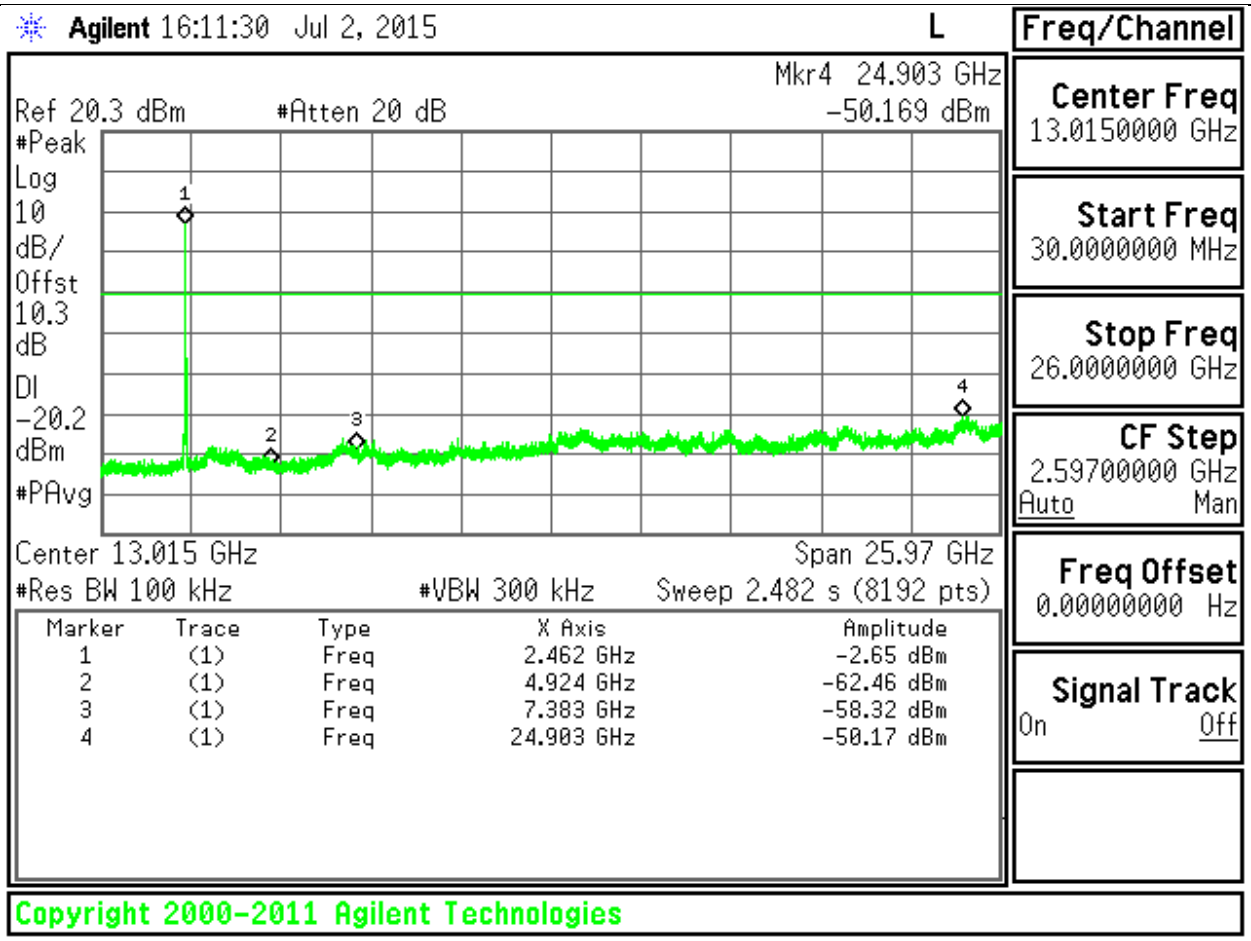
OUT OF BAND HIGH CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.462 GHz	-2.65 dBm
2	(1)	Freq	4.924 GHz	-62.46 dBm
3	(1)	Freq	7.383 GHz	-58.32 dBm
4	(1)	Freq	24.903 GHz	-50.17 dBm

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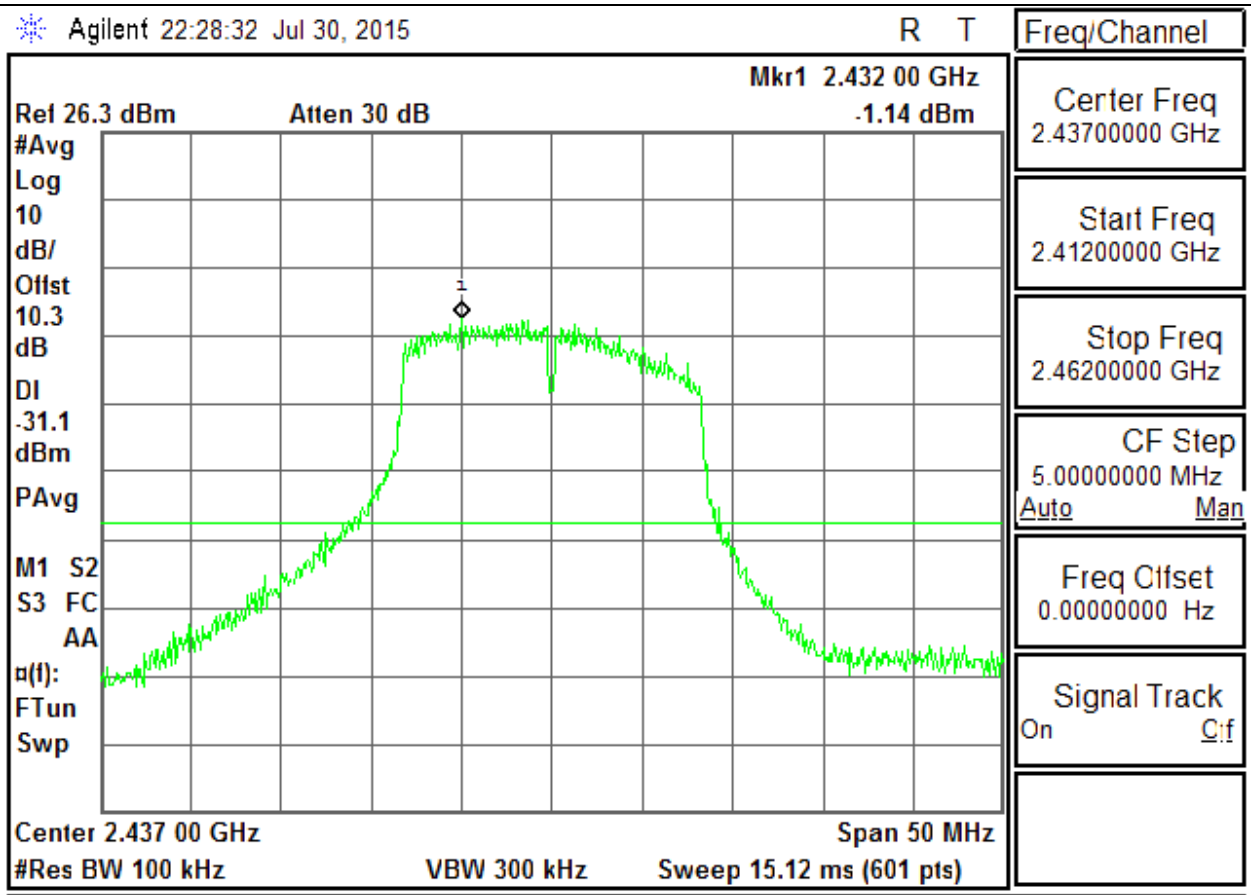
9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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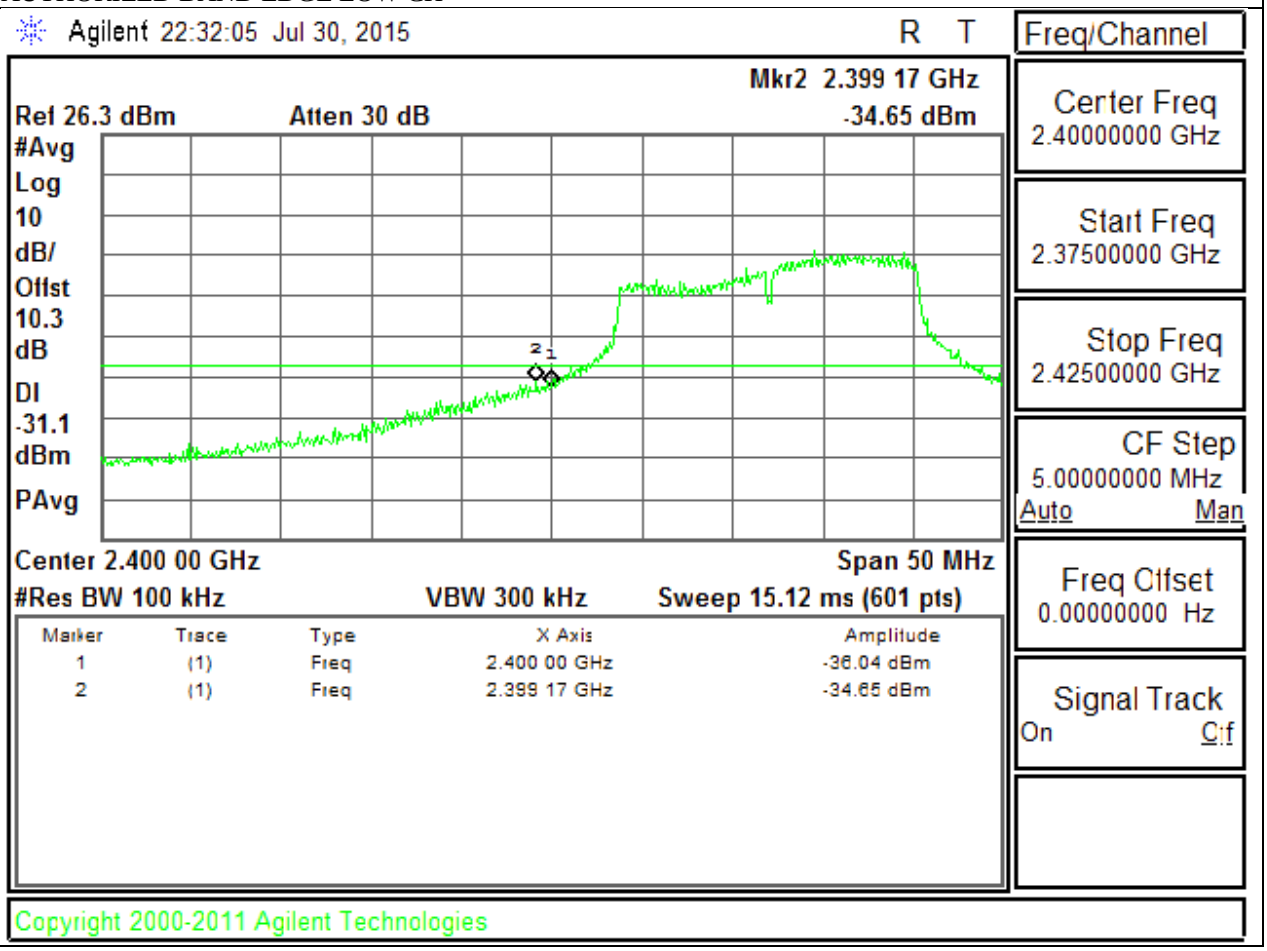
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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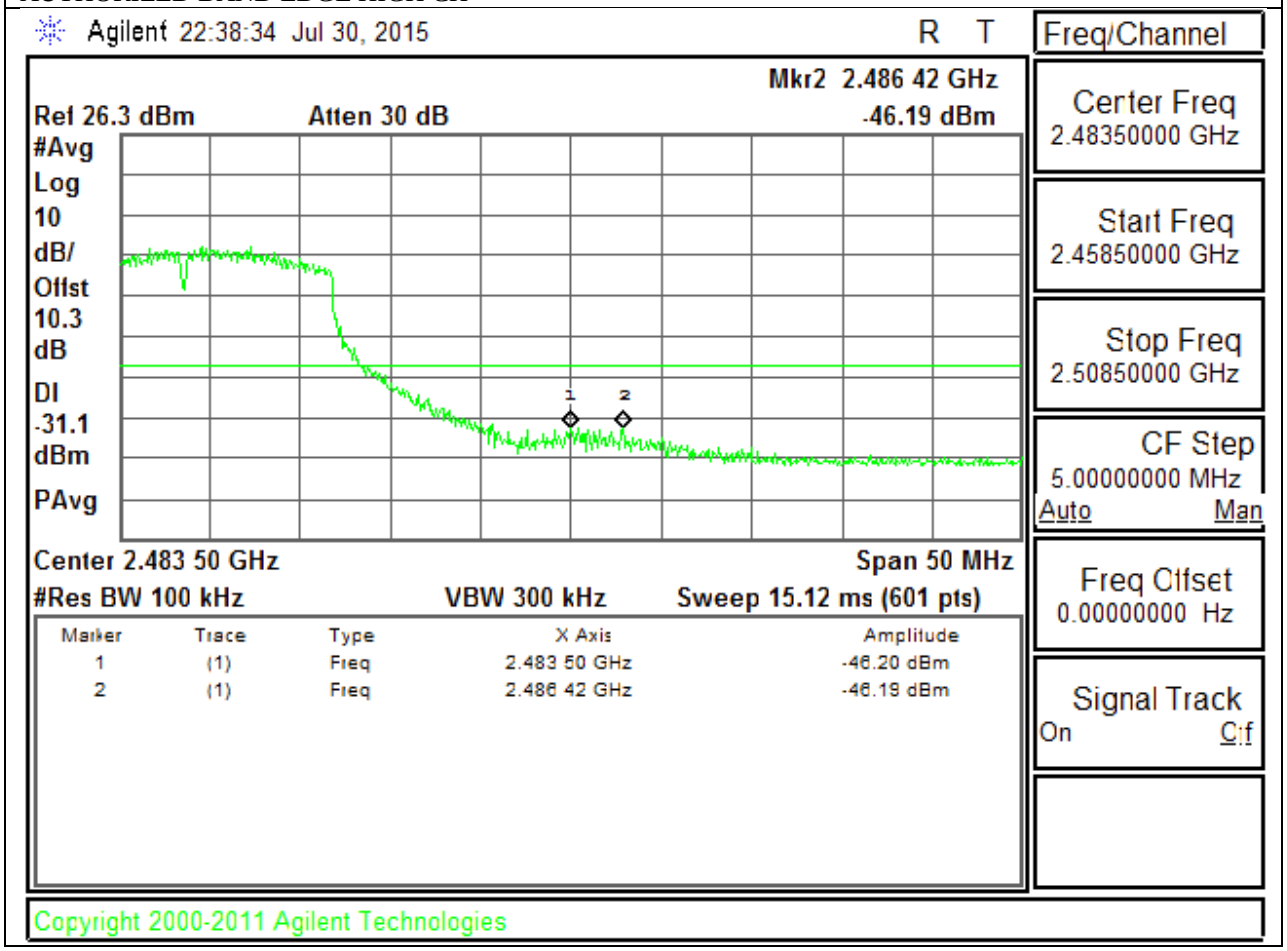
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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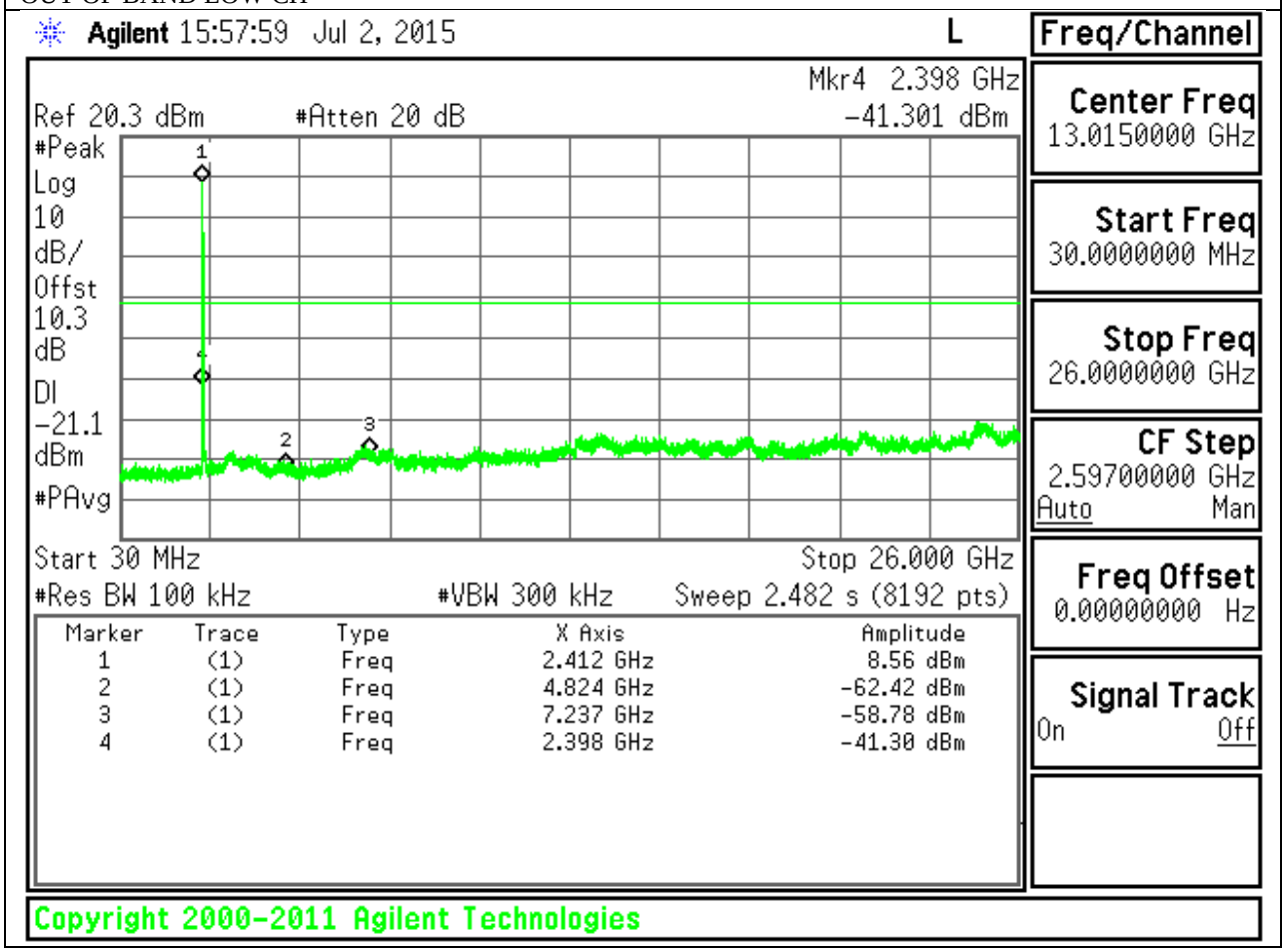
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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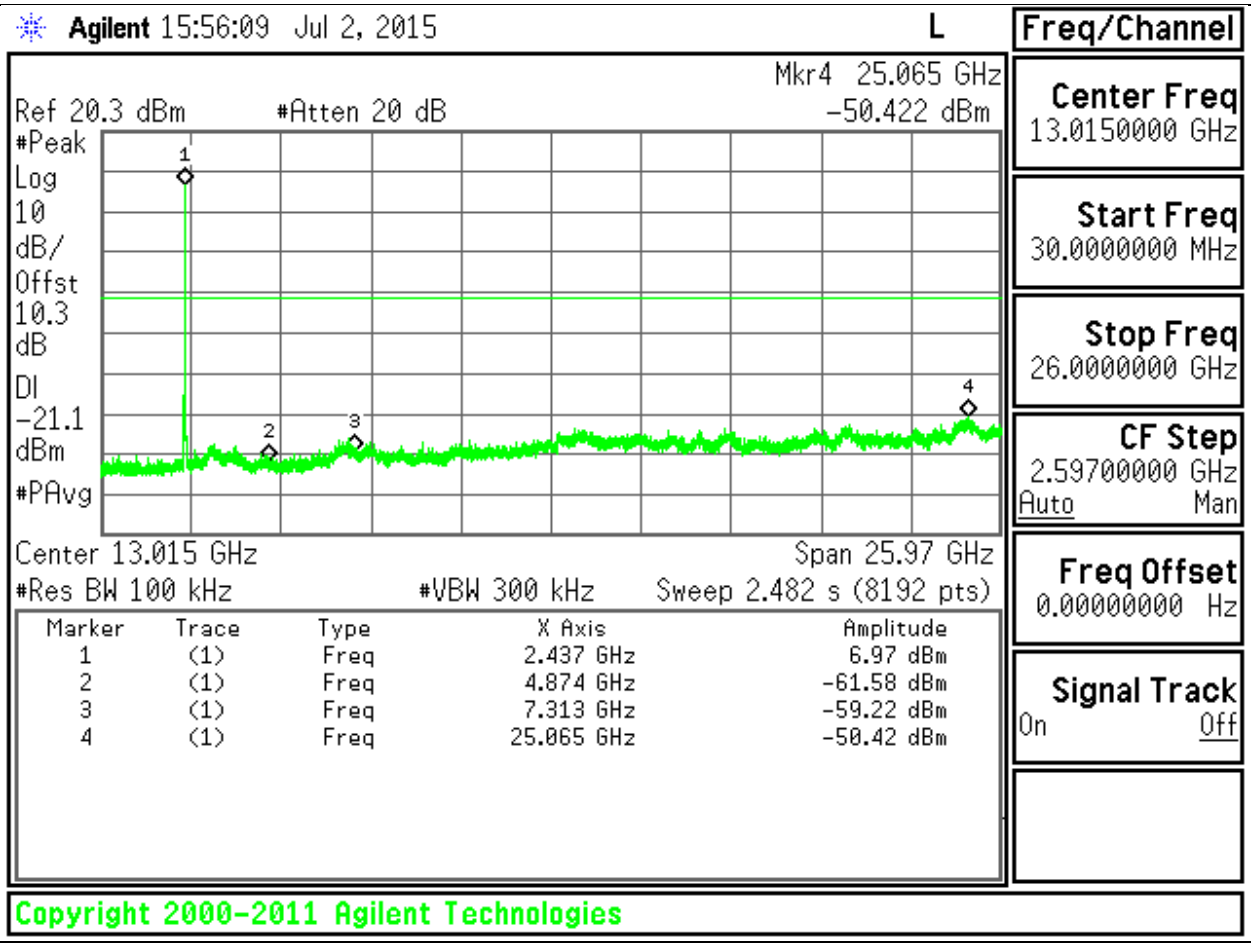
OUT OF BAND MID CH



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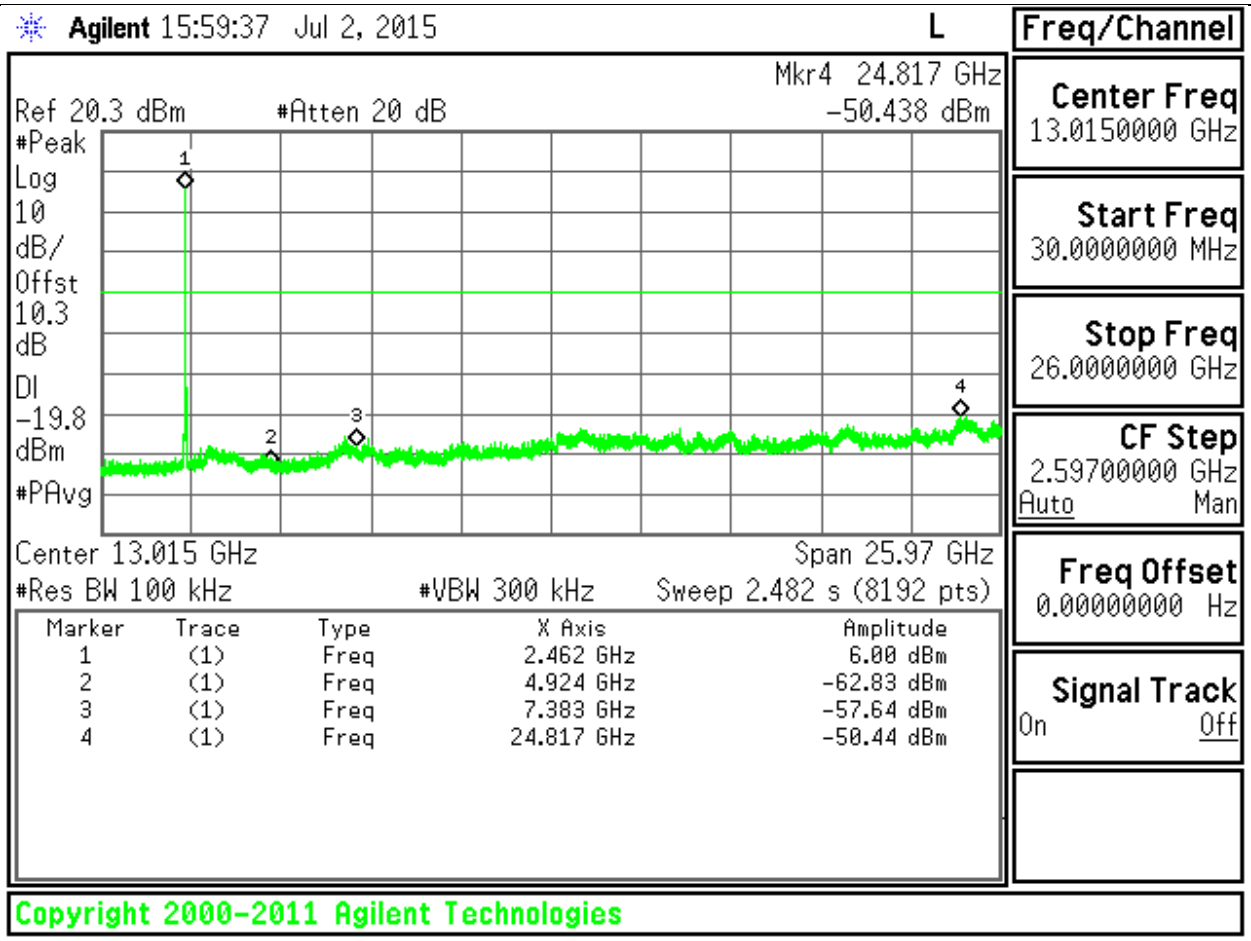
OUT OF BAND HIGH CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.462 GHz	6.00 dBm
2	(1)	Freq	4.924 GHz	-62.83 dBm
3	(1)	Freq	7.383 GHz	-57.64 dBm
4	(1)	Freq	24.817 GHz	-50.44 dBm

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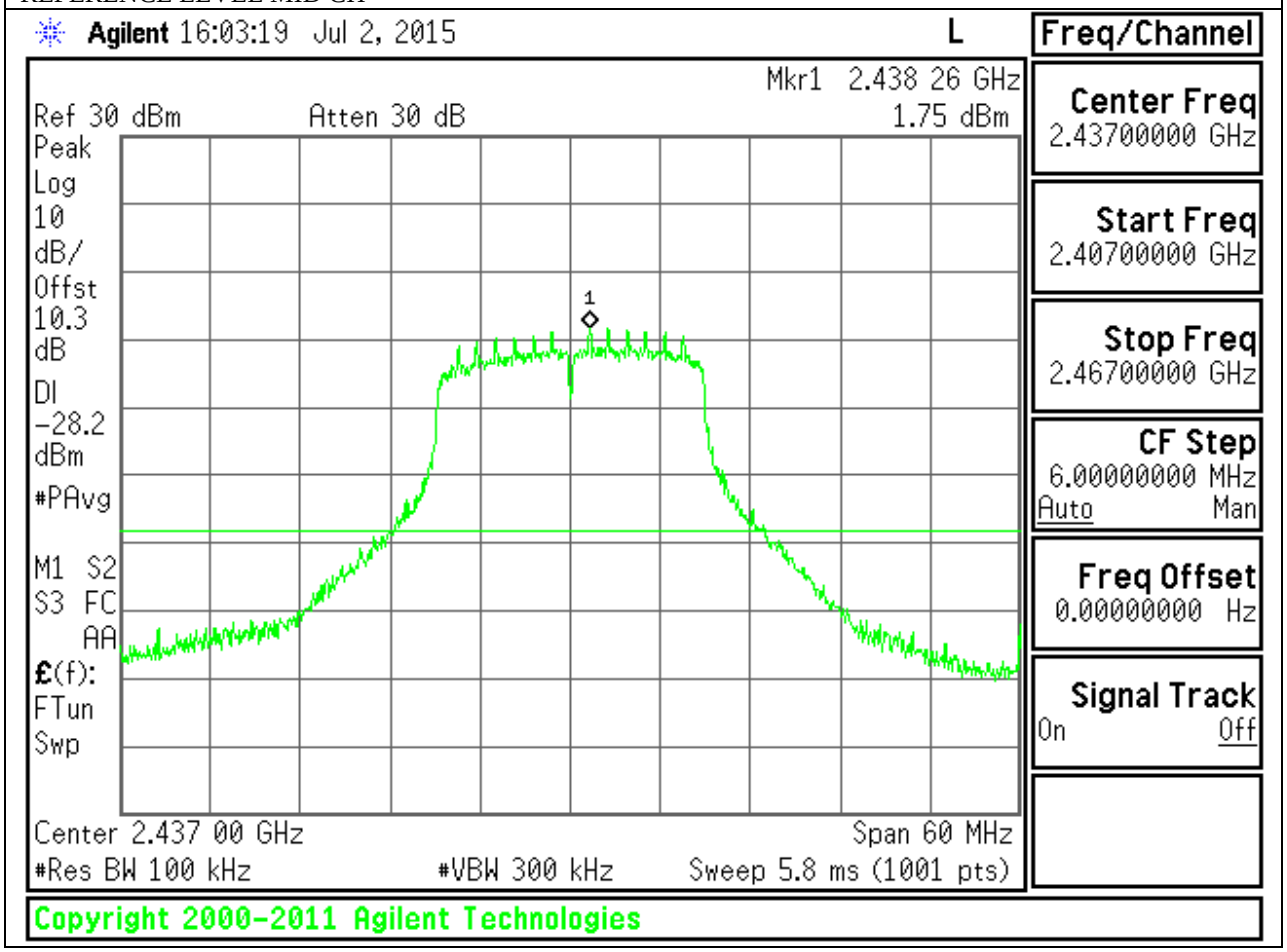
9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL MID CH



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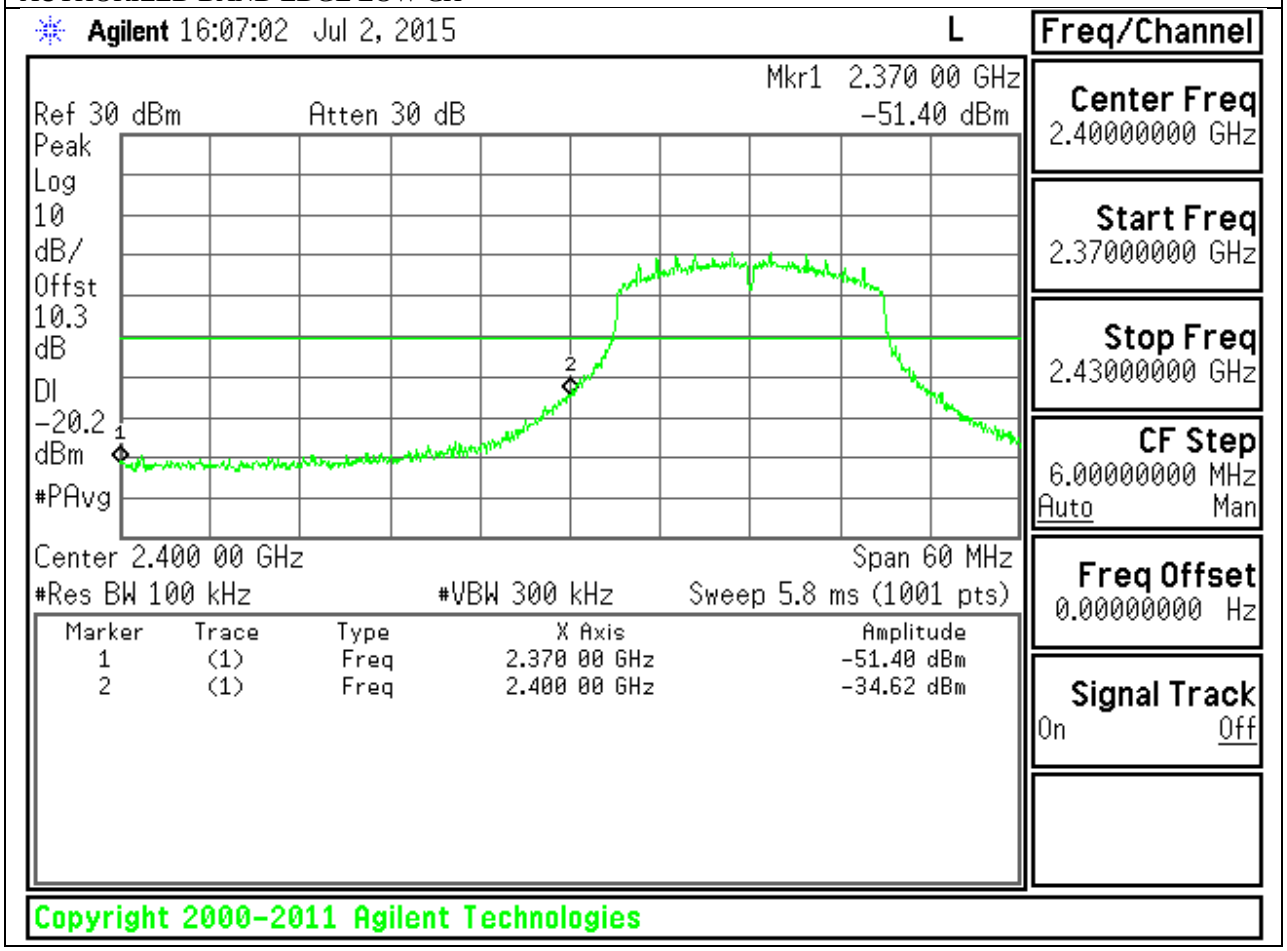
LOW CHANNEL BANDEDGE

AUTHORIZED BAND EDGE LOW CH



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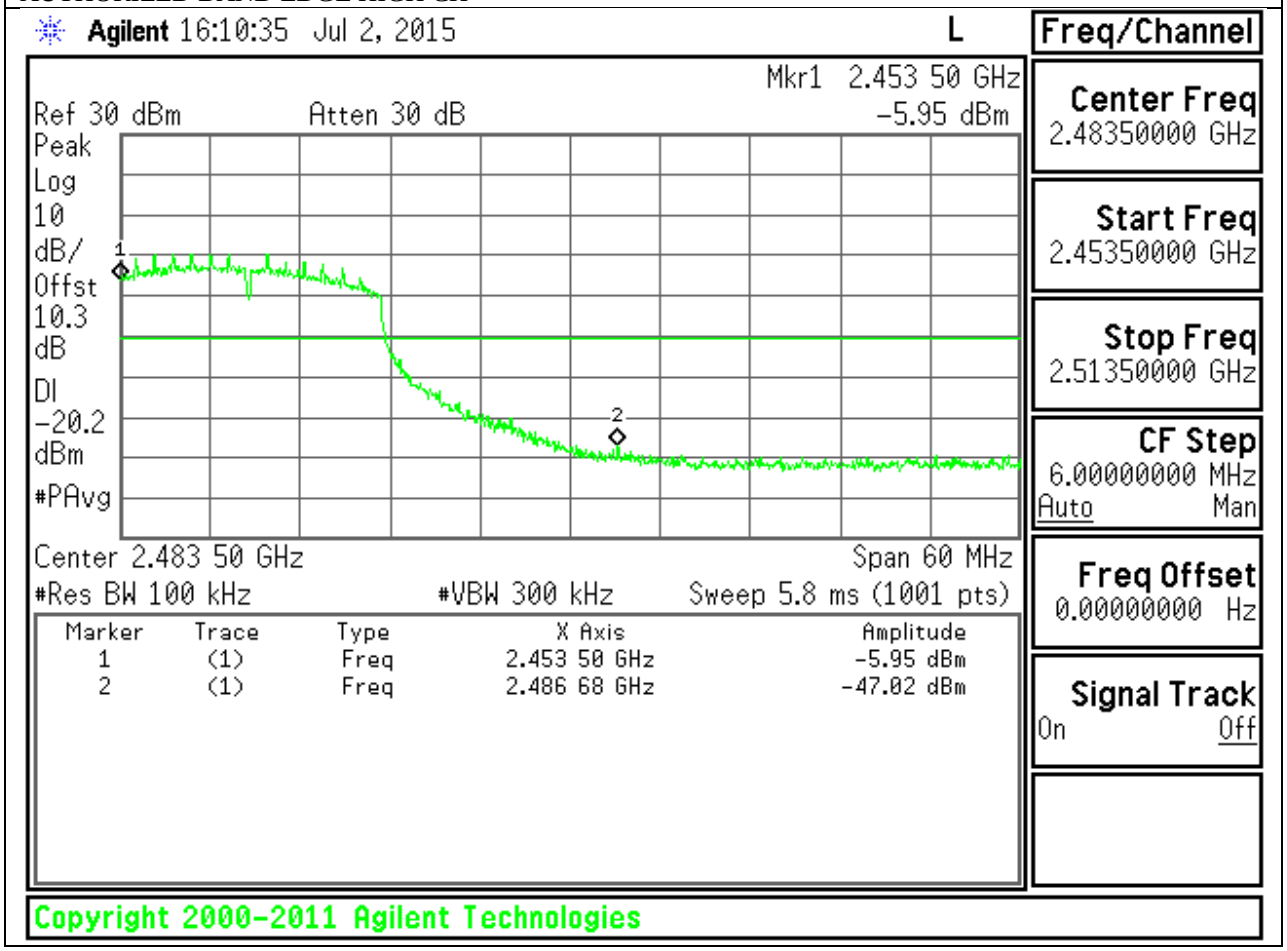
HIGH CHANNEL BANDEDGE

AUTHORIZED BAND EDGE HIGH CH



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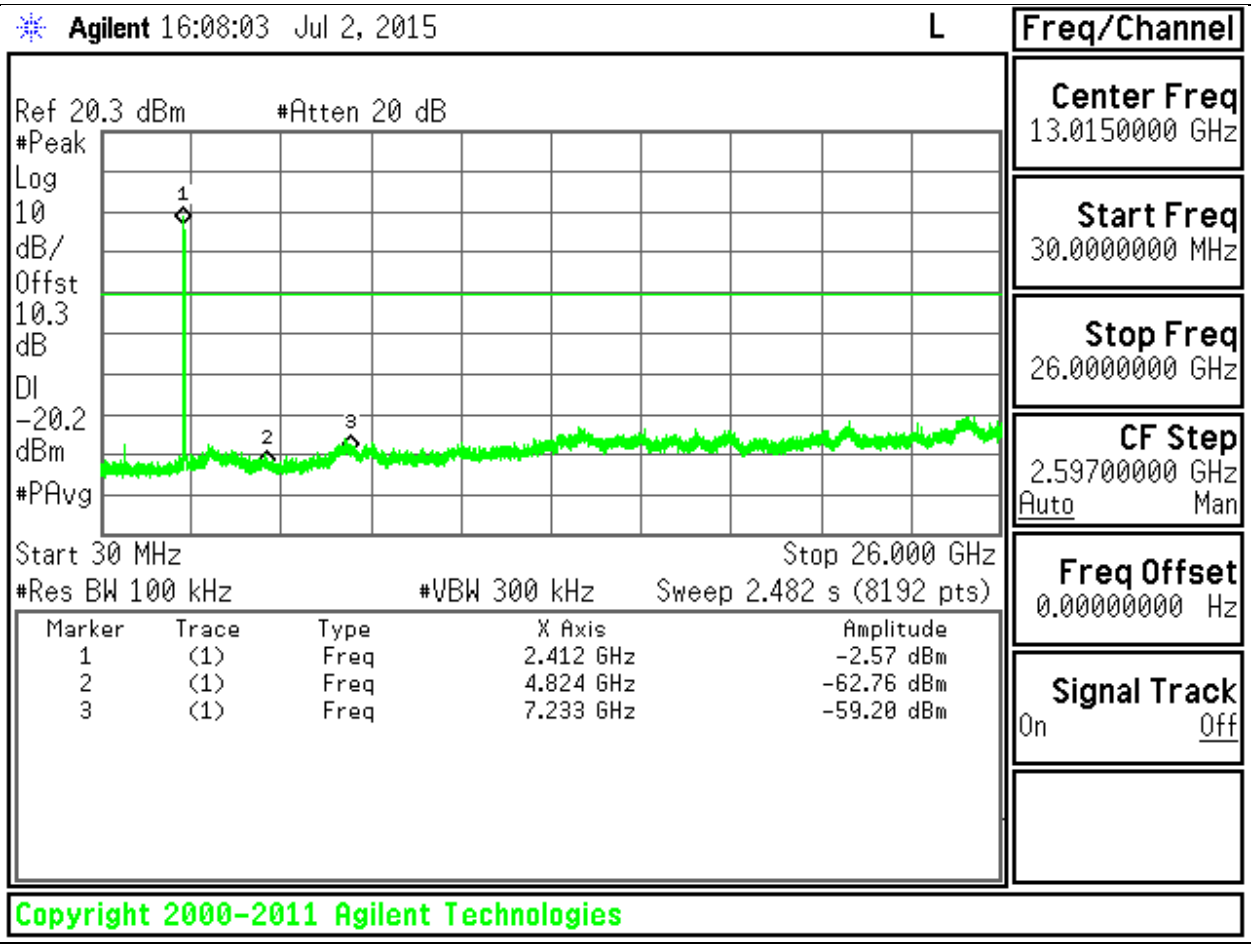
OUT-OF-BAND EMISSIONS

OUT OF BAND LOW CH



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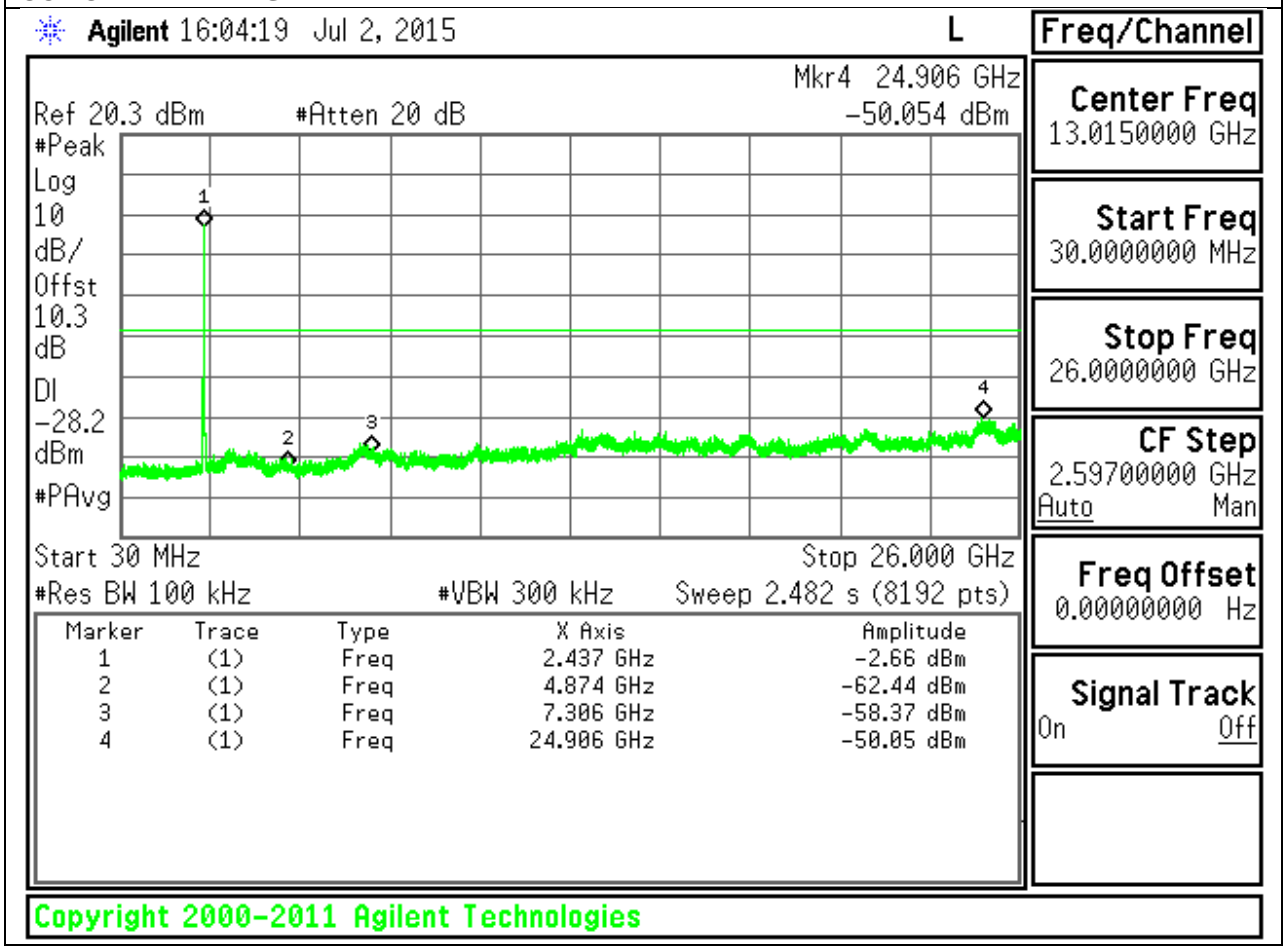
OUT OF BAND MID CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.437 GHz	-2.66 dBm
2	(1)	Freq	4.874 GHz	-62.44 dBm
3	(1)	Freq	7.306 GHz	-58.37 dBm
4	(1)	Freq	24.906 GHz	-50.05 dBm

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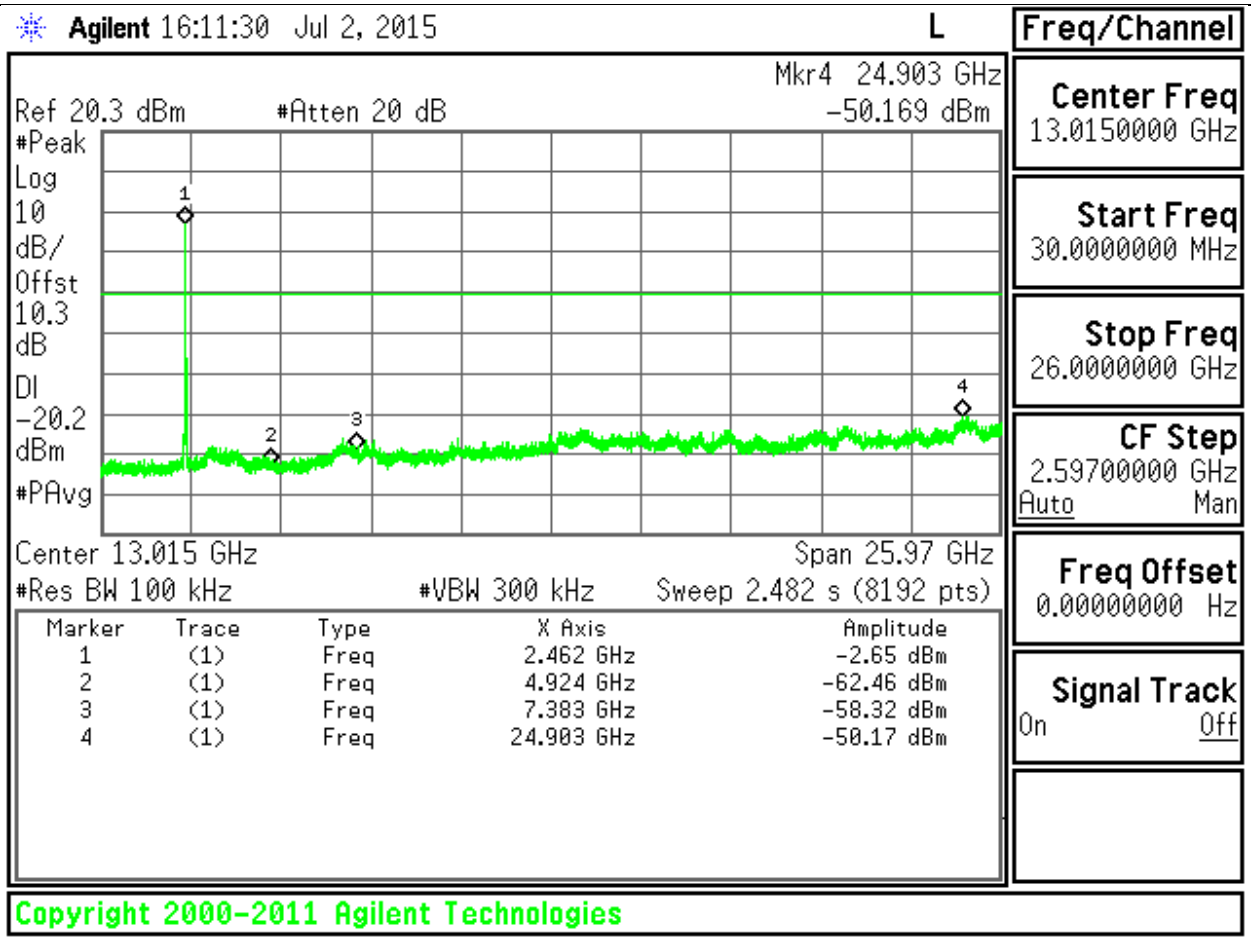
OUT OF BAND HIGH CH



Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.462 GHz	-2.65 dBm
2	(1)	Freq	4.924 GHz	-62.46 dBm
3	(1)	Freq	7.383 GHz	-58.32 dBm
4	(1)	Freq	24.903 GHz	-50.17 dBm

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10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150cm for above 1GHz. The antenna to EUT distance is 3 meters.

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= 10log (1/x) For this sample B mode = 0dB (duty cycle >98%); G mode = 0.21dB; 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.

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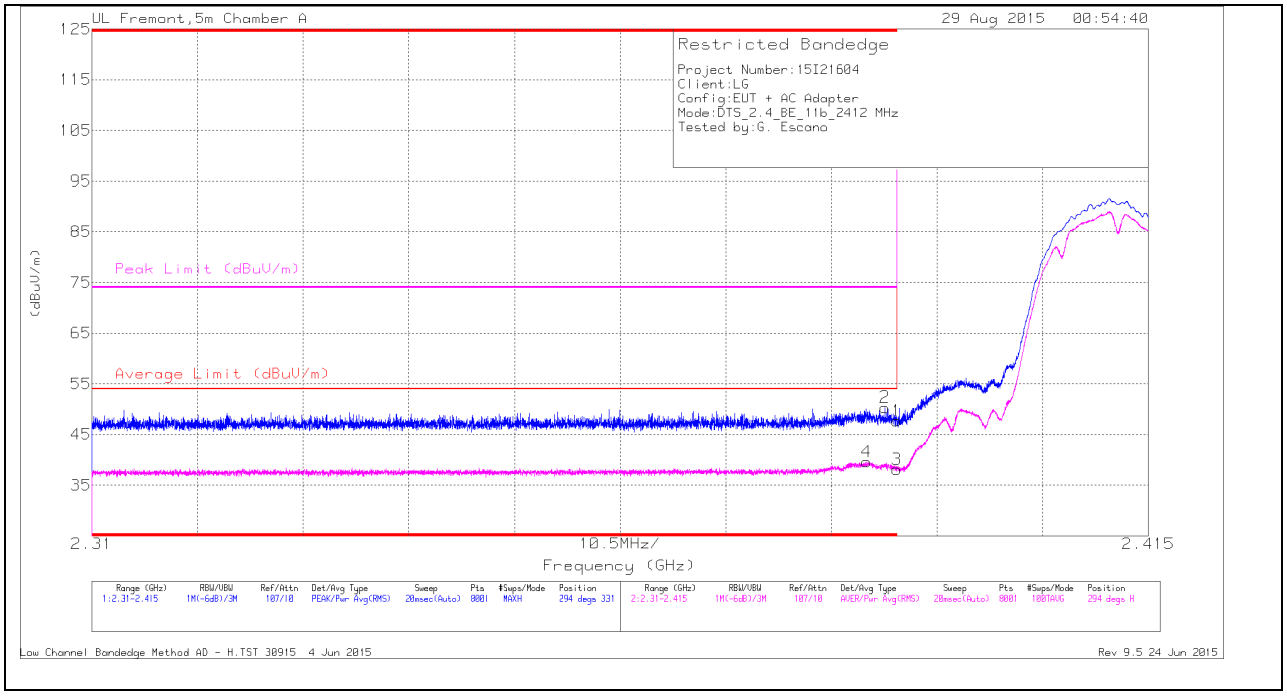
10.2. TRANSMITTER ABOVE 1 GHz

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 T136 (dB/m)	Amp/Cbl/Fltr/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
4	* 2.387	32.21	RMS	32	-24.6	0	39.61	54	-14.39	-	-	294	331	H
2	* 2.389	42.95	Pk	32	-24.6	0	50.35	-	-	74	-23.65	294	331	H
1	* 2.39	40.34	Pk	32	-24.6	0	47.74	-	-	74	-26.26	294	331	H
3	* 2.39	30.73	RMS	32	-24.6	0	38.13	54	-15.87	-	-	294	331	H

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

Pk - Peak detector

RMS - RMS detection

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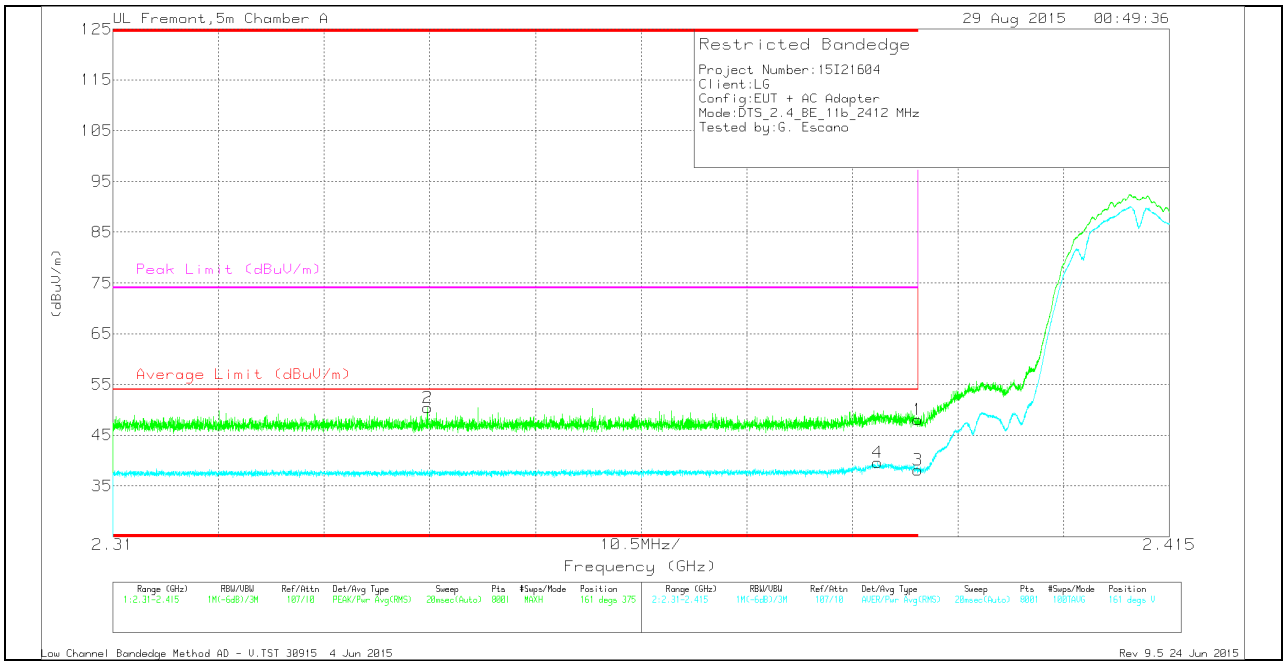
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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
2	* 2.341	43.26	Pk	31.9	-24.7	0	50.46	-	-	74	-23.54	161	375	V
4	* 2.386	32.16	RMS	32	-24.6	0	39.56	54	-14.44	-	-	161	375	V
1	* 2.39	40.65	Pk	32	-24.6	0	48.05	-	-	74	-25.95	161	375	V
3	* 2.39	30.76	RMS	32	-24.6	0	38.16	54	-15.84	-	-	161	375	V

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

Pk - Peak detector

RMS - RMS detection

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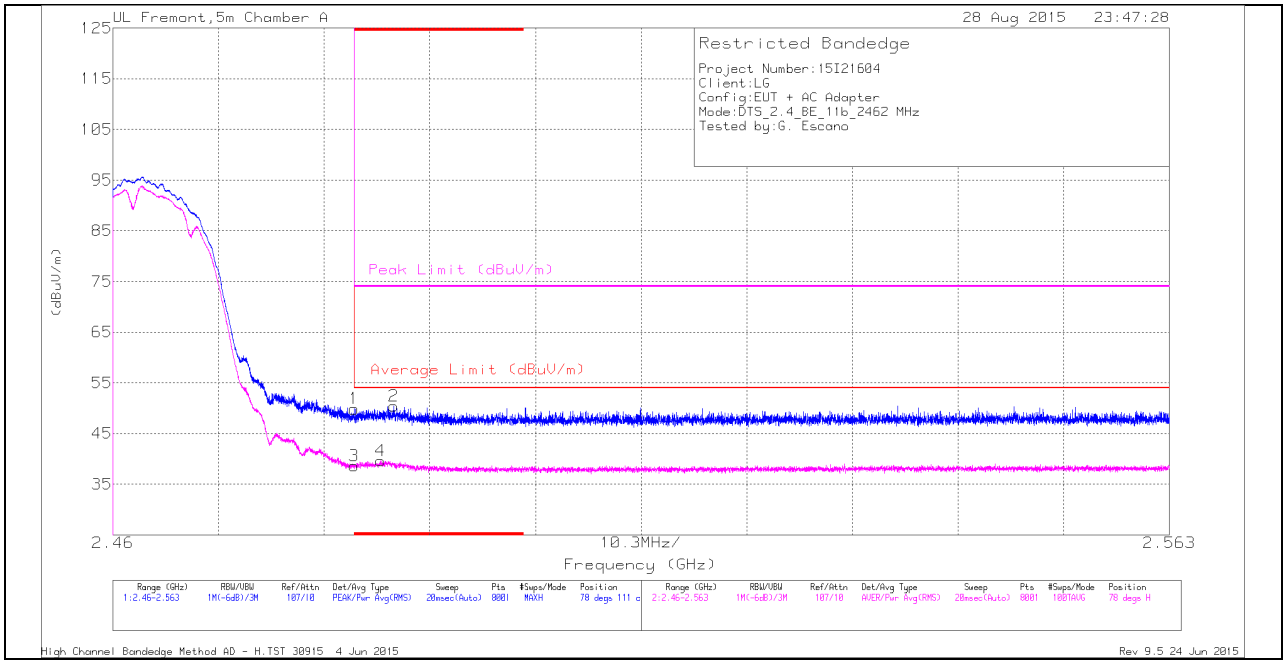
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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	42.26	Pk	32.1	-24.5	0	49.86	-	-	74	-24.14	78	111	H
3	* 2.484	30.98	RMS	32.1	-24.5	0	38.58	54	-15.42	-	-	78	111	H
4	* 2.486	32.02	RMS	32.1	-24.5	0	39.62	54	-14.38	-	-	78	111	H
2	* 2.487	42.87	Pk	32.1	-24.5	0	50.47	-	-	74	-23.53	78	111	H

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

Pk - Peak detector

RMS - RMS detection

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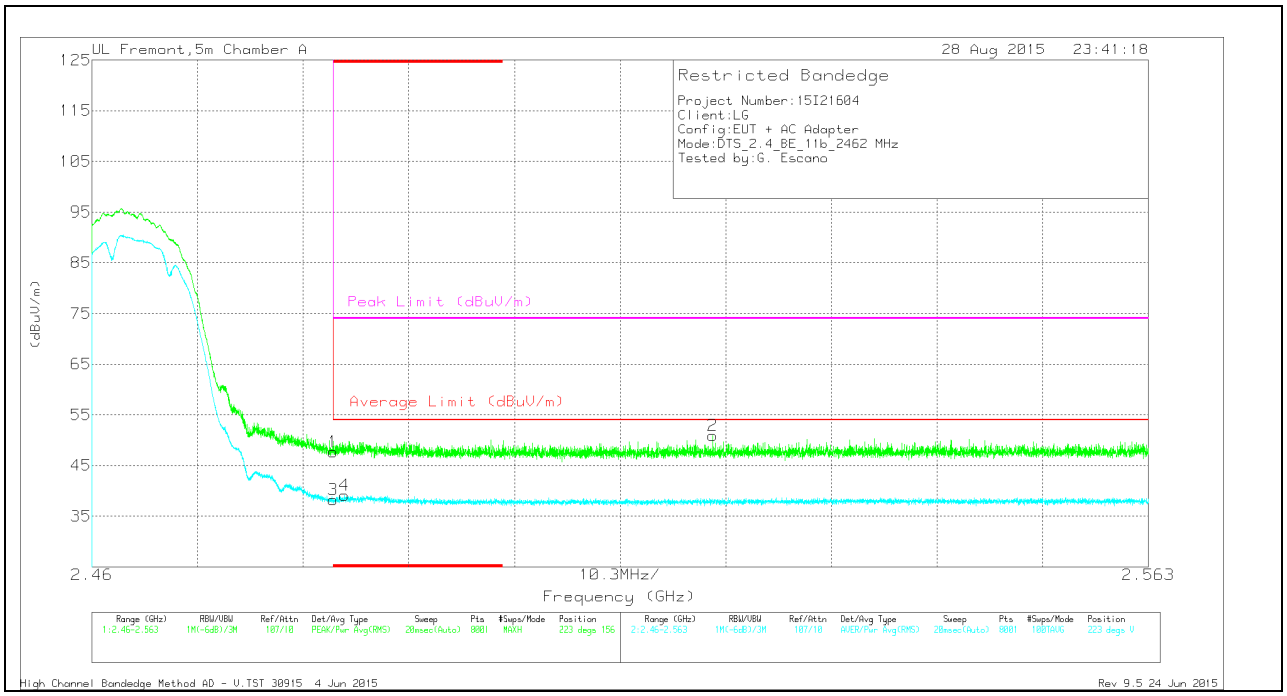
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/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	40.13	Pk	32.1	-24.5	0	47.73	-	-	74	-26.27	223	156	V
3	* 2.484	30.62	RMS	32.1	-24.5	0	38.22	54	-15.78	-	-	223	156	V
4	* 2.485	31.56	RMS	32.1	-24.5	0	39.16	54	-14.84	-	-	223	156	V
2	2.521	43.34	Pk	32.1	-24.5	0	50.94	-	-	74	-23.06	223	156	V

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

Pk - Peak detector

RMS - RMS detection

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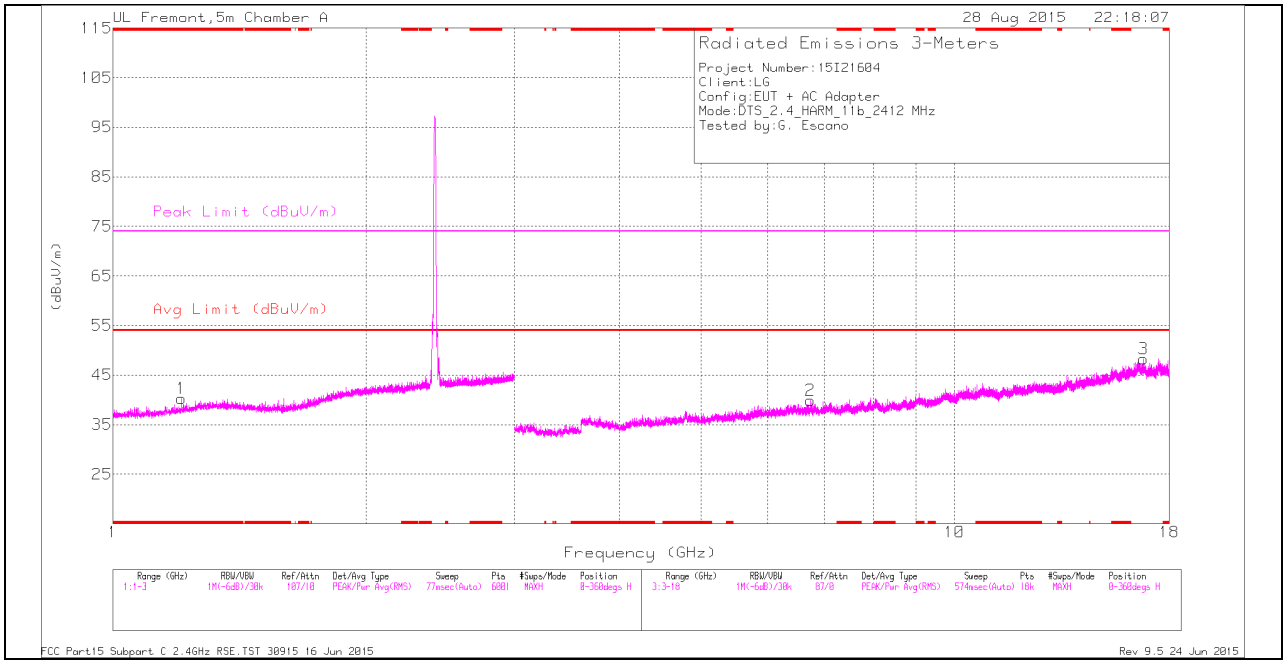
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

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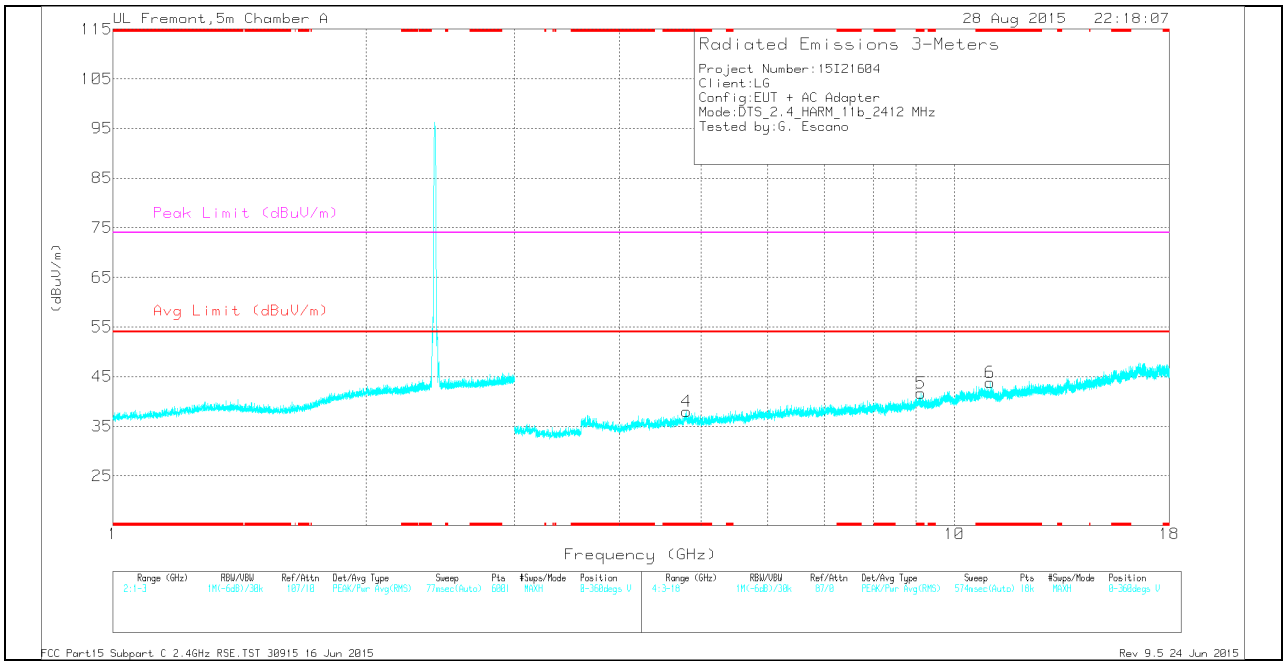
LOW CHANNEL VERTICAL



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

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LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 1.206	38.28	Pk	28.1	-26.1	0	40.28	-	-	74	-33.72	0-360	101	H
4	* 4.803	33.76	Pk	34	-29.8	0	37.96	-	-	74	-36.04	0-360	100	V
5	* 9.123	28.82	Pk	36.3	-23.5	0	41.62	-	-	74	-32.38	0-360	200	V
6	* 11.025	28.26	Pk	37.9	-22.3	0	43.86	-	-	74	-30.14	0-360	200	V
2	6.738	31.18	Pk	35.6	-26.9	0	39.88	-	-	-	-	0-360	201	H
3	16.773	28.92	Pk	41.8	-22.5	0	48.22	-	-	-	-	0-360	100	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 1.207	44.77	PK2	28.1	-26.1	0	46.77	-	-	74	-27.23	32	175	H
* 1.206	33.24	MAv1	28.1	-26.1	0	35.24	54	-18.76	-	-	32	175	H
* 4.804	41.75	PK2	34	-29.8	0	45.95	-	-	74	-28.05	122	170	V
* 4.802	30.36	MAv1	34	-29.8	0	34.56	54	-19.44	-	-	122	170	V
* 9.123	36.14	PK2	36.3	-23.5	0	48.94	-	-	74	-25.06	185	201	V
* 9.124	24.46	MAv1	36.3	-23.5	0	37.26	54	-16.74	-	-	185	201	V
* 11.024	35.19	PK2	37.9	-22.3	0	50.79	-	-	74	-23.21	48	189	V
* 11.024	23.38	MAv1	37.9	-22.3	0	38.98	54	-15.02	-	-	48	189	V
6.736	37.98	PK2	35.6	-26.9	0	46.68	-	-	74	-27.32	15	202	H
16.773	35.74	PK2	41.8	-22.5	0	55.04	-	-	74	-18.96	57	100	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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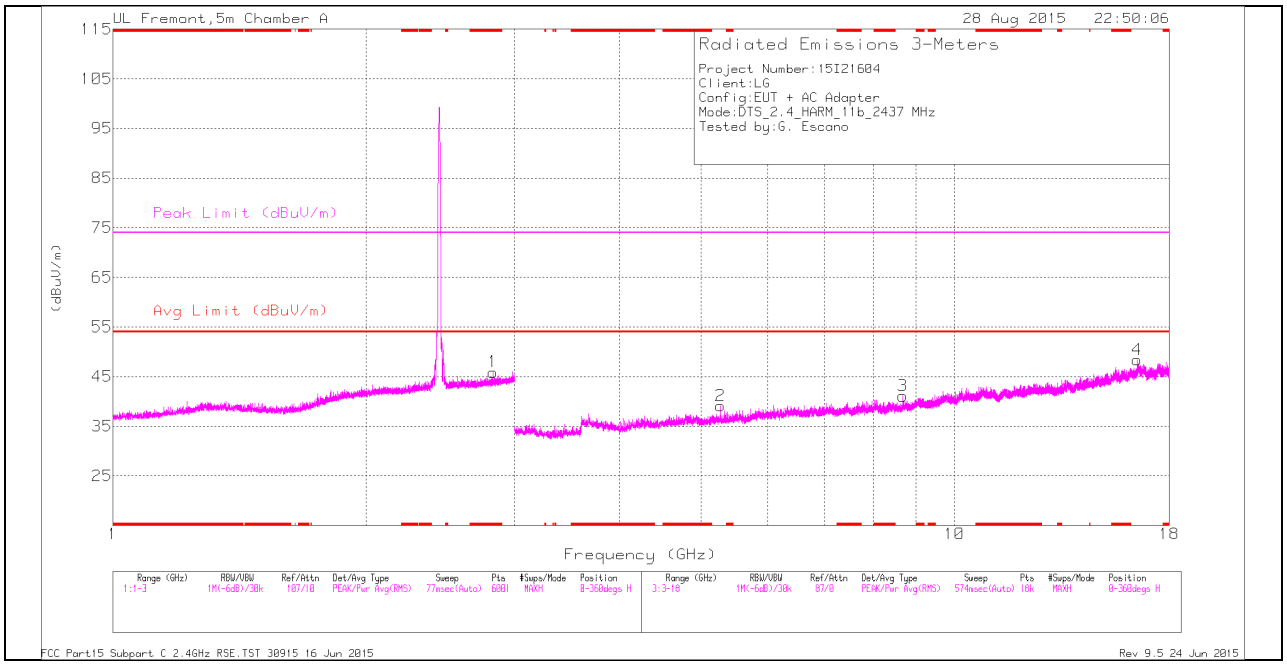
MID CHANNEL HORIZONTAL



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

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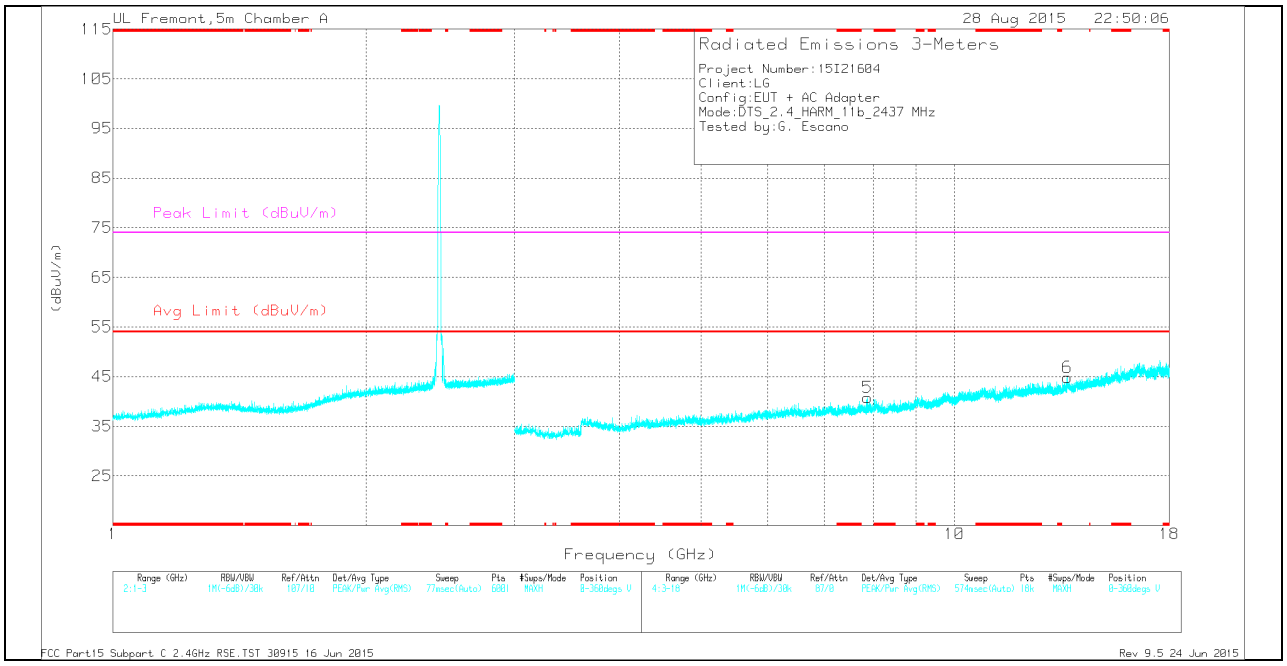
MID CHANNEL VERTICAL



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

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MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 2.831	37.52	Pk	32.5	-24.1	0	45.92	-	-	74	-28.08	0-360	100	H
2	5.273	33.94	Pk	34.5	-29.3	0	39.14	-	-	-	-	0-360	100	H
5	7.89	30.61	Pk	35.7	-25.5	0	40.81	-	-	-	-	0-360	100	V
3	8.687	29.4	Pk	35.9	-24.2	0	41.1	-	-	-	-	0-360	201	H
6	13.619	27.99	Pk	38.9	-22	0	44.89	-	-	-	-	0-360	100	V
4	16.494	28.56	Pk	41.6	-21.8	0	48.36	-	-	-	-	0-360	100	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 2.831	44.12	PK2	32.5	-24.1	0	52.52	-	-	74	-21.48	6	113	H
* 2.831	32.4	MAv1	32.5	-24.1	0	40.8	54	-13.2	-	-	6	113	H
5.272	40.37	PK2	34.5	-29.2	0	45.67	-	-	74	-28.33	81	172	H
7.888	36.97	PK2	35.7	-25.6	0	47.07	-	-	74	-26.93	281	134	V
8.686	35.92	PK2	35.9	-24.2	0	47.62	-	-	74	-26.38	155	132	H
13.619	34.86	PK2	38.9	-22	0	51.76	-	-	74	-22.24	335	118	V
16.492	35.16	PK2	41.6	-21.8	0	54.96	-	-	74	-19.04	215	107	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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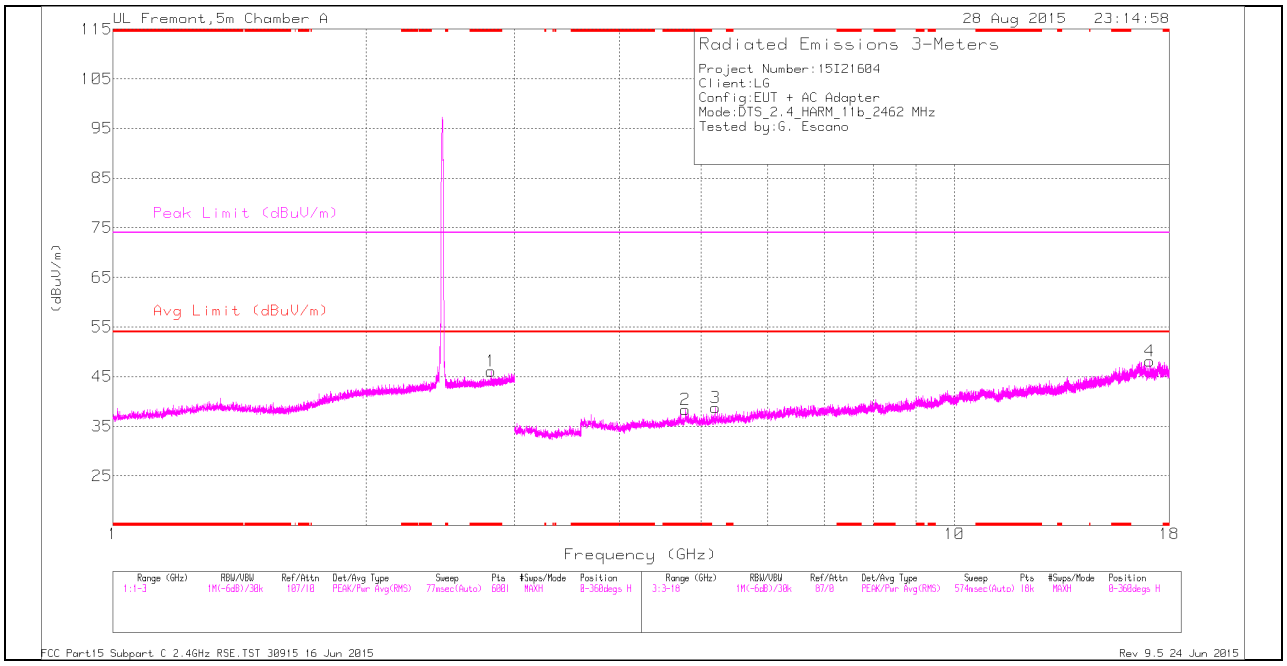
HIGH CHANNEL HORIZONTAL



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

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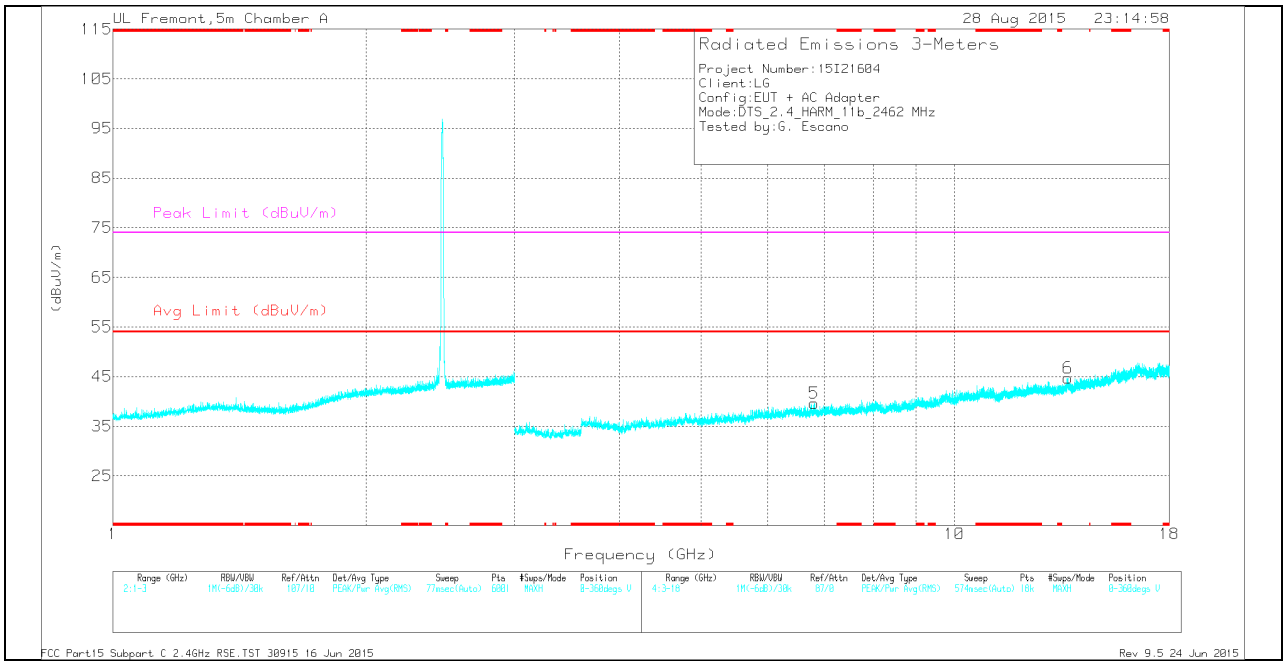
HIGH CHANNEL VERTICAL



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

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HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 2.817	37.66	Pk	32.5	-24.1	0	46.06	-	-	74	-27.94	0-360	100	H
2	* 4.788	34.27	Pk	34	-29.9	0	38.37	-	-	74	-35.63	0-360	201	H
3	5.202	33.12	Pk	34.4	-28.8	0	38.72	-	-	-	-	0-360	100	H
5	6.809	30.04	Pk	35.6	-26	0	39.64	-	-	-	-	0-360	200	V
6	13.653	27.91	Pk	38.8	-22	0	44.71	-	-	-	-	0-360	100	V
4	17.061	28.38	Pk	41.5	-21.7	0	48.18	-	-	-	-	0-360	201	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 2.817	44.38	PK2	32.5	-24.1	0	52.78	-	-	74	-21.22	305	162	H
* 2.816	32.24	MAv1	32.5	-24.1	0	40.64	54	-13.36	-	-	305	162	H
* 4.788	42.02	PK2	34	-29.9	0	46.12	-	-	74	-27.88	285	184	H
* 4.787	30.09	MAv1	34	-29.9	0	34.19	54	-19.81	-	-	285	184	H
5.2	40.14	PK2	34.4	-28.8	0	45.74	-	-	74	-28.26	311	153	H
6.809	37.26	PK2	35.6	-26	0	46.86	-	-	74	-27.14	179	141	V
13.654	35.43	PK2	38.8	-22	0	52.23	-	-	74	-21.77	12	110	V
17.06	34.67	PK2	41.5	-21.7	0	54.47	-	-	74	-19.53	249	202	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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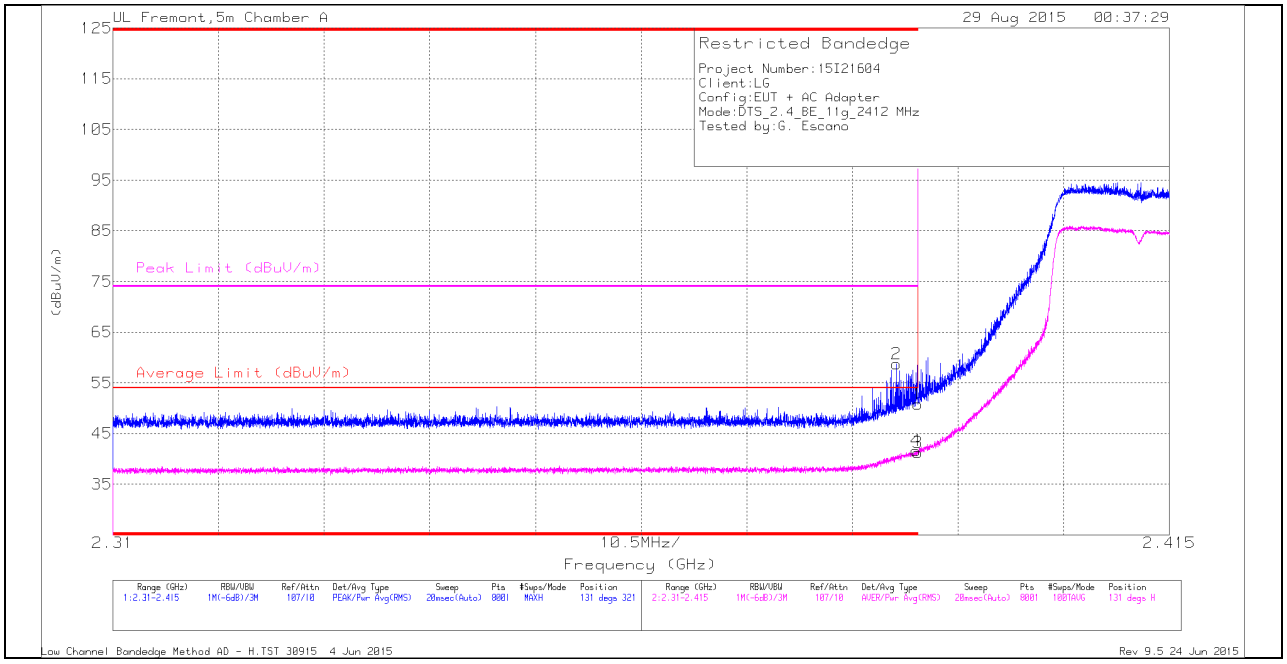
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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
2	* 2.388	51.3	Pk	32	-24.6	0	58.7	-	-	74	-15.3	131	321	H
1	* 2.39	43.38	Pk	32	-24.6	0	50.78	-	-	74	-23.22	131	321	H
3	* 2.39	33.64	RMS	32	-24.6	.21	41.25	54	-12.75	-	-	131	321	H
4	* 2.39	33.94	RMS	32	-24.6	.21	41.55	54	-12.45	-	-	131	321	H

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

Pk - Peak detector

RMS - RMS detection

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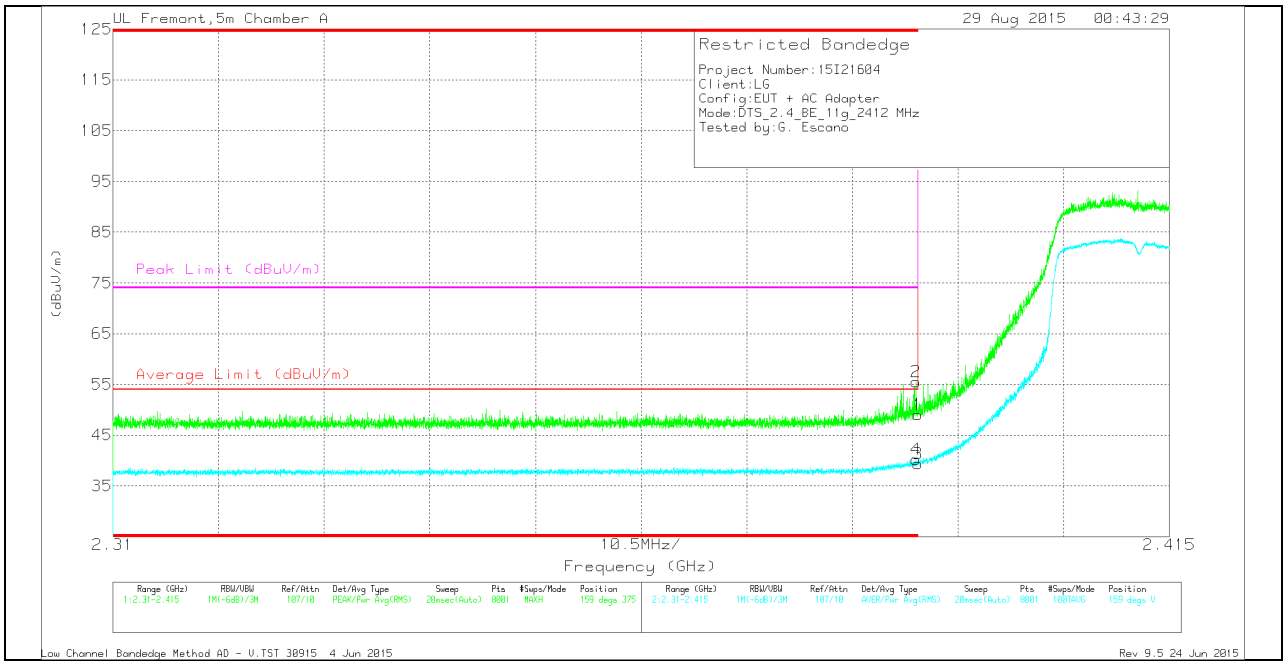
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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	* 2.39	41.6	Pk	32	-24.6	0	49	-	-	74	-25	159	375	V
2	* 2.39	48.15	Pk	32	-24.6	0	55.55	-	-	74	-18.45	159	375	V
3	* 2.39	31.78	RMS	32	-24.6	.21	39.39	54	-14.61	-	-	159	375	V
4	* 2.39	32.58	RMS	32	-24.6	.21	40.19	54	-13.81	-	-	159	375	V

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

Pk - Peak detector

RMS - RMS detection

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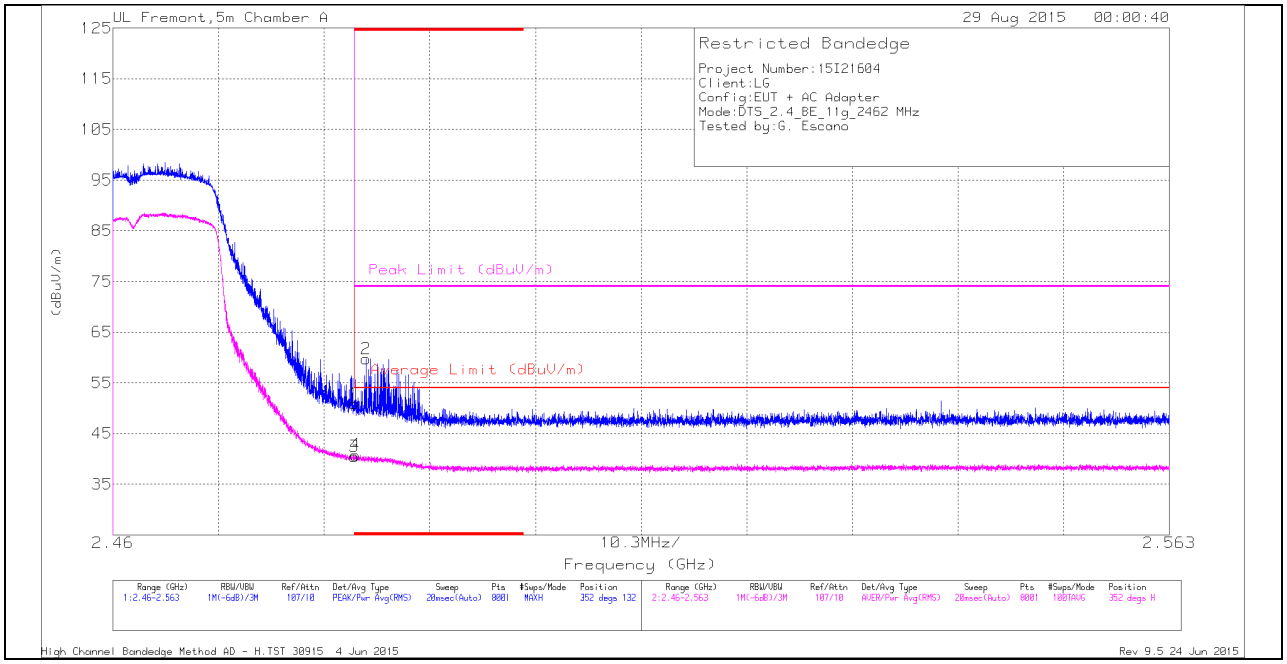
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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	43.3	Pk	32.1	-24.5	0	50.9	-	-	74	-23.1	352	132	H
3	* 2.484	32.66	RMS	32.1	-24.5	.21	40.47	54	-13.53	-	-	352	132	H
4	* 2.484	32.98	RMS	32.1	-24.5	.21	40.79	54	-13.21	-	-	352	132	H
2	* 2.485	52.1	Pk	32.1	-24.5	0	59.7	-	-	74	-14.3	352	132	H

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

Pk - Peak detector

RMS - RMS detection

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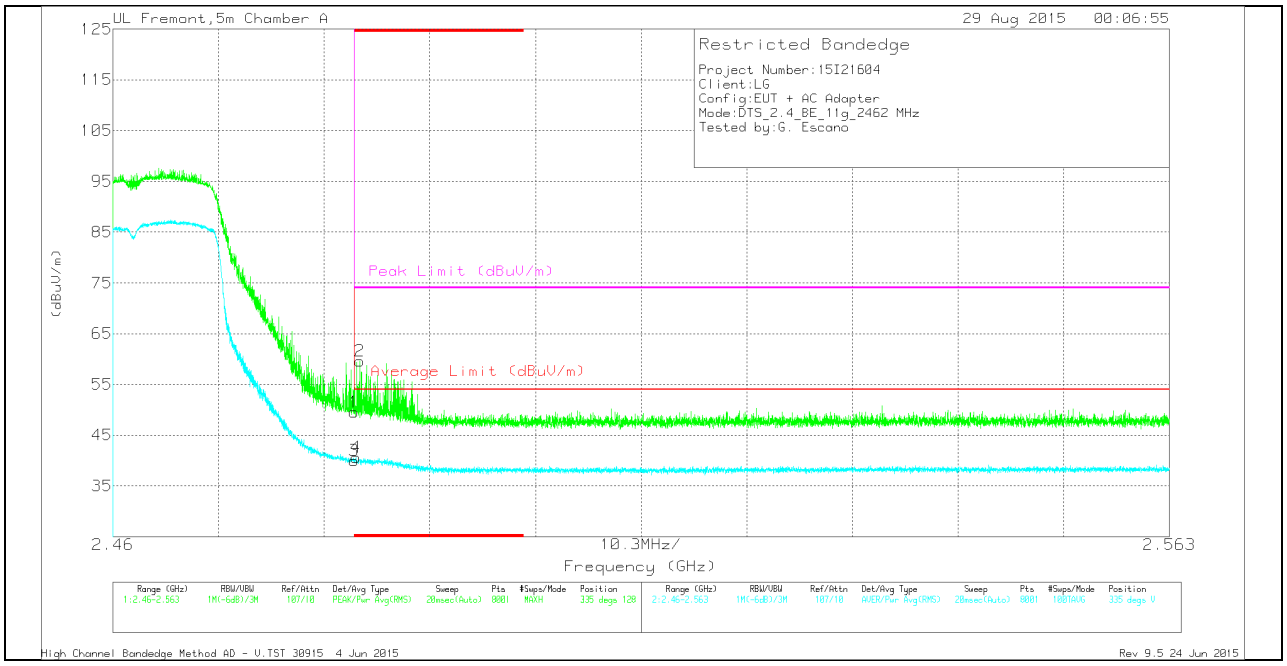
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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	41.9	Pk	32.1	-24.5	0	49.5	-	-	74	-24.5	335	128	V
2	* 2.484	52.01	Pk	32.1	-24.5	0	59.61	-	-	74	-14.39	335	128	V
3	* 2.484	32.17	RMS	32.1	-24.5	.21	39.98	54	-14.02	-	-	335	128	V
4	* 2.484	32.78	RMS	32.1	-24.5	.21	40.59	54	-13.41	-	-	335	128	V

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

Pk - Peak detector

RMS - RMS detection

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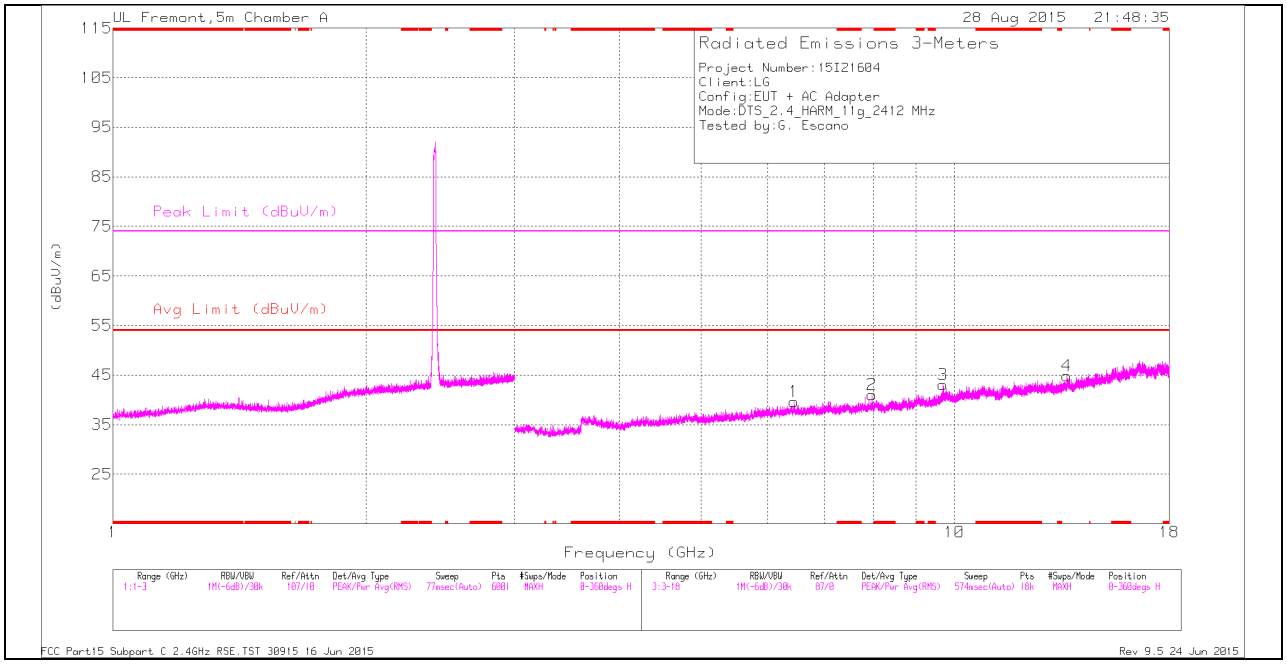
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

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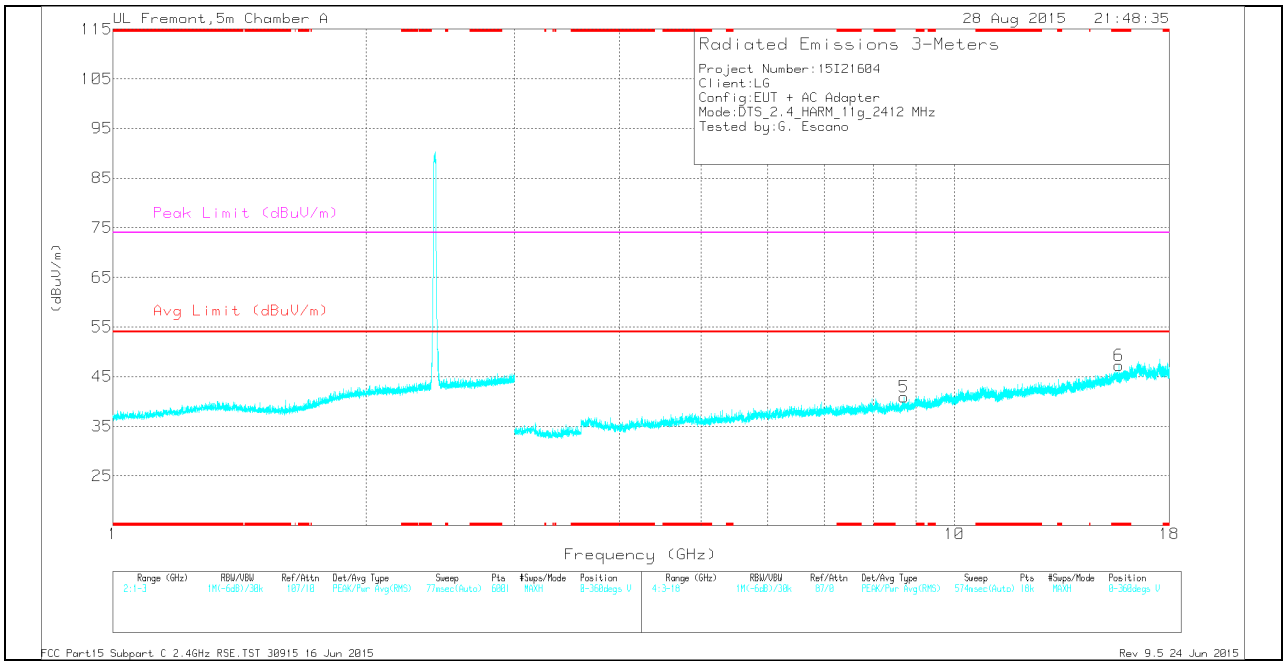
LOW CHANNEL VERTICAL



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

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LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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
6	* 15.682	29.2	Pk	40.4	-22.4	0	47.2	-	-	74	-26.8	0-360	100	V
1	6.446	31.09	Pk	35.5	-27	0	39.59	-	-	-	-	0-360	100	H
2	7.978	30.99	Pk	35.7	-25.7	0	40.99	-	-	-	-	0-360	201	H
5	8.712	29.31	Pk	35.9	-24.3	0	40.91	-	-	-	-	0-360	100	V
3	9.698	29.14	Pk	36.8	-22.9	0	43.04	-	-	-	-	0-360	201	H
4	13.601	27.59	Pk	38.9	-21.6	0	44.89	-	-	-	-	0-360	100	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 15.681	35.93	PK2	40.4	-22.4	0	53.93	-	-	74	-20.07	29	101	V
* 15.681	24.1	MAv1	40.4	-22.4	.21	42.31	54	-11.69	-	-	29	101	V
6.447	37.89	PK2	35.5	-27	0	46.39	-	-	74	-27.61	340	168	H
7.978	36.74	PK2	35.7	-25.7	0	46.74	-	-	74	-27.26	310	202	H
8.713	36.18	PK2	35.9	-24.3	0	47.78	-	-	74	-26.22	9	107	V
9.692	35.28	PK2	36.8	-23	0	49.08	-	-	74	-24.92	12	134	H
13.6	34.77	PK2	38.9	-21.6	0	52.07	-	-	74	-21.93	79	116	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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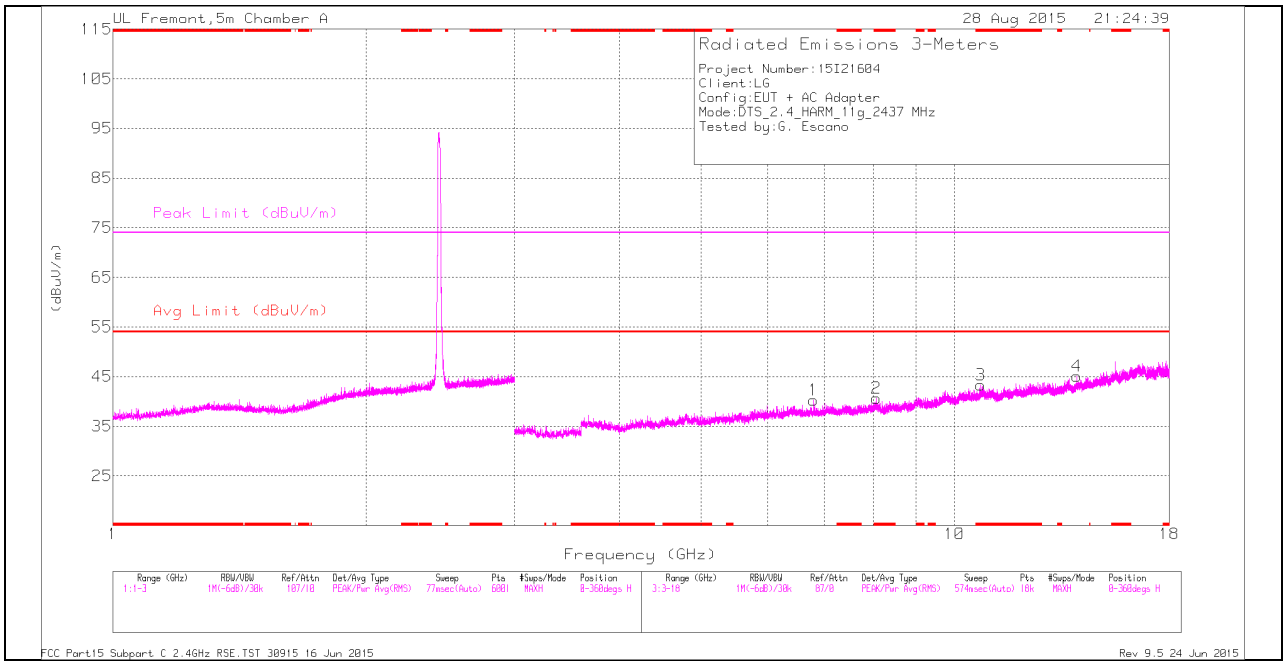
MID CHANNEL HORIZONTAL



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

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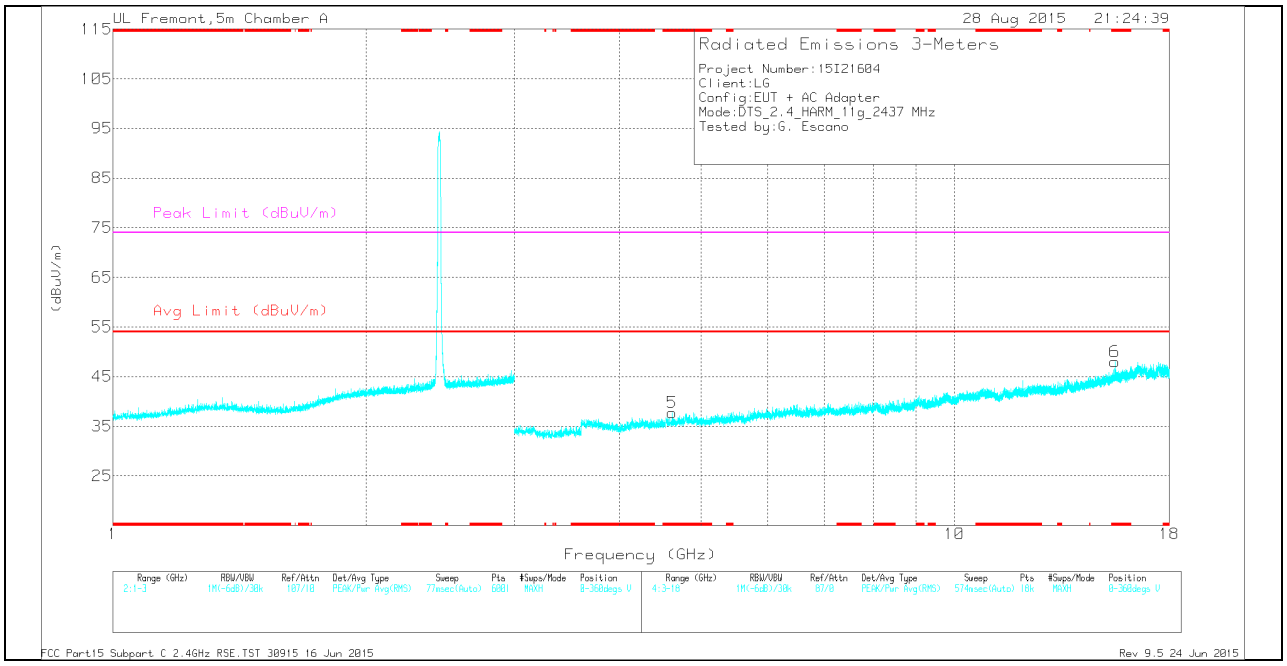
MID CHANNEL VERTICAL



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

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MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 8.077	28.87	Pk	35.7	-23.9	0	40.67	-	-	74	-33.33	0-360	201	H
3	* 10.738	27.65	Pk	37.8	-22.1	0	43.35	-	-	74	-30.65	0-360	100	H
5	* 4.616	34.14	Pk	34	-30.4	0	37.74	-	-	74	-36.26	0-360	200	V
6	* 15.508	29.22	Pk	40.3	-21.5	0	48.02	-	-	74	-25.98	0-360	100	V
1	6.805	30.76	Pk	35.6	-26.1	0	40.26	-	-	-	-	0-360	100	H
4	13.971	27.8	Pk	38.7	-21.4	0	45.1	-	-	-	-	0-360	201	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 8.077	37.08	PK2	35.7	-23.9	0	48.88	-	-	74	-25.12	127	202	H
* 8.078	25.06	MAv1	35.7	-23.9	.21	37.07	54	-16.93	-	-	127	202	H
* 10.738	35	PK2	37.8	-22.1	0	50.7	-	-	74	-23.3	189	178	H
* 10.738	23.33	MAv1	37.8	-22.1	.21	39.24	54	-14.76	-	-	189	178	H
* 4.616	40.79	PK2	34	-30.4	0	44.39	-	-	74	-29.61	289	149	V
* 4.617	29.52	MAv1	34	-30.4	.21	33.33	54	-20.67	-	-	289	149	V
* 15.509	35.3	PK2	40.3	-21.5	0	54.1	-	-	74	-19.9	314	100	V
* 15.508	23.9	MAv1	40.3	-21.5	.21	42.91	54	-11.09	-	-	314	100	V
6.805	37.3	PK2	35.6	-26.1	0	46.8	-	-	74	-27.2	151	105	H
13.969	34.85	PK2	38.7	-21.4	0	52.15	-	-	74	-21.85	225	202	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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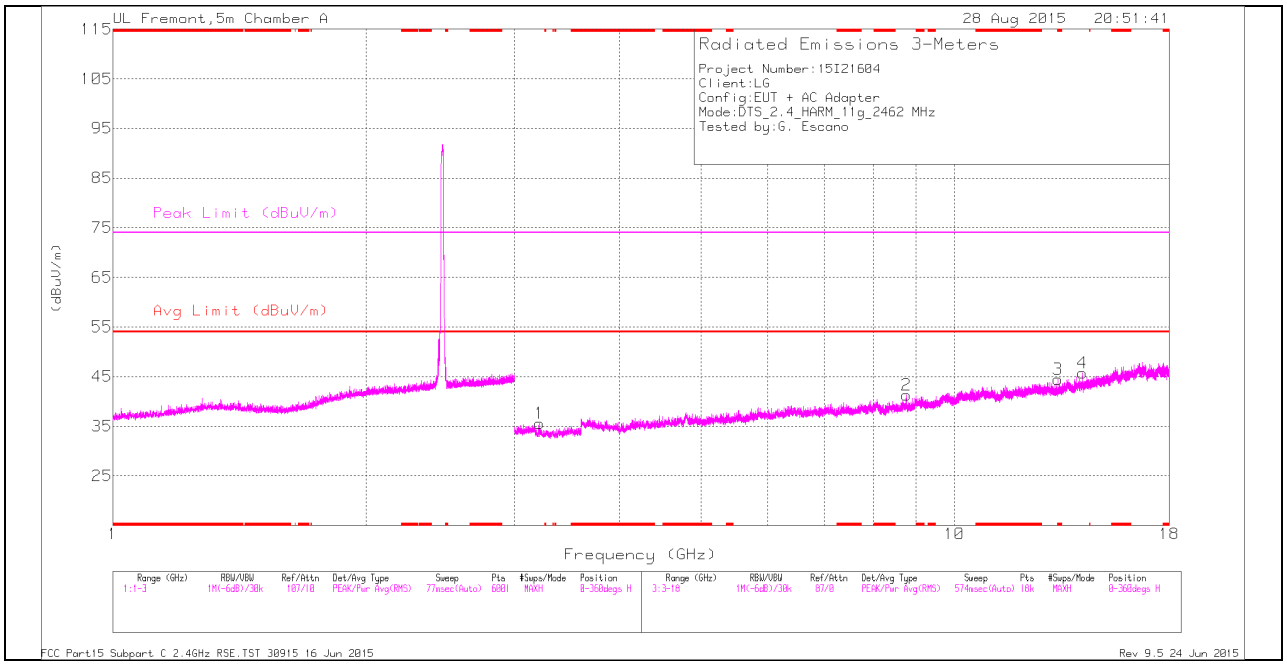
HIGH CHANNEL HORIZONTAL



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

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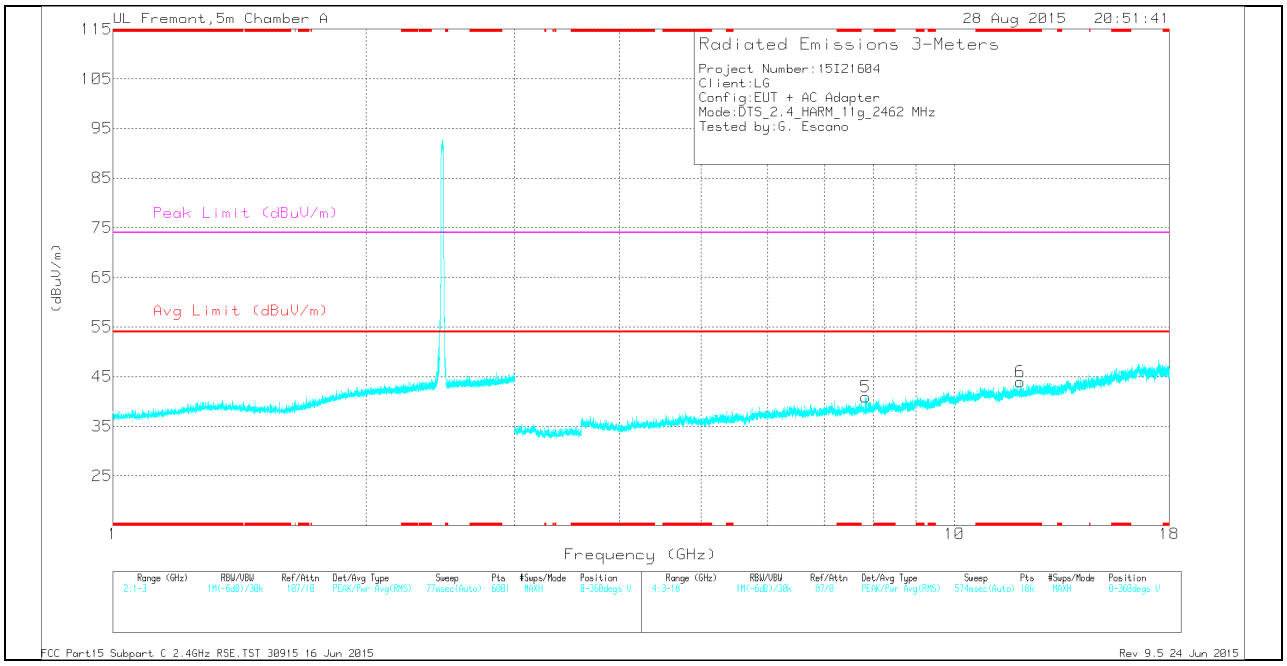
HIGH CHANNEL VERTICAL



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

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HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 13.279	27.76	Pk	39.1	-22.4	0	44.46	-	-	74	-29.54	0-360	201	H
6	* 11.969	27.51	Pk	38.6	-22.2	0	43.91	-	-	74	-30.09	0-360	100	V
1	3.216	35.08	Pk	32.7	-32.2	0	35.58	-	-	-	-	0-360	100	H
5	7.841	30.43	Pk	35.7	-25.2	0	40.93	-	-	-	-	0-360	100	V
2	8.772	29.38	Pk	36	-24.1	0	41.28	-	-	-	-	0-360	100	H
4	14.184	28.98	Pk	38.8	-22	0	45.78	-	-	-	-	0-360	100	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 13.279	34.89	PK2	39.1	-22.4	0	51.59	-	-	74	-22.41	151	202	H
* 13.278	23.2	MAv1	39.1	-22.4	.21	40.11	54	-13.89	-	-	151	202	H
* 11.968	34.57	PK2	38.6	-22.2	0	50.97	-	-	74	-23.03	16	111	V
* 11.969	22.4	MAv1	38.6	-22.2	.21	39.01	54	-14.99	-	-	16	111	V
3.217	42.17	PK2	32.7	-32.2	0	42.67	-	-	74	-31.33	59	130	H
7.84	36.93	PK2	35.7	-25.2	0	47.43	-	-	74	-26.57	267	138	V
8.772	35.85	PK2	36	-24.1	0	47.75	-	-	74	-26.25	109	103	H
14.183	34.53	PK2	38.8	-22	0	51.33	-	-	74	-22.67	180	109	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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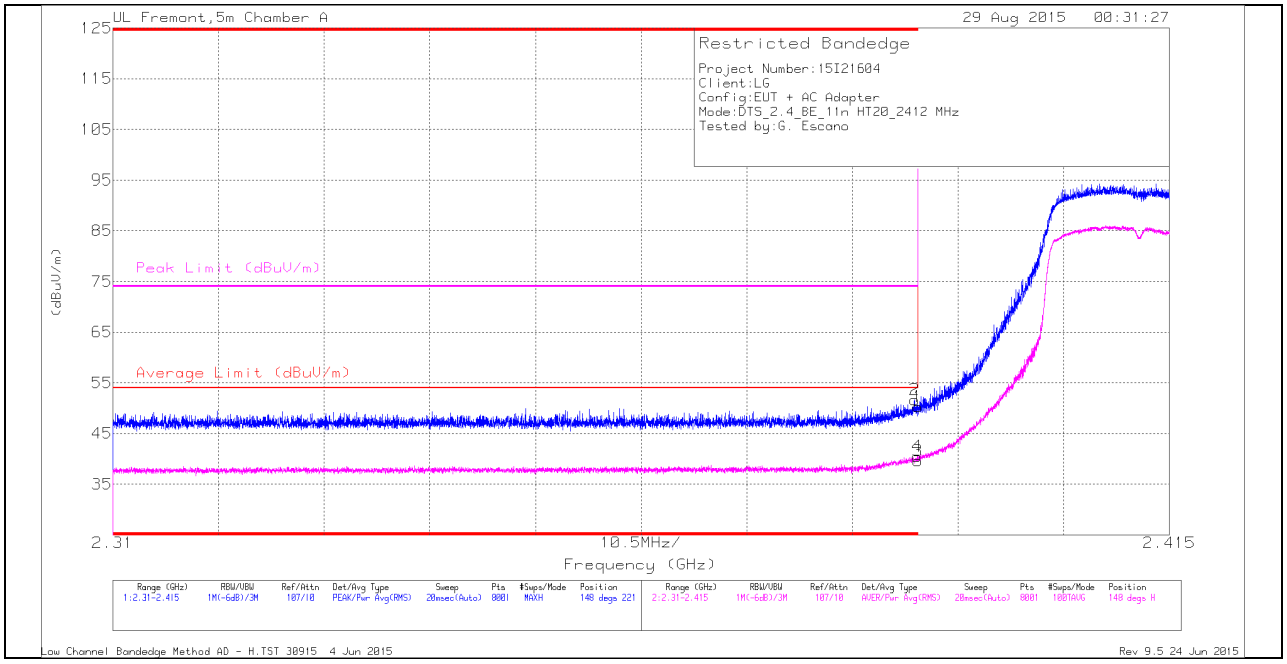
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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	* 2.39	42.84	Pk	32	-24.6	0	50.24	-	-	74	-23.76	148	221	H
2	* 2.39	44.29	Pk	32	-24.6	0	51.69	-	-	74	-22.31	148	221	H
3	* 2.39	32.03	RMS	32	-24.6	.23	39.66	54	-14.34	-	-	148	221	H
4	* 2.39	32.81	RMS	32	-24.6	.23	40.44	54	-13.56	-	-	148	221	H

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

Pk - Peak detector

RMS - RMS detection

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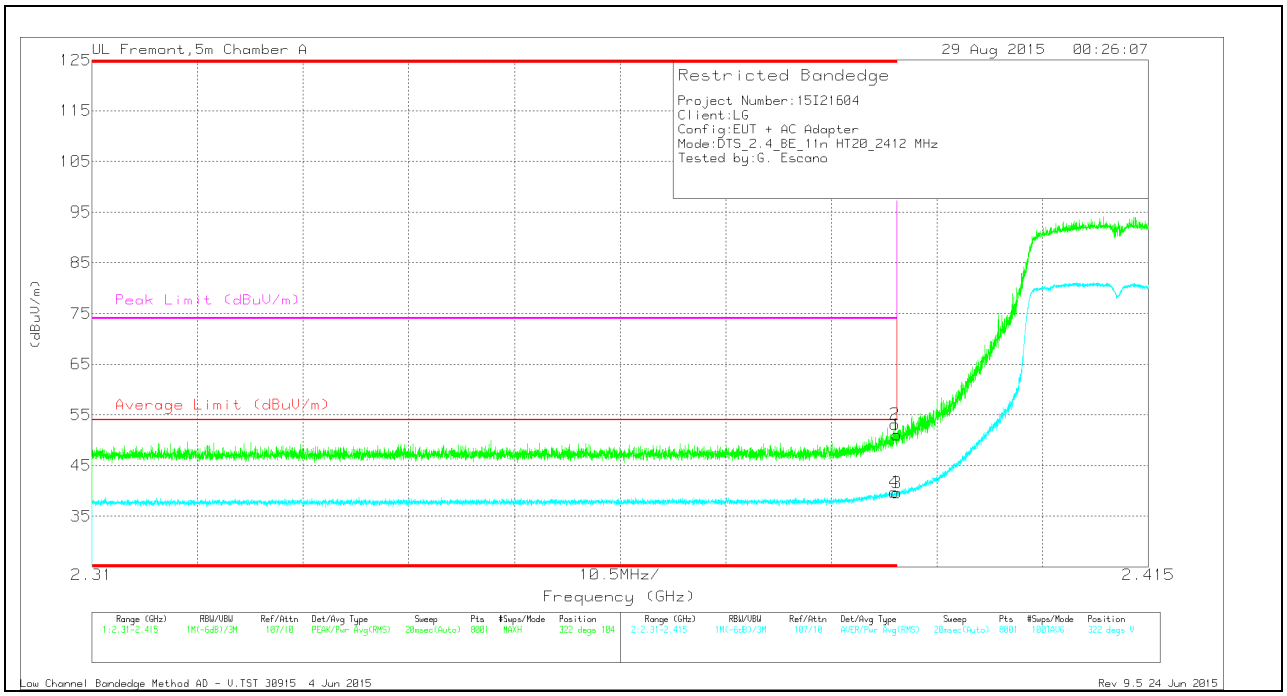
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/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	43.66	Pk	32	-24.6	0	51.06	-	-	74	-22.94	322	104	V
2	* 2.39	45.7	Pk	32	-24.6	0	53.1	-	-	74	-20.9	322	104	V
3	* 2.39	31.96	RMS	32	-24.6	.23	39.59	54	-14.41	-	-	322	104	V
4	* 2.39	32.11	RMS	32	-24.6	.23	39.74	54	-14.26	-	-	322	104	V

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

Pk - Peak detector

RMS - RMS detection

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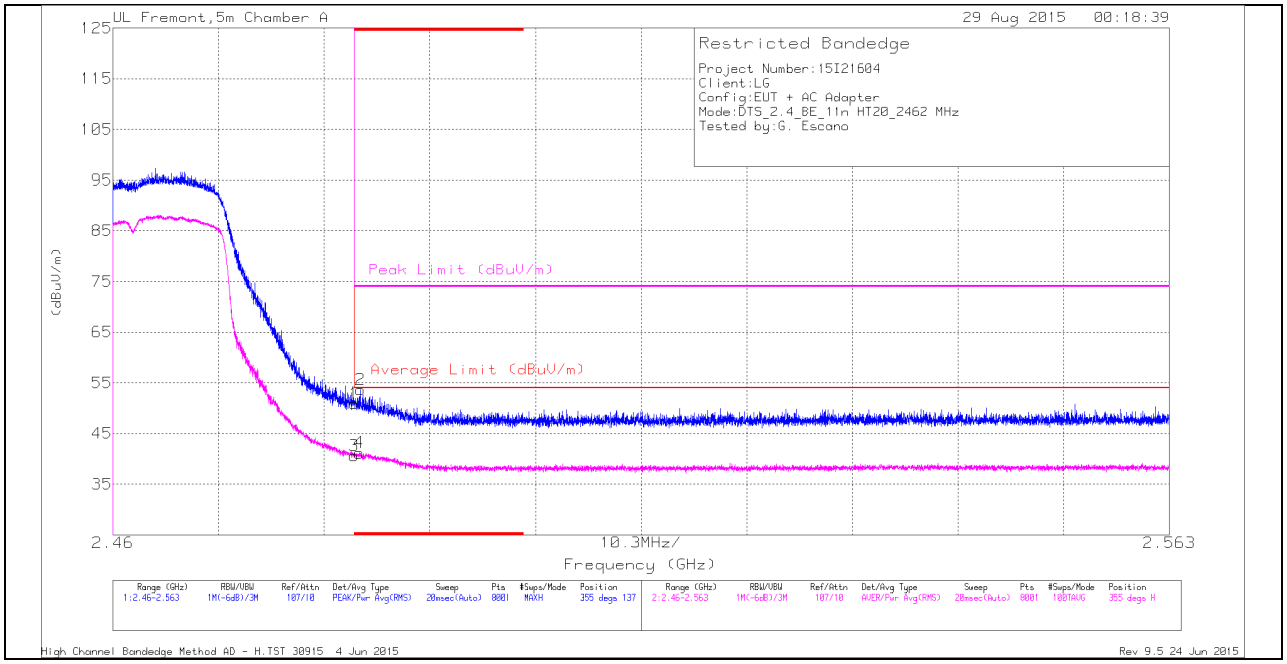
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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	43.37	Pk	32.1	-24.5	0	50.97	-	-	74	-23.03	355	137	H
2	* 2.484	46.03	Pk	32.1	-24.5	0	53.63	-	-	74	-20.37	355	137	H
3	* 2.484	32.74	RMS	32.1	-24.5	.23	40.57	54	-13.43	-	-	355	137	H
4	* 2.484	33.34	RMS	32.1	-24.5	.23	41.17	54	-12.83	-	-	355	137	H

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

Pk - Peak detector

RMS - RMS detection

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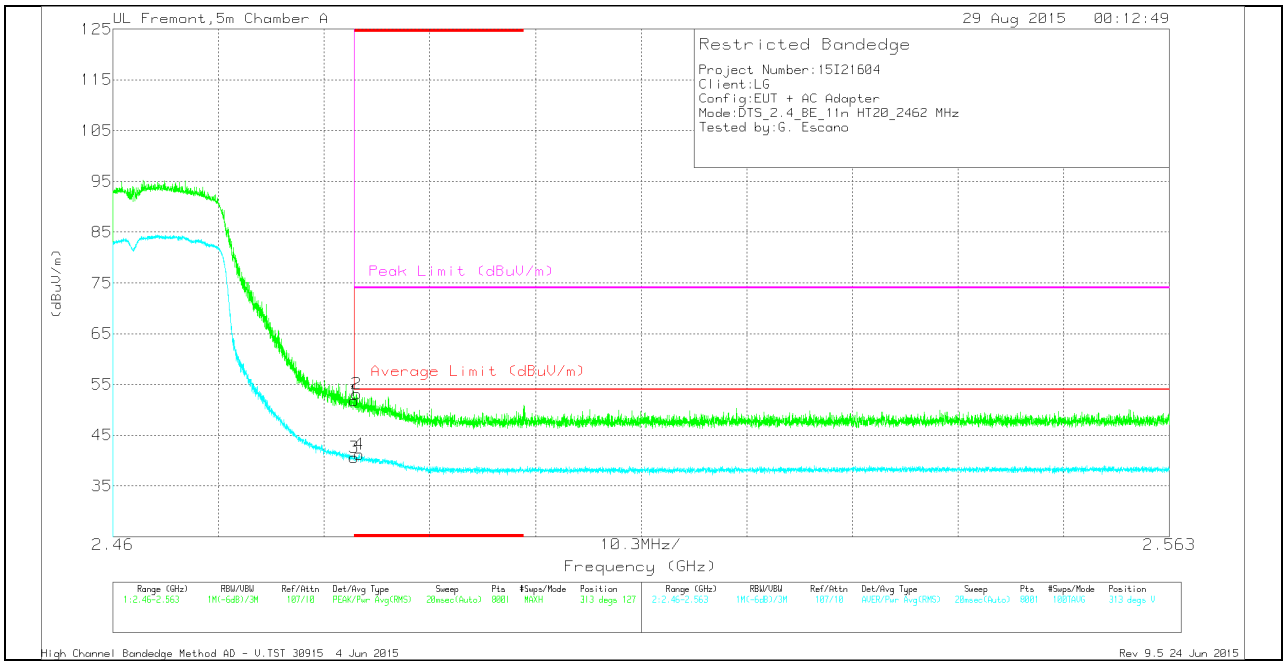
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Flt 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	44.15	Pk	32.1	-24.5	0	51.75	-	-	74	-22.25	313	127	V
2	* 2.484	45.58	Pk	32.1	-24.5	0	53.18	-	-	74	-20.82	313	127	V
3	* 2.484	32.78	RMS	32.1	-24.5	.23	40.61	54	-13.39	-	-	313	127	V
4	* 2.484	33.36	RMS	32.1	-24.5	.23	41.19	54	-12.81	-	-	313	127	V

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

Pk - Peak detector

RMS - RMS detection

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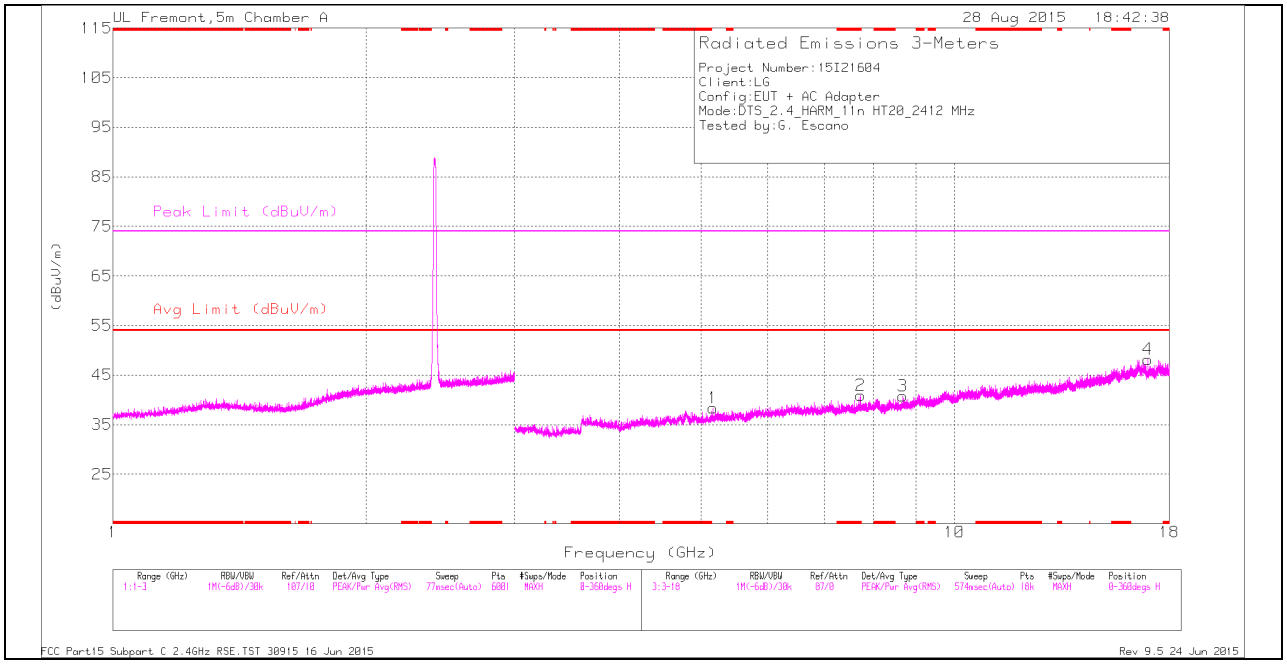
HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



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

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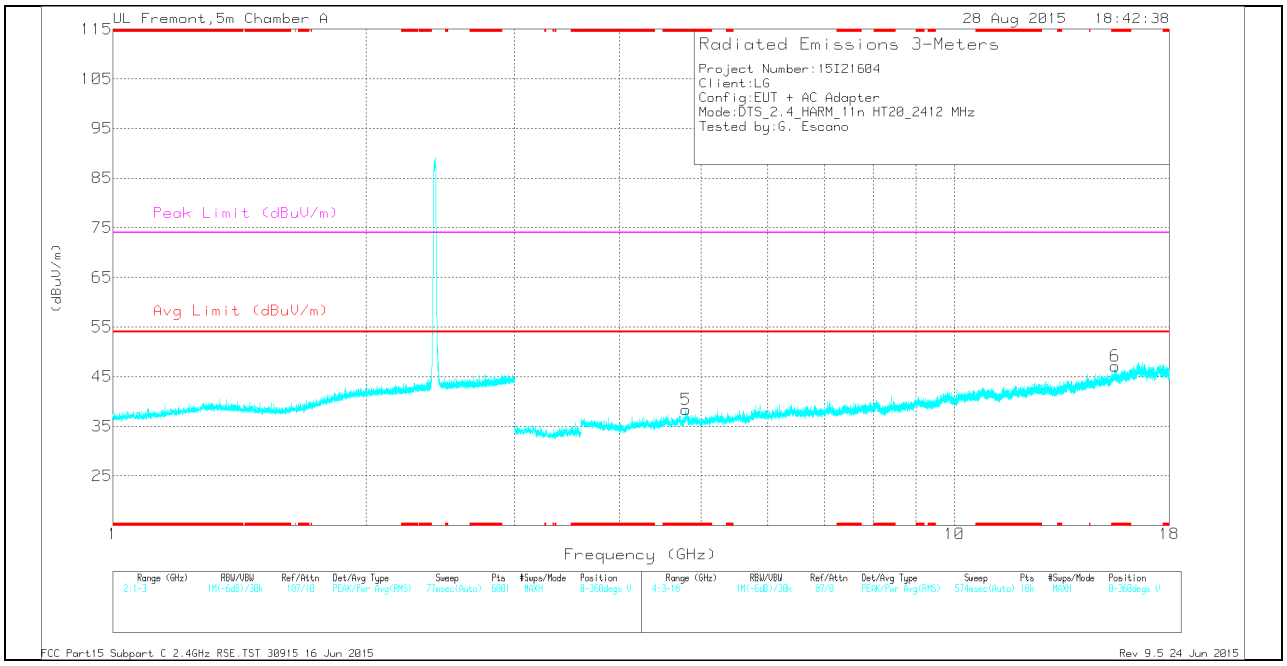
LOW CHANNEL VERTICAL



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

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LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 7.73	30.64	Pk	35.7	-25.4	0	40.94	-	-	74	-33.06	0-360	100	H
5	* 4.797	34.21	Pk	34	-29.8	0	38.41	-	-	74	-35.59	0-360	100	V
6	* 15.509	28.29	Pk	40.3	-21.5	0	47.09	-	-	74	-26.91	0-360	100	V
1	5.163	33.35	Pk	34.3	-29.3	0	38.35	-	-	-	-	0-360	100	H
3	8.684	29.06	Pk	35.9	-24.2	0	40.76	-	-	-	-	0-360	201	H
4	16.96	29.3	Pk	41.4	-22.5	0	48.2	-	-	-	-	0-360	100	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 7.73	37.73	PK2	35.7	-25.4	0	48.03	-	-	74	-25.97	304	116	H
* 7.731	25.14	MAv1	35.7	-25.4	.23	35.67	54	-18.33	-	-	304	116	H
* 4.799	41.51	PK2	34	-29.8	0	45.71	-	-	74	-28.29	291	122	V
* 4.797	29.86	MAv1	34	-29.8	.23	34.29	54	-19.71	-	-	291	122	V
* 15.51	35.3	PK2	40.3	-21.5	0	54.1	-	-	74	-19.9	252	113	V
* 15.509	23.95	MAv1	40.3	-21.5	.23	42.98	54	-11.02	-	-	252	113	V
5.164	40.9	PK2	34.3	-29.3	0	45.9	-	-	74	-28.1	336	106	H
8.684	35.83	PK2	35.9	-24.2	0	47.53	-	-	74	-26.47	344	202	H
16.962	35.18	PK2	41.4	-22.5	0	54.08	-	-	74	-19.92	344	100	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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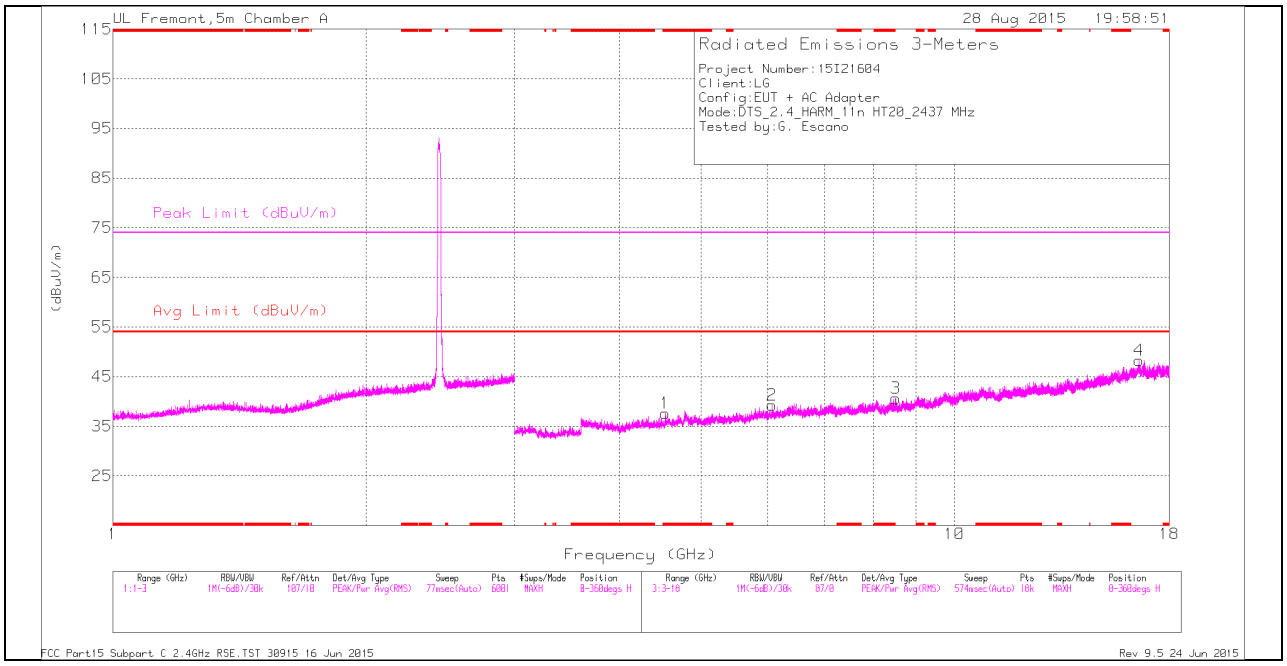
MID CHANNEL HORIZONTAL



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

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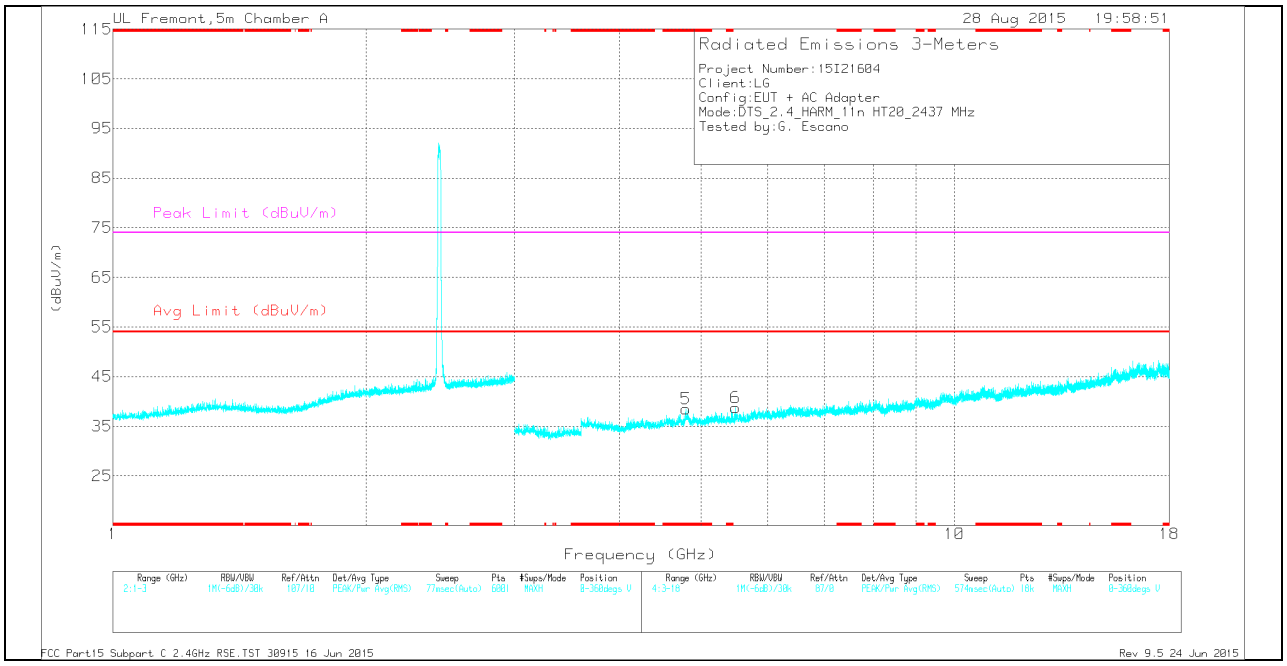
MID CHANNEL VERTICAL



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

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MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 4.532	34.12	Pk	33.9	-30.4	0	37.62	-	-	74	-36.38	0-360	100	H
5	* 4.798	34.33	Pk	34	-29.8	0	38.53	-	-	74	-35.47	0-360	200	V
6	5.497	32.91	Pk	34.5	-28.7	0	38.71	-	-	-	-	0-360	200	V
2	6.072	32.41	Pk	35.4	-28.5	0	39.31	-	-	-	-	0-360	100	H
3	8.524	29.39	Pk	35.8	-24.6	0	40.59	-	-	-	-	0-360	201	H
4	16.571	27.62	Pk	41.6	-21	0	48.22	-	-	-	-	0-360	100	H

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 4.532	41.32	PK2	33.9	-30.4	0	44.82	-	-	74	-29.18	239	110	H
* 4.532	29.41	MAv1	33.9	-30.3	.23	33.24	54	-20.76	-	-	239	110	H
* 4.797	43.09	PK2	34	-29.9	0	47.19	-	-	74	-26.81	287	192	V
* 4.797	30.39	MAv1	34	-29.9	.23	34.72	54	-19.28	-	-	287	192	V
5.496	40.52	PK2	34.5	-28.8	0	46.22	-	-	74	-27.78	112	201	V
6.073	39.25	PK2	35.4	-28.5	0	46.15	-	-	74	-27.85	274	176	H
8.524	37.15	PK2	35.8	-24.6	0	48.35	-	-	74	-25.65	302	202	H
16.572	34.09	PK2	41.6	-21	0	54.69	-	-	74	-19.31	345	145	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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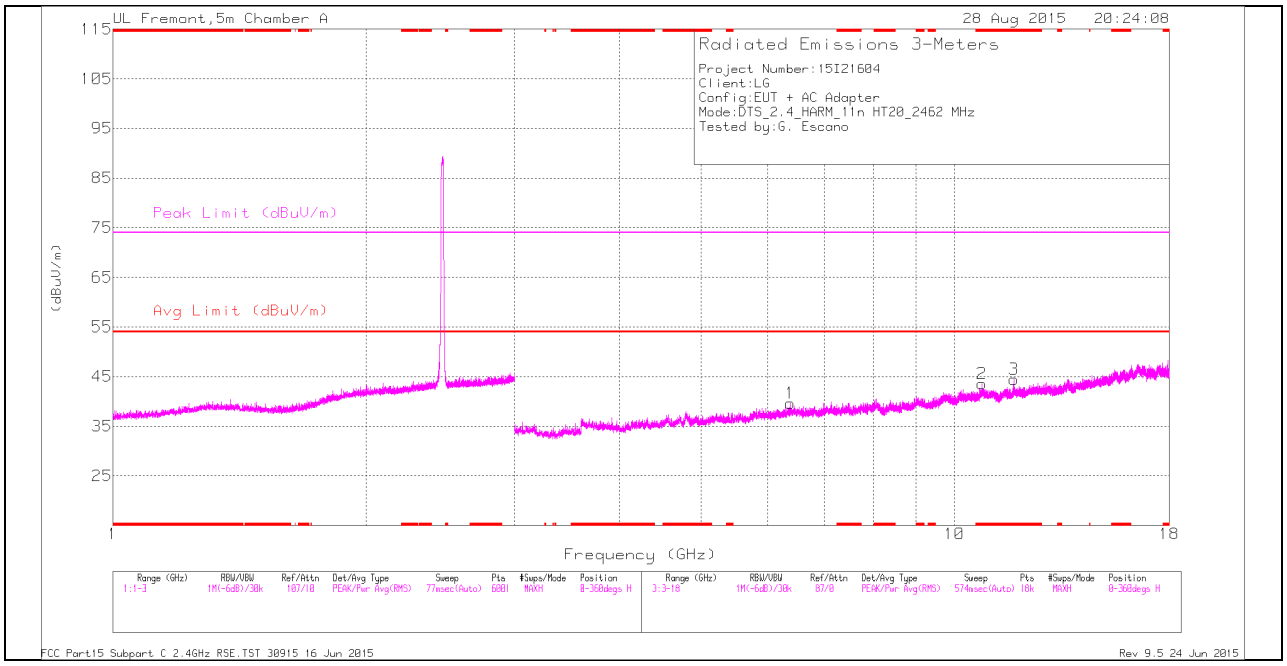
HIGH CHANNEL HORIZONTAL



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

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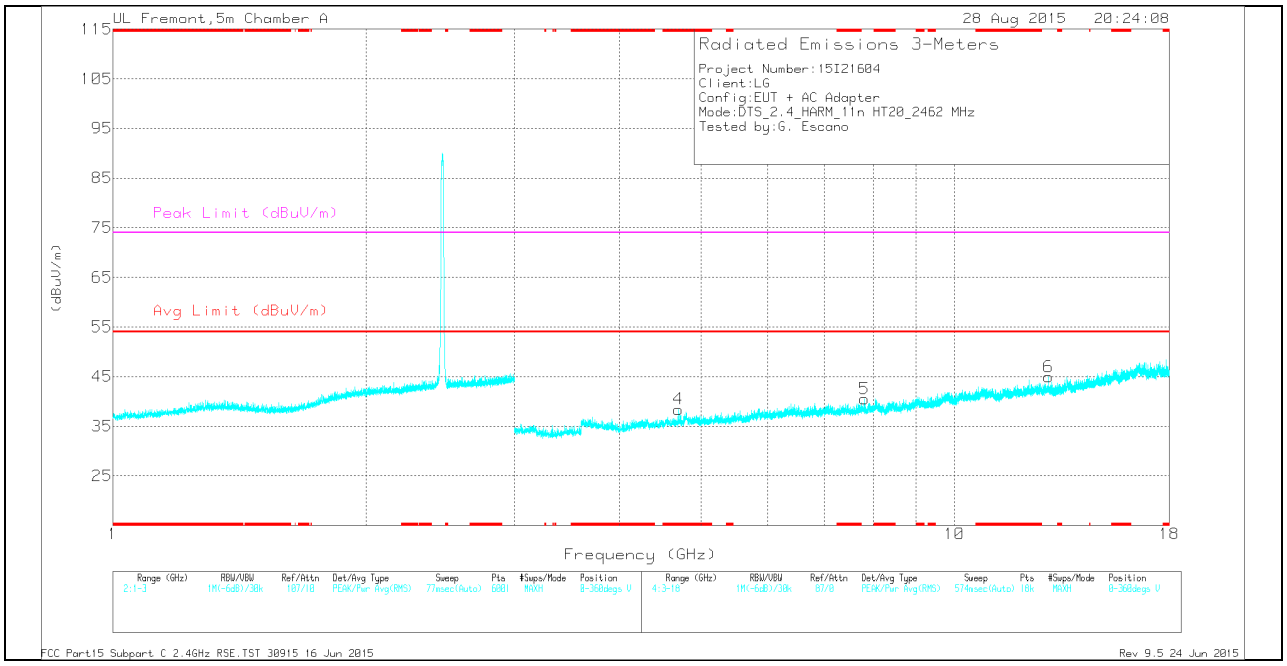
HIGH CHANNEL VERTICAL



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

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HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr /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	* 10.784	27.49	Pk	37.8	-21.7	0	43.59	-	-	74	-30.41	0-360	201	H
3	* 11.77	28.1	Pk	38.3	-21.9	0	44.5	-	-	74	-29.5	0-360	201	H
4	* 4.7	35.23	Pk	34.1	-30.9	0	38.43	-	-	74	-35.57	0-360	100	V
1	6.379	31.79	Pk	35.5	-27.6	0	39.69	-	-	-	-	0-360	201	H
5	7.821	29.99	Pk	35.7	-25.2	0	40.49	-	-	-	-	0-360	100	V
6	12.929	27.78	Pk	39.2	-22	0	44.98	-	-	-	-	0-360	100	V

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

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/ Fltr/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
* 10.784	34.79	PK2	37.8	-21.7	0	50.89	-	-	74	-23.11	257	222	H
* 10.784	23.15	MAv1	37.8	-21.7	.23	39.48	54	-14.52	-	-	257	222	H
* 11.769	35.18	PK2	38.3	-22	0	51.48	-	-	74	-22.52	281	161	H
* 11.769	23.07	MAv1	38.3	-21.9	.23	39.7	54	-14.3	-	-	281	161	H
* 4.7	41.73	PK2	34.1	-30.9	0	44.93	-	-	74	-29.07	312	111	V
* 4.7	30.38	MAv1	34.1	-30.9	.23	33.81	54	-20.19	-	-	312	111	V
6.38	39.15	PK2	35.5	-27.5	0	47.15	-	-	74	-26.85	84	202	H
7.815	36.57	PK2	35.7	-25.3	0	46.97	-	-	74	-27.03	92	116	V
12.928	33.4	PK2	39.2	-22	0	50.6	-	-	74	-23.4	41	100	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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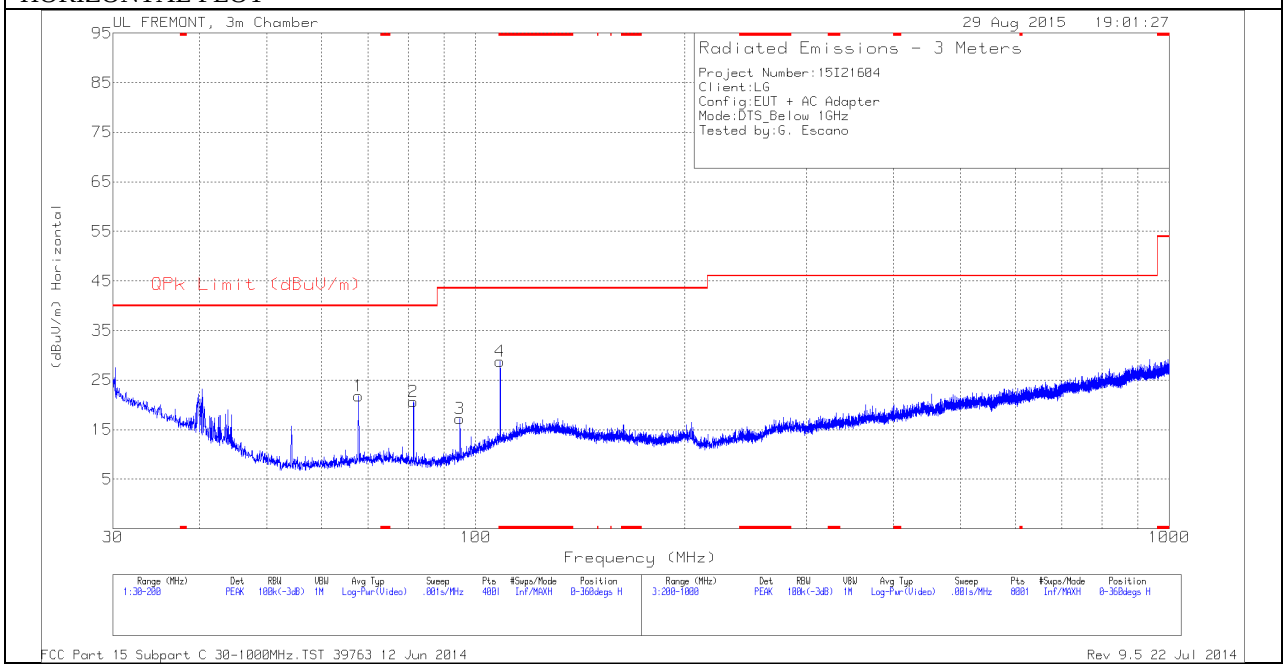
10.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



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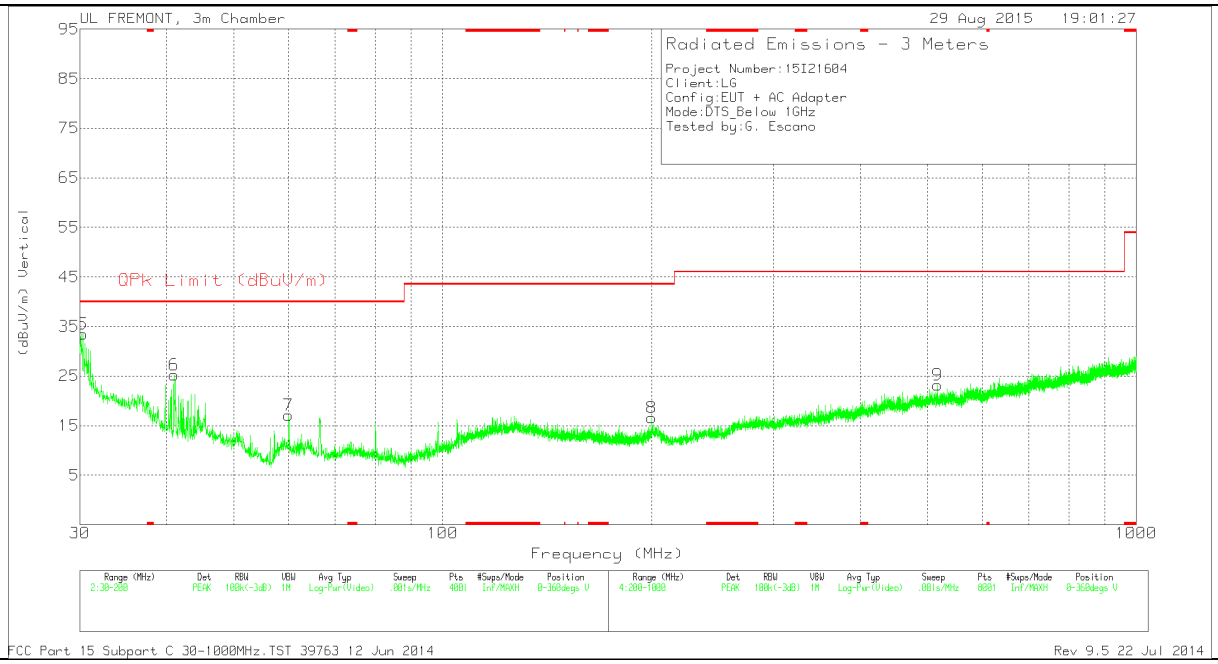
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 108.455	43.04	PK	11.9	-26.2	28.74	43.52	-14.78	0-360	100	H
5	30.2975	39.2	PK	21.5	-27.2	33.5	40	-6.5	0-360	100	V
6	41.05	38.76	PK	13.5	-27	25.26	40	-14.74	0-360	100	V
7	60.005	36.56	PK	7.3	-26.8	17.06	40	-22.94	0-360	100	V
1	67.825	40.19	PK	8.3	-26.7	21.79	40	-18.21	0-360	100	H
2	81.34	39.23	PK	7.9	-26.5	20.63	40	-19.37	0-360	100	H
3	94.8975	34.99	PK	8.6	-26.4	17.19	43.52	-26.33	0-360	100	H
8	200.2	29.73	PK	12.1	-25.2	16.63	43.52	-26.89	0-360	200	V
9	517.2	30.38	PK	17.8	-25	23.18	46.02	-22.84	0-360	300	V

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

PK - Peak detector

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11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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.

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

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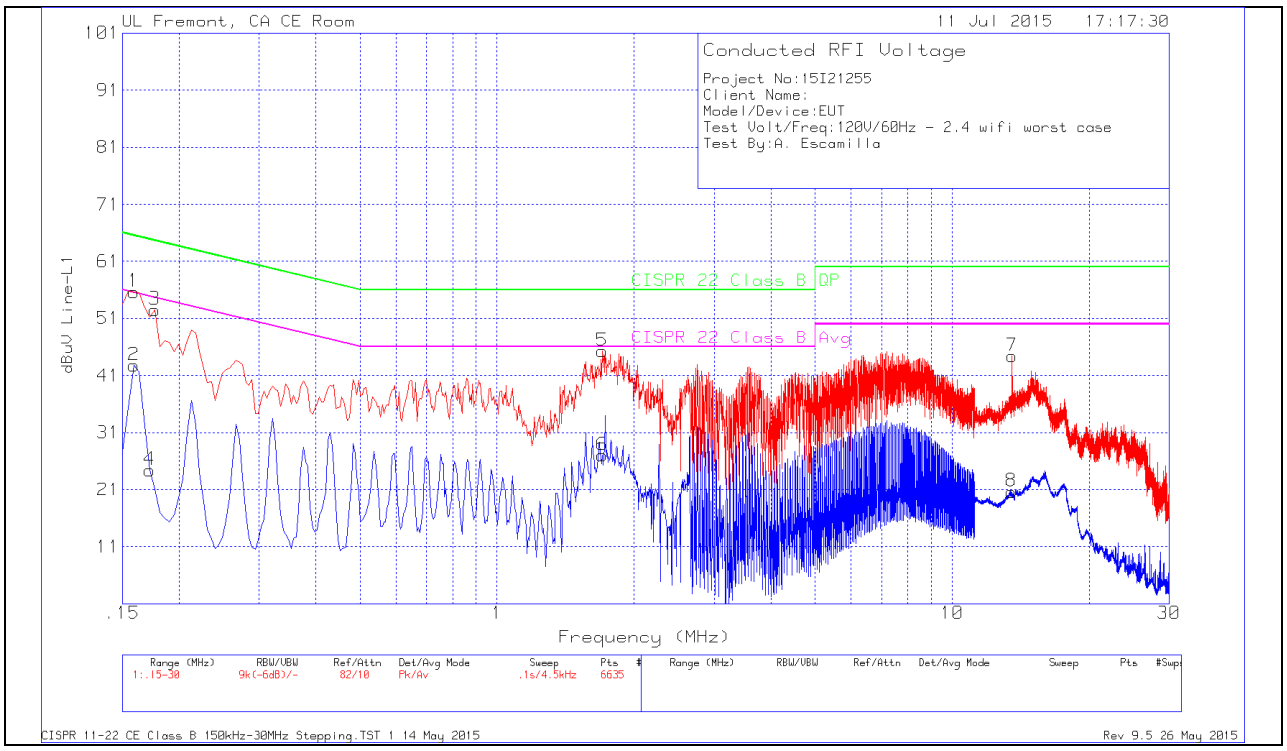
6 WORST EMISSIONS

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	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.159	54.34	Pk	1.3	0	55.64	65.52	-9.88	-	-
2	.159	41.45	Av	1.3	0	42.75	-	-	55.52	-12.77
3	.177	51.41	Pk	1.1	0	52.51	64.63	-12.12	-	-
4	.1725	23.32	Av	1.1	0	24.42	-	-	54.84	-30.42
5	1.7025	44.96	Pk	.2	.1	45.26	56	-10.74	-	-
6	1.7025	26.7	Av	.2	.1	27	-	-	46	-19
7	13.551	43.98	Pk	.2	.2	44.38	60	-15.62	-	-
8	13.5015	20.2	Av	.2	.2	20.6	-	-	50	-29.4

Pk - Peak detector

Av - Average detection

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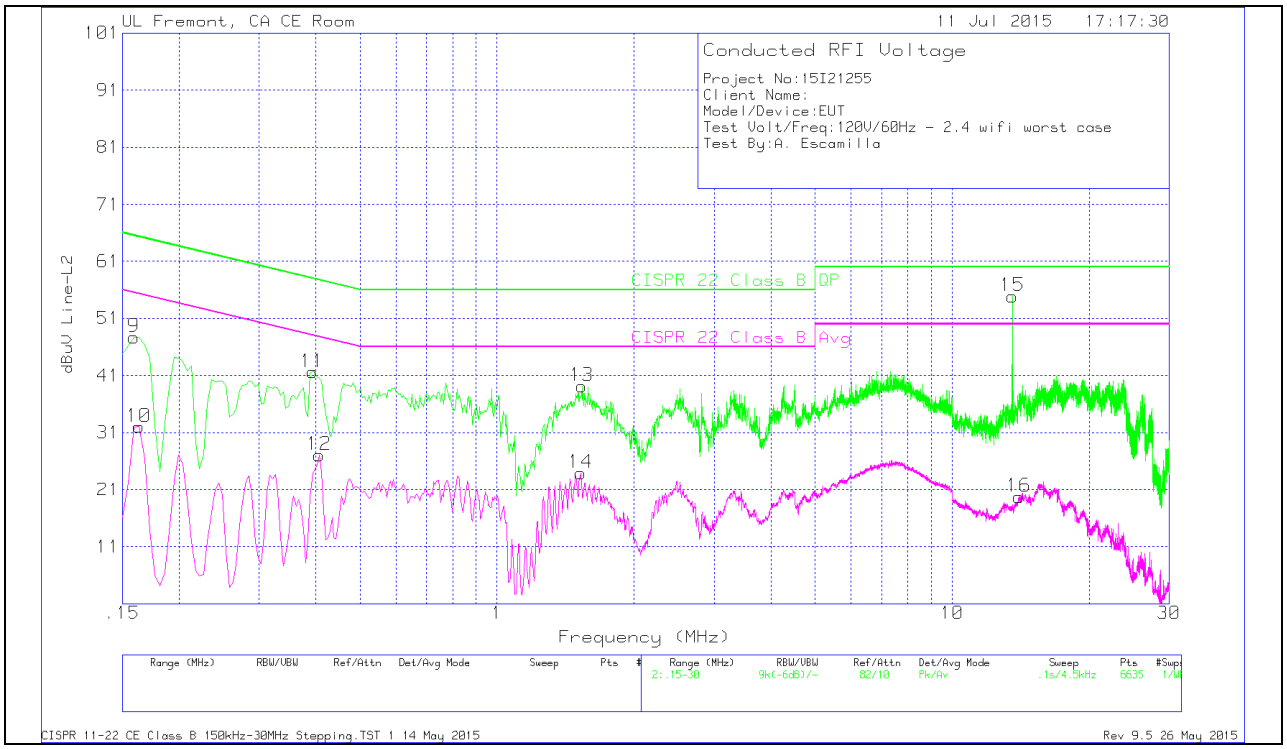
LINE 2 PLOT



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	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
9	.159	46.28	Pk	1.4	0	47.68	65.52	-17.84	-	-
10	.1635	30.72	Av	1.3	0	32.02	-	-	55.28	-23.26
11	.393	41.2	Pk	.4	0	41.6	58	-16.4	-	-
12	.4065	26.65	Av	.4	0	27.05	-	-	47.72	-20.67
13	1.536	38.87	Pk	.2	.1	39.17	56	-16.83	-	-
14	1.527	23.61	Av	.2	.1	23.91	-	-	46	-22.09
15	13.5645	54.46	Pk	.2	.2	54.86	60	-5.14	-	-
16	14.0415	19.39	Av	.2	.2	19.79	-	-	50	-30.21

Pk - Peak detector

Av - Average detection

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