FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n/ac & NFC

MODEL NUMBER: LG-H791, LGH791, H791

FCC ID: ZNFH791

REPORT NUMBER: 15I21237-E4V3

ISSUE DATE: SEPTEMBER 24, 2015

Prepared for
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	7/23/13	Initial Issue	C.OOI
V2	9/22/13	Additional note was added on page 8	C.OOI
V3	9/24/13	Additional test reduction table was added on page 8	C.OOI

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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 6

5. EQUIPMENT UNDER TEST 7

5.1. DESCRIPTION OF EUT 7

5.2. MAXIMUM OUTPUT POWER 7

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 7

5.4. WORST-CASE CONFIGURATION AND MODE 8

5.5. DESCRIPTION OF TEST SETUP 9

6. TEST AND MEASUREMENT EQUIPMENT 11

7. MEASUREMENT METHODS 12

8. SUMMARY TABLE 13

9. ANTENNA PORT TEST RESULTS 14

9.1. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS 14

9.1.1. ON TIME AND DUTY CYCLE RESULTS 14

9.1.2. DUTY CYCLE PLOTS 15

9.2. 6 dB BANDWIDTH 17

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. 6 dB BANDWIDTH MID CH PLOTS 19

9.3. 99% BANDWIDTH 20

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND 20

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND 20

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 20

9.3.4. 99% BANDWIDTH MID CH PLOTS 21

9.4. OUTPUT POWER 22

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND 23

9.4.2. 802.11g MODE IN THE 2.4 GHz BAND 24

9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 25

9.5. PSD 26

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND 27

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9.5.2. 802.11g MODE IN THE 2.4 GHz BAND 27
9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 27
9.5.4. PSD MID CH PLOTS 28

9.6. OUT-OF-BAND EMISSIONS 29
9.6.1. 802.11b MODE IN THE 2.4 GHz BAND 30
9.6.2. 802.11g MODE IN THE 2.4 GHz BAND 33
9.6.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND 36

10. RADIATED TEST RESULTS 39

10.1. LIMITS AND PROCEDURE 39

10.2. TRANSMITTER ABOVE 1 GHz 40
10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND 40
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND 53
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND 66

10.3. WORST-CASE BELOW 1 GHz 79

11. AC POWER LINE CONDUCTED EMISSIONS 82

12. SETUP PHOTOS 86

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC

EUT DESCRIPTION: GSM/WCDMA/LTE PHONE + BLUETOOTH, DTS/UNII a/b/g/n/ac & NFC

MODEL: LG-H791, LGH791, H791

SERIAL NUMBER: Conducted: 1ZBRT
Radiated: 1ZBRK, 1ZBRL

DATE TESTED: JULY 8 -23, 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, KDB 558074 D01 v03r03, ANSI C63.10-2009 for FCC.

ANSI C63.10-2009 Deviation
Radiated spurious emission above 1GHz was performed with the EUT elevated at 1.5m instead of 0.8m. 1.5m is the required height in ANSI C63.10:2013 as referenced by RSS GEN issue 4.

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

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

This EUT is a GSM/WCDMA/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	20.85	121.62
2412 - 2462	802.11g	18.82	76.21
2412 - 2462	802.11n HT20	18.86	76.91

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna. Please refer to directional antenna gain on section 9.4 for maximum antenna gain.

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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 X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

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

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

802.11ac-mode is covered by 802.11n mode test result because they have same target power.

List of test reduction and modes

2400 - 2483.5 MHz Authorized Frequency Band (Antenna Port & Radiated Testing)		
Frequency Range (MHz)	**Mode**	**Covered by**
2412 - 2472	802.11b Legacy 1TX	802.11b CDD 2TX
2412 - 2472	802.11g Legacy 1TX	802.11g CDD 2TX
2412 - 2472	802.11n 1TX	802.11n HT20 CDD 2TX
2412 - 2472	802.11n SDM 2TX	802.11n HT20 CDD 2TX
2412 - 2472	802.11n HT40 1TX	802.11n HT40 CDD 2TX
2412 - 2472	802.11n HT40 SDM 2TX	802.11n HT40 CDD 2TX

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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-N04WS	SA560000030	DoC
Earphone	LG	-	-	-

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.

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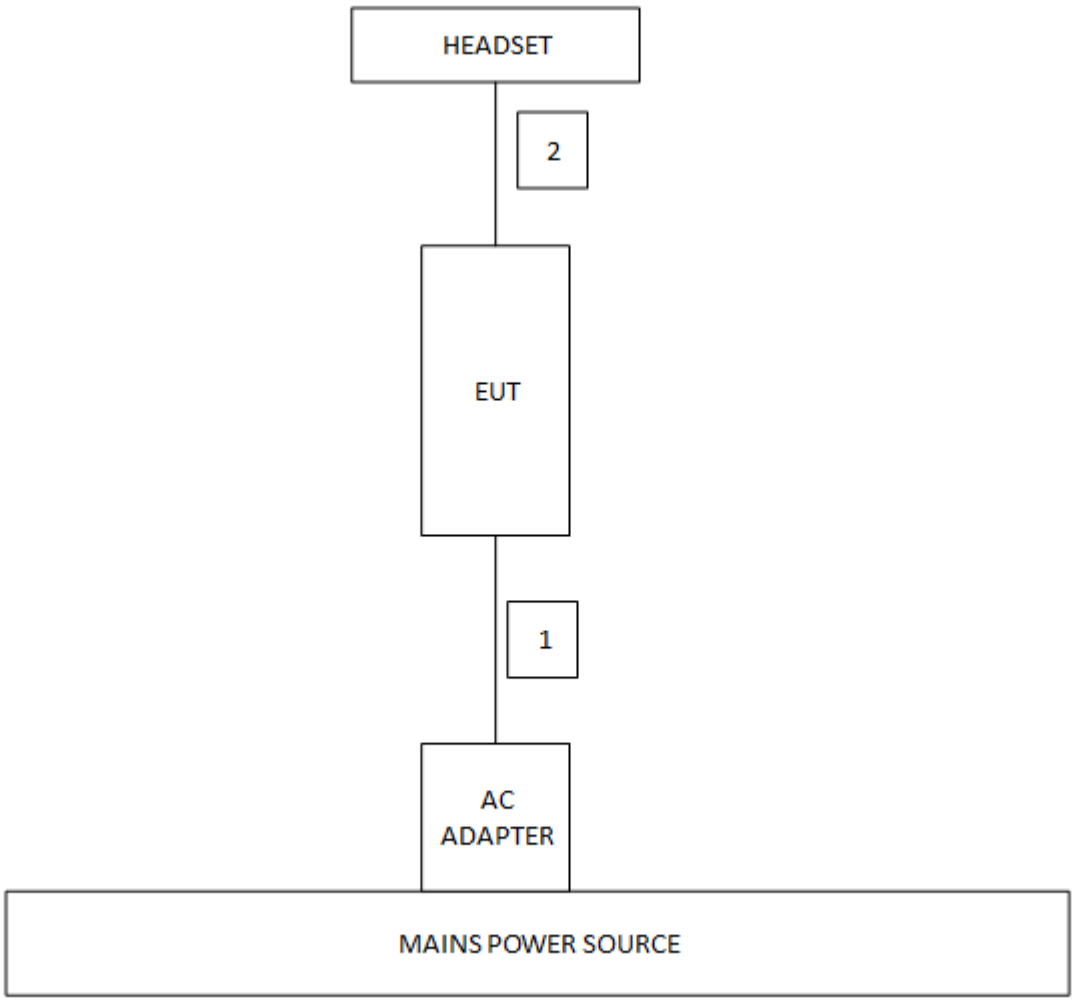
SETUP DIAGRAM FOR TESTS



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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	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	06/28/16
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	08/20/15
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, June 24, 2015	
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.

KDB 662911 D01 guidance is followed for MIMO Spatial Division Multiplexing (SDM is uncorrelated) and Cyclic Delay or Cyclic Shift Delay (CSD is correlated). Radiated spurious emission

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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	15.111 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-30.62 dBm
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass	20.85 dBm
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass	-0.21 dBm
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	46.42 dBuV(QP)
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	44.44 dBuV/m

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9. ANTENNA PORT TEST RESULTS

9.1. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

9.1.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b CDD	8.620	8.640	0.998	99.77%	0.00	0.010
802.11g CDD	2.792	2.817	0.991	99.11%	0.00	0.010
802.11n HT20 CDD	5.116	5.145	0.994	99.44%	0.00	0.010

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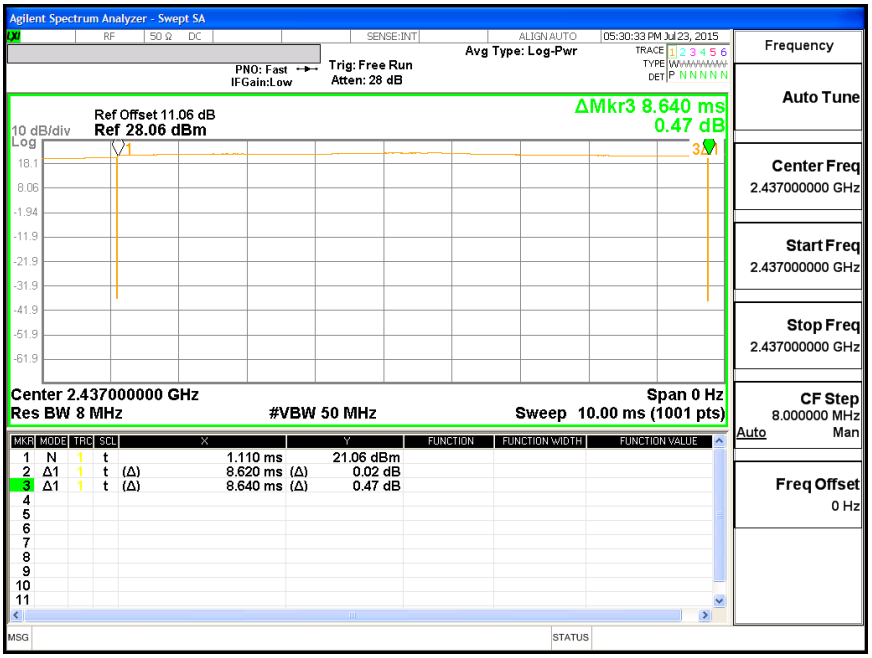
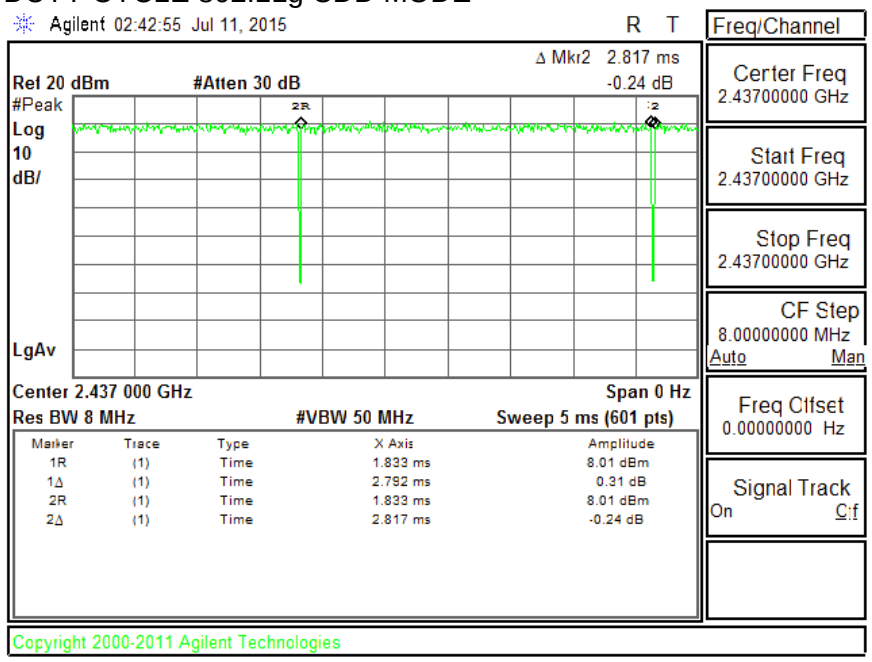
9.1.2. DUTY CYCLE PLOTS

2.4 GHz BAND

DUTY CYCLE 802.11b CDD MODE



DUTY CYCLE 802.11g CDD MODE



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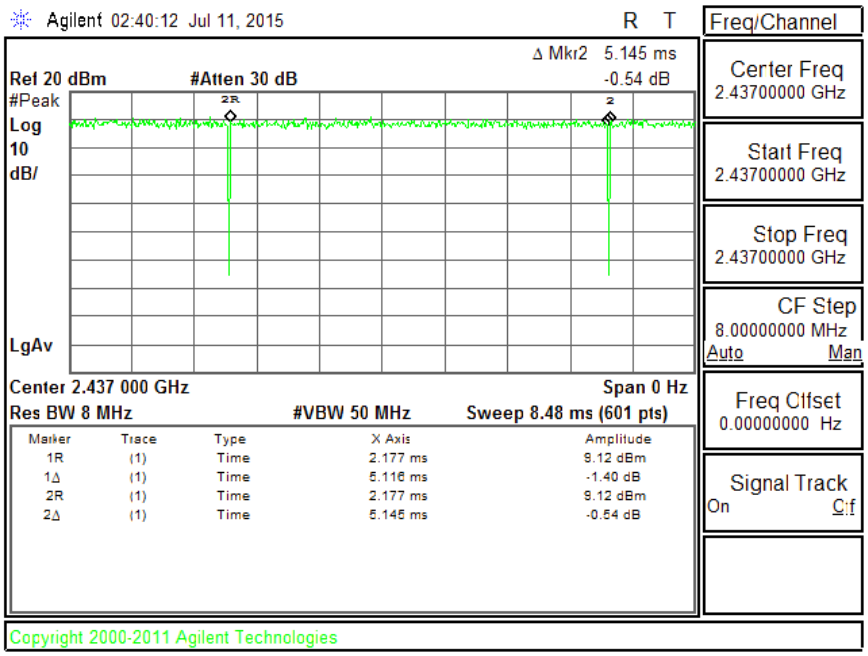
DUTY CYCLE 802.11n HT20 MODE



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9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 5.2.1

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.

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RESULTS

9.2.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth CHAIN 0(MHz)	6 dB Bandwidth CHAIN 1(MHz)	Minimum Limit (MHz)
Low	2412	8.073	8.060	0.5
Mid	2437	8.528	8.073	0.5
High	2462	8.086	7.560	0.5
Worst		8.073	7.560	

9.2.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth CHAIN 0(MHz)	6 dB Bandwidth CHAIN 1(MHz)	Minimum Limit (MHz)
Low	2412	15.272	15.318	0.5
Mid	2437	14.146	15.111	0.5
High	2462	15.065	15.720	0.5
Worst		14.146	15.111	

9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth CHAIN 0(MHz)	6 dB Bandwidth CHAIN 1(MHz)	Minimum Limit (MHz)
Low	2412	14.720	15.042	0.5
Mid	2437	15.672	15.912	0.5
High	2462	14.720	15.912	0.5
Worst		14.720	15.042	

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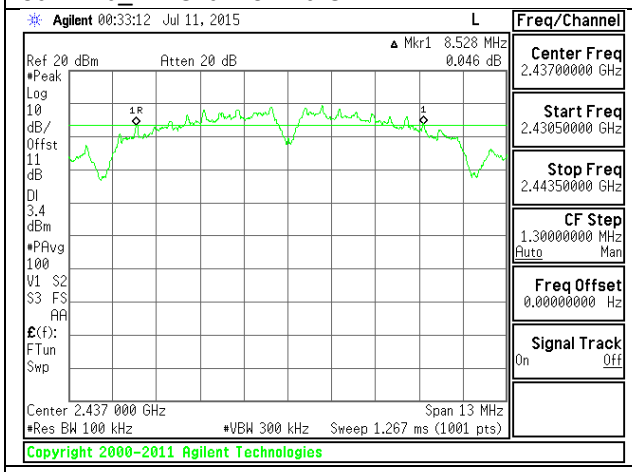
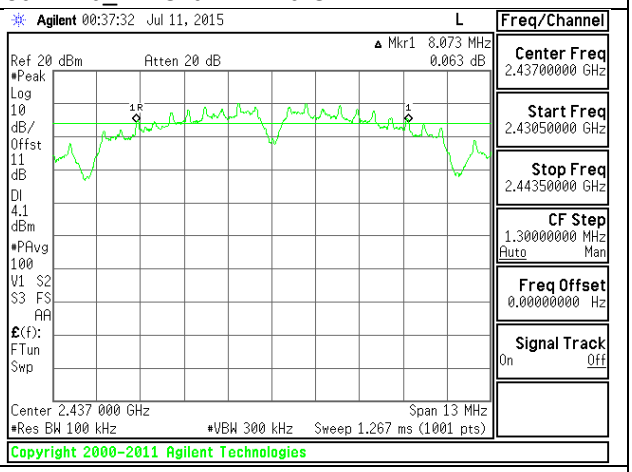
9.2.4. 6 dB BANDWIDTH MID CH PLOTS

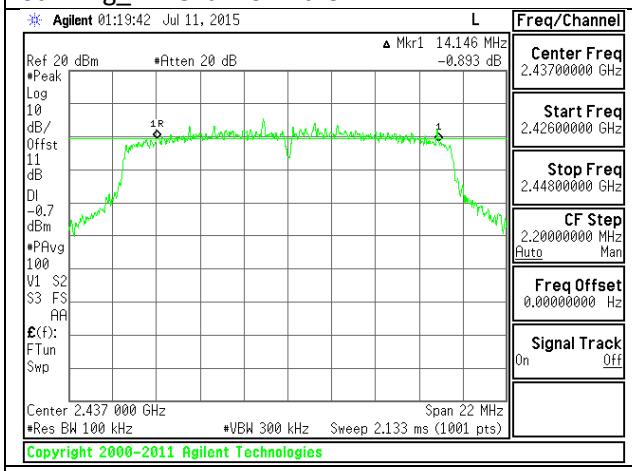
6dB 11b_2.4 Chain 0 Mid Ch



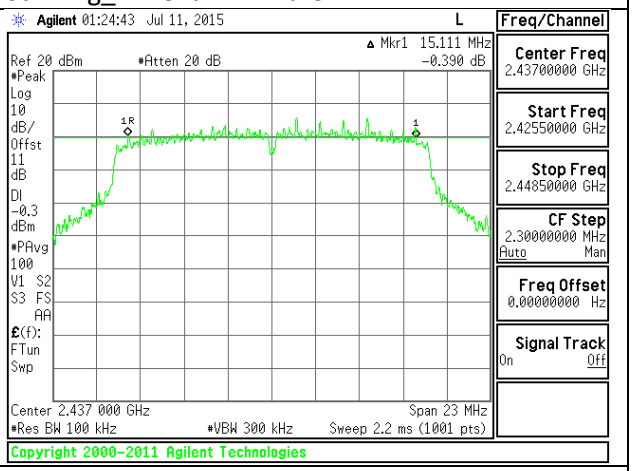
6dB 11b_2.4 Chain 1 Mid Ch



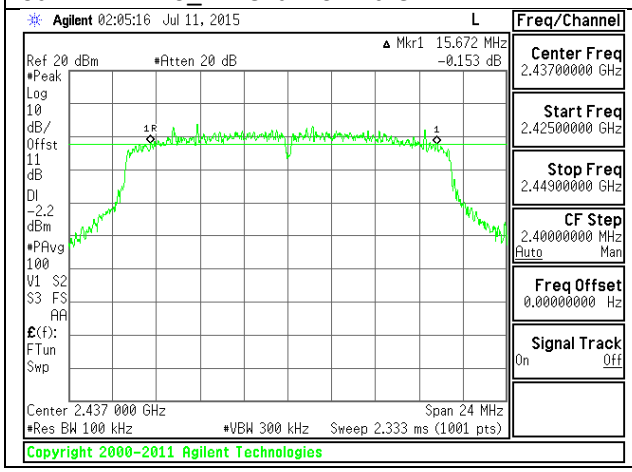
6dB 11g_2.4 Chain 0 Mid Ch



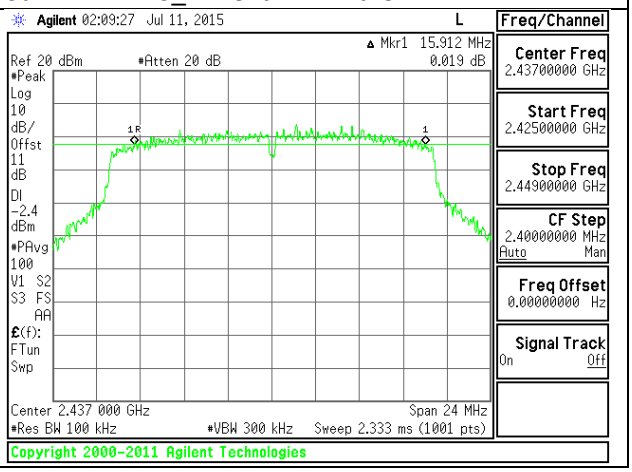
6dB 11g_2.4 Chain 1 Mid Ch



6dB 11n HT20_2.4 Chain 0 Mid Ch



6dB 11n HT20_2.4 Chain 1 Mid Ch



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9.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth CHAIN 0(MHz)	99% Bandwidth CHAIN 1(MHz)
Low	2412	13.1716	13.0664
Mid	2437	12.8864	13.0408
High	2462	13.0489	13.1453
Worst		13.1716	13.1453

9.3.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth CHAIN 0(MHz)	99% Bandwidth CHAIN 1(MHz)
Low	2412	16.3467	16.2815
Mid	2437	16.3090	16.3529
High	2462	16.3536	16.3378
Worst		16.3536	16.3529

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth CHAIN 0(MHz)	99% Bandwidth CHAIN 1(MHz)
Low	2412	17.4708	17.4292
Mid	2437	17.4514	17.4842
High	2462	17.5159	17.4697
Worst		17.5159	17.4842

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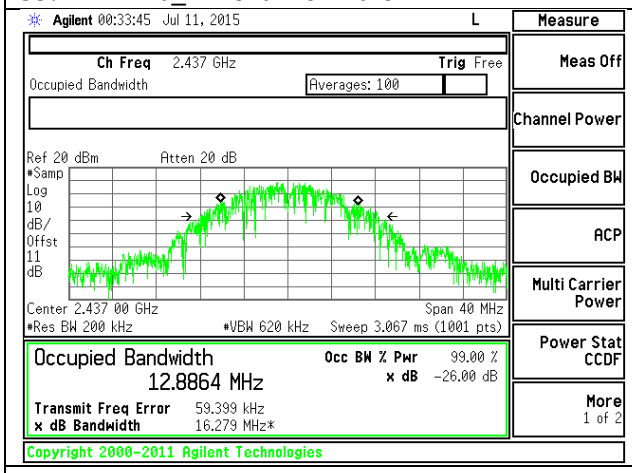
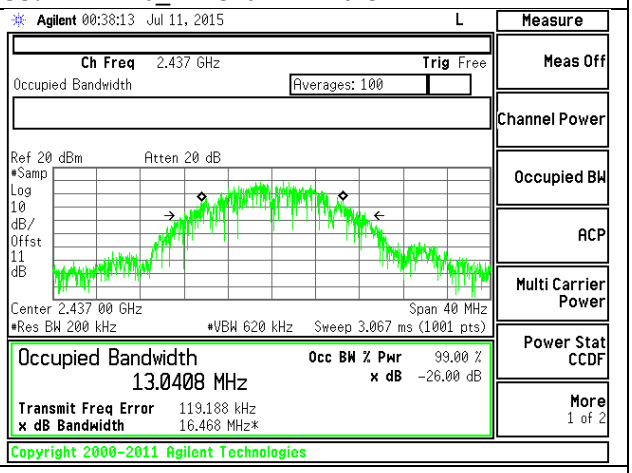
9.3.4. 99% BANDWIDTH MID CH PLOTS

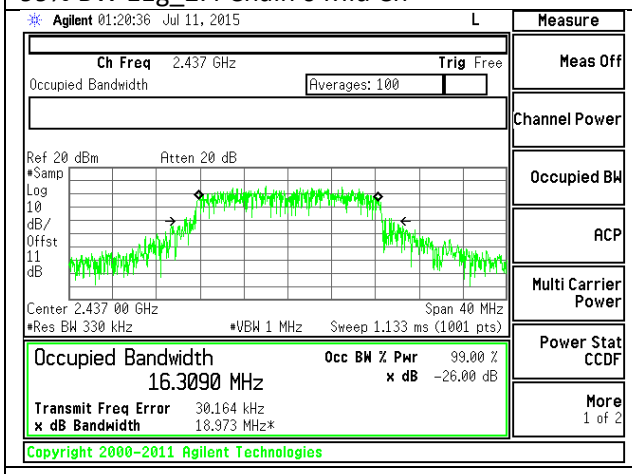
99% BW 11b_2.4 Chain 0 Mid Ch



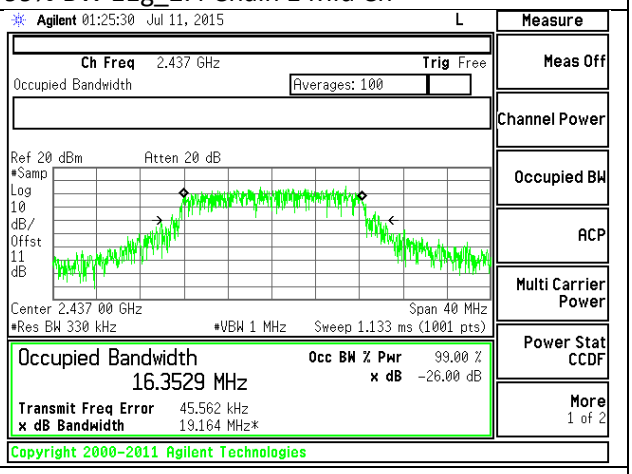
99% BW 11b_2.4 Chain 1 Mid Ch



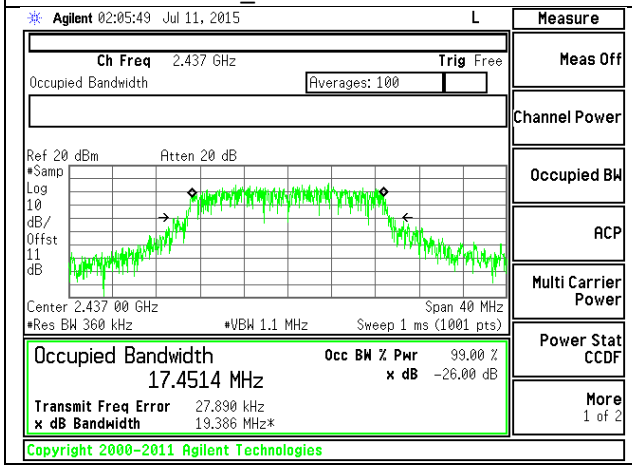
99% BW 11g_2.4 Chain 0 Mid Ch



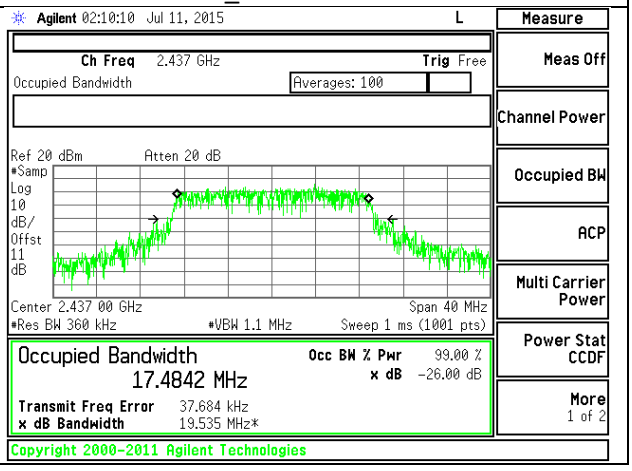
99% BW 11g_2.4 Chain 1 Mid Ch



99% BW 11n HT20_2.4 Chain 0 Mid Ch



99% BW 11n HT20_2.4 Chain 1 Mid Ch



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9.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 5.4.4

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

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
-1.71	-3.30	-2.43

The TX chains are correlated and the antenna gain is unequal among the chains. The directional gain is:

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Correlated Chains Directional Gain (dBi)
-1.71	-3.30	0.54

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47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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RESULTS

9.4.1. 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	-2.43	30.00	30	36	30.00
Mid	2437	-2.43	30.00	30	36	30.00
High	2462	-2.43	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	2412	17.94	17.73	20.85	30.00	-9.15
Mid	2437	17.45	17.53	20.50	30.00	-9.50
High	2462	17.36	17.78	20.59	30.00	-9.41
Worst				20.85		

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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9.4.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-2.43	30.00	30	36	30.00
Mid	2437	-2.43	30.00	30	36	30.00
High	2462	-2.43	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	2412	14.80	14.61	17.72	30.00	-12.28
Mid	2437	15.79	15.83	18.82	30.00	-11.18
High	2462	14.50	14.32	17.42	30.00	-12.58
Worst				18.82		

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-2.43	30.00	30	36	30.00
Mid	2437	-2.43	30.00	30	36	30.00
High	2462	-2.43	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low	2412	14.80	14.43	17.63	30.00	-12.37
Mid	2437	15.82	15.87	18.86	30.00	-11.14
High	2462	14.70	14.12	17.43	30.00	-12.57
Worst				18.86		

Note: the power readings above were measured with gated method, and the measurement was taken only during the ON time. No duty cycle correction was necessary.

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9.5. PSD

LIMITS

FCC §15.247

IC RSS-247 5.2.2

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.

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RESULTS

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-3.310	-3.127	-0.21	8.0	-8.2
Mid	2437	-3.609	-3.070	-0.32	8.0	-8.3
High	2462	-3.946	-3.115	-0.50	8.0	-8.5
Worst				-0.21		

9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-9.564	-9.362	-6.45	8.0	-14.5
Mid	2437	-8.754	-8.999	-5.86	8.0	-13.9
High	2462	-10.476	-9.511	-6.96	8.0	-15.0
Worst				-5.86		

9.5.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-10.235	-10.034	-7.12	8.0	-15.1
Mid	2437	-9.497	-9.497	-6.49	8.0	-14.5
High	2462	-10.919	-10.028	-7.44	8.0	-15.4
Worst				-6.49		

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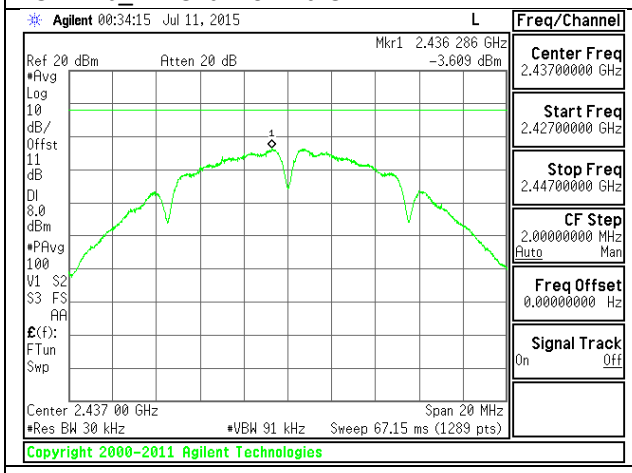
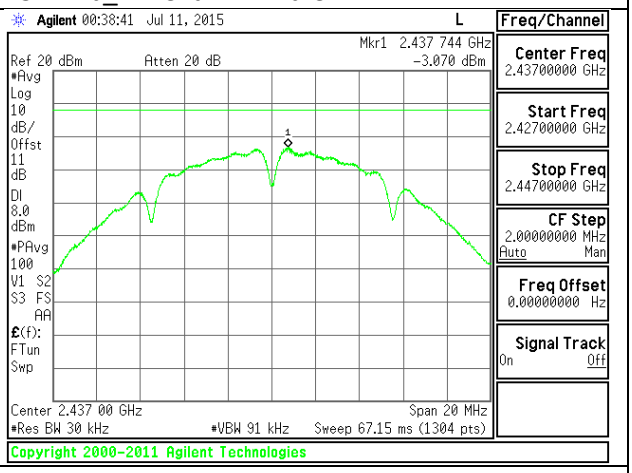
9.5.4. PSD MID CH PLOTS

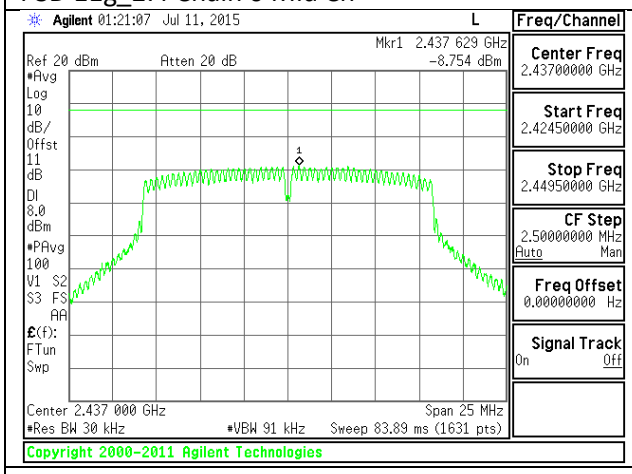
PSD 11b_2.4 Chain 0 Mid Ch



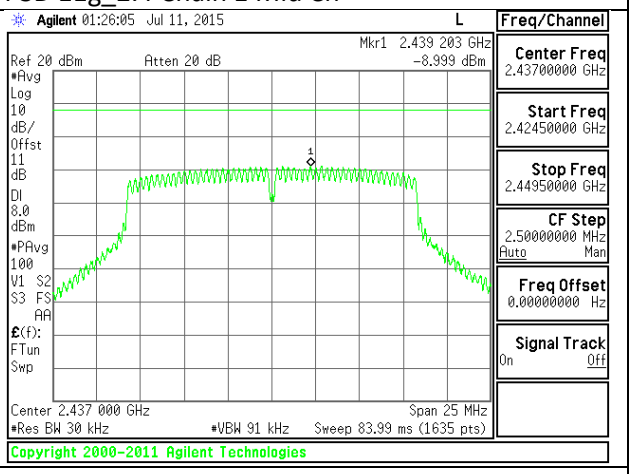
PSD 11b_2.4 Chain 1 Mid Ch



PSD 11g_2.4 Chain 0 Mid Ch



PSD 11g_2.4 Chain 1 Mid Ch



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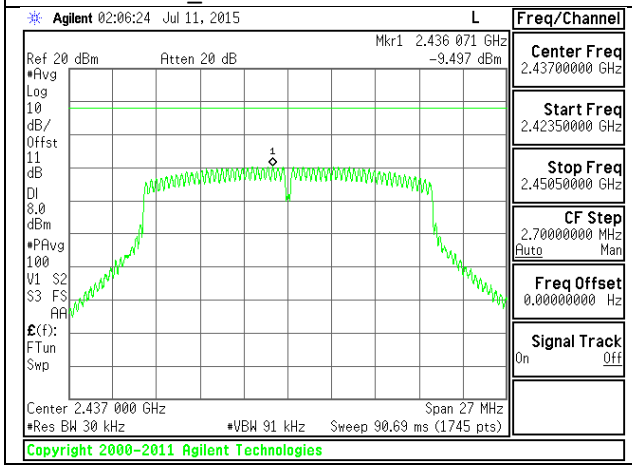
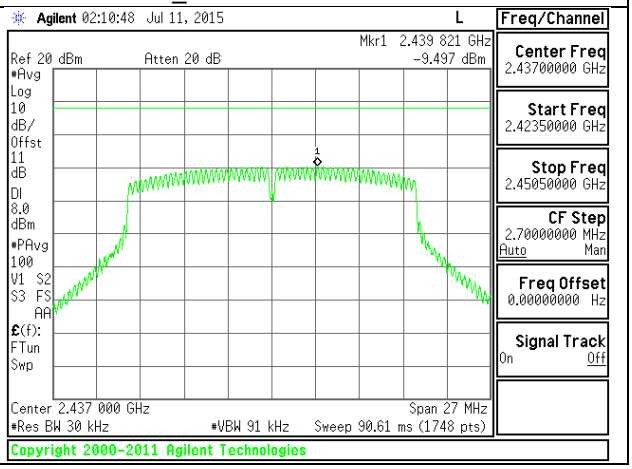


PSD 11n HT20_2.4 Chain 1 Mid Ch



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9.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-247 5.5

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.

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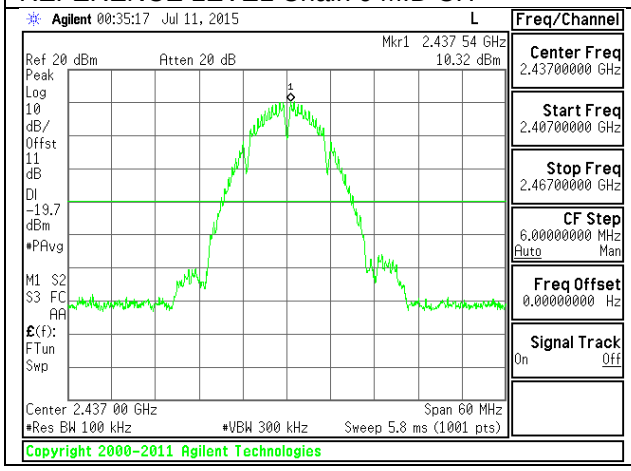
RESULTS

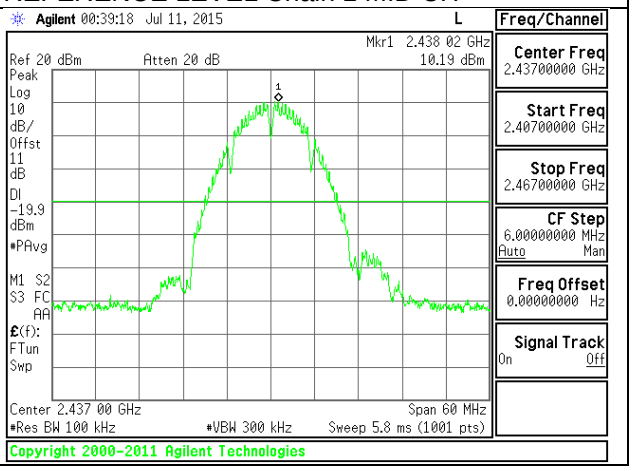
9.6.1. 802.11b MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL Chain 0 MID CH

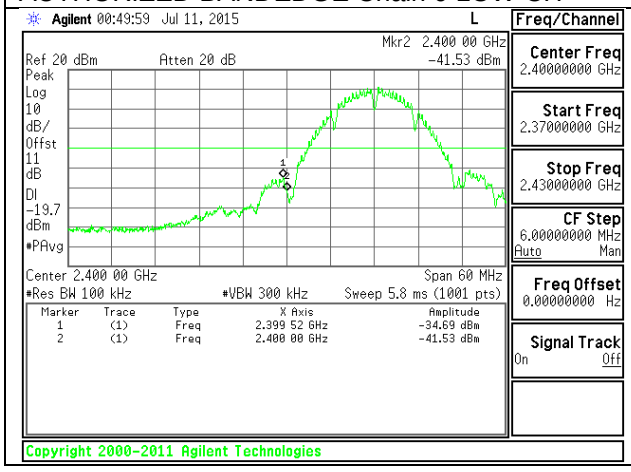


REFERENCE LEVEL Chain 1 MID CH

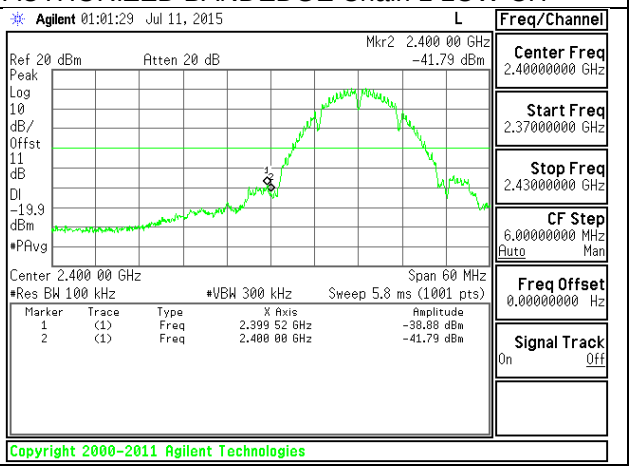


LOW CHANNEL BAND EDGE

AUTHORIZED BANDEDGE Chain 0 LOW CH



AUTHORIZED BANDEDGE Chain 1 LOW CH



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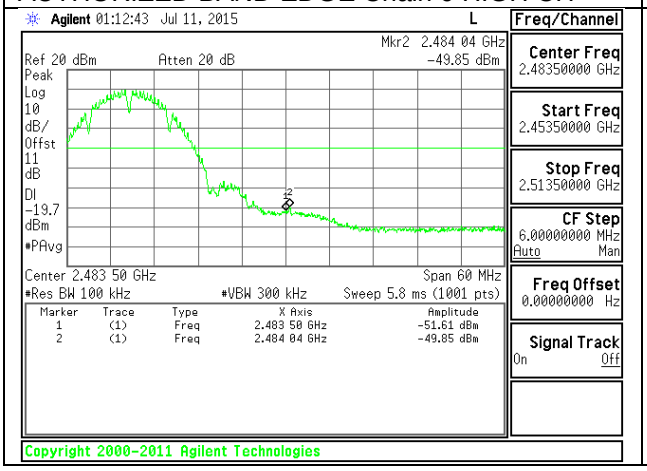
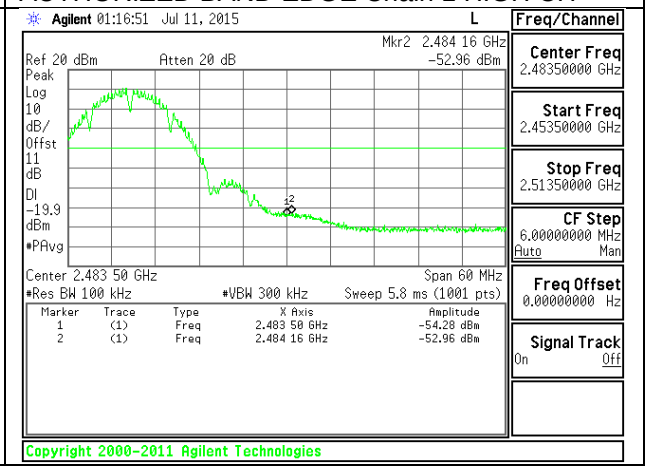
HIGH CHANNEL BAND EDGE

AUTHORIZED BAND EDGE Chain 0 HIGH CH

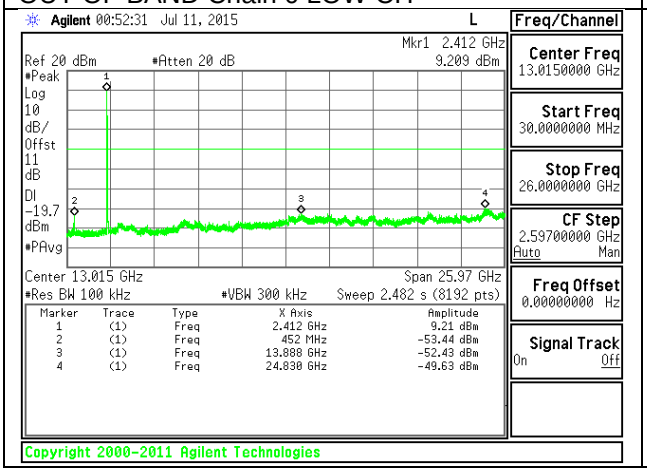


AUTHORIZED BAND EDGE Chain 1 HIGH CH

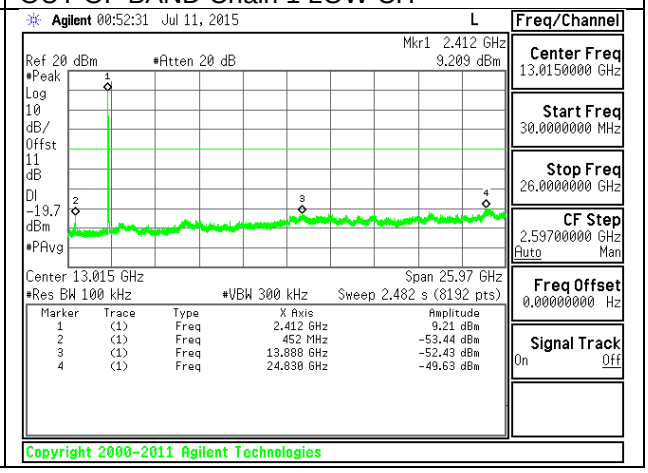


OUT-OF-BAND EMISSIONS

OUT OF BAND Chain 0 LOW CH



OUT OF BAND Chain 1 LOW CH



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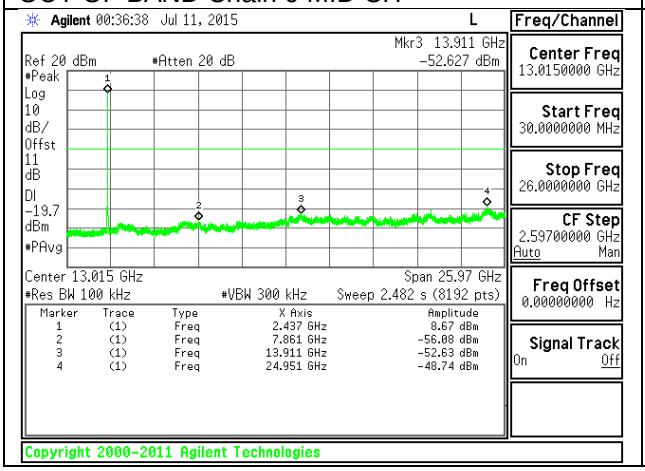
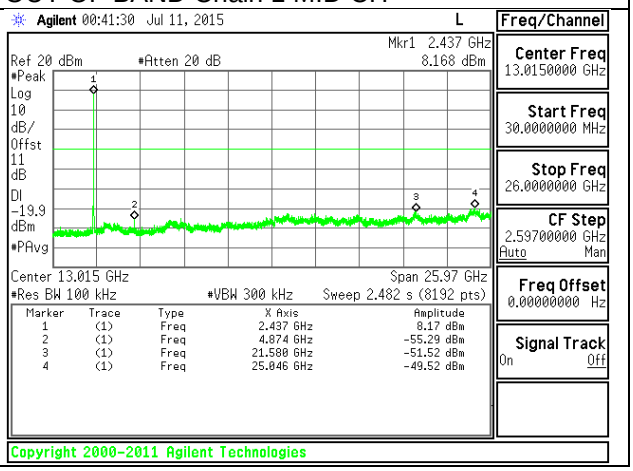
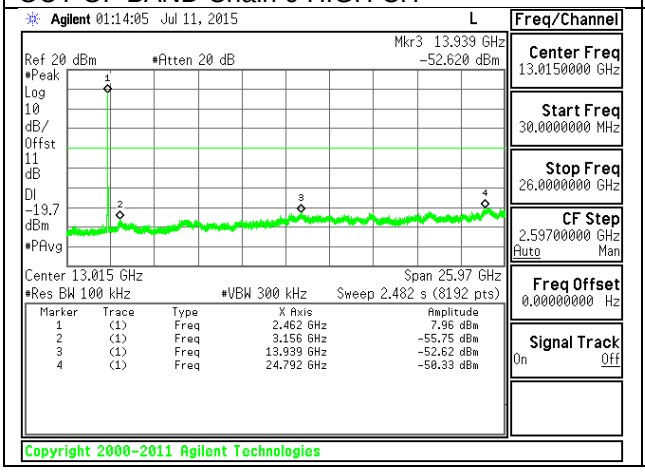
OUT OF BAND Chain 0 MID CH



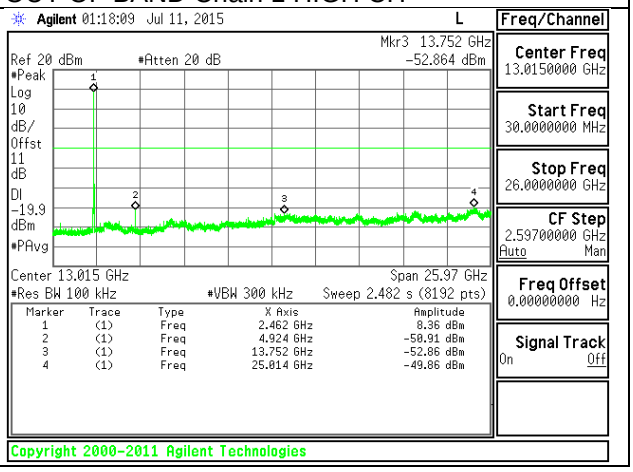
OUT OF BAND Chain 1 MID CH



OUT OF BAND Chain 0 HIGH CH



OUT OF BAND Chain 1 HIGH CH



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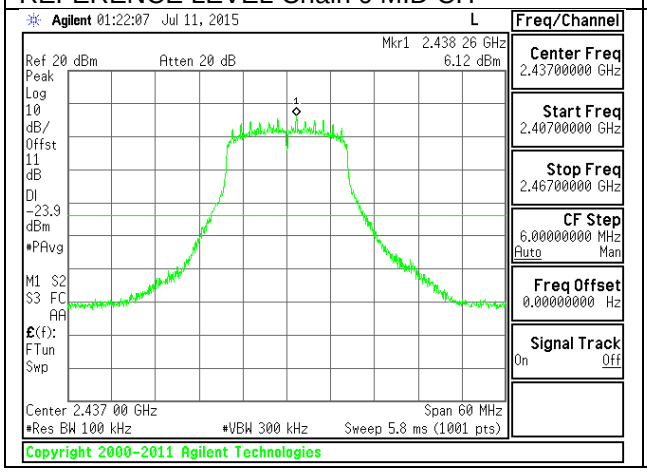
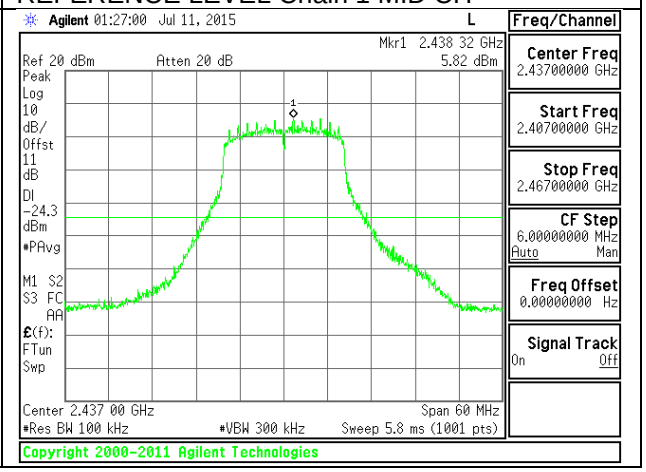
9.6.2. 802.11g MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL Chain 0 MID CH

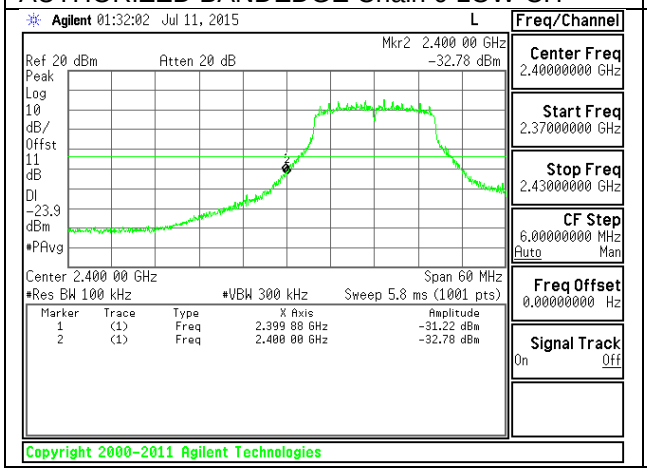


REFERENCE LEVEL Chain 1 MID CH

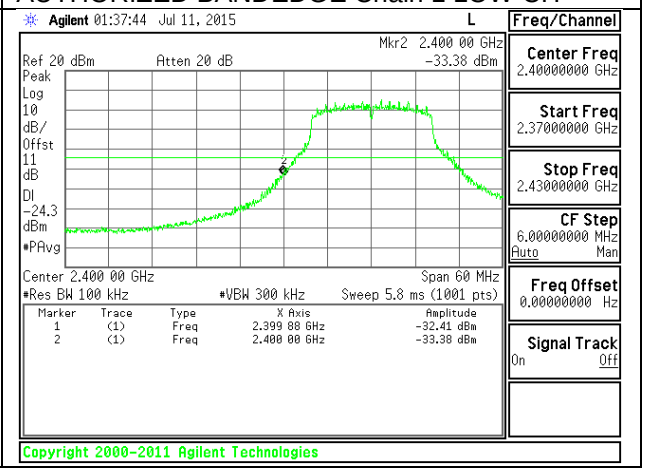


LOW CHANNEL BAND EDGE

AUTHORIZED BANDEDGE Chain 0 LOW CH



AUTHORIZED BANDEDGE Chain 1 LOW CH



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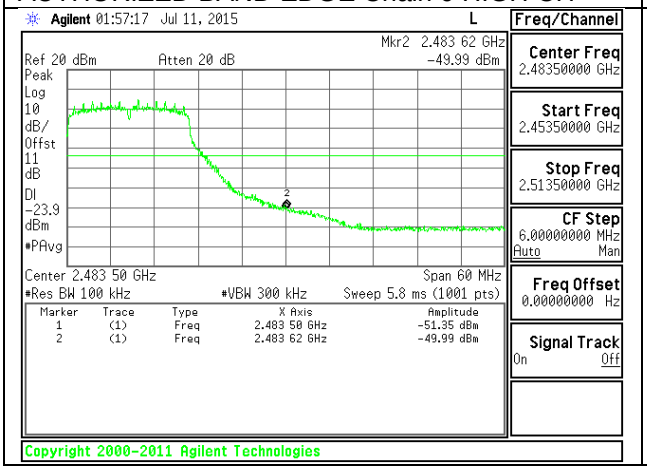
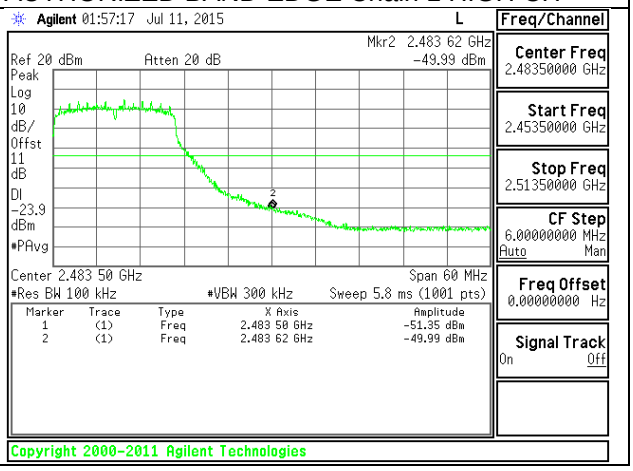
HIGH CHANNEL BAND EDGE

AUTHORIZED BAND EDGE Chain 0 HIGH CH

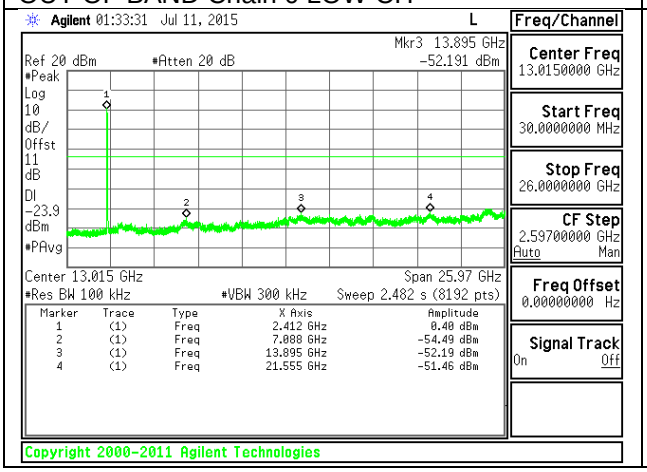


AUTHORIZED BAND EDGE Chain 1 HIGH CH

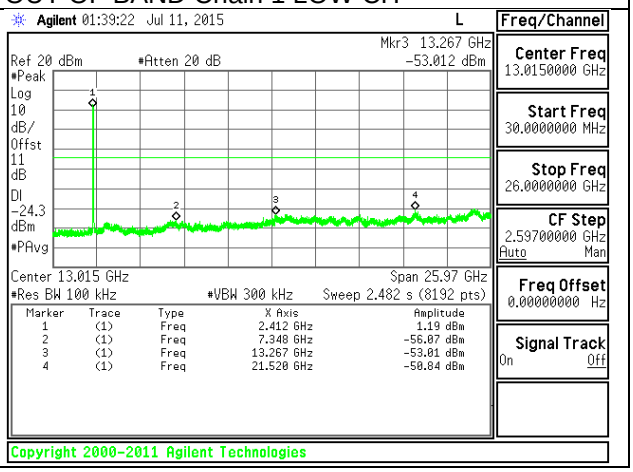


OUT-OF-BAND EMISSIONS

OUT OF BAND Chain 0 LOW CH



OUT OF BAND Chain 1 LOW CH



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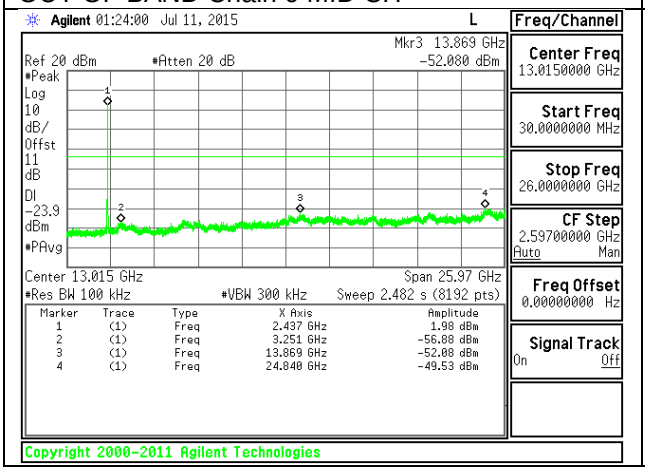
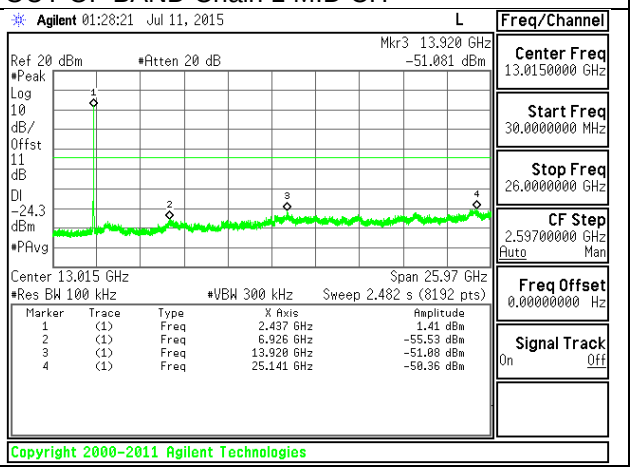
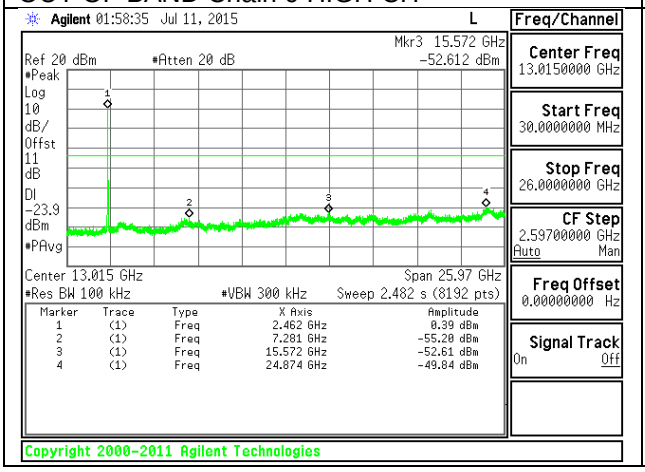
OUT OF BAND Chain 0 MID CH



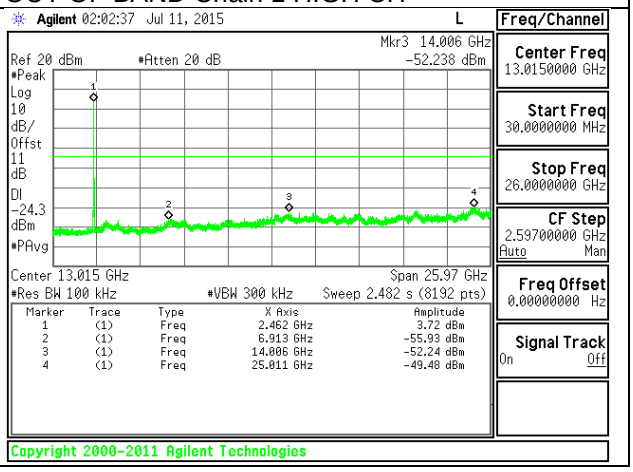
OUT OF BAND Chain 1 MID CH



OUT OF BAND Chain 0 HIGH CH



OUT OF BAND Chain 1 HIGH CH



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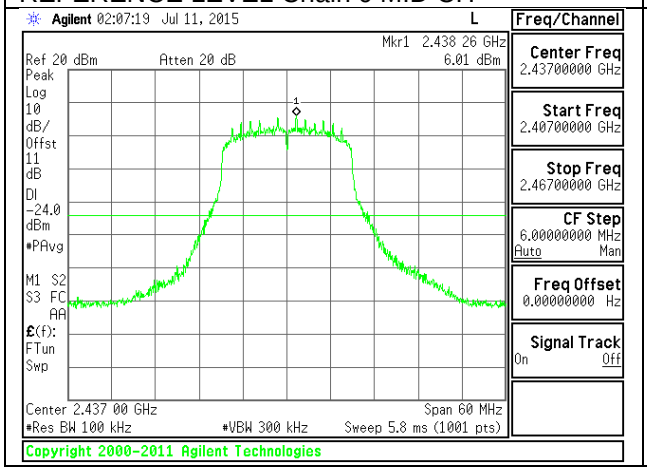
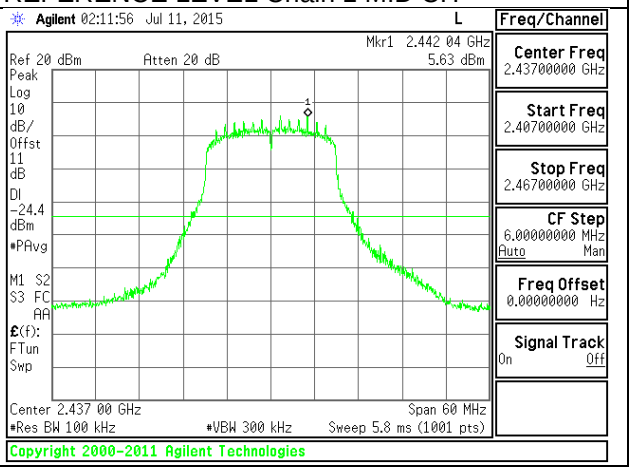
9.6.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

IN-BAND REFERENCE LEVEL

REFERENCE LEVEL Chain 0 MID CH

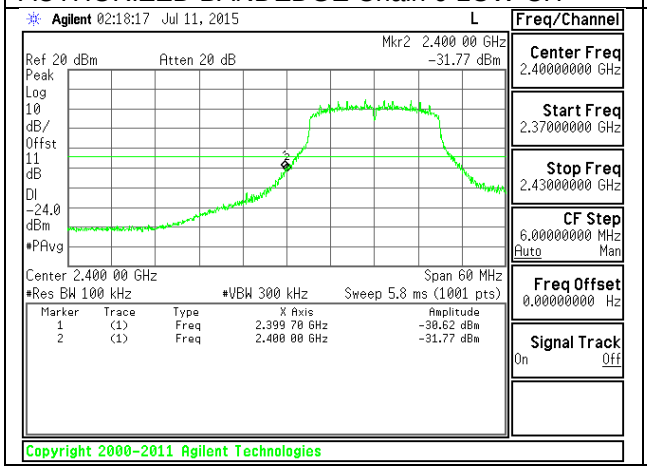


REFERENCE LEVEL Chain 1 MID CH

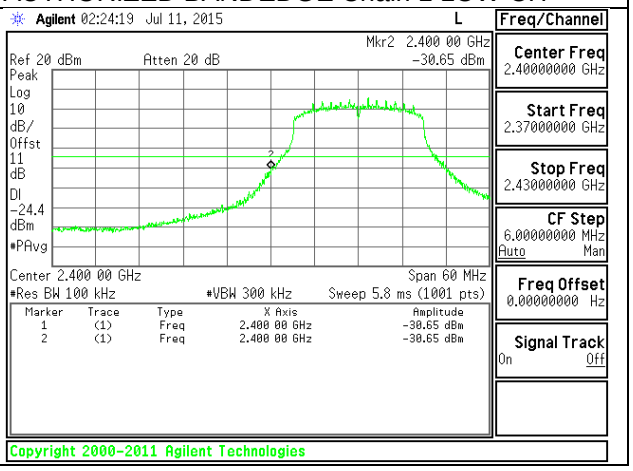


LOW CHANNEL BAND EDGE

AUTHORIZED BANDEDGE Chain 0 LOW CH



AUTHORIZED BANDEDGE Chain 1 LOW CH



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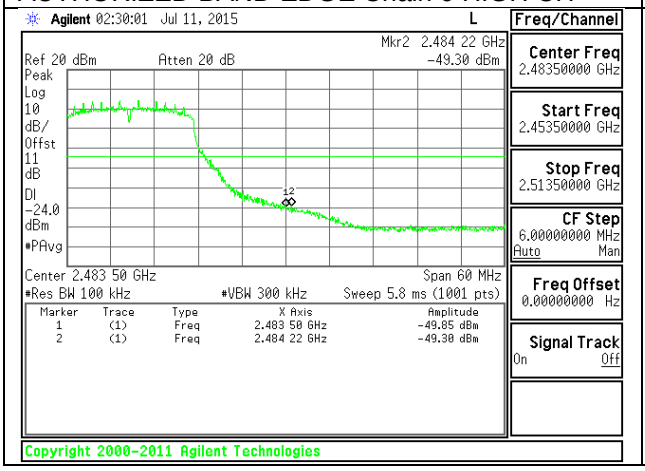
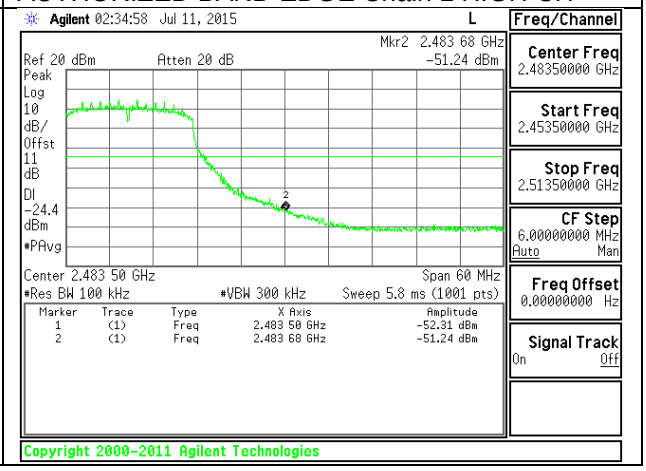
HIGH CHANNEL BAND EDGE

AUTHORIZED BAND EDGE Chain 0 HIGH CH

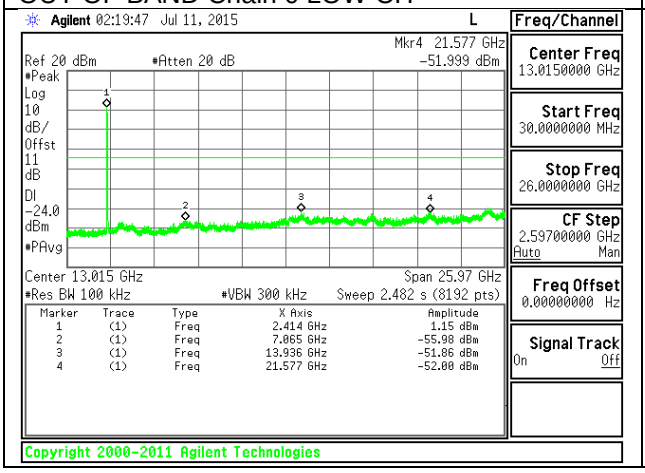


AUTHORIZED BAND EDGE Chain 1 HIGH CH

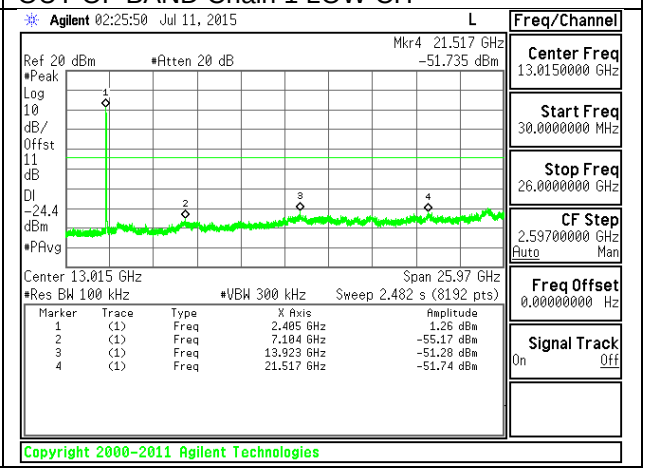


OUT-OF-BAND EMISSIONS

OUT OF BAND Chain 0 LOW CH



OUT OF BAND Chain 1 LOW CH



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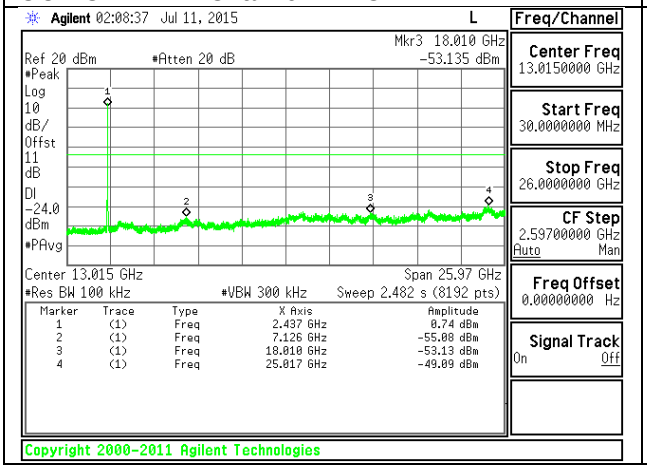
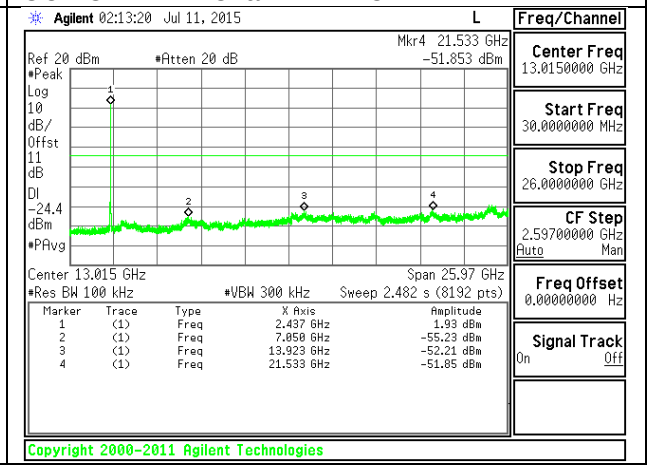
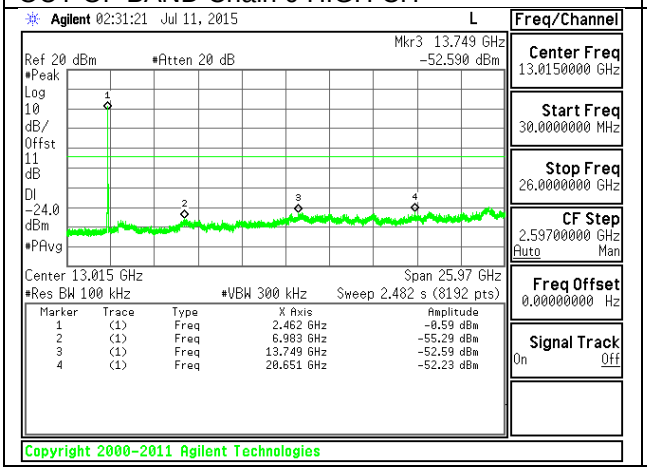
OUT OF BAND Chain 0 MID CH



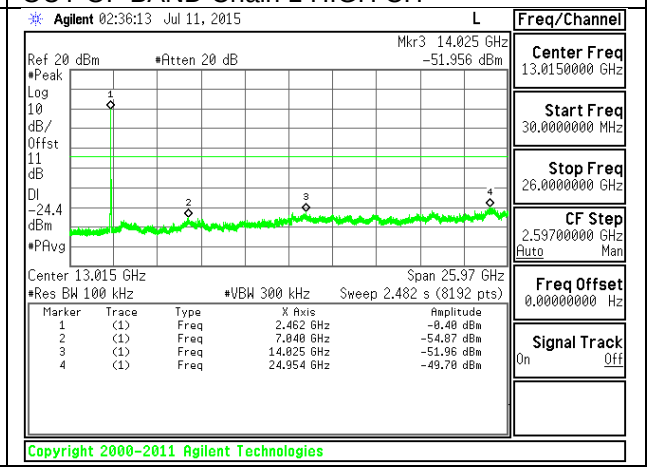
OUT OF BAND Chain 1 MID CH



OUT OF BAND Chain 0 HIGH CH



OUT OF BAND Chain 1 HIGH CH



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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 (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, G mode, and HT20 mode, the duty cycle factor is 0dB (duty cycle >98%).

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.

* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

Note: Band edge and radiated spurious emission test data are from MIMO mode.

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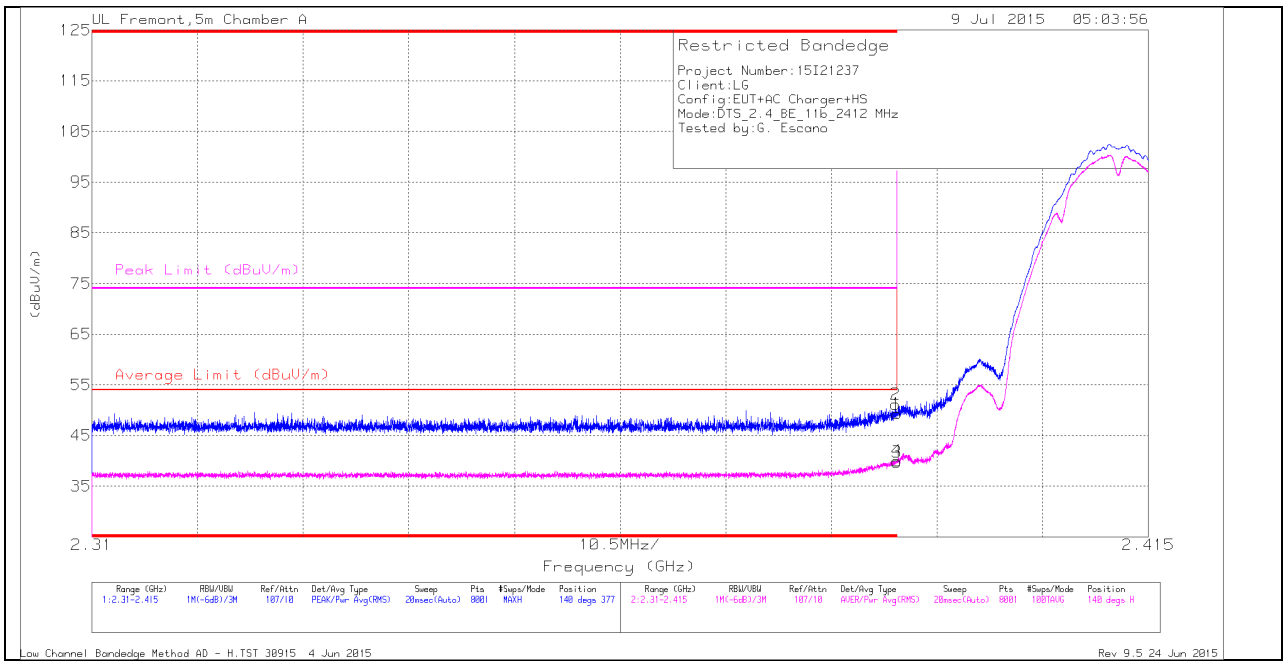
10.2. TRANSMITTER ABOVE 1 GHz

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
1	* 2.39	42.2	Pk	32	-24.9	0	49.3	-	-	74	-24.7	140	377	H
2	* 2.39	44.06	Pk	32	-24.9	0	51.16	-	-	74	-22.84	140	377	H
3	* 2.39	32.63	RMS	32	-24.9	0	39.73	54	-14.27	-	-	140	377	H
4	* 2.39	32.83	RMS	32	-24.9	0	39.93	54	-14.07	-	-	140	377	H

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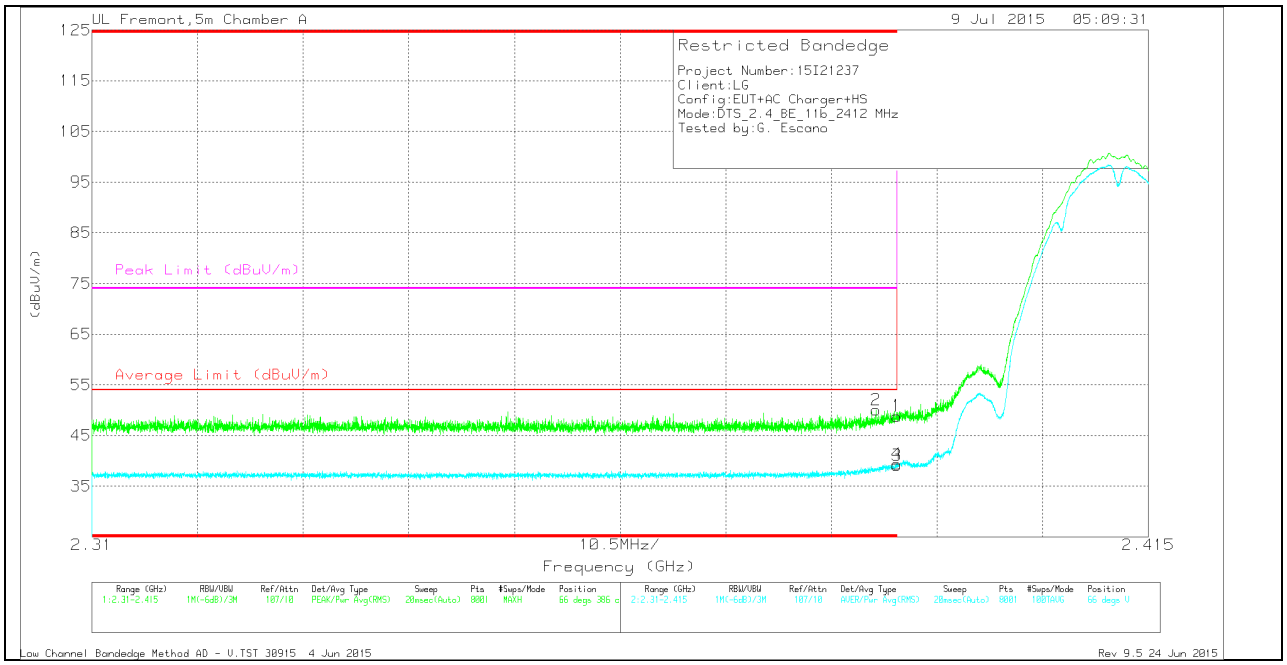
VERTICAL PEAK AND AVERAGE PLOT



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
2	* 2.388	42.96	Pk	32	-24.9	0	50.06	-	-	74	-23.94	66	386	V
1	* 2.39	41.76	Pk	32	-24.9	0	48.86	-	-	74	-25.14	66	386	V
3	* 2.39	32.02	RMS	32	-24.9	0	39.12	54	-14.88	-	-	66	386	V
4	* 2.39	32.29	RMS	32	-24.9	0	39.39	54	-14.61	-	-	66	386	V

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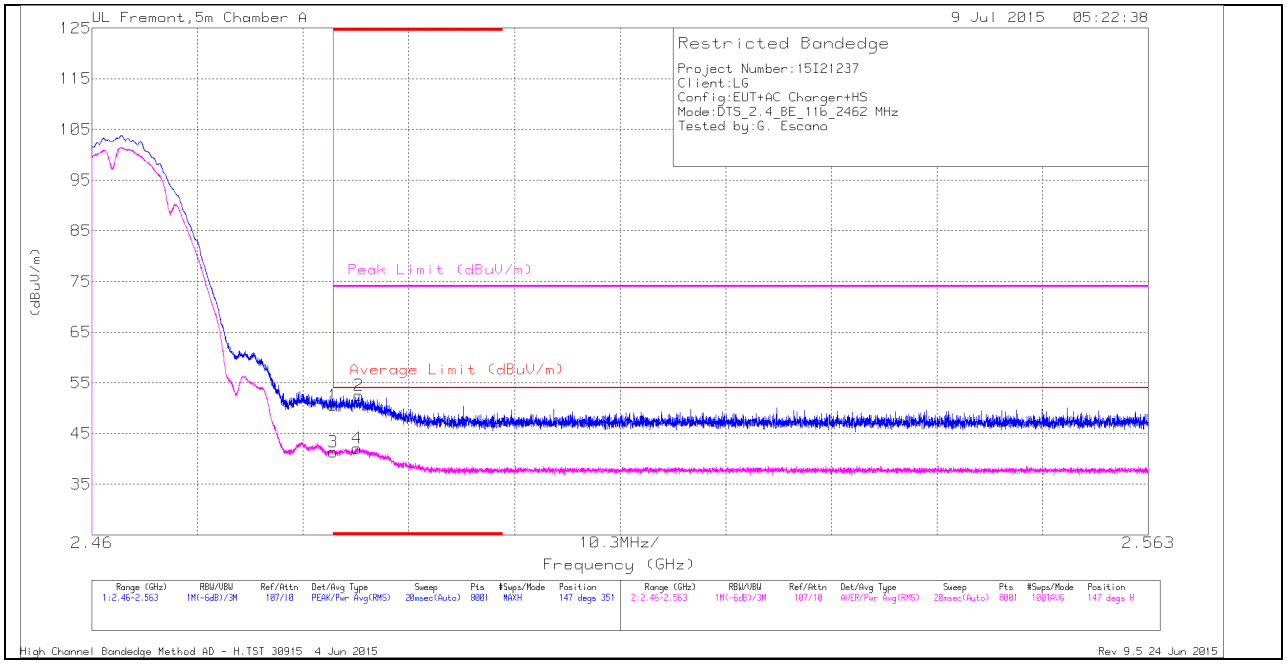
AUTHORIZED BANDEDGE (HIGH CHANNEL)

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	43.23	Pk	32.1	-24.8	0	50.53	-	-	74	-23.47	147	351	H
3	* 2.484	34.08	RMS	32.1	-24.8	0	41.38	54	-12.62	-	-	147	351	H
2	* 2.486	45.21	Pk	32.1	-24.8	0	52.51	-	-	74	-21.49	147	351	H
4	* 2.486	34.82	RMS	32.1	-24.8	0	42.12	54	-11.88	-	-	147	351	H

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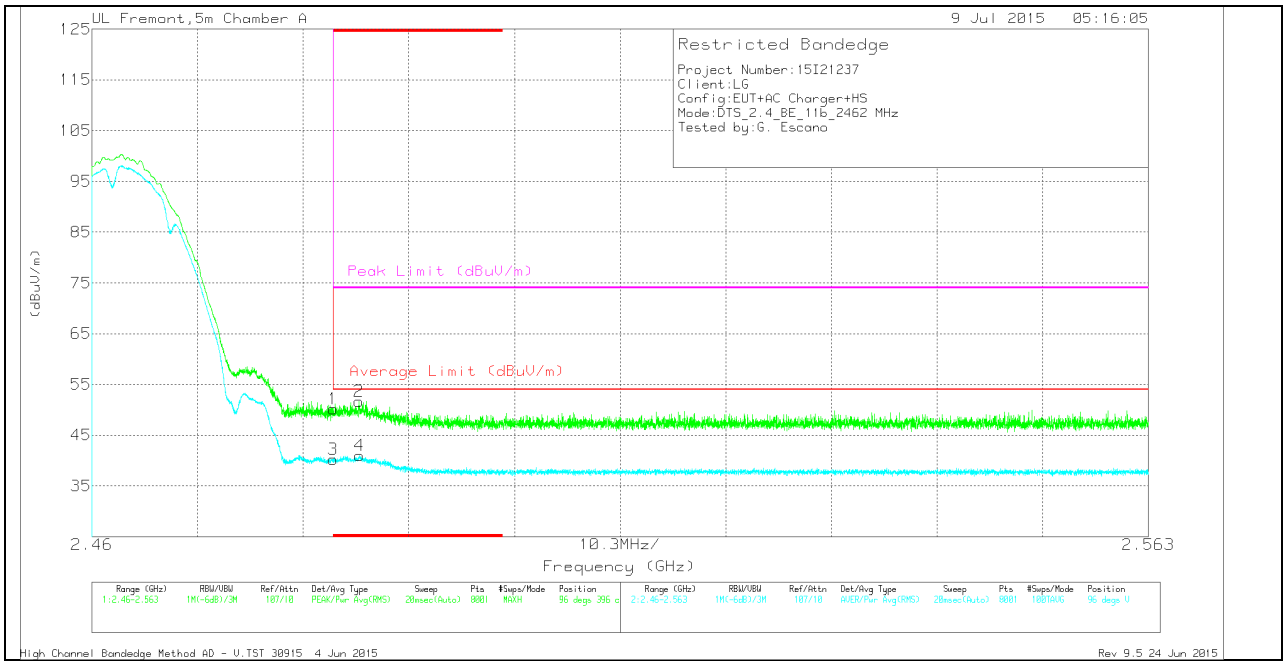
VERTICAL PEAK AND AVERAGE PLOT



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	42.92	Pk	32.1	-24.8	0	50.22	-	-	74	-23.78	96	396	V
3	* 2.484	32.95	RMS	32.1	-24.8	0	40.25	54	-13.75	-	-	96	396	V
2	* 2.486	44.38	Pk	32.1	-24.8	0	51.68	-	-	74	-22.32	96	396	V
4	* 2.486	33.67	RMS	32.1	-24.8	0	40.97	54	-13.03	-	-	96	396	V

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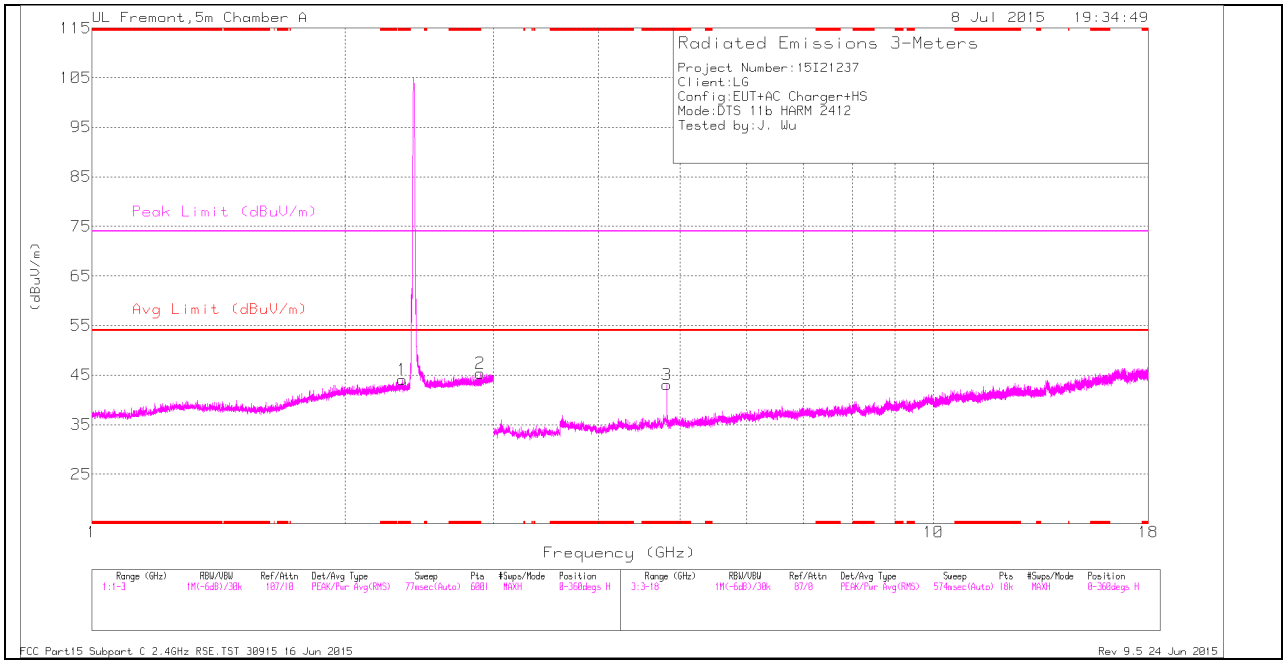
HARMONICS AND SPURIOUS EMISSIONS

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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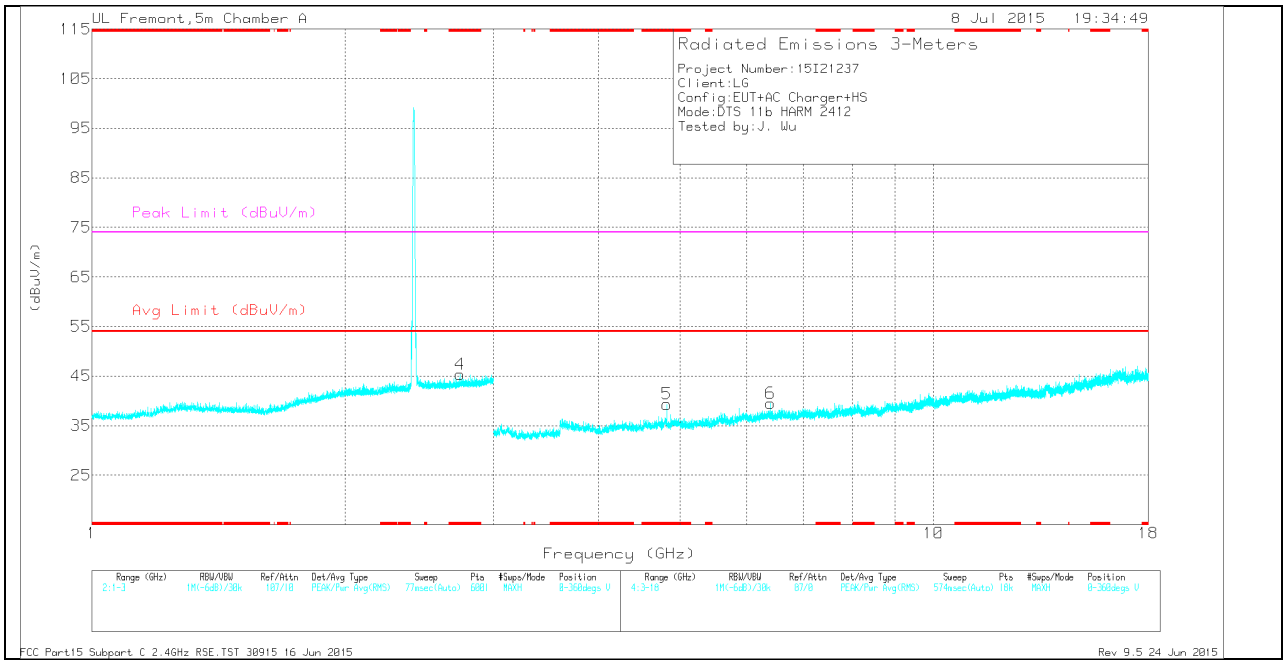
LOW CHANNEL VERTICAL



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	* 2.34	37.18	Pk	31.9	-25	0	44.08	-	-	74	-29.92	0-360	201	H
2	* 2.892	37.15	Pk	32.6	-24.4	0	45.35	-	-	74	-28.65	0-360	201	H
4	* 2.737	37.51	Pk	32.3	-24.5	0	45.31	-	-	74	-28.69	0-360	200	V
3	* 4.824	40	Pk	33.9	-30.8	0	43.1	-	-	74	-30.9	0-360	100	H
5	* 4.824	36.22	Pk	33.9	-30.8	0	39.32	-	-	74	-34.68	0-360	100	V
6	6.408	32.61	Pk	35.5	-28.6	0	39.51	-	-	-	-	0-360	100	V

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
* 2.338	44.13	PK2	31.9	-25	0	51.03	-	-	74	-22.97	120	202	H
* 2.338	32.52	MAv1	31.9	-25	0	39.42	54	-14.58	-	-	120	202	H
* 2.892	44.44	PK2	32.6	-24.4	0	52.64	-	-	74	-21.36	120	202	H
* 2.893	32.48	MAv1	32.6	-24.4	0	40.68	54	-13.32	-	-	120	202	H
* 2.736	44.81	PK2	32.3	-24.5	0	52.61	-	-	74	-21.39	120	202	V
* 2.736	32.51	MAv1	32.3	-24.5	0	40.31	54	-13.69	-	-	120	202	V
* 4.824	46.38	PK2	33.9	-30.8	0	49.48	-	-	74	-24.52	0	102	H
* 4.824	40.38	MAv1	33.9	-30.8	0	43.48	54	-10.52	-	-	0	102	H
* 4.824	45.9	PK2	33.9	-30.8	0	49	-	-	74	-25	26	387	V
* 4.824	39.38	MAv1	33.9	-30.8	0	42.48	54	-11.52	-	-	26	387	V
6.407	38.85	PK2	35.5	-28.6	0	45.75	-	-	-	-	26	100	V
6.41	27.55	MAv1	35.5	-28.6	0	34.45	-	-	-	-	26	100	V

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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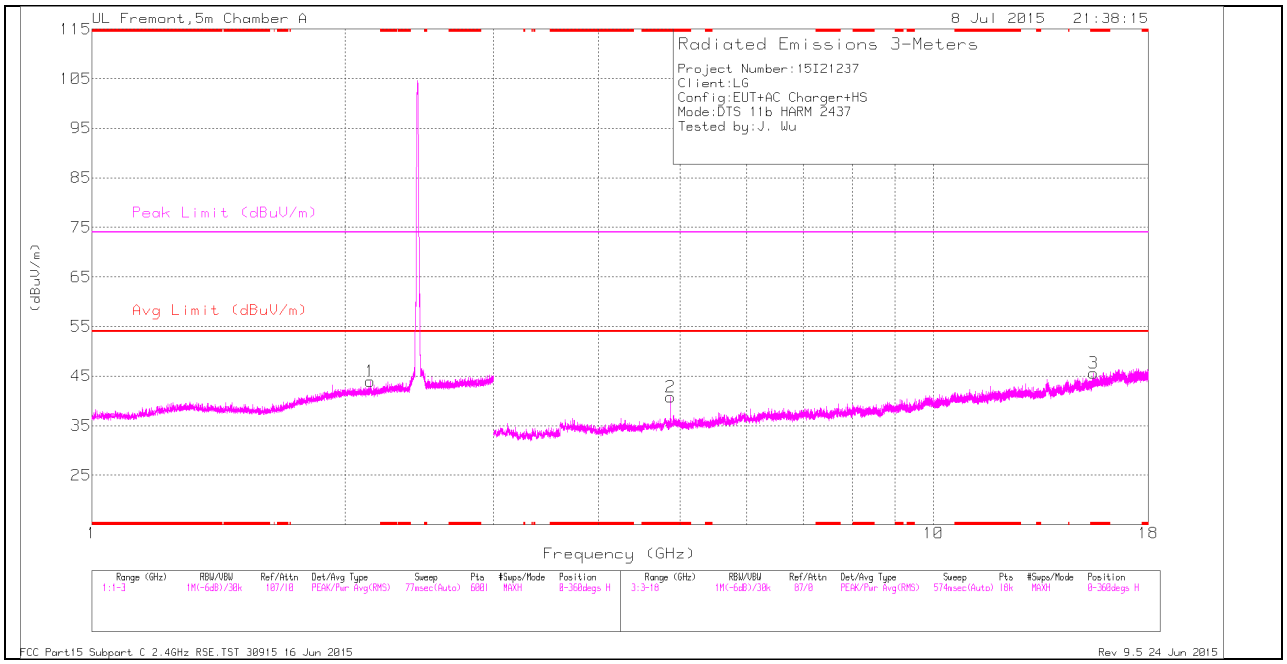
MID CHANNEL HORIZONTAL



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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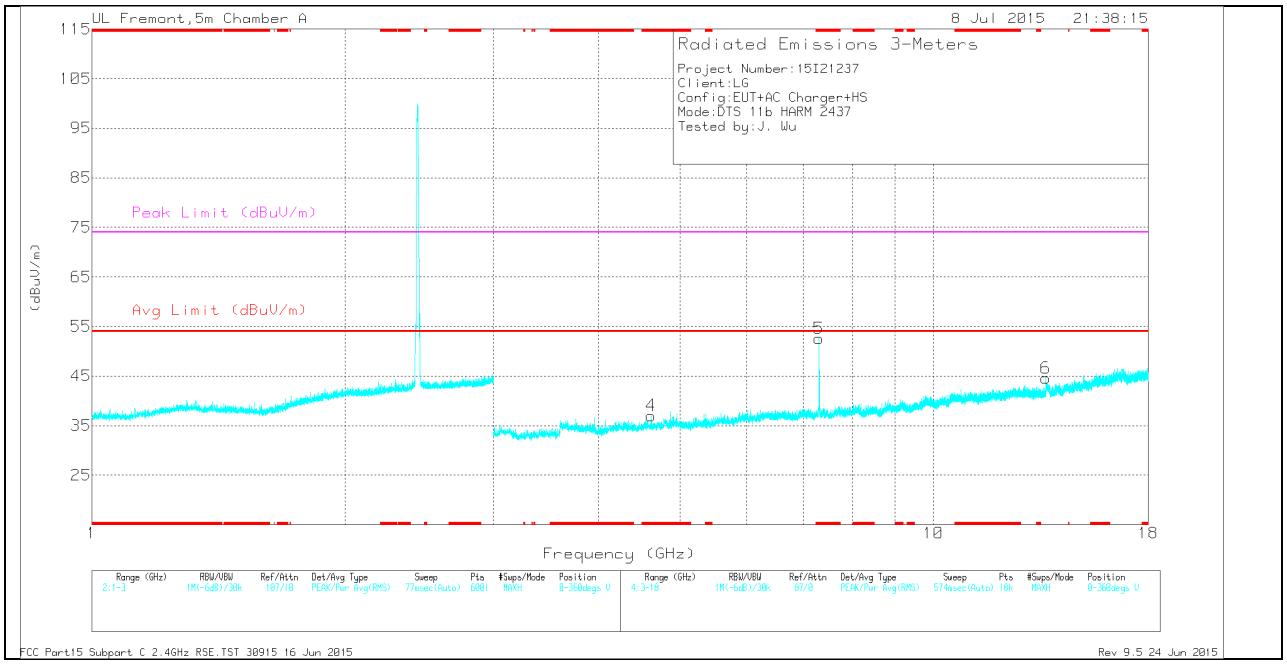
MID CHANNEL VERTICAL



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	* 4.874	37.03	Pk	33.9	-30.1	0	40.83	-	-	74	-33.17	0-360	100	H
3	* 15.486	28.29	Pk	40.2	-22.9	0	45.59	-	-	74	-28.41	0-360	100	H
4	* 4.616	34.13	Pk	34	-31.1	0	37.03	-	-	74	-36.97	0-360	100	V
5	* 7.311	43.72	Pk	35.5	-26.6	0	52.62	-	-	74	-21.38	0-360	100	V
1	2.141	37.7	Pk	31.4	-25.2	0	43.9	-	-	-	-	0-360	100	H
6	13.602	28.23	Pk	38.9	-22.6	0	44.53	-	-	-	-	0-360	100	V

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
* 4.874	41.61	PK2	33.9	-30.1	0	45.41	-	-	74	-28.59	301	105	H
* 4.874	33.29	MAv1	33.9	-30.1	0	37.09	54	-16.91	-	-	301	105	H
* 15.487	34.82	PK2	40.3	-22.9	0	52.22	-	-	74	-21.78	223	297	H
* 15.487	23.44	MAv1	40.3	-22.9	0	40.84	54	-13.16	-	-	223	297	H
* 4.615	40.81	PK2	34	-31.1	0	43.71	-	-	74	-30.29	235	338	V
* 4.615	28.91	MAv1	34	-31.1	0	31.81	54	-22.19	-	-	235	338	V
* 7.314	39.01	PK2	35.5	-26.6	0	47.91	-	-	74	-26.09	198	100	V
* 7.31	26.22	MAv1	35.5	-26.7	0	35.02	54	-18.98	-	-	198	100	V
2.141	44.29	PK2	31.4	-25.2	0	50.49	-	-	-	-	1	100	H
2.141	32.63	MAv1	31.4	-25.2	0	38.83	-	-	-	-	1	100	H
13.6	23.96	MAv1	38.9	-22.6	0	40.26	-	-	-	-	198	100	V
13.604	35.23	PK2	38.9	-22.6	0	51.53	-	-	-	-	198	100	V

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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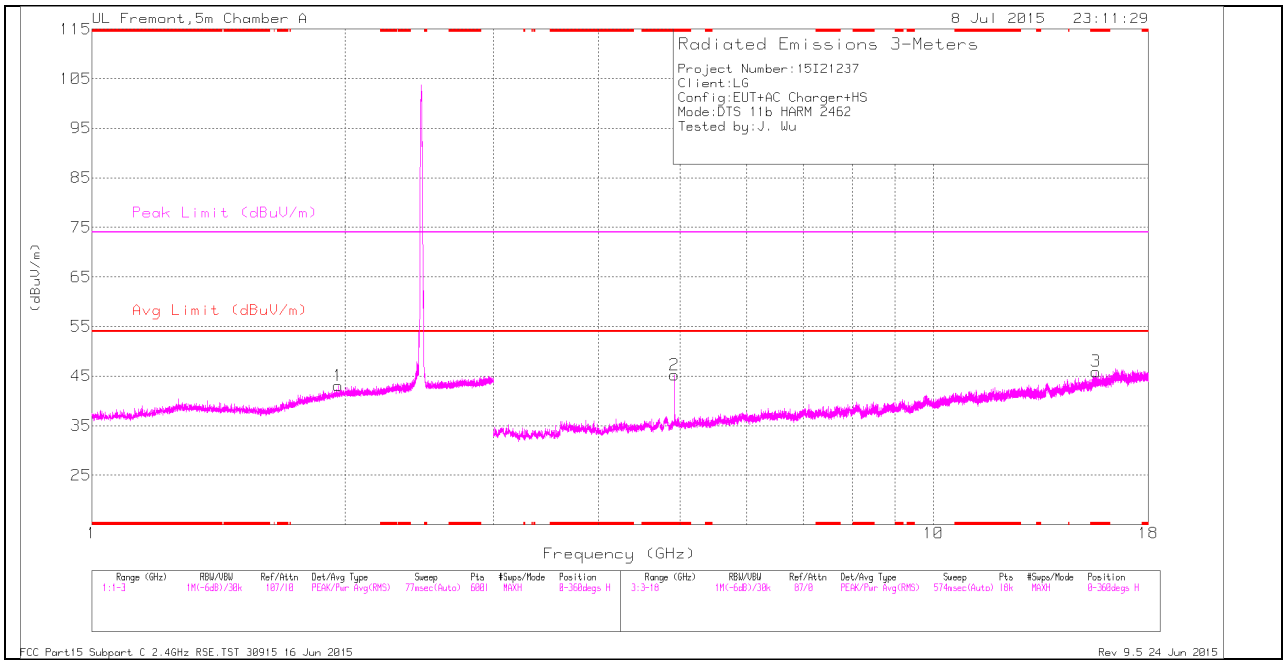
HIGH CHANNEL HORIZONTAL



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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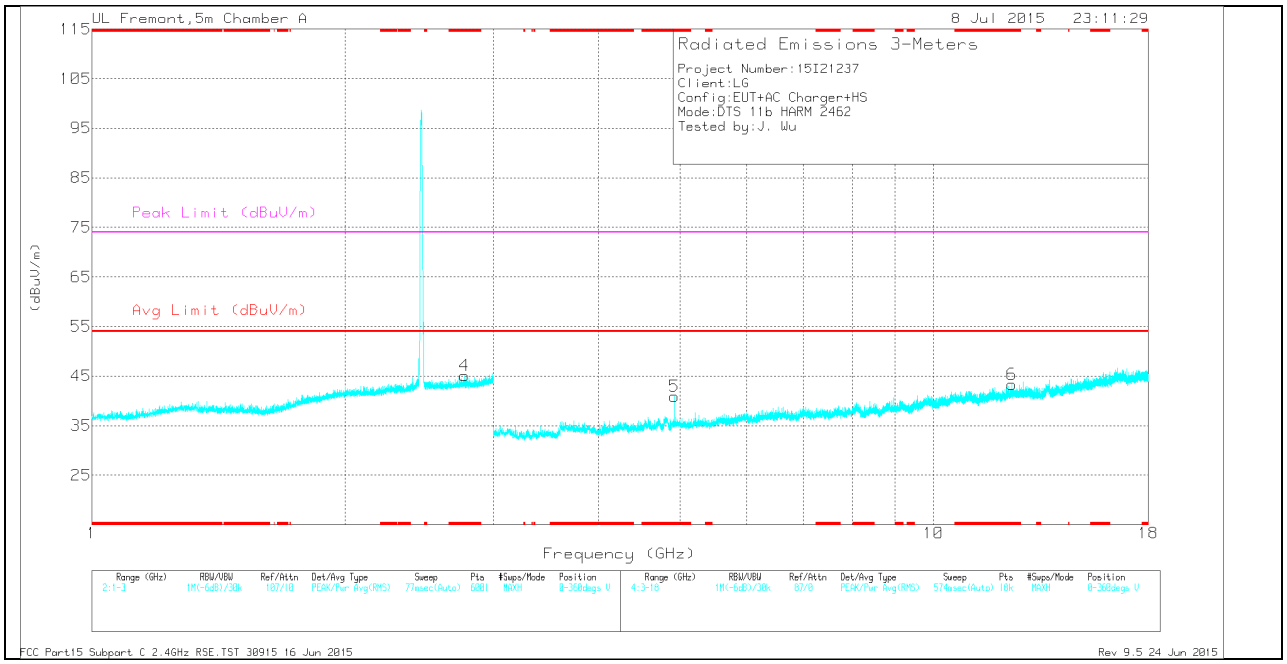
HIGH CHANNEL VERTICAL



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
4	* 2.772	37.12	Pk	32.4	-24.4	0	45.12	-	-	74	-28.88	0-360	200	V
2	* 4.924	40.87	Pk	33.9	-29.6	0	45.17	-	-	74	-28.83	0-360	100	H
3	* 15.613	28.22	Pk	40.4	-22.7	0	45.92	-	-	74	-28.08	0-360	201	H
5	* 4.924	36.63	Pk	33.9	-29.6	0	40.93	-	-	74	-33.07	0-360	100	V
6	* 12.384	27.41	Pk	39	-23.1	0	43.31	-	-	74	-30.69	0-360	200	V
1	1.961	37.49	Pk	31	-25.4	0	43.09	-	-	-	-	0-360	100	H

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
* 2.772	43.79	PK2	32.4	-24.4	0	51.79	-	-	74	-22.21	360	201	V
* 2.772	32.48	MAv1	32.4	-24.4	0	40.48	54	-13.52	-	-	360	201	V
* 4.924	45.69	PK2	33.9	-29.6	0	49.99	-	-	74	-24.01	350	104	H
* 4.924	40.14	MAv1	33.9	-29.6	0	44.44	54	-9.56	-	-	350	104	H
* 15.614	34.71	PK2	40.4	-22.7	0	52.41	-	-	74	-21.59	350	202	H
* 15.613	23.78	MAv1	40.4	-22.7	0	41.48	54	-12.52	-	-	350	202	H
* 4.924	42.93	PK2	33.9	-29.6	0	47.23	-	-	74	-26.77	123	100	V
* 4.924	34.92	MAv1	33.9	-29.6	0	39.22	54	-14.78	-	-	123	100	V
* 12.385	34.1	PK2	39	-23.1	0	50	-	-	74	-24	123	201	V
* 12.385	23.3	MAv1	39	-23.1	0	39.2	54	-14.8	-	-	123	201	V
1.96	44.2	PK2	31	-25.4	0	49.8	-	-	-	-	360	100	H
1.961	32.86	MAv1	31	-25.4	0	38.46	-	-	-	-	360	100	H

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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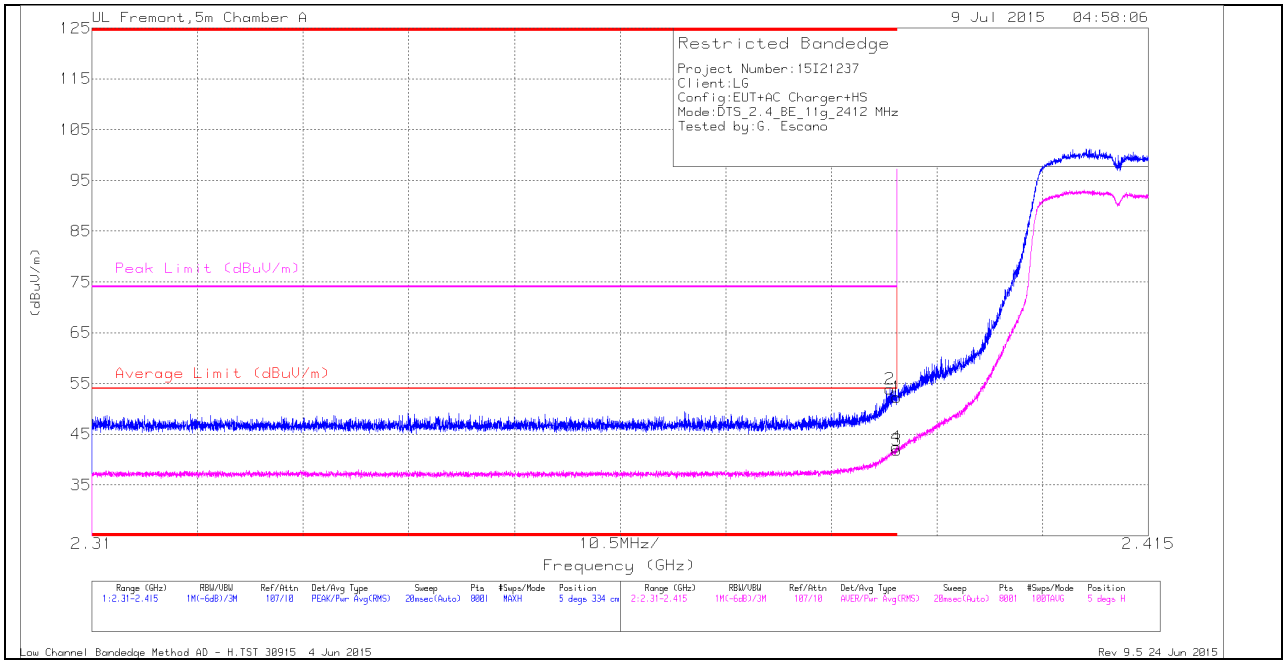
10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

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	* 2.389	46.79	Pk	32	-24.9	0	53.89	-	-	74	-20.11	5	334	H
1	* 2.39	45.17	Pk	32	-24.9	0	52.27	-	-	74	-21.73	5	334	H
3	* 2.39	34.74	RMS	32	-24.9	0	41.84	54	-12.16	-	-	5	334	H
4	* 2.39	35.32	RMS	32	-24.9	0	42.42	54	-11.58	-	-	5	334	H

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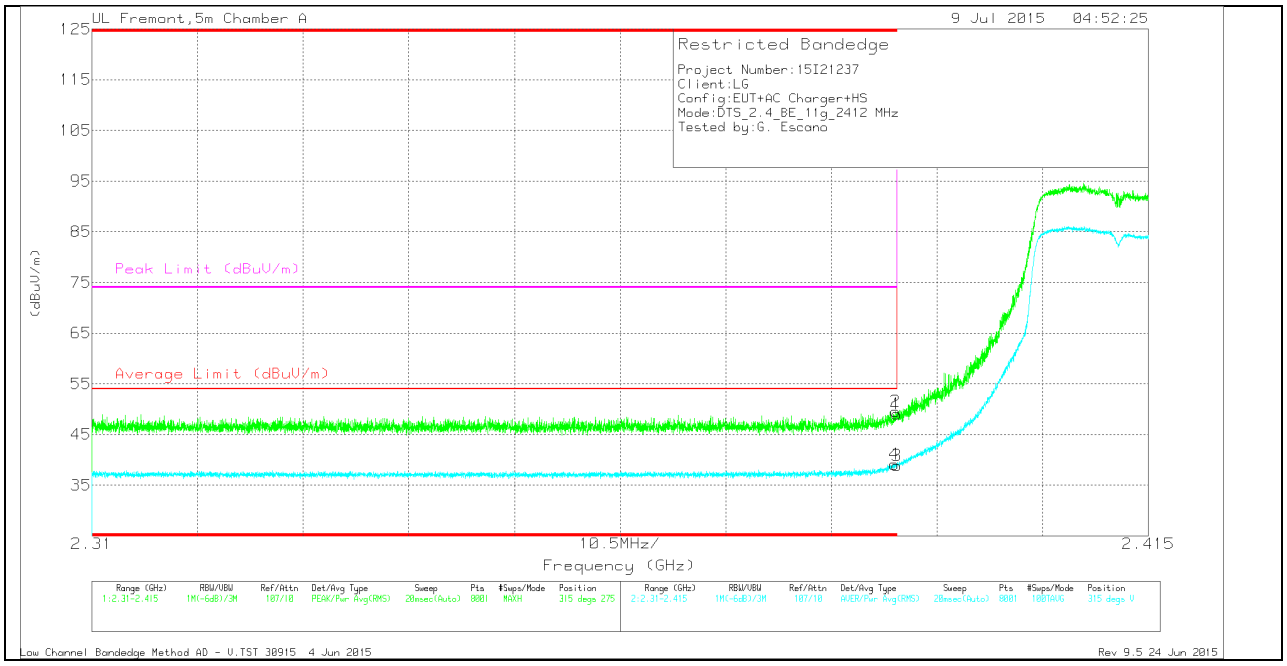
VERTICAL PEAK AND AVERAGE PLOT



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	42	Pk	32	-24.9	0	49.1	-	-	74	-24.9	315	275	V
2	* 2.39	42.45	Pk	32	-24.9	0	49.55	-	-	74	-24.45	315	275	V
3	* 2.39	31.77	RMS	32	-24.9	0	38.87	54	-15.13	-	-	315	275	V
4	* 2.39	32.07	RMS	32	-24.9	0	39.17	54	-14.83	-	-	315	275	V

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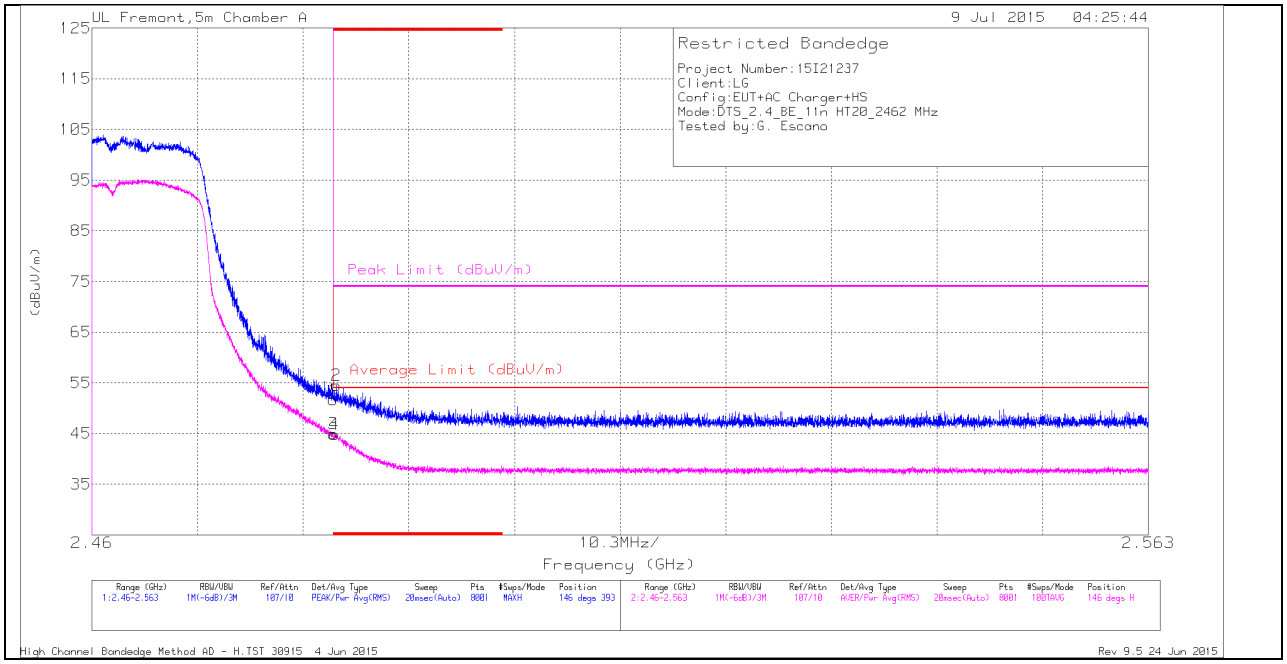
AUTHORIZED BANDEDGE (HIGH CHANNEL)

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	44.39	Pk	32.1	-24.8	0	51.69	-	-	74	-22.31	146	393	H
2	* 2.484	47.22	Pk	32.1	-24.8	0	54.52	-	-	74	-19.48	146	393	H
3	* 2.484	37.61	RMS	32.1	-24.8	0	44.91	54	-9.09	-	-	146	393	H
4	* 2.484	37.52	RMS	32.1	-24.8	0	44.82	54	-9.18	-	-	146	393	H

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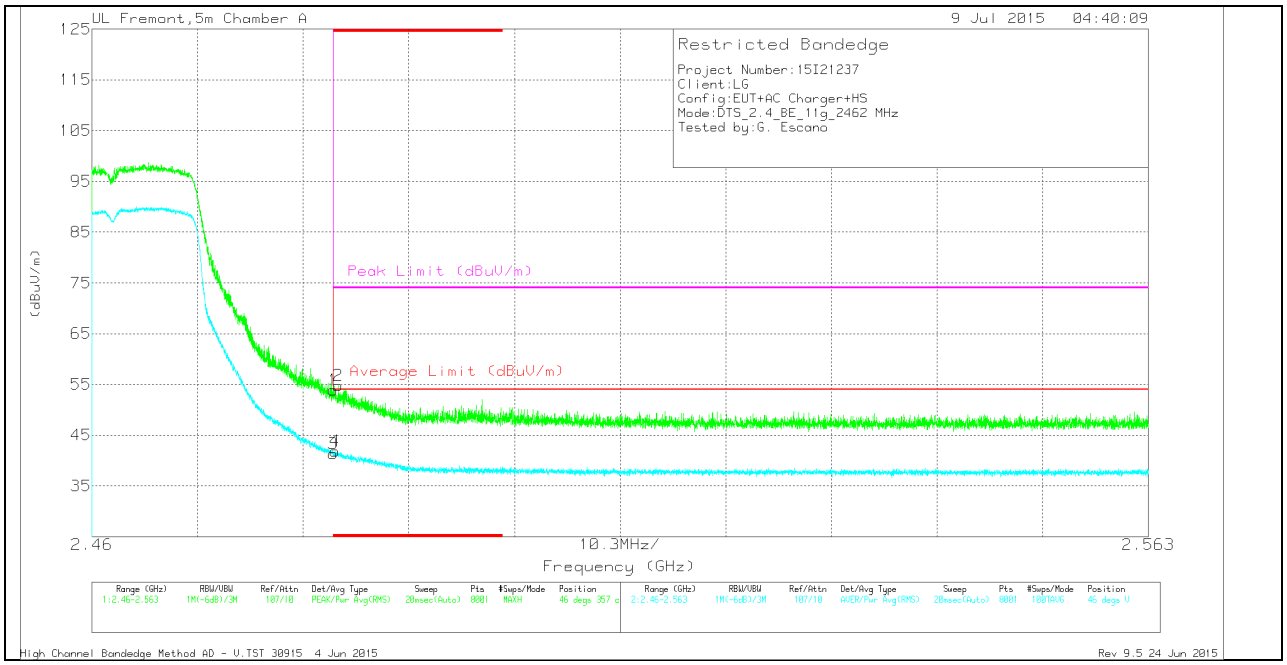
VERTICAL PEAK AND AVERAGE PLOT



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	46.58	Pk	32.1	-24.8	0	53.88	-	-	74	-20.12	46	357	V
2	* 2.484	47.49	Pk	32.1	-24.8	0	54.79	-	-	74	-19.21	46	357	V
3	* 2.484	34.03	RMS	32.1	-24.8	0	41.33	54	-12.67	-	-	46	357	V
4	* 2.484	34.52	RMS	32.1	-24.8	0	41.82	54	-12.18	-	-	46	357	V

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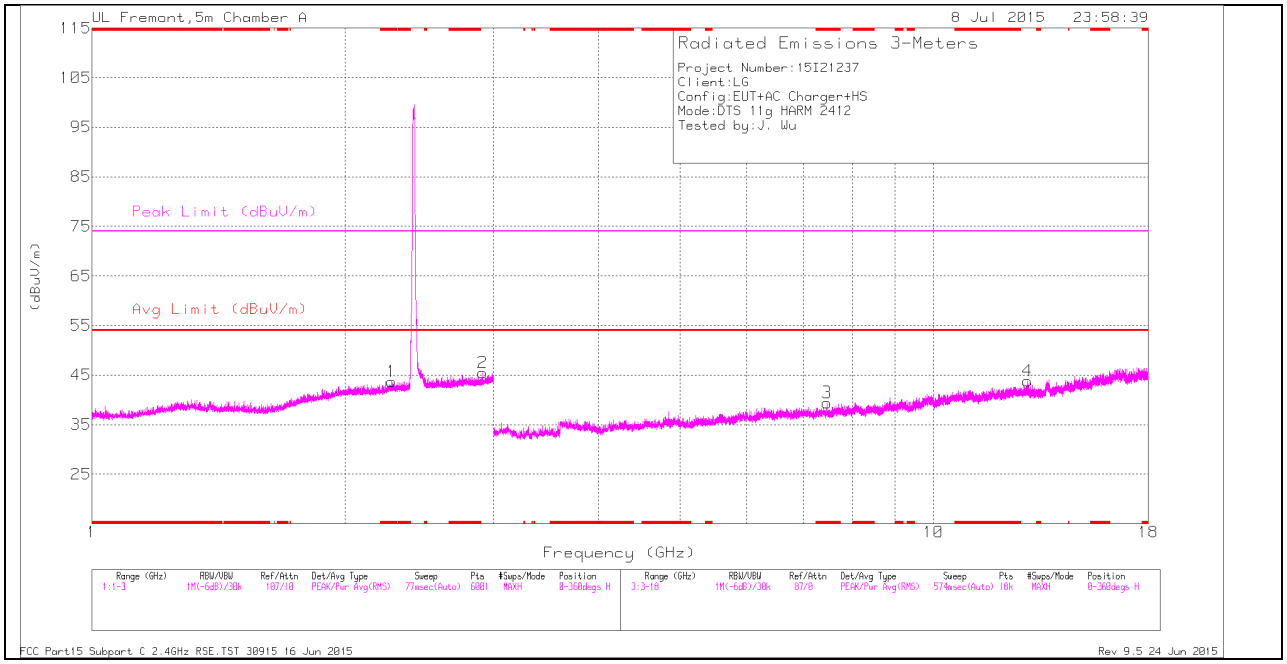
HARMONICS AND SPURIOUS EMISSIONS

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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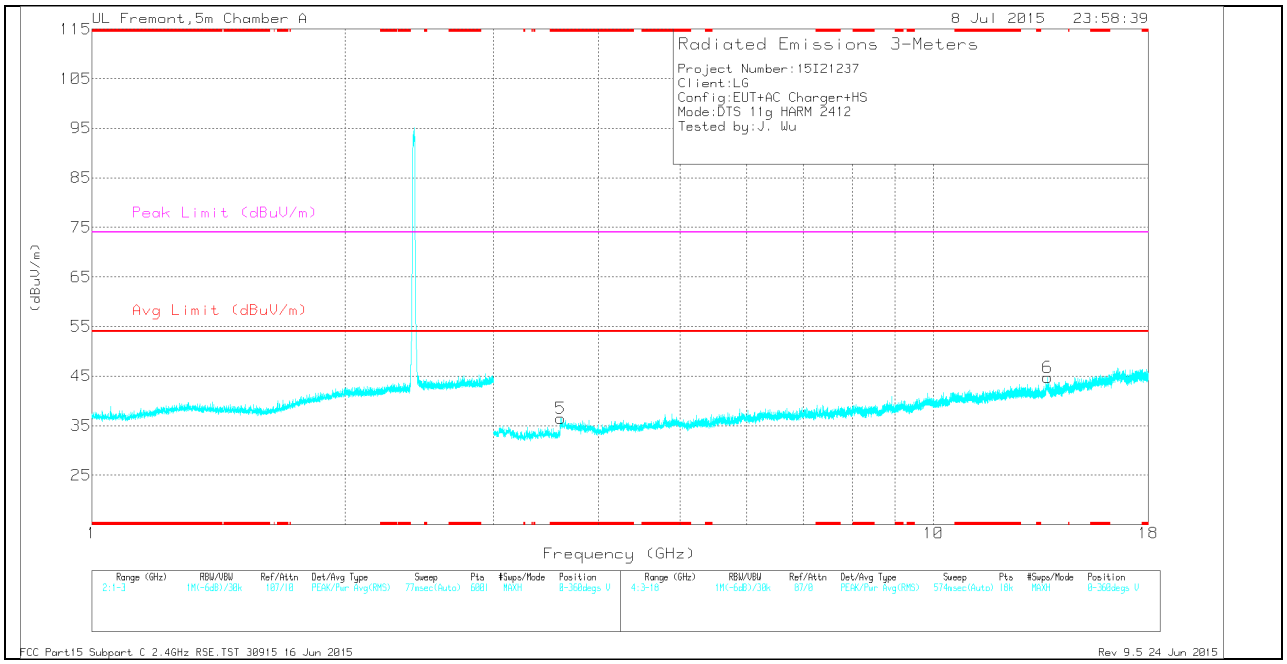
LOW CHANNEL VERTICAL



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	* 2.755	37.09	Pk	32.3	-24.4	0	44.99	-	-	74	-29.01	0-360	201	H
3	* 4.262	34.53	Pk	33.4	-31.2	0	36.73	-	-	74	-37.27	0-360	201	H
2	3.278	35.57	Pk	32.8	-33.3	0	35.07	-	-	-	-	0-360	100	H
4	7.25	30.7	Pk	35.5	-26.9	0	39.3	-	-	-	-	0-360	201	H
5	12.782	27.59	Pk	39.2	-23.2	0	43.59	-	-	-	-	0-360	100	H
6	14.794	28.58	Pk	39.6	-22.9	0	45.28	-	-	-	-	0-360	200	V

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
* 2.757	44.41	PK2	32.3	-24.4	0	52.31	-	-	74	-21.69	232	114	H
* 2.756	32.11	MAv1	32.3	-24.4	0	40.01	54	-13.99	-	-	232	114	H
* 4.26	41.05	PK2	33.4	-31.2	0	43.25	-	-	74	-30.75	4	272	H
* 4.261	29.46	MAv1	33.4	-31.2	0	31.66	54	-22.34	-	-	4	272	H
3.278	42.64	PK2	32.8	-33.3	0	42.14	-	-	-	-	232	100	H
7.249	37.95	PK2	35.5	-26.9	0	46.55	-	-	-	-	4	201	H
12.784	33.76	PK2	39.2	-23.2	0	49.76	-	-	-	-	4	100	H
14.794	35.41	PK2	39.6	-22.9	0	52.11	-	-	-	-	4	201	V

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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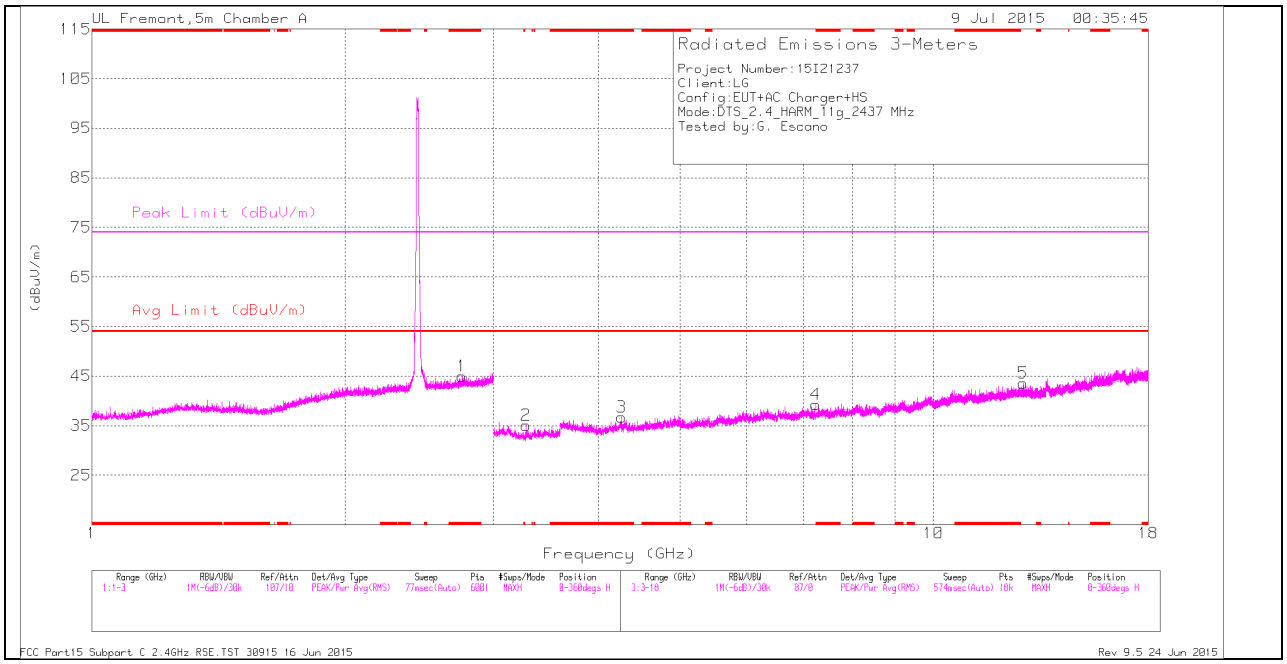
MID CHANNEL HORIZONTAL



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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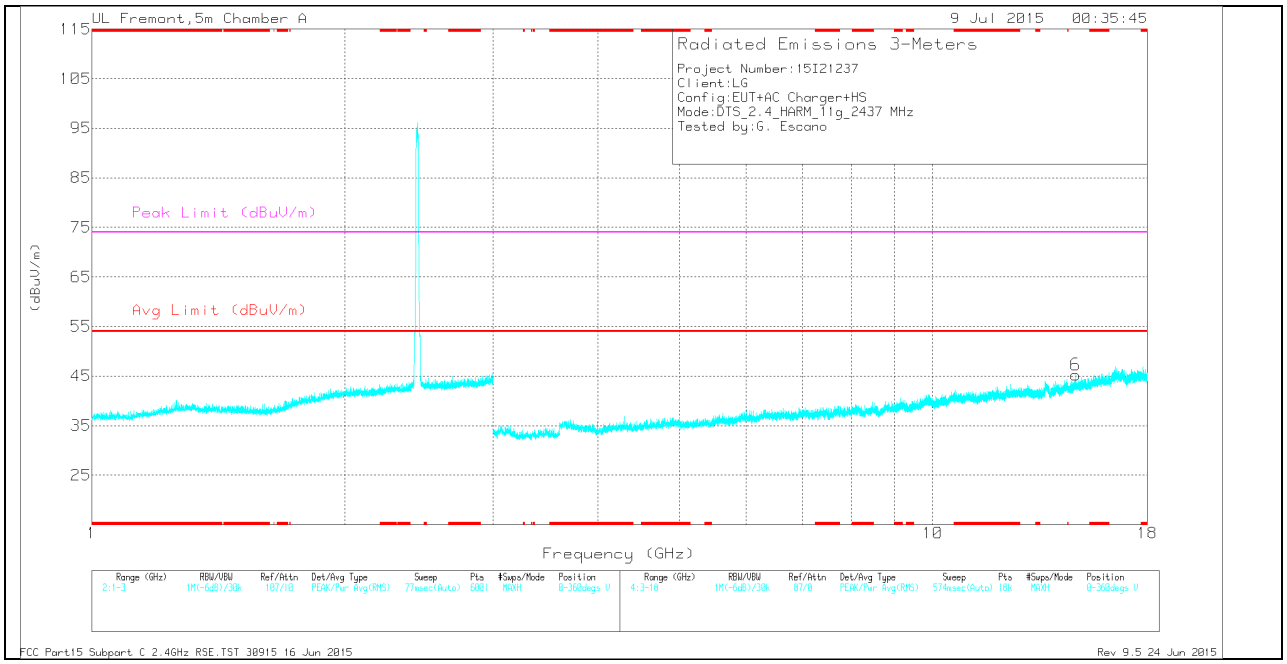
MID CHANNEL VERTICAL



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	* 1.314	37.84	Pk	28.8	-26.1	0	40.54	-	-	74	-33.46	0-360	201	H
2	* 2.895	37.2	Pk	32.6	-24.4	0	45.4	-	-	74	-28.6	0-360	201	H
3	* 4.906	33.02	Pk	33.9	-29.6	0	37.32	-	-	74	-36.68	0-360	201	H
5	13.706	28.79	Pk	38.7	-23.1	0	44.39	-	-	-	-	0-360	100	V
4	14.746	28.18	Pk	39.6	-22.6	0	45.18	-	-	-	-	0-360	100	H
6	16.525	28.41	Pk	41.6	-22.9	0	47.11	-	-	-	-	0-360	100	V

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
* 1.312	45.45	PK2	28.8	-26.1	0	48.15	-	-	74	-25.85	215	102	H
* 1.313	32.73	MAv1	28.8	-26.1	0	35.43	54	-18.57	-	-	215	102	H
* 2.896	43.89	PK2	32.6	-24.4	0	52.09	-	-	74	-21.91	179	150	H
* 2.894	31.77	MAv1	32.6	-24.4	0	39.97	54	-14.03	-	-	179	150	H
* 4.908	40.27	PK2	33.9	-29.6	0	44.57	-	-	74	-29.43	5	201	H
* 4.904	28.68	MAv1	33.9	-29.6	0	32.98	54	-21.02	-	-	5	201	H
13.705	35.95	PK2	38.7	-23.1	0	51.55	-	-	-	-	5	100	V
14.747	34.88	PK2	39.6	-22.6	0	51.88	-	-	-	-	5	100	H
16.526	35.38	PK2	41.6	-22.9	0	54.08	-	-	-	-	5	100	V

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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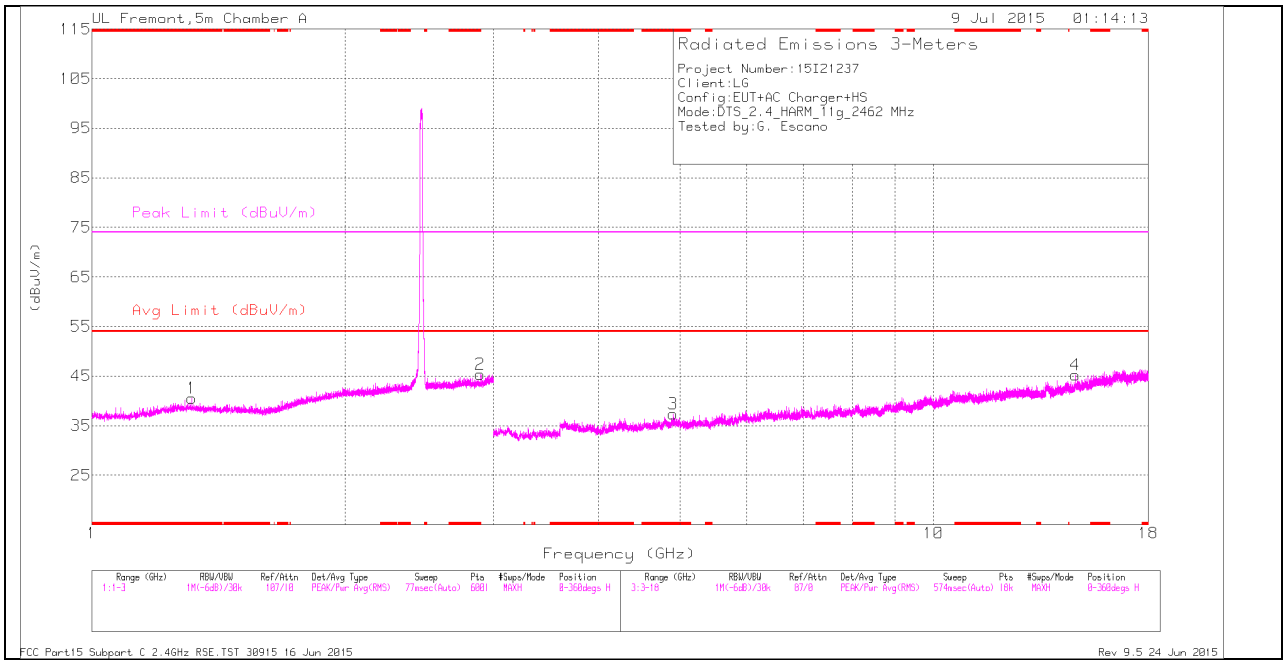
HIGH CHANNEL HORIZONTAL



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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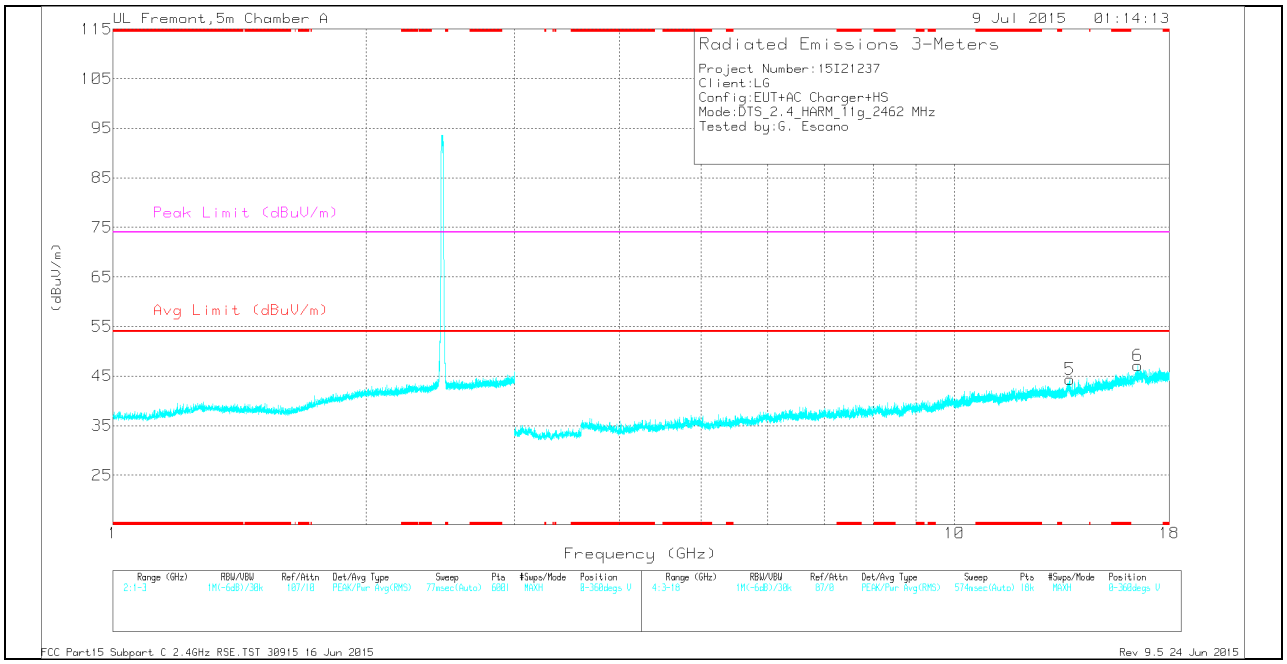
HIGH CHANNEL VERTICAL



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	* 1.314	37.84	Pk	28.8	-26.1	0	40.54	-	-	74	-33.46	0-360	201	H
2	* 2.895	37.2	Pk	32.6	-24.4	0	45.4	-	-	74	-28.6	0-360	201	H
3	* 4.906	33.02	Pk	33.9	-29.6	0	37.32	-	-	74	-36.68	0-360	201	H
5	13.706	28.79	Pk	38.7	-23.1	0	44.39	-	-	-	-	0-360	100	V
4	14.746	28.18	Pk	39.6	-22.6	0	45.18	-	-	-	-	0-360	100	H
6	16.525	28.41	Pk	41.6	-22.9	0	47.11	-	-	-	-	0-360	100	V

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
* 1.312	45.45	PK2	28.8	-26.1	0	48.15	-	-	74	-25.85	215	102	H
* 1.313	32.73	MAv1	28.8	-26.1	0	35.43	54	-18.57	-	-	215	102	H
* 2.896	43.89	PK2	32.6	-24.4	0	52.09	-	-	74	-21.91	179	150	H
* 2.894	31.77	MAv1	32.6	-24.4	0	39.97	54	-14.03	-	-	179	150	H
* 4.908	40.27	PK2	33.9	-29.6	0	44.57	-	-	74	-29.43	5	201	H
* 4.904	28.68	MAv1	33.9	-29.6	0	32.98	54	-21.02	-	-	5	201	H
13.705	35.95	PK2	38.7	-23.1	0	51.55	-	-	-	-	5	100	V
14.747	34.88	PK2	39.6	-22.6	0	51.88	-	-	-	-	5	100	H
16.526	35.38	PK2	41.6	-22.9	0	54.08	-	-	-	-	5	100	V

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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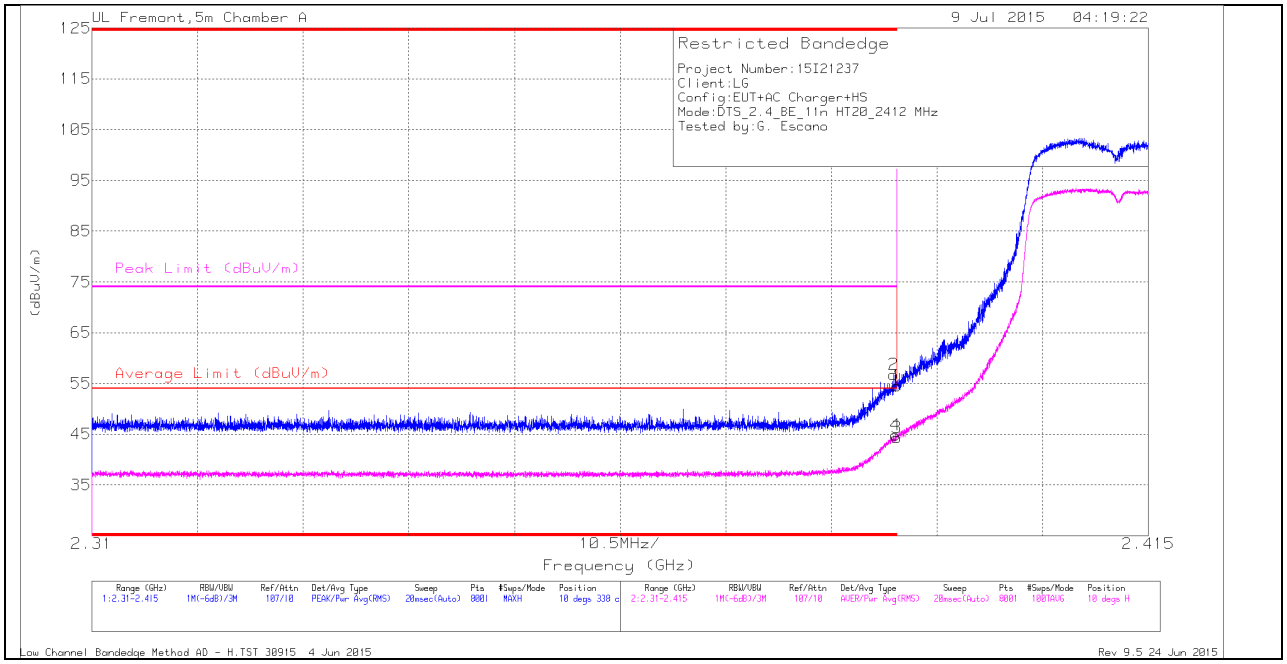
10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

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	47.46	Pk	32	-24.9	0	54.56	-	-	74	-19.44	10	338	H
2	* 2.39	49.63	Pk	32	-24.9	0	56.73	-	-	74	-17.27	10	338	H
3	* 2.39	37.24	RMS	32	-24.9	0	44.34	54	-9.66	-	-	10	338	H
4	* 2.39	37.75	RMS	32	-24.9	0	44.85	54	-9.15	-	-	10	338	H

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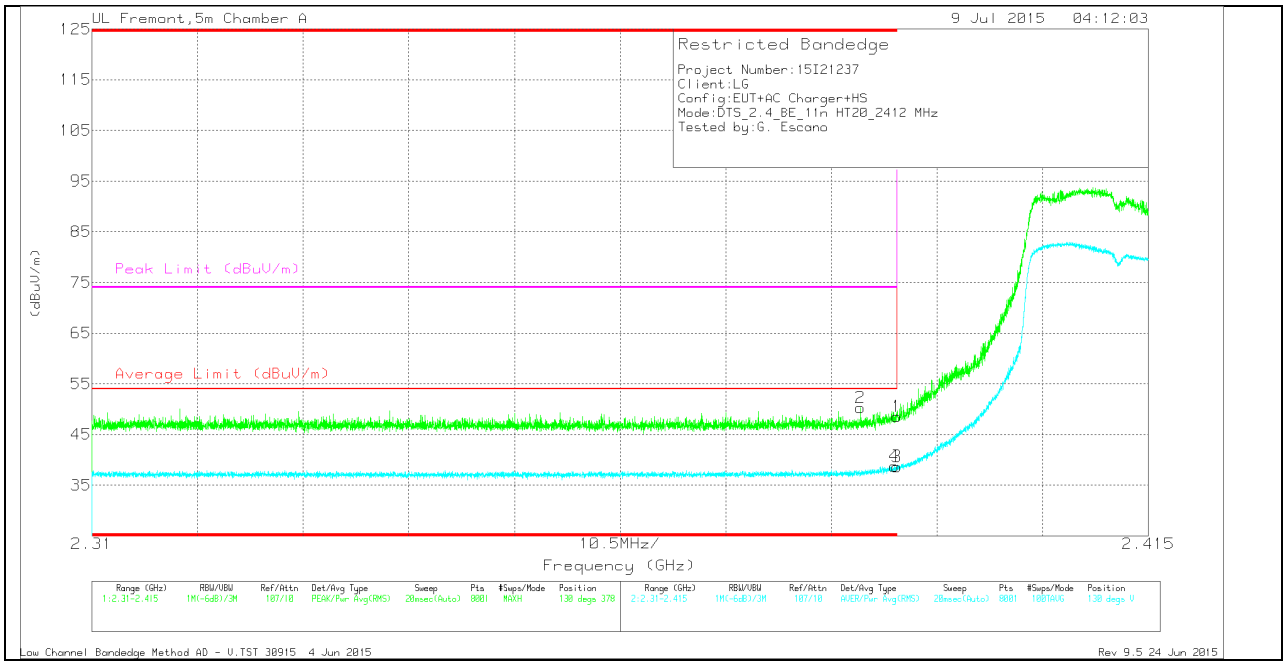
VERTICAL PEAK AND AVERAGE PLOT



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	41.48	Pk	32	-24.9	0	48.58	-	-	74	-25.42	130	378	V
2	* 2.386	43.23	Pk	32	-24.9	0	50.33	-	-	74	-23.67	130	378	V
3	* 2.39	31.58	RMS	32	-24.9	0	38.68	54	-15.32	-	-	130	378	V
4	* 2.39	31.65	RMS	32	-24.9	0	38.75	54	-15.25	-	-	130	378	V

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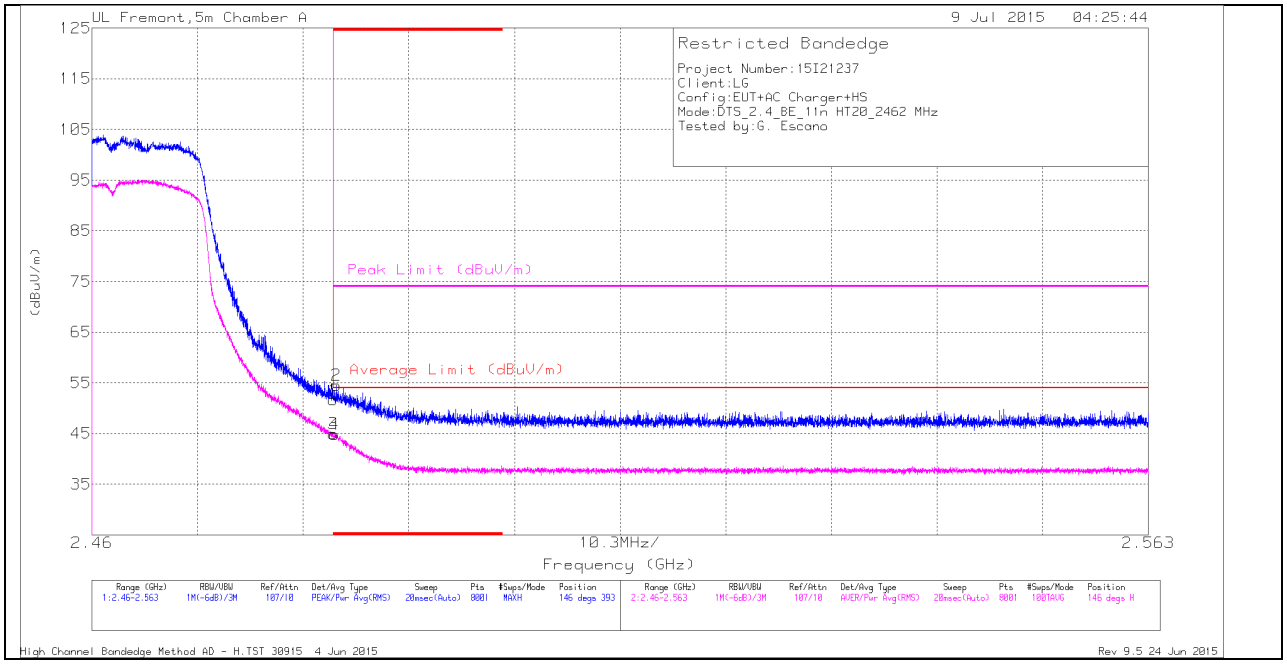
AUTHORIZED BANDEDGE (HIGH CHANNEL)

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	44.39	Pk	32.1	-24.8	0	51.69	-	-	74	-22.31	146	393	H
2	* 2.484	47.22	Pk	32.1	-24.8	0	54.52	-	-	74	-19.48	146	393	H
3	* 2.484	37.61	RMS	32.1	-24.8	0	44.91	54	-9.09	-	-	146	393	H
4	* 2.484	37.52	RMS	32.1	-24.8	0	44.82	54	-9.18	-	-	146	393	H

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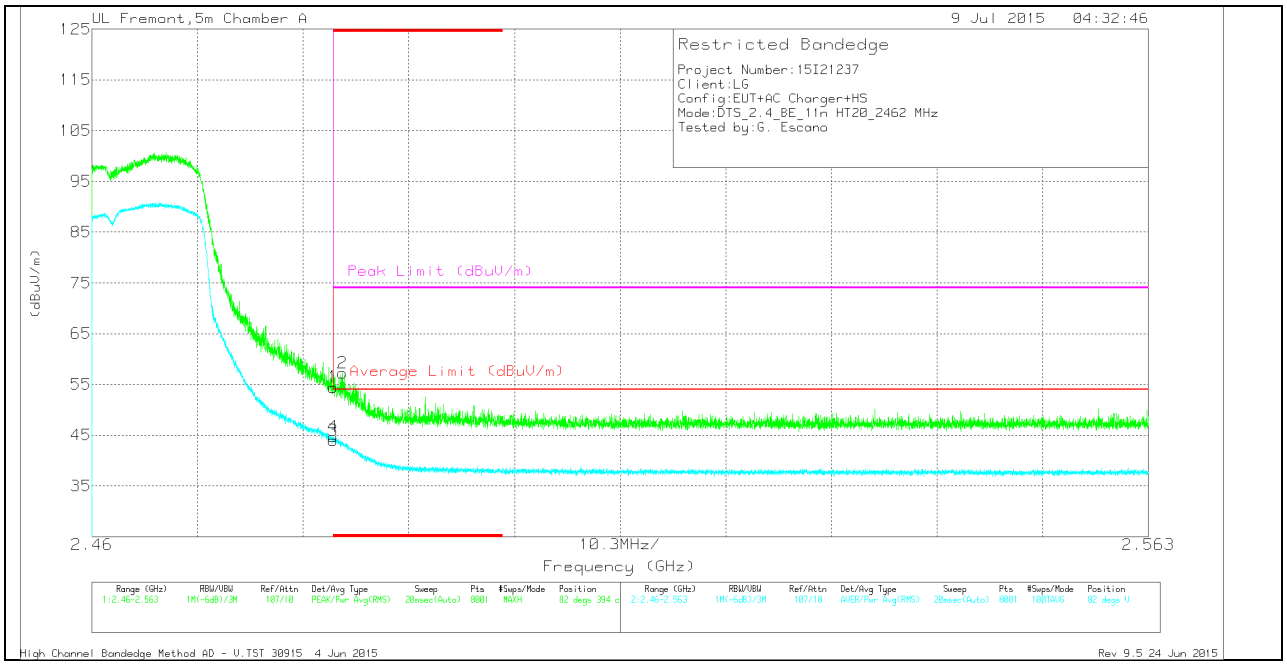
VERTICAL PEAK AND AVERAGE PLOT



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	47.15	Pk	32.1	-24.8	0	54.45	-	-	74	-19.55	82	394	V
2	* 2.484	49.99	Pk	32.1	-24.8	0	57.29	-	-	74	-16.71	82	394	V
3	* 2.484	36.69	RMS	32.1	-24.8	0	43.99	54	-10.01	-	-	82	394	V
4	* 2.484	37.37	RMS	32.1	-24.8	0	44.67	54	-9.33	-	-	82	394	V

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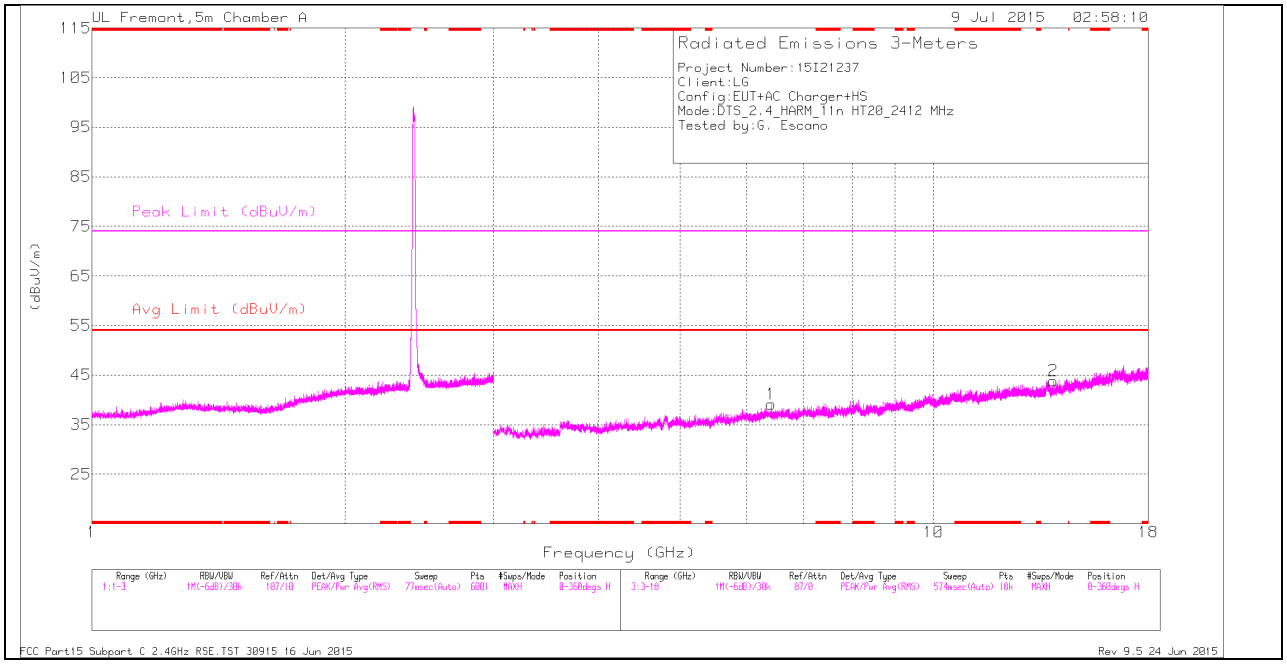
HARMONICS AND SPURIOUS EMISSIONS

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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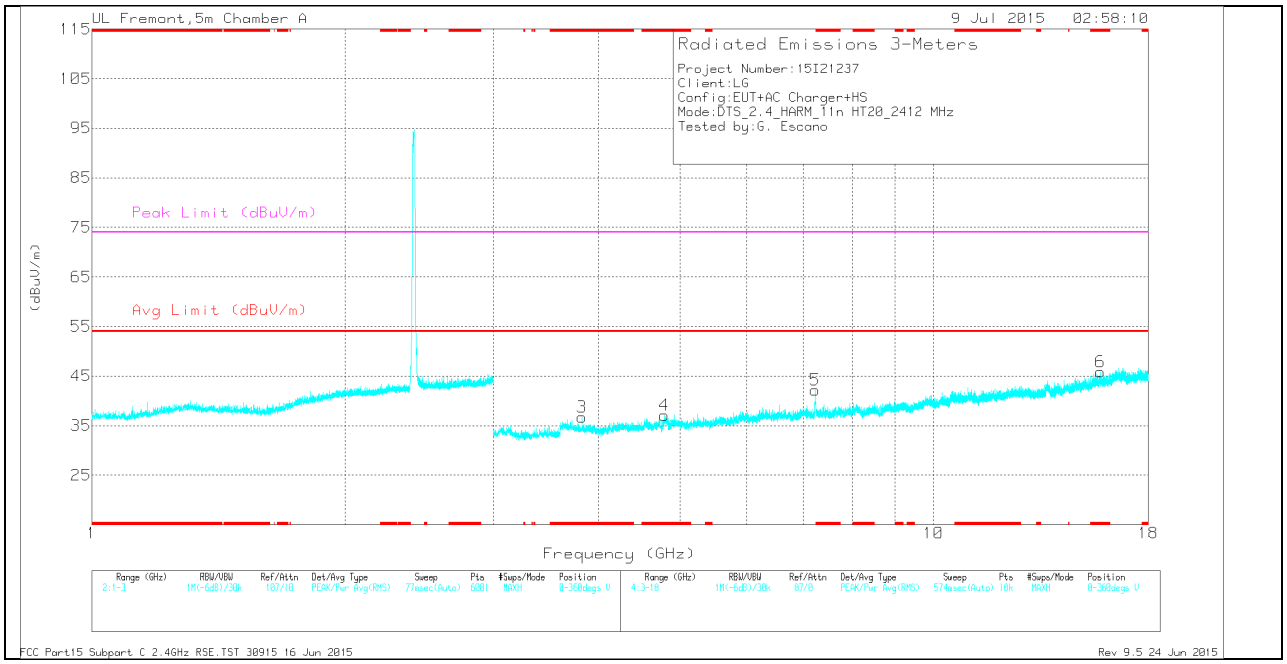
LOW CHANNEL VERTICAL



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
3	* 3.825	35.96	Pk	33.4	-32.6	0	36.76	-	-	74	-37.24	0-360	100	V
4	* 4.79	34.35	Pk	34	-31.3	0	37.05	-	-	74	-36.95	0-360	100	V
6	* 15.792	28.29	Pk	40.4	-22.8	0	45.89	-	-	74	-28.11	0-360	100	V
1	6.418	32.29	Pk	35.5	-28.7	0	39.09	-	-	-	-	0-360	100	H
5	7.234	33.93	Pk	35.5	-27.2	0	42.23	-	-	-	-	0-360	100	V
2	13.878	28.19	Pk	38.7	-23.1	0	43.79	-	-	-	-	0-360	201	H

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
* 3.825	42.54	PK2	33.4	-32.6	0	43.34	-	-	74	-30.66	64	267	V
* 3.825	30.9	MAv1	33.4	-32.6	0	31.7	54	-22.3	-	-	64	267	V
* 4.788	41.54	PK2	34	-31.4	0	44.14	-	-	74	-29.86	21	233	V
* 4.792	29.84	MAv1	34	-31.3	0	32.54	54	-21.46	-	-	21	233	V
* 15.792	34.62	PK2	40.4	-22.8	0	52.22	-	-	74	-21.78	40	135	V
* 15.793	24.05	MAv1	40.4	-22.8	0	41.65	54	-12.35	-	-	40	135	V
6.417	38.88	PK2	35.5	-28.7	0	45.68	-	-	-	-	1	100	H
7.233	39.74	PK2	35.5	-27.3	0	47.94	-	-	-	-	6	140	V
13.876	35.35	PK2	38.7	-23.1	0	50.95	-	-	-	-	1	202	H

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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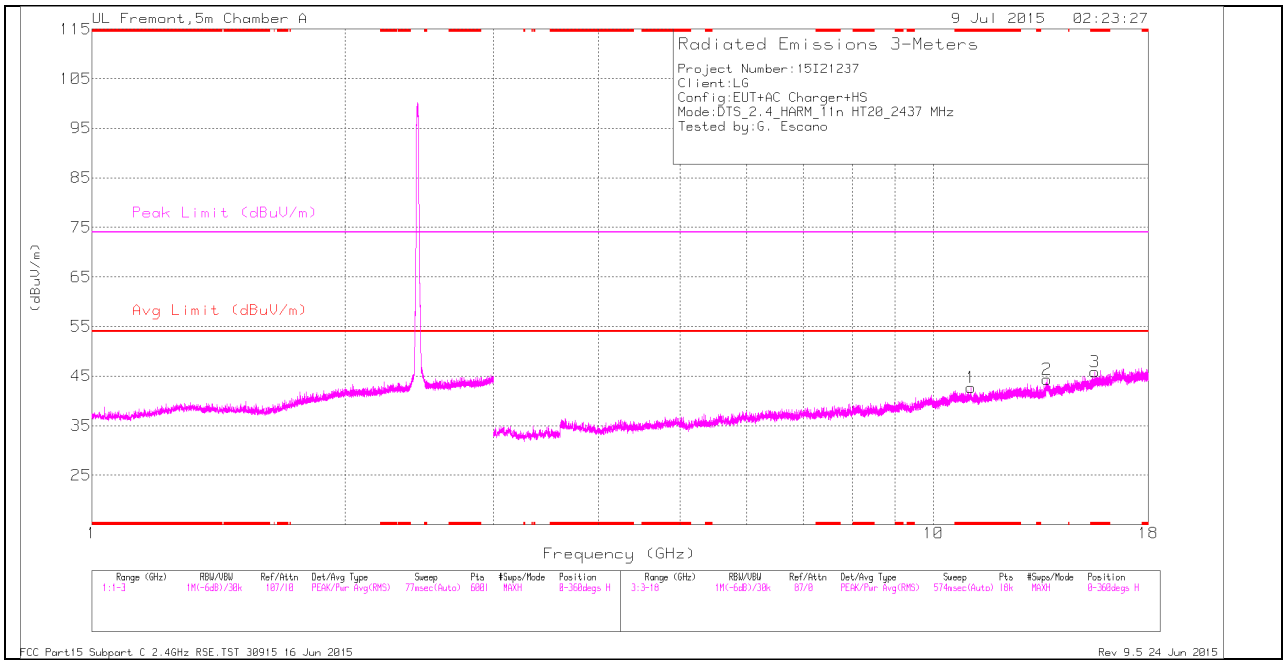
MID CHANNEL HORIZONTAL



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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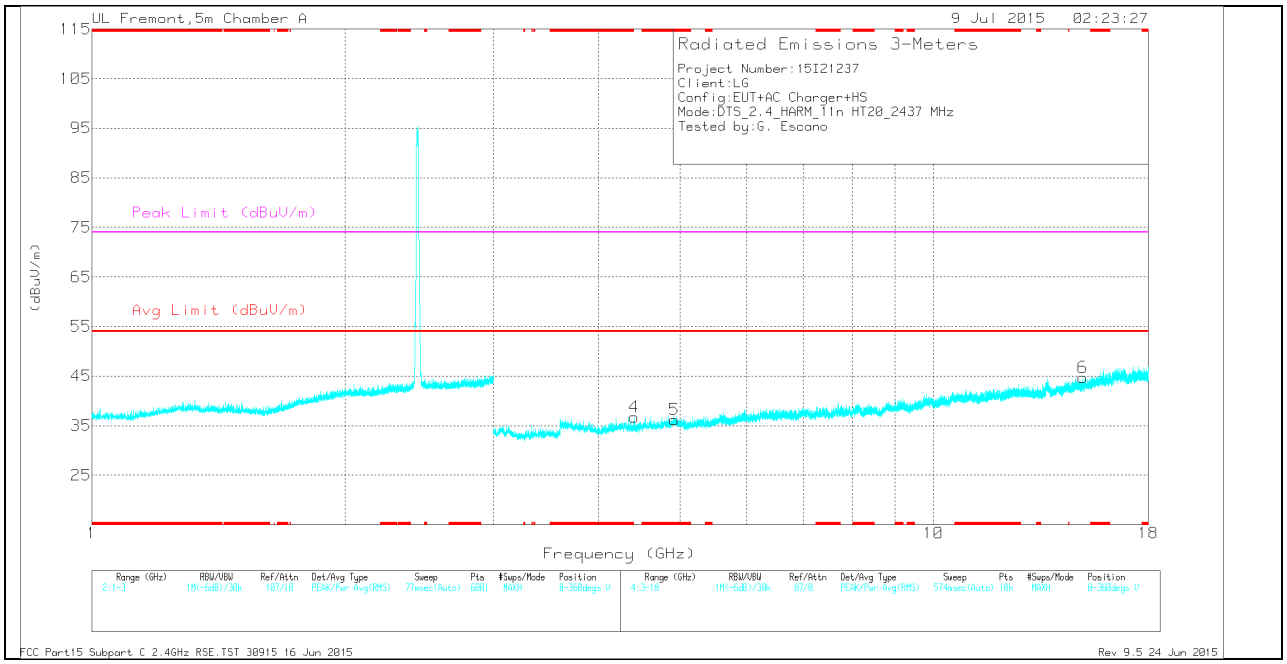
MID CHANNEL VERTICAL



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	* 11.082	27.69	Pk	37.9	-22.9	0	42.69	-	-	74	-31.31	0-360	201	H
3	* 15.543	28.11	Pk	40.3	-22.6	0	45.81	-	-	74	-28.19	0-360	100	H
5	* 4.924	31.93	Pk	33.9	-29.6	0	36.23	-	-	74	-37.77	0-360	200	V
4	4.406	35.07	Pk	33.7	-32.1	0	36.67	-	-	-	-	0-360	100	V
2	13.649	28.27	Pk	38.8	-22.7	0	44.37	-	-	-	-	0-360	201	H
6	15.058	28.2	Pk	39.8	-23.3	0	44.7	-	-	-	-	0-360	200	V

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
* 11.081	34.45	PK2	37.9	-22.9	0	49.45	-	-	74	-24.55	108	202	H
* 11.081	22.93	MAv1	37.9	-22.9	0	37.93	54	-16.07	-	-	108	202	H
* 15.542	34.36	PK2	40.3	-22.6	0	52.06	-	-	74	-21.94	123	113	H
* 15.542	23.24	MAv1	40.3	-22.6	0	40.94	54	-13.06	-	-	123	113	H
* 4.923	39.82	PK2	33.9	-29.6	0	44.12	-	-	74	-29.88	164	356	V
* 4.923	28.14	MAv1	33.9	-29.6	0	32.44	54	-21.56	-	-	164	356	V
4.405	41.99	PK2	33.7	-32.1	0	43.59	-	-	-	-	123	100	V
13.651	35.38	PK2	38.8	-22.7	0	51.48	-	-	-	-	108	202	H
15.058	35.4	PK2	39.8	-23.3	0	51.9	-	-	-	-	164	200	V

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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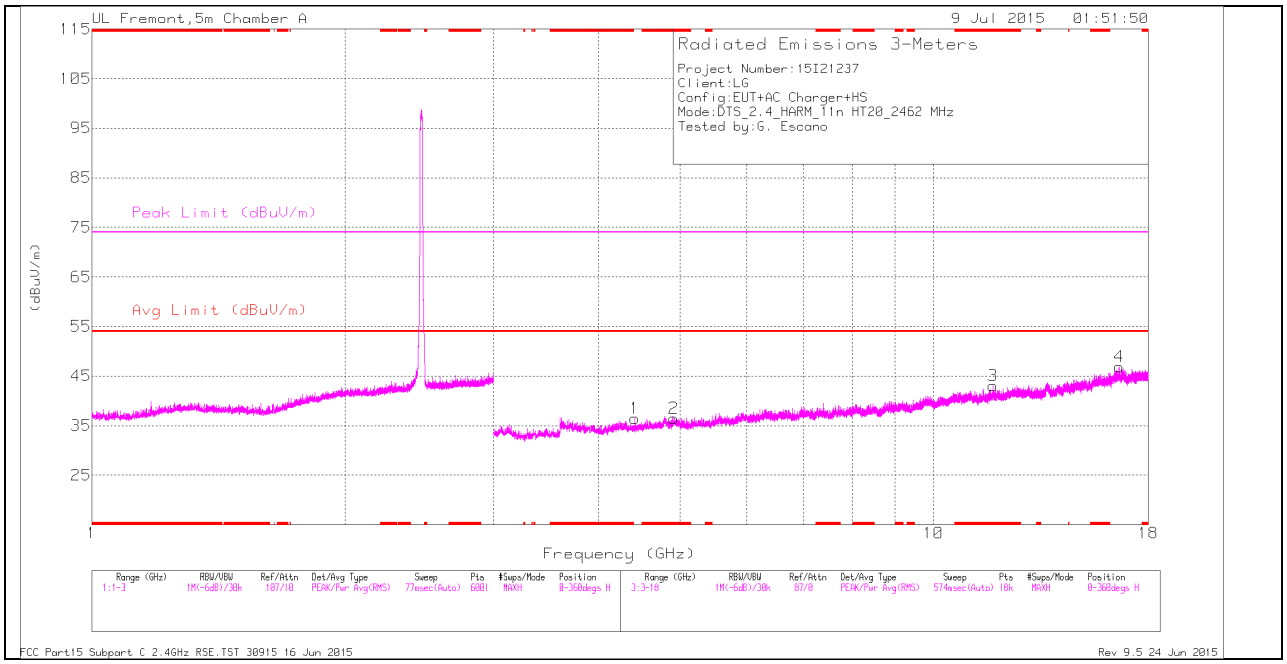
HIGH CHANNEL HORIZONTAL



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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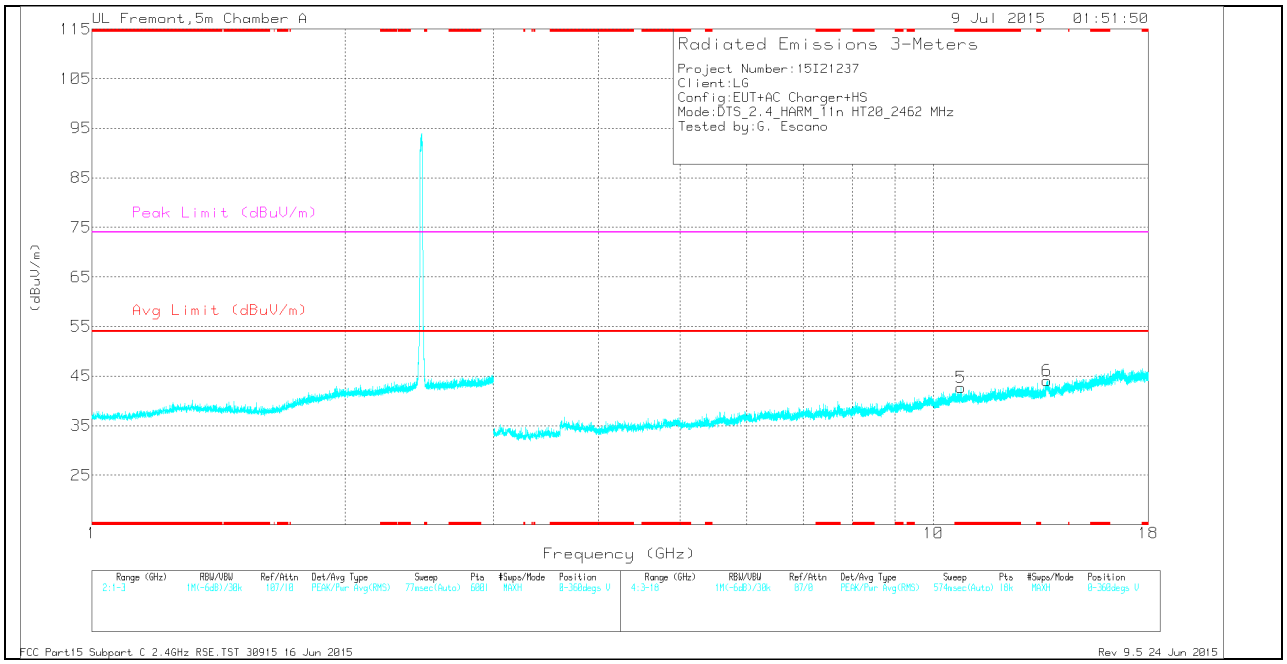
HIGH CHANNEL VERTICAL



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	* 4.912	32.16	Pk	33.9	-29.6	0	36.46	-	-	74	-37.54	0-360	201	H
3	* 11.765	27.31	Pk	38.3	-22.6	0	43.01	-	-	74	-30.99	0-360	201	H
5	* 10.785	28.22	Pk	37.8	-23.3	0	42.72	-	-	74	-31.28	0-360	100	V
1	4.42	34.77	Pk	33.7	-32	0	36.47	-	-	-	-	0-360	100	H
6	13.654	27.86	Pk	38.8	-22.6	0	44.06	-	-	-	-	0-360	200	V
4	16.616	28.13	Pk	41.6	-22.9	0	46.83	-	-	-	-	0-360	201	H

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
* 4.912	40.15	PK2	33.9	-29.6	0	44.45	-	-	74	-29.55	6	275	H
* 4.911	28.29	MAv1	33.9	-29.6	0	32.59	54	-21.41	-	-	6	275	H
* 11.763	34.58	PK2	38.3	-22.6	0	50.28	-	-	74	-23.72	352	225	H
* 11.766	22.57	MAv1	38.3	-22.6	0	38.27	54	-15.73	-	-	352	225	H
* 10.784	34.37	PK2	37.8	-23.3	0	48.87	-	-	74	-25.13	106	189	V
* 10.785	22.91	MAv1	37.8	-23.3	0	37.41	54	-16.59	-	-	106	189	V
4.419	41.73	PK2	33.7	-32	0	43.43	-	-	-	-	1	100	H
13.653	34.89	PK2	38.8	-22.7	0	50.99	-	-	-	-	106	201	V
16.614	34.5	PK2	41.6	-22.9	0	53.2	-	-	-	-	352	201	H

-Compliance for emissions in non-restricted bands is shown in conducted out of band testing

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

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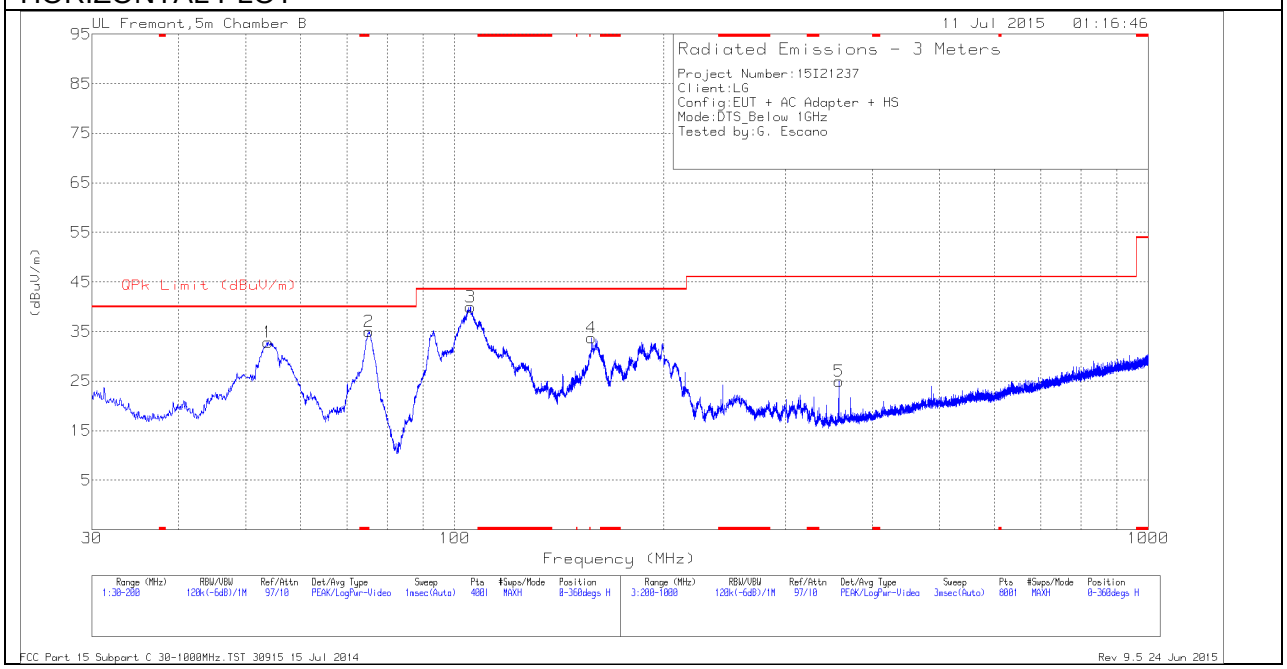
10.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



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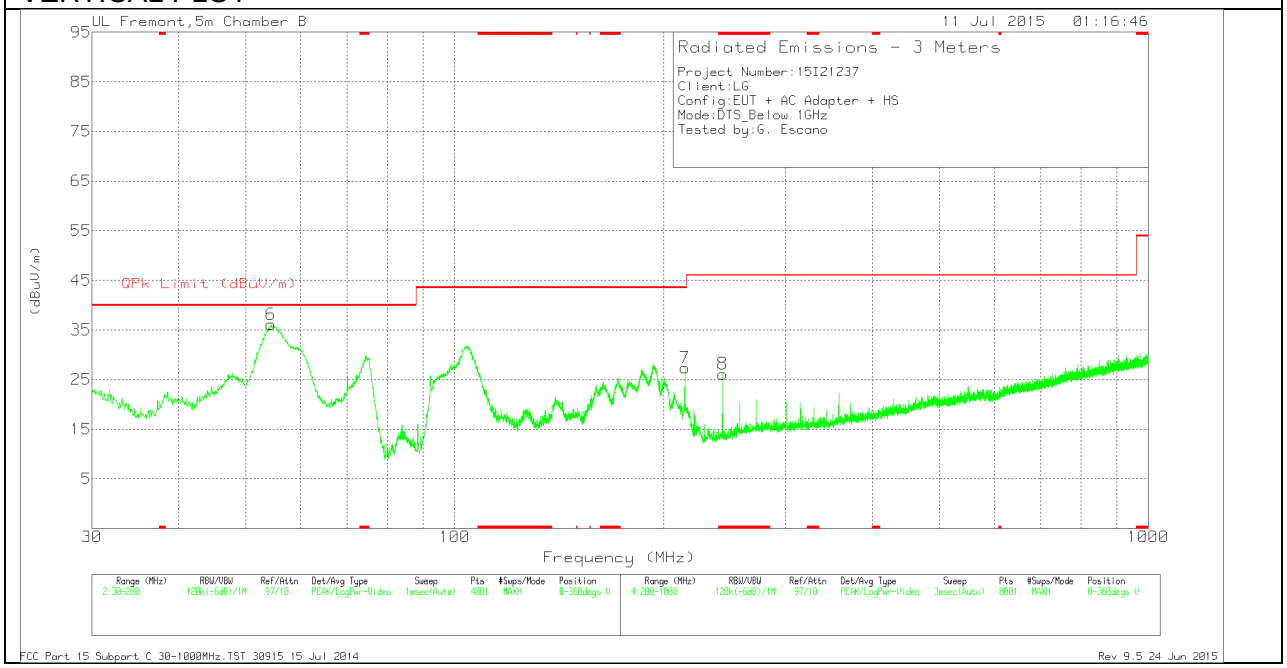
SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

VERTICAL PLOT



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Below 1G Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
8	* 243.4	40.97	Pk	11.6	-26.4	26.17	46.02	-19.85	0-360	199	V
1	53.8425	53.96	Pk	7.4	-28.5	32.86	40	-7.14	0-360	299	H
6	54.395	57.24	Pk	7.4	-28.5	36.14	40	-3.86	0-360	101	V
2	75.2625	55.28	Pk	8	-28.3	34.98	40	-5.02	0-360	199	H
3	105.395	56.15	Pk	11.7	-27.9	39.95	43.52	-3.57	0-360	299	H
4	157.4575	48.74	Pk	12.3	-27.3	33.74	43.52	-9.78	0-360	100	H
7	214.8	43.47	Pk	10.6	-26.7	27.37	43.52	-16.15	0-360	199	V
5	357.9	35.81	Pk	14.8	-25.7	24.91	46.02	-21.11	0-360	299	H

* - indicates frequency in CFR15.205/IC7.2.2 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
54.4545	52.69	Qp	7.3	-28.5	31.49	40	-8.51	122	211	V
75.2366	42.64	Qp	8	-28.3	22.34	40	-17.66	172	332	H
105.3168	45.26	Qp	11.7	-27.9	29.06	43.52	-14.46	37	186	H

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

Qp - Quasi-Peak detector

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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.

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.

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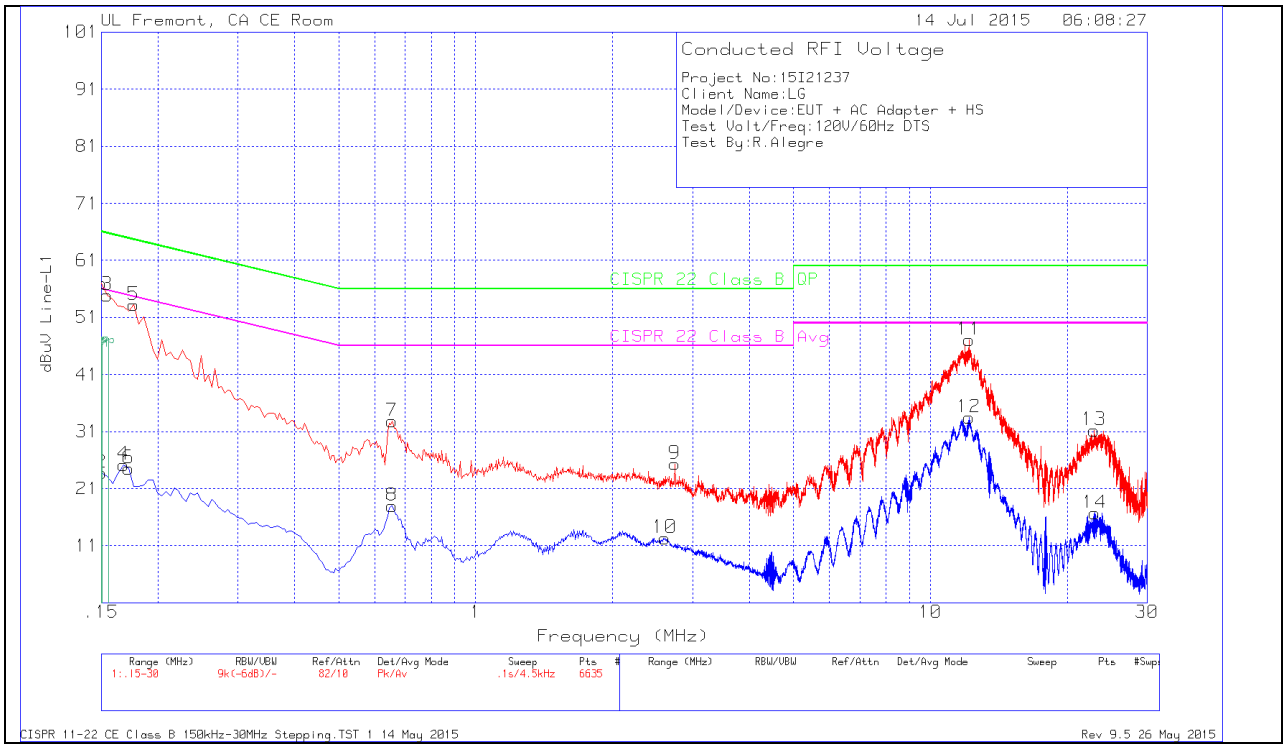
RESULTS

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	CISPR 22 Class B QP	Margin (dB)	CISPR 22 Class B Avg	Margin (dB)
1	.15	55.6	Pk	1.4	0	57	66	-9		
2	.15	22.34	Av	1.4	0	23.74	-	-	56	-32.26
3	.1545	53.58	Pk	1.3	0	54.88	65.75	-10.87		
4	.168	23.95	Av	1.2	0	25.15	-	-	55.06	-29.91
5	.177	52.08	Pk	1.1	0	53.18	64.63	-11.45		
6	.1725	23.44	Av	1.1	0	24.54	-	-	54.84	-30.3
7	.654	32.51	Pk	.3	0	32.81	56	-23.19		
8	.654	17.64	Av	.3	0	17.94	-	-	46	-28.06
9	2.742	25.04	Pk	.2	.1	25.34	56	-30.66		
10	2.607	12.02	Av	.2	.1	12.32	-	-	46	-33.68
11	12.156	46.63	Pk	.2	.2	47.03	60	-12.97		
12	12.156	33.04	Av	.2	.2	33.44	-	-	50	-16.56
13	22.9065	30.73	Pk	.3	.2	31.23	60	-28.77		
14	23.0055	16.17	Av	.3	.2	16.67	-	-	50	-33.33

Pk - Peak detector
Av - Average detection

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Quasi-Peak Emissions

Range 1: Line-L1 .15 - 30MHz

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)
.15	44.84	Qp	1.4	0	46.24	66	-19.76	-	-
.1509	44.88	Qp	1.4	0	46.28	65.95	-19.67	-	-
.15563	44.65	Qp	1.3	0	45.95	65.69	-19.74	-	-

Qp - Quasi-Peak detector

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888
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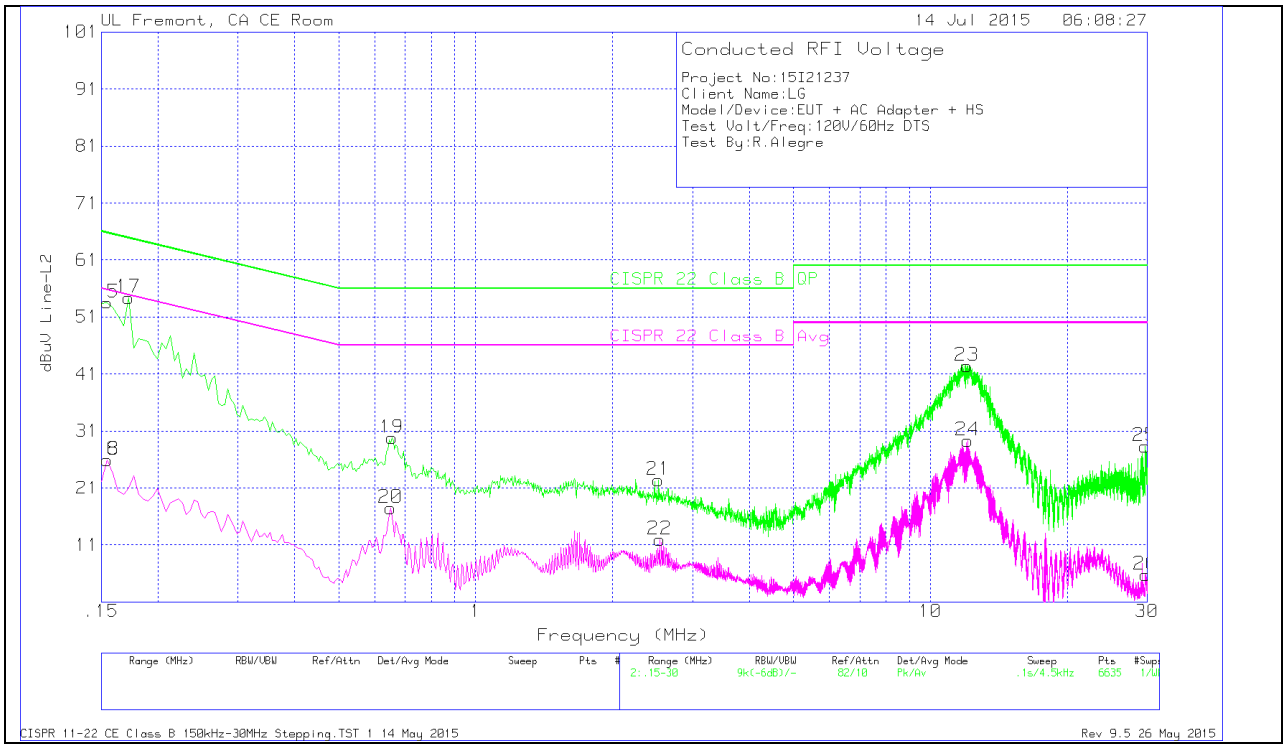
LINE 2 PLOT



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)
15	.1545	52.15	Pk	1.4	0	53.55	65.75	-12.2		
16	.1545	24.49	Av	1.4	0	25.89	-	-	55.75	-29.86
17	.1725	53.18	Pk	1.2	0	54.38	64.84	-10.46		
18	.1545	24.49	Av	1.4	0	25.89	-	-	55.75	-29.86
19	.654	29.48	Pk	.3	0	29.78	56	-26.22		
20	.6495	17.17	Av	.3	0	17.47	-	-	46	-28.53
21	2.526	22.12	Pk	.2	.1	22.42	56	-33.58		
22	2.5395	11.65	Av	.2	.1	11.95	-	-	46	-34.05
23	12.048	42.04	Pk	.2	.2	42.44	60	-17.56		
24	12.0705	28.96	Av	.2	.2	29.36	-	-	50	-20.64
25	29.6835	27.73	Pk	.3	.3	28.33	60	-31.67		
26	29.7285	5.2	Av	.3	.3	5.8	-	-	50	-44.2

Pk - Peak detector
Av - Average detection

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