FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

CDMA/LTE PHONE WITH BT & DTS WLAN b/g/n

MODEL NUMBER: LG-US375, LGUS375, US375, LG-AS375, LGAS375, AS375

FCC ID: ZNFUS375

REPORT NUMBER: 16I22599-E4V3

ISSUE DATE: 2/1/2016

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	1/22/2016	Initial issue	D. Coronia
V2	1/27/2016	Updated Section 10.2	D. Coronia
V3	2/1/2016	Updated Section 7	D. Coronia

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION:	CDMA/LTE PHONE WITH BT & DTS WLAN b/g/n
MODEL:	LG-US375, LGUS375, US375, LG-AS375, LGAS375, AS375
SERIAL NUMBER:	511CYZP000605, 510CYYQ000090
DATE TESTED:	JANUARY 5 – 11, 2016

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

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

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

Approved & Released
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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, ANSI C63.10-2013.

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	☐ Chamber D
☐ Chamber B	☐ Chamber E
☒ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0.

Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance,1000 to 6000 MHz	3.86 dB
Radiated Disturbance,6000 to 18000 MHz	4.23 dB
Radiated Disturbance,18000 to 26000 MHz	5.30 dB
Radiated Disturbance,26000 to 40000 MHz	5.23 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 CDMA/LTE PHONE WITH BT & DTS WLAN b/g/n

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	14.6	28.84
2412 - 2462	802.11g	11.5	14.13
2412 - 2462	802.11n HT20	10.5	11.22

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of 1.25 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission and power line conducted emission were performed with the EUT set to transmit on the channel with higher 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

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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	N/A	N/A
Earphone	LG	N/A	N/A	N/A

I/O CABLES

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

TEST SETUP

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

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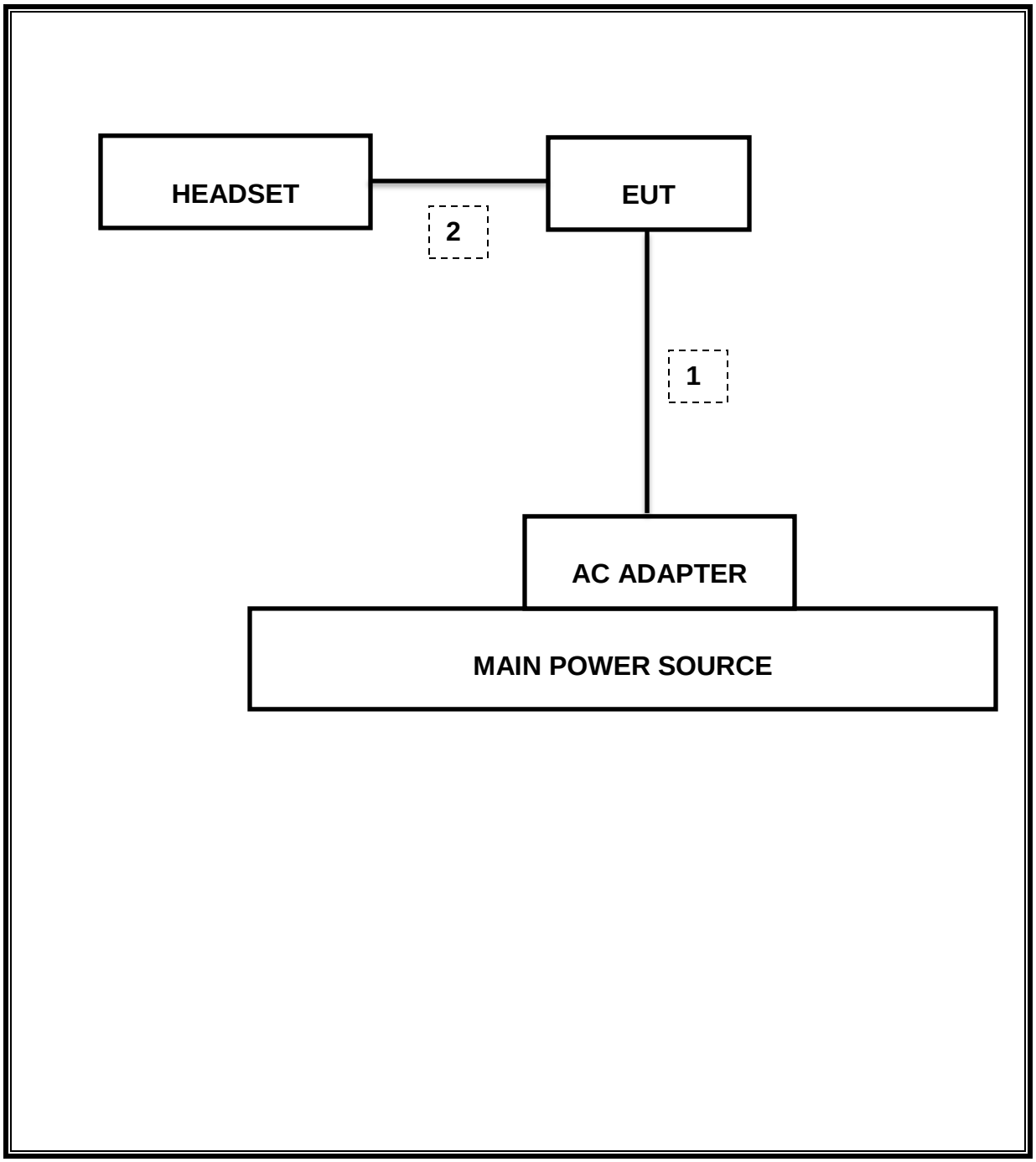
SETUP DIAGRAM FOR TESTS



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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**	**T Number**	**Cal Due**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	185	02/18/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	119	01/15/16
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/12/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	88	04/07/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
Amplifier, 10KHz to 1 GHz	Keysight	8447D	15	08/14/16
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/22/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	908	03/03/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	907	01/07/16
EMI Test Receiver, 9 KHz to 7 GHz	Rohde & Schwarz	ECSI7	284	09/10/16
Peak Power Meter	Agilent / HP	E4416A	84	01/26/16
Peak / Average Power Sensor	Keysight	E9327A	117	03/09/16
LISN for Conducted Emission	FCC	50/250-25-2-01	1310	09/16/16
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	160	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	417	05/04/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	893	04/25/16

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
Antenna Port Software	UL	UL RF	Ver 3.9.1, Dec 28, 2015

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7. MEASUREMENT METHODS

On Time and Duty Cycle: KDB 558074 D01 v03r04, Section 6.0.

6 dB BW: KDB 558074 D01 v03r04, Section 8.1.

99% BW: ANSI C63.10-2013, Section 6.9.3.

Output Power: KDB 558074 D01 v03r04, Section 9.2.3.2.

Power Spectral Density: KDB 558074 D01 v03r04, Section 10.5

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v03r04, Section 11.0.

Out-of-band emissions in restricted bands: KDB 558074 D01 v03r04, Section 12.1.

AC Power Line Conducted Emissions: ANSI C63.10-2013 Section 6.2.

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
15.247 (a)(2)	RSS-247 5.2.1	Occupied Bandwidth (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass

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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.

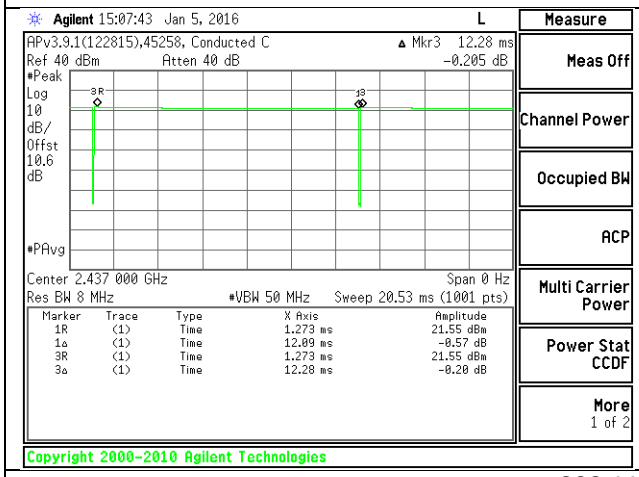
9.1.1. ON TIME AND DUTY CYCLE RESULTS

ON TIME AND DUTY CYCLE RESULTS

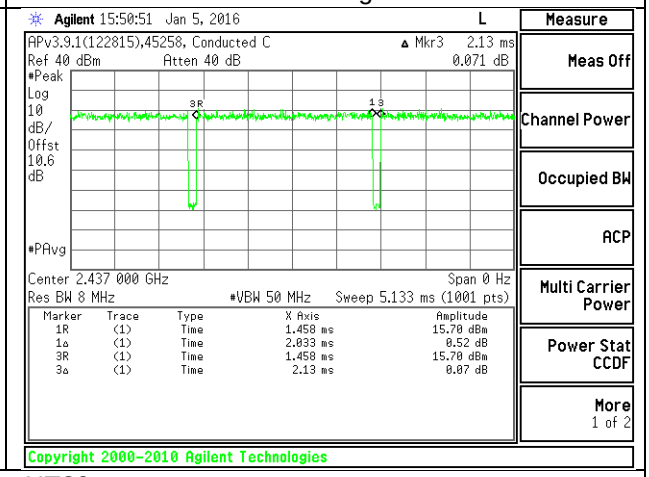
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
802.11b	12.09	12.28	0.985	98.5%	0.00	0.010
802.11g	2.03	2.13	0.954	95.4%	0.20	0.492
802.11n HT20	1.88	1.98	0.951	95.1%	0.22	0.532

DUTY CYCLE PLOTS

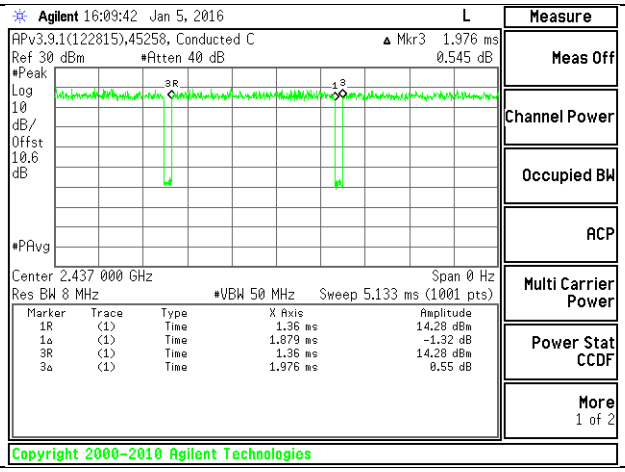
802.11b



802.11g



802.11n HT20



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9.2. 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 v03r04: 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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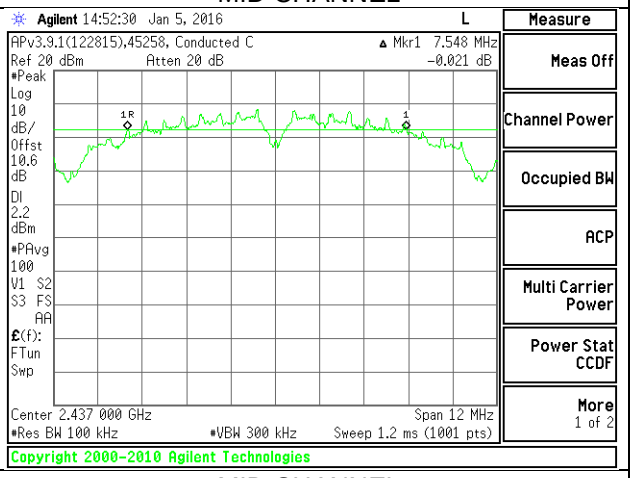
9.2.1. 6 dB BANDWIDTH MID CH PLOTS AND TABLE

802.11b TEST RESULT TABLE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
Low	2412	7.548
Middle	2437	7.548
High	2462	7.608

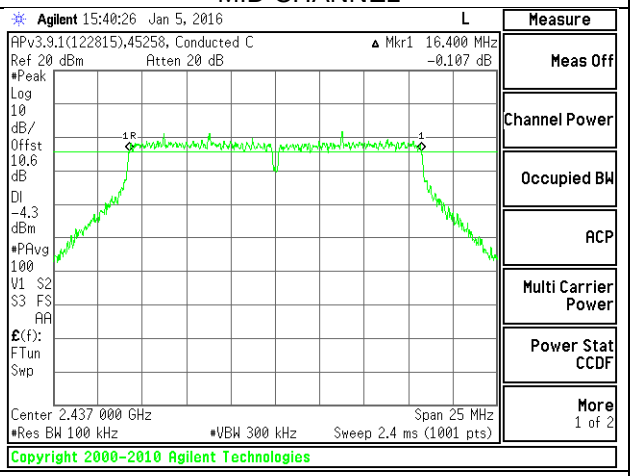
MID CHANNEL



802.11g TEST RESULT TABLE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
Low	2412	16.375
Middle	2437	16.400
High	2462	16.350

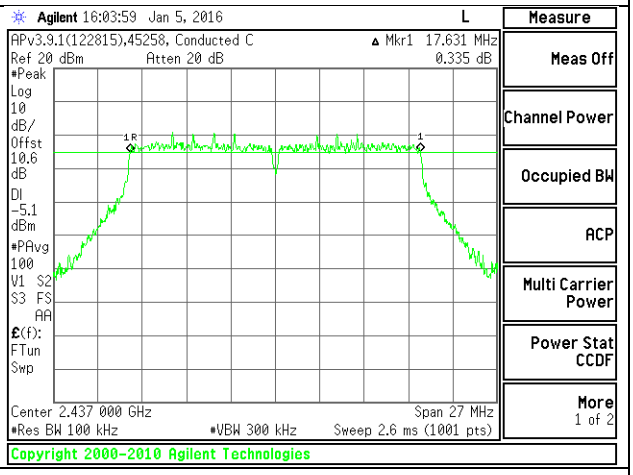
MID CHANNEL



802.11n HT20 TEST RESULT TABLE

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)
Low	2412	17.577
Middle	2437	17.631
High	2462	17.361

MID CHANNEL



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9.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

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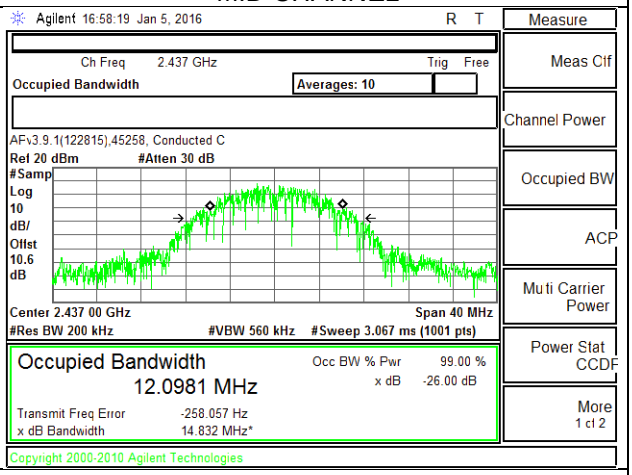
9.3.1. 99% BANDWIDTH MID CH PLOTS AND TABLE

802.11b TEST RESULT TABLE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	12.054
Middle	2437	12.098
High	2462	12.328

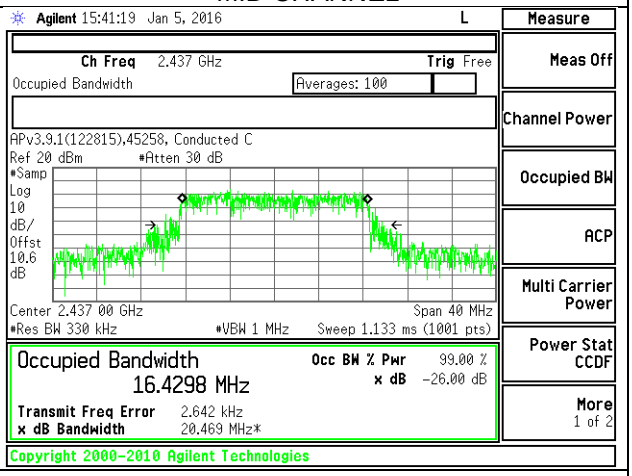
MID CHANNEL



802.11g TEST RESULT TABLE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.235
Middle	2437	16.430
High	2462	16.355

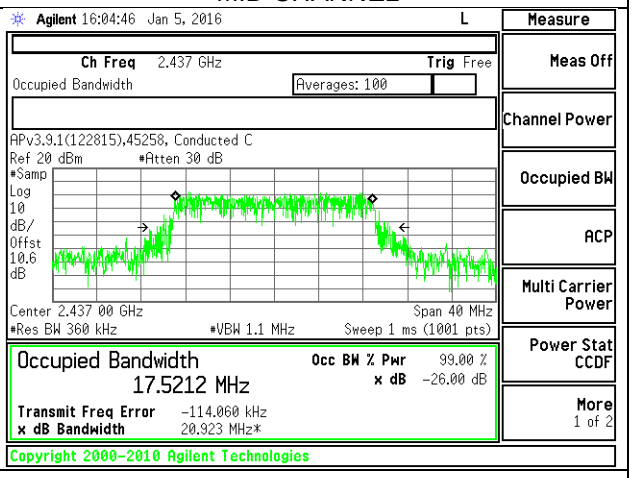
MID CHANNEL



802.11n HT20 TEST RESULT TABLE

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.511
Middle	2437	17.521
High	2462	17.592

MID CHANNEL



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9.4. 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 of 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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9.4.1. 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	1.25	30.00	30	36	30.00
Mid	2437	1.25	30.00	30	36	30.00
High	2462	1.25	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	13.80	13.80	30.00	-16.20
Mid	2437	14.00	14.00	30.00	-16.00
High	2462	14.60	14.60	30.00	-15.40
Worst			14.60		

Note: the power readings above are 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

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.25	30.00	30	36	30.00
Mid	2437	1.25	30.00	30	36	30.00
High	2462	1.25	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	10.6	10.60	30.00	-19.40
Mid	2437	10.8	10.80	30.00	-19.20
High	2462	11.5	11.50	30.00	-18.50
Worst			11.50		

Note: the power readings above are 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

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	1.25	30.00	30	36	30.00
Mid	2437	1.25	30.00	30	36	30.00
High	2462	1.25	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	9.50	9.50	30.00	-20.50
Mid	2437	9.90	9.90	30.00	-20.10
High	2462	10.50	10.50	30.00	-19.50
Worst			10.50		

Note: the power readings above are 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

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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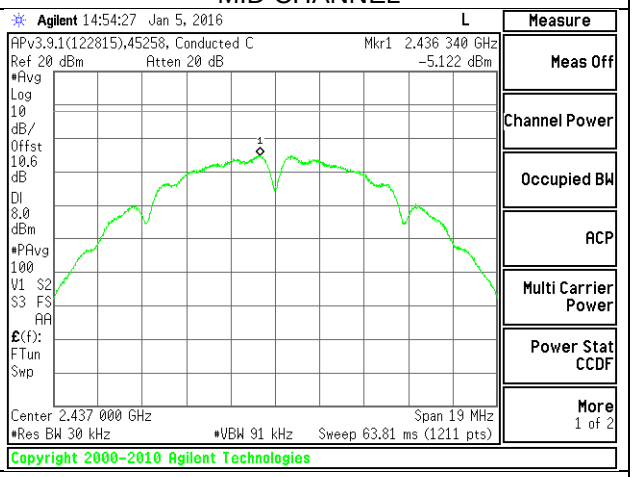
9.5.1. POWER SPECTRAQL DENSITY PLOTS AND TABLE

802.11b TEST RESULT TABLE

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-5.292	8	-13.292
Middle	2437	-5.122	8	-13.122
High	2462	-4.383	8	-12.383

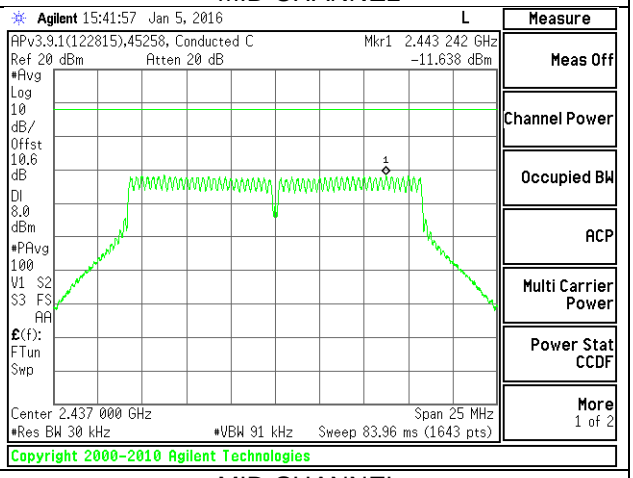
MID CHANNEL



802.11g TEST RESULT TABLE

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-11.722	8	-19.722
Middle	2437	-11.638	8	-19.638
High	2462	-11.480	8	-19.48

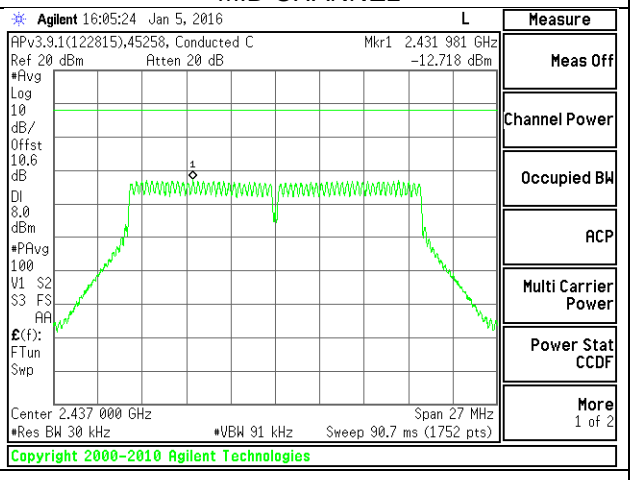
MID CHANNEL



802.11n HT20 TEST RESULT TABLE

Channel	Frequency (MHz)	PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.007	8	-21.007
Middle	2437	-12.718	8	-20.718
High	2462	-11.438	8	-19.438

MID CHANNEL



NOTE: --

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9.6. 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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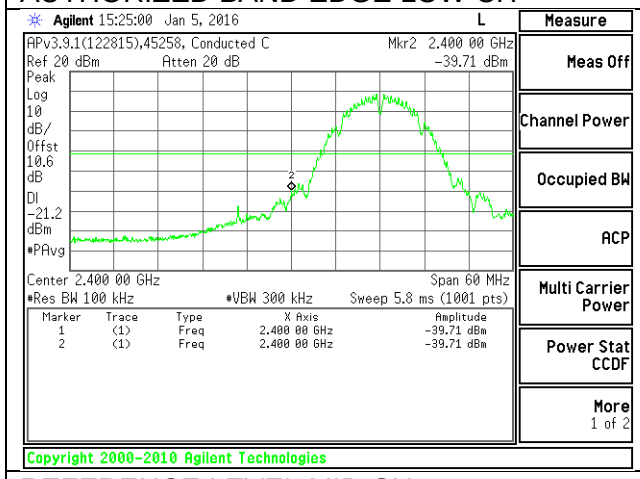
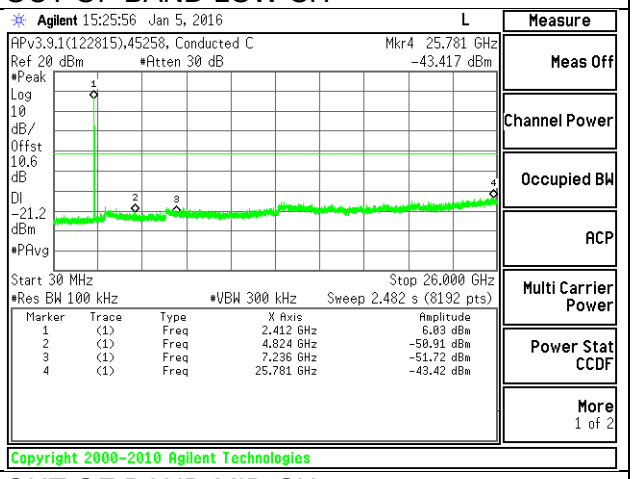
9.6.1. 802.11b MODE IN THE 2.4 GHz BAND

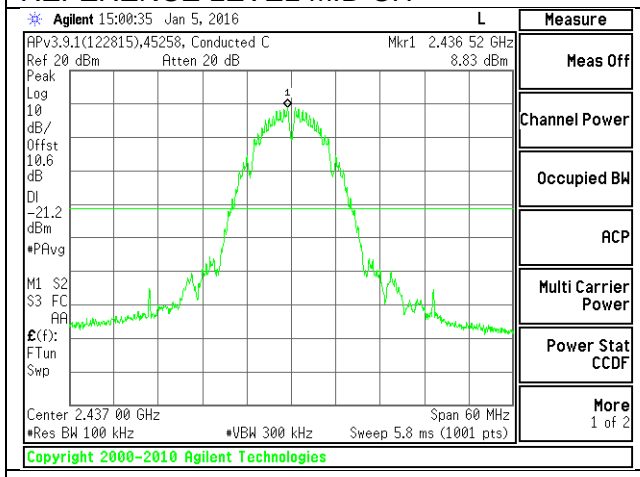
AUTHORIZED BAND EDGE LOW CH



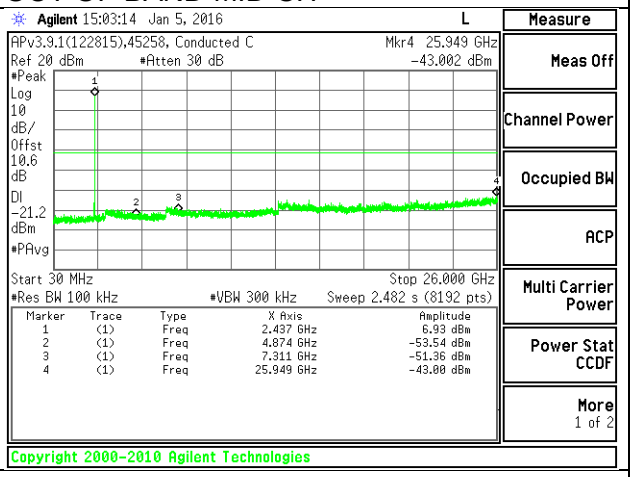
OUT OF BAND LOW CH



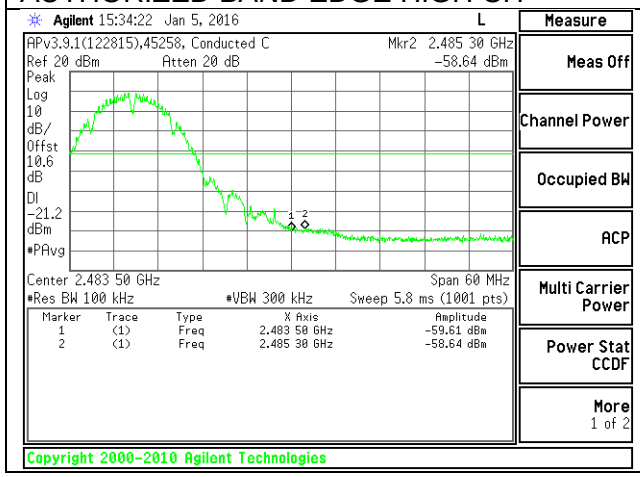
REFERENCE LEVEL MID CH



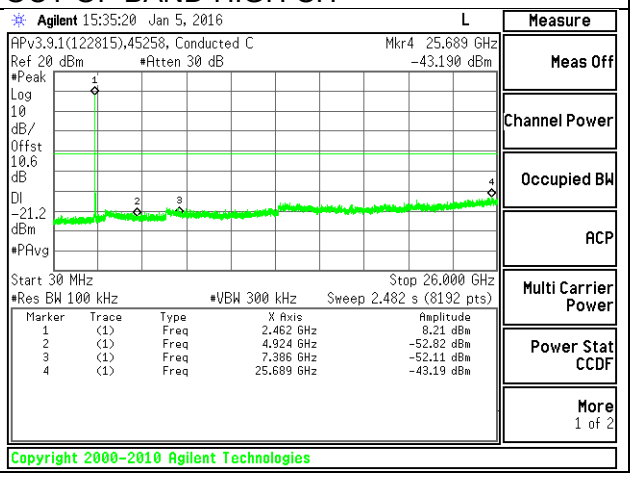
OUT OF BAND MID CH



AUTHORIZED BAND EDGE HIGH CH



OUT OF BAND HIGH CH



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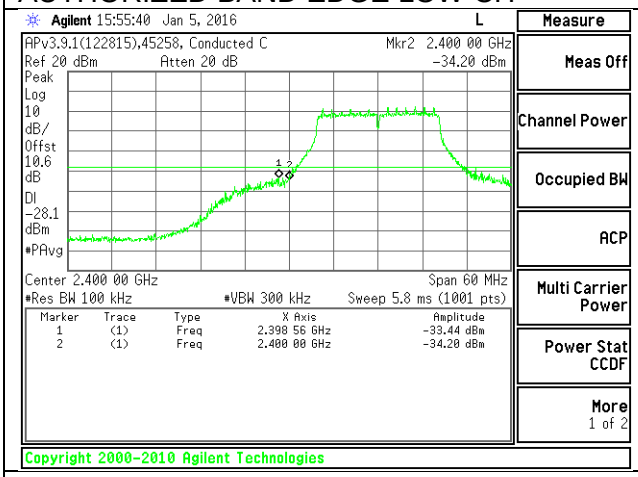
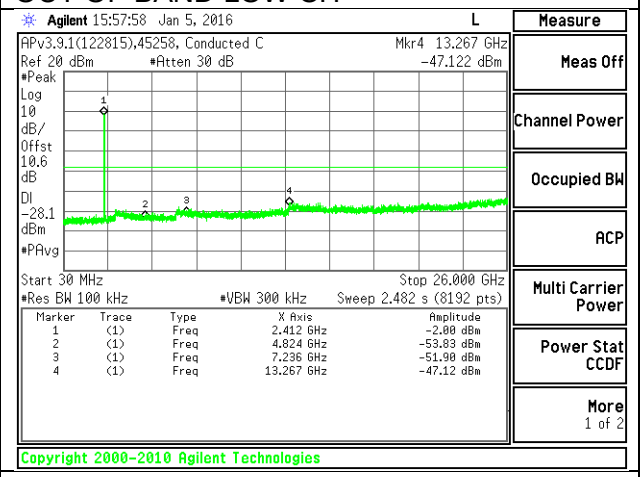
9.6.2. 802.11g MODE IN THE 2.4 GHz BAND

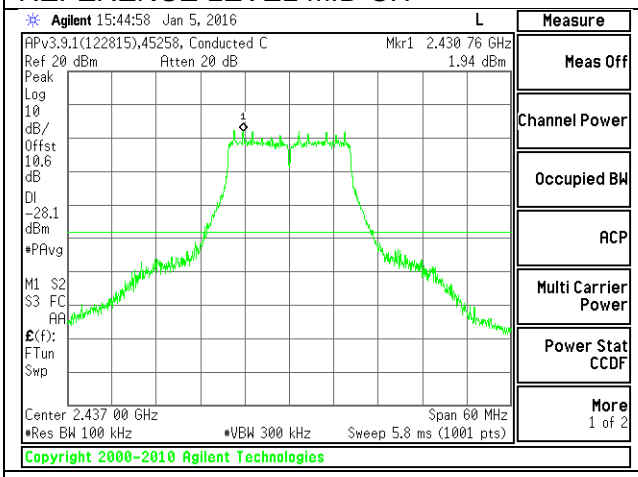
AUTHORIZED BAND EDGE LOW CH



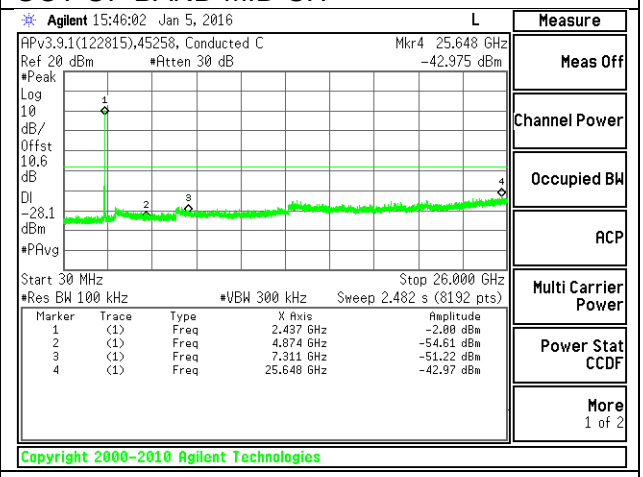
OUT OF BAND LOW CH



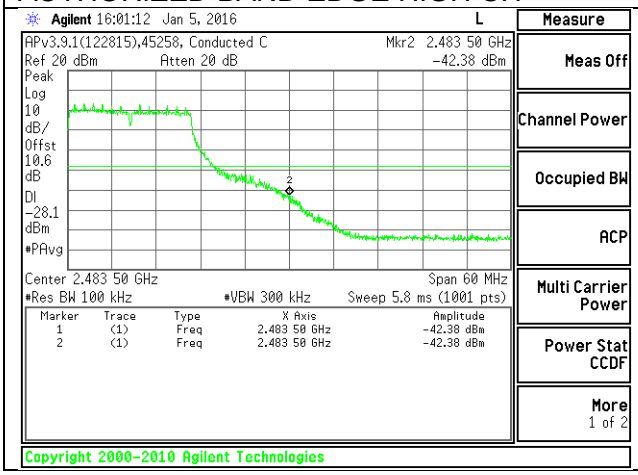
REFERENCE LEVEL MID CH



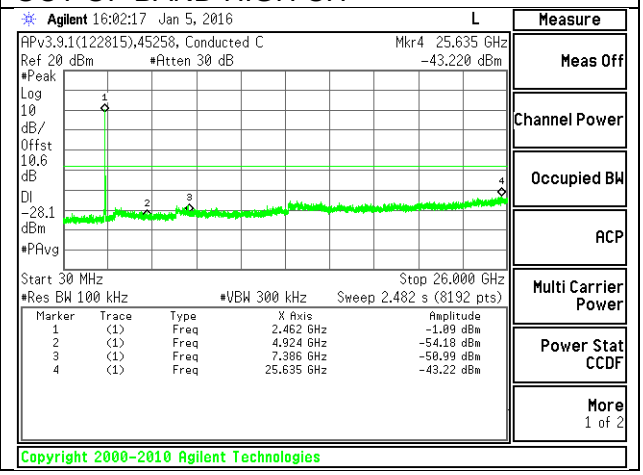
OUT OF BAND MID CH



AUTHORIZED BAND EDGE HIGH CH



OUT OF BAND HIGH CH



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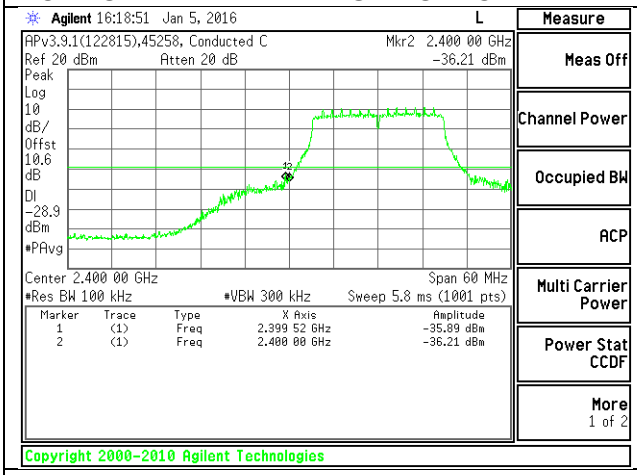
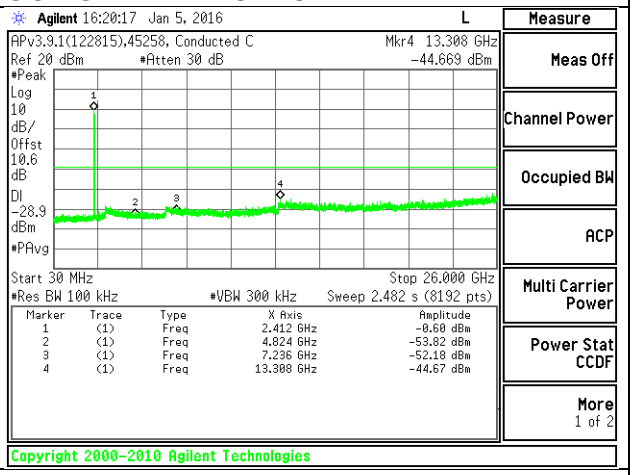
9.6.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

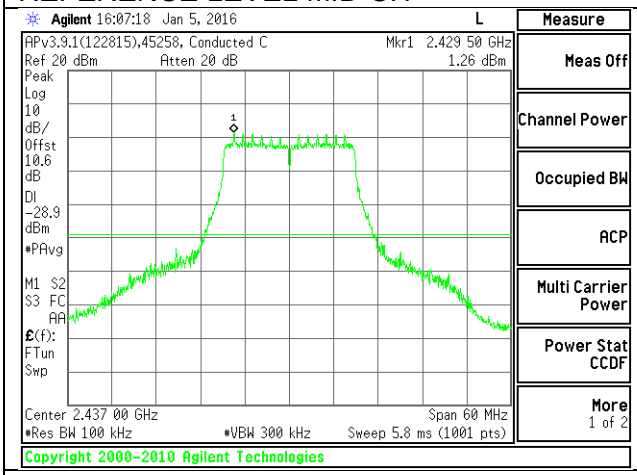
AUTHORIZED BAND EDGE LOW CH



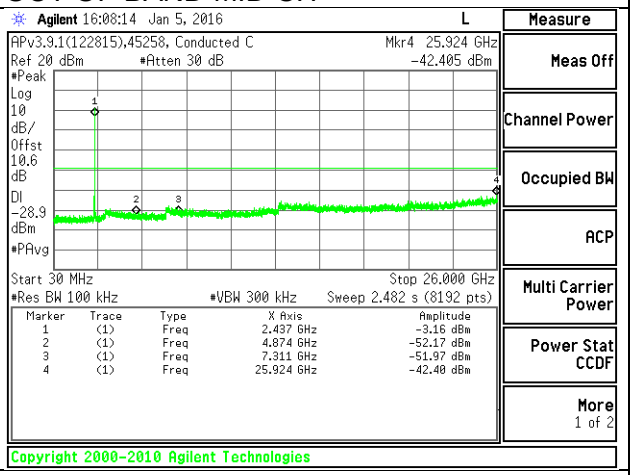
OUT OF BAND LOW CH



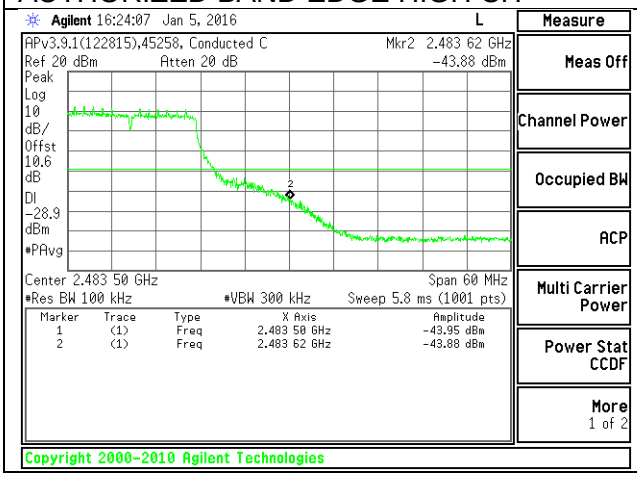
REFERENCE LEVEL MID CH



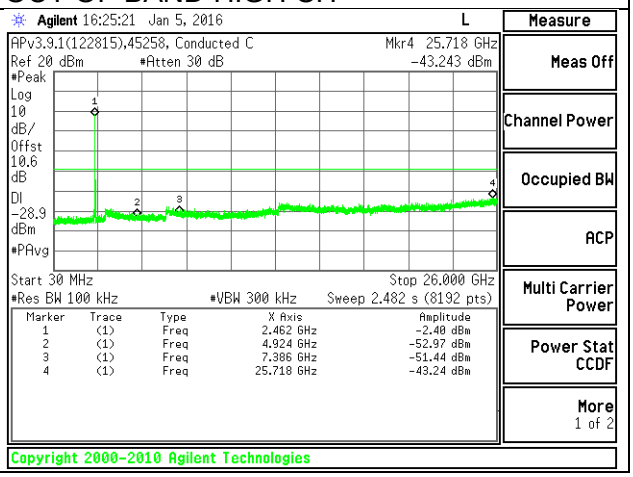
OUT OF BAND MID CH



AUTHORIZED BAND EDGE HIGH CH



OUT OF BAND HIGH CH



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10. RADIATED EMISSION TEST

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. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

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

The spectrum from 30 MHz to 26 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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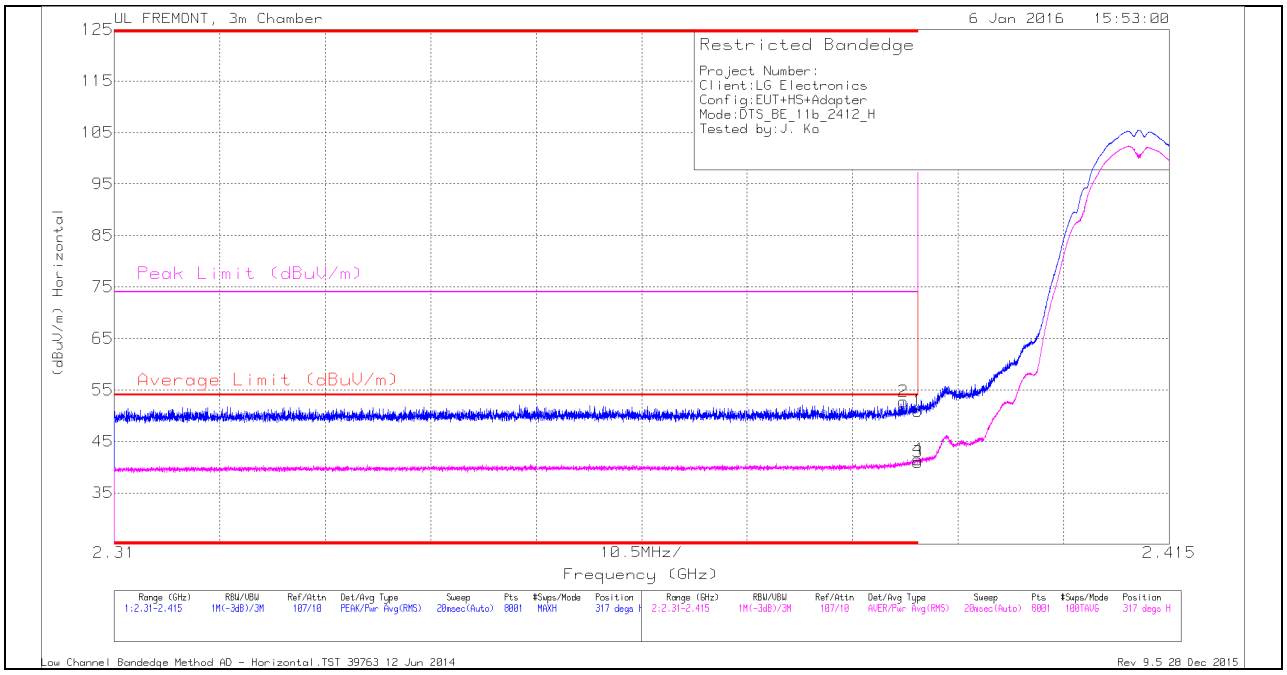
10.1. TRANSMITTER ABOVE 1 GHz

10.1.1. TX ABOVE 1 GHz, 802.11b MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (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	41.1	Pk	32	-22.2	50.9	-	-	74	-23.1	317	100	H
2	* 2.389	42.92	Pk	32	-22.2	52.72	-	-	74	-21.28	317	100	H
3	* 2.39	31.2	RMS	32	-22.2	41	54	-13	-	-	317	100	H
4	* 2.39	31.68	RMS	32	-22.2	41.48	54	-12.52	-	-	317	100	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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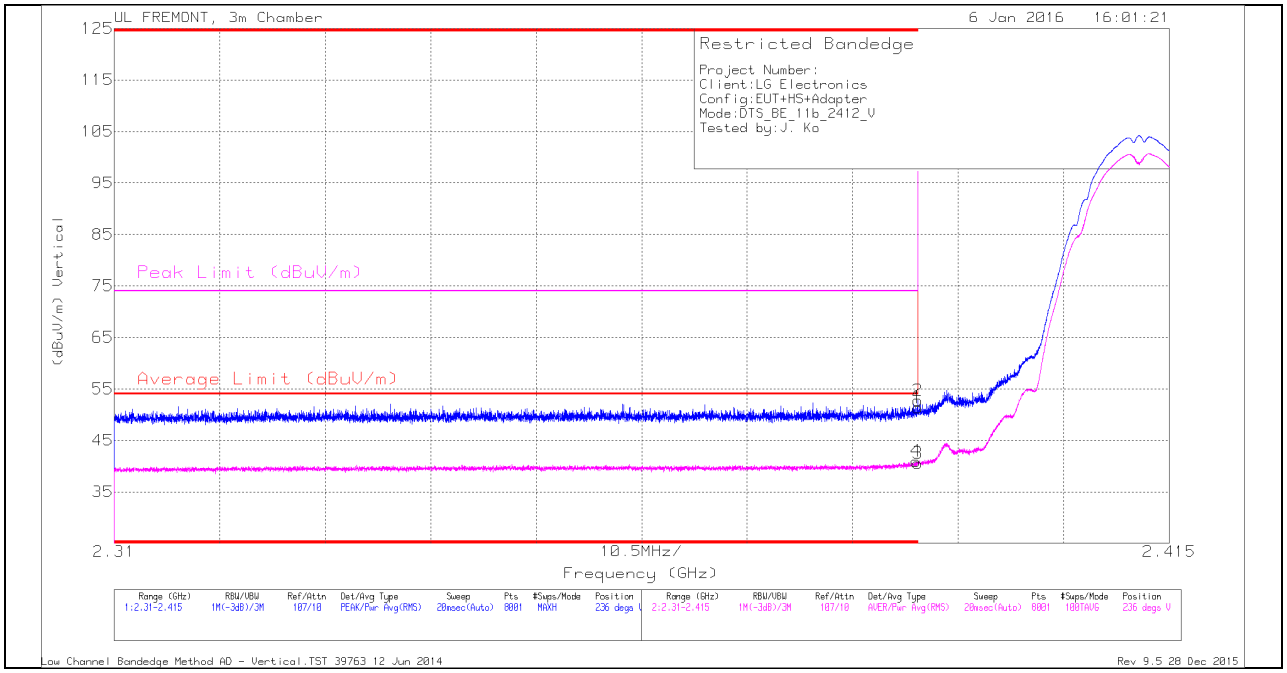
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (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	41.54	Pk	32	-22.2	51.34	-	-	74	-22.66	236	383	V
2	* 2.39	42.96	Pk	32	-22.2	52.76	-	-	74	-21.24	236	383	V
3	* 2.39	30.77	RMS	32	-22.2	40.57	54	-13.43	-	-	236	383	V
4	* 2.39	31.17	RMS	32	-22.2	40.97	54	-13.03	-	-	236	383	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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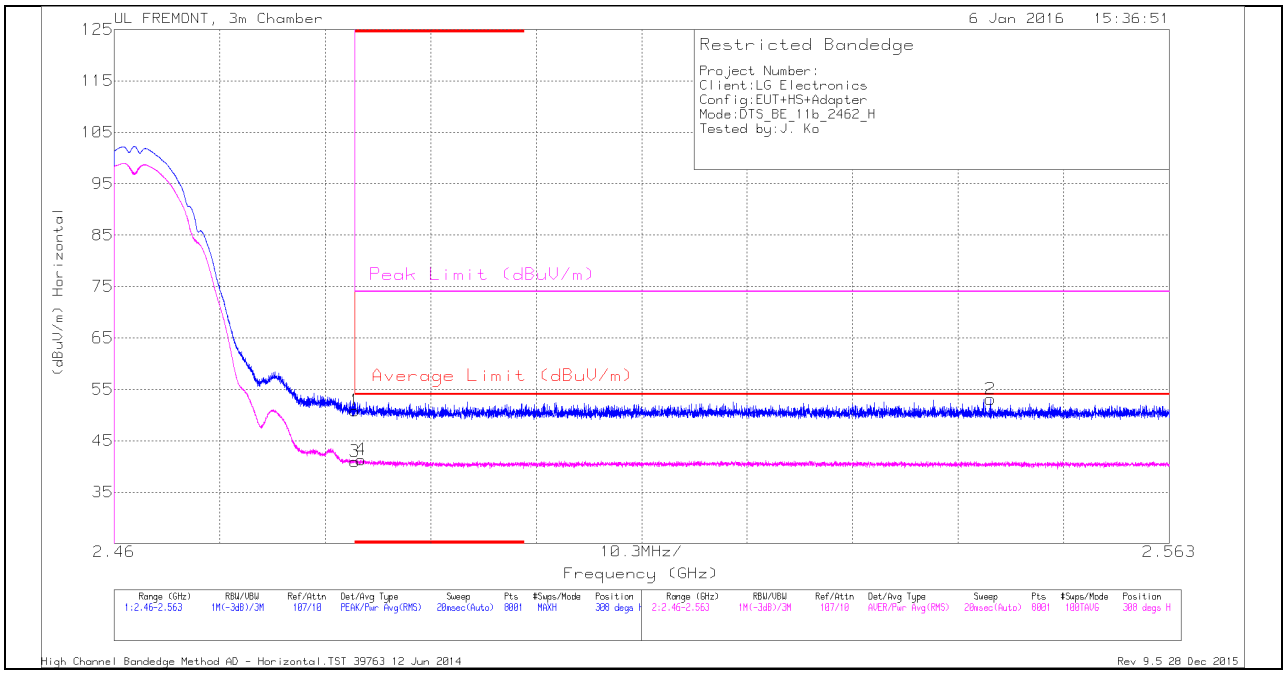
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (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	40.58	Pk	32.3	-22	50.88	-	-	74	-23.12	308	269	H
3	* 2.484	30.67	RMS	32.3	-22	40.97	54	-13.03	-	-	308	269	H
4	* 2.484	31.02	RMS	32.3	-22	41.32	54	-12.68	-	-	308	269	H
2	2.546	42.6	Pk	32.4	-21.9	53.1	-	-	74	-20.9	308	269	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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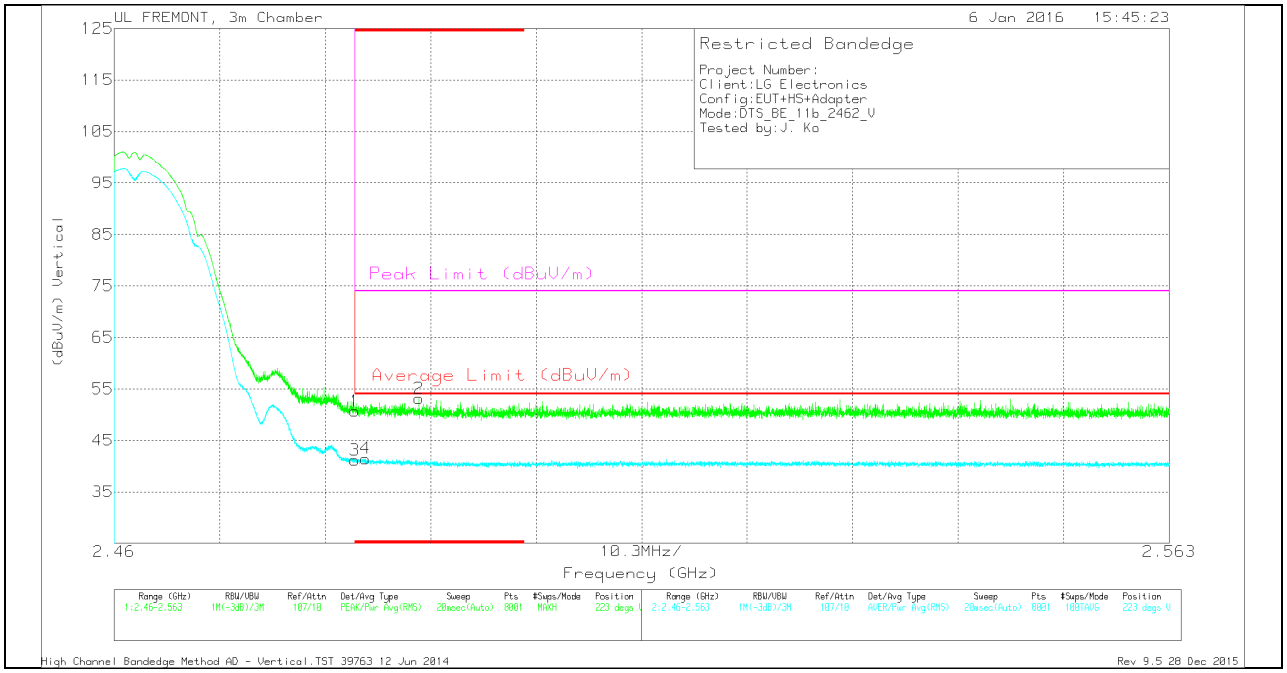
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fltr/Pad (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	40.38	Pk	32.3	-22	50.68	-	-	74	-23.32	223	365	V
2	* 2.49	42.71	Pk	32.3	-21.9	53.11	-	-	74	-20.89	223	365	V
3	* 2.484	30.84	RMS	32.3	-22	41.14	54	-12.86	-	-	223	365	V
4	* 2.485	31.17	RMS	32.3	-22	41.47	54	-12.53	-	-	223	365	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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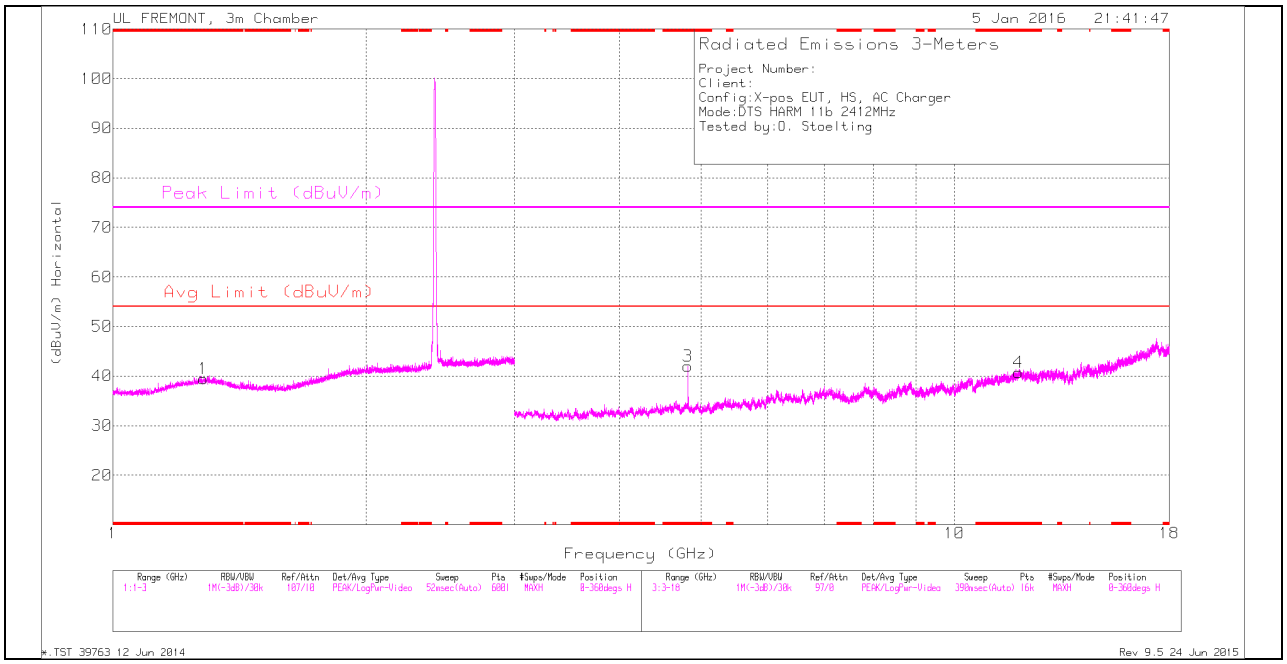
HARMONICS AND SPURIOUS EMISSIONS

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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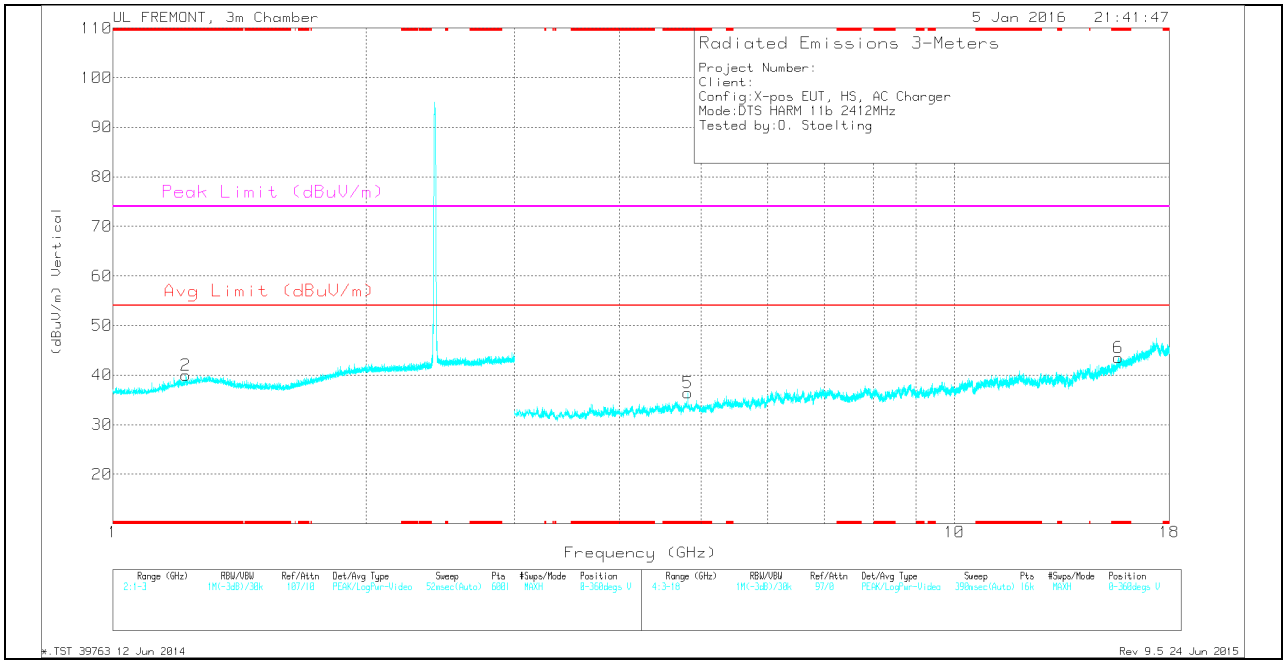
LOW CHANNEL VERTICAL



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 T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.281	32.95	Avg	29.7	-23.2	39.45	54	-14.55	-	-	0-360	200	H
2	* 1.221	34.05	Avg	29.1	-23.2	39.95	54	-14.05	-	-	0-360	200	V
3	* 4.824	37.2	Avg	34	-29.2	42	54	-12	-	-	0-360	100	H
4	* 11.912	25.55	Avg	39.1	-23.9	40.75	54	-13.25	-	-	0-360	100	H
5	* 4.824	31.61	Avg	34	-29.2	36.41	54	-17.59	-	-	0-360	100	V
6	* 15.645	26.04	Avg	40.3	-22.8	43.54	54	-10.46	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.283	42.82	PK2	29.7	-23.2	49.32	-	-	74	-24.68	247	193	H
* 1.282	30.62	MAv1	29.7	-23.2	37.12	54	-16.88	-	-	247	193	H
* 1.223	42.5	PK2	29.2	-23.2	48.5	-	-	74	-25.5	77	371	V
* 1.222	30.5	MAv1	29.1	-23.2	36.4	54	-17.6	-	-	77	371	V
* 4.824	43.59	PK2	34	-29.2	48.39	-	-	74	-25.61	209	296	H
* 4.824	36.51	MAv1	34	-29.2	41.31	54	-12.69	-	-	209	296	H
* 11.91	35.73	PK2	39.1	-23.9	50.93	-	-	74	-23.07	209	116	H
* 11.912	23.34	MAv1	39.1	-23.9	38.54	54	-15.46	-	-	209	116	H
* 4.824	41.11	PK2	34	-29.2	45.91	-	-	74	-28.09	295	101	V
* 4.824	30.19	MAv1	34	-29.2	34.99	54	-19.01	-	-	295	101	V
* 15.644	36.57	PK2	40.3	-22.8	54.07	-	-	74	-19.93	86	147	V
* 15.646	24.35	MAv1	40.3	-22.8	41.85	54	-12.15	-	-	86	147	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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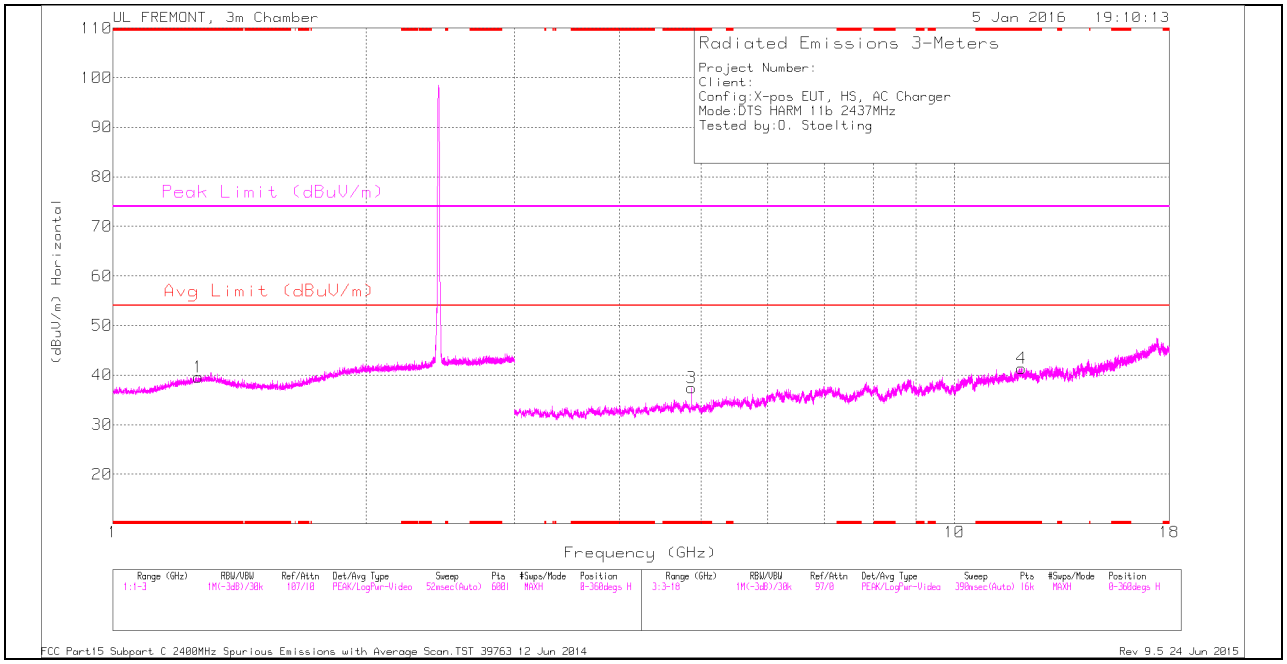
MID CHANNEL HORIZONTAL



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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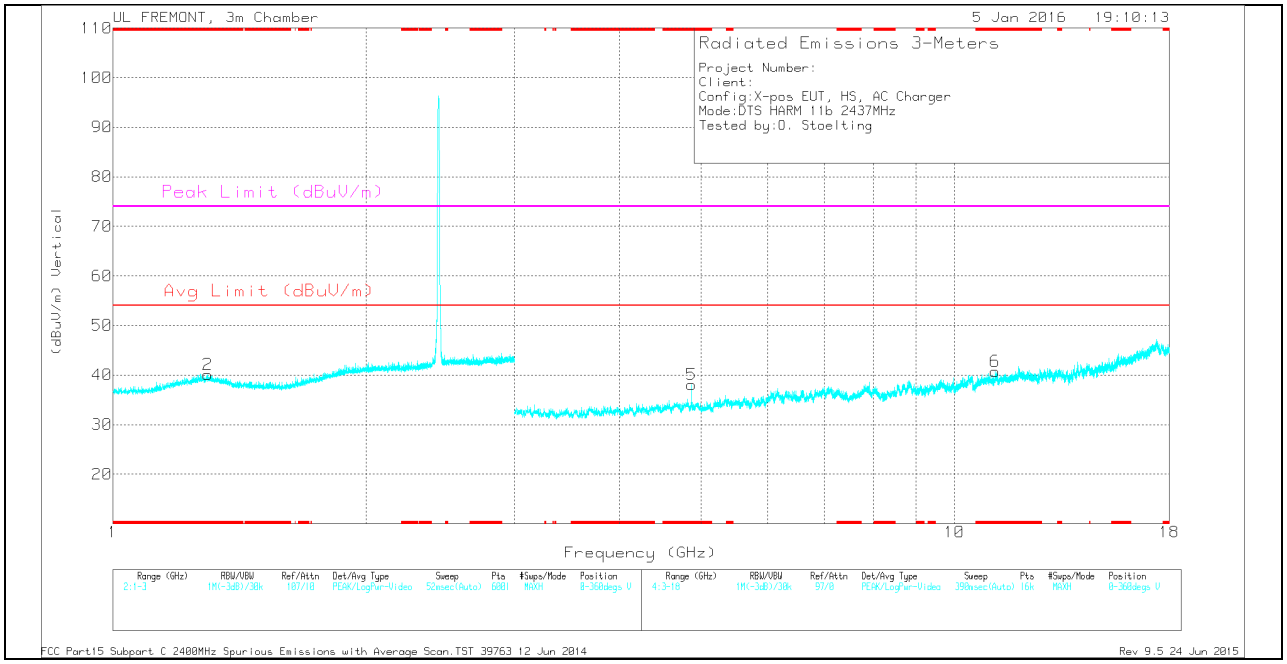
MID CHANNEL VERTICAL



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 T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.263	33.3	Avg	29.5	-23.2	39.6	54	-14.4	-	-	0-360	100	H
2	* 1.296	33.42	Avg	29.8	-23.1	40.12	54	-13.88	-	-	0-360	200	V
3	* 4.874	32.11	Avg	34	-28.7	37.41	54	-16.59	-	-	0-360	100	H
4	* 12.023	25.36	Avg	39.1	-23.1	41.36	54	-12.64	-	-	0-360	100	H
5	* 4.874	32.77	Avg	34	-28.7	38.07	54	-15.93	-	-	0-360	200	V
6	* 11.182	25.77	Avg	37.9	-23	40.67	54	-13.33	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.263	27.22	Av	29.5	-23.2	33.52	-	-	-	-	213	128	H
* 1.265	42.83	PK2	29.6	-23.2	49.23	-	-	74	-24.77	213	128	H
* 1.263	31.15	MAv1	29.5	-23.2	37.45	54	-16.55	-	-	213	128	H
* 1.296	42.98	PK2	29.9	-23.1	49.78	-	-	74	-24.22	233	160	V
* 1.294	30.66	MAv1	29.8	-23.1	37.36	54	-16.64	-	-	233	160	V
* 4.874	40.4	PK2	34	-28.7	45.7	-	-	74	-28.3	209	304	H
* 4.874	31.61	MAv1	34	-28.7	36.91	54	-17.09	-	-	209	304	H
* 12.024	35.09	PK2	39.1	-23.1	51.09	-	-	74	-22.91	139	167	H
* 12.024	22.91	MAv1	39.1	-23.1	38.91	54	-15.09	-	-	139	167	H
* 4.874	41.79	PK2	34	-28.7	47.09	-	-	74	-26.91	284	168	V
* 4.874	33.28	MAv1	34	-28.7	38.58	54	-15.42	-	-	284	168	V
* 11.184	34.55	PK2	37.9	-22.9	49.55	-	-	74	-24.45	37	173	V
* 11.184	22.55	MAv1	37.9	-22.9	37.55	54	-16.45	-	-	37	173	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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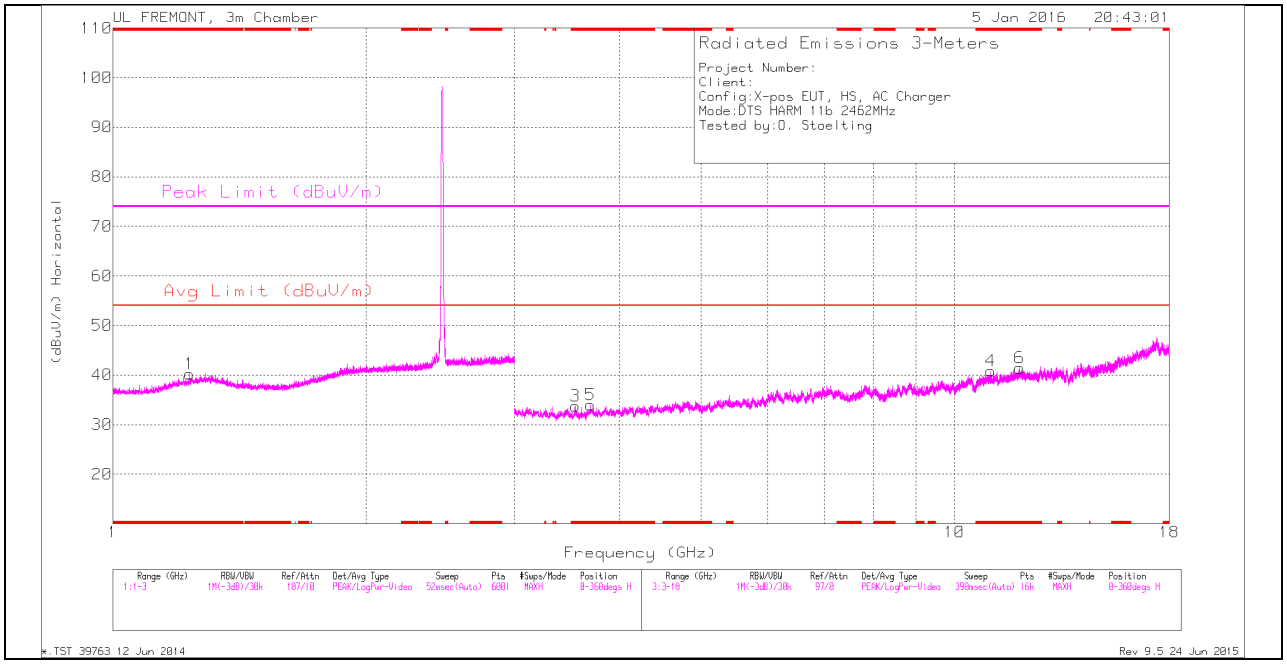
HIGH CHANNEL HORIZONTAL



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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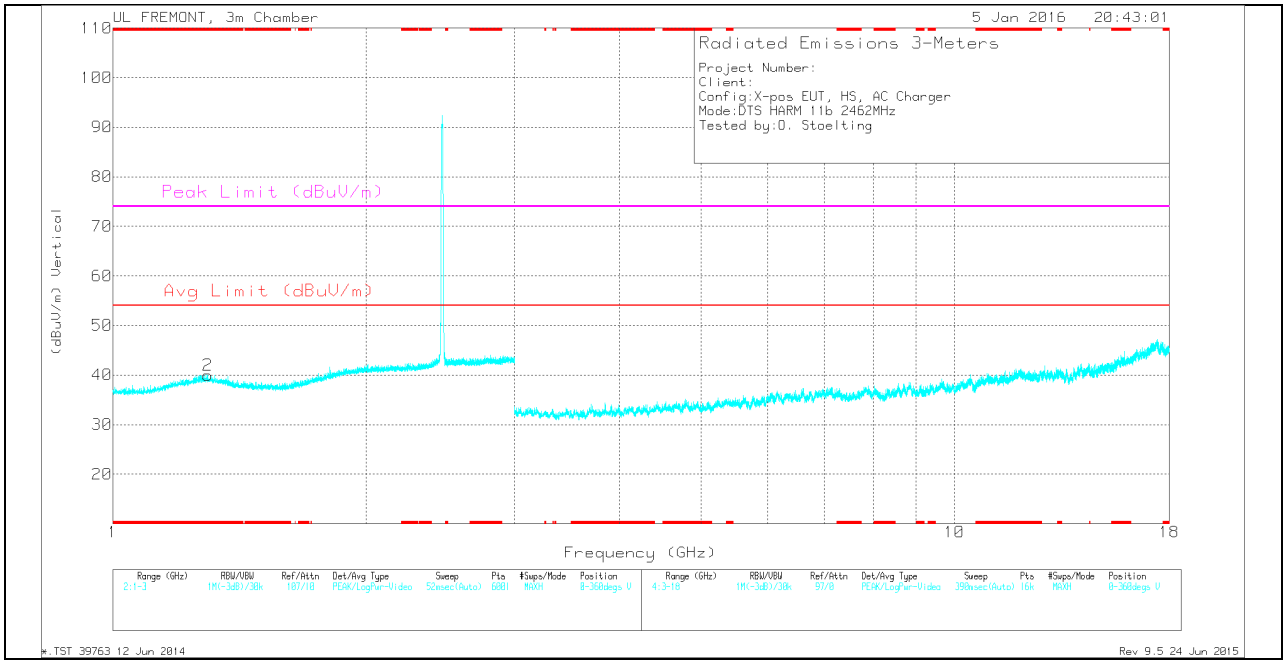
HIGH CHANNEL VERTICAL



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 T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.233	34.24	Avg	29.2	-23.2	40.24	54	-13.76	-	-	0-360	100	H
2	* 1.296	33.24	Avg	29.8	-23.1	39.94	54	-14.06	-	-	0-360	100	V
3	* 3.545	31.01	Avg	32.8	-30.1	33.71	54	-20.29	-	-	0-360	100	H
4	* 11.05	26.41	Avg	37.8	-23.3	40.91	54	-13.09	-	-	0-360	100	H
5	* 3.694	30.51	Avg	33	-29.5	34.01	54	-19.99	-	-	0-360	100	H
6	* 11.947	25.93	Avg	39.1	-23.6	41.43	54	-12.57	-	-	0-360	100	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.235	43.42	PK2	29.3	-23.2	49.52	-	-	74	-24.48	330	151	H
* 1.234	30.65	MAv1	29.3	-23.2	36.75	54	-17.25	-	-	330	151	H
* 1.297	42.54	PK2	29.9	-23.2	49.24	-	-	74	-24.76	119	239	V
* 1.295	30.37	MAv1	29.8	-23.1	37.07	54	-16.93	-	-	119	239	V
* 3.543	40.85	PK2	32.8	-30.1	43.55	-	-	74	-30.45	18	340	H
* 3.546	27.81	MAv1	32.8	-30.1	30.51	54	-23.49	-	-	18	340	H
* 11.049	34.96	PK2	37.8	-23.3	49.46	-	-	74	-24.54	43	145	H
* 11.049	22.9	MAv1	37.8	-23.3	37.4	54	-16.6	-	-	43	145	H
* 3.693	39.76	PK2	33	-29.5	43.26	-	-	74	-30.74	239	147	H
* 3.692	27.69	MAv1	33	-29.5	31.19	54	-22.81	-	-	239	147	H
* 11.948	36.03	PK2	39.1	-23.6	51.53	-	-	74	-22.47	132	105	H
* 11.945	23.45	MAv1	39.1	-23.6	38.95	54	-15.05	-	-	132	105	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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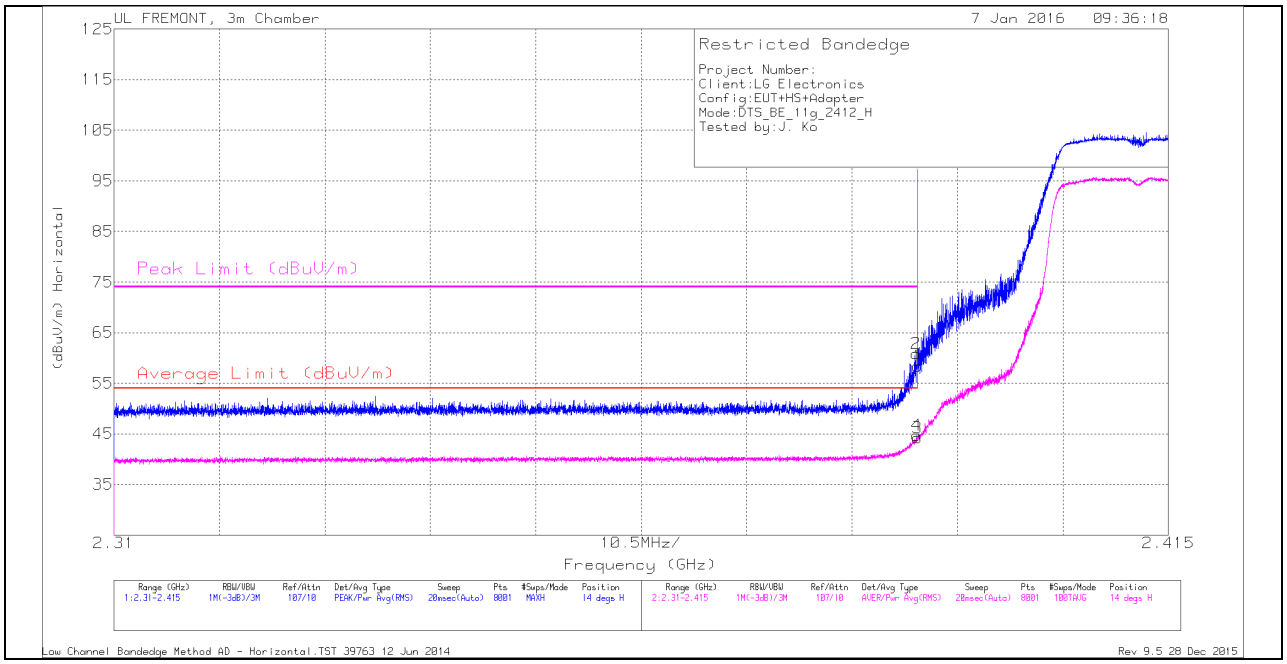
10.1.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/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	48.59	Pk	32	-22.2	0	58.39	-	-	74	-15.61	14	158	H
2	2.39	51.1	Pk	32	-22.2	0	60.9	-	-	74	-13.1	14	158	H
3	2.39	34.25	RMS	32	-22.2	.2	44.25	54	-9.75	-	-	14	158	H
4	2.39	34.76	RMS	32	-22.2	.2	44.76	54	-9.24	-	-	14	158	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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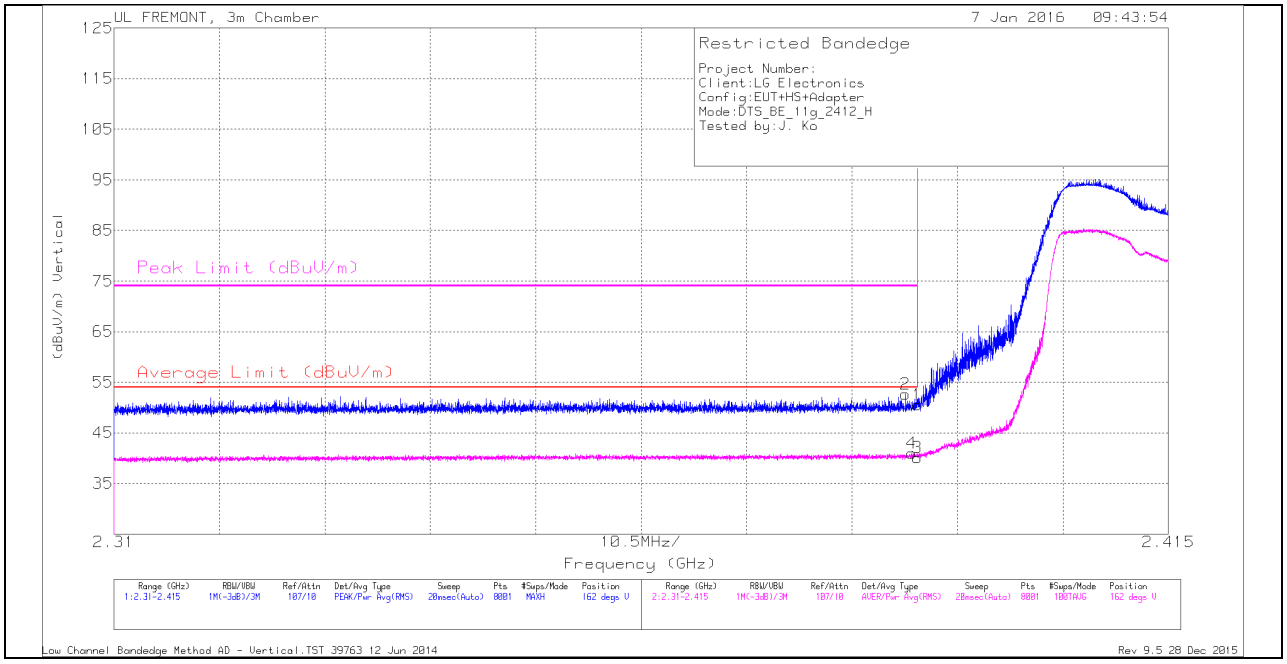
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	2.389	42.8	Pk	32	-22.2	0	52.6	-	-	74	-21.4	162	211	V
4	2.389	30.94	RMS	32	-22.2	.2	40.94	54	-13.06	-	-	162	211	V
1	2.39	40.73	Pk	32	-22.2	0	50.53	-	-	74	-23.47	162	211	V
3	2.39	30.11	RMS	32	-22.2	.2	40.11	54	-13.89	-	-	162	211	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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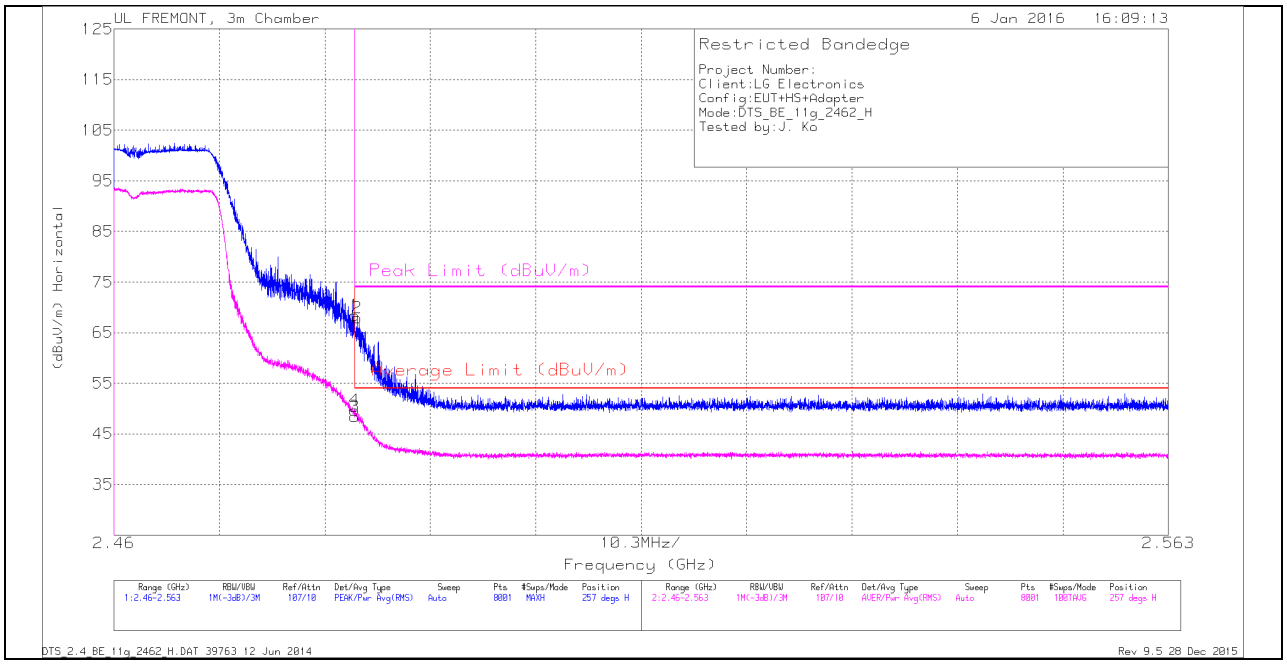
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	58.14	Pk	32.3	-22	0	68.44	-	-	74	-5.56	257	151	H
2	2.484	57.65	Pk	32.3	-22	0	67.95	-	-	74	-6.05	257	151	H
3	2.484	38.14	RMS	32.3	-22	.2	48.64	54	-5.36	-	-	257	151	H
4	2.484	39.34	RMS	32.3	-22	.2	49.84	54	-4.16	-	-	257	151	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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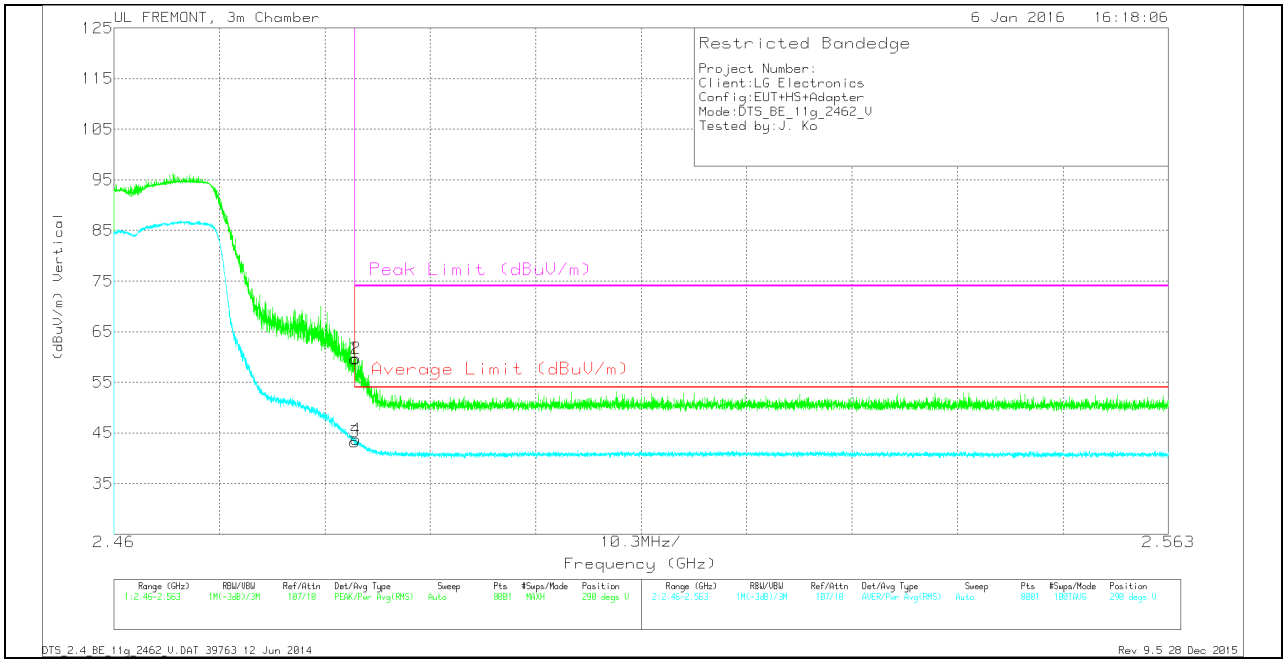
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	49.32	Pk	32.3	-22	0	59.62	-	-	74	-14.38	290	152	V
2	2.484	49.46	Pk	32.3	-22	0	59.76	-	-	74	-14.24	290	152	V
3	2.484	32.93	RMS	32.3	-22	.2	43.43	54	-10.57	-	-	290	152	V
4	2.484	33.41	RMS	32.3	-22	.2	43.91	54	-10.09	-	-	290	152	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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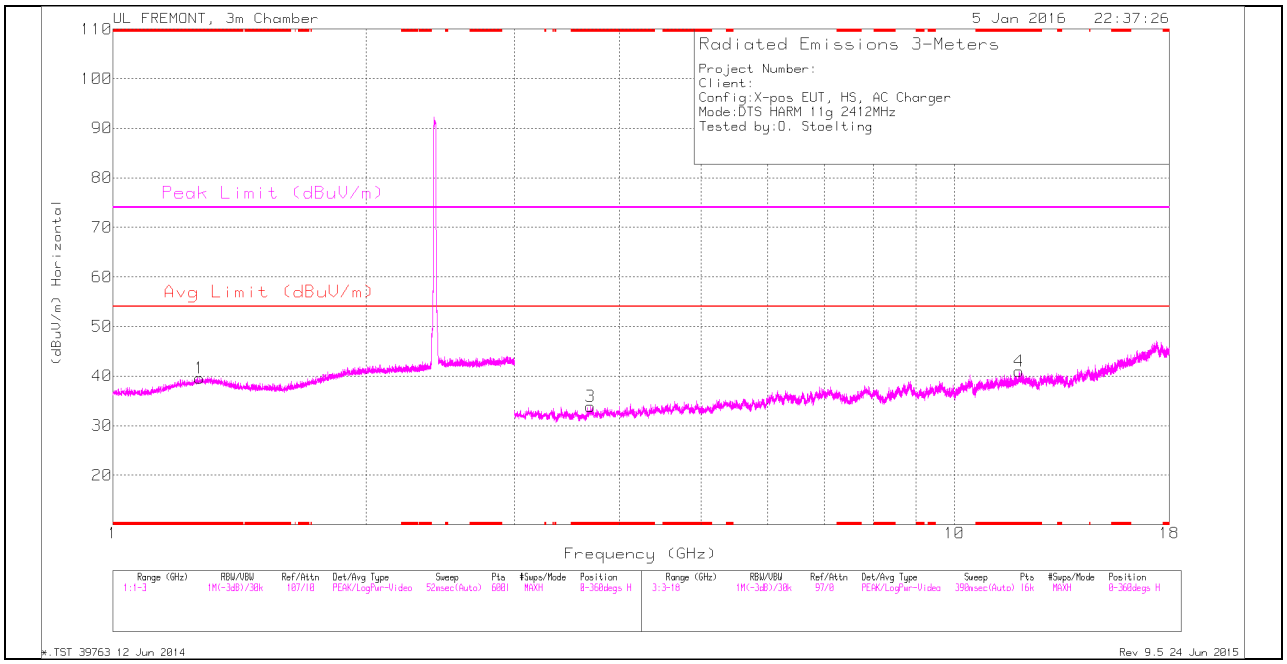
HARMONICS AND SPURIOUS EMISSIONS

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.

UL VERIFICATION SERVICES INC. FORM NO: CCSUP4701H
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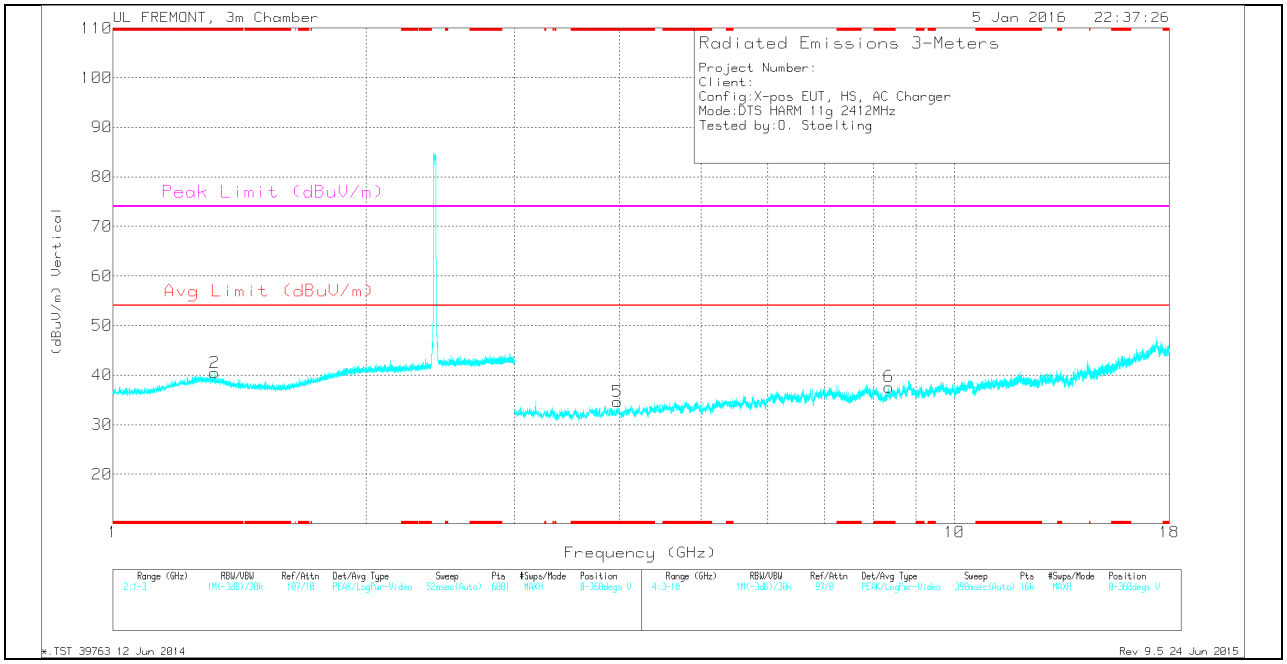
LOW CHANNEL VERTICAL



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 T119 (dB/m)	Amp/Cbl/Flt r/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	* 1.268	33.19	Avg	29.6	-23.2	0	39.59	54	-14.41	-	-	0-360	100	H
2	* 1.321	33.96	Avg	29.6	-23.1	0	40.46	54	-13.54	-	-	0-360	100	V
3	* 3.692	30.33	Avg	33	-29.5	0	33.83	54	-20.17	-	-	0-360	100	H
4	* 11.924	25.72	Avg	39.1	-23.8	0	41.02	54	-12.98	-	-	0-360	100	H
5	* 3.977	31.79	Avg	33.2	-30.3	0	34.69	54	-19.31	-	-	0-360	100	V
6	* 8.355	27.32	Avg	35.8	-25.5	0	37.62	54	-16.38	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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
* 1.269	43.16	PK2	29.6	-23.2	0	49.56	-	-	74	-24.44	177	205	H
* 1.27	30.59	MAv1	29.6	-23.2	.2	37.19	54	-16.81	-	-	177	205	H
* 1.32	42.5	PK2	29.6	-23.1	0	49	-	-	74	-25	333	269	V
* 1.32	30.35	MAv1	29.6	-23.1	.2	37.05	54	-16.95	-	-	333	269	V
* 3.694	39.77	PK2	33	-29.5	0	43.27	-	-	74	-30.73	353	223	V
* 3.691	27.42	MAv1	33	-29.5	.2	31.12	54	-22.88	-	-	353	223	V
* 11.924	33.07	PK2	39.1	-23.8	0	48.37	-	-	74	-25.63	108	330	H
* 11.925	20.52	MAv1	39.1	-23.8	.2	36.02	54	-17.98	-	-	108	330	H
* 3.975	40.47	PK2	33.2	-30.3	0	43.37	-	-	74	-30.63	0	170	V
* 3.976	28.02	MAv1	33.2	-30.3	.2	31.12	54	-22.88	-	-	0	170	V
* 8.353	37.81	PK2	35.8	-25.5	0	48.11	-	-	74	-25.89	324	115	V
* 8.353	25.07	MAv1	35.8	-25.5	.2	35.57	54	-18.43	-	-	324	115	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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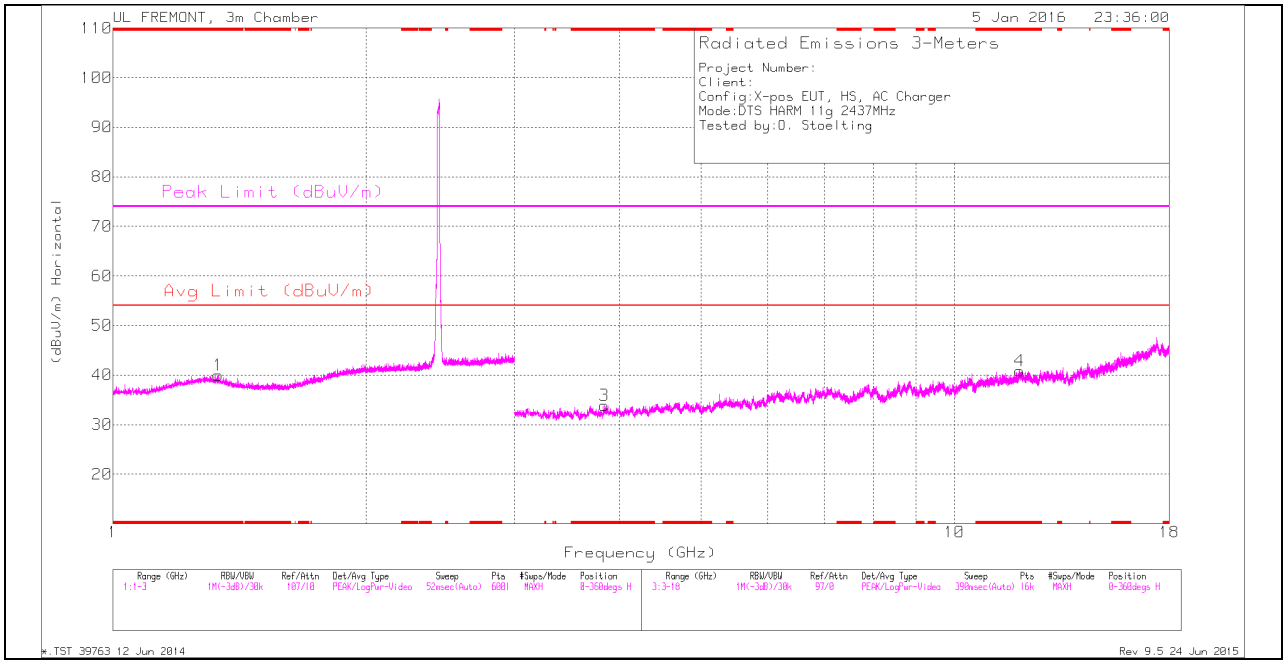
MID CHANNEL HORIZONTAL



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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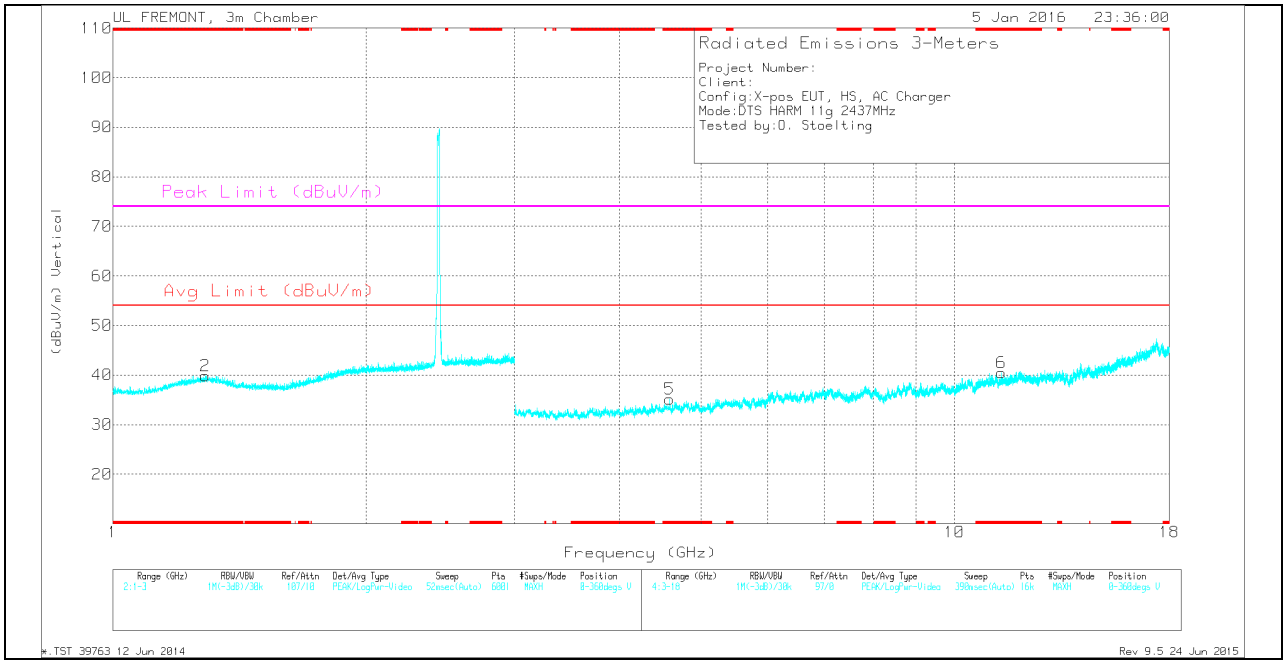
MID CHANNEL VERTICAL



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 T119 (dB/m)	Amp/Cbl/Flt r/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	* 1.334	33.6	Avg	29.5	-23.1	0	40	54	-14	-	-	0-360	200	H
2	* 1.288	33.23	Avg	29.8	-23.2	0	39.83	54	-14.17	-	-	0-360	200	V
3	* 3.836	31.02	Avg	33.1	-30.2	0	33.92	54	-20.08	-	-	0-360	100	H
4	* 11.951	25.34	Avg	39.1	-23.6	0	40.84	54	-13.16	-	-	0-360	100	H
5	* 4.585	30.83	Avg	33.8	-29.5	0	35.13	54	-18.87	-	-	0-360	100	V
6	* 11.38	25.92	Avg	38.2	-23.6	0	40.52	54	-13.48	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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
* 1.334	42.86	PK2	29.5	-23.1	0	49.26	-	-	74	-24.74	152	119	H
* 1.334	30.6	MAv1	29.5	-23.1	.2	37.2	54	-16.8	-	-	152	119	H
* 1.29	42.59	PK2	29.8	-23.2	0	49.19	-	-	74	-24.81	219	286	V
* 1.288	30.46	MAv1	29.8	-23.2	.2	37.26	54	-16.74	-	-	219	286	V
* 3.837	40.33	PK2	33.1	-30.2	0	43.23	-	-	74	-30.77	181	338	H
* 3.837	27.75	MAv1	33.1	-30.2	.2	30.85	54	-23.15	-	-	181	338	H
* 11.949	35.91	PK2	39.1	-23.6	0	51.41	-	-	74	-22.59	55	119	H
* 11.952	23.35	MAv1	39.1	-23.6	.2	39.05	54	-14.95	-	-	55	119	H
* 4.587	39.48	PK2	33.8	-29.5	0	43.78	-	-	74	-30.22	266	357	V
* 4.587	27.08	MAv1	33.8	-29.5	.2	31.58	54	-22.42	-	-	266	357	V
* 11.381	34.07	PK2	38.2	-23.6	0	48.67	-	-	74	-25.33	193	138	V
* 11.382	22.32	MAv1	38.2	-23.6	.2	37.12	54	-16.88	-	-	193	138	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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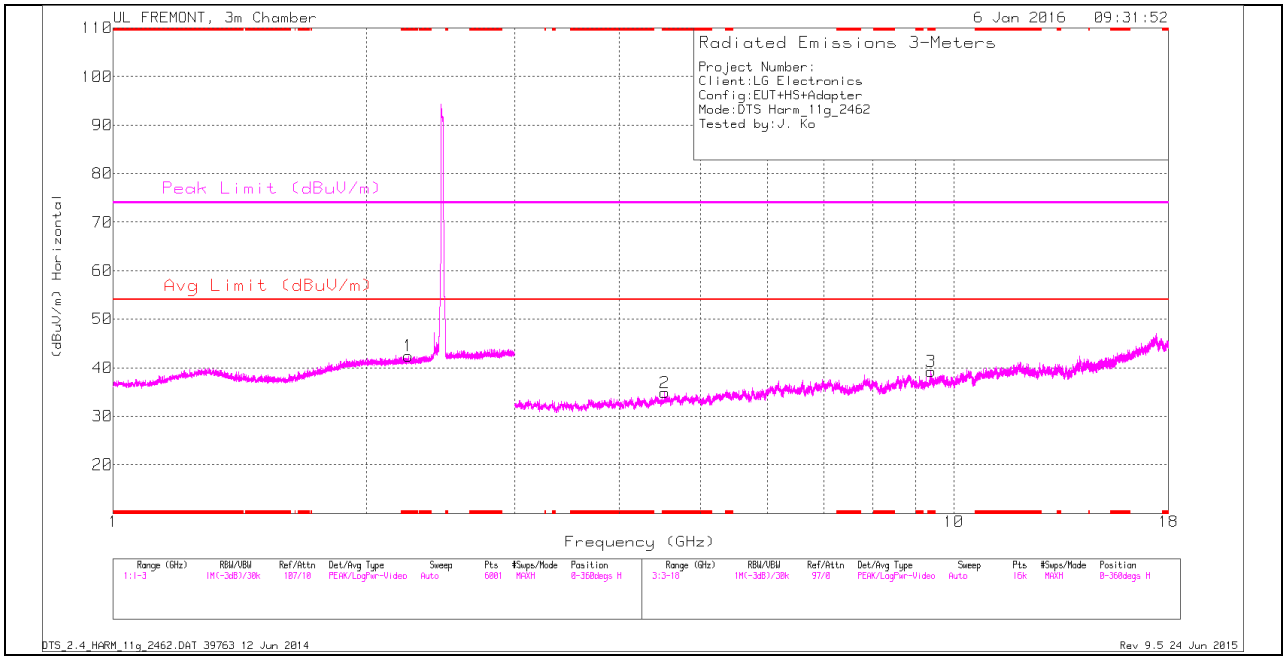
HIGH CHANNEL HORIZONTAL



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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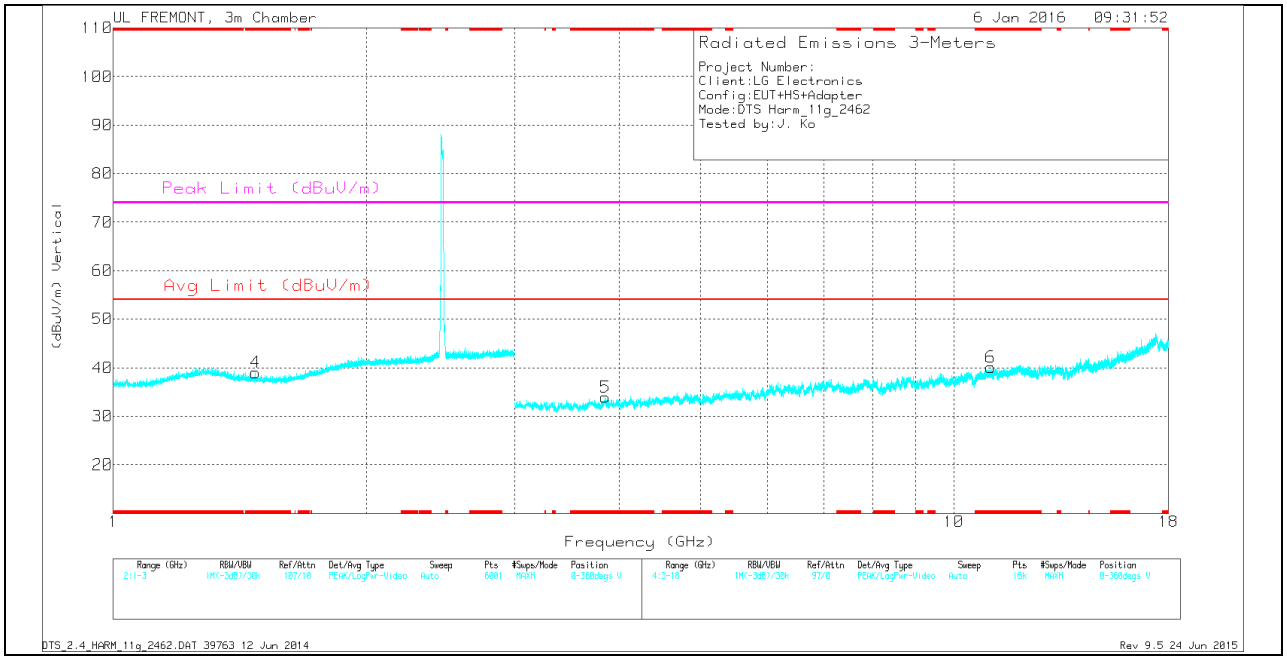
HIGH CHANNEL VERTICAL



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 T119 (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	1.476	33.71	Avg	28.2	-22.9	0	39.01	54	-14.99	-	-	0-360	100	V
1	2.245	33.13	Avg	31.5	-22.2	0	42.43	54	-11.57	-	-	0-360	100	H
5	3.847	30.92	Avg	33.1	-30.1	0	33.92	54	-20.08	-	-	0-360	100	V
2	4.528	31.18	Avg	33.8	-30.1	0	34.88	54	-19.12	-	-	0-360	100	H
3	9.389	26.85	Avg	36.4	-24	0	39.25	54	-14.75	-	-	0-360	100	H
6	11.062	25.49	Avg	37.8	-23.2	0	40.09	54	-13.91	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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
* 2.243	42.58	PK2	31.5	-22.2	0	51.88	-	-	74	-22.12	0	151	H
* 2.244	30.56	MAv1	31.5	-22.2	.2	40.06	54	-13.94	-	-	0	151	H
* 1.477	42.66	PK2	28.2	-22.9	0	47.96	-	-	74	-26.04	0	131	V
* 1.475	30.81	MAv1	28.2	-22.9	.2	36.31	54	-17.69	-	-	0	131	V
* 4.526	40.84	PK2	33.8	-30.1	0	44.54	-	-	74	-29.46	0	165	H
* 4.528	28.49	MAv1	33.8	-30.1	.2	32.39	54	-21.61	-	-	0	165	H
* 9.387	34.81	PK2	36.4	-24.1	0	47.11	-	-	74	-26.89	0	111	H
* 9.387	23.22	MAv1	36.4	-24	.2	35.82	54	-18.18	-	-	0	111	H
* 3.847	40.46	PK2	33.1	-30.1	0	43.46	-	-	74	-30.54	256	100	V
* 3.846	28.61	MAv1	33.1	-30.1	.2	31.81	54	-22.19	-	-	256	100	V
* 11.06	33.98	PK2	37.8	-23.2	0	48.58	-	-	74	-25.42	154	175	V
* 11.06	21.96	MAv1	37.8	-23.2	.2	36.76	54	-17.24	-	-	154	175	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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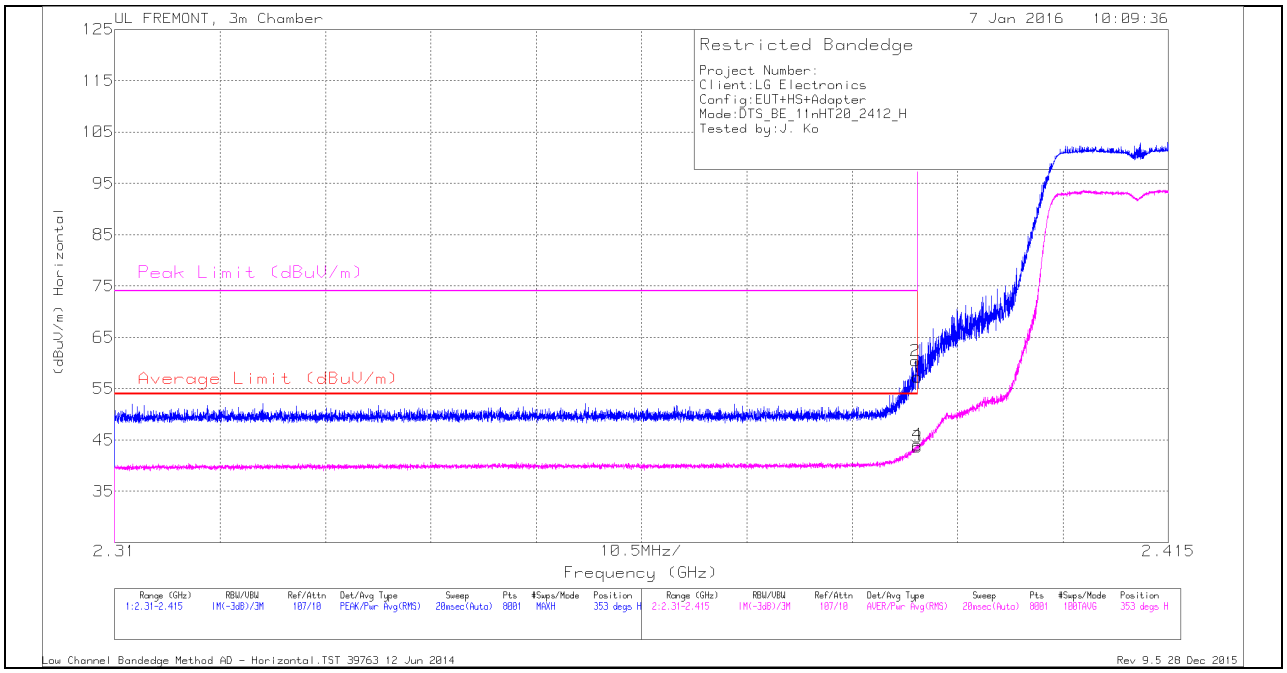
10.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/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	47.42	Pk	32	-22.2	0	57.22	-	-	74	-16.78	353	100	H
2	2.39	50.61	Pk	32	-22.2	0	60.41	-	-	74	-13.59	353	100	H
3	2.39	33.63	RMS	32	-22.2	.22	43.65	54	-10.35	-	-	353	100	H
4	2.39	34.05	RMS	32	-22.2	.22	44.07	54	-9.93	-	-	353	100	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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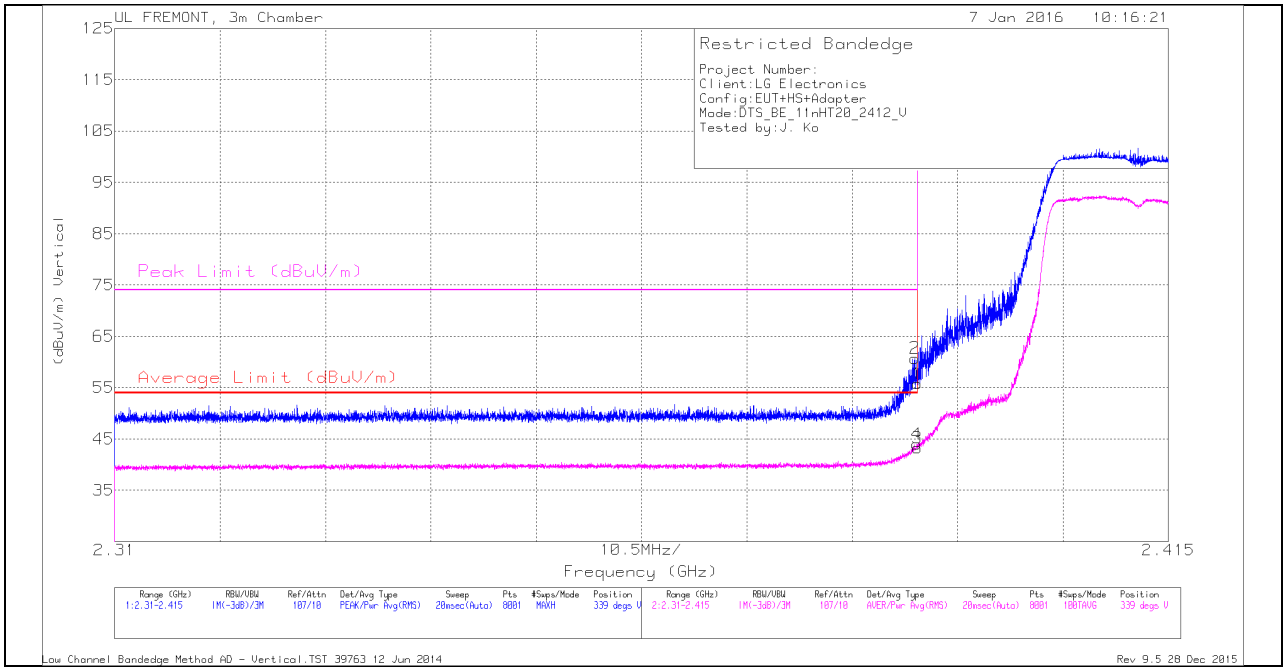
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	46	Pk	32	-22.2	0	55.8	-	-	74	-18.2	339	390	V
2	2.39	50.92	Pk	32	-22.2	0	60.72	-	-	74	-13.28	339	390	V
3	2.39	33.25	RMS	32	-22.2	.22	43.27	54	-10.73	-	-	339	390	V
4	2.39	33.98	RMS	32	-22.2	.22	44	54	-10	-	-	339	390	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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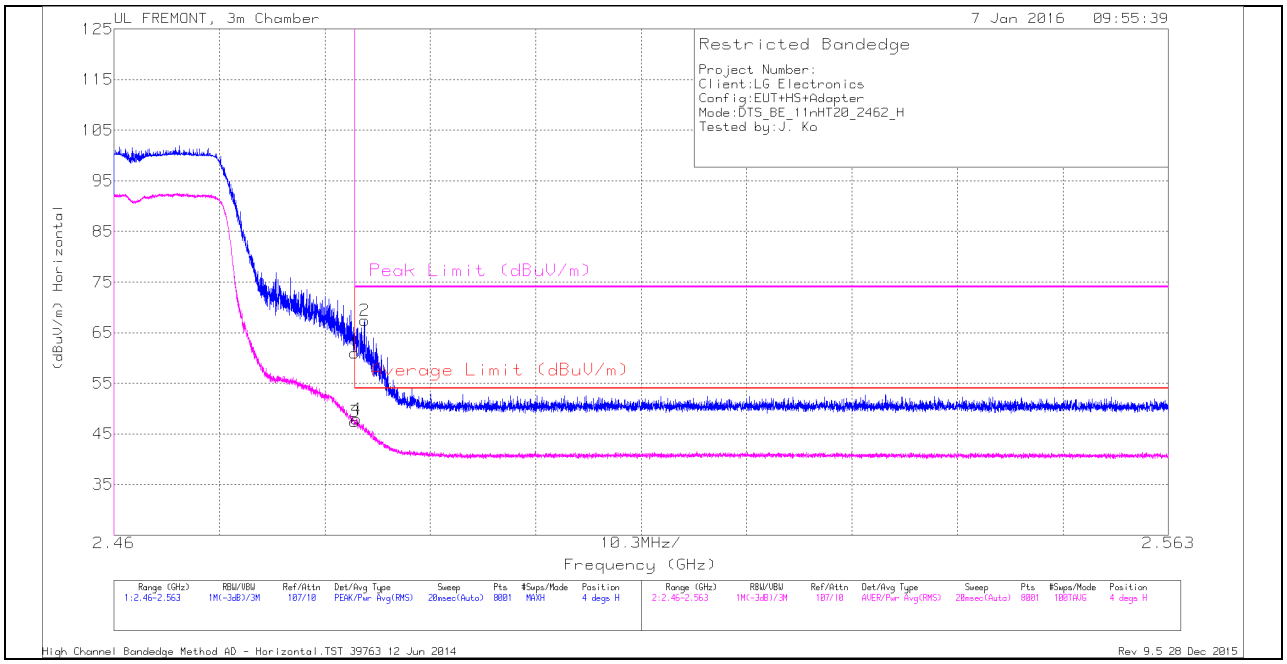
AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	50.66	Pk	32.3	-22	0	60.96	-	-	74	-13.04	4	152	H
2	2.484	57.08	Pk	32.3	-22	0	67.38	-	-	74	-6.62	4	152	H
3	2.484	36.92	RMS	32.3	-22	.22	47.44	54	-6.56	-	-	4	152	H
4	2.484	37.41	RMS	32.3	-22	.22	47.93	54	-6.07	-	-	4	152	H

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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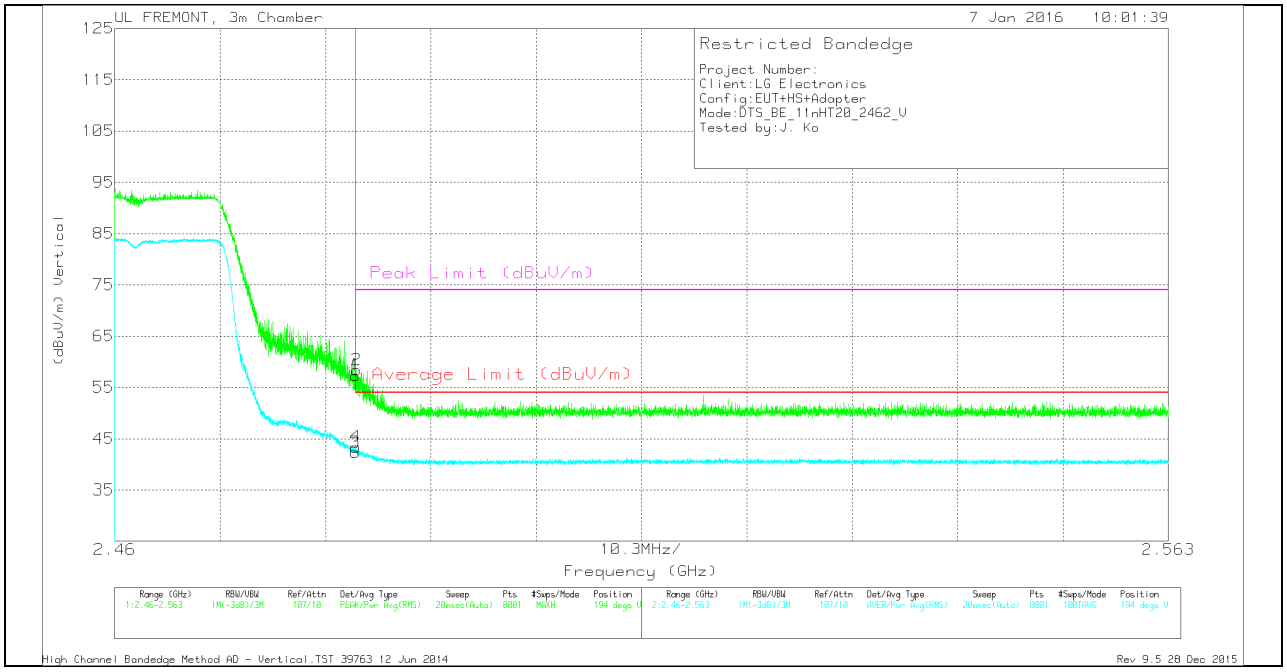
VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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	47.07	Pk	32.3	-22	0	57.37	-	-	74	-16.63	194	360	V
2	2.484	48.12	Pk	32.3	-22	0	58.42	-	-	74	-15.58	194	360	V
3	2.484	31.81	RMS	32.3	-22	.22	42.33	54	-11.67	-	-	194	360	V
4	2.484	32.88	RMS	32.3	-22	.22	43.4	54	-10.6	-	-	194	360	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RMS - RMS detection

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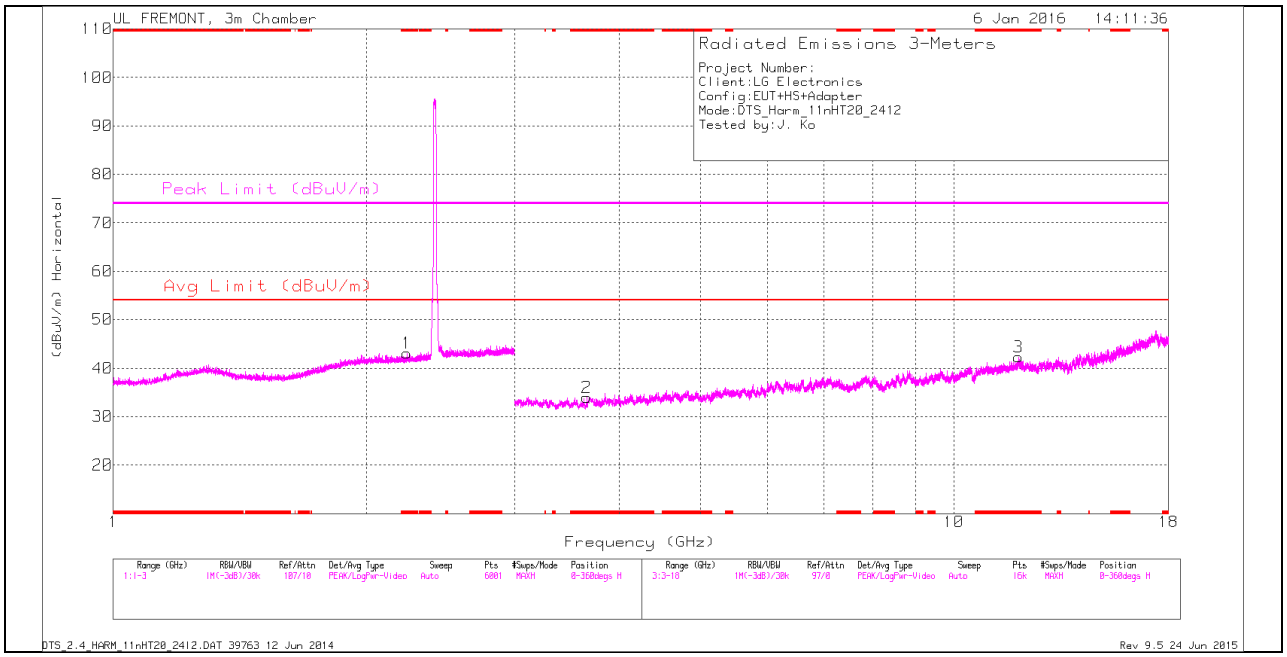
HARMONICS AND SPURIOUS EMISSIONS

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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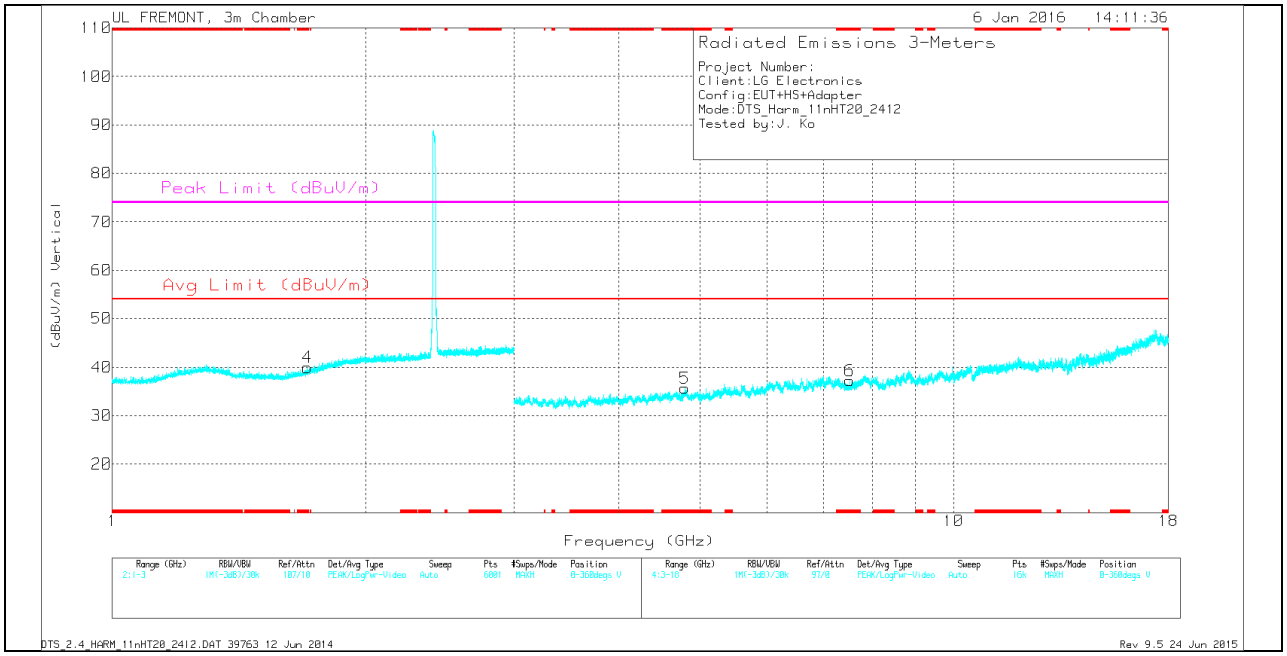
LOW CHANNEL VERTICAL



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 T119 (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	* 2.234	33.78	Avg	31.5	-22.2	0	43.08	54	-10.92	-	-	0-360	200	H
4	* 1.705	33.54	Avg	29.1	-22.7	0	39.94	54	-14.06	-	-	0-360	200	V
2	* 3.659	31.17	Avg	32.9	-30.1	0	33.97	54	-20.03	-	-	0-360	100	H
3	* 11.932	26.88	Avg	39.1	-23.7	0	42.28	54	-11.72	-	-	0-360	200	H
5	* 4.79	30.86	Avg	34	-29.2	0	35.66	54	-18.34	-	-	0-360	200	V
6	* 7.524	28.95	Avg	35.7	-27.4	0	37.25	54	-16.75	-	-	0-360	100	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (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
* 2.235	42.69	PK2	31.5	-22.2	0	51.99	-	-	74	-22.01	58	212	H
* 2.233	30.92	MAv1	31.5	-22.2	.22	40.44	54	-13.56	-	-	58	212	H
* 1.704	42.91	PK2	29	-22.7	0	49.21	-	-	74	-24.79	111	254	V
* 1.706	30.89	MAv1	29.1	-22.7	.22	37.51	54	-16.49	-	-	111	254	V
* 3.658	39.77	PK2	32.9	-30.2	0	42.47	-	-	74	-31.53	254	166	H
* 3.659	28.54	MAv1	32.9	-30.1	.22	31.56	54	-22.44	-	-	254	166	H
* 11.931	36.13	PK2	39.1	-23.7	0	51.53	-	-	74	-22.47	144	189	H
* 11.934	23.94	MAv1	39.1	-23.7	.22	39.56	54	-14.44	-	-	144	189	H
* 4.789	39.73	PK2	34	-29.2	0	44.53	-	-	74	-29.47	288	265	V
* 4.791	28.04	MAv1	34	-29.2	.22	33.06	54	-20.94	-	-	288	265	V
* 7.523	38.43	PK2	35.7	-27.4	0	46.73	-	-	74	-27.27	110	196	V
* 7.522	26.81	MAv1	35.7	-27.4	.22	35.33	54	-18.67	-	-	110	196	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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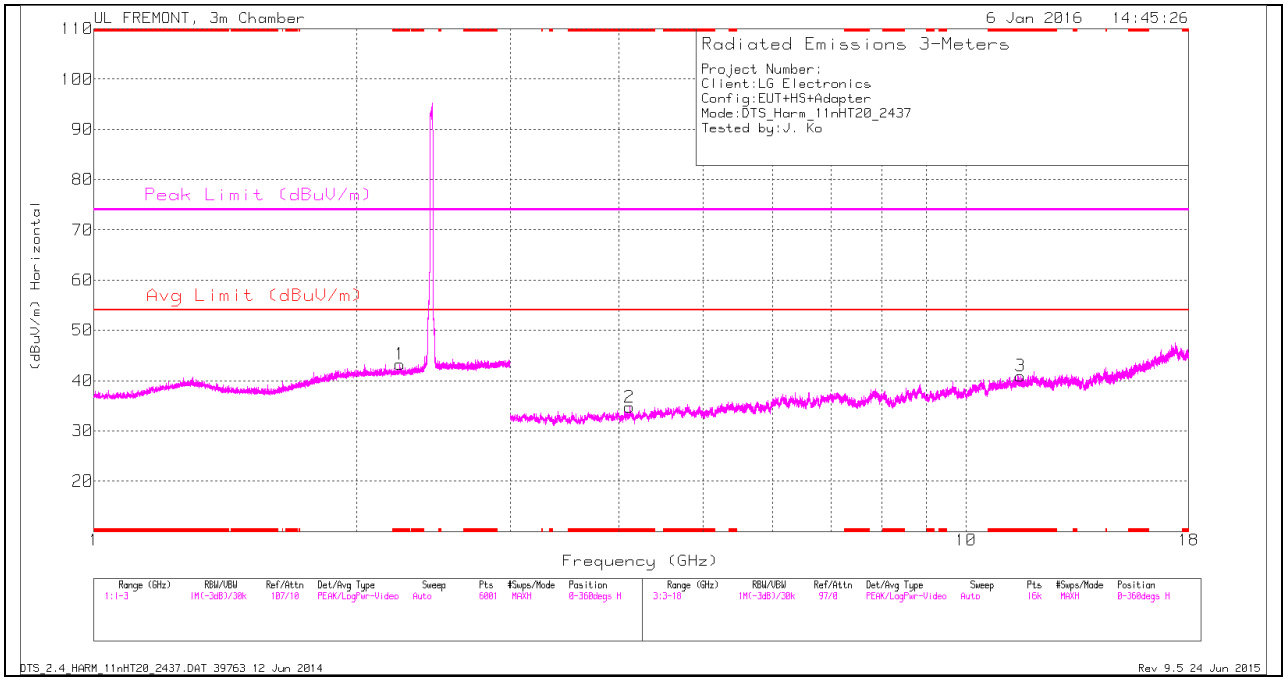
MID CHANNEL HORIZONTAL



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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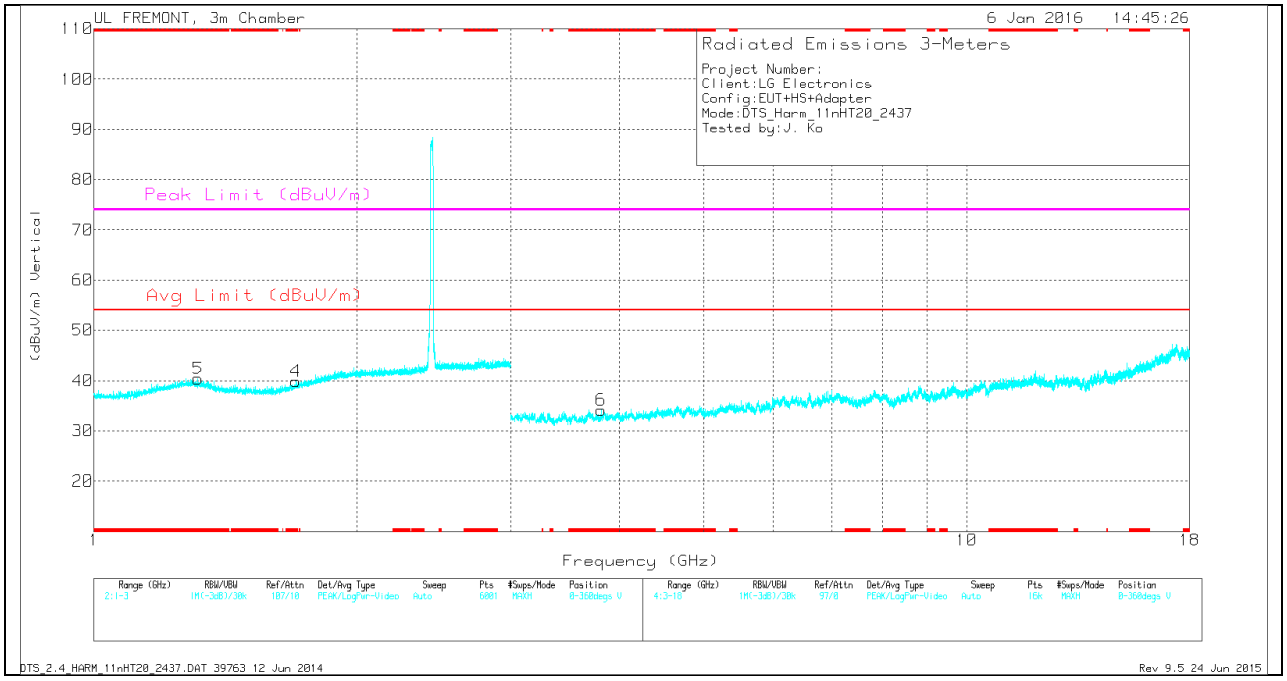
MID CHANNEL VERTICAL



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 T119 (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	* 2.242	33.94	Avg	31.5	-22.2	0	43.24	54	-10.76	-	-	0-360	100	H
4	* 1.704	33.57	Avg	29	-22.7	0	39.87	54	-14.13	-	-	0-360	200	V
5	* 1.315	33.88	Avg	29.7	-23.2	0	40.38	54	-13.62	-	-	0-360	200	V
2	* 4.113	31.34	Avg	33.3	-29.9	0	34.74	54	-19.26	-	-	0-360	200	H
3	* 11.549	26.01	Avg	38.5	-23.6	0	40.91	54	-13.09	-	-	0-360	100	H
6	* 3.81	31.22	Avg	33.1	-30.2	0	34.12	54	-19.88	-	-	0-360	200	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/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
* 2.243	42.71	PK2	31.5	-22.2	0	52.01	-	-	74	-21.99	61	115	H
* 2.241	30.87	MAv1	31.5	-22.2	.22	40.39	54	-13.61	-	-	61	115	H
* 1.705	42.77	PK2	29.1	-22.7	0	49.17	-	-	74	-24.83	264	198	V
* 1.705	30.93	MAv1	29.1	-22.7	.22	37.55	54	-16.45	-	-	264	198	V
* 1.315	42.85	PK2	29.7	-23.2	0	49.35	-	-	74	-24.65	165	212	V
* 1.317	31.12	MAv1	29.7	-23.2	.22	37.84	54	-16.16	-	-	165	212	V
* 4.112	40.21	PK2	33.3	-29.9	0	43.61	-	-	74	-30.39	310	261	H
* 4.113	28.33	MAv1	33.3	-29.9	.22	31.95	54	-22.05	-	-	310	261	H
* 11.548	34.97	PK2	38.5	-23.6	0	49.87	-	-	74	-24.13	246	188	H
* 11.55	23.28	MAv1	38.5	-23.6	.22	38.4	54	-15.6	-	-	246	188	H
* 3.811	39.93	PK2	33.1	-30.2	0	42.83	-	-	74	-31.17	325	111	V
* 3.809	28.34	MAv1	33.1	-30.2	.22	31.46	54	-22.54	-	-	325	111	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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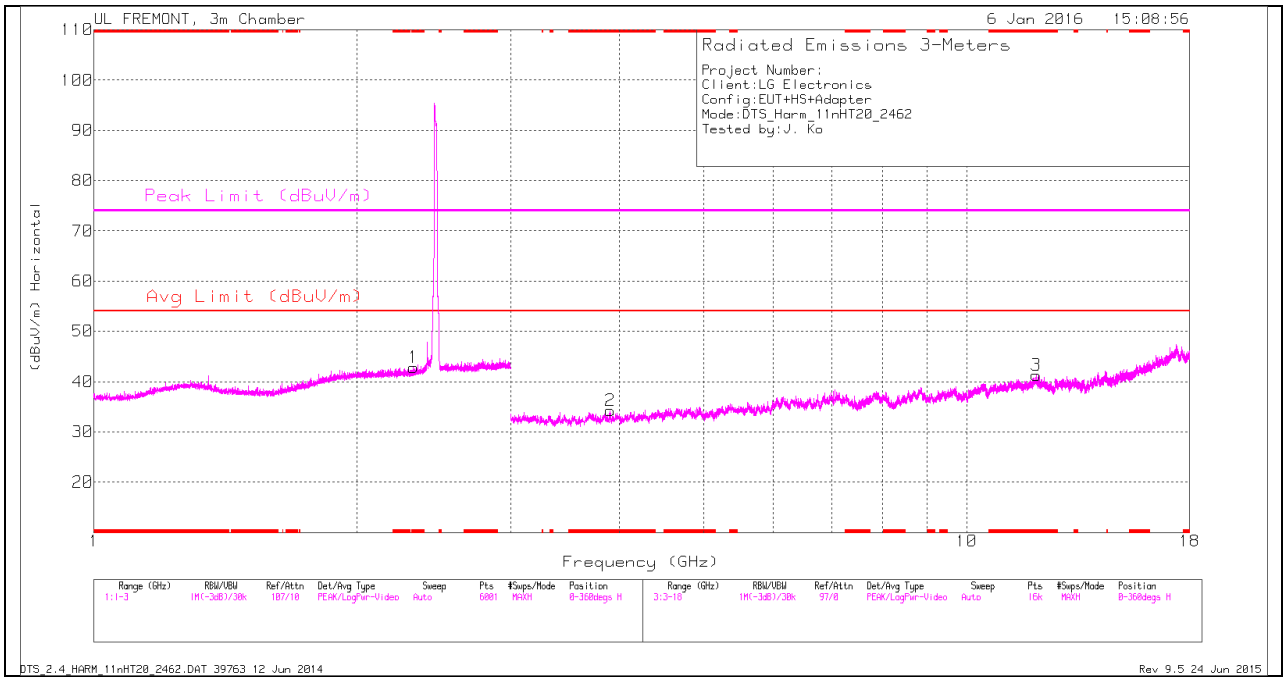
HIGH CHANNEL HORIZONTAL



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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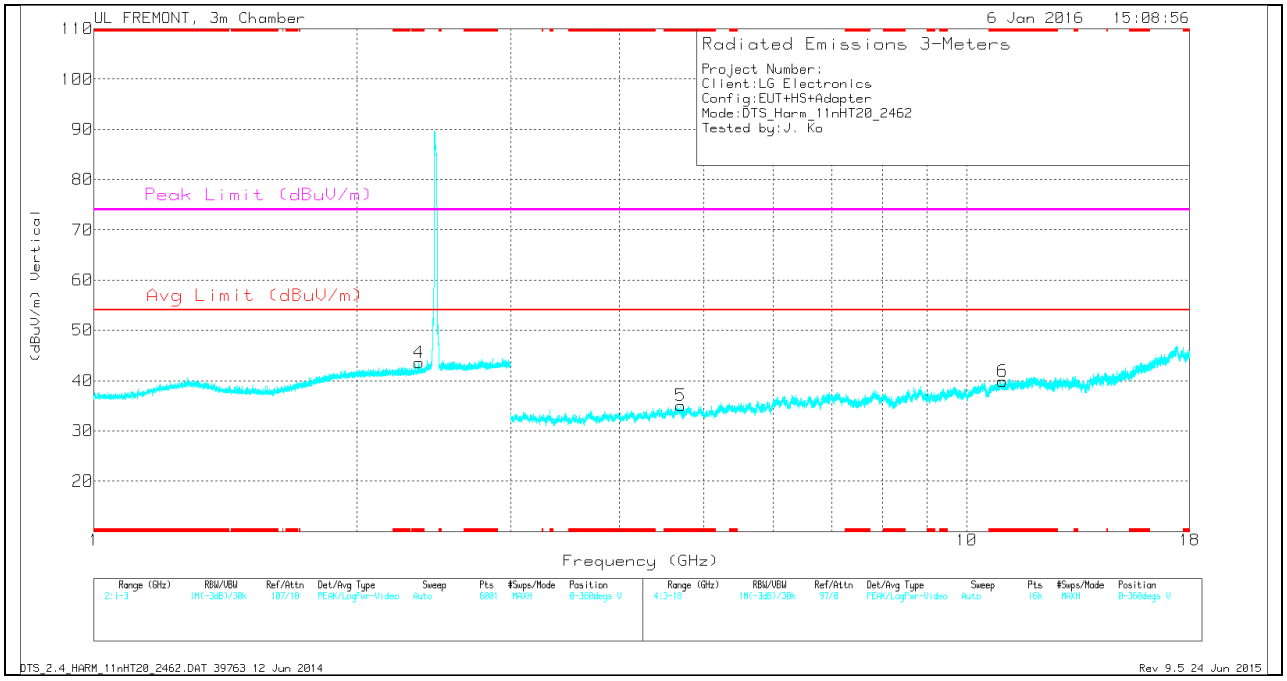
HIGH CHANNEL VERTICAL



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 T119 (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	* 2.322	33.31	Avg	31.7	-22.2	0	42.81	54	-11.19	-	-	0-360	200	H
4	* 2.357	34.01	Avg	31.9	-22.3	0	43.61	54	-10.39	-	-	0-360	200	V
2	* 3.905	31.34	Avg	33.2	-30.3	0	34.24	54	-19.76	-	-	0-360	200	H
3	* 12.017	25.28	Avg	39.1	-23.1	0	41.28	54	-12.72	-	-	0-360	100	H
5	* 4.704	30.68	Avg	34.1	-29.8	0	34.98	54	-19.02	-	-	0-360	200	V
6	* 10.995	25	Avg	37.9	-23	0	39.9	54	-14.1	-	-	0-360	200	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

Pk - Peak detector

RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/F ltr/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
* 2.322	42.86	PK2	31.7	-22.3	0	52.26	-	-	74	-21.74	360	159	H
* 2.323	30.83	MAv1	31.7	-22.3	.22	40.45	54	-13.55	-	-	360	159	H
* 2.357	42.97	PK2	31.8	-22.3	0	52.47	-	-	74	-21.53	227	255	V
* 2.358	30.76	MAv1	31.9	-22.3	.22	40.58	54	-13.42	-	-	227	255	V
* 3.905	41.2	PK2	33.2	-30.3	0	44.1	-	-	74	-29.9	98	179	H
* 3.905	28.94	MAv1	33.2	-30.3	.22	32.06	54	-21.94	-	-	98	179	H
* 12.015	34.69	PK2	39.1	-23.1	0	50.69	-	-	74	-23.31	98	124	H
* 12.019	22.73	MAv1	39.1	-23.1	.22	38.95	54	-15.05	-	-	98	124	H
* 4.705	39.65	PK2	34.1	-29.8	0	43.95	-	-	74	-30.05	128	227	V
* 4.704	28.16	MAv1	34.1	-29.8	.22	32.68	54	-21.32	-	-	128	227	V
* 10.994	34.54	PK2	37.9	-23	0	49.44	-	-	74	-24.56	253	285	V
* 10.994	22.92	MAv1	37.9	-23	.22	38.04	54	-15.96	-	-	253	285	V

* - indicates frequency in CFR15.205/IC 8.10 Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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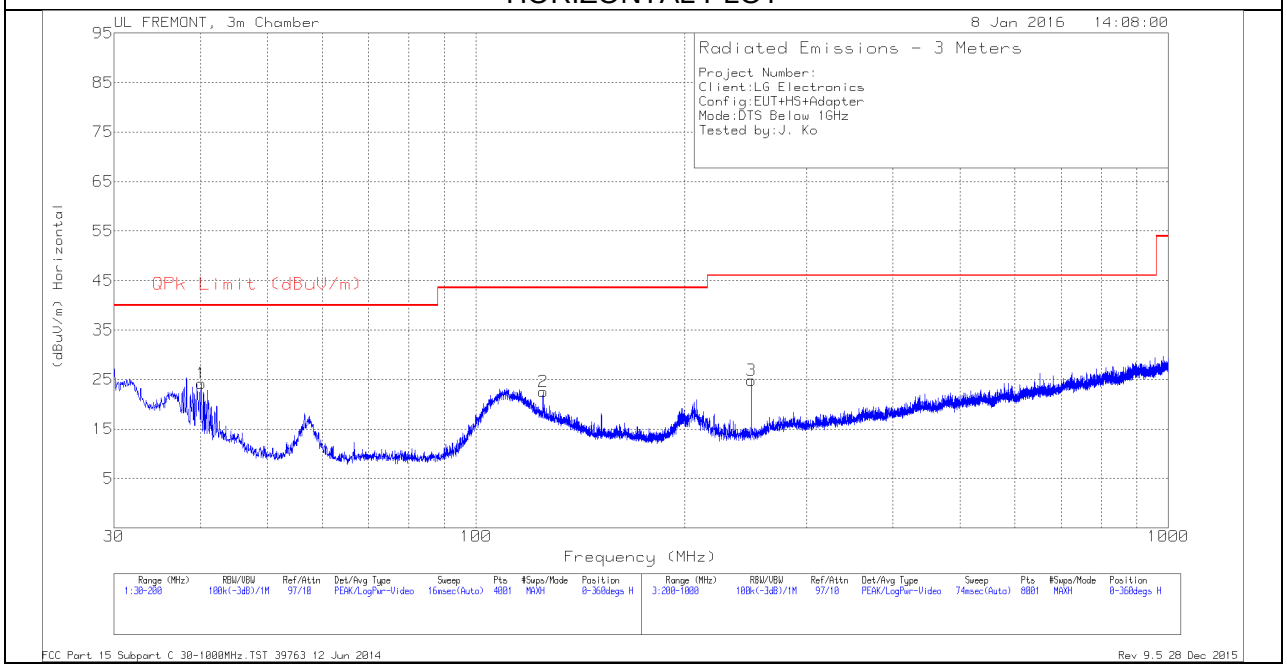
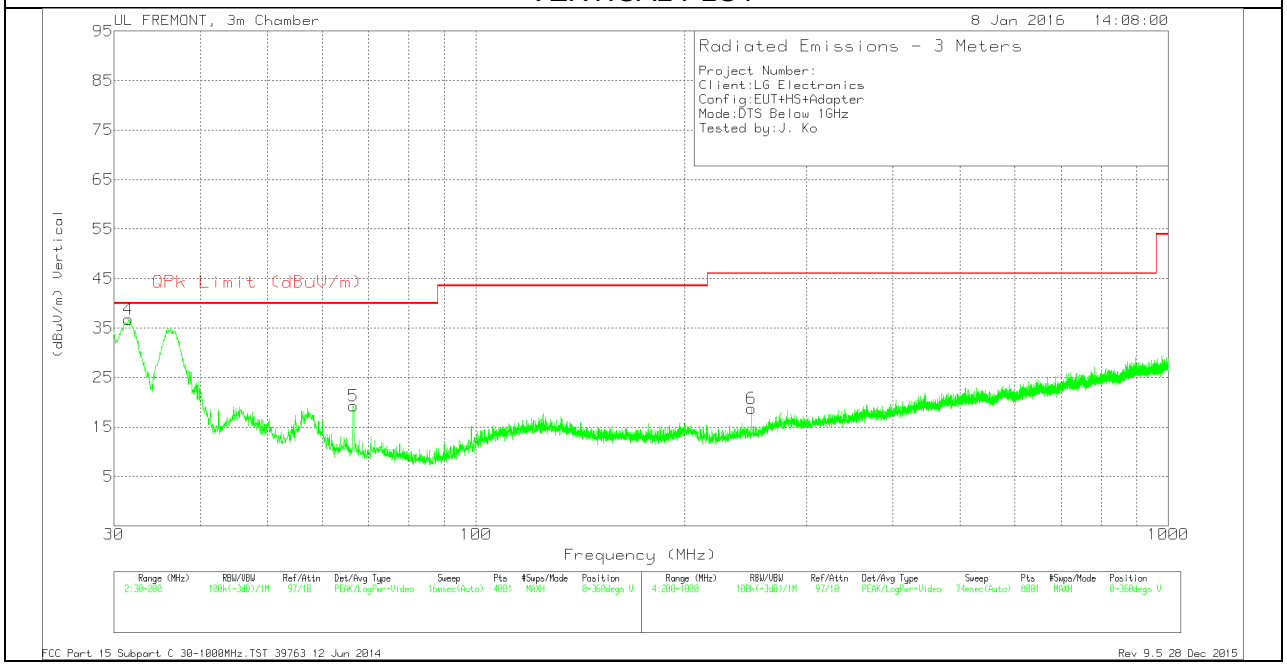
10.2. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



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Below 1G Data

Trace Markers

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	31.5437	32.08	Qp	20.6	-27.2	25.48	40	-44.52	124	239	V
1	40.0725	37.03	Pk	14.2	-27	24.23	40	-15.77	0-360	400	H
5	66.55	37.84	Pk	8.1	-26.7	19.24	40	-20.76	0-360	100	V
2	124.9875	34.55	Pk	14	-26	22.55	43.52	-20.97	0-360	300	H
6	249.9	31.94	Pk	11.5	-24.7	18.74	46.02	-27.28	0-360	100	V
3	250	38	Pk	11.5	-24.7	24.8	46.02	-21.22	0-360	100	H

* - indicates frequency in CFR15.205/IC 8.10 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

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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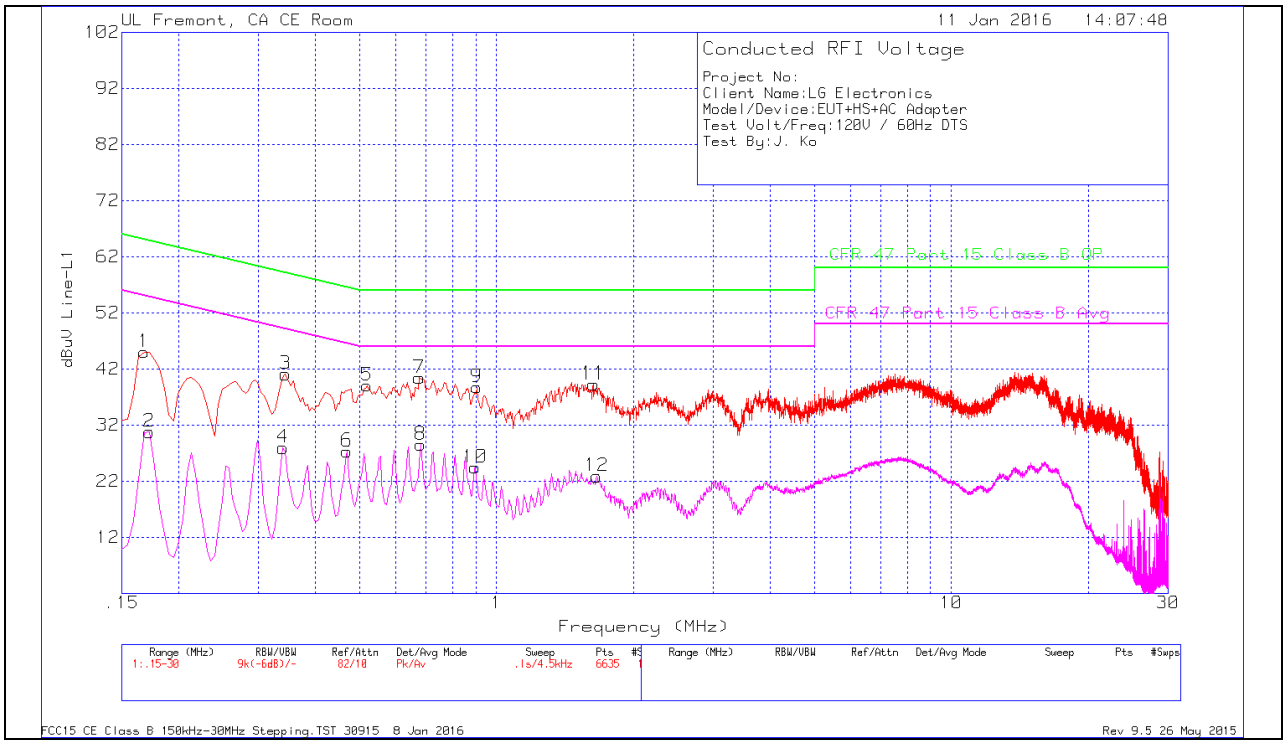
6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T1310 IL L1	LC Cables 1&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
1	.168	45	Pk	0	0	45	65.06	-20.06		
2	.1725	30.81	Av	0	0	30.81	-	-	54.84	-24.03
3	.3435	41.09	Pk	0	0	41.09	59.12	-18.03		
4	.339	27.98	Av	0	0	27.98	-	-	49.23	-21.25
5	.519	39.04	Pk	0	0	39.04	56	-16.96		
6	.4695	27.3	Av	0	0	27.3	-	-	46.52	-19.22
7	.6765	40.42	Pk	0	0	40.42	56	-15.58		
8	.681	28.49	Av	0	0	28.49	-	-	46	-17.51
9	.906	38.77	Pk	0	0	38.77	56	-17.23		
10	.897	24.36	Av	0	.1	24.46	-	-	46	-21.54
11	1.635	39.14	Pk	0	.1	39.24	56	-16.76		
12	1.662	22.8	Av	0	.1	22.9	-	-	46	-23.1

Pk - Peak detector
Av - Average detection

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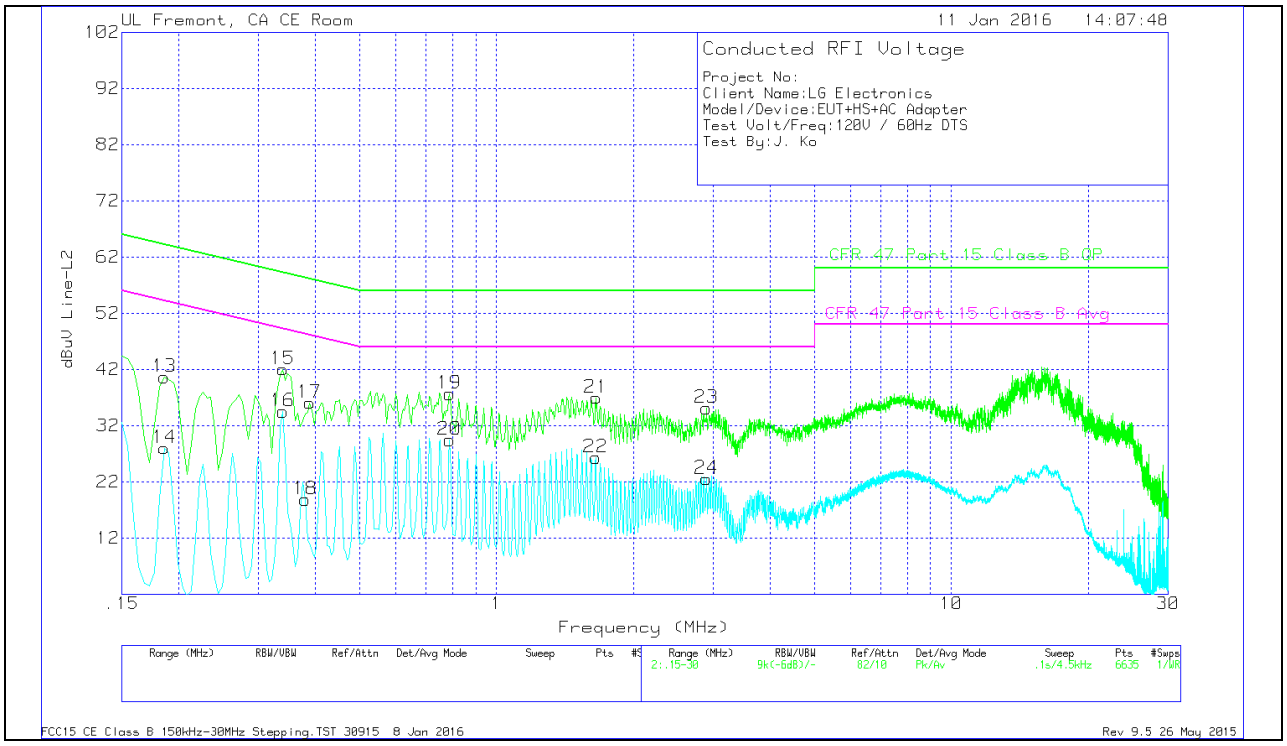
LINE 2 PLOT



LINE 2 RESULTS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T1310 IL L2	LC Cables 2&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
13	.186	40.61	Pk	0	0	40.61	64.21	-23.6		
14	.186	28	Av	0	0	28	-	-	54.21	-26.21
15	.339	42.02	Pk	0	0	42.02	59.23	-17.21		-
16	.339	34.5	Av	0	0	34.5	-	-	49.23	-14.73
17	.3885	36.05	Pk	0	0	36.05	58.1	-22.05		
18	.3795	18.86	Av	0	0	18.86	-	-	48.29	-29.43
19	.789	37.67	Pk	0	0	37.67	56	-18.33		
20	.789	29.47	Av	0	0	29.47	-	-	46	-16.53
21	1.6575	36.85	Pk	0	.1	36.95	56	-19.05		
22	1.653	26.23	Av	0	.1	26.33	-	-	46	-19.67
23	2.895	35.04	Pk	0	.1	35.14	56	-20.86		
24	2.895	22.43	Av	0	.1	22.53	-	-	46	-23.47

Pk - Peak detector

Av - Average detection

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