

FCC CFR47 PART 15 SUBPART C

CERTIFICATION TEST REPORT

FOR

LTE Watch + BLUETOOTH and WLAN 2.4GHz b/g/n & NFC

MODEL NUMBER: LG-W200V, LGW200V, W200V, LG-W200VW, LGW200VW, W200VW

FCC ID: ZNFW200V

REPORT NUMBER: 15I21799-E4V2

ISSUE DATE: SEPTEMBER 30, 2015

Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	9/28/2015	Initial Issue	
V2	9/30/2015	Updated Section 2 & 7	V. Tran

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
EUT DESCRIPTION: LTE Watch + Bluetooth and WLAN 2.4GHz b/g/n & NFC
MODEL: LG-W200V, LGW200V, W200V, LG-W200VW, LGW200VW, W200VW
SERIAL NUMBER: 0a930e7384e9da39 (Conducted); 0a930d208484da47 (Radiated)
DATE TESTED: SEPTEMBER 17 – 24, 2015

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

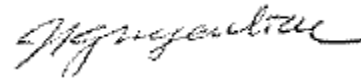
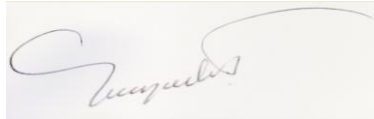
UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement 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.

Approved & Released

For UL Verification Services Inc. By:

Tested By:



VIEN TRAN
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UL VERIFICATION SERVICES INC



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CONSUMER TECHNOLOGY DIVISION
WISE PROJECT LEAD
UL VERIFICATION SERVICES INC

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 558074 D01 v03r03, ANSI C63.10-2013 for FCC.

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:

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

4.1. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a LTE Watch + Bluetooth and WLAN 2.4 GHz b/g/n & NFC.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b	16.9	48.98
2412 - 2462	802.11g	12.9	19.50
2412 - 2462	802.11n HT20	11.7	14.79

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -4.7 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

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

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

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

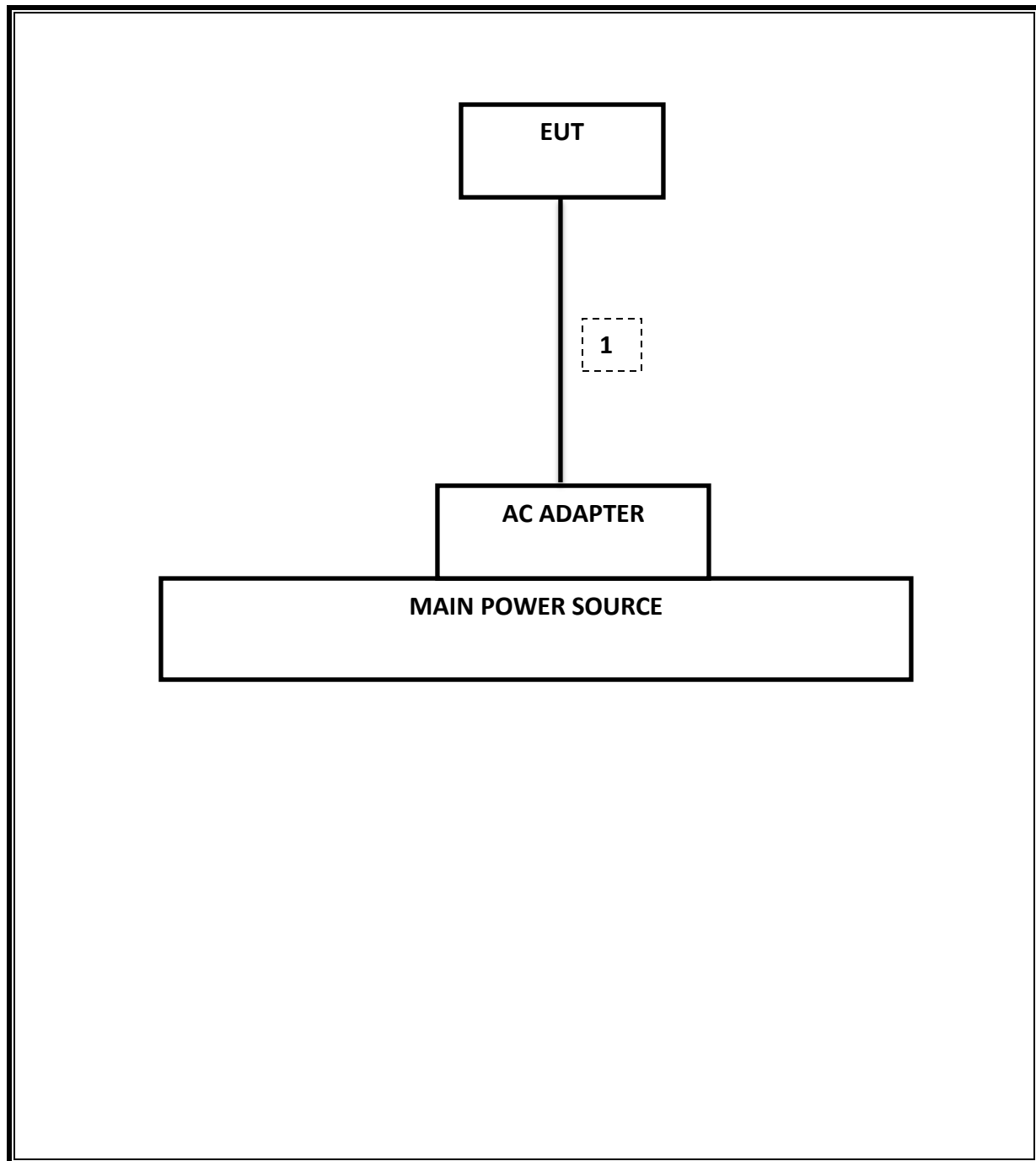
Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-02WR	RA71011271	N/A

I/O CABLES

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

TEST SETUP

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

SETUP DIAGRAM FOR TESTS

6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01171	02/13/16
Antenna, Horn, 18GHz	EMCO	3115	C00783	10/25/15
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	C00980	11/14/15
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
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
LISN, 30 MHz	FCC	50/250-25-2	C00626	01/14/16
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	N02684	CNR
Radiated Software	UL	UL EMC	Ver 9.5, July 22, 2014	
Conducted Software	UL	UL EMC	Ver 9.5, May 17 2012	
CLT Software	UL	UL RF	Ver 1.0, Feb 2 2015	
Antenna Port Software	UL	UL RF	Ver 2.1.1.1, Jan 20 2015	

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r03: Measurement Procedure AVGPM-G is used for power and AVGPS-3 is used for power spectral density.

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

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

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-247 5.2.1	Occupied Band width (6dB)	>500KHz	Conducted	Pass	8.03 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-59.30 dBm
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass	16.90 dBm
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass	-4.63 dBm
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	49.78 dBuV
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	41.14 dBuV/m

9. ANTENNA PORT TEST RESULTS

9.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

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

TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v03r03: The transmitter output is connected to a spectrum analyzer with the RBW set to 100 kHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

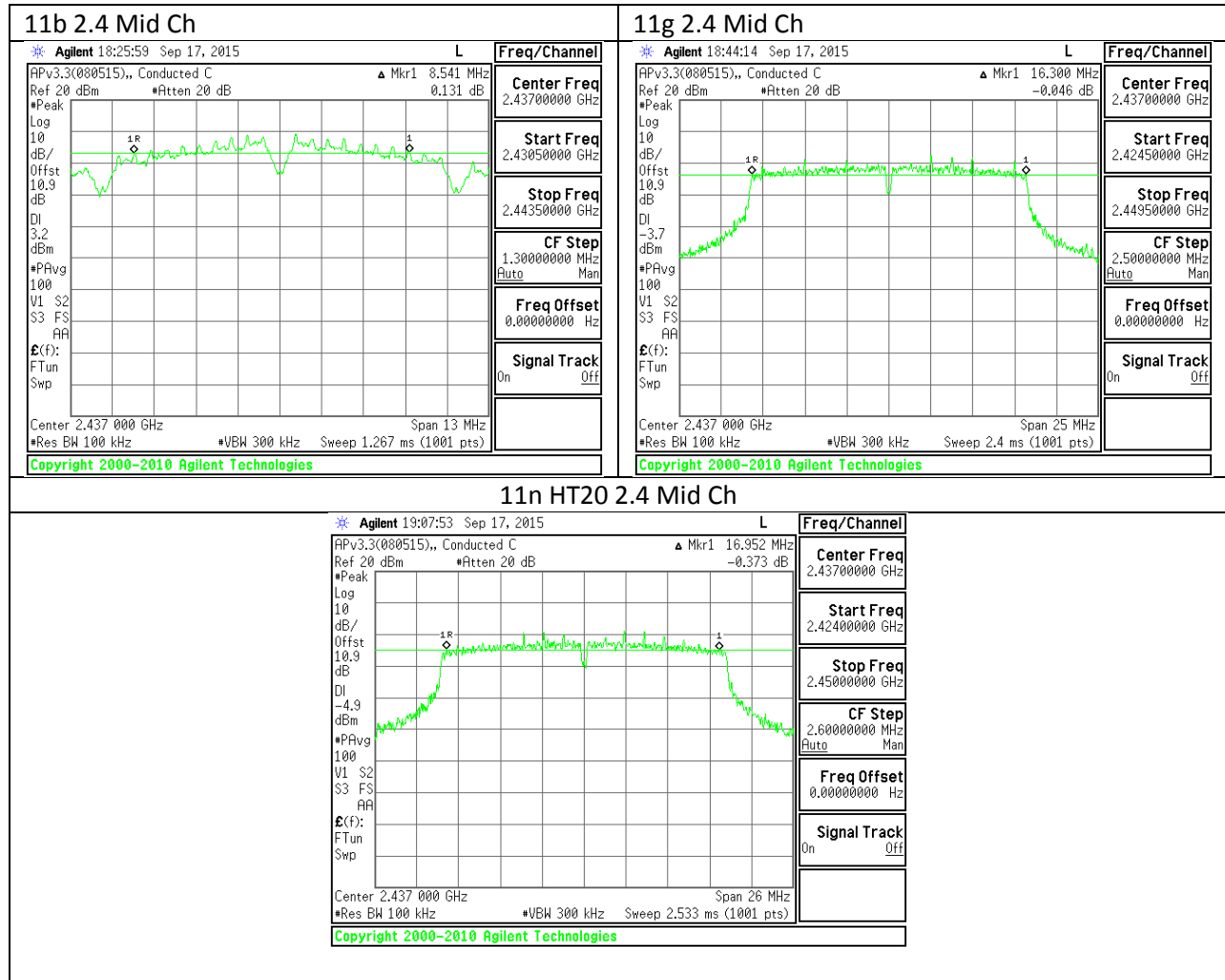
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.03	0.5
Mid	2437	8.54	0.5
High	2462	8.54	0.5
Worst		8.03	

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.11	0.5
Mid	2437	16.30	0.5
High	2462	15.07	0.5
Worst		15.07	

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	15.02	0.5
Mid	2437	16.95	0.5
High	2462	15.11	0.5
Worst		15.02	

9.1.4. 6 dB BANDWIDTH MID CH PLOTS

9.1. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

9.1.1. 802.11b MODE IN THE 2.4 GHz BAND

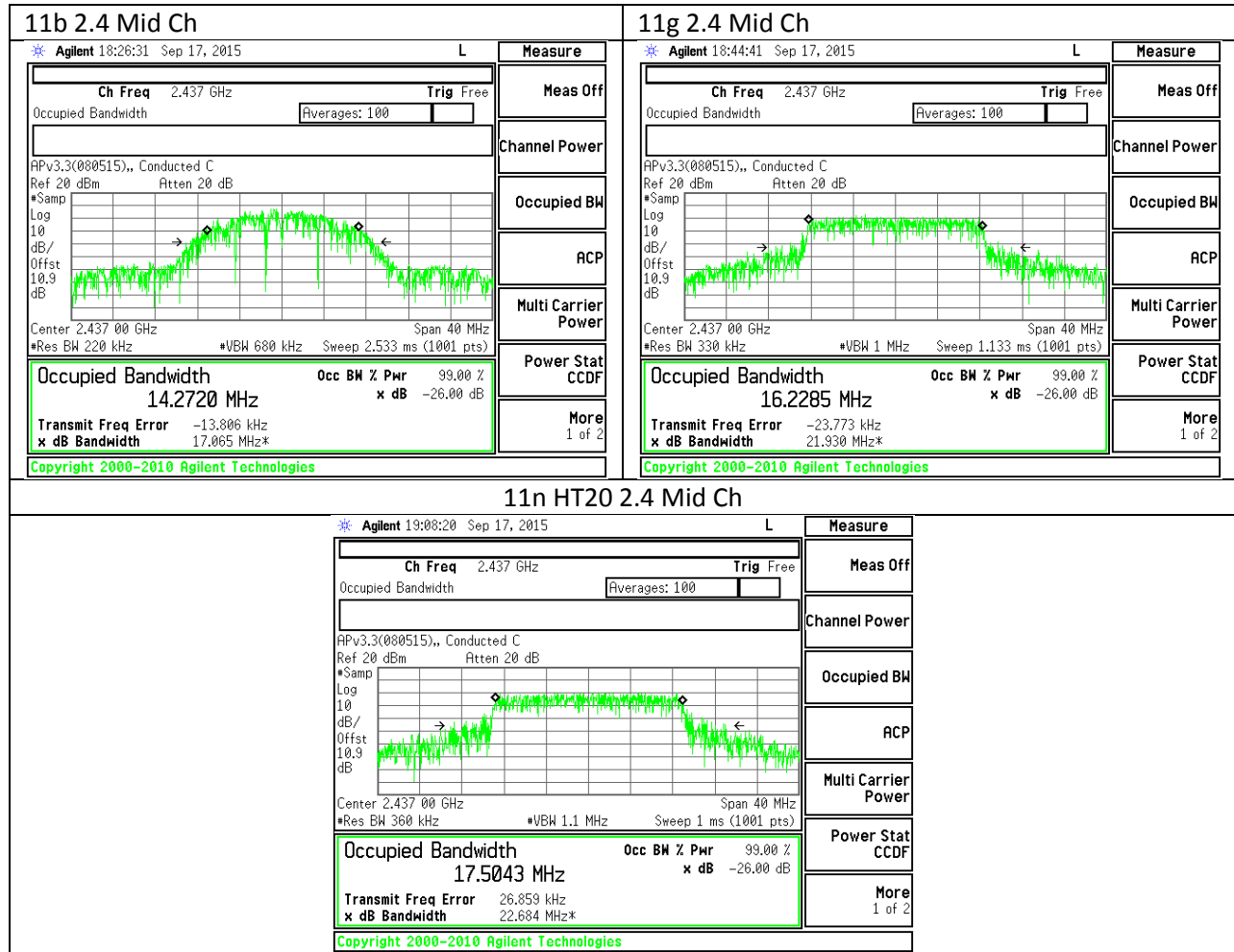
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.17
Mid	2437	14.27
High	2462	14.15
Worst		14.27

9.1.2. 802.11g MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.20
Mid	2437	16.23
High	2462	16.15
Worst	2437	16.23

9.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.24
Mid	2437	17.50
High	2462	17.20
Worst	2437	17.50

9.1.1. 99% BANDWIDTH MID CH PLOTS

9.2. OUTPUT POWER

LIMITS

FCC §15.247

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

DIRECTIONAL ANTENNA GAIN

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

RESULTS

9.2.1. 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	-4.70	30.00	30	36	30.00
Mid	2437	-4.70	30.00	30	36	30.00
High	2462	-4.70	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	16.30	16.30	30.00	-13.70
Mid	2437	16.90	16.90	30.00	-13.10
High	2462	16.10	16.10	30.00	-13.90
Worst			16.90		

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.

9.2.2. 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	-4.70	30.00	30	36	30.00
Mid	2437	-4.70	30.00	30	36	30.00
High	2462	-4.70	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	12.20	12.20	30.00	-17.80
Mid	2437	12.90	12.90	30.00	-17.10
High	2462	12.10	12.10	30.00	-17.90
Worst			12.90		

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.

9.2.3. 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	-4.70	30.00	30	36	30.00
Mid	2437	-4.70	30.00	30	36	30.00
High	2462	-4.70	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	10.60	10.60	30.00	-19.40
Mid	2437	11.70	11.70	30.00	-18.30
High	2462	10.40	10.40	30.00	-19.60
Worst			11.70		

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.

9.3. 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

9.3.1. 802.11b MODE IN THE 2.4 GHz BAND**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-4.96	8.0	-13.0
Mid	2437	-4.63	8.0	-12.6
High	2462	-5.41	8.0	-13.4

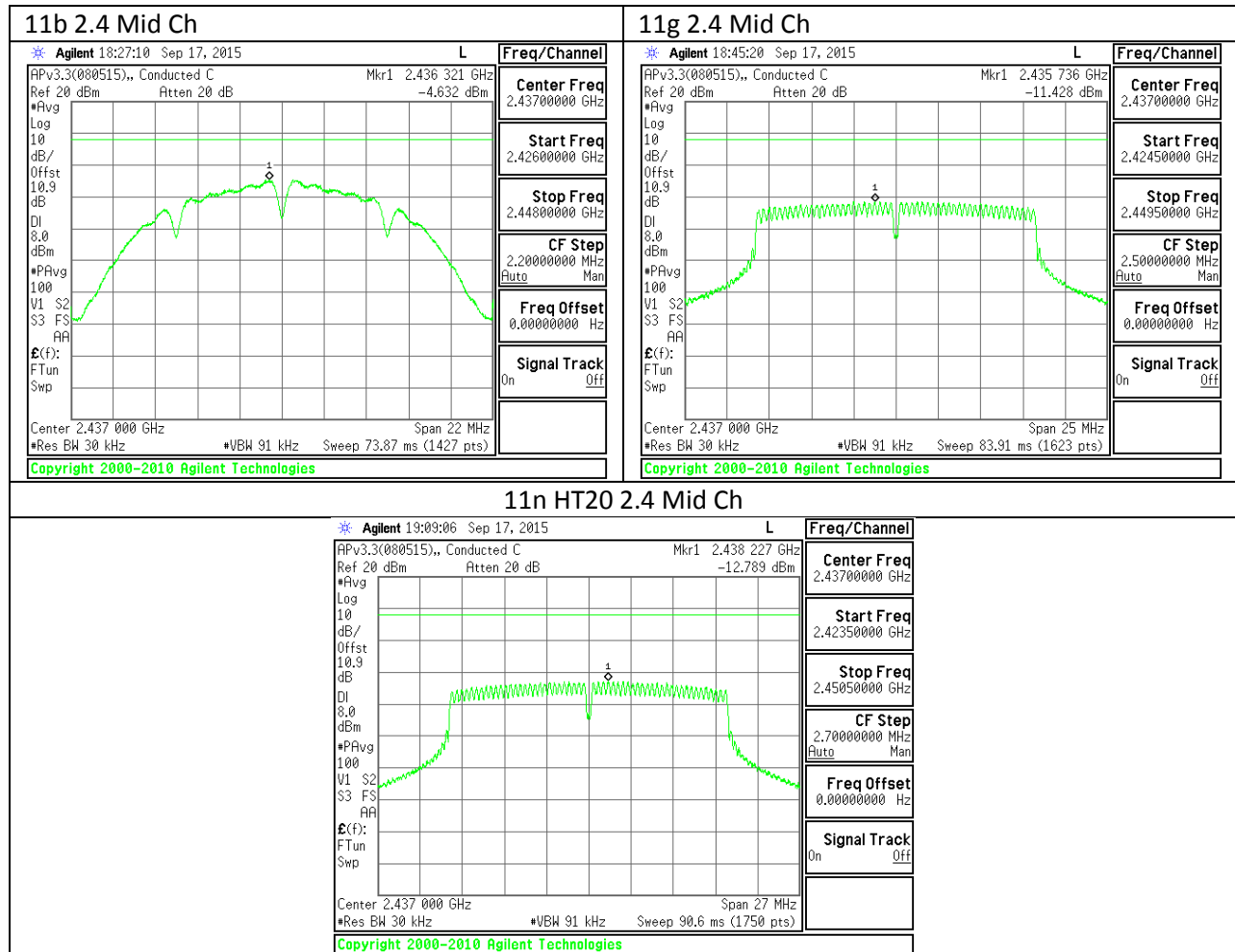
9.3.2. 802.11g MODE IN THE 2.4 GHz BAND**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-11.44	8.0	-19.4
Mid	2437	-11.43	8.0	-19.4
High	2462	-11.71	8.0	-19.7

9.3.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-13.14	8.0	-21.1
Mid	2437	-12.79	8.0	-20.8
High	2462	-13.06	8.0	-21.1

9.3.4. PSD Chain 0 MID CH PLOTS



9.4. OUT-OF-BAND EMISSIONS

LIMITS

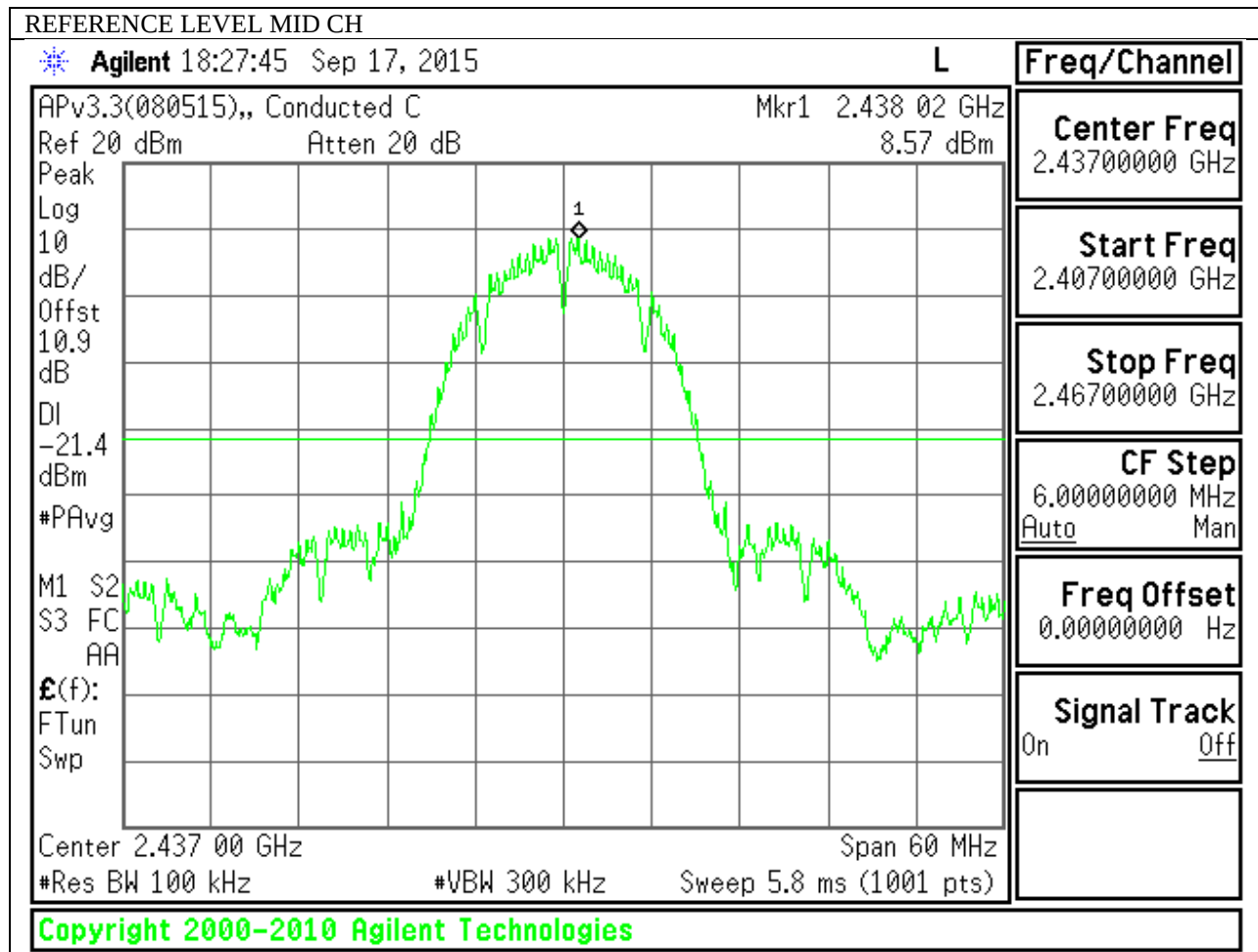
FCC §15.247 (d)

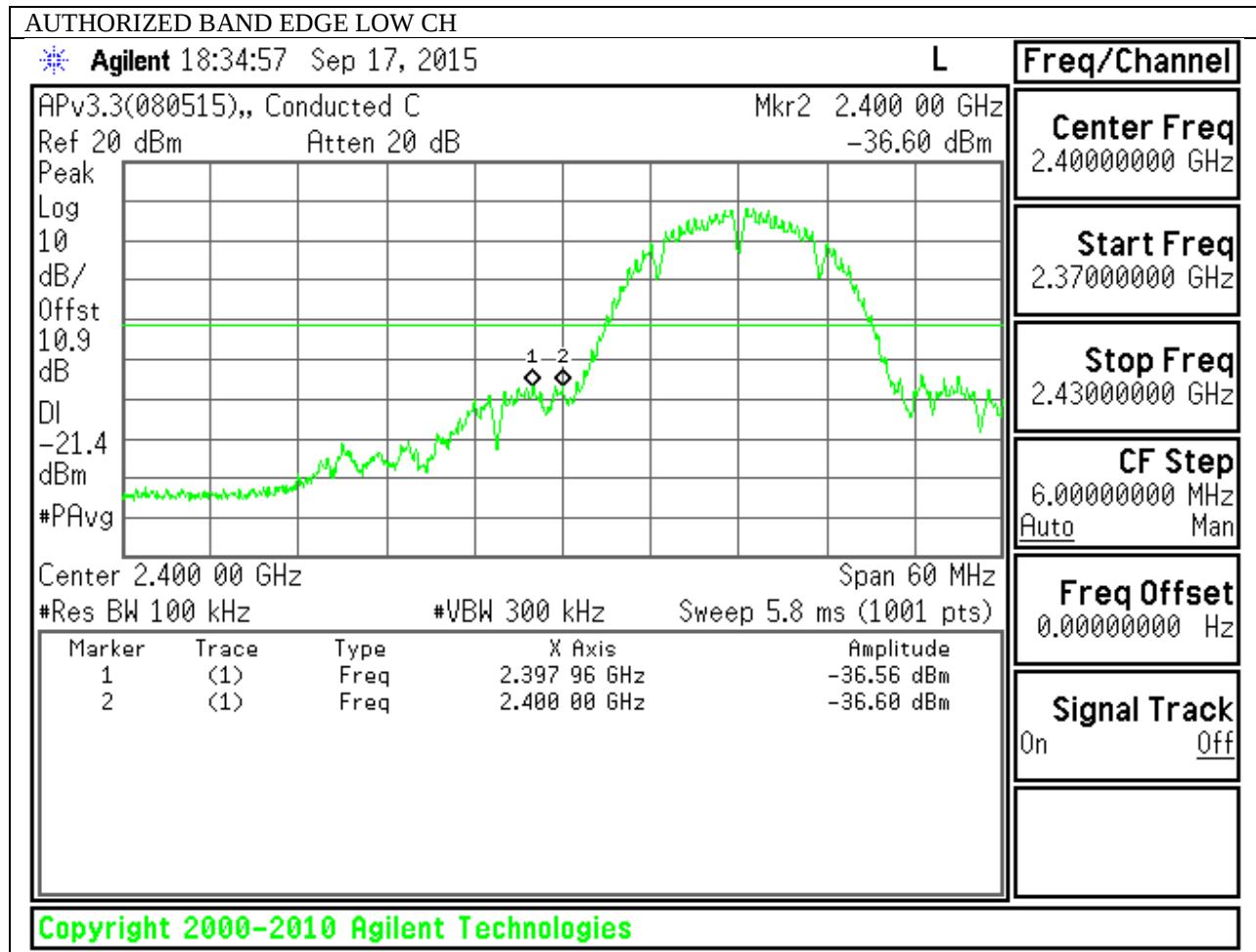
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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.

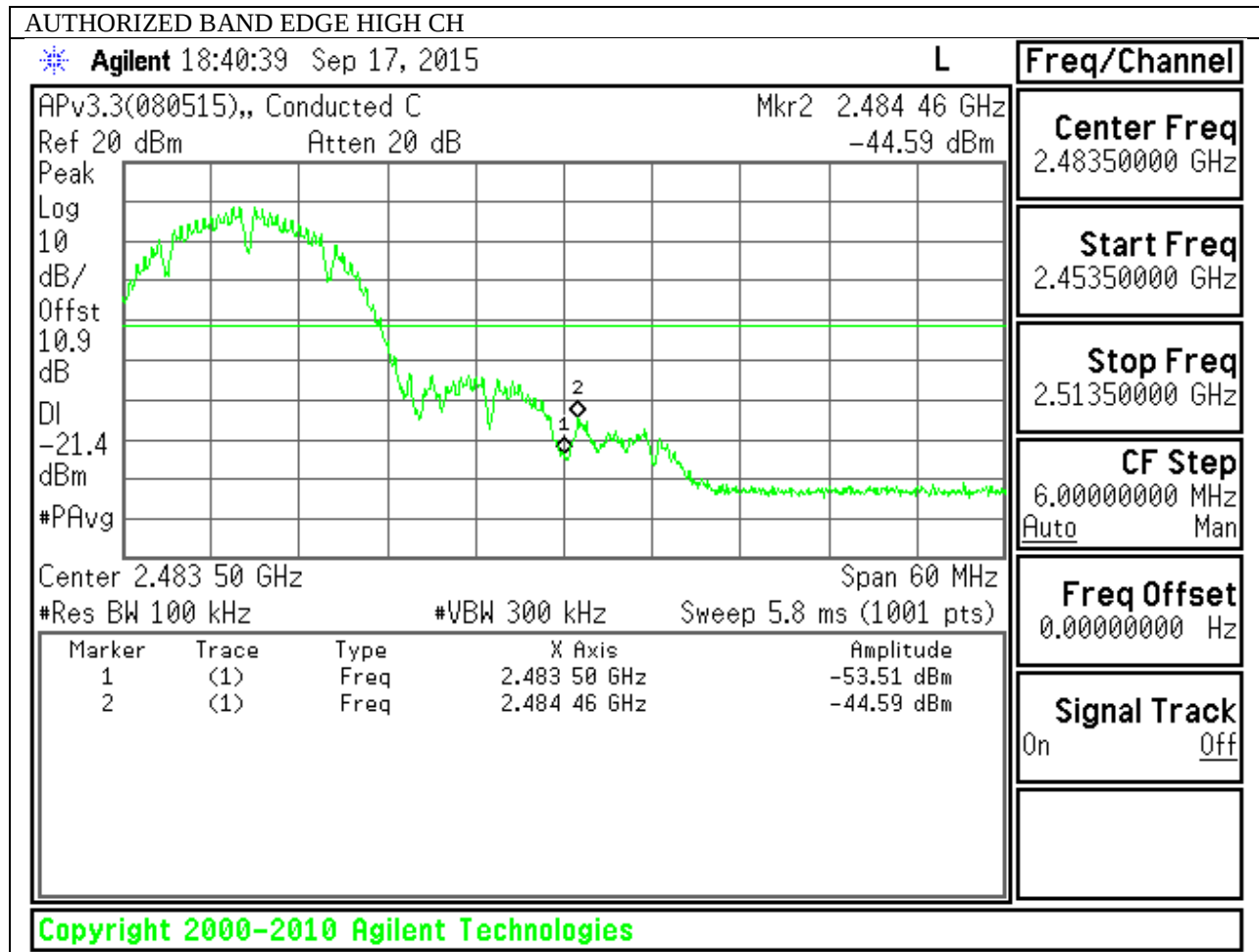
TEST PROCEDURE

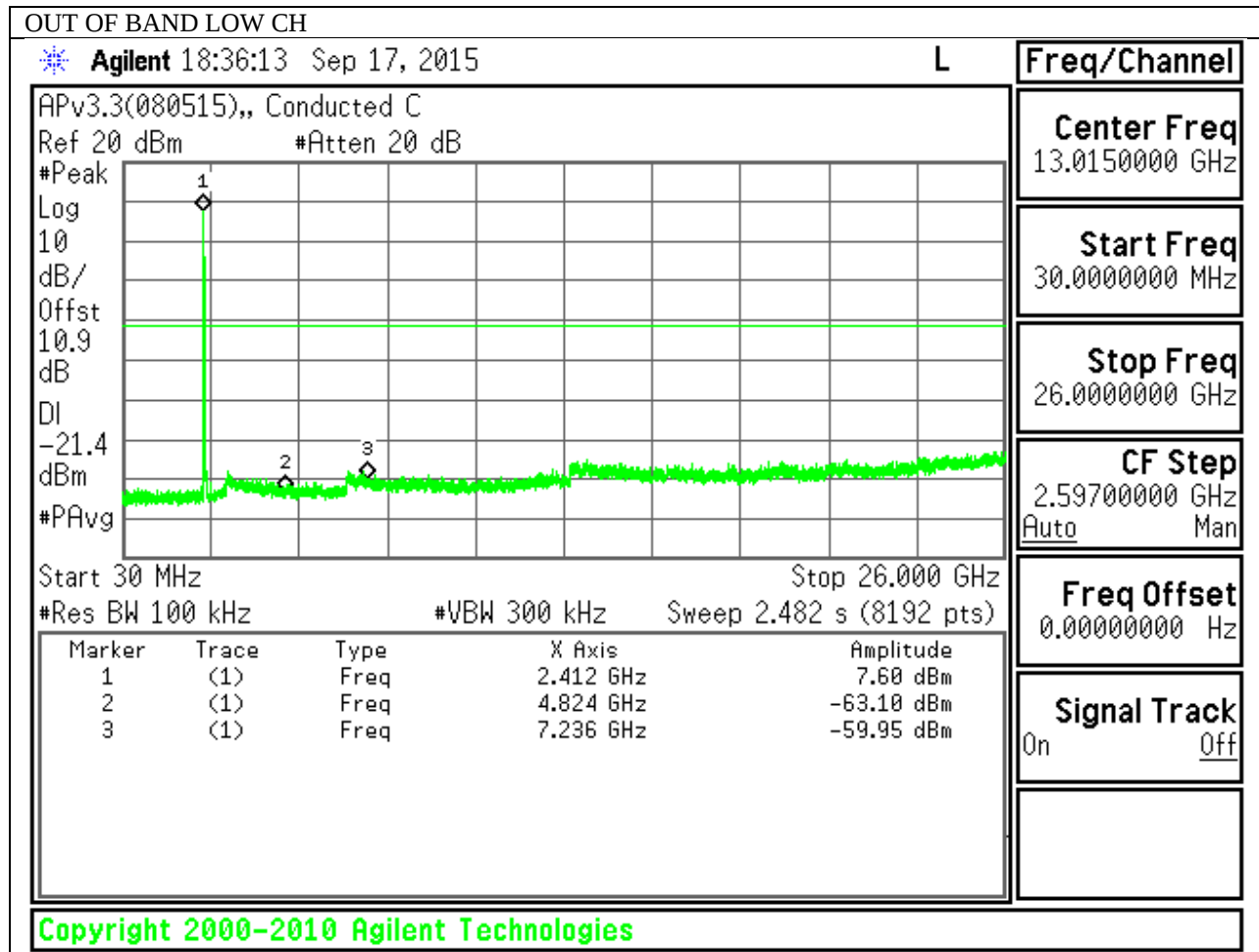
The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

RESULTS

9.4.1. 802.11b MODE IN THE 2.4 GHz BAND**IN-BAND REFERENCE LEVEL**

LOW CHANNEL BANDEDGE

HIGH CHANNEL BANDEDGE

OUT-OF-BAND EMISSIONS

OUT OF BAND MID CH

* Agilent 18:30:26 Sep 17, 2015

L

Freq/Channel

APv3.3(080515),, Conducted C

Ref 20 dBm

#Atten 20 dB

Center Freq

13.0150000 GHz

#Peak

Log

10

dB/

Offst

10.9

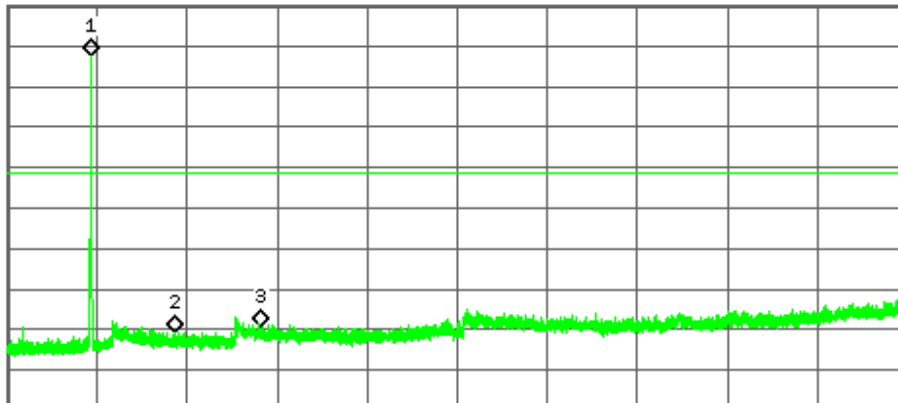
dB

DI

-21.4

dBm

#PAvg



Start Freq

30.0000000 MHz

Stop Freq

26.0000000 GHz

CF Step

2.59700000 GHz

Auto

Man

Freq Offset

0.00000000 Hz

Center 13.015 GHz

Span 25.97 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.437 GHz	7.62 dBm
2	(1)	Freq	4.874 GHz	-60.92 dBm
3	(1)	Freq	7.311 GHz	-59.30 dBm

Signal Track

On

Off

Copyright 2000-2010 Agilent Technologies

OUT OF BAND HIGH CH

Agilent 18:42:21 Sep 17, 2015

L

Freq/Channel

APv3.3(080515),, Conducted C

Ref 20 dBm

#Atten 20 dB

Center Freq

13.0150000 GHz

#Peak

Log

10

dB/

Offst

10.9

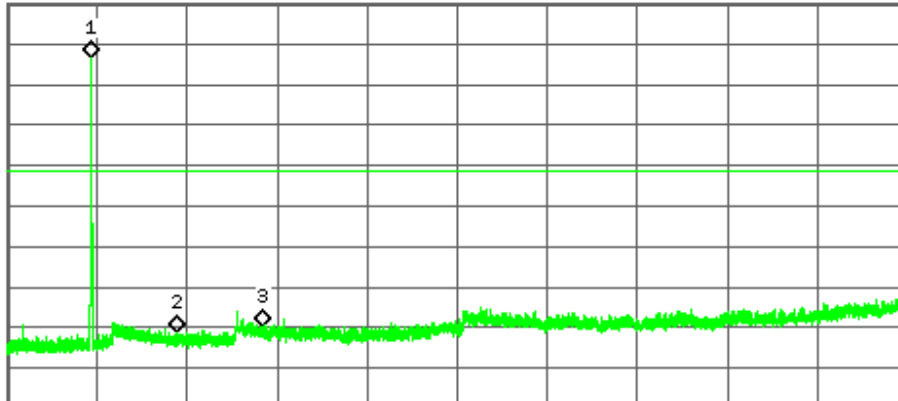
dB

DI

-21.4

dBm

#PAvg



Start Freq

30.0000000 MHz

Stop Freq

26.0000000 GHz

CF Step

2.59700000 GHz

Auto

Man

Freq Offset

0.00000000 Hz

Start 30 MHz

Stop 26.000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (8192 pts)

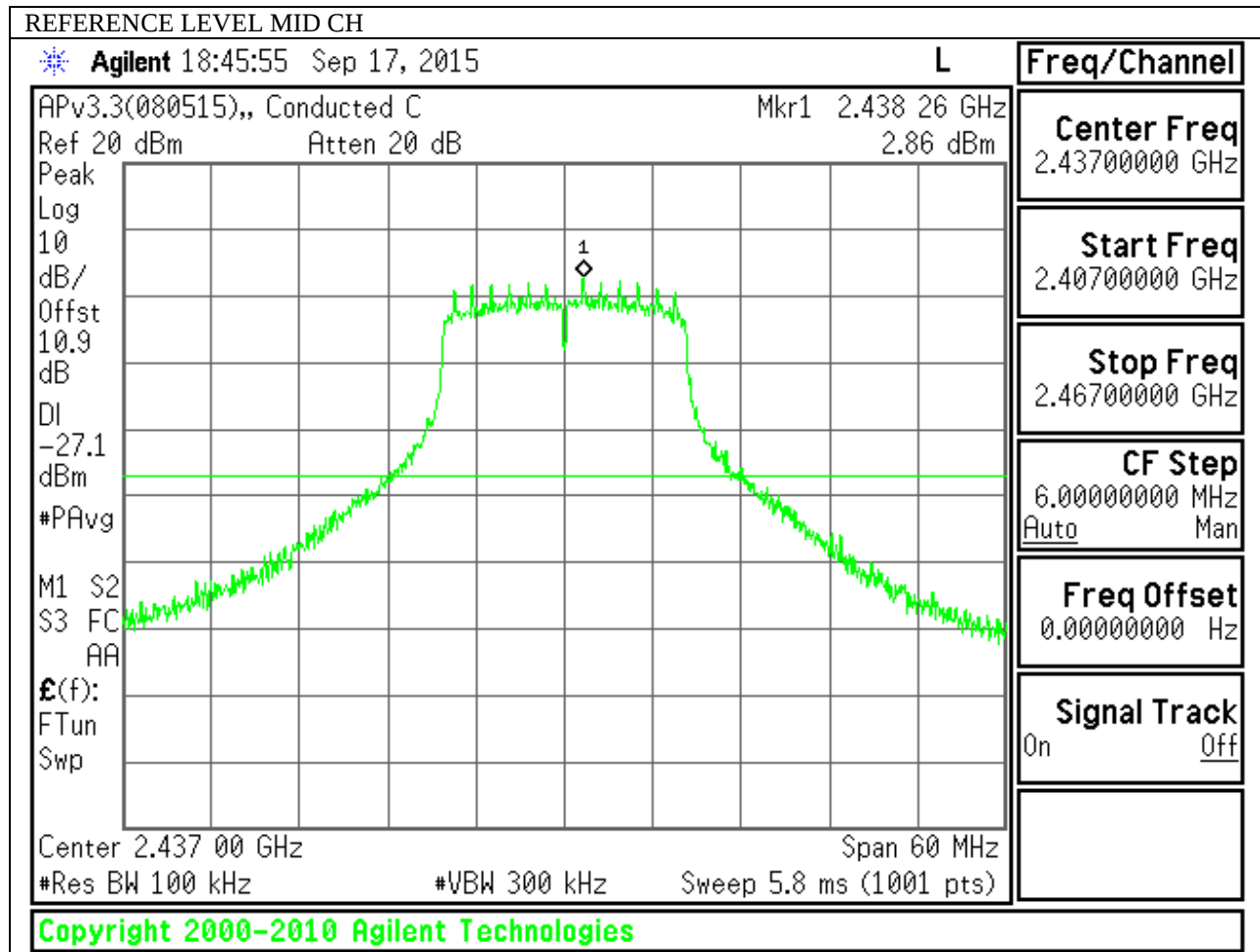
Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.462 GHz	6.66 dBm
2	(1)	Freq	4.924 GHz	-61.40 dBm
3	(1)	Freq	7.386 GHz	-59.93 dBm

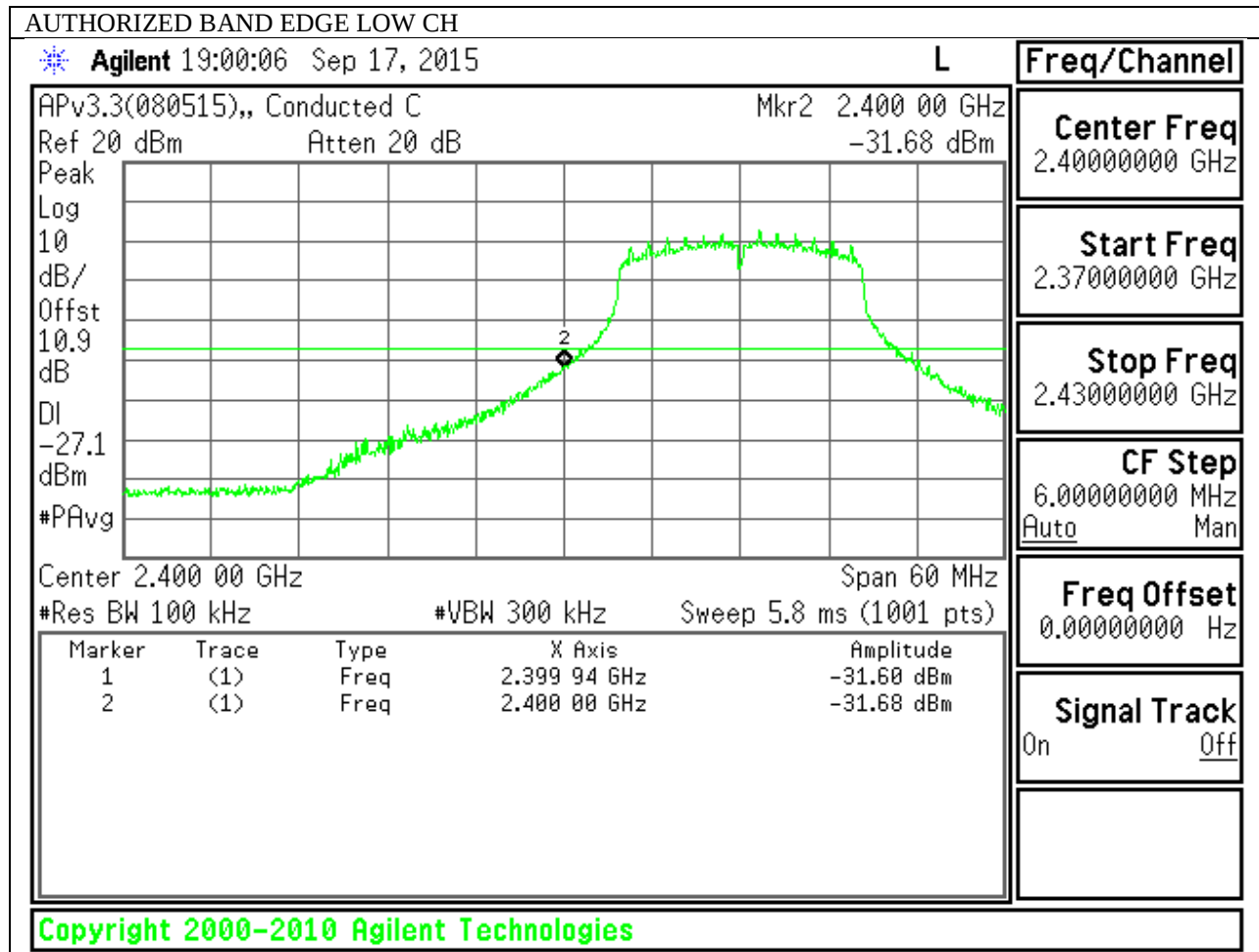
Signal Track

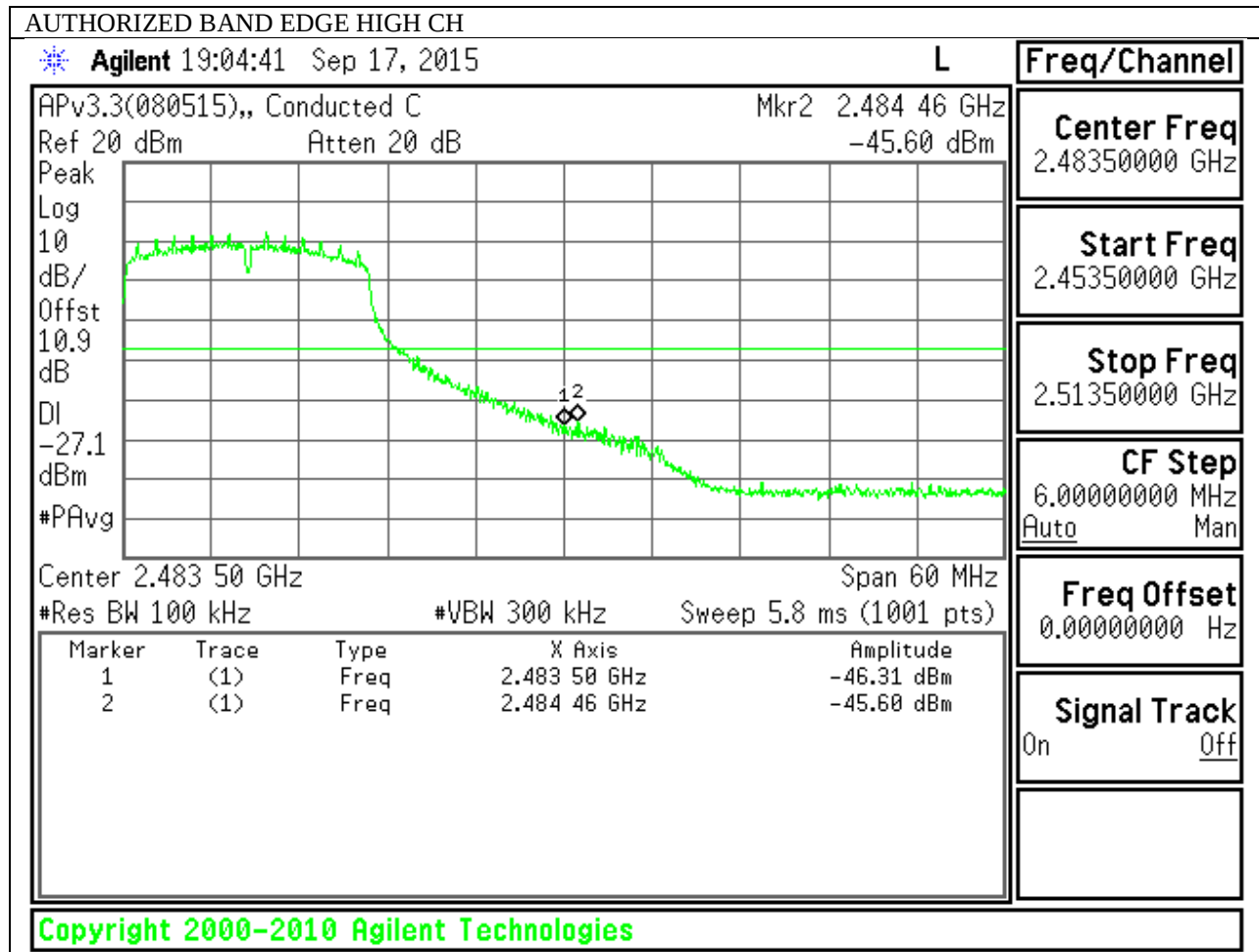
On

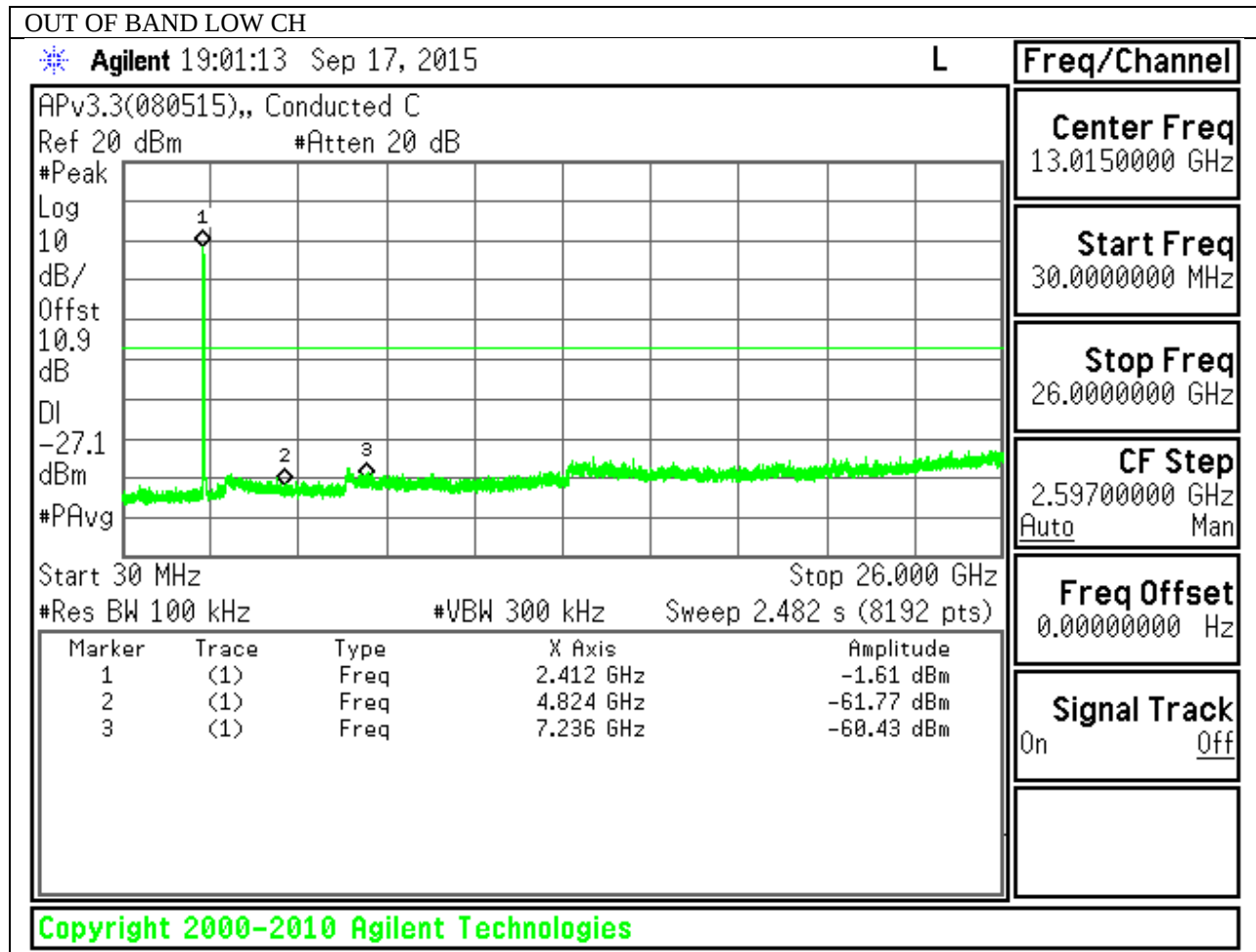
Off

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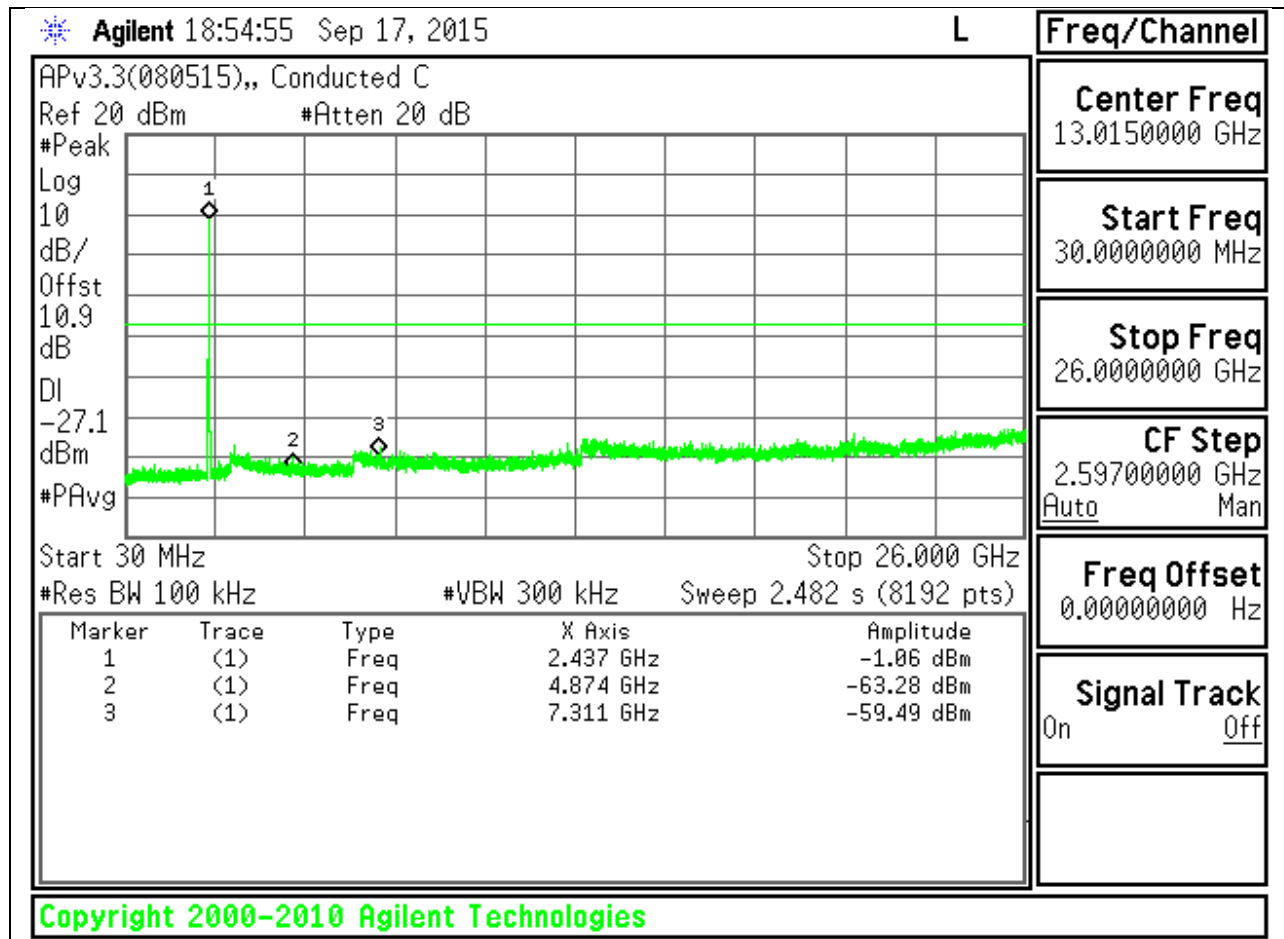
9.4.2. 802.11g MODE IN THE 2.4 GHz BAND**IN-BAND REFERENCE LEVEL**

LOW CHANNEL BANDEDGE

HIGH CHANNEL BANDEDGE

OUT-OF-BAND EMISSIONS

OUT OF BAND MID CH



OUT OF BAND HIGH CH

Agilent 19:06:58 Sep 17, 2015

L

APv3.3(080515),, Conducted C

Mkr4 25.667 GHz

Ref 20 dBm

#Atten 20 dB

-52.267 dBm

#Peak

Log

10

dB/

Offst

10.9

dB

DI

-27.1

dBm

#PAvg

Start 30 MHz

Stop 26.000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.462 GHz	-1.23 dBm
2	(1)	Freq	4.924 GHz	-63.08 dBm
3	(1)	Freq	7.386 GHz	-61.67 dBm
4	(1)	Freq	25.667 GHz	-52.27 dBm

Freq/Channel

Center Freq

13.0150000 GHz

Start Freq

30.0000000 MHz

Stop Freq

26.0000000 GHz

CF Step

2.59700000 GHz

Auto

Man

Freq Offset

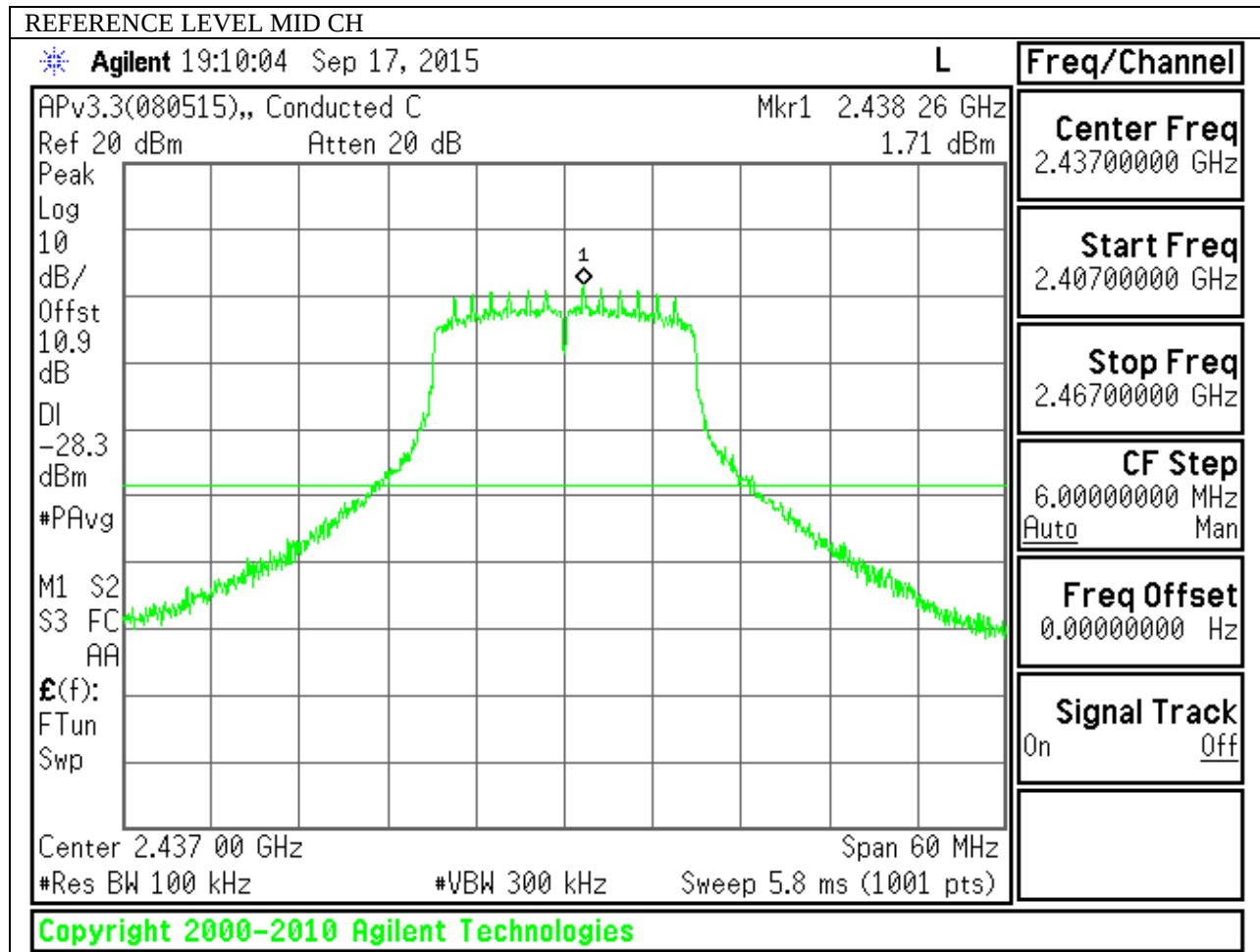
0.00000000 Hz

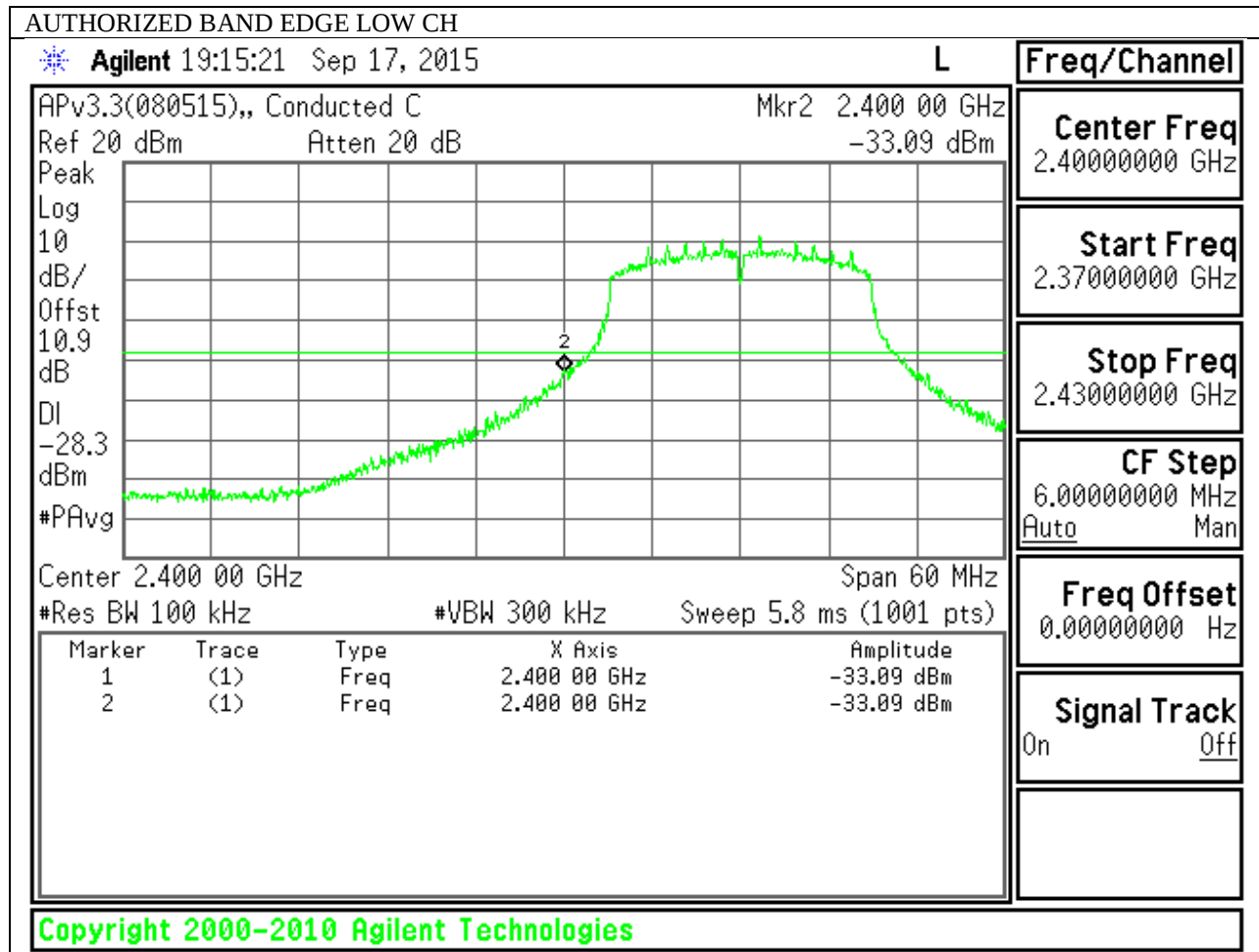
Signal Track

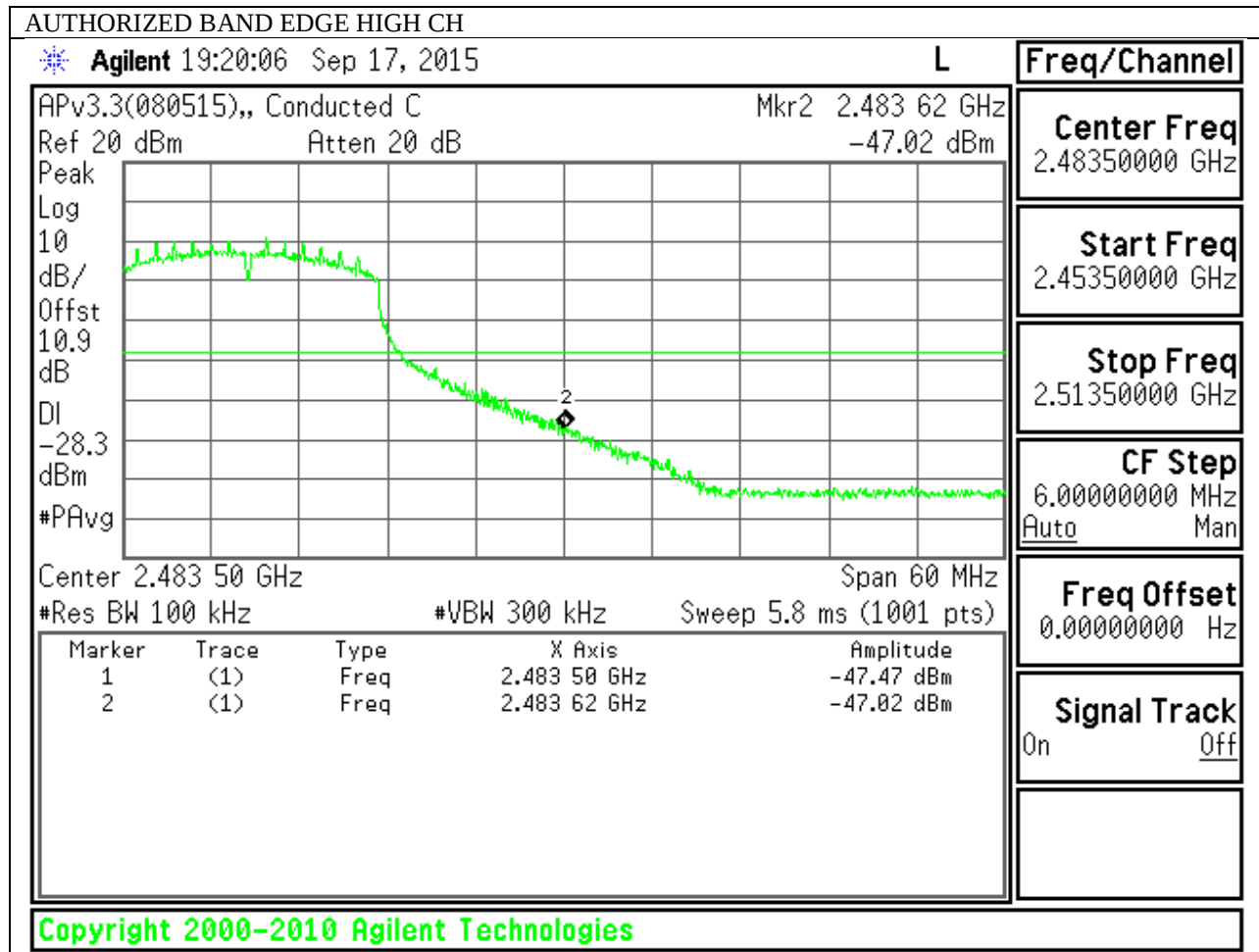
On

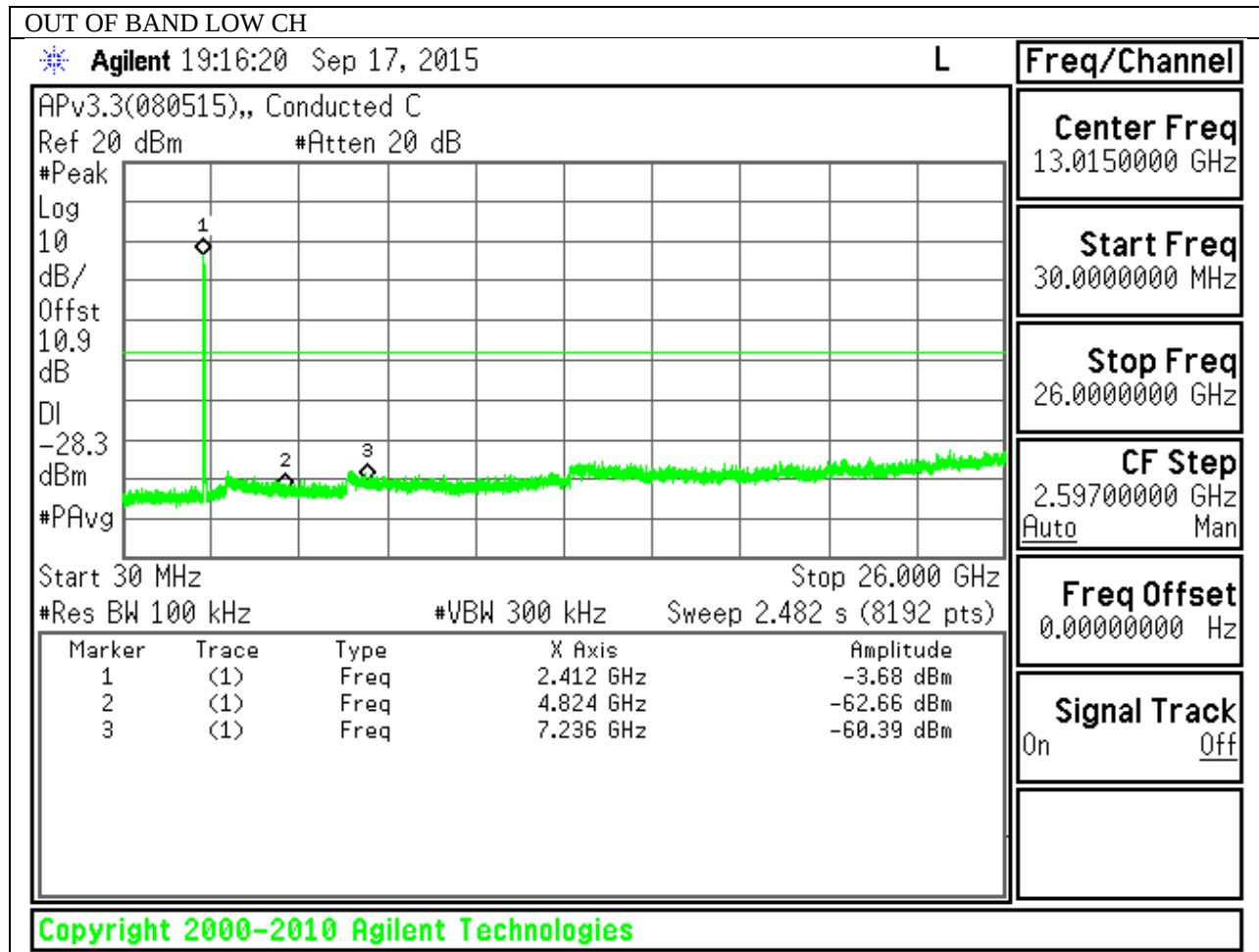
Off

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9.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND**IN-BAND REFERENCE LEVEL**

LOW CHANNEL BANDEDGE

HIGH CHANNEL BANDEDGE

OUT-OF-BAND EMISSIONS

OUT OF BAND MID CH

* Agilent 19:11:07 Sep 17, 2015

L

Freq/Channel

APv3.3(080515),, Conducted C

Ref 20 dBm

#Atten 20 dB

Center Freq

13.0150000 GHz

#Peak

Log

10

dB/

Offst

10.9

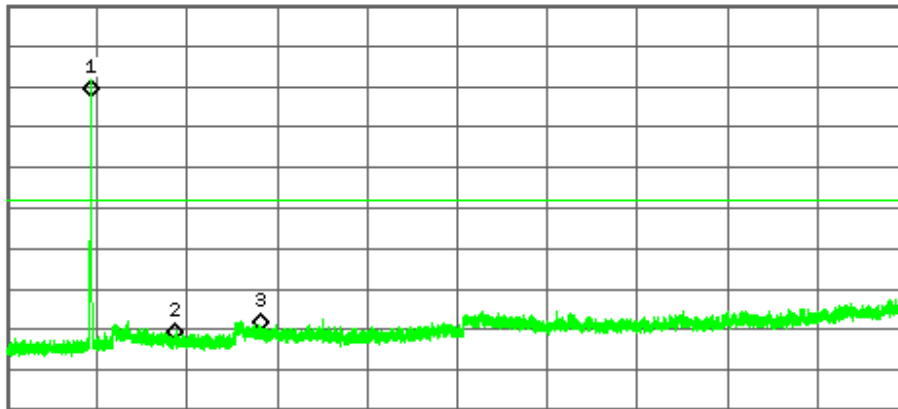
dB

DI

-28.3

dBm

#PAvg



Start Freq

30.0000000 MHz

Stop Freq

26.0000000 GHz

CF Step

2.59700000 GHz

Auto

Man

Start 30 MHz

Stop 26.000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (8192 pts)

Freq Offset

0.00000000 Hz

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.437 GHz	-2.45 dBm
2	(1)	Freq	4.874 GHz	-62.70 dBm
3	(1)	Freq	7.311 GHz	-60.33 dBm

Signal Track

On

Off

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OUT OF BAND HIGH CH

Agilent 19:21:03 Sep 17, 2015

L

APv3.3(080515),, Conducted C

Mkr4 25.772 GHz

Ref 20 dBm

#Atten 20 dB

-52.835 dBm

#Peak

Log

10

dB/

Offst

10.9

dB

DI

-28.3

dBm

#PAvg

Start 30 MHz

Stop 26.000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 2.482 s (8192 pts)

Marker	Trace	Type	X Axis	Amplitude
1	(1)	Freq	2.462 GHz	-0.48 dBm
2	(1)	Freq	4.924 GHz	-63.72 dBm
3	(1)	Freq	7.386 GHz	-60.48 dBm
4	(1)	Freq	25.772 GHz	-52.83 dBm

Freq/Channel

Center Freq

13.0150000 GHz

Start Freq

30.0000000 MHz

Stop Freq

26.0000000 GHz

CF Step

2.59700000 GHz

Auto Man

Freq Offset

0.00000000 Hz

Signal Track

On Off

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10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE LIMITS

FCC §15.205 and §15.209

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

TEST PROCEDURE

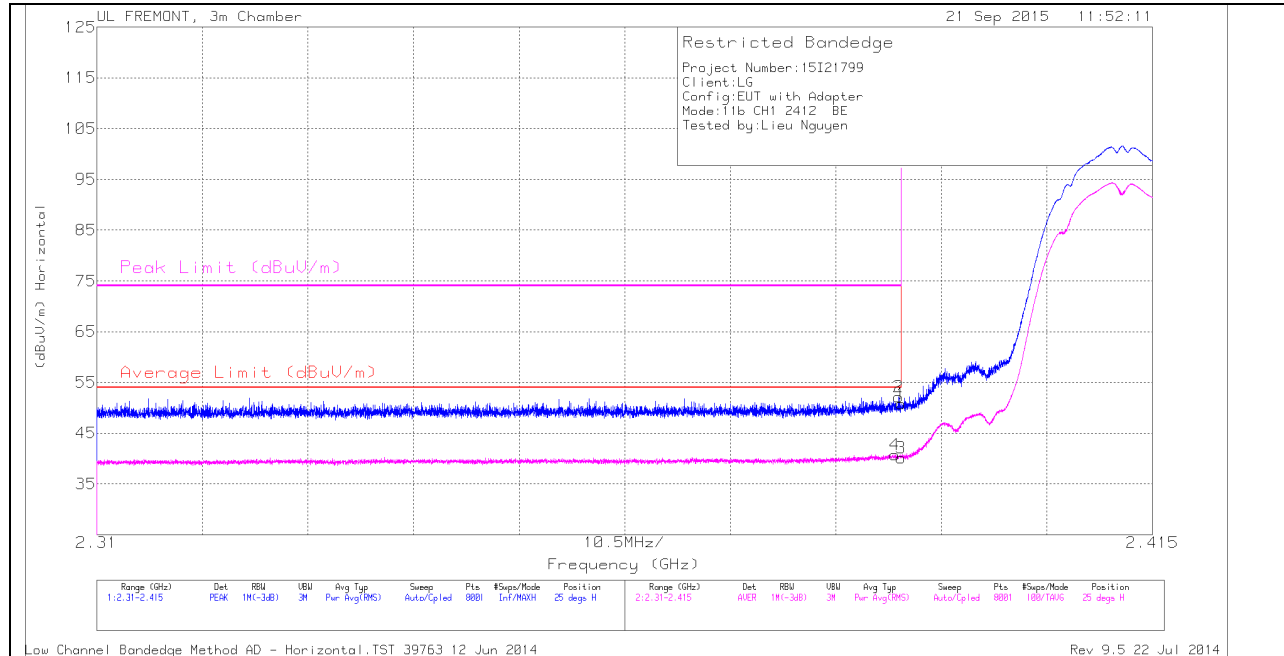
The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters.

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

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor= $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.23dB; N mode = 0.25dB.

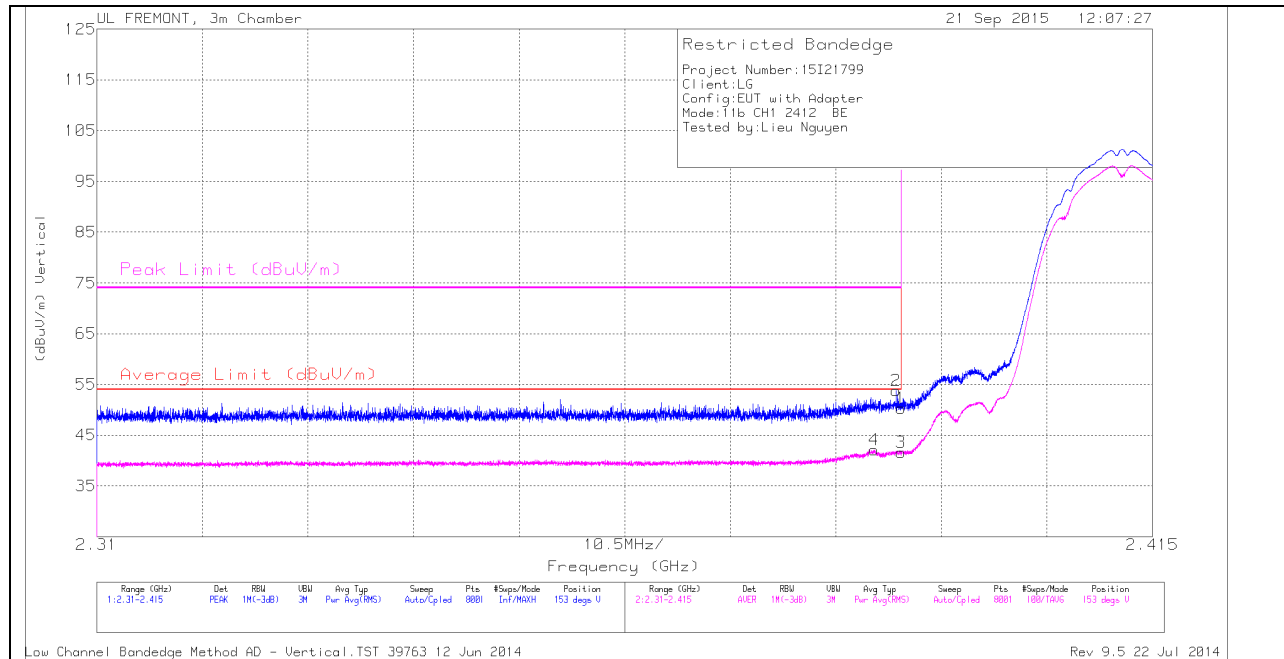
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

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

10.2. TRANSMITTER ABOVE 1 GHz**10.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND****RESTRICTED BANDEDGE (LOW CHANNEL)****HORIZONTAL PEAK AND AVERAGE PLOT****HORIZONTAL DATA**

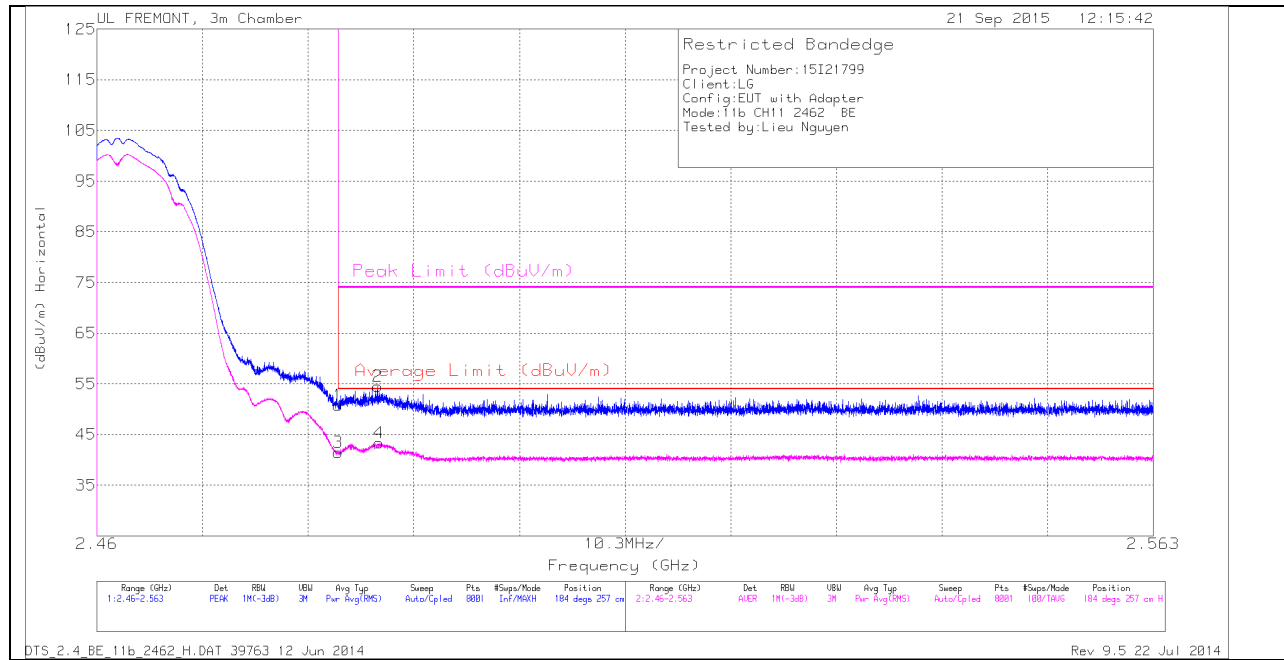
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.389	31.16	RMS	32	-22.4	0	40.76	54	-13.24	-	-	25	397	H
1	2.39	41.21	PK	32	-22.4	0	50.81	-	-	74	-23.19	25	397	H
2	2.39	42.58	PK	32	-22.4	0	52.18	-	-	74	-21.82	25	397	H
3	2.39	30.52	RMS	32	-22.4	0	40.12	54	-13.88	-	-	25	397	H

VERTICAL PEAK AND AVERAGE PLOT



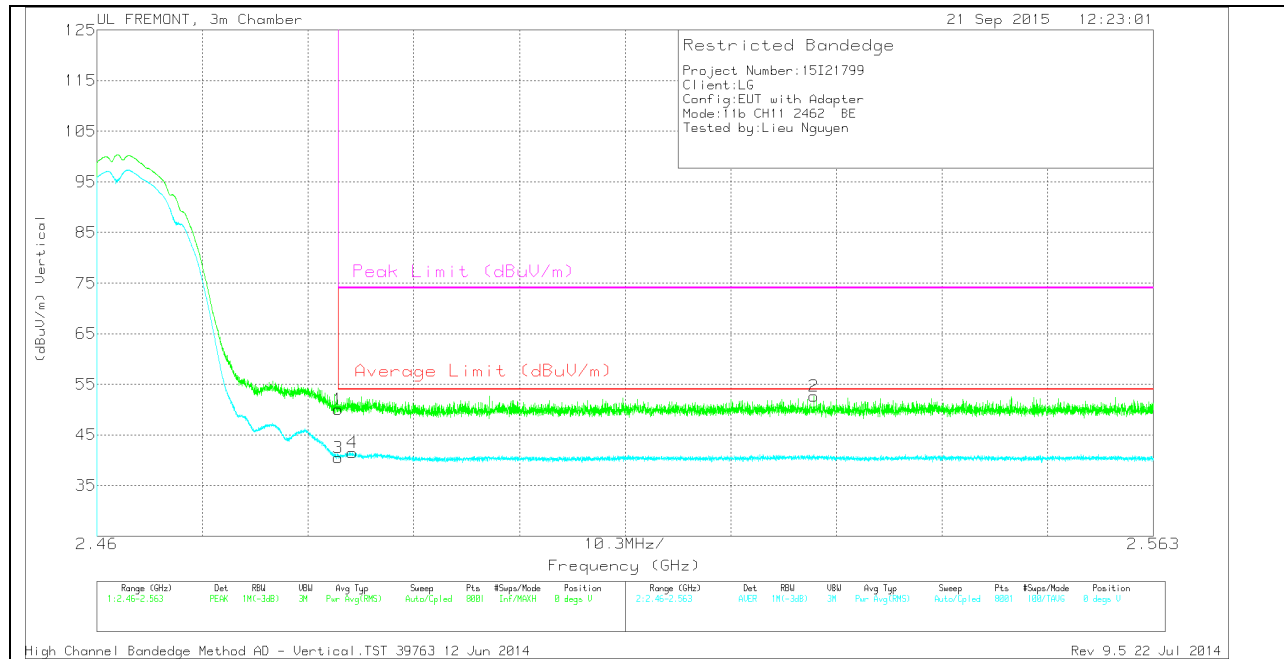
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.387	32.47	RMS	32	-22.4	0	42.07	54	-11.93	-	-	153	321	V
1	2.39	40.66	PK	32	-22.4	0	50.26	-	-	74	-23.74	153	321	V
2	2.39	44.21	PK	32	-22.4	0	53.81	-	-	74	-20.19	153	321	V
3	2.39	31.95	RMS	32	-22.4	0	41.55	54	-12.45	-	-	153	321	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)**HORIZONTAL PEAK AND AVERAGE PLOT****HORIZONTAL DATA**

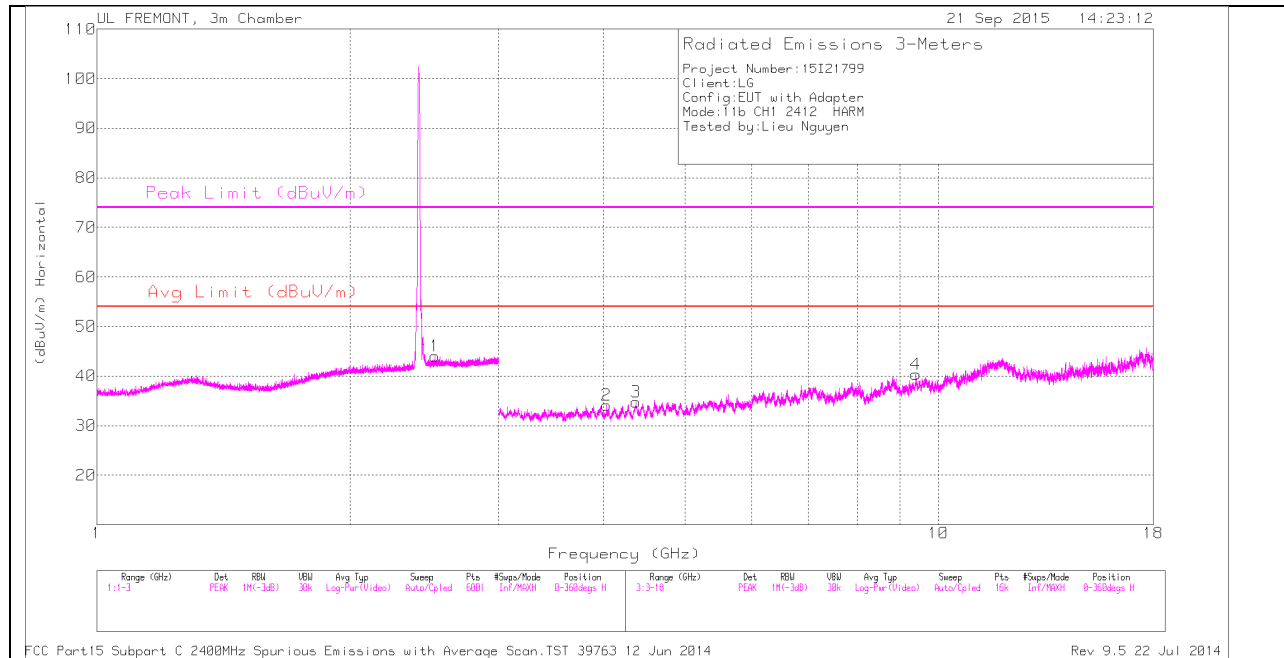
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	40.56	PK	32.3	-22.1	0	50.76	-	-	74	-23.24	184	257	H
3	2.484	31.26	RMS	32.3	-22.1	0	41.46	54	-12.54	-	-	184	257	H
2	2.487	44.38	PK	32.3	-22.2	0	54.48	-	-	74	-19.52	184	257	H
4	2.488	33.28	RMS	32.3	-22.2	0	43.38	54	-10.62	-	-	184	257	H

VERTICAL PEAK AND AVERAGE PLOT



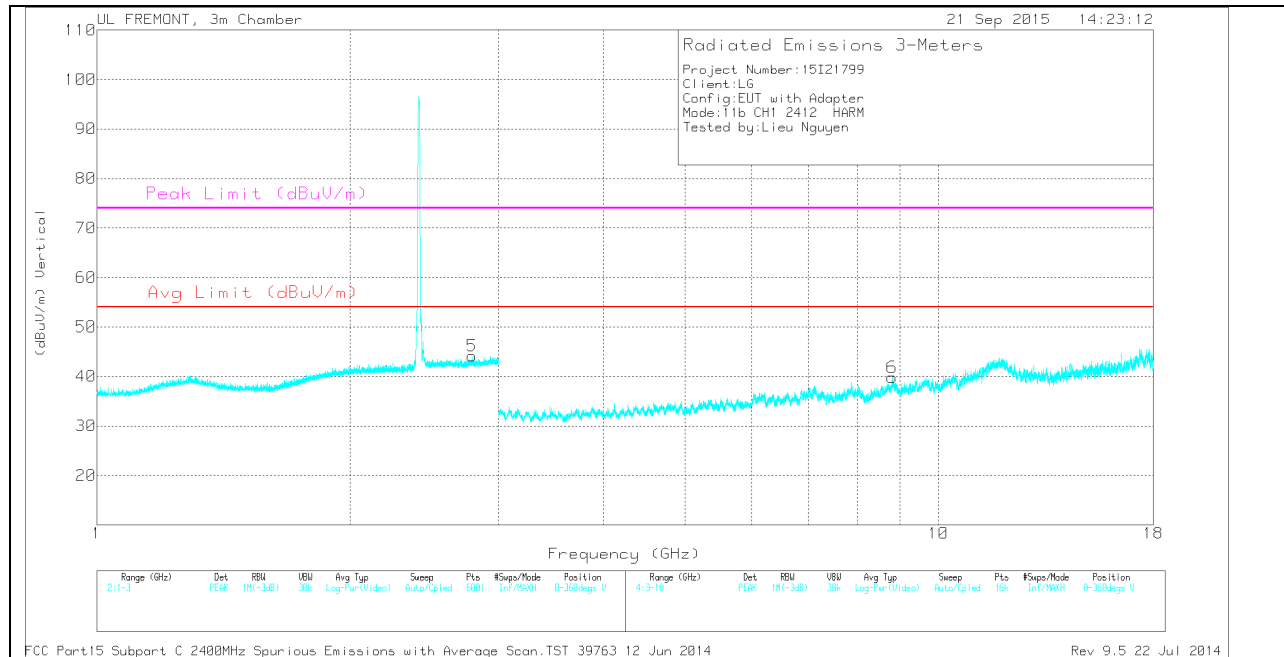
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	39.86	PK	32.3	-22.1	0	50.06	-	-	74	-23.94	0	265	V
3	2.484	30.19	RMS	32.3	-22.1	.0	40.43	54	-13.57	-	-	0	265	V
4	2.485	31.28	RMS	32.3	-22.1	.0	41.52	54	-12.48	-	-	0	265	V
2	2.53	42.23	PK	32.4	-22	0	52.63	-	-	74	-21.37	0	265	V

HARMONICS AND SPURIOUS EMISSIONS**LOW CHANNEL HORIZONTAL**

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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA*TRACE MARKERS*

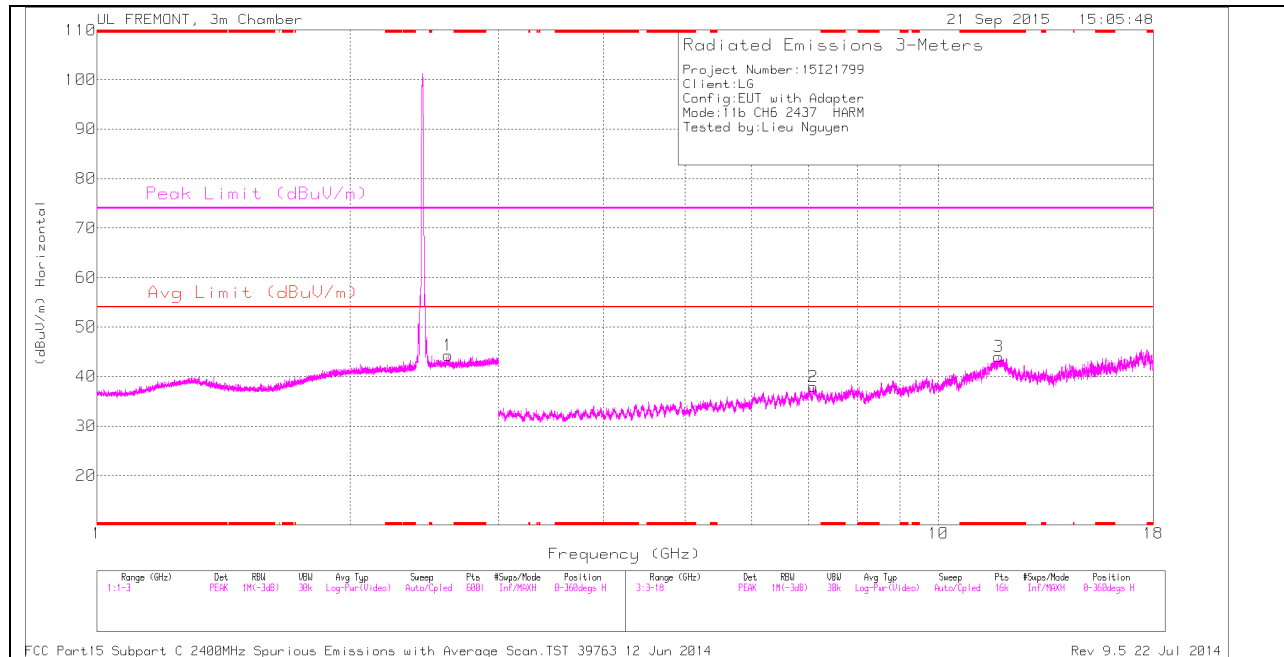
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.523	33.7	PK	32.4	-22.1	0	44	-	-	-	-	0-360	200	H
*5	2.789	33.65	PK	32.6	-22.1	0	44.15	-	-	74	-29.85	0-360	200	V
*2	4.032	31.86	PK	33.2	-30.9	0	34.16	-	-	74	-39.84	0-360	100	H
*3	4.371	30.41	PK	33.6	-29.3	0	34.71	-	-	74	-39.29	0-360	100	H
6	8.808	29.54	PK	35.9	-25.6	0	39.84	-	-	-	-	0-360	100	V
*4	9.403	27.99	PK	36.4	-24.1	0	40.29	-	-	74	-33.71	0-360	100	H

PK - Peak detector

RADIATED EMISSIONS

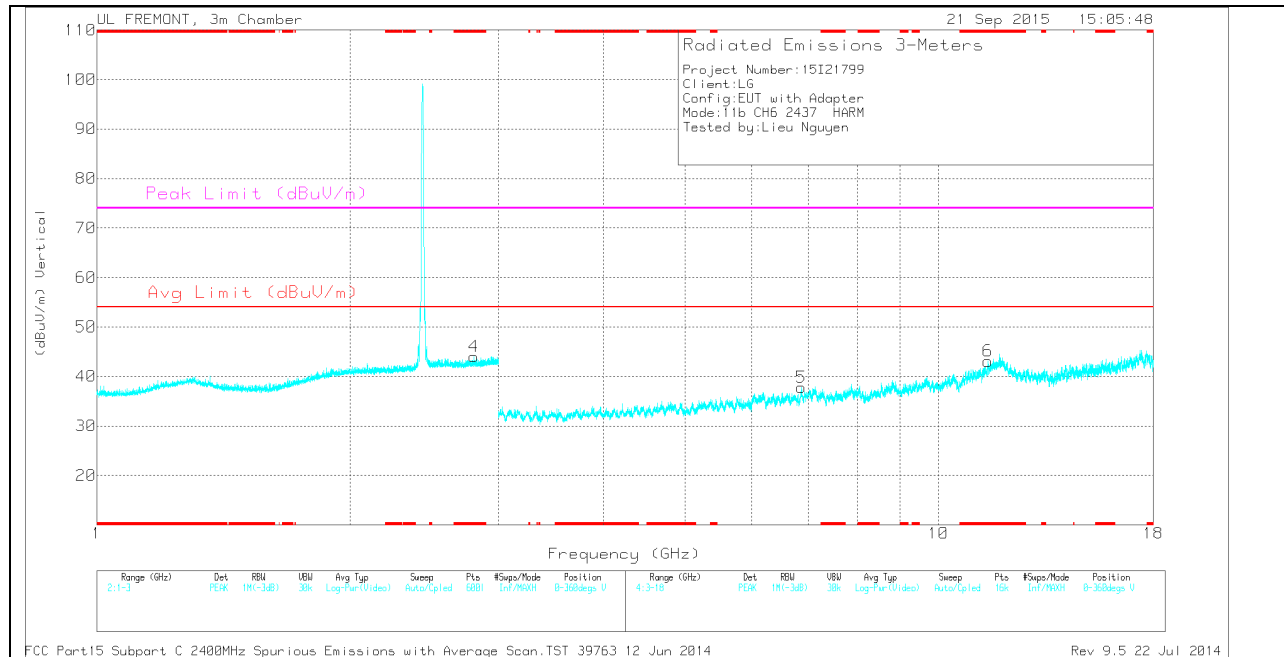
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.523	30.27	MAv1	32.4	-22.1	0	40.57	54	-13.43	-	-	161	386	H
	2.524	42.9	PK2	32.4	-22	0	53.3	-	-	74	-20.7	161	386	H
5	*2.788	30.28	MAv1	32.6	-22.1	0	40.78	54	-13.22	-	-	338	324	V
	*2.789	42.59	PK2	32.6	-22.1	0	53.09	-	-	74	-20.91	338	324	V
2	*4.032	28.55	MAv1	33.2	-30.9	0	30.85	54	-23.15	-	-	322	278	H
	*4.033	40.98	PK2	33.2	-30.9	0	43.28	-	-	74	-30.72	322	278	H
3	*4.369	27.85	MAv1	33.6	-29.3	0	32.15	54	-21.85	-	-	117	115	H
	*4.372	39.93	PK2	33.6	-29.3	0	44.23	-	-	74	-29.77	117	115	H
	8.809	37.6	PK2	35.9	-25.6	0	47.9	-	-	74	-26.1	155	346	V
	8.81	25.26	MAv1	35.9	-25.6	0	35.56	54	-18.44	-	-	155	346	V
4	*9.405	36.23	PK2	36.4	-24	0	48.63	-	-	74	-25.37	92	262	H
	*9.405	24.33	MAv1	36.4	-24	0	36.73	54	-17.27	-	-	92	262	H

MID CHANNEL HORIZONTAL



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

MID CHANNEL VERTICAL



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

MID CHANNEL DATA*TRACE MARKERS*

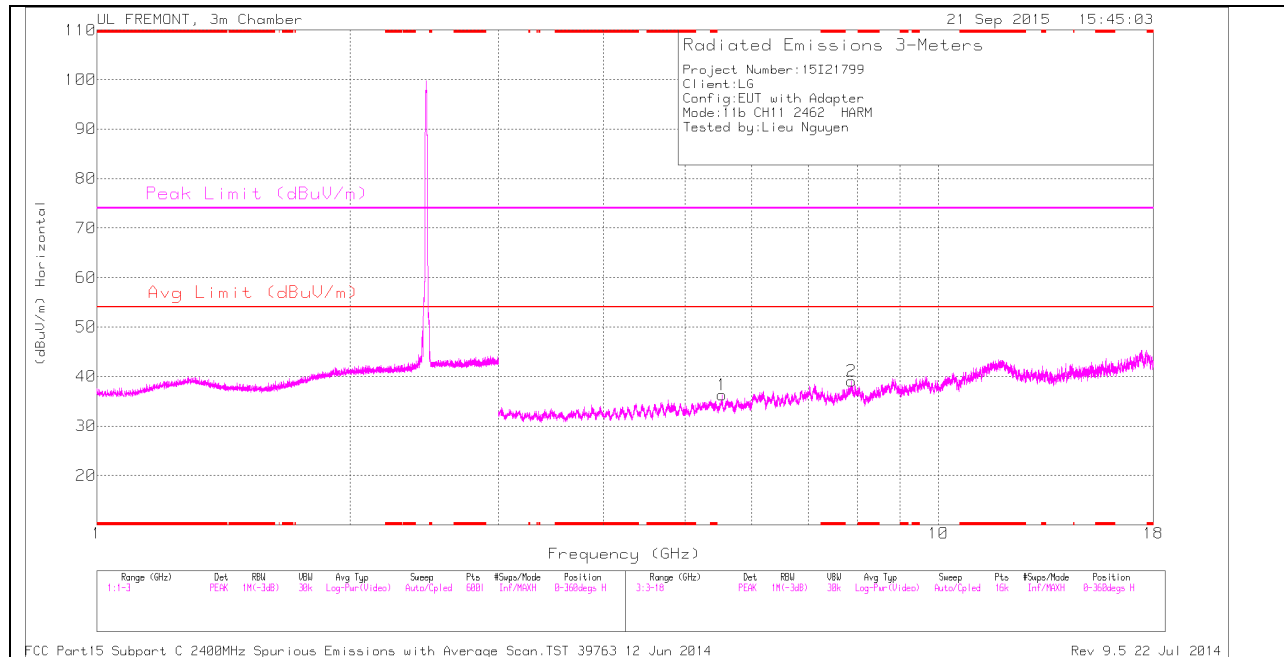
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.807	33.53	PK	32.6	-22.1	0	44.03	-	-	74	-29.97	0-360	100	V
3	* 11.782	27.42	PK	39	-22.4	0	44.02	-	-	74	-29.98	0-360	100	H
6	* 11.445	26.58	PK	38.3	-21.8	0	43.08	-	-	74	-30.92	0-360	200	V
1	2.615	33.84	PK	32.4	-21.9	0	44.34	-	-	-	-	0-360	200	H
5	6.871	29.49	PK	35.6	-27.3	0	37.79	-	-	-	-	0-360	200	V
2	7.104	29.2	PK	35.6	-26.9	0	37.9	-	-	-	-	0-360	100	H

PK - Peak detector

RADIATED EMISSIONS

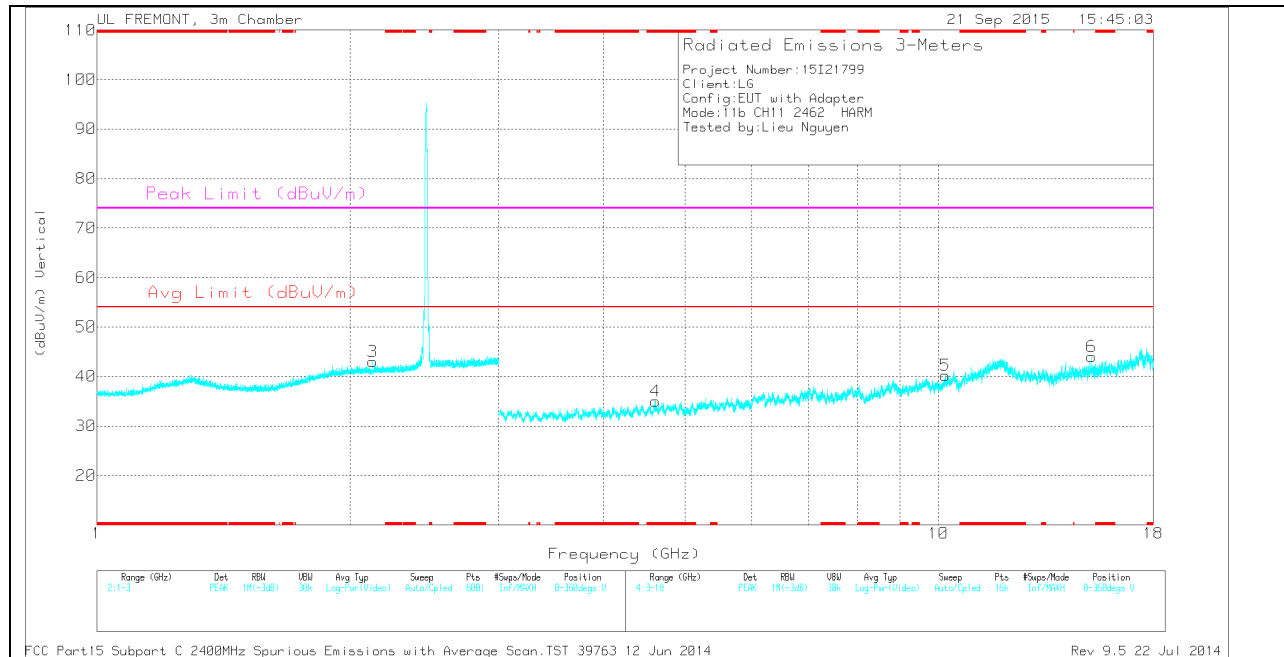
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.806	42.17	PK2	32.6	-22.1	0	52.67	-	-	74	-21.33	176	128	V
	* 2.806	30.3	MAv1	32.6	-22.1	0	40.8	54	-13.2	-	-	176	128	V
3	* 11.783	36.71	PK2	39	-22.4	0	53.31	-	-	74	-20.69	235	277	H
	* 11.78	24.54	MAv1	39	-22.4	0	41.14	54	-12.86	-	-	235	277	H
6	* 11.447	35.27	PK2	38.3	-21.8	0	51.77	-	-	74	-22.23	152	398	V
	* 11.447	23.55	MAv1	38.3	-21.8	0	40.05	54	-13.95	-	-	152	398	V
1	2.614	42.41	PK2	32.4	-21.9	0	52.91	-	-	74	-21.09	176	126	H
5	6.871	39.77	PK2	35.6	-27.3	0	48.07	-	-	74	-25.93	146	123	V
2	7.106	38.75	PK2	35.6	-27	0	47.35	-	-	74	-26.65	297	164	H

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

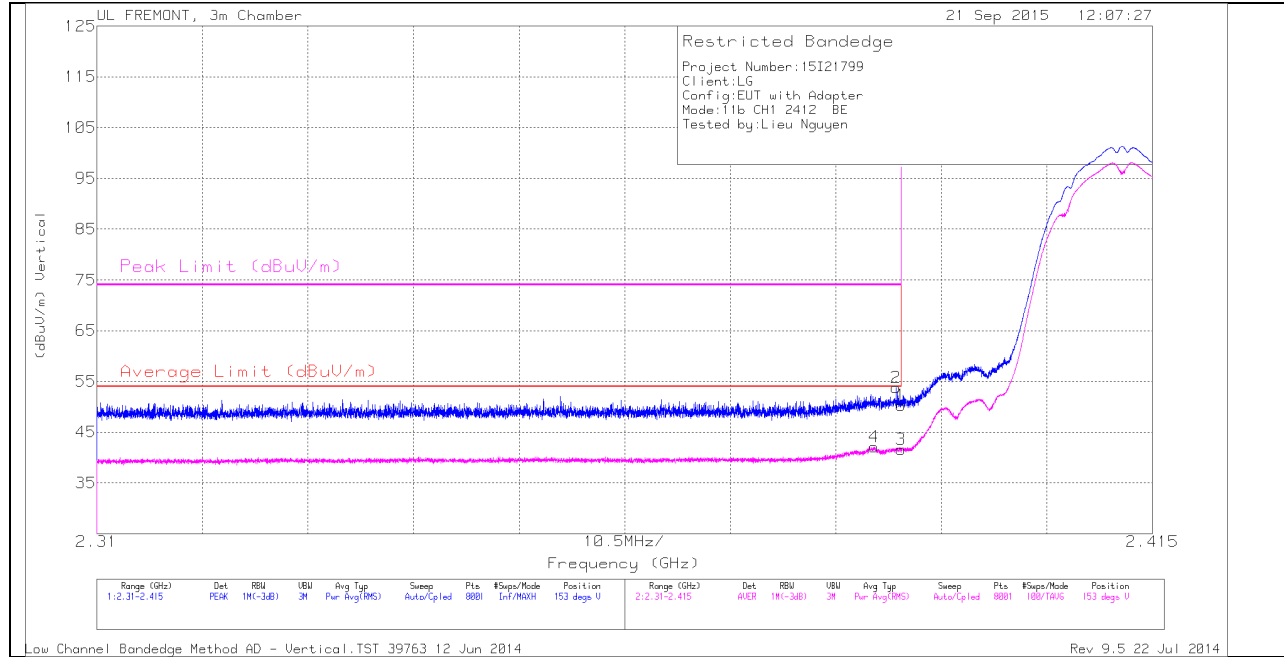
HIGH CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.607	31.31	PK	33.9	-30.2	0	35.01	-	-	74	-38.99	0-360	100	V
3	2.126	33.68	PK	31.5	-22.2	0	42.98	-	-	-	-	0-360	200	V
1	5.528	31.05	PK	34.6	-29.4	0	36.25	-	-	-	-	0-360	200	H
2	7.879	29.4	PK	35.8	-26.1	0	39.1	-	-	-	-	0-360	100	H
5	10.194	26.26	PK	37	-23	0	40.26	-	-	-	-	0-360	100	V
6	15.205	29.3	PK	39.9	-25.2	0	44	-	-	-	-	0-360	200	V

PK - Peak detector

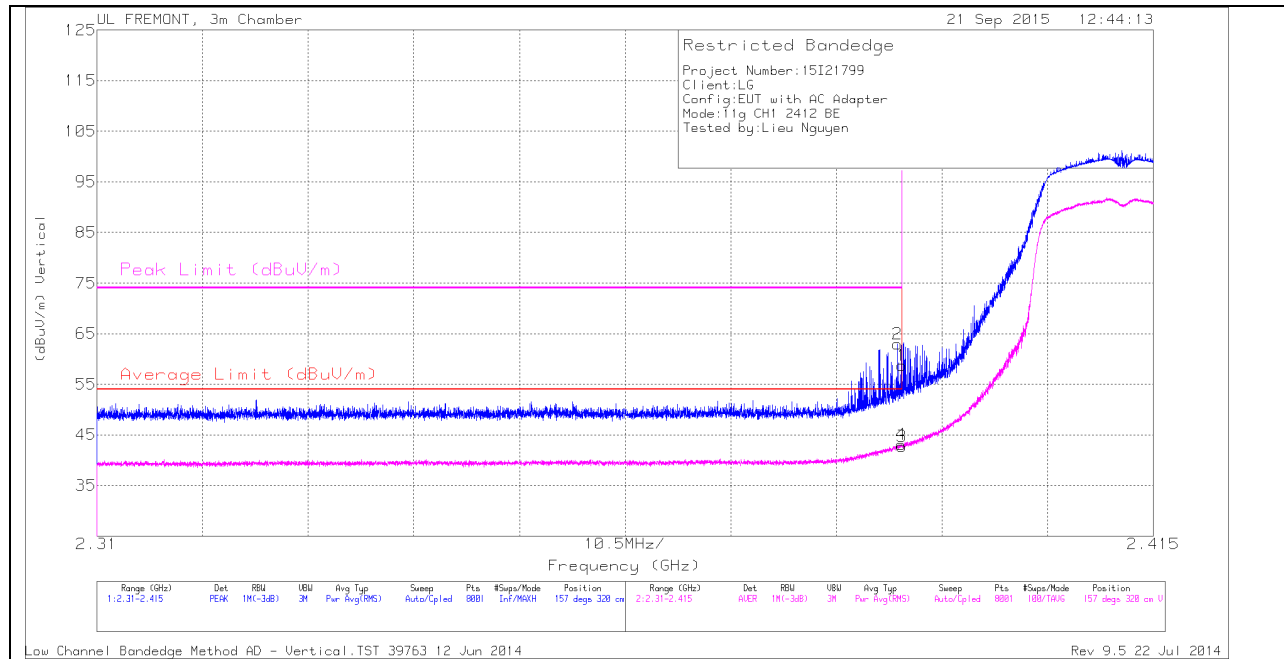
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.606	40	PK2	33.9	-30.1	0	43.8	-	-	74	-30.2	257	101	V
	* 4.605	27.85	MAV1	33.9	-30.1	0	31.65	54	-22.35	-	-	257	101	V
3	2.128	42.57	PK2	31.5	-22.2	0	51.87	-	-	74	-22.13	94	323	V
1	5.53	39.7	PK2	34.6	-29.3	0	45	-	-	74	-29	84	177	H
2	7.879	37.28	PK2	35.8	-26.2	0	46.88	-	-	74	-27.12	151	143	H
5	10.194	35.32	PK2	37	-23	0	49.32	-	-	74	-24.68	300	190	V
6	15.206	36.53	PK2	39.9	-25.1	0	51.33	-	-	74	-22.67	294	391	V

10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND**RESTRICTED BANDEDGE (LOW CHANNEL)****HORIZONTAL PEAK AND AVERAGE PLOT****HORIZONTAL DATA**

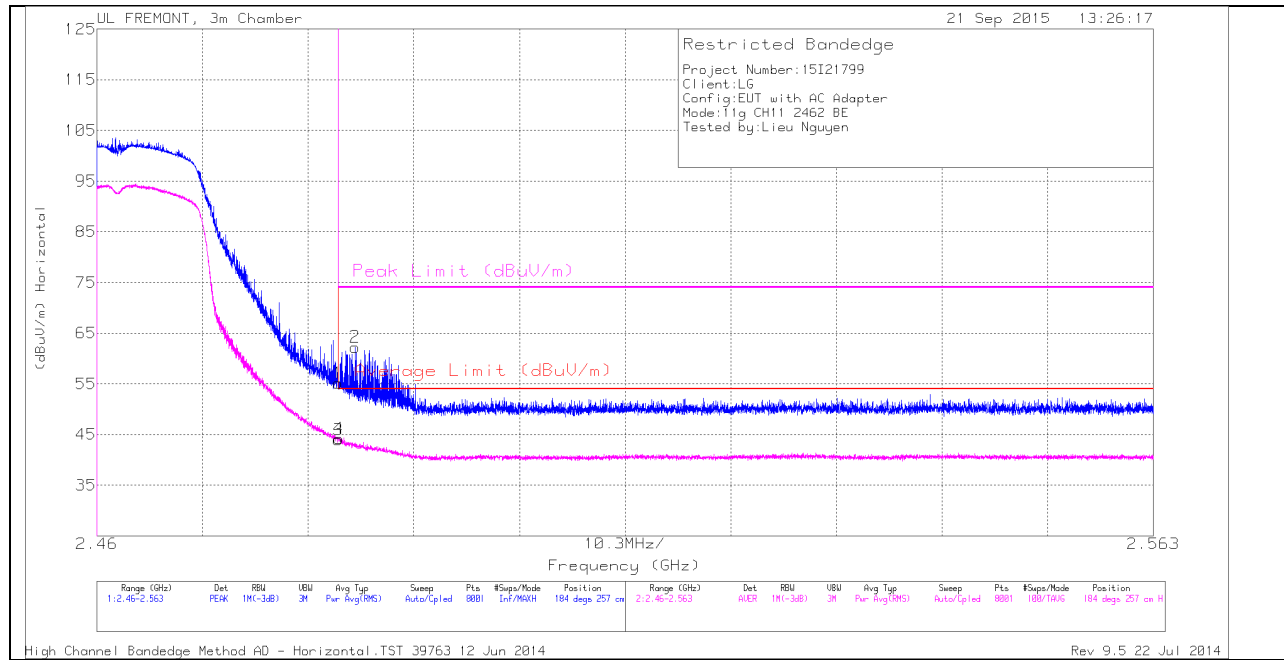
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.387	32.47	RMS	32	-22.4	0	42.07	54	-11.93	-	-	153	321	V
1	2.39	40.66	PK	32	-22.4	0	50.26	-	-	74	-23.74	153	321	V
2	2.39	44.21	PK	32	-22.4	0	53.81	-	-	74	-20.19	153	321	V
3	2.39	31.95	RMS	32	-22.4	0	41.55	54	-12.45	-	-	153	321	V

VERTICAL PEAK AND AVERAGE PLOT



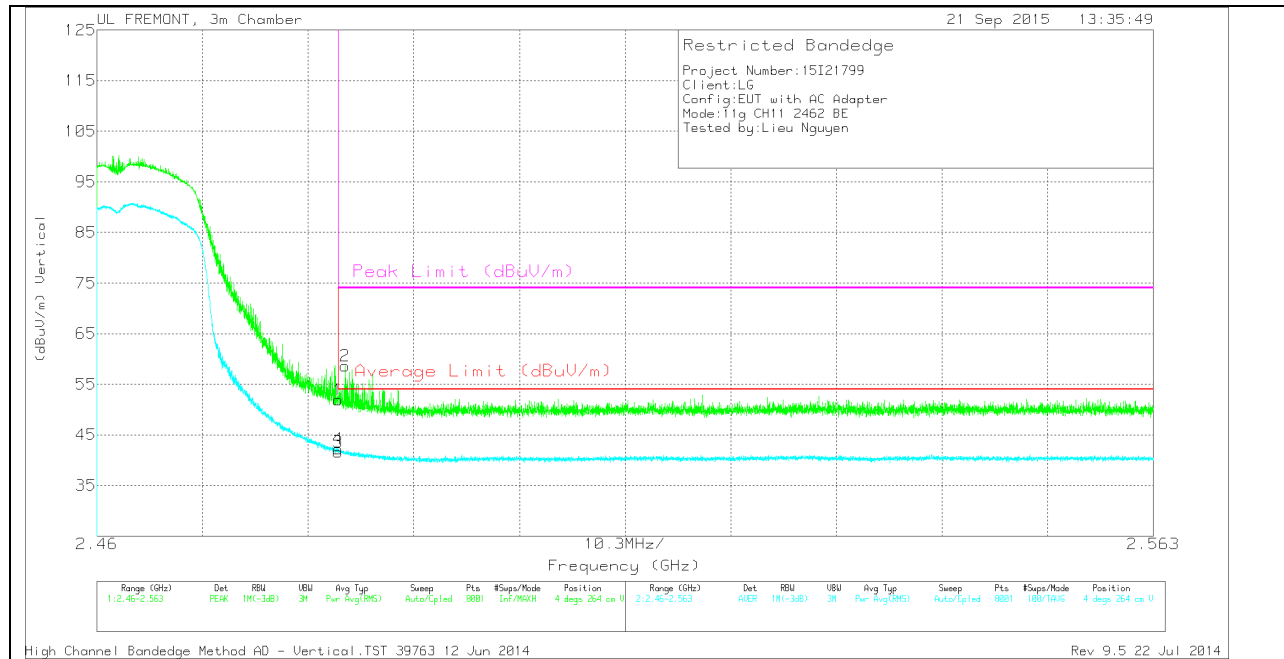
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Filtr/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	49.14	PK	32	-22.4	58.74	-	-	74	-15.26	157	320	V
2	2.39	53.4	PK	32	-22.4	63	-	-	74	-11	157	320	V
3	2.39	33.17	RMS	32	-22.4	42.77	54	-11.23	-	-	157	320	V
4	2.39	33.49	RMS	32	-22.4	43.09	54	-10.91	-	-	157	320	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)**HORIZONTAL PEAK AND AVERAGE PLOT****HORIZONTAL DATA**

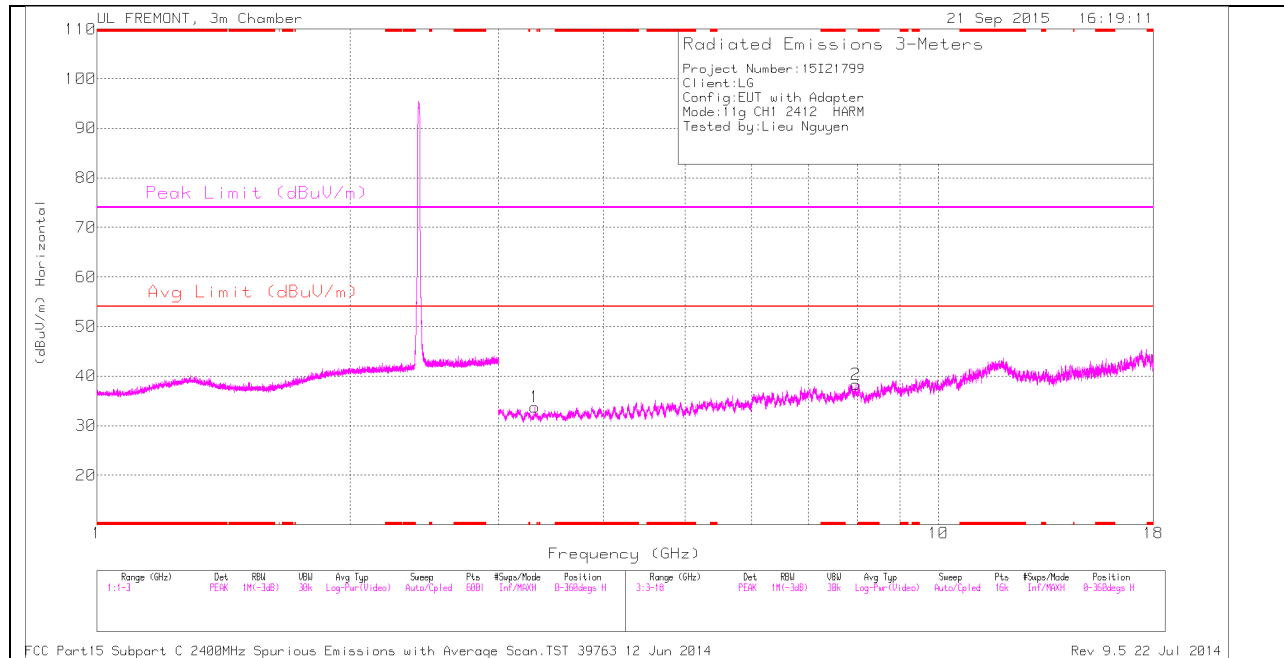
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	44.91	PK	32.3	-22.1	0	55.11	-	-	74	-18.89	184	257	H
3	2.484	33.75	RMS	32.3	-22.1	.23	44.18	54	-9.82	-	-	184	257	H
4	2.484	34.01	RMS	32.3	-22.1	.23	44.44	54	-9.56	-	-	184	257	H
2	2.485	52.07	PK	32.3	-22.1	0	62.27	-	-	74	-11.73	184	257	H

VERTICAL PEAK AND AVERAGE PLOT



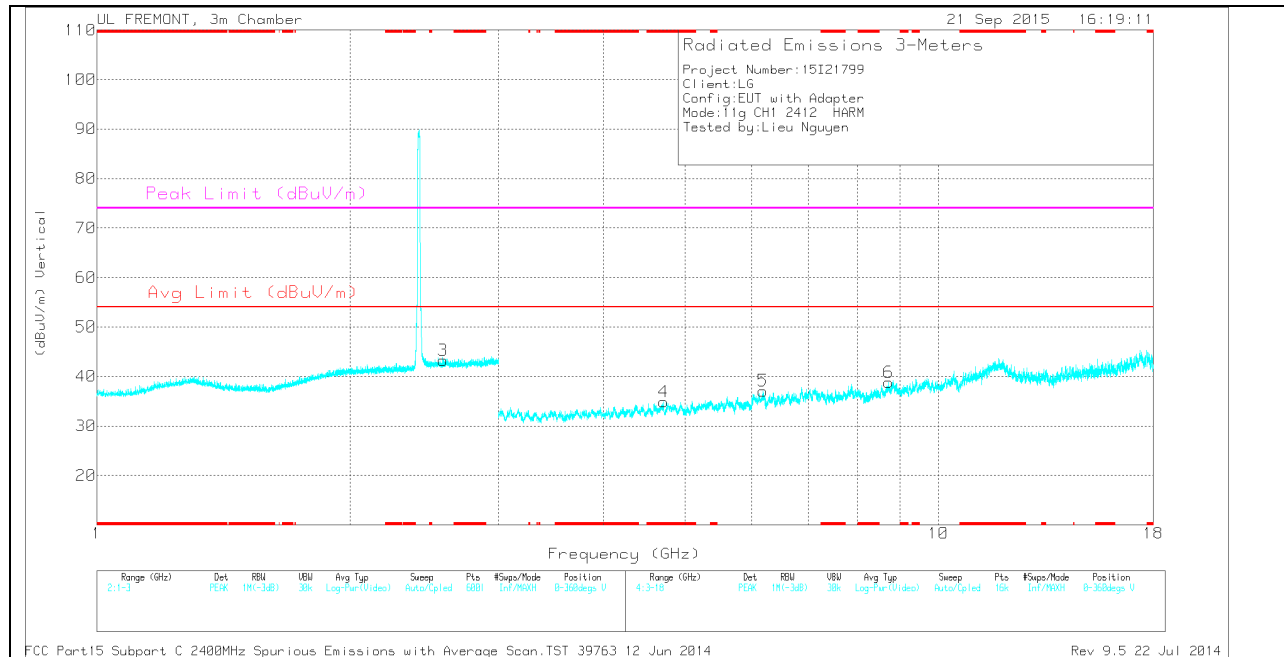
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/ Filt/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	41.71	PK	32.3	-22.1	51.91	-	-	74	-22.09	4	264	V
2	2.484	48.43	PK	32.3	-22.1	58.63	-	-	74	-15.37	4	264	V
3	2.484	31.45	RMS	32.3	-22.1	41.65	54	-12.35	-	-	4	264	V
4	2.484	32.05	RMS	32.3	-22.1	42.25	54	-11.75	-	-	4	264	V

HARMONICS AND SPURIOUS EMISSIONS**LOW CHANNEL HORIZONTAL**

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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA*TRACE MARKERS*

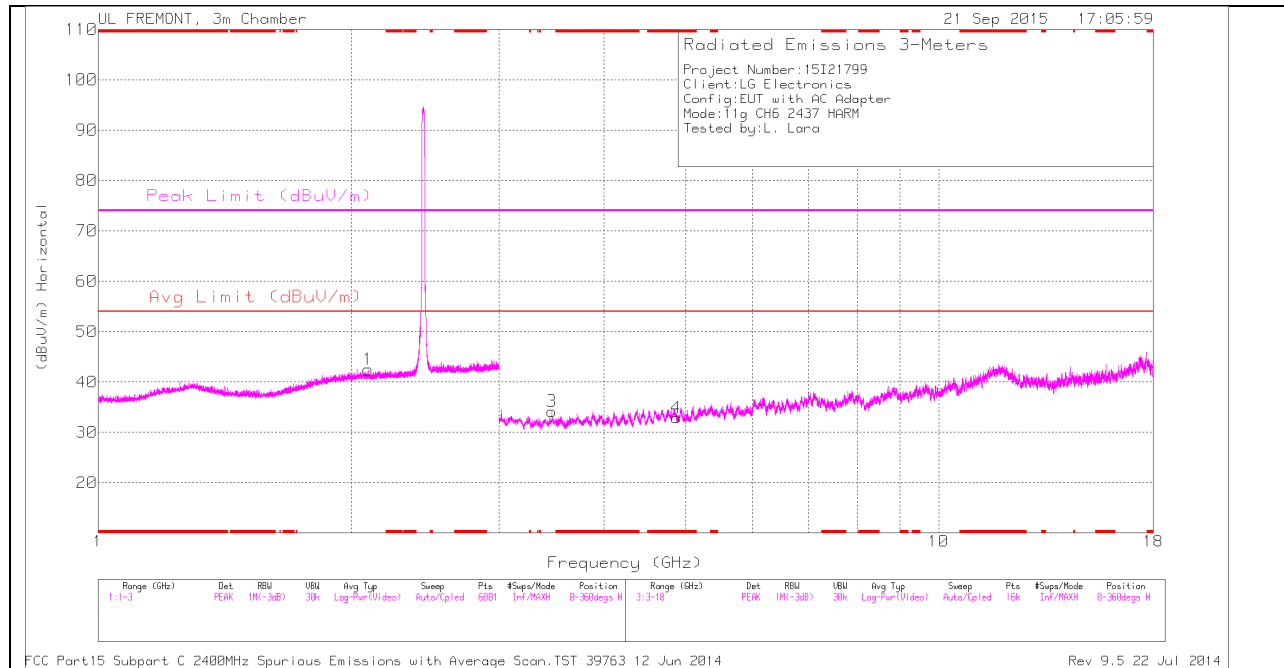
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.715	30.97	PK	34.1	-30.2	0	34.87	-	-	74	-39.13	0-360	100	V
3	2.579	32.92	PK	32.4	-22	0	43.32	-	-	-	-	0-360	200	V
1	3.313	31.95	PK	32.6	-30.8	0	33.75	-	-	-	-	0-360	100	H
5	6.188	31.11	PK	35.3	-29.3	0	37.11	-	-	-	-	0-360	200	V
2	7.98	30.01	PK	35.8	-27.5	0	38.31	-	-	-	-	0-360	100	H
6	8.731	29.34	PK	35.9	-26.4	0	38.84	-	-	-	-	0-360	100	V

PK - Peak detector

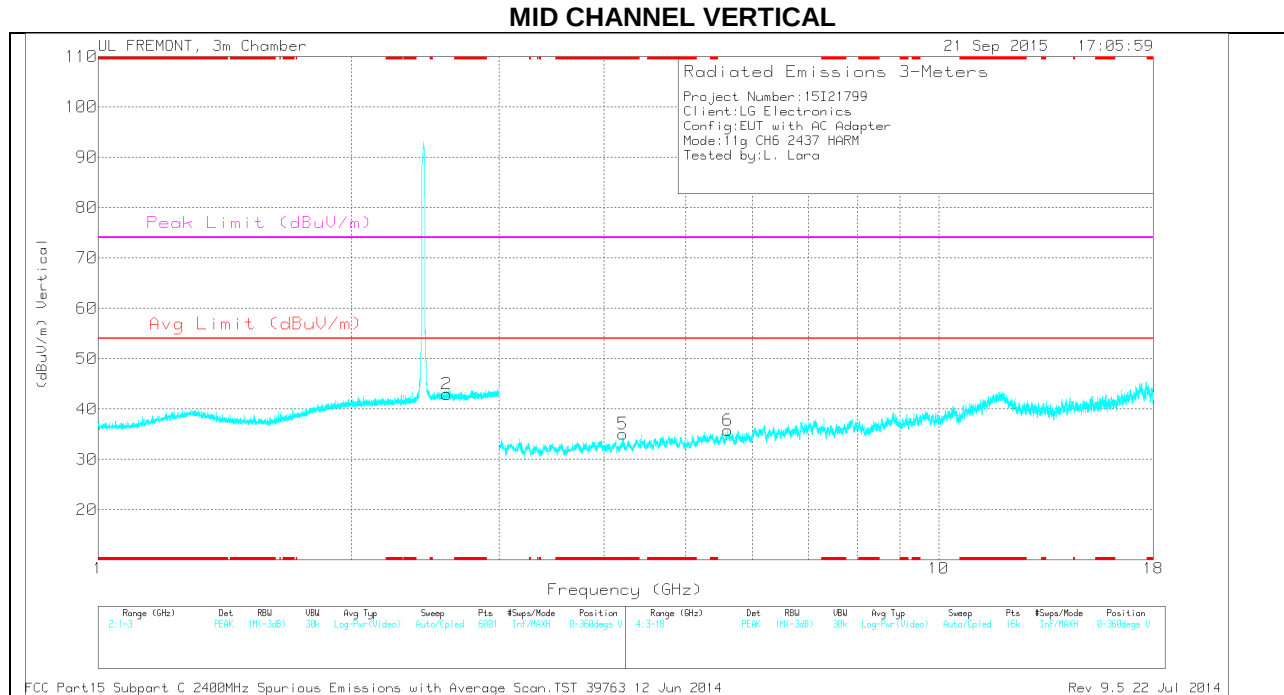
RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.715	40.05	PK2	34.1	-30.2	0	43.95	-	-	74	-30.05	120	108	V
	* 4.713	27.86	MAv1	34.1	-30.2	.23	31.99	54	-22.01	-	-	120	108	V
3	2.58	42.52	PK2	32.4	-22	0	52.92	-	-	74	-21.08	297	105	V
1	3.315	40.89	PK2	32.6	-30.8	0	42.69	-	-	74	-31.31	107	106	H
5	6.189	39.88	PK2	35.3	-29.4	0	45.78	-	-	74	-28.22	118	114	V
2	7.979	38.81	PK2	35.8	-27.6	0	47.01	-	-	74	-26.99	265	342	H
6	8.732	37.81	PK2	35.9	-26.4	0	47.31	-	-	74	-26.69	190	191	V

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.



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

MID CHANNEL DATA*TRACE MARKERS*

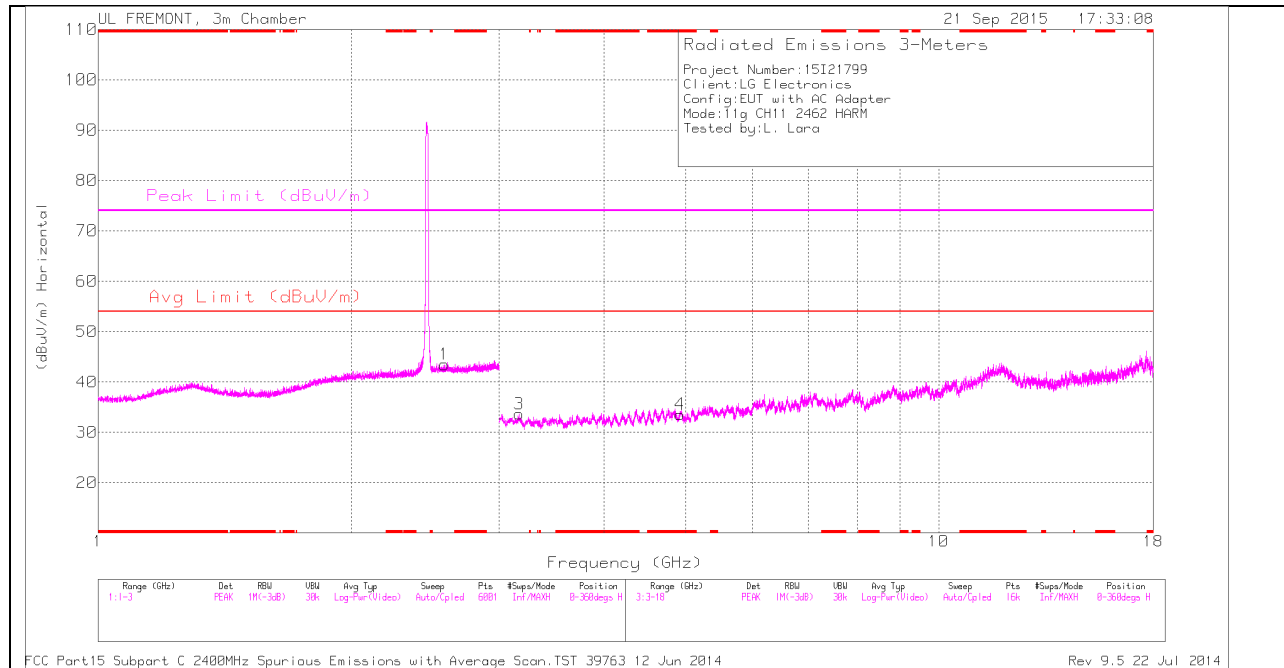
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.874	28.01	PK	34	-29.1	0	32.91	-	-	74	-41.09	0-360	100	H
5	* 4.208	31.65	PK	33.3	-29.9	0	35.05	-	-	74	-38.95	0-360	100	V
1	2.095	33.17	PK	31.5	-22.2	0	42.47	-	-	-	-	0-360	200	H
2	2.598	32.57	PK	32.4	-22	0	42.97	-	-	-	-	0-360	200	V
3	3.465	31.77	PK	32.8	-30.4	0	34.17	-	-	-	-	0-360	100	H
6	5.61	29.57	PK	34.6	-28.4	0	35.77	-	-	-	-	0-360	200	V

PK - Peak detector

RADIATED EMISSIONS

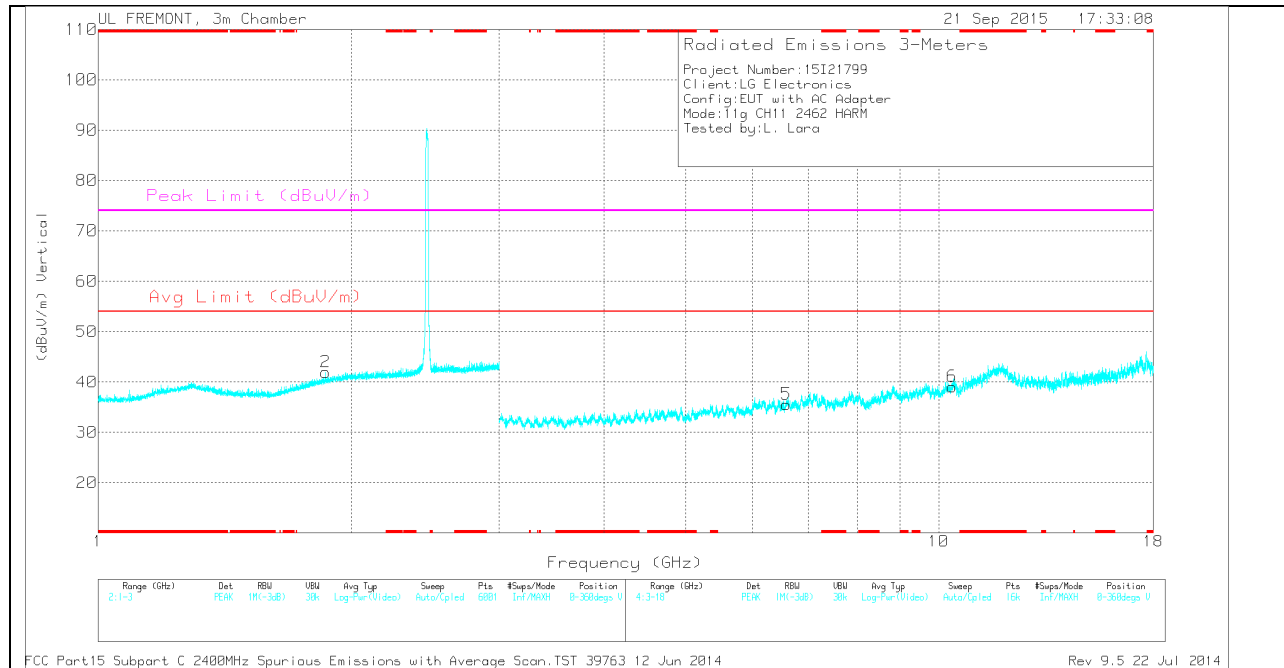
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.874	38.53	PK2	34	-29.1	0	43.43	-	-	74	-30.57	60	376	H
* 4.872	26.84	MAV1	34	-29.1	.23	31.97	54	-22.03	-	-	60	376	H
* 4.21	39.93	PK2	33.3	-29.9	0	43.33	-	-	74	-30.67	278	121	V
* 4.21	28.24	MAV1	33.3	-29.9	.23	31.87	54	-22.13	-	-	278	121	V

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

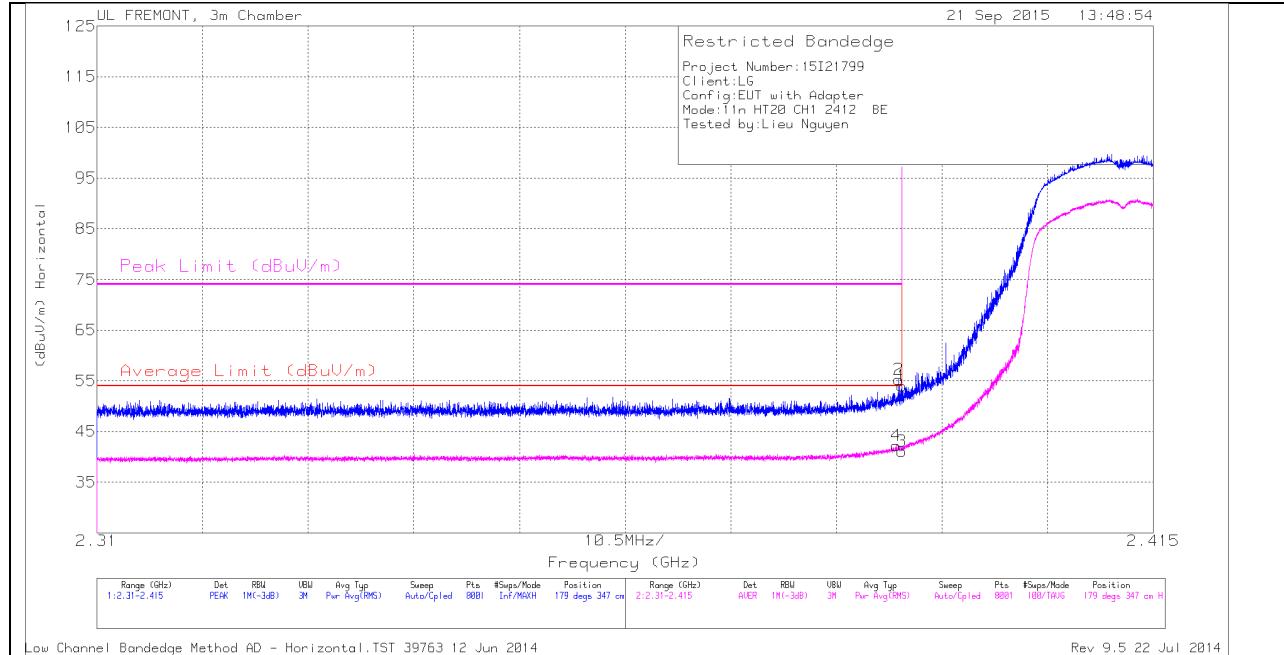
HIGH CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.924	29.16	PK	34	-29.6	0	33.56	-	-	74	-40.44	0-360	200	H
2	1.866	33.77	PK	30.8	-22.6	0	41.97	-	-	-	-	0-360	100	V
1	2.581	33.07	PK	32.4	-22	0	43.47	-	-	-	-	0-360	200	H
3	3.168	31.35	PK	32.7	-30.4	0	33.65	-	-	-	-	0-360	200	H
5	6.586	27.48	PK	35.6	-27.5	0	35.58	-	-	-	-	0-360	100	V
6	10.375	26.19	PK	37.2	-24.3	0	39.09	-	-	-	-	0-360	200	V

PK - Peak detector

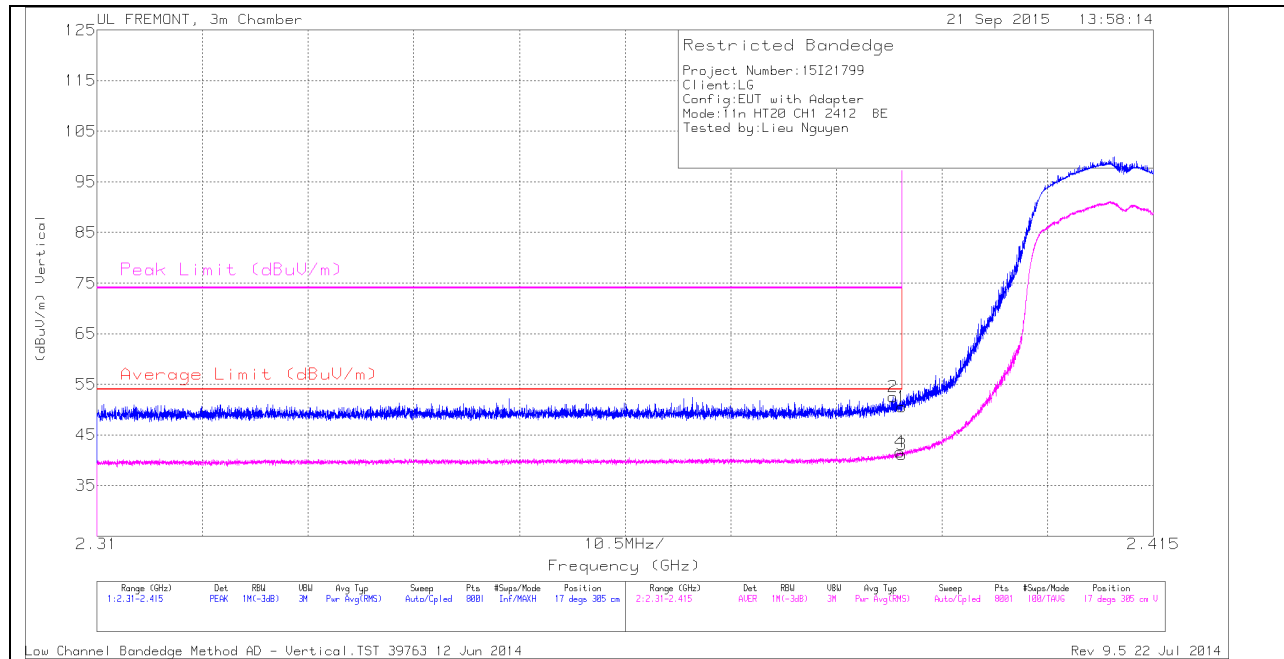
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.925	40.23	PK2	34	-29.6	0	44.63	-	-	74	-29.37	230	204	H
* 4.922	27.74	MAV1	34	-29.6	.23	32.37	54	-21.63	-	-	230	204	H

10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND**RESTRICTED BANDEDGE (LOW CHANNEL)****HORIZONTAL PEAK AND AVERAGE PLOT****HORIZONTAL DATA**

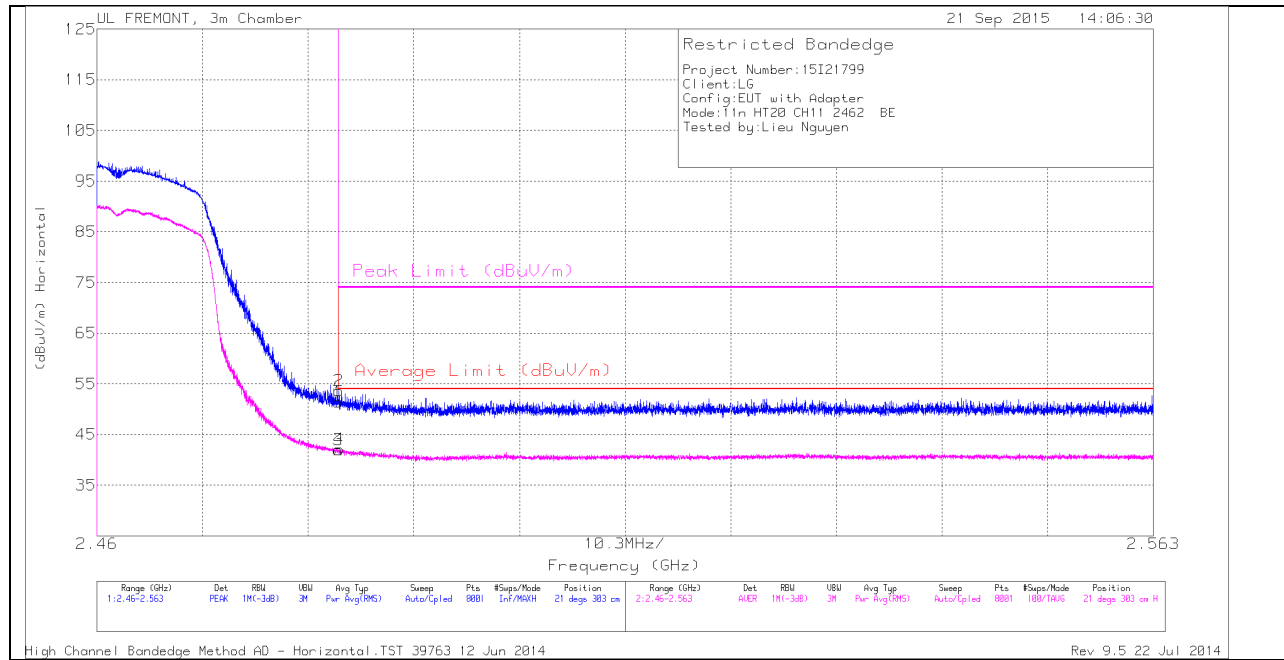
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	2.389	32.37	RMS	32	-22.4	.25	42.22	54	-11.78	-	-	179	347	H
1	2.39	44.44	PK	32	-22.4	0	54.04	-	-	74	-19.96	179	347	H
2	2.39	45.65	PK	32	-22.4	0	55.25	-	-	74	-18.75	179	347	H
3	2.39	31.28	RMS	32	-22.4	.25	41.13	54	-12.87	-	-	179	347	H

VERTICAL PEAK AND AVERAGE PLOT



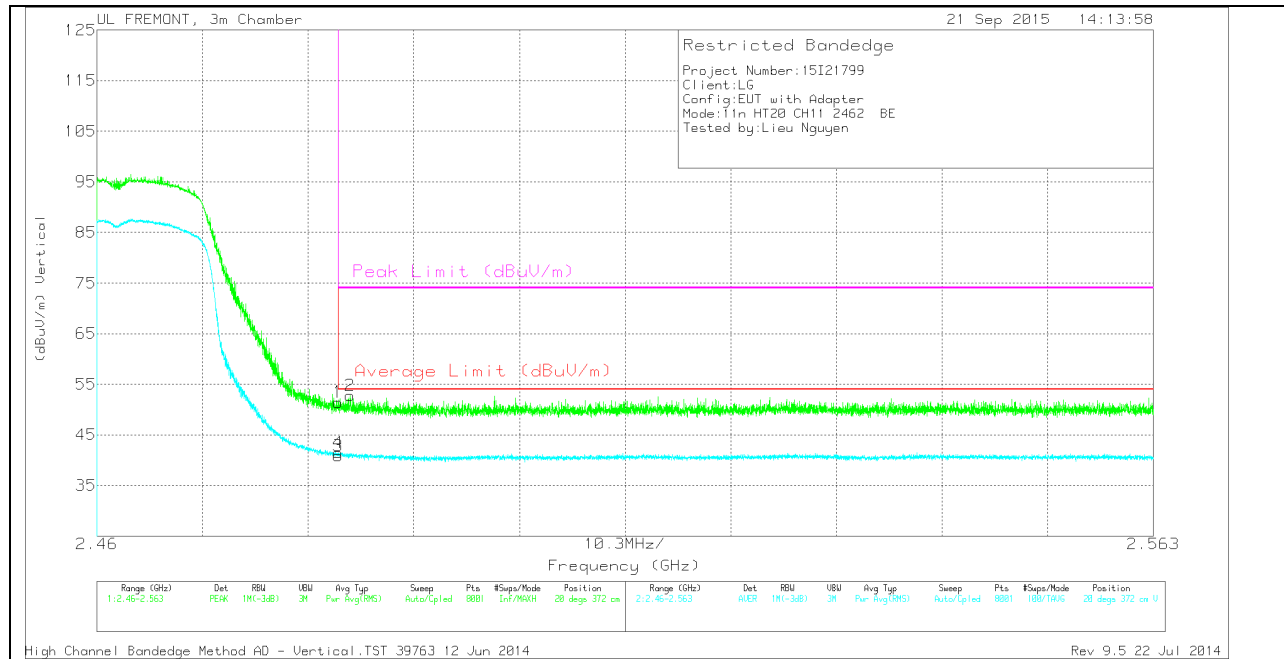
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	2.389	42.97	PK	32	-22.4	0	52.57	-	-	74	-21.43	17	305	V
1	2.39	40.98	PK	32	-22.4	0	50.58	-	-	74	-23.42	17	305	V
3	2.39	31.29	RMS	32	-22.4	.25	41.14	54	-12.86	-	-	17	305	V
4	2.39	31.71	RMS	32	-22.4	.25	41.56	54	-12.44	-	-	17	305	V

AUTHORIZED BANDEDGE (HIGH CHANNEL)**HORIZONTAL PEAK AND AVERAGE PLOT****HORIZONTAL DATA**

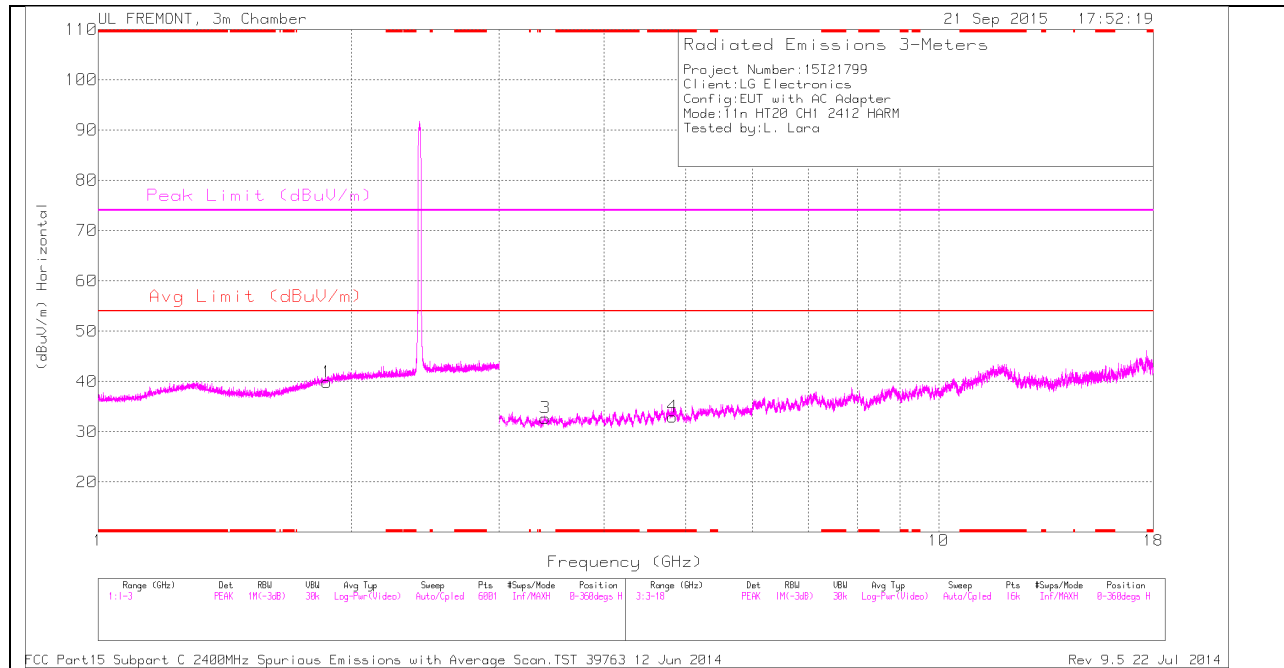
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	41.23	PK	32.3	-22.1	0	51.43	-	-	74	-22.57	21	303	H
2	2.484	43.5	PK	32.3	-22.1	0	53.7	-	-	74	-20.3	21	303	H
3	2.484	31.53	RMS	32.3	-22.1	.25	41.98	54	-12.02	-	-	21	303	H
4	2.484	31.59	RMS	32.3	-22.1	.25	42.04	54	-11.96	-	-	21	303	H

VERTICAL PEAK AND AVERAGE PLOT



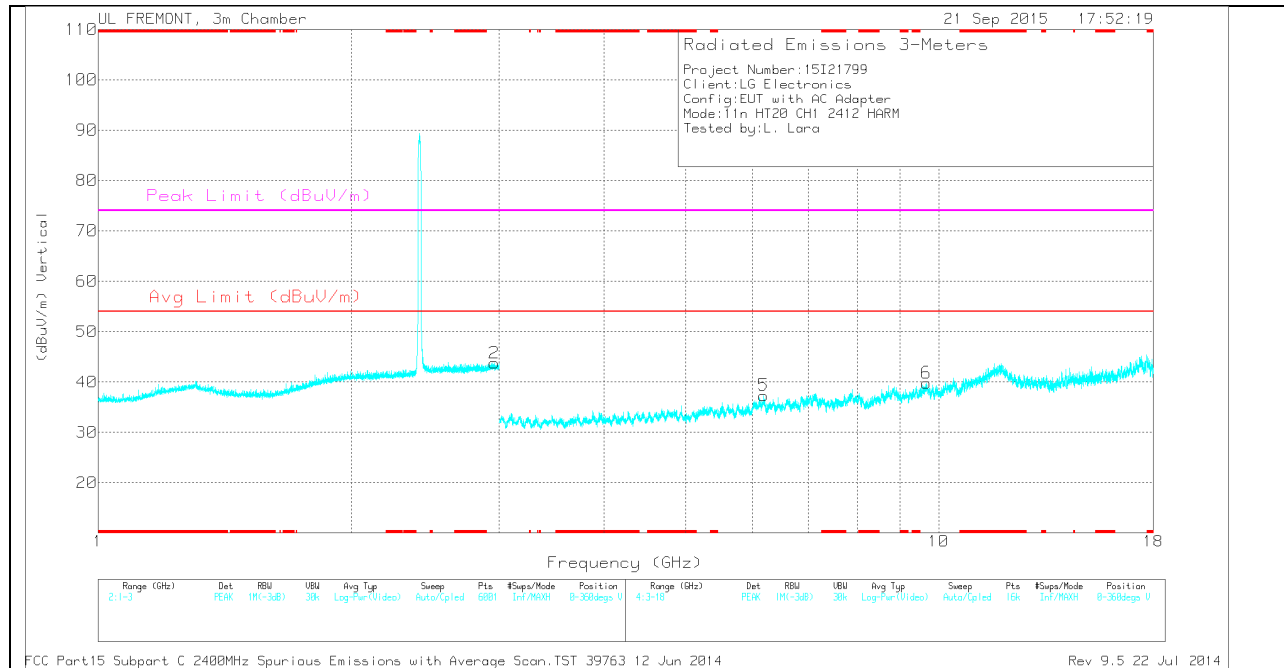
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	41.27	PK	32.3	-22.1	0	51.47	-	-	74	-22.53	20	372	V
3	2.484	30.46	RMS	32.3	-22.1	.25	40.91	54	-13.09	-	-	20	372	V
4	2.484	31.04	RMS	32.3	-22.1	.25	41.49	54	-12.51	-	-	20	372	V
2	2.485	42.55	PK	32.3	-22.1	0	52.75	-	-	74	-21.25	20	372	V

HARMONICS AND SPURIOUS EMISSIONS**LOW CHANNEL HORIZONTAL**

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

LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA*TRACE MARKERS*

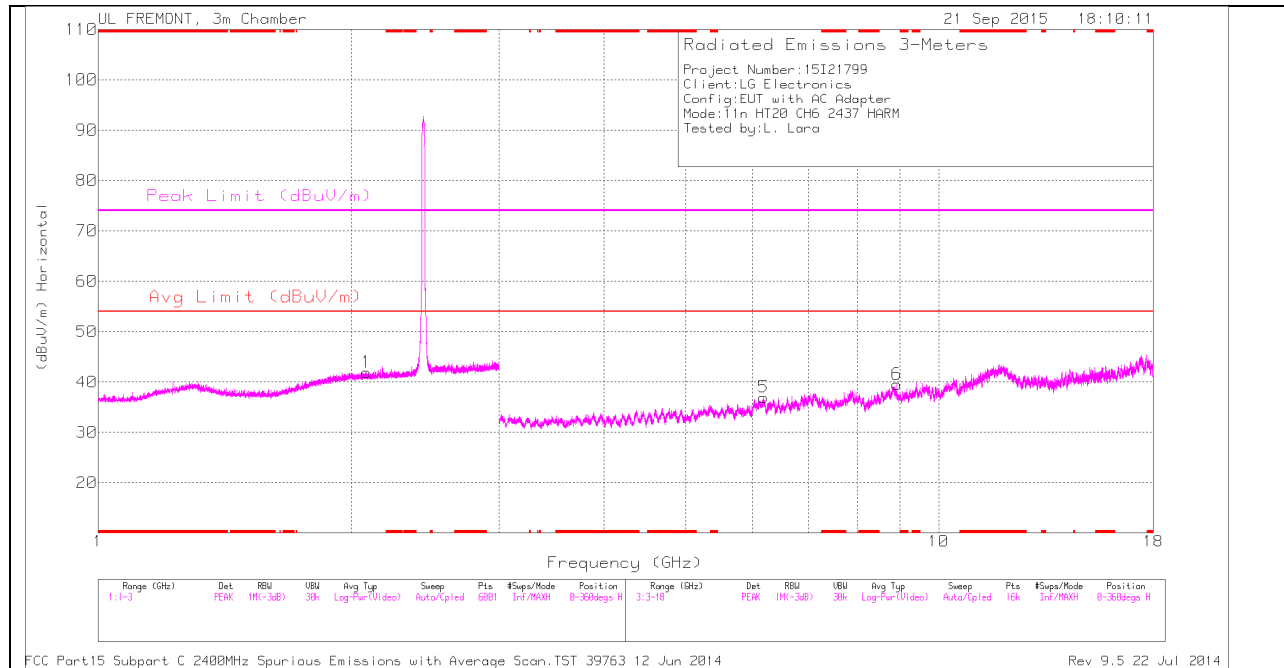
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.824	28.35	PK	34	-29.4	0	32.95	-	-	74	-41.05	0-360	100	H
1	1.872	31.56	PK	30.9	-22.6	0	39.86	-	-	-	-	0-360	100	H
2	2.961	32.85	PK	32.7	-21.8	0	43.75	-	-	-	-	0-360	200	V
3	3.404	31.02	PK	32.7	-31	0	32.72	-	-	-	-	0-360	200	H
5	6.187	31.33	PK	35.3	-29.3	0	37.33	-	-	-	-	0-360	200	V
6	9.672	26.8	PK	36.8	-23.8	0	39.8	-	-	-	-	0-360	200	V

PK - Peak detector

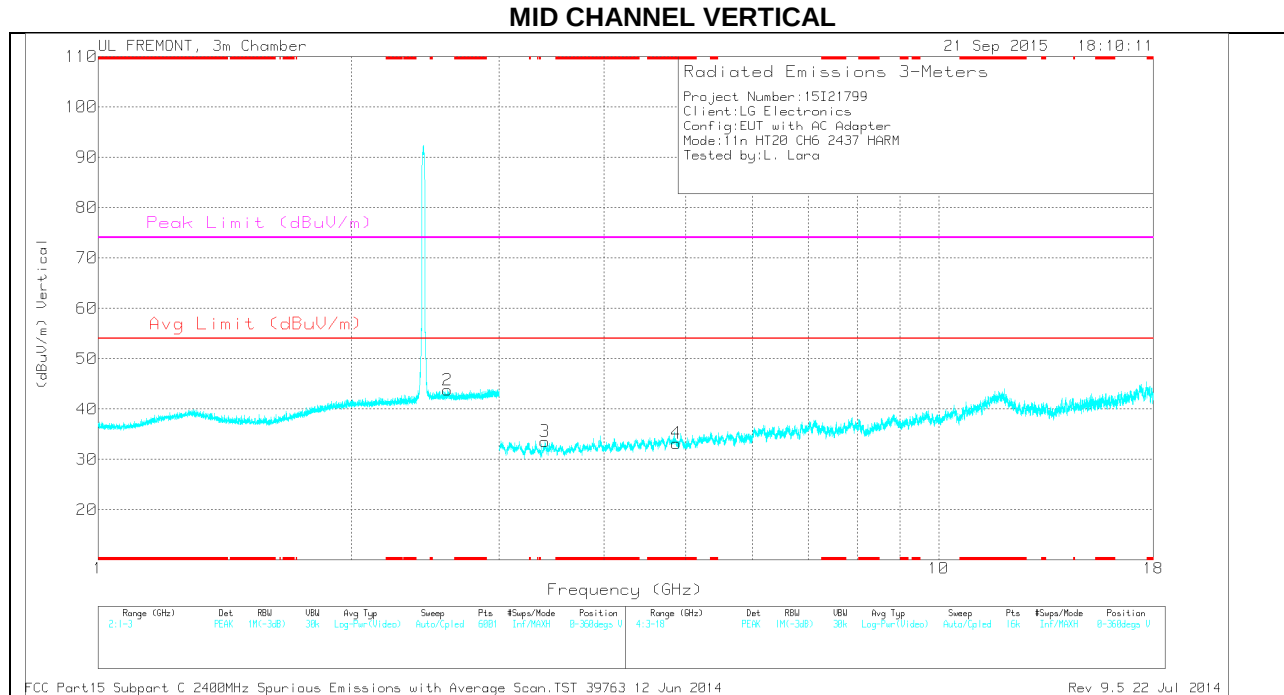
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.822	39.5	PK2	34	-29.4	0	44.1	-	-	74	-29.9	195	321	H
* 4.822	27.23	MAV1	34	-29.4	.25	32.08	54	-21.92	-	-	195	321	H

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.



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

MID CHANNEL DATA*TRACE MARKERS*

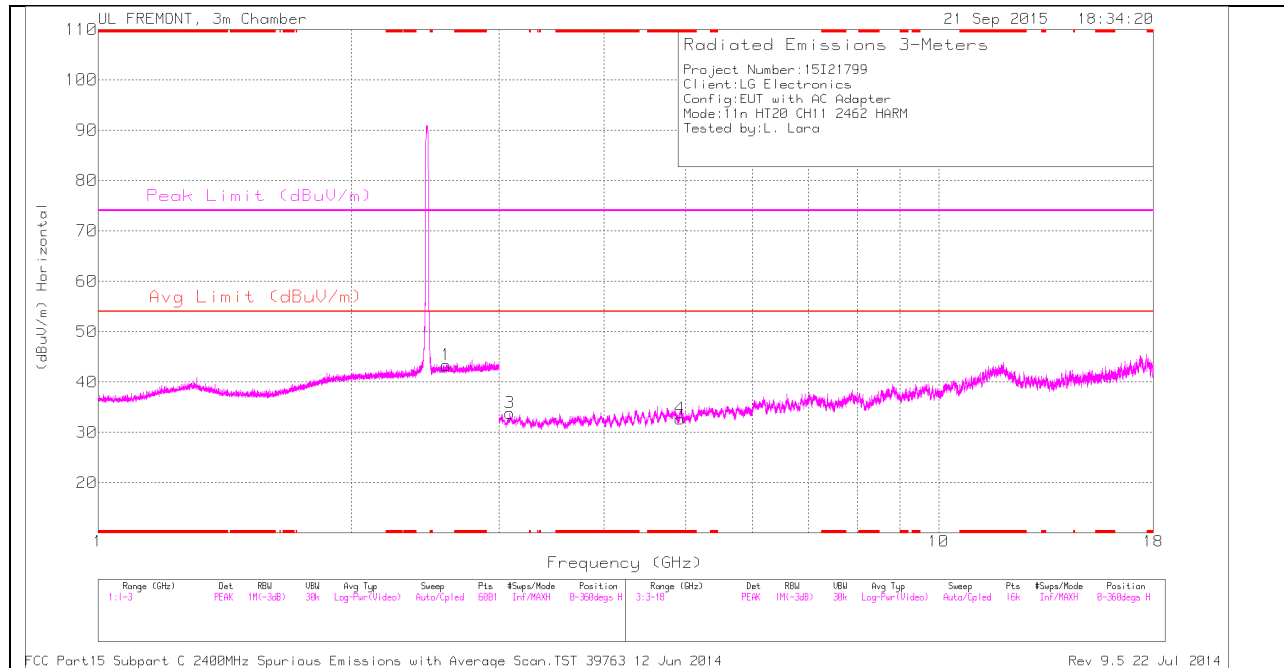
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.874	28.31	PK	34	-29.1	0	33.21	-	-	74	-40.79	0-360	200	V
1	2.086	32.73	PK	31.5	-22.3	0	41.93	-	-	-	-	0-360	100	H
2	2.603	33.35	PK	32.4	-22	0	43.75	-	-	-	-	0-360	200	V
3	3.402	31.85	PK	32.7	-31	0	33.55	-	-	-	-	0-360	100	V
5	6.193	31.17	PK	35.3	-29.5	0	36.97	-	-	-	-	0-360	100	H
6	8.915	29.18	PK	36	-25.6	0	39.58	-	-	-	-	0-360	100	H

PK - Peak detector

RADIATED EMISSIONS

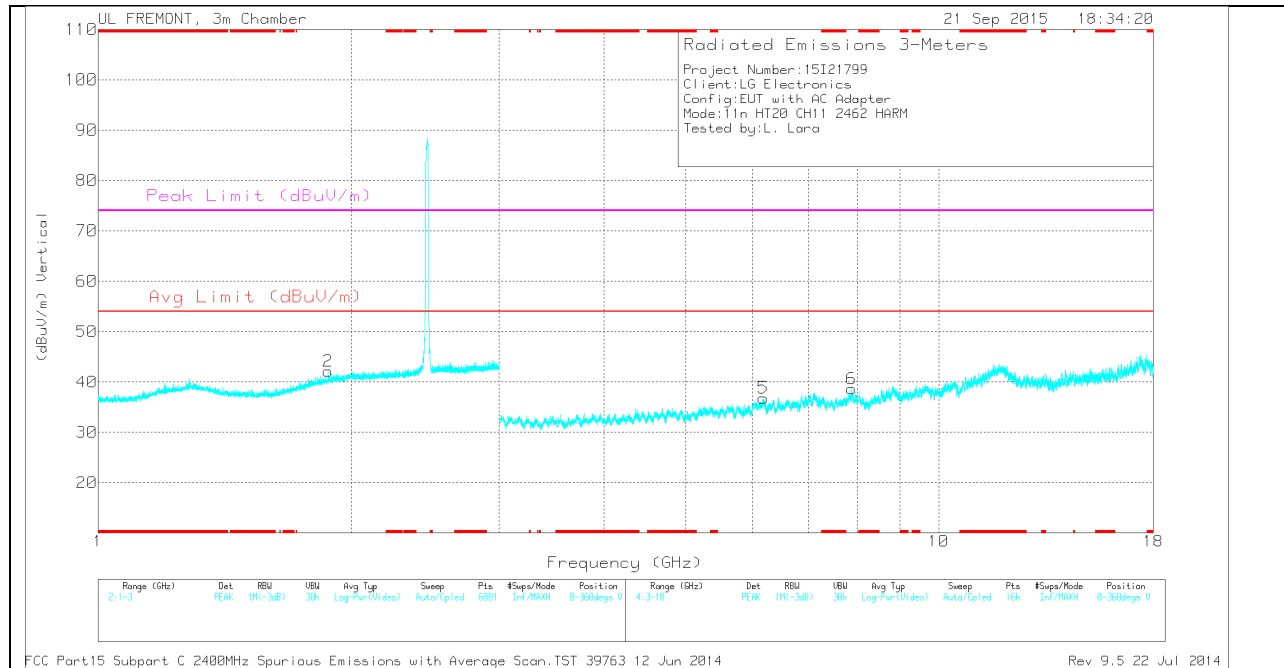
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.875	39.01	PK2	34	-29.1	0	43.91	-	-	74	-30.09	217	400	V
* 4.872	27.01	MAV1	34	-29.1	.25	32.16	54	-21.84	-	-	217	400	V

HIGH CHANNEL HORIZONTAL



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

HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA*TRACE MARKERS*

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 4.925	28.3	PK	34	-29.6	0	32.7	-	-	74	-41.3	0-360	200	H
2	1.878	33.85	PK	30.9	-22.6	0	42.15	-	-	-	-	0-360	200	V
1	2.596	32.95	PK	32.4	-22	0	43.35	-	-	-	-	0-360	200	H
3	3.09	31.95	PK	32.8	-30.9	0	33.85	-	-	-	-	0-360	200	H
5	6.184	30.83	PK	35.3	-29.3	0	36.83	-	-	-	-	0-360	200	V
6	7.882	28.96	PK	35.8	-26.1	0	38.66	-	-	-	-	0-360	100	V

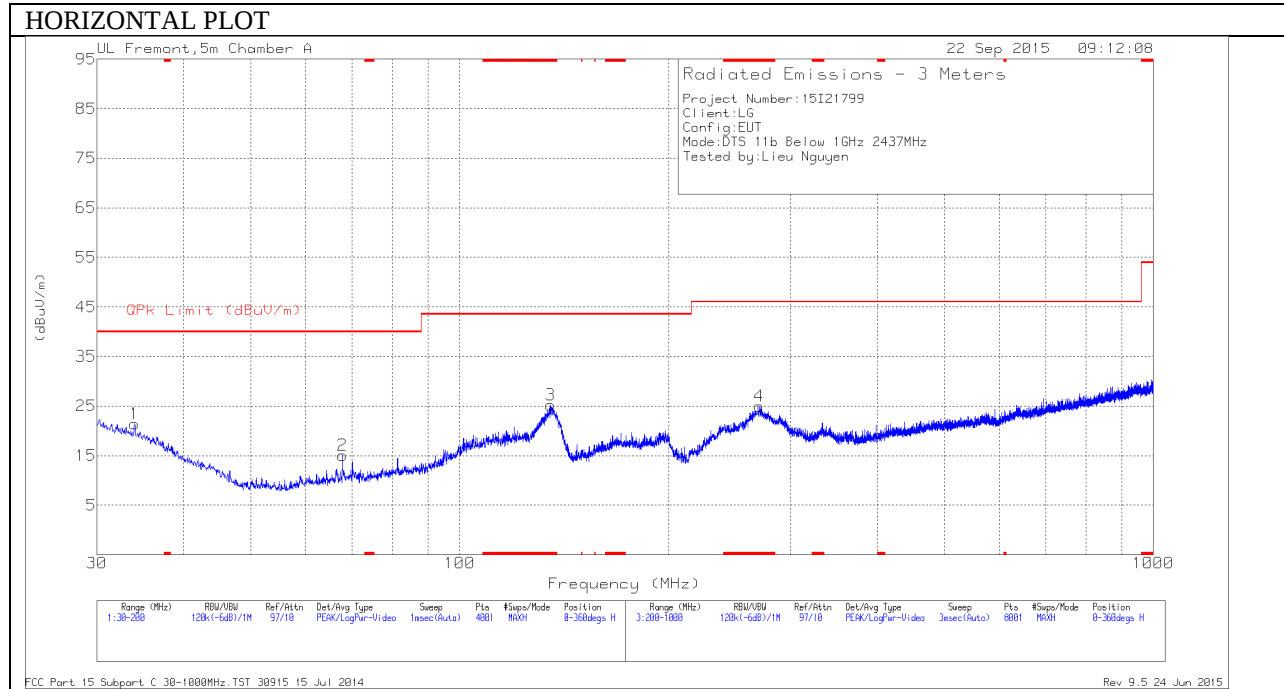
PK - Peak detector

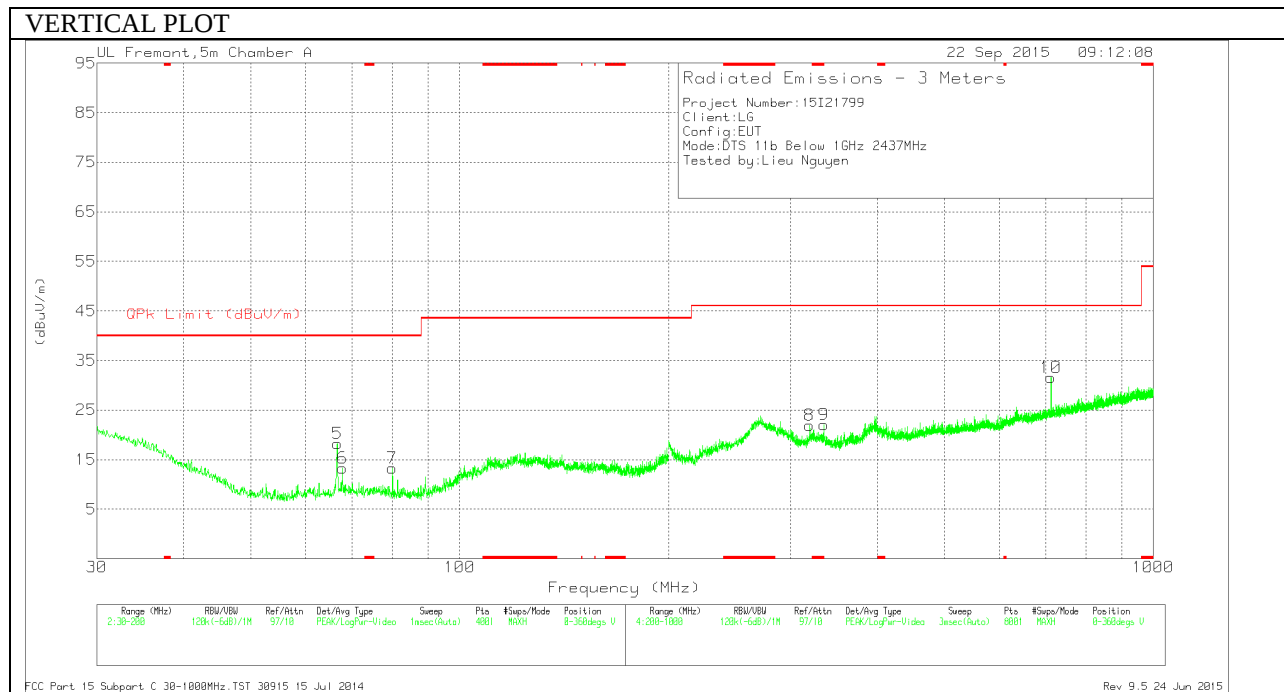
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T119 (dB/m)	Amp/Cb/Ftr /Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.926	39.73	PK2	34	-29.6	0	44.13	-	-	74	-29.87	202	357	H
* 4.923	27.79	MAV1	34	-29.6	.25	32.44	54	-21.56	-	-	202	357	H

10.3. WORST-CASE BELOW 1 GHz

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



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)**Below 1G Data**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T477 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPK Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 135.315	38.13	Pk	17.4	-30.3	25.23	43.52	-18.29	0-360	100	H
4	* 270.4	37.39	Pk	17.1	-29.5	24.99	46.02	-21.03	0-360	101	H
9	* 334.9	33.36	Pk	17.9	-29.2	22.06	46.02	-23.96	0-360	299	V
1	33.995	30.36	Pk	22.3	-31.2	21.46	40	-18.54	0-360	100	H
5	66.635	37.32	Pk	11.8	-30.9	18.22	40	-21.78	0-360	101	V
2	67.7825	34.09	Pk	11.9	-30.9	15.09	40	-24.91	0-360	199	H
6	67.7825	32.26	Pk	11.9	-30.9	13.26	40	-26.74	0-360	101	V
7	79.98	32.61	Pk	11.4	-30.7	13.31	40	-26.69	0-360	101	V
8	319.3	33.46	Pk	17.8	-29.3	21.96	46.02	-24.06	0-360	199	V
10	712.2	35.51	Pk	24.4	-28.3	31.61	46.02	-14.41	0-360	299	V

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

* Decreases with the logarithm of the frequency.

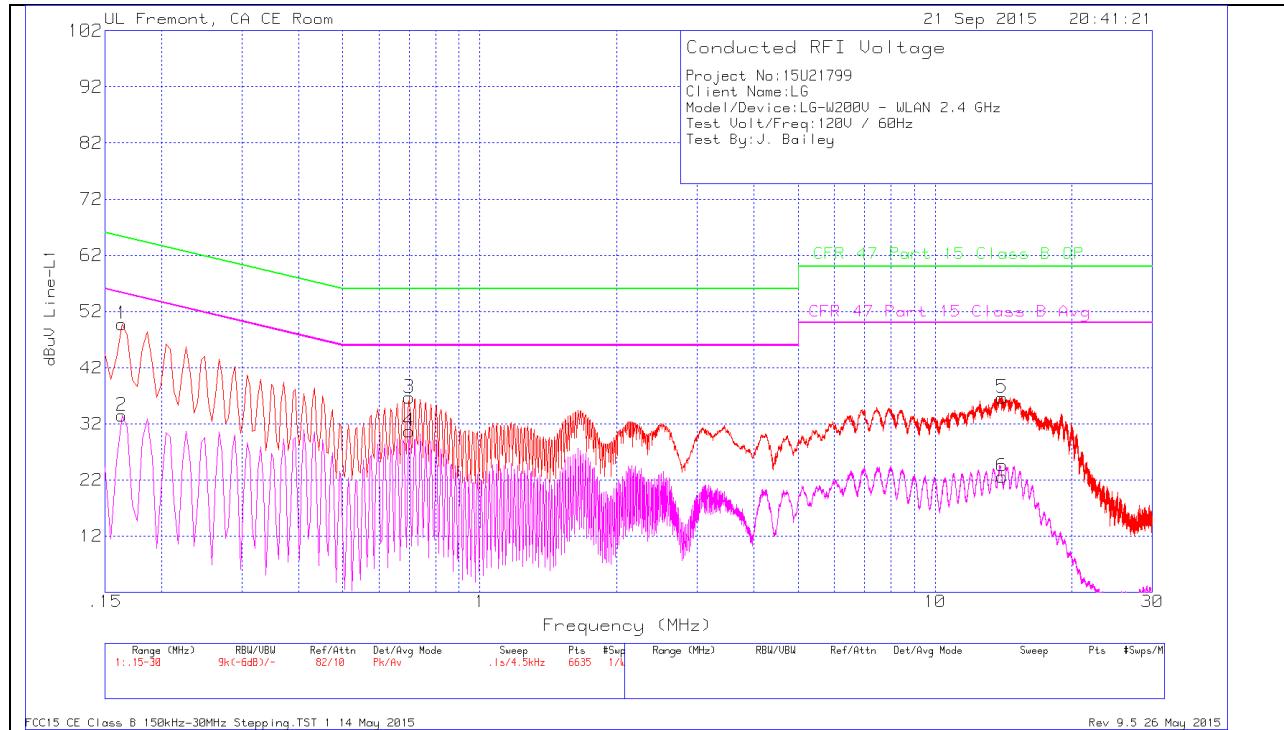
TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.4 2009.

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

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

RESULTS

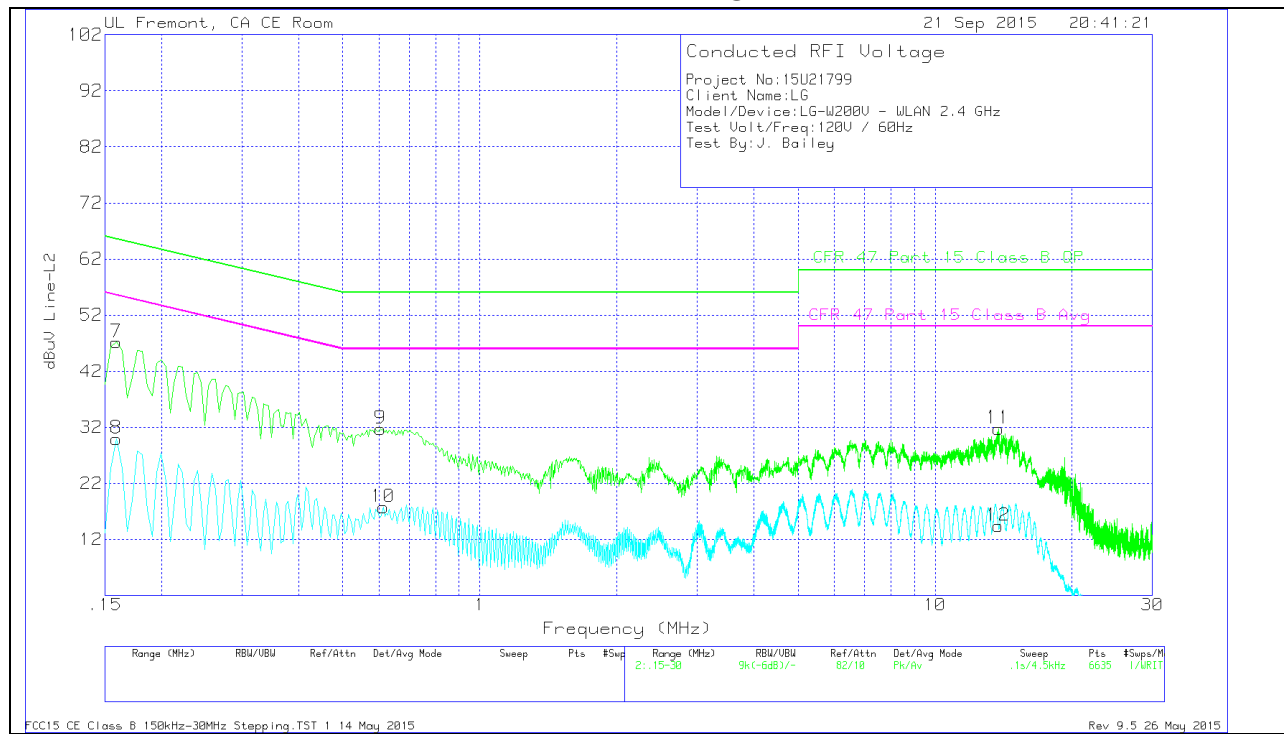
6 WORST EMISSIONS**LINE 1 PLOT****LINE 1 RESULTS****Range 1: Line-L1 .15 - 30MHz**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1	LC Cables 1&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
1	.1635	48.58	Pk	1.2	0	49.78	65.28	-15.5	-	-
2	.1635	32.28	Av	1.2	0	33.48	-	-	55.28	-21.8
3	.699	36.38	Pk	.3	0	36.68	56	-19.32	-	-
4	.699	30.37	Av	.3	0	30.67	-	-	46	-15.33
5	14.0415	36.26	Pk	.2	.2	36.66	60	-23.34	-	-
6	14.0325	22.25	Av	.2	.2	22.65	-	-	50	-27.35

Pk - Peak detector

Av - Average detection

LINE 2 PLOT



LINE 2 RESULTS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2	LC Cables 2&3	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	Margin (dB)	CFR 47 Part 15 Class B Avg	Margin (dB)
7	.159	45.76	Pk	1.4	0	47.16	65.52	-18.36	-	-
8	.159	28.56	Av	1.4	0	29.96	-	-	55.52	-25.56
9	.6045	31.45	Pk	.3	0	31.75	56	-24.25	-	-
10	.6135	17.48	Av	.3	0	17.78	-	-	46	-28.22
11	13.7715	31.36	Pk	.2	.2	31.76	60	-28.24	-	-
12	13.767	14.02	Av	.2	.2	14.42	-	-	50	-35.58

Pk - Peak detector

Av - Average detection