



**FCC CFR47 PART 15 SUBPART C**

**CERTIFICATION TEST REPORT**

**FOR**

**GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n and NFC**

**MODEL NUMBER: LG-D725, D725, LGD725**

**FCC ID: ZNFD725**

**REPORT NUMBER: 14U17493-4**

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*Prepared for*

**LG ELECTRONICS MOBILECOMM U.S.A., INC  
1000 SYLVAN AVENUE  
ENGLEWOOD CLIFFS,  
NEW JERSEY, 07632, U.S.A.**

*Prepared by*

**UL VERIFICATION SERVICES INC.  
47173 BENICIA STREET  
FREMONT, CA 94538, U.S.A.  
TEL: (510) 771-1000  
FAX: (510) 661-0888**



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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** LG ELECTRONICS MOBILECOMM U.S.A., INC.  
**EUT DESCRIPTION:** GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n and NFC  
**MODEL:** LG-D725, D725, LGD725  
**SERIAL NUMBER:** 403KPVH000431 (Conducted); 403KPXV000426 (Radiated)  
**DATE TESTED:** APRIL 2 – 25, 2014

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:



PHILIP KIM  
CONSUMER TECHNOLOGY DIVISION  
PROGRAM MANAGER  
UL Verification Services Inc.

CHARLES VERGONIO  
CONSUMER TECHNOLOGY DIVISION  
LABORATORY ENGINEER  
UL Verification Services Inc.

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.4-2009

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 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:

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

### 4.3. MEASUREMENT UNCERTAINTY

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

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

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

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a GSM/WCDMA/LTE Phone + Bluetooth, DTS/UNII a/b/g/n and 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	18.61	72.61
2412 - 2462	802.11g	21.26	133.66
2412 - 2462	802.11n HT20	18.97	78.89
5745-5825	802.11a	16.75	47.32
5745-5825	802.11n HT20	16.29	42.56
5755-5795	802.11n HT40	16.8	47.86

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIF antenna, with a maximum gain of -0.4dBi (2.4GHz) & -0.3dBi (5.8GHz).

## 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  
802.11a mode: 6 Mbps  
802.11n HT20mode: MCS0  
802.11n HT40mode: MCS0

## 5.5. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG Electronics	MCS-01WD	DB3Y0094683	N/A
Earphone	LG Electronics	N/A	N/A	N/A

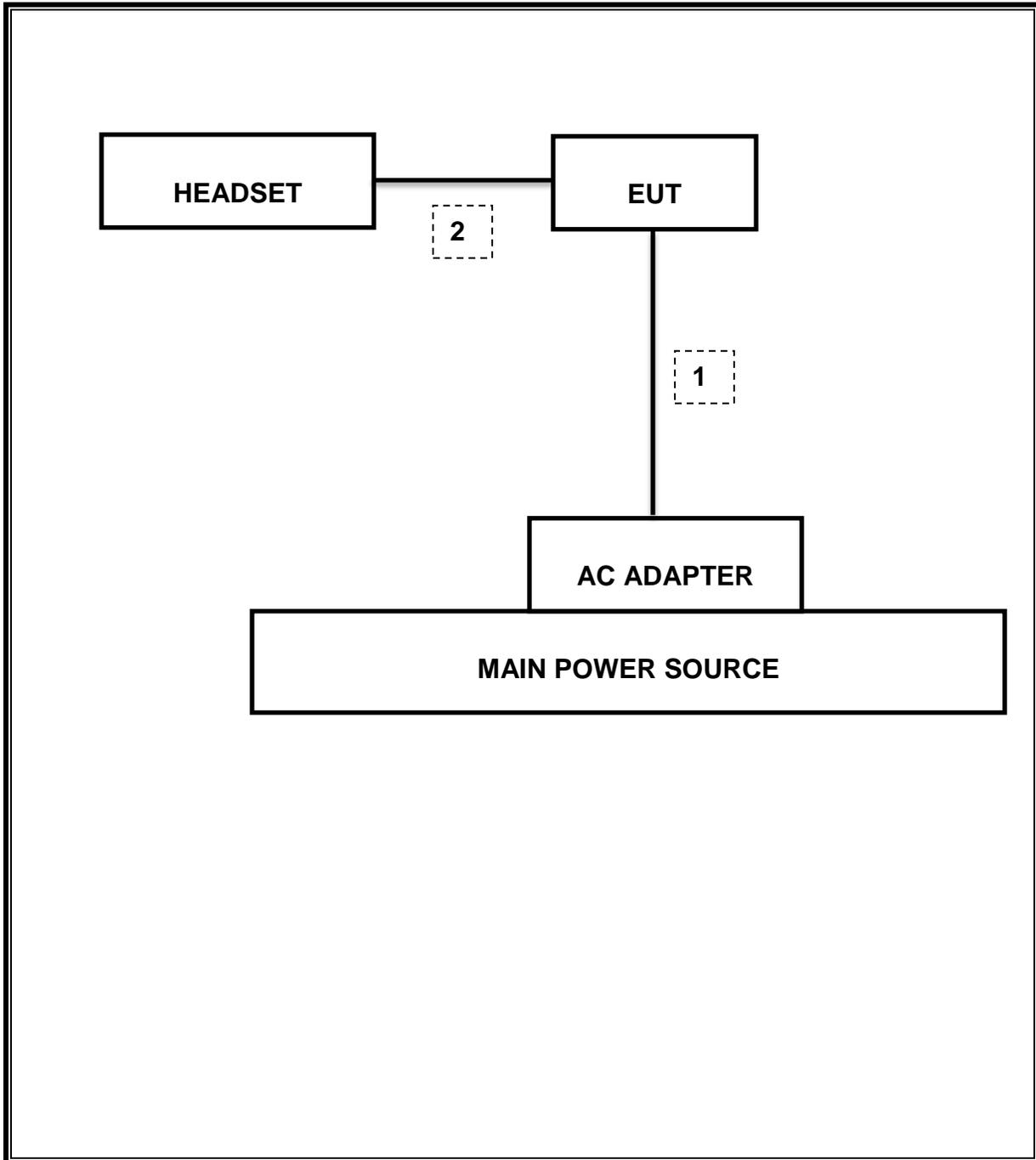
### I/O CABLES

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.

**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
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/14
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/15
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/14
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/14
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/14
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/14
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/15
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/14
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/14
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/15
RF Preamplifier, 100KHz -> 1300MHz	HP	TBD	C00825	06/01/14
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/15
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/14
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/14
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 3GHz	Micro-Tronics	LPS17541	F00219	05/23/14
High Pass Filter 5GHz	Micro-Tronics	HPS17542	F00222	05/22/14
High Pass Filter 6GHz	Micro-Tronics	HPM17543	F00224	05/22/14

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## 7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r01:Measurement Procedure PK2 is used for power and PKPSD is used for power spectral density.

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

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

## 8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-210 A8.2(a)	Occupied Band width (6dB)	>500KHz	Conducted	Pass	10.05MHz
2.1051, 15.247 (d)	RSS-210 A8.5	Band Edge / Conducted Spurious Emission	-20dBc		Pass	-30.42dBm
15.247	RSS-210 A8.4	TX conducted output power	<30dBm		Pass	21.26dBm
15.247	RSS-210 A8.2	PSD	<8dBm		Pass	-4.32dBm
15.207 (a)	RSS-GEN 7.2.2	AC Power Line conducted emissions	Section 10	Radiated	Pass	53.24dBuV/m
15.205, 15.209	RSS-210 Clause 2.6, RSS-210 Clause 6	Radiated Spurious Emission	< 54dBuV/m		Pass	41.13dBuV/m

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## 9. ANTENNA PORT TEST RESULTS

### 9.1. 6 dB BANDWIDTH

#### LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

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

#### TEST PROCEDURE

Reference to KDB 558074 D01 DTS Meas Guidance v03r01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW  $\geq 3 \times$  RBW, peak detector and max hold.

#### RESULTS

**9.1.1. 802.11b MODE IN THE 2.4 GHz BAND**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	10.08	0.5
Mid	2437	10.05	0.5
High	2462	10.08	0.5
Worst		10.05	

**9.1.2. 802.11g MODE IN THE 2.4 GHz BAND**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	16.25	0.5
Mid	2437	16.21	0.5
High	2462	16.25	0.5
Worst		16.21	

**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	17.29	0.5
Mid	2437	17.46	0.5
High	2462	17.50	0.5
Worst		17.29	

**9.1.4. 802.11a MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.020	0.5
Mid	5785	15.390	0.5
High	5825	14.190	0.5
Worst		14.190	

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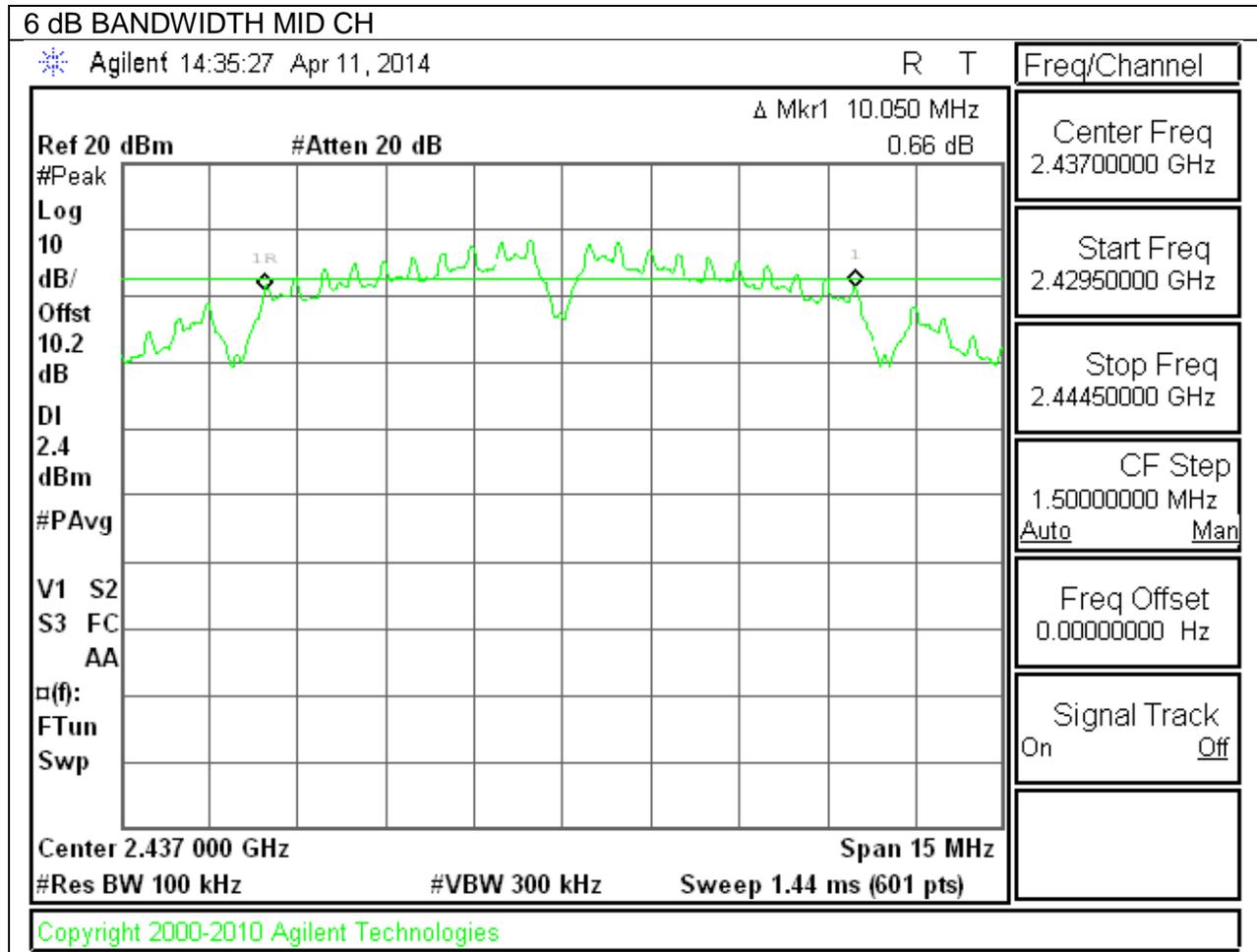
**9.1.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	15.150	0.5
Mid	5785	15.150	0.5
High	5825	15.150	0.5
Worst		15.150	

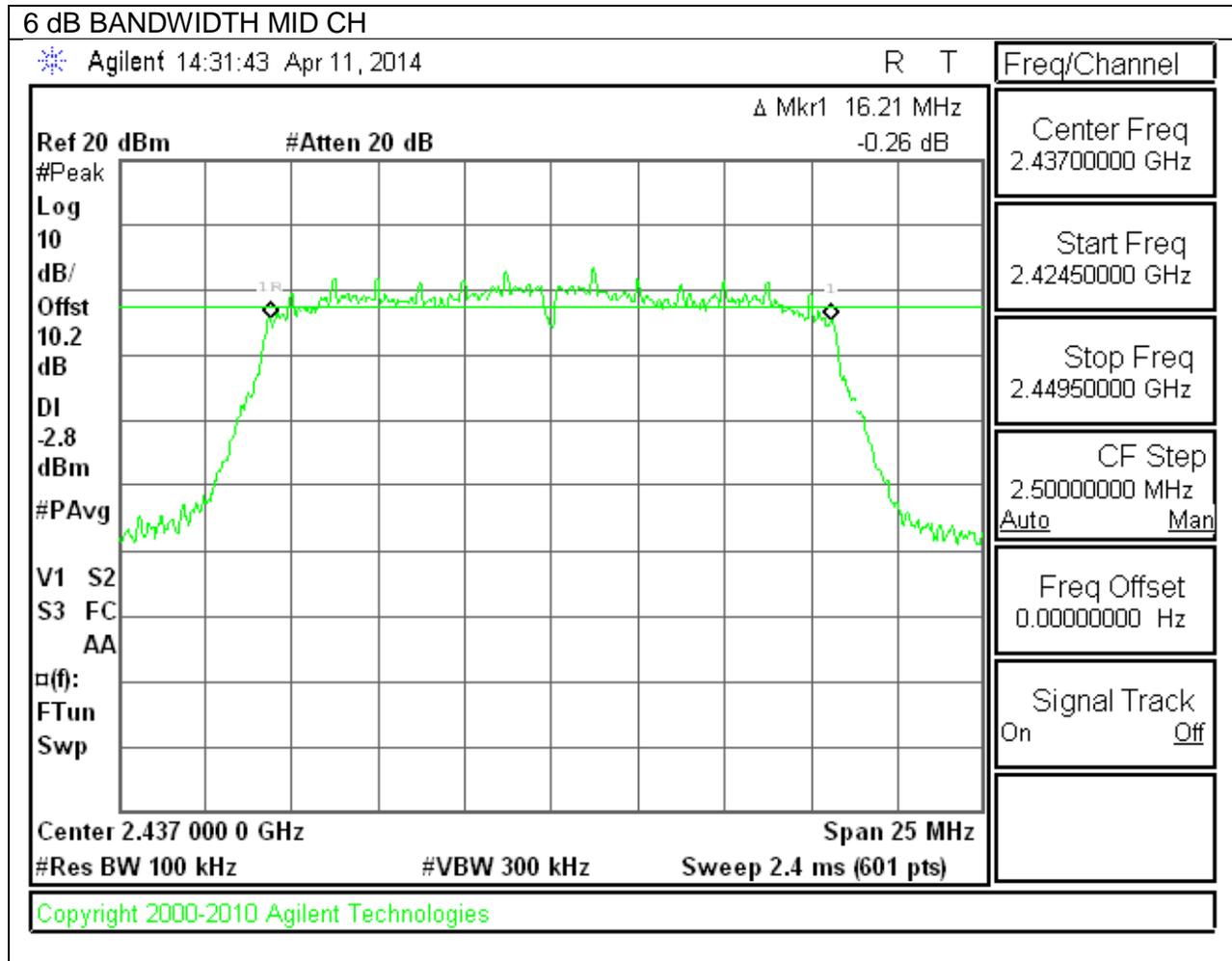
**9.1.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	35.2	0.5
High	5795	35.4	0.5
Worst		35.2	0.5

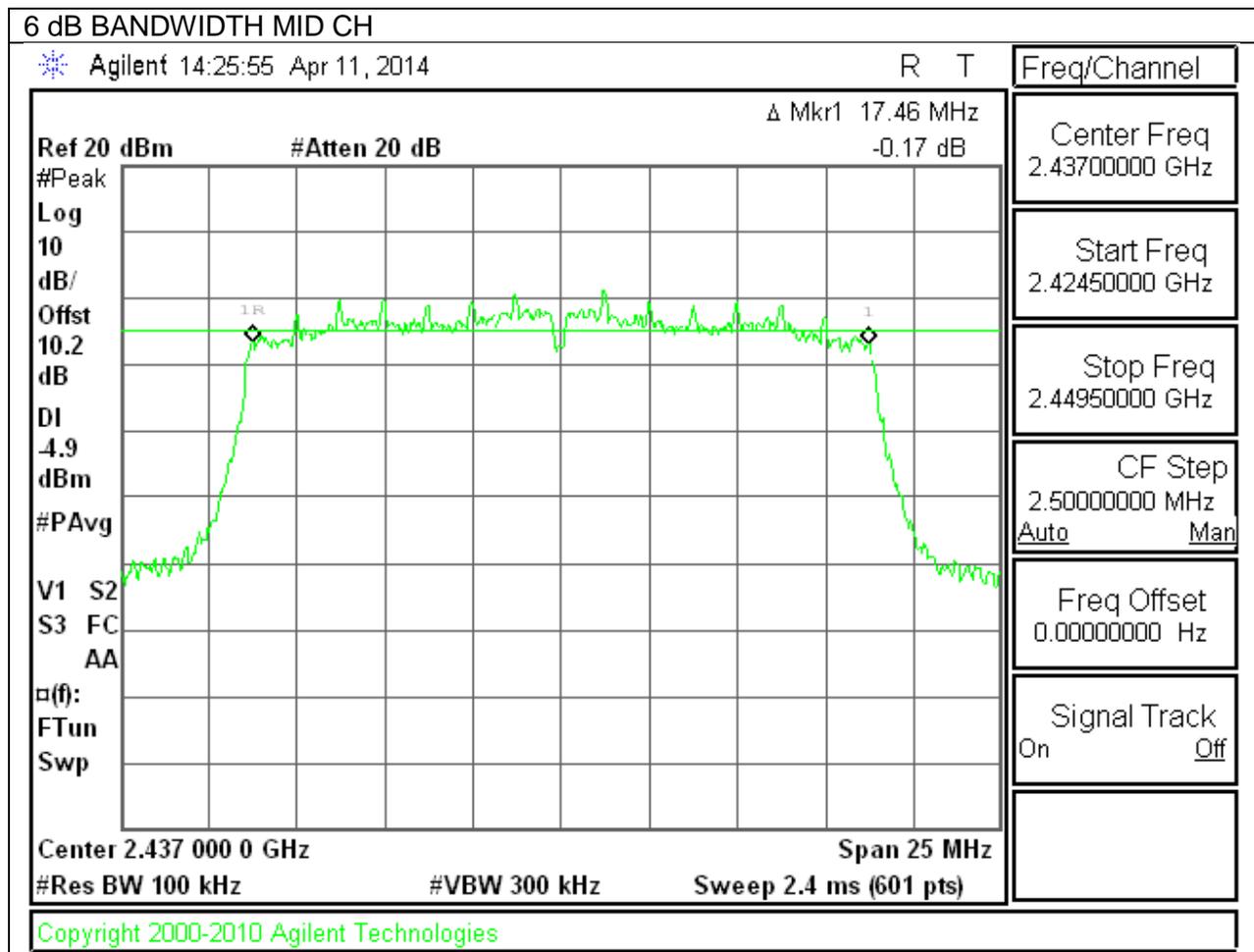
**802.11b 6 dB BANDWIDTH**



**802.11g 6 dB BANDWIDTH**

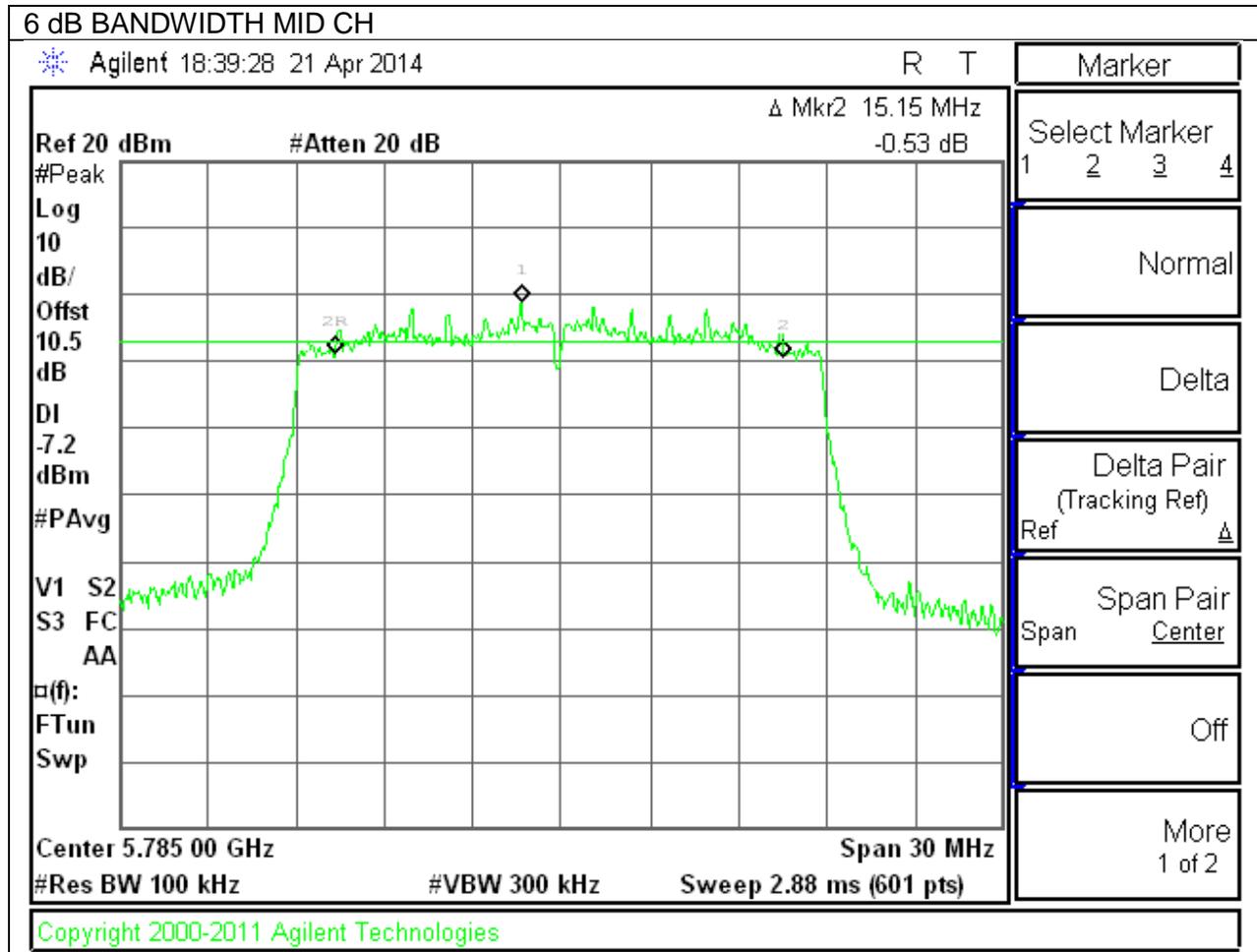


**802.11n 6 dB BANDWIDTH**

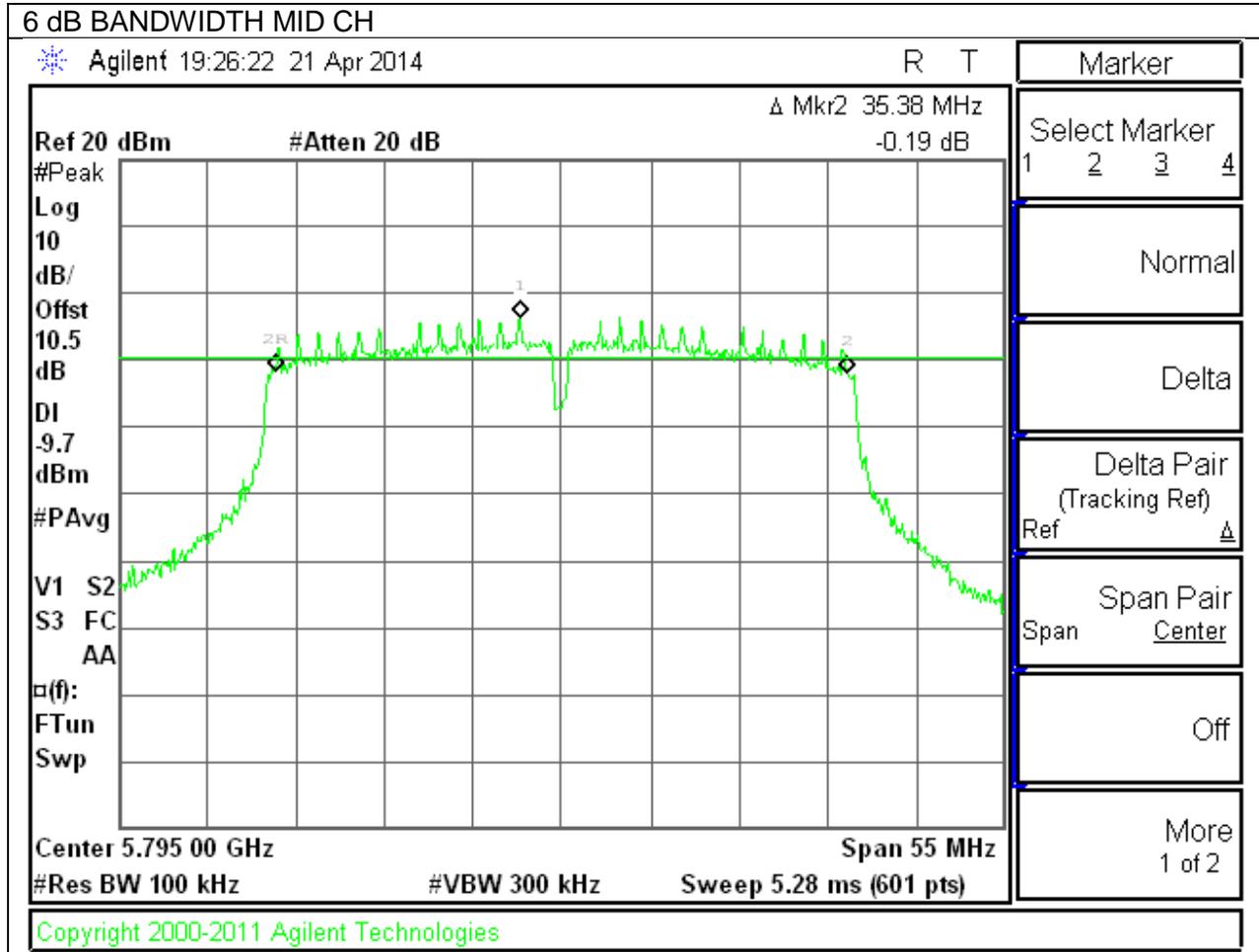




**802.11n HT20 6 dB BANDWIDTH 5.8GHz**



**802.11n HT40 6 dB BANDWIDTH 5.8GHz**



**9.2. 99% BANDWIDTH**

**LIMITS**

None; for reporting purposes only.

**RESULTS**

**9.2.1. 802.11b MODE IN THE 2.4 GHz BAND**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	14.00
Mid	2437	13.94
High	2462	13.98
Worst		14.00

**9.2.2. 802.11g MODE IN THE 2.4 GHz BAND**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	16.28
Mid	2437	16.16
High	2462	16.26
Worst		16.28

**9.2.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2412	17.30
Mid	2437	17.32
High	2462	17.43
Worst		17.43

**9.2.4. 802.11a MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.411
Mid	5785	16.397
High	5825	16.464
Worst		16.464

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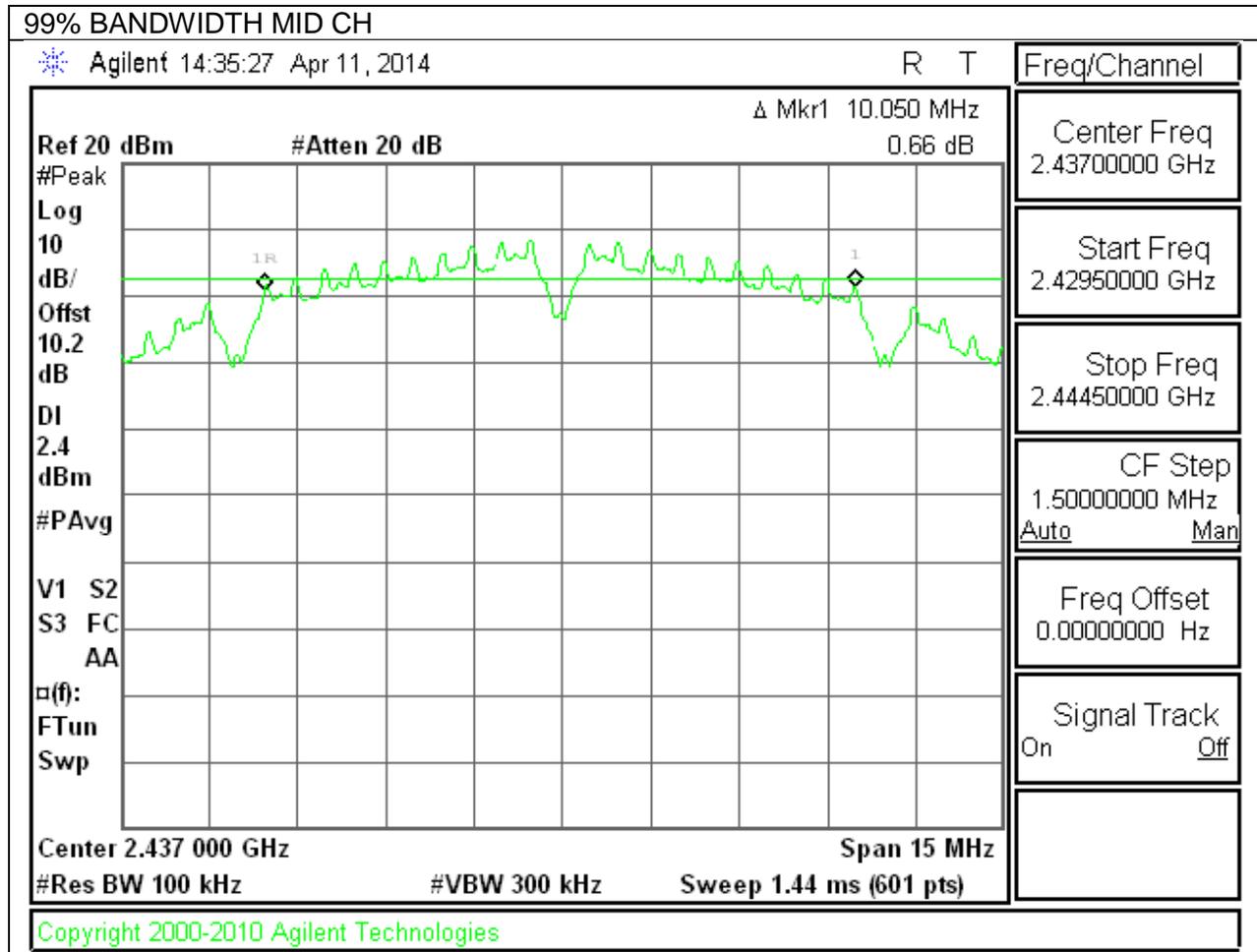
**9.2.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.495
Mid	5785	17.487
High	5825	17.506
Worst		17.506

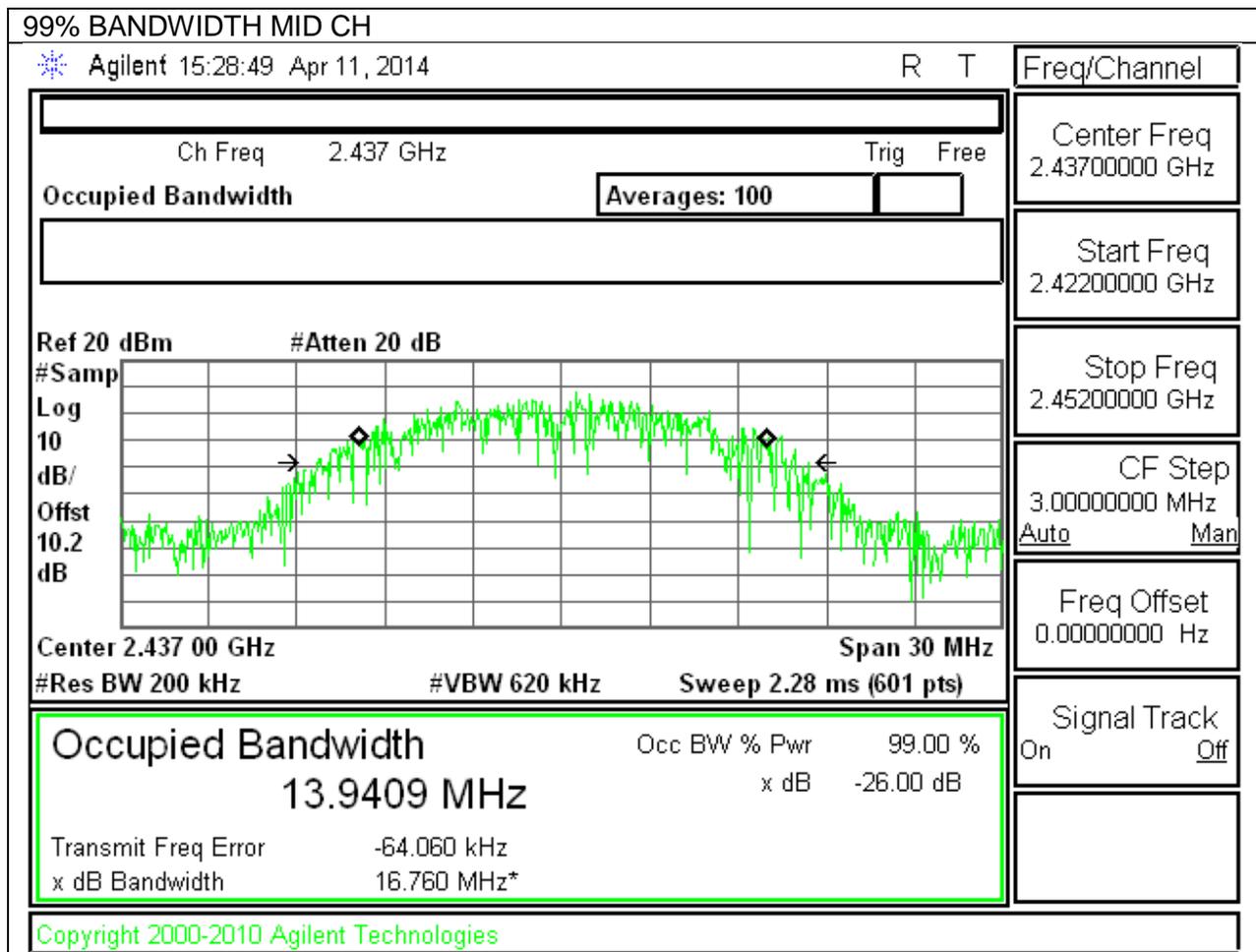
**9.2.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	35.8
High	5795	35.8
Worst		35.8

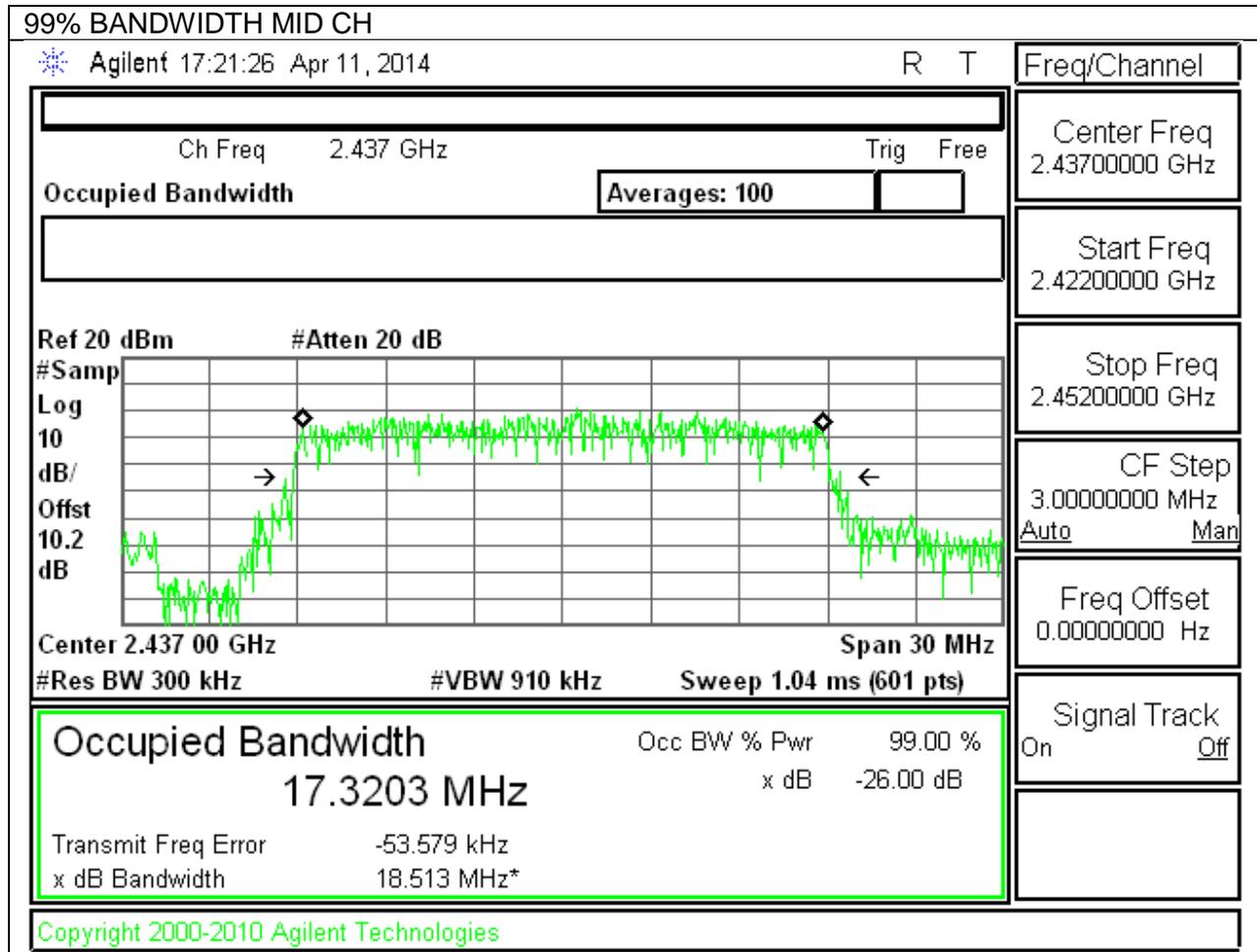
**802.11b 99% BANDWIDTH**



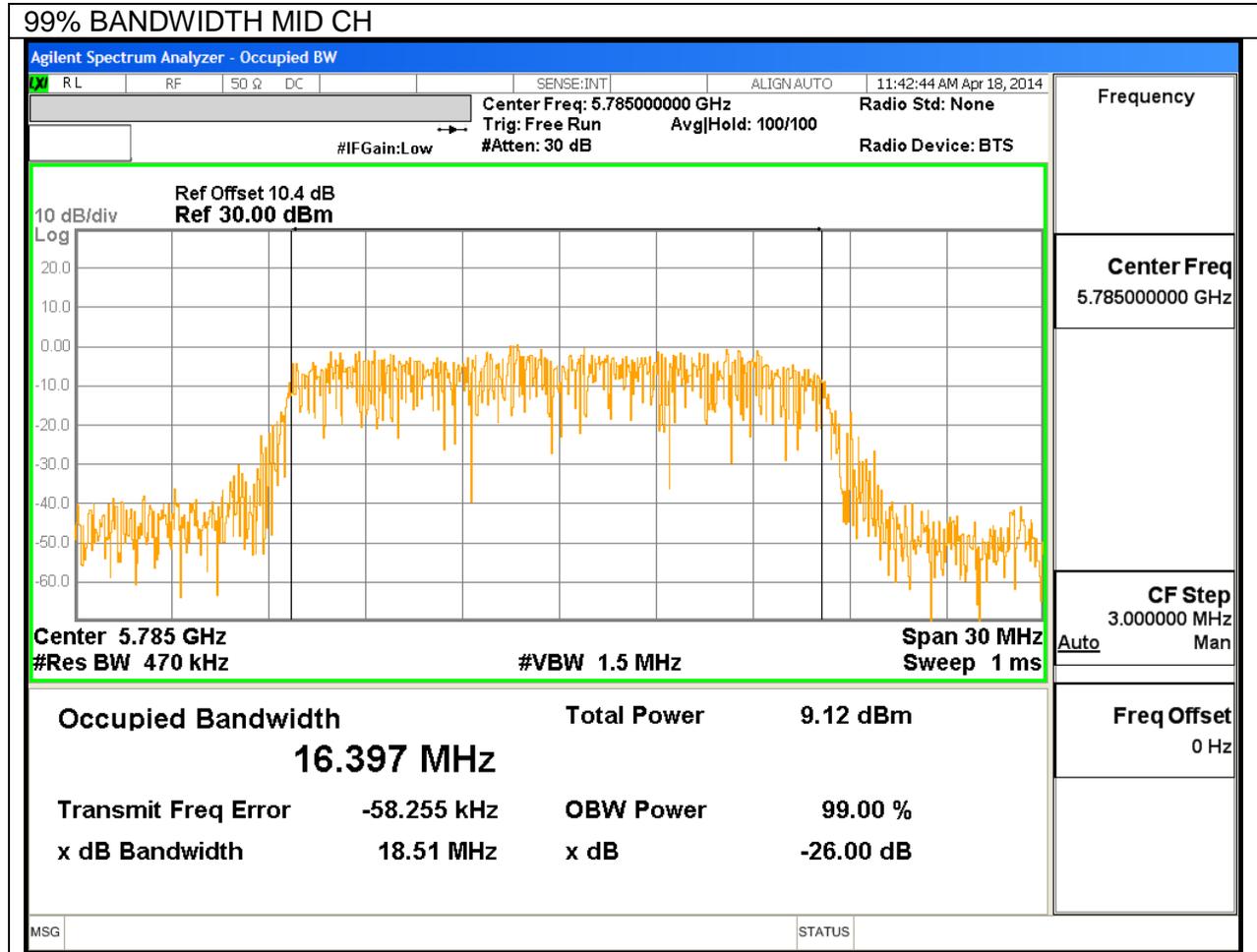
**802.11g 99% BANDWIDTH**



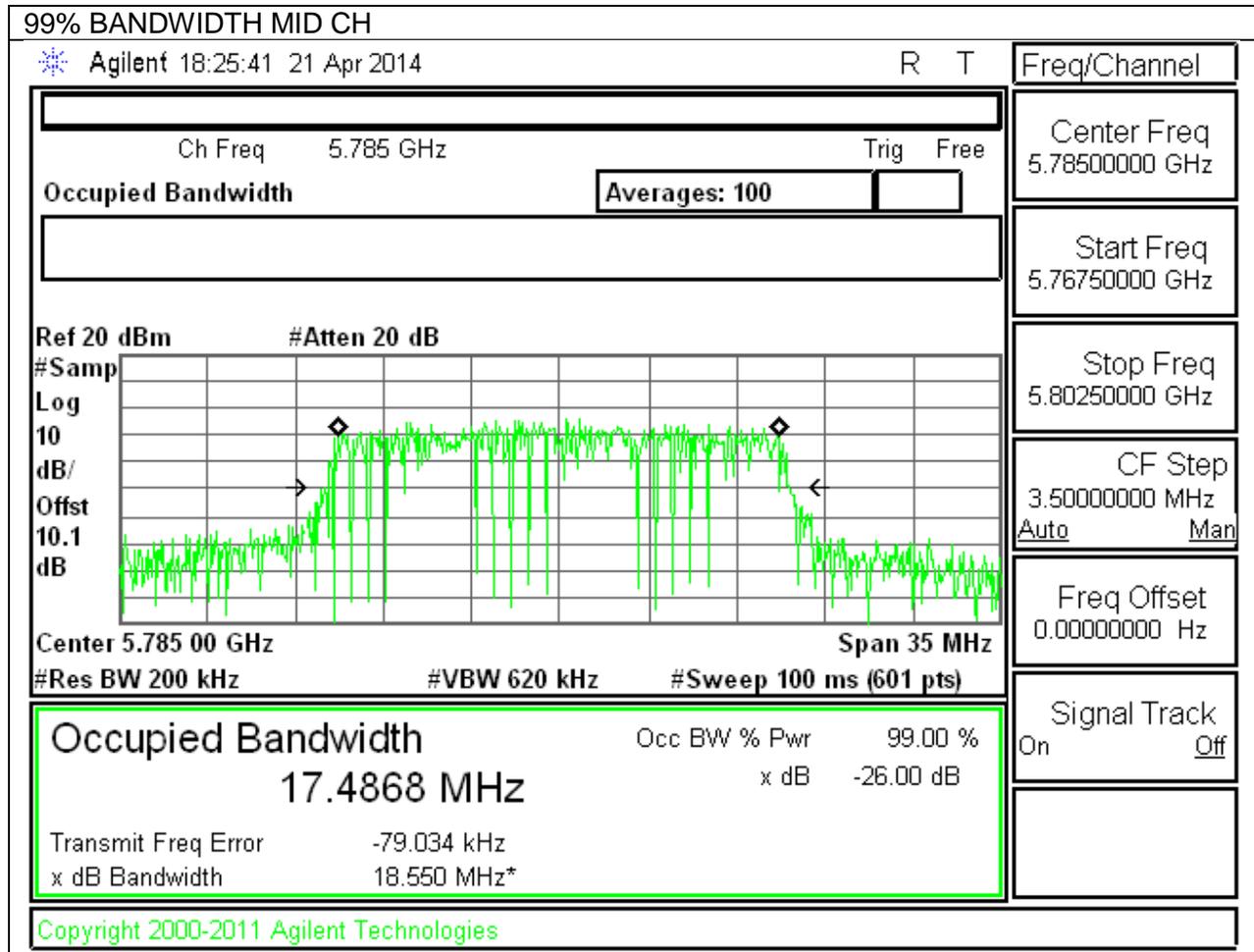
**802.11n 99% BANDWIDTH**



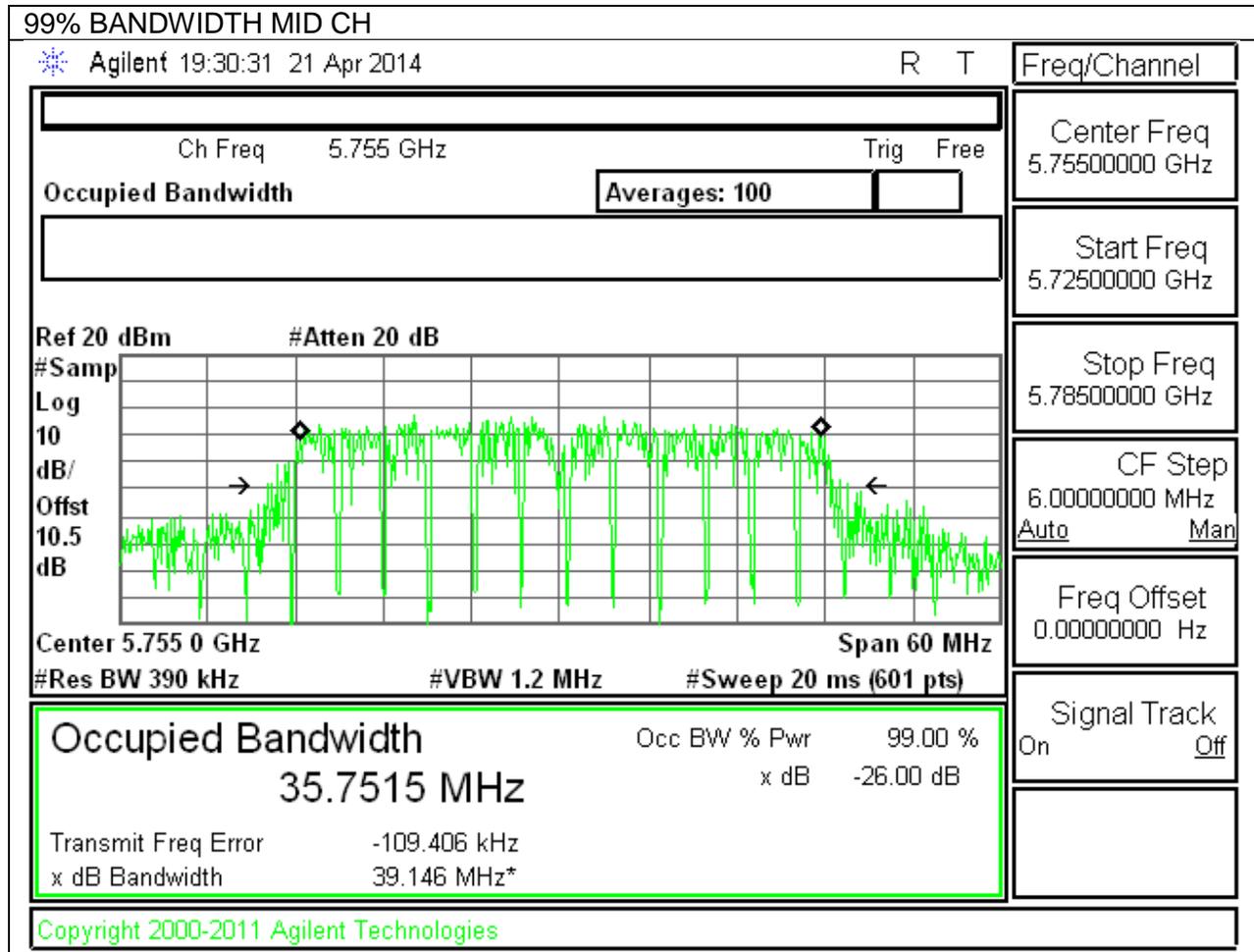
**802.11a 5.8GHz 99% BANDWIDTH**



**802.11n HT20 5.8GHz 99% BANDWIDTH**



**802.11n HT40 5.8GHz 99% BANDWIDTH**



### **9.3. AVERAGE POWER**

#### **LIMITS**

None; for reporting purposes only.

#### **TEST PROCEDURE**

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.2 dB (including 10 dB pad and 0.2 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

#### **RESULTS**

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

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	14.60
Mid	2437	15.50
High	2462	15.50
Worst		15.500

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

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	11.85
Mid	2437	12.83
High	2462	12.72
Worst		12.830

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

Channel	Frequency (MHz)	Avg Power (dBm)
Low	2412	9.60
Mid	2437	10.45
High	2462	10.34
Worst		10.450

**9.3.4. 802.11a MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	9.100
Mid	5785	9.000
High	5825	9.100
Worst		9.100

**9.3.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5745	9.000
Mid	5785	9.000
High	5825	9.100
Worst		9.100

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**9.3.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	Avg Power (dBm)
Low	5755	9.3
High	5795	9.2
Worst		9.3

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## **9.4. OUTPUT POWER**

### **LIMITS**

FCC §15.247

IC RSS-210 A8.4

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

### **DIRECTIONAL ANTENNA GAIN**

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

**RESULTS**

**9.4.1. 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	-0.40	30.00	30	36	30.00
Mid	2437	-0.40	30.00	30	36	30.00
High	2462	-0.40	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	17.54	17.54	30.00	-12.46
Mid	2437	18.61	18.61	30.00	-11.39
High	2462	18.52	18.52	30.00	-11.48
Worst			18.61		

**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	-0.40	30.00	30	36	30.00
Mid	2437	-0.40	30.00	30	36	30.00
High	2462	-0.40	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	20.25	20.25	30.00	-9.75
Mid	2437	21.26	21.26	30.00	-8.74
High	2462	21.03	21.03	30.00	-8.97
Worst			21.26		

### 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	-0.40	30.00	30	36	30.00
Mid	2437	-0.40	30.00	30	36	30.00
High	2462	-0.40	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	17.96	17.96	30.00	-12.04
Mid	2437	18.97	18.97	30.00	-11.03
High	2462	18.73	18.73	30.00	-11.27
Worst			18.97		

### 9.4.4. 802.11a MODE IN THE 5.8 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	5745	-0.30	30.00	30	36	30.00
Mid	5785	-0.30	30.00	30	36	30.00
High	5825	-0.30	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	5745	14.97	14.97	30.00	-15.03
Mid	5785	14.55	14.55	30.00	-15.45
High	5825	16.75	16.75	30.00	-13.25
Worst			16.75		

**9.4.5. 802.11n HT20 MODE IN THE 5.8 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	5745	-0.30	30.00	30	36	30.00
Mid	5785	-0.30	30.00	30	36	30.00
High	5825	-0.40	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	5745	16.22	16.22	30.00	-13.78
Mid	5785	16.07	16.07	30.00	-13.93
High	5825	16.29	16.29	30.00	-13.71
Worst			16.29		

**9.4.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

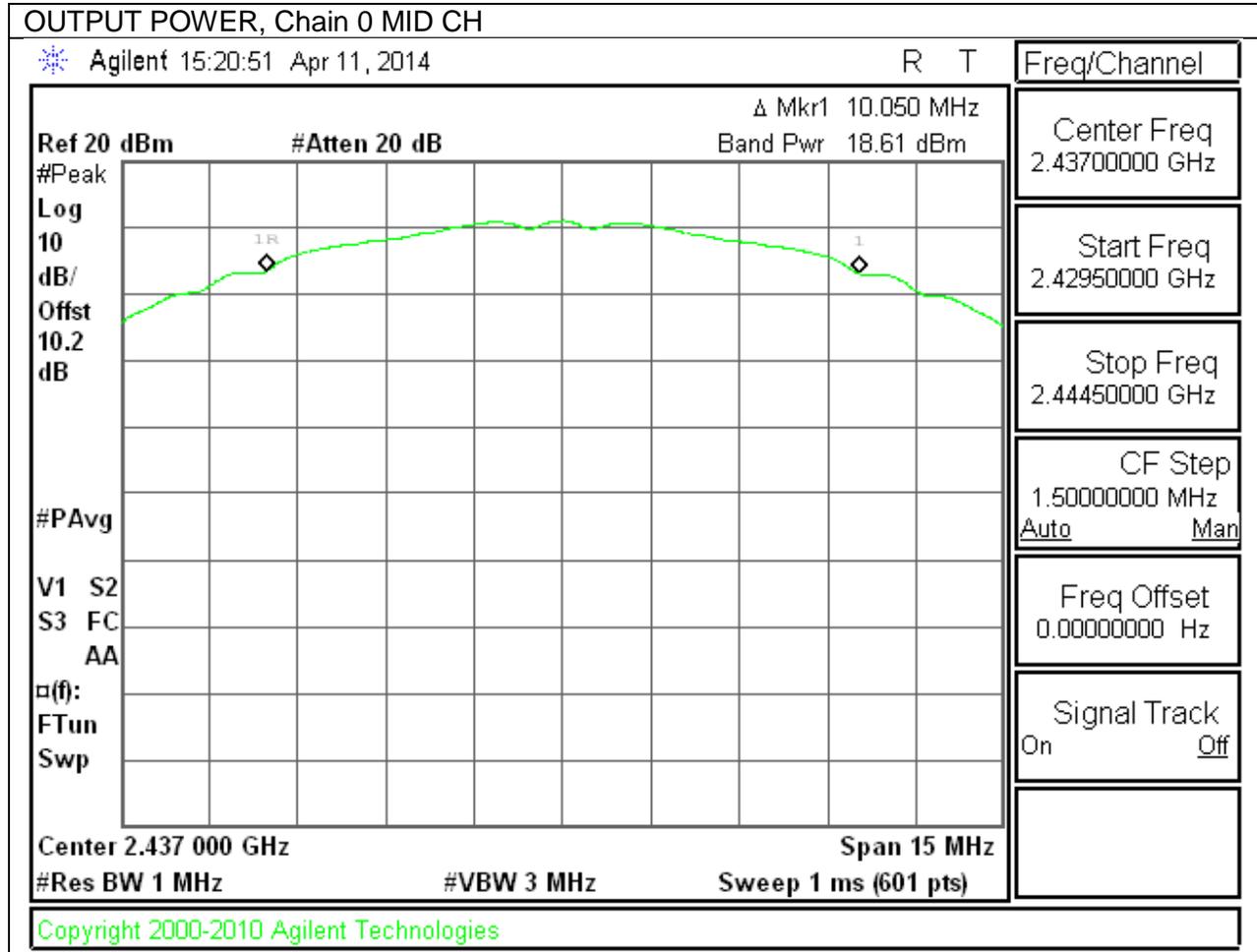
**Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	5755	-0.30	30.00	30	36	30.00
High	5795	-0.30	30.00	30	36	30.00

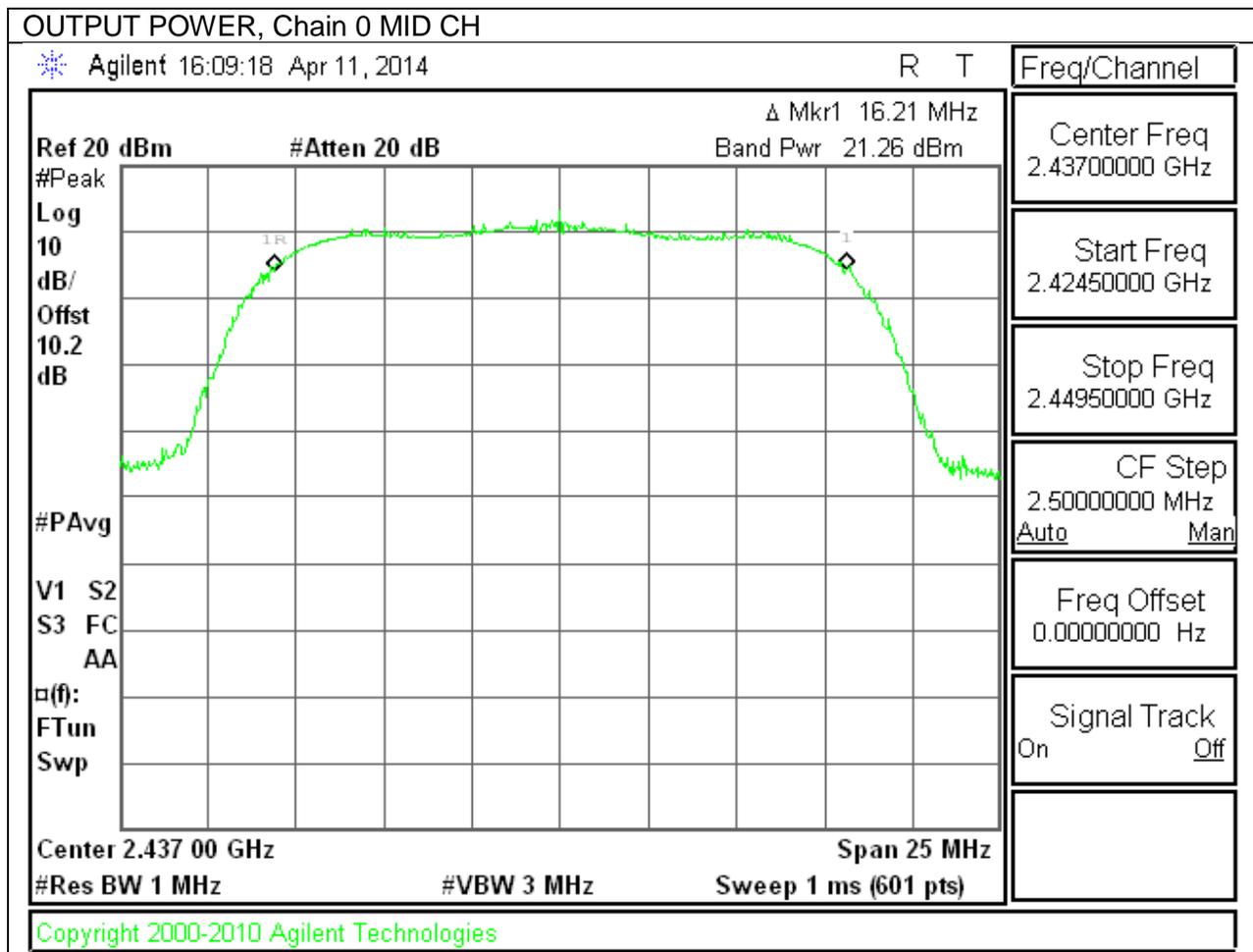
**Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	5755	16.61	16.61	30.00	-13.39
High	5795	16.80	16.80	30.00	-13.20
Worst			16.80		

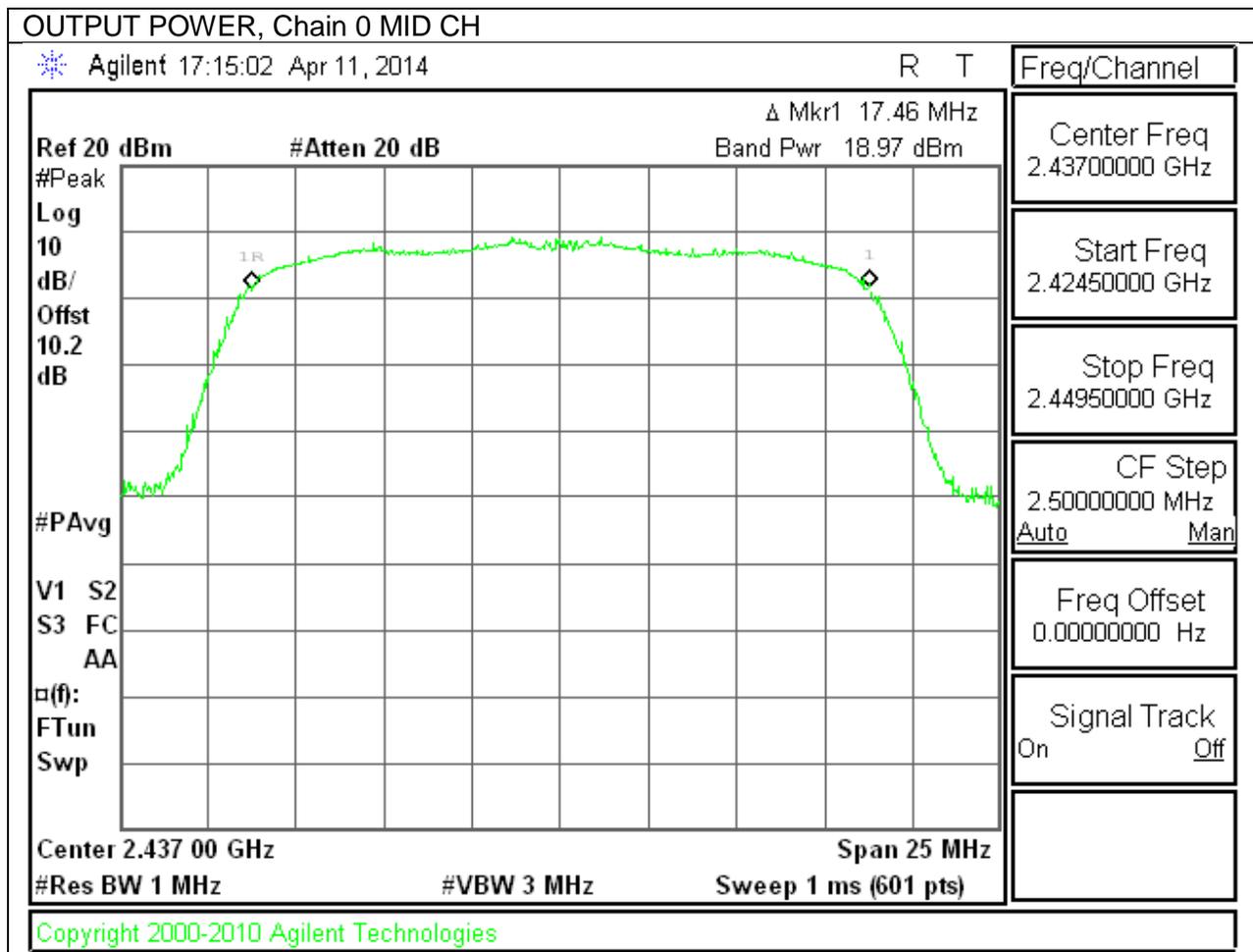
**802.11b OUTPUT POWER, Chain 0**



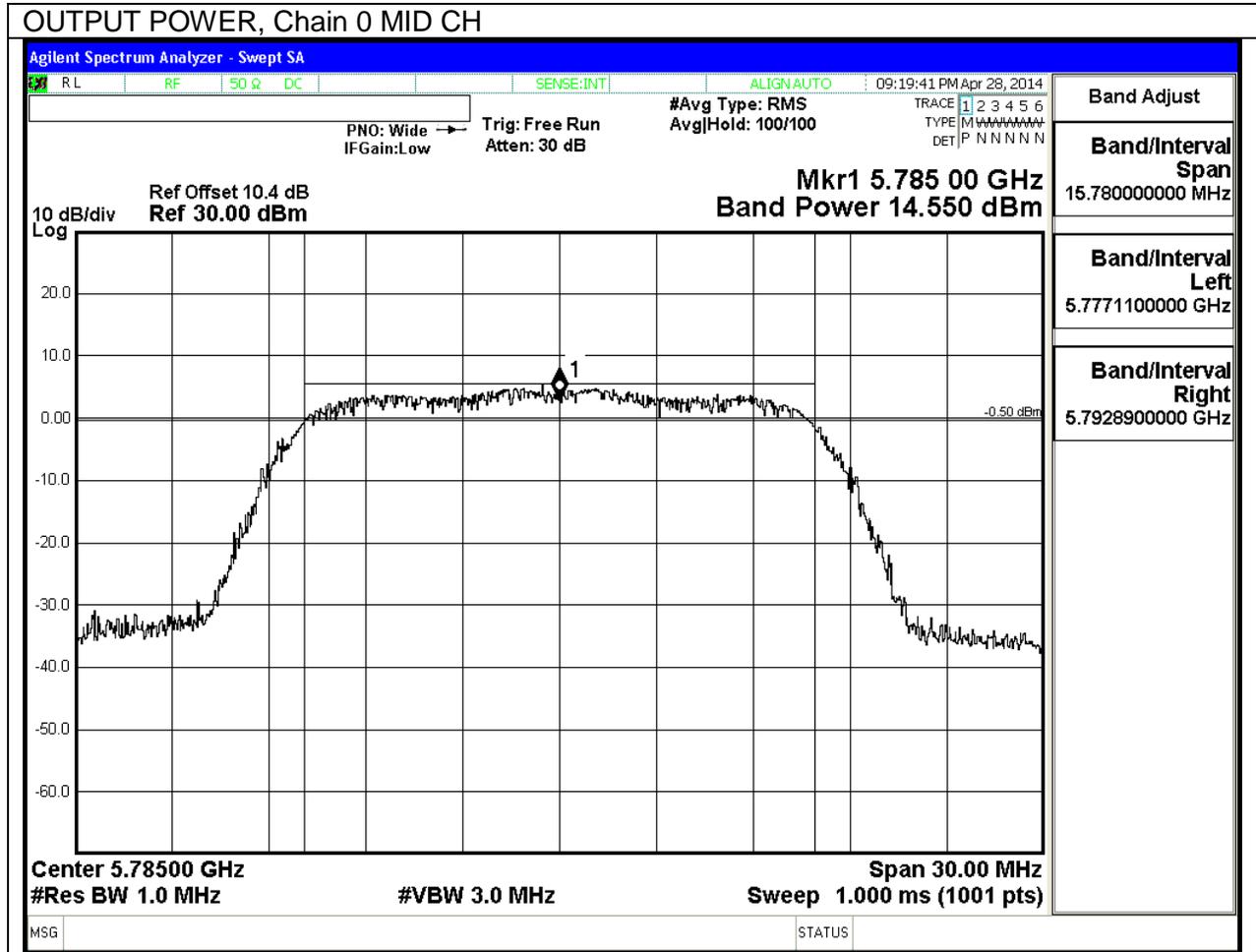
**802.11g OUTPUT POWER, Chain 0**



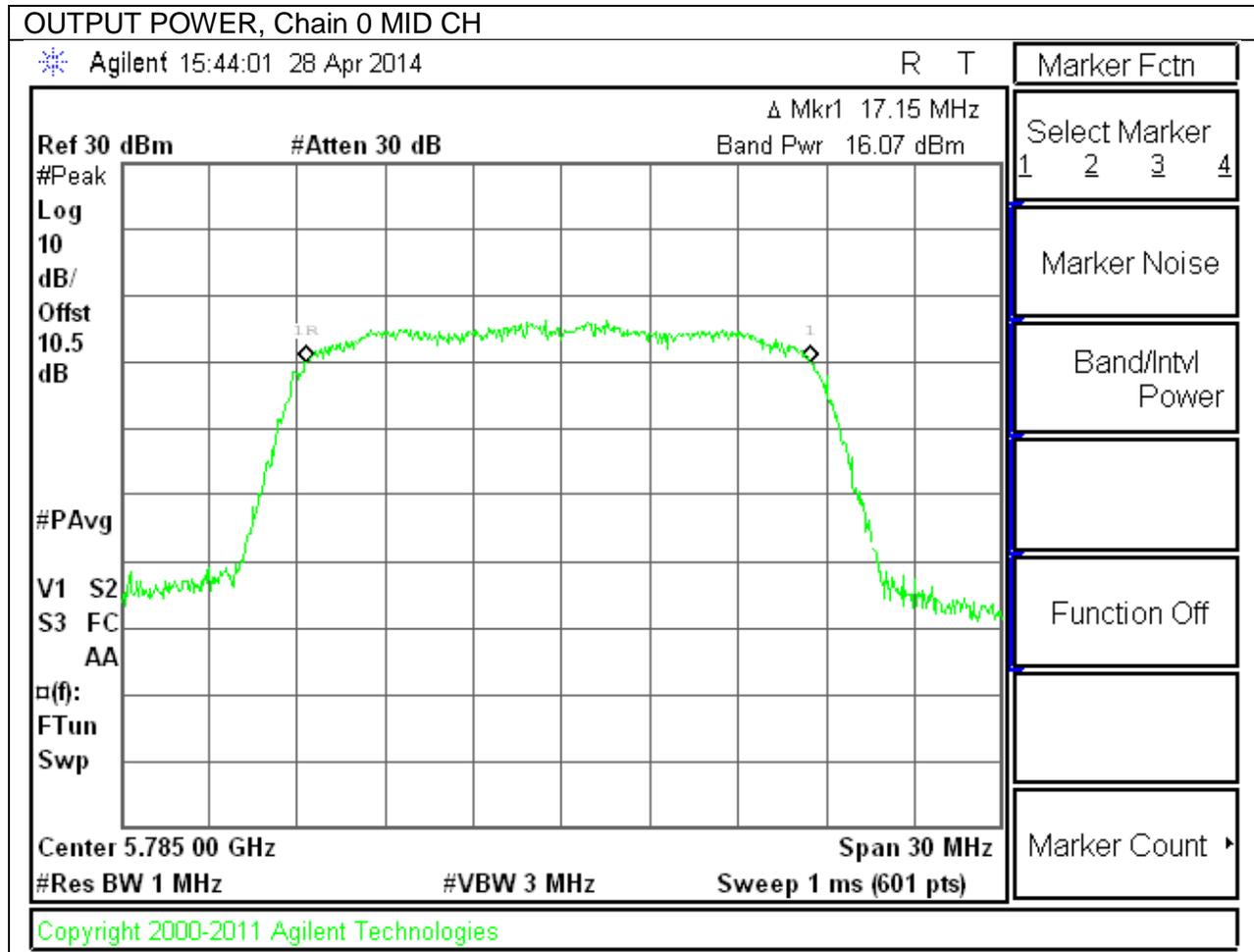
**802.11n OUTPUT POWER, Chain 0**



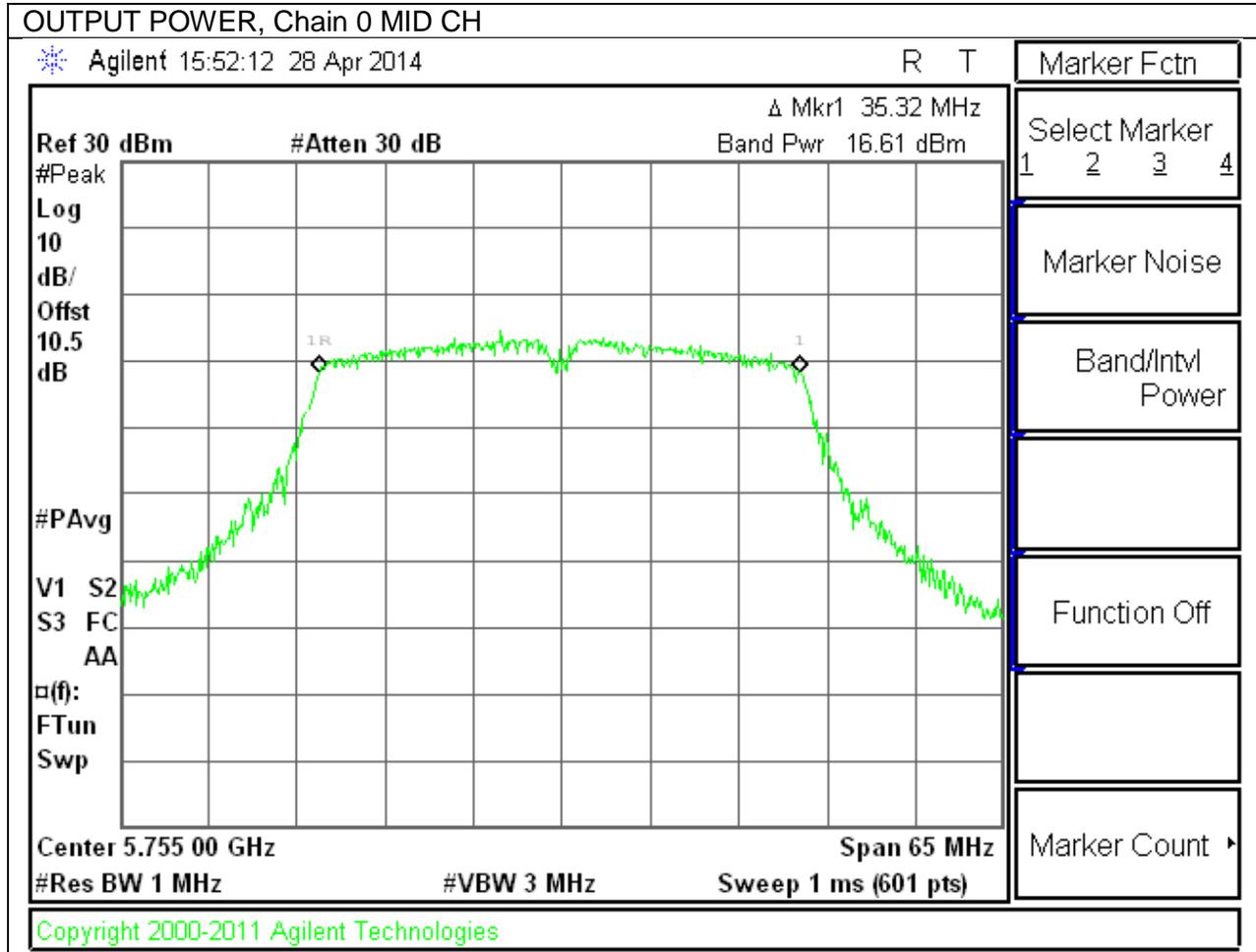
**802.11a 5.8 GHz OUTPUT POWER, Chain 0**



**802.11n HT20 5.8 GHz OUTPUT POWER, Chain 0**



**802.11n HT40 5.8 GHz OUTPUT POWER, Chain 0**



## 9.5. PSD

### LIMITS

FCC §15.247

IC RSS-210 A8.2

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

### RESULTS

#### 9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-6.89	8.0	-14.9
Mid	2437	-4.32	8.0	-12.3
High	2462	-6.56	8.0	-14.6

#### 9.5.2. 802.11g MODE IN THE 2.4 GHz BAND

##### PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-11.68	8.0	-19.7
Mid	2437	-11.37	8.0	-19.4
High	2462	-10.37	8.0	-18.4

#### 9.5.3. 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	-14.60	8.0	-22.6
Mid	2437	-13.09	8.0	-21.1
High	2462	-12.69	8.0	-20.7

**9.5.4. 802.11a MODE IN THE 5.8 GHz BAND**

**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-14.71	8.0	-22.7
Mid	5785	-14.38	8.0	-22.4
High	5825	-15.15	8.0	-23.2

**9.5.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND**

**PSD Results**

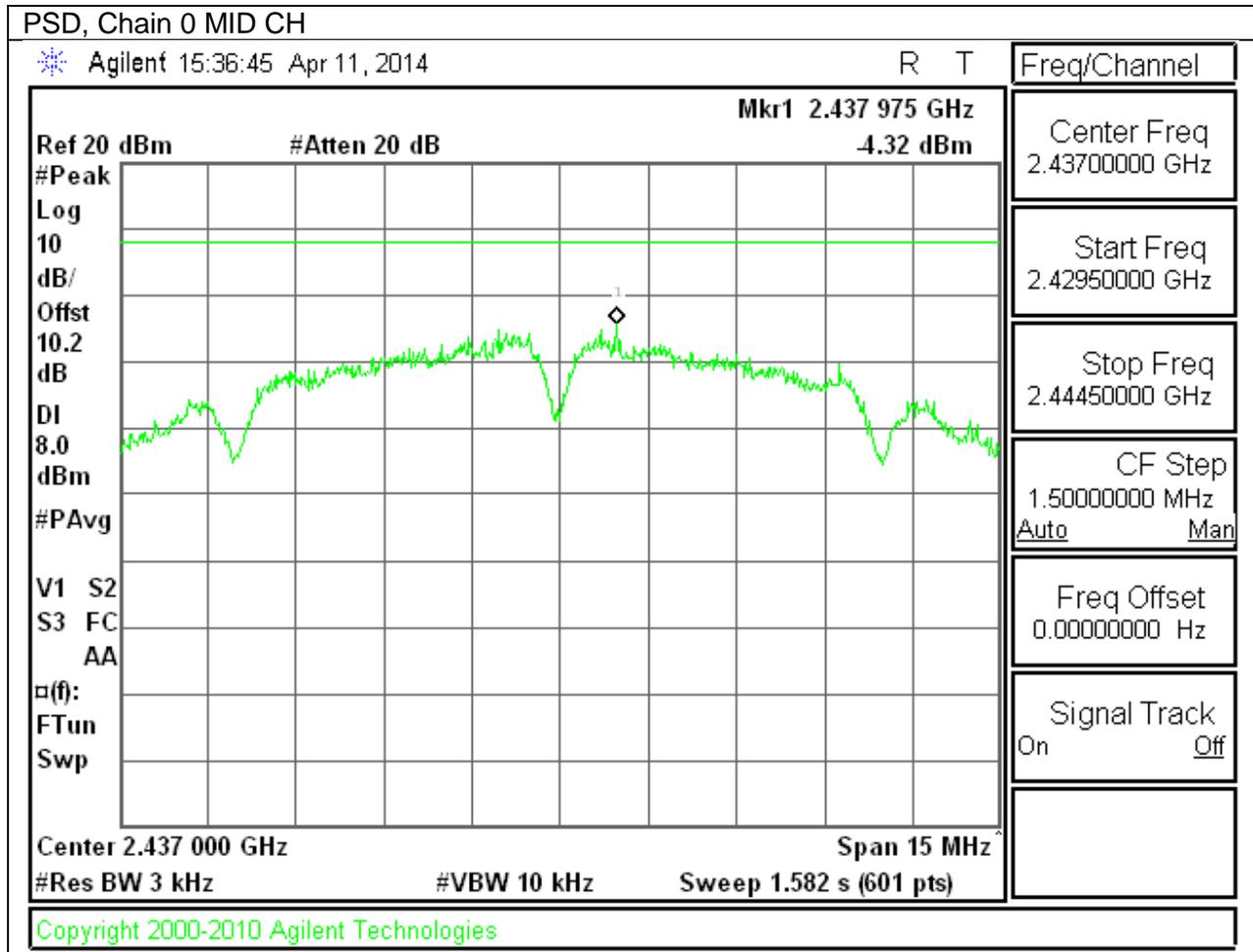
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5745	-15.15	8.0	-23.2
Mid	5785	-14.69	8.0	-22.7
High	5825	-15.15	8.0	-23.2

**9.5.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

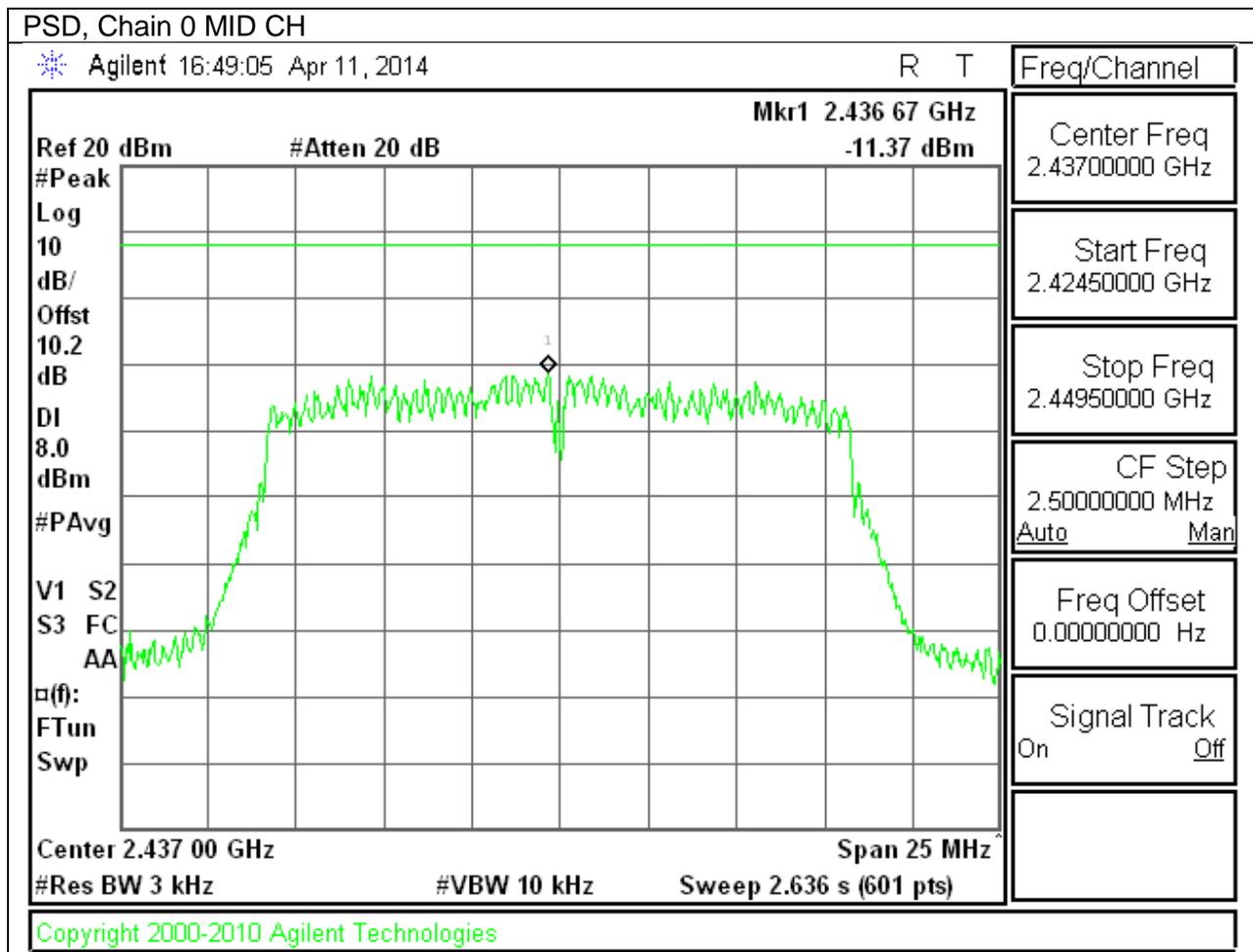
**PSD Results**

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Limit (dBm)	Margin (dB)
Low	5755	-16.98	8.0	-25.0
High	5795	-18.02	8.0	-26.0

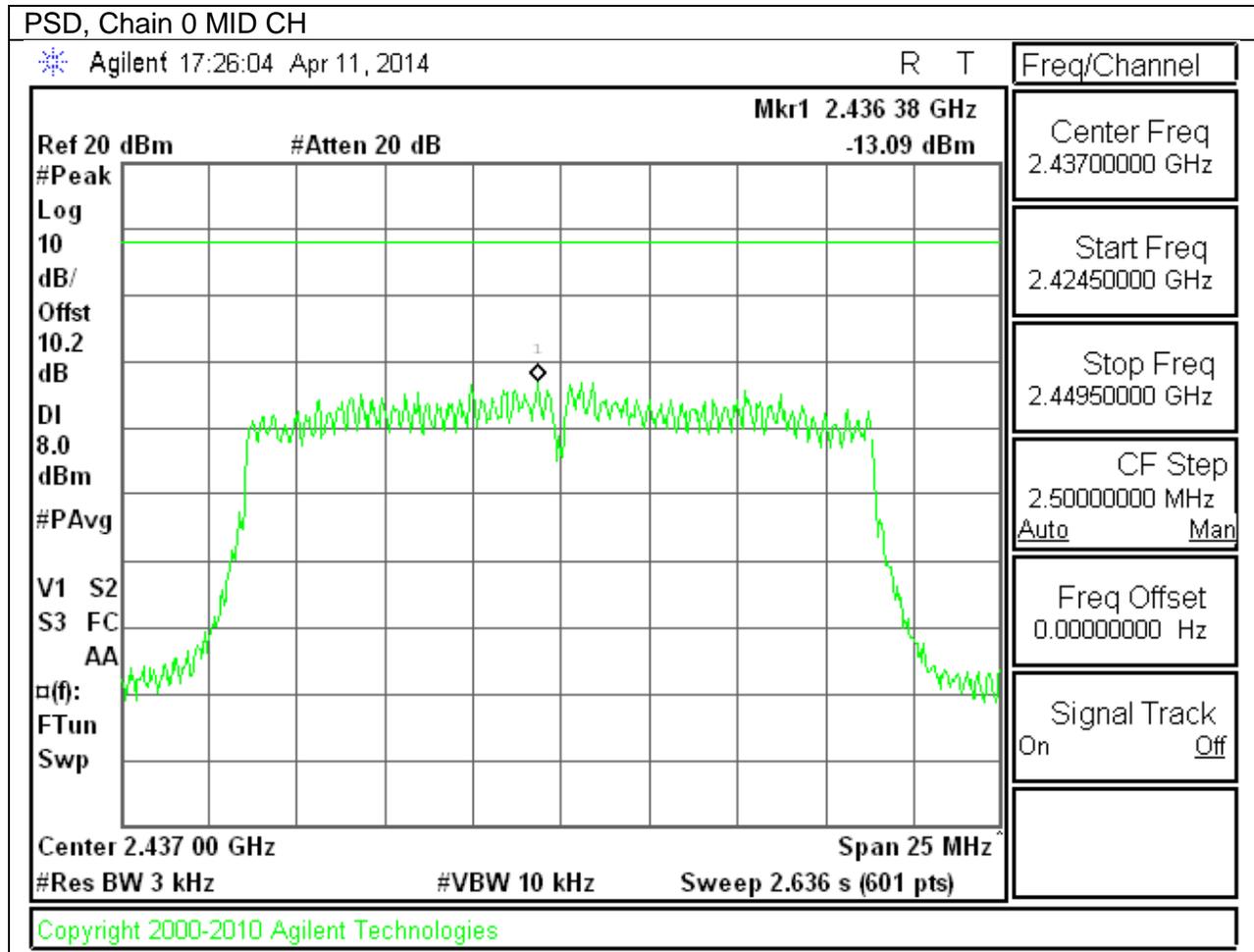
**802.11b PSD, Chain 0**



**802.11g PSD, Chain 0**

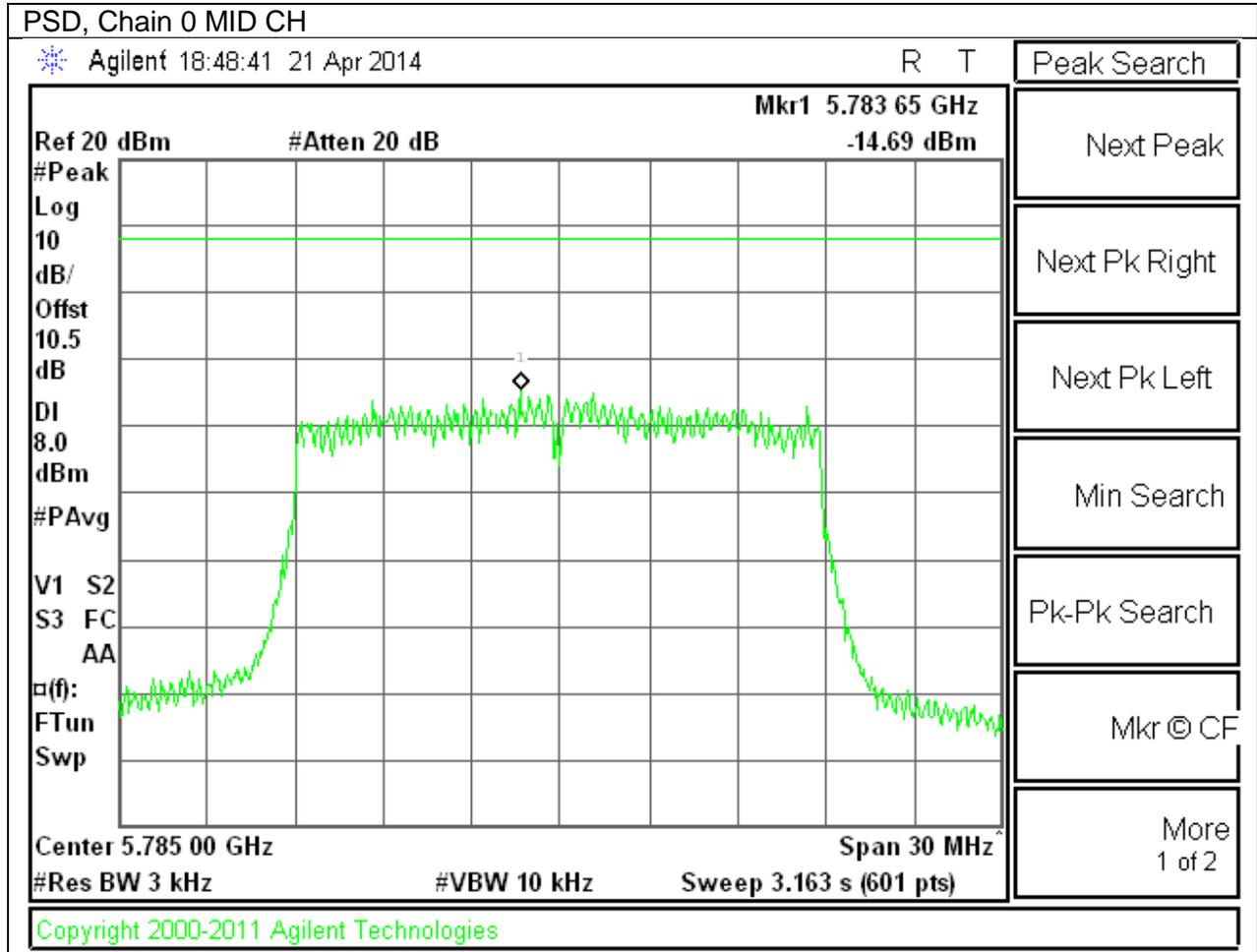


**802.11n PSD, Chain 0**

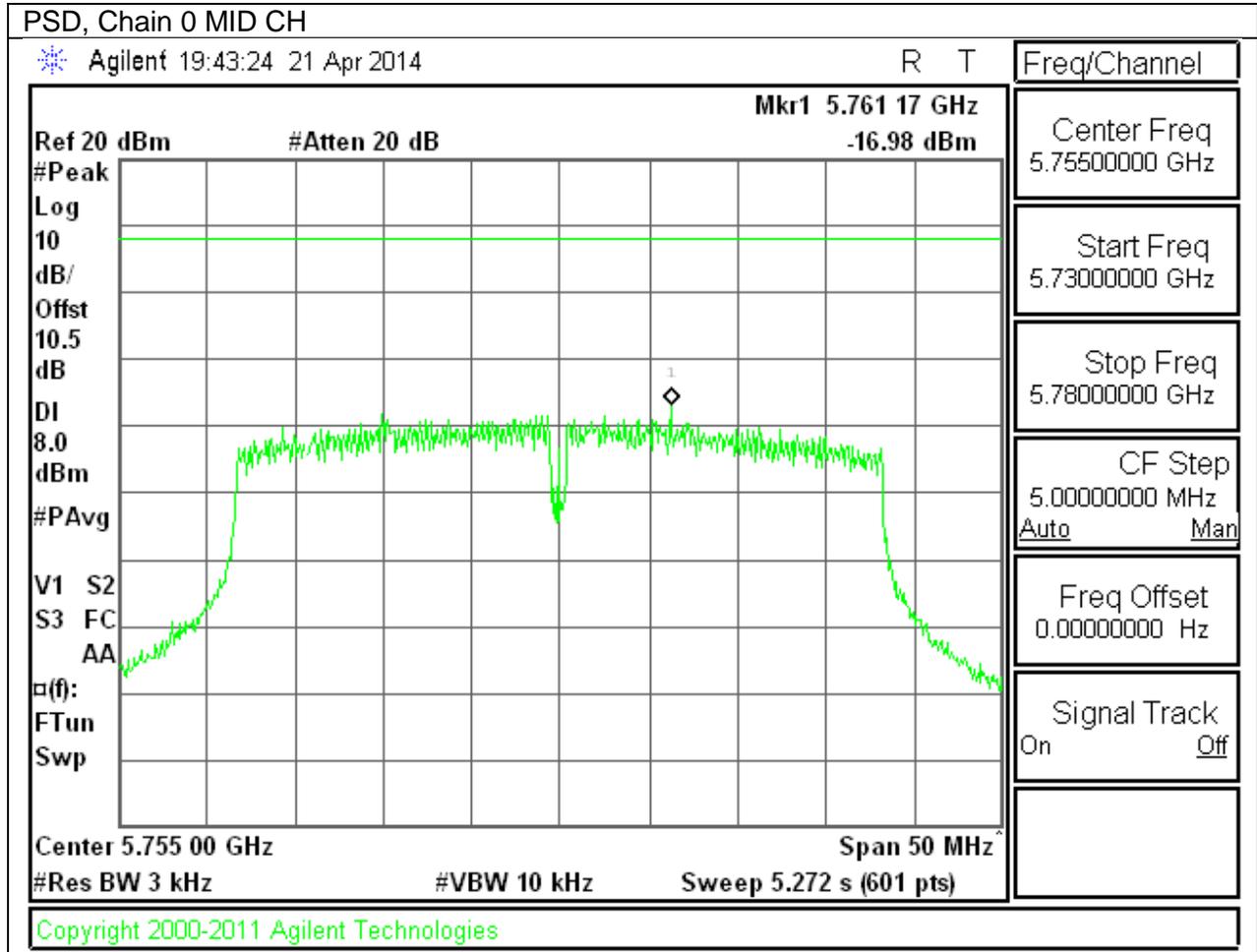




**802.11n HT20 5.8GHz PSD, Chain 0**



**802.11n HT40 5.8GHz PSD, Chain 0**



## 9.6. OUT-OF-BAND EMISSIONS

### LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

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

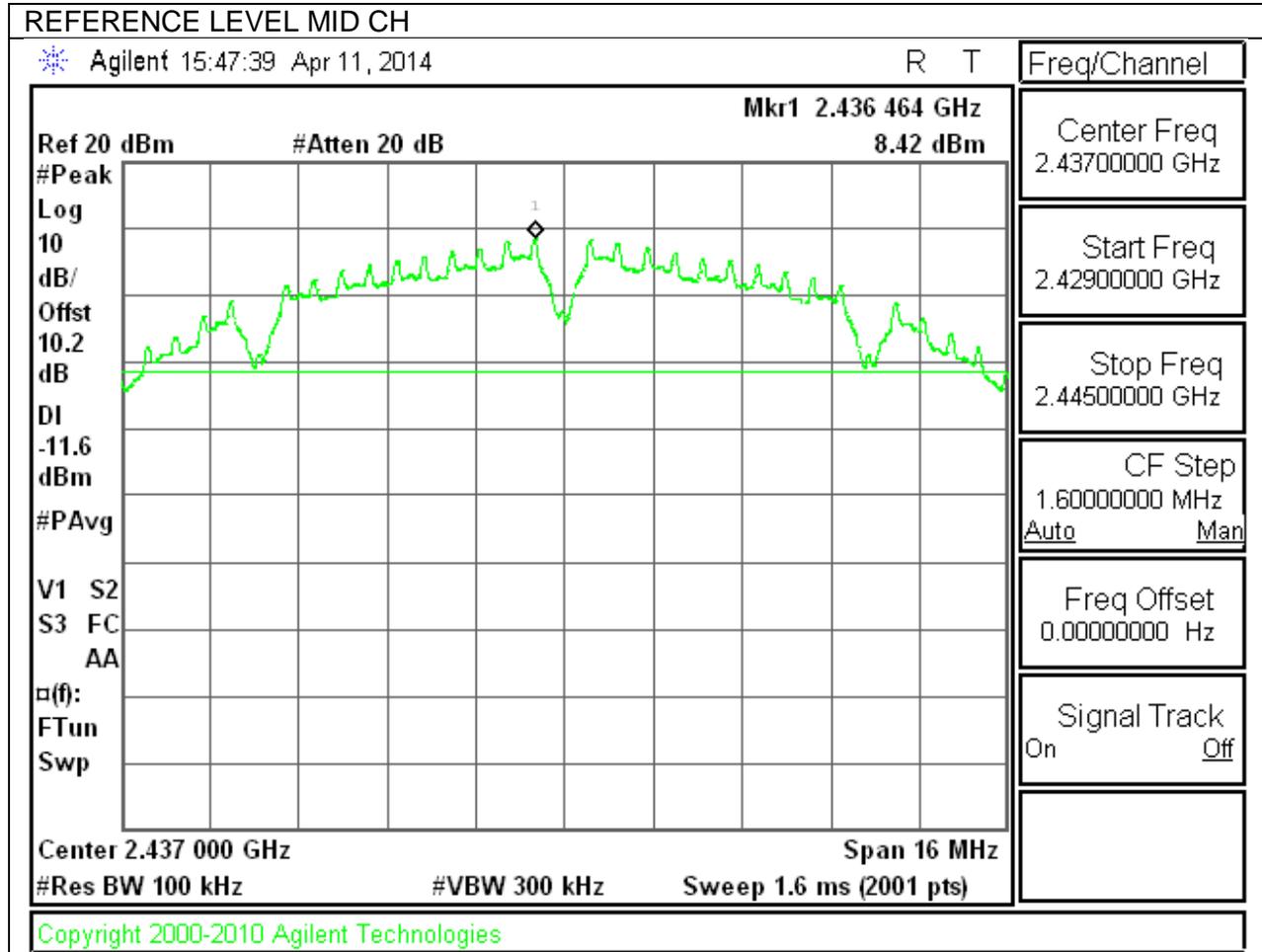
### TEST PROCEDURE

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

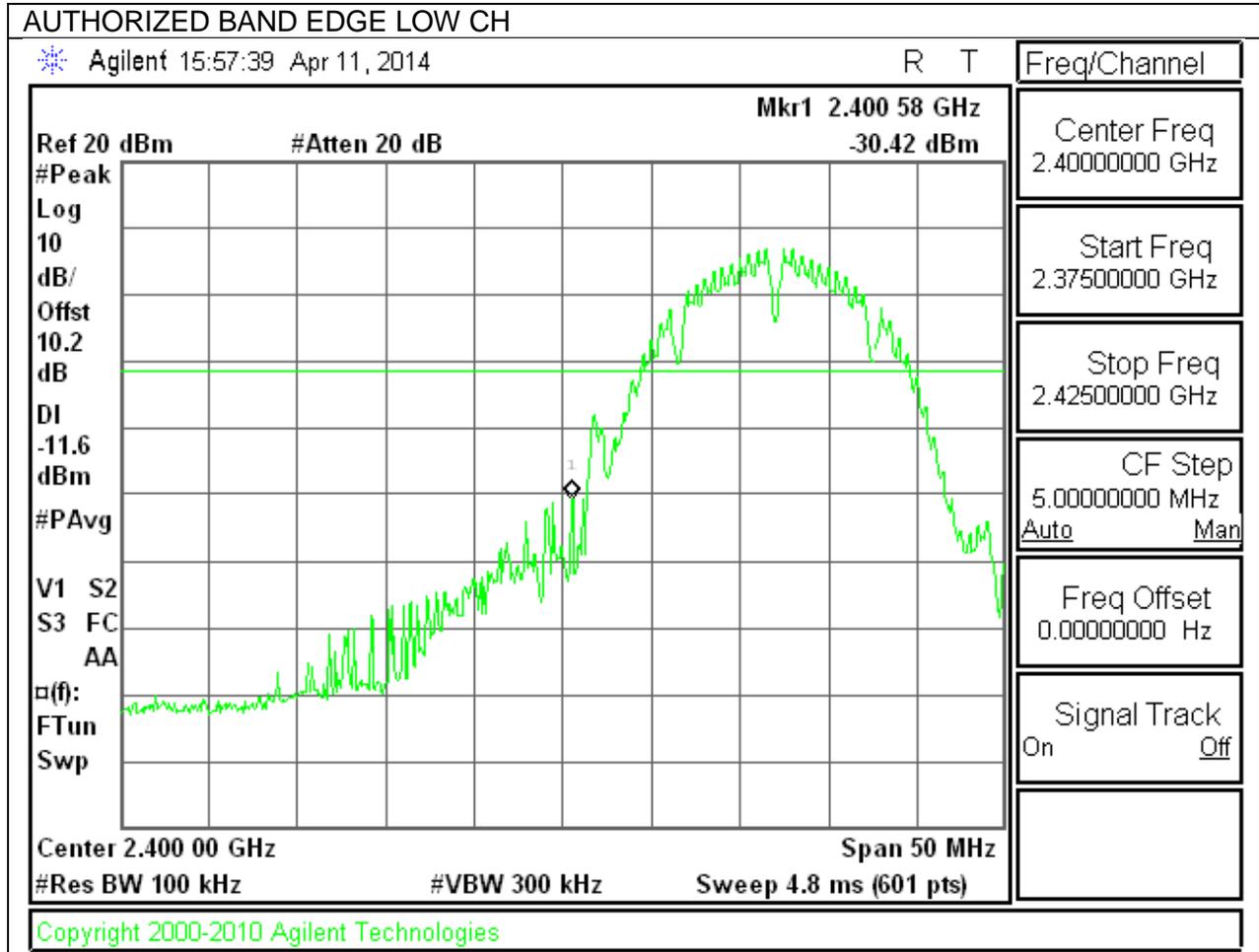
**RESULTS**

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

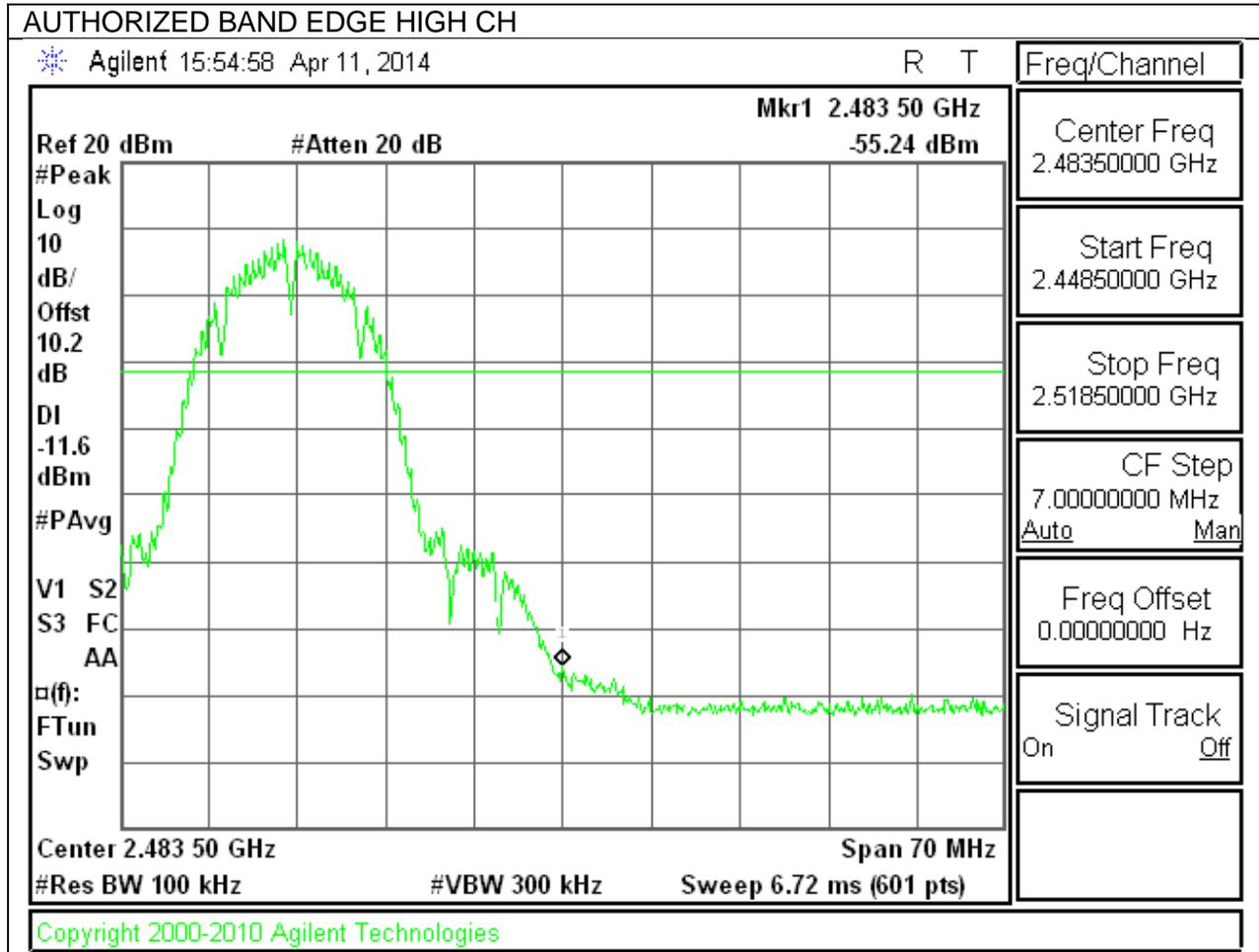
**IN-BAND REFERENCE LEVEL**



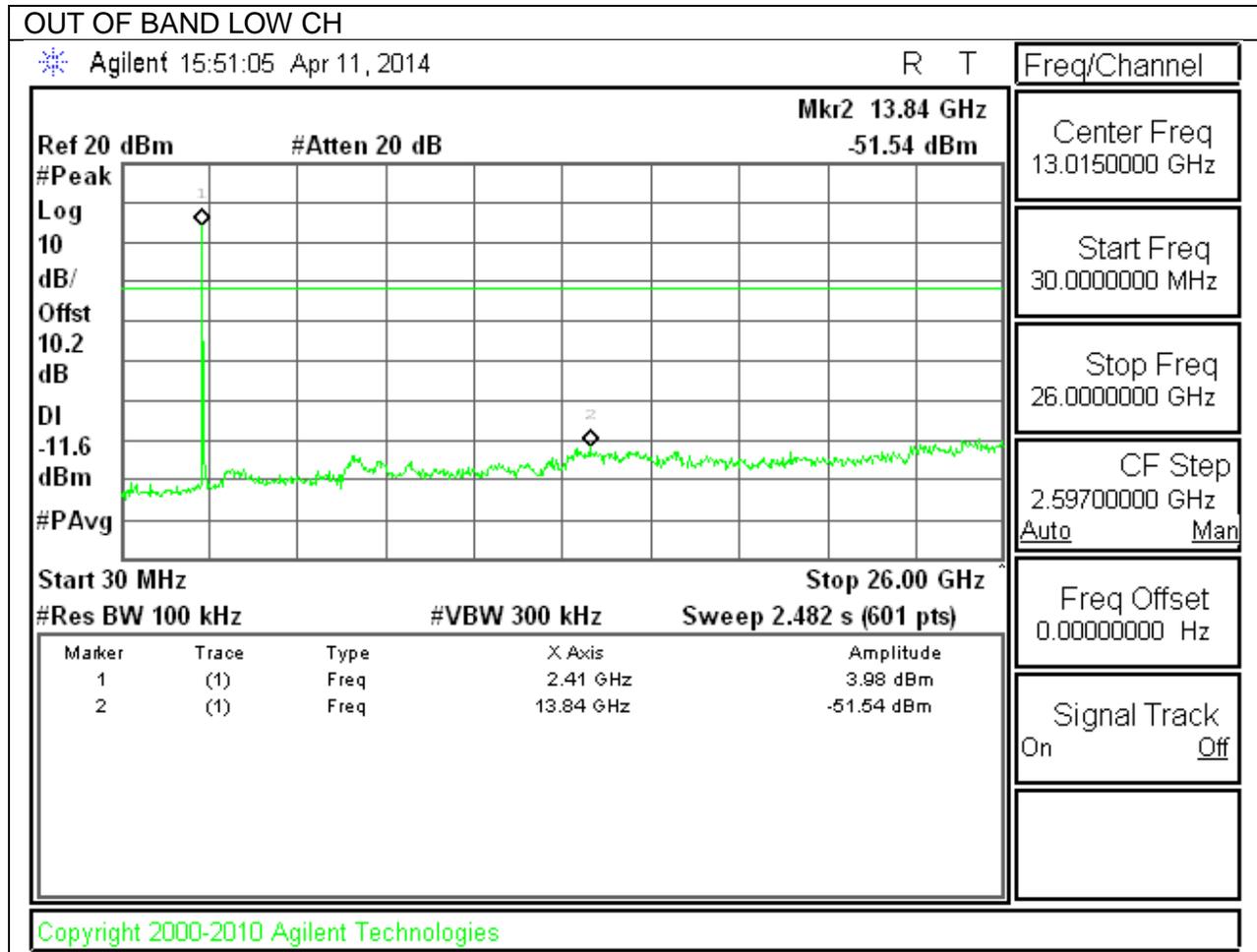
**LOW CHANNEL BANDEDGE**

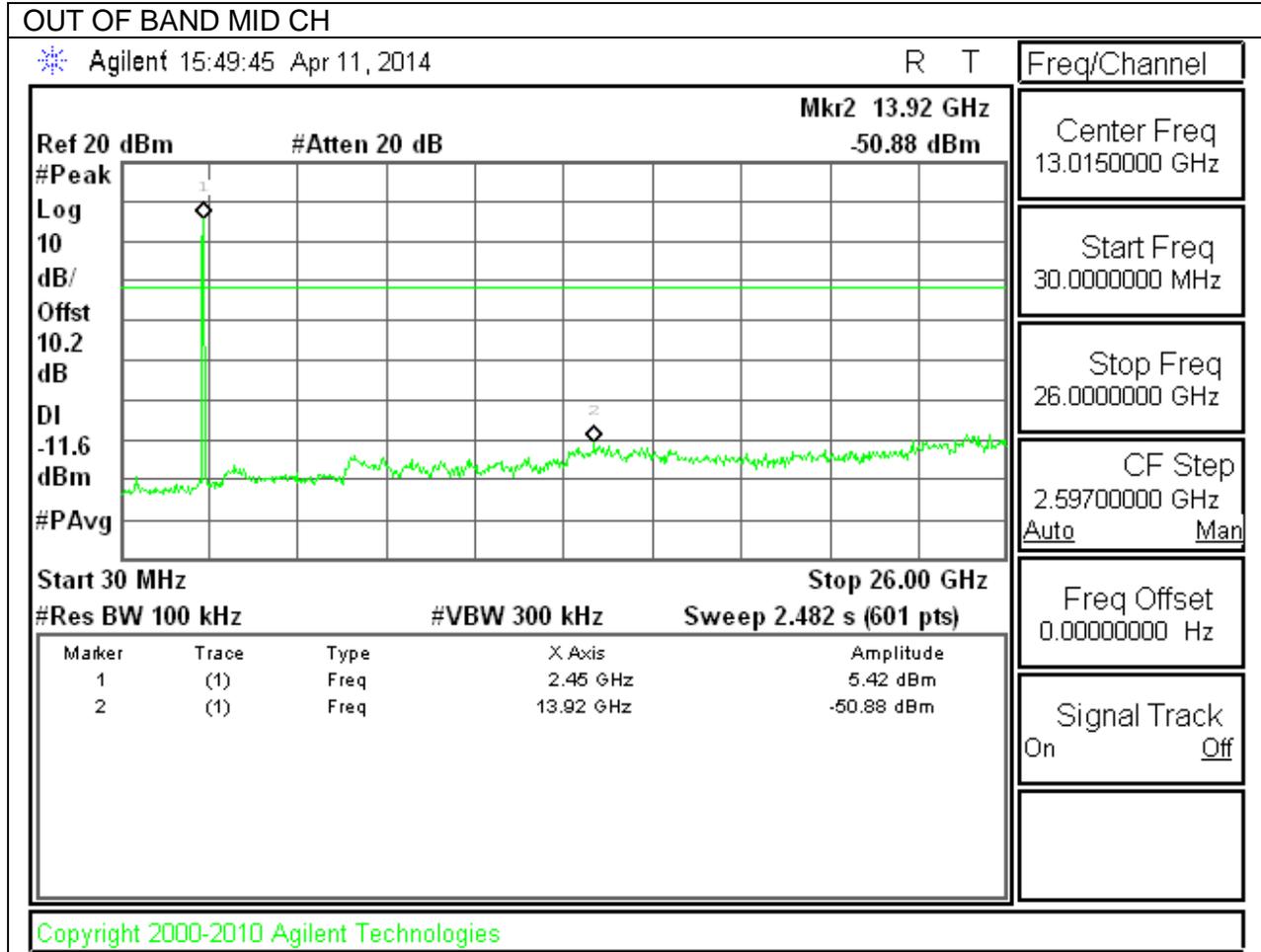


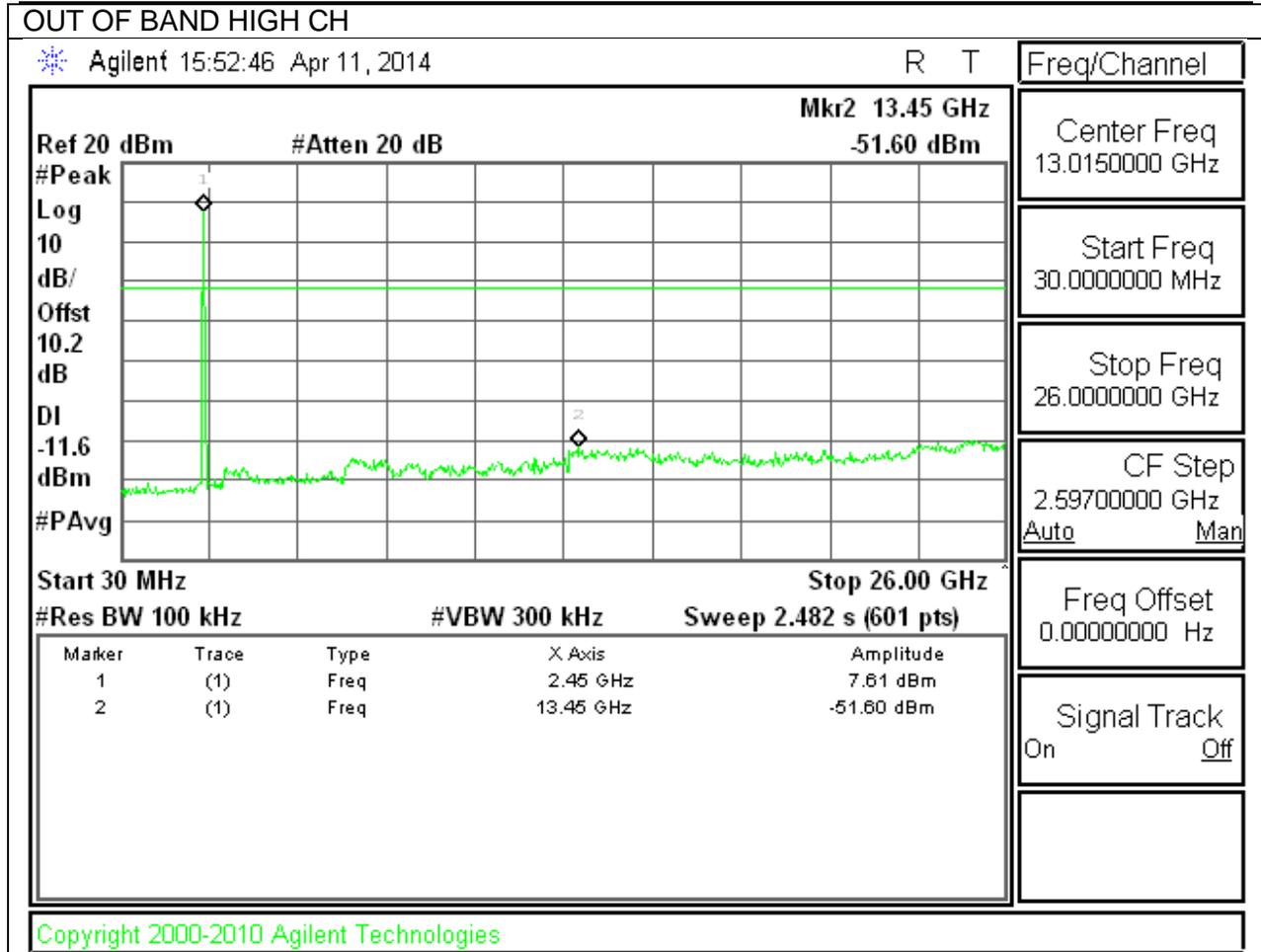
**HIGH CHANNEL BANDEDGE**



**OUT-OF-BAND EMISSIONS**

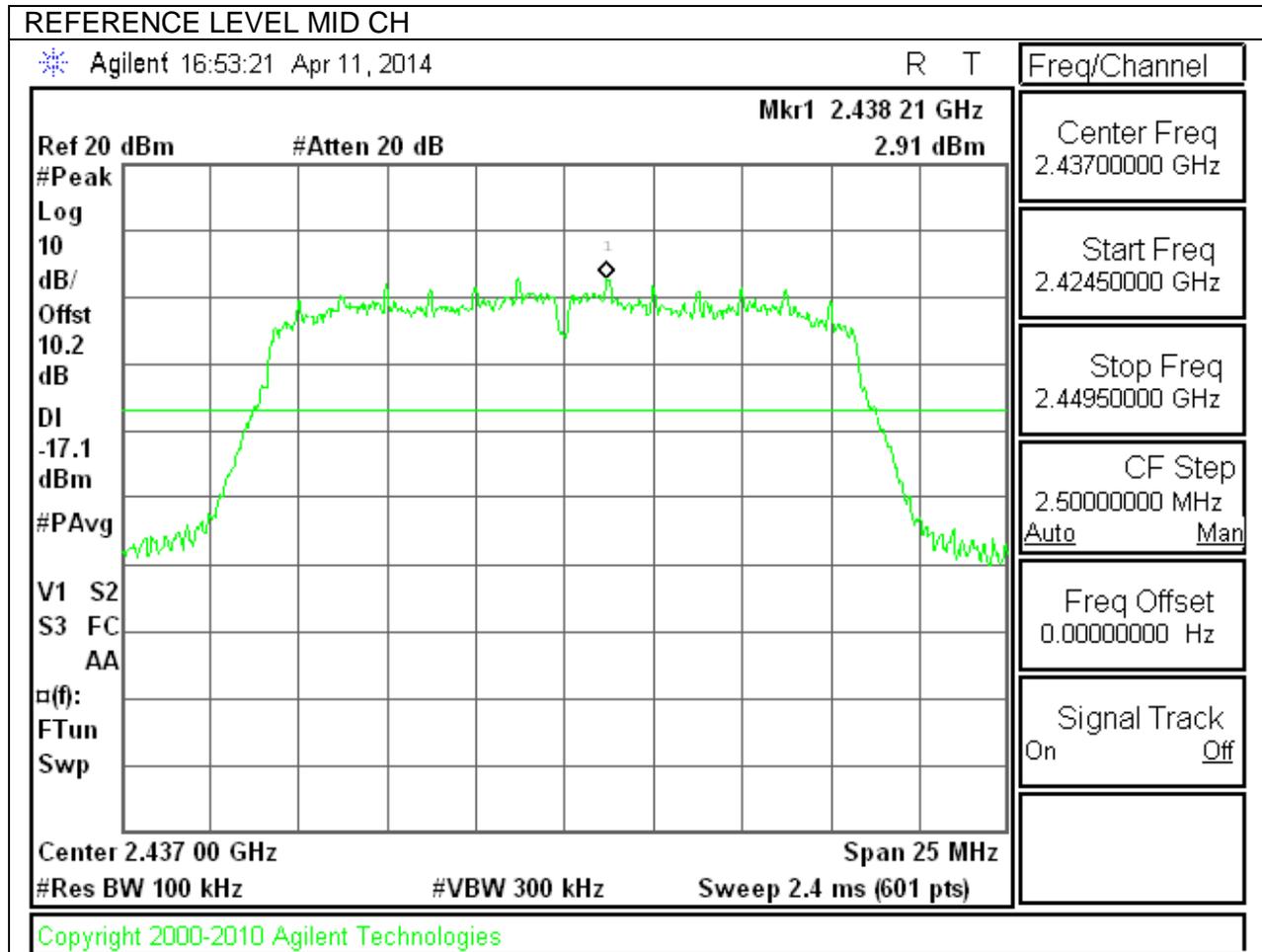




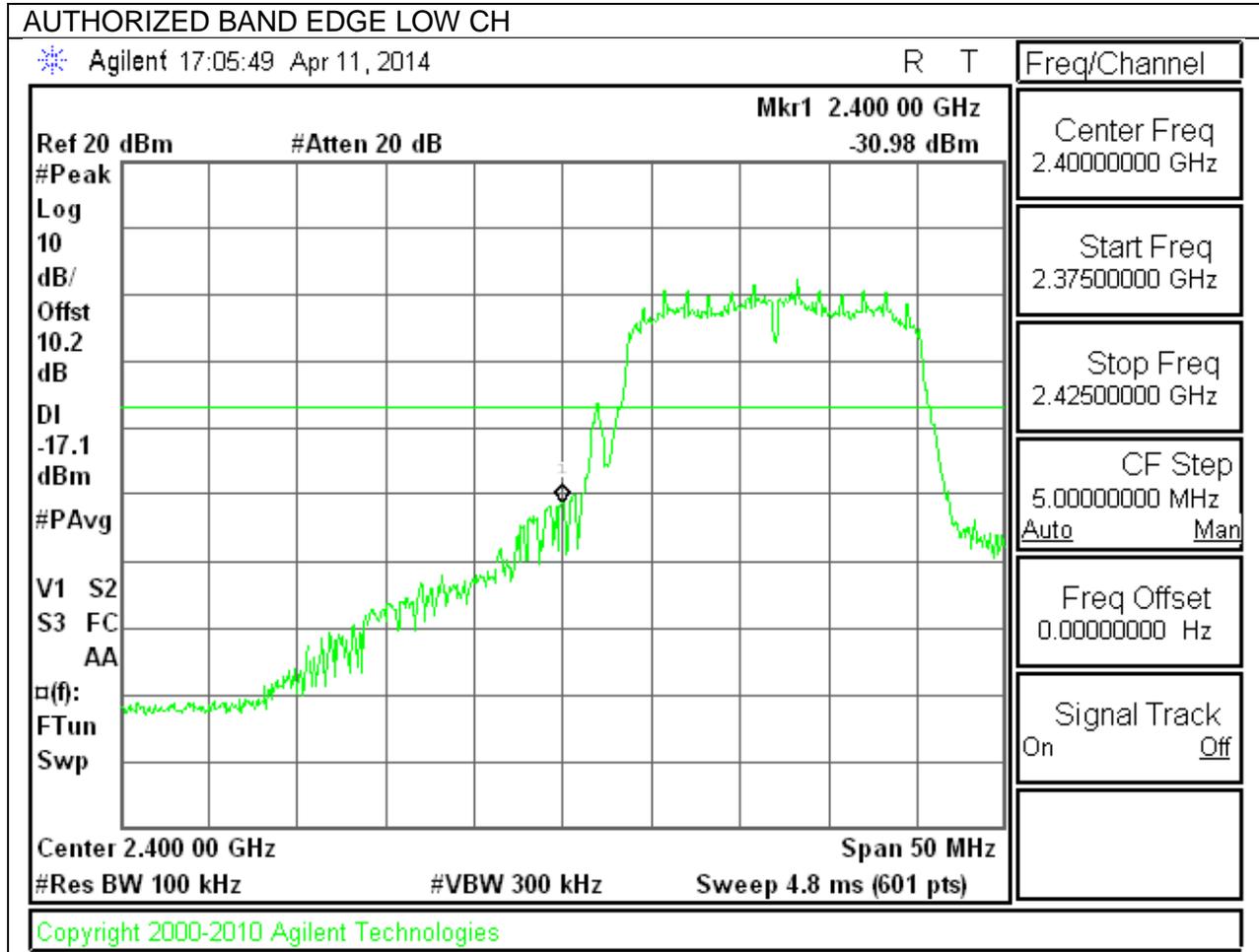


### 9.6.2. 802.11g MODE IN THE 2.4 GHz BAND

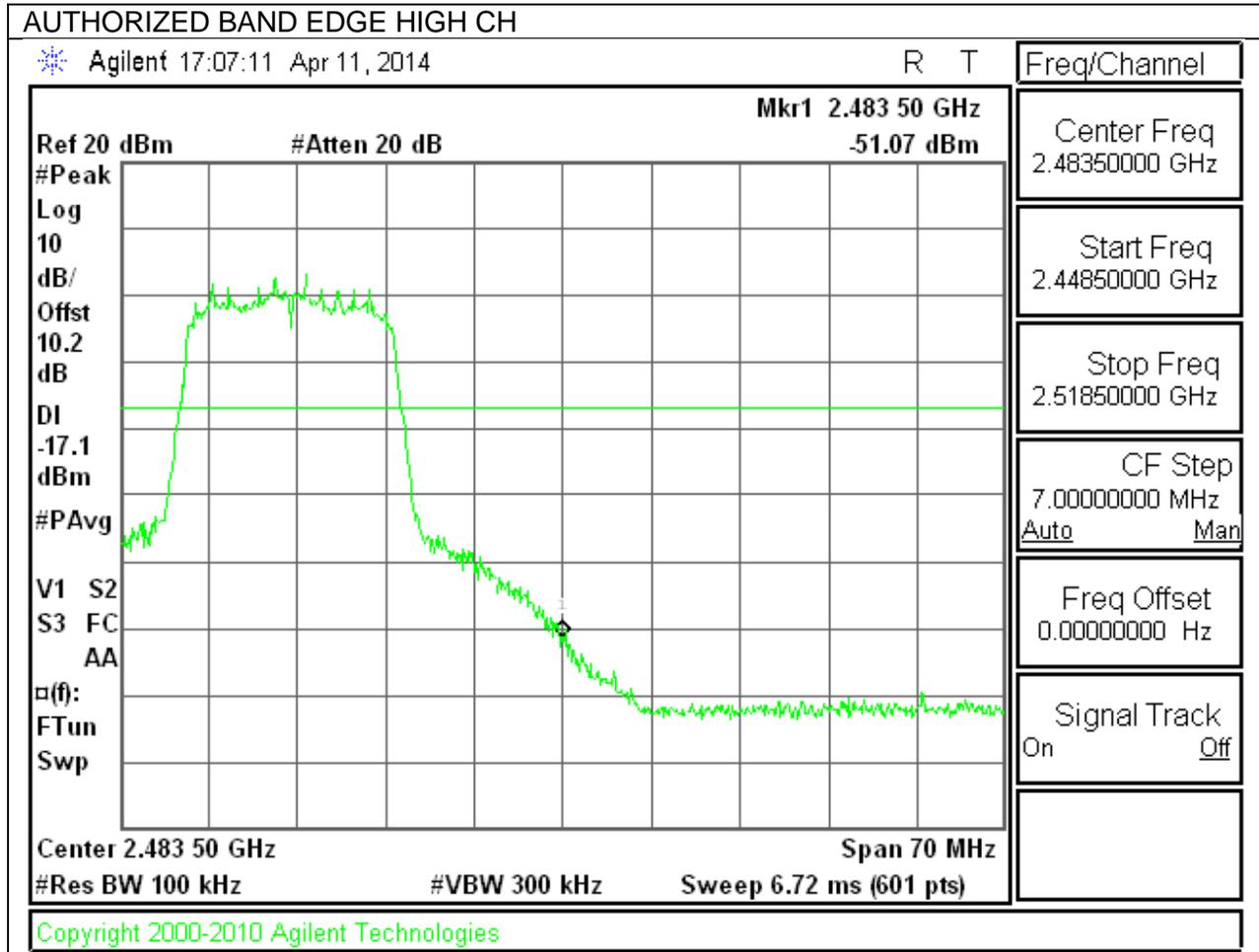
#### IN-BAND REFERENCE LEVEL



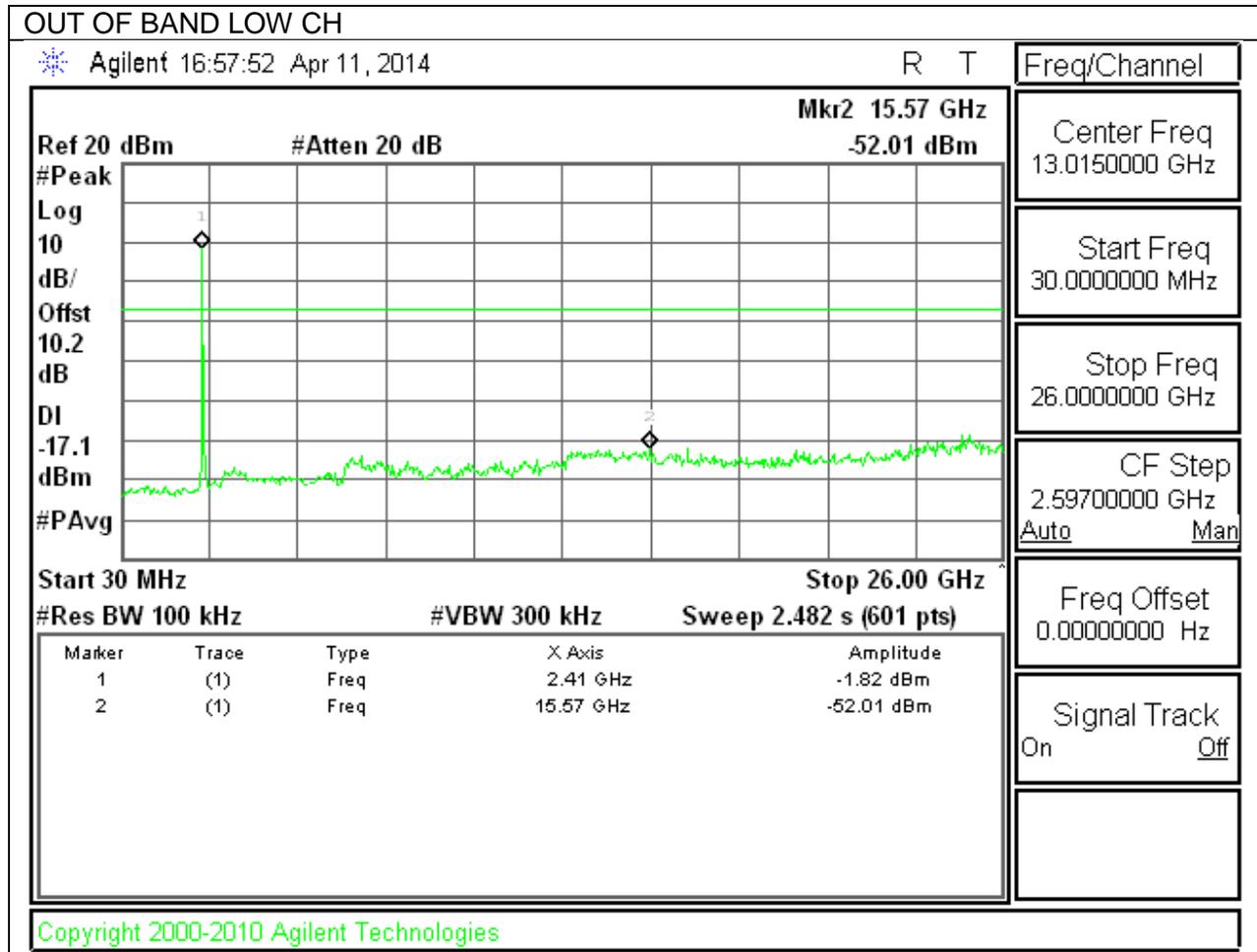
**LOW CHANNEL BANDEDGE**

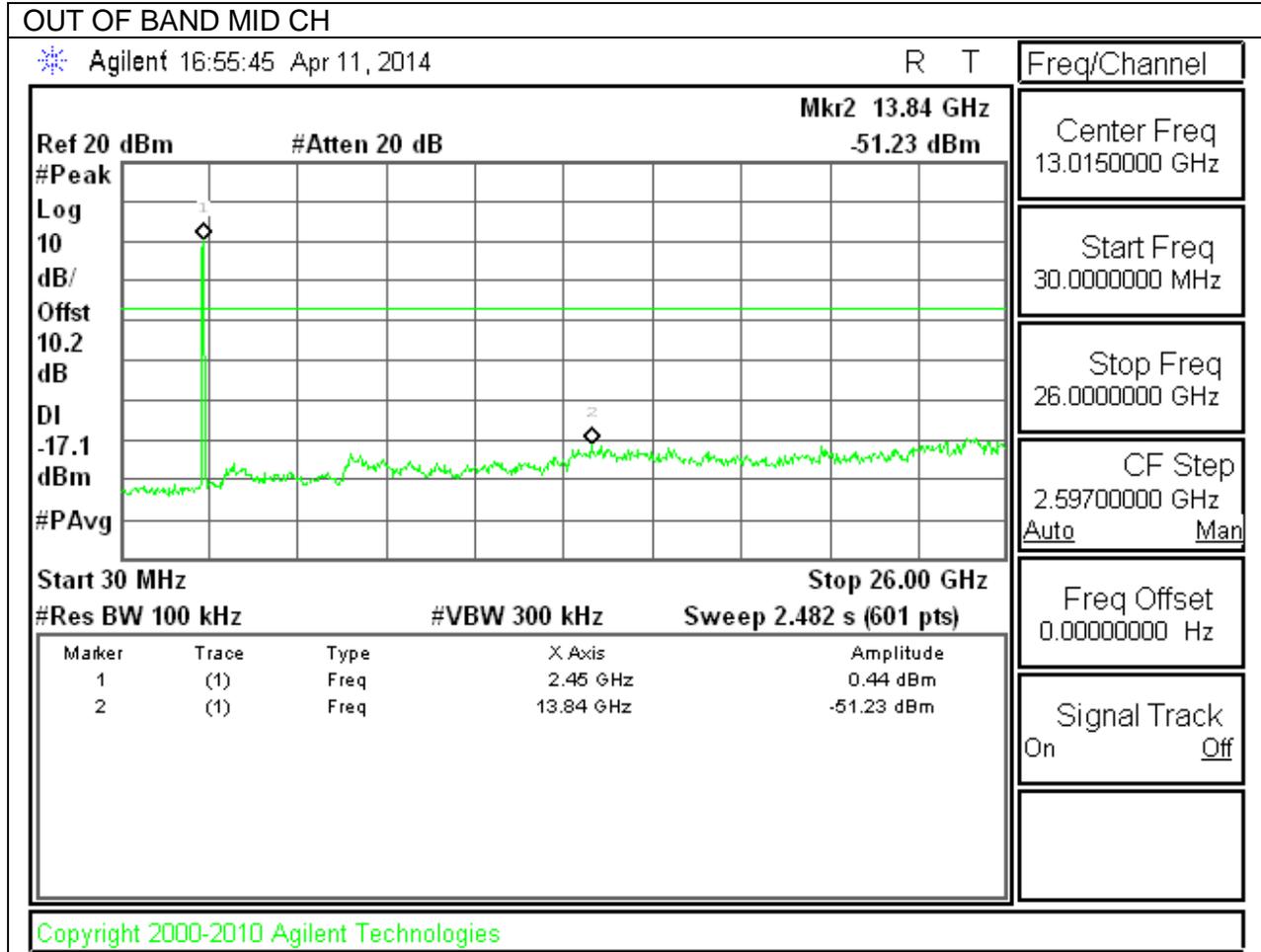


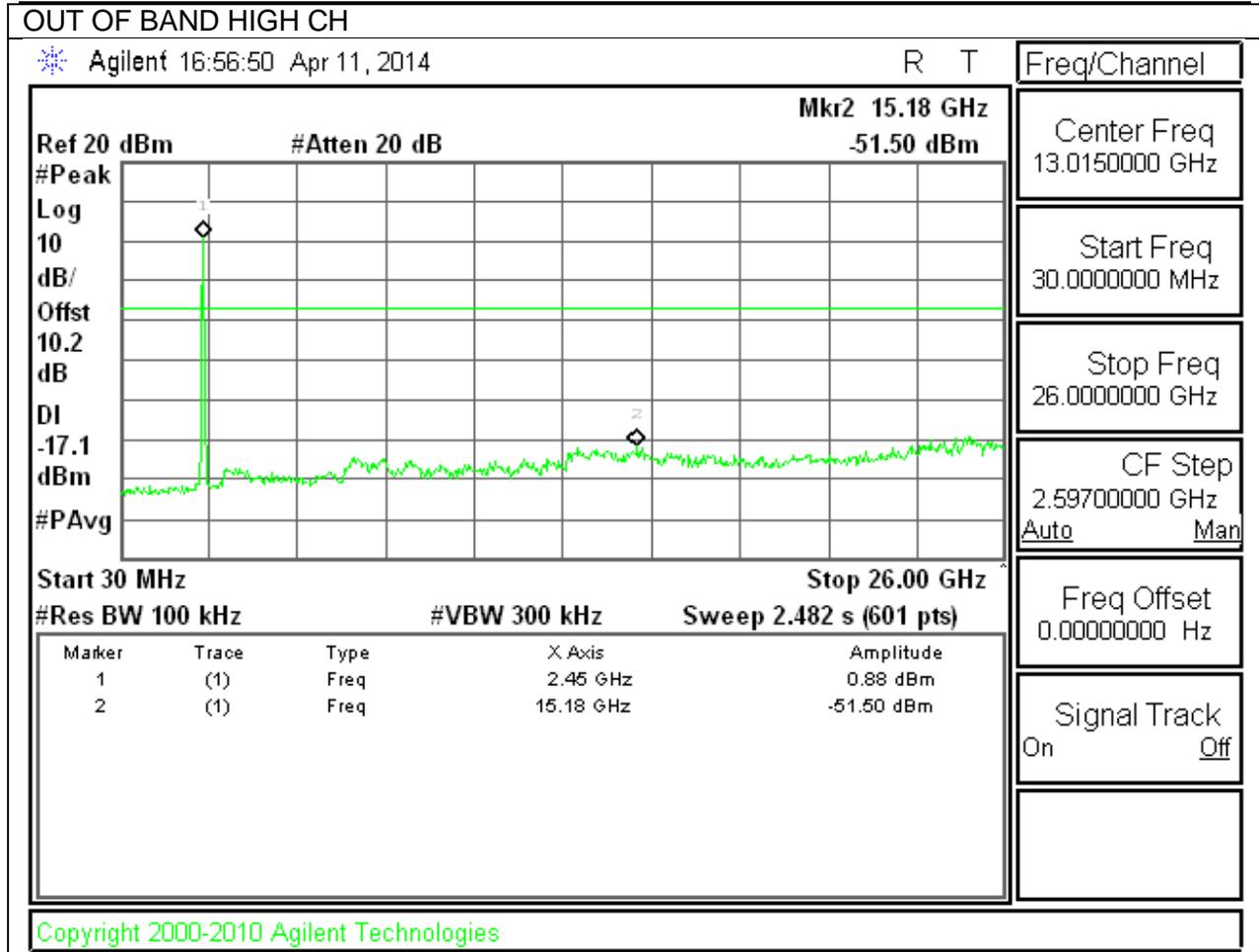
**HIGH CHANNEL BANDEDGE**



**OUT-OF-BAND EMISSIONS**

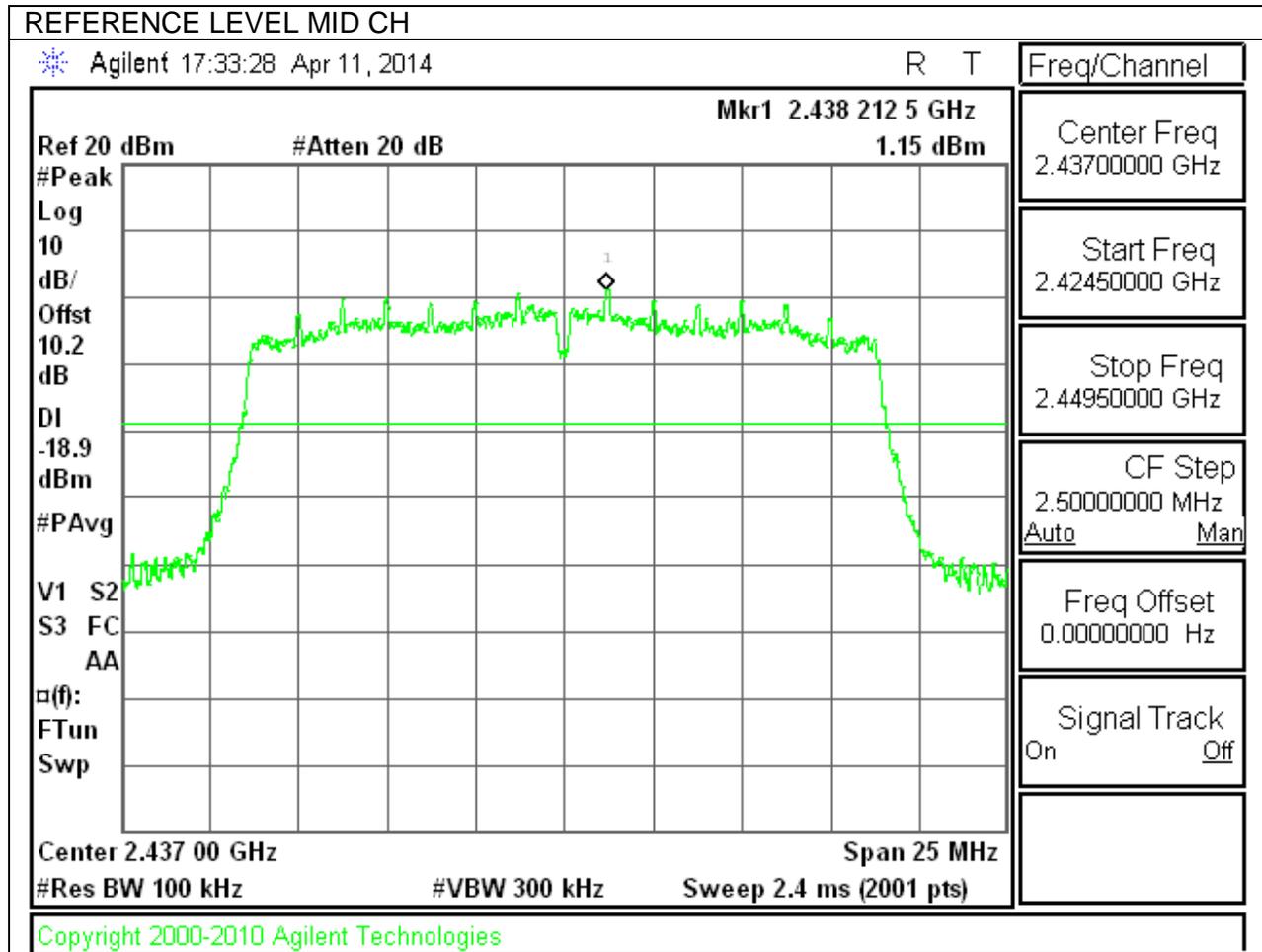




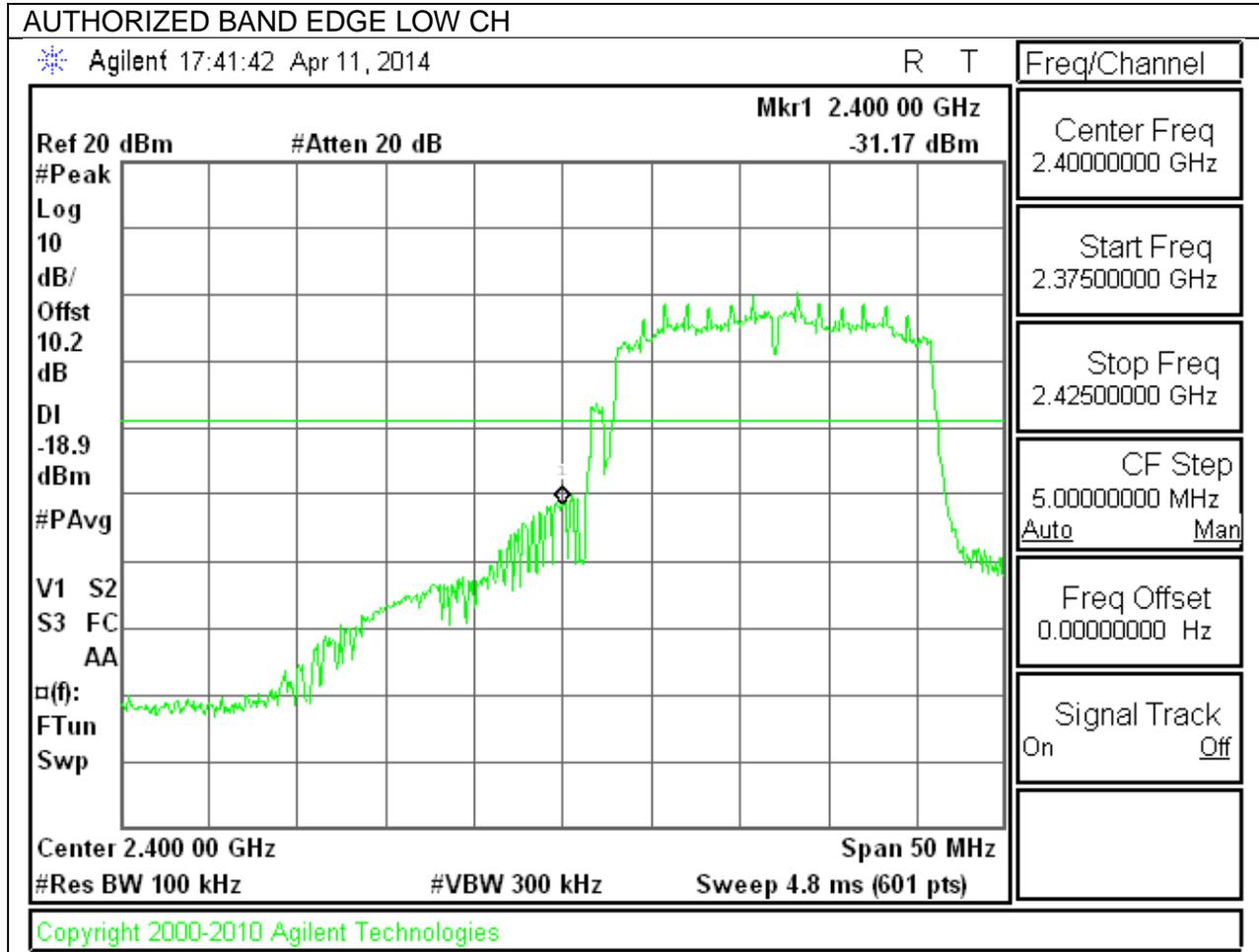


### 9.6.3. 802.11n MODE IN THE 2.4 GHz BAND

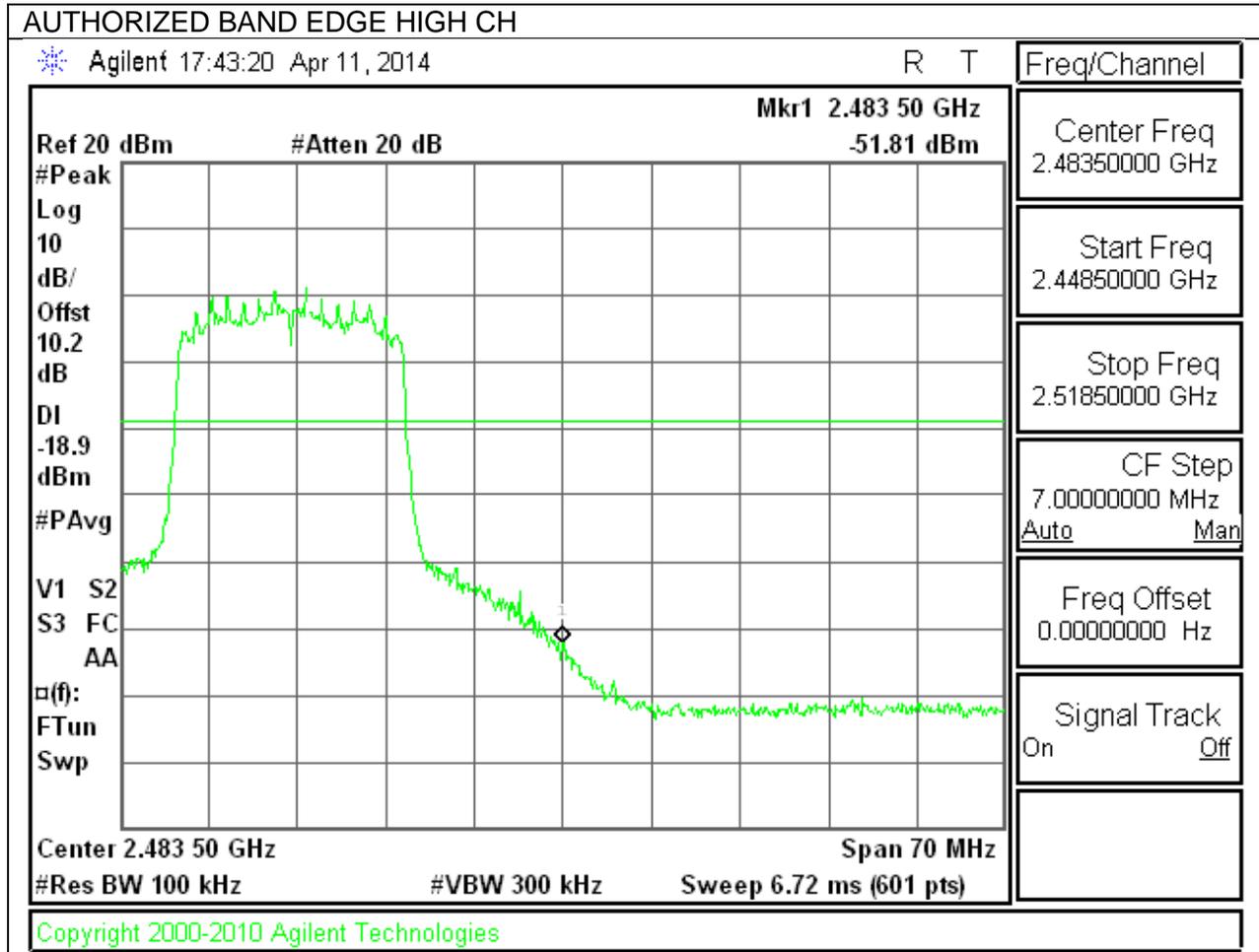
#### IN-BAND REFERENCE LEVEL



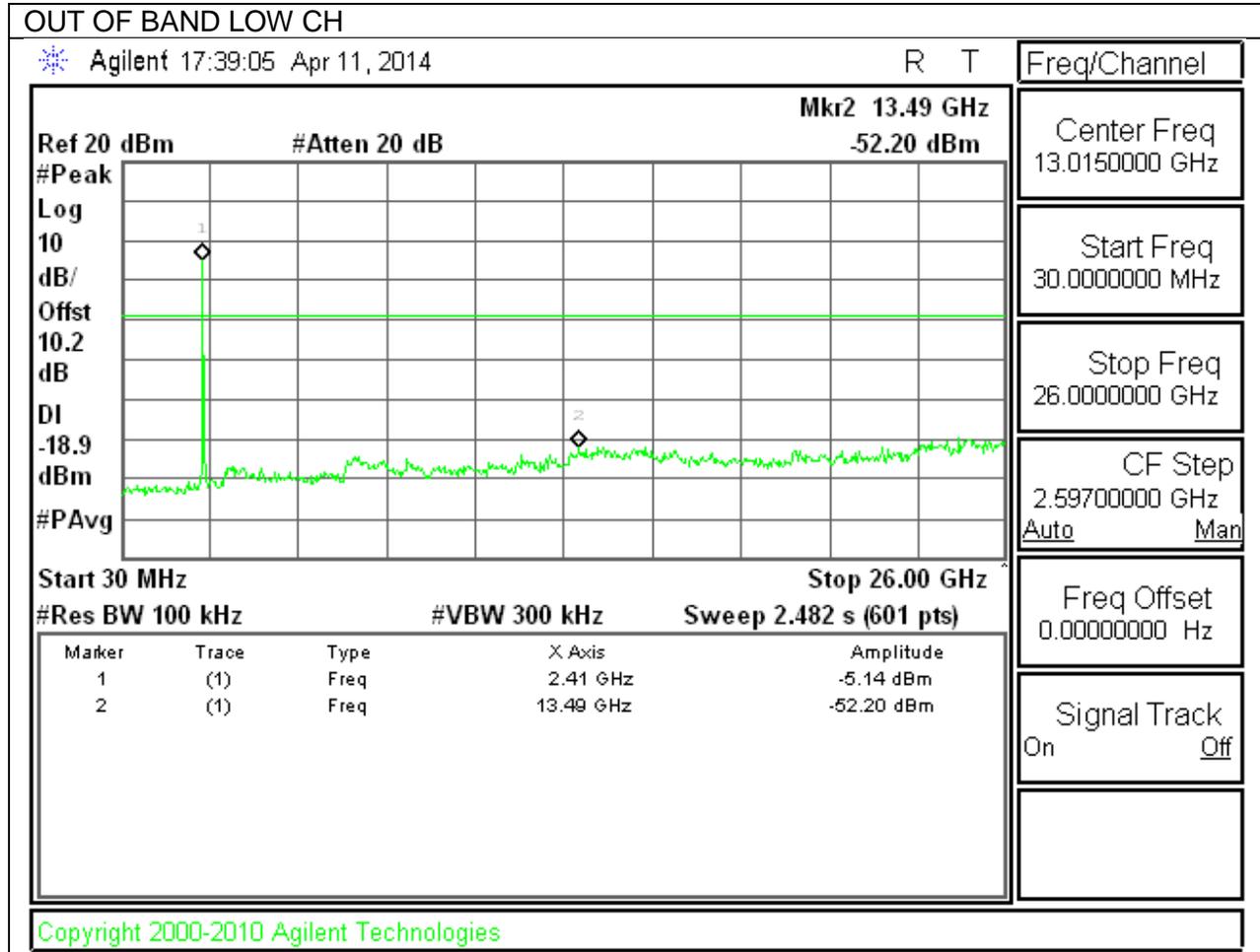
**LOW CHANNEL BANDEDGE**

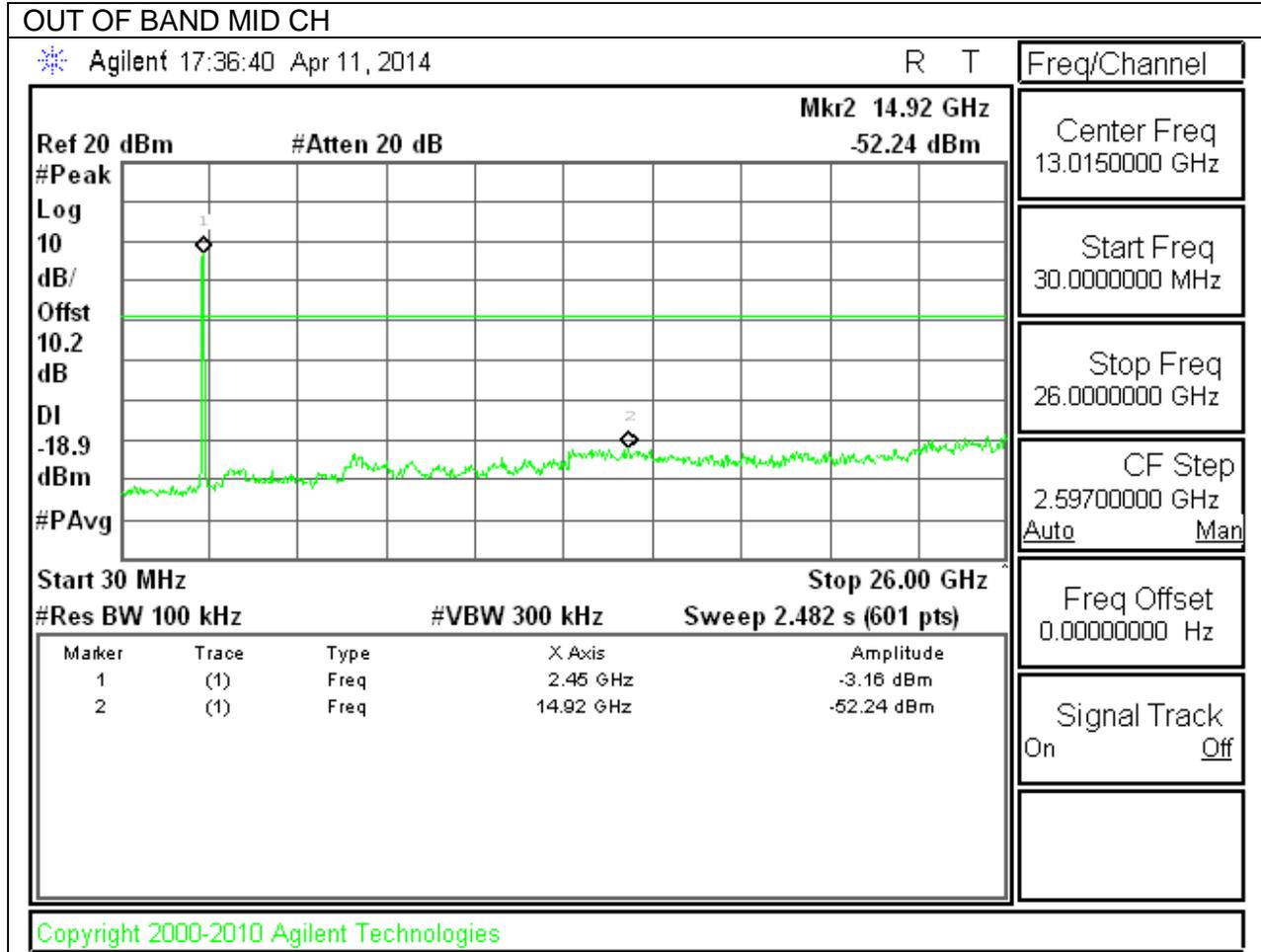


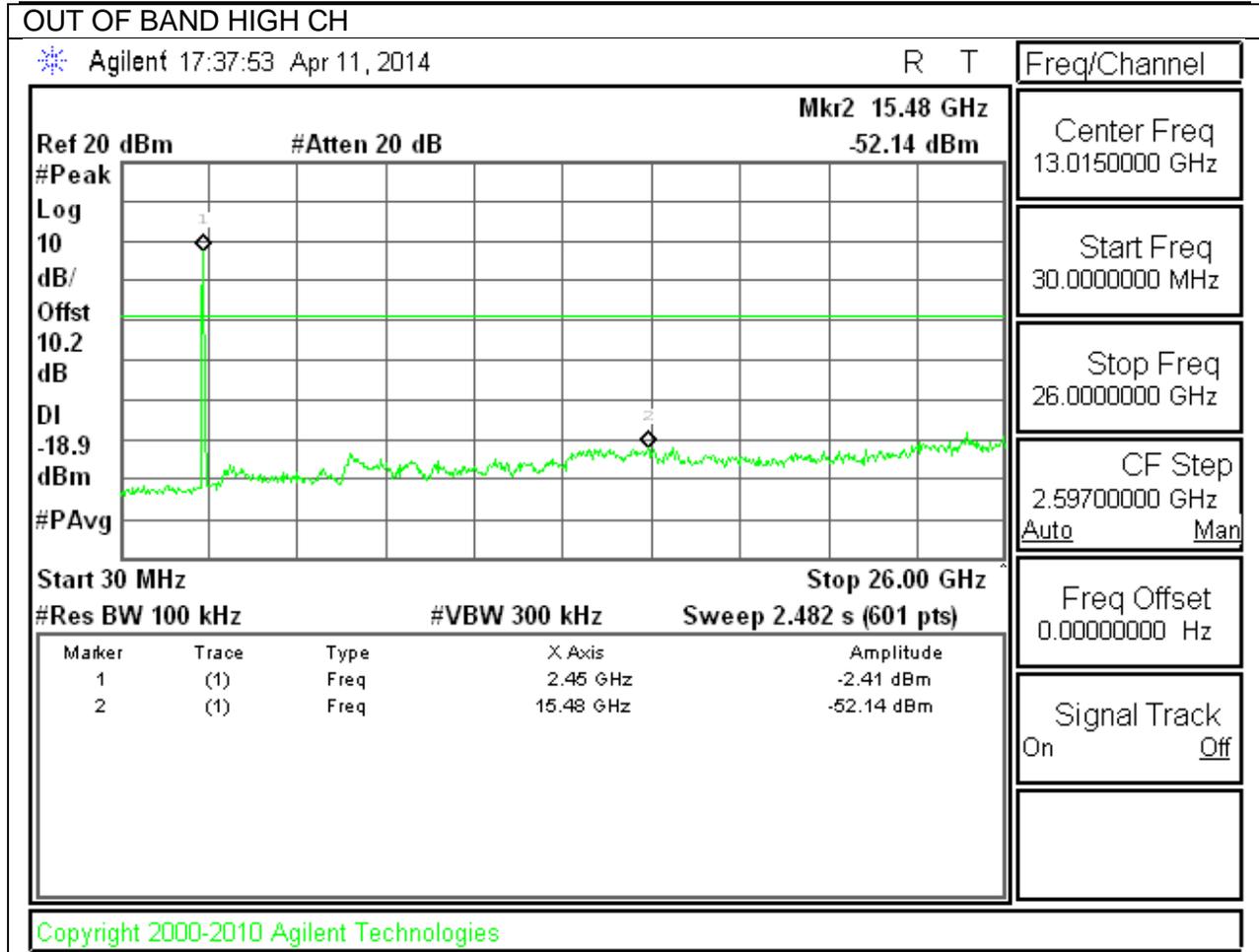
**HIGH CHANNEL BANDEDGE**



**OUT-OF-BAND EMISSIONS**

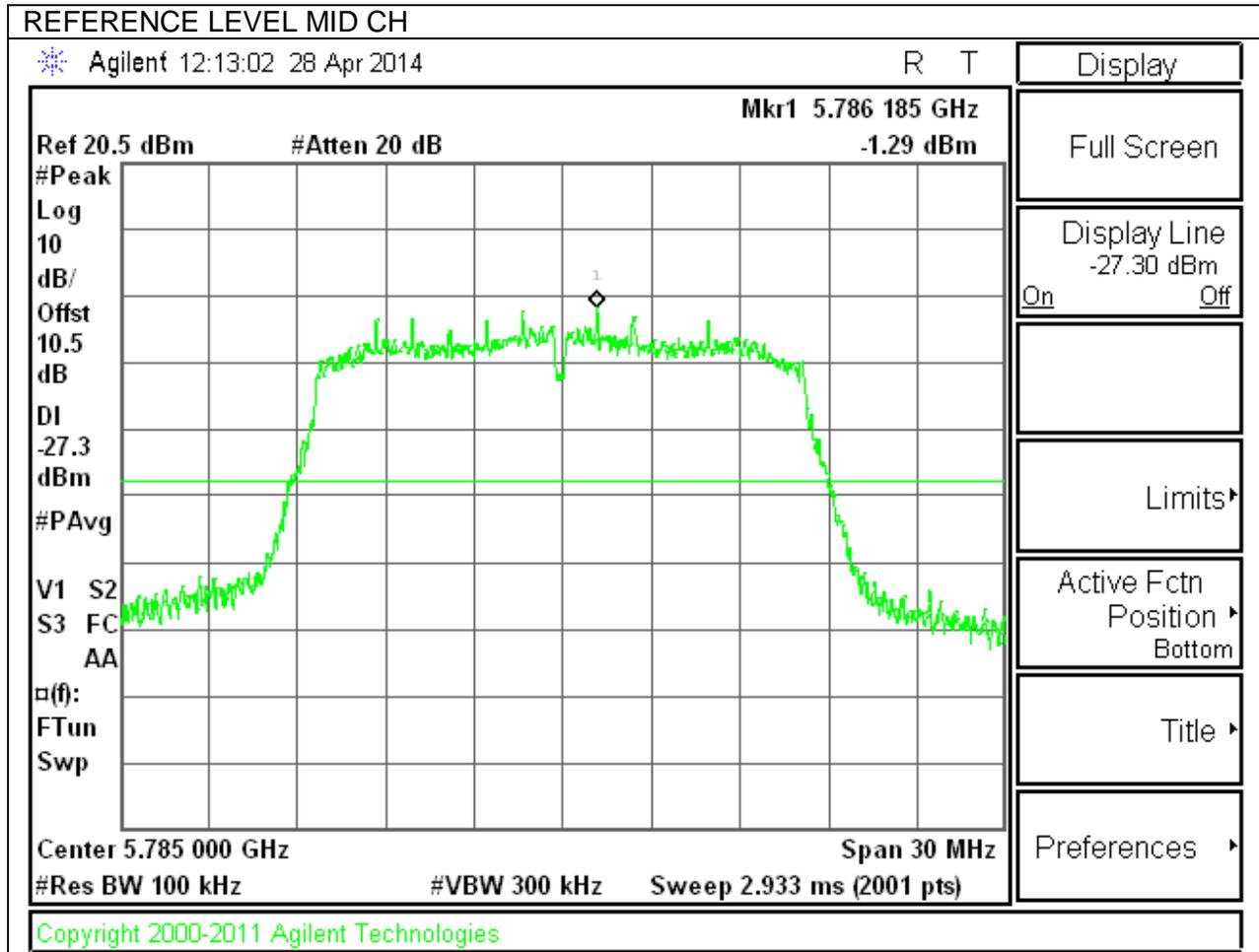




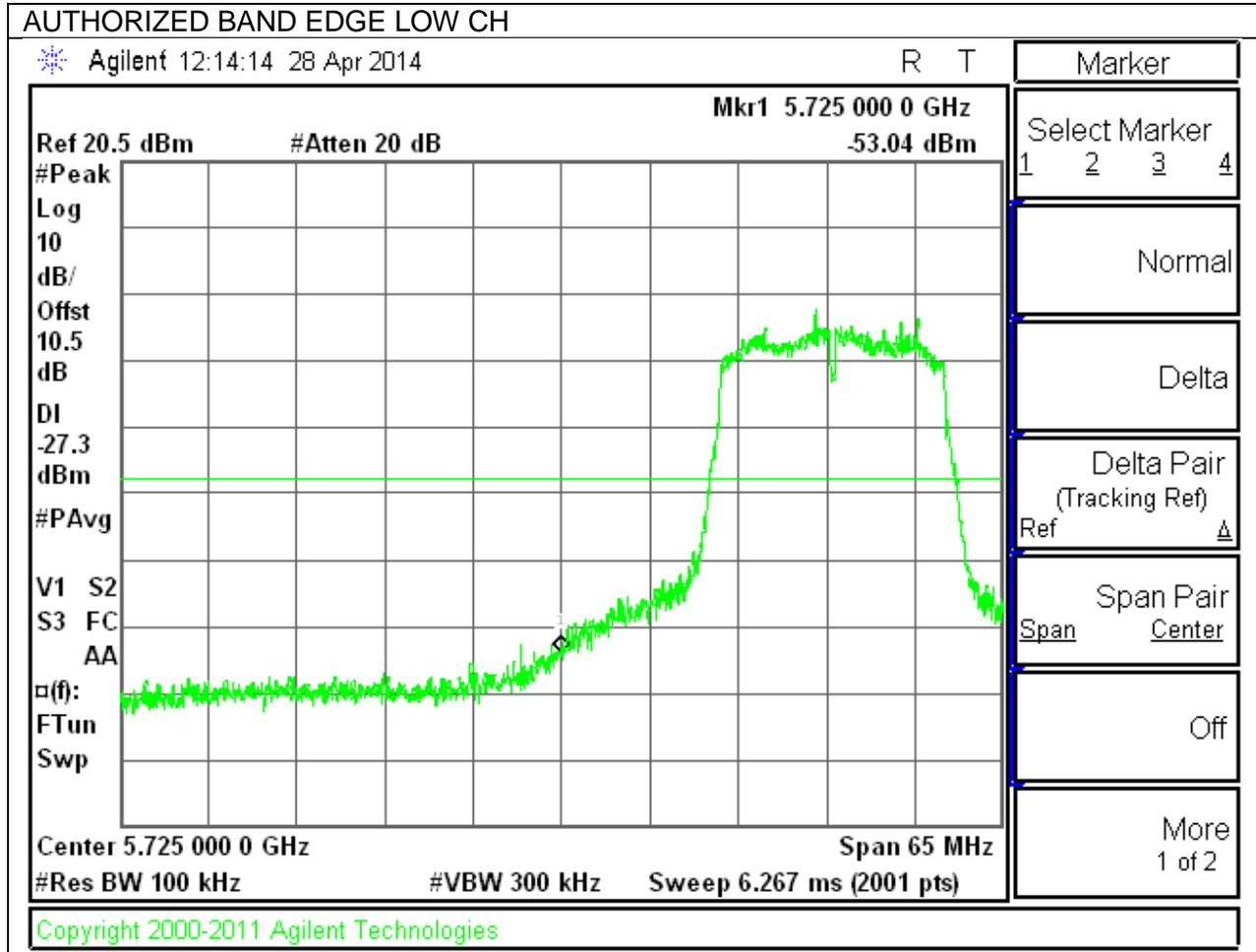


**9.6.4. 802.11a MODE IN THE 5.8 GHz BAND**

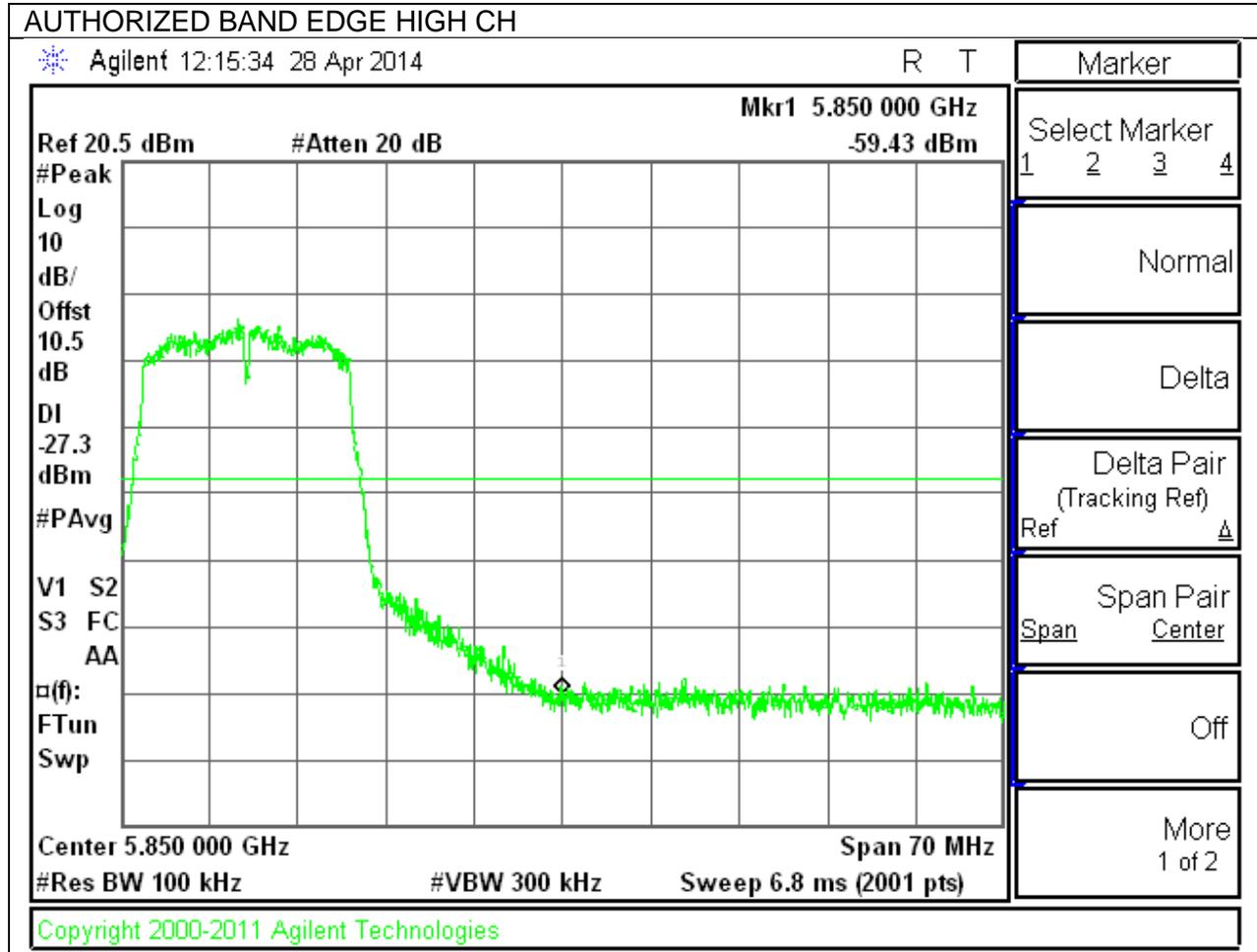
**IN-BAND REFERENCE LEVEL**



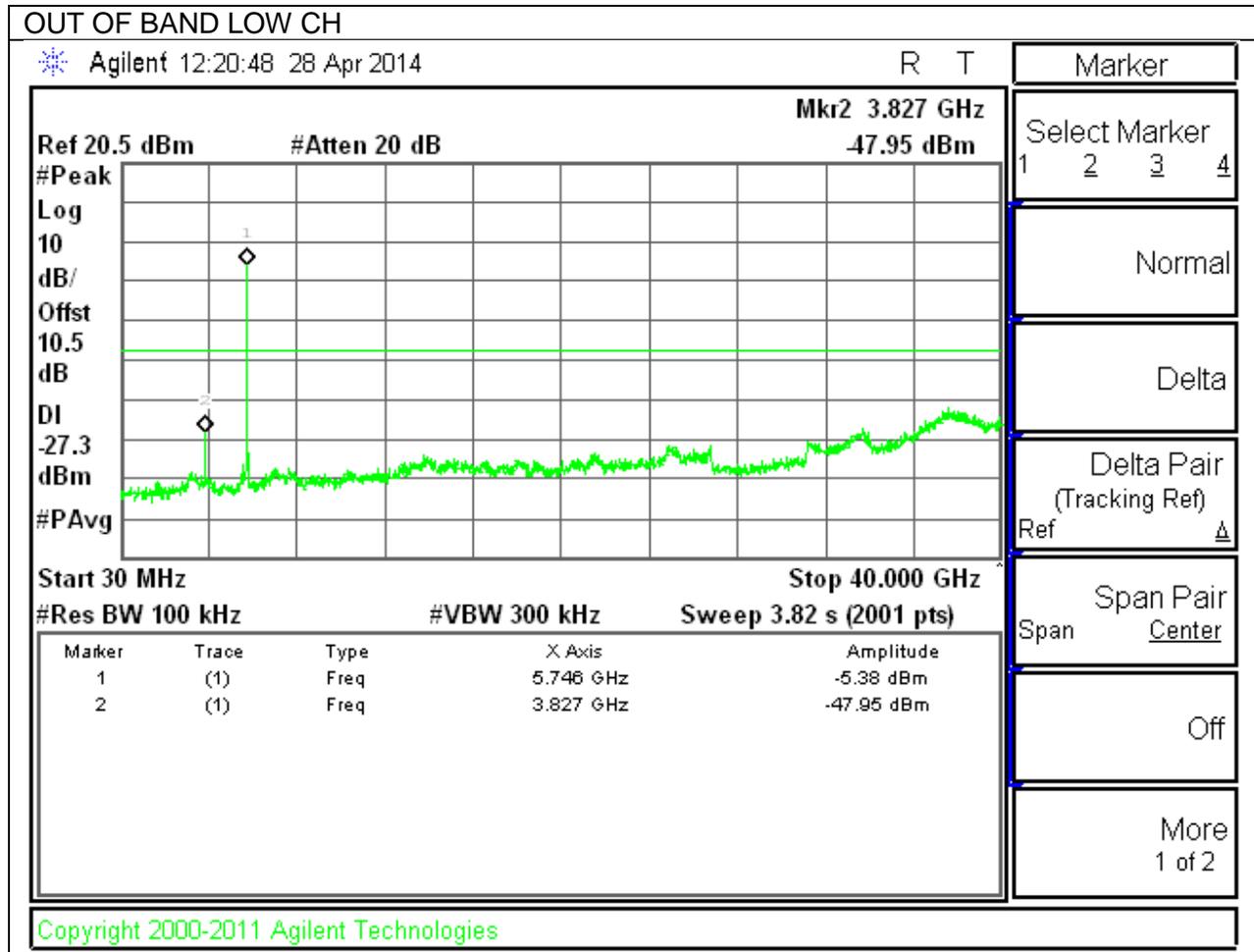
**LOW CHANNEL BANDEDGE**

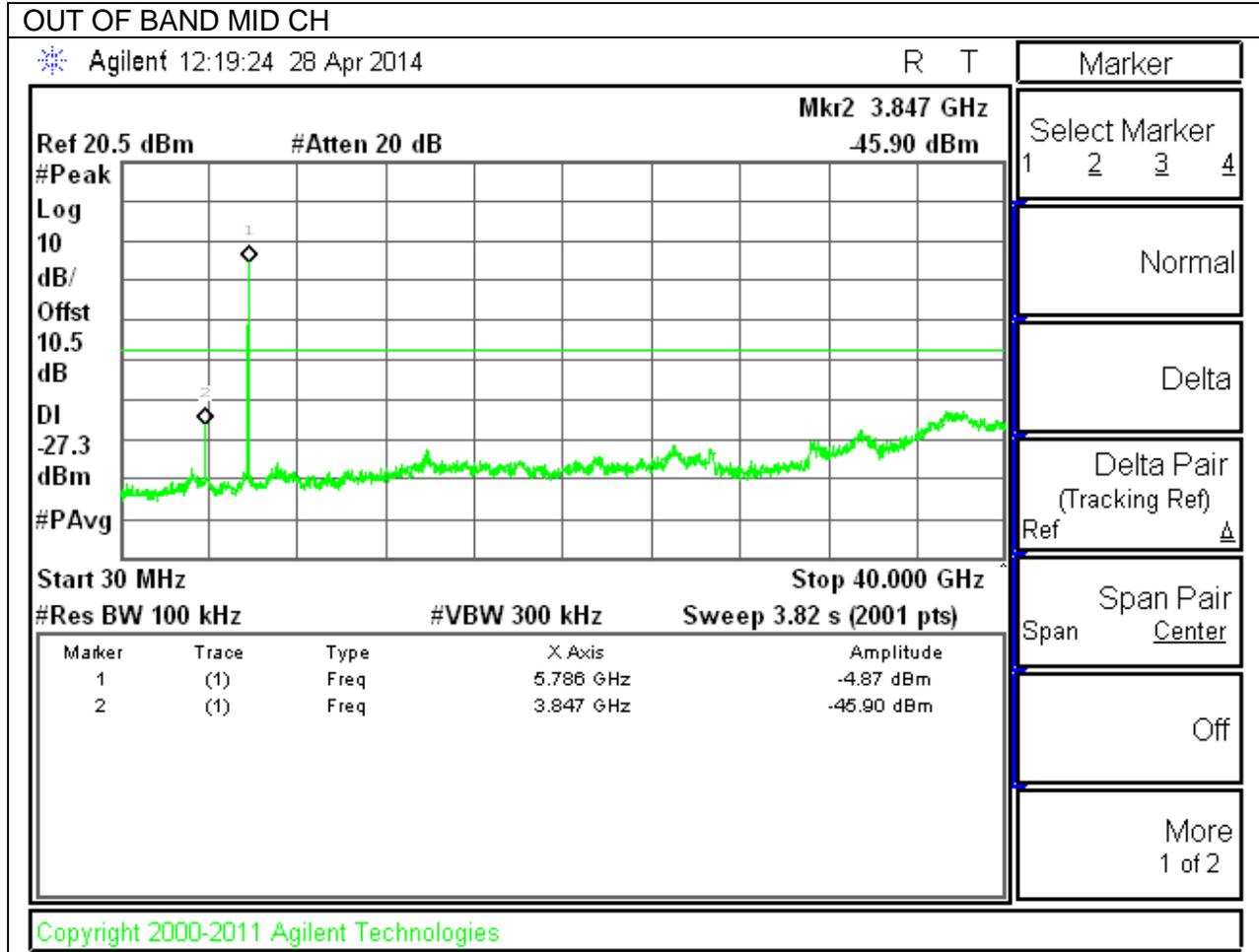


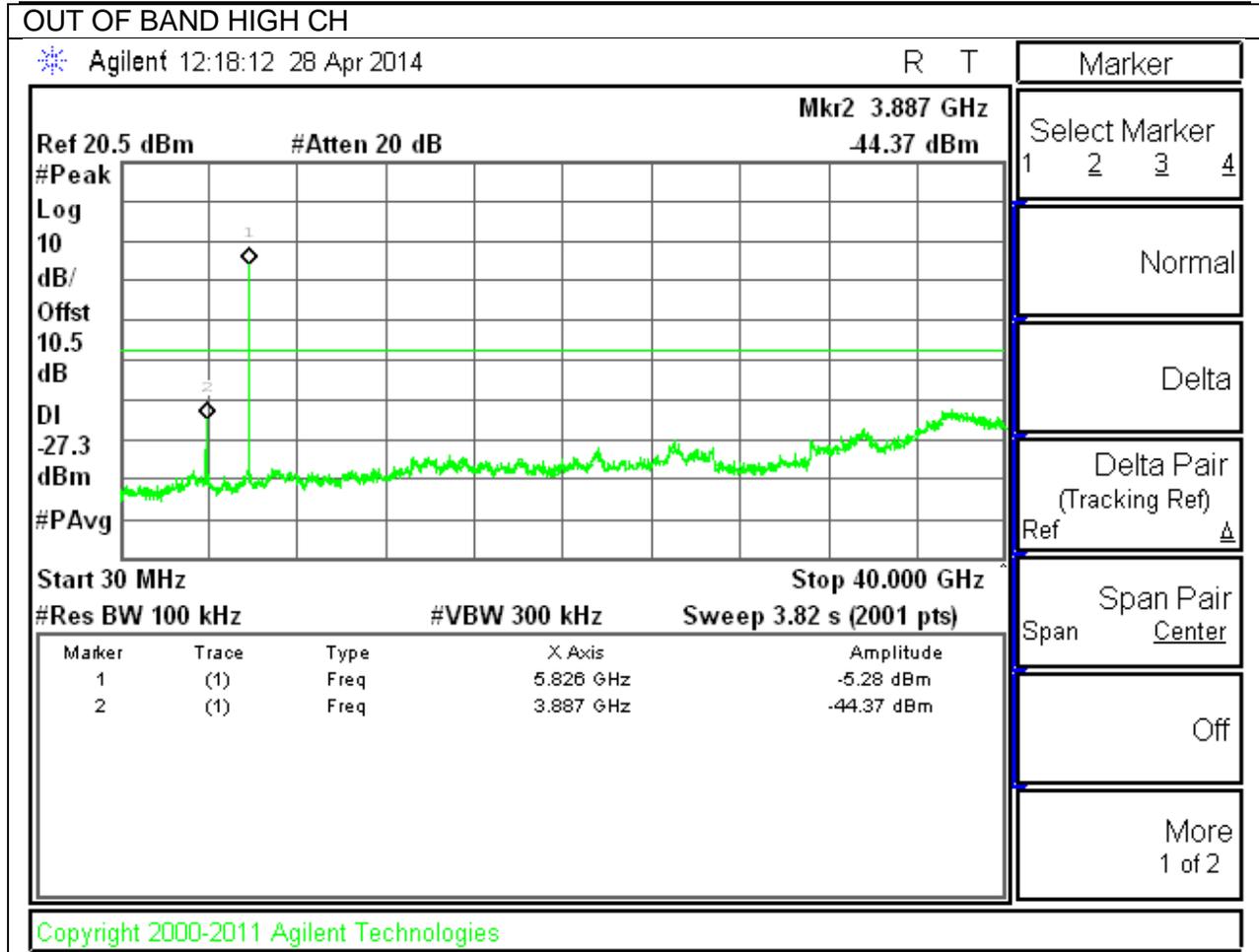
**HIGH CHANNEL BANDEDGE**



**OUT-OF-BAND EMISSIONS**

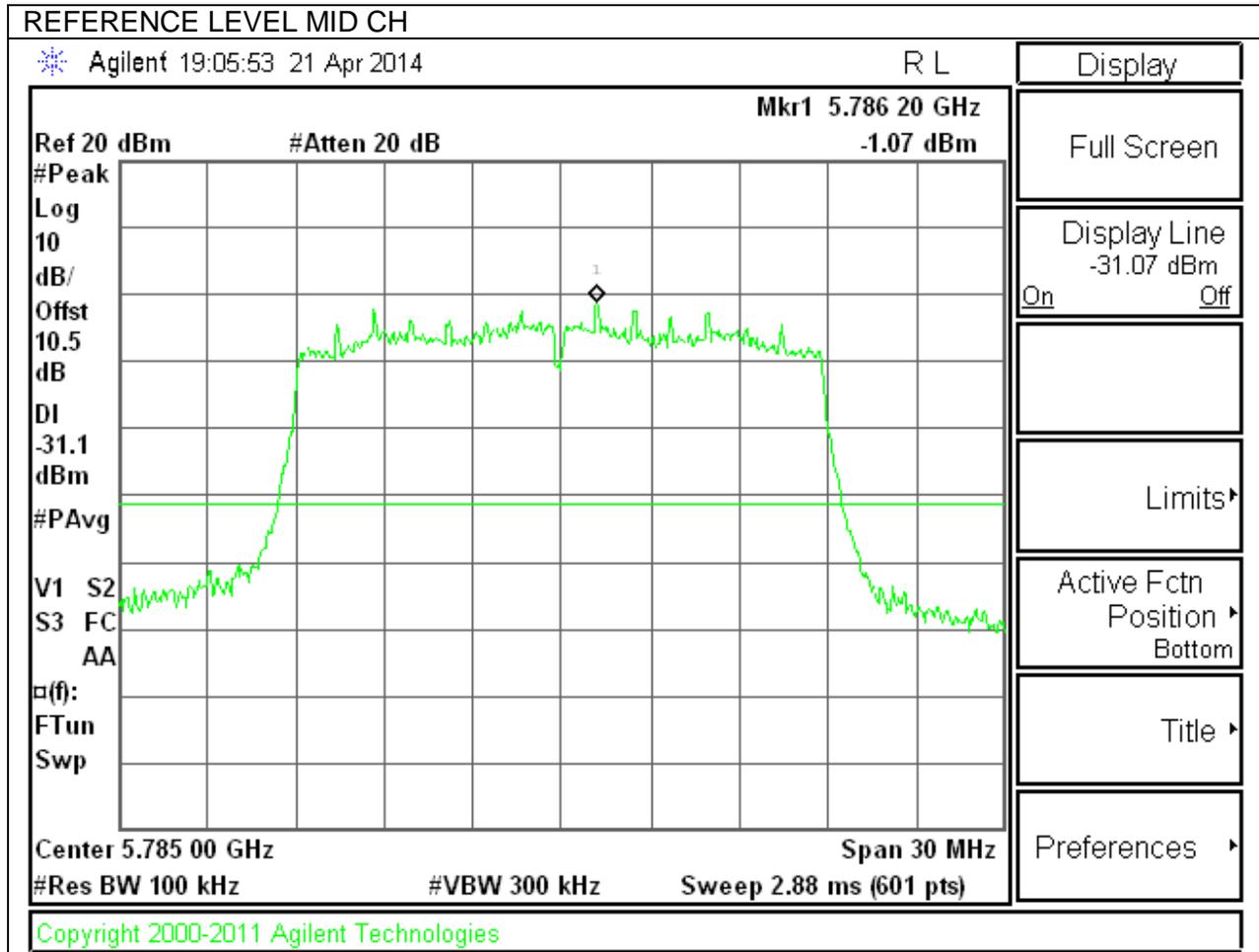




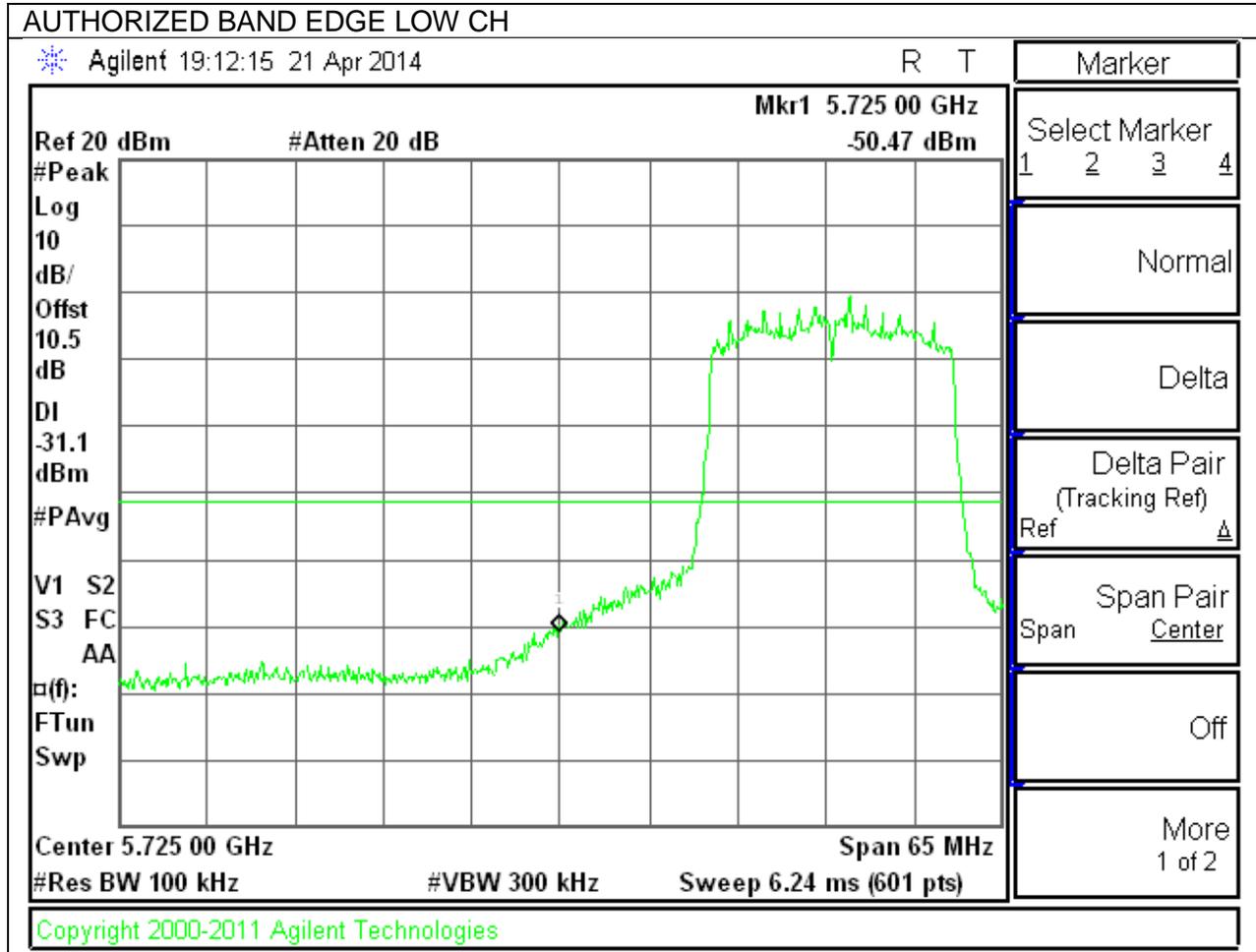


**9.6.5. 802.11n MODE IN THE 5.8 GHz BAND**

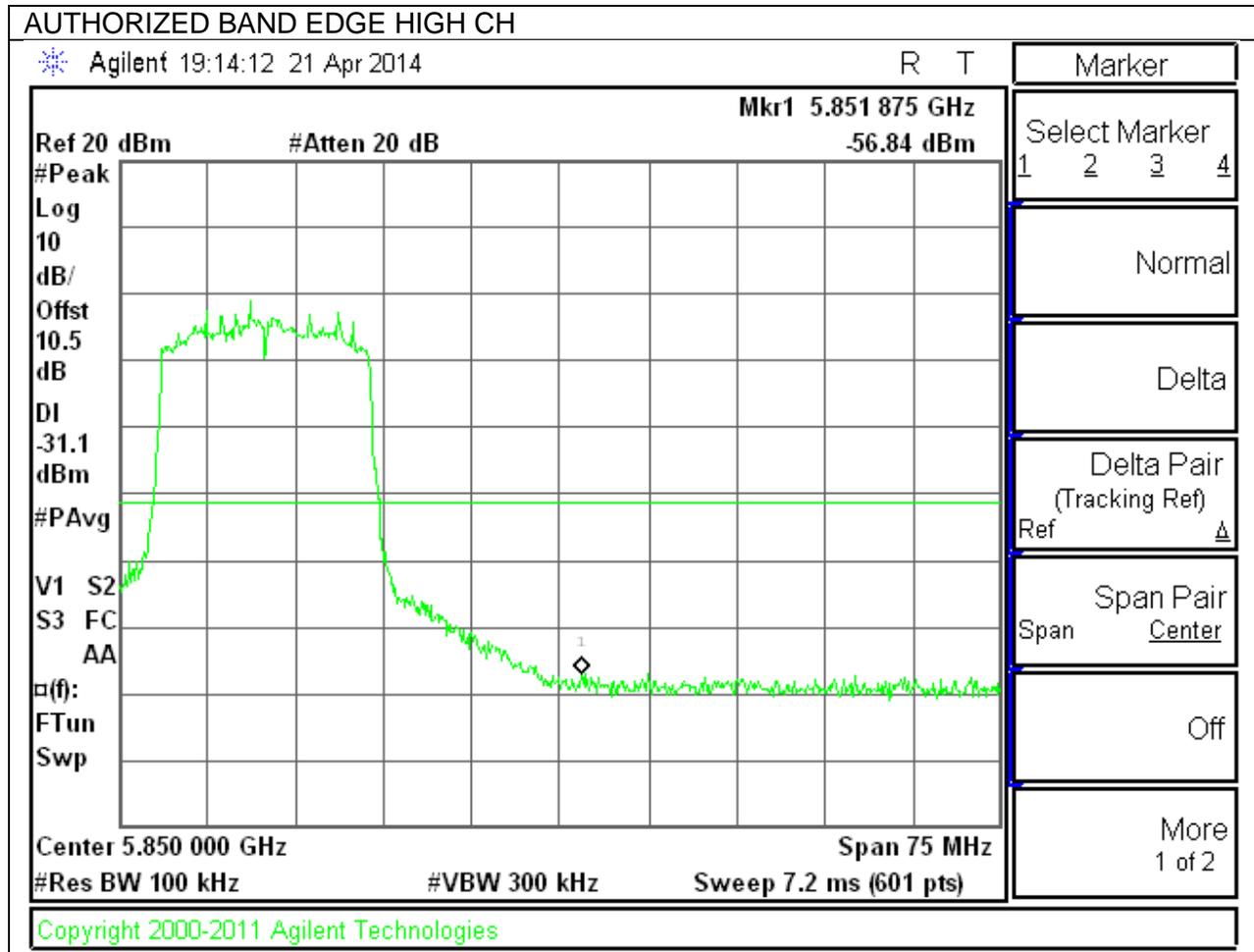
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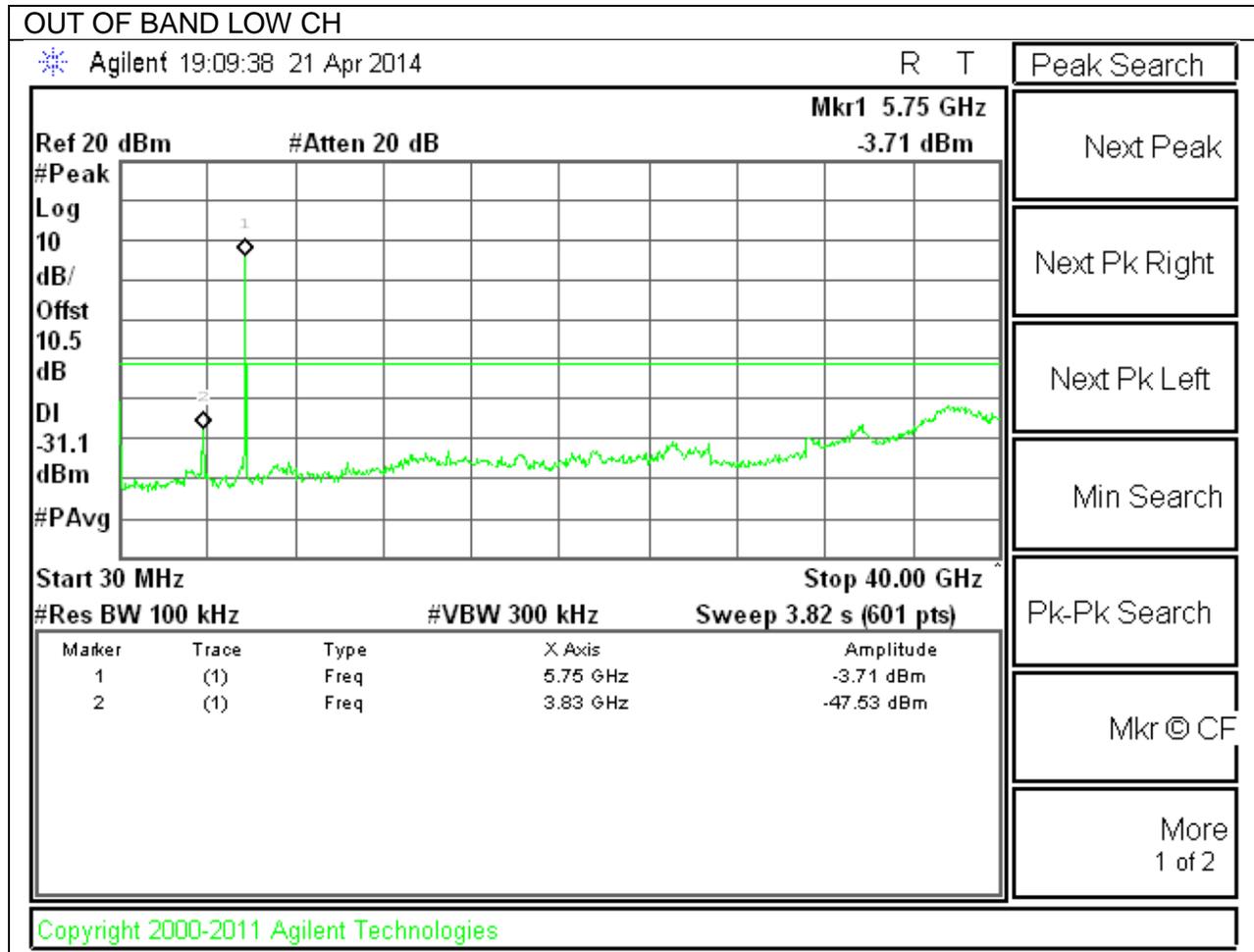
**LOW CHANNEL BANDEDGE**

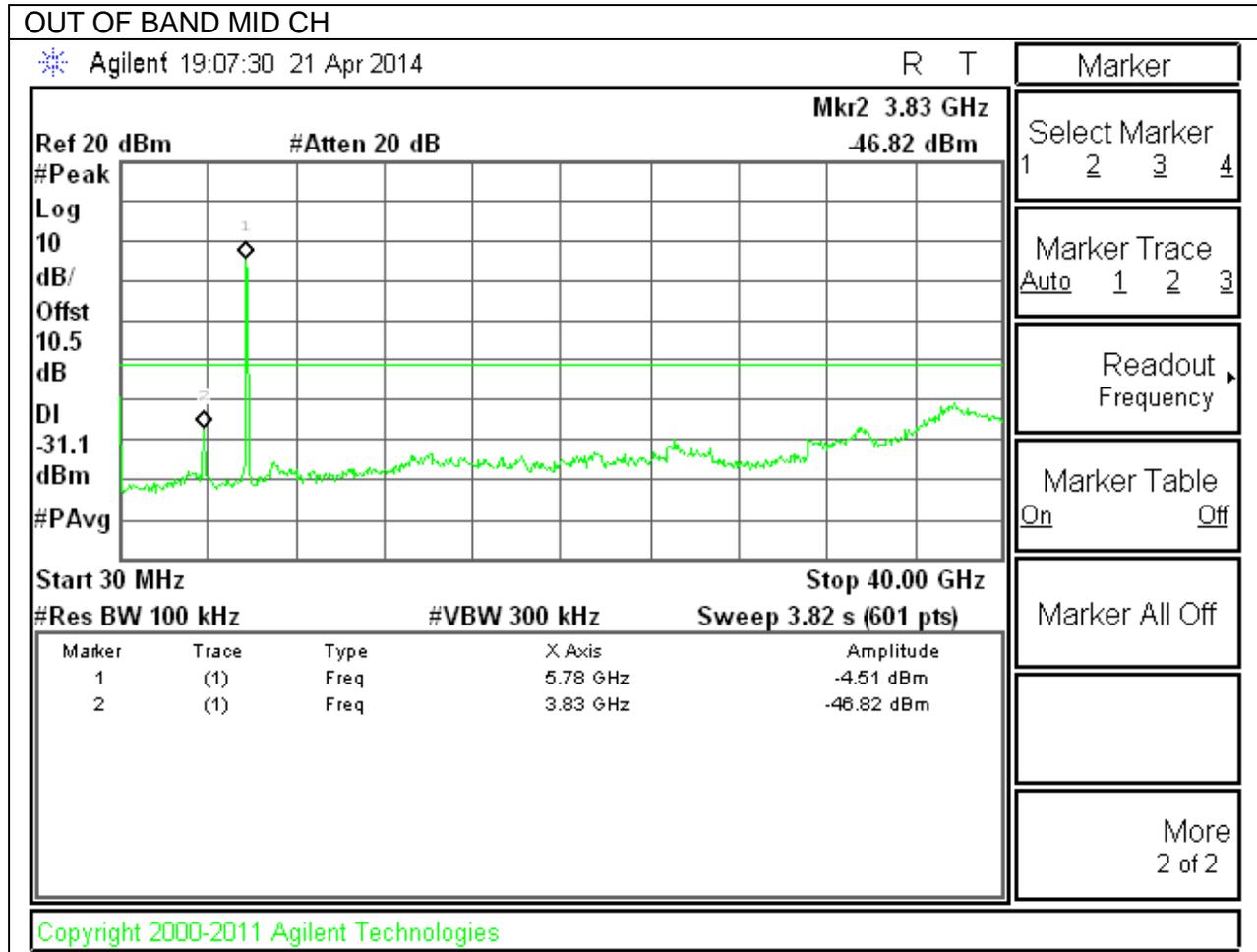


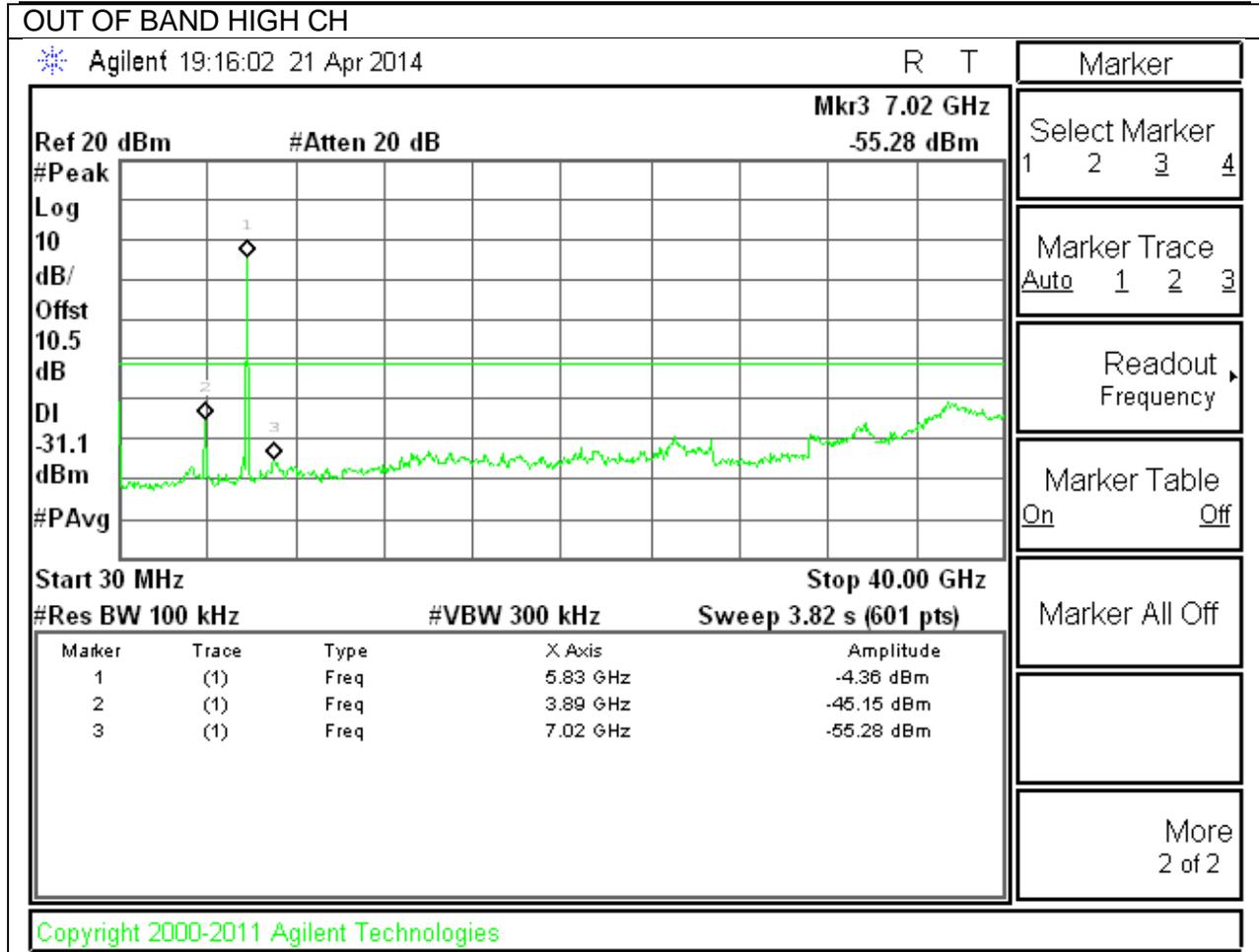
**HIGH CHANNEL BANDEDGE**



**OUT-OF-BAND EMISSIONS**

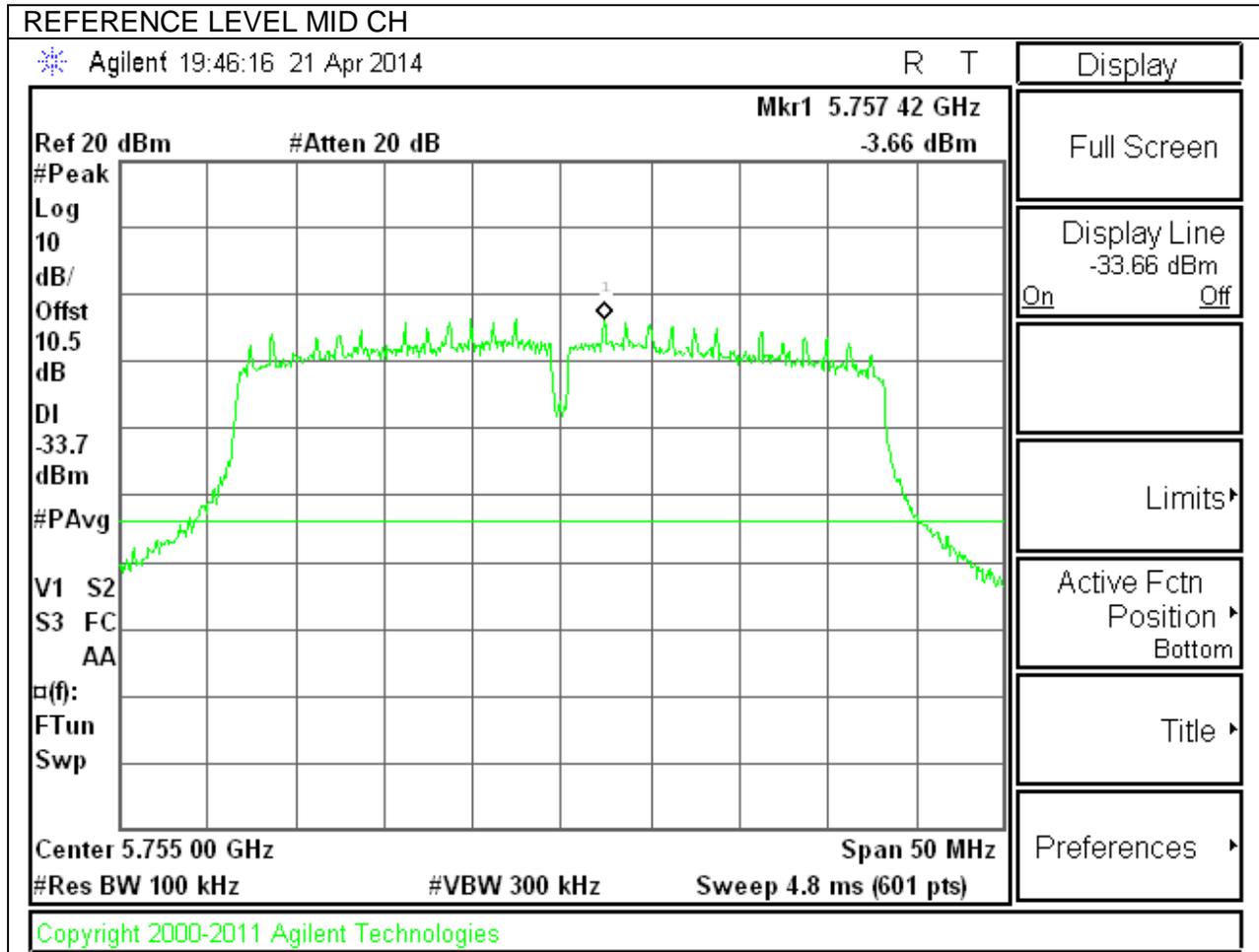




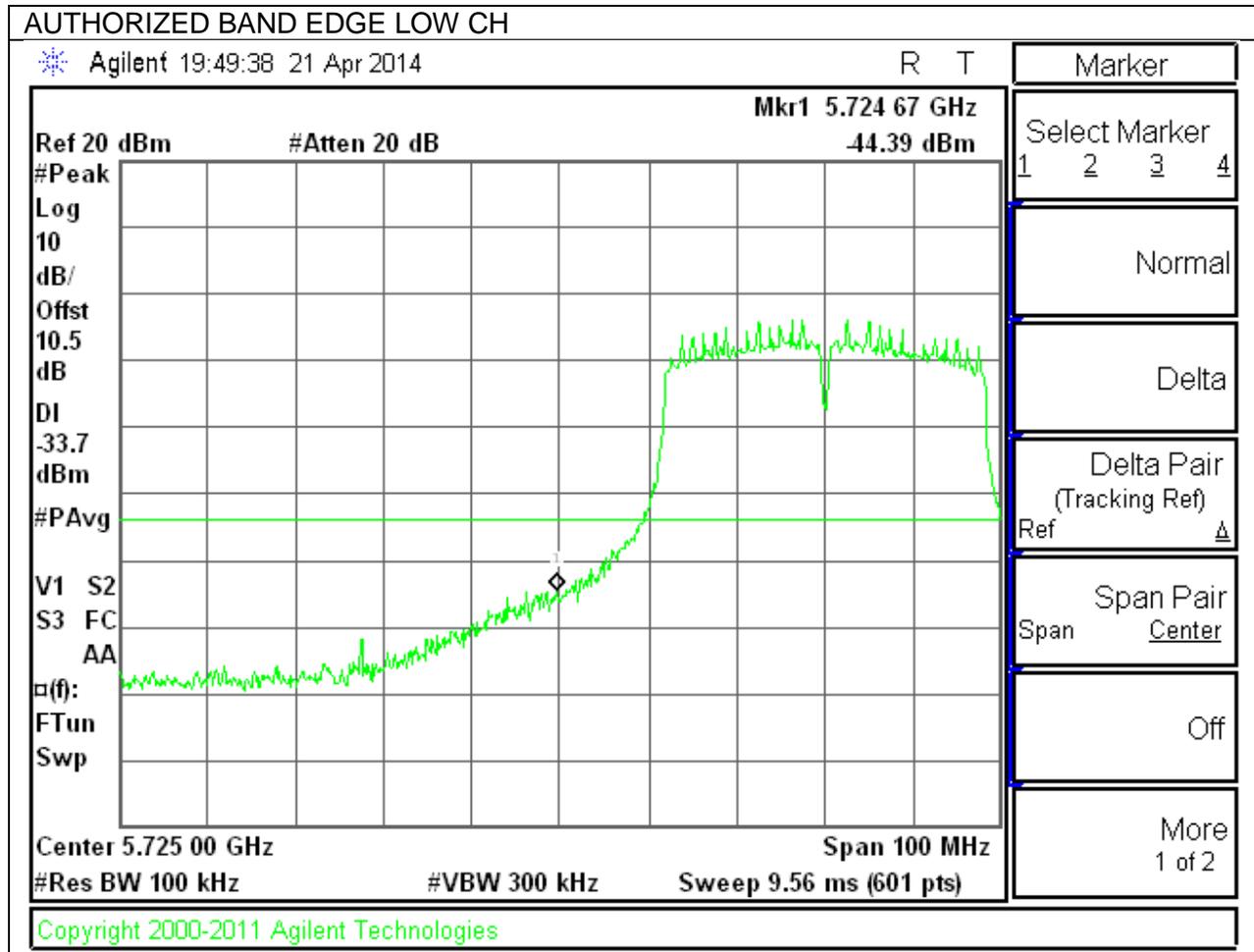


**9.6.6. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

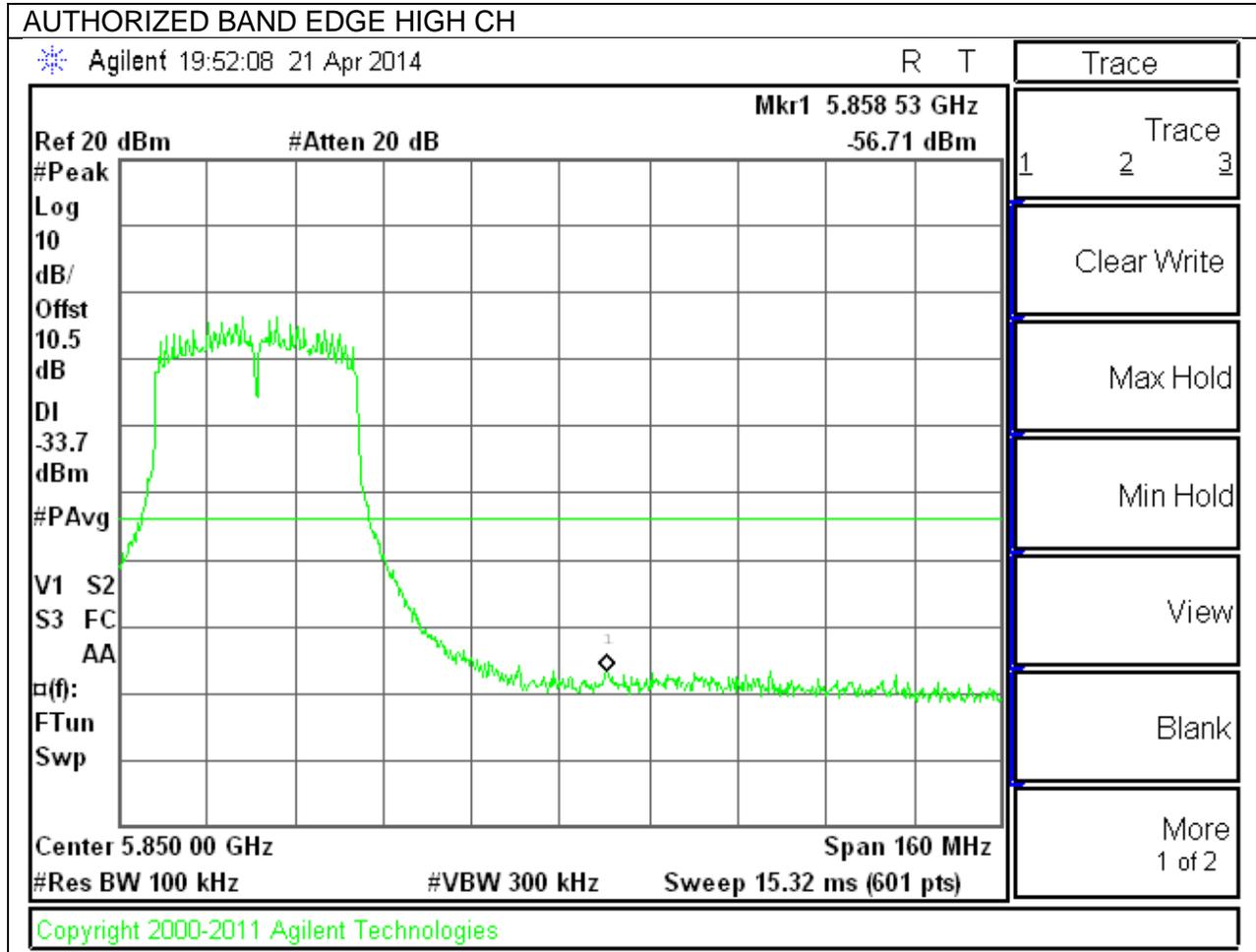
**IN-BAND REFERENCE LEVEL**



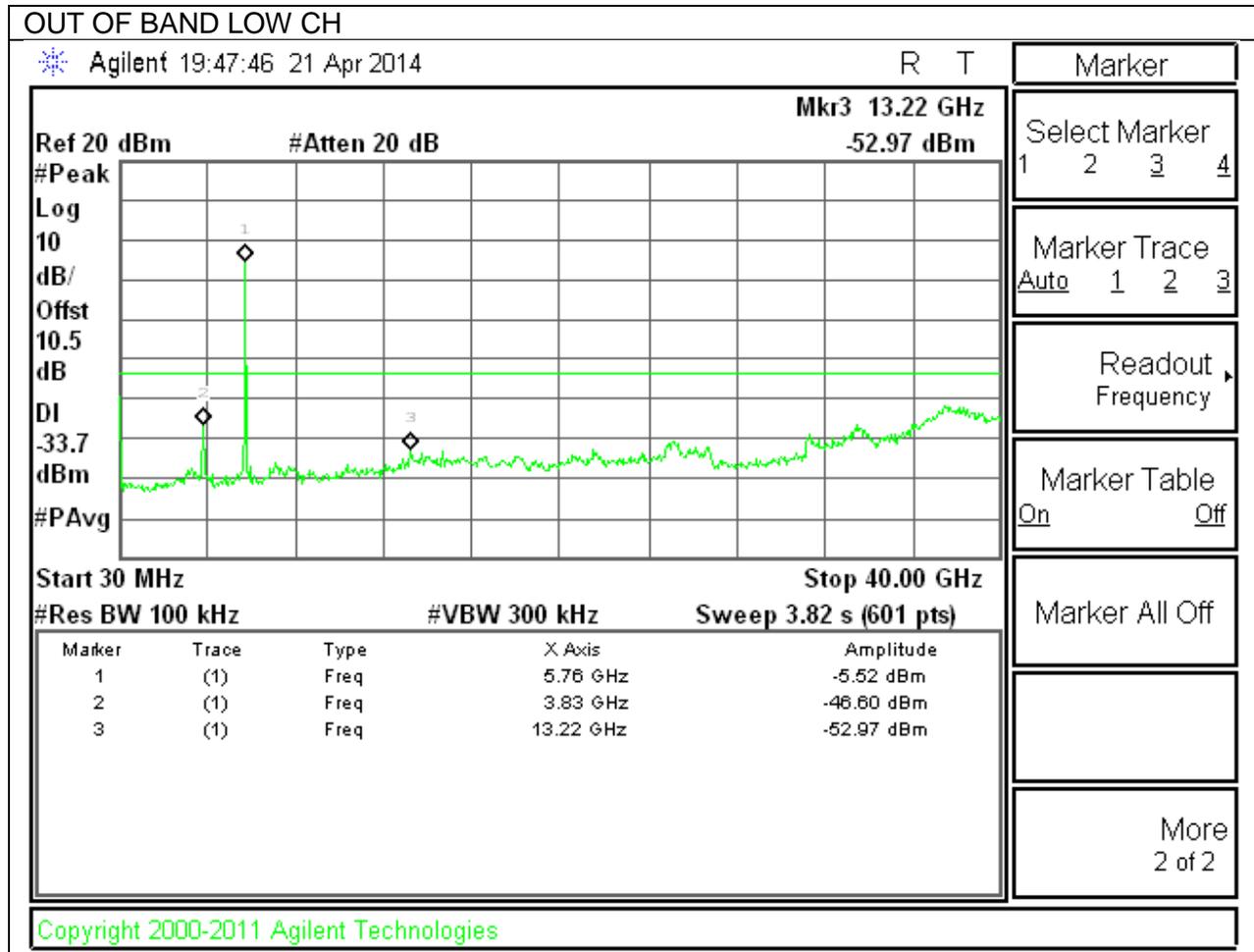
**LOW CHANNEL BANDEDGE**

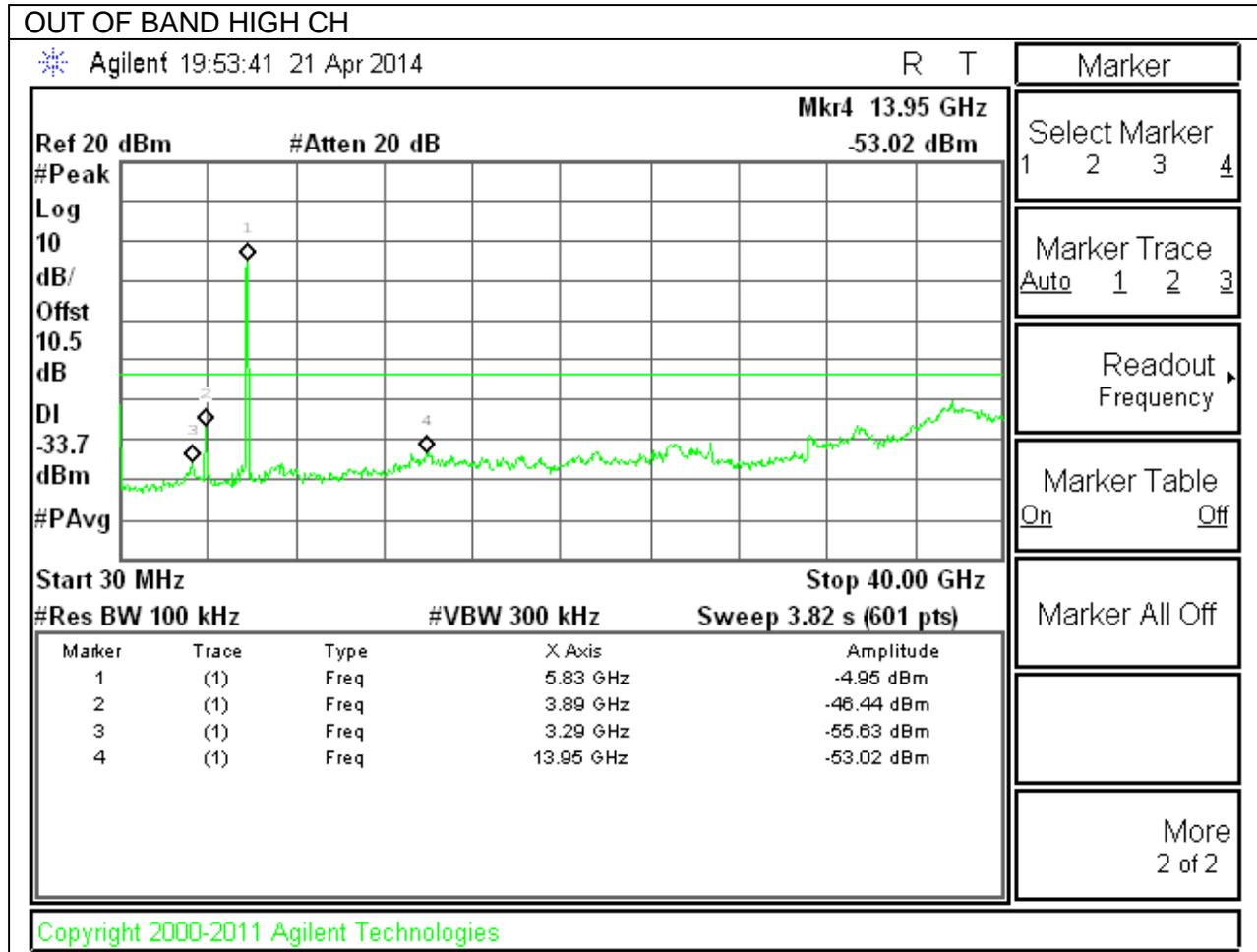


**HIGH CHANNEL BANDEDGE**



**OUT-OF-BAND EMISSIONS**





## 10. RADIATED TEST RESULTS

### 10.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

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

#### TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. 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.

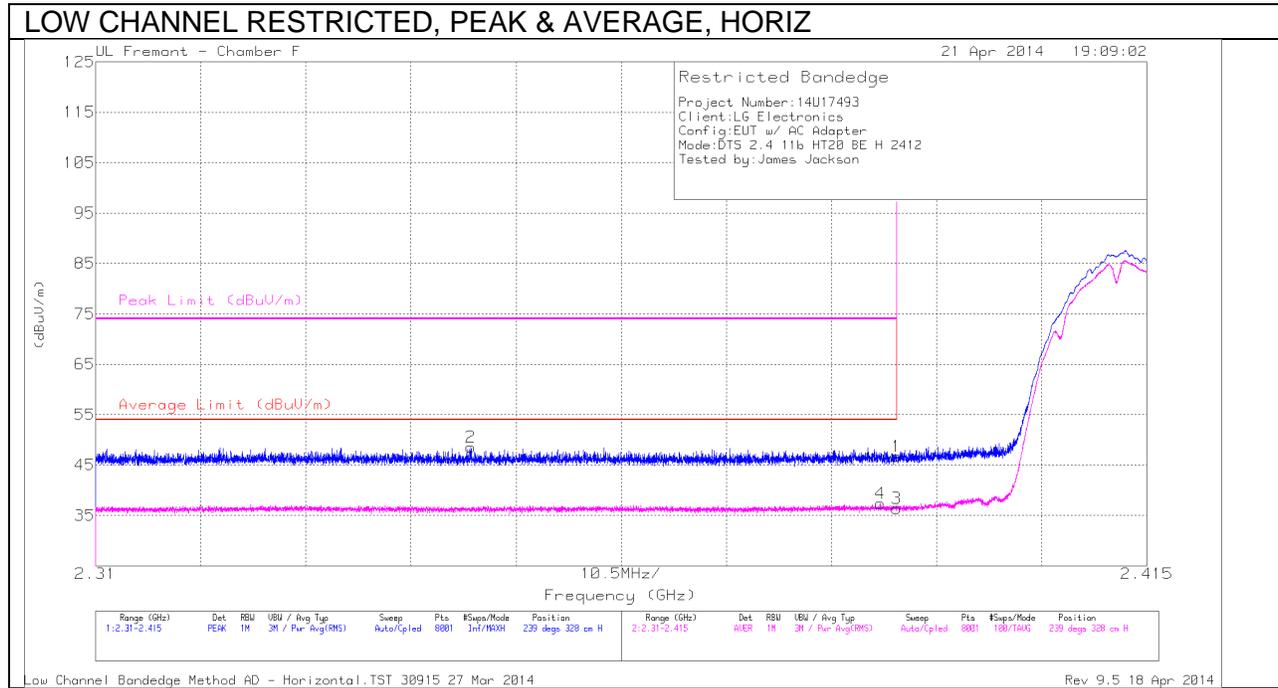
For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. Duty cycle factor=  $10 \log(1/x)$  For this sample B mode = 0.1dB; G mode = 0.2dB; N mode = 0.3dB.

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)

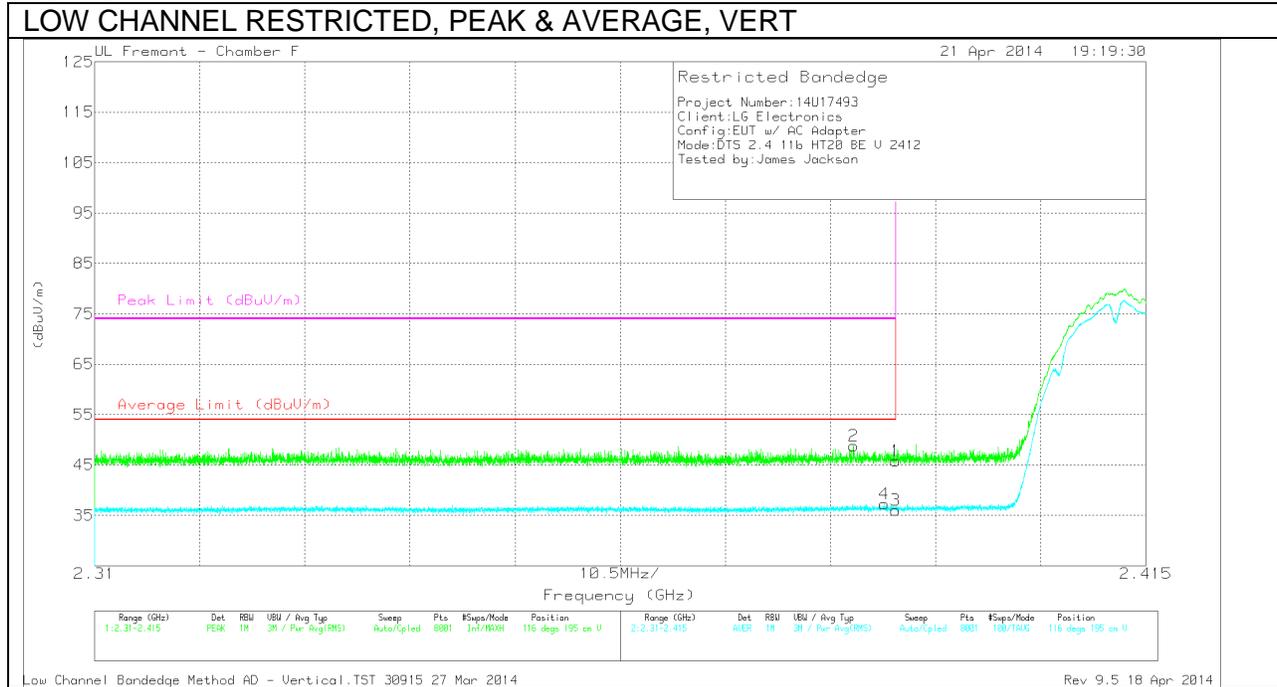


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.34	PK	32.2	-23.8	0	46.74	-	-	74	-27.26	239	328	H
2	* 2.347	40.29	PK	32	-23.7	0	48.59	-	-	74	-25.41	239	328	H
3	* 2.39	27.87	RMS	32.2	-23.8	.1	36.37	54	-17.63	-	-	239	328	H
4	* 2.388	28.84	RMS	32.2	-23.8	.1	37.34	54	-16.66	-	-	239	328	H

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

PK - Peak detector

RMS - RMS detection



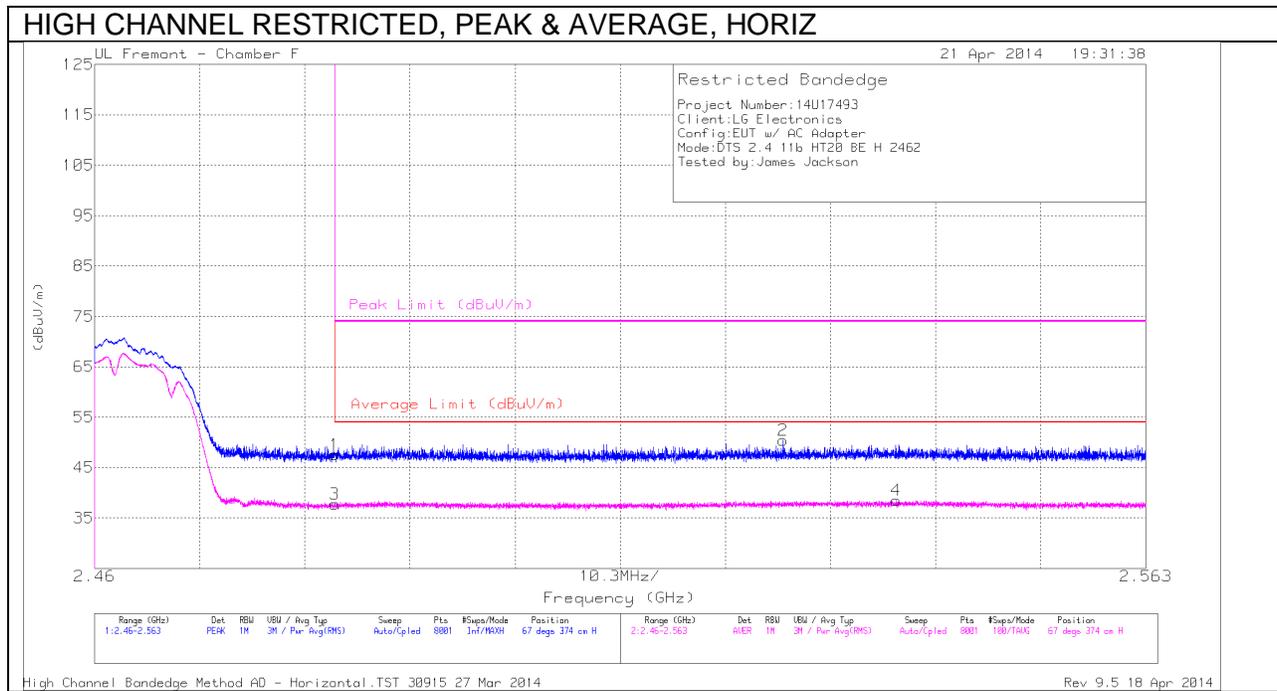
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.43	PK	32.2	-23.8	0	45.83	-	-	74	-28.17	116	195	V
2	* 2.386	40.45	PK	32.1	-23.8	0	48.75	-	-	74	-25.25	116	195	V
3	* 2.39	27.56	RMS	32.2	-23.8	.1	36.06	54	-17.94	-	-	116	195	V
4	* 2.389	28.73	RMS	32.2	-23.8	.1	37.23	54	-16.77	-	-	116	195	V

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

PK - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEDGE (HIGH CHANNEL)**



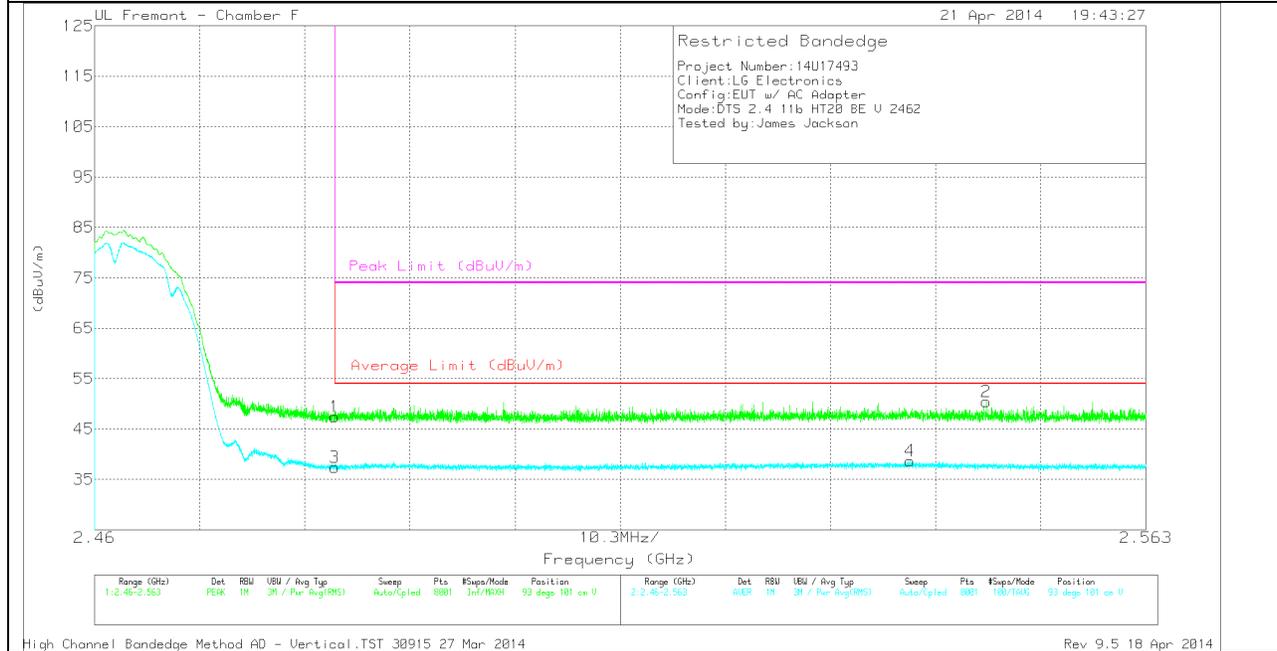
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.91	PK	32.6	-23	0	47.51	-	-	74	-26.49	67	374	H
2	2.527	40.64	PK	32.7	-22.9	0	50.44	-	-	74	-23.56	67	374	H
3	* 2.484	28.05	RMS	32.6	-23	.1	37.75	54	-16.25	-	-	67	374	H
4	2.539	28.53	RMS	32.7	-22.8	.1	38.53	54	-15.47	-	-	67	374	H

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

PK - Peak detector

RMS - RMS detection

**HIGH CHANNEL BANDEDGE, PEAK & AVERAGE, VERT**



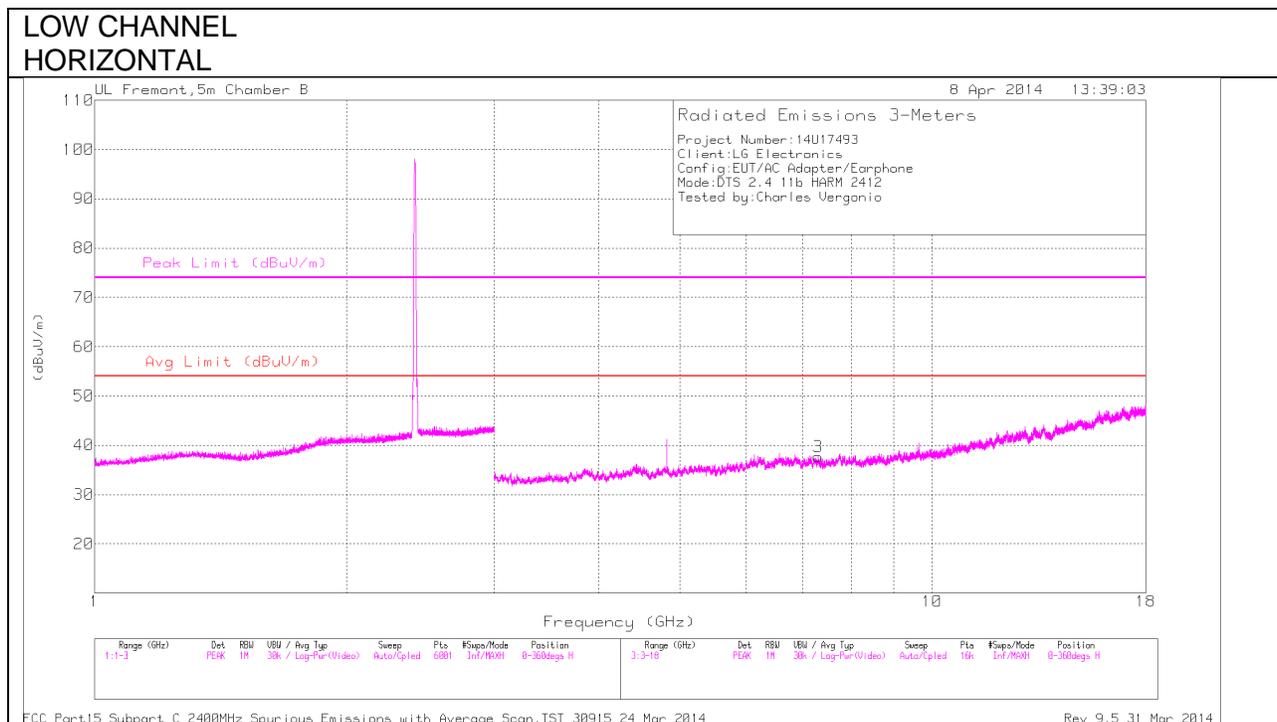
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.81	PK	32.6	-23	0	47.41	-	-	74	-26.59	93	101	V
2	2.547	40.79	PK	32.7	-23.1	0	50.39	-	-	74	-23.61	93	101	V
3	* 2.484	27.69	RMS	32.6	-23	.1	37.39	54	-16.61	-	-	93	101	V
4	2.54	28.68	RMS	32.7	-22.8	.1	38.68	54	-15.32	-	-	93	101	V

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

PK - Peak detector

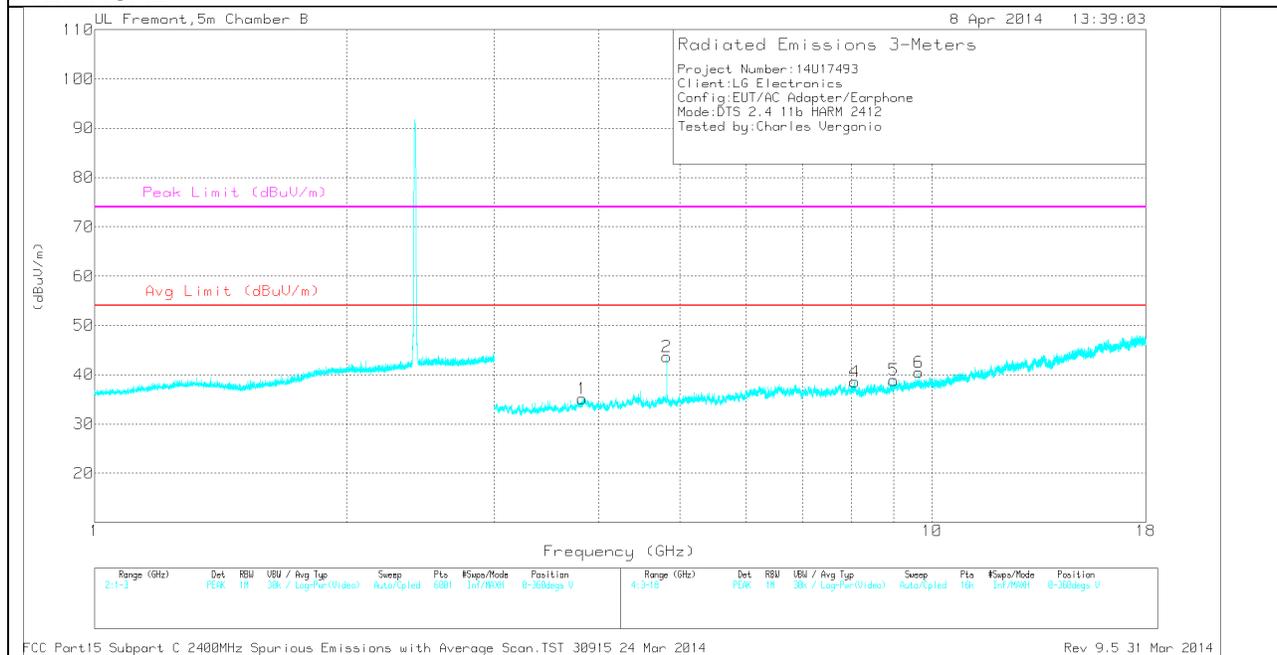
RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**



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

**LOW CHANNEL  
 VERTICAL**



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

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 7.308	29.74	PK	35.6	-27.7	37.64	-	-	74	-36.36	0-360	99	H
1	* 3.821	31.98	PK	33.7	-30.5	35.18	-	-	74	-38.82	0-360	202	V
2	* 4.824	38.7	PK	34.2	-29.3	43.6	-	-	74	-30.4	0-360	202	V
4	* 8.083	28.75	PK	35.7	-25.9	38.55	-	-	74	-35.45	0-360	202	V
5	8.999	27.69	PK	36.2	-25	38.89	-	-	-	-	0-360	99	V
6	9.647	27.81	PK	36.8	-24.1	40.51	-	-	-	-	0-360	202	V

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

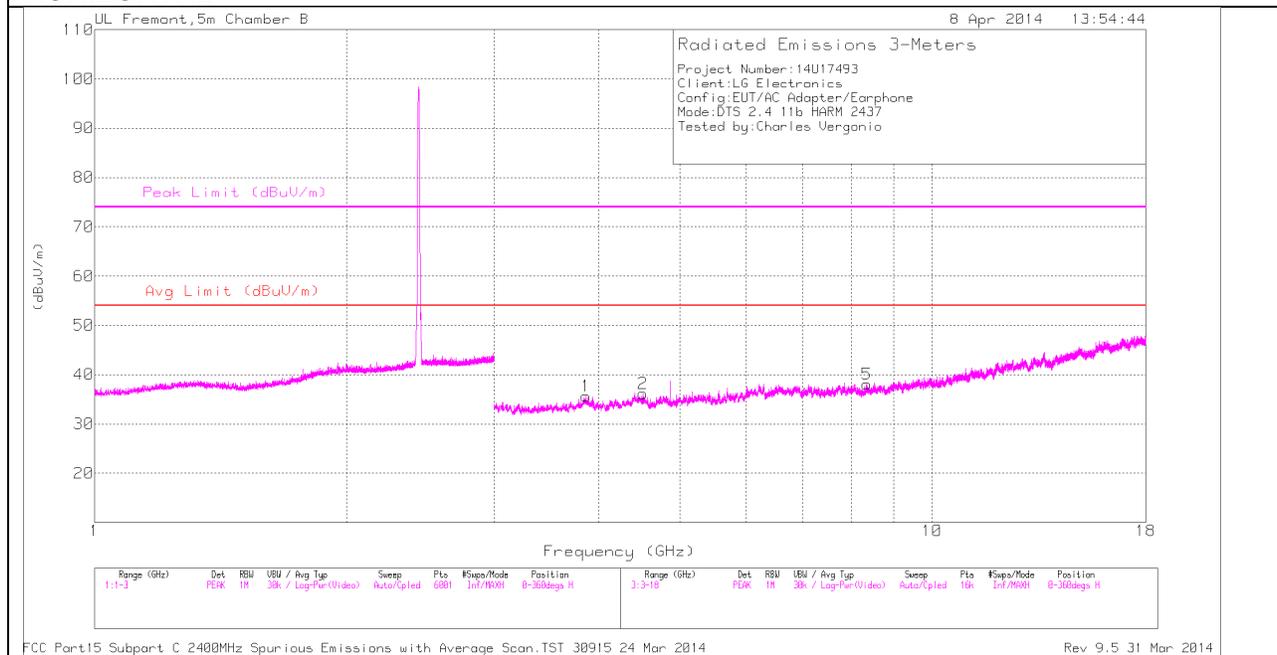
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.308	38.53	PK2	35.6	-27.7	46.43	54	-7.57	74	-27.57	1	100	H
* 3.822	40.26	PK2	33.7	-30.5	43.46	54	-10.54	74	-30.54	1	100	V
* 8.084	36.72	PK2	35.7	-25.8	46.62	54	-7.38	74	-27.38	1	100	V
* 4.824	39.94	PK2	34.2	-29.3	44.84	54	-9.19	74	-29.16	1	100	V
* 4.825	30.04	MAv1	34.2	-29.4	34.84	54	-19.16	74	-39.16	1	100	V
8.998	35.56	PK2	36.2	-25	46.76	54	-7.24	74	-27.26	1	100	V
9.648	35.94	PK2	36.8	-24.1	48.64	54	-5.36	74	-25.36	1	100	V

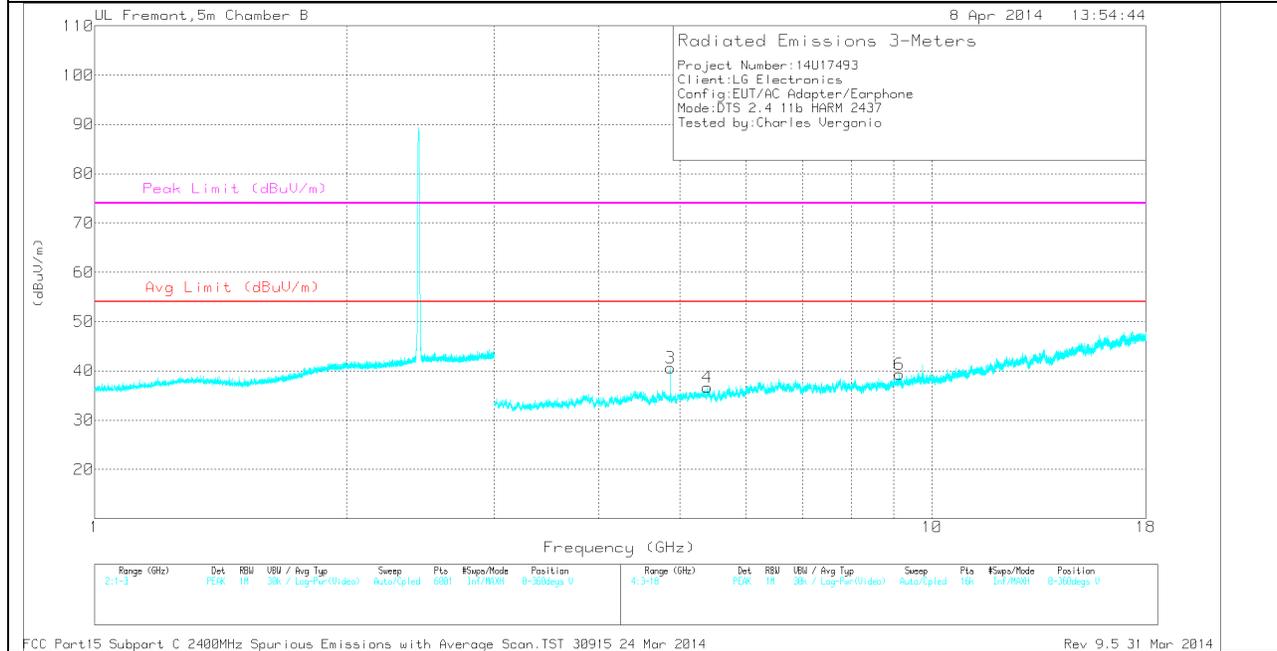
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	* 3.863	32.1	PK	33.7	-30.2	35.6	-	-	74	-38.4	0-360	202	H
2	* 4.516	31.38	PK	34	-29.2	36.18	-	-	74	-37.82	0-360	202	H
5	* 8.359	27.9	PK	35.7	-25.5	38.1	-	-	74	-35.9	0-360	202	H
3	* 4.874	36.99	PK	34.2	-30.6	40.59	-	-	74	-33.41	0-360	202	V
4	* 5.391	30.67	PK	34.5	-28.5	36.67	-	-	74	-37.33	0-360	99	V
6	* 9.14	28.06	PK	36.3	-25	39.36	-	-	74	-34.64	0-360	99	V

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

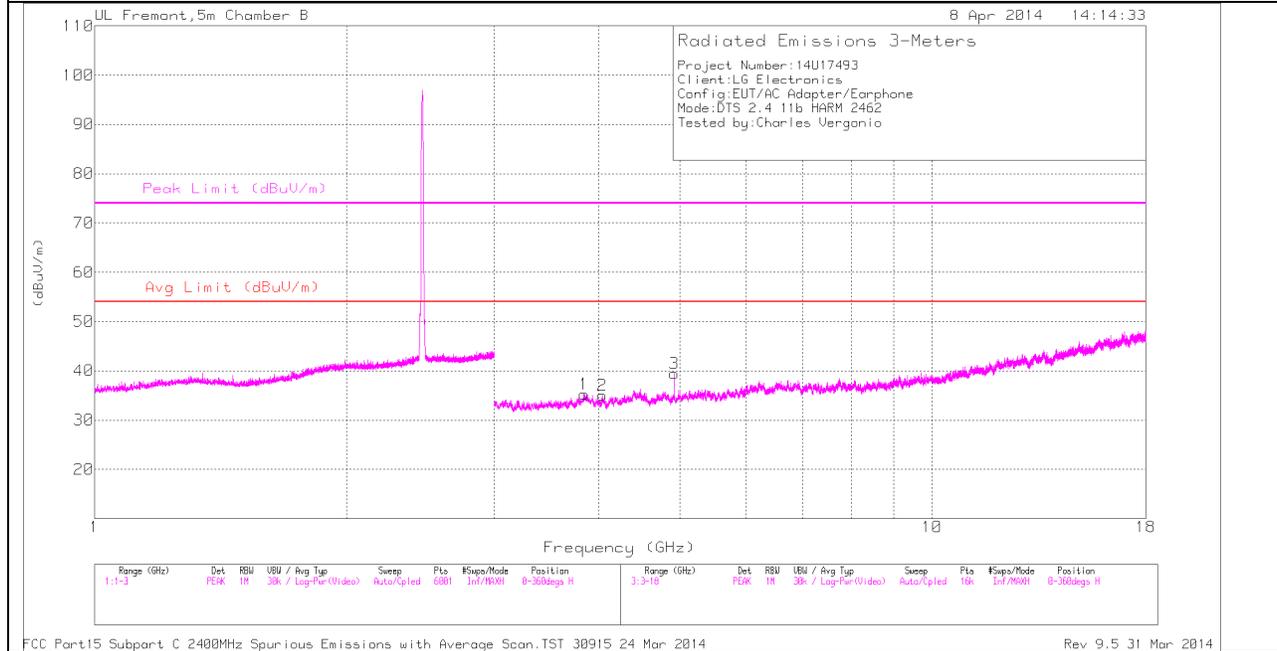
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.864	40.13	PK2	33.7	-30.2	43.63	54	-10.37	74	-30.37	1	100	H
* 4.515	38.71	PK2	34	-29.2	43.51	54	-10.49	74	-30.49	1	100	H
* 8.358	36.32	PK2	35.7	-25.5	46.52	54	-7.48	74	-27.48	1	100	H
* 5.391	39.04	PK2	34.5	-28.5	45.04	54	-8.96	74	-28.96	1	100	V
* 9.14	36.72	PK2	36.3	-25	48.02	54	-5.98	74	-25.98	1	100	V
* 4.874	42.59	PK2	34.2	-30.6	46.19	54	-7.81	74	-27.81	53	393	V
* 4.874	34.17	MAV1	34.2	-30.6	37.77	54	-16.23	74	-36.23	53	393	V

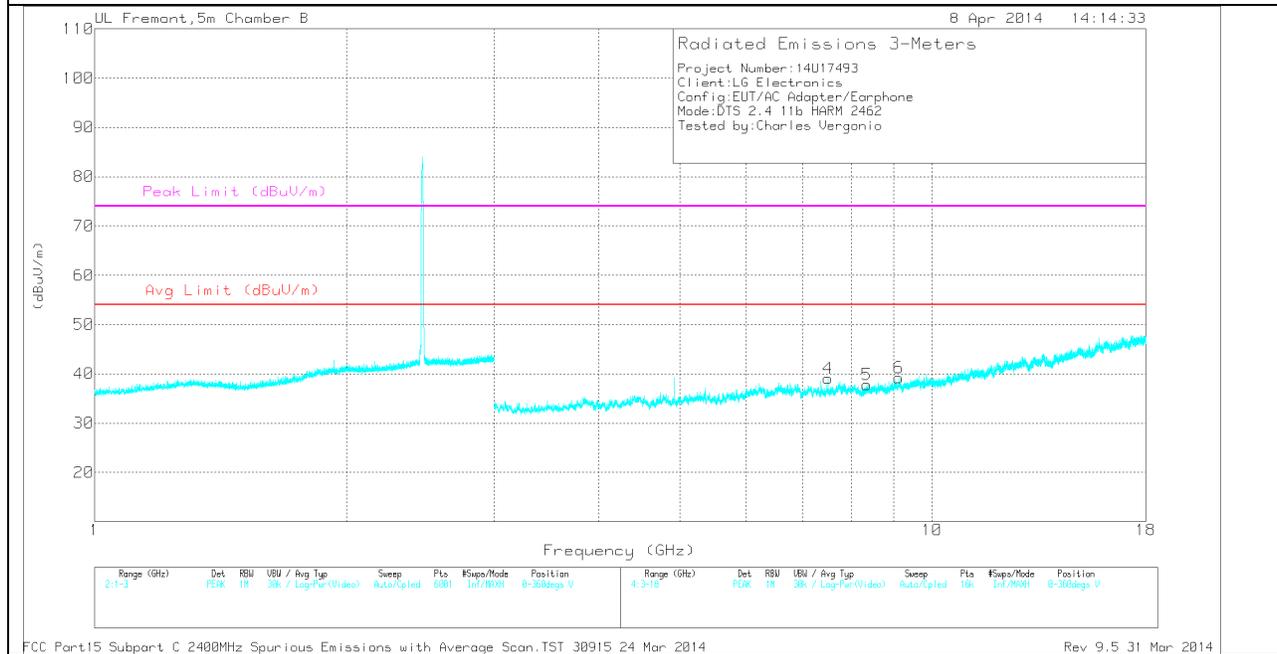
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.845	31.82	PK	33.7	-30.2	35.32	-	-	74	-38.68	0-360	99	H
2	* 4.04	32.5	PK	33.6	-31.1	35	-	-	74	-39	0-360	99	H
3	* 4.924	35.93	PK	34.2	-30.7	39.43	-	-	74	-34.57	0-360	202	H
4	* 7.51	30.12	PK	35.6	-26.7	39.02	-	-	74	-34.98	0-360	99	V
5	* 8.352	27.69	PK	35.7	-25.6	37.79	-	-	74	-36.21	0-360	99	V
6	* 9.128	27.7	PK	36.3	-24.8	39.2	-	-	74	-34.8	0-360	202	V

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

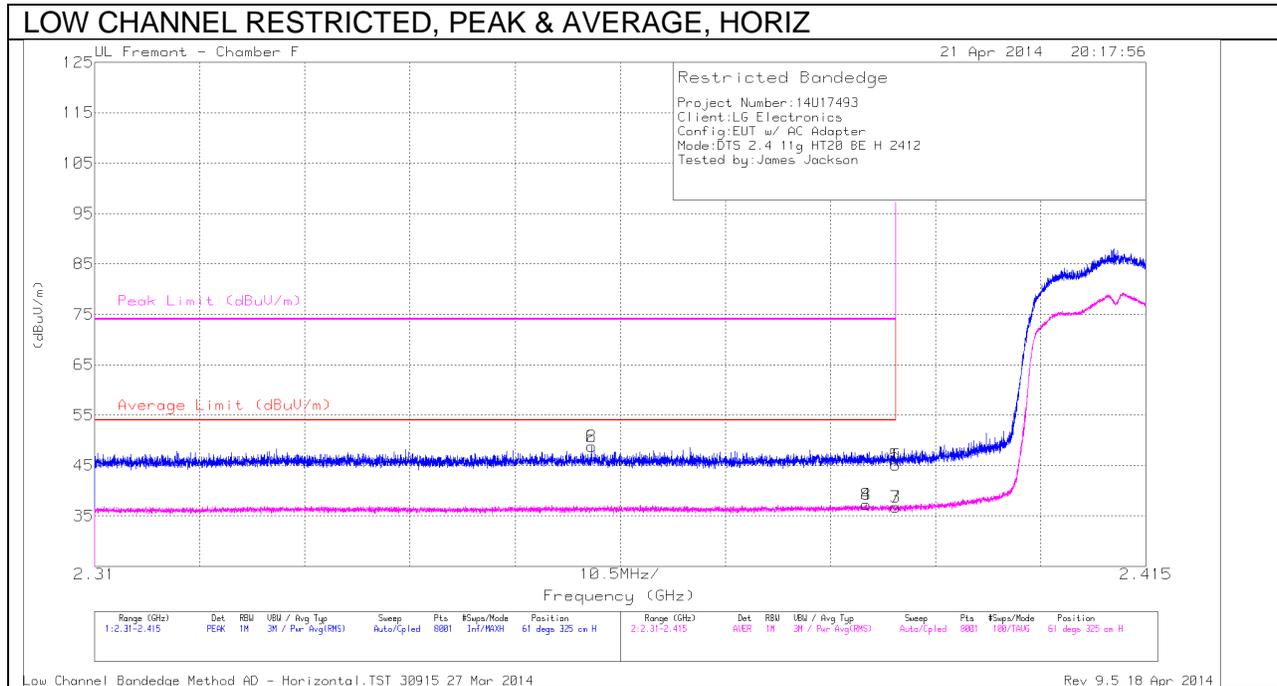
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.844	40.46	PK2	33.7	-30.2	43.96	54	-10.04	74	-30.04	1	100	H
* 4.839	39.45	PK2	34.2	-29.8	43.85	54	-10.15	74	-30.15	1	100	H
* 4.924	40.74	PK2	34.2	-30.7	44.24	54	-9.76	74	-29.76	1	100	H
* 7.51	37.83	PK2	35.6	-26.8	46.63	54	-7.37	74	-27.37	1	100	V
* 8.35	36.4	PK2	35.7	-25.7	46.4	54	-7.6	74	-27.6	1	100	V
* 9.128	36.62	PK2	36.3	-24.9	48.02	54	-5.98	74	-25.98	1	100	V

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

**10.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND  
 RESTRICTED BANDEDGE (LOW CHANNEL)**



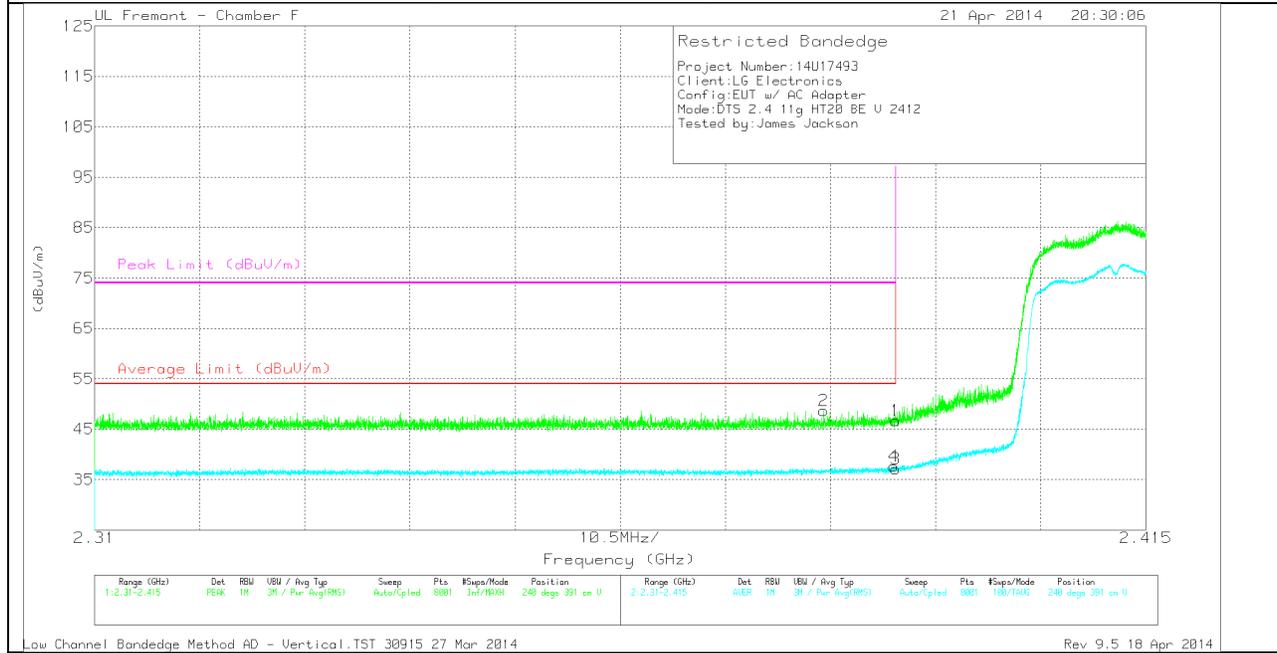
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	36.7	PK	32.2	-23.8	0	45.1	-	-	74	-28.9	61	325	H
2	* 2.36	40.45	PK	32	-23.6	0	48.85	-	-	74	-25.15	61	325	H
5	* 2.39	36.7	PK	32.2	-23.8	0	45.1	-	-	74	-28.9	61	325	H
6	* 2.36	40.45	PK	32	-23.6	0	48.85	-	-	74	-25.15	61	325	H
3	* 2.39	28.17	RMS	32.2	-23.8	.2	36.77	54	-17.23	-	-	61	325	H
4	* 2.387	28.67	RMS	32.2	-23.8	.2	37.27	54	-16.73	-	-	61	325	H
7	* 2.39	28.17	RMS	32.2	-23.8	.2	36.77	54	-17.23	-	-	61	325	H
8	* 2.387	28.67	RMS	32.2	-23.8	.2	37.27	54	-16.73	-	-	61	325	H

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

PK - Peak detector

RMS - RMS detection

LOW CHANNEL RESTRICTED, PEAK & AVERAGE, VERT



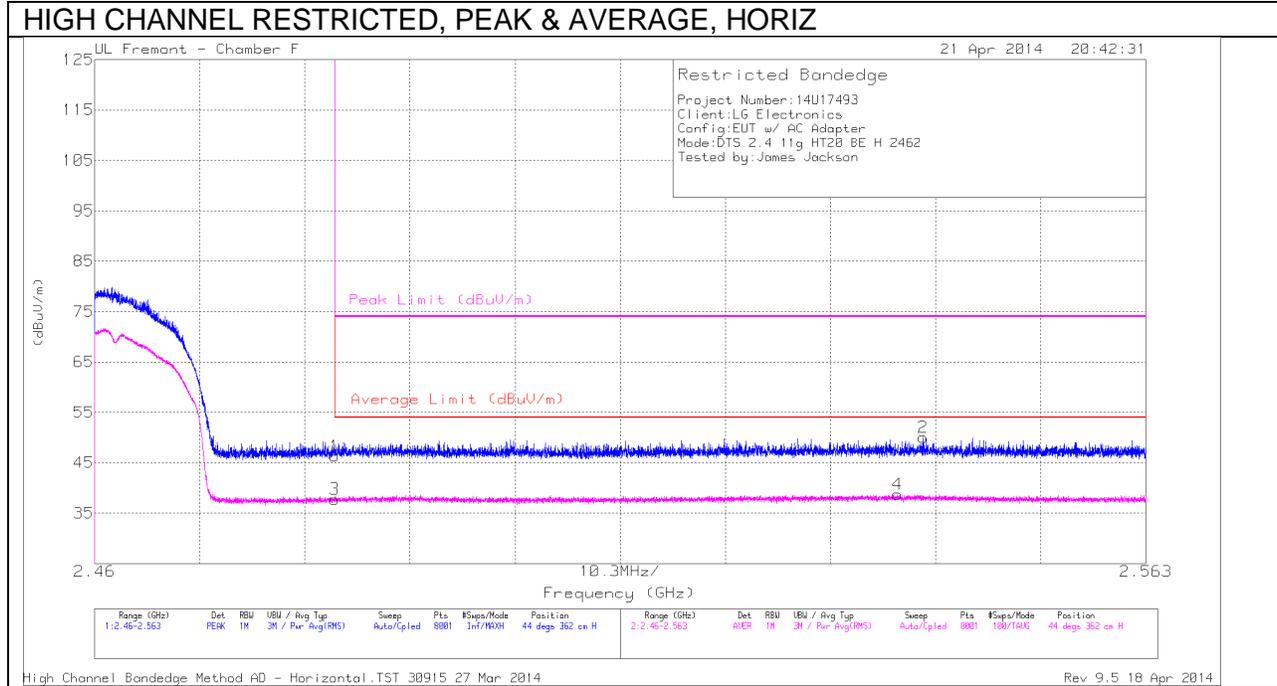
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.24	PK	32.2	-23.8	0	46.64	-	-	74	-27.36	240	391	V
2	* 2.383	40.41	PK	32.1	-23.8	0	48.71	-	-	74	-25.29	240	391	V
3	* 2.39	28.57	RMS	32.2	-23.8	.2	37.17	54	-16.83	-	-	240	391	V
4	* 2.39	29.02	RMS	32.2	-23.8	.2	37.62	54	-16.38	-	-	240	391	V

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

PK - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEDGE (HIGH CHANNEL)**

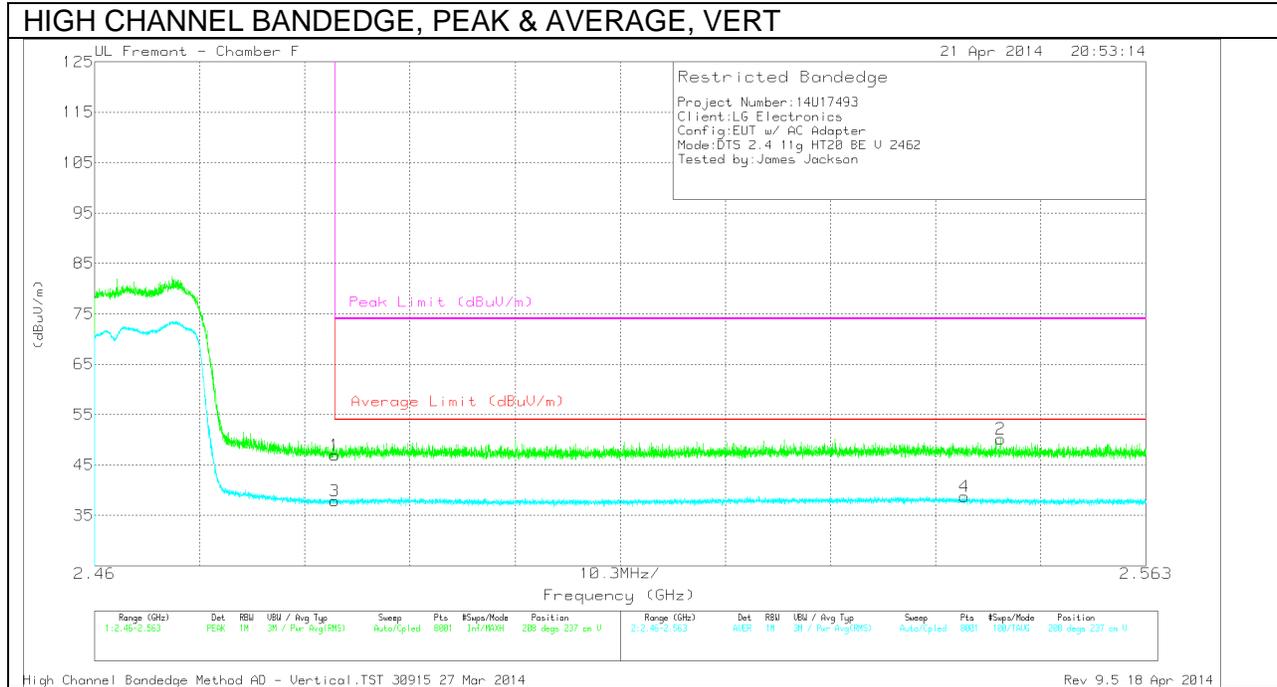


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	36.73	PK	32.6	-23	0	46.33	-	-	74	-27.67	44	362	H
2	2.541	40.22	PK	32.7	-22.9	0	50.02	-	-	74	-23.98	44	362	H
3	* 2.484	28.01	RMS	32.6	-23	.2	37.81	54	-16.19	-	-	44	362	H
4	2.539	28.64	RMS	32.7	-22.8	.2	38.74	54	-15.26	-	-	44	362	H

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

PK - Peak detector

RMS - RMS detection



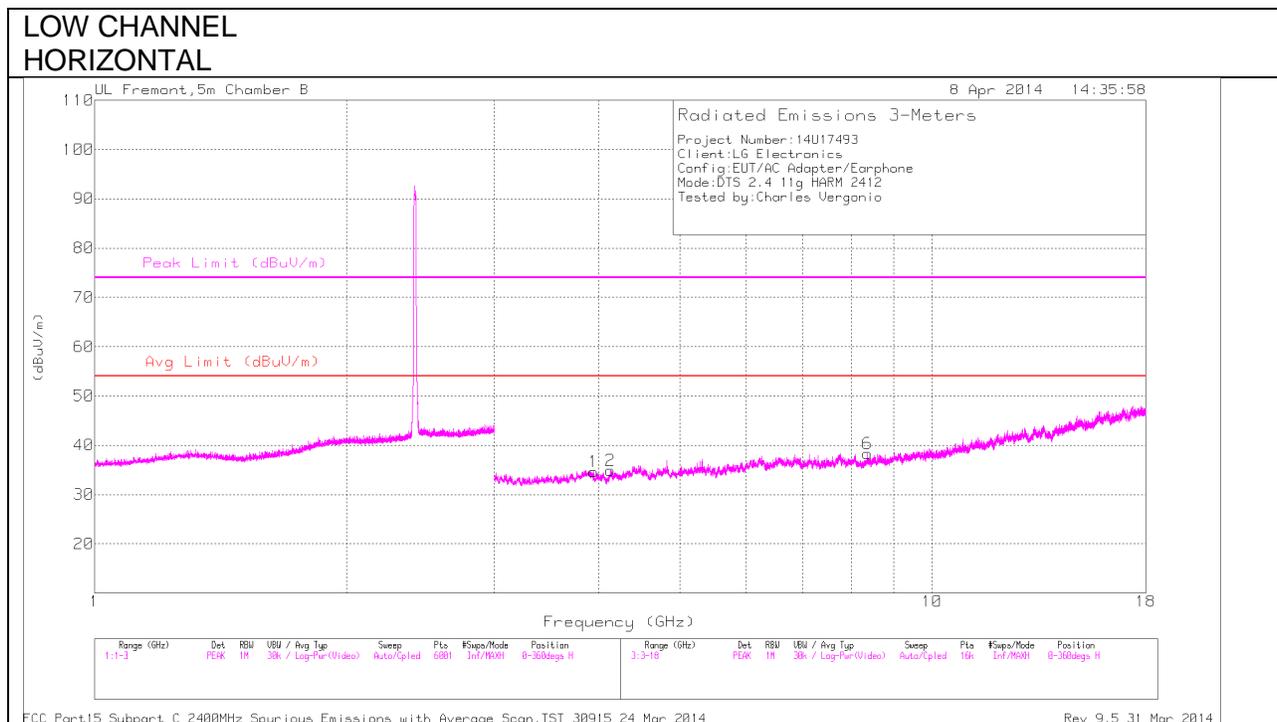
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.29	PK	32.6	-23	0	46.89	-	-	74	-27.11	208	237	V
2	2.549	40.6	PK	32.7	-23.1	0	50.2	-	-	74	-23.8	208	237	V
3	* 2.484	28.05	RMS	32.6	-23	.2	37.85	54	-16.15	-	-	208	237	V
4	2.545	28.83	RMS	32.7	-23	.2	38.73	54	-15.27	-	-	208	237	V

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

PK - Peak detector

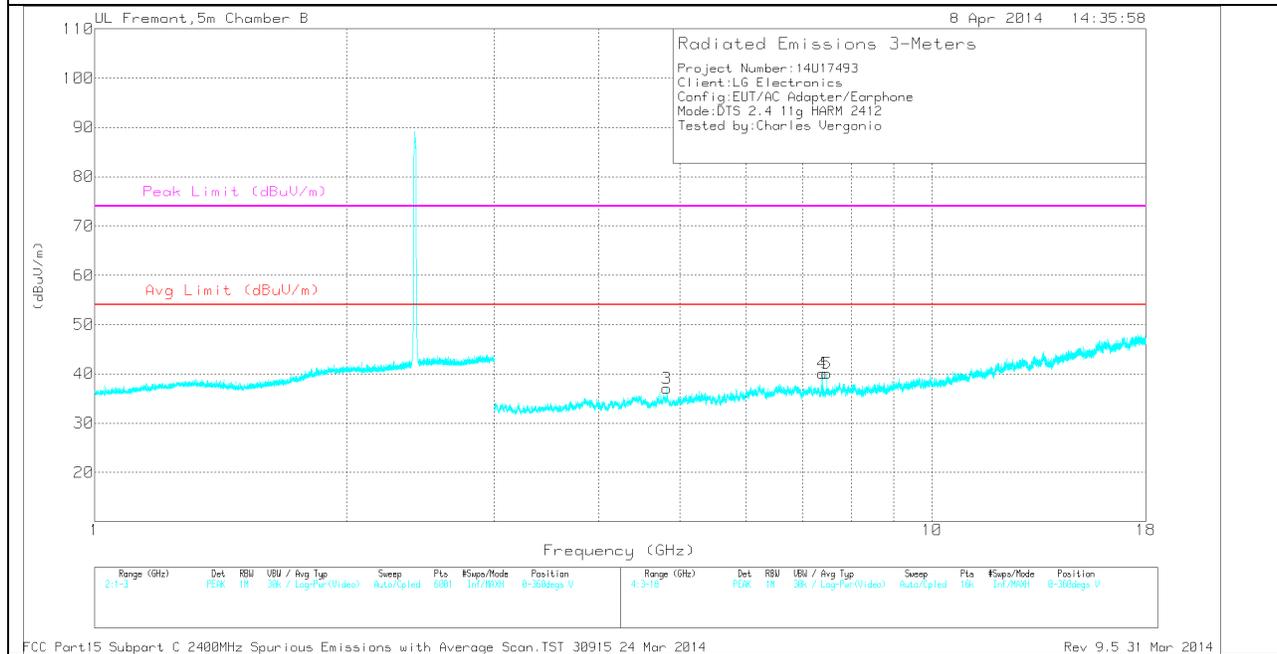
RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**



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

**LOW CHANNEL  
 VERTICAL**



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

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	* 3.942	31.8	PK	33.7	-30.9	34.6	-	-	74	-39.4	0-360	202	H
2	* 4.13	31.29	PK	33.6	-30	34.89	-	-	74	-39.11	0-360	202	H
6	* 8.372	28.09	PK	35.7	-25.5	38.29	-	-	74	-35.71	0-360	99	H
3	* 4.824	32.1	PK	34.2	-29.3	37	-	-	74	-37	0-360	202	V
4	* 7.4	31.76	PK	35.6	-27.3	40.06	-	-	74	-33.94	0-360	99	V
5	* 7.49	30.87	PK	35.6	-26.4	40.07	-	-	74	-33.93	0-360	99	V

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

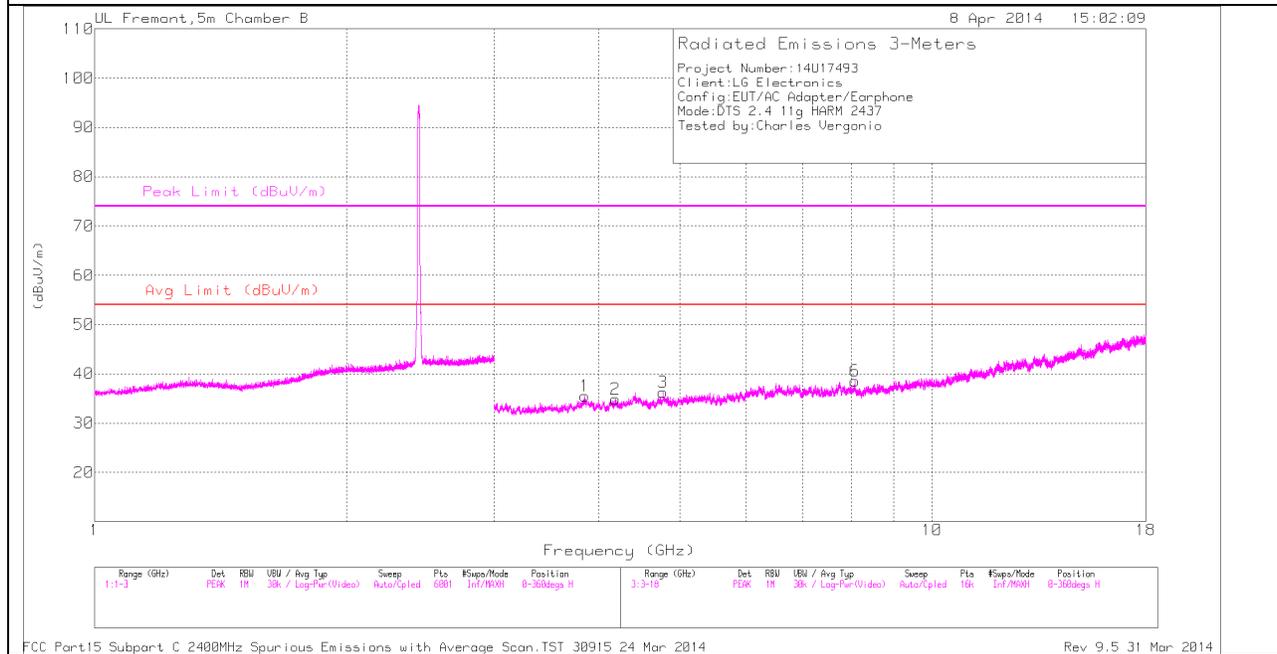
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.941	40.41	PK2	33.7	-30.9	43.21	54	-10.79	74	-30.79	2	100	H
* 4.128	39.6	PK2	33.6	-30.1	43.1	54	-10.9	74	-30.9	2	100	H
* 8.372	36.32	PK2	35.7	-25.5	46.52	54	-7.48	74	-27.48	2	100	H
* 4.824	41.85	PK2	34.2	-29.3	46.75	54	-7.25	74	-27.25	47	100	V
* 4.824	32.71	MAV1	34.2	-29.3	37.61	54	-16.39	-	-	47	100	V
* 7.399	37.23	PK2	35.6	-27.3	45.53	54	-8.47	74	-28.47	47	100	V
* 7.491	37.59	PK2	35.6	-26.4	46.79	54	-7.21	74	-27.21	47	100	V

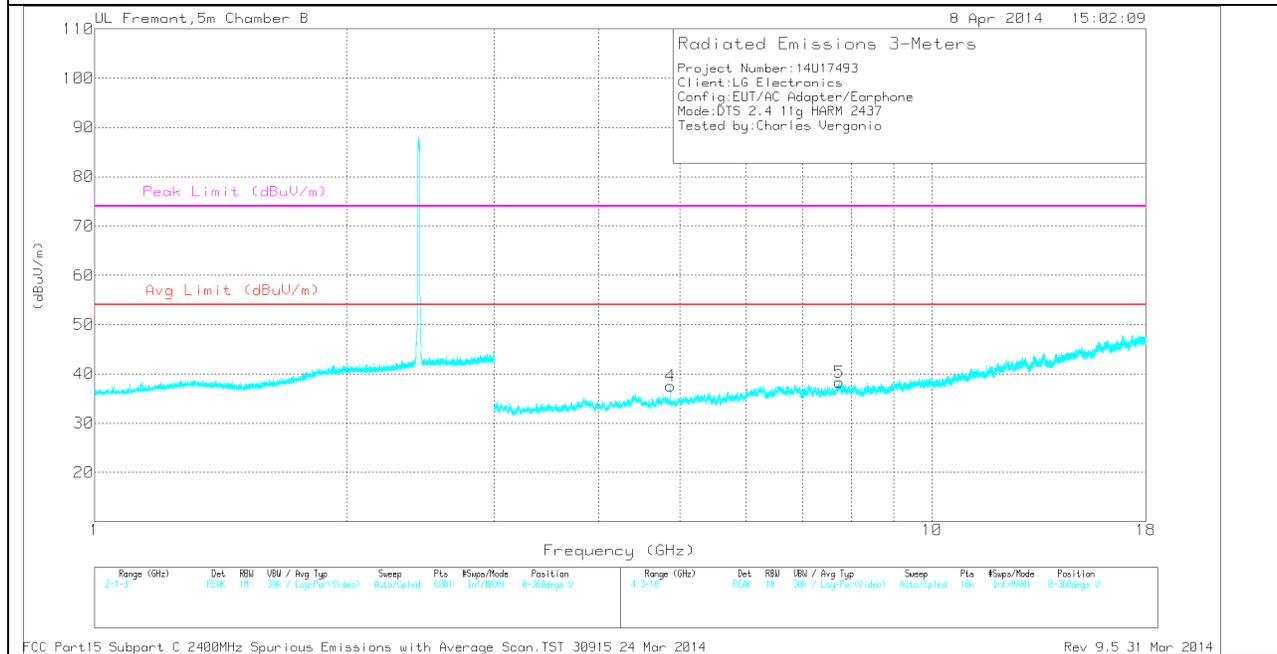
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.847	32.03	PK	33.7	-30.2	35.53	-	-	74	-38.47	0-360	201	H
2	* 4.191	31.09	PK	33.6	-29.8	34.89	-	-	74	-39.11	0-360	99	H
3	* 4.771	31.46	PK	34.2	-29.4	36.26	-	-	74	-37.74	0-360	99	H
6	* 8.093	28.86	PK	35.7	-26	38.56	-	-	74	-35.44	0-360	201	H
4	* 4.874	34	PK	34.2	-30.6	37.6	-	-	74	-36.4	0-360	202	V
5	* 7.744	28.59	PK	35.7	-26	38.29	-	-	74	-35.71	0-360	99	V

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

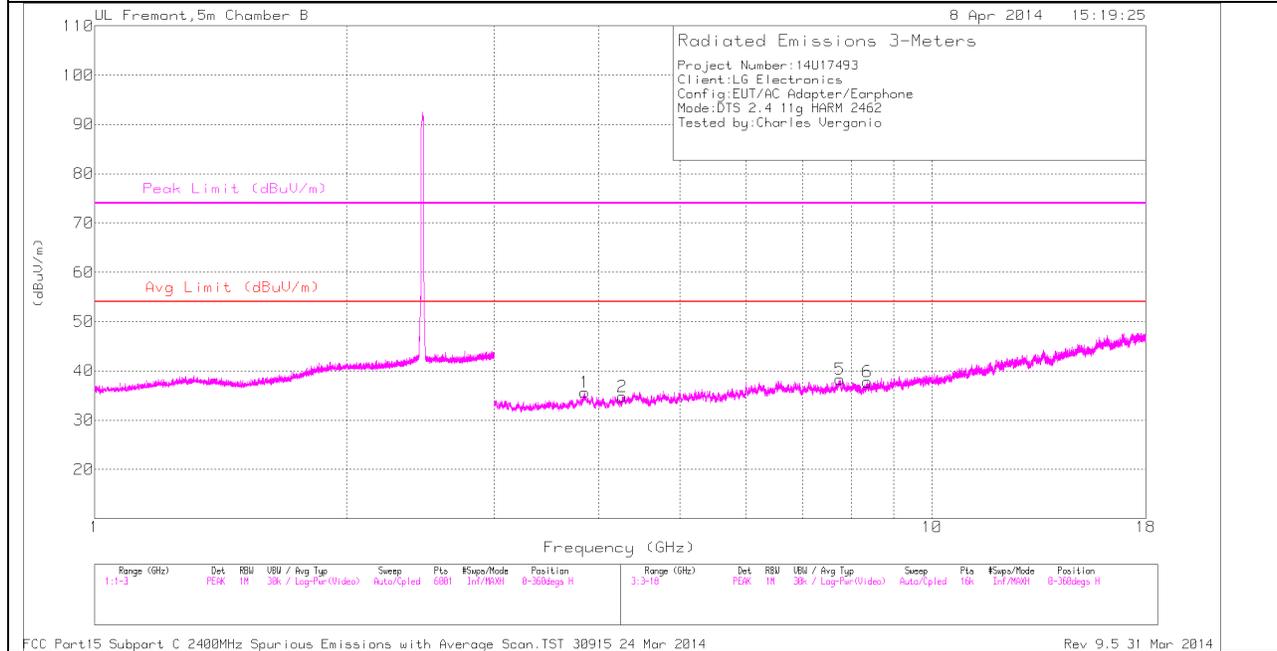
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.846	40.14	PK2	33.7	-30.2	43.64	54	-10.36	74	-30.36	1	100	H
* 4.191	39.77	PK2	33.6	-29.8	43.57	54	-10.43	74	-30.43	1	100	H
* 4.77	40.45	PK2	34.2	-29.4	45.25	54	-8.75	74	-28.75	1	100	H
* 8.095	36.72	PK2	35.7	-26	46.42	54	-7.58	74	-27.58	1	100	H
* 4.874	40.4	PK2	34.2	-30.6	44	54	-10.0	74	-30	1	100	V
* 7.744	37.35	PK2	35.7	-26	47.05	54	-6.95	74	-26.95	1	100	V

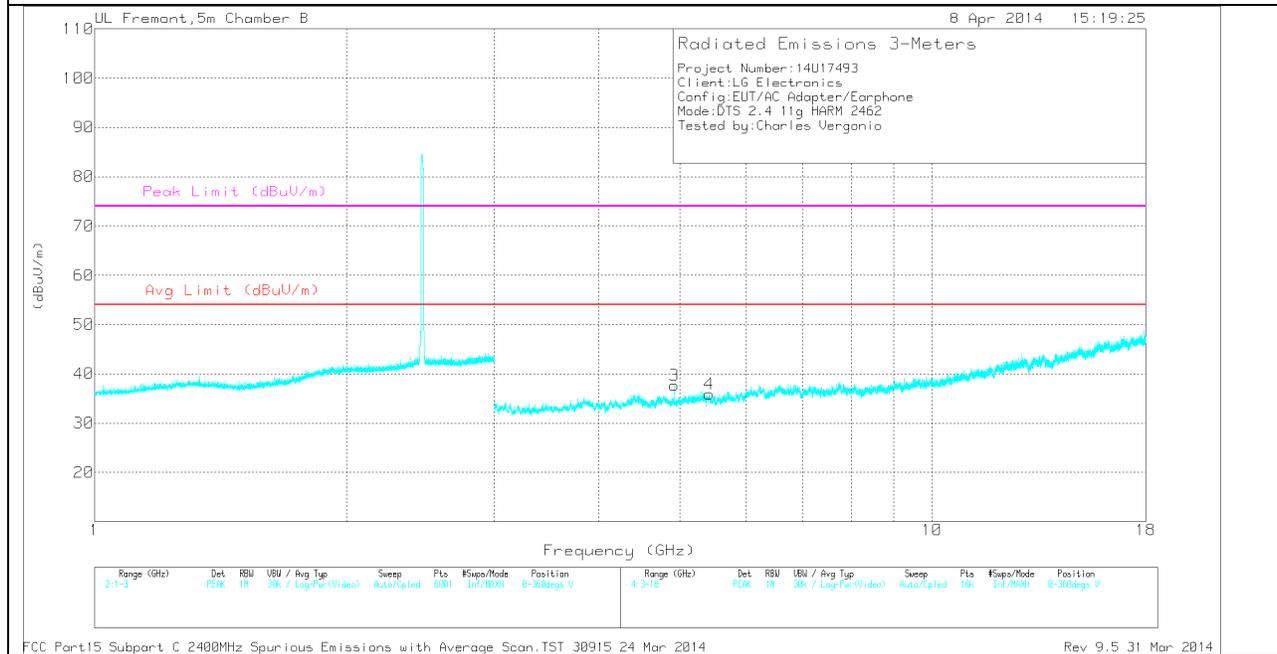
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.852	32.13	PK	33.7	-30.2	35.63	-	-	74	-38.37	0-360	201	H
2	* 4.268	32.05	PK	33.6	-30.9	34.75	-	-	74	-39.25	0-360	201	H
6	* 8.371	27.55	PK	35.7	-25.5	37.75	-	-	74	-36.25	0-360	201	H
3	* 4.924	34.14	PK	34.2	-30.7	37.64	-	-	74	-36.36	0-360	202	V
4	* 5.416	30.56	PK	34.5	-29.1	35.96	-	-	74	-38.04	0-360	99	V
5	7.758	28.7	PK	35.7	-26.1	38.3	-	-	-	-	0-360	201	H

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

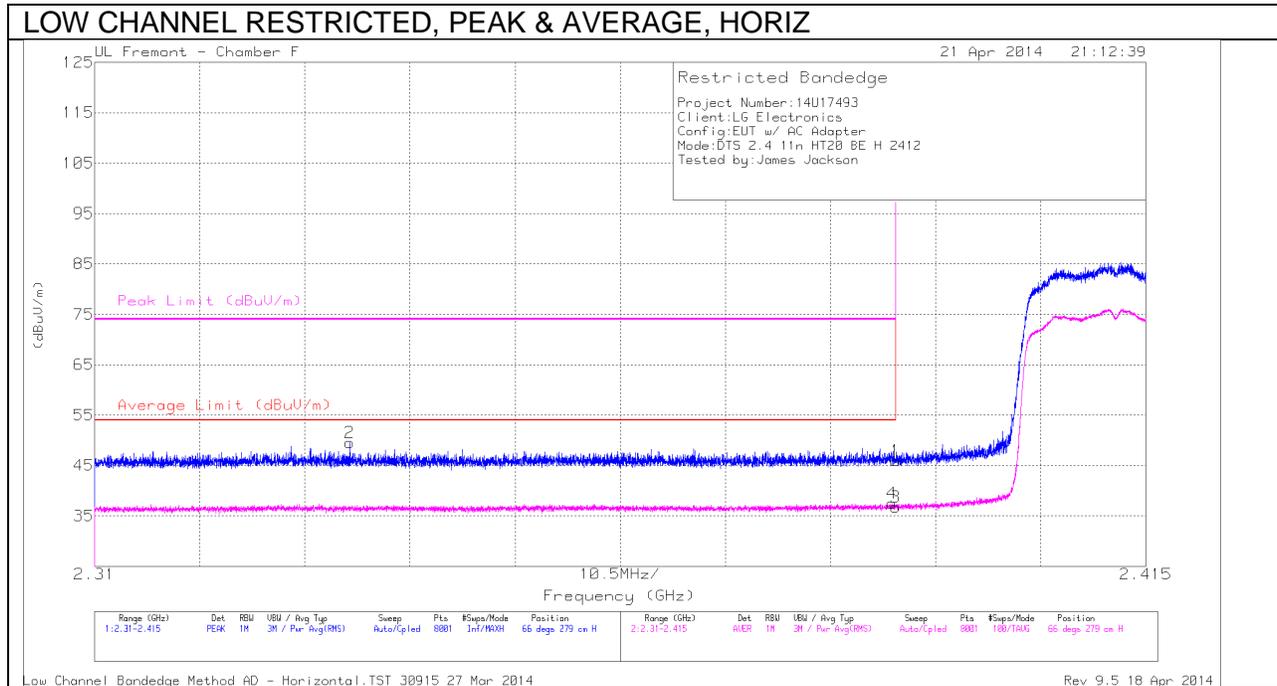
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.852	39.96	PK2	33.7	-30.2	43.46	54	-10.54	74	-30.54	1	100	H
* 4.267	40.43	PK2	33.6	-30.9	43.13	54	-10.87	74	-30.87	1	100	H
* 8.371	36.12	PK2	35.7	-25.5	46.32	54	-7.68	74	-27.68	1	100	H
* 4.924	40.34	PK2	34.2	-30.7	43.84	54	-10.16	74	-30.16	1	100	V
* 5.415	39.09	PK2	34.5	-29.1	44.49	54	-9.51	74	-29.51	1	100	V
7.758	37.5	PK2	35.7	-26.1	47.1	54	-6.9	74	-26.9	1	100	H

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

**10.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND  
 RESTRICTED BANDEDGE (LOW CHANNEL)**

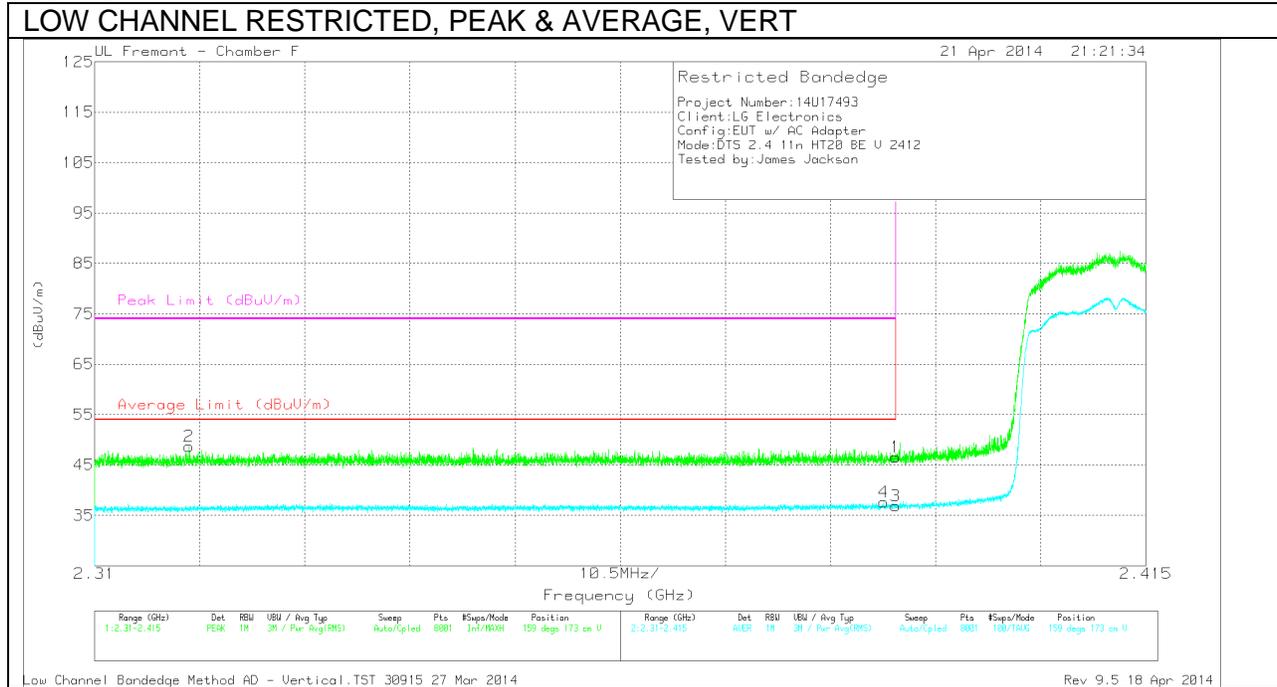


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	37.52	PK	32.2	-23.8	0	45.92	-	-	74	-28.08	66	279	H
2	* 2.336	41.16	PK	31.9	-23.5	0	49.56	-	-	74	-24.44	66	279	H
3	* 2.39	28.05	RMS	32.2	-23.8	.3	36.75	54	-17.25	-	-	66	279	H
4	* 2.39	28.79	RMS	32.2	-23.8	.3	37.49	54	-16.51	-	-	66	279	H

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

PK - Peak detector

RMS - RMS detection



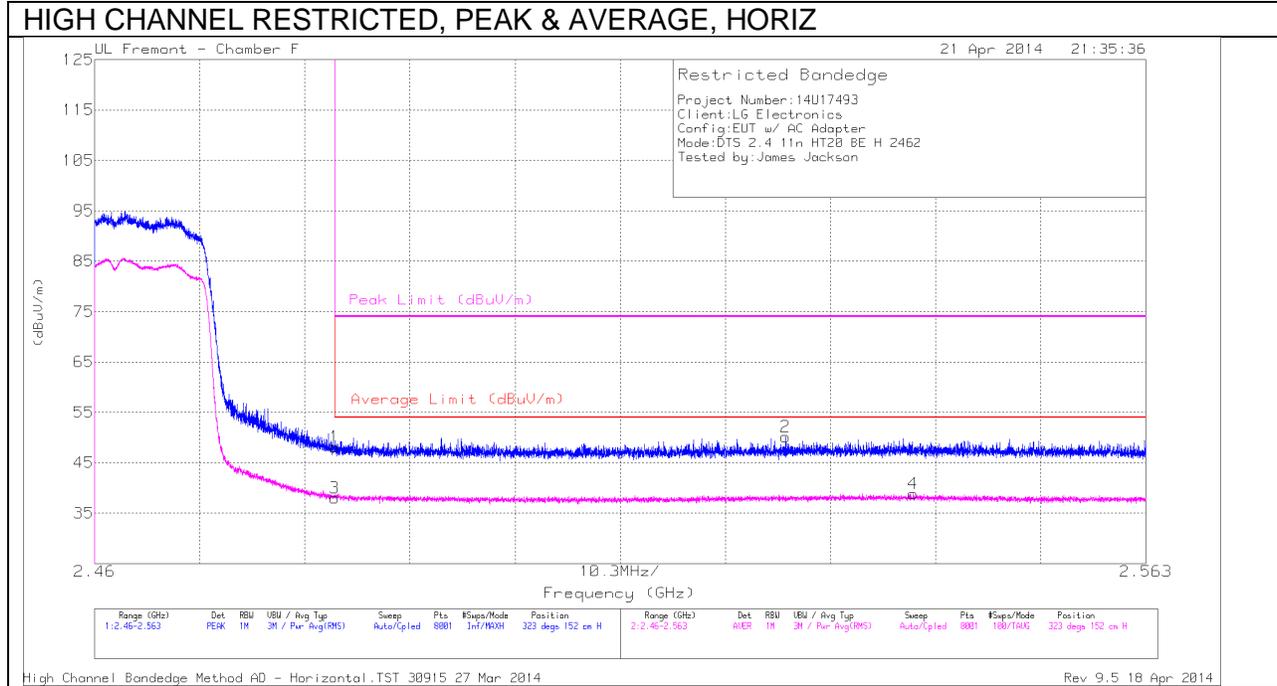
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.22	PK	32.2	-23.8	0	46.62	-	-	74	-27.38	159	173	V
2	* 2.319	40.35	PK	31.9	-23.6	0	48.65	-	-	74	-25.35	159	173	V
3	* 2.39	28.18	RMS	32.2	-23.8	.3	36.88	54	-17.12	-	-	159	173	V
4	* 2.389	28.97	RMS	32.2	-23.8	.3	37.67	54	-16.33	-	-	159	173	V

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

PK - Peak detector

RMS - RMS detection

**AUTHORIZED BANDEDGE (HIGH CHANNEL)**

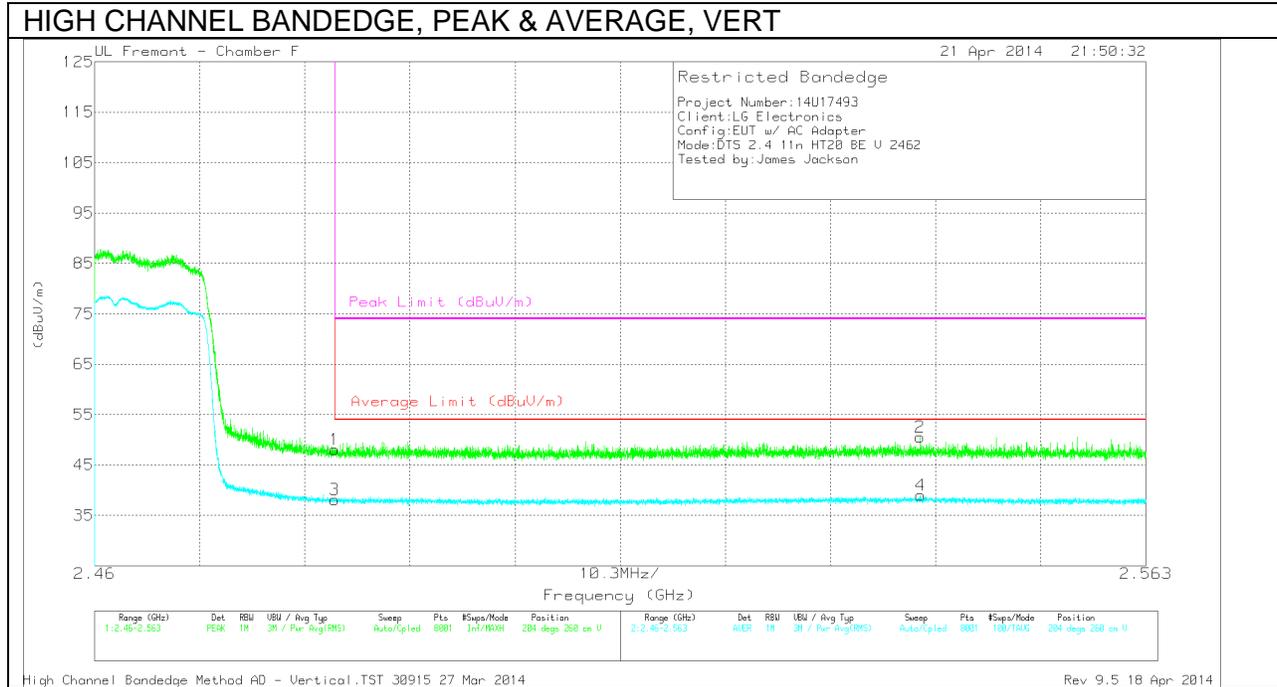


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fit r/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.59	PK	32.6	-23	0	48.19	-	-	74	-25.81	323	152	H
2	2.528	40.32	PK	32.7	-22.9	0	50.12	-	-	74	-23.88	323	152	H
3	* 2.484	28.06	RMS	32.6	-23	.3	37.96	54	-16.04	-	-	323	152	H
4	2.54	28.7	RMS	32.7	-22.8	.3	38.9	54	-15.1	-	-	323	152	H

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

PK - Peak detector

RMS - RMS detection



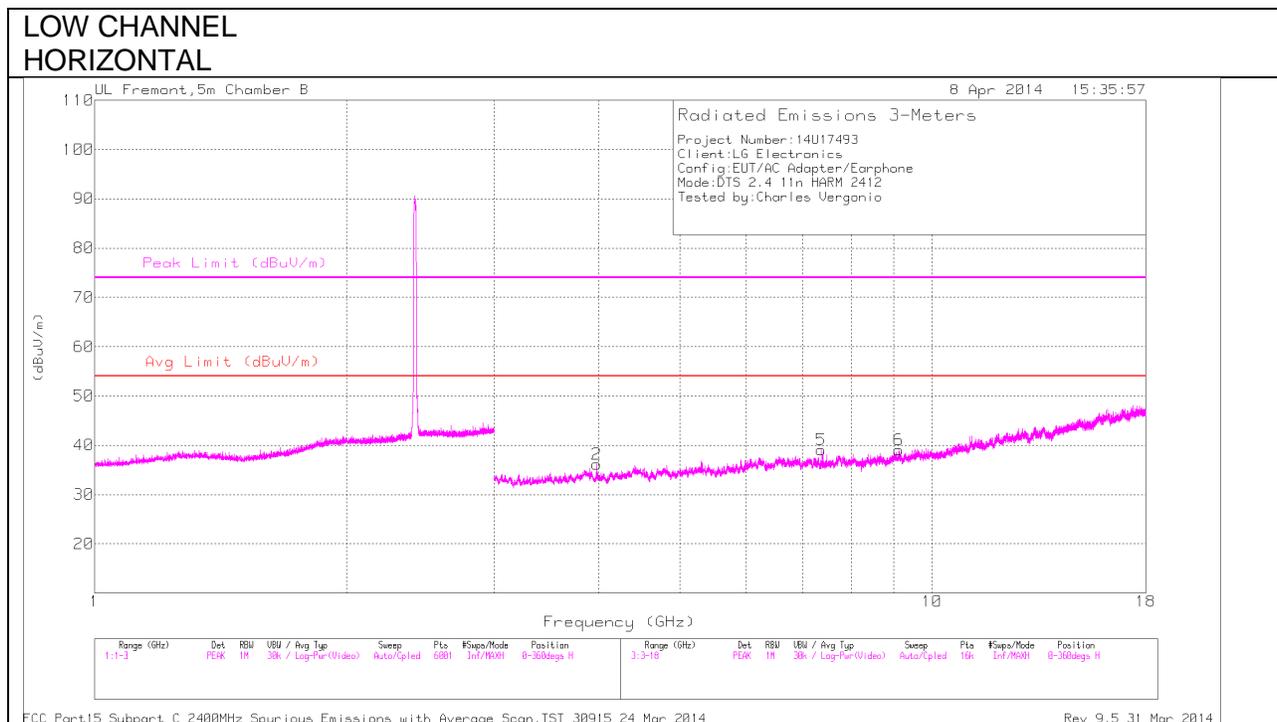
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cb/Fitter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.47	PK	32.6	-23	0	48.07	-	-	74	-25.93	204	260	V
2	2.541	40.63	PK	32.7	-22.8	0	50.53	-	-	74	-23.47	204	260	V
3	* 2.484	28.28	RMS	32.6	-23	.3	38.18	54	-15.82	-	-	204	260	V
4	2.541	28.77	RMS	32.7	-22.8	.3	38.97	54	-15.03	-	-	204	260	V

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

PK - Peak detector

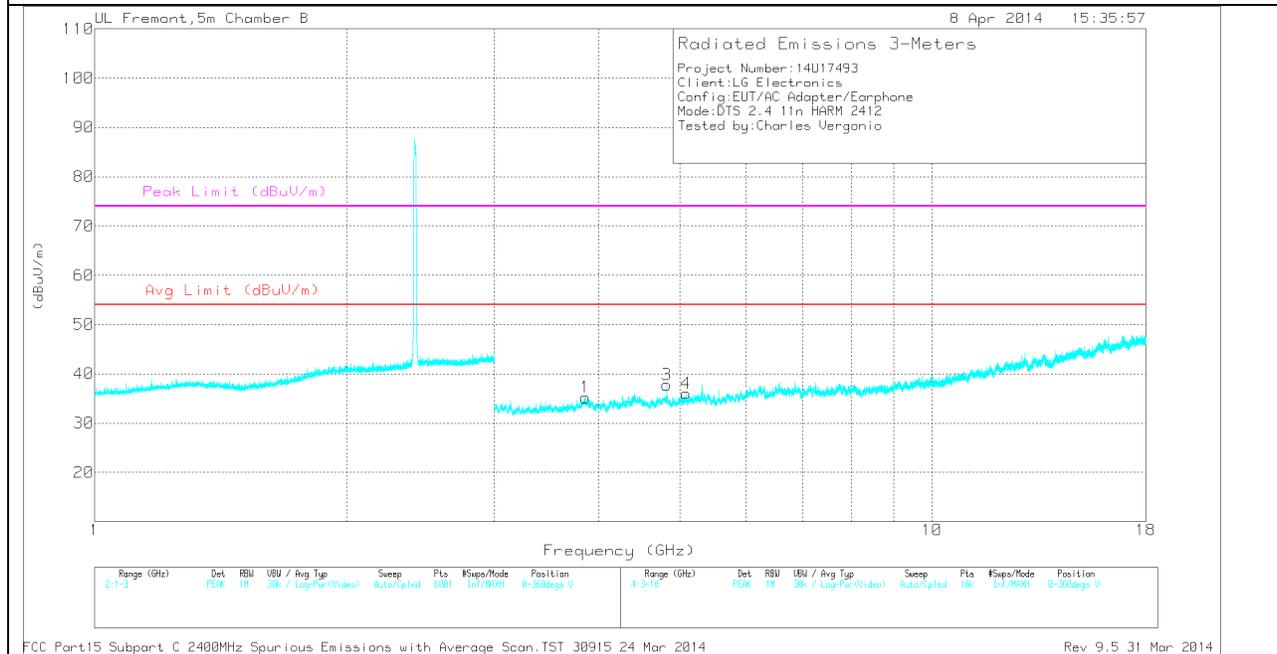
RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**



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

**LOW CHANNEL  
 VERTICAL**



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

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.974	33.34	PK	33.6	-30.8	36.14	-	-	74	-37.86	0-360	202	H
5	* 7.376	31.11	PK	35.6	-27.6	39.11	-	-	74	-34.89	0-360	202	H
6	* 9.13	27.7	PK	36.3	-24.9	39.1	-	-	74	-34.9	0-360	202	H
1	* 3.854	31.71	PK	33.7	-30.2	35.21	-	-	74	-38.79	0-360	202	V
3	* 4.824	32.85	PK	34.2	-29.3	37.75	-	-	74	-36.25	0-360	202	V
4	* 5.088	30.32	PK	34.2	-28.5	36.02	-	-	74	-37.98	0-360	99	V

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

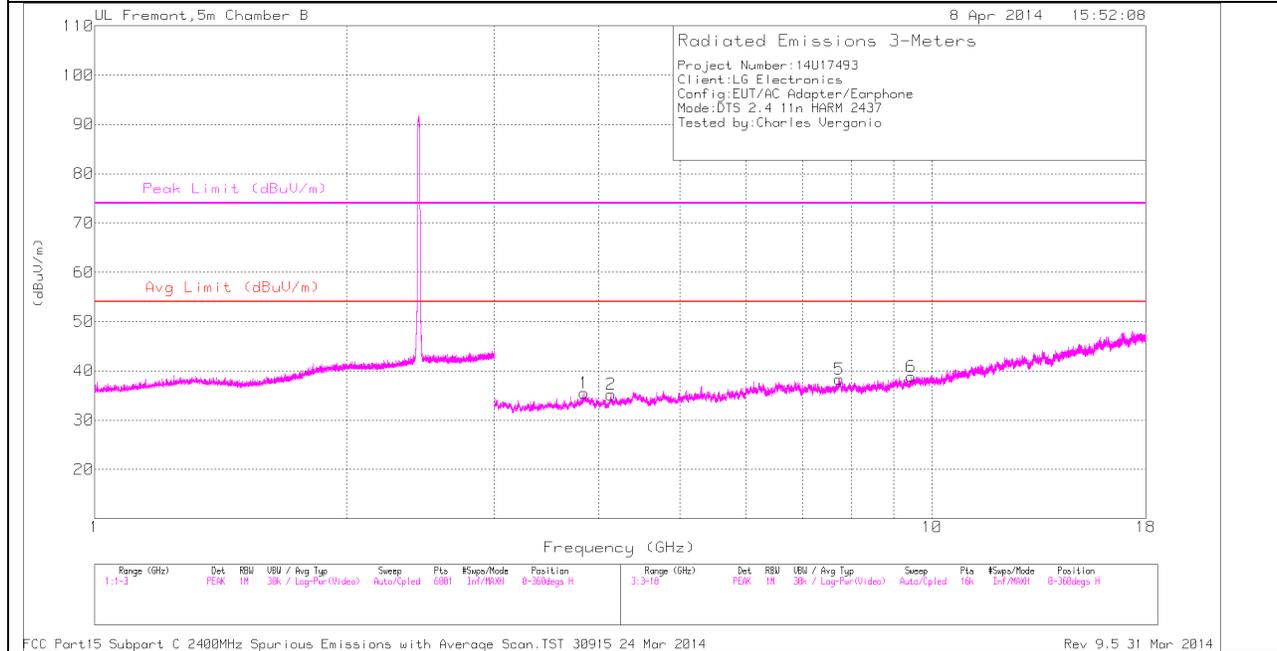
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.974	40.58	PK2	33.6	-30.8	43.38	54	-10.62	74	-30.62	1	100	H
* 7.377	38.12	PK2	35.6	-27.6	46.12	54	-7.88	74	-27.88	1	100	H
* 9.131	36.09	PK2	36.3	-24.9	47.49	54	-6.51	74	-26.51	1	100	H
* 3.854	39.98	PK2	33.7	-30.2	43.48	54	-10.52	74	-30.52	1	100	V
* 4.824	39.23	PK2	34.2	-29.3	44.13	54	-9.87	74	-29.87	1	100	V
* 5.088	38.93	PK2	34.2	-28.5	44.63	54	-9.37	74	-29.37	1	100	V

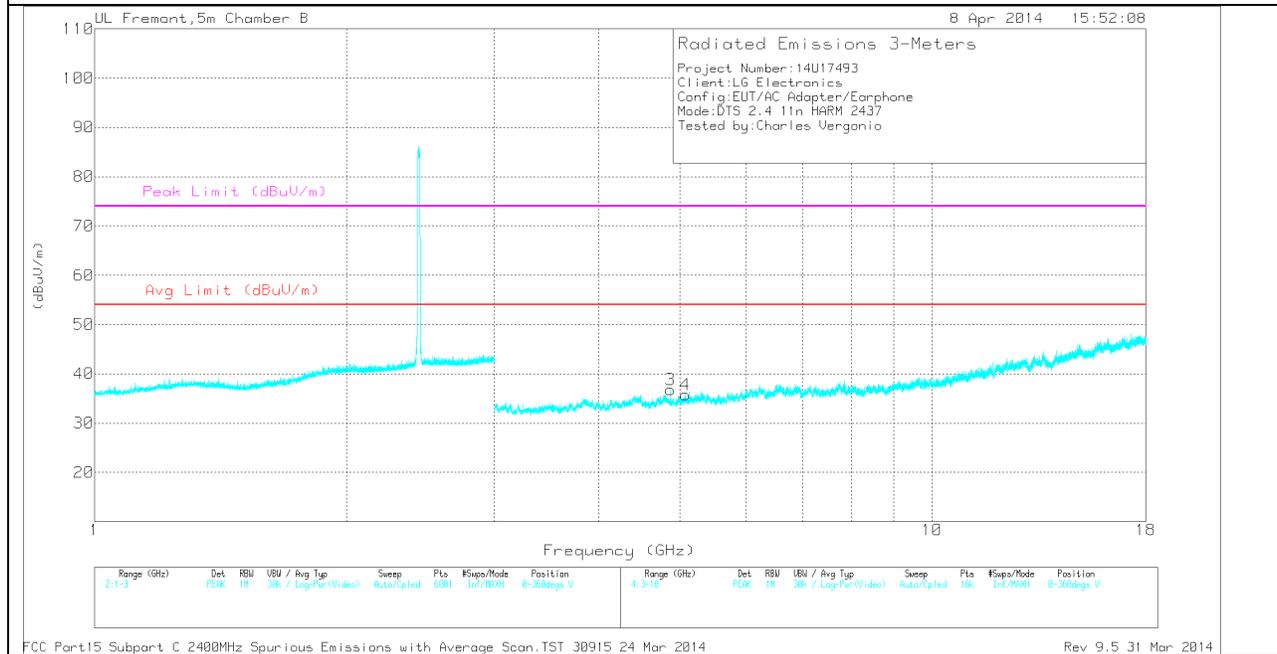
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.842	32.08	PK	33.7	-30.2	35.58	-	-	74	-38.42	0-360	202	H
2	* 4.139	31.31	PK	33.6	-29.7	35.21	-	-	74	-38.79	0-360	202	H
5	* 7.744	28.66	PK	35.7	-26	38.36	-	-	74	-35.64	0-360	99	H
6	* 9.439	27.07	PK	36.5	-24.7	38.87	-	-	74	-35.13	0-360	99	H
3	* 4.874	33.21	PK	34.2	-30.6	36.81	-	-	74	-37.19	0-360	202	V
4	* 5.075	30.34	PK	34.2	-28.8	35.74	-	-	74	-38.26	0-360	202	V

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

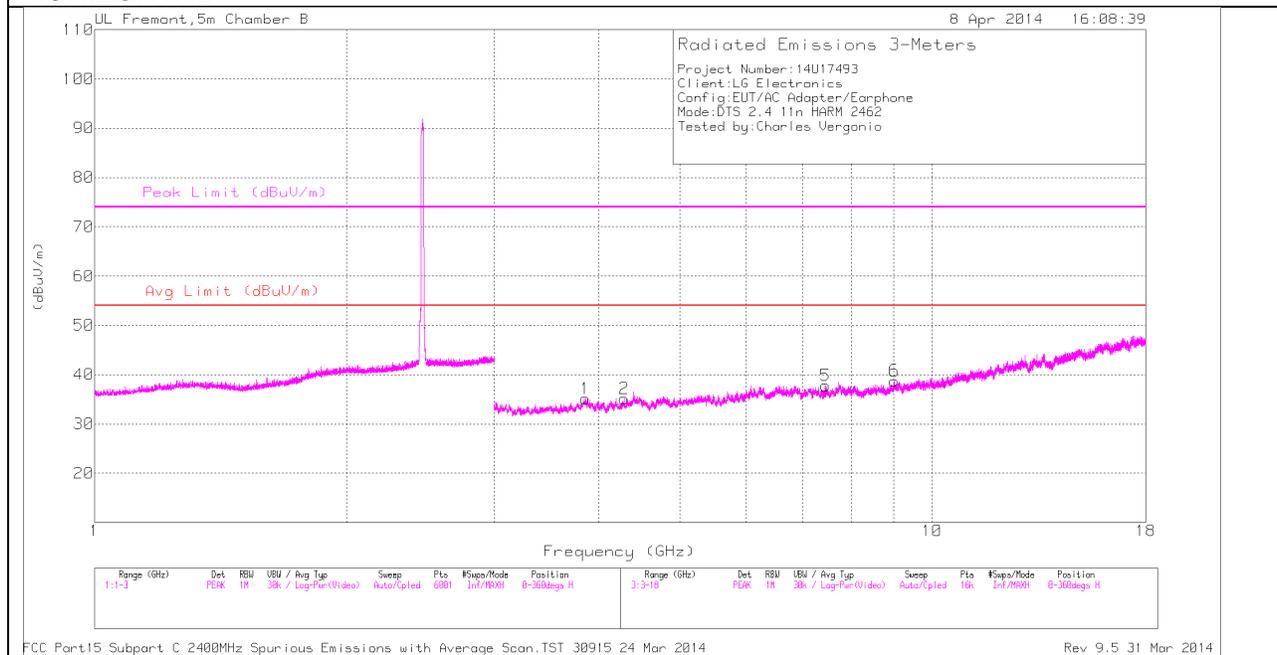
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.841	40.53	PK2	33.7	-30.2	44.03	54	-9.97	74	-29.97	1	100	H
* 4.138	40.08	PK2	33.6	-29.8	43.88	54	-10.12	74	-30.12	1	100	H
* 7.744	37.99	PK2	35.7	-26	47.69	54	-6.31	74	-26.31	1	100	H
* 9.438	36.05	PK2	36.5	-24.7	47.85	54	-6.15	74	-26.15	1	100	H
* 4.874	39.94	PK2	34.2	-30.6	43.54	54	-10.46	74	-30.46	1	100	V
* 5.075	38.95	PK2	34.2	-28.7	44.45	54	-9.55	74	-29.55	1	100	V

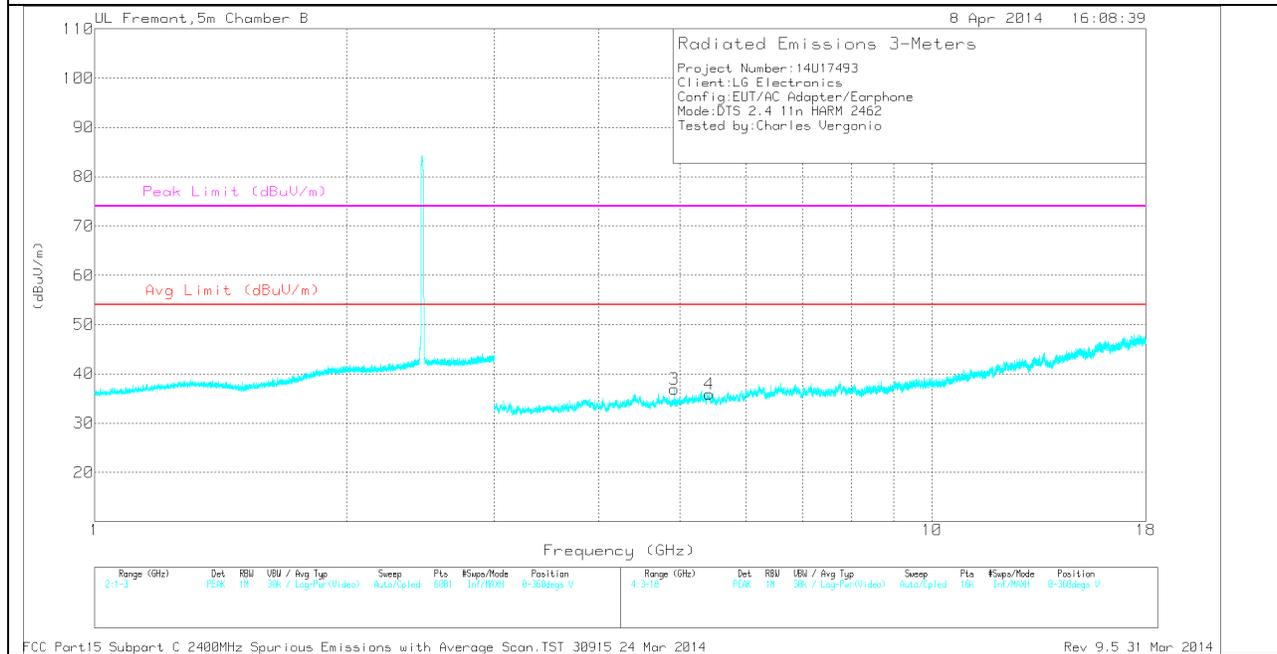
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**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

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.855	31.65	PK	33.7	-30.2	35.15	-	-	74	-38.85	0-360	201	H
2	* 4.292	32.53	PK	33.7	-31.1	35.13	-	-	74	-38.87	0-360	201	H
5	* 7.461	29.25	PK	35.6	-27.1	37.75	-	-	74	-36.25	0-360	201	H
6	* 9.009	27.46	PK	36.2	-24.9	38.76	-	-	74	-35.24	0-360	99	H
3	* 4.924	33.47	PK	34.2	-30.7	36.97	-	-	74	-37.03	0-360	202	V
4	* 5.42	30.46	PK	34.5	-29.1	35.86	-	-	74	-38.14	0-360	99	V

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

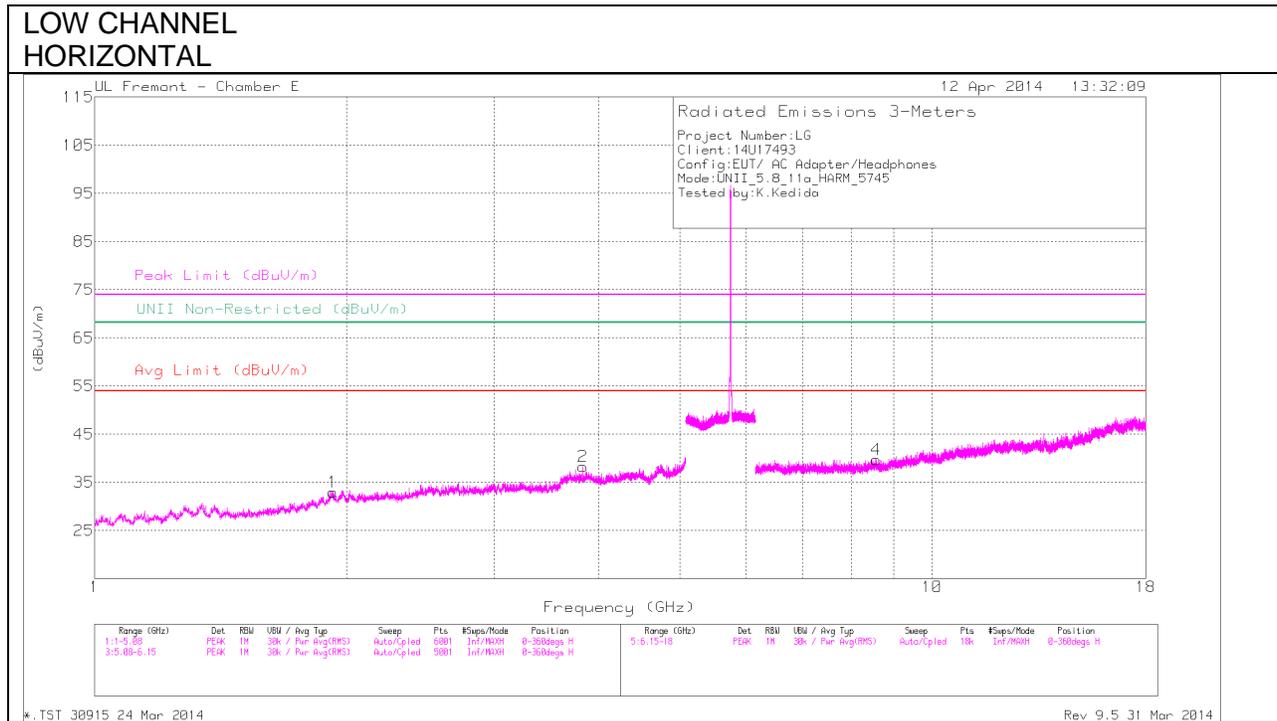
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.854	40.77	PK2	33.7	-30.2	44.27	54	-9.73	74	-29.73	1	100	H
* 4.291	40.67	PK2	33.7	-31.1	43.27	54	-10.73	74	-30.73	1	100	H
* 7.462	37.31	PK2	35.6	-27.1	45.81	54	-8.19	74	-28.19	1	100	H
* 9.01	35.38	PK2	36.2	-24.9	46.68	54	-7.32	74	-27.32	1	100	H
* 4.924	40.1	PK2	34.2	-30.7	43.6	54	-10.4	74	-30.4	1	100	V
* 5.42	40.07	PK2	34.5	-29.1	45.47	54	-8.53	74	-28.53	1	100	V

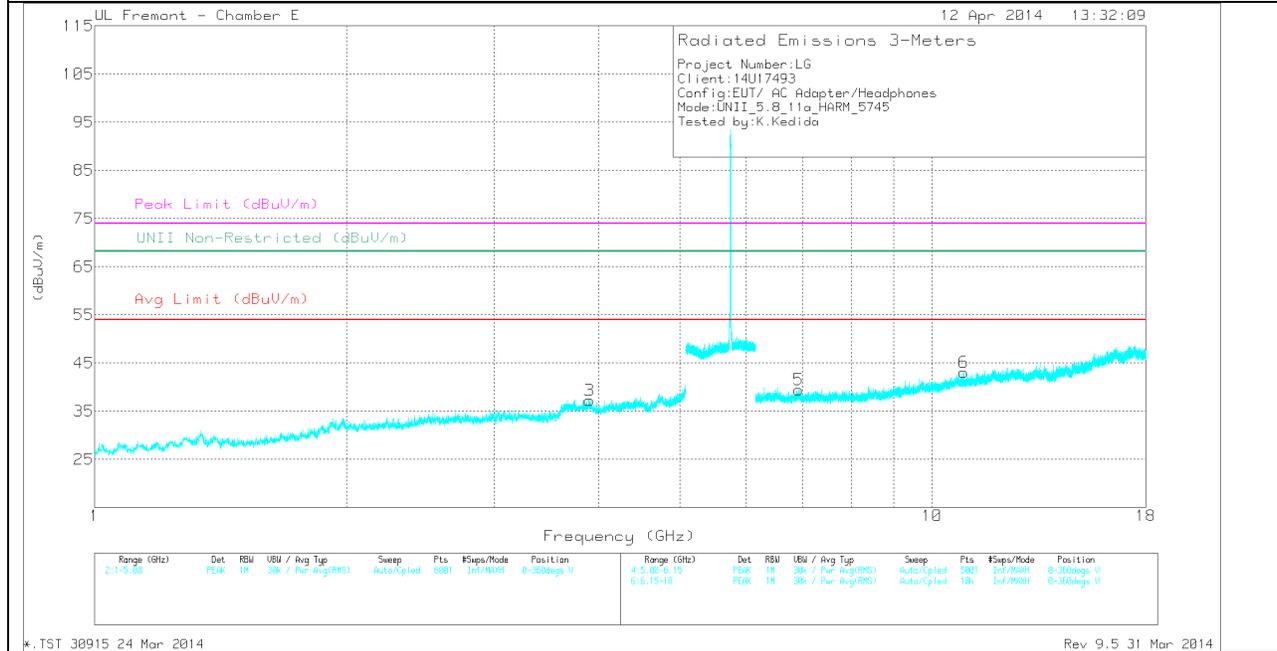
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**10.2.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND  
 HARMONICS AND SPURIOUS EMISSIONS**



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.83	36.49	PK	33.4	-31.6	38.29	-	-	74	-35.71	-	-	0-360	199	H
3	* 3.899	34.13	PK	33.6	-30.5	37.23	-	-	74	-36.77	-	-	0-360	101	V
6	* 10.919	29.94	PK	37.9	-24.7	43.14	-	-	74	-30.86	-	-	0-360	200	V
1	1.926	34.33	PK	31.2	-32.6	32.93	-	-	-	-	68.2	-35.27	0-360	101	H
5	6.935	31.96	PK	35.9	-28.4	39.46	-	-	-	-	68.2	-28.74	0-360	101	V
4	8.579	30.18	PK	35.9	-26.4	39.68	-	-	-	-	68.2	-28.52	0-360	101	H

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

PK - Peak detector

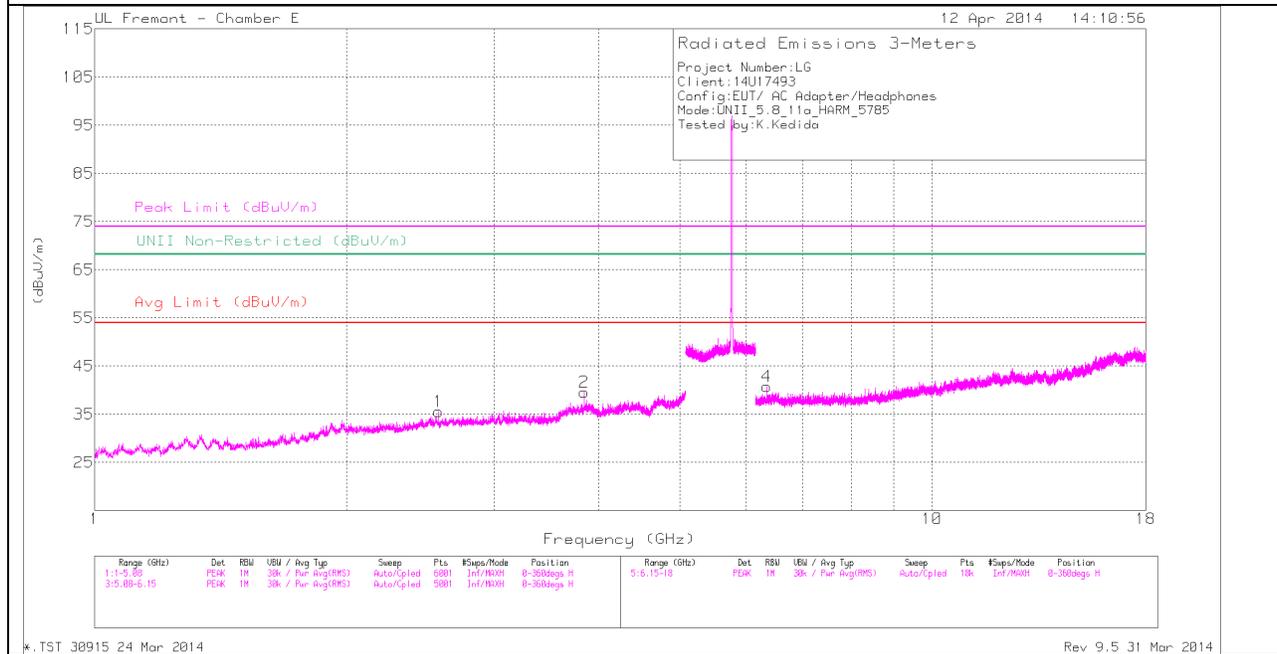
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.897	41.69	PK2	33.5	-30.5	44.69	-	-	74	-29.31	-	-	4	105	H
* 3.899	41.42	PK2	33.6	-30.5	44.52	-	-	74	-29.48	-	-	4	105	V
* 10.918	23.32	PK2	37.9	-24.7	36.52	-	-	74	-37.48	-	-	4	105	V
1.926	41.61	PK2	31.2	-32.6	40.21	-	-	-	-	68.2	-27.99	4	105	H
6.935	39.85	PK2	35.9	-28.4	47.35	-	-	-	-	68.2	-20.85	4	105	V
8.58	37.31	PK2	35.9	-26.4	46.81	-	-	-	-	68.2	-21.39	4	105	H

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

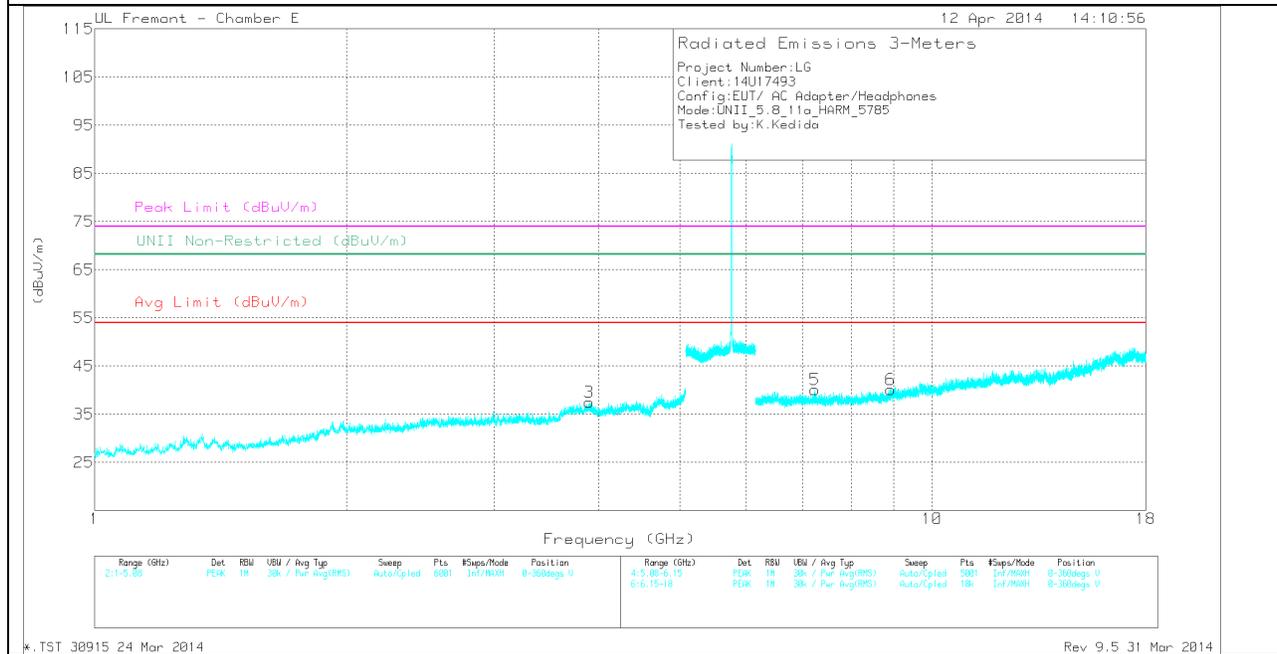
PK2 - KDB558074 Method: Maximum Peak

MID CHANNEL  
 HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 3.843	37.48	PK	33.5	-31.4	39.58	-	-	74	-34.42	-	-	0-360	199	H
3	* 3.898	34.47	PK	33.6	-30.5	37.57	-	-	74	-36.43	-	-	0-360	200	V
5	* 7.253	32.77	PK	35.7	-28.3	40.17	-	-	74	-33.83	-	-	0-360	101	V
1	2.573	35.98	PK	32.5	-32.9	35.58	-	-	-	-	68.2	-32.62	0-360	199	H
4	6.352	34.25	PK	35.5	-29	40.75	-	-	-	-	68.2	-27.45	0-360	101	H
6	8.926	29.97	PK	36.3	-26.2	40.07	-	-	-	-	68.2	-28.13	0-360	101	V

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

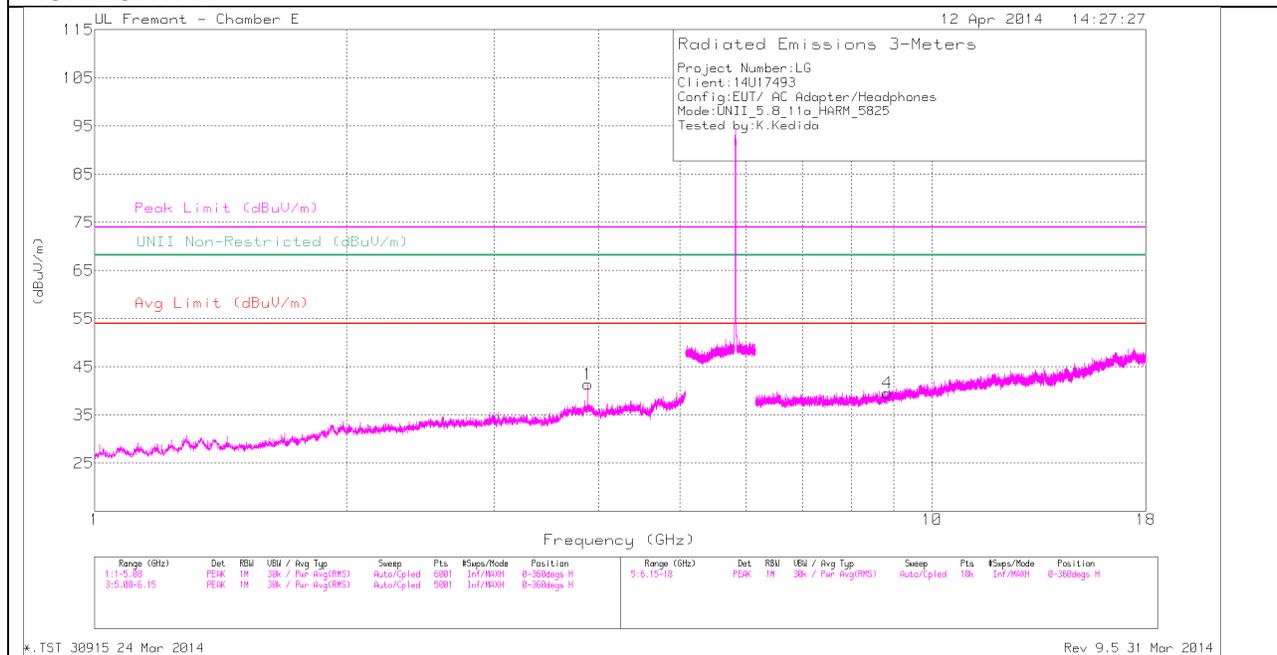
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Ftr /tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.843	43.46	PK2	33.5	-31.4	45.56	-	-	74	-28.44	-	-	194	178	H
* 3.843	35.48	MAv1	33.5	-31.4	37.58	54	-16.42	-	-	-	-	194	178	H
* 3.898	41.94	PK2	33.6	-30.5	45.04	-	-	74	-28.96	-	-	194	178	V
* 7.251	38.8	PK2	35.7	-28.3	46.2	-	-	74	-27.8	-	-	194	178	V
2.571	42.8	PK2	32.5	-32.8	42.5	-	-	-	-	68.2	-25.7	0	101	H
6.351	39.84	PK2	35.5	-29	46.34	-	-	-	-	68.2	-21.86	194	178	H
8.925	37.09	PK2	36.3	-26.2	47.19	-	-	-	-	68.2	-21.01	194	178	V

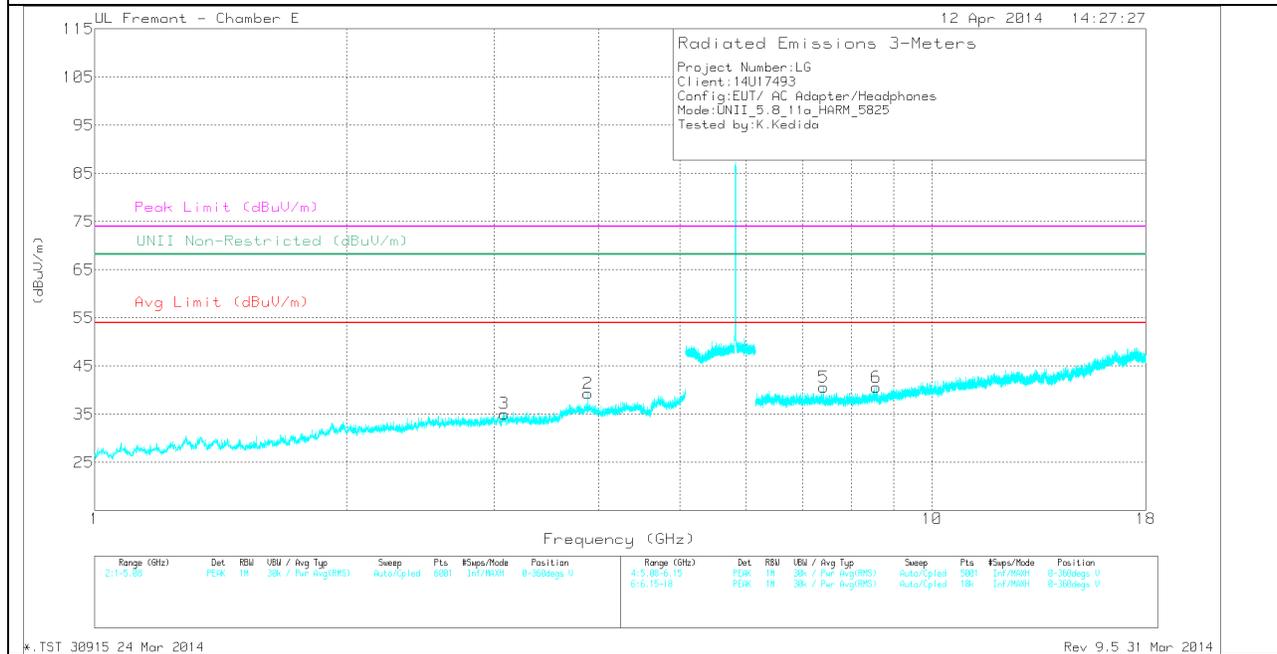
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**HIGH CHANNEL  
 HORIZONTAL**



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

4

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.883	38.43	PK	33.5	-30.5	41.43	-	-	74	-32.57	-	-	0-360	199	H
2	* 3.883	36.32	PK	33.5	-30.5	39.32	-	-	74	-34.68	-	-	0-360	200	V
5	* 7.424	32.99	PK	35.7	-28.1	40.59	-	-	74	-33.41	-	-	0-360	200	V
3	3.082	34.12	PK	32.8	-31.8	35.12	-	-	-	-	68.2	-33.08	0-360	101	V
6	8.57	31.05	PK	35.9	-26.3	40.65	-	-	-	-	68.2	-27.55	0-360	101	V
4	8.839	30.63	PK	36.1	-27.1	39.63	-	-	-	-	68.2	-28.57	0-360	101	H

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

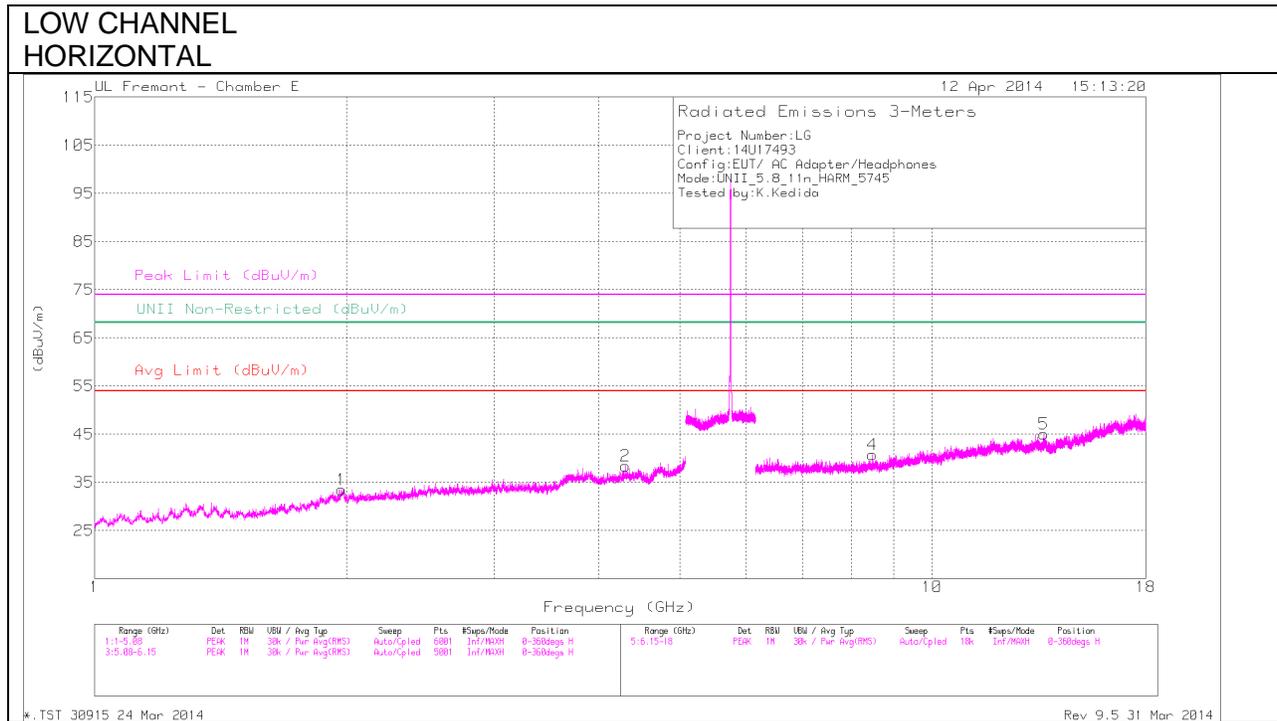
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.884	43.92	PK2	33.5	-30.5	46.92	-	-	74	-27.08	-	-	185	199	H
* 3.883	36.91	MAv1	33.5	-30.5	39.91	54	-14.09	-	-	-	-	185	199	H
* 3.883	43.27	PK2	33.5	-30.5	46.27	-	-	74	-27.73	-	-	106	304	V
* 3.883	36.8	MAv1	33.5	-30.5	39.8	54	-14.2	-	-	-	-	106	304	V
* 7.424	38.42	PK2	35.7	-28.1	46.02	-	-	74	-27.98	-	-	106	304	V
3.083	41.55	PK2	32.8	-31.8	42.55	-	-	-	-	68.2	-25.65	106	304	V
8.57	38.01	PK2	35.9	-26.3	47.61	-	-	-	-	68.2	-20.59	106	304	V
8.838	38.76	PK2	36.1	-27.1	47.76	-	-	-	-	68.2	-20.44	106	304	H

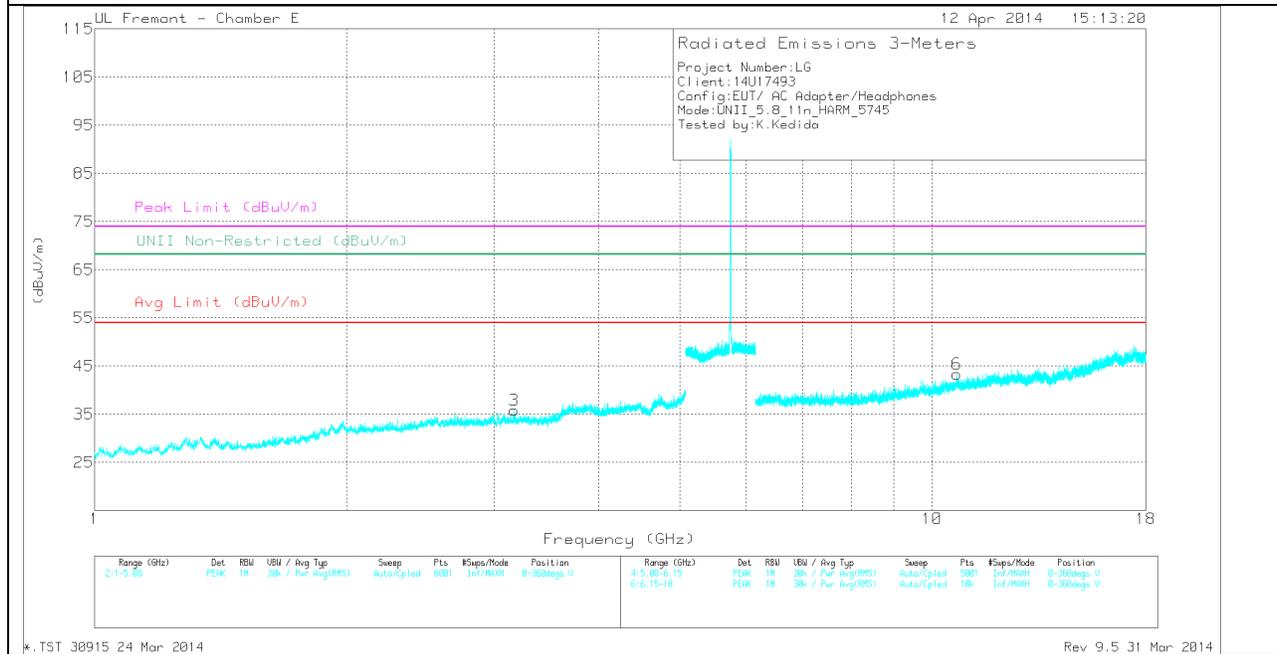
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**10.2.1. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND  
 HARMONICS AND SPURIOUS EMISSIONS**



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cb/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 4.301	35.29	PK	33.6	-30.5	38.39	-	-	74	-35.61	-	-	0-360	101	H
4	* 8.486	32.02	PK	35.9	-27.2	40.72	-	-	74	-33.28	-	-	0-360	199	H
6	* 10.701	29.19	PK	37.9	-23.7	43.39	-	-	74	-30.61	-	-	0-360	200	V
1	1.972	34.86	PK	31.3	-32.7	33.46	-	-	-	-	68.2	-34.74	0-360	101	H
3	3.167	35.58	PK	32.9	-32.6	35.88	-	-	-	-	68.2	-32.32	0-360	101	V
5	13.608	31.01	PK	38.9	-24.8	45.11	-	-	-	-	68.2	-23.09	0-360	199	H

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

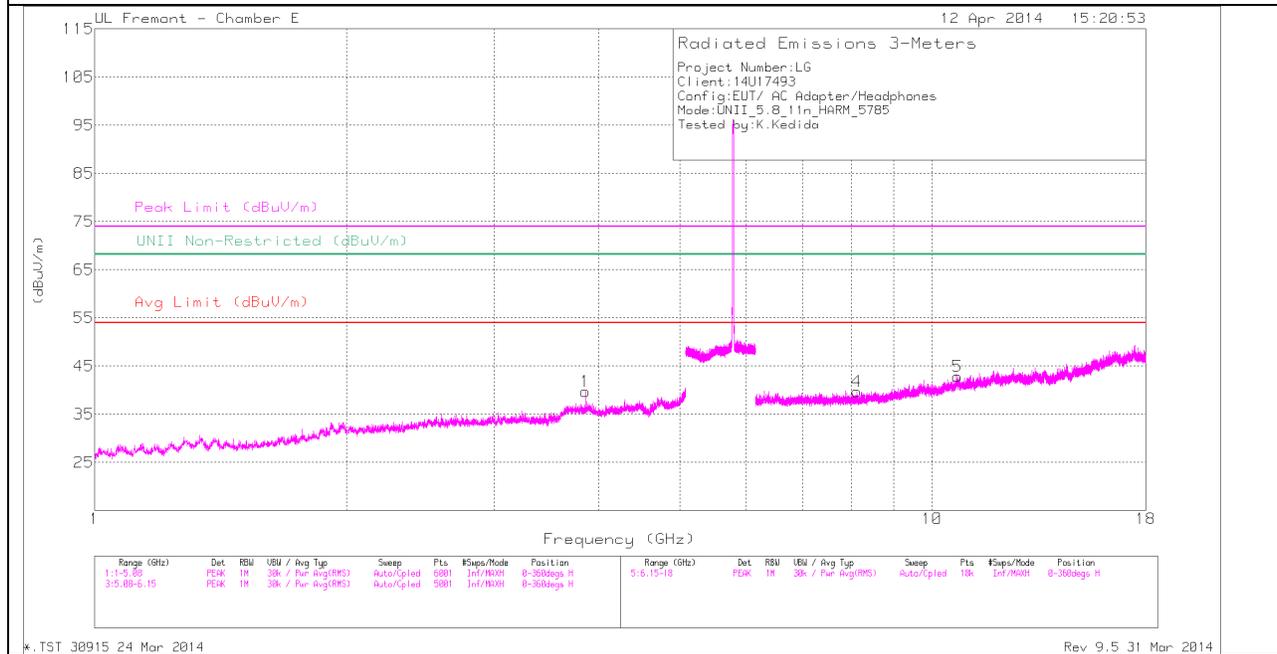
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cb/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.302	42.04	PK2	33.6	-30.5	45.14	-	-	74	-28.86	-	-	0	200	H
* 8.486	38.5	PK2	35.9	-27.2	47.2	-	-	74	-26.8	-	-	0	200	H
* 10.701	35.82	PK2	37.9	-23.7	50.02	-	-	74	-23.98	-	-	0	200	V
1.972	43.01	PK2	31.3	-32.7	41.61	-	-	-	-	68.2	-26.59	0	200	H
3.166	42.94	PK2	32.9	-32.6	43.24	-	-	-	-	68.2	-24.96	0	200	V
13.606	37.64	PK2	38.9	-24.9	51.64	-	-	-	-	68.2	-16.56	0	200	H

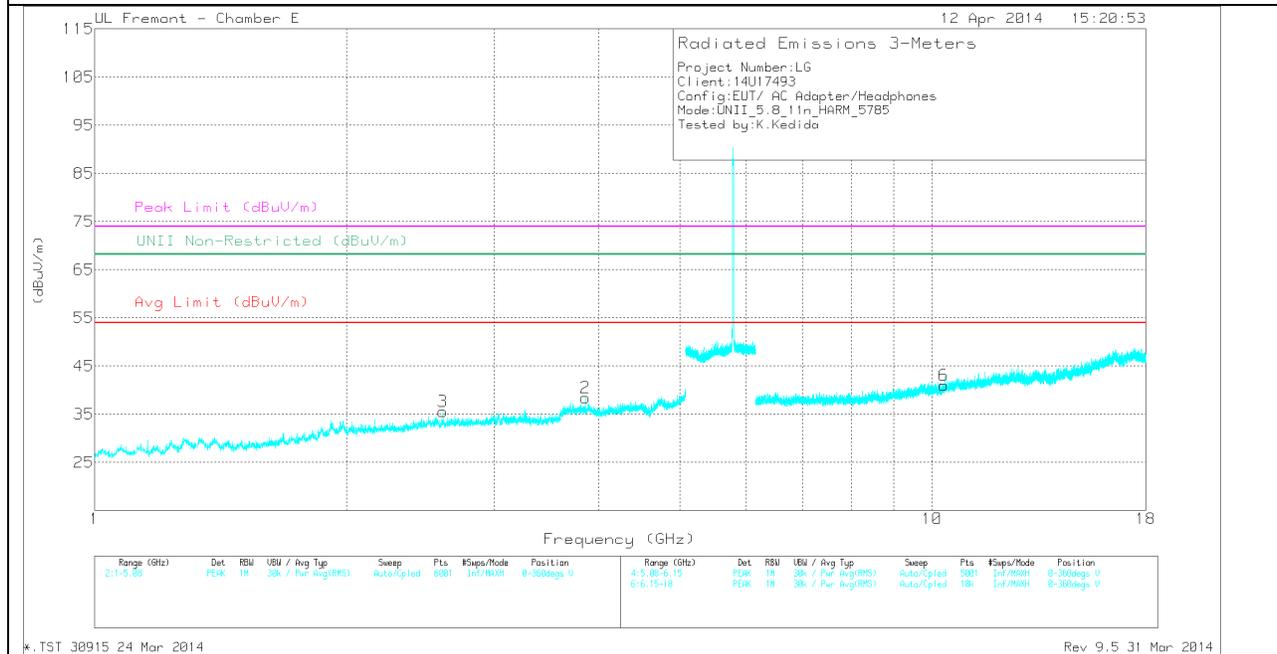
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

MID CHANNEL  
 HORIZONTAL



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.857	37.22	PK	33.5	-31	39.72	-	-	74	-34.28	-	-	0-360	101	H
2	* 3.857	35.87	PK	33.5	-31	38.37	-	-	74	-35.63	-	-	0-360	200	V
4	* 8.13	31.17	PK	35.9	-27.4	39.67	-	-	74	-34.33	-	-	0-360	199	H
5	* 10.721	28.98	PK	37.9	-24	42.88	-	-	74	-31.12	-	-	0-360	199	H
3	2.606	36.28	PK	32.6	-33.3	35.58	-	-	-	-	68.2	-32.62	0-360	101	V
6	10.319	28.22	PK	37.3	-24.5	41.02	-	-	-	-	68.2	-27.18	0-360	101	V

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

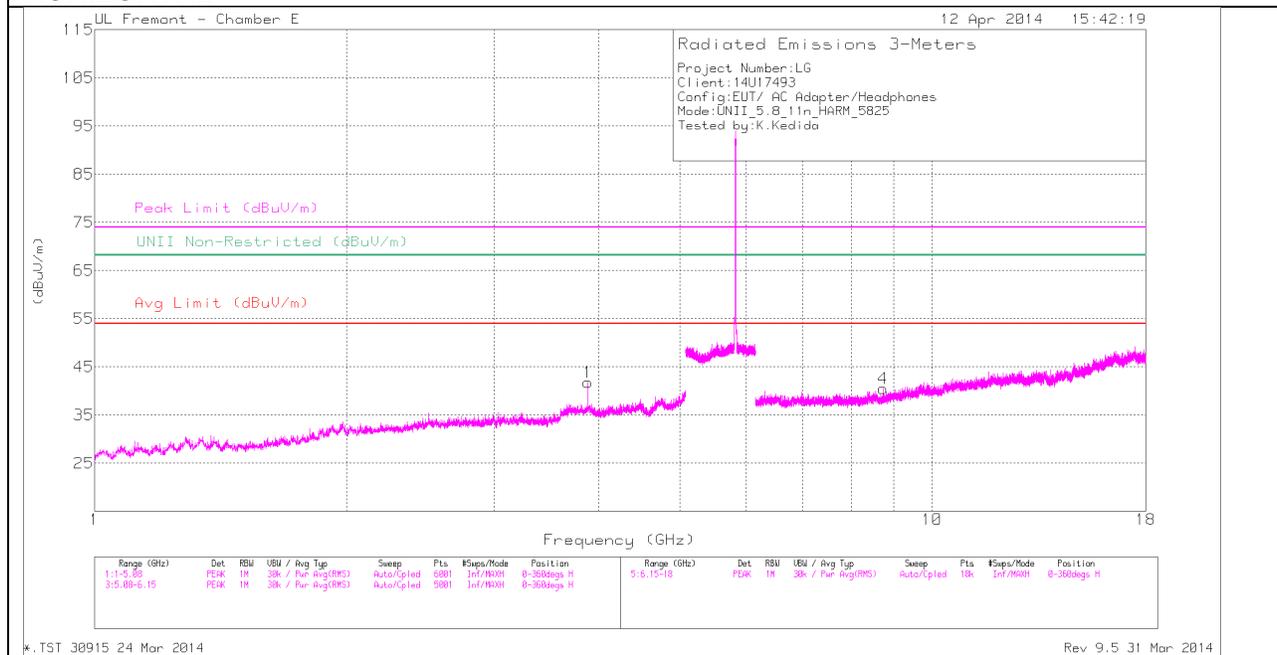
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.857	44.07	PK2	33.5	-31	46.57	-	-	74	-27.43	-	-	281	216	H
* 3.857	37.54	MAv1	33.5	-31	40.04	54	-13.96	-	-	-	-	281	216	H
* 3.856	41.43	PK2	33.5	-31	43.93	-	-	74	-30.07	-	-	281	216	V
* 8.13	38.61	PK2	35.9	-27.4	47.11	-	-	74	-26.89	-	-	281	216	H
* 10.722	35.71	PK2	37.9	-24	49.61	-	-	74	-24.39	-	-	281	216	H
2.605	42.65	PK2	32.6	-33.3	41.95	-	-	-	-	68.2	-26.25	281	216	V
10.318	36.57	PK2	37.3	-24.5	49.37	-	-	-	-	68.2	-18.83	281	216	V

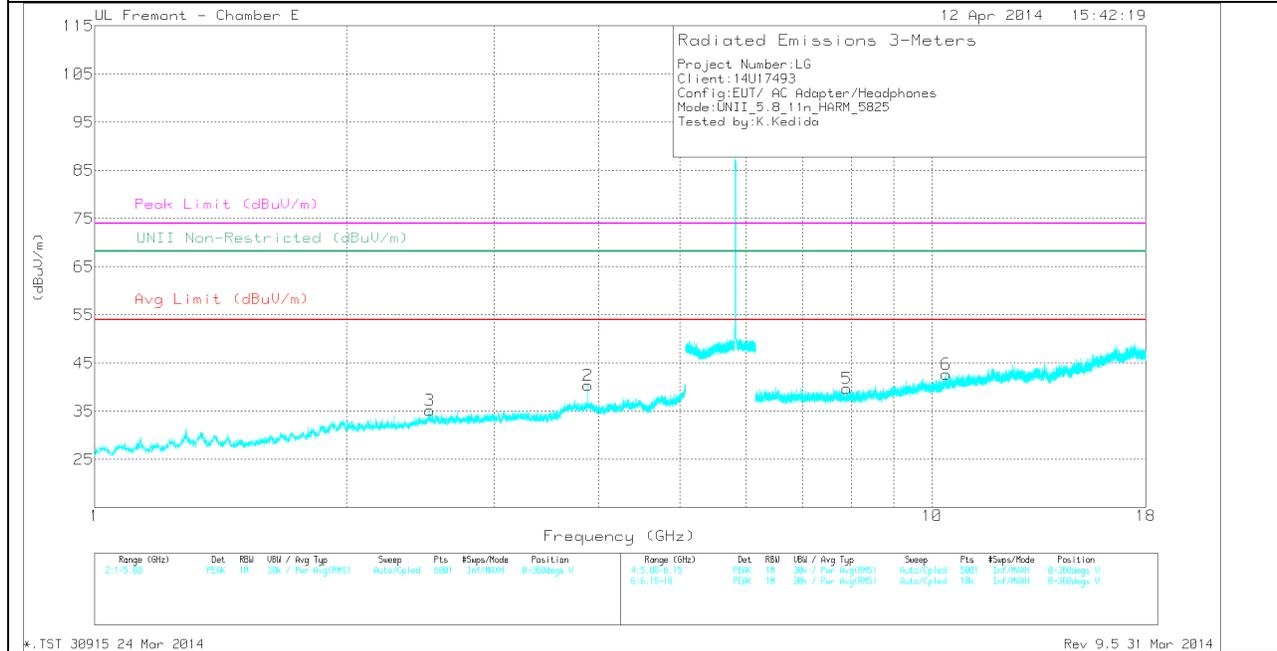
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**HIGH CHANNEL  
 HORIZONTAL**



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.883	38.77	PK	33.5	-30.5	41.77	-	-	74	-32.23	-	-	0-360	101	H
2	* 3.883	37.32	PK	33.5	-30.5	40.32	-	-	74	-33.68	-	-	0-360	200	V
3	2.512	34.76	PK	32.4	-32	35.16	-	-	-	-	68.2	-33.04	0-360	200	V
5	7.916	31.17	PK	35.9	-27.4	39.67	-	-	-	-	68.2	-28.53	0-360	101	V
4	8.74	30.97	PK	36	-26.5	40.47	-	-	-	-	68.2	-27.73	0-360	101	H
6	10.402	29.54	PK	37.4	-24.2	42.74	-	-	-	-	68.2	-25.46	0-360	101	V

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

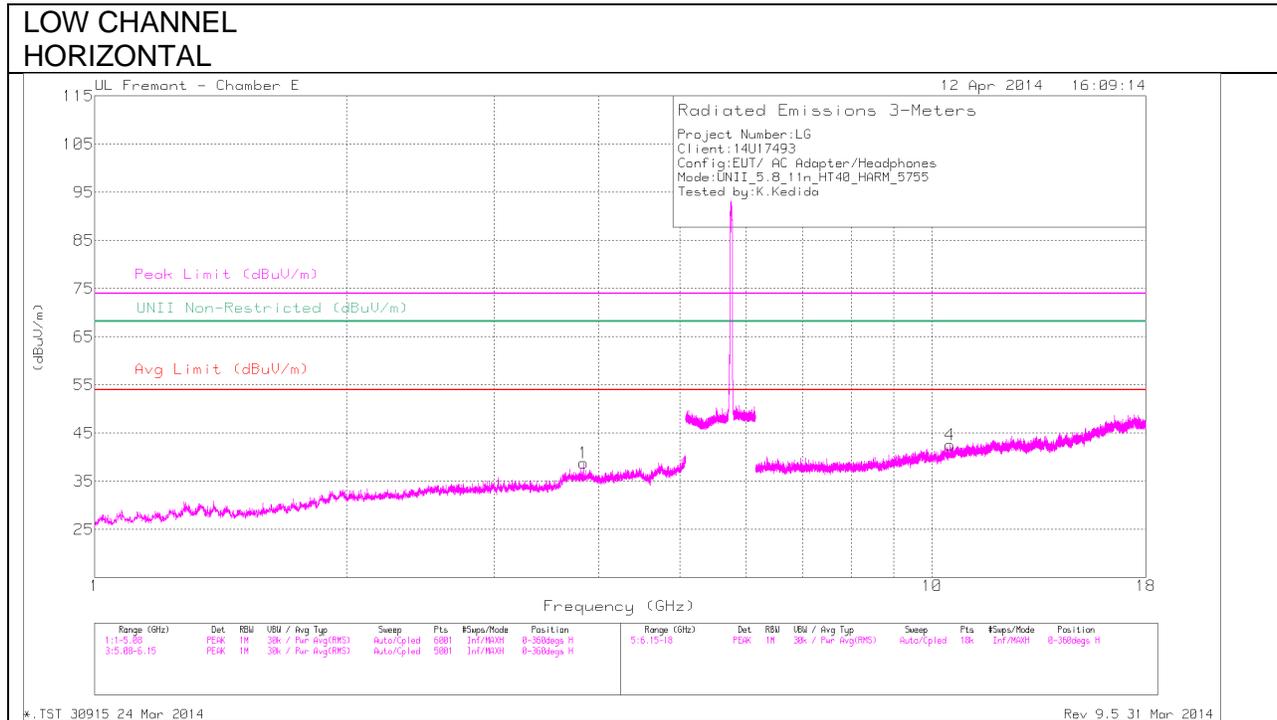
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Ftr /tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.883	43.74	PK2	33.5	-30.5	46.74	-	-	74	-27.26	-	-	187	106	H
* 3.883	37.09	MAV1	33.5	-30.5	40.09	54	-13.91	-	-	-	-	187	106	H
* 3.884	44.35	PK2	33.5	-30.5	47.35	-	-	74	-26.65	-	-	142	269	V
* 3.883	38.13	MAV1	33.5	-30.5	41.13	54	-12.87	-	-	-	-	142	269	V
2.512	42.16	PK2	32.4	-32	42.56	-	-	-	-	68.2	-25.64	142	269	V
7.916	38.76	PK2	35.9	-27.4	47.26	-	-	-	-	68.2	-20.94	142	269	V
8.74	37.51	PK2	36	-26.5	47.01	-	-	-	-	68.2	-21.19	142	269	H
10.402	35.81	PK2	37.4	-24.2	49.01	-	-	-	-	68.2	-19.19	142	269	V

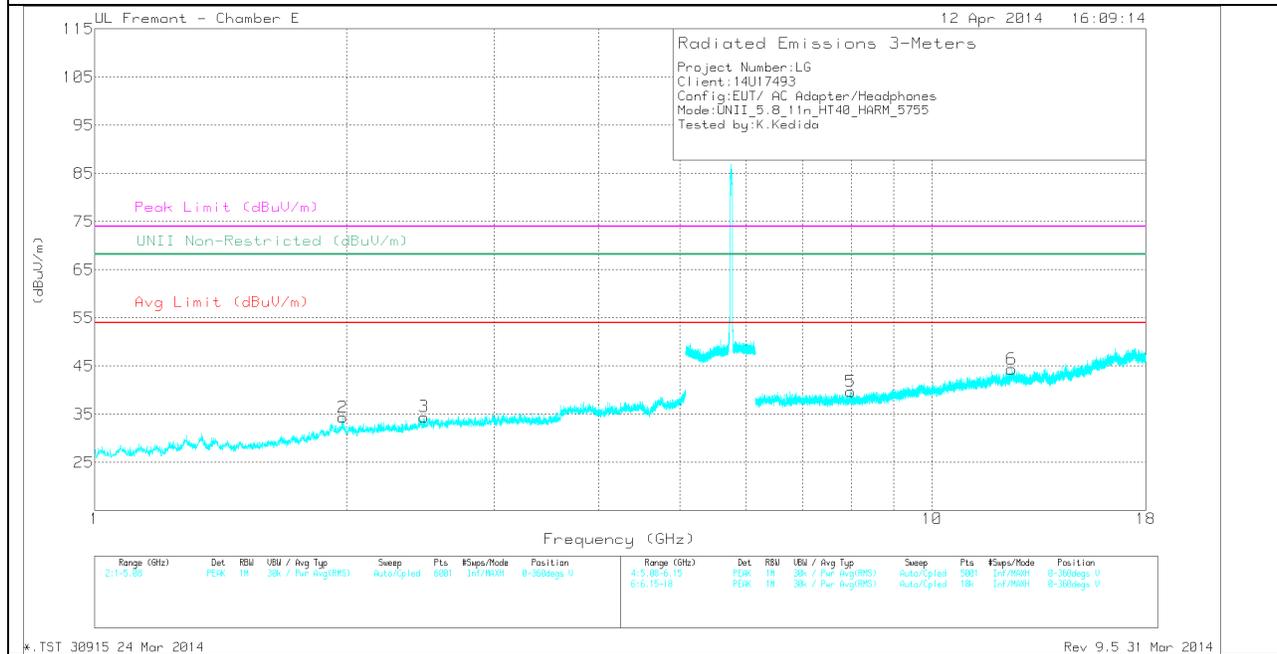
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

### 10.2.1. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND HARMONICS AND SPURIOUS EMISSIONS



Note: Emission was scanned up to 40GHz; 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 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

LOW CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Filr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.837	36.9	PK	33.5	-31.6	38.8	-	-	74	-35.2	-	-	0-360	101	H
6	* 12.445	29.38	PK	38.9	-23.9	44.38	-	-	74	-29.62	-	-	0-360	101	V
2	1.98	35.76	PK	31.3	-32.6	34.46	-	-	-	-	68.2	-33.74	0-360	101	V
3	2.474	34.77	PK	32.3	-32.6	34.47	-	-	-	-	68.2	-33.73	0-360	101	V
5	7.993	31.1	PK	35.9	-27.3	39.7	-	-	-	-	68.2	-28.5	0-360	101	V
4	10.51	29.28	PK	37.6	-24.3	42.58	-	-	-	-	68.2	-25.62	0-360	199	H

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

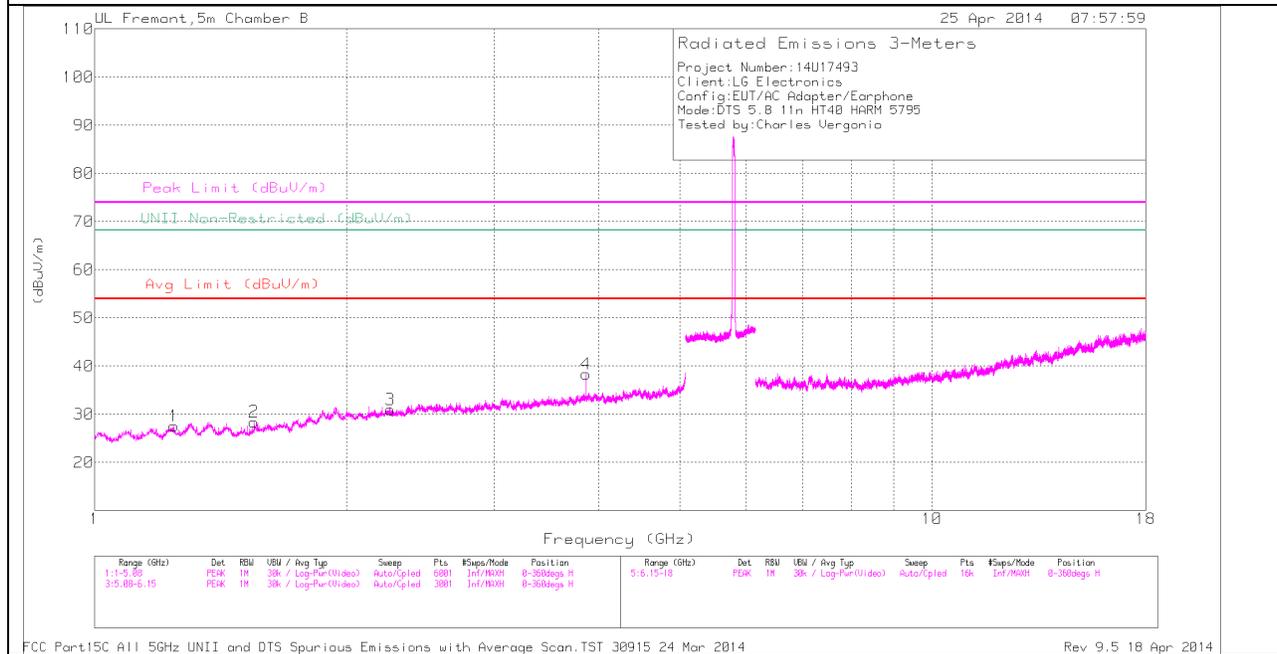
PK - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Cbl/Filr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.836	43.41	PK2	33.5	-31.6	45.31	-	-	74	-28.69	-	-	187	204	H
* 3.837	35.35	MAV1	33.5	-31.6	37.25	54	-16.75	-	-	-	-	187	204	H
* 12.443	36.28	PK2	38.9	-23.9	51.28	-	-	74	-22.72	-	-	187	204	V
1.98	42.14	PK2	31.3	-32.6	40.84	-	-	-	-	68.2	-27.36	187	204	V
2.474	41.84	PK2	32.3	-32.6	41.54	-	-	-	-	68.2	-26.66	187	204	V
7.993	38.13	PK2	35.9	-27.3	46.73	-	-	-	-	68.2	-21.47	187	204	V
10.509	35.91	PK2	37.6	-24.3	49.21	-	-	-	-	68.2	-18.99	187	204	H

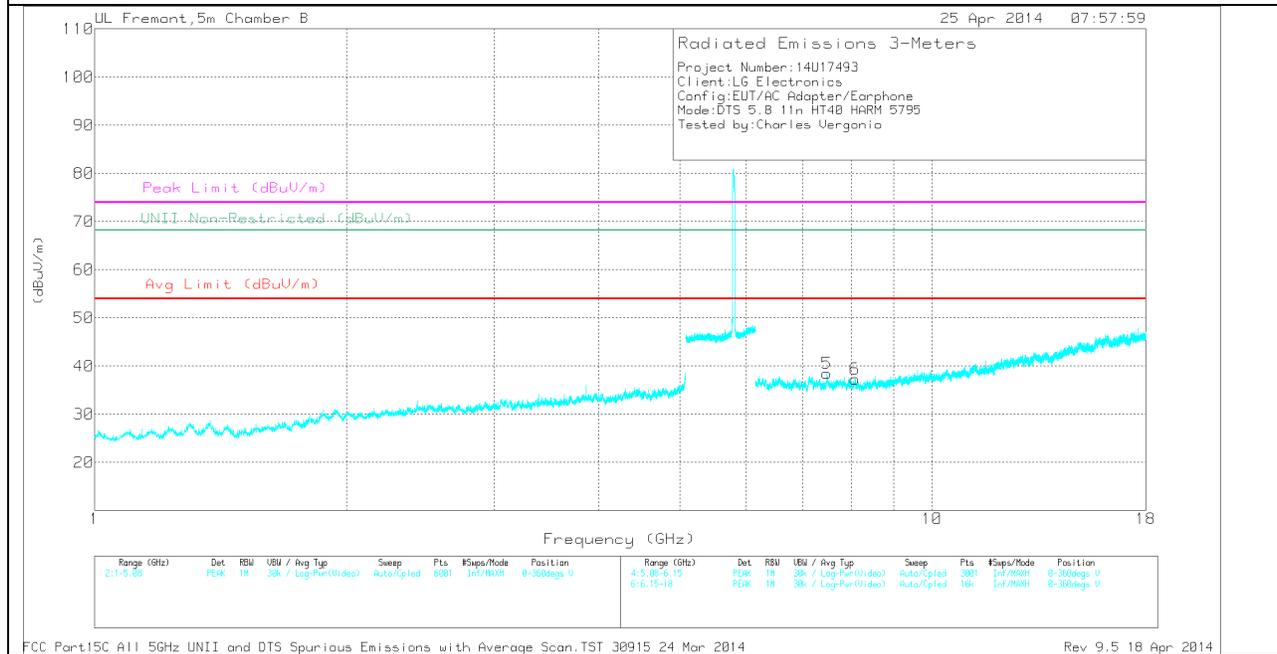
\* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

**MID CHANNEL  
 HORIZONTAL**



Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL  
 VERTICAL



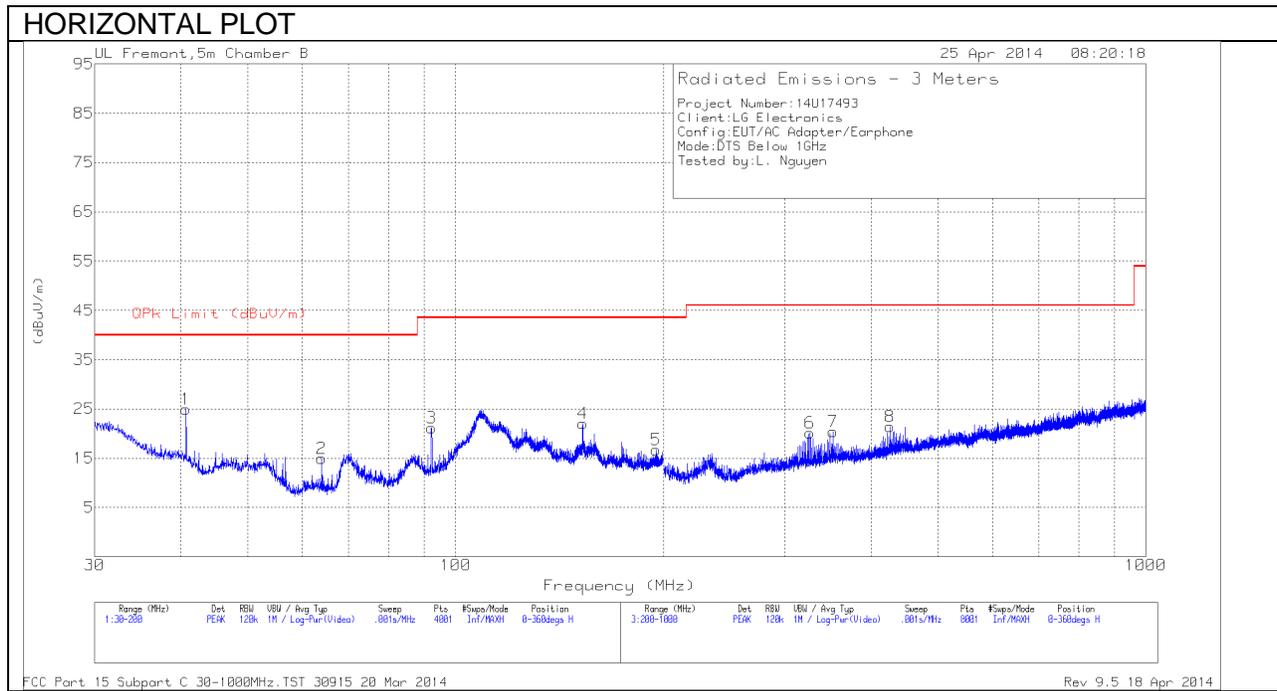
Note: Emission was scanned up to 40GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

MID CHANNEL DATA

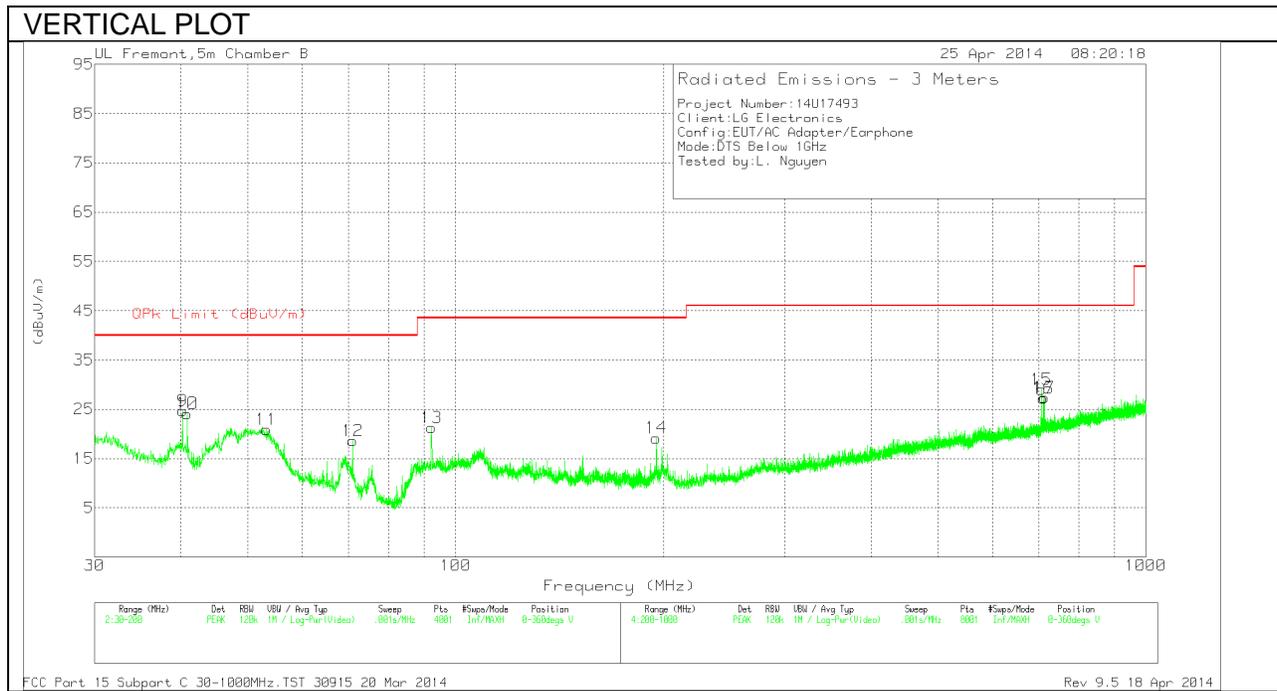
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.241	43.52	PK2	28.5	-34.7	37.32	54	-16.68	74	-36.68	-	-	360	100	H
* 1.55	43	PK2	28.2	-33.9	37.3	54	-16.7	74	-36.7	-	-	360	100	H
* 2.254	41.82	PK2	31.5	-32.6	40.72	54	-13.28	74	-33.28	-	-	360	100	H
* 3.864	41.96	PK2	33.7	-31.5	44.16	54	-9.84	74	-29.84	-	-	360	100	H
* 3.863	31.45	MAv1	33.7	-31.5	33.65	54	-20.35	-	-	-	-	360	100	H
* 7.49	38.31	PK2	35.6	-25.7	48.21	54	-5.79	74	-25.79	-	-	360	100	V
* 8.092	37.17	PK2	35.7	-26.4	46.47	54	-7.53	74	-27.53	-	-	360	100	V

### 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	AFT477 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6	* 326.4	32.25	PK	13.8	-25.9	20.15	46.02	-25.87	0-360	101	H
9	40.2425	39.99	PK	13.4	-28.7	24.69	40	-15.31	0-360	101	V
1	40.71	40.71	PK	13	-28.7	25.01	40	-14.99	0-360	400	H
10	40.88	39.94	PK	12.9	-28.7	24.14	40	-15.86	0-360	101	V
11	53.2475	42.34	PK	7.2	-28.6	20.94	40	-19.06	0-360	101	V
2	64	35.6	PK	7.8	-28.5	14.9	40	-25.1	0-360	400	H
12	70.9275	38.83	PK	8.2	-28.4	18.63	40	-21.37	0-360	101	V
3	92.2625	41.02	PK	8.2	-28.1	21.12	43.52	-22.4	0-360	200	H
13	92.305	41.2	PK	8.2	-28.1	21.3	43.52	-22.22	0-360	101	V
4	152.825	37.24	PK	12.3	-27.5	22.04	43.52	-21.48	0-360	200	H
5	195.3675	32.02	PK	11.7	-27	16.72	43.52	-26.8	0-360	300	H
14	195.41	34.49	PK	11.7	-27	19.19	43.52	-24.33	0-360	101	V
7	352	31.69	PK	14.5	-25.8	20.39	46.02	-25.63	0-360	101	H
8	425.6	31.21	PK	16.2	-26	21.41	46.02	-24.61	0-360	101	H
15	705.1	33.98	PK	19.7	-24.7	28.98	46.02	-17.04	0-360	101	V
16	709.6	31.77	PK	20.1	-24.6	27.27	46.02	-18.75	0-360	101	V
17	712.8	31.72	PK	20.2	-24.6	27.32	46.02	-18.7	0-360	101	V

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

PK - Peak detector

## 11. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

RSS-Gen 7.2.2

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.

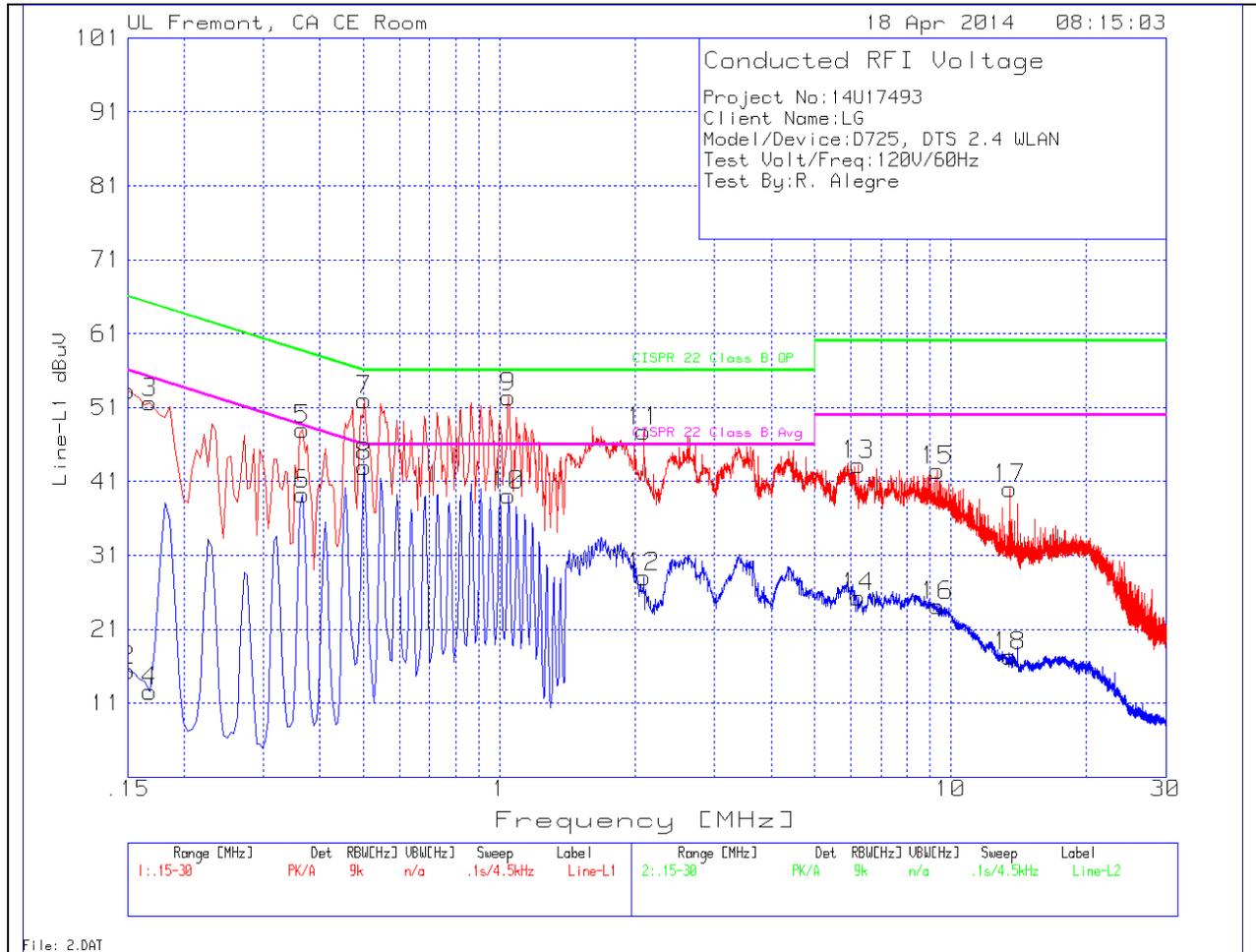
**RESULTS**

**6 WORST EMISSIONS**

Line-L1 .15 - 30MHz										
Trace Markers										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L1 (dB)	LC Cables 1&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
1	.15	51.84	PK	1.4	0	53.24	66	-12.76	-	-
2	.15	13.99	Av	1.4	0	15.39	-	-	56	-40.61
3	.168	50.48	PK	1.2	0	51.68	65.1	-13.42	-	-
4	.168	11.36	Av	1.2	0	12.56	-	-	55.1	-42.54
5	.366	47.55	PK	.5	0	48.05	58.6	-10.55	-	-
6	.366	38.72	Av	.5	0	39.22	-	-	48.6	-9.38
7	.501	51.71	PK	.3	0	52.01	56	-3.99	-	-
8	.501	42.69	Av	.3	0	42.99	-	-	46	-3.01
9	1.0455	52.17	PK	.2	0	52.37	56	-3.63	-	-
10	1.0455	38.91	Av	.2	0	39.11	-	-	46	-6.89
11	2.0895	47.41	PK	.2	.1	47.71	56	-8.29	-	-
12	2.0895	27.71	Av	.2	.1	28.01	-	-	46	-17.99
13	6.2385	42.96	PK	.2	.1	43.26	60	-16.74	-	-
14	6.2385	25.02	Av	.2	.1	25.32	-	-	50	-24.68
15	9.357	42.04	PK	.2	.2	42.44	60	-17.56	-	-
16	9.357	23.71	Av	.2	.2	24.11	-	-	50	-25.89
17	13.542	39.65	PK	.2	.2	40.05	60	-19.95	-	-
18	13.542	16.91	Av	.2	.2	17.31	-	-	50	-32.69
Line-L2 .15 - 30MHz										
Trace Markers										
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL L2 (dB)	LC Cables 2&3 (dB)	Corrected Reading dBuV	CISPR 22 Class B QP	Margin to Limit (dB)	CISPR 22 Class B Avg	Margin to Limit (dB)
19	.1995	39.12	PK	1	0	40.12	63.6	-23.48	-	-
20	.1995	23.79	Av	1	0	24.79	-	-	53.6	-28.81
21	.249	40.58	PK	.7	0	41.28	61.8	-20.52	-	-
22	.249	21.29	Av	.7	0	21.99	-	-	51.8	-29.81
23	.3075	41.02	PK	.6	0	41.62	60	-18.38	-	-
24	.3075	20.3	Av	.6	0	20.9	-	-	50	-29.1
25	.4785	50.99	PK	.4	0	51.39	56.4	-5.01	-	-
26	.4785	31	Av	.4	0	31.4	-	-	46.4	-15
27	.5955	47.07	PK	.3	0	47.37	56	-8.63	-	-
28	.5955	28.13	Av	.3	0	28.43	-	-	46	-17.57
29	1.4505	45.14	PK	.2	.1	45.44	56	-10.56	-	-
30	1.4505	26.4	Av	.2	.1	26.7	-	-	46	-19.3
31	1.8645	43.9	PK	.2	.1	44.2	56	-11.8	-	-
32	1.8645	27.84	Av	.2	.1	28.14	-	-	46	-17.86
33	3.624	42.42	PK	.2	.1	42.72	56	-13.28	-	-
34	3.624	27.11	Av	.2	.1	27.41	-	-	46	-18.59
35	13.569	44.45	PK	.3	.2	44.95	60	-15.05	-	-
36	13.569	24.29	Av	.3	.2	24.79	-	-	50	-25.21

PK - Peak detector  
 Av - average detection

**LINE 1 RESULTS**



**LINE 2 RESULTS**

