



**FCC 47 CFR PART 15 SUBPART E  
C2PC CERTIFICATION TEST REPORT  
FOR**

**CDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC**

**MODEL NUMBER: LG-VS880, VS880, LGVS880**

**FCC ID: ZNFVS880**

**REPORT NUMBER: 16I22795-E1V3**

**ISSUE DATE: 4/21/2016**

*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**



**NVLAP LAB CODE 200065-0**

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	4/18/2016	Initial Issue	D. CORONIA
V2	4/19/2016	Updated Section 6, 7, 8 & 10	D. CORONIA
V3	4/21/2016	Updated KDB reference on page 11	D. CORONIA

## TABLE OF CONTENTS

<b>1. ATTESTATION OF TEST RESULTS .....</b>	<b>4</b>
<b>5. EQUIPMENT UNDER TEST .....</b>	<b>7</b>
5.1. DESCRIPTION OF EUT .....	7
5.2. MAXIMUM OUTPUT POWER.....	7
5.3. DESCRIPTION OF AVAILABLE ANTENNAS .....	7
5.4. WORST-CASE CONFIGURATION AND MODE.....	7
5.5. DESCRIPTION OF TEST SETUP.....	8
<b>6. TEST AND MEASUREMENT EQUIPMENT .....</b>	<b>10</b>
<b>7. SUMMARY TABLE .....</b>	<b>11</b>
<b>8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS .....</b>	<b>12</b>
<b>9. MEASUREMENT METHOD.....</b>	<b>13</b>
<b>10. ANTENNA PORT TEST RESULTS .....</b>	<b>14</b>
10.1. 6 dB BANDWIDTH .....	14
10.2. 99% BANDWIDTH .....	18
10.1. MAXIMUM POWER SPECTRAL DENSITY (PSD).....	24
<b>11. TRANSMITTER ABOVE 1 GHz.....</b>	<b>31</b>
11.1. 5.8 GHz.....	32
11.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND .....	32
11.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND.....	42
11.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND.....	52
<b>12. WORST-CASE BELOW 1 GHz .....</b>	<b>60</b>
<b>13. SETUP PHOTOS.....</b>	<b>62</b>

# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** LG ELECTRONICS MOBILECOMM U.S.A., INC  
**EUT DESCRIPTION:** CDMA/LTE Phone + Bluetooth & DTS/UNII a/b/g/n + NFC  
**MODEL:** LG-VS880, VS880, LGVS880  
**SERIAL NUMBER:** 1838501 (Conducted), 1838500 (Radiated)  
**DATE TESTED:** FEBRUARY 4-10, 2016

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

UL 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:



DAN CORONIA  
WISE PROJECT LEAD  
CONSUMER TECHNOLOGY DIVISION  
UL VERIFICATION SERVICES INC

GLENN ESCANO  
WISE LAB ENGINEER  
CONSUMER TECHNOLOGY DIVISION  
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, and ANSI C63.10-2013.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A	<input type="checkbox"/> Chamber D
<input checked="" type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E
<input checked="" type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F
	<input type="checkbox"/> Chamber G
	<input type="checkbox"/> Chamber H

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

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

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

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

### 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, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance, 1000 to 6000 MHz	3.86 dB
Radiated Disturbance, 6000 to 18000 MHz	4.23 dB
Radiated Disturbance, 18000 to 26000 MHz	5.30 dB
Radiated Disturbance, 26000 to 40000 MHz	5.23 dB

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

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a CDMA/LTE Phone + Bluetooth & DTS/UNII a/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)
5745-5825	802.11a	10.3	10.72
5745-5825	802.11n HT20	10.3	10.72
5755-5795	802.11n HT40	10.6	11.48

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an FPCB antenna, with a maximum gain of -4.27 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 the X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in the X orientation.

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

802.11a mode: 6 Mbps

802.11n HT20 mode: MCS0

802.11n HT40 mode: 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

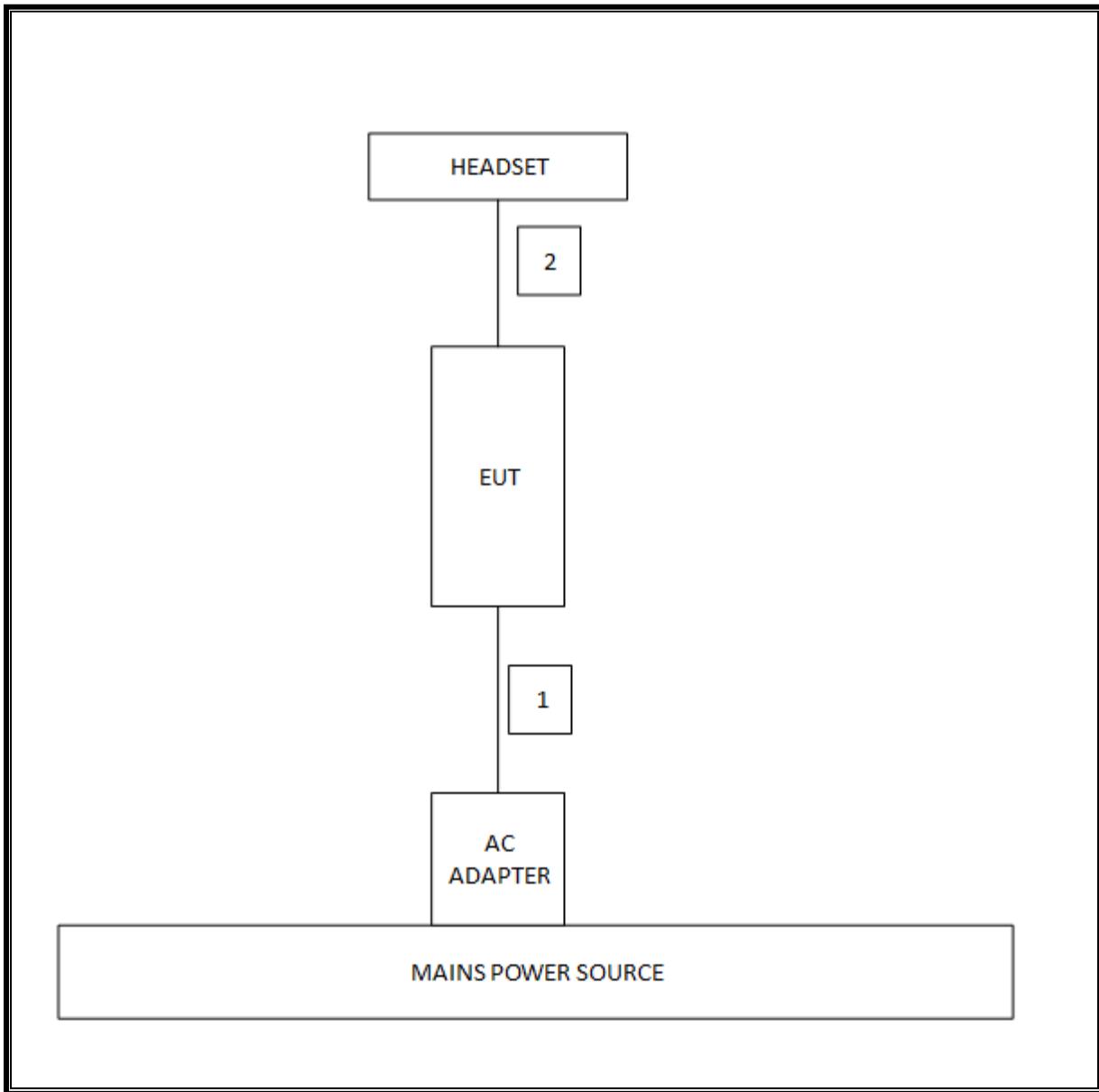
### I/O CABLES

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	1.0m	N/A

### TEST SETUP

The EUT is setup as a stand-alone device.

**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	T Number	Cal Due
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	130	09/01/16
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	477	06/10/16
Antenna, Horn, 18GHz	EMCO	3115	59	11/18/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	345	03/03/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	136	03/03/16
Antenna, Horn, 18GHz	ETS Lindgren	3117	863	04/10/16
Antenna, Horn, 26.5 GHz	ARA	MWH-1826/B	447	05/12/16
Antenna, Horn, 26.5 GHz to 40GHz	ARA	MWH-2640/B	446	5/12/2016
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	88	04/07/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	404	06/29/16
RF Amplifier, 26 – 40GHz	Miteq	NSP4000-SP2	88	04/7/2017
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	123	10/22/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	906	03/03/16
Spectrum Analyzer, PXA, 3 Hz to 44 GHz	Keysight	N9030A	907	06/11/16
EMI Test Receiver, 9 KHz to 7 GHz	R&S	ECSI7	284	09/10/16
Peak Power Meter	Agilent / HP	N1914A	254	06/08/16
Peak / Average Power Sensor	Keysight	E9327A	117	03/09/16
LISN, 30 MHz	Solar	8012-50-R-24-BNC	28	7/28/2016
Reject Filter, 2.4GHz	Micro-Tronics	BRM50702	160	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	417	05/04/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	893	04/25/16
High Pass Filter 3GHz	Micro-Tronics	HPS17543	898	04/25/16

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
CLT Software	UL	UL RF	Ver 1.0, Feb 2, 2015
Antenna Port Software	UL	UL RF	Ver 3.7, Nov 12, 2015

## 7. SUMMARY TABLE

### C2PC REASON:

The purpose of this C2PC is to upgrade the device described under section 5.4 of this report to the new rules per KDB 789033 D02 v01r02.

For UNII-1, UNII-2 and UNII-2C bands, we have reviewed the original test report (report no. 14U17461-5) and are hereby attesting that all the current technical requirements are still met and all applicable test procedures remain the same. Therefore, the original test report is still applicable and no additional testing is done.

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result
15.407	RSS-247 6.2.4	6dB Band width (5.8GHz)	500KHz	Conducted	Pass
15.407(a)(3)	RSS-247 6.2.4	TX Cond. Power 5.725-5.825	<30dBm		Pass
15.407(a)(5)	RSS-247 6.2.4	PSD (5.8GHz)	30dBm per 500kHz		Pass
15.407 (b), 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m	Radiated	Pass

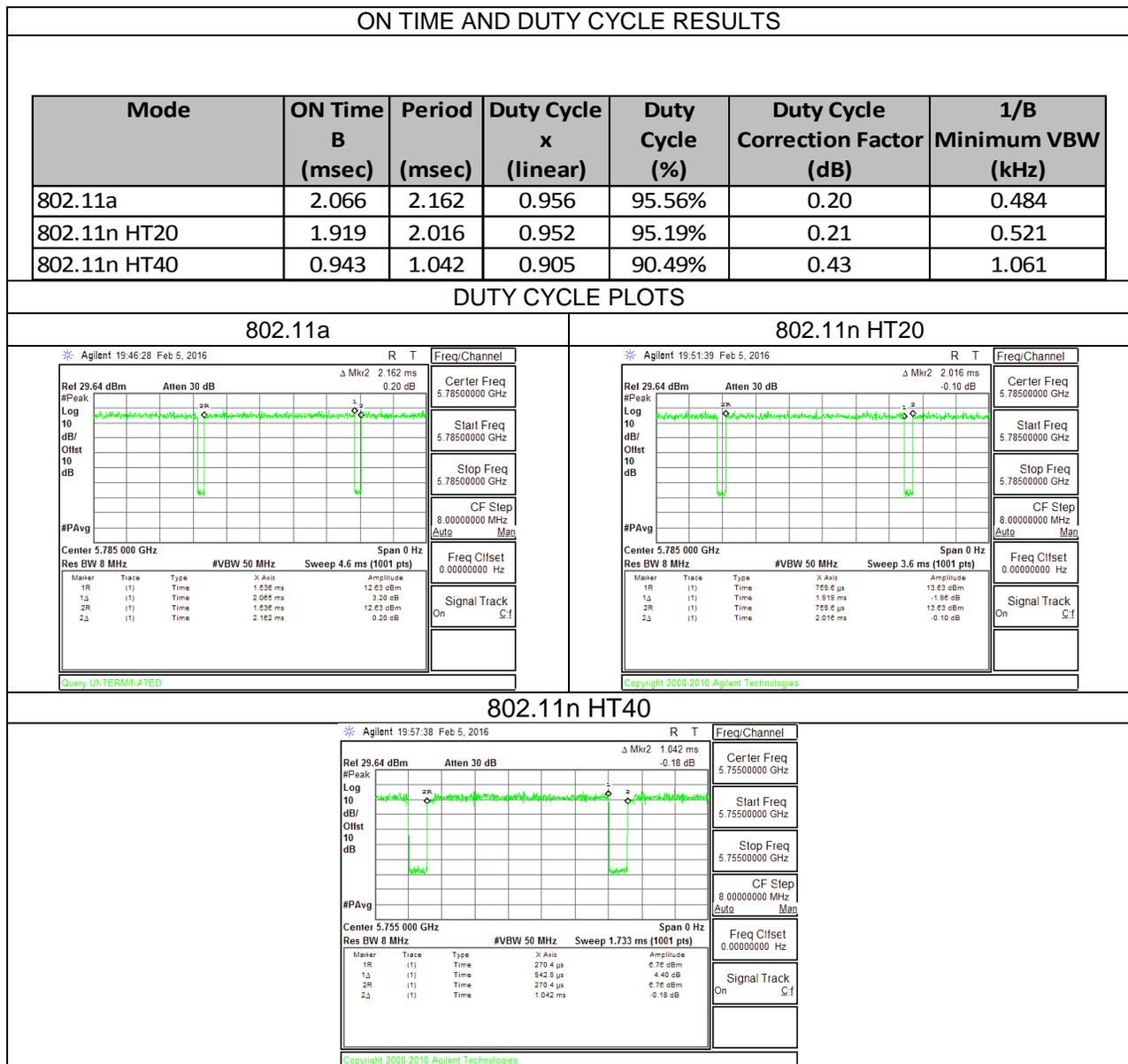
## 8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

### LIMITS

None; for reporting purposes only.

### PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.



---

## 9. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v01r02, Section B.

6 dB Emission BW: KDB 789033 D02 v01r02, Section C.2.

99% Occupied BW: KDB 789033 D02 v01r02, Section D.

Conducted Output Power: KDB 789033 D02 v01r02, Section E.3.b (Method PM-G), and KDB 662911 D01 v02r01.

Power Spectral Density: KDB 789033 D02 v01r02, Section F, and KDB 662911 D01 v02r01.

Unwanted emissions in restricted bands: KDB 789033 D02 v01r02, Sections G.2, G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01r02, Sections G.2, G.3, G.4, and G.5.

---

## 10. ANTENNA PORT TEST RESULTS

### 10.1. 6 dB BANDWIDTH

#### LIMITS

FCC §15.407

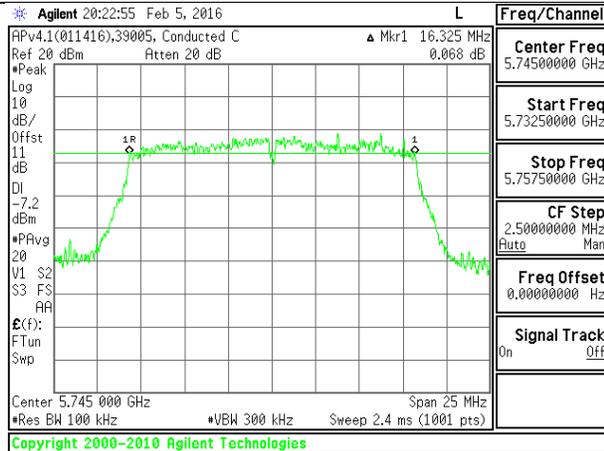
The minimum 6 dB bandwidth shall be at least 500 kHz.

#### RESULTS

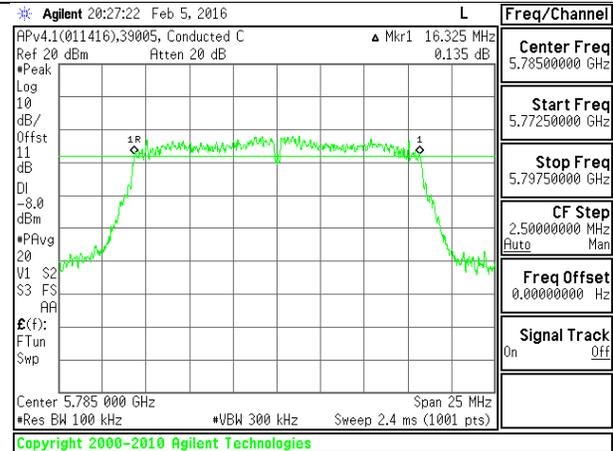
**802.11a MODE IN THE 5.8 GHz BAND TEST RESULT TABLE**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.325	0.5
Mid	5785	16.325	0.5
High	5825	16.350	0.5

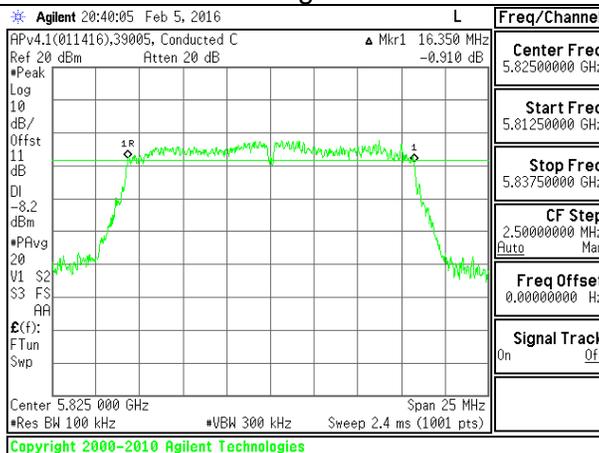
**11a 5.8 Low Channel**



**11a 5.8 Mid Channel**



**11a 5.8 High Channel**

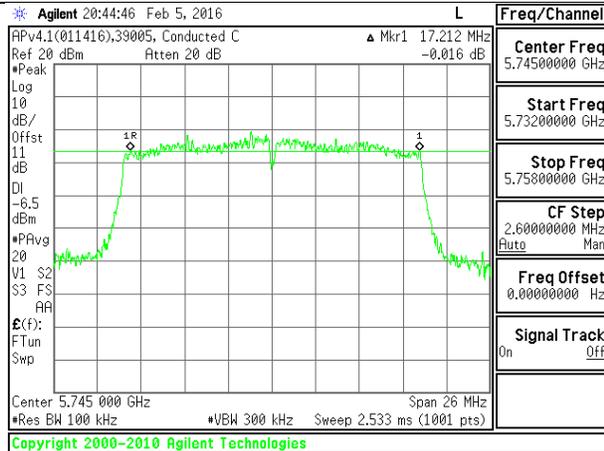


NOTE:

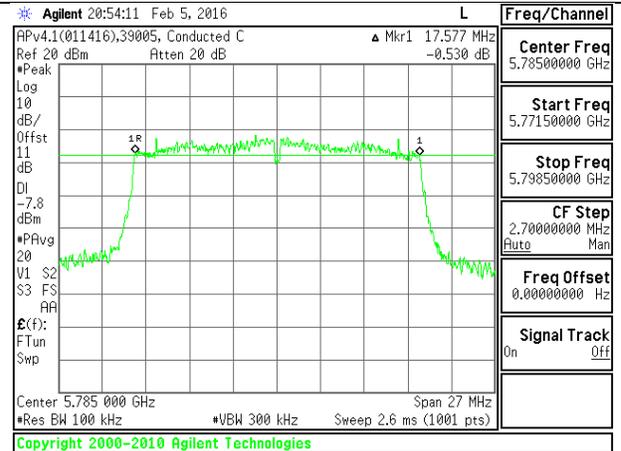
**802.11n HT20 MODE IN THE 5.8 GHz BAND TEST RESULT TABLE**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.212	0.5
Mid	5785	17.577	0.5
High	5825	17.264	0.5

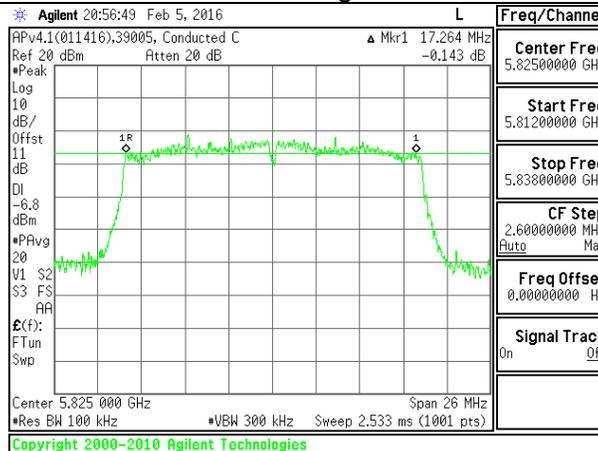
**11n HT20 5.8 Low Channel**



**11n HT20 5.8 Mid Channel**



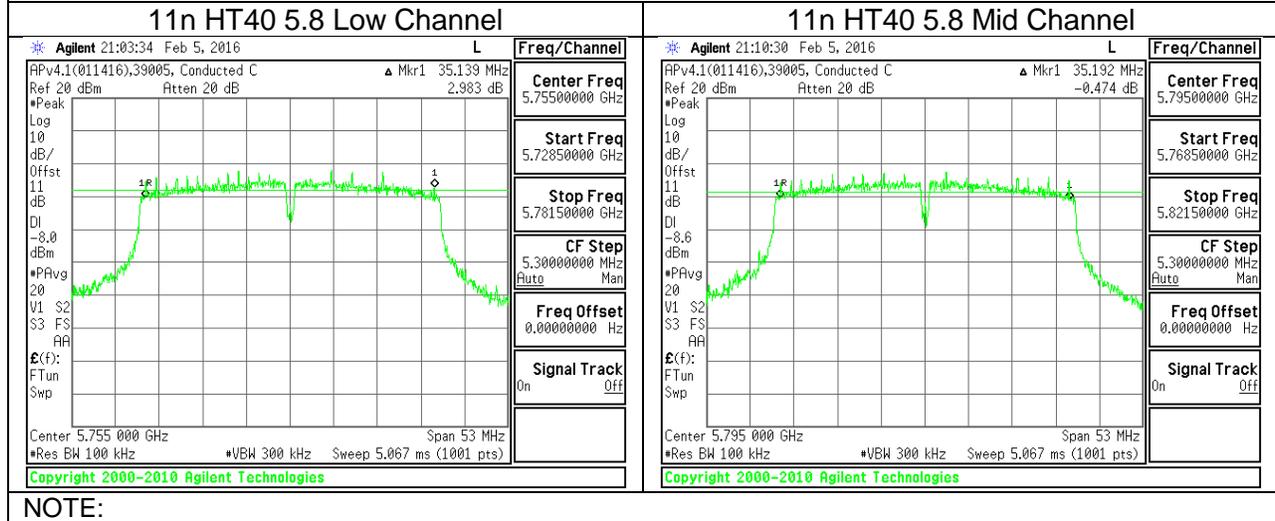
**11n HT20 5.8 High Channel**



NOTE:

**802.11n HT40 MODE IN THE 5.8 GHz BAND TEST RESULT TABLE**

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	35.139	0.5
High	5795	35.192	0.5



## **10.2. 99% BANDWIDTH**

### **LIMITS**

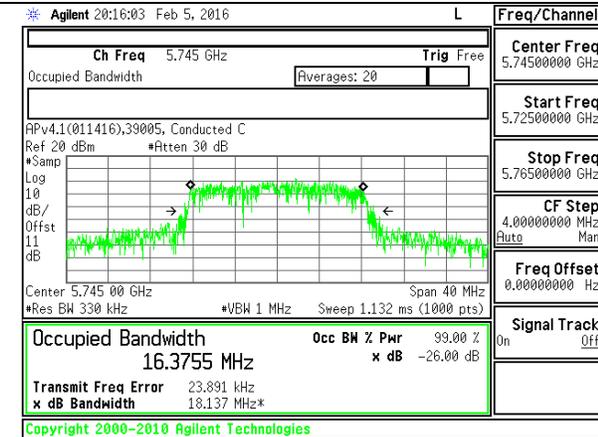
None; for reporting purposes only.

### **RESULTS**

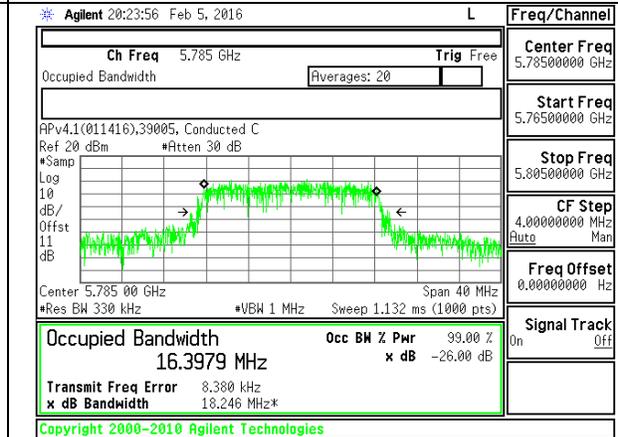
**802.11a MODE IN THE 5.8 GHz BAND TEST RESULT TABLE**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.38
Mid	5785	16.40
High	5825	16.32

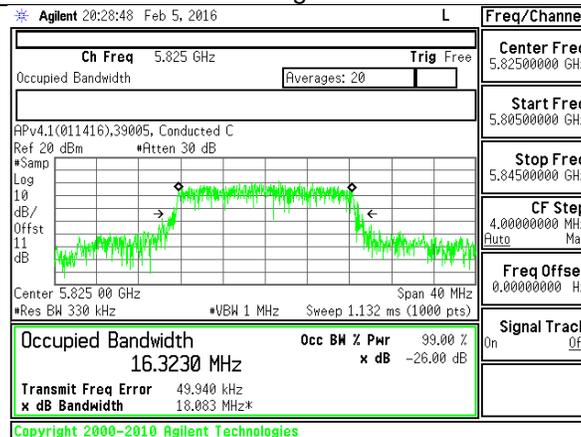
**11a 5.8 Low Channel**



**11a 5.8 Mid Channel**



**11a 5.8 High Channel**

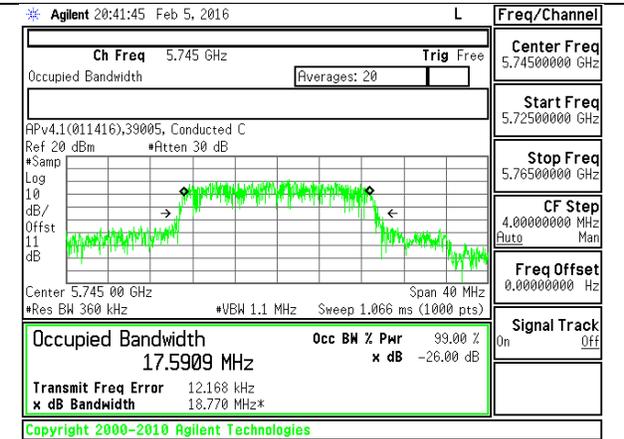


NOTE:

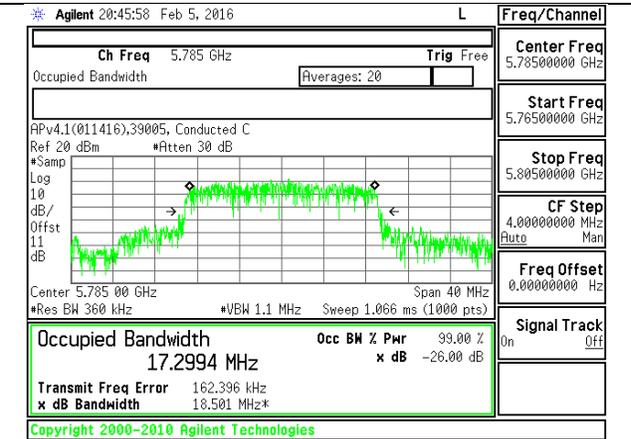
**802.11n HT20 MODE IN THE 5.8 GHz BAND TEST RESULT TABLE**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.59
Mid	5785	17.30
High	5825	17.53

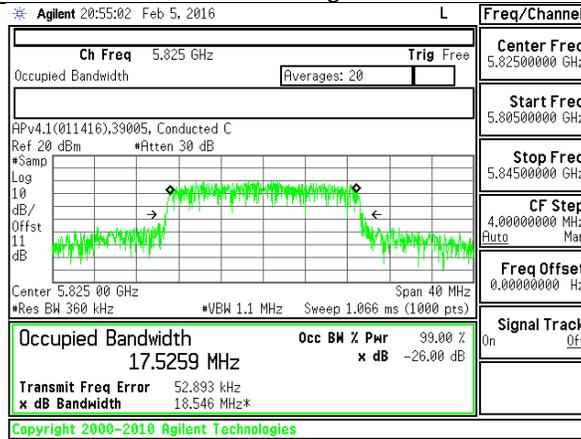
**11n HT20 5.8 Low Channel**



**11n HT20 5.8 Mid Channel**



**11n HT20 5.8 High Channel**



NOTE:

**802.11n HT40 MODE IN THE 5.8 GHz BAND TEST RESULT TABLE**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	35.40
High	5795	35.71

11n HT40 5.8 Low Channel		11n HT40 5.8 Mid Channel	
<p>* Agilent 20:50:59 Feb 5, 2016 L</p> <p>Ch Freq 5.755 GHz Trig Free</p> <p>Occupied Bandwidth Averages: 20</p> <p>APv4.1(011416),39005, Conducted C</p> <p>Ref 20 dBm #Atten 30 dB</p> <p>Center 5.755 00 GHz Span 80 MHz</p> <p>#Res BW 750 kHz #VBW 2.2 MHz Sweep 1.066 ms (1000 pts)</p> <p>Occupied Bandwidth 35.3967 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 185.267 kHz</p> <p>x dB Bandwidth 39.954 MHz*</p> <p>Copyright 2000-2010 Agilent Technologies</p>		<p>* Agilent 21:05:12 Feb 5, 2016 L</p> <p>Ch Freq 5.795 GHz Trig Free</p> <p>Occupied Bandwidth Averages: 20</p> <p>APv4.1(011416),39005, Conducted C</p> <p>Ref 20 dBm #Atten 30 dB</p> <p>Center 5.795 00 GHz Span 80 MHz</p> <p>#Res BW 750 kHz #VBW 2.2 MHz Sweep 1.066 ms (1000 pts)</p> <p>Occupied Bandwidth 35.7136 MHz Occ BW % Pwr 99.00 % x dB -26.00 dB</p> <p>Transmit Freq Error 114.253 kHz</p> <p>x dB Bandwidth 40.495 MHz*</p> <p>Copyright 2000-2010 Agilent Technologies</p>	
<p>Freq/Channel</p> <p>Center Freq 5.75500000 GHz</p> <p>Start Freq 5.71500000 GHz</p> <p>Stop Freq 5.79500000 GHz</p> <p>CF Step 8.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>		<p>Freq/Channel</p> <p>Center Freq 5.79500000 GHz</p> <p>Start Freq 5.75500000 GHz</p> <p>Stop Freq 5.83500000 GHz</p> <p>CF Step 8.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p>	

NOTE:

## **10.3. OUTPUT POWER**

### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density 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**

### 10.3.1.802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Power (dBm)
Low	5745	10.3
Mid	5785	10.1
High	5825	10.0

### 10.3.2.802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Power (dBm)
Low	5745	10.3
Mid	5785	10.0
High	5825	9.8

### 10.3.3.802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	Power (dBm)
Low	5755	10.6
High	5795	10.4

**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.

## **10.1. MAXIMUM POWER SPECTRAL DENSITY (PSD)**

### **LIMITS**

FCC §15.407 (a) (3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density 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**

**10.1.1. 802.11a MODE IN THE 5.8 GHz BAND**

**Antenna Gain and Limits**

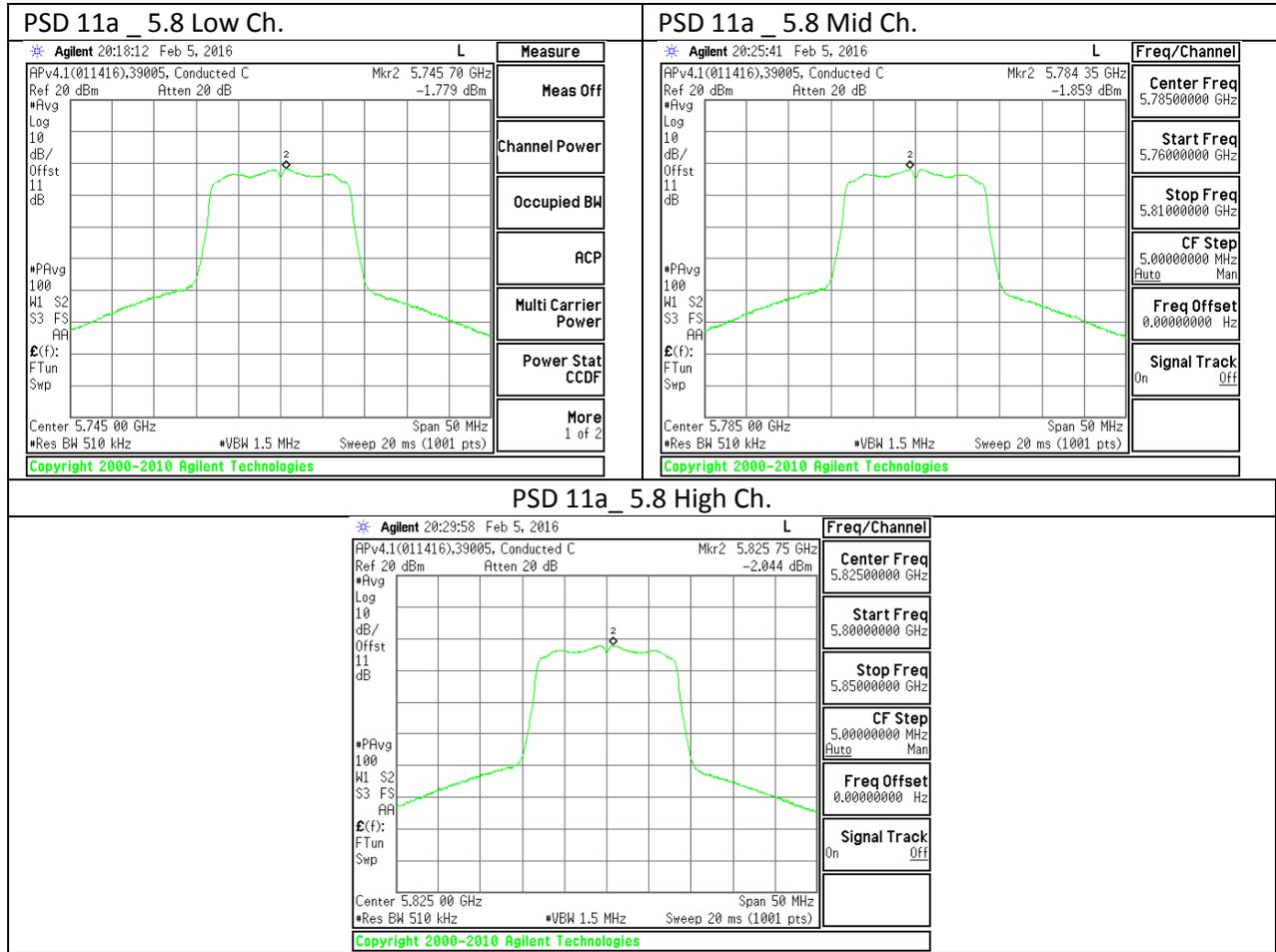
Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5745	-4.27	30.00
Mid	5785	-4.27	30.00
High	5825	-4.27	30.00

<b>Duty Cycle CF (dB)</b>	0.20	<b>Included in Calculations of Corr'd PSD</b>
---------------------------	------	---

**PSD Results**

Channel	Frequency (MHz)	Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	-1.78	-1.58	30.00	-31.58
Mid	5785	-1.86	-1.66	30.00	-31.66
High	5825	-2.04	-1.84	30.00	-31.84

**PSD PLOT**



**10.1.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND**

**Antenna Gain and Limits**

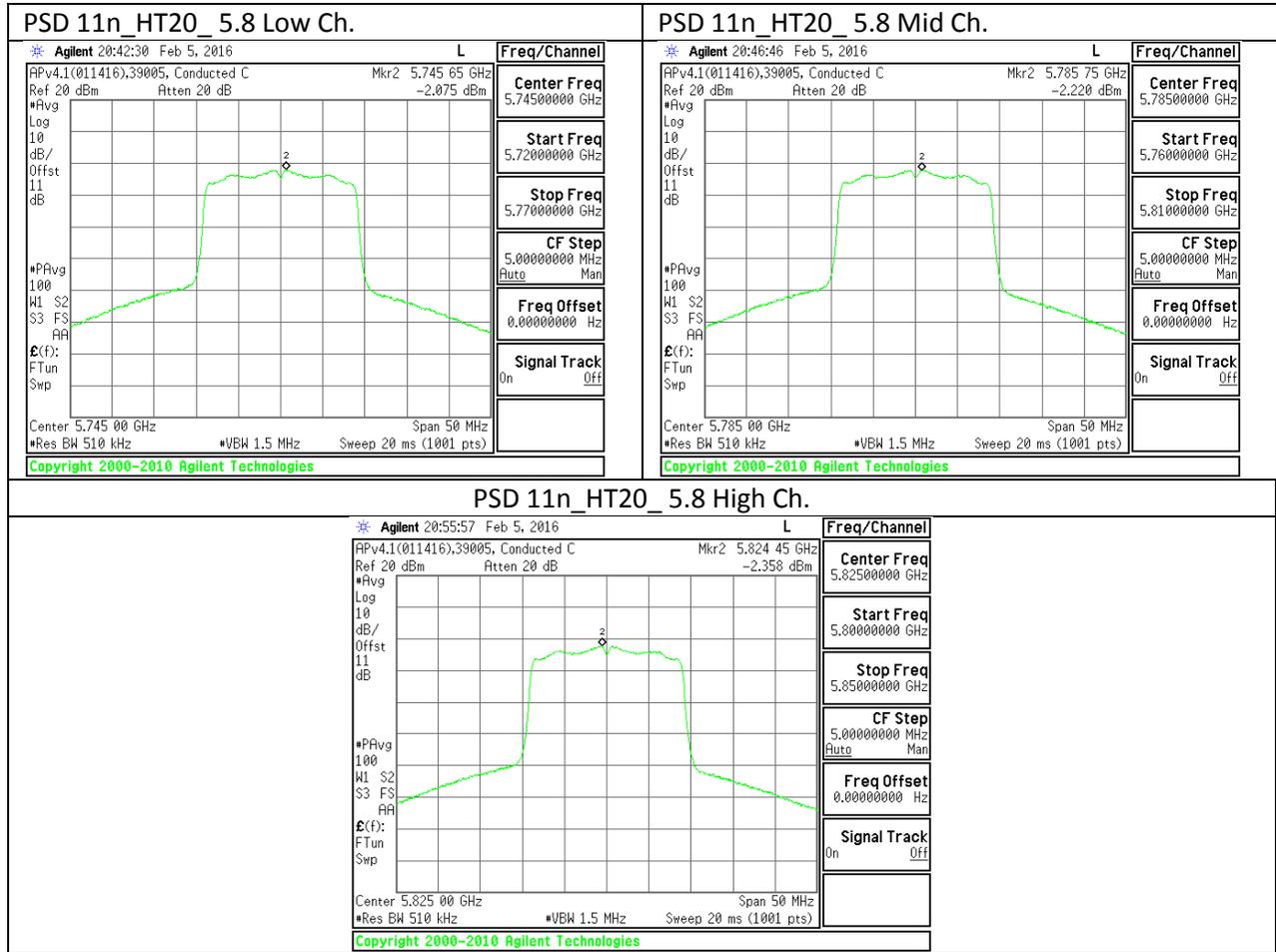
Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5745	-4.27	30.00
Mid	5785	-4.27	30.00
High	5825	-4.27	30.00

<b>Duty Cycle CF (dB)</b>	0.21	<b>Included in Calculations of Corr'd PSD</b>
---------------------------	------	---

**PSD Results**

Channel	Frequency (MHz)	Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5745	-2.08	-1.87	30.00	-31.87
Mid	5785	-2.22	-2.01	30.00	-32.01
High	5825	-2.36	-2.15	30.00	-32.15

**PSD PLOT**



**10.1.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

**Antenna Gain and Limits**

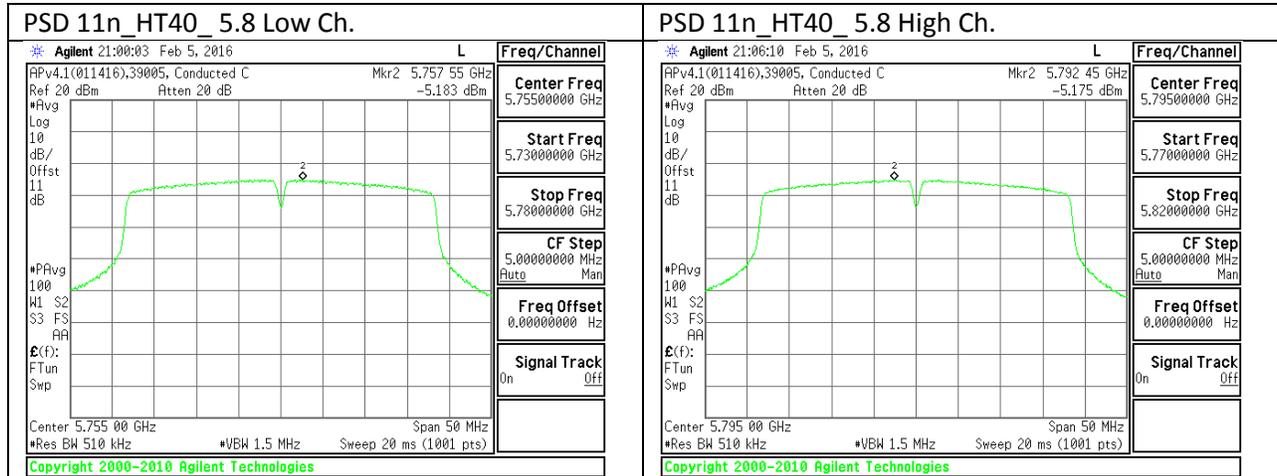
Channel	Frequency (MHz)	Directional Gain (dBi)	PSD Limit (dBm)
Low	5755	-4.27	30.00
High	5795	-4.27	30.00

<b>Duty Cycle CF (dB)</b>	0.43	<b>Included in Calculations of Corr'd PSD</b>
---------------------------	------	---

**PSD Results**

Channel	Frequency (MHz)	Meas PSD (dBm)	Total Corr'd PSD (dBm)	PSD Limit (dBm)	PSD Margin (dB)
Low	5755	-5.18	-4.75	30.00	-34.75
High	5795	-5.18	-4.75	30.00	-34.75

**PSD PLOT**



## 11. TRANSMITTER ABOVE 1 GHz

### LIMITS

FCC §15.205 and §15.209

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

### TEST PROCEDURE

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

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

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor to the reading offset for average measurements.

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.

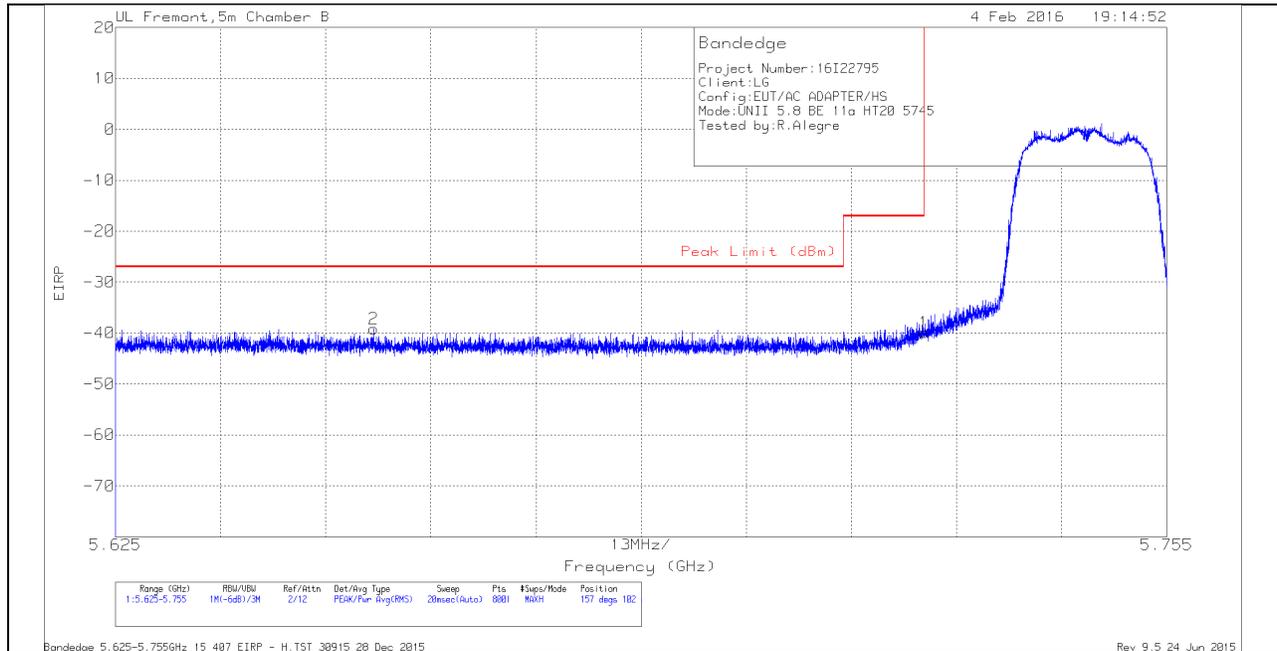
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

## 11.1. 5.8 GHz

### 11.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.8 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL)

##### HORIZONTAL PEAK PLOT



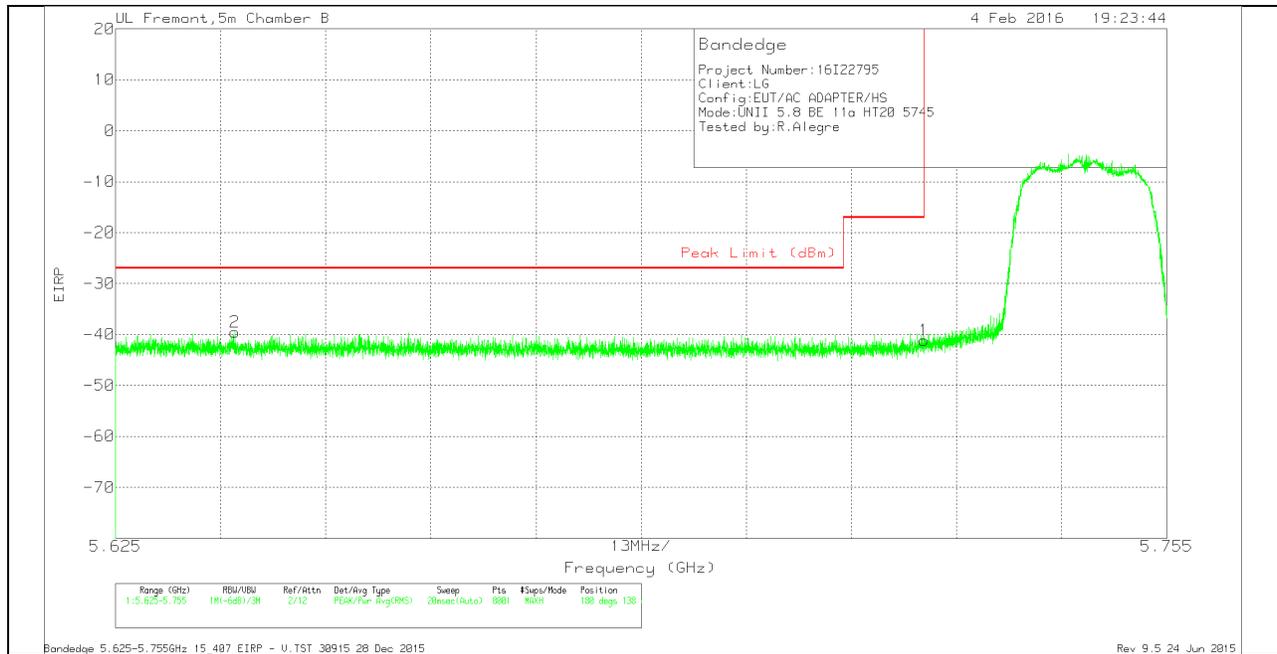
##### HORIZONTAL DATA

###### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.657	-65.01	Pk	34.9	-20.9	11.8	0	-39.21	-27	-12.21	157	102	H
1	5.725	-65.85	Pk	35	-20.8	11.8	0	-39.85	-17	-22.85	157	102	H

Pk - Peak detector

**VERTICAL PEAK PLOT**



**VERTICAL DATA**

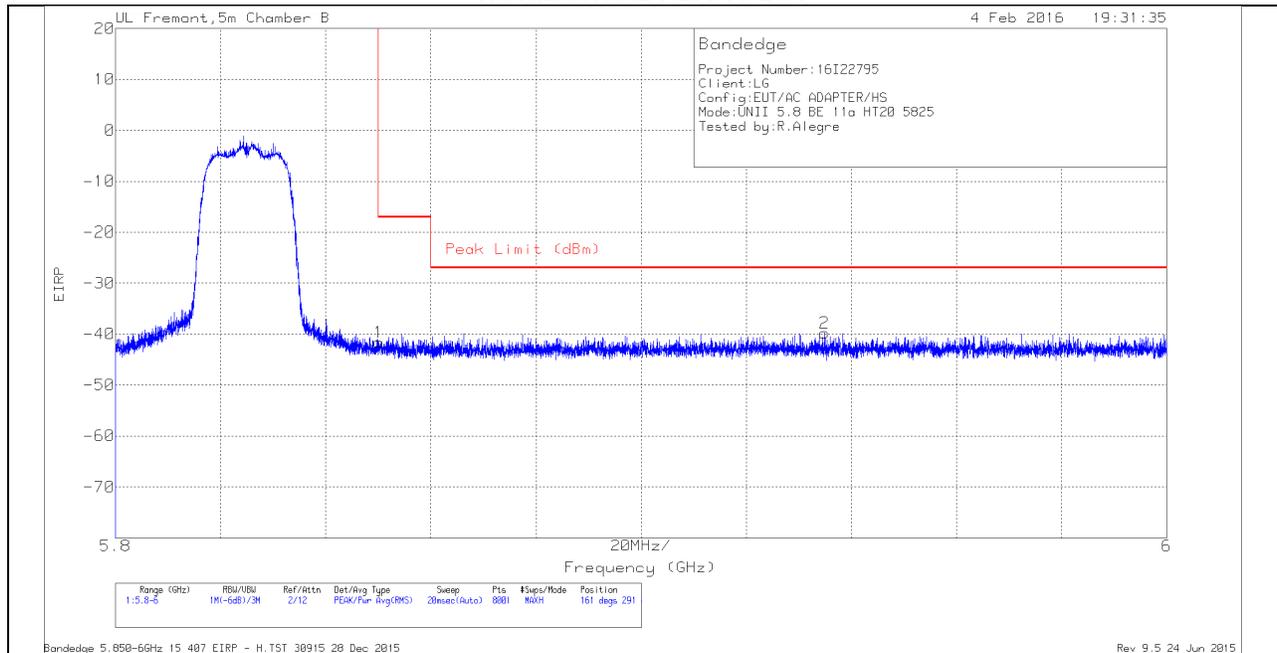
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.64	-65.48	Pk	34.8	-20.6	11.8	0	-39.48	-27	-12.48	180	138	V
1	5.725	-67.16	Pk	35	-20.8	11.8	0	-41.16	-17	-24.16	180	138	V

Pk - Peak detector

### RESTRICTED BANDEDGE (HIGH CHANNEL)

#### HORIZONTAL PEAK PLOT



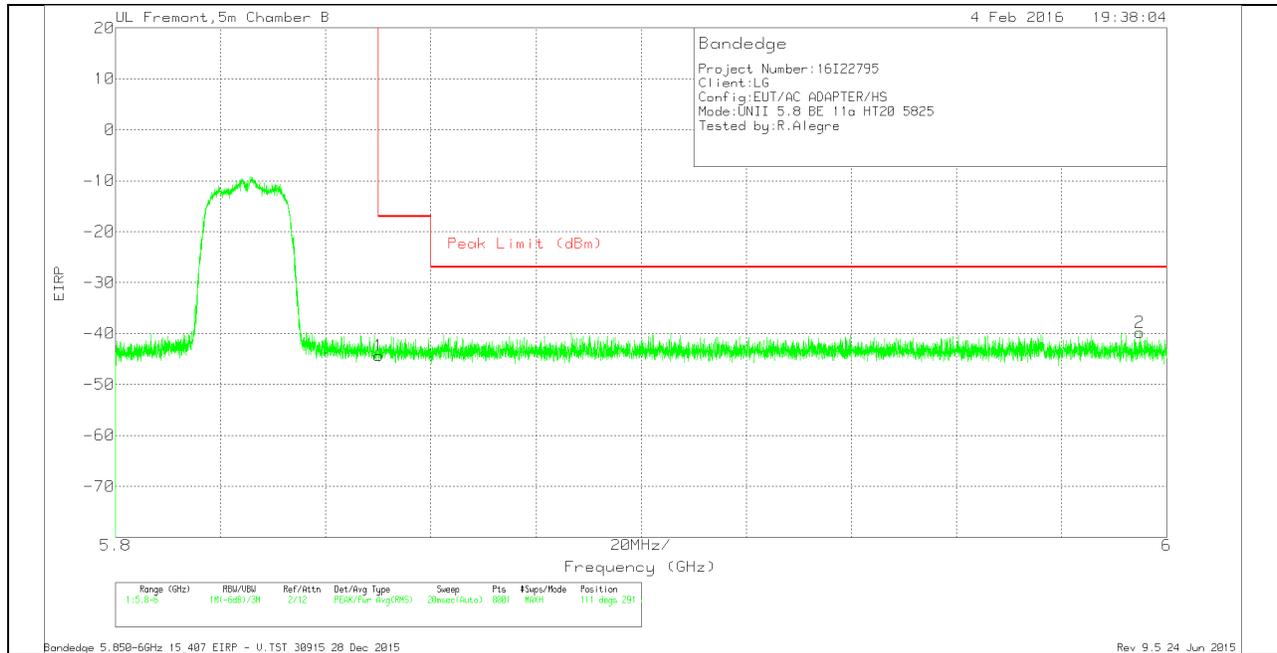
#### HORIZONTAL DATA

##### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP (dBm)	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-67.95	Pk	35.4	-20.9	11.8	0	-41.65	-17	-24.65	161	291	H
2	5.935	-66.19	Pk	35.6	-21	11.8	0	-39.79	-27	-12.79	161	291	H

Pk - Peak detector

**VERTICAL PEAK PLOT**



**VERTICAL DATA**

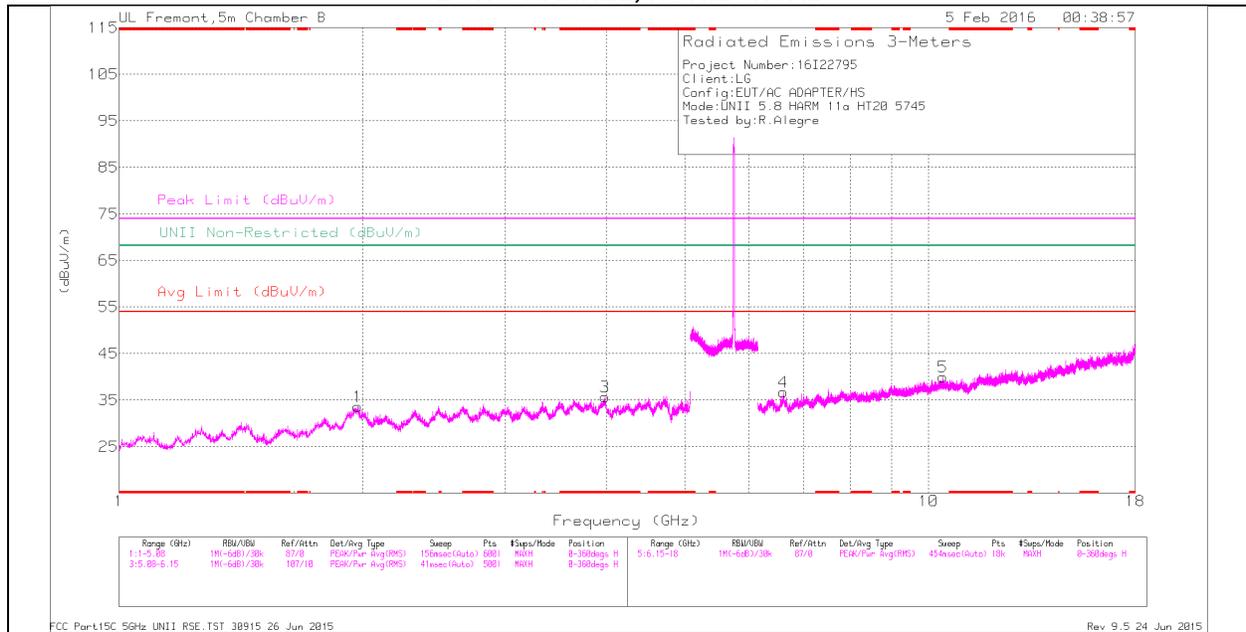
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.63	Pk	35.4	-20.9	11.8	0	-44.33	-17	-27.33	111	291	V
2	5.995	-66.39	Pk	35.7	-20.9	11.8	0	-39.79	-27	-12.79	111	291	V

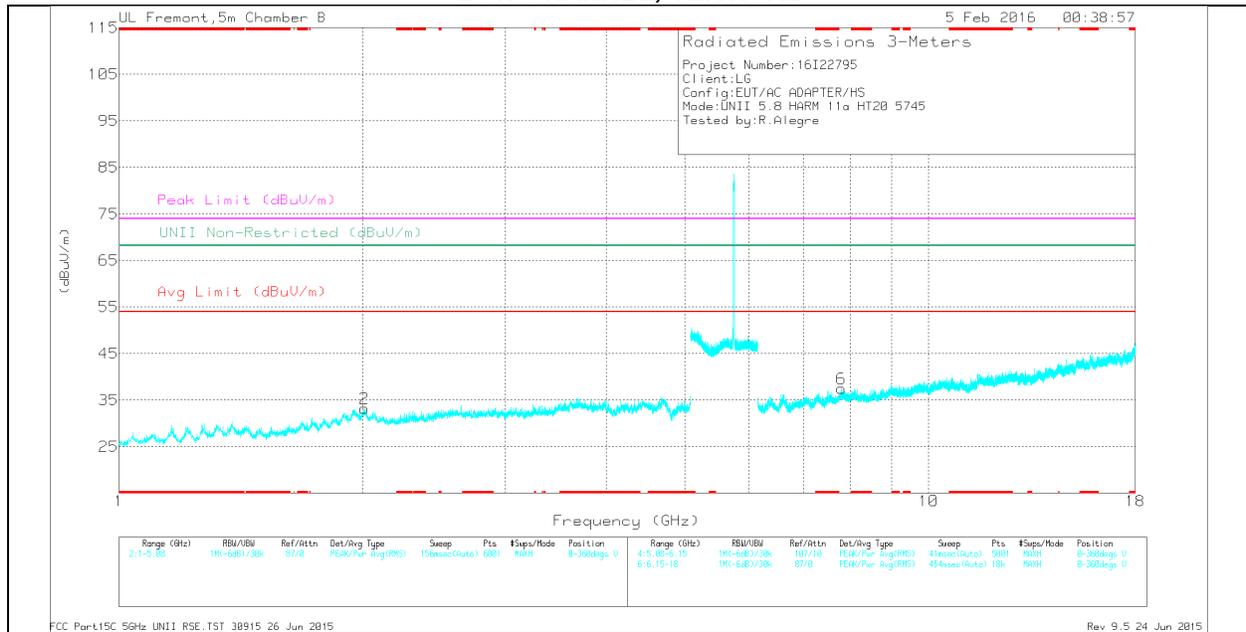
Pk - Peak detector

## HARMONICS AND SPURIOUS EMISSIONS

### LOW CHANNEL, HORIZONTAL



### 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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 3.981	34.03	Pk	33.4	-31.7	0	35.73	-	-	74	-38.27	-	-	0-360	199	H
1	1.973	34.97	Pk	32.2	-33.6	0	33.57	-	-	-	-	68.2	-34.63	0-360	199	H
2	2.009	35.05	Pk	32.3	-34.1	0	33.25	-	-	-	-	68.2	-34.95	0-360	101	V
4	6.615	30.53	Pk	36	-29.8	0	36.73	-	-	-	-	68.2	-31.47	0-360	199	H
6	7.806	30.58	Pk	35.5	-28.5	0	37.58	-	-	-	-	68.2	-30.62	0-360	101	V
5	10.423	28.01	Pk	37.4	-25.4	0	40.01	-	-	-	-	68.2	-28.19	0-360	199	H

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

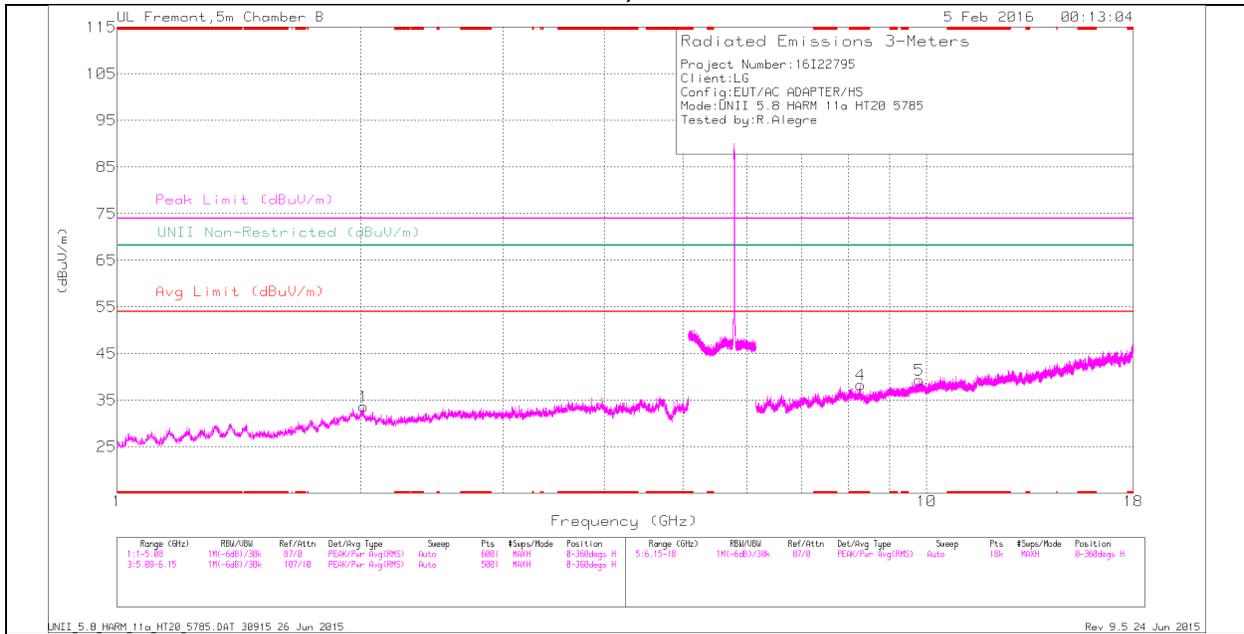
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.982	42.18	PK-U	33.4	-31.7	0	43.88	-	-	74	-30.12	-	-	260	198	H
* 3.982	30.62	ADR	33.4	-31.7	0.2	32.52	54	-21.48	-	-	-	-	260	198	H
1.973	41.93	PK-U	32.2	-33.6	0	40.53	-	-	-	-	68.2	-27.67	250	198	H
2.009	43.46	PK-U	32.3	-34.1	0	41.66	-	-	-	-	68.2	-26.54	300	178	V
6.616	38.93	PK-U	36	-29.8	0	45.13	-	-	-	-	68.2	-23.07	305	191	H
7.806	38.96	PK-U	35.5	-28.5	0	45.96	-	-	-	-	68.2	-22.24	340	159	V
10.422	35.79	PK-U	37.4	-25.4	0	47.79	-	-	-	-	68.2	-20.41	289	193	H

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

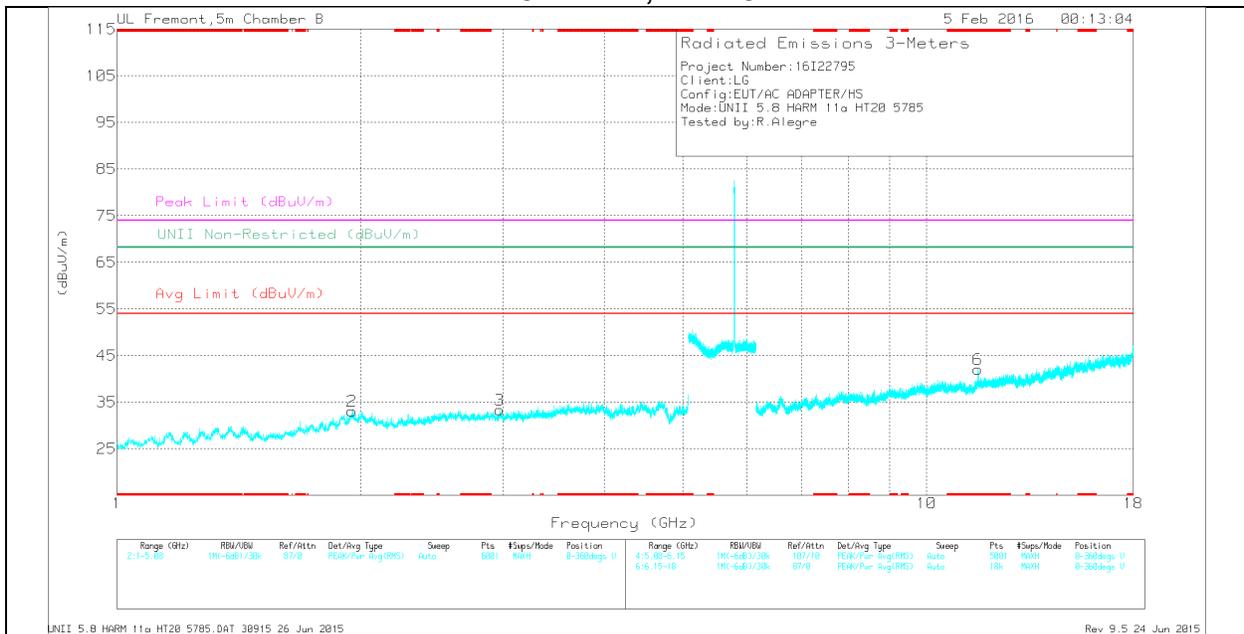
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

**MID CHANNEL, HORIZONTAL**



**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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (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	* 8.284	30.7	Pk	35.7	-28.1	0	38.3	-	-	74	-35.7	-	-	0-360	101	H
6	* 11.566	28.23	Pk	38.4	-24.6	0	42.03	-	-	74	-31.97	-	-	0-360	101	V
2	1.95	34.81	Pk	32.1	-33.8	0	33.11	-	-	-	-	68.2	-35.09	0-360	199	V
1	2.015	35.33	Pk	32.3	-34	0	33.63	-	-	-	-	68.2	-34.57	0-360	199	H
3	2.971	34.35	Pk	32.6	-33.6	0	33.35	-	-	-	-	68.2	-34.85	0-360	102	V
5	9.797	28.48	Pk	37	-26.1	0	39.38	-	-	-	-	68.2	-28.82	0-360	101	H

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

PK - Peak detector

Radiated Emissions

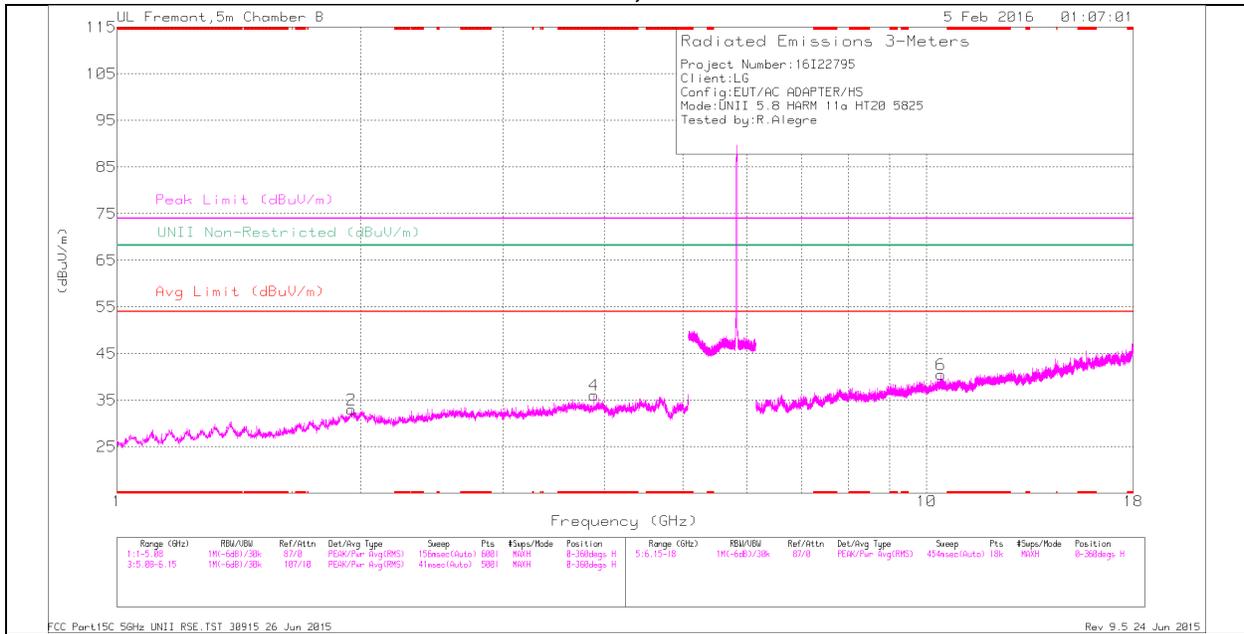
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 8.285	39.1	PK-U	35.7	-28.1	0	46.7	-	-	74	-27.3	-	-	248	206	H
* 8.285	26.17	ADR	35.7	-28.1	0.20	33.97	54	-20.03	-	-	-	-	248	206	H
* 11.566	35.29	PK-U	38.4	-24.6	0	49.09	-	-	74	-24.91	-	-	354	207	V
* 11.567	22.95	ADR	38.4	-24.6	0.20	36.95	54	-17.05	-	-	-	-	354	207	V
1.95	44.18	PK-U	32.1	-33.8	0	42.48	-	-	-	-	68.2	-25.72	310	201	V
2.015	43.2	PK-U	32.3	-34	0	41.5	-	-	-	-	68.2	-26.7	340	185	H
2.97	41.99	PK-U	32.6	-33.6	0	40.99	-	-	-	-	68.2	-27.21	260	161	V
9.797	36.87	PK-U	37	-26.1	0	47.77	-	-	-	-	68.2	-20.43	224	189	H

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

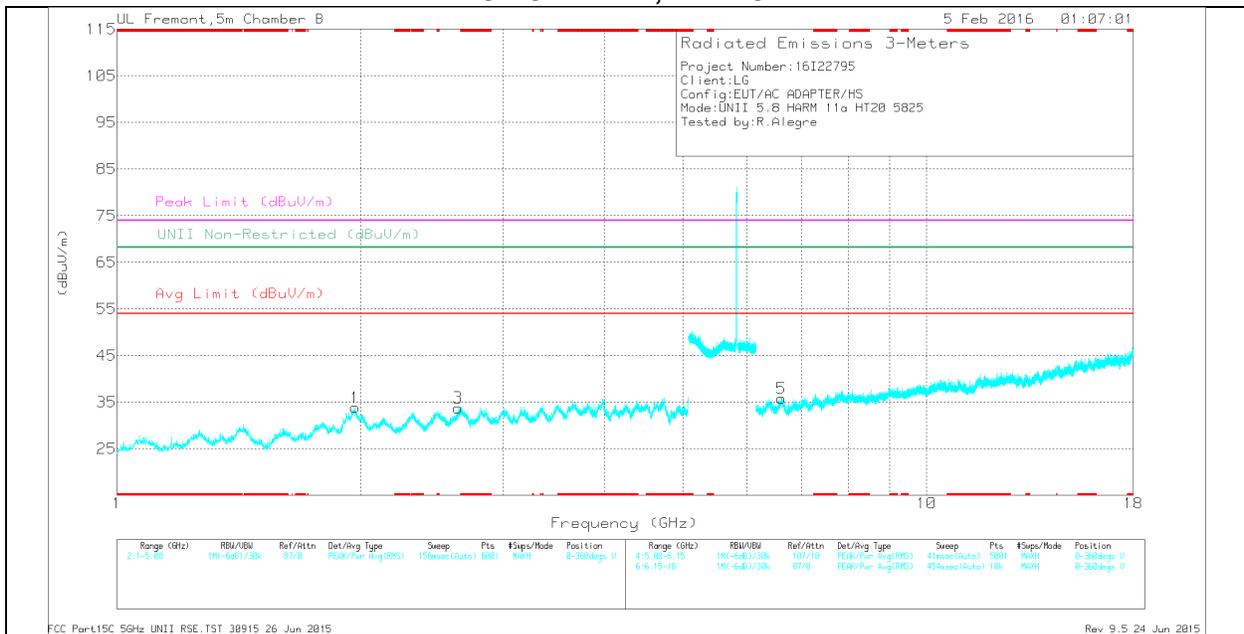
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

**HIGH CHANNEL, HORIZONTAL**



**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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (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	* 3.883	35.22	Pk	33.5	-32.6	0	36.12	-	-	74	-37.88	-	-	0-360	101	H
2	1.949	34.71	Pk	32.1	-33.8	0	33.01	-	-	-	-	68.2	-35.19	0-360	199	H
1	1.969	35.29	Pk	32.2	-33.6	0	33.89	-	-	-	-	68.2	-34.31	0-360	101	V
3	2.635	34.72	Pk	32.7	-33.6	0	33.82	-	-	-	-	68.2	-34.38	0-360	101	V
5	6.619	29.69	Pk	35.9	-29.7	0	35.89	-	-	-	-	68.2	-32.31	0-360	102	V
6	10.414	28.35	Pk	37.4	-25.3	0	40.45	-	-	-	-	68.2	-27.75	0-360	199	H

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (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	42.47	PK-U	33.5	-32.6	0	43.37	-	-	74	-30.63	-	-	341	183	H
* 3.884	30.66	ADR	33.5	-32.6	0.20	31.76	54	-22.24	-	-	-	-	341	183	H
1.949	44	PK-U	32.1	-33.8	0	42.3	-	-	-	-	68.2	-25.9	330	206	H
1.968	42.21	PK-U	32.2	-33.6	0	40.81	-	-	-	-	68.2	-27.39	289	173	V
2.635	42.01	PK-U	32.7	-33.6	0	41.11	-	-	-	-	68.2	-27.09	289	208	V
6.619	38.27	PK-U	35.9	-29.7	0	44.47	-	-	-	-	68.2	-23.73	334	190	V
10.414	35.26	PK-U	37.4	-25.3	0	47.36	-	-	-	-	68.2	-20.84	301	201	H

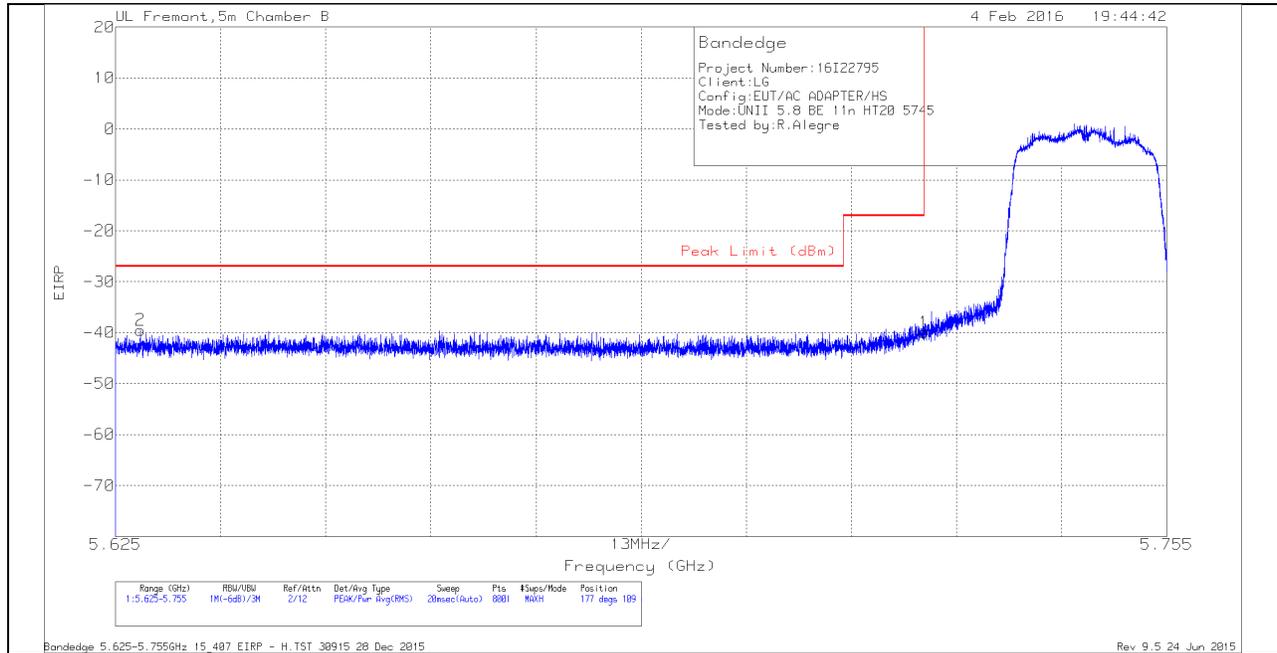
\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

**11.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND**  
**RESTRICTED BANDEDGE (LOW CHANNEL)**

**HORIZONTAL PEAK PLOT**



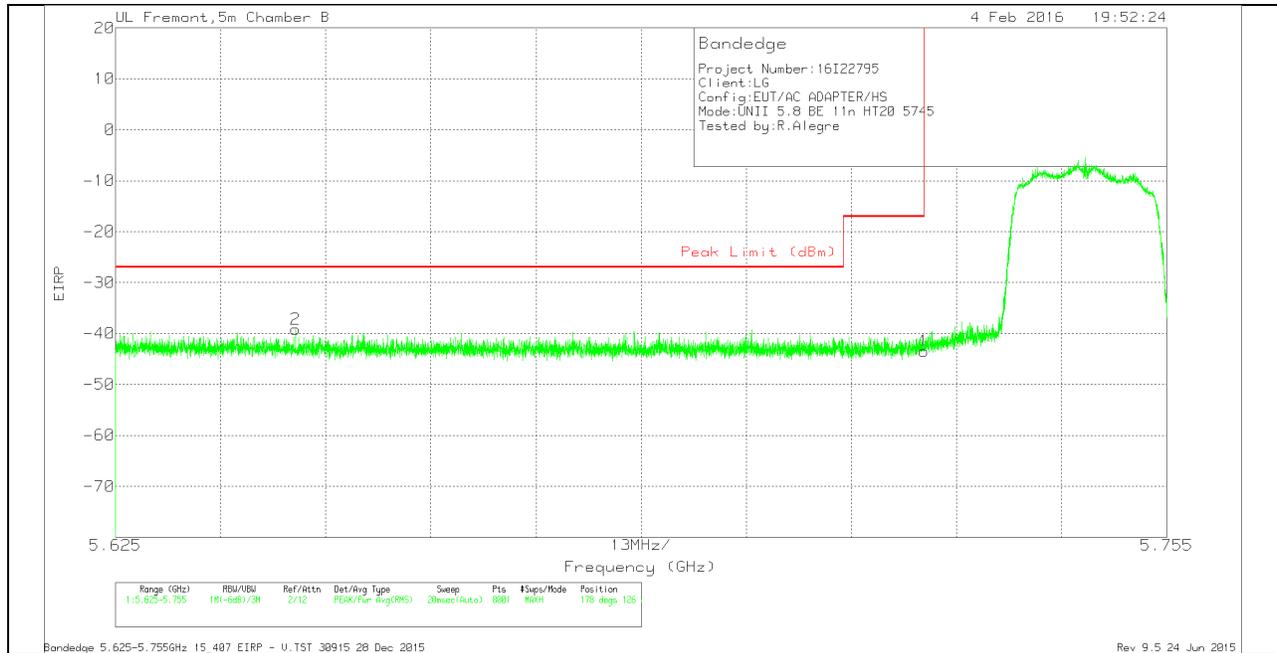
**HORIZONTAL DATA**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.628	-65.47	Pk	34.8	-20.6	11.8	-39.47	-27	-12.47	177	109	H
1	5.725	-65.88	Pk	35	-20.8	11.8	-39.88	-17	-22.88	177	109	H

Pk - Peak detector

**VERTICAL PEAK PLOT**



**VERTICAL DATA**

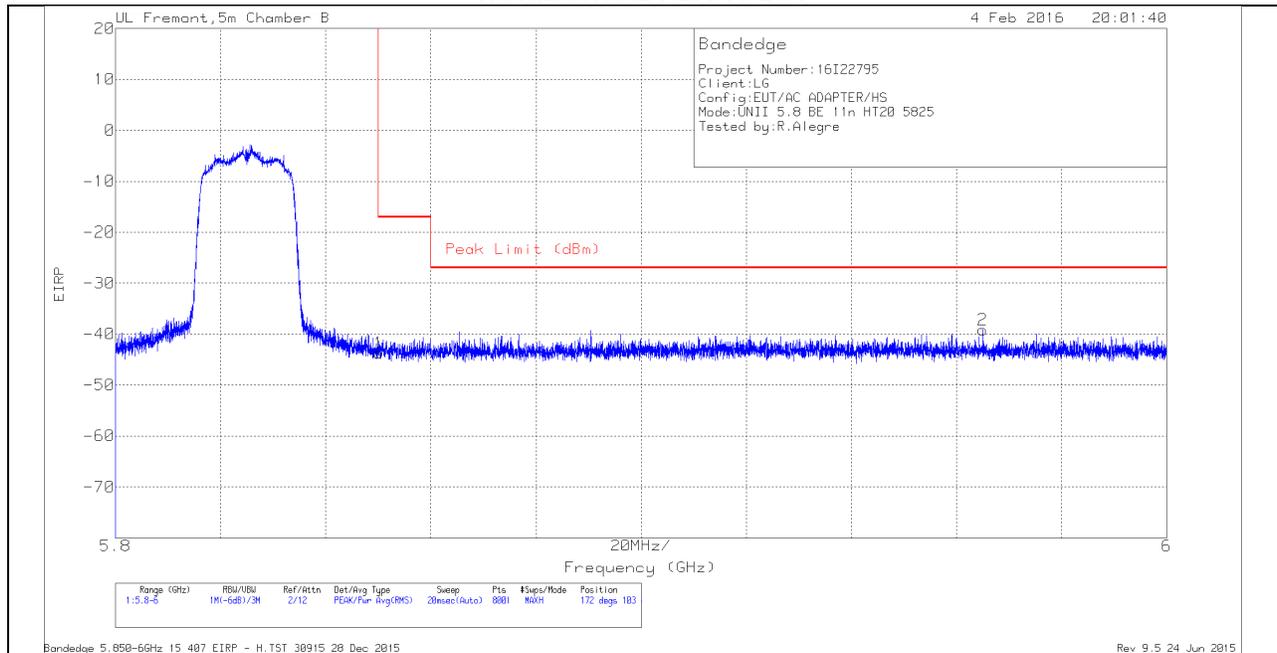
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cb/ Fitr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.647	-64.9	Pk	34.8	-20.9	11.8	0	-39.2	-27	-12.2	178	126	V
1	5.725	-69.51	Pk	35	-20.8	11.8	0	-43.51	-17	-26.51	178	126	V

Pk - Peak detector

### RESTRICTED BANDEDGE (HIGH CHANNEL)

#### HORIZONTAL PEAK PLOT



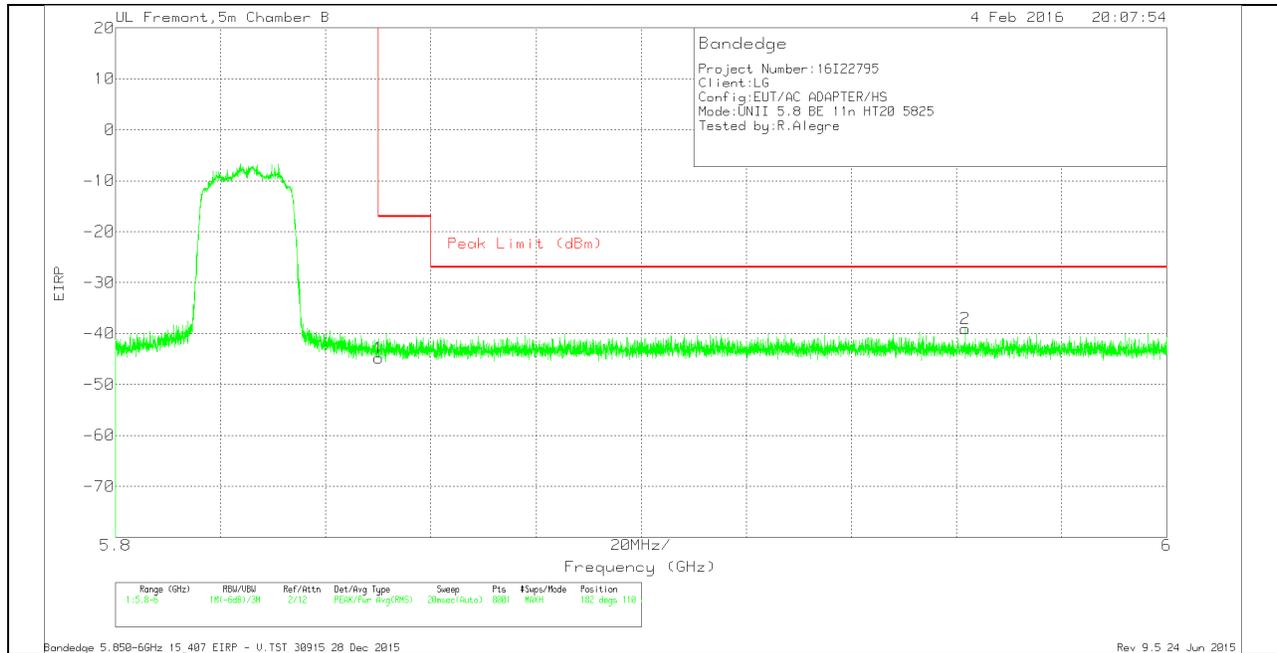
#### HORIZONTAL DATA

##### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-70.01	Pk	35.4	-20.9	11.8	0	-43.71	-17	-26.71	172	103	H
2	5.965	-65.73	Pk	35.6	-20.8	11.8	0	-39.13	-27	-12.13	172	103	H

Pk - Peak detector

**VERTICAL PEAK PLOT**



**VERTICAL DATA**

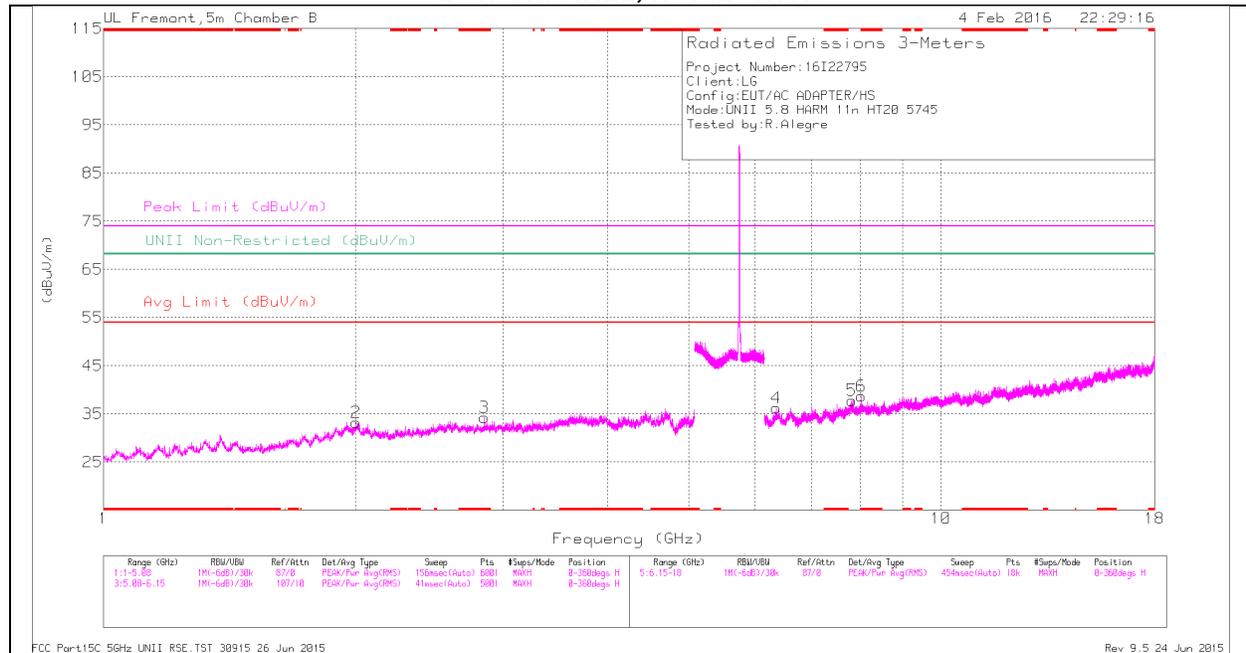
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-71.1	Pk	35.4	-20.9	11.8	0	-44.8	-17	-27.8	182	110	V
2	5.962	-65.58	Pk	35.6	-20.9	11.8	0	-39.08	-27	-12.08	182	110	V

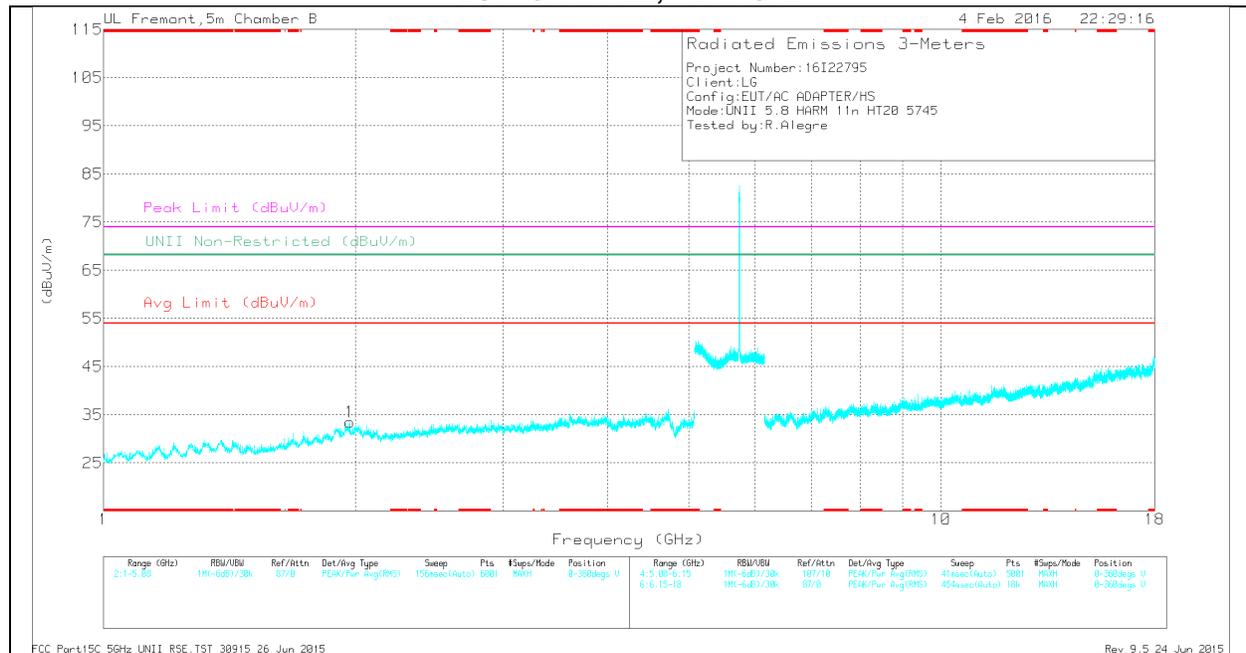
Pk - Peak detector

## HARMONICS AND SPURIOUS EMISSIONS

### LOW CHANNEL, HORIZONTAL



### 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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 2.85	35.35	Pk	32.6	-33.7	0	34.25	-	-	74	-39.75	-	-	0-360	200	H
6	* 8.038	31.55	Pk	35.6	-28.5	0	38.65	-	-	74	-35.35	-	-	0-360	102	H
1	1.968	34.88	Pk	32.2	-33.6	0	33.48	-	-	-	-	68.2	-34.72	0-360	200	V
2	2.003	35.02	Pk	32.3	-34.1	0	33.22	-	-	-	-	68.2	-34.98	0-360	102	H
4	6.354	31.08	Pk	35.6	-30.4	0	36.28	-	-	-	-	68.2	-31.92	0-360	102	H
5	7.833	31.04	Pk	35.5	-28.7	0	37.84	-	-	-	-	68.2	-30.36	0-360	199	H

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

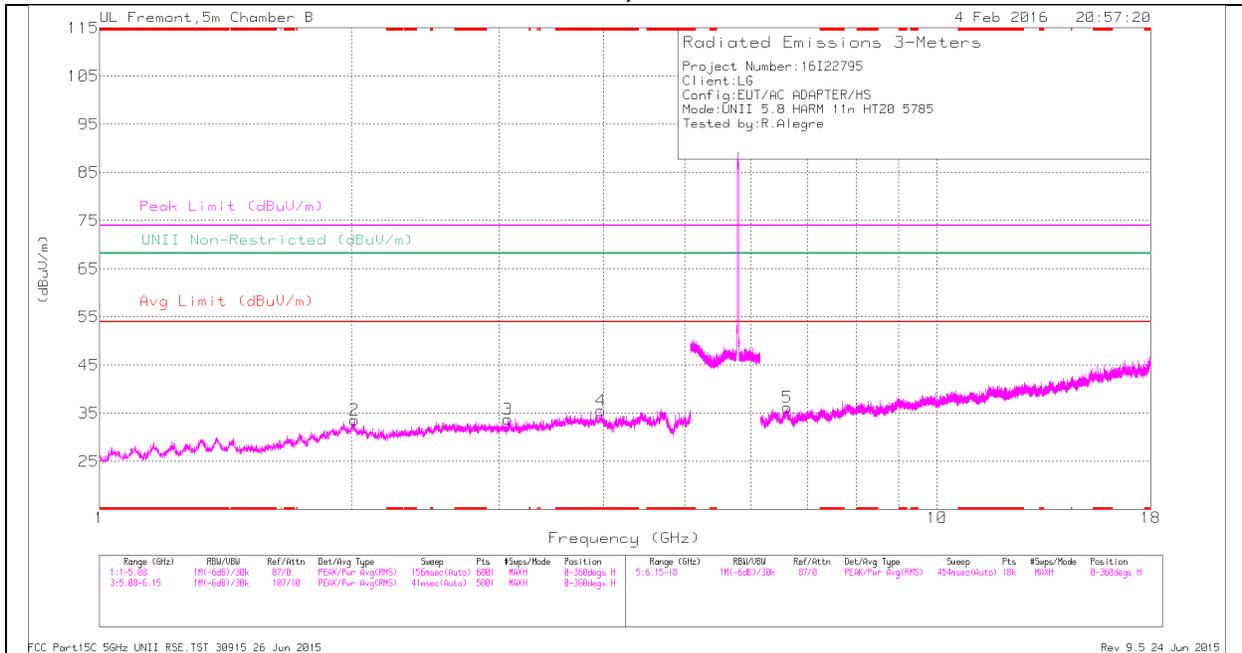
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.85	42.53	PK-U	32.6	-33.6	0	41.53	-	-	74	-32.47	-	-	121	205	H
* 2.849	30.11	ADR	32.6	-33.7	0.21	29.22	54	-24.78	-	-	-	-	121	205	H
* 8.038	38.24	PK-U	35.6	-28.4	0	45.44	-	-	74	-28.56	-	-	56	236	H
* 8.037	26.76	ADR	35.6	-28.5	.21	34.07	54	-19.93	-	-	-	-	56	236	H
1.968	42.66	PK-U	32.2	-33.6	0	41.26	-	-	-	-	68.2	-26.94	37	191	V
2.004	43.18	PK-U	32.3	-34.1	0	41.38	-	-	-	-	68.2	-26.82	2	199	H
6.353	39.38	PK-U	35.6	-30.5	0	44.48	-	-	-	-	68.2	-23.72	45	207	H
7.832	38.1	PK-U	35.5	-28.7	0	44.9	-	-	-	-	68.2	-23.3	32	250	H

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

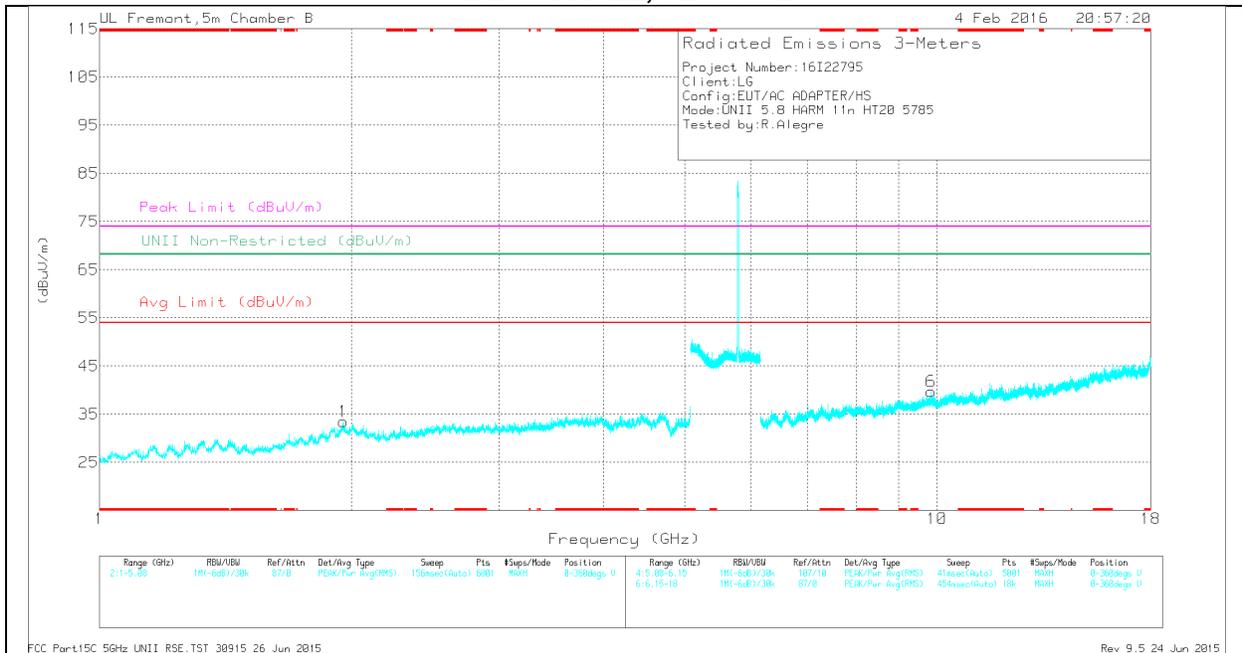
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

**MID CHANNEL, HORIZONTAL**



**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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.973	33.86	Pk	33.4	-31.7	0	35.56	-	-	74	-38.44	-	-	0-360	102	H
1	1.953	35.2	Pk	32.1	-33.8	0	33.5	-	-	-	-	68.2	-34.7	0-360	102	V
2	2.015	35.33	Pk	32.3	-34	0	33.63	-	-	-	-	68.2	-34.57	0-360	199	H
3	3.075	34.51	Pk	32.7	-33.5	0	33.71	-	-	-	-	68.2	-34.49	0-360	102	H
5	6.626	29.89	Pk	35.9	-29.6	0	36.19	-	-	-	-	68.2	-32.01	0-360	101	H
6	9.836	28.96	Pk	37	-26.2	0	39.76	-	-	-	-	68.2	-28.44	0-360	101	V

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

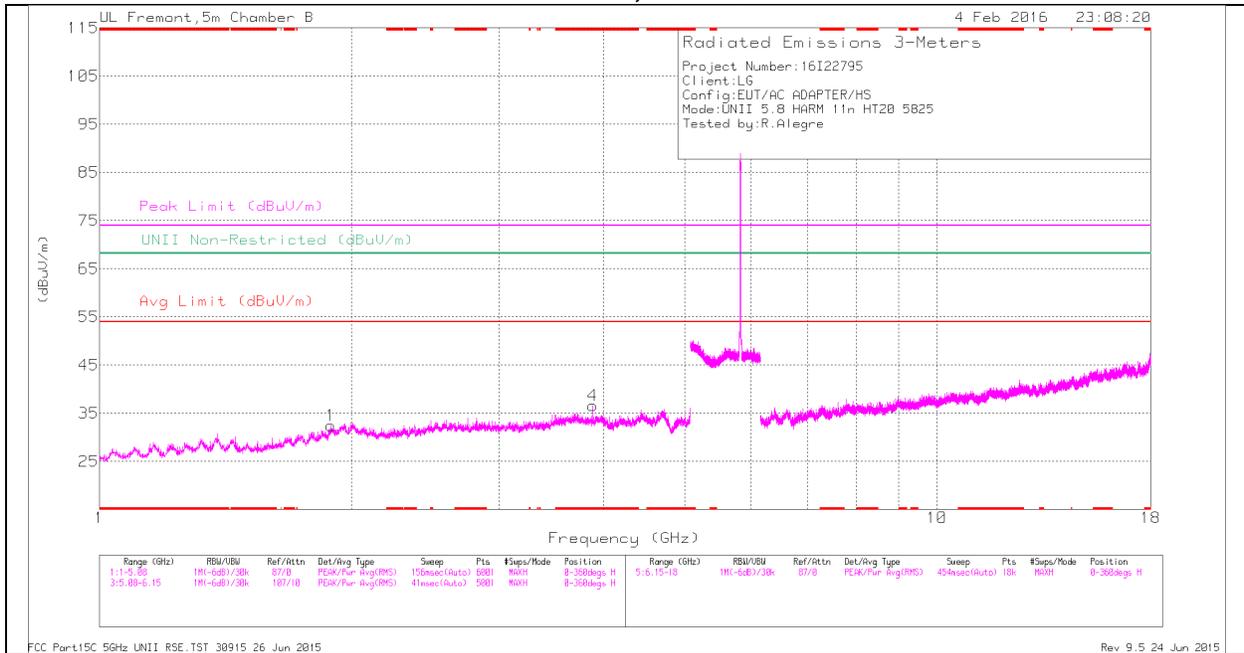
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.973	42.13	PK-U	33.4	-31.7	0	43.83	-	-	74	-30.17	-	-	95	184	H
* 3.974	30.55	ADR	33.4	-31.7	0.21	32.46	54	-21.54	-	-	-	-	95	184	H
1.954	42.93	PK-U	32.1	-33.8	0	41.23	-	-	-	-	68.2	-26.97	102	203	V
2.015	42.38	PK-U	32.3	-34	0	40.68	-	-	-	-	68.2	-27.52	20	198	H
3.074	42.1	PK-U	32.7	-33.5	0	41.3	-	-	-	-	68.2	-26.9	100	203	H
6.626	38.25	PK-U	35.9	-29.6	0	44.55	-	-	-	-	68.2	-23.65	102	201	H
9.836	36.09	PK-U	37	-26.2	0	46.89	-	-	-	-	68.2	-21.31	120	188	V

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

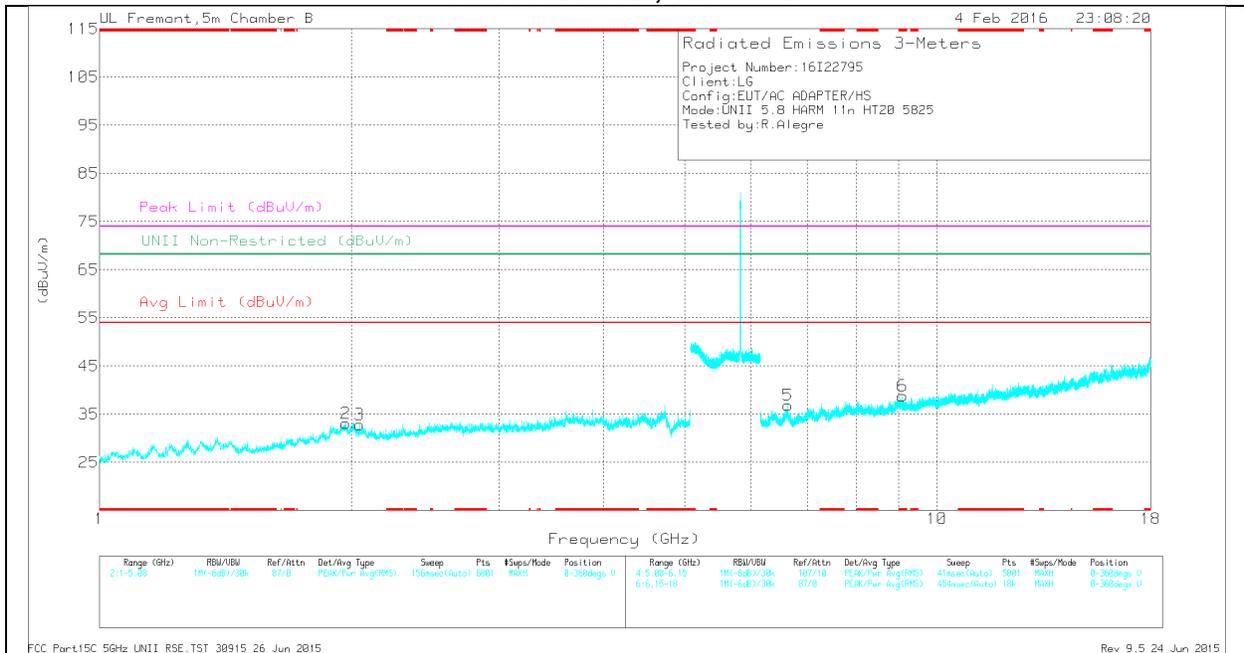
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

**HIGH CHANNEL, HORIZONTAL**



**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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.883	35.77	Pk	33.5	-32.6	0	36.67	-	-	74	-37.33	-	-	0-360	101	H
6	* 9.1	30.07	Pk	36.1	-27.4	0	38.77	-	-	74	-35.23	-	-	0-360	101	V
1	1.89	35.24	Pk	31.7	-34.5	0	32.44	-	-	-	-	68.2	-35.76	0-360	199	H
2	1.967	34.45	Pk	32.2	-33.6	0	33.05	-	-	-	-	68.2	-35.15	0-360	199	V
3	2.043	35.03	Pk	32.1	-34.3	0	32.83	-	-	-	-	68.2	-35.37	0-360	101	V
5	6.633	30.54	Pk	35.9	-29.6	0	36.84	-	-	-	-	68.2	-31.36	0-360	101	V

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.884	43.12	PK-U	33.5	-32.6	0	44.02	-	-	74	-29.98	-	-	172	139	H
* 3.883	33.03	ADR	33.5	-32.6	0.21	34.14	54	-19.86	-	-	-	-	172	139	H
* 9.1	37.68	PK-U	36.1	-27.4	0	46.38	-	-	74	-27.62	-	-	285	192	V
* 9.1	25.88	ADR	36.1	-27.4	0.21	34.79	54	-19.21	-	-	-	-	285	192	V
1.891	43.7	PK-U	31.7	-34.5	0	40.9	-	-	-	-	68.2	-27.3	203	229	H
1.968	41.94	PK-U	32.2	-33.6	0	40.54	-	-	-	-	68.2	-27.66	345	177	V
2.043	42.27	PK-U	32.1	-34.3	0	40.07	-	-	-	-	68.2	-28.13	321	161	V
6.633	37.43	PK-U	35.9	-29.6	0	43.73	-	-	-	-	68.2	-24.47	300	185	V

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

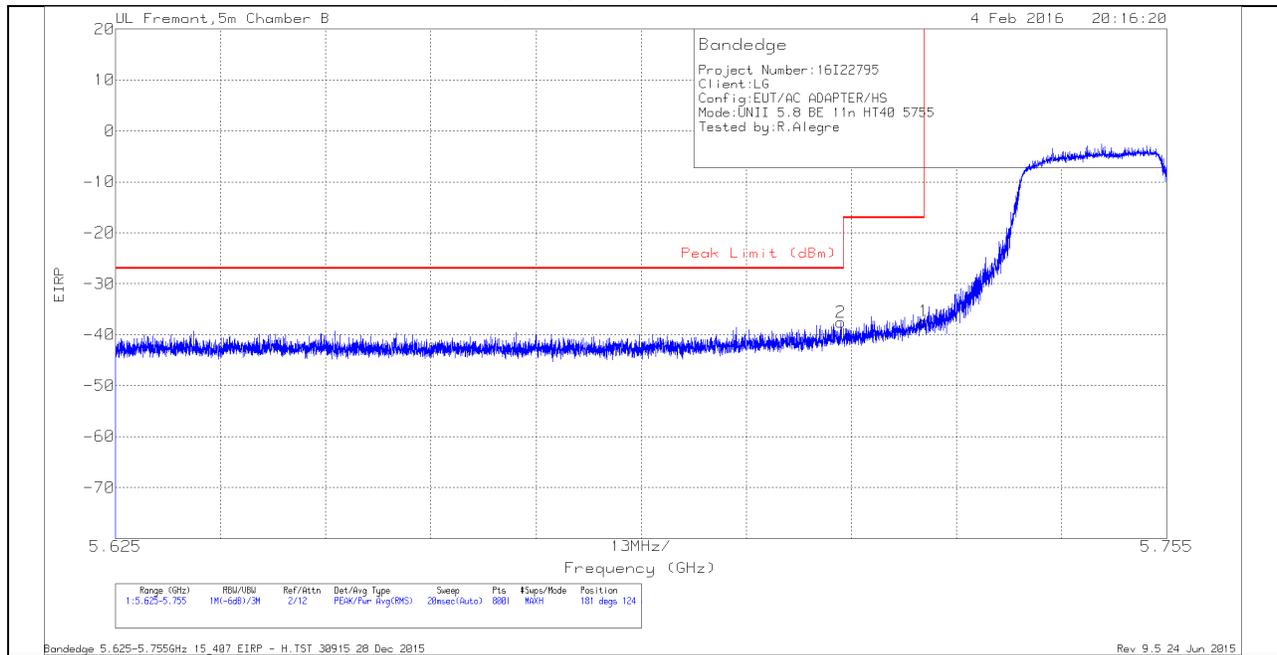
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### 11.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.8 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL)

#### HORIZONTAL PEAK PLOT



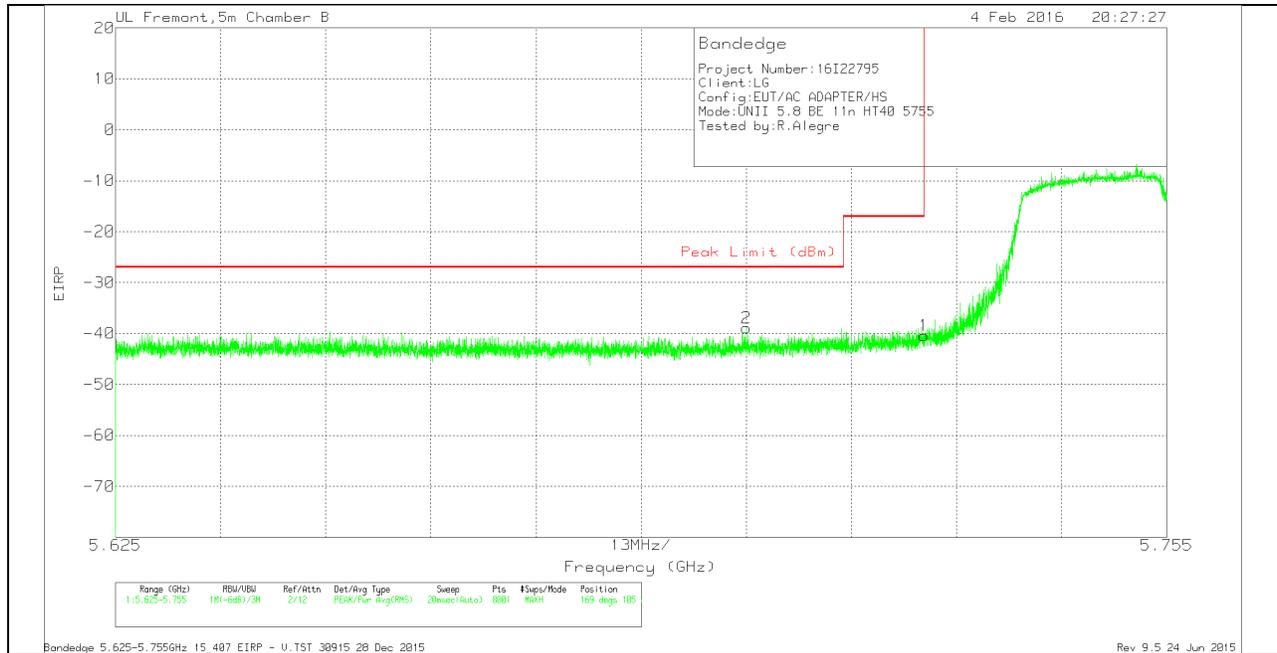
#### HORIZONTAL DATA

#### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.715	-63.49	Pk	35	-20.9	11.8	0	-37.59	-27	-10.59	181	124	H
1	5.725	-63.38	Pk	35	-20.8	11.8	0	-37.38	-17	-20.38	181	124	H

Pk - Peak detector

**VERTICAL PEAK PLOT**



**VERTICAL DATA**

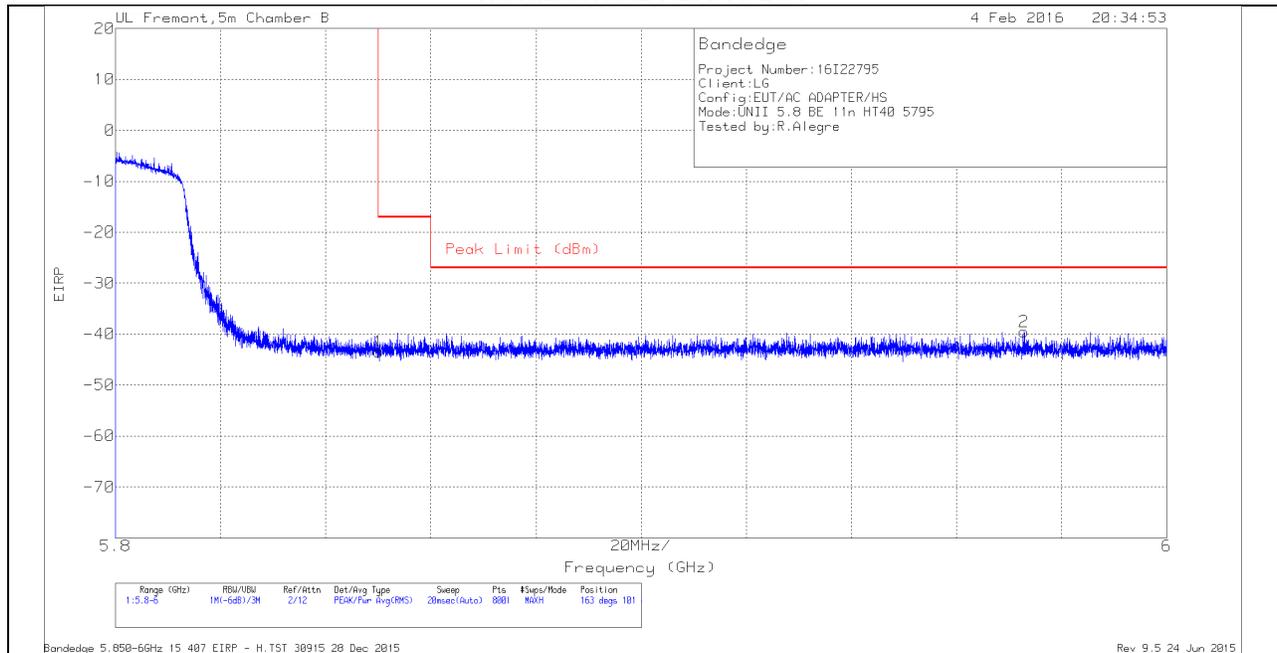
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cb/ Fitr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.703	-64.95	Pk	35	-20.8	11.8	0	-38.95	-27	-11.95	169	105	V
1	5.725	-66.42	Pk	35	-20.8	11.8	0	-40.42	-17	-23.42	169	105	V

Pk - Peak detector

### RESTRICTED BANDEDGE (HIGH CHANNEL)

#### HORIZONTAL PEAK PLOT



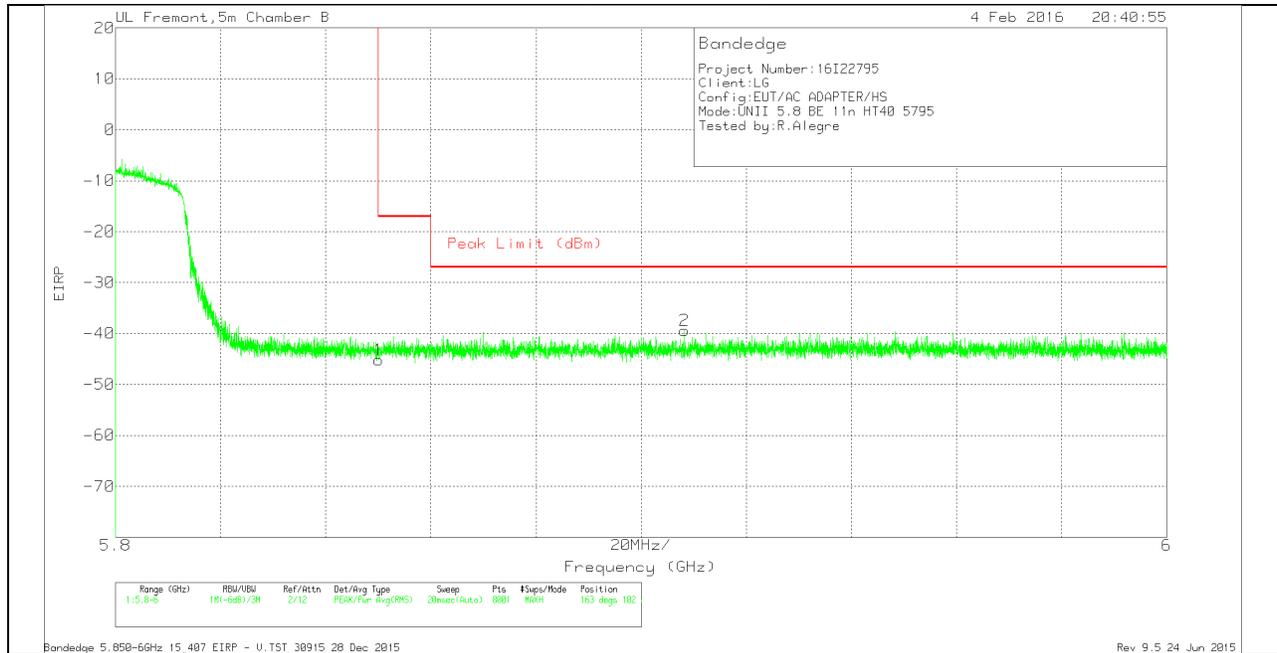
#### HORIZONTAL DATA

##### Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-69.72	Pk	35.4	-20.9	11.8	0	-43.42	-17	-26.42	163	101	H
2	5.973	-66.04	Pk	35.6	-20.9	11.8	0	-39.54	-27	-12.54	163	101	H

Pk - Peak detector

**VERTICAL PEAK PLOT**



**VERTICAL DATA**

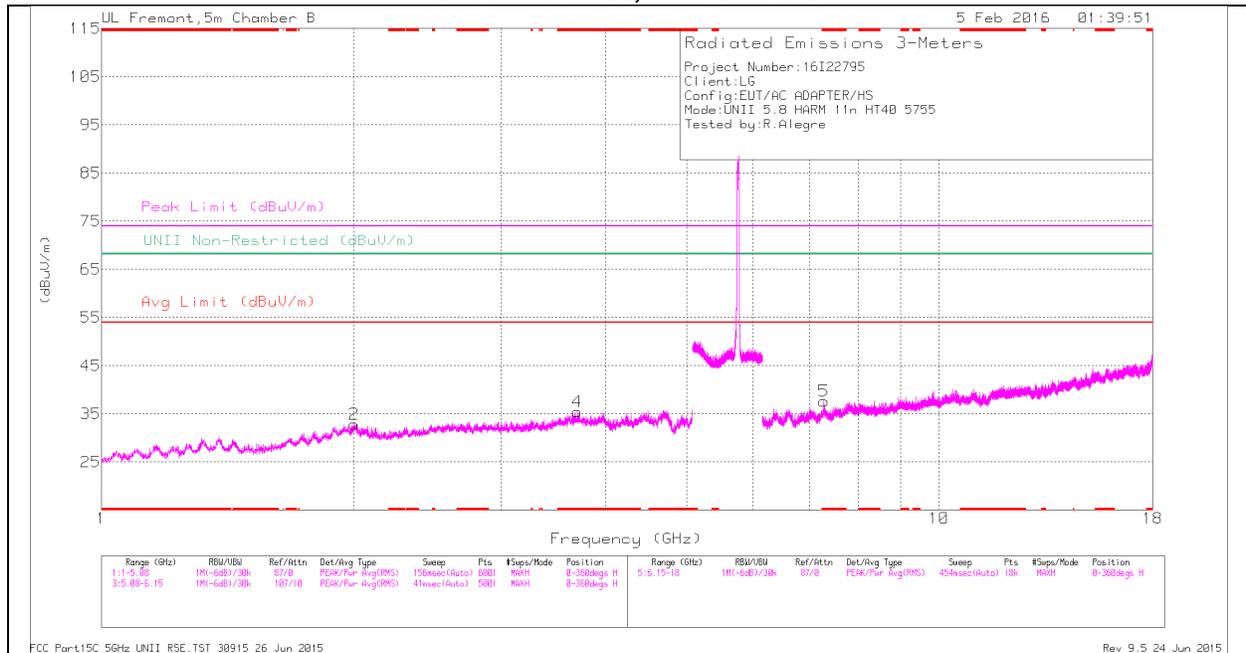
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cb/ Ftr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-71.48	Pk	35.4	-20.9	11.8	0	-45.18	-17	-28.18	163	102	V
2	5.908	-65.76	Pk	35.5	-20.9	11.8	0	-39.36	-27	-12.36	163	102	V

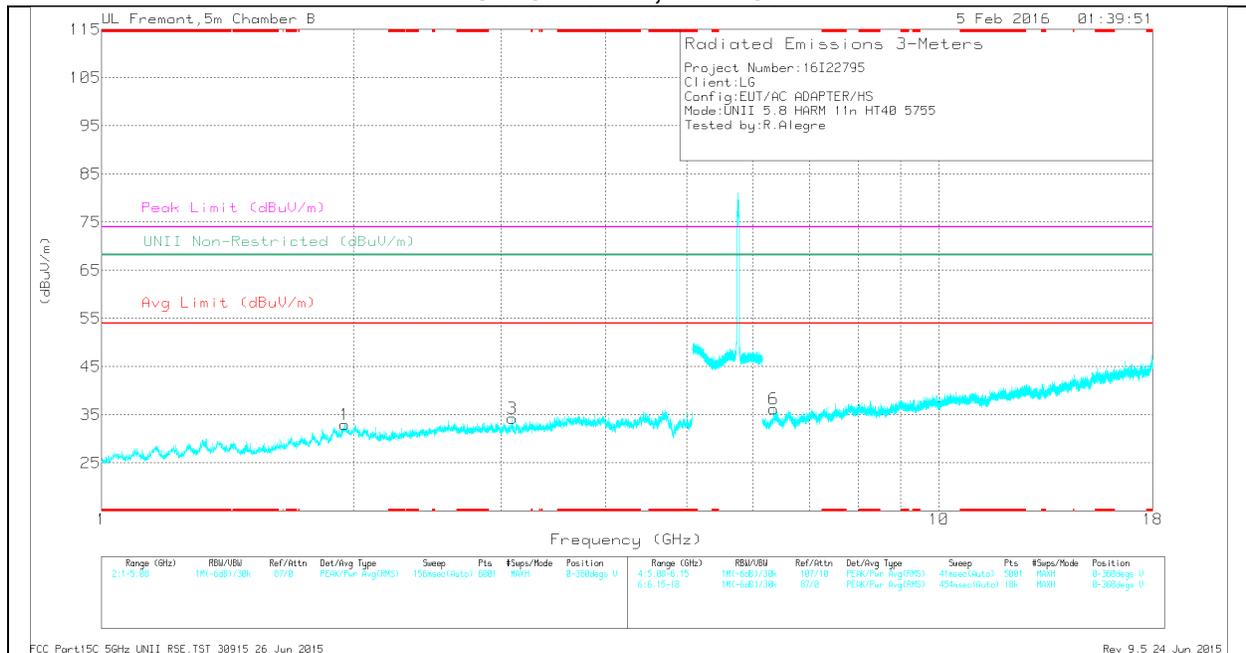
Pk - Peak detector

## HARMONICS AND SPURIOUS EMISSIONS

### LOW CHANNEL, HORIZONTAL



### 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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.702	34.63	Pk	33.6	-32.8	0	35.43	-	-	74	-38.57	-	-	0-360	199	H
5	* 7.29	30.89	Pk	35.3	-28.5	0	37.69	-	-	74	-36.31	-	-	0-360	101	H
1	1.953	34.71	Pk	32.1	-33.8	0	33.01	-	-	-	-	68.2	-35.19	0-360	199	V
2	2.002	34.59	Pk	32.3	-34.1	0	32.79	-	-	-	-	68.2	-35.41	0-360	101	H
3	3.095	34.93	Pk	32.7	-33.4	0	34.23	-	-	-	-	68.2	-33.97	0-360	101	V
6	6.351	31.09	Pk	35.6	-30.5	0	36.19	-	-	-	-	68.2	-32.01	0-360	101	V

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

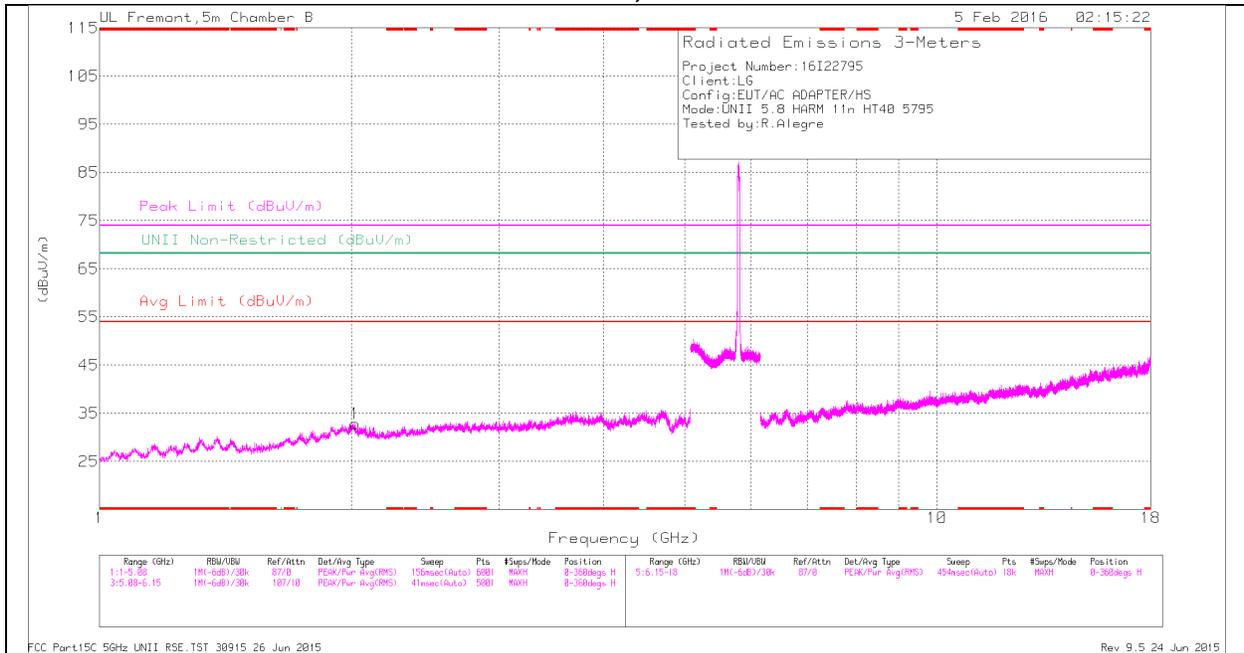
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 3.703	42.14	PK-U	33.6	-32.7	0	43.04	-	-	74	-30.96	-	-	313	192	H
* 3.703	30.39	ADR	33.6	-32.7	.43	31.72	54	-22.28	-	-	-	-	313	192	H
* 7.289	38.45	PK-U	35.3	-28.5	0	45.25	-	-	74	-28.75	-	-	280	209	H
* 7.291	26.35	ADR	35.3	-28.5	.43	33.58	54	-20.42	-	-	-	-	280	209	H
1.952	42.96	PK-U	32.1	-33.8	0	41.26	-	-	-	-	68.2	-26.94	260	199	V
2.003	42.81	PK-U	32.3	-34.1	0	41.01	-	-	-	-	68.2	-27.19	300	182	H
3.095	42.19	PK-U	32.7	-33.4	0	41.49	-	-	-	-	68.2	-26.71	268	188	V
6.352	38.9	PK-U	35.6	-30.5	0	44	-	-	-	-	68.2	-24.2	320	188	V

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

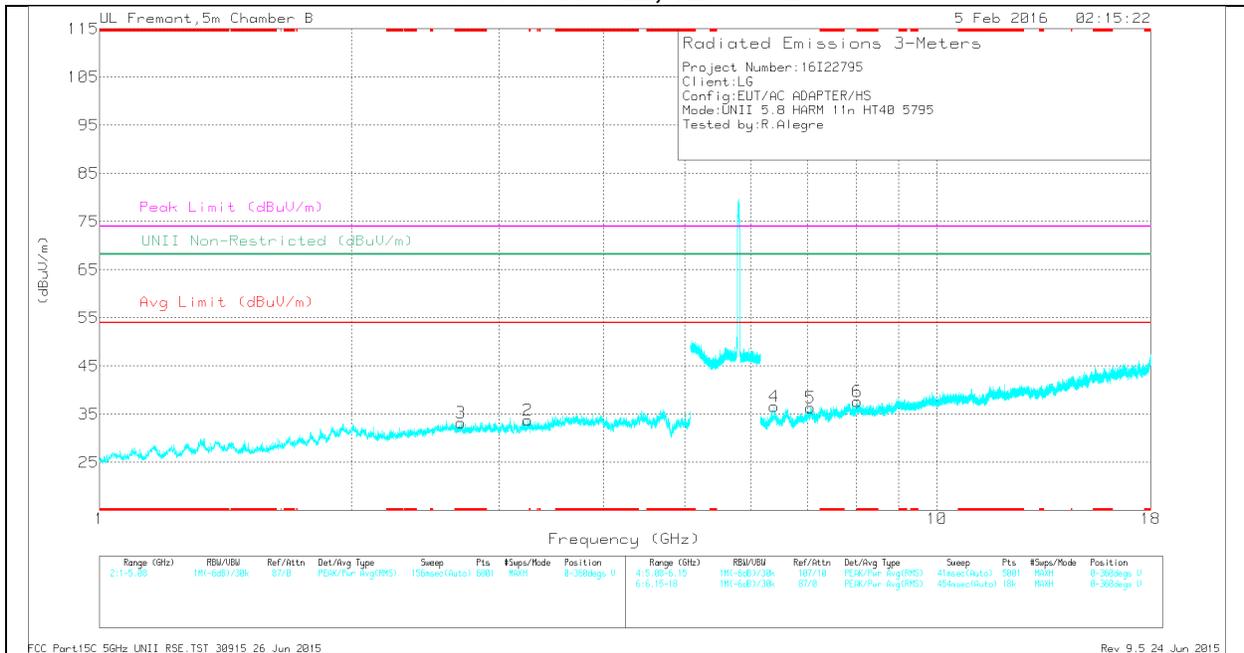
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### HIGH CHANNEL, HORIZONTAL



### 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**

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 2.7	34.57	Pk	32.6	-33.9	0	33.27	-	-	74	-40.73	-	-	0-360	101	V
6	* 8.028	30.75	Pk	35.6	-28.7	0	37.65	-	-	74	-36.35	-	-	0-360	199	V
1	2.02	34.63	Pk	32.2	-34	0	32.83	-	-	-	-	68.2	-35.37	0-360	101	H
2	3.249	34	Pk	32.6	-32.8	0	33.8	-	-	-	-	68.2	-34.4	0-360	101	V
4	6.392	31.02	Pk	35.7	-30.1	0	36.62	-	-	-	-	68.2	-31.58	0-360	101	V
5	7.064	30.49	Pk	35.8	-29.9	0	36.39	-	-	-	-	68.2	-31.81	0-360	101	V

\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (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)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.7	42.66	PK-U	32.6	-33.9	0	41.36	-	-	74	-32.64	-	-	257	232	V
* 2.7	30.7	ADR	32.6	-33.9	.43	29.83	54	-24.17	-	-	-	-	257	232	V
* 8.028	38.49	PK-U	35.6	-28.7	0	45.39	-	-	74	-28.61	-	-	354	102	V
* 8.028	26.04	ADR	35.6	-28.7	.43	33.37	54	-20.63	-	-	-	-	354	102	V
2.019	42.24	PK-U	32.2	-34	0	40.44	-	-	-	-	68.2	-27.76	332	392	H
3.249	40.98	PK-U	32.6	-32.8	0	40.78	-	-	-	-	68.2	-27.42	289	359	V
6.392	38.71	PK-U	35.7	-30.1	0	44.31	-	-	-	-	68.2	-23.89	260	219	V
7.065	39.07	PK-U	35.8	-29.9	0	44.97	-	-	-	-	68.2	-23.23	331	184	V

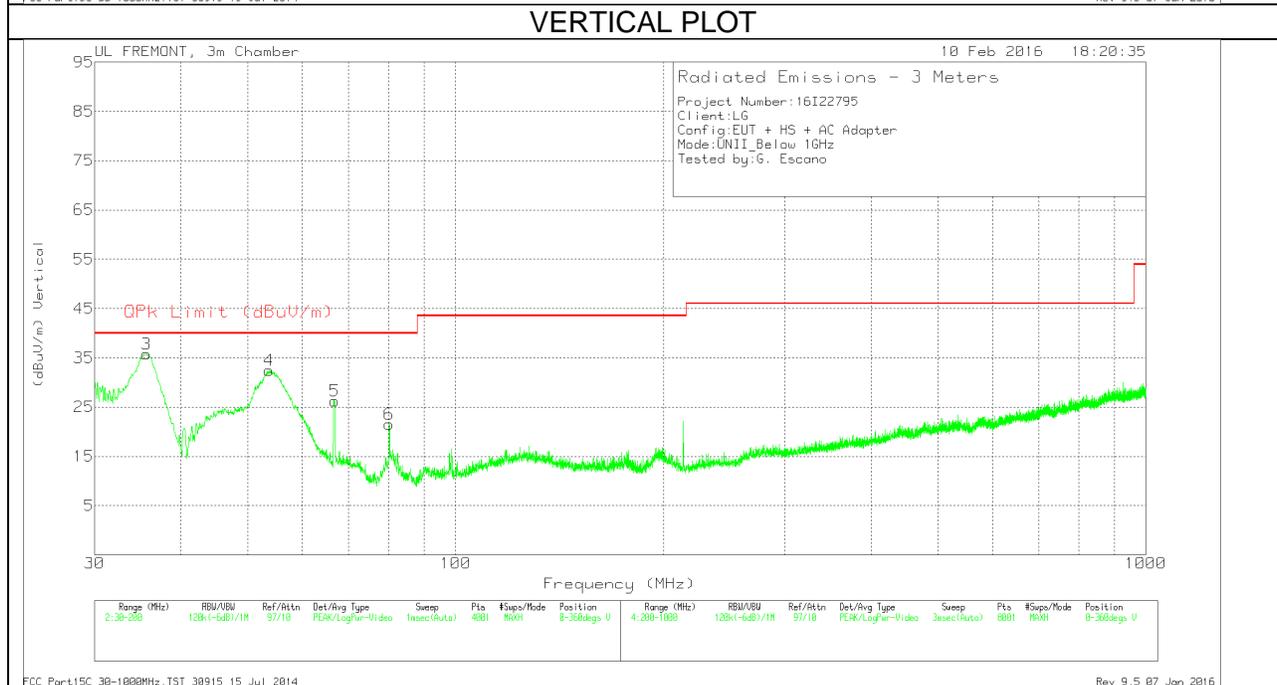
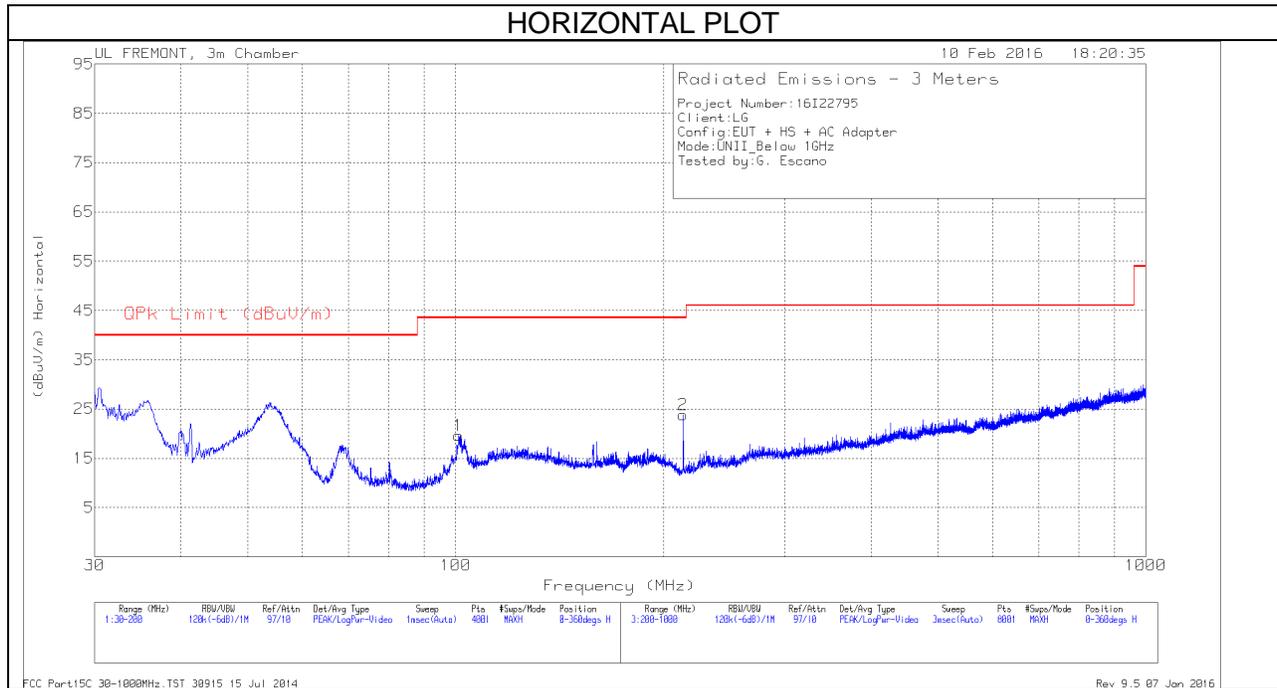
\* - indicates frequency in 47 CFR §15.205/IC RSS-Gen §8.10 Restricted Band

PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

## 12. WORST-CASE BELOW 1 GHz

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



**Below 1G Data**

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	35.695	45.46	Pk	17.4	-27.1	35.76	40	-4.24	0-360	100	V
4	53.6725	52.01	Pk	7.3	-26.9	32.41	40	-7.59	0-360	100	V
5	66.8475	44.76	Pk	8.2	-26.7	26.26	40	-13.74	0-360	100	V
6	80.1925	40.1	Pk	8	-26.6	21.5	40	-18.5	0-360	100	V
1	100.975	35.97	Pk	10	-26.3	19.67	43.52	-23.85	0-360	200	H
2	213.6	38.45	Pk	10.4	-25	23.85	43.52	-19.67	0-360	100	H

Pk - Peak detector

Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
35.455	42.46	Qp	17.6	-27.1	32.96	40	-7.04	6	101	V

Qp - Quasi-Peak detector