



# **CERTIFICATION TEST REPORT**

**Report Number :** 16U23555-E1V3

**Applicant :** Google Inc.  
1600 Amphitheatre Parkway  
Mountain View, CA 94043 U.S.A

**Model :** NC2-6A5-D

**FCC ID :** A4RNC2-6A5-D

**IC ID :** 10395A-NC26A5D

**EUT Description :** Internet Video Streaming Device

**Test Standard(s) :** FCC 47 CFR PART 15 SUBPART E  
INDUSTRY CANADA RSS-247 ISSUE 1

**Date of Issue:**

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NVLAP LAB CODE 200065-0

## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	7/25/2016	Initial Issue	---
V2	7/28/2016	Revision to EUT Description	Grace Rincand
V3	8/5/2016	Added tested by and test date to section 4.6	Clifford Susa

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Google Inc.  
1600 Amphitheatre Parkway  
Mountain View, CA 94043 U.S.A

**EUT DESCRIPTION:** Internet Video Streaming Device

**MODEL:** NC2-6A5-D

**SERIAL NUMBER:** 6520CZZAXV (Radiated) 6520CZZAYG (Conducted)

**DATE TESTED:** June 8<sup>th</sup> 2016- June 27<sup>th</sup>. 2016

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart E	Pass
INDUSTRY CANADA RSS-247 Issue 1	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

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

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

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## 2. SUMMARY OF TESTING

### 2.1. 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 checked="" type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 2324B-4)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 2324B-5)
<input type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 2324B-6)
	<input type="checkbox"/> Chamber G(IC: 2324B-7)
	<input type="checkbox"/> Chamber H(IC: 2324B-8)

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://ts.nist.gov/standards/scopes/2000650.htm>.

### 2.2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 789033 D02 V01, ANSI C63.10-2013, RSS-GEN Issue 4, RSS-247 Issue 1.

## 2.3. CALIBRATION AND UNCERTAINTY

### 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.

### SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

### 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 1000 MHz	± 4.94 dB
Radiated Disturbance, 1 to 6 GHz	± 3.86 dB
Radiated Disturbance, 6 to 18 GHz	± 4.23 dB
Radiated Disturbance, 18 to 26 GHz	± 5.30 dB
Radiated Disturbance, 26 to 40 GHz	± 5.23 dB

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



## 2.4. MEASUREMENT METHOD

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

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

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

Conducted Output Power: KDB 789033 D02 v01r02, Section E.2.b (Method SA-1).

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

Power Spectral Density: KDB 789033 D02 v01r02, Section F.

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

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

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

## 2.5. 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	ID Num	Cal Due
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB3	T899	05/26/17
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	T130	09/01/16
Antenna, Horn, 1-18GHz	ETS Lindgren	3117	T346	02/22/17
Antenna, Horn, 1-18GHz	ETS Lindgren	3117	T345	03/07/17
Antenna, Horn, 18-26 GHz	ARA	MWH-1826/B	T449	05/26/17
Antenna, Horn, 18-40 GHz	ARA	MWH-2640/B	T446	05/26/17
RF Preamplifier, 10kHz - 1GHz	Sonoma	310N	T300	11/05/16
RF Preamplifier, 10kHz - 1GHz	HP	8447D	T10	02/01/17
RF Preamplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T1165	07/19/16
RF Preamplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T493	03/09/17
RF Preamplifier, 1 - 7GHz	Amplical	AMP1G6-10-27	T1370	04/15/17
RF Preamplifier, 1 - 8GHz	Miteq	AMF-4D-01000800-30-29P	T1156	03/09/17
RF Preamplifier, 1 - 26GHz	Agilent	8449B	T404	06/29/16
Spectrum Analyzer, 44 GHz	Keysight	N9030A	T908	04/13/17
Spectrum Analyzer, 44 GHz	Keysight	N9030A	T907	01/06/17
Spectrum Analyzer, 44 GHz	Keysight	N9030A	T339	09/14/16
Spectrum Analyzer, 44 GHz	Keysight	E440A	T198	12/12/16
Spectrum Analyzer, 40 GHz	HP	8564E	T106	08/14/16
EMI Test Receiver, 9 kHz to 7 GHz	Rohde & Schwarz	ESR	T1436	12/19/16
Power Meter	Keysight	N1911A	T1264	07/01/16
Power Sensor	Keysight	N1921A	T1223	02/28/17
LISN, 30 MHz	FCC	FCC-LISN-50/250-25-2-01	T1310	06/08/17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	T481	07/19/16
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	T482	03/09/17
High Pass Filter 6GHz	Micro-Tronics	HPS17542	T484	07/19/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	T483	03/09/17

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	9.5, 4/26/16
Antenna Port Software	UL	UL RF	5.0, 6/22/16
Conducted Emissions Software	UL	UL EMC	9.5, 5/26/15

### 3. EQUIPMENT UNDER TEST

#### 3.1. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

##### 5.2 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
<b>1TX</b>			
5180 - 5240	802.11a	15.08	32.21
5180 - 5240	802.11n HT20	15.15	32.73
5190 - 5230	802.11n HT40	14.98	31.48
5210	802.11ac VHT80	13.38	21.78

##### 5.3 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
<b>1TX</b>			
5260 - 5320	802.11a	15.12	32.51
5260 - 5320	802.11n HT20	15.10	32.36
5270 - 5310	802.11n HT40	14.97	31.41
5290	802.11ac VHT80	11.34	13.61

##### 5.6 GHz BAND

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
<b>1TX</b>			
5500 - 5700	802.11a	15.06	32.06
5500 - 5700	802.11n HT20	14.07	25.53
5510 - 5670	802.11n HT40	15.50	35.48
5530 - 5610	802.11ac VHT80	14.91	30.97

**5.8 GHz BAND**

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
<b>1TX</b>			
5745 - 5825	802.11a	15.12	32.51
5745 - 5825	802.11n HT20	15.41	34.75
5755 - 5795	802.11n HT40	15.39	34.59
5775	802.11ac VHT80	15.70	37.15

**STRADDLE CHANNELS**

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
<b>1TX (Channels overlapping UNII-2C and UNII-3)</b>			
5720 (Whole Fundamental)	802.11a	10.65	11.61
5720 (Whole Fundamental)	802.11n HT20	11.73	14.89
5710 (Whole Fundamental)	802.11n HT40	13.40	21.88
5690 (Whole Fundamental)	802.11ac VHT80	15.75	37.58

### **3.2. DESCRIPTION OF AVAILABLE ANTENNAS**

The radio utilizes a PCB antenna, with a maximum gain of 3.7dBi

### **3.3. 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.

Worst-case data rates as provided by the client were:

802.11a mode: 6Mbps  
802.11n HT20 mode: MCS0  
802.11n HT40 mode: MCS0  
802.11ac VHT80 mode: MCS0

### 3.4. DESCRIPTION OF TEST SETUP

#### SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	HP	HSTNN-LA40	WDUV0B3U8HK1Y	DoC
Laptop	HP	11-d001ax	5CD51643JG	DoC

#### I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	Micro USB	unshielded	2	
2	USB	1	Micro USB	unshielded	0.2	Y-cable
3	USB	1	USB	unshielded	2.5	USB serial cable
4	DC	1	Barrel	unshielded	1.7	
5	AC	1	3 prong	unshielded	1	

#### TEST SETUP

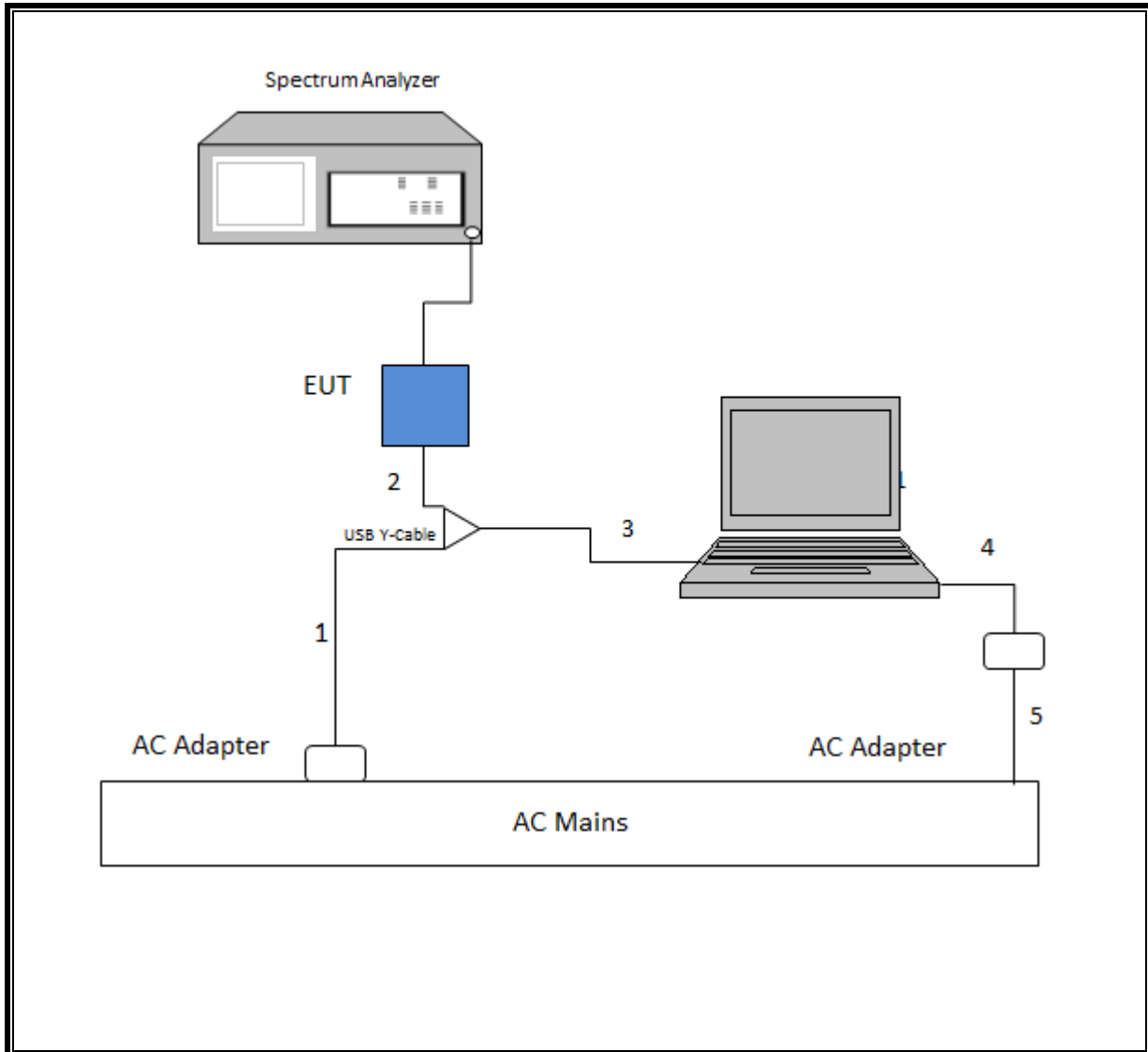
The EUT is connected to a test laptop during the tests. Test software exercised the radio card.

#### SOFTWARE AND FIRMWARE

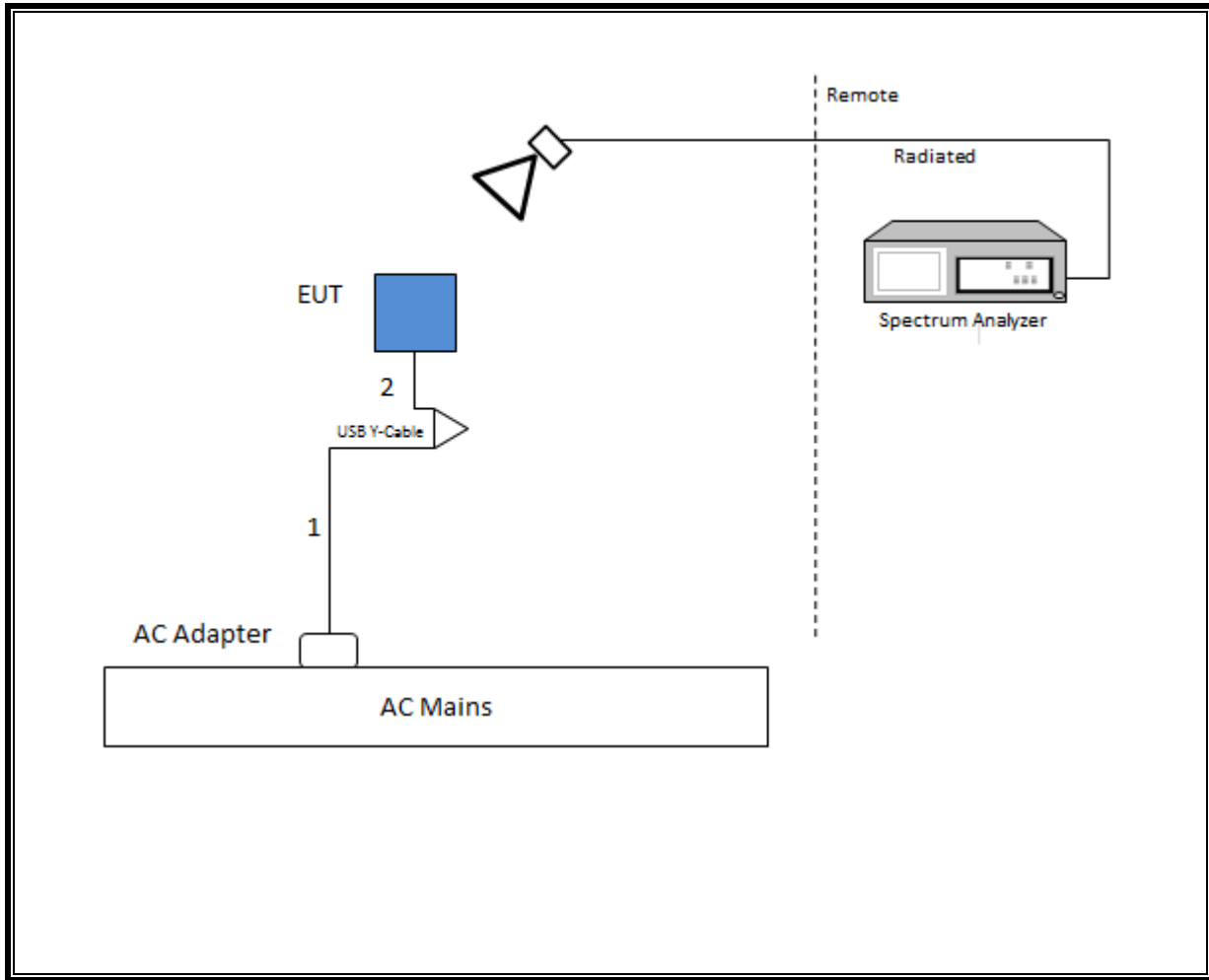
The firmware installed in the EUT during testing was 16.80.205.82

The test utility software used during testing was Labtool ver. 1.0.0.82.

**SETUP DIAGRAM FOR CONDUCTED TESTS**

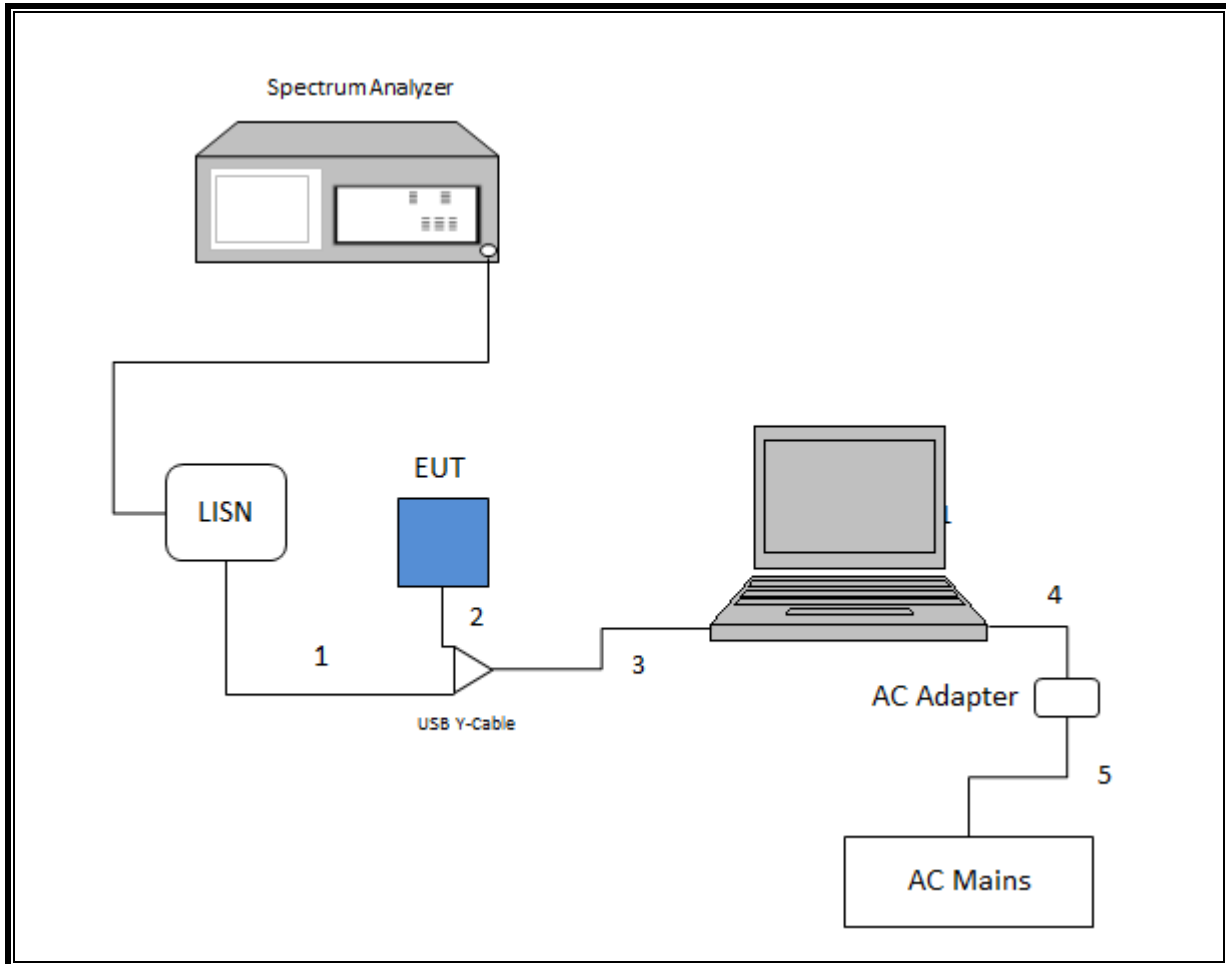


**SETUP DIAGRAM FOR RADIATED TESTS**





**SETUP DIAGRAM FOR LINE CONDUCTED TEST**



## 4. ANTENNA PORT TEST RESULTS

### 4.1. ON TIME AND DUTY CYCLE

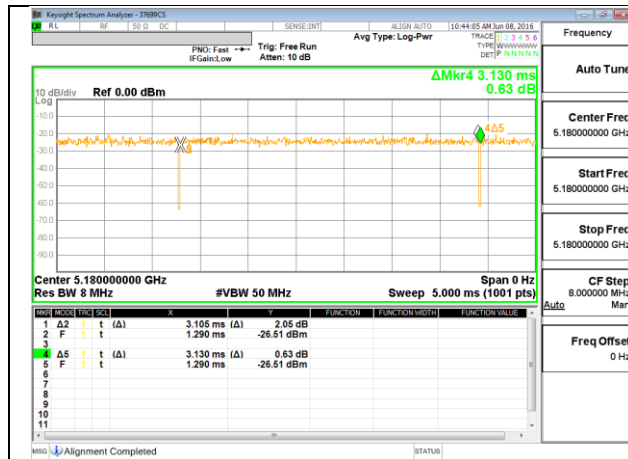
#### LIMITS

None; for reporting purposes only.

#### ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
802.11a 1Tx	3.105	3.130	0.992	99.20%	0.00	0.010
802.11n HT20 1TX	4.765	4.800	0.993	99.27%	0.00	0.010
802.11n HT40 1TX	2.316	2.340	0.990	98.97%	0.00	0.010
802.11ac VHT80 1TX	1.0950	1.1180	0.979	97.94%	0.09	0.913

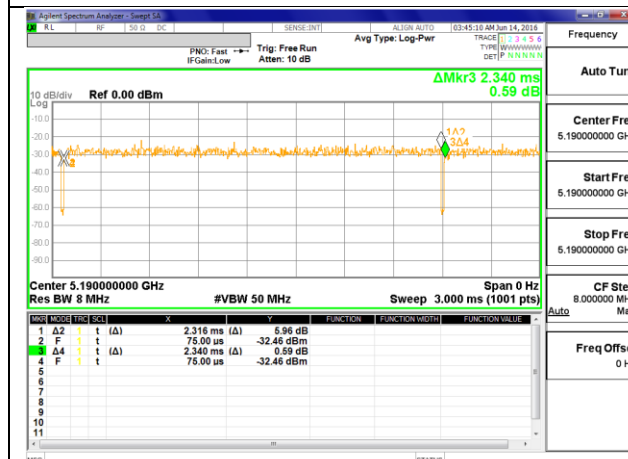
**DUTY CYCLE PLOTS**



**802.11a 1Tx**



**802.11n HT20 1Tx**



**802.11n HT40 1Tx**



**802.11ac VHT80 1Tx**

## 4.2. 26 dB BANDWIDTH

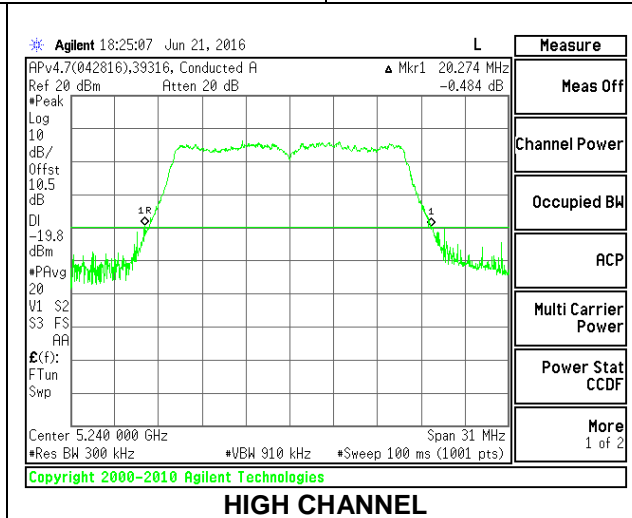
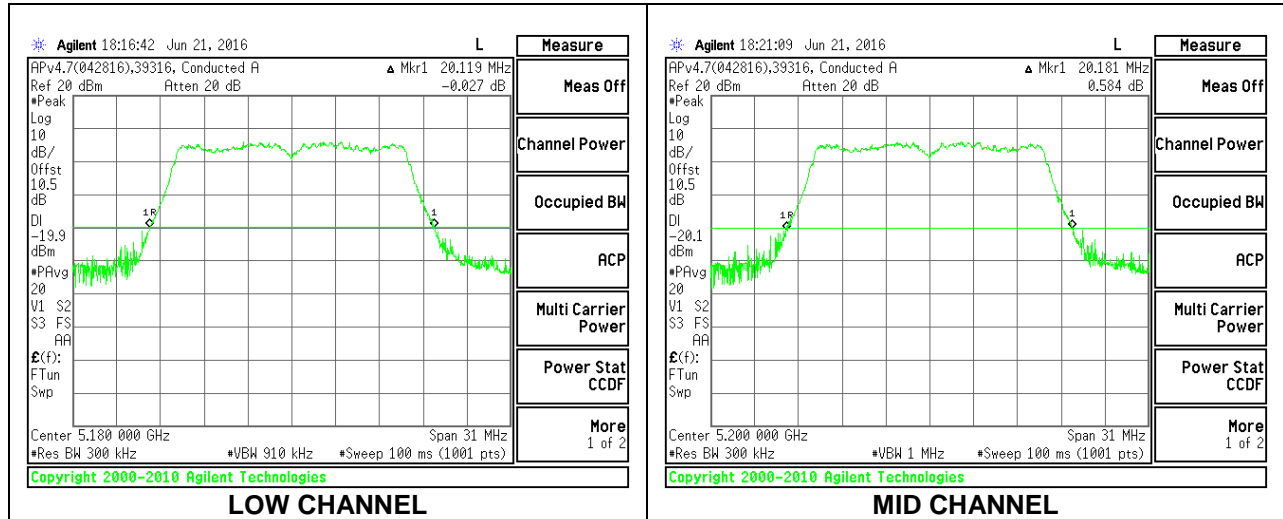
### LIMITS

None; for reporting purposes only.

### RESULTS

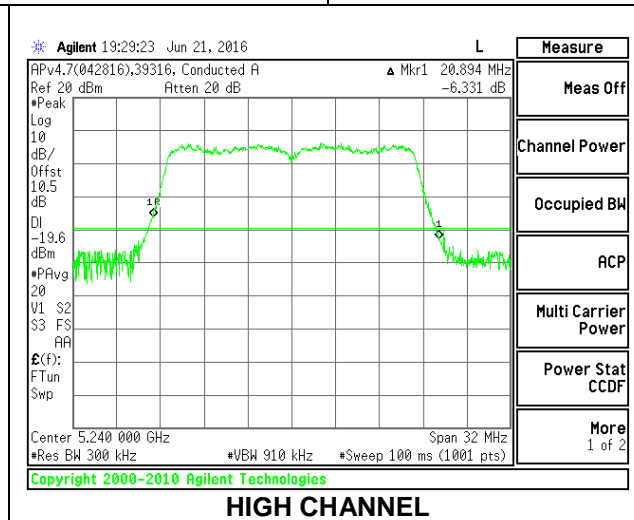
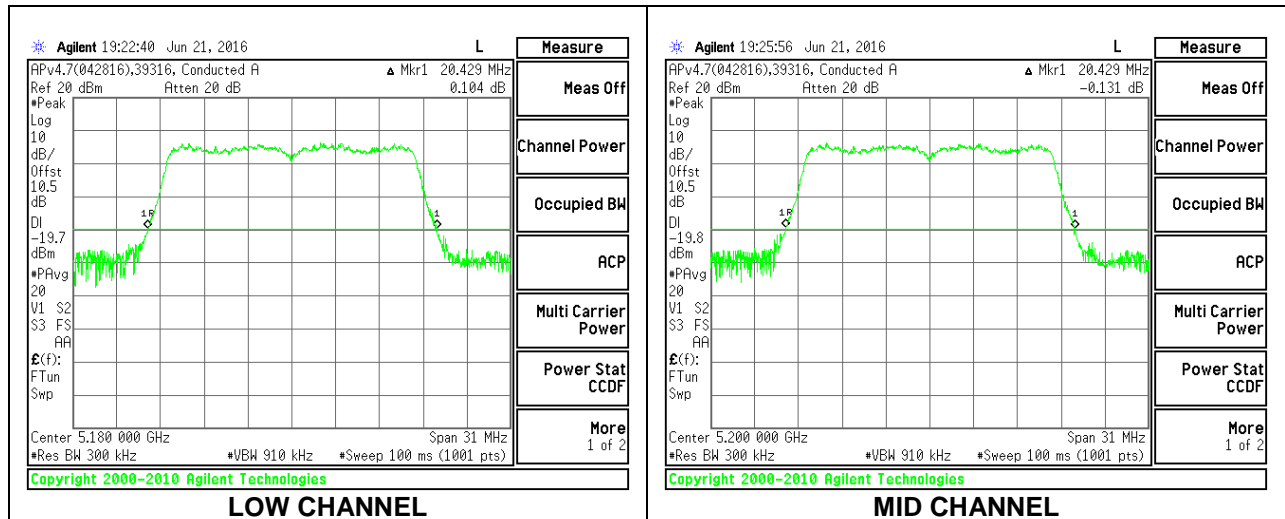
### 4.2.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	20.12
Mid	5200	20.18
High	5240	20.27



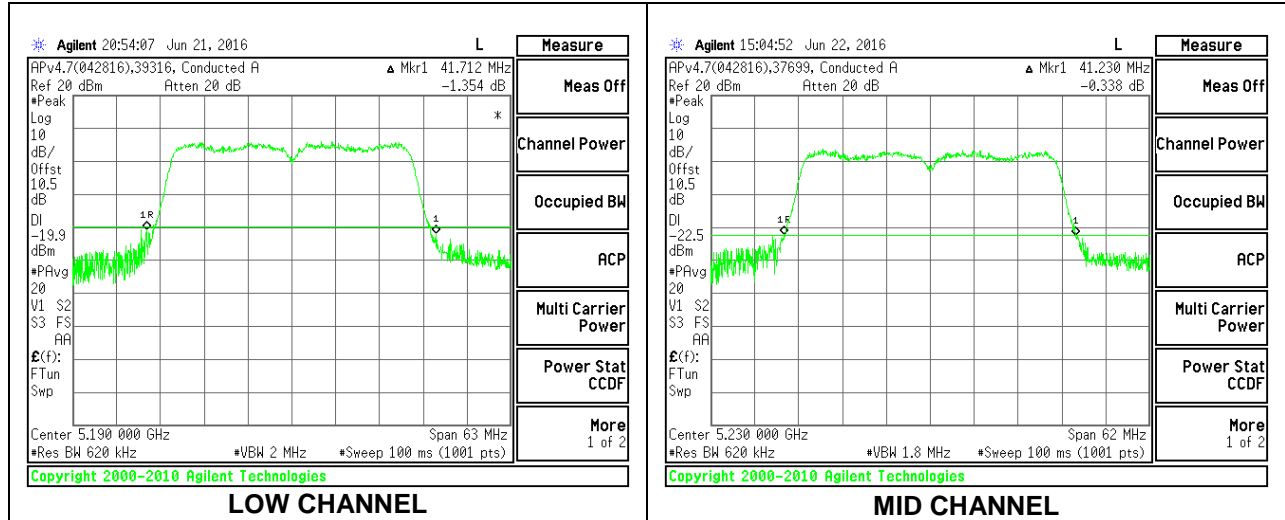
### 4.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5180	20.43
Mid	5200	20.43
High	5240	20.89



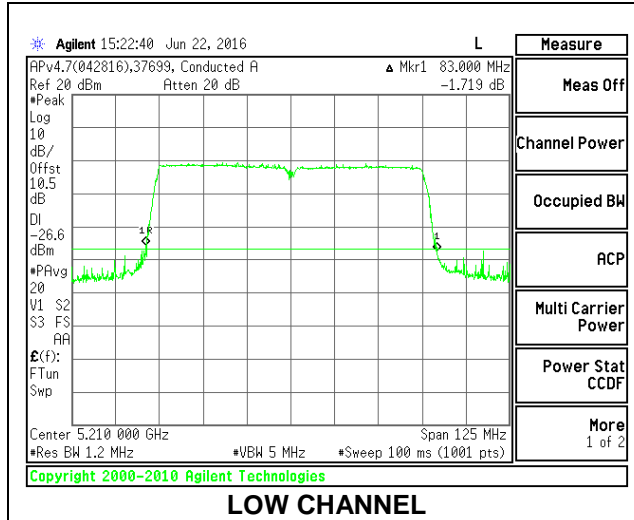
### 4.2.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	26dB Bandwidth (MHz)
Low	5190	41.71
Mid	5230	41.23



### 4.2.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

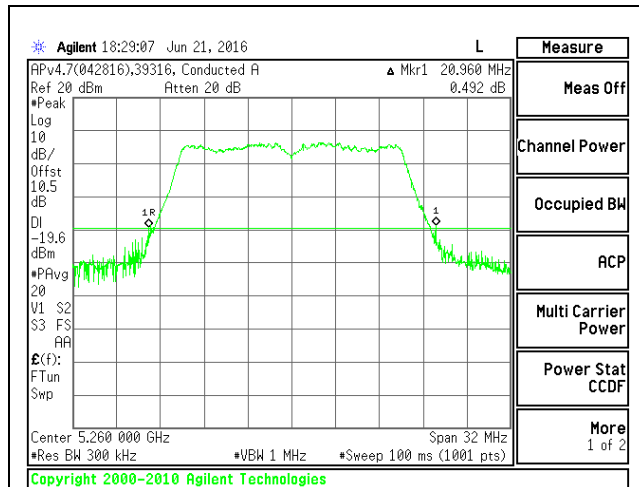
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5210	83.00



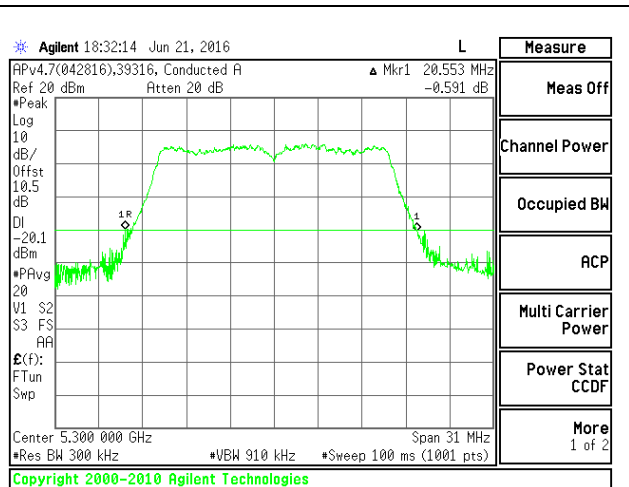


### 4.2.5. 802.11a MODE IN THE 5.3 GHz BAND

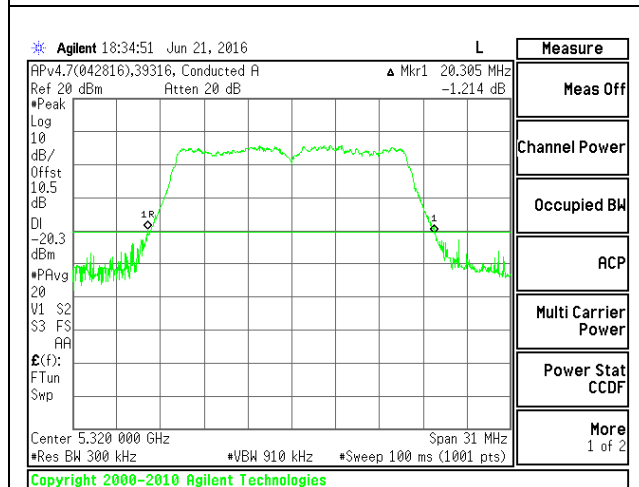
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	20.96
Mid	5300	20.55
High	5320	20.31



**LOW CHANNEL**



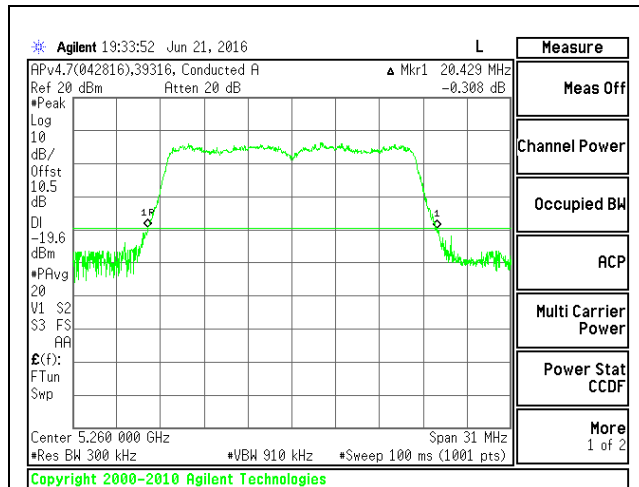
**MID CHANNEL**



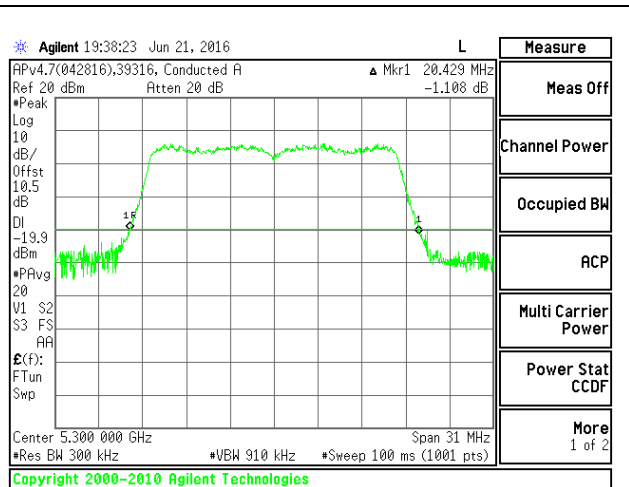
**HIGH CHANNEL**

### 4.2.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

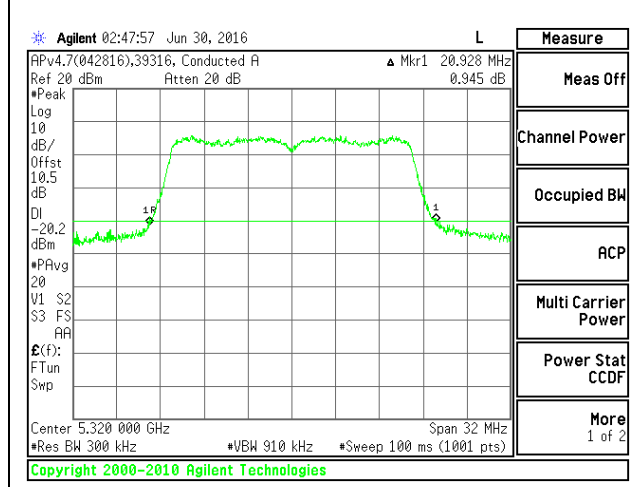
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5260	20.43
Mid	5300	20.43
High	5320	20.93



**LOW CHANNEL**



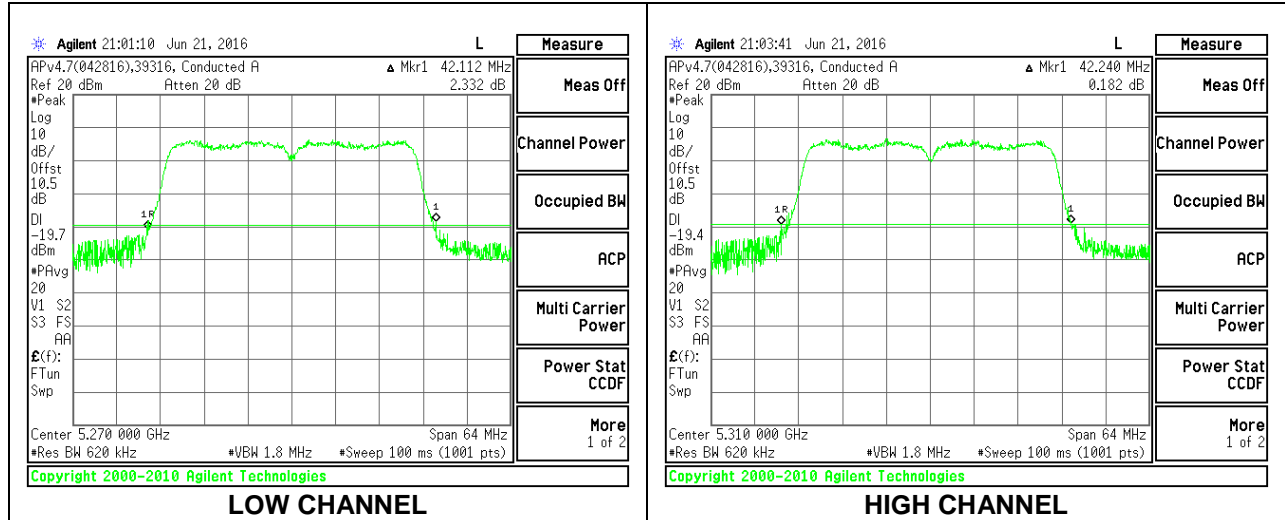
**MID CHANNEL**



**HIGH CHANNEL**

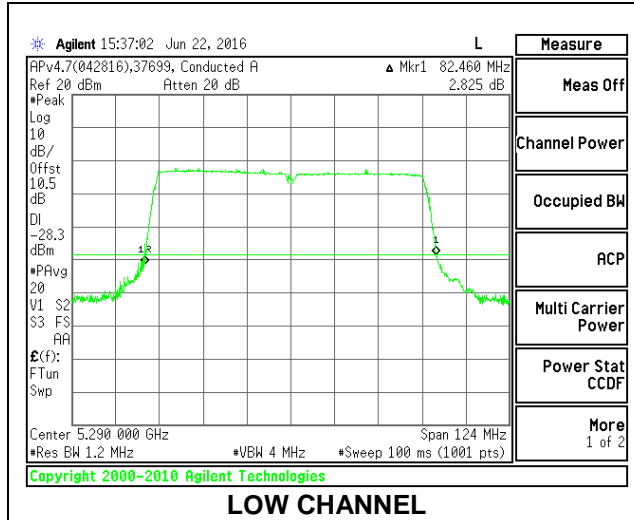
### 4.2.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5270	42.11
High	5310	42.24



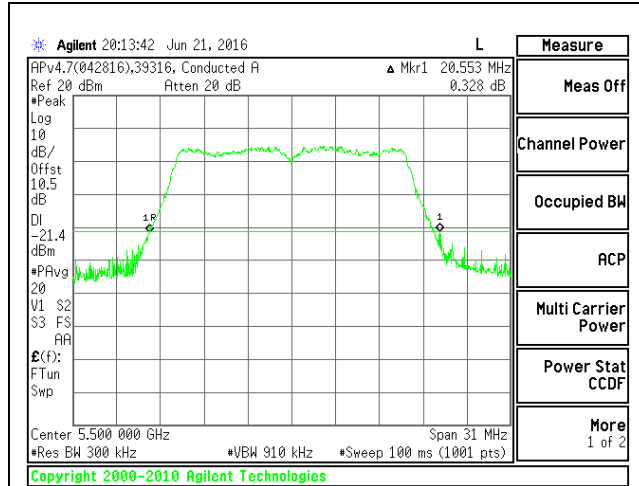
### 4.2.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5290	82.46

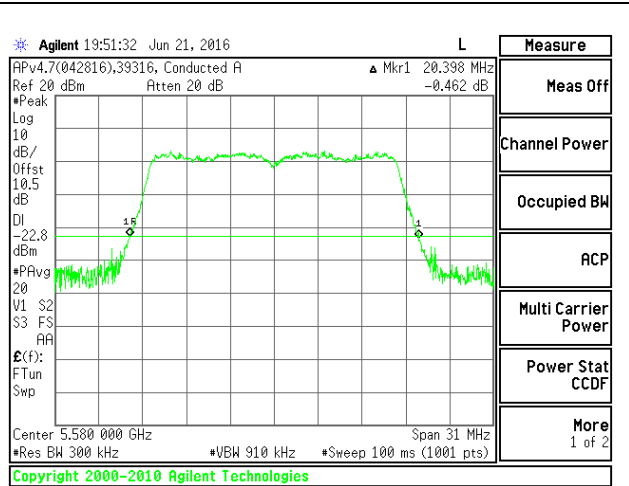


### 4.2.9. 802.11a MODE IN THE 5.6 GHz BAND

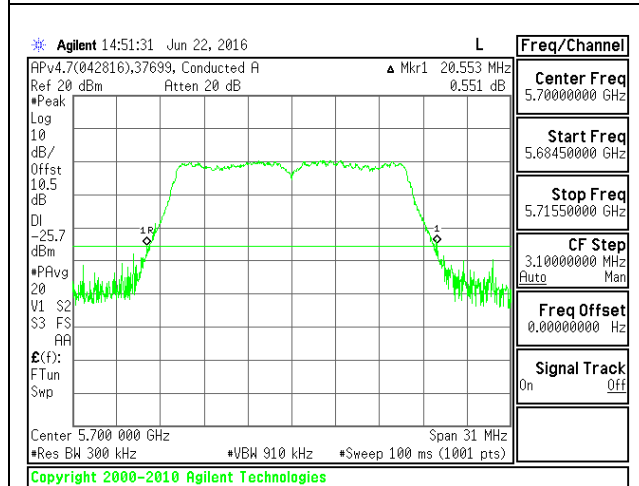
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	20.55
Mid	5580	20.40
High	5700	20.55
144	5720	20.90



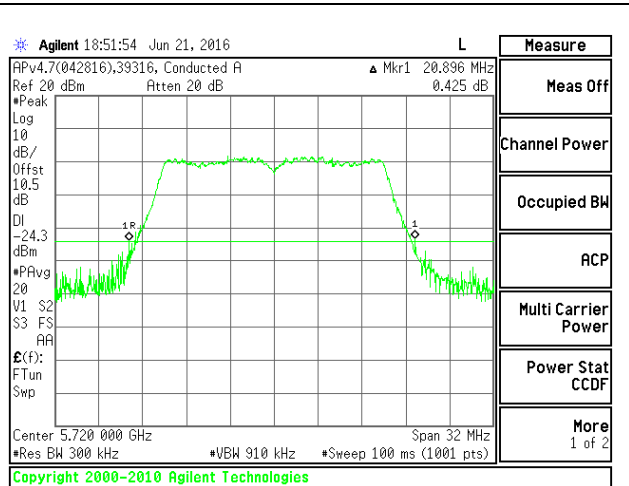
LOW CHANNEL



MID CHANNEL



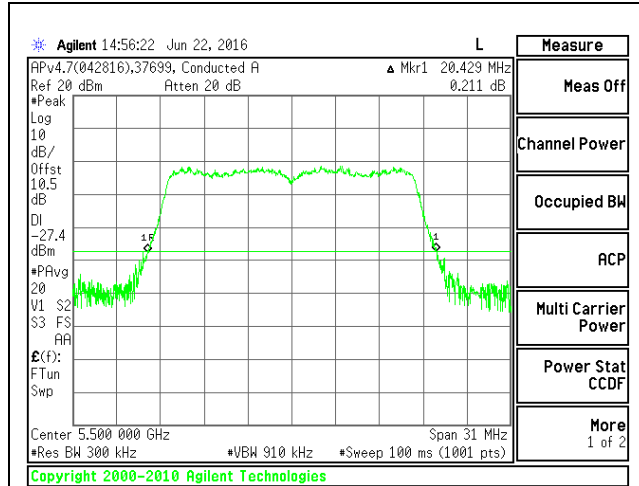
HIGH CHANNEL



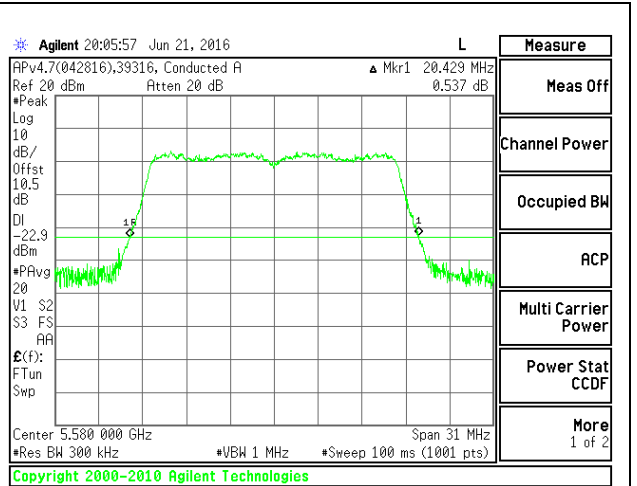
STRADDLE CHANNEL 144

**4.2.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND**

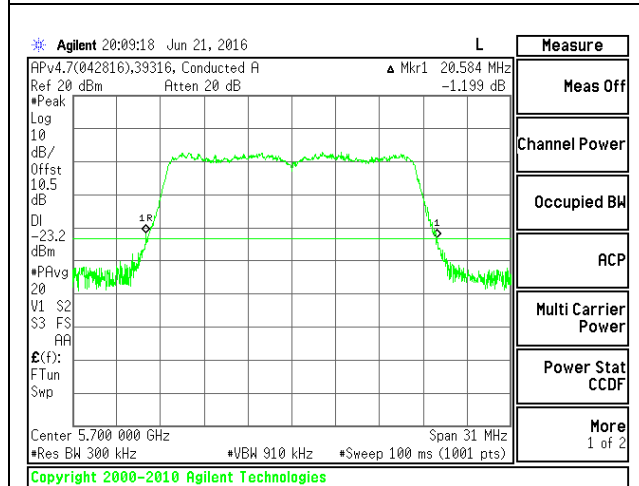
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5500	20.43
Mid	5580	20.43
High	5700	20.58
144	5720	20.80



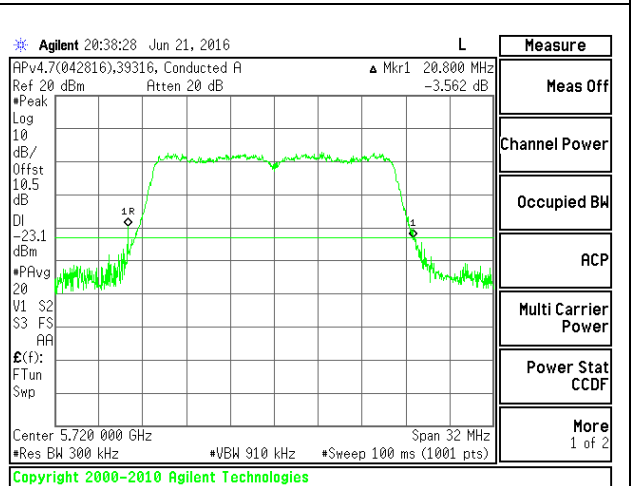
**LOW CHANNEL**



**MID CHANNEL**



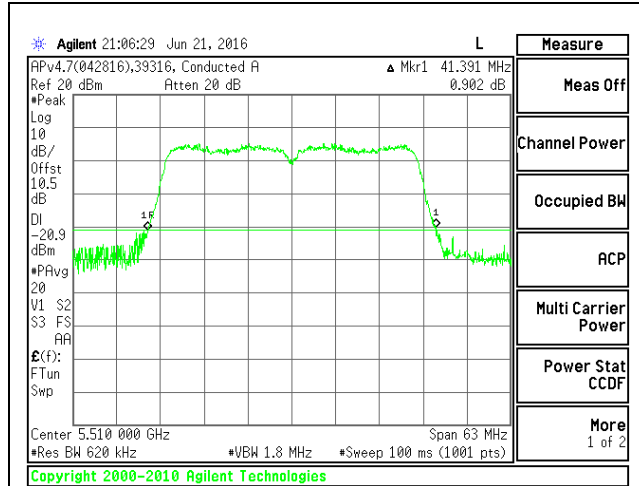
**HIGH CHANNEL**



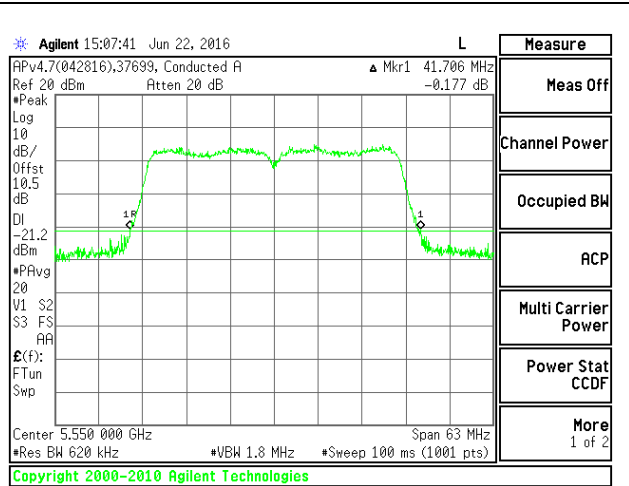
**STRADDLE CHANNEL 144**

**4.2.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND**

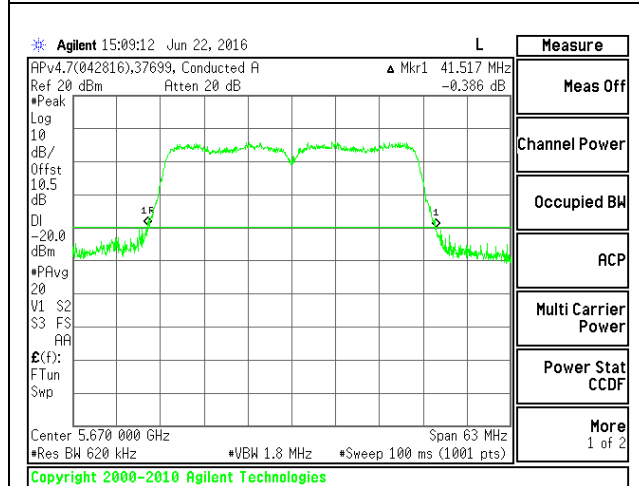
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5510	41.39
Mid	5550	41.71
High	5670	41.52
142	5710	42.23



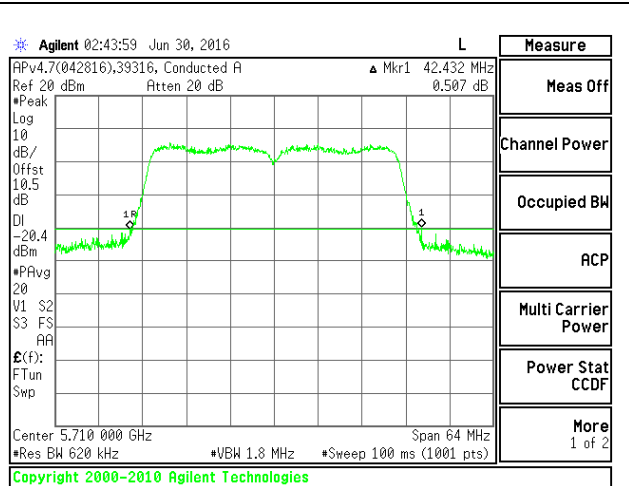
**LOW CHANNEL**



**MID CHANNEL**



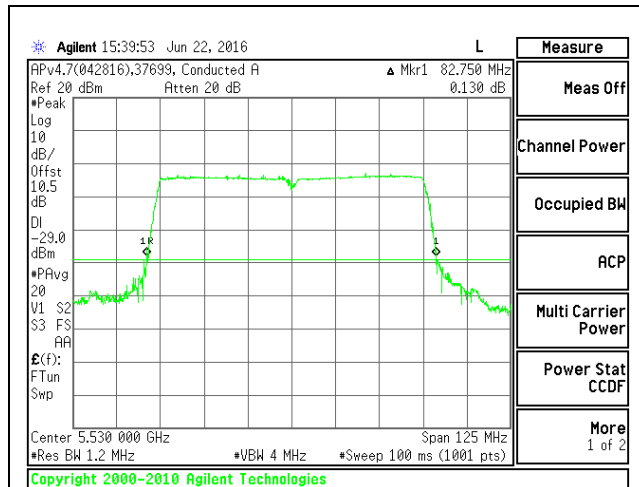
**HIGH CHANNEL**



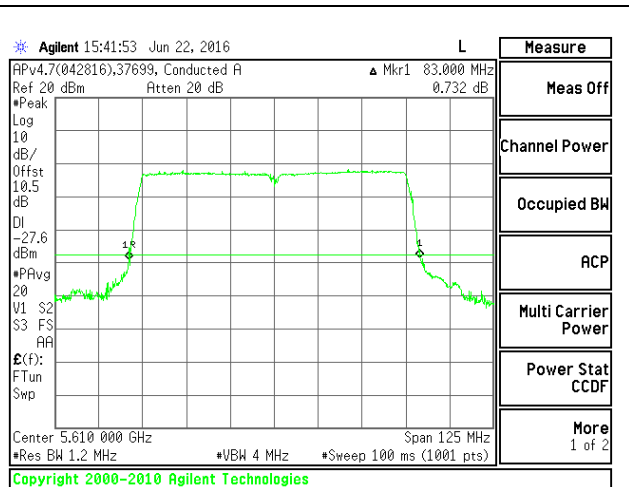
**STRADDLE CHANNEL 142**

**4.2.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND**

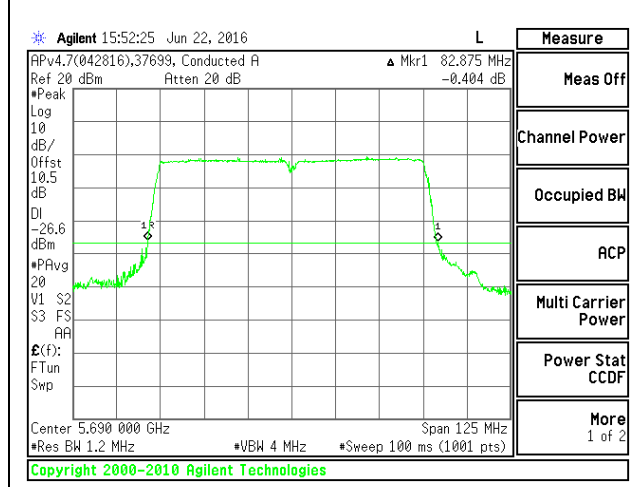
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5530	82.75
High	5610	83.00
138	5690	82.88



**LOW CHANNEL**



**HIGH CHANNEL**

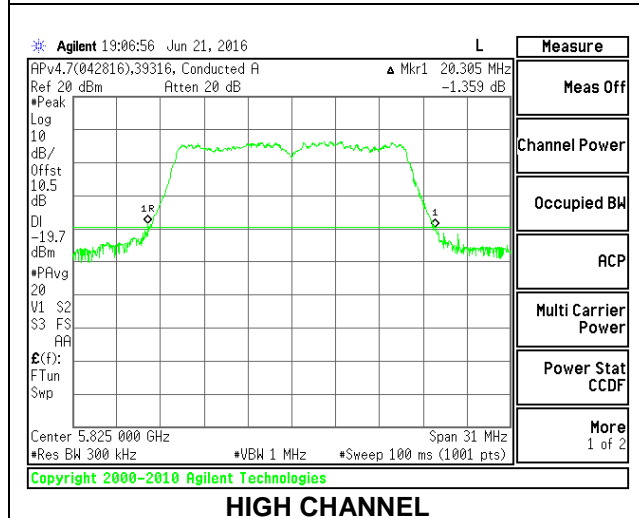
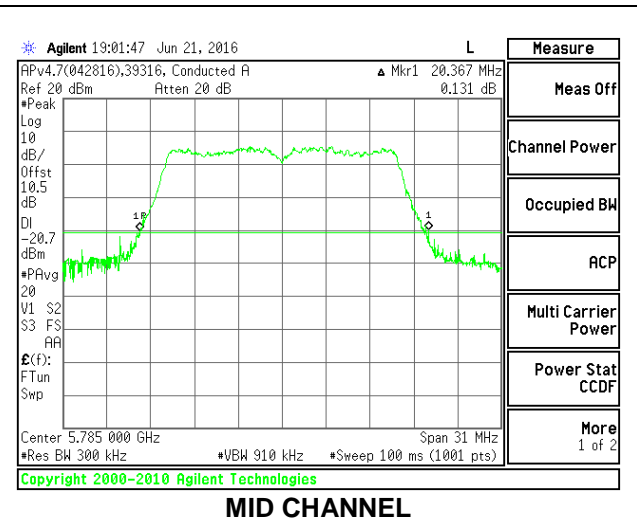
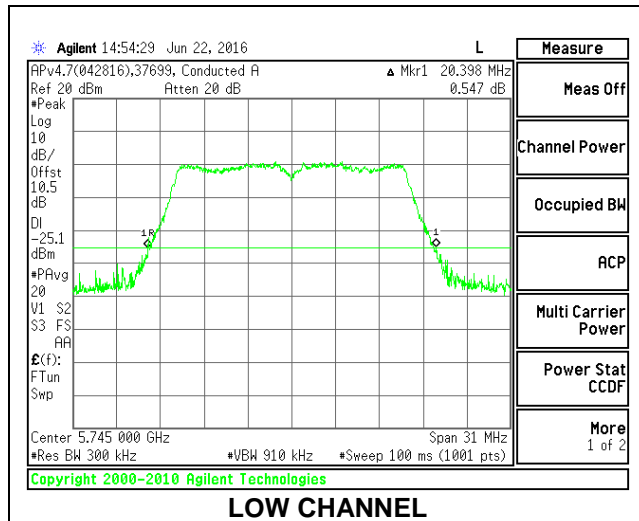


**STRADDLE CHANNEL 138**



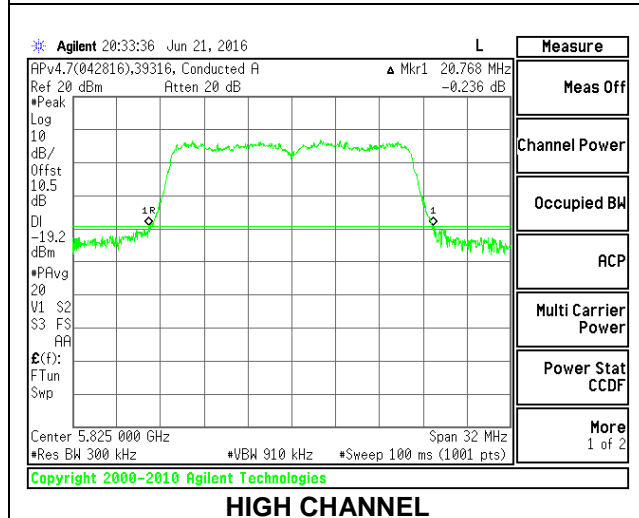
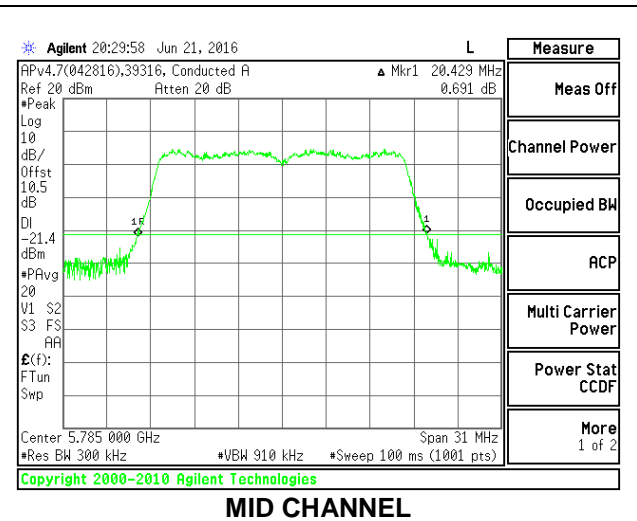
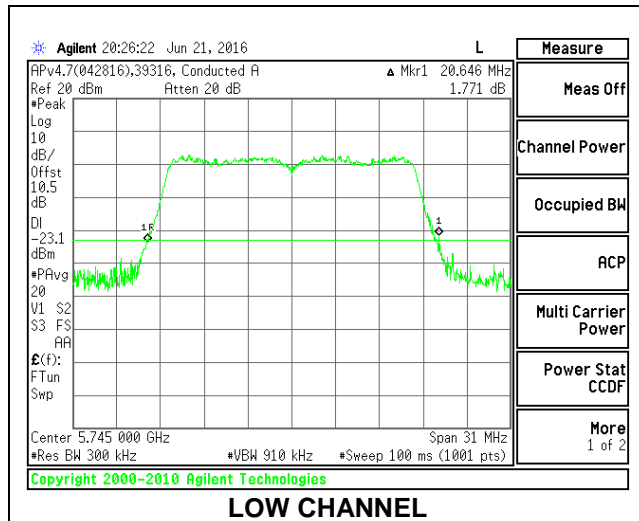
### 4.2.13. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	20.40
Mid	5785	20.37
High	5825	20.31



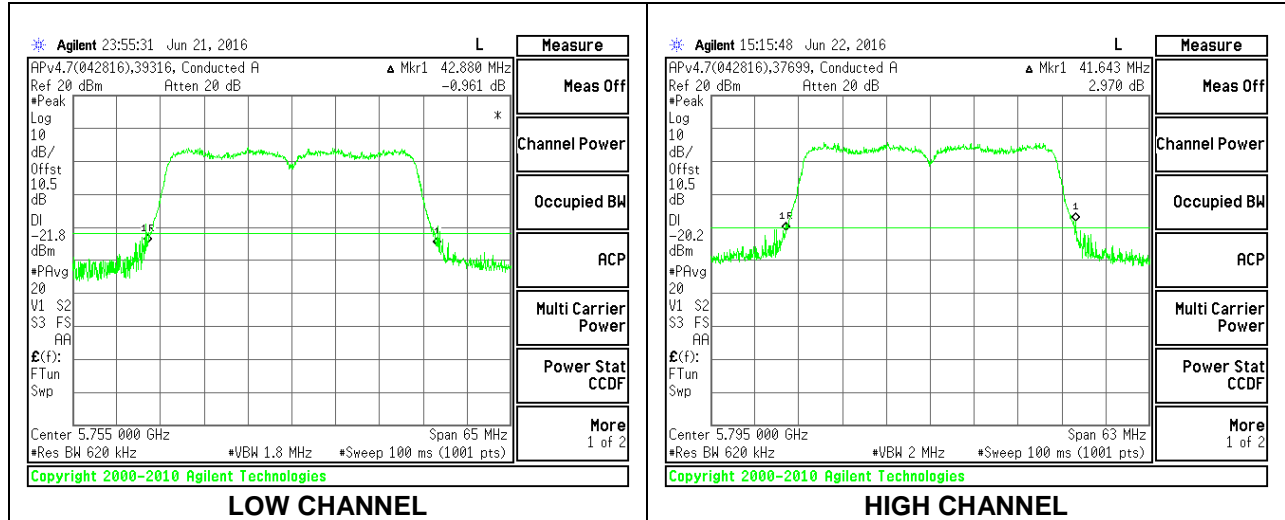
**4.2.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5745	20.65
Mid	5785	20.43
High	5825	20.77



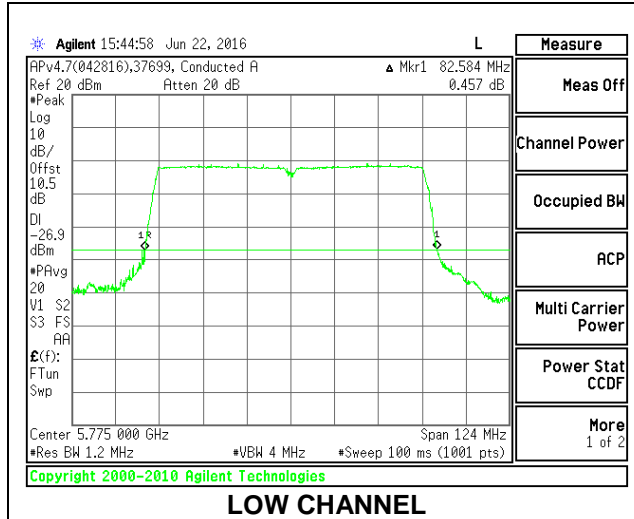
**4.2.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Low	5755	42.88
High	5795	41.64



**4.2.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)
Mid	5775	82.58



### **4.3. 99% BANDWIDTH**

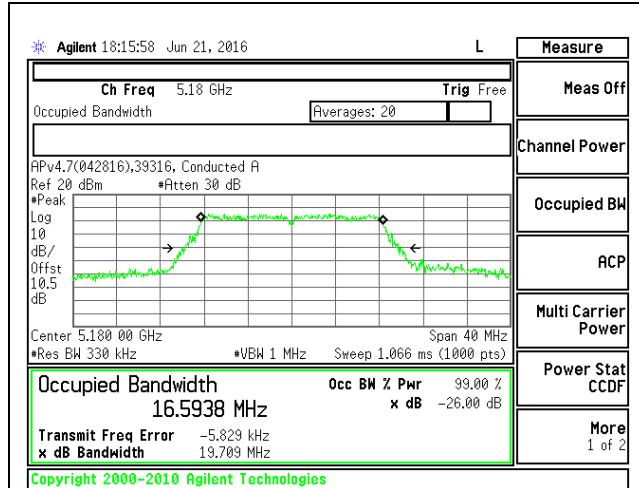
#### **LIMITS**

None; for reporting purposes only.

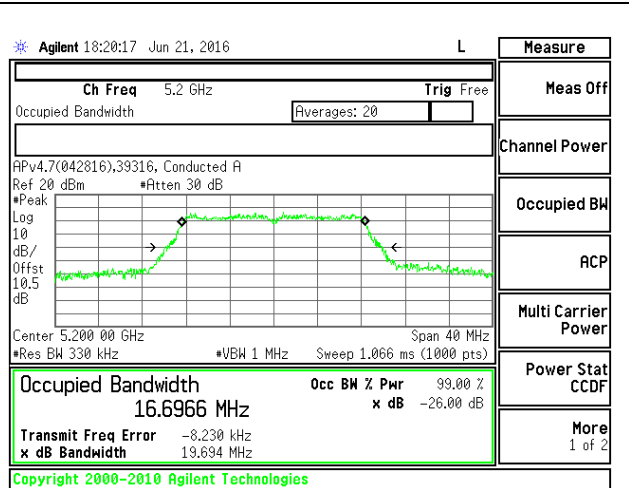
#### **RESULTS**

### 4.3.1. 802.11a MODE IN THE 5.2 GHz BAND

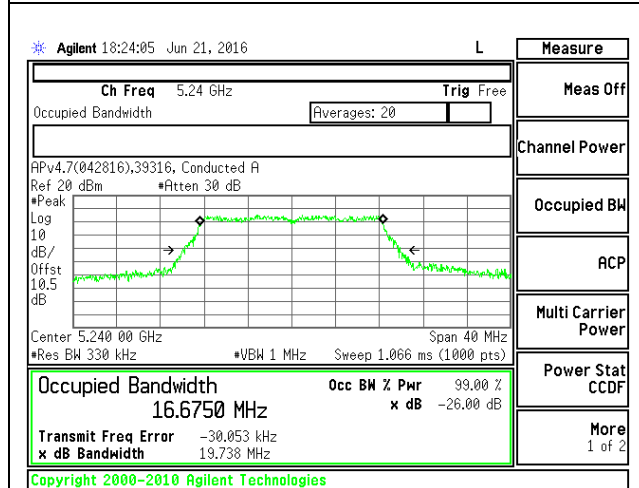
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	16.59
Mid	5200	16.70
High	5240	16.68



LOW CHANNEL



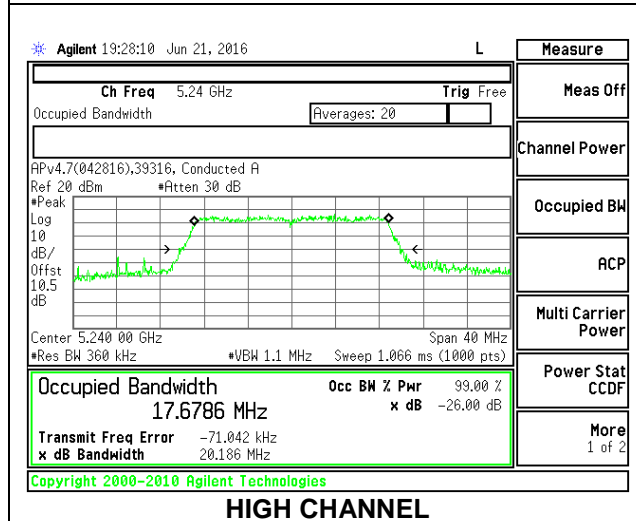
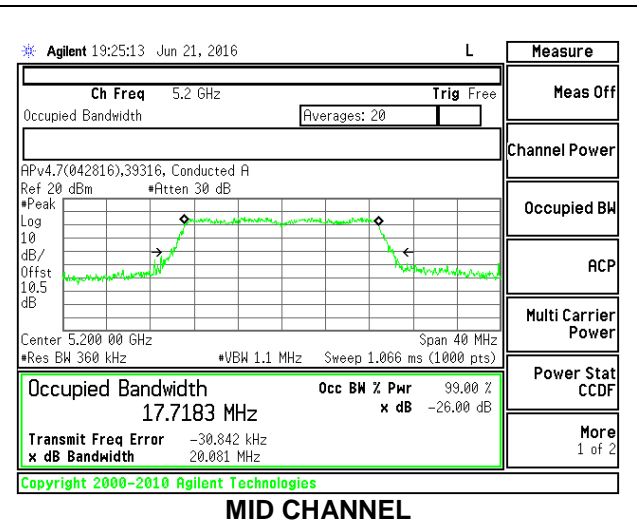
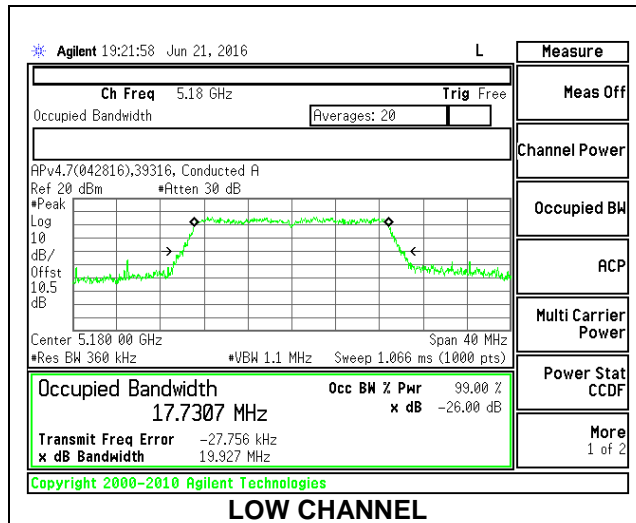
MID CHANNEL



HIGH CHANNEL

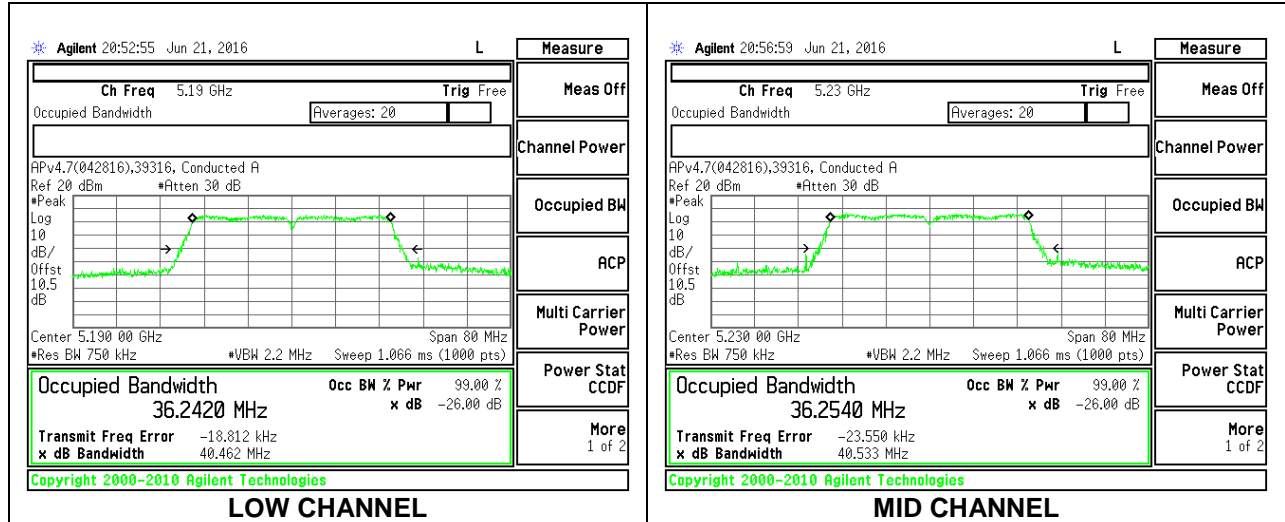
### 4.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5180	17.73
Mid	5200	17.72
High	5240	17.68



### 4.3.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

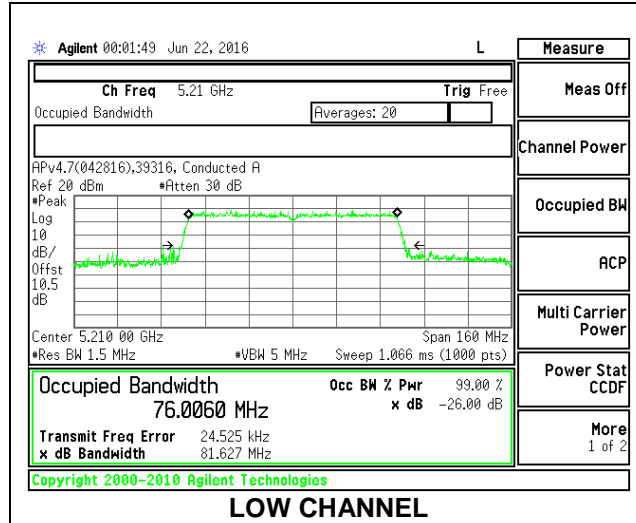
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5190	36.24
Mid	5230	36.25





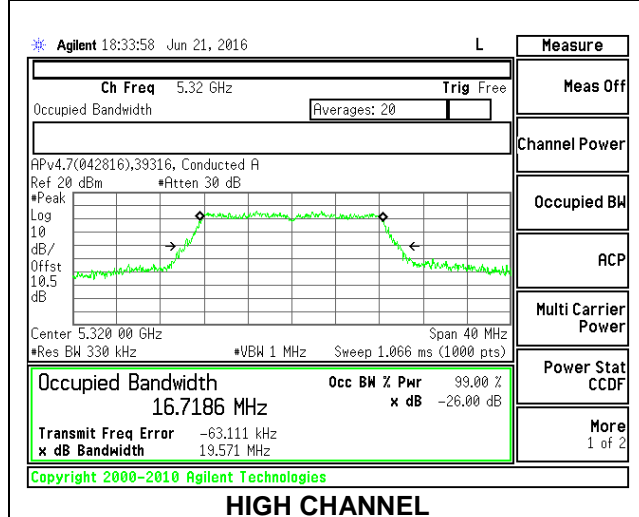
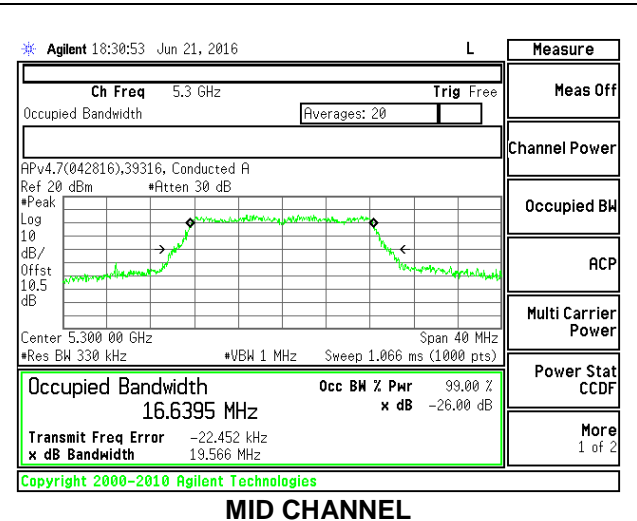
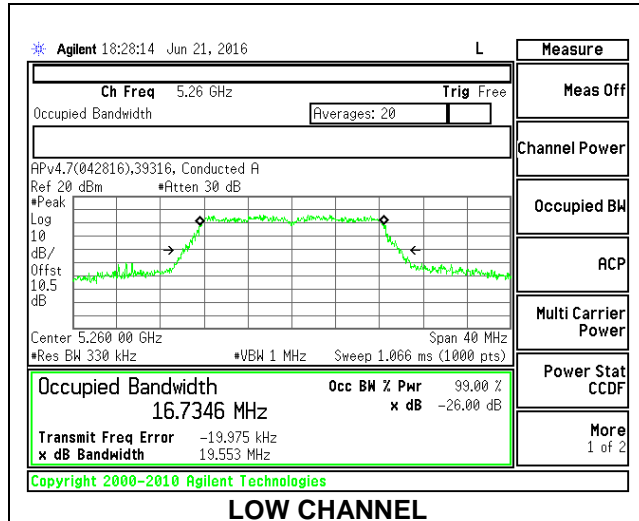
### 4.3.4. 802.11ac VHT80 MODE IN THE 5.2 GHZ BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5210	76.01



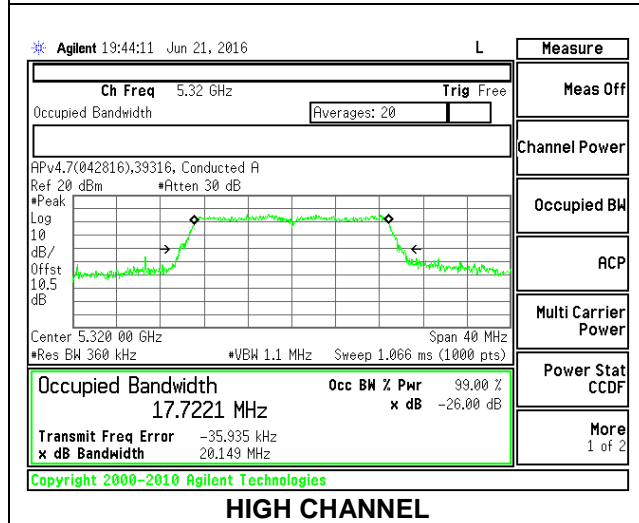
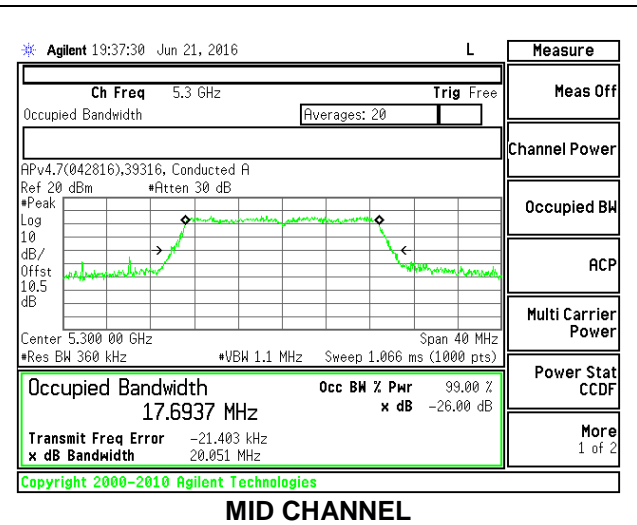
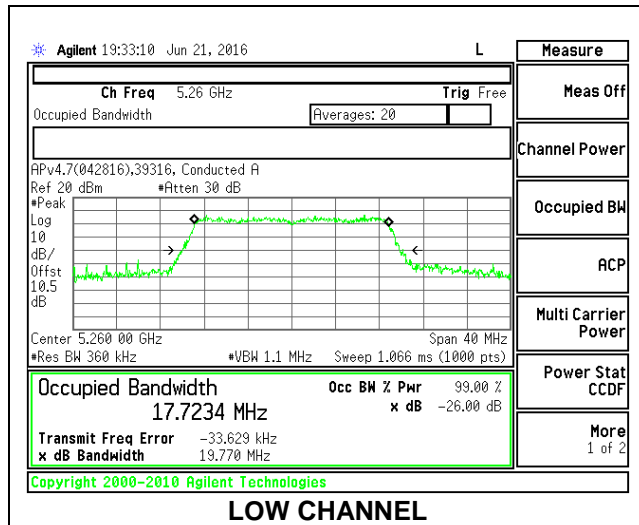
### 4.3.5. 802.11a MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	16.73
Mid	5300	16.64
High	5320	16.72



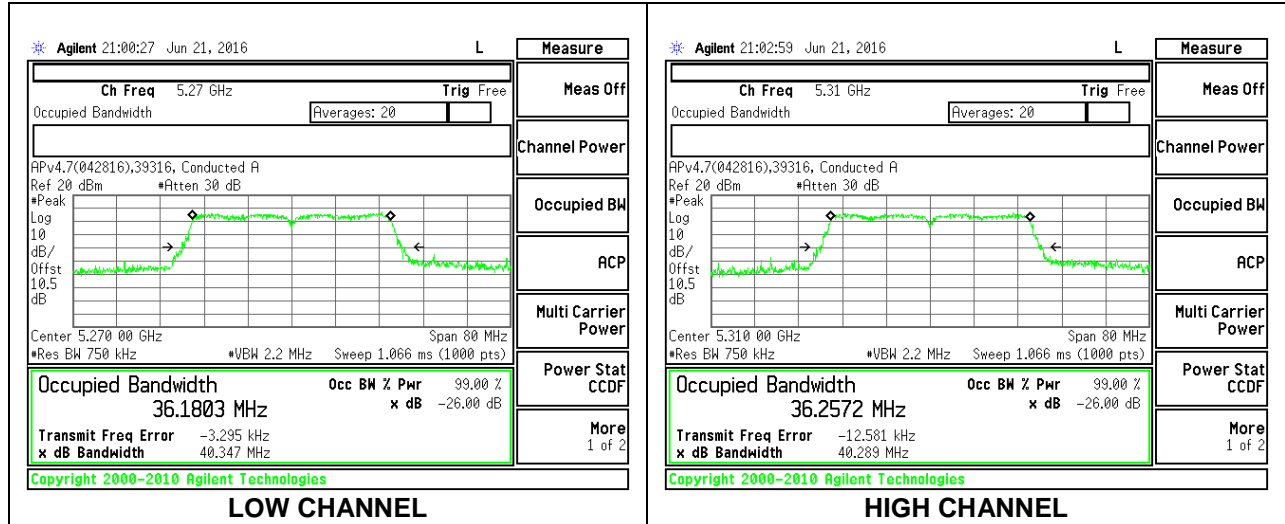
### 4.3.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5260	17.72
Mid	5300	17.69
High	5320	17.72



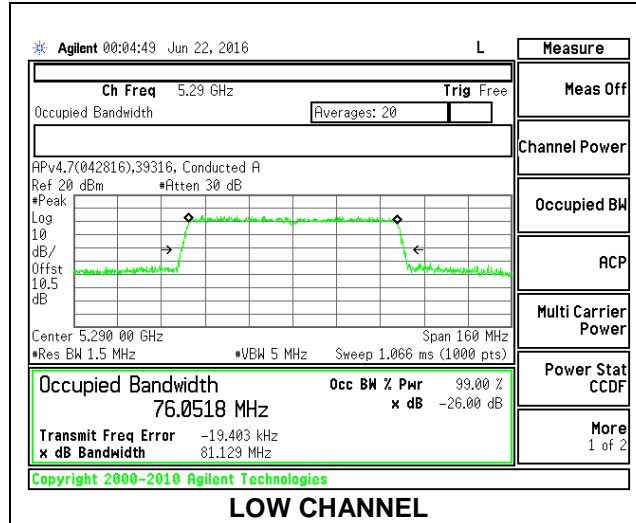
### 4.3.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5270	36.18
High	5310	36.26



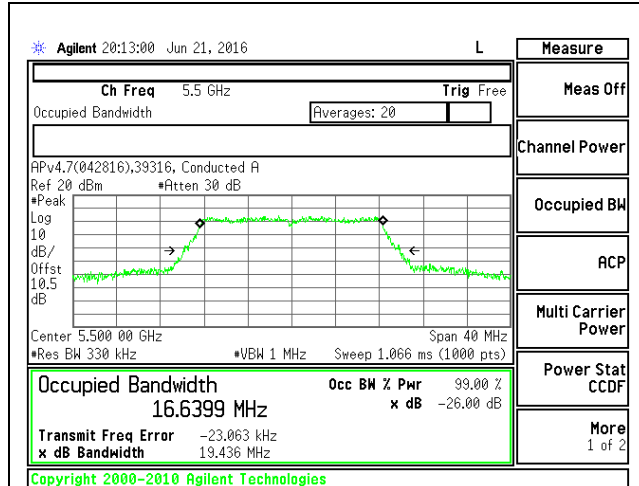
### 4.3.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5290	76.05

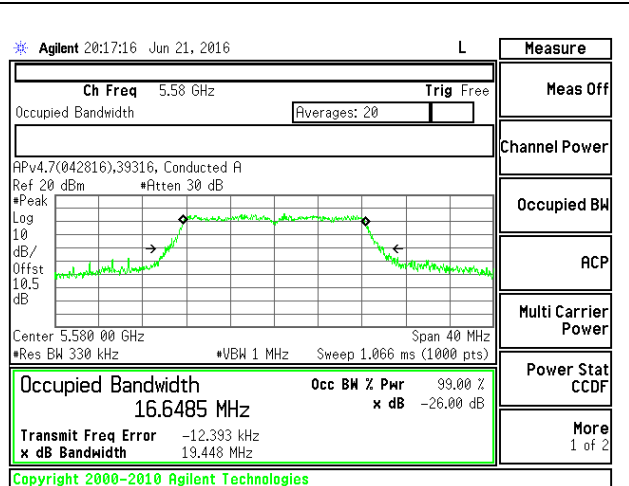


### 4.3.9. 802.11a MODE IN THE 5.6 GHz BAND

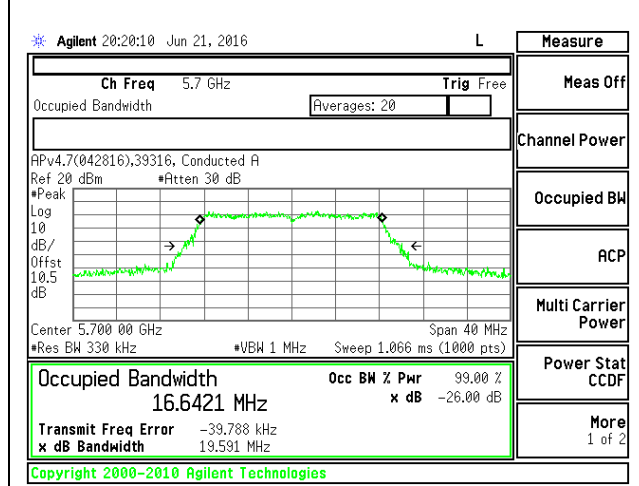
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	16.64
Mid	5580	16.65
High	5700	16.64
144	5720	16.66



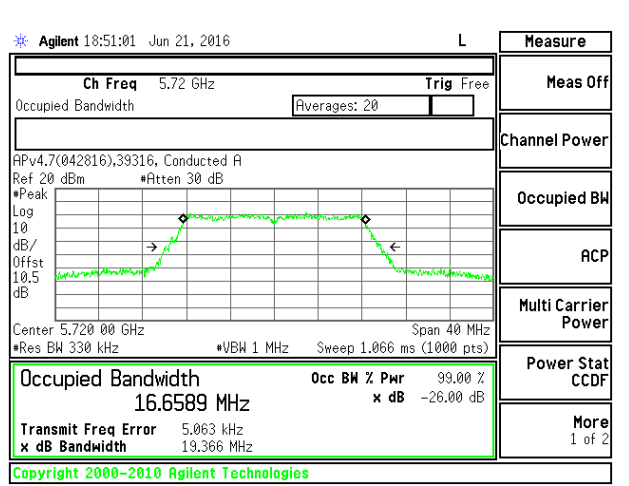
LOW CHANNEL



MID CHANNEL



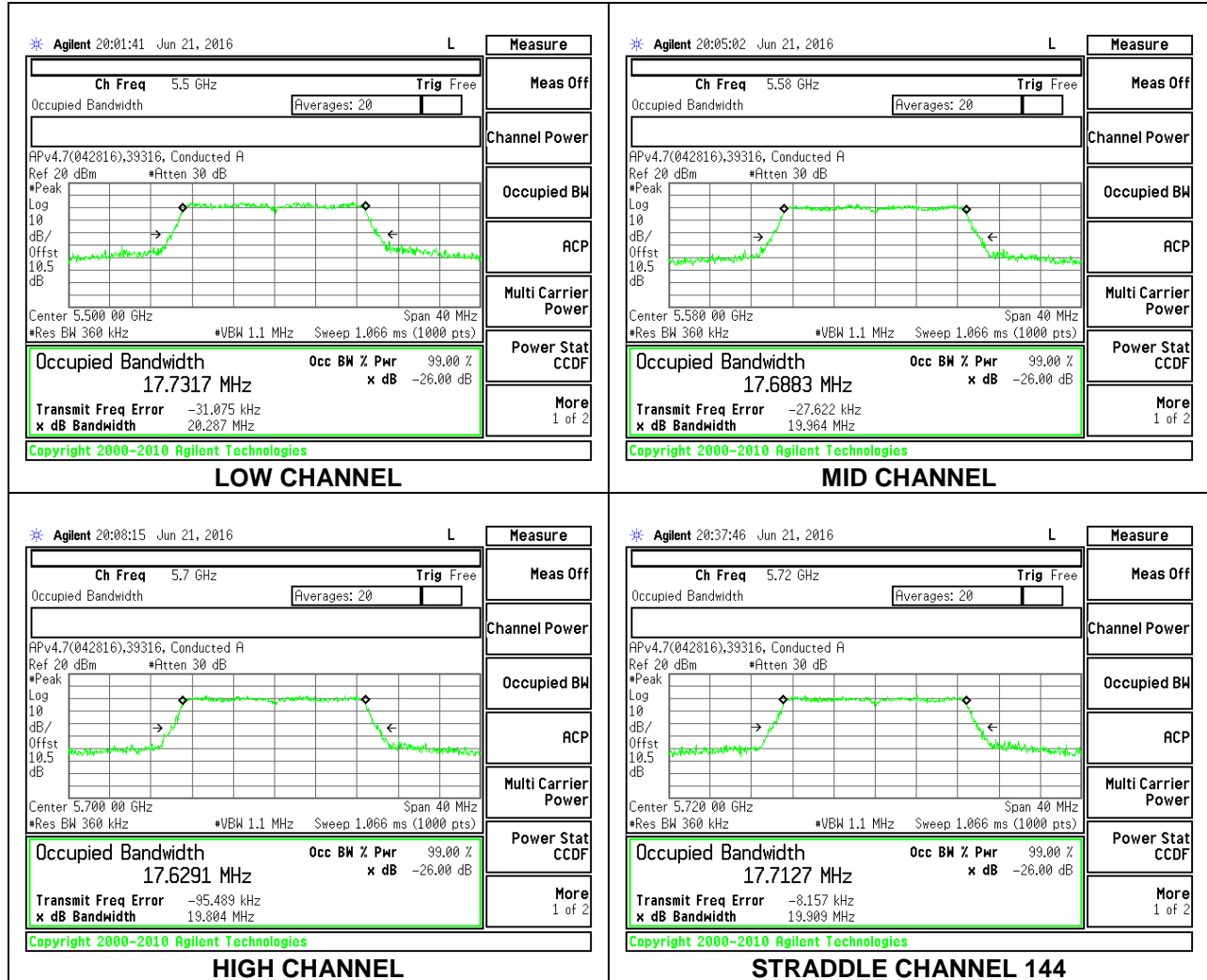
HIGH CHANNEL



STRADDLE CHANNEL 144

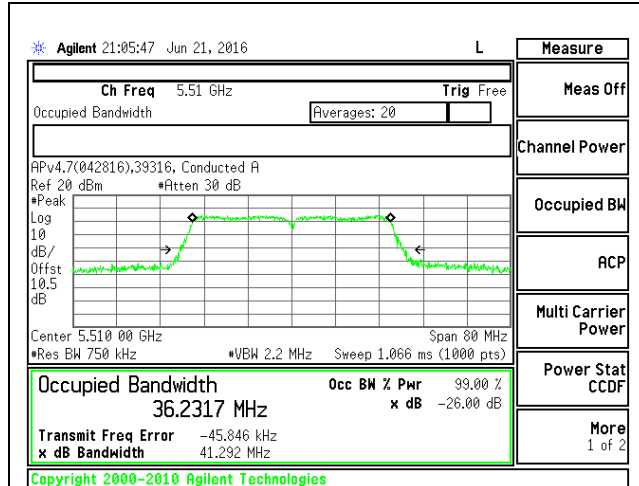
### 4.3.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5500	17.73
Mid	5580	17.69
High	5700	17.63
144	5720	17.71

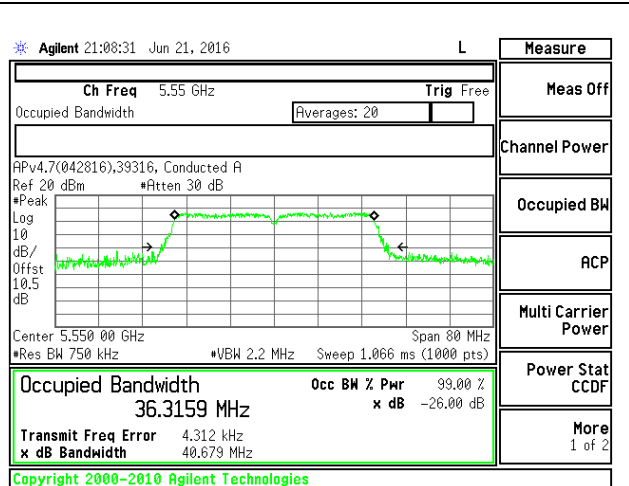


### 4.3.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND

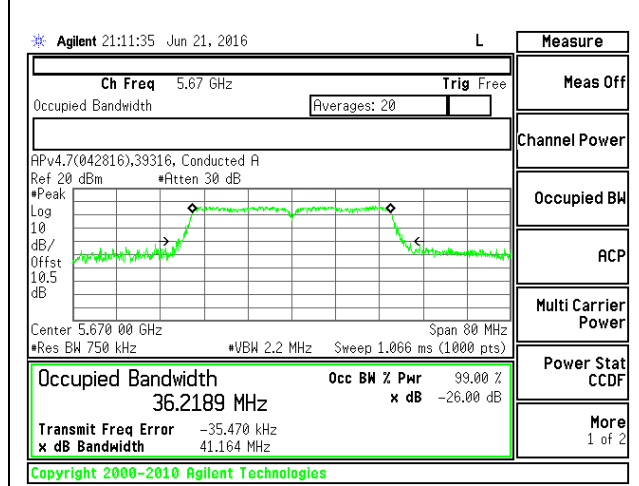
Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5510	36.23
Mid	5550	36.32
High	5670	36.22
142	5710	36.24



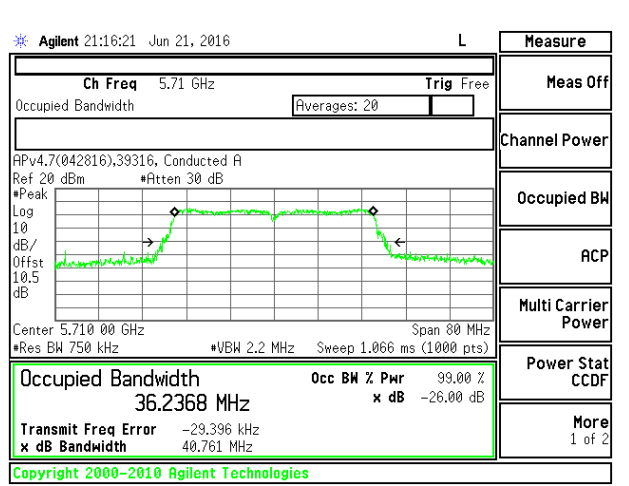
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

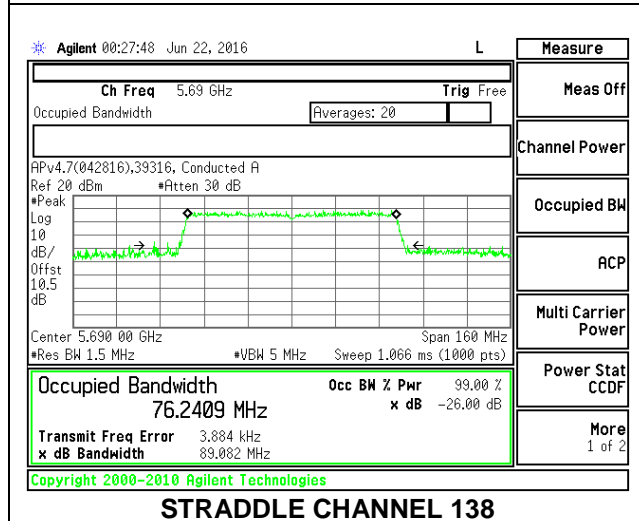
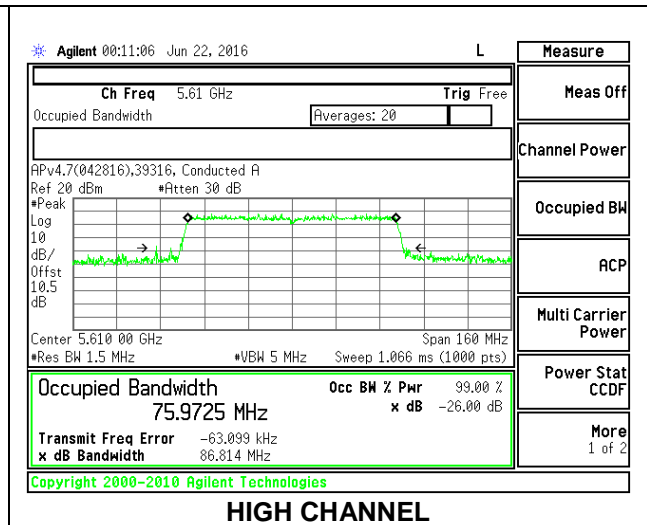
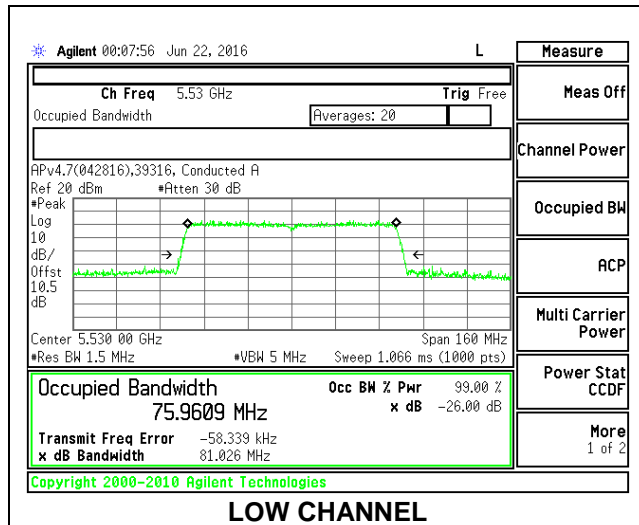


STRADDLE CHANNEL 142



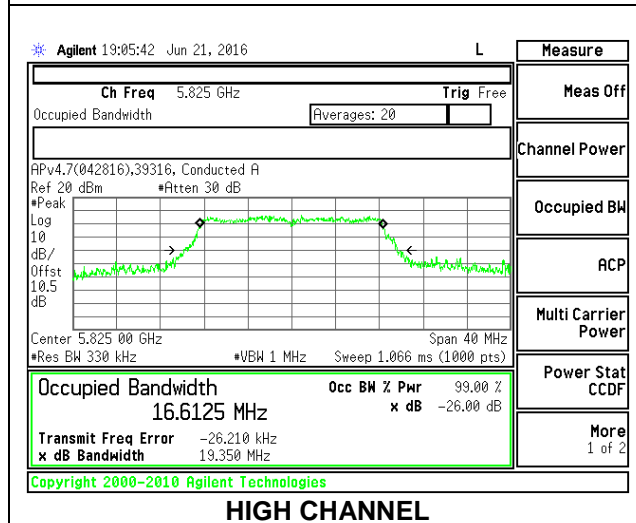
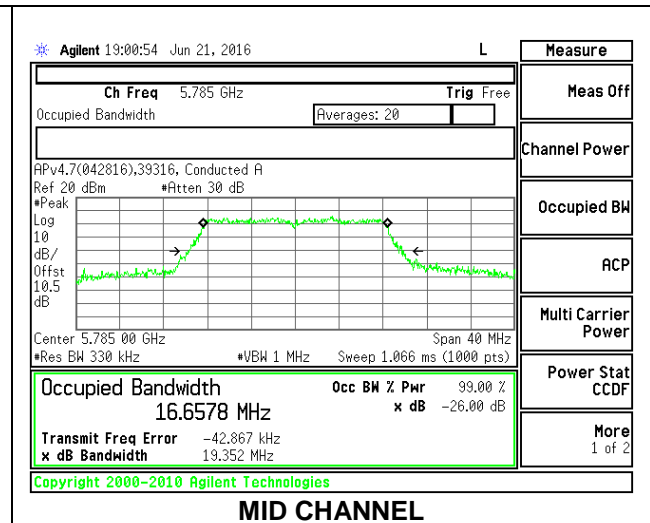
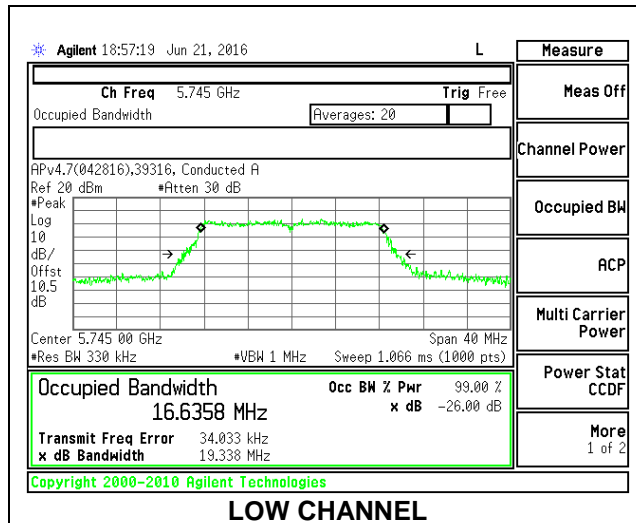
### 4.3.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5530	75.96
High	5610	75.97
138	5690	76.24



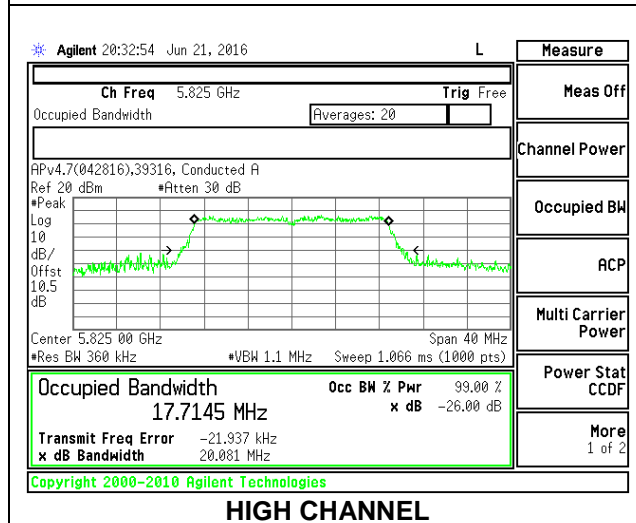
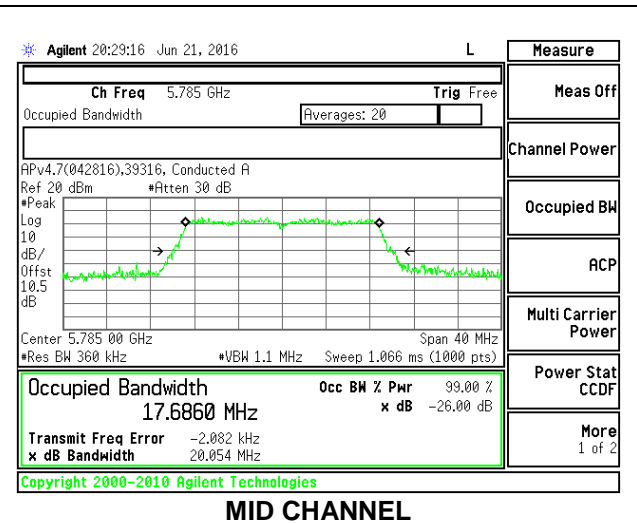
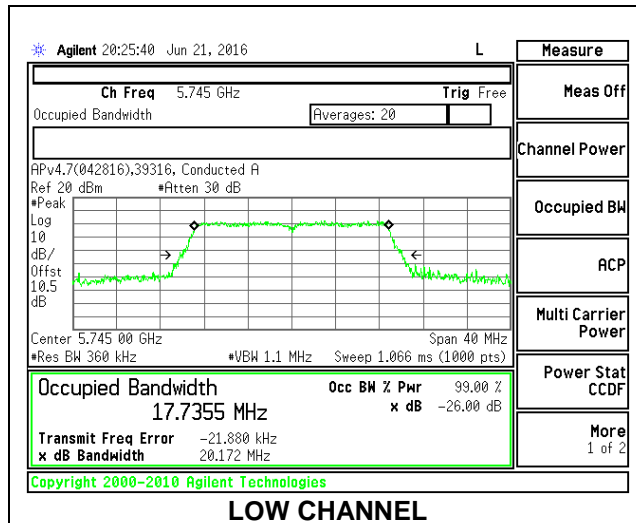
### 4.3.13. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	16.64
Mid	5785	16.66
High	5825	16.61



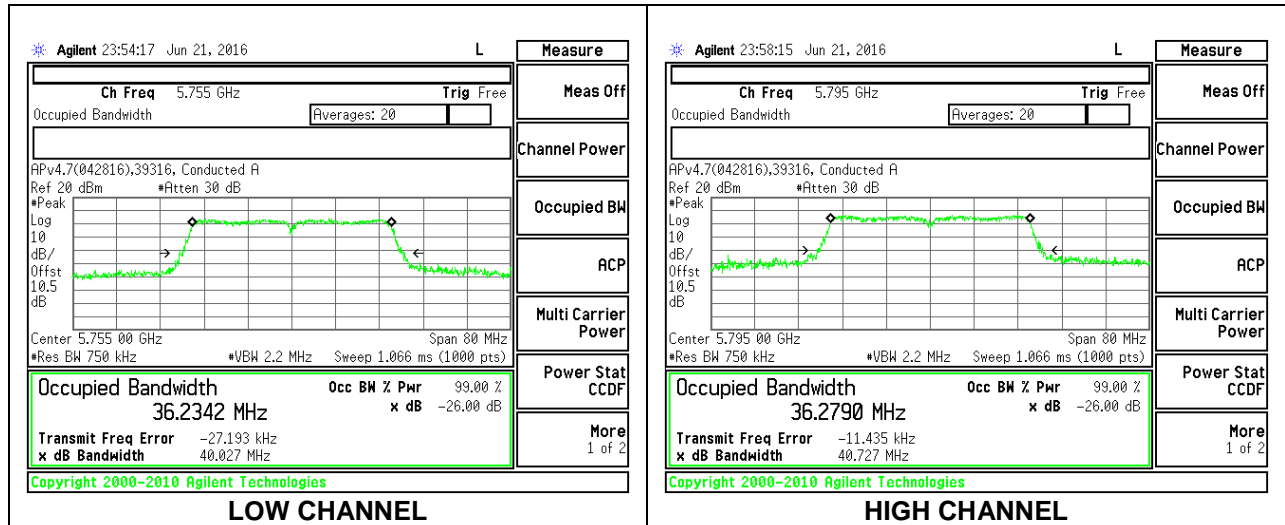
### 4.3.14. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5745	17.74
Mid	5785	17.69
High	5825	17.71



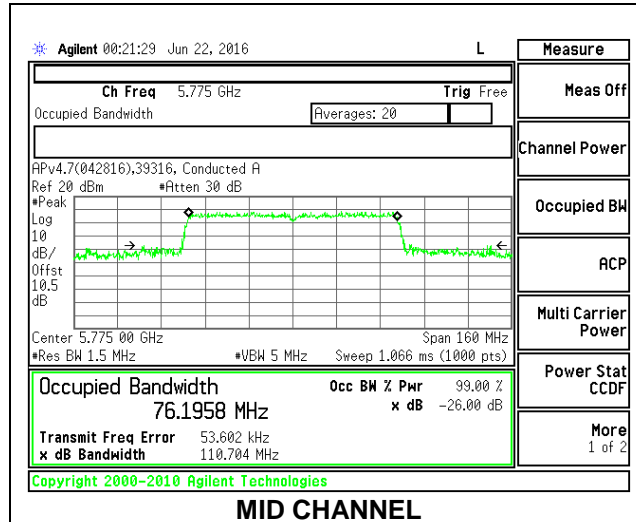
### 4.3.15. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	5755	36.23
High	5795	36.28



**4.3.16. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Mid	5775	76.20



**MID CHANNEL**

#### **4.4. 6 dB BANDWIDTH**

##### **LIMITS**

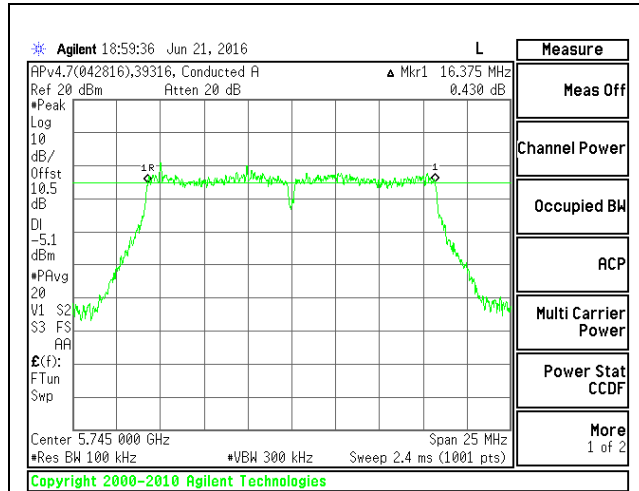
FCC §15.407  
RSS-247 6.2.4

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

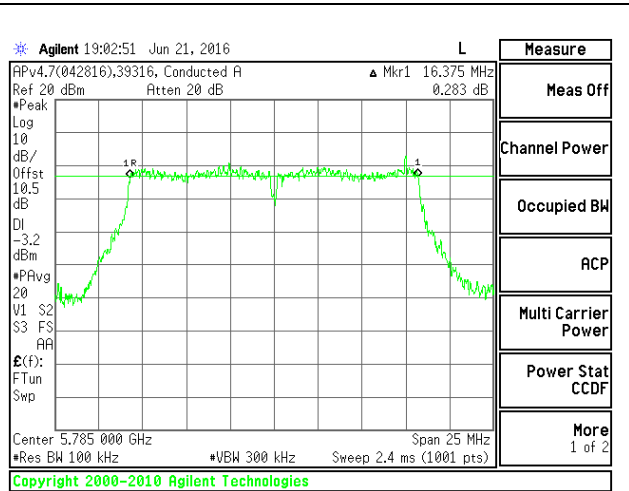
##### **RESULTS**

### 4.4.1. 802.11a MODE IN THE 5.8 GHz BAND

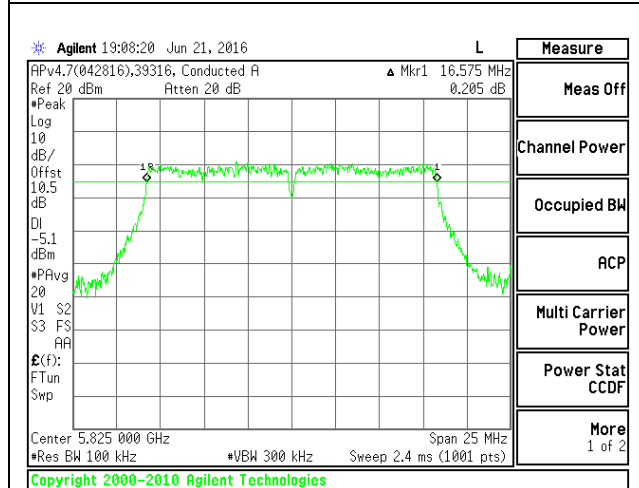
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	16.375	0.5
Mid	5785	16.375	0.5
High	5825	16.575	0.5
144	5720	3.275	0.5



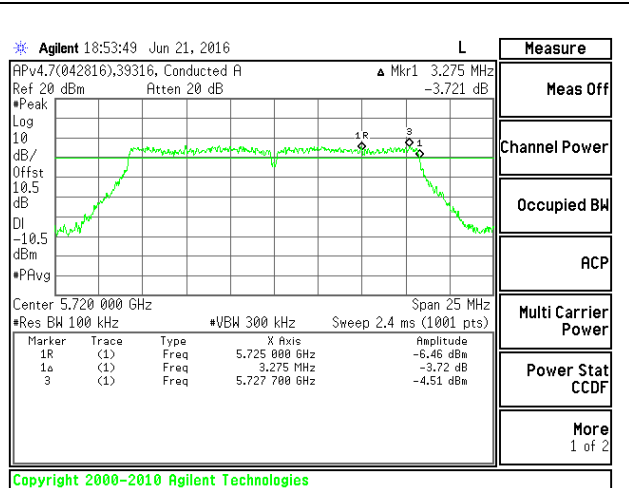
LOW CHANNEL



MID CHANNEL



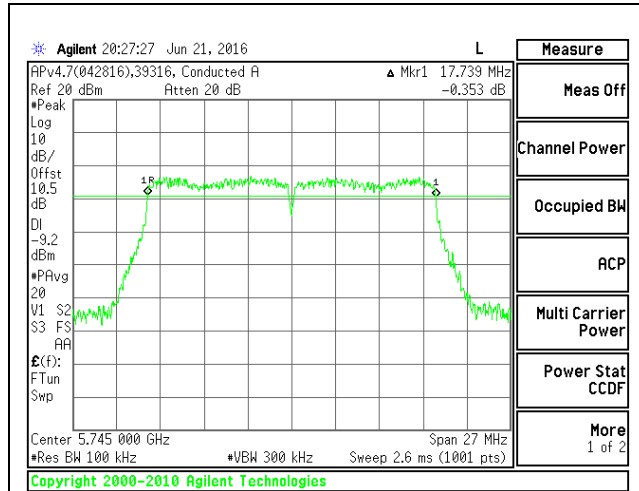
HIGH CHANNEL



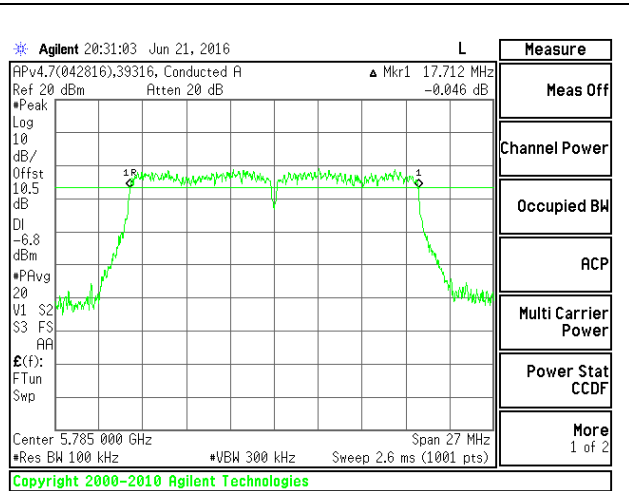
STRADDLE CHANNEL 144

### 4.4.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

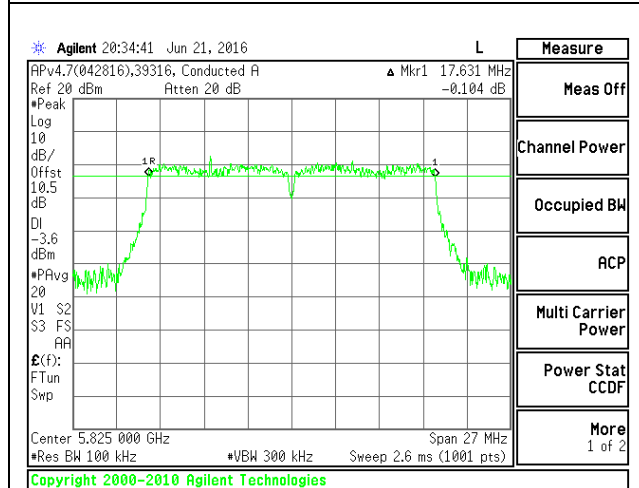
Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5745	17.739	0.5
Mid	5785	17.712	0.5
High	5825	17.631	0.5
144	5720	3.726	0.5



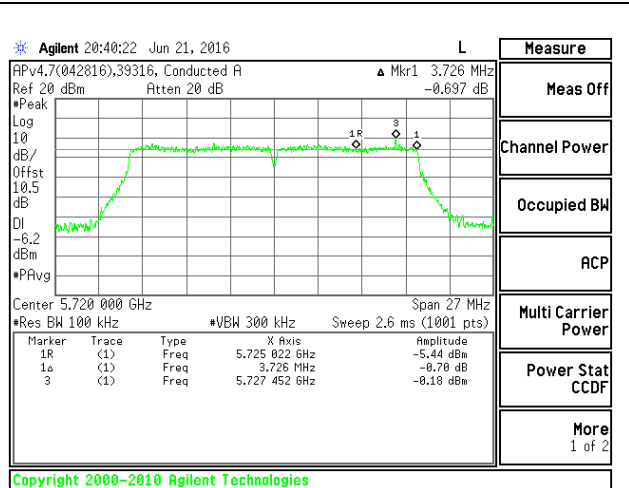
LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

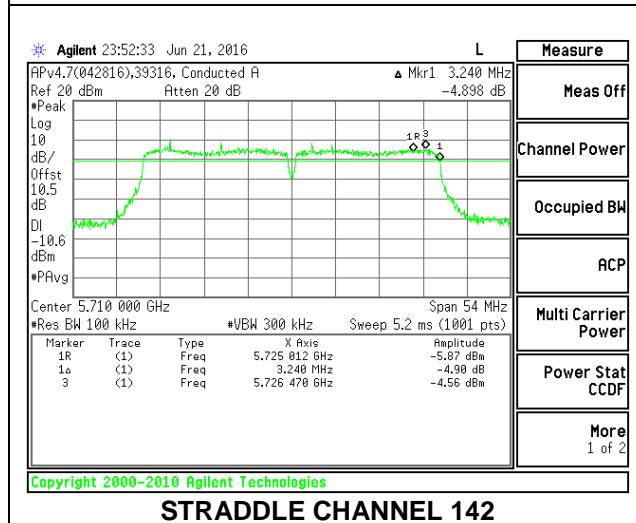
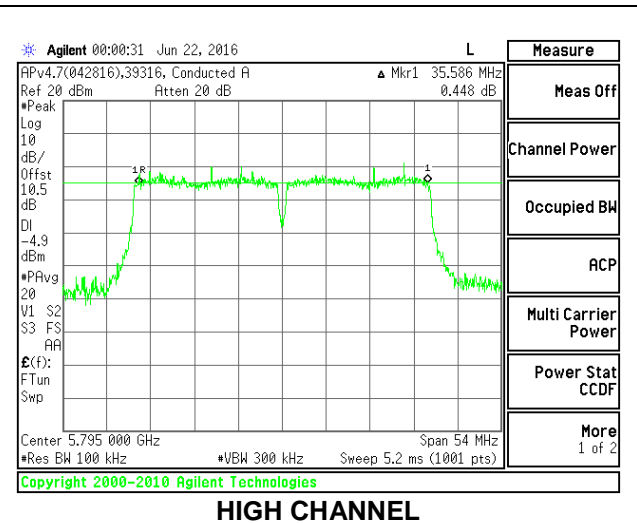
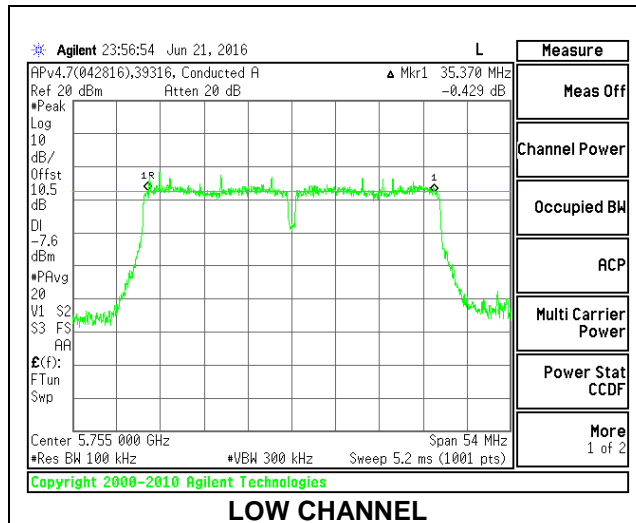


STRADDLE CHANNEL 144



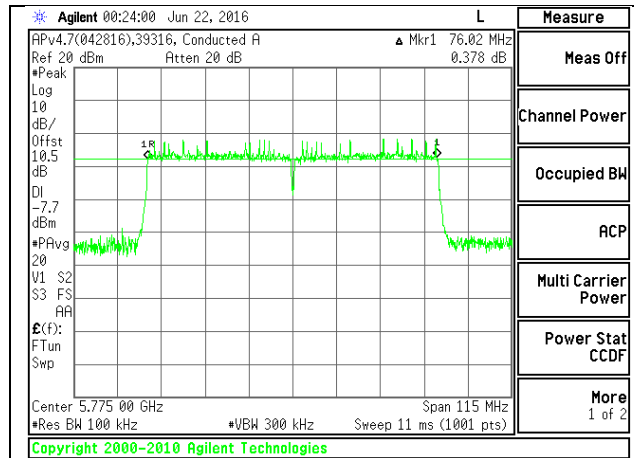
### 4.4.3. 802.11n HT40 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	5755	35.370	0.5
High	5795	35.586	0.5
142	5710	3.240	0.5

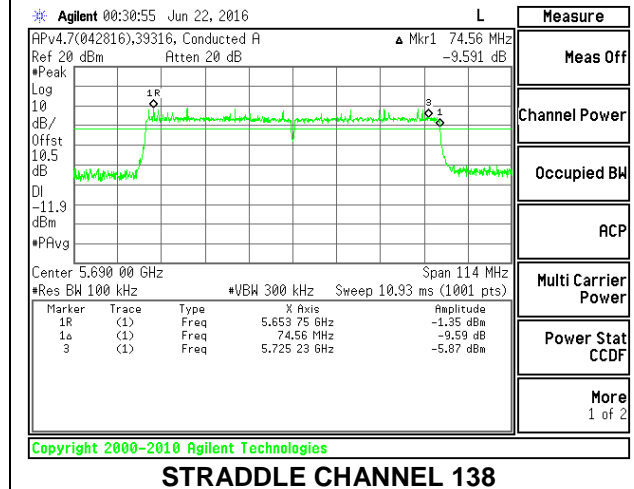


### 4.4.4. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Mid	5775	76.020	0.5
138	5690	74.560	0.5



**MID CHANNEL**



**STRADDLE CHANNEL 138**

## 4.5. OUTPUT POWER AND PPSD

### LIMITS

#### **FCC §15.407**

##### **Band 5.15–5.25 GHz**

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

##### **Bands 5.25-5.35 GHz and 5.47-5.725 GHz**

The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz 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.

##### **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. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

## IC RSS-247

### Band 5.15-5.25 GHz

The maximum e.i.r.p. shall not exceed 200 mW or  $10 + 10 \log_{10}B$ , dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

### Band 5.25-5.35 GHz

The maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10}B$ , dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10}B$ , dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

### Bands 5.47-5.6 GHz and 5.65-5.725 GHz

The maximum conducted output power shall not exceed 250 mW or  $11 + 10 \log_{10}B$ , dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or  $17 + 10 \log_{10}B$ , dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

### Band 5.725-5.85 GHz

The maximum conducted output power shall not exceed 1 W. The 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 power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

### DIRECTIONAL ANTENNA GAIN

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

**RESULTS**

**4.5.1. 802.11a MODE IN THE 5.2 GHz BAND**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	20.12	16.59	3.70
Mid	5200	20.18	16.70	3.70
High	5240	20.27	16.68	3.70

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.20	18.50	18.50	11.00	10.00	6.30
Mid	5200	24.00	22.23	18.53	18.53	11.00	10.00	6.30
High	5240	24.00	22.22	18.52	18.52	11.00	10.00	6.30

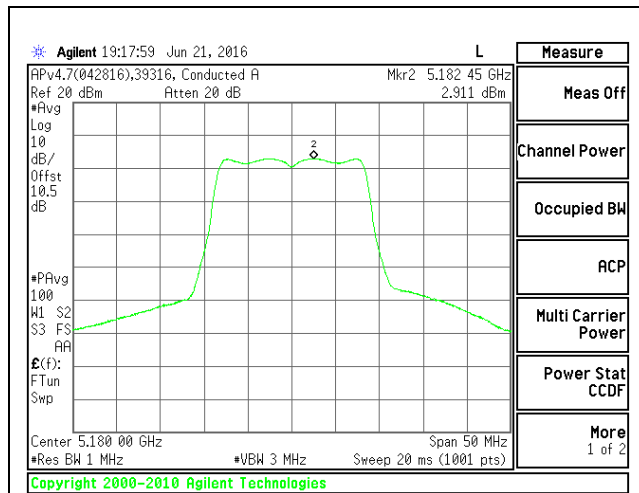
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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**Output Power Results**

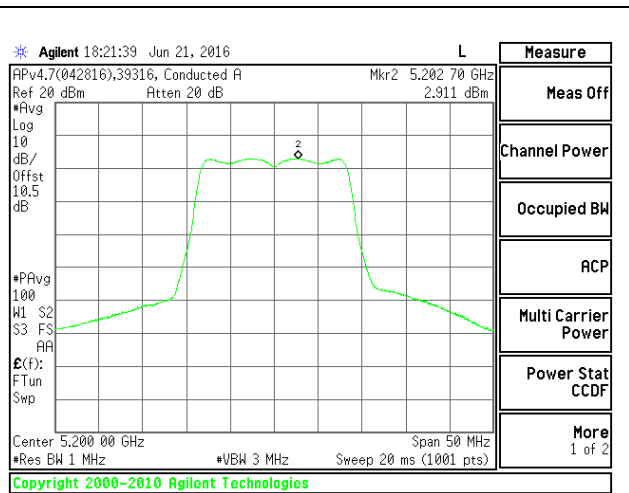
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	15.08	15.08	18.50	-3.42
Mid	5200	15.07	15.07	18.53	-3.46
High	5240	15.03	15.03	18.52	-3.49

**PPSD Results**

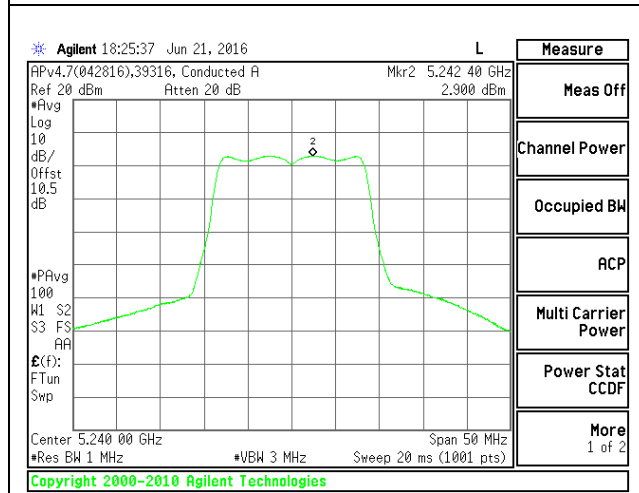
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	2.91	2.91	6.30	-3.39
Mid	5200	2.91	2.91	6.30	-3.39
High	5240	2.90	2.90	6.30	-3.40



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

### 4.5.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

#### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5180	20.43	17.73	3.70
Mid	5200	20.43	17.72	3.70
High	5240	20.89	17.68	3.70

#### Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5180	24.00	22.49	18.79	18.79	11.00	10.00	6.30
Mid	5200	24.00	22.48	18.78	18.78	11.00	10.00	6.30
High	5240	24.00	22.47	18.77	18.77	11.00	10.00	6.30

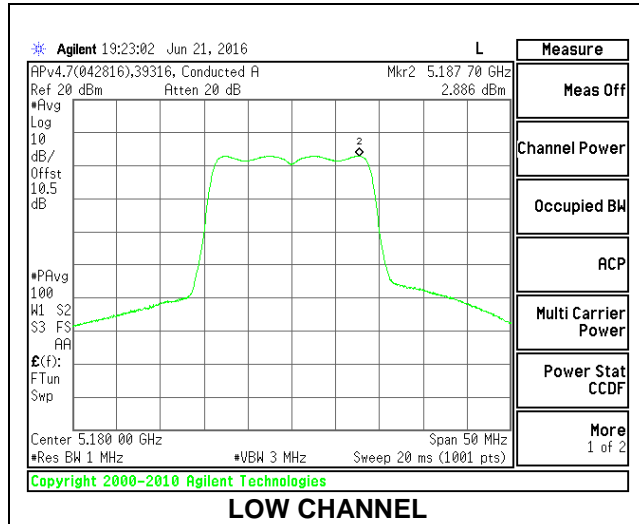
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PSD</b>
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#### Output Power Results

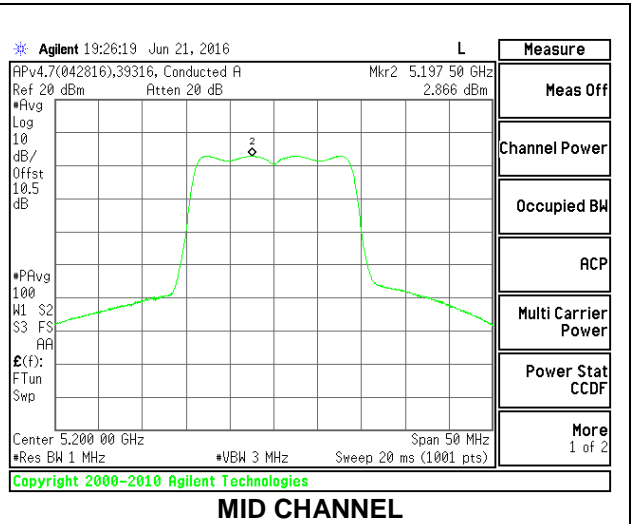
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5180	15.15	15.15	18.79	-3.64
Mid	5200	14.91	14.91	18.78	-3.87
High	5240	15.04	15.04	18.77	-3.73

#### PPSD Results

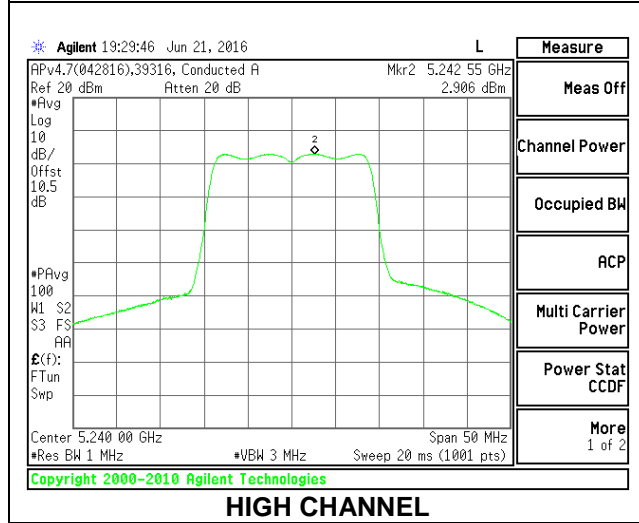
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5180	2.89	2.89	6.30	-3.41
Mid	5200	2.87	2.87	6.30	-3.43
High	5240	2.91	2.91	6.30	-3.39



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



### 4.5.3. 802.11n HT40 MODE IN THE 5.2 GHz BAND

#### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5190	41.71	36.24	3.70
High	5230	41.23	36.25	3.70

#### Limits

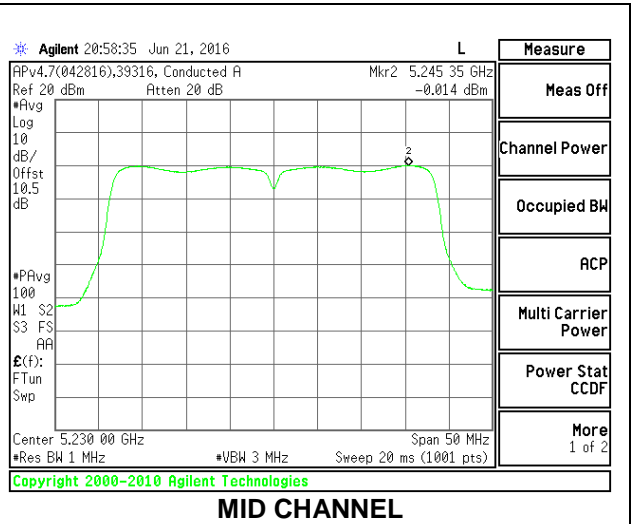
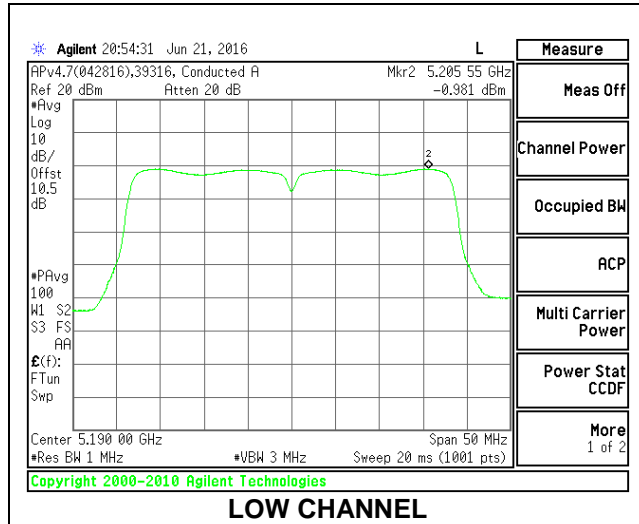
Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Low	5190	24.00	23.00	19.30	19.30	11.00	10.00	6.30
High	5230	24.00	23.00	19.30	19.30	11.00	10.00	6.30
<b>Duty Cycle CF (dB)</b>		0.00	<b>Included in Calculations of Corr'd PPSD</b>					

#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5190	13.95	13.95	19.30	-5.35
High	5230	14.98	14.98	19.30	-4.32

#### PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5190	-0.98	-0.98	6.30	-7.28
High	5230	-0.01	-0.01	6.30	-6.31



#### 4.5.4. 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

##### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5210	83.00	76.01	3.70

##### Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC EIRP Limit (dBm)	Max IC Power (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC eirp PSD Limit (dBm)	PPSD Limit (dBm)
Mid	5210	24.00	23.00	19.30	19.30	11.00	10.00	6.30

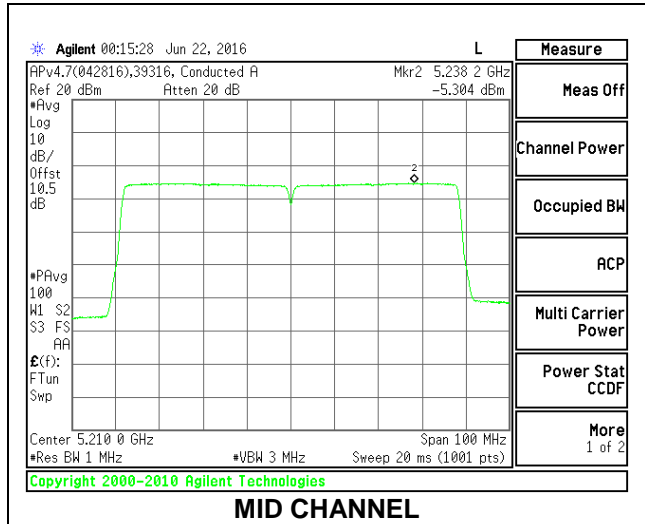
Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd PPSSD
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##### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5210	13.38	13.38	19.30	-5.92

##### PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5210	-5.30	-5.21	6.30	-11.51



### 4.5.5. 802.11a MODE IN THE 5.3 GHz BAND

#### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	20.96	16.730	3.70
Mid	5300	20.55	16.640	3.70
High	5320	20.31	16.720	3.70

#### Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.23	29.23	23.23	11.00	11.00	11.00
Mid	5300	24.00	23.21	29.21	23.21	11.00	11.00	11.00
High	5320	24.00	23.23	29.23	23.23	11.00	11.00	11.00

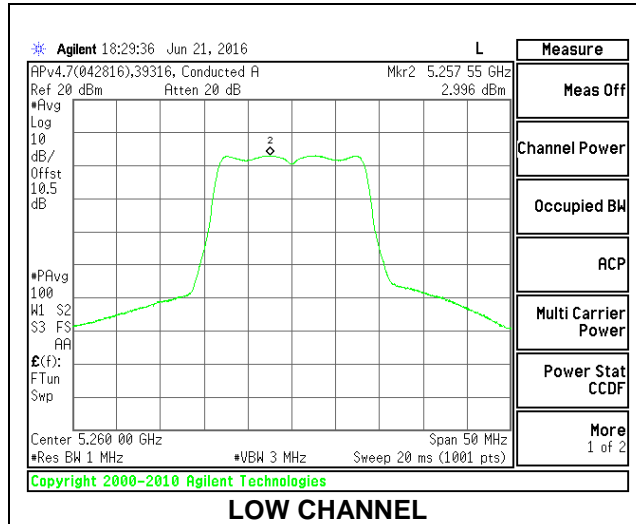
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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#### Output Power Results

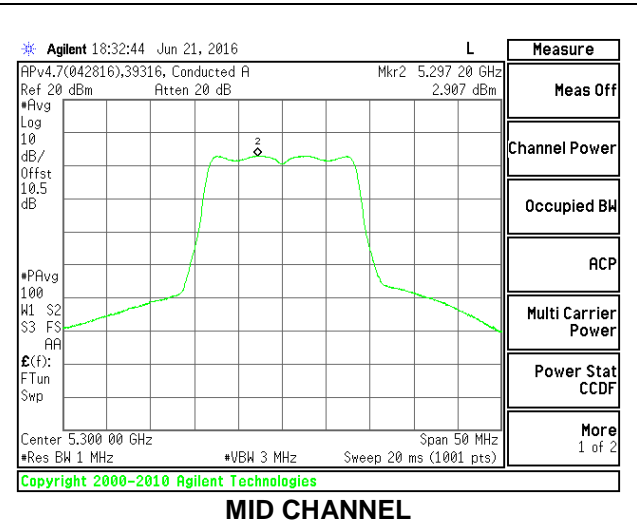
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.070	15.07	23.23	-8.16
Mid	5300	15.120	15.12	23.21	-8.09
High	5320	15.050	15.05	23.23	-8.18

#### PPSD Results

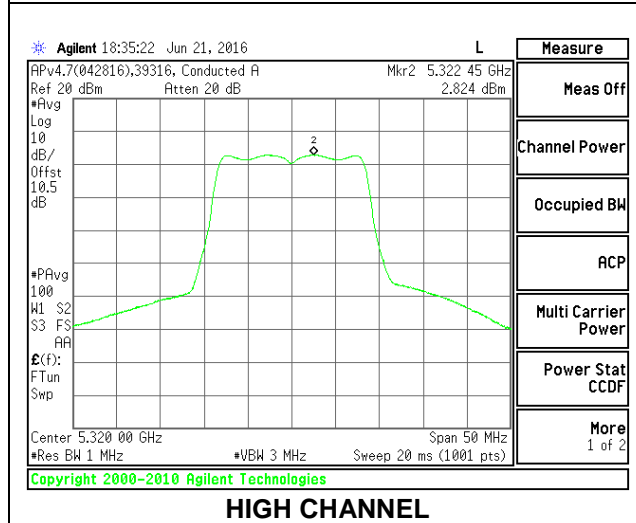
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	2.996	3.00	11.00	-8.00
Mid	5300	2.907	2.91	11.00	-8.09
High	5320	2.824	2.82	11.00	-8.18



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

### 4.5.6. 802.11n HT20 MODE IN THE 5.3 GHz BAND(FD in review)

#### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5260	20.43	17.720	3.70
Mid	5300	20.43	17.690	3.70
High	5320	20.93	17.720	3.70

#### Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5260	24.00	23.48	29.48	23.48	11.00	11.00	11.00
Mid	5300	24.00	23.48	29.48	23.48	11.00	11.00	11.00
High	5320	24.00	23.48	29.48	23.48	11.00	11.00	11.00

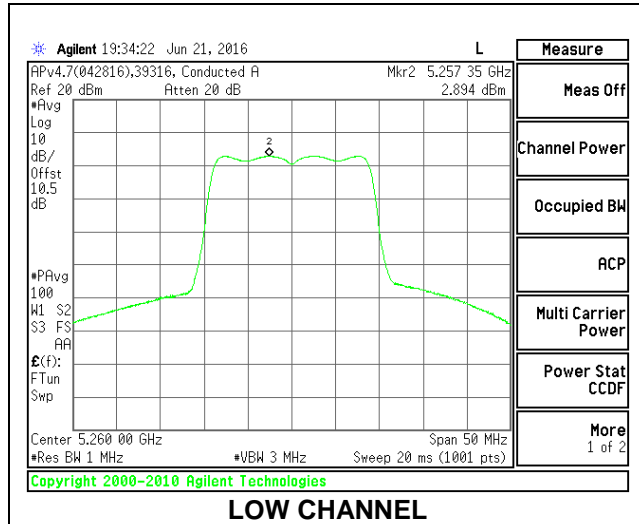
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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#### Output Power Results

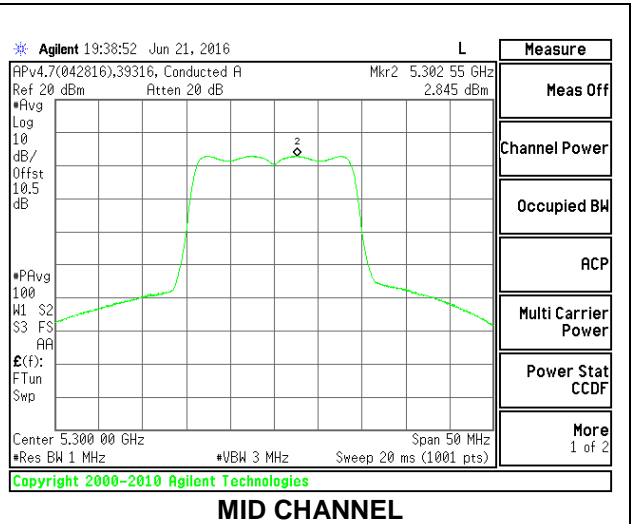
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5260	15.10	15.10	23.48	-8.38
Mid	5300	15.04	15.04	23.48	-8.44
High	5320	14.99	14.99	23.48	-8.49

#### PPSD Results

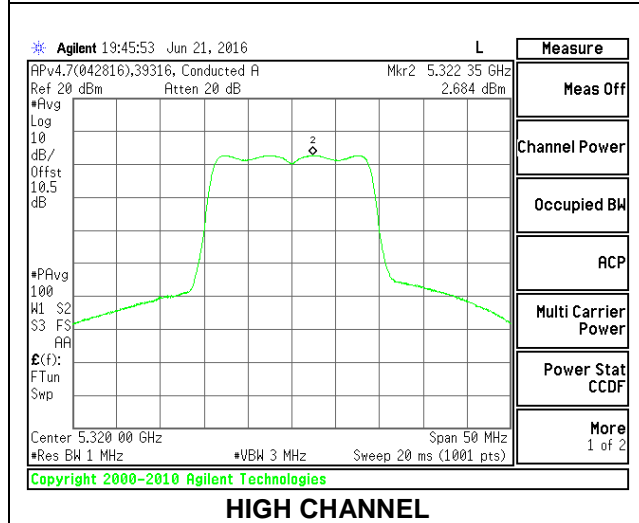
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5260	2.89	2.89	11.00	-8.11
Mid	5300	2.85	2.85	11.00	-8.16
High	5320	2.68	2.68	11.00	-8.32



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



### 4.5.7. 802.11n HT40 MODE IN THE 5.3 GHz BAND

#### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5270	42.1	36.2	3.70
High	5310	42.2	36.3	3.70

#### Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5270	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5310	24.00	24.00	30.00	24.00	11.00	11.00	11.00

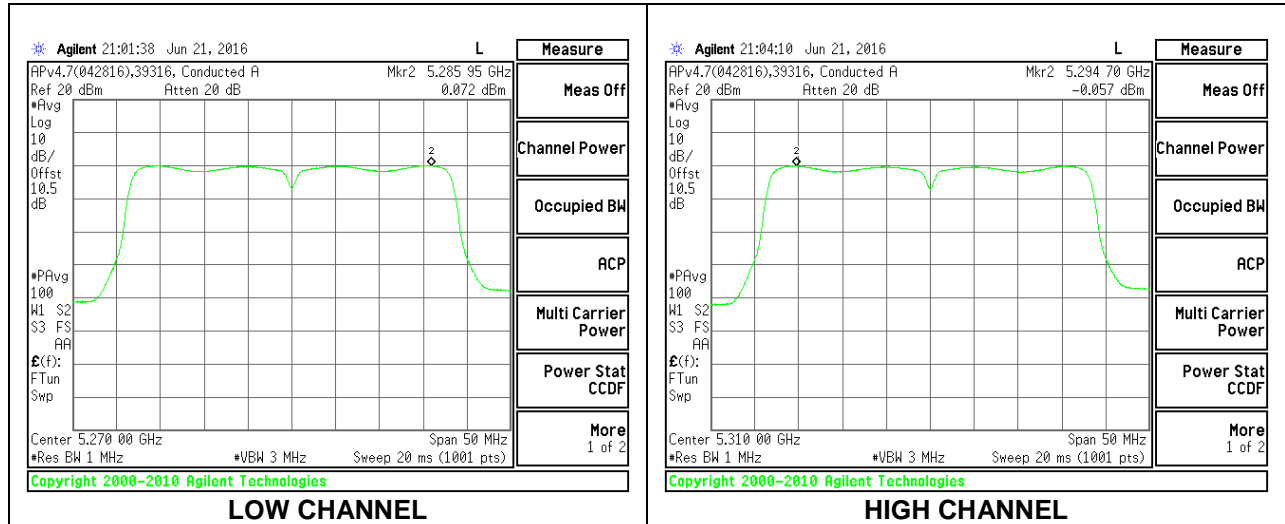
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSP</b>
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#### Output Power Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5270	14.95	14.95	24.00	-9.05
High	5310	14.97	14.97	24.00	-9.03

#### PPSD Results

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5270	0.07	0.07	11.00	-10.93
High	5310	-0.06	-0.06	11.00	-11.06



**4.5.8. 802.11ac VHT80 MODE IN THE 5.3 GHz BAND**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Mid	5290	82.5	76.1	3.70

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Mid	5290	24.00	24.00	30.00	24.00	11.00	11.00	11.00

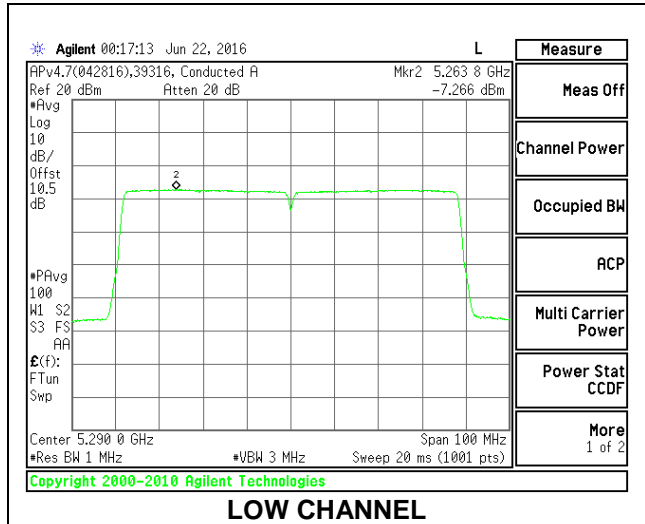
<b>Duty Cycle CF (dB)</b>	0.09	<b>Included in Calculations of Corr'd PPSD</b>
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**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5290	11.34	11.34	24.00	-12.66

**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5290	-7.27	-7.18	11.00	-18.18



### 4.5.9. 802.11a MODE IN THE 5.6 GHz BAND

#### Bandwidth and Antenna Gain

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	20.55	16.640	3.70
Mid	5580	20.40	16.650	3.70
High	5700	20.55	16.640	3.70

#### Limits

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.21	29.21	23.21	11.00	11.00	11.00
Mid	5580	24.00	23.21	29.21	23.21	11.00	11.00	11.00
High	5700	24.00	23.21	29.21	23.21	11.00	11.00	11.00

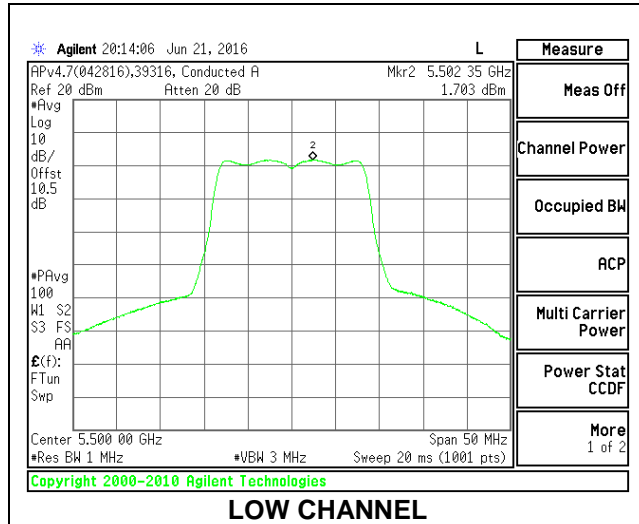
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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#### Output Power Results

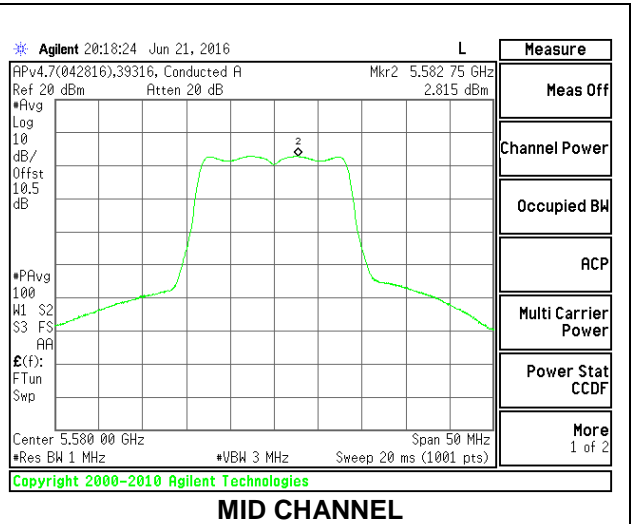
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	14.33	14.33	23.21	-8.88
Mid	5580	15.06	15.06	23.21	-8.15
High	5700	11.71	11.71	23.21	-11.50

#### PPSD Results

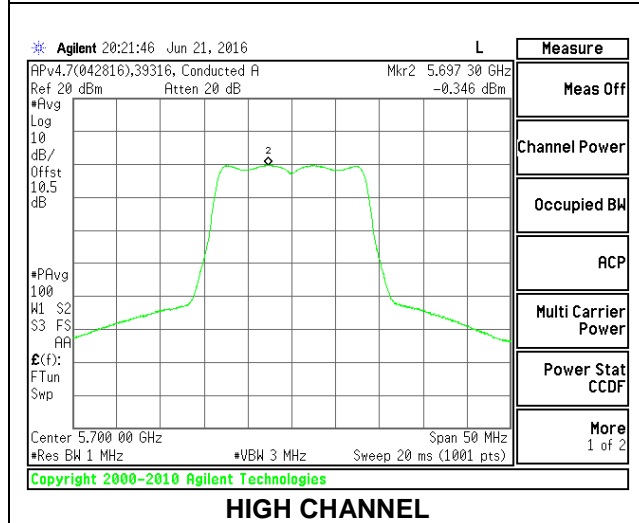
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	1.70	1.70	11.00	-9.30
Mid	5580	2.82	2.82	11.00	-8.19
High	5700	-0.35	-0.35	11.00	-11.35



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

**4.5.10. 802.11n HT20 MODE IN THE 5.6 GHz BAND**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5500	20.43	17.730	3.70
Mid	5580	20.43	17.690	3.70
High	5700	20.58	17.630	3.70

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5500	24.00	23.49	29.49	23.49	11.00	11.00	11.00
Mid	5580	24.00	23.48	29.48	23.48	11.00	11.00	11.00
High	5700	24.00	23.46	29.46	23.46	11.00	11.00	11.00

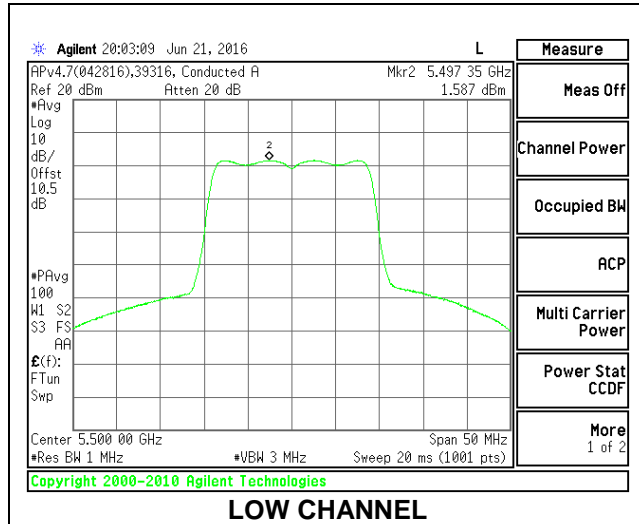
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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**Output Power Results**

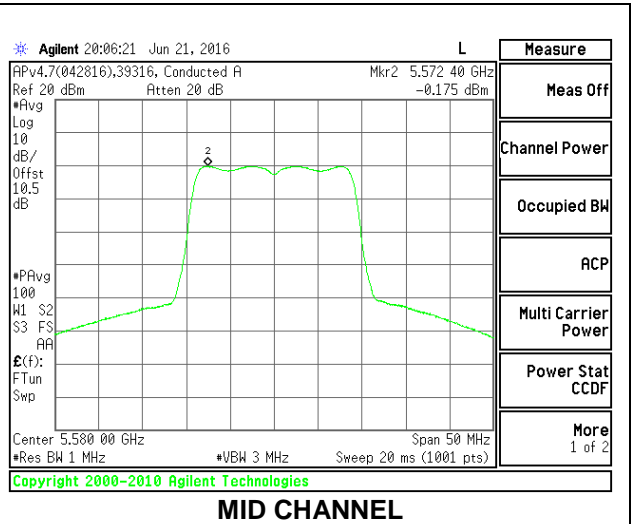
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5500	14.07	14.07	23.49	-9.42
Mid	5580	11.99	11.99	23.48	-11.49
High	5700	11.77	11.77	23.46	-11.69

**PPSD Results**

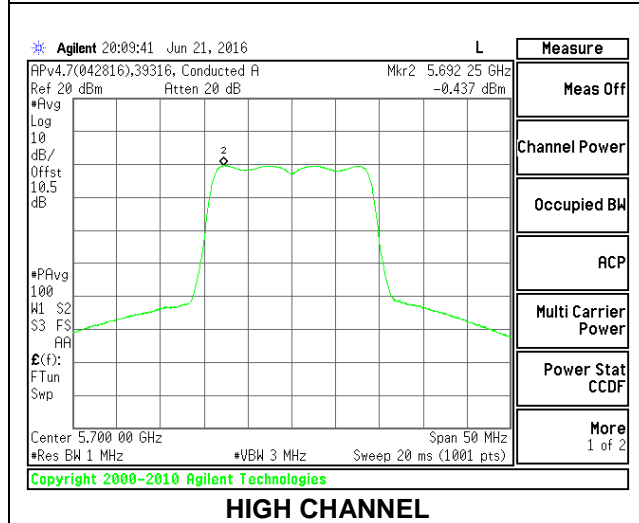
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5500	1.59	1.59	11.00	-9.41
Mid	5580	-0.18	-0.18	11.00	-11.18
High	5700	-0.44	-0.44	11.00	-11.44



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL



**4.5.11. 802.11n HT40 MODE IN THE 5.6 GHz BAND**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5510	41.4	36.230	3.70
Mid	5550	41.7	36.320	3.70
High	5670	41.5	36.220	3.70

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5510	24.00	24.00	30.00	24.00	11.00	11.00	11.00
Mid	5550	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5670	24.00	24.00	30.00	24.00	11.00	11.00	11.00

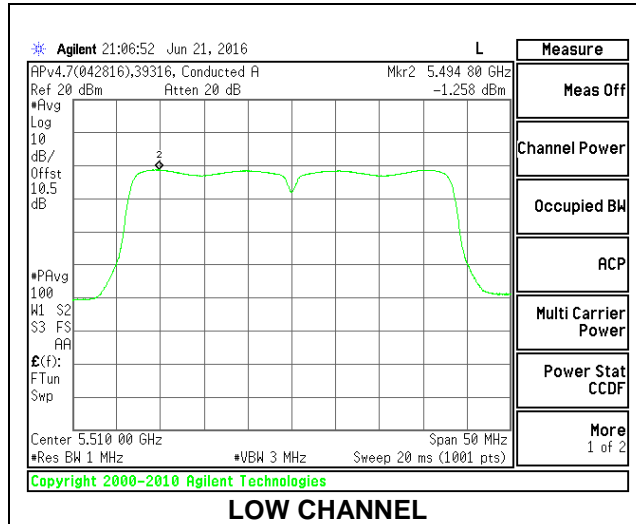
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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**Output Power Results**

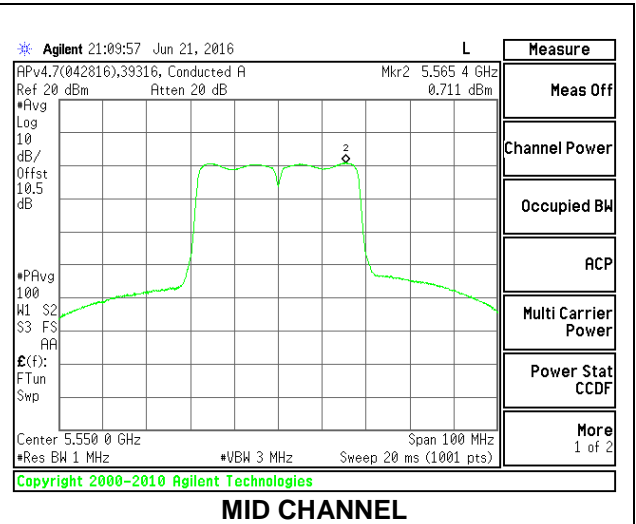
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5510	13.970	13.97	24.00	-10.03
Mid	5550	15.500	15.50	24.00	-8.50
High	5670	15.410	15.41	24.00	-8.59

**PPSD Results**

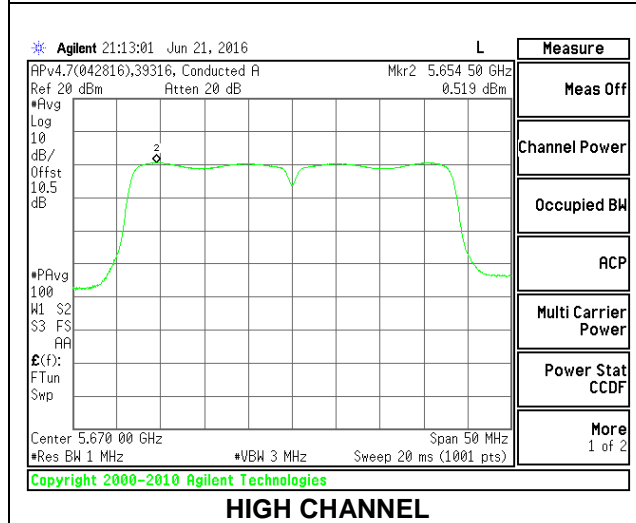
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5510	-1.258	-1.26	11.00	-12.26
Mid	5550	0.711	0.71	11.00	-10.29
High	5670	0.519	0.52	11.00	-10.48



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

**4.5.12. 802.11ac VHT80 MODE IN THE 5.6 GHz BAND**

**Bandwidth and Antenna Gain**

Channel	Frequency (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Directional Gain (dBi)
Low	5530	82.75	75.96	3.70
High	5610	83.00	75.97	3.70

**Limits**

Channel	Frequency (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
Low	5530	24.00	24.00	30.00	24.00	11.00	11.00	11.00
High	5610	24.00	24.00	30.00	24.00	11.00	11.00	11.00

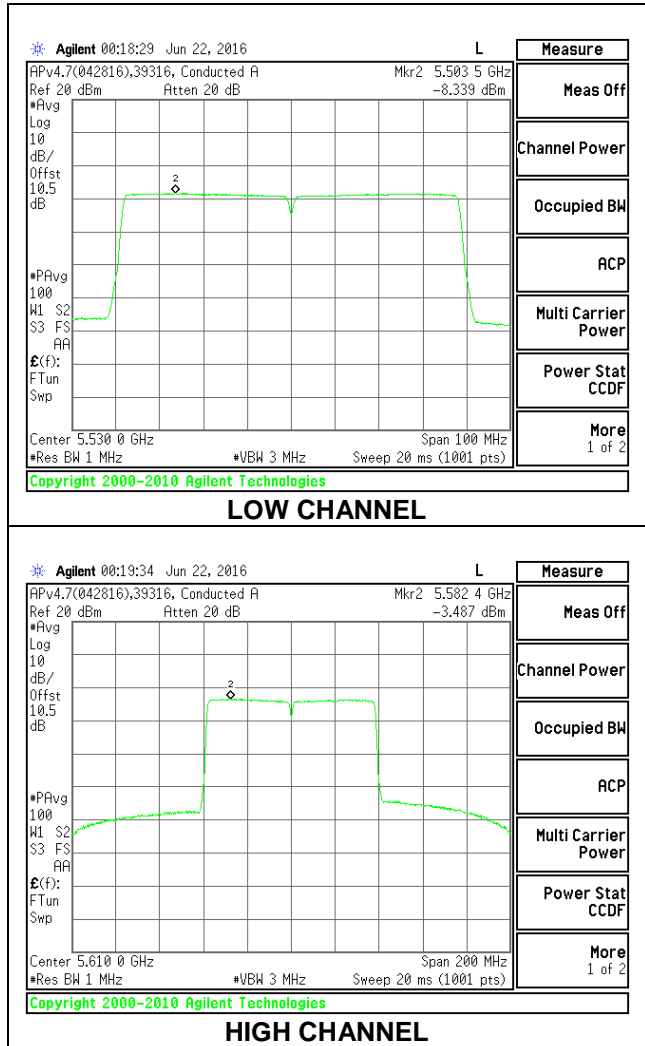
<b>Duty Cycle CF (dB)</b>	0.09	<b>Included in Calculations of Corr'd PPSS</b>
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**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5530	10.450	10.45	24.00	-13.55
High	5610	14.910	14.91	24.00	-9.09

**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5530	-8.339	-8.25	11.00	-19.25
High	5610	-3.487	-3.40	11.00	-14.40



**4.5.13. 802.11 STRADDLE CHANNELS IN THE 5.6 GHz BAND**

**Bandwidth and Antenna Gain**

Mode	Channel	Freq (MHz)	Min 26 dB BW (MHz)	Min 99% BW (MHz)	Duty Cycle Correction Factor (dB)	Directional Gain (dBi)
11a	144	5720	20.90	16.66	0.00	3.7
11n HT20	144	5720	20.80	17.71	0.00	3.7
11n HT40	142	5710	42.23	36.24	0.00	3.7
11ac VHT80	138	5690	82.9	76.24	0.09	3.7

**Limits**

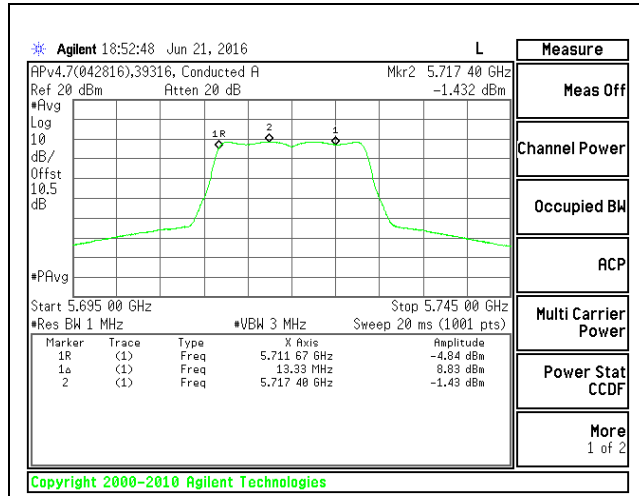
Mode	Channel	Freq (MHz)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Power Limit (dBm)	FCC PPSD Limit (dBm)	IC PSD Limit (dBm)	PPSD Limit (dBm)
11a	144	5720	24.00	23.22	29.22	23.22	11.00	11.00	11.00
11n HT20	144	5720	24.00	23.48	29.48	23.48	11.00	11.00	11.00
11n HT40	142	5710	24.00	24.00	30.00	24.00	11.00	11.00	11.00
11ac VHT80	138	5690	24.00	24.00	30.00	24.00	11.00	11.00	11.00

**Output Power Results**

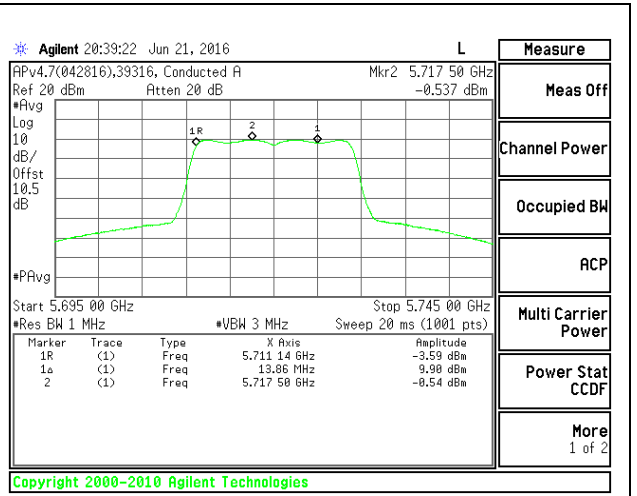
Mode	Channel	Freq (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
11a	144	5720	8.83	8.83	23.22	-14.39
11n HT20	144	5720	9.90	9.90	23.48	-13.58
11n HT40	142	5710	12.40	12.40	24.00	-11.60
11ac VHT80	138	5690	15.05	15.14	24.00	-8.86

**PPSD Results**

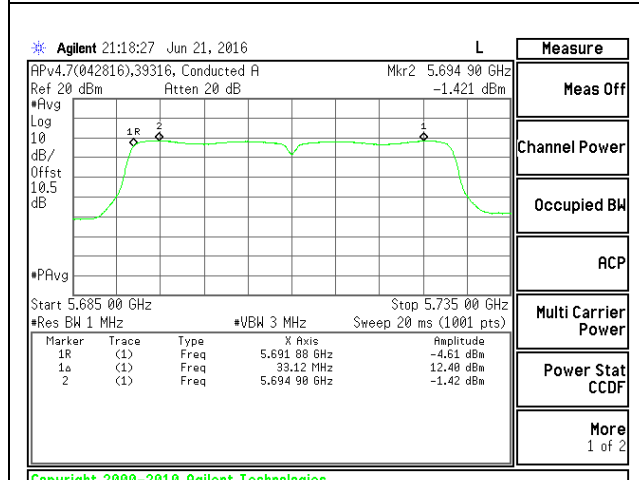
Mode	Channel	Freq (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
11a	144	5720	-1.43	-1.43	11.00	-12.43
11n HT20	144	5720	-0.54	-0.54	11.00	-11.54
11n HT40	142	5710	-1.42	-1.42	11.00	-12.42
11ac VHT80	138	5690	-2.86	-2.77	11.00	-13.77



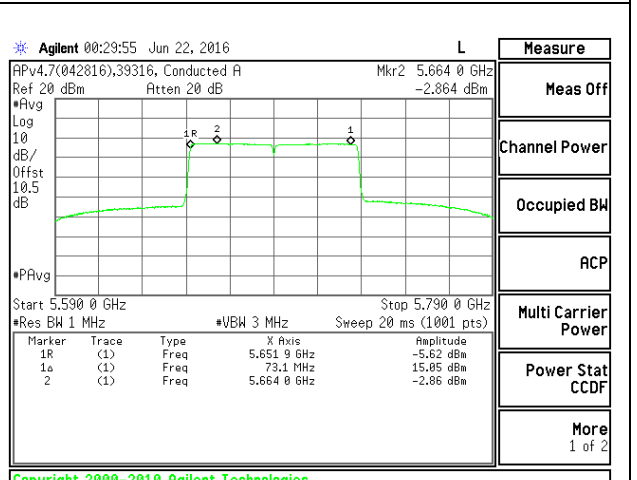
802.11a STRADDLE CHANNEL 144



802.11n HT20 STRADDLE CHANNEL 144



802.11n HT40 STRADDLE CHANNEL 142



802.11ac VHT80 STRADDLE CHANNEL 138

**4.5.14. 802.11 STRADDLE CHANNELS IN THE 5.8 GHz BAND**

**Antenna Gain and Limits**

Mode	Channel	Freq (MHz)	Duty Cycle Correction Factor (dB)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)
11a	144	5720	0.00	3.70	30.00	30.00
11n HT20	144	5720	0.00	3.70	30.00	30.00
11n HT40	142	5710	0.00	3.70	30.00	30.00
11ac VHT80	138	5690	0.09	3.70	30.00	30.00

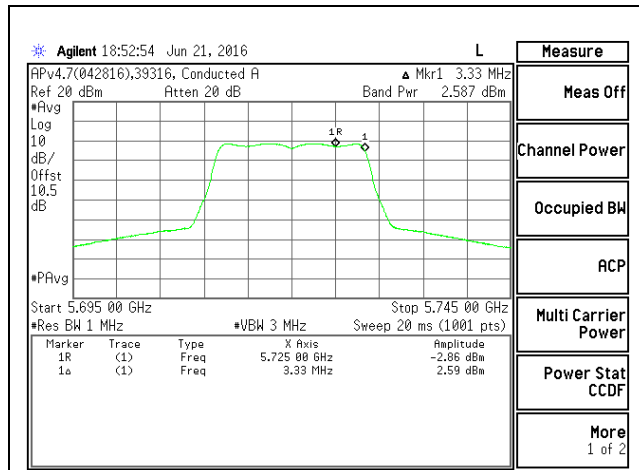
**Output Power Results**

Mode	Channel	Freq (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
11a	144	5720	2.59	2.59	30.00	-27.41
11n HT20	144	5720	4.23	4.23	30.00	-25.77
11n HT40	142	5710	2.46	2.46	30.00	-27.55
11ac VHT80	138	5690	1.018	1.11	30.00	-28.89

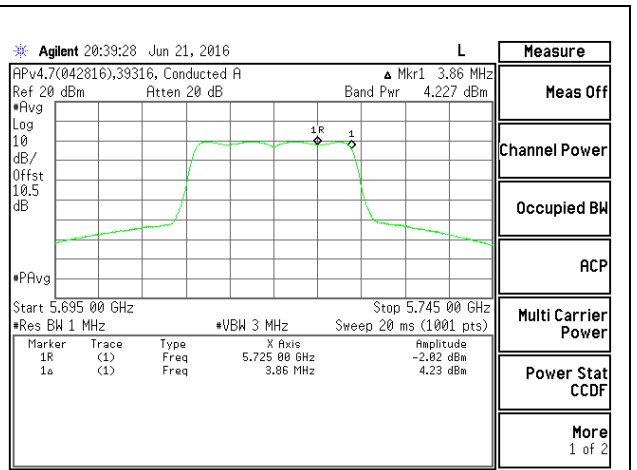
**PSD Results**

Mode	Channel	Freq (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
11a	144	5720	-4.32	-4.32	30.00	-34.32
11n HT20	144	5720	-3.33	-3.33	30.00	-33.33
11n HT40	142	5710	-4.43	-4.43	30.00	-34.43
11ac VHT80	138	5690	-6.11	-6.02	30.00	-36.02

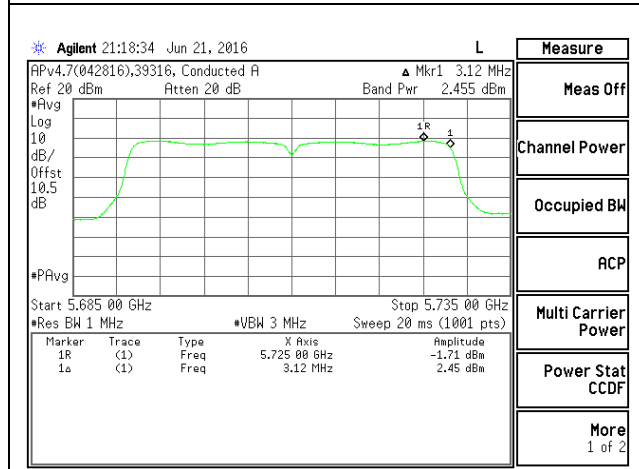
**OUTPUT POWER PLOTS**



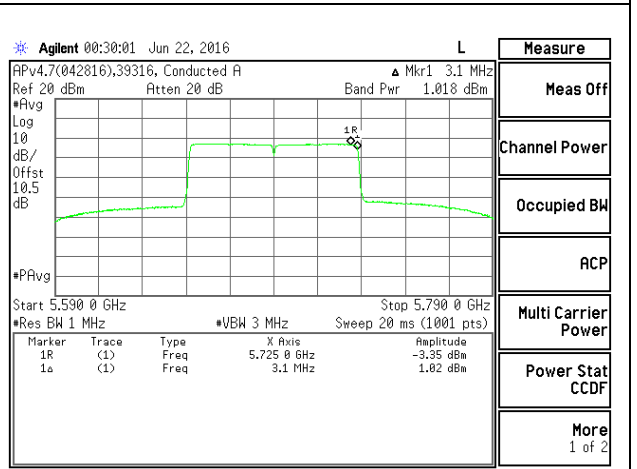
**802.11a STRADDLE CHANNEL 144**



**802.11n HT20 STRADDLE CHANNEL 144**



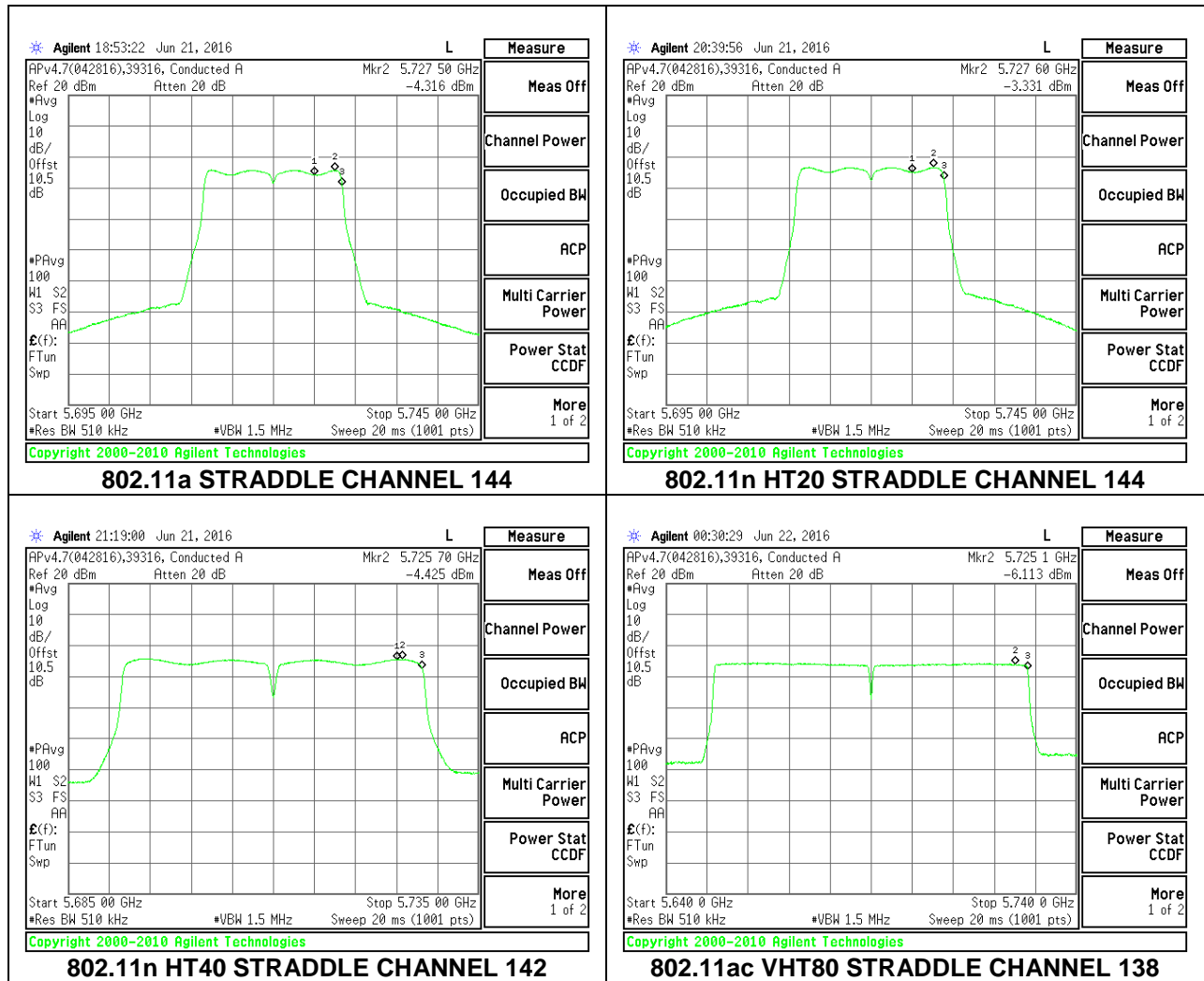
**802.11n HT40 STRADDLE CHANNEL 142**



**802.11ac VHT80 STRADDLE CHANNEL 138**



**PSD PLOTS**



**4.5.15. 802.11a MODE IN THE 5.8 GHz BAND**

**Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/IC Power Limit (dBm)	FCC/IC PSD Limit (dBm)
Low	5745	3.70	30.00	30.00
Mid	5785	3.70	30.00	30.00
High	5825	3.70	30.00	30.00

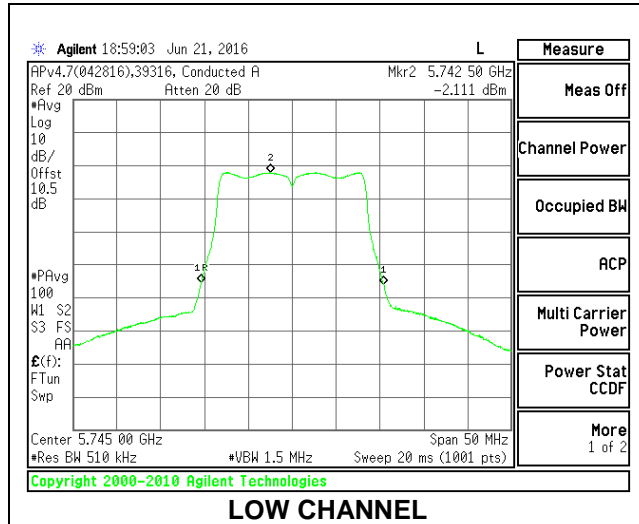
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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**Output Power Results**

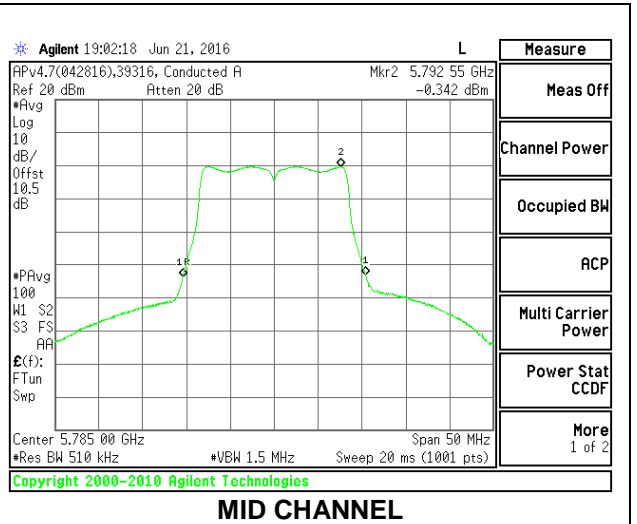
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	12.42	12.42	30.00	-17.58
Mid	5785	14.61	14.61	30.00	-15.39
High	5825	15.12	15.12	30.00	-14.88

**PPSD Results**

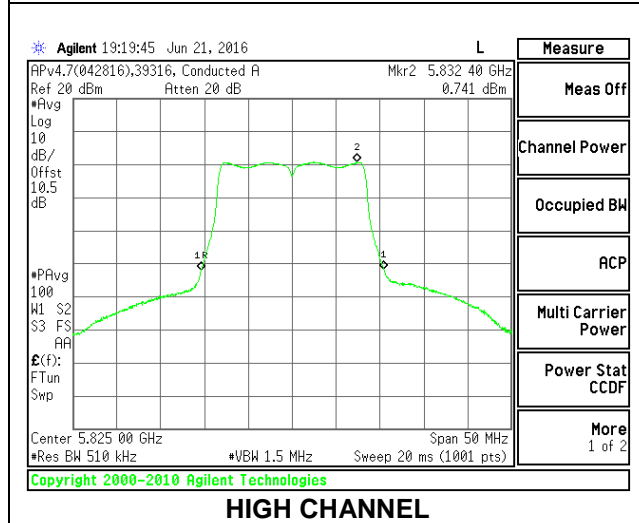
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	-2.11	-2.11	30.00	-32.11
Mid	5785	-0.34	-0.34	30.00	-30.34
High	5825	0.74	0.74	30.00	-29.26



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

**4.5.16. 802.11n HT20 MODE IN THE 5.8 GHz BAND**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/IC Power Limit (dBm)	FCC/IC PSD Limit (dBm)
Low	5745	3.70	30.00	30.00
Mid	5785	3.70	30.00	30.00
High	5825	3.70	30.00	30.00

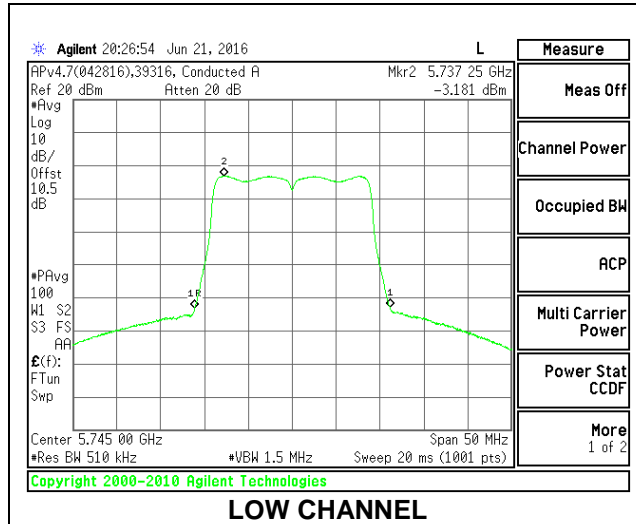
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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**Output Power Results**

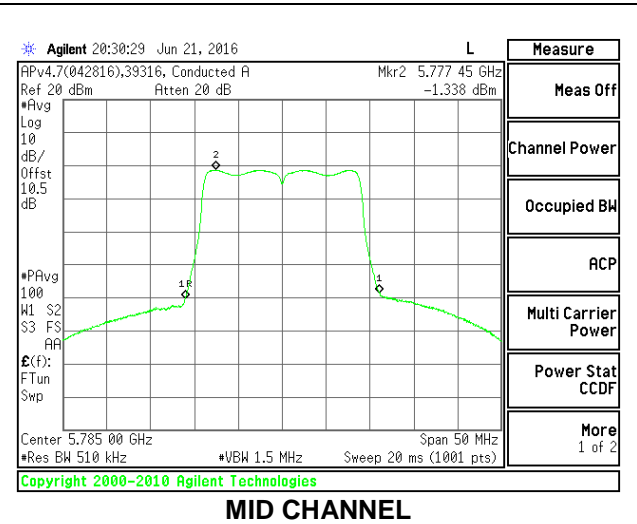
Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5745	11.90	11.90	30.00	-18.10
Mid	5785	13.78	13.78	30.00	-16.22
High	5825	15.41	15.41	30.00	-14.59

**PPSD Results**

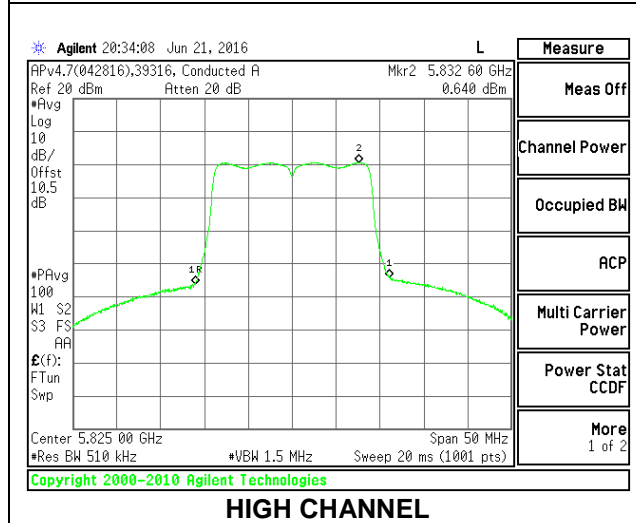
Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5745	-3.18	-3.18	30.00	-33.18
Mid	5785	-1.34	-1.34	30.00	-31.34
High	5825	0.64	0.64	30.00	-29.36



LOW CHANNEL



MID CHANNEL



HIGH CHANNEL

**4.5.17. 802.11n HT40 MODE IN THE 5.8 GHz BAND**

**Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/IC Power Limit (dBm)	FCC/IC PSD Limit (dBm)
Low	5755	3.70	30.00	30.00
High	5795	3.70	30.00	30.00

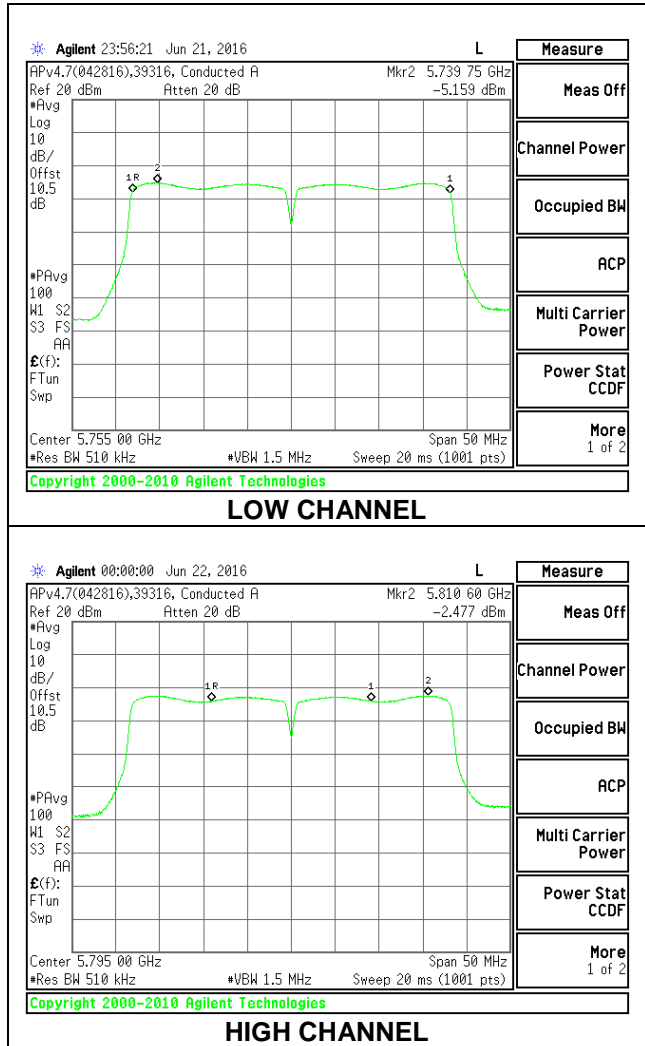
<b>Duty Cycle CF (dB)</b>	0.00	<b>Included in Calculations of Corr'd PPSD</b>
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**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Low	5755	12.55	12.55	30.00	-17.45
High	5795	15.39	15.39	30.00	-14.61

**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Low	5755	-5.16	-5.16	30.00	-35.16
High	5795	-2.48	-2.48	30.00	-32.48



**4.5.18. 802.11ac VHT80 MODE IN THE 5.8 GHz BAND**

**Antenna Gain and Limits**

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC/IC Power Limit (dBm)	FCC/IC PSD Limit (dBm)
Mid	5775	3.70	30.00	30.00

Duty Cycle CF (dB)	0.09	Included in Calculations of Corr'd PPSD
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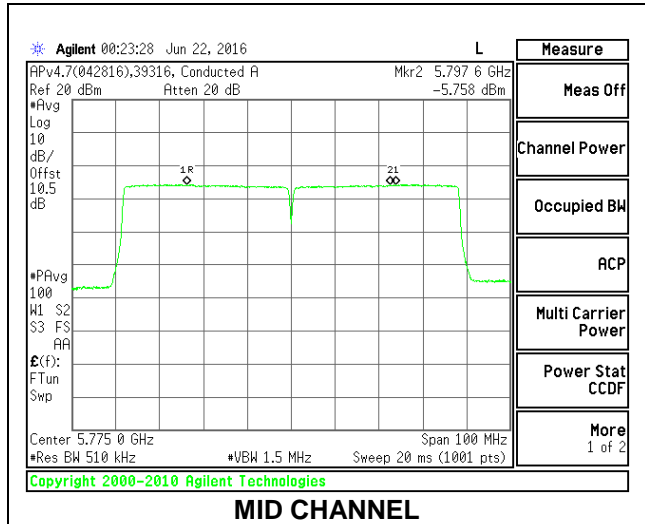
**Output Power Results**

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Power Margin (dB)
Mid	5775	15.70	15.70	30.00	-14.30

**PPSD Results**

Channel	Frequency (MHz)	Chain 0 Meas PPSD (dBm)	Total Corr'd PPSD (dBm)	PPSD Limit (dBm)	PPSD Margin (dB)
Mid	5775	-5.76	-5.67	30.00	-35.67





## 4.6. 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 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

### RESULTS

Tested by: 39316 CX  
Date: 6/27/16

#### 4.6.1. 802.11 STRADDLE CHANNELS (WHOLE FUNDAMENTAL)

Mode	Channel	Frequency (MHz)	Avg Power (dBm)
11a	144	5720	10.65
11n HT20	144	5720	11.73
11n HT40	142	5710	13.40
11ac VHT80	138	5690	15.75

## 5. RADIATED TEST RESULTS

### LIMITS

FCC §15.205 and §15.209

IC RSS-GEN, Section 8.9 and 8.10.

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.

Reference to KDB 789033 UNII part G) 6) d) Method AD:

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 1GHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

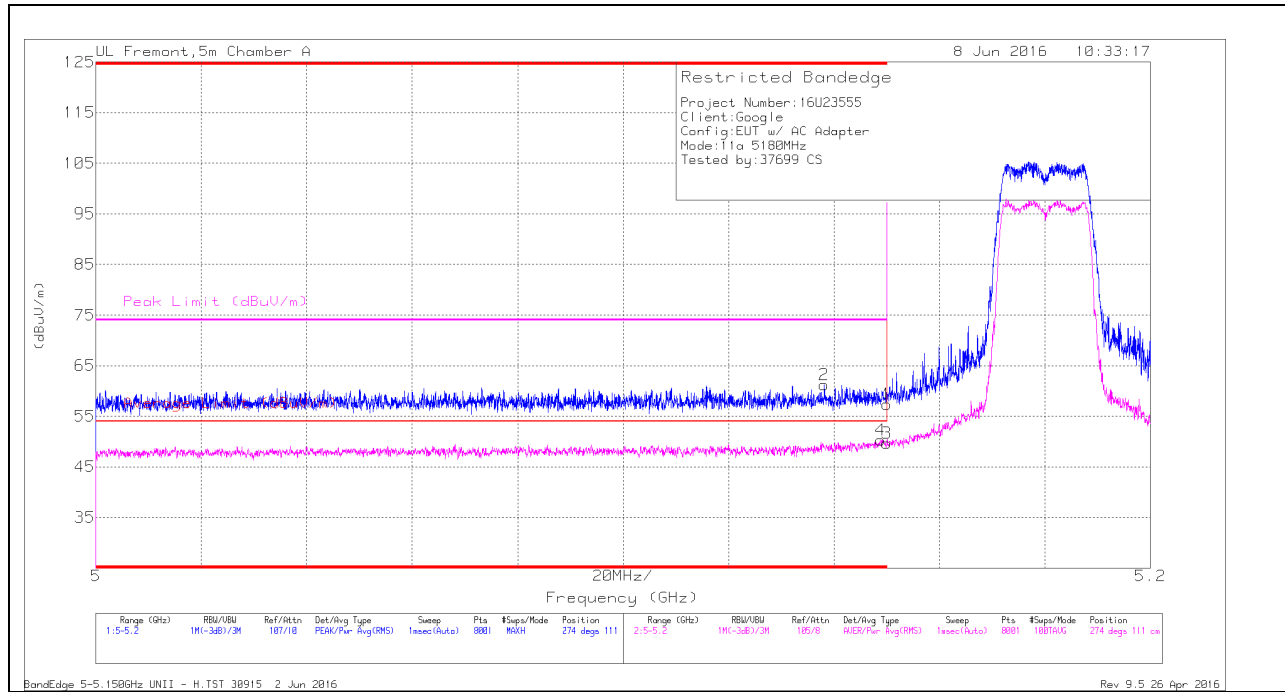
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

## 5.1. TRANSMITTER ABOVE 1 GHz

### 5.1.1. TX ABOVE 1 GHz 802.11a MODE IN THE 5.2 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULTS



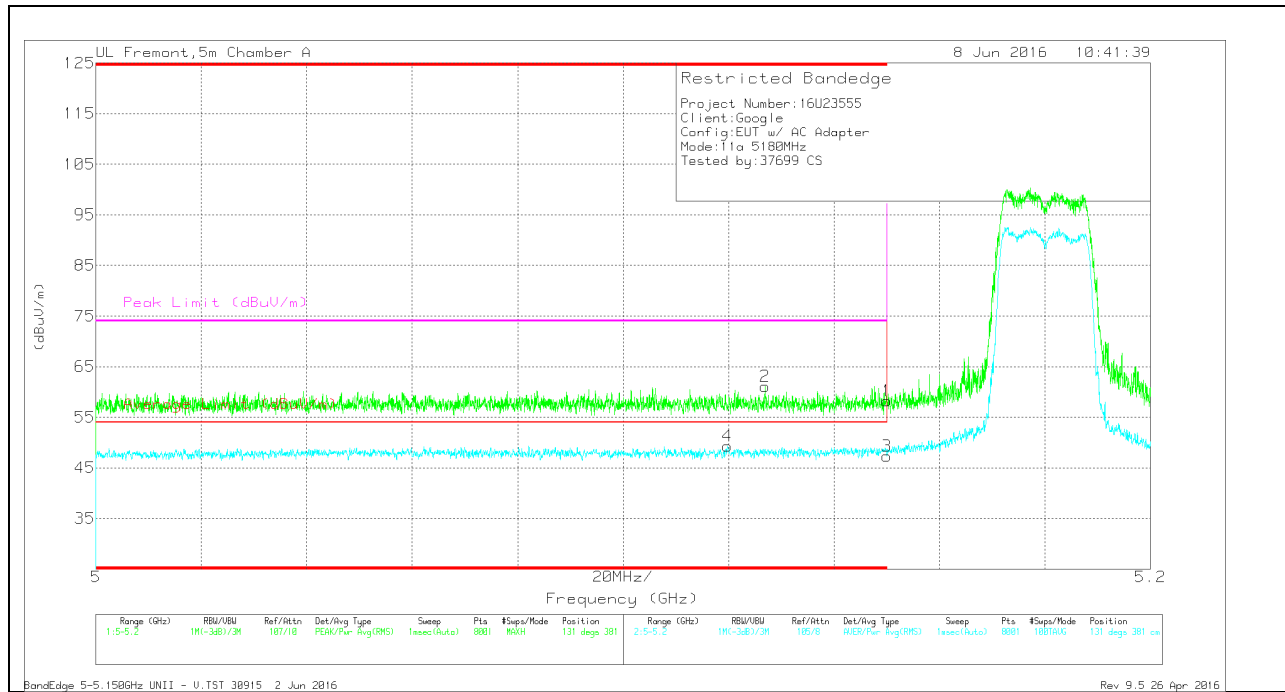
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.138	40.69	Pk	34.4	-13.9	61.19	-	-	74	-12.81	274	111	H
4	* 5.149	29.63	RMS	34.5	-13.8	50.33	54	-3.67	-	-	274	111	H
1	5.15	36.76	Pk	34.5	-13.9	57.36	-	-	74	-16.64	274	111	H
3	5.15	29.11	RMS	34.5	-13.9	49.71	54	-4.29	-	-	274	111	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

### VERTICAL RESULTS

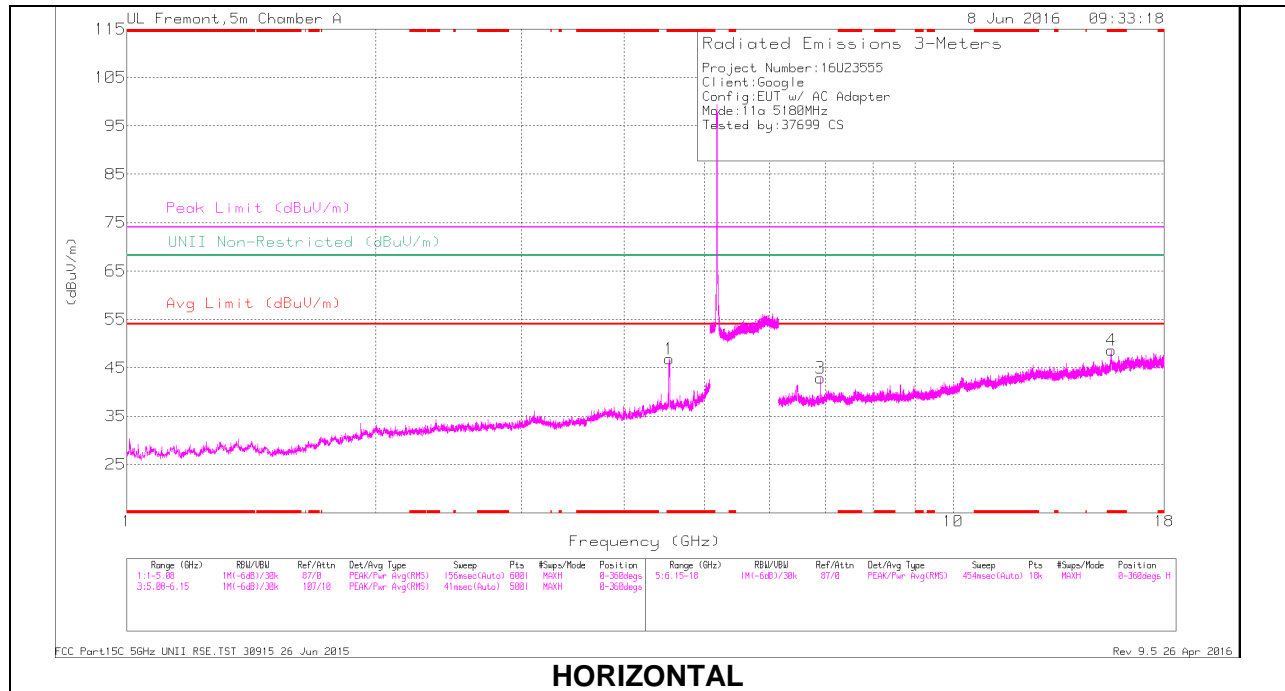


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.127	40.62	Pk	34.4	-13.9	61.12	-	-	74	-12.88	131	381	V
4	* 5.12	28.79	RMS	34.4	-13.9	49.29	54	-4.71	-	-	131	381	V
1	5.15	37.62	Pk	34.5	-13.9	58.22	-	-	74	-15.78	131	381	V
3	5.15	26.71	RMS	34.5	-13.9	47.31	54	-6.69	-	-	131	381	V

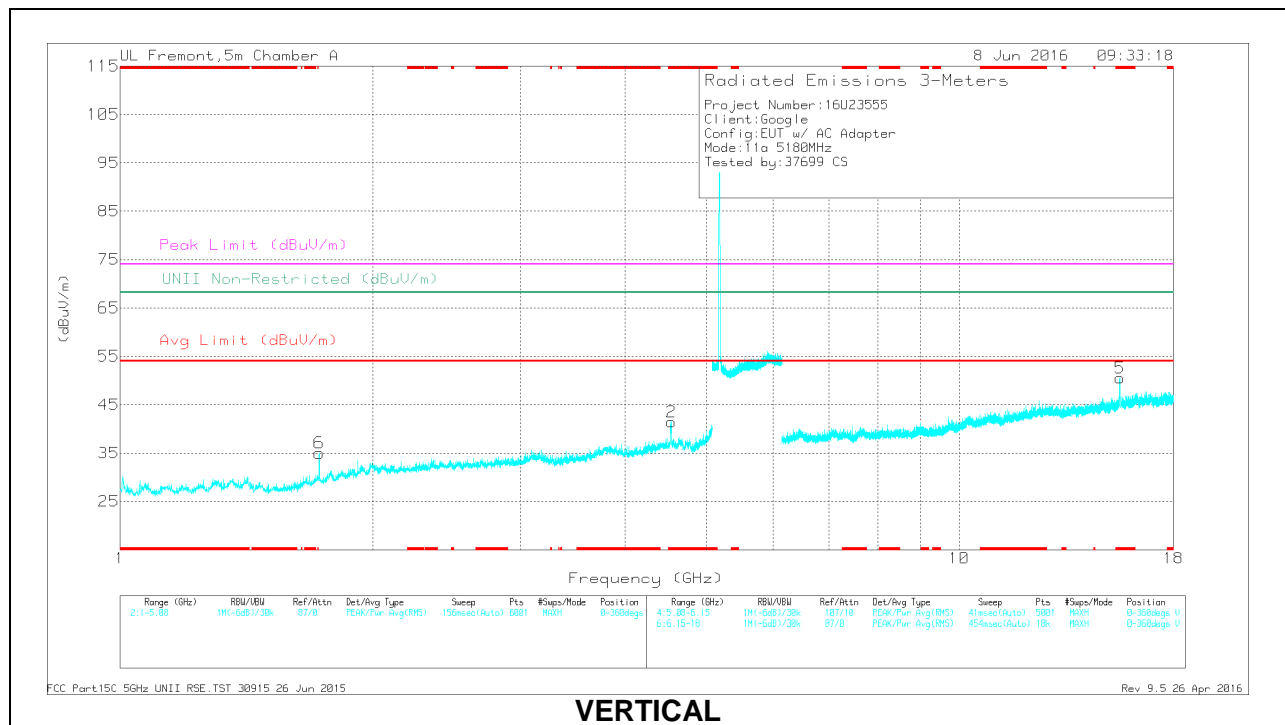
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL RESULTS**



**HORIZONTAL**



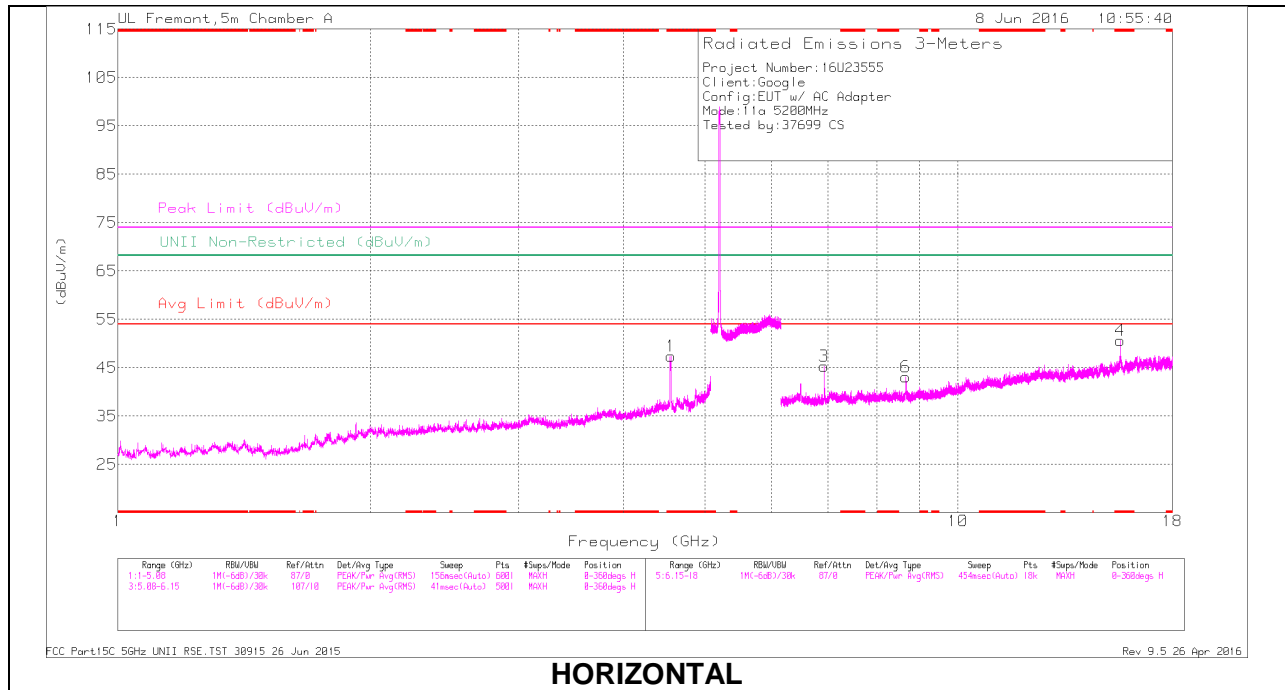
**VERTICAL**

**LOW CHANNEL DATA**

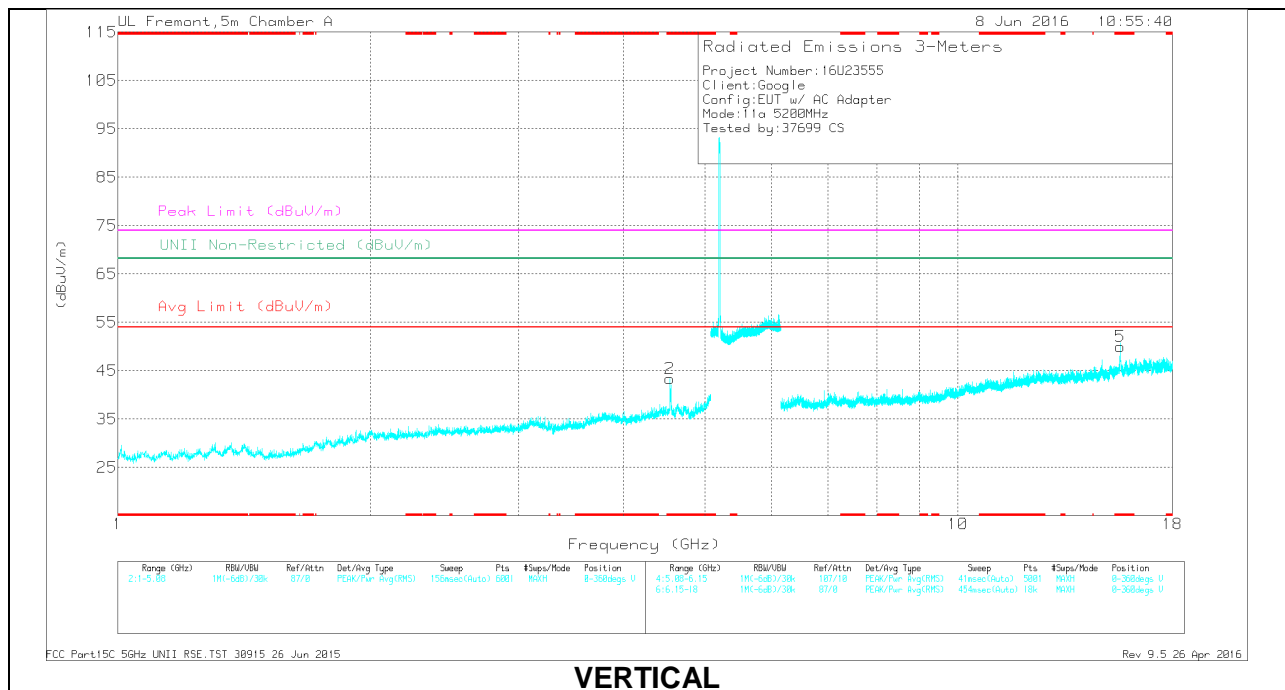
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/ChlFilt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.535	48.09	PK-U	34.3	-29.5	52.89	-	-	74	-21.11	-	-	294	113	H
	* 4.54	39.76	ADR	34.3	-29.6	44.46	54	-9.54	-	-	-	-	294	113	H
2	* 4.536	41.88	PK-U	34.3	-29.6	46.58	-	-	74	-27.42	-	-	199	392	V
	* 4.54	33.23	ADR	34.3	-29.6	37.93	54	-16.07	-	-	-	-	199	392	V
4	* 15.549	34.37	PK-U	40.1	-19.1	55.37	-	-	74	-18.63	-	-	265	112	H
	* 15.542	23.7	ADR	40.1	-19.2	44.6	54	-9.4	-	-	-	-	265	112	H
5	* 15.545	35.33	PK-U	40.1	-19.2	56.23	-	-	74	-17.77	-	-	191	132	V
	* 15.541	24.88	ADR	40.1	-19.2	45.78	54	-8.22	-	-	-	-	191	132	V
6	1.731	40.34	PK-U	29.5	-33.2	36.64	-	-	-	-	68.2	-31.56	213	192	V
3	6.906	38.49	PK-U	35.6	-25.4	48.69	-	-	-	-	68.2	-19.51	237	250	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### MID CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**



### MID CHANNEL DATA

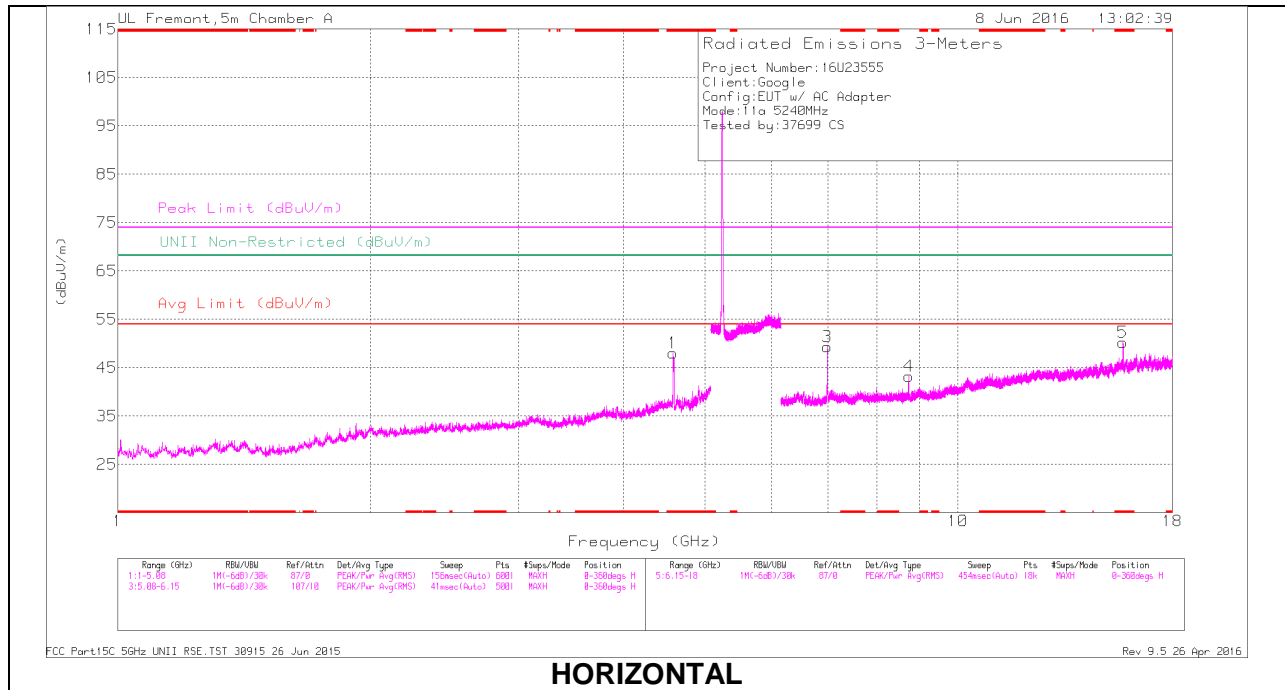
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Csh/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.543	47.77	PK-U	34.3	-29.6	52.47	-	-	74	-21.53	-	-	293	101	H
	* 4.542	39.69	ADR	34.3	-29.6	44.39	54	-9.61	-	-	-	-	293	101	H
2	* 4.542	43.57	PK-U	34.3	-29.6	48.27	-	-	74	-25.73	-	-	200	393	V
	* 4.543	33.95	ADR	34.3	-29.6	38.35	54	-15.65	-	-	-	-	200	393	V
4	* 15.601	36.36	PK-U	40.2	-20.2	55.36	-	-	74	-17.64	-	-	269	109	H
	* 15.602	25.55	ADR	40.2	-20.2	45.55	54	-8.45	-	-	-	-	269	109	H
5	* 15.599	37.5	PK-U	40.2	-20.2	57.5	-	-	74	-16.5	-	-	186	109	V
	* 15.602	26.69	ADR	40.2	-20.2	46.69	54	-7.31	-	-	-	-	186	109	V
3	6.933	40.56	PK-U	35.6	-25.4	50.76	-	-	-	-	68.2	-17.44	162	399	H
6	8.659	37.52	PK-U	36	-23.6	49.92	-	-	-	-	68.2	-18.28	193	114	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

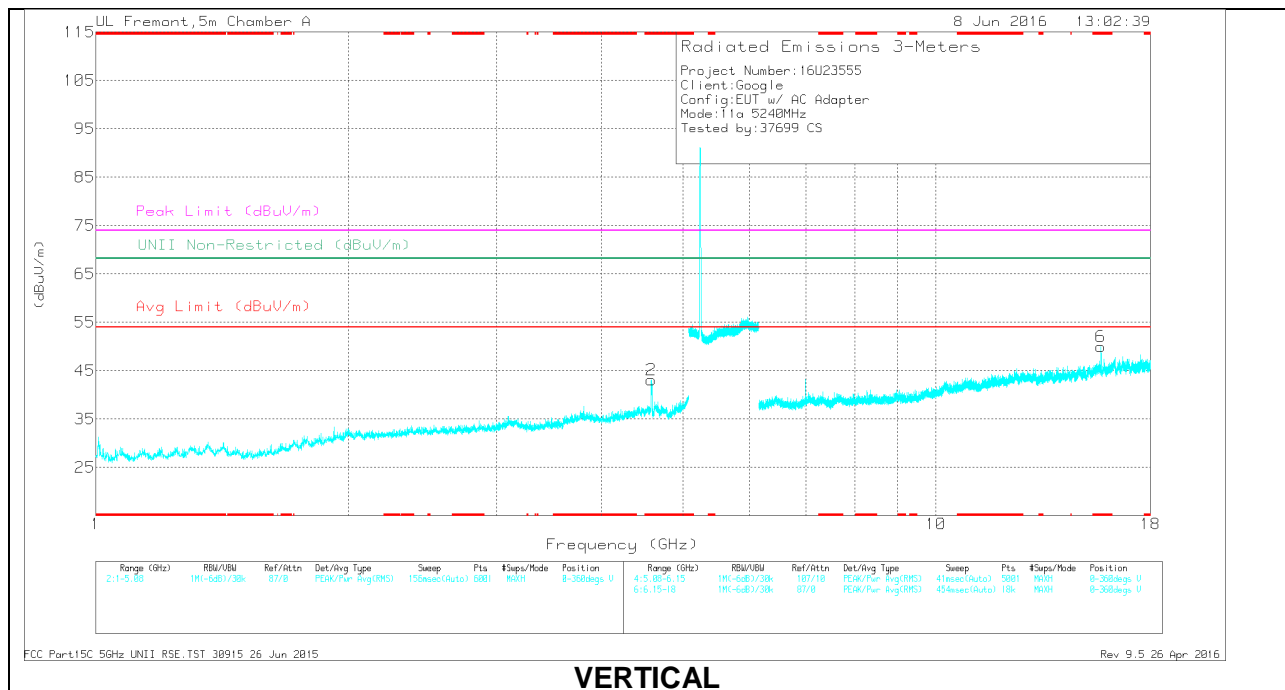
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

### HIGH CHANNEL DATA

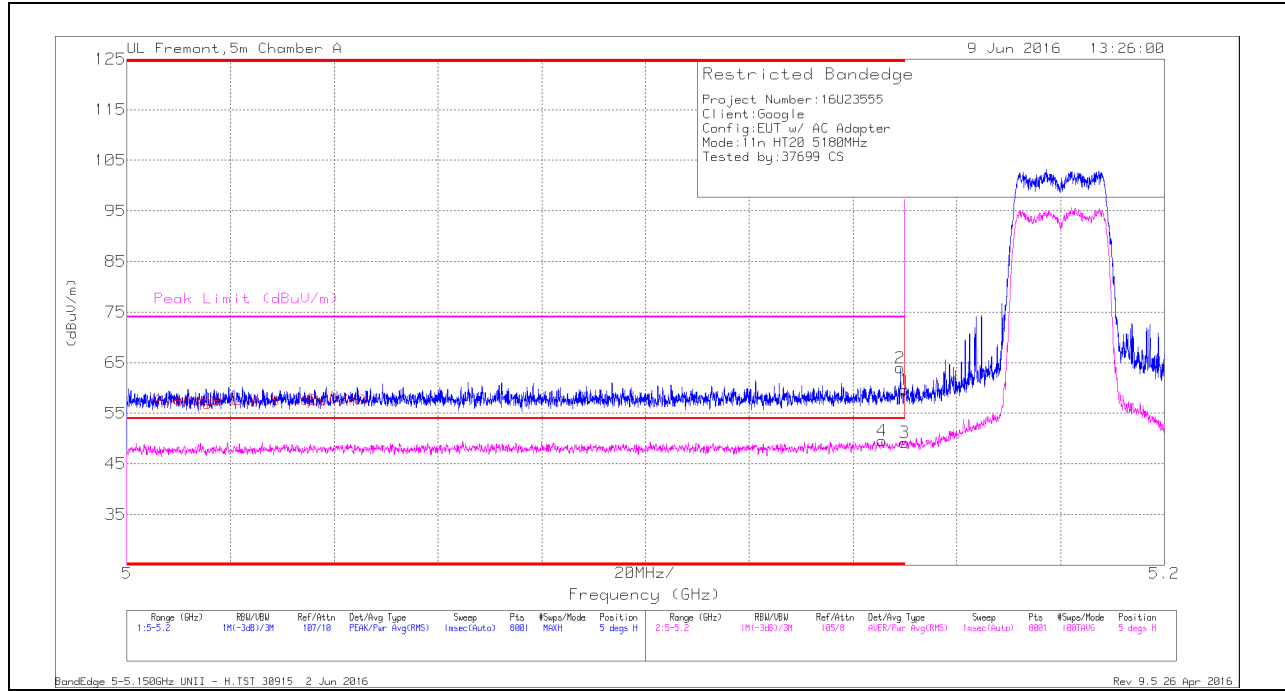
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Csh/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.592	49.07	PK-U	34.4	-29.4	54.07	-	-	74	-19.93	-	-	231	386	H
	* 4.577	40.72	ADR	34.4	-29.7	45.42	54	-8.58	-	-	-	-	231	386	H
2	* 4.582	45.5	PK-U	34.4	-29.6	50.3	-	-	74	-23.7	-	-	182	106	V
	* 4.588	36.25	ADR	34.4	-29.5	41.15	54	-12.85	-	-	-	-	182	106	V
5	* 15.717	37.5	PK-U	40.3	-21	56.8	-	-	74	-17.2	-	-	233	104	H
	* 15.723	26.7	ADR	40.3	-21	46	54	-8	-	-	-	-	233	104	H
6	* 15.727	37.08	PK-U	40.3	-21	56.38	-	-	74	-17.62	-	-	180	110	V
	* 15.722	27.12	ADR	40.3	-21	46.42	54	-7.58	-	-	-	-	180	110	V
3	6.987	44.58	PK-U	35.7	-25.3	54.98	-	-	-	-	68.2	-13.22	346	122	H
4	8.731	35.89	PK-U	36	-23.7	48.19	-	-	-	-	68.2	-20.01	191	285	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### 5.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.2 GHz BAND

#### RESTRICTED BANDEGE (LOW CHANNEL)

#### HORIZONTAL RESULTS



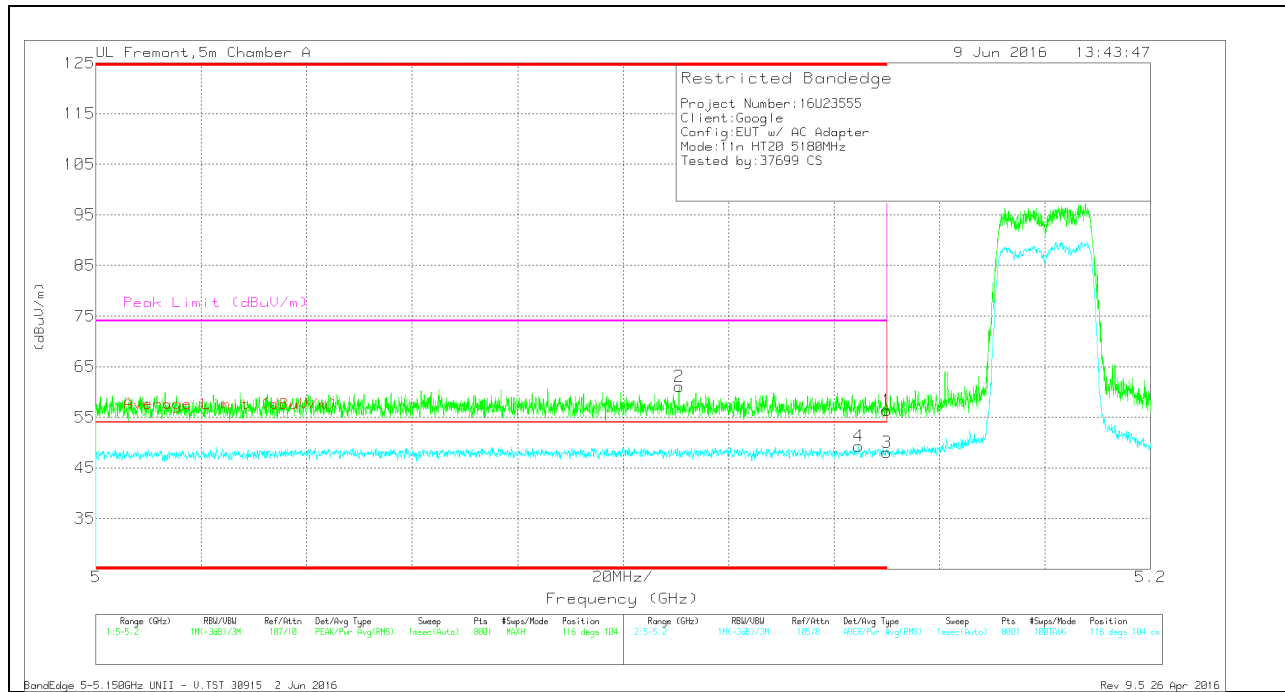
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cb/Fitr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.149	43.23	Pk	34.5	-13.8	63.93	-	-	74	-10.07	5	147	H
4	* 5.146	28.96	RMS	34.4	-13.8	49.56	54	-4.44	-	-	5	147	H
1	5.15	39.06	Pk	34.5	-13.9	59.66	-	-	74	-14.34	5	147	H
3	5.15	28.6	RMS	34.5	-13.9	49.2	54	-4.8	-	-	5	147	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

### VERTICAL RESULTS

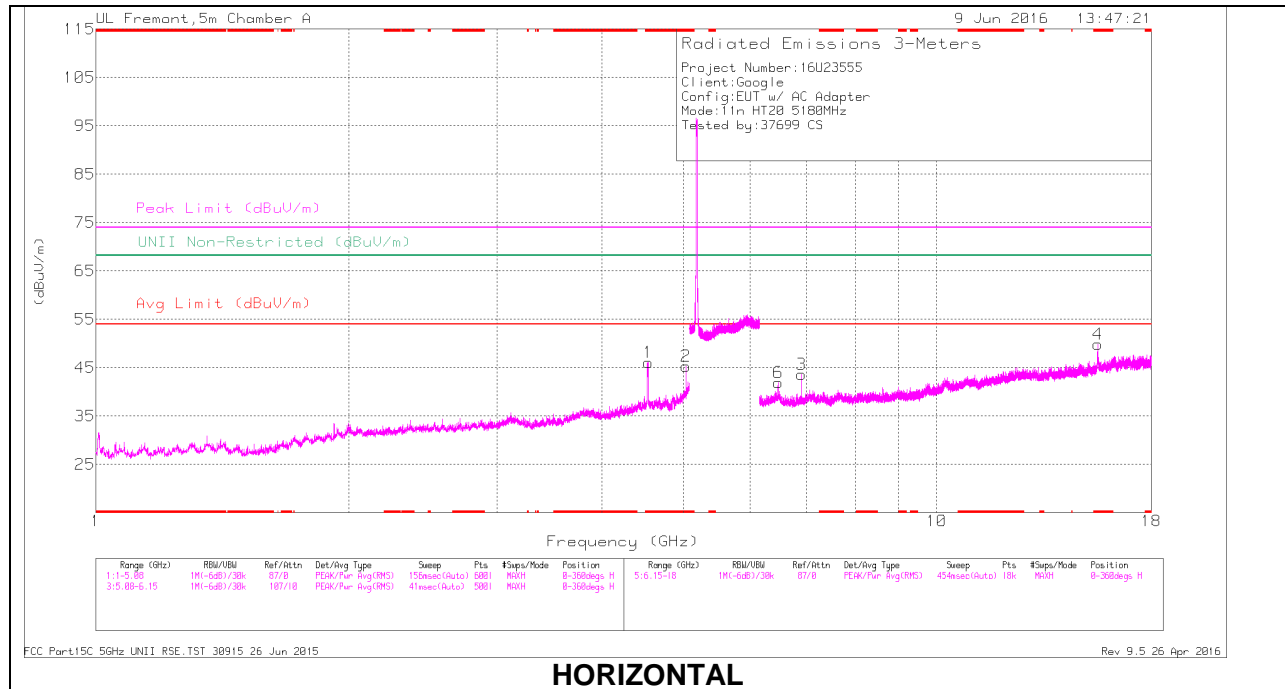


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Filtr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.111	40.68	Pk	34.3	-13.9	61.08	-	-	74	-12.92	116	104	V
4	* 5.145	28.68	RMS	34.4	-13.8	49.28	54	-4.72	-	-	116	104	V
1	5.15	35.83	Pk	34.5	-13.9	56.43	-	-	74	-17.57	116	104	V
3	5.15	27.41	RMS	34.5	-13.9	48.01	54	-5.99	-	-	116	104	V

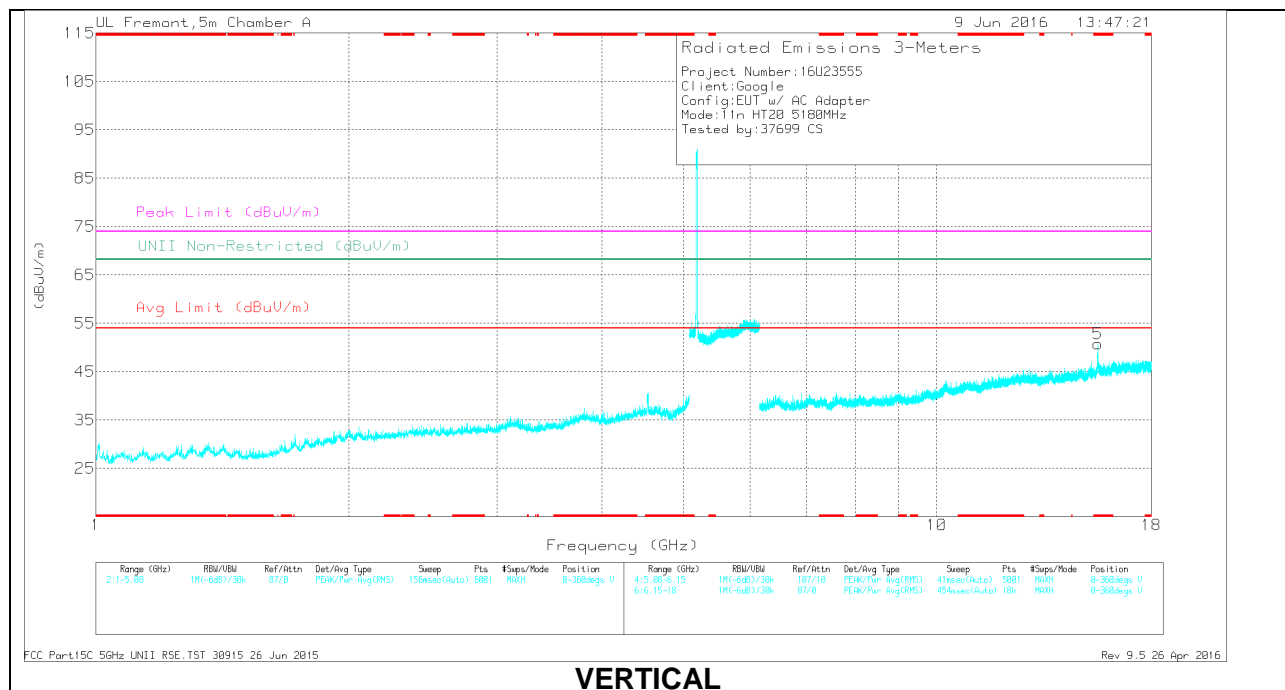
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL RESULTS**



**HORIZONTAL**



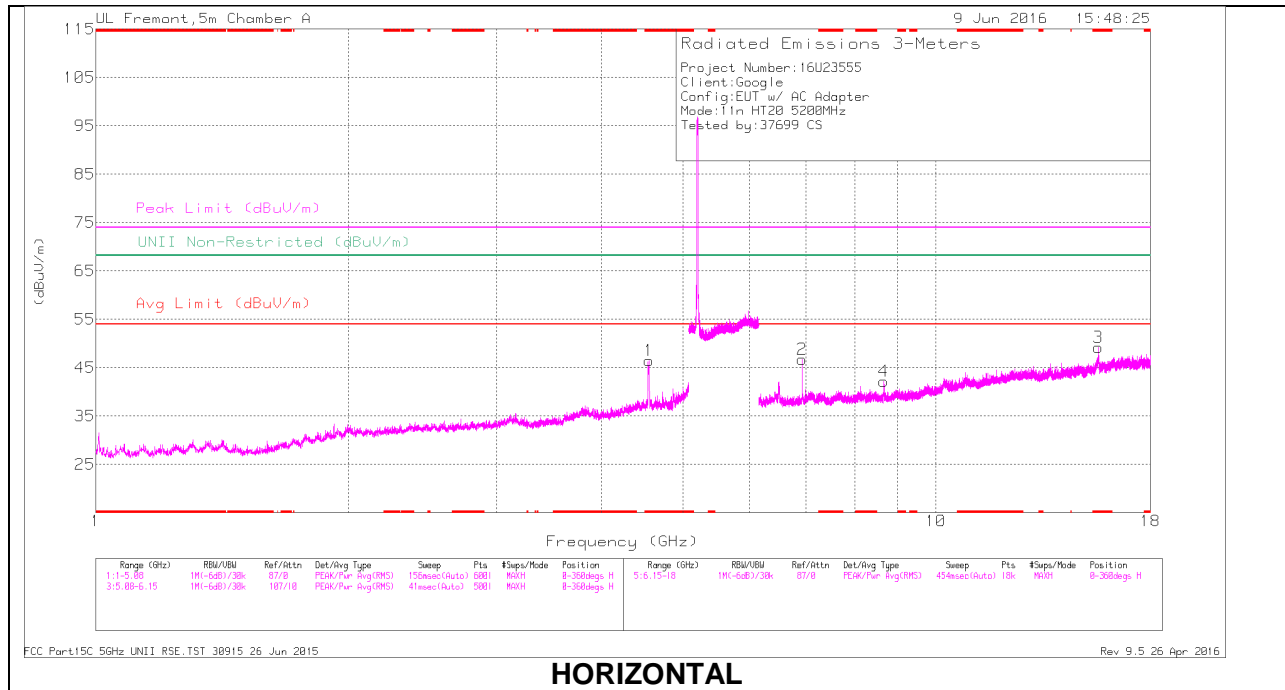
**VERTICAL**

**LOW CHANNEL DATA**

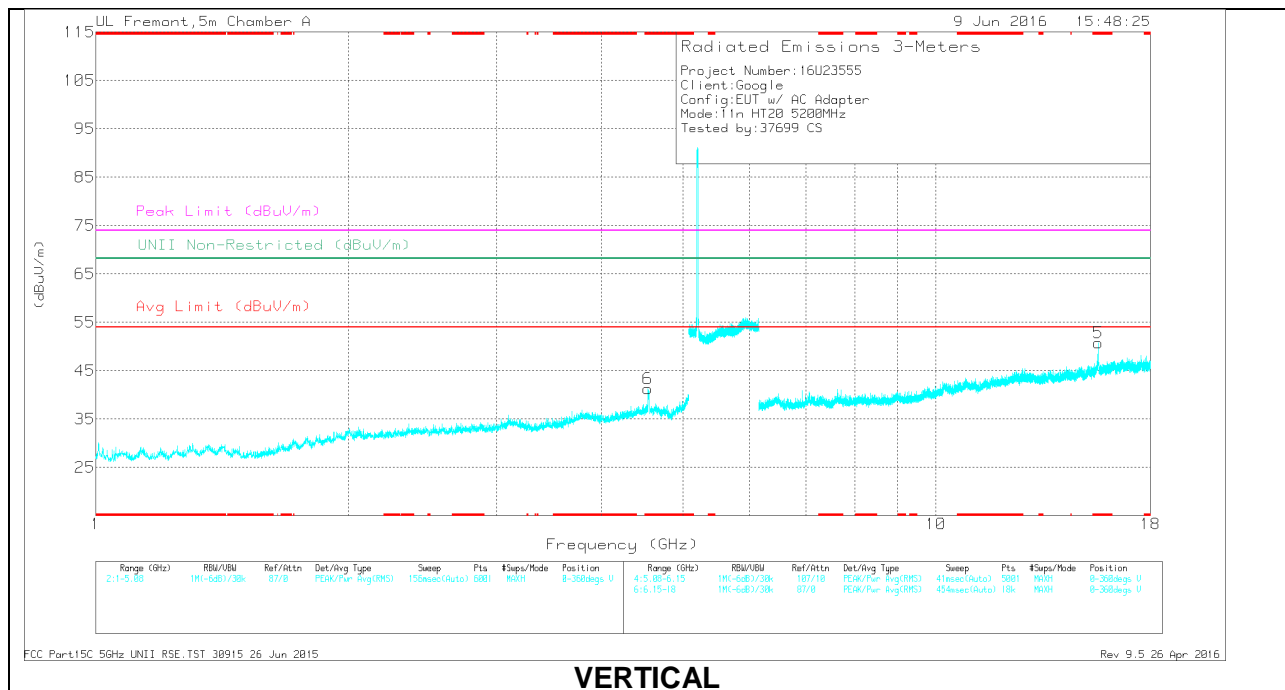
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Chl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.539	47.75	PK-U	34.3	-29.6	52.45	-	-	74	-21.55	-	-	229	400	H
	* 4.54	39.59	ADR	34.3	-29.6	44.29	54	-9.71	-	-	-	-	229	400	H
2	* 5.016	39.83	PK-U	34.3	-27.9	46.23	-	-	74	-27.77	-	-	236	358	H
	* 5.019	29.91	ADR	34.3	-27.8	36.41	54	-17.59	-	-	-	-	236	358	H
4	* 15.547	33.25	PK-U	40.1	-19.1	54.25	-	-	74	-19.75	-	-	133	109	H
	* 15.54	22.74	ADR	40.1	-19.2	43.64	54	-10.36	-	-	-	-	133	109	H
5	* 15.538	35.54	PK-U	40.1	-19.2	56.44	-	-	74	-17.56	-	-	179	104	V
	* 15.537	26.01	ADR	40.1	-19.2	46.91	54	-7.09	-	-	-	-	179	104	V
6	6.482	38.15	PK-U	35.6	-25	48.75	-	-	-	-	68.2	-19.45	186	163	H
3	6.907	39.14	PK-U	35.6	-25.4	49.34	-	-	-	-	68.2	-18.86	207	251	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### MID CHANNEL RESULTS



### HORIZONTAL



### VERTICAL



### MID CHANNEL DATA

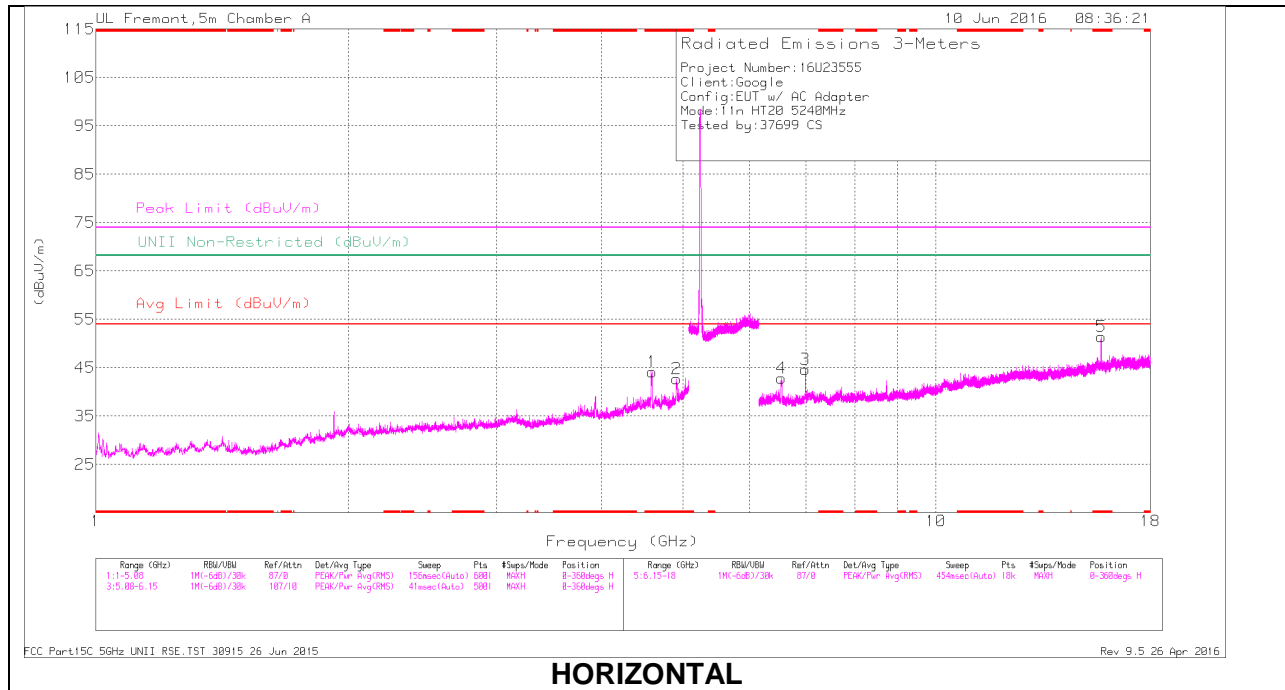
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cst/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.543	48.95	PK-U	34.3	-29.6	53.65	-	-	74	-20.35	-	-	240	284	H
	* 4.542	39.69	ADR	34.3	-29.6	44.39	54	-9.61	-	-	-	-	240	284	H
6	* 4.552	41.75	PK-U	34.3	-29.8	46.25	-	-	74	-27.75	-	-	203	266	V
	* 4.553	32.5	ADR	34.3	-29.8	37	54	-17	-	-	-	-	203	266	V
3	* 15.596	37.53	PK-U	40.2	-20.1	57.63	-	-	74	-16.37	-	-	247	268	H
	* 15.601	26.55	ADR	40.2	-20.2	46.55	54	-7.45	-	-	-	-	247	268	H
5	* 15.61	35.92	PK-U	40.2	-20.3	55.82	-	-	74	-18.18	-	-	178	104	V
	* 15.6	25.47	ADR	40.2	-20.2	45.47	54	-8.53	-	-	-	-	178	104	V
2	6.933	42.17	PK-U	35.6	-25.4	52.37	-	-	-	-	68.2	-15.83	353	110	H
4	8.664	36.11	PK-U	36	-23.6	48.51	-	-	-	-	68.2	-19.69	206	123	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

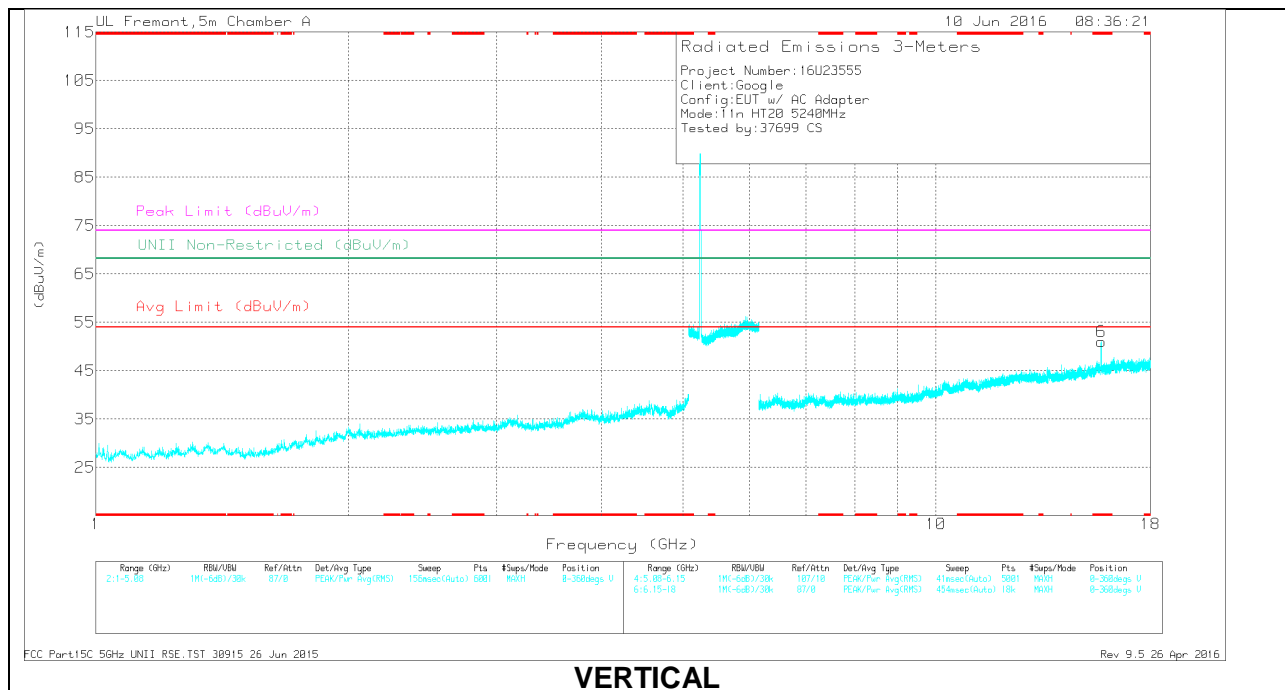
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

### HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Ch/Filt/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	* 4.578	46.56	PK-U	34.4	-29.7	51.26	-	-	74	-22.74	-	-	236	113	H
	* 4.578	36.77	ADR	34.4	-29.7	41.47	54	-12.53	-	-	-	-	236	113	H
2	* 4.919	44.97	PK-U	34.3	-28	51.27	-	-	74	-22.73	-	-	275	134	H
	* 4.915	34.45	ADR	34.3	-28	40.75	54	-13.25	-	-	-	-	275	134	H
5	* 15.723	36.83	PK-U	40.3	-21	55.13	-	-	74	-17.87	-	-	240	206	H
	* 15.723	27.21	ADR	40.3	-21	46.51	54	-7.49	-	-	-	-	240	206	H
6	* 15.724	37.99	PK-U	40.3	-21	57.29	-	-	74	-16.71	-	-	178	106	V
	* 15.724	27.76	ADR	40.3	-21	47.06	54	-6.94	-	-	-	-	178	106	V
4	6.542	40.47	PK-U	35.6	-25.8	50.27	-	-	-	-	68.2	-17.93	207	108	H
3	6.987	38.38	PK-U	35.7	-25.3	48.78	-	-	-	-	68.2	-19.42	227	283	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

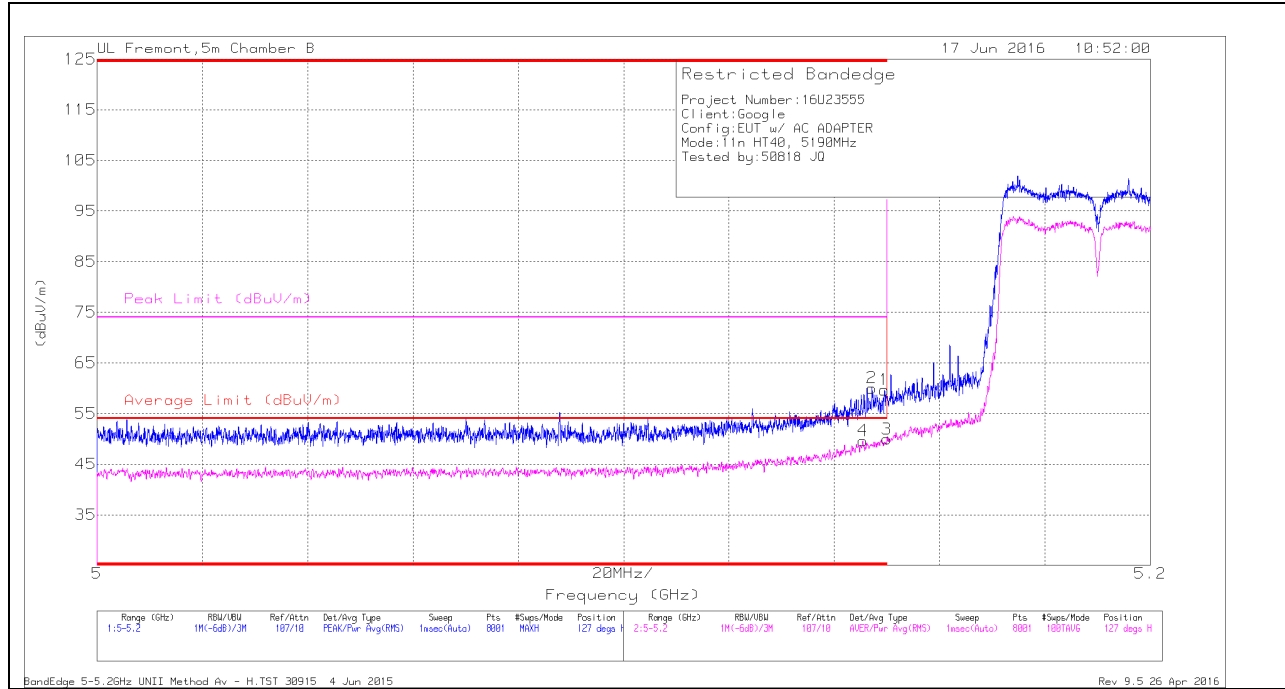
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### 5.1.3. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.2 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULTS



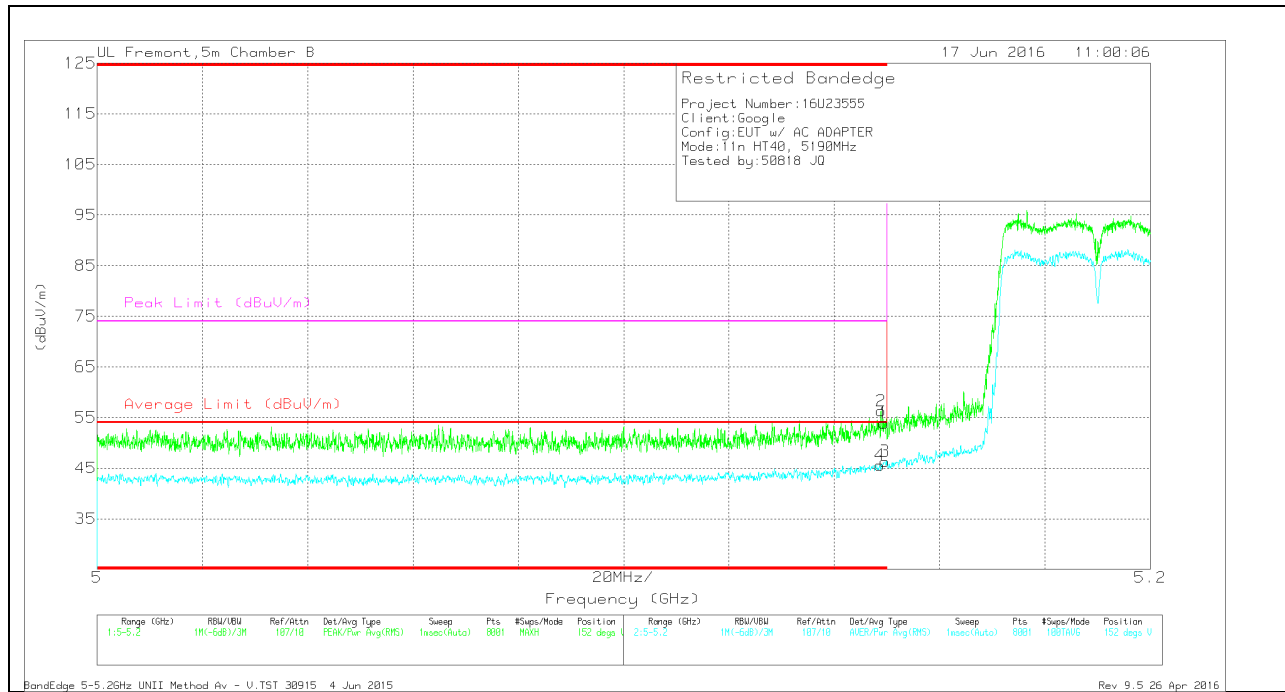
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 5.145	38.04	RMS	34.2	-22.6	49.64	54	-4.36	-	-	127	125	H
2	* 5.147	48.44	Pk	34.2	-22.6	60.04	-	-	74	-13.96	127	125	H
1	* 5.15	48.08	Pk	34.2	-22.6	59.68	-	-	74	-14.32	127	125	H
3	* 5.15	38.36	RMS	34.2	-22.6	49.96	54	-4.04	-	-	127	125	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

### VERTICAL RESULTS

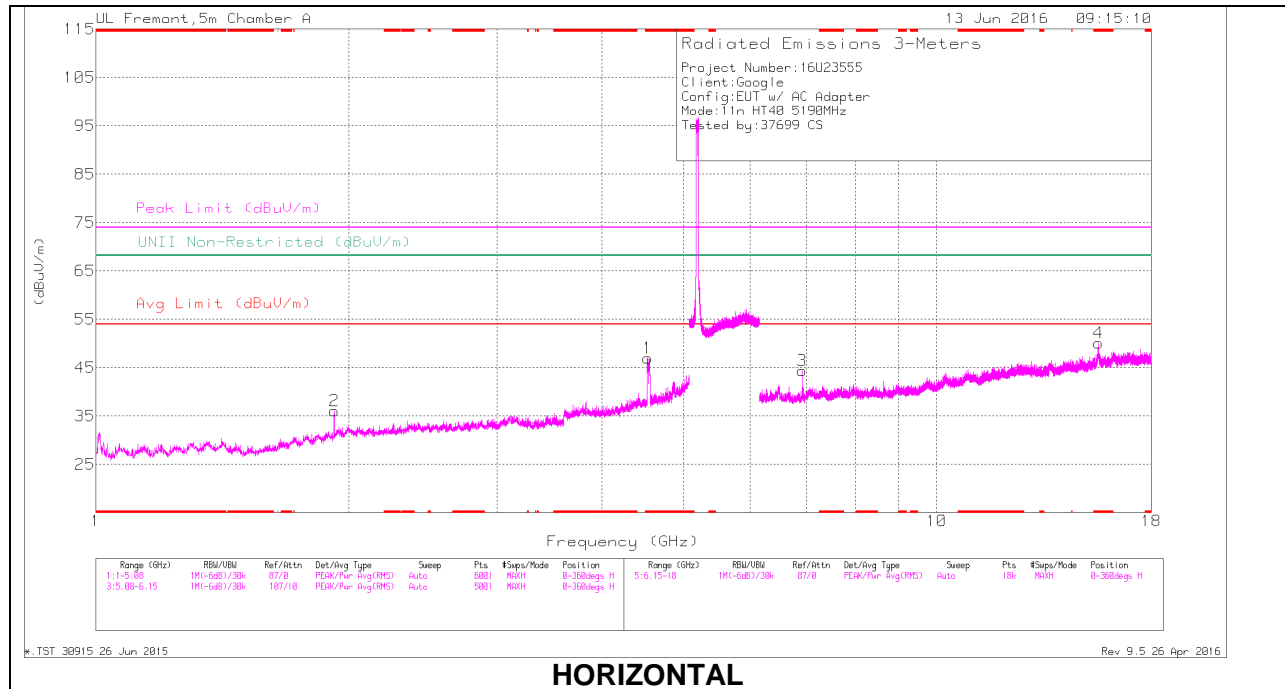


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.149	42.3	Pk	34.2	-22.6	53.9	-	-	74	-20.1	152	145	V
2	* 5.149	44.72	Pk	34.2	-22.6	56.32	-	-	74	-17.68	152	145	V
4	* 5.149	33.99	RMS	34.2	-22.6	45.59	54	-8.41	-	-	152	145	V
3	* 5.15	34.73	RMS	34.2	-22.6	46.33	54	-7.67	-	-	152	145	V

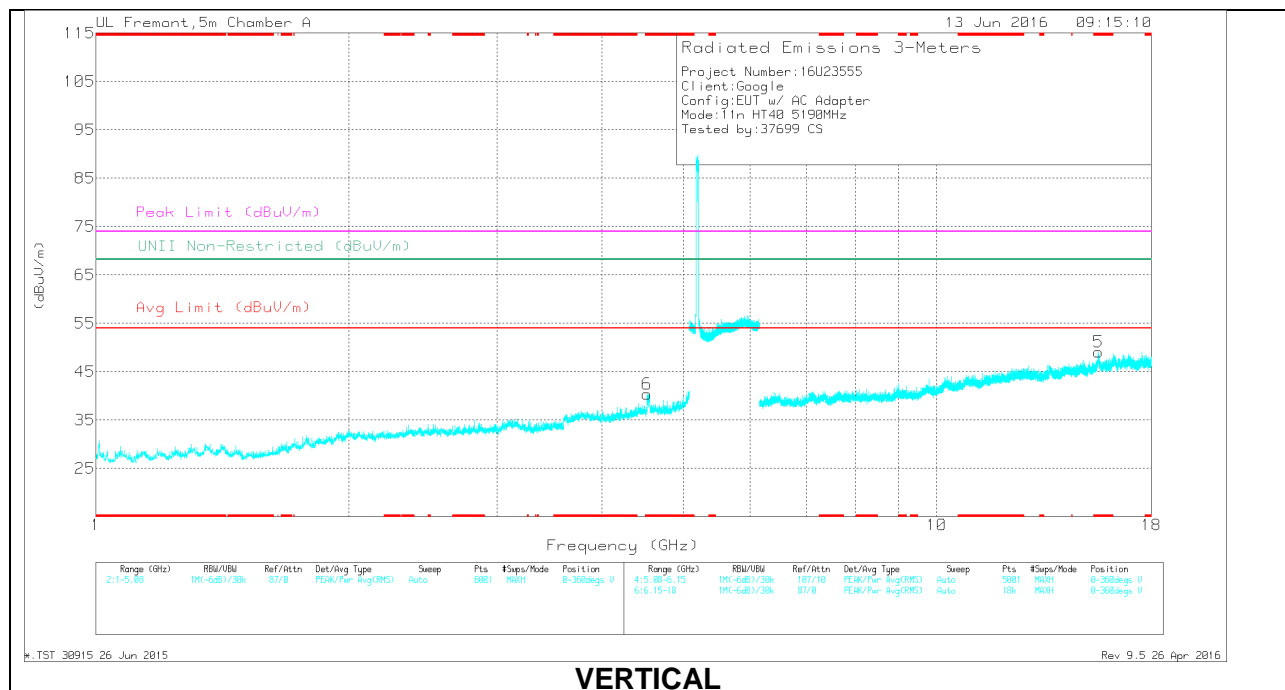
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL RESULTS**



**HORIZONTAL**



**VERTICAL**

**LOW CHANNEL DATA**

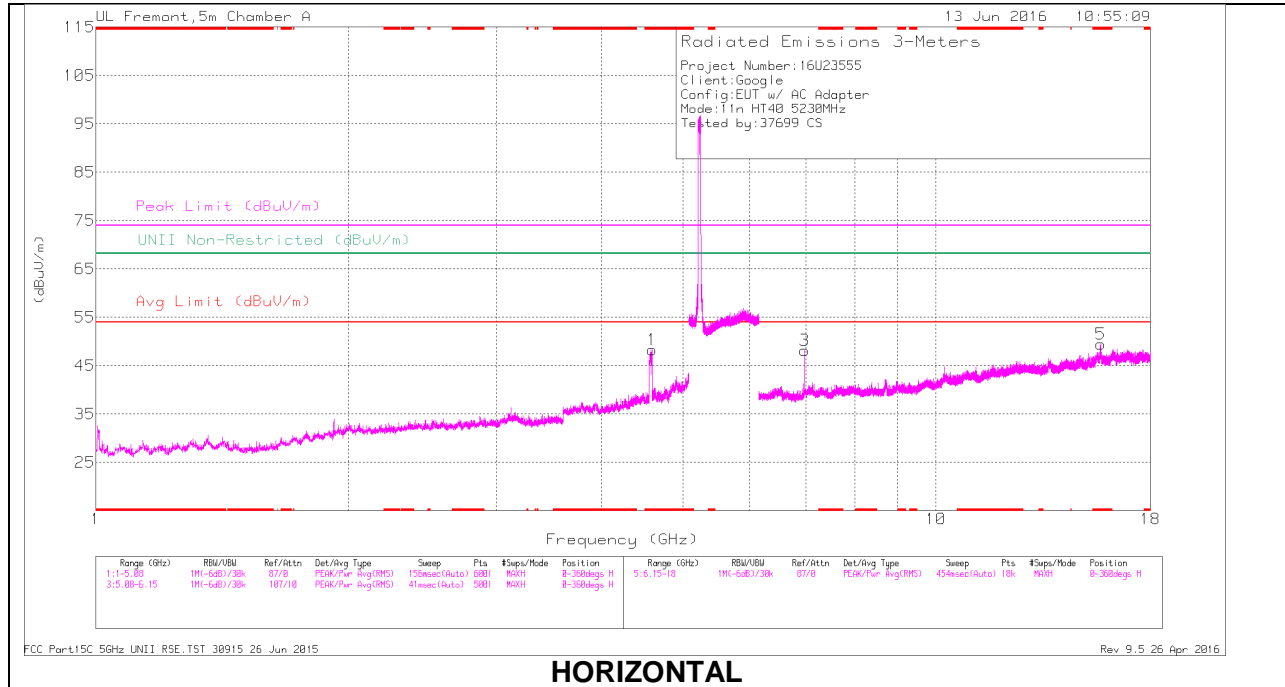
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Chl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.556	49.65	PK-U	34.3	-29.8	54.15	-	-	74	-19.85	-	-	244	146	H
	* 4.557	41.63	ADR	34.3	-29.8	46.13	54	-7.87	-	-	-	-	244	146	H
6	* 4.537	42.96	PK-U	34.3	-29.6	47.66	-	-	74	-26.34	-	-	198	101	V
	* 4.556	34.28	ADR	34.3	-29.8	38.78	54	-15.22	-	-	-	-	198	101	V
4	* 15.586	33.8	PK-U	40.2	-20	54	-	-	74	-20	-	-	257	230	H
	* 15.574	23.92	ADR	40.2	-19.7	44.42	54	-9.58	-	-	-	-	257	230	H
5	* 15.587	34.72	PK-U	40.2	-20.1	54.82	-	-	74	-19.18	-	-	185	112	V
	* 15.578	24.29	ADR	40.2	-19.8	44.69	54	-9.31	-	-	-	-	185	112	V
2	1.92	44.61	PK-U	31.2	-33.8	42.01	-	-	-	-	68.2	-26.19	168	103	H
3	6.92	40.68	PK-U	35.6	-25.5	50.78	-	-	-	-	68.2	-17.42	223	117	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

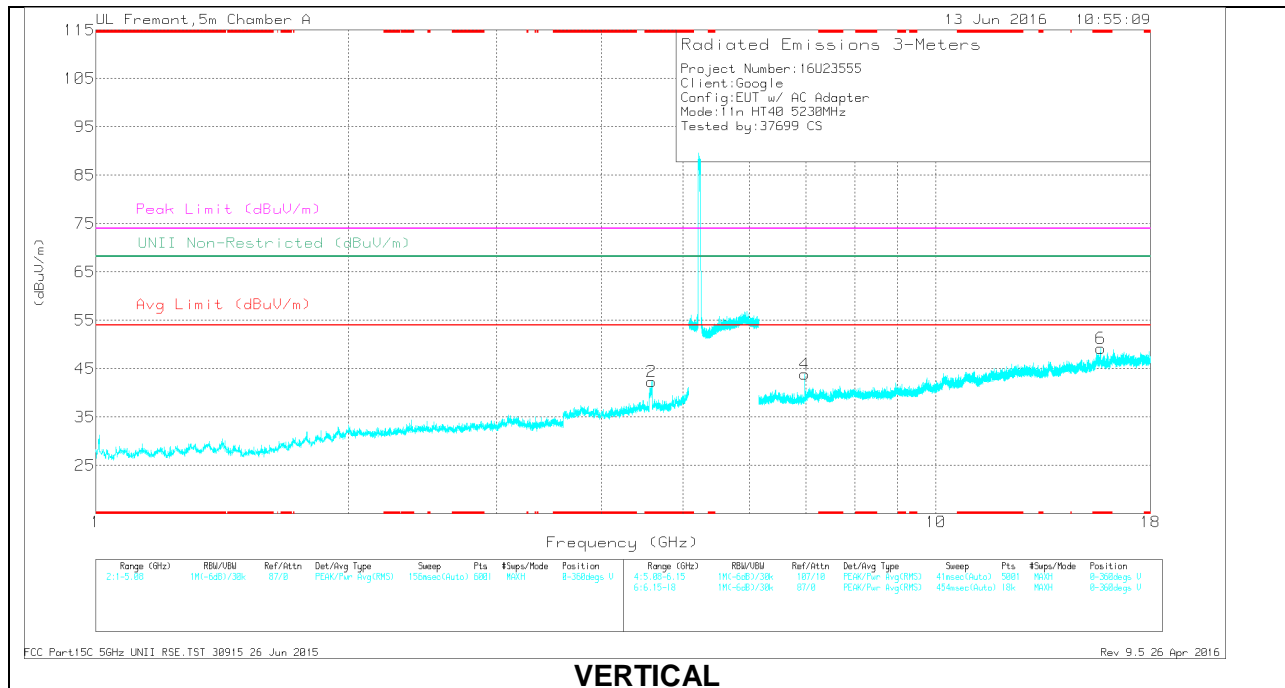
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**



### HIGH CHANNEL DATA

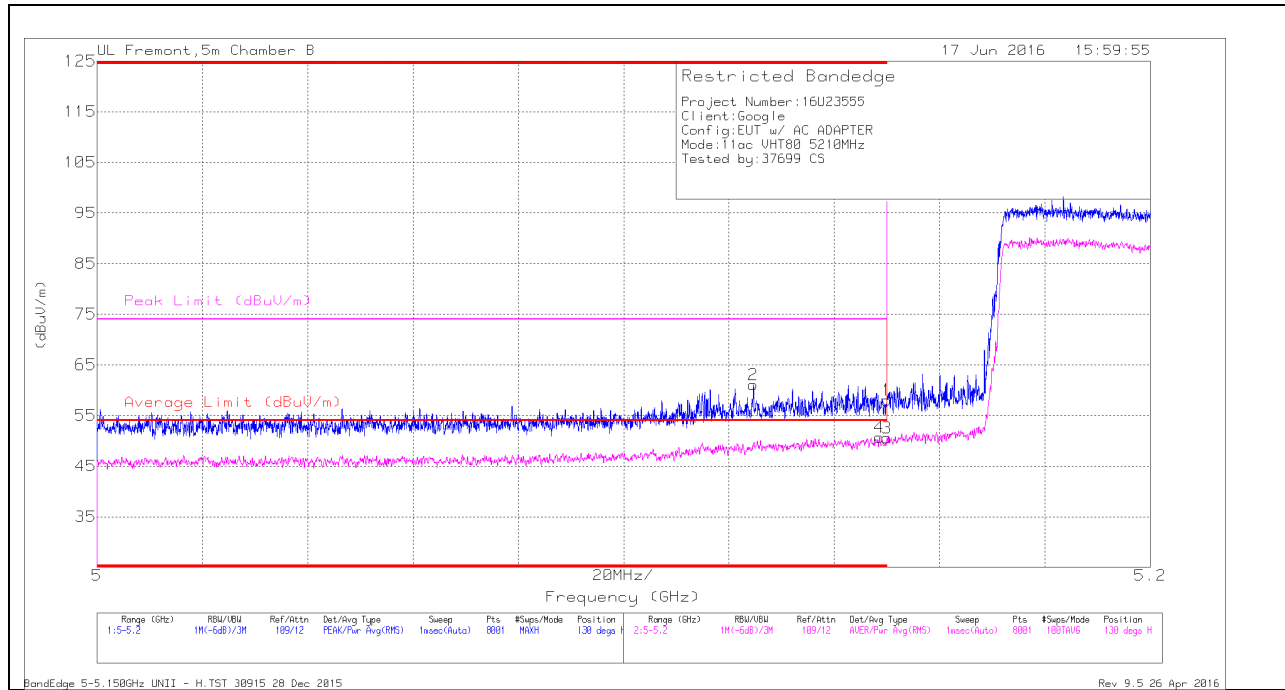
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Csh/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.571	50.85	PK-U	34.4	-29.8	55.45	-	-	74	-18.55	-	-	245	106	H
	* 4.57	42.66	ADR	34.4	-29.8	47.26	54	-6.74	-	-	-	-	245	106	H
2	* 4.57	44.24	PK-U	34.4	-29.8	48.84	-	-	74	-25.16	-	-	195	378	V
	* 4.561	35.65	ADR	34.4	-29.9	40.15	54	-13.85	-	-	-	-	195	378	V
5	* 15.69	36.26	PK-U	40.3	-21	55.56	-	-	74	-18.44	-	-	237	106	H
	* 15.684	26.3	ADR	40.3	-21	45.6	54	-8.4	-	-	-	-	237	106	H
6	* 15.693	36.28	PK-U	40.3	-21	55.58	-	-	74	-18.42	-	-	184	104	V
	* 15.692	26.09	ADR	40.3	-21	45.39	54	-8.61	-	-	-	-	184	104	V
3	6.973	42.64	PK-U	35.7	-25.5	52.84	-	-	-	-	68.2	-15.36	221	115	H
4	6.973	38.95	PK-U	35.7	-25.5	49.15	-	-	-	-	68.2	-19.05	73	101	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### 5.1.4. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.2 GHz BAND

#### RESTRICTED BANDEDGE (LOW CHANNEL)

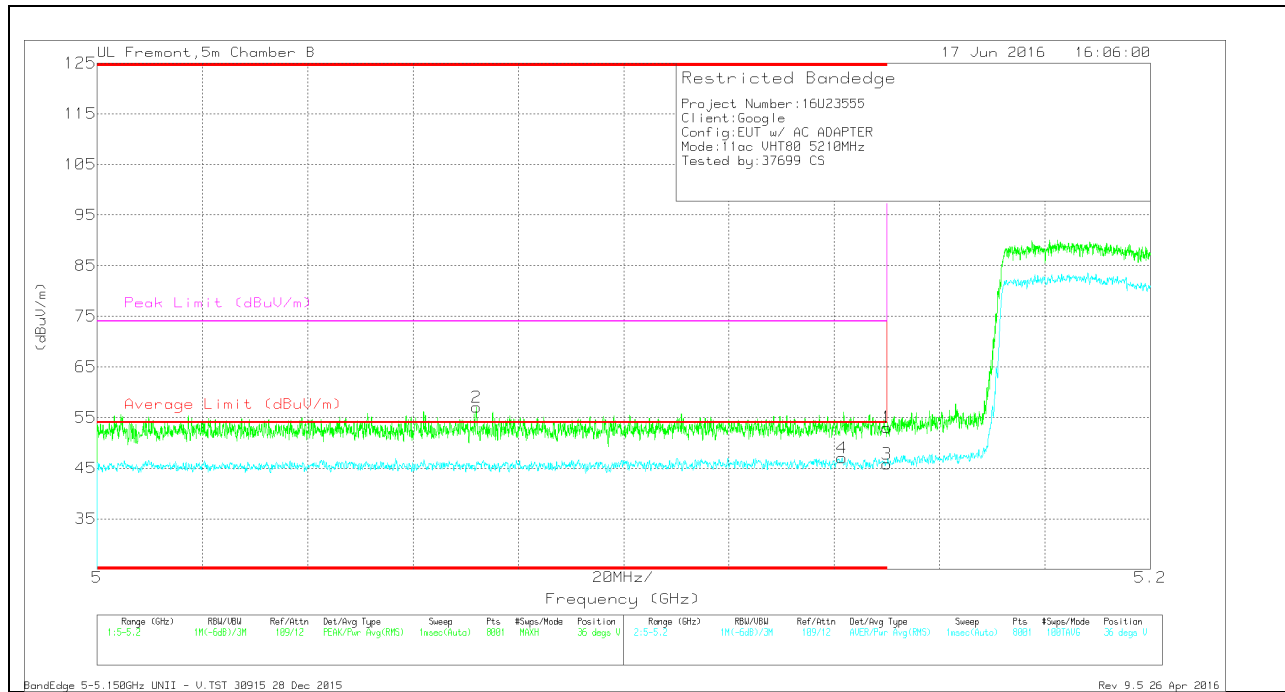
#### HORIZONTAL RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dBm)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.125	46.35	Pk	34.2	-19.5	0	61.05	-	-	74	-12.95	130	105	H
4	* 5.149	36.09	RMS	34.2	-19.7	.09	50.68	54	-3.32	-	-	130	105	H
1	5.15	43.74	Pk	34.2	-19.9	0	58.04	-	-	74	-15.96	130	105	H
3	5.15	36.15	RMS	34.2	-19.9	.09	50.54	54	-3.46	-	-	130	105	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

### VERTICAL RESULTS

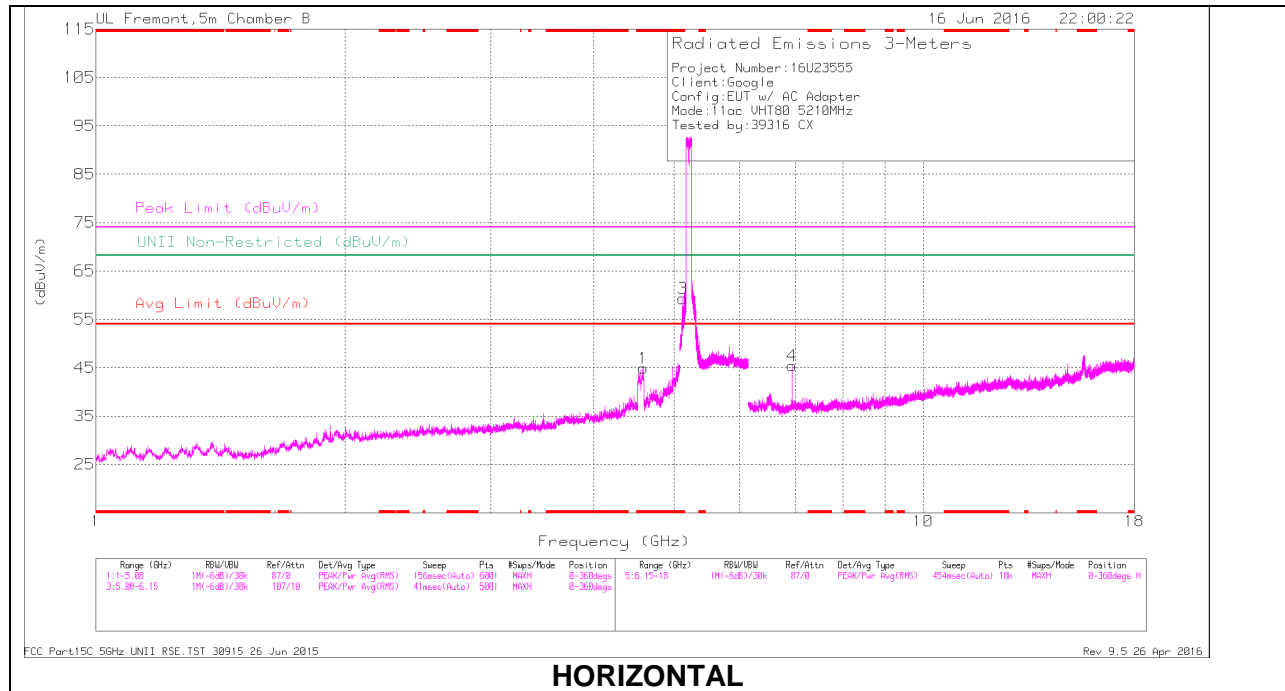


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Ch/Filt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 5.072	42.42	Pk	34.1	-19.5	0	57.02	-	-	74	-16.98	36	341	V
4	* 5.141	32.21	RMS	34.2	-19.5	.09	47	54	-7	-	-	36	341	V
1	5.15	38.76	Pk	34.2	-19.9	0	53.06	-	-	74	-20.94	36	341	V
3	5.15	31.44	RMS	34.2	-19.9	.09	45.83	54	-8.17	-	-	36	341	V

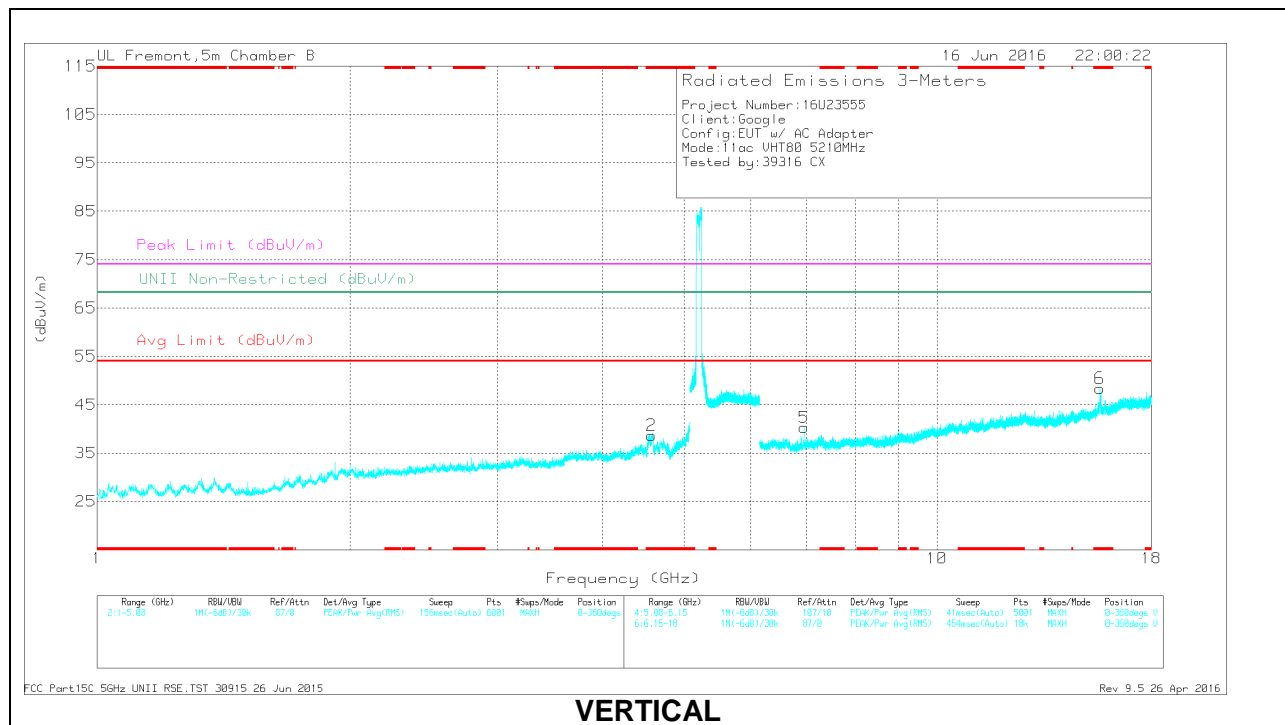
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**MID CHANNEL RESULTS**



**HORIZONTAL**



**VERTICAL**

### MID CHANNEL DATA

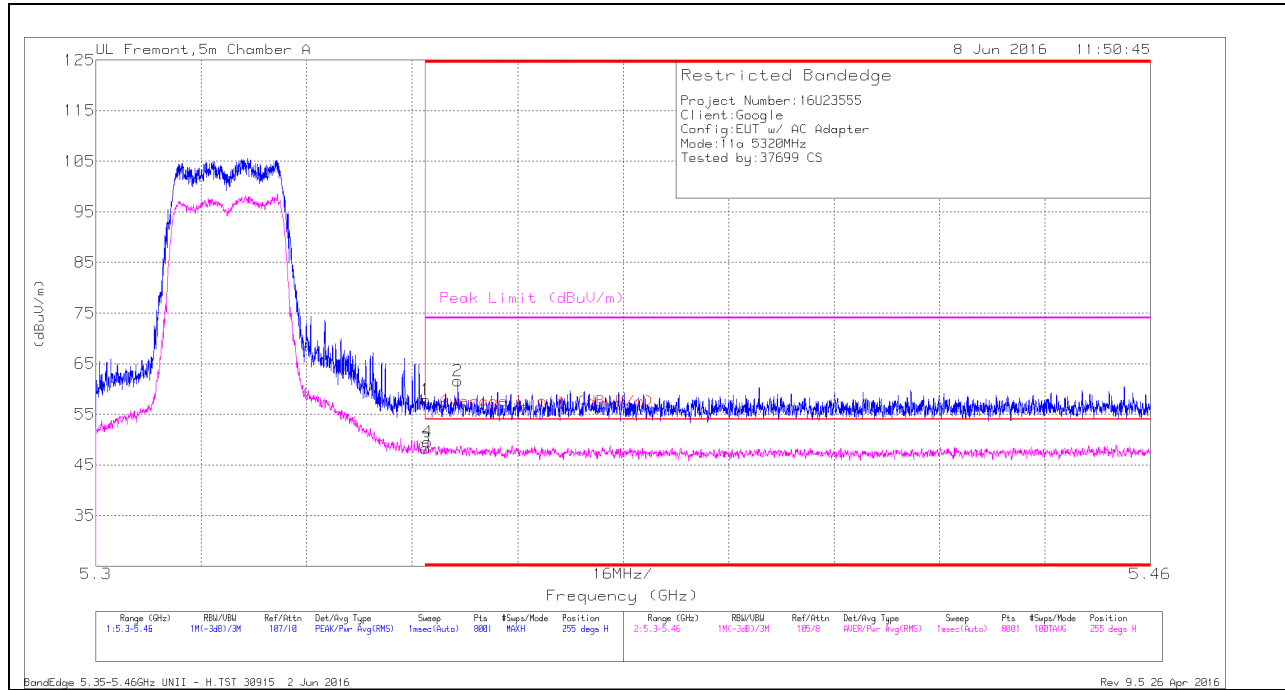
Marker	Frequency (GHz)	Meas Reading (dBuV)	Det	AF T345 (dB/m)	AmpClf/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UnII Non-Restricted (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
1	* 4.523	47.23	PK-U	34.1	-32.5	0	48.83	-	-	74	-25.17	-	-	230	111	H
	* 4.581	38.26	ADR	34.1	-32.5	.09	39.95	54	-14.05	-	-	-	-	230	111	H
2	* 4.555	42.2	PK-U	34.1	-32.8	0	43.5	-	-	74	-30.5	-	-	216	101	V
	* 4.581	33	ADR	34.1	-32.5	.09	34.69	54	-19.31	-	-	-	-	216	101	V
3	* 5.148	47.01	PK-U	34.2	-19.6	0	61.61	-	-	74	-12.39	-	-	263	105	H
	* 5.147	36.16	ADR	34.2	-19.6	.09	50.85	54	-3.15	-	-	-	-	263	105	H
4	* 15.62	36.43	PK-U	40.3	-24.5	0	52.23	-	-	74	-21.77	-	-	7	101	V
	* 15.621	25.47	ADR	40.3	-24.5	.09	41.36	54	-12.64	-	-	-	-	7	101	V
5	6.947	43.37	PK-U	35.5	-30.4	0	48.47	-	-	-	-	68.2	-19.73	248	113	H
6	6.947	40.5	PK-U	35.5	-30.4	0	45.6	-	-	-	-	68.2	-22.6	73	330	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### 5.1.5. TX ABOVE 1 GHz 802.11a MODE IN THE 5.3 GHz BAND

#### AUTHORIZED BANDEDGE (HIGH CHANNEL)

#### HORIZONTAL RESULTS



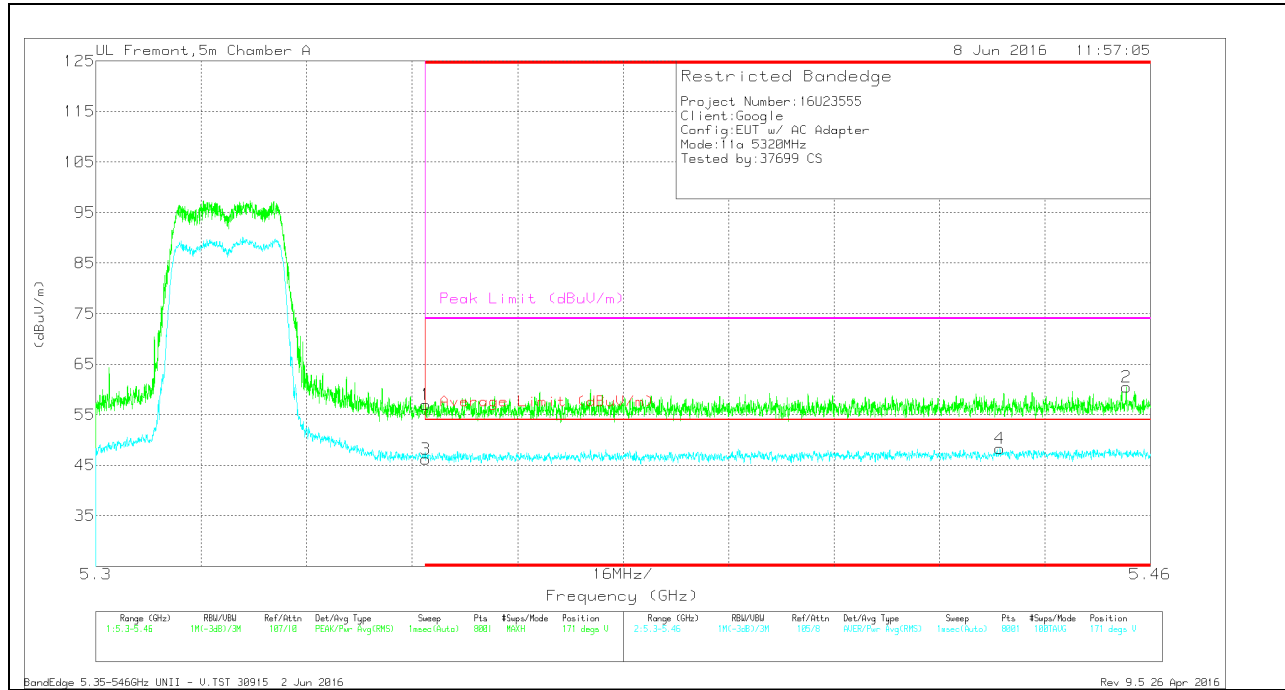
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cb/Fitr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	36.62	Pk	34.8	-13.5	57.92	-	-	74	-16.08	255	276	H
2	* 5.355	40.24	Pk	34.8	-13.5	61.54	-	-	74	-12.46	255	276	H
3	* 5.35	27.03	RMS	34.8	-13.5	48.33	54	-5.67	-	-	255	276	H
4	* 5.35	28.21	RMS	34.8	-13.5	49.51	54	-4.49	-	-	255	276	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

### VERTICAL RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fitr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	35.75	Pk	34.8	-13.5	57.05	-	-	74	-16.95	171	106	V
2	* 5.456	38.97	Pk	34.8	-13.3	60.47	-	-	74	-13.53	171	106	V
3	* 5.35	24.91	RMS	34.8	-13.5	46.21	54	-7.79	-	-	171	106	V
4	* 5.437	26.75	RMS	34.8	-13.3	48.25	54	-5.75	-	-	171	106	V

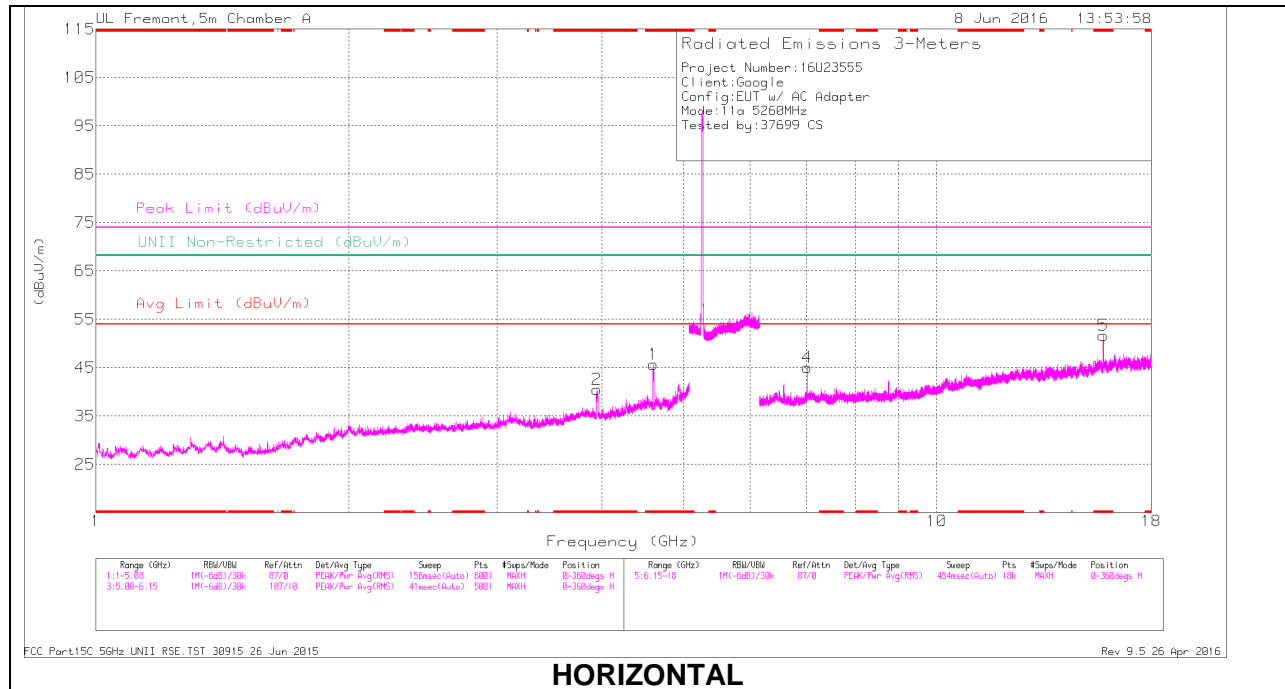
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

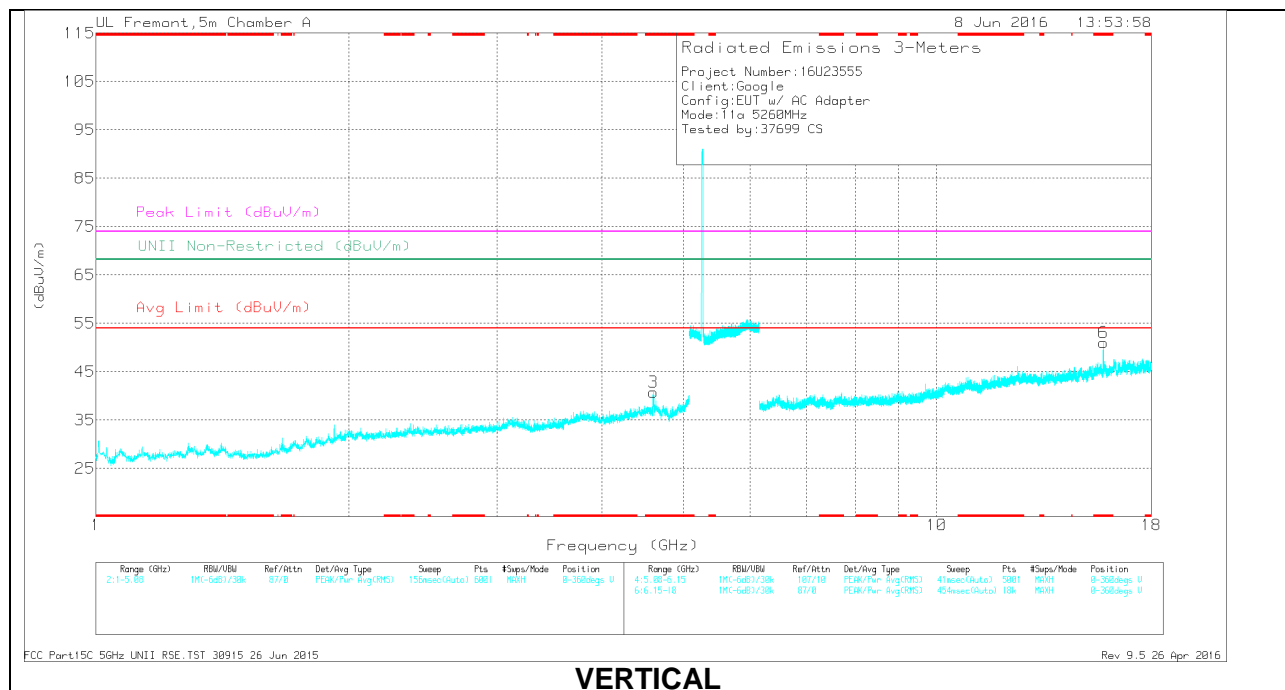
RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL RESULTS**



**HORIZONTAL**



**VERTICAL**

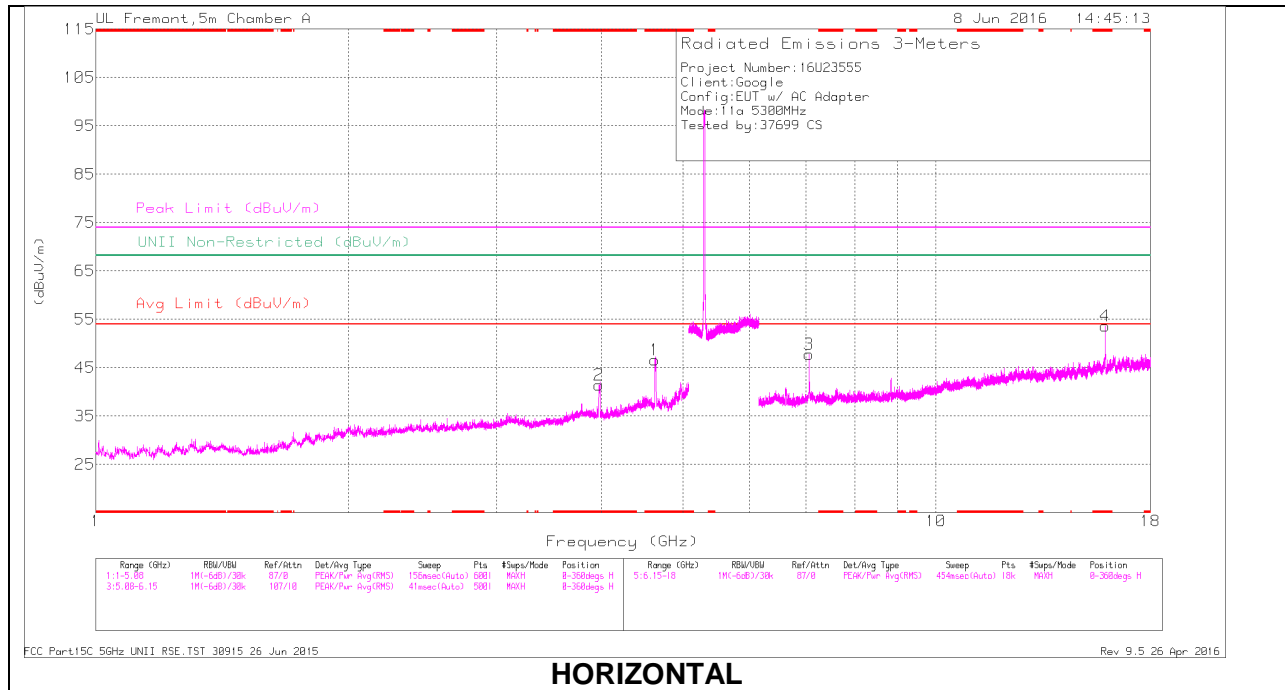


**LOW CHANNEL DATA**

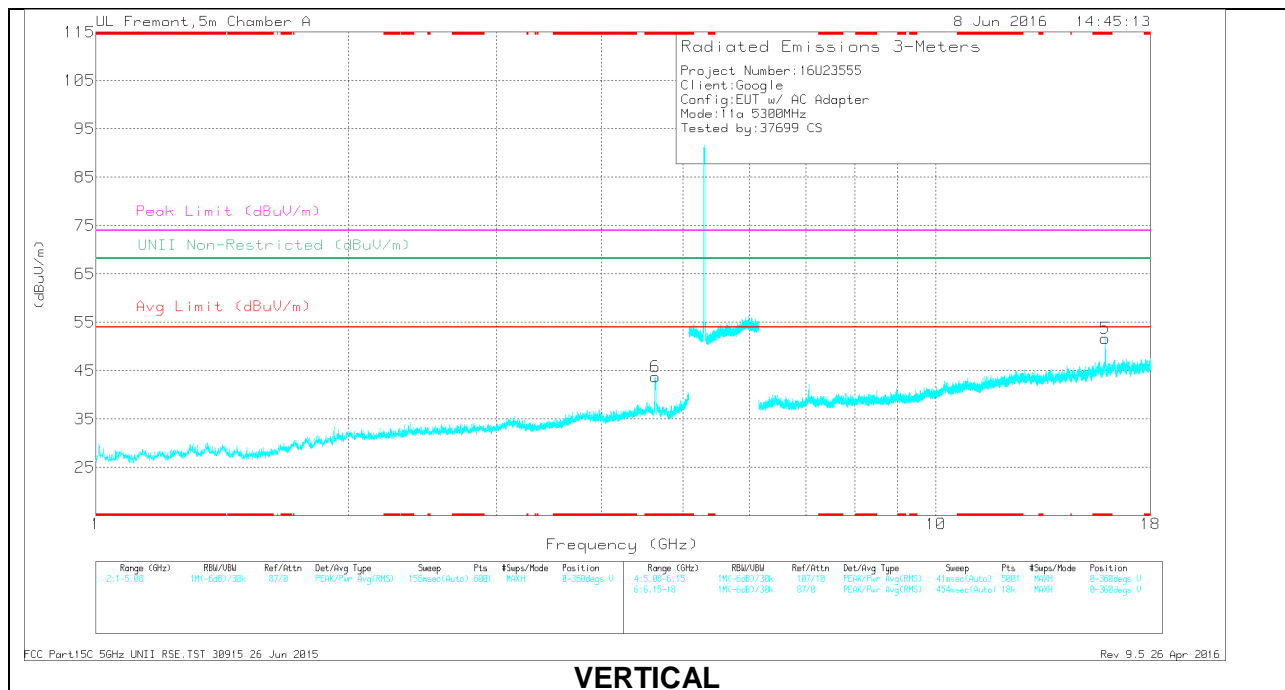
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/ChlFilt/r/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.595	46.28	PK-U	34.4	-29.3	51.38	-	-	74	-22.62	-	-	230	385	H
	* 4.595	37.68	ADR	34.4	-29.3	42.78	54	-11.22	-	-	-	-	230	385	H
2	* 3.946	42.82	PK-U	33.5	-30.6	45.72	-	-	74	-28.28	-	-	270	255	H
	* 3.953	33.93	ADR	33.5	-30.5	36.83	54	-17.17	-	-	-	-	270	255	H
3	* 4.609	41.74	PK-U	34.4	-28.8	47.34	-	-	-	-	-	-	182	102	V
	* 4.61	33.14	ADR	34.4	-28.8	38.74	54	-15.26	-	-	-	-	182	102	V
5	* 15.782	37.06	PK-U	40.4	-20.6	56.86	-	-	74	-17.14	-	-	237	104	H
	* 15.778	27.82	ADR	40.4	-20.7	47.52	54	-6.48	-	-	-	-	237	104	H
6	* 15.78	36.87	PK-U	40.4	-20.7	56.57	-	-	74	-17.43	-	-	171	103	V
	* 15.782	26.24	ADR	40.4	-20.7	45.94	54	-8.06	-	-	-	-	171	103	V
4	7.014	38.3	PK-U	35.7	-24.7	49.3	-	-	-	-	68.2	-18.9	345	115	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### MID CHANNEL RESULTS



### HORIZONTAL



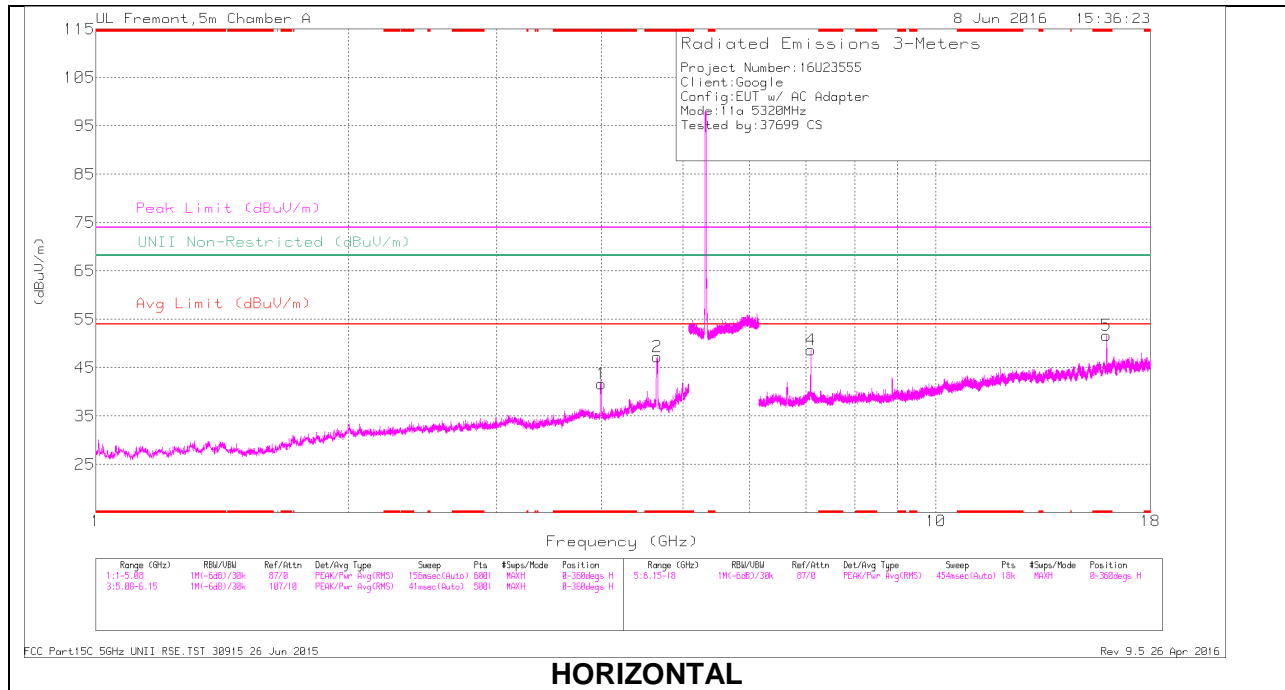
### VERTICAL

### MID CHANNEL DATA

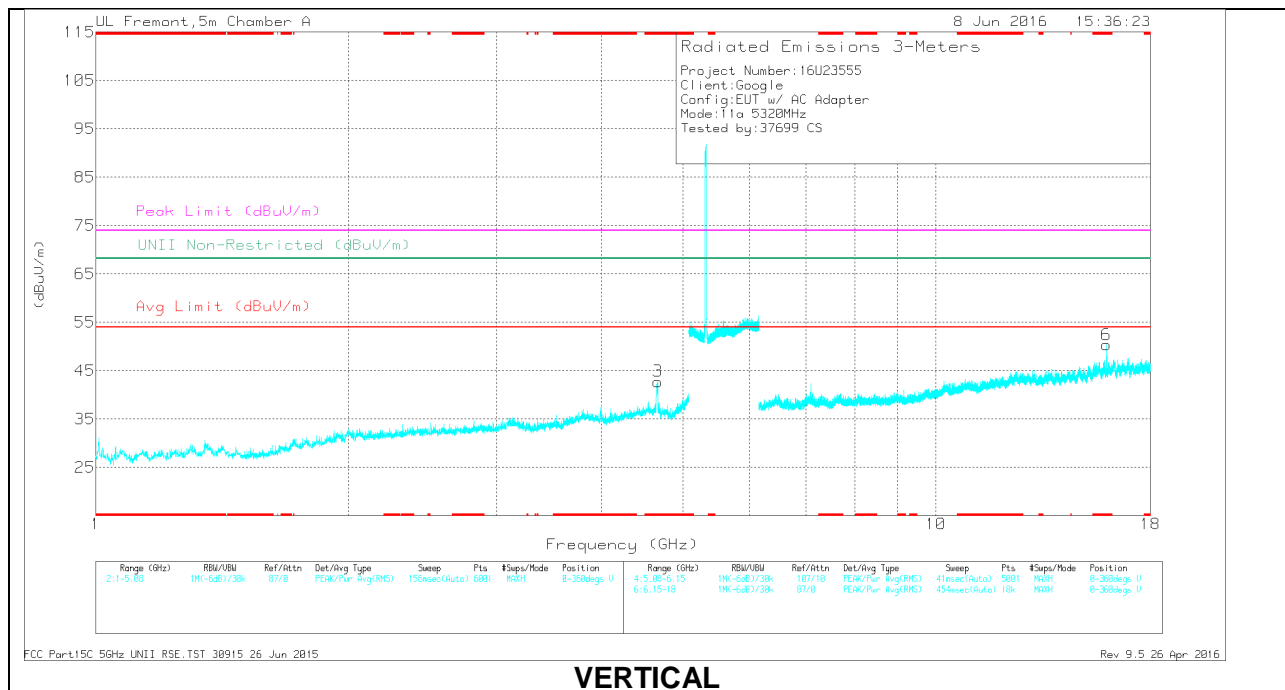
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/ChlFilt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.635	47.63	PK-U	34.4	-28.5	53.53	-	-	74	-20.47	-	-	230	353	H
	* 4.63	39.36	ADR	34.4	-28.5	45.26	54	-8.74	-	-	-	-	230	353	H
2	* 3.982	44.35	PK-U	33.4	-30.2	47.55	-	-	74	-26.45	-	-	285	217	H
	* 3.983	36.24	ADR	33.4	-30.2	39.44	54	-14.56	-	-	-	-	285	217	H
6	* 4.63	41.96	PK-U	34.4	-28.5	47.76	-	-	74	-26.24	-	-	182	109	V
	* 4.644	33.3	ADR	34.4	-28.6	39.1	54	-14.9	-	-	-	-	182	109	V
4	* 15.902	35.63	PK-U	40.4	-20.6	55.43	-	-	74	-18.57	-	-	133	127	H
	* 15.904	25.51	ADR	40.4	-20.6	45.31	54	-8.69	-	-	-	-	133	127	H
5	* 15.905	37.39	PK-U	40.4	-20.6	57.19	-	-	74	-16.81	-	-	175	107	V
	* 15.902	26.78	ADR	40.4	-20.6	46.58	54	-7.42	-	-	-	-	175	107	V
3	7.067	40.57	PK-U	35.7	-23.7	52.57	-	-	-	-	68.2	-15.63	345	110	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

### HIGH CHANNEL DATA

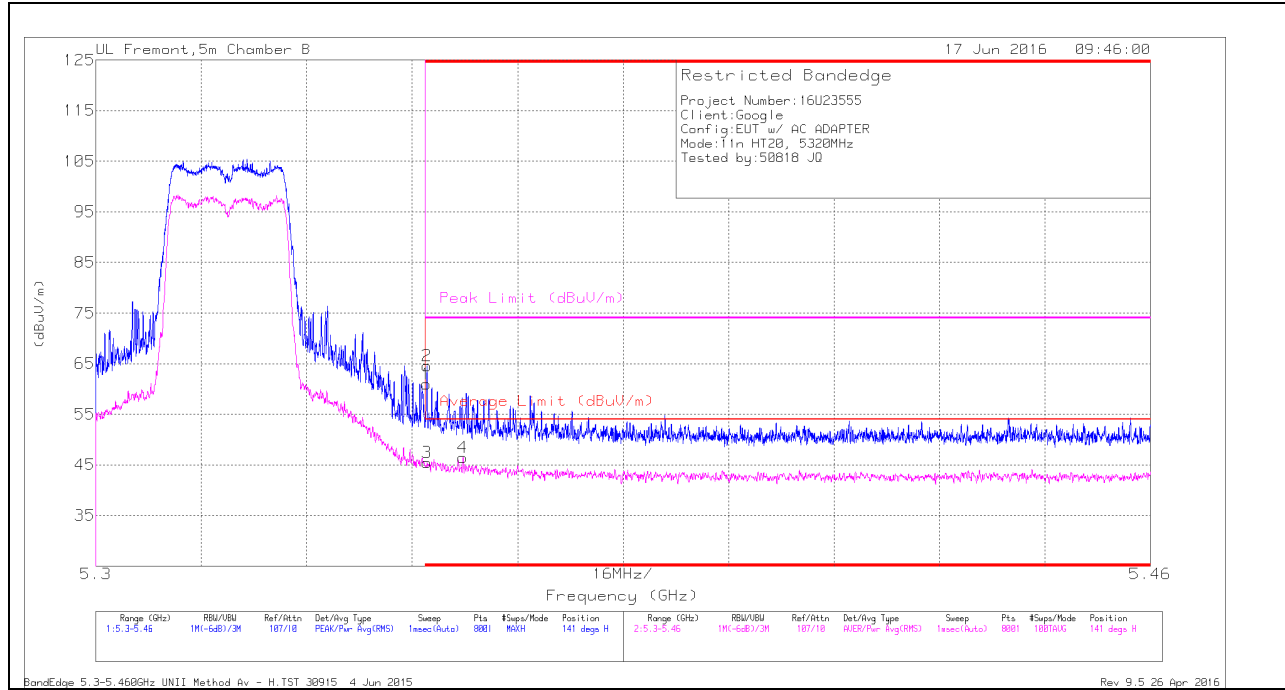
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/ChlFilt/r/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.992	44.77	PK-U	33.4	-30.1	48.07	-	-	74	-25.93	-	-	291	273	H
	* 3.992	36.7	ADR	33.4	-30.1	40	54	-14	-	-	-	-	291	273	H
2	* 4.658	46.98	PK-U	34.4	-28.7	52.68	-	-	74	-21.32	-	-	230	372	H
	* 4.653	38.74	ADR	34.4	-28.7	44.44	54	-9.56	-	-	-	-	230	372	H
3	* 4.659	40.01	PK-U	34.4	-28.7	45.71	-	-	74	-28.29	-	-	181	101	V
	* 4.662	31.01	ADR	34.4	-28.7	36.71	54	-17.29	-	-	-	-	181	101	V
5	* 15.959	39.43	PK-U	40.5	-20.7	59.23	-	-	74	-14.77	-	-	234	101	H
	* 15.963	27.95	ADR	40.5	-20.7	47.75	54	-6.25	-	-	-	-	234	101	H
6	* 15.951	31.43	PK-U	40.5	-20.9	51.03	-	-	74	-22.97	-	-	174	127	V
	* 15.961	21.32	ADR	40.5	-20.7	41.12	54	-12.88	-	-	-	-	174	127	V
4	7.093	36.72	PK-U	35.7	-24.1	48.32	-	-	-	-	68.2	-19.88	346	114	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### 5.1.6. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

#### AUTHORIZED BANDEGE (HIGH CHANNEL)

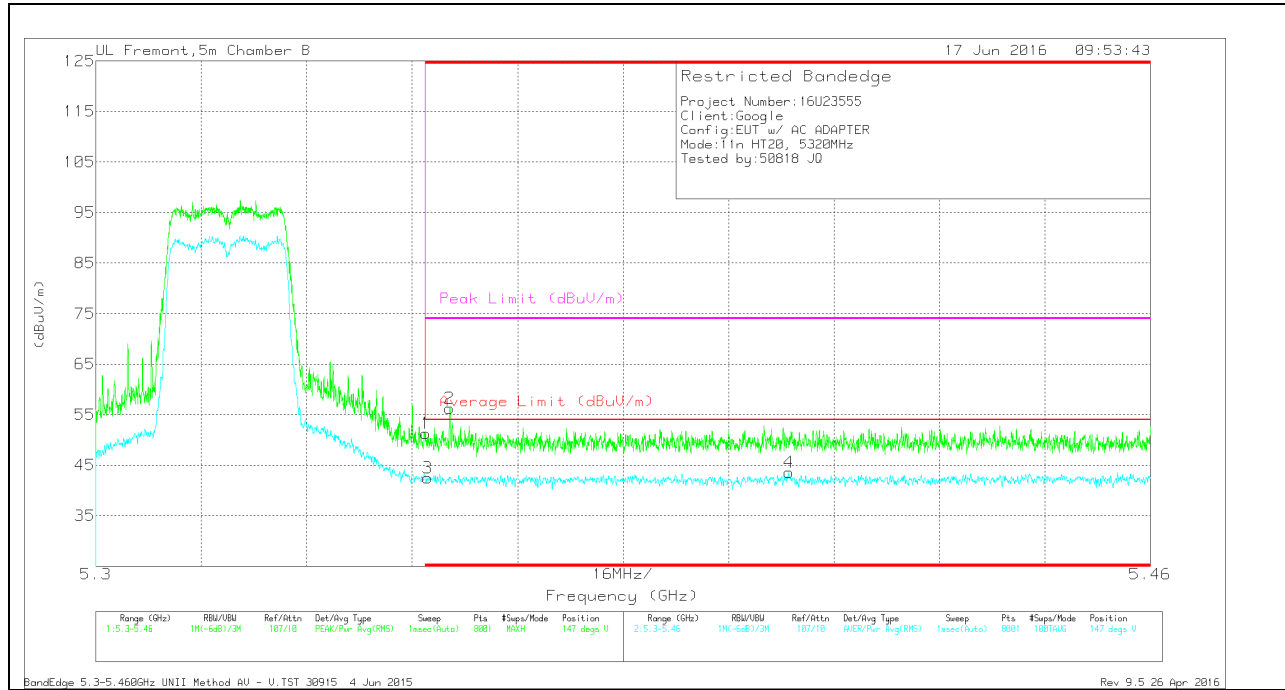
#### HORIZONTAL RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	49.13	Pk	34.5	-22.7	60.93	-	-	74	-13.07	141	300	H
2	* 5.35	52.8	Pk	34.5	-22.7	64.6	-	-	74	-9.4	141	300	H
3	* 5.35	33.69	RMS	34.5	-22.7	45.49	54	-8.51	-	-	141	300	H
4	* 5.356	34.69	RMS	34.5	-22.7	46.49	54	-7.51	-	-	141	300	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

### VERTICAL RESULTS

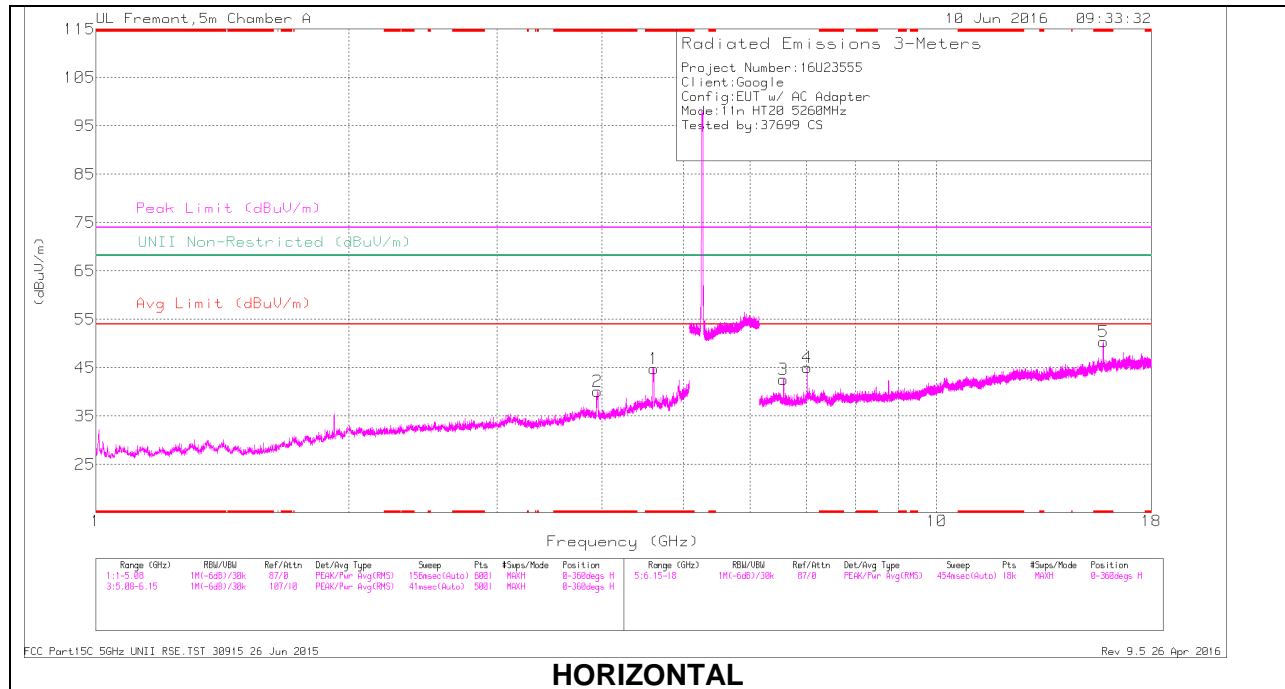


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/ Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	39.5	Pk	34.5	-22.7	51.3	-	-	74	-22.7	147	143	V
2	* 5.354	44.5	Pk	34.5	-22.7	56.3	-	-	74	-17.7	147	143	V
3	* 5.35	30.68	RMS	34.5	-22.7	42.48	54	-11.52	-	-	147	143	V
4	* 5.405	31.77	RMS	34.5	-22.7	43.57	54	-10.43	-	-	147	143	V

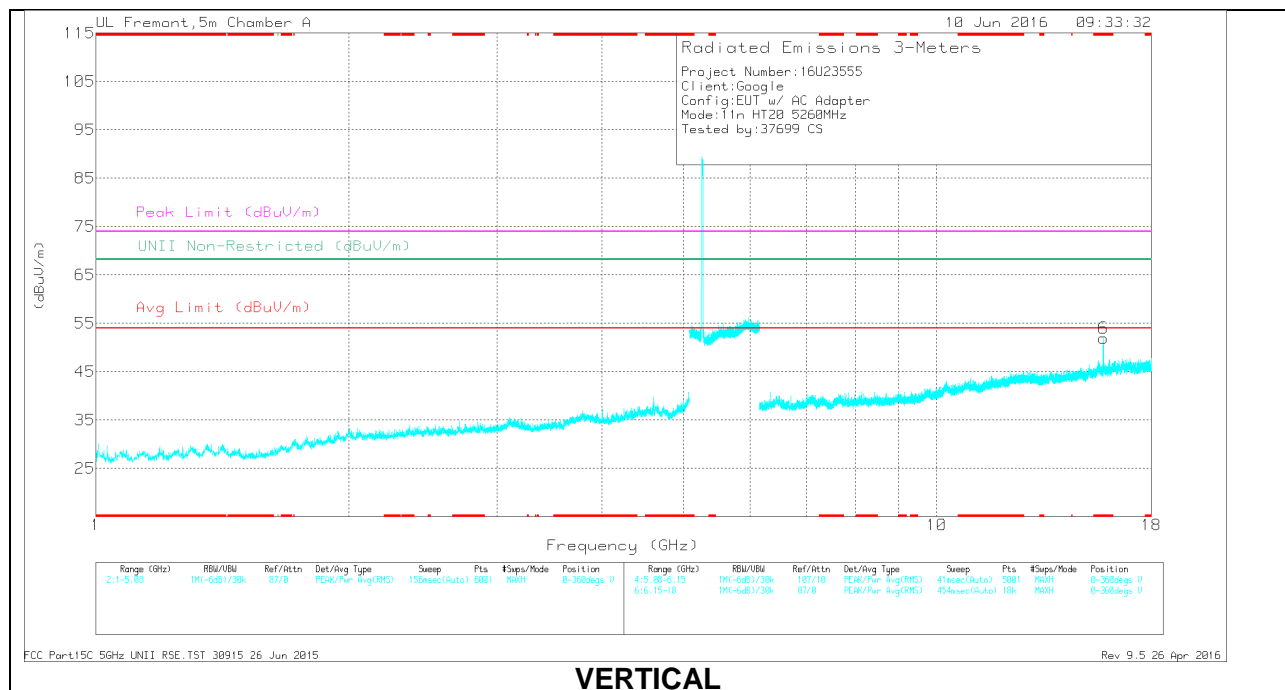
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL RESULTS**



**HORIZONTAL**



**VERTICAL**



**LOW CHANNEL DATA**

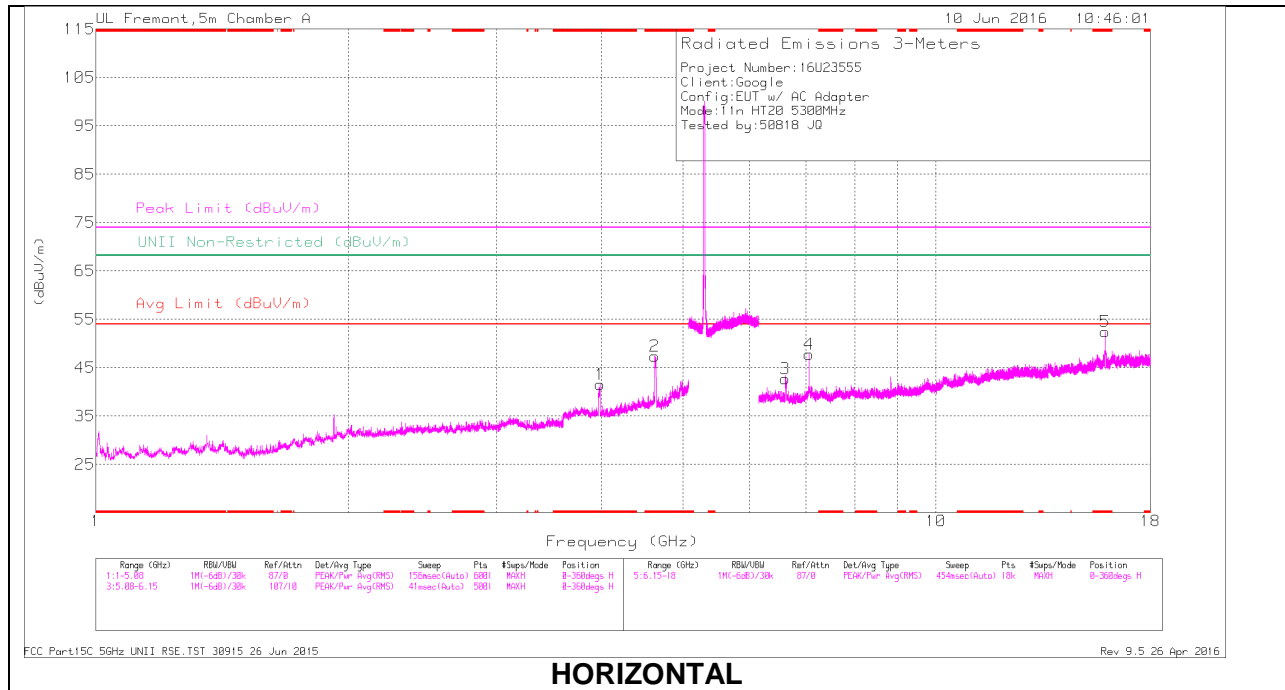
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/Chl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.595	46.38	PK-U	34.4	-29.3	51.48	-	-	74	-22.52	-	-	231	390	H
	* 4.61	38.09	ADR	34.4	-28.8	43.69	54	-10.31	-	-	-	-	231	390	H
2	* 3.953	43.51	PK-U	33.5	-30.5	46.51	-	-	74	-27.49	-	-	242	309	H
	* 3.952	35.24	ADR	33.5	-30.5	38.24	54	-15.76	-	-	-	-	242	309	H
5	* 15.778	37.29	PK-U	40.4	-20.8	56.89	-	-	74	-17.11	-	-	236	115	H
	* 15.778	27.21	ADR	40.4	-20.8	46.81	54	-7.19	-	-	-	-	236	115	H
6	* 15.781	39.39	PK-U	40.4	-20.7	59.09	-	-	74	-14.91	-	-	178	102	V
	* 15.778	28.28	ADR	40.4	-20.8	47.88	54	-6.12	-	-	-	-	178	102	V
3	6.572	40.08	PK-U	35.6	-25.9	49.78	-	-	-	-	68.2	-18.42	201	101	H
4	7.013	39.17	PK-U	35.7	-24.8	50.07	-	-	-	-	68.2	-18.13	225	277	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

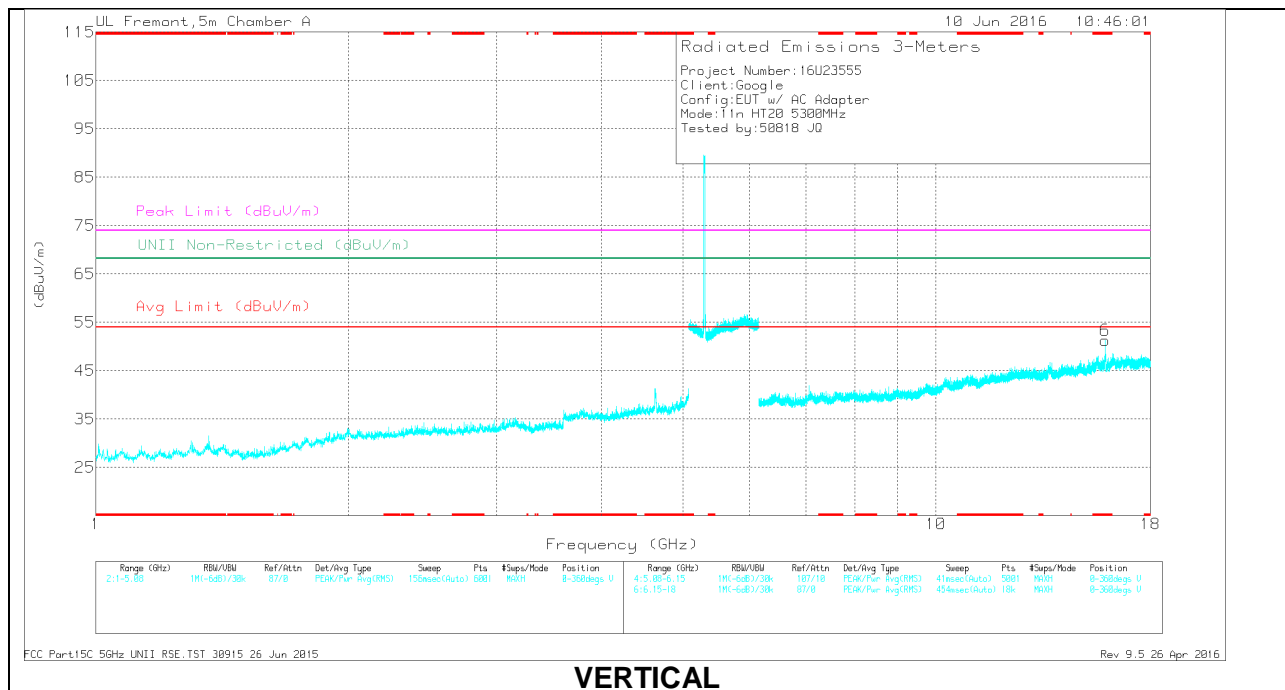
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### MID CHANNEL RESULTS



### HORIZONTAL



### VERTICAL

### MID CHANNEL DATA

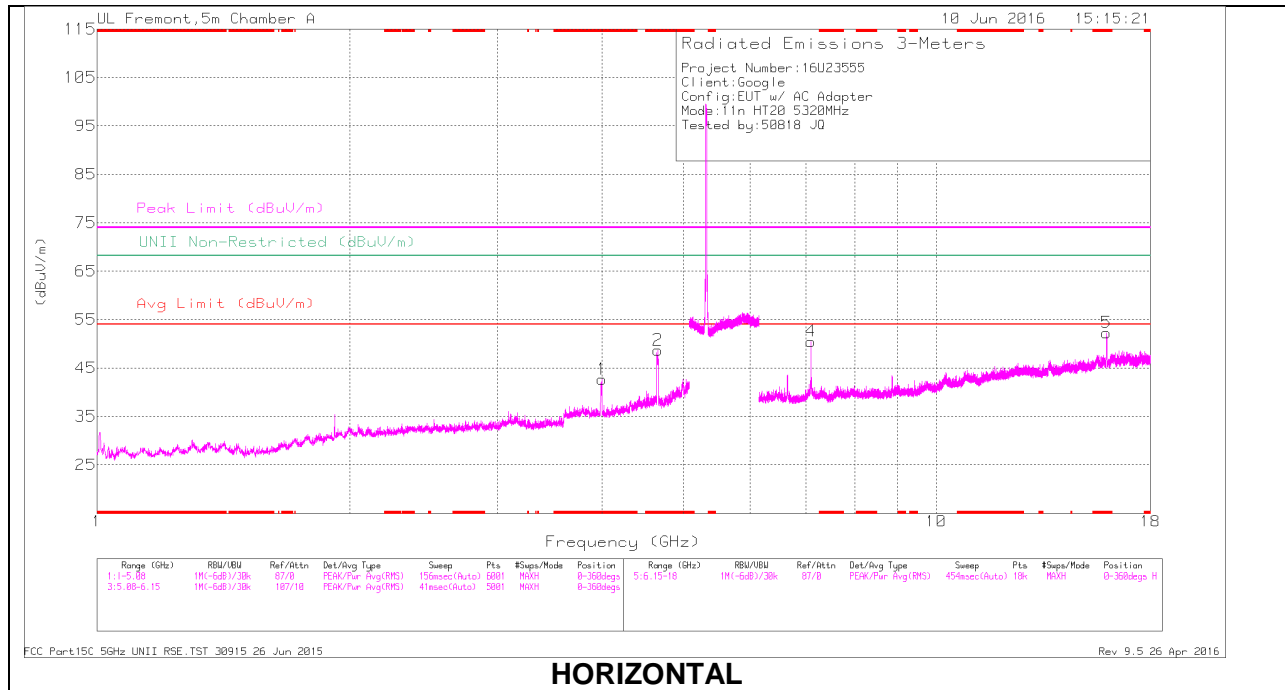
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (dB/m)	Amp/ChlFilt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.983	45.78	PK-U	33.4	-30.2	48.98	-	-	74	-25.02	-	-	243	328	H
	* 3.983	36.82	ADR	33.4	-30.2	40.02	54	-13.98	-	-	-	-	243	328	H
3	* 4.629	47.89	PK-U	34.4	-28.5	53.79	-	-	74	-20.21	-	-	229	101	H
	* 4.63	40.02	ADR	34.4	-28.5	45.92	54	-8.08	-	-	-	-	229	101	H
5	* 15.9	38.86	PK-U	40.4	-20.5	58.76	-	-	74	-15.24	-	-	251	270	H
	* 15.906	28.09	ADR	40.4	-20.6	47.89	54	-6.11	-	-	-	-	251	270	H
6	* 15.896	37.26	PK-U	40.4	-20.4	57.26	-	-	74	-16.74	-	-	178	116	V
	* 15.902	27.25	ADR	40.4	-20.6	47.05	54	-6.95	-	-	-	-	178	116	V
3	6.622	40.93	PK-U	35.6	-26.2	50.33	-	-	-	-	68.2	-17.87	200	103	H
4	7.067	41.64	PK-U	35.7	-23.7	53.64	-	-	-	-	68.2	-14.56	233	309	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

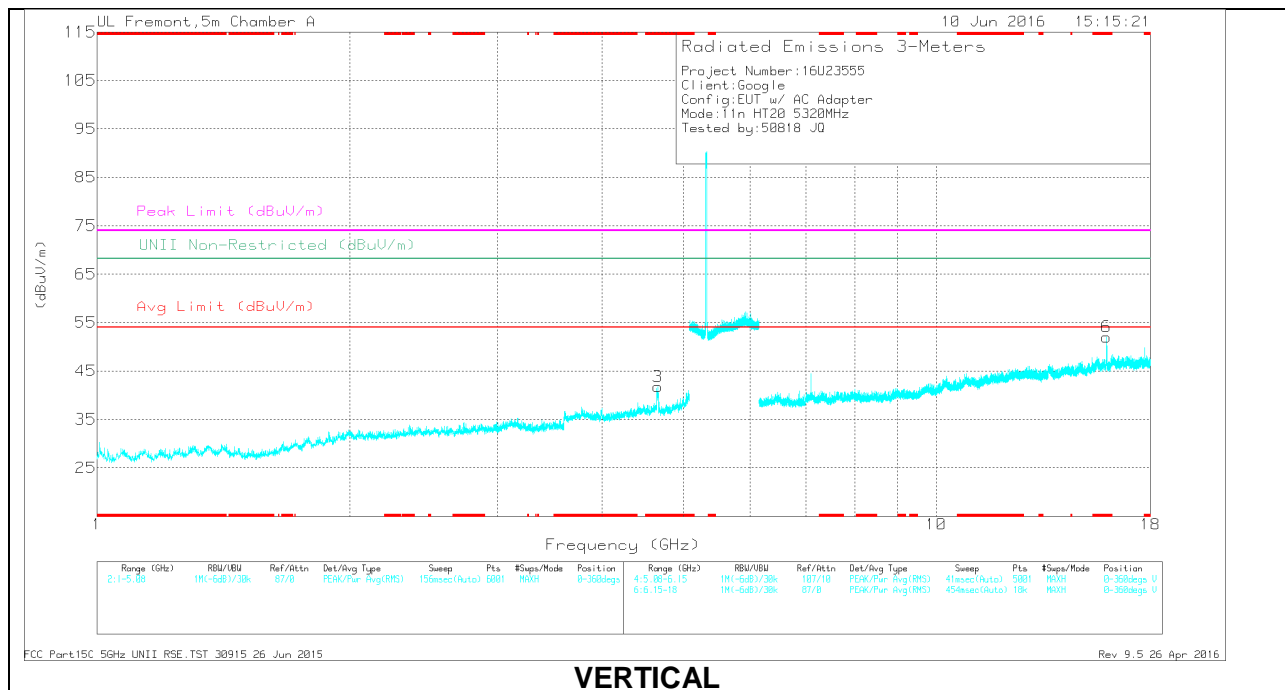
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

### HIGH CHANNEL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Ch/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	U/NII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.995	46.22	PK-U	33.4	-30.1	49.52	-	-	74	-24.48	-	-	244	115	H
	* 3.997	38.07	ADR	33.4	-30	41.47	54	-12.53	-	-	-	-	244	115	H
2	* 4.658	49.41	PK-U	34.4	-28.7	55.11	-	-	74	-18.89	-	-	237	274	H
	* 4.663	41.16	ADR	34.4	-28.7	46.86	54	-7.14	-	-	-	-	237	274	H
3	* 4.65	42.92	PK-U	34.4	-28.6	48.72	-	-	74	-25.28	-	-	175	313	V
	* 4.647	34.84	ADR	34.4	-28.6	40.64	54	-13.36	-	-	-	-	175	313	V
5	* 15.96	37.39	PK-U	40.5	-20.7	57.19	-	-	74	-16.81	-	-	244	101	H
	* 15.963	27.03	ADR	40.5	-20.7	46.83	54	-7.17	-	-	-	-	244	101	H
6	* 15.961	39.37	PK-U	40.5	-20.7	59.17	-	-	74	-14.83	-	-	181	102	V
	* 15.963	29.13	ADR	40.5	-20.7	48.93	54	-5.07	-	-	-	-	181	102	V
4	7.093	44.47	PK-U	35.7	-24.1	56.07	-	-	-	-	68.2	-12.13	356	101	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

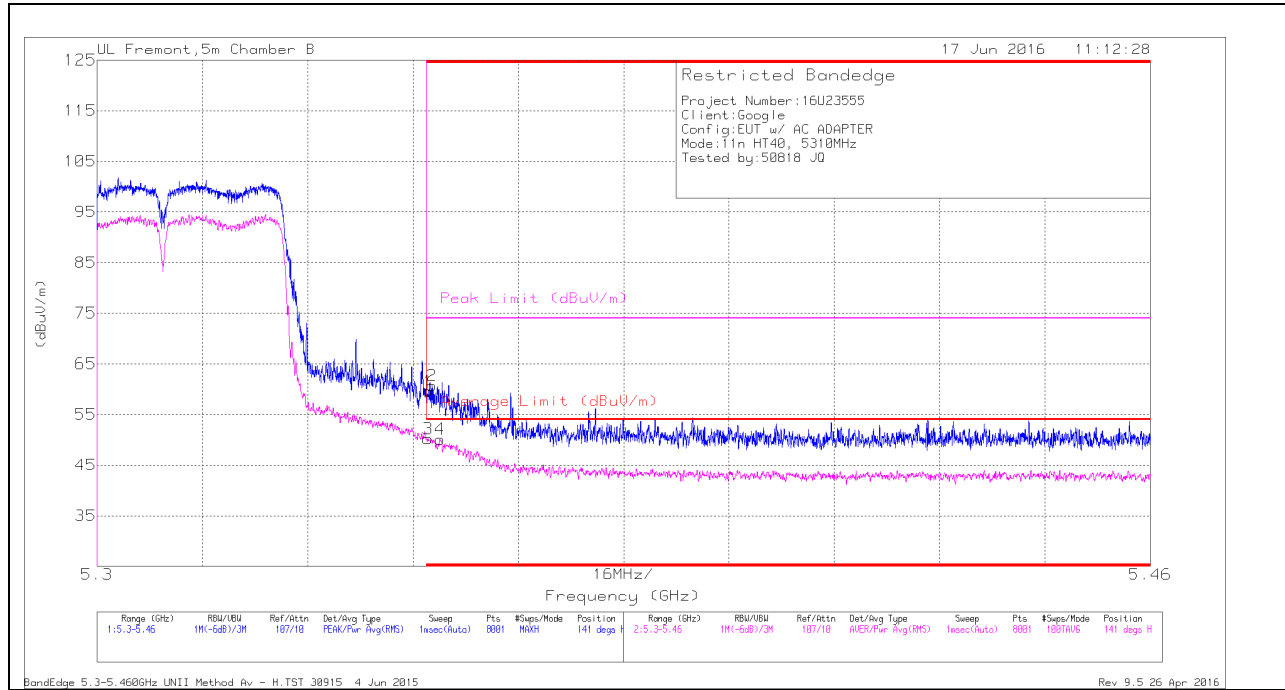
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### 5.1.7. TX ABOVE 1 GHz 802.11n HT40 MODE IN THE 5.3 GHz BAND

#### AUTHORIZED BANDEDGE (HIGH CHANNEL)

#### HORIZONTAL RESULTS



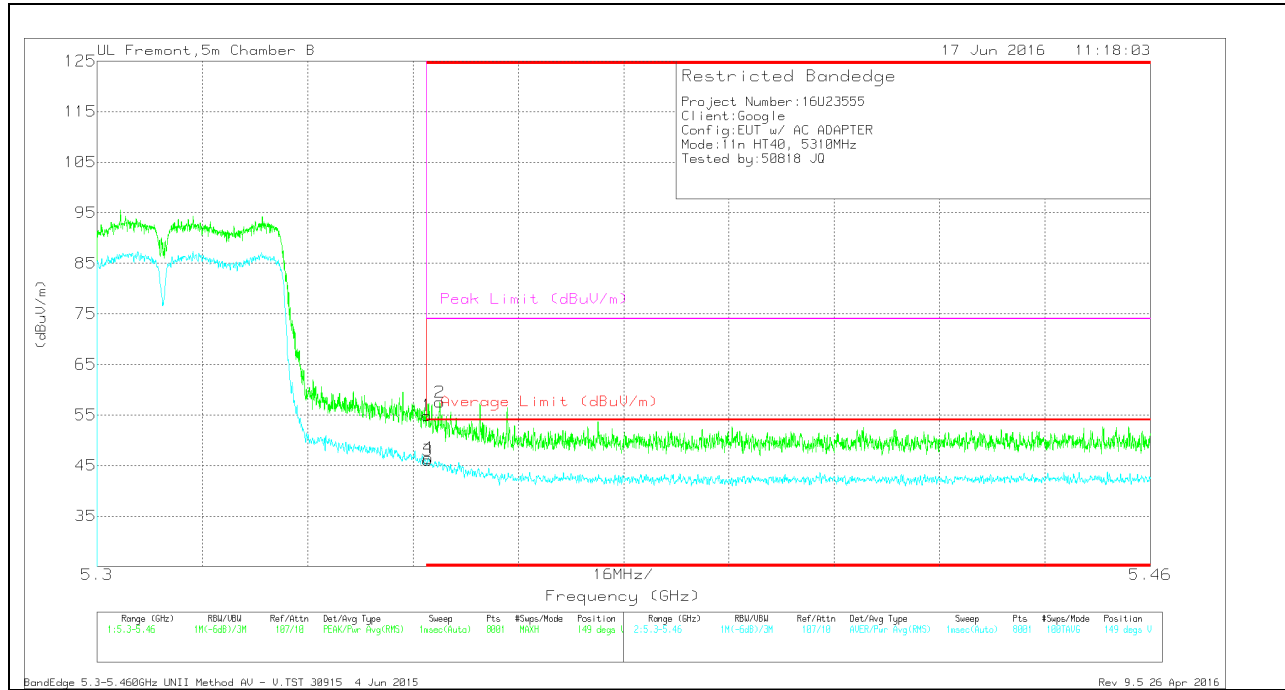
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	47.79	Pk	34.5	-22.7	59.59	-	-	74	-14.41	141	300	H
3	* 5.35	38.41	RMS	34.5	-22.7	50.21	54	-3.79	-	-	141	300	H
2	* 5.351	48.88	Pk	34.5	-22.7	60.68	-	-	74	-13.32	141	300	H
4	* 5.352	38.32	RMS	34.5	-22.7	50.12	54	-3.88	-	-	141	300	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

### VERTICAL RESULTS



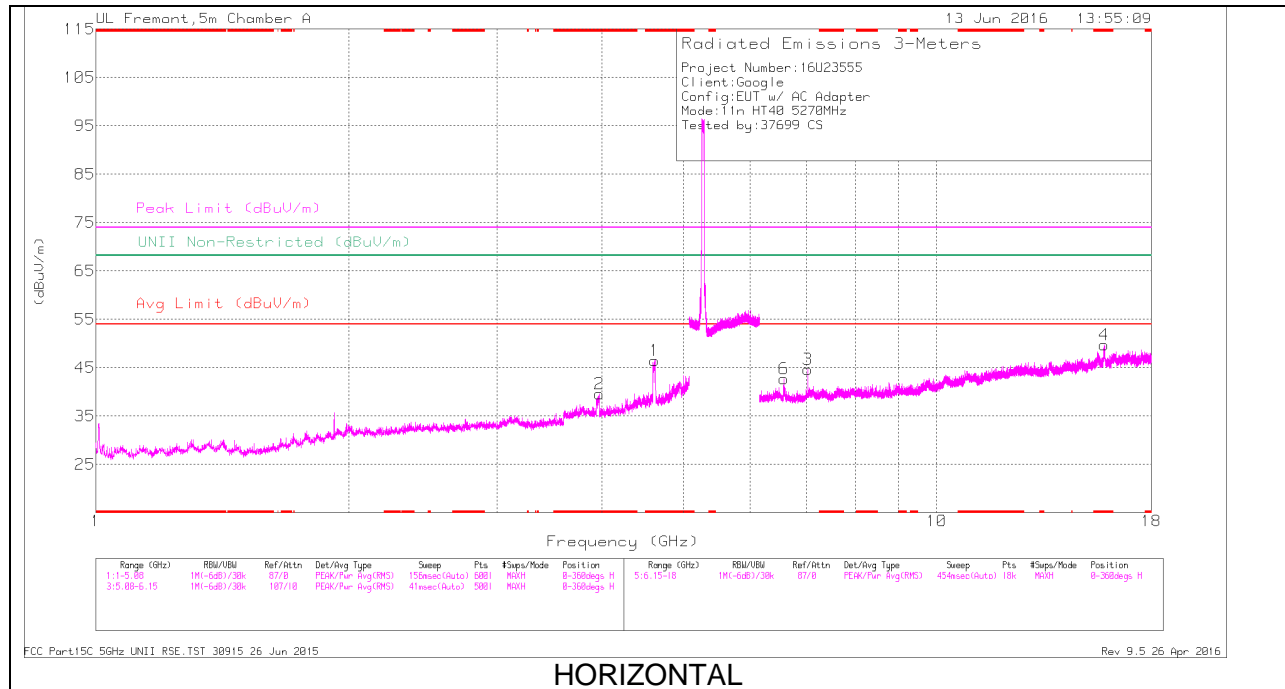
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	43.07	Pk	34.5	-22.7	54.87	-	-	74	-19.13	149	121	V
3	* 5.35	34.23	RMS	34.5	-22.7	46.03	54	-7.97	-	-	149	121	V
4	* 5.35	34.69	RMS	34.5	-22.7	46.49	54	-7.51	-	-	149	121	V
2	* 5.352	45.7	Pk	34.5	-22.7	57.5	-	-	74	-16.5	149	121	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

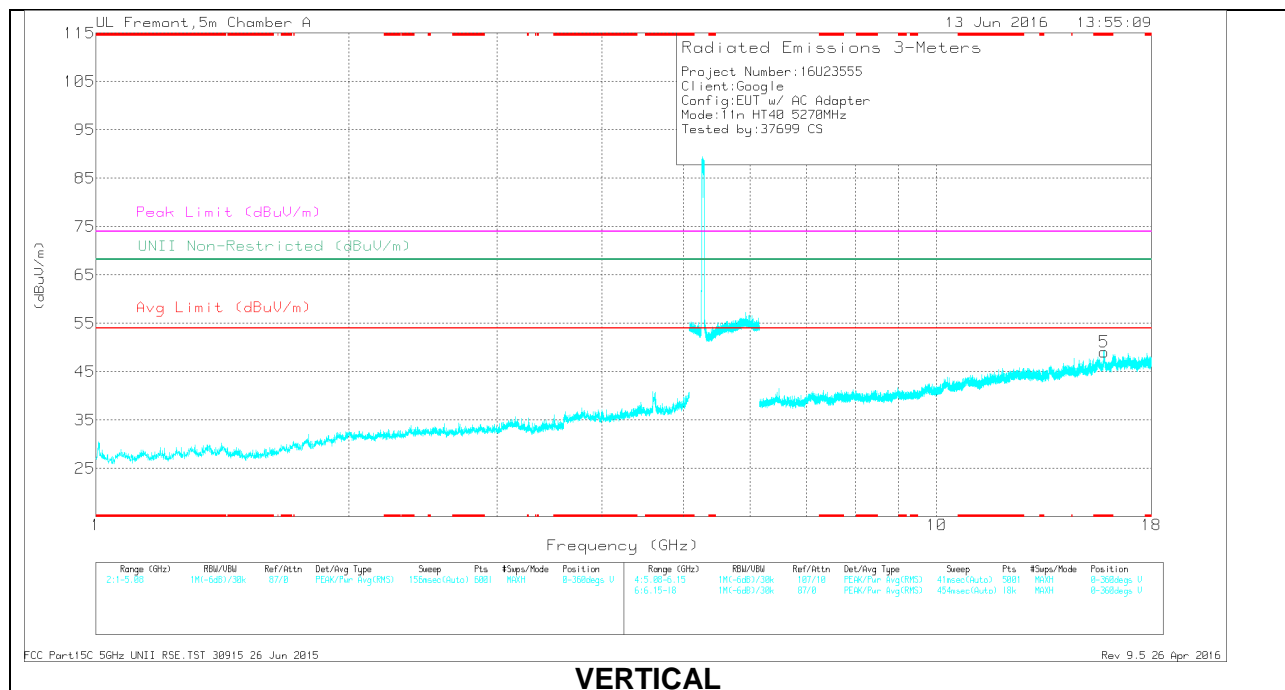
Pk - Peak detector  
 RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**LOW CHANNEL RESULTS**



**HORIZONTAL**



**VERTICAL**



**LOW CHANNEL DATA**

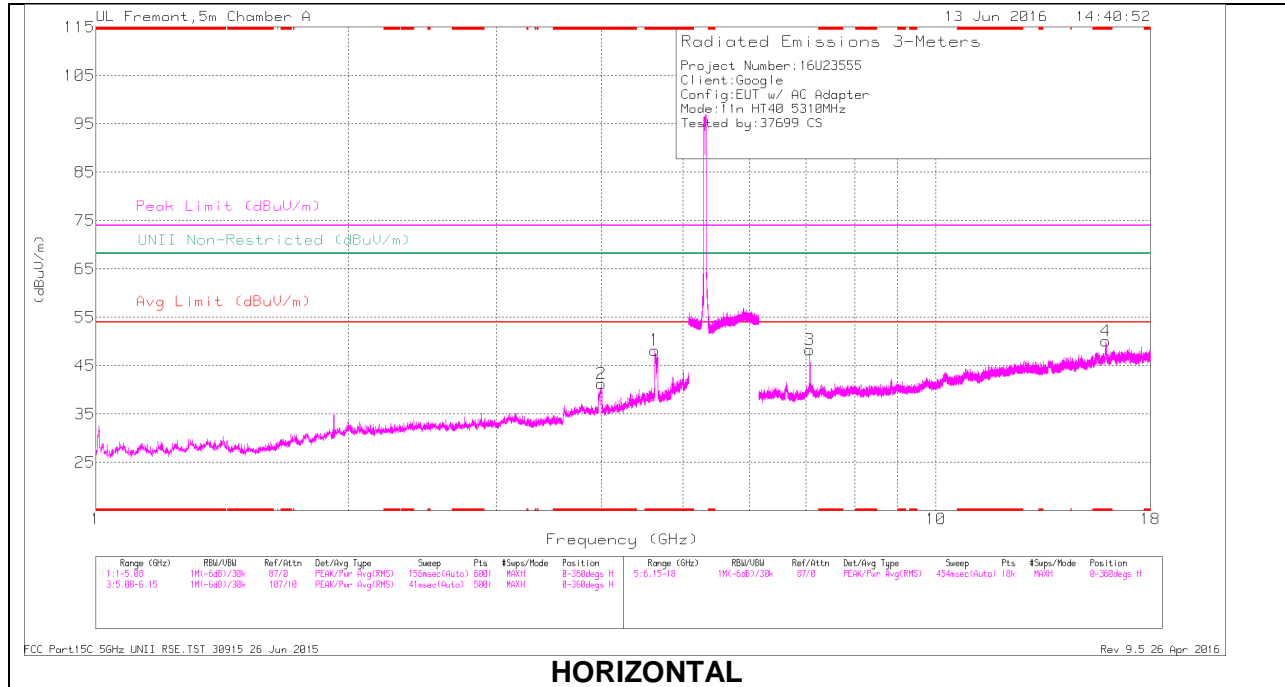
Markers	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/ChlFilt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.595	47.62	PK-U	34.4	-29.3	52.72	-	-	74	-21.28	-	-	241	115	H
	* 4.596	39	ADR	34.4	-29.3	44.1	54	-9.9	-	-	-	-	241	115	H
2	* 3.963	43.03	PK-U	33.5	-30.3	46.23	-	-	74	-27.77	-	-	244	131	H
	* 3.969	34.17	ADR	33.5	-30.3	37.37	54	-16.63	-	-	-	-	244	131	H
4	* 15.818	35.72	PK-U	40.4	-20.1	56.02	-	-	74	-17.98	-	-	235	103	H
	* 15.814	25.03	ADR	40.4	-20.1	45.33	54	-8.67	-	-	-	-	235	103	H
5	* 15.81	33.94	PK-U	40.4	-20.1	54.24	-	-	74	-19.76	-	-	333	235	V
	* 15.797	22.81	ADR	40.4	-20.4	42.81	54	-11.19	-	-	-	-	333	235	V
6	6.587	37.41	PK-U	35.6	-26.1	46.91	-	-	-	-	68.2	-21.29	132	336	H
3	7.027	39.57	PK-U	35.7	-24.7	50.57	-	-	-	-	68.2	-17.63	238	253	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

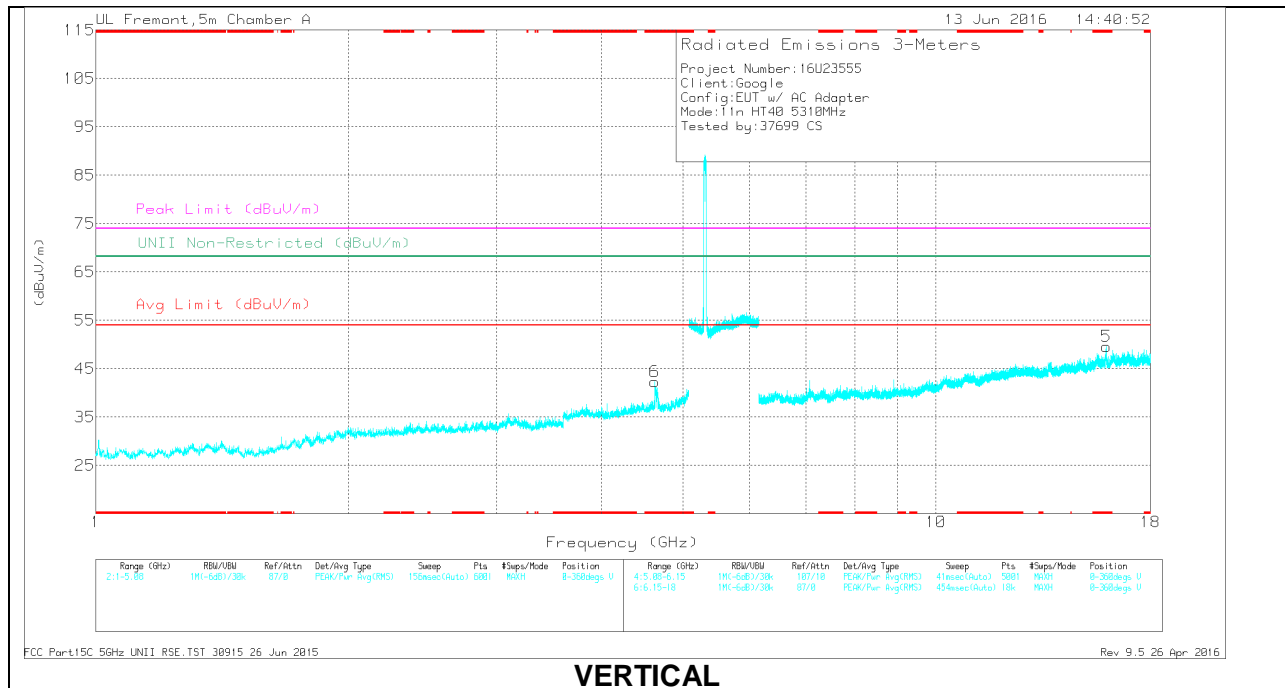
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

### HIGH CHANNEL RESULTS



**HORIZONTAL**



**VERTICAL**

### HIGH CHANNEL DATA

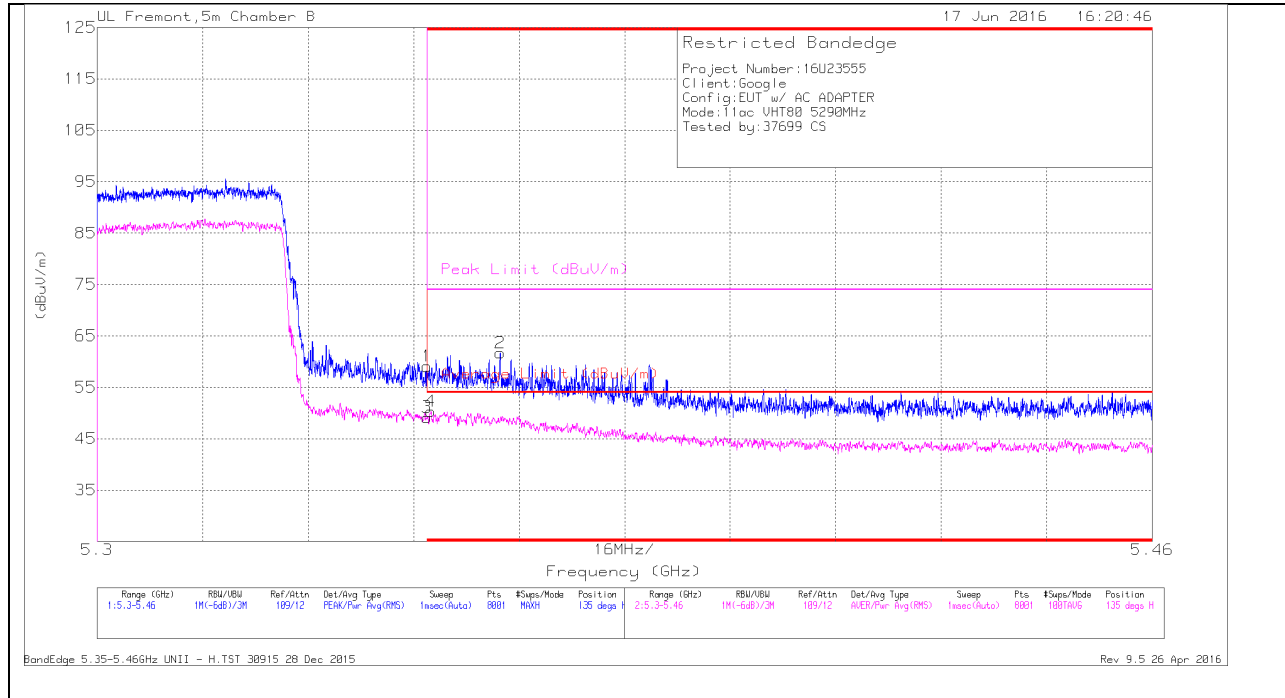
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/ChlFilt/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.631	50.06	PK-U	34.4	-28.5	55.96	-	-	74	-18.04	-	-	241	157	H
	* 4.631	40.93	ADR	34.4	-28.5	46.83	54	-7.17	-	-	-	-	241	157	H
2	* 3.997	43.95	PK-U	33.4	-30	47.35	-	-	74	-26.65	-	-	254	236	H
	* 3.998	35.9	ADR	33.4	-30	39.3	54	-14.7	-	-	-	-	254	236	H
6	* 4.642	43.21	PK-U	34.4	-28.5	49.11	-	-	74	-24.89	-	-	188	107	V
	* 4.632	34.75	ADR	34.4	-28.5	40.65	54	-13.35	-	-	-	-	188	107	V
4	* 15.941	36.04	PK-U	40.5	-20.9	55.64	-	-	74	-18.36	-	-	235	101	H
	* 15.937	25.75	ADR	40.5	-21	45.25	54	-8.75	-	-	-	-	235	101	H
5	* 15.937	36.35	PK-U	40.5	-21	55.85	-	-	74	-18.15	-	-	183	102	V
	* 15.925	26.26	ADR	40.5	-20.8	45.96	54	-8.04	-	-	-	-	183	102	V
3	7.08	40.88	PK-U	35.7	-23.9	52.68	-	-	-	-	68.2	-15.52	221	122	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 PK-U - U-NII: Maximum Peak  
 ADR - U-NII AD primary method, RMS average

### 5.1.8. TX ABOVE 1 GHz 802.11ac VHT80 MODE IN THE 5.3 GHz BAND

#### AUTHORIZED BANDEDGE (MID CHANNEL)

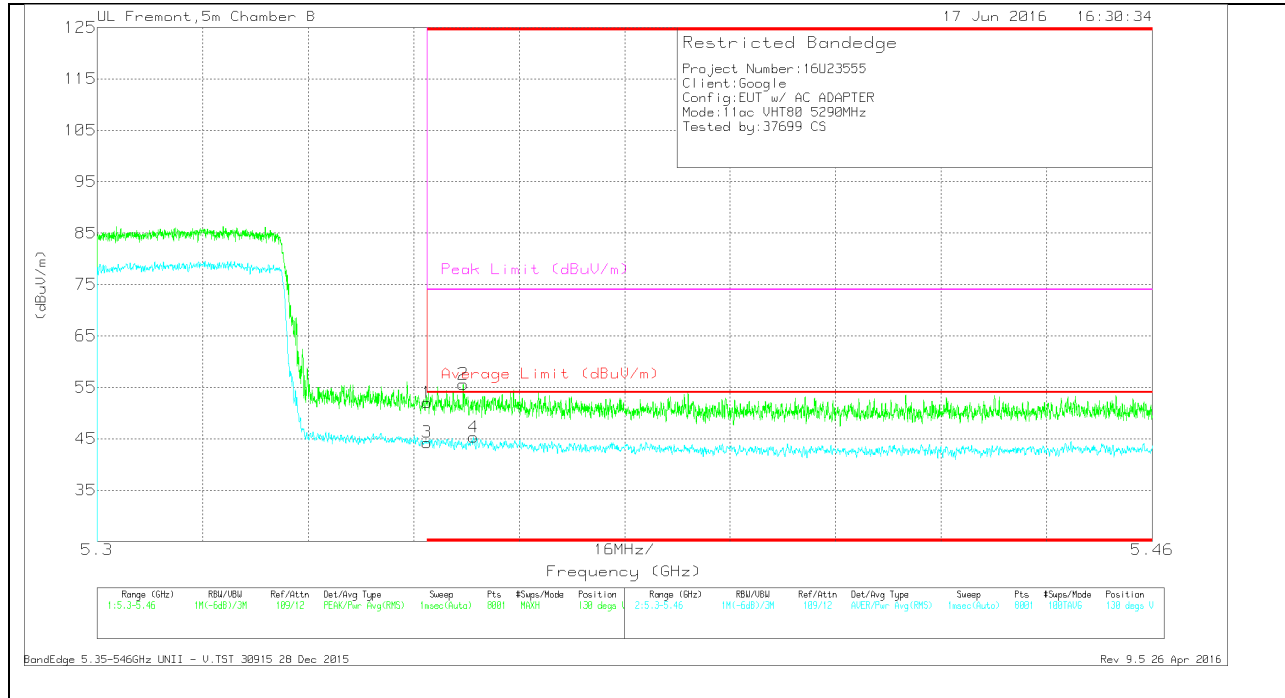
#### HORIZONTAL RESULTS



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dBm)	Amp/Cbi/Filtr/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	* 5.35	44.88	Pk	34.5	-20.3	0	59.08	-	-	74	-14.92	135	374	H
2	* 5.361	47.5	Pk	34.5	-20.3	0	61.7	-	-	74	-12.3	135	374	H
3	* 5.35	34.85	RMS	34.5	-20.3	.09	49.14	54	-4.86	-	-	135	374	H
4	* 5.351	36.11	RMS	34.5	-20.4	.09	50.3	54	-3.7	-	-	135	374	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

### VERTICAL RESULTS

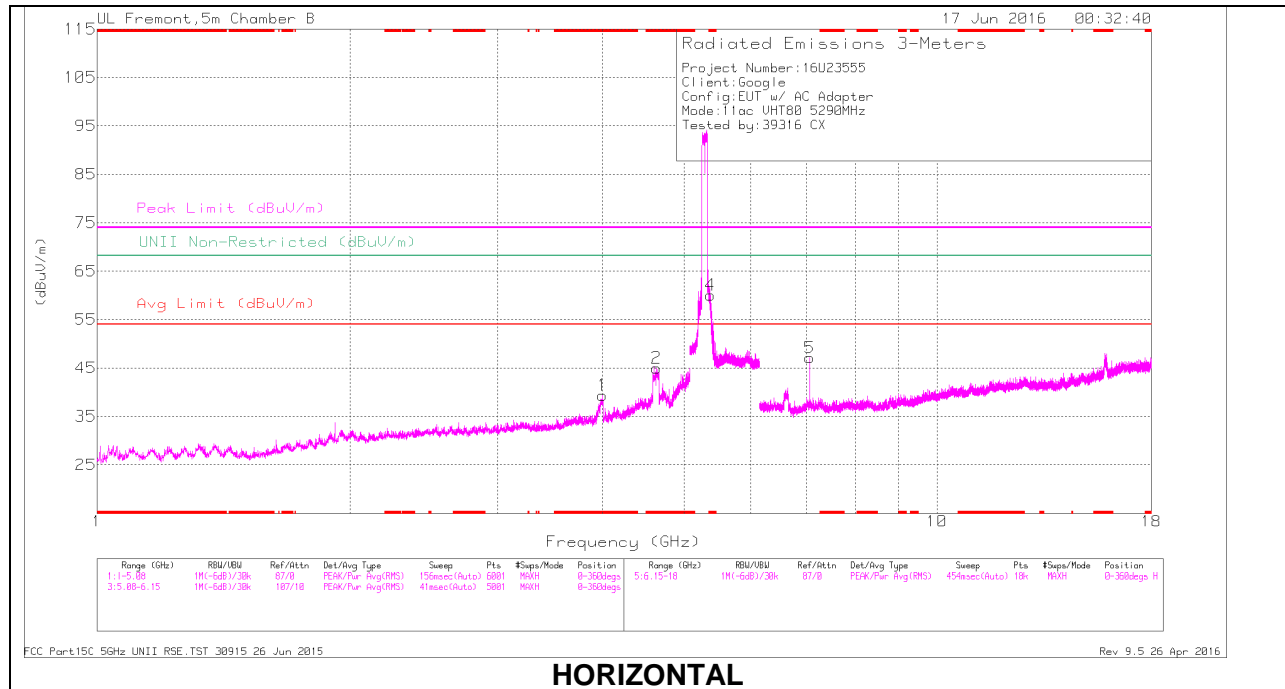


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.35	37.83	Pk	34.5	-20.3	0	52.03	-	-	74	-21.97	130	359	V
2	* 5.356	41.61	Pk	34.5	-20.5	0	55.61	-	-	74	-18.39	130	359	V
3	* 5.35	29.99	RMS	34.5	-20.3	.09	44.28	54	-9.72	-	-	130	359	V
4	* 5.357	30.74	RMS	34.5	-20	.09	45.33	54	-8.67	-	-	130	359	V

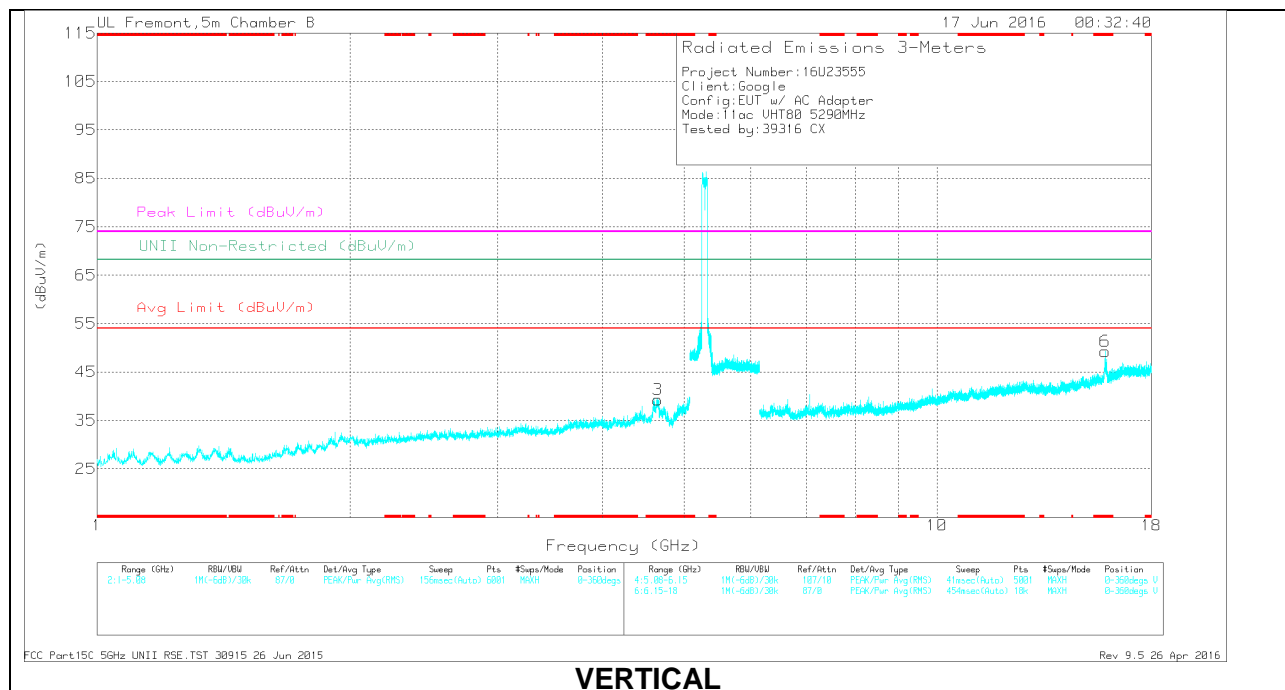
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band  
 Pk - Peak detector  
 RMS - RMS detection

**HARMONICS AND SPURIOUS EMISSIONS**

**MID CHANNEL RESULTS**



**HORIZONTAL**



**VERTICAL**