FCC 47 CFR PART 15 SUBPART E

UNII

CERTIFICATION TEST REPORT

FOR

AIRWAY CLEARANCE SYSTEM

PRODUCT NAME: PMACS1WI

FCC ID: 2AJKO-PMACS1WI

REPORT NUMBER: 4787592605-E4V2

ISSUE DATE: DEC 26, 2016

Prepared for
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ACCREDITED
TL-637

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	12/21/16	Initial issue	SungGil Park
V2	12/26/16	Addressed TCB's questions	SungGil Park

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: Hill-Rom Services Private Limited

EUT DESCRIPTION: Airway Clearance System

PRODUCT NAME: PMACS1WI

SERIAL NUMBER: PREDVM0036 (RADIATED & CONDUCTED)

DATE TESTED: OCT 07, 2016 - DEC 21, 2016

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

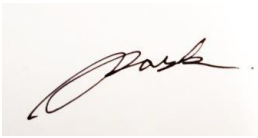
UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into 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 Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. 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 IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:

CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



SungGil Park
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 06-96, FCC KDB 789033 D02 v01r02, ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 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.

218 Maeyeong-ro
☒ Chamber 1
☒ Chamber 2

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at http://www.iasonline.org/PDF/TL/TL-637.pdf.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.32 dB
Radiated Disturbance, Below 1GHz	4.14 dB
Radiated Disturbance, Above 1 GHz	5.97 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Airway Clearance System with DTS/UNII a/b/g/n and BT/BLE features.
This test report addresses the NII (UNII) operational mode.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

Frequency Range [MHz]	Mode	Output Power [dBm]	Output Power [mW]
5180 - 5240	802.11a	5.91	3.90
	802.11n HT20	5.04	3.19
5745 - 5825	802.11a	5.41	3.48
	802.11n HT20	2.47	1.77

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an PCB antennas, with a antenna's maximum gain of 4.42 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz and power line conducted emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X, Y and Z it was determined that X orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in X orientation.

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

802.11a mode: 6 Mbps
802.11n HT20mode: MCS0

This device supports simultaneous transmission operation, Which allows for two modules(Bluetooth & WLAN) to operate independent of one another in the Bluetooth(2.4GHz) and WLAN(2.4GHz & 5GHz) bands simultaneously on each antenna. The following tables show the worst case configurations determined during testing. The data for Scenario B configuration is contained in this test report.

Scenario A Configuration: Bluetooth transmitting in 2.4GHz and WLAN in 2.4GHz mode

Description	Bluetooth 2.4GHz Tx	WLAN 2.4GHz Tx
Channel	78	11
Operating Frequency(MHz)	2480	2462
Data Rate	1 Mbps	11 Mbps
Mode	Basic FSK	802.11b

Scenario B Configuration: Bluetooth transmitting in 2.4GHz and WLAN in 5GHz mode

Description	Bluetooth 2.4GHz Tx	WLAN 5GHz Tx
Channel	78	48
Operating Frequency(MHz)	2480	5240
Data Rate	1 Mbps	6 Mbps
Mode	Basic FSK	802.11a

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID**
Adapter	SHENZHEN MEGMEET ELECTRICAL CO., LTD	MANGO120-24CK	8801631000045	N/A

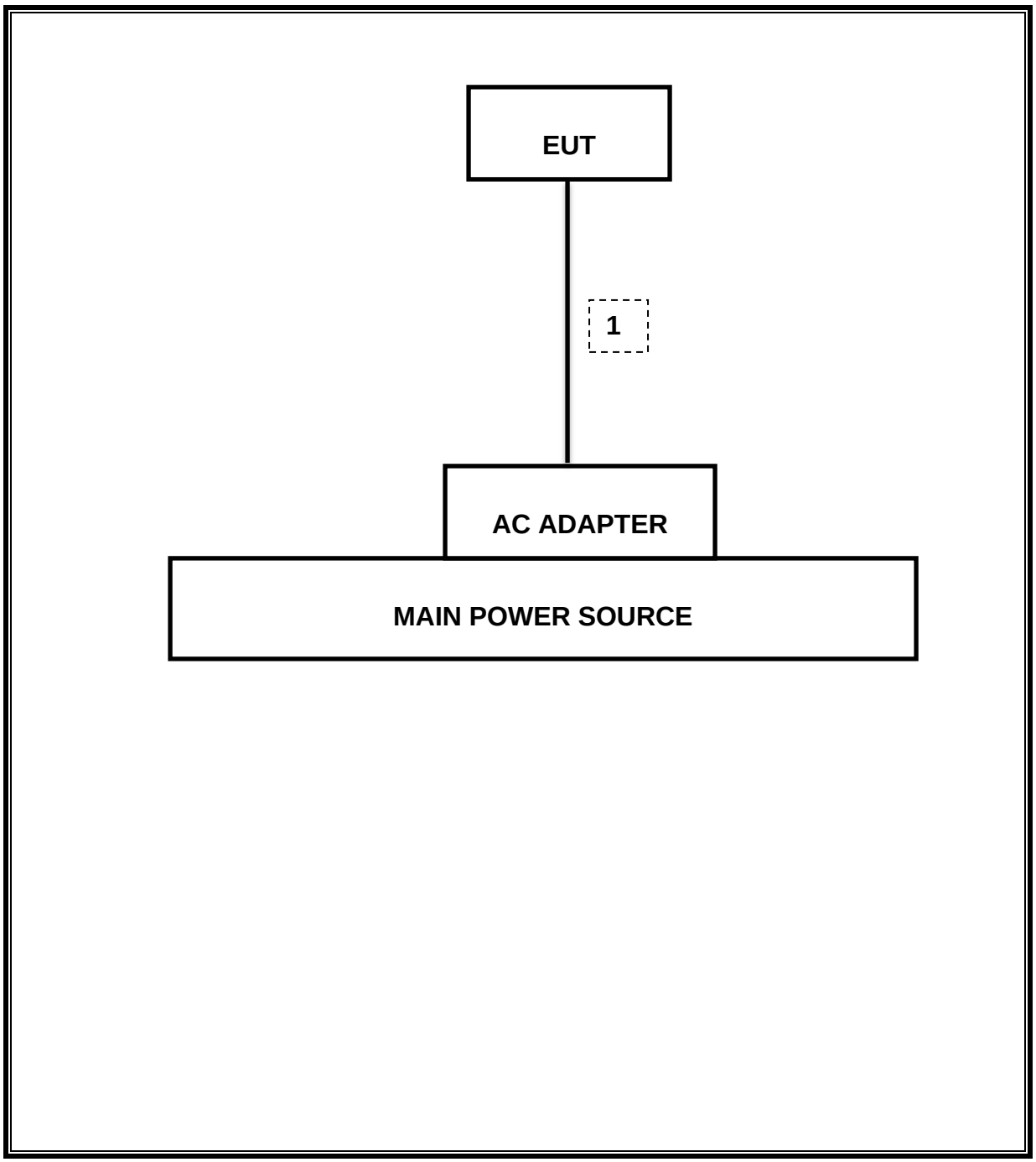
I/O CABLES

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

TEST SETUP

The EUT is a stand-alone unit during the tests.
Test software exercised the EUT to enable NII mode.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	**Manufacturer**	**Model**	**S/N**	**Cal Due**
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	04-25-17
Antenna, Horn, 18 GHz	ETS	3115	00161451	05-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168724	06-17-17
Antenna, Horn, 18 GHz	ETS	3117	00168717	06-17-17
Antenna, Horn, 40 GHz	ETS	3116C	00166155	11-30-17
Antenna, Horn, 40 GHz	ETS	3116C-PA	00168841	12-15-17
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-17-17
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-16-17
Preamplifier	ETS	3115-PA	00167475	08-17-17
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-16-17
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	08-17-17
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	08-16-17
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	11-25-17
Average Power Sensor	R&S	NRZ-Z91	102681	08-16-17
Average Power Sensor	Agilent / HP	U2000	MY54270007	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-17-17
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-16-17
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-16-17
Attenuator / Switch driver	HP	11713A	3748A04272	N/A
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	08-17-17
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	08-16-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-17-17
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-16-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	009	08-17-17
High Pass Filter 6GHz	Micro-Tronics	HPM17542	016	08-16-17
LISN	R&S	ENV-216	101836	08-16-17
LISN	R&S	ENV-216	101837	08-16-17
Attenuator	PASTERNACK	PE7087-10	A009	08-16-17
DC Power Supply	Agilent / HP	E3640A	MY54226395	08-16-17

7. SUMMARY TABLE

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.407 (a)	Occupied Band width (26dB)	N/A	Conducted	Pass	26.92 MHz
15.407	6dB Band width (5.8Ghz)	500KHz		Pass	16.480 MHz
15.407 (a)(1)	TX Cond. Power 5.15-5.25	<24dBm		Pass	5.91 dBm
15.407 (a)(3)	TX Cond. Power 5.725-5.85	< 30dBm		Pass	5.41 dBm
15.407 (a)(5)	PSD (5.2GHz)	<11dBm		Pass	-3.97 dBm
15.407 (a)(5)	PSD (5.8GHz)	30dBm per 500kHz		Pass	-7.74 dBm
15.407 (b) & 15.209	Radiated Spurious Emission	< 54dBuV/m		Pass	51.45 dBuV/m (Av)

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

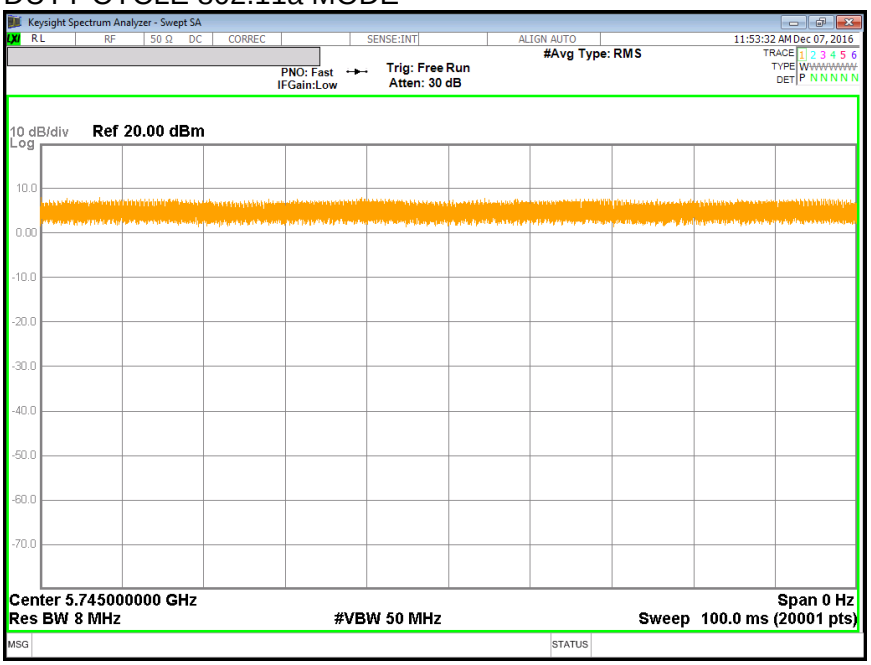
KDB 789033 D02 v01r02 Zero-Span Spectrum Analyzer Method.

8.1. ON TIME AND DUTY CYCLE RESULTS

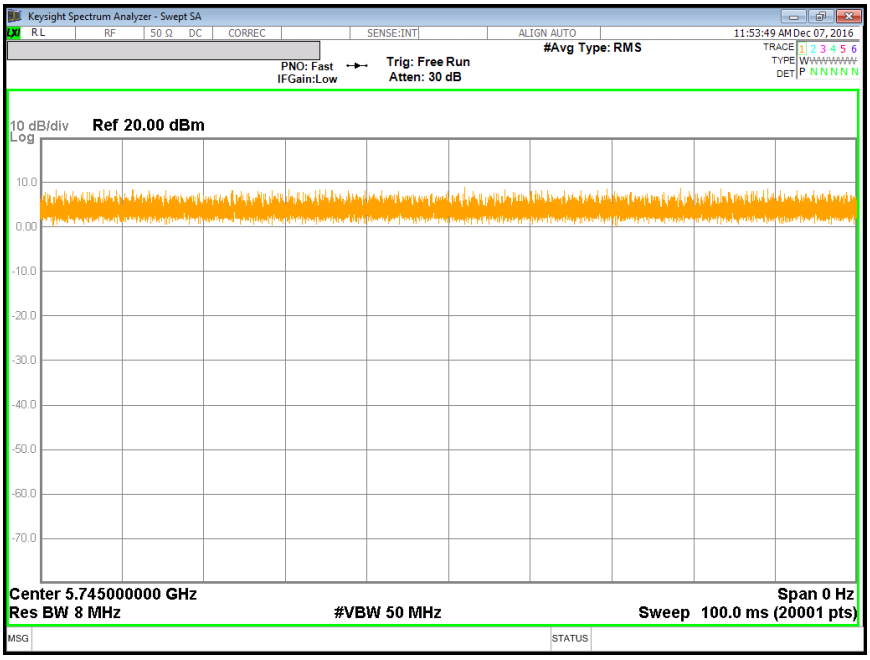
Mode	ON Time B [msec)	Period [msec]	Duty Cycle x [linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
802.11a	1.000	1.000	1.000	100.0%	0.00	0.010
802.11n HT20	1.000	1.000	1.000	100.0%	0.00	0.010

8.2. DUTY CYCLE PLOTS

DUTY CYCLE 802.11a MODE



DUTY CYCLE 802.11n HT20 MODE



9. MEASUREMENT METHOD

KDB 789033 D02 General UNII Test Procedures New Rules v01r02

The Duty Cycle is less than 98% and consistent therefore KDB 789033 Method SA-2 is used for power and PPSD

The Duty Cycle is less than 98% and consistent, KDB 789033 Method AD with Power RMS Averaging and duty cycle correction is used.

10. ANTENNA PORT TEST RESULTS

10.1. 6 dB BANDWIDTH

LIMITS

FCC §15.407

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

TEST PROCEDURE

Reference to 789033 D02 General UNII Test Procedures New Rules v01r02: The transmitter output is connected to a spectrum analyzer with the RBW set to100KHz, the VBW >= 3 x RBW, peak detector and max hold.

RESULTS

10.1.1. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	5745	16.530	0.5
Mid	5785	16.480	0.5
High	5825	16.550	0.5
Worst		16.480	

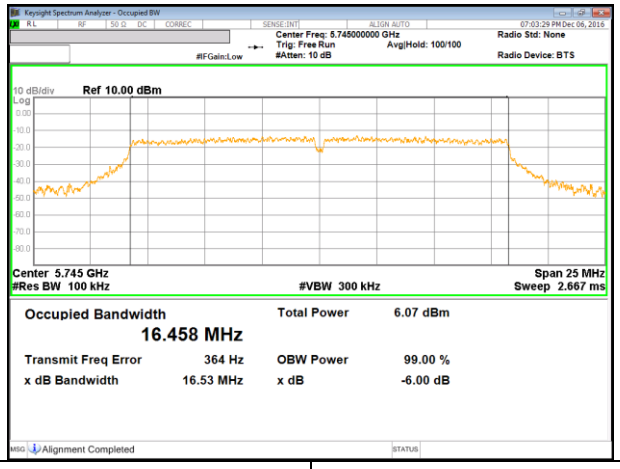
10.1.2. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	6 dB Bandwidth [MHz]	Minimum Limit [MHz]
Low	5745	17.760	0.5
Mid	5785	17.760	0.5
High	5825	17.730	0.5
Worst		17.730	

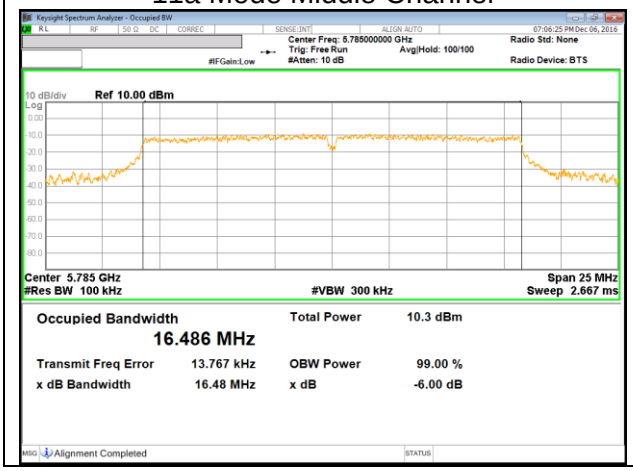
10.1.3. 6 dB BANDWIDTH PLOTS

IEEE 802.11a mode

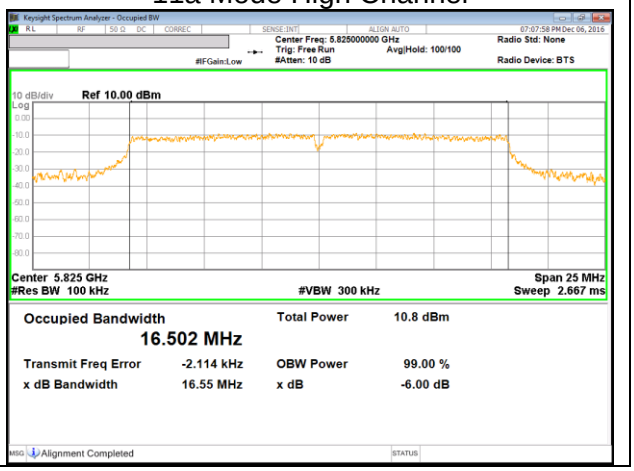
11a Mode Low Channel



11a Mode Middle Channel

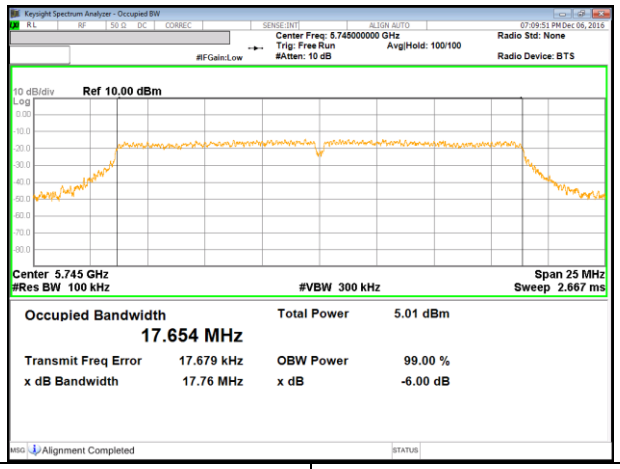


11a Mode High Channel

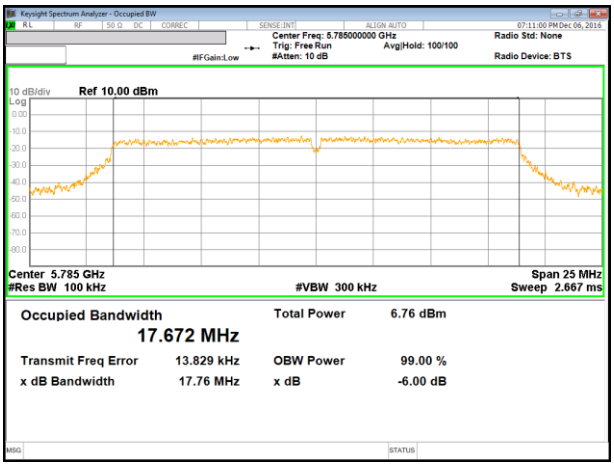


IEEE 802.11n HT20 mode

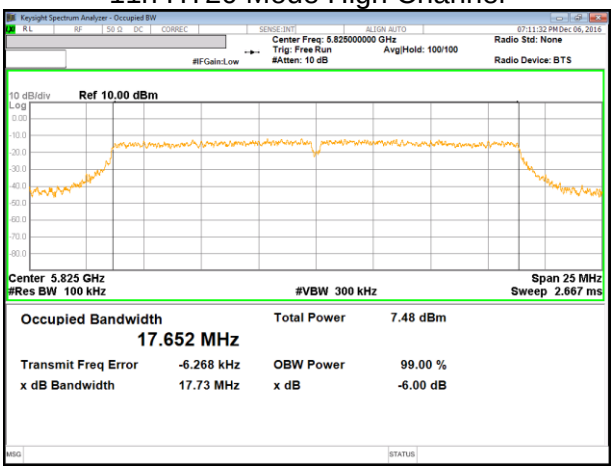
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel



11n HT20 Mode High Channel



10.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

NOTE

- Calculation for 26dB Bandwidth of UNII-2C and UNII-3 Straddle Channel

ex) 802.11a mode
- Fundamental frequency : 5720MHz
- 26dB BW : 21.00MHz
- Turning Frequency : 5725MHz
- 26dB Bandwidth of UNII-2C band Portion
  = (5725 – (5720 - (21.00 / 2)) = 15.50 MHz
- 26dB Bandwidth of UNII-3 band Portion
  = (5720 + (21.00 / 2) -5725) = 5.50 MHz

RESULTS

10.2.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5180	20.85
Mid	5200	21.49
High	5240	20.87
Worst		21.49

10.2.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5180	20.72
Mid	5200	20.62
High	5240	20.68
Worst		20.72

10.2.3. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5745	19.82
Mid	5785	25.86
High	5825	26.92
Worst		26.92

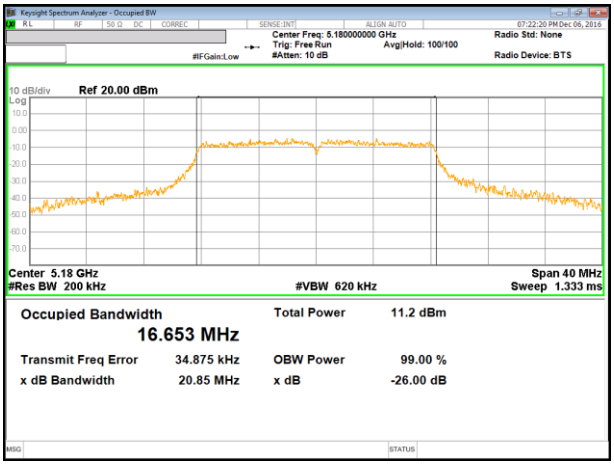
10.2.4. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	26 dB Bandwidth [MHz]
Low	5745	20.50
Mid	5785	20.51
High	5825	20.85
Worst		20.85

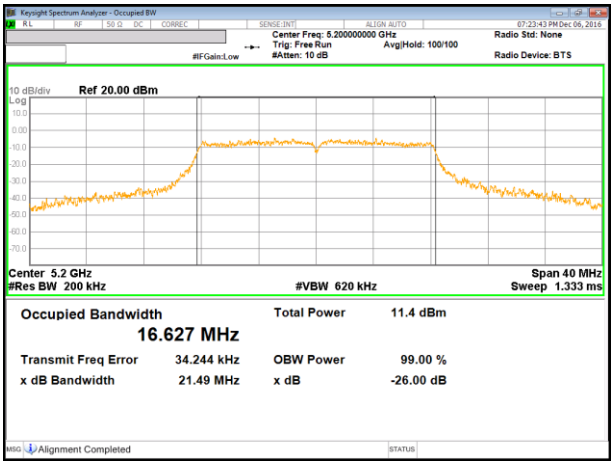
10.2.5. 26 dB BANDWIDTH PLOTS

UNII 5.2 GHz IEEE 802.11a mode

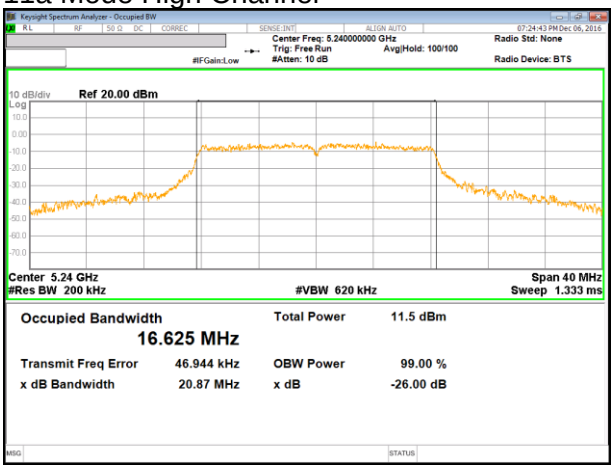
11a Mode Low Channel



11a Mode Middle Channel

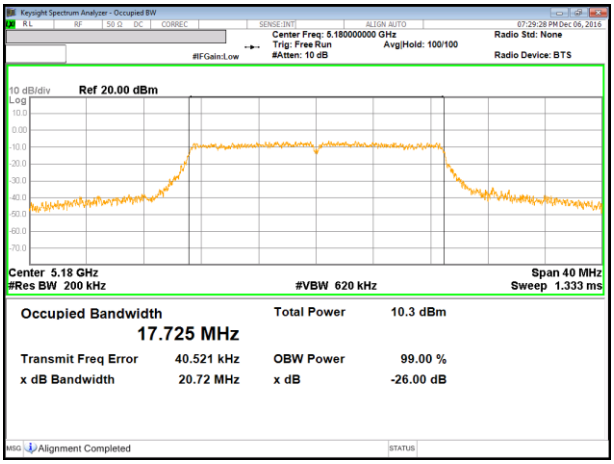


11a Mode High Channel

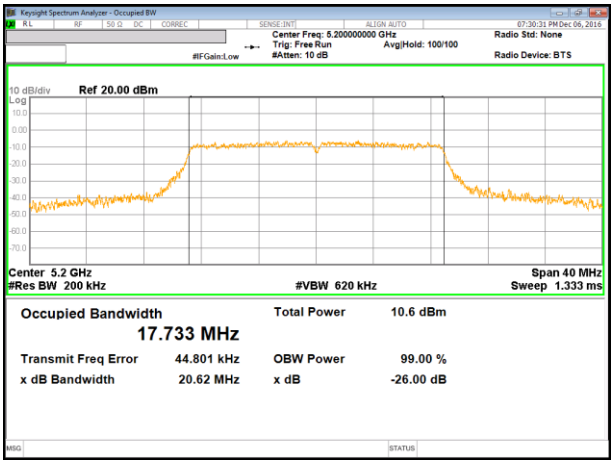


UNII 5.2 GHz IEEE 802.11n HT20 mode

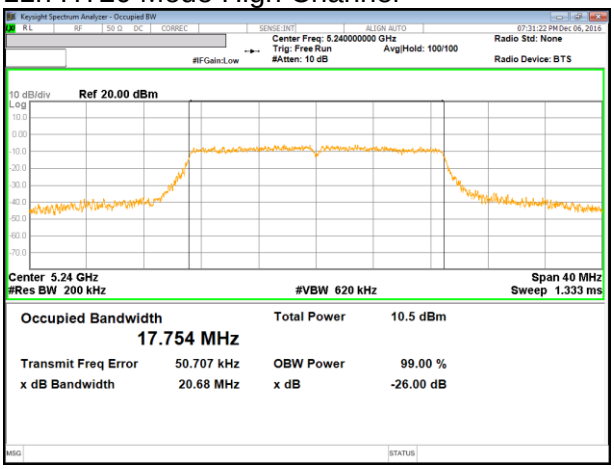
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel

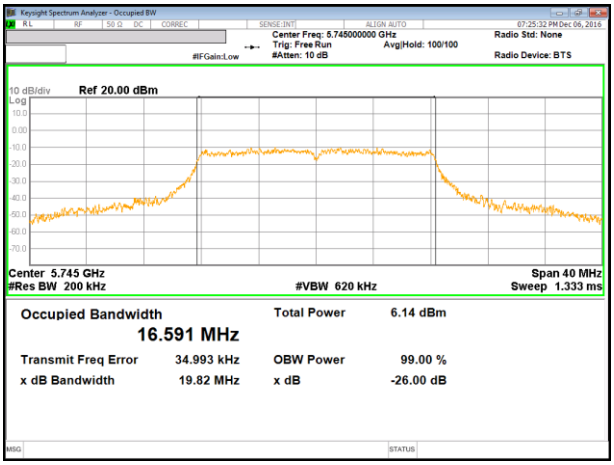


11n HT20 Mode High Channel

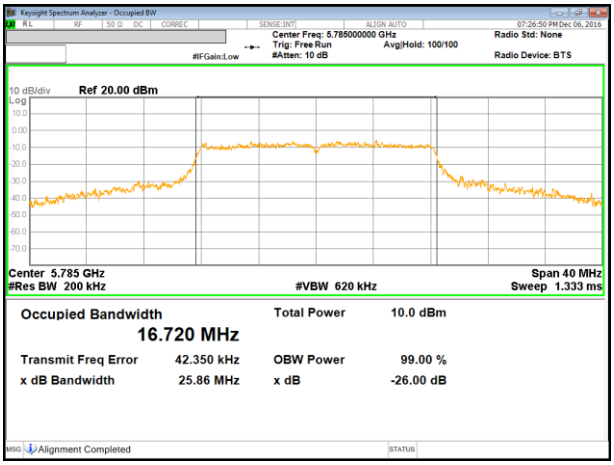


UNII 5.8 GHz IEEE 802.11a mode

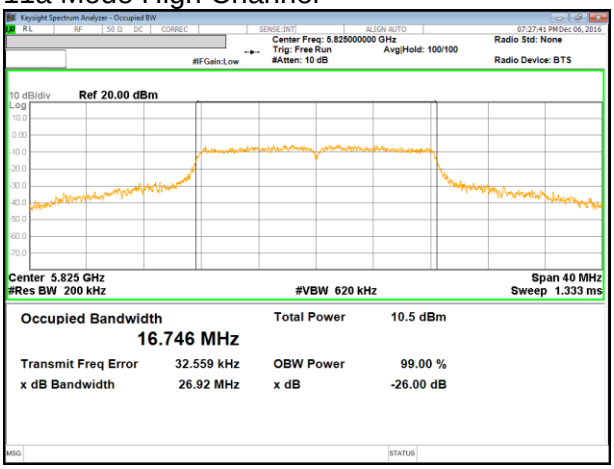
11a Mode Low Channel



11a Mode Middle Channel

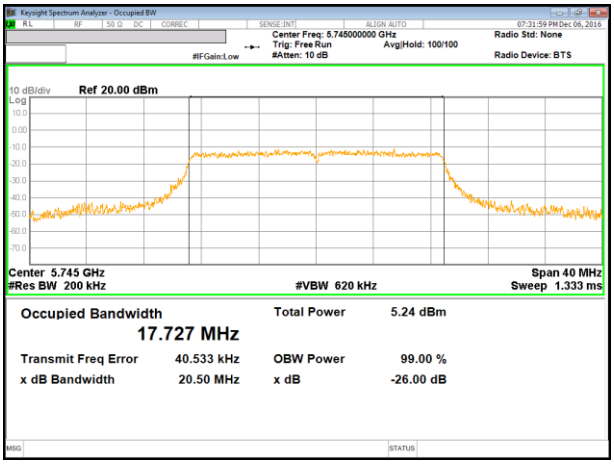


11a Mode High Channel

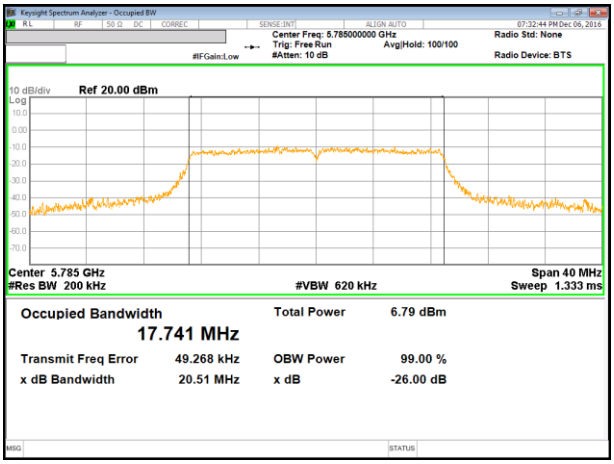


UNII 5.8 GHz IEEE 802.11n HT20 mode

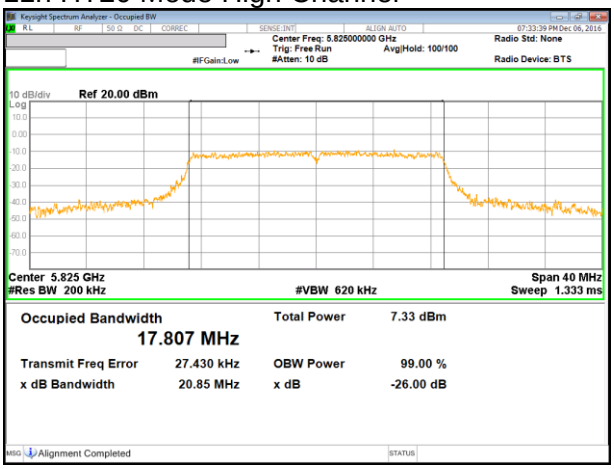
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel



11n HT20 Mode High Channel



10.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.3.1. 802.11a MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5180	16.534
Mid	5200	16.531
High	5240	16.542
Worst		16.542

10.3.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5180	17.708
Mid	5200	17.709
High	5240	17.695
Worst		17.709

10.3.3. 802.11a MODE IN THE 5.8 GHz BAND

Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5745	16.512
Mid	5785	16.550
High	5825	16.554
Worst		16.554

10.3.4. 802.11n HT20 MODE IN THE 5.8 GHz BAND

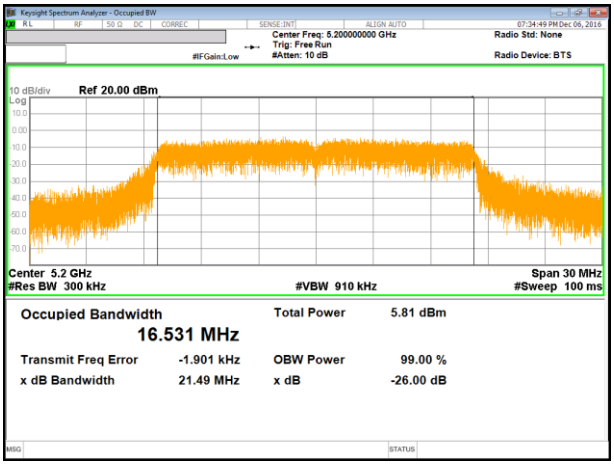
Channel	Frequency [MHz]	99% Bandwidth [MHz]
Low	5745	17.714
Mid	5785	17.700
High	5825	17.713
Worst		17.714

10.3.5. 99% BANDWIDTH PLOTS

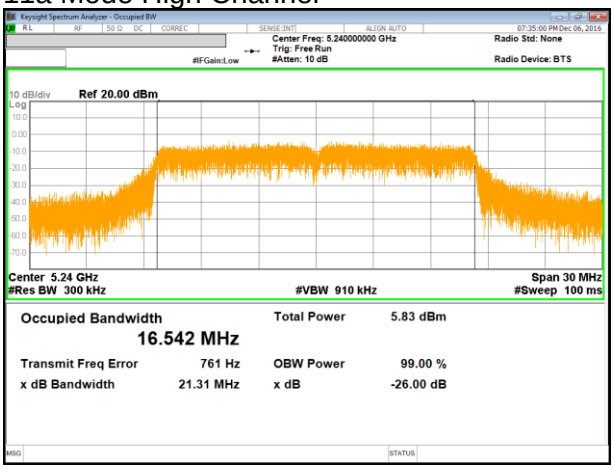
UNII 5.2 GHz IEEE 802.11a mode

11a Mode Low Channel

11a Mode Middle Channel

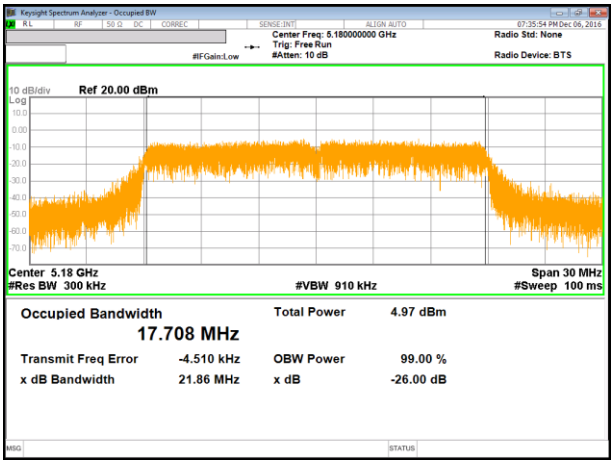


11a Mode High Channel

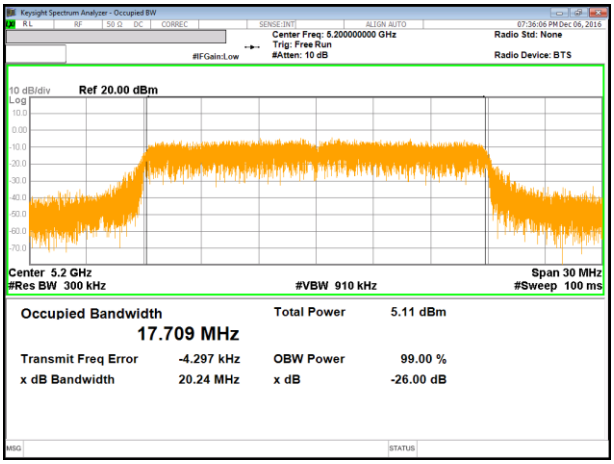


UNII 5.2 GHz IEEE 802.11n HT20 mode

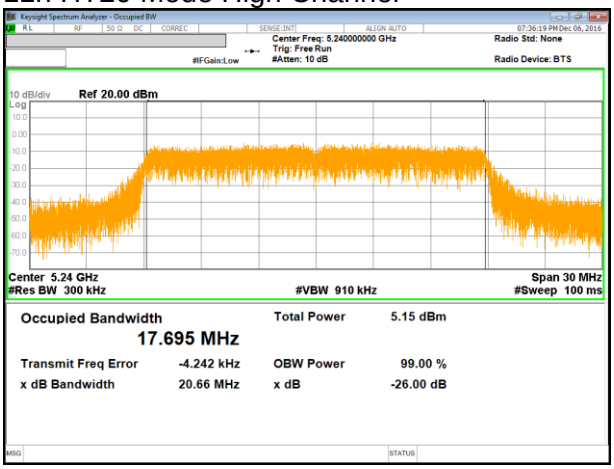
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel



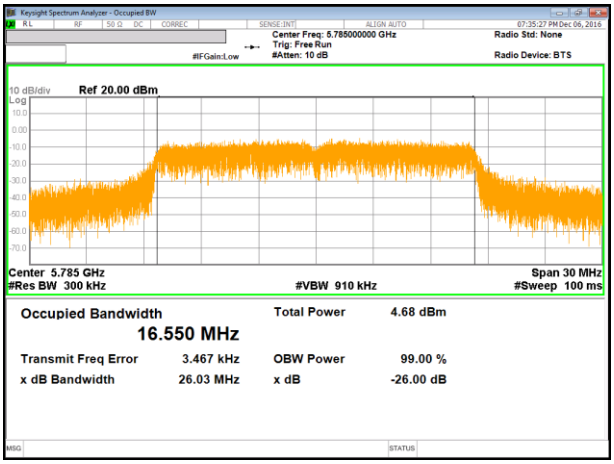
11n HT20 Mode High Channel



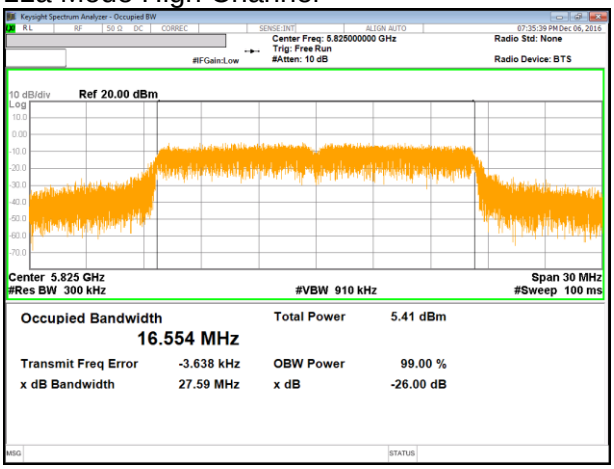
UNII 5.8 GHz IEEE 802.11a mode

11a Mode Low Channel

11a Mode Middle Channel

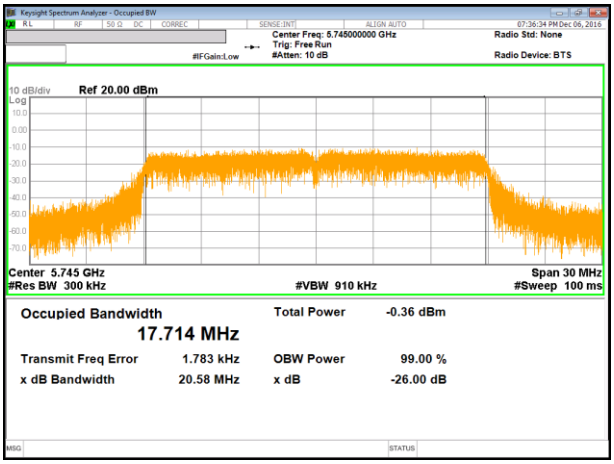


11a Mode High Channel

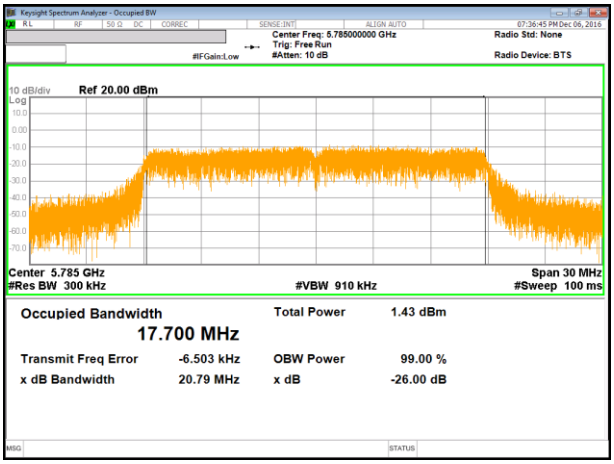


UNII 5.8 GHz IEEE 802.11n HT20 mode

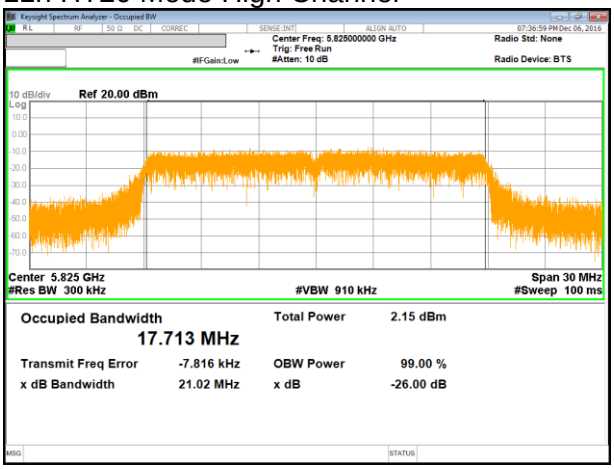
11n HT20 Mode Low Channel



11n HT20 Mode Middle Channel



11n HT20 Mode High Channel



10.4. OUTPUT POWER AND PPSD

LIMITS

FCC §15.407 (a) (1) (2) (3)

For 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.

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

DIRECTIONAL ANTENNA GAIN

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

RESULTS

10.4.1. 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 for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5180	20.85	16.53	4.42	4.42
Mid	5200	21.49	16.53	4.42	4.42
High	5240	20.87	16.54	4.42	4.42

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5180	24.00	11.00
Mid	5200	24.00	11.00
High	5240	24.00	11.00

Duty Cycle CF [dB]	0.00	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Meas Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5180	5.65	24.00	-18.35
Mid	5200	5.83	24.00	-18.17
High	5240	5.91	24.00	-18.09

PPSD Results

Channel	Frequency [MHz]	Meas PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5180	-4.46	11.00	-15.46
Mid	5200	-4.34	11.00	-15.34
High	5240	-3.97	11.00	-14.97

10.4.2. 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 for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5180	20.72	17.71	4.42	4.42
Mid	5200	20.62	17.71	4.42	4.42
High	5240	20.68	17.70	4.42	4.42

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5180	24.00	11.00
Mid	5200	24.00	11.00
High	5240	24.00	11.00

Duty Cycle CF [dB]	0.00	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Meas Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5180	4.80	24.00	-19.20
Mid	5200	4.81	24.00	-19.19
High	5240	5.04	24.00	-18.96

PPSD Results

Channel	Frequency [MHz]	Meas PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5180	-5.72	11.00	-16.72
Mid	5200	-5.89	11.00	-16.89
High	5240	-6.92	11.00	-17.92

10.4.3. 802.11a MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5745	19.82	16.51	4.42	4.42
Mid	5785	25.86	16.55	4.42	4.42
High	5825	26.92	16.55	4.42	4.42

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5745	30.00	30.00
Mid	5785	30.00	30.00
High	5825	30.00	30.00

Duty Cycle CF [dB]	0.00	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Meas Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5745	0.75	30.00	-29.25
Mid	5785	4.87	30.00	-25.13
High	5825	5.41	30.00	-24.59

PPSD Results

Channel	Frequency [MHz]	Meas PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5745	-12.38	30.00	-42.38
Mid	5785	-8.06	30.00	-38.06
High	5825	-7.74	30.00	-37.74

10.4.4. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Bandwidth and Antenna Gain

Channel	Frequency [MHz]	Min 26 dB BW [MHz]	Min 99% BW [MHz]	Directional Gain for Power [dBi]	Directional Gain for PPSD [dBi]
Low	5745	20.50	17.71	4.42	4.42
Mid	5785	20.51	17.70	4.42	4.42
High	5825	20.85	17.71	4.42	4.42

Limits

Channel	Frequency [MHz]	FCC Power Limit [dBm]	FCC PPSD Limit [dBm]
Low	5745	30.00	30.00
Mid	5785	30.00	30.00
High	5825	30.00	30.00

Duty Cycle CF [dB]	0.00	Included in Calculations of Corr'd Power & PPSD

Output Power Results

Channel	Frequency [MHz]	Meas Power [dBm]	Power Limit [dBm]	Power Margin [dB]
Low	5745	-0.17	30.00	-30.17
Mid	5785	1.41	30.00	-28.59
High	5825	2.47	30.00	-27.54

PPSD Results

Channel	Frequency [MHz]	Meas PPSD [dBm]	PPSD Limit [dBm]	PPSD Margin [dB]
Low	5745	-13.49	30.00	-43.49
Mid	5785	-12.20	30.00	-42.20
High	5825	-11.08	30.00	-41.08

10.4.5. OUTPUT POWER AND PPSD PLOTS

UNII 5.2 GHz IEEE 802.11a mode

11a Mode Low Channel

11a Mode Middle Channel

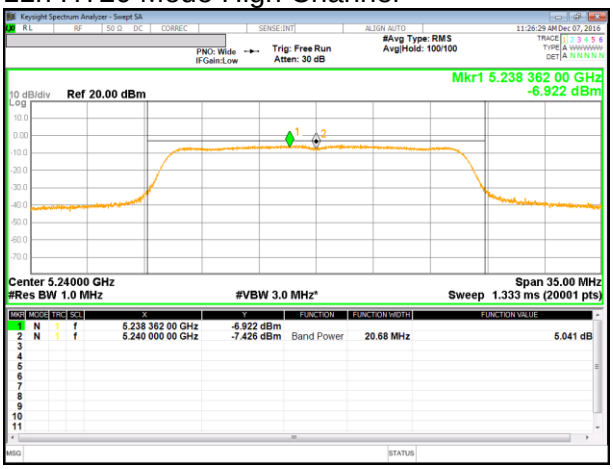
11a Mode High Channel

UNII 5.2 GHz IEEE 802.11n HT20 mode

11n HT20 Mode Low Channel

11n HT20 Mode Middle Channel

11n HT20 Mode High Channel

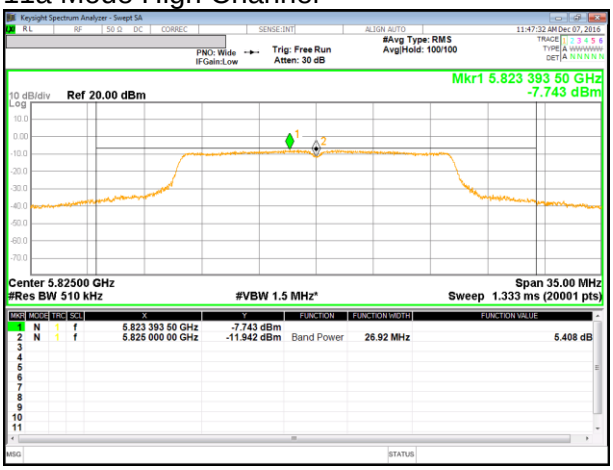


UNII 5.8 GHz IEEE 802.11a mode

11a Mode Low Channel

11a Mode Middle Channel

11a Mode High Channel

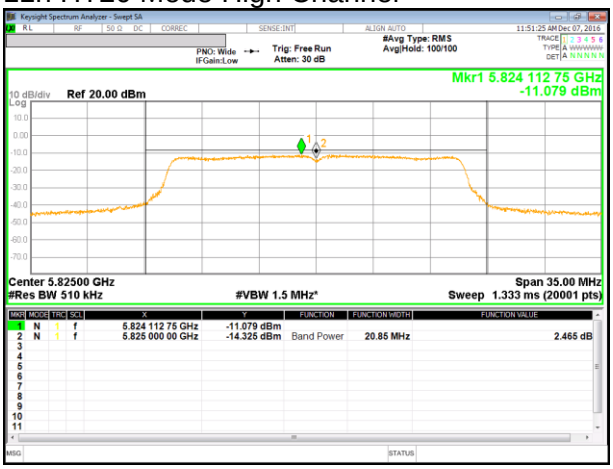


UNII 5.8 GHz IEEE 802.11n HT20 mode

11n HT20 Mode Low Channel

11n HT20 Mode Middle Channel

11n HT20 Mode High Channel



11. TRANSMITTER ABOVE 1 GHz

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

FCC §15.407 (b)

(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.
(4) For transmitters operating in the 5.725-5.85 GHz band:
   (i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
(5) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.

(6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in §15.207.
(7) The provisions of §15.205 apply to intentional radiators operating under this section.
(8) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.

Note

- Limit translation to field strength level (FCC §15.407)

E[dBuV/m] = EIRP[dBm] + 95.2 = -27dBm + 95.2 = 68.2dBuV/m
E[dBuV/m] = EIRP[dBm] + 95.2 = -17dBm + 95.2 = 78.2dBuV/m

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

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

Reference to KDB 789033 D02 v01r02 UNII part G) 6) c) 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.
Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

The spectrum from 1 GHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

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.

Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

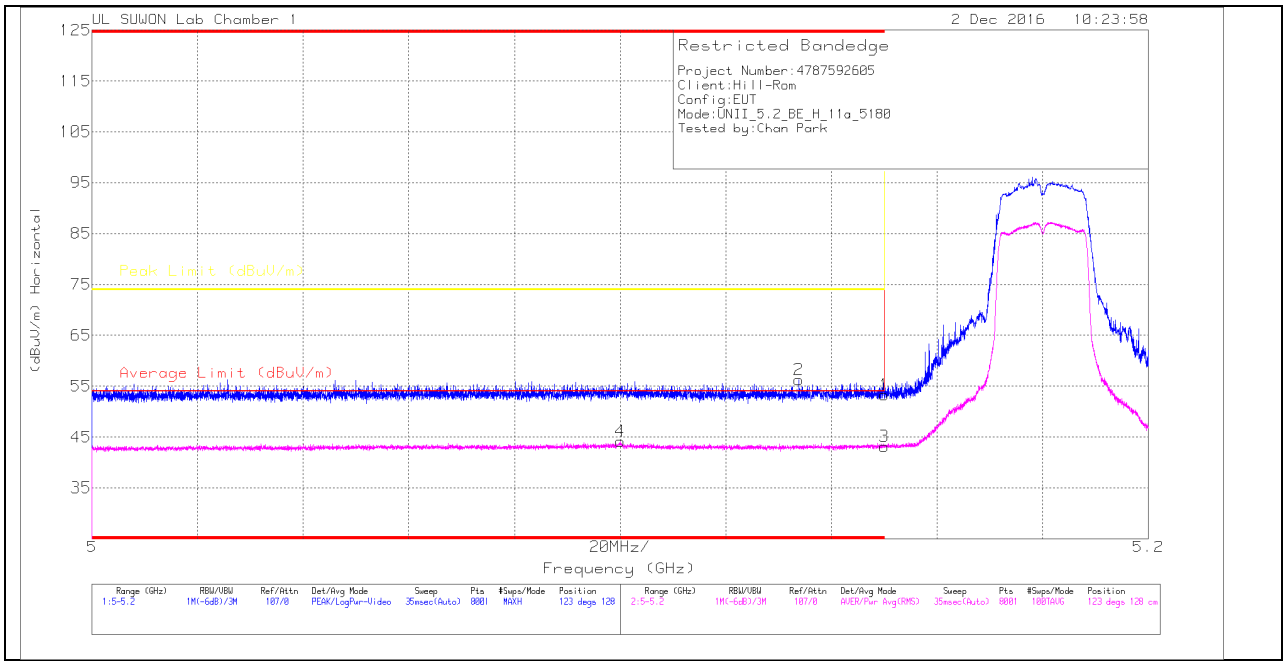
Formula for converting the filed strength from uV/m to dBuV/m is:
Limit (dBuV/m) = 20 log limit (uV/m)

11.1. 5.2 GHz

11.1.1. TX Above 1GHz 802.11a IN THE 5.2GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

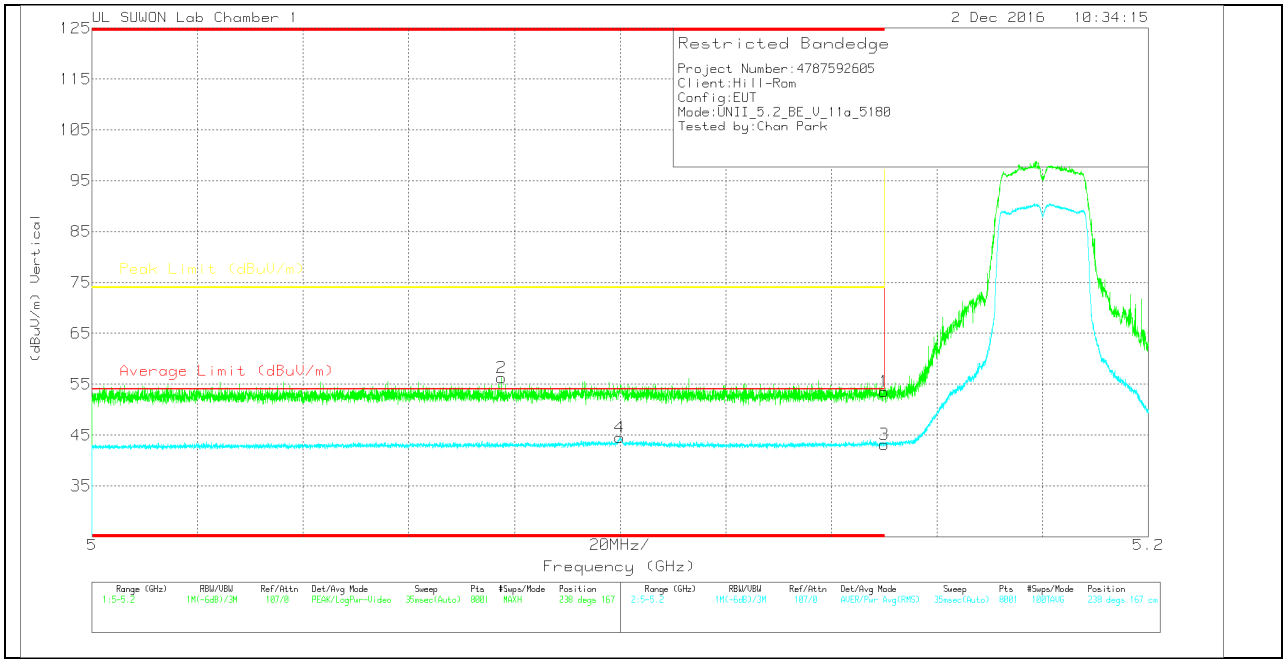
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	42.9	Pk	34.2	-23.8	53.3	-	-	74	-20.7	123	128	H
2	* 5.134	45.9	Pk	34.2	-23.8	56.3	-	-	74	-17.7	123	128	H
3	* 5.15	32.73	RMS	34.2	-23.8	43.13	54	-10.87	-	-	123	128	H
4	* 5.1	33.87	RMS	34.2	-23.9	44.17	54	-9.83	-	-	123	128	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	43.13	Pk	34.2	-23.8	53.53	-	-	74	-20.47	238	167	V
2	* 5.078	45.94	Pk	34.2	-23.9	56.24	-	-	74	-17.76	238	167	V
3	* 5.15	32.78	RMS	34.2	-23.8	43.18	54	-10.82	-	-	238	167	V
4	* 5.1	34.22	RMS	34.2	-23.9	44.52	54	-9.48	-	-	238	167	V

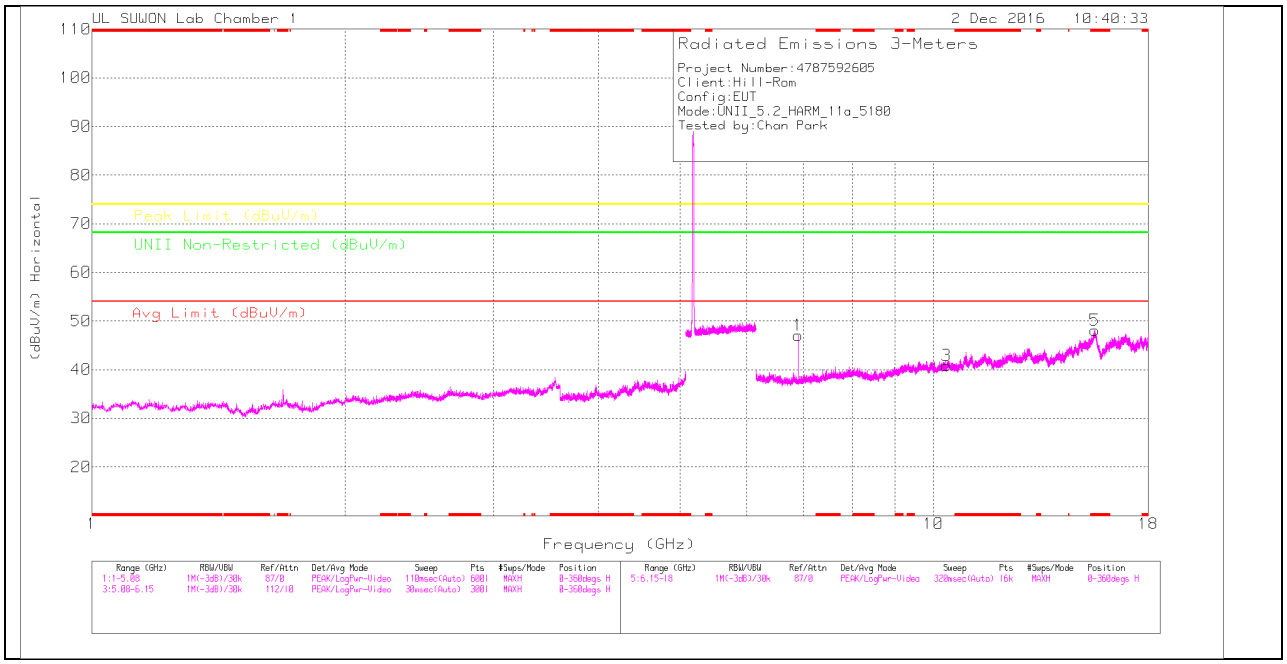
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

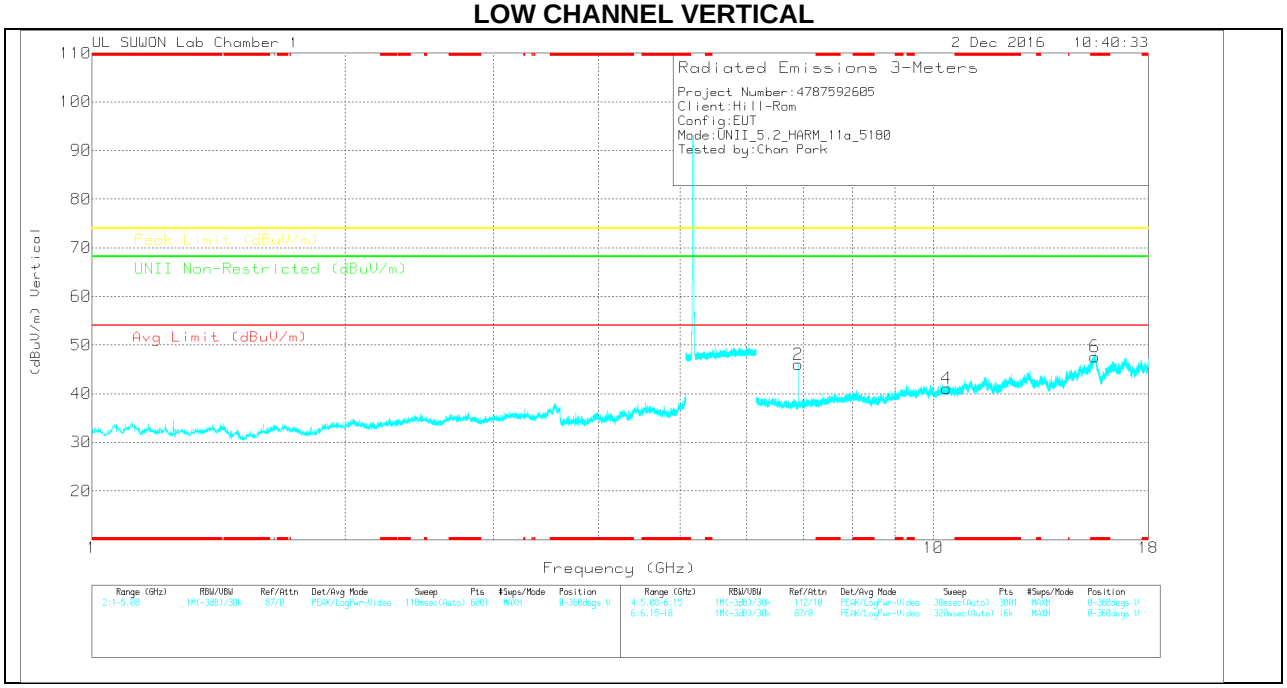
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.906	42.24	PK	35.6	-30.8	47.04	-	-	-	-	68.2	-21.16	0-360	250	H
3	10.362	30.36	PK	37.8	-27.3	40.86	-	-	-	-	68.2	-27.34	0-360	250	H
5	* 15.547	23.8	PK	40.3	-16	48.1	-	-	74	-25.9	-	-	0-360	150	H
2	6.906	41.16	PK	35.6	-30.8	45.96	-	-	-	-	68.2	-22.24	0-360	250	V
4	10.362	30.63	PK	37.8	-27.3	41.13	-	-	-	-	68.2	-27.07	0-360	250	V
6	* 15.538	23.83	PK	40.2	-16.4	47.63	-	-	74	-26.37	-	-	0-360	150	V

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

PK – Peak detector

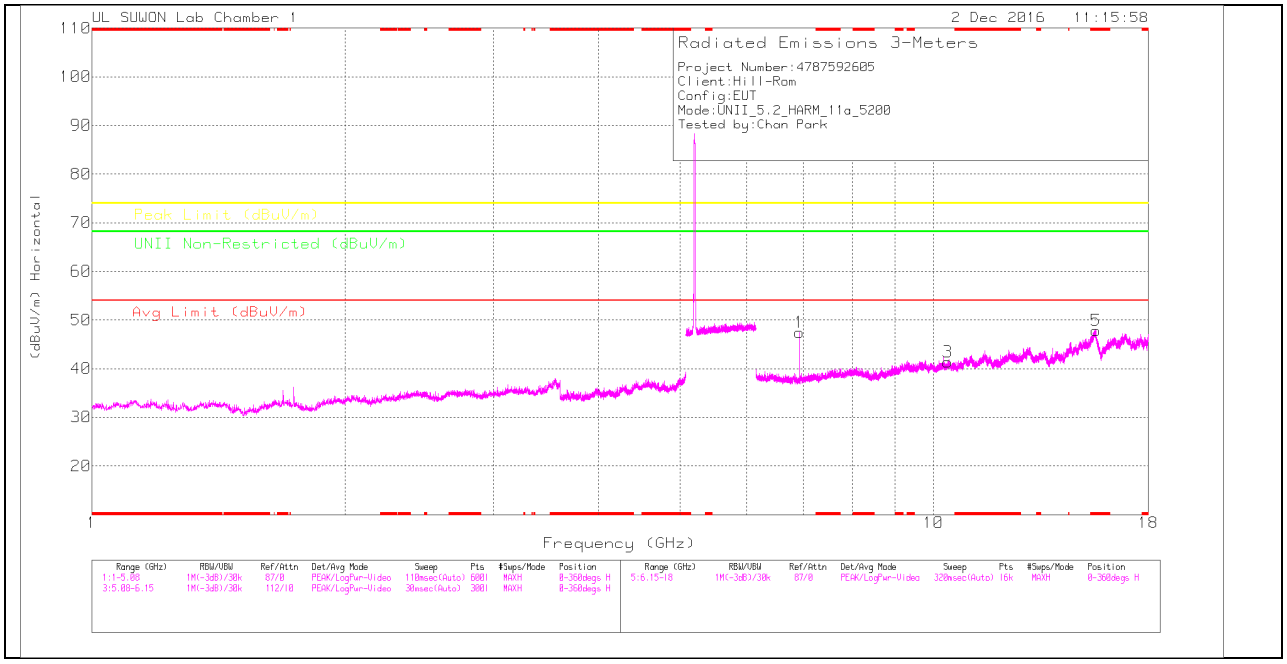
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.907	47.43	PK-U	35.6	-30.8	52.23	-	-	-	-	68.2	-15.97	138	139	H
6.907	48.07	PK-U	35.6	-30.8	52.87	-	-	-	-	68.2	-15.33	320	276	V

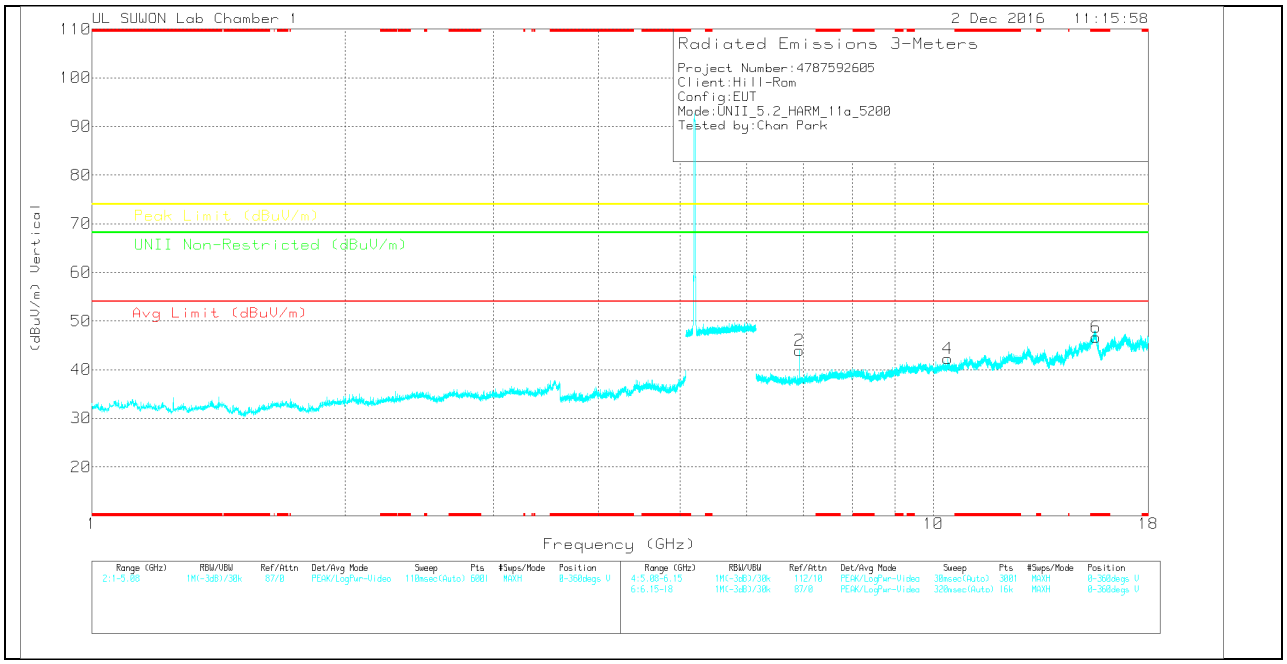
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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

MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.933	42.42	PK	35.7	-30.7	47.42	-	-	-	-	68.2	-20.78	0-360	250	H
3	10.395	30.38	PK	37.8	-26.8	41.38	-	-	-	-	68.2	-26.82	0-360	250	H
5	* 15.602	22.18	PK	40.3	-14.6	47.88	-	-	74	-26.12	-	-	0-360	250	H
2	6.933	38.93	PK	35.7	-30.7	43.93	-	-	-	-	68.2	-24.27	0-360	250	V
4	10.396	31.22	PK	37.8	-26.8	42.22	-	-	-	-	68.2	-25.98	0-360	150	V
6	* 15.599	20.83	PK	40.3	-14.5	46.63	-	-	74	-27.37	-	-	0-360	150	V

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

PK – Peak detector

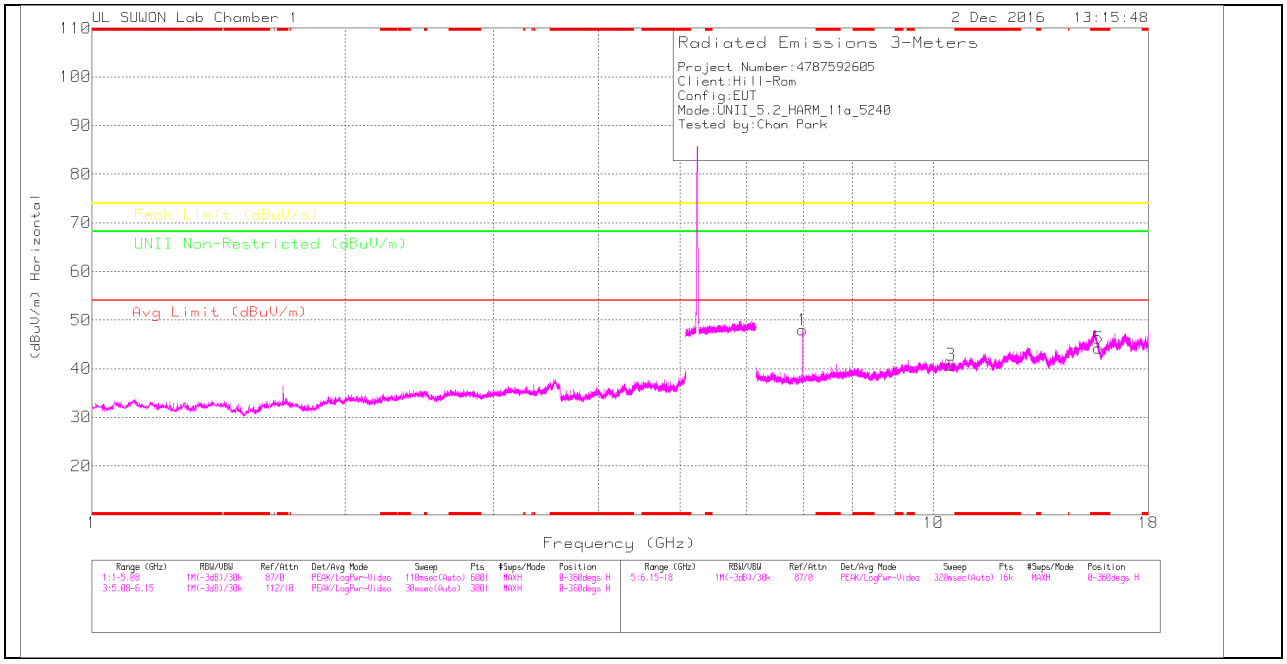
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.934	47.02	PK-U	35.7	-30.7	52.02	-	-	-	-	68.2	-16.18	136	134	H
6.933	47.07	PK-U	35.7	-30.7	52.07	-	-	-	-	68.2	-16.13	321	275	V

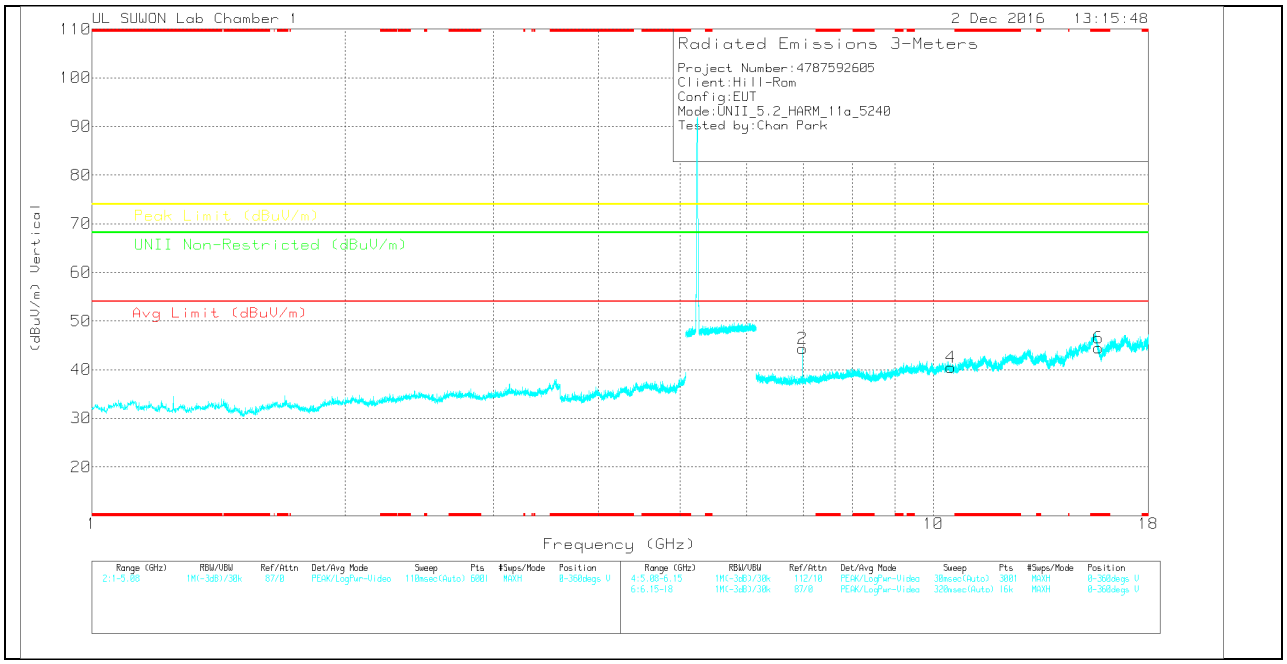
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.986	42.82	PK	35.7	-30.6	47.92	-	-	-	-	68.2	-20.28	0-360	250	H
3	10.481	30.68	PK	37.8	-27.7	40.78	-	-	-	-	68.2	-27.42	0-360	250	H
5	* 15.718	21.26	PK	40.4	-17.4	44.26	-	-	74	-29.74	-	-	0-360	250	H
2	6.986	39.29	PK	35.7	-30.6	44.39	-	-	-	-	68.2	-23.81	0-360	250	V
4	10.485	30.3	PK	37.8	-27.7	40.4	-	-	-	-	68.2	-27.8	0-360	150	V
6	* 15.719	21.51	PK	40.4	-17.4	44.51	-	-	74	-29.49	-	-	0-360	250	V

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

PK – Peak detector

Radiated Emissions

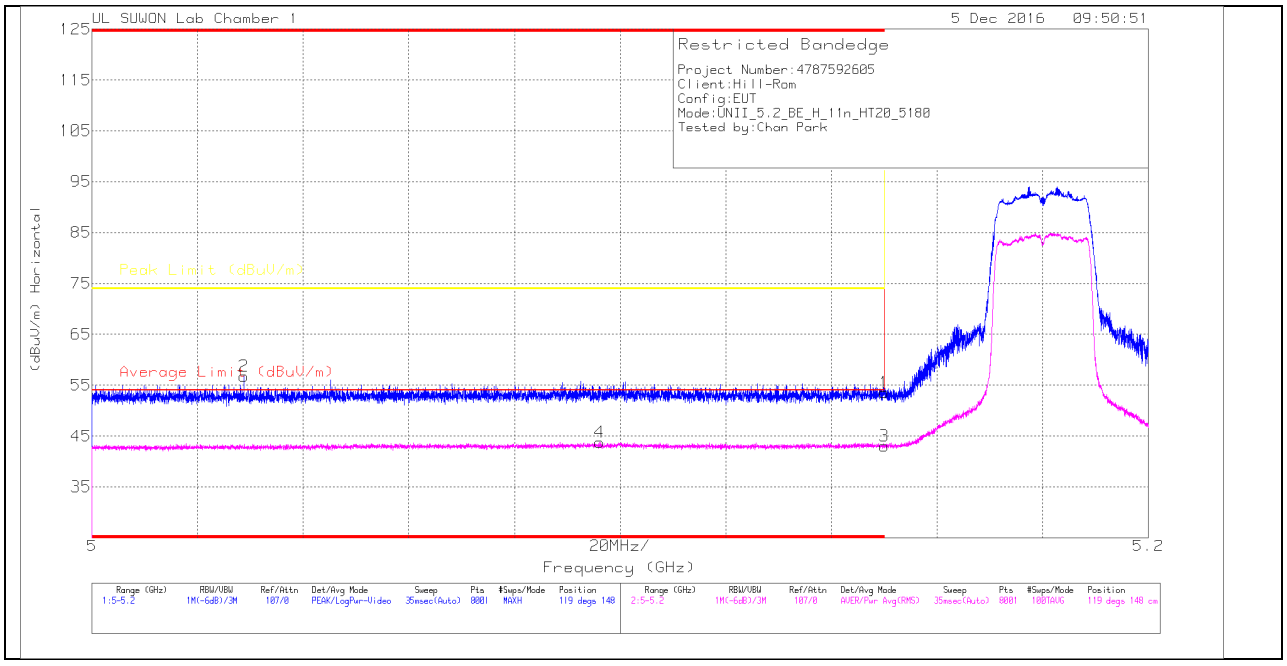
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.987	47.84	PK-U	35.7	-30.6	52.94	-	-	-	-	68.2	-15.26	256	108	H
6.987	45.6	PK-U	35.7	-30.6	50.7	-	-	-	-	68.2	-17.5	298	159	V

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

PK-U - U-NII: Maximum Peak

11.1.2. TX Above 1GHz 802.11n HT20 IN THE 5.2GHz BAND RESTRICTED BANDEDGE (LOW CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Trace Markers

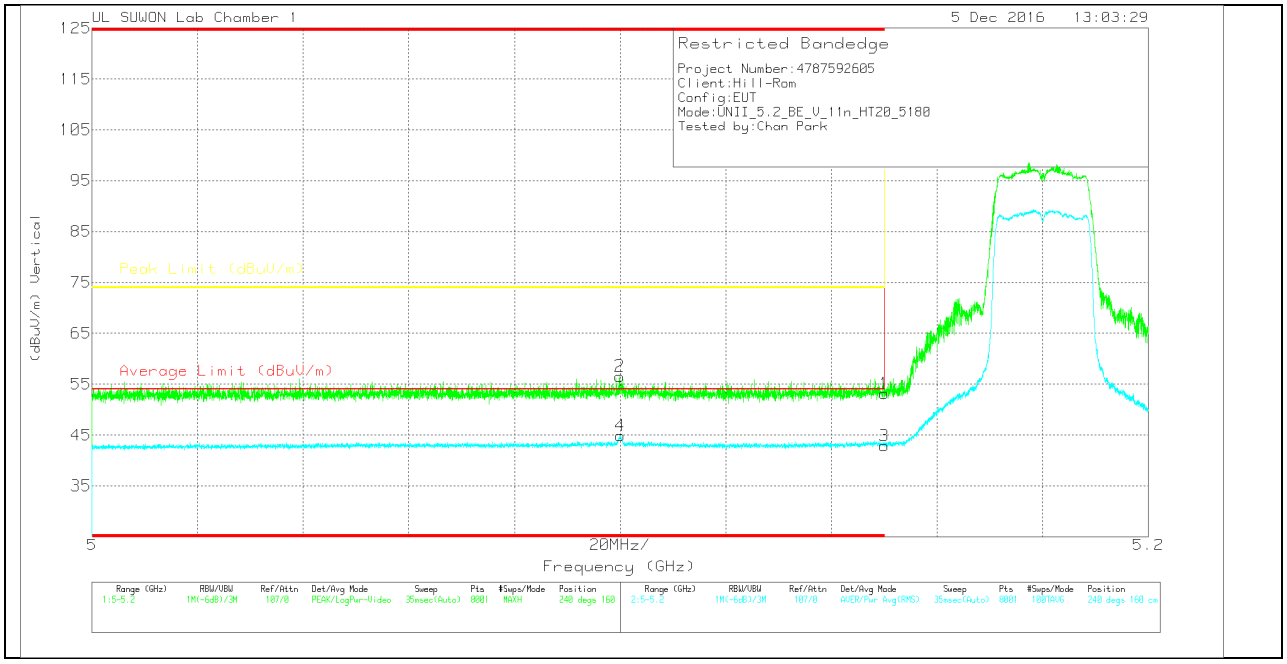
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	43.18	Pk	34.2	-23.8	53.58	-	-	74	-20.42	119	148	H
2	* 5.029	46.66	Pk	34.1	-24	56.76	-	-	74	-17.24	119	148	H
3	* 5.15	32.59	RMS	34.2	-23.8	42.99	54	-11.01	-	-	119	148	H
4	* 5.096	33.49	RMS	34.2	-23.9	43.79	54	-10.21	-	-	119	148	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	10dB[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5.15	42.82	Pk	34.2	-23.8	53.22	-	-	74	-20.78	240	160	V
2	* 5.1	46.27	Pk	34.2	-23.9	56.57	-	-	74	-17.43	240	160	V
3	* 5.15	32.46	RMS	34.2	-23.8	42.86	54	-11.14	-	-	240	160	V
4	* 5.1	34.56	RMS	34.2	-23.9	44.86	54	-9.14	-	-	240	160	V

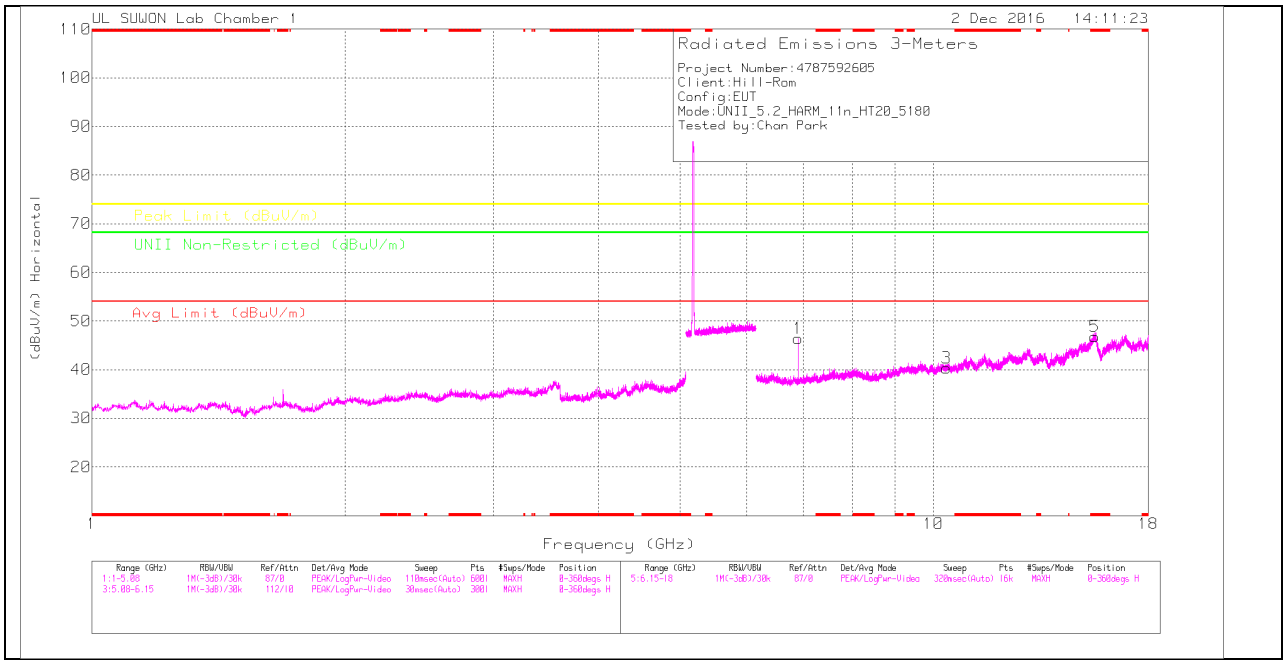
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

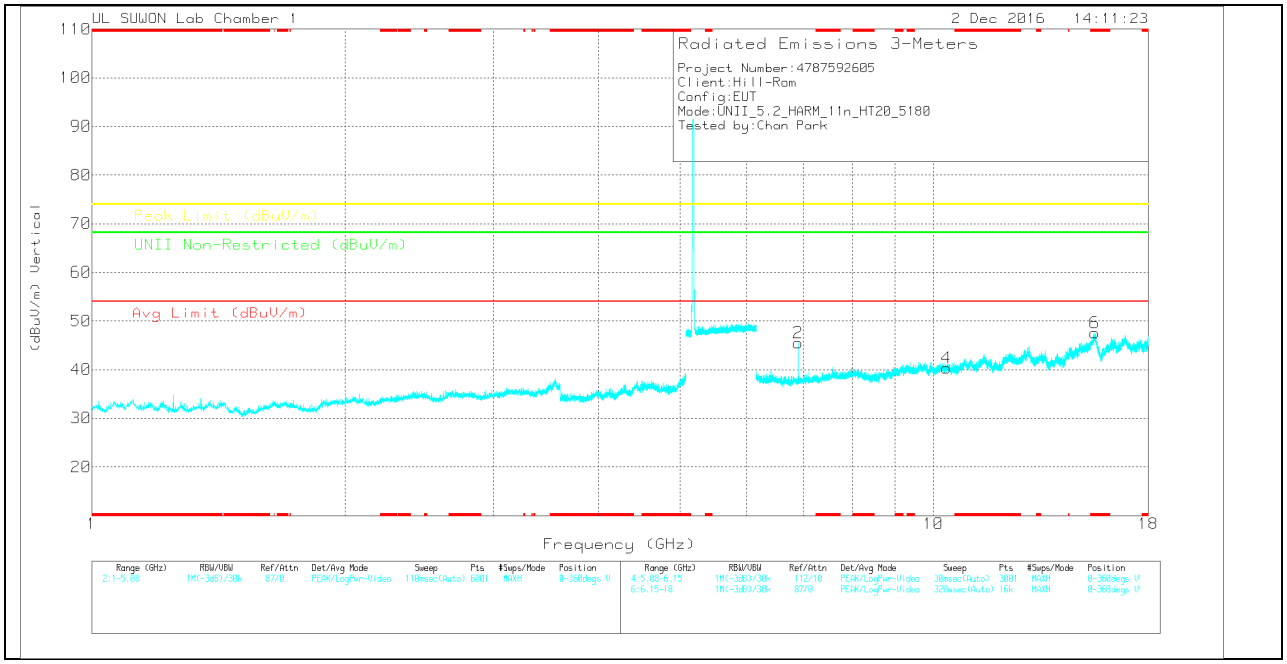
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.906	41.55	PK	35.6	-30.8	46.35	-	-	-	-	68.2	-21.85	0-360	250	H
3	10.362	29.8	PK	37.8	-27.3	40.3	-	-	-	-	68.2	-27.9	0-360	150	H
5	* 15.539	22.94	PK	40.3	-16.4	46.84	-	-	74	-27.16	-	-	0-360	150	H
2	6.906	40.76	PK	35.6	-30.8	45.56	-	-	-	-	68.2	-22.64	0-360	250	V
4	10.365	29.78	PK	37.8	-27.3	40.28	-	-	-	-	68.2	-27.92	0-360	150	V
6	* 15.541	23.6	PK	40.3	-16.3	47.6	-	-	74	-26.4	-	-	0-360	150	V

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

PK – Peak detector

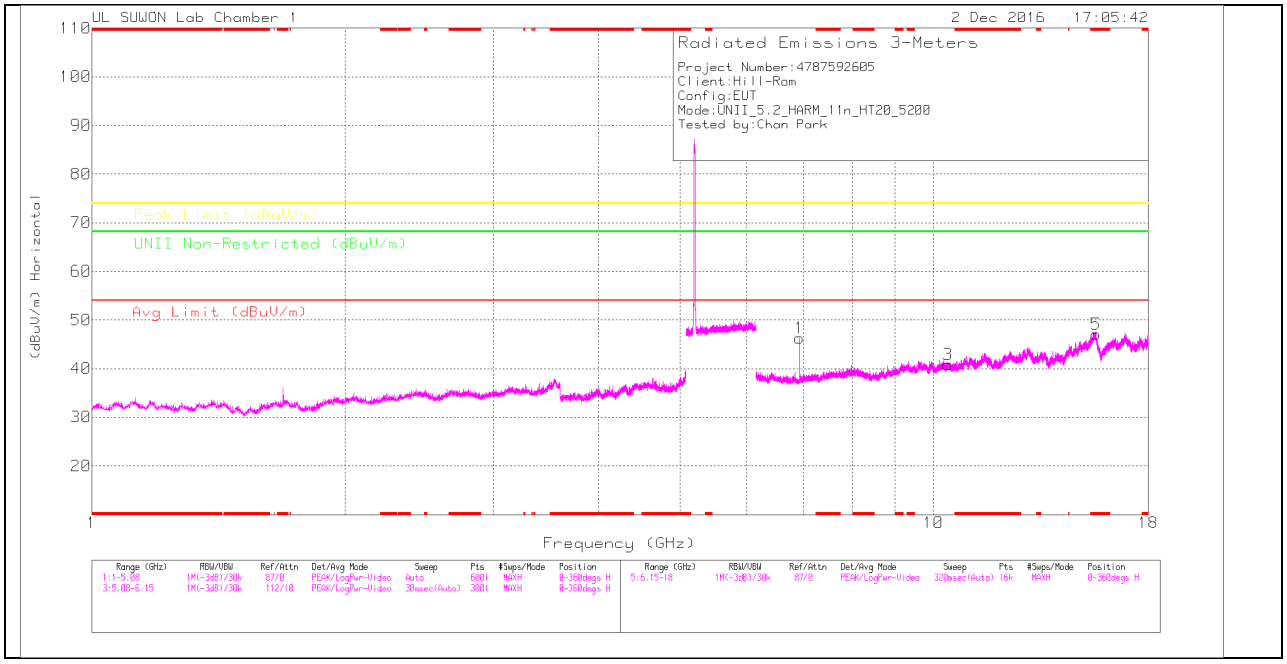
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.907	42.25	PK-U	35.6	-30.8	47.05	-	-	-	-	68.2	-21.15	253	102	H
6.907	47.6	PK-U	35.6	-30.8	52.4	-	-	-	-	68.2	-15.8	145	114	V

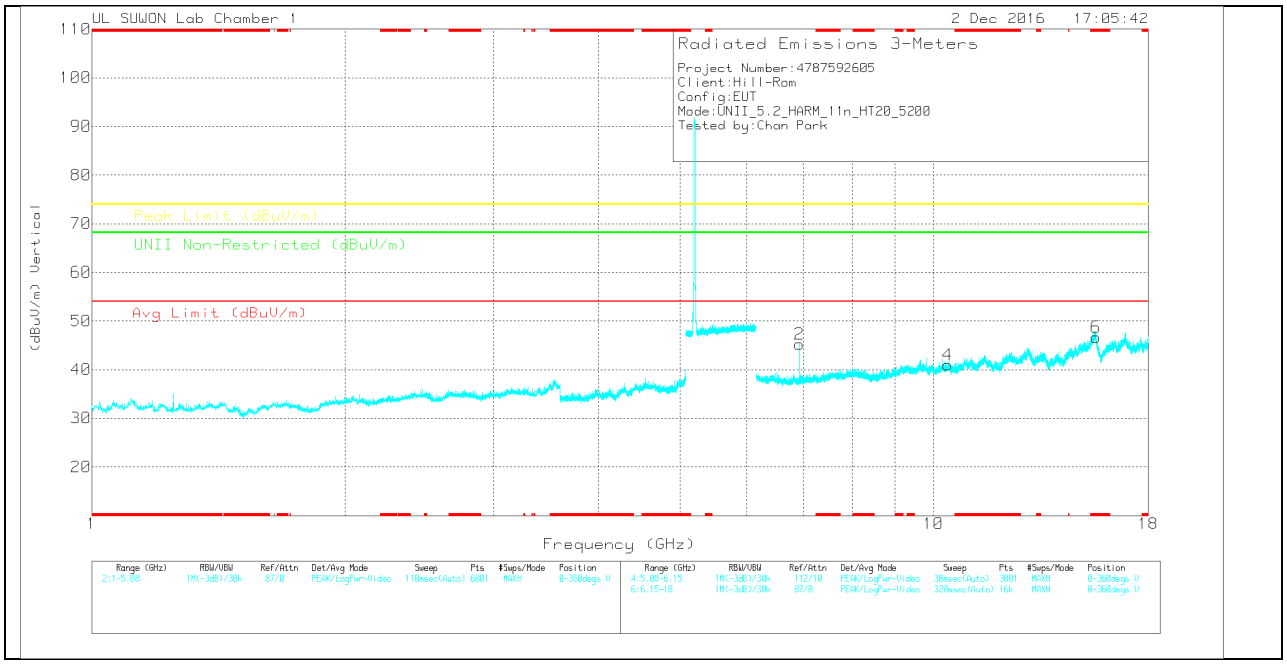
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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

MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.933	41.29	PK	35.7	-30.7	46.29	-	-	-	-	68.2	-21.91	0-360	250	H
3	10.401	29.78	PK	37.8	-26.7	40.88	-	-	-	-	68.2	-27.32	0-360	150	H
5	* 15.602	21.35	PK	40.3	-14.6	47.05	-	-	74	-26.95	-	-	0-360	250	H
2	6.933	40.29	PK	35.7	-30.7	45.29	-	-	-	-	68.2	-22.91	0-360	250	V
4	10.403	29.85	PK	37.8	-26.7	40.95	-	-	-	-	68.2	-27.25	0-360	150	V
6	* 15.604	21.01	PK	40.3	-14.6	46.71	-	-	74	-27.29	-	-	0-360	150	V

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

PK – Peak detector

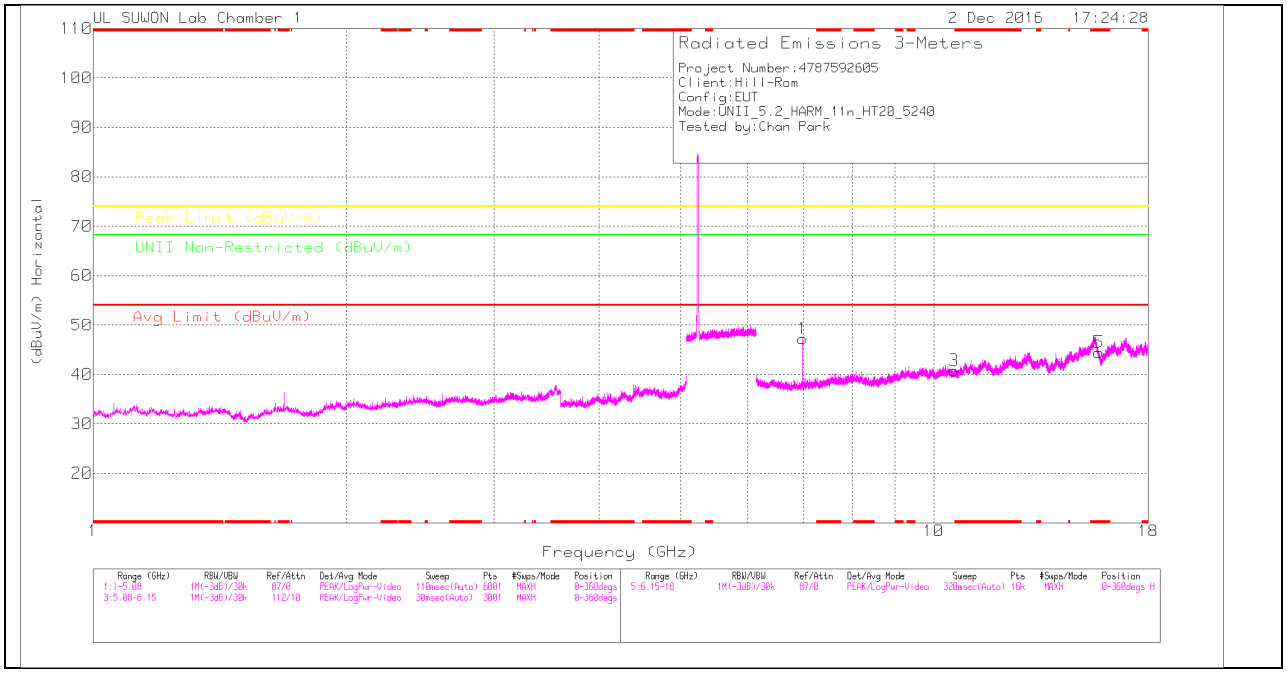
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.933	47.7	PK-U	35.7	-30.7	52.7	-	-	-	-	68.2	-15.5	256	113	H
6.934	45.65	PK-U	35.7	-30.7	50.65	-	-	-	-	68.2	-17.55	298	374	V

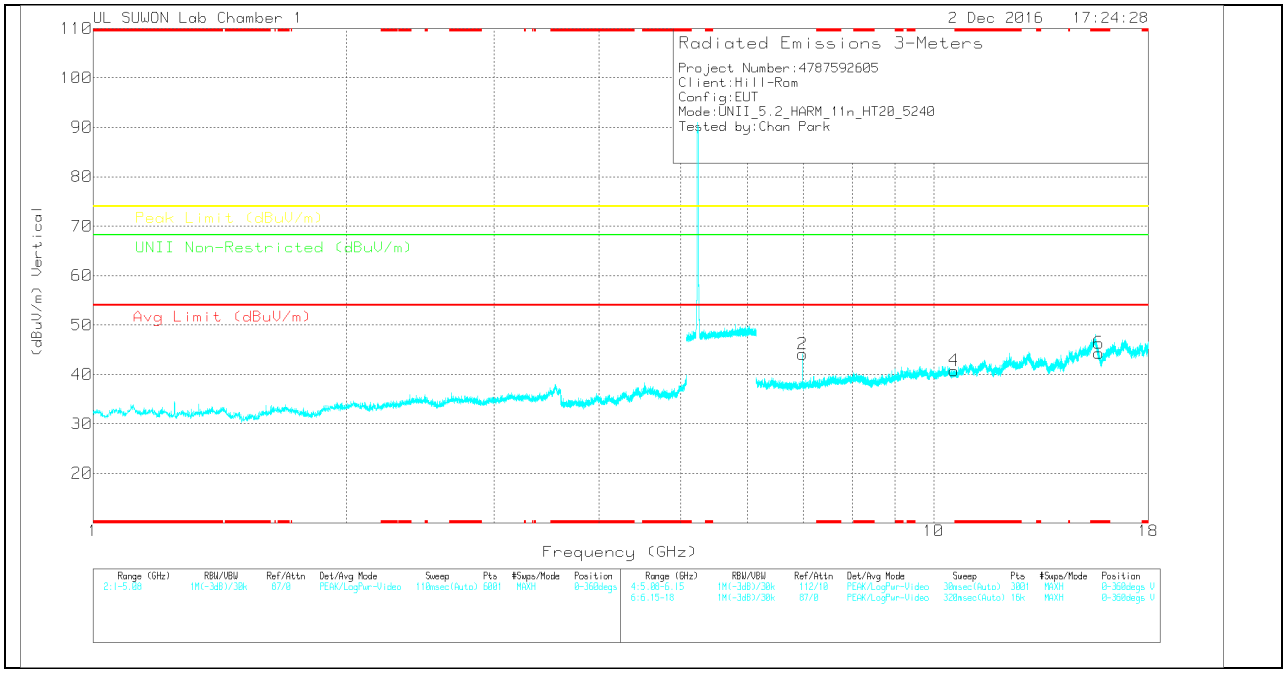
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	6.986	42.1	PK	35.7	-30.6	47.2	-	-	-	-	68.2	-21	0-360	250	H
3	10.569	29.66	PK	37.9	-26.8	40.76	-	-	-	-	68.2	-27.44	0-360	150	H
5	* 15.721	21.45	PK	40.4	-17.4	44.45	-	-	74	-29.55	-	-	0-360	150	H
2	6.986	39.03	PK	35.7	-30.6	44.13	-	-	-	-	68.2	-24.07	0-360	250	V
4	10.57	29.69	PK	37.9	-26.8	40.79	-	-	-	-	68.2	-27.41	0-360	250	V
6	* 15.722	21.33	PK	40.4	-17.4	44.33	-	-	74	-29.67	-	-	0-360	250	V

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

PK – Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
6.987	47.98	PK-U	35.7	-30.6	53.08	-	-	-	-	68.2	-15.12	255	100	H
6.986	45.71	PK-U	35.7	-30.6	50.81	-	-	-	-	68.2	-17.39	298	158	V

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

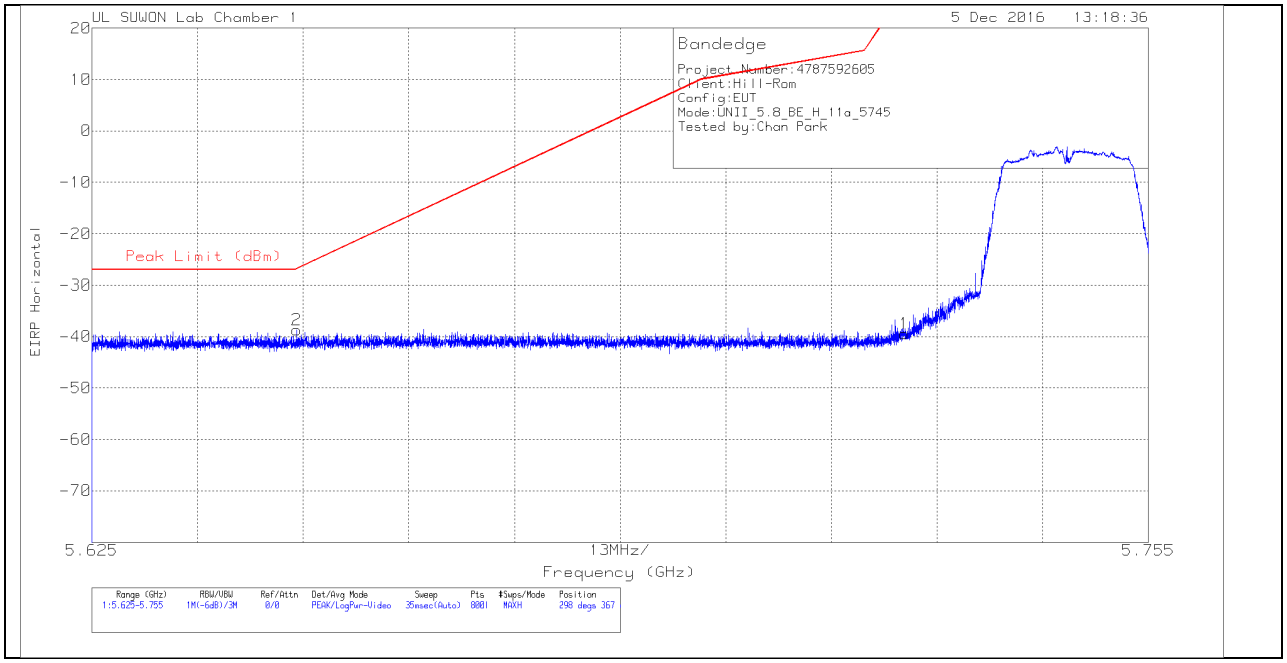
PK-U - U-NII: Maximum Peak

11.2. 5.8 GHz

11.2.1. TX ABOVE 1GHz 802.11a IN THE 5.8GHz BAND

RESTRICTED BANDEDGE

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

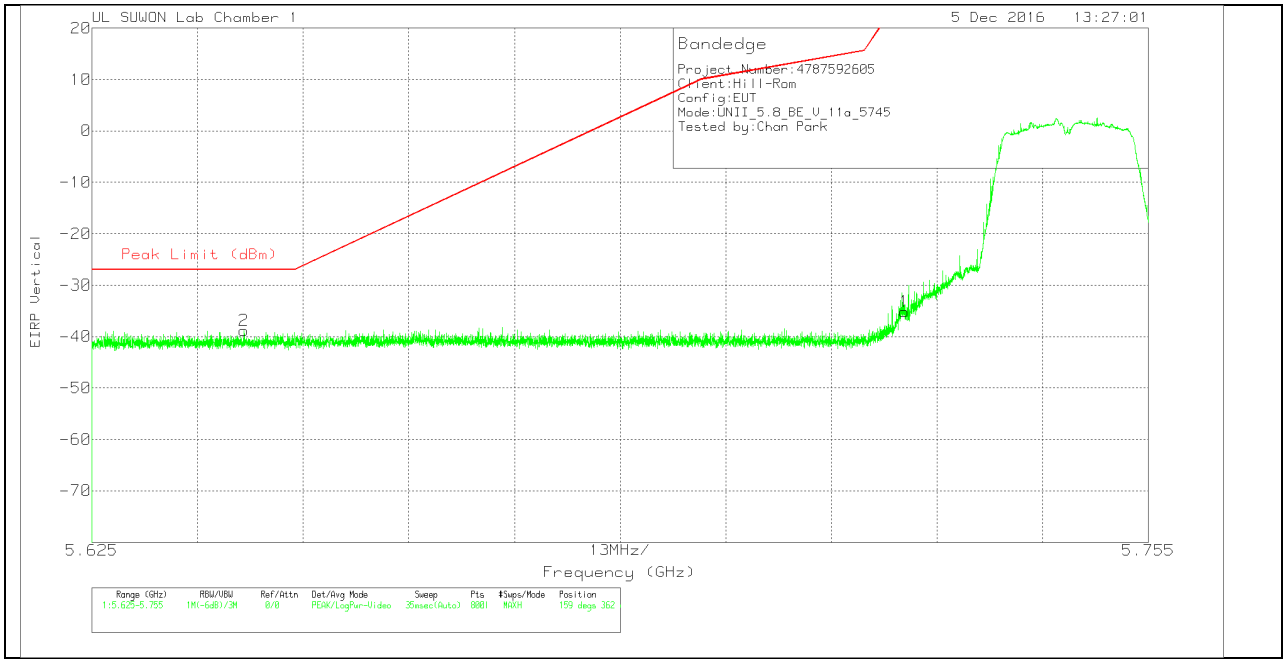
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-63.18	Pk	34.8	-22.8	11.8	-39.38	26.97	-66.35	298	367	H
2	5.65	-62.25	Pk	34.8	-23	11.8	-38.65	-26.85	-11.8	298	367	H

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

Pk - Peak detector

VERTICAL PEAK PLOT



VERTICAL DATA

Trace Markers

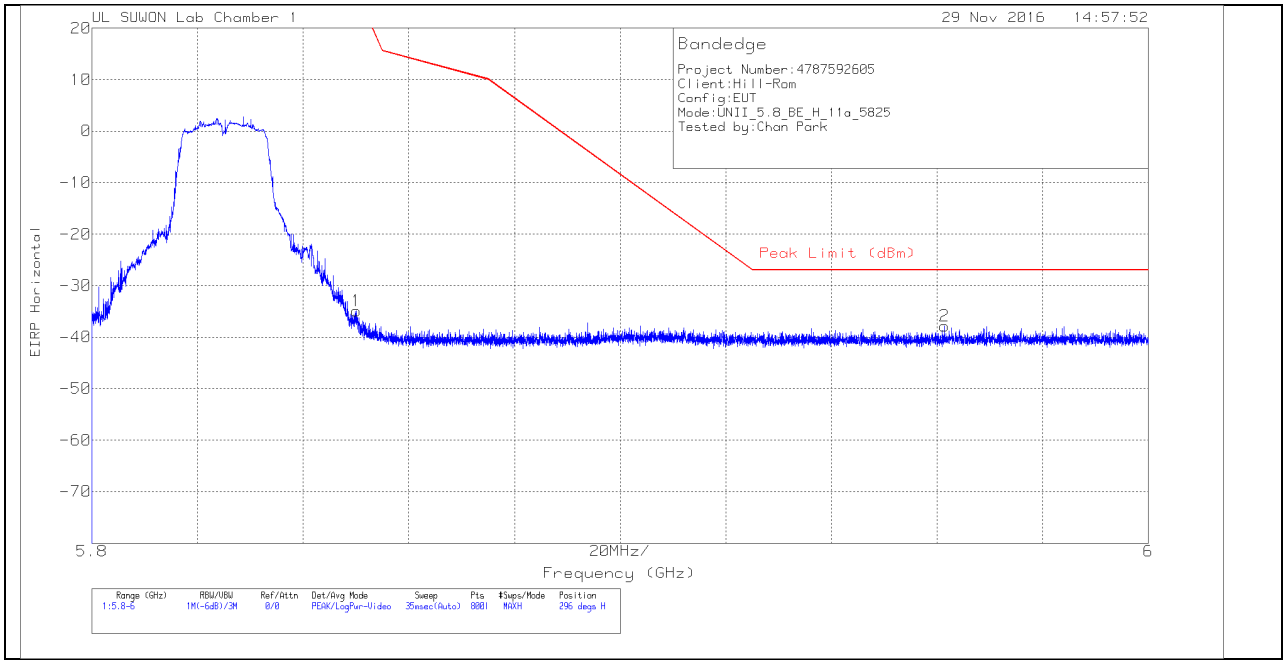
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-58.94	Pk	34.8	-22.8	11.8	-35.14	26.97	-62.11	159	362	V
2	5.644	-62.37	Pk	34.8	-23	11.8	-38.77	-27	-11.77	159	362	V

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

Pk - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

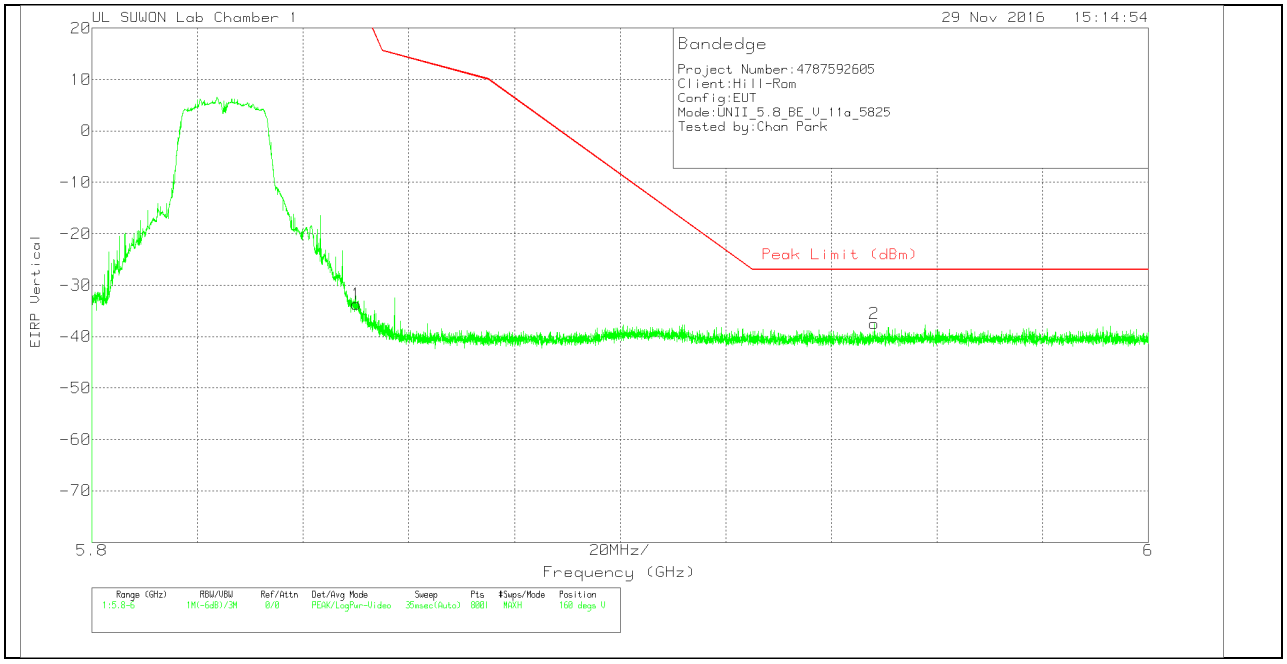
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-59.38	Pk	34.9	-22.2	11.8	-34.88	26.94	-61.82	296	147	H
2	5.961	-62.1	Pk	34.9	-22.4	11.8	-37.8	-27	-10.8	296	147	H

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

Pk - Peak detector

VERTICAL PEAK PLOT



VERTICAL DATA

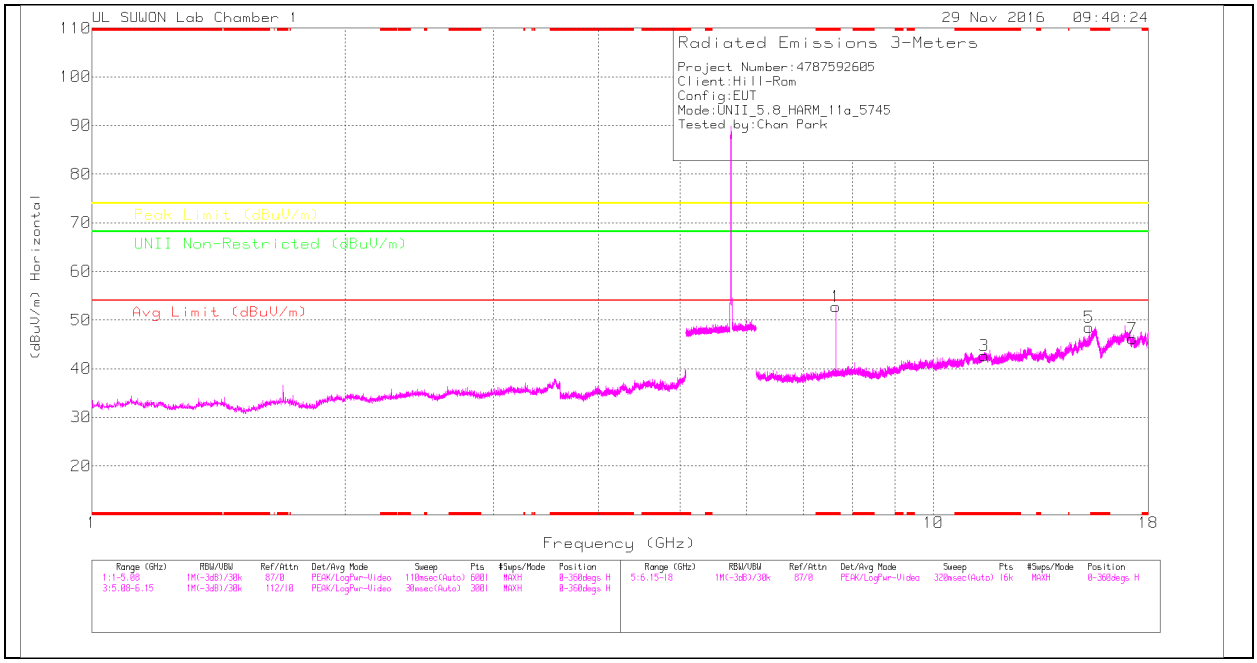
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-58.13	Pk	34.9	-22.2	11.8	-33.63	26.94	-60.57	160	147	V
2	5.948	-61.75	Pk	34.9	-22.4	11.8	-37.45	-27	-10.45	160	147	V

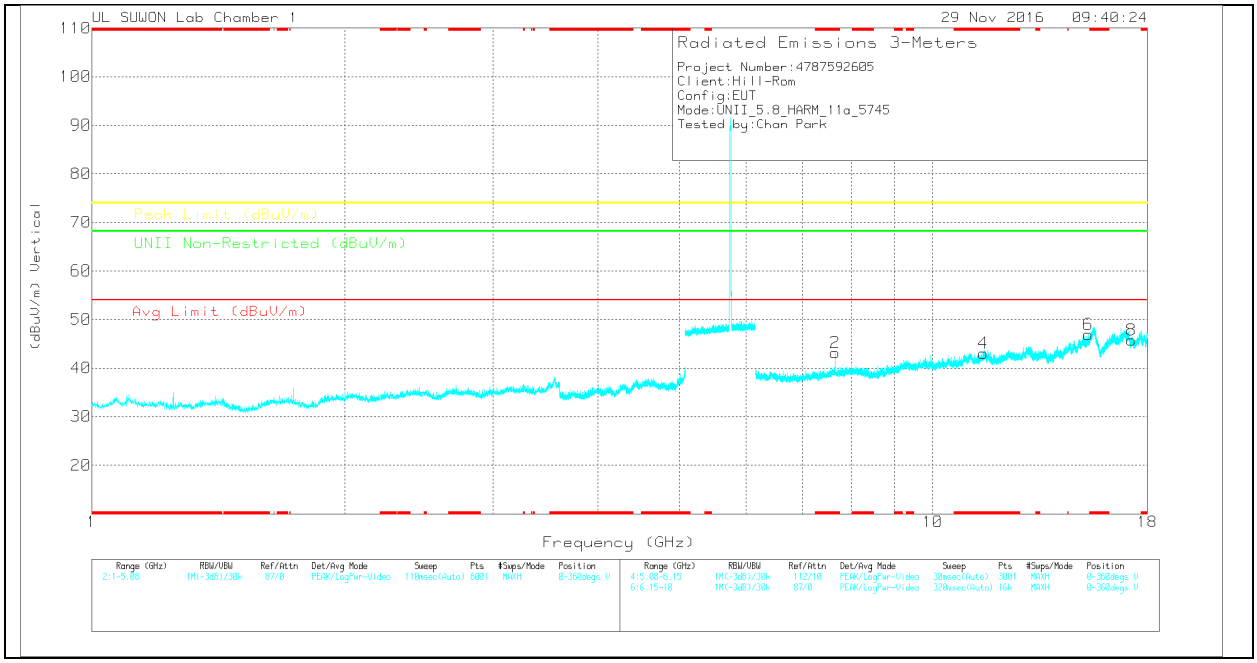
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

Pk - Peak detector

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.66	46.99	PK	36	-30.3	52.69	-	-	74	-21.31	-	-	0-360	150	H
3	* 11.49	31.01	PK	38.6	-27	42.61	-	-	74	-31.39	-	-	0-360	250	H
5	15.32	29.4	PK	40.1	-21	48.5	-	-	-	-	68.2	-19.7	0-360	250	H
7	17.236	26.22	PK	41.2	-21.3	46.12	-	-	-	-	68.2	-22.08	0-360	250	H
2	* 7.659	37.44	PK	36	-30.3	43.14	-	-	74	-30.86	-	-	0-360	250	V
4	* 11.488	31.52	PK	38.6	-27.1	43.02	-	-	74	-30.98	-	-	0-360	150	V
6	15.321	27.76	PK	40.1	-20.9	46.96	-	-	-	-	68.2	-21.24	0-360	250	V
8	17.235	25.89	PK	41.2	-21.3	45.79	-	-	-	-	68.2	-22.41	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

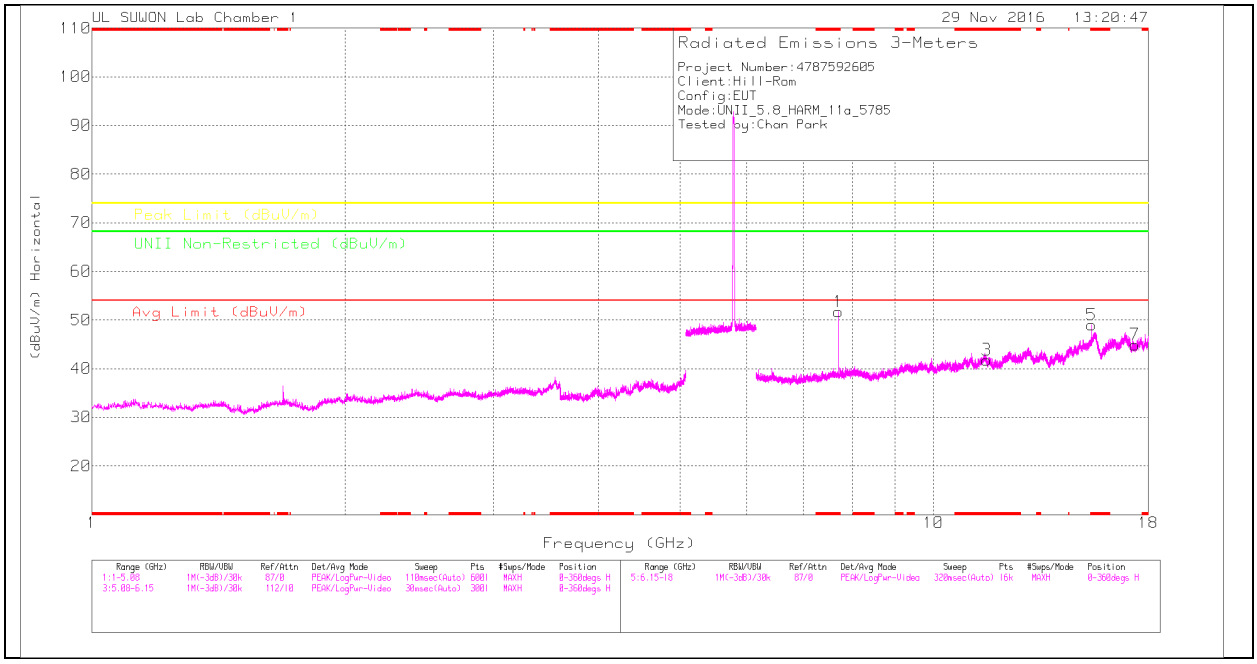
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.66	49.98	PK-U	36	-30.3	55.68	-	-	74	-18.32	-	-	258	144	H
* 7.66	45.49	ADR	36	-30.3	51.19	54	-2.81	-	-	-	-	258	144	H
* 7.66	46.24	PK-U	36	-30.3	51.94	-	-	74	-22.06	-	-	254	157	V
* 7.66	37.75	ADR	36	-30.3	43.45	54	-10.55	-	-	-	-	254	157	V

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

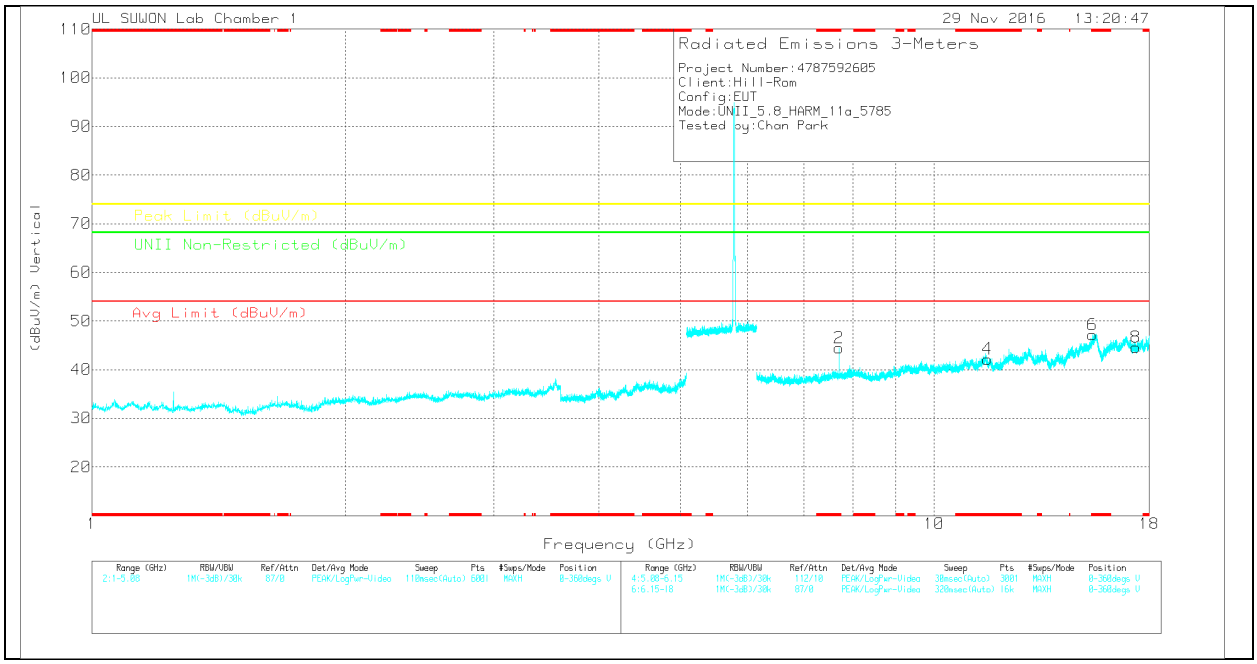
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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

MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.713	45.91	PK	36.1	-30.3	51.71	-	-	74	-22.29	-	-	0-360	150	H
3	* 11.57	30.31	PK	38.7	-27.2	41.81	-	-	74	-32.19	-	-	0-360	250	H
5	* 15.426	25.47	PK	40.2	-16.7	48.97	-	-	74	-25.03	-	-	0-360	250	H
7	17.357	25.42	PK	41.2	-21.7	44.92	-	-	-	-	68.2	-23.28	0-360	250	H
2	* 7.713	38.62	PK	36.1	-30.3	44.42	-	-	74	-29.58	-	-	0-360	150	V
4	* 11.573	30.7	PK	38.7	-27.2	42.2	-	-	74	-31.8	-	-	0-360	150	V
6	* 15.427	23.64	PK	40.2	-16.7	47.14	-	-	74	-26.86	-	-	0-360	250	V
8	17.354	25.11	PK	41.2	-21.7	44.61	-	-	-	-	68.2	-23.59	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

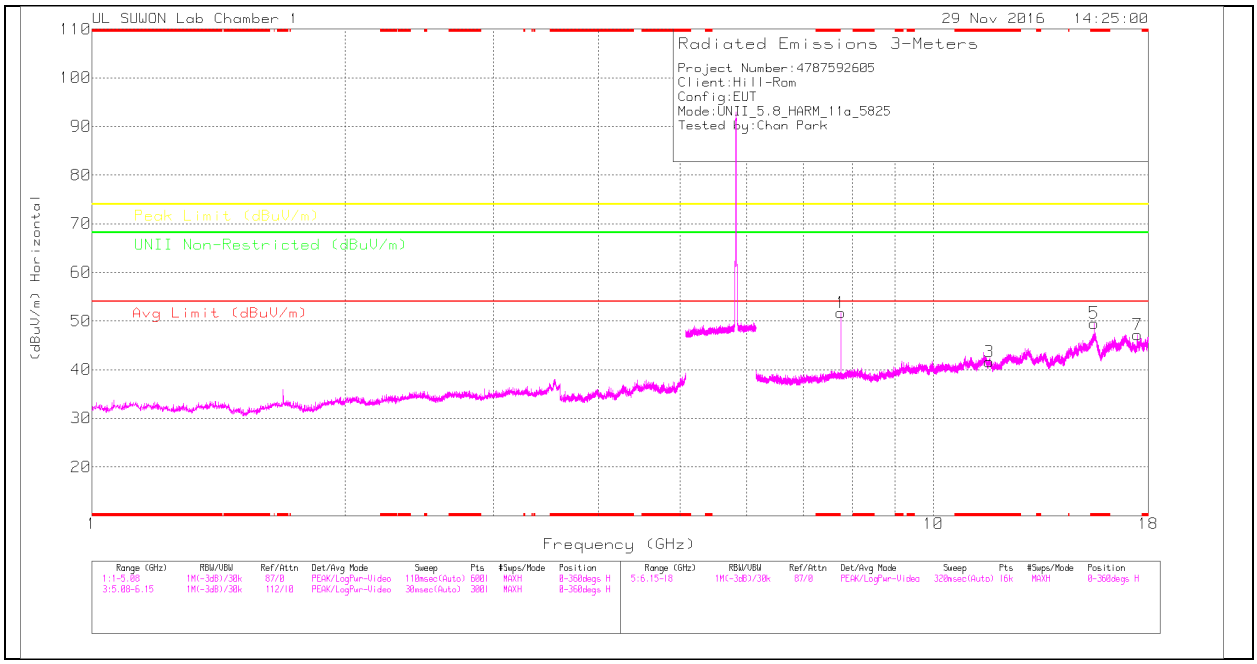
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.713	49.98	PK-U	36.1	-30.3	55.78	-	-	74	-18.22	-	-	259	144	H
* 7.713	45.48	ADR	36.1	-30.3	51.28	54	-2.72	-	-	-	-	259	144	H
* 15.426	35.28	PK-U	40.2	-16.7	58.78	-	-	74	-15.22	-	-	303	241	H
* 15.427	25.07	ADR	40.2	-16.7	48.57	54	-5.43	-	-	-	-	303	241	H
* 7.713	46.12	PK-U	36.1	-30.3	51.92	-	-	74	-22.08	-	-	143	147	V
* 7.713	36.86	ADR	36.1	-30.3	42.66	54	-11.34	-	-	-	-	143	147	V

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

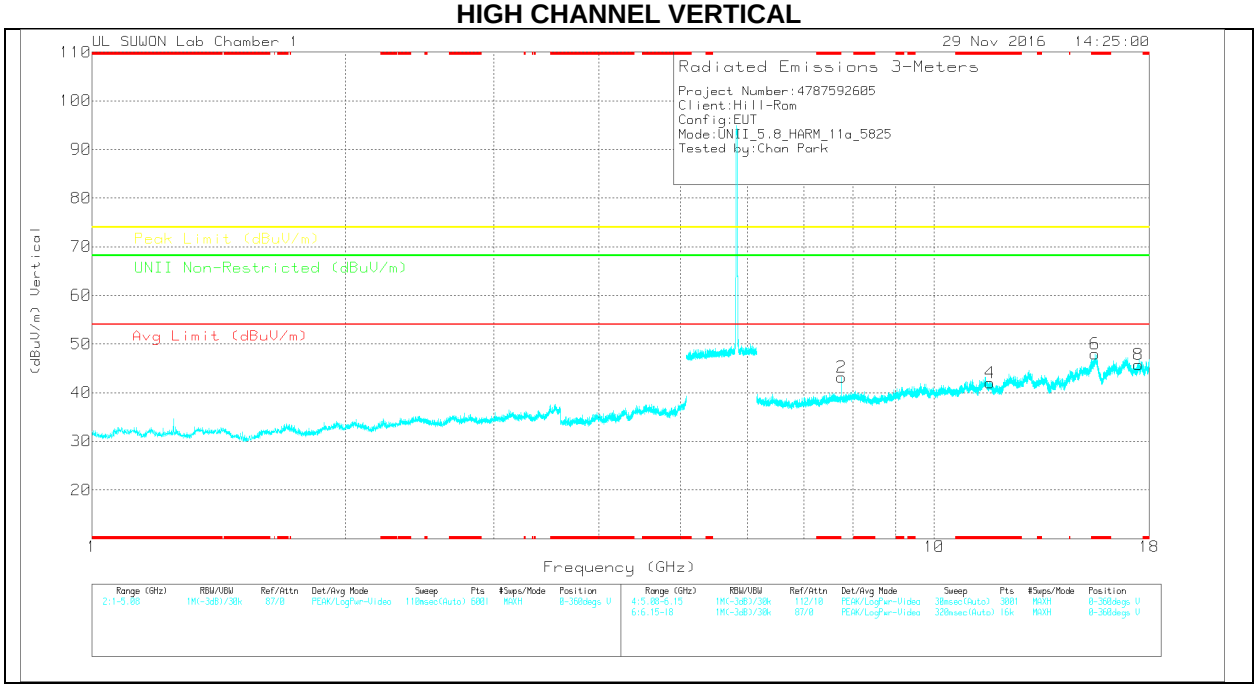
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	7.767	45.83	PK	36.2	-30.3	51.73	-	-	-	-	68.2	-16.47	0-360	150	H
3	* 11.649	30.53	PK	38.7	-27.6	41.63	-	-	74	-32.37	-	-	0-360	150	H
5	* 15.534	25.97	PK	40.2	-16.6	49.57	-	-	74	-24.43	-	-	0-360	250	H
7	17.474	27.68	PK	41.1	-21.6	47.18	-	-	-	-	68.2	-21.02	0-360	150	H
2	7.766	37.3	PK	36.2	-30.3	43.2	-	-	-	-	68.2	-25	0-360	250	V
4	* 11.646	30.94	PK	38.7	-27.6	42.04	-	-	74	-31.96	-	-	0-360	150	V
6	* 15.533	24.39	PK	40.2	-16.6	47.99	-	-	74	-26.01	-	-	0-360	250	V
8	17.477	26.27	PK	41.1	-21.6	45.77	-	-	-	-	68.2	-22.43	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.767	49.91	PK-U	36.2	-30.3	55.81	-	-	-	-	68.2	-12.39	255	133	H
* 15.533	35.71	PK-U	40.2	-16.6	59.31	-	-	74	-14.69	-	-	303	144	H
* 15.533	25.9	ADR	40.2	-16.6	49.5	54	-4.5	-	-	-	-	303	144	H
7.767	45.24	PK-U	36.2	-30.3	51.14	-	-	-	-	68.2	-17.06	144	145	V

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

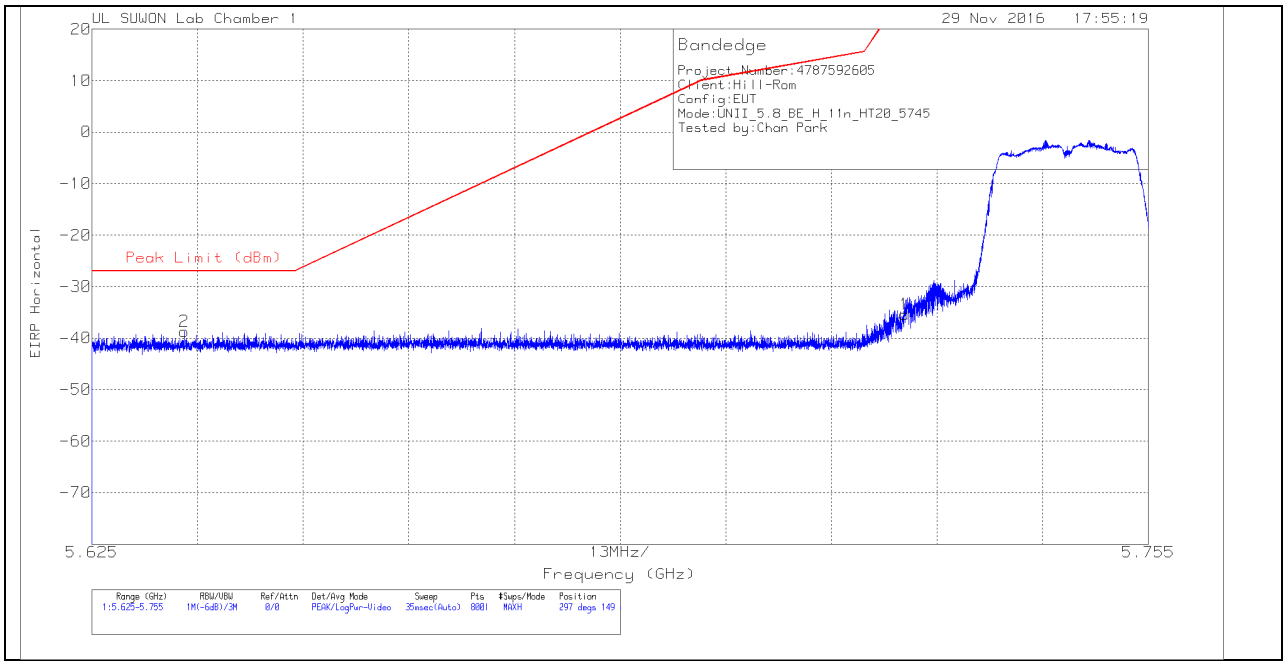
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

11.2.2. TX ABOVE 1GHz 802.11n HT20 2TX CDD MODE IN THE 5.8GHz BAND

HARMONICS AND SPURIOUS EMISSIONS

HORIZONTAL PEAK PLOT



HORIZONTAL DATA

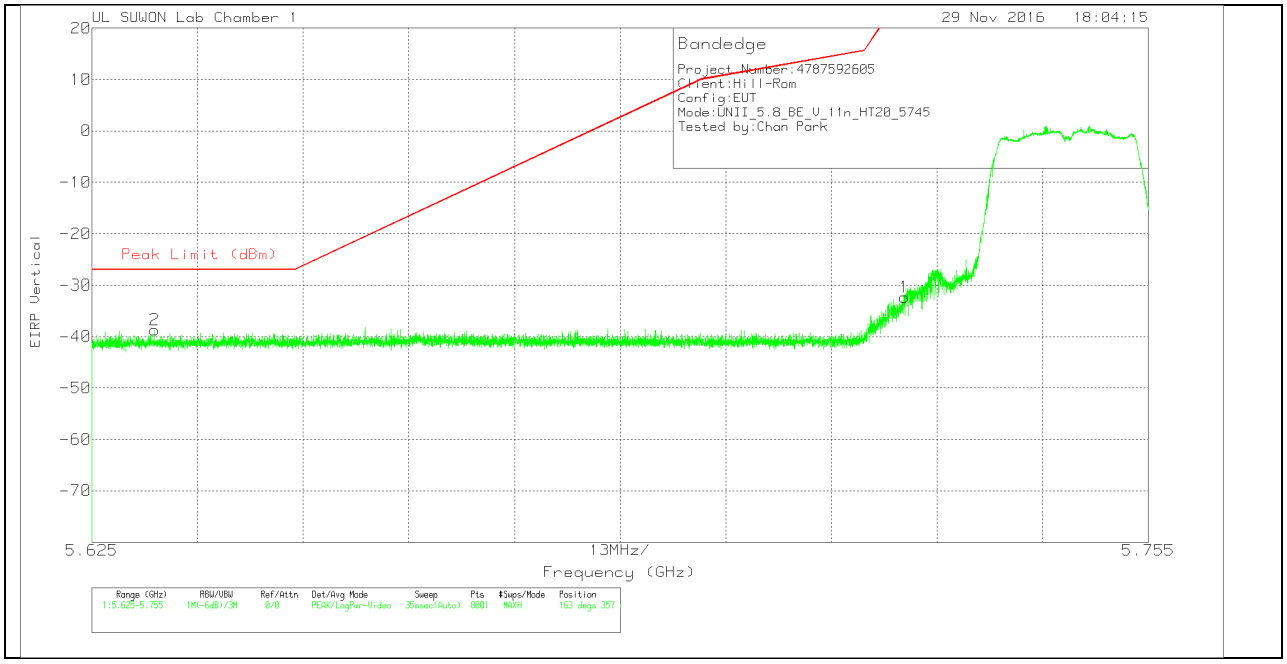
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-59.23	Pk	34.8	-22.8	11.8	-35.43	26.97	-62.4	297	149	H
2	5.636	-62.23	Pk	34.8	-23.1	11.8	-38.73	-27	-11.73	297	149	H

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

Pk - Peak detector

VERTICAL PEAK PLOT



VERTICAL DATA

Trace Markers

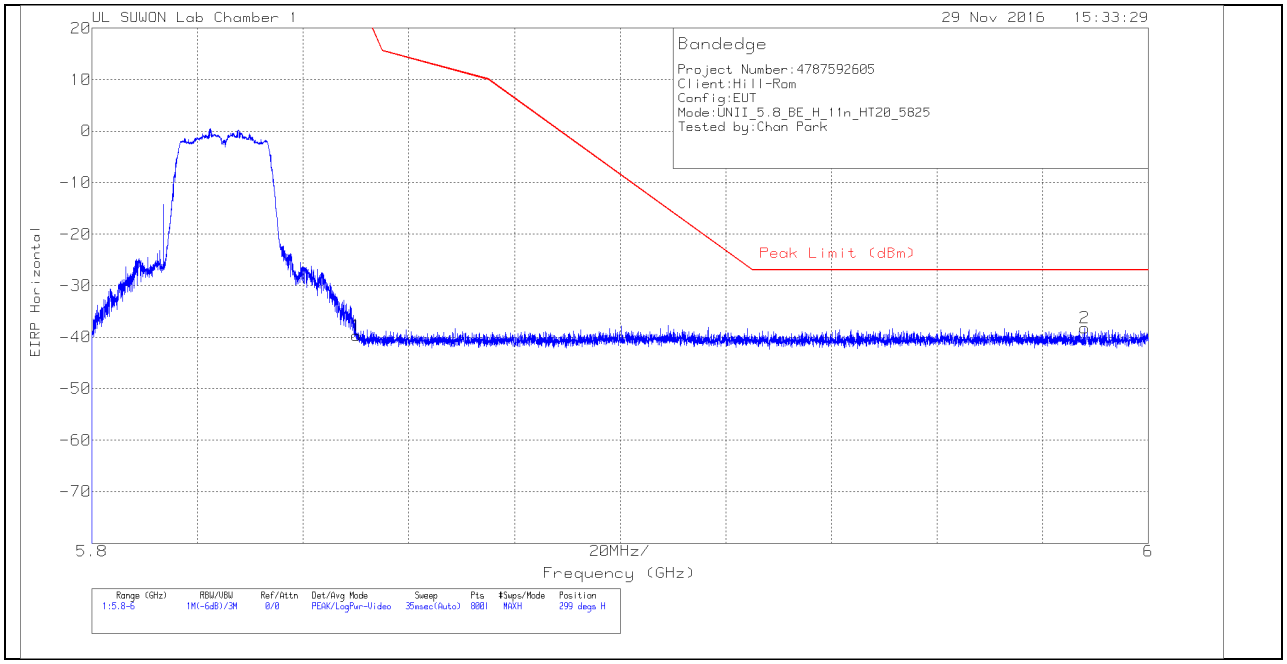
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	-56.12	Pk	34.8	-22.8	11.8	-32.32	26.97	-59.29	163	357	V
2	5.633	-62.09	Pk	34.7	-23.1	11.8	-38.69	-27	-11.69	163	357	V

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

Pk - Peak detector

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

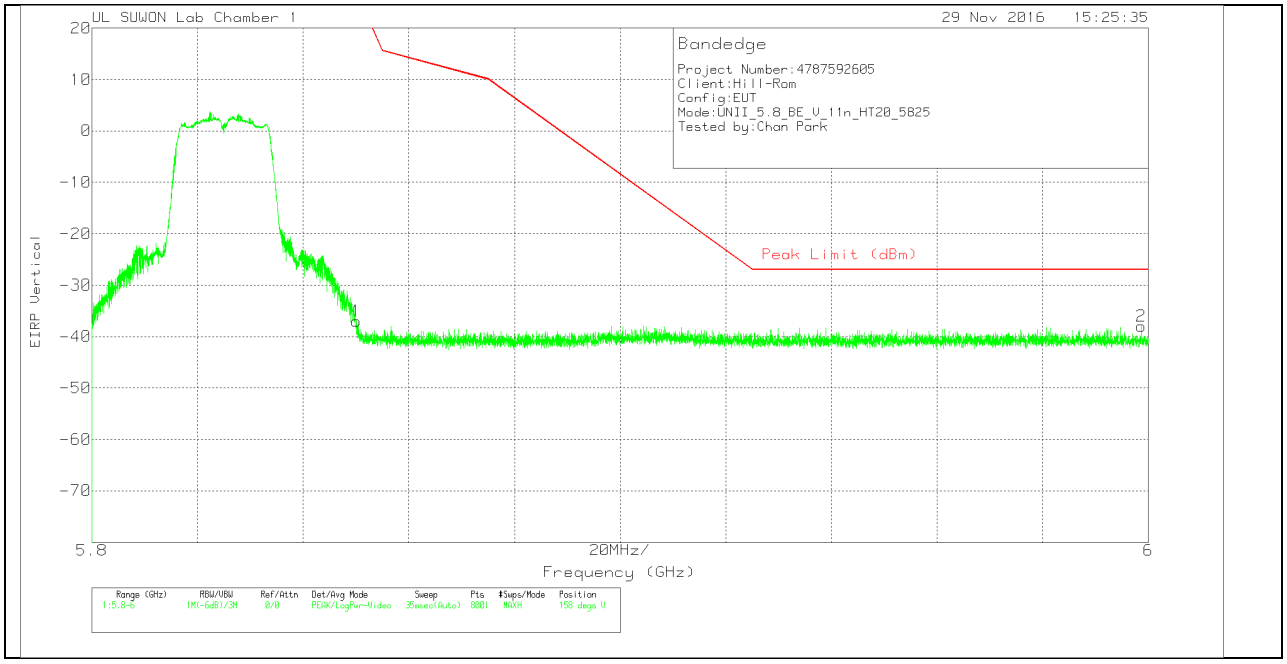
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-64.16	Pk	34.9	-22.2	11.8	-39.66	26.94	-66.6	299	146	H
2	5.988	-62.65	Pk	34.9	-22.3	11.8	-38.25	-27	-11.25	299	146	H

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

Pk - Peak detector

VERTICAL PEAK PLOT



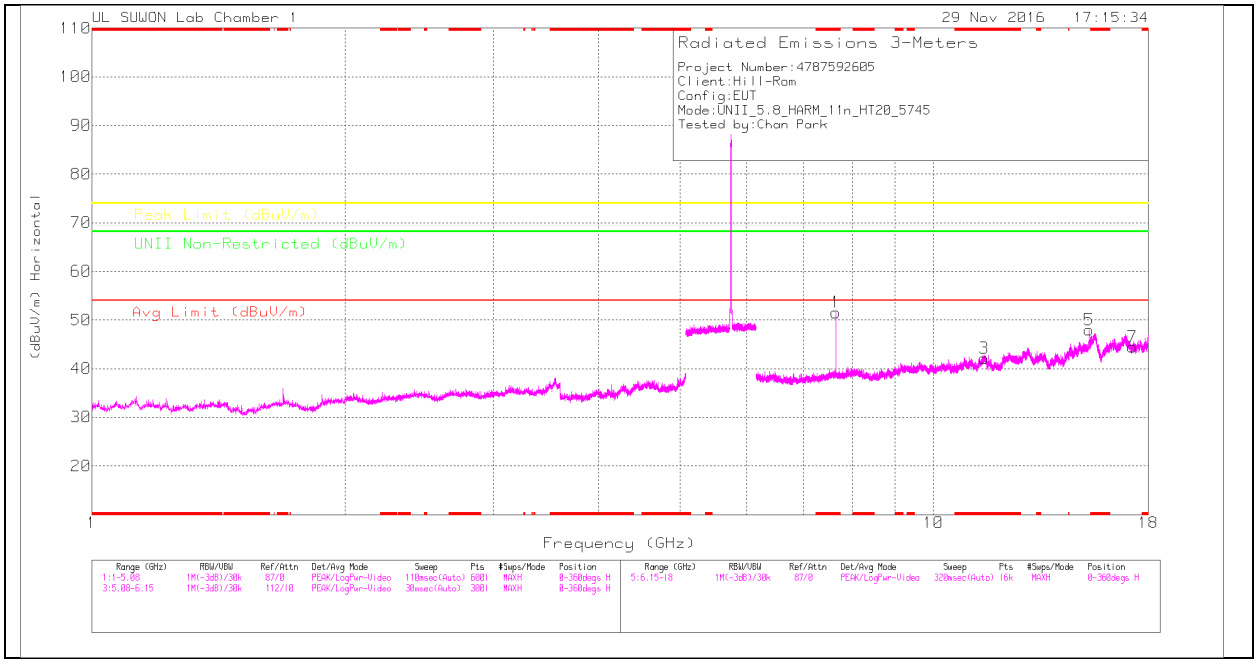
VERTICAL DATA

Trace Markers

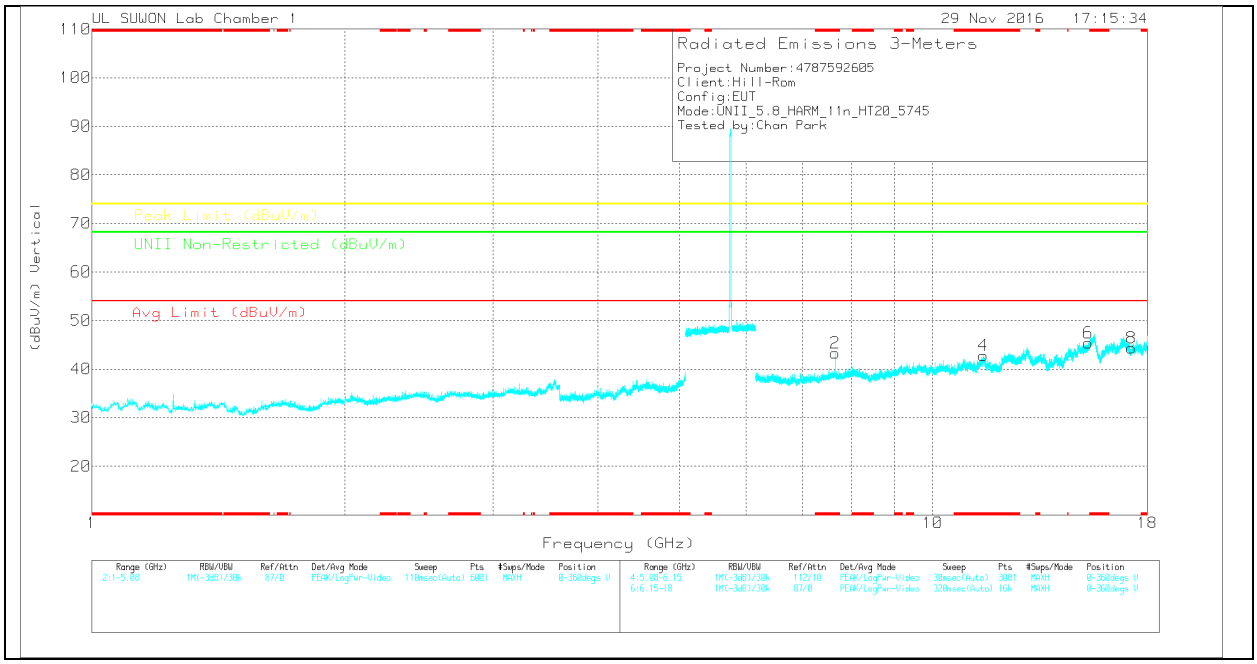
Marker	Frequency (GHz)	Meter Reading (dBm)	Det	3117(00168717)_150619	Path_2	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-61.44	Pk	34.9	-22.2	11.8	-36.94	26.94	-63.88	158	150	V
2	5.999	-62.5	Pk	34.9	-22.2	11.8	-38	-27	-11	158	150	V

Pk - Peak detector

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



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

LOW CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.659	45.82	PK	36	-30.3	51.52	-	-	74	-22.48	-	-	0-360	150	H
3	* 11.49	30.58	PK	38.6	-27	42.18	-	-	74	-31.82	-	-	0-360	150	H
5	15.32	28.83	PK	40.1	-21	47.93	-	-	-	-	68.2	-20.27	0-360	250	H
7	17.236	24.51	PK	41.2	-21.3	44.41	-	-	-	-	68.2	-23.79	0-360	150	H
2	* 7.66	37.55	PK	36	-30.3	43.25	-	-	74	-30.75	-	-	0-360	150	V
4	* 11.487	31.28	PK	38.6	-27.1	42.78	-	-	74	-31.22	-	-	0-360	250	V
6	15.321	26.12	PK	40.1	-20.9	45.32	-	-	-	-	68.2	-22.88	0-360	250	V
8	17.239	24.43	PK	41.2	-21.3	44.33	-	-	-	-	68.2	-23.87	0-360	250	V

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

PK – Peak Detector

Radiated Emissions

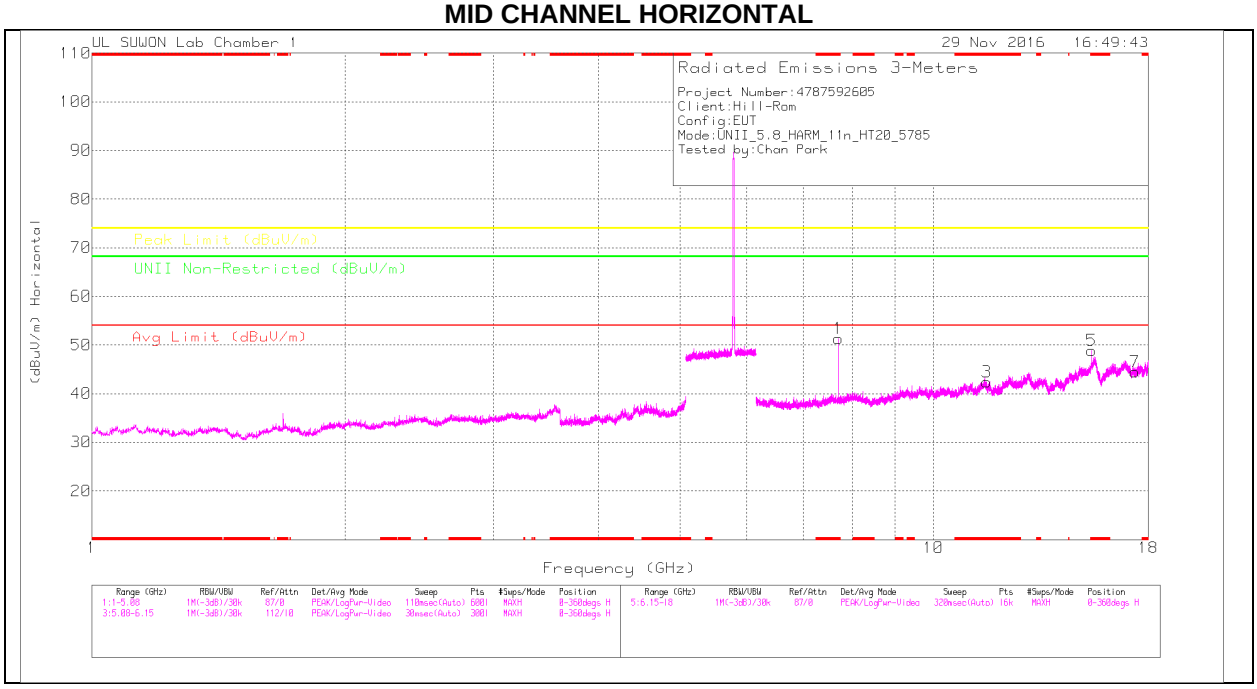
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.66	50.21	PK-U	36	-30.3	55.91	-	-	74	-18.09	-	-	261	173	H
* 7.66	45.75	ADR	36	-30.3	51.45	54	-2.55	-	-	-	-	261	173	H
* 7.66	45.83	PK-U	36	-30.3	51.53	-	-	74	-22.47	-	-	254	145	V
* 7.66	36.77	ADR	36	-30.3	42.47	54	-11.53	-	-	-	-	254	145	V

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

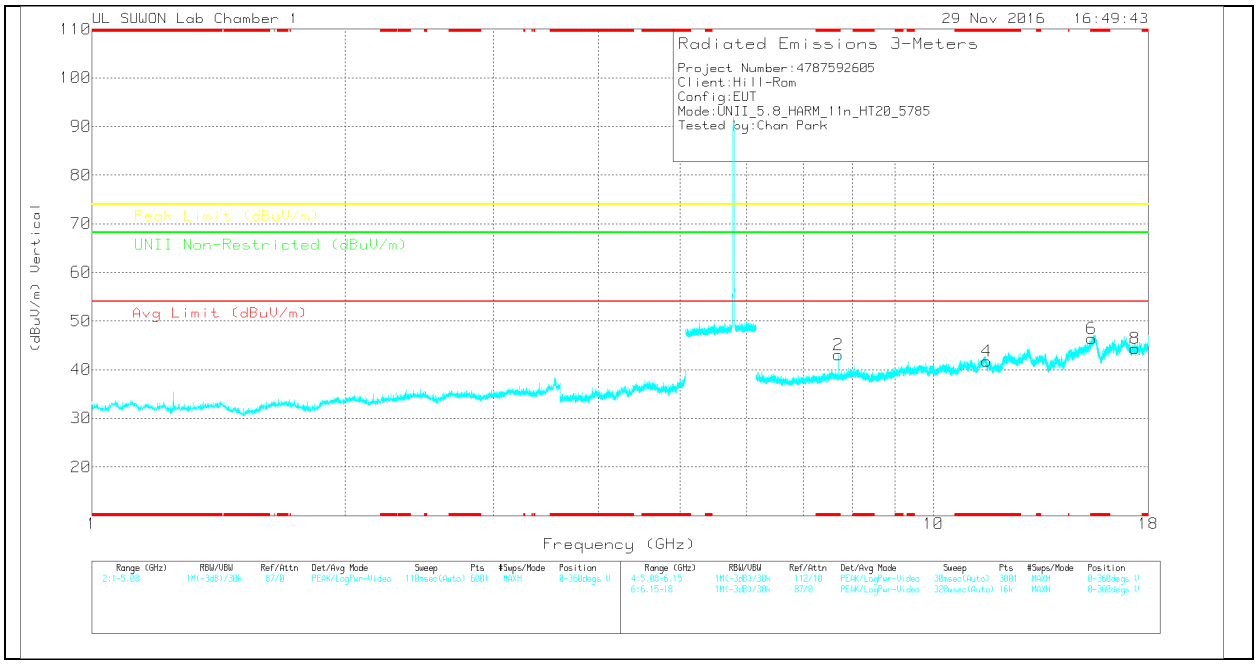
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL



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

MID CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 7.713	45.55	PK	36.1	-30.3	51.35	-	-	74	-22.65	-	-	0-360	150	H
3	* 11.57	30.9	PK	38.7	-27.2	42.4	-	-	74	-31.6	-	-	0-360	250	H
5	* 15.427	25.31	PK	40.2	-16.7	48.81	-	-	74	-25.19	-	-	0-360	250	H
7	17.356	25.01	PK	41.2	-21.7	44.51	-	-	-	-	68.2	-23.69	0-360	150	H
2	* 7.713	37.3	PK	36.1	-30.3	43.1	-	-	74	-30.9	-	-	0-360	150	V
4	* 11.574	30.38	PK	38.7	-27.3	41.78	-	-	74	-32.22	-	-	0-360	150	V
6	* 15.424	22.87	PK	40.2	-16.7	46.37	-	-	74	-27.63	-	-	0-360	250	V
8	17.36	24.78	PK	41.2	-21.6	44.38	-	-	-	-	68.2	-23.82	0-360	150	V

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

PK – Peak Detector

Radiated Emissions

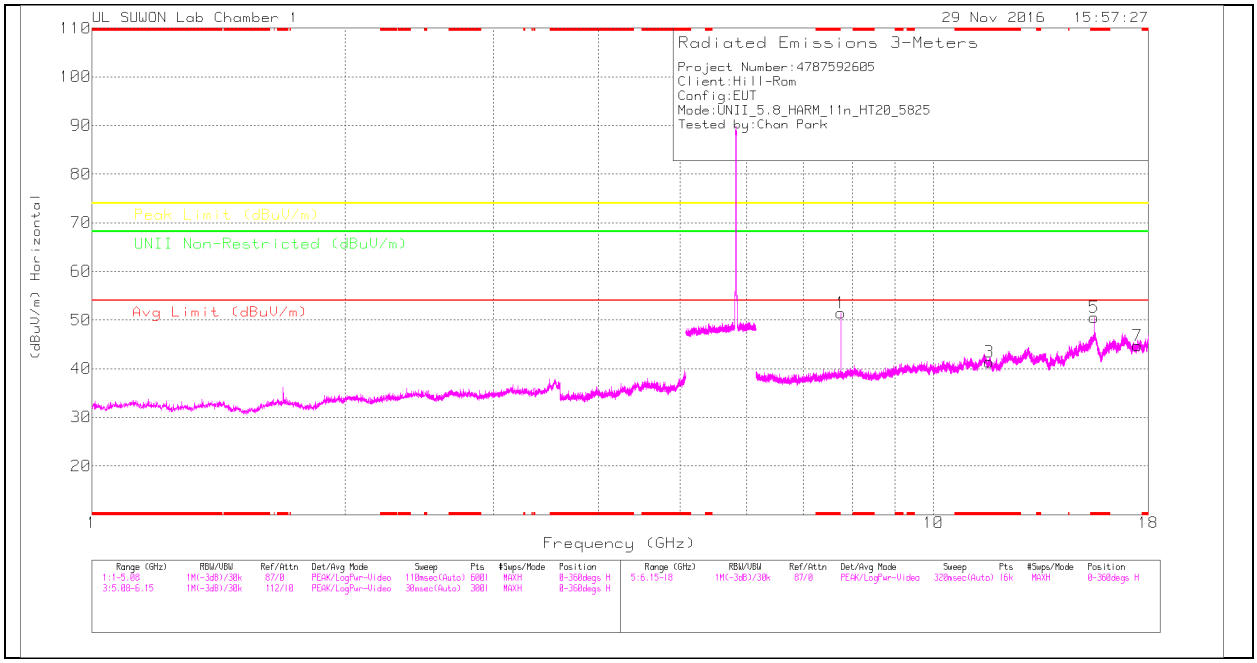
Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 7.713	50.16	PK-U	36.1	-30.3	55.96	-	-	74	-18.04	-	-	259	144	H
* 7.713	45.53	ADR	36.1	-30.3	51.33	54	-2.67	-	-	-	-	259	144	H
* 15.427	35.1	PK-U	40.2	-16.7	58.6	-	-	74	-15.4	-	-	303	247	H
* 15.427	25.42	ADR	40.2	-16.7	48.92	54	-5.08	-	-	-	-	303	247	H
* 7.714	46	PK-U	36.1	-30.3	51.8	-	-	74	-22.2	-	-	254	158	V
* 7.713	37.18	ADR	36.1	-30.3	42.98	54	-11.02	-	-	-	-	254	158	V

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

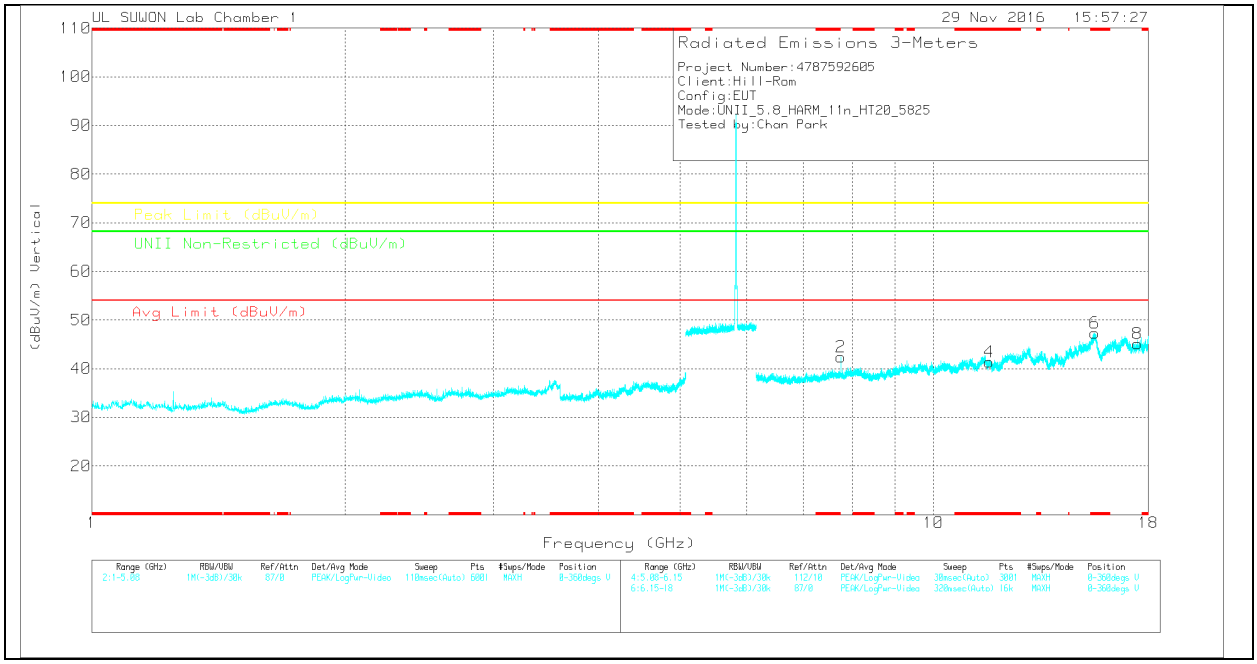
PK-U - U-NII: Maximum Peak

ADR - U-NII AD primary method, RMS average

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



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

HIGH CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	7.767	45.55	PK	36.2	-30.3	51.45	-	-	-	-	68.2	-16.75	0-360	150	H
3	* 11.65	30.31	PK	38.7	-27.6	41.41	-	-	74	-32.59	-	-	0-360	250	H
5	* 15.533	26.97	PK	40.2	-16.6	50.57	-	-	74	-23.43	-	-	0-360	150	H
7	17.475	25.25	PK	41.1	-21.6	44.75	-	-	-	-	68.2	-23.45	0-360	250	H
2	7.766	36.5	PK	36.2	-30.3	42.4	-	-	-	-	68.2	-25.8	0-360	150	V
4	* 11.647	30.32	PK	38.7	-27.6	41.42	-	-	74	-32.58	-	-	0-360	250	V
6	* 15.538	23.52	PK	40.2	-16.4	47.32	-	-	74	-26.68	-	-	0-360	150	V
8	17.473	25.51	PK	41.1	-21.5	45.11	-	-	-	-	68.2	-23.09	0-360	150	V

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

PK – Peak Detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00168717)_150619	Path_5	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
7.767	50.33	PK-U	36.2	-30.3	56.23	-	-	-	-	68.2	-11.97	264	168	H
* 15.533	35.92	PK-U	40.2	-16.6	59.52	-	-	74	-14.48	-	-	301	152	H
* 15.533	26.52	ADR	40.2	-16.6	50.12	54	-3.88	-	-	-	-	301	152	H
7.767	46.21	PK-U	36.2	-30.3	52.11	-	-	-	-	68.2	-16.09	256	289	V

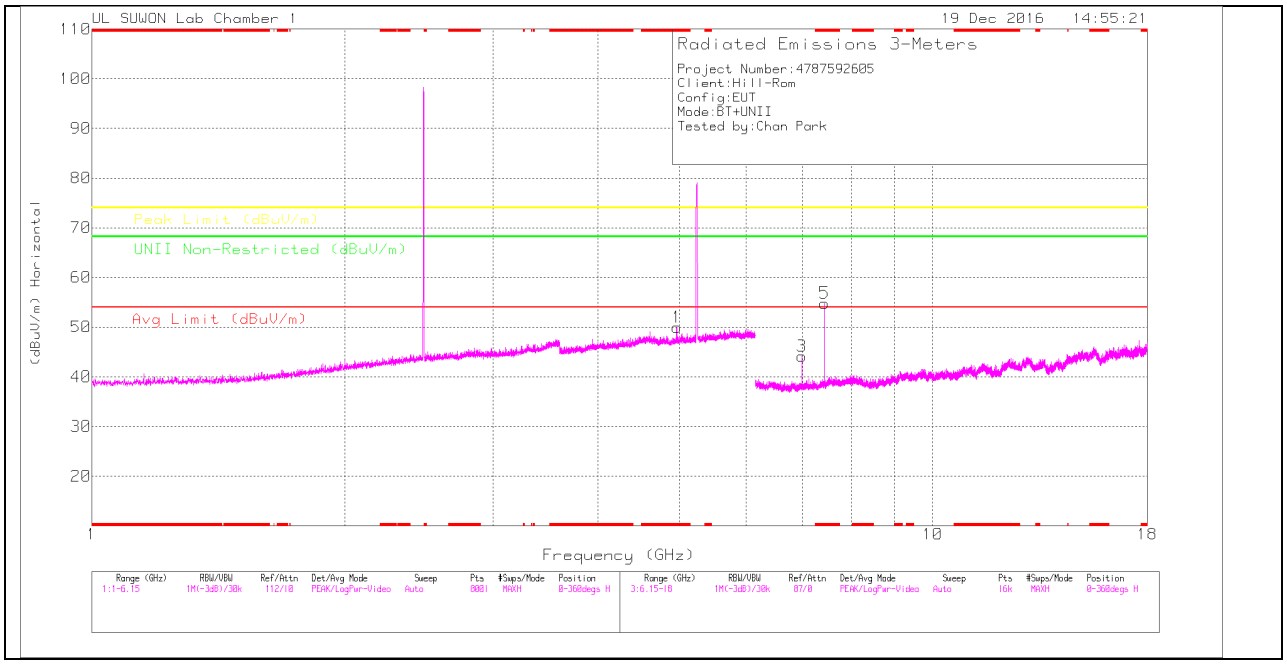
* - indicates frequency in CFR15.205/IC7.2.2 Restricted Band

PK-U - U-NII: Maximum Peak

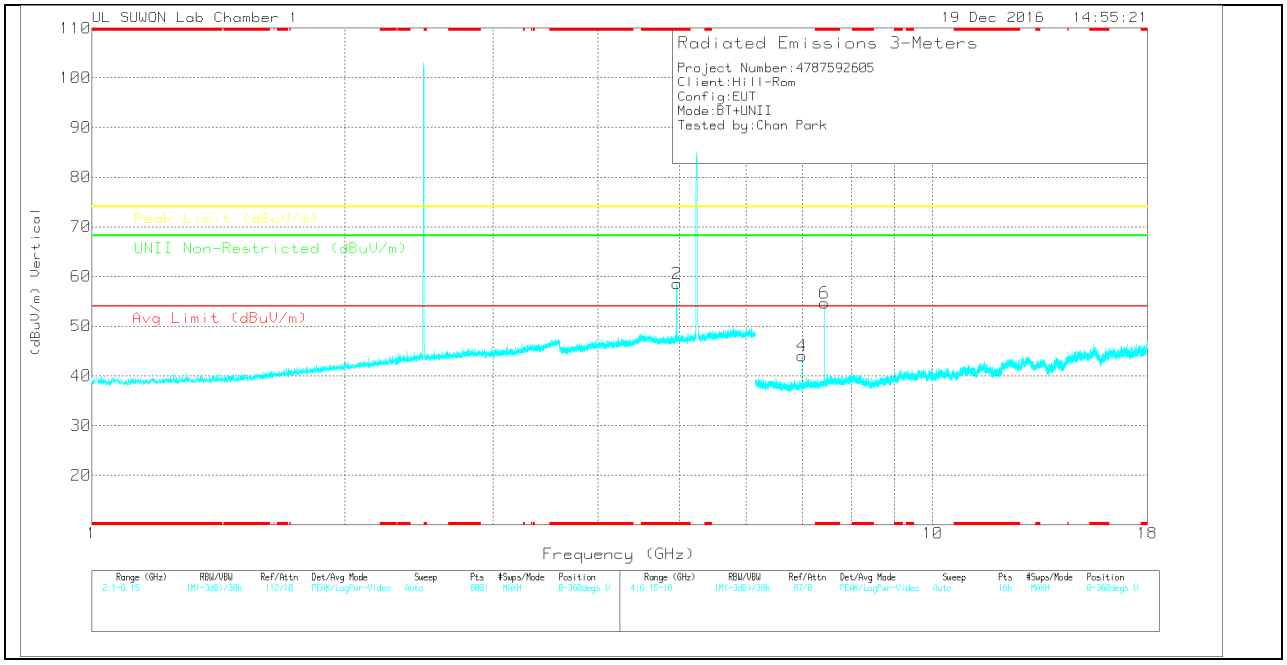
ADR - U-NII AD primary method, RMS average

11.2.3. Simultaneous TX Radiated Spurious Emissions Measurements

Bluetooth 2.4GHz & WLAN 5GHz HORIZONTAL



Bluetooth 2.4GHz & WLAN 5GHz VERTICAL



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

8 CHANNEL DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 7)_150619	10dB[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.96	39.97	PK	34	-24	49.97	-	-	74	-24.03	-	-	0-360	250	H
2	* 4.96	48.6	PK	34	-24	58.6	-	-	74	-15.4	-	-	0-360	250	V
3	6.986	38.72	PK	35.7	-30.3	44.12	-	-	-	-	68.2	-24.08	0-360	250	H
5	* 7.439	49.44	PK	35.8	-30.4	54.84	-	-	74	-19.16	-	-	0-360	150	H
4	6.986	38.67	PK	35.7	-30.3	44.07	-	-	-	-	68.2	-24.13	0-360	250	V
6	* 7.439	49.22	PK	35.8	-30.4	54.62	-	-	74	-19.38	-	-	0-360	150	V

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

PK – Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(001687 17)_150619	3GHz_HP[dB] 6GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	UNII Non-Restricted (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.96	56.19	PK2	34	-33.6	56.59	-	-	74	-17.41	-	-	78	148	H
* 4.96	42.49	VA1T	34	-33.6	42.89	54	-11.11	-	-	-	-	78	148	H
* 4.96	52.95	PK2	34	-33.6	53.35	-	-	74	-20.65	-	-	94	146	V
* 4.96	39.29	VA1T	34	-33.6	39.69	54	-14.31	-	-	-	-	94	146	V
6.987	46.36	PK-U	35.7	-30.3	51.76	-	-	-	-	68.2	-16.44	235	230	H
6.987	45.08	PK-U	35.7	-30.3	50.48	-	-	-	-	68.2	-17.72	212	301	V
* 7.44	58.67	PK2	35.8	-30.4	64.07	-	-	74	-9.93	-	-	40	208	H
* 7.44	41.3	VA1T	35.8	-30.4	46.7	54	-7.3	-	-	-	-	40	208	H
* 7.44	54.03	PK2	35.8	-30.4	59.43	-	-	74	-14.57	-	-	68	155	V
* 7.44	38.58	VA1T	35.8	-30.4	43.98	54	-10.02	-	-	-	-	68	155	V

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

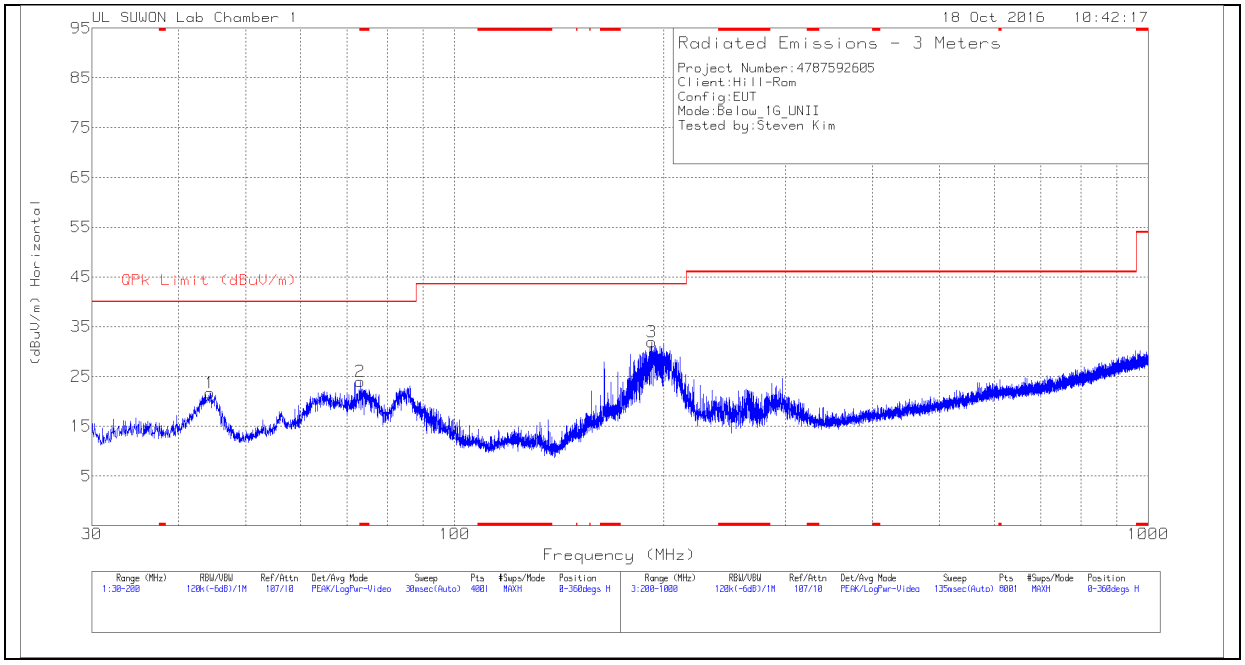
PK2 - KDB558074 Method: Maximum Peak

PK-U - U-NII: Maximum Peak

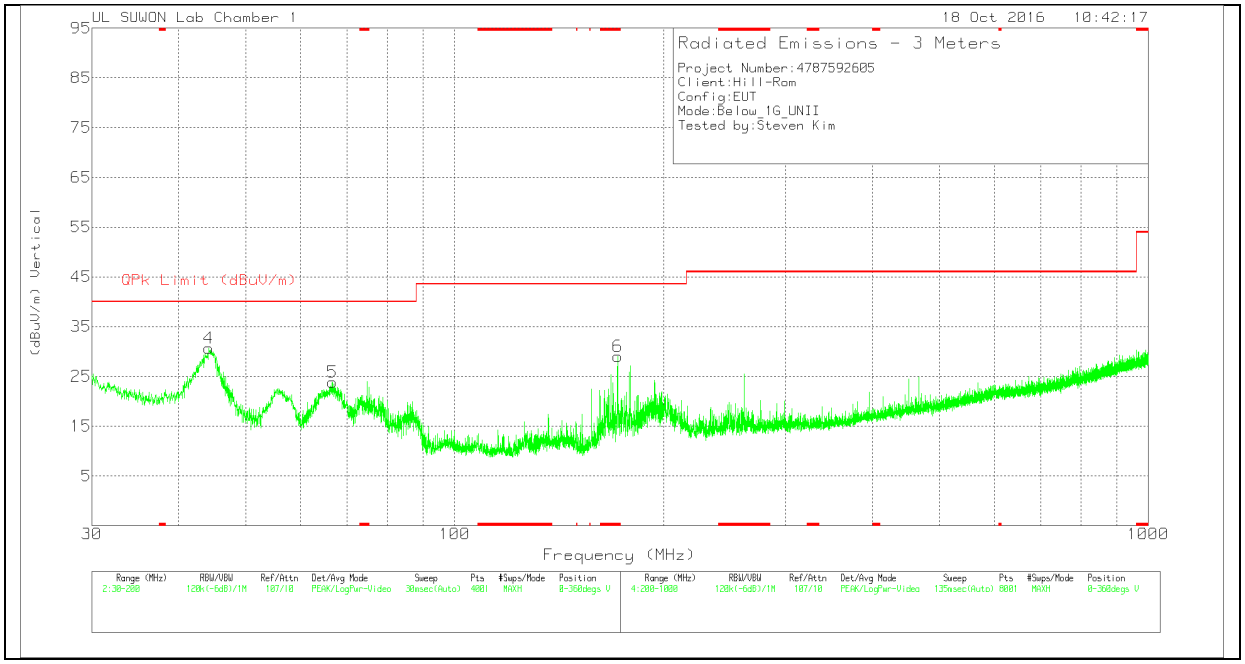
VA1T - FHSS: Linear Voltage Average VB=1/Ton where: Ton is transmit duration

12. WORST-CASE BELOW 1 GHz (in the 5.3 GHz Band)

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



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



Below 1G Data

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163-750	Bi-Log	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	44.365	38.38	Pk	13.5	-30.2	21.68	40	-18.32	0-360	300	H
2	* 73.095	44.88	Pk	8.8	-29.7	23.98	40	-16.02	0-360	200	H
3	192.4775	49.55	Pk	10.6	-28.2	31.95	43.52	-11.57	0-360	100	H
4	44.2375	47.44	Pk	13.4	-30.2	30.64	40	-9.36	0-360	100	V
5	66.6775	43.01	Pk	10.6	-29.8	23.81	40	-16.19	0-360	200	V
6	* 171.78	48.43	Pk	9	-28.4	29.03	43.52	-14.49	0-360	200	V

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

Pk - Peak detector

13. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

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

* Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

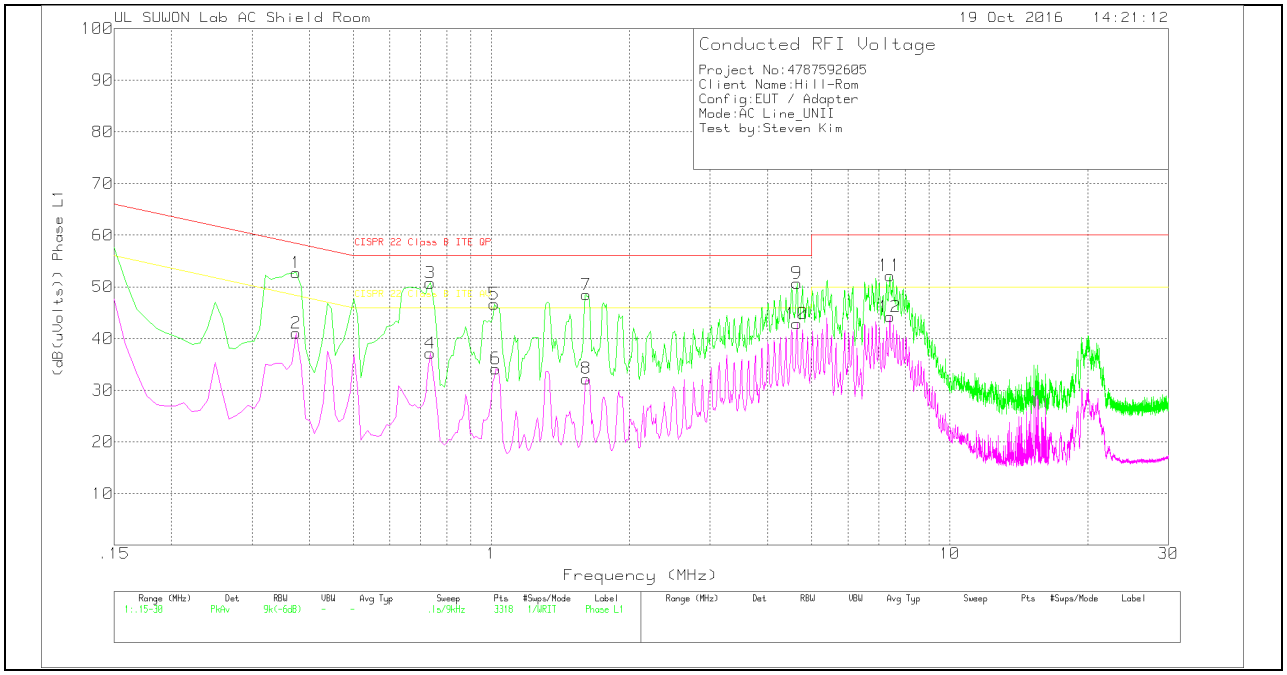
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

6 WORST EMISSIONS

LINE 1 PLOT



LINE 1 RESULTS

Phase L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_with ex-cord_L1	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
1	.375	42.85	Pk	9.9	0	52.75	58.39	-5.64	-	-
2	.375	31.17	Av	9.9	0	41.07	-	-	48.39	-7.32
3	.735	40.85	Pk	9.9	0	50.75	56	-5.25	-	-
4	.735	27.24	Av	9.9	0	37.14	-	-	46	-8.86
5	1.014	36.88	Pk	9.8	0	46.68	56	-9.32	-	-
6	1.023	24.36	Av	9.8	0	34.16	-	-	46	-11.84
7	1.608	38.66	Pk	9.7	.1	48.46	56	-7.54	-	-
8	1.608	22.43	Av	9.7	.1	32.23	-	-	46	-13.77
9	4.641	40.83	Pk	9.8	.1	50.73	56	-5.27	-	-
10	4.641	32.99	Av	9.8	.1	42.89	-	-	46	-3.11
11	7.404	42.17	Pk	9.9	.1	52.17	60	-7.83	-	-
12	7.404	34.23	Av	9.9	.1	44.23	-	-	50	-5.77

Pk - Peak detector

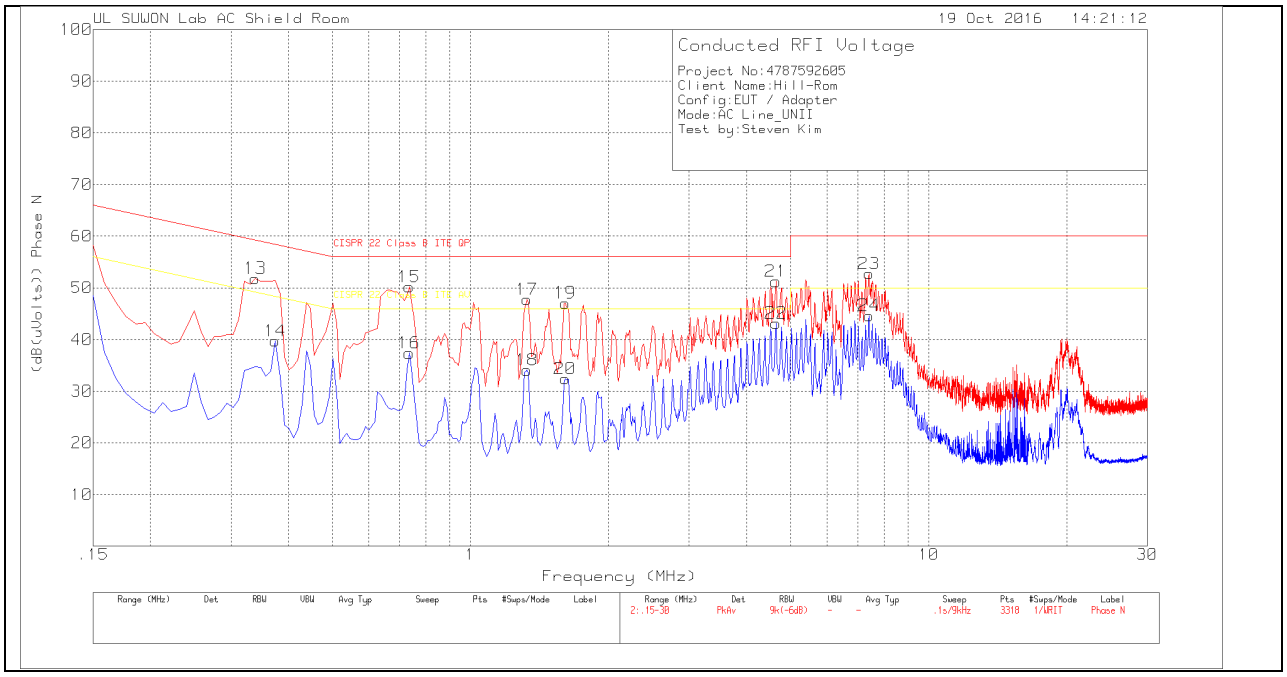
Av - Average detection

Phase L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_with ex-cord_L1	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
.3786	41.14	Qp	9.9	0	51.04	58.31	-7.27	-	-
.7314	35.57	Qp	9.9	0	45.47	56	-10.53	-	-
4.6437	37.75	Qp	9.8	.1	47.65	56	-8.35	-	-
7.4031	39.16	Qp	9.9	.1	49.16	60	-10.84	-	-

Qp - Quasi-Peak detector

LINE 2 PLOT



LINE 2 RESULTS

Phase N .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	101837_with ex-cord_N	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
13	.339	42.01	Pk	9.8	0	51.81	59.23	-7.42	-	-
14	.375	29.82	Av	9.9	0	39.72	-	-	48.39	-8.67
15	.735	40.28	Pk	9.9	0	50.18	56	-5.82	-	-
16	.735	27.47	Av	9.9	0	37.37	-	-	46	-8.63
17	1.329	37.87	Pk	9.8	.1	47.77	56	-8.23	-	-
18	1.329	24.18	Av	9.8	.1	34.08	-	-	46	-11.92
19	1.608	37.25	Pk	9.7	.1	47.05	56	-8.95	-	-
20	1.608	22.63	Av	9.7	.1	32.43	-	-	46	-13.57
21	4.641	41.34	Pk	9.8	.1	51.24	56	-4.76	-	-
22	4.641	33.26	Av	9.8	.1	43.16	-	-	46	-2.84
23	7.404	42.62	Pk	10	.1	52.72	60	-7.28	-	-
24	7.404	34.51	Av	10	.1	44.61	-	-	50	-5.39

Pk - Peak detector

Av - Average detection

Phase N .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	101837_with ex-cord_N	CE Shield Room	Corrected Reading (dB(uVolts))	CISPR 22 Class B ITE QP	Margin (dB)	CISPR 22 Class B ITE AV	Margin (dB)
.3435	38.35	Qp	9.8	0	48.15	59.12	-10.97	-	-
.7314	35.66	Qp	9.9	0	45.56	56	-10.44	-	-
4.6446	37.9	Qp	9.8	.1	47.8	56	-8.2	-	-
7.4031	39.39	Qp	10	.1	49.49	60	-10.51	-	-

Qp - Quasi-Peak detector