CIIPC TEST REPORT

Report Number : 11360406-E2V2

Applicant	:	SONOS INC. 614 CHAPALA STREET SANTA BARBARA, CA 93101, U.S.A.
Model	:	PLAY : 1 (Type 1)
FCC ID	:	SBVRM007
IC ID	:	5373A-RM007
EUT Description	:	802.11a/b/g/n 2x2 CLIENT DEVICE
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E INDUSTRY CANADA RSS-247 ISSUE 1 INDUSTRY CANADA RSS-GEN Issue 4

Date of Issue:
10/7/2016

Prepared by:
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/3/16	Initial Issue	D. CORONIA
V2	10/7/16	Updated Section 2.3, 2.5, 2.6, 3.7 & 5.3	D. CORONIA

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONOS, INC.
614 CHAPALA STREET
SANTA BARBARA, CA 93101, U.S.A.

EUT DESCRIPTION: 802.11 a/b/g/n 2x2 CLIENT DEVICE

MODEL: PLAY: 1 (TYPE 1)

SERIAL NUMBER: 94-9F-3E-00-03-74-B

DATE TESTED: AUGUST 8 – AUGUST 12, 2016

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E (excluded DFS report)	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.

Approved & Released For
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UL Verification Services Inc.

Prepared By:

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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
☐ Chamber A(IC: 2324B-1)	☐ Chamber D(IC: 2324B-4)
☒ Chamber B(IC: 2324B-2)	☐ Chamber E(IC: 2324B-5)
☐ Chamber C(IC: 2324B-3)	☐ Chamber F(IC: 2324B-6)
	☐ Chamber G(IC: 2324B-7)
	☐ Chamber H(IC: 2324B-8)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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. SUMMARY TABLE

FCC Part Section	RSS Section	Test Description	Test Limit	Test Condition	Test Result
§15.407 (a)	RSS-247	Occupied Band width (26dB)	N/A	Conducted	Refer to original
§15.407	RSS-247 6.2.4	6dB Band width (5.8Ghz)	>500KHz		Refer to original
§15.407 (a)(1)	RSS-247 6.2	TX Cond. Power5.15-5.25 GHz	<24dBm (FCC) / <23 dBm EIRP or <10+10Log(99% BW) EIRP (IC)		Refer to original
§15.407 (a)(2)	RSS-247 6.2	TX Cond. Power 5.25-5.35 & 5.47-5.725 GHz	<24dBm or <11+10log (OBW) (FCC) / <24 dBm or <11+10Log(99% BW) (IC)		Refer to original
§15.407 (a)(3)	RSS-247 6.2.4	TX Cond. Power 5.725-5.850 GHz	<30dBm		Refer to original
§15.407 (a)(1)	RSS-247 6.2	PSD (5.15-5.25 GHz)	<11dBm/MHz (FCC) <10 dBm/MHz EIRP (IC)		Refer to original
§15.407 (a)(2)	RSS-247 6.2	PSD (5.3,5.5GHz)	<11dBm/MHz		Refer to original
§15.407 (a)(3)	RSS-247 6.2.4	PSD (5.8GHz)	<30dBm per 500kHz		Refer to original
§15.207 (a) §15.407(b) (6)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10		Pass
§15.407 (b) & 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	<54dBuV/m	Radiated	Pass
§15.407 (h)(2)	RSS-247 6.3	Dynamic Frequency Selection	N/A	Radiated / Condcuted	Separate report

2.3. 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 v01r03, KDB 662911, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 1.

2.4. 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:

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

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

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

2.5. MEASUREMENT METHOD

Unwanted emissions in restricted bands: KDB 789033 D02 v01r03, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v01r03, Sections G.3, G.4, and G.5.

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

2.6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List					
Description	Manufacturer	Model	T No.	Cal Date	Cal Due
Amplifier, 1 - 18GHz	Miteq	AFS42	493	03/09/16	03/09/17
Amplifier, 1 - 26.5GHz, 23.5dB	Agilent	8449B	404	07/05/16	07/05/17
Amplifier, 26 - 40GHz	Miteq	NSP 4000 SP2	88	04/07/16	04/07/17
Amplifier, 10KHz to 1GHz, 32dB	HP	8447D	10	02/01/16	02/01/17
Antenna, Broadband Hybrid 30MHz to 2000MHz	Sunol Science	JB1	130	09/01/15	09/01/16
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	345	03/07/16	03/07/17
Antenna, Horn 18-26.5GHz	Seavey Division	MWH-1826/B	449	05/26/16	5/26/2017
Antenna, Horn26.5 - 40 GHz Horn Antenna	ARA	MWH-2640/B	446	05/25/16	5/25/2017
EMI Test Receiver 9Khz-7GHz	R& S	ESCI7	100935	09/10/15	09/10/16
LISN for Conducted Emissions	Fischer	50/250-25-2	161124	09/16/15	09/16/16
Loop Antenna, 10KHz-30MHz	EMCO	6502	35	03/24/16	03/24/17
Power Cable, Line Conducted Emissions	U L	PG1	N/A	07/28/16	07/28/17
Power Meter, P-series single channel	Keysight	N1911A	1262	07/08/16	07/08/17
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Agilent	N1921A	750	09/17/25	09/17/16
PSA Spectrum Analyzer 40GHz	Agilent	E4446A	146	07/13/16	07/13/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	907	01/06/16	01/06/17
Filter, HPF 6 HPF	Micro-Tronics	HPS17542	483	03/09/16	03/09/17
Filter, HPF 3GHz	Micro-Tronics	HPM17543	485	03/09/16	03/09/17

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, Apr 26, 2016
Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015
Antenna Port Software	UL	UL RF	Ver 5.1.1, July 15, 2016

3. EQUIPMENT UNDER TEST

3.1. DESCRIPTION OF EUT

The EUT is an 802.11 a/b/g/n 2x2 CLIENT DEVICE

3.2. MAXIMUM OUTPUT POWER

Please refer to report, UL 13U14836-2B for 5.2, 5.3, & 5.6GHz bands.
Please refer to report, UL 15U21732-E1 for 5.8GHz band.
The output powers (W5.2/5.3/5.6/5.8) were verified and measured at same or lower power setting compared to the original certification testing level.

3.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes right and left dipole PCB antennas, with maximum gains as below:

Frequency (MHz)	Max. Peak Gain with Cable Loss (dBi) (Main-Right Antenna)	Max. Peak Gain with Cable Loss (dBi) (Aux-Left Antenna)
5150 - 5850	3.59	3.29

3.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was Atheros Radio Test 2 (ART2-GUI).

3.5. 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.

Radiated emission below 1GHz, above 18GHz, 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 output powers (W5.2/5.3/5.6/5.8) were measured at same or lower power setting compares to the original certification testing level; thus, the conducted test was not performed for these bands, only radiated emission. Please refer to reports: UL 13U14836-2B (5.2/5.3/5.6 GHz) and UL 15U21732-E1 (5.8 GHz) for details.

Worst-case data rates as provided by the client were: 802.11n HT20mode: MCS9

The EUT was placed on normal orientation, standing position and all radiated emissions were performed with the EUT as shown on the setup photo.

3.6. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The purpose of this C2PC: Front end module changed (i.e. LAN, PA and Tx/Rx switch).

3.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	**Manufacturer**	**Model**	**Serial Number**
Laptop	Lenovo	X200	R9-0YM4F
AC/DC Adapter	Lenovo	ADLX90NCT2A	11S45N0311Z1ZLZ632KDK

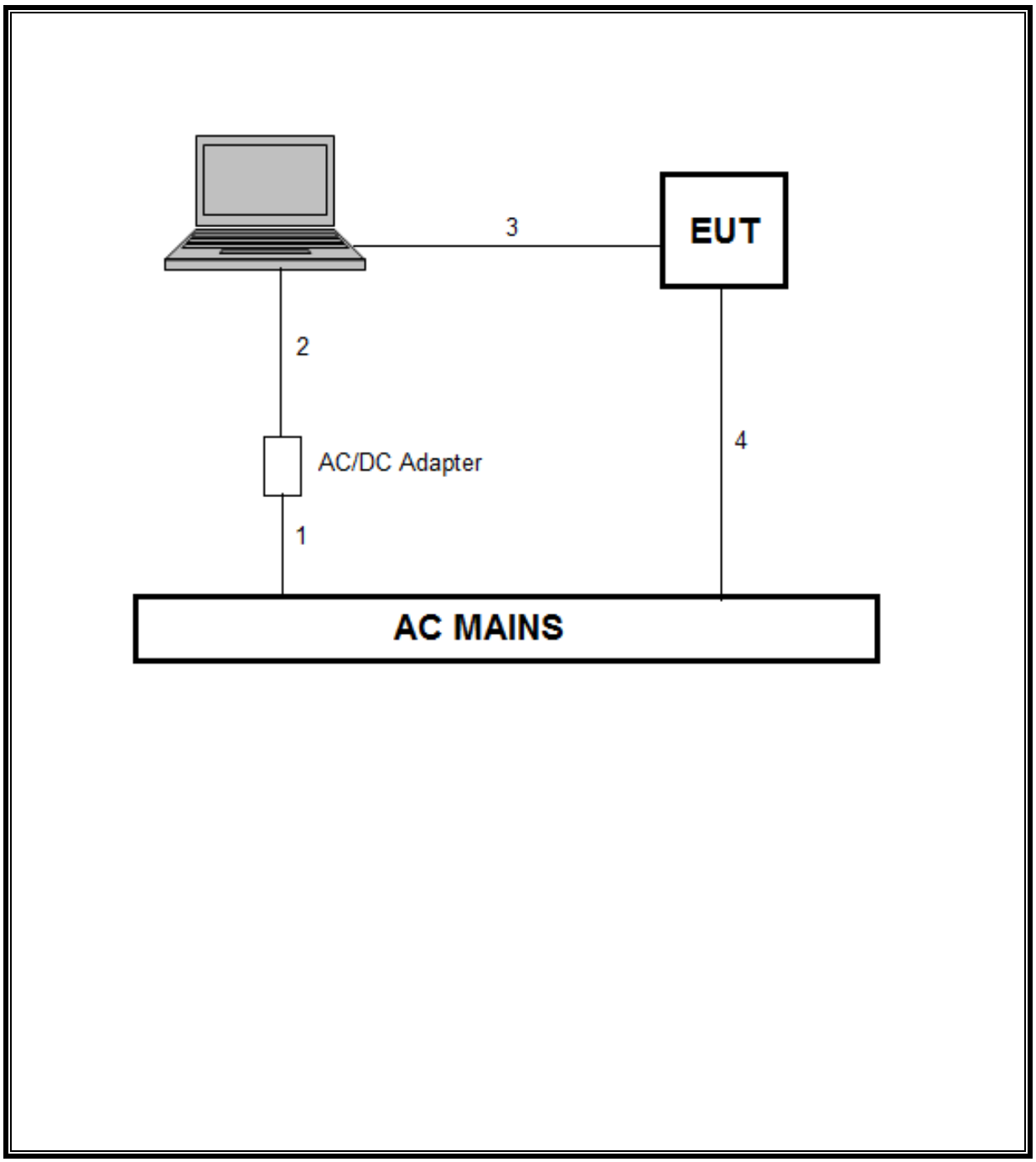
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC Power	1	AC	Unsheilded	1	AC Mains to AC/DC Adapter
2	DC Power	1	DC	Sheilded	1.2	AC/DC Adapter to Laptop
3	Ethernet	1	RJ45	Unsheilded	1.5	Laptop to EUT
4	AC Power	1	AC	Unsheilded	1.2	AC Mains to EUT

TEST SETUP

The EUT and the support laptop were connected during the tests. A command prompt was used to select channels and power settings from a list of commands to exercise the radio card.

SETUP DIAGRAM FOR TESTS



4. ANTENNA PORT TEST RESULTS

4.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

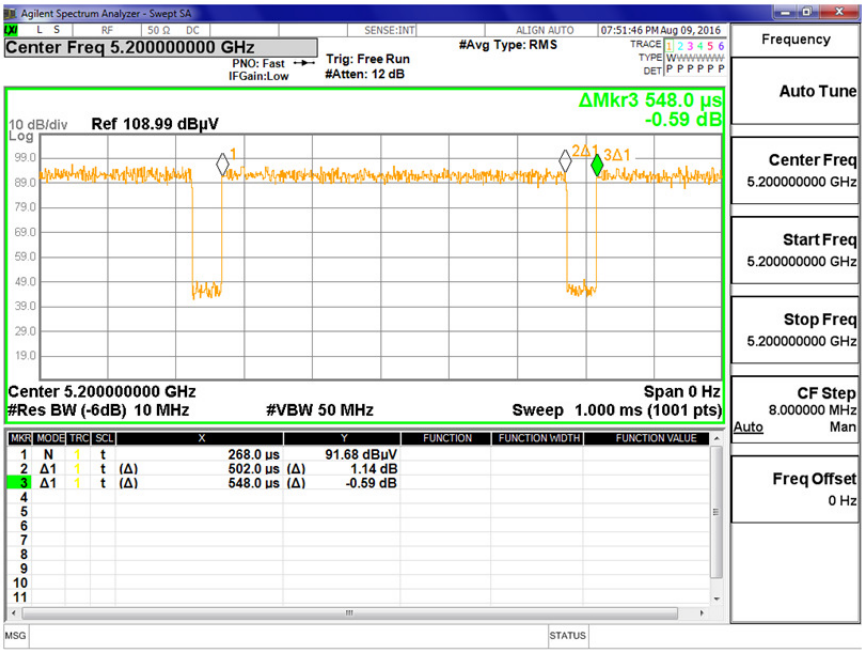
KDB 789033 Zero-Span Spectrum Analyzer Method.

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)
802.11n HT20 CDD	0.502	0.548	0.916	91.61%	0.38	1.992

DUTY CYCLE PLOTS

DUTY CYCLE 802.11n HT20 CDD MODE



ID:	44350	Date:	8/9/2016

4.2. 802.11n HT20 MODE IN THE 5.2 GHz BAND

Please refer to report, UL 13U14836-2B for conducted test.

4.3. 802.11n HT20 MODE IN THE 5.3 GHz BAND

Please refer to report, UL 13U14836-2B for conducted test.

4.4. 802.11n HT20 MODE IN THE 5.6 GHz BAND

Please refer to report, UL 13U14836-2B for conducted test.

4.5. 802.11n HT20 MODE IN THE 5.8 GHz BAND

Refer to report, UL 15U21732-E1 for conducted test.

5. RADIATED TEST RESULTS

5.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

IC RSS-GEN Clause 7 (Receiver)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300m	2400/F(kHz) @ 300m
0.490-1.705	24000/F(kHz) @ 30m	24000/F(kHz) @ 30m
1.705-30.0	30 @ 30m	30 @ 30m
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. 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.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements.
Note: The pre-scan measurements above 1GHz the VBW is set to 30 kHz.

The spectrum from 9 kHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

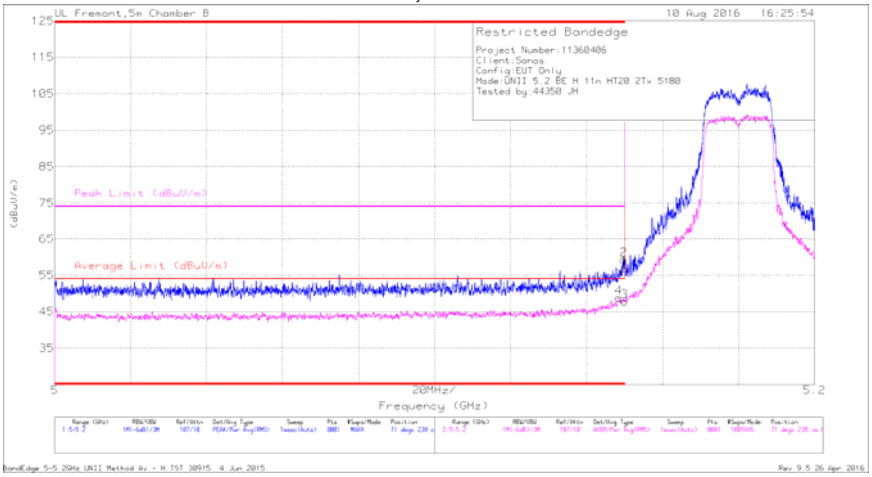
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

5.2. TRANSMITTER ABOVE 1 GHz

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

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL

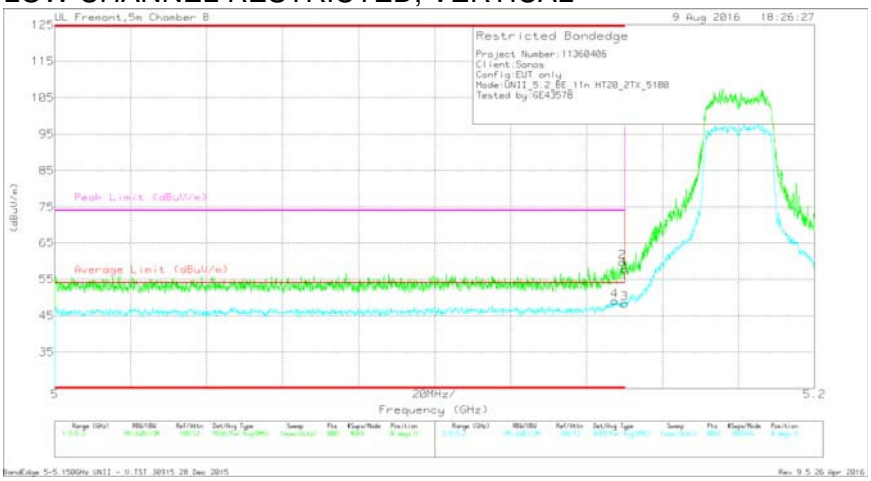


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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	* 5.15	47.59	Pk	34.2	-22.6	0	59.19	-	-	74	-14.81	71	238	H
4	* 5.148	36.81	RMS	34.2	-22.6	.38	48.79	54	-5.21	-	-	71	238	H
1	5.15	45.31	Pk	34.2	-22.6	0	56.91	-	-	74	-17.09	71	238	H
3	5.15	35.85	RMS	34.2	-22.6	.38	47.83	54	-6.17	-	-	71	238	H

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

LOW CHANNEL RESTRICTED, VERTICAL



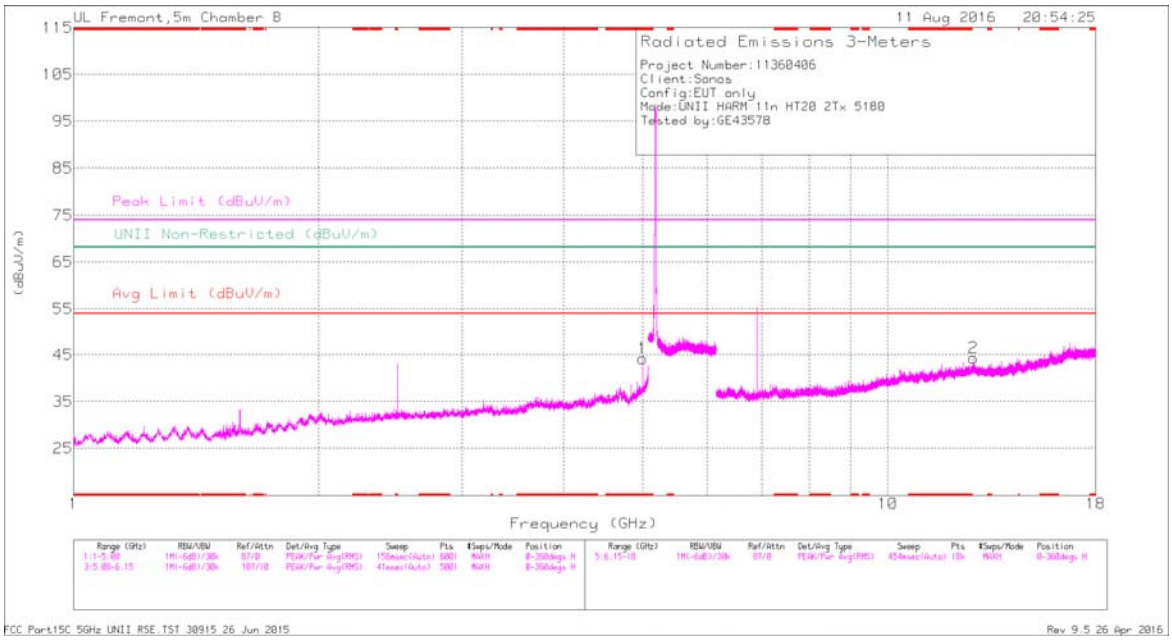
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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	* 5.149	45.4	Pk	34.2	-19.9	0	59.7	-	-	74	-14.3	0	167	V
4	* 5.147	33.89	RMS	34.2	-19.4	.38	49.07	54	-4.93	-	-	0	167	V
1	5.15	43.43	Pk	34.2	-19.9	0	57.73	-	-	74	-16.27	0	167	V
3	5.15	33.57	RMS	34.2	-19.9	.38	48.25	54	-5.75	-	-	0	167	V

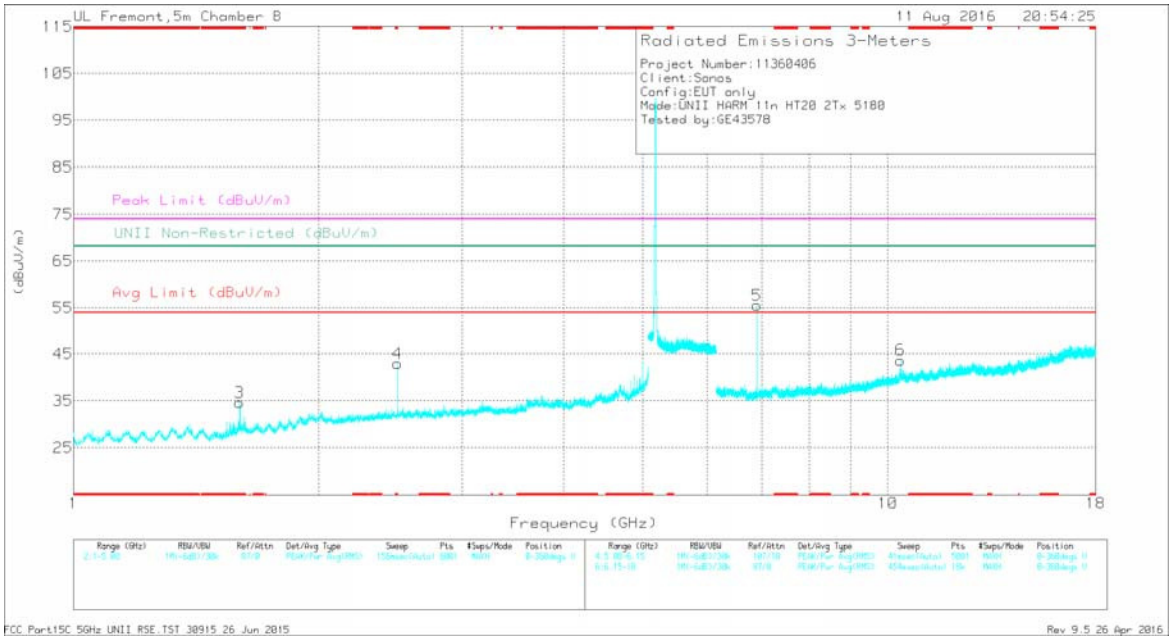
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



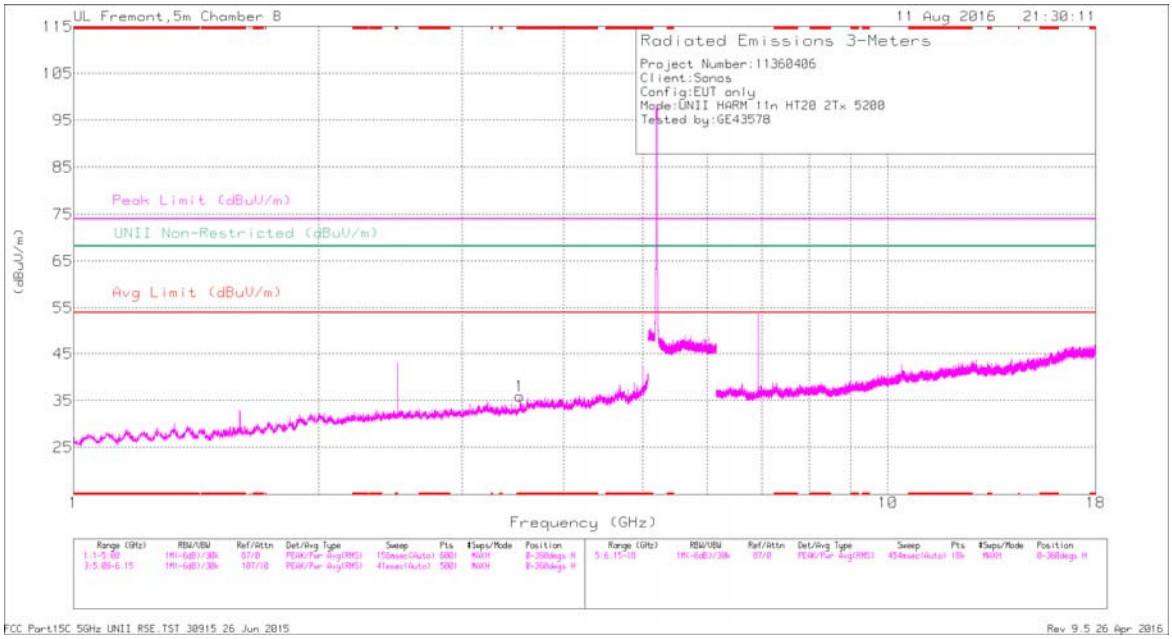
DATA

Trace Markers

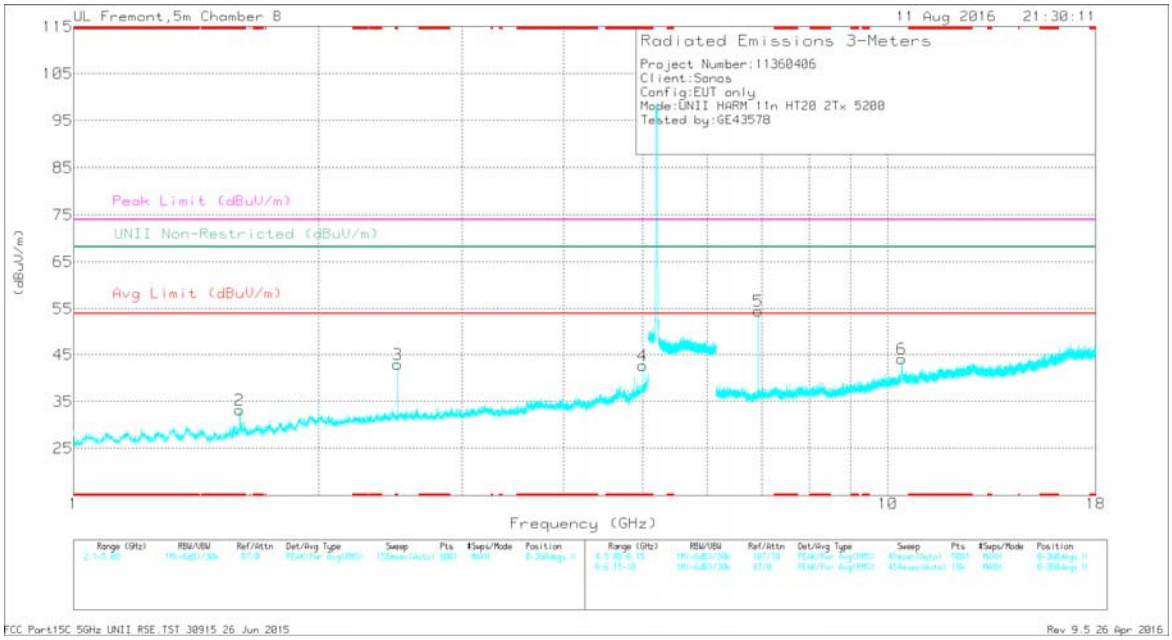
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 5	44.72	PK-U	34.1	-30.1	0	48.72	-	-	74	-25.28	-	-	323	119	H
	* 5	36.47	ADR	34.1	-30.1	.38	40.85	54	-13.15	-	-	-	-	323	119	H
3	* 1.6	46.59	PK-U	28.1	-35.1	0	39.59	-	-	74	-34.41	-	-	216	192	V
	* 1.6	39.5	ADR	28.1	-35.1	.38	32.88	54	-21.12	-	-	-	-	216	192	V
4	2.501	48.42	PK-U	32.3	-34.1	0	46.62	-	-	-	-	68.2	-21.58	9	189	V
	6.907	52.3	PK-U	35.5	-31	0	56.8	-	-	-	-	68.2	-11.4	212	189	V
5	10.359	40.3	PK-U	37.6	-26	0	51.9	-	-	-	-	68.2	-16.3	167	109	V
6	12.729	34.99	PK-U	39.4	-24.9	0	49.49	-	-	-	-	68.2	-18.71	270	102	H
2	* 5	44.72	PK-U	34.1	-30.1	0	48.72	-	-	74	-25.28	-	-	323	119	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 HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



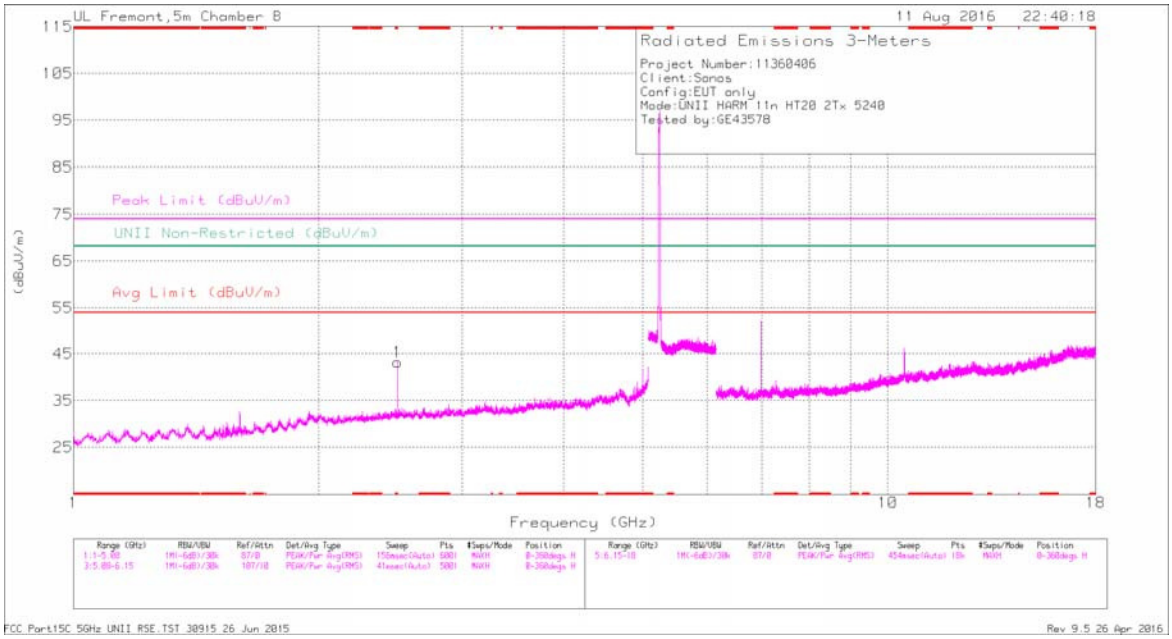
DATA

Trace Markers

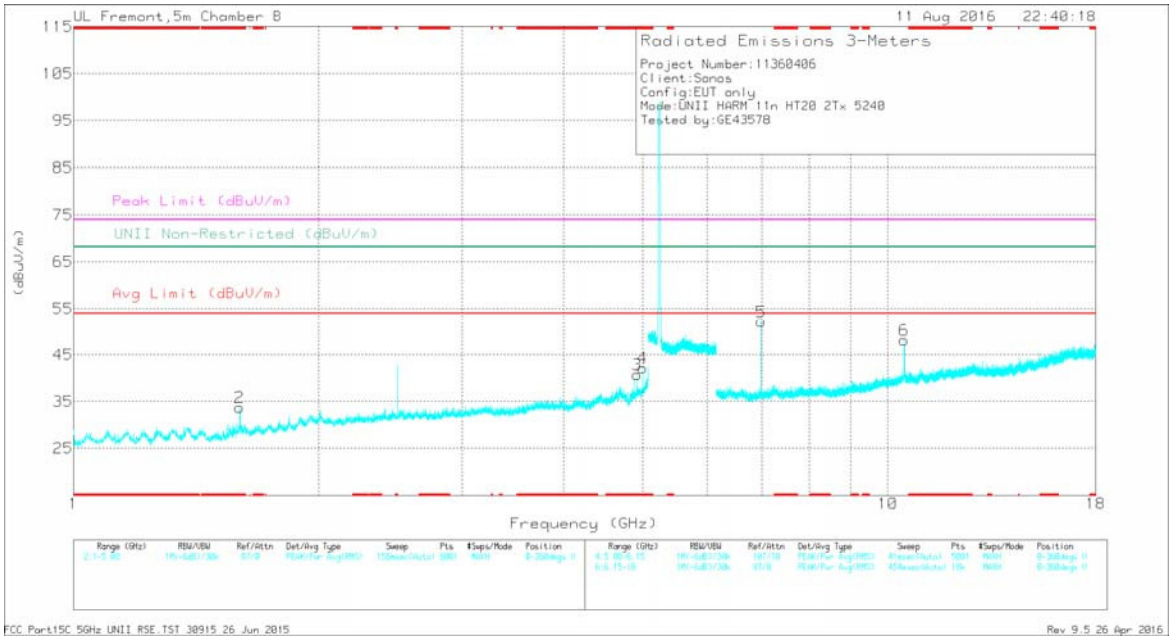
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.534	40.24	PK-U	32.9	-32.8	0	40.34	-	-	74	-33.66	-	-	90	214	H
	* 3.535	29.06	ADR	32.9	-32.8	.38	29.54	54	-24.46	-	-	-	-	90	214	H
2	* 1.601	46.39	PK-U	28.1	-35.1	0	39.39	-	-	74	-34.61	-	-	214	202	V
	* 1.6	38.85	ADR	28.1	-35.1	.38	32.23	54	-21.77	-	-	-	-	214	202	V
4	* 5	44.19	PK-U	34.1	-30.1	0	48.19	-	-	74	-25.81	-	-	196	102	V
	* 5	36.93	ADR	34.1	-30.1	.38	41.31	54	-12.69	-	-	-	-	196	102	V
3	* 2.5	48.28	PK-U	32.3	-34.1	0	46.48	-	-	74	-27.52	-	-	14	210	V
	*2.5	45.17	ADR	32.3	-34.1	.38	43.75	54	-10.25	-	-	-	-	14	210	V
5	6.933	50.87	PK-U	35.5	-30.8	0	55.57	-	-	-	-	68.2	-12.63	211	205	V
6	10.399	39.18	PK-U	37.6	-25.5	0	51.28	-	-	-	-	68.2	-16.92	167	102	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

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Trace Markers

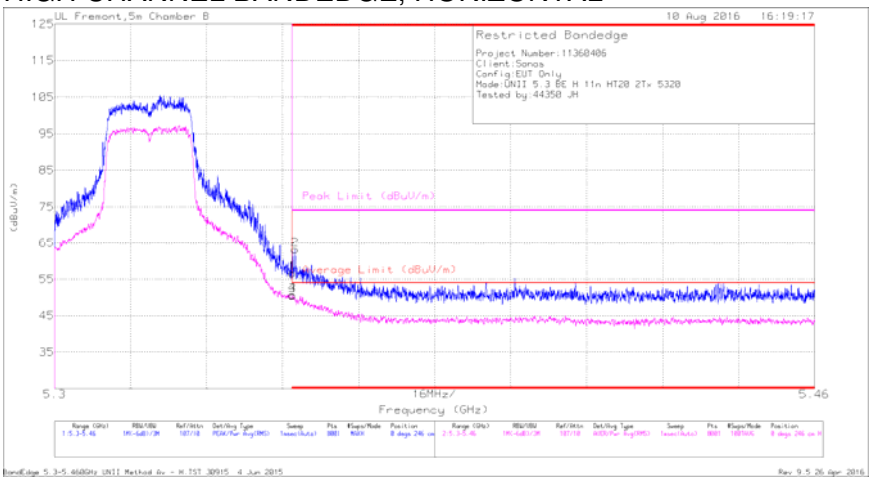
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 1.6	46.04	PK-U	28.1	-35.1	0	39.04	-	-	74	-34.96	-	-	217	197	V
	* 1.6	39.1	ADR	28.1	-35.1	.38	32.48	54	-21.52	-	-	-	-	217	197	V
3	* 4.92	45	PK-U	33.9	-31.6	0	47.3	-	-	74	-26.7	-	-	355	217	V
	* 4.92	36.56	ADR	33.9	-31.6	.38	39.24	54	-14.76	-	-	-	-	355	217	V
4	* 5	43.93	PK-U	34.1	-30.1	0	47.93	-	-	74	-26.07	-	-	195	107	V
	* 5	36.8	ADR	34.1	-30.1	.38	41.18	54	-12.82	-	-	-	-	195	107	V
1	2.501	48.13	PK-U	32.3	-34.1	0	46.33	-	-	-	-	68.2	-21.87	332	107	H
5	6.987	48.65	PK-U	35.5	-30.2	0	53.95	-	-	-	-	68.2	-14.25	213	198	V
6	10.479	41.23	PK-U	37.7	-25.7	0	53.23	-	-	-	-	68.2	-14.97	261	234	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

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

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL

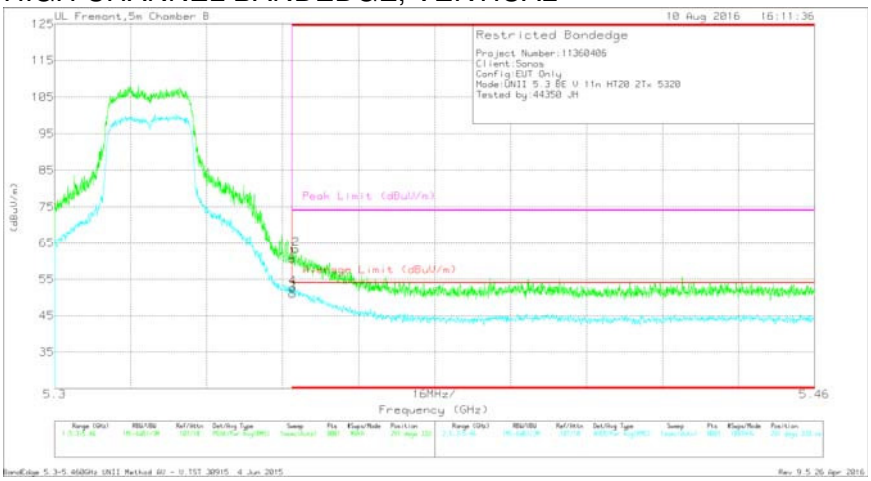


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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	44.79	Pk	34.5	-22.7	0	56.59	-	-	74	-17.41	0	246	H
2	* 5.351	51.41	Pk	34.5	-22.7	0	63.21	-	-	74	-10.79	0	246	H
3	* 5.35	38.31	RMS	34.5	-22.7	.38	50.49	54	-3.51	-	-	0	246	H
4	* 5.35	38.47	RMS	34.5	-22.7	.38	50.65	54	-3.35	-	-	0	246	H

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

HIGH CHANNEL BANDEDGE, VERTICAL



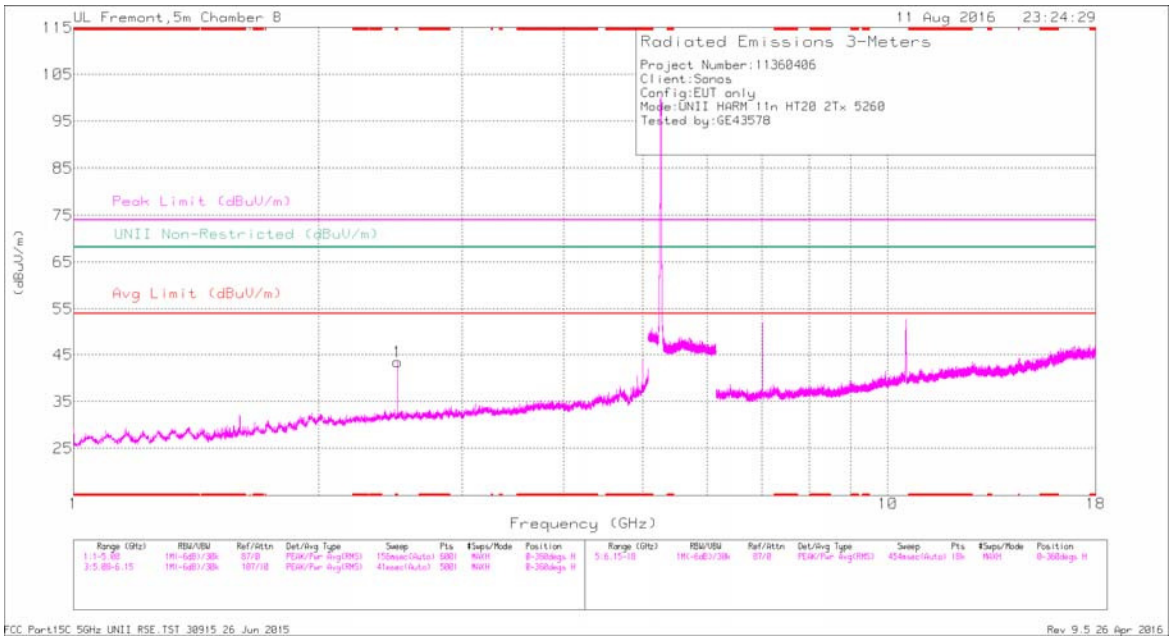
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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	48.84	Pk	34.5	-22.7	0	60.64	-	-	74	-13.36	291	333	V
2	* 5.351	51.48	Pk	34.5	-22.7	0	63.28	-	-	74	-10.72	291	333	V
3	* 5.35	38.85	RMS	34.5	-22.7	.38	51.03	54	-2.97	-	-	291	333	V
4	* 5.35	40.52	RMS	34.5	-22.7	.38	52.7	54	-1.3	-	-	291	333	V

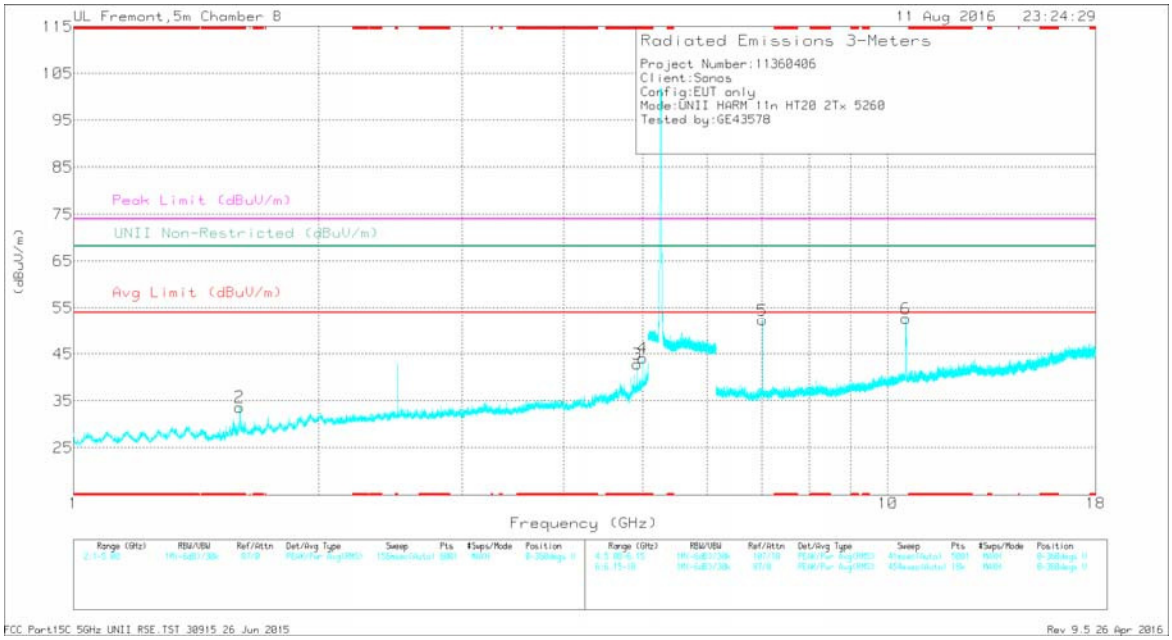
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



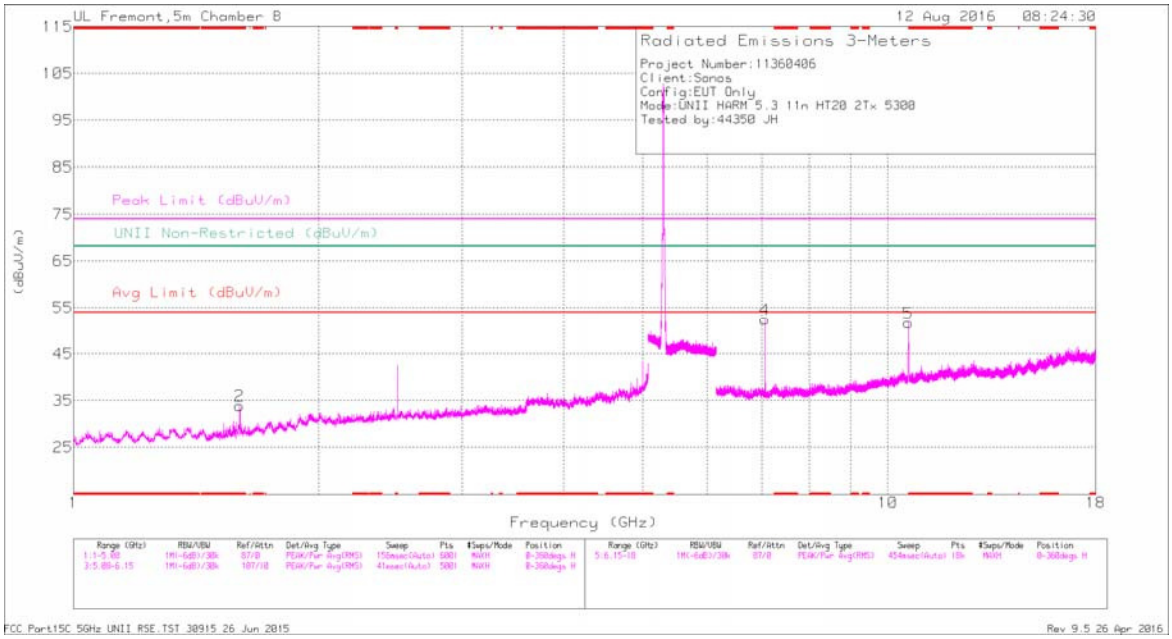
DATA

Trace Markers

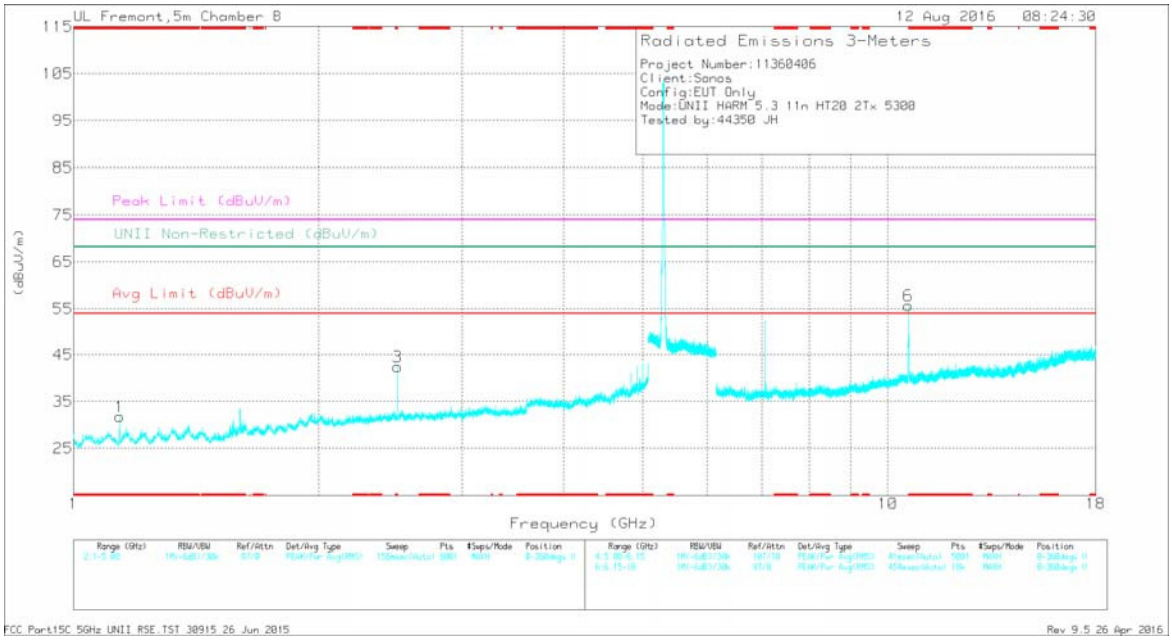
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 1.6	45.8	PK-U	28.1	-35.1	0	38.8	-	-	74	-35.2	-	-	221	118	V
	* 1.6	38.66	ADR	28.1	-35.1	.38	32.04	54	-21.96	-	-	-	-	221	118	V
3	* 4.92	45.9	PK-U	33.9	-31.6	0	48.2	-	-	74	-25.8	-	-	360	228	V
	* 4.92	39.26	ADR	33.9	-31.6	.38	41.94	54	-12.06	-	-	-	-	360	228	V
4	* 5	44.93	PK-U	34.1	-30.1	0	48.93	-	-	74	-25.07	-	-	41	197	V
	* 5	38.77	ADR	34.1	-30.1	.38	43.15	54	-10.85	-	-	-	-	41	197	V
1	2.5	48.23	PK-U	32.3	-34.1	0	46.43	-	-	-	-	68.2	-21.77	331	105	H
5	7.013	48.92	PK-U	35.5	-29.7	0	54.72	-	-	-	-	68.2	-13.48	212	177	V
6	10.52	48.48	PK-U	37.8	-25.9	0	60.38	-	-	-	-	68.2	-7.82	232	170	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

MID CHANNEL HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



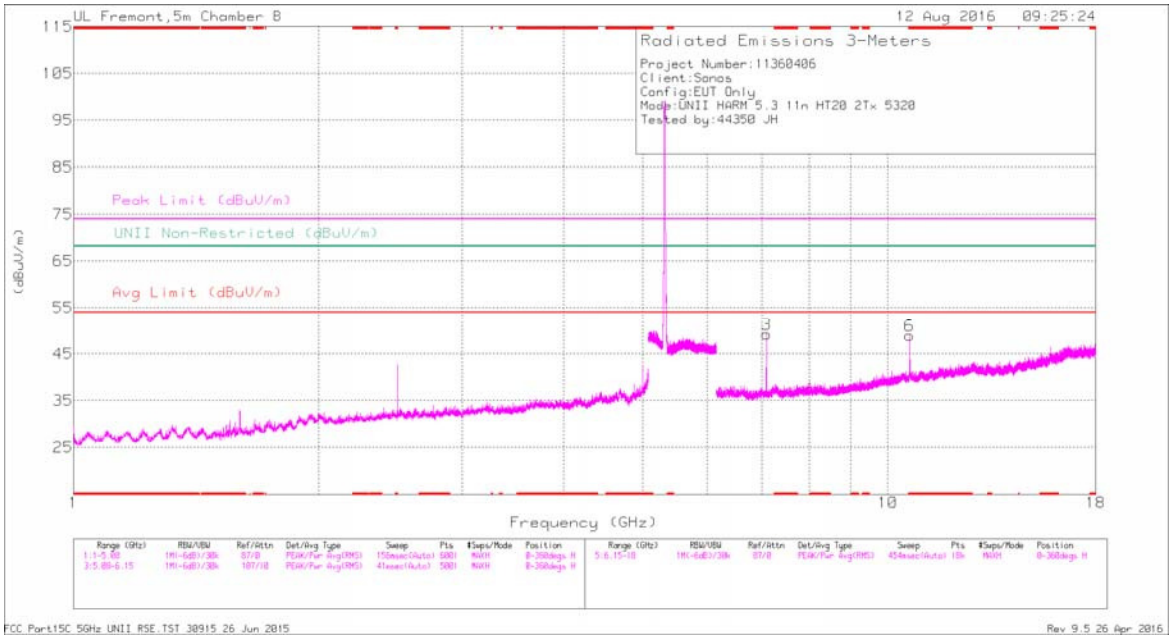
DATA

Trace Markers

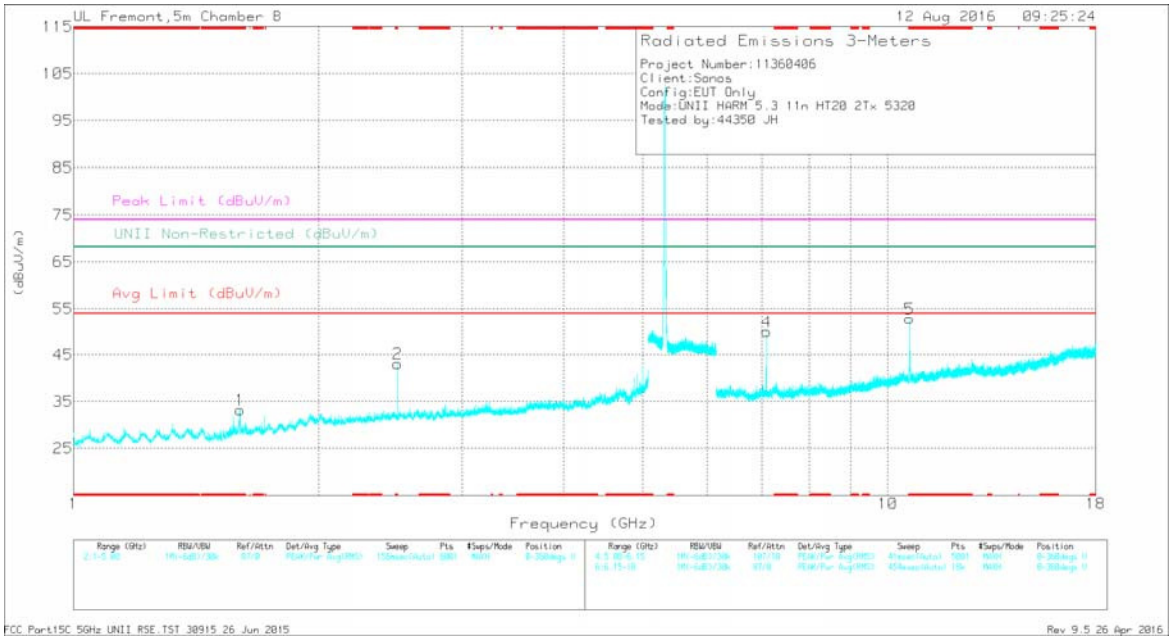
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 1.6	45.2	PK-U	28.1	-35.1	0	38.2	-	-	74	-35.8	-	-	356	125	H
	* 1.6	37.96	ADR	28.1	-35.1	.38	31.34	54	-22.66	-	-	-	-	356	125	H
1	* 1.138	41.35	PK-U	28.1	-35.6	0	33.85	-	-	74	-40.15	-	-	221	392	V
	* 1.14	30.12	ADR	28.1	-35.6	.38	23	54	-31	-	-	-	-	221	392	V
6	10.6	46.05	PK-U	37.9	-26.3	0	57.65	-	-	74	-16.35	-	-	232	218	V
	10.599	36.42	ADR	37.9	-26.4	.38	48.3	54	-5.7	-	-	-	-	232	218	V
3	2.501	48.44	PK-U	32.3	-34.1	0	46.64	-	-	-	-	68.2	-21.56	20	165	V
4	7.067	48.68	PK-U	35.5	-30.3	0	53.88	-	-	-	-	68.2	-14.32	58	199	H
5	10.6	44.5	PK-U	37.9	-26.3	0	56.1	-	-	74	-17.9	-	-	81	208	H
	10.6	33.58	ADR	37.9	-26.3	.38	45.56	54	-8.44	-	-	-	-	81	208	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 HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Trace Markers

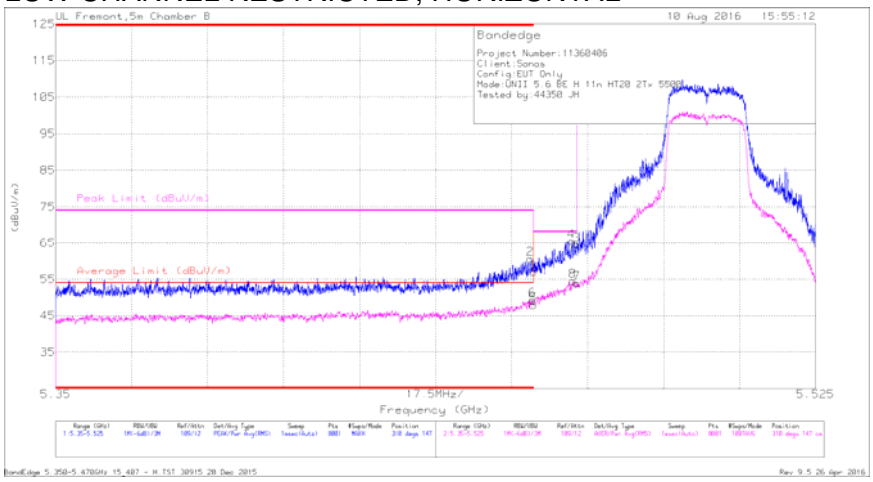
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.6	46.29	PK-U	28.1	-35.1	0	39.29	-	-	74	-34.71	-	-	215	186	V
	* 1.6	39.1	ADR	28.1	-35.1	.38	32.48	54	-21.52	-	-	-	-	215	186	V
6	* 10.64	40.82	PK-U	37.9	-25.5	0	53.22	-	-	74	-20.78	-	-	169	112	H
	* 10.64	28.93	ADR	37.9	-25.5	.38	41.71	54	-12.29	-	-	-	-	169	112	H
5	* 10.64	44.8	PK-U	37.9	-25.5	0	57.2	-	-	74	-16.8	-	-	138	196	V
	* 10.639	31.76	ADR	37.9	-25.5	.38	44.54	54	-9.46	-	-	-	-	138	196	V
2	*2.5	48.46	PK-U	32.3	-34.1	0	46.66	-	-	74	-27.34	-	-	23	162	V
	* 2.5	44.9	ADR	32.3	-34.1	.38	43.48	54	-10.52	-	-	-	-	23	162	V
3	7.093	47.08	PK-U	35.5	-30.6	0	51.98	-	-	-	-	68.2	-16.22	58	267	H
4	7.093	47.27	PK-U	35.5	-30.6	0	52.17	-	-	-	-	68.2	-16.03	221	219	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

5.5. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL

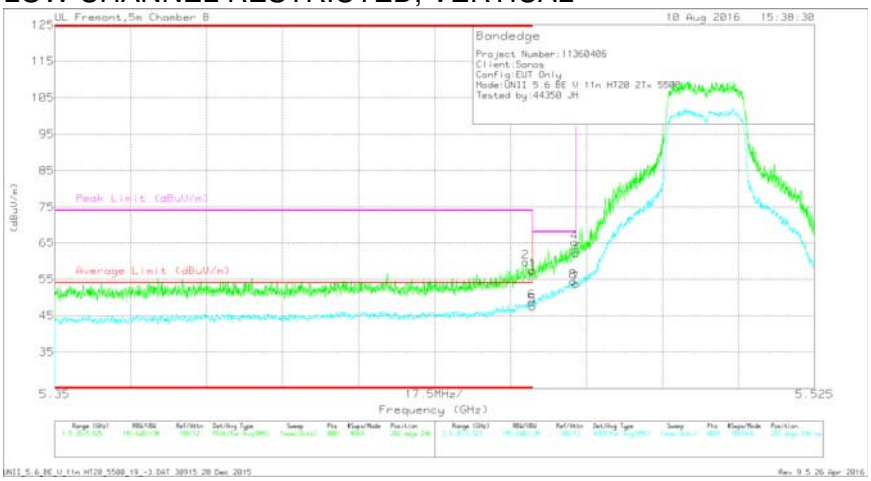


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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	* 5.46	43.55	Pk	34.5	-21	0	57.05	-	-	74	-16.95	310	147	H
2	* 5.459	46.88	Pk	34.5	-20.8	0	60.58	-	-	74	-13.42	310	147	H
5	* 5.46	34.08	RMS	34.5	-21	.38	47.96	54	-6.04	-	-	310	147	H
6	* 5.46	35.34	RMS	34.5	-20.9	.38	49.32	54	-4.68	-	-	310	147	H
4	5.469	51.74	Pk	34.5	-20.7	0	65.54	-	-	68.2	-2.66	310	147	H
8	5.469	40.23	RMS	34.5	-20.6	.38	54.51	-	-	-	-	310	147	H
3	5.47	50.92	Pk	34.5	-20.9	0	64.52	-	-	68.2	-3.68	310	147	H
7	5.47	39.88	RMS	34.5	-20.9	.38	53.86	-	-	-	-	310	147	H

Pk - Peak detector
RMS - RMS detection

LOW CHANNEL RESTRICTED, VERTICAL

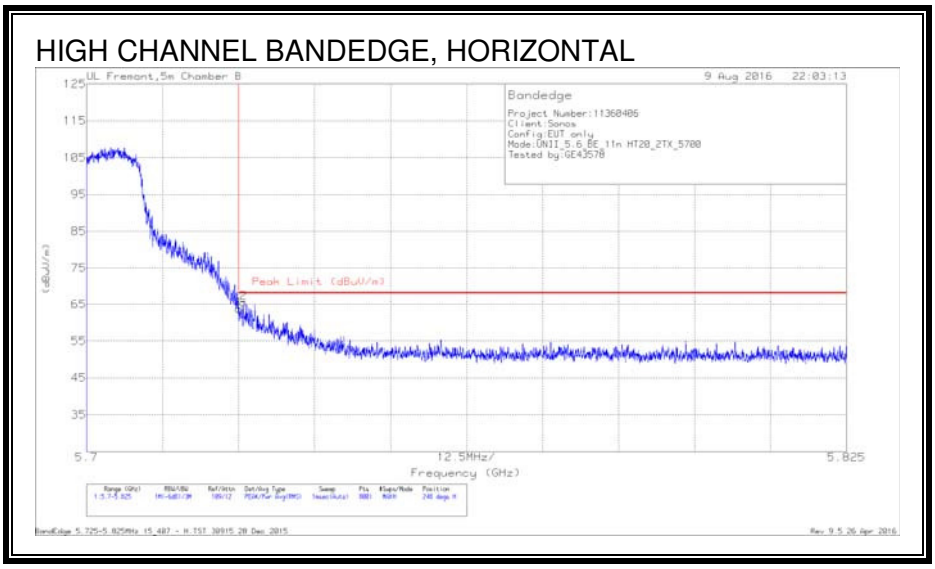


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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	* 5.46	43.92	Pk	34.5	-21	0	57.42	-	-	74	-16.58	282	246	V
2	* 5.458	45.88	Pk	34.5	-20.6	0	59.78	-	-	74	-14.22	282	246	V
5	* 5.46	33.74	RMS	34.5	-21	.38	47.62	54	-6.38	-	-	282	246	V
6	* 5.46	34.93	RMS	34.5	-21	.38	48.81	54	-5.19	-	-	282	246	V
8	5.469	40.22	RMS	34.5	-20.7	.38	54.4	-	-	-	-	282	246	V
3	5.47	48.65	Pk	34.5	-20.9	0	62.25	-	-	68.2	-5.95	282	246	V
4	5.47	51.5	Pk	34.5	-20.8	0	65.2	-	-	68.2	-3	282	246	V
7	5.47	39.84	RMS	34.5	-20.9	.38	53.82	-	-	-	-	282	246	V

Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

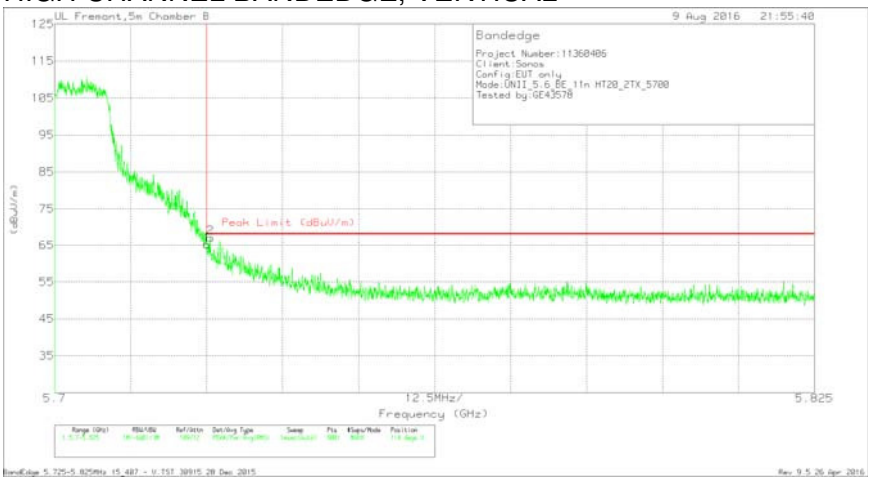


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	50.55	Pk	34.9	-21.7	63.75	68.2	-4.45	248	321	H
2	5.726	52.21	Pk	34.9	-21.6	65.51	68.2	-2.69	248	321	H

Pk - Peak detector

HIGH CHANNEL BANDEDGE, VERTICAL



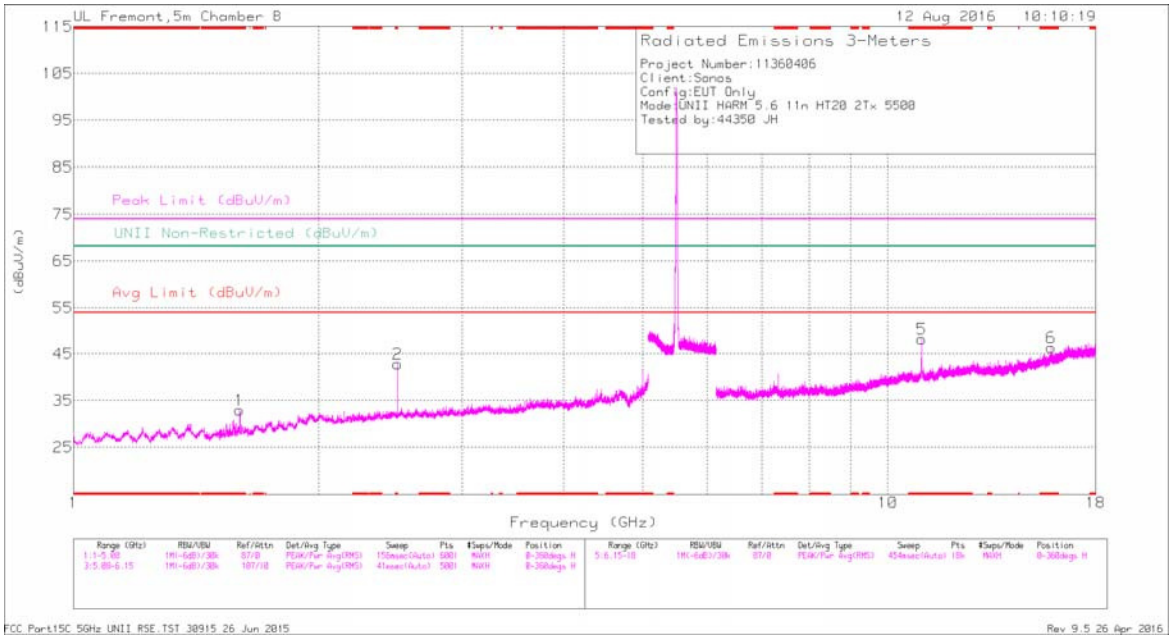
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	51.99	Pk	34.9	-21.7	65.19	68.2	-3.01	114	371	V
2	5.726	53.83	Pk	34.9	-21.6	67.13	68.2	-1.07	114	371	V

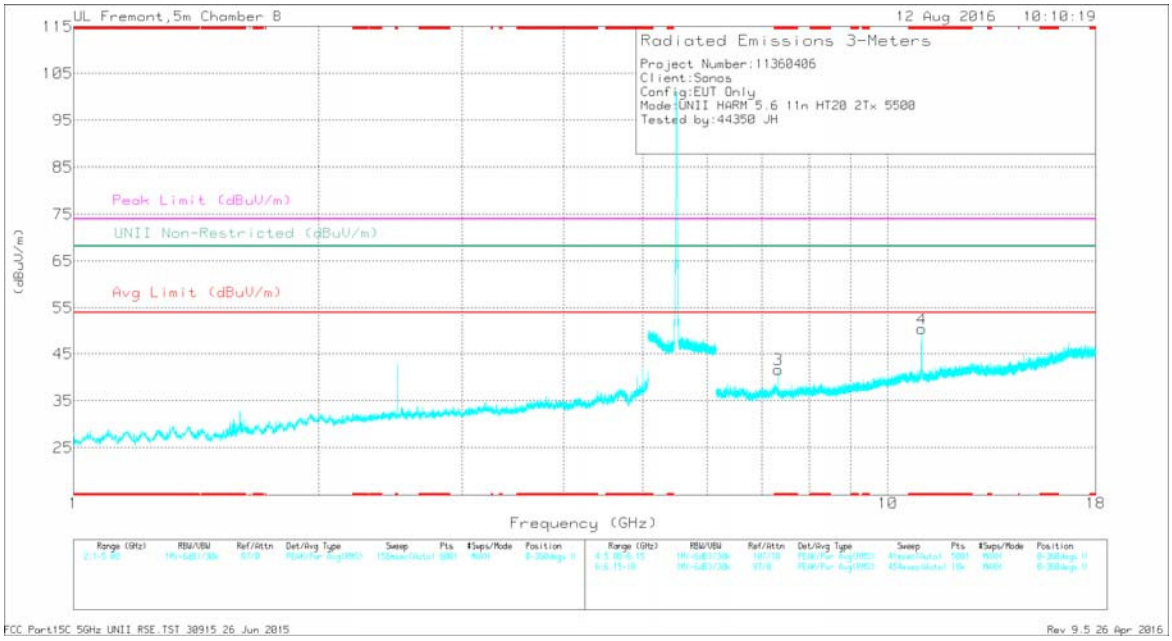
Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



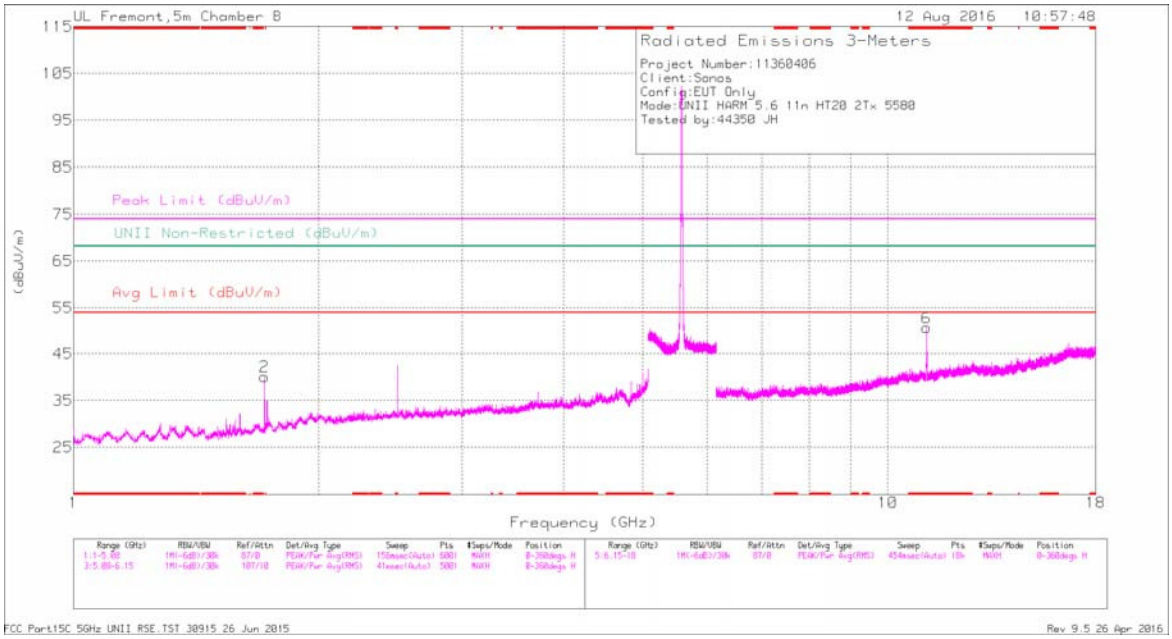
DATA

Trace Markers

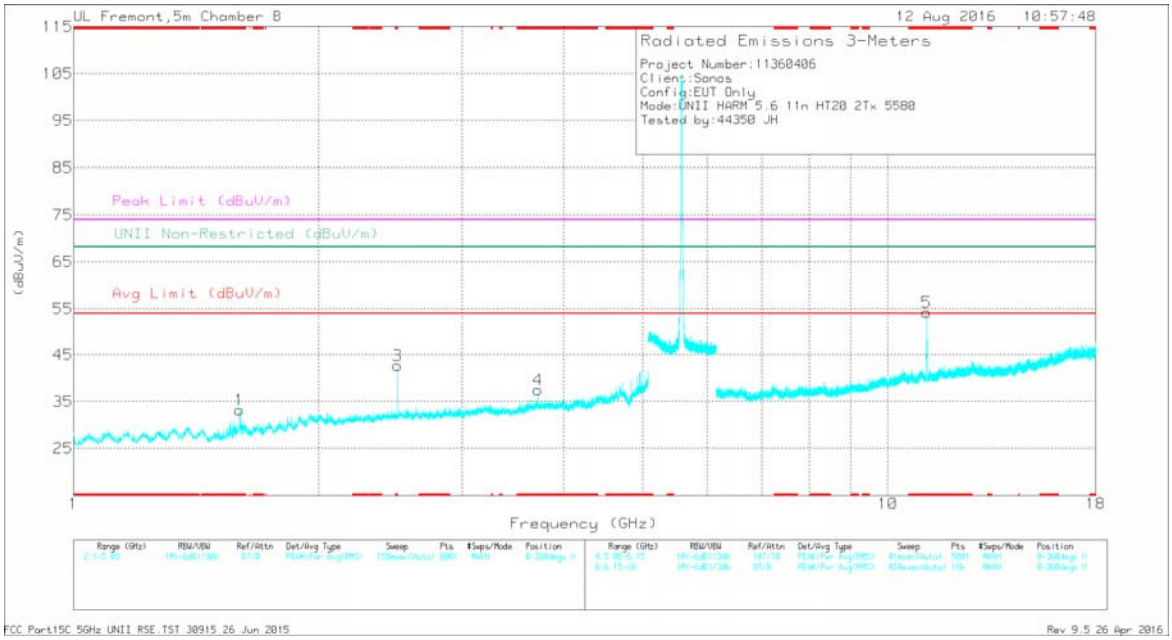
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.6	44.75	PK-U	28.1	-35.1	0	37.75	-	-	74	-36.25	-	-	357	104	H
	* 1.6	37.56	ADR	28.1	-35.1	.38	30.94	54	-23.06	-	-	-	-	357	104	H
5	* 11	38.5	PK-U	37.9	-24.9	0	51.5	-	-	74	-22.5	-	-	357	181	H
	* 11	27.45	ADR	37.9	-24.9	.38	40.83	54	-13.17	-	-	-	-	357	181	H
6	* 15.878	31.85	PK-U	40.7	-22.8	0	49.75	-	-	74	-24.25	-	-	183	358	H
	* 15.878	21.88	ADR	40.7	-22.8	.38	40.16	54	-13.84	-	-	-	-	183	358	H
3	* 7.333	40.48	PK-U	35.6	-29.7	0	46.38	-	-	74	-27.62	-	-	221	229	V
	* 7.333	34.21	ADR	35.6	-29.7	.38	40.49	54	-13.51	-	-	-	-	221	229	V
4	* 11	43.69	PK-U	37.9	-24.9	0	56.69	-	-	74	-17.31	-	-	48	255	V
	* 11	31.44	ADR	37.9	-24.9	.38	44.82	54	-9.18	-	-	-	-	48	255	V
2	* 2.5	48.06	PK-U	32.3	-34.1	0	46.26	-	-	74	-27.74	-	-	332	105	H
	* 2.5	44.49	ADR	32.3	-34.1	.38	43.07	54	-10.93	-	-	-	-	332	105	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 HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



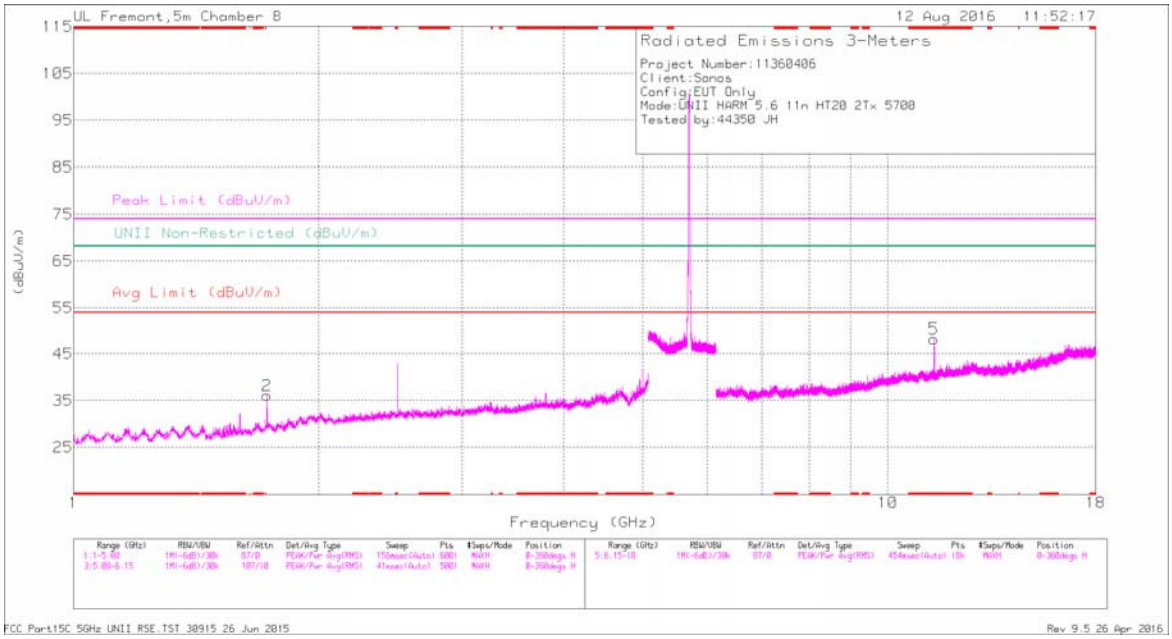
DATA

Trace Markers

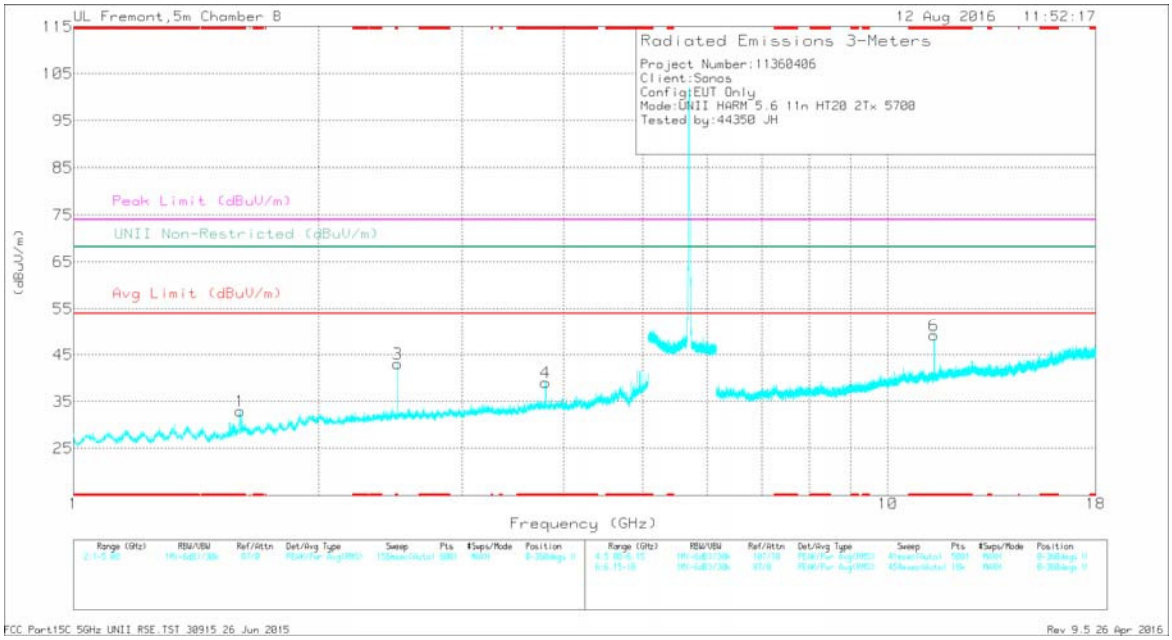
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.6	45.64	PK-U	28.1	-35.1	0	38.64	-	-	74	-35.36	-	-	211	285	V
	* 1.6	37.8	ADR	28.1	-35.1	.38	31.18	54	-22.82	-	-	-	-	211	285	V
4	* 3.72	42.75	PK-U	33.4	-32.8	0	43.35	-	-	74	-30.65	-	-	10	243	V
	* 3.72	36.09	ADR	33.4	-32.8	.38	37.07	54	-16.93	-	-	-	-	10	243	V
6	* 11.16	45.81	PK-U	38	-26.1	0	57.71	-	-	74	-16.29	-	-	358	157	H
	* 11.16	30.71	ADR	38	-26.1	.38	42.99	54	-11.01	-	-	-	-	358	157	H
5	* 11.16	47.58	PK-U	38	-26.1	0	59.48	-	-	74	-14.52	-	-	288	103	V
	* 11.159	32.45	ADR	38	-26.1	.38	44.73	54	-9.27	-	-	-	-	288	103	V
2	1.717	40.95	PK-U	29.3	-34.7	0	35.55	-	-	-	-	68.2	-32.65	169	166	H
3	* 2.5	48.36	PK-U	32.3	-34.1	0	46.56	-	-	74	-27.44	-	-	19	168	V
	* 2.5	44.75	ADR	32.3	-34.1	.38	43.33	54	-10.67	-	-	-	-	19	168	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

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Trace Markers

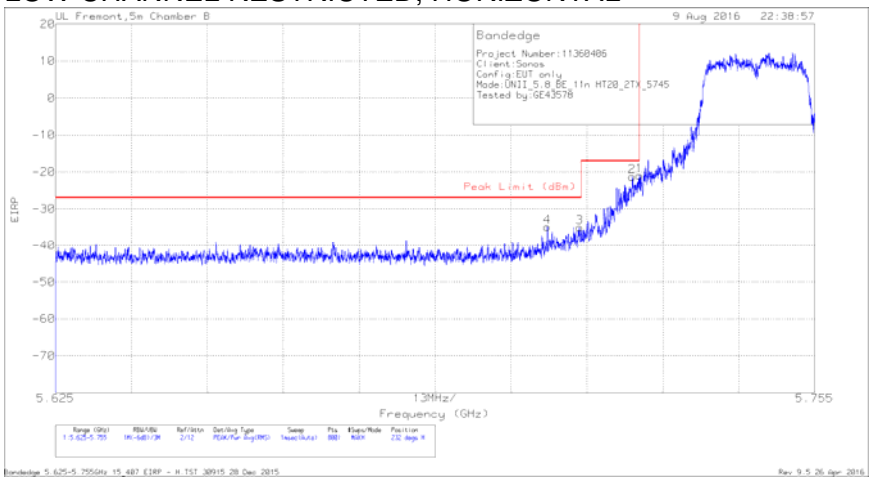
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.6	45.88	PK-U	28.1	-35.1	0	38.88	-	-	74	-35.12	-	-	213	192	V
	* 1.6	39.24	ADR	28.1	-35.1	.38	32.62	54	-21.38	-	-	-	-	213	192	V
4	* 3.8	44.23	PK-U	33.5	-33.2	0	44.53	-	-	74	-29.47	-	-	23	251	V
	* 3.8	38.48	ADR	33.5	-33.2	.38	39.16	54	-14.84	-	-	-	-	23	251	V
5	* 11.397	37.84	PK-U	38.2	-26.1	0	49.94	-	-	74	-24.06	-	-	89	210	H
	* 11.4	26.22	ADR	38.2	-26.1	.38	38.7	54	-15.3	-	-	-	-	89	210	H
6	* 11.4	42.92	PK-U	38.2	-26.1	0	55.02	-	-	74	-18.98	-	-	209	263	V
	* 11.4	29.82	ADR	38.2	-26.1	.38	42.3	54	-11.7	-	-	-	-	209	263	V
2	1.729	41.83	PK-U	29.4	-34.6	0	36.63	-	-	-	-	68.2	-31.57	360	272	H
3	2.5	48.56	PK-U	32.3	-34.1	0	46.76	-	-	-	-	68.2	-21.44	24	191	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

5.6. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL)

LOW CHANNEL RESTRICTED, HORIZONTAL

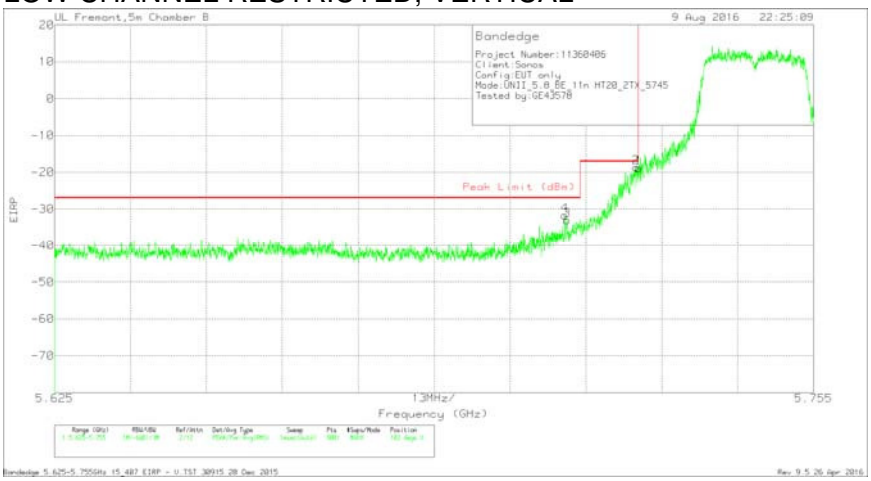


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	5.709	-59.95	Pk	34.9	-21.6	11.8	-34.85	-27	-7.85	232	248	H
3	5.715	-59.94	Pk	34.9	-21.7	11.8	-34.94	-27	-7.94	232	248	H
2	5.724	-46.29	Pk	34.9	-21.7	11.8	-21.29	-17	-4.29	232	248	H
1	5.725	-45.95	Pk	34.9	-21.7	11.8	-20.95	-17	-3.95	232	248	H

Pk - Peak detector
RMS - RMS detection

LOW CHANNEL RESTRICTED, VERTICAL



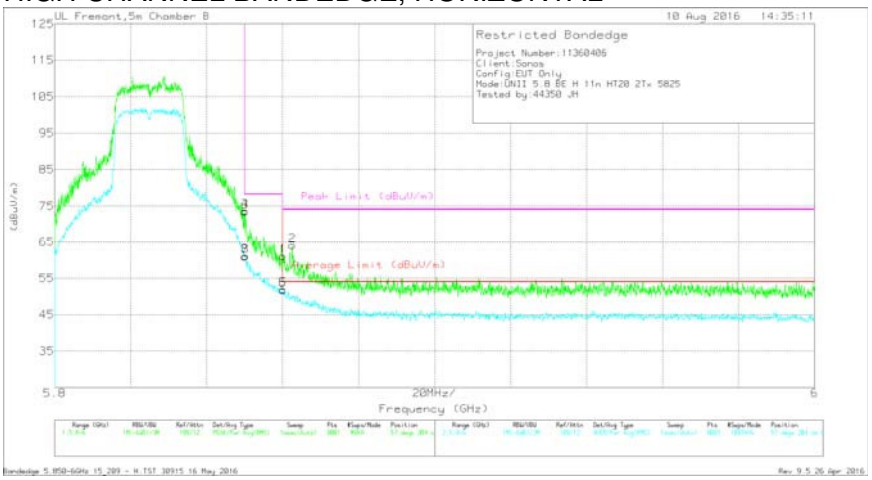
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	5.712	-56.76	Pk	34.9	-21.6	11.8	-31.66	-27	-4.66	103	219	V
3	5.713	-58.02	Pk	34.9	-21.7	11.8	-33.02	-27	-6.02	103	219	V
1	5.725	-43.91	Pk	34.9	-21.7	11.8	-18.91	-17	-1.91	103	219	V
2	5.725	-43.64	Pk	34.9	-21.7	11.8	-18.64	-17	-1.64	103	219	V

Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL)

HIGH CHANNEL BANDEDGE, HORIZONTAL

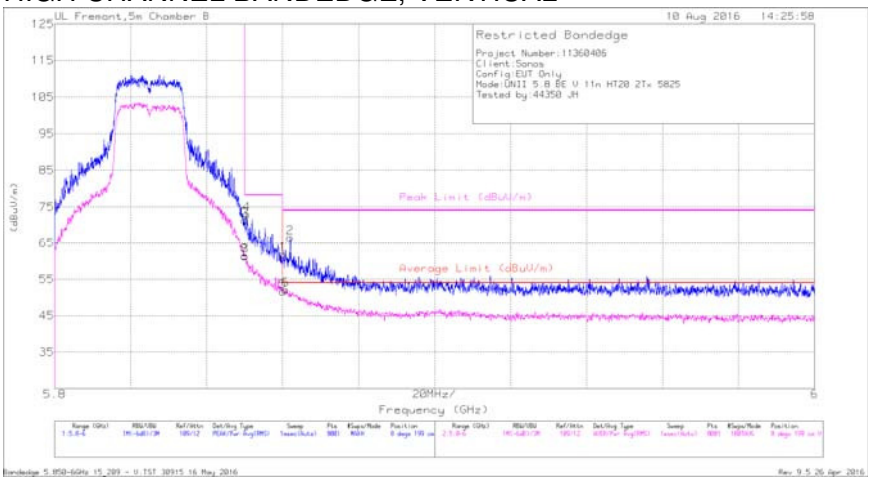


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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
3	5.85	59.96	Pk	35.2	-21.6	0	73.56	-	-	78.2	-4.64	57	304	H
4	5.85	59.99	Pk	35.2	-21.6	0	73.59	-	-	78.2	-4.61	57	304	H
7	5.85	47.03	RMS	35.2	-21.6	.38	61.01	-	-	-	-	57	304	H
8	5.85	47.1	RMS	35.2	-21.6	.38	61.08	-	-	-	-	57	304	H
1	5.86	47.4	Pk	35.2	-21.5	0	61.1	-	-	74	-12.9	57	304	H
5	5.86	37.66	RMS	35.2	-21.5	.38	51.74	54	-2.26	-	-	57	304	H
6	5.86	37.97	RMS	35.2	-21.6	.38	51.95	54	-2.05	-	-	57	304	H
2	5.863	50.17	Pk	35.2	-21.3	0	64.07	-	-	74	-9.93	57	304	H

Pk - Peak detector

HIGH CHANNEL BANDEDGE, VERTICAL



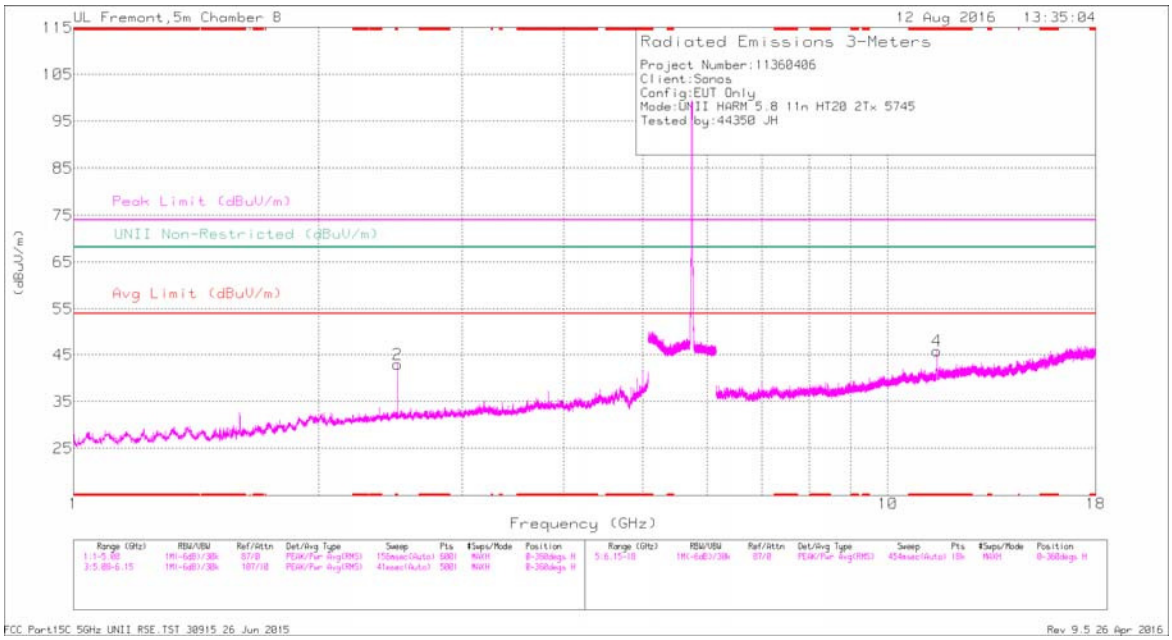
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/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
3	5.85	57.85	Pk	35.2	-21.6	0	71.45	-	-	78.2	-6.75	8	199	V
7	5.85	47.35	RMS	35.2	-21.6	.38	61.33	-	-	-	-	8	199	V
8	5.85	47.5	RMS	35.2	-21.6	.38	61.48	-	-	-	-	8	199	V
4	5.851	59.32	Pk	35.2	-21.5	0	73.02	-	-	78.2	-5.18	8	199	V
1	5.86	48.15	Pk	35.2	-21.5	0	61.85	-	-	74	-12.15	8	199	V
5	5.86	37.57	RMS	35.2	-21.5	.38	51.65	54	-2.35	-	-	8	199	V
6	5.861	38.14	RMS	35.2	-21.6	.38	52.12	54	-1.88	-	-	8	199	V
2	5.862	52.72	Pk	35.2	-21.4	0	66.52	-	-	74	-7.48	8	199	V

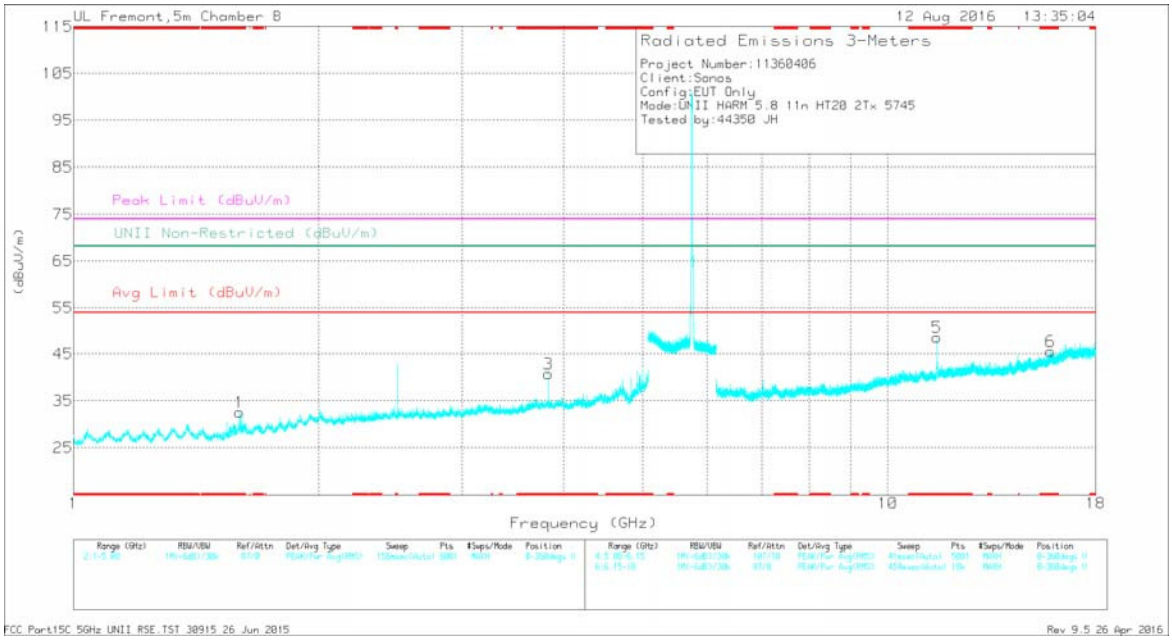
Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL HORIZONTAL PLOT



LOW CHANNEL VERTICAL PLOT



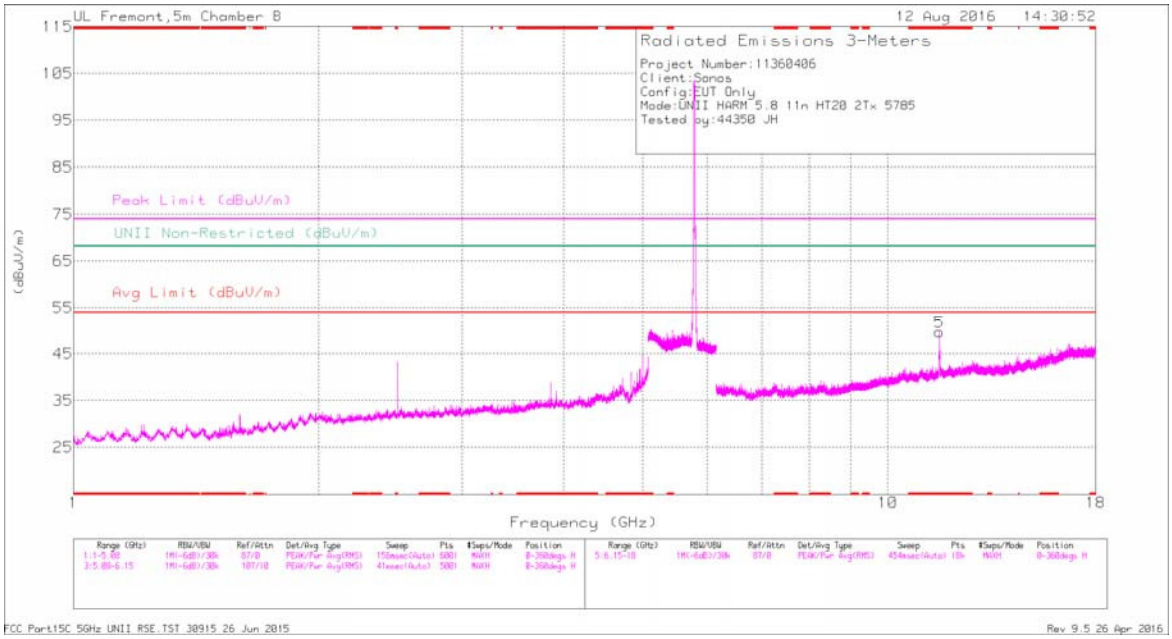
DATA

Trace Markers

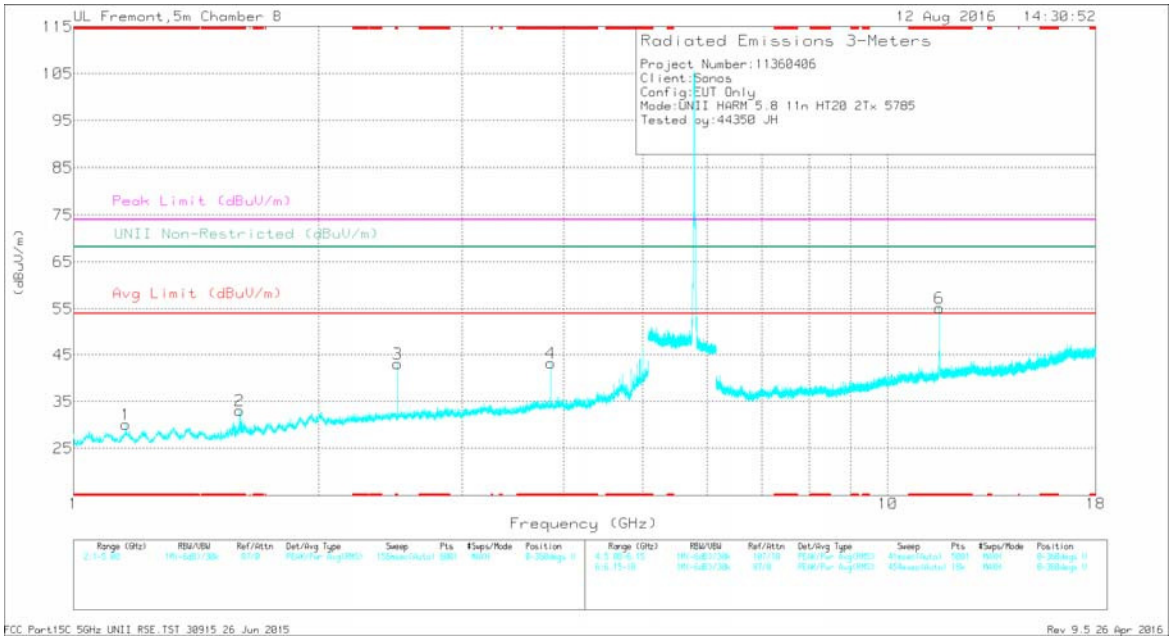
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T34S (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.6	46.59	PK-U	28.1	-35.1	0	39.59	-	-	74	-34.41	-	-	217	195	V
	* 1.6	39.27	ADR	28.1	-35.1	.38	32.65	54	-21.35	-	-	-	-	217	195	V
3	* 3.83	45.28	PK-U	33.4	-33	0	45.68	-	-	74	-28.32	-	-	21	265	V
	* 3.83	39.41	ADR	33.4	-33	.38	40.19	54	-13.81	-	-	-	-	21	265	V
4	* 11.49	36.95	PK-U	38.3	-25.8	0	49.45	-	-	74	-24.55	-	-	360	137	H
	* 11.49	26.88	ADR	38.3	-25.8	.38	39.76	54	-14.24	-	-	-	-	360	137	H
5	* 11.49	42.08	PK-U	38.3	-25.8	0	54.58	-	-	74	-19.42	-	-	195	103	V
	* 11.49	28.25	ADR	38.3	-25.8	.38	41.13	54	-12.87	-	-	-	-	195	103	V
6	* 15.842	32.57	PK-U	40.6	-22.6	0	50.57	-	-	74	-23.43	-	-	201	120	V
	* 15.843	23.31	ADR	40.6	-22.4	.38	41.89	54	-12.11	-	-	-	-	201	120	V
2	* 2.5	48.08	PK-U	32.3	-34.1	0	46.28	-	-	74	-27.72	-	-	333	103	H
	* 2.5	44.62	ADR	32.3	-34.1	.38	43.2	54	-10.8	-	-	-	-	333	103	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 HORIZONTAL PLOT



MID CHANNEL VERTICAL PLOT



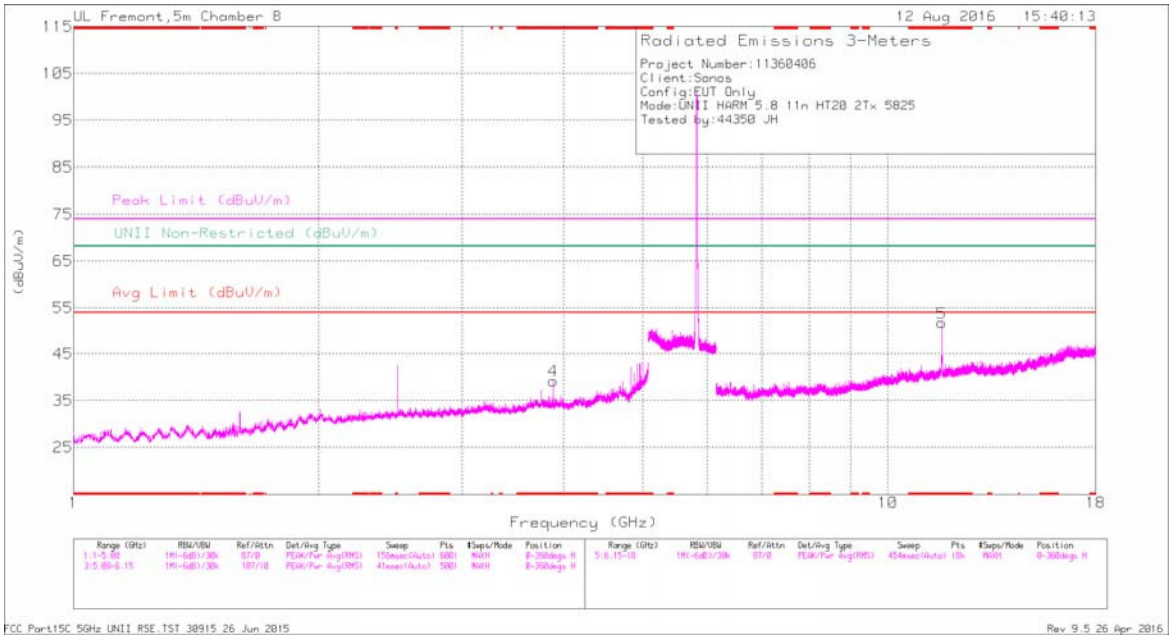
DATA

Trace Markers

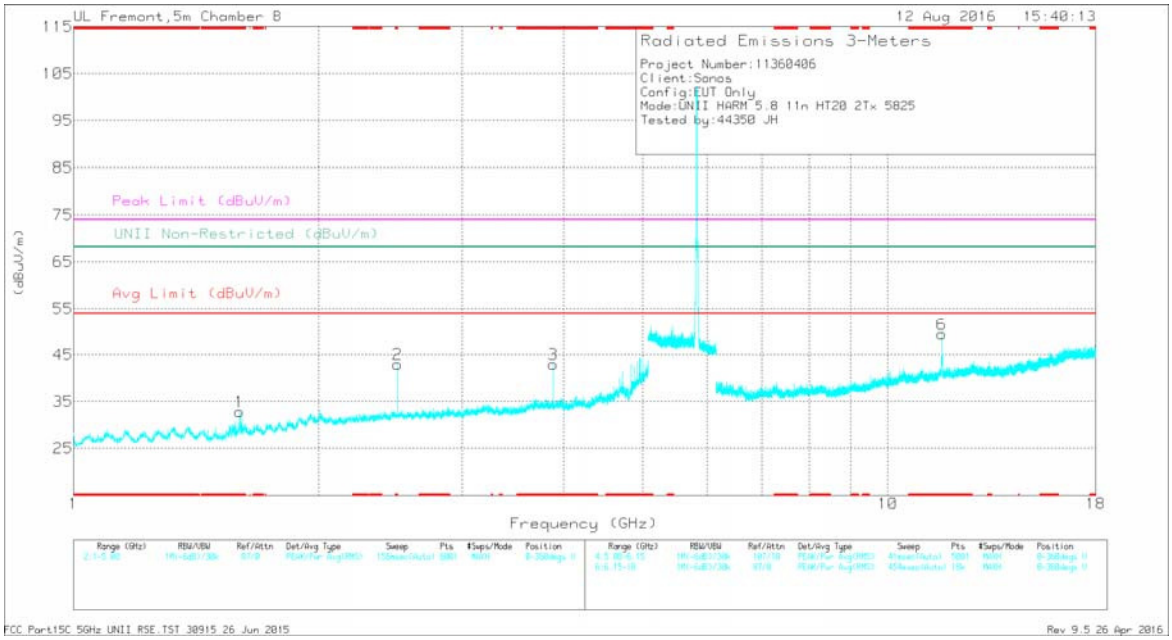
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.153	43.08	PK-U	28.1	-35.6	0	35.58	-	-	74	-38.42	-	-	309	303	V
	* 1.158	31.7	ADR	28.2	-35.6	.38	24.68	54	-29.32	-	-	-	-	309	303	V
2	* 1.6	46.21	PK-U	28.1	-35.1	0	39.21	-	-	74	-34.79	-	-	216	180	V
	* 1.6	38.82	ADR	28.1	-35.1	.38	32.2	54	-21.8	-	-	-	-	216	180	V
4	* 3.857	46.12	PK-U	33.4	-33.1	0	46.42	-	-	74	-27.58	-	-	19	237	V
	* 3.857	42.1	ADR	33.4	-33.1	.38	42.78	54	-11.22	-	-	-	-	19	237	V
5	* 11.57	45.41	PK-U	38.4	-24.9	0	58.91	-	-	74	-15.09	-	-	349	113	H
	* 11.57	32.75	ADR	38.4	-24.9	.38	46.63	54	-7.37	-	-	-	-	349	113	H
6	* 11.57	45.23	PK-U	38.4	-24.9	0	58.73	-	-	74	-15.27	-	-	126	136	V
	* 11.57	30.41	ADR	38.4	-24.9	.38	44.29	54	-9.71	-	-	-	-	126	136	V
3	* 2.5	48.37	PK-U	32.3	-34.1	0	46.57	-	-	74	-27.43	-	-	24	191	V
	* 2.5	45.17	ADR	32.3	-34.1	.38	43.75	54	-10.25	-	-	-	-	24	191	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

HIGH CHANNEL HORIZONTAL PLOT



HIGH CHANNEL VERTICAL PLOT



DATA

Trace Markers

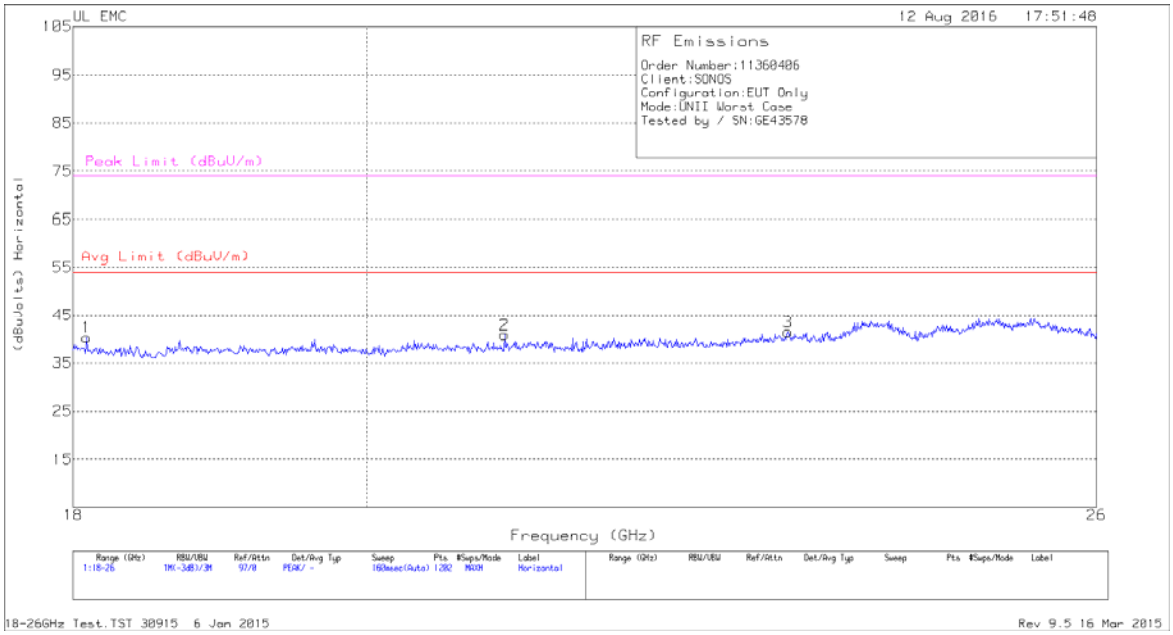
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	UNII Non-Restricted (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 3.883	43.97	PK-U	33.3	-32.8	0	44.47	-	-	74	-29.53	-	-	6	160	H
	* 3.883	37.94	ADR	33.3	-32.8	.38	38.82	54	-15.18	-	-	-	-	6	160	H
1	* 1.6	46.31	PK-U	28.1	-35.1	0	39.31	-	-	74	-34.69	-	-	217	184	V
	* 1.6	38.96	ADR	28.1	-35.1	.38	32.34	54	-21.66	-	-	-	-	217	184	V
3	* 3.883	46.77	PK-U	33.3	-32.8	0	47.27	-	-	74	-26.73	-	-	16	263	V
	* 3.883	42.74	ADR	33.3	-32.8	.38	43.62	54	-10.38	-	-	-	-	16	263	V
5	* 11.65	39.71	PK-U	38.5	-25.1	0	53.11	-	-	74	-20.89	-	-	360	104	H
	* 11.65	29.05	ADR	38.5	-25.1	.38	42.83	54	-11.17	-	-	-	-	360	104	H
6	* 11.65	42.67	PK-U	38.5	-25.1	0	56.07	-	-	74	-17.93	-	-	159	253	V
	* 11.65	29.65	ADR	38.5	-25.1	.38	43.43	54	-10.57	-	-	-	-	159	253	V
2	2.5	48.32	PK-U	32.3	-34.1	0	46.52	-	-	-	-	68.2	-21.68	20	167	V
	* 2.5	44.77	ADR	32.3	-34.1	.38	43.35	54	-10.65	-	-	-	-	20	167	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

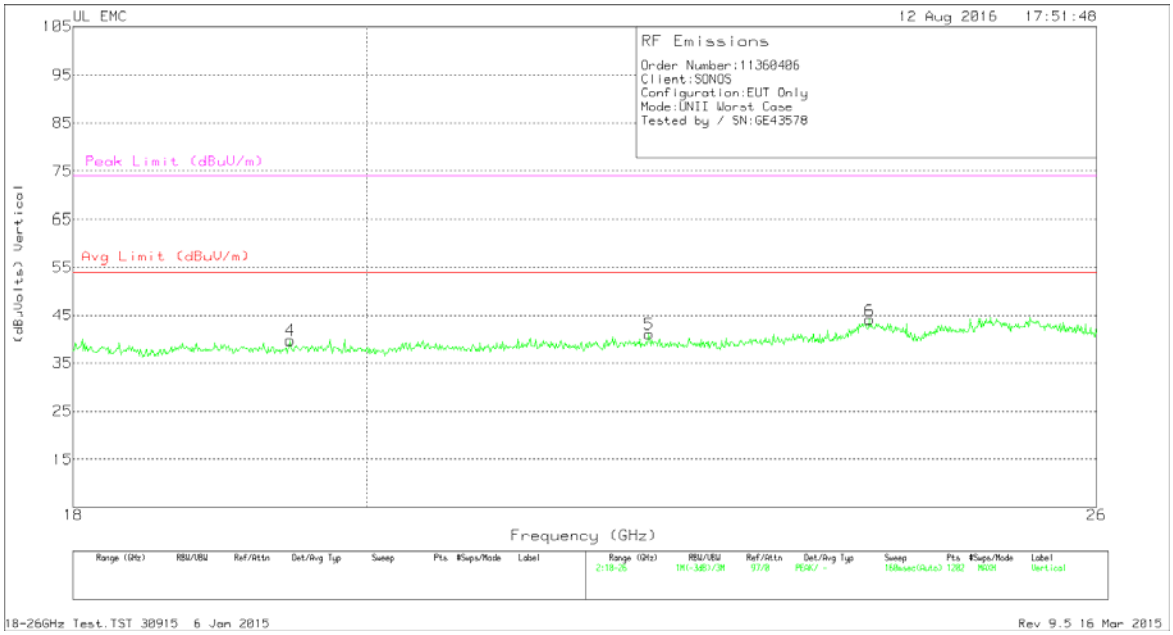
5.7. WORST-CASE ABOVE 18GHz

SPURIOUS EMISSIONS 18 – 26 GHz

HORIZONTAL PLOT



VERTICAL PLOT



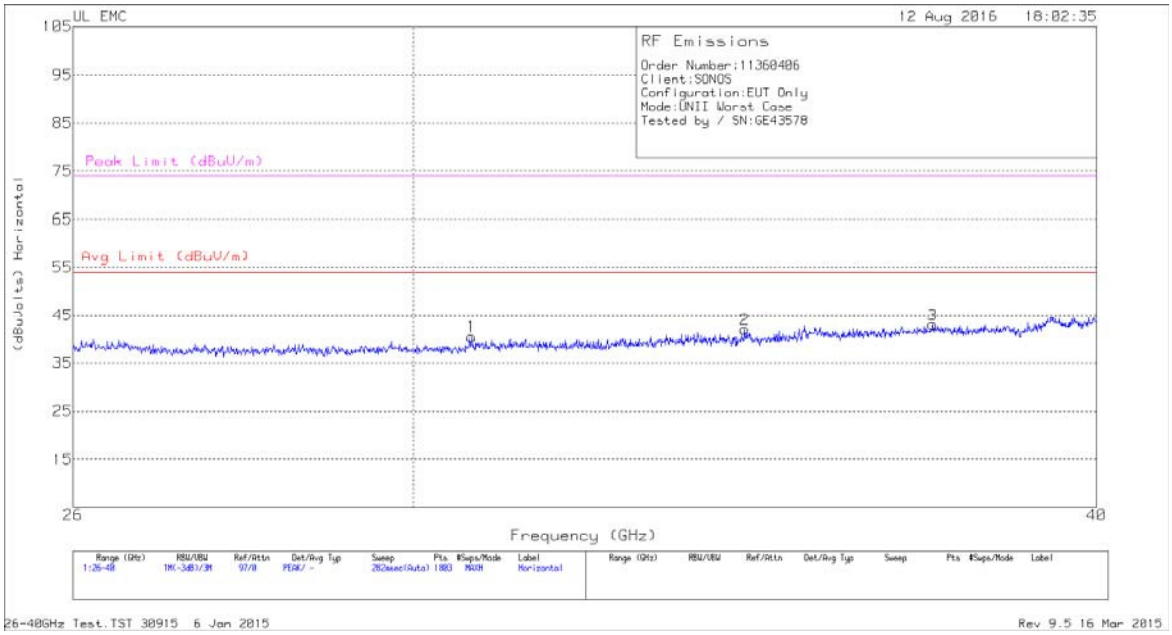
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T449 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.087	42.73	Pk	32.5	-25.4	-9.5	40.33	54	-13.67	74	-33.67
2	21.017	42.63	Pk	33.2	-25.5	-9.5	40.83	54	-13.17	74	-33.17
3	23.269	42.2	Pk	33.5	-24.7	-9.5	41.5	54	-12.5	74	-32.5
4	19.459	41.07	Pk	32.7	-24.6	-9.5	39.67	54	-14.33	74	-34.33
5	22.137	41.9	Pk	33.5	-24.9	-9.5	41	54	-13	74	-33
6	23.962	43.7	Pk	34	-24.2	-9.5	44	54	-10	74	-30

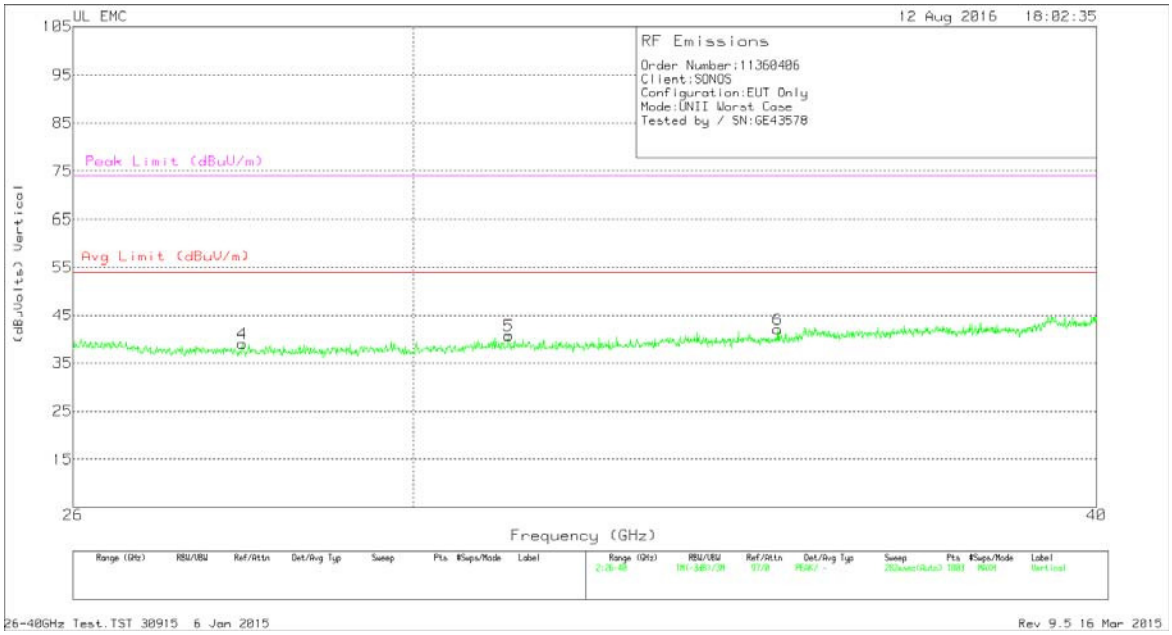
PK - Peak detector

SPURIOUS EMISSIONS 26 – 40 GHz

HORIZONTAL PLOT



VERTICAL PLOT



Trace Markers

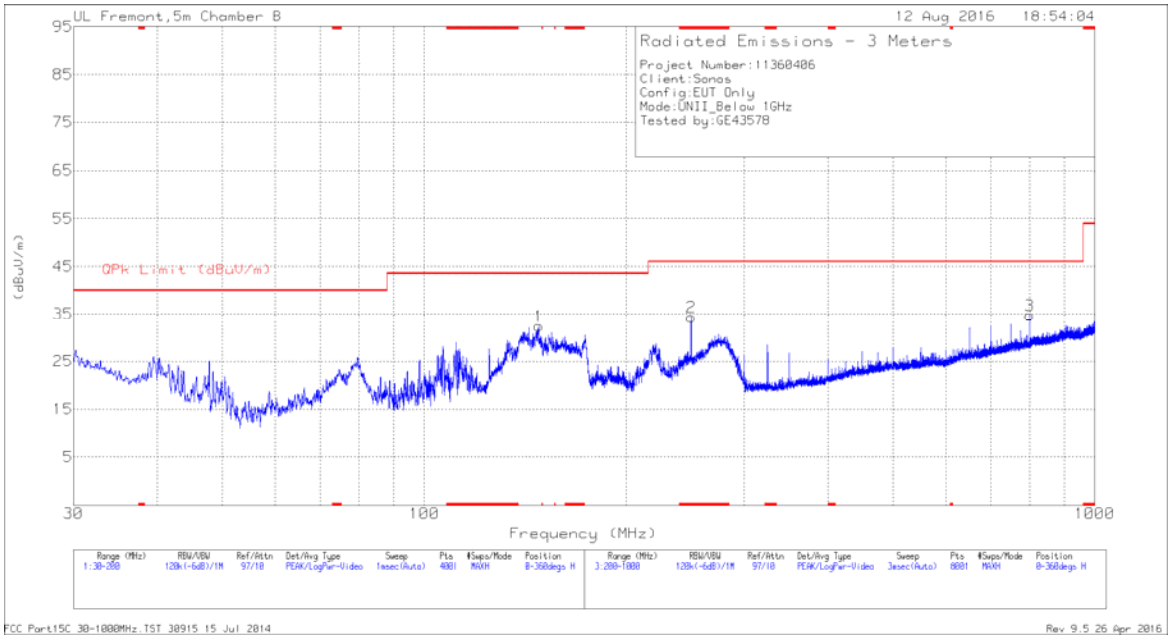
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T90 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	30.747	47.1	Pk	36.1	-33.2	-9.5	40.5	54	-13.5	74	-33.5
2	34.492	47.8	Pk	37.5	-33.8	-9.5	42	54	-12	74	-32
3	37.335	49.8	Pk	37.3	-34.6	-9.5	43	54	-11	74	-31
4	27.919	44.7	Pk	35.8	-32	-9.5	39	54	-15	74	-35
5	31.229	47.27	Pk	36	-33.1	-9.5	40.67	54	-13.33	74	-33.33
6	34.973	48.3	Pk	37.2	-34	-9.5	42	54	-12	74	-32

PK - Peak detector

5.8. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT

DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T130 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 250	45.52	Pk	15.4	-26.6	34.32	46.02	-11.7	0-360	100	H
4	40.3443	48.28	Qp	17.7	-28.8	37.18	40	-2.82	350	103	V
5	47.7859	51.35	Qp	12.5	-28.5	35.35	40	-4.65	326	114	V
6	79.3	49.23	Pk	11.5	-28.3	32.43	40	-7.57	0-360	100	V
7	106.7338	42.98	Pk	16	-28	30.98	43.52	-12.54	0-360	100	V
1	148.1075	43.34	Pk	16.6	-27.5	32.44	43.52	-11.08	0-360	200	H
8	216.7	40.84	Pk	14.6	-26.9	28.54	46.02	-17.48	0-360	200	V
3	800	34.27	Pk	25.2	-24.7	34.77	46.02	-11.25	0-360	100	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
Qp - Quasi-Peak detector

6. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

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

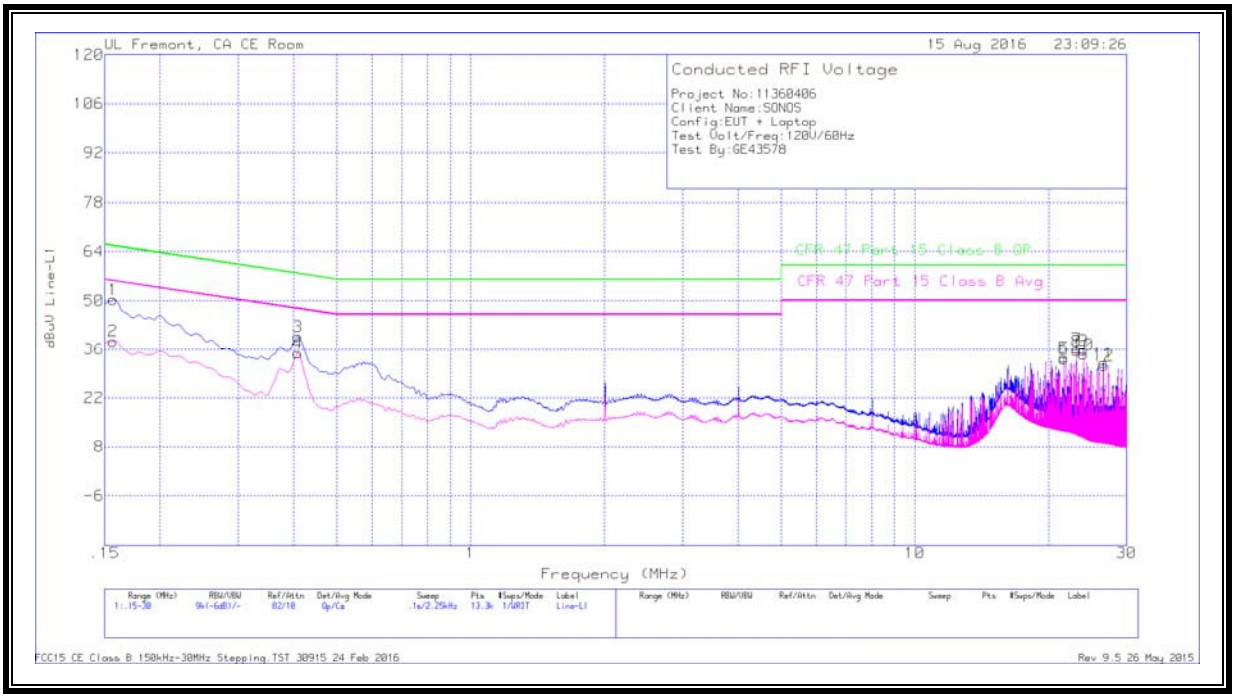
The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

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

LINE 1 RESULTS



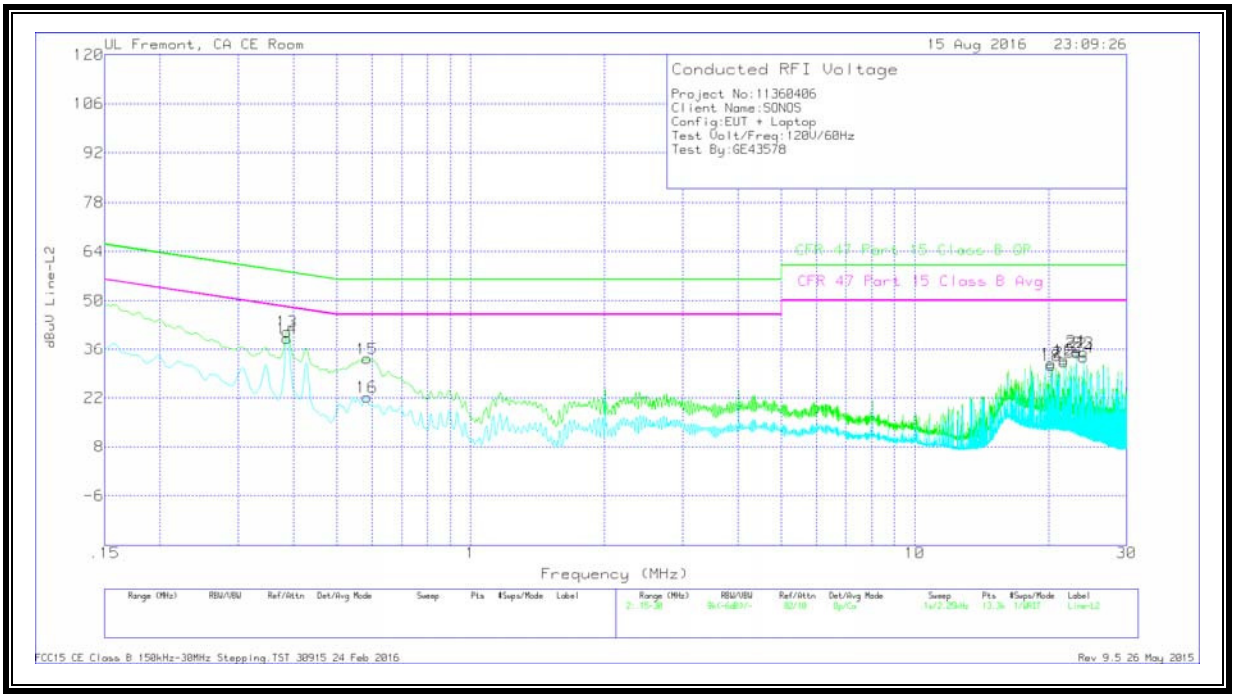
Range 1: Line-L1 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables 1&3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
.15675	40.17	Qp	0	0	10.1	50.27	65.63	-15.36	-	-
.15675	28.34	Ca	0	0	10.1	38.44	-	-	55.63	-17.19
.40875	29.7	Qp	0	0	10.1	39.8	57.67	-17.87	-	-
.40875	24.78	Ca	0	0	10.1	34.88	-	-	47.67	-12.79
21.66225	23.09	Qp	0	.2	10.4	33.69	60	-26.31	-	-
21.66225	22.48	Ca	0	.2	10.4	33.08	-	-	50	-16.92
23.12925	25.57	Qp	.1	.2	10.4	36.27	60	-23.73	-	-
23.12925	24.92	Ca	.1	.2	10.4	35.62	-	-	50	-14.38
23.98425	25.1	Qp	.1	.2	10.4	35.8	60	-24.2	-	-
23.98425	23.87	Ca	.1	.2	10.4	34.57	-	-	50	-15.43
26.61	21.26	Qp	.1	.3	10.5	32.16	60	-27.84	-	-
26.61	20.41	Ca	.1	.3	10.5	31.31	-	-	50	-18.69

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables 2&3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
.38625	30.96	Qp	0	0	10.1	41.06	58.14	-17.08	-	-
.38625	29.14	Ca	0	0	10.1	39.24	-	-	48.14	-8.9
.58425	23.15	Qp	0	0	10.1	33.25	56	-22.75	-	-
.58425	12.16	Ca	0	0	10.1	22.26	-	-	46	-23.74
20.25825	21.48	Qp	0	.2	10.3	31.98	60	-28.02	-	-
20.25825	20.65	Ca	0	.2	10.3	31.15	-	-	50	-18.85
21.66225	22.39	Qp	0	.2	10.4	32.99	60	-27.01	-	-
21.66225	21.73	Ca	0	.2	10.4	32.33	-	-	50	-17.67
23.12925	24.78	Qp	.1	.2	10.4	35.48	60	-24.52	-	-
23.12925	24.12	Ca	.1	.2	10.4	34.82	-	-	50	-15.18
23.98425	24.27	Qp	.1	.2	10.4	34.97	60	-25.03	-	-
23.98425	23.01	Ca	.1	.2	10.4	33.71	-	-	50	-16.29

Qp - Quasi-Peak detector

Ca - CISPR average detection