CERTIFICATION TEST REPORT C2PC

Report Number. : 12361600-E2V3

Applicant	:	SONOS INC. 614 CHAPALA STREET SANTA BARBARA, CA 93101, U.S.A.
Model	:	PLAY:1 & S20
FCC ID	:	SBVRM007
IC	:	5373A-RM007
EUT Description	:	802.11 b/g/n 2x2 CLIENT DEVICE
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART E ISED RSS-247 ISSUE 2 ISED RSS-GEN ISSUE 4

Date Of Issue:
February 11, 2019

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
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NVLAP Lab code: 200065-0

REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	9/27/2018	Initial Issue	-
V2	10/5/2018	Updated Section 1, 7 & 9.5	K.Kedida
V3	2/11/2019	Updated Section 5.3 (Frequency Range)	K.Kedida

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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 b/g/n 2x2 CLIENT DEVICE

MODEL: PLAY:1 & S20

SERIAL NUMBER: 000937DAEEBD (Condcuted) , 7828CA800016C (Radiated)

DATE TESTED: AUGUST 6 – AUGUST 16, 2018

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 15 Subpart E	Pass
ISED RSS-247 Issue 2	Pass
ISED 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 the U.S. government.

Approved & Released For
UL Verification Services Inc. By:

DAN CORONIA
CONSUMER TECHNOLOGY DIVISION
OPERATIONS LEADER
UL Verification Services Inc.

Reviewed By:

Kiya Kedida
CONSUMER TECHNOLOGY DIVISION
PROJECT ENGINEER
UL Verification Services Inc

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC 14-30, FCC KDB 662911 D01 v02r01, FCC KDB 905462 D02 v02/D03 v01r02/D06 v02, FCC KDB 789033 D02 v02r01, FCC KDB 644545 D03 v01, ANSI C63.10-2013, FCC 06-96, FCC KDB 905462 D02 and D03, RSS-GEN Issue 4, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, 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	47658 Kato Rd.
☐ Chamber A (ISED:2324B-1)	☐ Chamber D (ISED:22541-1)	☐ Chamber K (ISED: 2324A-1)
☒ Chamber B (ISED:2324B-2)	☐ Chamber E (ISED:22541-2)	☐ Chamber L (ISED: 2324A-3)
☐ Chamber C (ISED:2324B-3)	☐ Chamber F (ISED:22541-3)	
	☐ Chamber G (ISED:22541-4)	
	☐ Chamber H (ISED:22541-5)	

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers A through C are covered under ISED company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under ISED company address code 22541 with site numbers 22541 -1 through 22541-5, respectively. Chambers K and L are covered under ISED company address code 2324A with site numbers 2324A-1 and 2324A-3, respectively.

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

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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
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 dB

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

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5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

EUT is an 802.11a/b/g/n (2x2, 20 MHz channel bandwidth only) DFS client device.

5.2. MAXIMUM OUTPUT POWER

Please refer to report, UL 13U14836-2B for 5.2, 5.3, & 5.6GHz bands.
Please refer to report, UL 15U21732-E1V1 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.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes dipole PCB antennas, with a maximum gain as below:

Frequency (MHz)	CH 0 Max. Peak Gain (dBi)	CH 1 Max. Peak Gain (dBi)
5180-5850	4.48	4.82

5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was v.– 46.0-54140.

The test utility software used during testing was ART2-GUI v2.3.

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5.5. WORST-CASE CONFIGURATION AND MODE

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.

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

The EUT is for desktop applications; all radiated testing was performed with EUT laid out in desktop configuration.

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.

5.6. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

This is to request a class II permissive change for FCC ID:SBVRM007 orginal grated on 9/10/2013, with Class II permissive change granted 03/01/2016 and 10/18/2016.

The major change filed under this application is:

- Change #1 Changes to chassis 1. Added fixturing for light bulb to top.
- Change #1 Changed to chassis 2. Removed metal speaker grill and replaced with plastic surround covered in fabric.
- Change #3 Change to chassis 3. Moved user interface buttons from top of product to saucer assembly on bottom.
- Change #4 Add model number S20 to grant SBVRM007
- Change #5 Antenna changes: Increased copper deposition on both antenna elements, mirrored Chain1 antennna to resemble Chain 0 element, increased FPC/PSA area on both antenna elements. Both Chain 0 and Chain 1 antennas are dual band (2.4 and 5GHz) and the same type antennas as the orginal grant antennas.

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5.7. 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

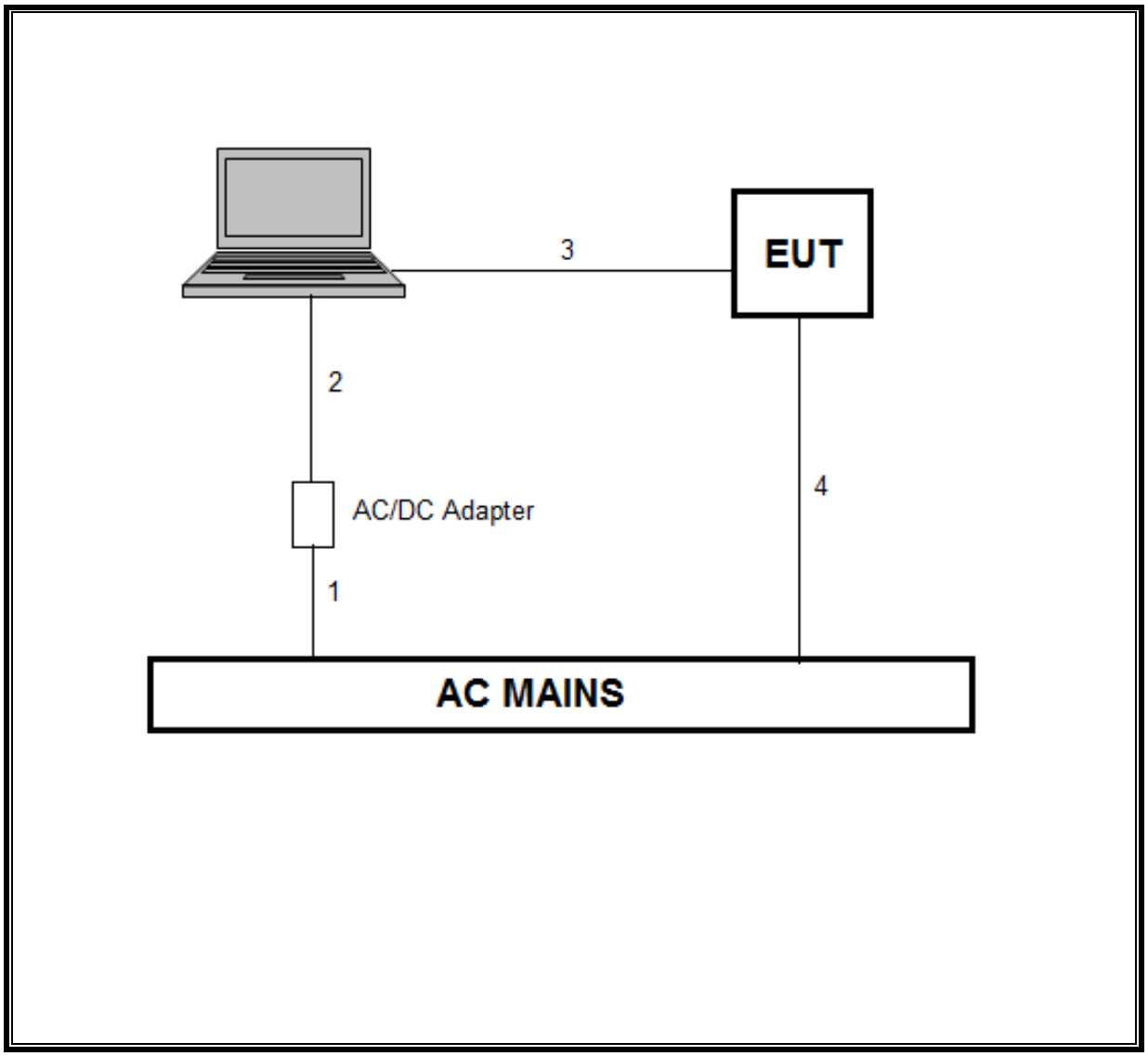
I/O CABLES

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



6. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 789033 D02 v02r01, Section B.

Unwanted emissions in restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, G.5, and G.6.

Unwanted emissions in non-restricted bands: KDB 789033 D02 v02r01, Sections G.3, G.4, and G.5.

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

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7. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**ID Num**	**Cal Due**
Amplifier, 100kHz to 1GHz, 32dB	Hewlet Packard	8447D	T10	02/14/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB1	T407	05/10/2019
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	06/21/2019
RF Amplifier	MITEQ	AFS42-00101800-25-S-42	T493	04/03/2019
Amplifier, 1 to 8GHz, 35dB	Miteq Inc.	AMF-4D-01000800-30-29P	T1156	04/03/2019
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1450	02/05/2019
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T1113	12/21/2018
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T1271	07/17/2019
Power Sensor, P-series, 50MHz to 18GHz, Wideband	Agilent (Keysight) Technologies	N1921A	T1225	04/10/2019
Antenna, Active Loop 9kHz-30MHz	Com-Power Corp.	AL-130R	T1866	10/10/2018
18 - 26.5 GHz Horn Antenna	Seavey Division	MWH-1826/B	T89	01/18/2019
Pre-Amp 1-26.5 GHz	Agilent	8449B	T404	03/09/2019
26.5 – 40 GHz Horn Antenna	Seavey Division	MWH 2640/B	T446	08/09/2019
Pre-Amp 26-40GHz	MITEQ	NSTTA2640-35-HG	T1864	03/09/2019
EMI Reciever	Rohde & Schwarz	ESR	T1436	02/21/2019
L.I.S.N.	FCC INC.	FCC LISN 50/250	T1310	06/15/2019

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	Ver 9.5, June 22, 2018
Antenna Port Software	UL	UL RF	Ver 8.4, June 12, 2018

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8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

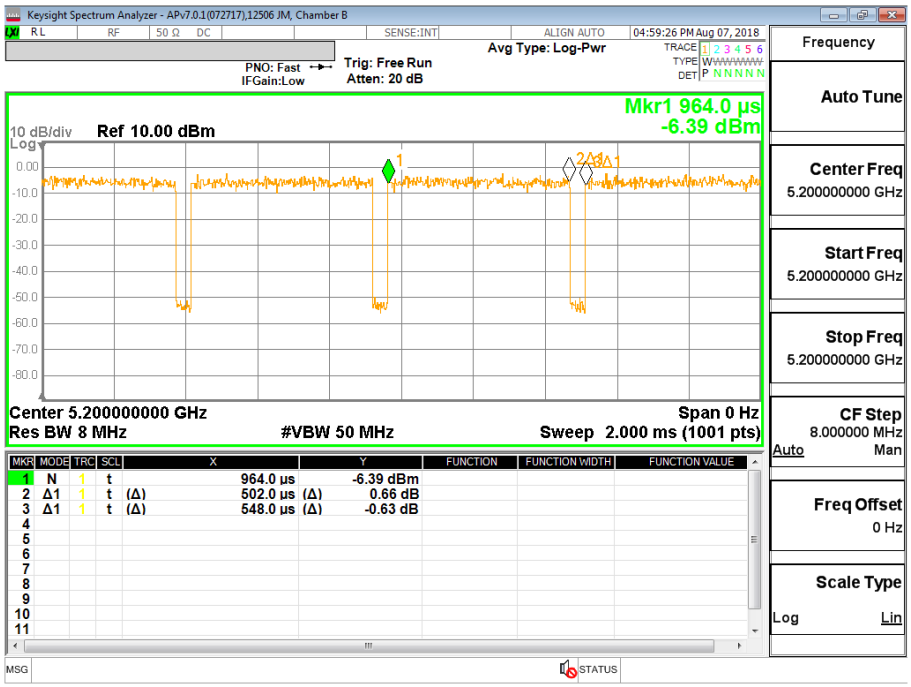
PROCEDURE

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)
5GHz Band						
802.11n 2TX	0.502	0.548	0.916	91.61%	0.38	1.992

DUTY CYCLE PLOTS



DUTY CYCLE 802.11n HT20 2TX MODE

8.2. 26 dB BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Please refer to report, UL 13U14836-2B for 5.2 GHz Band, 5.3 GHz Band and 5.6 GHz Band.
Please refer to report, UL 15U21732-E1V1 for 5.8 GHz Band.

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8.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

Please refer to report, UL 13U14836-2B for 5.2 GHz Band, 5.3 GHz Band and 5.6 GHz Band.
Please refer to report, UL 15U21732-E1V1 for 5.8 GHz Band.

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8.4. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 6.2.4.1

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

RESULTS

Please refer to report, UL 13U14836-2B for 5.2 GHz Band, 5.3 GHz Band and 5.6 GHz Band.
Please refer to report, UL 15U21732-E1V1 for 5.8 GHz Band.

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8.5. OUTPUT POWER AND PSD

LIMITS

FCC §15.407

Band 5.15–5.25 GHz (pick the section that applies to your product)

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Bands 5.25-5.35 GHz and 5.47-5.725 GHz

The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Band 5.725-5.85 GHz

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

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RSS-247

Band 5.15-5.25 GHz
The maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 log10B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz. The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.

Band 5.25-5.35 GHz
The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Bands 5.47-5.6 GHz and 5.65-5.725 GHz
The maximum conducted output power shall not exceed 250 mW or 11 + 10 log10B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10 log10B, dBm, whichever is less. B is the 99% emission bandwidth in megahertz. Note that devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

Band 5.725-5.85 GHz
The maximum conducted output power shall not exceed 1 W. The power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

RESULTS

Please refer to report, UL 13U14836-2B for 5.2 GHz Band, 5.3 GHz Band and 5.6 GHz Band.
Please refer to report, UL 15U21732-E1V1 for 5.8 GHz Band.

9. RADIATED TEST RESULTS

LIMITS

FCC §15.205 and §15.209 -Restriced bands

FCC §15.407(b)(1-3) -Un-Restriced bands

After January 01, 2019 for Outside of the Restricted Bands Emissions

RSS 247 Issue 2 Sections
6.2.1.2 (for 5150-5250 MHz band)
6.2.2.2 (for 5250-5350 MHz band)
6.2.3.2 (for 5470-5600 MHz and 5650-5725 MHz bands)
6.2.4.2 (for 5725-5850 MHz band)

NCC LP0002 §2.7 and §2.8

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement 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 pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 30 MHz to 1GHz and 18GHz to 40 GHz is investigated with the transmitter set to transmit at the channel with highest output power as worst-case scenario. 1GHz to 18GHz was set to the lowest, middle, and highest channels in the 5 GHz bands.

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.

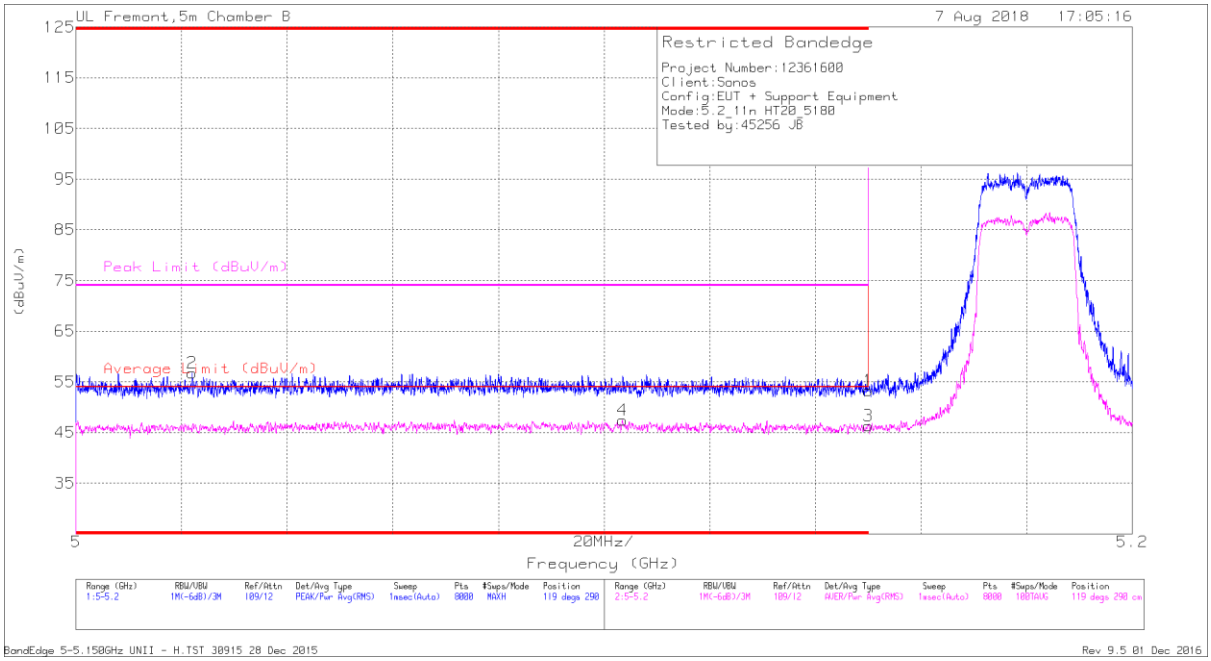
9.1. TRANSMITTER ABOVE 1 GHz

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

2TX CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

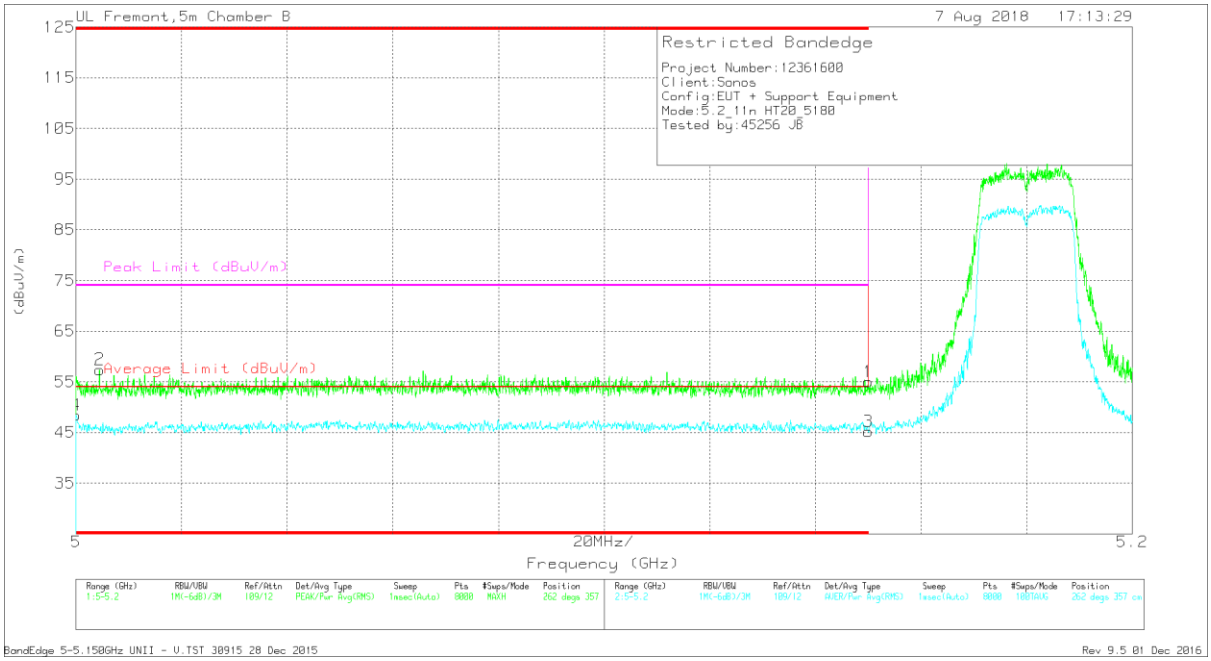


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 5.15	37.14	Pk	34.6	-18.5	0	53.24	-	-	74	-20.76	119	290	H
2	* 5.022	40.48	Pk	34.6	-18.3	0	56.78	-	-	74	-17.22	119	290	H
3	* 5.15	29.8	RMS	34.6	-18.5	.38	46.28	54	-7.72	-	-	119	290	H
4	* 5.103	30.78	RMS	34.5	-18.2	.38	47.46	54	-6.54	-	-	119	290	H

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

VERTICAL RESULT



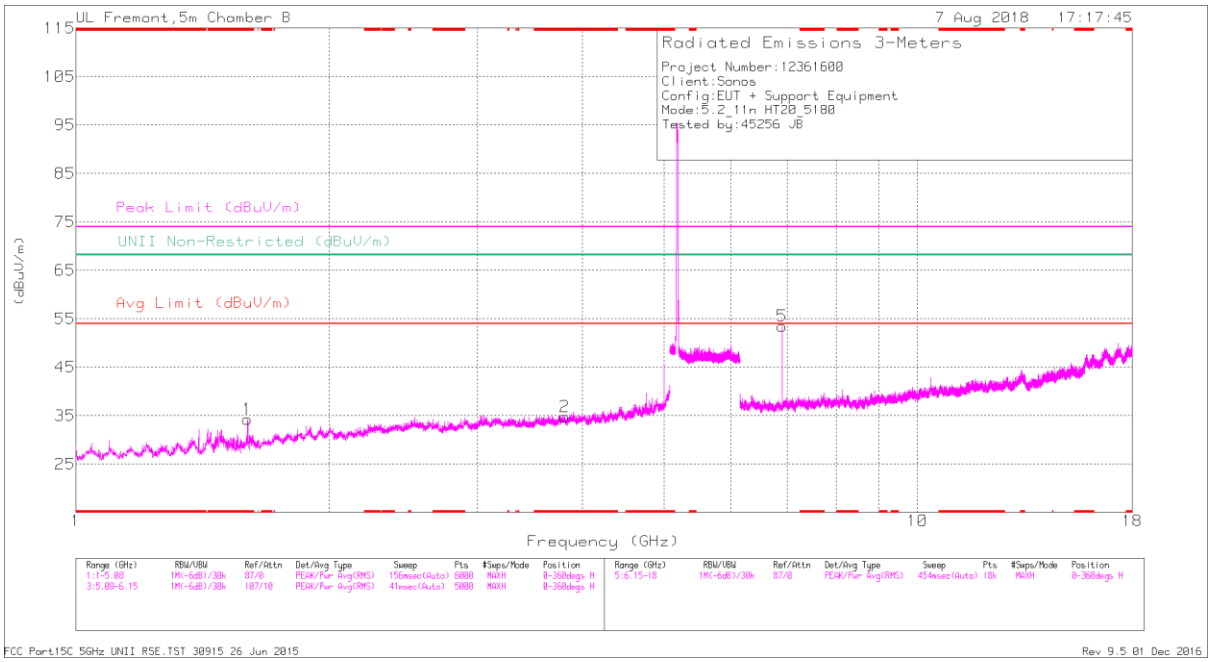
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 5.15	38.87	Pk	34.6	-18.5	0	54.97	-	-	74	-19.03	262	357	V
2	* 5.004	41.13	Pk	34.6	-18.3	0	57.43	-	-	74	-16.57	262	357	V
3	* 5.15	28.67	RMS	34.6	-18.5	.38	45.15	54	-8.85	-	-	262	357	V
4	* 5	31.76	RMS	34.6	-18.3	.38	48.44	54	-5.56	-	-	262	357	V

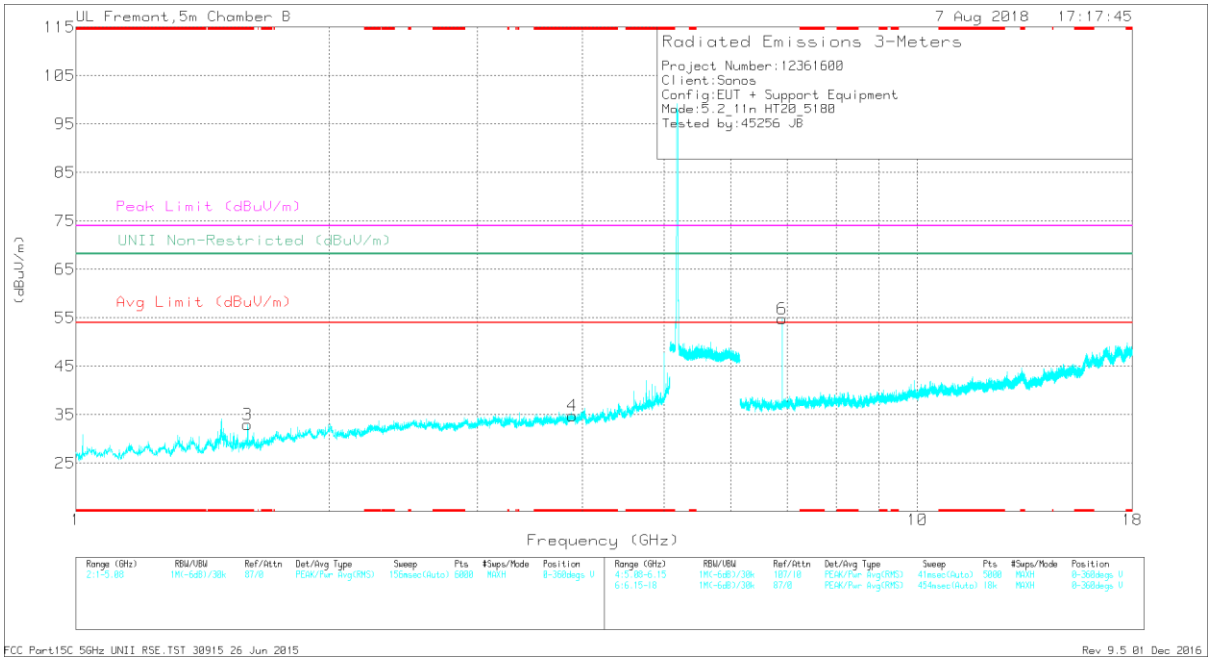
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	40.33	Pk	27.7	-33.7	0	34.33	-	-	74	-39.67	-	-	0-360	102	H
2	* 3.808	33.15	Pk	33.4	-31.8	0	34.75	-	-	74	-39.25	-	-	0-360	102	H
3	* 1.6	38.96	Pk	27.7	-33.7	0	32.96	-	-	74	-41.04	-	-	0-360	200	V
4	* 3.89	32.54	Pk	33.4	-31.1	0	34.84	-	-	74	-39.16	-	-	0-360	101	V
5	6.906	47.19	Pk	35.8	-29.5	0	53.49	-	-	-	-	68.2	-14.71	0-360	199	H
6	6.906	48.44	Pk	35.8	-29.5	0	54.74	-	-	-	-	68.2	-13.46	0-360	101	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 1.6	45.97	PK-U	27.7	-33.7	0	39.97	-	-	74	-34.03	-	-	293	142	H
* 1.6	38.65	ADR	27.7	-33.7	.38	33.03	54	-20.97	-	-	-	-	293	142	H
* 3.807	40.05	PK-U	33.4	-31.7	0	41.75	-	-	74	-32.25	-	-	86	360	H
* 3.807	28.29	ADR	33.4	-31.8	.38	30.27	54	-23.73	-	-	-	-	86	360	H
* 1.6	45.05	PK-U	27.7	-33.7	0	39.05	-	-	74	-34.95	-	-	282	183	V
* 1.6	36.72	ADR	27.7	-33.7	.38	31.1	54	-22.9	-	-	-	-	282	183	V
* 3.889	39.44	PK-U	33.4	-31.1	0	41.74	-	-	74	-32.26	-	-	97	211	V
* 3.892	28.03	ADR	33.4	-31.1	.38	30.71	54	-23.29	-	-	-	-	97	211	V
6.907	48.52	PK-U	35.8	-29.5	0	54.82	-	-	-	-	68.2	-13.38	151	192	H
6.907	48.97	PK-U	35.8	-29.5	0	55.27	-	-	-	-	68.2	-12.93	243	111	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

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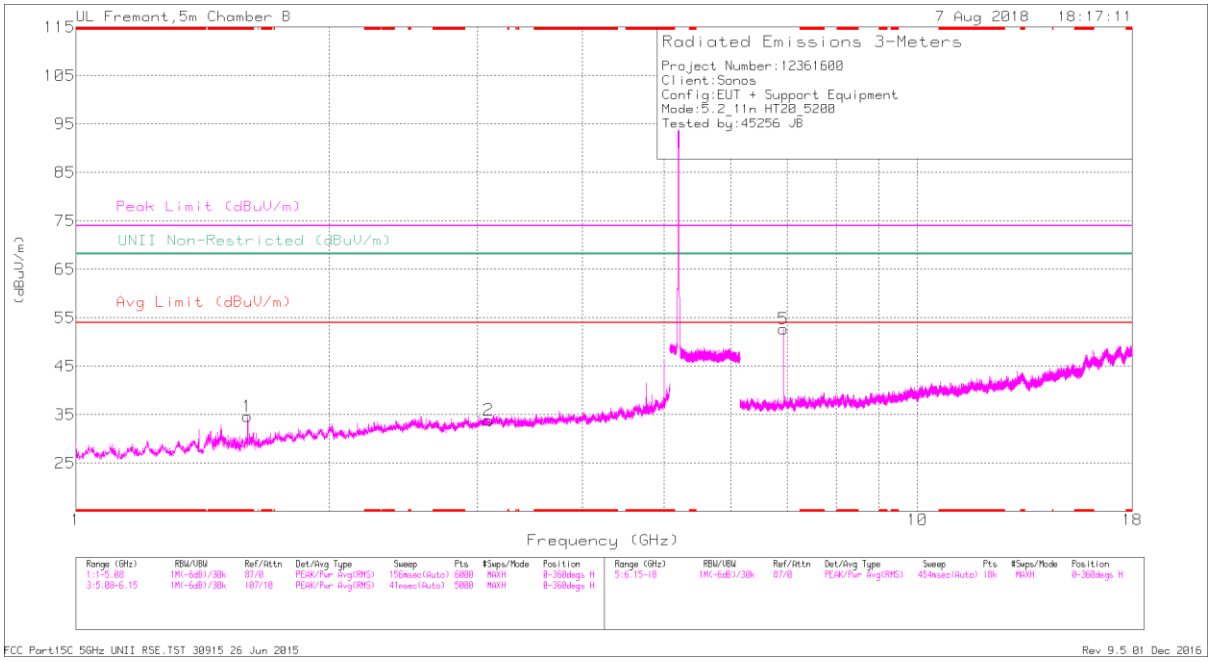
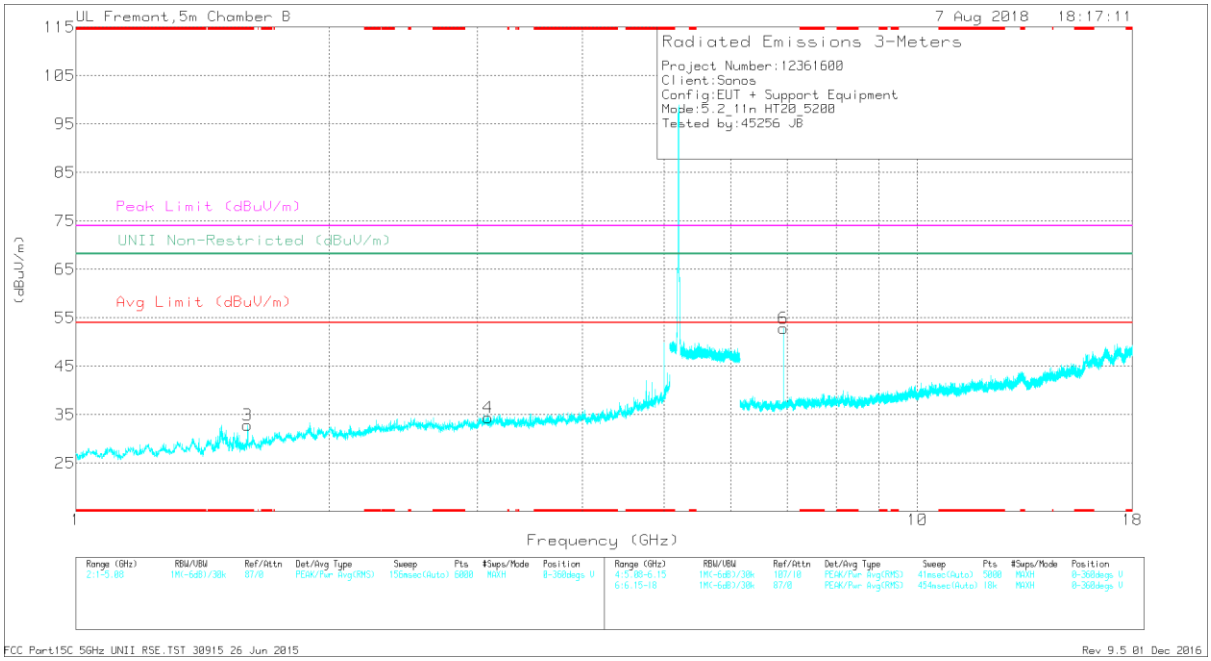
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	40.61	Pk	27.7	-33.7	0	34.61	-	-	74	-39.39	-	-	0-360	102	H
3	* 1.6	38.84	Pk	27.7	-33.7	0	32.84	-	-	74	-41.16	-	-	0-360	200	V
2	3.091	33.16	Pk	33.2	-32.5	0	33.86	-	-	-	-	68.2	-34.34	0-360	199	H
4	3.091	33.69	Pk	33.2	-32.5	0	34.39	-	-	-	-	68.2	-33.81	0-360	200	V
5	6.933	46.14	Pk	35.8	-29.2	0	52.74	-	-	-	-	68.2	-15.46	0-360	199	H
6	6.933	46.22	Pk	35.8	-29.2	0	52.82	-	-	-	-	68.2	-15.38	0-360	102	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 1.6	46.27	PK-U	27.7	-33.7	0	40.27	-	-	74	-33.73	-	-	298	149	H
* 1.6	38.94	ADR	27.7	-33.7	.38	33.32	54	-20.68	-	-	-	-	298	149	H
* 1.6	44.91	PK-U	27.7	-33.7	0	38.91	-	-	74	-35.09	-	-	280	203	V
* 1.6	36.9	ADR	27.7	-33.7	.38	31.28	54	-22.72	-	-	-	-	280	203	V
3.089	40.49	PK-U	33.2	-32.4	0	41.29	-	-	-	-	68.2	-26.91	202	234	V
3.092	39.63	PK-U	33.2	-32.5	0	40.33	-	-	-	-	68.2	-27.87	165	335	H
6.933	46.52	PK-U	35.8	-29.2	0	53.12	-	-	-	-	68.2	-15.08	142	159	H
6.933	48.74	PK-U	35.8	-29.2	0	55.34	-	-	-	-	68.2	-12.86	243	124	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

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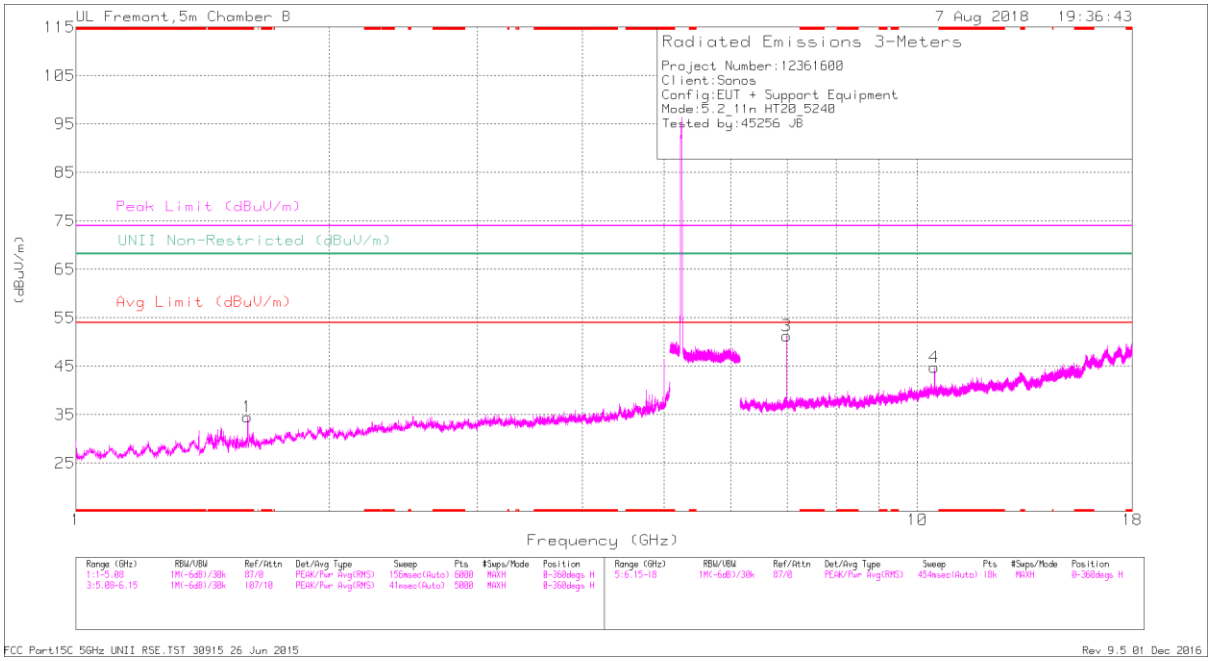
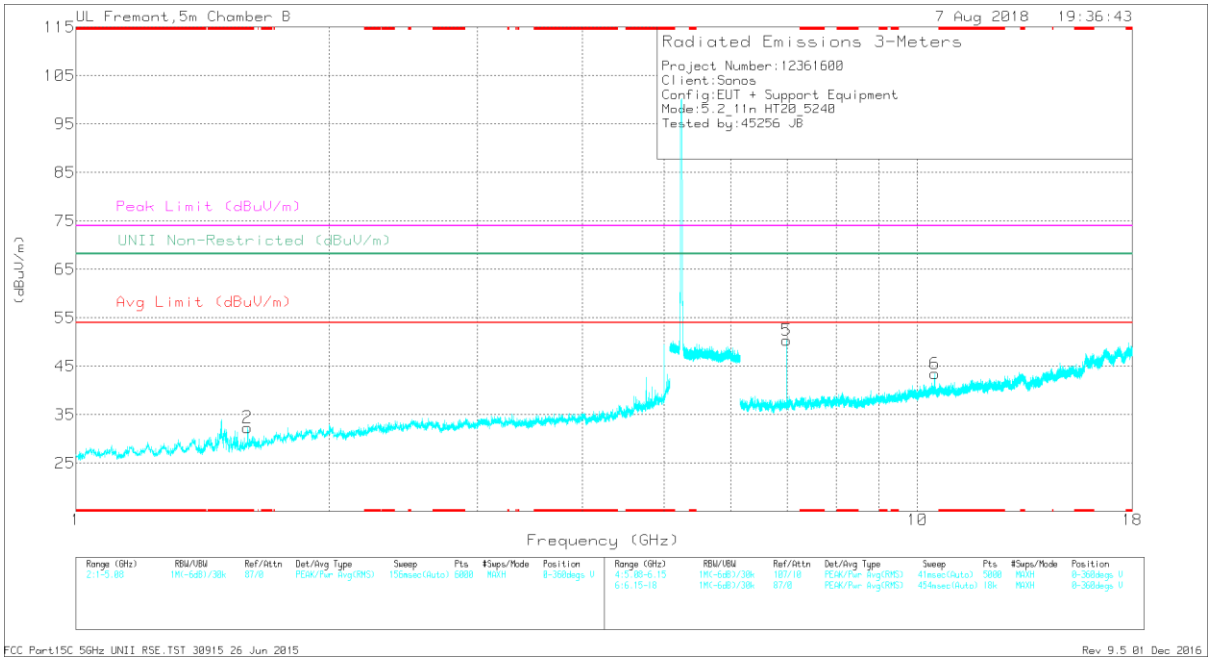
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	40.57	Pk	27.7	-33.7	0	34.57	-	-	74	-39.43	-	-	0-360	102	H
2	* 1.6	38.39	Pk	27.7	-33.7	0	32.39	-	-	74	-41.61	-	-	0-360	102	V
3	6.987	43.92	Pk	35.9	-28.5	0	51.32	-	-	-	-	68.2	-16.88	0-360	199	H
5	6.987	43	Pk	35.9	-28.5	0	50.4	-	-	-	-	68.2	-17.8	0-360	101	V
4	10.478	31.48	Pk	37.8	-24.5	0	44.78	-	-	-	-	68.2	-23.42	0-360	199	H
6	10.48	30.21	Pk	37.8	-24.5	0	43.51	-	-	-	-	68.2	-24.69	0-360	200	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 1.6	46.74	PK-U	27.7	-33.7	0	40.74	-	-	74	-33.26	-	-	293	102	H
* 1.6	38.98	ADR	27.7	-33.7	.38	33.36	54	-20.64	-	-	-	-	293	102	H
* 1.6	44.74	PK-U	27.7	-33.7	0	38.74	-	-	74	-35.26	-	-	277	166	V
* 1.6	36.83	ADR	27.7	-33.7	.38	31.21	54	-22.79	-	-	-	-	277	166	V
6.987	46.45	PK-U	35.9	-28.5	0	53.85	-	-	-	-	68.2	-14.35	151	192	H
6.987	47.65	PK-U	35.9	-28.5	0	55.05	-	-	-	-	68.2	-13.15	243	129	V
10.48	39.68	PK-U	37.8	-24.5	0	52.98	-	-	-	-	68.2	-15.22	186	175	H
10.48	39.18	PK-U	37.8	-24.5	0	52.48	-	-	-	-	68.2	-15.72	339	187	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

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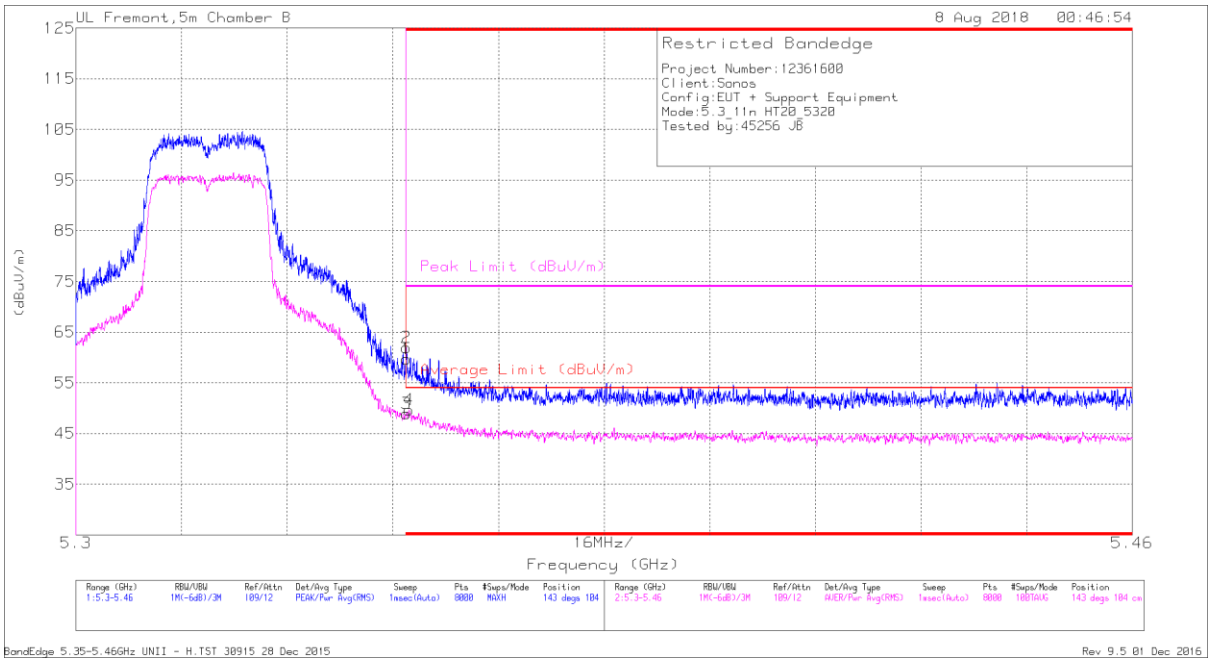
9.1.2. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.3 GHz BAND

2TX CDD MODE

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT

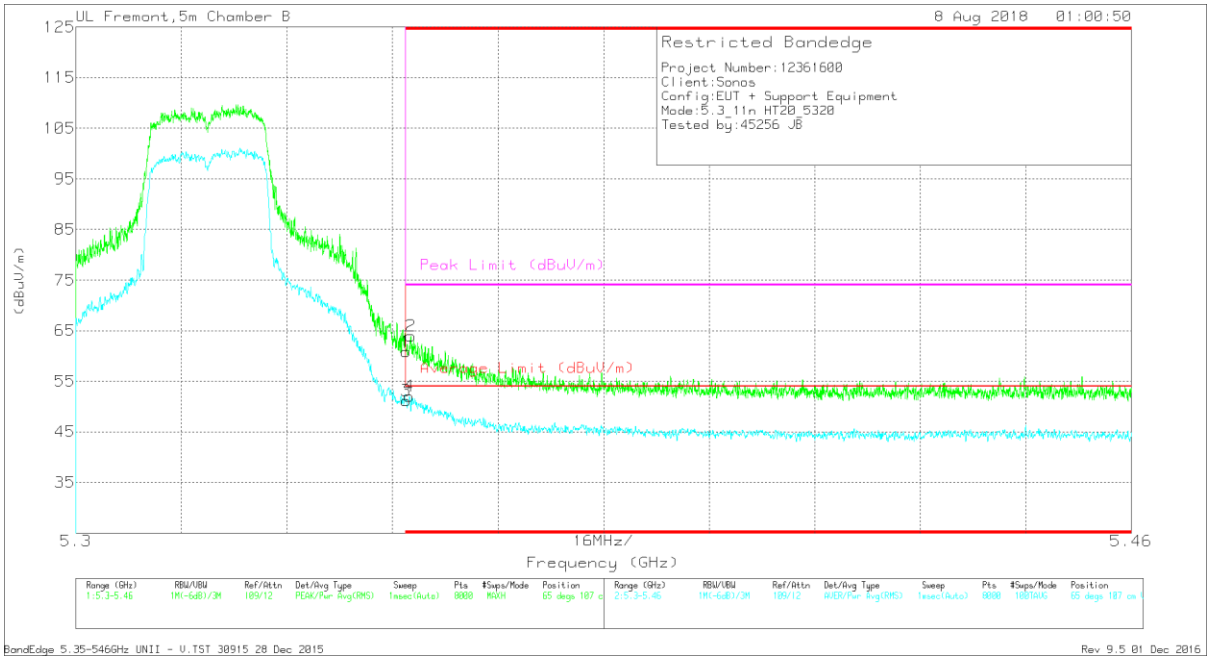


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	43.82	Pk	35	-19.1	0	59.72	-	-	74	-14.28	143	104	H
2	* 5.35	46.08	Pk	35	-19.1	0	61.98	-	-	74	-12.02	143	104	H
3	* 5.35	32.59	RMS	35	-19.1	.38	48.87	54	-5.13	-	-	143	104	H
4	* 5.35	33.39	RMS	35	-19.1	.38	49.67	54	-4.33	-	-	143	104	H

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

VERTICAL RESULT



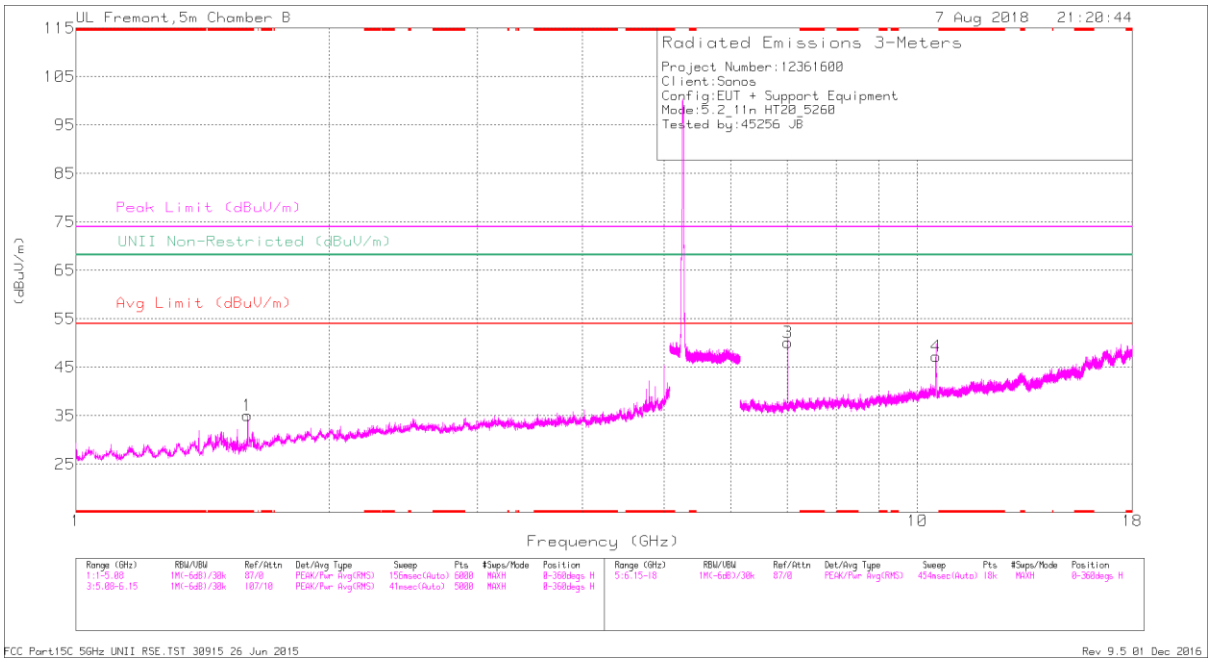
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	44.98	Pk	35	-19.1	0	60.88	-	-	74	-13.12	65	107	V
2	* 5.351	47.97	Pk	35	-19	0	63.97	-	-	74	-10.03	65	107	V
3	* 5.35	34.92	RMS	35	-19.1	.38	51.2	54	-2.8	-	-	65	107	V
4	* 5.351	35.67	RMS	35	-19	.38	52.05	54	-1.95	-	-	65	107	V

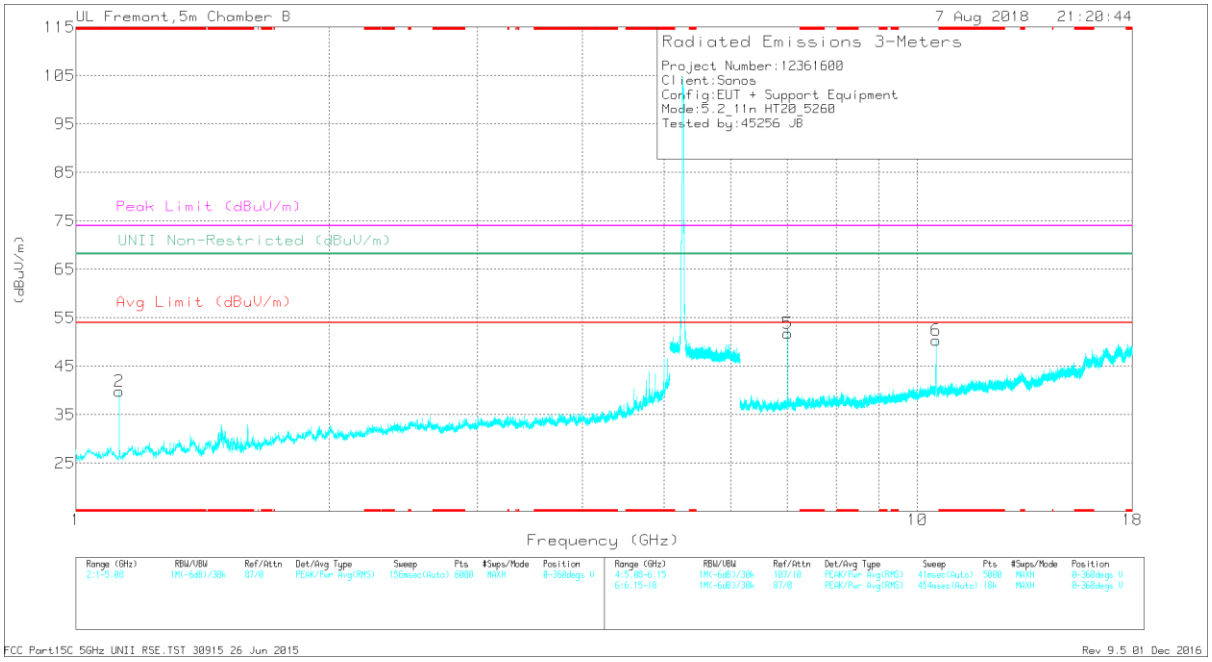
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	41.11	Pk	27.7	-33.7	0	35.11	-	-	74	-38.89	-	-	0-360	102	H
2	* 1.126	46.85	Pk	27.5	-34.5	0	39.85	-	-	74	-34.15	-	-	0-360	200	V
3	7.014	42.23	Pk	35.9	-28	0	50.13	-	-	-	-	68.2	-18.07	0-360	199	H
5	7.014	43.89	Pk	35.9	-28	0	51.79	-	-	-	-	68.2	-16.41	0-360	102	V
6	10.52	37.21	Pk	37.8	-24.6	0	50.41	-	-	-	-	68.2	-17.79	0-360	102	V
4	10.526	34.16	Pk	37.8	-24.7	0	47.26	-	-	-	-	68.2	-20.94	0-360	199	H

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 1.6	45.58	PK-U	27.7	-33.7	0	39.58	-	-	74	-34.42	-	-	293	144	H
* 1.6	38.65	ADR	27.7	-33.7	.38	33.03	54	-20.97	-	-	-	-	293	144	H
* 1.125	41.35	PK-U	27.5	-34.5	0	34.35	-	-	74	-39.65	-	-	24	388	V
* 1.125	28.76	ADR	27.5	-34.5	.38	22.14	54	-31.86	-	-	-	-	24	388	V
7.013	45.22	PK-U	35.9	-28	0	53.12	-	-	-	-	68.2	-15.08	99	210	H
7.013	47.32	PK-U	35.9	-28	0	55.22	-	-	-	-	68.2	-12.98	239	103	V
10.52	44.43	PK-U	37.8	-24.6	0	57.63	-	-	-	-	68.2	-10.57	51	197	V
10.524	43.29	PK-U	37.8	-24.7	0	56.39	-	-	-	-	68.2	-11.81	181	181	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

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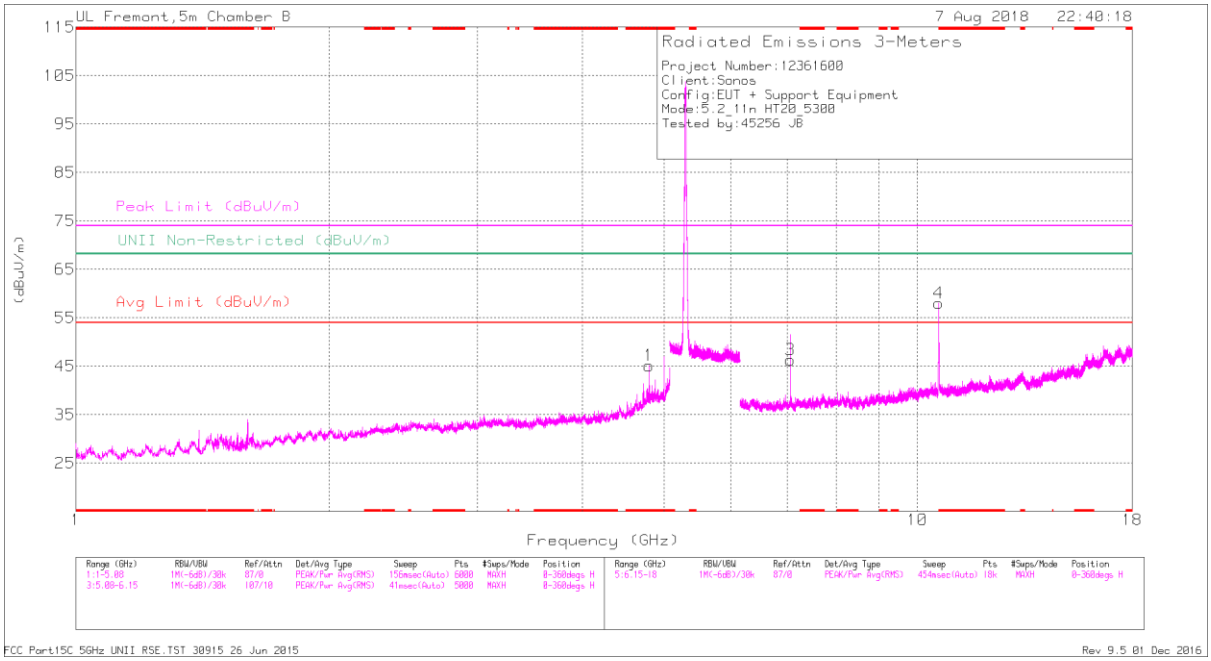
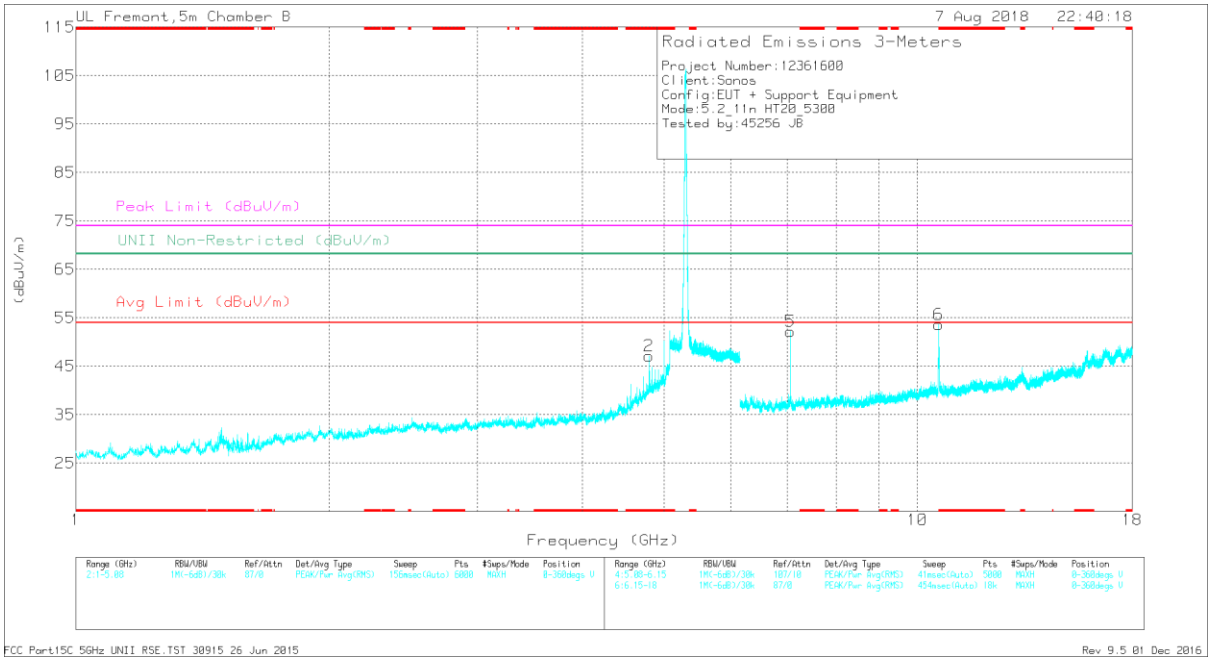
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 4.8	41.92	Pk	34	-30.8	0	45.12	-	-	74	-28.88	-	-	0-360	102	H
2	* 4.8	43.98	Pk	34	-30.8	0	47.18	-	-	74	-26.82	-	-	0-360	200	V
6	* 10.603	40.84	Pk	37.7	-24.9	0	53.64	-	-	74	-20.36	-	-	0-360	101	V
3	7.066	38.79	Pk	36	-28.5	0	46.29	-	-	-	-	68.2	-21.91	0-360	199	H
5	7.066	44.69	Pk	36	-28.5	0	52.19	-	-	-	-	68.2	-16.01	0-360	101	V
4	10.6	45.26	Pk	37.7	-24.9	0	58.06	-	-	-	-	68.2	-10.14	0-360	102	H

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 4.8	45.89	PK-U	34	-30.8	0	49.09	-	-	74	-24.91	-	-	115	112	H
* 4.8	37.81	ADR	34	-30.8	.38	41.39	54	-12.61	-	-	-	-	115	112	H
* 4.8	49.01	PK-U	34	-30.8	0	52.21	-	-	74	-21.79	-	-	58	197	V
* 4.8	40.99	ADR	34	-30.8	.38	44.57	54	-9.43	-	-	-	-	58	197	V
* 10.601	45.25	PK-U	37.7	-24.9	0	58.05	-	-	74	-15.95	-	-	55	104	V
* 10.601	33.85	ADR	37.7	-24.9	.38	47.03	54	-6.97	-	-	-	-	55	104	V
7.067	47.51	PK-U	36	-28.5	0	55.01	-	-	-	-	68.2	-13.19	98	216	H
7.067	48.46	PK-U	36	-28.5	0	55.96	-	-	-	-	68.2	-12.24	241	103	V
10.6	48.5	PK-U	37.7	-24.9	0	61.3	-	-	-	-	68.2	-6.9	168	102	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

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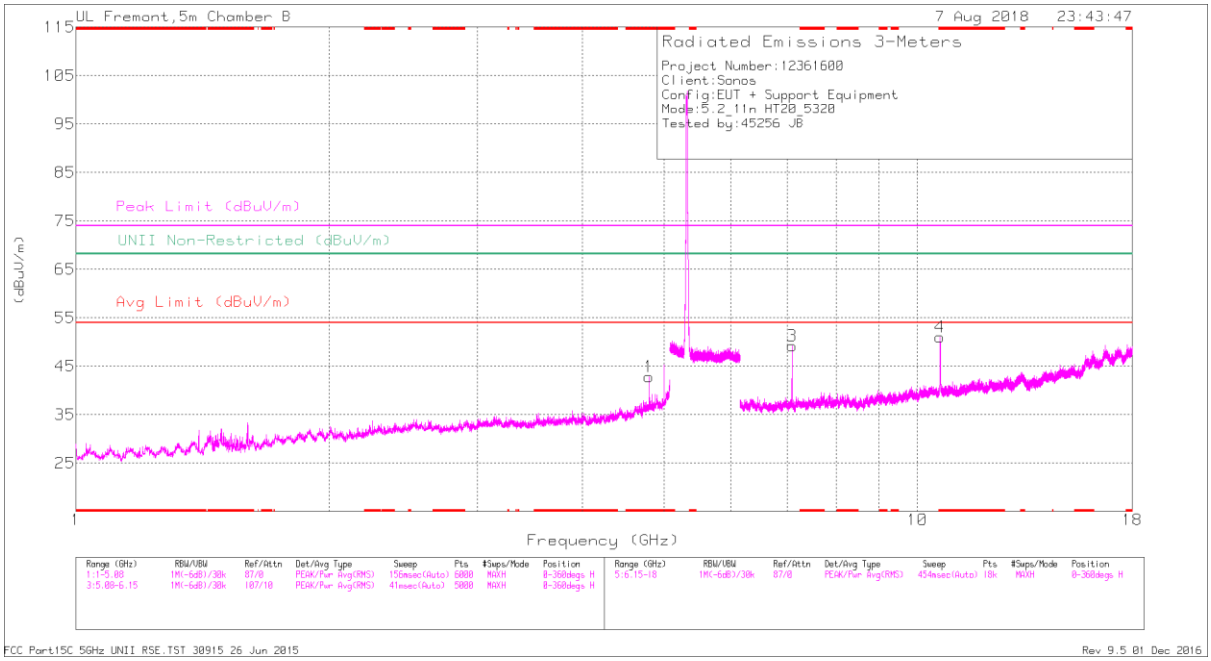
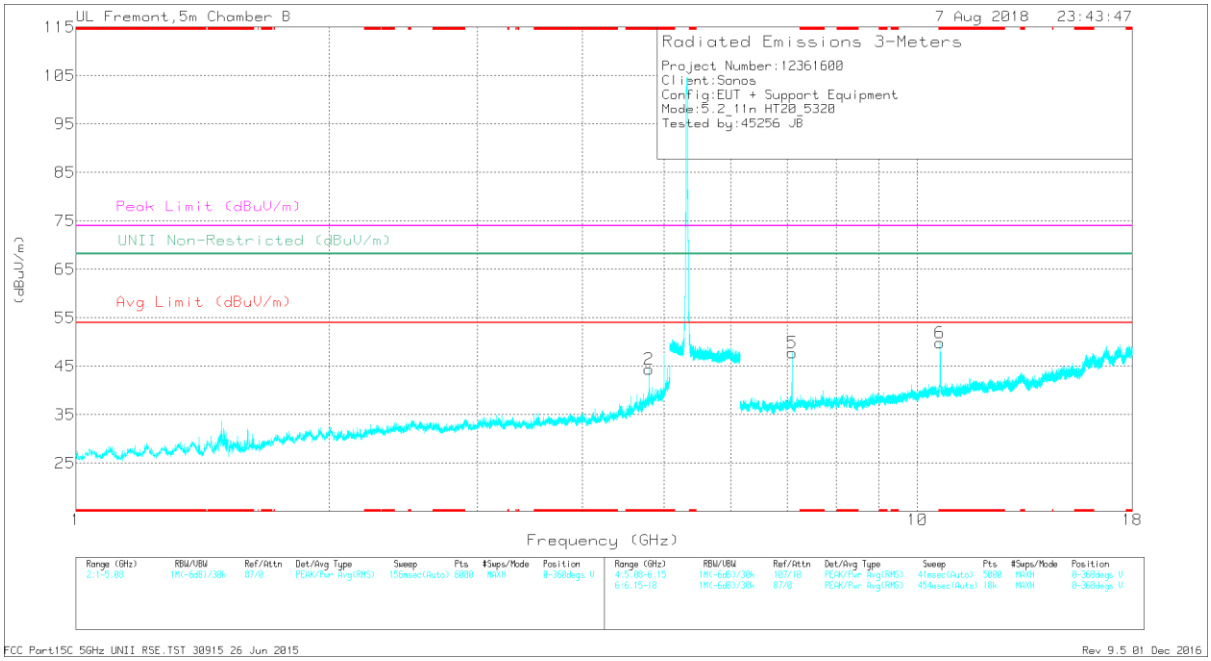
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 4.8	39.59	Pk	34	-30.8	0	42.79	-	-	74	-31.21	-	-	0-360	103	H
2	* 4.8	41.21	Pk	34	-30.8	0	44.41	-	-	74	-29.59	-	-	0-360	200	V
4	* 10.641	37.36	Pk	37.8	-24.1	0	51.06	-	-	74	-22.94	-	-	0-360	199	H
6	* 10.64	36.31	Pk	37.8	-24.2	0	49.91	-	-	74	-24.09	-	-	0-360	102	V
3	7.093	42.17	Pk	36	-29	0	49.17	-	-	-	-	68.2	-19.03	0-360	199	H
5	7.093	40.83	Pk	36	-29	0	47.83	-	-	-	-	68.2	-20.37	0-360	102	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 4.8	44.21	PK-U	34	-30.8	0	47.41	-	-	74	-26.59	-	-	130	110	H
* 4.8	36.76	ADR	34	-30.8	.38	40.34	54	-13.66	-	-	-	-	130	110	H
* 4.8	46.74	PK-U	34	-30.8	0	49.94	-	-	74	-24.06	-	-	55	205	V
* 4.8	40.08	ADR	34	-30.8	.38	43.66	54	-10.34	-	-	-	-	55	205	V
* 10.64	44.71	PK-U	37.8	-24.2	0	58.31	-	-	74	-15.69	-	-	186	190	H
* 10.64	31.84	ADR	37.8	-24.2	.38	45.82	54	-8.18	-	-	-	-	186	190	H
* 10.64	43.09	PK-U	37.8	-24.2	0	56.69	-	-	74	-17.31	-	-	50	110	V
* 10.639	30.34	ADR	37.8	-24.2	.38	44.32	54	-9.68	-	-	-	-	50	110	V
7.093	44.17	PK-U	36	-29	0	51.17	-	-	-	-	68.2	-17.03	102	214	H
7.093	44.95	PK-U	36	-29	0	51.95	-	-	-	-	68.2	-16.25	244	120	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

UL VERIFICATION SERVICES INC.
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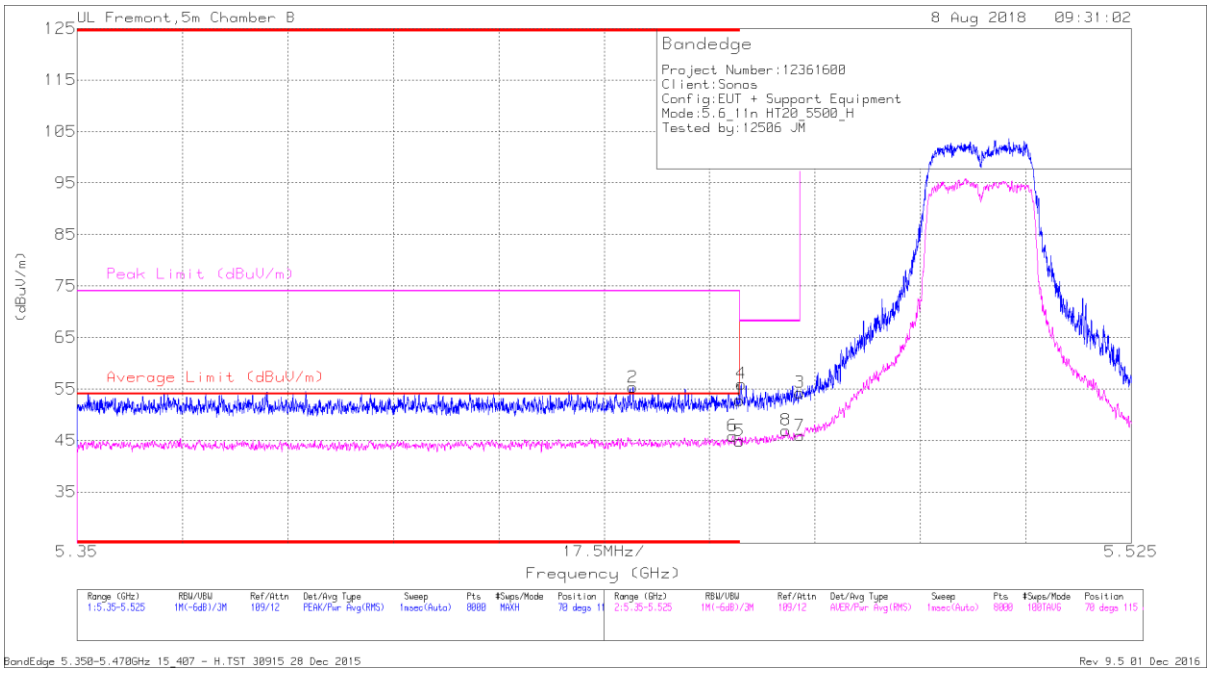
9.1.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.6 GHz BAND

2TX CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

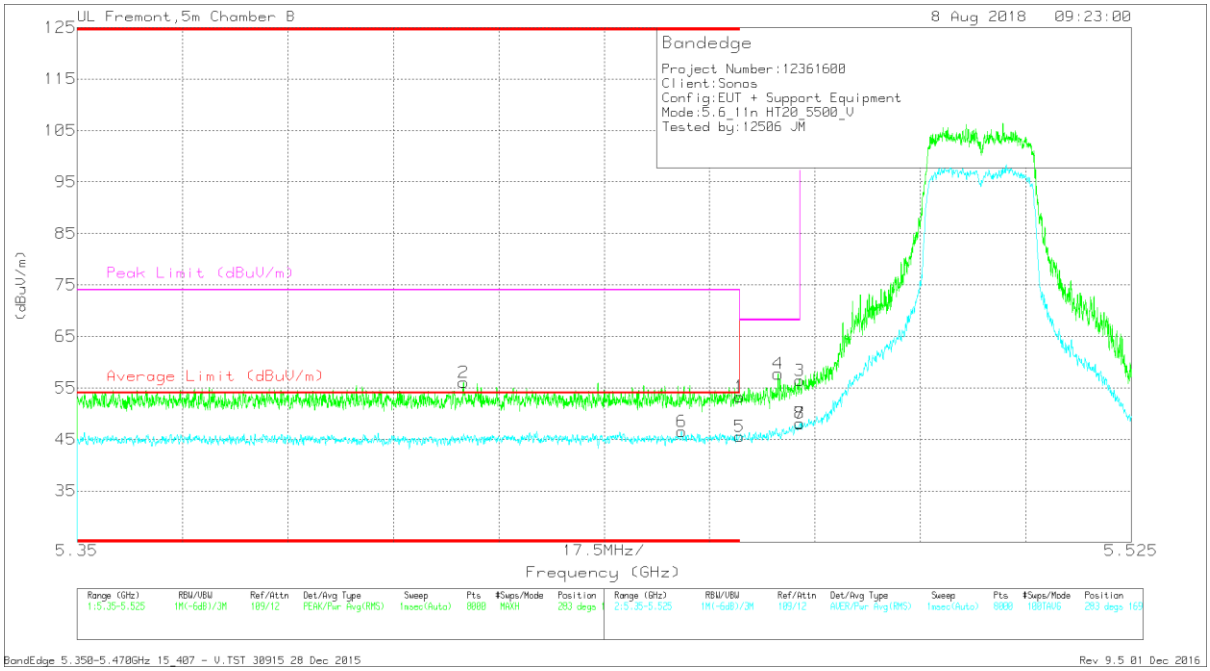


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 5.442	39.64	Pk	35.2	-19.5	0	55.34	-	-	74	-18.66	70	115	H
6	* 5.459	29.79	RMS	35.3	-19.6	.38	45.87	54	-8.13	-	-	70	115	H
1	* 5.46	37.07	Pk	35.3	-19.6	0	52.77	-	-	74	-21.23	70	115	H
5	* 5.46	28.82	RMS	35.3	-19.6	.38	44.9	54	-9.1	-	-	70	115	H
4	5.46	40.31	Pk	35.3	-19.6	0	56.01	-	-	68.2	-12.19	70	115	H
8	5.468	30.79	RMS	35.3	-19.5	.38	46.97	-	-	-	-	70	115	H
3	5.47	38.59	Pk	35.3	-19.6	0	54.29	-	-	68.2	-13.91	70	115	H
7	5.47	29.85	RMS	35.3	-19.6	.38	45.93	-	-	-	-	70	115	H

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

VERTICAL RESULT



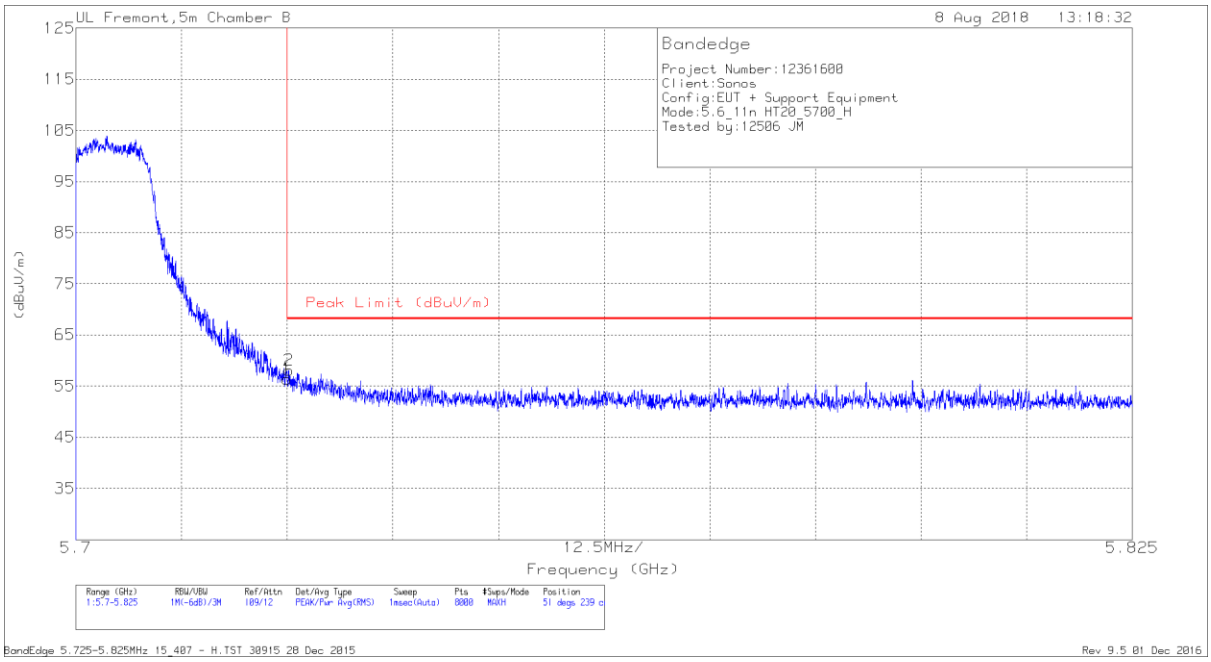
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 5.414	40.25	Pk	35.2	-19.4	0	56.05	-	-	74	-17.95	283	169	V
6	* 5.45	30.44	RMS	35.3	-19.6	.38	46.52	54	-7.48	-	-	283	169	V
1	* 5.46	37.58	Pk	35.3	-19.6	0	53.28	-	-	74	-20.72	283	169	V
5	* 5.46	29.49	RMS	35.3	-19.6	.38	45.57	54	-8.43	-	-	283	169	V
4	5.466	41.93	Pk	35.3	-19.5	0	57.73	-	-	68.2	-10.47	283	169	V
3	5.47	40.72	Pk	35.3	-19.6	0	56.42	-	-	68.2	-11.78	283	169	V
7	5.47	32.06	RMS	35.3	-19.6	.38	48.14	-	-	-	-	283	169	V
8	5.47	32.01	RMS	35.3	-19.6	.38	48.09	-	-	-	-	283	169	V

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

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT

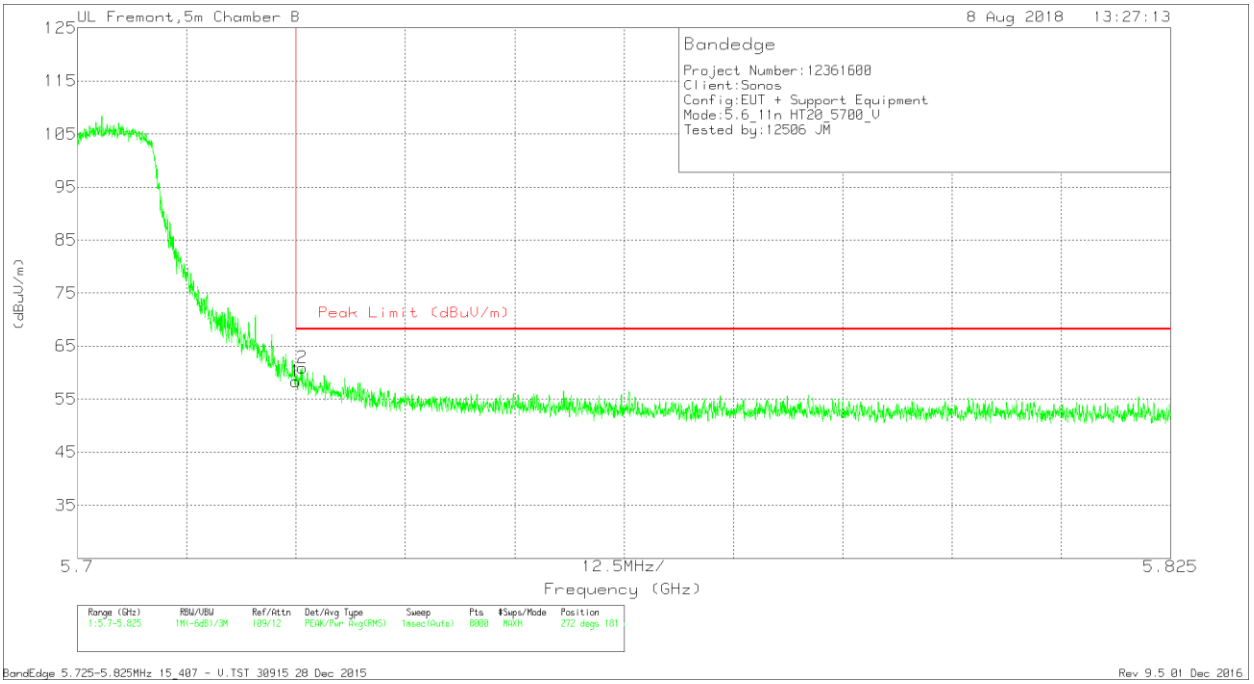


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	40.91	Pk	35.5	-20	56.41	68.2	-11.79	51	239	H
2	5.725	42.65	Pk	35.5	-20	58.15	68.2	-10.05	51	239	H

Pk - Peak detector

VERTICAL RESULT



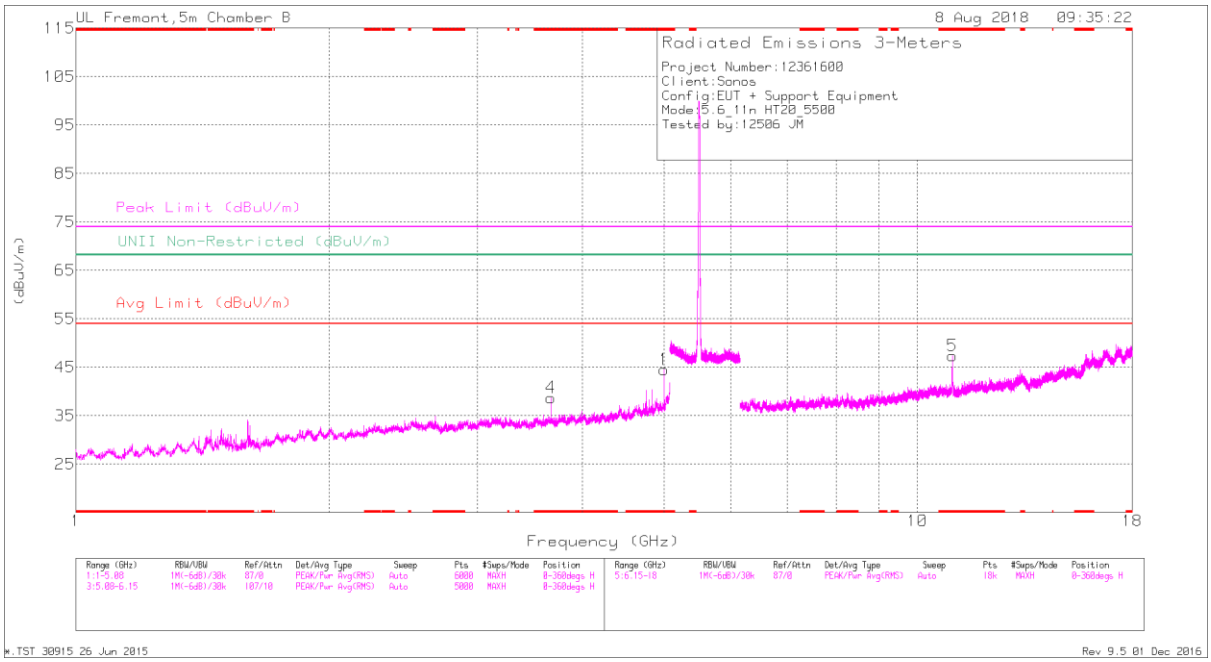
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.725	42.81	Pk	35.5	-20	0	58.31	68.2	-9.89	272	181	V
2	5.726	45.55	Pk	35.5	-20.1	0	60.95	68.2	-7.25	272	181	V

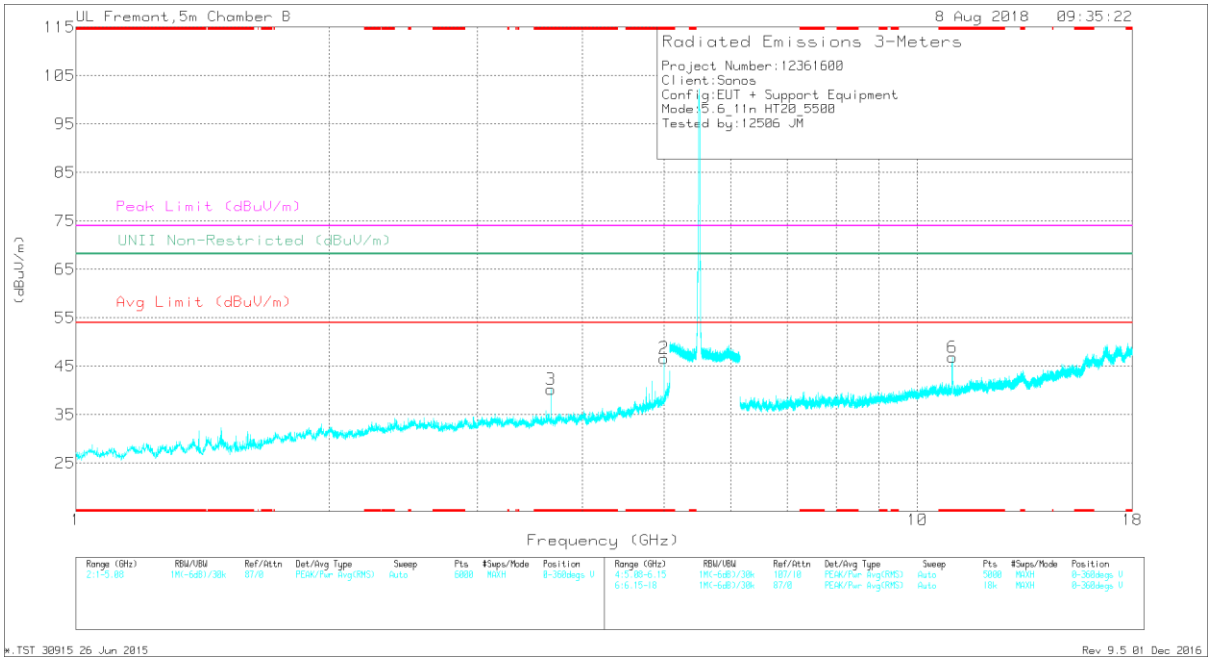
Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	39.06	Pk	34.6	-29.1	0	44.56	-	-	74	-29.44	-	-	0-360	98	H
4	* 3.667	37.05	Pk	33.3	-31.6	0	38.75	-	-	74	-35.25	-	-	0-360	98	H
2	* 5	41.17	Pk	34.6	-29.1	0	46.67	-	-	74	-27.33	-	-	0-360	102	V
3	* 3.667	38.54	Pk	33.3	-31.6	0	40.24	-	-	74	-33.76	-	-	0-360	200	V
5	* 11	33.02	Pk	37.9	-23.5	0	47.42	-	-	74	-26.58	-	-	0-360	102	H
6	* 11	32.44	Pk	37.9	-23.5	0	46.84	-	-	74	-27.16	-	-	0-360	102	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 5	42.3	PK-U	34.6	-29.1	0	47.8	-	-	74	-26.2	-	-	4	109	H
* 5	35.95	ADR	34.6	-29.1	.38	41.83	54	-12.17	-	-	-	-	4	109	H
* 3.667	43.35	PK-U	33.3	-31.6	0	45.05	-	-	74	-28.95	-	-	41	104	H
* 3.667	36.62	ADR	33.3	-31.6	.38	38.7	54	-15.3	-	-	-	-	41	104	H
* 5	45.36	PK-U	34.6	-29.1	0	50.86	-	-	74	-23.14	-	-	173	131	V
* 5	38.97	ADR	34.6	-29.1	.38	44.85	54	-9.15	-	-	-	-	173	131	V
* 3.666	42.54	PK-U	33.3	-31.6	0	44.24	-	-	74	-29.76	-	-	244	318	V
* 3.667	36.44	ADR	33.3	-31.6	.38	38.52	54	-15.48	-	-	-	-	244	318	V
* 11.002	39.16	PK-U	37.9	-23.5	0	53.56	-	-	74	-20.44	-	-	345	257	H
* 10.999	27.36	ADR	37.9	-23.6	.38	42.04	54	-11.96	-	-	-	-	345	257	H
* 11	40.5	PK-U	37.9	-23.5	0	54.9	-	-	74	-19.1	-	-	70	333	V
* 11	29.34	ADR	37.9	-23.5	.38	44.12	54	-9.88	-	-	-	-	70	333	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

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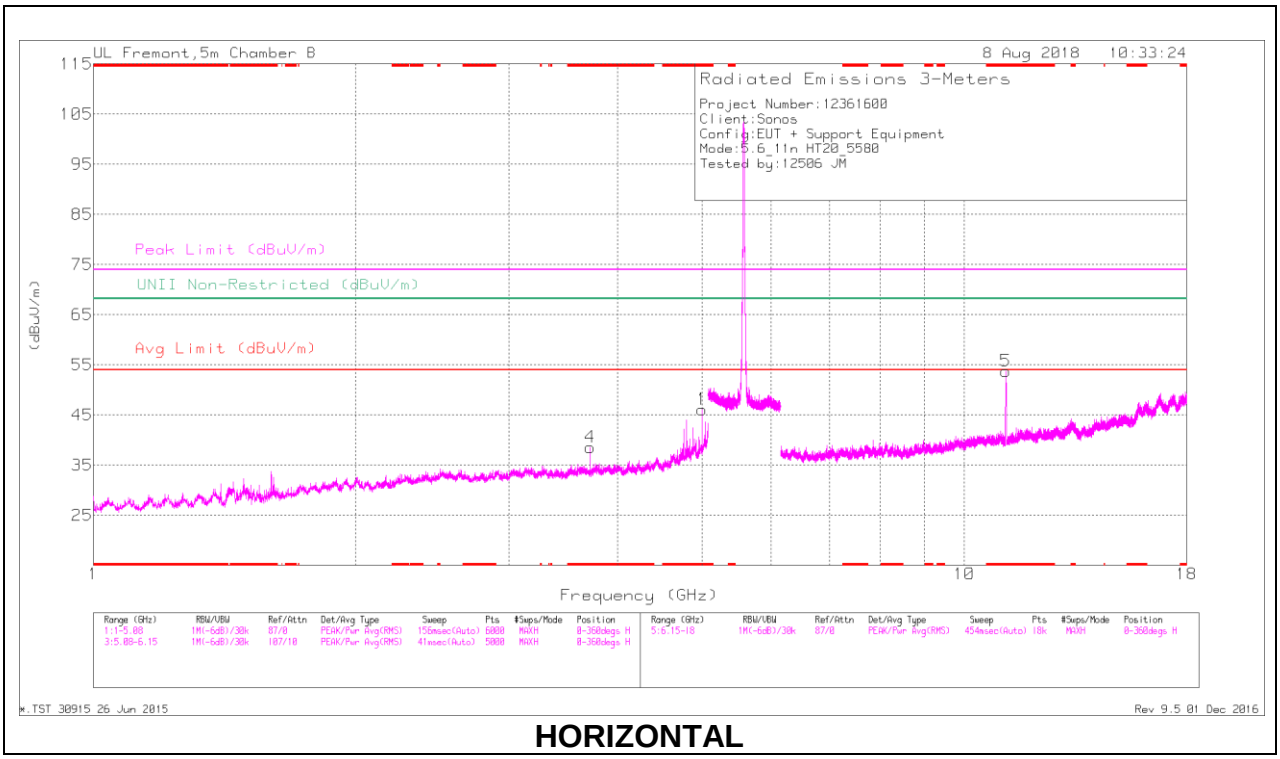
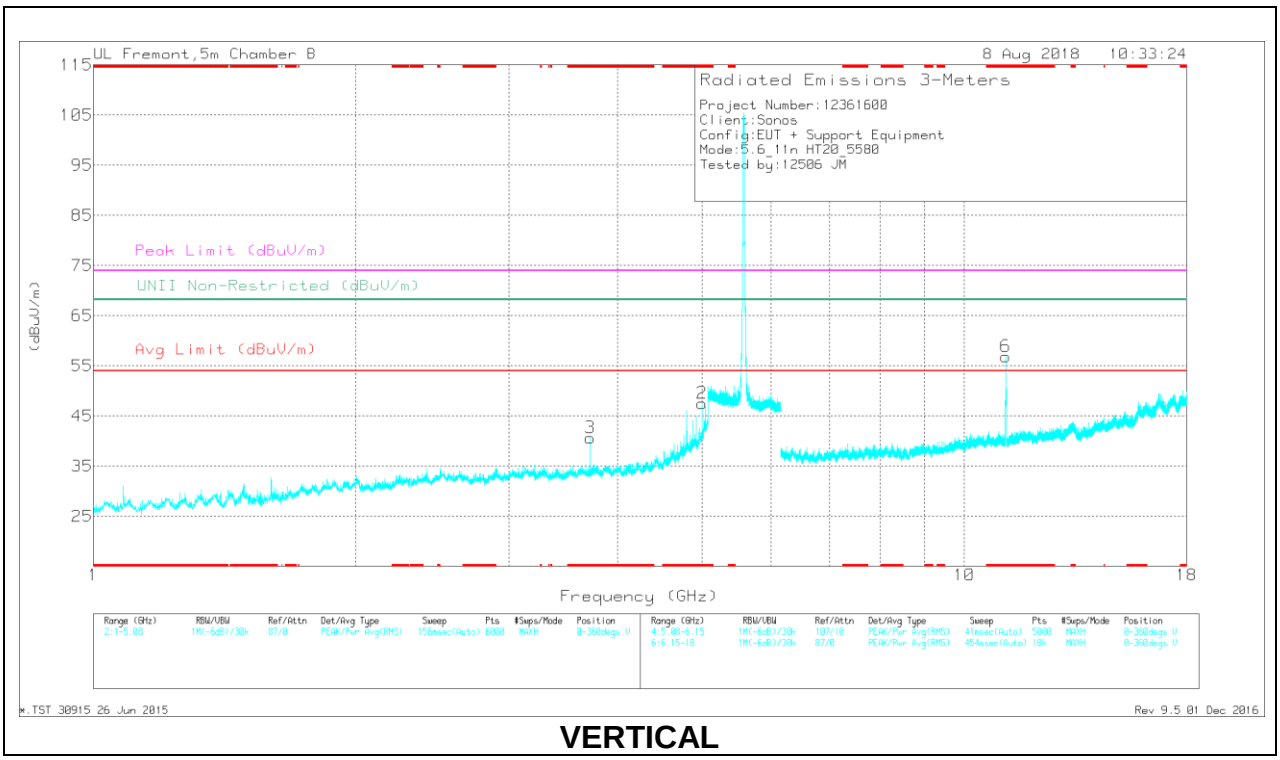
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	40.63	Pk	34.6	-29.1	0	46.13	-	-	74	-27.87	-	-	0-360	102	H
4	* 3.72	36.96	Pk	33.3	-31.7	0	38.56	-	-	74	-35.44	-	-	0-360	102	H
2	* 5	42.03	Pk	34.6	-29.1	0	47.53	-	-	74	-26.47	-	-	0-360	200	V
3	* 3.72	39.01	Pk	33.3	-31.7	0	40.61	-	-	74	-33.39	-	-	0-360	200	V
5	* 11.16	40.79	Pk	37.9	-24.9	0	53.79	-	-	74	-20.21	-	-	0-360	199	H
6	* 11.16	43.81	Pk	37.9	-24.9	0	56.81	-	-	74	-17.19	-	-	0-360	102	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 5	42.98	PK-U	34.6	-29.1	0	48.48	-	-	74	-25.52	-	-	3	112	H
* 5	36.58	ADR	34.6	-29.1	.38	42.46	54	-11.54	-	-	-	-	3	112	H
* 3.72	42.04	PK-U	33.3	-31.7	0	43.64	-	-	74	-30.36	-	-	42	105	H
* 3.72	35.29	ADR	33.3	-31.7	.38	37.27	54	-16.73	-	-	-	-	42	105	H
* 5	49.25	PK-U	34.6	-29.1	0	54.75	-	-	74	-19.25	-	-	181	145	V
* 5	42.17	ADR	34.6	-29.1	.38	48.05	54	-5.95	-	-	-	-	181	145	V
* 3.72	44.37	PK-U	33.3	-31.7	0	45.97	-	-	74	-28.03	-	-	244	210	V
* 3.72	38.69	ADR	33.3	-31.7	.38	40.67	54	-13.33	-	-	-	-	244	210	V
* 11.16	47.98	PK-U	37.9	-24.9	0	60.98	-	-	74	-13.02	-	-	208	208	H
* 11.16	34.14	ADR	37.9	-24.9	.38	47.52	54	-6.48	-	-	-	-	208	208	H
* 11.16	50.2	PK-U	37.9	-24.9	0	63.2	-	-	74	-10.8	-	-	131	225	V
* 11.16	35.47	ADR	37.9	-24.9	.38	48.85	54	-5.15	-	-	-	-	131	225	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

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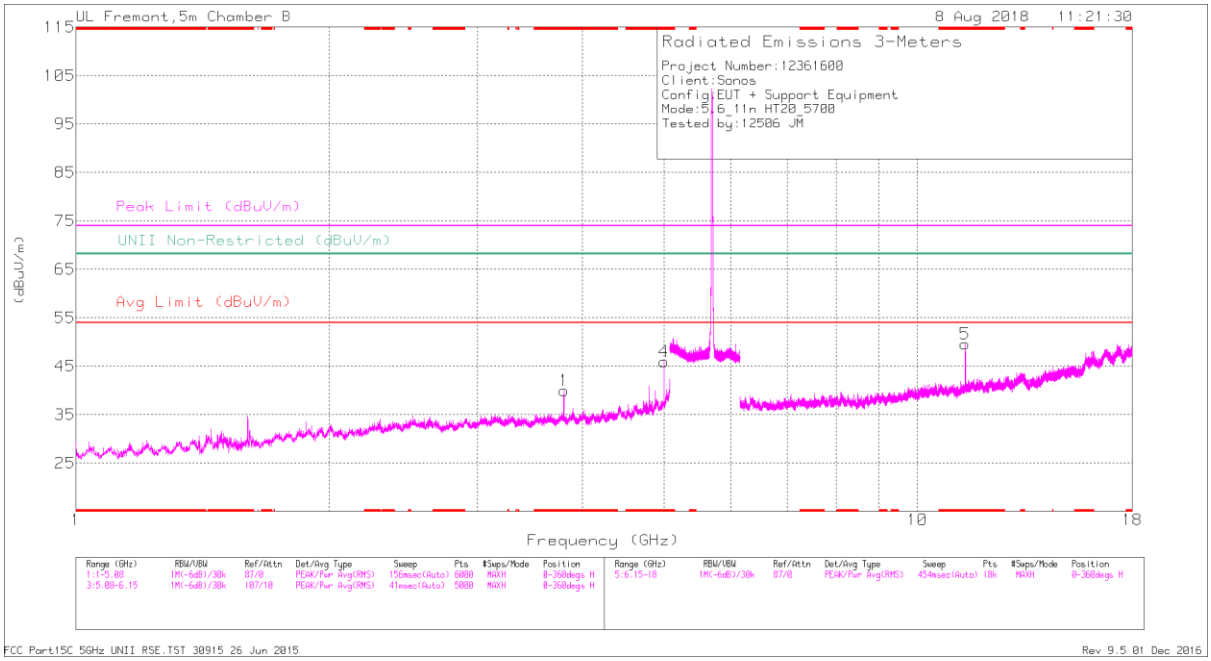
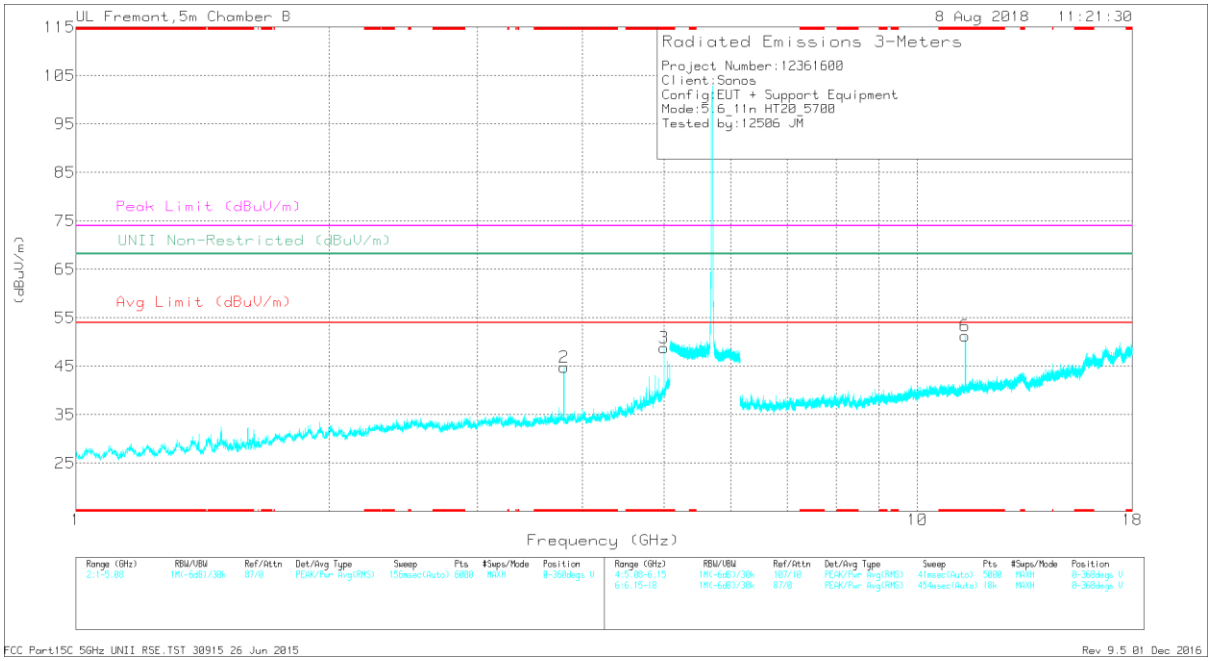
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 3.8	38.28	Pk	33.4	-31.7	0	39.98	-	-	74	-34.02	-	-	0-360	102	H
4	* 5	40.49	Pk	34.6	-29.1	0	45.99	-	-	74	-28.01	-	-	0-360	102	H
2	* 3.8	43.13	Pk	33.4	-31.7	0	44.83	-	-	74	-29.17	-	-	0-360	102	V
3	* 5	43.26	Pk	34.6	-29.1	0	48.76	-	-	74	-25.24	-	-	0-360	102	V
5	* 11.399	35.95	Pk	38.4	-24.7	0	49.65	-	-	74	-24.35	-	-	0-360	102	H
6	* 11.399	37.59	Pk	38.4	-24.7	0	51.29	-	-	74	-22.71	-	-	0-360	200	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 3.8	43.9	PK-U	33.4	-31.8	0	45.5	-	-	74	-28.5	-	-	150	133	H
* 3.8	38.17	ADR	33.4	-31.8	.38	40.15	54	-13.85	-	-	-	-	150	133	H
* 5	43.6	PK-U	34.6	-29.1	0	49.1	-	-	74	-24.9	-	-	2	120	H
* 5	37.76	ADR	34.6	-29.1	.38	43.64	54	-10.36	-	-	-	-	2	120	H
* 3.8	46.3	PK-U	33.4	-31.8	0	47.9	-	-	74	-26.1	-	-	166	107	V
* 3.8	42.49	ADR	33.4	-31.8	.38	44.47	54	-9.53	-	-	-	-	166	107	V
* 5	48.04	PK-U	34.6	-29.1	0	53.54	-	-	74	-20.46	-	-	173	120	V
* 5	42.06	ADR	34.6	-29.1	.38	47.94	54	-6.06	-	-	-	-	173	120	V
* 11.4	45.75	PK-U	38.4	-24.7	0	59.45	-	-	74	-14.55	-	-	146	125	H
* 11.4	31.14	ADR	38.4	-24.7	.38	45.22	54	-8.78	-	-	-	-	146	125	H
* 11.4	48.07	PK-U	38.4	-24.7	0	61.77	-	-	74	-12.23	-	-	35	344	V
* 11.4	33.78	ADR	38.4	-24.7	.38	47.86	54	-6.14	-	-	-	-	35	344	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

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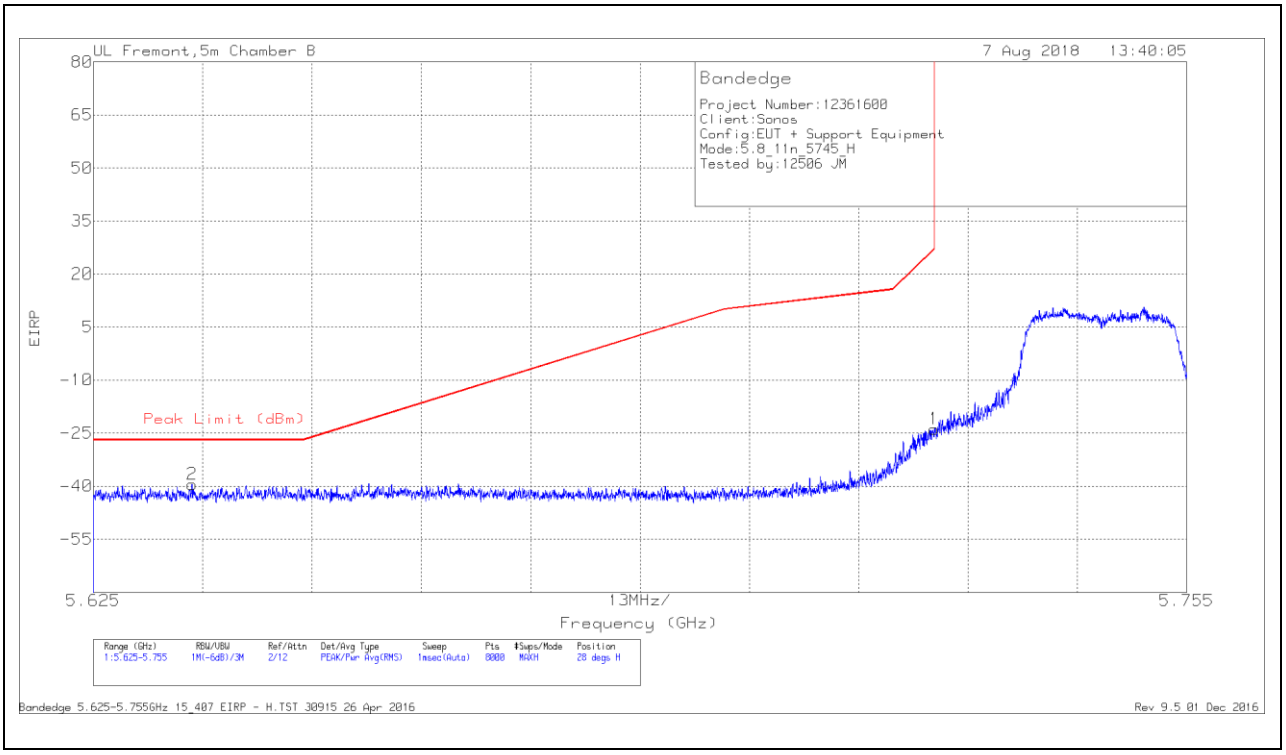
9.1.4. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 5.8 GHz BAND

2TX CDD MODE

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT

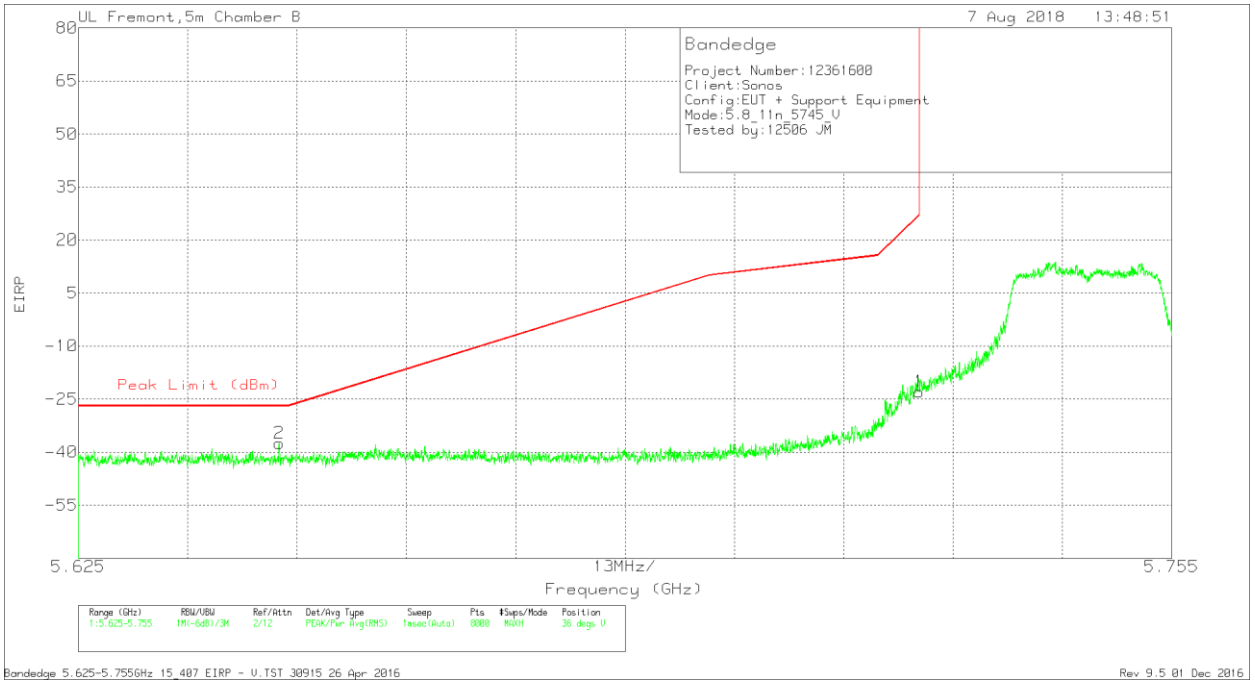


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	DC Corr (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.637	-66.66	Pk	35.5	-20.1	11.8	0	-39.46	-27	-12.46	28	244	H
1	5.725	-51.13	Pk	35.5	-20	11.8	0	-23.83	27	-50.83	28	244	H

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

VERTICAL RESULT



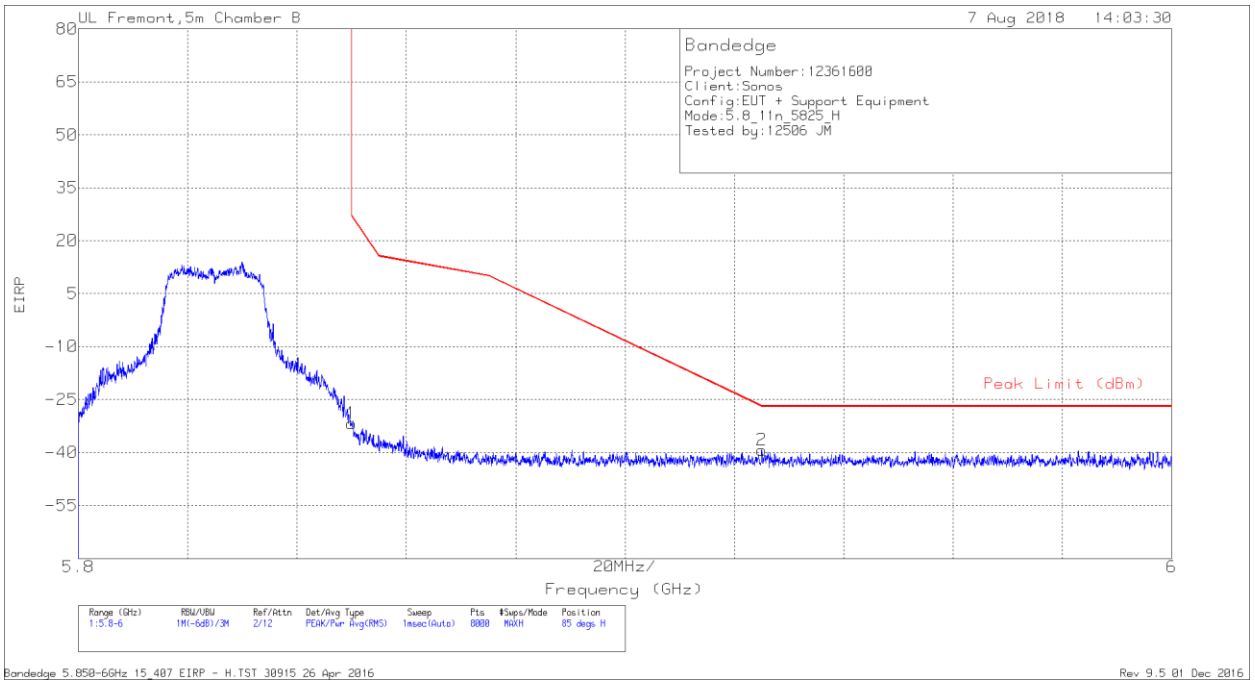
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	5.649	-64.69	Pk	35.5	-20.1	11.8	-37.49	-27	-10.49	36	159	V
1	5.725	-50.3	Pk	35.5	-20	11.8	-23	27	-50	36	159	V

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

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-58.9	Pk	35.4	-20	11.8	-31.7	26.99	-58.69	85	113	H
2	5.925	-66.95	Pk	35.4	-19.6	11.8	-39.35	-26.99	-12.36	85	113	H

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

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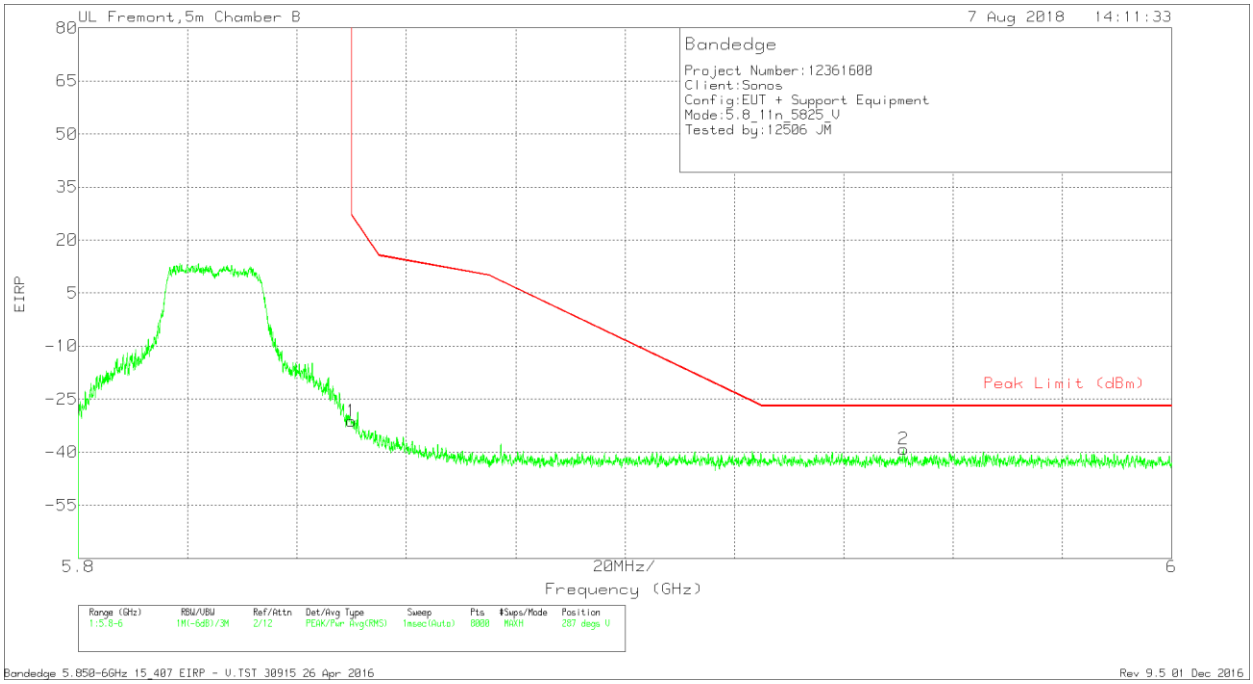
VERTICAL RESULT



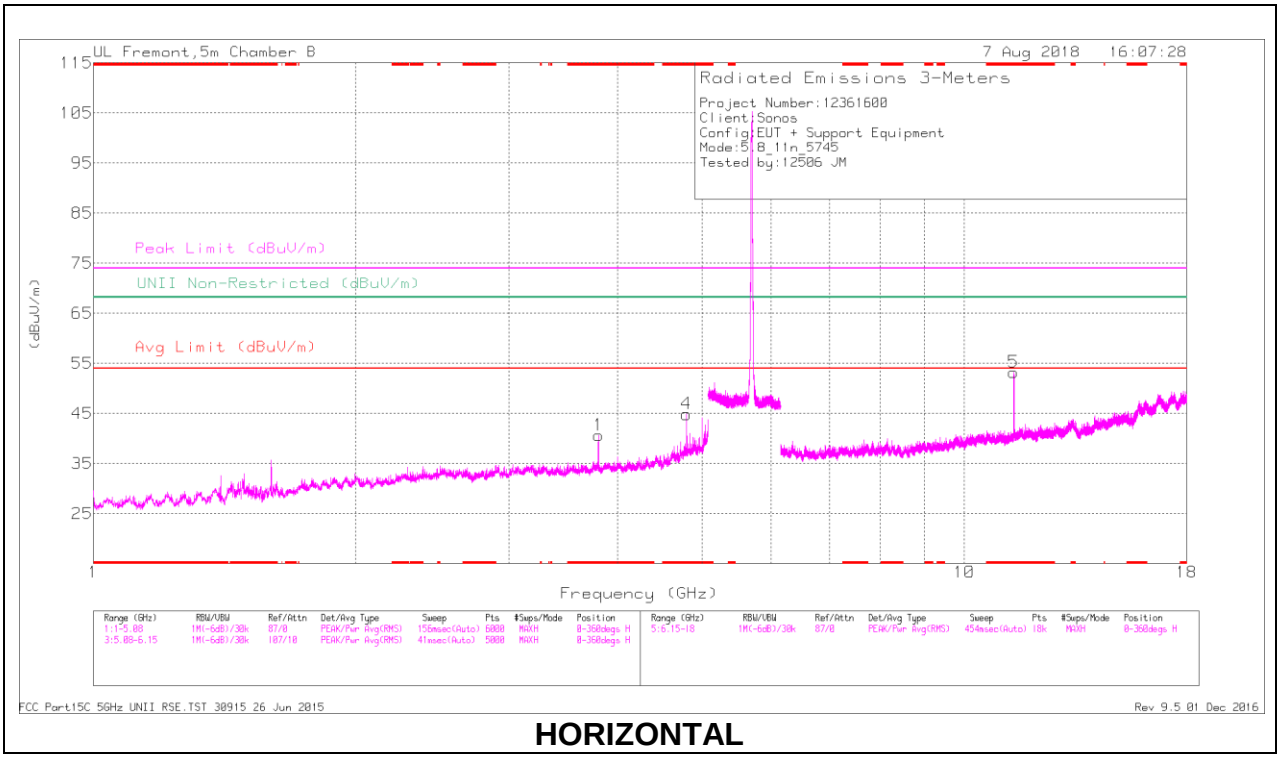
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T863 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Conversion Factor (dB)	Corrected Reading EIRP	Peak Limit (dBm)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	5.85	-58.36	Pk	35.4	-20	11.8	-31.16	26.99	-58.15	287	112	V
2	5.951	-66.69	Pk	35.4	-19.7	11.8	-39.19	-27	-12.19	287	112	V

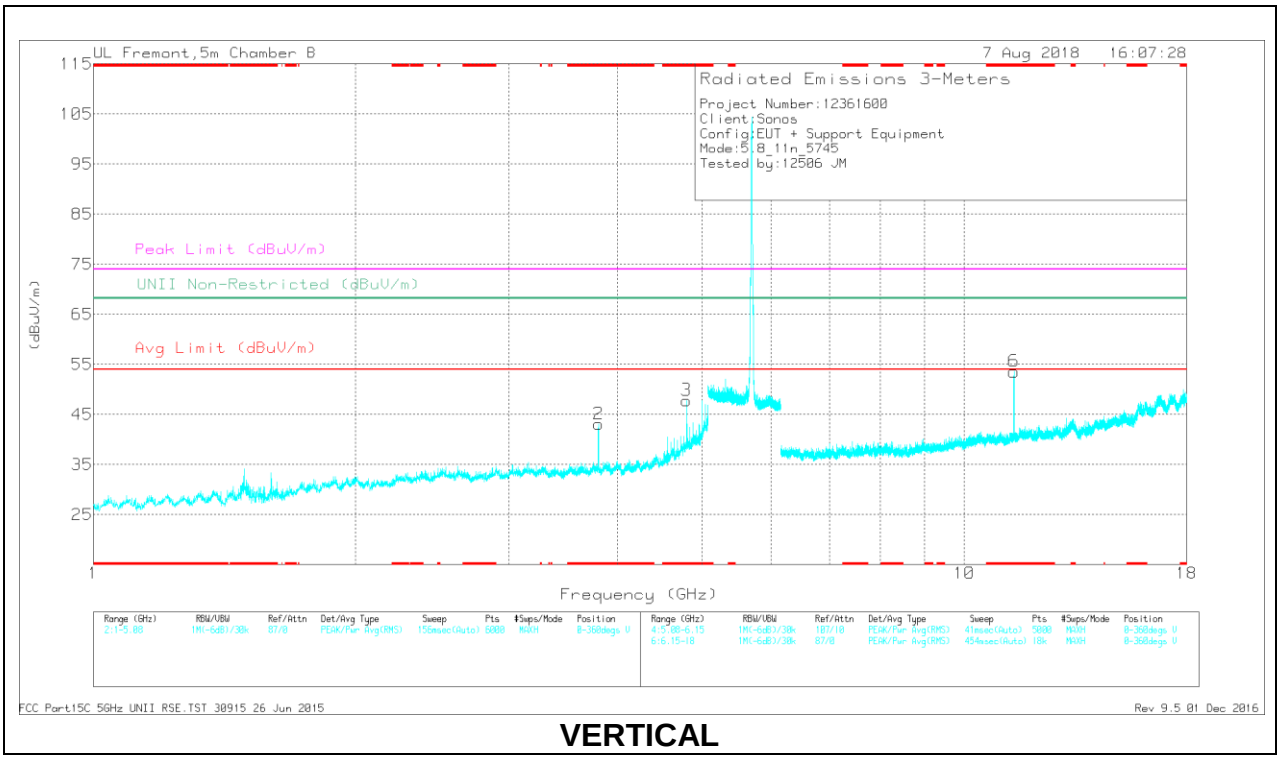
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 3.8	38.99	Pk	33.4	-31.7	0	40.69	-	-	74	-33.31	-	-	0-360	102	H
4	* 4.8	41.66	Pk	34	-30.8	0	44.86	-	-	74	-29.14	-	-	0-360	102	H
2	* 3.8	41.39	Pk	33.4	-31.7	0	43.09	-	-	74	-30.91	-	-	0-360	101	V
3	* 4.8	44.64	Pk	34	-30.8	0	47.84	-	-	74	-26.16	-	-	0-360	200	V
5	* 11.399	39.56	Pk	38.4	-24.7	0	53.26	-	-	74	-20.74	-	-	0-360	102	H
6	* 11.4	39.86	Pk	38.4	-24.7	0	53.56	-	-	74	-20.44	-	-	0-360	200	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 3.8	44.68	PK-U	33.4	-31.8	0	46.28	-	-	74	-27.72	-	-	302	321	H
* 3.8	39.29	ADR	33.4	-31.8	.38	41.27	54	-12.73	-	-	-	-	302	321	H
* 4.8	46.48	PK-U	34	-30.8	0	49.68	-	-	74	-24.32	-	-	137	112	H
* 4.8	40.64	ADR	34	-30.8	.38	44.22	54	-9.78	-	-	-	-	137	112	H
* 3.8	46.51	PK-U	33.4	-31.8	0	48.11	-	-	74	-25.89	-	-	170	123	V
* 3.8	42.58	ADR	33.4	-31.8	.38	44.56	54	-9.44	-	-	-	-	170	123	V
* 4.8	48.24	PK-U	34	-30.8	0	51.44	-	-	74	-22.56	-	-	59	212	V
* 4.8	43.13	ADR	34	-30.8	.38	46.71	54	-7.29	-	-	-	-	59	212	V
* 11.4	48.26	PK-U	38.4	-24.7	0	61.96	-	-	74	-12.04	-	-	183	119	H
* 11.4	33.18	ADR	38.4	-24.7	.38	47.26	54	-6.74	-	-	-	-	183	119	H
* 11.4	50.37	PK-U	38.4	-24.7	0	64.07	-	-	74	-9.93	-	-	79	290	V
* 11.4	37.04	ADR	38.4	-24.7	.38	51.12	54	-2.88	-	-	-	-	79	290	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

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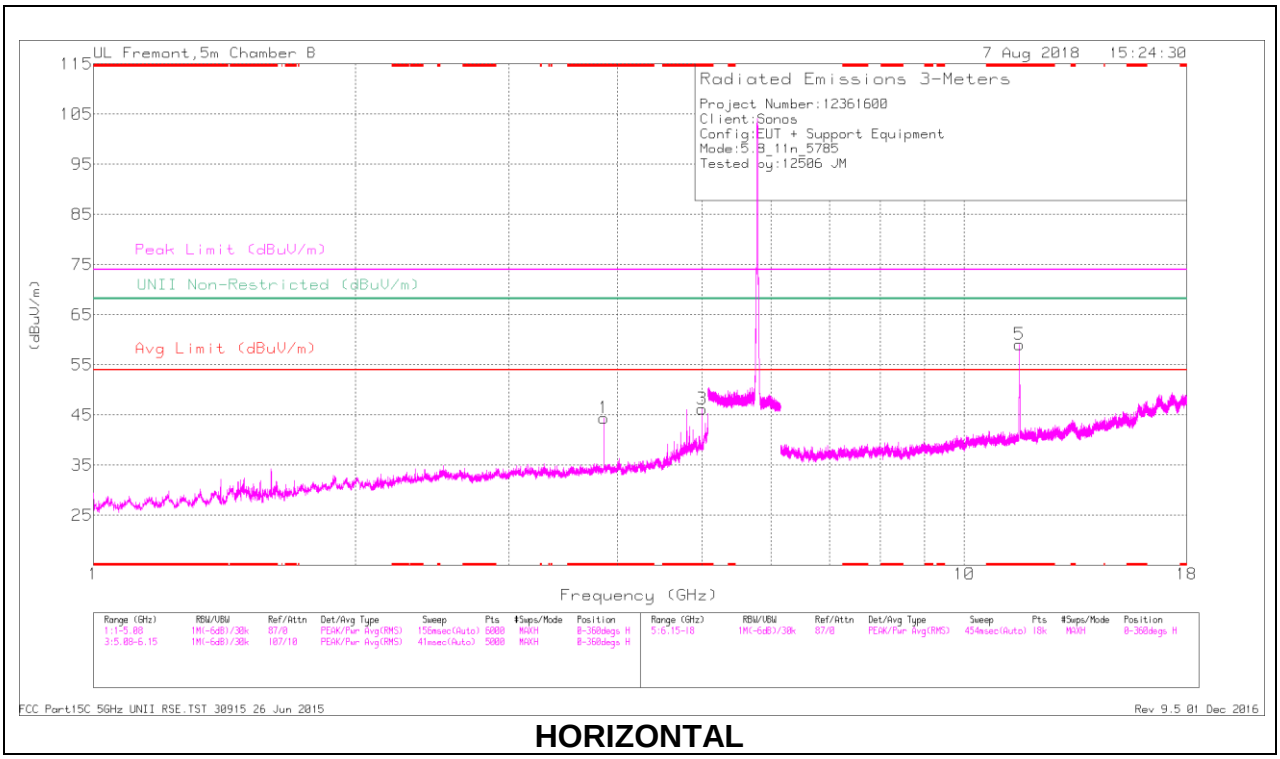
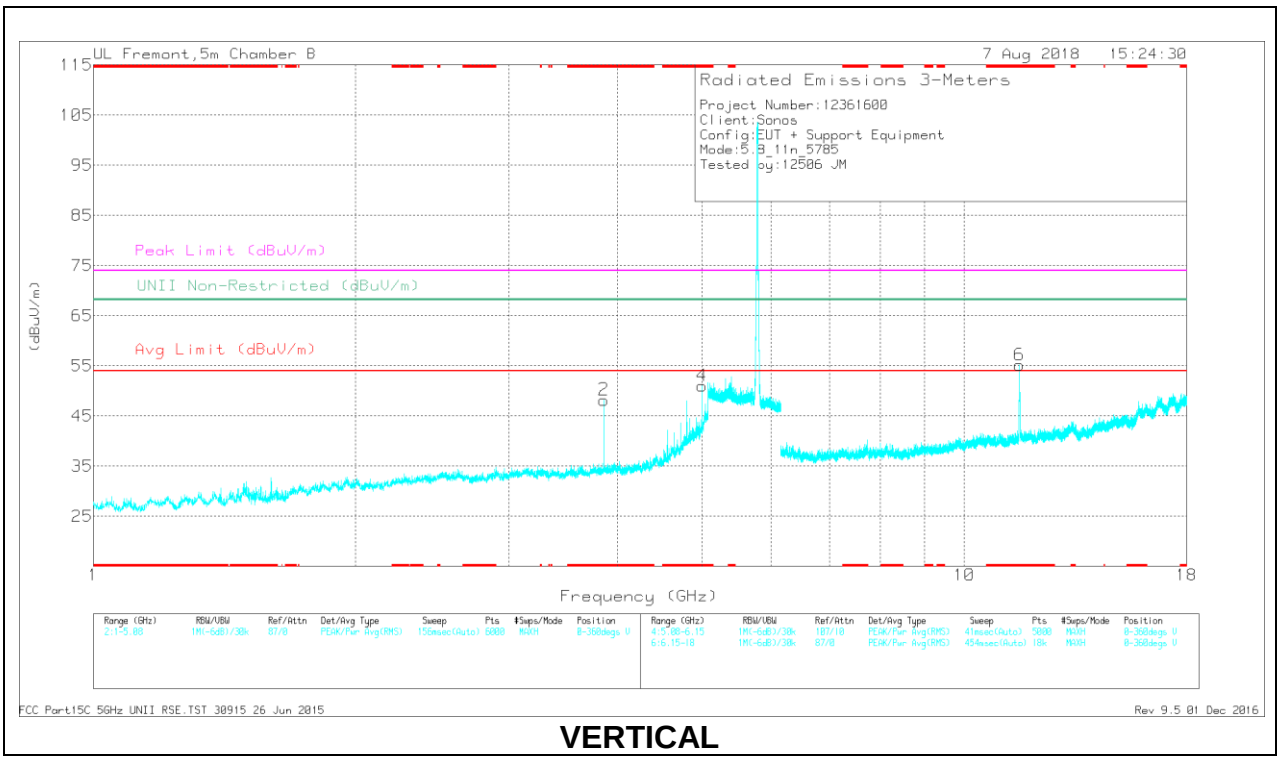
MID CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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	* 3.856	42.85	Pk	33.4	-31.8	0	44.45	-	-	74	-29.55	-	-	0-360	102	H
3	* 5	40.72	Pk	34.6	-29.1	0	46.22	-	-	74	-27.78	-	-	0-360	102	H
2	* 3.856	46.63	Pk	33.4	-31.8	0	48.23	-	-	74	-25.77	-	-	0-360	102	V
4	* 5	45.48	Pk	34.6	-29.1	0	50.98	-	-	74	-23.02	-	-	0-360	102	V
5	* 11.57	44.33	Pk	38.6	-23.9	0	59.03	-	-	74	-14.97	-	-	0-360	102	H
6	* 11.57	40.48	Pk	38.6	-23.9	0	55.18	-	-	74	-18.82	-	-	0-360	102	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 3.857	46.9	PK-U	33.4	-31.8	0	48.5	-	-	74	-25.5	-	-	301	314	H
* 3.857	42.81	ADR	33.4	-31.8	.38	44.79	54	-9.21	-	-	-	-	301	314	H
* 5	45.31	PK-U	34.6	-29.1	0	50.81	-	-	74	-23.19	-	-	7	132	H
* 5	38.7	ADR	34.6	-29.1	.38	44.58	54	-9.42	-	-	-	-	7	132	H
* 3.857	48.24	PK-U	33.4	-31.8	0	49.84	-	-	74	-24.16	-	-	216	102	V
* 3.857	44.99	ADR	33.4	-31.8	.38	46.97	54	-7.03	-	-	-	-	216	102	V
* 5	49.86	PK-U	34.6	-29.1	0	55.36	-	-	74	-18.64	-	-	177	120	V
* 5	43.35	ADR	34.6	-29.1	.38	49.23	54	-4.77	-	-	-	-	177	120	V
* 11.57	48.45	PK-U	38.6	-23.9	0	63.15	-	-	74	-10.85	-	-	272	102	H
* 11.57	33.26	ADR	38.6	-23.9	.38	48.34	54	-5.64	-	-	-	-	272	102	H
* 11.57	45.04	PK-U	38.6	-23.9	0	59.74	-	-	74	-14.26	-	-	228	218	V
* 11.57	31.9	ADR	38.6	-23.9	.38	46.98	54	-7.02	-	-	-	-	228	218	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

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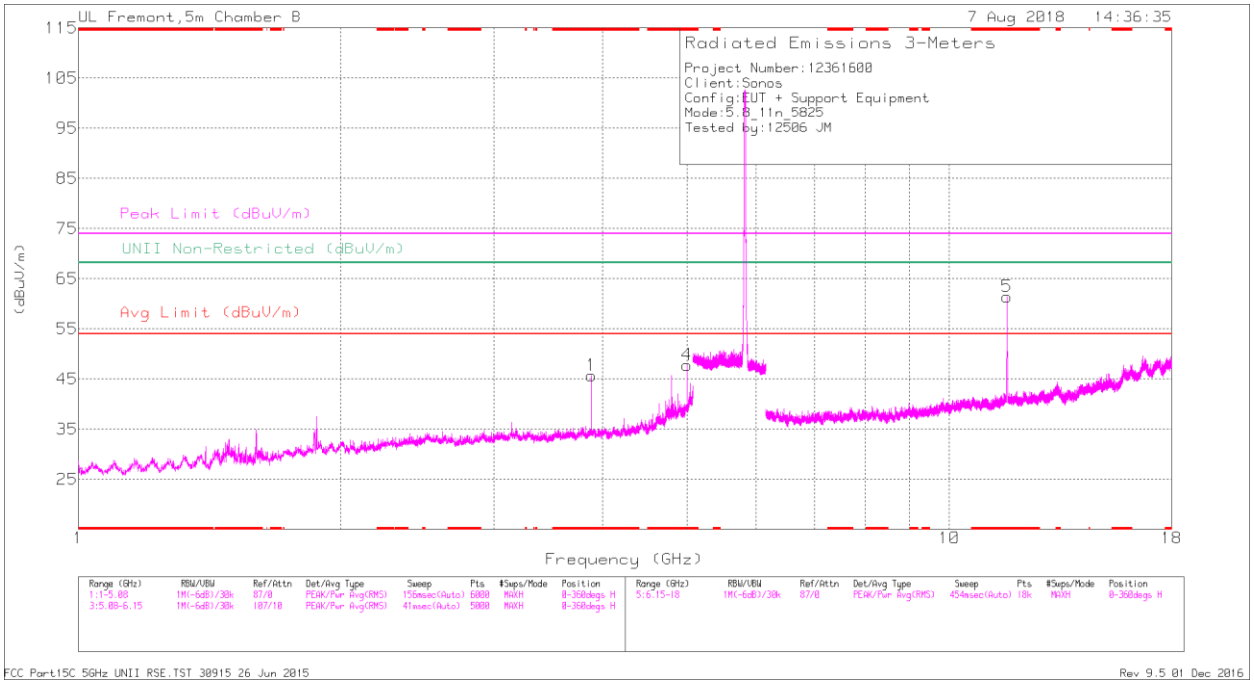
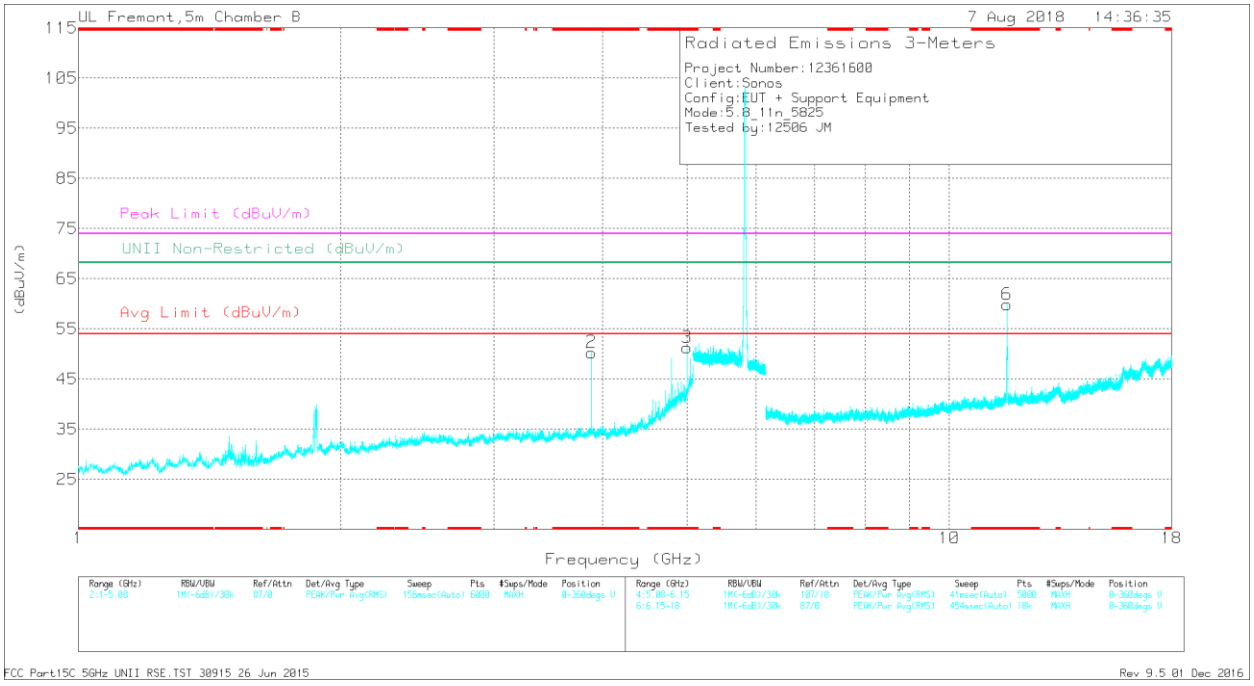
HIGH CHANNEL RESULTS



HORIZONTAL



VERTICAL

RADIATED EMISSIONS

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
5	* 11.65	46.46	Pk	38.8	-23.9	0	61.36	-	-	74	-12.64	-	-	0-360	199	H
6	* 11.65	45.01	Pk	38.8	-23.9	0	59.91	-	-	74	-14.09	-	-	0-360	200	V
1	* 3.883	43.66	Pk	33.4	-31.4	0	45.66	-	-	74	-28.34	-	-	0-360	98	H
2	* 3.883	48.31	Pk	33.4	-31.4	0	50.31	-	-	74	-23.69	-	-	0-360	200	V
4	* 5	42.31	Pk	34.6	-29.1	0	47.81	-	-	74	-26.19	-	-	0-360	98	H
3	* 5	45.82	Pk	34.6	-29.1	0	51.32	-	-	74	-22.68	-	-	0-360	102	V

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

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (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
* 3.883	47.31	PK-U	33.4	-31.4	0	49.31	-	-	74	-24.69	-	-	52	105	H
* 3.883	43.94	ADR	33.4	-31.4	.38	46.32	54	-7.68	-	-	-	-	52	105	H
* 5	47.67	PK-U	34.6	-29.1	0	53.17	-	-	74	-20.83	-	-	9	131	H
* 5	41.32	ADR	34.6	-29.1	.38	47.20	54	-6.80	-	-	-	-	9	131	H
* 3.883	50.74	PK-U	33.4	-31.4	0	52.74	-	-	74	-21.26	-	-	159	211	V
* 3.883	48.3	ADR	33.4	-31.4	.38	50.68	54	-3.32	-	-	-	-	159	211	V
* 5	51.27	PK-U	34.6	-29.1	0	56.77	-	-	74	-17.23	-	-	182	127	V
* 5	44.06	ADR	34.6	-29.1	.38	49.94	54	-4.06	-	-	-	-	182	127	V
* 11.65	45.65	PK-U	38.8	-23.9	0	60.55	-	-	74	-13.45	-	-	94	198	H
* 11.649	35.38	ADR	38.8	-23.8	.38	50.4	54	-3.6	-	-	-	-	94	198	H
* 11.65	50.11	PK-U	38.8	-23.9	0	64.97	-	-	74	-8.99	-	-	299	202	V
* 11.65	35.47	ADR	38.8	-23.9	.38	50.79	54	-3.25	-	-	-	-	299	202	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

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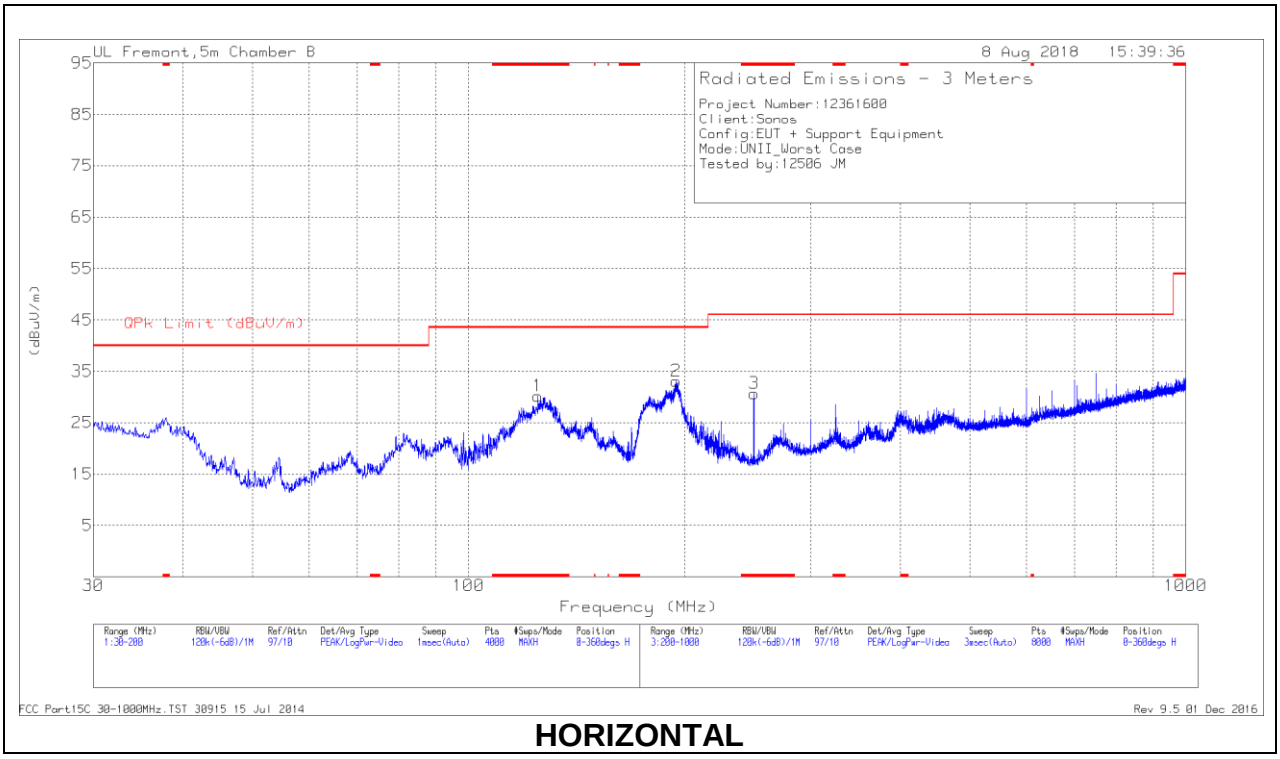
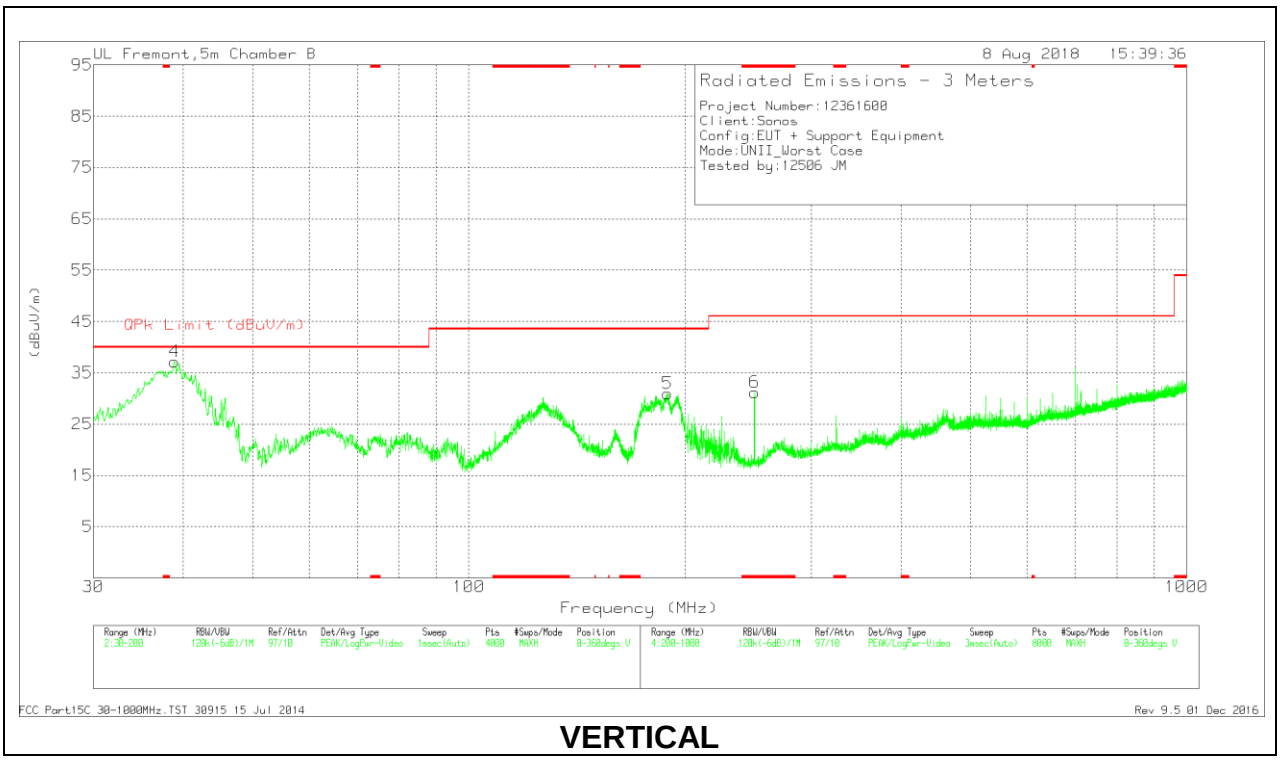
9.2. Worst Case Below 1 GHz



HORIZONTAL



VERTICAL

Below 1GHz DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T407 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 125.0121	40.02	Pk	17.9	-27.7	30.22	43.52	-13.3	0-360	300	H
3	* 250.0065	41.45	Pk	15.5	-26.3	30.65	46.02	-15.37	0-360	100	H
6	* 250.0065	42	Pk	15.5	-26.3	31.2	46.02	-14.82	0-360	100	V
4	38.9273	47.03	Pk	18.8	-28.7	37.13	40	-2.87	0-360	100	V
	38.9494	42.71	Qp	18.7	-28.7	32.71	40	-7.29	102	110	V
5	189.1612	42.59	Pk	15.3	-27	30.89	43.52	-12.63	0-360	100	V
2	194.9427	44.16	Pk	15.8	-26.9	33.06	43.52	-10.46	0-360	100	H

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

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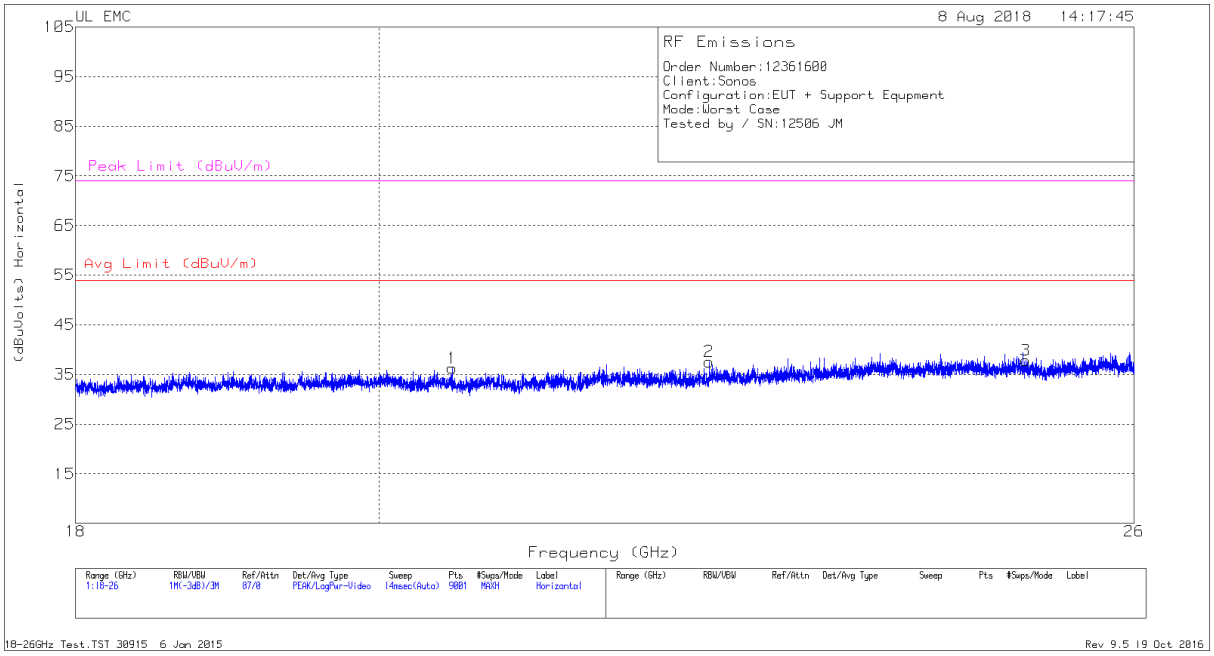
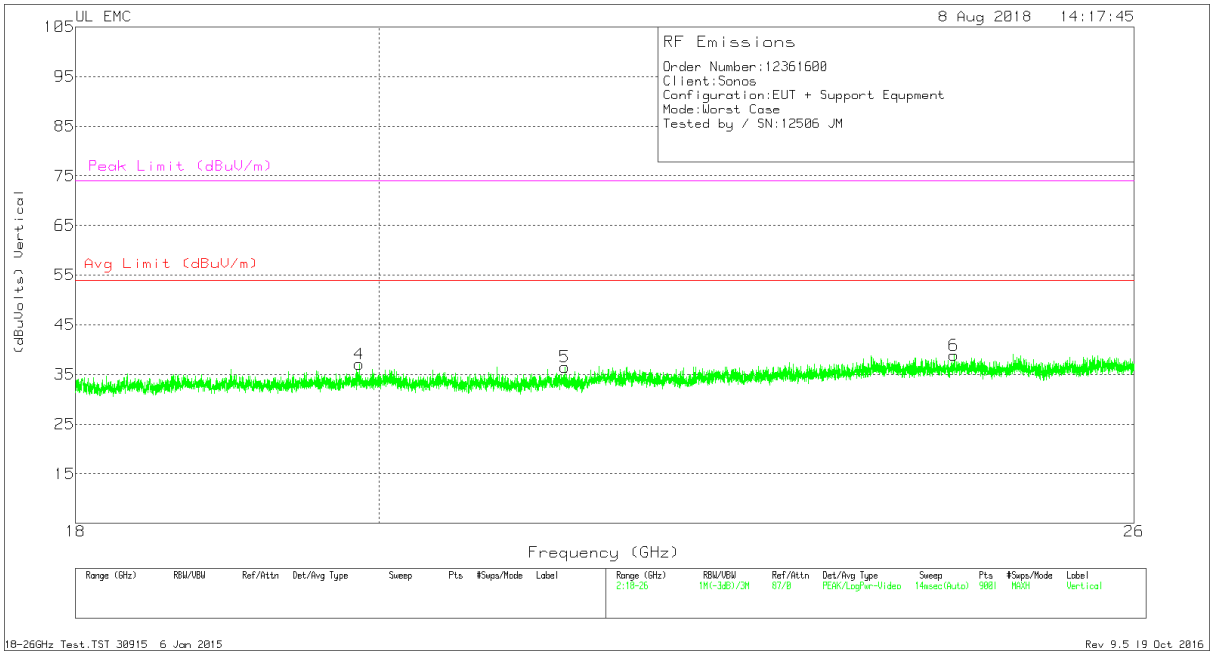
9.3. Worst Case 18-26 GHz



HORIZONTAL



VERTICAL

18 – 26GHz DATA

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T89 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	20.517	38.4	Pk	32.7	-25.3	-9.5	36.3	54	-17.7	74	-37.7
2	22.431	38.76	Pk	33.2	-24.9	-9.5	37.56	54	-16.44	74	-36.44
3	25.037	37.94	Pk	34.1	-24.7	-9.5	37.84	54	-16.16	74	-36.16
4	19.863	38.68	Pk	32.8	-24.9	-9.5	37.08	54	-16.92	74	-36.92
5	21.336	38.19	Pk	33.1	-25.3	-9.5	36.49	54	-17.51	74	-37.51
6	24.421	38.66	Pk	33.8	-24.1	-9.5	38.86	54	-15.14	74	-35.14

Pk - Peak detector

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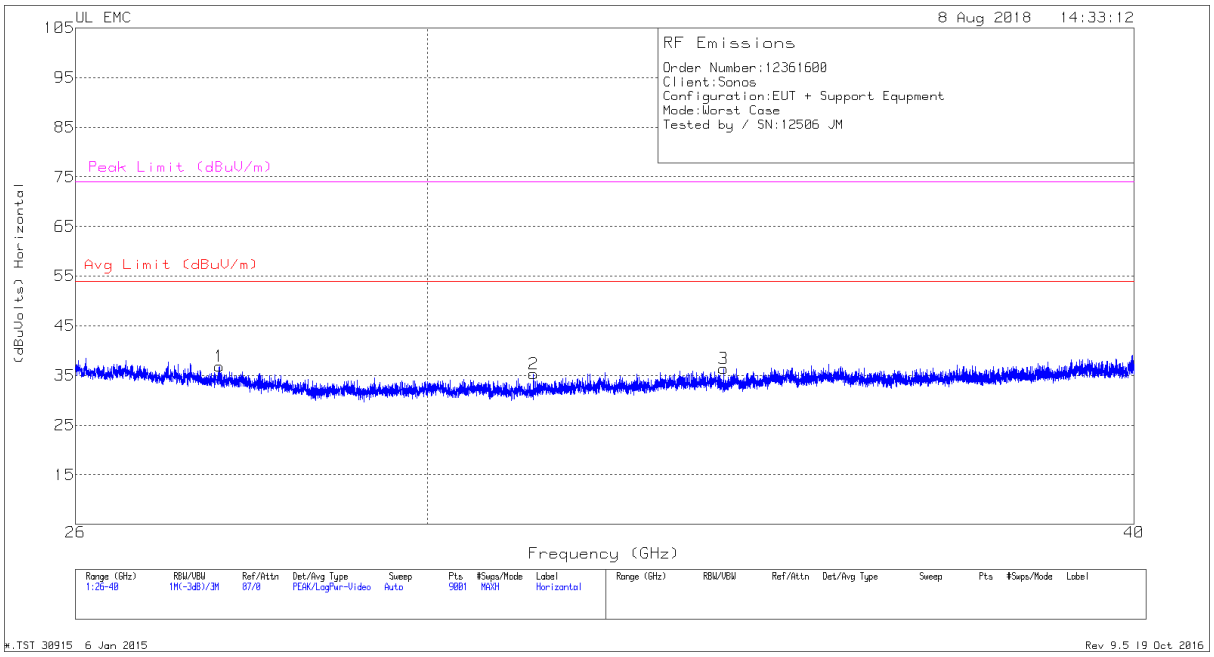
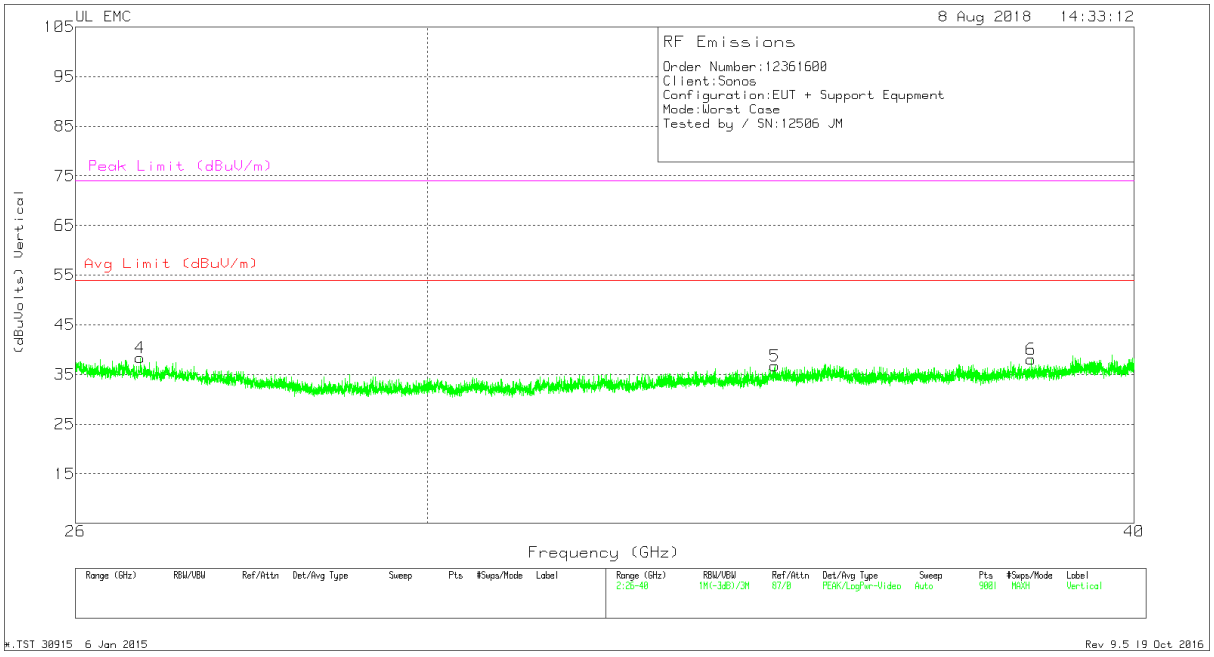
9.4. Worst Case 26-40 GHz



HORIZONTAL



VERTICAL

26 – 40GHz DATA

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	27.566	41.92	Pk	35.7	-31.3	-9.5	36.82	54	-17.18	74	-37.18
2	31.326	41.51	Pk	36.1	-32.8	-9.5	35.31	54	-18.69	74	-38.69
3	33.845	41.95	Pk	36.9	-33	-9.5	36.35	54	-17.65	74	-37.65
4	26.692	42.83	Pk	35.3	-30.3	-9.5	38.33	54	-15.67	74	-35.67
5	34.557	42.04	Pk	37.4	-33.2	-9.5	36.74	54	-17.26	74	-37.26
6	38.357	42.62	Pk	37.1	-32.2	-9.5	38.02	54	-15.98	74	-35.98

Pk - Peak detector

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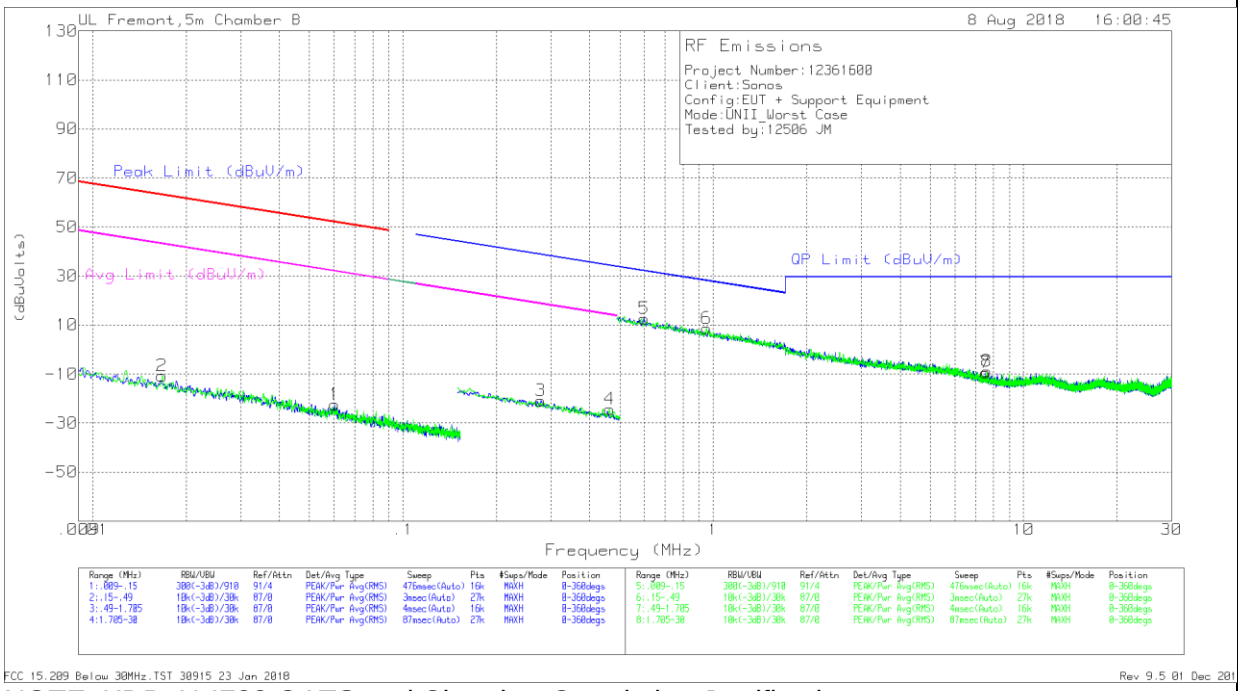
9.5. Worst Case Below 30 MHz



NOTE: KDB 414788 OATS and Chamber Correlation Justification

- Based on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.
- OATs and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Below 30MHz DATA

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.01672	53.03	Pk	14.7	1.4	-80	-10.87	63.12	-73.99	43.12	-53.99	0-360
1	.06025	41.8	Pk	14.3	1.4	-80	-22.5	51.99	-74.49	31.99	-54.49	0-360
3	.27821	43.89	Pk	13.7	1.5	-80	-20.91	38.73	-59.64	18.73	-39.64	0-360
4	.46336	40.27	Pk	13.8	1.5	-80	-24.43	34.29	-58.72	14.29	-38.72	0-360

Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr (dB) 40Log	Corrected Reading (dBuVolts)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
5	.59758	37.17	Pk	13.9	1.5	-40	12.57	32.08	-19.51	0-360
6	.94927	32.96	Pk	14.1	1.5	-40	8.56	28.07	-19.51	0-360
7	7.54603	14.83	Pk	14.3	1.5	-40	-9.37	29.5	-38.87	0-360
8	7.6241	15.39	Pk	14.3	1.5	-40	-8.81	29.5	-38.31	0-360

Pk - Peak detector

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10. 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

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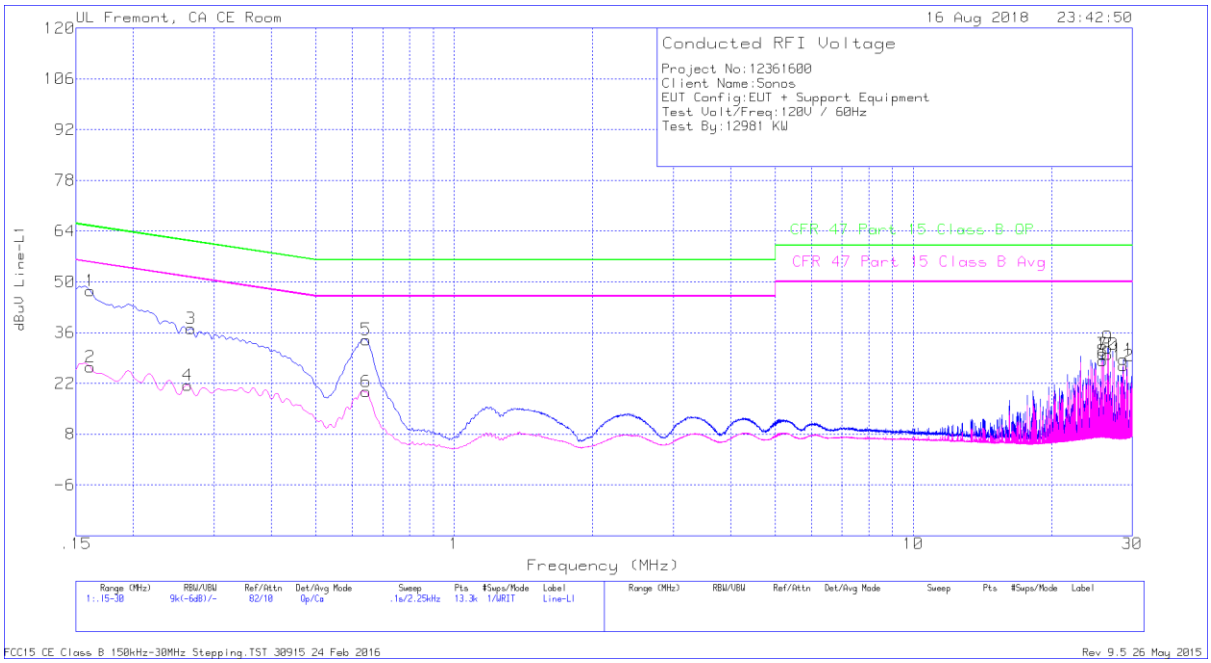
10.1.1. AC Power Line Norm

LINE 1 RESULTS

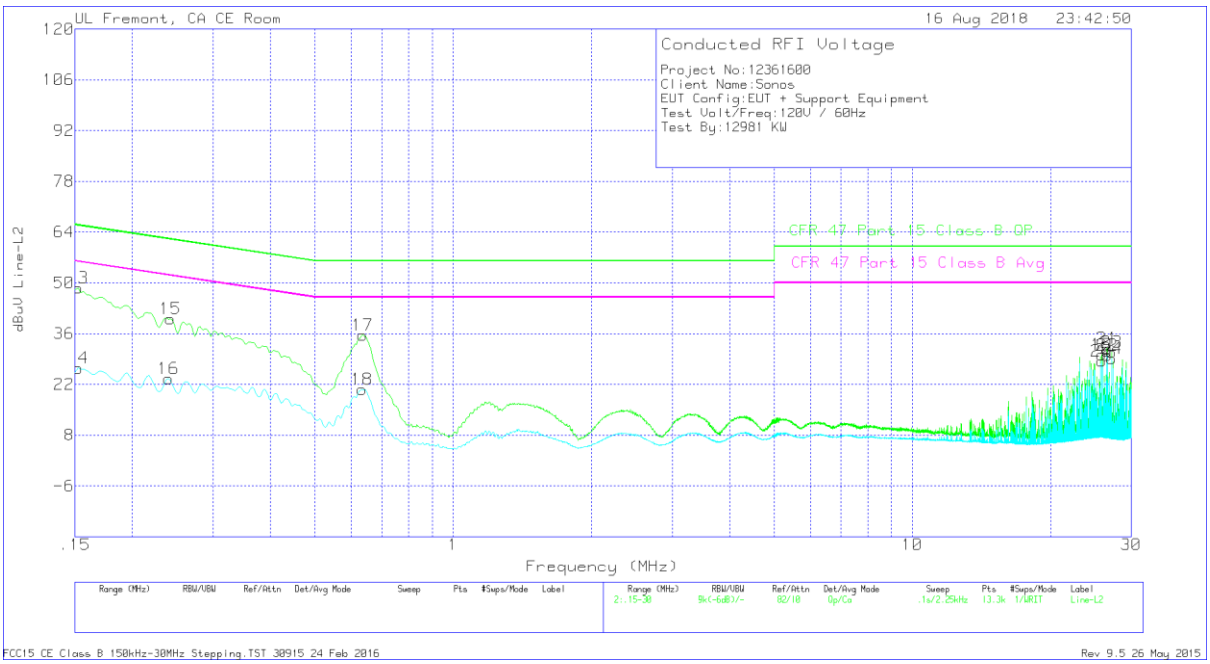


Trace Markers

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	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)
1	.16125	37.38	Qp	.1	0	10.1	47.58	65.4	-17.82	-	-
2	.16125	16.38	Ca	.1	0	10.1	26.58	-	-	55.4	-28.82
3	.267	27.09	Qp	0	0	10.1	37.19	61.21	-24.02	-	-
4	.2625	11.34	Ca	0	0	10.1	21.44	-	-	51.35	-29.91
5	.64275	23.99	Qp	0	0	10.1	34.09	56	-21.91	-	-
6	.64275	9.61	Ca	0	0	10.1	19.71	-	-	46	-26.29
7	25.8765	19.27	Qp	.1	.3	10.5	30.17	60	-29.83	-	-
8	25.8765	17.42	Ca	.1	.3	10.5	28.32	-	-	50	-21.68
9	26.48625	20.93	Qp	.1	.3	10.5	31.83	60	-28.17	-	-
10	26.48625	19.07	Ca	.1	.3	10.5	29.97	-	-	50	-20.03
11	28.6845	17.64	Qp	.1	.4	10.5	28.64	60	-31.36	-	-
12	28.6845	15.82	Ca	.1	.4	10.5	26.82	-	-	50	-23.18

Qp - Quasi-Peak detector
Ca - CISPR average detection

LINE 2 RESULTS



Trace Markers

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	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)
13	.15225	38.36	Qp	.1	0	10.1	48.56	65.88	-17.32	-	-
14	.15225	16.25	Ca	.1	0	10.1	26.45	-	-	55.88	-29.43
15	.24225	30.02	Qp	0	0	10.1	40.12	62.02	-21.9	-	-
16	.24	13.49	Ca	0	0	10.1	23.59	-	-	52.1	-28.51
17	.636	25.44	Qp	0	0	10.1	35.54	56	-20.46	-	-
18	.63262	10.51	Ca	0	0	10.1	20.61	-	-	46	-25.39
19	25.8765	19.35	Qp	.1	.3	10.5	30.25	60	-29.75	-	-
20	25.8765	17.5	Ca	.1	.3	10.5	28.4	-	-	50	-21.6
21	26.61	21	Qp	.1	.3	10.5	31.9	60	-28.1	-	-
22	26.61	19.17	Ca	.1	.3	10.5	30.07	-	-	50	-19.93
23	27.159	19.93	Qp	.1	.4	10.5	30.93	60	-29.07	-	-
24	27.159	18.12	Ca	.1	.4	10.5	29.12	-	-	50	-20.88

Qp - Quasi-Peak detector
Ca - CISPR average detection

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