



C2PC CERTIFICATION TEST REPORT

Report Number. : 11848037-E1V2

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

Model : S11

FCC ID : SBVRM011

IC : 5373A-RM011

TEST REPORT FOR SONOS MODEL NUMBER S11

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS - 247 ISSUE 2

Date Of Issue: October 25, 2017

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NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	10/17/17	Initial Issue	--
V2	10/25/17	Corrected Statement in Section 5.5	AAumentado

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONOS, INC.
EUT DESCRIPTION: WIRELESS SMART SPEAKER
MODEL: S11
SERIAL NUMBER: 1708 B8-E9-37-43-E9-77-F
DATE TESTED: October 3 – 4, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
*Industry Canada RSS-247 Issue 2	Pass
Industry Canada RSS-GEN ISSUE 4	Pass

* This report contains data that are not covered by the NVLAP accreditation

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

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

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 558074 D01 v04, KDB 662911 D01 v02r01, KDB 662911 D02 v01, ANSI C63.10-2013, 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, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
<input type="checkbox"/> Chamber A(IC: 2324B-1)	<input type="checkbox"/> Chamber D(IC: 22541-1)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 22541-2)
<input type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 22541-3)
	<input type="checkbox"/> Chamber G(IC: 22541-4)
	<input type="checkbox"/> Chamber H(IC: 22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. Chambers A through C are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-3, respectively. Chambers D through H are covered under Industry Canada company address code 22541 with site numbers 22541 -1 through 22541-5, respectively.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

Parameter	Uncertainty
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%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Wireless Smart Speaker.

5.2. MAXIMUM OUTPUT POWER

Please refer to UL report # 11361969-E1V2.

The output powers 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 cross-polarized antenna, with maximum gains as shown below:

Location	Sonos Part Number	ID	Chain	Description	Gain dBi
					2400 MHz
Front Right	105-00094	Yellow	0	Horizontal Polarity, PCB dual-band IFA	2.6
Front Left	105-00090	Blue	1	Vertical Polarity, Dual-band stamped metal monopole on FR4 substrate	2.9
Rear Right	105-00092	Red	2	Vertical Polarity, Single-band stamped metal monopole on FR4 substrate	5.3

NOTE: All final tests were performed using the EUT antenna with same polarity as the test measurement setup.

For horizontal, EUT operates Chain 0

For vertical, EUT operates Chain 1 and Chain 2

5.4. SOFTWARE AND FIRMWARE

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

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions from 1 GHz to 18 GHz were performed with the EUT set to transmit at highest power on Low/Middle/High channels. Below 1GHz, above 18GHz and conducted power line emissions, the channel with the highest output power was tested.

The manufacturer has recommended that the EUT only be used in the desktop (horizontal) orientation; therefore, all radiated testing was performed in desktop orientation.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20mode: MCS0

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

5.6. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

Replace 2.4 GHz discrete design components which include a transistor based low noise amplifier circuit, a power amplifier module, and some RF switches with the Qorvo QPF7200 which integrates all those circuits in a single package.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	Manufacturer	Model	Serial Number
Laptop	Lenovo	X201	R9-6KTFV
AC/DC Adapter	Lenovo	ADLX90NCT2A	11S45N0311Z1ZLZ632KMOT

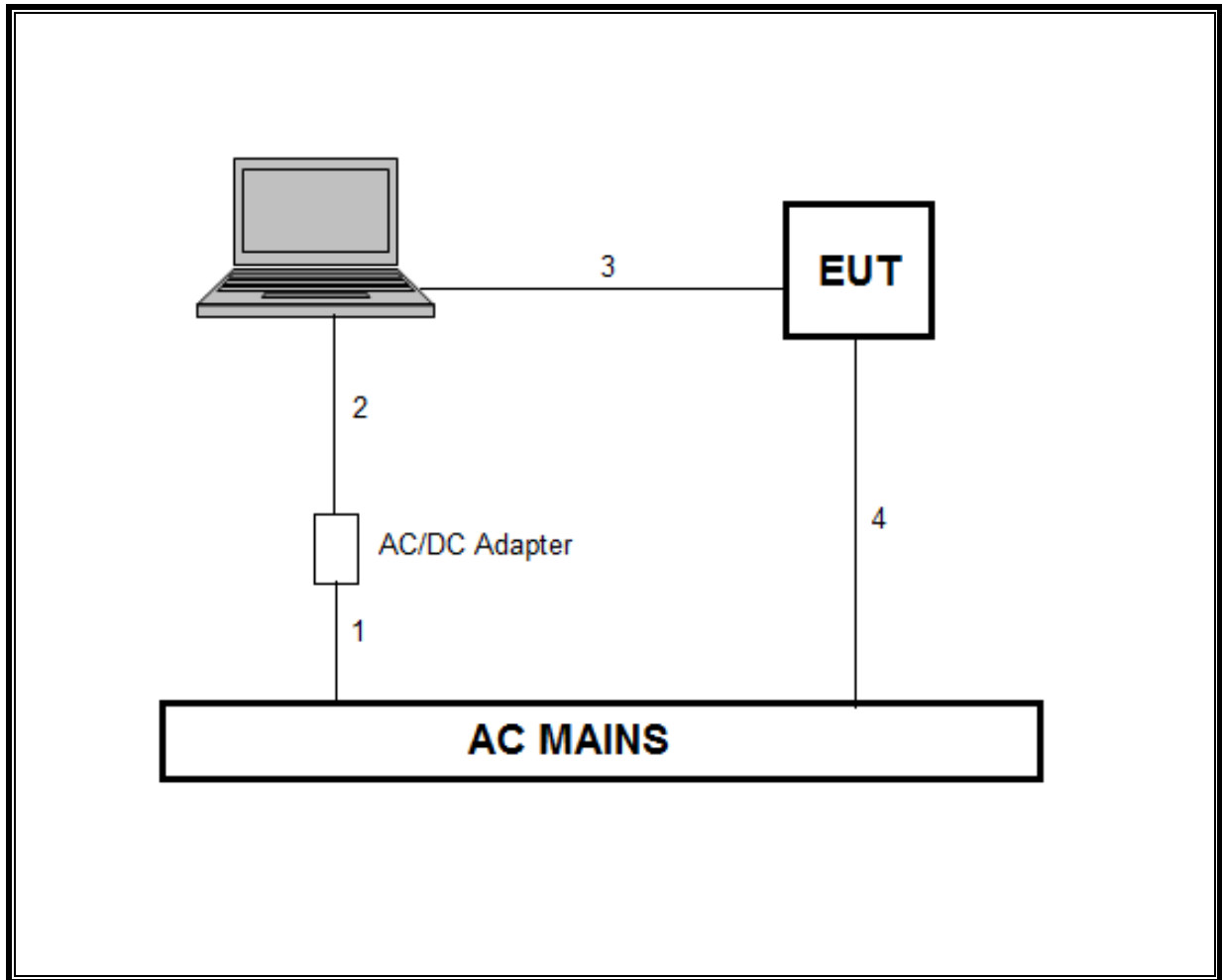
I/O CABLES

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

TEST SETUP

The EUT is a stand-alone unit, and the radio is exercised by Atheros Radio Test 2 (ART2-GUI) software, via Ethernet cable.

SETUP DIAGRAM



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	Asset	Cal Due
Antenna, Broadband Hybrid, 30MHz to 2000MHz w/4dB Pad	Sunol Sciences Corp.	JB1	T477	06/22/2018
Antenna, Active Loop 9kHz-30MHz	ETS-Lindgren	6502	T1683	02/17/2018
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T345	03/7/2018
Antenna, Horn 18-26.5GHz	ARA	MWH-1826/B	T449	06/12/2018
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T1264	07/08/2018
Power Sensor, P – series, 50MHz to 18GHz, Wideband	Agilent (Keysight) Technologies	N1921A	T413	06/20/2018
Amplifier, 10kHz-1GHz	Agilent (Keysight) Technologies	8447D	T10	02/01/2018
Amplifier, 1-8 GHz	MITEQ	AMF-4D-01000800-30-29P	T1156	03/09/2018
Amplifier, 1GHz to 26.5GHz, 23.5dB	Agilent (Keysight) Technologies	8449B	T404	07/23/2018
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T907	01/23/2018

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Ver 9.5, Apr 26, 2016

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

NOTE: *testing is completed before equipment calibration expiration date.

7. MEASUREMENT METHODS

KDB 662911 D01 Multiple Transmitter Output v02r01

KDB 662911 D02 MIMO with Cross-Polarized Antenna v01

Output Power: KDB 558074 D01 v04, Section 9.2.3.2. *(Please refer to UL report # 11361969-E1V2)*

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v04, Section 11.1 (b).

Out-of-band emissions in restricted bands: KDB 558074 D01 v04, Section 12.1.

Band-edge: KDB 558074 D01 v04, Section 12.1.

8. ANTENNA PORT TEST RESULTS

8.1. OUTPUT POWER

LIMITS

FCC §15.247 (b)

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt, based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

IC RSS-247 5.4.4

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W.

RESULTS

Please refer to UL report # 11361969-E1V2.

9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	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 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 120 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements for the 30-1000 MHz range, 9 kHz for peak detection measurements or 9 kHz for quasi-peak detection measurements for the 0.15-30 MHz range and 200 Hz for peak detection measurements or 200 Hz for quasi-peak detection measurements for the 9 to 150 kHz range. 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.

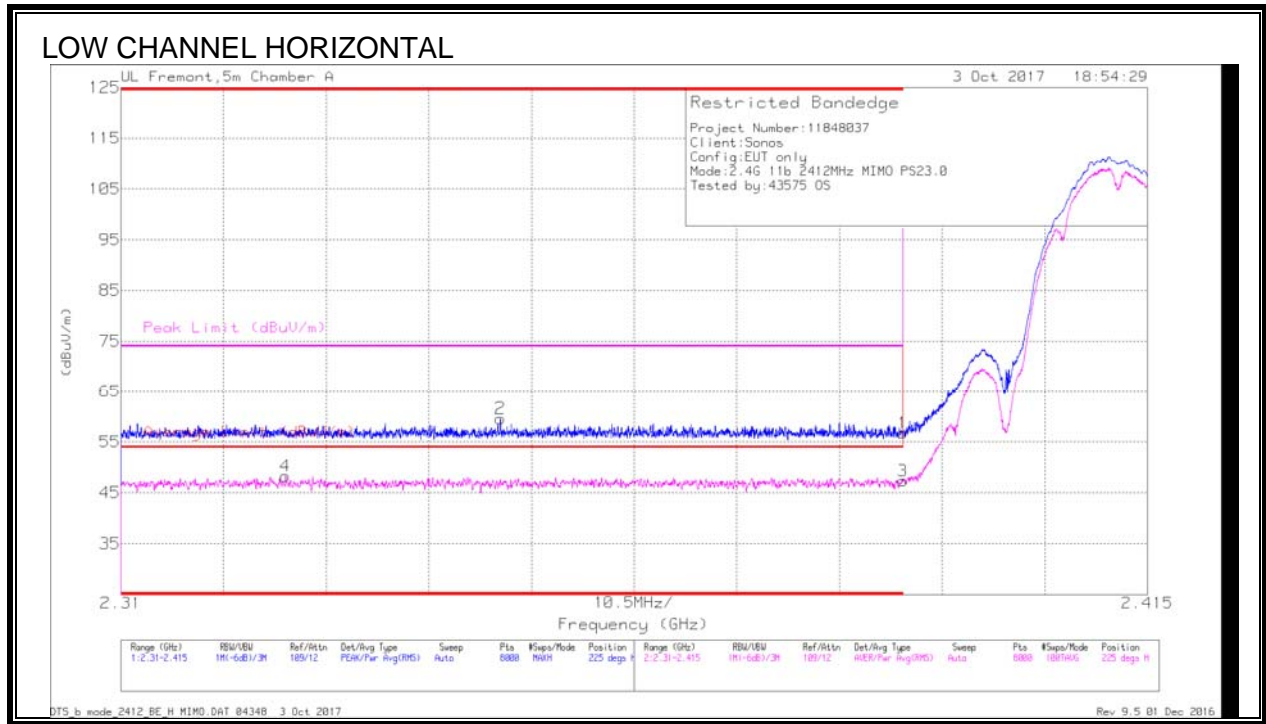
The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

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

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. 11b 3TX CDD MIMO MODE IN THE 2.4GHz BAND

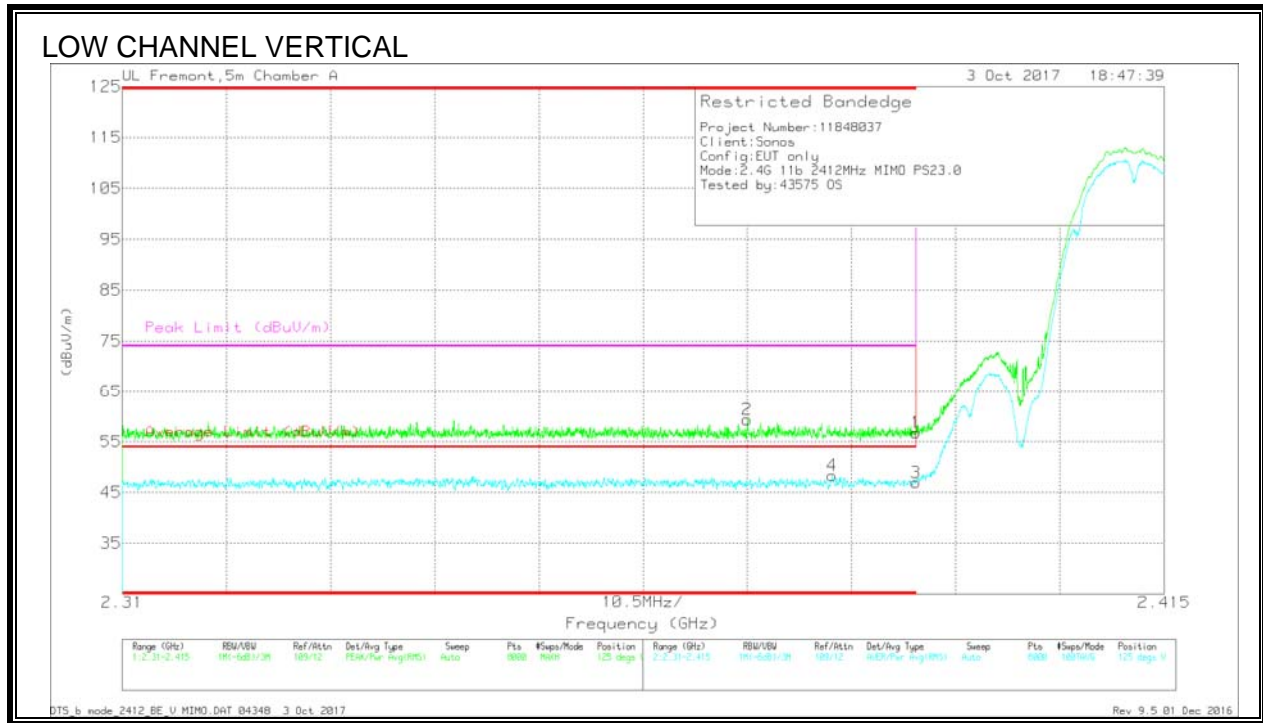
BANDEDGE (LOW CHANNEL, CH 1)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dBm)	Amp/ChlFilt/Pad (dB)	10 dB 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
4	*2.327	27.37	RMS	31.9	-21	10	0	48.27	54	-5.73	-	-	225	185	H
2	*2.349	38.81	PK	31.8	-21.1	10	0	59.61	-	-	74	-14.39	225	185	H
1	*2.39	35.95	PK	32	-21.2	10	0	56.75	-	-	74	-17.25	225	185	H
3	*2.39	26.5	RMS	32	-21.2	10	0	47.3	54	-6.7	-	-	225	185	H

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



Trace Markers

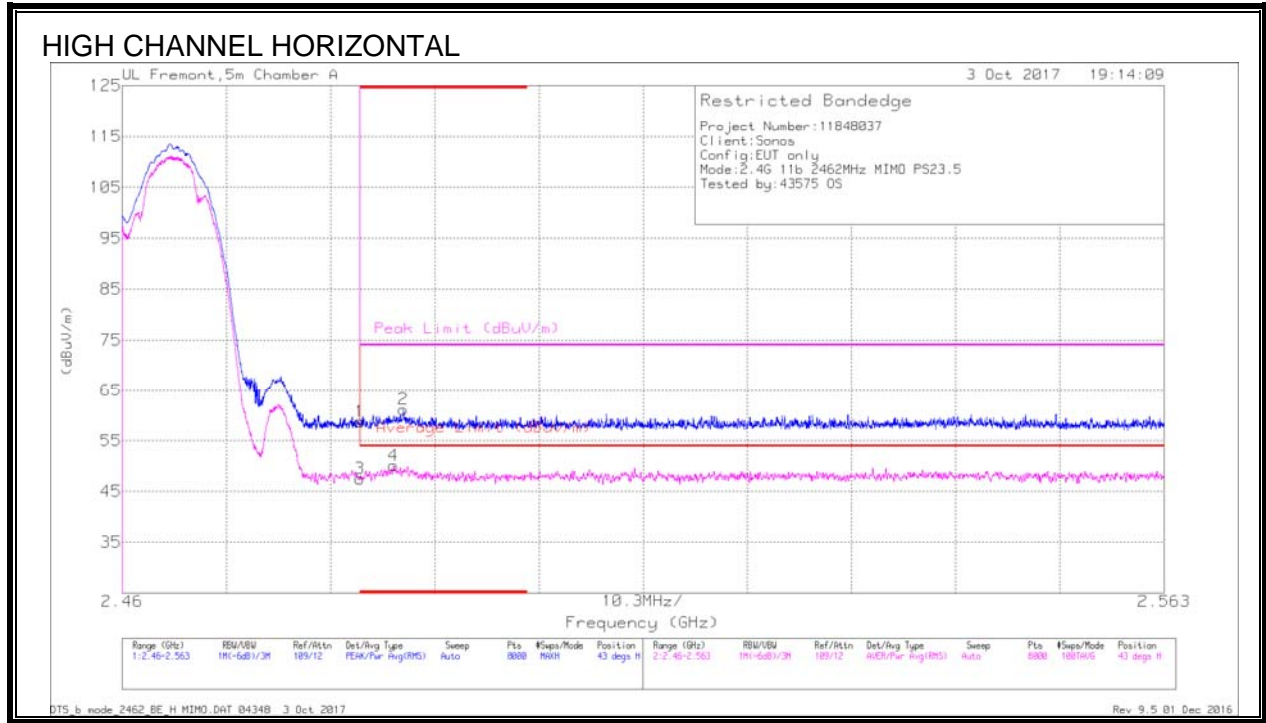
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dBm)	Amp/Cbl/Filt/Pad (dB)	10 dB Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
2	* 2.373	38.69	Pk	31.9	-21.2	10	0	59.39	-	-	74	-14.61	125	126	V
4	* 2.382	27.44	RMS	32	-21.1	10	0	48.34	54	-5.66	-	-	125	126	V
1	* 2.39	35.97	Pk	32	-21.2	10	0	56.77	-	-	74	-17.23	125	126	V
3	* 2.39	26.15	RMS	32	-21.2	10	0	46.95	54	-7.05	-	-	125	126	V

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

Pk - Peak detector

RMS - RMS detection

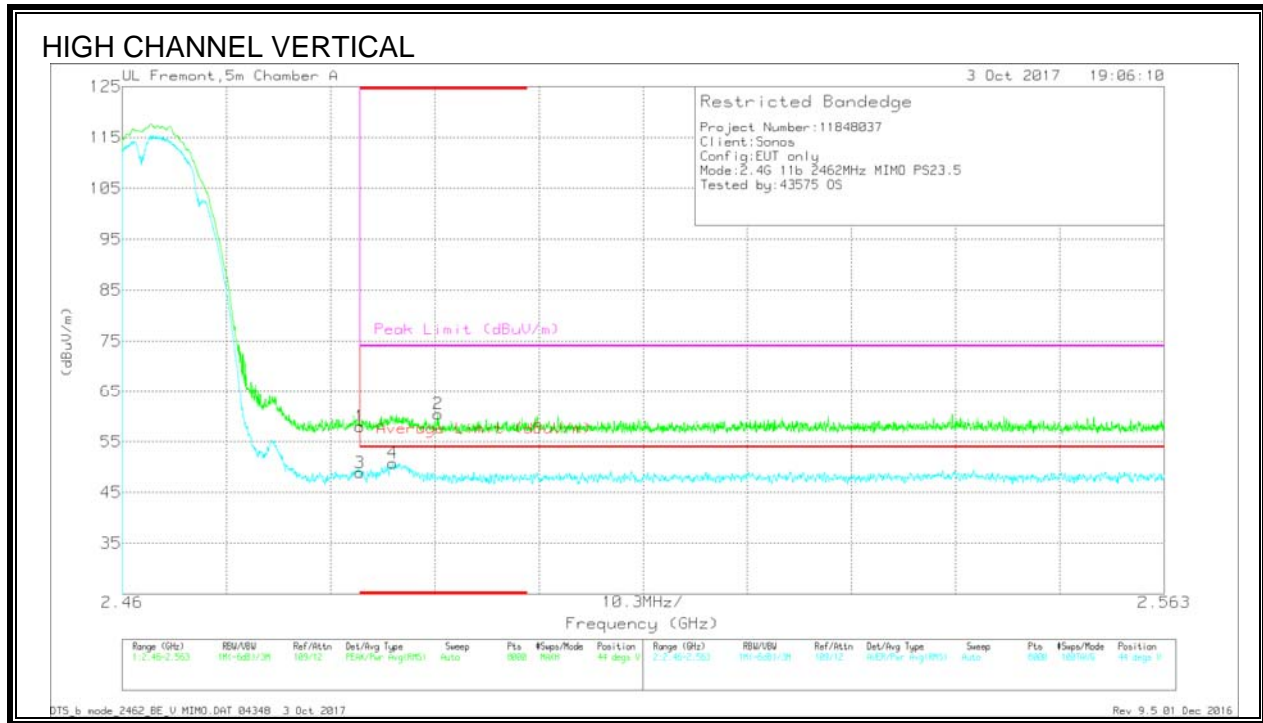
BANDEDGE (HIGH CHANNEL, CH 11)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dBm)	Amp/Cbl/Ftr/Pad (dB)	10 dB 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	*2.484	37.17	Pk	32.5	-20.9	10	0	58.77	-	-	74	-15.23	43	348	H
3	*2.484	25.94	RMS	32.5	-20.9	10	0	47.54	54	-6.46	-	-	43	348	H
4	*2.487	28.41	RMS	32.5	-20.8	10	0	50.11	54	-3.89	-	-	43	348	H
2	*2.488	39.51	Pk	32.5	-20.8	10	0	61.21	-	-	74	-12.79	43	348	H

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

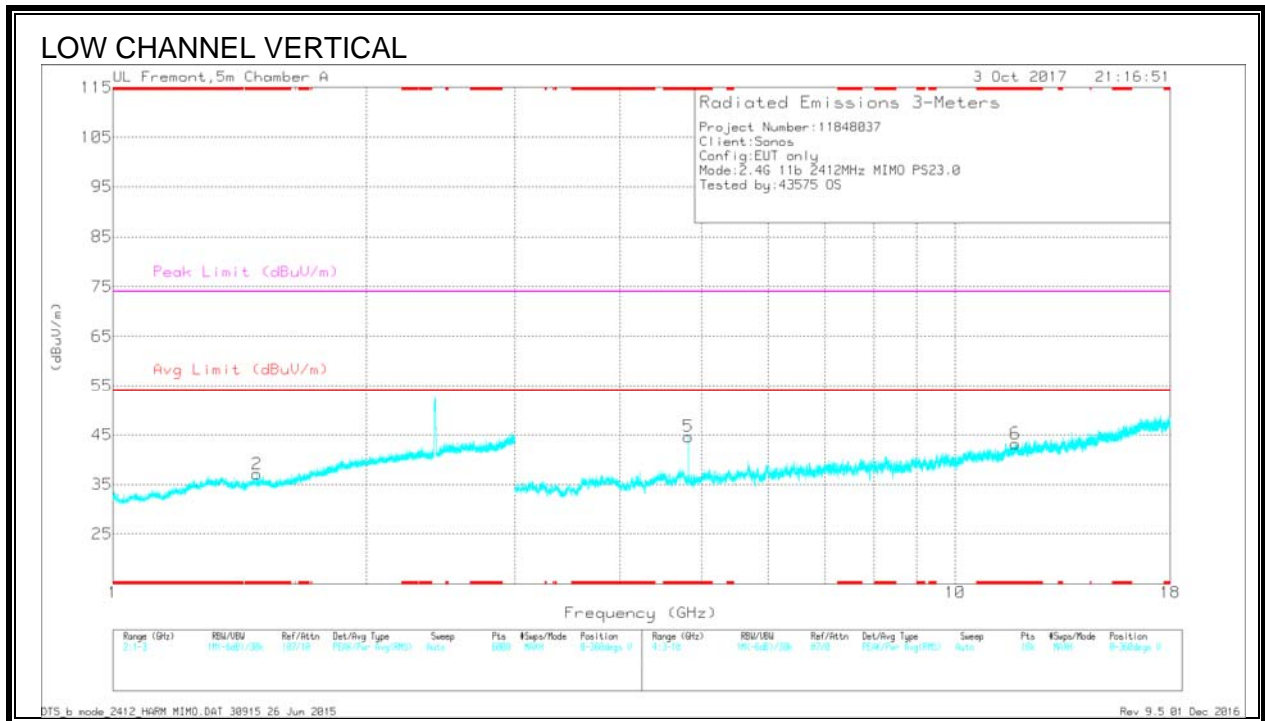
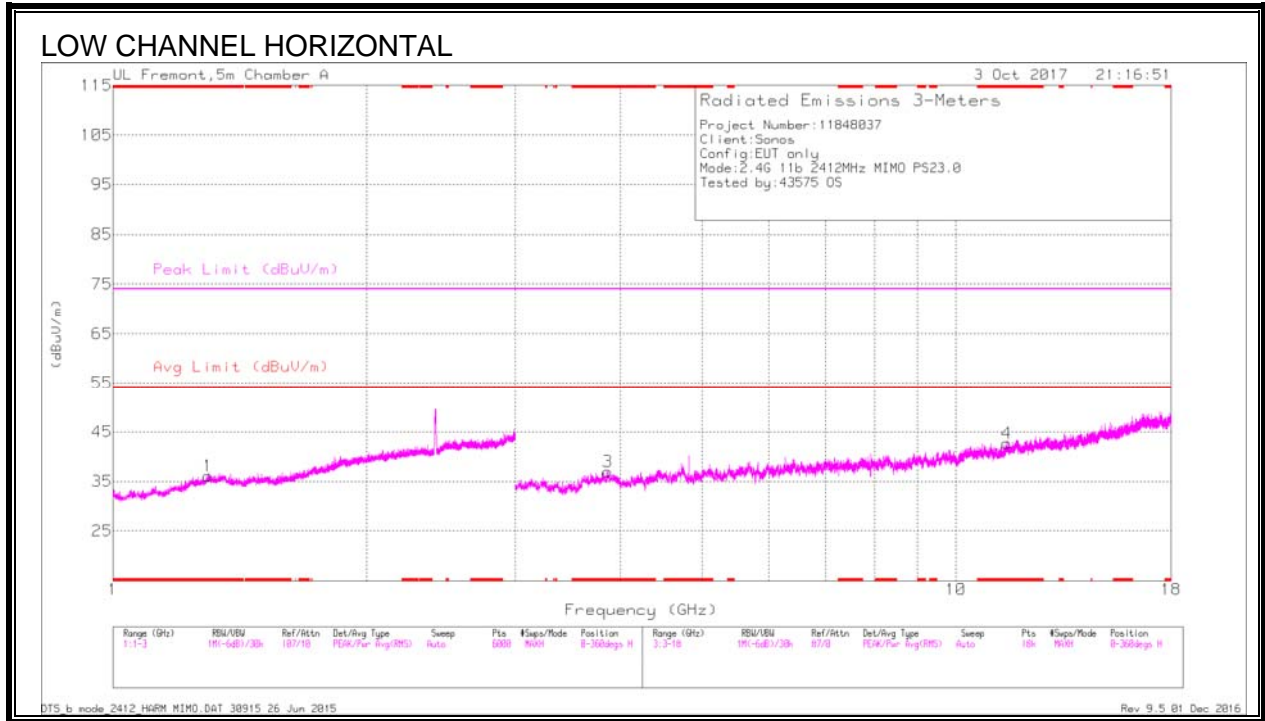


Trace Markers

Marker	Frequency (GHz)	Marker Reading (dBuV)	Det	AF T863 (dBm)	Amp/Cb/Ftr/Pad (dB)	10 dB 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	*2.484	36.41	Pk	32.5	-20.9	10	0	58.01	-	-	74	-15.99	44	255	V
3	*2.484	27.3	RMS	32.5	-20.9	10	0	48.9	54	-5.1	-	-	44	255	V
4	*2.487	29.1	RMS	32.5	-20.8	10	0	50.8	54	-3.2	-	-	44	255	V
2	*2.491	38.97	Pk	32.5	-21	10	0	60.47	-	-	74	-13.53	44	255	V

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Fitr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.296	29.05	Pk	28.9	-21.9	0	36.05	-	-	74	-37.95	0-360	199	H
2	* 1.482	30.08	Pk	28.3	-21.3	0	37.08	-	-	74	-36.92	0-360	101	V
3	* 3.865	32.89	Pk	33.5	-29.4	0	36.99	-	-	74	-37.01	0-360	102	H
4	* 11.482	26.62	Pk	38	-21.9	0	42.72	-	-	74	-31.28	0-360	199	H
5	* 4.823	39.65	Pk	34.4	-29.4	0	44.65	-	-	74	-29.35	0-360	199	V
6	* 11.789	25.75	Pk	38.6	-21.1	0	43.25	-	-	74	-30.75	0-360	199	V

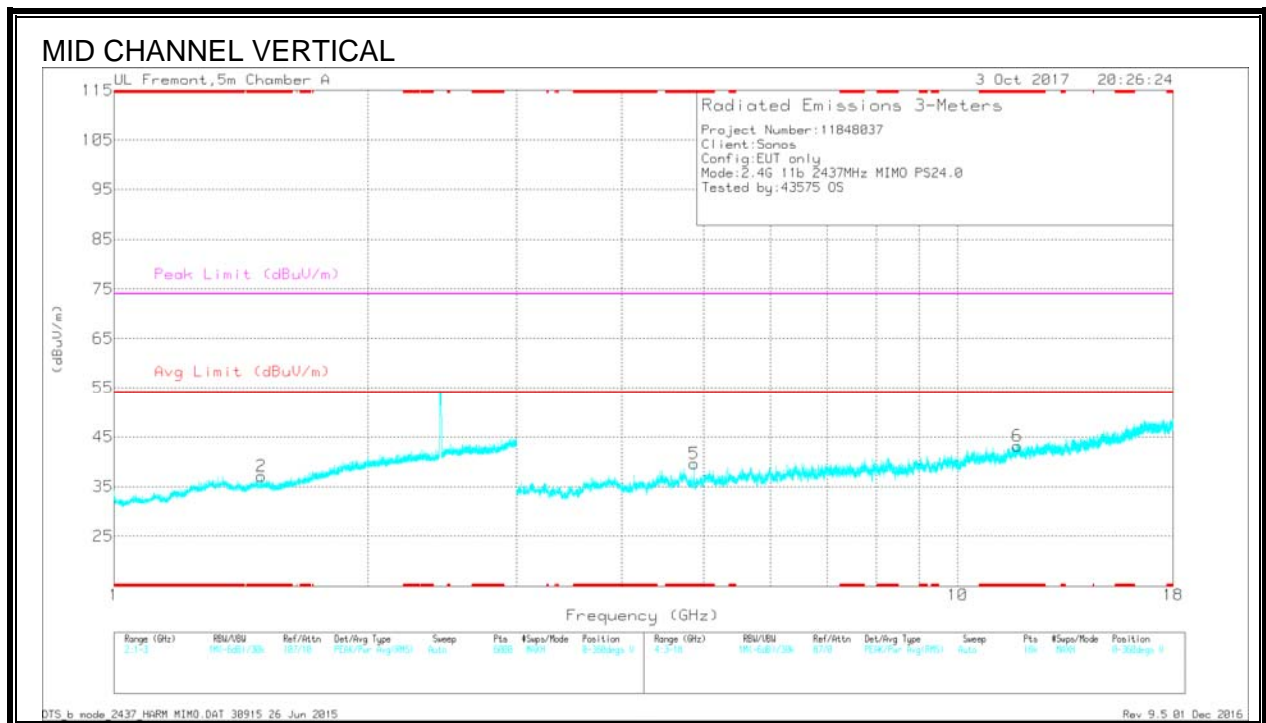
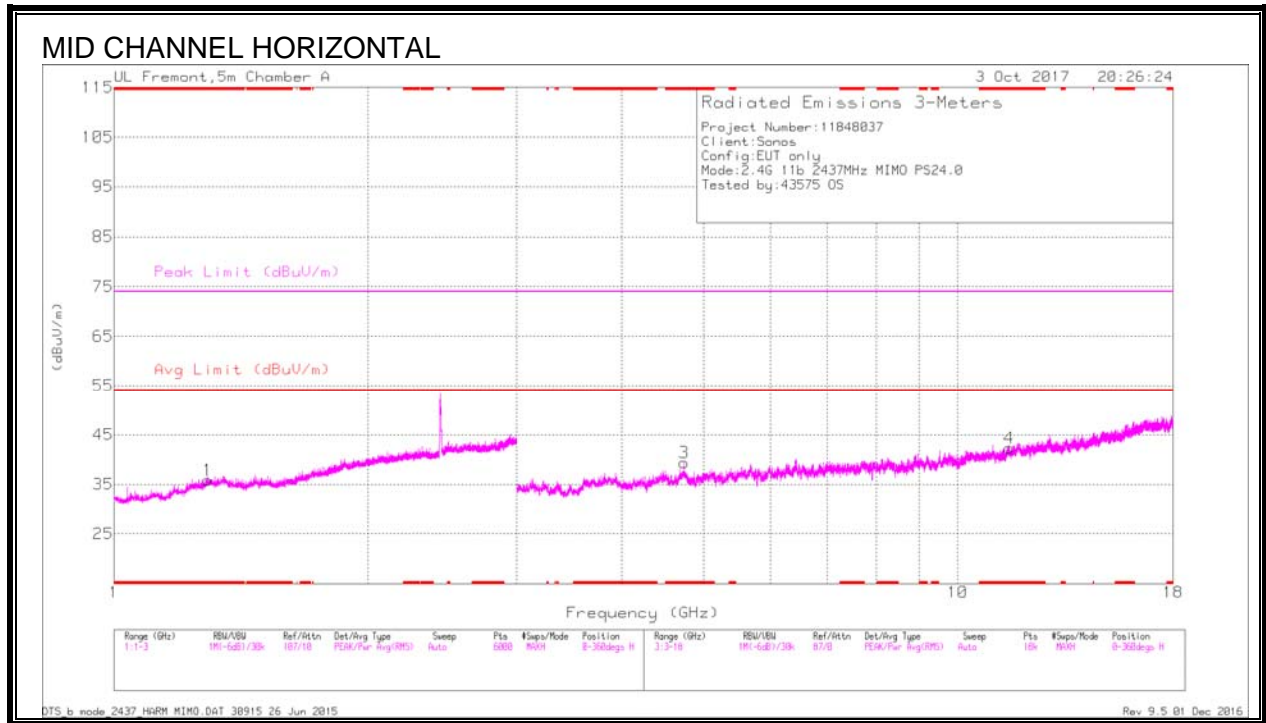
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Fitr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.295	35.31	PK2	28.9	-21.8	0.24	0	42.65	-	-	74	-31.35	182	265	H
* 1.296	23.39	MAV1	28.9	-21.8	0.24	0	30.73	54	-23.27	-	-	182	265	H
* 1.48	35.69	PK2	28.3	-21.3	0.27	0	42.96	-	-	74	-31.04	148	148	V
* 1.483	23.17	MAV1	28.2	-21.3	0.27	0	30.34	54	-23.66	-	-	148	148	V
* 3.866	39.31	PK2	33.5	-29.4	0.4	0	43.81	-	-	74	-30.19	4	377	H
* 3.867	27.89	MAV1	33.5	-29.4	0.4	0	32.39	54	-21.61	-	-	4	377	H
* 11.481	32.94	PK2	38	-21.9	0.52	0	49.56	-	-	74	-24.44	208	213	H
* 11.483	20.97	MAV1	38	-21.8	0.52	0	37.69	54	-16.31	-	-	208	213	H
* 4.824	42.86	PK2	34.4	-29.4	0.39	0	48.25	-	-	74	-25.75	215	128	V
* 4.824	37.81	MAV1	34.4	-29.4	0.39	0	43.2	54	-10.8	-	-	215	128	V
* 11.789	31.9	PK2	38.6	-21	0.47	0	49.97	-	-	74	-24.03	323	282	V
* 11.788	20.79	MAV1	38.6	-21.1	0.47	0	38.76	54	-15.24	-	-	323	282	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.292	28.85	Pk	28.9	-21.9	0	35.85	-	-	74	-38.15	0-360	199	H
2	* 1.495	30.04	Pk	28.2	-21.2	0	37.04	-	-	74	-36.96	0-360	199	V
3	* 4.74	33.47	Pk	34.2	-28.3	0	39.37	-	-	74	-34.63	0-360	199	H
4	* 11.502	26.18	Pk	38.1	-22	0	42.28	-	-	74	-31.72	0-360	102	H
5	* 4.873	35.38	Pk	34.4	-30.1	0	39.68	-	-	74	-34.32	0-360	200	V
6	* 11.761	26.88	Pk	38.5	-22.2	0	43.18	-	-	74	-30.82	0-360	200	V

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

Pk - Peak detector

Radiated Emissions

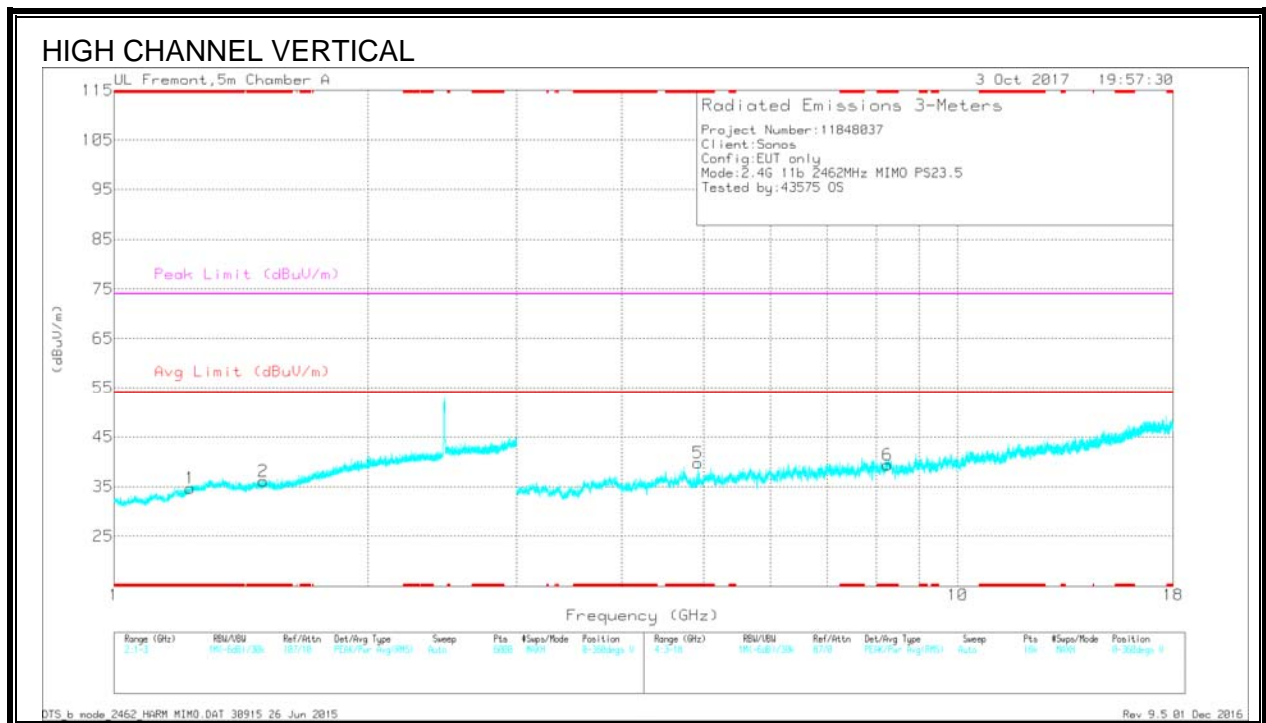
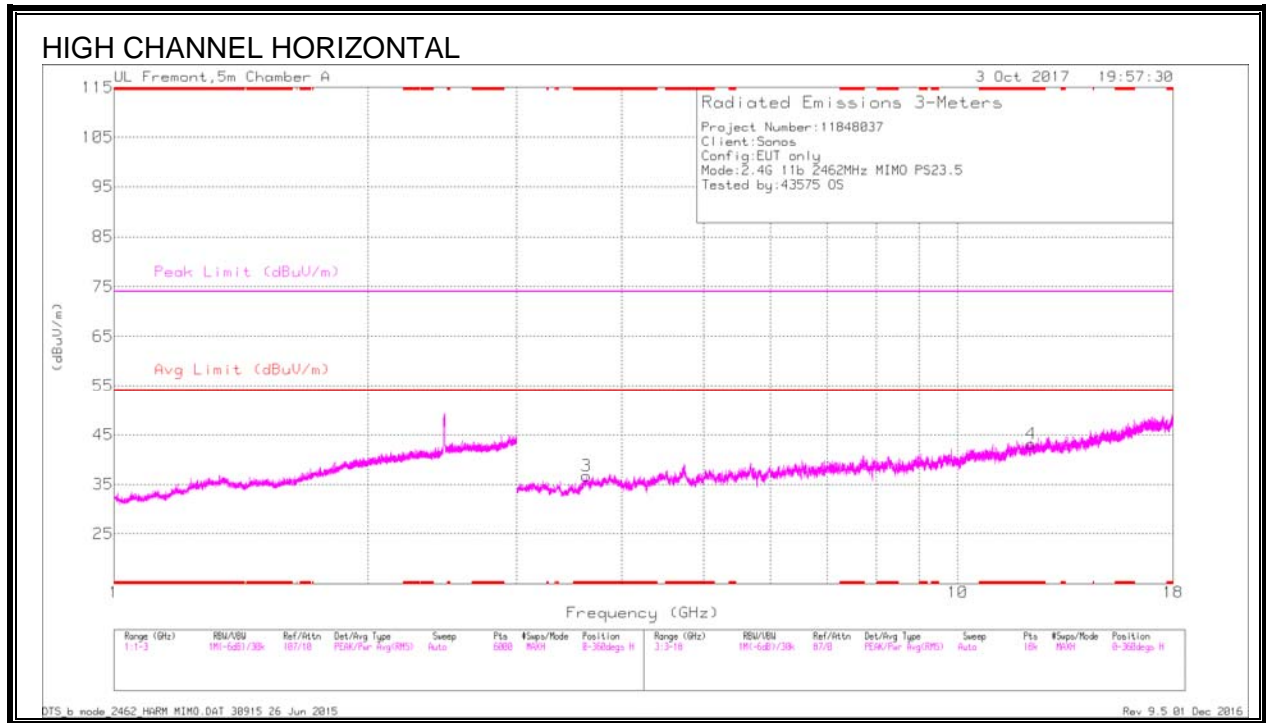
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.294	35.49	PK2	28.9	-22	.24	0	42.63	-	-	74	-31.37	340	334	H
* 1.293	23.36	MAv1	28.9	-22.1	.24	0	30.4	54	-23.6	-	-	340	334	H
* 1.494	35	PK2	28.2	-21.2	.27	0	42.27	-	-	74	-31.73	269	281	V
* 1.496	23.16	MAv1	28.2	-21.2	.27	0	30.43	54	-23.57	-	-	269	281	V
* 4.739	38.89	PK2	34.2	-28.3	.43	0	45.22	-	-	74	-28.78	136	324	H
* 4.741	27.54	MAv1	34.2	-28.3	.43	0	33.87	54	-20.13	-	-	136	324	H
* 11.501	32.42	PK2	38.1	-22	.53	0	49.05	-	-	74	-24.95	17	143	H
* 11.502	20.95	MAv1	38.1	-22.1	.53	0	37.48	54	-16.52	-	-	17	143	H
* 4.874	40.78	PK2	34.4	-30.1	.39	0	45.47	-	-	74	-28.53	59	278	V
* 4.874	33.55	MAv1	34.4	-30.1	.39	0	38.24	54	-15.76	-	-	59	278	V
* 11.76	32.92	PK2	38.5	-22.2	.47	0	49.69	-	-	74	-24.31	325	102	V
* 11.759	21.21	MAv1	38.5	-22.2	.46	0	37.97	54	-16.03	-	-	325	102	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 11)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dBm)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.232	28.46	Pk	28.5	-22.3	0	34.66	-	-	74	-39.34	0-360	102	V
2	* 1.502	29.13	Pk	28.2	-21.3	0	36.03	-	-	74	-37.97	0-360	102	V
3	* 3.628	33.82	Pk	33.2	-30.3	0	36.72	-	-	74	-37.28	0-360	102	H
4	* 12.219	26.44	Pk	39.1	-22.3	0	43.24	-	-	74	-30.76	0-360	102	H
5	* 4.924	35.52	Pk	34.4	-30.2	0	39.72	-	-	74	-34.28	0-360	200	V
6	* 8.26	28.93	Pk	36.1	-25.7	0	39.33	-	-	74	-34.67	0-360	102	V

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

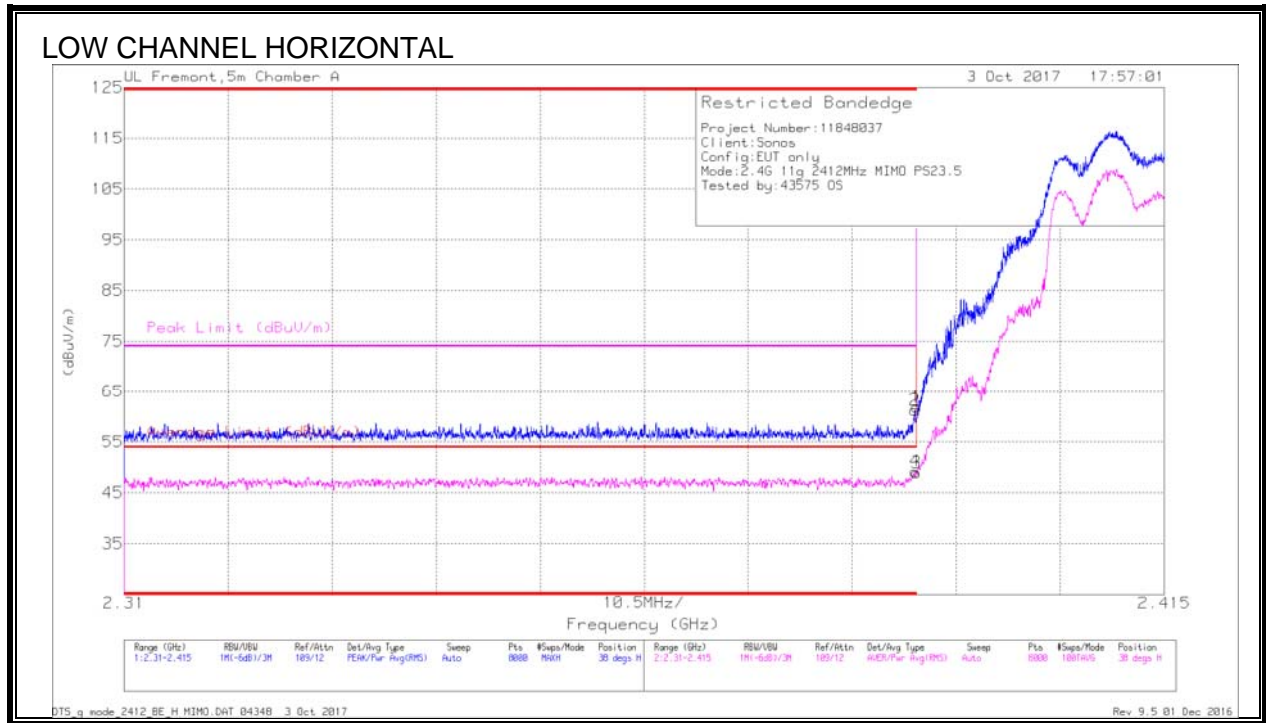
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.234	35.81	PK2	28.5	-22.3	.19	0	42.2	-	-	74	-31.8	45	198	V
* 1.231	23.53	MAv1	28.5	-22.4	.19	0	29.82	54	-24.18	-	-	45	198	V
* 1.504	35.21	PK2	28.2	-21.3	.27	0	42.38	-	-	74	-31.62	184	199	V
* 1.504	23.23	MAv1	28.2	-21.3	.27	0	30.4	54	-23.6	-	-	184	199	V
* 3.63	39.14	PK2	33.2	-30.3	.59	0	42.63	-	-	74	-31.37	21	295	H
* 3.63	27.74	MAv1	33.2	-30.3	.59	0	31.23	54	-22.77	-	-	21	295	H
* 12.22	31.89	PK2	39.1	-22.3	.38	0	49.07	-	-	74	-24.93	221	242	H
* 12.22	20.57	MAv1	39.1	-22.3	.38	0	37.75	54	-16.25	-	-	221	242	H
* 4.924	41.86	PK2	34.4	-30.2	.38	0	46.44	-	-	74	-27.56	216	277	V
* 4.924	34.74	MAv1	34.4	-30.2	.38	0	39.32	54	-14.68	-	-	216	277	V
* 8.262	36.77	PK2	36.1	-25.4	.34	0	47.81	-	-	74	-26.19	263	210	V
* 8.26	24.46	MAv1	36.1	-25.7	.34	0	35.2	54	-18.8	-	-	263	210	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

9.2.2. 11g 3TX CDD MIMO MODE IN THE 2.4GHZ BAND

BANDEDGE (LOW CHANNEL, CH 1)



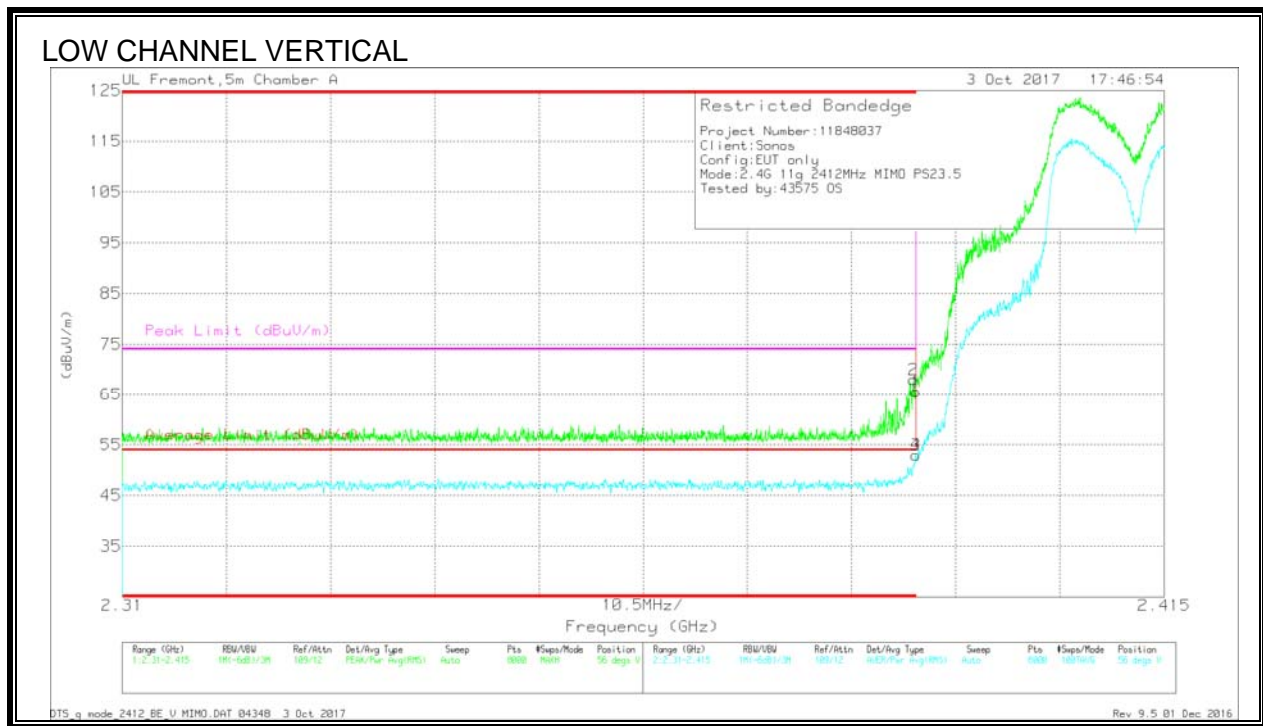
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T663 (dBm)	Amp/CalFtr/Pad (dB)	10 dB 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	* 2.39	41.1	Pk	32	-21.2	10	0	61.9	-	-	74	-12.1	38	388	H
2	* 2.39	40.49	Pk	32	-21.2	10	0	61.29	-	-	74	-12.71	38	388	H
3	* 2.39	28.05	RMS	32	-21.2	10	-11	48.96	54	-5.04	-	-	38	388	H
4	* 2.39	28.31	RMS	32	-21.2	10	-11	49.22	54	-4.78	-	-	38	388	H

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

Pk - Peak detector

RMS - RMS detection

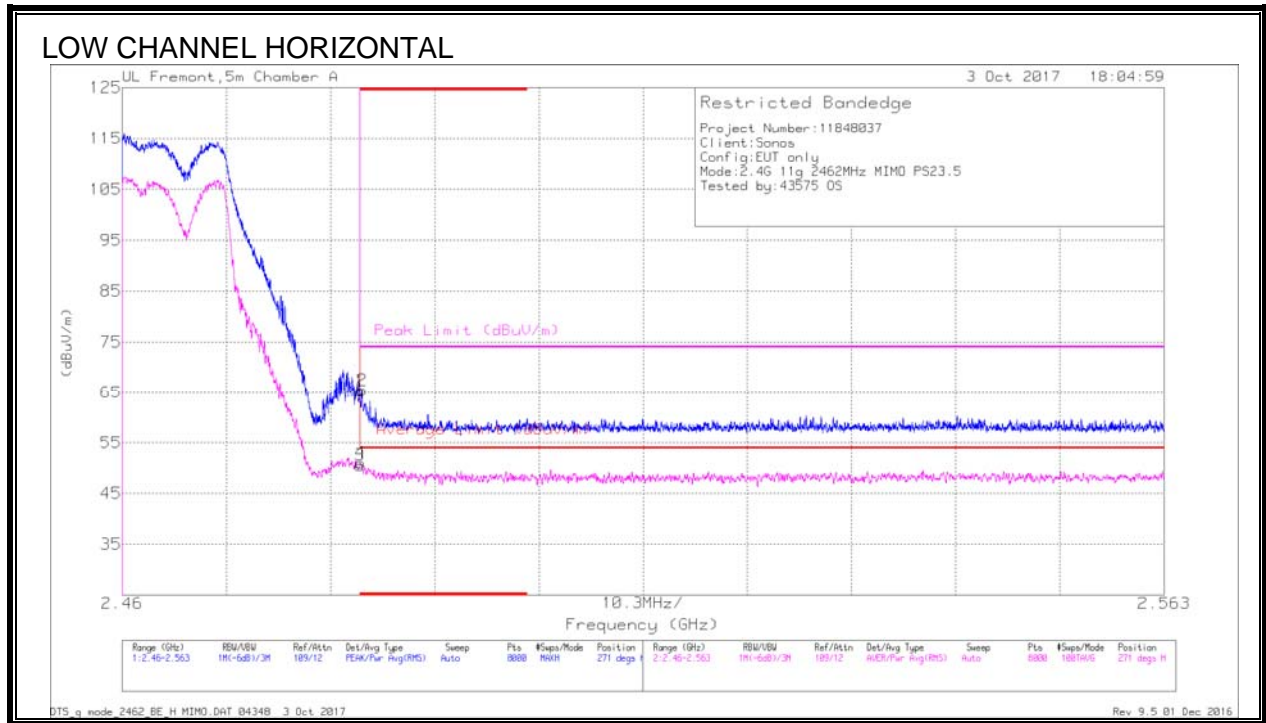


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T663 (dBm)	Amp/ChfFtr/Pad (dB)	10 dB 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	* 2.39	44.73	PK	32	-21.2	10	0	65.53	-	-	74	-8.47	56	240	V
2	* 2.39	47.2	PK	32	-21.2	10	0	68	-	-	74	-6	56	240	V
3	* 2.39	32.02	RMS	32	-21.2	10	-11	52.93	54	-1.07	-	-	56	240	V
4	* 2.39	32.1	RMS	32	-21.2	10	-11	53.01	54	-0.99	-	-	56	240	V

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

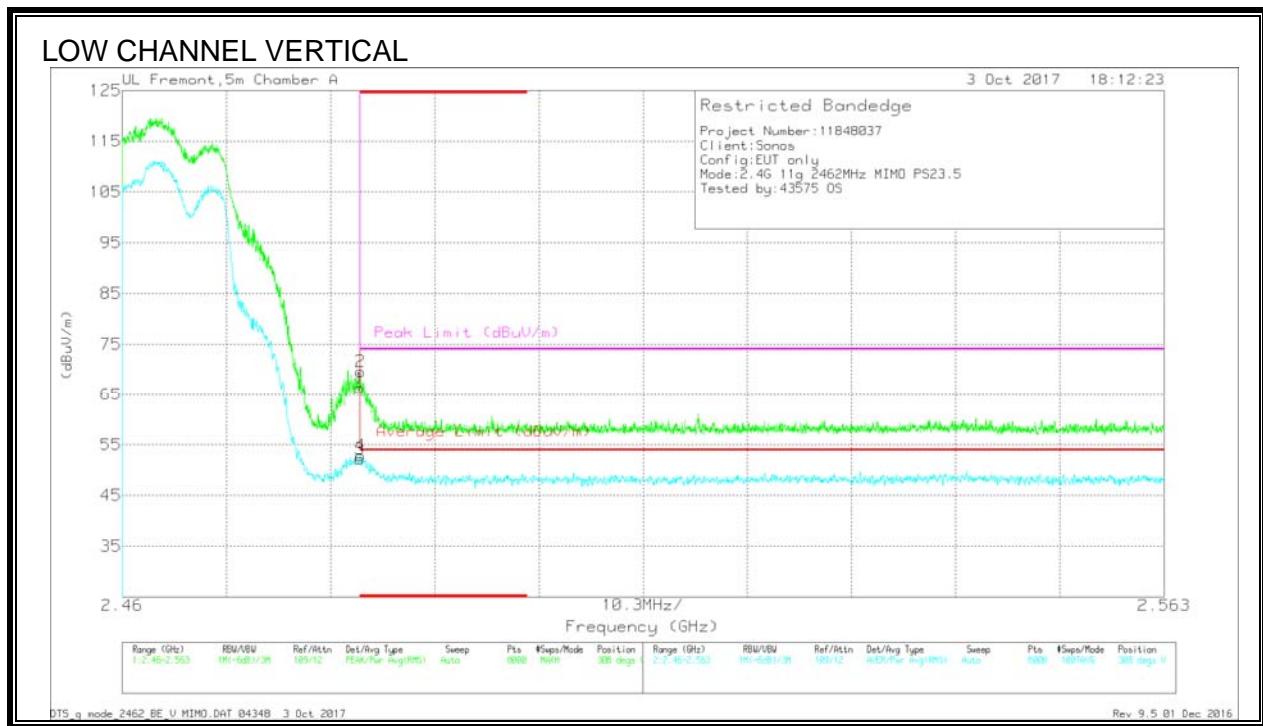
BANDEDGE (HIGH CHANNEL, CH 11)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dBm)	Amp/Cbl/Ftr/Pad (dB)	10 dB 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	* 2.484	43.69	Pk	32.5	-20.9	10	0	65.29	-	-	74	-8.71	271	359	H
2	* 2.484	43.87	Pk	32.5	-20.9	10	0	65.47	-	-	74	-8.53	271	359	H
3	* 2.484	28.86	RMS	32.5	-20.9	10	.11	50.57	54	-3.43	-	-	271	359	H
4	* 2.484	29.34	RMS	32.5	-20.9	10	.11	51.05	54	-2.95	-	-	271	359	H

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

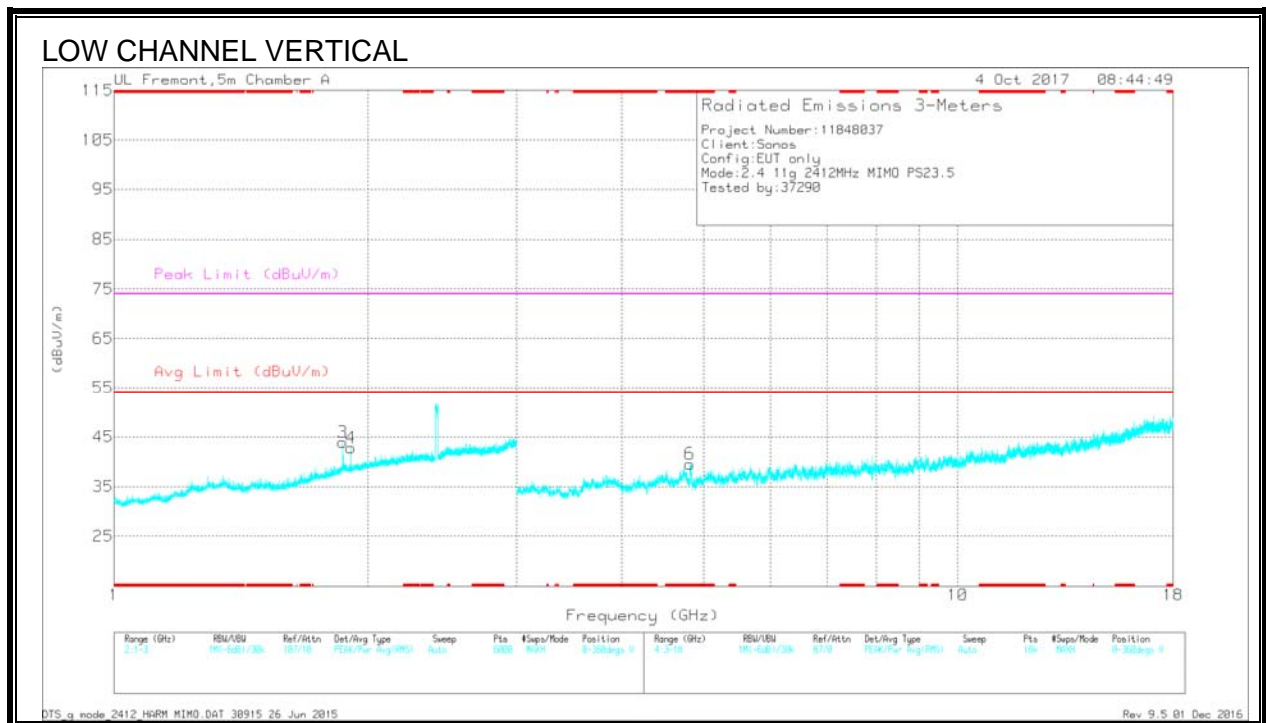
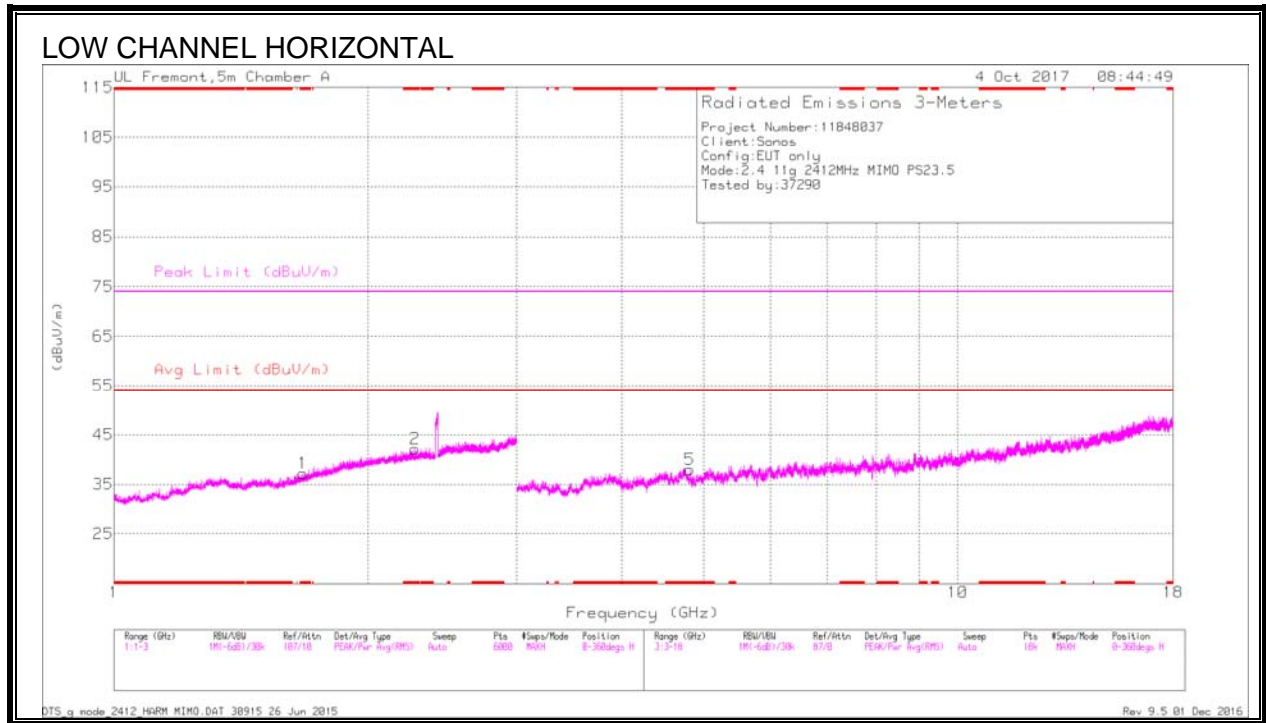


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/ChlFilt/Pad (dB)	10 dB 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	*2.484	44.67	Pk	32.5	-20.9	10	0	65.27	-	-	74	-7.73	308	347	V
2	*2.484	48.03	Pk	32.5	-20.9	10	0	69.63	-	-	74	-4.37	308	347	V
3	*2.484	30.49	RMS	32.5	-20.9	10	.11	52.2	54	-1.8	-	-	308	347	V
4	*2.484	31.16	RMS	32.5	-20.9	10	.11	52.87	54	-1.13	-	-	308	347	V

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

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.674	29.52	Pk	28.8	-21.1	0	37.22	-	-	74	-36.78	0-360	199	H
2	* 2.273	31.16	Pk	32	-21	0	42.16	-	-	74	-31.84	0-360	199	H
5	* 4.815	32.49	Pk	34.4	-28.9	0	37.99	-	-	74	-36.01	0-360	102	H
6	* 4.817	34.17	Pk	34.4	-29	0	39.57	-	-	74	-34.43	0-360	200	V
3	1.866	34.1	Pk	30.9	-21	0	44	-	-	-	-	0-360	199	V
4	1.909	32.78	Pk	31	-21	0	42.78	-	-	-	-	0-360	199	V

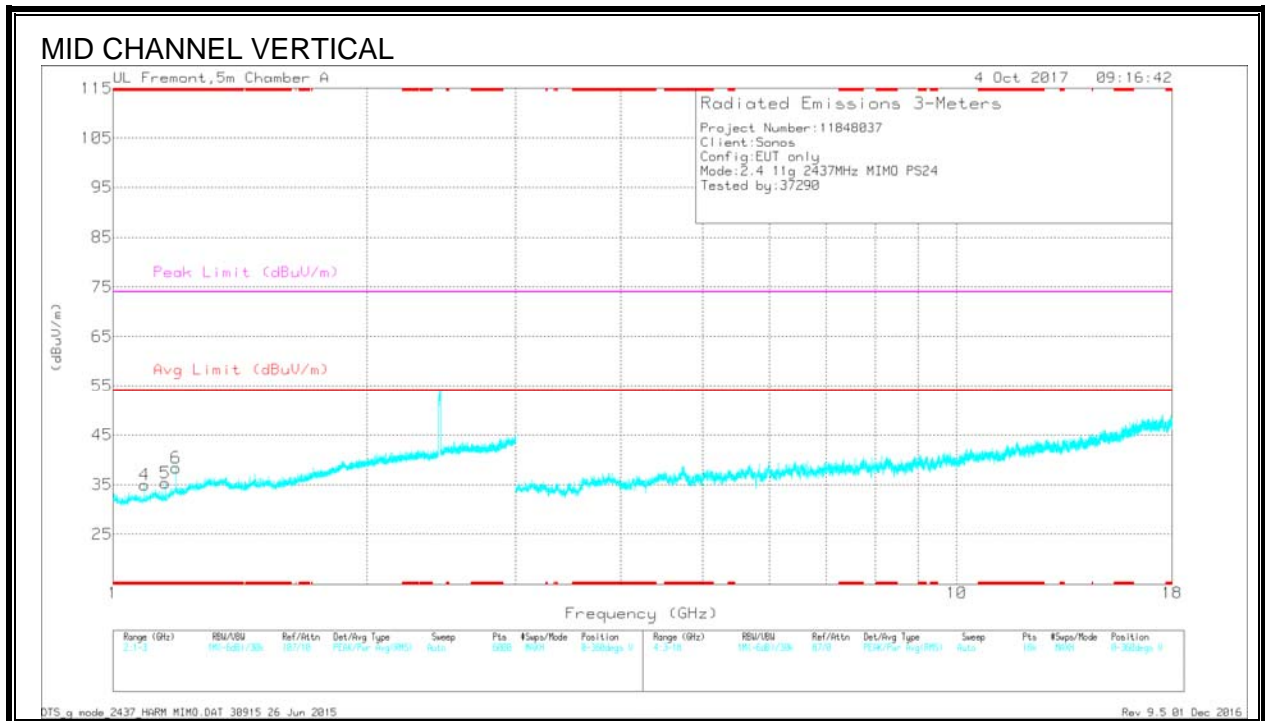
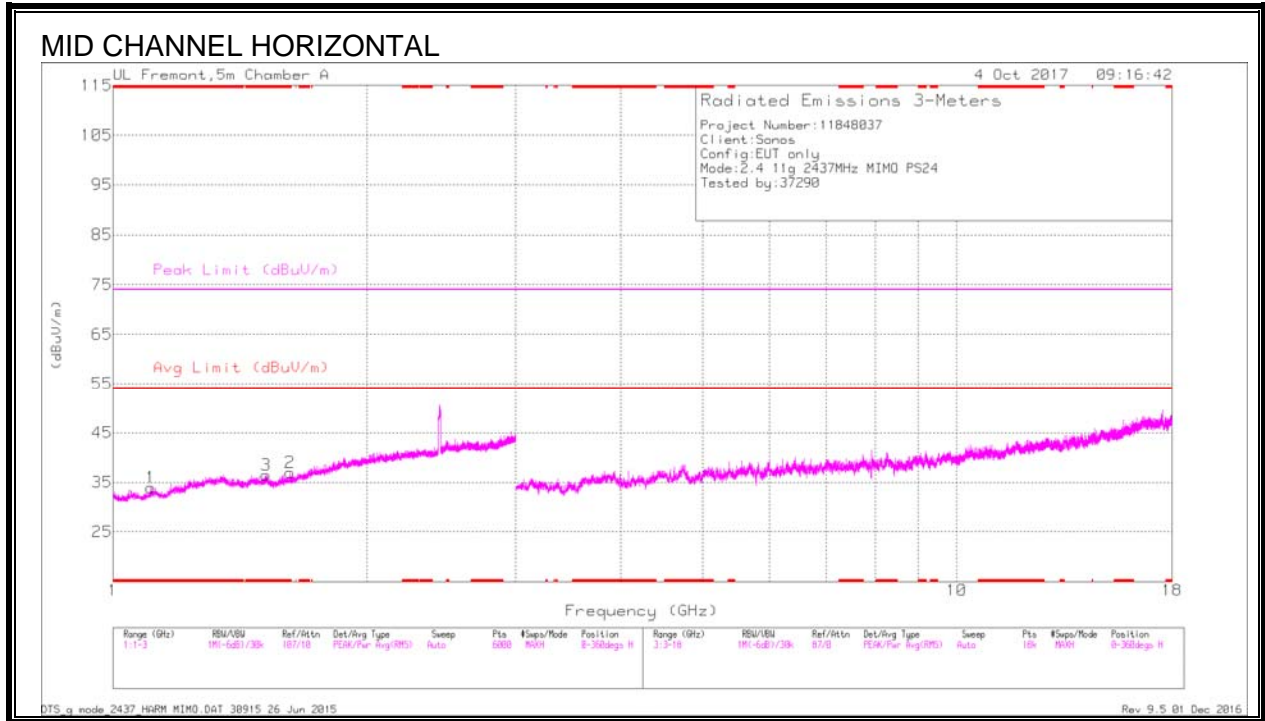
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.673	35.88	PK2	28.8	-21.1	.31	0	43.89	-	-	74	-30.11	248	145	H
* 1.673	23.48	MAv1	28.8	-21.2	.31	.11	31.5	54	-22.5	-	-	248	145	H
* 2.267	36.5	PK2	32	-21.1	8.77	0	56.17	-	-	74	-17.83	58	342	H
* 2.266	24.13	MAv1	32	-21.1	8.33	.11	43.47	54	-10.53	-	-	58	342	H
* 4.821	39.57	PK2	34.4	-29.2	.39	0	45.16	-	-	74	-28.84	24	124	H
* 4.822	28	MAv1	34.4	-29.3	.39	.11	33.6	54	-20.4	-	-	24	124	H
* 4.816	44.75	PK2	34.4	-29	.38	0	50.53	-	-	74	-23.47	213	140	V
* 4.817	32.22	MAv1	34.4	-29	.38	.11	38.11	54	-15.89	-	-	213	140	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL, CH 6)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.109	29.27	Pk	27.6	-22.9	0	33.97	-	-	74	-40.03	0-360	102	H
2	* 1.621	29.85	Pk	28.4	-21.3	0	36.95	-	-	74	-37.05	0-360	199	H
3	* 1.517	29.43	Pk	28	-21	0	36.43	-	-	74	-37.57	0-360	102	H
4	* 1.089	30.44	Pk	27.5	-23	0	34.94	-	-	74	-39.06	0-360	200	V
5	* 1.154	30.56	Pk	27.5	-22.7	0	35.36	-	-	74	-38.64	0-360	102	V
6	* 1.187	32.95	PK	27.8	-22.4	0	38.35	-	-	74	-35.65	0-360	200	V

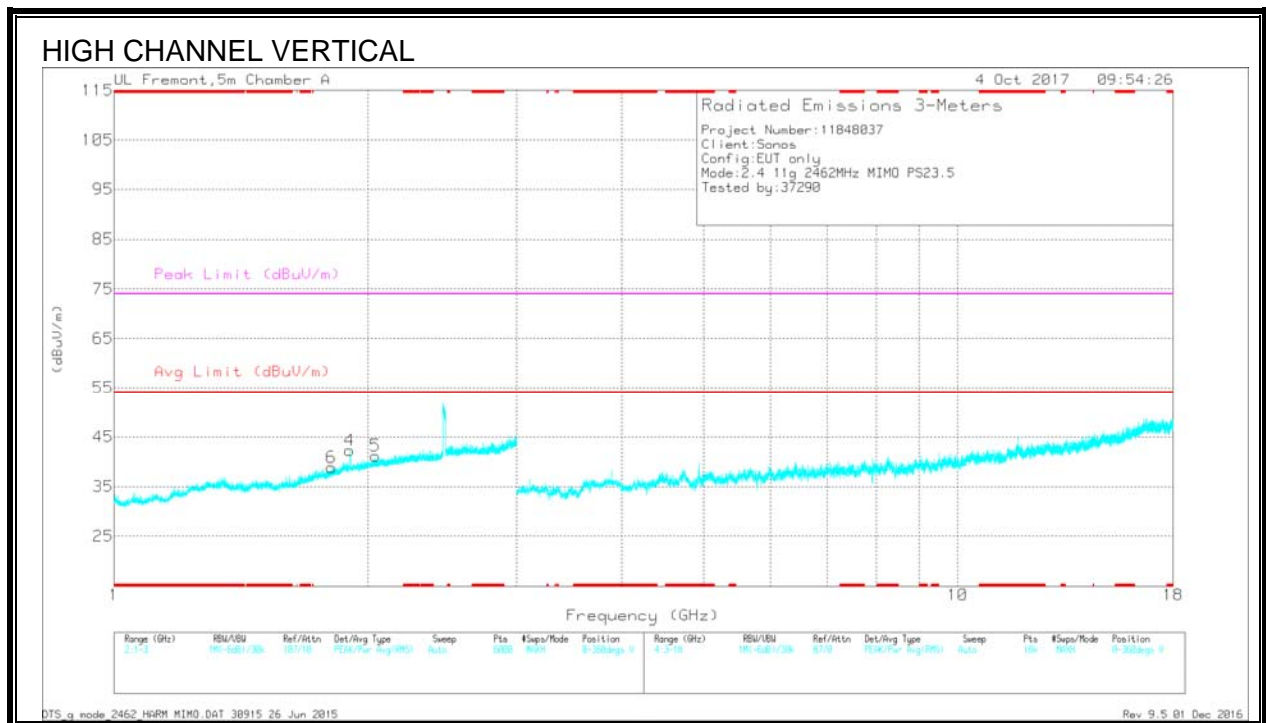
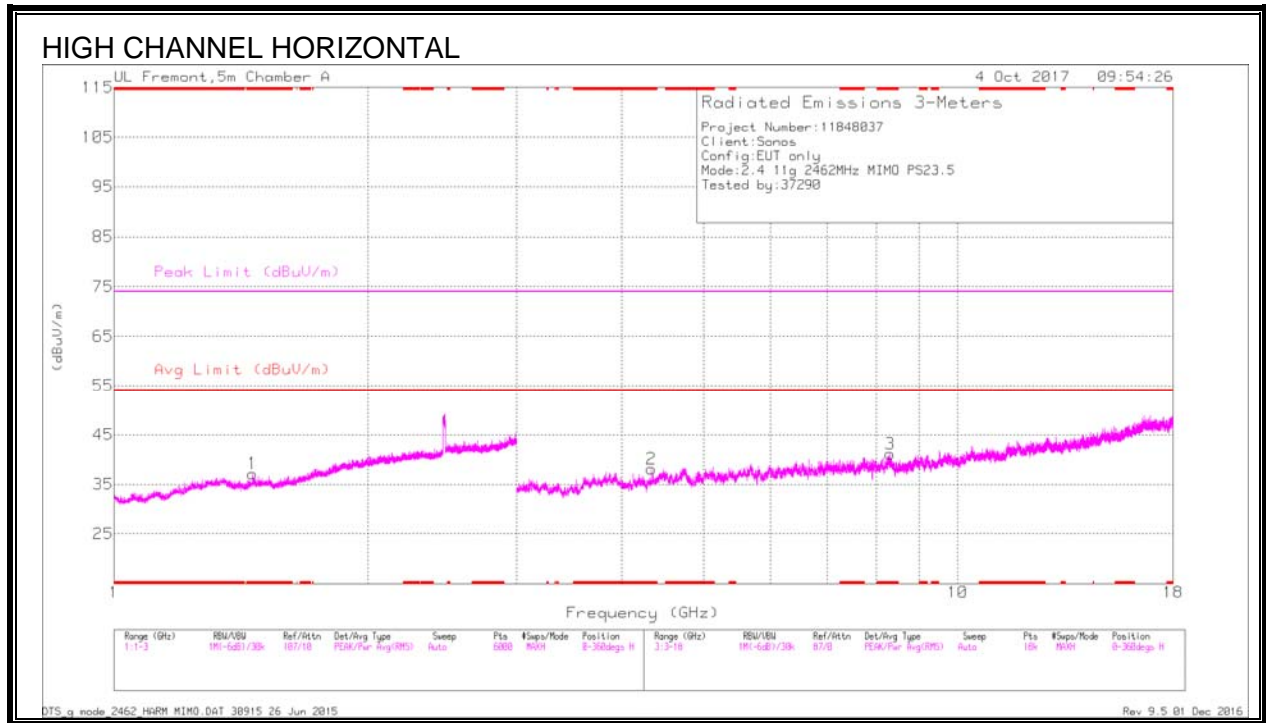
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.118	35.97	PK2	27.6	-22.6	.13	0	41.1	-	-	74	-32.9	33	376	H
* 1.115	23.21	MAv1	27.6	-22.8	.13	.11	28.25	54	-25.75	-	-	33	376	H
* 1.619	35.18	PK2	28.4	-21.4	.27	0	42.45	-	-	74	-31.55	290	190	H
* 1.622	23.3	MAv1	28.5	-21.4	.27	.11	30.78	54	-23.22	-	-	290	190	H
* 1.518	34.78	PK2	28	-21.1	.27	0	41.95	-	-	74	-32.05	211	313	H
* 1.519	23.28	MAv1	28	-21.1	.27	.11	30.56	54	-23.44	-	-	211	313	H
* 1.09	34.89	PK2	27.5	-23	.13	0	39.52	-	-	74	-34.48	314	385	V
* 1.091	22.67	MAv1	27.5	-22.9	.13	.11	27.51	54	-26.49	-	-	314	385	V
* 1.155	34.83	PK2	27.5	-22.6	.14	0	39.87	-	-	74	-34.13	243	383	V
* 1.154	22.83	MAv1	27.5	-22.7	.14	.11	27.88	54	-26.12	-	-	243	383	V
* 1.186	35.58	PK2	27.8	-22.3	.16	0	41.24	-	-	74	-32.76	78	333	V
* 1.188	23.34	MAv1	27.9	-22.5	.16	.11	29.01	54	-24.99	-	-	78	333	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL, CH 11)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.46	30.16	Pk	28.3	-21.3	0	37.16	-	-	74	-36.84	0-360	102	H
2	* 4.332	35.3	Pk	33.6	-30.8	0	38.1	-	-	74	-35.9	0-360	102	H
3	* 8.314	30.02	Pk	36.1	-25	0	41.12	-	-	74	-32.88	0-360	199	H
6	1.809	29.46	Pk	30.3	-20.9	0	38.86	-	-	-	-	0-360	200	V
4	1.901	32.49	Pk	30.9	-21.1	0	42.29	-	-	-	-	0-360	200	V
5	2.04	31.02	Pk	31.4	-21.2	0	41.22	-	-	-	-	0-360	102	V

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

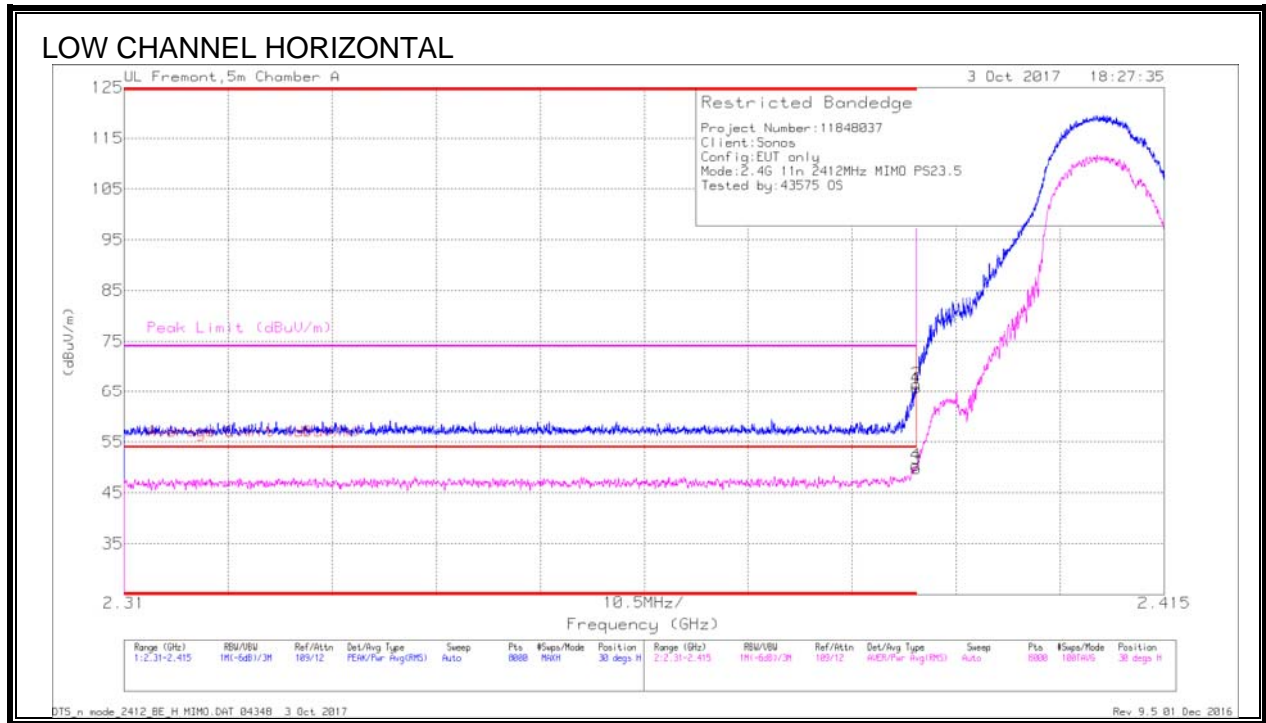
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.46	34.97	PK2	28.3	-21.3	.27	0	42.24	-	-	74	-31.76	237	224	H
* 1.462	23.21	MAv1	28.3	-21.3	.27	.11	30.59	54	-23.41	-	-	237	224	H
* 4.331	40.19	PK2	33.6	-30.8	.42	0	43.41	-	-	74	-30.59	0	194	H
* 4.333	28.28	MAv1	33.6	-30.8	.42	.11	31.61	54	-22.39	-	-	0	194	H
* 8.316	35.27	PK2	36.1	-25	.35	0	46.72	-	-	74	-27.28	64	393	H
* 8.316	23.65	MAv1	36.1	-25	.35	.11	35.21	54	-18.79	-	-	64	393	H

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

9.2.3. 11n HT20 3TX CDD MIMO MODE IN THE 2.4GHZ BAND

BANDEDGE (LOW CHANNEL, CH 1)



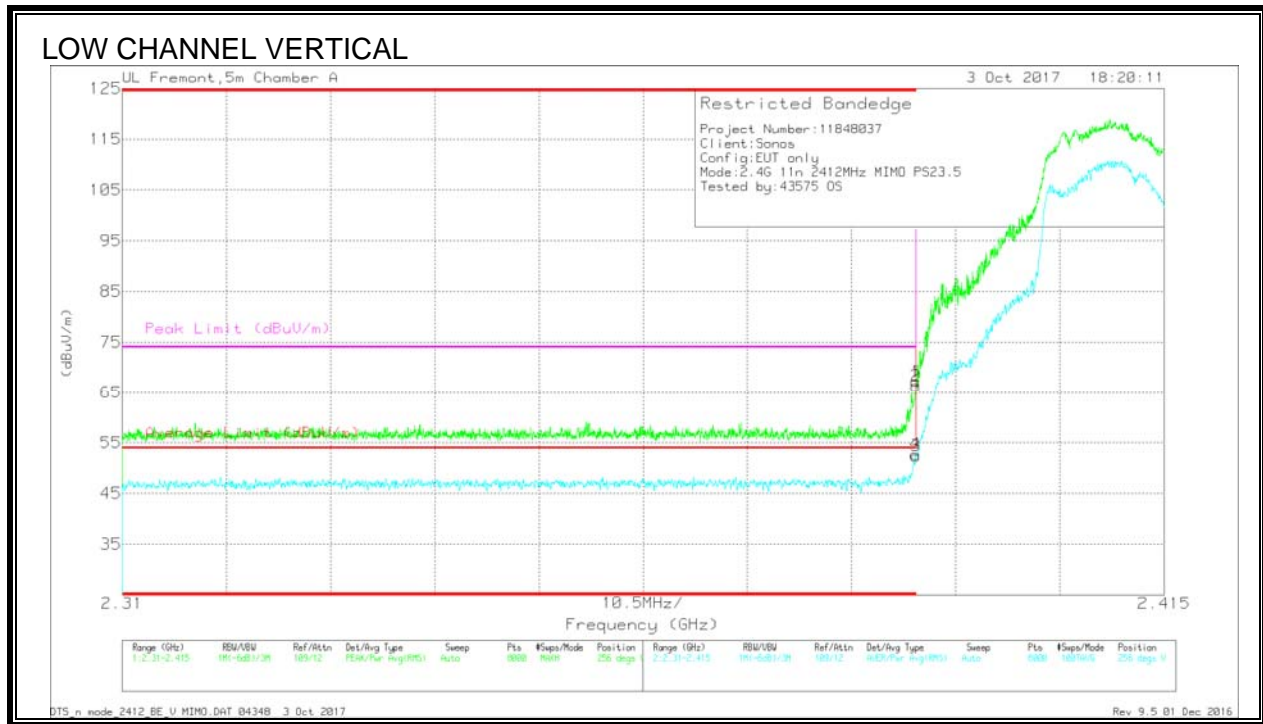
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dBm)	Amp/CbW/Ftr/Pad (dB)	10 dB 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	* 2.39	44.84	Pk	32	-21.2	10	0	65.64	-	-	74	-8.36	30	373	H
2	* 2.39	45.76	Pk	32	-21.2	10	0	66.56	-	-	74	-7.44	30	373	H
3	* 2.39	28.87	RMS	32	-21.2	10	.11	49.78	54	-4.22	-	-	30	373	H
4	* 2.39	29.53	RMS	32	-21.2	10	.11	50.44	54	-3.56	-	-	30	373	H

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

Pk - Peak detector

RMS - RMS detection

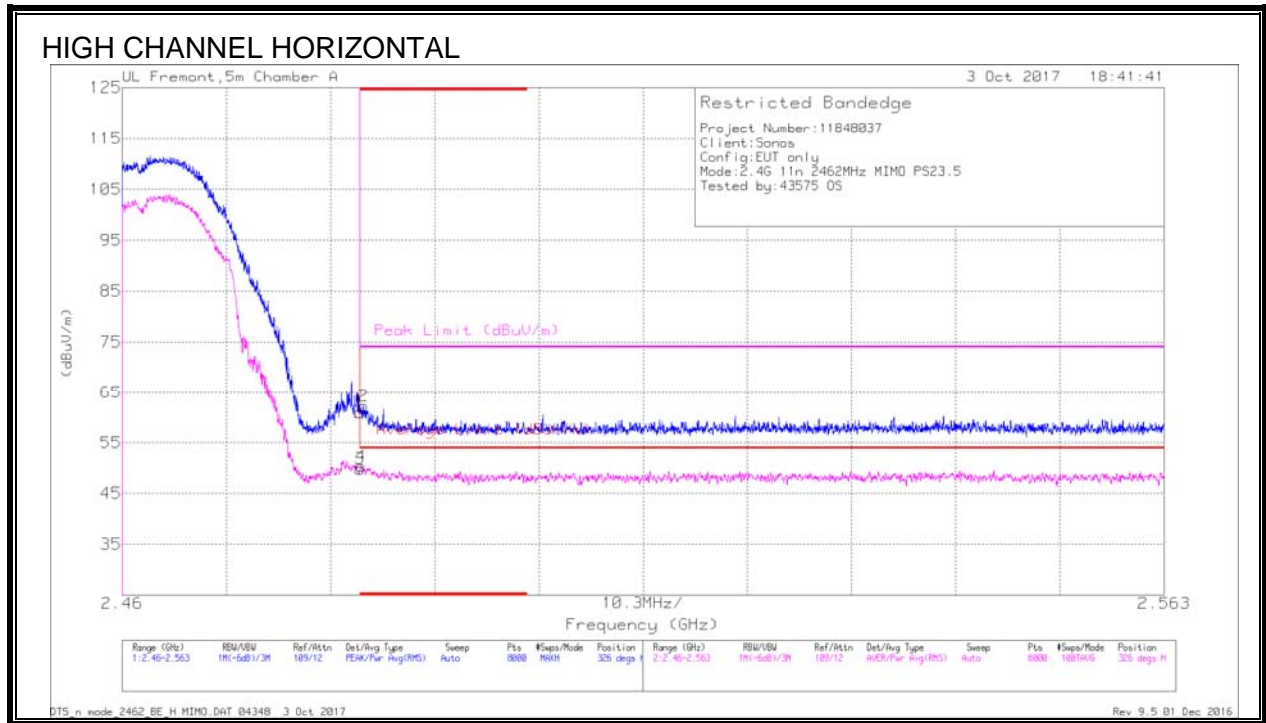


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF TRF3 (dB/m)	AmpChRFtr/Pad (dB)	10 dB 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	* 2.39	45.47	Pk	32	-21.2	10	0	67.27	-	-	74	-6.73	256	324	V
2	* 2.39	45.56	Pk	32	-21.2	10	0	66.36	-	-	74	-7.64	256	324	V
3	* 2.39	31.5	RMS	32	-21.2	10	-11	52.41	54	-1.59	-	-	256	324	V
4	* 2.39	31.86	RMS	32	-21.2	10	-11	52.77	54	-1.23	-	-	256	324	V

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

BANDEDGE (HIGH CHANNEL, CH 11)



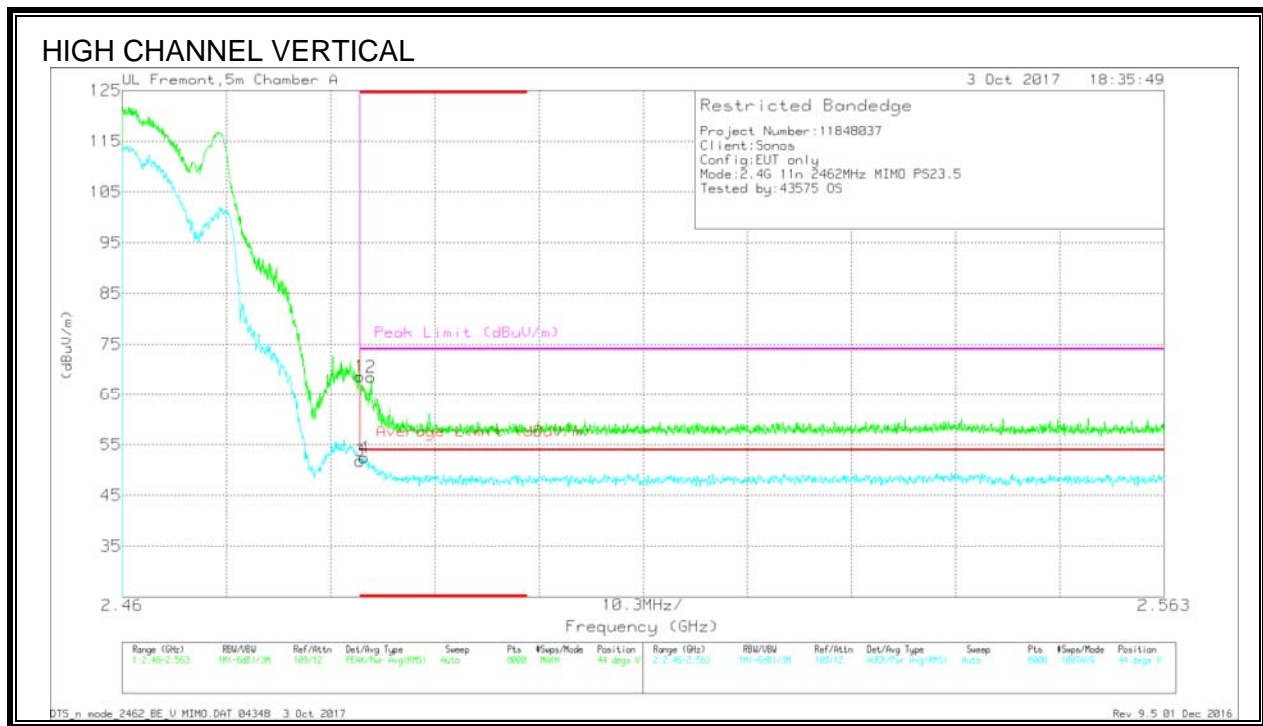
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T883 (dB/m)	Amp/Cb/Ftr/Pad (dB)	10 dB Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Asimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.39	Pk	32.5	-20.9	10	0	60.99	-	-	74	-13.01	326	270	H
2	* 2.484	40.7	Pk	32.5	-20.9	10	0	62.3	-	-	74	-11.7	326	270	H
3	* 2.484	28.14	RMS	32.5	-20.9	10	.11	49.85	54	-4.15	-	-	326	270	H
4	* 2.484	28.66	RMS	32.5	-20.9	10	.11	50.37	54	-3.63	-	-	326	270	H

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

Pk - Peak detector

RMS - RMS detection

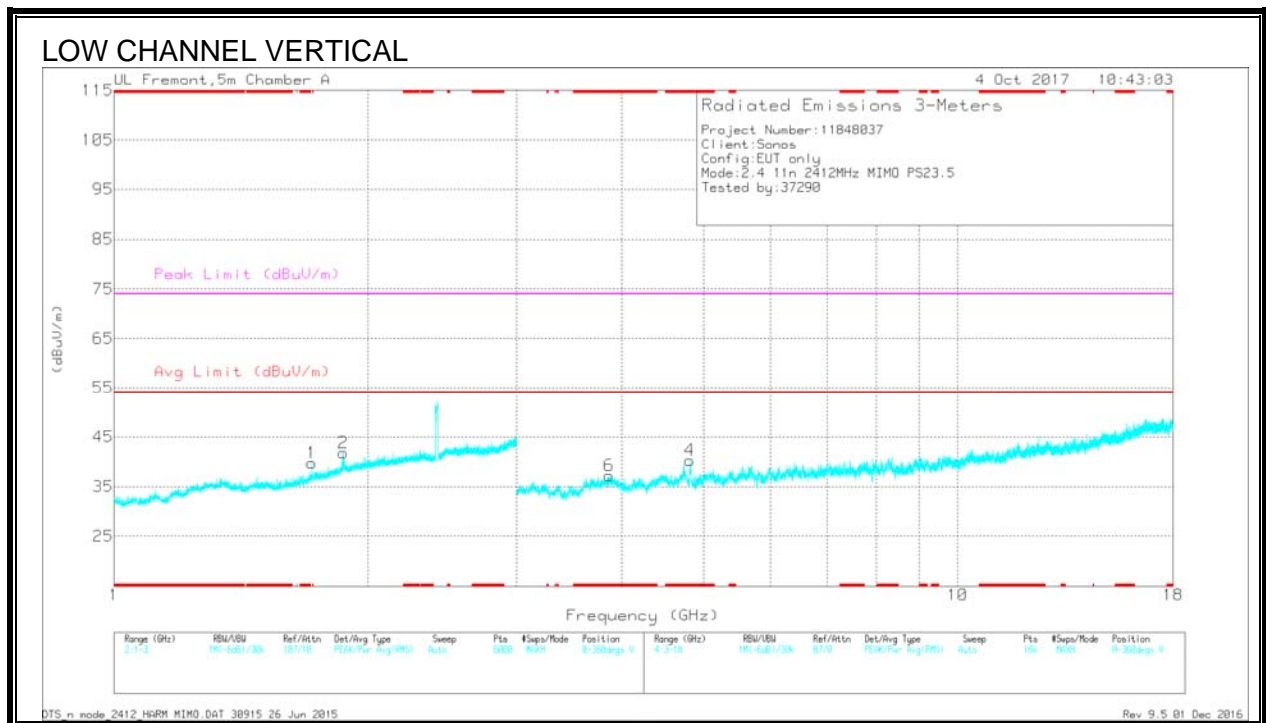
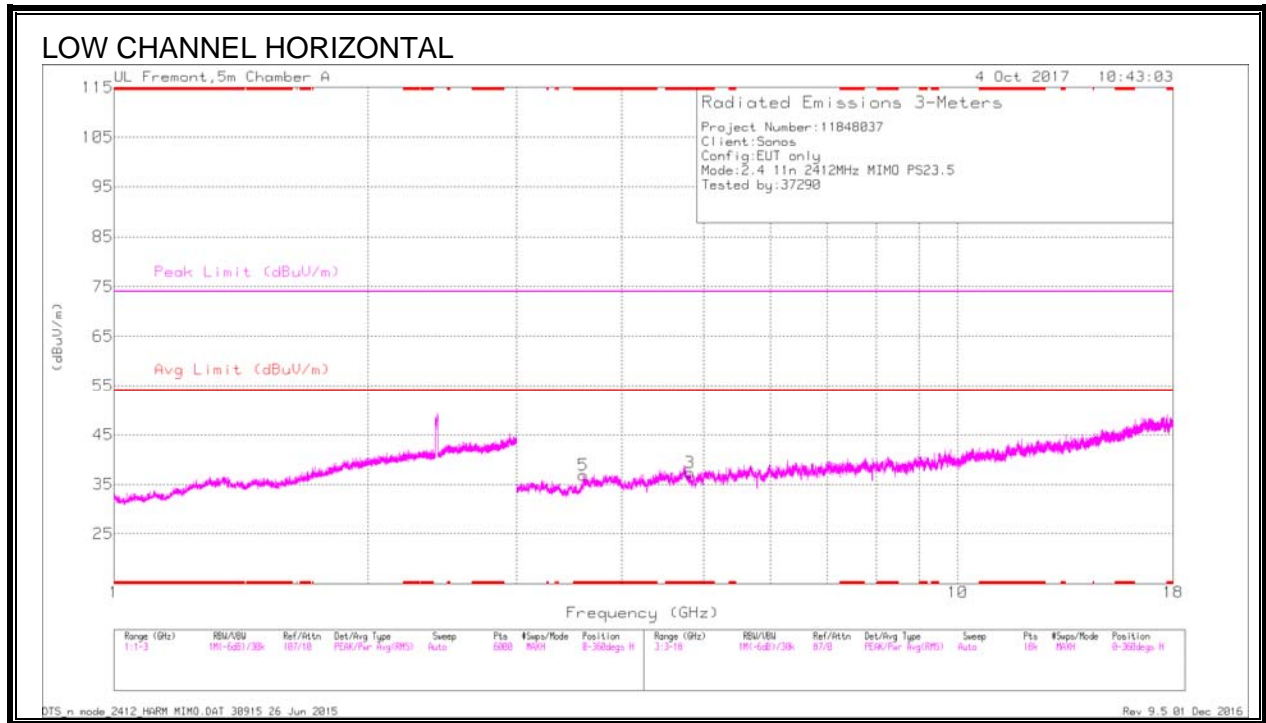


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF FREQ (dBm)	Amp/Cbif/Intr/Pad (dB)	10 dB Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Altitude (Degs)	Height (cm)	Polarity
1	* 2.484	47.04	Pk	32.5	-20.9	10	0	68.64	-	-	74	-5.36	44	298	V
3	* 2.484	30.11	RMS	32.5	-20.9	10	-11	51.82	54	-2.18	-	-	44	298	V
4	* 2.484	30.73	RMS	32.5	-20.9	10	-11	52.44	54	-1.56	-	-	44	298	V
2	* 2.485	46.91	Pk	32.5	-20.9	10	0	68.51	-	-	74	-5.49	44	298	V

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

HARMONICS AND SPURIOUS EMISSIONS LOW CHANNEL, CH 1)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 4.817	31.97	Pk	34.4	-29	0	37.37	-	-	74	-36.63	0-360	199	H
5	* 3.602	34.48	Pk	33.2	-30.8	0	36.88	-	-	74	-37.12	0-360	102	H
4	* 4.812	34.83	Pk	34.4	-28.9	0	40.33	-	-	74	-33.67	0-360	200	V
6	* 3.864	33.11	Pk	33.5	-29.4	0	37.21	-	-	74	-36.79	0-360	102	V
1	1.716	31.5	Pk	29.3	-21	0	39.8	-	-	-	-	0-360	199	V
2	1.869	31.77	Pk	30.9	-20.9	0	41.77	-	-	-	-	0-360	199	V

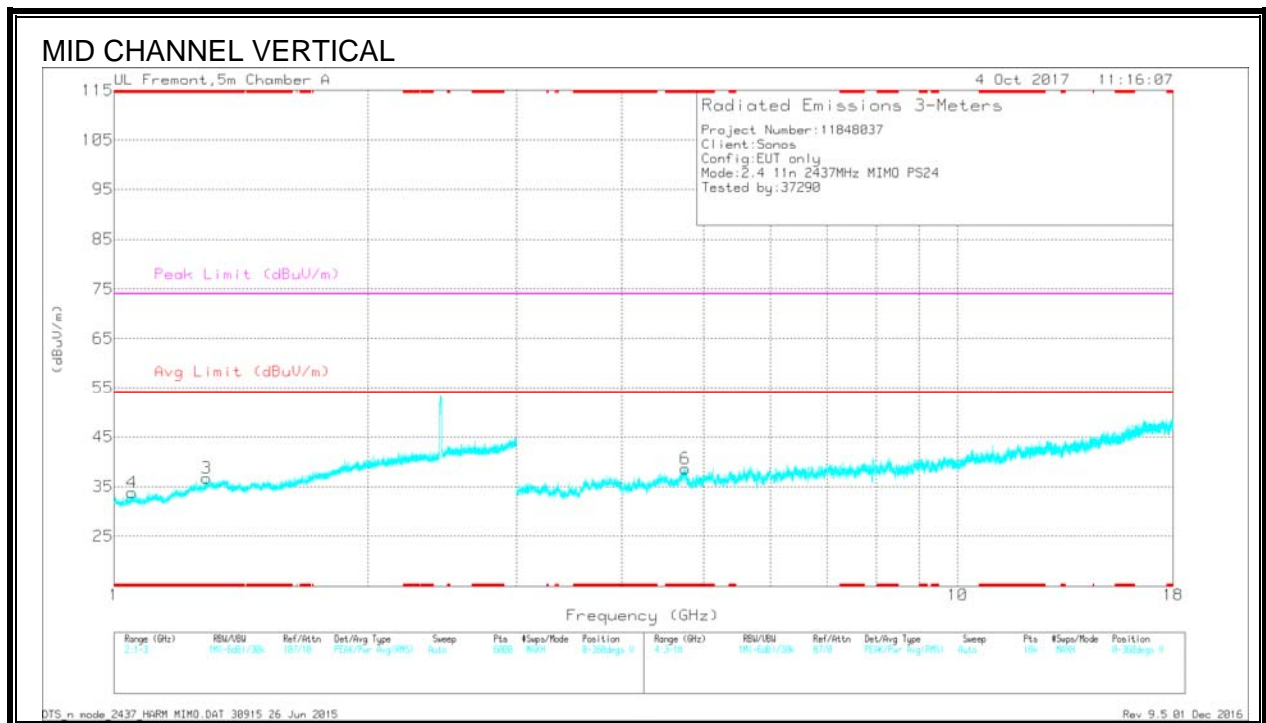
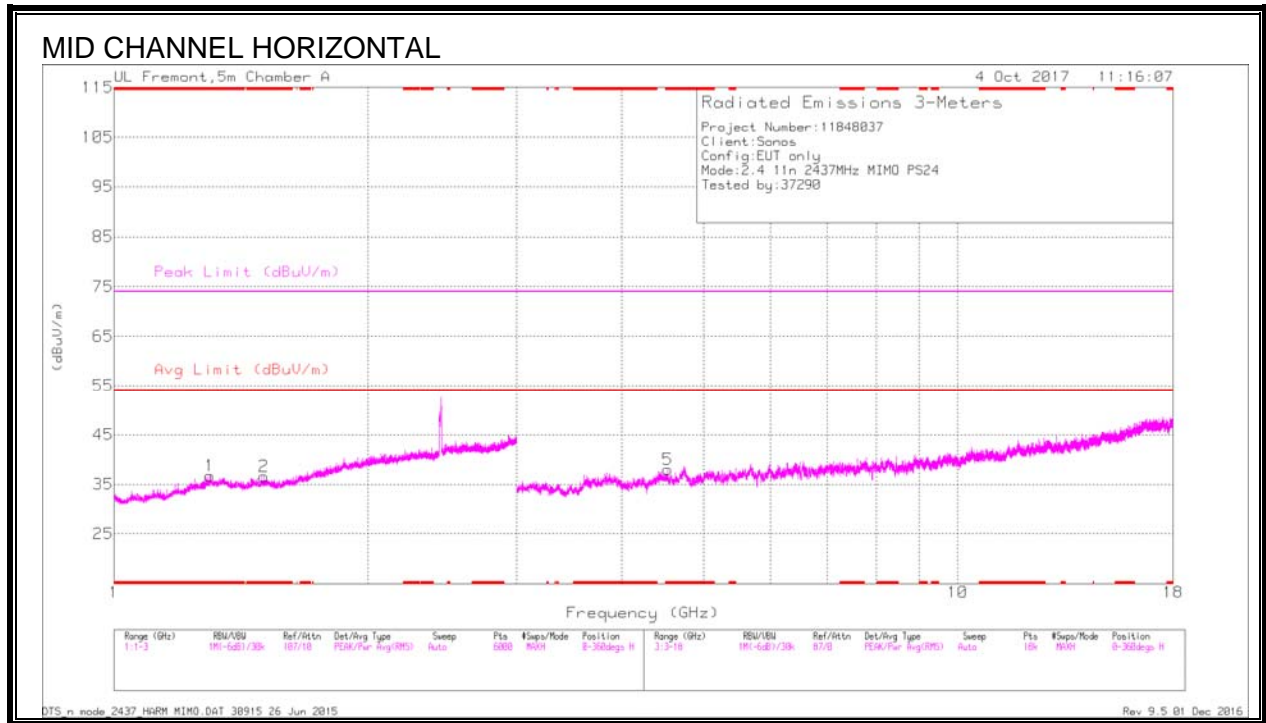
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.816	38.63	PK2	34.4	-28.9	.38	0	44.51	-	-	74	-29.49	72	165	H
* 4.819	27.22	MAv1	34.4	-29	.38	.11	33.11	54	-20.89	-	-	72	165	H
* 3.601	40.35	PK2	33.2	-30.8	.64	0	43.39	-	-	74	-30.61	250	385	H
* 3.601	28.1	MAv1	33.2	-30.8	.64	.11	31.25	54	-22.75	-	-	250	385	H
* 4.813	41.2	PK2	34.4	-28.9	.38	0	47.08	-	-	74	-26.92	116	281	V
* 4.813	29.1	MAv1	34.4	-28.9	.38	.11	35.09	54	-18.91	-	-	116	281	V
* 3.864	39.49	PK2	33.5	-29.4	.40	0	43.99	-	-	74	-30.01	251	252	V
* 3.864	28.06	MAv1	33.5	-29.4	.40	.11	32.67	54	-21.33	-	-	251	252	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS MID CHANNEL, CH 6)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filt/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.298	29.66	Pk	28.9	-21.9	0	36.66	-	-	74	-37.34	0-360	199	H
2	* 1.505	29.58	Pk	28.2	-21.2	0	36.58	-	-	74	-37.42	0-360	199	H
3	* 1.288	29.72	Pk	28.9	-21.9	0	36.72	-	-	74	-37.28	0-360	200	V
4	* 1.05	29.7	Pk	27	-22.9	0	33.8	-	-	74	-40.2	0-360	102	V
5	* 4.532	33.58	Pk	34.1	-29.7	0	37.98	-	-	74	-36.02	0-360	102	H
6	* 4.757	32.82	Pk	34.3	-28.5	0	38.62	-	-	74	-35.38	0-360	199	V

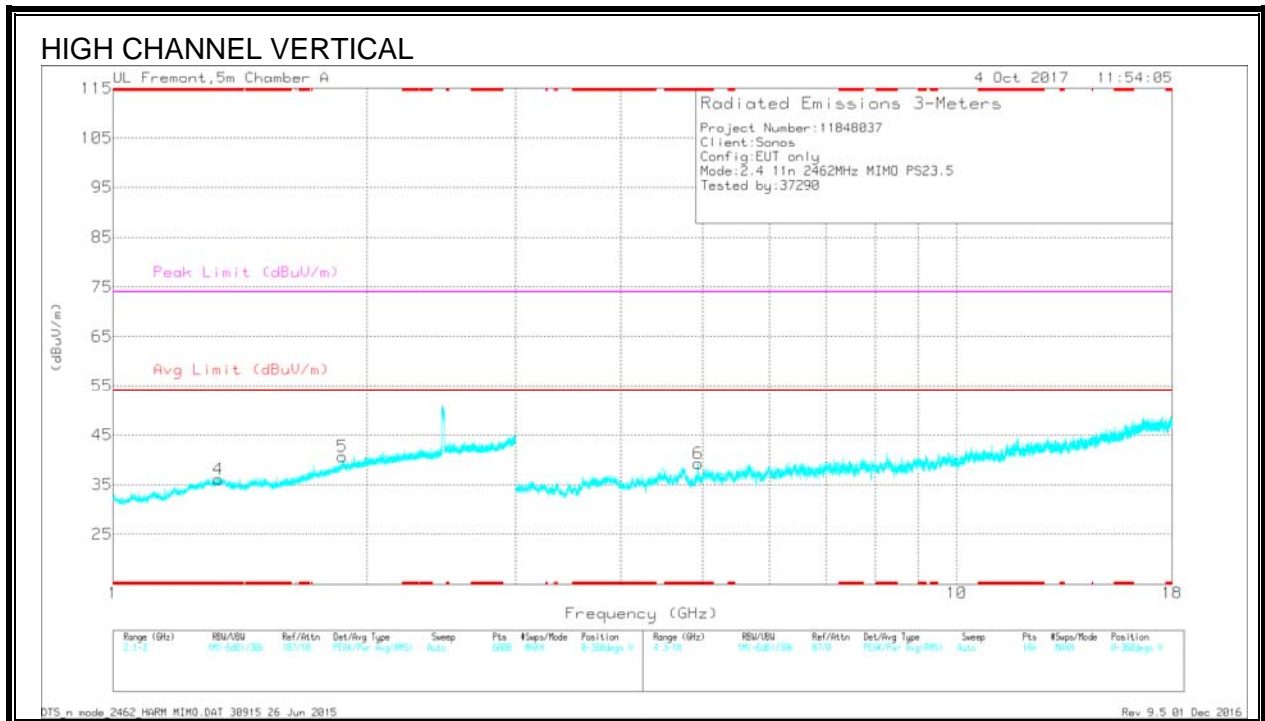
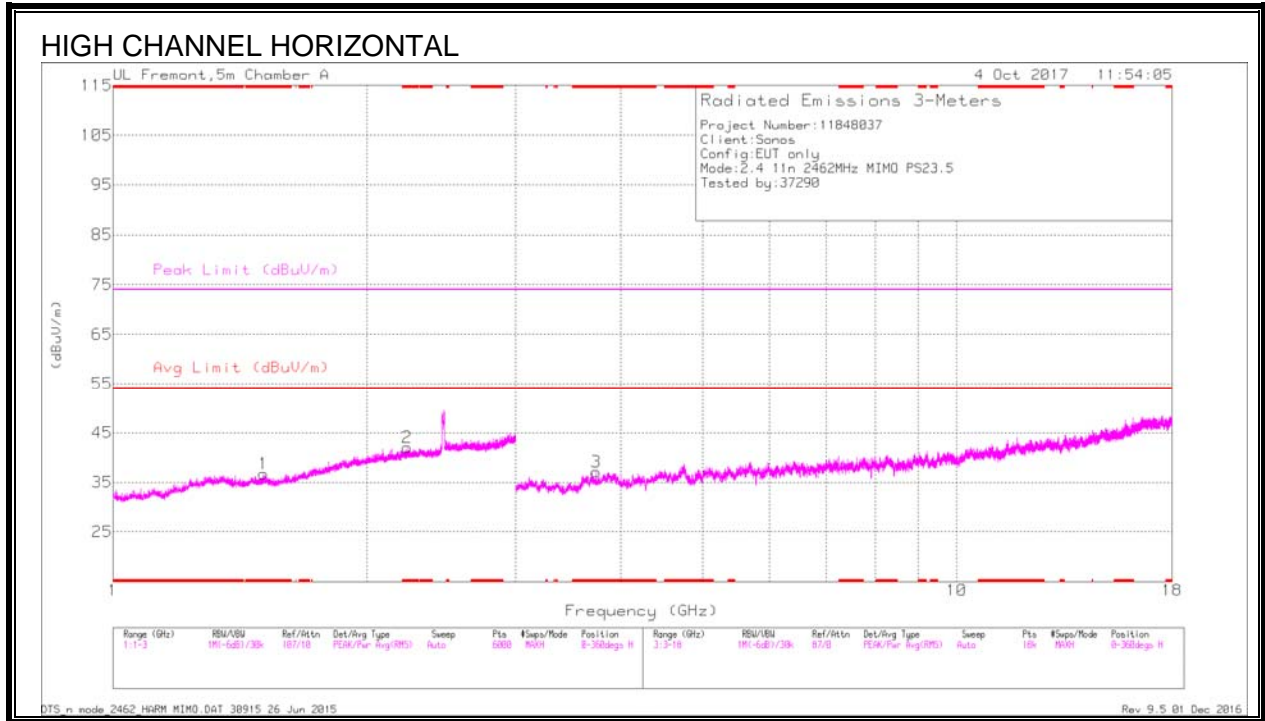
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filt/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.296	35.3	PK2	28.9	-21.9	.24	0	42.54	-	-	74	-31.46	222	190	H
* 1.296	23.6	MAv1	28.9	-21.9	.24	.11	30.95	54	-23.05	-	-	222	190	H
* 1.503	34.92	PK2	28.2	-21.3	.27	0	42.09	-	-	74	-31.91	134	176	H
* 1.503	23.29	MAv1	28.2	-21.3	.27	.11	30.57	54	-23.43	-	-	134	176	H
* 1.286	35.77	PK2	28.9	-21.9	.23	0	43	-	-	74	-31	121	387	V
* 1.289	23.45	MAv1	28.9	-21.9	.23	.11	30.79	54	-23.21	-	-	121	387	V
* 1.049	35.4	PK2	27	-22.9	.12	0	39.62	-	-	74	-34.38	299	215	V
* 1.052	23.57	MAv1	27	-23	.13	.11	27.81	54	-26.19	-	-	299	215	V
* 4.531	38.83	PK2	34.1	-29.7	.43	0	43.66	-	-	74	-30.34	0	175	H
* 4.532	27.27	MAv1	34.1	-29.7	.44	.11	32.22	54	-21.78	-	-	0	175	H
* 4.758	38.7	PK2	34.3	-28.5	.42	0	44.92	-	-	74	-29.08	157	157	V
* 4.757	27.34	MAv1	34.3	-28.5	.42	.11	33.67	54	-20.33	-	-	157	157	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS HIGH CHANNEL, CH 11)



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dBm)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.508	29.84	Pk	28.1	-21.2	0	36.74	-	-	74	-37.26	0-360	199	H
2	* 2.232	31.38	Pk	31.8	-21.1	0	42.08	-	-	74	-31.92	0-360	199	H
4	* 1.332	28.73	Pk	28.9	-21.6	0	36.03	-	-	74	-37.97	0-360	199	V
3	* 3.74	34.65	Pk	33.3	-30.9	0	37.05	-	-	74	-36.95	0-360	199	H
6	* 4.937	34.94	Pk	34.4	-30.1	0	39.24	-	-	74	-34.76	0-360	101	V
5	1.871	30.52	Pk	30.9	-20.8	0	40.62	-	-	-	-	0-360	101	V

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

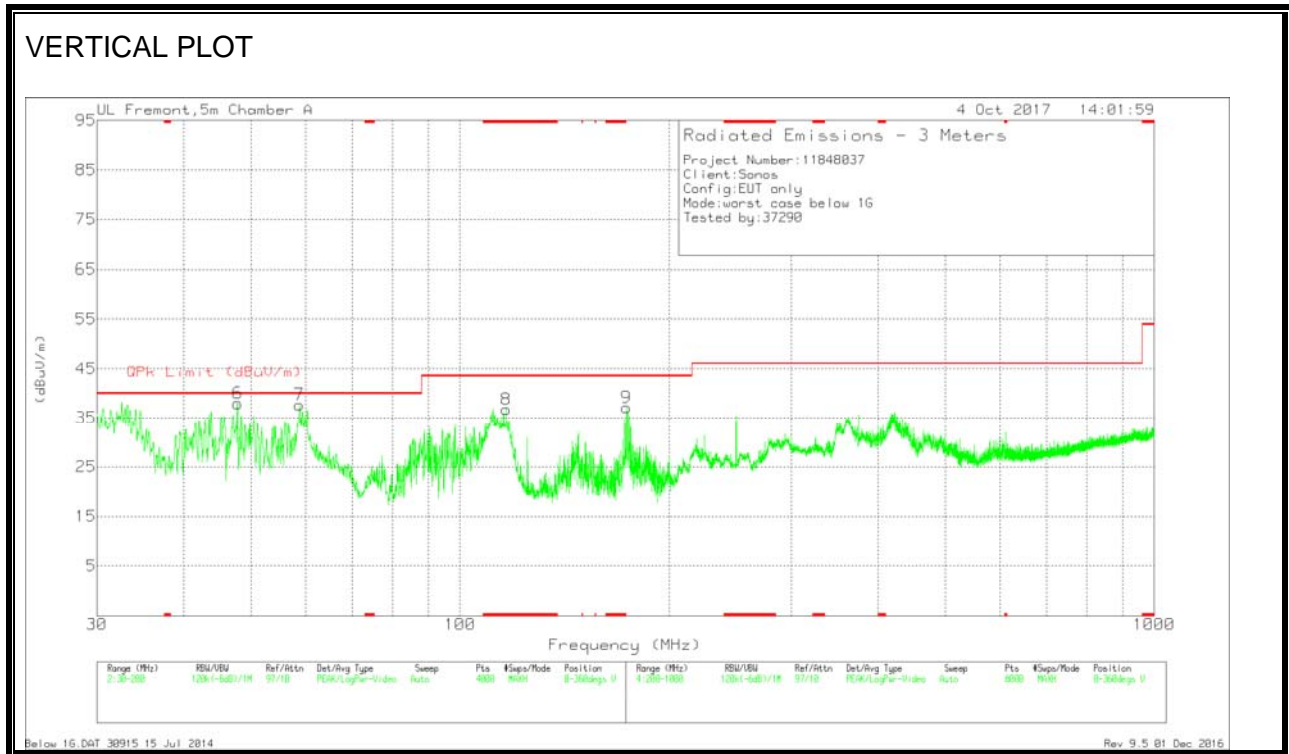
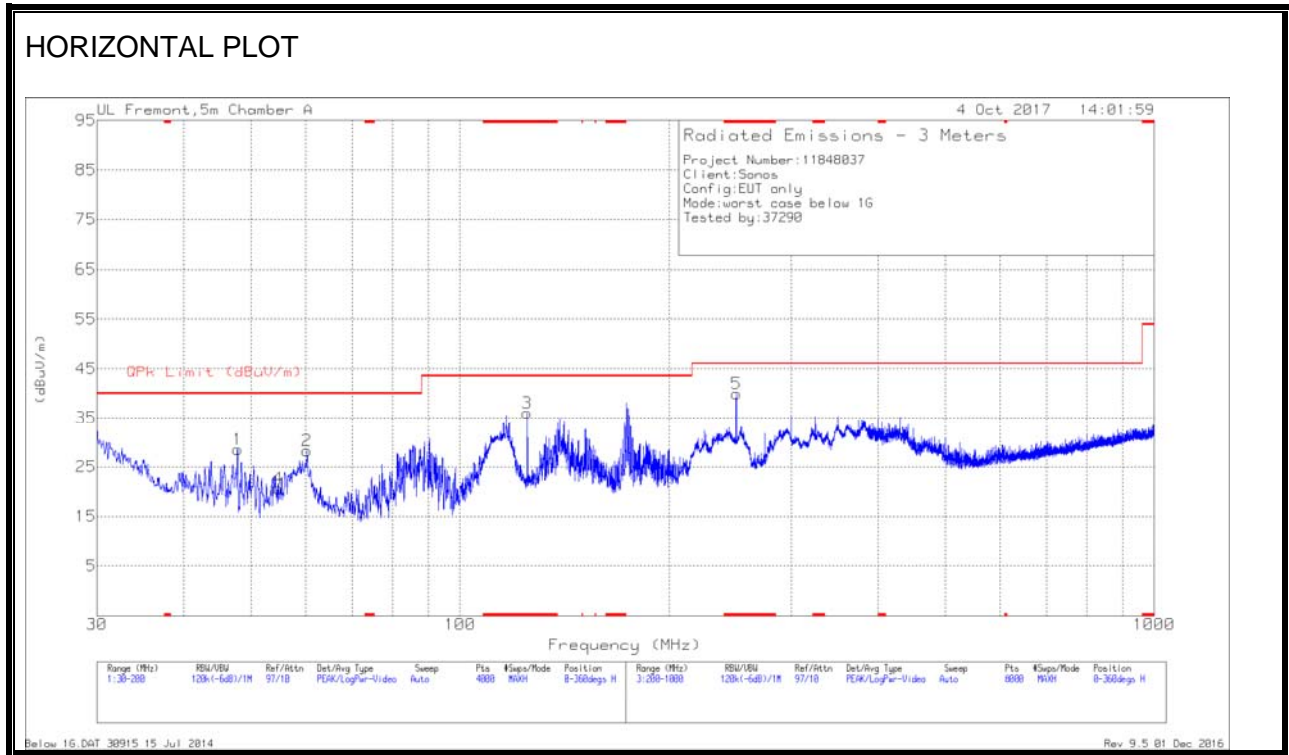
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Filter Loss (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.51	35.13	PK2	28.1	-21.1	.27	0	42.40	-	-	74	-31.6	348	298	H
* 1.509	23.23	MAv1	28.1	-21.2	.27	.11	30.51	54	-23.49	-	-	348	298	H
* 2.232	36.14	PK2	31.8	-21.1	3.16	0	50	-	-	74	-24	23	304	H
* 2.23	24.08	MAv1	31.8	-21.1	3.05	.11	37.94	54	-16.06	-	-	23	304	H
* 1.33	34.97	PK2	28.9	-21.7	.27	0	42.44	-	-	74	-31.56	360	343	V
* 1.333	23.06	MAv1	28.9	-21.6	.26	.11	30.73	54	-23.27	-	-	360	343	V
* 3.742	39.43	PK2	33.3	-30.9	.47	0	42.3	-	-	74	-31.7	4	297	H
* 3.74	28.18	MAv1	33.3	-30.9	.47	.11	31.16	54	-22.84	-	-	4	297	H
* 4.935	45.26	PK2	34.4	-30.1	.39	0	49.95	-	-	74	-24.05	40	193	V
* 4.935	32.11	MAv1	34.4	-30.1	.39	.11	36.91	54	-17.09	-	-	40	193	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAv1 - KDB558074 Option 1 Maximum RMS Average

9.3. WORST-CASE BELOW 1 GHz

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



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T899 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 125.0121	45.89	Pk	17.7	-27.6	35.99	43.52	-7.53	0-360	200	H
8	* 116.6374	46.95	Pk	17.5	-27.7	36.75	43.52	-6.77	0-360	100	V
5	* 250.0065	50.79	Pk	15.4	-26.3	39.89	46.02	-6.13	0-360	100	H
1	47.8121	44.69	Pk	12.4	-28.6	28.49	40	-11.51	0-360	400	H
6	47.8121	54.18	Pk	12.4	-28.6	37.98	40	-2.02	0-360	100	V
4	54.6989	38.07	Pk	11	-28.4	20.67	40	-19.33	0-360	400	H
7	58.6949	54.62	Pk	11.5	-28.4	37.72	40	-2.28	0-360	100	V
2	60.2253	44.97	Pk	11.7	-28.4	28.27	40	-11.73	0-360	400	H
9	173.8147	48.87	Pk	15.4	-27.1	37.17	43.52	-6.35	0-360	100	V

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

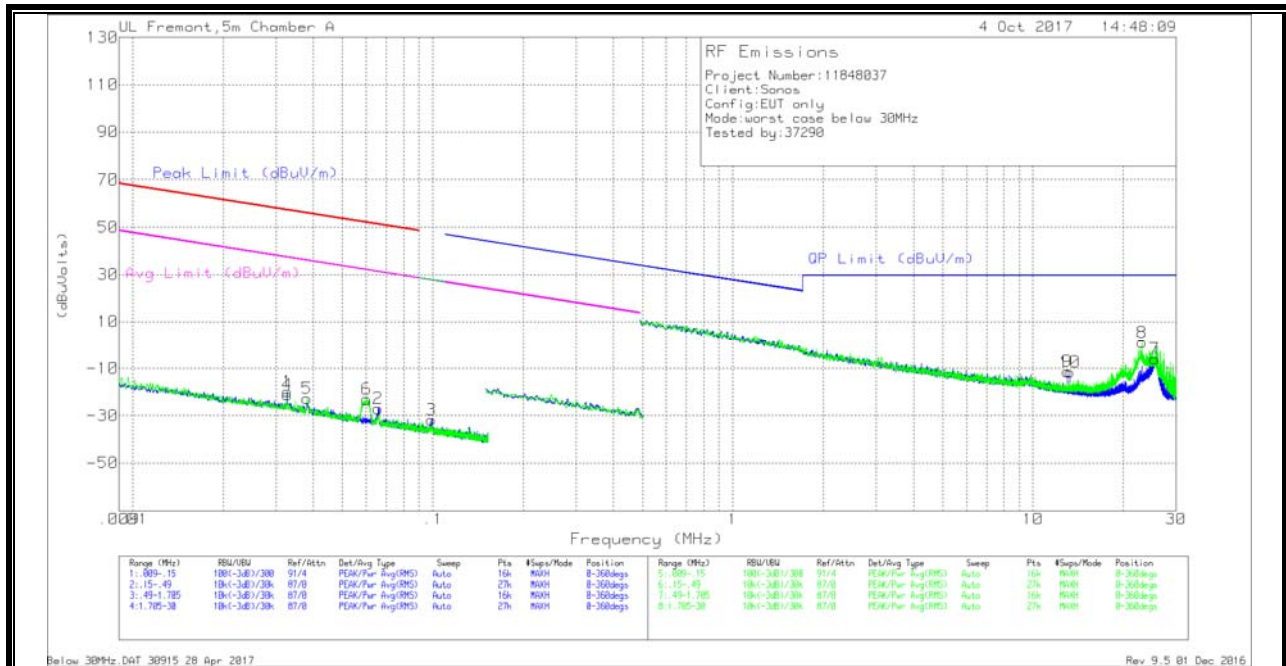
Radiated Emissions

Frequency (MHz)	Meter Reading (dBuV)	Det	AF T899 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
47.8131	52.89	Qp	12.4	-28.6	36.69	40	-3.31	335	114	V
58.7496	48.23	Qp	11.5	-28.4	31.33	40	-8.67	192	207	V

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

9.4. WORST-CASE BELOW 30MHz

SPURIOUS EMISSIONS BELOW 30MHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)



NOTE: KDB 414788 D01 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.

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)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.03275	44.69	Pk	14.1	1.4	-80	-19.81	57.28	-77.09	37.28	-57.09	-	-	0-360
4	.03279	43.24	Pk	14.1	1.4	-80	-21.26	57.27	-78.53	37.27	-58.53	-	-	0-360
5	.03813	42.35	Pk	13.5	1.4	-80	-22.75	55.96	-78.71	35.96	-58.71	-	-	0-360
6	.06024	43.27	Pk	12.2	1.4	-80	-23.13	51.99	-75.12	31.99	-55.12	-	-	0-360
2	.0657	39.41	Pk	12.1	1.4	-80	-27.09	51.23	-78.32	31.23	-58.32	-	-	0-360
3	.09921	35.15	Pk	11.7	1.4	-80	-31.75	-	-	-	-	27.67	-59.42	0-360

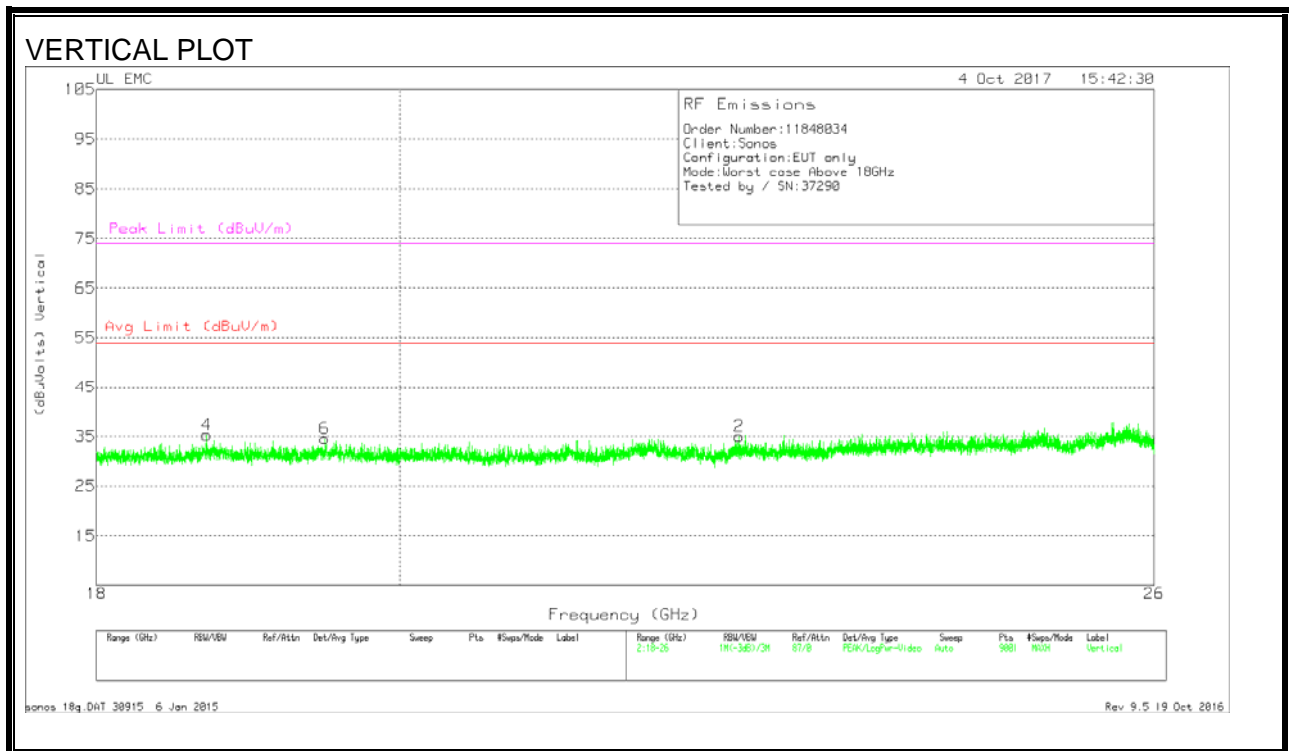
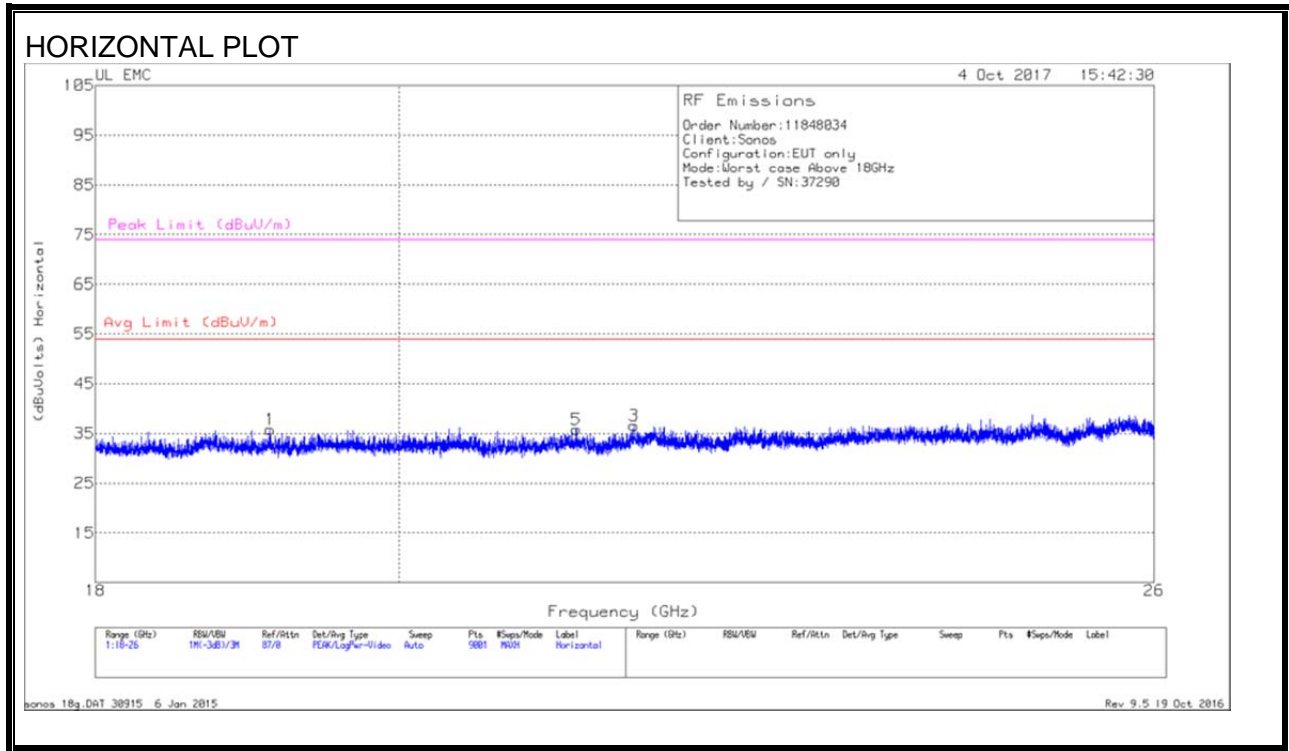
Pk - Peak detector

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)
9	13.01344	16.57	Pk	10.4	1.6	-40	-11.43	29.5	-40.93	0-360
10	13.24243	16.31	Pk	10.4	1.6	-40	-11.69	29.5	-41.19	0-360
8	23.12822	30.23	Pk	9.2	1.7	-40	1.13	29.5	-28.37	0-360
7	25.44534	23.4	Pk	8.8	1.7	-40	-6.1	29.5	-35.6	0-360

Pk - Peak detector

9.5. WORST-CASE 18 - 26 GHz

SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION)

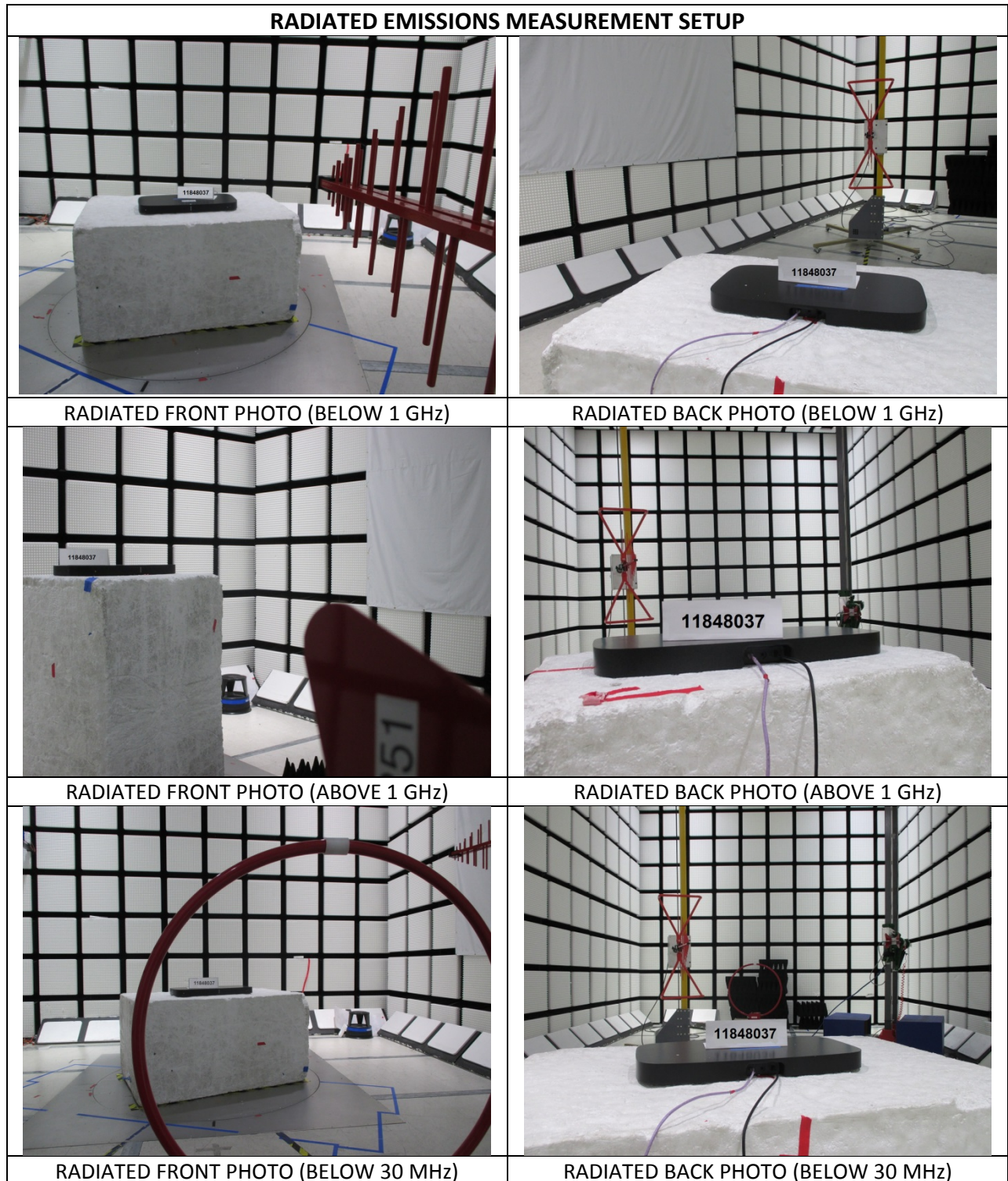


Trace Markers

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	19.125	37.47	Pk	32.2	-24.4	-9.5	35.77	54	-18.23	74	-38.23
3	21.702	37.29	Pk	33.3	-24.5	-9.5	36.59	54	-17.41	74	-37.41
5	21.27	37.42	Pk	33.2	-25.3	-9.5	35.82	54	-18.18	74	-38.18
2	22.505	36.03	Pk	33.4	-24.9	-9.5	35.03	54	-18.97	74	-38.97
4	18.703	36.58	Pk	32.5	-24.3	-9.5	35.28	54	-18.72	74	-38.72
6	19.487	36.68	Pk	32.5	-25.1	-9.5	34.58	54	-19.42	74	-39.42

Pk - Peak detector

10. SETUP PHOTOS



END OF REPORT