CERTIFICATION TEST REPORT

Report Number. : 11361969-E1V2

Applicant	:	SONOS INC. 614 CHAPALA STREET SANTA BARBARA, CA 93101, U.S.A.
Model	:	S11
FCC ID	:	SBVRM011
IC ID	:	5373A-RM011

TEST REPORT FOR SONOS MODEL NUMBER S11

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

Date Of Issue:
December 06, 2016

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	10/14/16	Initial Issue	D. Coronia
V2	12/06/16	Updated Section 2, 5.3, 5.5, 6, 7 & 10.1	D. Coronia

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONOS, INC.

PRODUCT DESCRIPTION: WIRELESS SMART SPEAKER

MODEL: S11

SERIAL NUMBER: B8-E9-37-40-13-24-4 (Conducted),
B8-E9-37-40-13-1E-F (Radiated)

DATE TESTED: AUGUST 24 – AUGUST 25, 2016

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

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

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

Approved & Released For
UL Verification Services Inc. By:

DAN CORONIA
WiSE PROJECT LEADER
UL VERIFICATION SERVICES INC.

Prepared By:

JONATHAN HSU
WiSE LAB 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, KDB 558074 D01 v03r05, KDB 662911 D01 v02r01, KDB 662911 D02 v01, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 1.

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

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.84 dB
Radiated Disturbance, 9KHz to 30 MHz	2.14 dB
Radiated Disturbance, 30 to 1000 MHz	4.98 dB
Radiated Disturbance,1000 to 6000 MHz	3.86 dB
Radiated Disturbance,6000 to 18000 MHz	4.23 dB
Radiated Disturbance,18000 to 26000 MHz	5.30 dB
Radiated Disturbance,26000 to 40000 MHz	5.23 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Wireless Smart Speaker.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2462	802.11b 3TX CDD	29.43	877.00
2412 - 2462	802.11g 3TX CDD	29.71	935.41
2412 - 2462	802.11n HT20 3TX CDD	29.66	924.70

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

Above 1GHz Low/Middle/High channel were tested for radiated emissions. 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 TEST SETUP

SUPPORT EQUIPMENT

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

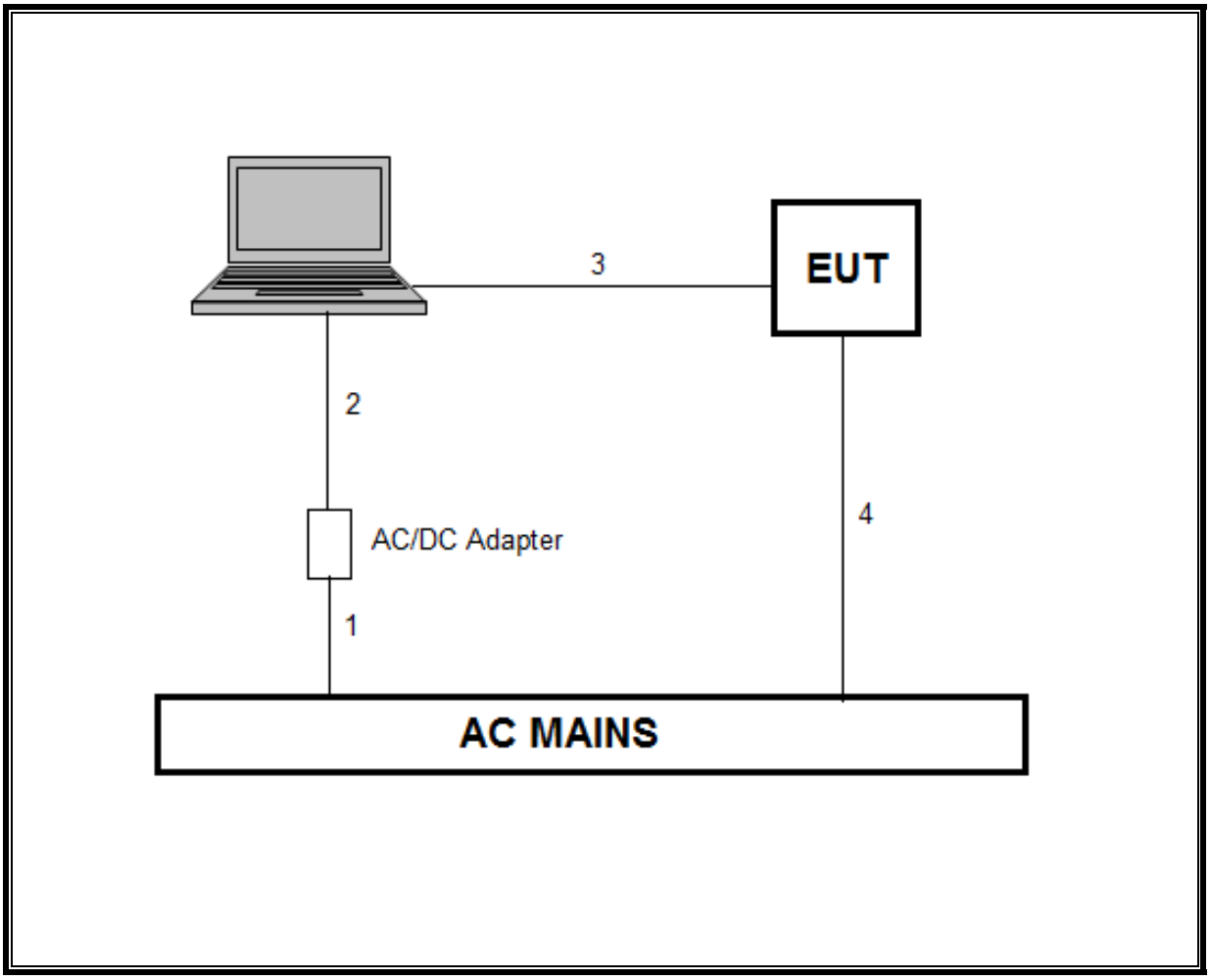
I/O CABLES

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 USB 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**	**T No.**	**Cal Date**	**Cal Due**
Amplifier, 1 - 18GHz	Miteq	AFS42	1165	08/01/16	08/01/17
Amplifier, 10KHz to 1GHz, 32dB	HP	8447D	10	02/01/16	02/01/17
Amplifier, 1GHz to 26.5GHz, 23.5dB	Agilent	8449B	404	07/05/16	07/05/17
Antenna, Broadband Hybrid 30MHz to 2000MHz	Sunol Science	JB1	130	03/09/16	03/09/17
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	346	02/22/16	02/22/17
Antenna, Horn 18 - 26.5GHz	Seavey Division	MWH-1826/B	449	05/26/16	05/26/17
EMI Test Receiver 9Khz-7GHz	R& S	ESCI7	1436	09/23/16	09/23/17
LISN for Conducted Emissions	Fischer	50/250-25-2	1310	06/08/16	06/08/17
Loop Antenna, 10KHz-30MHz	EMCO	6502	35	03/24/16	03/24/17
PSA Spectrum Analyzer 40GHz	Agilent	E4446A	146	07/13/16	07/13/17
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	908	04/13/16	04/13/17
Power Cable, Line Conducted Emissions	UL	PG1	N/A	07/28/16	07/28/17
Power Meter, P-series single channel	Keysight	N1911A	1262	07/08/16	07/08/17
Power Sensor, P-series, 50MHz to 18GHz, Wideband	Agilent	N1911A	750	09/17/15	09/17/16

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

7. MEASUREMENT METHODS

KDB 662911 D01 Multiple Transmitter Output v02r01

KDB 662911 D02 MIMO with Cross-Polarized Antenna v01

On Time and Duty Cycle: KDB 558074 D01 v03r05, Section 6.

6 dB BW: KDB 558074 D01 v03r05, Section 8.1.

Output Power: KDB 558074 D01 v03r05, Section 9.2.3.2.

Power Spectral Density: KDB 558074 D01 v03r05, Section 10.5.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v03r05, Section 11.0.

Out-of-band emissions in restricted bands: KDB 558074 D01 v03r05, Section 12.1.

Band-edge: KDB 558074 D01 v03r05, Section 12.1.

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

8. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	RSS-247 5.2.1	Occupied Band width (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-30dBc		Pass
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass
15.205, 15.209, 15.247(d)	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass

9. ANTENNA PORT TEST RESULTS

9.1. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 58074 D01 v03r05 Section 6

9.1.1. ON TIME AND DUTY CYCLE RESULTS

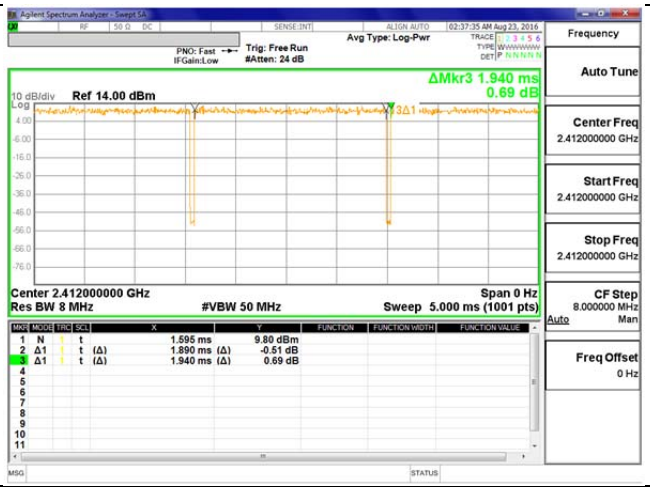
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
802.11b	12.200	12.240	0.997	99.67%	0.00	0.010
802.11g	2.020	2.070	0.976	97.58%	0.11	0.495
802.11n HT20	1.890	1.940	0.974	97.42%	0.11	0.529

9.1.2. DUTY CYCLE PLOTS

DUTY CYCLE 802.11b MODE

DUTY CYCLE 802.11g MODE

DUTY CYCLE 802.11n HT20 MODE



ID:	44350	Date:	8/23/2016

9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 5.2.1

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

TEST PROCEDURE

KDB 58074 D01 v03r05 Section 8.1

RESULTS

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

Channel	Frequency	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	2412	10.096	10.080	10.096	.500
Mid	2437	10.016	10.096	10.096	.500
High	2462	10.080	10.080	10.048	.500

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

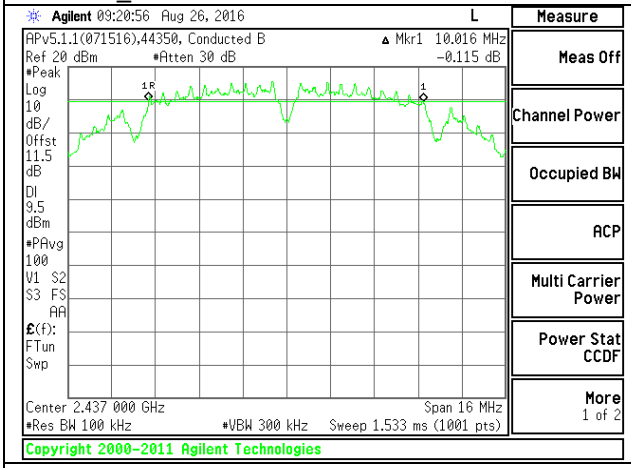
Channel	Frequency	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	2412	16.325	16.100	16.350	.500
Mid	2437	16.325	16.375	16.375	.500
High	2462	16.325	16.350	16.350	.500

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

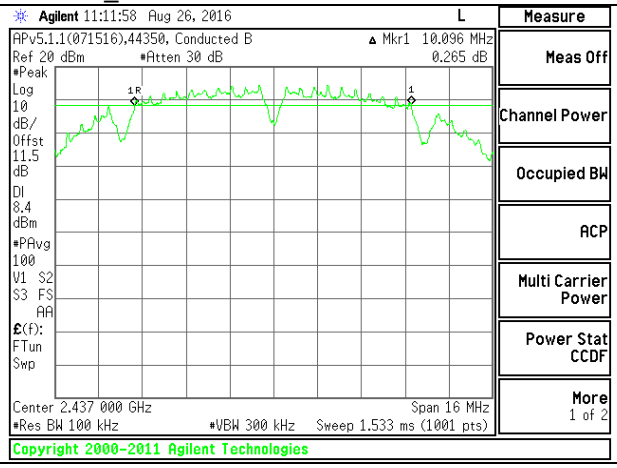
Channel	Frequency	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	2412	16.978	16.375	16.718	.500
Mid	2437	17.334	16.952	17.523	.500
High	2462	17.160	17.316	17.186	.500

9.2.4. 6 dB BANDWIDTH MID CH PLOTS

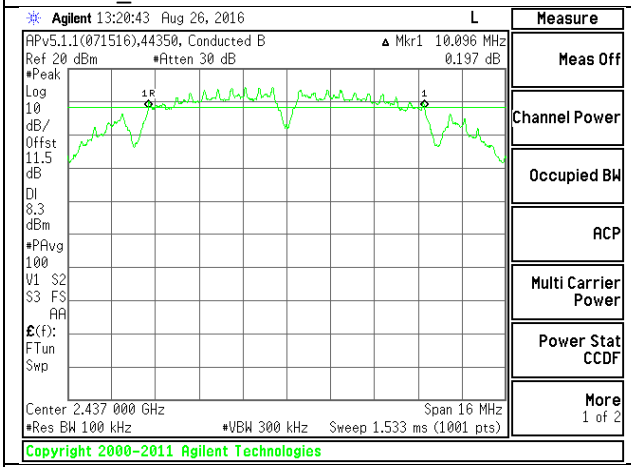
6dB 11b_2.4 Chain 0 Mid Ch



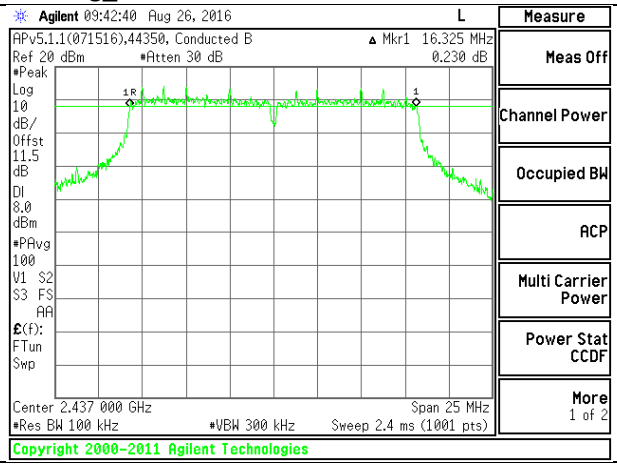
6dB 11b_2.4 Chain 1 Mid Ch



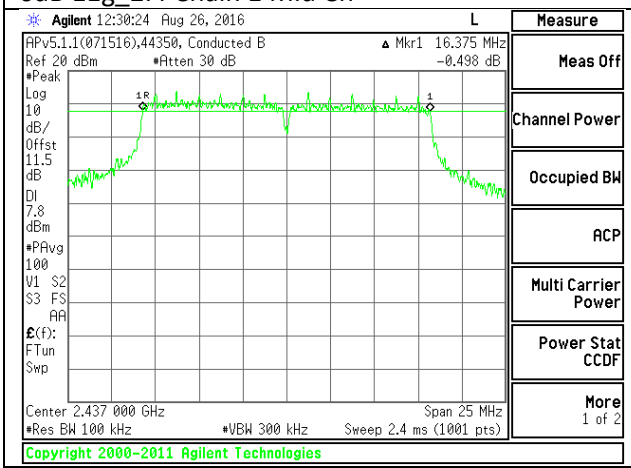
6dB 11b_2.4 Chain 2 Mid Ch



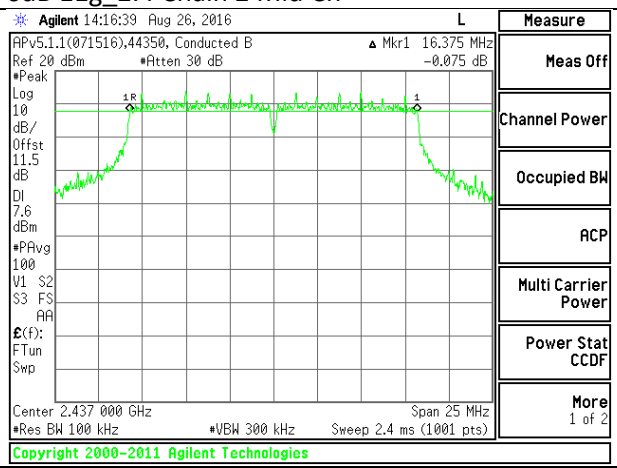
6dB 11g_2.4 Chain 0 Mid Ch



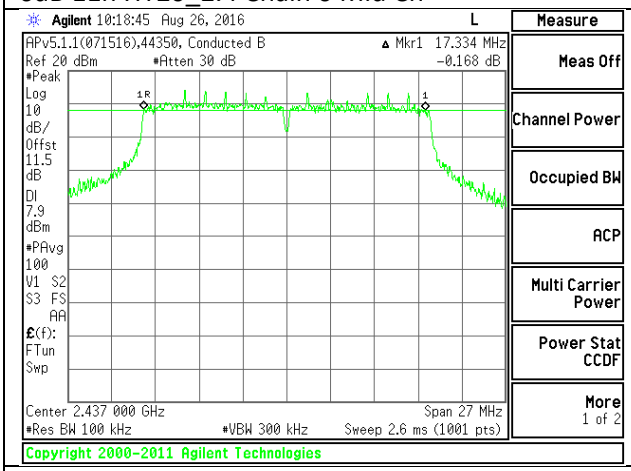
6dB 11g_2.4 Chain 1 Mid Ch



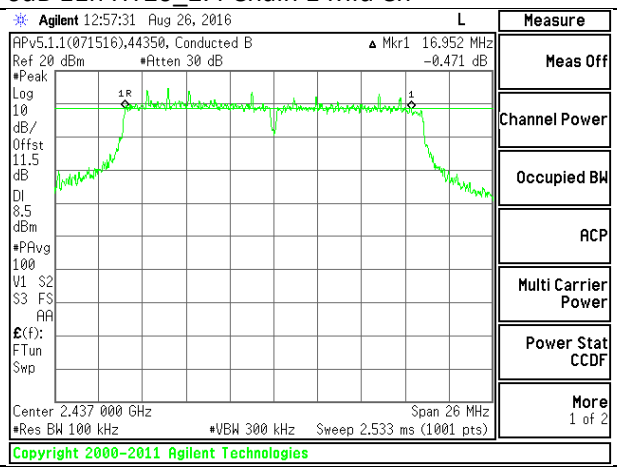
6dB 11g_2.4 Chain 2 Mid Ch



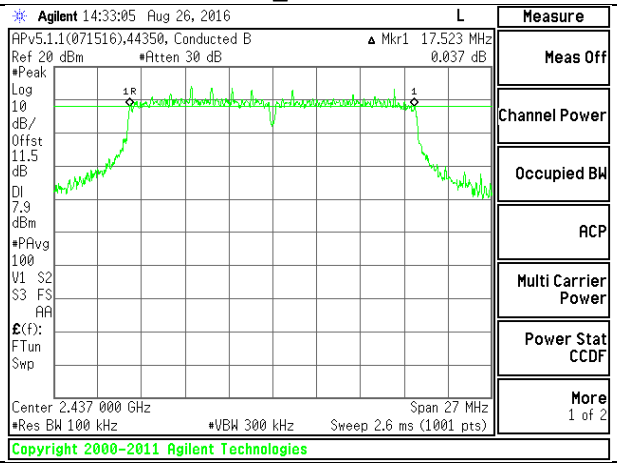
6dB 11n HT20_2.4 Chain 0 Mid Ch



6dB 11n HT20_2.4 Chain 1 Mid Ch



6dB 11n HT20_2.4 Chain 2 Mid Ch



9.3. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

ANSI C63.10: 2013 Section 6.9.3

RESULTS

9.3.1. 11b 3TX CDD MIMO MODE IN THE 2.4GHz BAND

Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)	99% Bandwidth Chain 2 (MHz)
Low	2412	13.8111	13.8447	13.8582
Mid	2437	13.7495	13.7799	13.7402
High	2462	13.6570	13.6622	13.7468

9.3.2. 11g 3TX CDD MIMO MODE IN THE 2.4GHz BAND

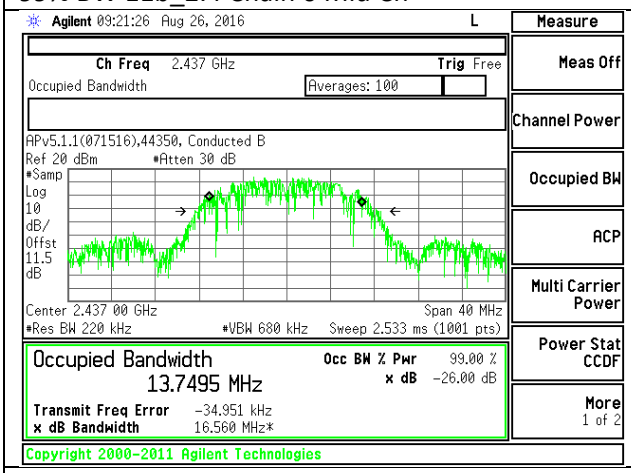
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)	99% Bandwidth Chain 2 (MHz)
Low	2412	16.5572	16.5377	16.5149
Mid	2437	16.4354	16.5546	16.5049
High	2462	16.4489	16.4679	16.5060

9.3.3. 11n 3TX CDD MIMO MODE IN THE 2.4GHz BAND

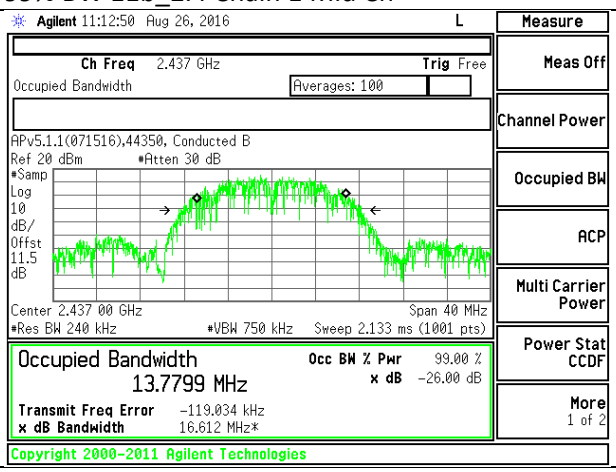
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)	99% Bandwidth Chain 2 (MHz)
Low	2412	17.6914	17.6585	17.6669
Mid	2437	17.6935	17.6977	17.5858
High	2462	17.6200	17.6772	17.6044

9.3.4. 99% BANDWIDTH MID CH PLOTS

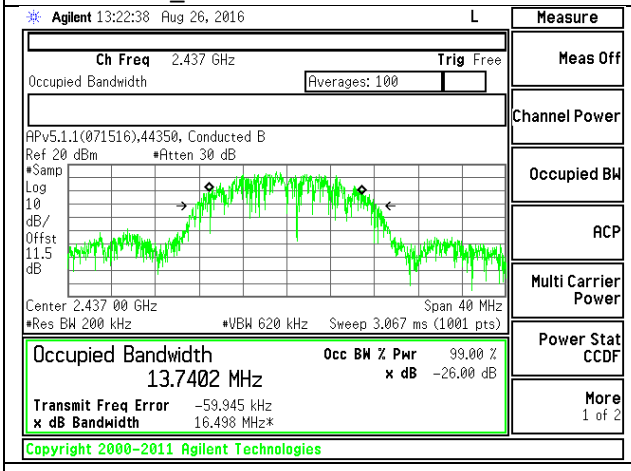
99% BW 11b_2.4 Chain 0 Mid Ch



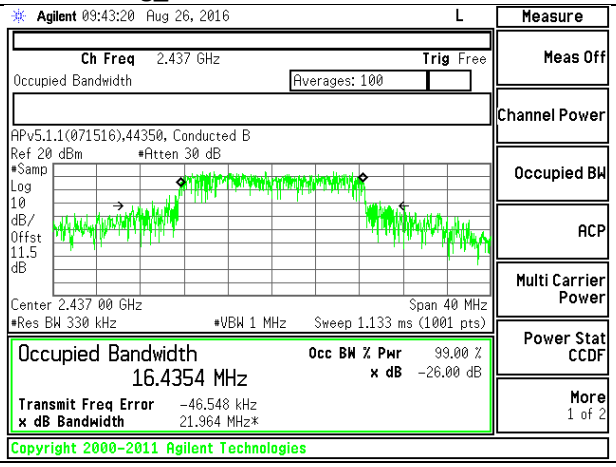
99% BW 11b_2.4 Chain 1 Mid Ch



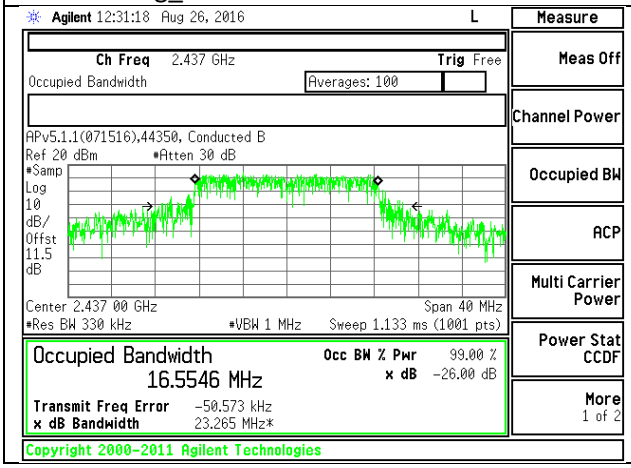
99% BW 11b_2.4 Chain 2 Mid Ch



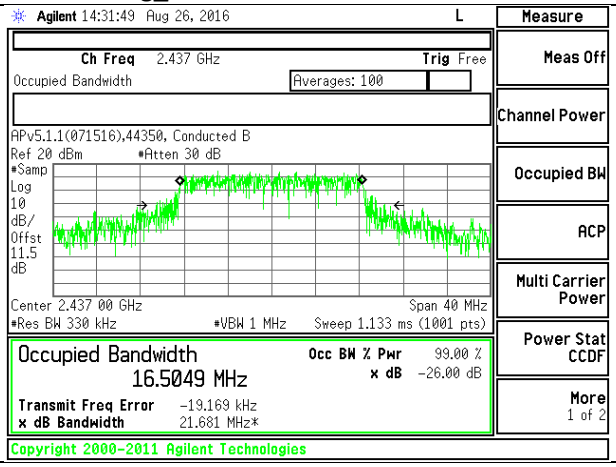
99% BW 11g_2.4 Chain 0 Mid Ch



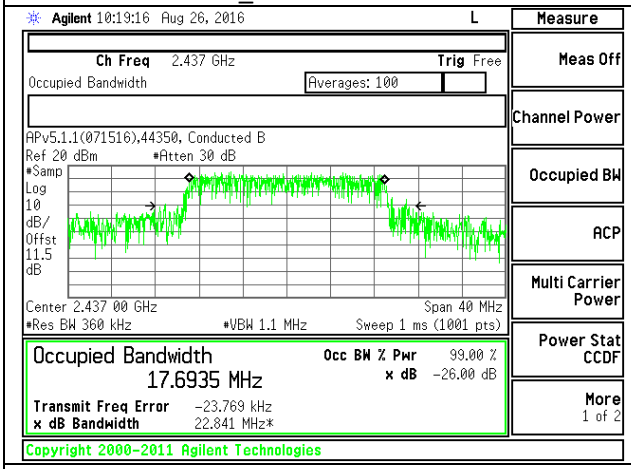
99% BW 11g_2.4 Chain 1 Mid Ch



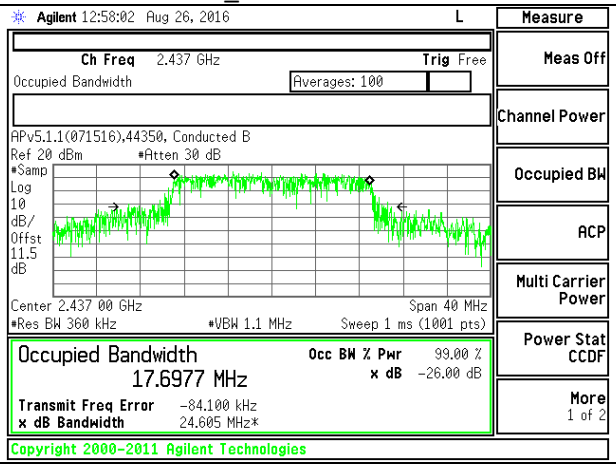
99% BW 11g_2.4 Chain 2 Mid Ch



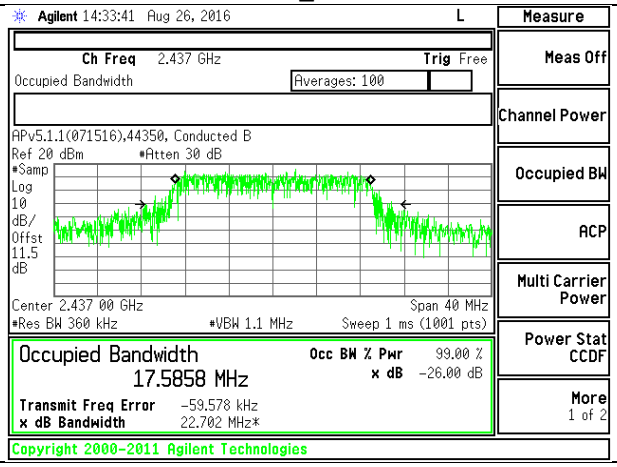
99% BW 11n HT20_2.4 Chain 0 Mid Ch



99% BW 11n HT20_2.4 Chain 1 Mid Ch



99% BW 11n HT20_2.4 Chain 2 Mid Ch



9.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 5.4.4

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.

DIRECTIONAL ANTENNA GAIN

The TX chains are uncorrelated and the antenna gain is unequal among the chains. The directional gain is:

Horizontal

Chain 0 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.60	2.60

Vertical (Worst Case)

Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.90	5.30	4.26

TEST PROCEDURE

KDB 58074 D01 v03r05 Section 9.2.3.2

RESULTS

9.4.1. 11b 3TX CDD MIMO MODE IN THE 2.4GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	4.26	30.00	30	36	30.00
Mid	2437	4.26	30.00	30	36	30.00
High	2462	4.26	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	23.57	23.62	23.54	28.35	30.00	-1.65
Mid	2437	24.88	24.70	24.38	29.43	30.00	-0.57
High	2462	24.12	24.28	23.95	28.89	30.00	-1.11

ID:	44350	Date:	8/23/2016

9.4.2. 11g 3TX CDD MIMO MODE IN THE 2.4GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	4.26	30.00	30	36	30.00
Mid	2437	4.26	30.00	30	36	30.00
High	2462	4.26	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	24.55	24.71	24.72	29.43	30.00	-0.57
Mid	2437	25.10	24.91	24.80	29.71	30.00	-0.29
High	2462	24.50	24.47	24.63	29.31	30.00	-0.69

ID:	44350	Date:	8/23/2016

9.4.3. 11n 3TX CDD MIMO MODE IN THE 2.4GHz BAND

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	4.26	30.00	30	36	30.00
Mid	2437	4.26	30.00	30	36	30.00
High	2462	4.26	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Chain 2 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	24.21	24.82	24.47	29.28	30.00	-0.72
Mid	2437	25.00	24.78	24.89	29.66	30.00	-0.34
High	2462	24.52	24.56	24.42	29.27	30.00	-0.73

ID:	44350	Date:	8/23/2016

9.5. PSD

LIMITS

FCC §15.247

IC RSS-247 5.2.2

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST PROCEDURE

KDB 58074 D01 v03r05 Section 10.5

RESULTS

9.5.1. 802.11b MODE IN THE 2.4 GHz BAND

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	0.63	0.44	0.85	5.41	8.0	-2.6
Mid	2437	1.85	1.17	1.56	6.31	8.0	-1.7
High	2462	1.31	0.80	1.36	5.93	8.0	-2.1

9.5.1. 802.11g MODE IN THE 2.4 GHz BAND

Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd PSD

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	0.11	0.54	0.15	5.15	8.0	-2.8
Mid	2437	0.13	0.30	-0.14	4.98	8.0	-3.0
High	2462	-0.93	-0.41	-0.28	4.35	8.0	-3.6

9.5.1. 802.11n HT20 MODE IN THE 2.4 GHz BAND

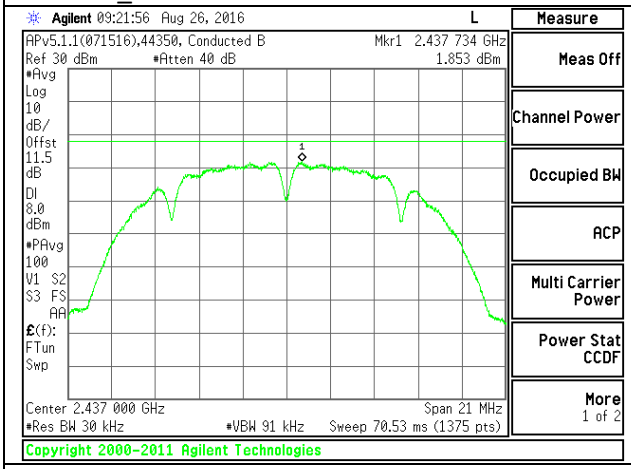
Duty Cycle CF (dB)	0.11	Included in Calculations of Corr'd PSD

PSD Results

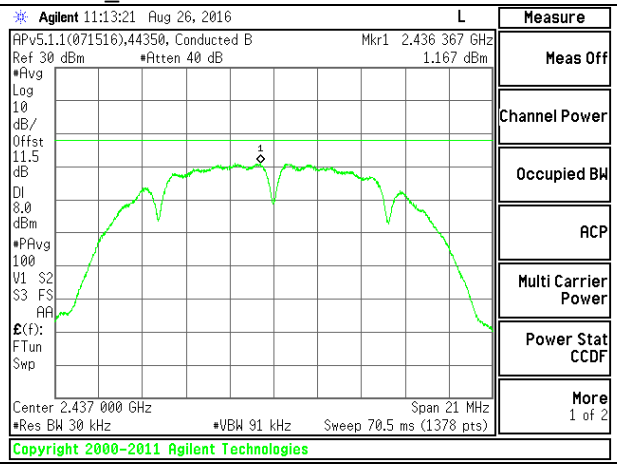
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-0.36	0.35	0.08	4.91	8.0	-3.1
Mid	2437	-0.16	0.25	-0.34	4.80	8.0	-3.2
High	2462	-0.82	-0.76	-0.35	4.24	8.0	-3.8

ID:	44350	Date:	8/26/2016

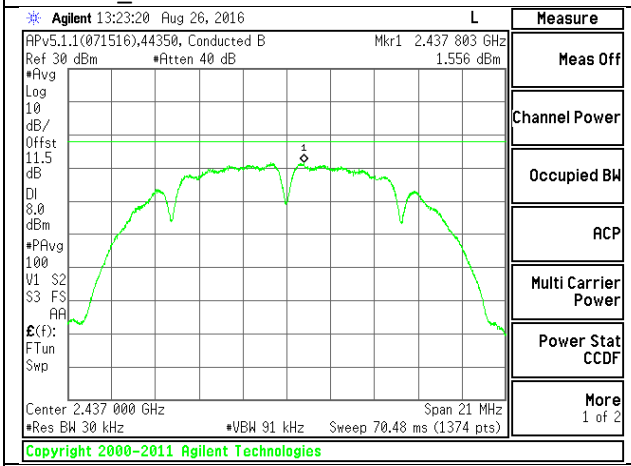
PSD 11b_2.4 Chain 0 Mid Ch



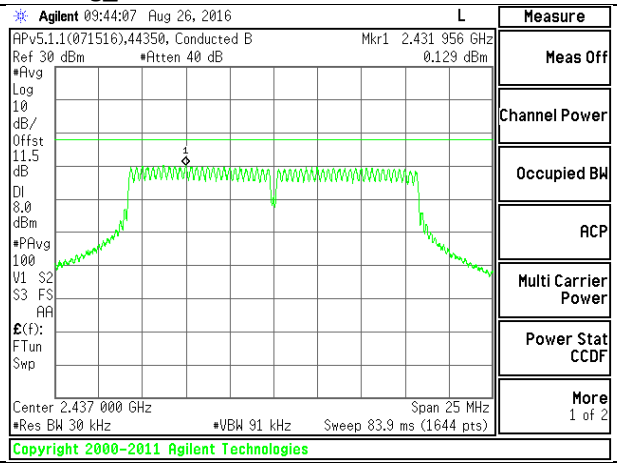
PSD 11b_2.4 Chain 1 Mid Ch



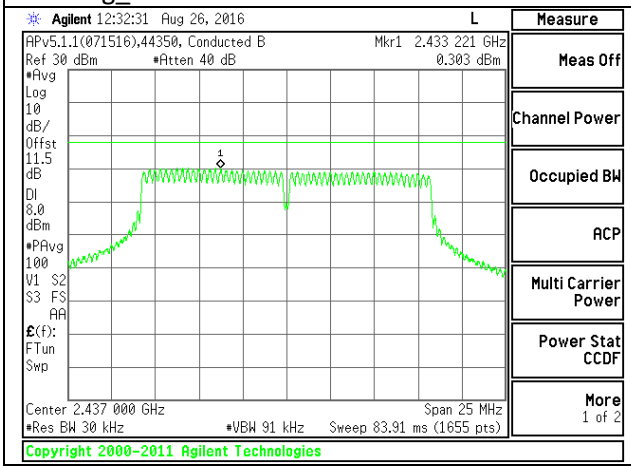
PSD 11b_2.4 Chain 2 Mid Ch



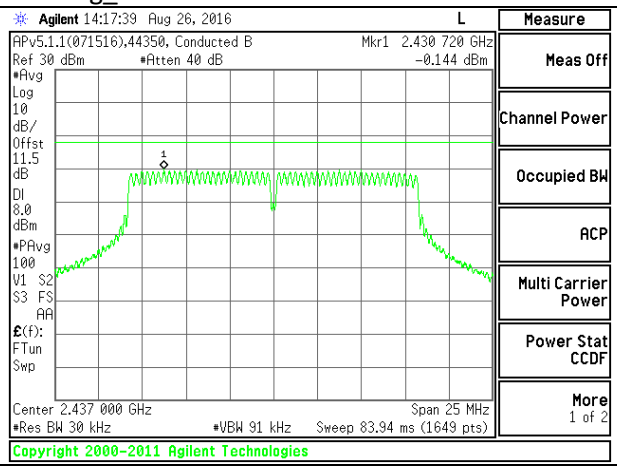
PSD 11g_2.4 Chain 0 Mid Ch



PSD 11g_2.4 Chain 1 Mid Ch



PSD 11g_2.4 Chain 2 Mid Ch



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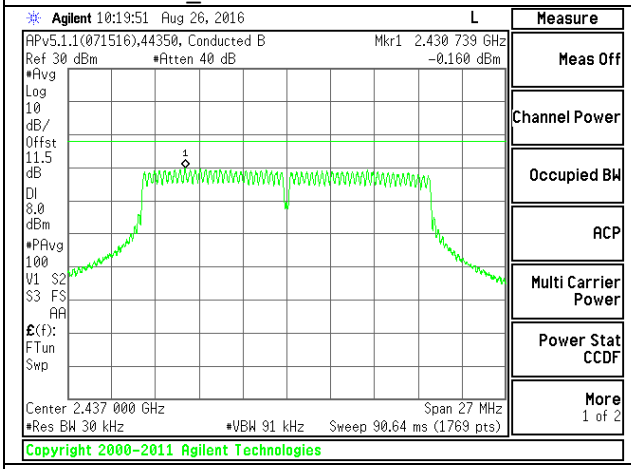
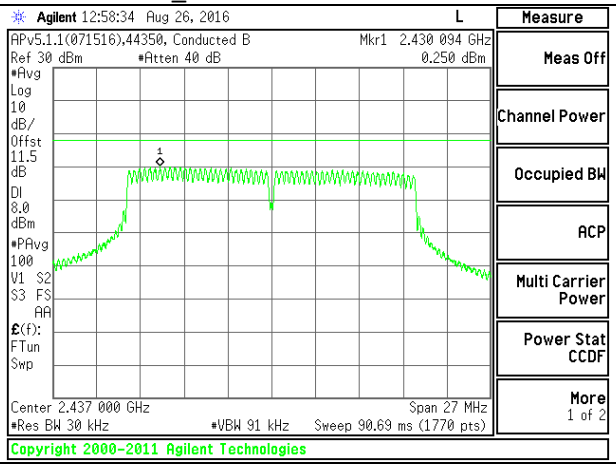
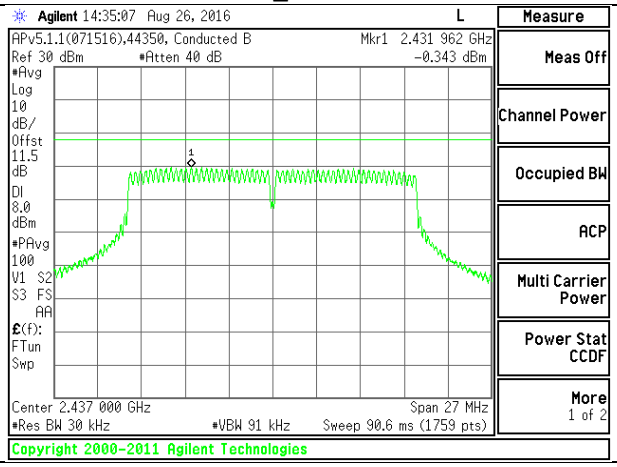


PSD 11n HT20_2.4 Chain 1 Mid Ch



PSD 11n HT20_2.4 Chain 2 Mid Ch



9.6. OUT-OF-BAND EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-247 5.5

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

TEST PROCEDURE

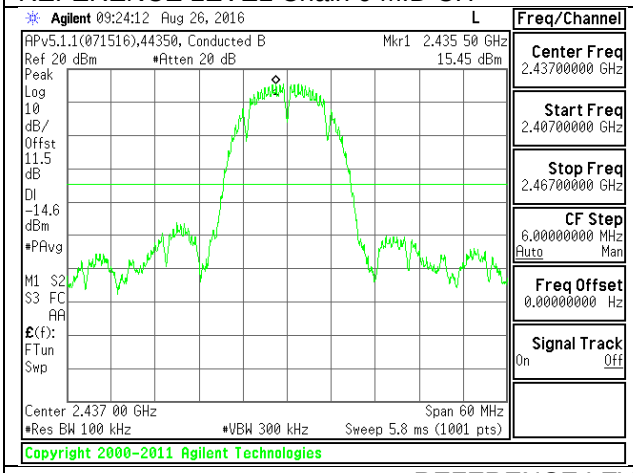
KDB 58074 D01 v03r05 Section 11.0

RESULTS

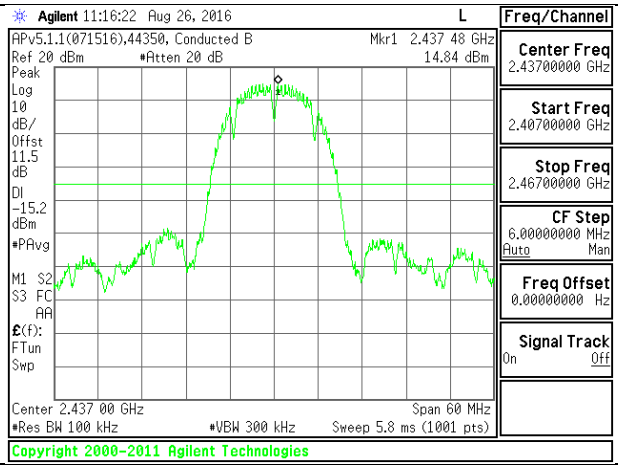
9.6.1. 11b 3TX CDD MIMO MODE IN THE 2.4GHz BAND

IN-BAND REFERENCE LEVEL

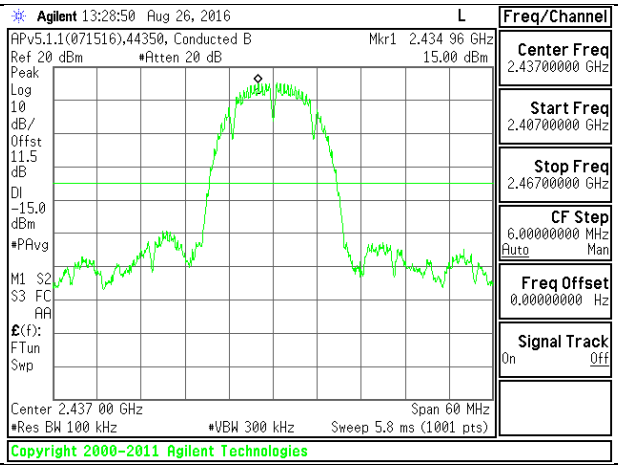
REFERENCE LEVEL Chain 0 MID CH



REFERENCE LEVEL Chain 1 MID CH

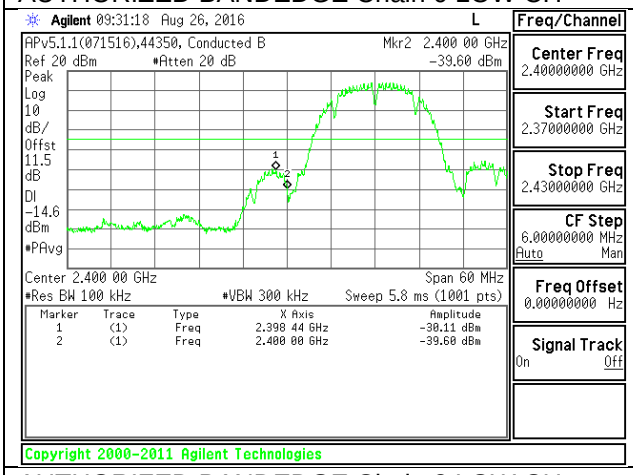


REFERENCE LEVEL Chain 2 MID CH

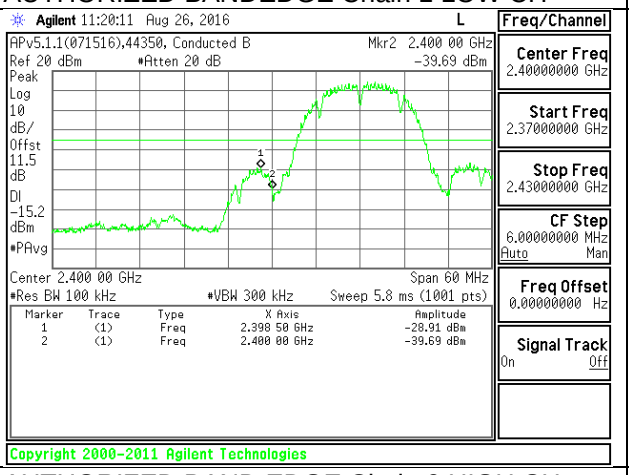


BAND EDGE PLOTS

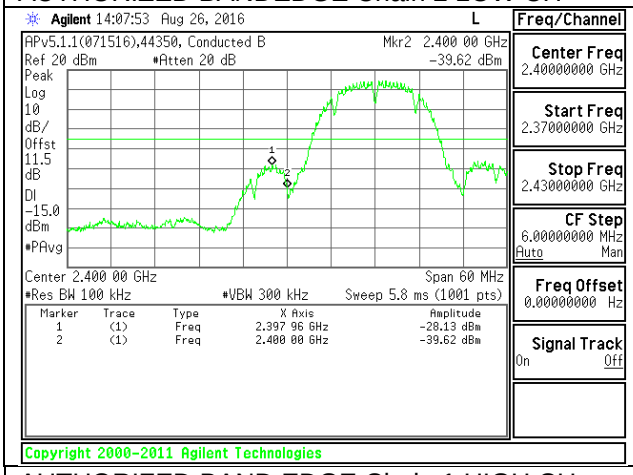
AUTHORIZED BANDEDGE Chain 0 LOW CH



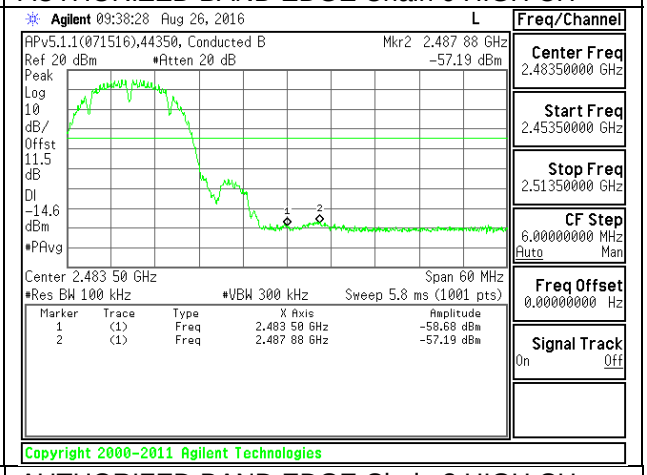
AUTHORIZED BANDEDGE Chain 1 LOW CH



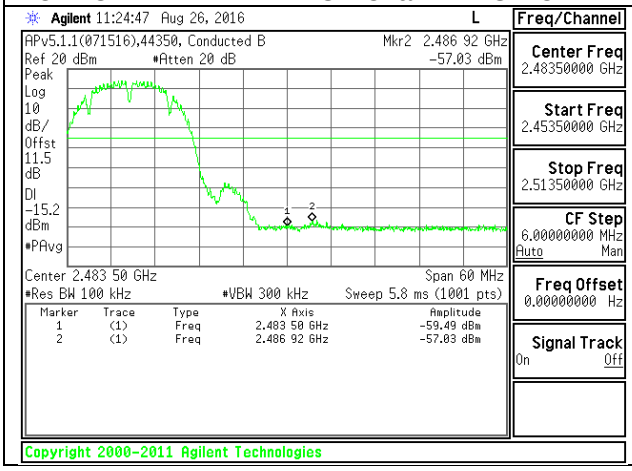
AUTHORIZED BANDEDGE Chain 2 LOW CH



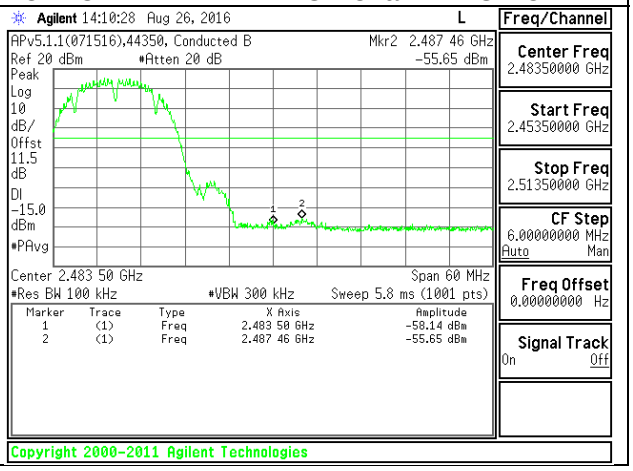
AUTHORIZED BAND EDGE Chain 0 HIGH CH



AUTHORIZED BAND EDGE Chain 1 HIGH CH

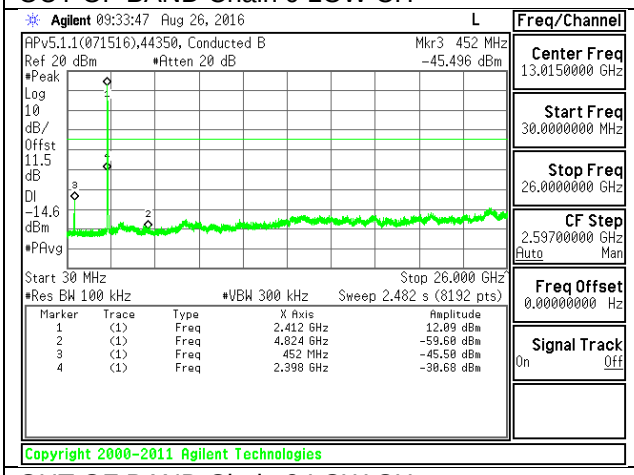


AUTHORIZED BAND EDGE Chain 2 HIGH CH

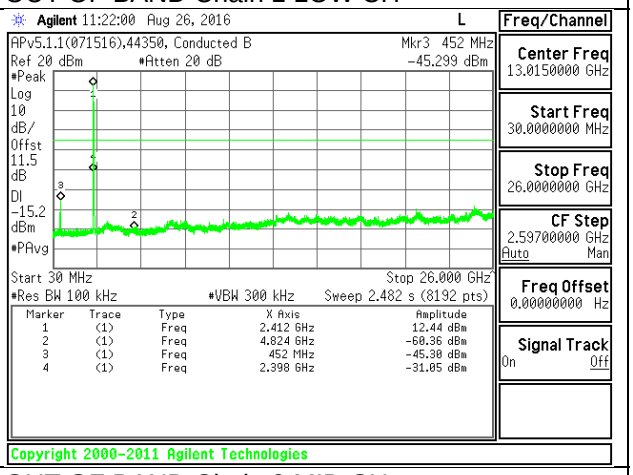


OUT-OF-BAND EMISSIONS

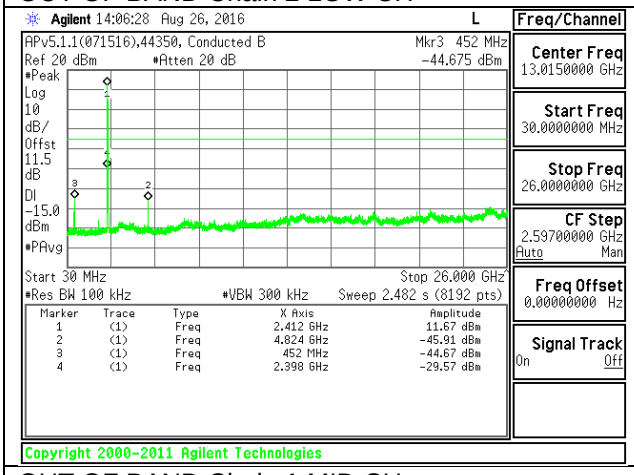
OUT OF BAND Chain 0 LOW CH



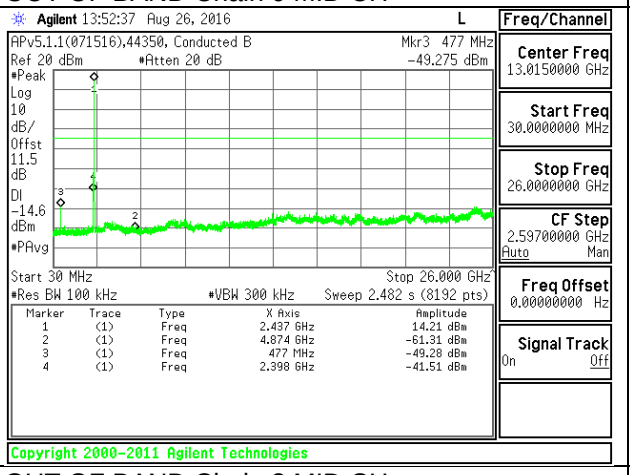
OUT OF BAND Chain 1 LOW CH



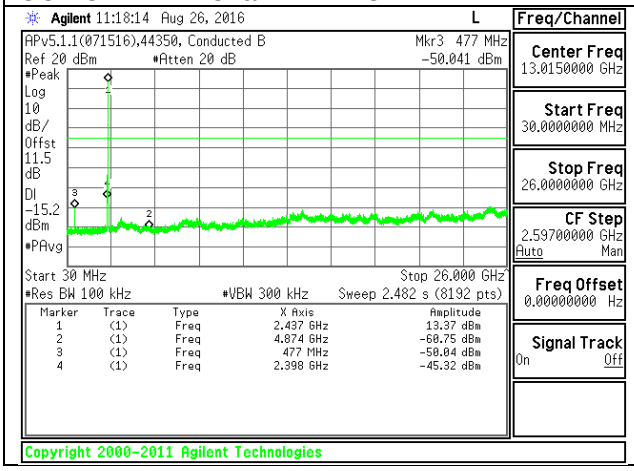
OUT OF BAND Chain 2 LOW CH



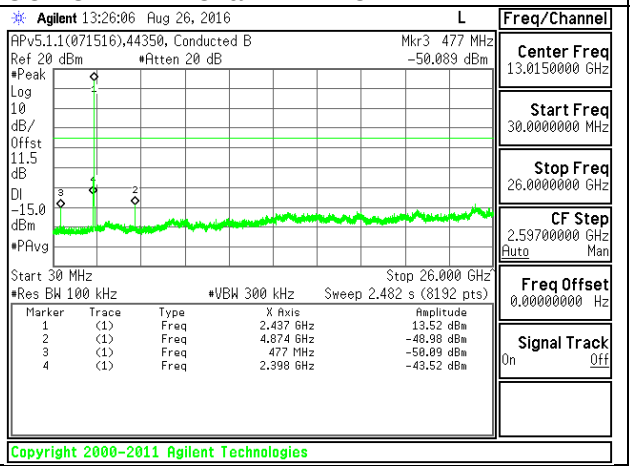
OUT OF BAND Chain 0 MID CH



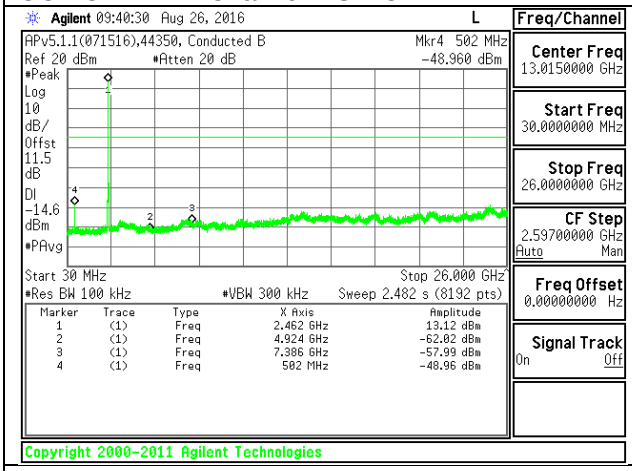
OUT OF BAND Chain 1 MID CH



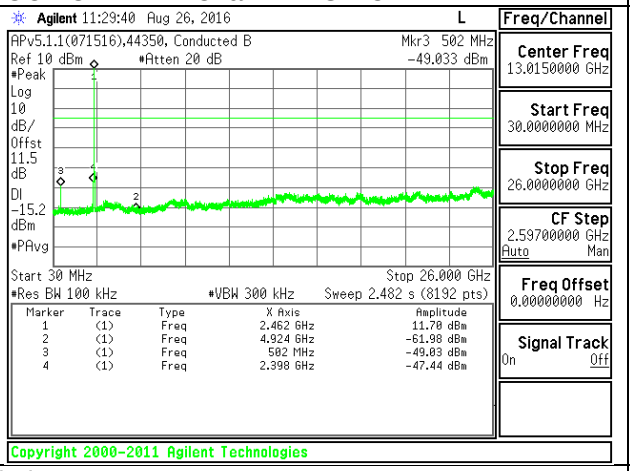
OUT OF BAND Chain 2 MID CH



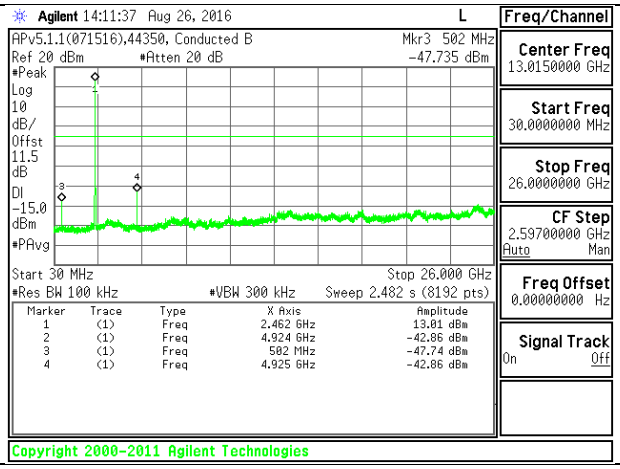
OUT OF BAND Chain 0 HIGH CH



OUT OF BAND Chain 1 HIGH CH



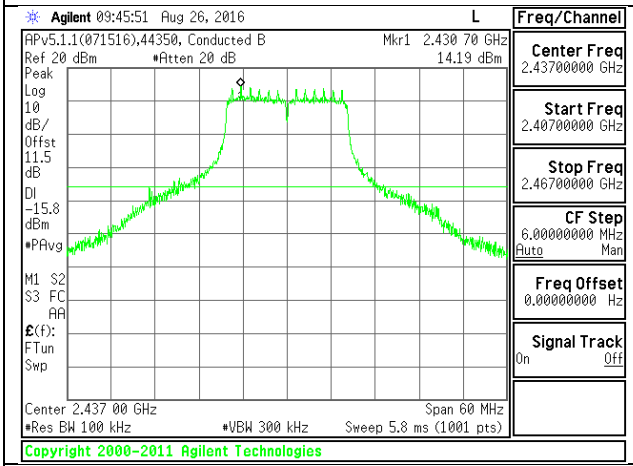
OUT OF BAND Chain 2 HIGH CH



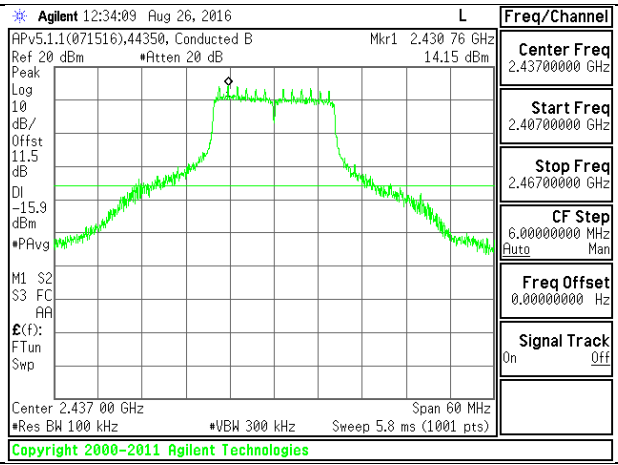
9.6.1. 11g 3TX CDD MIMO MODE IN THE 2.4GHz BAND

IN-BAND REFERENCE LEVEL

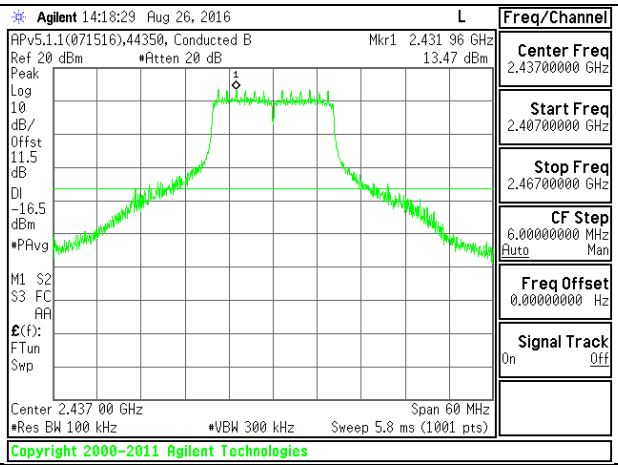
REFERENCE LEVEL Chain 0 MID CH



REFERENCE LEVEL Chain 1 MID CH

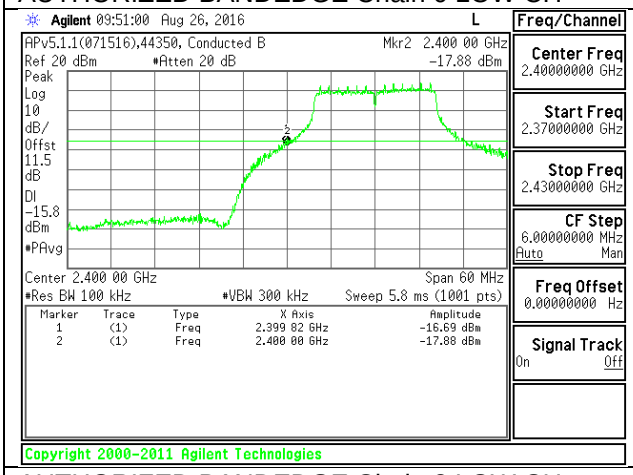


REFERENCE LEVEL Chain 2 MID CH

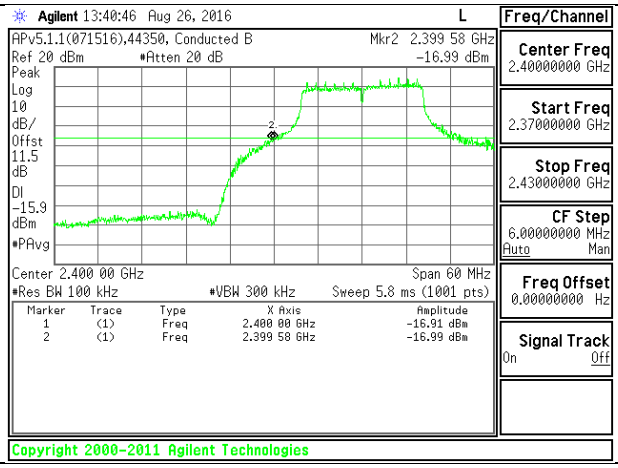


BAND EDGE PLOTS

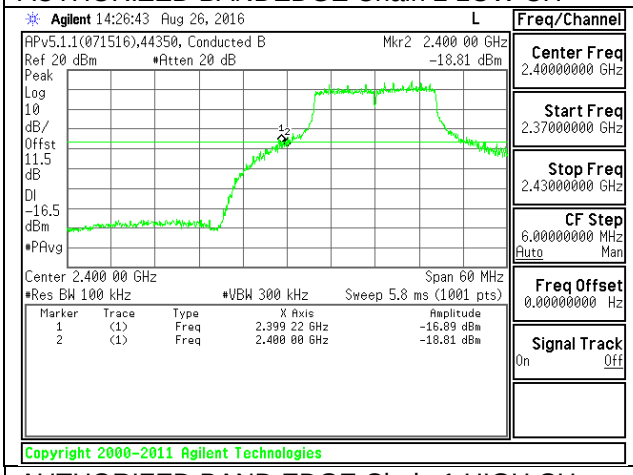
AUTHORIZED BANDEDGE Chain 0 LOW CH



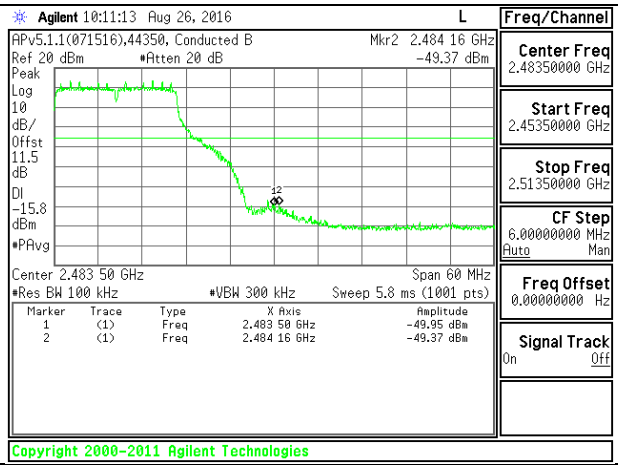
AUTHORIZED BANDEDGE Chain 1 LOW CH



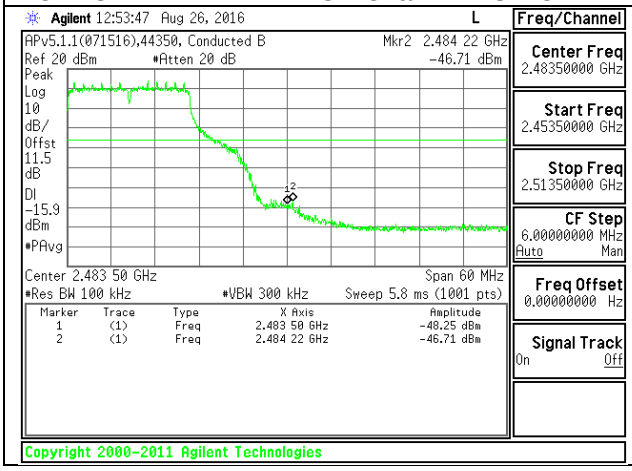
AUTHORIZED BANDEDGE Chain 2 LOW CH



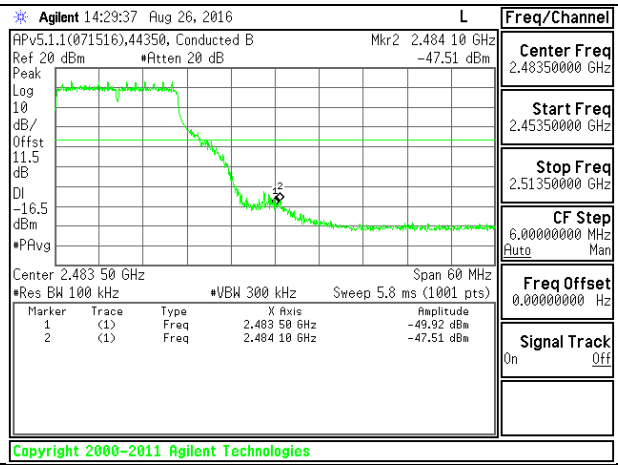
AUTHORIZED BAND EDGE Chain 0 HIGH CH



AUTHORIZED BAND EDGE Chain 1 HIGH CH

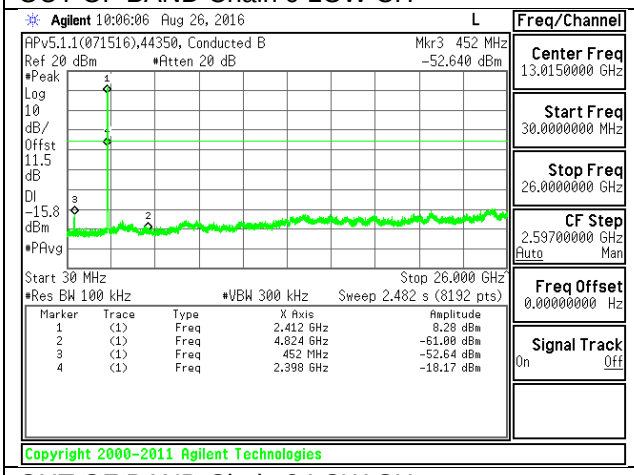


AUTHORIZED BAND EDGE Chain 2 HIGH CH

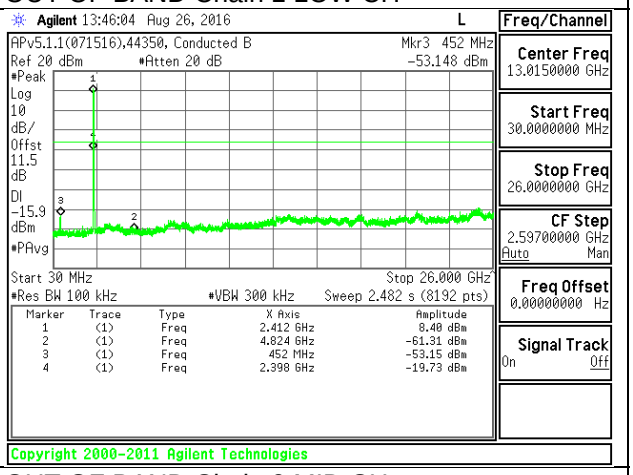


OUT-OF-BAND EMISSIONS

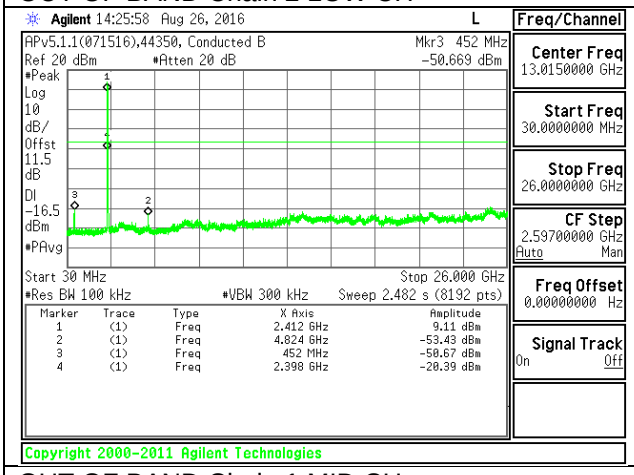
OUT OF BAND Chain 0 LOW CH



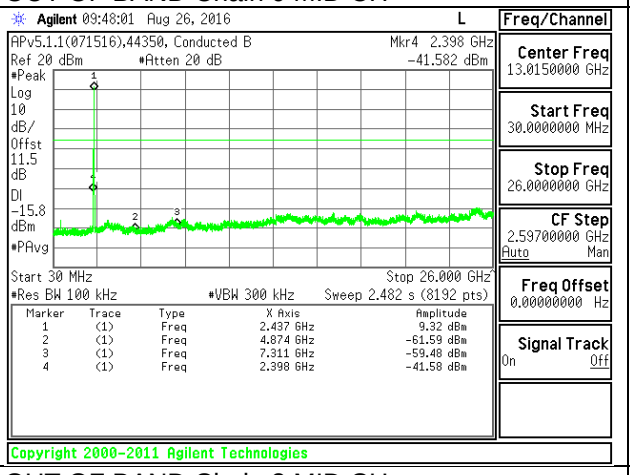
OUT OF BAND Chain 1 LOW CH



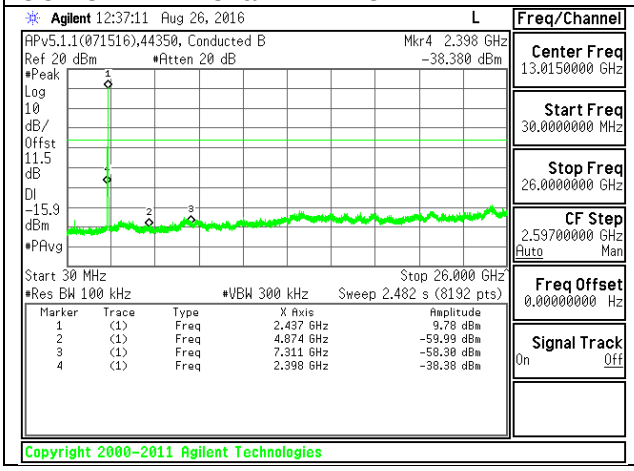
OUT OF BAND Chain 2 LOW CH



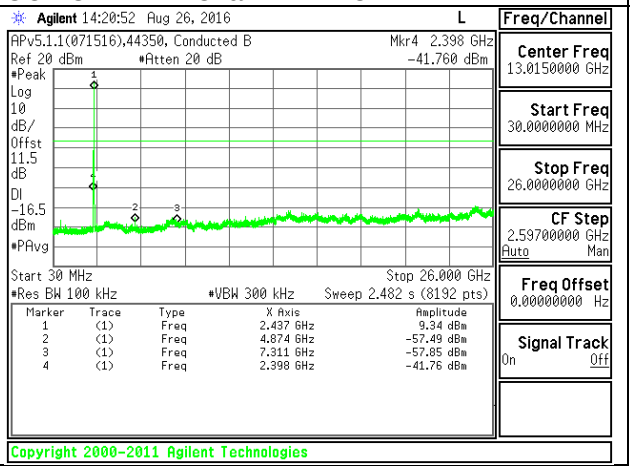
OUT OF BAND Chain 0 MID CH



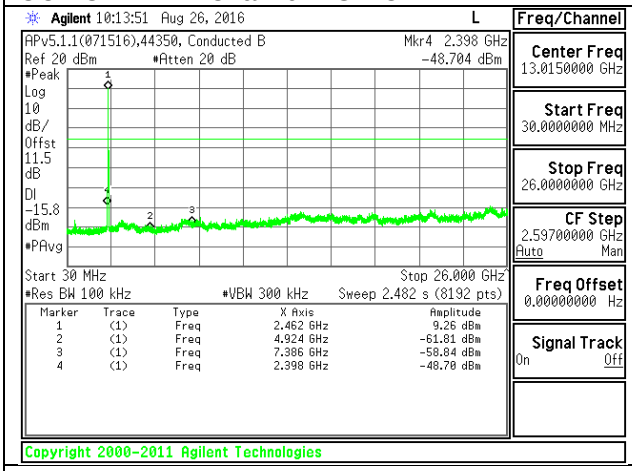
OUT OF BAND Chain 1 MID CH



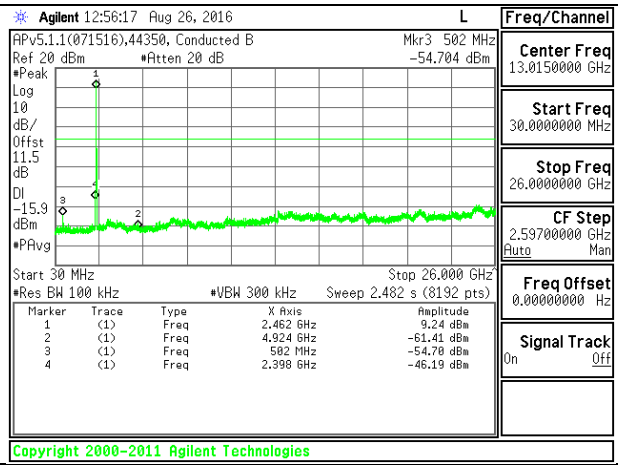
OUT OF BAND Chain 2 MID CH



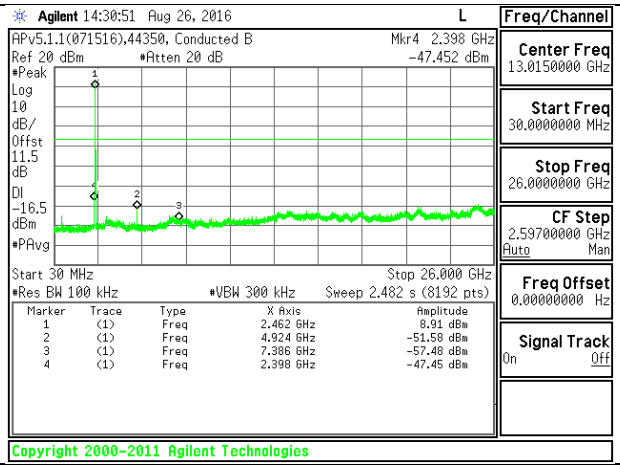
OUT OF BAND Chain 0 HIGH CH



OUT OF BAND Chain 1 HIGH CH



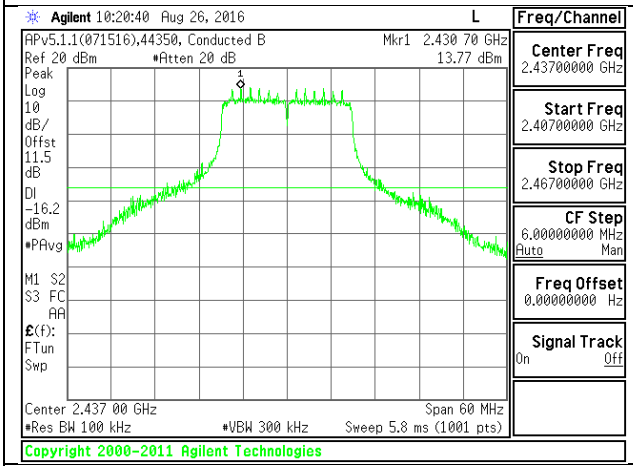
OUT OF BAND Chain 2 HIGH CH



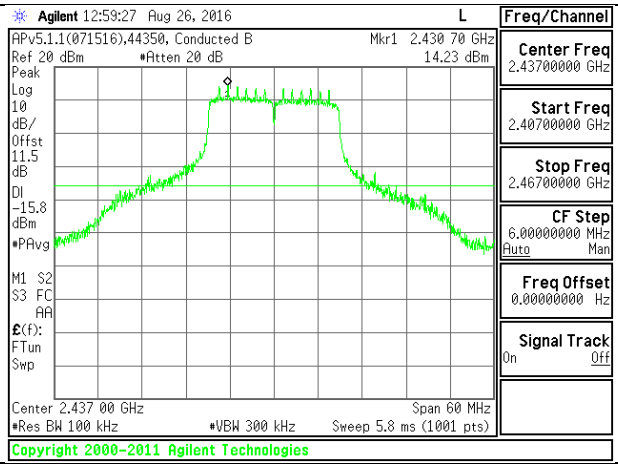
9.6.1. 11n 3TX CDD MIMO MODE IN THE 2.4GHz BAND

IN-BAND REFERENCE LEVEL

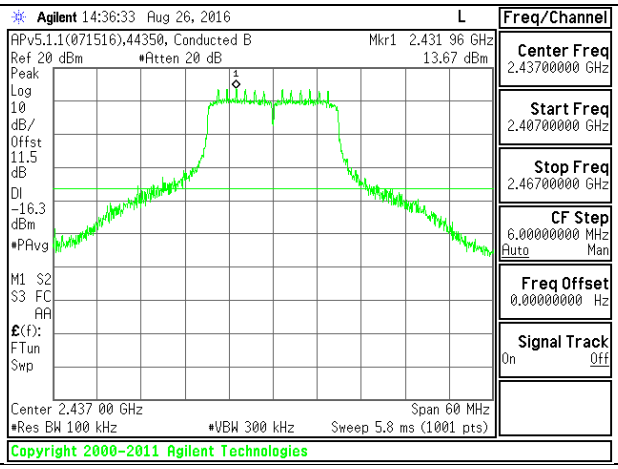
REFERENCE LEVEL Chain 0 MID CH



REFERENCE LEVEL Chain 1 MID CH

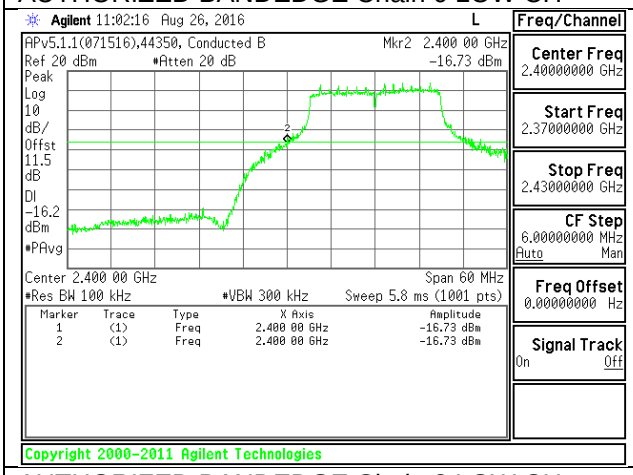


REFERENCE LEVEL Chain 2 MID CH

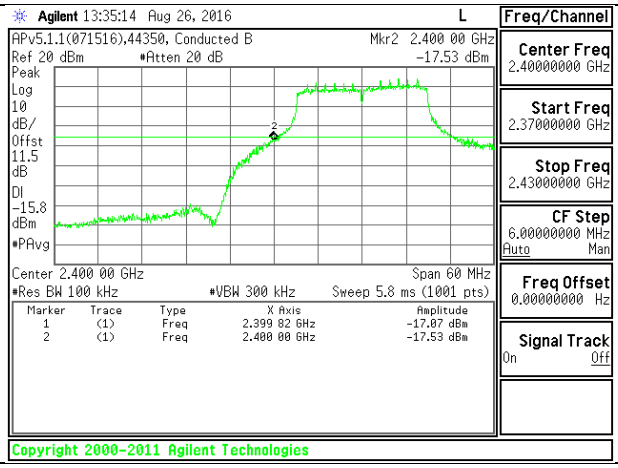


BAND EDGE PLOTS

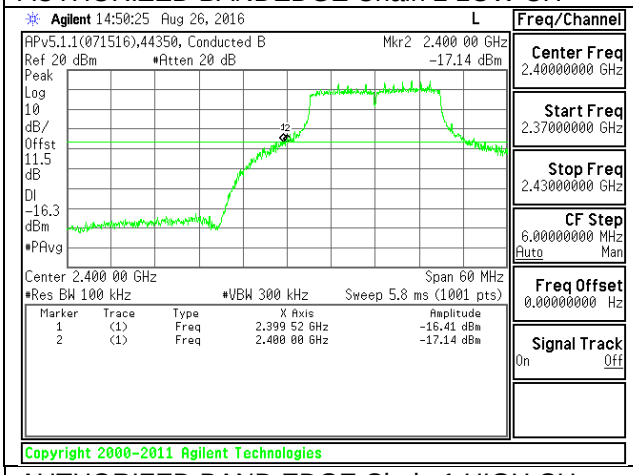
AUTHORIZED BANDEDGE Chain 0 LOW CH



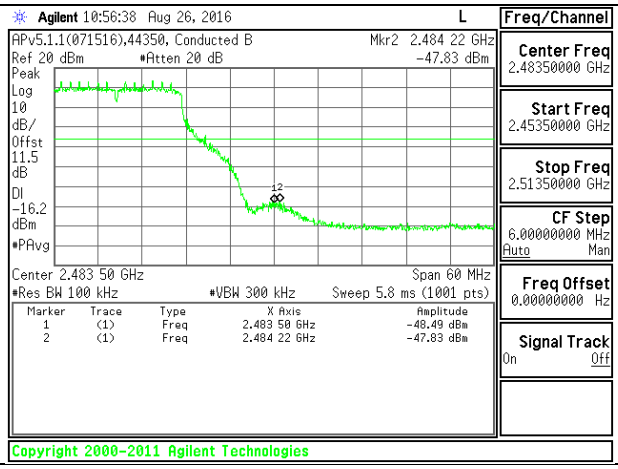
AUTHORIZED BANDEDGE Chain 1 LOW CH



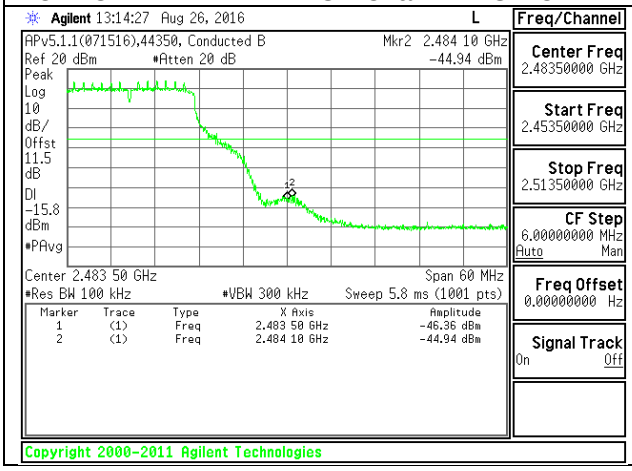
AUTHORIZED BANDEDGE Chain 2 LOW CH



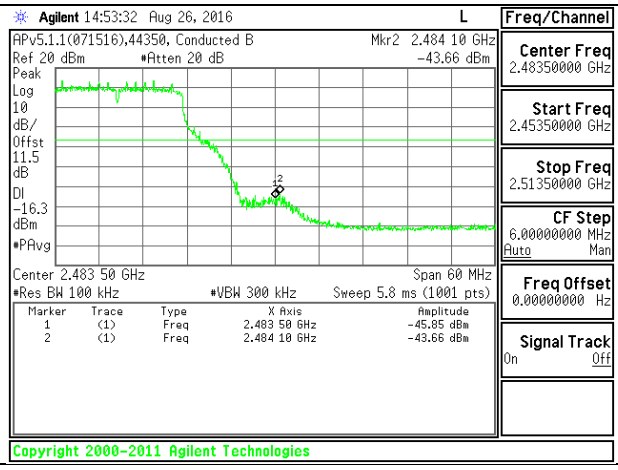
AUTHORIZED BAND EDGE Chain 0 HIGH CH



AUTHORIZED BAND EDGE Chain 1 HIGH CH

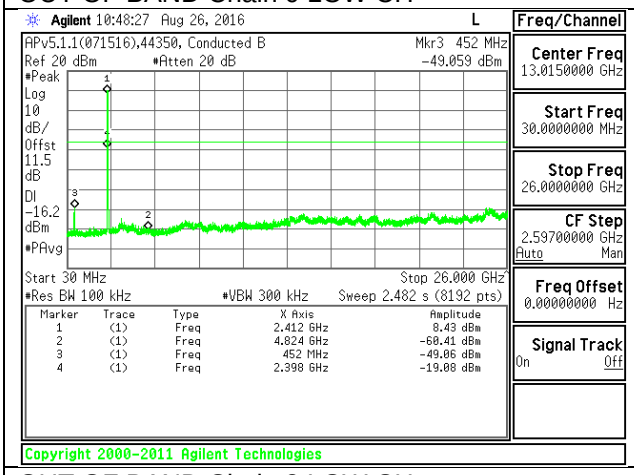


AUTHORIZED BAND EDGE Chain 2 HIGH CH

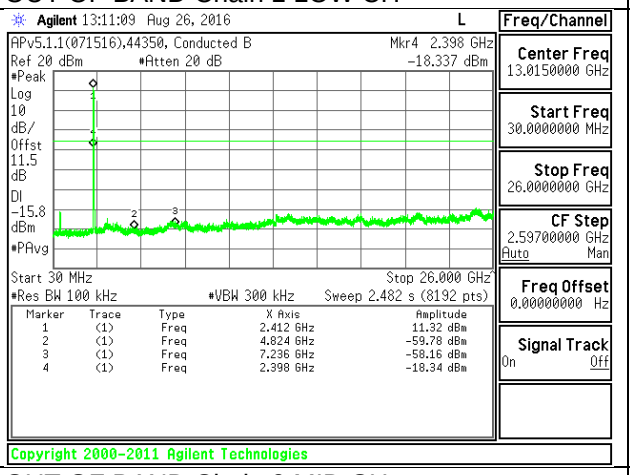


OUT-OF-BAND EMISSIONS

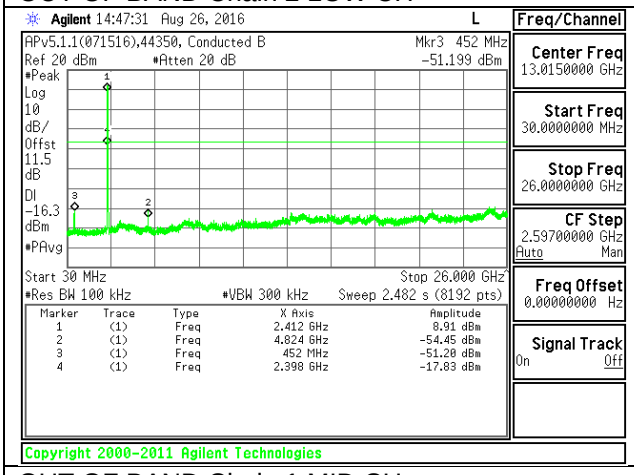
OUT OF BAND Chain 0 LOW CH



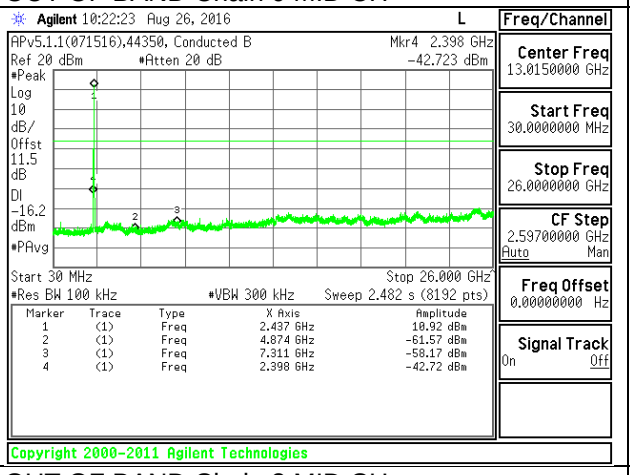
OUT OF BAND Chain 1 LOW CH



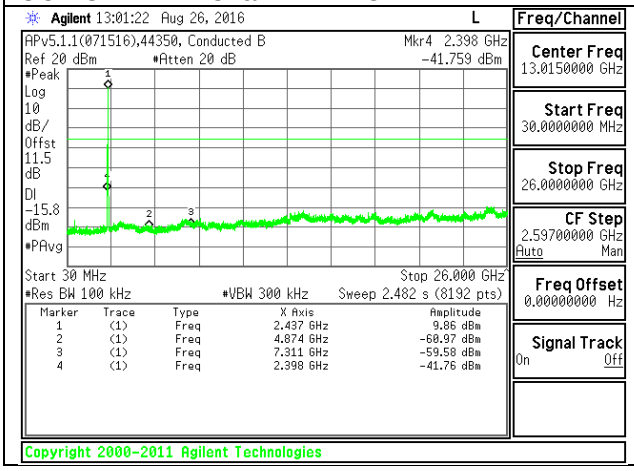
OUT OF BAND Chain 2 LOW CH



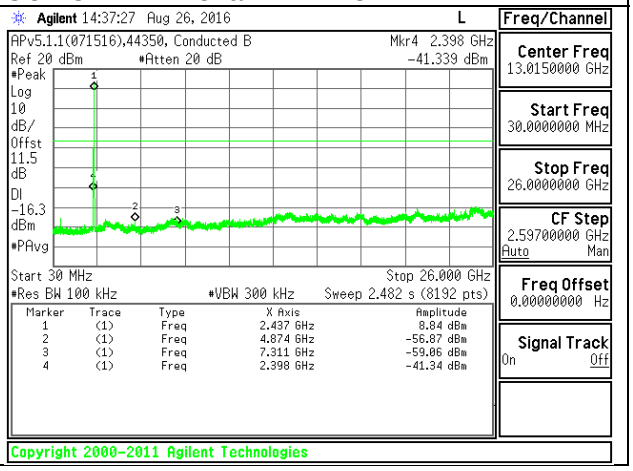
OUT OF BAND Chain 0 MID CH



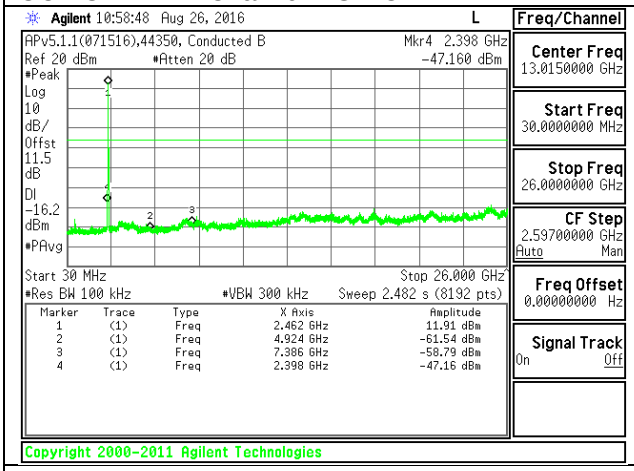
OUT OF BAND Chain 1 MID CH



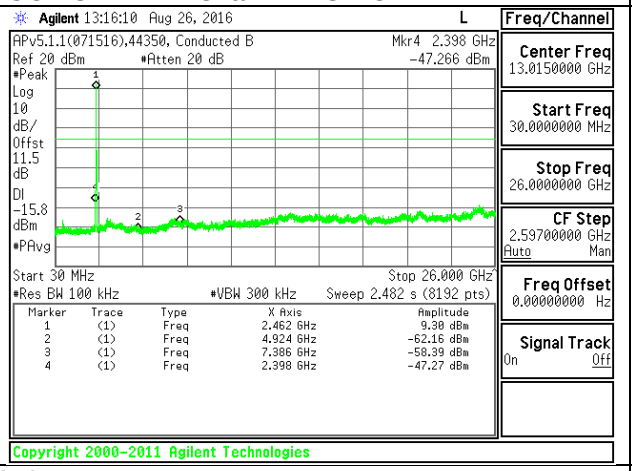
OUT OF BAND Chain 2 MID CH



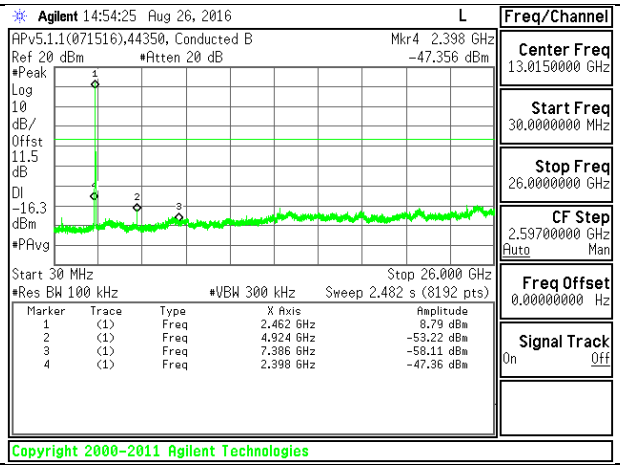
OUT OF BAND Chain 0 HIGH CH



OUT OF BAND Chain 1 HIGH CH



OUT OF BAND Chain 2 HIGH CH



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300m	2400/F(kHz) @ 300m
0.490-1.705	24000/F(kHz) @ 30m	24000/F(kHz) @ 30m
1.705-30.0	30 @ 30m	30 @ 30m
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE: KDB 937606 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.

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 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.
Note: The pre-scan measurements above 1GHz the VBW is set to 30 kHz.

For 2.4 GHz band, the spectrum from 9 kHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels for above 1GHz. 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

For Harmonics and Spurious Emissions tests, a band reject filter was used to filter out the fundamental from the 2400 MHz – 2483.5 MHz range.

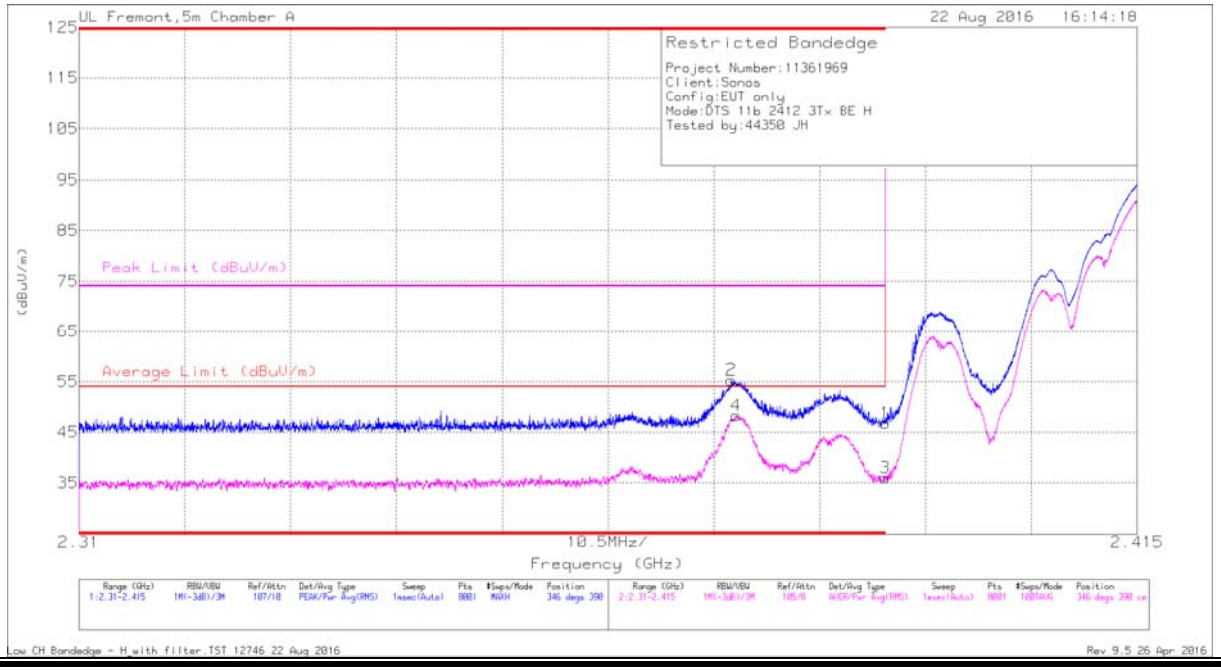
For Bandedge, a notch filter provided by the customer was used.

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. 11b 3TX CDD MIMO MODE IN THE 2.4GHz BAND

AUTHORIZED BANDEDGE (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL

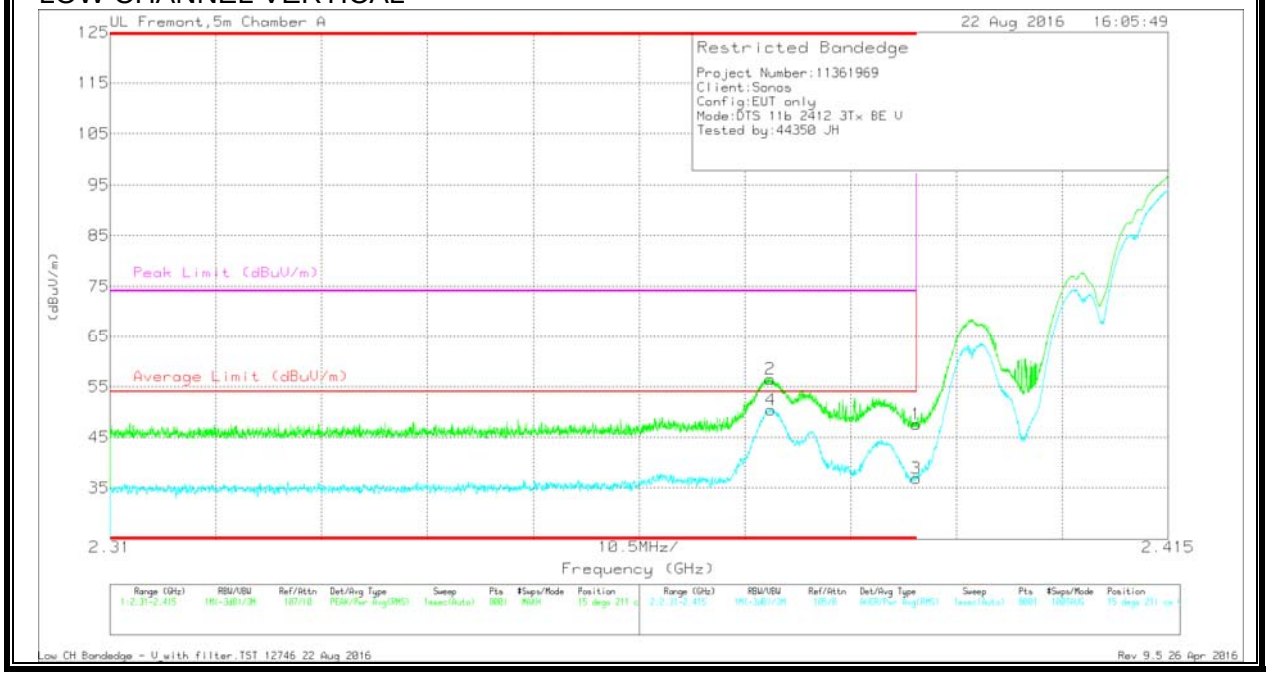


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	36.61	Pk	32.3	-23.7	1.6	0	46.81	-	-	74	-27.19	346	390	H
2	* 2.375	45.62	Pk	32.2	-23.7	1.2	0	55.32	-	-	74	-18.68	346	390	H
3	* 2.39	25.83	RMS	32.3	-23.7	1.6	0	36.03	54	-17.97	-	-	346	390	H
4	* 2.375	38.63	RMS	32.2	-23.7	1.2	0	48.33	54	-5.67	-	-	346	390	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

LOW CHANNEL VERTICAL



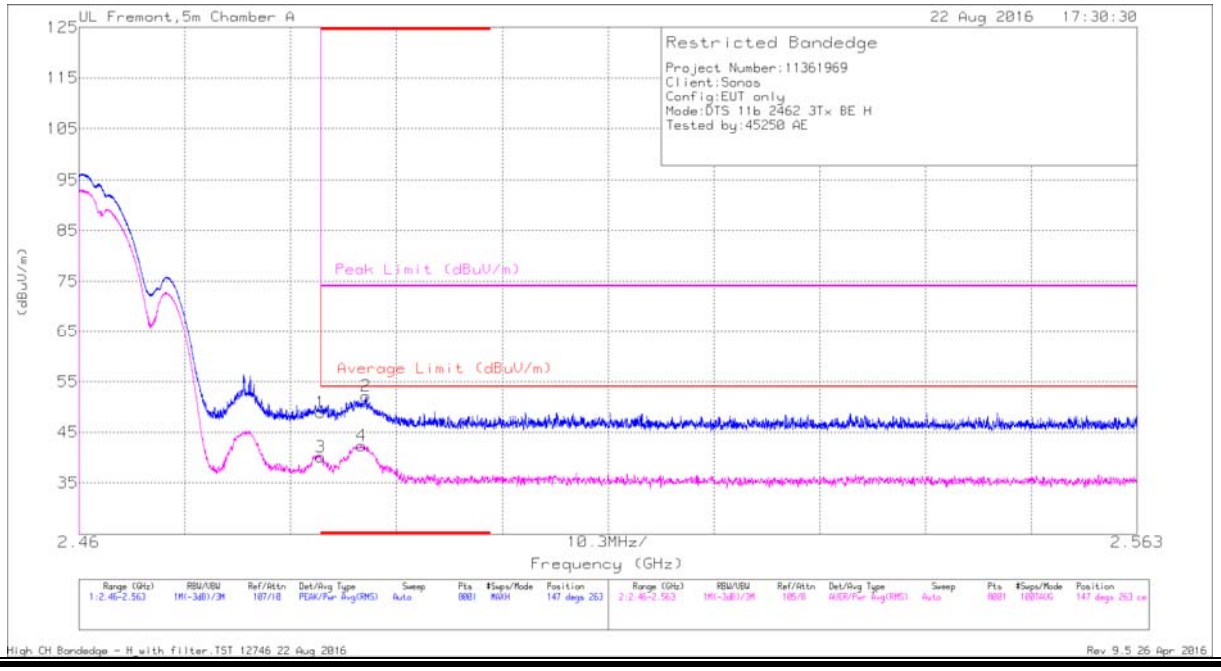
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	37.39	Pk	32.3	-23.7	1.6	0	47.59	-	-	74	-26.41	15	211	V
2	* 2.375	46.83	Pk	32.2	-23.7	1.2	0	56.53	-	-	74	-17.47	15	211	V
3	* 2.39	26.65	RMS	32.3	-23.7	1.6	0	36.85	54	-17.15	-	-	15	211	V
4	* 2.376	40.76	RMS	32.2	-23.7	1.2	0	50.46	54	-3.54	-	-	15	211	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 11)

CHANNEL HORIZONTAL

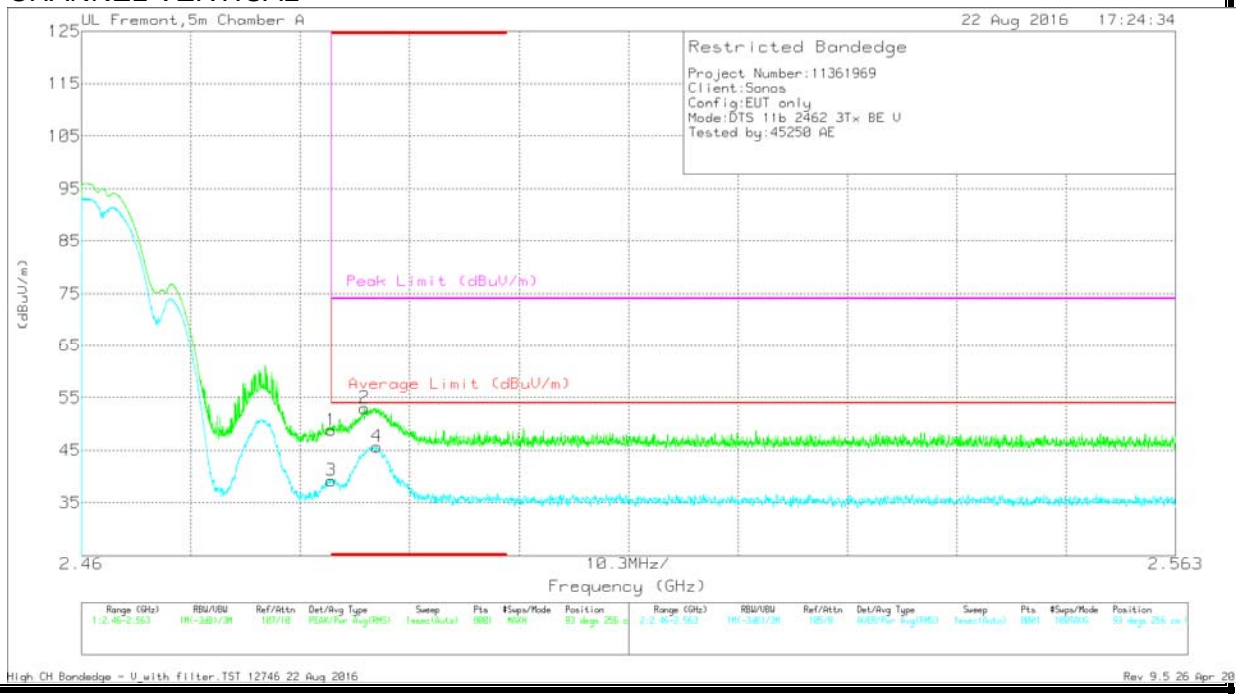


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	38.51	Pk	32.4	-23.6	1.6	0	48.91	-	-	74	-25.09	147	263	H
2	* 2.488	41.99	Pk	32.5	-23.7	1.4	0	52.19	-	-	74	-21.81	147	263	H
3	* 2.484	29.69	RMS	32.4	-23.6	1.6	0	40.09	54	-13.91	-	-	147	263	H
4	* 2.487	32.05	RMS	32.5	-23.6	1.4	0	42.35	54	-11.65	-	-	147	263	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

CHANNEL VERTICAL



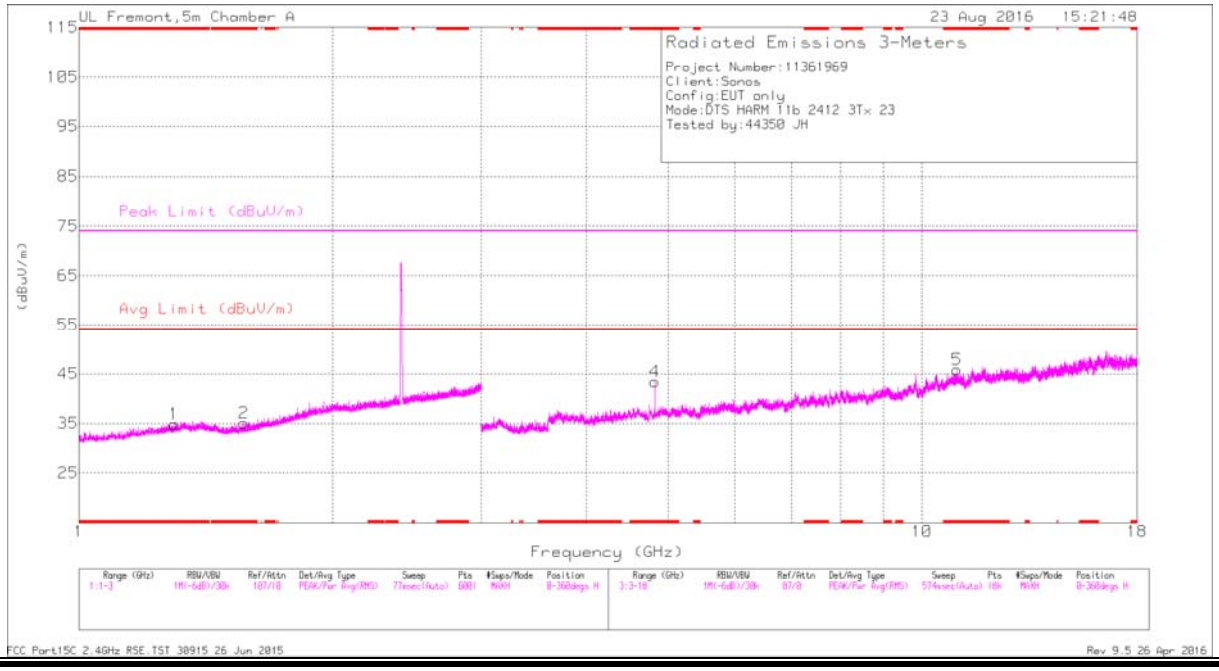
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	38.4	Pk	32.4	-23.6	1.6	0	48.8	-	-	74	-25.2	93	256	V
3	* 2.484	28.84	RMS	32.4	-23.6	1.6	0	39.24	54	-14.76	-	-	93	256	V
2	* 2.487	42.86	Pk	32.5	-23.7	1.4	0	53.06	-	-	74	-20.94	93	256	V
4	* 2.488	35.51	RMS	32.5	-23.7	1.4	0	45.71	54	-8.29	-	-	93	256	V

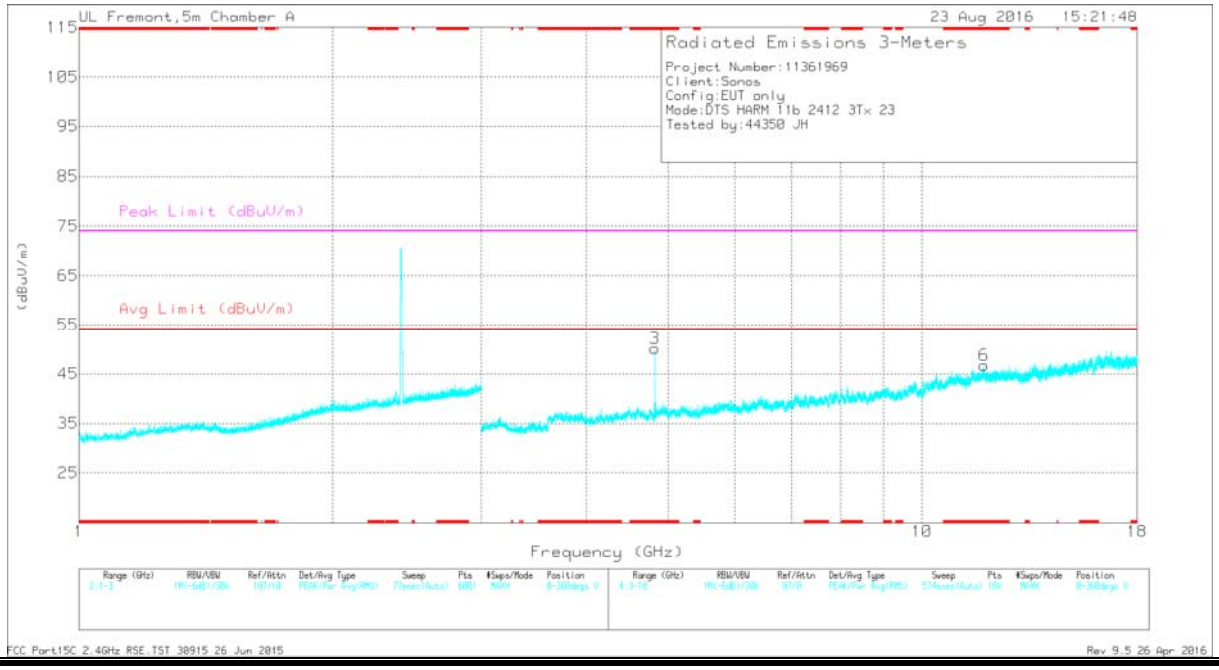
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.297	29.97	Pk	28.9	-24	0	34.87	-	-	74	-39.13	0-360	101	H
2	* 1.569	30.7	Pk	28.1	-23.7	0	35.1	-	-	74	-38.9	0-360	101	H
4	* 4.824	37.3	Pk	34.3	-28.2	0	43.4	-	-	74	-30.6	0-360	199	H
5	* 11.008	28.04	Pk	37.9	-20.1	0	45.84	-	-	74	-28.16	0-360	199	H
3	* 4.824	44.04	Pk	34.3	-28.2	0	50.14	-	-	74	-23.86	0-360	199	V
6	* 11.847	27.42	Pk	38.6	-19.3	0	46.72	-	-	74	-27.28	0-360	101	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

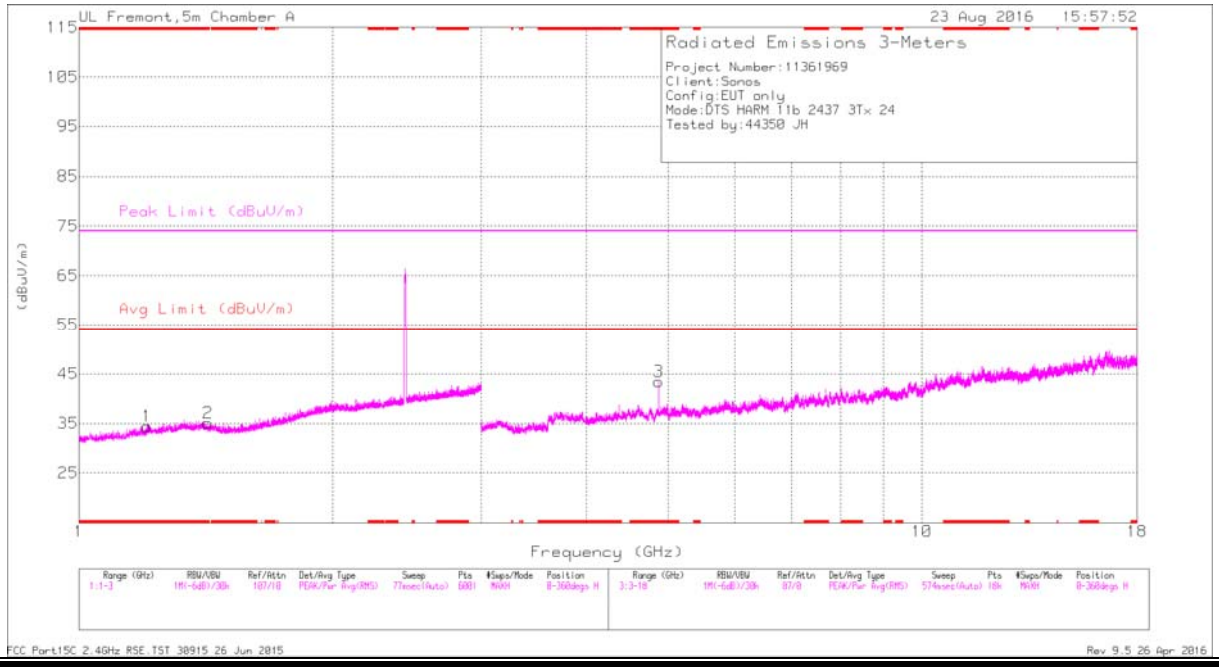
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
* 1.296	36.76	PK2	28.9	-24	0	41.66	-	-	74	-32.34	1	100	H
* 1.299	24.74	MAv1	28.9	-24	0	29.64	54	-24.36	-	-	1	100	H
* 1.567	35.73	PK2	28.1	-23.7	0	40.13	-	-	74	-33.87	1	100	H
* 1.569	25.41	MAv1	28.1	-23.7	0	29.81	54	-24.19	-	-	1	100	H
* 4.824	43.27	PK2	34.3	-28.2	0	49.37	-	-	74	-24.63	157	239	H
* 4.824	39.13	MAv1	34.3	-28.2	0	45.23	54	-8.77	-	-	157	239	H
* 11.006	32.94	PK2	37.9	-20.1	0	50.74	-	-	74	-23.26	157	239	H
* 11.007	22.76	MAv1	37.9	-20.1	0	40.56	54	-13.44	-	-	157	239	H
* 11.845	32.06	PK2	38.6	-19.3	0	51.36	-	-	74	-22.64	140	274	V
* 11.848	22.35	MAv1	38.6	-19.4	0	41.55	54	-12.45	-	-	140	274	V
* 4.824	49.65	PK2	34.3	-28.2	0	55.75	-	-	74	-18.25	139	282	V
* 4.824	47.18	MAv1	34.3	-28.2	0	53.28	54	-.72	-	-	139	282	V

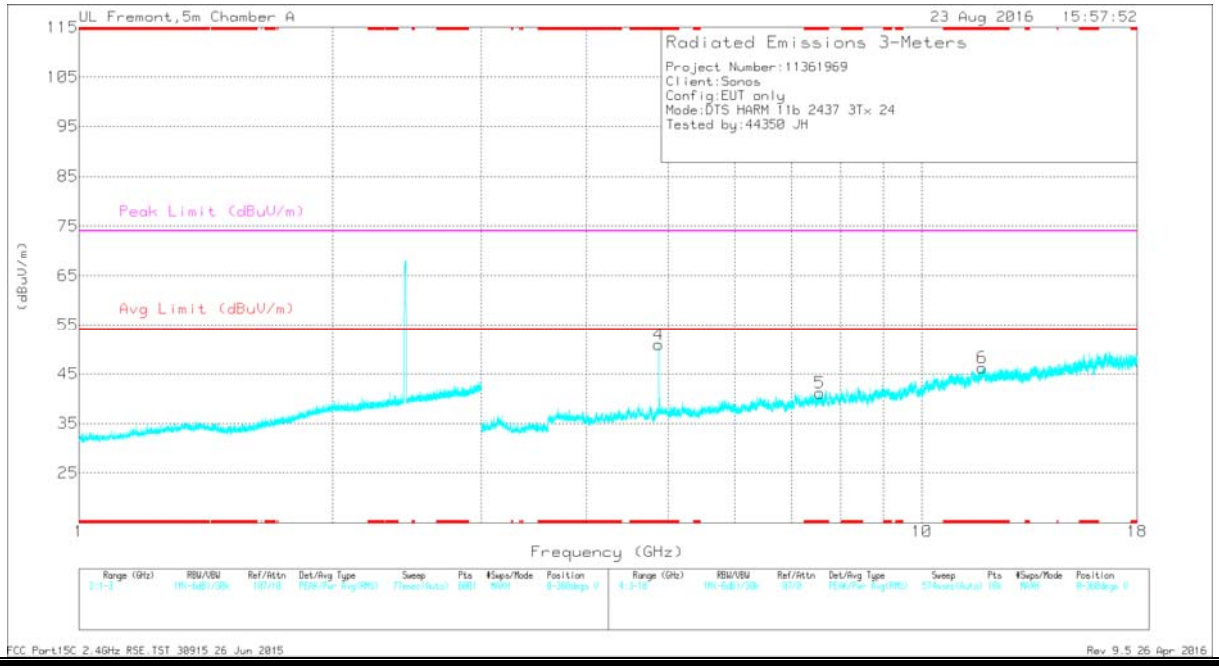
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)

CHANNEL HORIZONTAL



CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.204	30.13	Pk	28.4	-24.1	0	34.43	-	-	74	-39.57	0-360	200	H
2	* 1.422	29.95	Pk	28.8	-23.7	0	35.05	-	-	74	-38.95	0-360	200	H
3	* 4.874	36.95	Pk	34.3	-27.8	0	43.45	-	-	74	-30.55	0-360	199	H
4	* 4.874	44.39	Pk	34.3	-27.8	0	50.89	-	-	74	-23.11	0-360	199	V
5	* 7.566	29.3	Pk	35.9	-24.1	0	41.1	-	-	74	-32.9	0-360	199	V
6	* 11.795	27.23	Pk	38.6	-19.6	0	46.23	-	-	74	-27.77	0-360	101	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

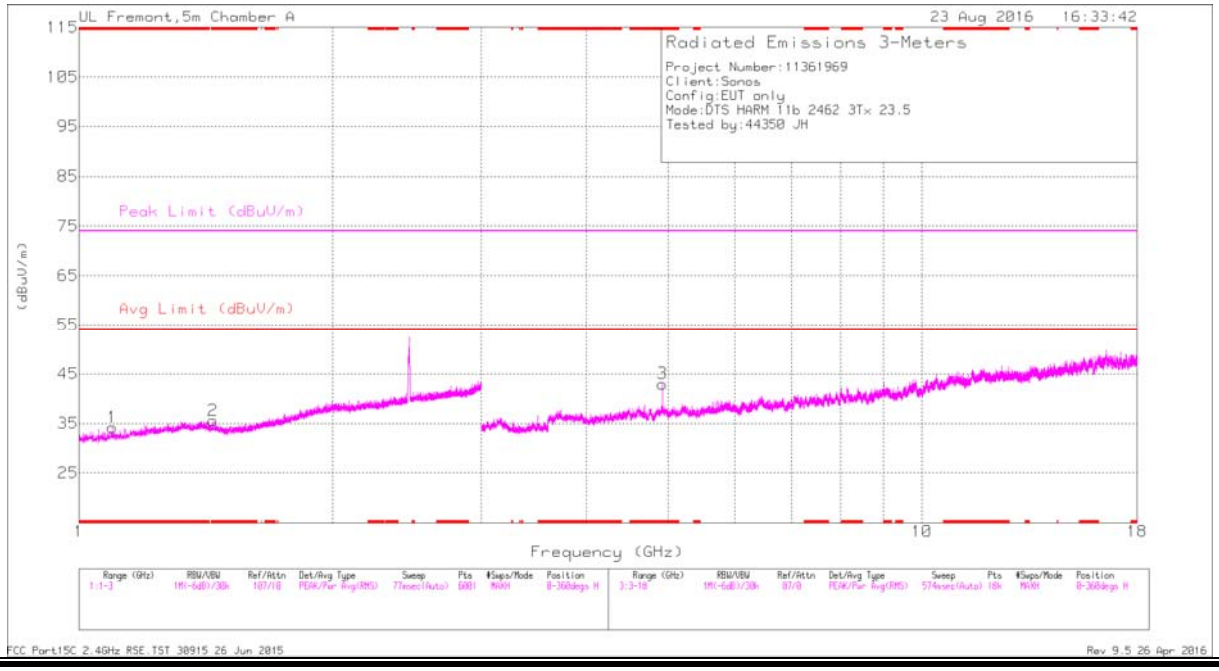
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
* 1.203	35.65	PK2	28.4	-24	0	40.05	-	-	74	-33.95	355	196	H
* 1.204	25.15	MAv1	28.4	-24.1	0	29.45	54	-24.55	-	-	355	196	H
* 1.42	35.43	PK2	28.8	-23.8	0	40.43	-	-	74	-33.57	355	196	H
* 1.42	25.17	MAv1	28.8	-23.8	0	30.17	54	-23.83	-	-	355	196	H
* 4.874	41.39	PK2	34.3	-27.8	0	47.89	-	-	74	-26.11	355	196	H
* 4.874	35.2	MAv1	34.3	-27.8	0	41.7	54	-12.3	-	-	355	196	H
* 4.874	46.42	PK2	34.3	-27.8	0	52.92	-	-	74	-21.08	54	196	V
* 4.874	43.64	MAv1	34.3	-27.8	0	50.14	54	-3.86	-	-	54	196	V
* 7.566	34.82	PK2	35.9	-24.1	0	46.62	-	-	74	-27.38	355	196	V
* 7.566	24.39	MAv1	35.9	-24.1	0	36.19	54	-17.81	-	-	355	196	V
* 11.794	32.23	PK2	38.6	-19.5	0	51.33	-	-	74	-22.67	355	196	V
* 11.795	22.33	MAv1	38.6	-19.6	0	41.33	54	-12.67	-	-	355	196	V

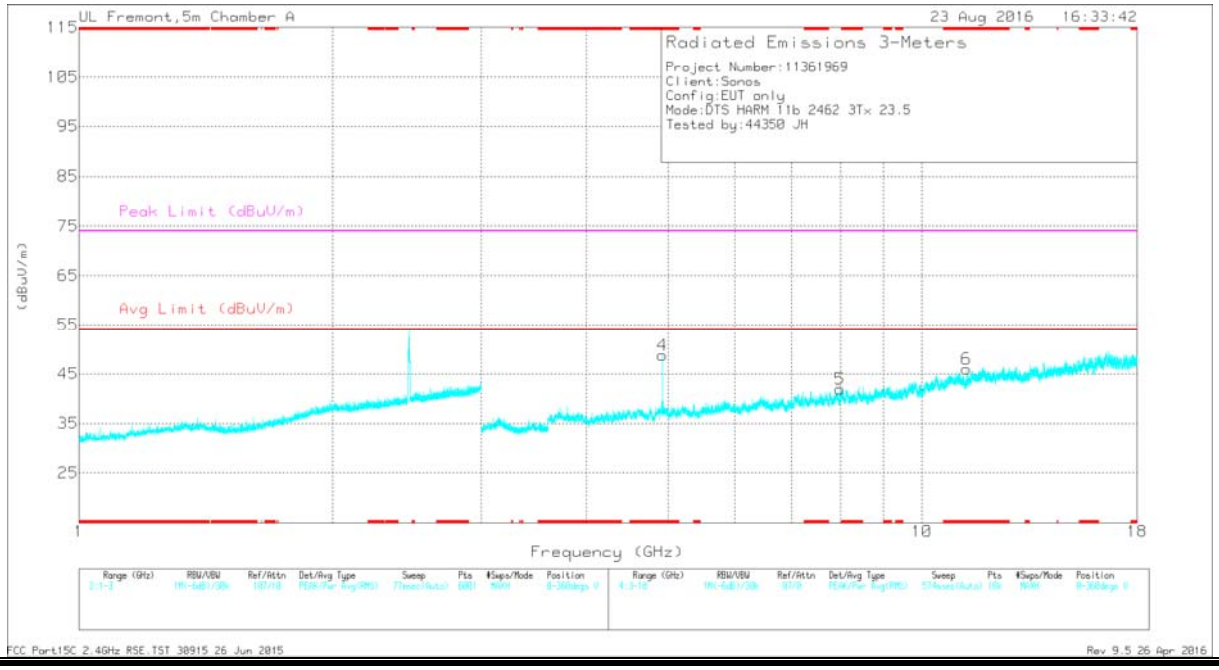
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 11)

CHANNEL HORIZONTAL



CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.094	30.77	Pk	27.7	-24.3	0	34.17	-	-	74	-39.83	0-360	199	H
2	* 1.441	30.7	Pk	28.6	-23.7	0	35.6	-	-	74	-38.4	0-360	199	H
3	* 4.924	36.5	Pk	34.3	-27.8	0	43	-	-	74	-31	0-360	199	H
4	* 4.924	42.23	Pk	34.3	-27.8	0	48.73	-	-	74	-25.27	0-360	199	V
6	* 11.292	28.06	Pk	38.1	-20.2	0	45.96	-	-	74	-28.04	0-360	199	V
5	7.993	29.63	Pk	36	-23.7	0	41.93	-	-	-	-	0-360	199	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

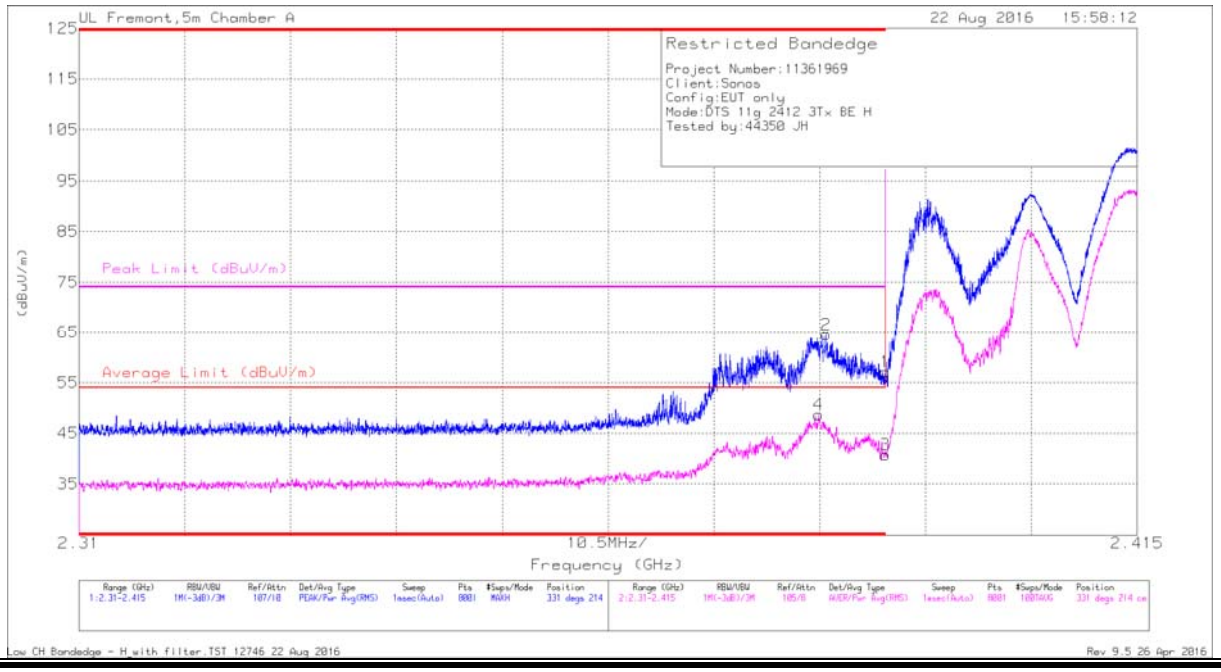
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.096	35.54	PK2	27.7	-24.3	0	38.94	-	-	74	-35.06	80	169	H
* 1.093	25.25	MAv1	27.7	-24.2	0	28.75	54	-25.25	-	-	80	169	H
* 1.441	36.2	PK2	28.6	-23.7	0	41.1	-	-	74	-32.9	80	169	H
* 1.44	25.22	MAv1	28.6	-23.7	0	30.12	54	-23.88	-	-	80	169	H
* 4.924	41.02	PK2	34.3	-27.8	0	47.52	-	-	74	-26.48	80	169	H
* 4.924	35.74	MAv1	34.3	-27.8	0	42.24	54	-11.76	-	-	80	169	H
* 4.924	44.34	PK2	34.3	-27.8	0	50.84	-	-	74	-23.16	94	165	V
* 4.924	40.85	MAv1	34.3	-27.8	0	47.35	54	-6.65	-	-	94	165	V
* 11.294	31.75	PK2	38.1	-20.2	0	49.65	-	-	74	-24.35	80	169	V
* 11.291	22.02	MAv1	38.1	-20.2	0	39.92	54	-14.08	-	-	80	169	V
7.993	24	MAv1	36	-23.7	0	36.3	-	-	-	-	80	169	V
7.995	33.9	PK2	36	-23.6	0	46.3	-	-	-	-	80	169	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

10.2.2. 11g 3TX CDD MIMO MODE IN THE 2.4GHz BAND

AUTHORIZED BANDEDGE (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL

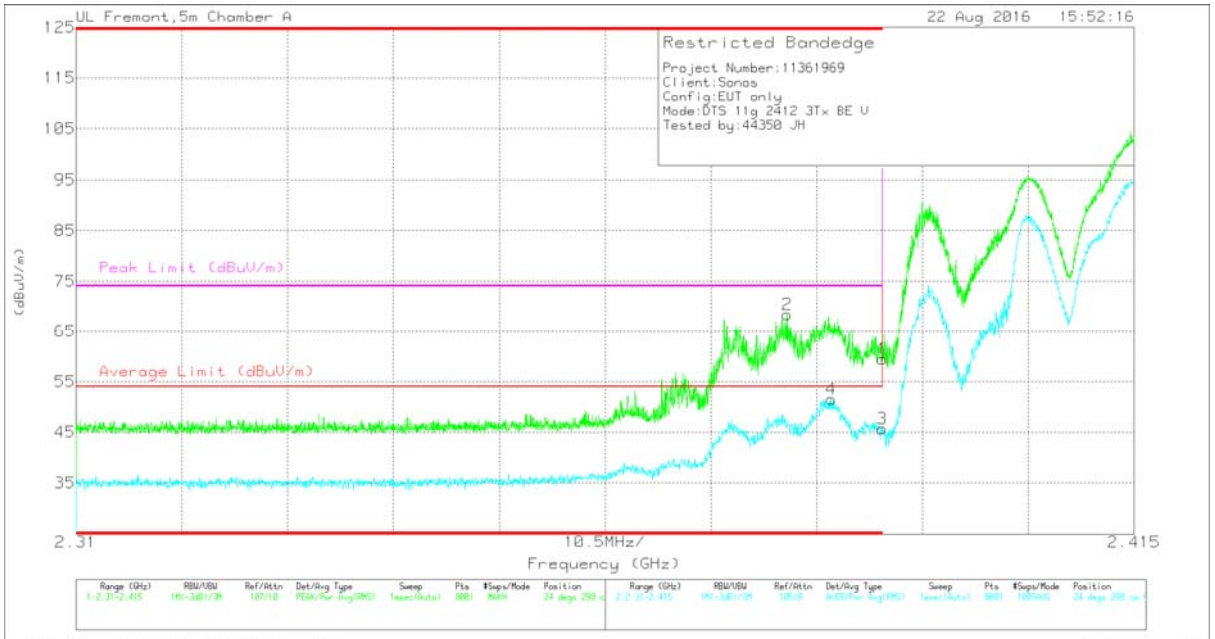


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	46.87	Pk	32.3	-23.7	1.6	0	57.07	-	-	74	-16.93	331	214	H
2	* 2.384	54.82	Pk	32.2	-23.7	1.3	0	64.62	-	-	74	-9.38	331	214	H
3	* 2.39	30.38	RMS	32.3	-23.7	1.6	.11	40.69	54	-13.31	-	-	331	214	H
4	* 2.383	38.72	RMS	32.2	-23.7	1.3	.11	48.63	54	-5.37	-	-	331	214	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

LOW CHANNEL VERTICAL



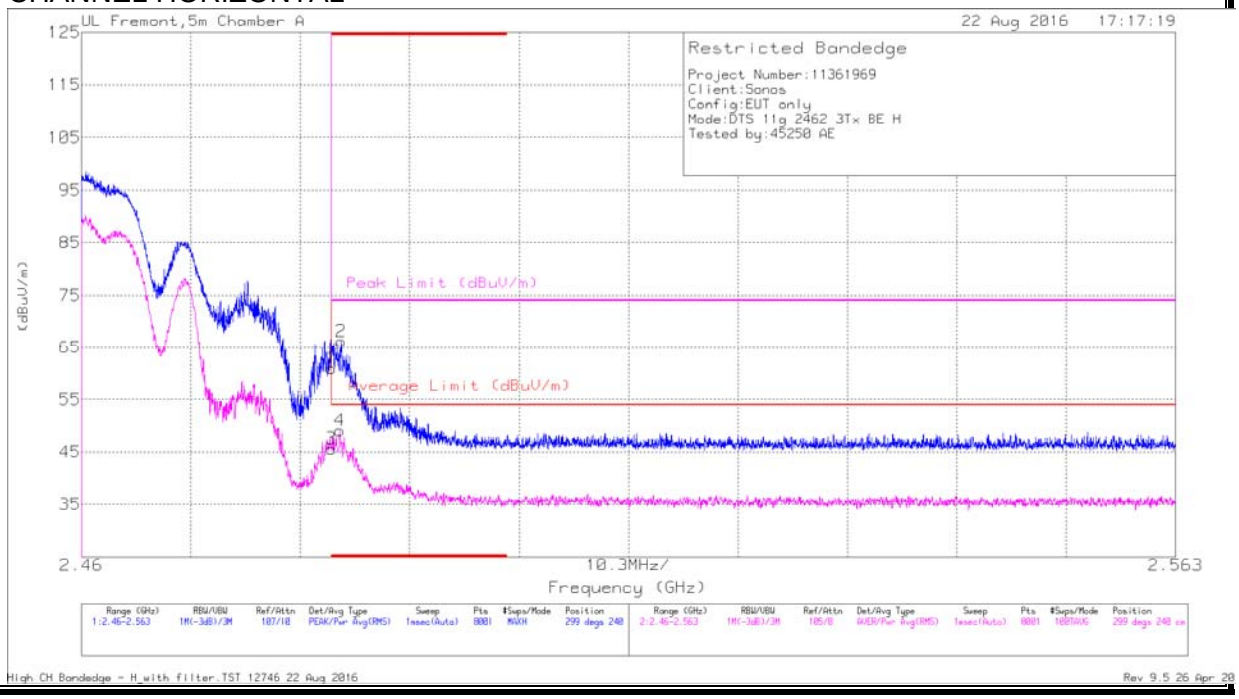
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	49.33	Pk	32.3	-23.7	1.6	0	59.53	-	-	74	-14.47	24	298	V
2	* 2.381	58.71	Pk	32.2	-23.7	1.2	0	68.41	-	-	74	-5.59	24	298	V
3	* 2.39	35.39	RMS	32.3	-23.7	1.6	.11	45.7	54	-8.3	-	-	24	298	V
4	* 2.385	41.64	RMS	32.2	-23.7	1.3	.11	51.55	54	-2.45	-	-	24	298	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 11)

CHANNEL HORIZONTAL

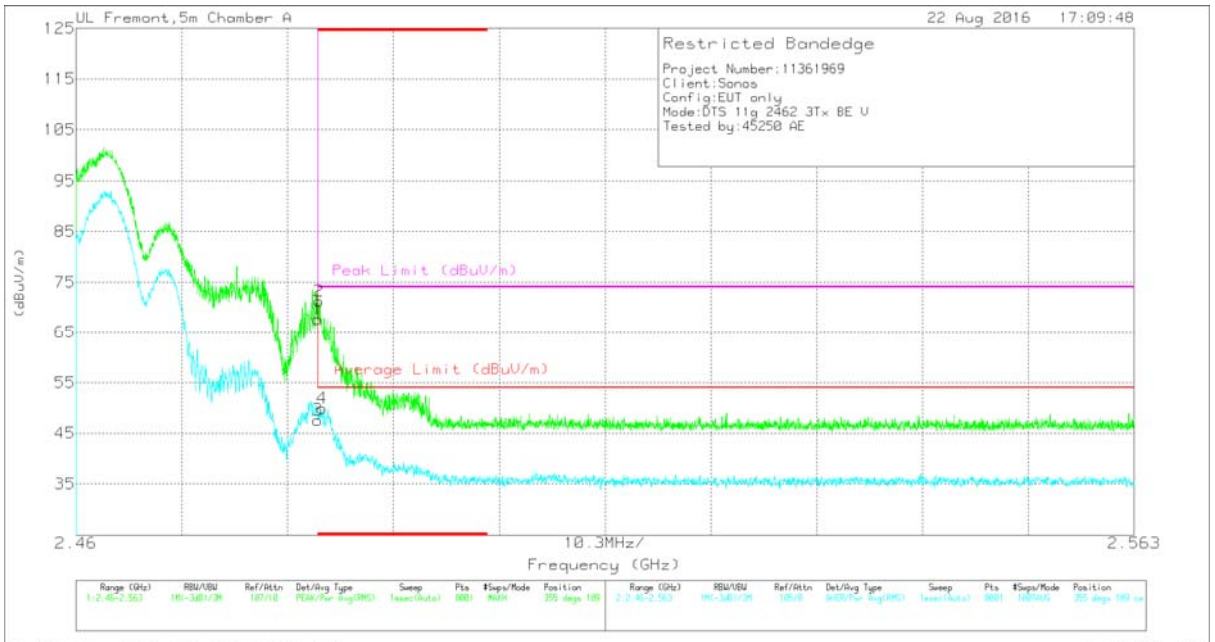


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	50.55	Pk	32.4	-23.6	1.6	0	60.95	-	-	74	-13.05	299	240	H
2	* 2.484	55.86	Pk	32.4	-23.6	1.5	0	66.16	-	-	74	-7.84	299	240	H
3	* 2.484	35.05	RMS	32.4	-23.6	1.6	.11	45.56	54	-8.44	-	-	299	240	H
4	* 2.484	38.59	RMS	32.4	-23.6	1.6	.11	49.1	54	-4.9	-	-	299	240	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

CHANNEL VERTICAL



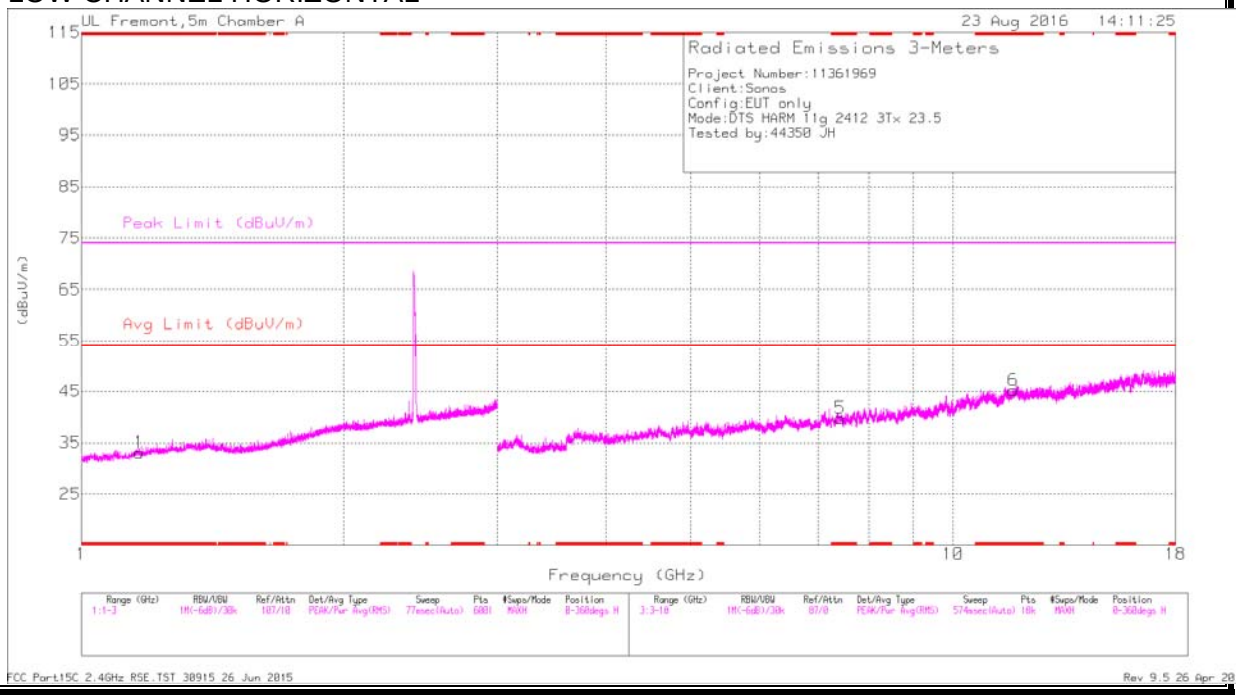
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	57.28	Pk	32.4	-23.6	1.6	0	67.68	-	-	74	-6.32	355	189	V
2	* 2.484	60.83	Pk	32.4	-23.6	1.6	0	71.23	-	-	74	-2.77	355	189	V
3	* 2.484	37.11	RMS	32.4	-23.6	1.6	.11	47.62	54	-6.38	-	-	355	189	V
4	* 2.484	39.38	RMS	32.4	-23.6	1.6	.11	49.89	54	-4.11	-	-	355	189	V

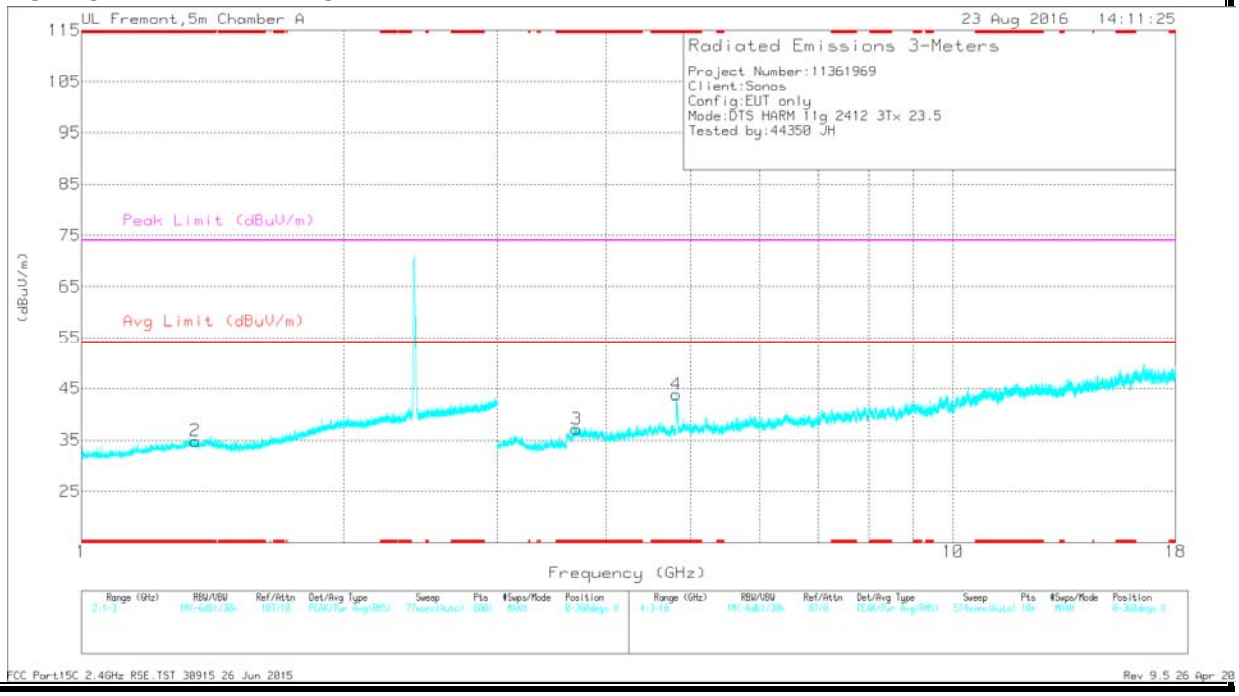
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.166	29.18	Pk	28.1	-24.2	0	33.08	-	-	74	-40.92	0-360	101	H
2	* 1.352	29.62	Pk	29	-23.8	0	34.82	-	-	74	-39.18	0-360	101	V
5	* 7.427	27.38	Pk	35.8	-23.4	0	39.78	-	-	74	-34.22	0-360	199	H
6	* 11.732	26.92	Pk	38.5	-20.2	0	45.22	-	-	74	-28.78	0-360	199	H
3	* 3.697	33.67	Pk	33.5	-30.1	0	37.07	-	-	74	-36.93	0-360	101	V
4	* 4.816	37.78	Pk	34.3	-28.2	0	43.88	-	-	74	-30.12	0-360	199	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band

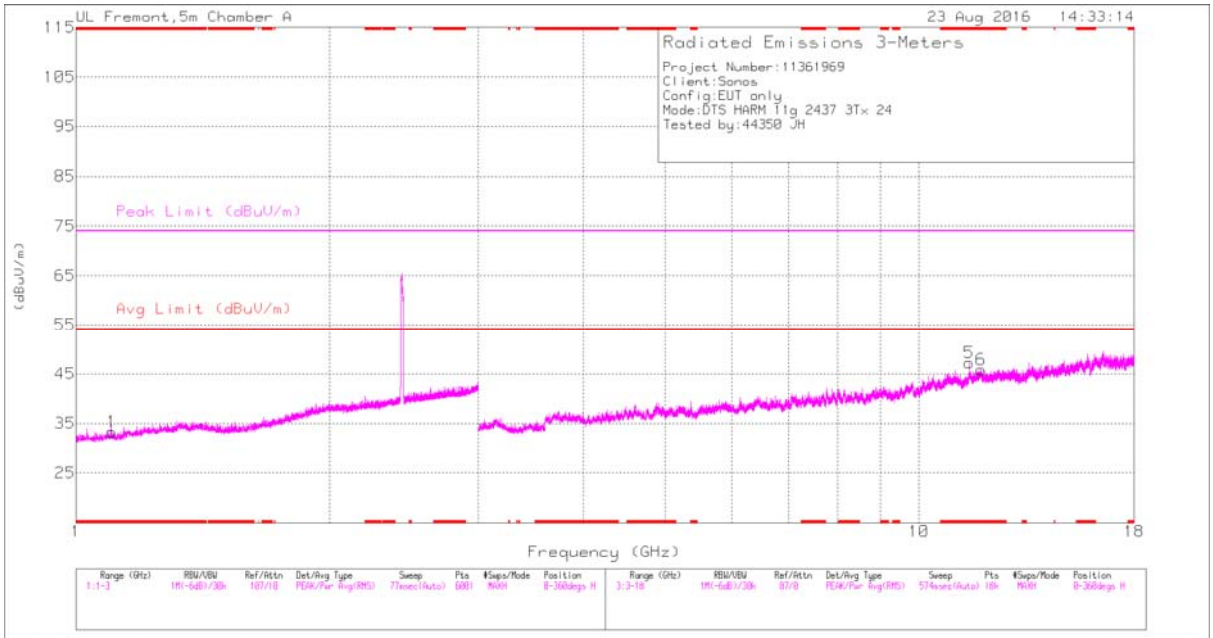
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
* 1.167	35.31	PK2	28.1	-24.2	0	39.21	-	-	74	-34.79	1	100	H
* 1.167	25.06	MAv1	28.1	-24.2	.11	29.07	54	-24.93	-	-	1	100	H
* 1.353	36.36	PK2	29	-23.8	0	41.56	-	-	74	-32.44	1	100	V
* 1.353	25.06	MAv1	29	-23.8	.11	30.37	54	-23.63	-	-	1	100	V
* 7.429	33.69	PK2	35.8	-23.4	0	46.09	-	-	74	-27.91	1	100	H
* 7.428	23.72	MAv1	35.8	-23.4	.11	36.23	54	-17.77	-	-	1	100	H
* 11.732	32.49	PK2	38.5	-20.2	0	50.79	-	-	74	-23.21	1	100	H
* 11.733	22.63	MAv1	38.5	-20.2	.11	41.04	54	-12.96	-	-	1	100	H
* 3.696	39.17	PK2	33.5	-30.1	0	42.57	-	-	74	-31.43	1	100	V
* 3.695	28.83	MAv1	33.5	-30.1	.11	32.34	54	-21.66	-	-	1	100	V
* 4.816	44.6	PK2	34.3	-28.2	0	50.7	-	-	74	-23.3	65	182	V
* 4.815	34.18	MAv1	34.3	-28.2	.11	40.39	54	-13.61	-	-	65	182	V

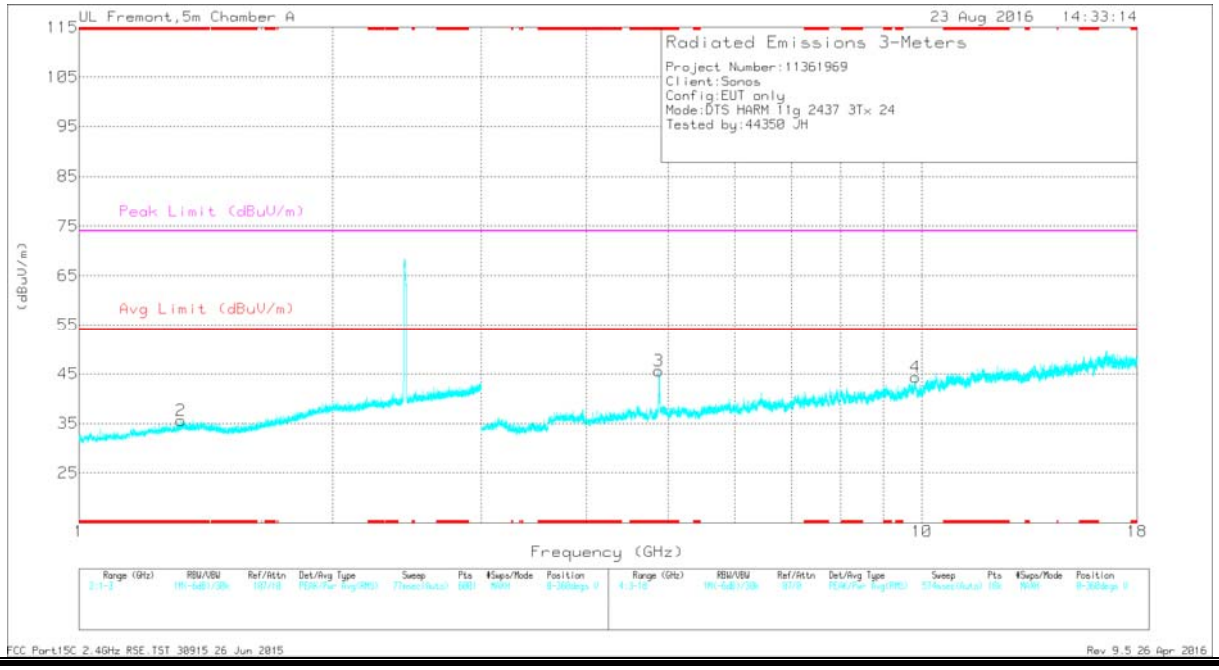
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)

CHANNEL HORIZONTAL



CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.103	29.69	Pk	27.8	-24.2	0	33.29	-	-	74	-40.71	0-360	101	H
2	* 1.321	30.35	Pk	29	-23.8	0	35.55	-	-	74	-38.45	0-360	199	V
5	* 11.466	28.36	Pk	38.2	-19.3	0	47.26	-	-	74	-26.74	0-360	101	H
6	* 11.844	26.52	Pk	38.6	-19.3	0	45.82	-	-	74	-28.18	0-360	101	H
3	* 4.875	39.11	Pk	34.3	-27.8	0	45.61	-	-	74	-28.39	0-360	101	V
4	9.819	28.57	Pk	36.8	-21	0	44.37	-	-	-	-	0-360	199	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

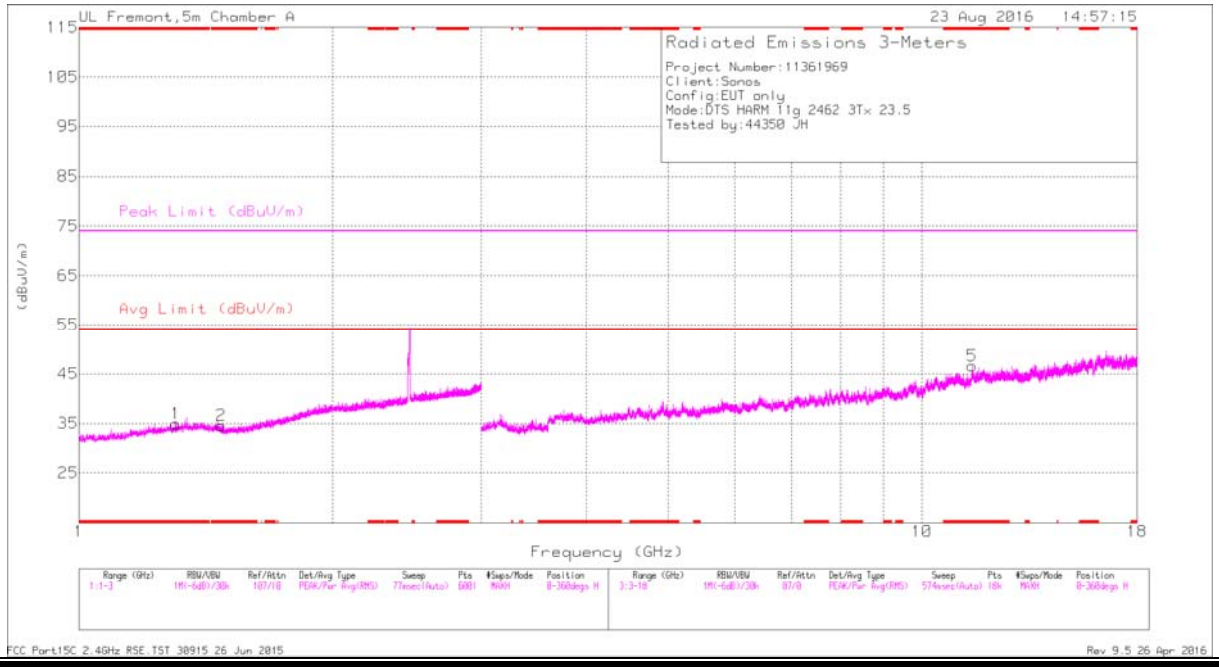
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
* 1.102	35.75	PK2	27.7	-24.1	0	39.35	-	-	74	-34.65	1	100	H
* 1.105	25.16	MAv1	27.8	-24.3	.11	28.77	54	-25.23	-	-	1	100	H
* 1.322	36.09	PK2	29	-23.7	0	41.39	-	-	74	-32.61	1	100	V
* 1.322	25.01	MAv1	29	-23.7	.11	30.42	54	-23.58	-	-	1	100	V
* 11.466	32.3	PK2	38.2	-19.3	0	51.2	-	-	74	-22.8	1	100	H
* 11.466	22.47	MAv1	38.2	-19.3	.11	41.48	54	-12.52	-	-	1	100	H
* 11.843	32.41	PK2	38.6	-19.3	0	51.71	-	-	74	-22.29	1	100	H
* 11.843	22.41	MAv1	38.6	-19.3	.11	41.82	54	-12.18	-	-	1	100	H
* 4.876	44.67	PK2	34.3	-27.8	0	51.17	-	-	74	-22.83	360	136	V
* 4.875	34.61	MAv1	34.3	-27.8	.11	41.22	54	-12.78	-	-	360	136	V
9.82	23.45	MAv1	36.8	-21	.11	39.36	-	-	-	-	360	136	V
9.821	33.35	PK2	36.8	-21	0	49.15	-	-	-	-	360	136	V

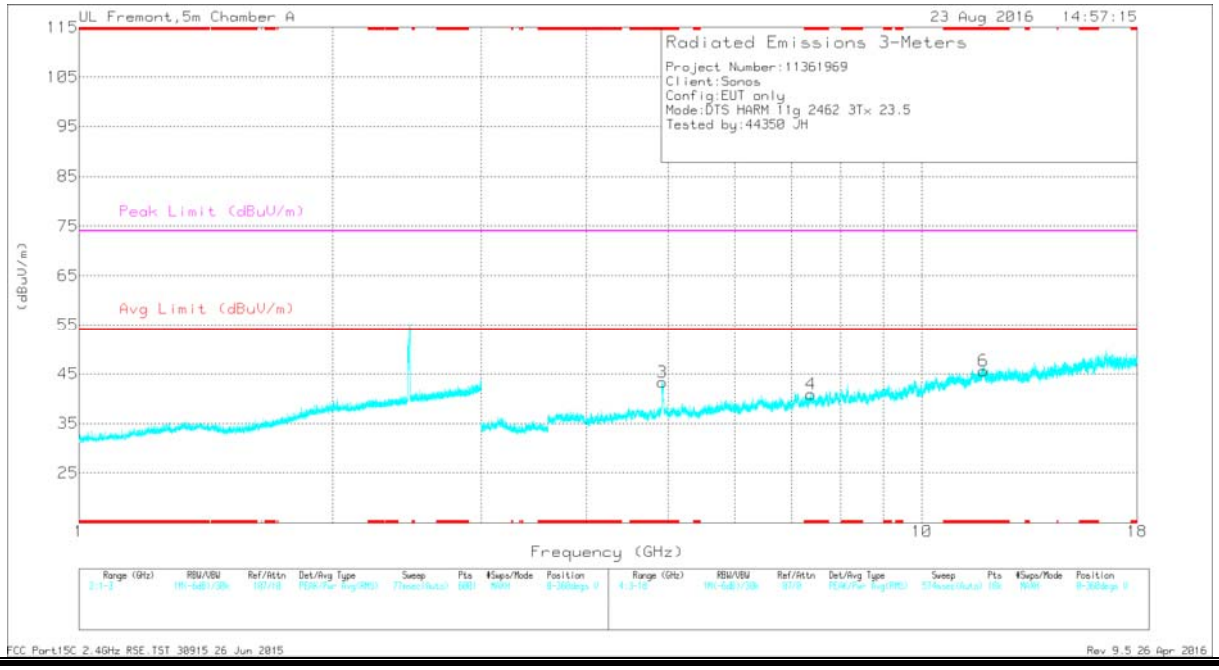
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 11)

CHANNEL HORIZONTAL



CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.303	29.96	Pk	28.9	-23.9	0	34.96	-	-	74	-39.04	0-360	199	H
2	* 1.474	29.9	Pk	28.2	-23.6	0	34.5	-	-	74	-39.5	0-360	199	H
5	* 11.477	27.72	Pk	38.2	-19.3	0	46.62	-	-	74	-27.38	0-360	199	H
3	* 4.918	36.77	Pk	34.3	-27.7	0	43.37	-	-	74	-30.63	0-360	101	V
4	* 7.389	29.16	Pk	35.7	-23.9	0	40.96	-	-	74	-33.04	0-360	199	V
6	* 11.839	26.27	Pk	38.6	-19.3	0	45.57	-	-	74	-28.43	0-360	101	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

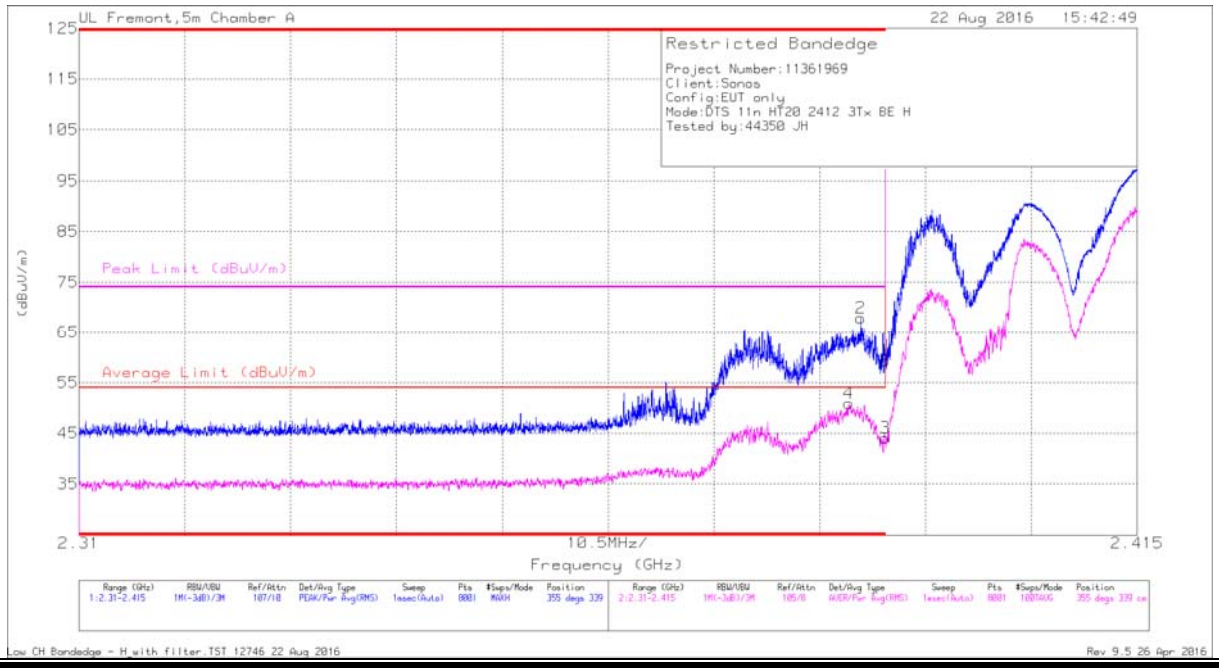
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.304	35.85	PK2	28.9	-24	0	40.75	-	-	74	-33.25	360	100	H
* 1.302	24.87	MAv1	28.9	-23.9	.11	29.98	54	-24.02	-	-	360	100	H
* 1.474	36.49	PK2	28.2	-23.7	0	40.99	-	-	74	-33.01	360	100	H
* 1.476	24.99	MAv1	28.2	-23.7	.11	29.6	54	-24.4	-	-	360	100	H
* 11.476	32.19	PK2	38.2	-19.3	0	51.09	-	-	74	-22.91	360	100	H
* 11.479	22.65	MAv1	38.2	-19.3	.11	41.66	54	-12.34	-	-	360	100	H
* 4.93	44.87	PK2	34.3	-28	0	51.17	-	-	74	-22.83	65	211	V
* 4.929	33.52	MAv1	34.3	-27.9	.11	40.03	54	-13.97	-	-	65	211	V
* 7.391	35.41	PK2	35.7	-24	0	47.11	-	-	74	-26.89	65	211	V
* 7.391	25.21	MAv1	35.7	-24	.11	37.02	54	-16.98	-	-	65	211	V
* 11.84	32.12	PK2	38.6	-19.3	0	51.42	-	-	74	-22.58	65	211	V
* 11.838	22.4	MAv1	38.6	-19.4	.11	41.71	54	-12.29	-	-	65	211	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

10.2.3. 11n 3TX CDD MIMO MODE IN THE 2.4GHz BAND

AUTHORIZED BANDEDGE (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL

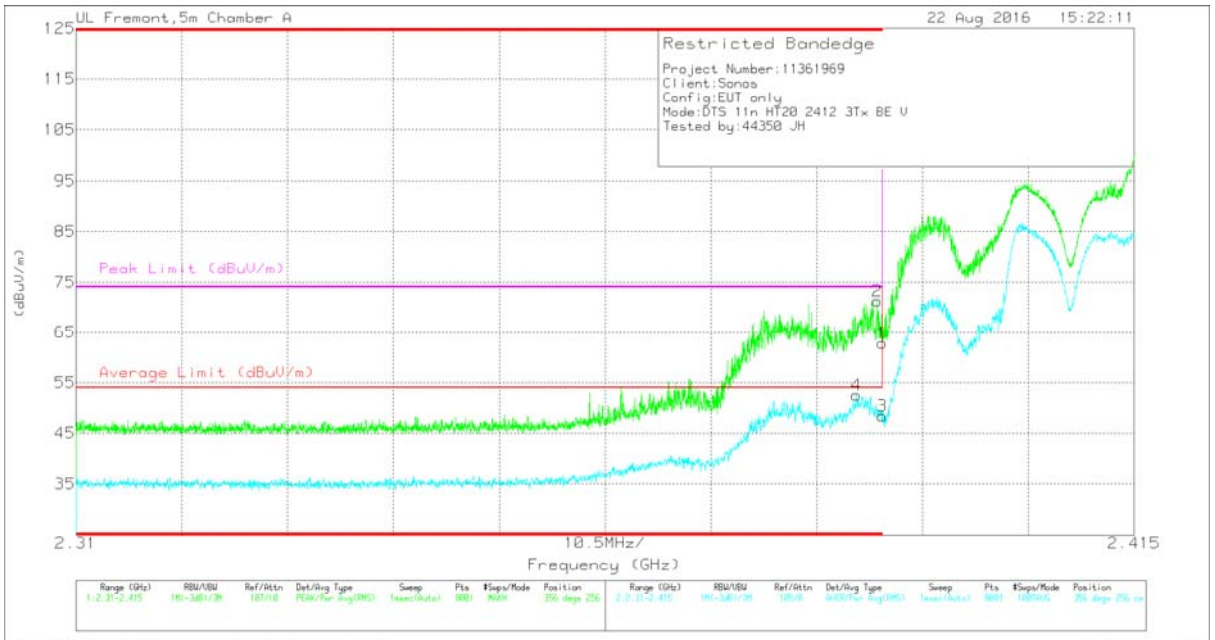


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	49.15	Pk	32.3	-23.7	1.6	0	59.35	-	-	74	-14.65	355	339	H
2	* 2.388	57.89	Pk	32.3	-23.7	1.4	0	67.89	-	-	74	-6.11	355	339	H
3	* 2.39	33.77	RMS	32.3	-23.7	1.6	.11	44.08	54	-9.92	-	-	355	339	H
4	* 2.386	40.78	RMS	32.3	-23.7	1.4	.11	50.89	54	-3.11	-	-	355	339	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

LOW CHANNEL VERTICAL



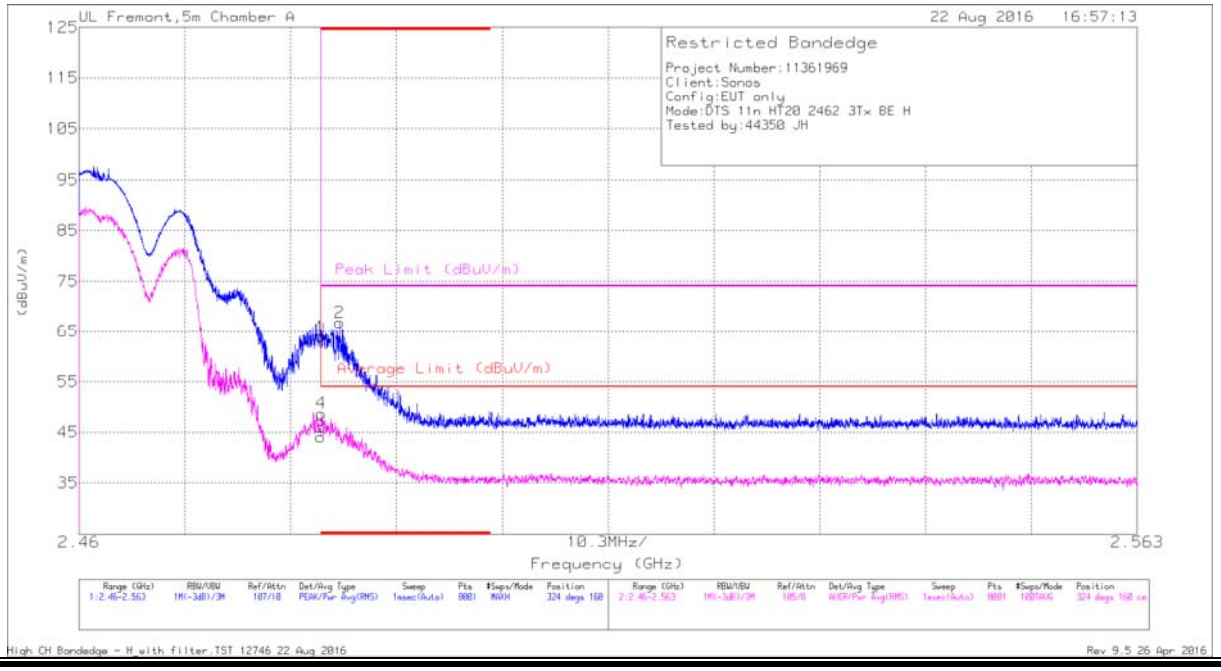
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	52.62	Pk	32.3	-23.7	1.6	0	62.82	-	-	74	-11.18	356	256	V
2	* 2.39	61.09	Pk	32.3	-23.7	1.6	0	71.29	-	-	74	-2.71	356	256	V
3	* 2.39	38.1	RMS	32.3	-23.7	1.6	.11	48.41	54	-5.59	-	-	356	256	V
4	* 2.387	42.43	RMS	32.3	-23.7	1.4	.11	52.54	54	-1.46	-	-	356	256	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 11)

CHANNEL HORIZONTAL

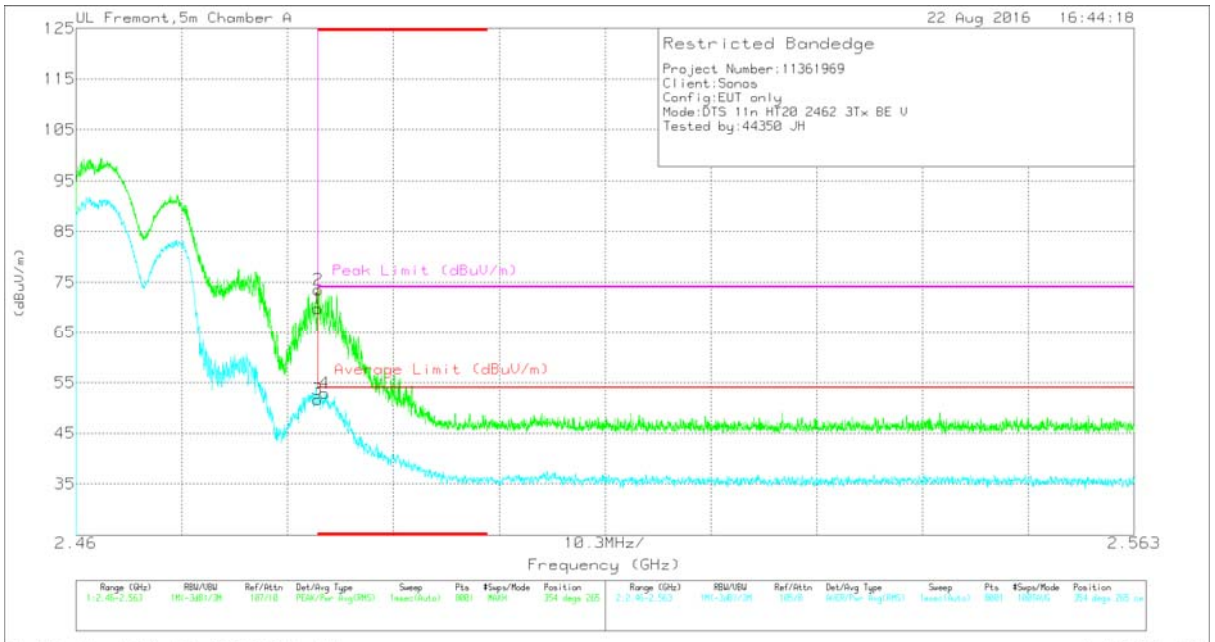


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	53.6	Pk	32.4	-23.6	1.6	0	64	-	-	74	-10	324	160	H
2	* 2.485	56.64	Pk	32.4	-23.7	1.5	0	66.84	-	-	74	-7.16	324	160	H
3	* 2.484	33.57	RMS	32.4	-23.6	1.6	.11	44.08	54	-9.92	-	-	324	160	H
4	* 2.484	38.23	RMS	32.4	-23.6	1.6	.11	48.74	54	-5.26	-	-	324	160	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

CHANNEL VERTICAL



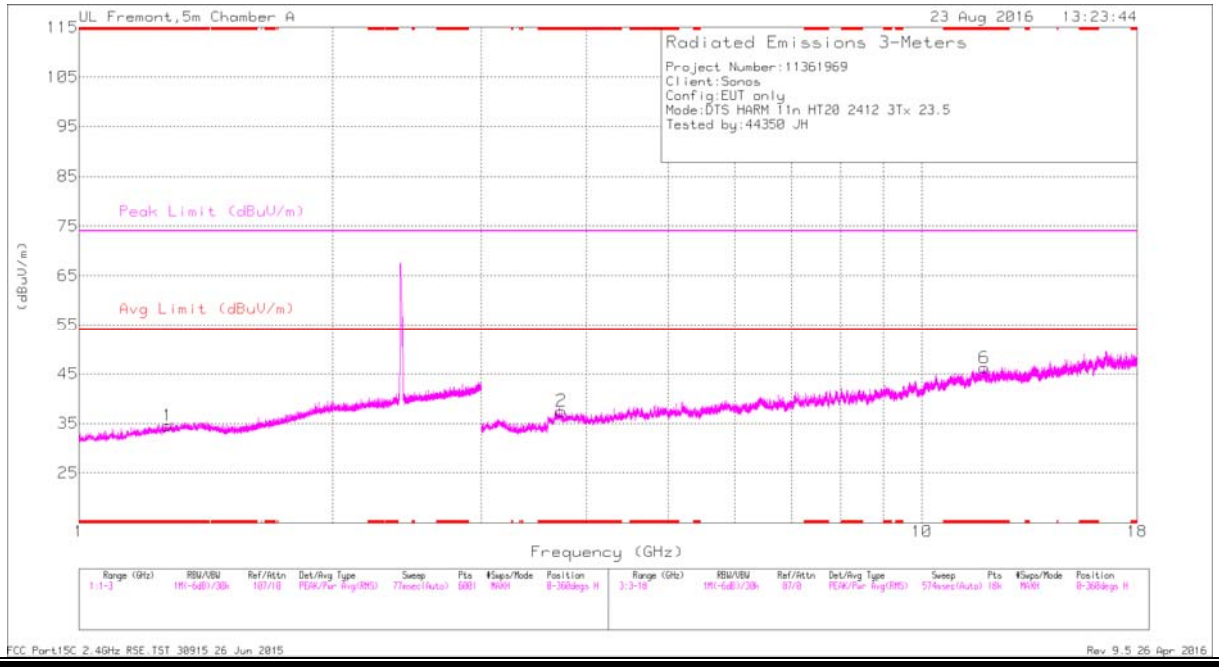
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (db/m)	Amp/Cbl/Fltr/Pad (dB)	RF Linx Filter (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	59.38	Pk	32.4	-23.6	1.6	0	69.78	-	-	74	-4.22	354	265	V
2	* 2.484	63.07	Pk	32.4	-23.6	1.6	0	73.47	-	-	74	-.53	354	265	V
3	* 2.484	41.17	RMS	32.4	-23.6	1.6	.11	51.68	54	-2.32	-	-	354	265	V
4	* 2.484	42.37	RMS	32.4	-23.6	1.6	.11	52.88	54	-1.12	-	-	354	265	V

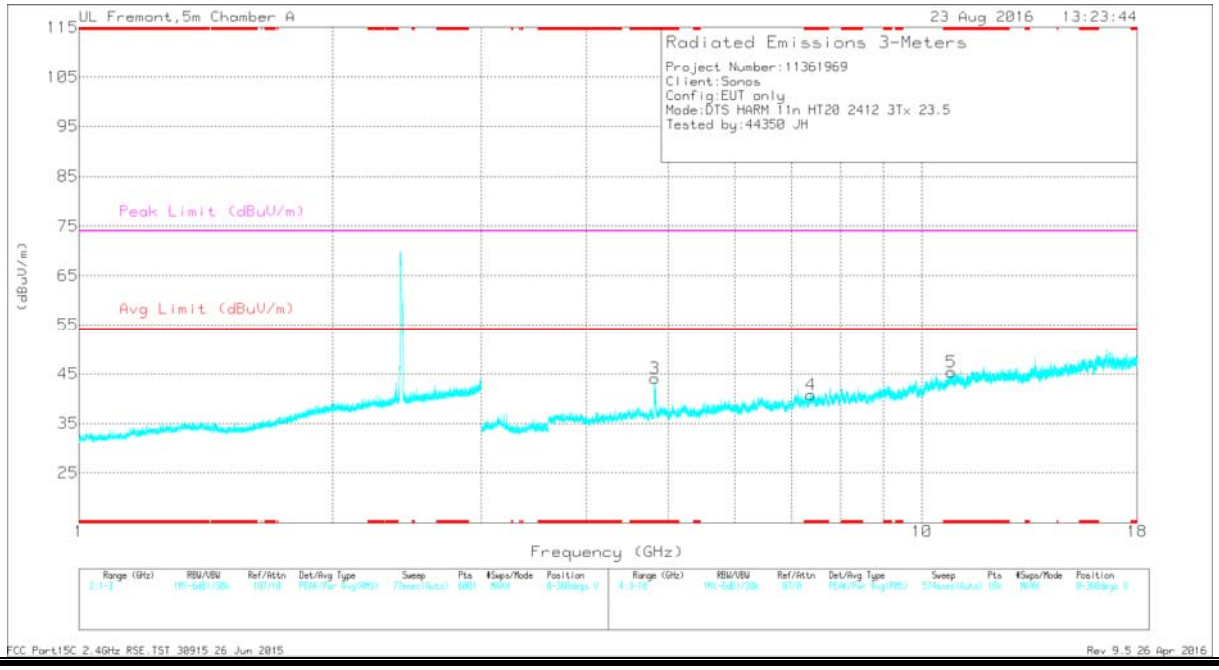
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.273	29.7	Pk	28.8	-24	0	34.5	-	-	74	-39.5	0-360	199	H
2	* 3.735	33.94	Pk	33.6	-30	0	37.54	-	-	74	-36.46	0-360	101	H
6	* 11.86	27.23	Pk	38.6	-19.6	0	46.23	-	-	74	-27.77	0-360	101	H
3	* 4.824	37.96	Pk	34.3	-28.2	0	44.06	-	-	74	-29.94	0-360	200	V
4	* 7.381	28.92	Pk	35.7	-23.8	0	40.82	-	-	74	-33.18	0-360	200	V
5	* 10.832	27.22	Pk	37.8	-19.7	0	45.32	-	-	74	-28.68	0-360	200	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

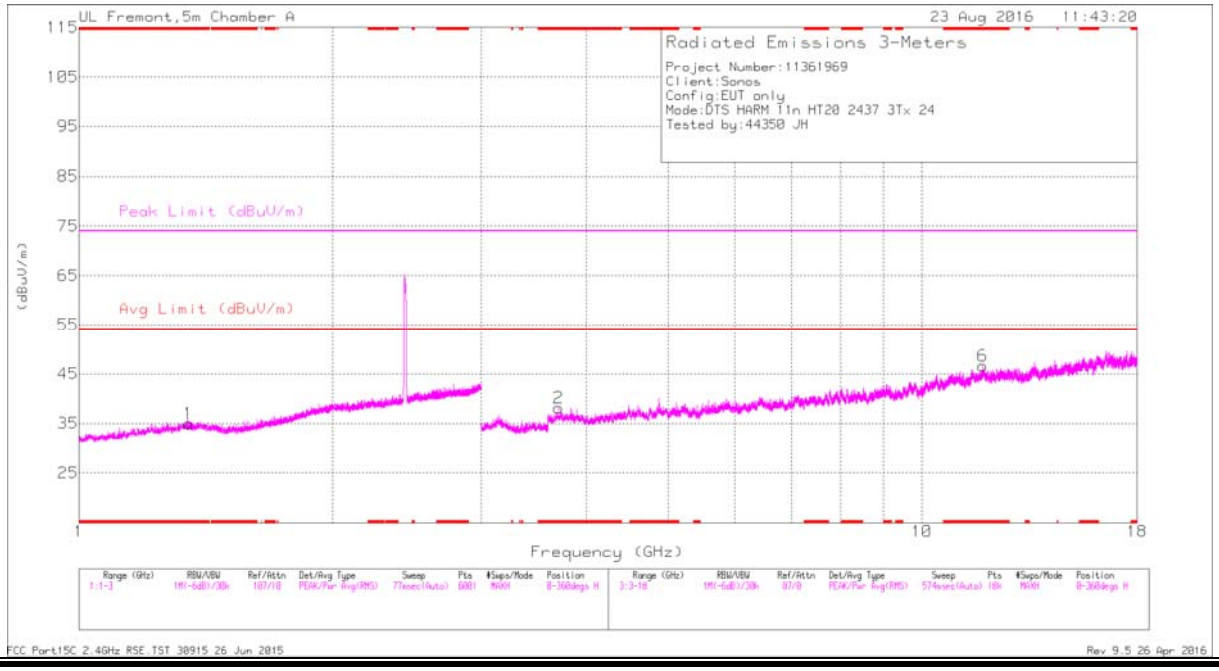
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
* 1.272	35.98	PK2	28.8	-24	0	40.78	-	-	74	-33.22	5	101	H
* 1.273	25.09	MAv1	28.8	-24	.11	30	54	-24	-	-	5	101	H
* 3.734	38.49	PK2	33.6	-30	0	42.09	-	-	74	-31.91	276	231	H
* 3.733	29.01	MAv1	33.6	-30	.11	32.72	54	-21.28	-	-	276	231	H
* 11.858	32.86	PK2	38.6	-19.6	0	51.86	-	-	74	-22.14	152	125	H
* 11.859	22.5	MAv1	38.6	-19.6	.11	41.61	54	-12.39	-	-	152	125	H
* 4.824	44.8	PK2	34.3	-28.2	0	50.9	-	-	74	-23.1	159	152	V
* 4.826	34.17	MAv1	34.3	-28.1	.11	40.48	54	-13.52	-	-	159	152	V
* 7.381	33.99	PK2	35.7	-23.8	0	45.89	-	-	74	-28.11	212	312	V
* 7.381	24.64	MAv1	35.7	-23.8	.11	36.65	54	-17.35	-	-	212	312	V
* 10.832	32.73	PK2	37.8	-19.7	0	50.83	-	-	74	-23.17	47	127	V
* 10.833	22.38	MAv1	37.8	-19.7	.11	40.59	54	-13.41	-	-	47	127	V

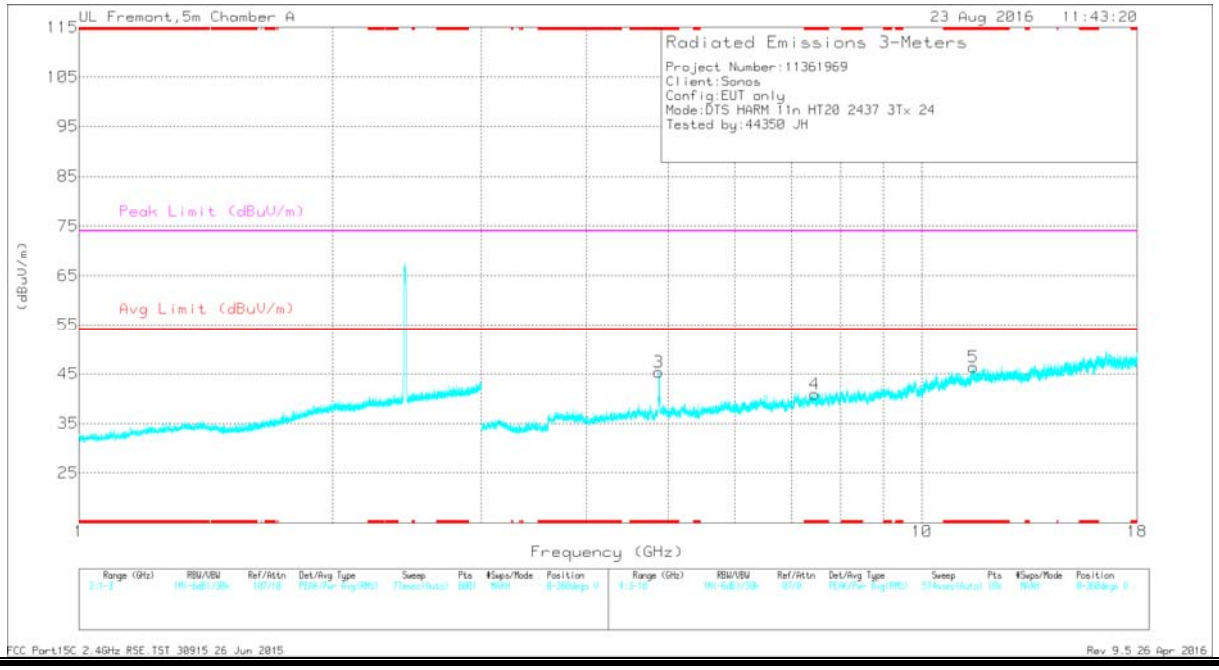
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)

CHANNEL HORIZONTAL



CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.349	29.85	Pk	29	-23.9	0	34.95	-	-	74	-39.05	0-360	199	H
2	* 3.706	34.77	Pk	33.5	-30.1	0	38.17	-	-	74	-35.83	0-360	199	H
6	* 11.812	27.54	Pk	38.6	-19.5	0	46.64	-	-	74	-27.36	0-360	199	H
3	* 4.875	38.87	Pk	34.3	-27.8	0	45.37	-	-	74	-28.63	0-360	101	V
4	* 7.456	28.51	Pk	35.8	-23.4	0	40.91	-	-	74	-33.09	0-360	199	V
5	* 11.513	27.37	Pk	38.2	-19.2	0	46.37	-	-	74	-27.63	0-360	199	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

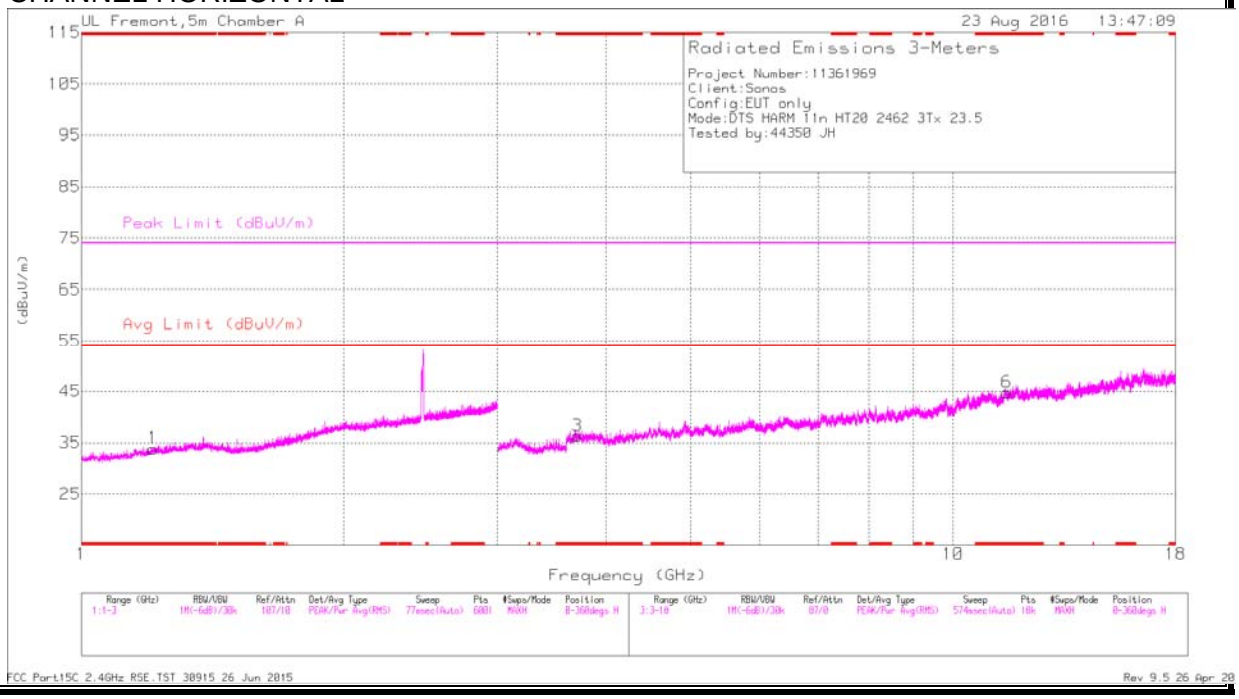
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
* 1.349	36.43	PK2	29	-23.8	0	41.63	-	-	74	-32.37	37	127	H
* 1.348	25.44	MAv1	29	-23.9	.11	30.65	54	-23.35	-	-	37	127	H
* 3.706	39.37	PK2	33.5	-30.1	0	42.77	-	-	74	-31.23	285	282	H
* 3.704	28.99	MAv1	33.5	-30.1	.11	32.5	54	-21.5	-	-	285	282	H
* 11.811	32.36	PK2	38.6	-19.5	0	51.46	-	-	74	-22.54	1	101	H
* 11.813	22.42	MAv1	38.6	-19.4	.11	41.73	54	-12.27	-	-	1	101	H
* 4.876	44.74	PK2	34.3	-27.8	0	51.24	-	-	74	-22.76	360	148	V
* 4.875	33.69	MAv1	34.3	-27.8	.11	40.3	54	-13.7	-	-	360	148	V
* 7.457	33.15	PK2	35.8	-23.4	0	45.55	-	-	74	-28.45	212	195	V
* 7.456	23.41	MAv1	35.8	-23.4	.11	35.92	54	-18.08	-	-	212	195	V
* 11.514	31.95	PK2	38.2	-19.2	0	50.95	-	-	74	-23.05	6	237	V
* 11.512	22.04	MAv1	38.2	-19.2	.11	41.15	54	-12.85	-	-	6	237	V

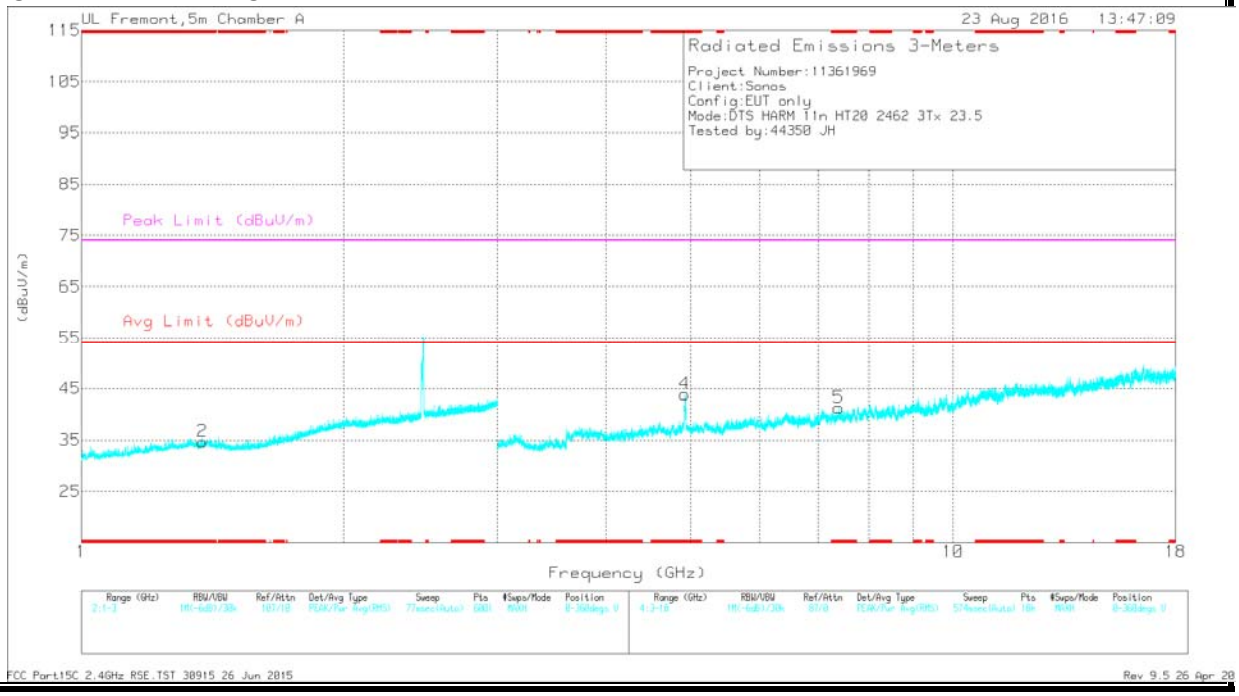
* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 11)

CHANNEL HORIZONTAL



CHANNEL VERTICAL



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.208	29.56	Pk	28.4	-24.1	0	33.86	-	-	74	-40.14	0-360	199	H
2	* 1.378	29.59	Pk	29	-23.9	0	34.69	-	-	74	-39.31	0-360	101	V
3	* 3.704	32.94	Pk	33.5	-30.1	0	36.34	-	-	74	-37.66	0-360	101	H
6	* 11.526	25.98	Pk	38.3	-19.5	0	44.78	-	-	74	-29.22	0-360	199	H
4	* 4.925	37.39	Pk	34.3	-27.8	0	43.89	-	-	74	-30.11	0-360	199	V
5	* 7.391	29.54	Pk	35.7	-23.9	0	41.34	-	-	74	-32.66	0-360	101	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

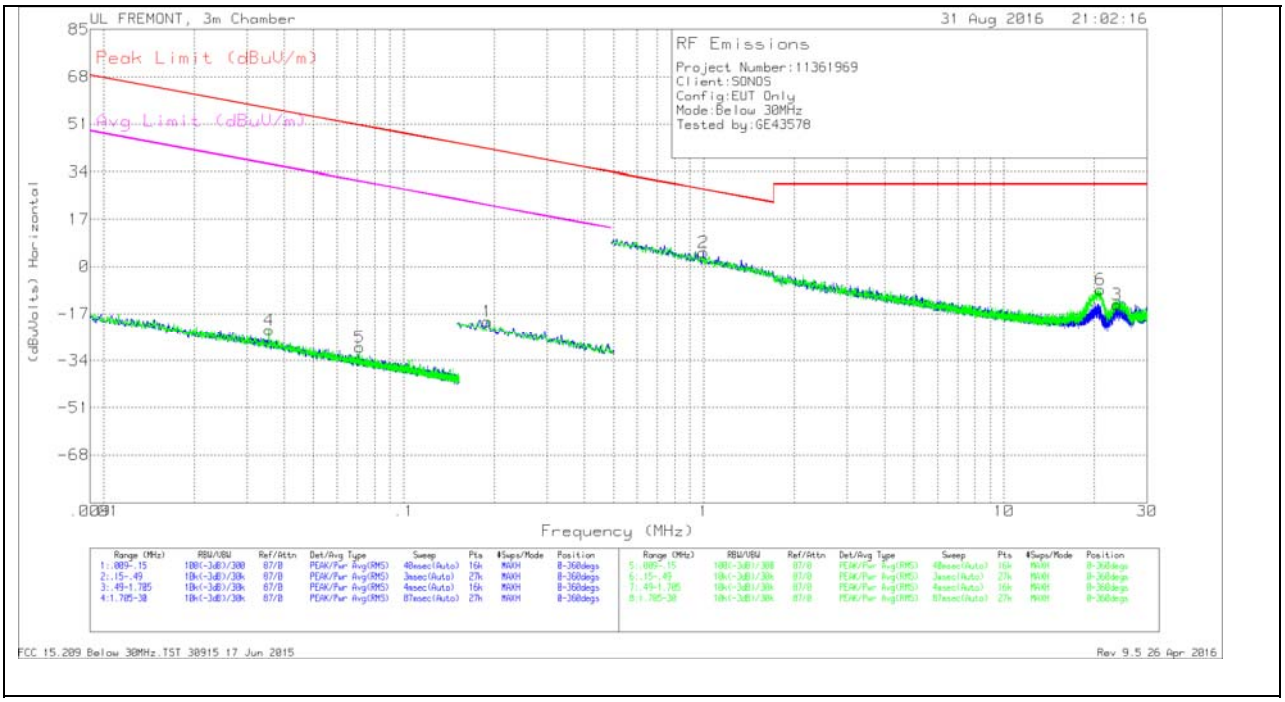
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T346 (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)	Azimuth (Degs)	Height (cm)	Polarity
* 1.21	36.04	PK2	28.4	-24.1	0	40.34	-	-	74	-33.66	1	100	H
* 1.209	25.11	MAv1	28.4	-24.1	.11	29.52	54	-24.48	-	-	1	100	H
* 1.377	35.06	PK2	29	-23.8	0	40.26	-	-	74	-33.74	1	100	V
* 1.38	25.16	MAv1	29	-23.8	.11	30.47	54	-23.53	-	-	1	100	V
* 3.702	38.64	PK2	33.5	-30.1	0	42.04	-	-	74	-31.96	1	100	H
* 3.704	28.88	MAv1	33.5	-30.1	.11	32.39	54	-21.61	-	-	1	100	H
* 11.528	32.1	PK2	38.3	-19.5	0	50.9	-	-	74	-23.1	1	100	H
* 11.526	21.97	MAv1	38.3	-19.5	.11	40.88	54	-13.12	-	-	1	100	H
* 4.925	44.12	PK2	34.3	-27.8	0	50.62	-	-	74	-23.38	73	178	V
* 4.924	33.19	MAv1	34.3	-27.7	.11	39.9	54	-14.1	-	-	73	178	V
* 7.393	35.55	PK2	35.7	-23.9	0	47.35	-	-	74	-26.65	73	178	V
* 7.391	25.06	MAv1	35.7	-24	.11	36.87	54	-17.13	-	-	73	178	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

10.3. WORST-CASE BELOW 30 MHz

SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



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)
4	.03551	43.25	Pk	12.5	1.4	-80	-22.85	56.6	-79.45	36.6	-59.45	0-360
5	.07123	38.44	Pk	11	1.4	-80	-29.16	50.55	-79.71	30.55	-59.71	0-360
1	.1901	48	Pk	10.8	1.5	-80	-19.7	42.02	-61.72	22.02	-41.72	0-360

Pk - Peak detector

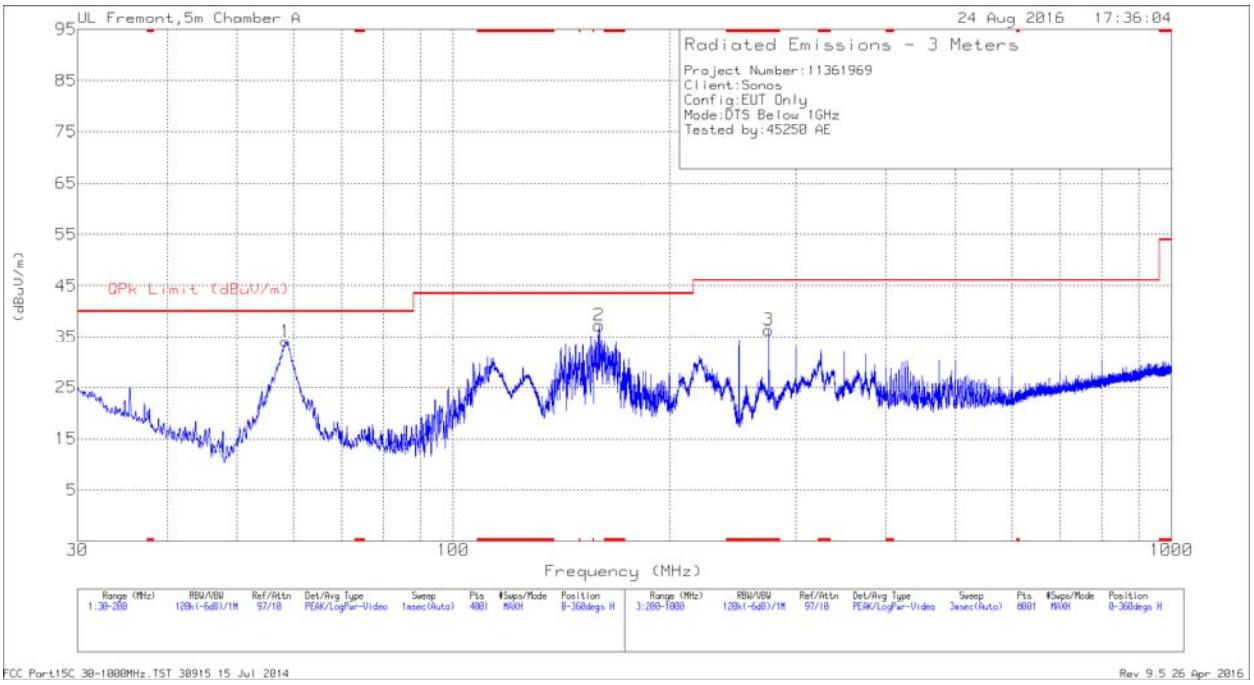
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (dB/m)	Cbl (dB)	Dist Corr 30m	Corrected Reading (dBuVolts)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
2	.99616	32.85	Pk	10.7	1.5	-40	5.05	27.64	-22.59	-	-	0-360
6	20.95362	20.22	Pk	9.9	1.7	-40	-8.18	29.54	-37.72	-	-	0-360
3	23.7785	15.19	Pk	9.4	1.7	-40	-13.71	29.54	-43.25	-	-	0-360

Pk - Peak detector

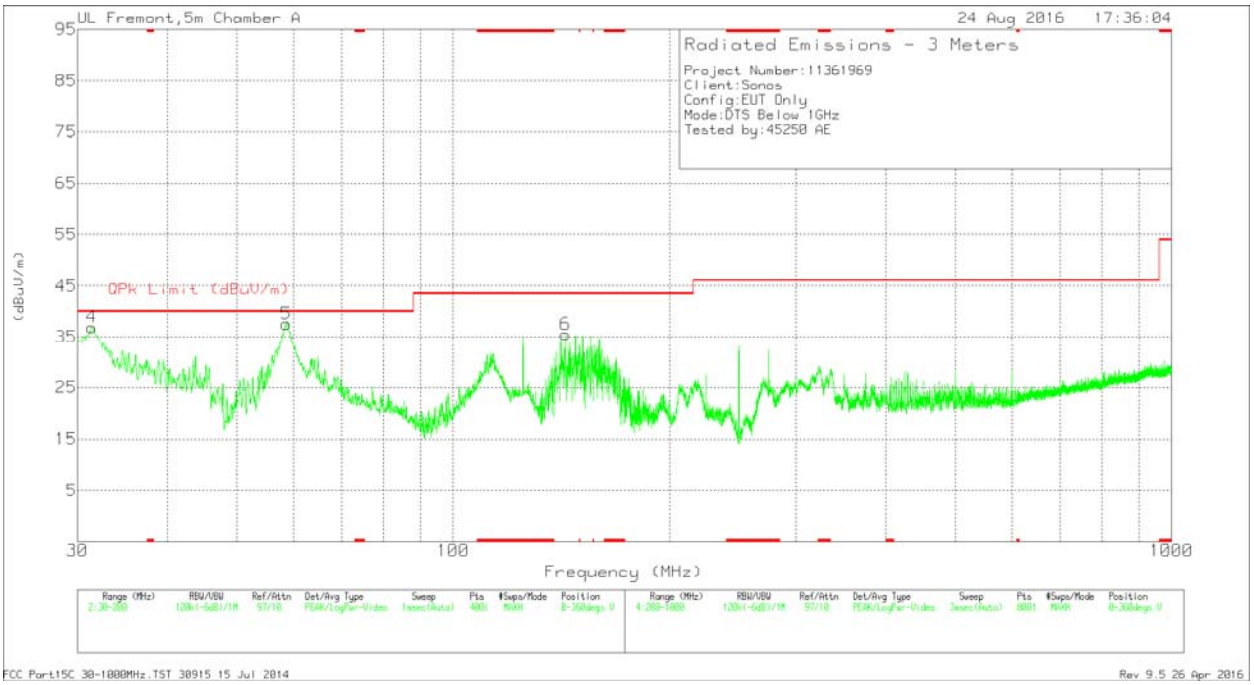
10.4. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T899 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 275	48.53	Pk	17.4	-29.5	36.43	46.02	-9.59	0-360	100	H
4	31.4025	43.7	Pk	24.4	-31.2	36.9	40	-3.1	0-360	100	V
1	58.4325	53.47	Pk	11.5	-30.9	34.07	40	-5.93	0-360	400	H
5	58.56	56.88	Pk	11.5	-30.9	37.48	40	-2.52	0-360	100	V
6	143.305	48.76	Pk	17	-30.3	35.46	43.52	-8.06	0-360	100	V
2	159.625	51.62	Pk	15.9	-30.2	37.32	43.52	-6.2	0-360	200	H

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

Radiated Emissions

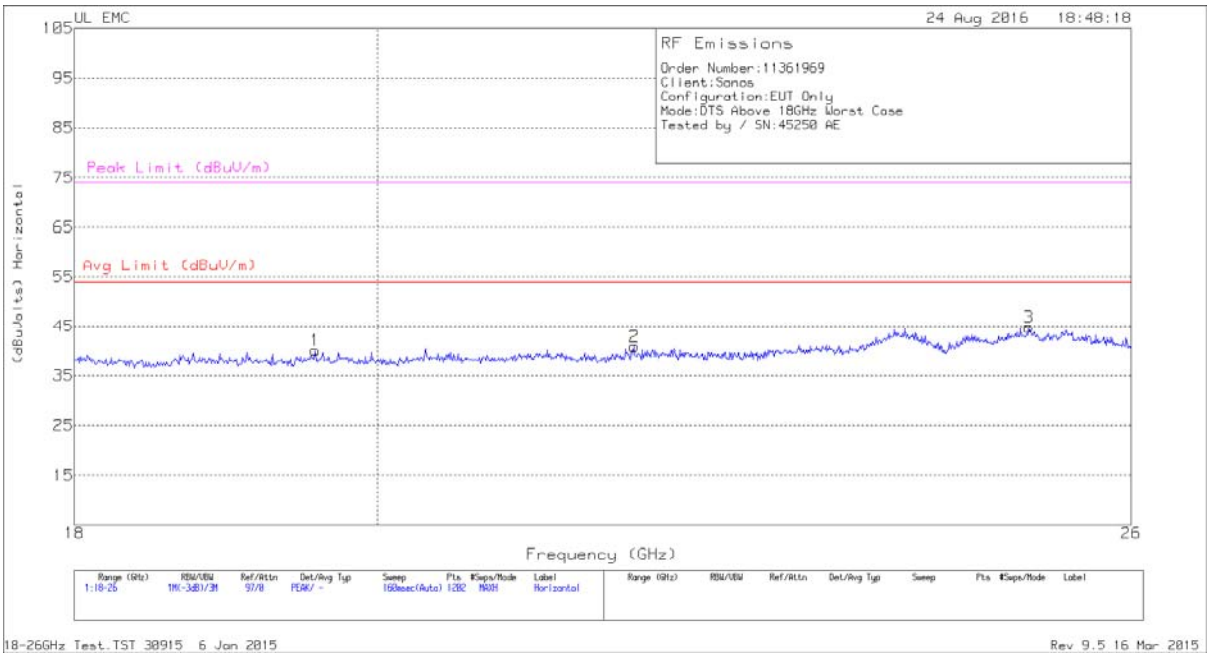
Frequency (MHz)	Meter Reading (dBuV)	Det	AF T899 (dB/m)	Amp/Cbl (dB/m)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
31.4735	40.51	Qp	24.3	-31.2	33.61	40	-6.39	301	103	V
58.6389	50.25	Qp	11.5	-30.9	30.85	40	-9.15	88	379	H
58.6976	53.43	Qp	11.5	-30.9	34.03	40	-5.97	30	104	V

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Qp - Quasi-Peak detector

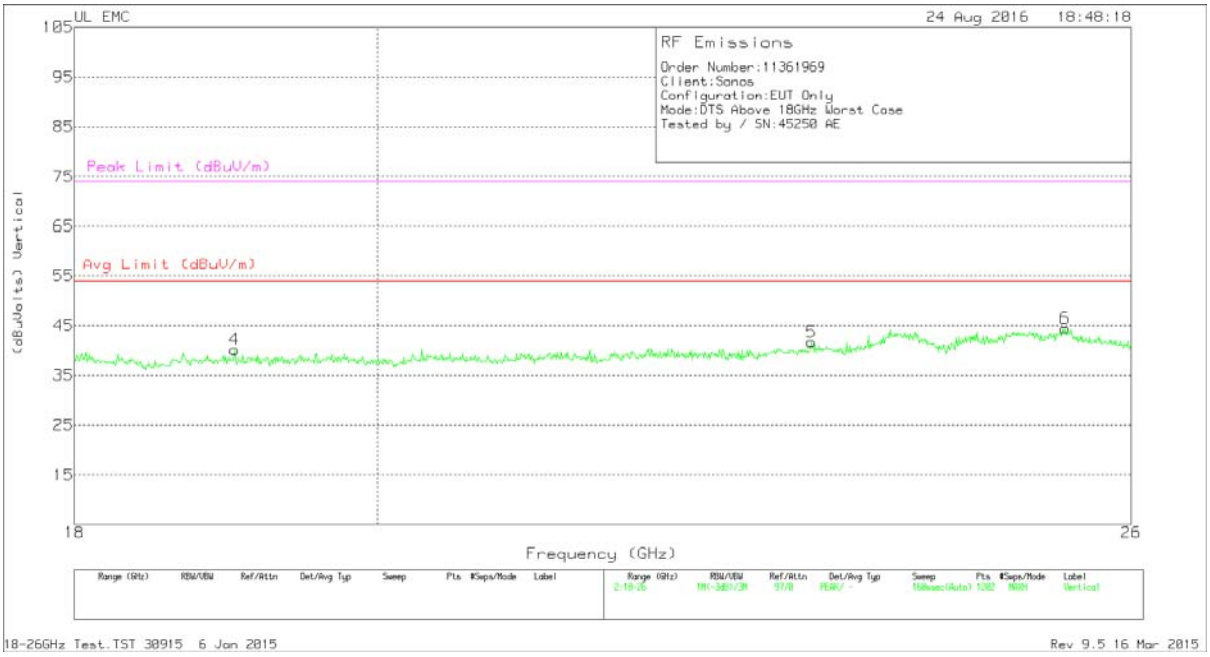
10.5. WORST-CASE 18 - 26 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T449 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.572	41.90	Pk	32.7	-25.1	-9.5	40.000	54	-14.000	74	-34.000
2	21.870	41.73	Pk	33.3	-24.7	-9.5	40.833	54	-13.167	74	-33.167
3	25.087	44.53	Pk	34.3	-24.5	-9.5	44.833	54	-9.167	74	-29.167
4	19.032	41.87	Pk	32.6	-24.8	-9.5	40.167	54	-13.833	74	-33.833
5	23.262	42.57	Pk	33.5	-24.9	-9.5	41.667	54	-12.333	74	-32.333
6	25.407	44.10	Pk	34.3	-24.4	-9.5	44.500	54	-9.500	74	-29.500

* - indicates frequency in CFR15.205/IC8.10 Restricted Band
Pk - Peak detector

11. CONDUCTED OUTPUT POWER Q VALUE SETTING

Q-Value Settings						
Mode	**Channel**	**Frequency (MHz)**	**Power Setting**	**Chain 0 Output Power (dBm)**	**Chain 1 Output Power (dBm)**	**Chain 2 Output Power (dBm)**
11b	1	2412	23.0	23.57	23.62	23.54
	6	2437	24.0	24.88	24.70	24.38
	11	2462	23.5	24.12	24.28	23.95
11g	1	2412	23.5	24.55	24.71	24.72
	6	2437	24.0	25.10	24.91	24.80
	11	2462	23.5	24.50	24.47	24.63
11n HT20	1	2412	23.5	24.21	24.82	24.47
	6	2437	24.0	25.00	24.78	24.89
	11	2462	23.5	24.52	24.56	24.42

Note: the Q-Values in the report per client requested are for future reference.

12. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	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.

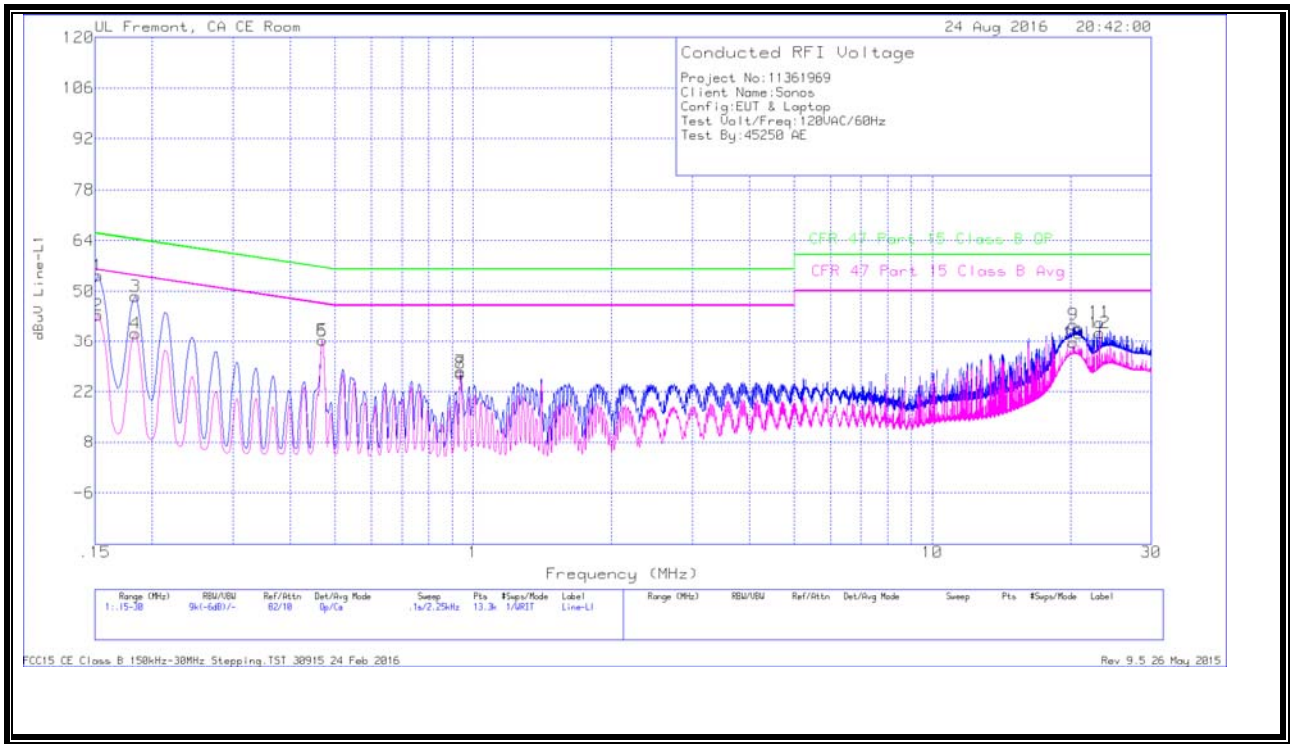
TEST PROCEDURE

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.

LINE 1 RESULTS



WORST EMISSIONS

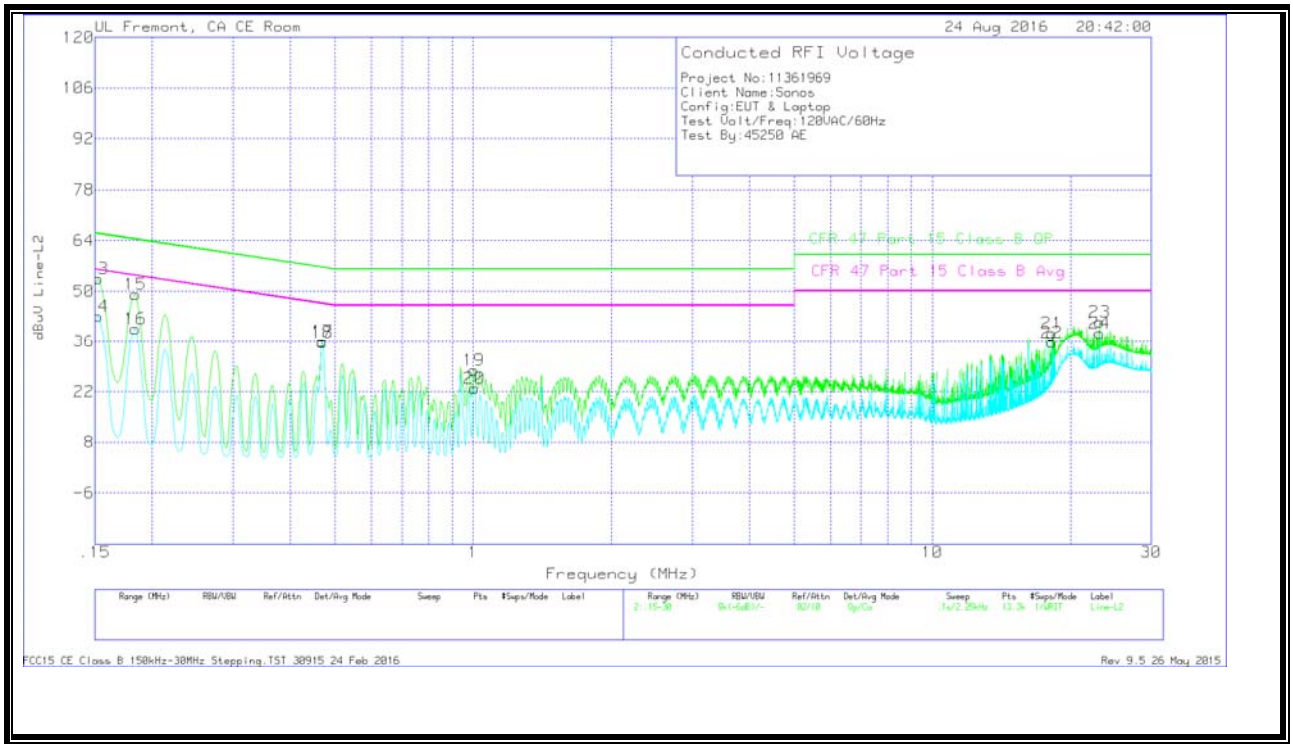
Range 1: Line-L1 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables 1&3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
1	.15225	44.12	Qp	.1	0	10.1	54.32	65.88	-11.56	-	-
2	.15225	33.12	Ca	.1	0	10.1	43.32	-	-	55.88	-12.56
3	.18375	38.48	Qp	0	0	10.1	48.58	64.31	-15.73	-	-
4	.18375	28.23	Ca	0	0	10.1	38.33	-	-	54.31	-15.98
5	.4695	26.25	Qp	0	0	10.1	36.35	56.52	-20.17	-	-
6	.4695	26.12	Ca	0	0	10.1	36.22	-	-	46.52	-10.3
7	.9375	17.48	Qp	0	0	10.1	27.58	56	-28.42	-	-
8	.9375	16.98	Ca	0	0	10.1	27.08	-	-	46	-18.92
9	20.25825	30.36	Qp	0	.2	10.3	40.86	60	-19.14	-	-
10	20.25825	25.09	Ca	0	.2	10.3	35.59	-	-	50	-14.41
11	23.12925	30.69	Qp	.1	.2	10.4	41.39	60	-18.61	-	-
12	23.12925	27.9	Ca	.1	.2	10.4	38.6	-	-	50	-11.4

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables 2&3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
13	.15225	43.4	Qp	0	0	10.1	53.5	65.88	-12.38	-	-
14	.15225	32.99	Ca	0	0	10.1	43.09	-	-	55.88	-12.79
15	.18375	38.95	Qp	0	0	10.1	49.05	64.31	-15.26	-	-
16	.18375	29.46	Ca	0	0	10.1	39.56	-	-	54.31	-14.75
17	.4695	25.91	Qp	0	0	10.1	36.01	56.52	-20.51	-	-
18	.4695	25.72	Ca	0	0	10.1	35.82	-	-	46.52	-10.7
19	1.00275	17.9	Qp	0	0	10.1	28	56	-28	-	-
20	1.00612	12.75	Ca	0	0	10.1	22.85	-	-	46	-23.15
21	18.24225	27.82	Qp	0	.2	10.3	38.32	60	-21.68	-	-
22	18.24225	25.31	Ca	0	.2	10.3	35.81	-	-	50	-14.19
23	23.12925	30.71	Qp	.1	.2	10.4	41.41	60	-18.59	-	-
24	23.12925	27.71	Ca	.1	.2	10.4	38.41	-	-	50	-11.59

Qp - Quasi-Peak detector

Ca - CISPR average detection