



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 1**

CERTIFICATION TEST REPORT

FOR

802.11 b/g/n 3x3 CLIENT DEVICE

MODEL NUMBER: S100

FCC ID: SBVRM010

IC ID: 5373A-RM010

REPORT NUMBER: 14U19239-E1 REVISION C

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SONOS Inc.
EUT DESCRIPTION: 802.11 b/g/n 3x3 Client Device
MODEL: S100
SERIAL NUMBER: 5C-AA-FD-08-03-E6-1
DATE TESTED: June 8-29, 2015

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.

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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, ANSI C63.10-2013 for IC and ANSI C63.10-2009 for FCC, RSS-GEN Issue 4, and RSS-247 Issue 1.

Testing for radiated emissions above 1GHz was performed with the EUT elevated at 1.5m instead of 0.8m. 1.5m is the required height in ANSI C63.10:2013 as referenced by RSS GEN issue 4. This test height has been permitted by FCC as discussed in FCC/TCB conference call in December 2014.

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: 2324B-4)
<input checked="" type="checkbox"/> Chamber B(IC: 2324B-2)	<input type="checkbox"/> Chamber E(IC: 2324B-5)
<input type="checkbox"/> Chamber C(IC: 2324B-3)	<input type="checkbox"/> Chamber F(IC: 2324B-6)
	<input type="checkbox"/> Chamber G(IC: 2324B-7)
	<input type="checkbox"/> Chamber H(IC: 2324B-8)

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:

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 18000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 802.11 b/g/n 3x3 Client Device.

EUT can enable different power table (section 14) for different orientation. All three orientations: horizontal, left vertical, right vertical have been investigated through radiated measurement (section 11.2; 11.3; 11.4) conducted test based on the highest power table.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Total Output Power (dBm)	Total Output Power (mW)
2412 - 2462	802.11b	21.3	134.90
2412 - 2462	802.11g	21	125.89
2412 - 2462	802.11n HT20	20.9	123.03

The transmitter has three different power tables for different position, all three conducted output power as follows:

Horizontal: Ant 0B 1A 2A

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm) Antenna 0B	Avg Pwr (dBm) Antenna 1A	Avg Pwr (dBm) Antenna 2A
2.4	802.11b	5.5 Mbps	1	2412	20.2	20.8	21.0
			6	2437	20.4	20.6	21.1
			11	2462	20.3	20.7	21.1
	802.11g	24 Mbps	1	2412	16.6	16.3	16.3
			6	2437	20.6	20.1	21.1
			11	2462	16.1	16.1	16.2
	802.11n (HT20)	MCS9	1	2412	16.7	16.3	16.5
			6	2437	20.5	20.6	21.1
			11	2462	16.2	16.7	16.8

Left Vertical 0A 1A 2A:

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm) Antenna 0A	Avg Pwr (dBm) Antenna 1A	Avg Pwr (dBm) Antenna 2A
2.4	802.11b	5.5 Mbps	1	2412	21.3	20.7	21.1
			6	2437	20.3	20.6	21.3
			11	2462	20.3	20.8	21.0
	802.11g	24 Mbps	1	2412	18.3	18.0	18.1
			6	2437	20.5	20.3	21.0
			11	2462	19.0	19.4	19.6
	802.11n (HT20)	MCS9	1	2412	17.1	17.0	17.1
			6	2437	20.4	20.3	20.9
			11	2462	15.9	16.4	16.5

Right Vertical: ANT 0B 1B 2B

Band (GHz)	Mode	Data Rate	Ch #	Freq. (MHz)	Avg Pwr (dBm) Antenna 0B	Avg Pwr (dBm) Antenna 1B	Avg Pwr (dBm) Antenna 2B
2.4	802.11b	5.5 Mbps	1	2412	21.1	21.1	20.7
			6	2437	20.7	21.0	20.8
			11	2462	20.6	21.4	20.6
	802.11g	24 Mbps	1	2412	16.2	16.2	15.6
			6	2437	20.5	21.2	20.7
			11	2462	17.0	17.6	17.1
	802.11n (HT20)	MCS9	1	2412	16.1	16.2	15.8
			6	2437	20.6	21.1	20.8
			11	2462	17.1	17.6	15.9

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes Six FPCB antennas for the 802.11b/g, 802.11n HT20 modes with maximum peak gains as described below:

BAND	Frequency (MHz)	Antenna/ Chain	Antenna Gain (dBi)
2.4 GHz/WiFi	2412 - 2462 MHz	ANT A - 0	2.9
		ANT A - 1	3.0
		ANT A - 2	3.1
		ANT B - 0	2.8
		ANT B - 1	3.9
		ANT B - 2	2.2

EUT have three orientations: left vertical, horizontal and right vertical.

For left vertical, EUT operate ANT A-1; ANT A-2; ANT A-0;
 For right vertical, EUT operate ANT B-1; ANT B-2; ANT B-0;
 For horizontal, EUT operate ANT B-0; ANT A-2; ANT A-1;

5.4. WORST-CASE CONFIGURATION AND MODE

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

The fundamental of the EUT was investigated in three orthogonal orientations horizontal, left vertical and right vertical, it was determined that Vertical Right orientation was worst-case orientation for harmonic; therefore, all harmonic radiated testing was performed with the EUT in Vertical Right orientation. And radiated band edge test on all three orientations.

Conducted test performed based on the Left vertical configuration since this one has the highest output power (ANT 0A 1A 2A).

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

802.11b mode: 5.5 Mbps

802.11g mode: 24 Mbps

802.11n HT20mode: MCS9

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Line cord	Sonos	N/A	N/A	N/A
Laptop	Lenovo	ThinkPad	N/A	N/A

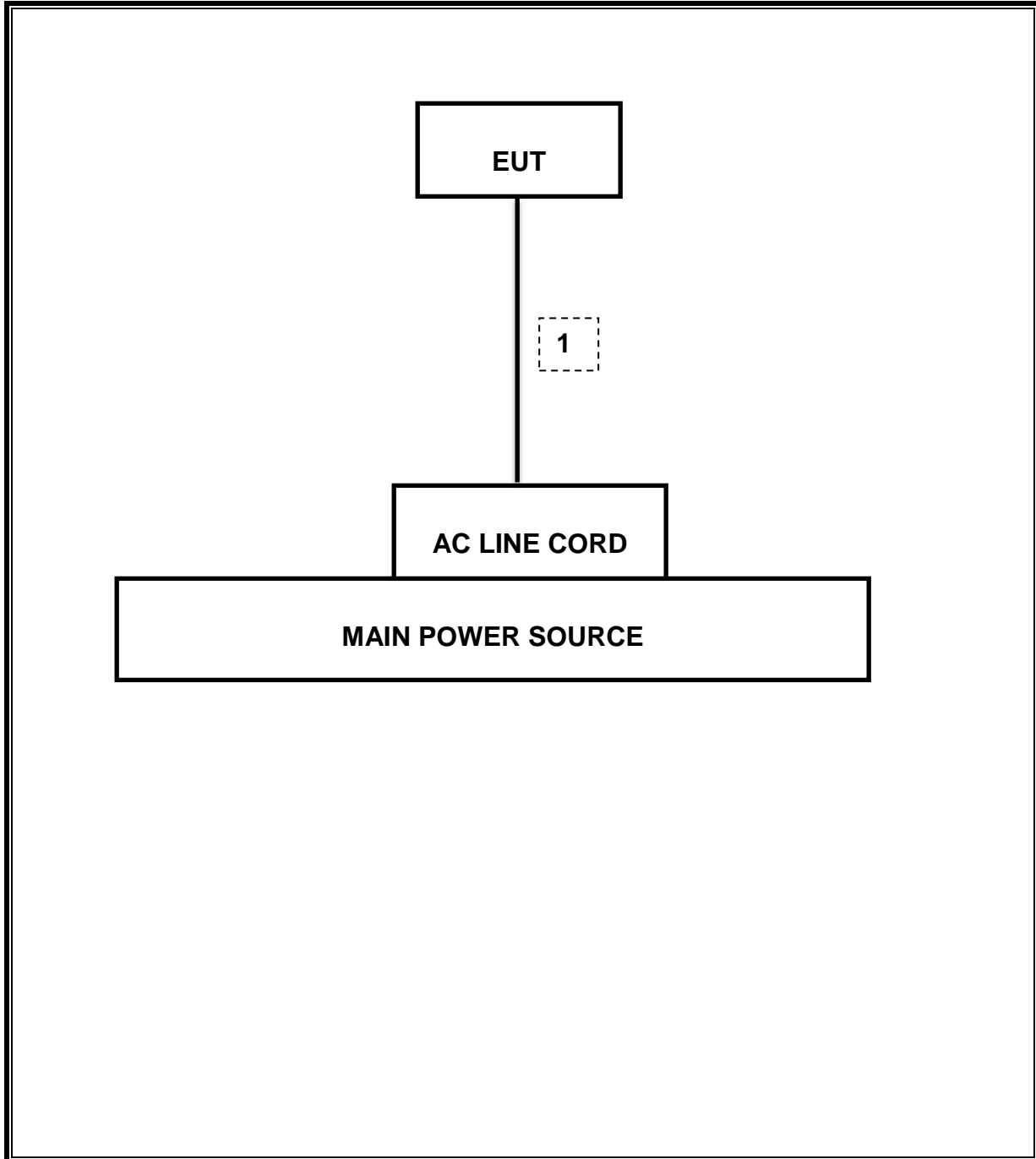
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Ethernet	1	RJ-45	Twisted pair	1.5m	N/A

TEST SETUP

The EUT is a stand-alone unit during the tests. Test software exercised the radio card.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/15
Spectrum Analyzer,9KHz-40GHz	HP	8564E	C00986	04/01/16
EMI Test Receiver, 9 kHz-7 GHz	R & S	ESCI 7	1000741	08/13/15
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	08/18/15
Peak Power Meter	Agilent / HP	E4416A	C00963	12/13/15
Peak / Average Power Sensor	Agilent / HP	E9327A	C00964	12/13/15
Antenna, Horn, 1-18 GHz	ETS	3117	C01022	02/21/16
Antenna, Horn,18- 26 GHz	ARA	MWH-1826/B	C00946	11/12/15
Antenna, Horn, 26-40 GHz	ARA	MWH-2640	C00891	06/28/15
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	T243	03/06/16
RF Preamplifier, 100KHz -> 1300MHz	HP	8447D	T10	01/06/16
RF Preamplifier, 1GHz - 18GHz	Miteq	NSP4000-SP2	924343	03/23/16
RF Preamplifier, 1GHz - 26.5GHz	HP	8449B	F00351	06/27/15
AC Power Supply, 2,500VA 45-500Hz	Elgar-Ametek	CW2501M	F00013	CNR
RF Preamplifier, 1GHz - 40GHz	Miteq	NSP4000-SP2	C00990	08/20/15
Attenuator / Switch driver	HP	11713A	F00204	CNR
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	T420	04/29/16
High Pass Filter 3GHz	Micro-Tronics	HPS17543	T426	04/29/16
High Pass Filter 6GHz	Micro-Tronics	HPS17542	T424	04/29/16

Test Software List			
Description	Manufacturer	Model	Version
Radiated Software	UL	UL EMC	Version 9.5, 07/22/14
Conducted Software	UL	UL EMC	Version 9.5, 05/17/14
CLT Software	UL	UL RF	Version 1.0, 02/02/15
Antenna Port Software	UL	UL RF	Version 2.1.1.1, 1/20/15

7. MEASUREMENT METHODS

KDB 558074 D01 DTS Meas Guidance v03r03:Measurement Procedure PK2 is used for power and PKPSD is used for power spectral density.

Unwanted emissions within Restricted Bands are measured using traditional radiated procedures.

Band edge emissions within Restricted Bands are measured using RMS with duty cycle factor offset method.

8. ON TIME, DUTY CYCLE AND MEASUREMENT METHODS

LIMITS

None; for reporting purposes only.

PROCEDURE

KDB 789033 Zero-Span Spectrum Analyzer Method.

8.1. ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
802.11b	2.280	2.325	0.981	98.1%	0.00	0.010
802.11g	0.523	0.576	0.908	90.8%	0.42	1.912
802.11n HT20	0.503	0.555	0.906	90.6%	0.43	1.988

9. SUMMARY TABLE

FCC Part Section	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Worst Case
15.247 (a)(2)	RSS-247 5.2.1	Occupied Band width (6dB)	>500KHz	Conducted	Pass	10 MHz
2.1051, 15.247 (d)	RSS-247 5.5	Band Edge / Conducted Spurious Emission	-20dBm		Pass	-23.74 dBm
15.247	RSS-247 5.4.4	TX conducted output power	<30dBm		Pass	25.81 dBm
15.247	RSS-247 5.2.2	PSD	<8dBm		Pass	2.32 dBm
15.207 (a)	RSS-GEN 8.8	AC Power Line conducted emissions	Section 10	Radiated	Pass	54.38 dBuV
15.205, 15.209	RSS-GEN 8.9/7	Radiated Spurious Emission	< 54dBuV/m		Pass	53.96 dBuV/m

10. ANTENNA PORT TEST RESULTS

Note: Conducted test performed based on the Left vertical configuration since this one has the highest output power (ANT 0A 1A 2A).

10.1. 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

Reference to KDB 558074 D01 DTS Meas Guidance v03r03: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW $\geq 3 \times$ RBW, peak detector and max hold.

RESULTS

10.1.1. 802.11b MODE IN THE 2.4 GHz BAND

Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	2412	10.30	10.00	10.30	0.5
Mid	2437	10.16	10.13	10.81	0.5
High	2462	10.42	10.30	10.24	0.5

10.1.2. 802.11g MODE IN THE 2.4 GHz BAND

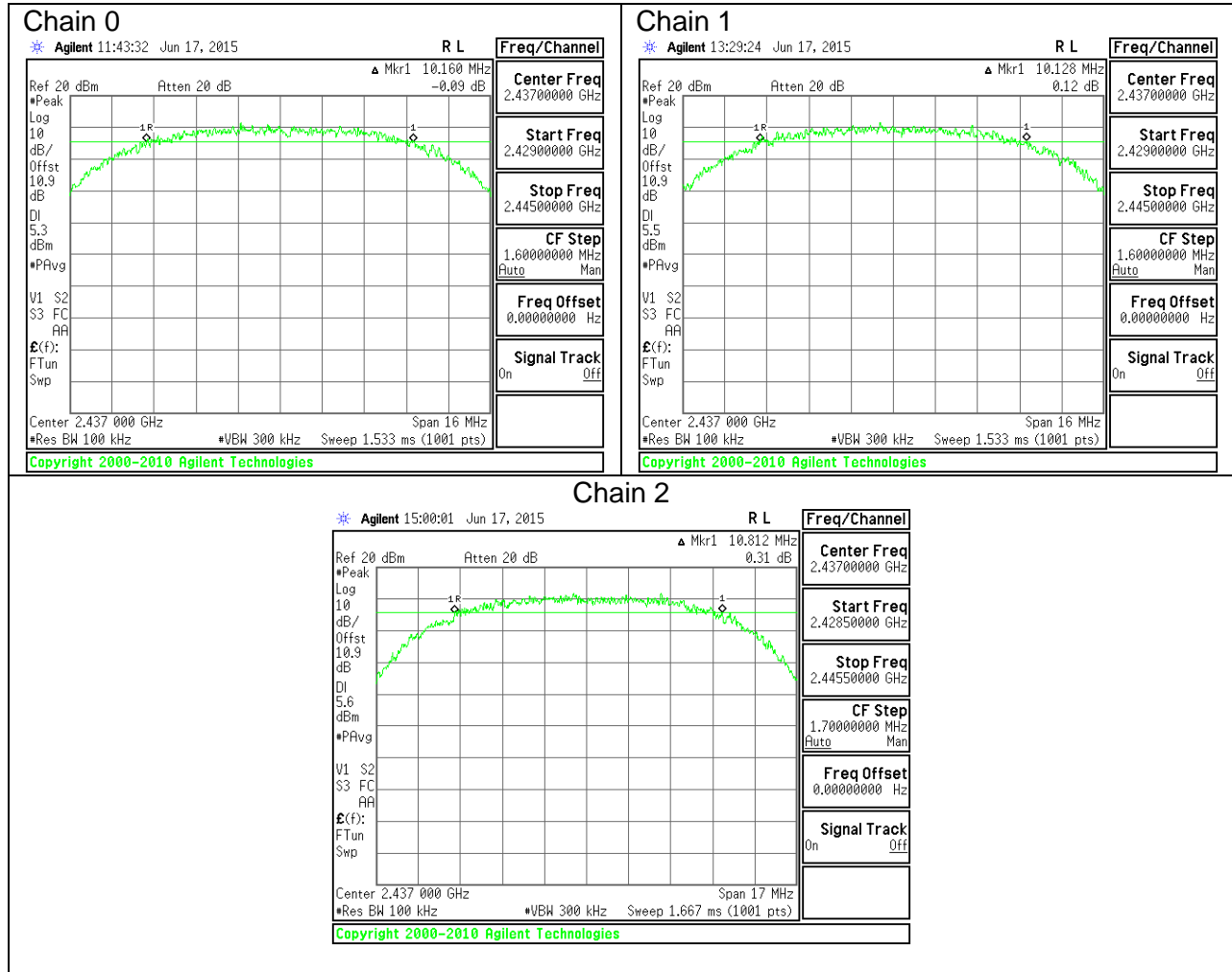
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	2412	16.50	16.50	16.45	0.5
Mid	2437	16.48	16.45	16.48	0.5
High	2462	16.45	16.48	16.43	0.5

10.1.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

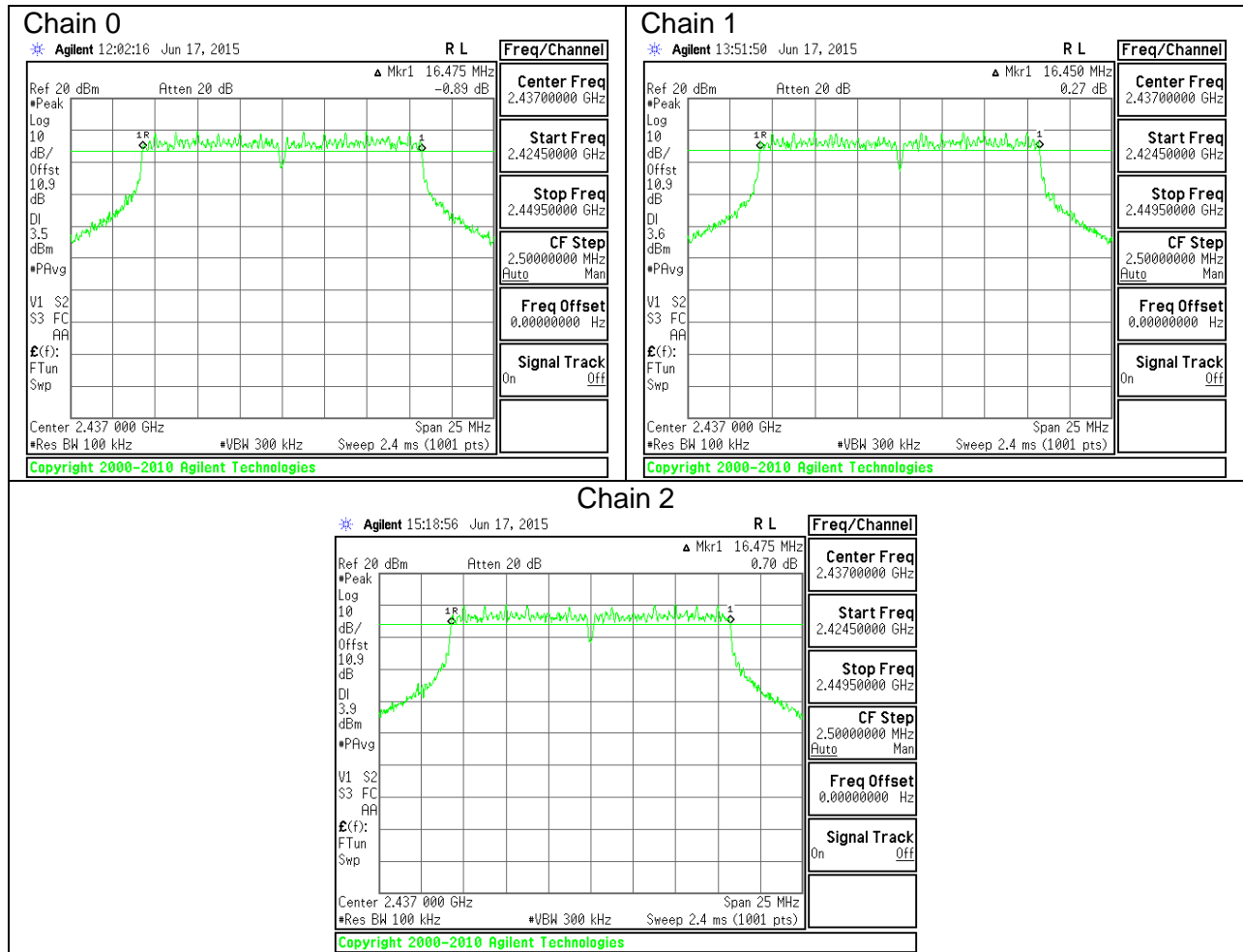
Channel	Frequency (MHz)	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	6 dB BW Chain 2 (MHz)	Minimum Limit (MHz)
Low	2412	17.66	17.71	17.69	0.5
Mid	2437	17.66	17.69	17.77	0.5
High	2462	17.63	17.69	17.71	0.5

10.1.4. 6 dB BANDWIDTH MID CH PLOTS

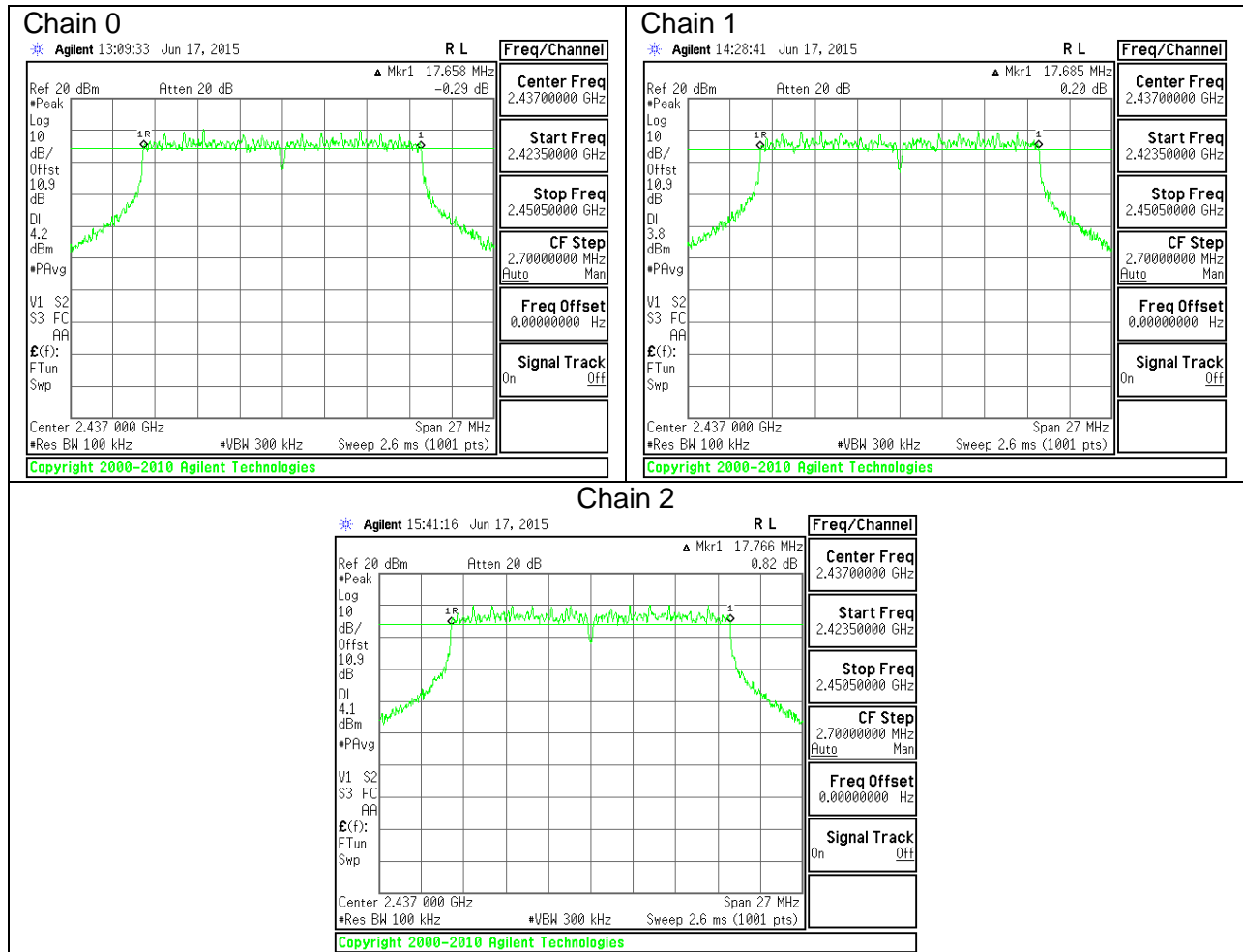
11b mode



11g mode



11n HT20 Mode



10.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

RESULTS

10.2.1. 802.11b MODE IN THE 2.4 GHZ BAND

Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	2412	13.67	13.69	13.71
Mid	2437	13.71	13.66	13.68
High	2462	13.66	13.68	13.66

10.2.2. 802.11g MODE IN THE 2.4 GHZ BAND

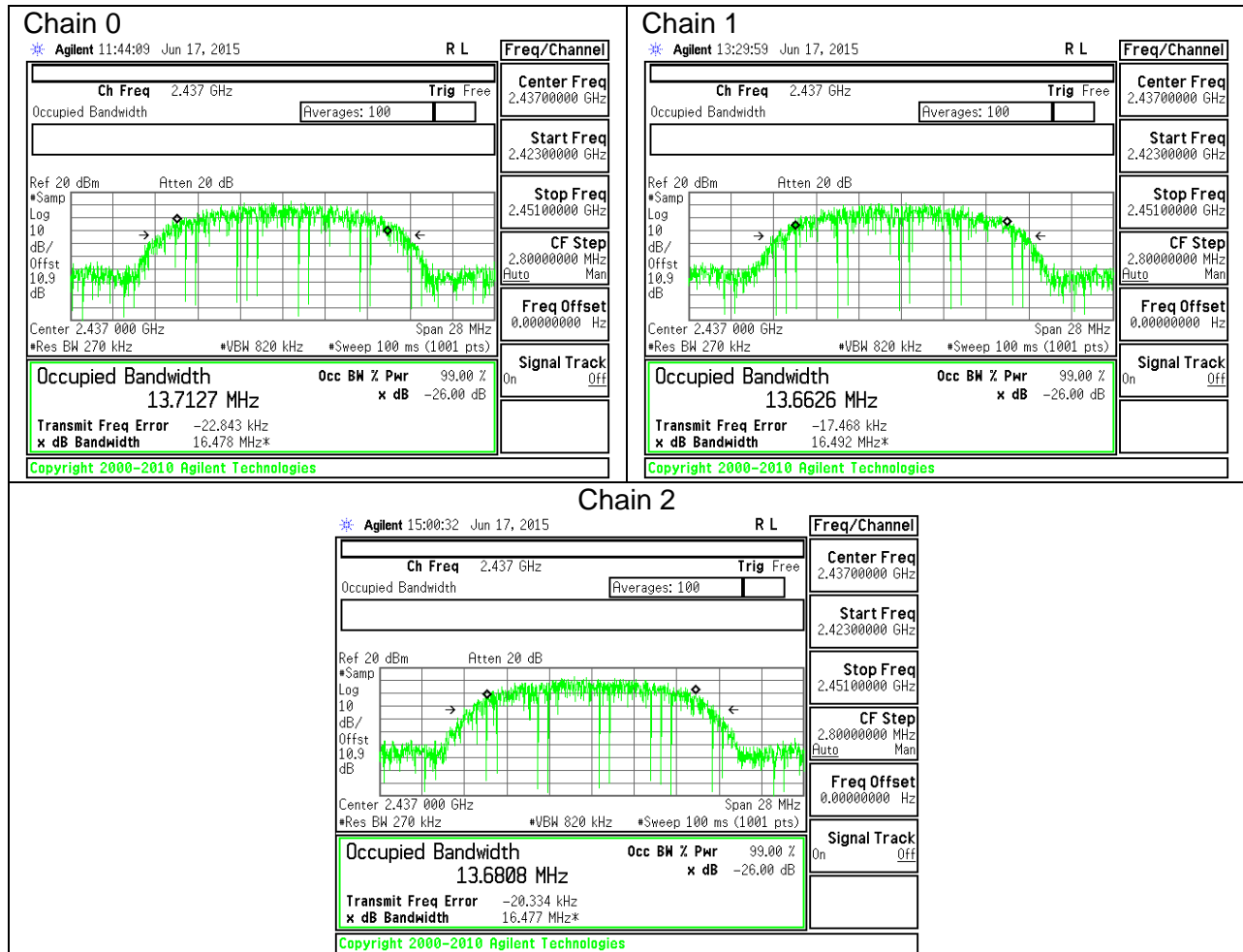
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	2412	16.53	16.51	16.51
Mid	2437	16.53	16.53	16.51
High	2462	16.52	16.54	16.52

10.2.3. 802.11n HT20 MODE IN THE 2.4 GHZ BAND

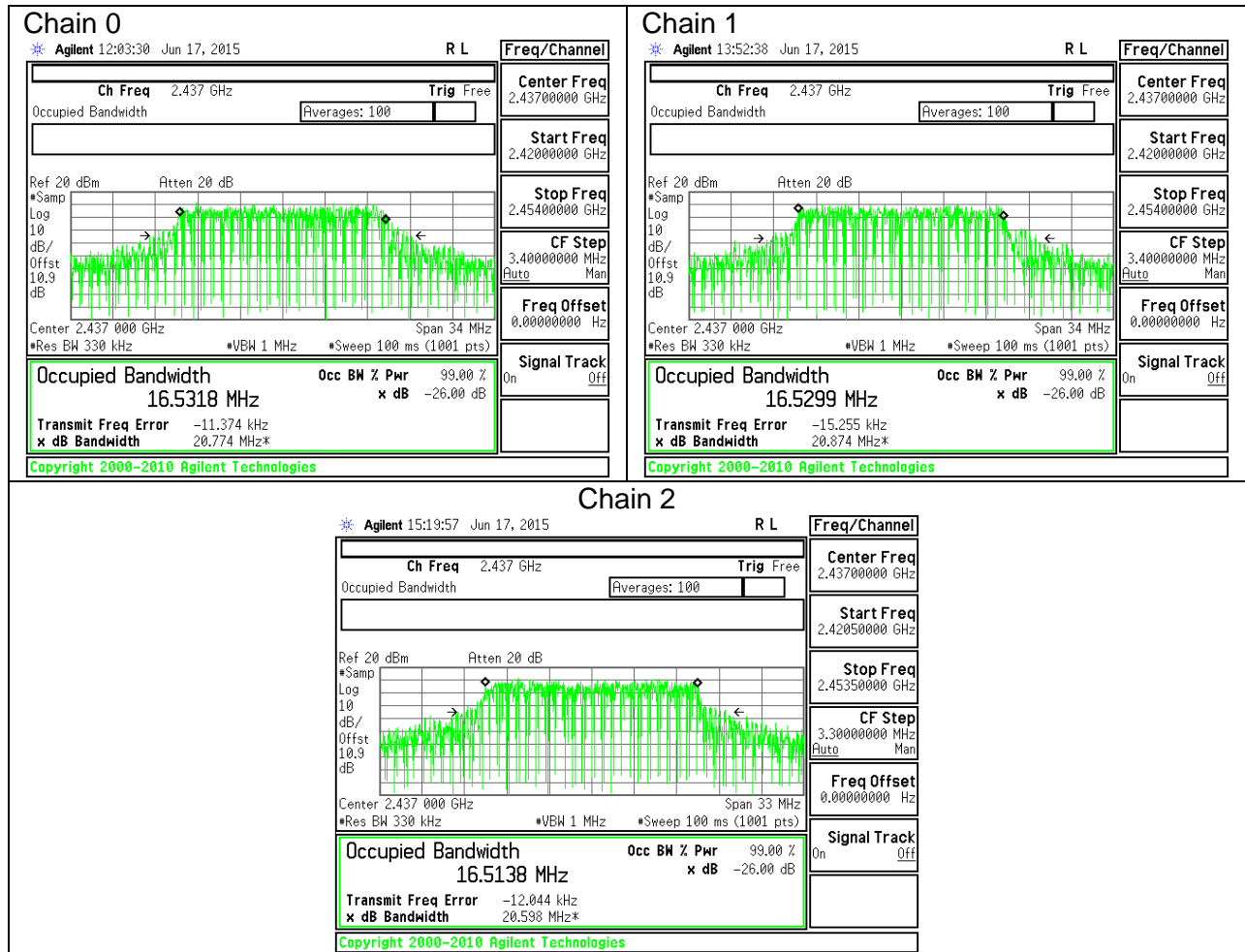
Channel	Frequency (MHz)	99% BW Chain 0 (MHz)	99% BW Chain 1 (MHz)	99% BW Chain 2 (MHz)
Low	2412	17.71	17.71	17.71
Mid	2437	17.73	17.71	17.71
High	2462	17.71	17.71	17.70

10.2.4. 99% BANDWIDTH MID CH PLOTS

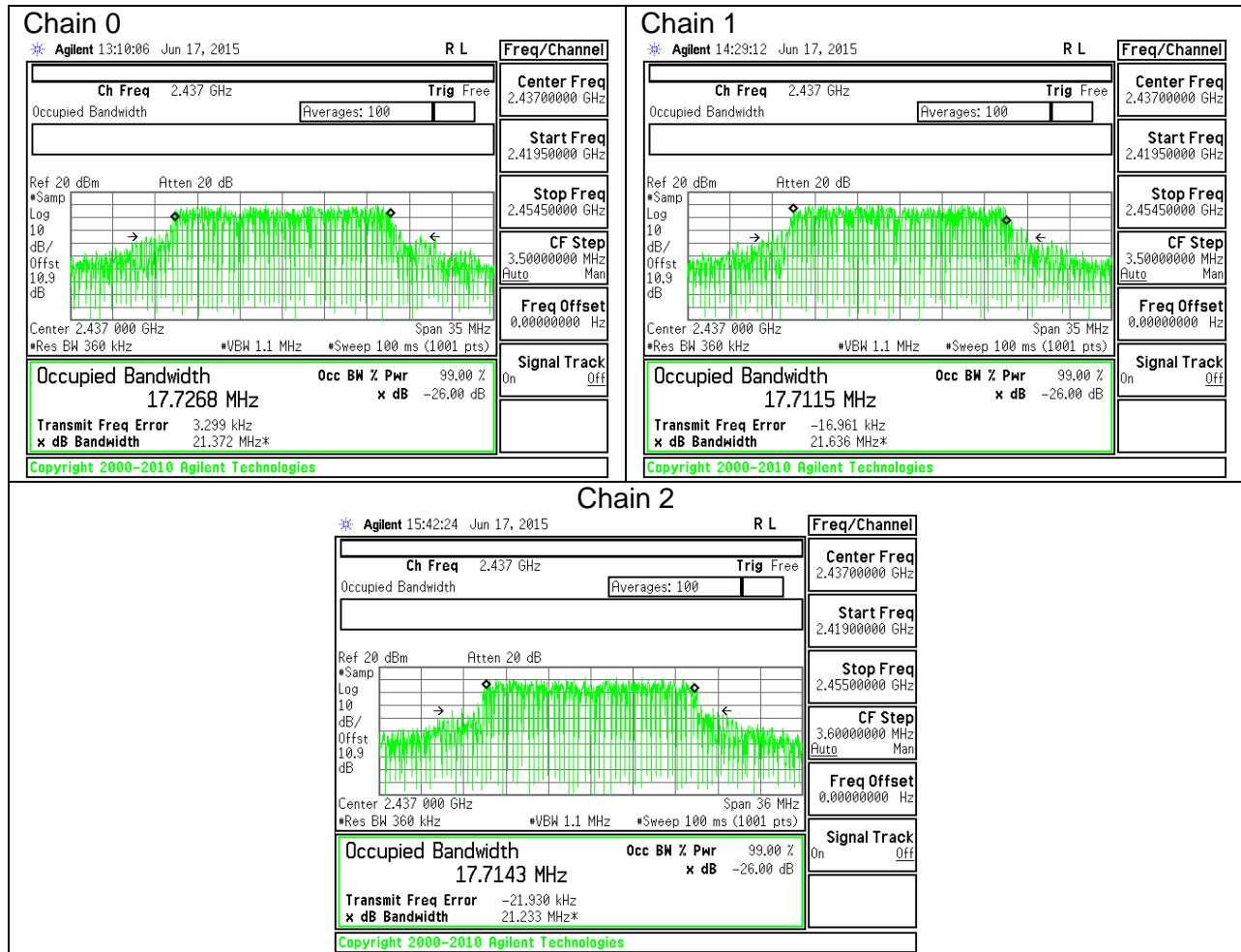
11b mode



11g mode



11n HT20 Mode



10.3. OUTPUT POWER

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:

Use this table for uncorrelated chains and unequal antenna gain
 Left vertical

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.90	3.00	3.10	3.00

Right vertical (worst case)

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.80	3.90	2.20	3.02

Horizontal

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Chain 2 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)
2.80	3.00	3.10	2.97

RESULTS

10.3.1. 802.11b MODE IN THE 2.4 GHZ 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	3.00	30.00	30	36	30.00
Mid	2437	3.00	30.00	30	36	30.00
High	2462	3.00	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	21.3	20.7	21.1	25.81	30.00	-4.19
Mid	2437	20.3	20.6	21.3	25.53	30.00	-4.47
High	2462	20.3	20.8	21	25.48	30.00	-4.52

10.3.2. 802.11g MODE IN THE 2.4 GHZ 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	3.00	30.00	30	36	30.00
Mid	2437	3.00	30.00	30	36	30.00
High	2462	3.00	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	18.30	18.00	18.1	22.91	30.00	-7.09
Mid	2437	20.50	20.30	21	25.38	30.00	-4.62
High	2462	19.00	19.40	19.6	24.11	30.00	-5.89

10.3.3. 802.11n HT20 MODE IN THE 2.4 GHz 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	3.00	30.00	30	36	30.00
Mid	2437	3.00	30.00	30	36	30.00
High	2462	3.00	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	17.1	17	17.1	21.84	30.00	-8.16
Mid	2437	20.4	20.3	20.9	25.31	30.00	-4.69
High	2462	15.9	16.4	16.5	21.05	30.00	-8.95

10.4. 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.

RESULTS

10.4.1. 802.11b MODE IN THE 2.4 GHZ BAND

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	-2.27	-2.81	-2.30	2.32	8.0	-5.7
Mid	2437	-2.93	-2.77	-2.20	2.15	8.0	-5.9
High	2462	-2.83	-2.48	-2.20	2.27	8.0	-5.7

10.4.2. 802.11g MODE IN THE 2.4 GHZ BAND

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	-5.74	-6.72	-6.43	-1.11	8.0	-9.1
Mid	2437	-4.16	-3.60	-3.04	1.59	8.0	-6.4
High	2462	-5.59	-5.50	-4.95	-0.17	8.0	-8.2

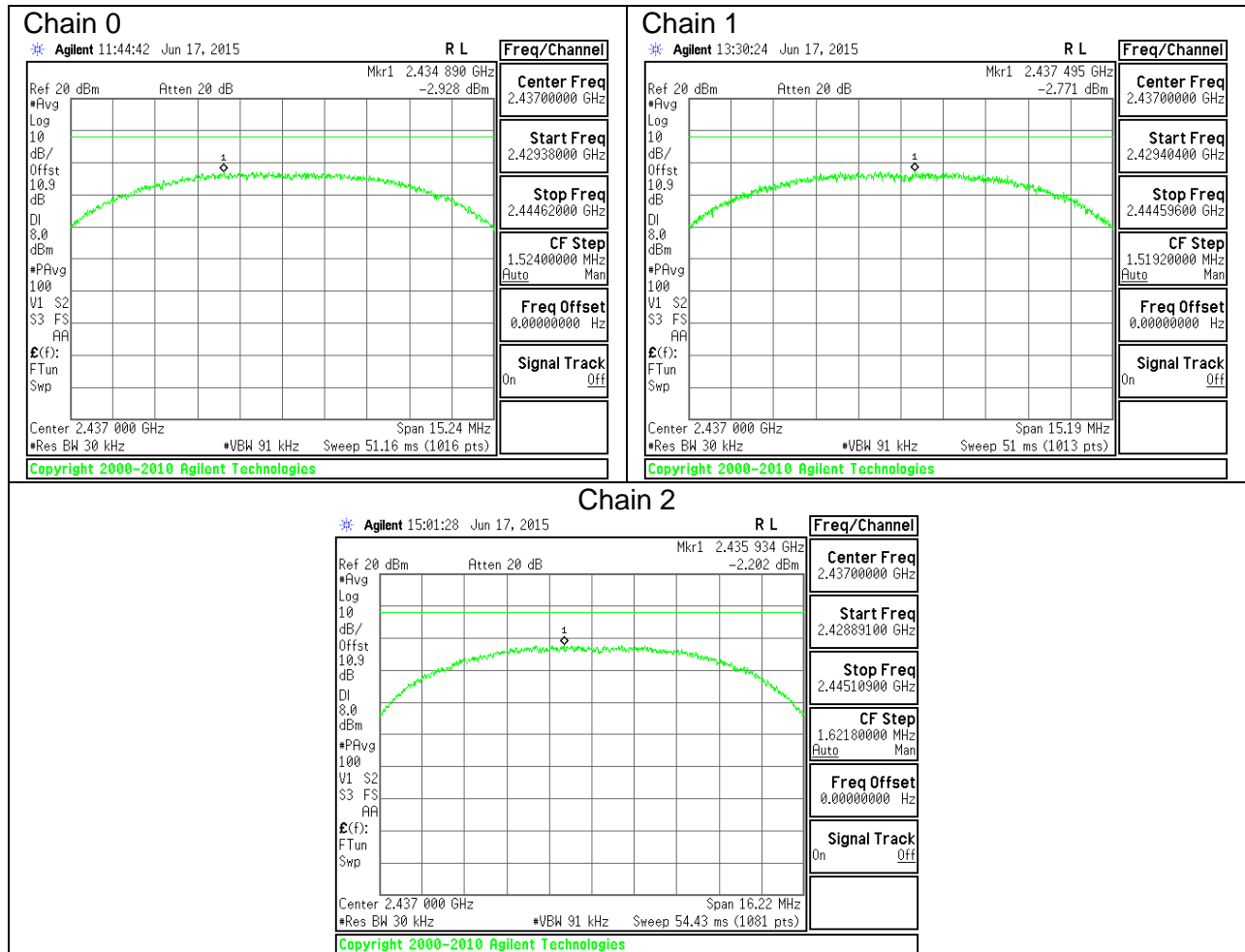
10.4.3. 802.11n HT20 MODE IN THE 2.4 GHz BAND

PSD Results

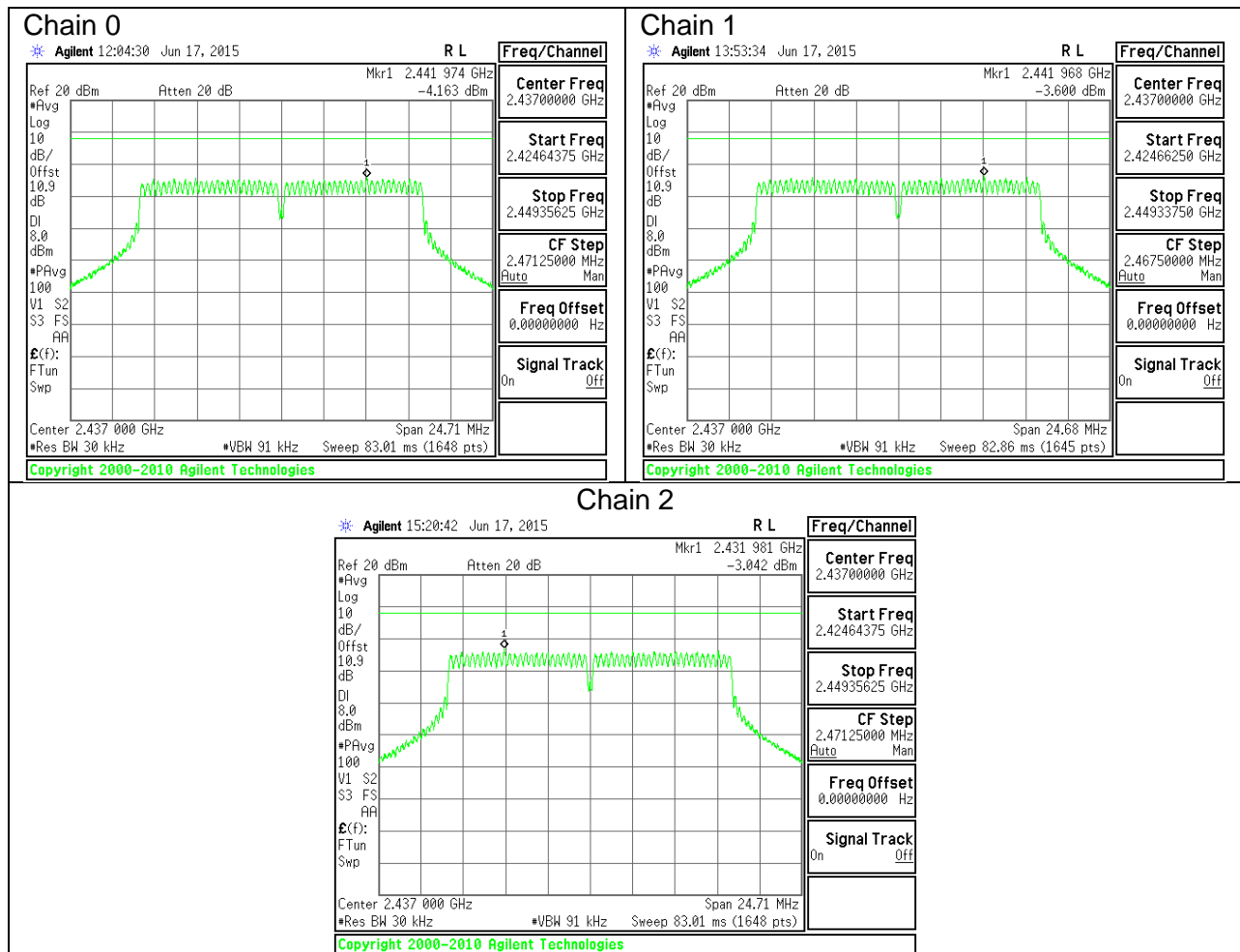
Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Chain 2 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low	2412	-6.74	-7.94	-7.87	-2.29	8.0	-10.3
Mid	2437	-3.65	-3.66	-3.66	1.53	8.0	-6.5
High	2462	-8.37	-8.00	-8.15	-2.98	8.0	-11.0

10.4.4. PSD MID CH PLOTS

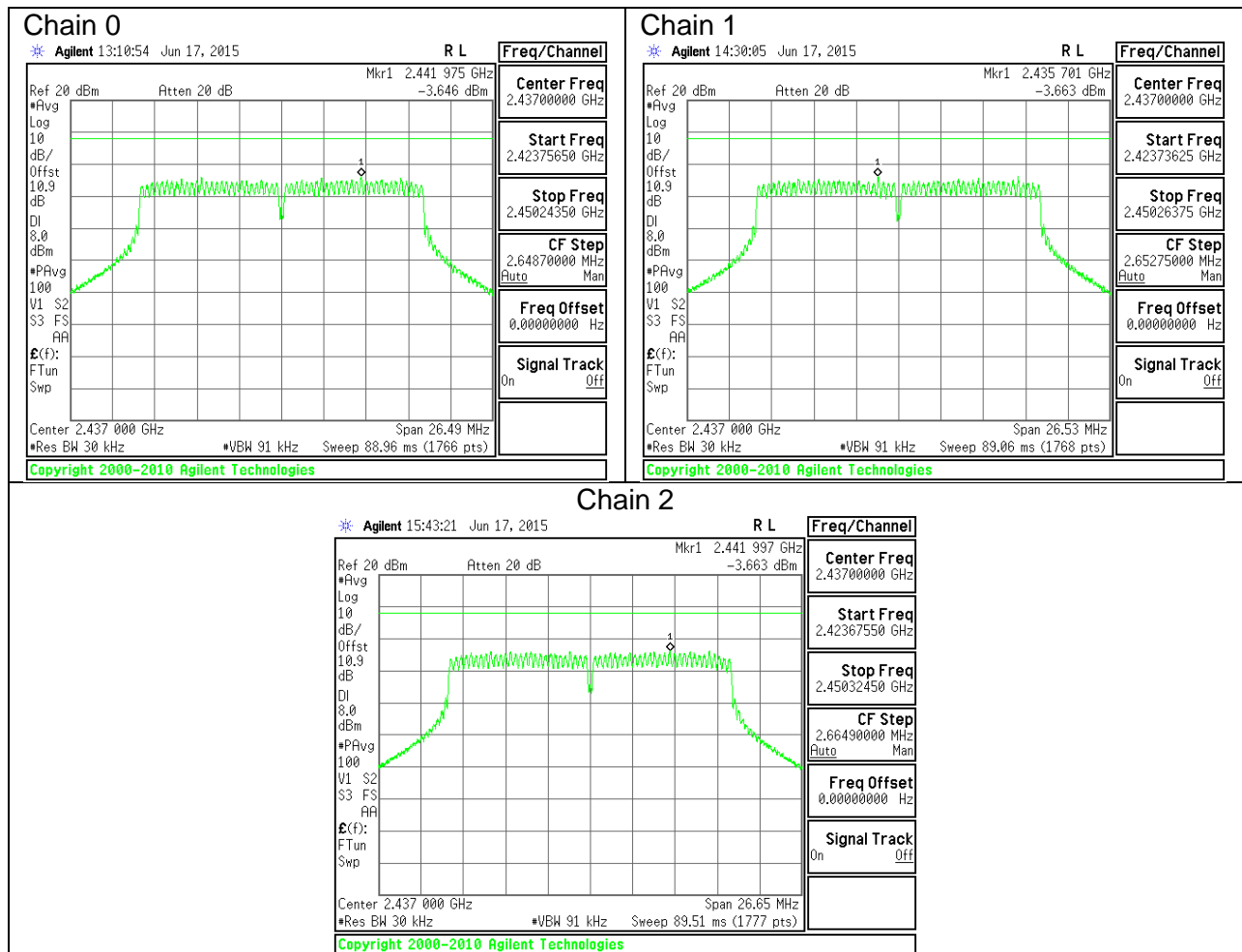
11b mode



11g mode



11n HT20 Mode



10.5. 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.

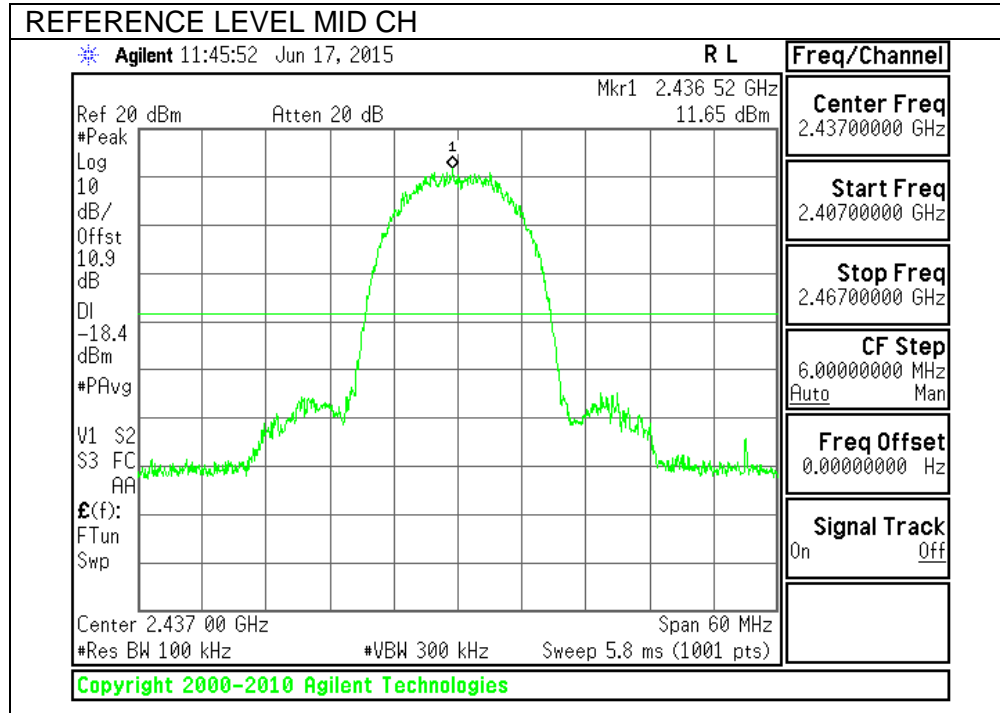
TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer with RBW = 100 kHz, VBW = 300 kHz, peak detector, and max hold. Measurements utilizing these settings are made of the in-band reference level, bandedge (where measurements to the general radiated limits will not be made) and out-of-band emissions.

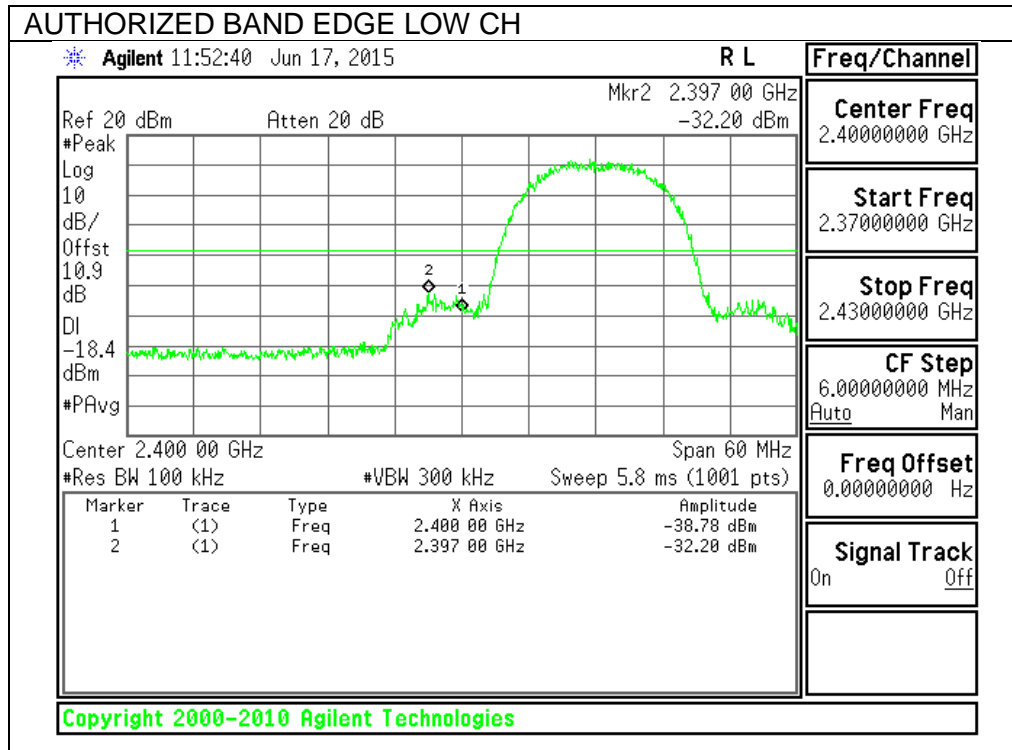
RESULTS

10.5.1. 802.11b MODE IN THE 2.4 GHz BAND CHAIN 0

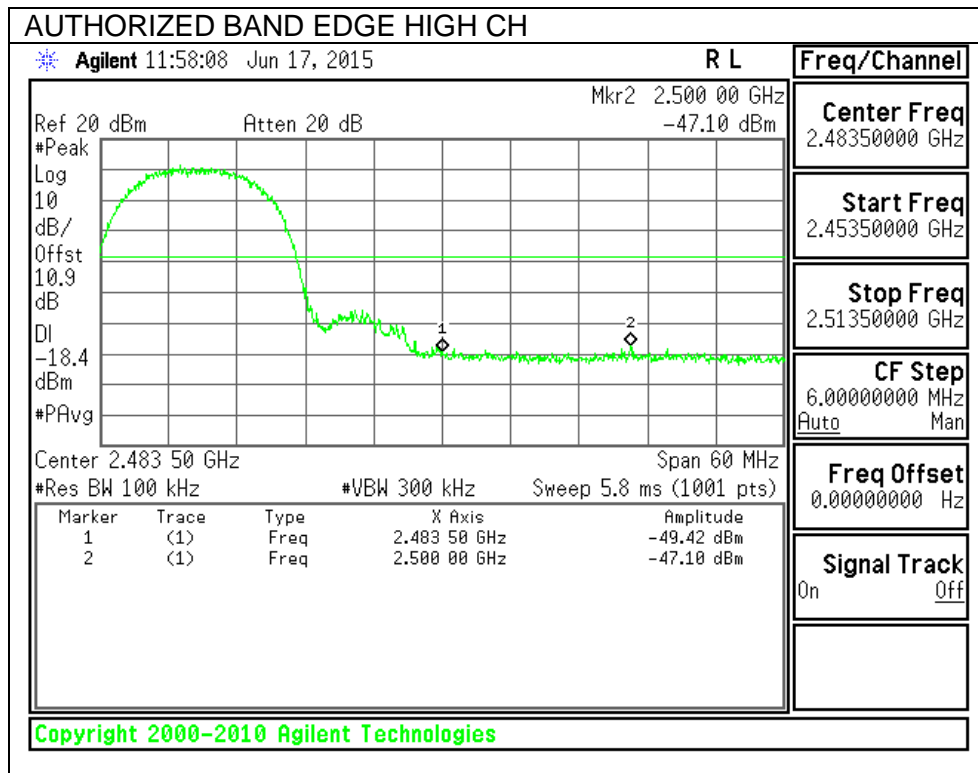
IN-BAND REFERENCE LEVEL



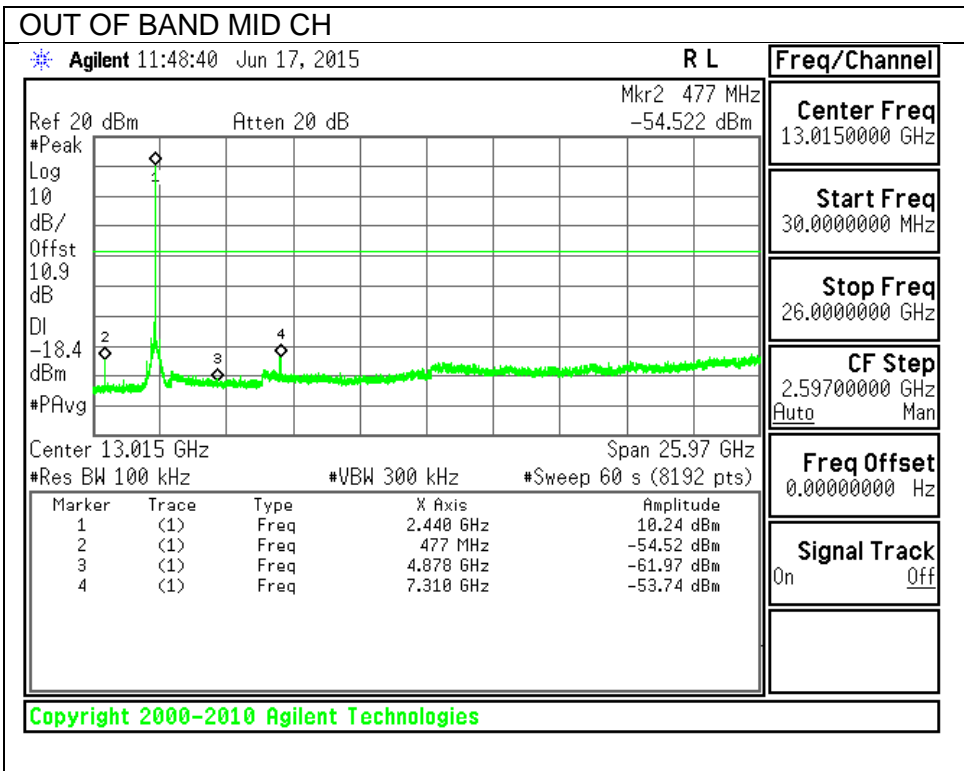
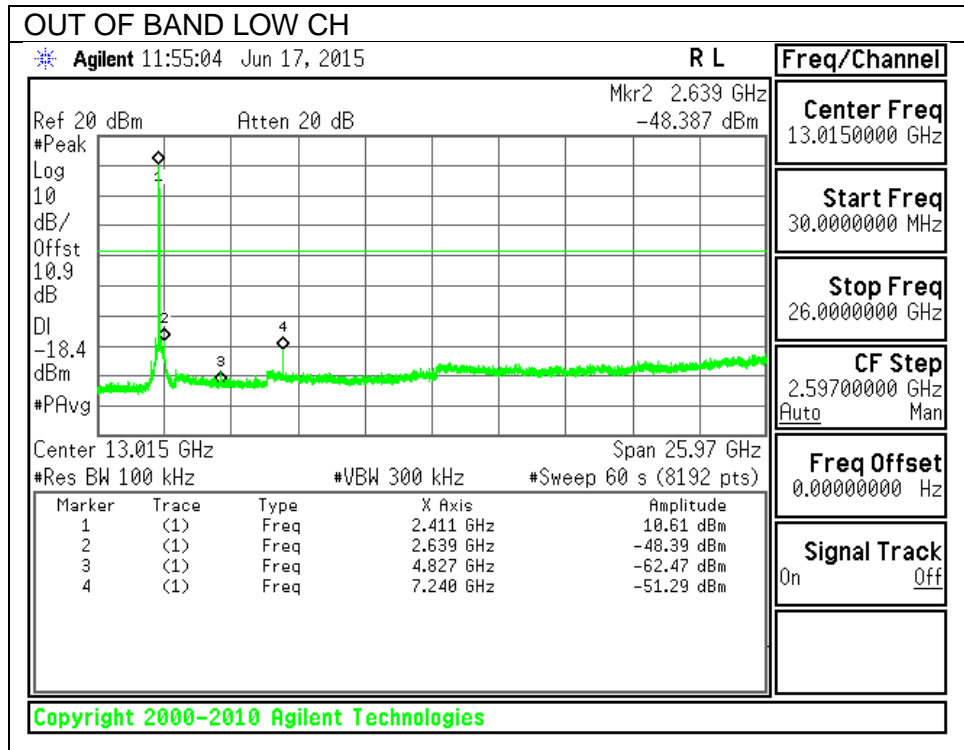
LOW CHANNEL BANDEDGE

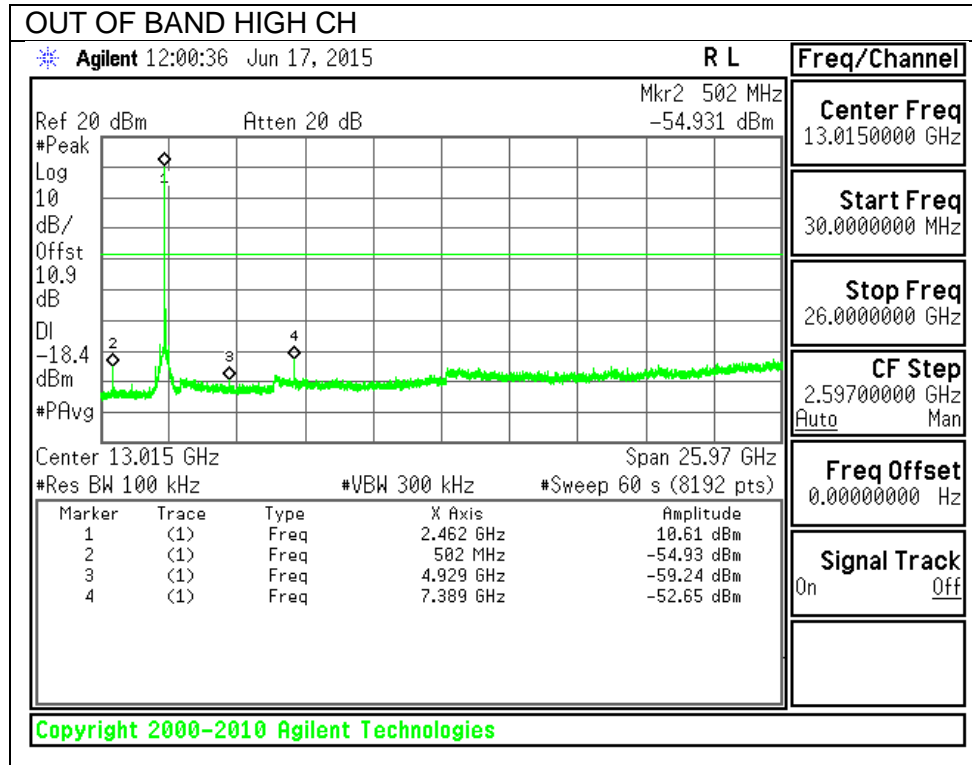


HIGH CHANNEL BANDEDGE



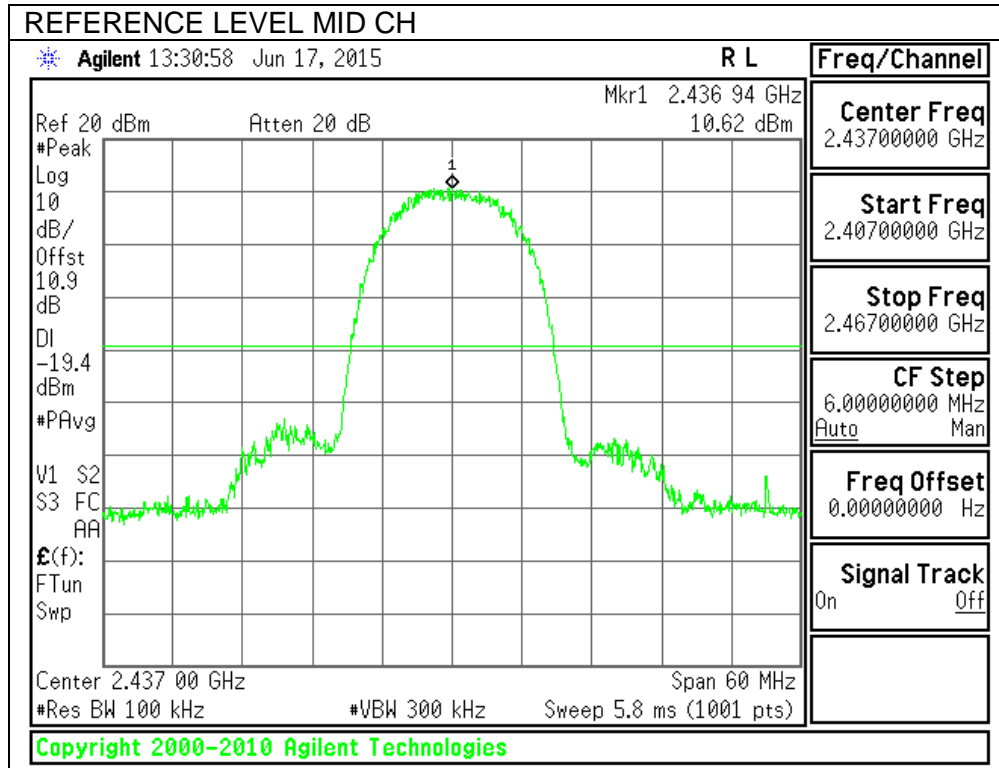
OUT-OF-BAND EMISSIONS



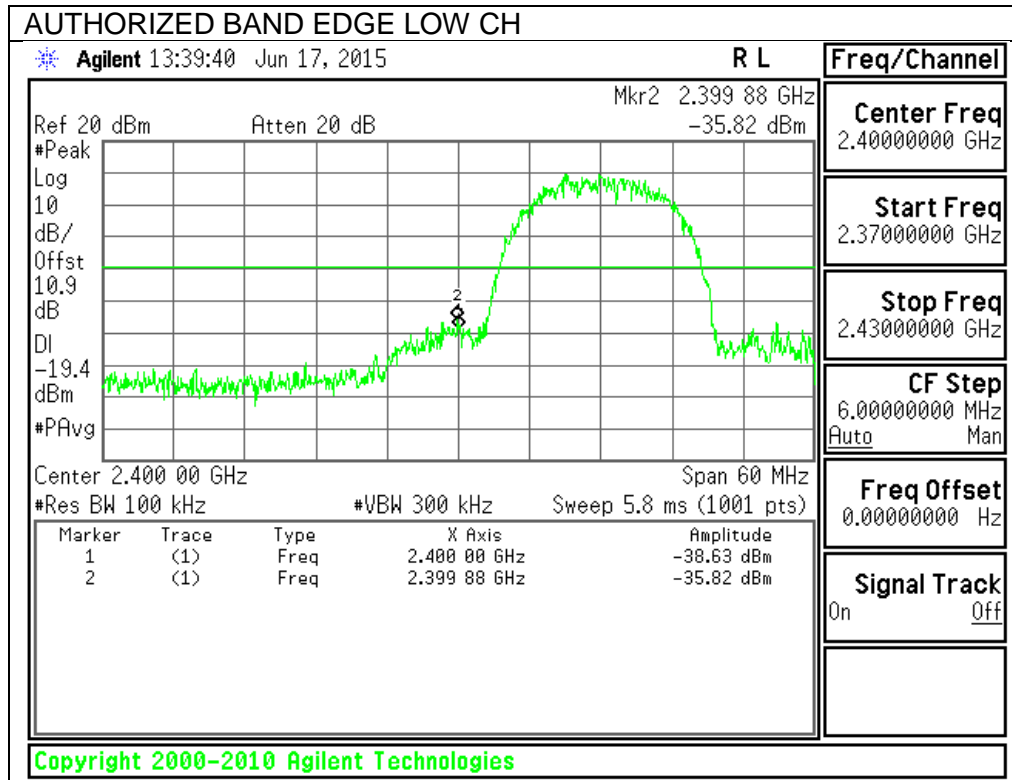


10.5.2. 802.11b MODE IN THE 2.4 GHz BAND CHAIN 1

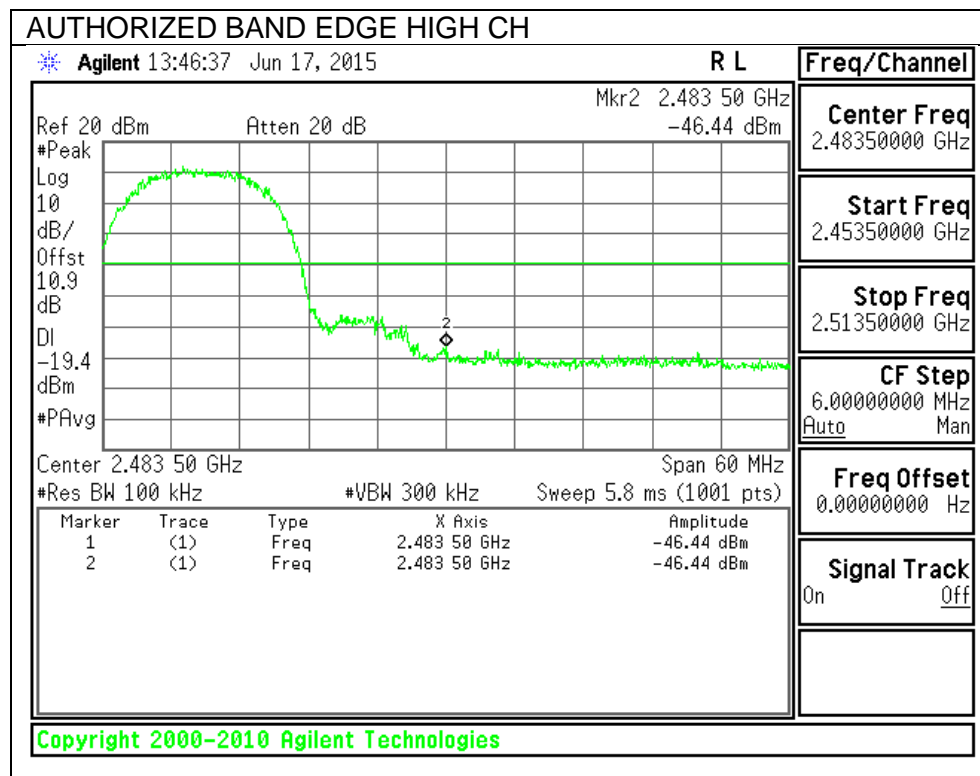
IN-BAND REFERENCE LEVEL



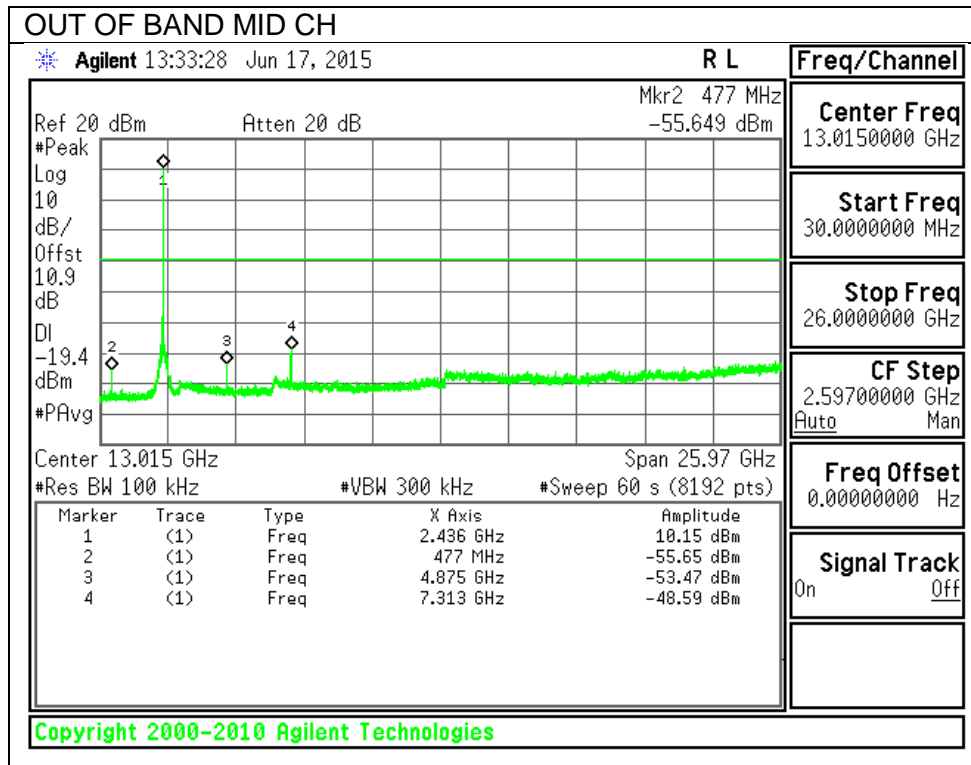
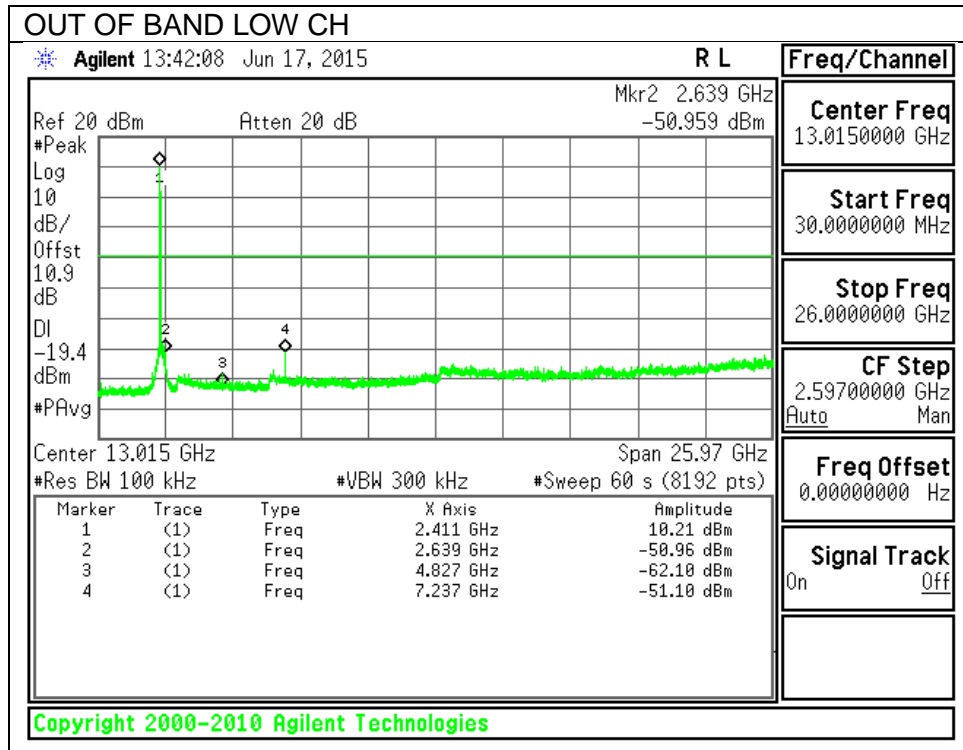
LOW CHANNEL BANDEDGE

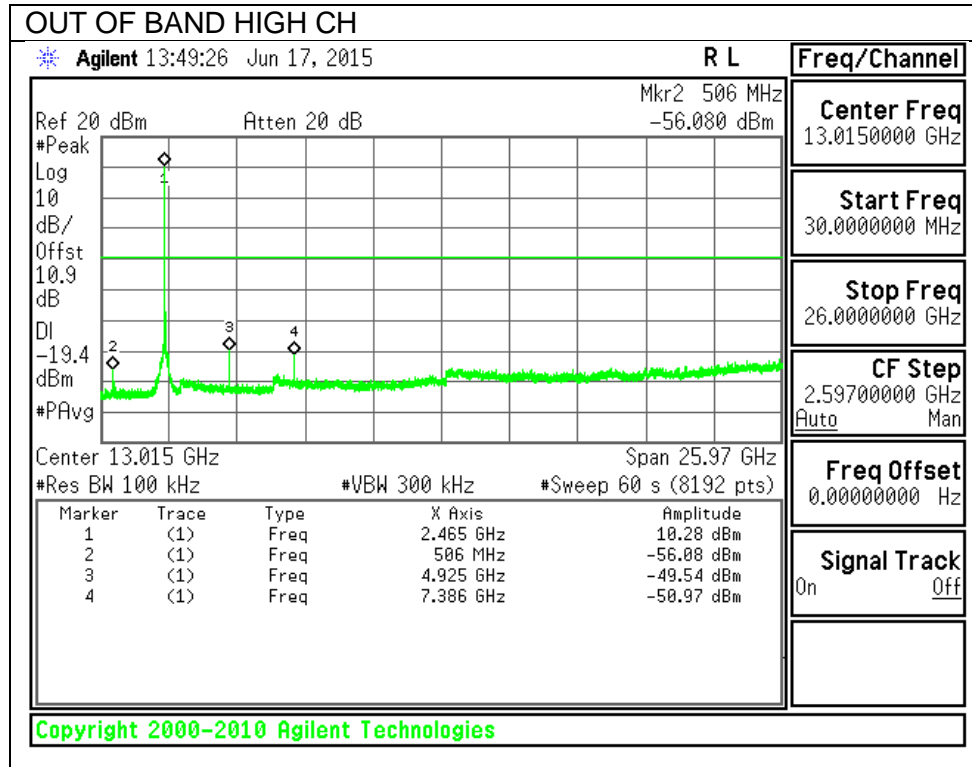


HIGH CHANNEL BANDEDGE



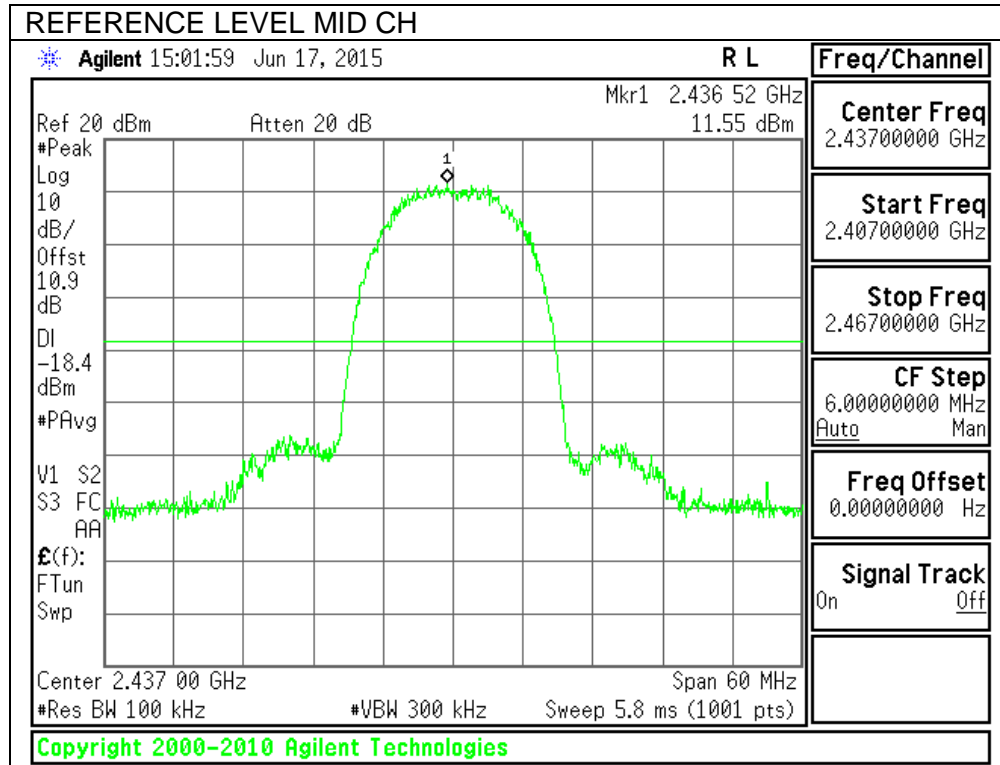
OUT-OF-BAND EMISSIONS



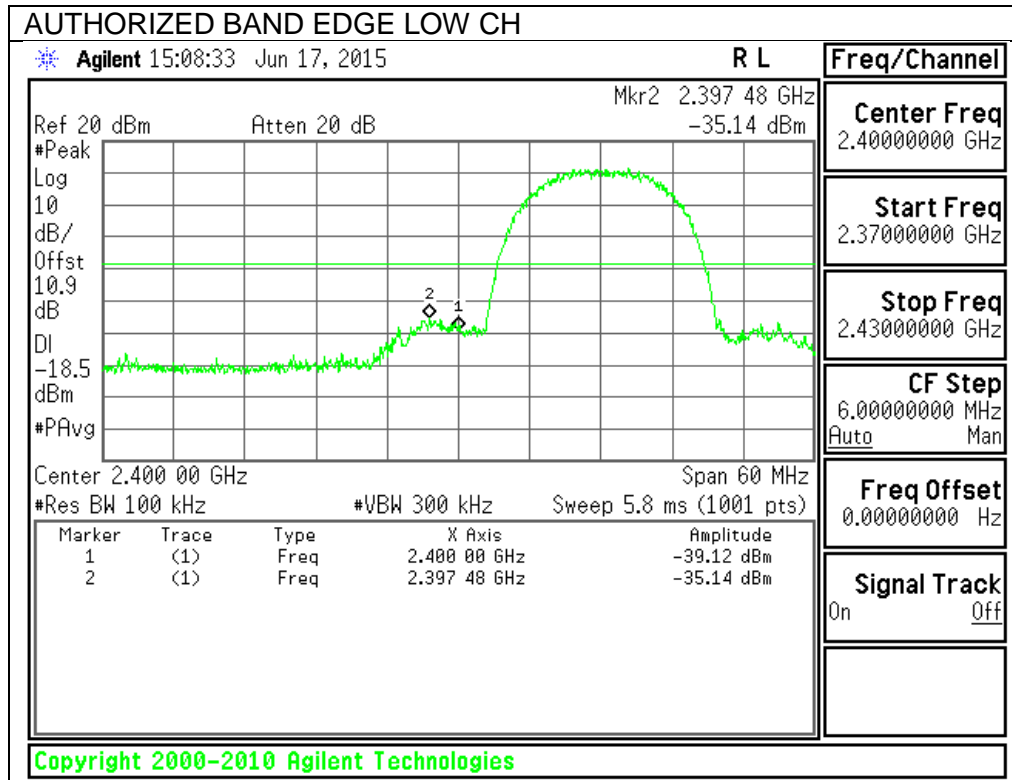


10.5.3. 802.11b MODE IN THE 2.4 GHz BAND CHAIN 2

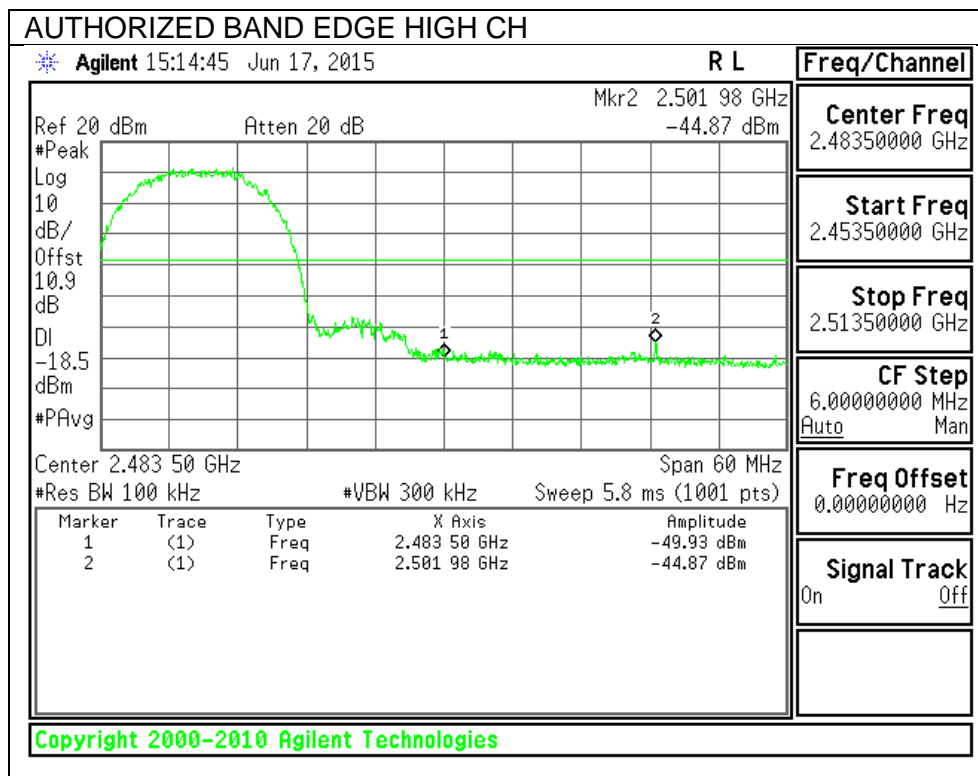
IN-BAND REFERENCE LEVEL



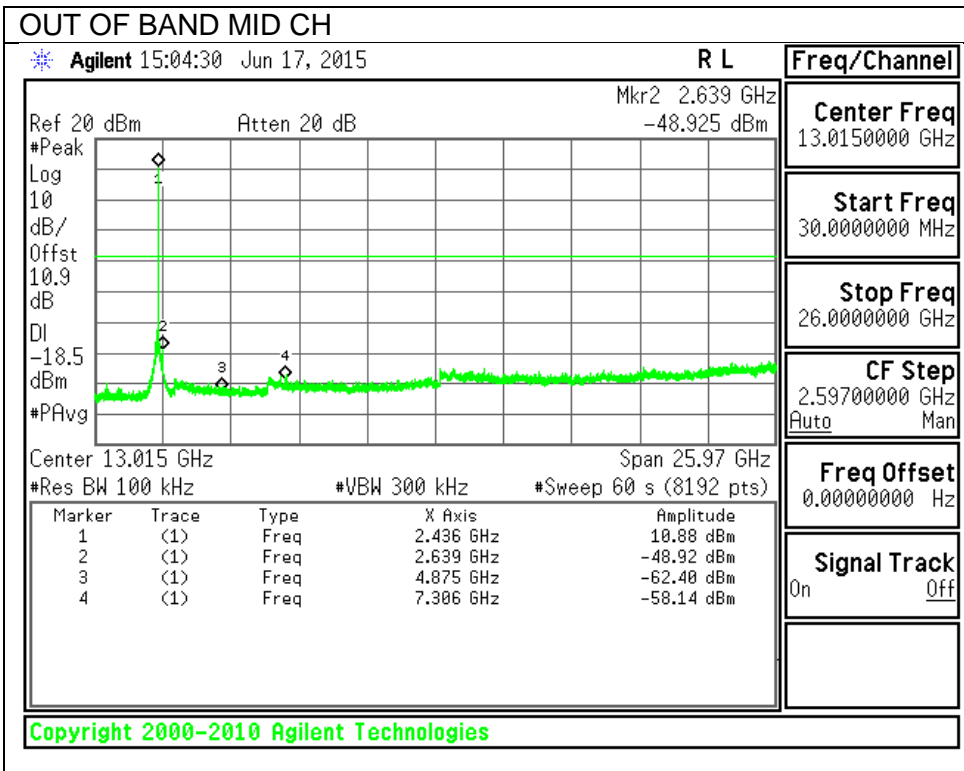
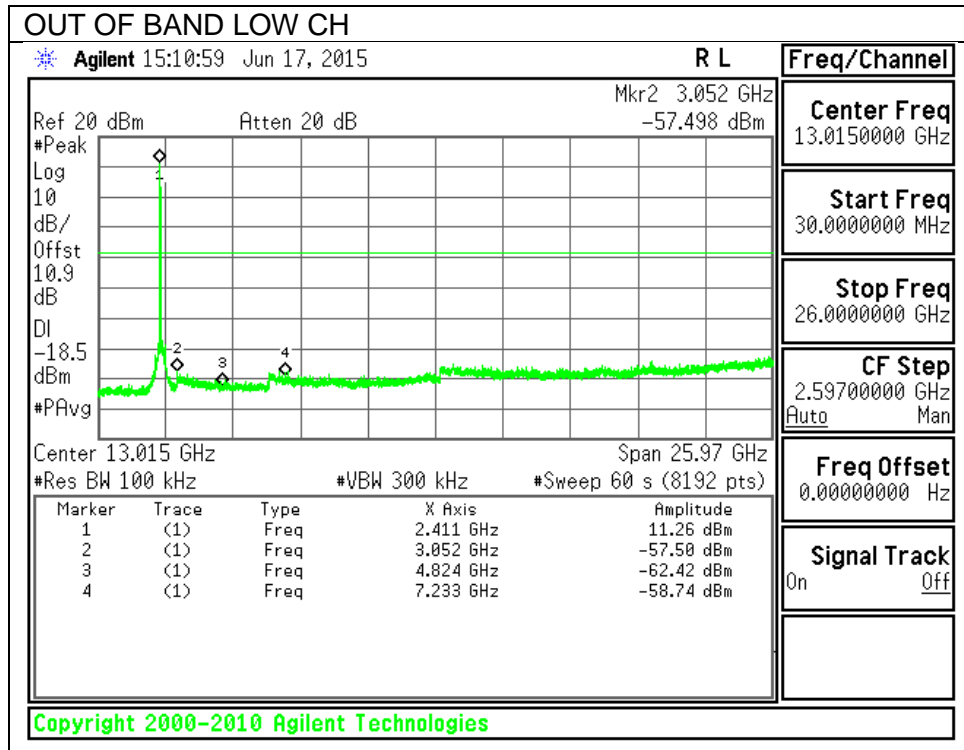
LOW CHANNEL BANDEDGE

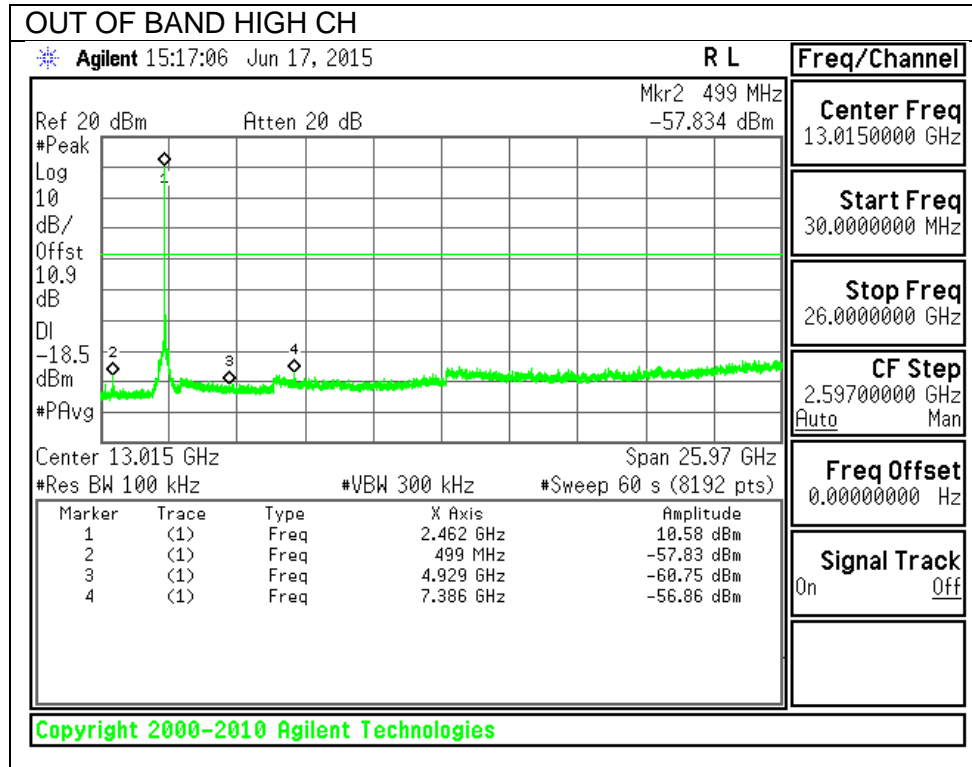


HIGH CHANNEL BANDEDGE



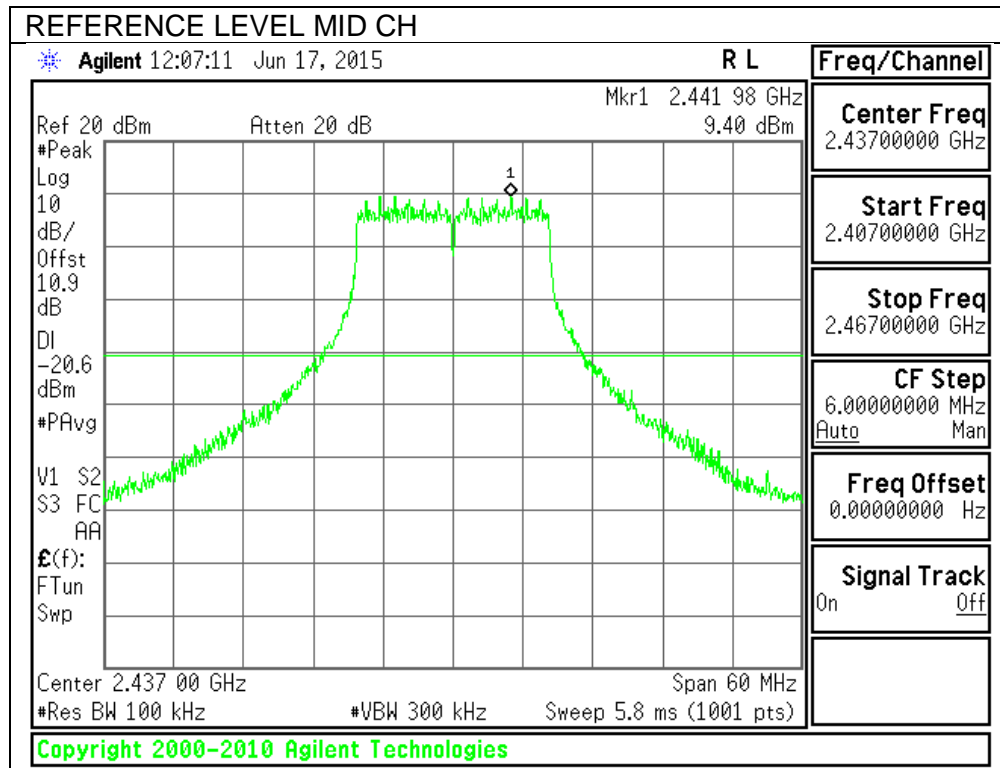
OUT-OF-BAND EMISSIONS



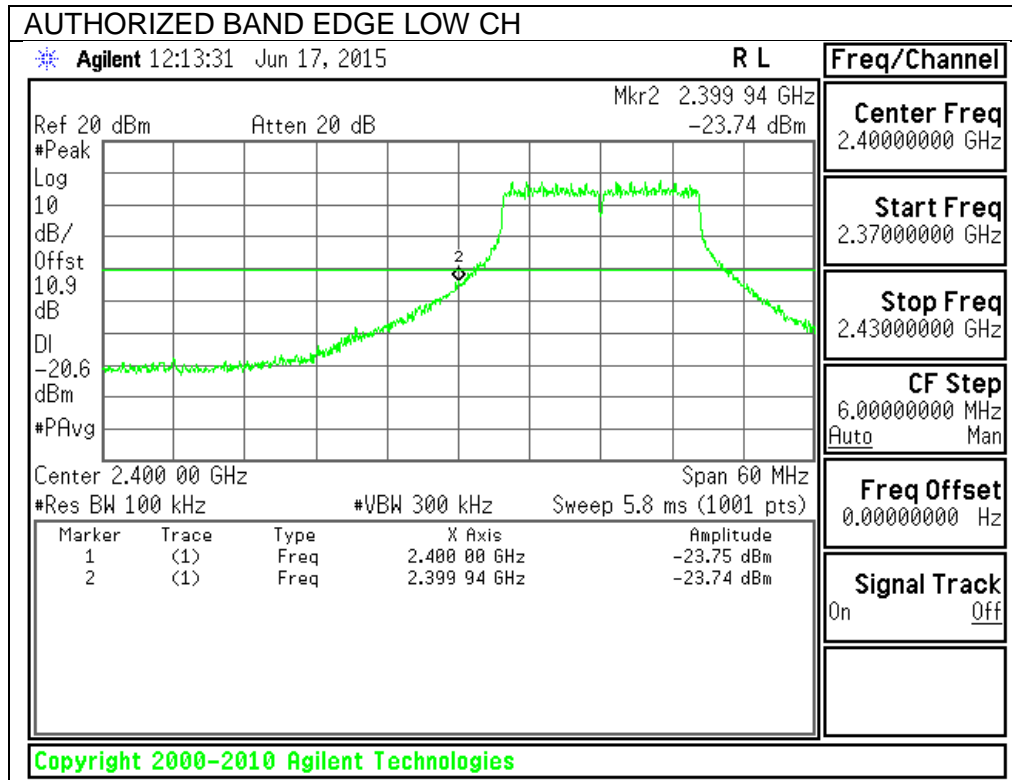


10.5.4. 802.11g MODE IN THE 2.4 GHz BAND CHAIN 0

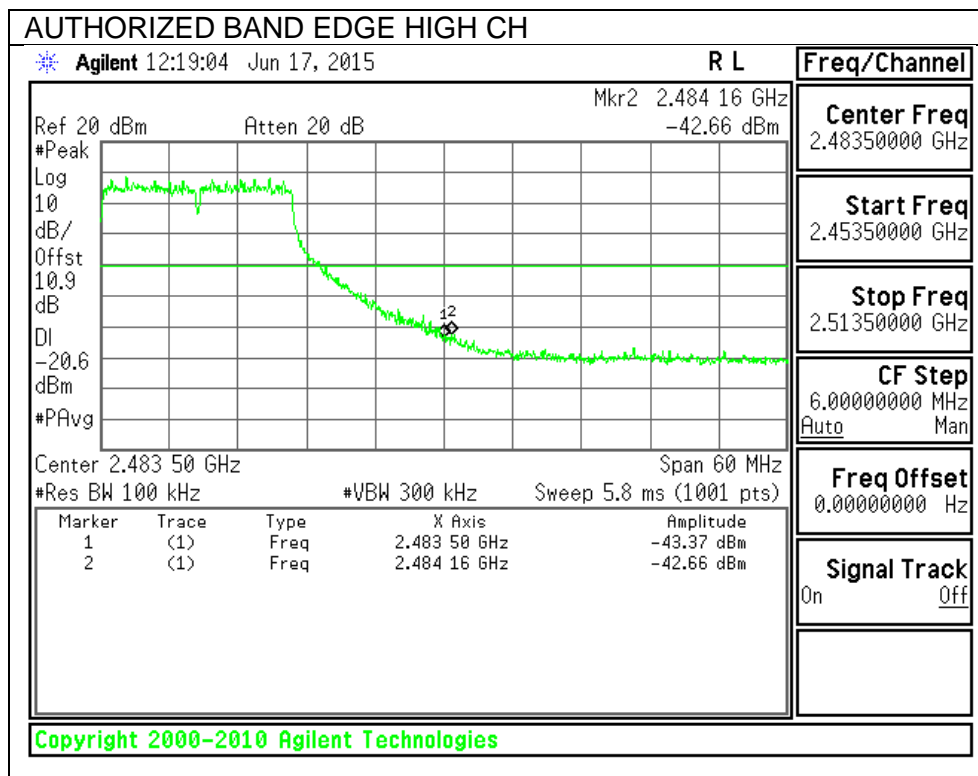
IN-BAND REFERENCE LEVEL



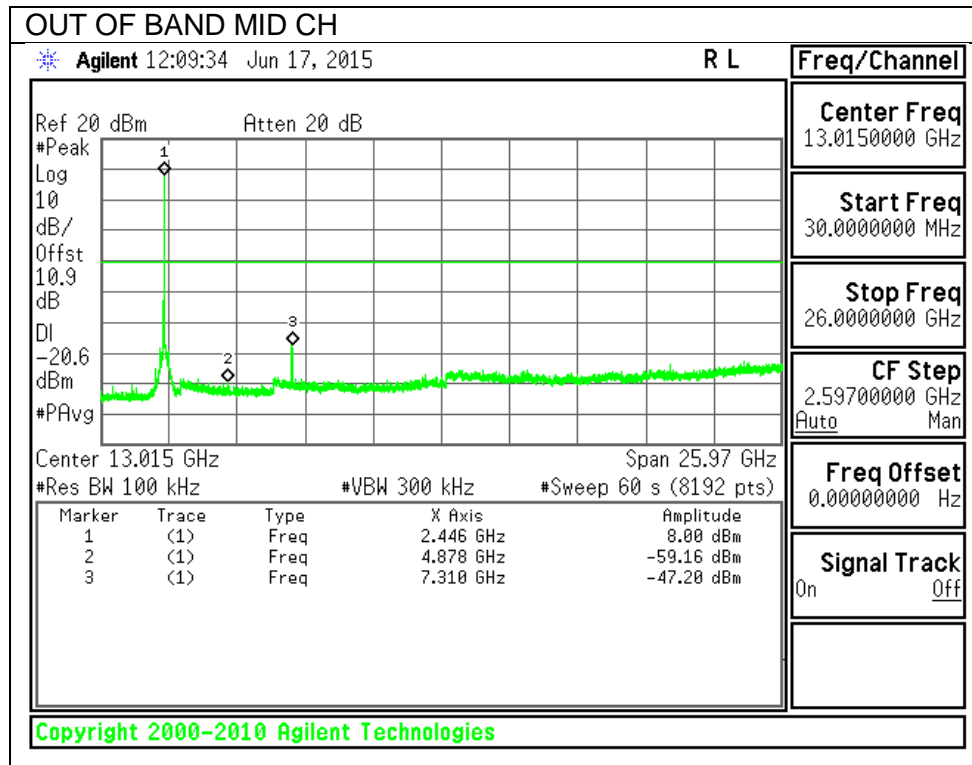
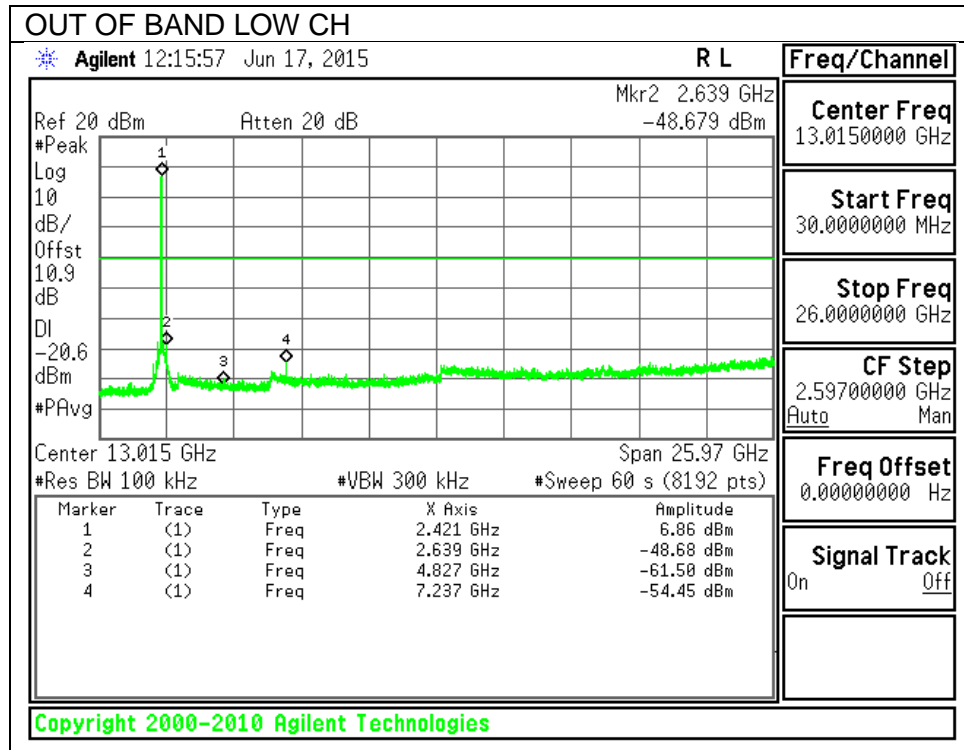
LOW CHANNEL BANDEDGE

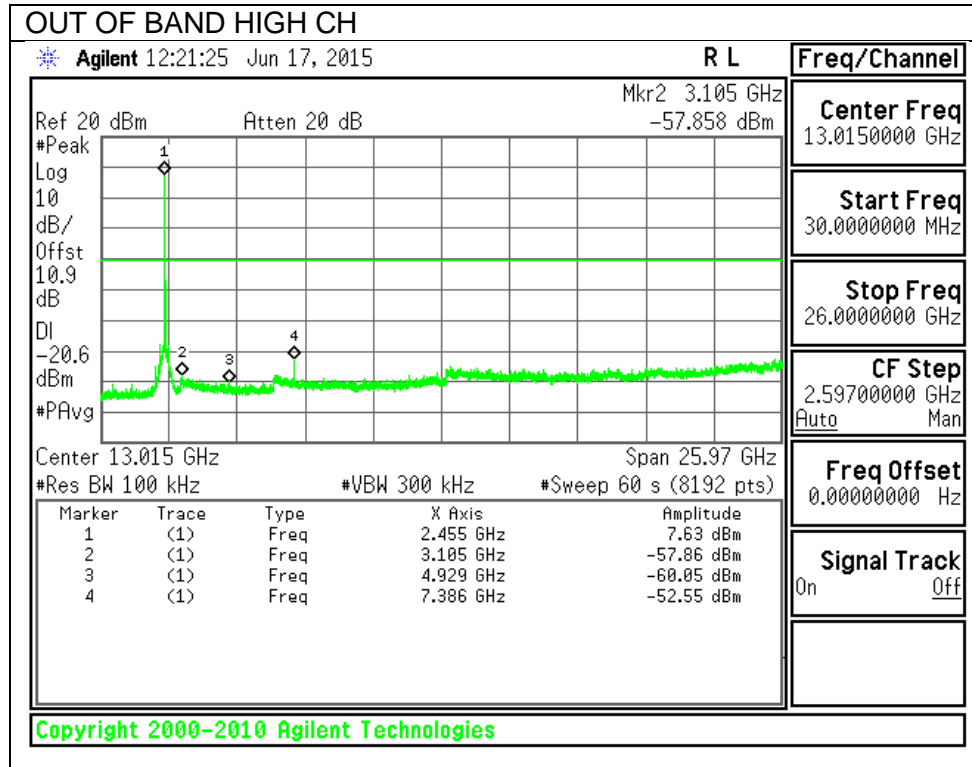


HIGH CHANNEL BANDEDGE



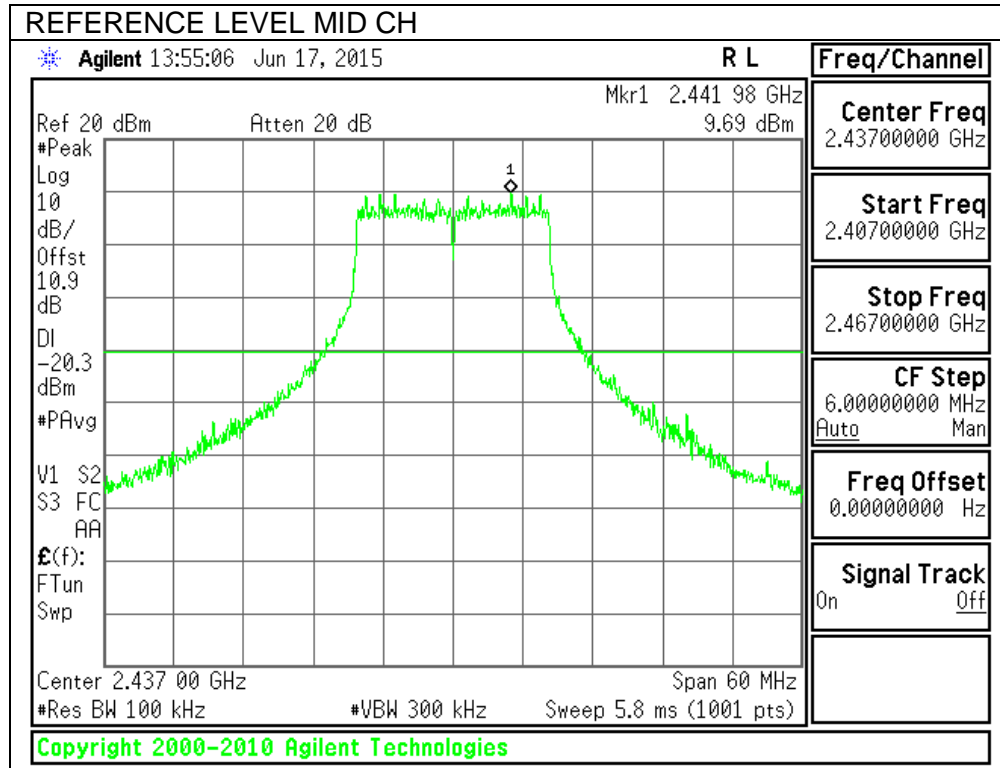
OUT-OF-BAND EMISSIONS



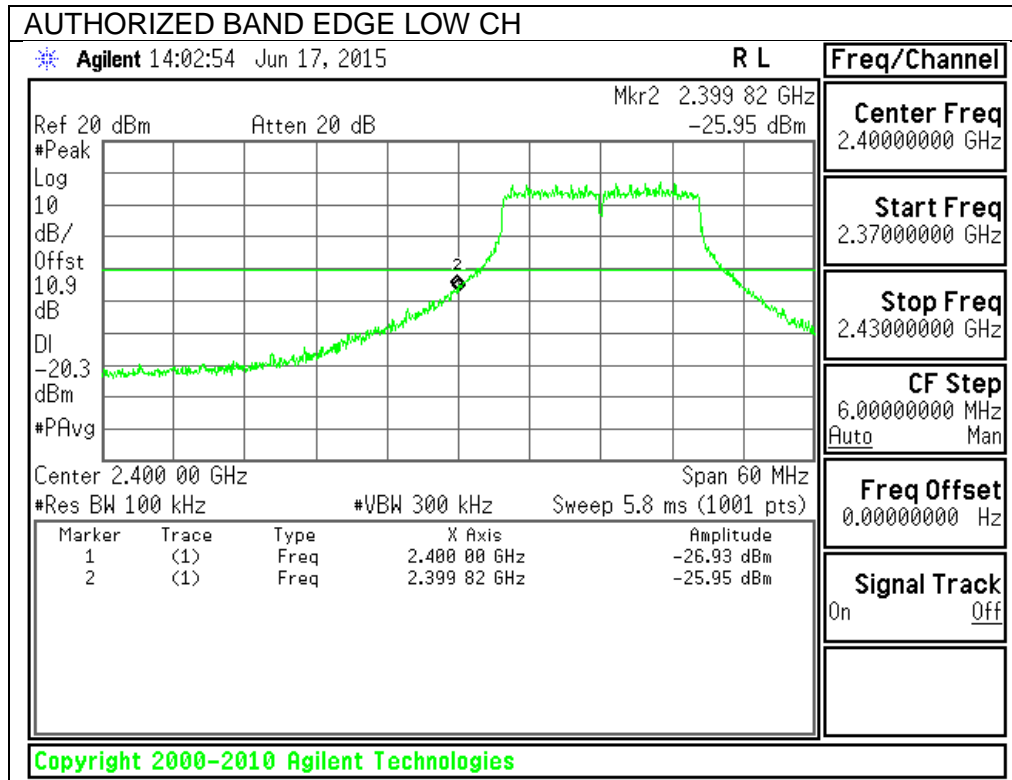


10.5.5. 802.11g MODE IN THE 2.4 GHz BAND CHAIN 1

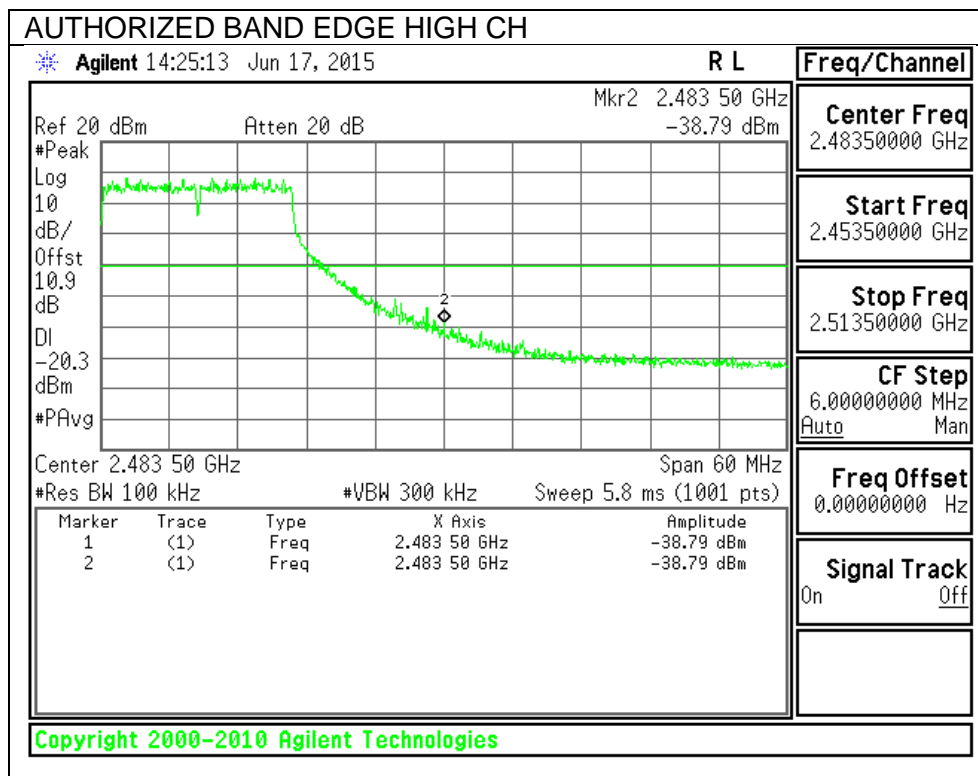
IN-BAND REFERENCE LEVEL



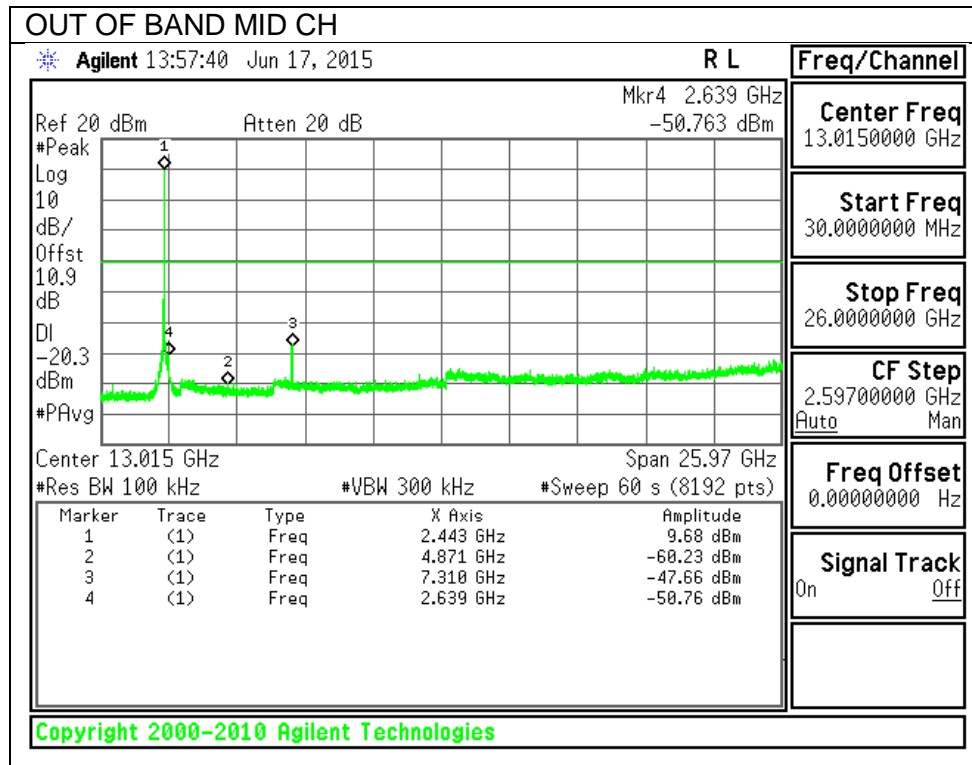
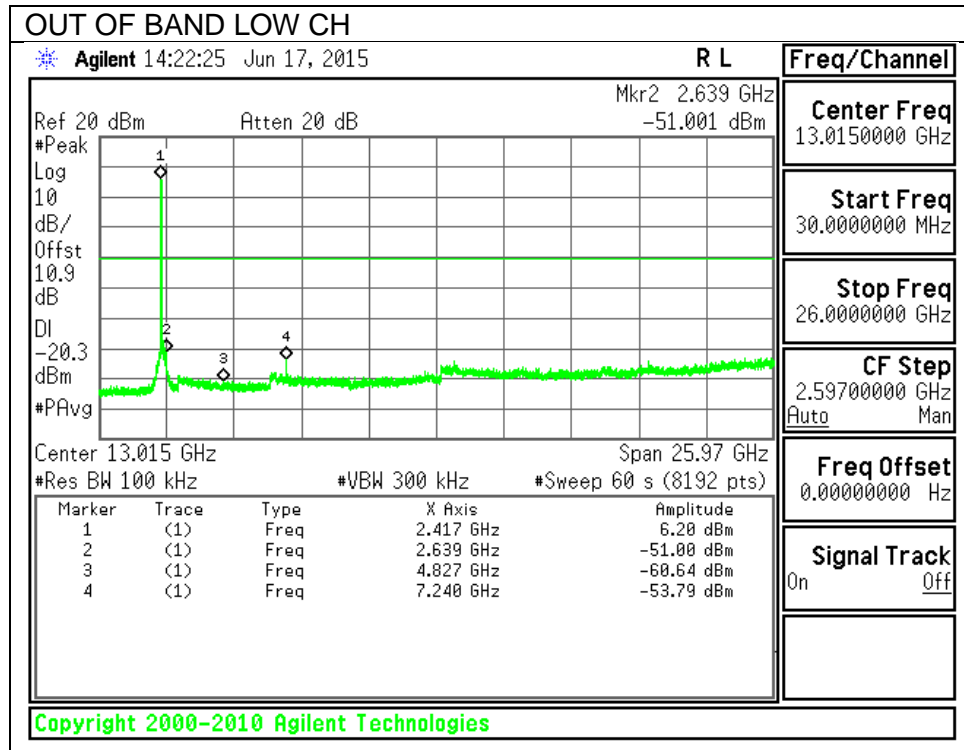
LOW CHANNEL BANDEDGE

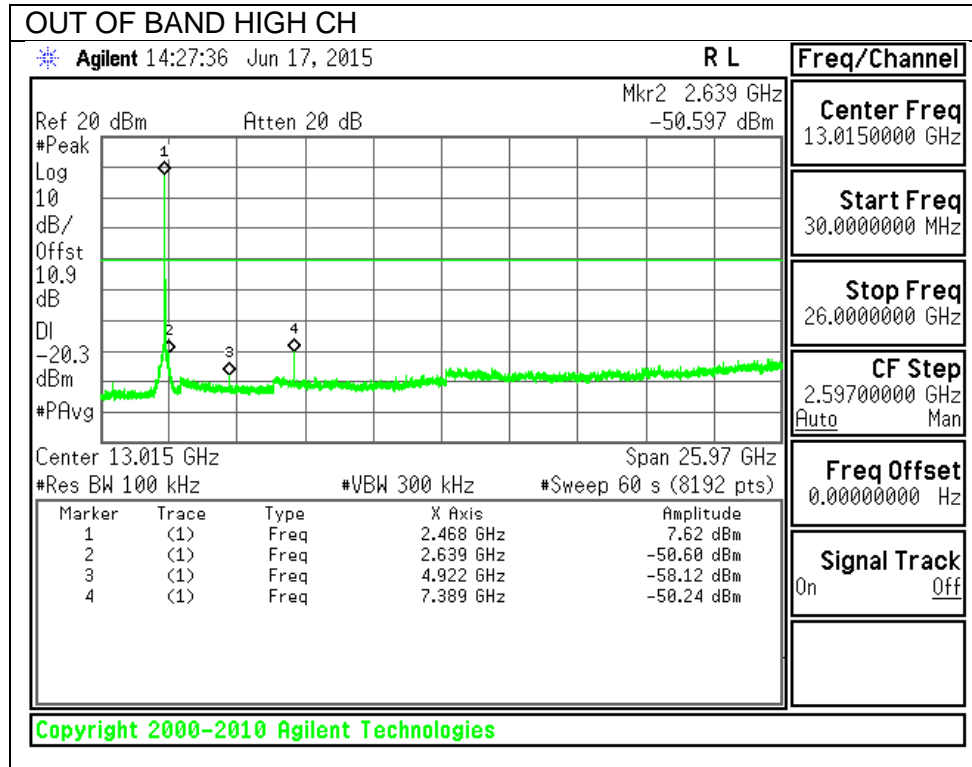


HIGH CHANNEL BANDEDGE



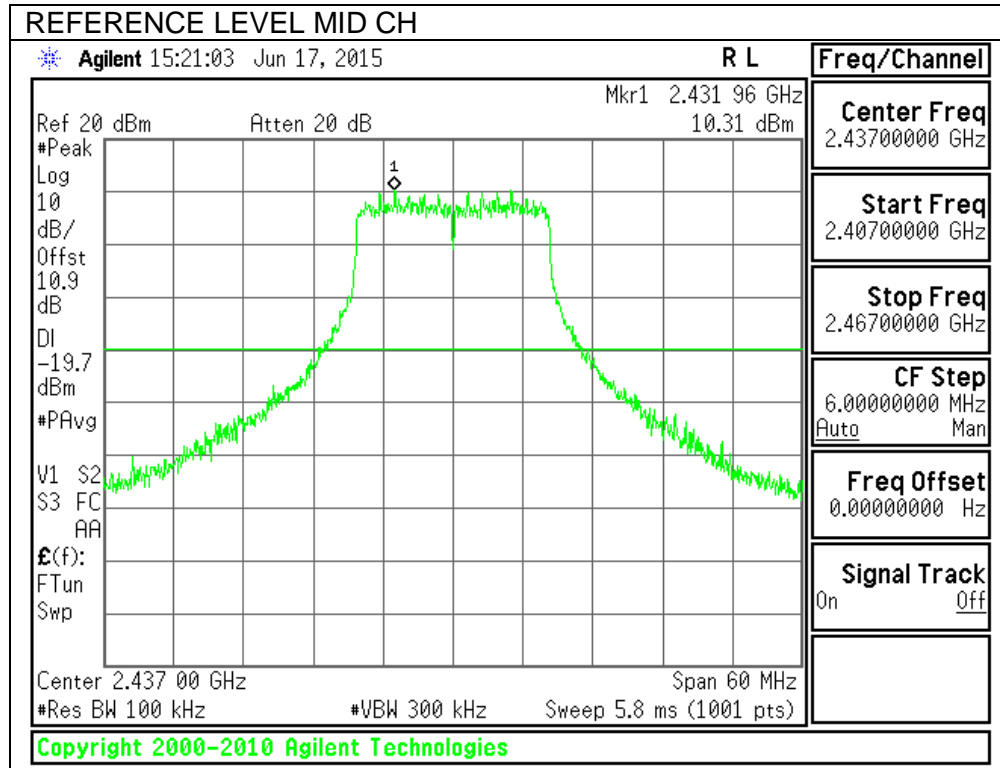
OUT-OF-BAND EMISSIONS



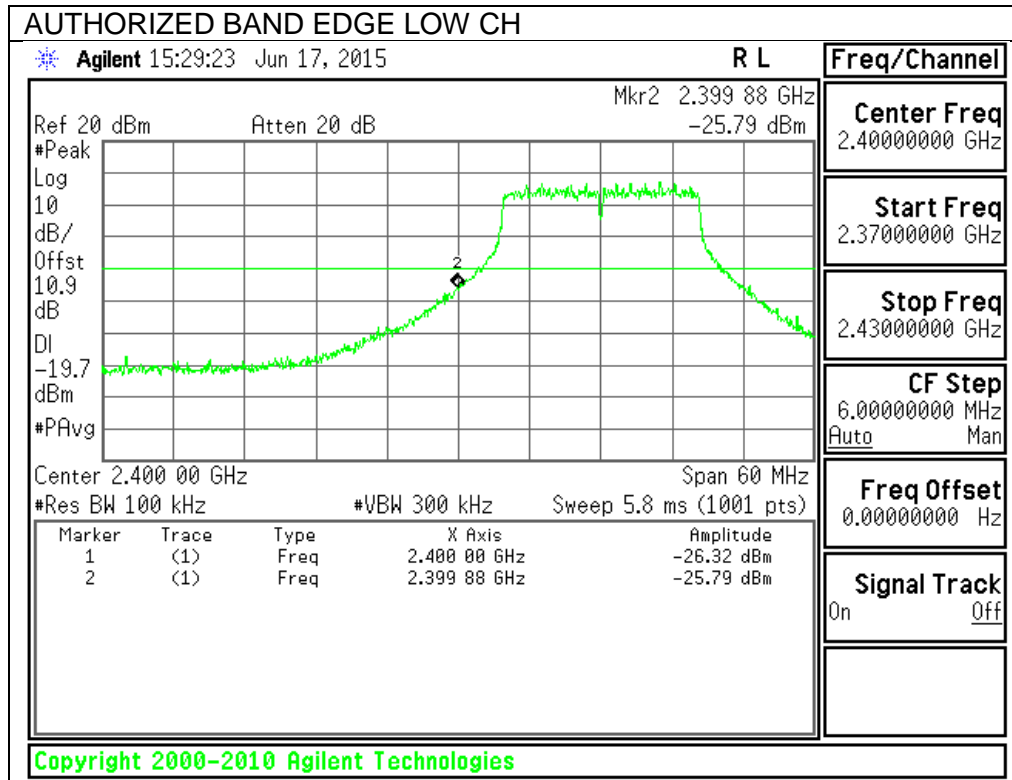


10.5.6. 802.11g MODE IN THE 2.4 GHz BAND CHAIN 2

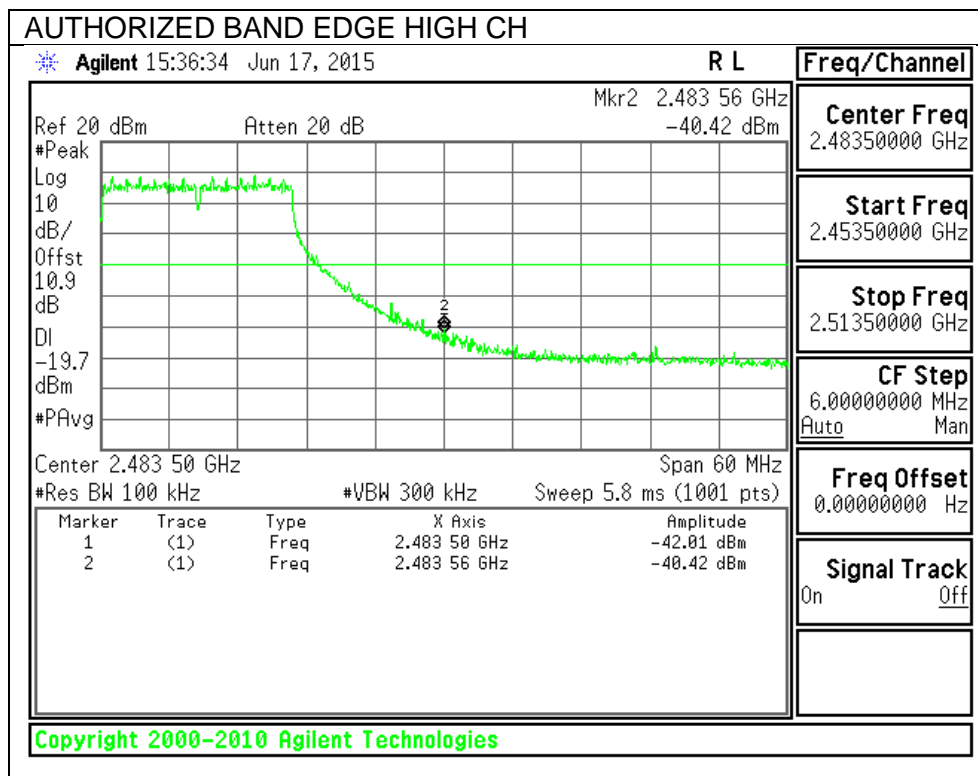
IN-BAND REFERENCE LEVEL



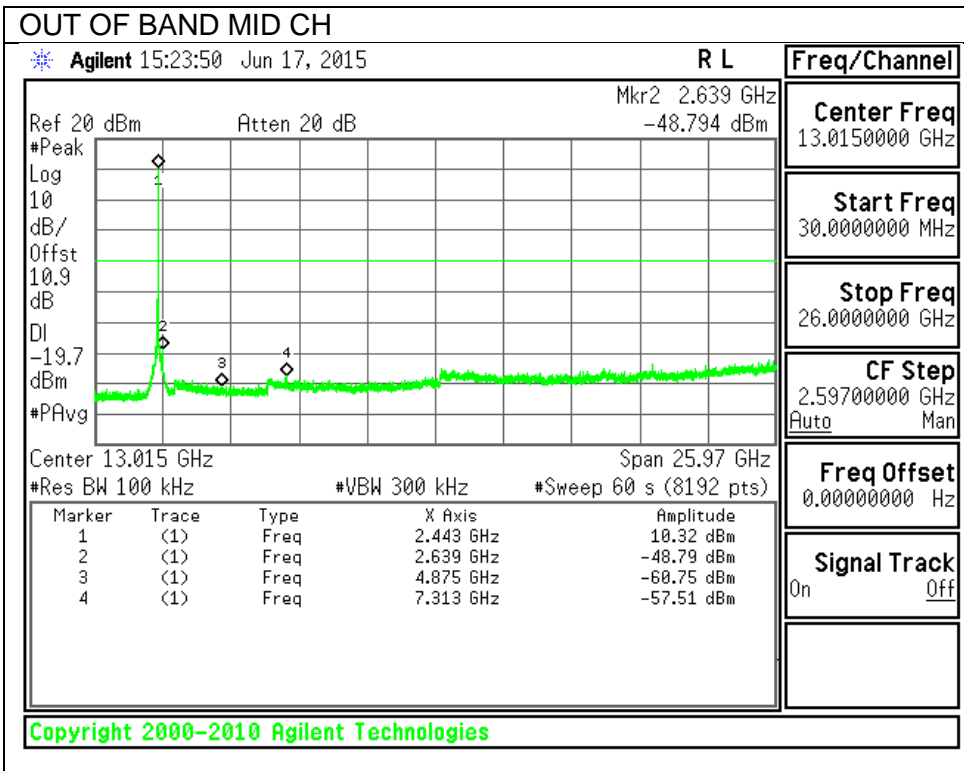
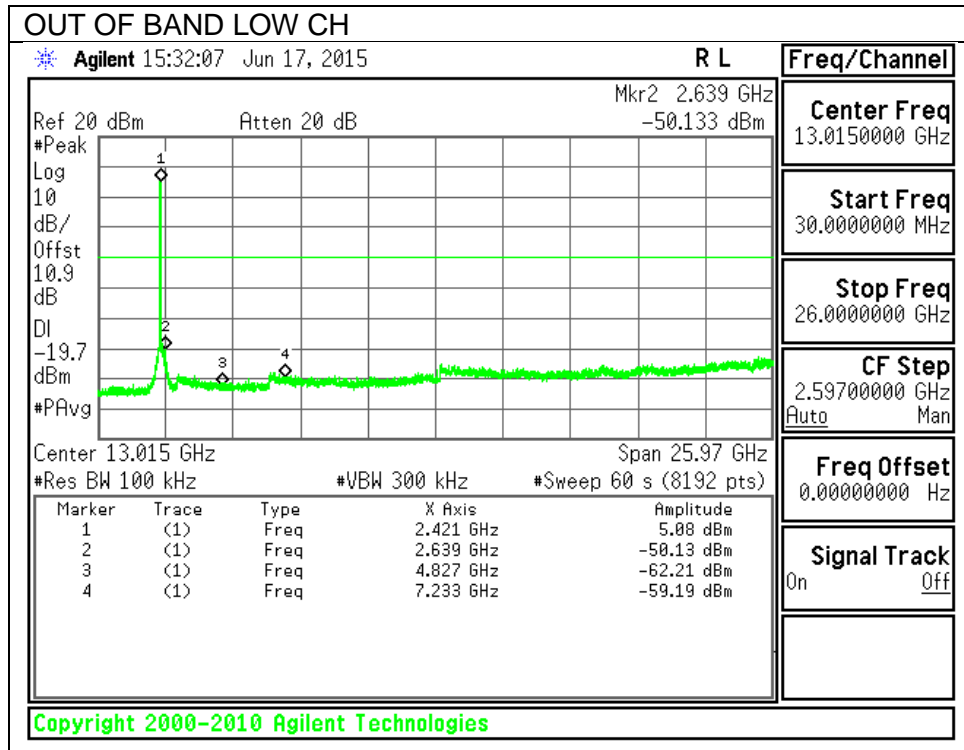
LOW CHANNEL BANDEDGE

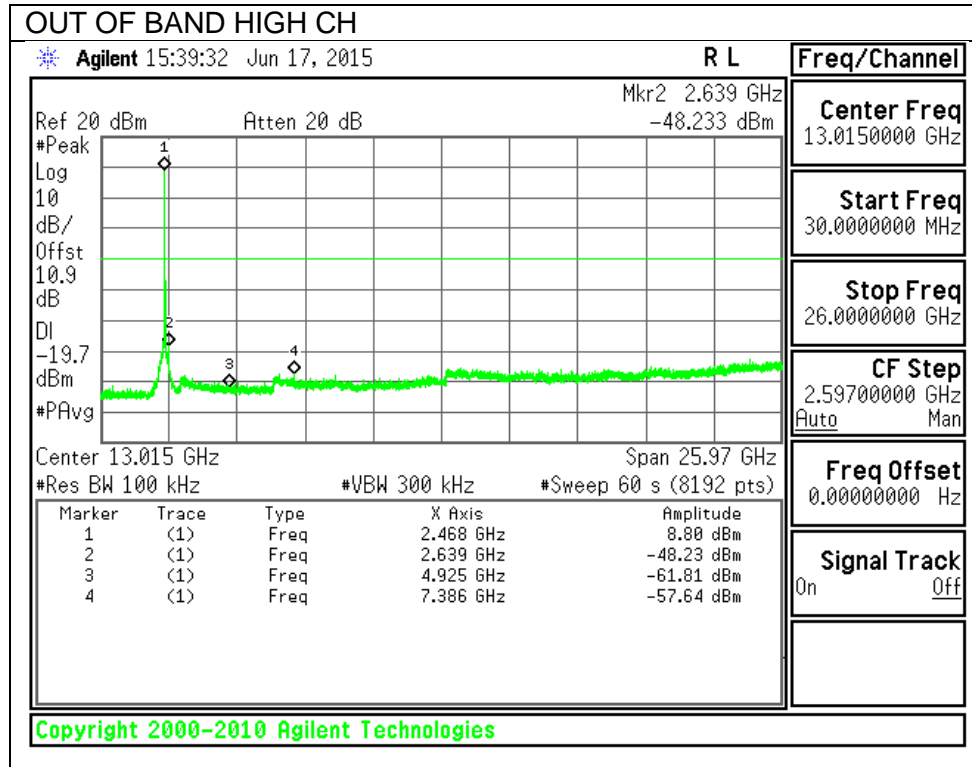


HIGH CHANNEL BANDEDGE



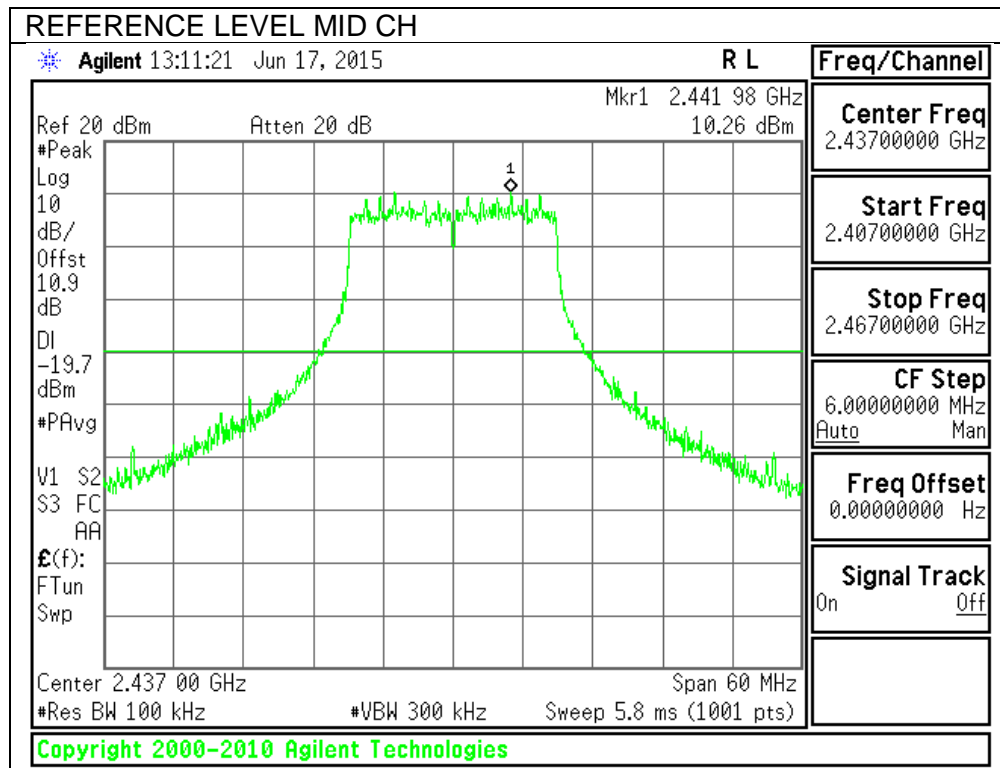
OUT-OF-BAND EMISSIONS



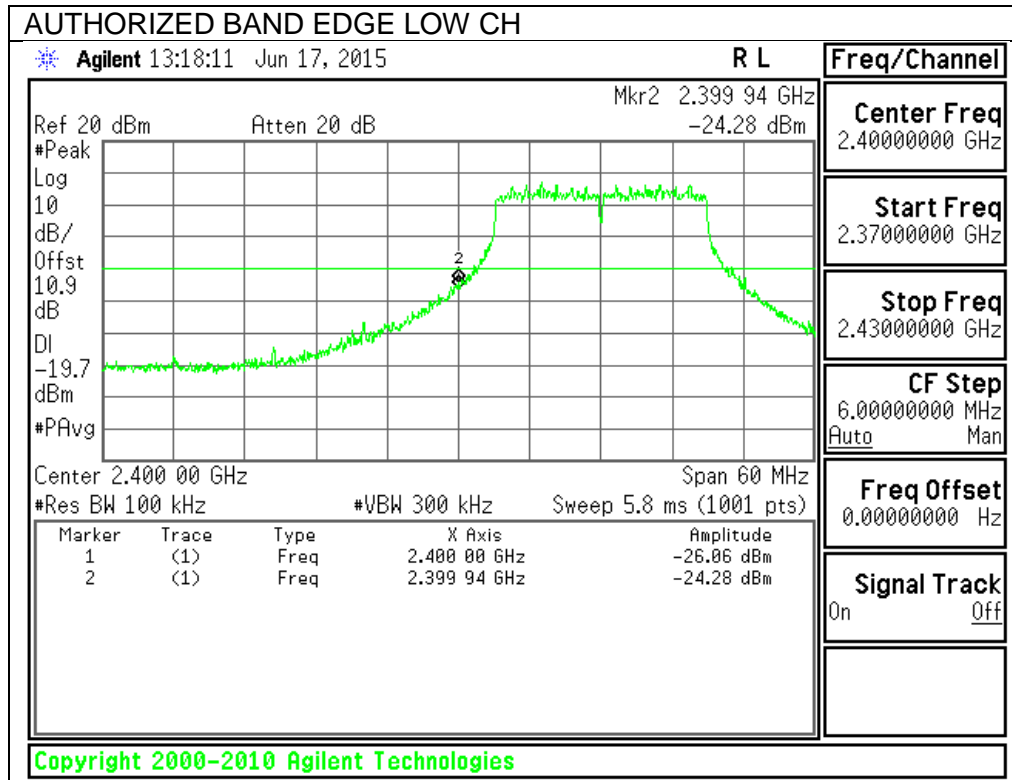


10.5.7. 802.11n HT20 MODE IN THE 2.4 GHz BAND CHAIN 0

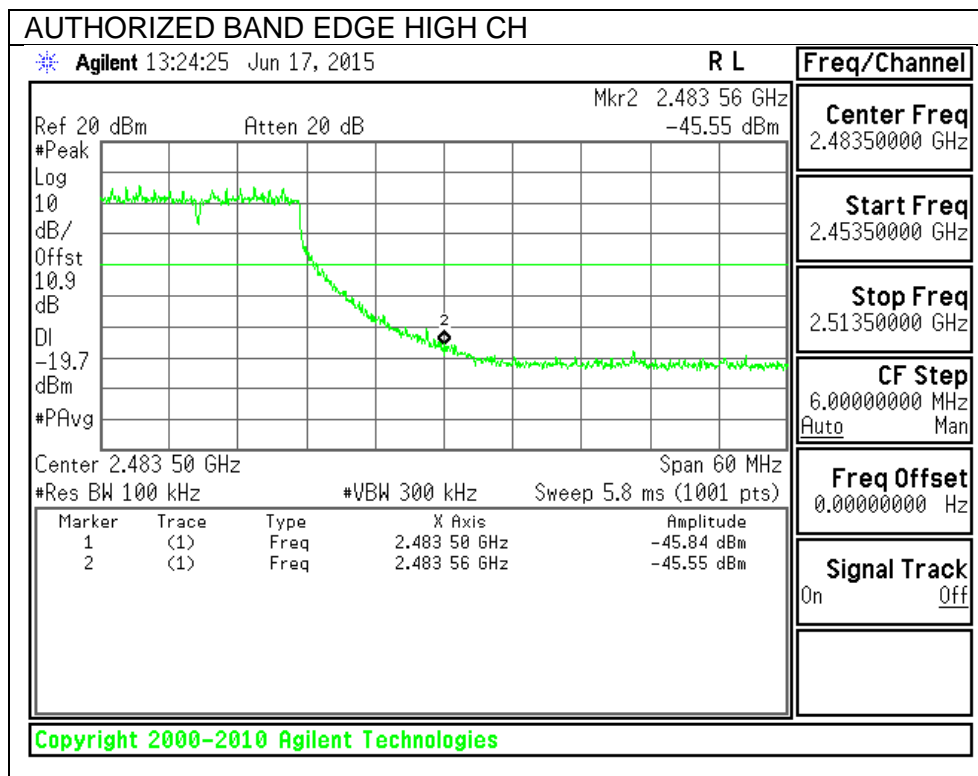
IN-BAND REFERENCE LEVEL



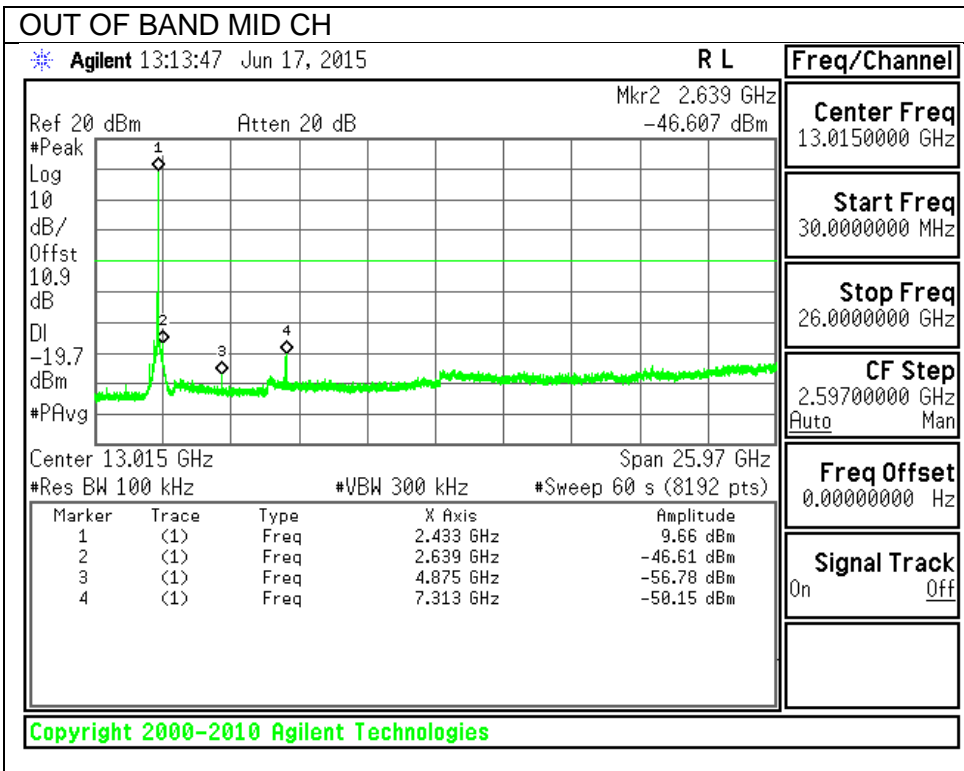
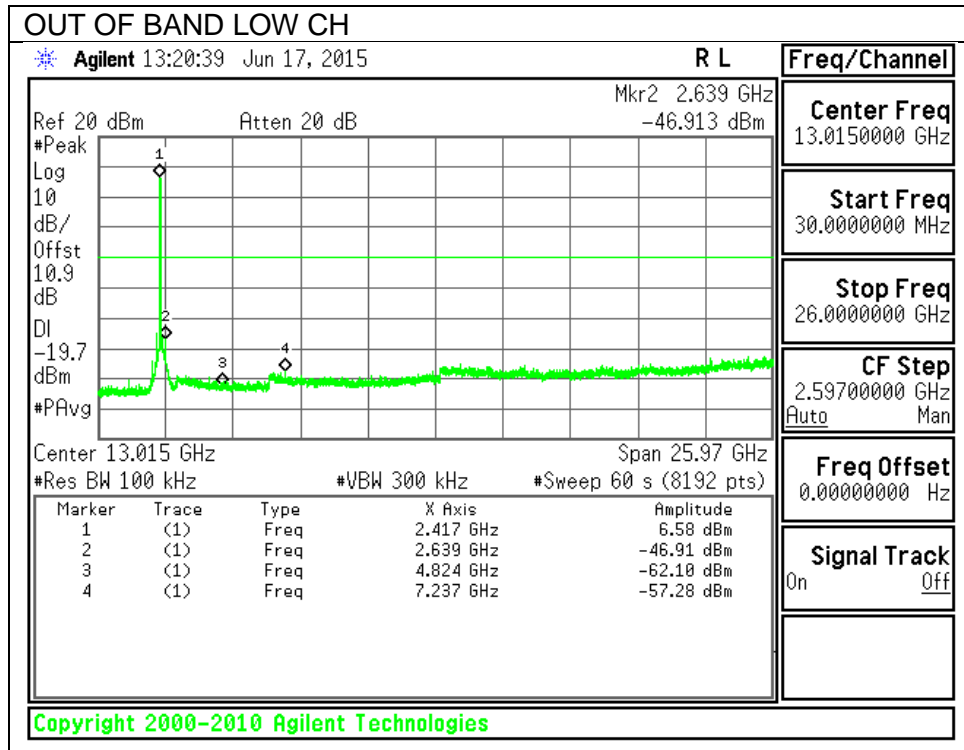
LOW CHANNEL BANDEDGE

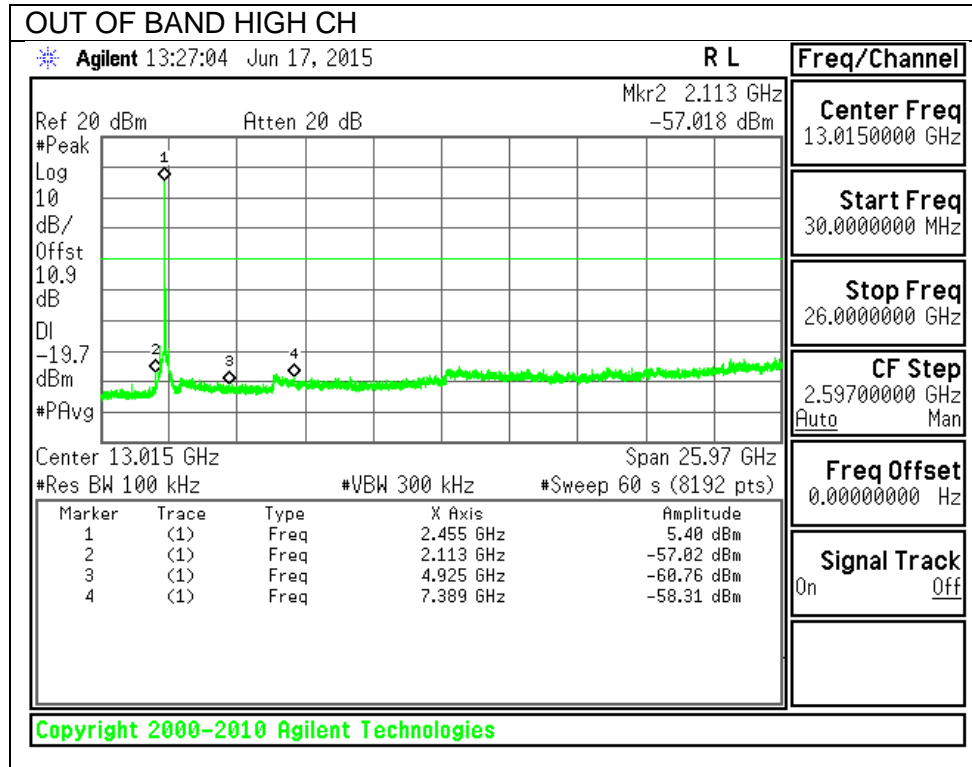


HIGH CHANNEL BANDEDGE



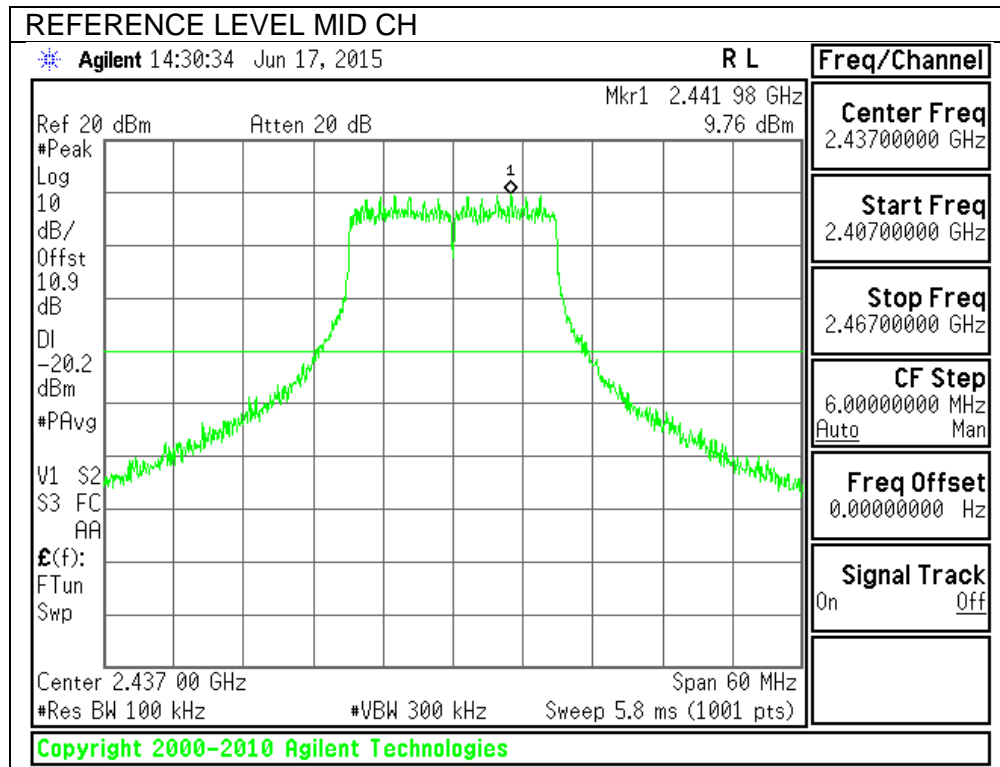
OUT-OF-BAND EMISSIONS



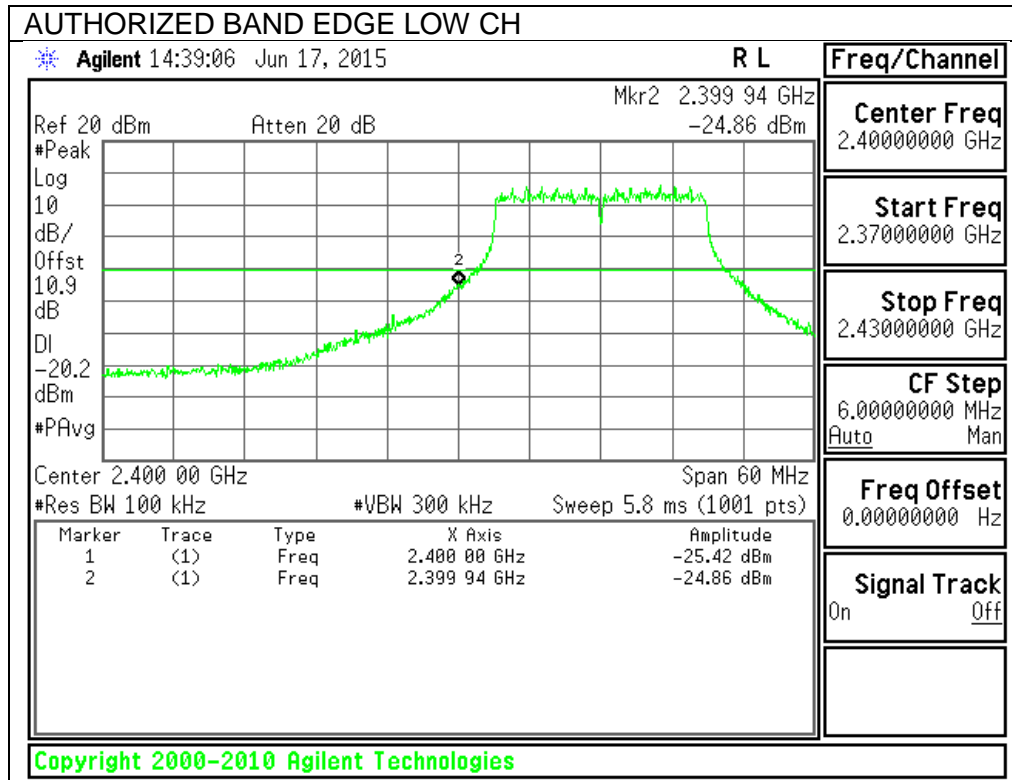


10.5.8. 802.11n HT20 MODE IN THE 2.4 GHz BAND CHAIN 1

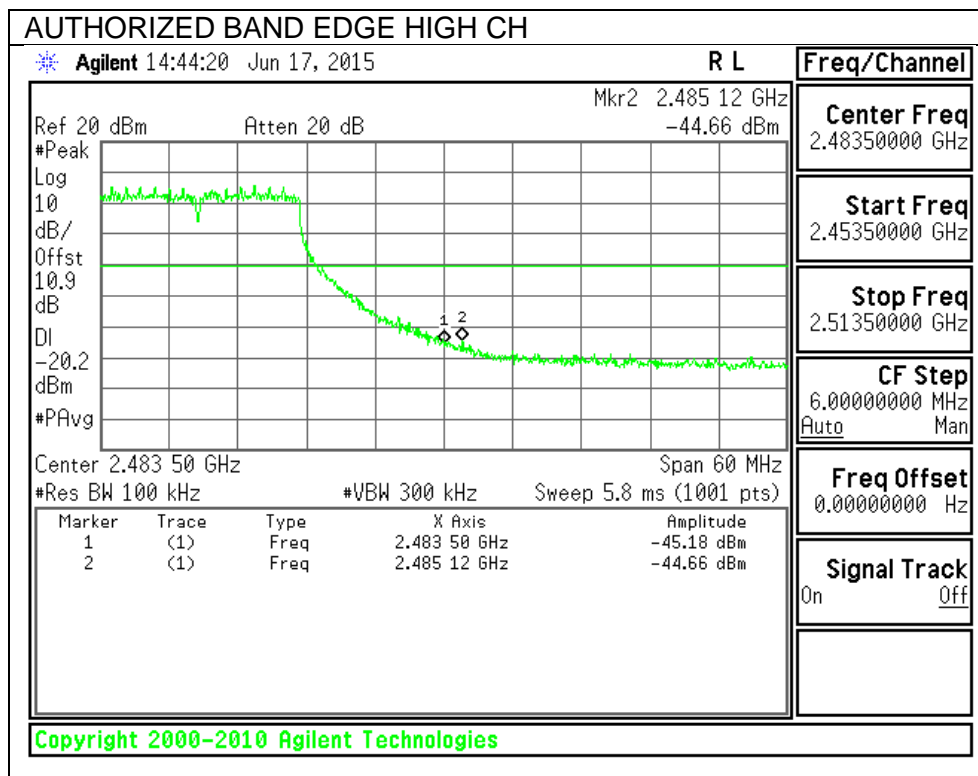
IN-BAND REFERENCE LEVEL



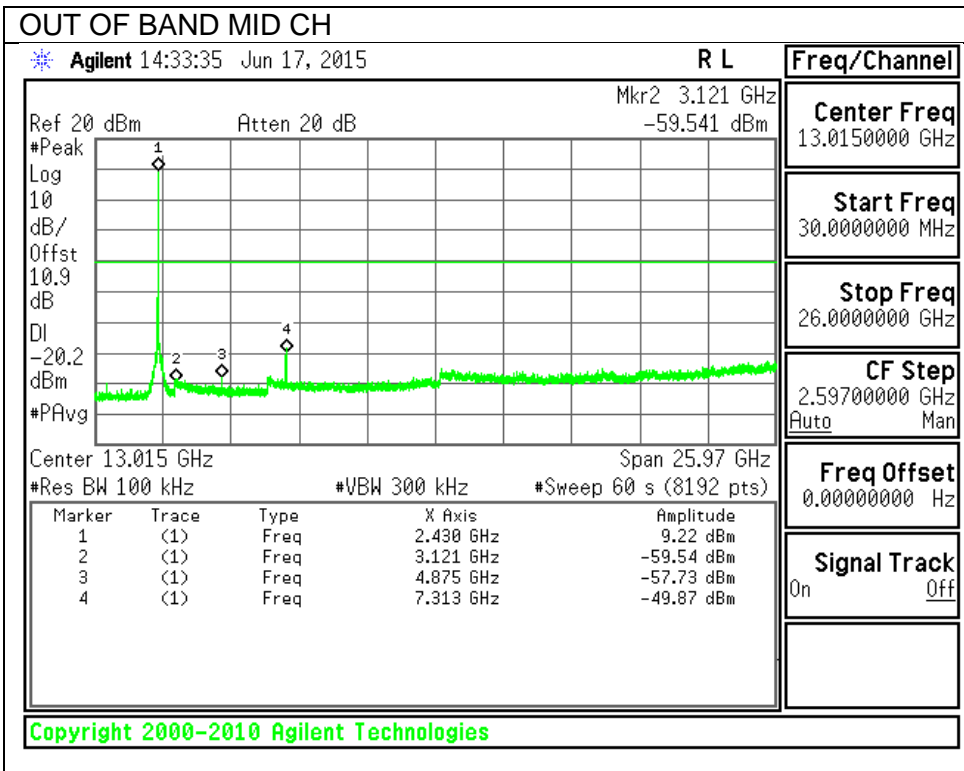
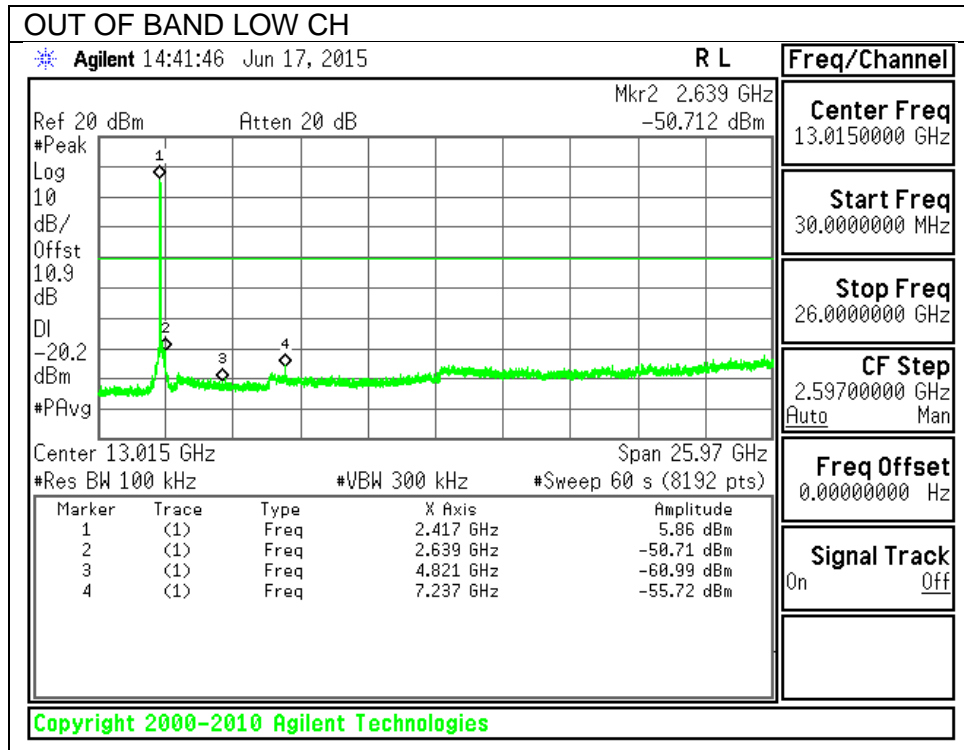
LOW CHANNEL BANDEDGE

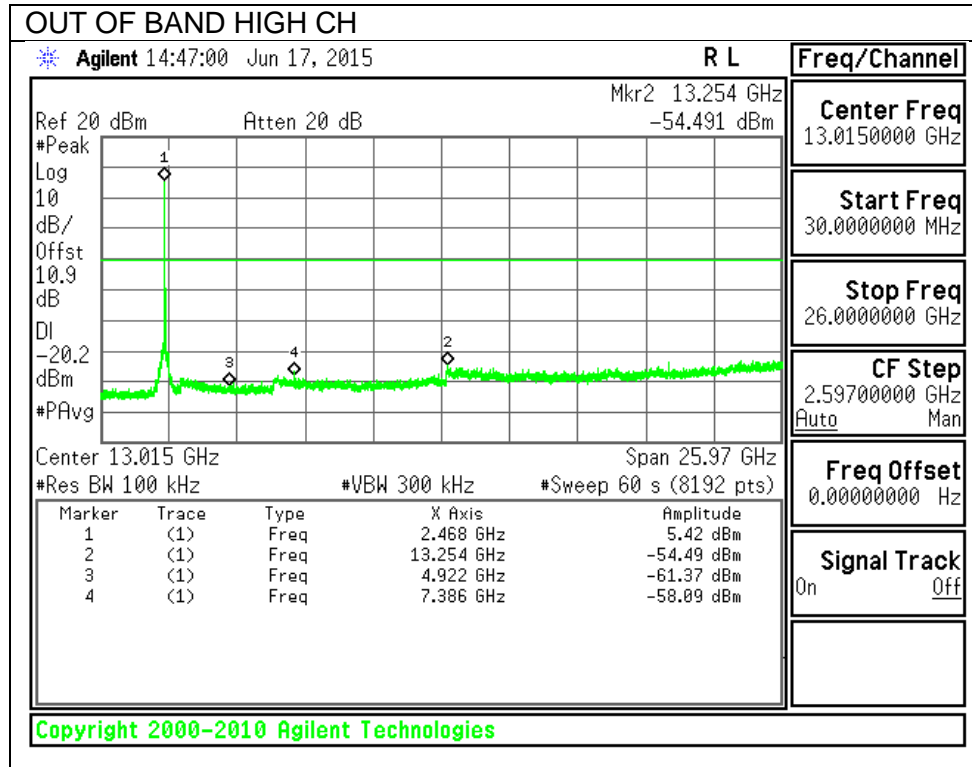


HIGH CHANNEL BANDEDGE



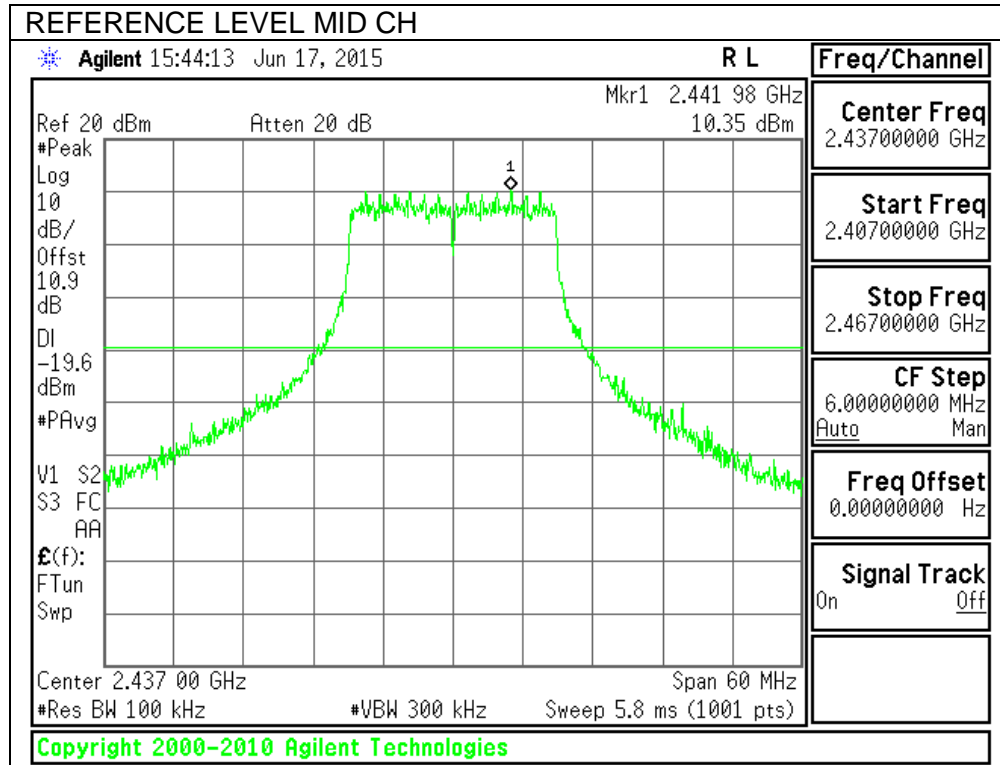
OUT-OF-BAND EMISSIONS



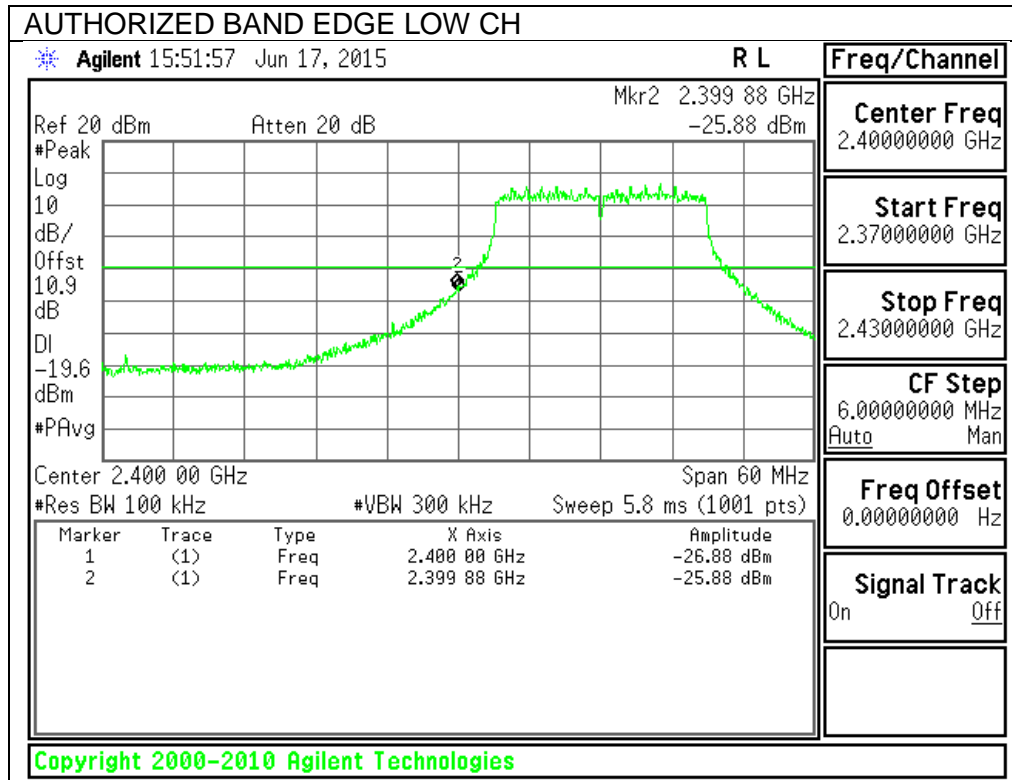


10.5.9. 802.11n HT20 MODE IN THE 2.4 GHz BAND CHAIN 2

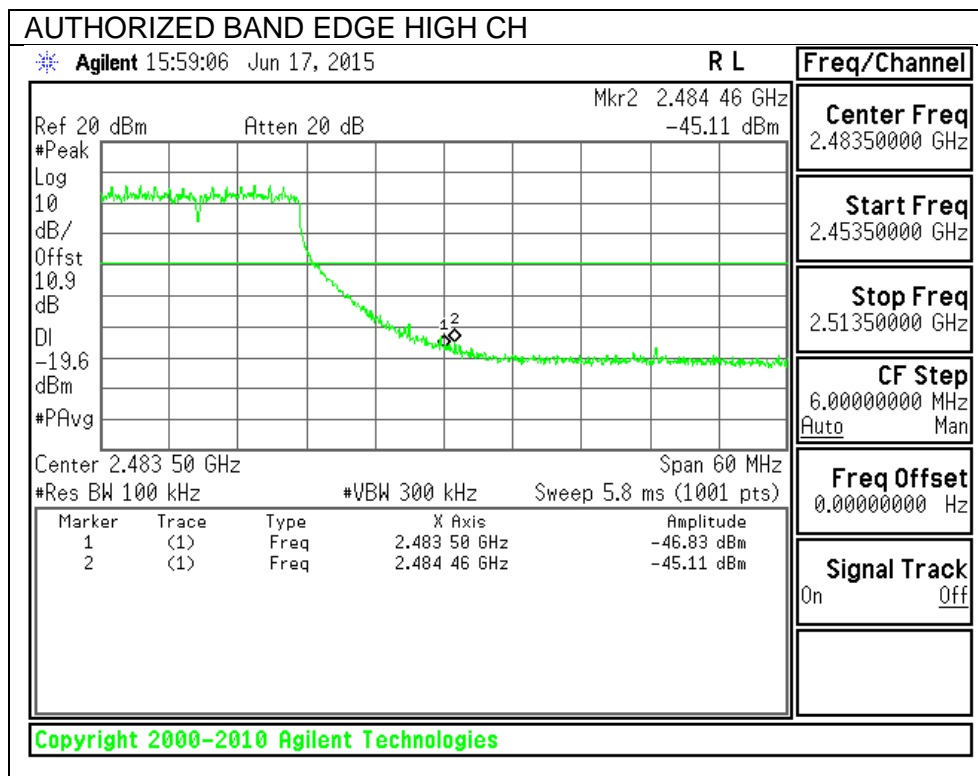
IN-BAND REFERENCE LEVEL



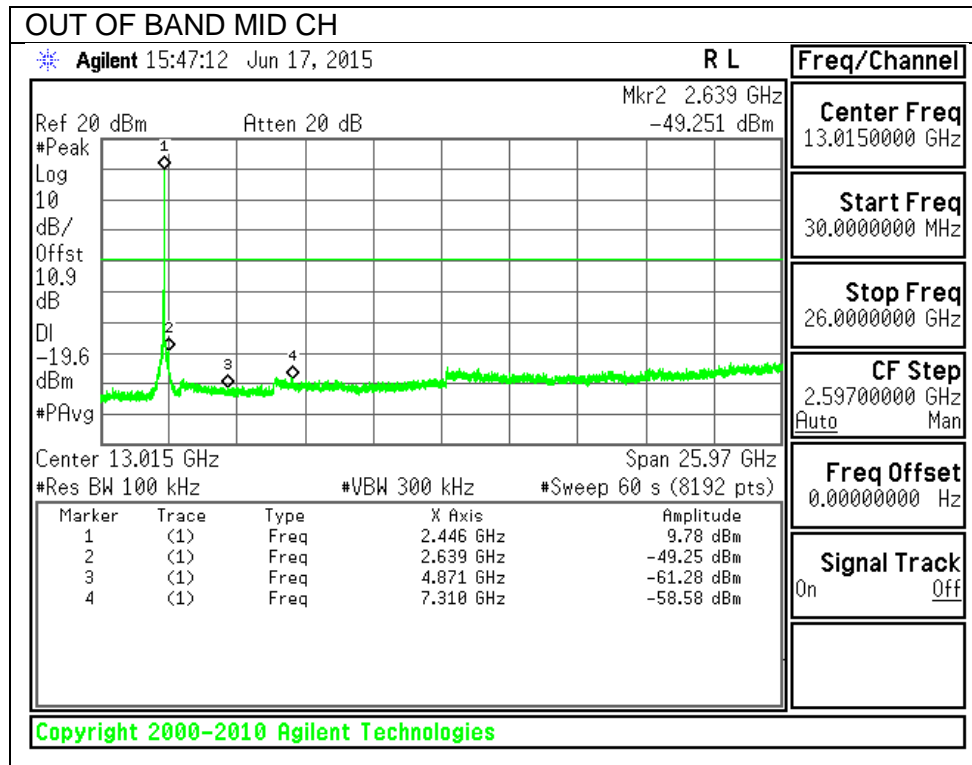
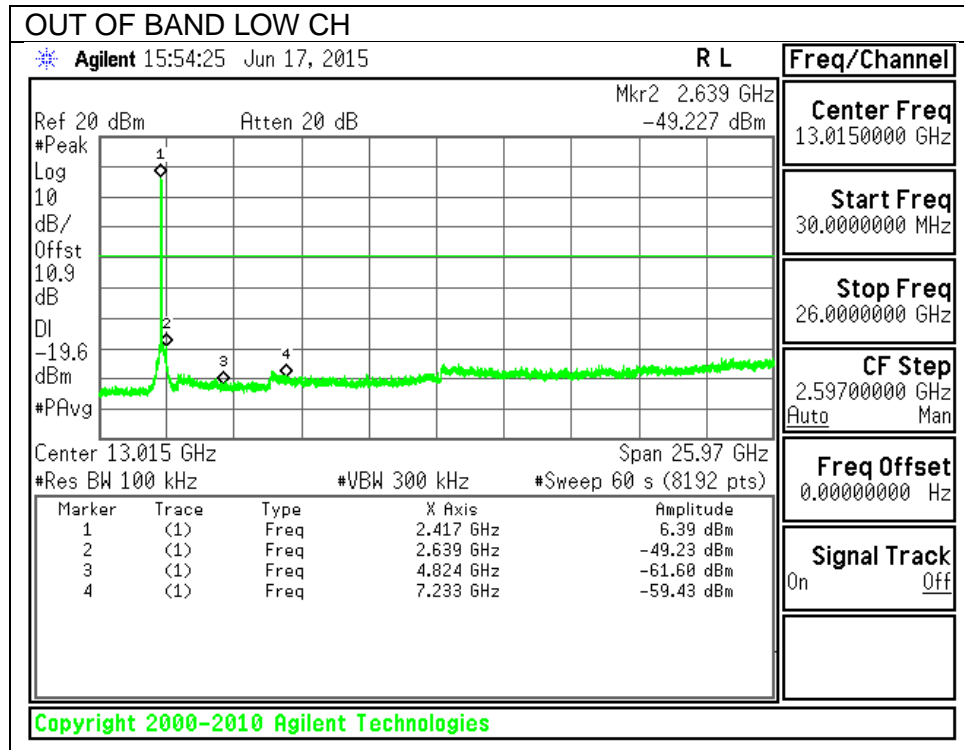
LOW CHANNEL BANDEDGE

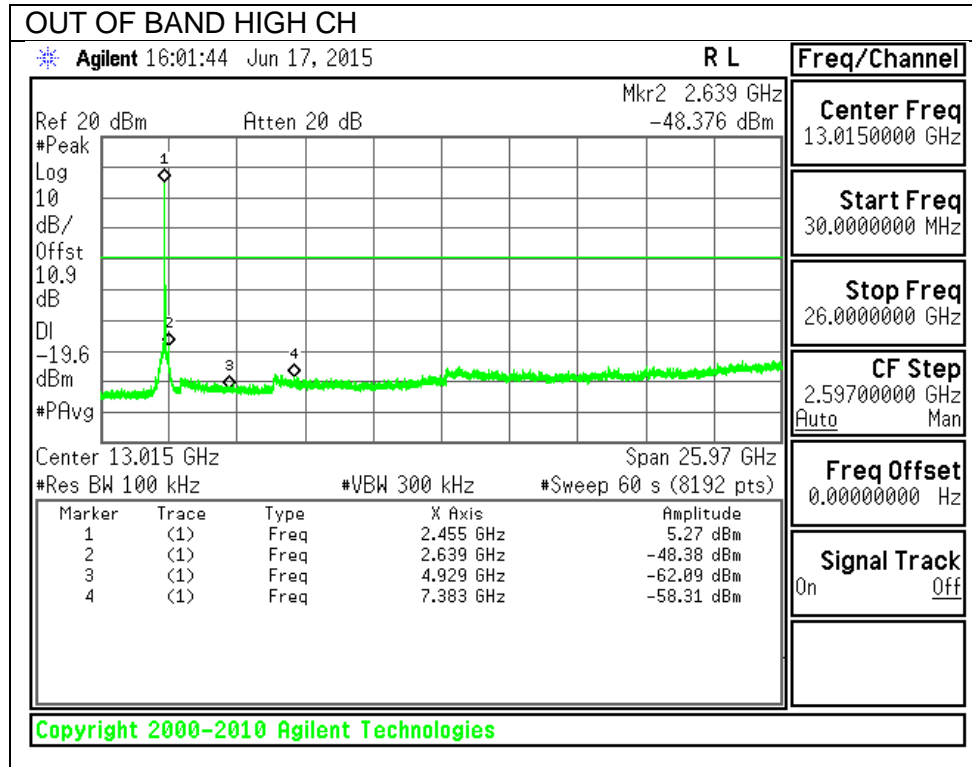


HIGH CHANNEL BANDEDGE



OUT-OF-BAND EMISSIONS





11. RADIATED TEST RESULTS

11.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN Clause 8.9 (Transmitter)

IC RSS-GEN Clause 7 (Receiver)

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150cm for above 1GHz. The antenna to EUT distance is 3 meters.

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 add duty cycle factor for average measurements. Duty cycle factor= $10\log(1/x)$ For this sample B mode = 0dB (duty cycle >98%); G mode = 0.42dB; N mode = 0.43dB.

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

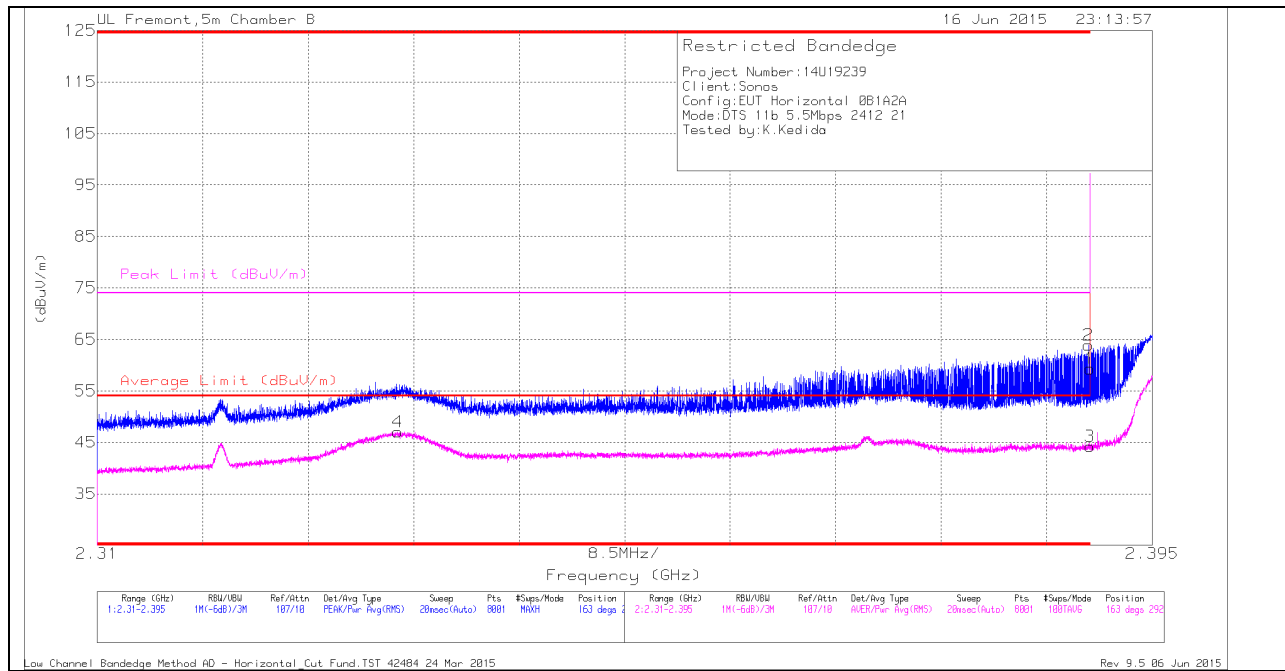
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized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

11.2. TRANSMITTER ABOVE 1 GHz (HORIZONTAL)

11.2.1. TX ABOVE 1 GHz 802.11b MODE IN THE 2.4 GHz BAND (HORIZONTAL)

RESTRICTED BANDEDGE (LOW CHANNEL)

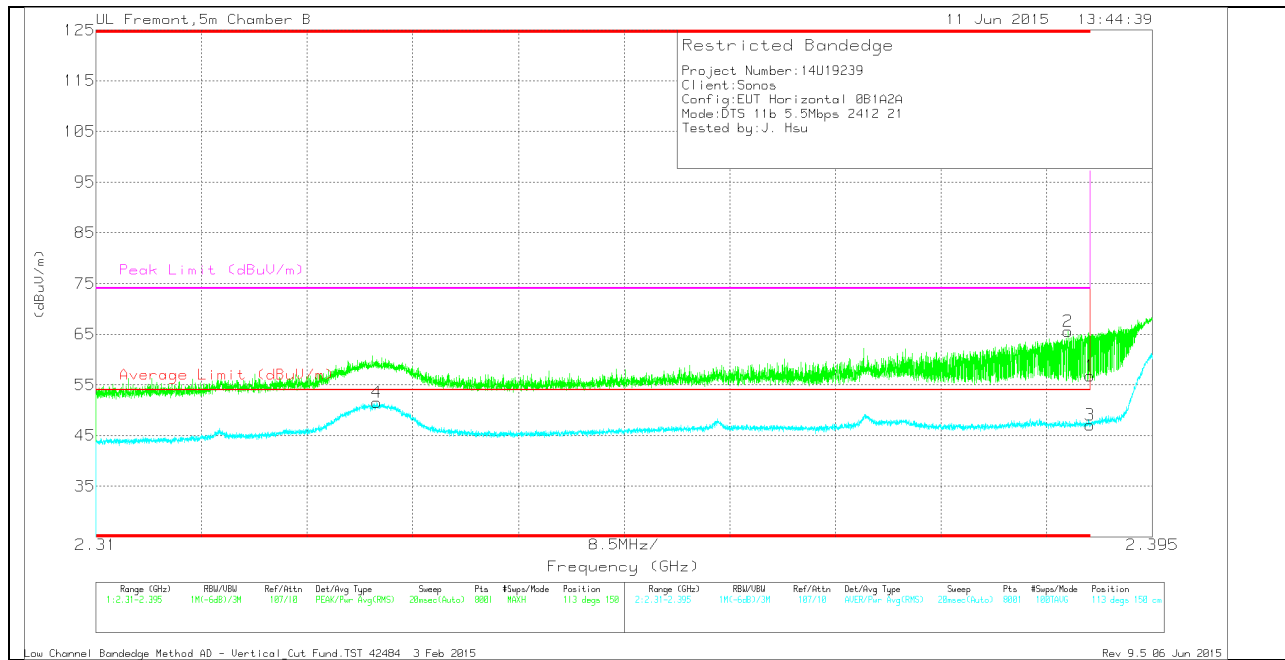
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fit r/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	47.12	Pk	32	-19.8	0	59.32	-	-	74	-14.68	163	292	H
2	* 2.39	51.69	Pk	32	-19.8	0	63.89	-	-	74	-10.11	163	292	H
3	* 2.39	31.92	RMS	32	-19.8	0	44.22	54	-9.78	-	-	163	292	H
4	* 2.334	35.14	RMS	31.7	-19.9	0	47.04	54	-6.96	-	-	163	292	H

VERTICAL PEAK AND AVERAGE PLOT

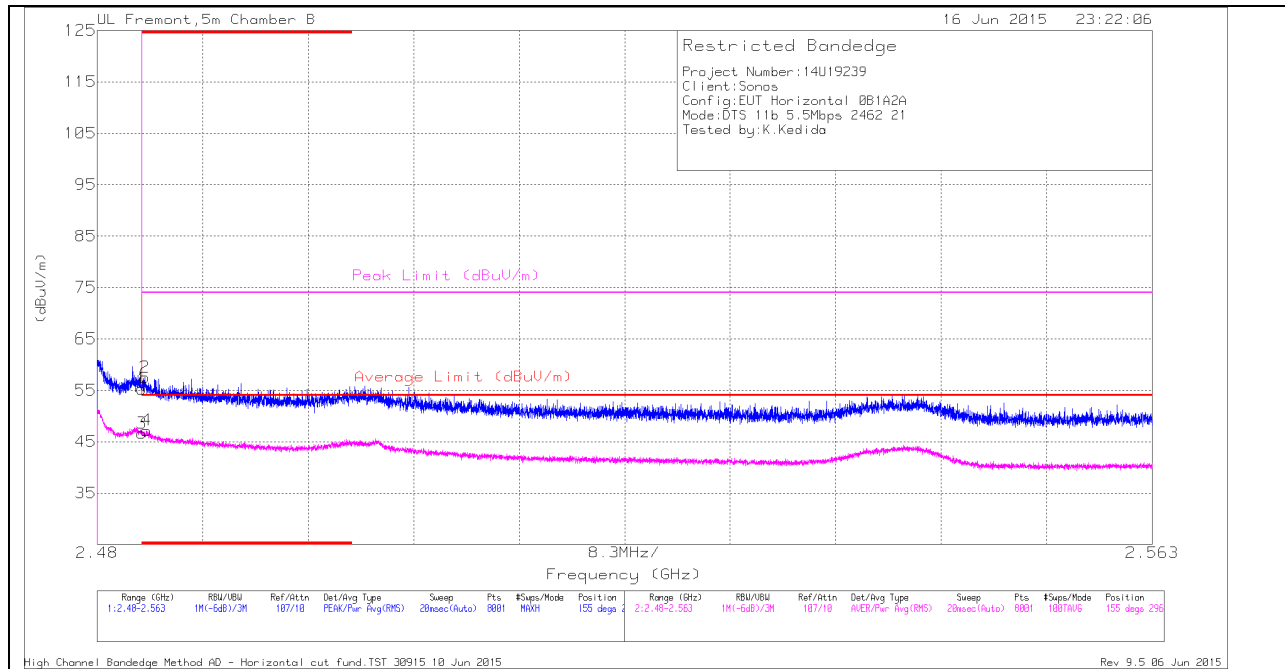


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fit r/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	45.65	Pk	32	-20.9	0	56.75	-	-	74	-17.25	113	150	V
2	* 2.388	54.42	Pk	32	-20.9	0	65.52	-	-	74	-8.48	113	150	V
3	* 2.39	35.84	RMS	32	-20.9	0	47.04	54	-6.96	-	-	113	150	V
4	* 2.333	40.58	RMS	31.7	-20.9	0	51.48	54	-2.52	-	-	113	150	V

RESTRICTED BANDEDGE (HIGH CHANNEL)

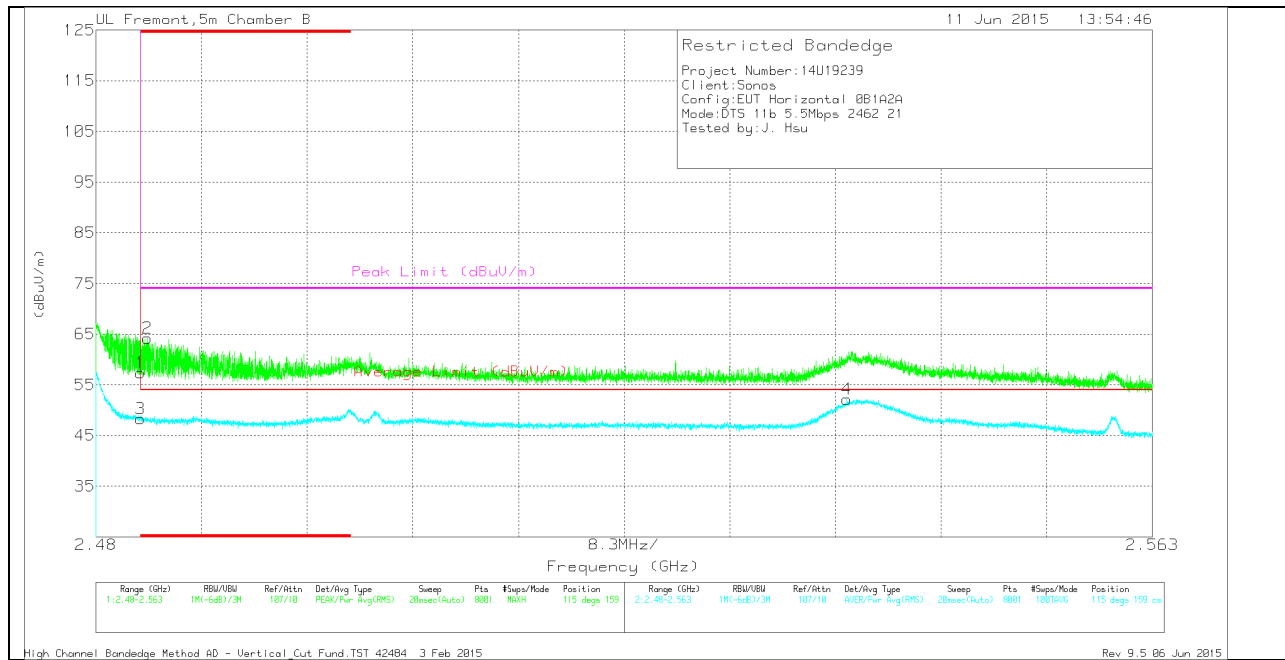
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fit r/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	42.5	Pk	32.5	-19.7	0	55.3	-	-	74	-18.7	155	296	H
2	* 2.484	44.73	Pk	32.5	-19.7	0	57.53	-	-	74	-16.47	155	296	H
3	* 2.484	33.73	RMS	32.5	-19.7	0	46.63	54	-7.37	-	-	155	296	H
4	* 2.484	34.31	RMS	32.5	-19.7	0	47.21	54	-6.79	-	-	155	296	H

VERTICAL PEAK AND AVERAGE PLOT



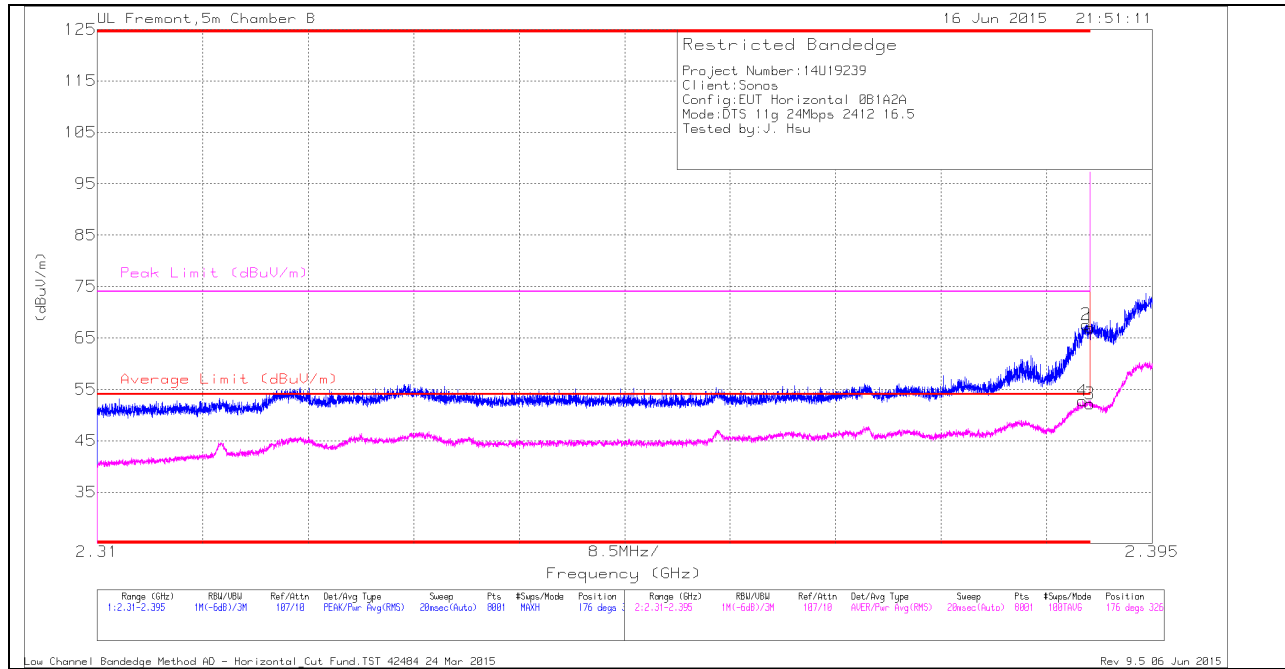
VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fit r/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	45.72	Pk	32.5	-20.9	0	57.32	-	-	74	-16.68	115	159	V
2	* 2.484	52.63	Pk	32.5	-20.9	0	64.23	-	-	74	-9.77	115	159	V
3	* 2.484	36.57	RMS	32.5	-20.9	0	48.27	54	-5.73	-	-	115	159	V
4	2.539	40.41	RMS	32.6	-20.9	0	52.21	54	-1.79	-	-	115	159	V

11.2.2. TX ABOVE 1 GHz 802.11g MODE IN THE 2.4 GHz BAND (HORIZONTAL)

RESTRICTED BANDEDGE (LOW CHANNEL CH1)

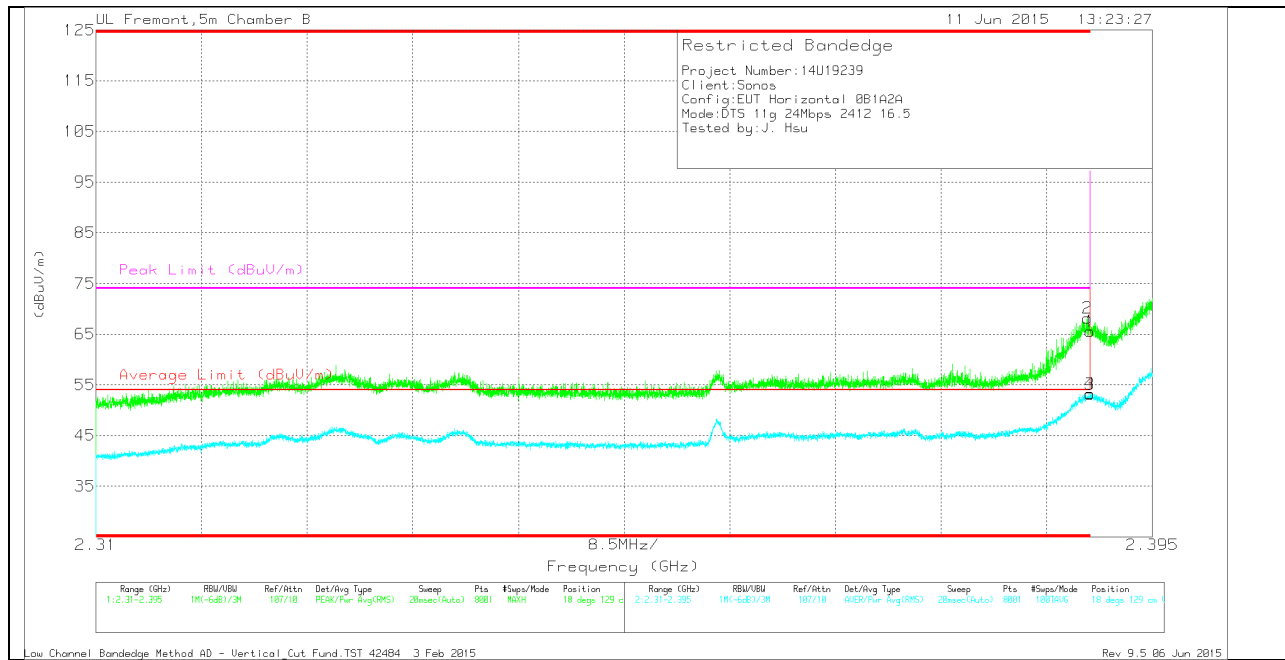
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Plt r/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	* 2.389	40.15	RMS	32	-19.8	.42	52.78	54	-1.22	-	-	176	326	H
1	* 2.39	54.73	Pk	32	-19.8	0	66.93	-	-	74	-7.07	176	317	H
2	* 2.39	55.38	Pk	32	-19.8	0	67.58	-	-	74	-6.42	176	317	H
3	* 2.39	39.55	RMS	32	-19.8	.42	52.18	54	-1.82	-	-	176	326	H

VERTICAL PEAK AND AVERAGE PLOT

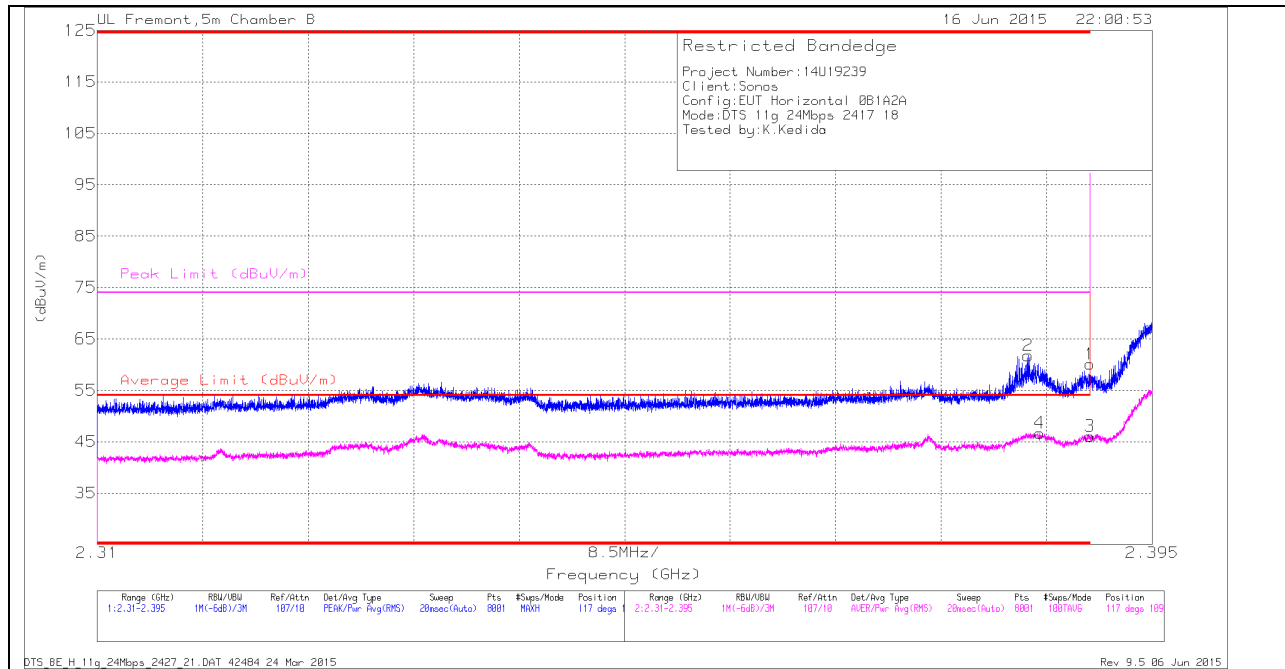


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fitter/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	54.48	Pk	32	-20.9	0	65.58	-	-	74	-8.42	18	129	V
2	* 2.39	57.04	Pk	32	-20.9	0	68.14	-	-	74	-5.86	18	129	V
3	* 2.39	41.63	RMS	32	-20.9	.42	53.14	54	-.86	-	-	18	129	V
4	* 2.39	41.74	RMS	32	-20.9	.42	53.25	54	-.75	-	-	18	129	V

RESTRICTED BANDEDGE (LOW CHANNEL CH2)

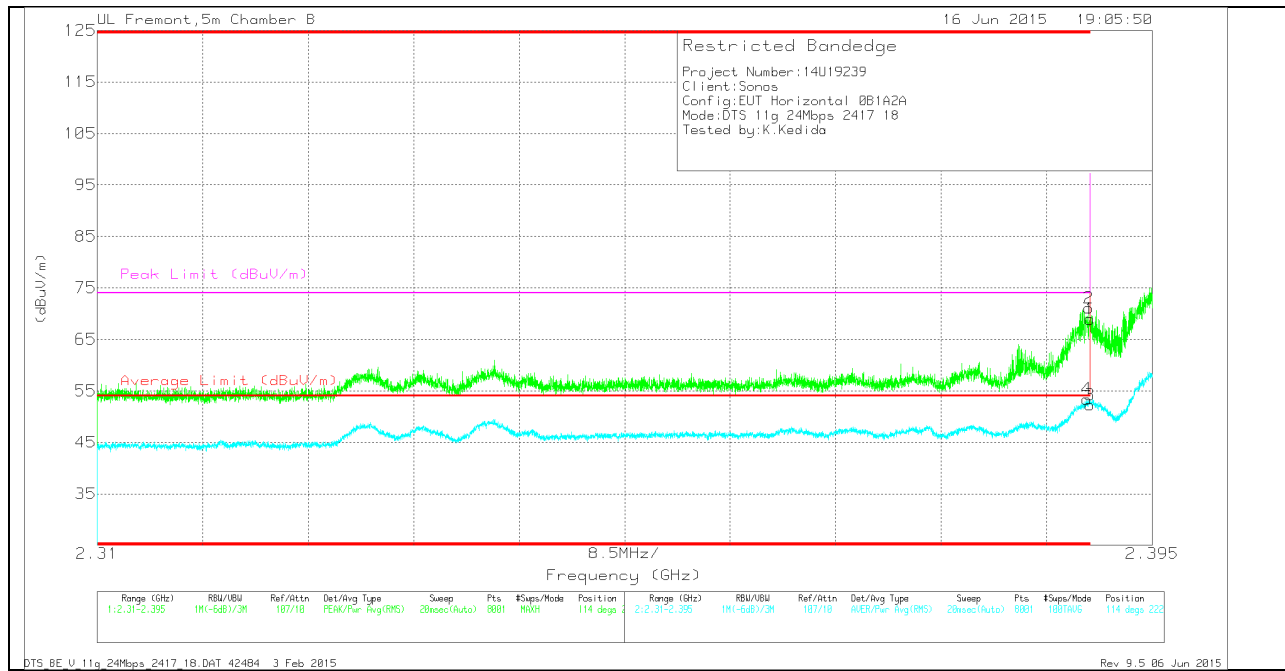
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.385	49.56	Pk	32	-19.8	0	61.76	-	-	74	-12.24	117	109	H
4	* 2.386	34.07	RMS	32	-19.8	.42	46.7	54	-7.3	-	-	117	109	H
1	* 2.39	47.9	Pk	32	-19.8	0	60.1	-	-	74	-13.9	117	109	H
3	* 2.39	33.45	RMS	32	-19.8	.42	46.08	54	-7.92	-	-	117	109	H

VERTICAL PEAK AND AVERAGE PLOT

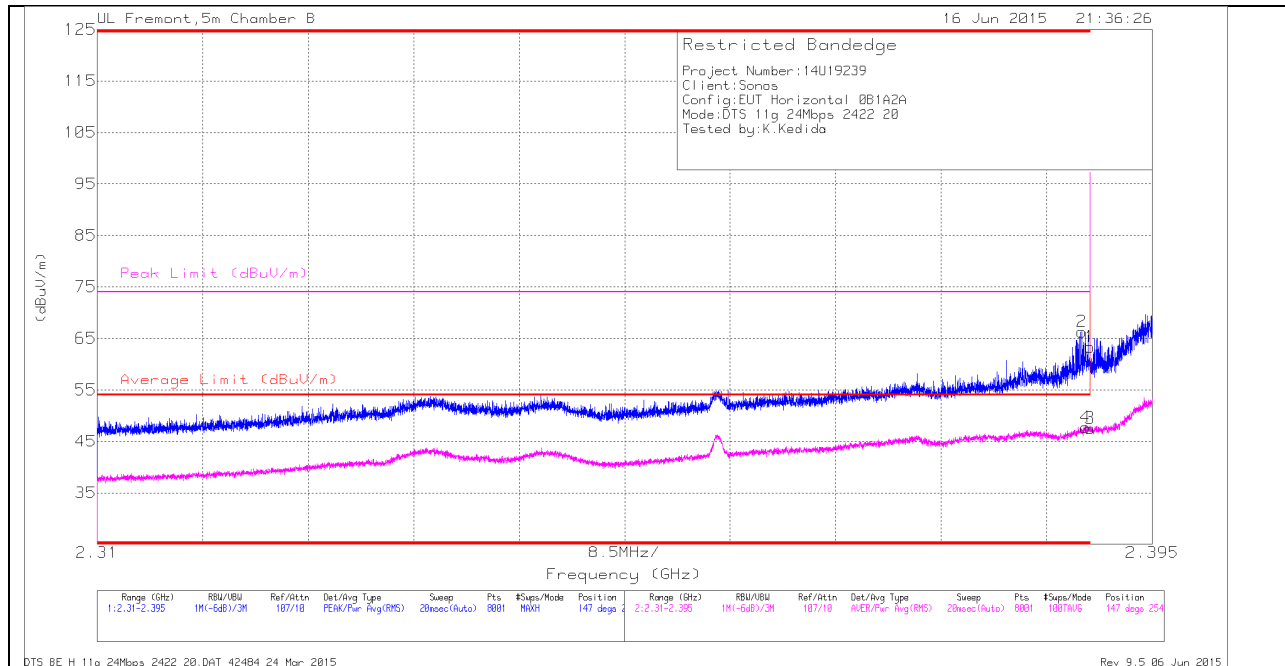


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	56.77	Pk	32	-19.8	0	68.97	-	-	74	-5.03	114	222	V
2	* 2.39	58.87	Pk	32	-19.8	0	71.07	-	-	74	-2.93	114	222	V
3	* 2.39	39.66	RMS	32	-19.8	.42	52.29	54	-1.71	-	-	114	222	V
4	* 2.39	40.78	RMS	32	-19.8	.42	53.41	54	-.59	-	-	114	222	V

RESTRICTED BANDEDGE (LOW CHANNEL CH3)

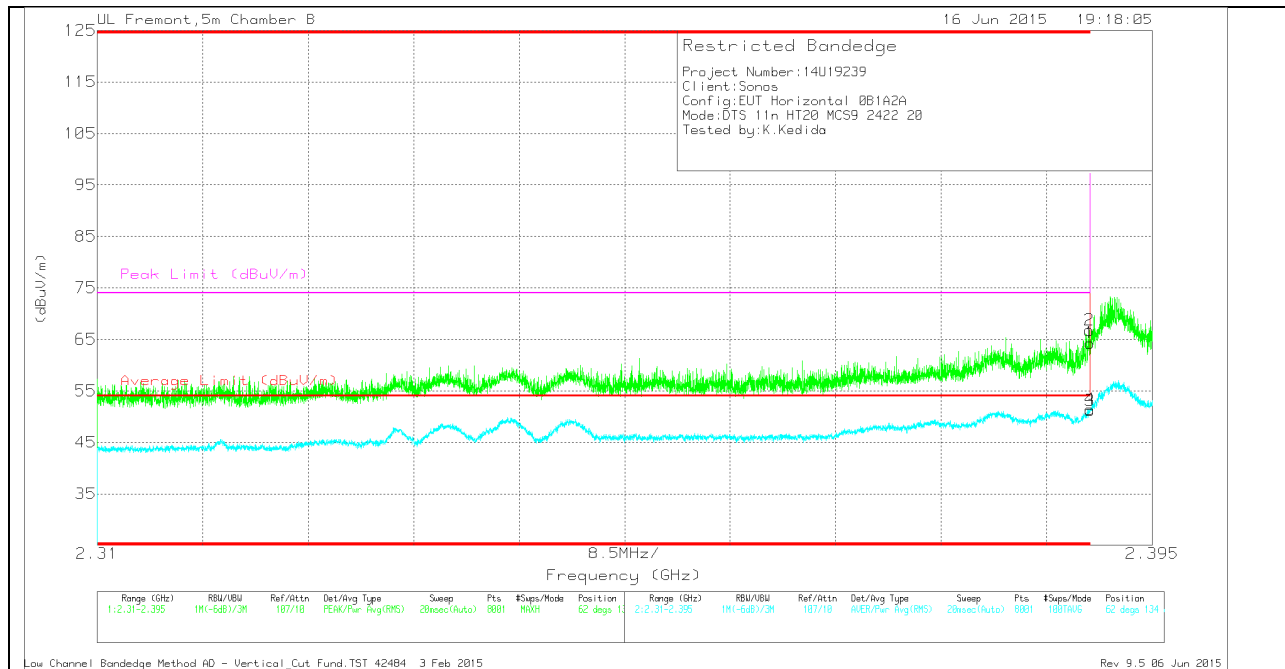
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.389	54.09	Pk	32	-19.8	0	66.29	-	-	74	-7.71	147	254	H
1	* 2.39	51.15	Pk	32	-19.8	0	63.35	-	-	74	-10.65	147	254	H
3	* 2.39	35.35	RMS	32	-19.8	.42	47.98	54	-6.02	-	-	147	254	H
4	* 2.39	35.52	RMS	32	-19.8	.42	48.15	54	-5.85	-	-	147	254	H

VERTICAL PEAK AND AVERAGE PLOT

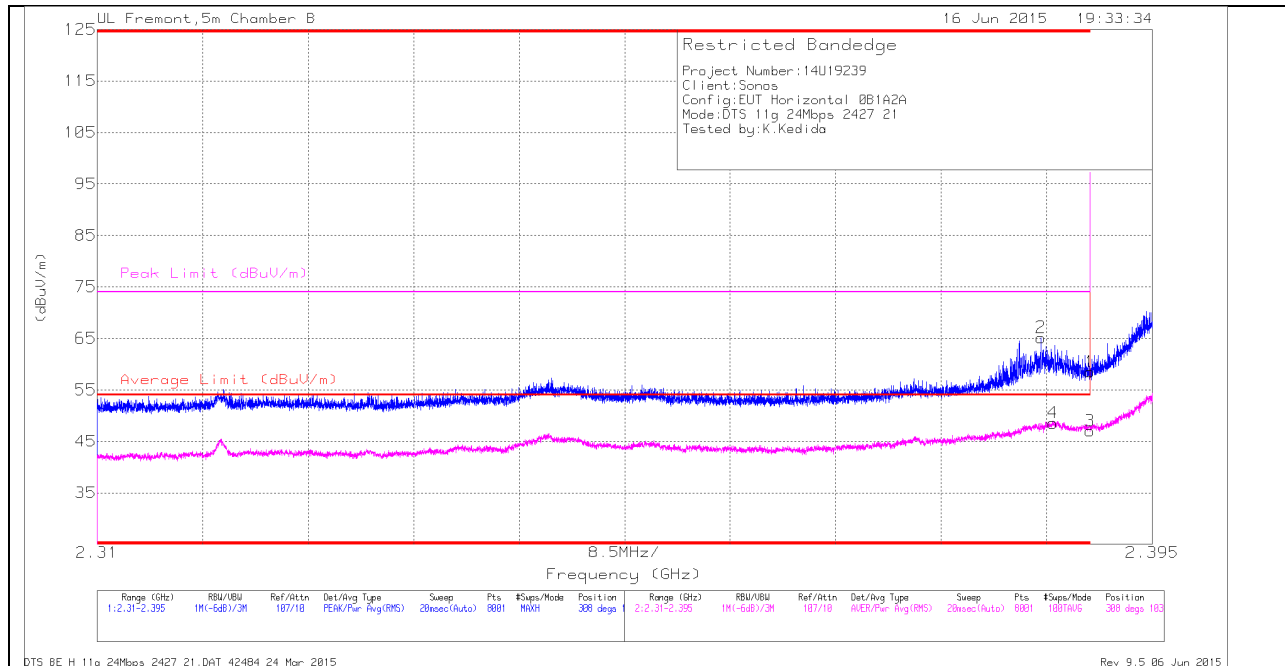


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	52.11	Pk	32	-19.8	0	64.31	-	-	74	-9.69	62	134	V
2	* 2.39	54.57	Pk	32	-19.8	0	66.77	-	-	74	-7.23	62	134	V
3	* 2.39	38.56	RMS	32	-19.8	.42	51.19	54	-2.81	-	-	62	134	V
4	* 2.39	38.79	RMS	32	-19.8	.42	51.42	54	-2.58	-	-	62	134	V

RESTRICTED BANDEDGE (LOW CHANNEL CH4)

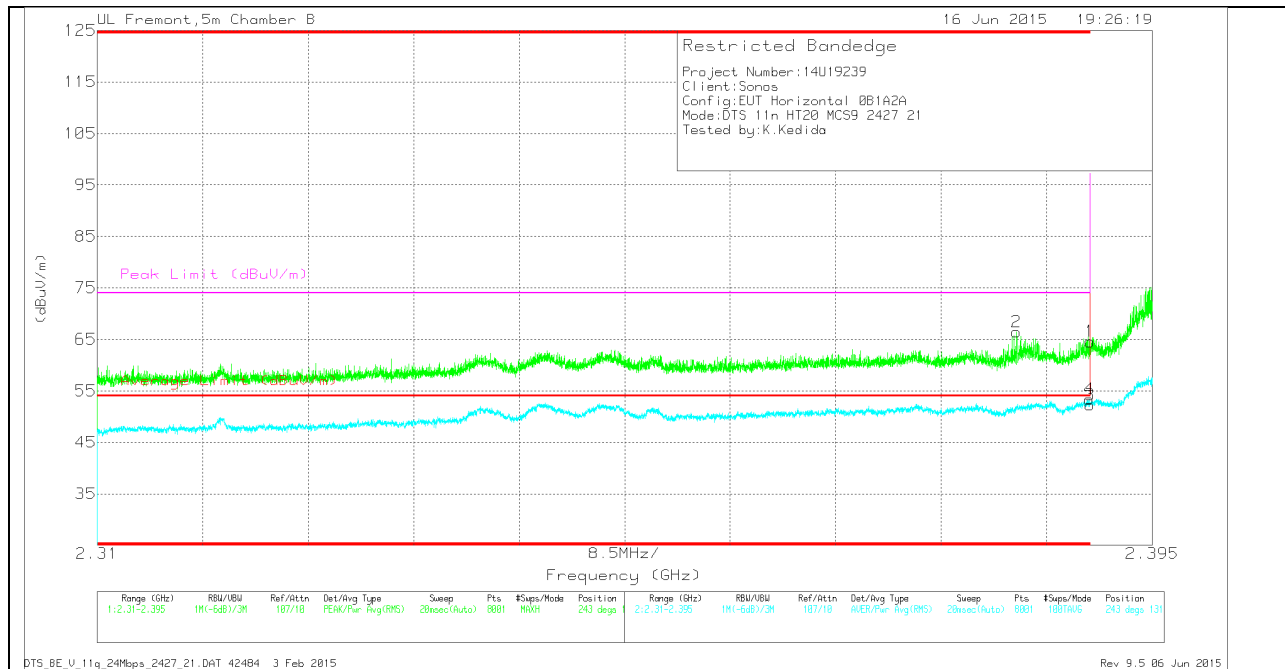
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.386	52.94	Pk	32	-19.8	0	65.14	-	-	74	-8.86	308	103	H
4	* 2.387	36.36	RMS	32	-19.8	.42	48.99	54	-5.01	-	-	308	103	H
1	* 2.39	46.32	Pk	32	-19.8	0	58.52	-	-	74	-15.48	308	103	H
3	* 2.39	34.82	RMS	32	-19.8	.42	47.45	54	-6.55	-	-	308	103	H

VERTICAL PEAK AND AVERAGE PLOT

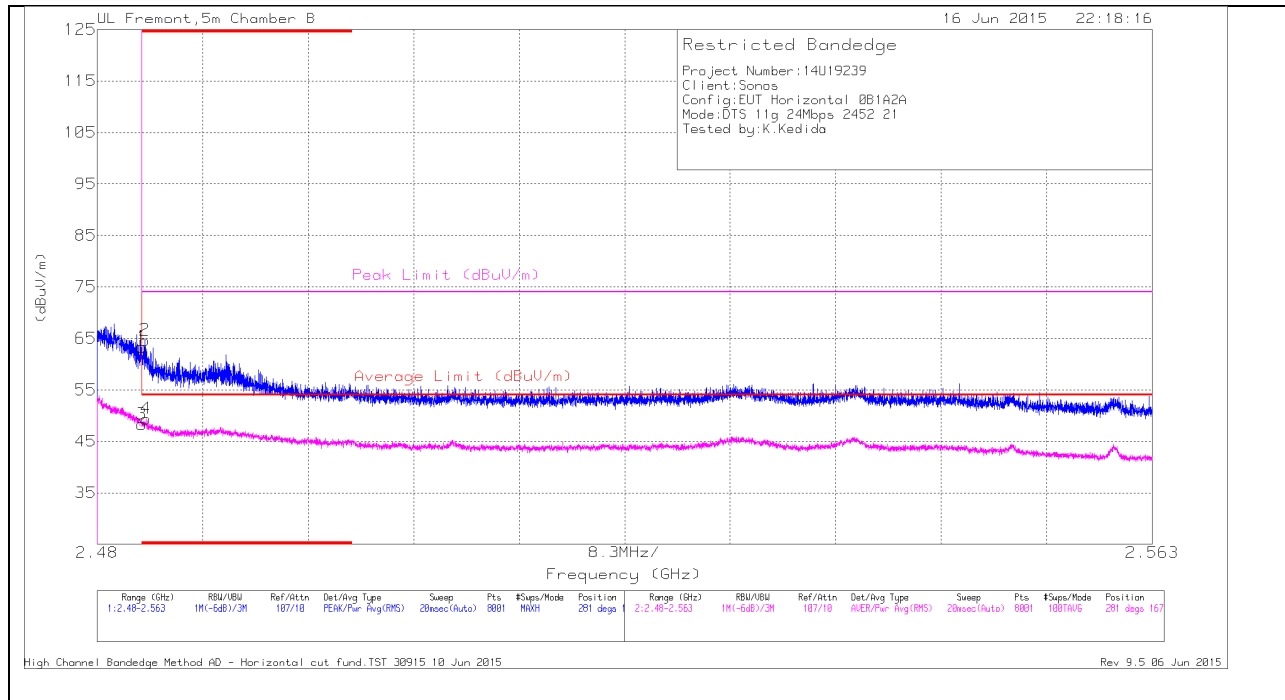


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	52.37	Pk	32	-19.8	0	64.57	-	-	74	-9.43	243	131	V
2	* 2.384	54.24	Pk	32	-19.8	0	66.44	-	-	74	-7.56	243	131	V
3	* 2.39	39.65	RMS	32	-19.8	.42	52.28	54	-1.72	-	-	243	131	V
4	* 2.39	40.73	RMS	32	-19.8	.42	53.36	54	-.64	-	-	243	131	V

RESTRICTED BANDEDGE (HIGH CHANNEL 9)

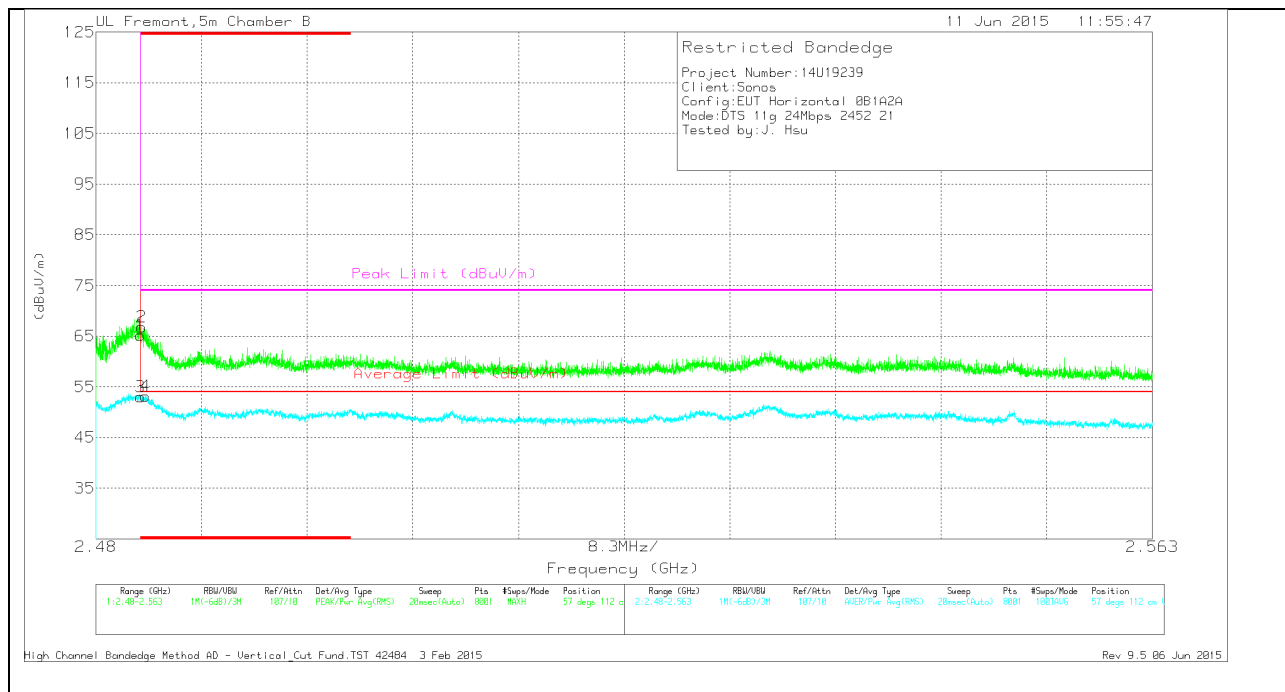
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/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	50.55	Pk	32.5	-19.7	0	63.35	-	-	74	-10.65	281	167	H
2	* 2.484	51.86	Pk	32.5	-19.7	0	64.66	-	-	74	-9.34	281	167	H
3	* 2.484	35.1	RMS	32.5	-19.7	.42	48.33	54	-5.67	-	-	281	167	H
4	* 2.484	36.18	RMS	32.5	-19.7	.42	49.41	54	-4.59	-	-	281	167	H

VERTICAL PEAK AND AVERAGE PLOT

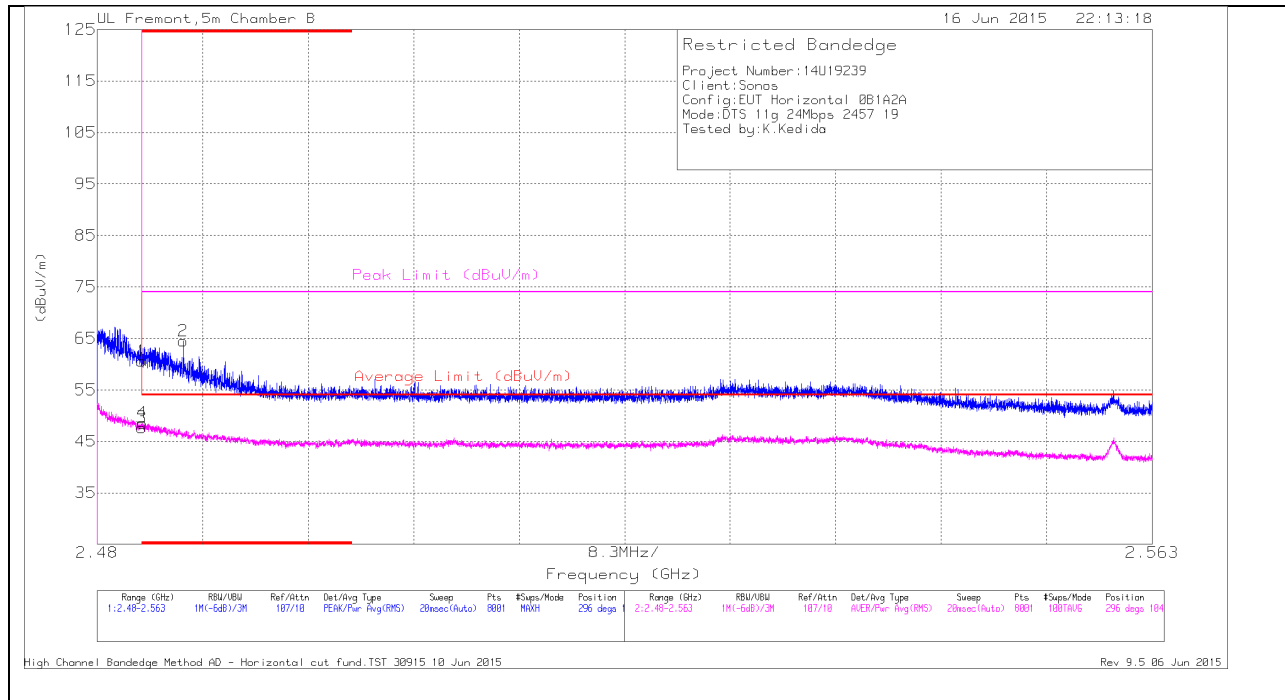


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	53.54	Pk	32.5	-20.9	0	65.14	-	-	74	-8.86	57	112	V
2	* 2.484	55.25	Pk	32.5	-20.9	0	66.85	-	-	74	-7.15	57	112	V
3	* 2.484	41.02	RMS	32.5	-20.9	.42	53.03	54	-97	-	-	57	112	V
4	* 2.484	41.12	RMS	32.5	-20.9	.42	53.13	54	-87	-	-	57	112	V

RESTRICTED BANDEDGE (HIGH CHANNEL 10)

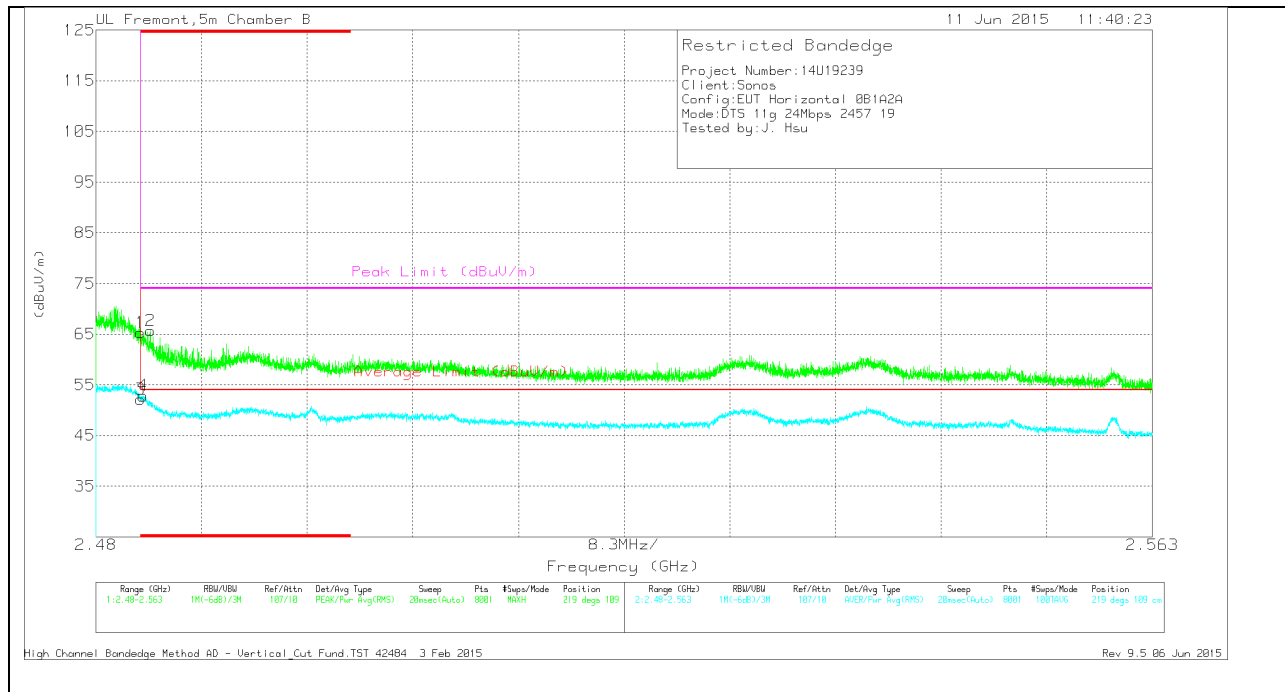
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/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	47.78	Pk	32.5	-19.7	0	60.58	-	-	74	-13.42	296	104	H
3	* 2.484	34.44	RMS	32.5	-19.7	.42	47.67	54	-6.33	-	-	296	104	H
4	* 2.484	35.33	RMS	32.5	-19.7	.42	48.56	54	-5.44	-	-	296	104	H
2	* 2.487	51.8	Pk	32.5	-19.8	0	64.5	-	-	74	-9.5	296	104	H

VERTICAL PEAK AND AVERAGE PLOT

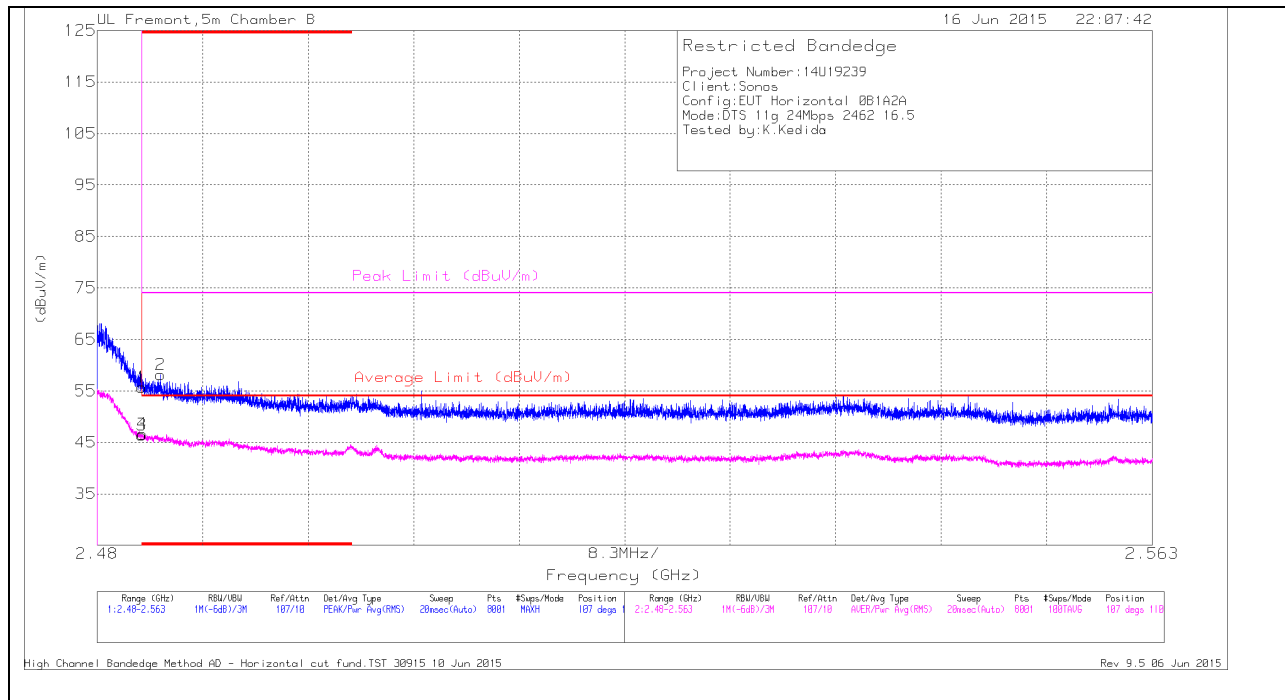


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	53.66	Pk	32.5	-20.9	0	65.26	-	-	74	-8.74	219	109	V
2	* 2.484	54.11	Pk	32.5	-20.9	0	65.71	-	-	74	-8.29	219	109	V
3	* 2.484	40.19	RMS	32.5	-20.9	.42	52.2	54	-1.8	-	-	219	109	V
4	* 2.484	40.83	RMS	32.5	-20.9	.42	52.84	54	-1.16	-	-	219	109	V

RESTRICTED BANDEGE (HIGH CHANNEL 11)

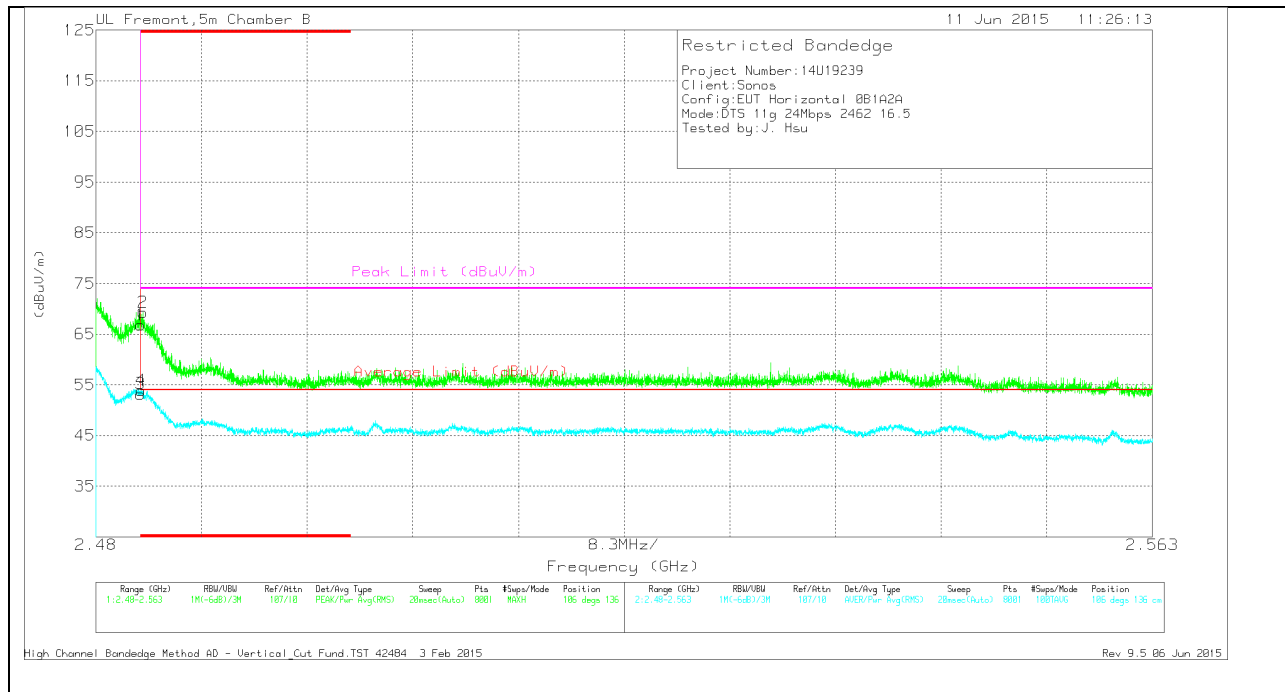
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Plt r/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	42.87	Pk	32.5	-19.7	0	55.67	-	-	74	-18.33	107	110	H
3	* 2.484	33.22	RMS	32.5	-19.7	.42	46.45	54	-7.55	-	-	107	110	H
4	* 2.484	33.38	RMS	32.5	-19.7	.42	46.61	54	-7.39	-	-	107	110	H
2	* 2.485	45.43	Pk	32.5	-19.8	0	58.13	-	-	74	-15.87	107	110	H

VERTICAL PEAK AND AVERAGE PLOT

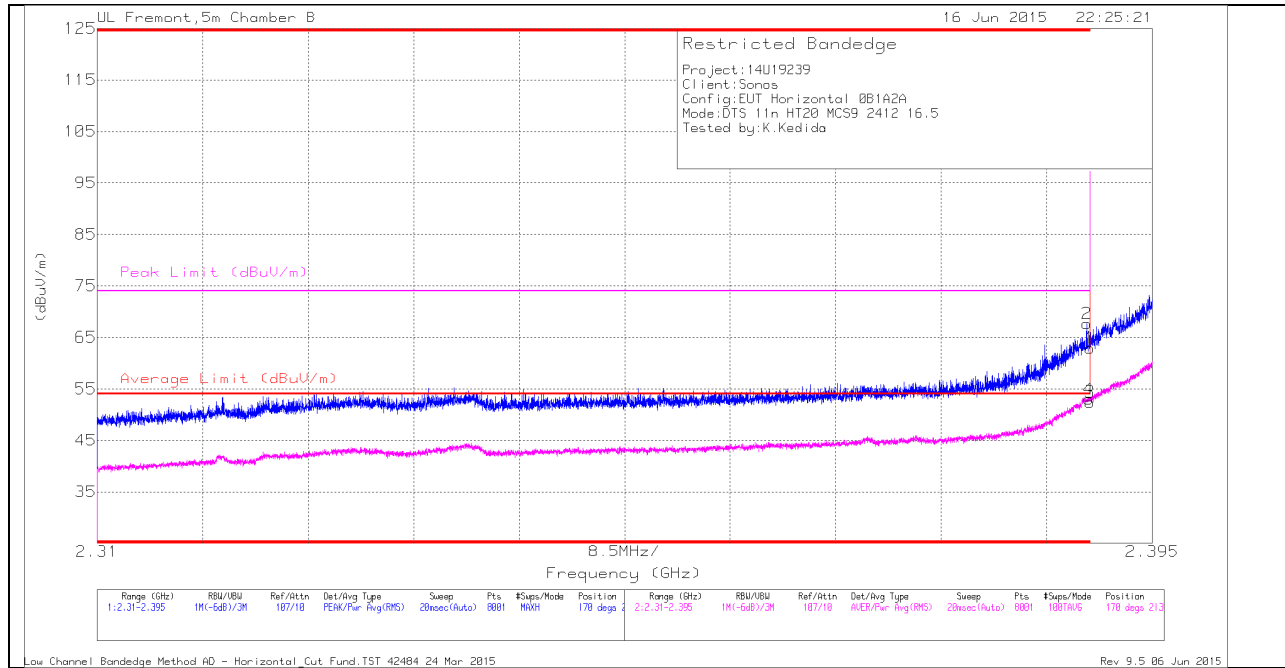


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fitter/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	55.16	Pk	32.5	-20.9	0	66.76	-	-	74	-7.24	106	136	V
2	* 2.484	57.68	Pk	32.5	-20.9	0	69.28	-	-	74	-4.72	106	136	V
3	* 2.484	41.2	RMS	32.5	-20.9	.42	53.21	54	-.79	-	-	106	136	V
4	* 2.484	41.87	RMS	32.5	-20.9	.42	53.88	54	-.12	-	-	106	136	V

**11.2.3. TX ABOVE 1 GHz 802.11n HT20 MODE IN THE 2.4 GHz BAND
 (HORIZONTAL)
 RESTRICTED BANDEDGE (LOW CHANNEL 1)**

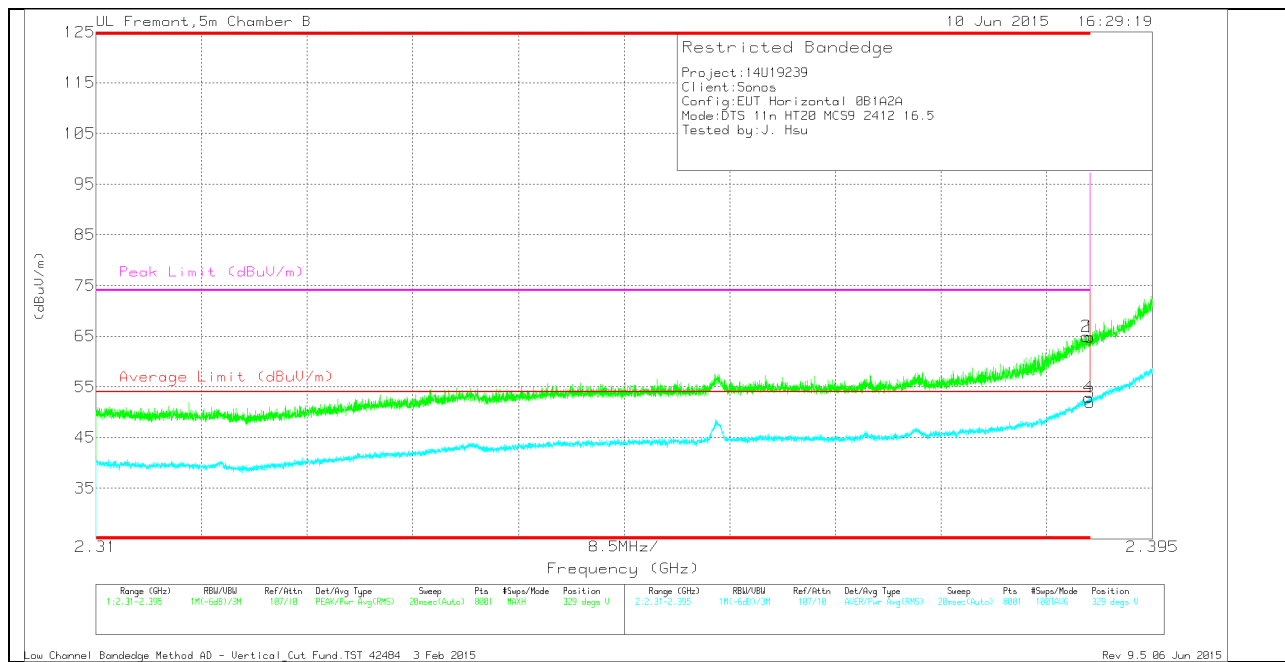
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filt r/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	50.75	Pk	32	-19.8	0	62.95	-	-	74	-11.05	170	213	H
2	* 2.39	55.47	Pk	32	-19.8	0	67.67	-	-	74	-6.33	170	213	H
3	* 2.39	40.23	RMS	32	-19.8	.43	52.85	54	-1.15	-	-	170	213	H
4	* 2.39	40.78	RMS	32	-19.8	.43	53.4	54	-.6	-	-	170	213	H

VERTICAL PEAK AND AVERAGE PLOT

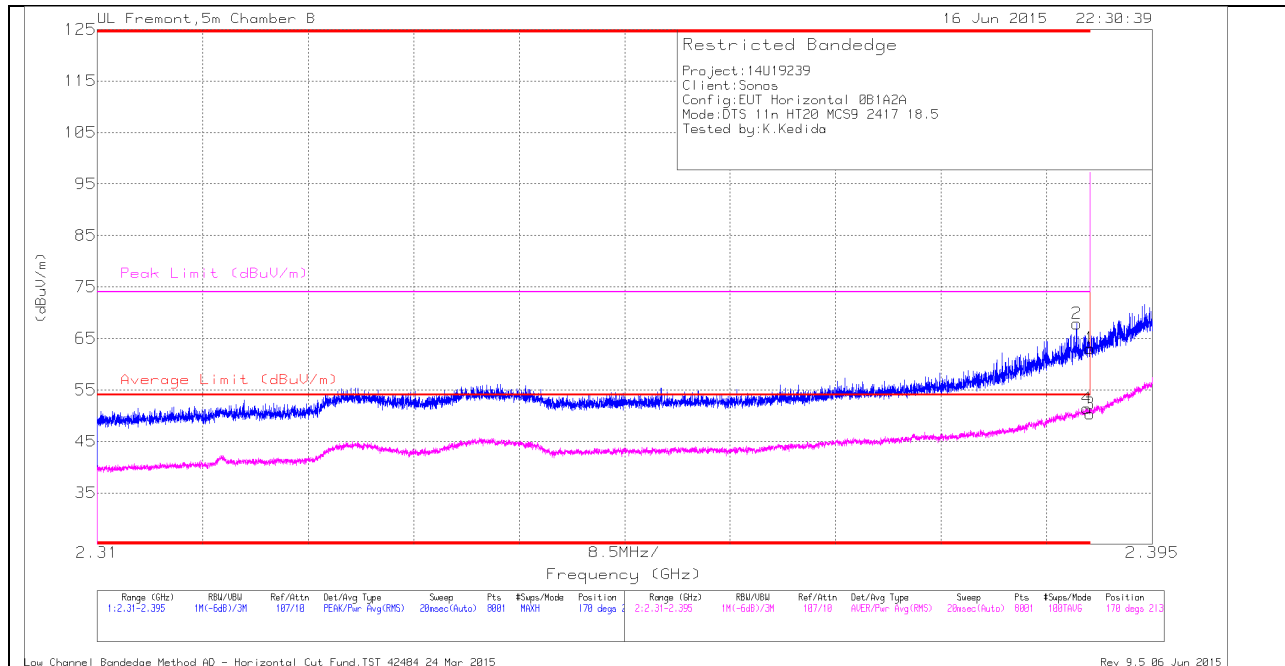


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fit r/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	53.76	Pk	32	-20.9	0	64.86	-	-	74	-9.14	329	356	V
2	* 2.39	53.89	Pk	32	-20.9	0	64.99	-	-	74	-9.01	329	356	V
3	* 2.39	40.39	RMS	32	-20.9	.43	51.91	54	-2.09	-	-	329	356	V
4	* 2.39	41.39	RMS	32	-20.9	.43	52.91	54	-1.09	-	-	329	356	V

RESTRICTED BANDEDGE (LOW CHANNEL 2)

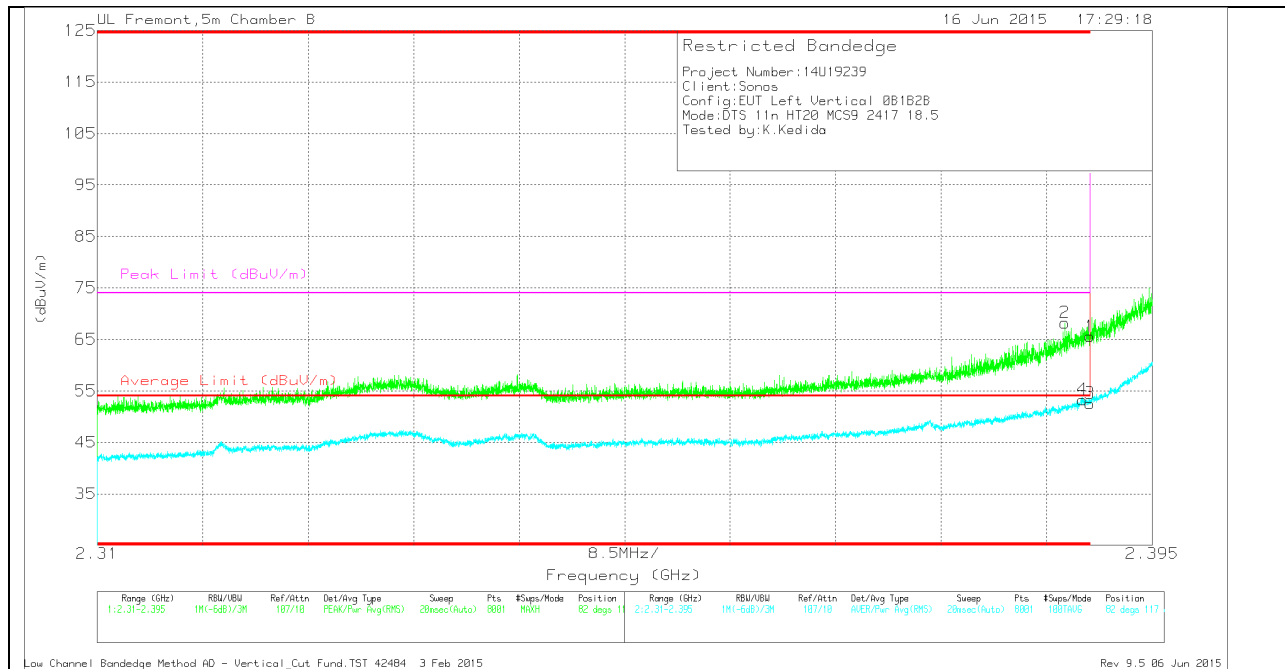
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.389	55.68	Pk	32	-19.8	0	67.88	-	-	74	-6.12	170	213	H
1	* 2.39	50.87	Pk	32	-19.8	0	63.07	-	-	74	-10.93	170	213	H
3	* 2.39	37.73	RMS	32	-19.8	.42	50.35	54	-3.65	-	-	170	213	H
4	* 2.39	38.78	RMS	32	-19.8	.42	51.4	54	-2.6	-	-	170	213	H

VERTICAL PEAK AND AVERAGE PLOT

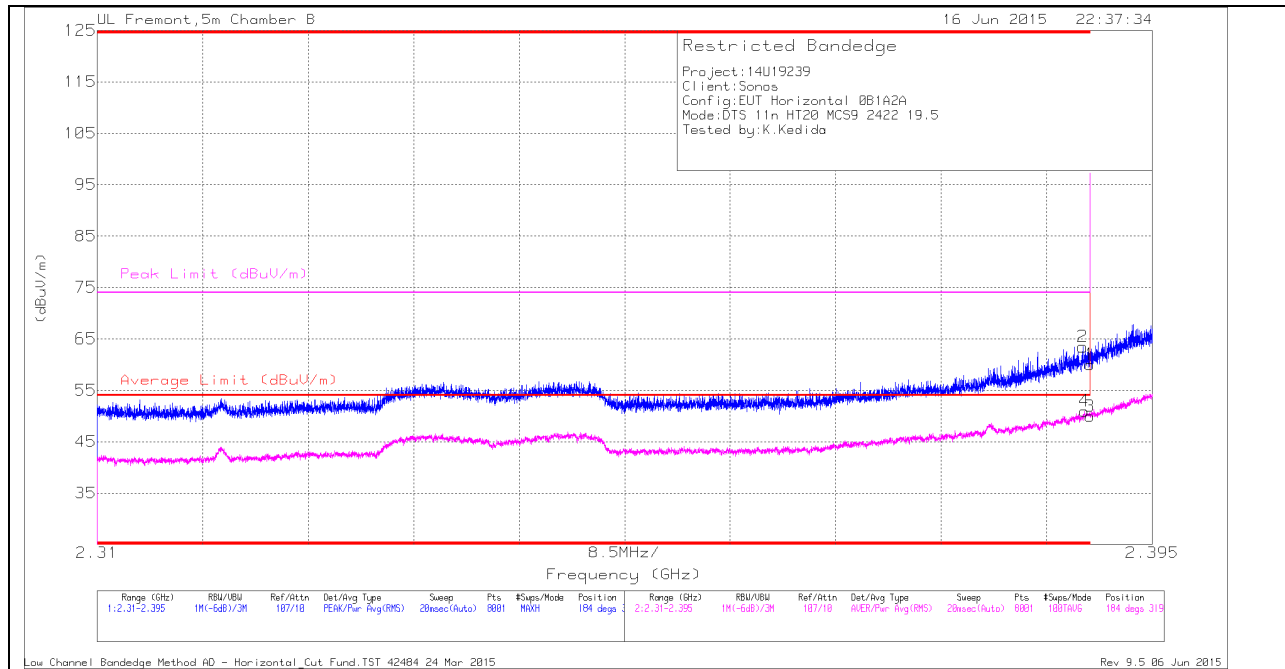


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.388	56.03	Pk	32	-19.8	0	66.23	-	-	74	-5.77	82	117	V
4	* 2.389	41.1	RMS	32	-19.8	.42	53.72	54	-.28	-	-	82	117	V
1	* 2.39	53.39	Pk	32	-19.8	0	65.59	-	-	74	-8.41	82	117	V
3	* 2.39	40.37	RMS	32	-19.8	.42	52.99	54	-1.01	-	-	82	117	V

RESTRICTED BANDEDGE (LOW CHANNEL 3)

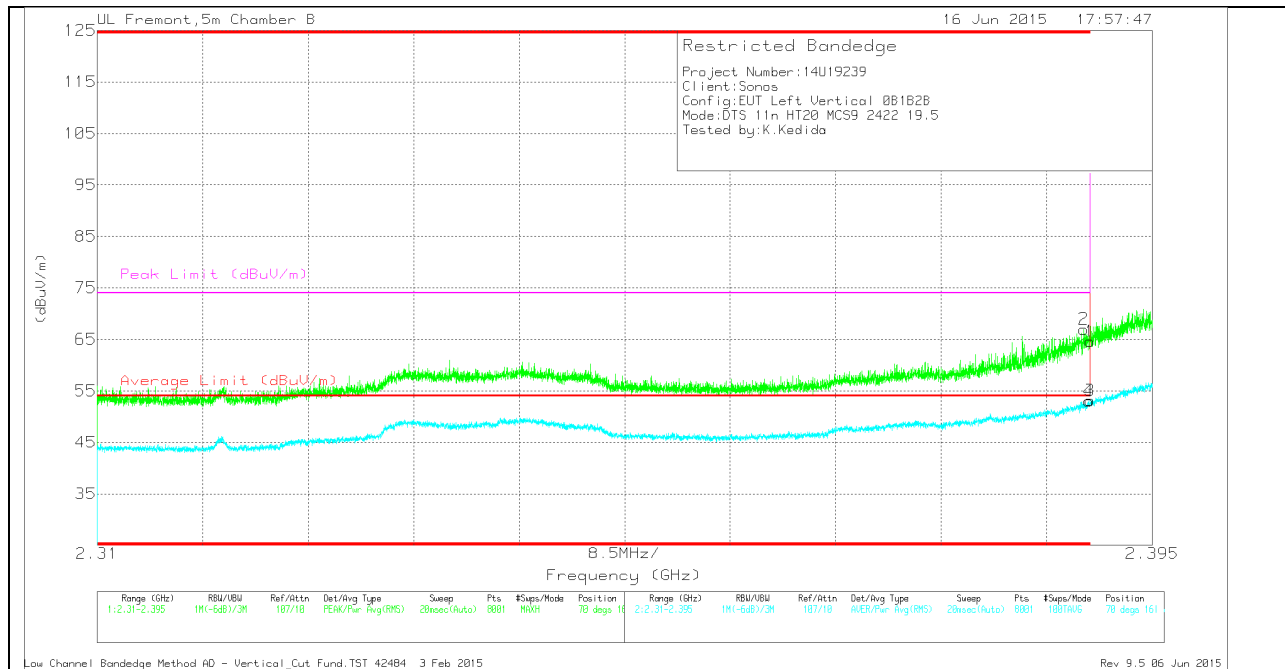
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.389	51.28	Pk	32	-19.8	0	63.48	-	-	74	-10.52	184	319	H
1	* 2.39	47.82	Pk	32	-19.8	0	60.02	-	-	74	-13.98	184	319	H
3	* 2.39	37.33	RMS	32	-19.8	.42	49.95	54	-4.05	-	-	184	319	H
4	* 2.39	38.35	RMS	32	-19.8	.42	50.97	54	-3.03	-	-	184	319	H

VERTICAL PEAK AND AVERAGE PLOT

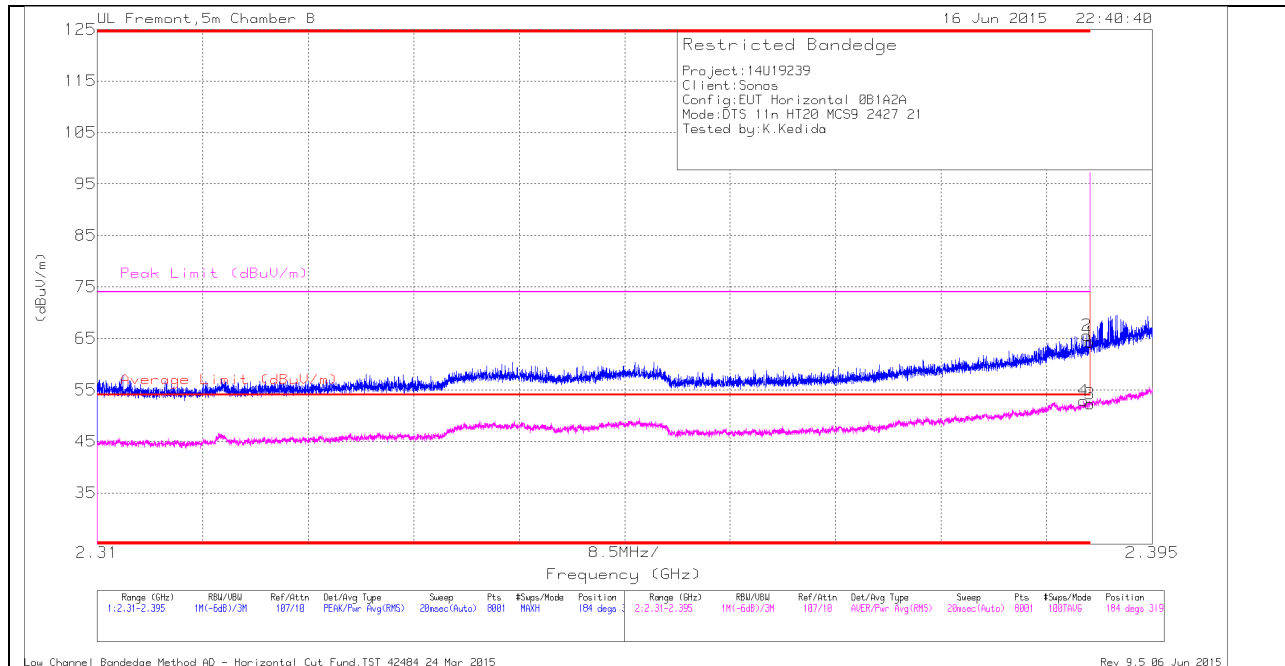


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.389	54.78	Pk	32	-19.8	0	66.95	-	-	74	-7.02	70	161	V
1	* 2.39	52.41	Pk	32	-19.8	0	64.61	-	-	74	-9.39	70	161	V
3	* 2.39	40.51	RMS	32	-19.8	.42	53.13	54	-0.87	-	-	70	161	V
4	* 2.39	40.37	RMS	32	-19.8	.42	52.99	54	-1.01	-	-	70	161	V

RESTRICTED BANDEDGE (LOW CHANNEL 4)

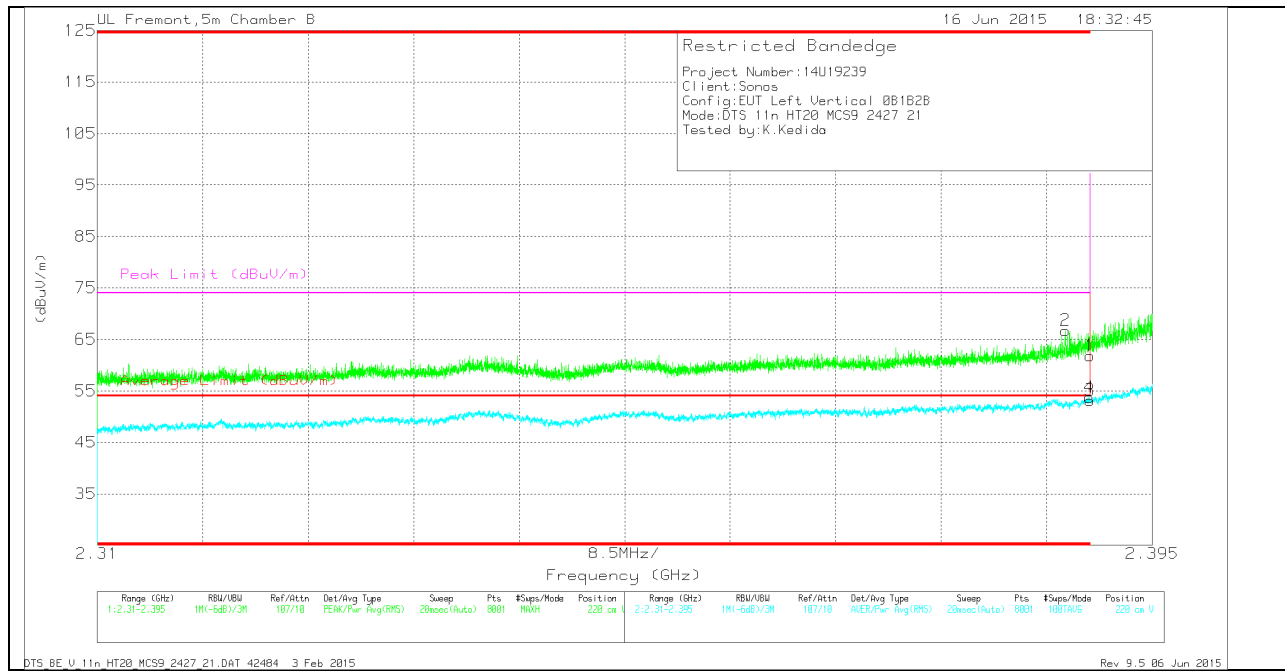
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/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	52.06	Pk	32	-19.8	0	64.26	-	-	74	-9.74	184	319	H
2	* 2.39	53.4	Pk	32	-19.8	0	65.6	-	-	74	-8.4	184	319	H
3	* 2.39	39.66	RMS	32	-19.8	.42	52.28	54	-1.72	-	-	184	319	H
4	* 2.389	40.24	RMS	32	-19.8	.42	52.86	54	-1.14	-	-	184	319	H

VERTICAL PEAK AND AVERAGE PLOT

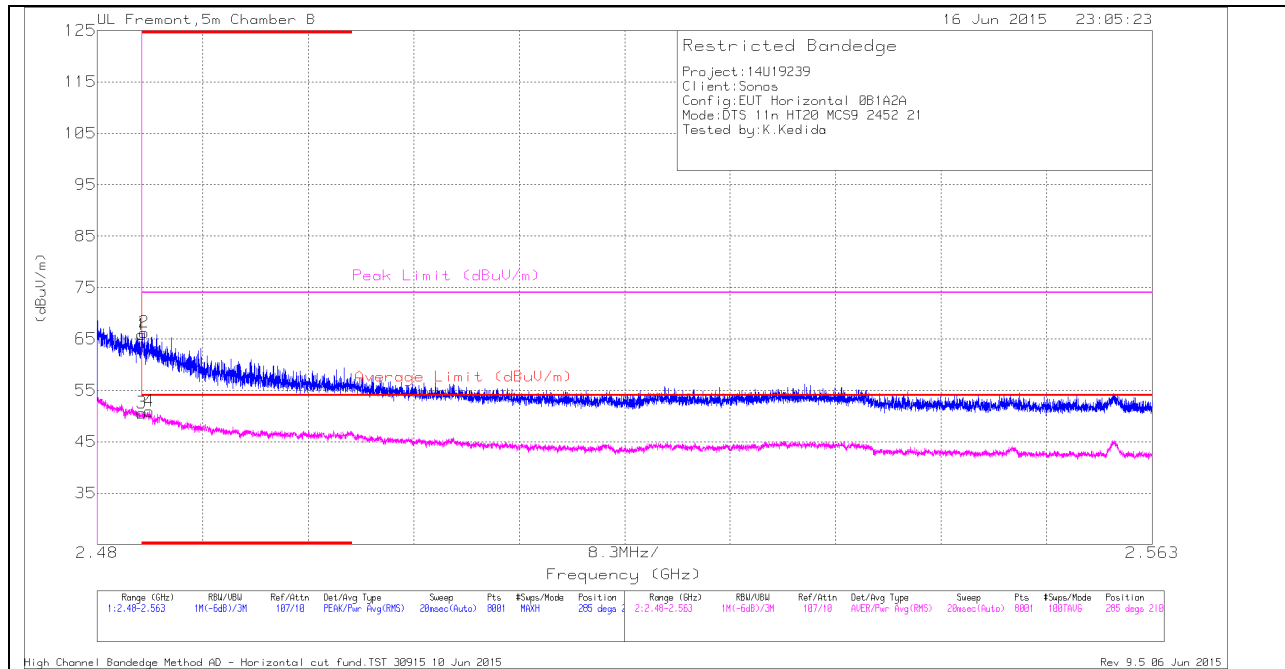


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Height (cm)	Polarity
1	* 2.39	49.65	Pk	32	-19.8	0	61.85	-	-	74	-12.15	220	V
2	* 2.388	54.54	Pk	32	-19.8	0	66.74	-	-	74	-7.26	220	V
3	* 2.39	40.54	RMS	32	-19.8	.42	53.16	54	-.84	-	-	220	V
4	* 2.39	41.14	RMS	32	-19.8	.42	53.76	54	-.24	-	-	220	V

RESTRICTED BANDEDGE (HIGH CHANNEL 9)

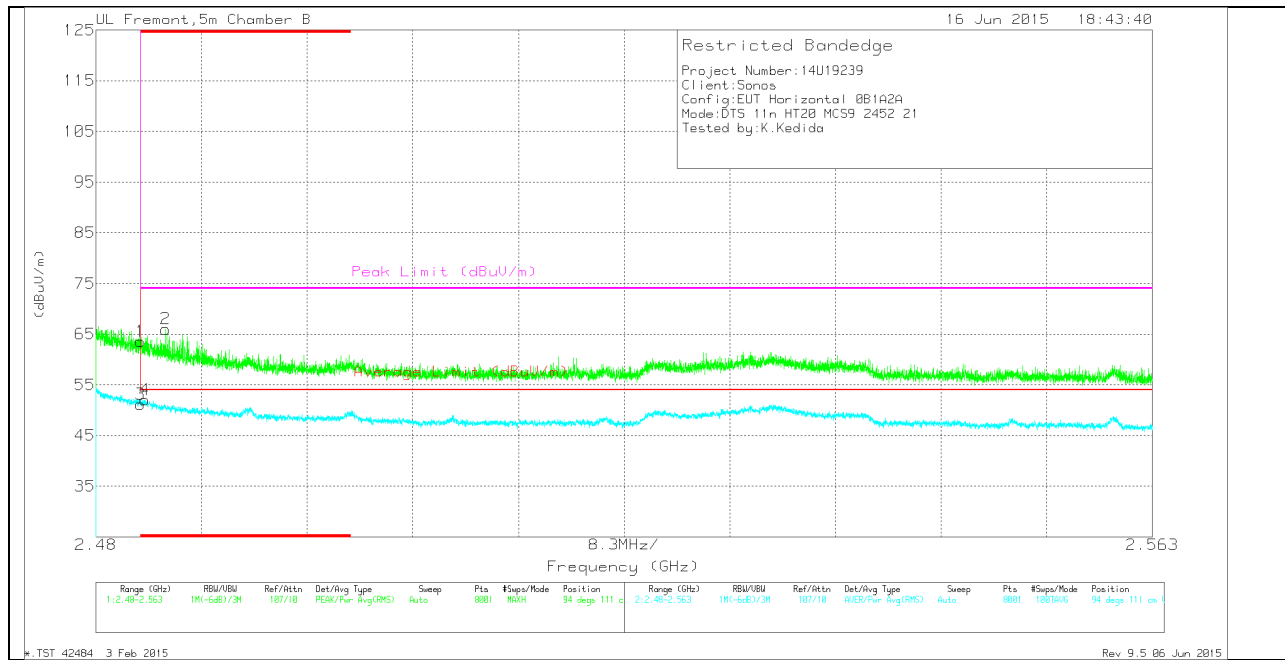
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	DC Corr (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	53.02	Pk	32.5	-19.7	0	65.82	-	-	74	-8.18	285	210	H
2	* 2.484	53.47	Pk	32.5	-19.7	0	66.27	-	-	74	-7.73	285	210	H
3	* 2.484	37.4	RMS	32.5	-19.7	.42	50.62	54	-3.38	-	-	285	210	H
4	* 2.484	37.85	RMS	32.5	-19.8	.42	50.97	54	-3.03	-	-	285	210	H

VERTICAL PEAK AND AVERAGE PLOT

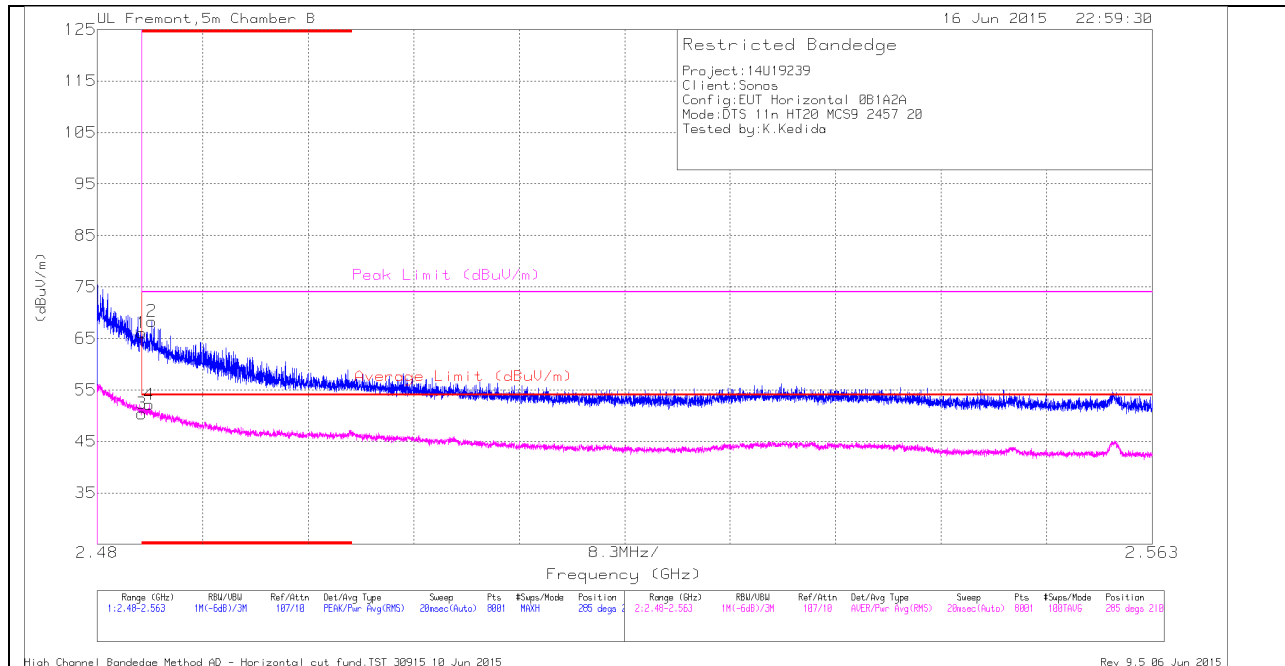


VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	50.81	Pk	32.5	-19.7	0	63.61	-	-	74	-10.39	94	111	V
2	* 2.485	53.3	Pk	32.5	-19.8	0	66	-	-	74	-8	94	111	V
3	* 2.484	37.97	RMS	32.5	-19.7	.42	51.19	54	-2.81	-	-	94	111	V
4	* 2.484	38.83	RMS	32.5	-19.7	.42	52.05	54	-1.95	-	-	94	111	V

RESTRICTED BANDEDGE (HIGH CHANNEL 10)

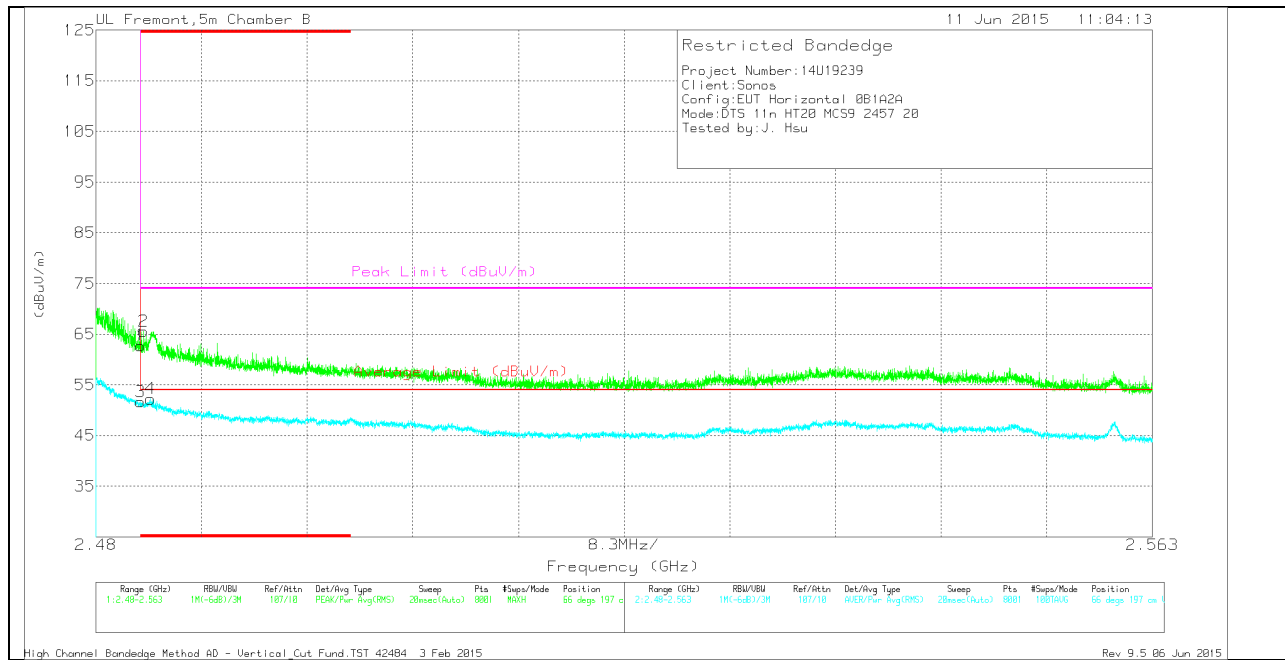
HORIZONTAL PEAK AND AVERAGE PLOT



HORIZONTAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Filter/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	53.27	Pk	32.5	-19.7	0	66.07	-	-	74	-7.93	285	210	H
2	* 2.484	55.62	Pk	32.5	-19.8	0	68.32	-	-	74	-5.68	285	210	H
3	* 2.484	37.18	RMS	32.5	-19.7	.42	50.4	54	-3.6	-	-	285	210	H
4	* 2.484	39.01	RMS	32.5	-19.8	.42	52.13	54	-1.87	-	-	285	210	H

VERTICAL PEAK AND AVERAGE PLOT



VERTICAL DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/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	51.17	Pk	32.5	-20.9	0	62.77	-	-	74	-11.23	66	197	V
2	* 2.484	53.97	Pk	32.5	-20.9	0	65.57	-	-	74	-8.43	66	197	V
3	* 2.484	39.64	RMS	32.5	-20.9	.43	51.67	54	-2.33	-	-	66	197	V
4	* 2.484	40.19	RMS	32.5	-20.9	.43	52.22	54	-1.78	-	-	66	197	V