CERTIFICATION TEST REPORT

Report Number. : 11600175-E3V2

Applicant	:	MICROSOFT CORP ONE MICROSOFT WAY REDMOND, WA 98052, U.S.A.
Model	:	1796
FCC ID	:	C3K1796
IC	:	3048A-1796
EUT Description	:	PORTABLE COMPUTING DEVICE
Test Standard(s)	:	FCC 47 CFR PART 15 SUBPART C INDUSTRY CANADA RSS - 247 ISSUE 2

Date Of Issue:
May 08, 2017

Prepared by:
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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	03/14/2017	Initial Issue	---
V2	05/08/2017	Updated Sections 5.2. 5.5, 8.2.1, 8.2.3, and 9.1	F. de Anda

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: MICROSOFT CORP
ONE MICROSOFT WAY
REDMOND, WA 98052, U.S.A.

EUT DESCRIPTION: PORTABLE COMPUTING DEVICE

MODEL: 1796

SERIAL NUMBER: 035885670353 (Conducted); 035828270353 (Radiated)

DATE TESTED: March 2nd 2017 – March 10th 2017

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

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

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

Approved & Released For
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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, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 2.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, Fremont, California, USA. Line conducted emissions are measured only at the 47173 address. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street
☒ Chamber A	☐ Chamber D
☒ Chamber B	☐ Chamber E
☒ Chamber C	☐ Chamber F
	☐ Chamber G
	☐ Chamber H

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

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.

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4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)
36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

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

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

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a handheld computing device with 802.11 2x2, a/b/g/n/ac WLAN, Bluetooth, Bluetooth LE.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11b 2TX	16.56	45.29
2412 - 2472	802.11g 2TX	17.00	50.12
2412 - 2472	802.11n HT20 2TX	17.08	51.05

List of test reduction

Antenna Port Testing		
Band	**Mode**	**Covered by**
2.4 GHz band	802.11b 1TX	802.11b 2TX
2.4 GHz band	802.11g 1TX	802.11g 2TX
2.4 GHz band	802.11n HT20 1TX	802.11n HT20 2TX

Note: 802.11n VHT20 mode is leveraged from 802.11n HT20.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integrated antenna, with a maximum gain as follows:

Frequency Band (GHz)	Antenna Gain (dBi)	
	Chain 0 (A)	Chain 1 (B)
2.4	1.80	3.20

5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 14.2.201.157

The test utility software used during testing was WiFi tool v2.7.6.

5.5. WORST-CASE CONFIGURATION AND MODE

For below 1GHz 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 X/Y/Z, it was determined that Y orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in Y 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

For MIMO modes, the 2TX emission testing was considered as a worst case scenario and was performed at power levels, per transmit chain, greater than or equal to the maximum power in any 1TX mode.

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5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop AC/DC adapter	Lenovo	ADLX45NCC2A	11S36200281ZZ20059W0H5	NA
Laptop	Lenovo	11e	LR-04N7BL	NA
USB-Internet Adapter	linksys	USB3GIGV1	15710S08406242	NA

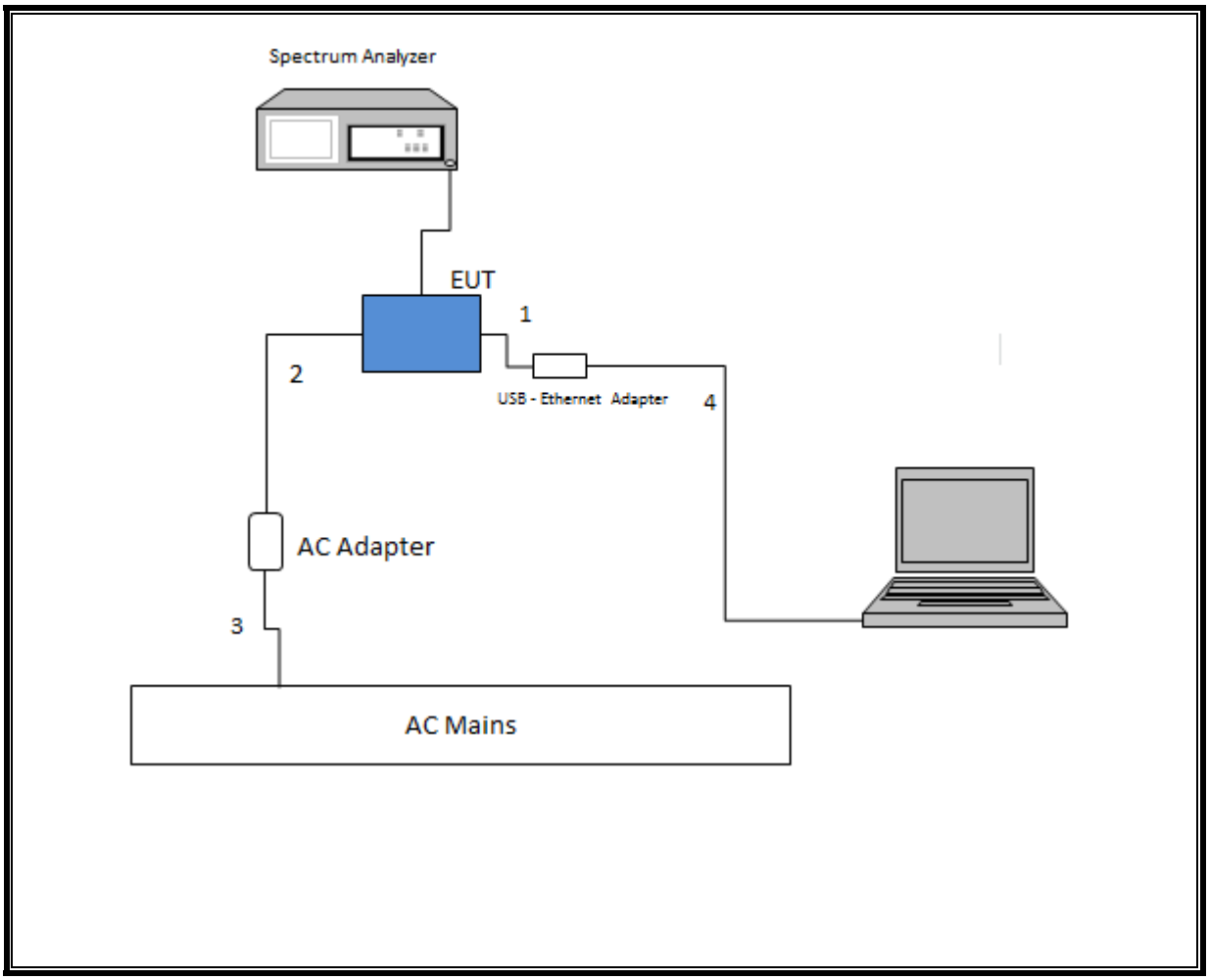
I/O CABLES

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Un-Shielded	0.17	
2	DC	1	Proprietary	Un-Shielded	1.75	
3	AC	1	2-prong	Un-Shielded	0.5	
4	Ethernet	1	RJ45	Un-Shielded	2	

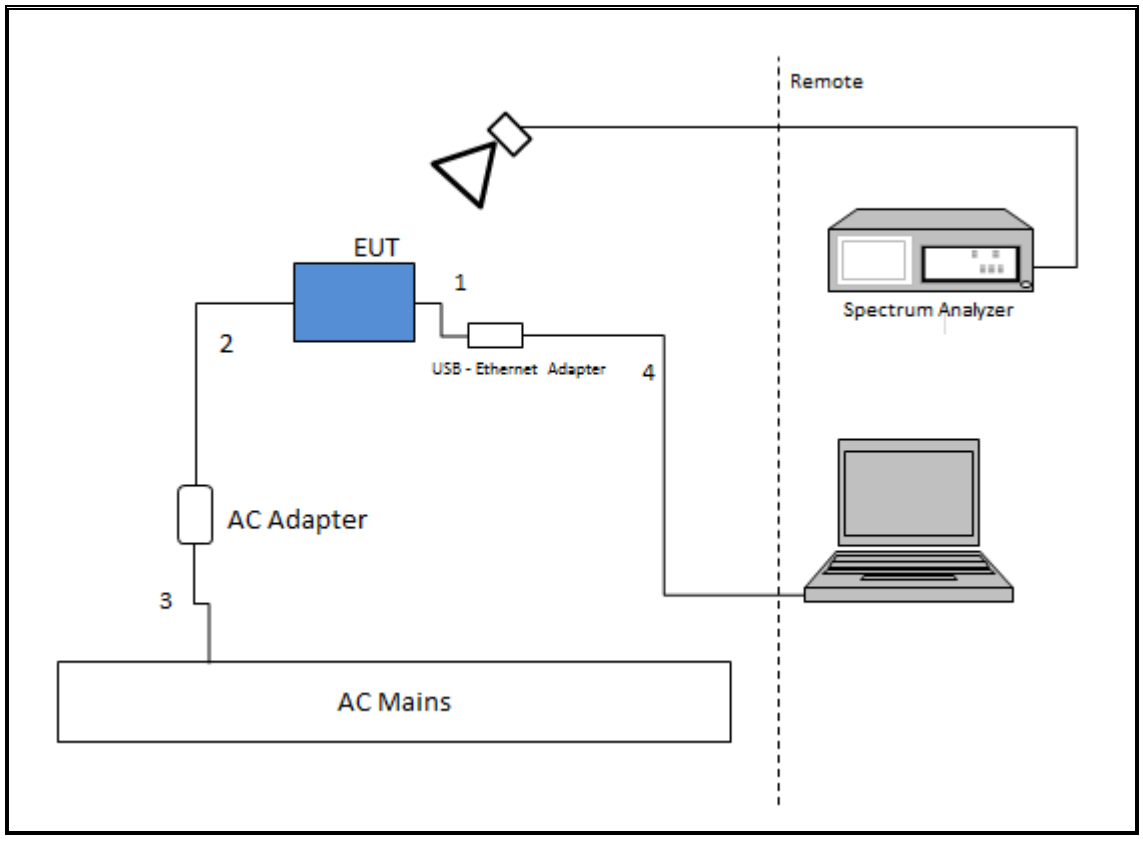
TEST SETUP

The EUT was tested connected to a host Laptop via RJ45/USB cable for antenna port and AC tests. Radiated tests were performed with EUT connected to AC adapter and remote laptop. Test software exercised the radio card.

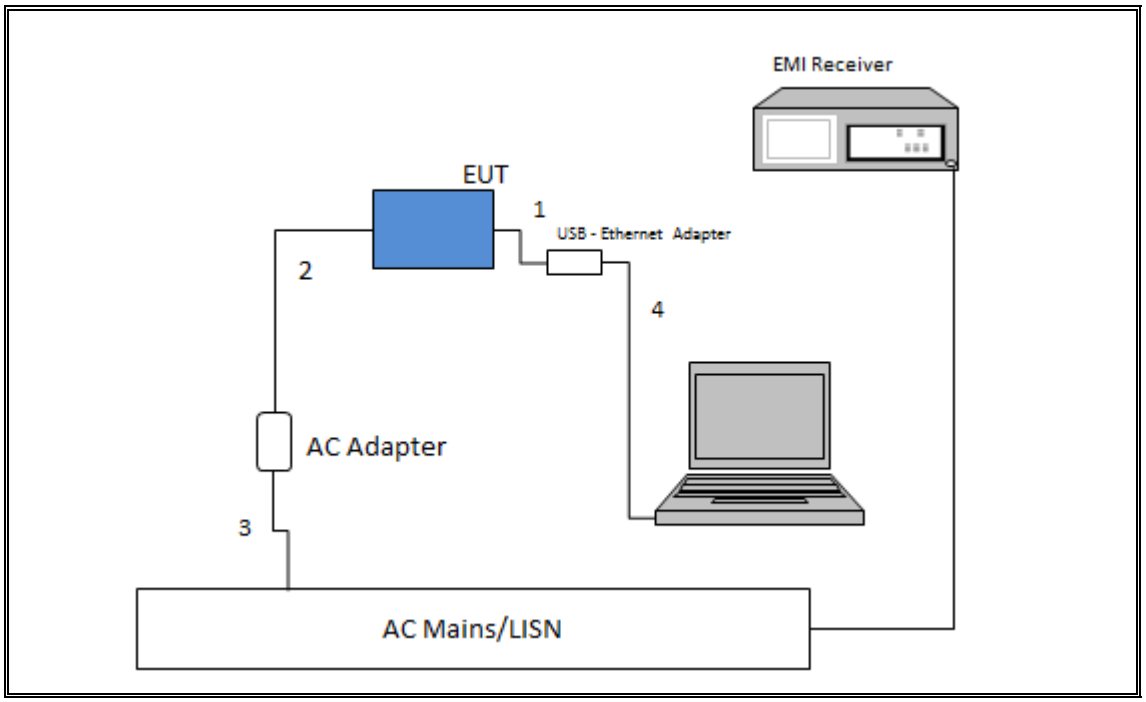
SETUP DIAGRAM FOR ANTENNA PORT CONDUCTED TESTS



SETUP DIAGRAM FOR RADIATED TESTS



SETUP DIAGRAM FOR AC LINE CONDUCTED 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**
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences Corp.	JB3	T408	11/10/17
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T712	01/30/18
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T711	01/30/18
High Pass Filter 3GHz	Micro-Tronics	HPM17543	T896	8/26/2017
High Pass Filter 3GHz	Micro-Tronics	HPM17543	T486	8/1/2017
RF Preamplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T931	08/26/17
RF Preamplifier, 1 - 7GHz	Miteq	AMF-4D-01000800-30-29P	T1574	08/26/17
RF Preamplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T1165	08/01/17
RF Preamplifier, 1 - 7GHz	Amplical	AMP1G6-10-27	T1370	04/15/17
RF Preamplifier, 10kHz - 1GHz	Sonoma	310N	T15	08/26/17
Spectrum Analyzer	Agilent (Keysight) Technologies	E4440A	T199	7/22/17
Spectrum Analyzer	Keysight	N9030A	T905	01/11/18
Spectrum Analyzer	Keysight	N9030A	T908	04/13/17
LISN	Fischer Custom Communications	FCC-LISN-50/250-25-2-01	T1310	6/8/2017
EMI Receiver	Rohde & Schwarz	ESR	T1436	1/6/2018
Antenna, Horn, 18-26 GHz	ARA	MWH-1826/B	T449	05/26/17
RF Preamplifier, 1 - 26GHz	Agilent	8449B	T404	07/05/17
Spectrum Analyzer	HP	8564E	T106	09/07/17
Power Meter	Keysight	N1911A	T229	7/28/17
Power Sensor	Keysight	N1921A	T413	6/20/17

Test Software List			
Description	**Manufacturer**	**Model**	**Version**
Radiated Software	UL	UL EMC	9.5, 4/26/16
Antenna Port Software	UL	UL RF	6.1, 3/1/17
Conducted Emissions Software	UL	UL EMC	9.5, 5/26/15

7. MEASUREMENT METHODS

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 10.3.

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.

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8. ANTENNA PORT TEST RESULTS

ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

PROCEDURE

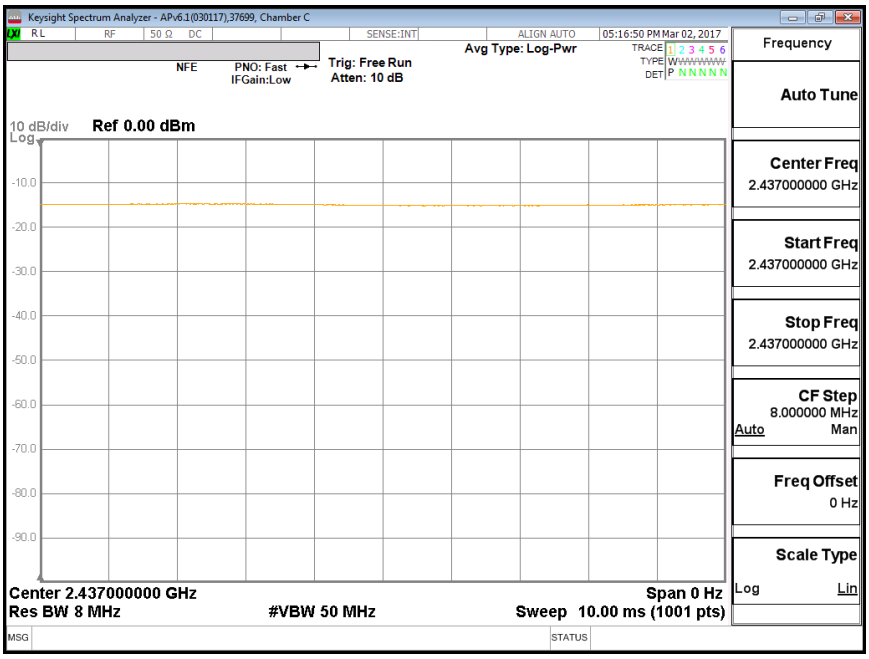
KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

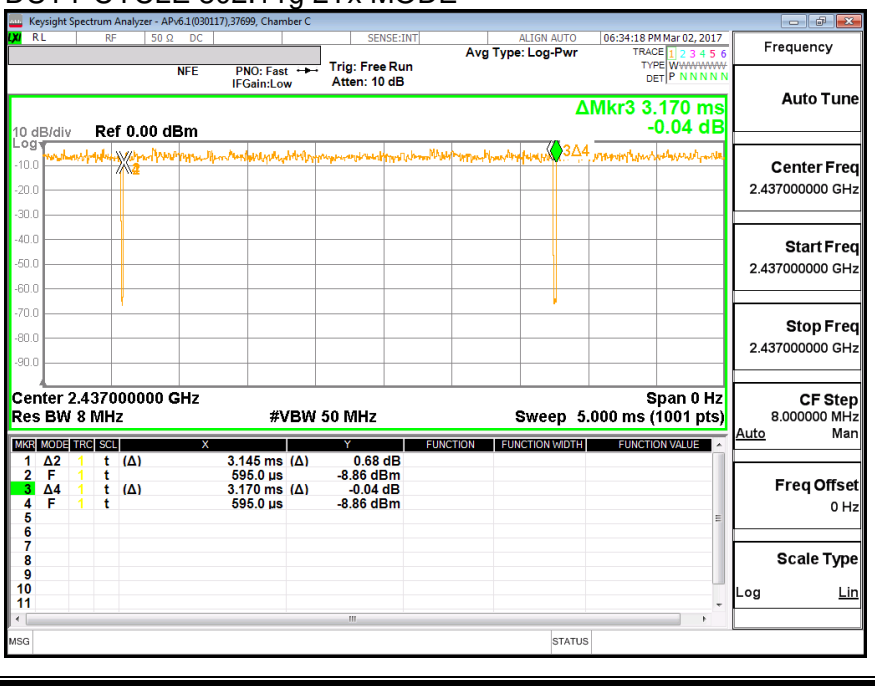
Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (khz)
11b 2TX CDD	1	1	1	100	0	0.01
11g 2TX CDD	3.145	3.17	0.992	99.211	0	0.01
11n HT20 2TX CDD	9.9	9.93	0.996	99.697	0	0.01

DUTY CYCLE PLOTS

DUTY CYCLE 802.11b 2Tx MODE



DUTY CYCLE 802.11g 2Tx MODE



DUTY CYCLE 802.11n HT20 2Tx MODE

8.1. 11b 2TX MIMO MODE IN THE 2.4GHz BAND

8.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low_1	2412	10.05	10.06	0.5
Middle_6	2437	10.06	10.075	0.5
High_11	2462	10.01	10.07	0.5
High_12	2467	10.045	10.04	0.5
High_13	2472	10.065	10.08	0.5

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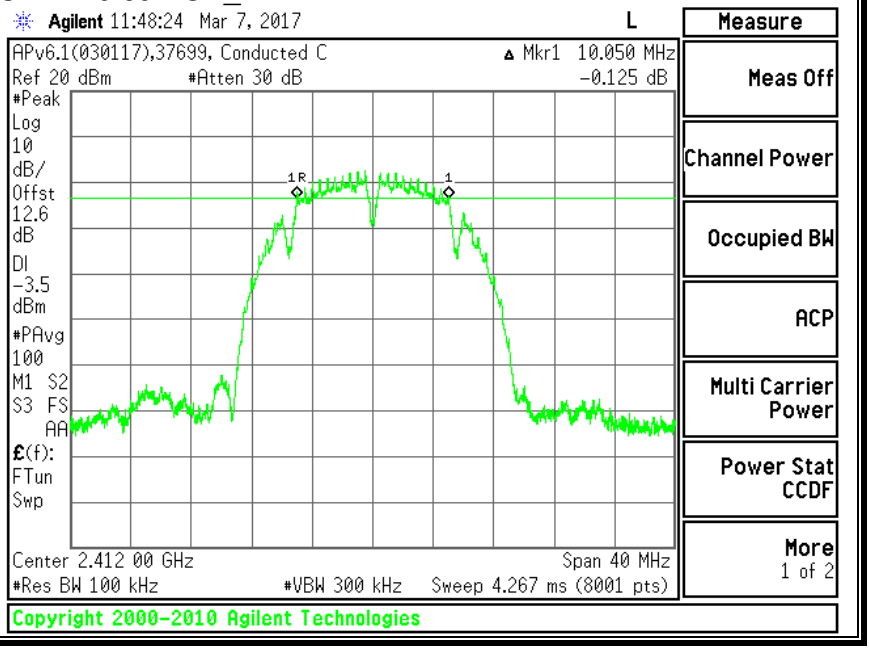
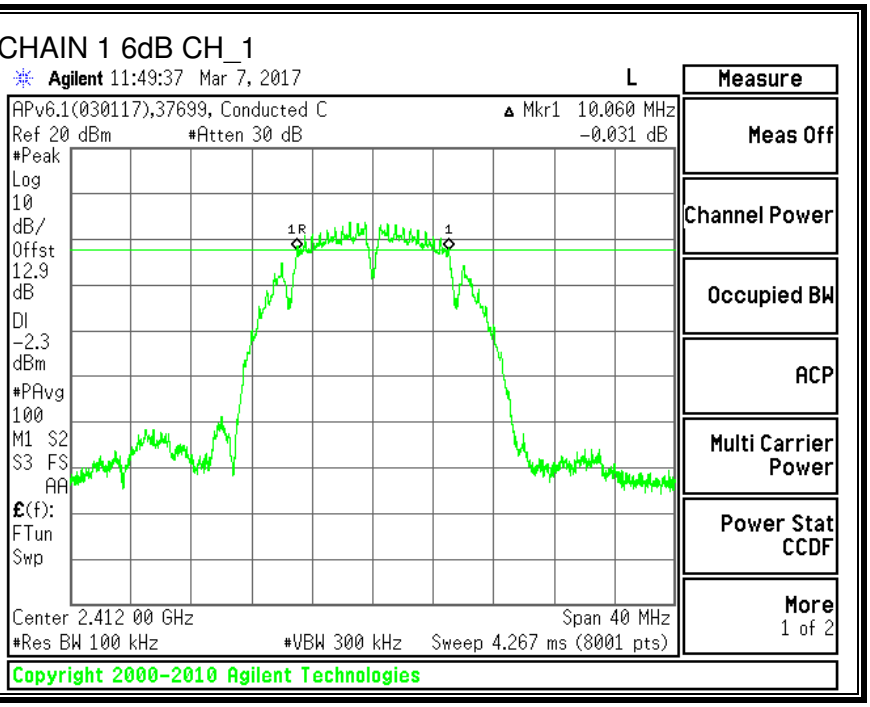
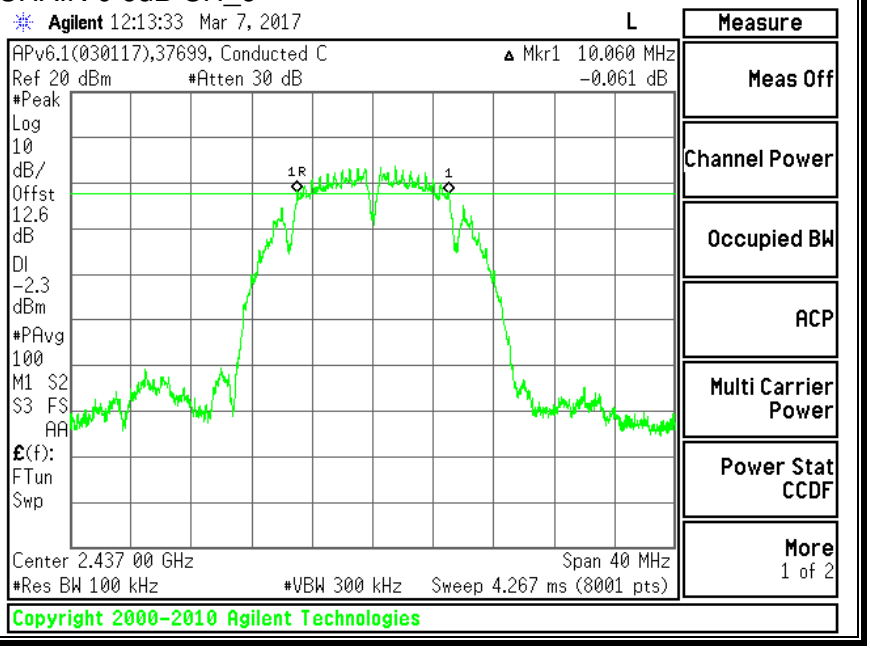
CHAIN 0 6dB CH_1



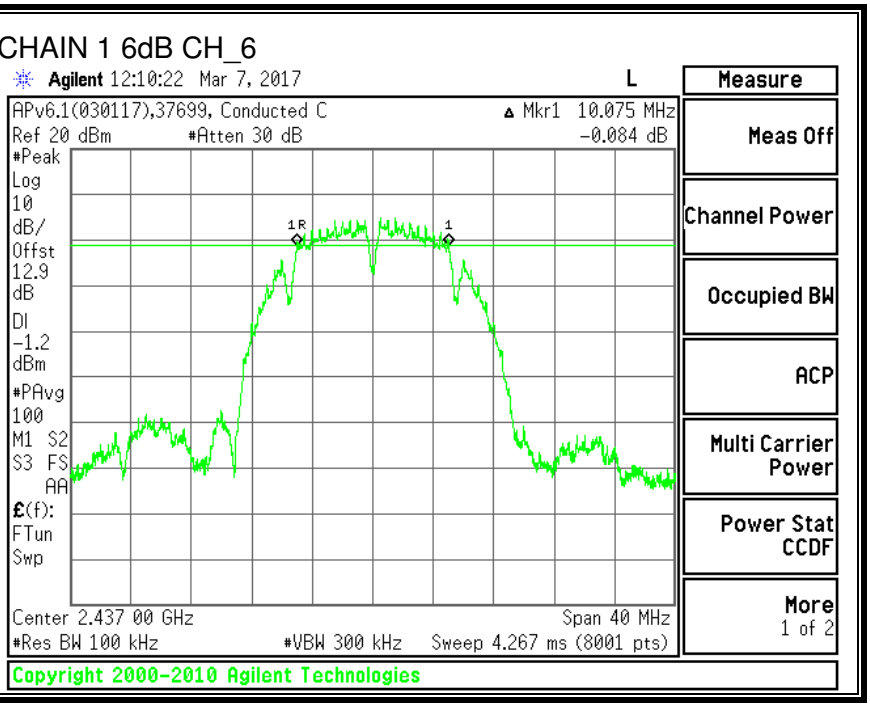
CHAIN 1 6dB CH_1



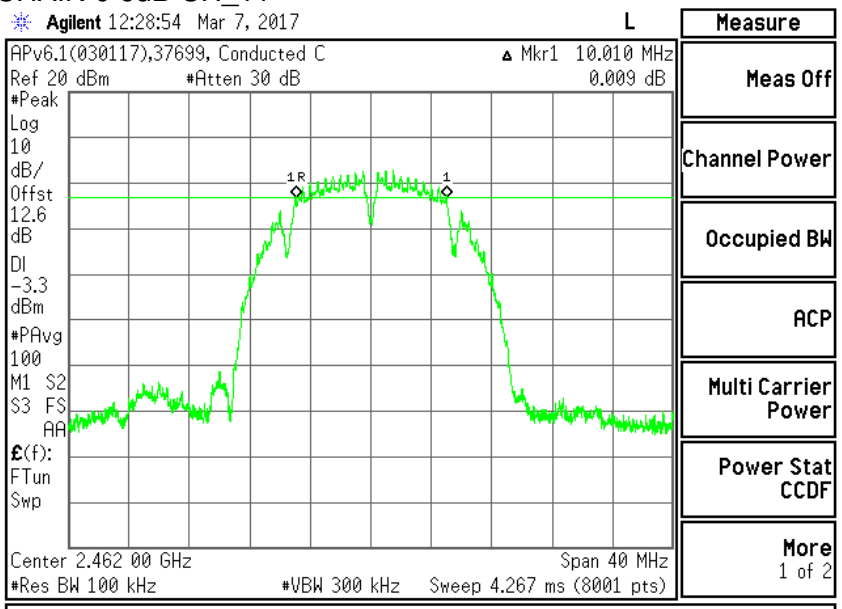
CHAIN 0 6dB CH_6



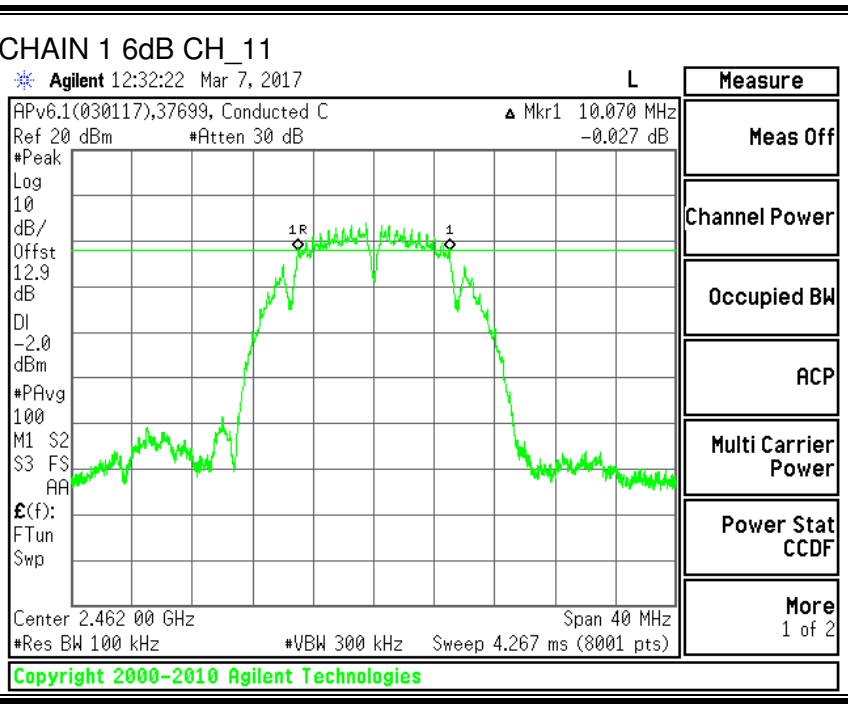
CHAIN 1 6dB CH_6



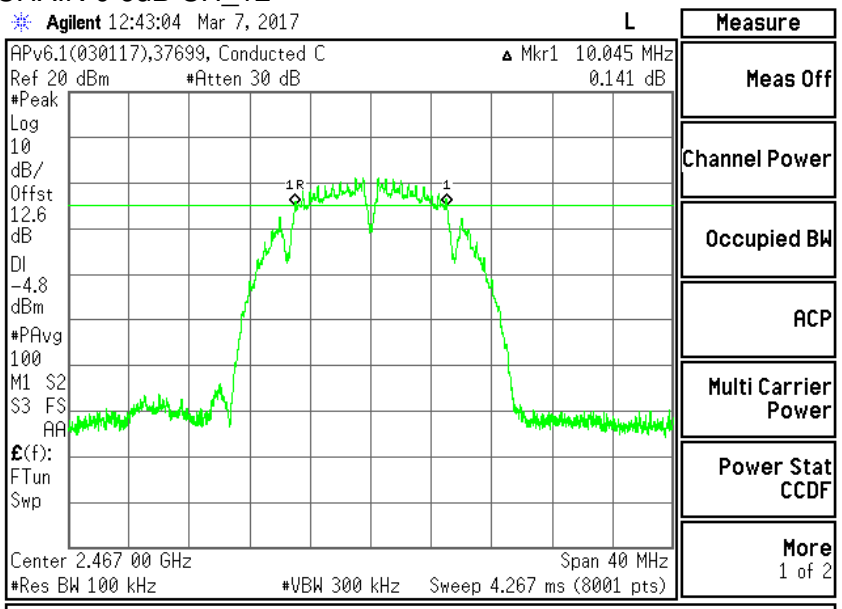
CHAIN 0 6dB CH_11



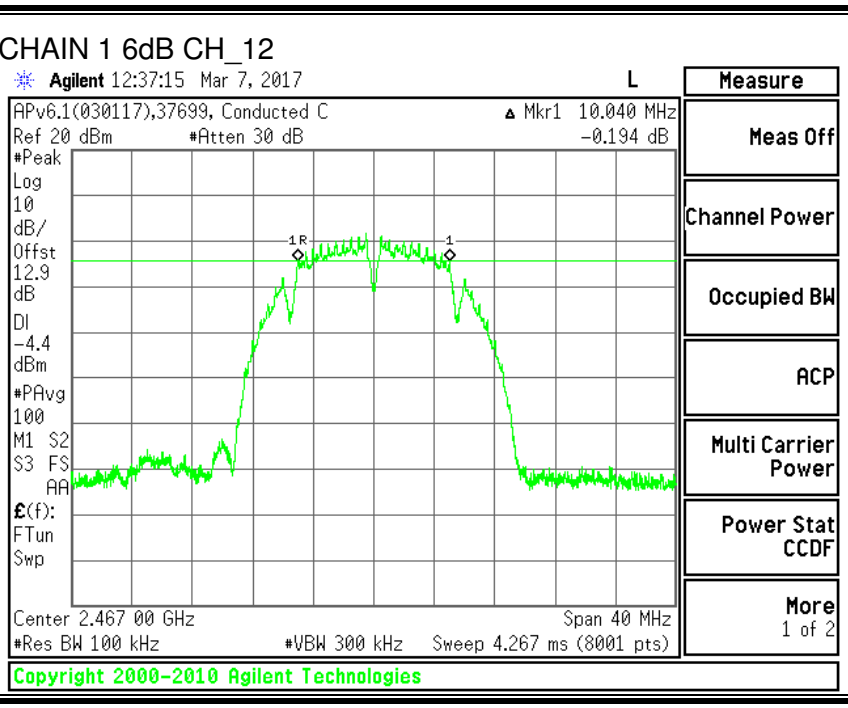
CHAIN 1 6dB CH_11



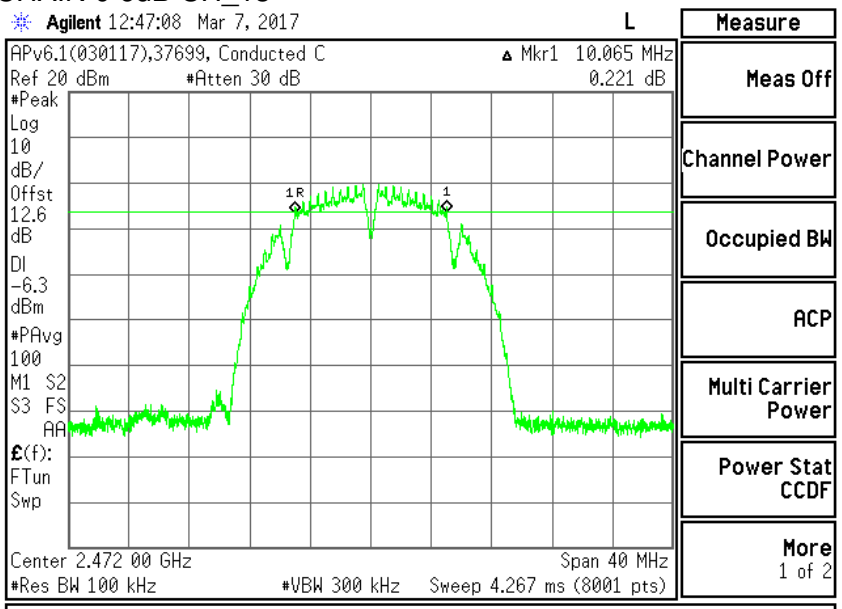
CHAIN 0 6dB CH_12



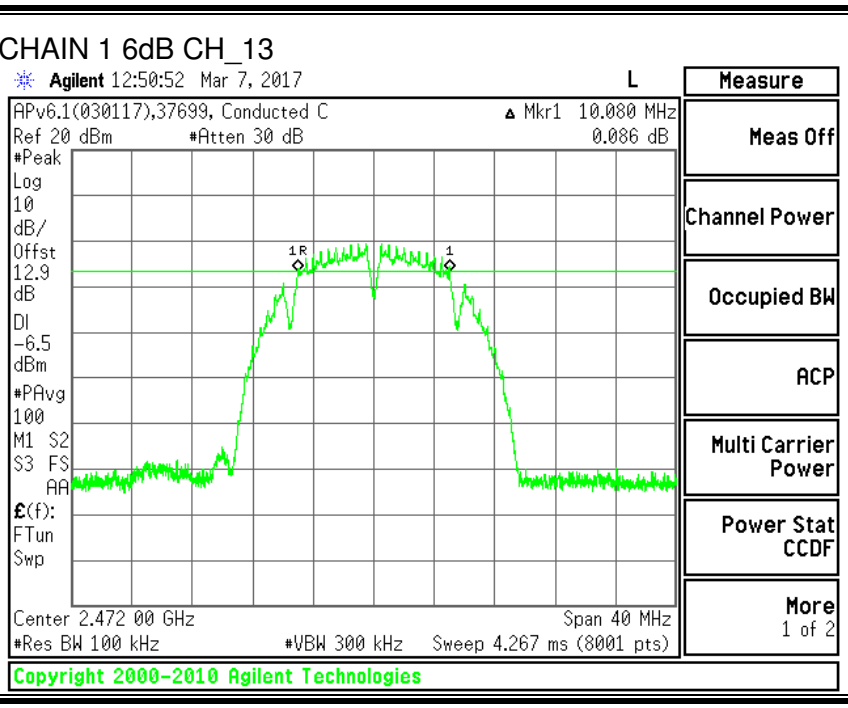
CHAIN 1 6dB CH_12



CHAIN 0 6dB CH_13



CHAIN 1 6dB CH_13



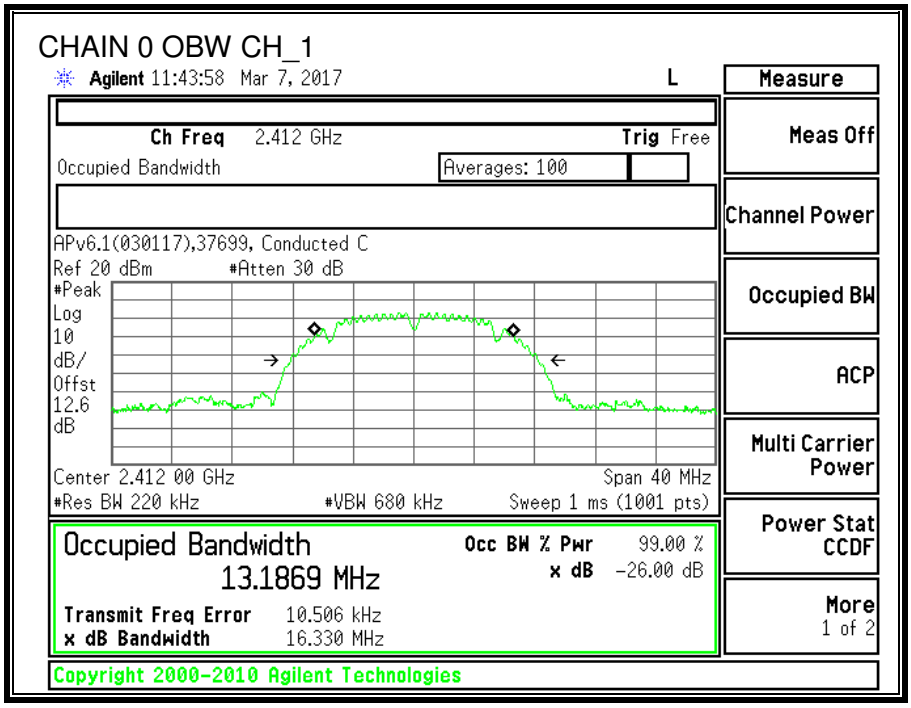
8.1.2. 99% BANDWIDTH

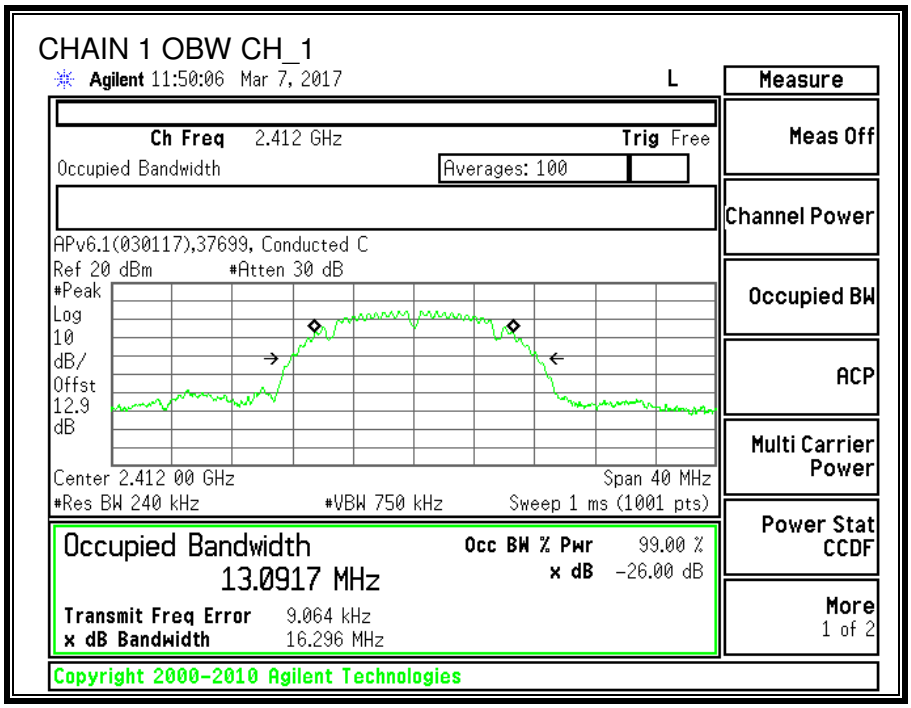
LIMITS

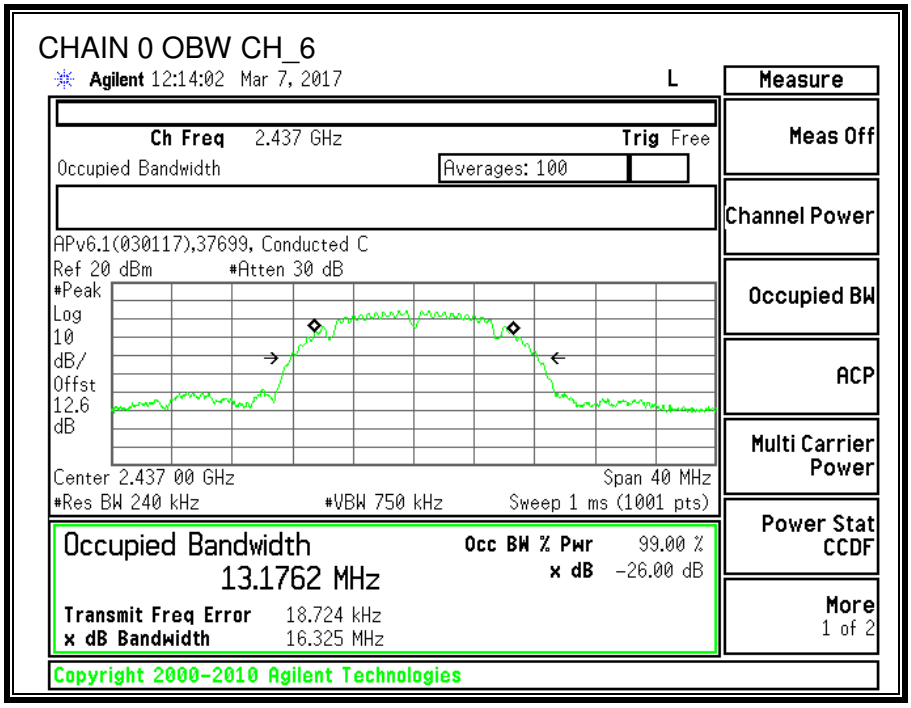
None; for reporting purposes only.

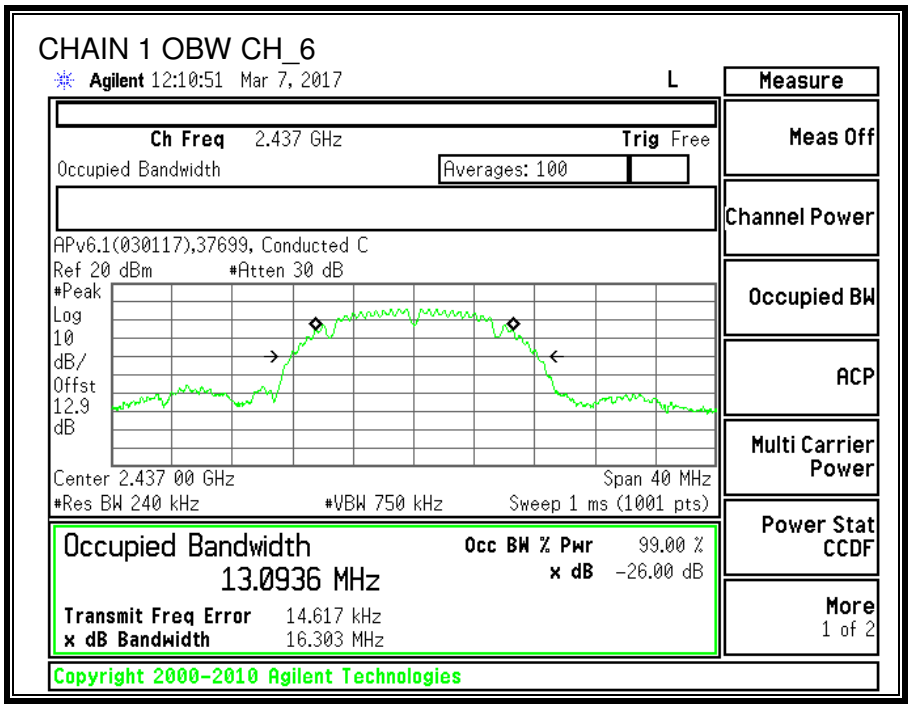
RESULTS

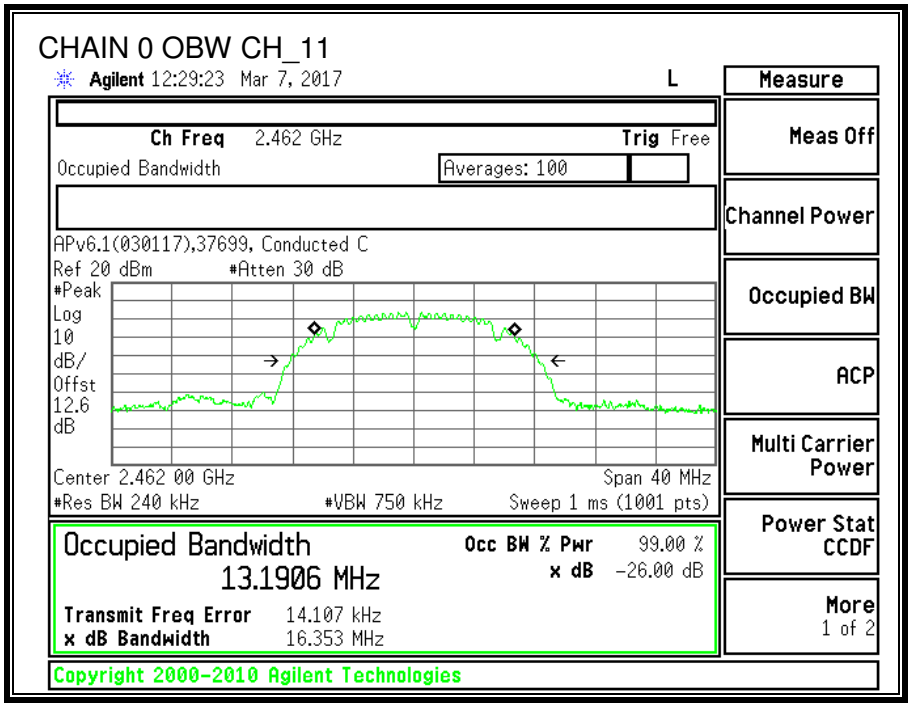
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low_1	2412	13.187	13.092
Middle_6	2437	13.176	13.094
High_11	2462	13.191	13.107
High_12	2467	13.226	13.151
High_13	2472	13.269	13.176

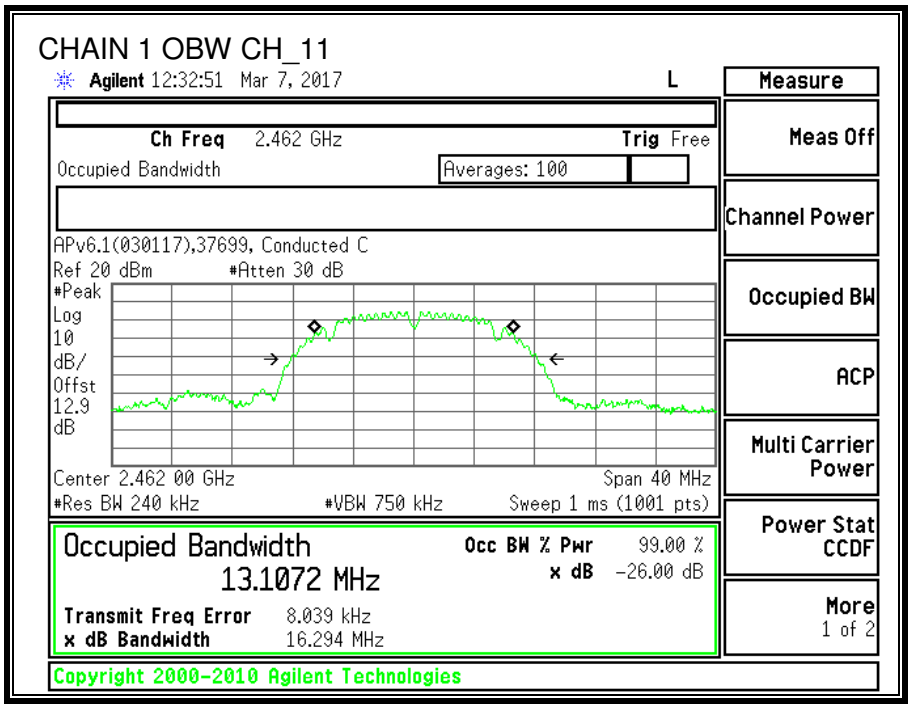


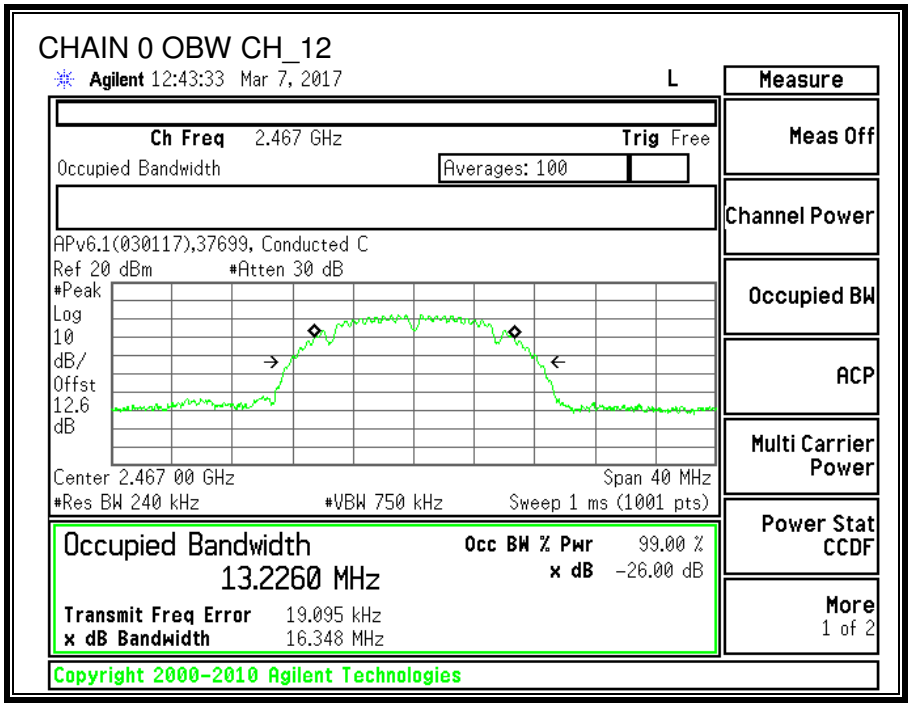


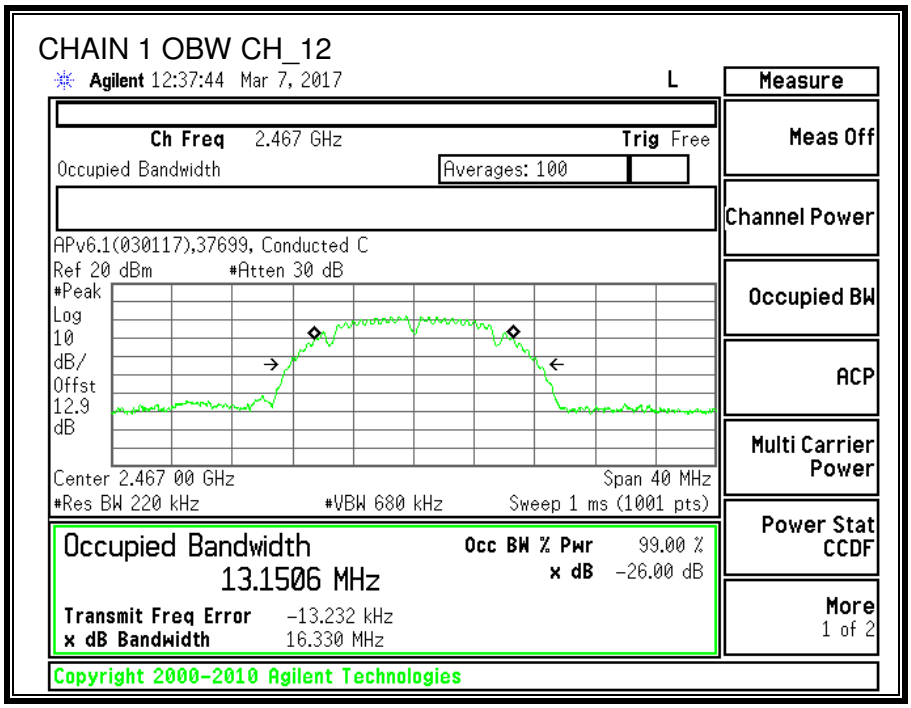


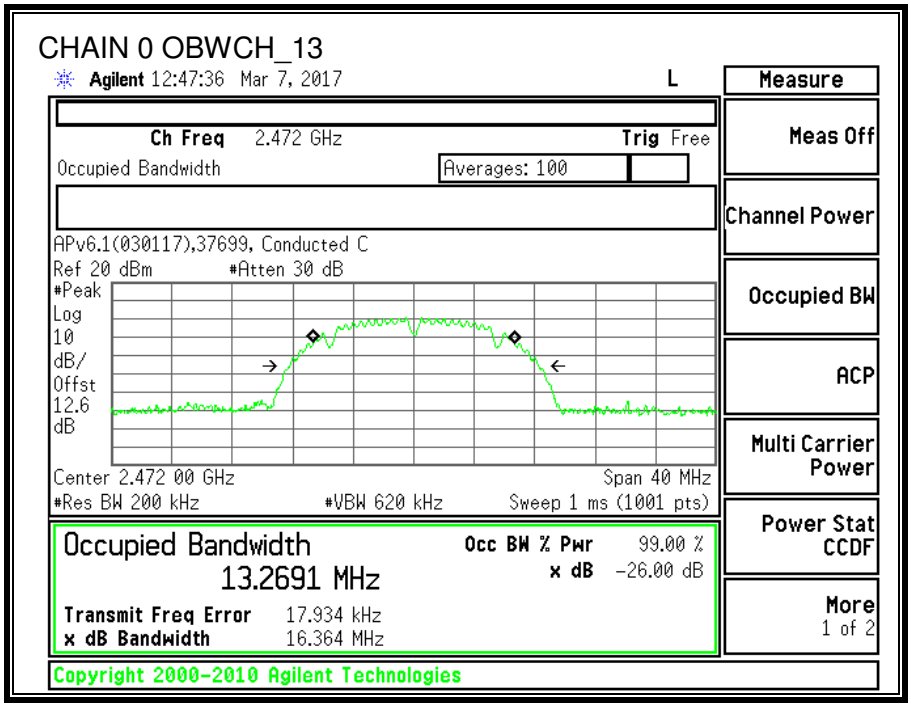


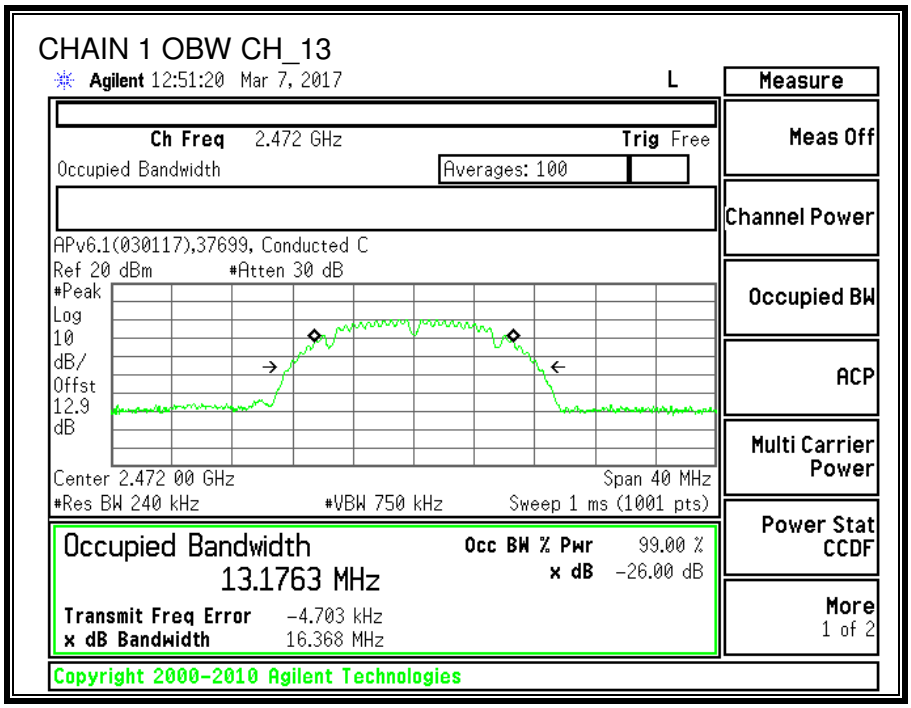












8.1.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (d)

For systems using digital modulation in the 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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
1.80	3.20	2.56	5.54

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

RESULTS

Tested By:	45258 JL
Date:	3/8/2017

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low_1	2412	2.56	30.00	30	36	30.00
Middle_6	2437	2.56	30.00	30	36	30.00
High_11	2462	2.56	30.00	30	36	30.00
High_12	2467	2.56	30.00	30	36	30.00
High_13	2472	2.56	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low_1	2412	12.35	12.63	15.50	30.00	-14.50
Middle_6	2437	13.45	13.65	16.56	30.00	-13.44
High_11	2462	12.78	12.07	15.45	30.00	-14.55
High_12	2467	11.22	10.06	13.69	30.00	-16.31
High_13	2472	9.25	8.49	11.90	30.00	-18.10

8.1.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 (5.2) (b)

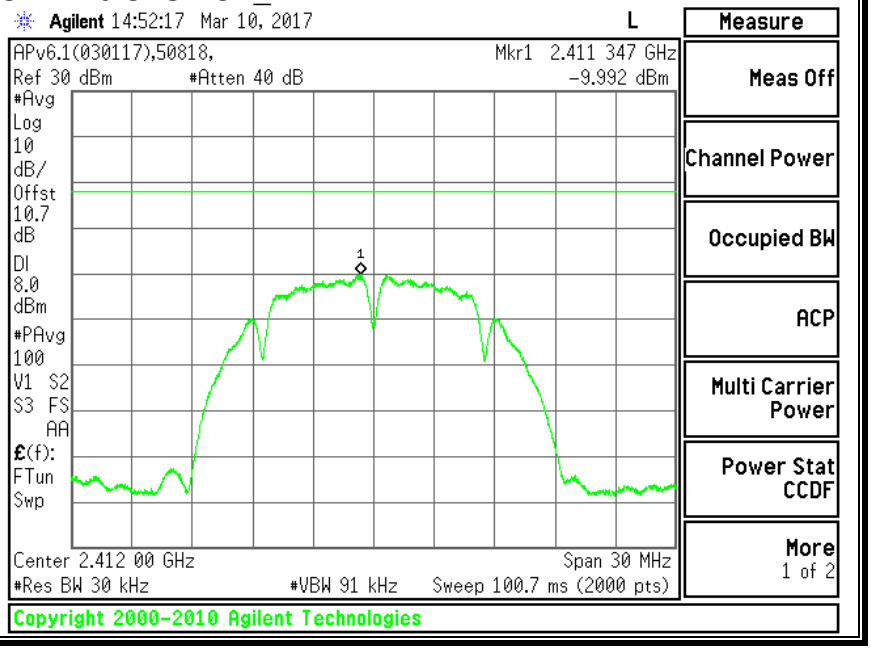
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

RESULTS

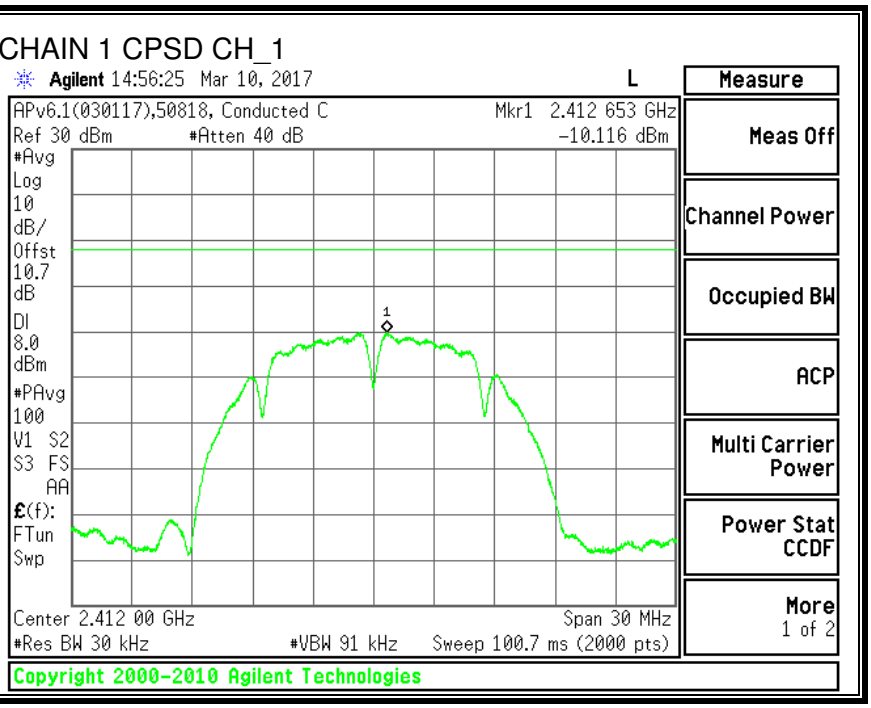
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-9.99	-10.12	-7.04	8.0	-15.0
Middle_6	2437	-8.92	-8.82	-5.86	8.0	-13.9
High_11	2462	-9.81	-10.26	-7.02	8.0	-15.0
High_12	2467	-11.26	-12.51	-8.83	8.0	-16.8
High_13	2472	-13.07	-14.17	-10.58	8.0	-18.6

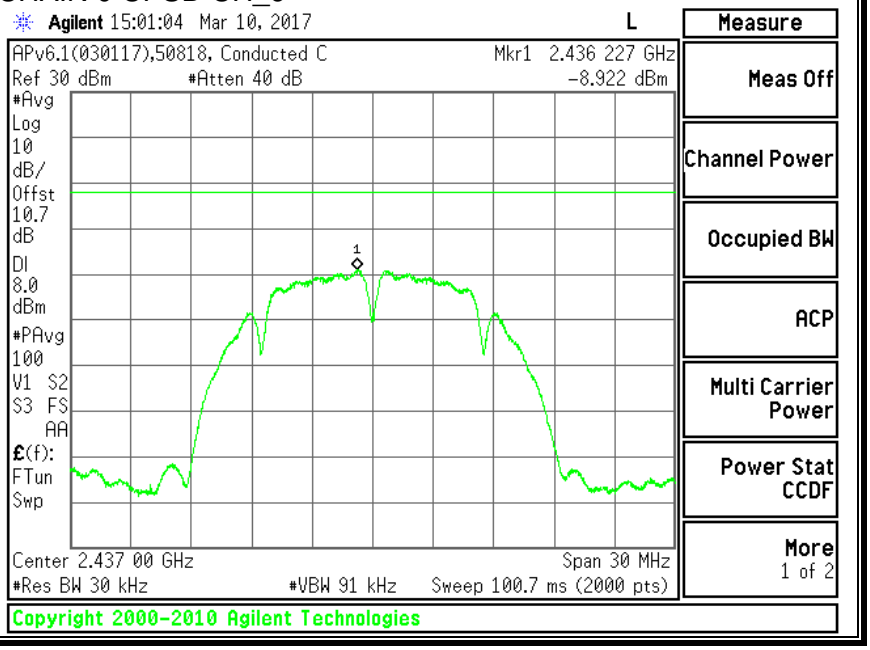
CHAIN 0 CPSD CH_1



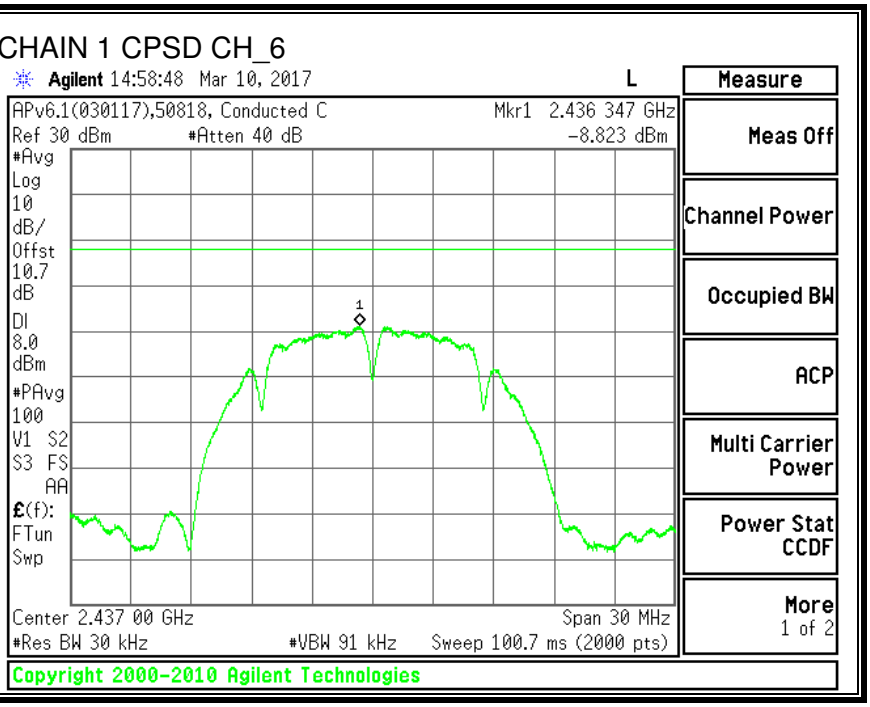
CHAIN 1 CPSD CH_1



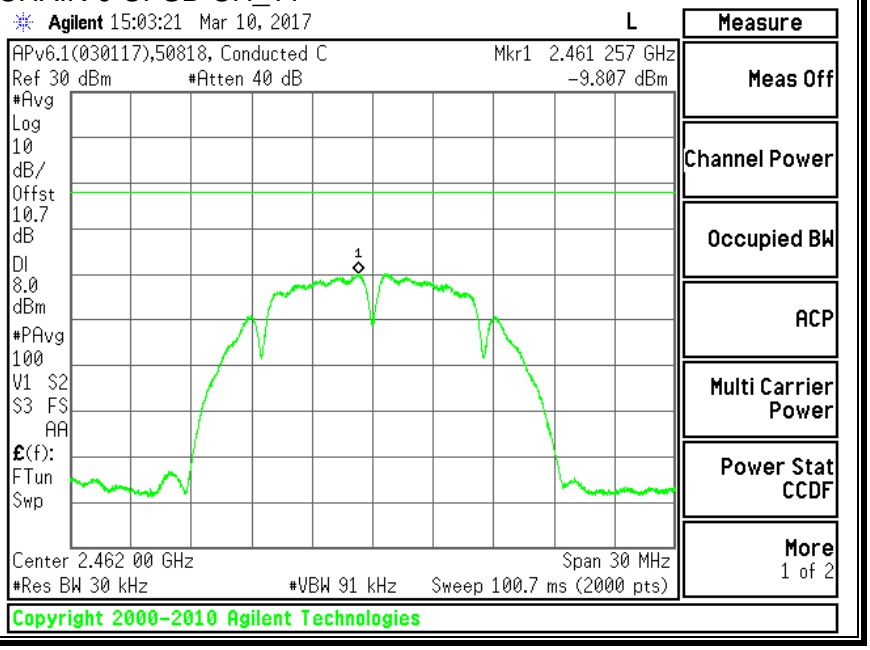
CHAIN 0 CPSD CH_6



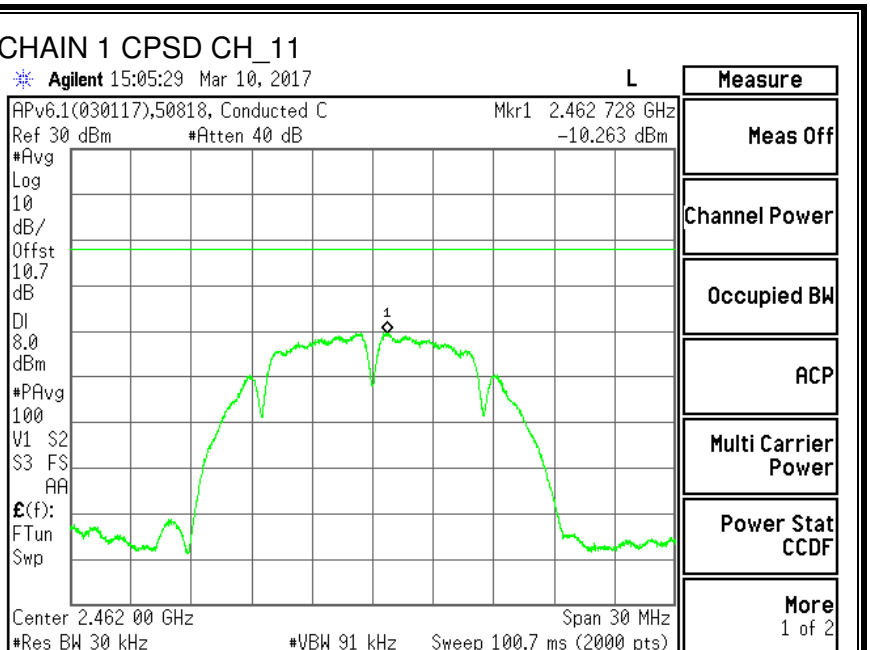
CHAIN 1 CPSD CH_6



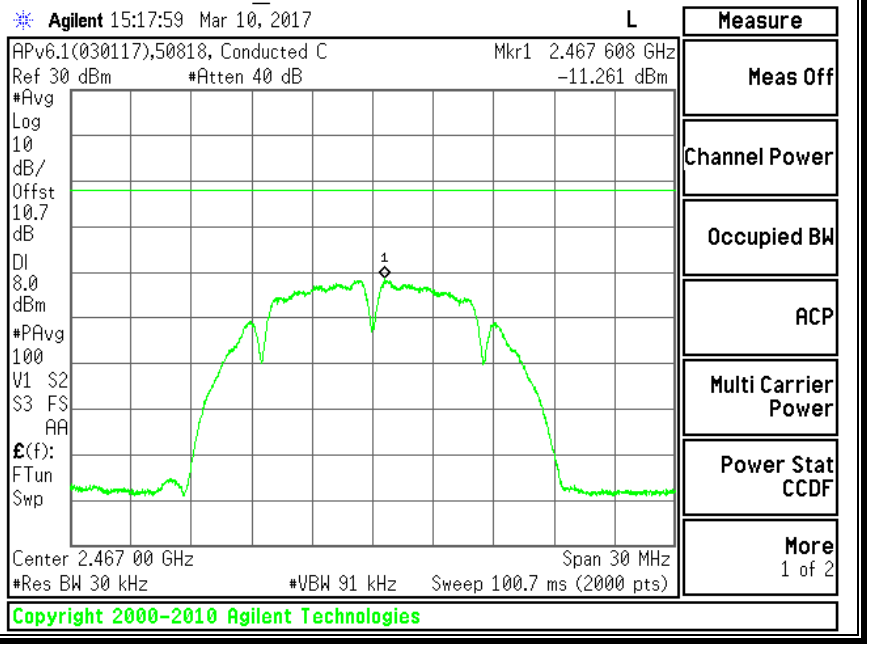
CHAIN 0 CPSD CH_11



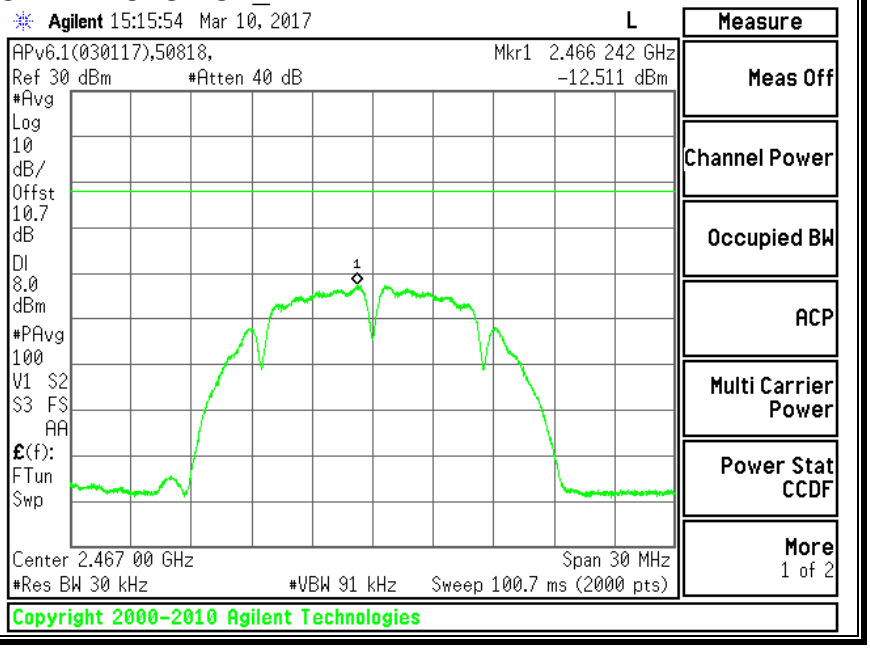
CHAIN 1 CPSD CH_11



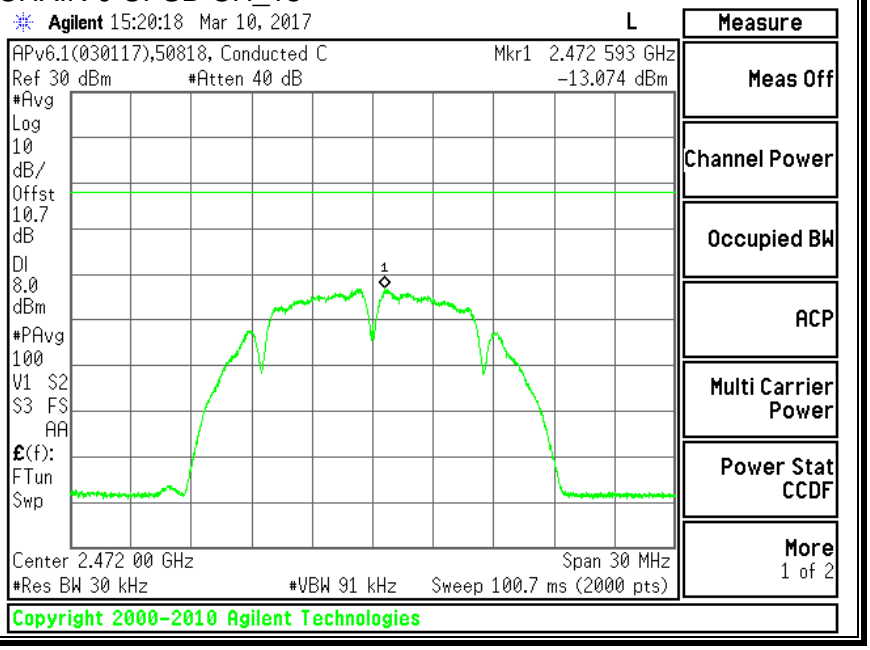
CHAIN 0 CPSD CH_12



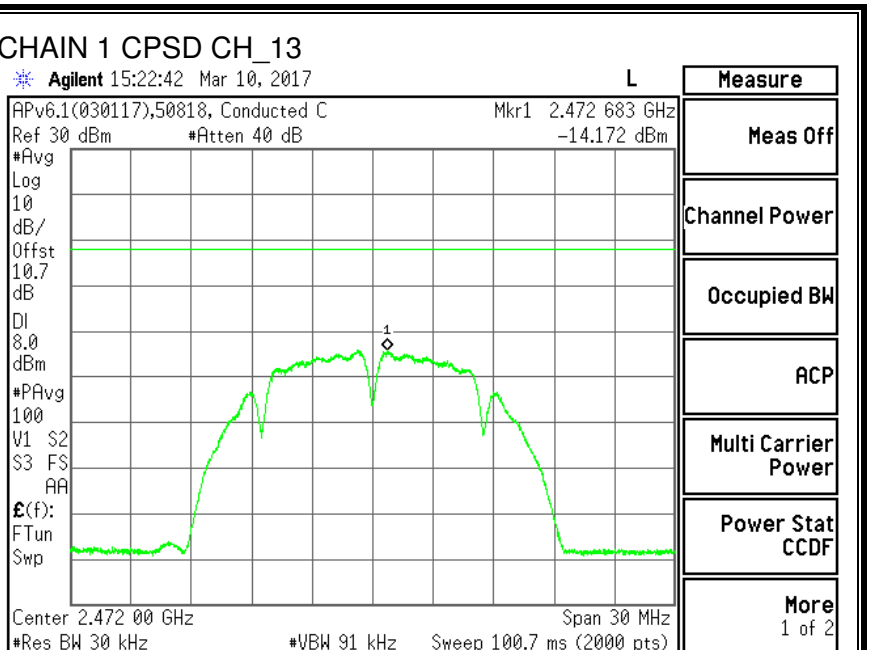
CHAIN 1 CPSD CH_12



CHAIN 0 CPSD CH_13



CHAIN 1 CPSD CH_13



8.1.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

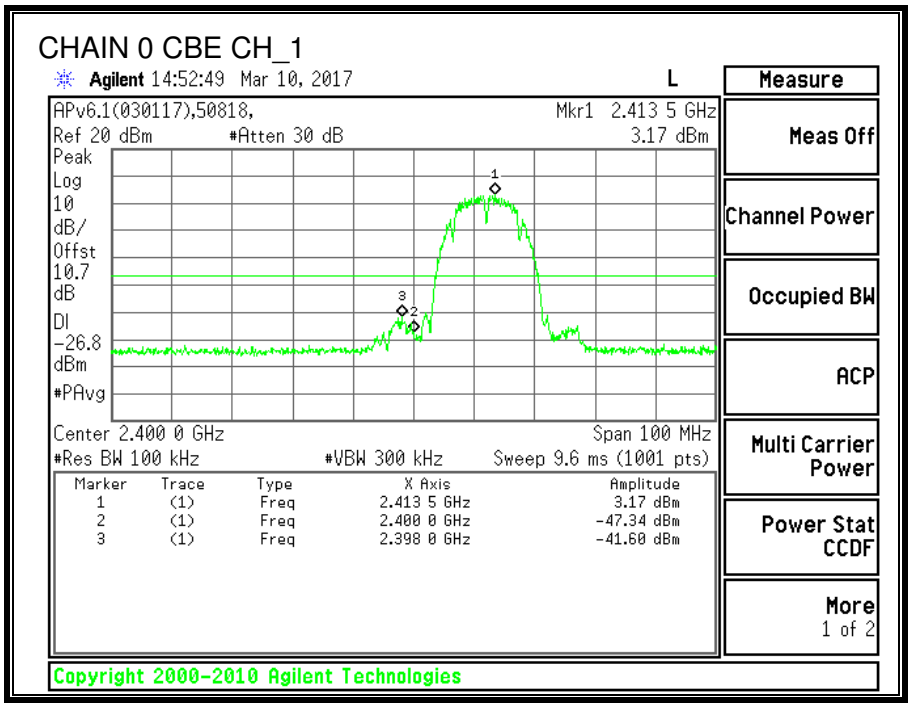
FCC §15.247 (d)

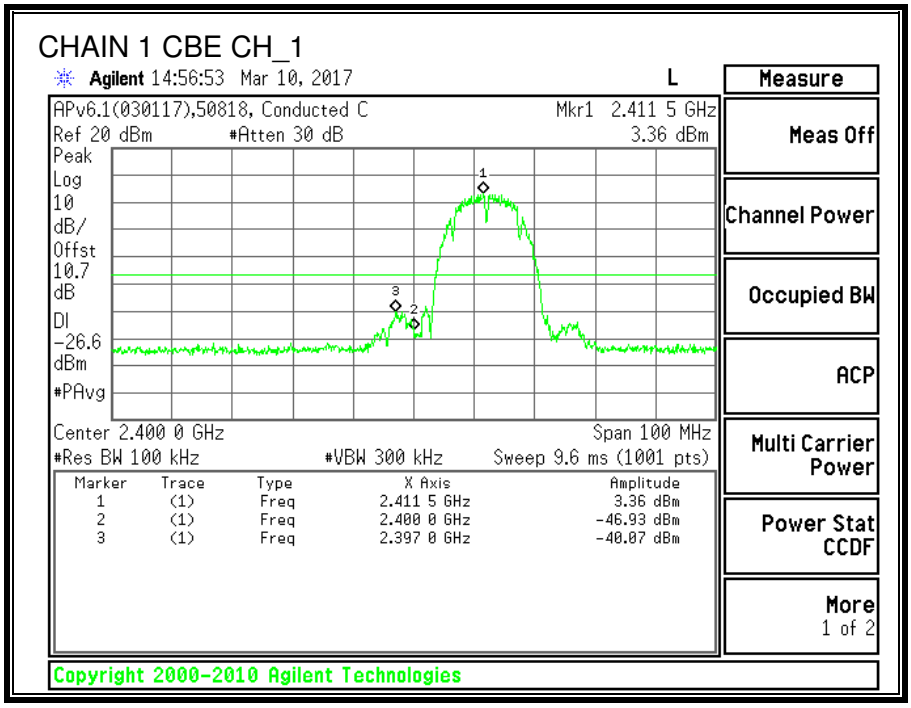
IC RSS-247 5.5

Output power was measured based on the use of Avg measurement, therefore the required attenuation is 30 dB.

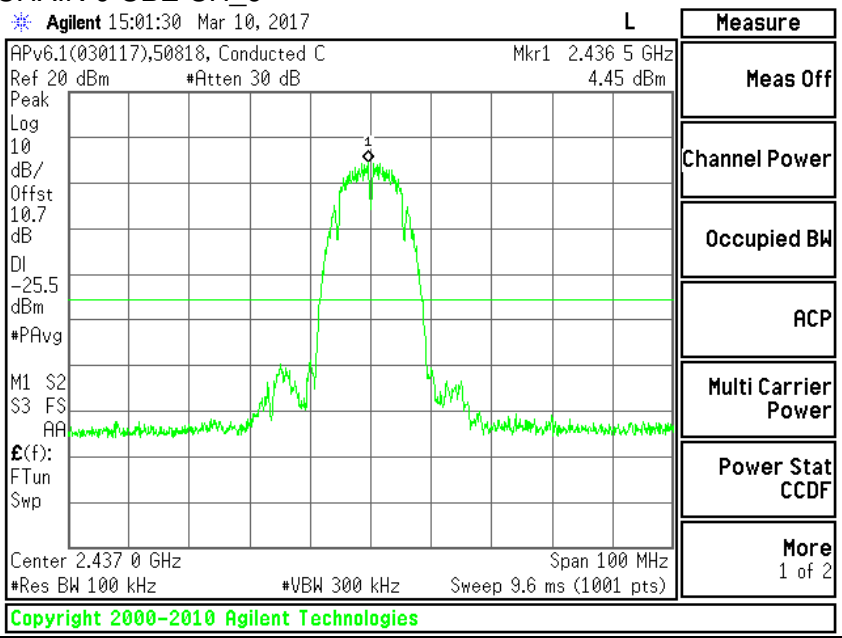
RESULTS

BANDEDGE

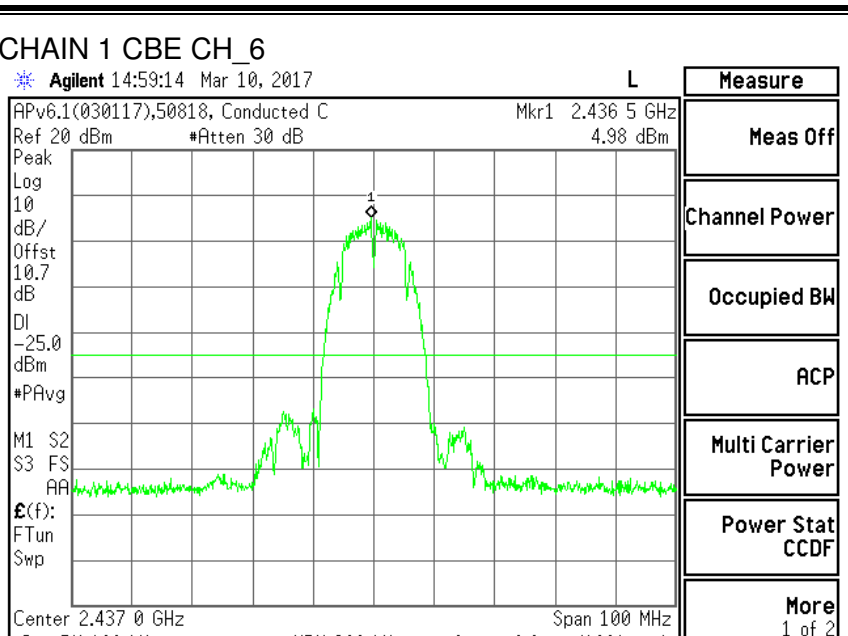




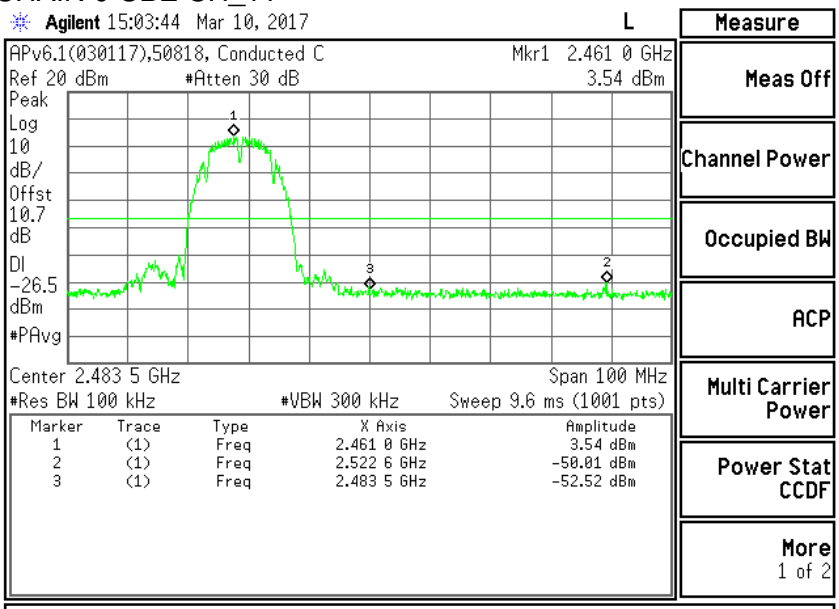
CHAIN 0 CBE CH_6



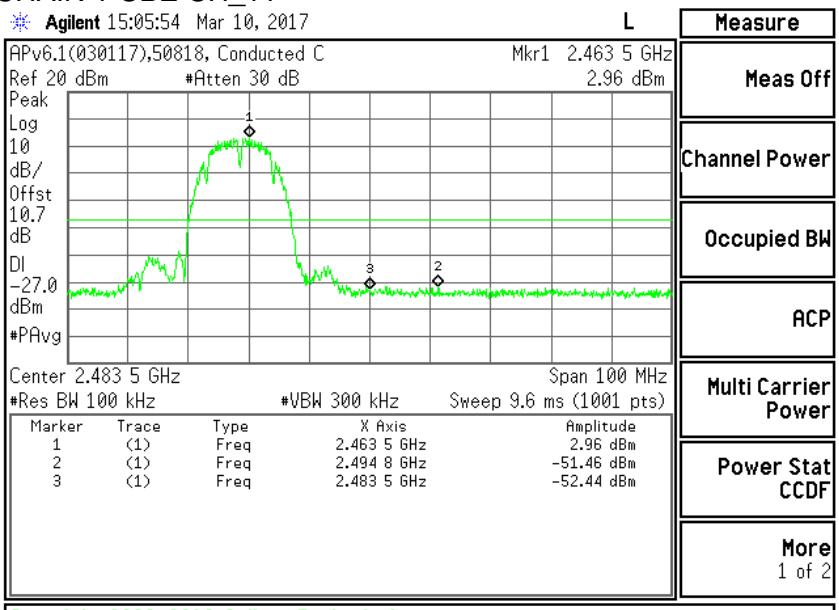
CHAIN 1 CBE CH_6



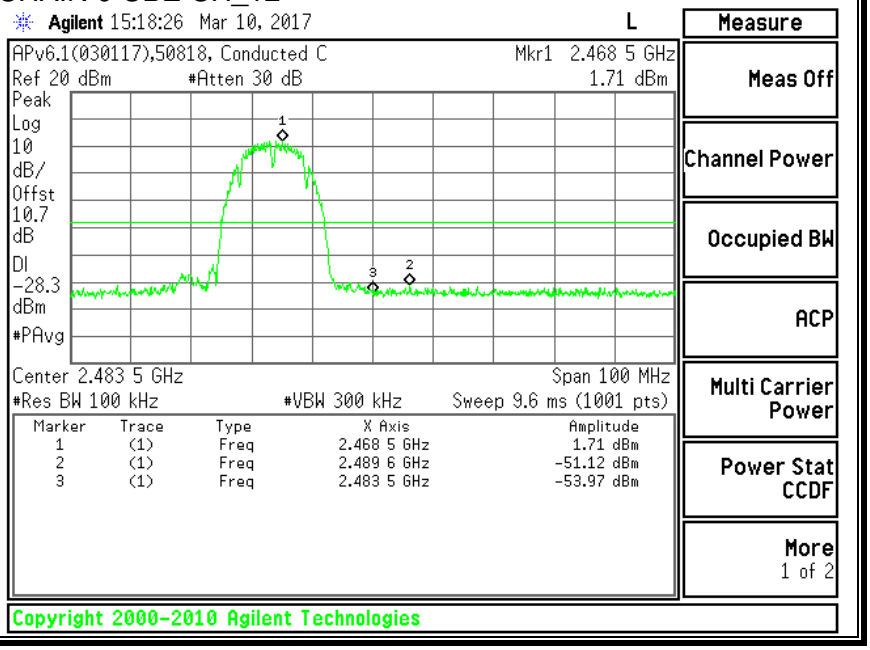
CHAIN 0 CBE CH_11



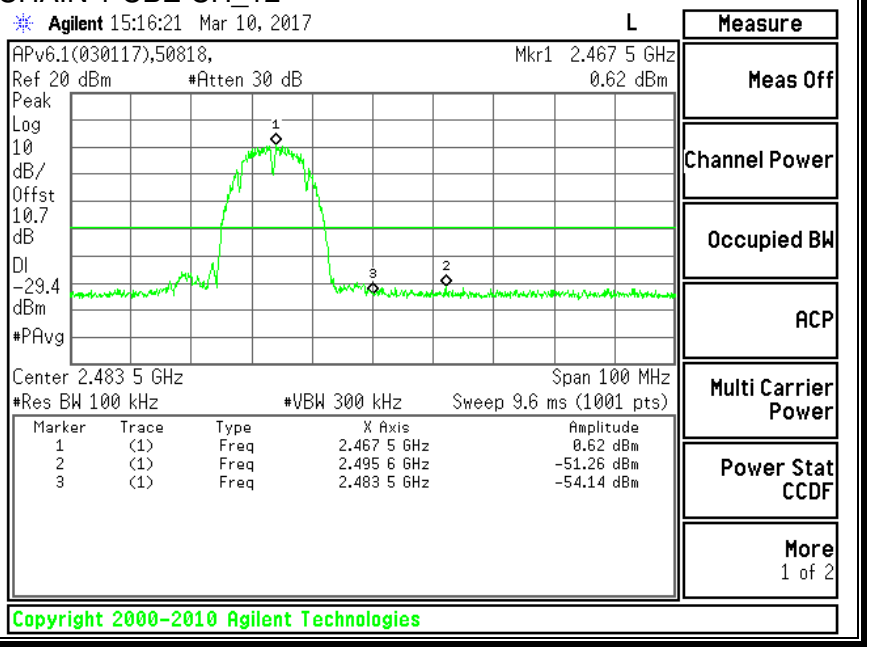
CHAIN 1 CBE CH_11



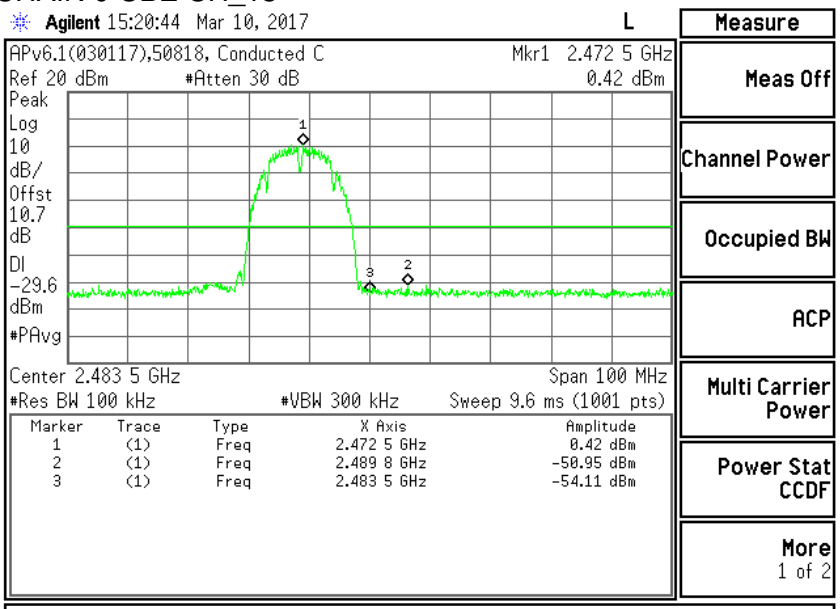
CHAIN 0 CBE CH_12



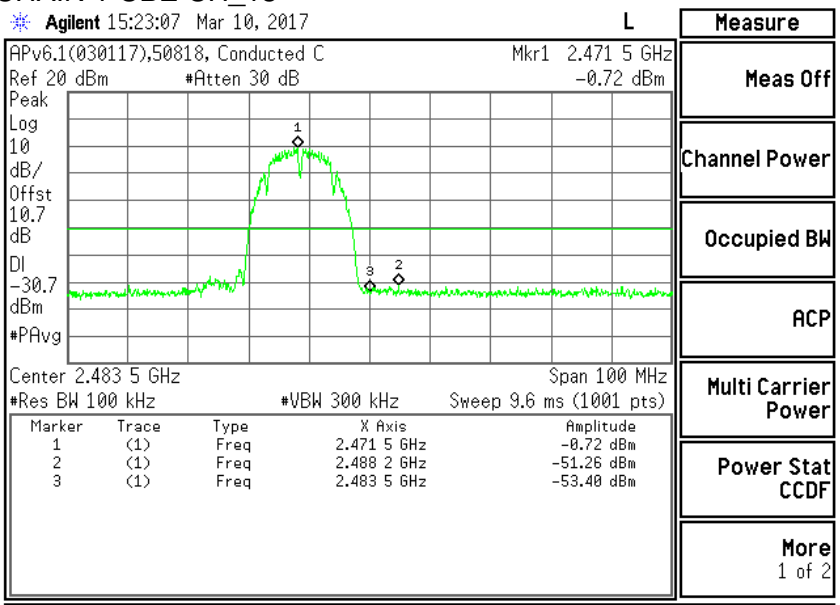
CHAIN 1 CBE CH_12



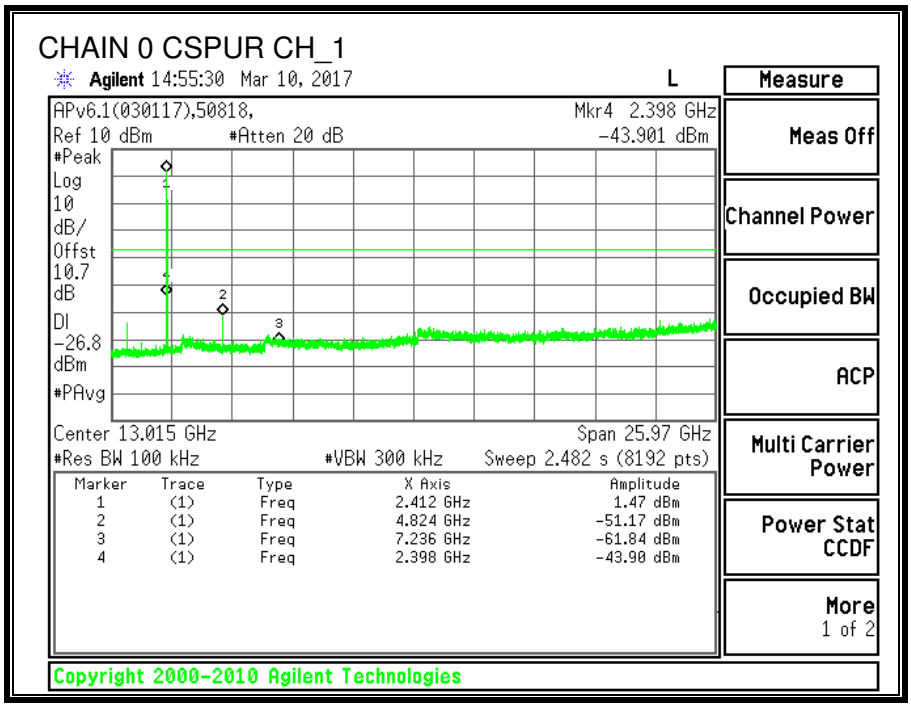
CHAIN 0 CBE CH_13

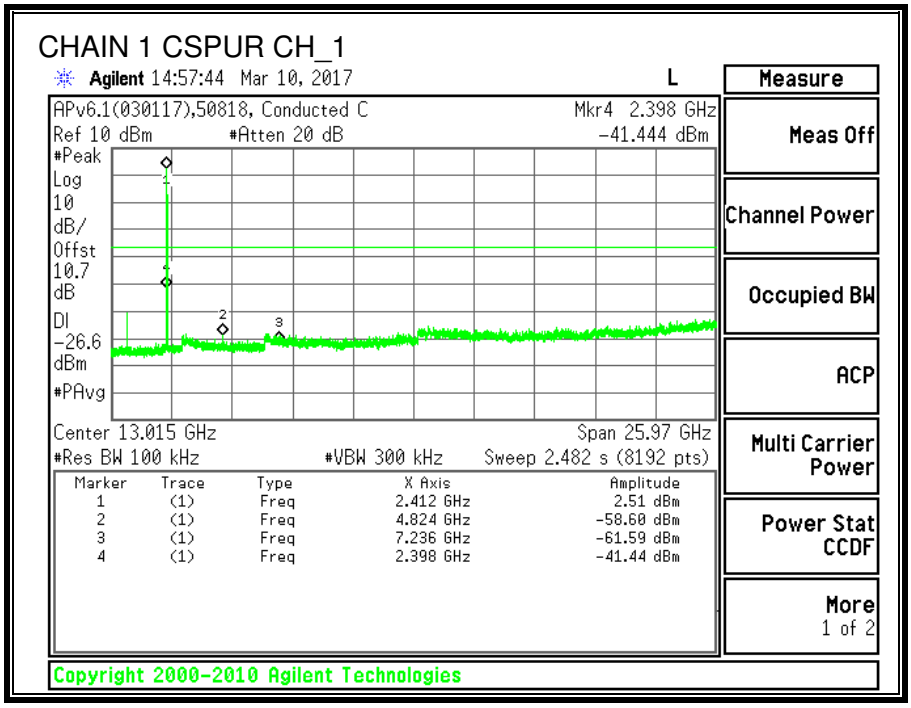


CHAIN 1 CBE CH_13

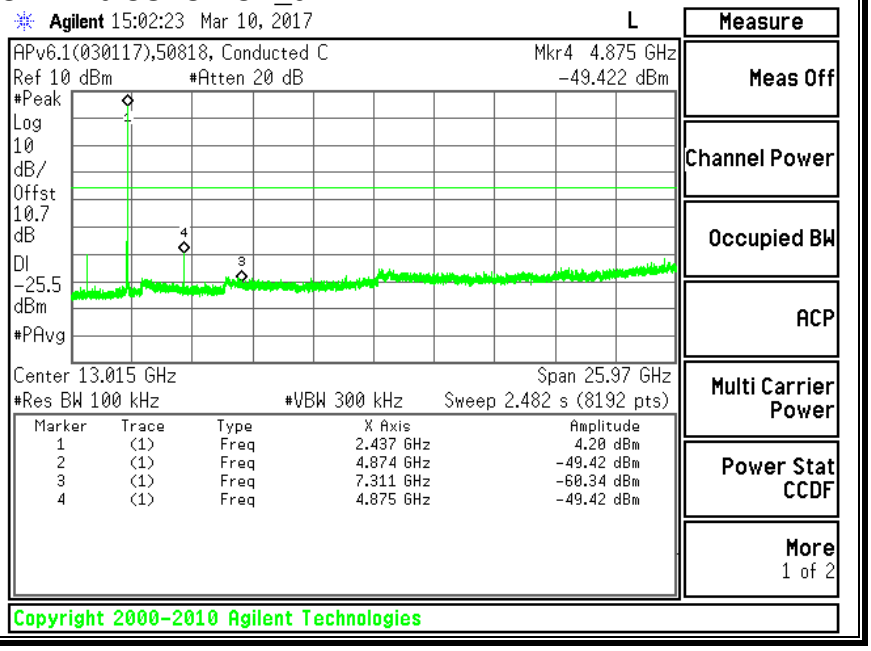


SPURIOUS EMISSIONS

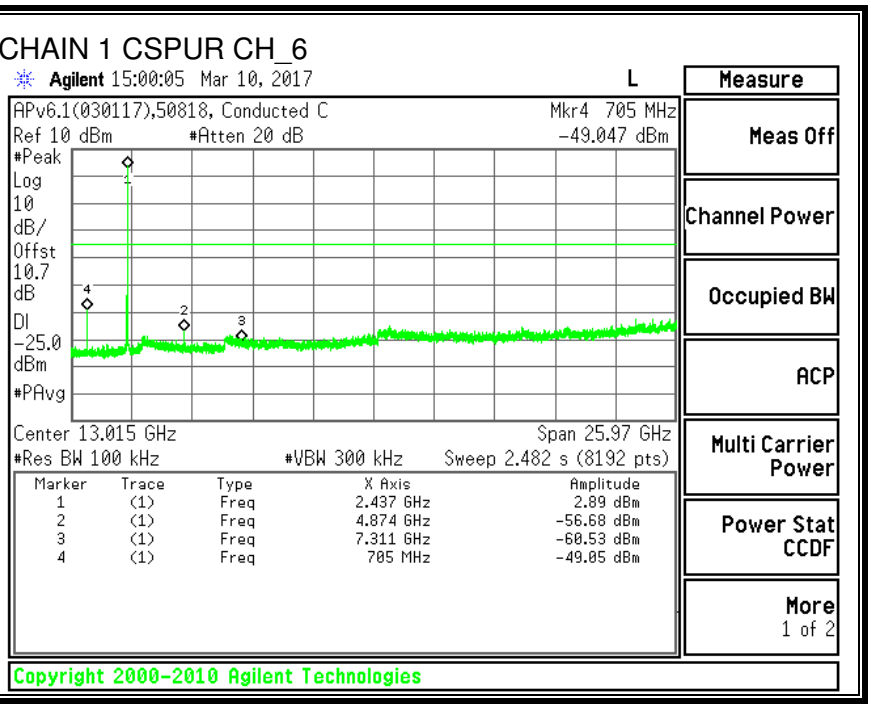


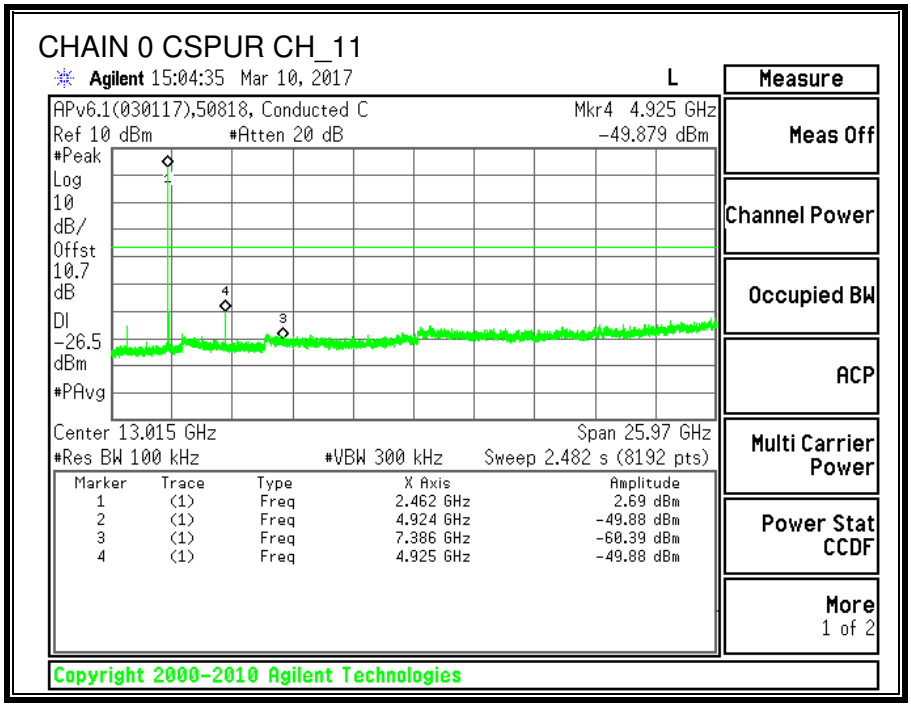


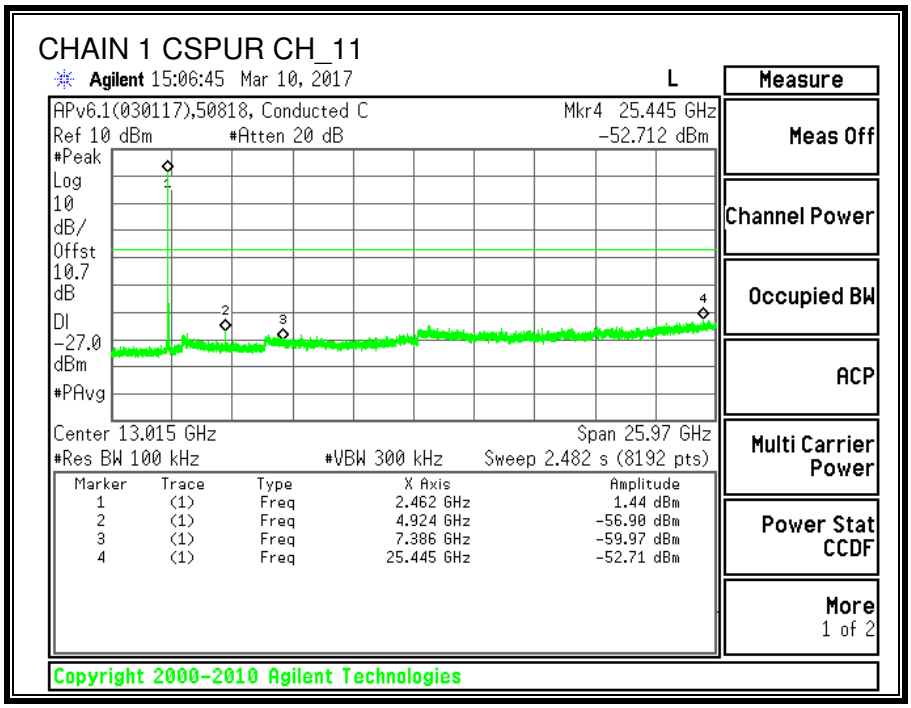
CHAIN 0 CSPUR CH_6

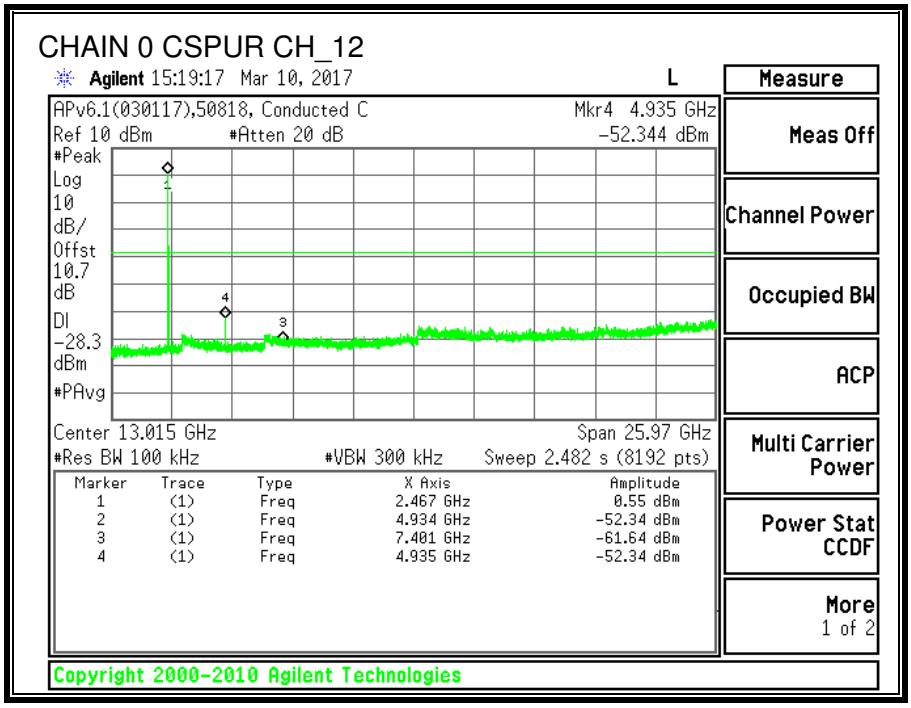


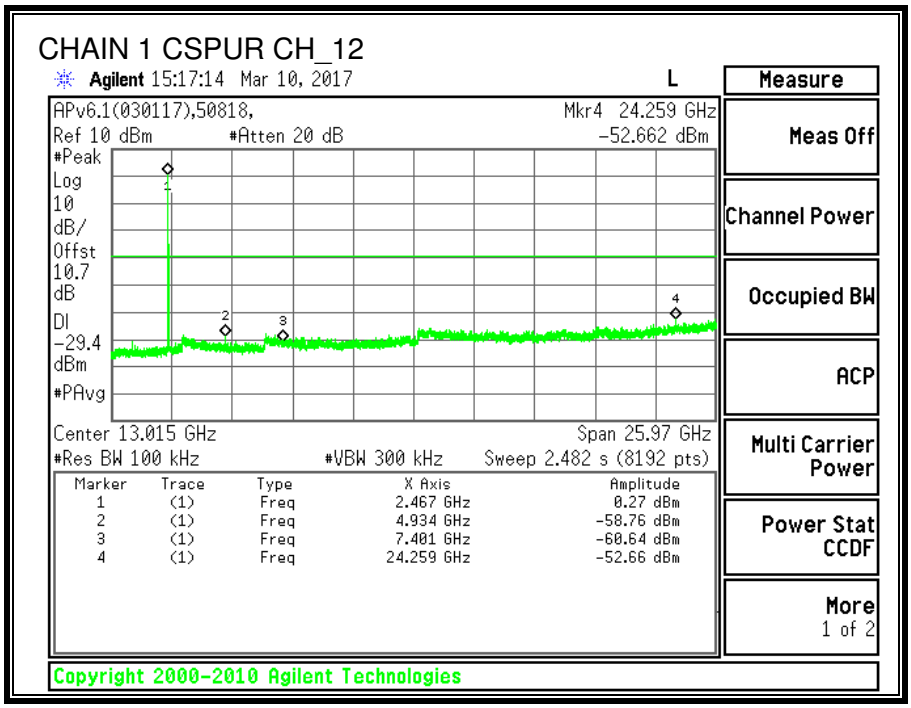
CHAIN 1 CSPUR CH_6



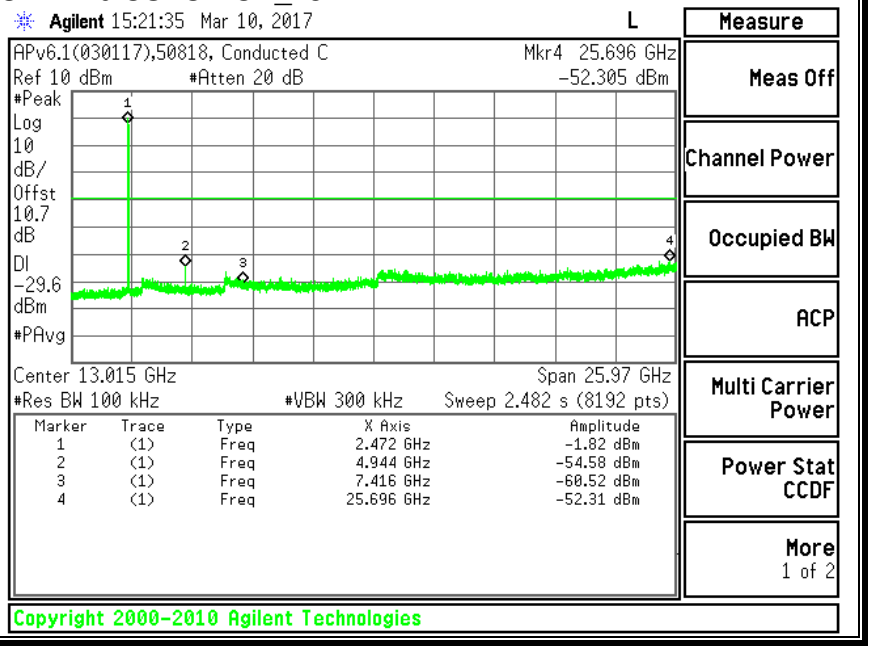




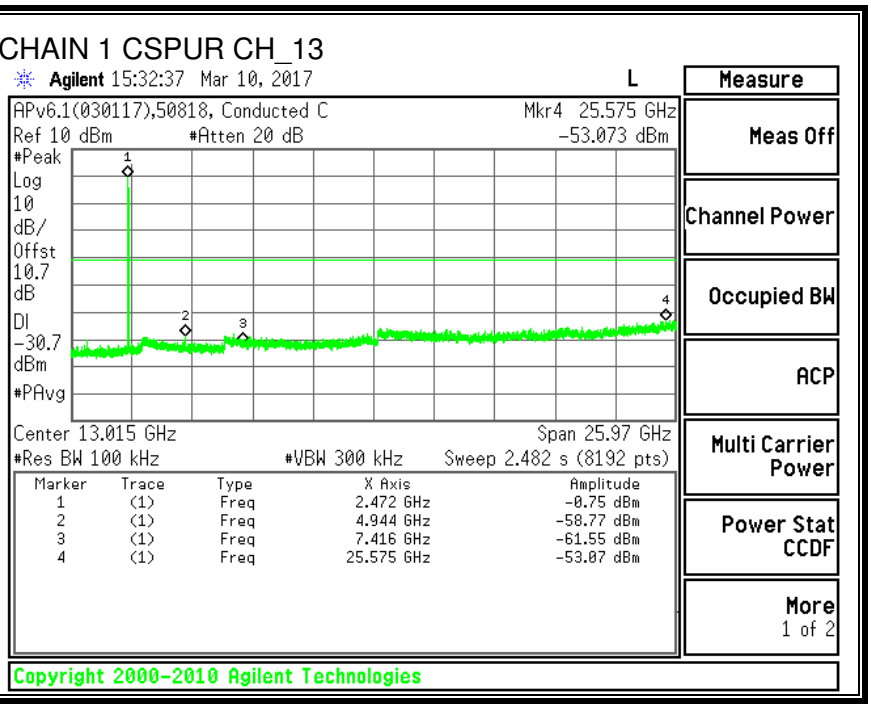




CHAIN 0 CSPUR CH_13



CHAIN 1 CSPUR CH_13



8.2. 11g 2TX MIMO MODE IN THE 2.4GHz BAND

8.2.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

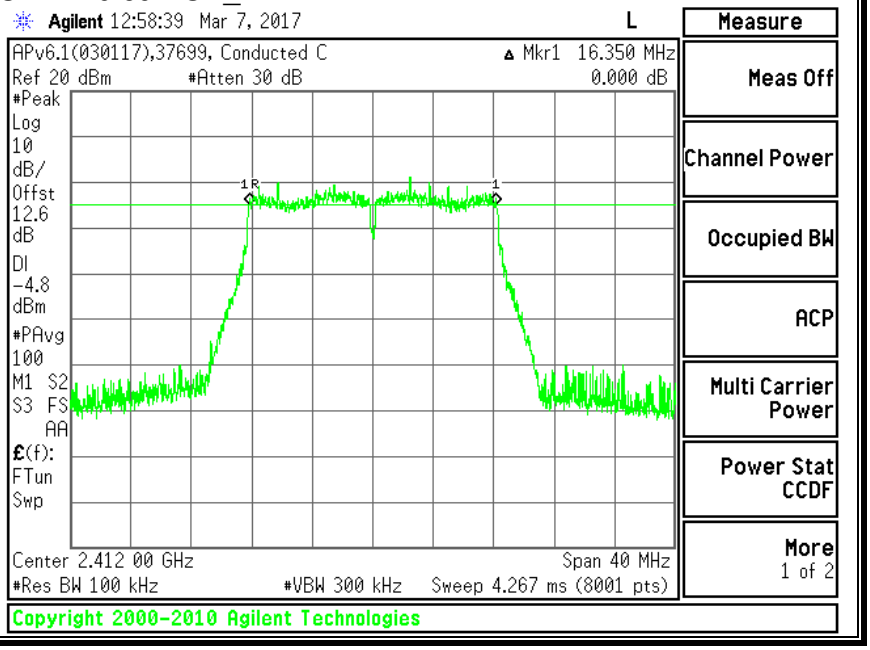
IC RSS-247 (5.2) (a)

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

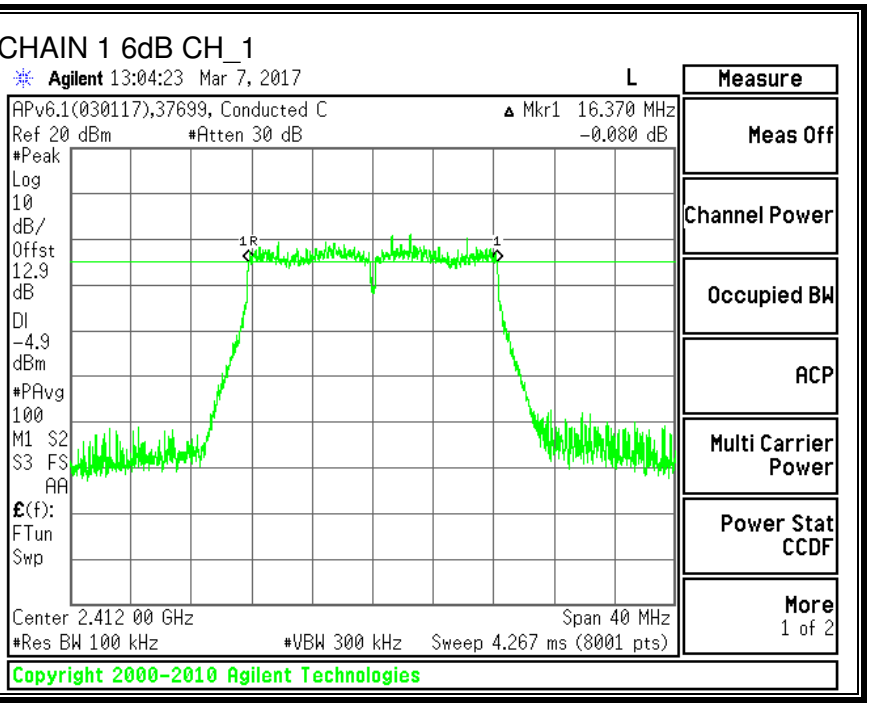
RESULTS

Channel	Frequency	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low_1	2412	16.35	16.37	0.5
Middle_6	2437	16.335	16.345	0.5
High_11	2462	16.36	16.37	0.5
High_12	2467	16.355	16.35	0.5
High_13	2472	16.36	16.41	0.5

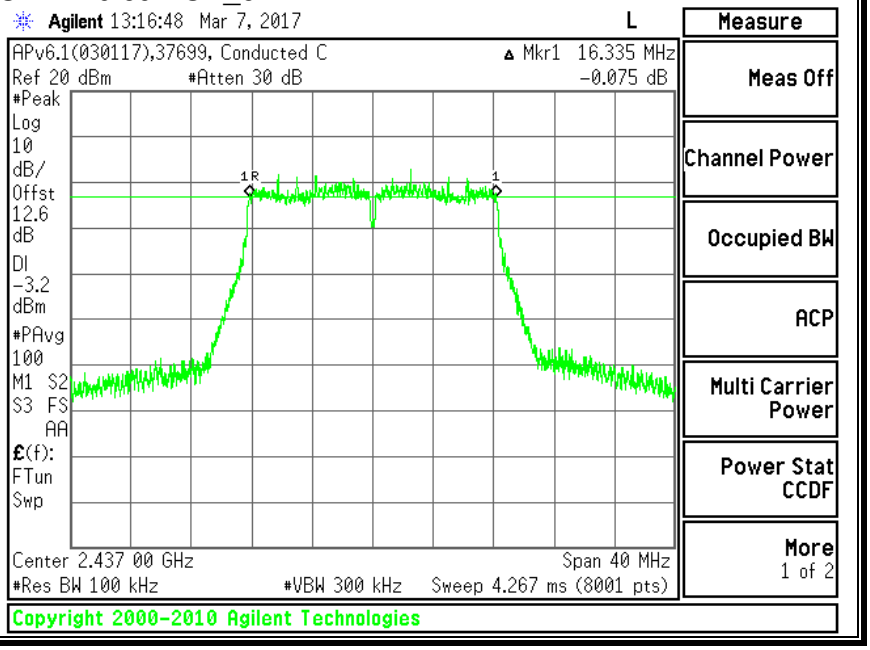
CHAIN 0 6dB CH_1



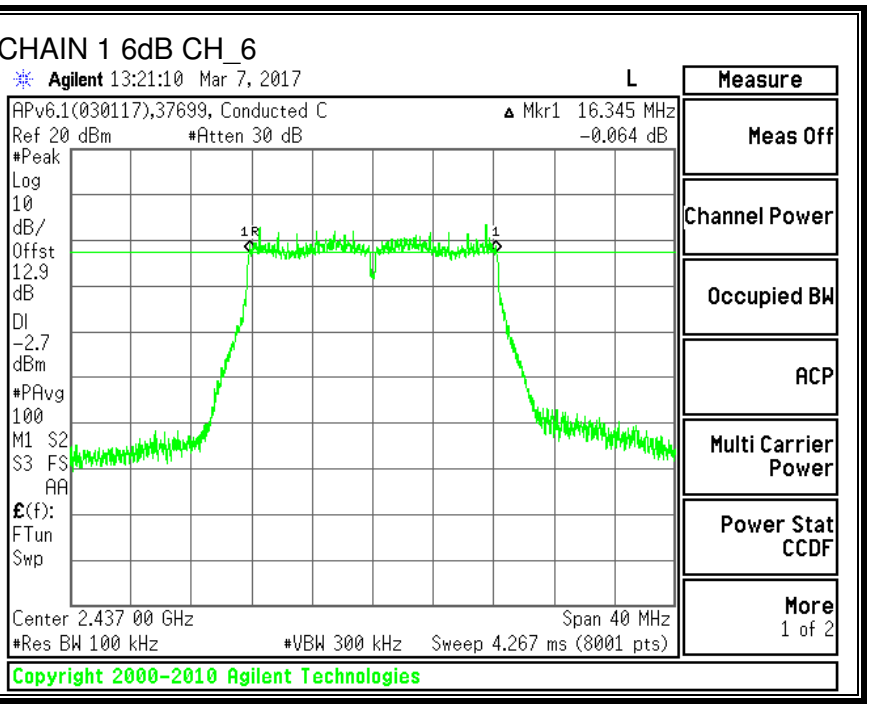
CHAIN 1 6dB CH_1



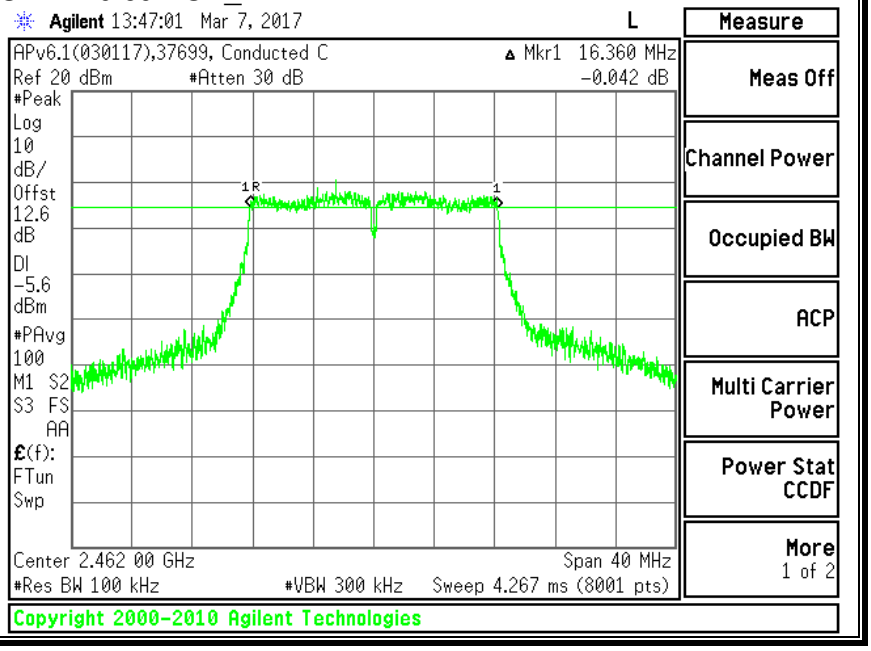
CHAIN 0 6dB CH_6



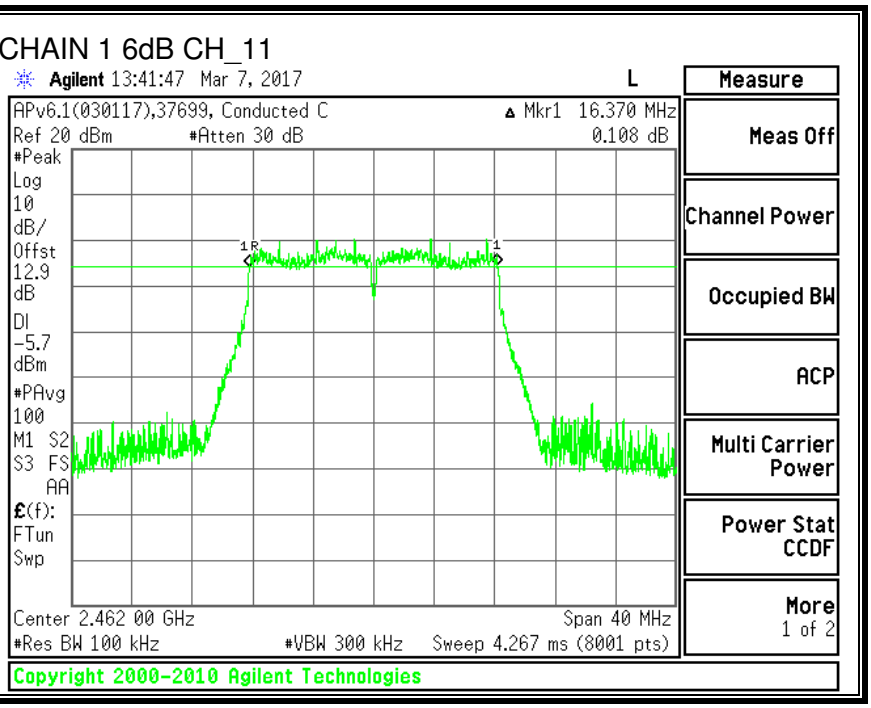
CHAIN 1 6dB CH_6



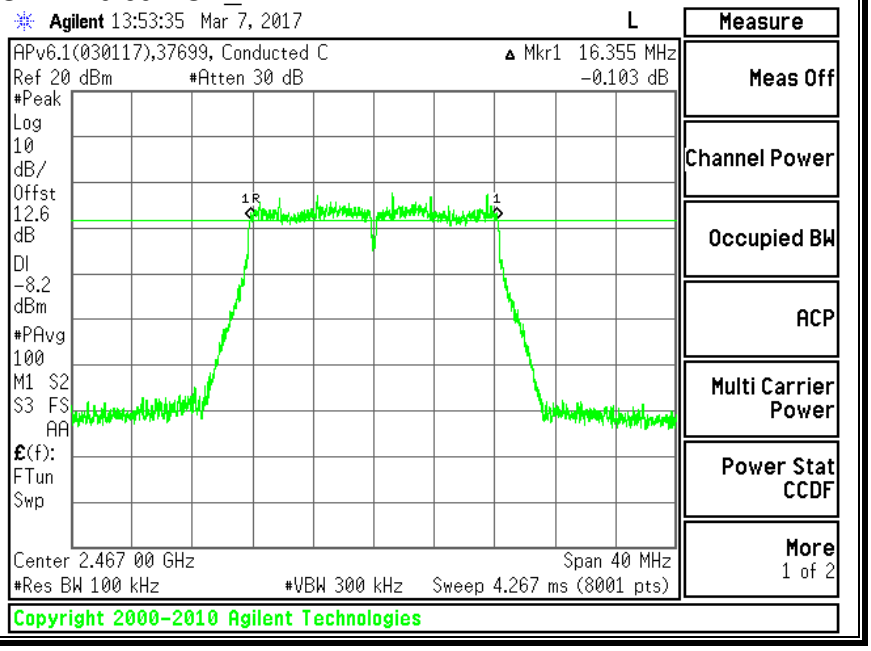
CHAIN 0 6dB CH_11



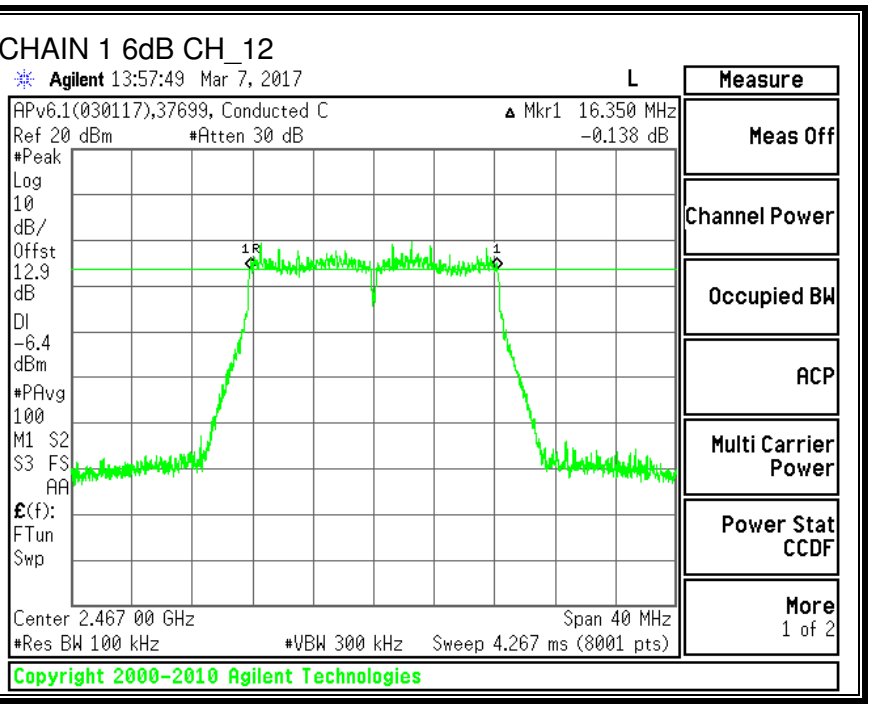
CHAIN 1 6dB CH_11



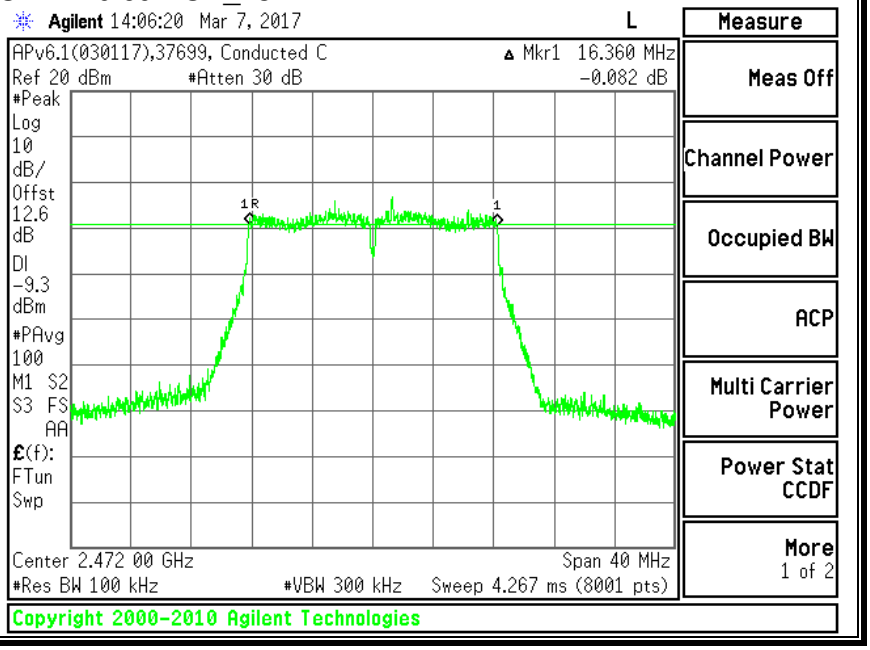
CHAIN 0 6dB CH_12



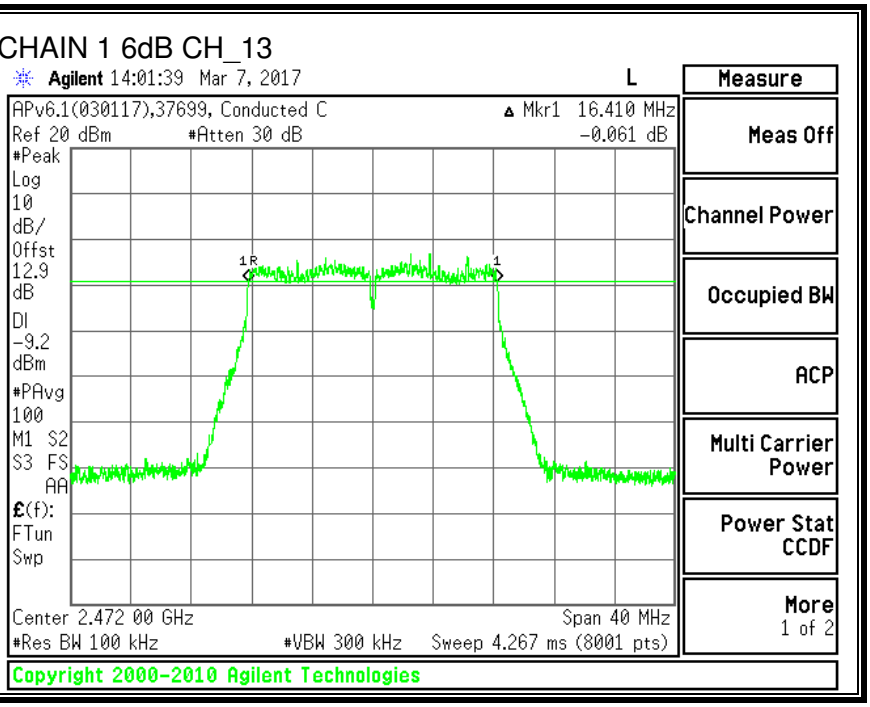
CHAIN 1 6dB CH_12



CHAIN 0 6dB CH_13



CHAIN 1 6dB CH_13



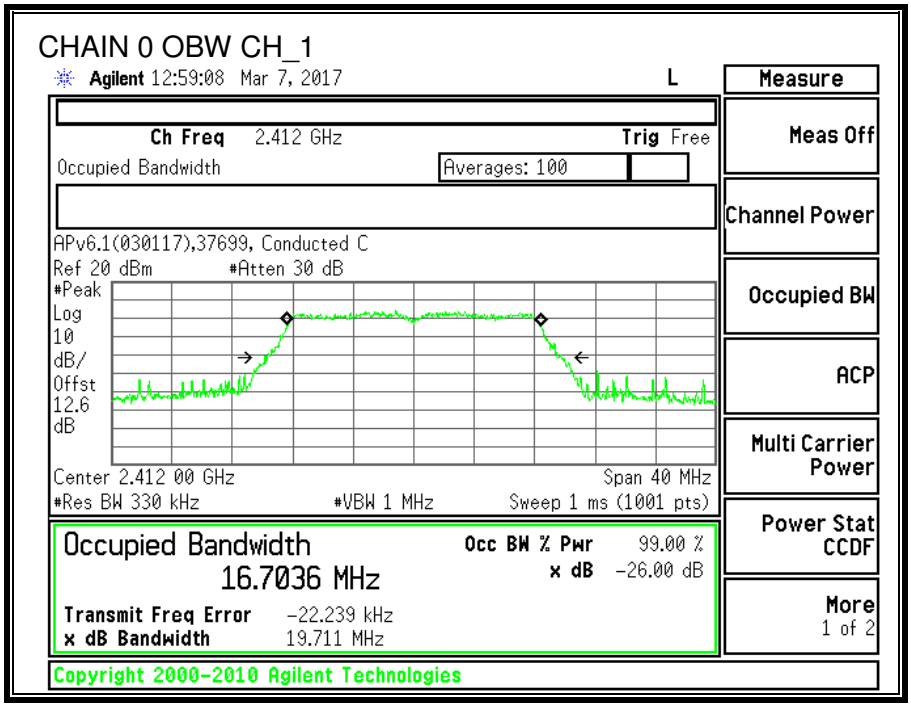
8.2.2. 99% BANDWIDTH

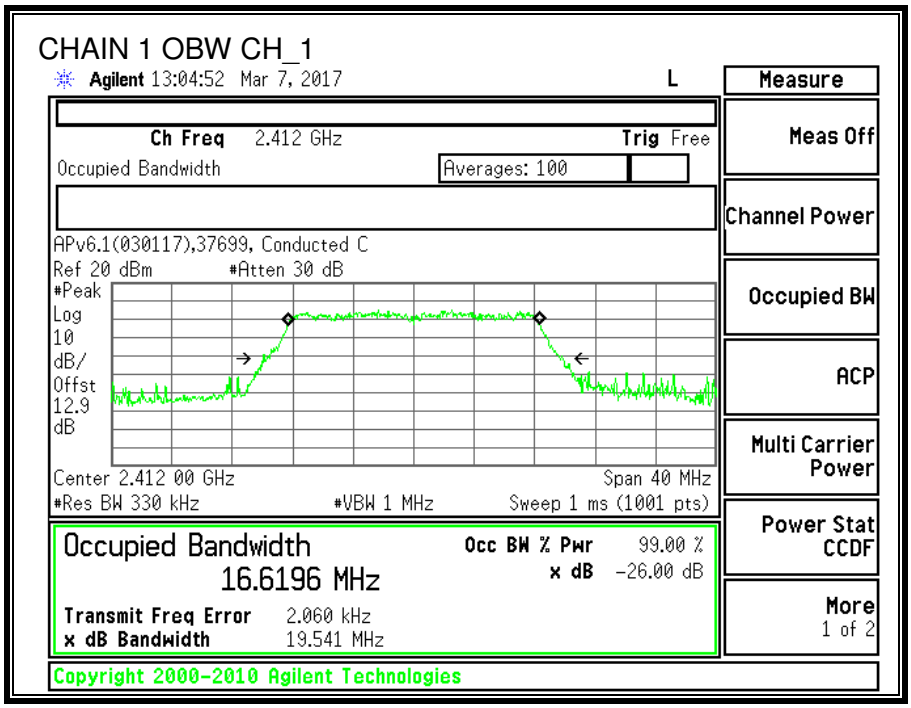
LIMITS

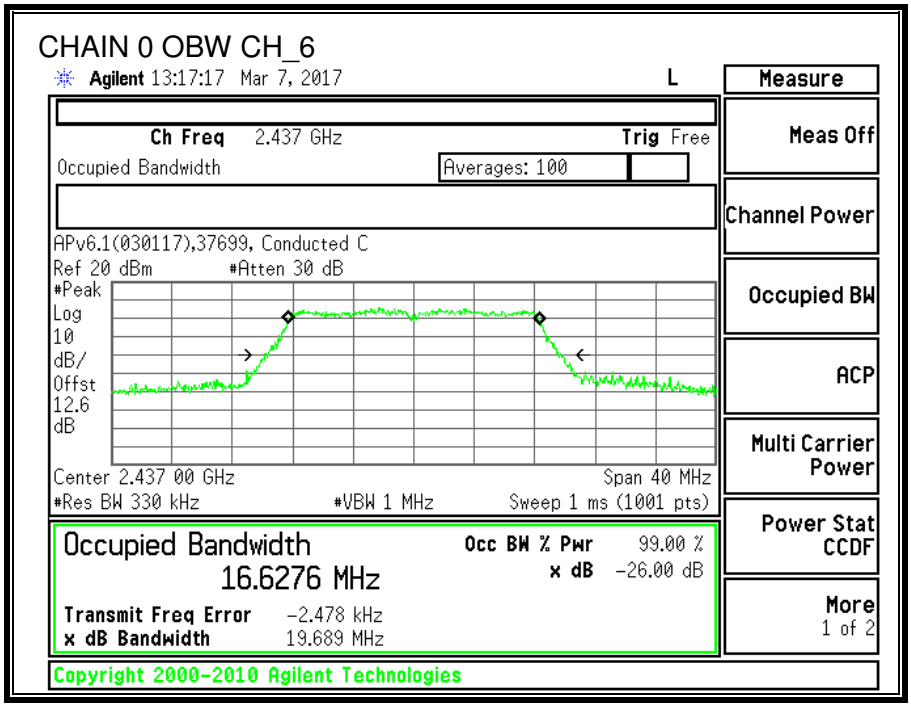
None; for reporting purposes only.

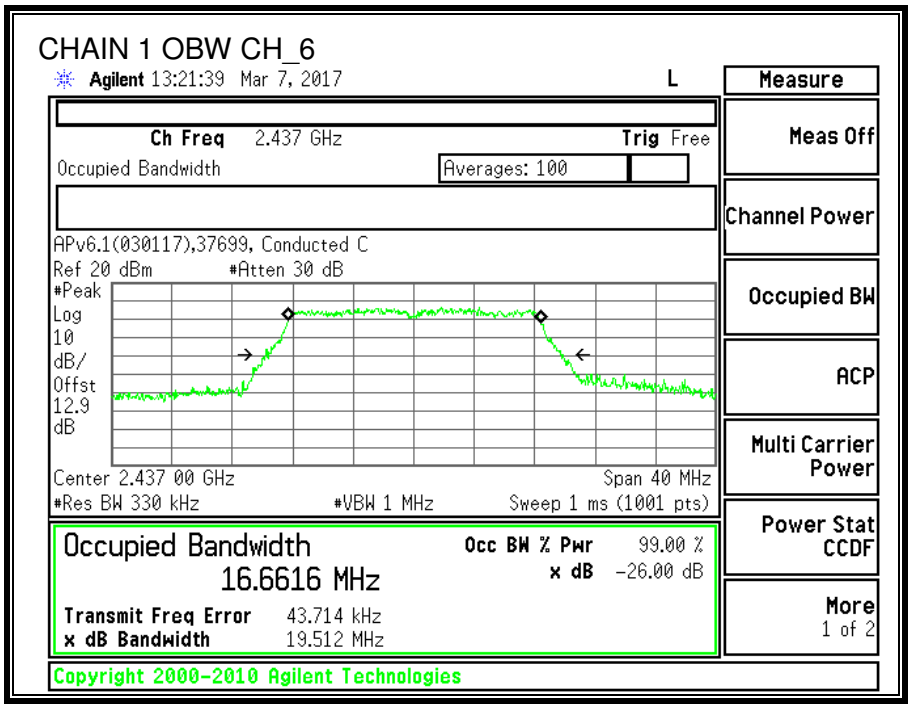
RESULTS

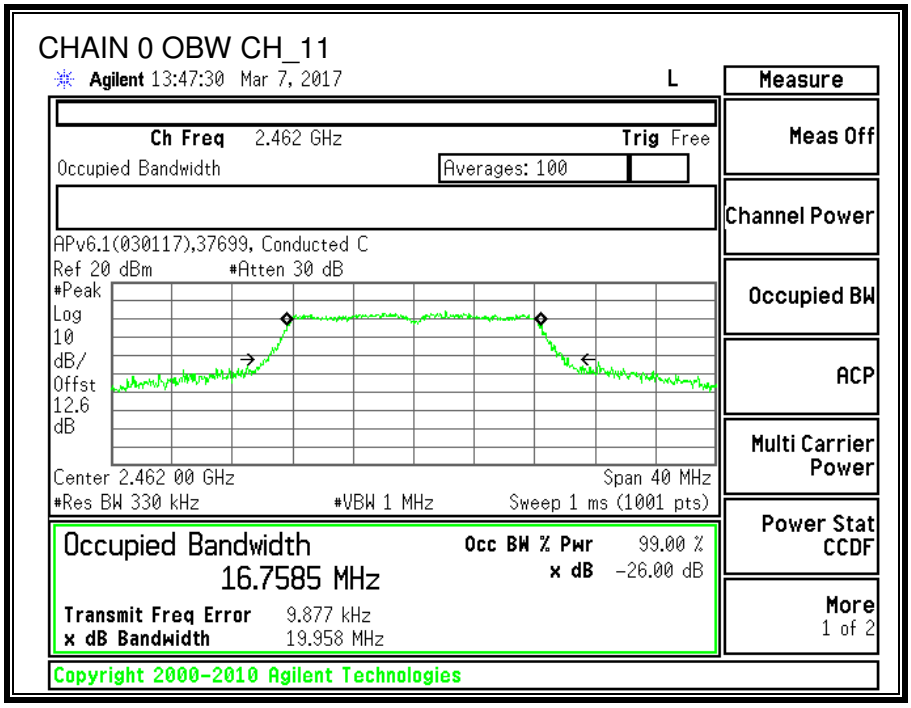
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low_1	2412	16.704	16.62
Middle_6	2437	16.628	16.662
High_11	2462	16.758	16.635
High_12	2467	16.658	16.66
High_13	2472	16.673	16.623

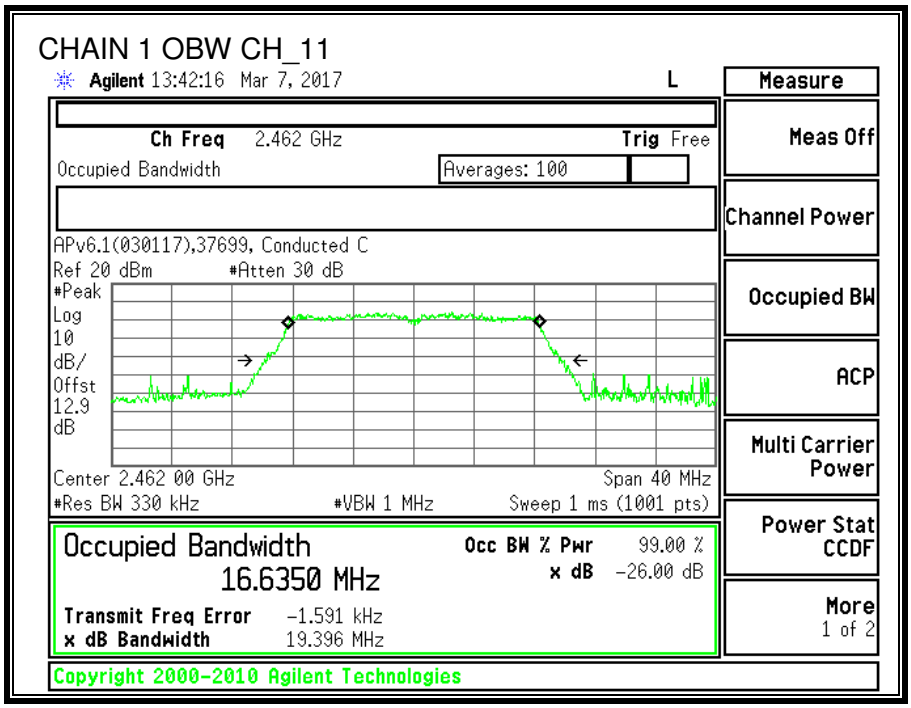


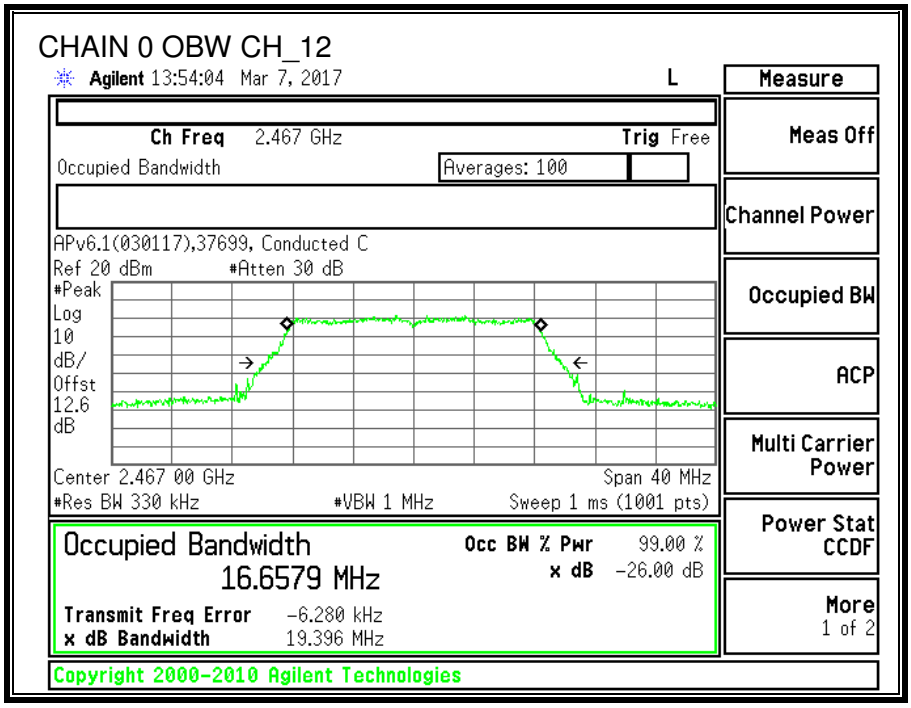


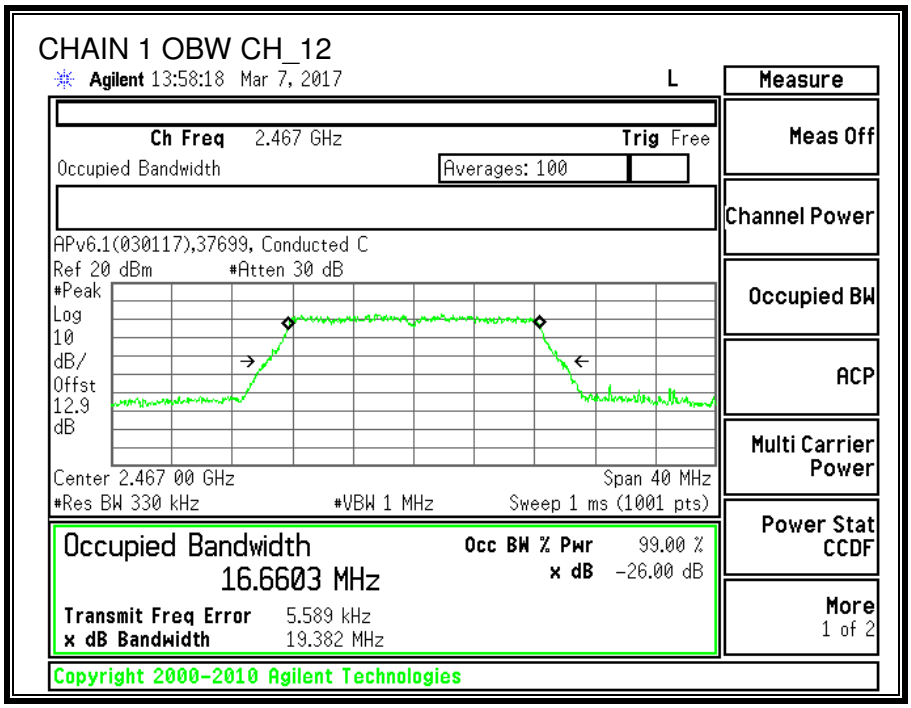


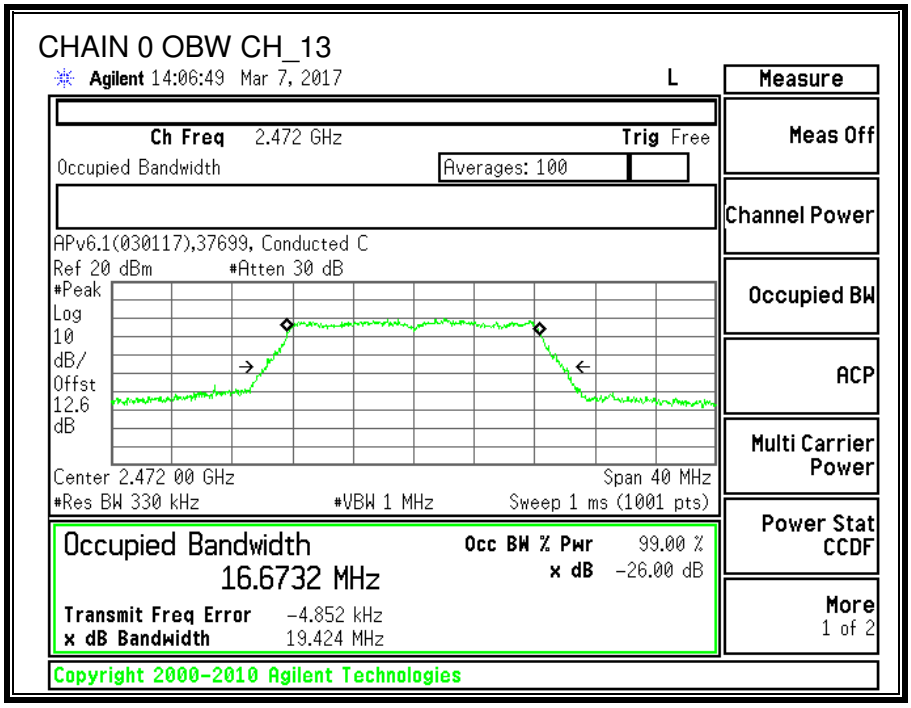


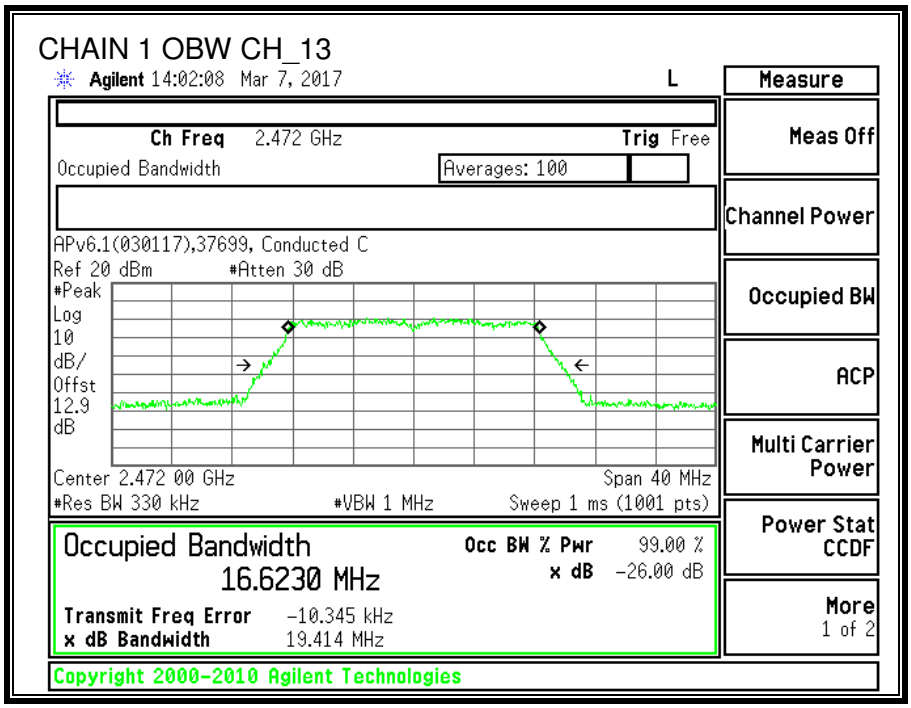












8.2.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (d)

For systems using digital modulation in the 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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
1.80	3.20	2.56	5.54

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RESULTS

Tested By:	45258 JL
Date:	3/8/2017

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low_1	2412	2.56	30.00	30	36	30.00
Middle_6	2437	2.56	30.00	30	36	30.00
High_11	2462	2.56	30.00	30	36	30.00
High_12	2467	2.56	30.00	30	36	30.00
High_13	2472	2.56	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low_1	2412	12.46	11.63	15.08	30.00	-14.92
Middle_6	2437	14.12	13.86	17.00	30.00	-13.00
High_11	2462	12.08	11.38	14.75	30.00	-15.25
High_12	2467	10.91	9.35	13.21	30.00	-16.79
High_13	2472	8.95	8.73	11.85	30.00	-18.15

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8.2.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

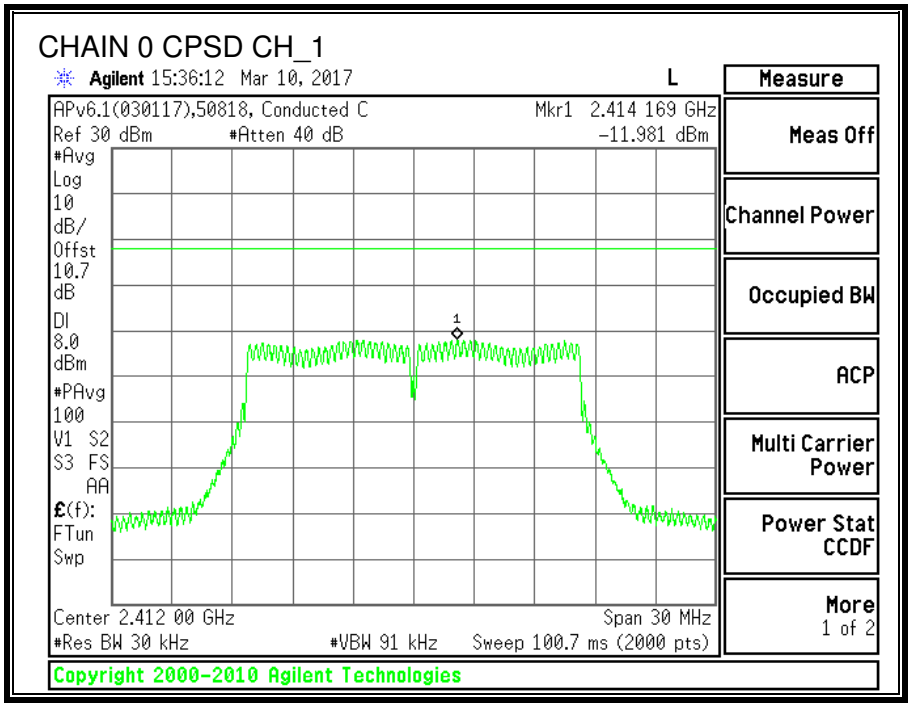
IC RSS-247 (5.2) (b)

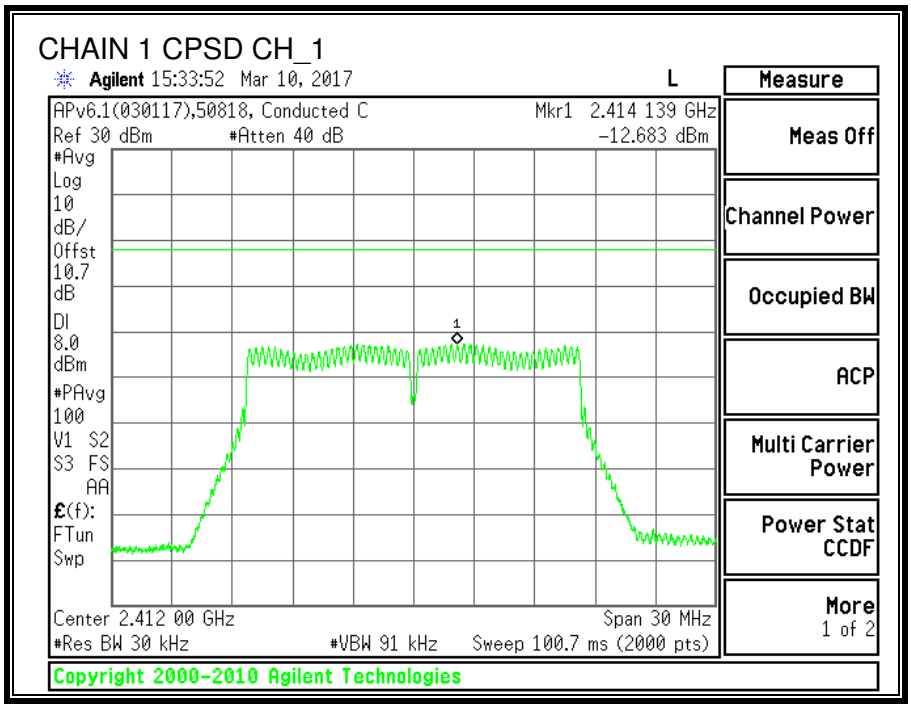
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

RESULTS

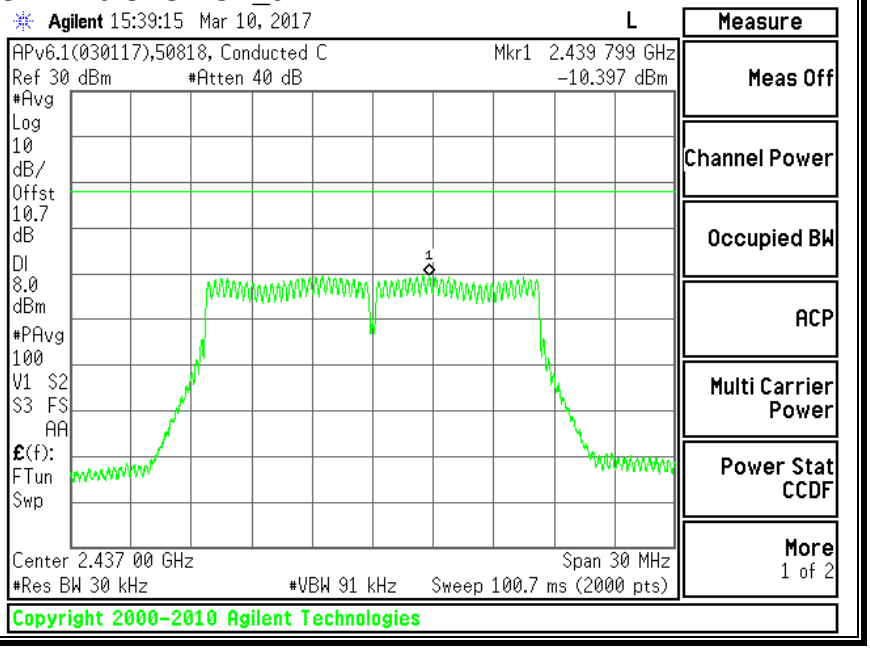
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-11.98	-12.68	-9.31	8.0	-17.3
Middle_6	2437	-10.40	-10.39	-7.38	8.0	-15.4
High_11	2462	-12.07	-12.49	-9.26	8.0	-17.3
High_12	2467	-14.486	-14.737	-11.60	8.0	-19.6
High_13	2472	-16.616	-16.384	-13.49	8.0	-21.5

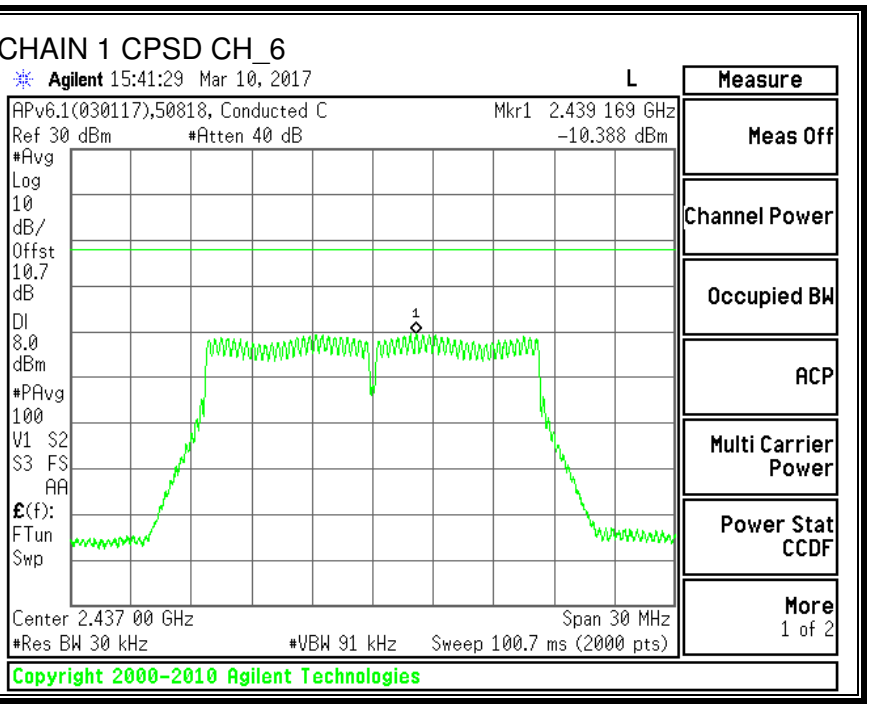


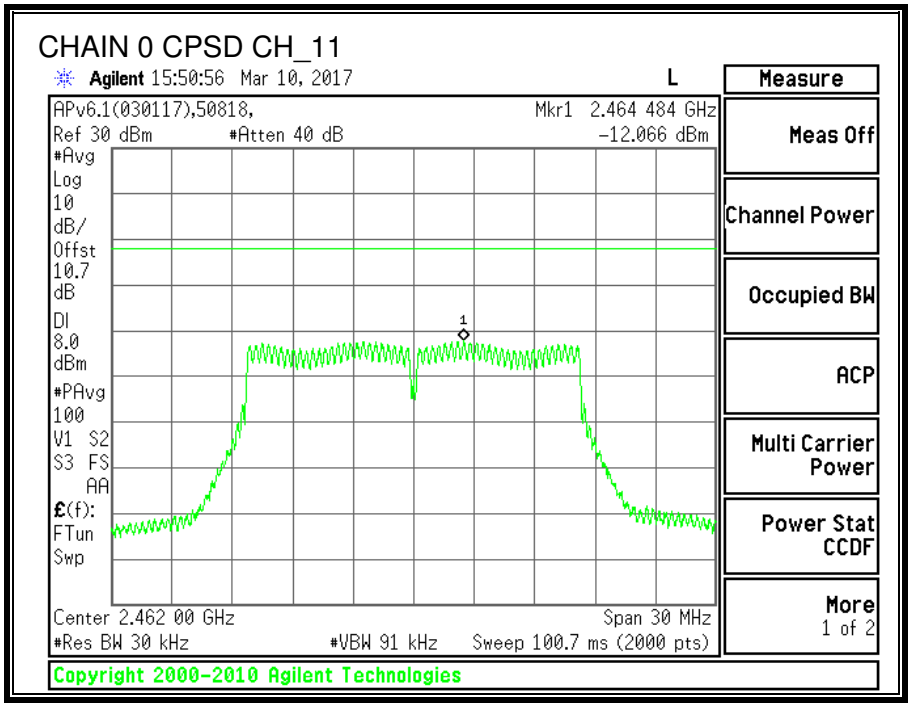


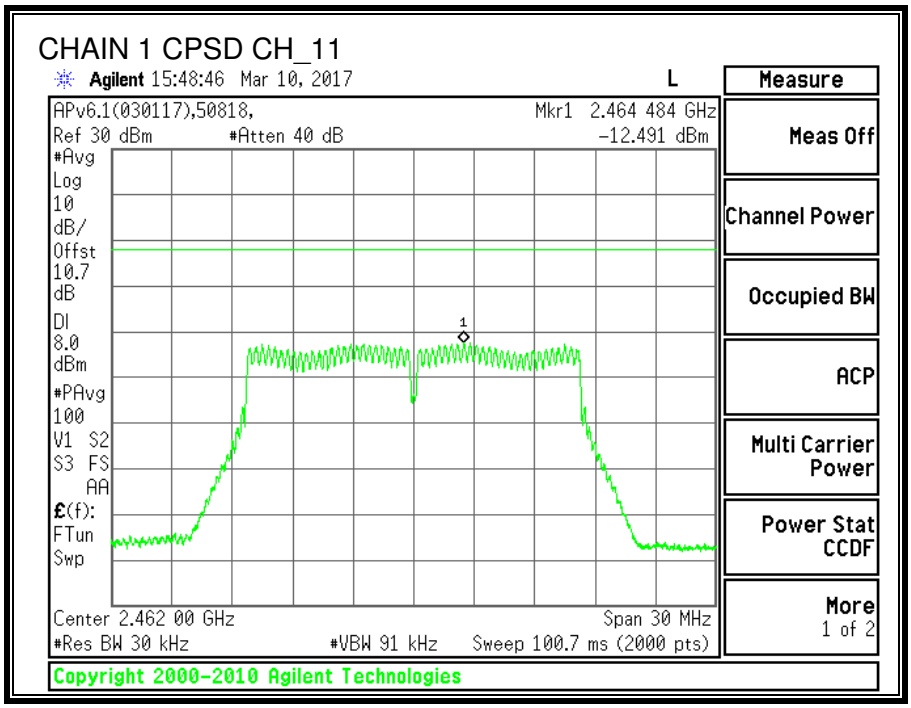
CHAIN 0 CPSD CH_6

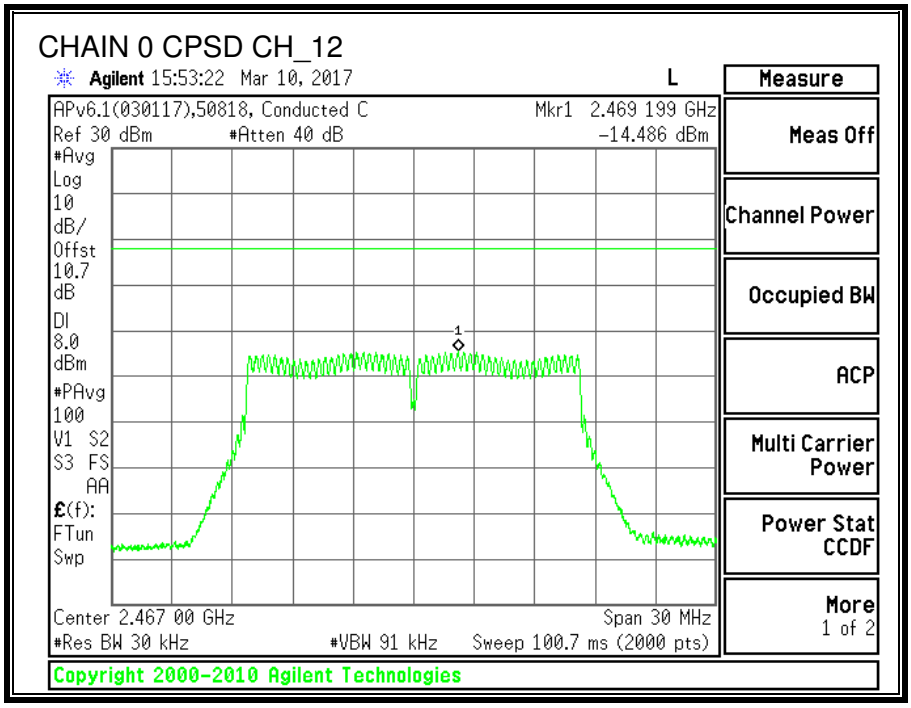


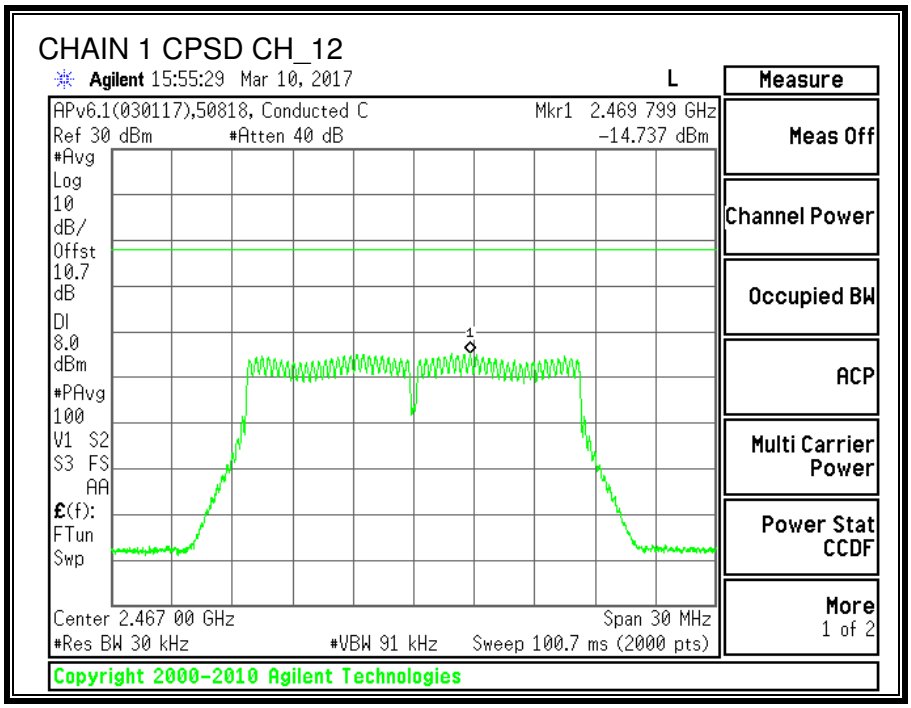
CHAIN 1 CPSD CH_6

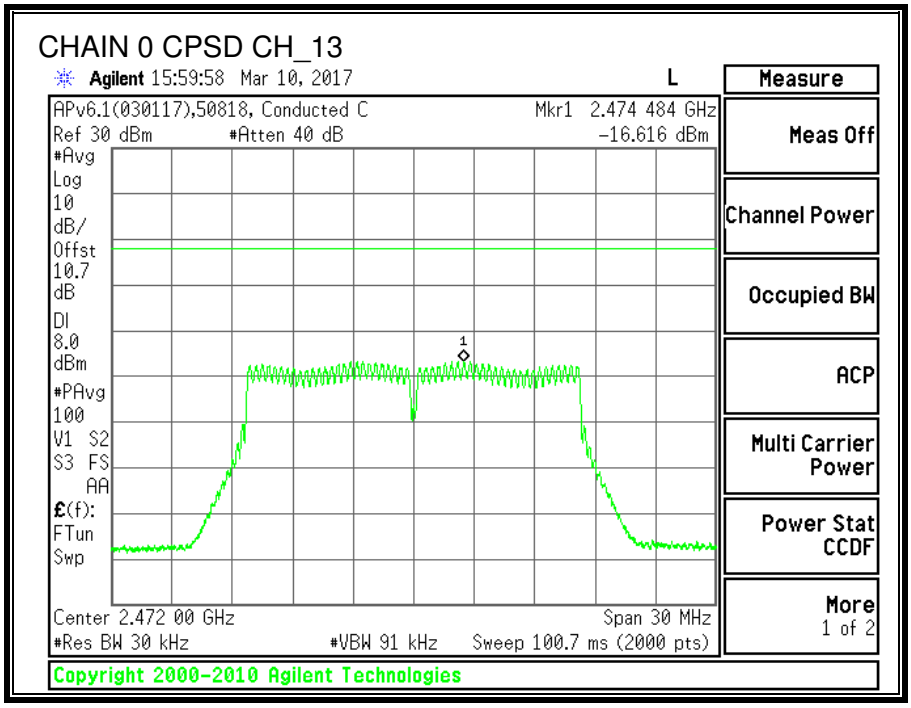


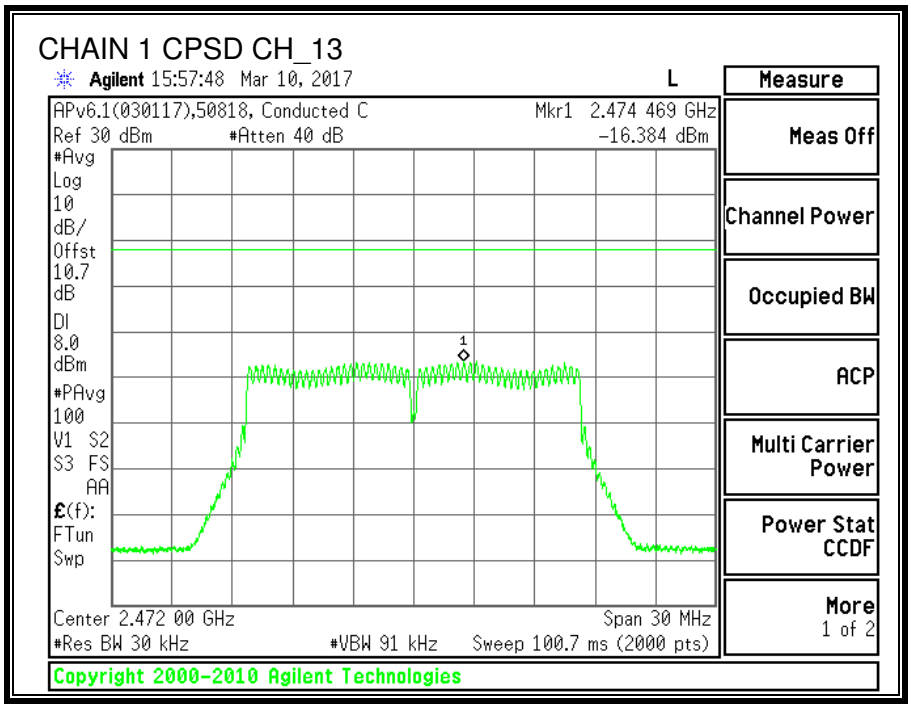












8.2.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

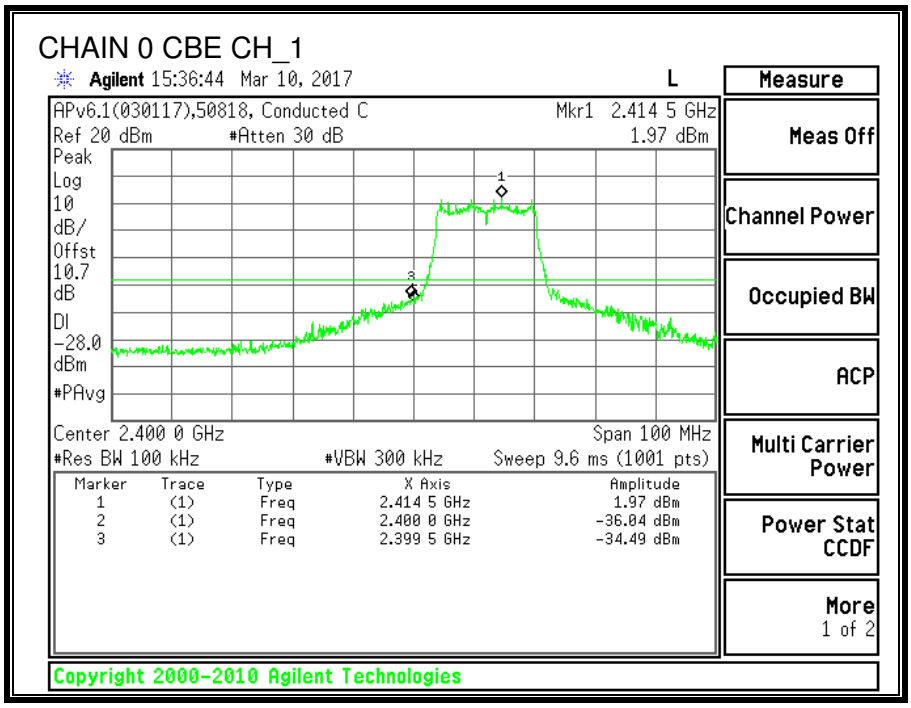
FCC §15.247 (d)

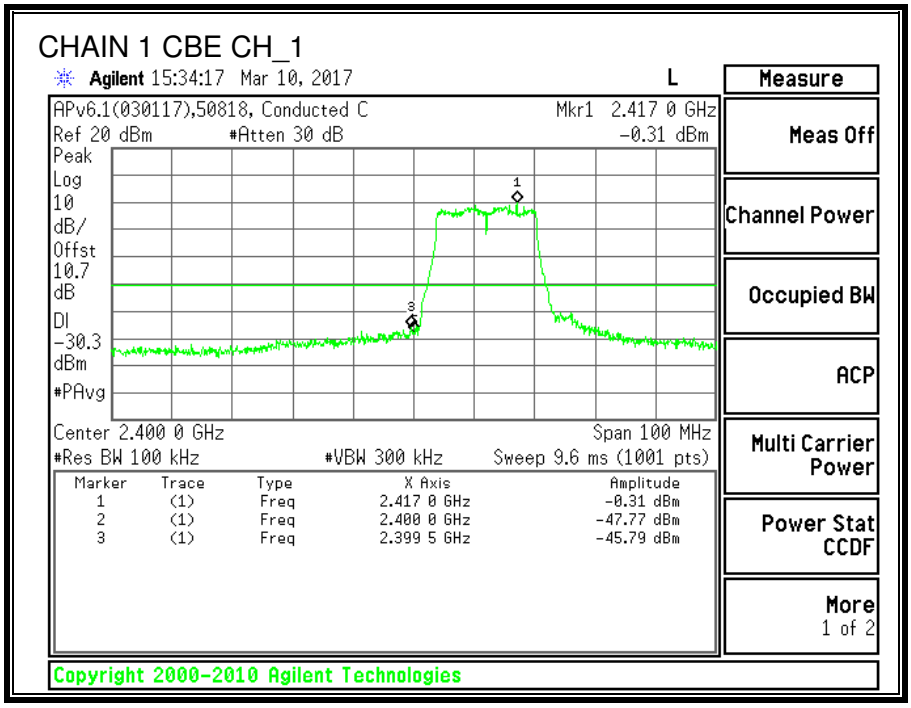
IC RSS-247 5.5

Output power was measured based on the use of Avg measurement, therefore the required attenuation is 30 dB.

RESULTS

BANDEDGE





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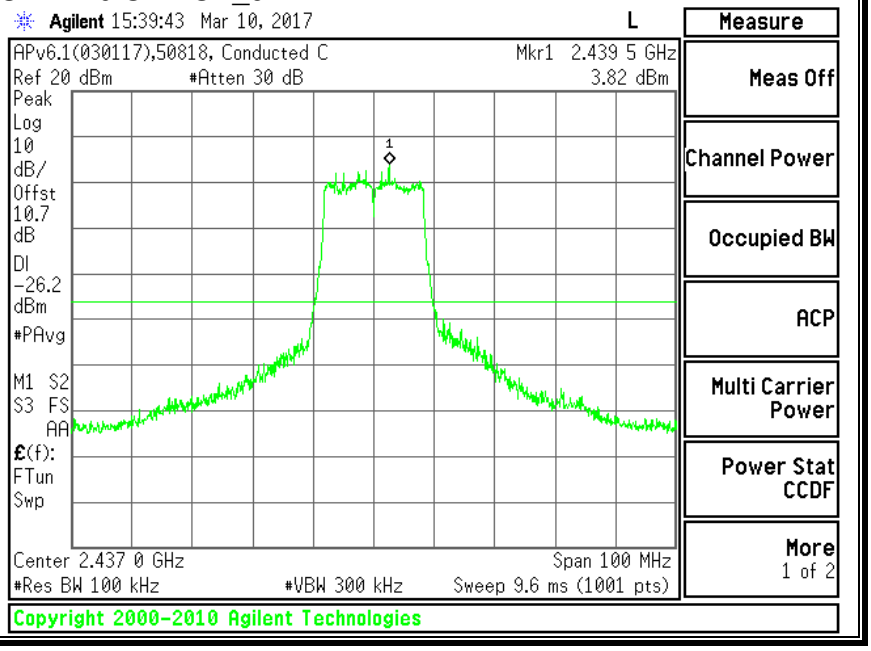
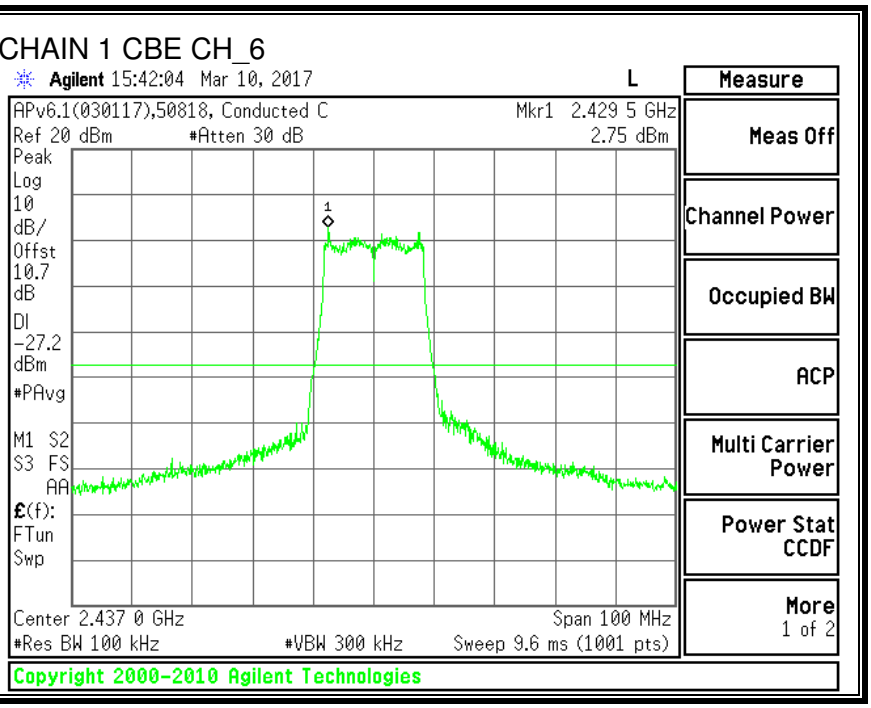
CHAIN 0 CBE CH_6



CHAIN 1 CBE CH_6



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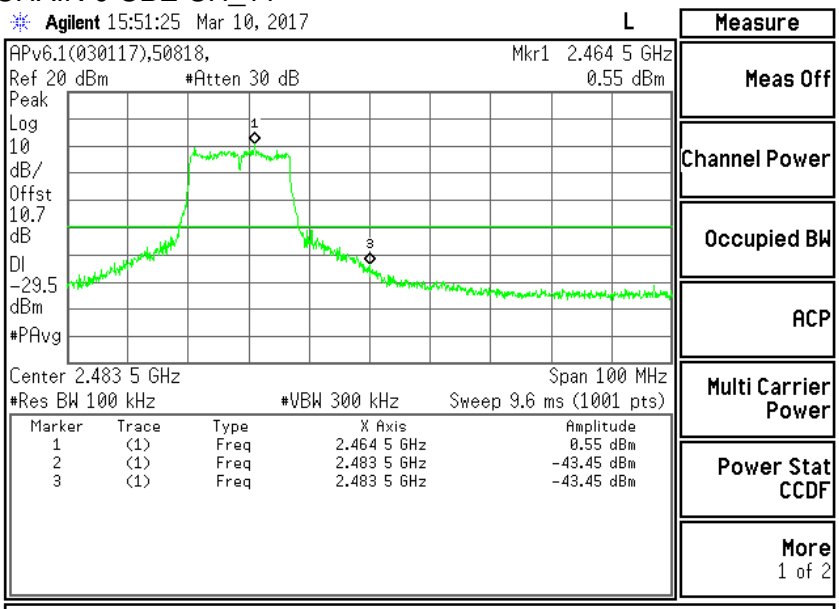

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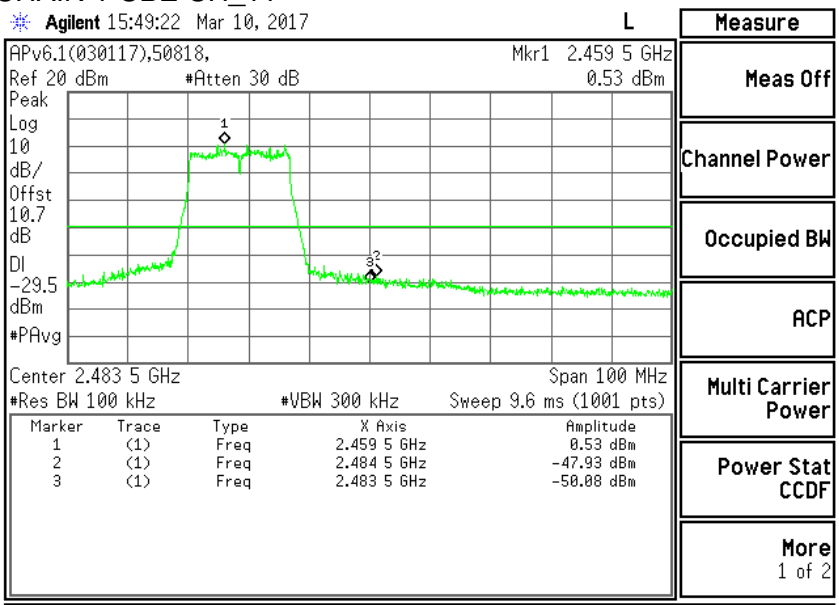
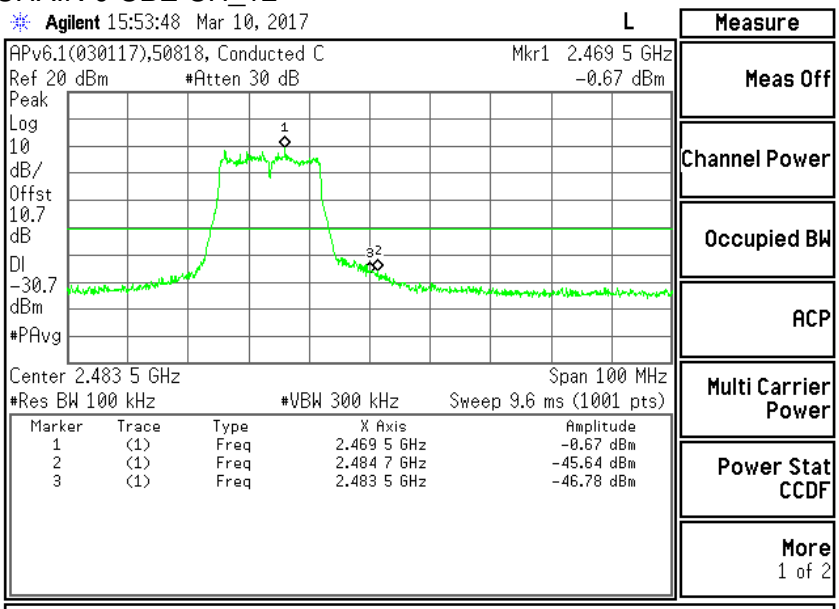


CHAIN 0 CBE CH_12



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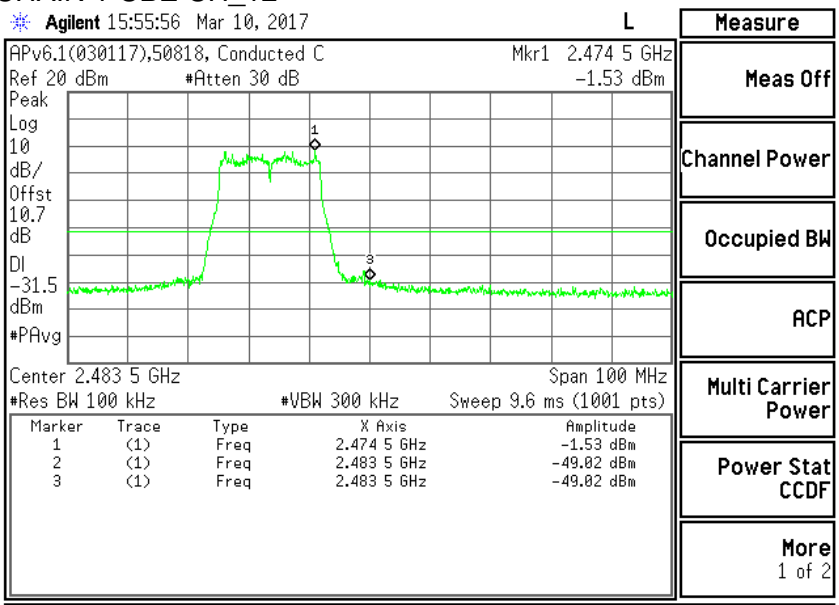
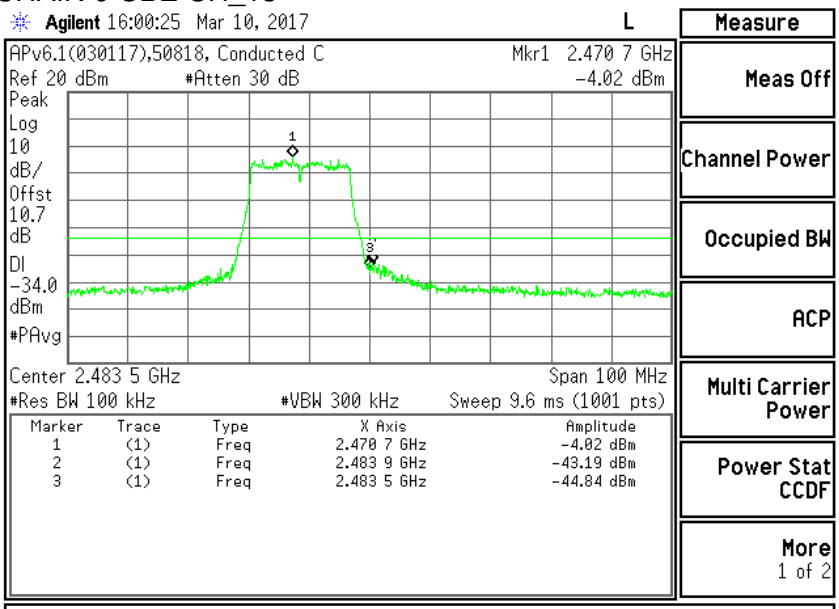
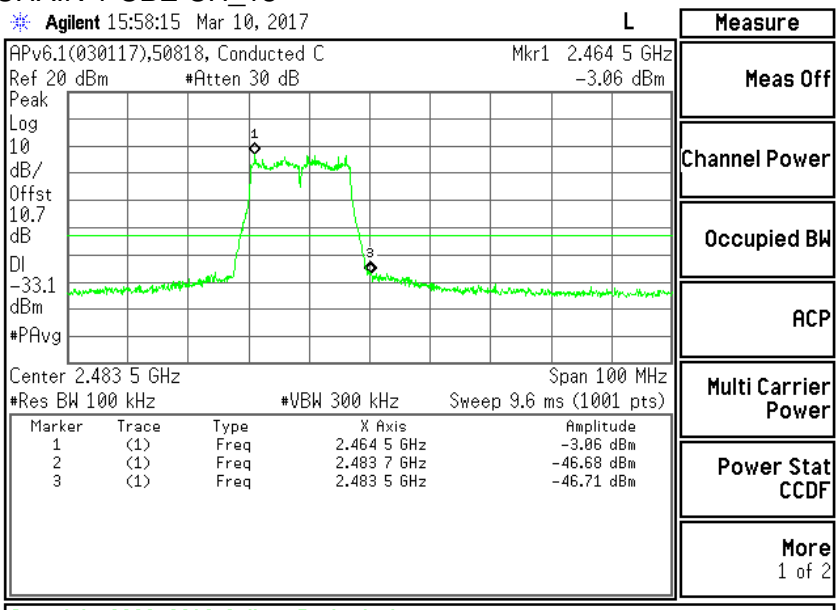


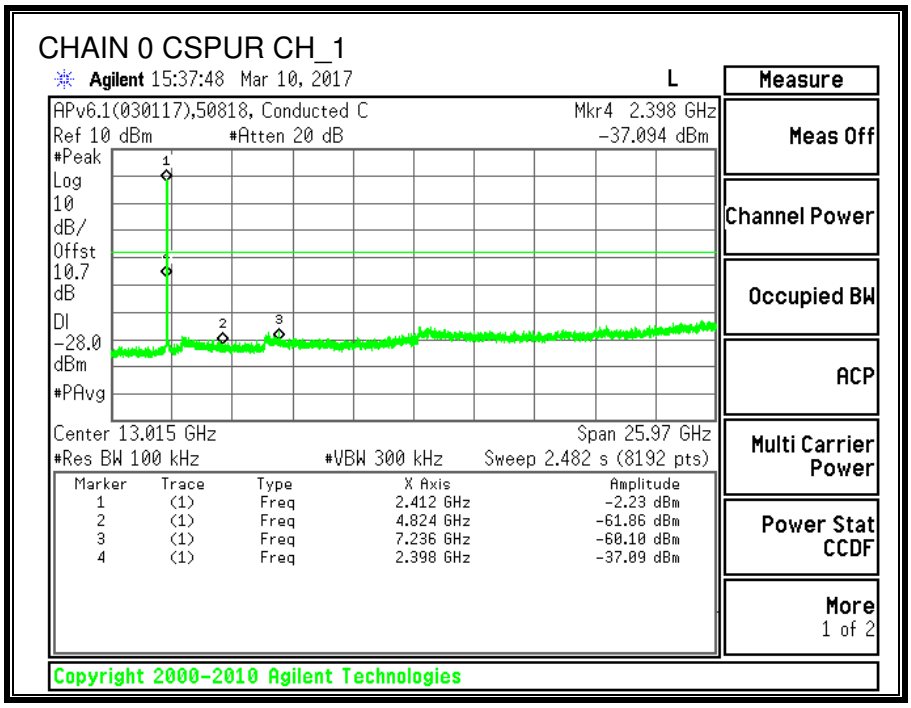
CHAIN 0 CBE CH_13

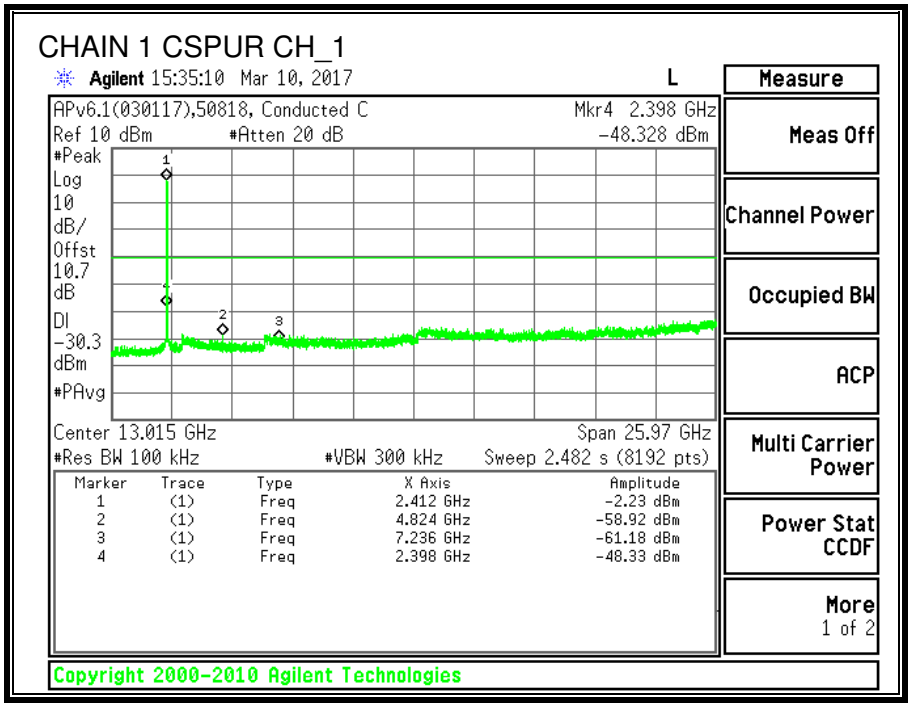


CHAIN 1 CBE CH_13

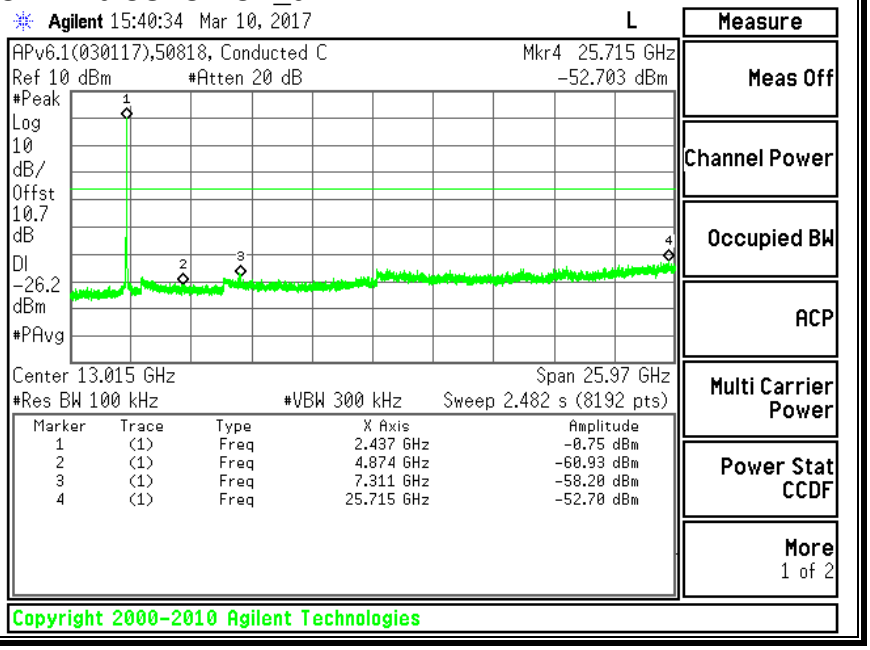


SPURIOUS EMISSIONS

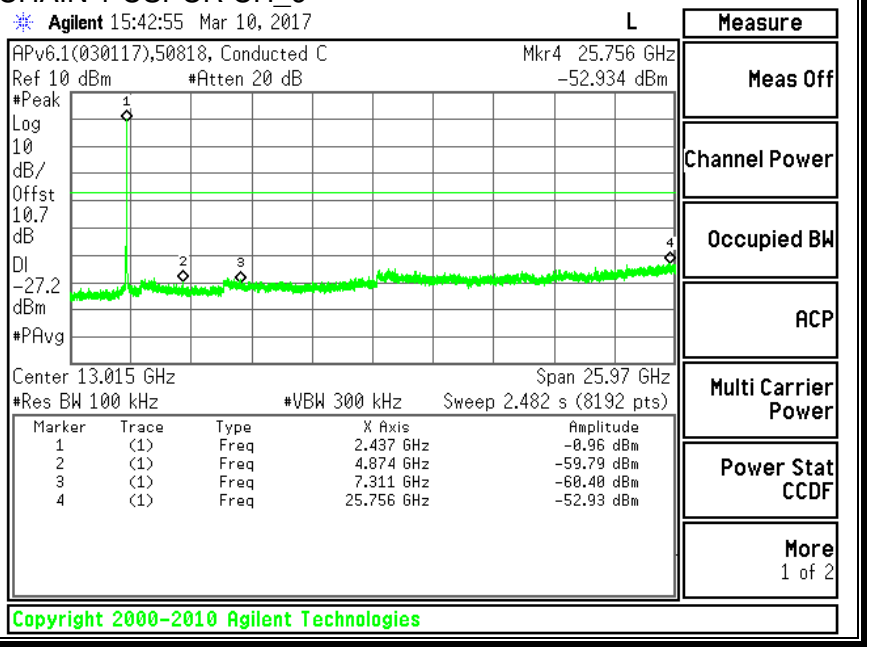


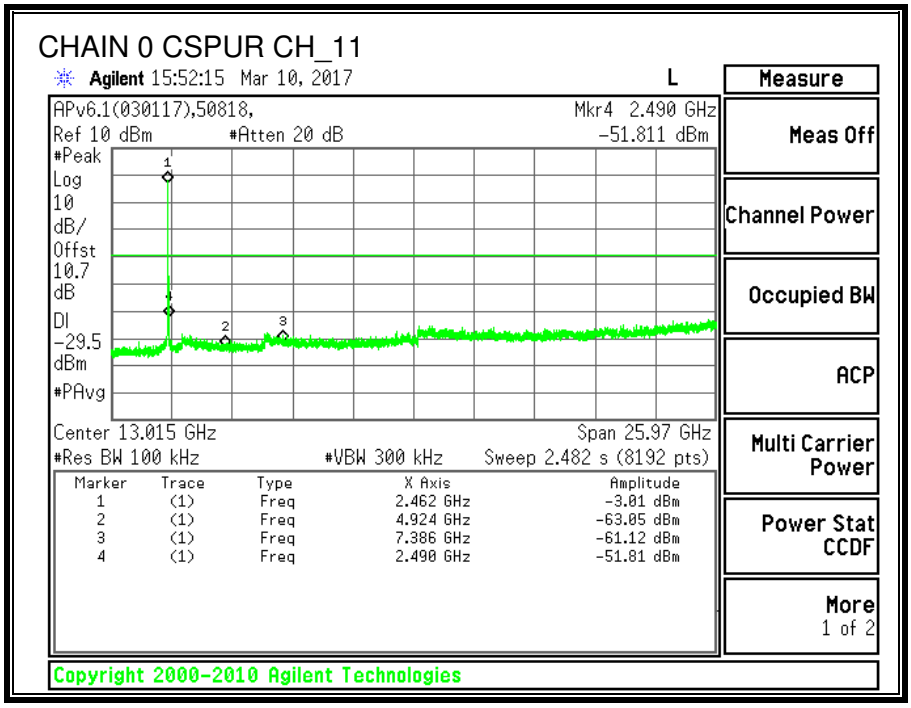


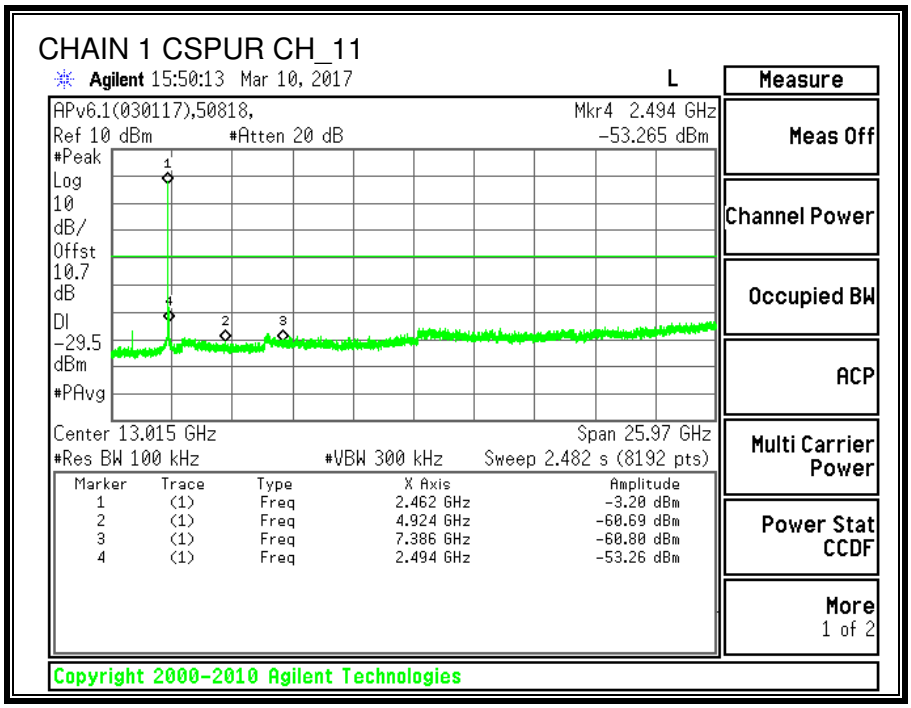
CHAIN 0 CSPUR CH_6

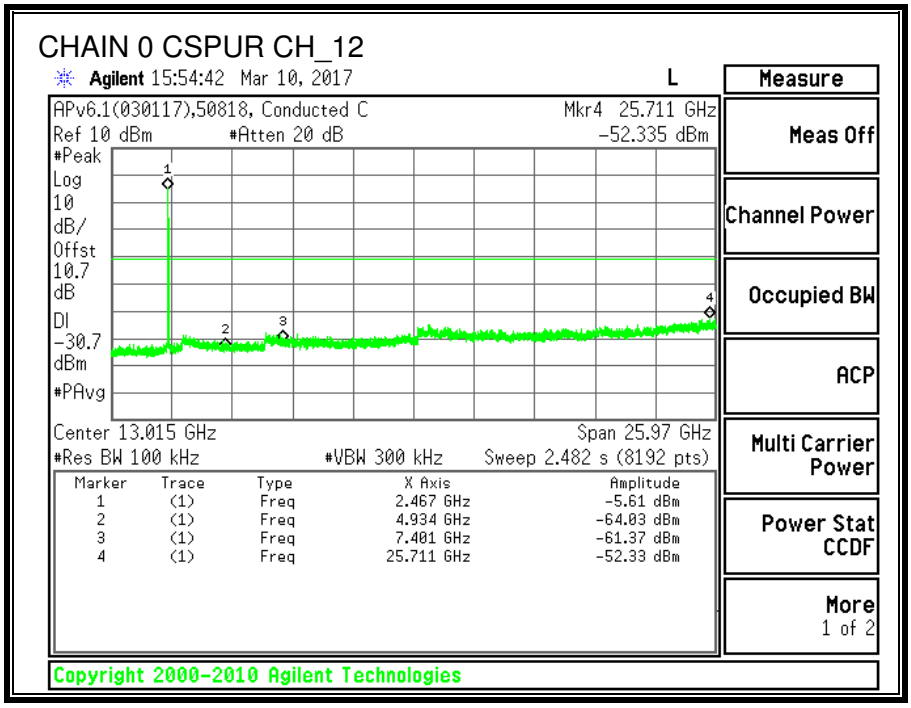


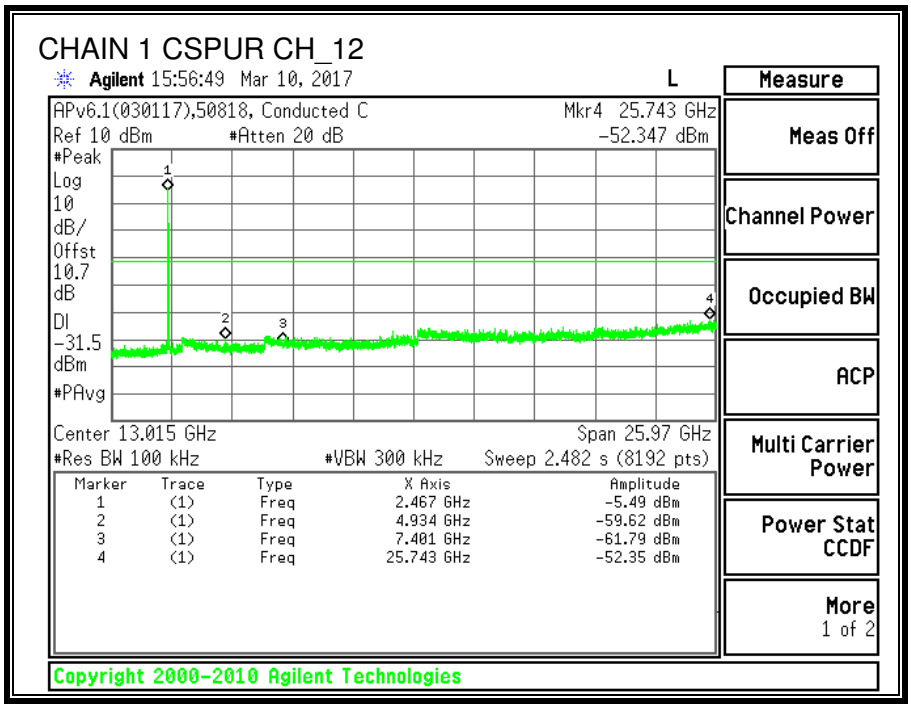
CHAIN 1 CSPUR CH_6











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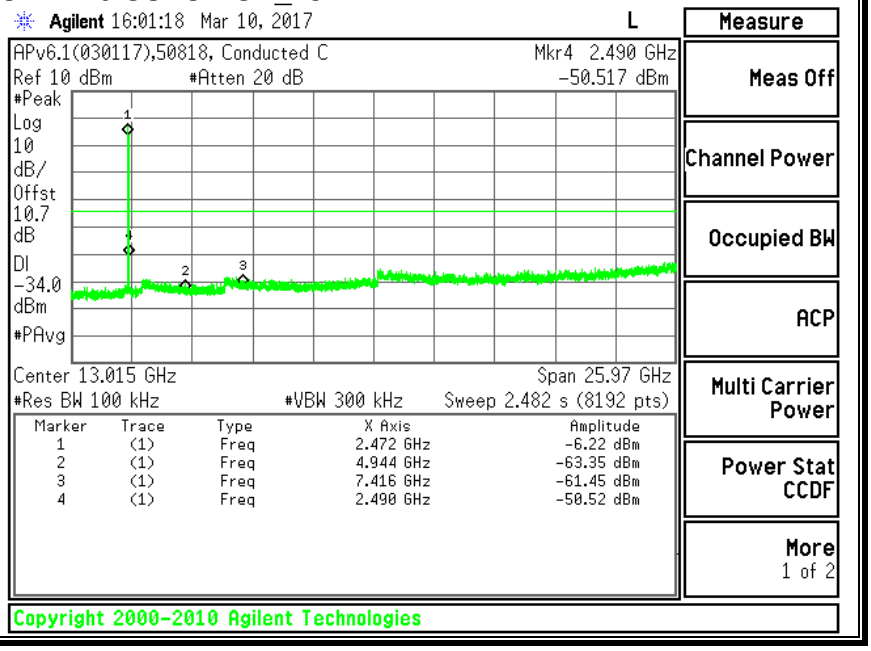
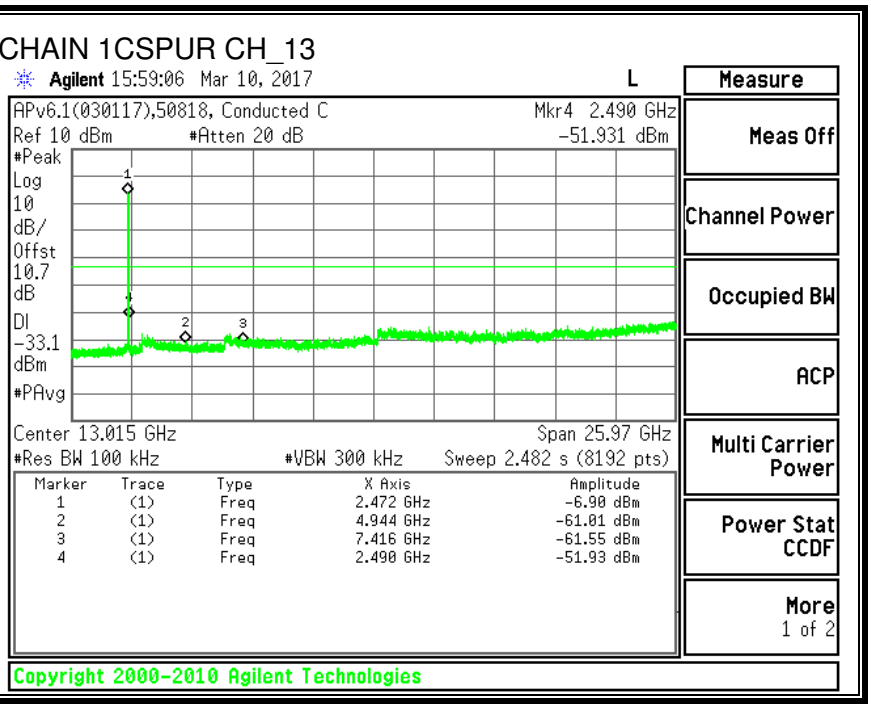


CHAIN 1CSPUR CH_13



8.3. 11n HT20 2TX MIMO MODE IN THE 2.4GHz BAND

8.3.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB BW Chain 0 (MHz)	6 dB BW Chain 1 (MHz)	Minimum Limit (MHz)
Low_1	2412	17.585	17.645	0.5
Middle_6	2437	17.575	17.555	0.5
High_11	2462	17.585	17.605	0.5
High_12	2467	17.55	17.605	0.5
High_13	2472	17.6	17.58	0.5

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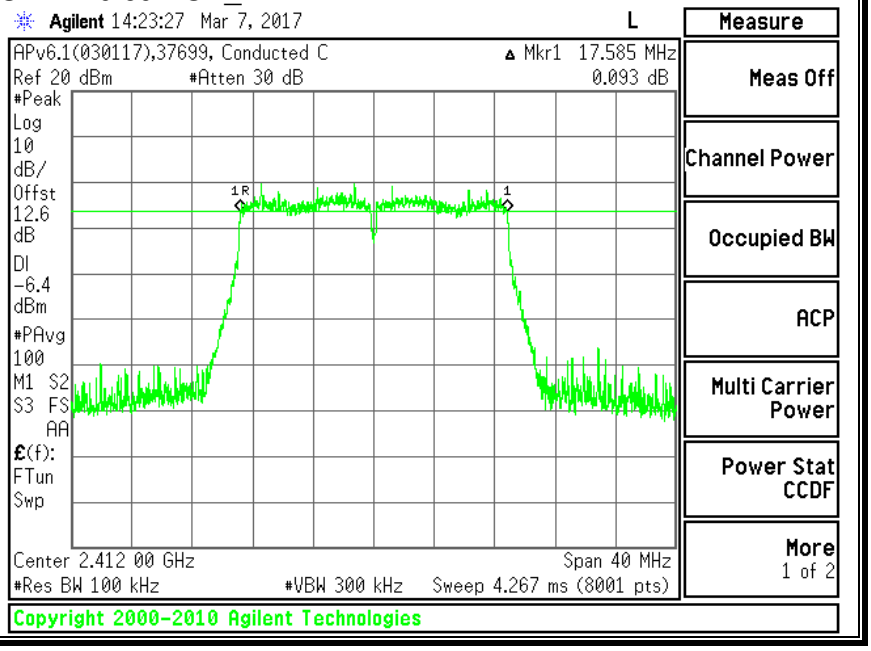
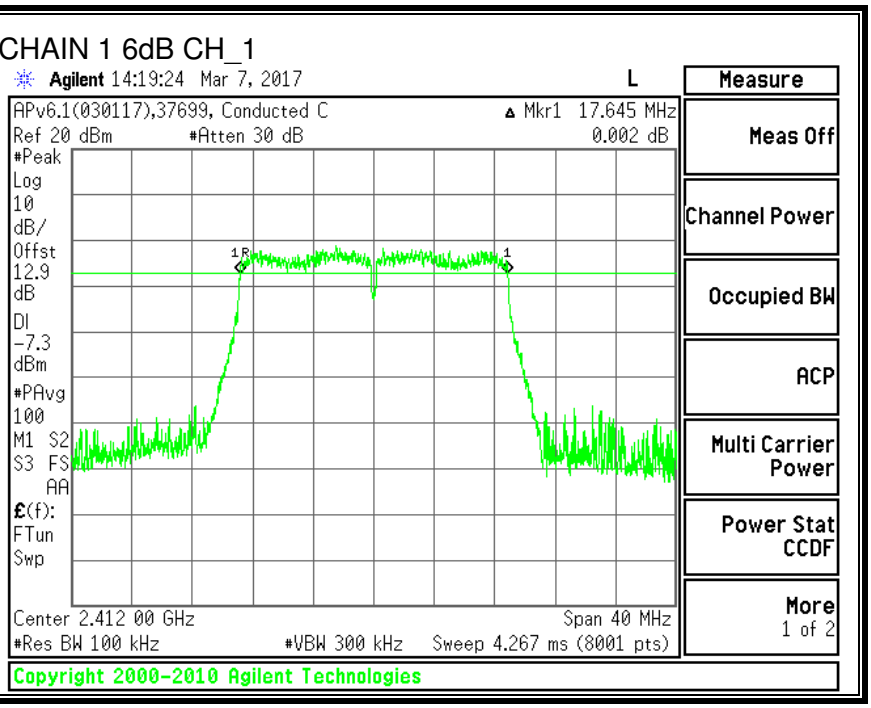
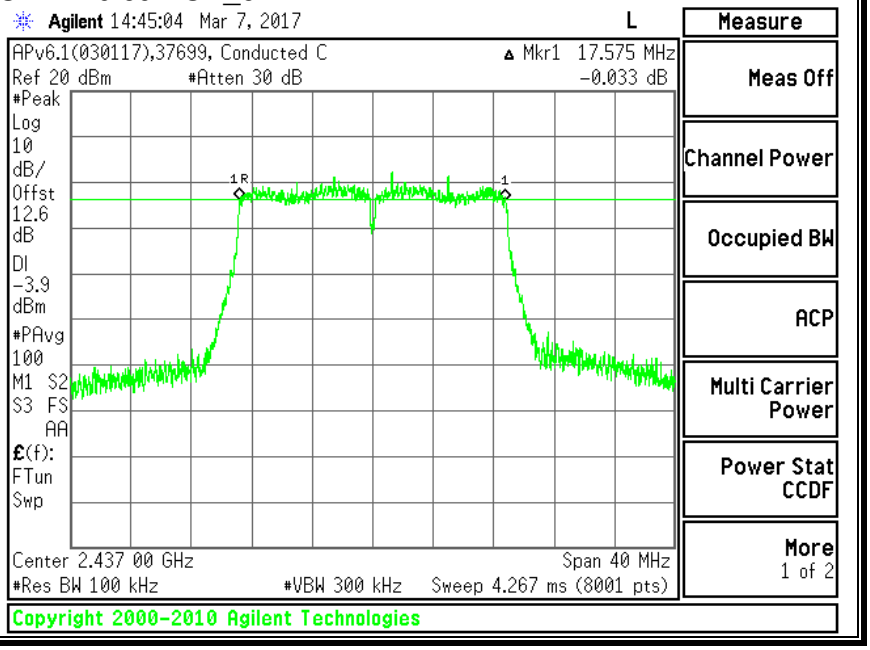
CHAIN 0 6dB CH_1



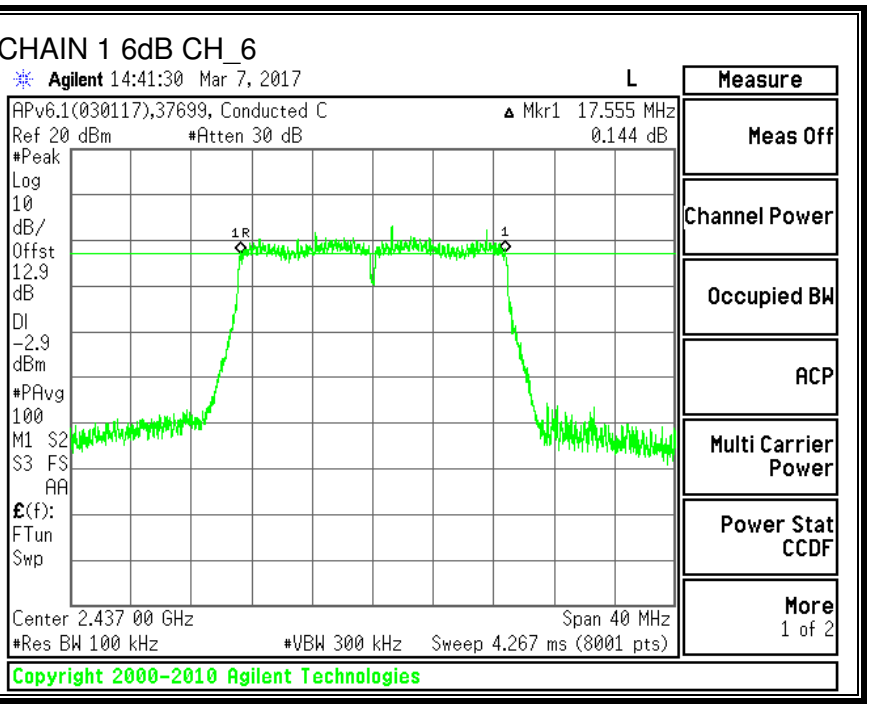
CHAIN 1 6dB CH_1



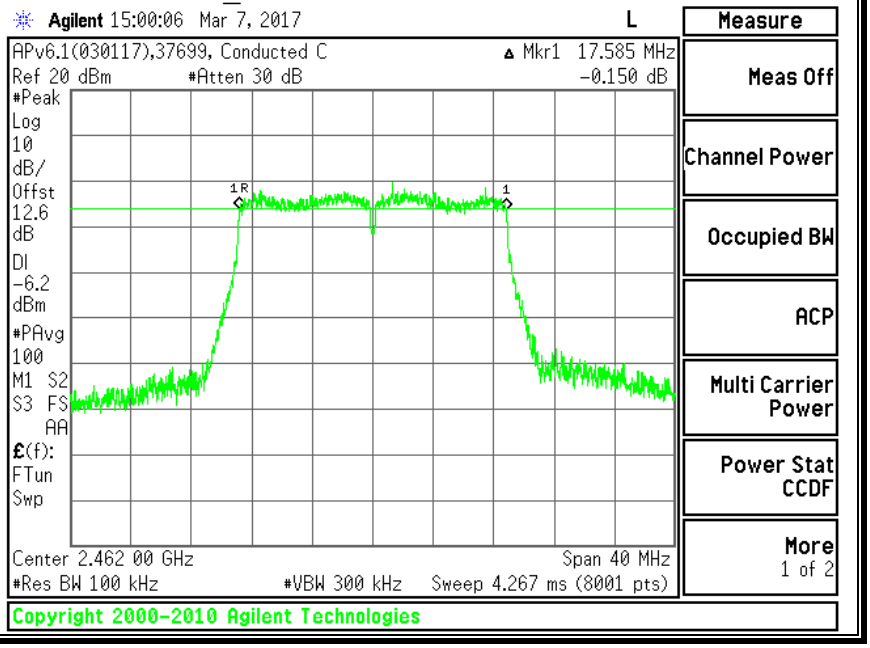
CHAIN 0 6dB CH_6



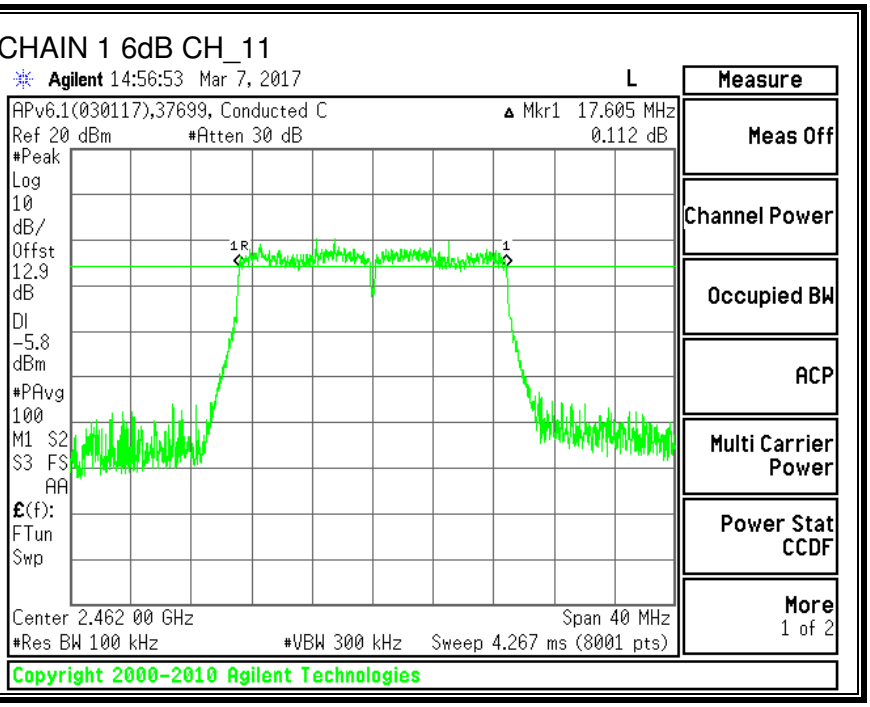
CHAIN 1 6dB CH_6



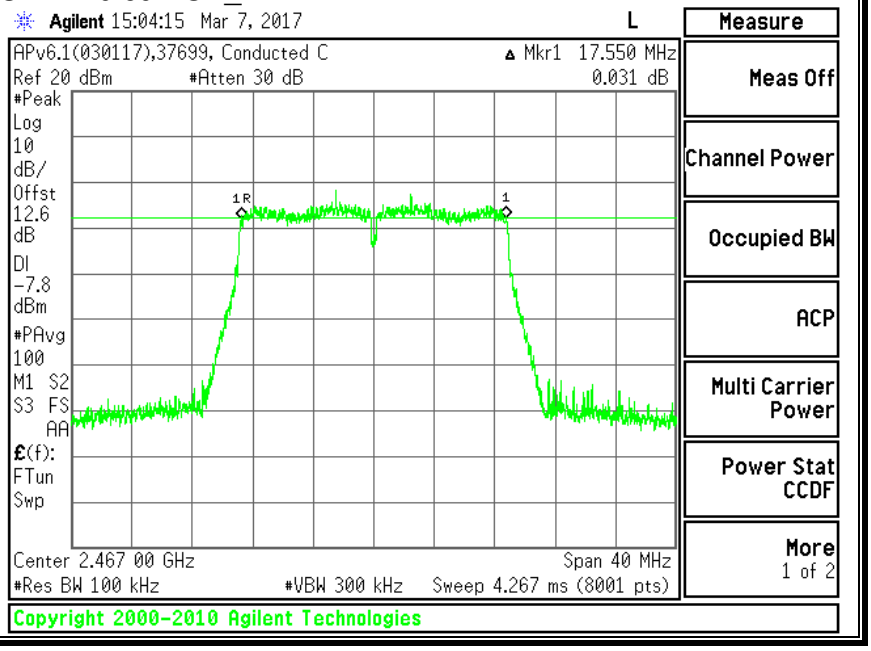
CHAIN 0 6dB CH_11



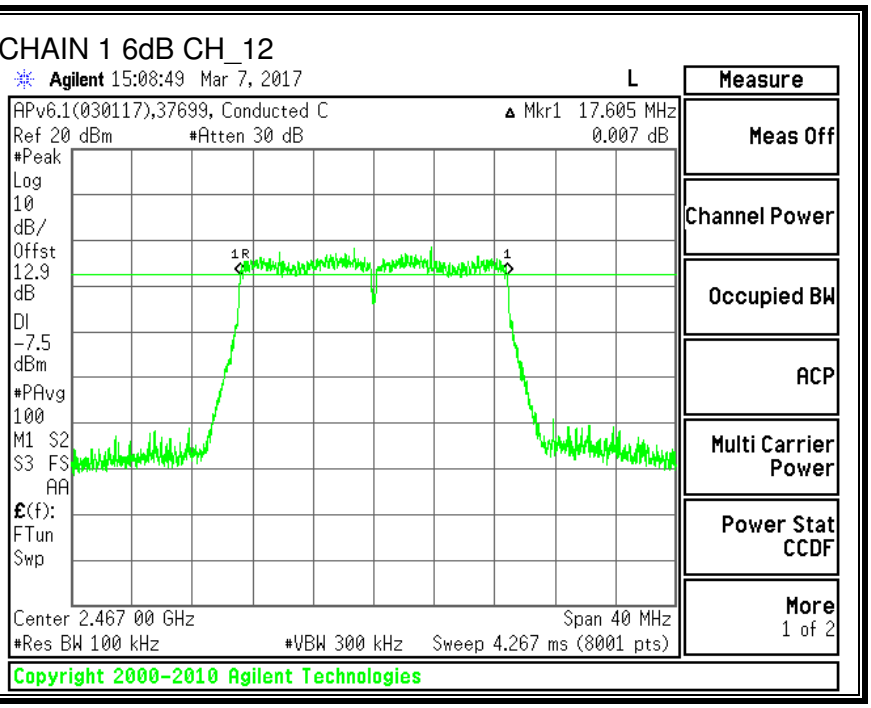
CHAIN 1 6dB CH_11



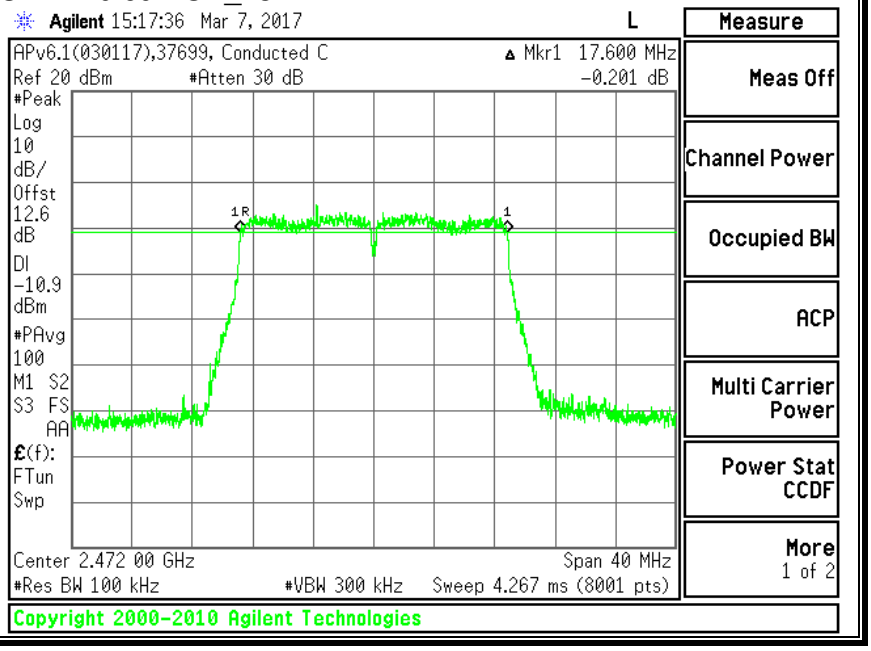
CHAIN 0 6dB CH_12



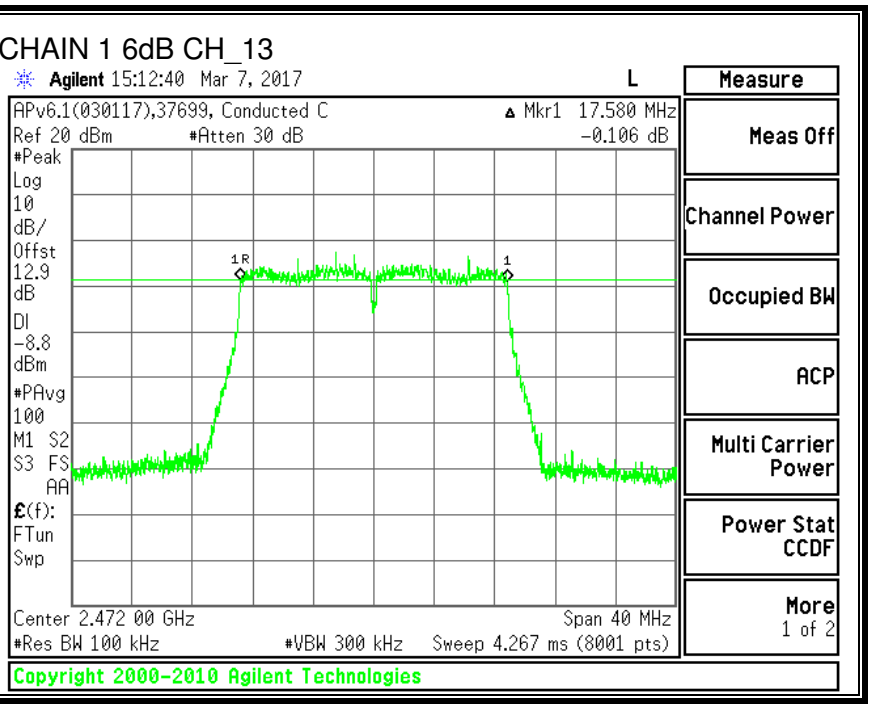
CHAIN 1 6dB CH_12



CHAIN 0 6dB CH_13



CHAIN 1 6dB CH_13



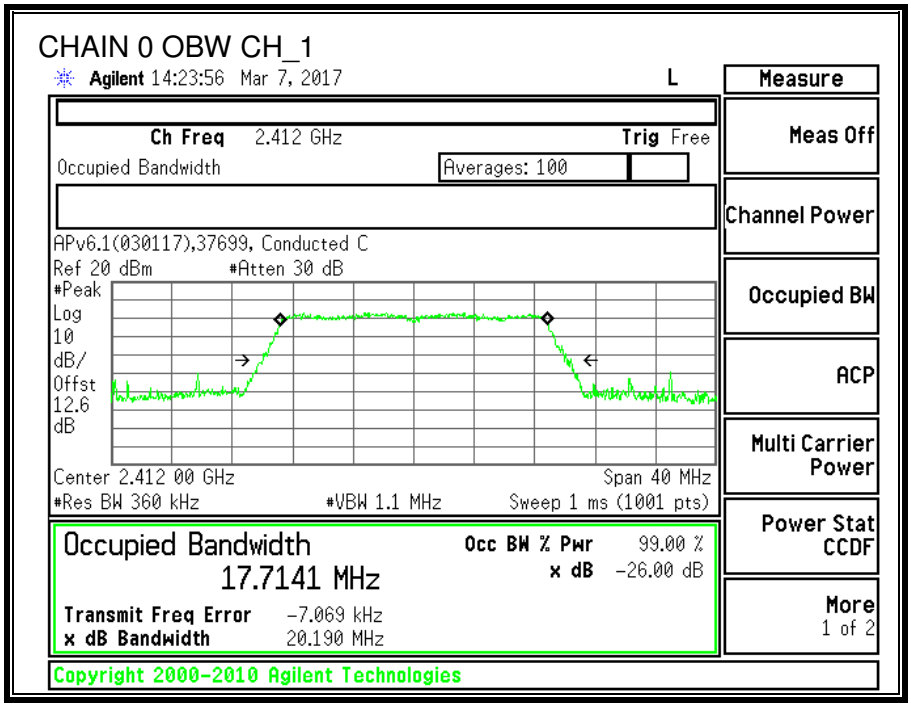
8.3.2. 99% BANDWIDTH

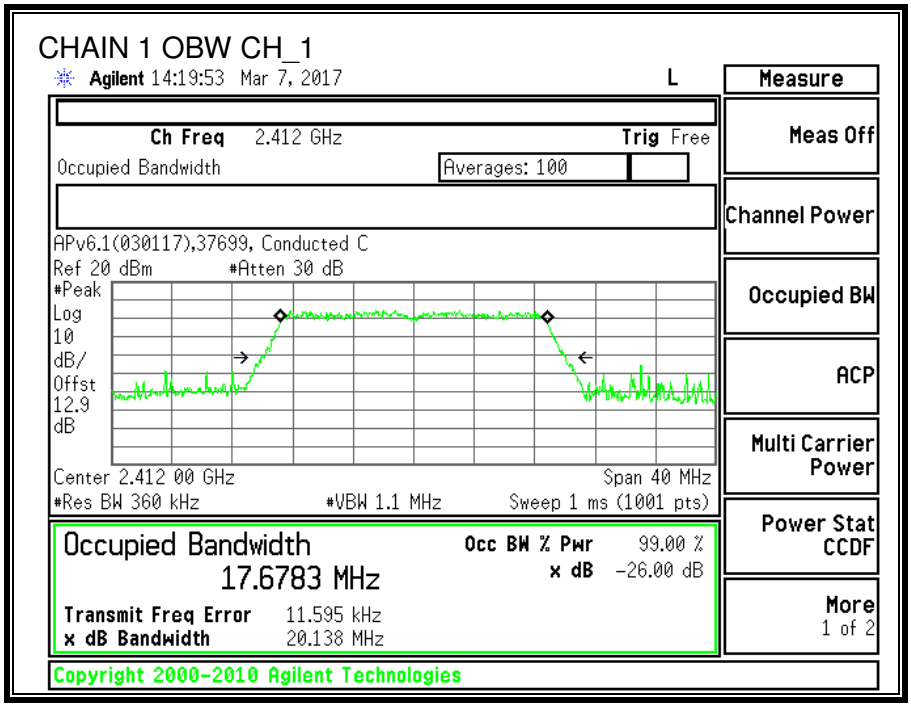
LIMITS

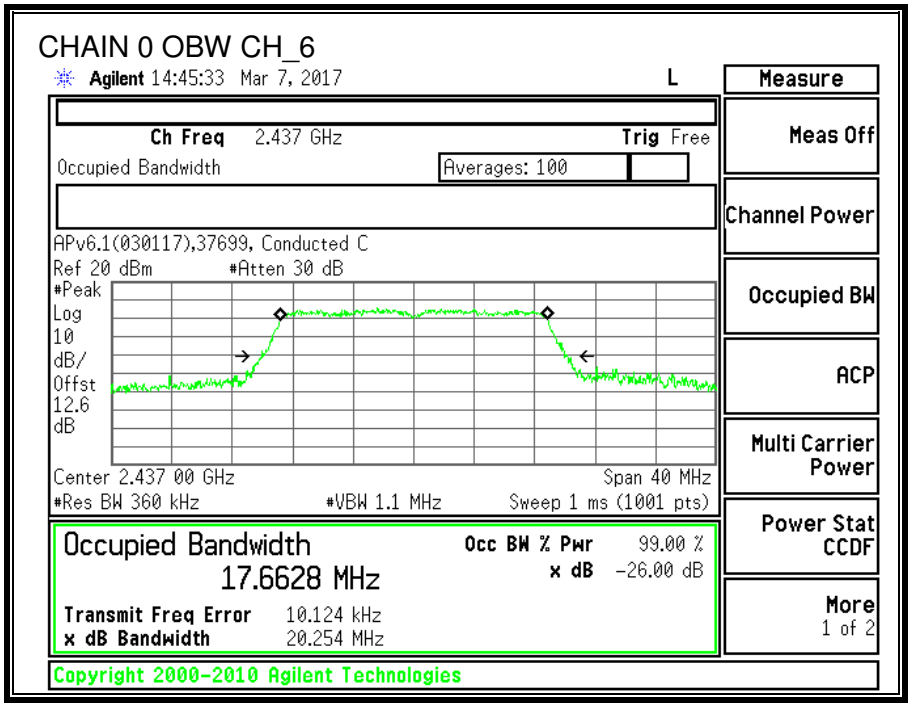
None; for reporting purposes only.

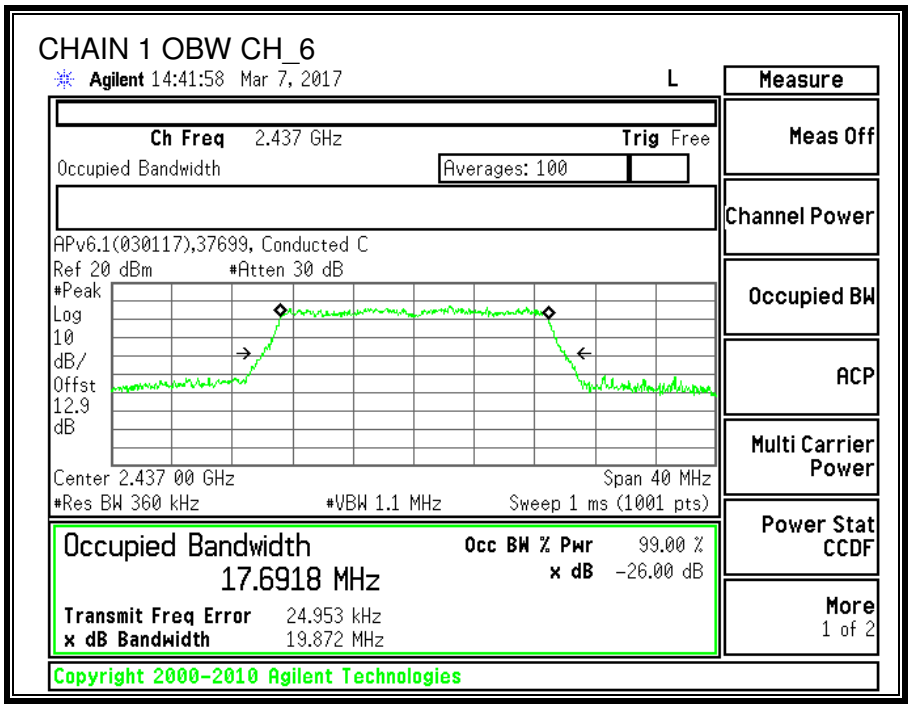
RESULTS

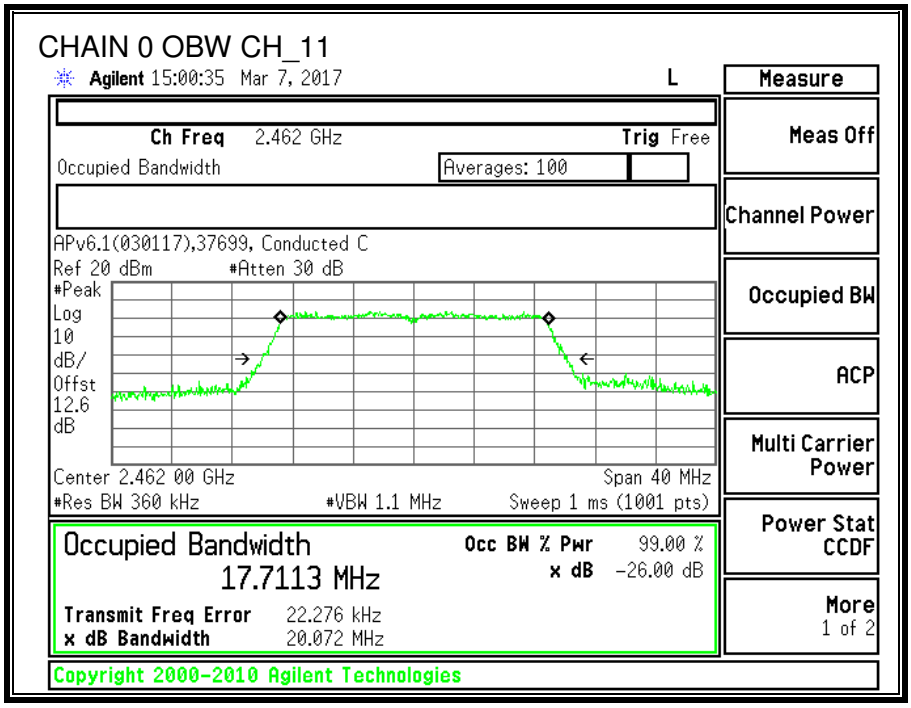
Channel	Frequency (MHz)	99% Bandwidth Chain 0 (MHz)	99% Bandwidth Chain 1 (MHz)
Low_1	2412	17.714	17.678
Middle_6	2437	17.663	17.692
High_11	2462	17.711	17.687
High_12	2467	17.7	17.665
High_13	2472	17.68	17.713

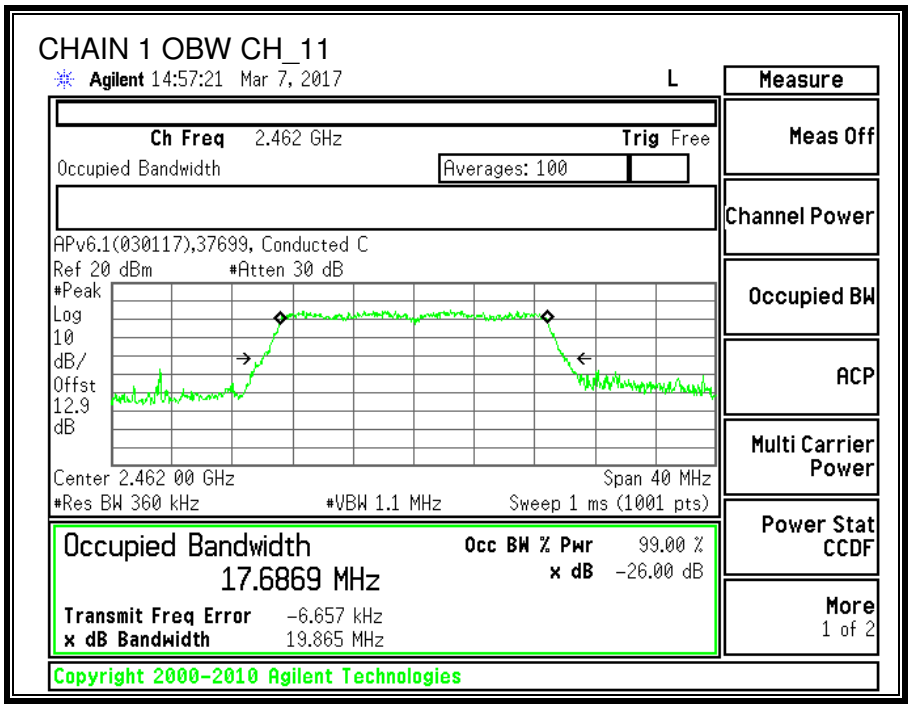


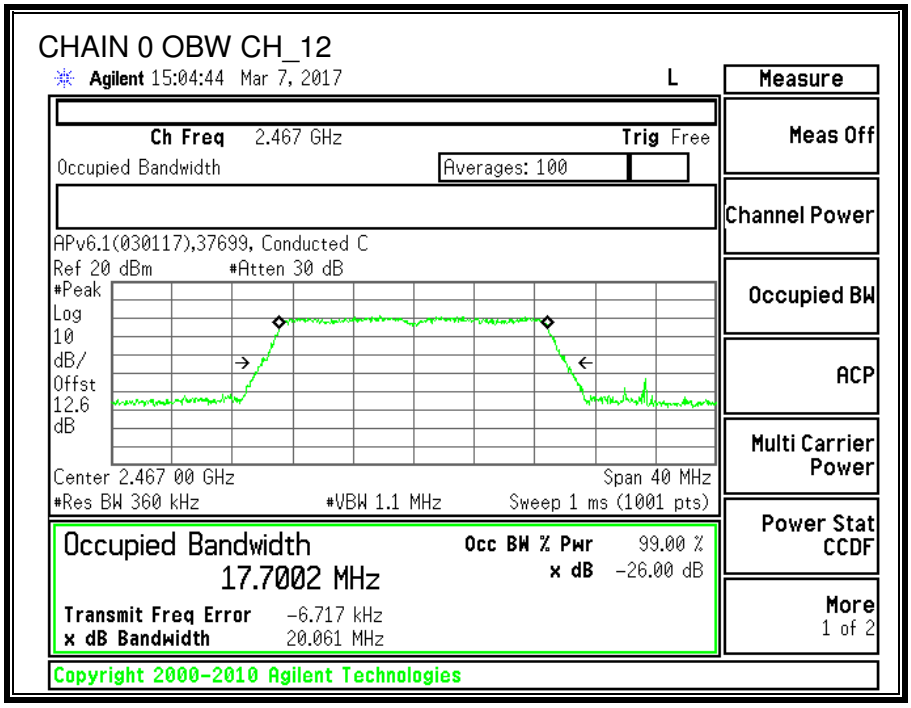


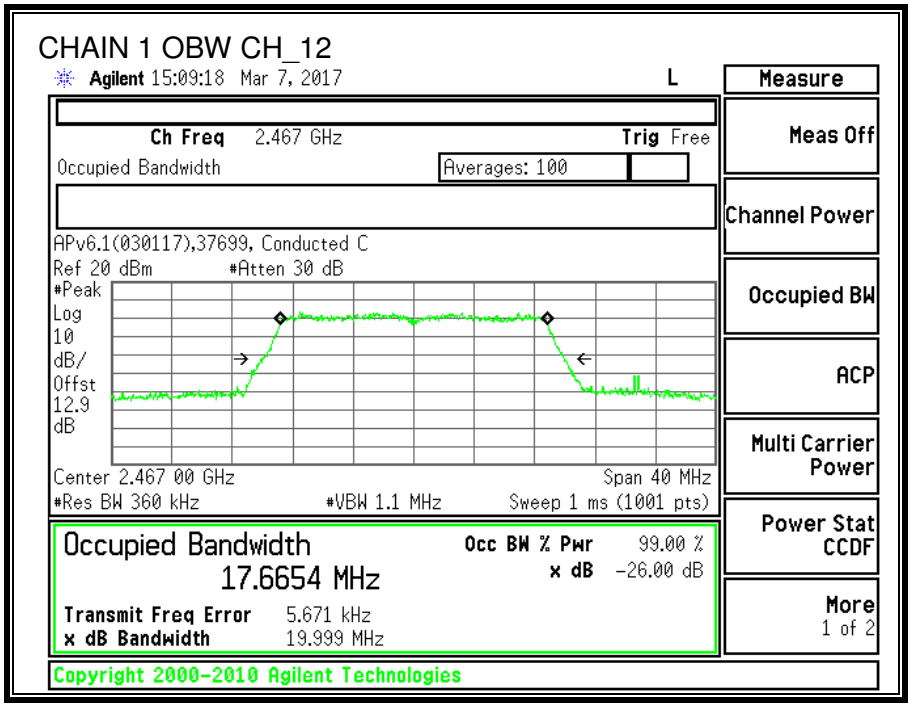


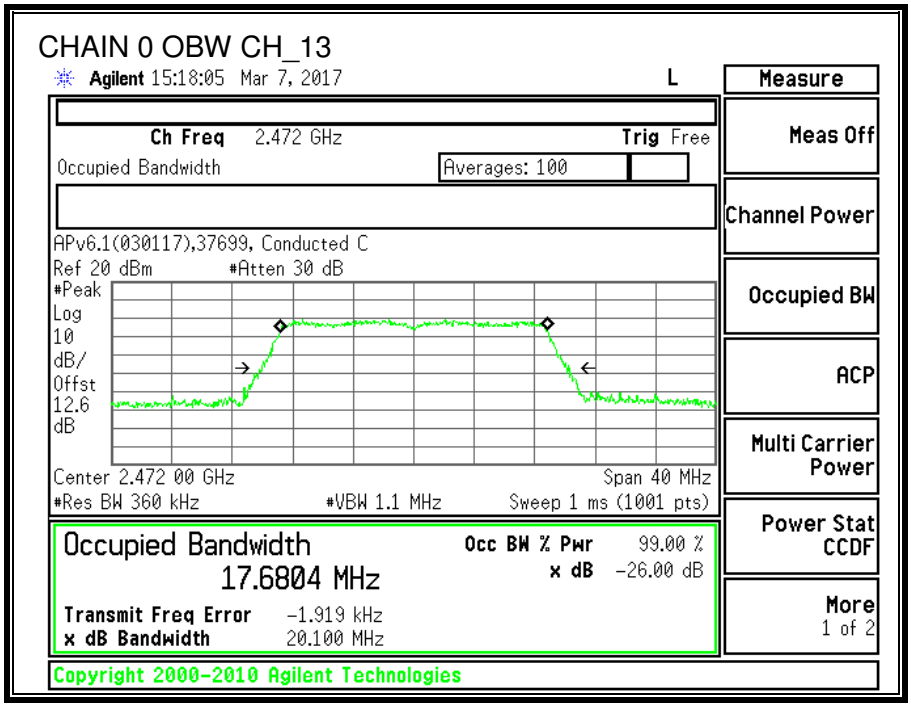


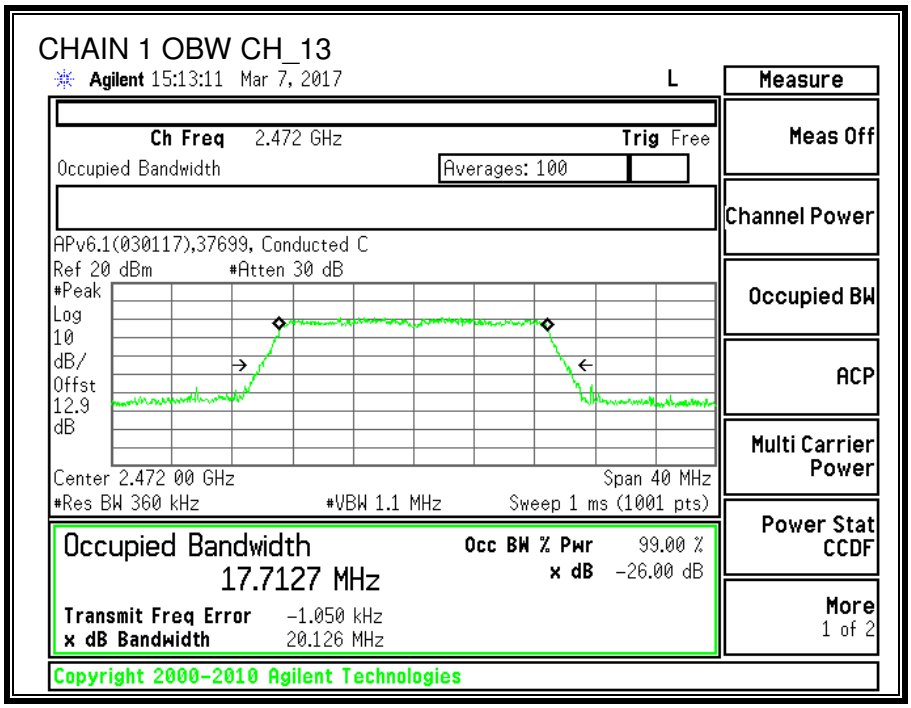












8.3.3. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (d)

For systems using digital modulation in the 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

Chain 0 Antenna Gain (dBi)	Chain 1 Antenna Gain (dBi)	Uncorrelated Chains Directional Gain (dBi)	Correlated Chains Directional Gain (dBi)
1.80	3.20	2.56	5.54

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RESULTS

Tested By:	45258 JL
Date:	3/8/2017

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low_1	2412	2.56	30.00	30	36	30.00
Middle_6	2437	2.56	30.00	30	36	30.00
High_11	2462	2.56	30.00	30	36	30.00
High_12	2467	2.56	30.00	30	36	30.00
High_13	2472	2.56	30.00	30	36	30.00

Results

Channel	Frequency (MHz)	Chain 0 Meas Power (dBm)	Chain 1 Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margi (dB)
Low_1	2412	12.61	11.66	15.17	30.00	-14.83
Middle_6	2437	14.27	13.87	17.08	30.00	-12.92
High_11	2462	12.09	11.33	14.74	30.00	-15.26
High_12	2467	10.07	9.46	12.79	30.00	-17.21
High_13	2472	7.95	7.81	10.89	30.00	-19.11

8.3.4. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

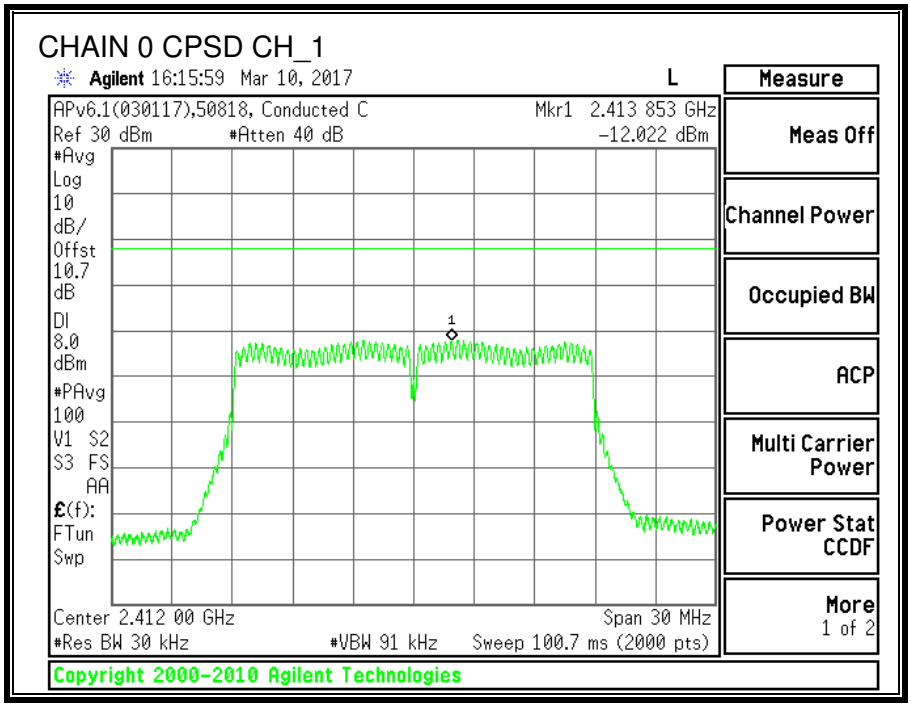
IC RSS-247 (5.2) (b)

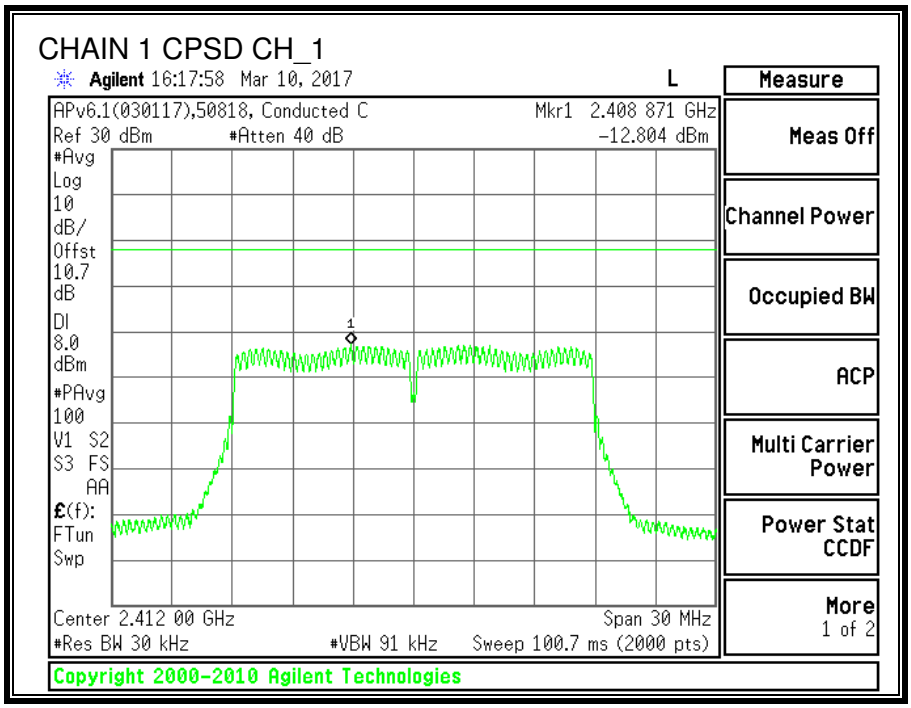
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

RESULTS

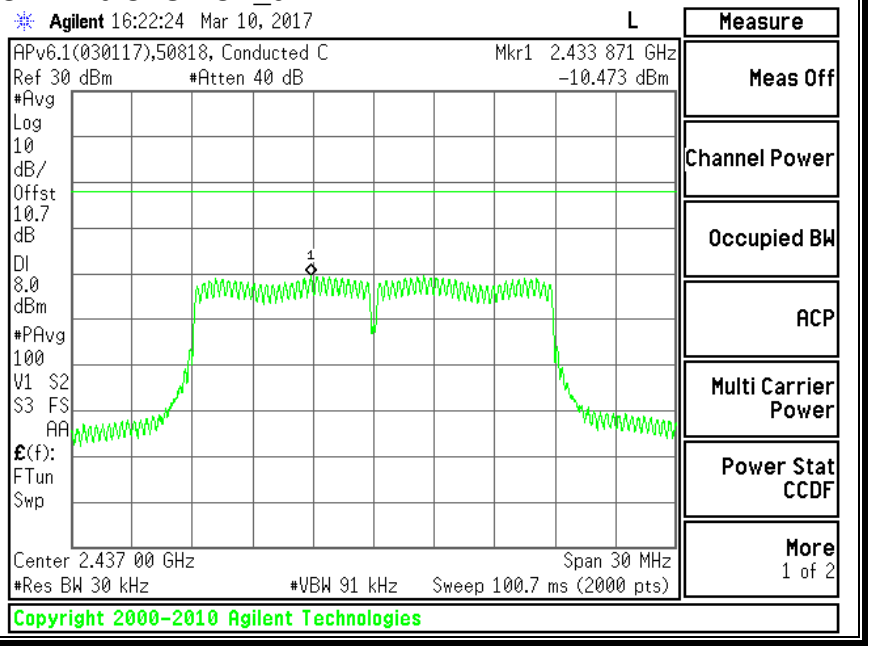
PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Chain 1 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-12.02	-12.80	-9.39	8.0	-17.4
Middle_6	2437	-10.47	-11.03	-7.73	8.0	-15.7
High_11	2462	-12.32	-13.03	-9.65	8.0	-17.6
High_12	2467	-14.54	-15.18	-11.83	8.0	-19.8
High_13	2472	-16.62	-16.54	-13.57	8.0	-21.6

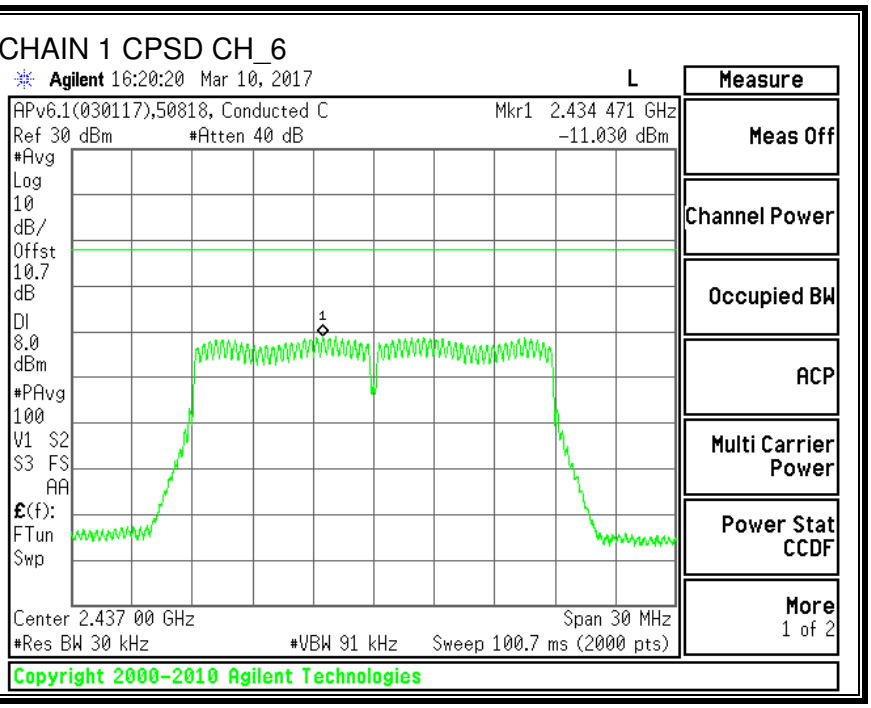




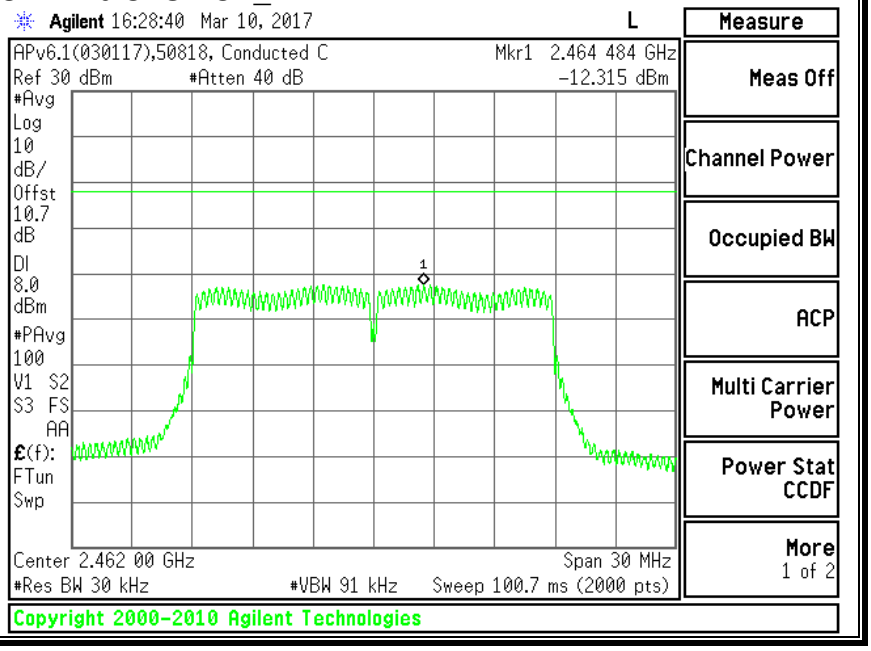
CHAIN 0 CPSD CH_6



CHAIN 1 CPSD CH_6



CHAIN 0 CPSD CH_11



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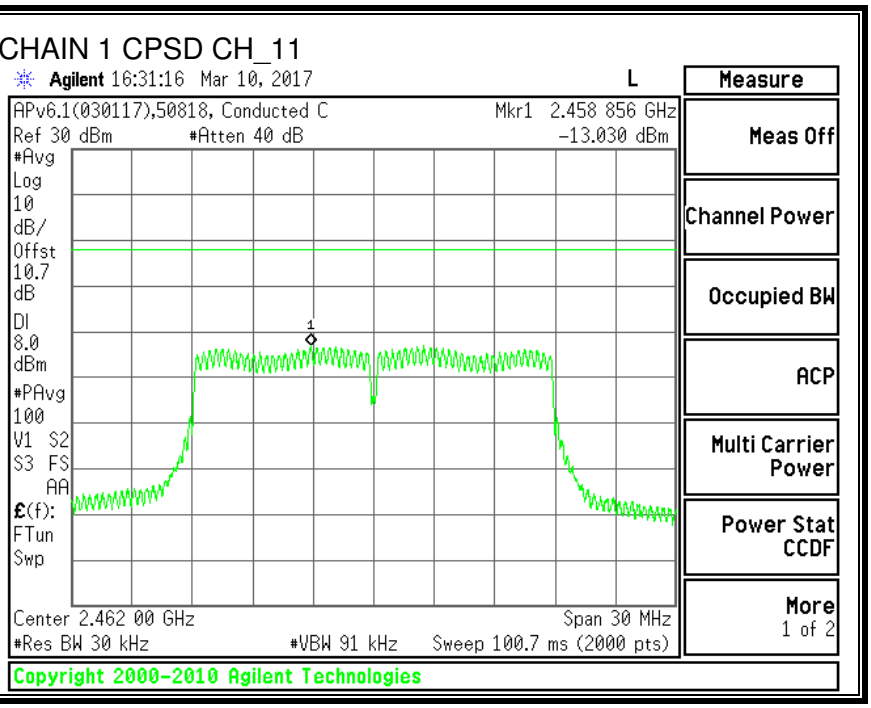
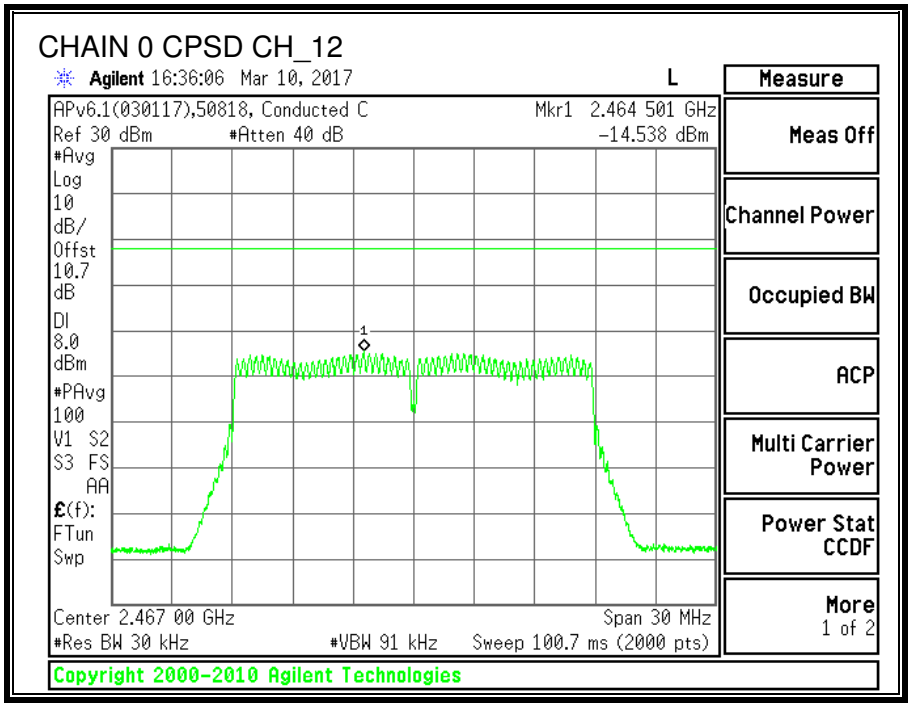
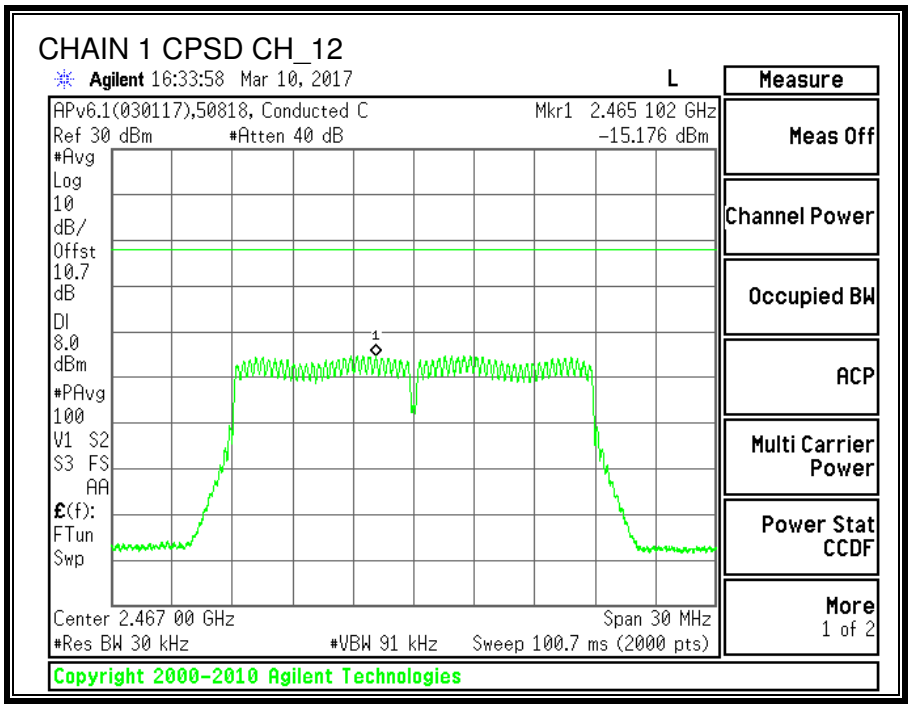
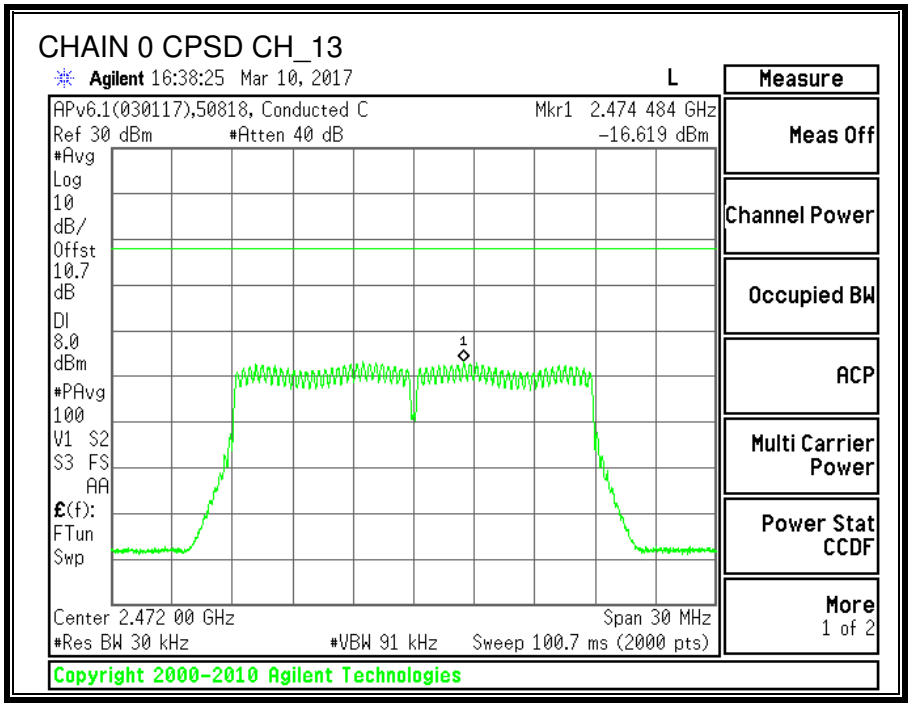
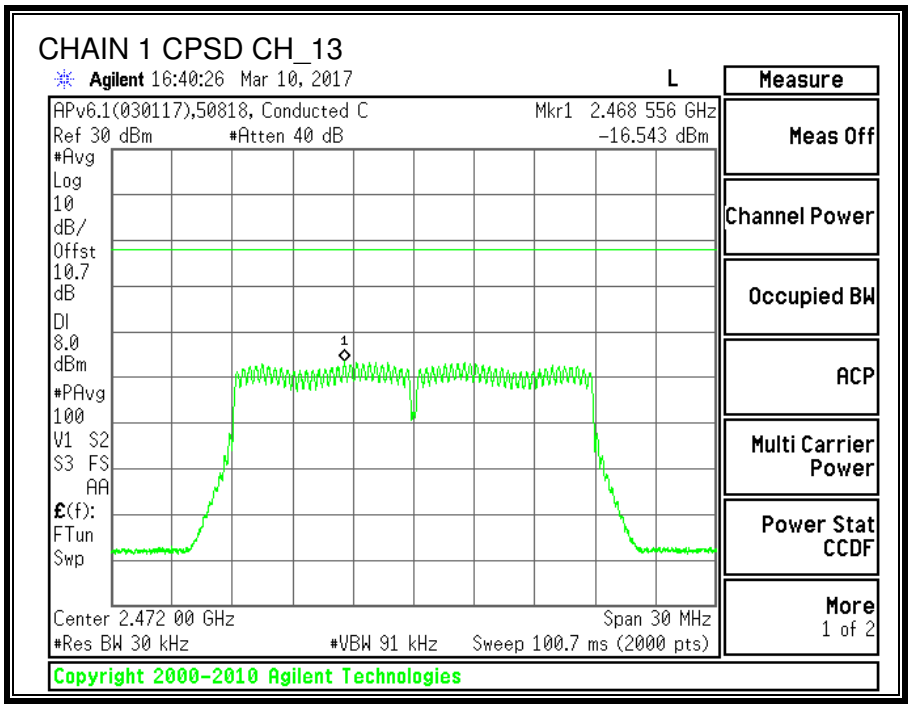










8.3.5. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

LIMITS

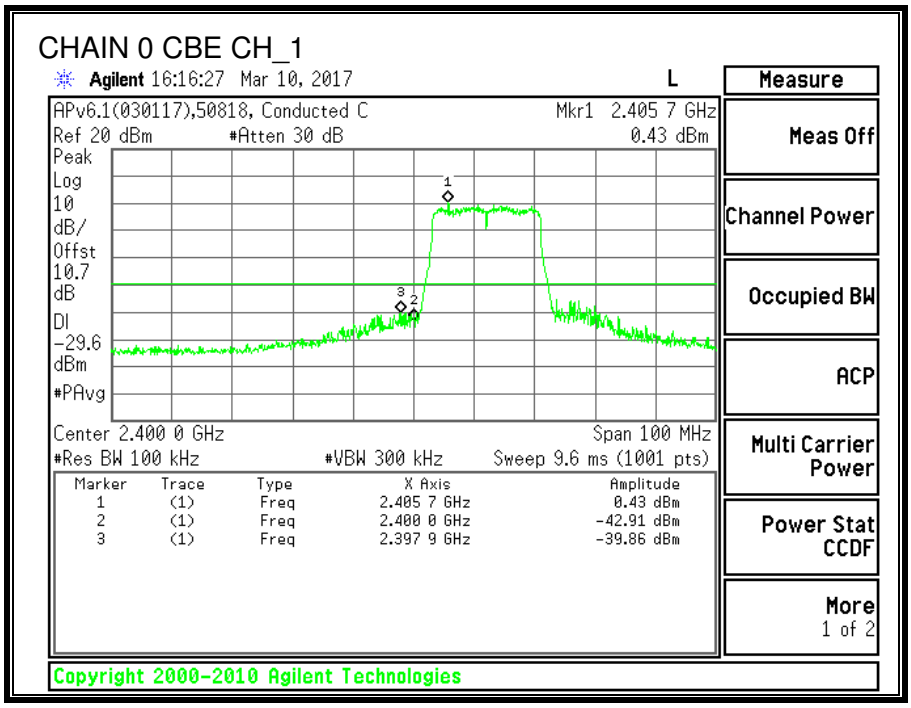
FCC §15.247 (d)

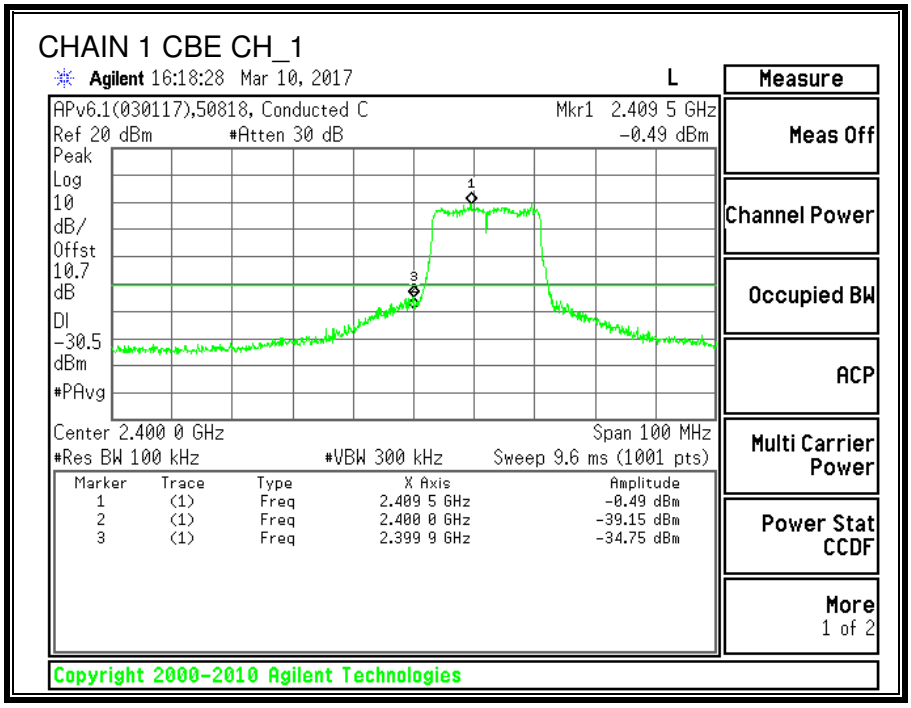
IC RSS-247 5.5

Output power was measured based on the use of Avg measurement, therefore the required attenuation is 30 dB.

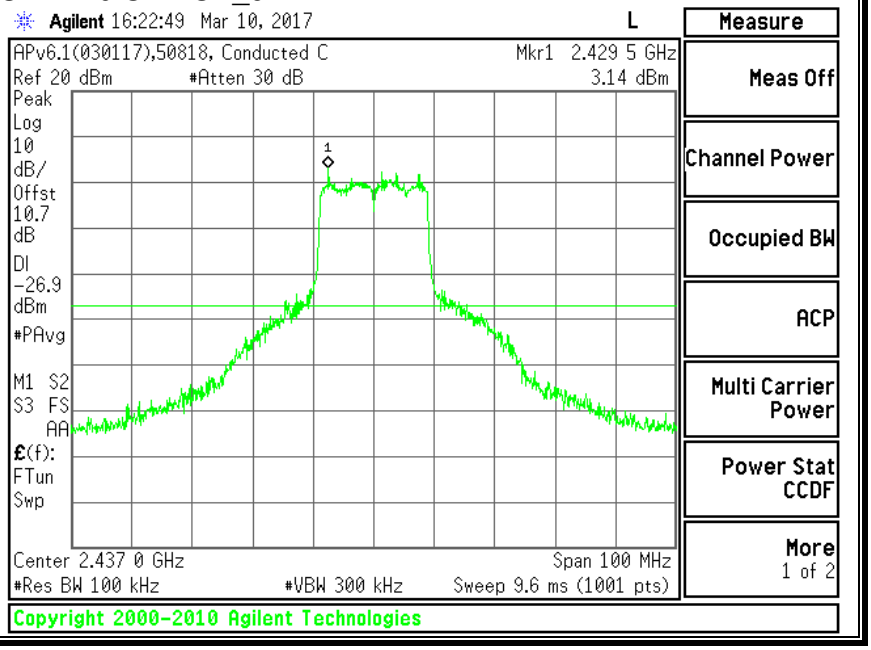
RESULTS

BANDEDGE





CHAIN 0 CBE CH_6



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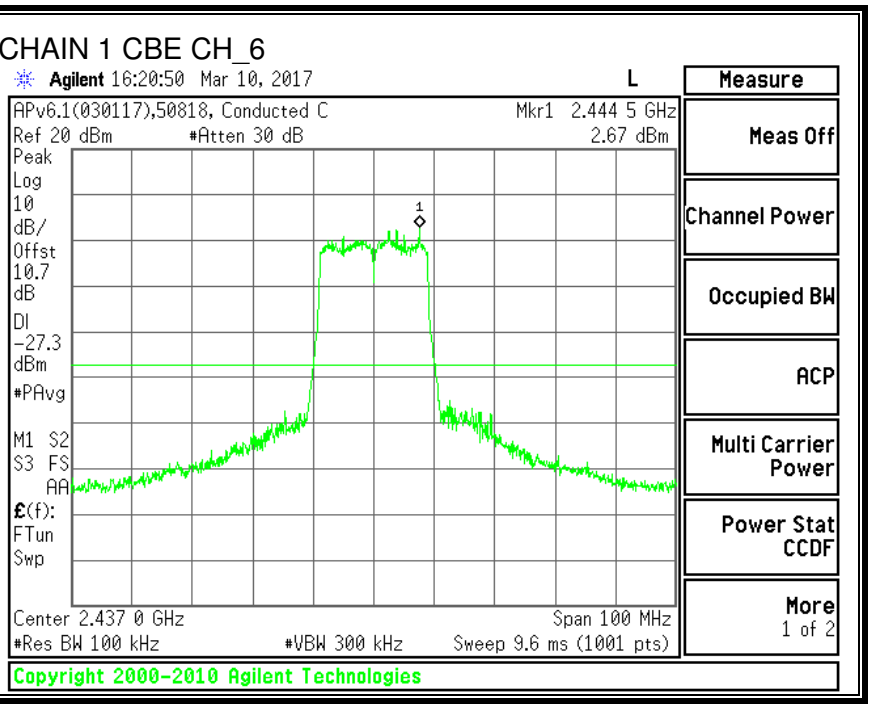

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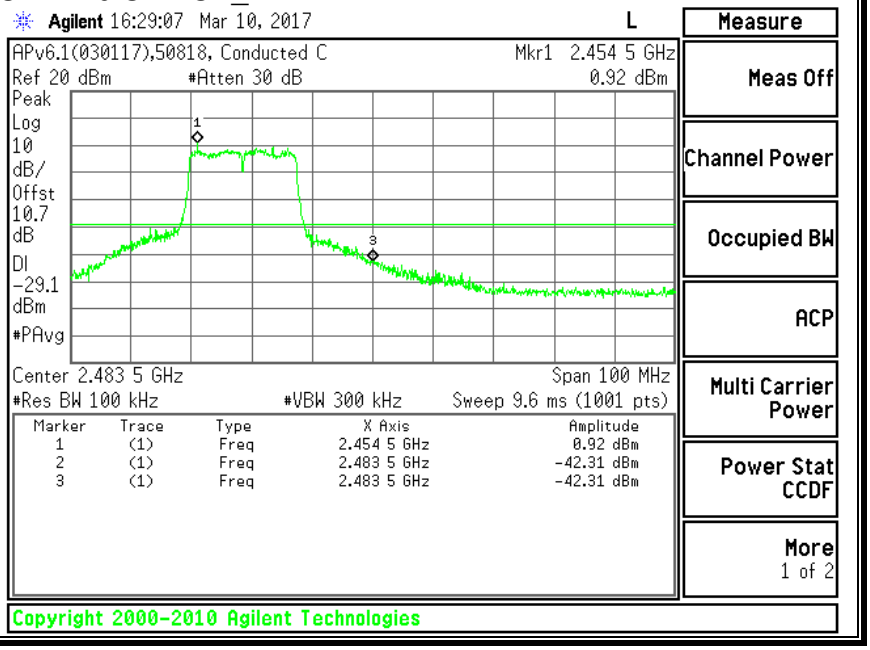

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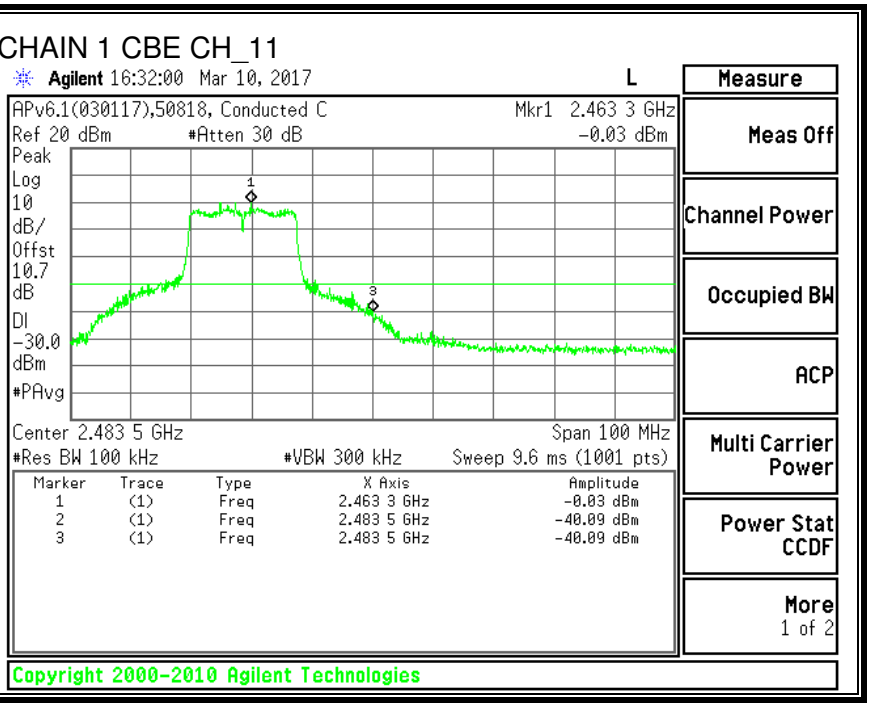

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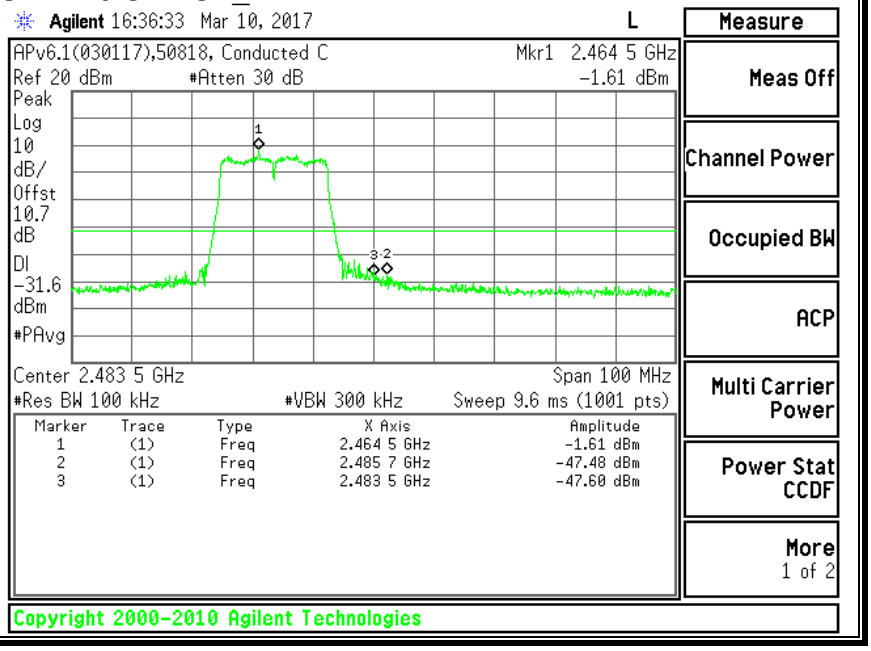

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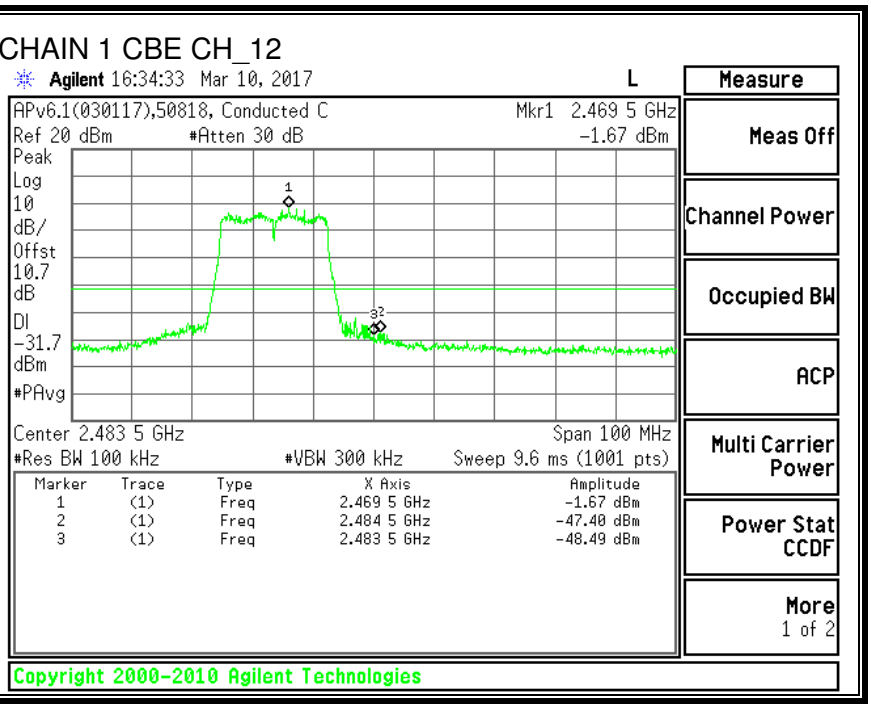

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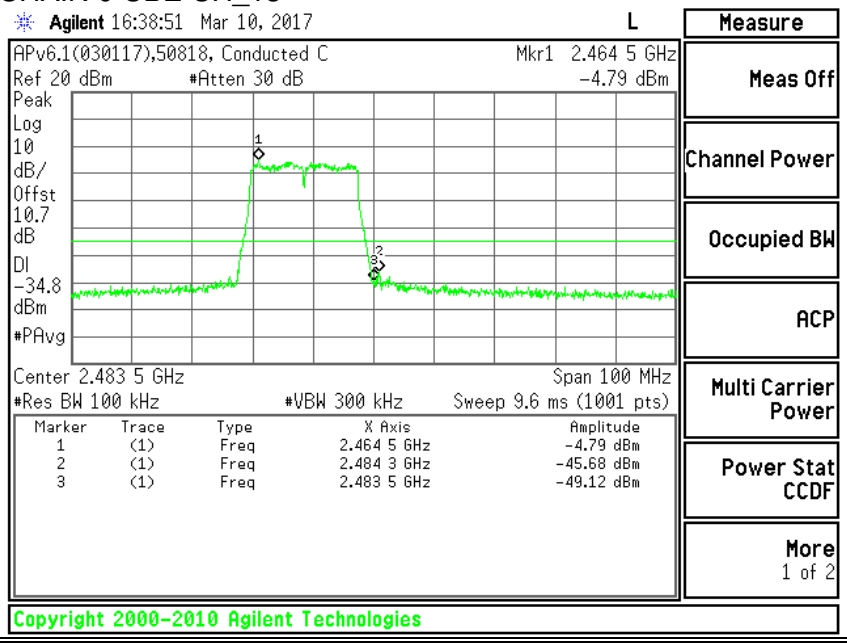
CHAIN 0 CBE CH_13



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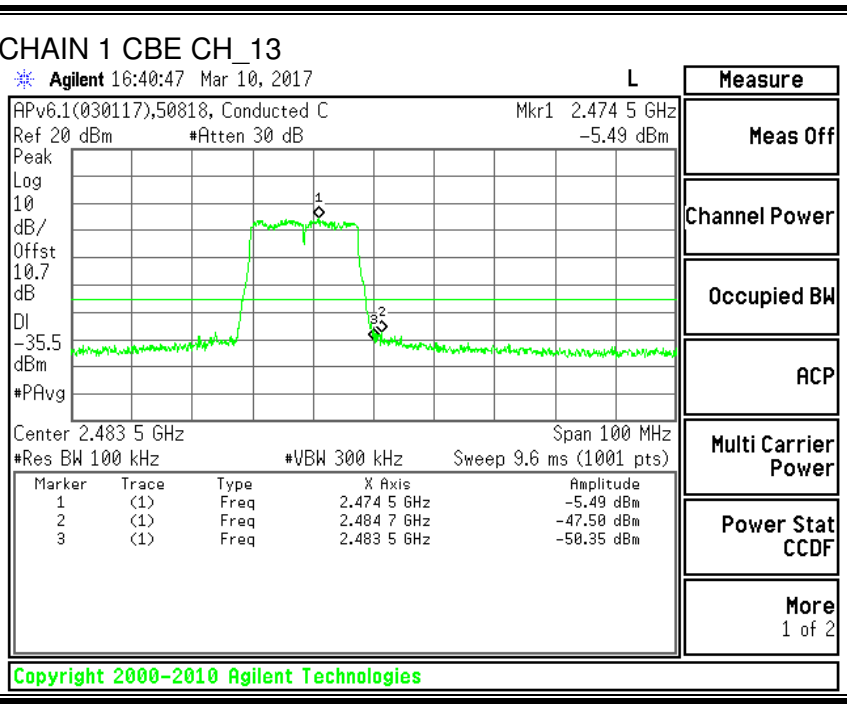
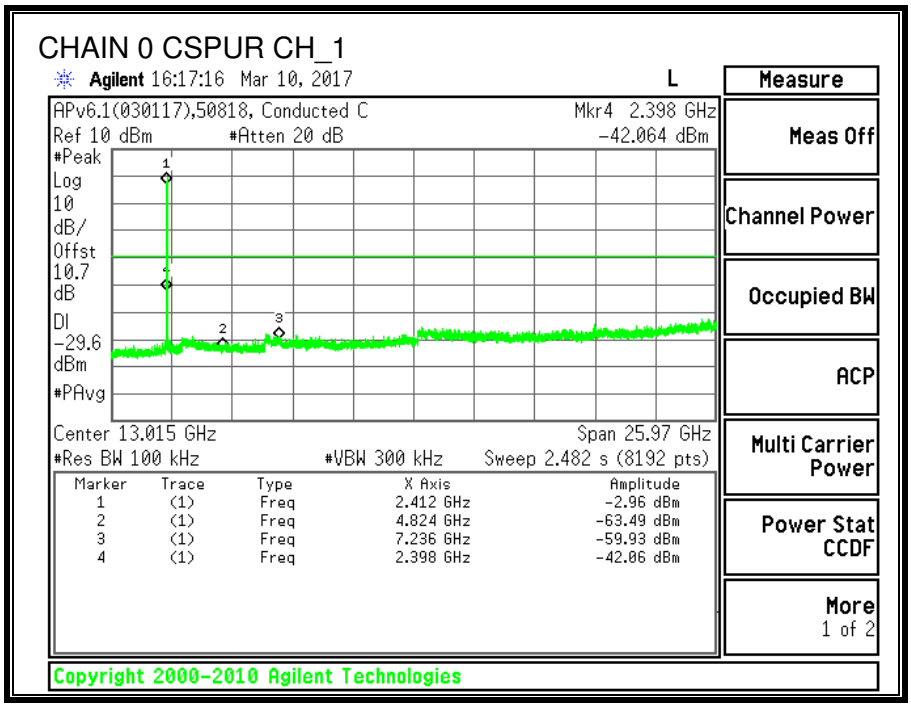
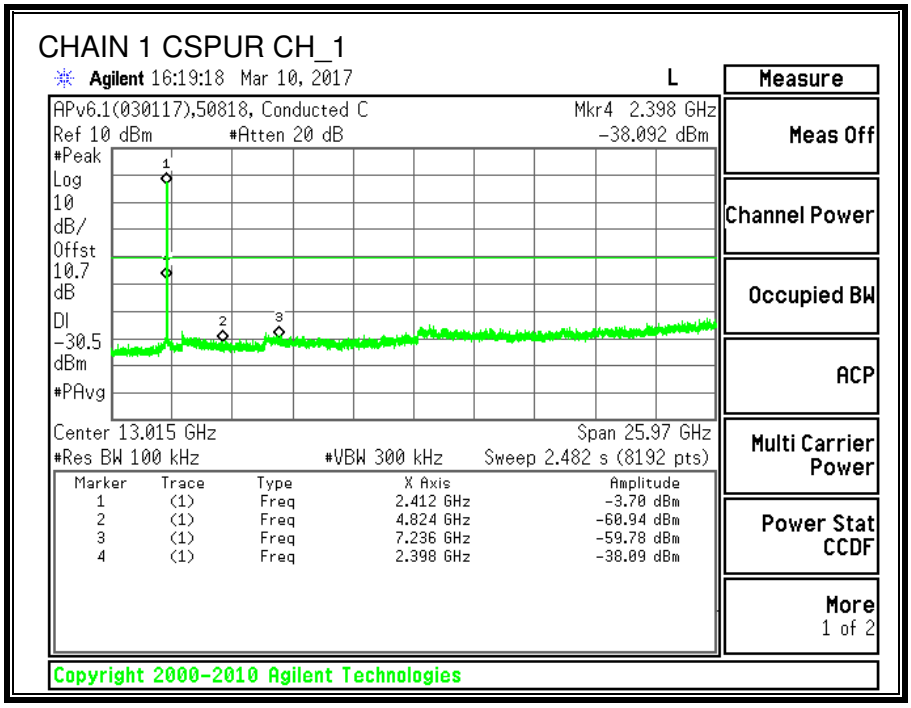


SPURIOUS EMISSIONS





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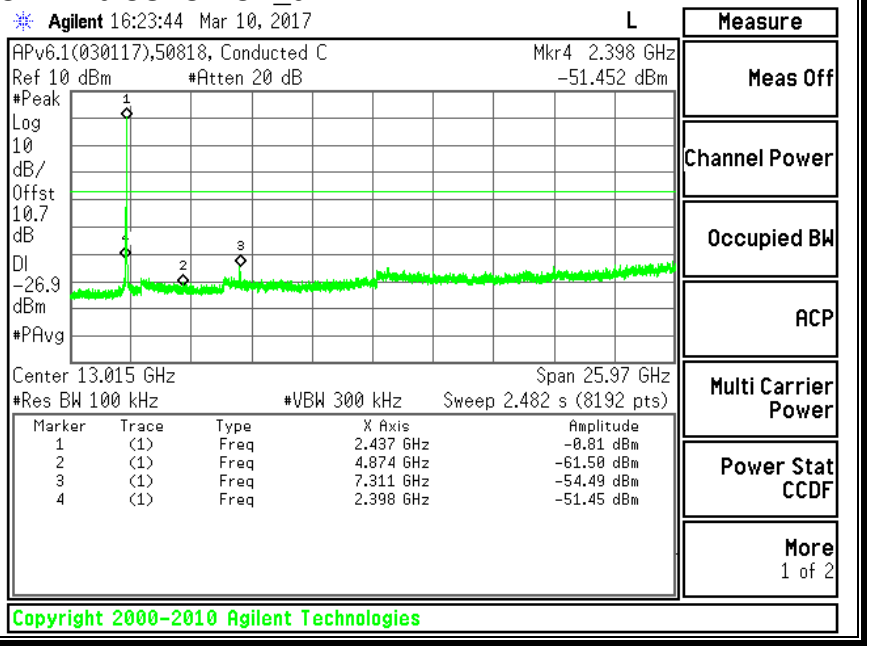

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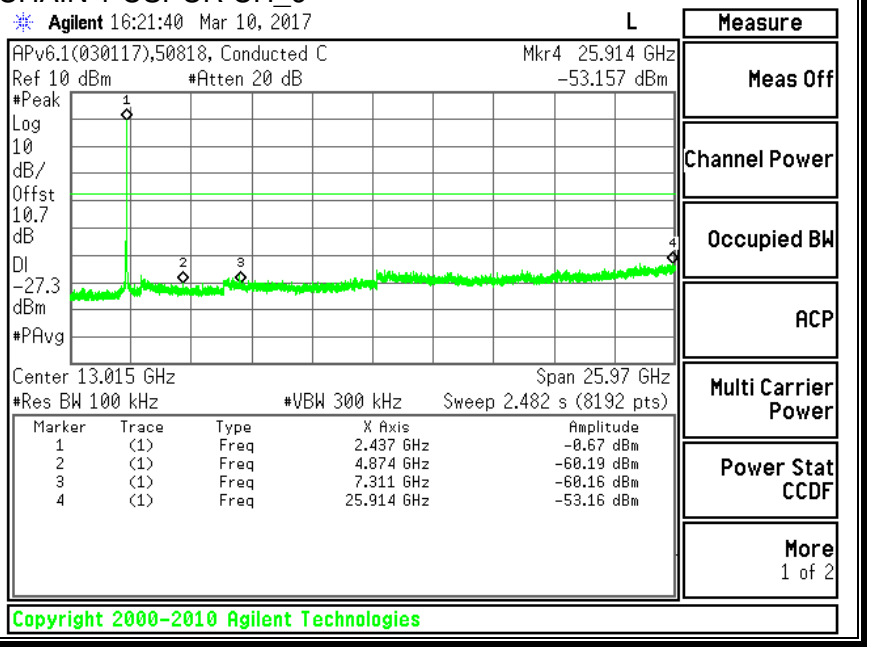

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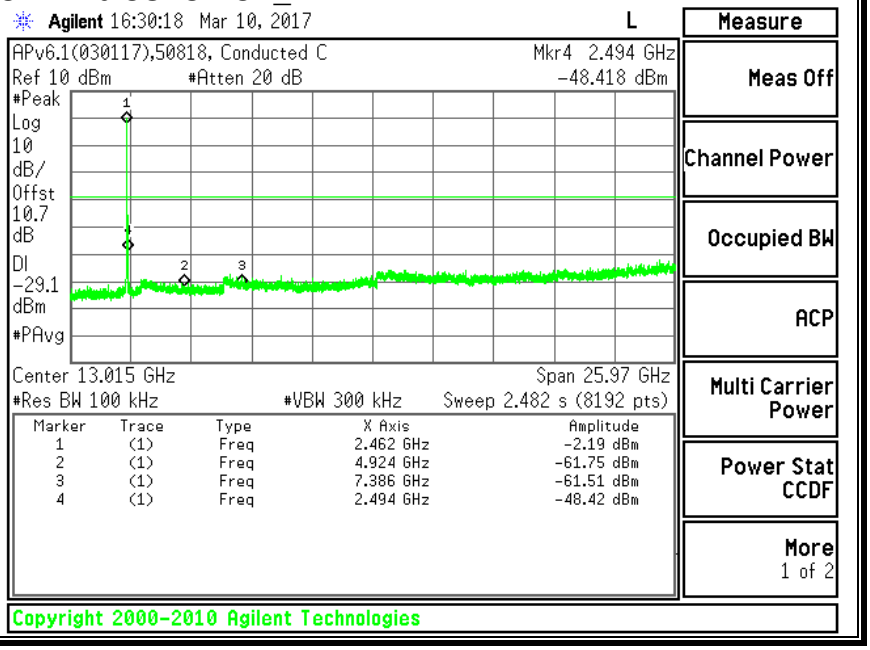

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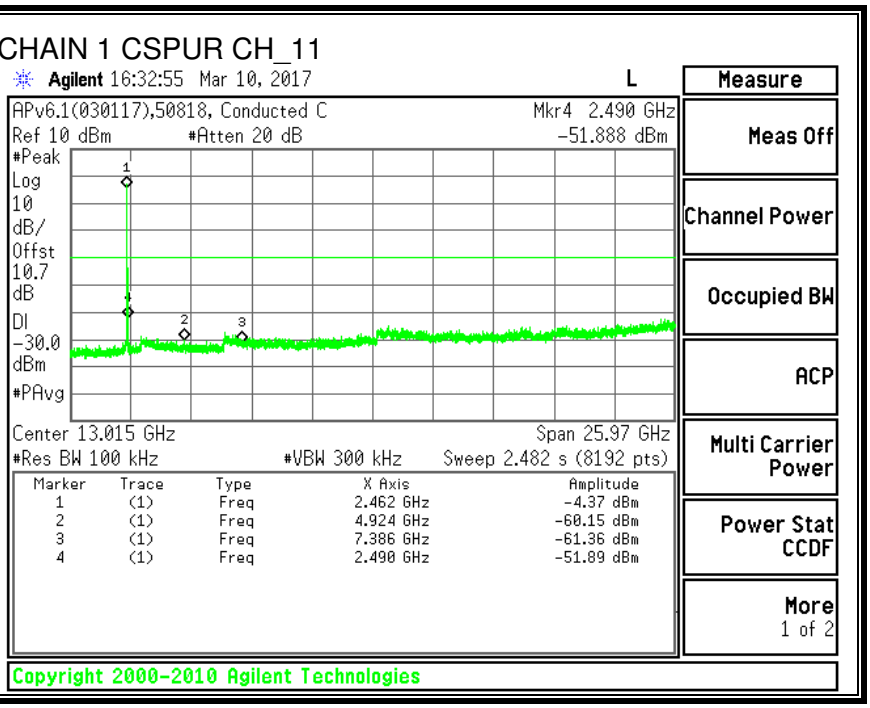

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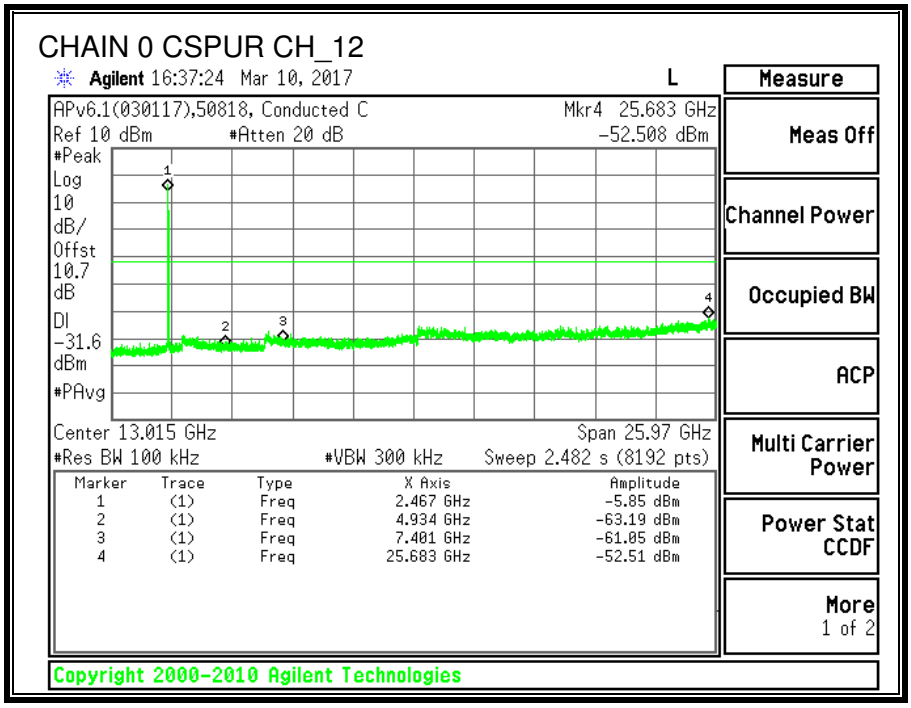

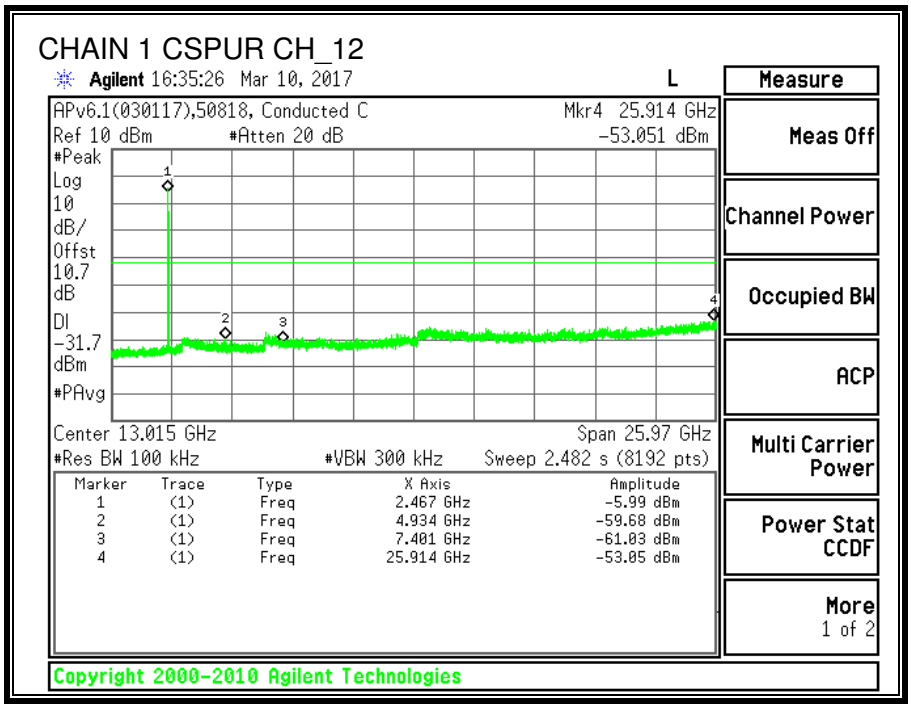

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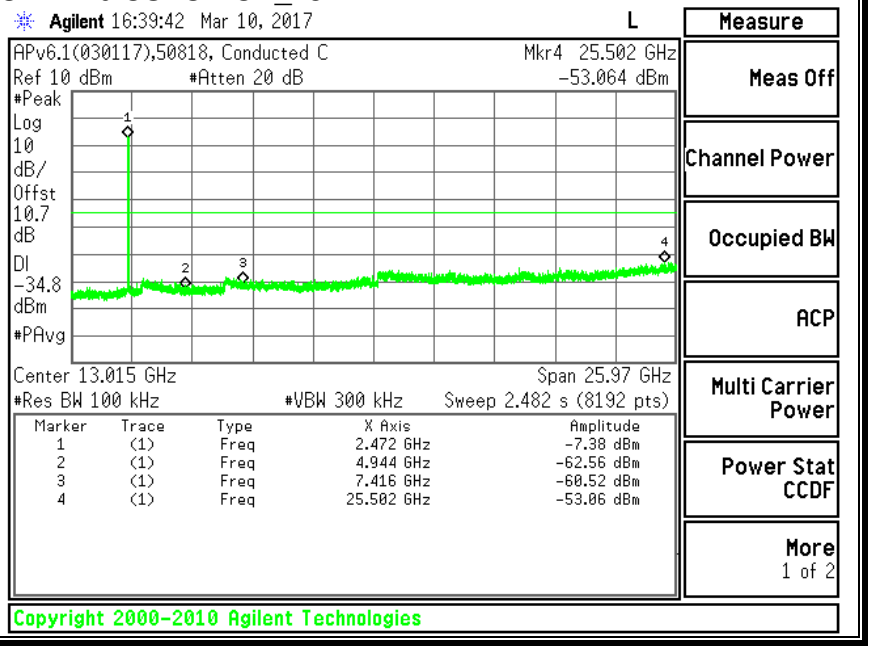

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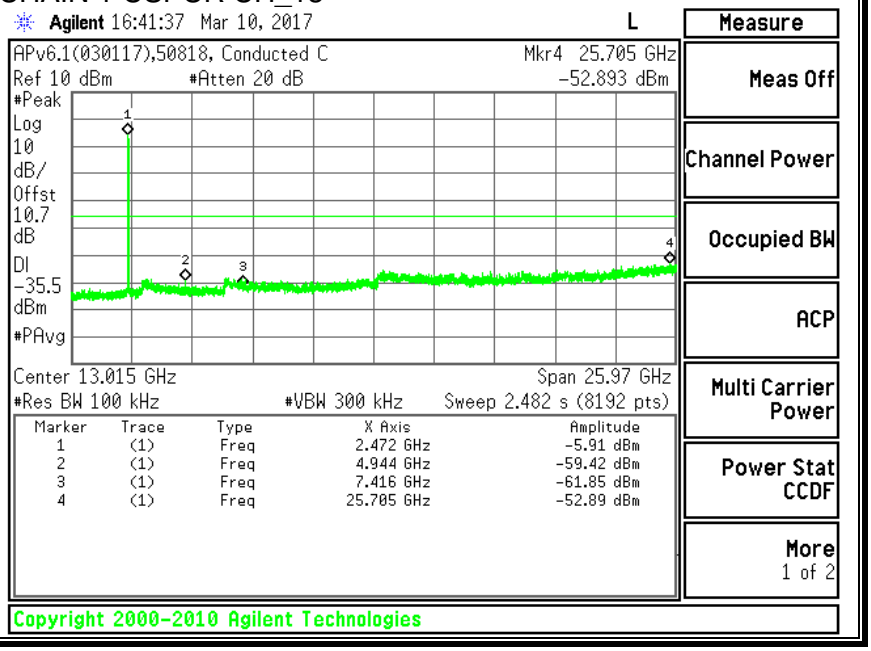


9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-GEN, Section 8.9 and 8.10.

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

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

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

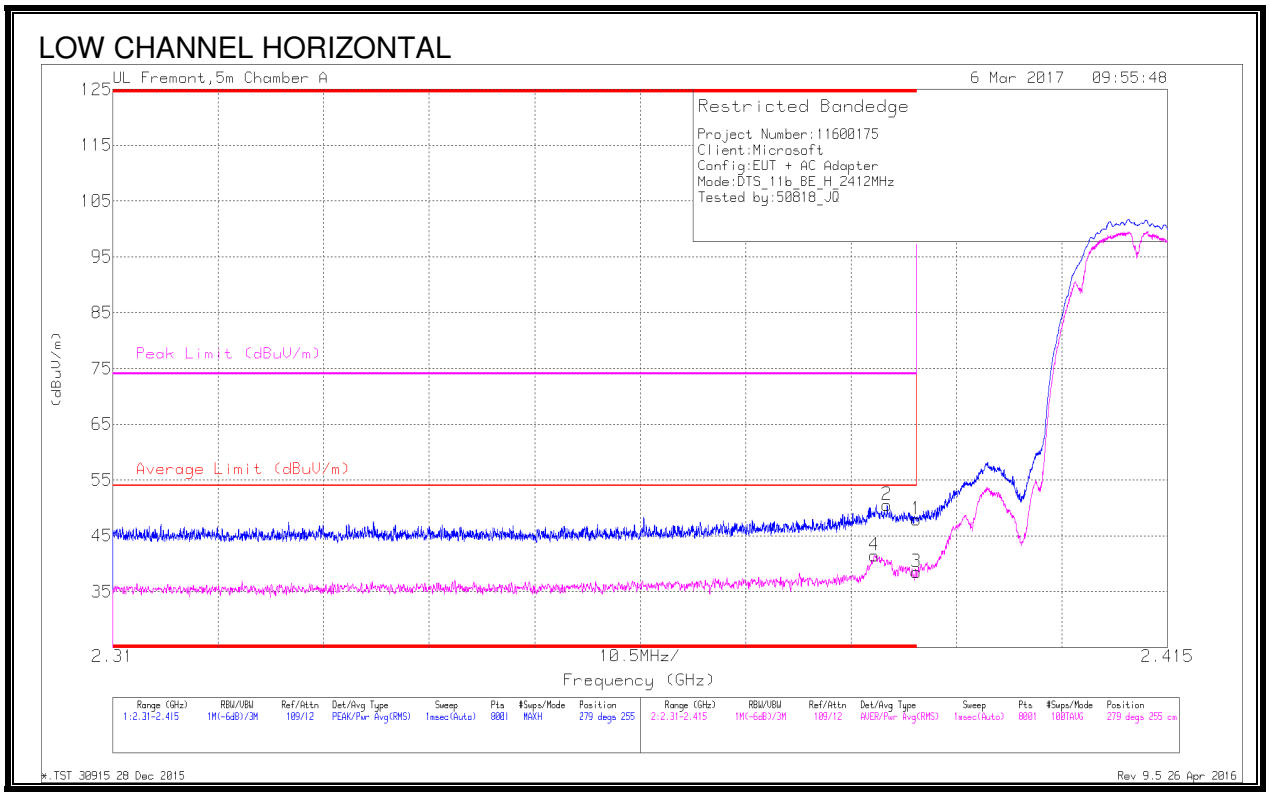
The spectrum from 30 MHz to 1GHz and 18GHz to 26 GHz is investigated with the transmitter set to transmit at the channel with highest output power as worst-case scenario. 1GHz to 18GHz was set to the lowest, middle, and highest channels in the 2.4 GHz band

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

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. 11b 2TX MIMO MODE IN THE 2.4GHz BAND

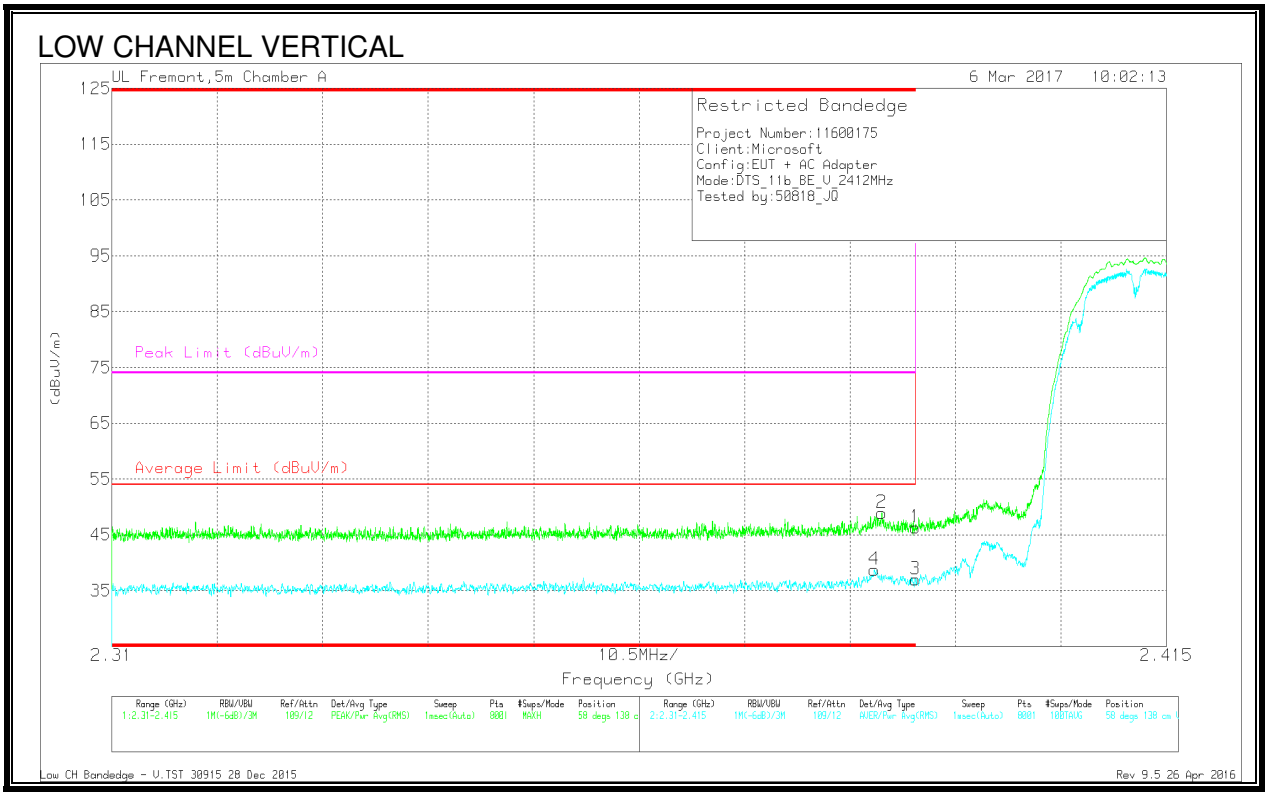
AUTHORIZED BANDEDGE (LOW CHANNEL, CH 1)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.386	33.08	RMS	32.1	-23.7	41.48	54	-12.52	-	-	279	255	H
2	* 2.387	42.17	Pk	32.1	-23.7	50.57	-	-	74	-23.43	279	255	H
1	* 2.39	39.49	Pk	32.1	-23.7	47.89	-	-	74	-26.11	279	255	H
3	* 2.39	30.1	RMS	32.1	-23.7	38.5	54	-15.5	-	-	279	255	H

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

LOW CHANNEL VERTICAL

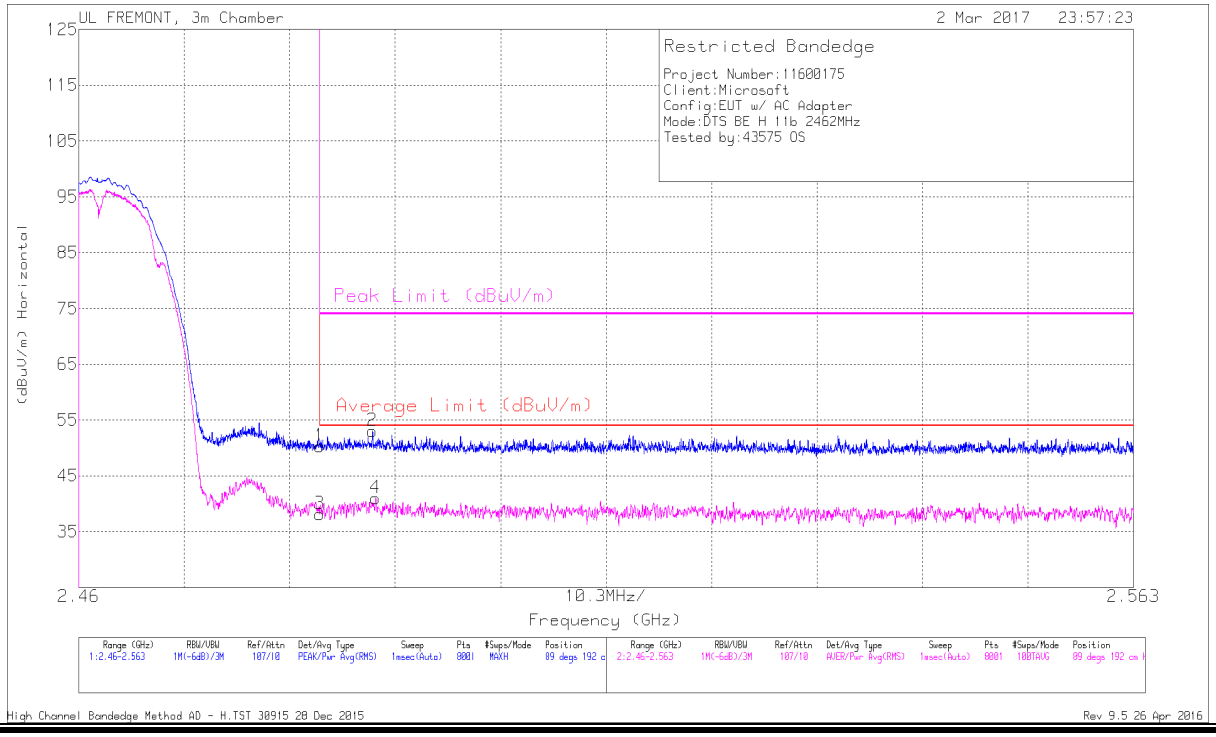


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.386	30.31	RMS	32.1	-23.7	38.71	54	-15.29	-	-	58	138	V
2	* 2.387	40.5	Pk	32.1	-23.7	48.9	-	-	74	-25.1	58	138	V
1	* 2.39	37.96	Pk	32.1	-23.7	46.36	-	-	74	-27.64	58	138	V
3	* 2.39	28.66	RMS	32.1	-23.7	37.06	54	-16.94	-	-	58	138	V

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

AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 11)

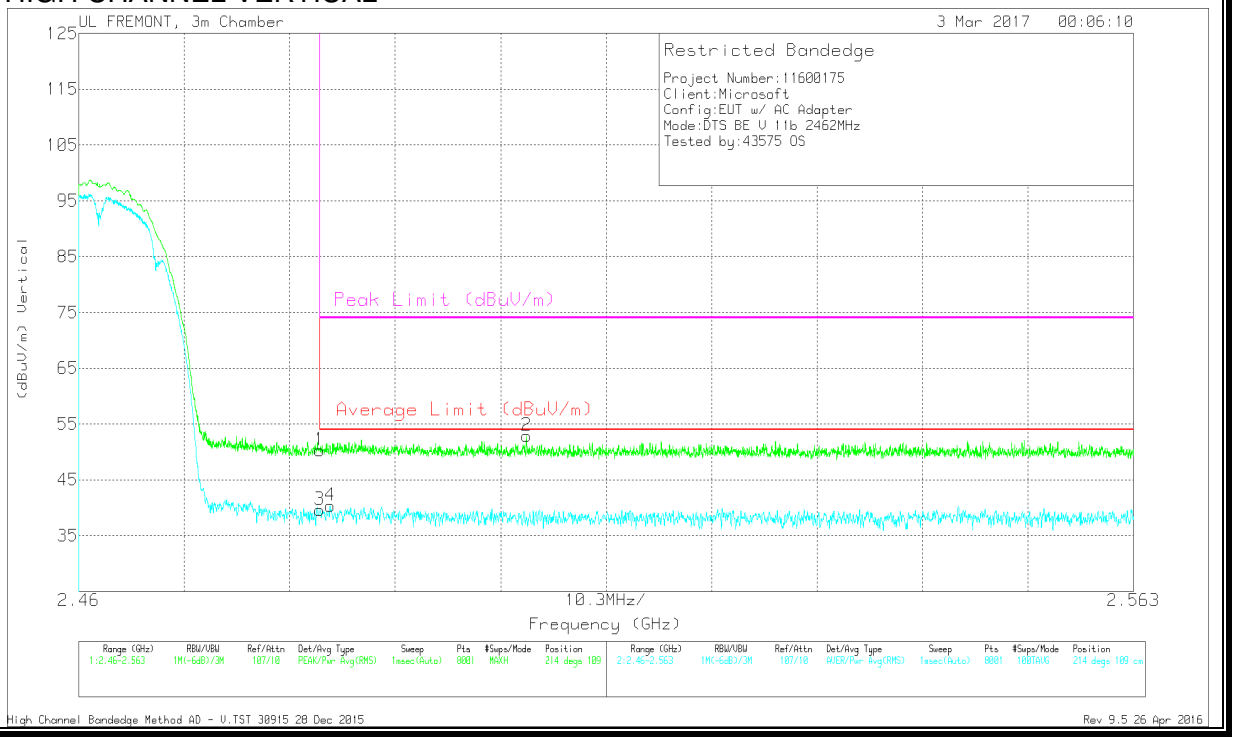
HIGH CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (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	38.66	Pk	32.4	-20.8	50.26	-	-	74	-23.74	89	192	H
3	2.484	26.49	RMS	32.4	-20.8	38.09	54	-15.91	-	-	89	192	H
2	2.489	41.53	Pk	32.4	-20.9	53.03	-	-	74	-20.97	89	192	H
4	2.489	29.42	RMS	32.4	-20.8	41.02	54	-12.98	-	-	89	192	H

Pk - Peak detector
RMS - RMS detection

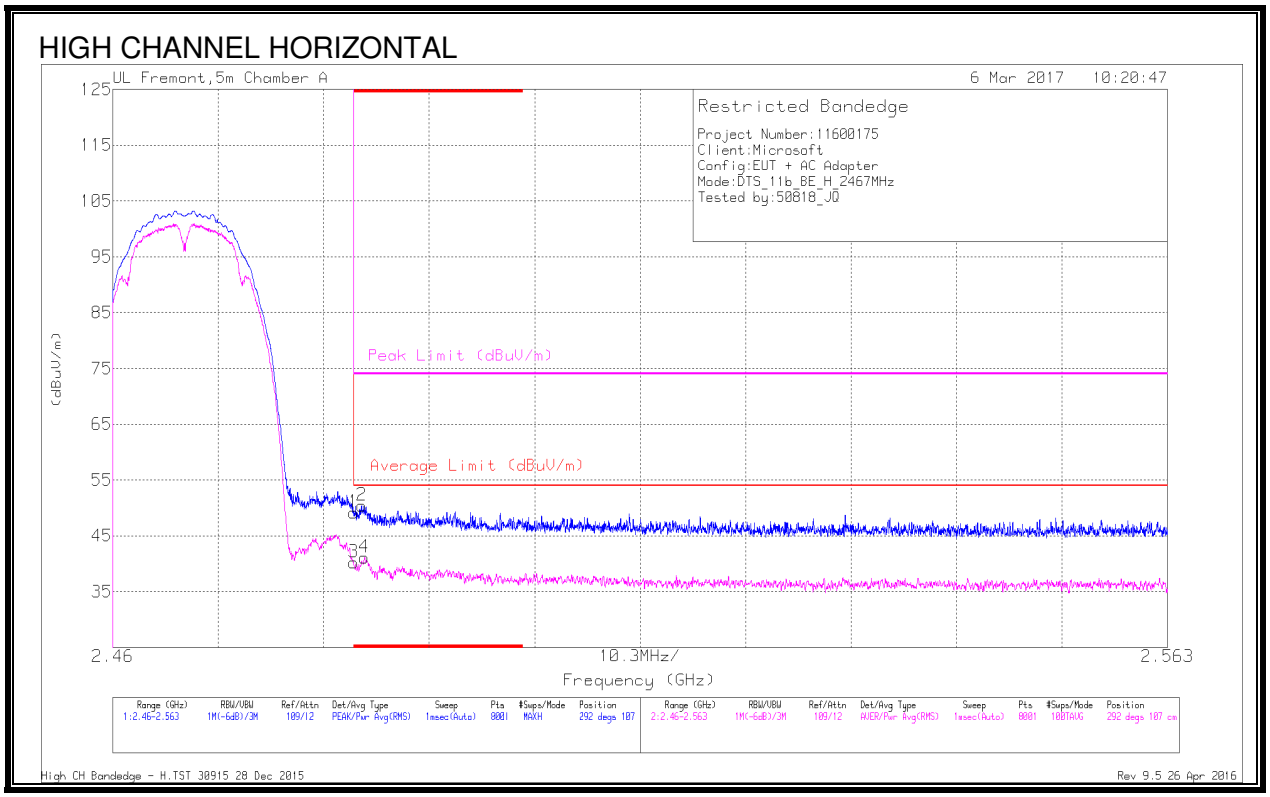
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (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	38.68	Pk	32.4	-20.8	50.28	-	-	74	-23.72	214	109	V
3	2.484	28	RMS	32.4	-20.8	39.6	54	-14.4	-	-	214	109	V
4	2.485	28.75	RMS	32.4	-20.8	40.35	54	-13.65	-	-	214	109	V
2	2.504	41.23	Pk	32.5	-20.8	52.93	-	-	74	-21.07	214	109	V

Pk - Peak detector
RMS - RMS detection

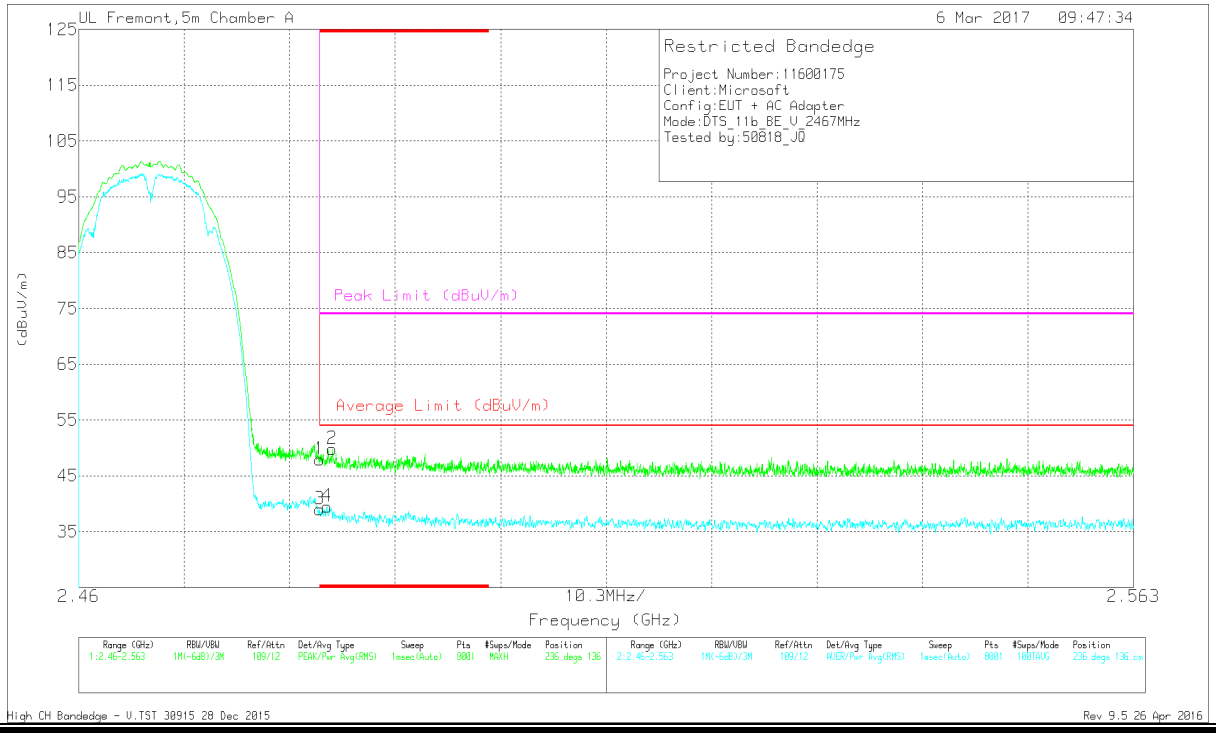
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 12)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	40.26	Pk	32.5	-23.6	49.16	-	-	74	-24.84	292	107	H
2	* 2.484	41.38	Pk	32.6	-23.6	50.38	-	-	74	-23.62	292	107	H
3	* 2.484	31.34	RMS	32.5	-23.6	40.24	54	-13.76	-	-	292	107	H
4	* 2.485	32.24	RMS	32.6	-23.7	41.14	54	-12.86	-	-	292	107	H

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

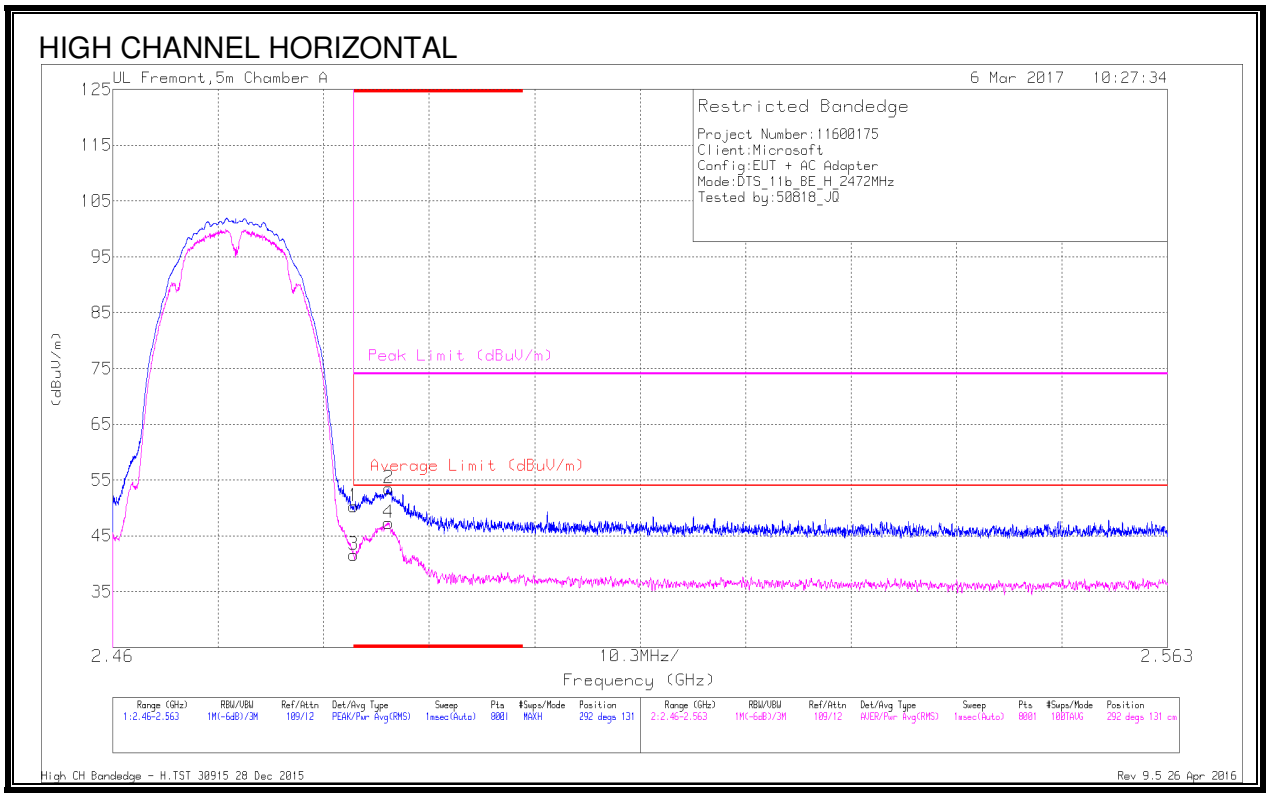
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	38.98	Pk	32.5	-23.6	47.88	-	-	74	-26.12	236	136	V
2	* 2.485	40.95	Pk	32.6	-23.7	49.85	-	-	74	-24.15	236	136	V
3	* 2.484	30.11	RMS	32.5	-23.6	39.01	54	-14.99	-	-	236	136	V
4	* 2.484	30.48	RMS	32.6	-23.6	39.48	54	-14.52	-	-	236	136	V

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

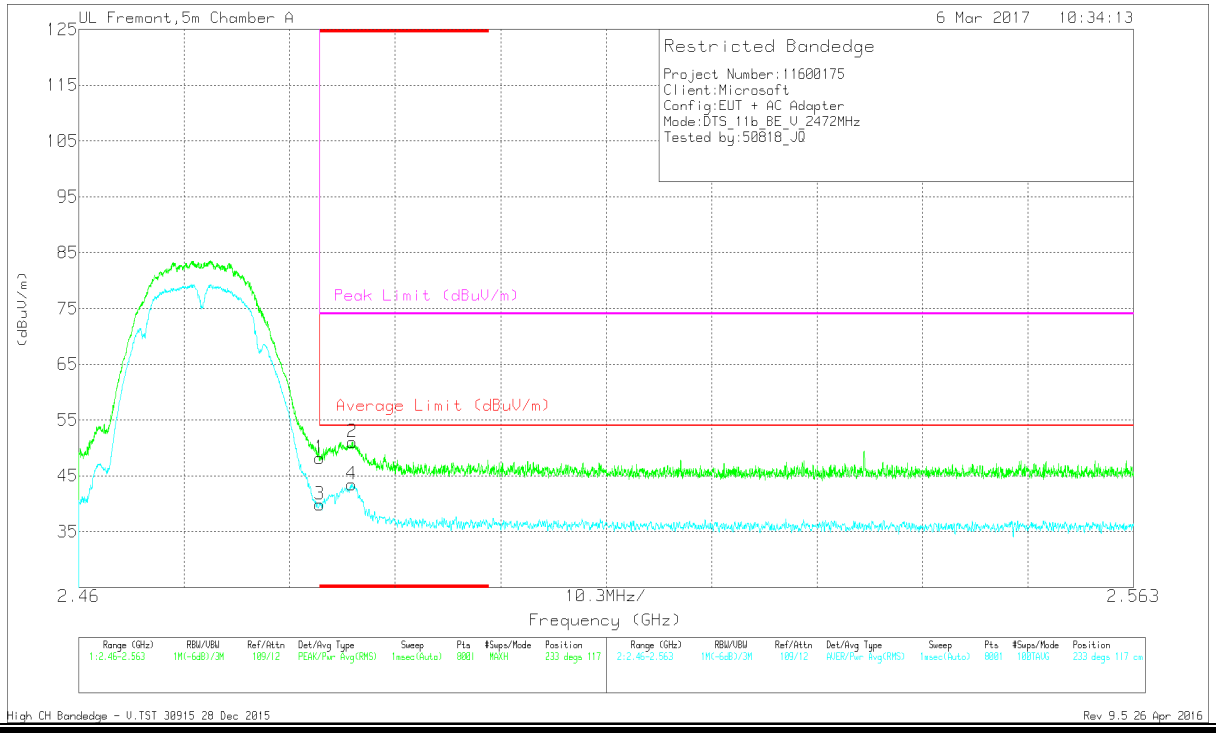
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 13)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	41.36	Pk	32.5	-23.6	50.26	-	-	74	-23.74	292	131	H
2	* 2.487	44.62	Pk	32.6	-23.7	53.52	-	-	74	-20.48	292	131	H
3	* 2.484	32.74	RMS	32.5	-23.6	41.64	54	-12.36	-	-	292	131	H
4	* 2.487	38.44	RMS	32.6	-23.7	47.34	54	-6.66	-	-	292	131	H

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

HIGH CHANNEL VERTICAL

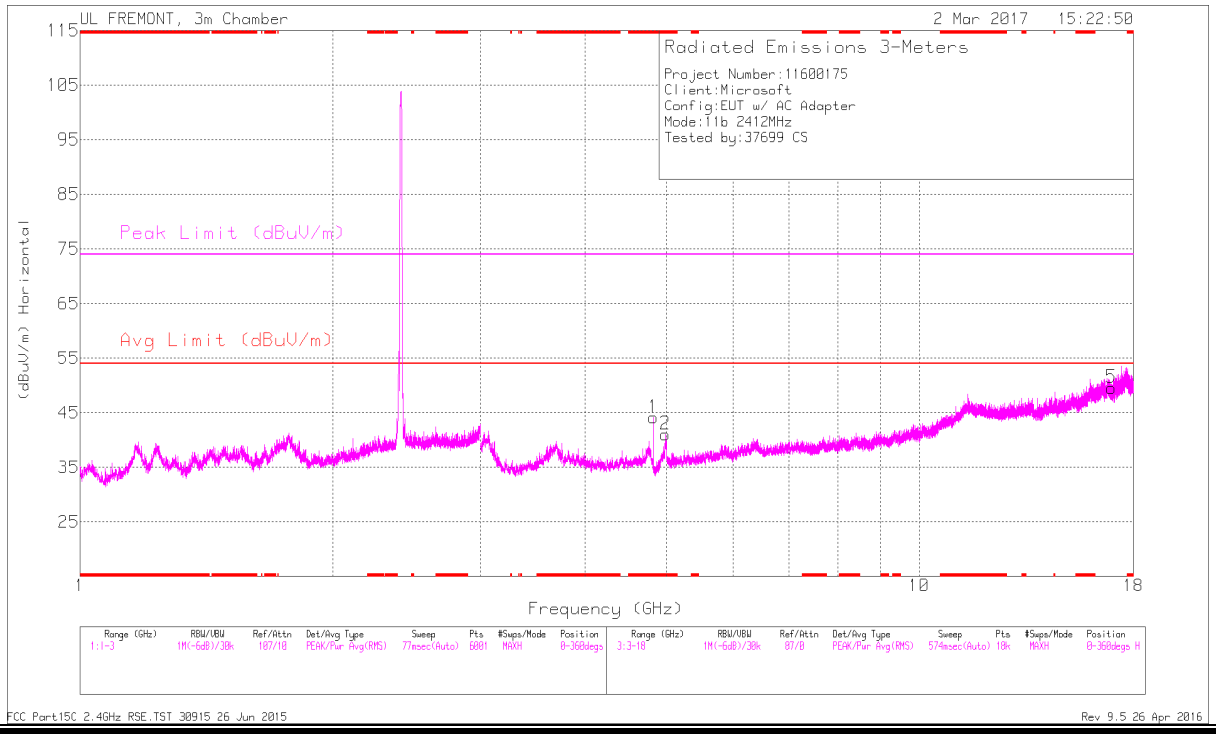


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.25	Pk	32.5	-23.6	48.15	-	-	74	-25.85	233	117	V
3	* 2.484	30.96	RMS	32.5	-23.6	39.86	54	-14.14	-	-	233	117	V
2	* 2.487	42.17	Pk	32.6	-23.7	51.07	-	-	74	-22.93	233	117	V
4	* 2.487	34.57	RMS	32.6	-23.7	43.47	54	-10.53	-	-	233	117	V

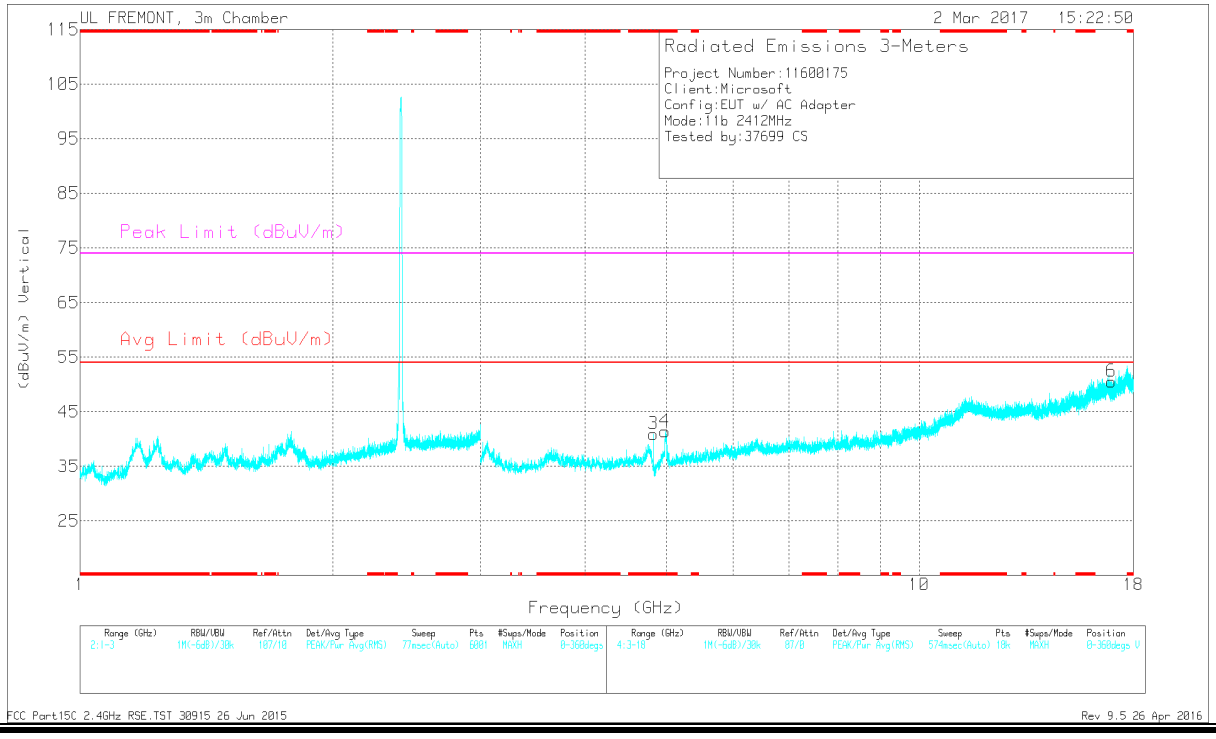
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL

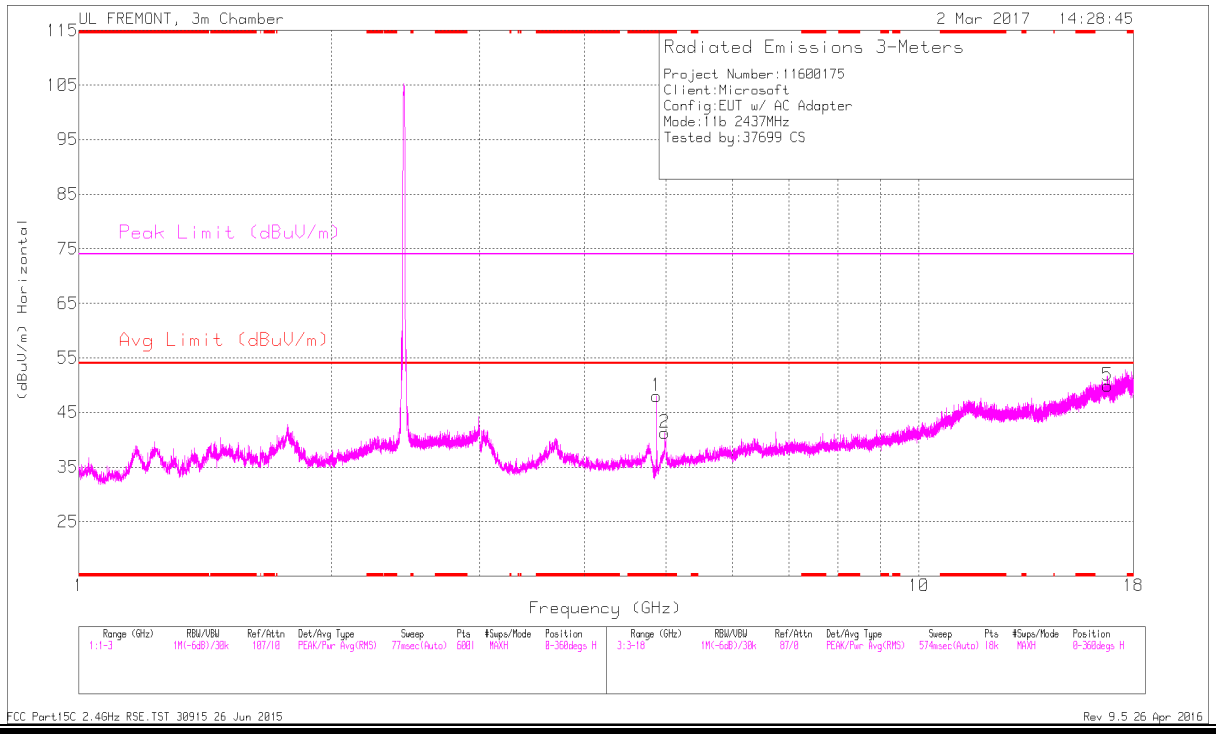


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.824	41.52	PK2	34	-27.6	47.92	-	-	74	-26.08	96	114	H
	* 4.824	37.72	MAv1	34	-27.6	44.12	54	-9.88	-	-	96	114	H
2	* 4.987	41.89	PK2	34.1	-28.5	47.49	-	-	74	-26.51	35	150	H
	* 4.991	30.44	MAv1	34.1	-28.4	36.14	54	-17.86	-	-	35	150	H
3	* 4.824	39.6	PK2	34	-27.6	46	-	-	74	-28	69	100	V
	* 4.824	34.21	MAv1	34	-27.6	40.61	54	-13.39	-	-	69	100	V
4	* 4.981	42.11	PK2	34.1	-28.5	47.71	-	-	74	-26.29	17	119	V
	* 4.992	29.54	MAv1	34.1	-28.4	35.24	54	-18.76	-	-	17	119	V
6	16.94	30.08	PK2	41.3	-13.3	58.08	-	-	-	-	0	100	V
5	16.946	30.25	PK2	41.3	-13.5	58.05	-	-	-	-	0	100	H

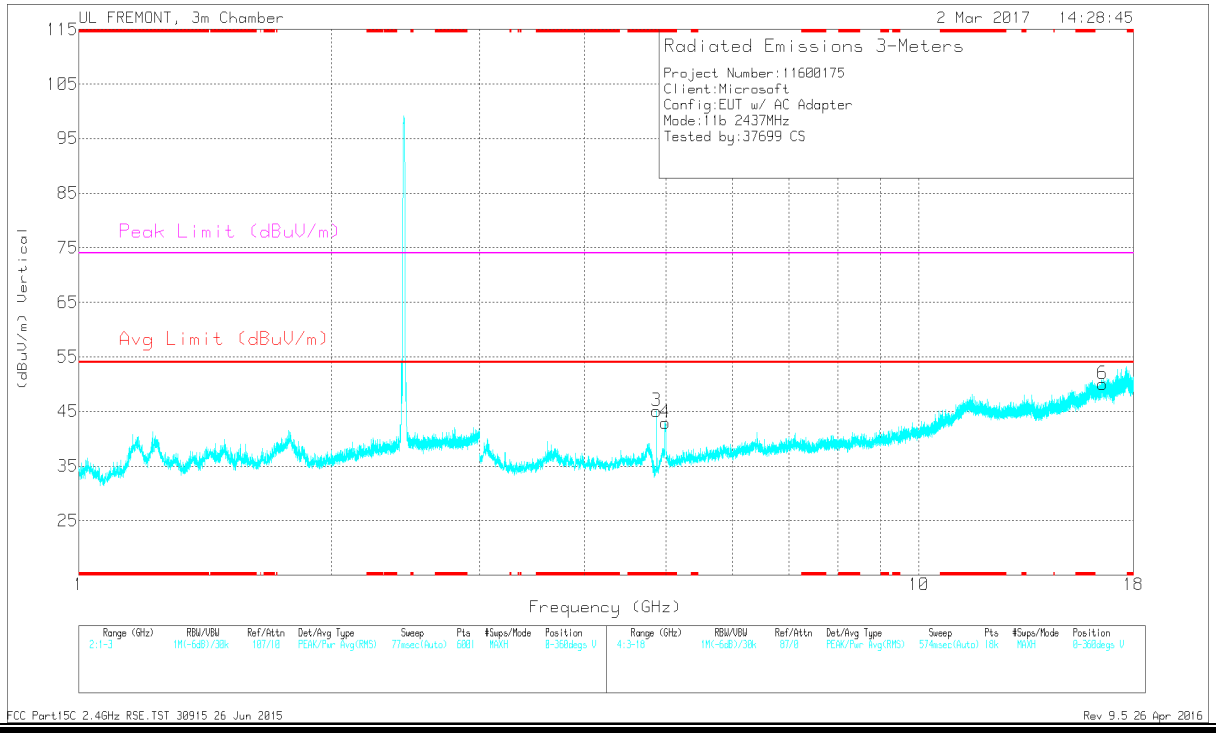
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

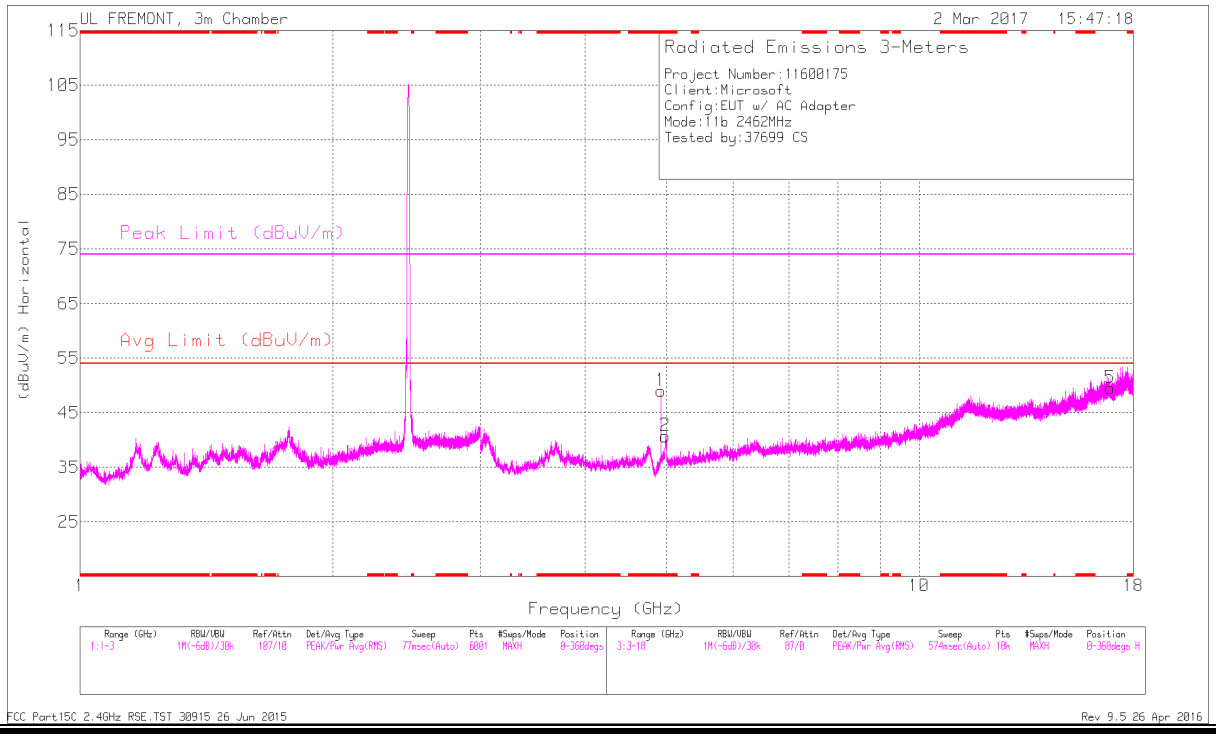


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.874	45.66	PK2	34	-27.5	52.16	-	-	74	-21.84	87	103	H
	* 4.874	42.94	MAv1	34	-27.5	49.44	54	-4.56	-	-	87	103	H
2	* 4.987	44.44	PK2	34.1	-28.5	50.04	-	-	74	-23.96	93	211	H
	* 4.987	31.96	MAv1	34.1	-28.5	37.56	54	-16.44	-	-	93	211	H
3	* 4.874	42.8	PK2	34	-27.5	49.3	-	-	74	-24.7	67	115	V
	* 4.874	39.16	MAv1	34	-27.5	45.66	54	-8.34	-	-	67	115	V
4	* 4.98	46.22	PK2	34.1	-28.4	51.92	-	-	74	-22.08	48	129	V
	* 4.98	32.72	MAv1	34.1	-28.4	38.42	54	-15.58	-	-	48	129	V
6	16.542	30.05	PK2	41.4	-13.8	57.65	-	-	-	-	123	100	V
5	16.769	29.88	PK2	41.3	-12.9	58.28	-	-	-	-	123	100	H

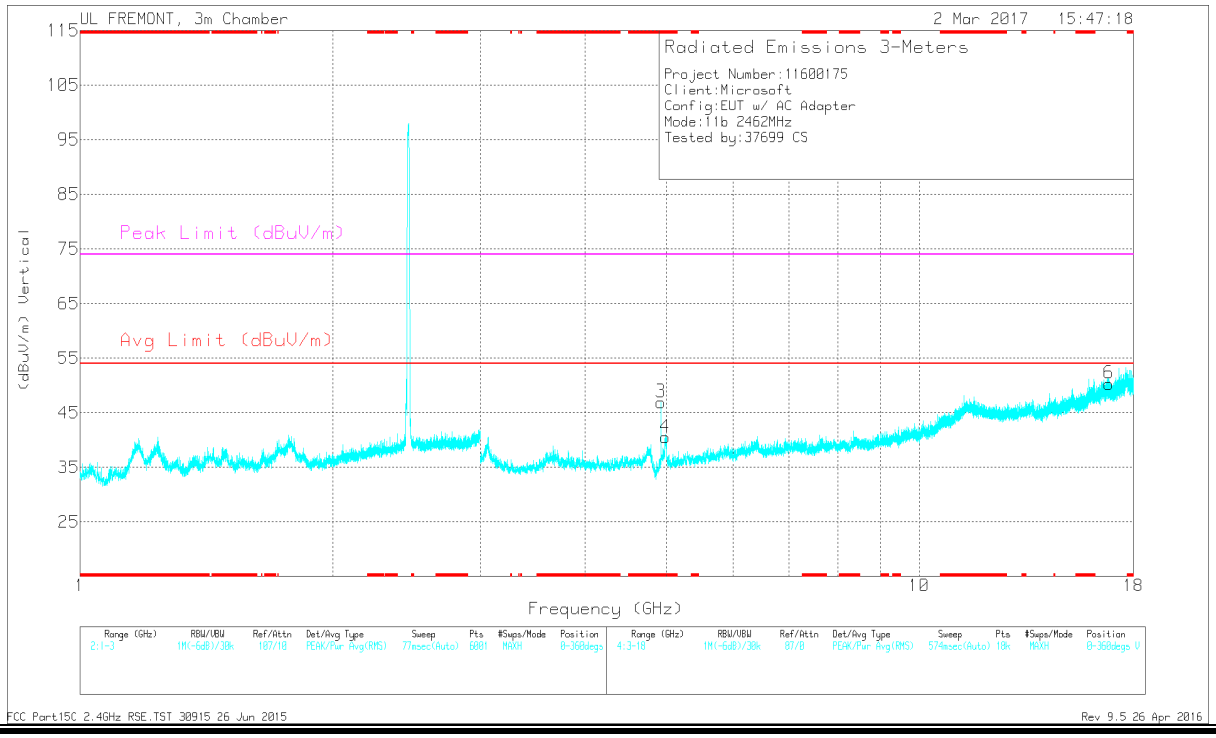
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 11)

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL

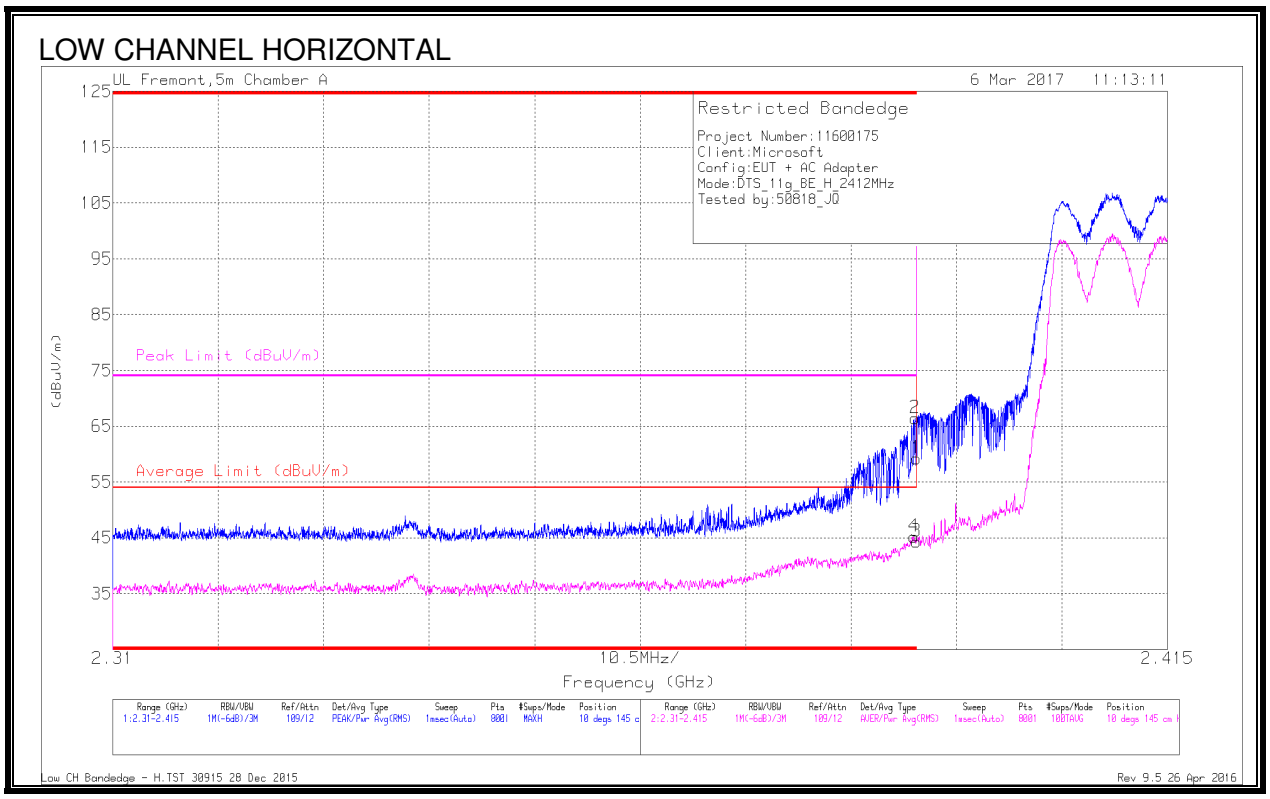


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.924	45.55	PK2	34	-28	51.55	-	-	74	-22.45	89	101	H
	* 4.924	42.6	MAv1	34	-28	48.6	54	-5.4	-	-	89	101	H
2	* 4.985	42.15	PK2	34.1	-28.5	47.75	-	-	74	-26.25	37	100	H
	* 4.983	30.3	MAv1	34.1	-28.5	35.9	54	-18.1	-	-	37	100	H
3	* 4.924	44.84	PK2	34	-28	50.84	-	-	74	-23.16	51	111	V
	* 4.924	40.96	MAv1	34	-28	46.96	54	-7.04	-	-	51	111	V
4	* 4.986	43.63	PK2	34.1	-28.5	49.23	-	-	74	-24.77	30	206	V
	* 4.986	31.63	MAv1	34.1	-28.5	37.23	54	-16.77	-	-	30	206	V
6	16.826	29.22	PK2	41.3	-13	57.52	-	-	-	-	0	200	V
5	16.88	30.11	PK2	41.3	-13.9	57.51	-	-	-	-	0	100	H

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

9.2.2. 11g 2TX MIMO MODE IN THE 2.4GHz BAND

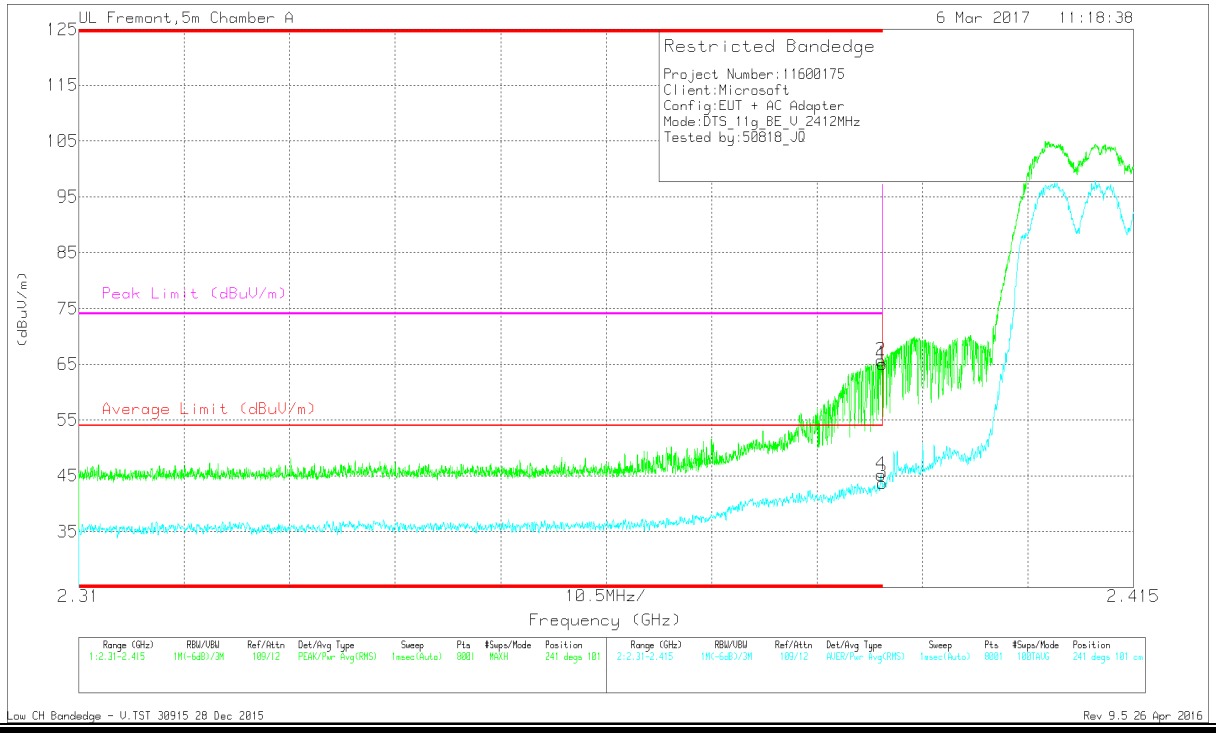
AUTHORIZED BANDEDGE (LOW CHANNEL, CH 1)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	50.78	Pk	32.1	-23.7	59.18	-	-	74	-14.82	10	145	H
2	* 2.39	58.05	Pk	32.1	-23.7	66.45	-	-	74	-7.55	10	145	H
3	* 2.39	35.96	RMS	32.1	-23.7	44.36	54	-9.64	-	-	10	145	H
4	* 2.39	36.8	RMS	32.1	-23.7	45.2	54	-8.8	-	-	10	145	H

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

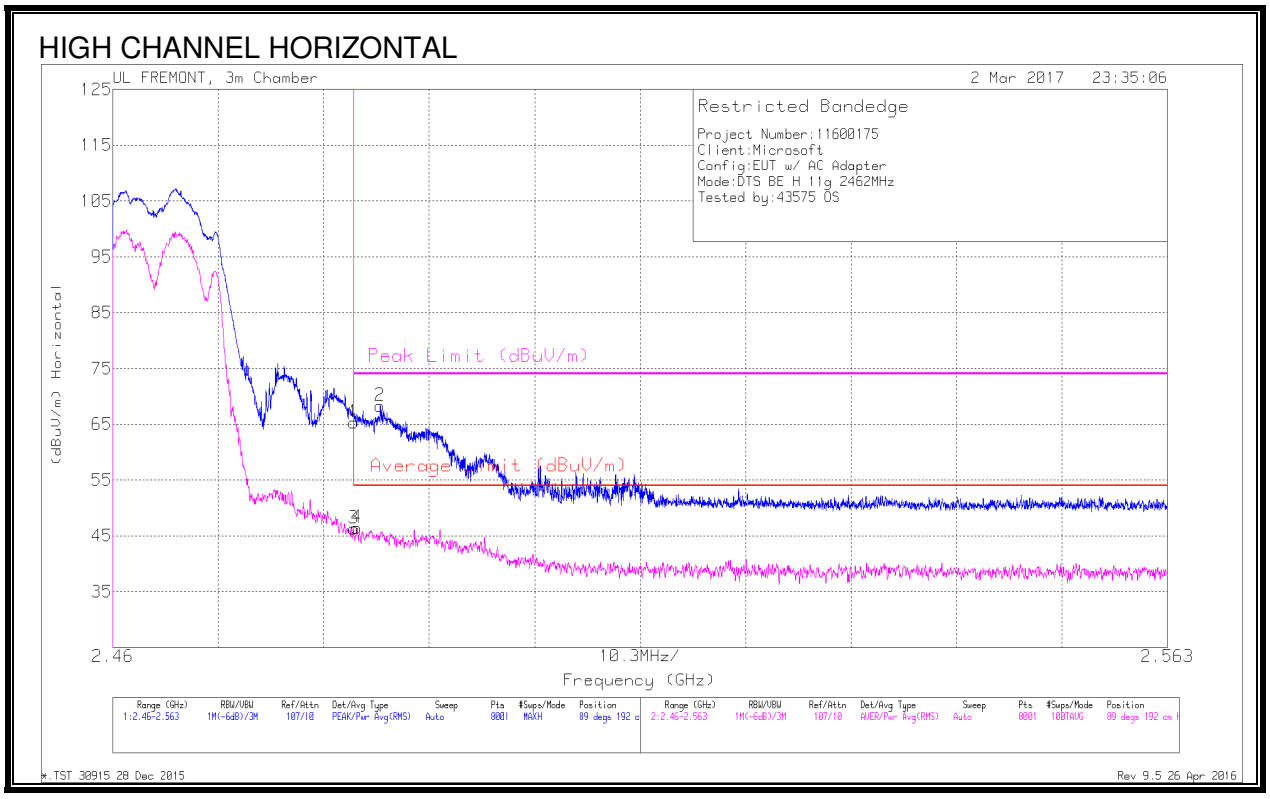
LOW CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	56.61	Pk	32.1	-23.7	65.01	-	-	74	-8.99	241	101	V
2	* 2.39	57.33	Pk	32.1	-23.7	65.73	-	-	74	-8.27	241	101	V
3	* 2.39	35.32	RMS	32.1	-23.7	43.72	54	-10.28	-	-	241	101	V
4	* 2.39	36.85	RMS	32.1	-23.7	45.25	54	-8.75	-	-	241	101	V

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

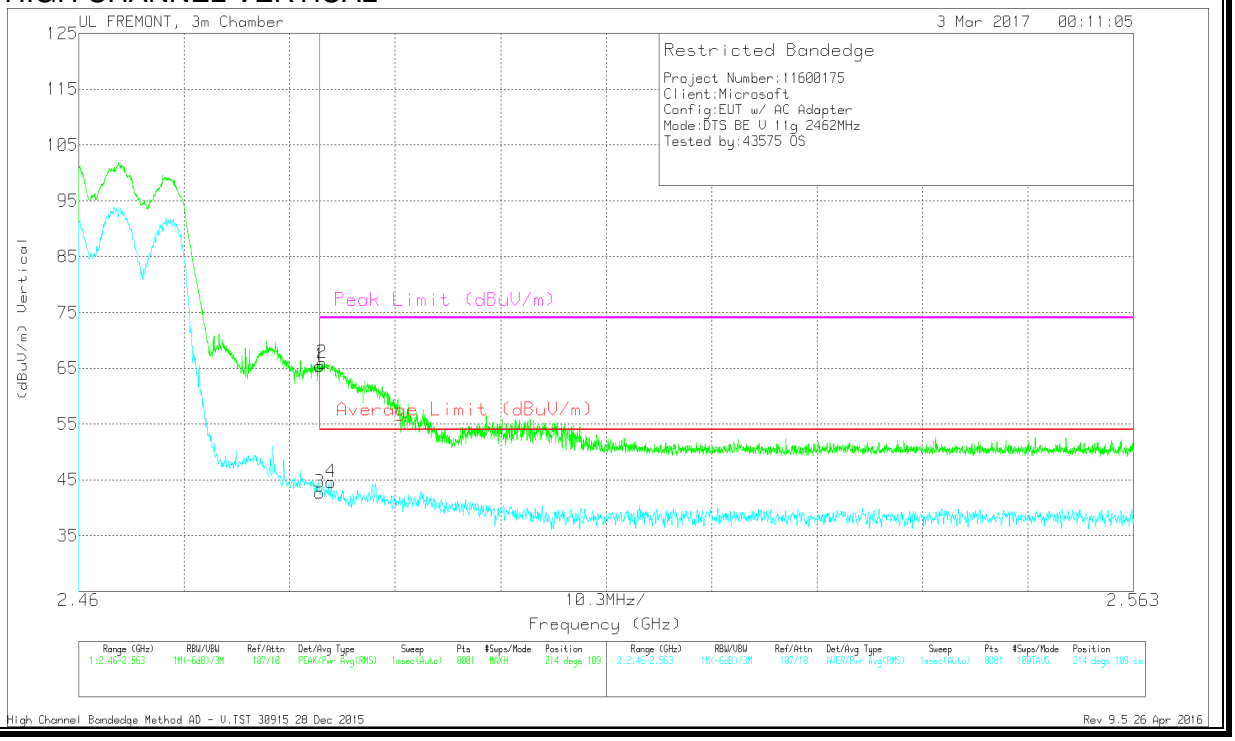
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 11)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (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	53.68	Pk	32.4	-20.8	65.28	-	-	74	-8.72	89	192	H
3	2.484	34.76	RMS	32.4	-20.8	46.36	54	-7.64	-	-	89	192	H
4	2.484	34.86	RMS	32.4	-20.8	46.46	54	-7.54	-	-	89	192	H
2	2.486	56.79	Pk	32.4	-20.9	68.29	-	-	74	-5.71	89	192	H

Pk - Peak detector
RMS - RMS detection

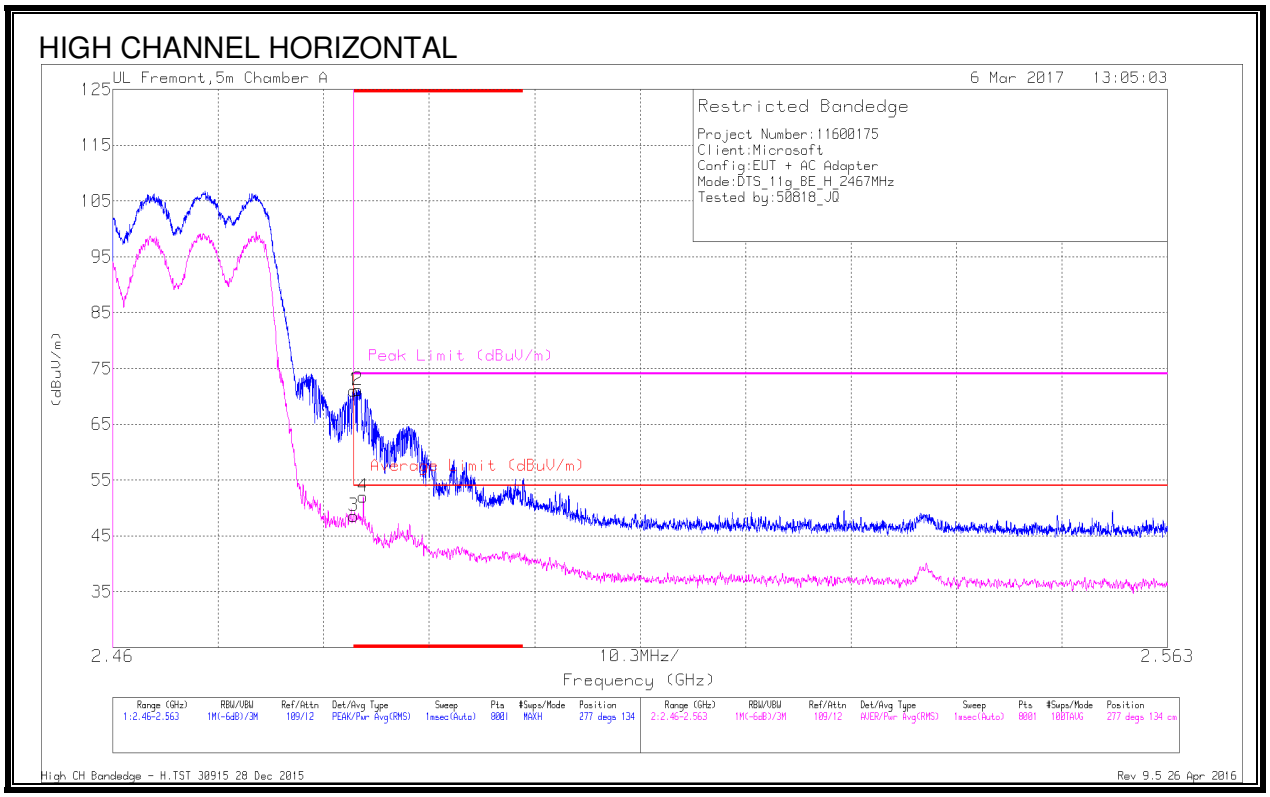
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (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	53.86	Pk	32.4	-20.8	65.46	-	-	74	-8.54	214	109	V
2	2.484	54.33	Pk	32.4	-20.8	65.93	-	-	74	-8.07	214	109	V
3	2.484	31.16	RMS	32.4	-20.8	42.76	54	-11.24	-	-	214	109	V
4	2.485	32.96	RMS	32.4	-20.8	44.56	54	-9.44	-	-	214	109	V

Pk - Peak detector
RMS - RMS detection

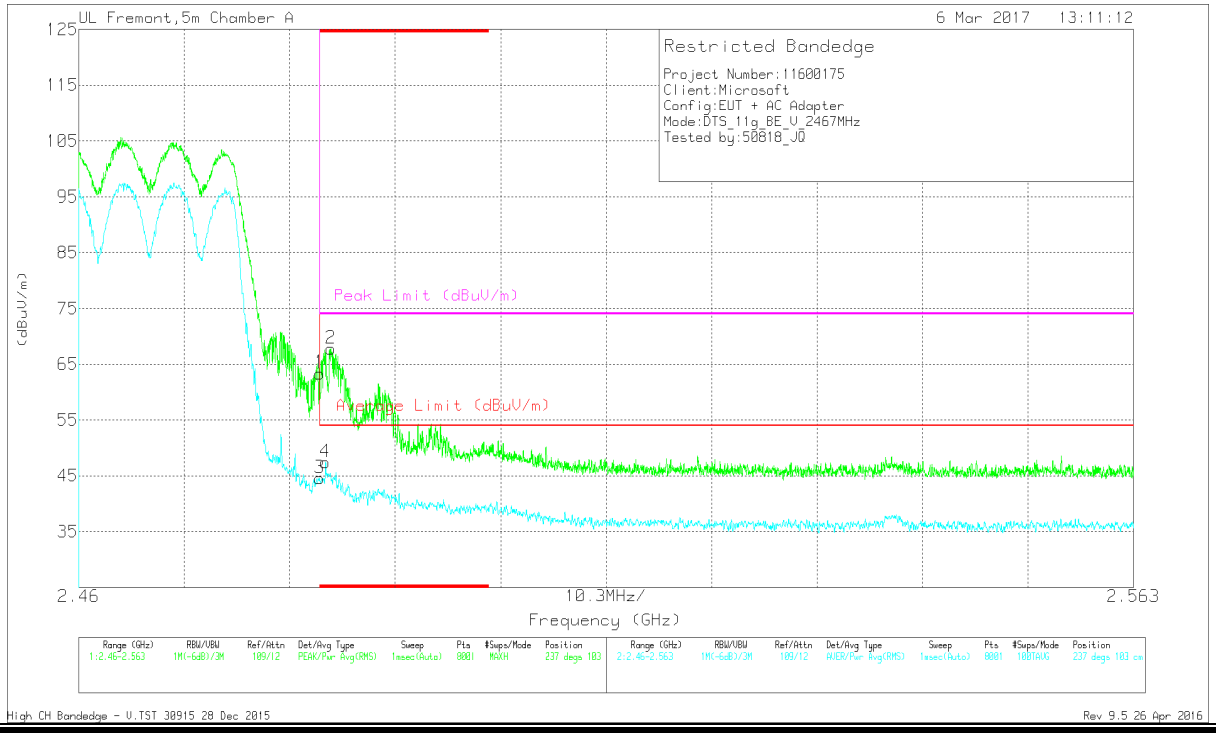
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 12)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	62.16	Pk	32.5	-23.6	71.06	-	-	74	-2.94	277	134	H
2	* 2.484	62.3	Pk	32.5	-23.6	71.2	-	-	74	-2.8	277	134	H
3	* 2.484	39.71	RMS	32.5	-23.6	48.61	54	-5.39	-	-	277	134	H
4	* 2.484	43.03	RMS	32.6	-23.6	52.03	54	-1.97	-	-	277	134	H

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

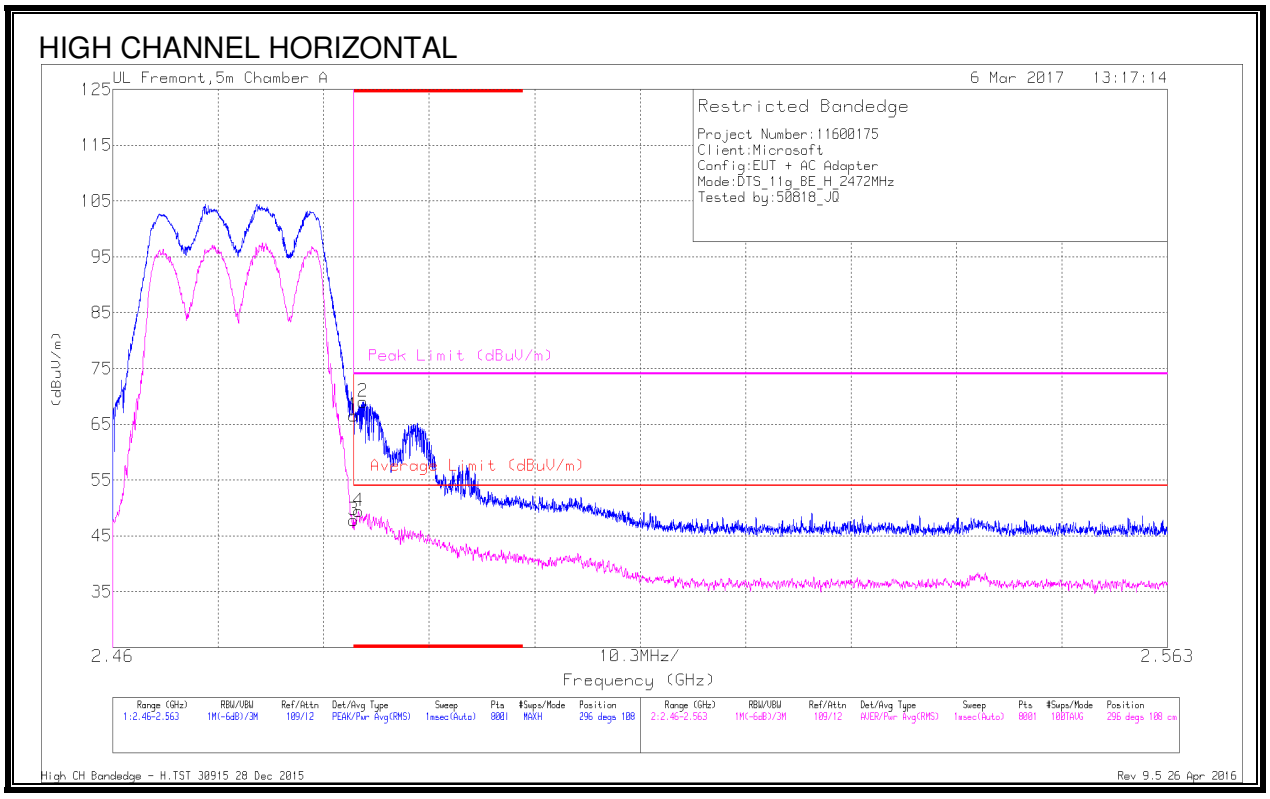
HIGH CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	54.49	Pk	32.5	-23.6	63.39	-	-	74	-10.61	237	103	V
3	* 2.484	35.67	RMS	32.5	-23.6	44.57	54	-9.43	-	-	237	103	V
4	* 2.484	38.57	RMS	32.5	-23.6	47.47	54	-6.53	-	-	237	103	V
2	* 2.485	58.86	Pk	32.6	-23.7	67.76	-	-	74	-6.24	237	103	V

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

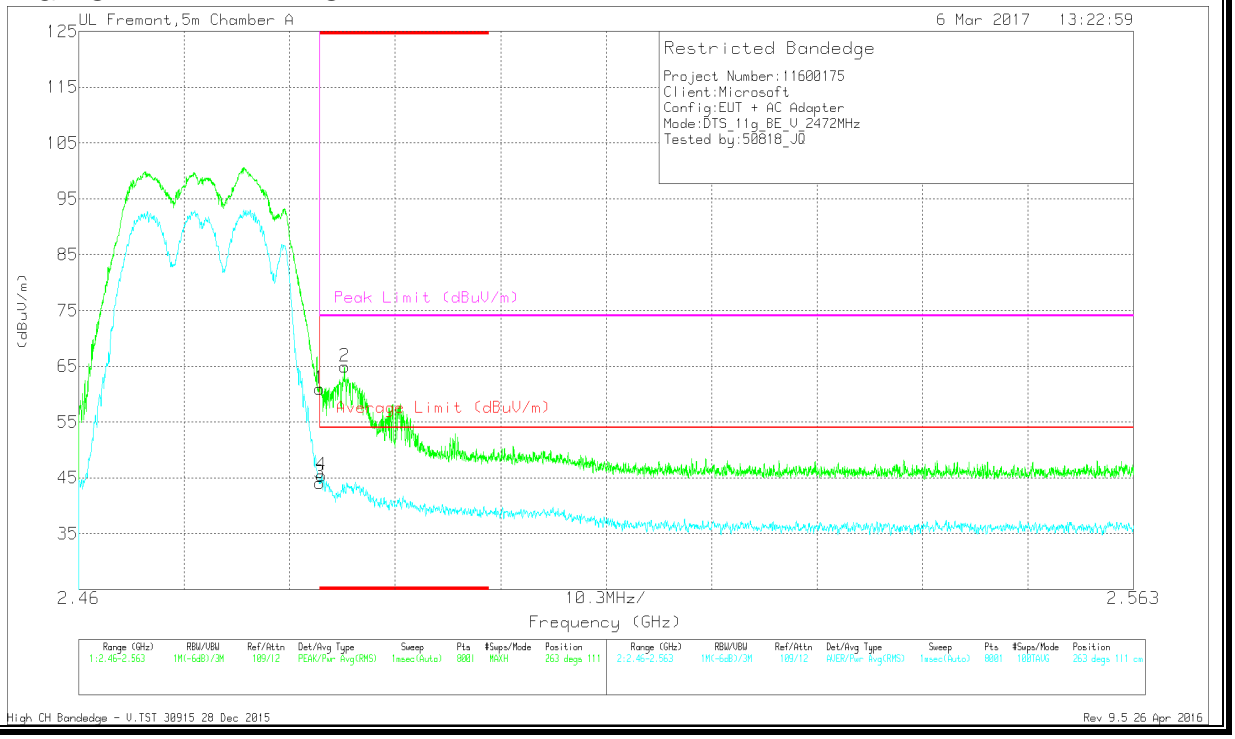
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 13)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	57.61	Pk	32.5	-23.6	66.51	-	-	74	-7.49	296	108	H
2	* 2.484	60.04	Pk	32.6	-23.6	69.04	-	-	74	-4.96	296	108	H
3	* 2.484	38.86	RMS	32.5	-23.6	47.76	54	-6.24	-	-	296	108	H
4	* 2.484	40.53	RMS	32.5	-23.6	49.43	54	-4.57	-	-	296	108	H

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

HIGH CHANNEL VERTICAL

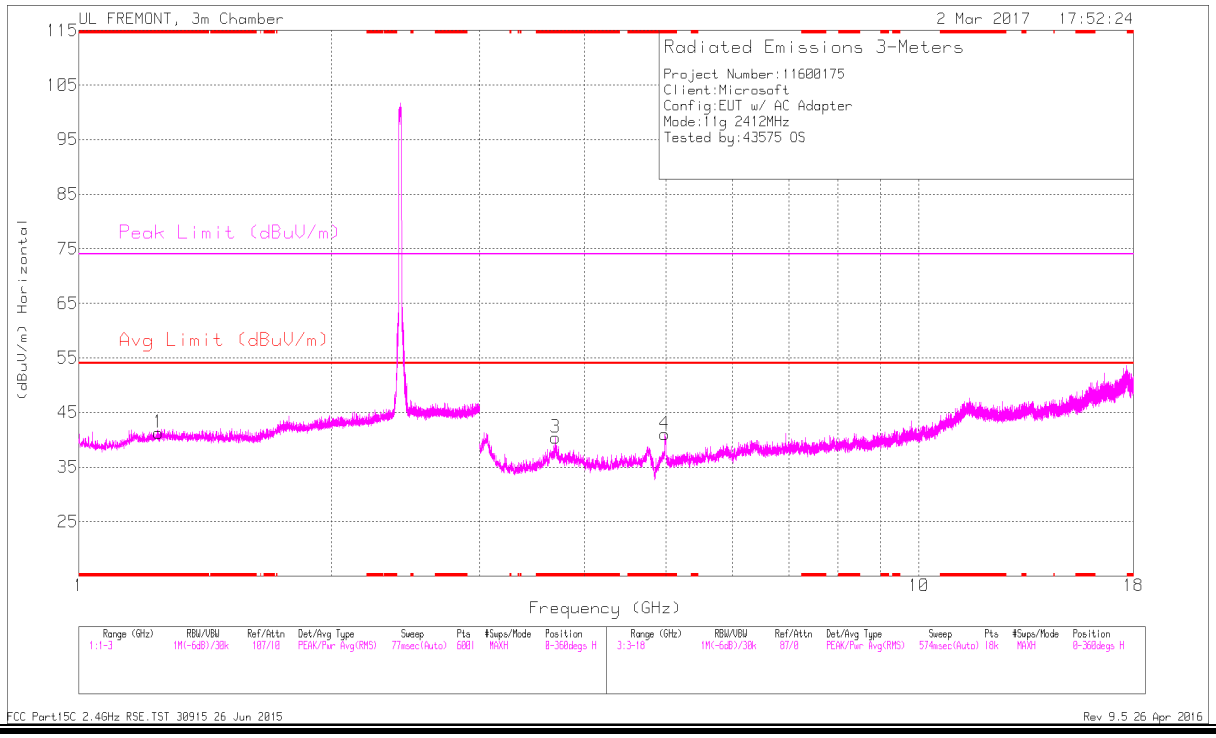


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	52.12	Pk	32.5	-23.6	61.02	-	-	74	-12.98	263	111	V
3	* 2.484	35.2	RMS	32.5	-23.6	44.1	54	-9.9	-	-	263	111	V
4	* 2.484	36.59	RMS	32.5	-23.6	45.49	54	-8.51	-	-	263	111	V
2	* 2.486	56	Pk	32.6	-23.7	64.9	-	-	74	-9.1	263	111	V

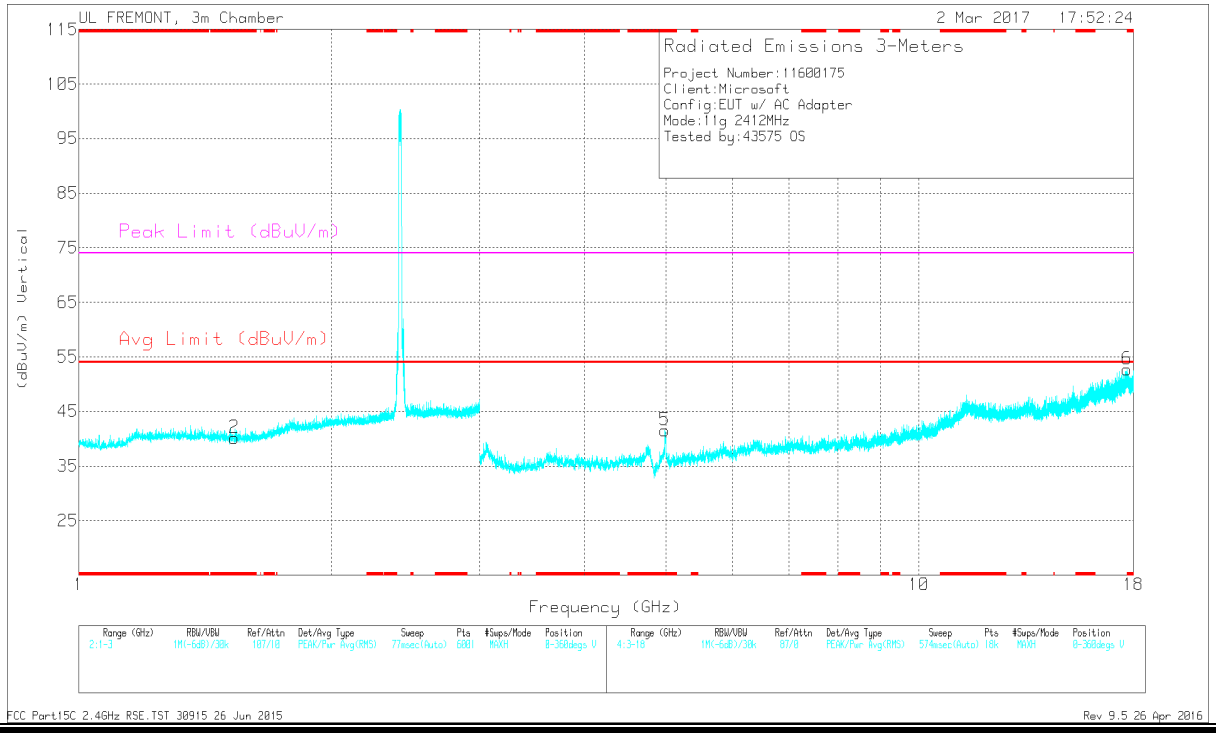
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL

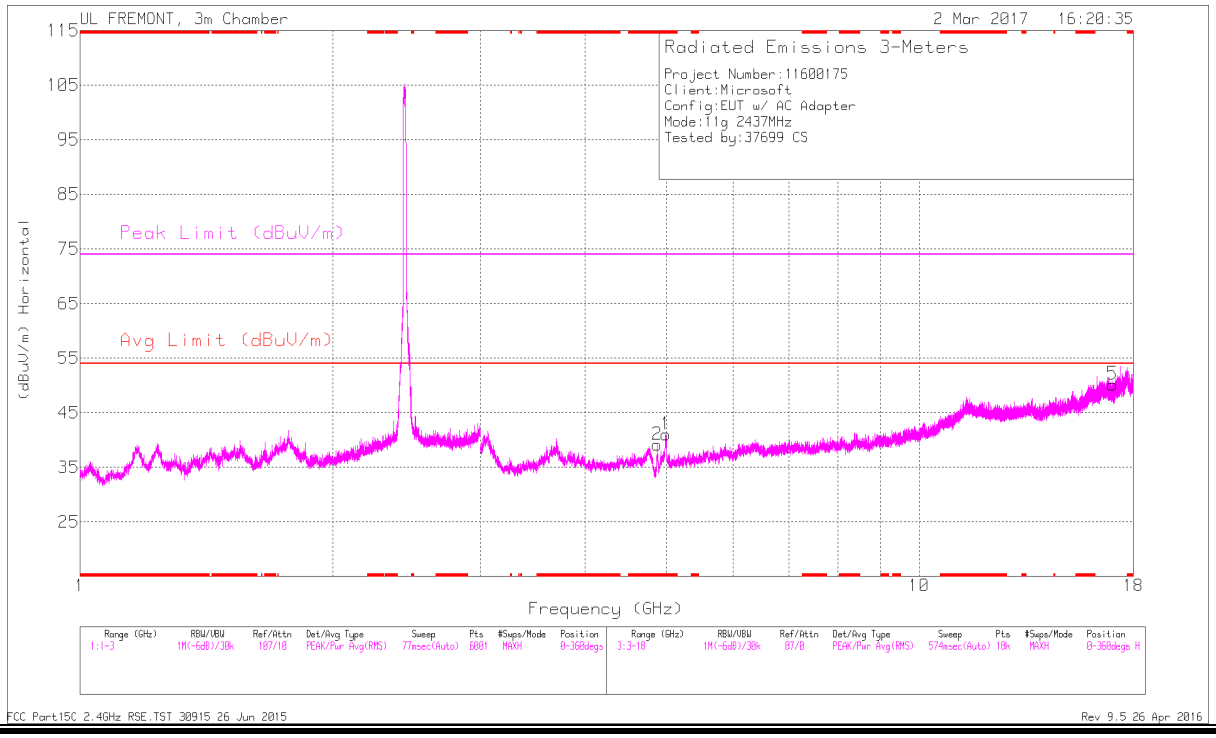


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.244	42.11	PK2	28.6	-22.2	48.51	-	-	74	-25.49	285	268	H
	* 1.244	29.92	MAv1	28.6	-22.2	36.32	54	-17.68	-	-	285	268	H
2	* 1.53	40.63	PK2	28.2	-21.7	47.13	-	-	74	-26.87	332	173	V
	* 1.532	29.6	MAv1	28.2	-21.7	36.1	54	-17.9	-	-	332	173	V
3	* 3.693	41.9	PK2	33.3	-28.6	46.6	-	-	74	-27.4	100	190	H
	* 3.694	29.72	MAv1	33.3	-28.6	34.42	54	-19.58	-	-	100	190	H
4	* 4.981	43.31	PK2	34.1	-28.4	49.01	-	-	74	-24.99	31	127	H
	* 4.98	29.86	MAv1	34.1	-28.4	35.56	54	-18.44	-	-	31	127	H
5	* 4.98	41.49	PK2	34.1	-28.4	47.19	-	-	74	-26.81	58	107	V
	* 4.98	28.9	MAv1	34.1	-28.4	34.6	54	-19.4	-	-	58	107	V
6	17.677	30.03	PK2	41.4	-11	60.43	-	-	-	-	259	385	V

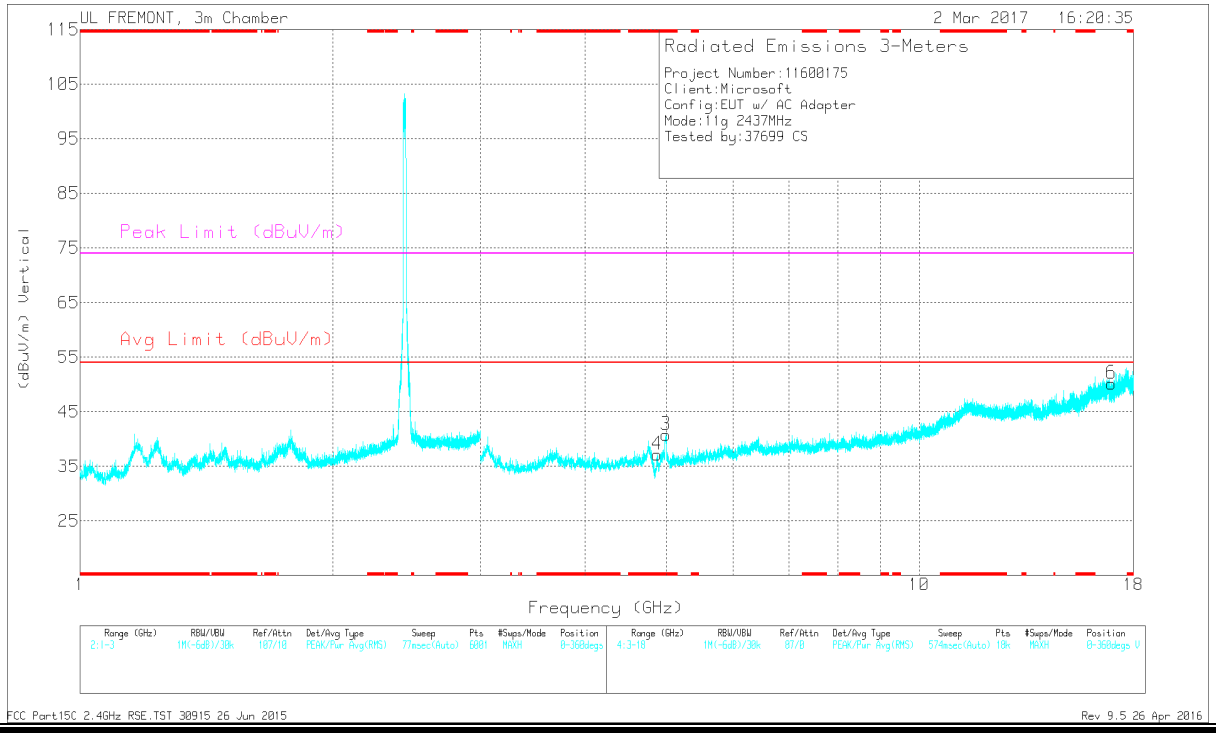
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

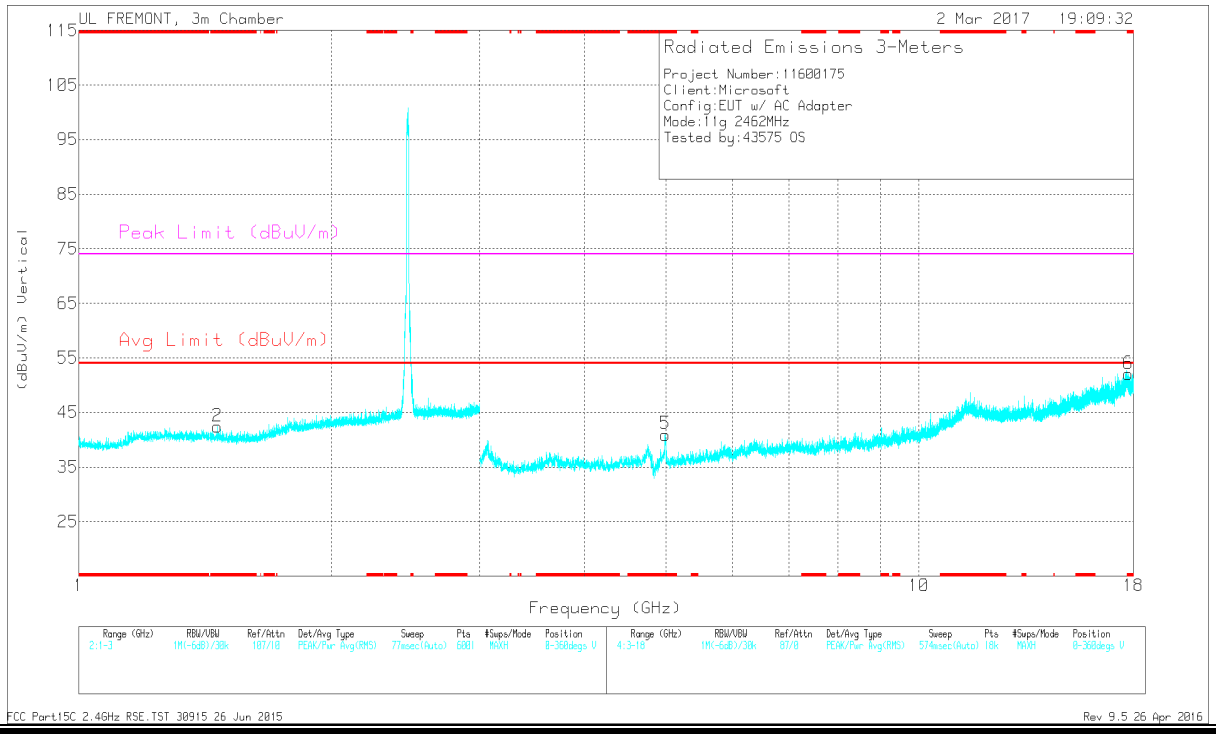


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.992	42.43	PK2	34.1	-28.4	48.13	-	-	74	-25.87	88	221	H
	* 4.99	30.33	MAv1	34.1	-28.4	36.03	54	-17.97	-	-	88	221	H
2	* 4.873	36.34	PK2	34	-27.5	42.84	-	-	74	-31.16	189	335	H
	* 4.874	24.72	MAv1	34	-27.5	31.22	54	-22.78	-	-	189	335	H
3	* 4.993	43.34	PK2	34.1	-28.4	49.04	-	-	74	-24.96	40	184	V
	* 4.991	30.4	MAv1	34.1	-28.4	36.1	54	-17.9	-	-	40	184	V
4	* 4.877	36.62	PK2	34	-27.4	43.22	-	-	74	-30.78	294	161	V
	* 4.876	25.23	MAv1	34	-27.5	31.73	54	-22.27	-	-	294	161	V
6	16.944	29.48	PK2	41.3	-13.4	57.38	-	-	-	-	187	135	V
5	16.999	29.7	PK2	41.3	-13.6	57.4	-	-	-	-	292	103	H

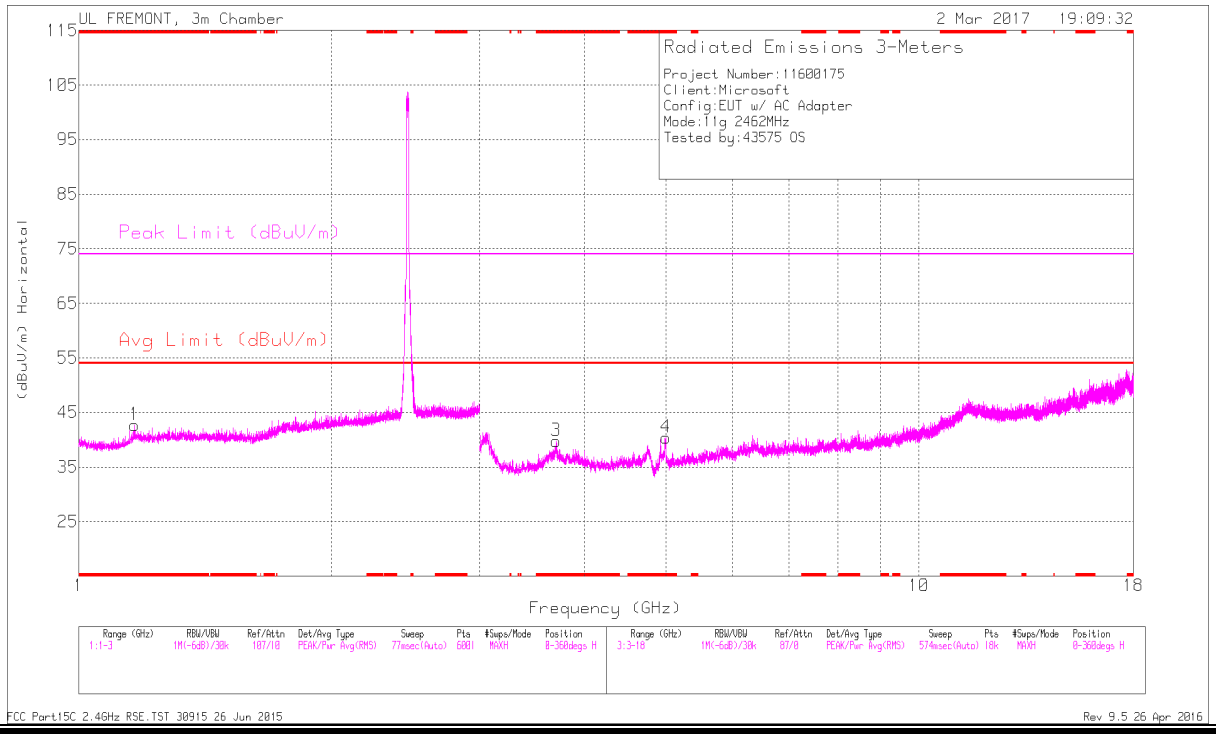
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 11)

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL

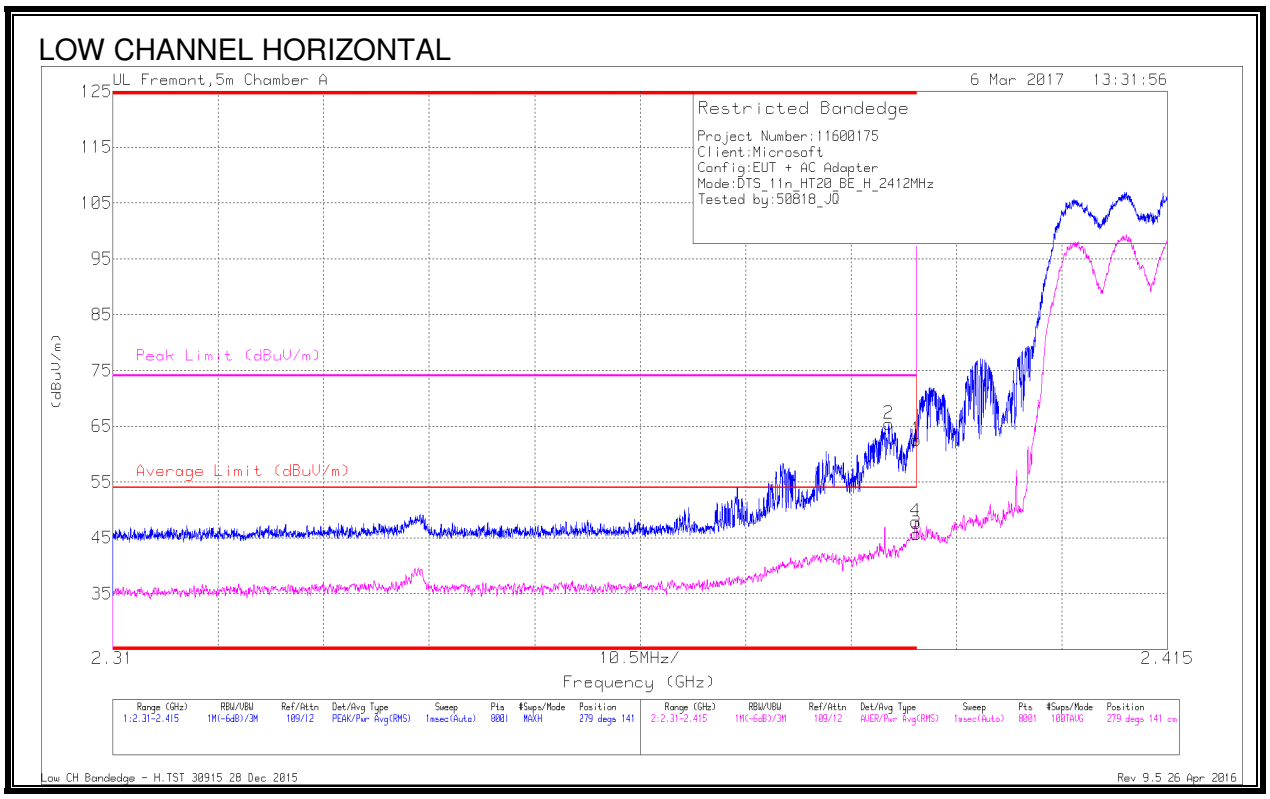


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.166	42.74	PK2	27.9	-22.2	48.44	-	-	74	-25.56	46	102	H
	* 1.167	31.09	MAv1	27.9	-22.2	36.79	54	-17.21	-	-	46	102	H
2	* 1.461	41.09	PK2	28.4	-21.7	47.79	-	-	74	-26.21	286	150	V
	* 1.463	29.09	MAv1	28.4	-21.7	35.79	54	-18.21	-	-	286	150	V
3	* 3.696	41.13	PK2	33.3	-28.6	45.83	-	-	74	-28.17	105	247	H
	* 3.696	30.24	MAv1	33.3	-28.6	34.94	54	-19.06	-	-	105	247	H
4	* 4.999	41.81	PK2	34.1	-28.3	47.61	-	-	74	-26.39	38	180	H
	* 4.995	29.55	MAv1	34.1	-28.4	35.25	54	-18.75	-	-	38	180	H
5	* 4.988	42.62	PK2	34.1	-28.5	48.22	-	-	74	-25.78	44	100	V
	* 4.989	29.66	MAv1	34.1	-28.4	35.36	54	-18.64	-	-	44	100	V
6	* 17.745	29.63	PK2	41.3	-11.8	59.13	-	-	74	-14.87	164	122	V
	* 17.742	13.01	MAv1	41.3	-11.8	42.51	54	-11.49	-	-	164	122	V

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

9.2.3. 11n HT20 2TX MIMO MODE IN THE 2.4GHz BAND

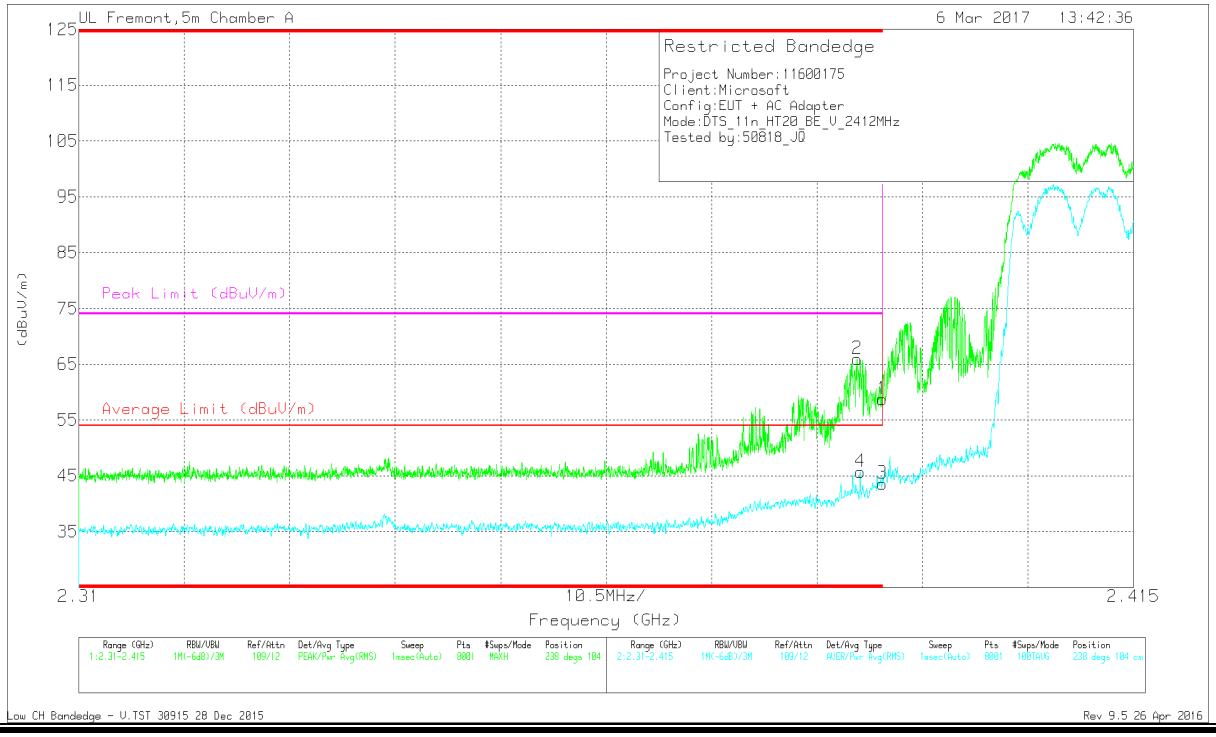
AUTHORIZED BANDEDGE (LOW CHANNEL, CH 1)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	54.14	Pk	32.1	-23.7	62.54	-	-	74	-11.46	279	141	H
2	* 2.387	57.04	Pk	32.1	-23.7	65.44	-	-	74	-8.56	279	141	H
3	* 2.39	37.29	RMS	32.1	-23.7	45.69	54	-8.31	-	-	279	141	H
4	* 2.39	39.54	RMS	32.1	-23.7	47.94	54	-6.06	-	-	279	141	H

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

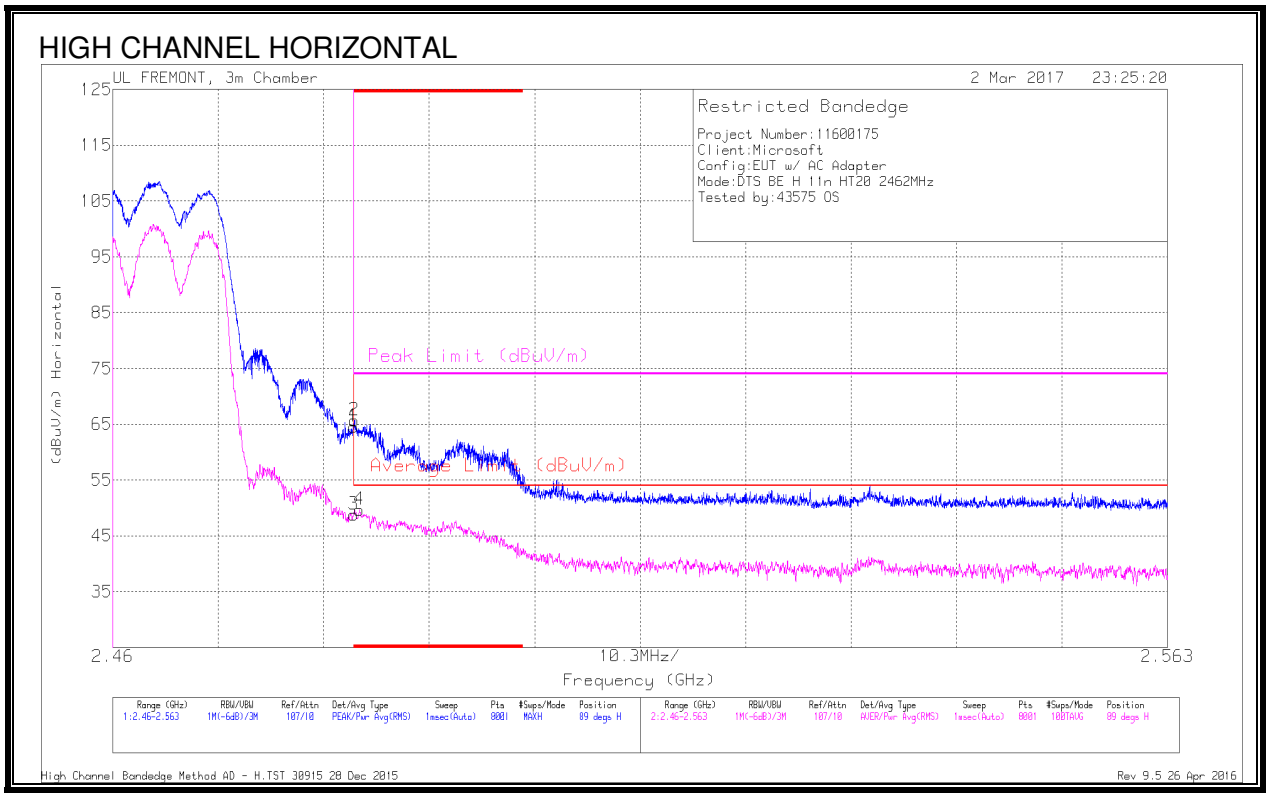
LOW CHANNEL VERTICAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	57.51	Pk	32.1	-23.7	65.91	-	-	74	-8.09	238	104	V
4	* 2.388	37.33	RMS	32.1	-23.7	45.73	54	-8.27	-	-	238	104	V
1	* 2.39	50.38	Pk	32.1	-23.7	58.78	-	-	74	-15.22	238	104	V
3	* 2.39	35.19	RMS	32.1	-23.7	43.59	54	-10.41	-	-	238	104	V

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

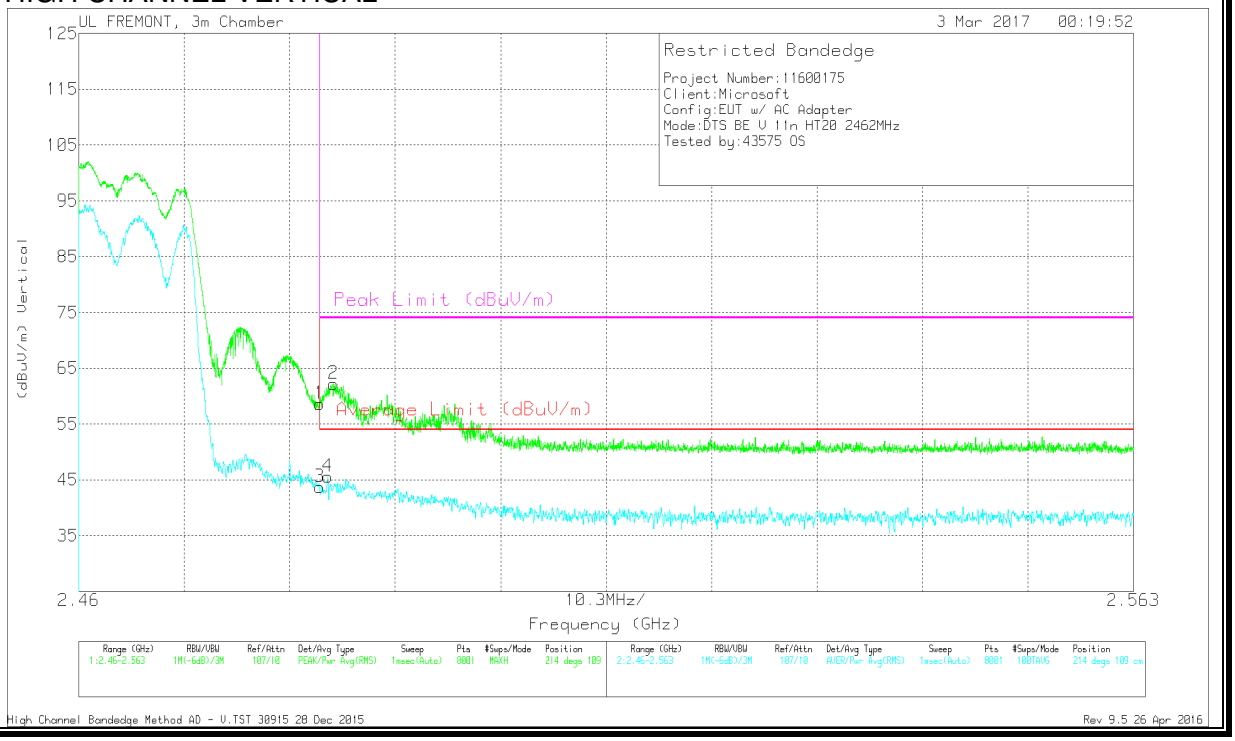
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 11)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (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	52.94	Pk	32.4	-20.8	64.54	-	-	74	-9.46	89	192	H
2	* 2.484	54.1	Pk	32.4	-20.8	65.7	-	-	74	-8.3	89	192	H
3	* 2.484	37.22	RMS	32.4	-20.8	48.82	54	-5.18	-	-	89	192	H
4	* 2.484	38.06	RMS	32.4	-20.8	49.66	54	-4.34	-	-	89	192	H

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

HIGH CHANNEL VERTICAL

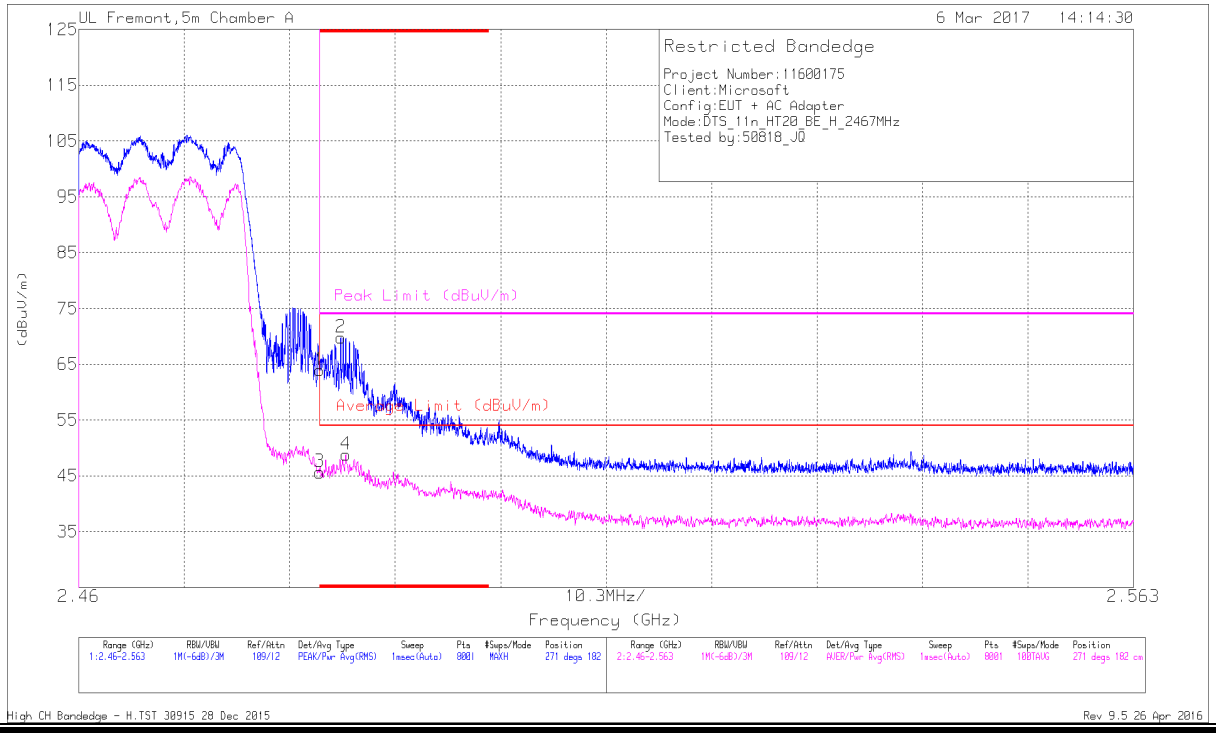


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.484	47.01	Pk	32.4	-20.8	58.61	-	-	74	-15.39	214	109	V
3	2.484	32.09	RMS	32.4	-20.8	43.69	54	-10.31	-	-	214	109	V
4	2.484	34	RMS	32.4	-20.8	45.6	54	-8.4	-	-	214	109	V
2	2.485	50.63	Pk	32.4	-20.8	62.23	-	-	74	-11.77	214	109	V

Pk - Peak detector
RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 12)

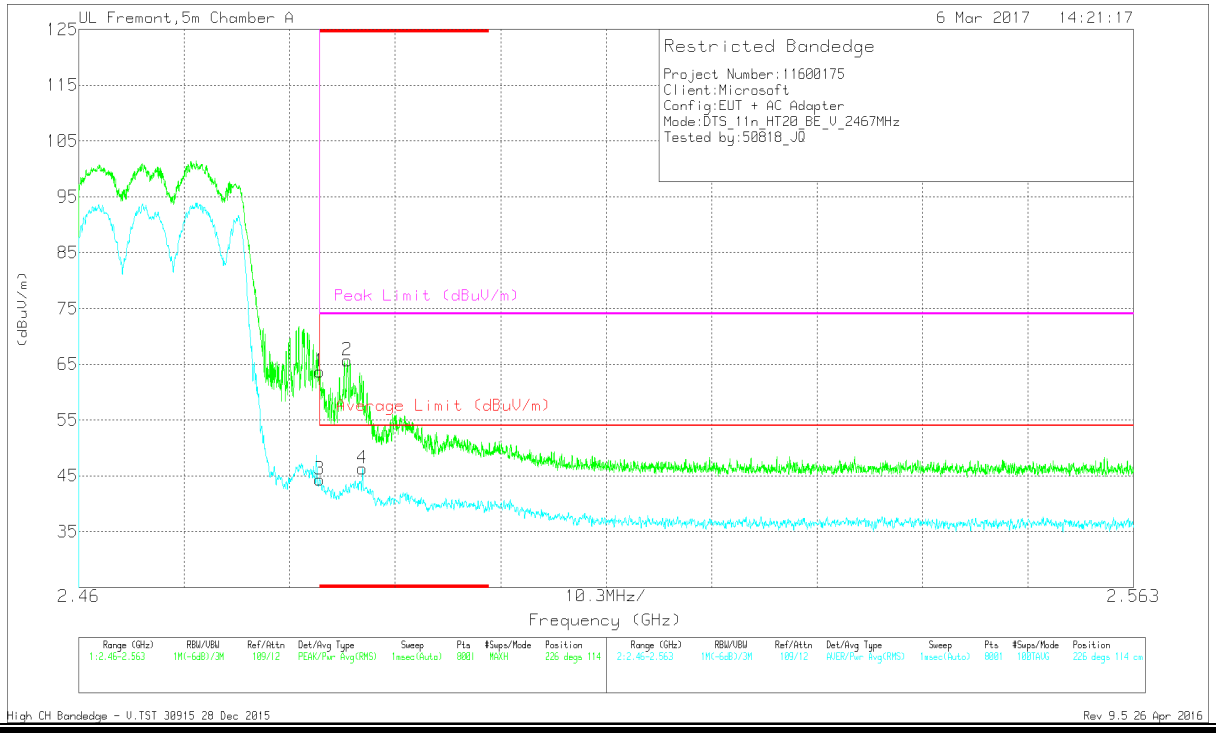
HIGH CHANNEL HORIZONTAL



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	55.04	Pk	32.5	-23.6	63.94	-	-	74	-10.06	271	182	H
3	* 2.484	36.74	RMS	32.5	-23.6	45.64	54	-8.36	-	-	271	182	H
2	* 2.486	60.83	Pk	32.6	-23.7	69.73	-	-	74	-4.27	271	182	H
4	* 2.486	39.94	RMS	32.6	-23.7	48.84	54	-5.16	-	-	271	182	H

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

HIGH CHANNEL VERTICAL

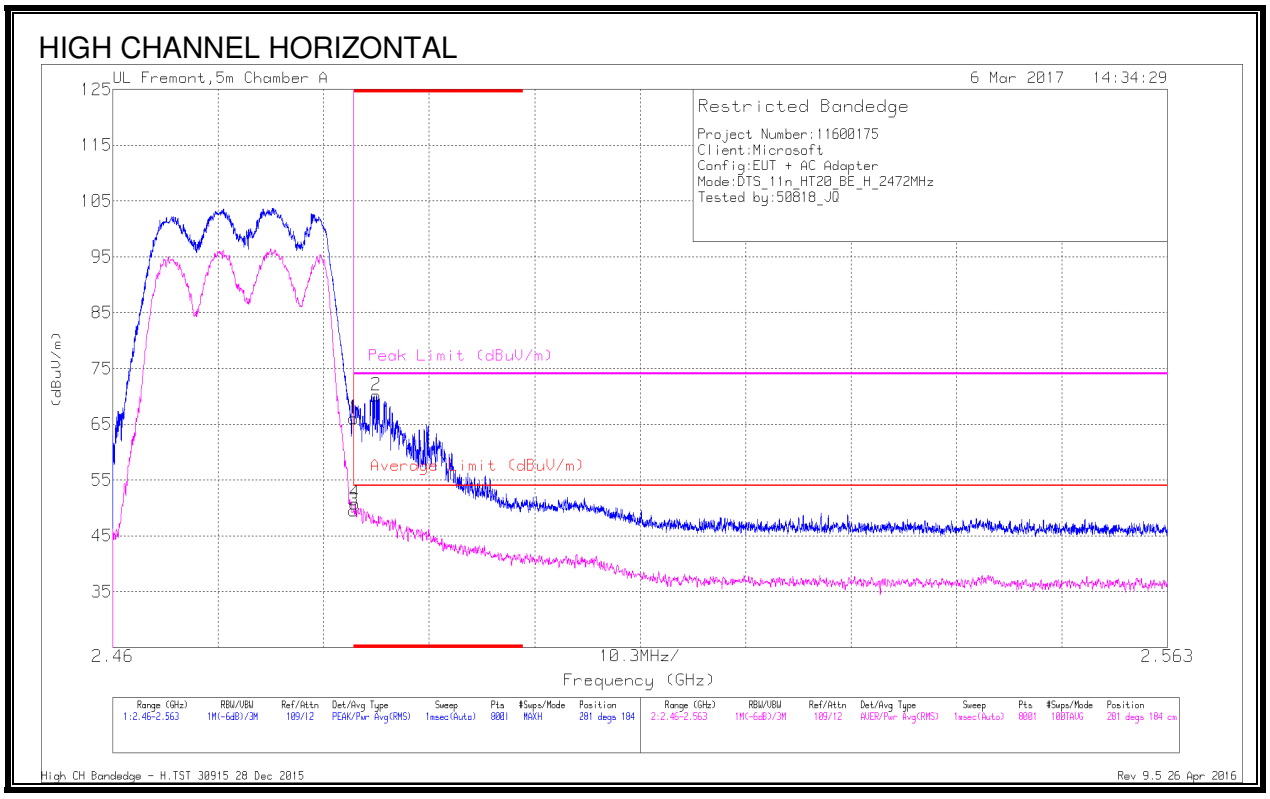


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	54.8	Pk	32.5	-23.6	63.7	-	-	74	-10.3	226	114	V
3	* 2.484	35.4	RMS	32.5	-23.6	44.3	54	-9.7	-	-	226	114	V
2	* 2.486	56.73	Pk	32.6	-23.7	65.63	-	-	74	-8.37	226	114	V
4	* 2.488	37.38	RMS	32.6	-23.7	46.28	54	-7.72	-	-	226	114	V

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

UL VERIFICATION SERVICES INC.
47173 BENICIA STREET, FREMONT, CA 94538, USA TEL: (510) 771-1000 FAX: (510) 661-0888

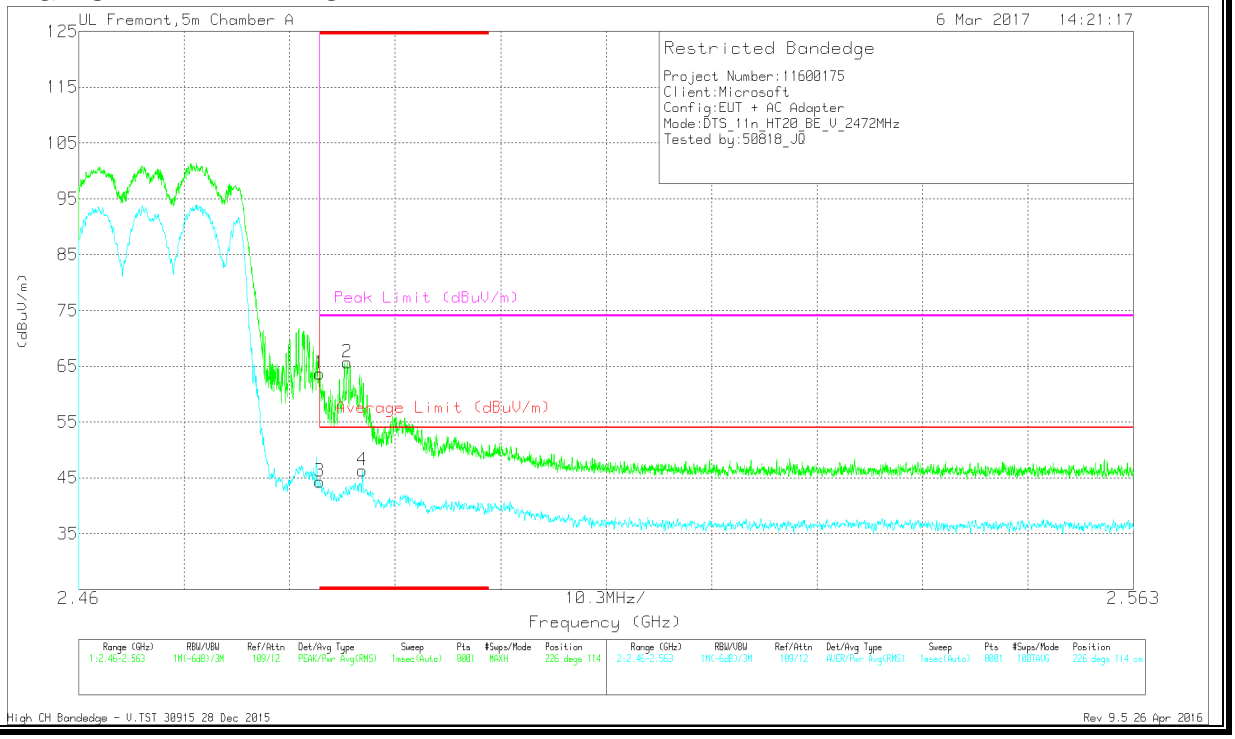
AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 13)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (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	57.18	Pk	32.5	-23.6	66.08	-	-	74	-7.92	281	184	H
2	* 2.486	61.27	Pk	32.6	-23.7	70.17	-	-	74	-3.83	281	184	H
3	* 2.484	40.62	RMS	32.5	-23.6	49.52	54	-4.48	-	-	281	184	H
4	* 2.484	41.93	RMS	32.5	-23.6	50.83	54	-3.17	-	-	281	184	H

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

HIGH CHANNEL VERTICAL

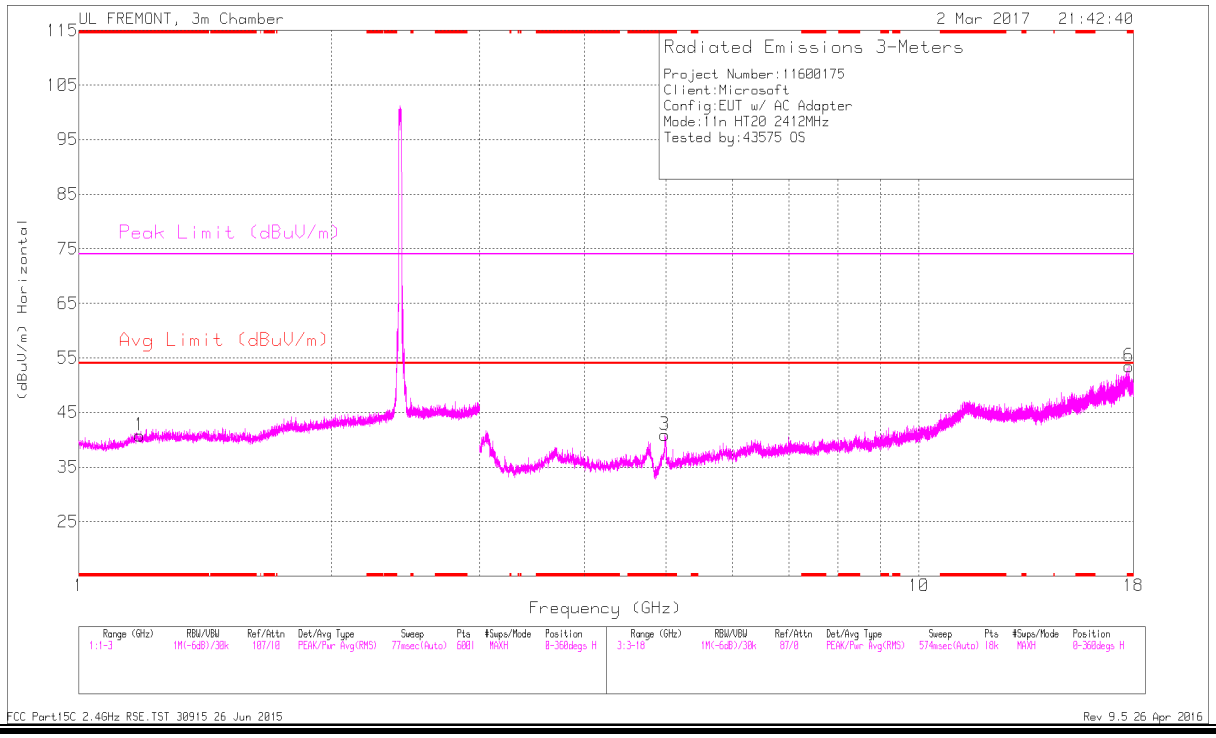


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T711 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	54.8	Pk	32.5	-23.6	63.7	-	-	74	-10.3	226	114	V
2	* 2.486	56.73	Pk	32.6	-23.7	65.63	-	-	74	-8.37	226	114	V
3	* 2.484	35.4	RMS	32.5	-23.6	44.3	54	-9.7	-	-	226	114	V
4	* 2.488	37.38	RMS	32.6	-23.7	46.28	54	-7.72	-	-	226	114	V

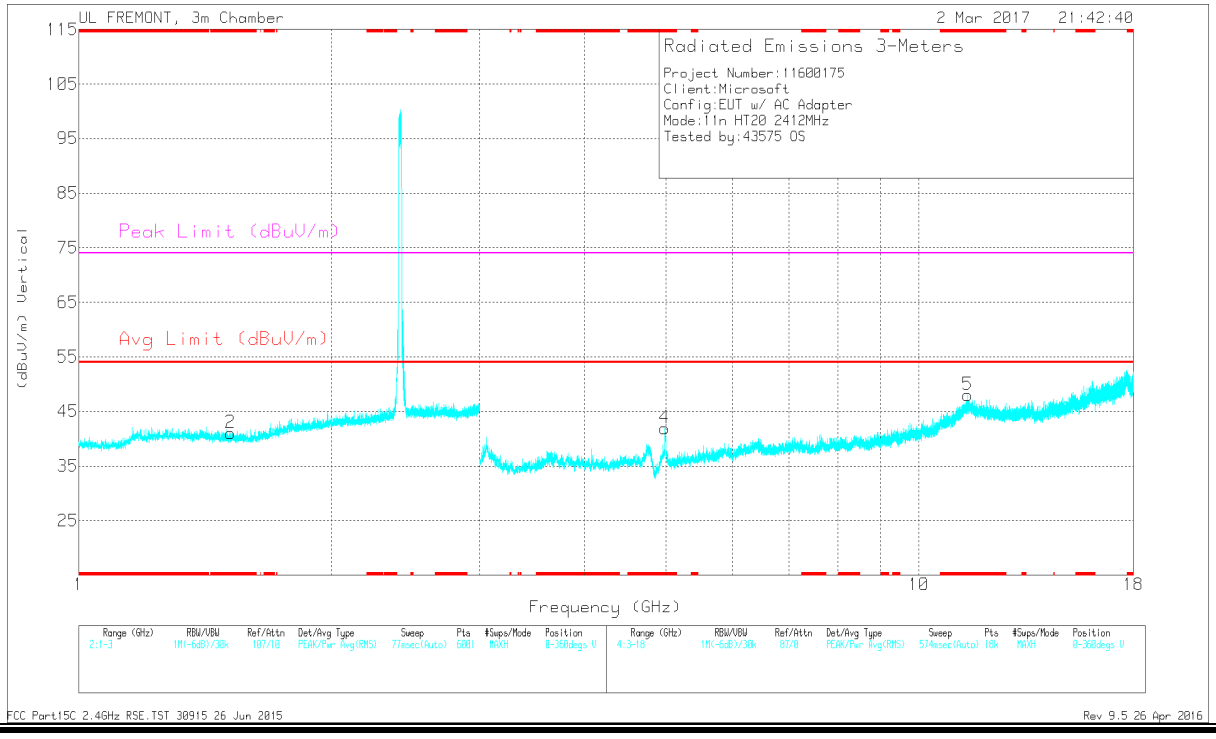
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
Pk - Peak detector
RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS (LOW CHANNEL, CH 1)

LOW CHANNEL HORIZONTAL



LOW CHANNEL VERTICAL

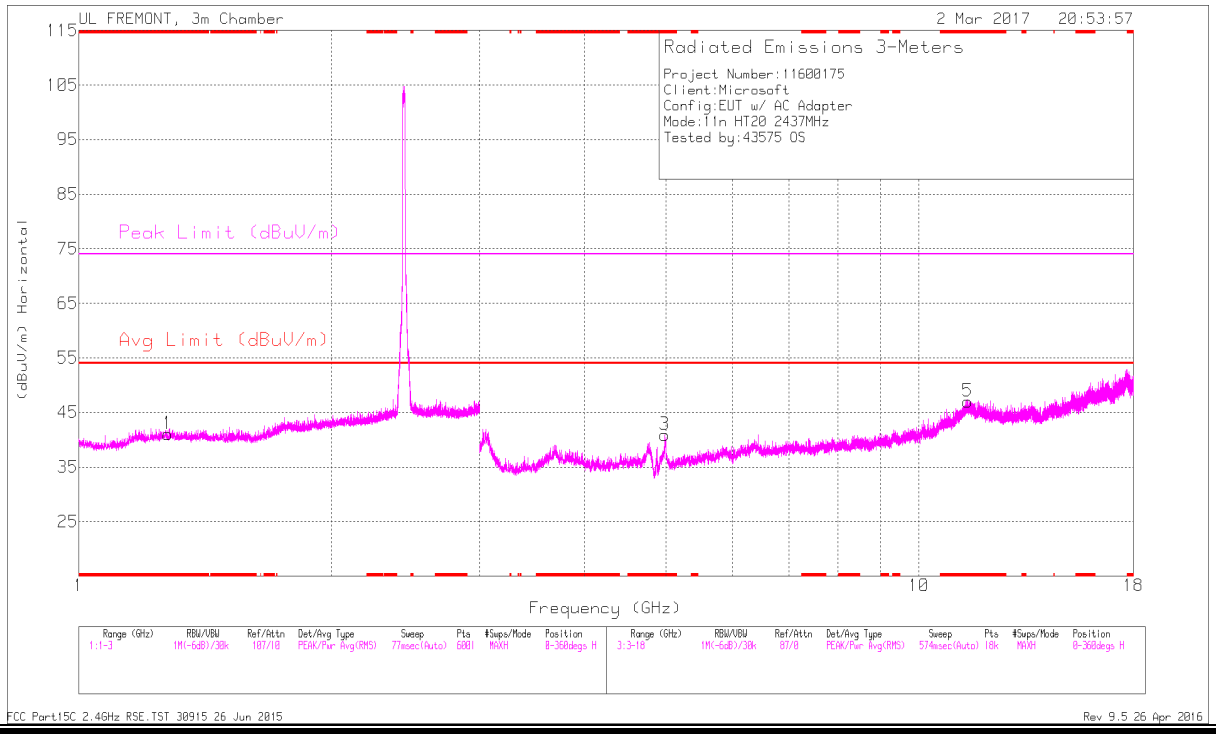


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.183	41.43	PK2	28	-22.2	47.23	-	-	74	-26.77	65	247	H
	* 1.181	29.99	MAv1	28	-22.2	35.79	54	-18.21	-	-	65	247	H
2	* 1.513	40.71	PK2	28.2	-21.7	47.21	-	-	74	-26.79	108	226	V
	* 1.515	29.08	MAv1	28.2	-21.7	35.58	54	-18.42	-	-	108	226	V
3	* 4.985	43.99	PK2	34.1	-28.5	49.59	-	-	74	-24.41	28	150	H
	* 4.984	31.28	MAv1	34.1	-28.5	36.88	54	-17.12	-	-	28	150	H
6	* 17.769	29.49	PK2	41.3	-12.2	58.59	-	-	74	-15.41	78	255	H
	* 17.768	12.28	MAv1	41.3	-12.2	41.38	54	-12.62	-	-	78	255	H
4	* 4.981	43.21	PK2	34.1	-28.4	48.91	-	-	74	-25.09	53	211	V
	* 4.982	29.64	MAv1	34.1	-28.5	35.24	54	-18.76	-	-	53	211	V
5	* 11.437	33.08	PK2	38.1	-17.4	53.78	-	-	74	-20.22	192	155	V
	* 11.436	21.34	MAv1	38.1	-17.4	42.04	54	-11.96	-	-	192	155	V

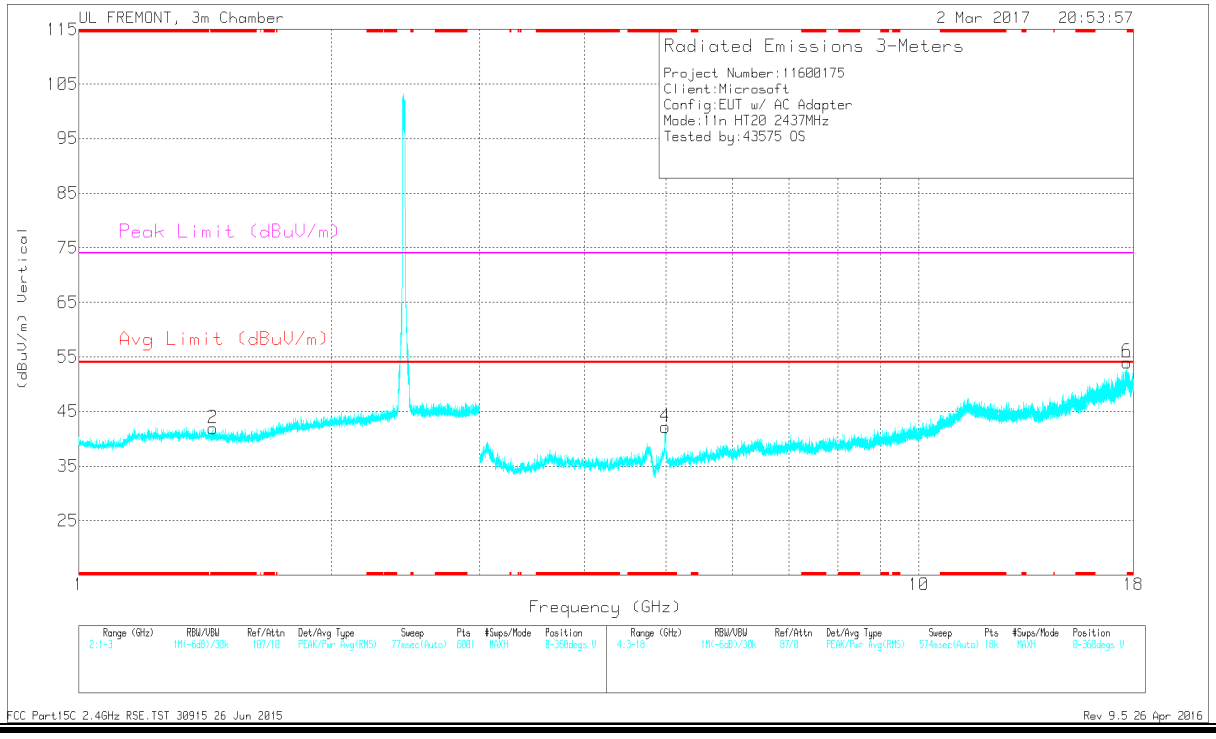
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (MID CHANNEL, CH 6)

MID CHANNEL HORIZONTAL



MID CHANNEL VERTICAL

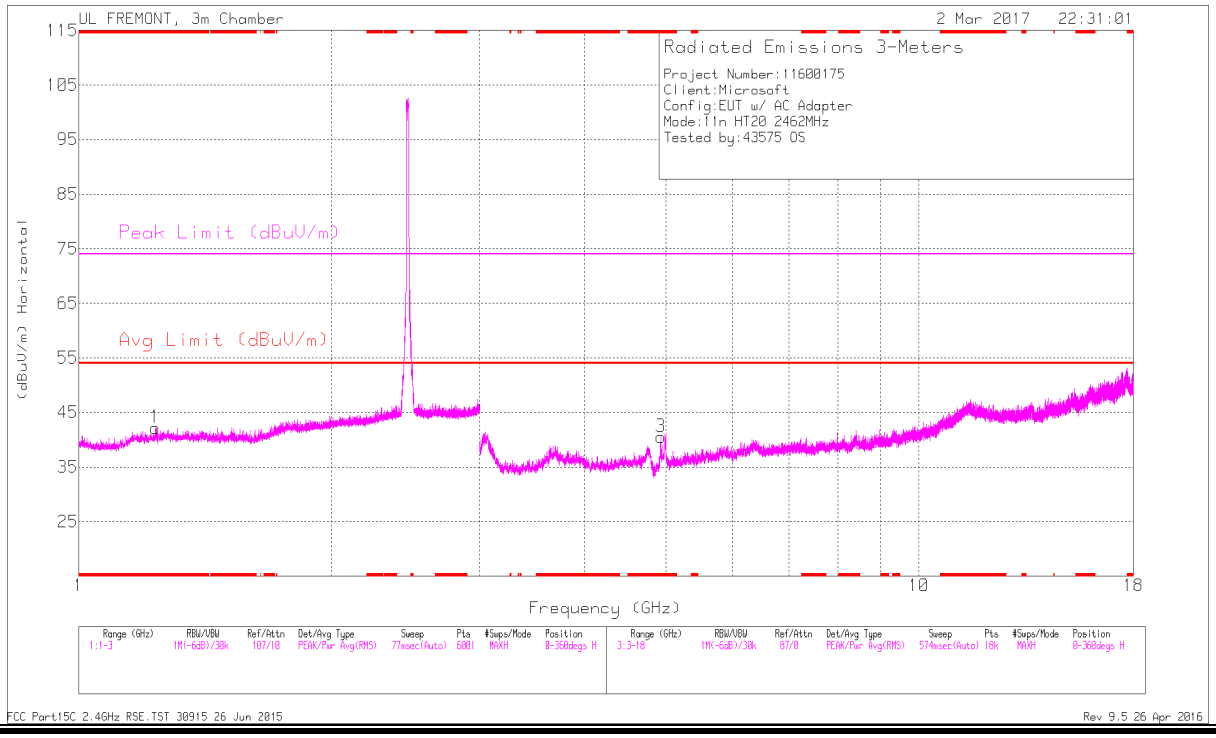


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.278	41.22	PK2	28.9	-22.1	48.02	-	-	74	-25.98	24	192	H
	* 1.277	29.78	MAv1	28.9	-22.1	36.58	54	-17.42	-	-	24	192	H
2	* 1.444	41.34	PK2	28.5	-21.7	48.14	-	-	74	-25.86	28	395	V
	* 1.444	28.59	MAv1	28.5	-21.7	35.39	54	-18.61	-	-	28	395	V
3	* 4.98	43.07	PK2	34.1	-28.4	48.77	-	-	74	-25.23	34	149	H
	* 4.98	30.46	MAv1	34.1	-28.4	36.16	54	-17.84	-	-	34	149	H
5	* 11.429	32.69	PK2	38.1	-17.6	53.19	-	-	74	-20.81	100	193	H
	* 11.431	21.04	MAv1	38.1	-17.5	41.64	54	-12.36	-	-	100	193	H
4	* 4.989	42.69	PK2	34.1	-28.4	48.39	-	-	74	-25.61	28	100	V
	* 4.99	30.28	MAv1	34.1	-28.4	35.98	54	-18.02	-	-	28	100	V
6	17.696	29.82	PK2	41.4	-11.3	59.92	-	-	-	-	324	142	V

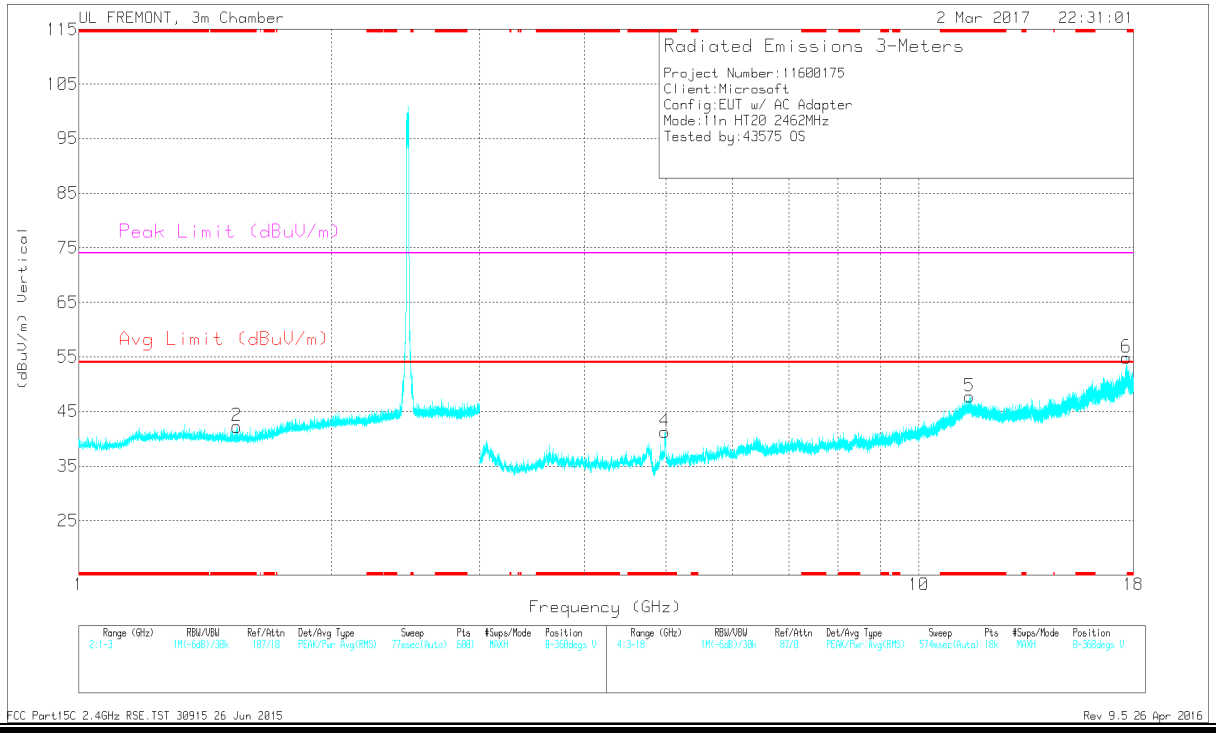
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
PK2 - KDB558074 Method: Maximum Peak
MAv1 - KDB558074 Option 1 Maximum RMS Average

HARMONICS AND SPURIOUS EMISSIONS (HIGH CHANNEL, CH 11)

HIGH CHANNEL HORIZONTAL



HIGH CHANNEL VERTICAL



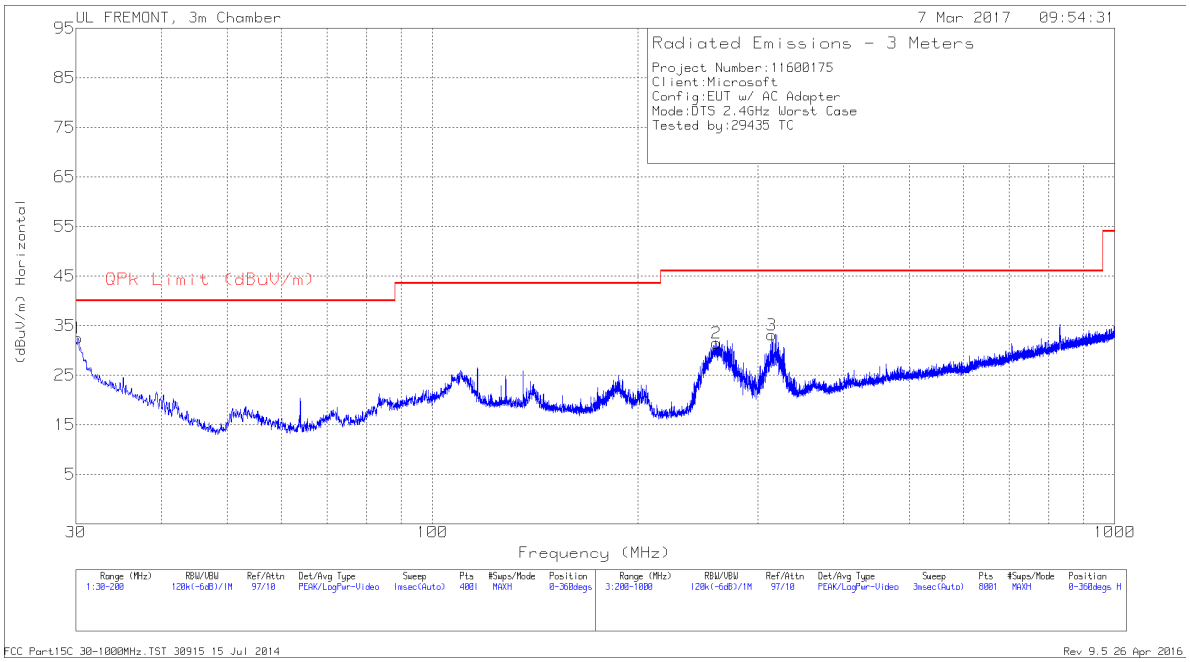
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T712 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.233	43.01	PK2	28.5	-22.2	49.31	-	-	74	-24.69	269	197	H
	* 1.233	30.82	MAv1	28.5	-22.2	37.12	54	-16.88	-	-	269	197	H
2	* 1.543	41	PK2	28.2	-21.7	47.5	-	-	74	-26.5	265	385	V
	* 1.543	29.53	MAv1	28.2	-21.7	36.03	54	-17.97	-	-	265	385	V
3	* 4.926	39.7	PK2	34	-28	45.7	-	-	74	-28.3	113	116	H
	* 4.925	29.3	MAv1	34	-28	35.3	54	-18.7	-	-	113	116	H
4	* 4.982	42.09	PK2	34.1	-28.5	47.69	-	-	74	-26.31	59	105	V
	* 4.98	29.82	MAv1	34.1	-28.4	35.52	54	-18.48	-	-	59	105	V
5	* 11.49	32.95	PK2	38.1	-17.6	53.45	-	-	74	-20.55	310	138	V
	* 11.488	21	MAv1	38.1	-17.6	41.5	54	-12.5	-	-	310	138	V
6	17.672	29.79	PK2	41.4	-11.1	60.09	-	-	-	-	212	283	V

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

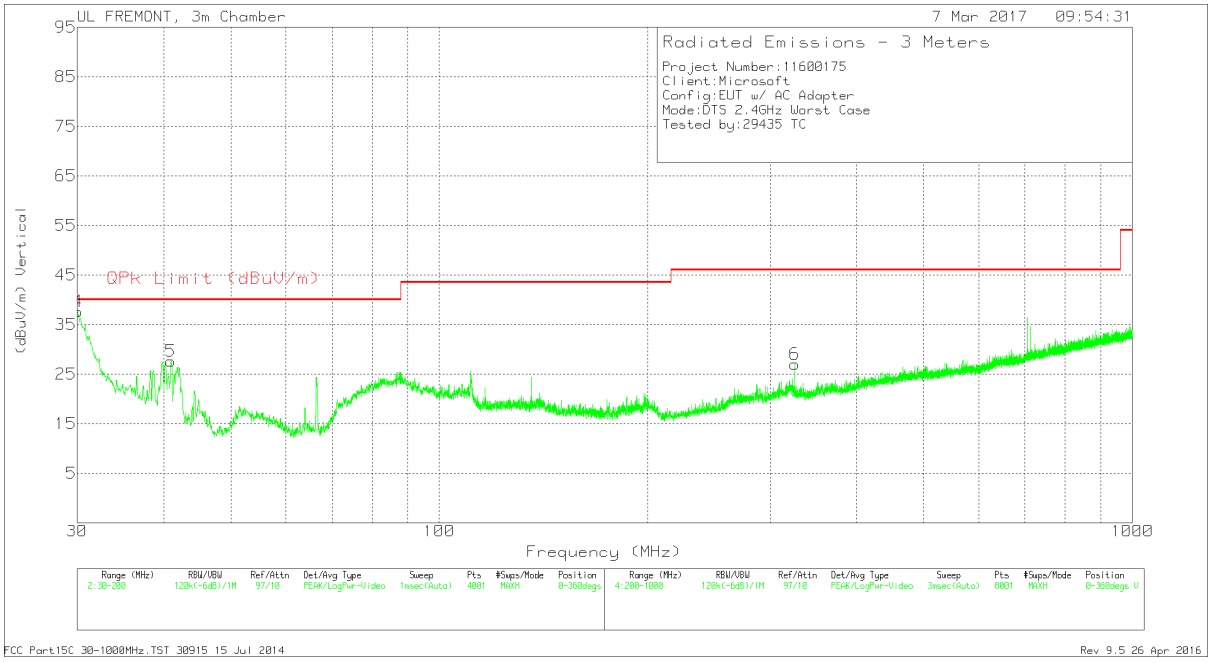
9.3. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



DATA

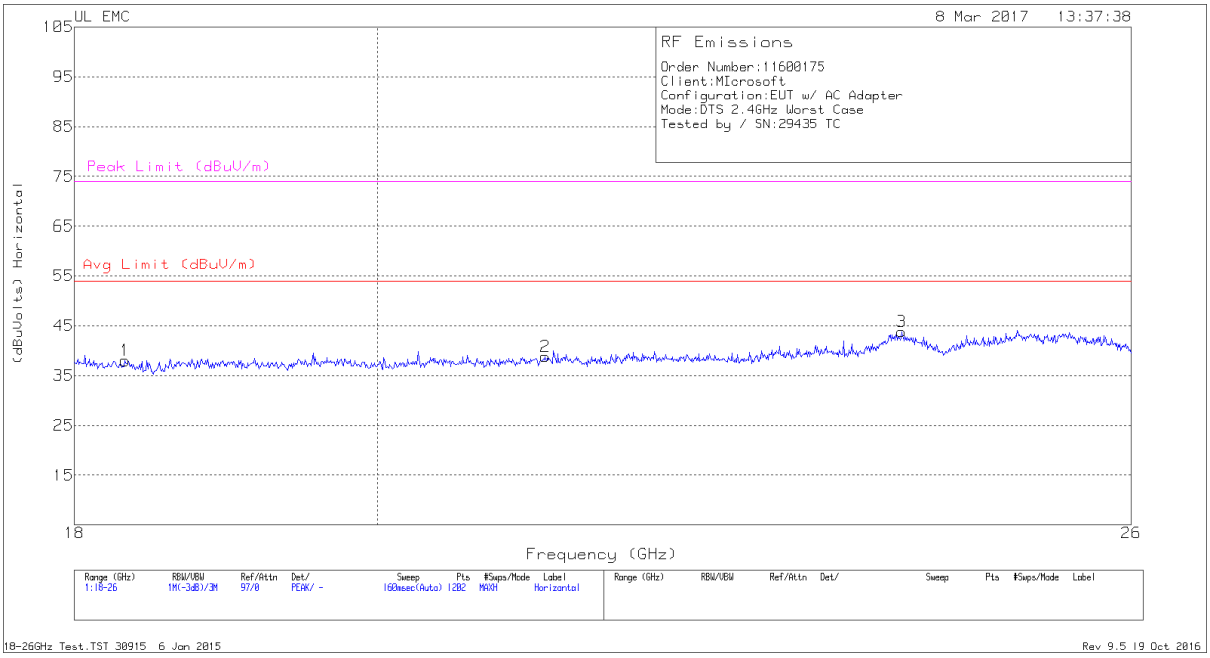
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T408 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	30.0026	35.6	Qp	25.4	-27.3	33.7	40	-6.3	79	100	V
1	30.2125	34.55	Pk	25.2	-27.3	32.45	40	-7.55	0-360	200	H
5	40.9863	37.63	Pk	17.1	-27.1	27.63	40	-12.37	0-360	100	V
2	261	39.73	Pk	16.1	-24.4	31.43	46.02	-14.59	0-360	100	H
3	314	39.49	Pk	17.8	-24.2	33.09	46.02	-12.93	0-360	100	H
6	325.7	33.32	Pk	17.9	-24.2	27.02	46.02	-19	0-360	200	V

Qp - Quasi-Peak detector
Pk - Peak detector

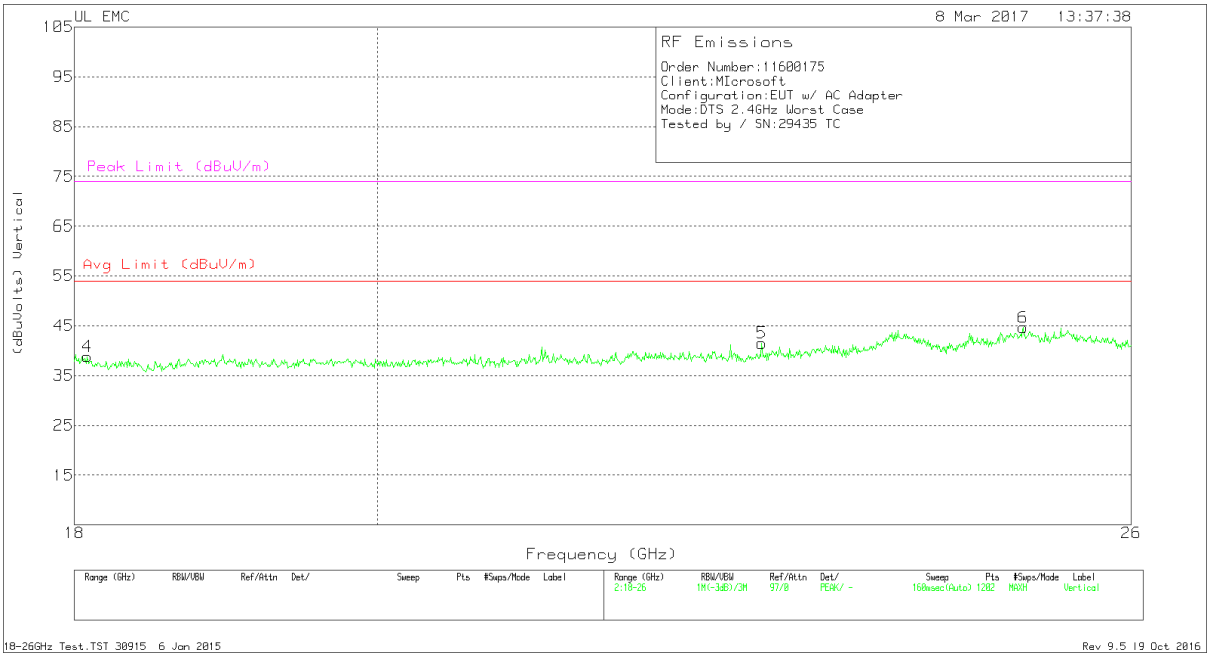
9.4. WORST-CASE 18 to 26 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T449 (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.32	40.4	Pk	32.4	-25.3	-9.5	38	54	-16	74	-36
2	21.204	39.93	Pk	33.1	-24.7	-9.5	38.83	54	-15.17	74	-35.17
3	24.002	43.73	Pk	34	-24.4	-9.5	43.83	54	-10.17	74	-30.17
4	18.08	41.23	Pk	32.5	-25.4	-9.5	38.83	54	-15.17	74	-35.17
5	22.863	42.5	Pk	33.4	-24.9	-9.5	41.5	54	-12.5	74	-32.5
6	25.041	44.67	Pk	34.2	-24.7	-9.5	44.67	54	-9.33	74	-29.33

Pk - Peak detector

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10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (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.

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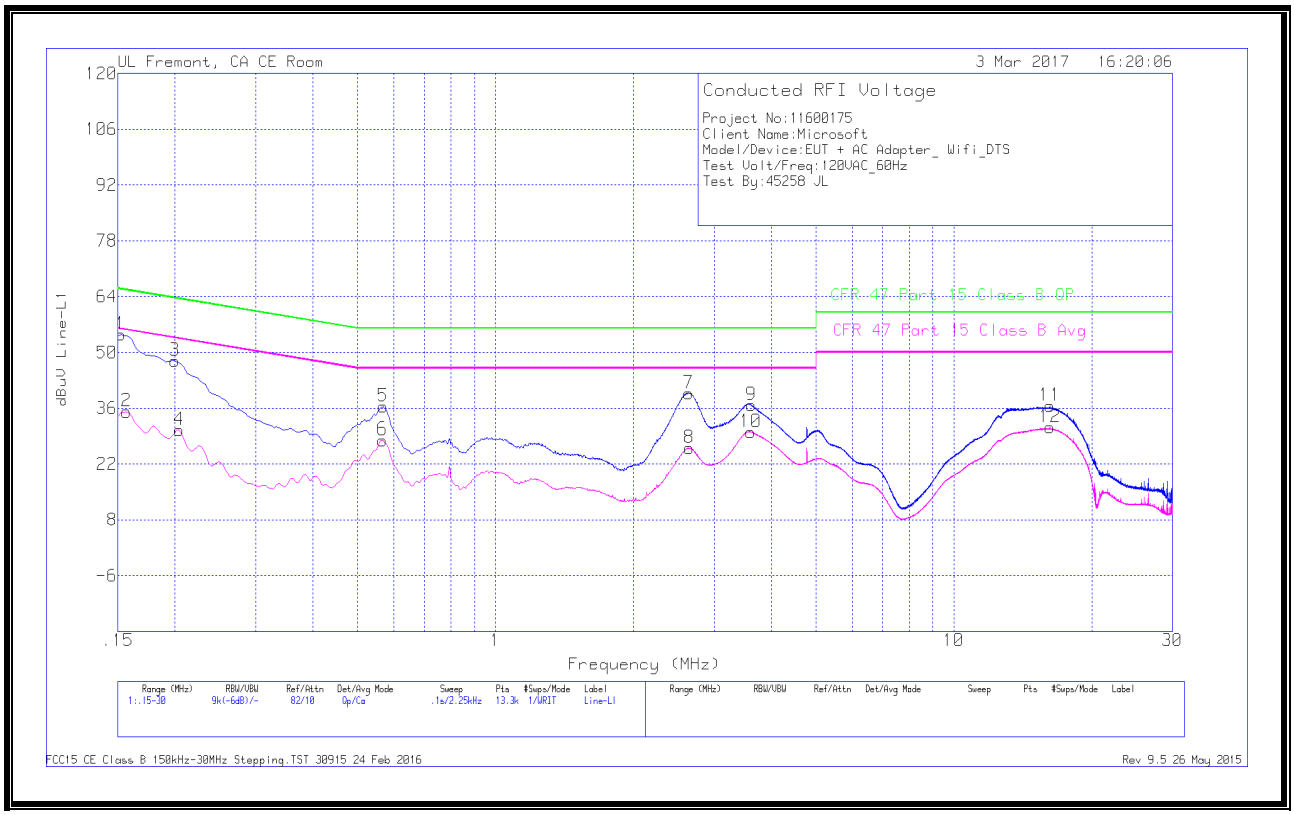
LINE 1 RESULTS



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L1	LC Cables C1&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
1	.15225	44.21	Qp	.1	.1	10.1	54.51	65.88	-11.37	-	-
2	.15675	24.94	Ca	0	.1	10.1	35.14	-	-	55.63	-20.49
3	.1995	37.65	Qp	0	.1	10.1	47.85	63.63	-15.78	-	-
4	.204	20.38	Ca	0	.1	10.1	30.58	-	-	53.45	-22.87
5	.5685	26.18	Qp	0	.1	10.1	36.38	56	-19.62	-	-
6	.56625	17.81	Ca	0	.1	10.1	28.01	-	-	46	-17.99
7	2.64075	29.61	Qp	0	.1	10.1	39.81	56	-16.19	-	-
8	2.64525	15.87	Ca	0	.1	10.1	26.07	-	-	46	-19.93
9	3.61275	26.64	Qp	0	.1	10.1	36.84	56	-19.16	-	-
10	3.6105	19.84	Ca	0	.1	10.1	30.04	-	-	46	-15.96
11	16.2285	26.08	Qp	0	.2	10.3	36.58	60	-23.42	-	-
12	16.2285	20.72	Ca	0	.2	10.3	31.22	-	-	50	-18.78

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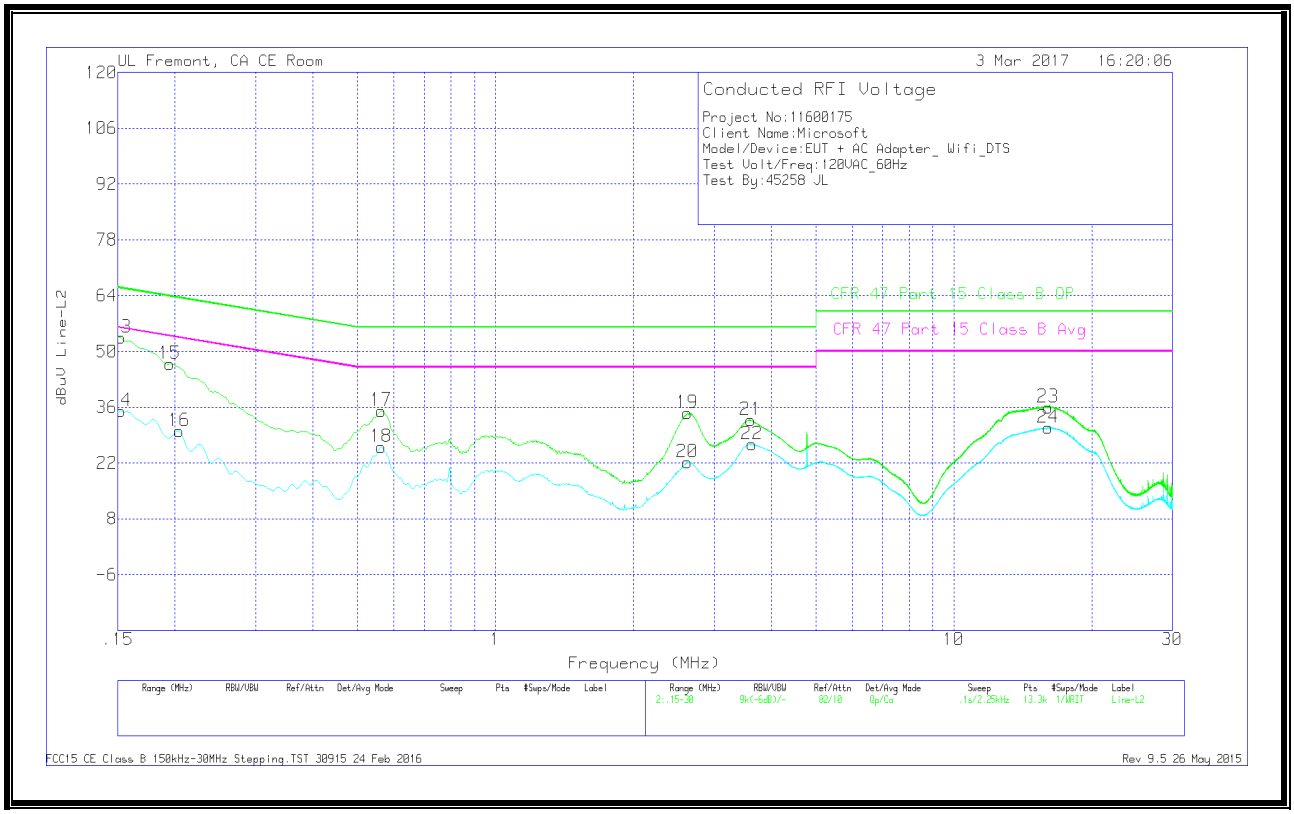
LINE 2 RESULTS



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
13	.15225	43.35	Qp	0	0	10.1	53.45	65.88	-12.43	-	-
14	.15225	24.96	Ca	0	0	10.1	35.06	-	-	55.88	-20.82
15	.195	36.62	Qp	0	.1	10.1	46.82	63.82	-17	-	-
16	.204	19.88	Ca	0	.1	10.1	30.08	-	-	53.45	-23.37
17	.564	24.93	Qp	0	.1	10.1	35.13	56	-20.87	-	-
18	.564	15.75	Ca	0	.1	10.1	25.95	-	-	46	-20.05
19	2.625	24.26	Qp	0	.1	10.1	34.46	56	-21.54	-	-
20	2.625	11.94	Ca	0	.1	10.1	22.14	-	-	46	-23.86
21	3.60938	22.62	Qp	0	.1	10.1	32.82	56	-23.18	-	-
22	3.62625	16.49	Ca	0	.1	10.1	26.69	-	-	46	-19.31
23	16.0755	25.5	Qp	0	.2	10.3	36	60	-24	-	-
24	16.0665	20.32	Ca	0	.2	10.3	30.82	-	-	50	-19.18