



**FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-247 ISSUE 1**

CERTIFICATION TEST REPORT

FOR

APPLE WATCH

MODEL NUMBER: A1802

**FCC ID: BCG-E3102
IC: 579C-E3102**

REPORT NUMBER: 16U23780-E3V3

ISSUE DATE: AUGUST 27, 2016

Prepared for
**APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.**

Prepared by
**UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	08/15/2016	Initial Issue	Mengistu Mekuria
V2	08/26/2016	Revised report to address TCB's questions	Tina Chu
V3	08/27/2016	Revised Section 5.5 and Section 11	Tina Chu

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	6
4.1. MEASURING INSTRUMENT CALIBRATION	6
4.2. SAMPLE CALCULATION	6
4.3. MEASUREMENT UNCERTAINTY	7
5. EQUIPMENT UNDER TEST	8
5.1. DESCRIPTION OF EUT	8
5.2. MAXIMUM OUTPUT POWER.....	8
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	8
5.4. SOFTWARE AND FIRMWARE.....	8
5.5. WORST-CASE CONFIGURATION AND MODE	9
5.6. DESCRIPTION OF TEST SETUP.....	10
6. TEST AND MEASUREMENT EQUIPMENT	14
7. MEASUREMENT METHODS	15
8. ANTENNA PORT TEST RESULTS	16
8.1. 802.11b SISO MODE IN THE 2.4 GHz BAND	18
8.1.1. 6 dB BANDWIDTH.....	18
8.1.2. 99% BANDWIDTH.....	22
8.1.3. AVERAGE POWER.....	26
8.1.4. OUTPUT POWER	27
8.1.5. POWER SPECTRAL DENSITY	29
8.1.6. OUT-OF-BAND EMISSIONS	33
8.2. 802.11g SISO MODE IN THE 2.4 GHz BAND	39
8.3. 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND.....	40
8.3.1. 6 dB BANDWIDTH.....	40
8.3.2. 99% BANDWIDTH.....	44
8.3.3. AVERAGE POWER.....	48
8.3.4. OUTPUT POWER	49
8.3.5. POWER SPECTRAL DENSITY	51
8.3.6. OUT-OF-BAND EMISSIONS	55
9. RADIATED TEST RESULTS.....	61
9.1. LIMITS AND PROCEDURE	61
9.2. TRANSMITTER ABOVE 1 GHz	62
9.2.1. 802.11b 1Tx MODE IN THE 2.4 GHz BAND	62
9.2.2. 802.11HT20 1Tx MODE IN THE 2.4 GHz BAND	76

9.3.	<i>WORST-CASE BELOW 1 GHz</i>	90
9.4.	<i>WORST-CASE 18 to 26 GHz</i>	93
10.	AC POWER LINE CONDUCTED EMISSIONS	95
11.	SETUP PHOTOS	96

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: APPLE WATCH

MODEL: A1802

SERIAL NUMBER: FM7RM045H91M

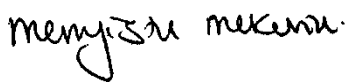
DATE TESTED: JUNE 28 – AUGUST 03, 2016

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

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

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

Approved & Released For
UL Verification Services Inc. By:



MENGISTU MEKURIA
PROJECT LEADER
UL VERIFICATION SERVICES INC.

Prepared By:



TOM CHEN
EMC ENGINEER
UL VERIFICATION SERVICES INC.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, KDB 558074 D01 v03r05, ANSI C63.10-2013, RSS-GEN Issue 4, and RSS-247 Issue 1.

3. FACILITIES AND ACCREDITATION

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

47173 Benicia Street	47266 Benicia Street
☐ Chamber A	☐ 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 H are covered under Industry Canada company address code 2324B with site numbers 2324B -1 through 2324B-8, respectively.

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an Apple Watch with WLAN, Bluetooth and NFC support.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted output power as follows:

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2412 - 2472	802.11b 1TX	22.61	182.39
2412 - 2472	802.11g 1TX	Covered by HT20 1TX	
2412 - 2472	802.11n HT20 1TX	25.04	319.15

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band (GHz)	Antenna Gain (dBi)
	Antenna 1
2.4	-10.50

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 14S310.

5.5. WORST-CASE CONFIGURATION AND MODE

EUT has 1 type of enclosure and various kinds of metallic and non-metallic wristbands. There are 2 types of metallic bands; Metal Links, and Metal Mesh. The worst-case configuration was investigated within these combinations charging with/without wireless charger by AC/DC adapter and it was determined that EUT with wristband without wireless charger was the worst-case; therefore, all final above 1G radiated testing was performed with this configuration. There is no significant difference among various kinds of wristbands.

Radiated emission below 1G worst case was investigated and was determined that EUT with wristband with wireless charger charging by AC/DC adapter 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 Z - portrait orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in Z - portrait orientation.

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

802.11b mode: 1 Mbps
802.11g mode: 6 Mbps
802.11n HT20 mode: MCS0

802.11g and 802.11n HT20 1TX have the same target power and use the same modulation (OFDM). Therefore, 802.11g 1TX is covered by 802.11n HT20 1TX.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop AC/DC adapter	Lenovo	92P1160	11S92P1160Z1ZBGH798B12	N/A
Laptop	Lenovo	7659	L3-AL664 08/03	N/A
Wireless Charger	Apple	A1768	DLC616200ZYHE1Y835	BCGA1768
AC/DC adapter	Apple	A1385	D293154U2DTDHLHCW	N/A
Test jig	Apple	-	OYOOH217	N/A

I/O CABLES (CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	Antenna	1	SMA	Un-Shielded	0.2	To spectrum Analyzer
2	USB	1	USB to mini USB	Shielded	1	To laptop and fixture

I/O CABLES (ABOVE 1G RADIATED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
None used						

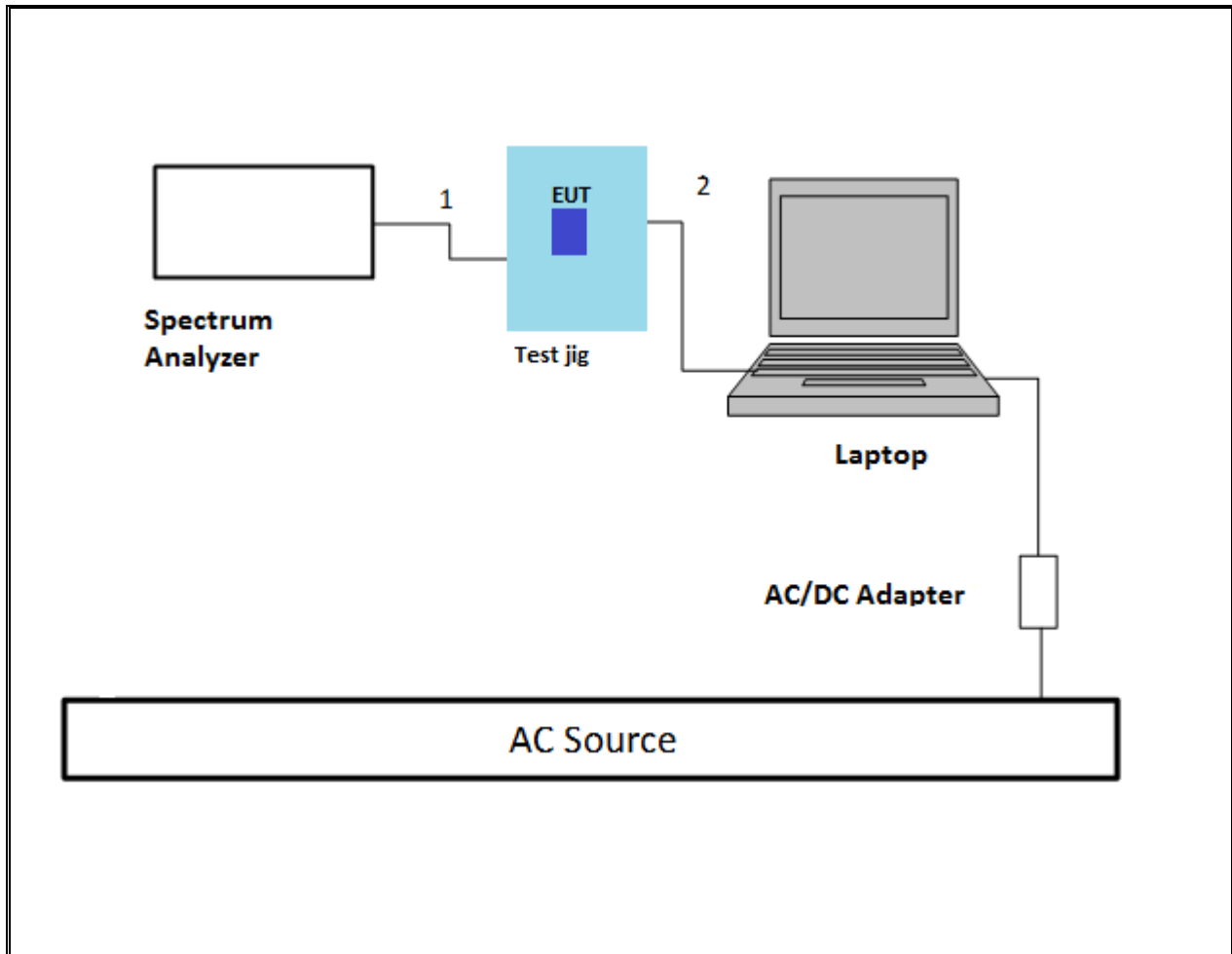
I/O CABLES (BELOW 1G RADIATED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	USB	1	USB	Un-Shielded	2	To AC/DC adapter

TEST SETUP- CONDUCTED PORT

The EUT was placed in a test jig and test jig connected to a host Laptop via USB cable adapter and spectrum analyzer to antenna port. Test software exercised the EUT.

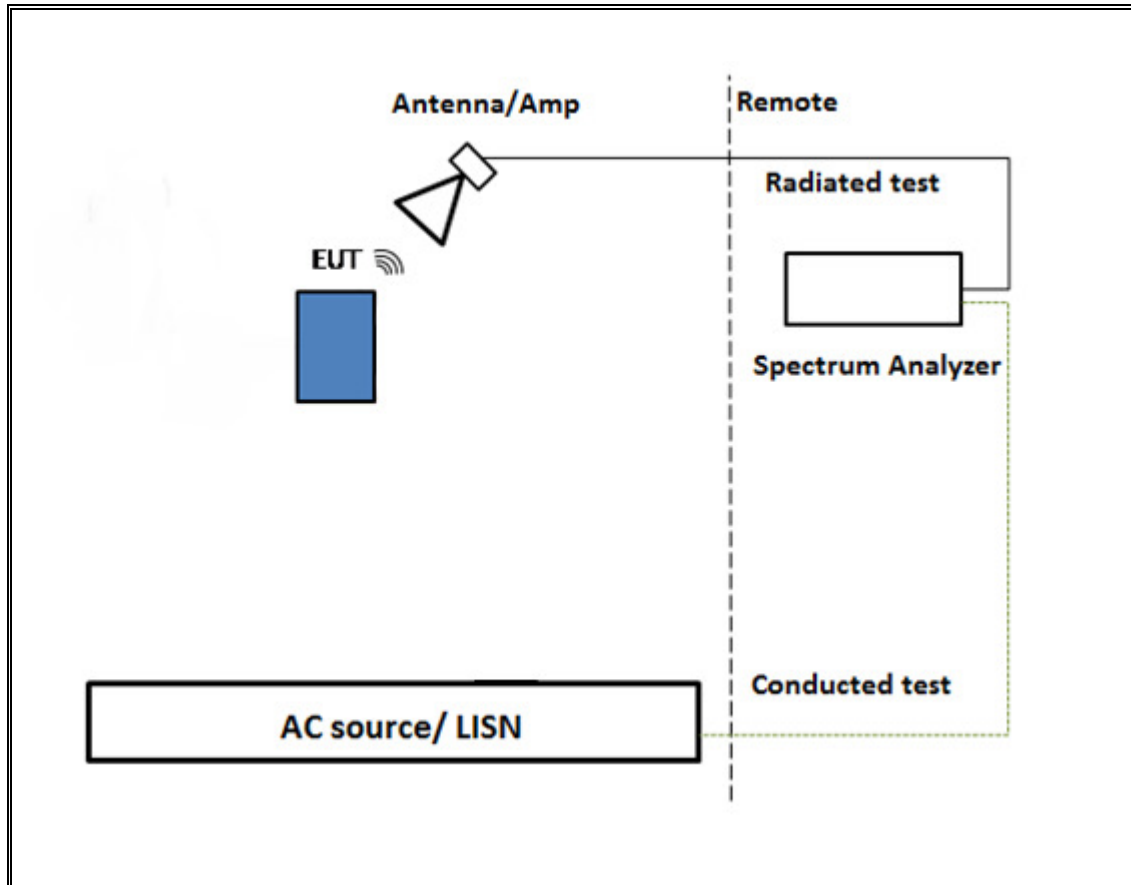
SETUP DIAGRAM



TEST SETUP- ABOVE 1GHZ TESTS

EUT was powered by battery. Test software exercised the EUT.

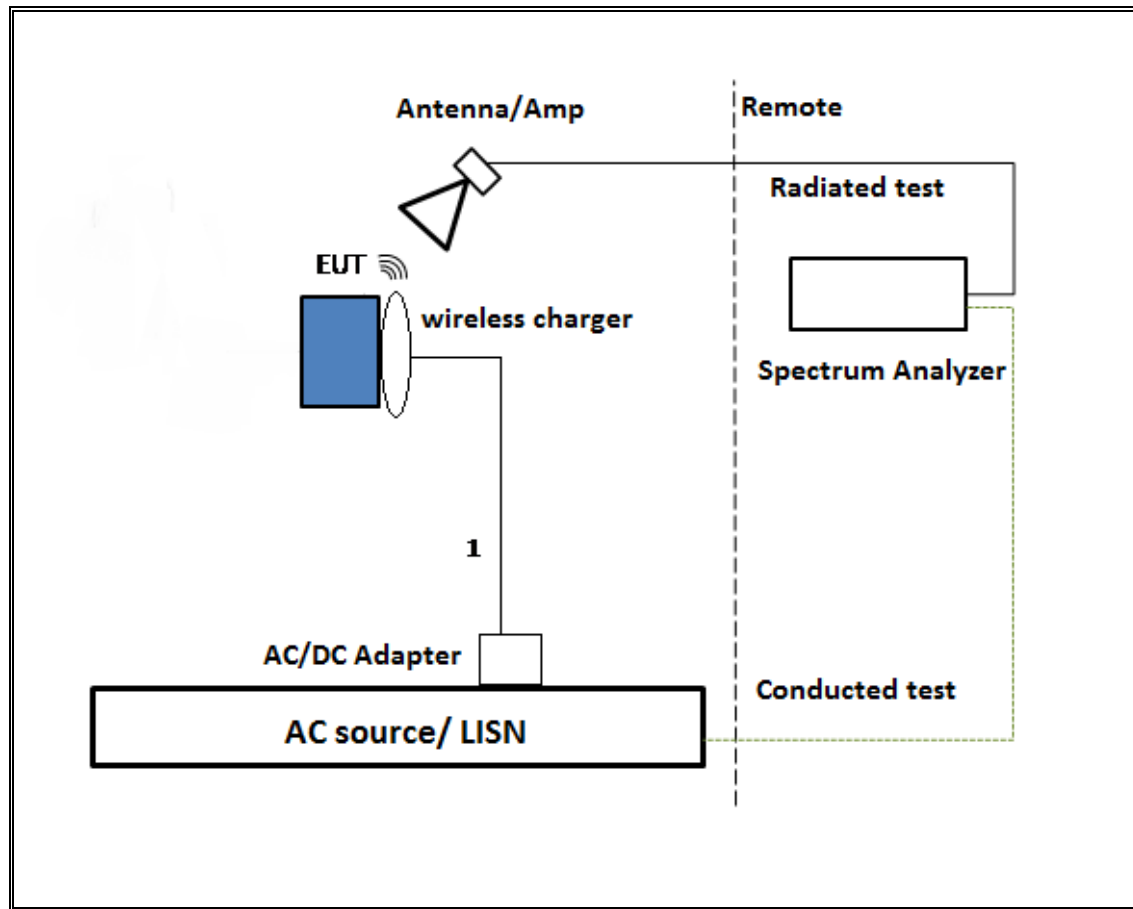
SETUP DIAGRAM



TEST SETUP- BELOW 1GHZ TESTS

EUT was powered by battery and charged by AC/DC adapter via USB cable with wireless charger Test software exercised the EUT.

SETUP DIAGRAM



6. TEST AND MEASUREMENT EQUIPMENT

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

Test Equipment List				
Description	Manufacturer	Model	T Number	Cal Due
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T120	4/5/2017
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T122	1/29/2017
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T173	6/17/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T341	10/14/2016
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T862	4/18/2017
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T899	5/26/2017
Amplifier, 1 - 18GHz	Miteq	AFS42-00101800-25-S-42	T491	5/31/2017
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T834	6/17/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent	N9030A	T905	6/21/2017
**Power Meter, P-series single channel	Agilent	N1911A	T1271	7/8/2017
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Agilent	N1921A	T1228	6/20/2017
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826	T447	6/16/2017
Spectrum Analyzer, 40 GHz	Agilent	8564E	T106	8/13/2016
Amplifier, 1 to 26.5GHz, 23.5dB Gain minimum	Keysight	8449B	T402	7/5/2017
UL SOFTWARE				
* Radiated Software	UL	UL EMC	Ver 9.5, June 24, 2015	
* Conducted Software	UL	UL EMC	Ver 4.0, January 11, 2016	

Note: * indicates automation software version used in the compliance certification testing
** equipment was set to test after the calibration.

7. MEASUREMENT METHODS

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

Output Power: KDB 558074 D01 v03r05, Section 9.1.2.

Power Spectral Density: KDB 558074 D01 v03r05, Section 10.2.

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.

8. ANTENNA PORT TEST RESULTS

ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

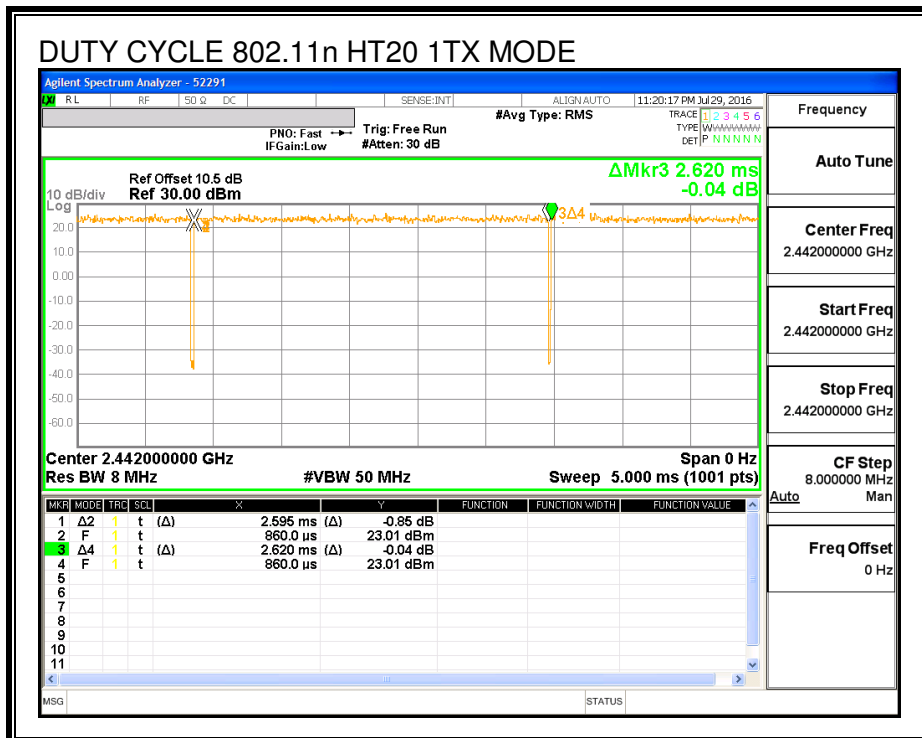
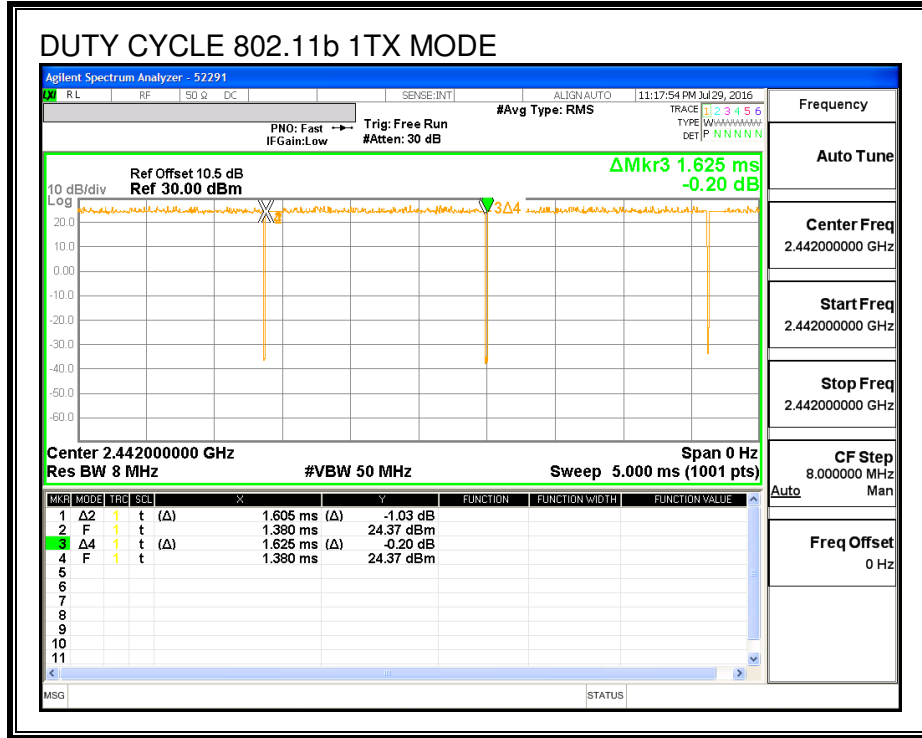
PROCEDURE

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)
2.4GHz Band						
802.11b 1TX	1.605	1.625	0.988	98.77%	0.00	0.010
802.11n HT20 1TX	2.595	2.620	0.990	99.05%	0.00	0.010

DUTY CYCLE PLOTS



8.1. 802.11b SISO MODE IN THE 2.4 GHz BAND

8.1.1. 6 dB BANDWIDTH

LIMITS

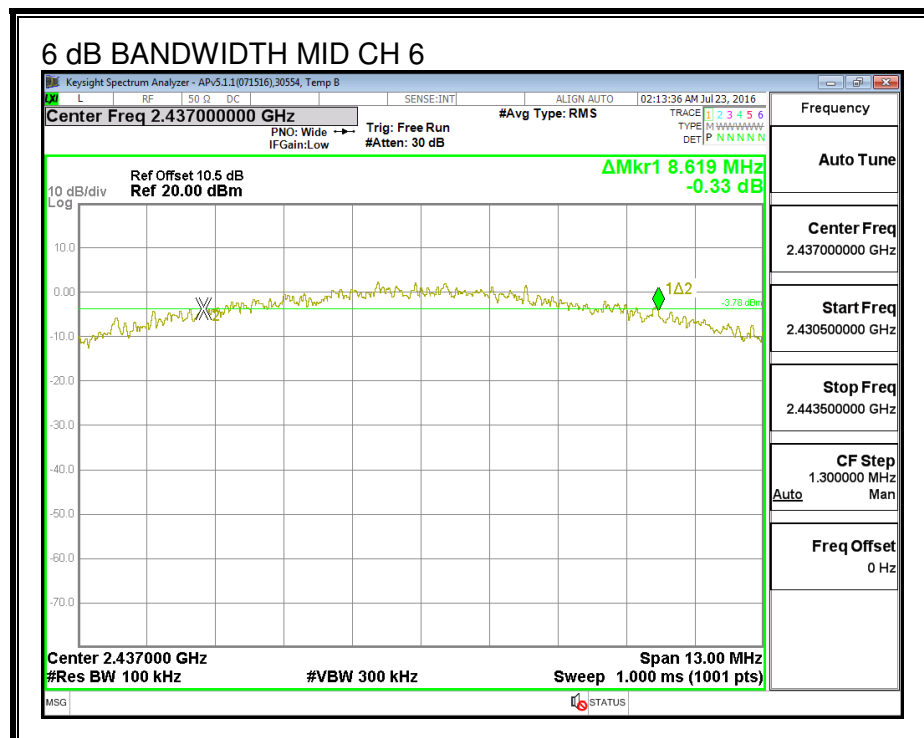
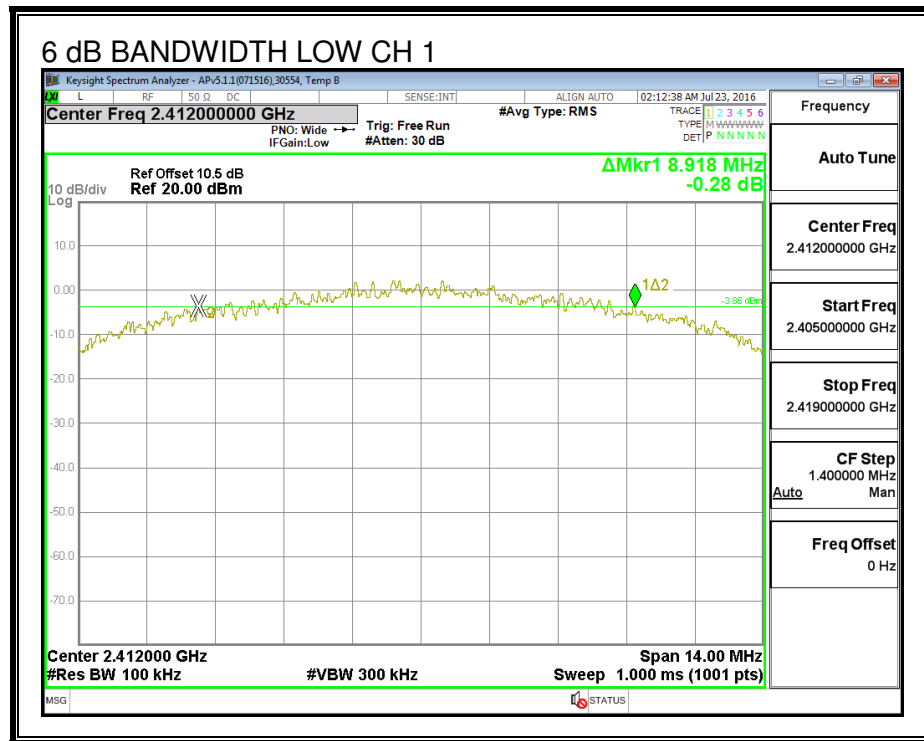
FCC §15.247 (a) (2)

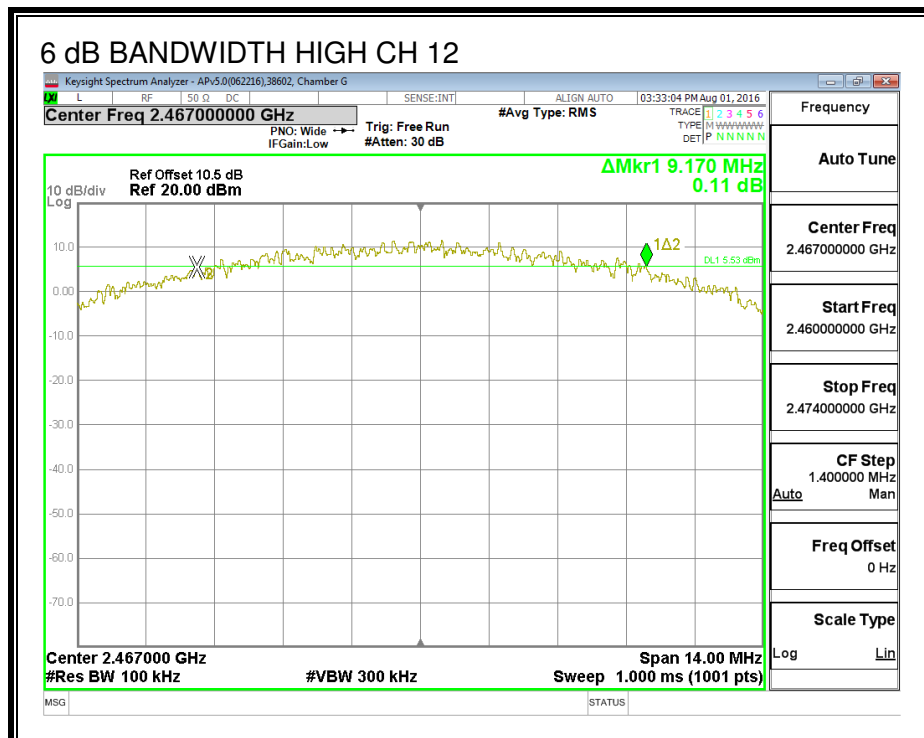
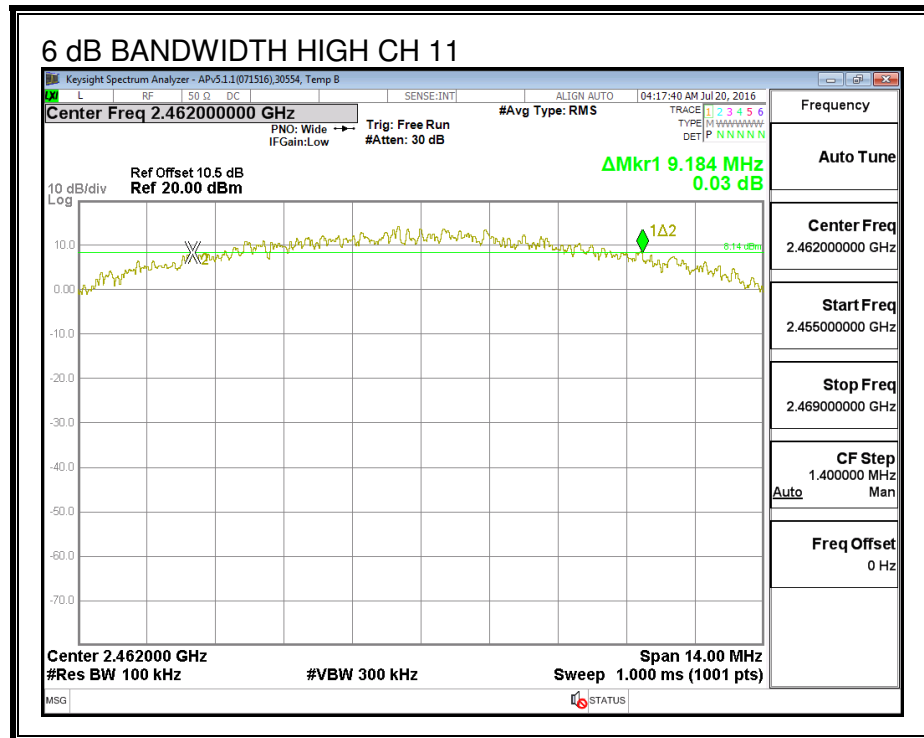
IC RSS-247 (5.2) (1)

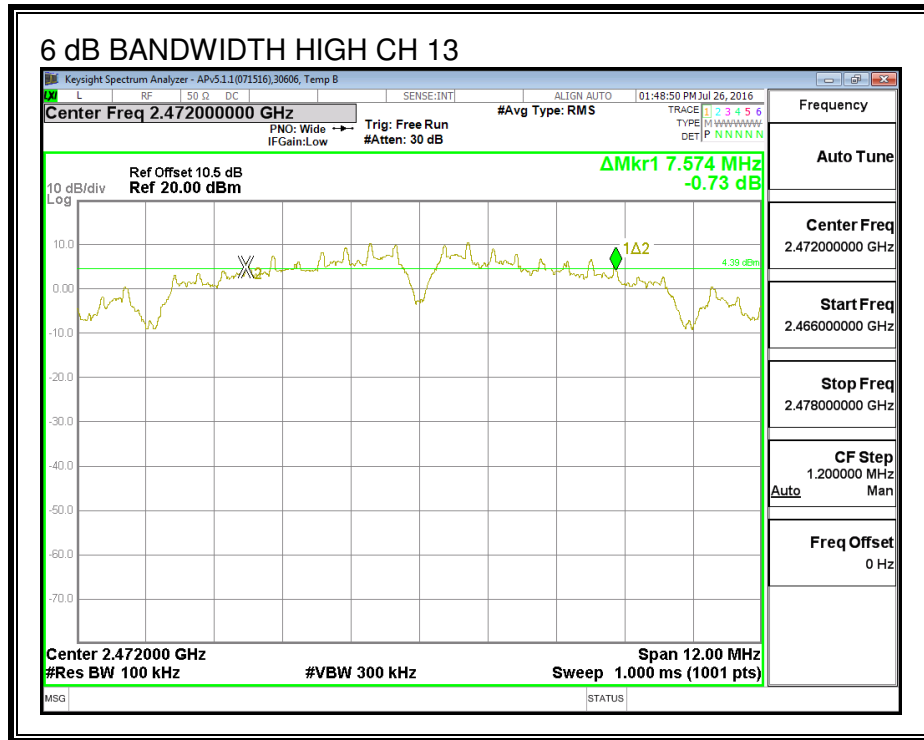
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2412	8.918	0.5
Mid	2437	8.619	0.5
High_11	2462	9.184	0.5
High_12	2467	9.170	0.5
High_13	2472	7.574	0.5







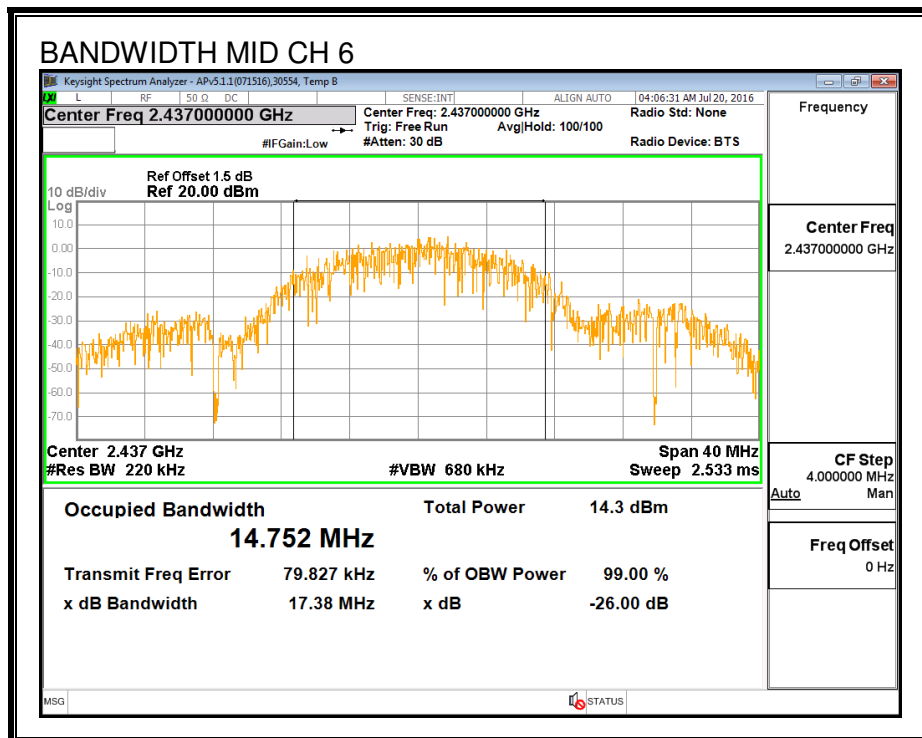
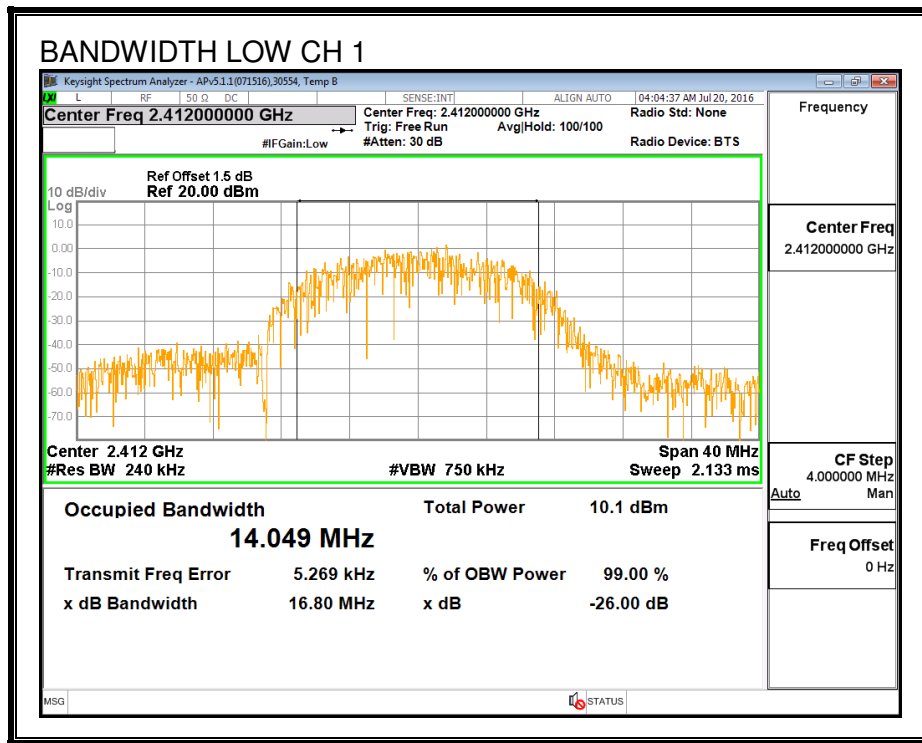
8.1.2. 99% BANDWIDTH

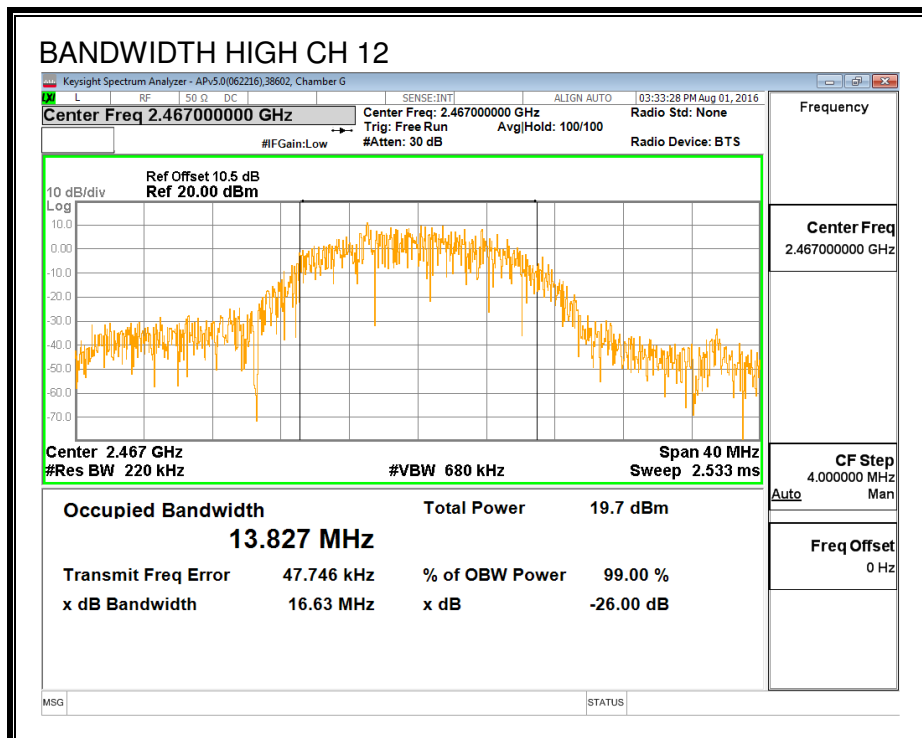
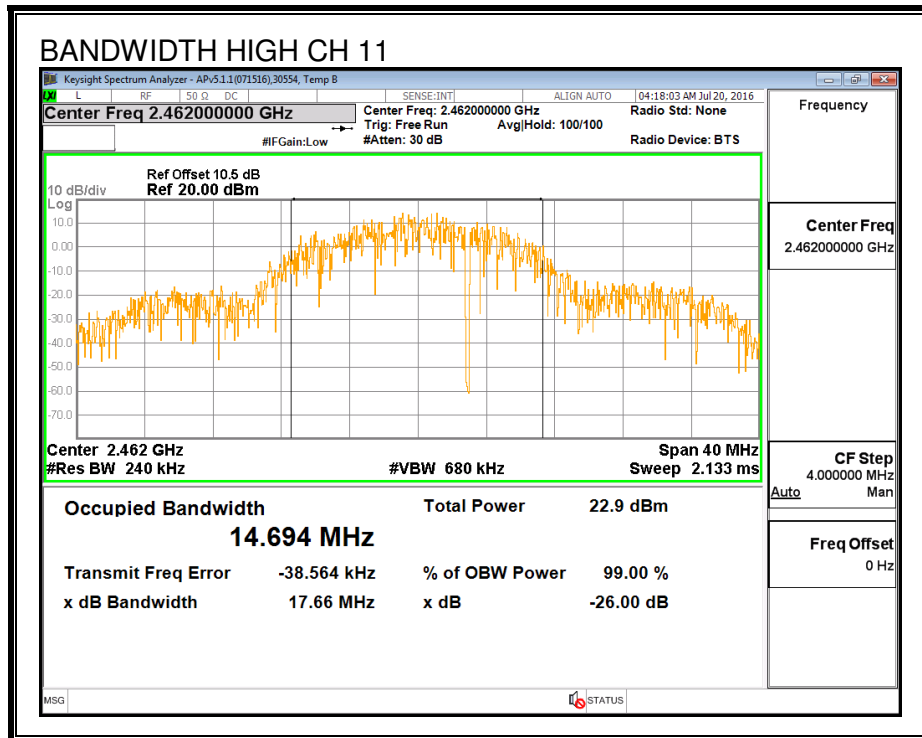
LIMITS

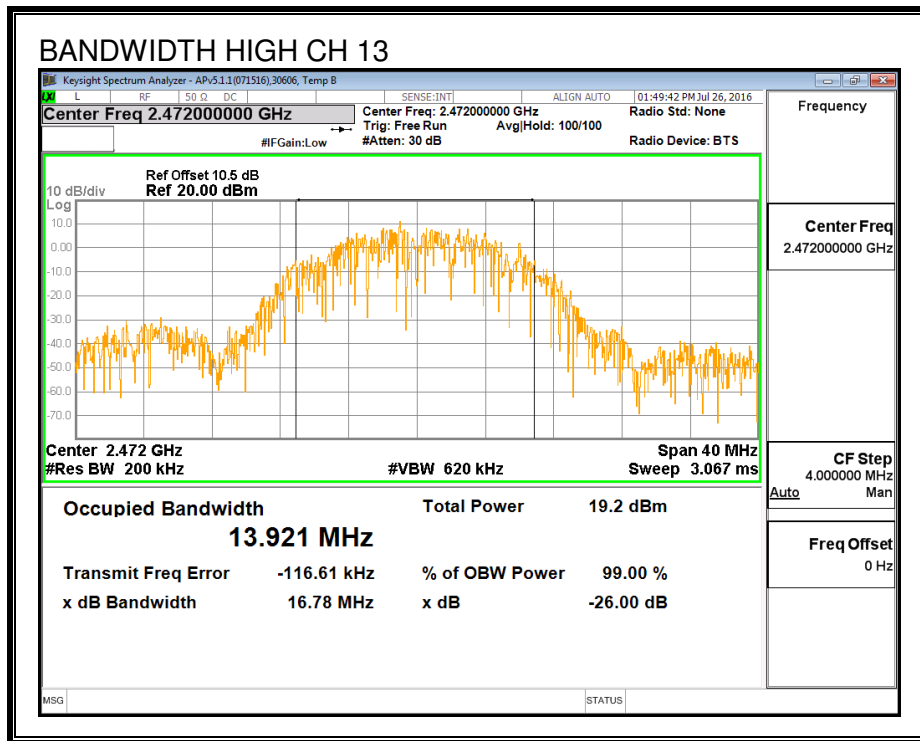
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low 1	2412	14.049
Mid 6	2437	14.752
High_11	2462	14.694
High_12	2467	13.827
High_13	2472	13.921







8.1.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

ID:	44388	Date:	7/26/16
------------	-------	--------------	---------

Channel	Frequency (MHz)	Power (dBm)
Low	2412	19.48
Mid	2437	20.38
High_11	2462	20.46
High_12	2467	20.41
High_13	2472	18.93

8.1.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (4)

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

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

ID:	44388	Date:	7/26/16
------------	-------	--------------	---------

Limits

Channel	Frequency (MHz)	Directional Gain (dBi)	FCC Power Limit (dBm)	IC Power Limit (dBm)	IC EIRP Limit (dBm)	Max Power (dBm)
Low	2412	-10.50	30.00	30	36	30.00
Mid	2437	-10.50	30.00	30	36	30.00
High_11	2462	-10.50	30.00	30	36	30.00
High_12	2467	-10.50	30.00	30	36	30.00
High_13	2472	-10.50	30.00	30	36	30.00

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

Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low	2412	21.53	21.53	30.00	-8.47
Mid	2437	22.22	22.22	30.00	-7.78
High_11	2462	22.61	22.61	30.00	-7.39
High_12	2467	22.30	22.30	30.00	-7.70
High_13	2472	20.92	20.92	30.00	-9.08

8.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 (5.2) (2)

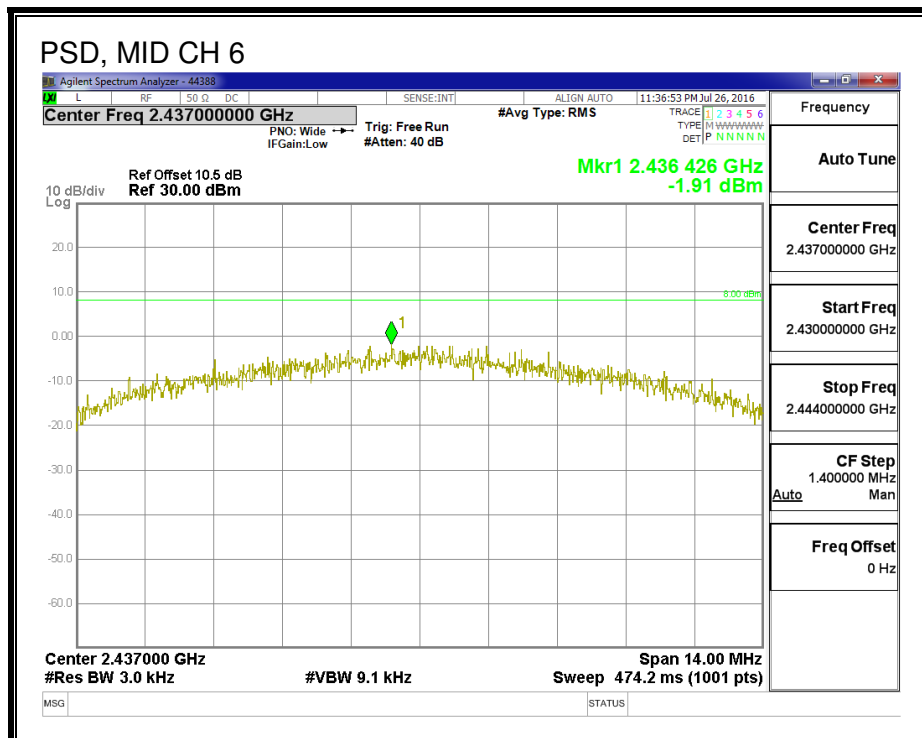
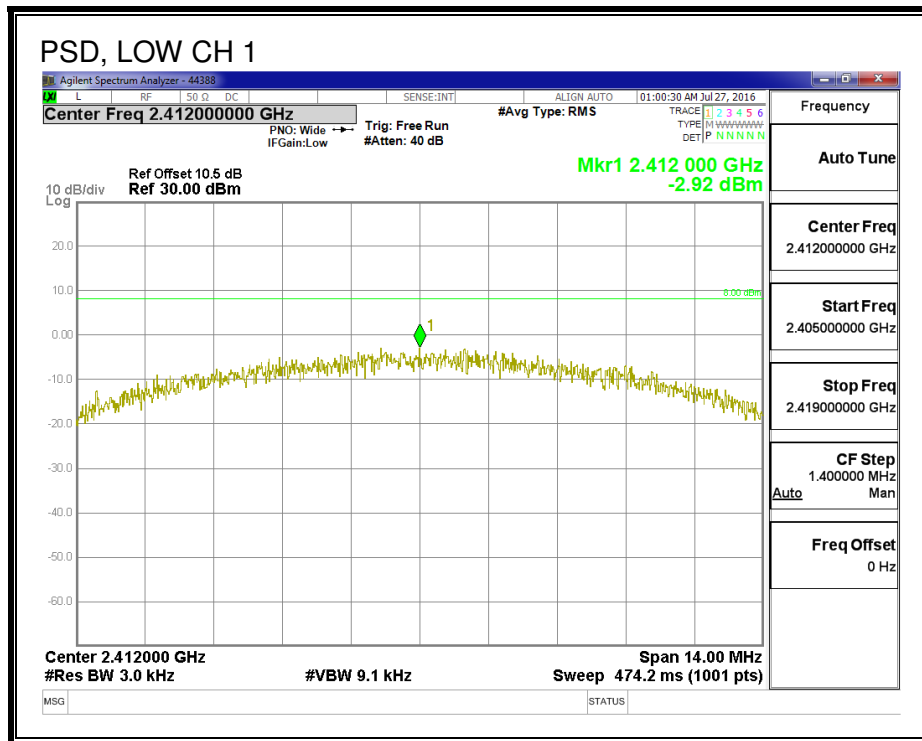
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

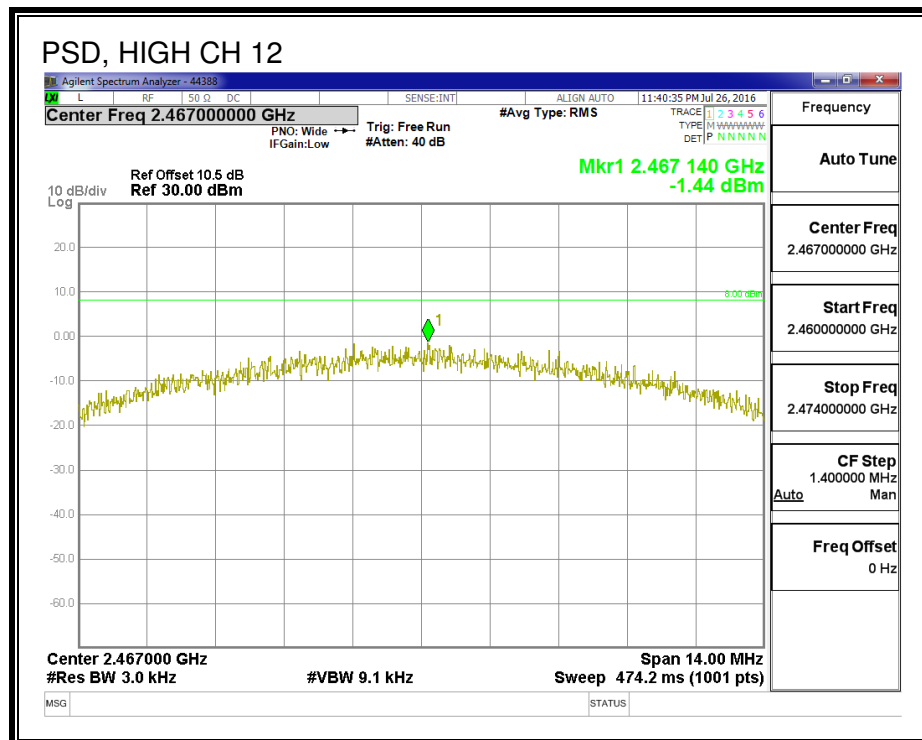
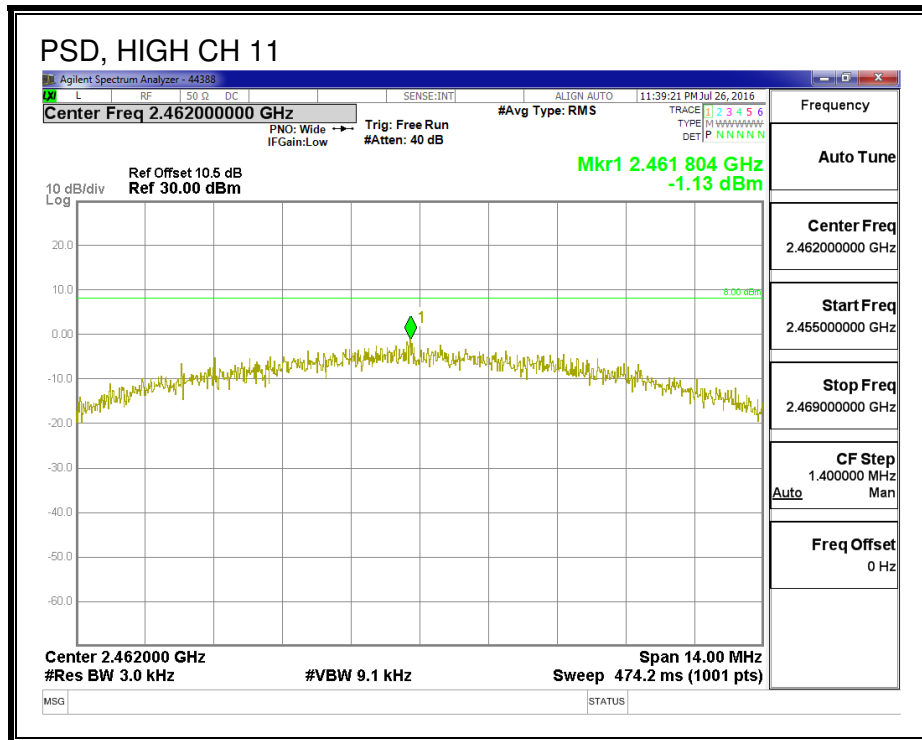
RESULTS

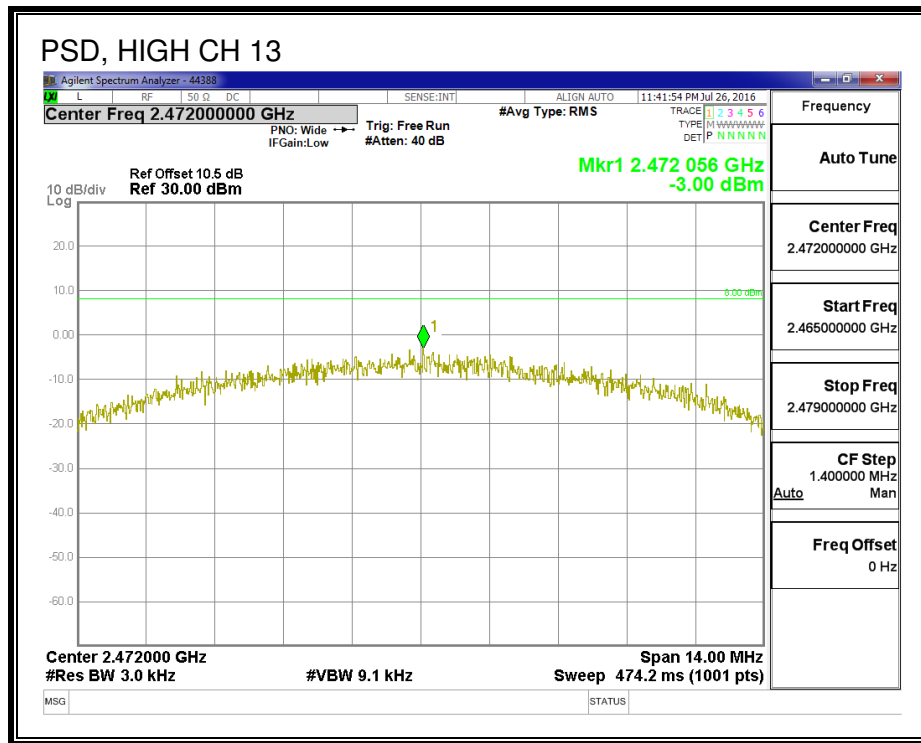
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
--------------------	------	--

PSD Results

Channel	Frequency (MHz)	Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-2.92	-2.92	8.0	-10.9
Mid_6	2437	-1.91	-1.91	8.0	-9.9
High_11	2462	-1.13	-1.13	8.0	-9.1
High_12	2467	-1.44	-1.44	8.0	-9.4
High_13	2472	-3.00	-3.00	8.0	-11.0







8.1.6. OUT-OF-BAND EMISSIONS

LIMITS

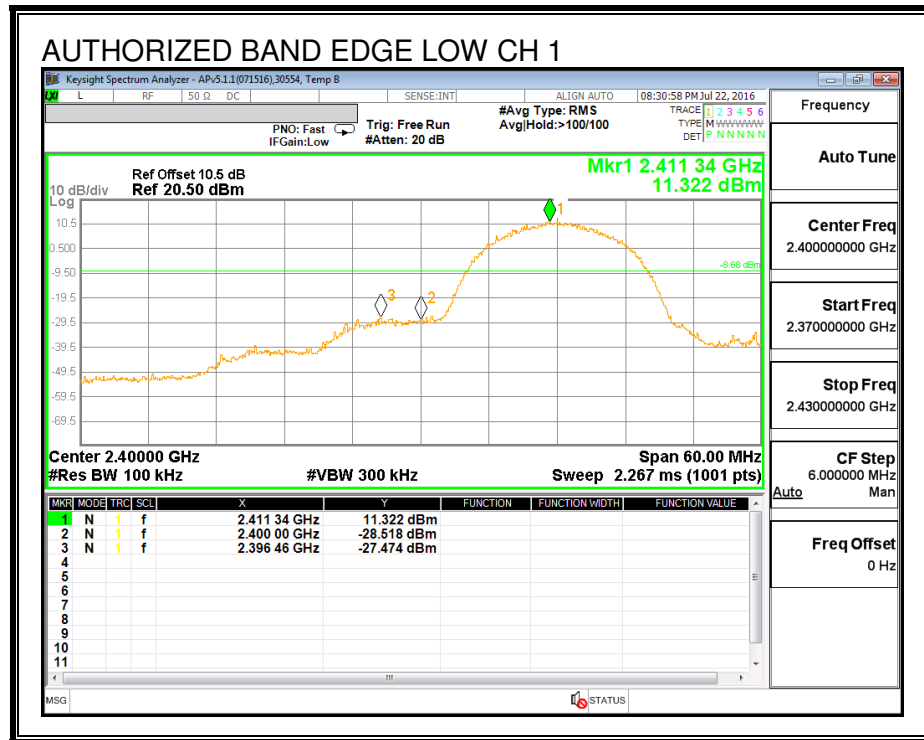
FCC §15.247 (d)

IC RSS-247 (5.5)

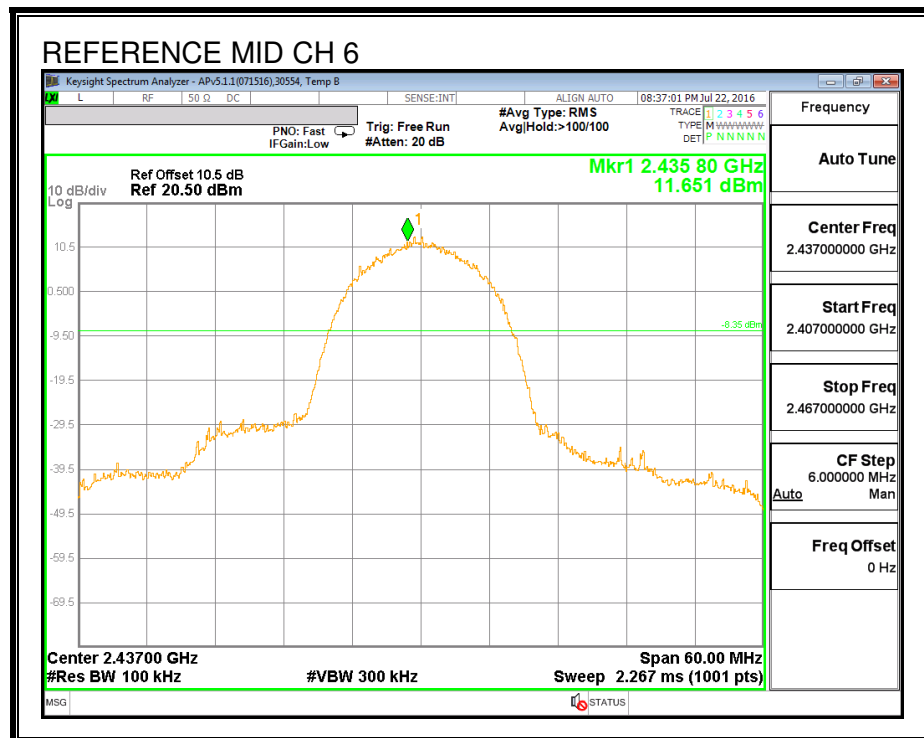
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

RESULTS

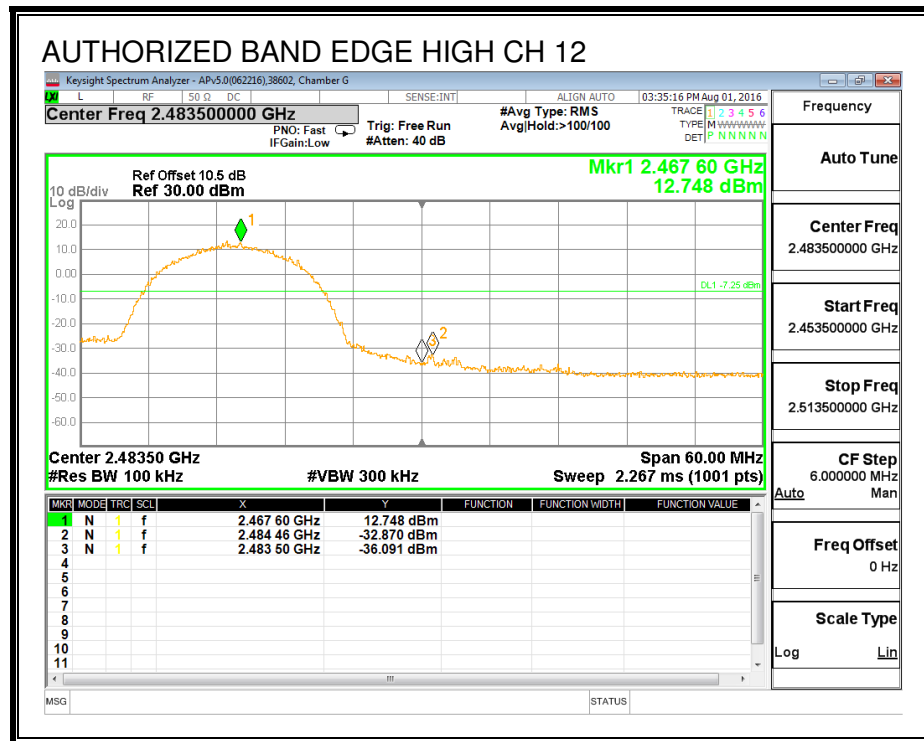
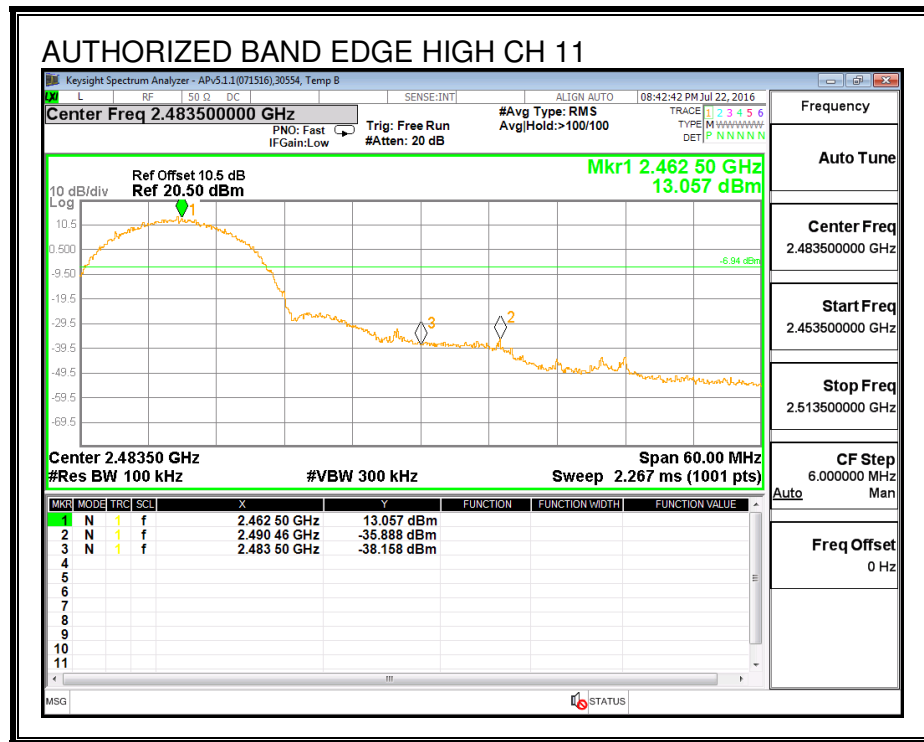
LOW CHANNEL BANDEDGE

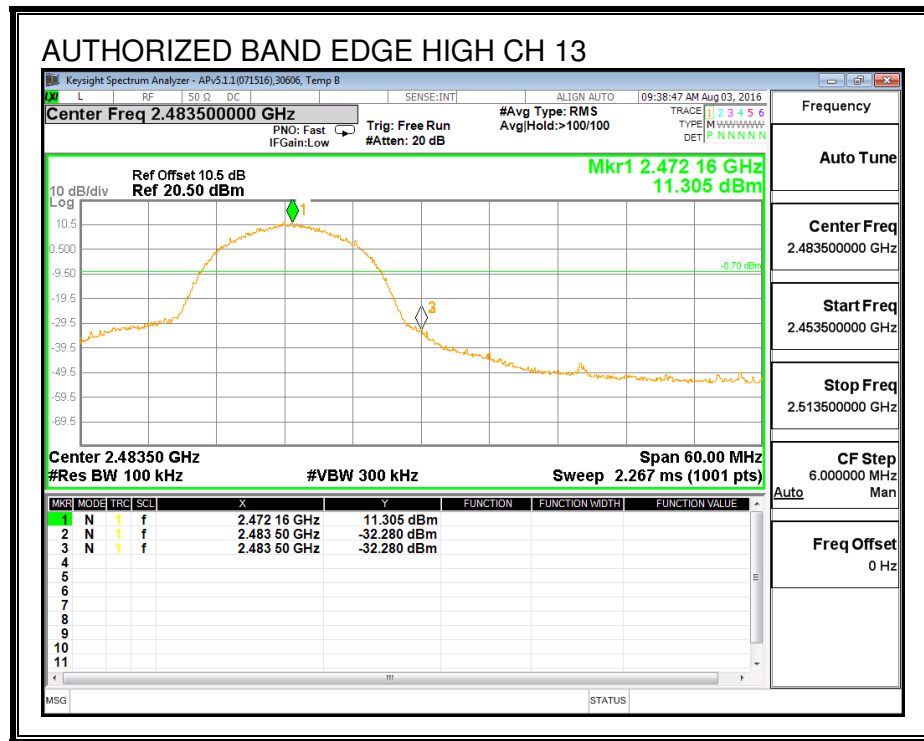


MID CHANNEL REFERENCE

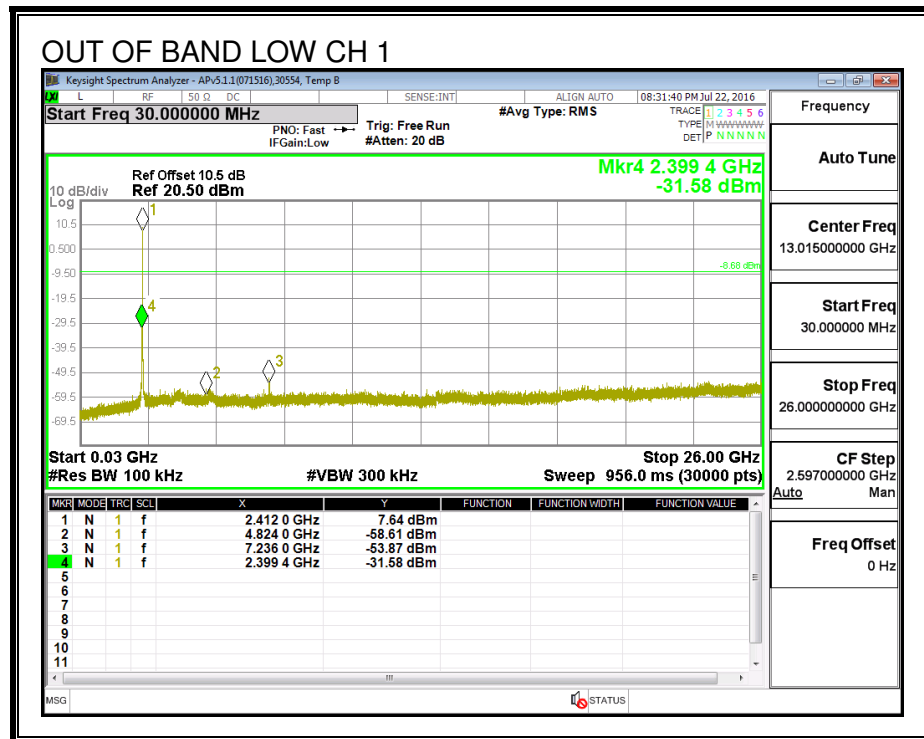


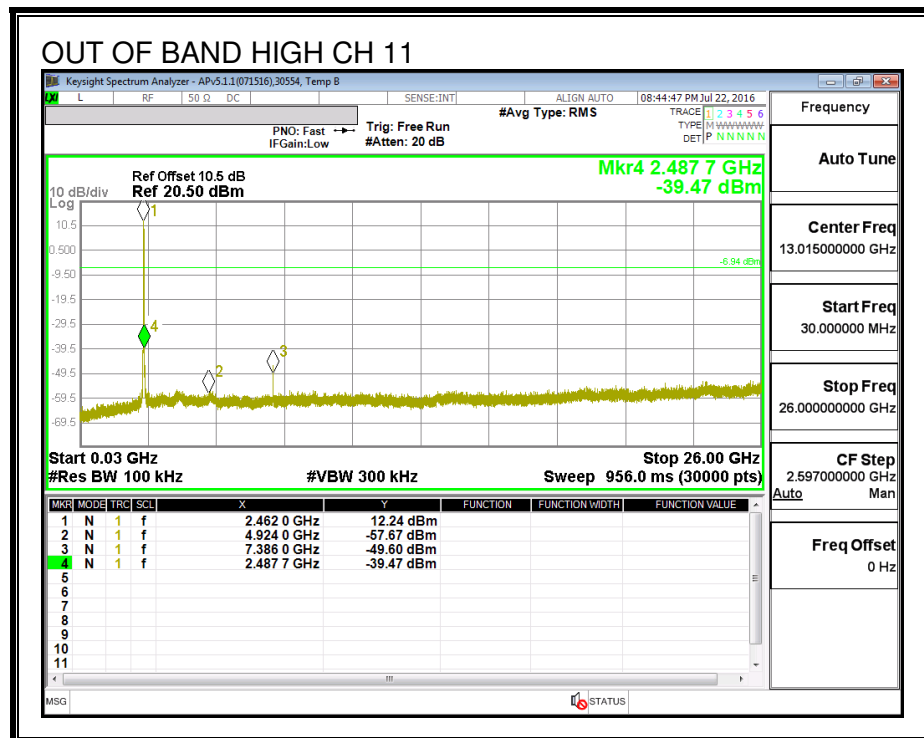
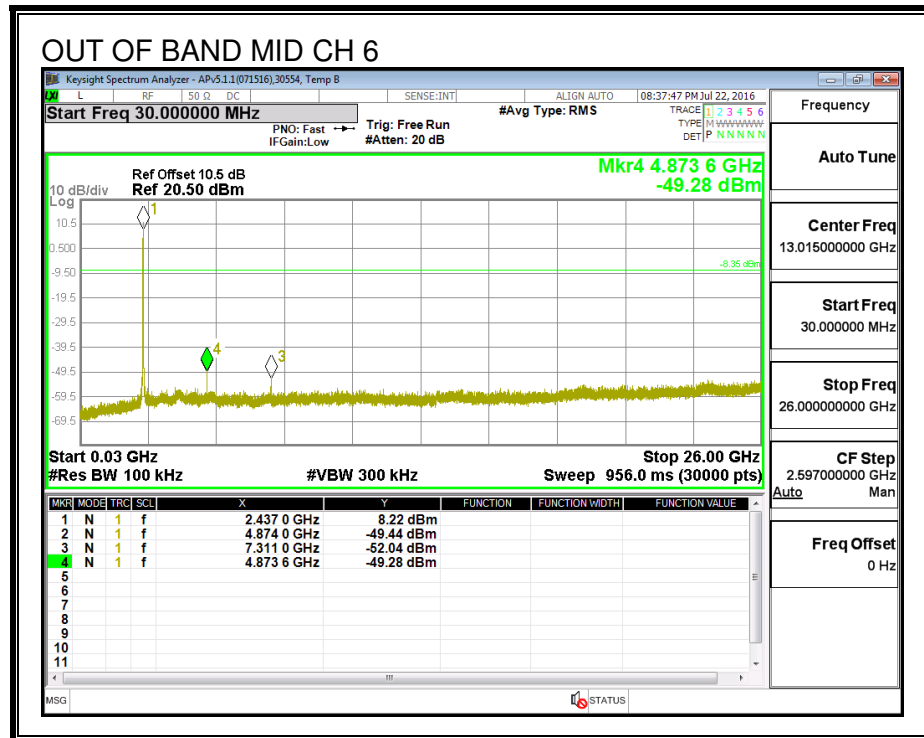
HIGH CHANNEL BANDEDGE

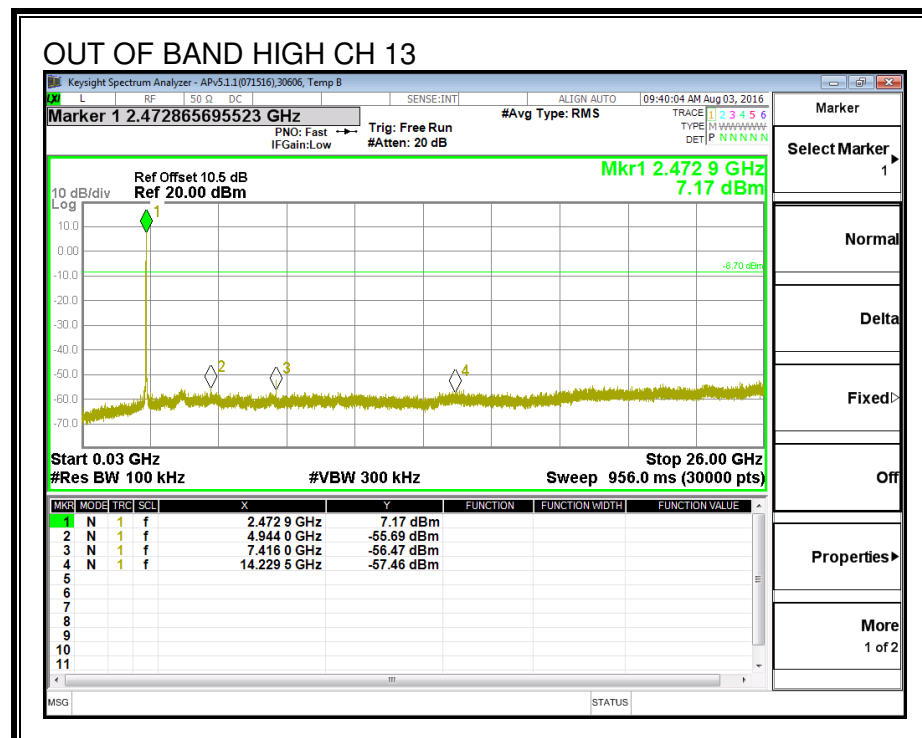
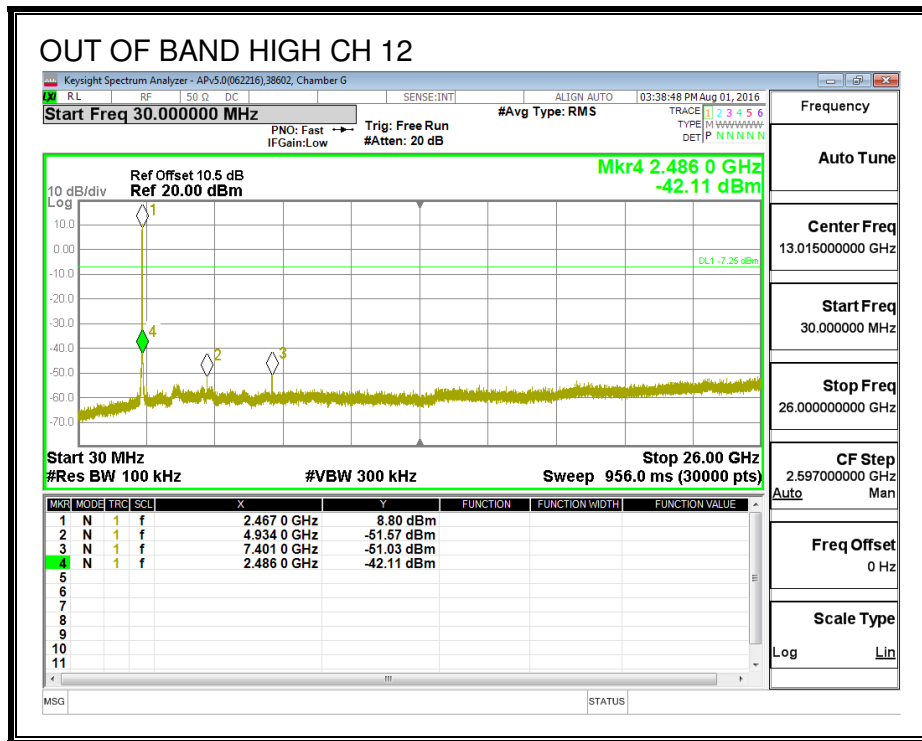




OUT-OF-BAND EMISSIONS







8.2. 802.11g SISO MODE IN THE 2.4 GHz BAND

Note: Covered by 802.11n HT20 SISO MODE.

8.3. 802.11n HT20 SISO MODE IN THE 2.4 GHz BAND

8.3.1. 6 dB BANDWIDTH

LIMITS

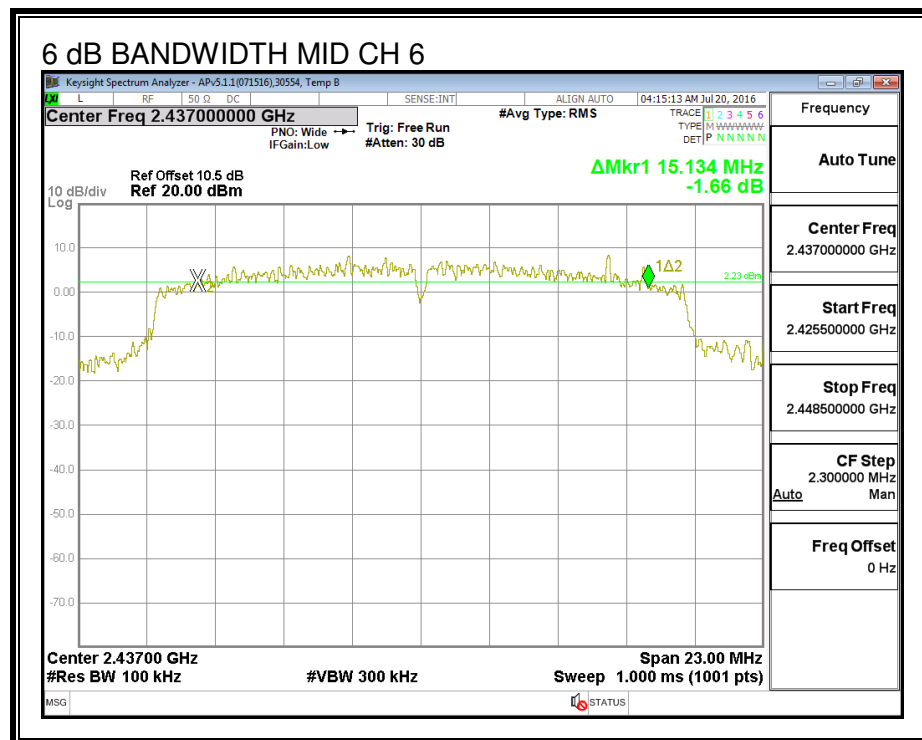
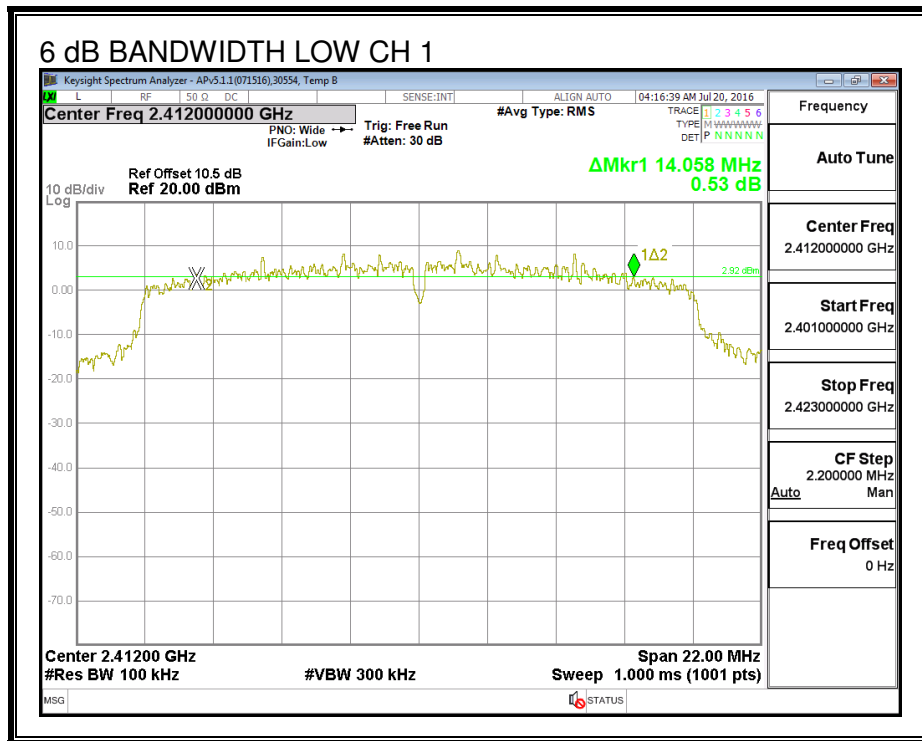
FCC §15.247 (a) (2)

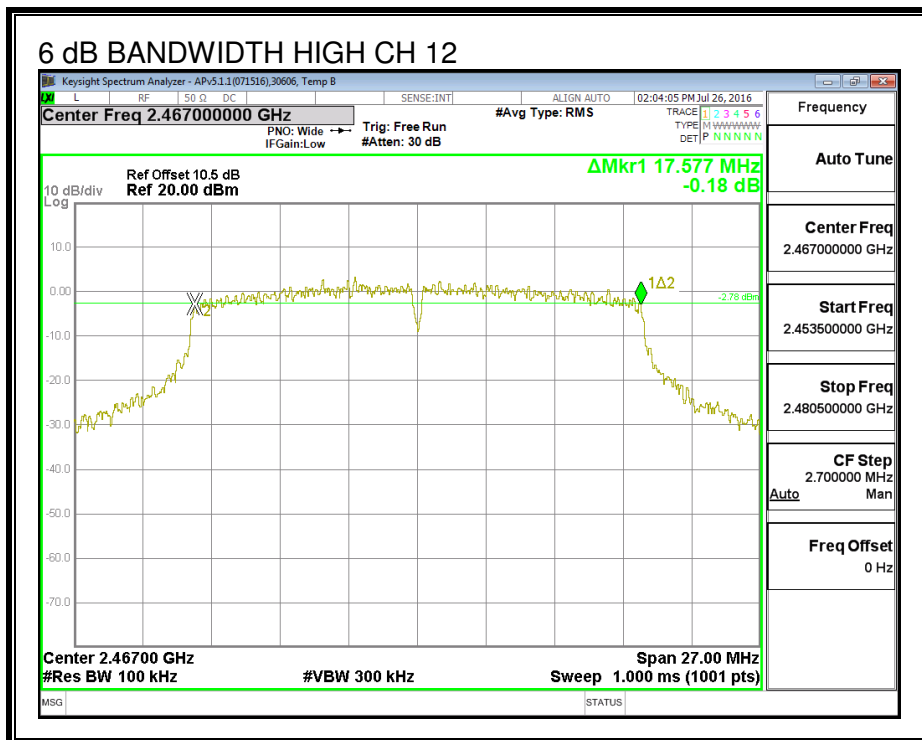
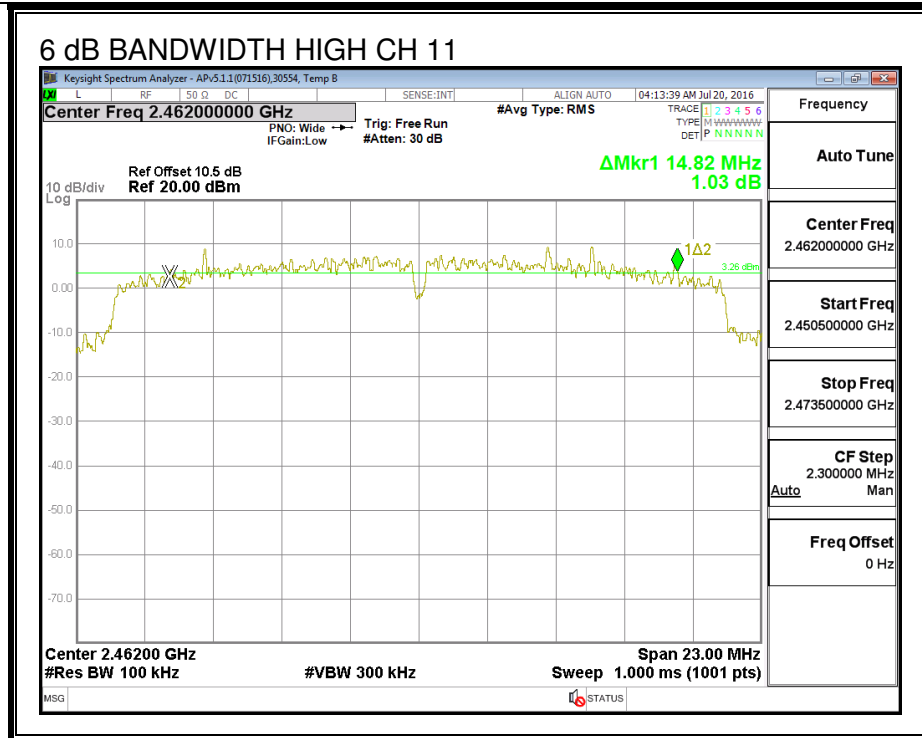
IC RSS-247 (5.2) (1)

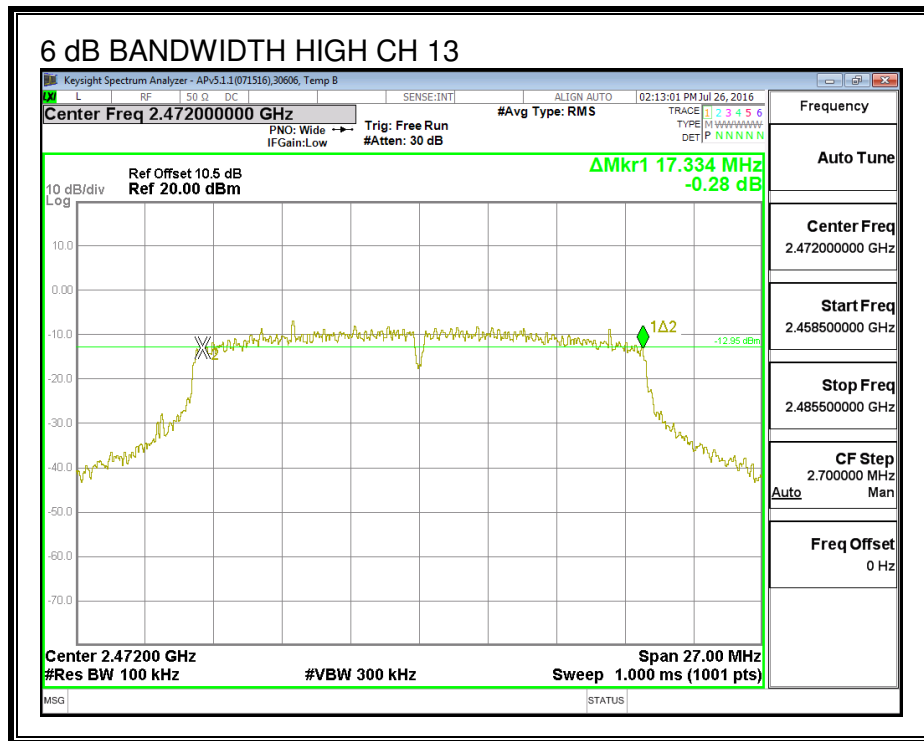
The minimum 6 dB bandwidth shall be at least 500 kHz.

RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low_1	2412	14.058	0.5
Mid_6	2437	15.134	0.5
High_11	2462	14.820	0.5
High_12	2467	17.577	0.5
High_13	2472	17.334	0.5







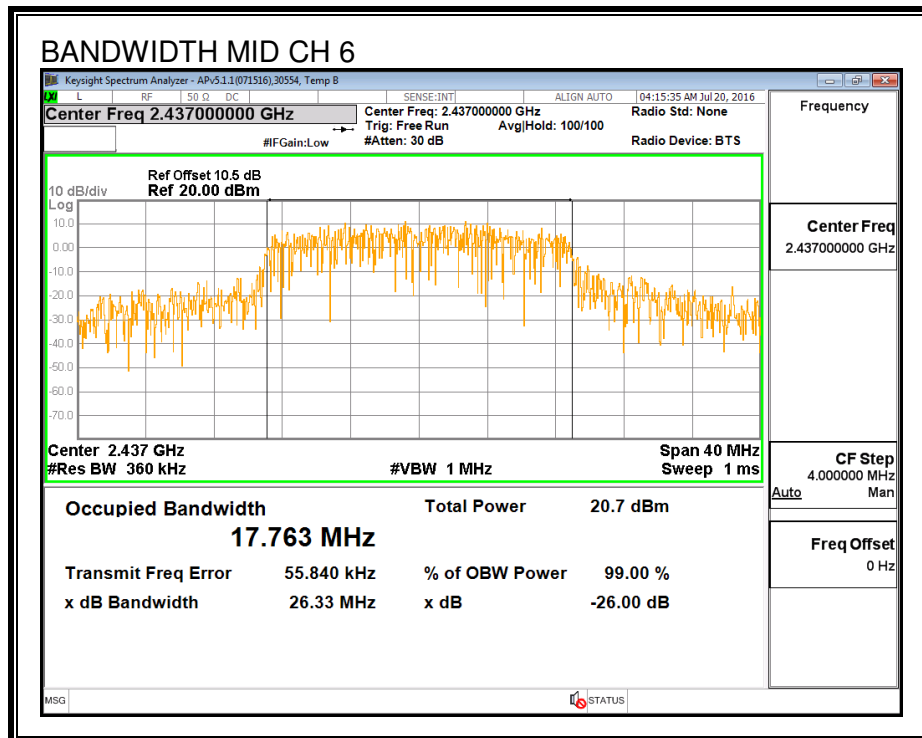
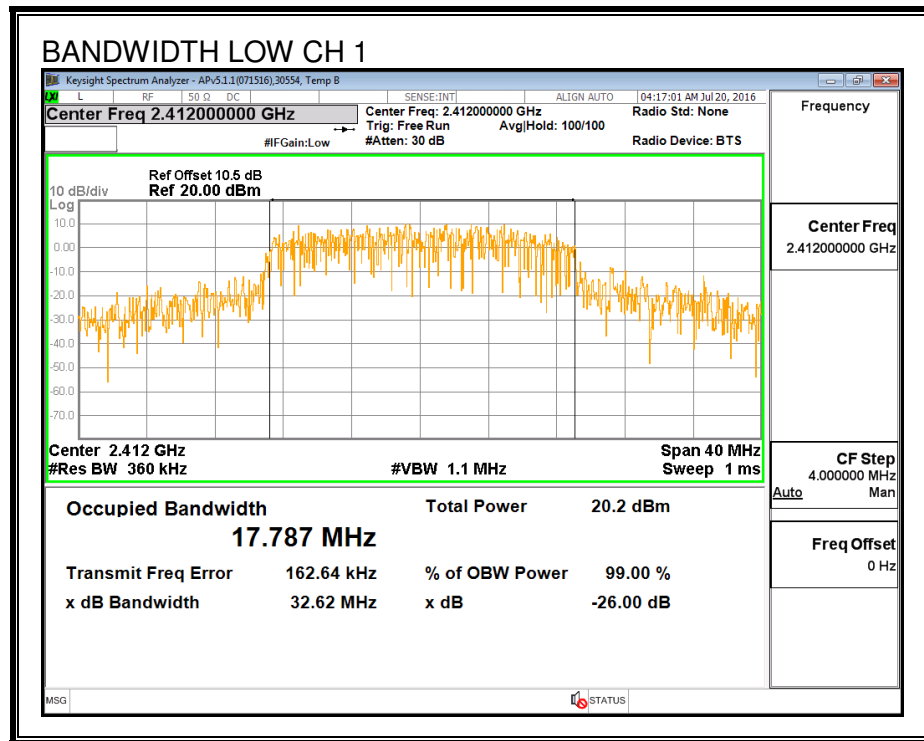
8.3.2. 99% BANDWIDTH

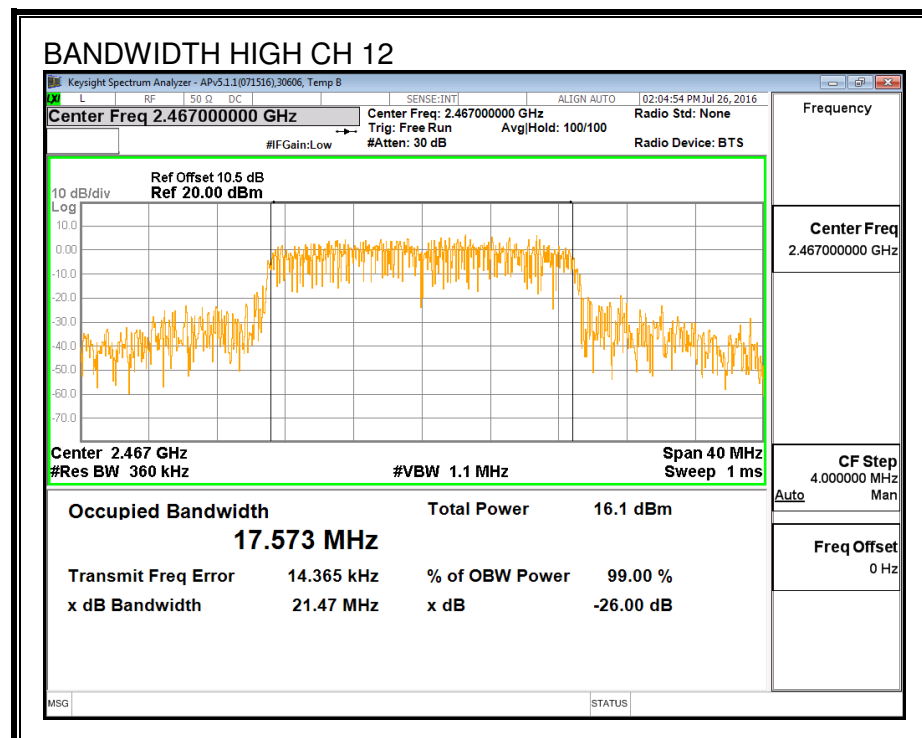
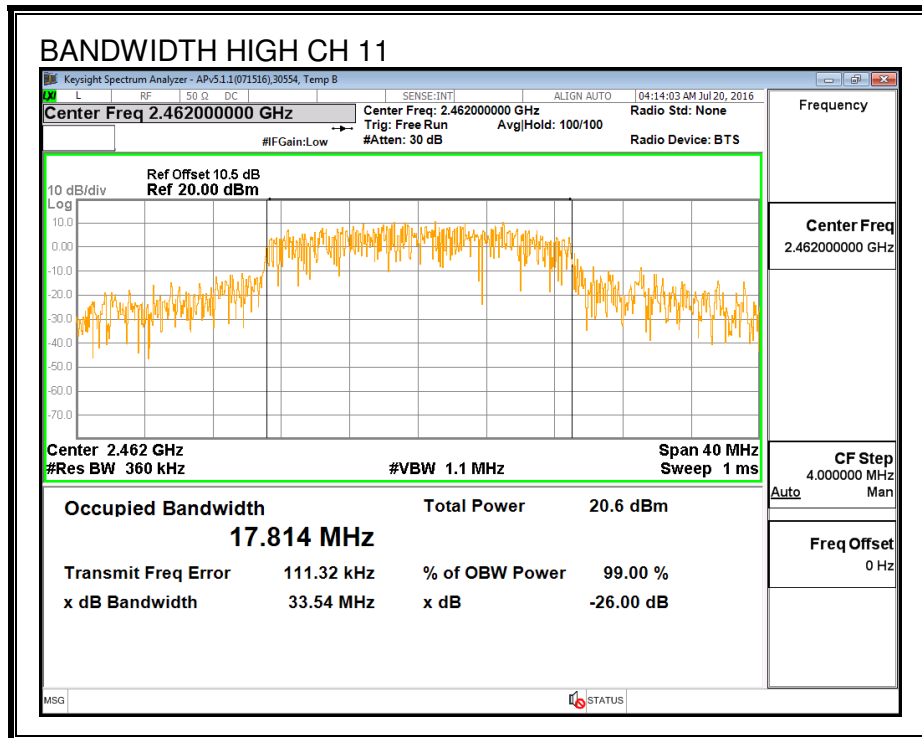
LIMITS

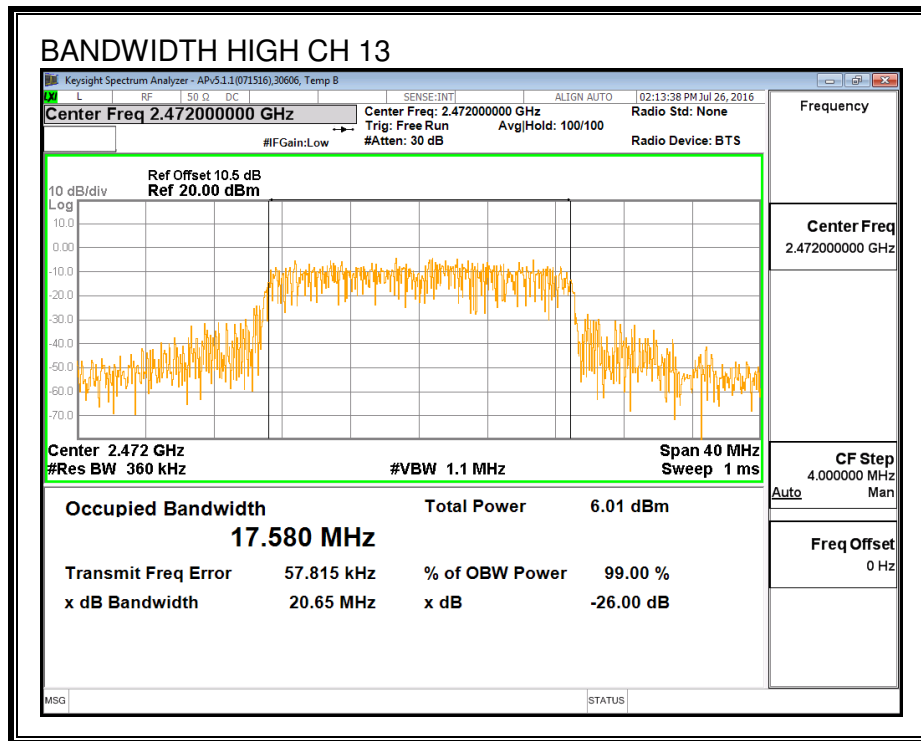
None; for reporting purposes only.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low_1	2412	17.787
Mid_6	2437	17.763
High_11	2462	17.814
High_12	2467	17.573
High_13	2472	17.580







8.3.3. AVERAGE POWER

LIMITS

None; for reporting purposes only.

RESULTS

ID:	44388	Date:	7/26/16
------------	-------	--------------	---------

Channel	Frequency (MHz)	Power (dBm)
Low_1	2412	18.95
Mid_6	2437	20.46
High_11	2462	18.71
High_12	2467	16.40
High_13	2472	5.93

8.3.4. OUTPUT POWER

LIMITS

FCC §15.247

IC RSS-247 (5.4) (4)

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

There is only one transmitter output therefore the directional gain is equal to the antenna gain.

RESULTS

ID:	44388	Date:	7/26/16
------------	-------	--------------	---------

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	-10.50	30.00	30	36	30.00
Mid_6	2437	-10.50	30.00	30	36	30.00
High_11	2462	-10.50	30.00	30	36	30.00
High_13	2472	-10.50	30.00	30	36	30.00

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

Results

Channel	Frequency (MHz)	Meas Power (dBm)	Total Corr'd Power (dBm)	Power Limit (dBm)	Margin (dB)
Low_1	2412	24.76	24.76	30.00	-5.24
Mid_6	2437	25.04	25.04	30.00	-4.96
High_11	2462	24.64	24.64	30.00	-5.36
High_12	2467	22.45	22.45	30.00	-7.55
High_13	2472	12.51	12.51	30.00	-17.49

8.3.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247

IC RSS-247 (5.2) (2)

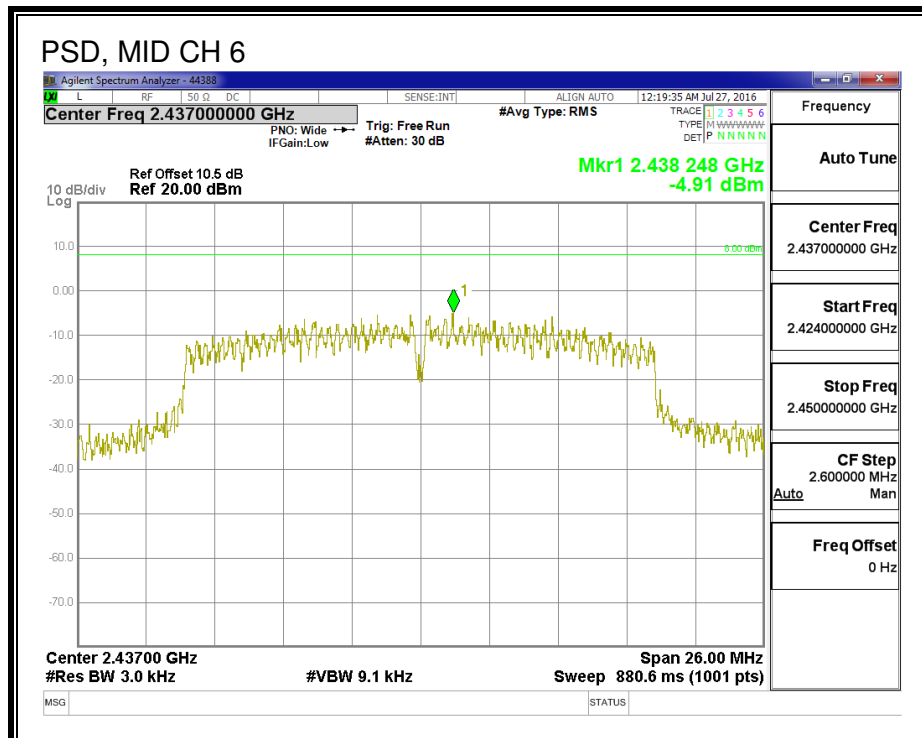
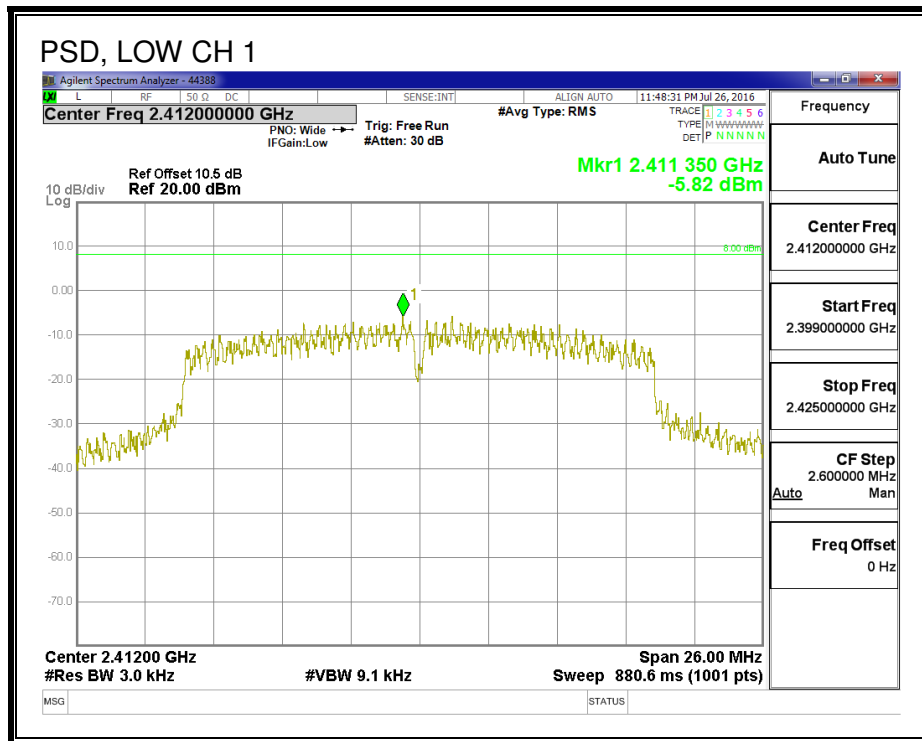
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band during any time interval of continuous transmissions.

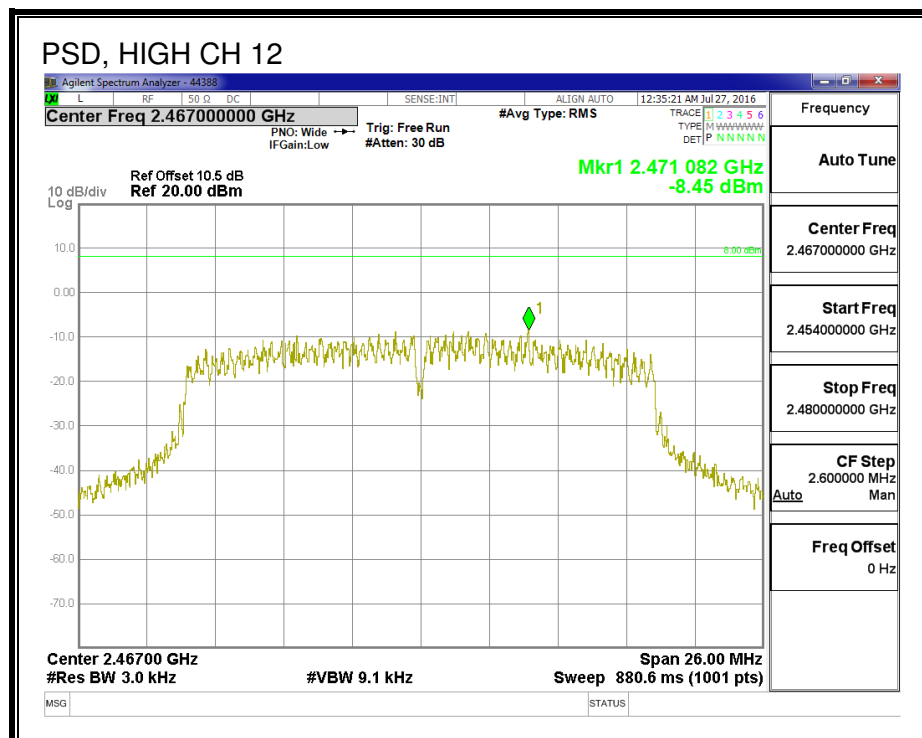
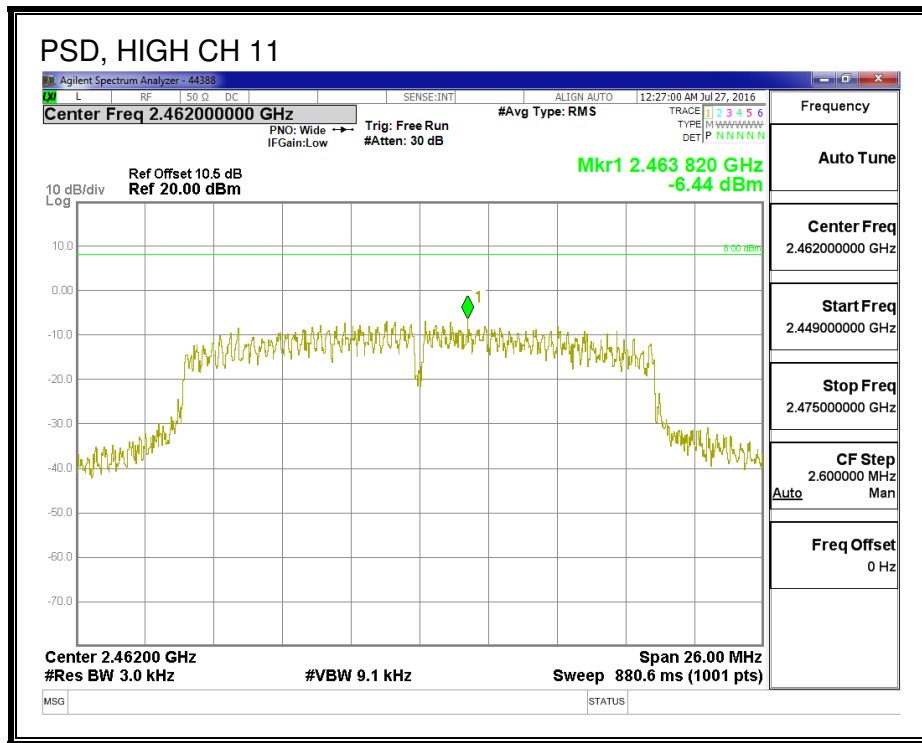
RESULTS

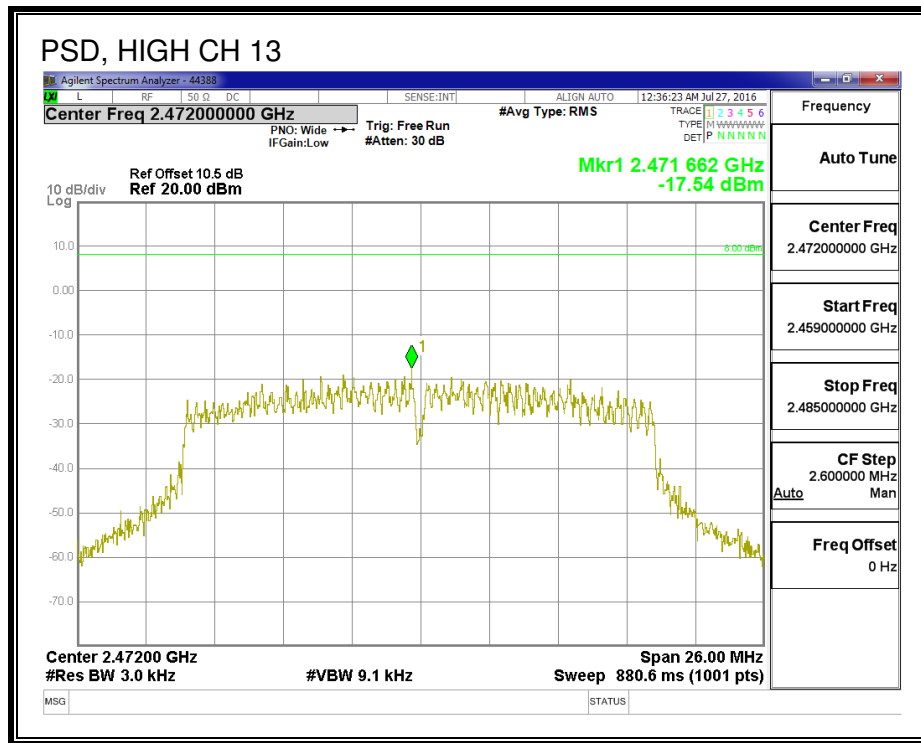
Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
---------------------------	------	---

PSD Results

Channel	Frequency (MHz)	Chain 0 Meas (dBm)	Total Corr'd PSD (dBm)	Limit (dBm)	Margin (dB)
Low_1	2412	-5.82	-5.82	8.0	-13.8
Mid_6	2437	-4.91	-4.91	8.0	-12.9
High_11	2462	-6.44	-6.44	8.0	-14.4
High_12	2467	-8.45	-8.45	8.0	-16.5
High_13	2472	-17.54	-17.54	8.0	-25.5







8.3.6. OUT-OF-BAND EMISSIONS

LIMITS

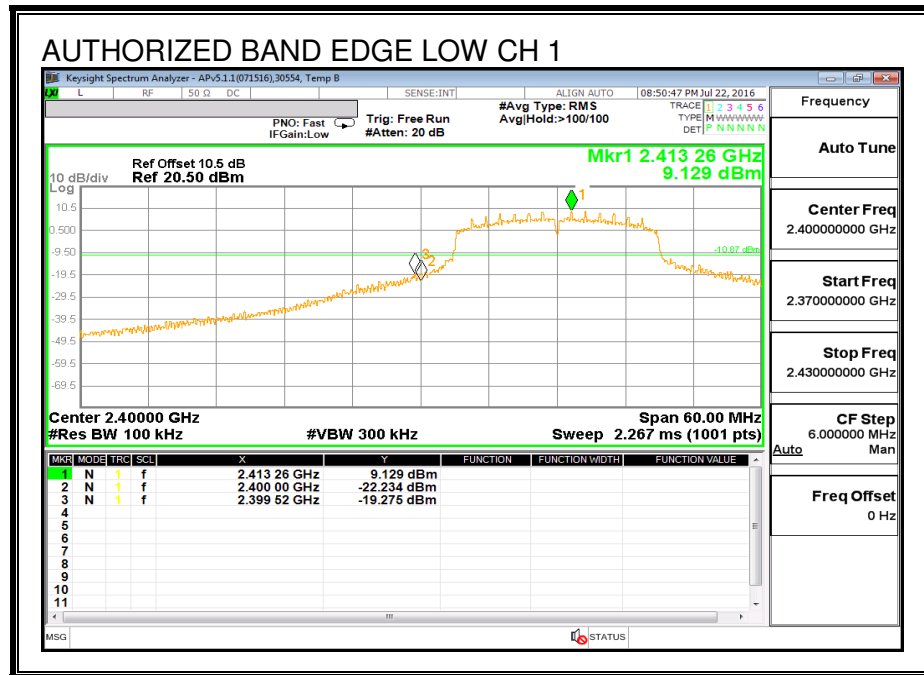
FCC §15.247 (d)

IC RSS-247 (5.5)

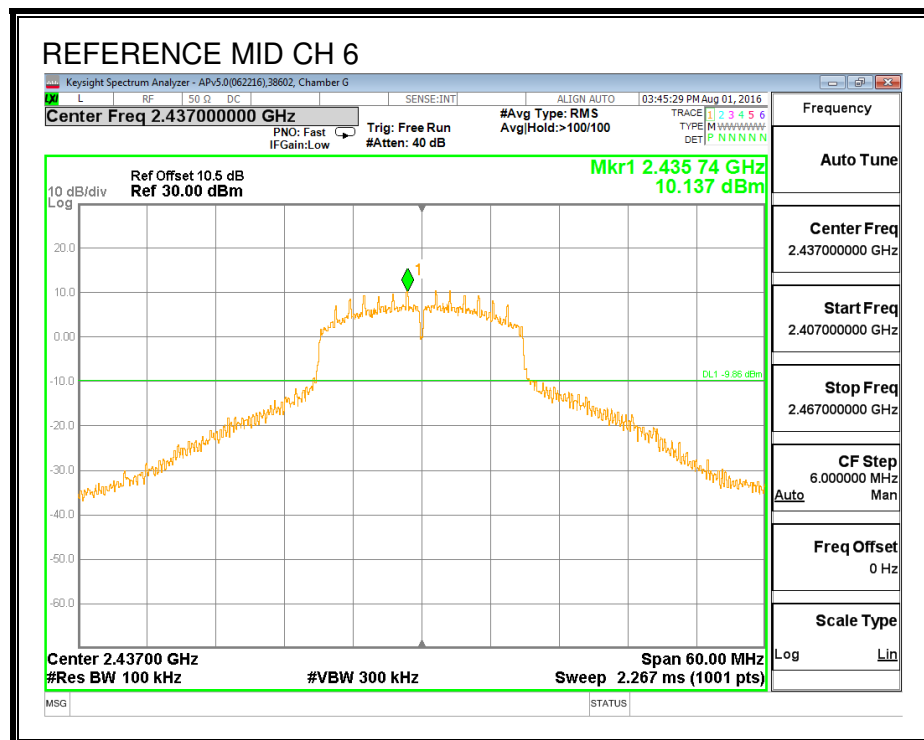
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

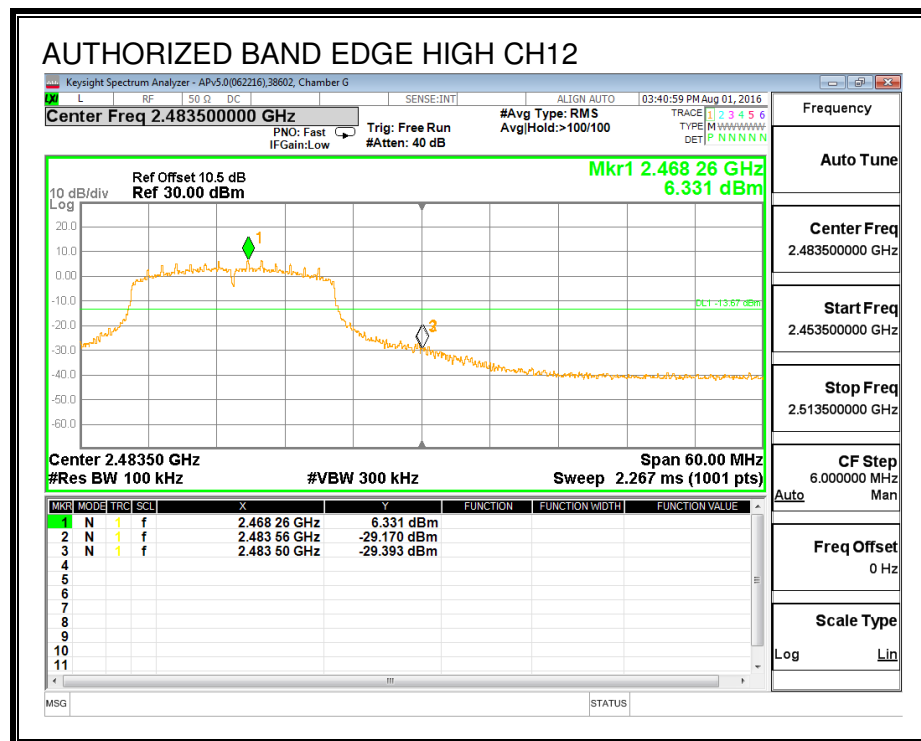
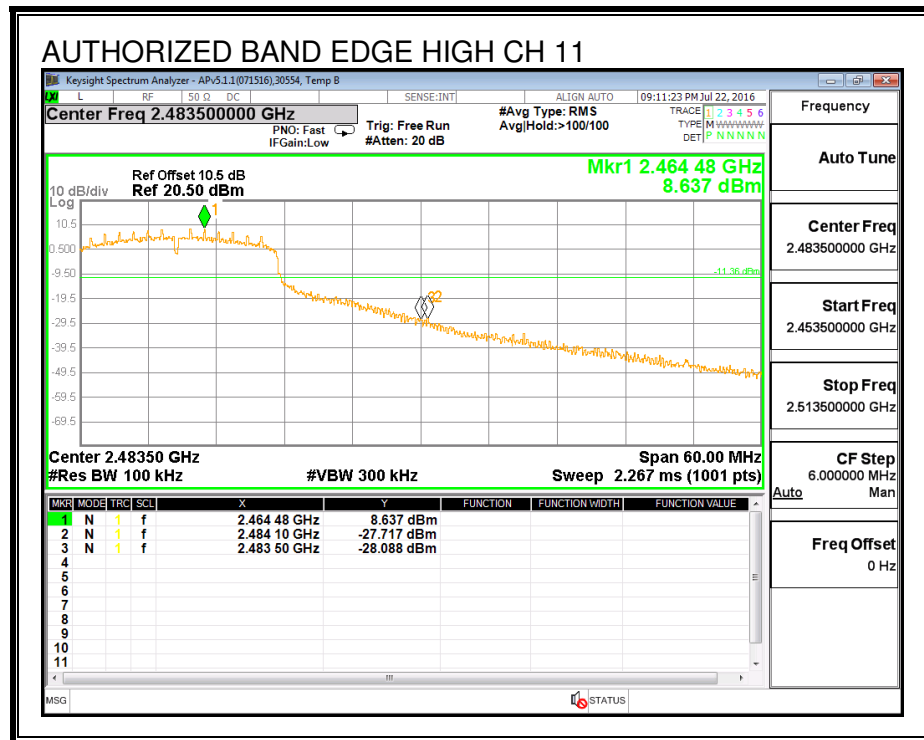
RESULTS

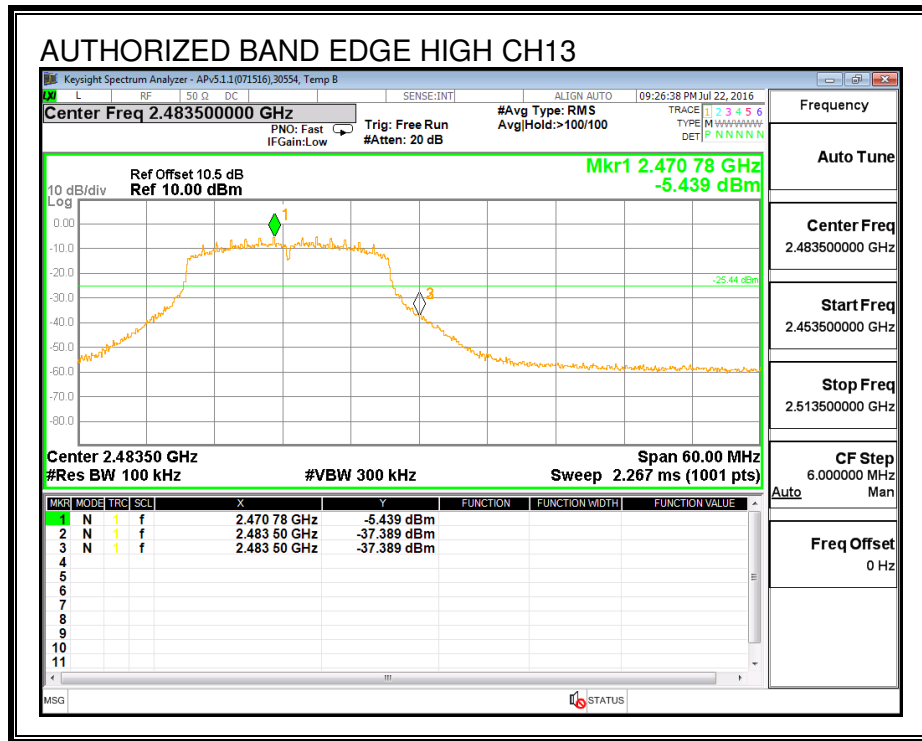
LOW CHANNEL BANDEDGE



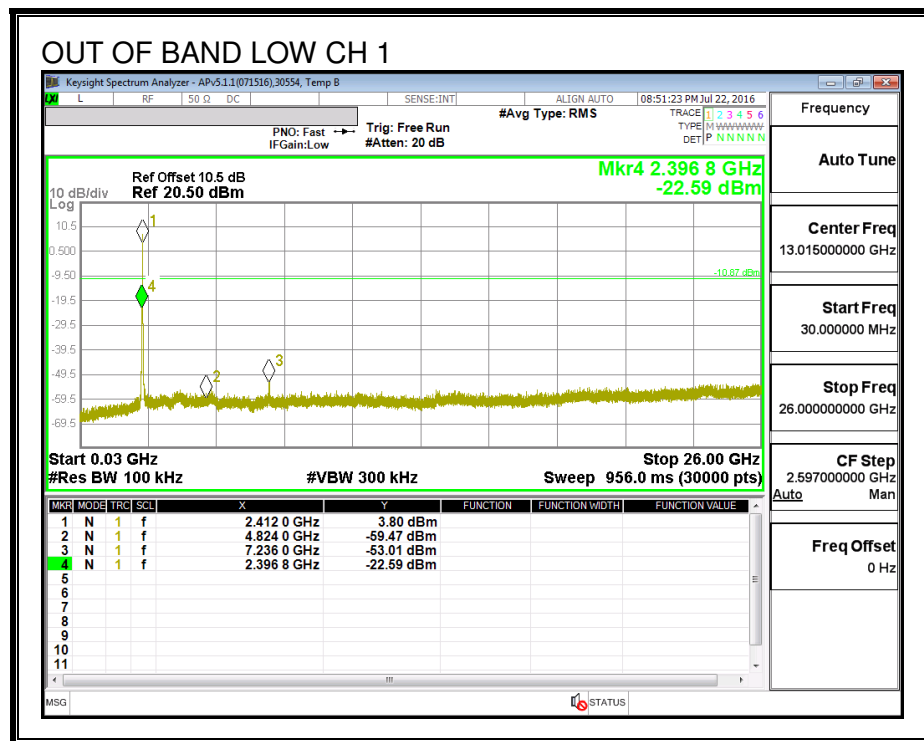
MID CHANNEL REFERENCE

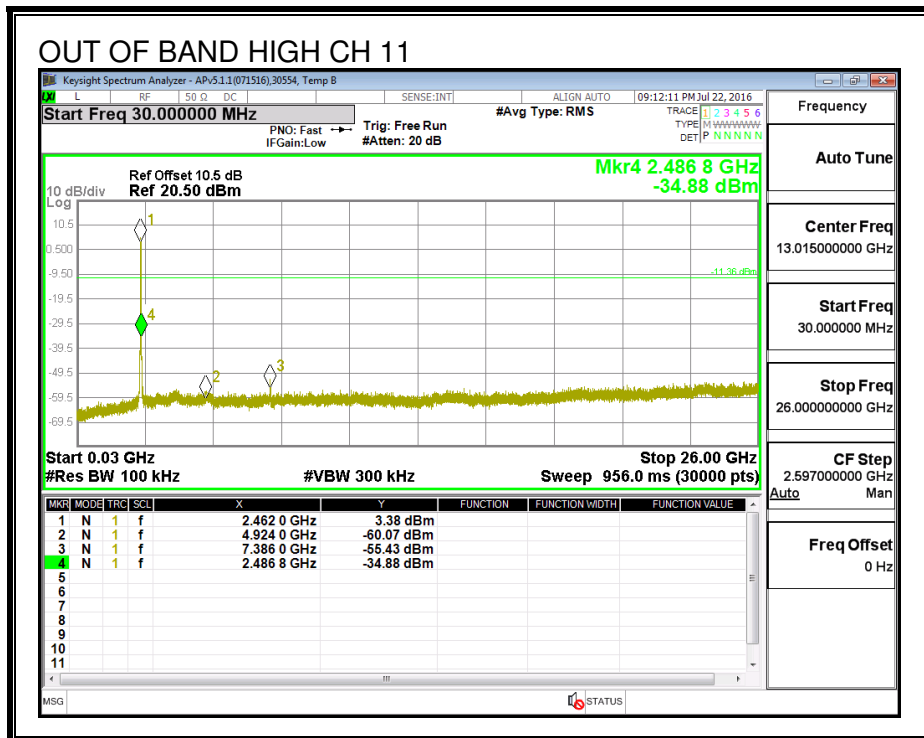
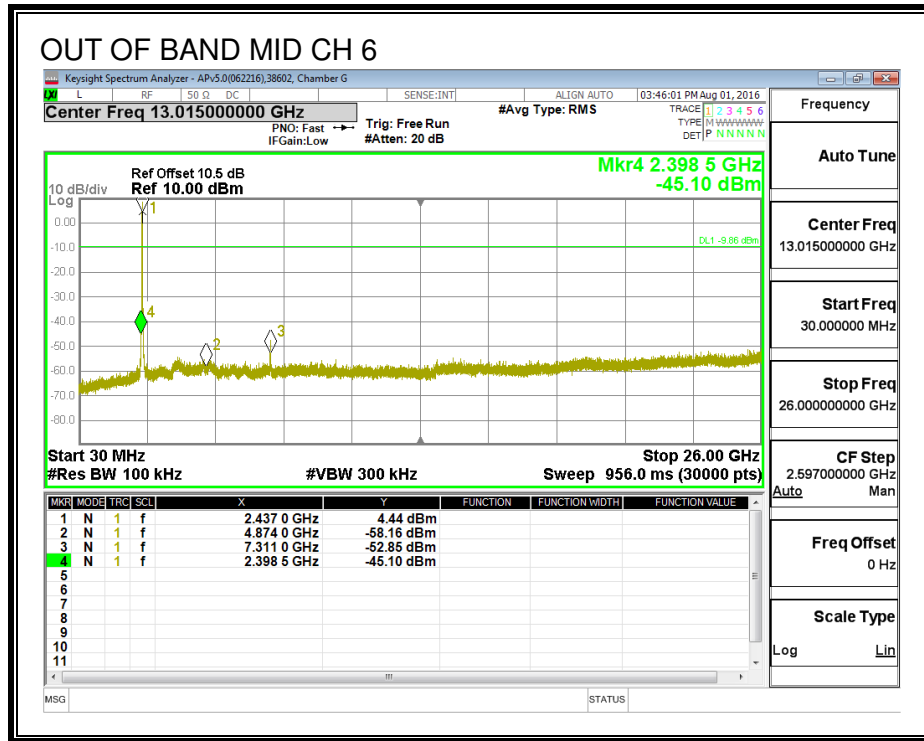


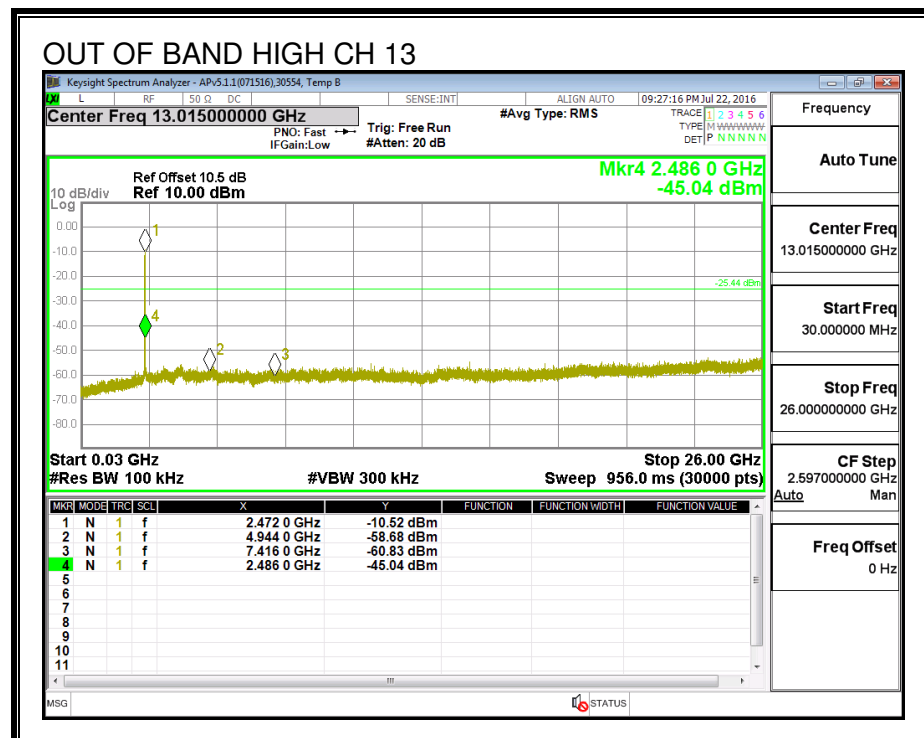
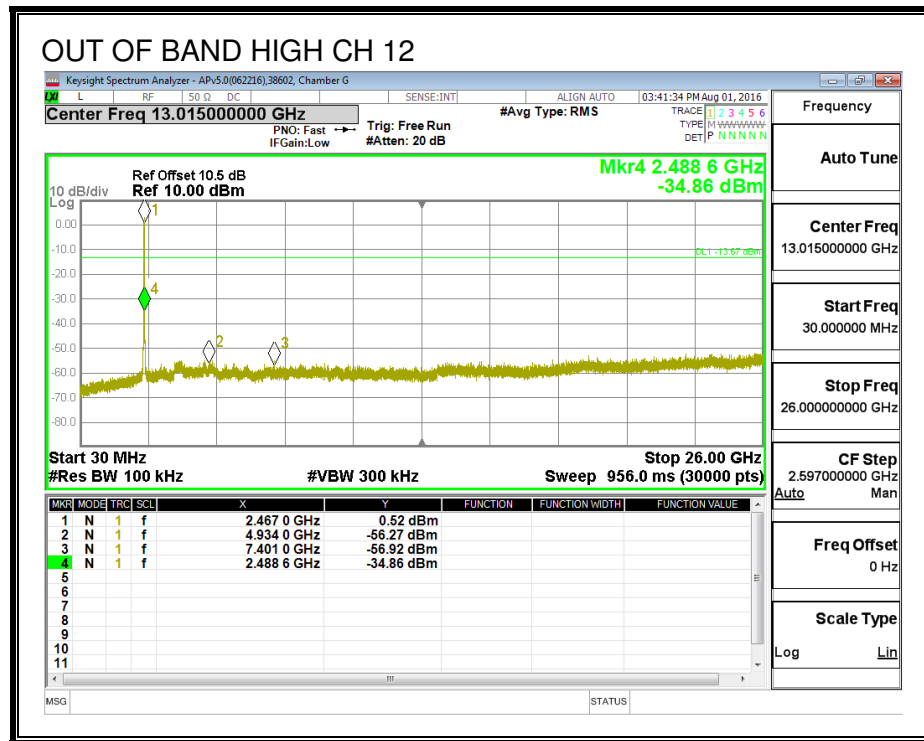




OUT-OF-BAND EMISSIONS







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.

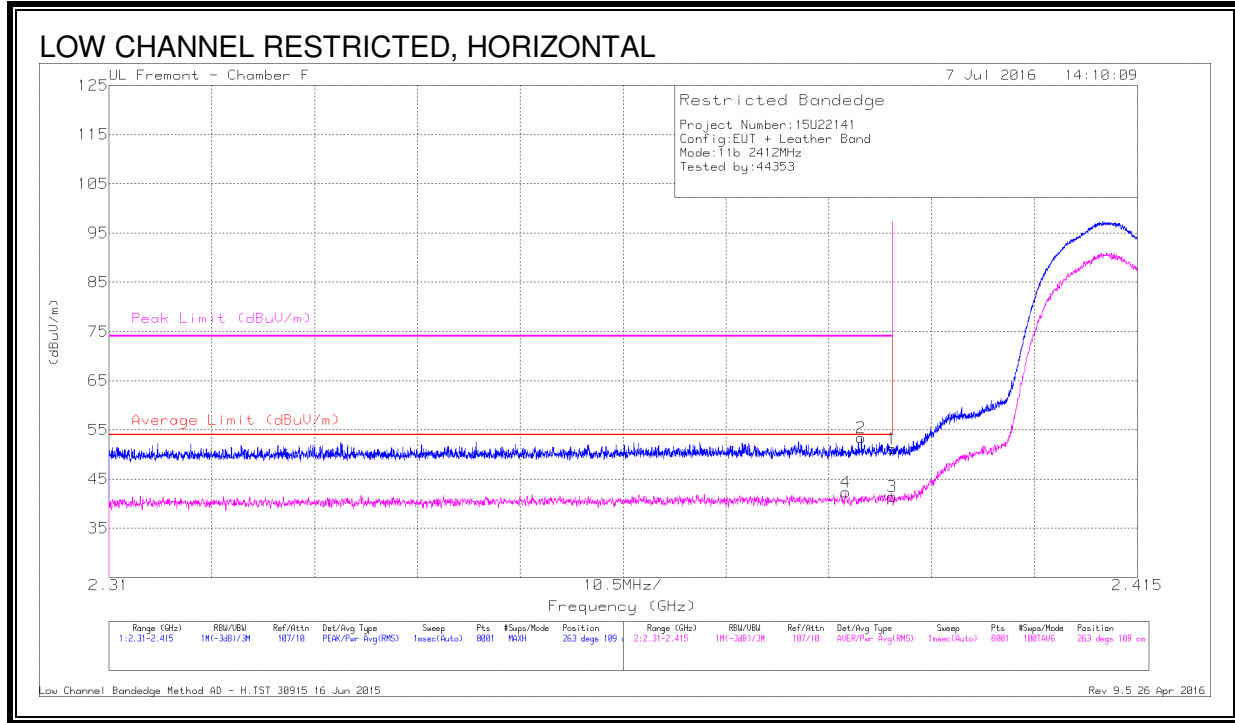
For 2.4 GHz band, the spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

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. 802.11b 1Tx MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, CH 1)



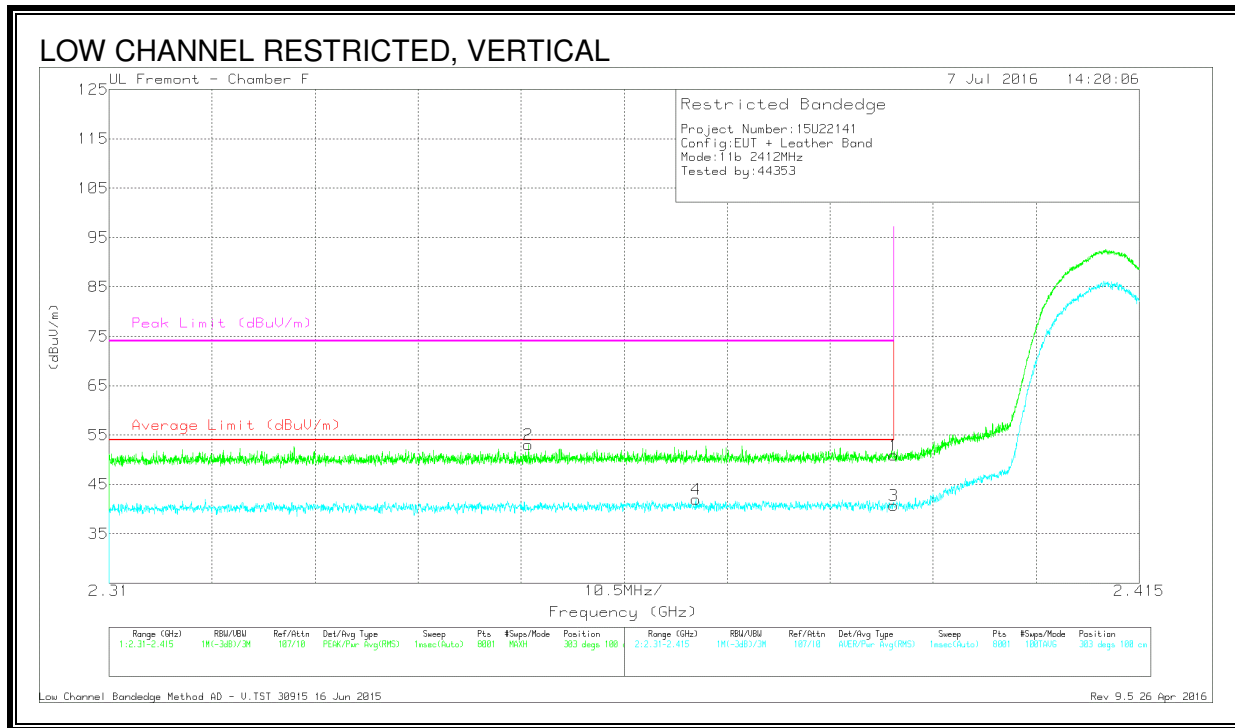
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (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	39.93	Pk	32.1	-20.9	51.13	-	-	74	-22.87	263	109	H
2	* 2.387	42.19	Pk	32.1	-20.9	53.39	-	-	74	-20.61	263	109	H
3	* 2.39	30.29	RMS	32.1	-20.9	41.49	54	-12.51	-	-	263	109	H
4	* 2.385	31.09	RMS	32.1	-20.9	42.29	54	-11.71	-	-	263	109	H

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

Pk - Peak detector

RMS - RMS detection



DATA

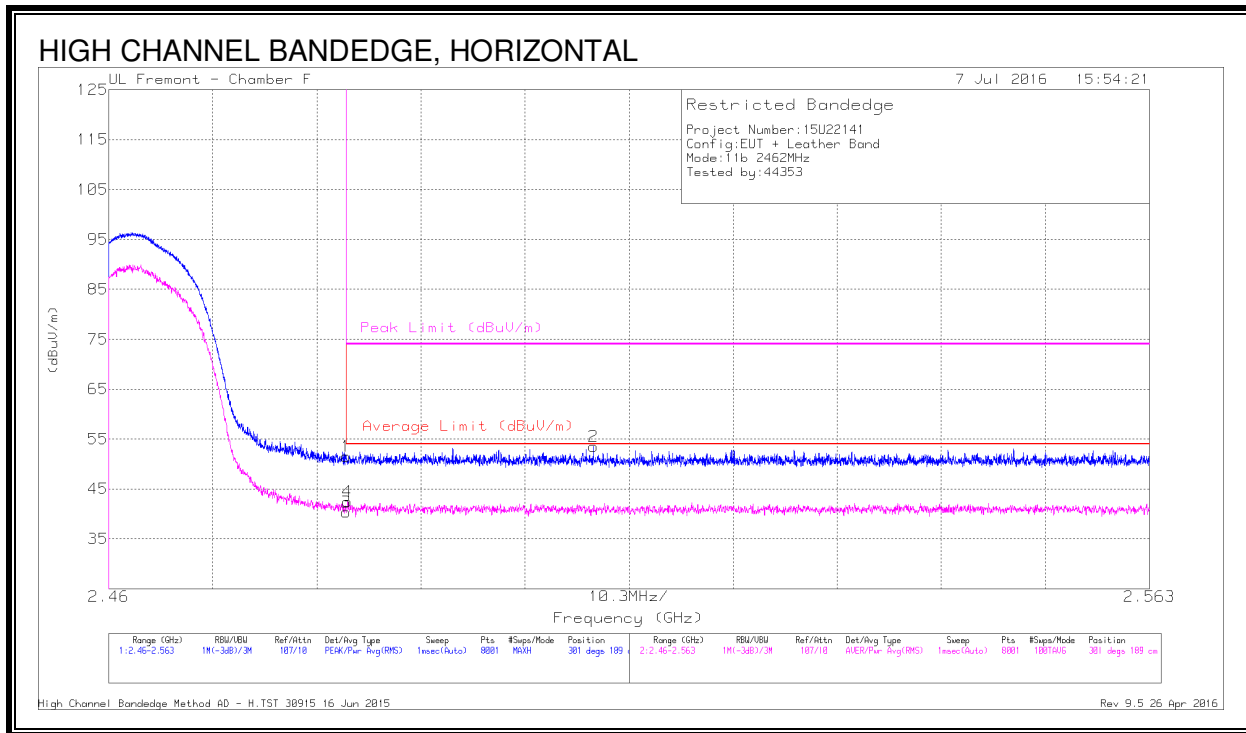
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.75	Pk	32.1	-20.9	50.95	-	-	74	-23.05	303	100	V
2	* 2.353	42.05	Pk	31.9	-20.9	53.05	-	-	74	-20.95	303	100	V
3	* 2.39	29.53	RMS	32.1	-20.9	40.73	54	-13.27	-	-	303	100	V
4	* 2.37	30.85	RMS	32	-20.9	41.95	54	-12.05	-	-	303	100	V

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEGE (HIGH CHANNEL, CH 11)



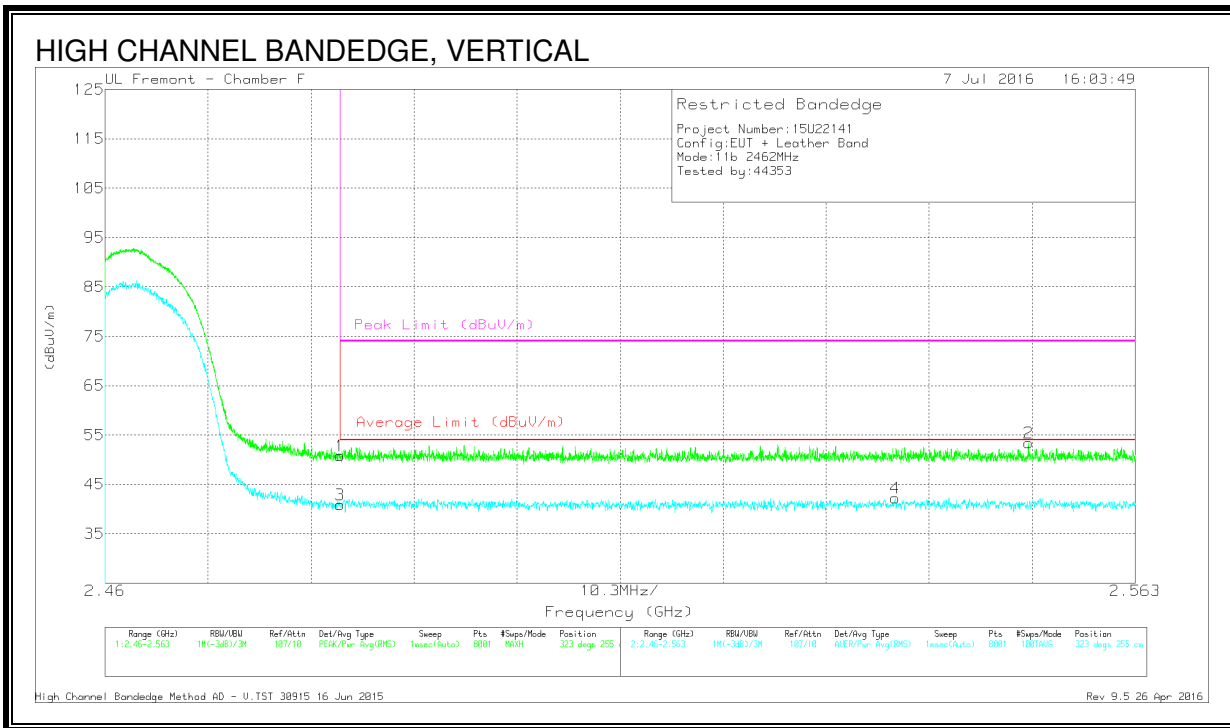
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (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	32.3	-21	51.56	-	-	74	-22.44	301	189	H
2	2.508	42.19	Pk	32.3	-21	53.49	-	-	74	-20.51	301	189	H
3	* 2.484	29.04	RMS	32.3	-21	40.34	54	-13.66	-	-	301	189	H
4	* 2.484	31.14	RMS	32.3	-21	42.44	54	-11.56	-	-	301	189	H

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

Pk - Peak detector

RMS - RMS detection



DATA

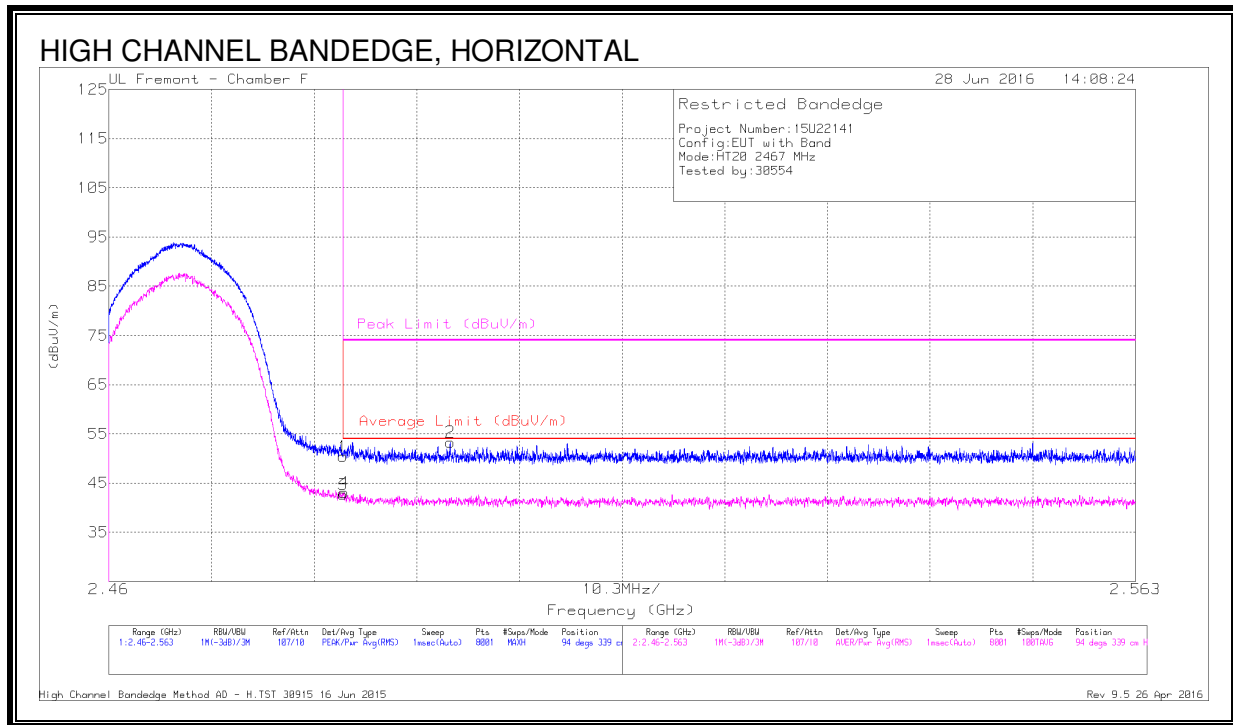
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.46	Pk	32.3	-21	50.76	-	-	74	-23.24	323	255	V
2	2.552	42.11	Pk	32.2	-20.9	53.41	-	-	74	-20.59	323	255	V
3	* 2.484	29.6	RMS	32.3	-21	40.9	54	-13.1	-	-	323	255	V
4	2.539	30.9	RMS	32.2	-20.9	42.2	54	-11.8	-	-	323	255	V

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEGE (HIGH CHANNEL, CH 12)



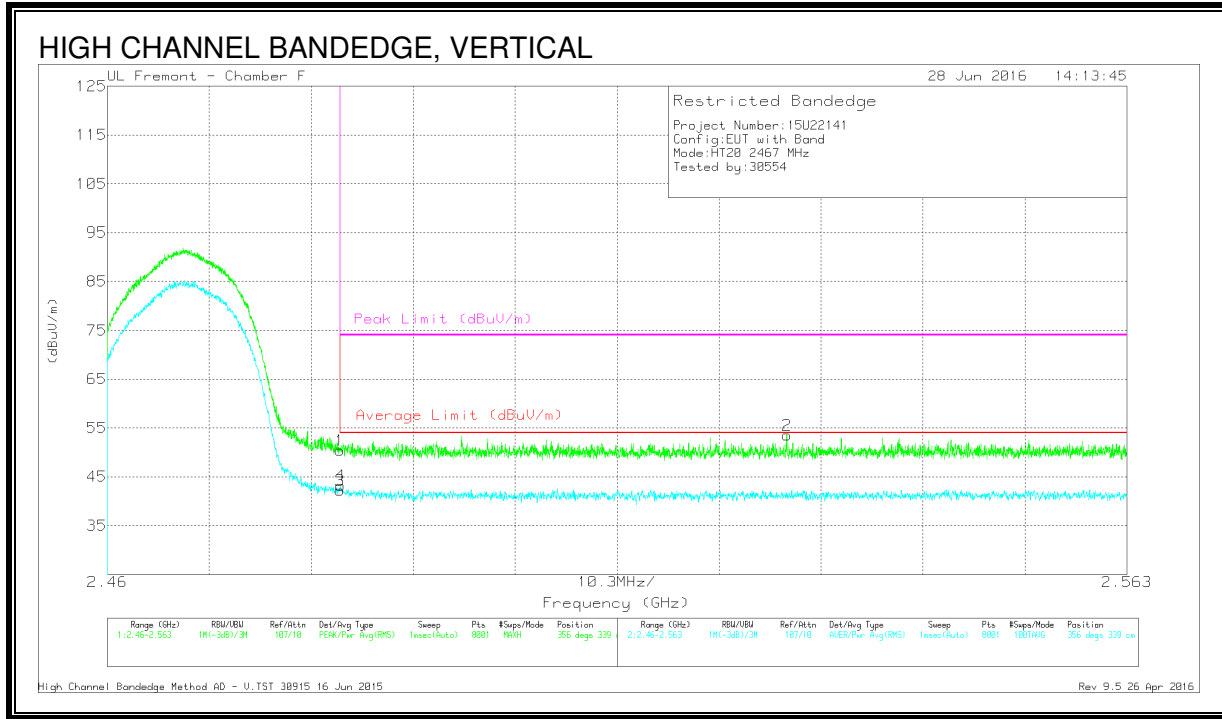
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT344 (dB/m)	Amp/Cb/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	39.09	Pk	32.3	-21	50.39	-	-	74	-23.61	94	339	H
2	* 2.494	41.93	Pk	32.3	-20.9	53.33	-	-	74	-20.67	94	339	H
3	* 2.484	31.46	RMS	32.3	-21	42.76	54	-11.24	-	-	94	339	H
4	* 2.484	31.77	RMS	32.3	-21	43.07	54	-10.93	-	-	94	339	H

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

Pk - Peak detector

RMS - RMS detection



DATA

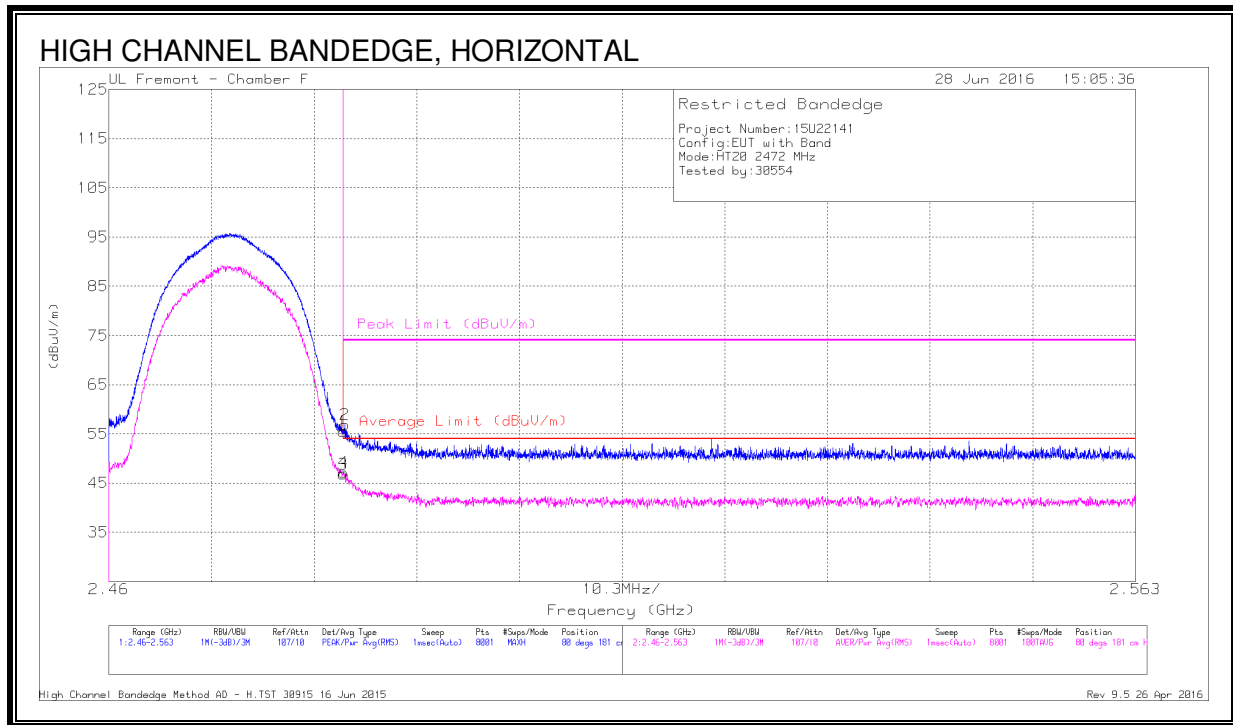
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cb/Ftr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.08	Pk	32.3	-21	50.38	-	-	74	-23.62	356	339	V
2	2.529	42.12	Pk	32.3	-20.9	53.52	-	-	74	-20.48	356	339	V
3	* 2.484	30.93	RMS	32.3	-21	42.23	54	-11.77	-	-	356	339	V
4	* 2.484	31.93	RMS	32.3	-21	43.23	54	-10.77	-	-	356	339	V

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEGE (HIGH CHANNEL, CH 13)



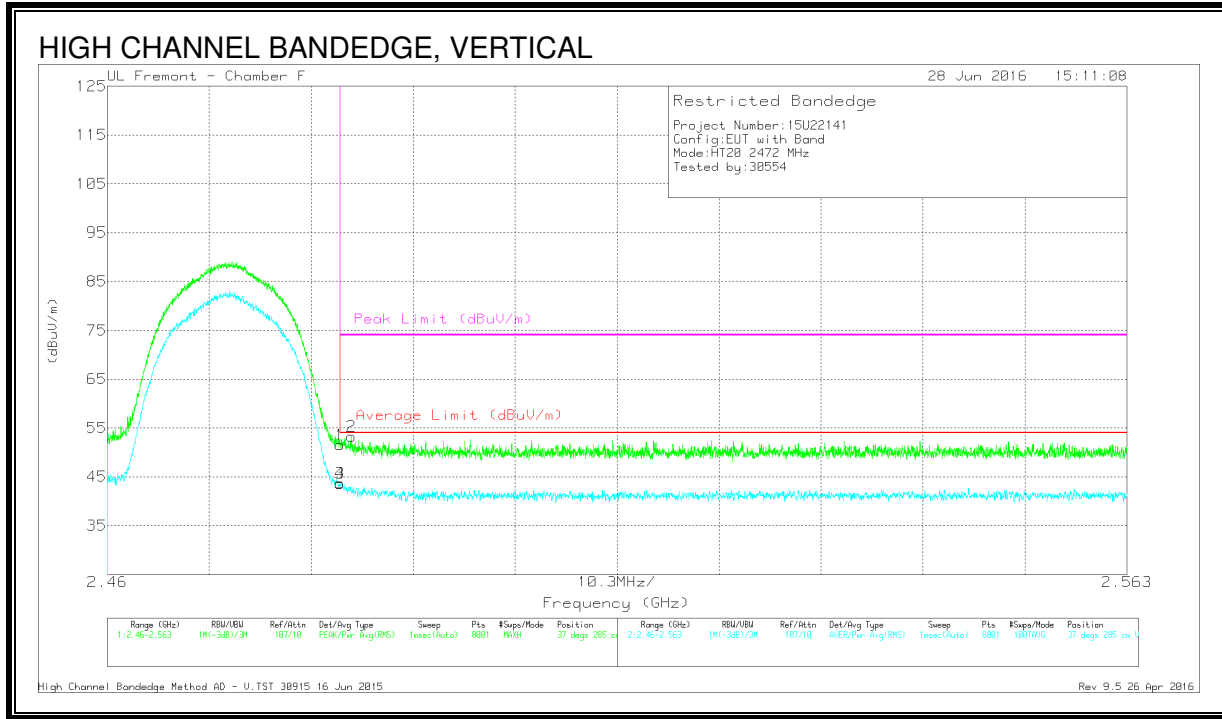
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl /Filtr/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	44.18	Pk	32.3	-21	55.48	-	-	74	-18.52	80	181	H
2	* 2.484	45.56	Pk	32.3	-21	56.86	-	-	74	-17.14	80	181	H
3	* 2.484	35.48	RMS	32.3	-21	46.78	54	-7.22	-	-	80	181	H
4	* 2.484	35.9	RMS	32.3	-21	47.2	54	-6.8	-	-	80	181	H

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

Pk - Peak detector

RMS - RMS detection



DATA

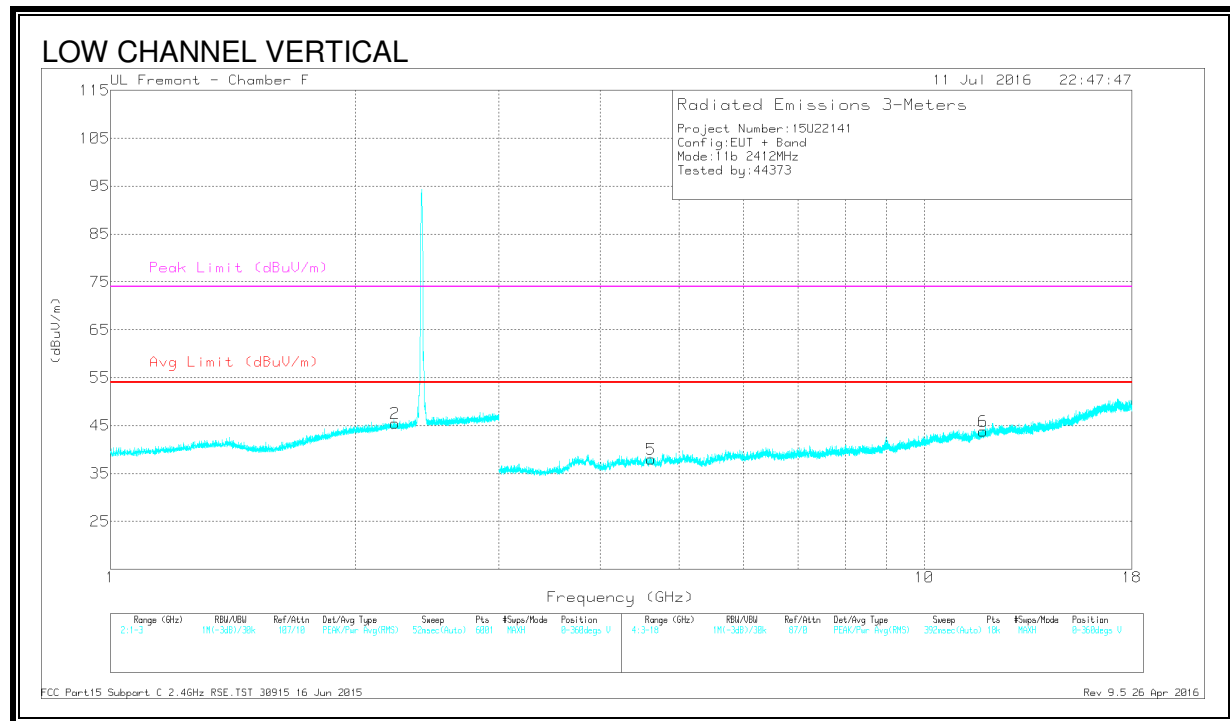
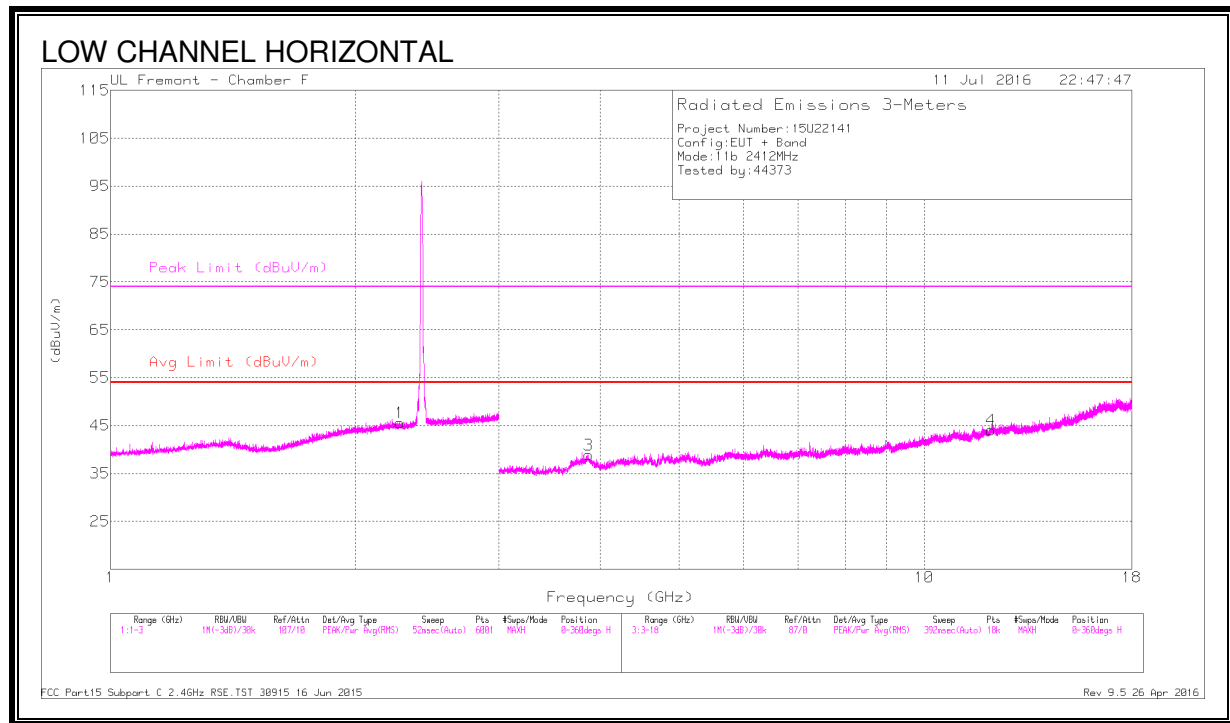
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.23	Pk	32.3	-21	51.53	-	-	74	-22.47	37	285	V
2	* 2.485	41.82	Pk	32.3	-20.9	53.22	-	-	74	-20.78	37	285	V
3	* 2.484	32.35	RMS	32.3	-21	43.65	54	-10.35	-	-	37	285	V
4	* 2.484	32.37	RMS	32.3	-21	43.67	54	-10.33	-	-	37	285	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



DATA

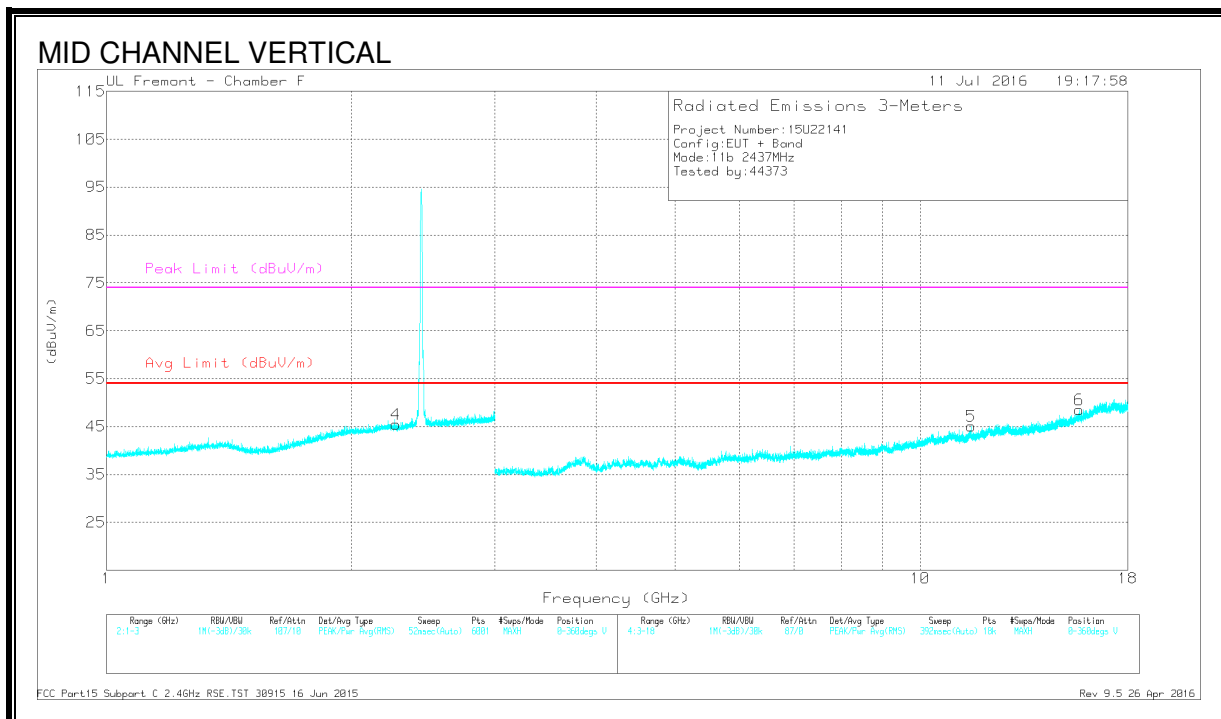
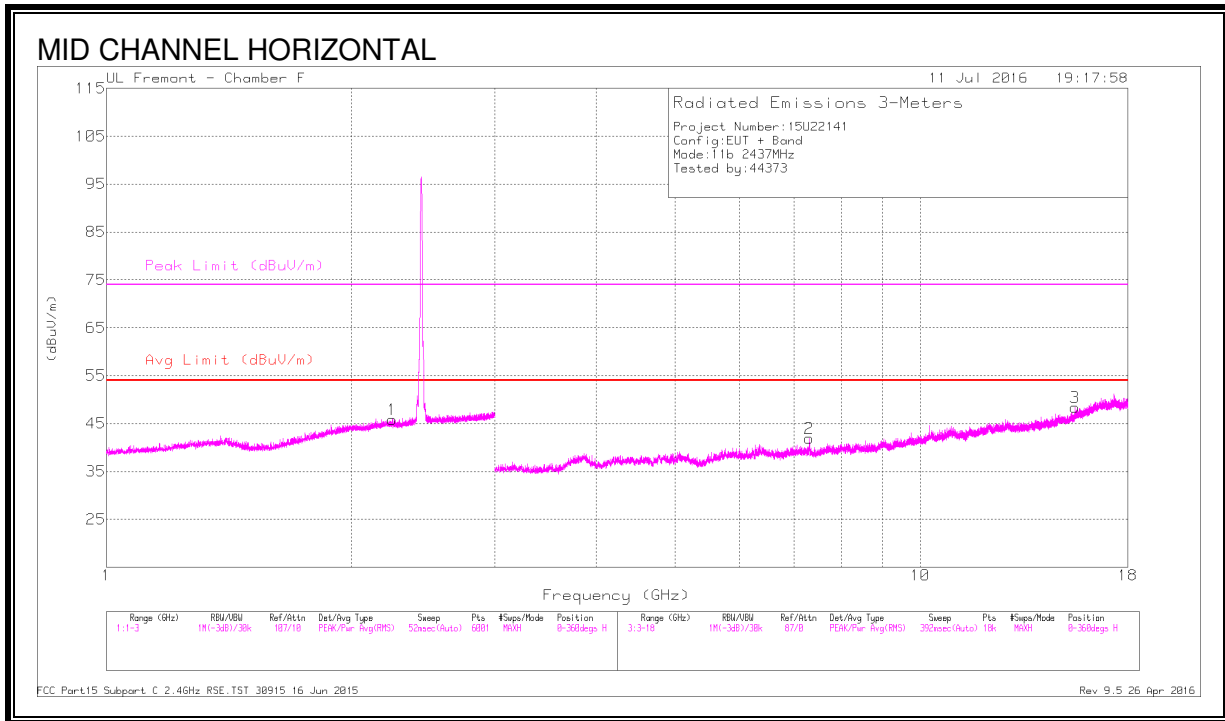
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.266	41.35	PK2	31.8	-21	52.15	-	-	74	-21.85	97	341	H
1	* 2.269	30.37	MAv1	31.7	-21	41.07	54	-12.93	-	-	97	341	H
3	* 3.871	38.18	PK2	33.4	-28.3	43.28	-	-	74	-30.72	0	118	H
3	* 3.872	27.58	MAv1	33.4	-28.3	32.68	54	-21.32	-	-	0	118	H
2	* 2.236	34.66	PK	31.8	-21	45.46	-	-	74	-28.54	245	201	V
2	* 2.236	26.76	MAv1	31.8	-21	37.56	54	-16.44			245	155	V
4	* 12.078	33.89	PK2	38.9	-22.3	50.49	-	-	74	-23.51	234	214	H
4	* 12.08	23.57	MAv1	38.9	-22.3	40.17	54	-13.83	-	-	234	214	H
5	* 4.613	37.56	PK2	34.1	-28	43.66	-	-	74	-30.34	237	290	V
5	* 4.615	27.19	MAv1	34.1	-28	33.29	54	-20.71	-	-	237	290	V
6	* 11.817	33.85	PK2	38.4	-22.1	50.15	-	-	74	-23.85	135	222	V
6	* 11.816	23.96	MAv1	38.4	-22.1	40.26	54	-13.74	-	-	135	222	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



DATA

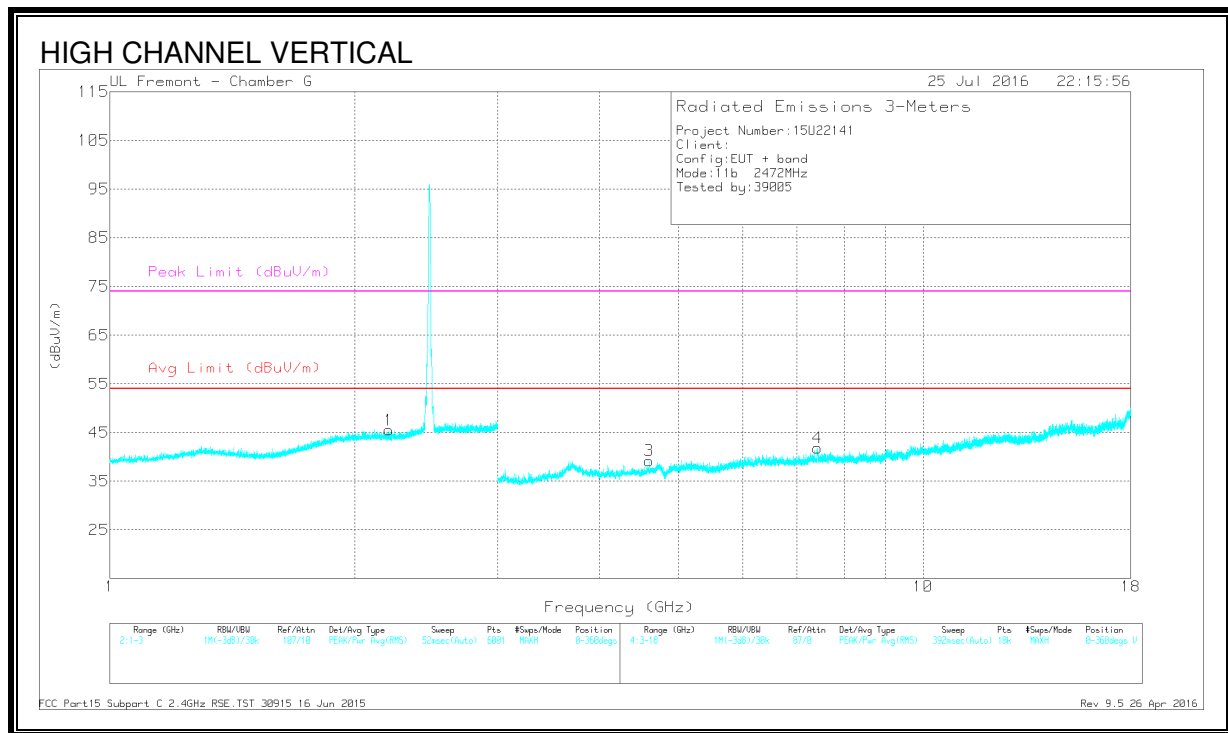
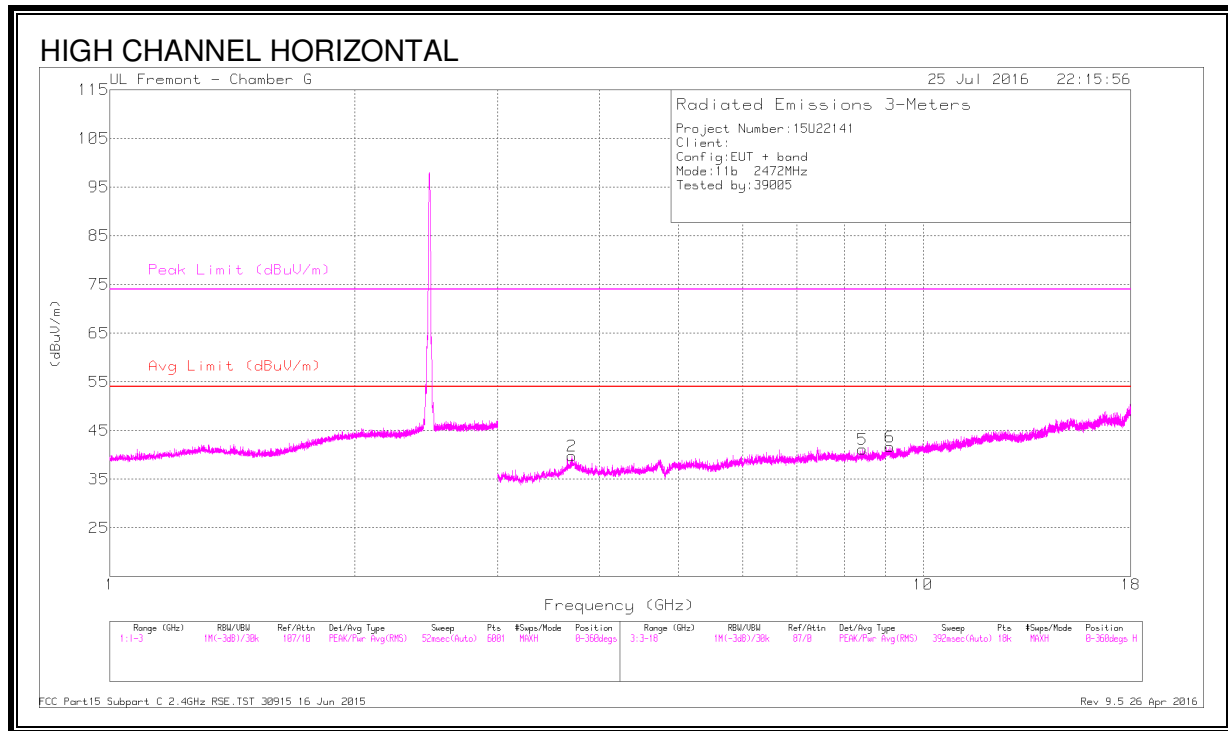
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Filtr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.246	42.73	PK2	31.8	-21	53.53	-	-	74	-20.47	293	319	H
	* 2.248	30.34	MAv1	31.8	-21	41.14	54	-12.86	-	-	293	319	H
2	* 7.308	37.07	PK2	35.5	-26.5	46.07	-	-	74	-27.93	148	193	H
	* 7.31	26.89	MAv1	35.5	-26.5	35.89	54	-18.11	-	-	148	193	H
3	* 15.499	35.02	PK2	40.4	-22.1	53.32	-	-	74	-20.68	126	185	H
	* 15.5	25.18	MAv1	40.4	-22.1	43.48	54	-10.52	-	-	126	185	H
4	* 2.267	42.13	PK2	31.7	-21	52.83	-	-	74	-21.17	157	139	V
	* 2.268	30.31	MAv1	31.7	-21	41.01	54	-12.99	-	-	157	139	V
5	* 11.561	34.1	PK2	38.1	-21.5	50.7	-	-	74	-23.3	76	189	V
	* 11.564	23.62	MAv1	38.1	-21.5	40.22	54	-13.78	-	-	76	189	V
6	* 15.687	35.69	PK2	40.7	-22	54.39	-	-	74	-19.61	35	150	V
	* 15.683	25.13	MAv1	40.7	-22	43.83	54	-10.17	-	-	35	150	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 13



DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.204	44.06	PK2	31.5	-24	51.56	-	-	74	-22.44	82	201	V
* 2.205	33.41	MAv1	31.5	-24	40.91	54	-13.09	-	-	82	201	V
* 3.702	42.68	PK2	34.3	-30.7	46.28	-	-	74	-27.72	233	186	H
* 3.703	31.76	MAv1	34.3	-30.7	35.36	54	-18.64	-	-	233	186	H
* 8.429	39.58	PK2	35.8	-28.4	46.98	-	-	74	-27.02	260	188	H
* 8.428	29.72	MAv1	35.8	-28.4	37.12	54	-16.88	-	-	260	188	H
* 9.098	40.13	PK2	36.1	-27.8	48.43	-	-	74	-25.57	255	196	H
* 9.098	29.44	MAv1	36.1	-27.8	37.74	54	-16.26	-	-	255	196	H
* 4.603	42.61	PK2	34.4	-31.9	45.11	-	-	74	-28.89	102	207	V
* 4.604	31.93	MAv1	34.4	-31.9	34.43	54	-19.57	-	-	102	207	V
* 7.415	41.36	PK2	35.8	-30.4	46.76	-	-	74	-27.24	223	190	V
* 7.415	30.23	MAv1	35.8	-30.4	35.63	54	-18.37	-	-	223	190	V

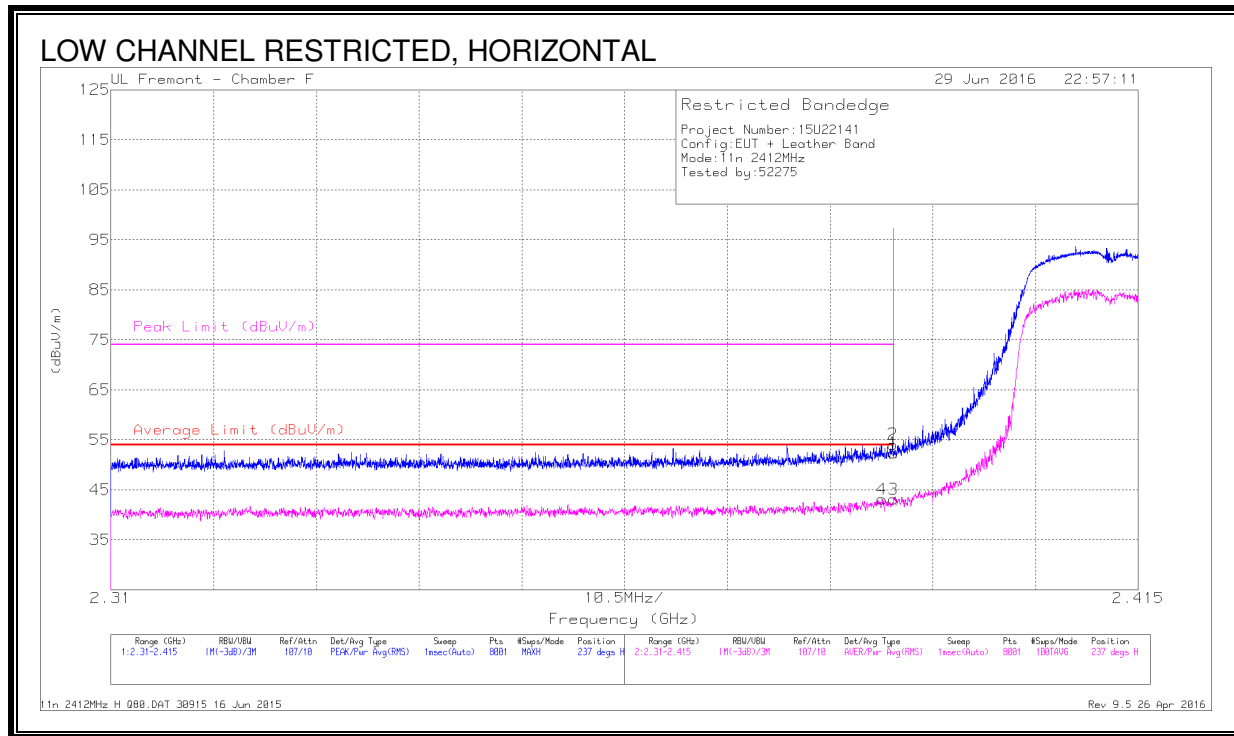
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

9.2.2. 802.11HT20 1Tx MODE IN THE 2.4 GHz BAND

RESTRICTED BANDEDGE (LOW CHANNEL, CH 1)



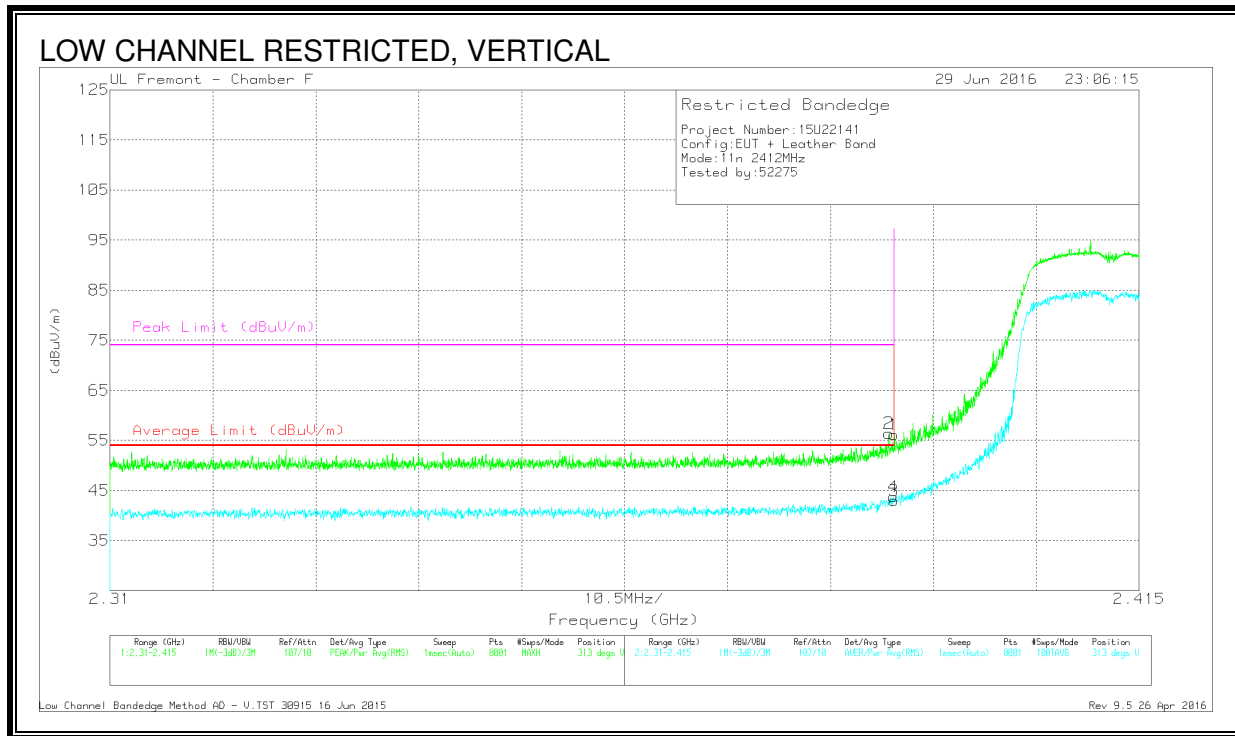
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/F ltr/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	41.19	Pk	32.1	-20.9	52.39	-	-	74	-21.61	237	334	H
2	* 2.39	42.89	Pk	32.1	-20.9	54.09	-	-	74	-19.91	237	334	H
3	* 2.39	31.95	RMS	32.1	-20.9	43.15	54	-10.85	-	-	237	334	H
4	* 2.389	31.96	RMS	32.1	-20.9	43.16	54	-10.84	-	-	237	334	H

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

Pk - Peak detector

RMS - RMS detection



DATA

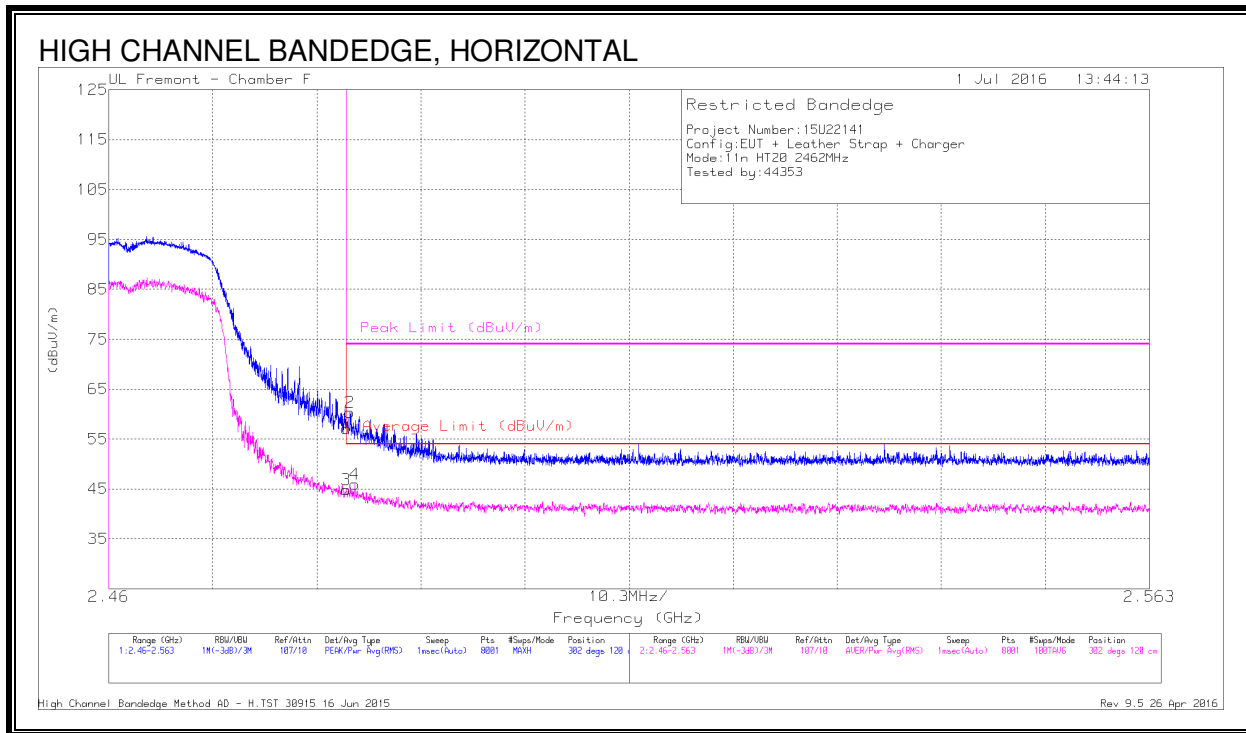
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl /Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	44.96	Pk	32.1	-20.9	56.16	-	-	74	-17.84	313	377	V
2	* 2.389	45.24	Pk	32.1	-20.9	56.44	-	-	74	-17.56	313	377	V
3	* 2.39	31.81	RMS	32.1	-20.9	43.01	54	-10.99	-	-	313	377	V
4	* 2.39	32.53	RMS	32.1	-20.9	43.73	54	-10.27	-	-	313	377	V

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEGE (HIGH CHANNEL, CH 11)



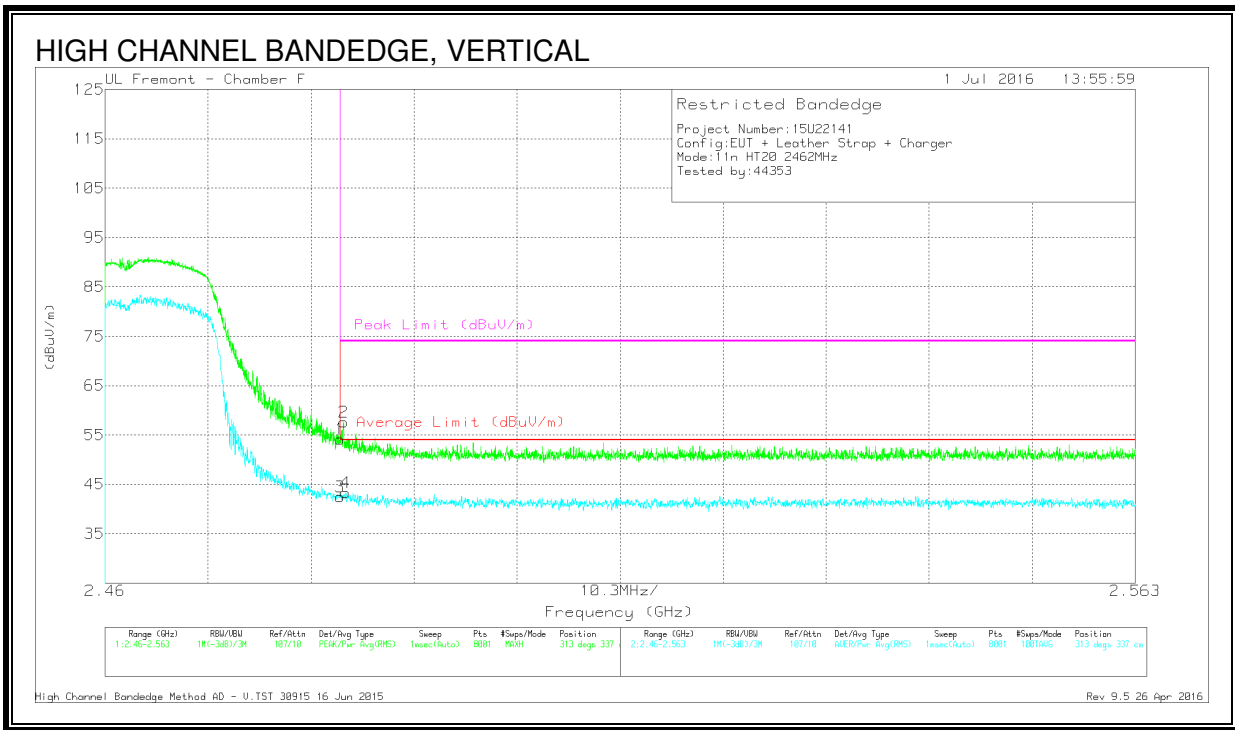
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Filtr/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	45.79	Pk	32.3	-21	57.09	-	-	74	-16.91	302	120	H
2	* 2.484	49.02	Pk	32.3	-21	60.32	-	-	74	-13.68	302	120	H
3	* 2.484	33.56	RMS	32.3	-21	44.86	54	-9.14	-	-	302	120	H
4	* 2.484	34.67	RMS	32.3	-21	45.97	54	-8.03	-	-	302	120	H

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

Pk - Peak detector

RMS - RMS detection

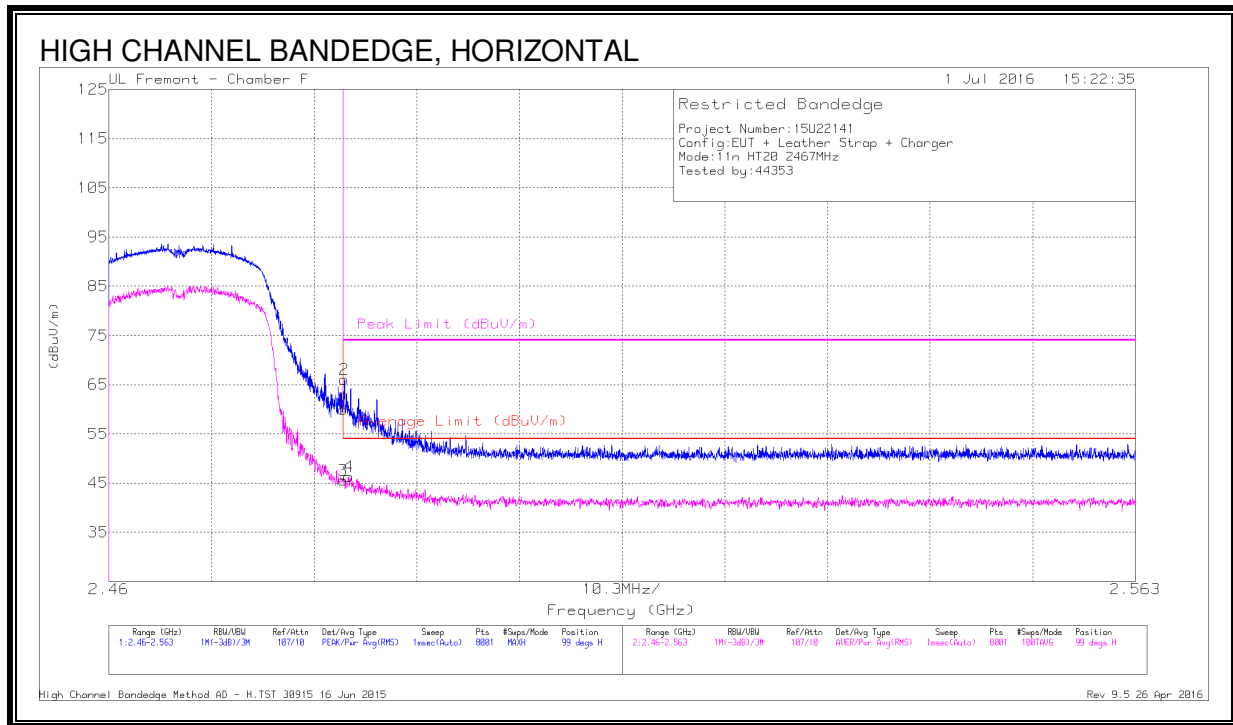


DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/ Cbl/FI tr/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	42.9	Pk	32.3	-21	54.2	-	-	74	-19.8	313	337	V
2	* 2.484	46.26	Pk	32.3	-21	57.56	-	-	74	-16.44	313	337	V
3	* 2.484	31.16	RMS	32.3	-21	42.46	54	-11.54	-	-	313	337	V
4	* 2.484	32	RMS	32.3	-21	43.3	54	-10.7	-	-	313	337	V

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

AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 12)



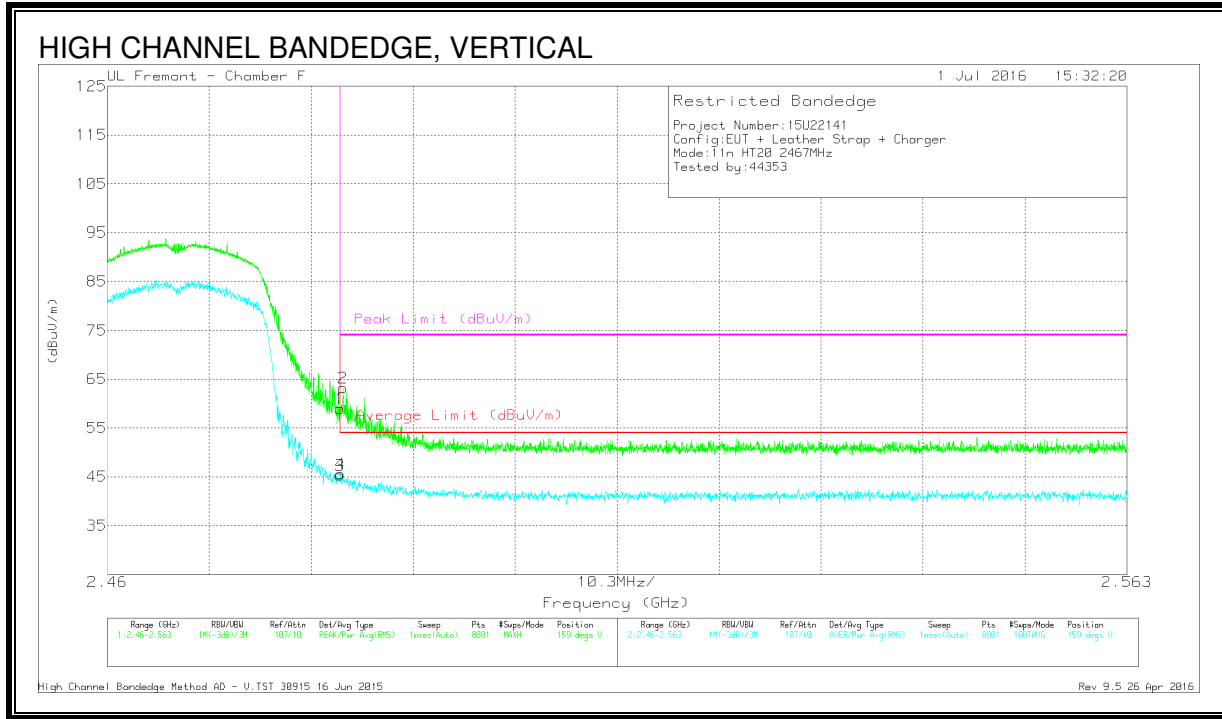
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cb/Ftr/Pa d (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	48.71	Pk	32.3	-21	60.01	-	-	74	-13.99	99	117	H
2	* 2.484	54.72	Pk	32.3	-21	66.02	-	-	74	-7.98	99	117	H
3	* 2.484	34.33	RMS	32.3	-21	45.63	54	-8.37	-	-	99	117	H
4	* 2.484	35.02	RMS	32.3	-21	46.32	54	-7.68	-	-	99	117	H

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

Pk - Peak detector

RMS - RMS detection



DATA

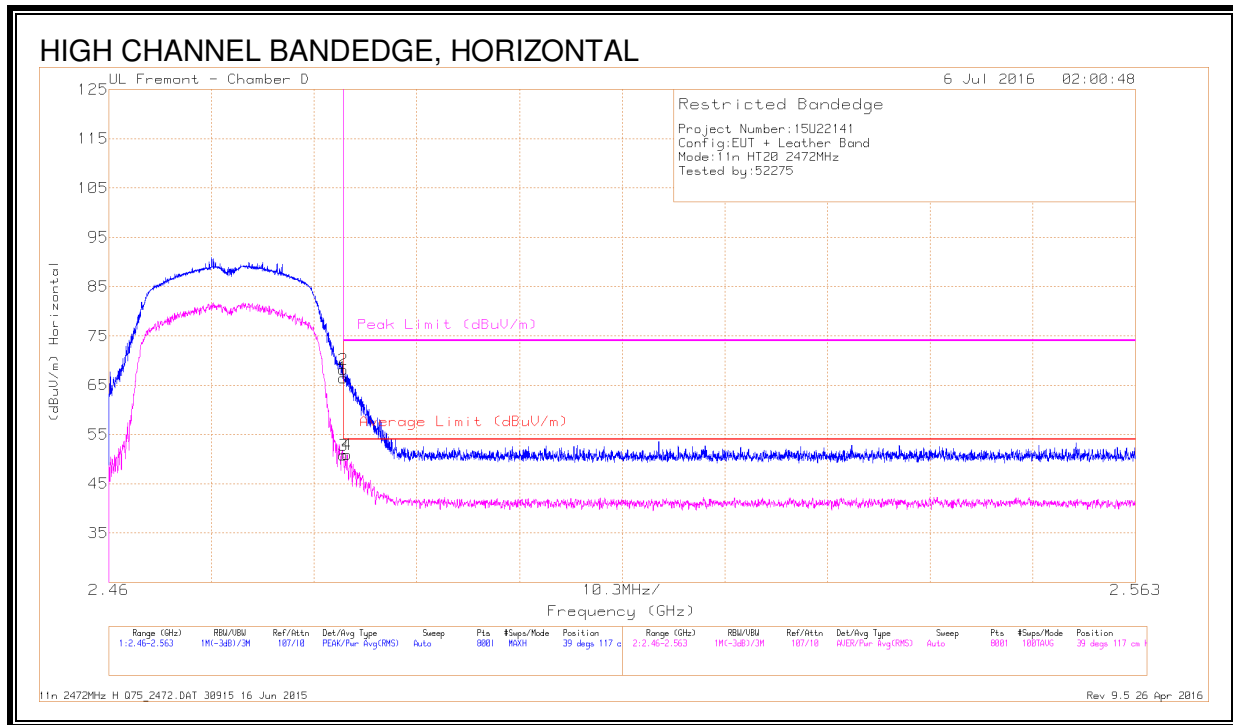
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Filtr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	47.74	Pk	32.3	-21	59.04	-	-	74	-14.96	159	177	V
2	* 2.484	51.93	Pk	32.3	-21	63.23	-	-	74	-10.77	159	177	V
3	* 2.484	34.04	RMS	32.3	-21	45.34	54	-8.66	-	-	159	177	V
4	* 2.484	34.29	RMS	32.3	-21	45.59	54	-8.41	-	-	159	177	V

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

Pk - Peak detector

RMS - RMS detection

AUTHORIZED BANDEDGE (HIGH CHANNEL, CH 13)



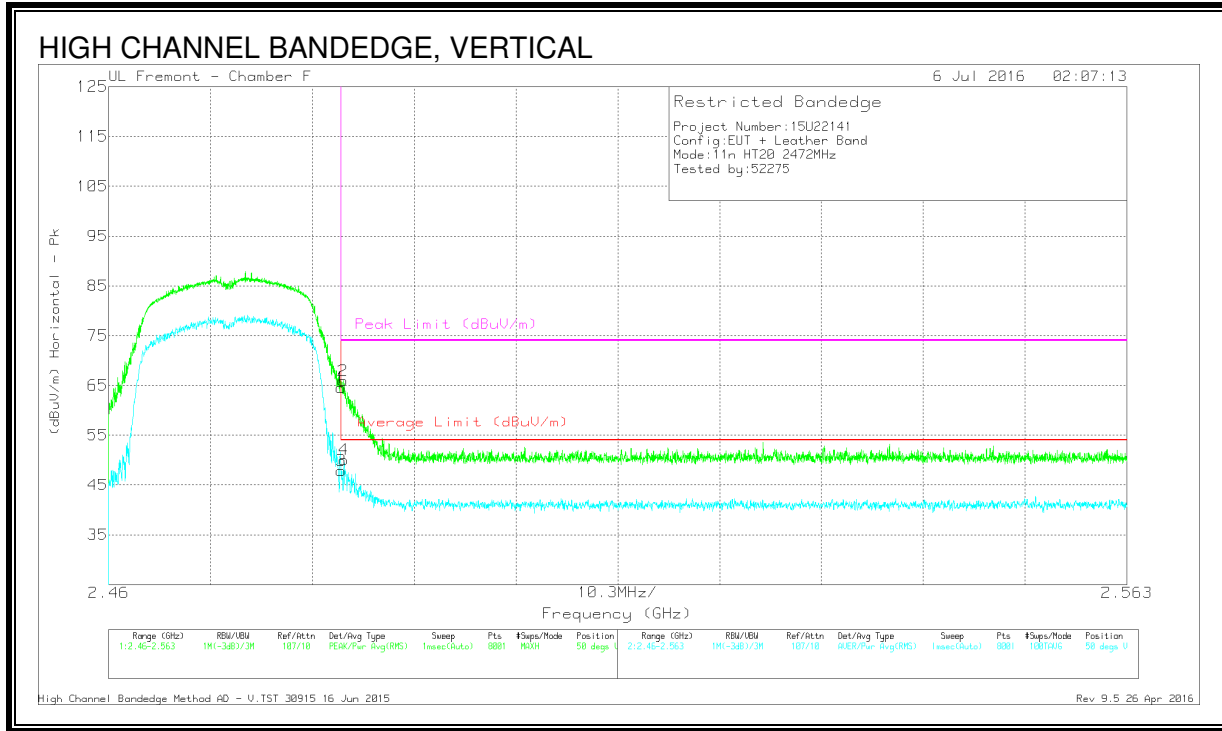
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Ftr/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	55.19	Pk	32.3	-21	66.49	-	-	74	-7.51	39	117	H
2	* 2.484	56.87	Pk	32.3	-21	68.17	-	-	74	-5.83	39	117	H
3	* 2.484	39.45	RMS	32.3	-21	50.75	54	-3.25	-	-	39	117	H
4	* 2.484	39.63	RMS	32.3	-21	50.93	54	-3.07	-	-	39	117	H

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

Pk - Peak detector

RMS - RMS detection



DATA

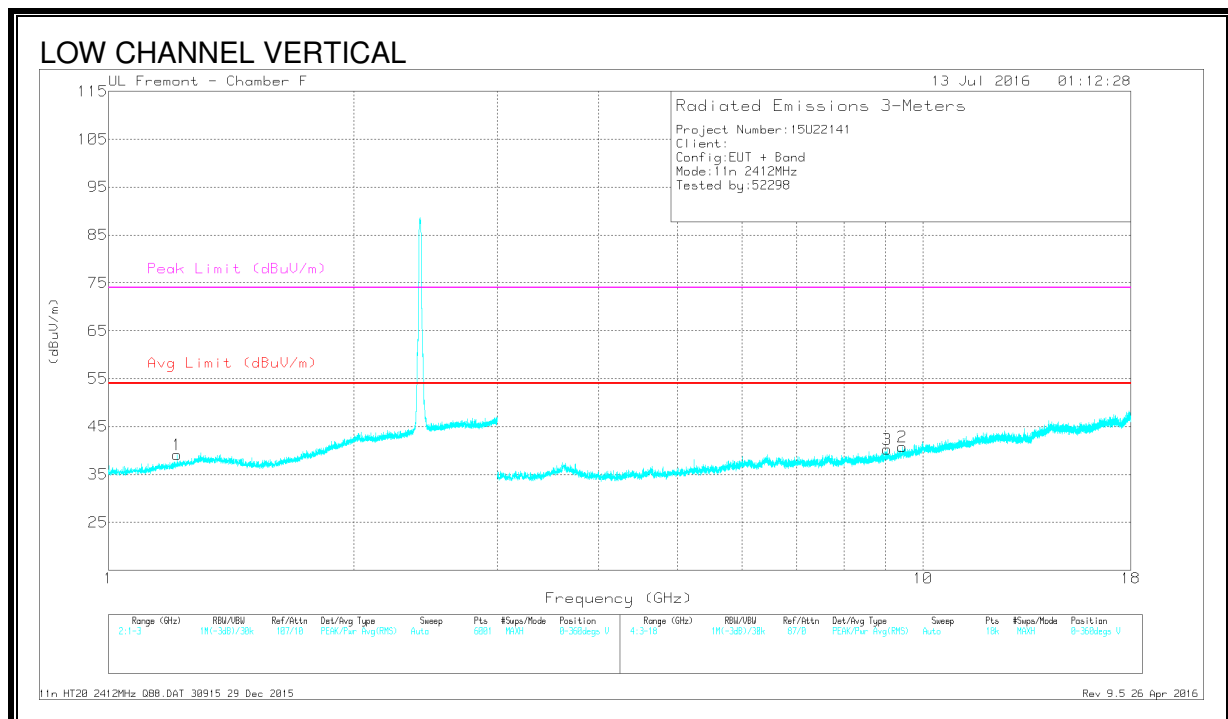
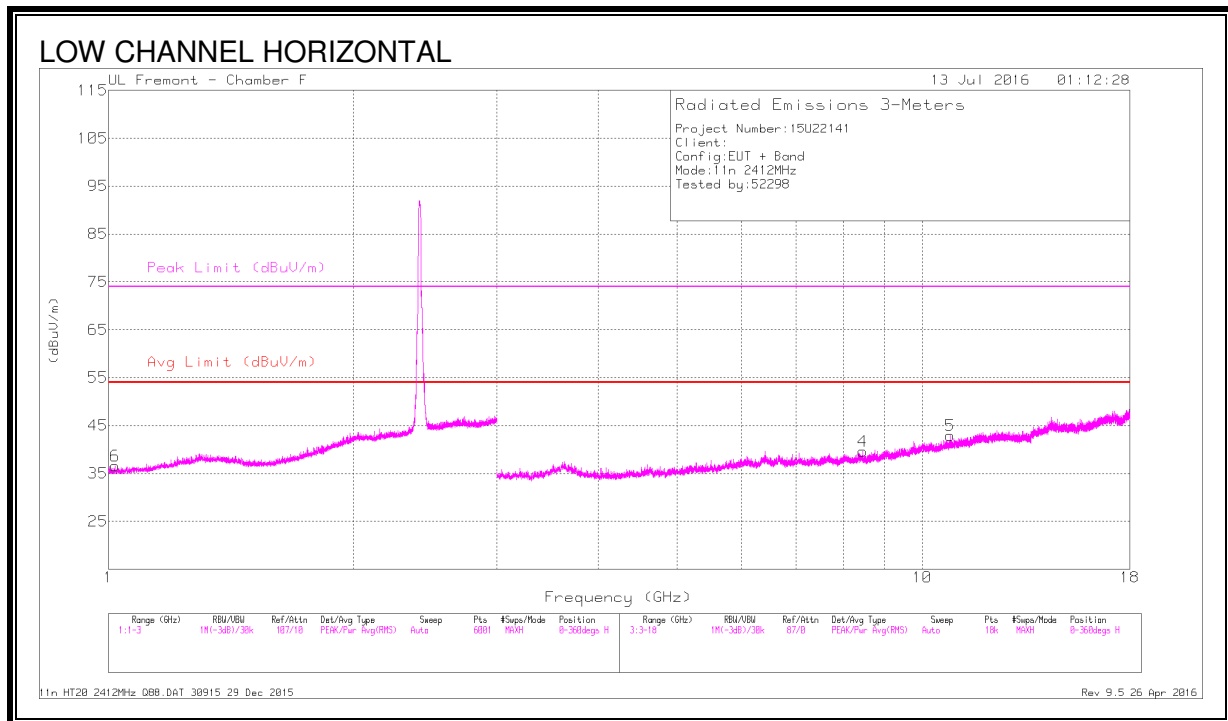
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T344 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	53.25	Pk	32.3	-21	64.55	-	-	74	-9.45	50	256	V
2	* 2.484	54.67	Pk	32.3	-21	65.97	-	-	74	-8.03	50	256	V
3	* 2.484	36.6	RMS	32.3	-21	47.9	54	-6.1	-	-	50	256	V
4	* 2.484	38.79	RMS	32.3	-21	50.09	54	-3.91	-	-	50	256	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)



DATA

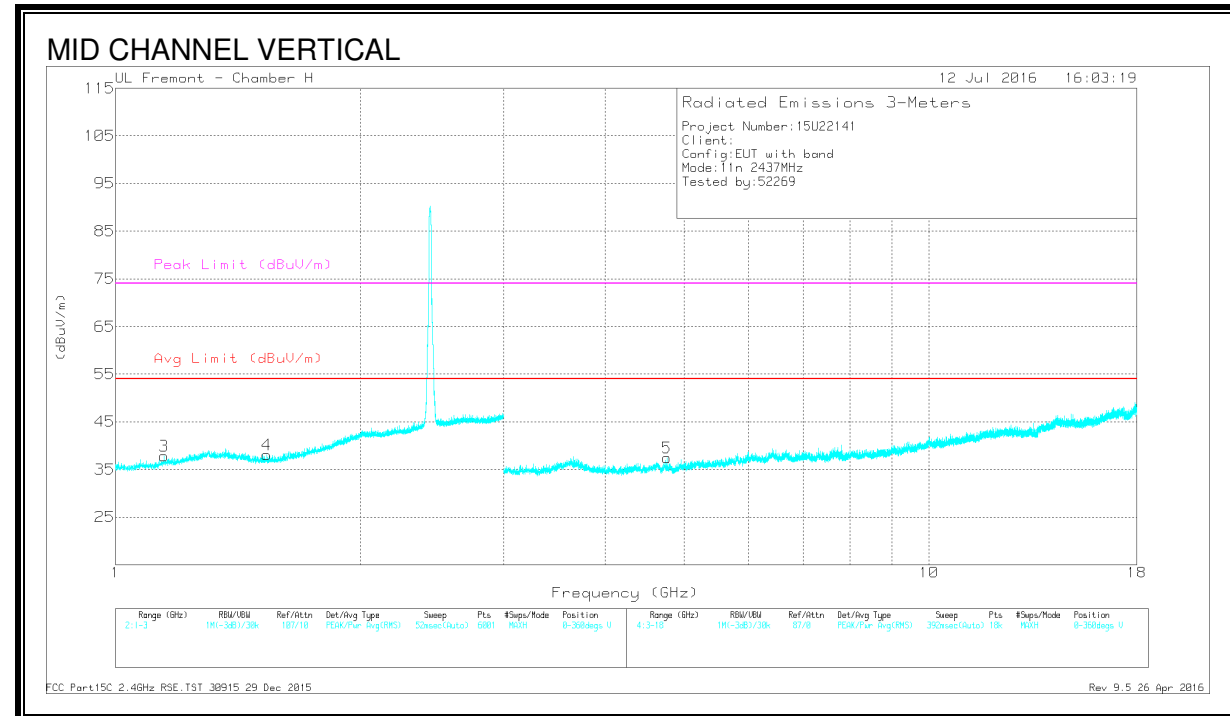
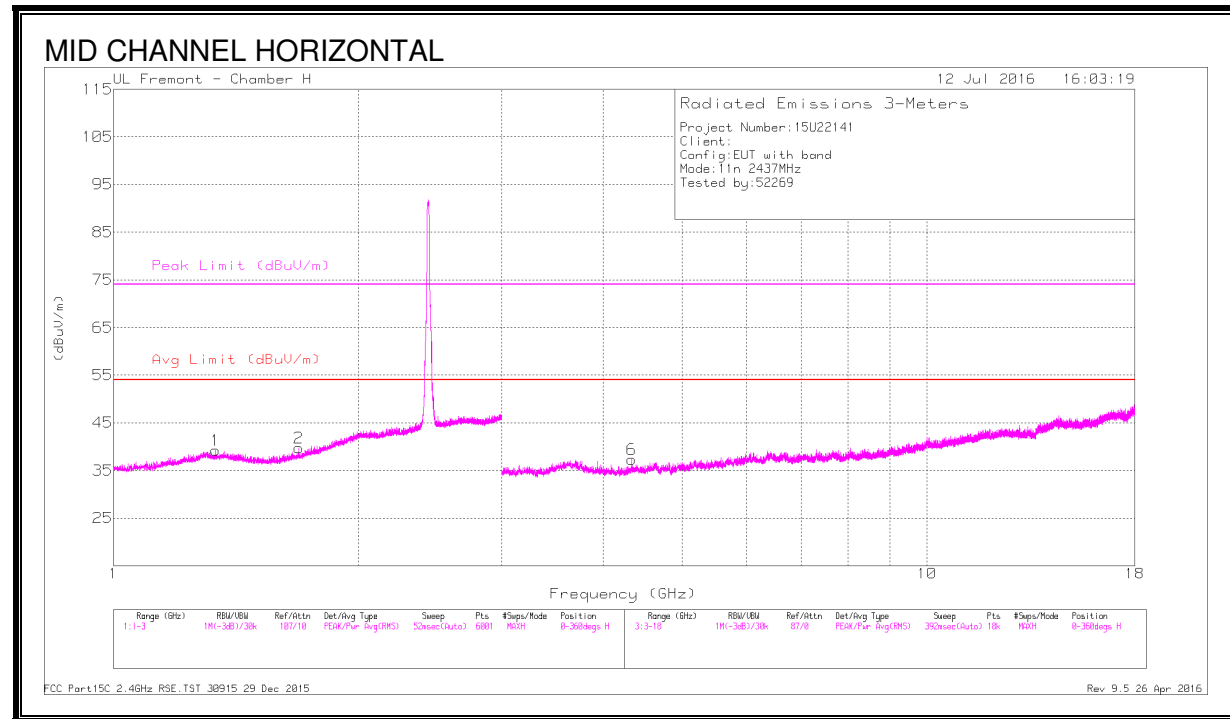
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.02	38.08	PK2	27.7	-22.3	43.48	-	-	74	-30.52	274	326	H
* 1.02	27.28	MAv1	27.7	-22.3	32.68	54	-21.32	-	-	274	326	H
* 1.215	38.27	PK2	28.8	-22.1	44.97	-	-	74	-29.03	294	328	V
* 1.214	27.36	MAv1	28.8	-22.2	33.96	54	-20.04	-	-	294	328	V
* 10.83	38.07	PK2	38.2	-28	48.27	-	-	74	-25.73	260	100	H
* 10.829	27.89	MAv1	38.2	-28	38.09	54	-15.91	-	-	260	100	H
* 9.432	38.47	PK2	36.8	-28.8	46.47	-	-	74	-27.53	221	156	V
* 9.43	28.51	MAv1	36.8	-28.8	36.51	54	-17.49	-	-	221	156	V
* 9.048	38.88	PK2	36.3	-28.9	46.28	-	-	74	-27.72	281	212	V
* 9.046	28.5	MAv1	36.3	-28.9	35.9	54	-18.1	-	-	281	212	V
* 11.52	34.78	PK2	38.8	-27.1	46.48	-	-	74	-27.52	94	244	V
* 11.52	22.72	MAv1	38.8	-27.1	34.42	54	-19.58	-	-	94	244	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)



DATA

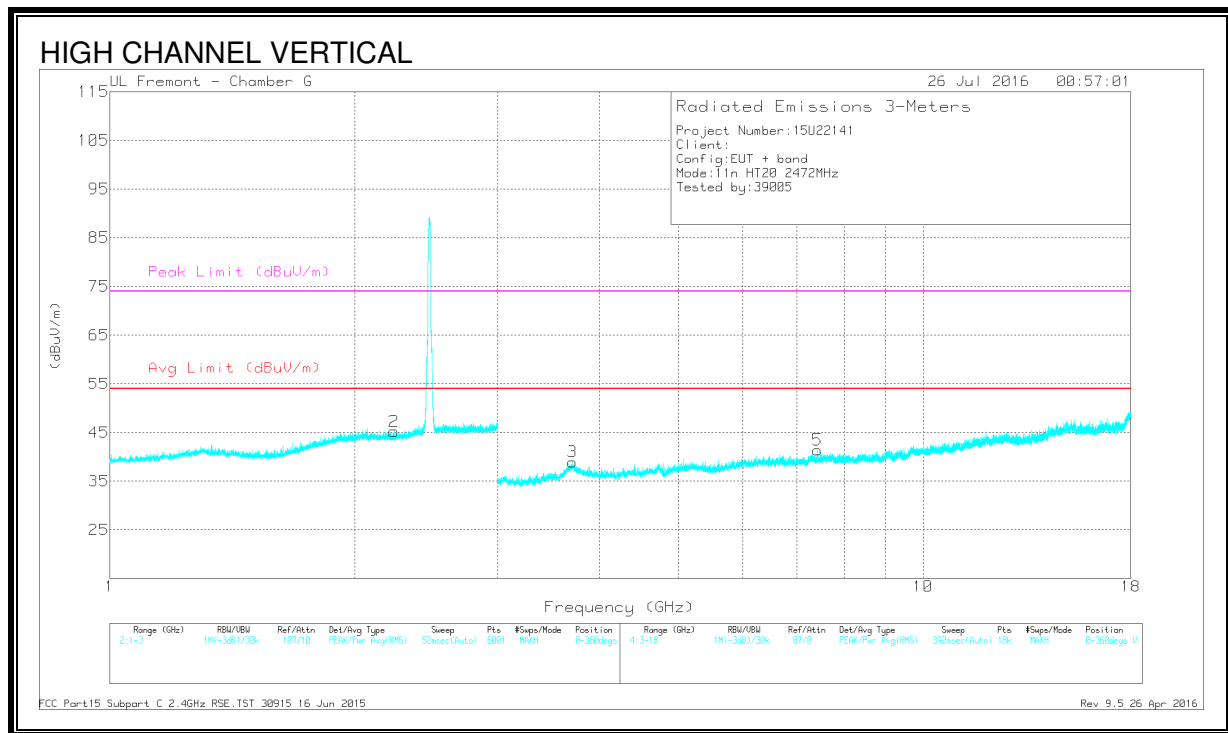
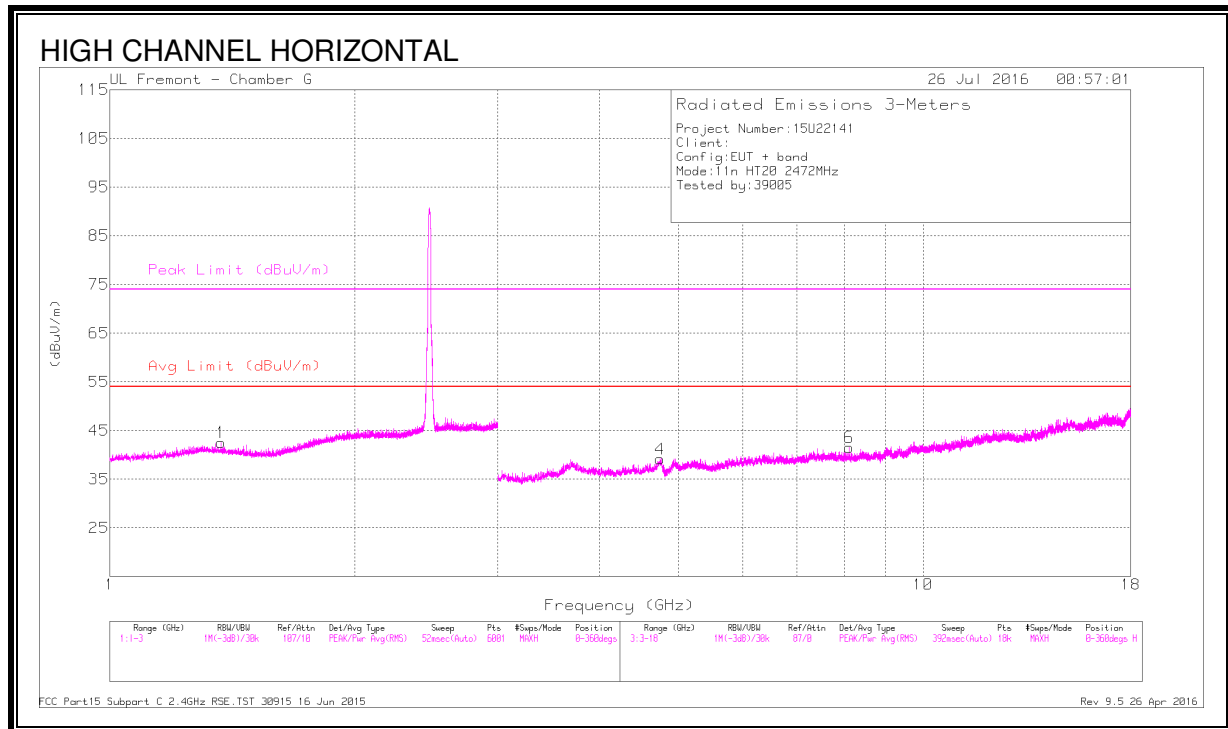
	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitr/ Pad (dB)	Correcte d Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.337	38.49	PK2	29.6	-22	46.09	-	-	74	-27.91	360	100	H
	* 1.335	27.09	MAv1	29.6	-22	34.69	54	-19.31	-	-	360	100	H
2	* 1.691	38.73	PK2	28.7	-21	46.43	-	-	74	-27.57	360	100	H
	* 1.689	27.14	MAv1	28.6	-21	34.74	54	-19.26	-	-	360	100	H
3	* 1.15	37.63	PK2	28.3	-22.1	43.83	-	-	74	-30.17	360	100	V
	* 1.149	27.07	MAv1	28.3	-22.1	33.27	54	-20.73	-	-	360	100	V
4	* 1.149	38.14	PK2	28.3	-22.1	44.34	-	-	74	-29.66	360	100	V
	* 1.149	27.11	MAv1	28.3	-22.1	33.31	54	-20.69	-	-	360	100	V
6	* 4.338	43.84	PK2	33.5	-35	42.34	-	-	74	-31.66	220	338	H
	* 4.341	33.43	MAv1	33.6	-35	32.03	54	-21.97	-	-	220	338	H
5	* 4.341	43.83	PK2	33.6	-35	42.43	-	-	74	-31.57	220	338	H
	* 4.339	33.52	MAv1	33.5	-35	32.02	54	-21.98	-	-	220	338	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 13)



DATA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.371	44.44	PK2	28.9	-24.9	48.44	-	-	74	-25.56	85	197	H
* 1.372	33.64	MAv1	28.9	-24.9	37.64	54	-16.36	-	-	85	197	H
* 2.237	44.8	PK2	31.5	-24	52.3	-	-	74	-21.7	130	207	V
* 2.236	33.51	MAv1	31.5	-24	41.01	54	-12.99	-	-	130	207	V
* 4.747	43.16	PK2	34.4	-31.8	45.76	-	-	74	-28.24	125	187	H
* 4.749	32.81	MAv1	34.4	-31.8	35.41	54	-18.59	-	-	125	187	H
* 8.117	40.36	PK2	35.8	-28.9	47.26	-	-	74	-26.74	166	181	H
* 8.116	29.89	MAv1	35.8	-29	36.69	54	-17.31	-	-	166	181	H
* 3.709	42.71	PK2	34.3	-30.7	46.31	-	-	74	-27.69	203	211	V
* 3.708	31.77	MAv1	34.3	-30.7	35.37	54	-18.63	-	-	203	211	V
* 7.422	43.94	PK2	35.8	-30.3	49.44	-	-	74	-24.56	194	107	V
* 7.422	32.02	MAv1	35.8	-30.3	37.52	54	-16.48	-	-	194	107	V

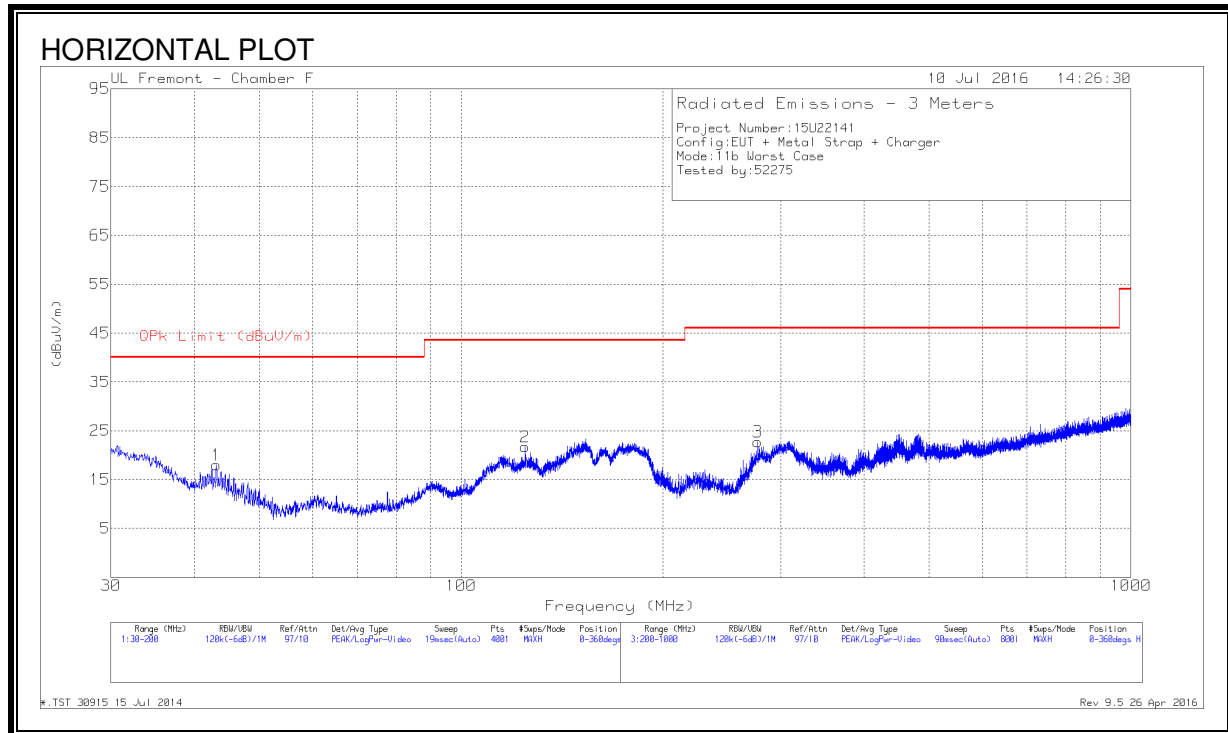
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

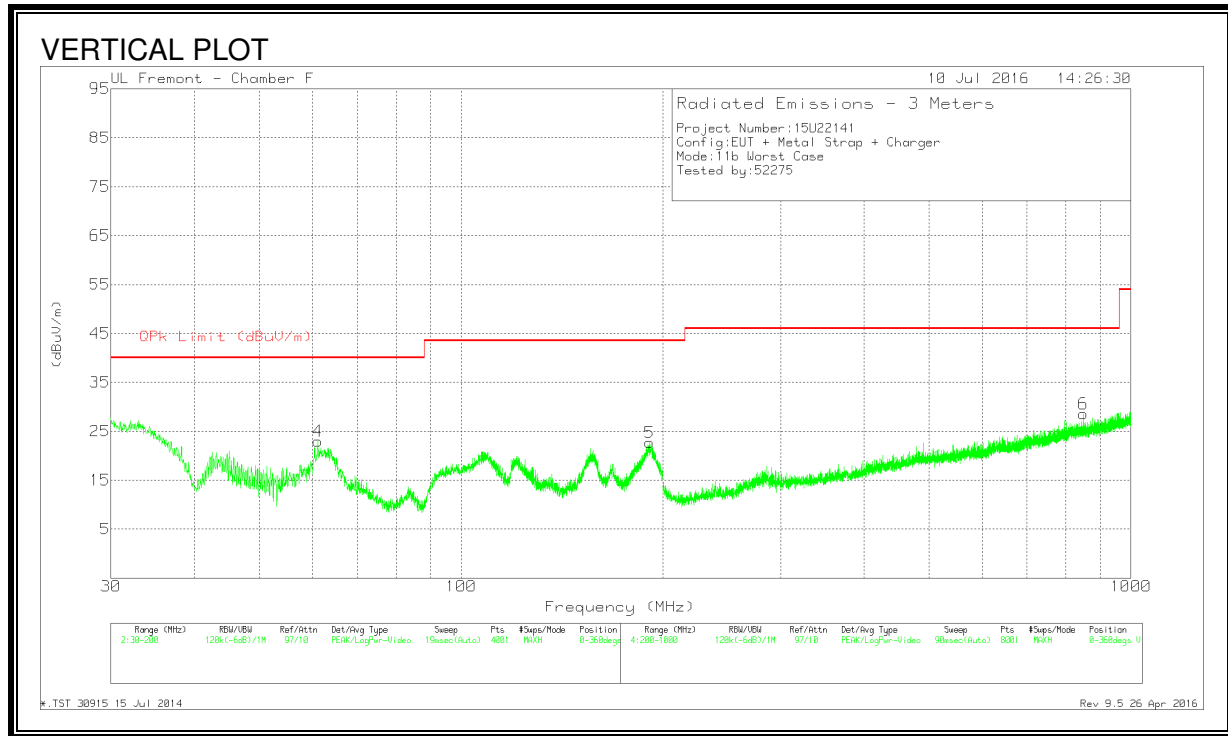
MAv1 - KDB558074 Option 1 Maximum RMS Average

9.3. WORST-CASE BELOW 1 GHz

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



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



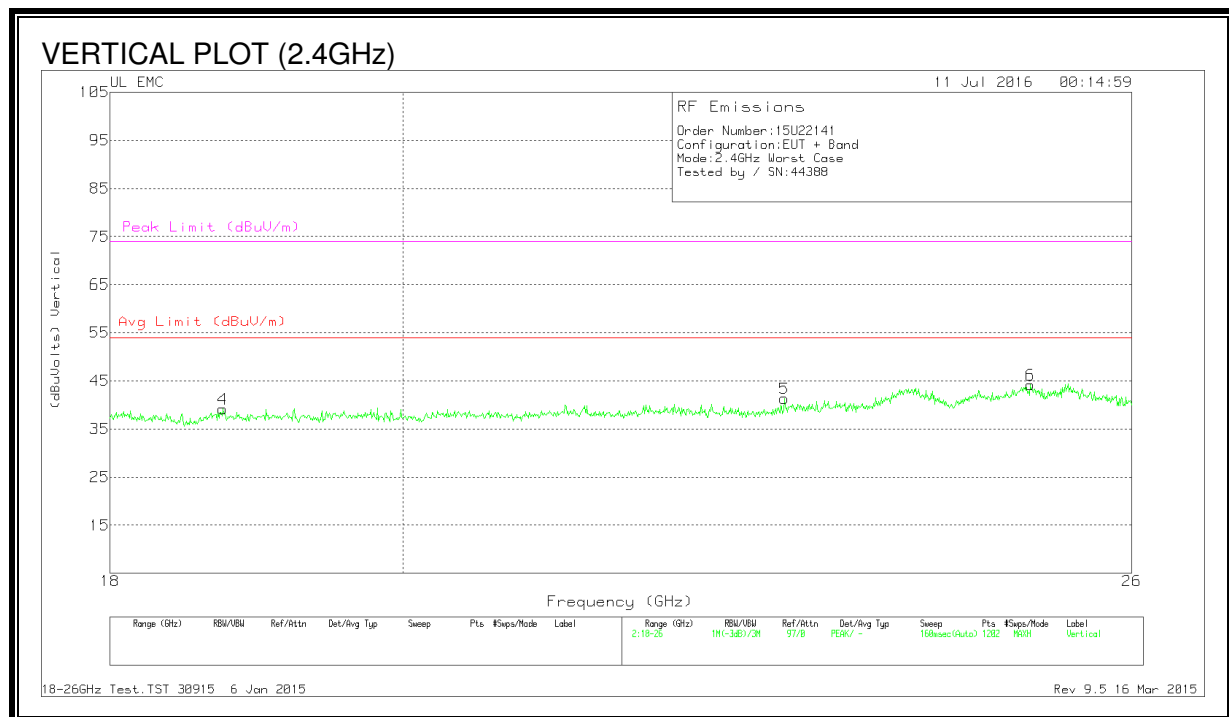
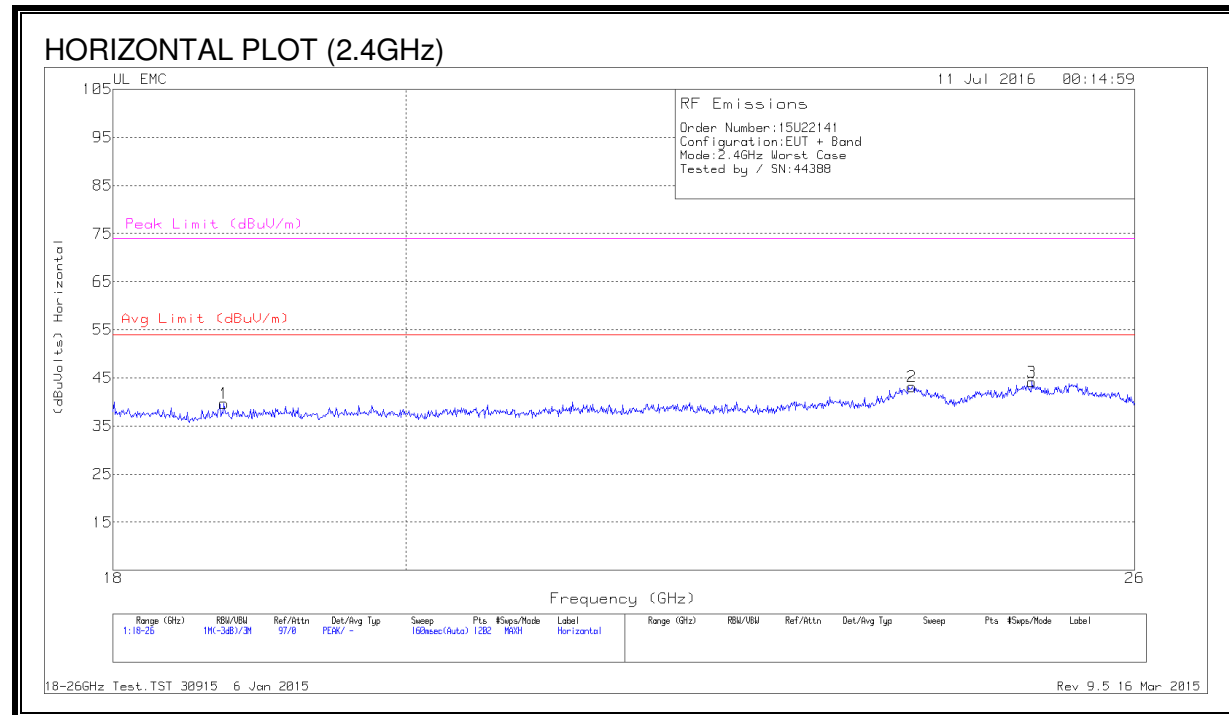
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	43.1325	34.19	Pk	15.5	-31.7	17.99	40	-22.01	0-360	399	H
2	* 124.5625	34.6	Pk	18.1	-31	21.7	43.52	-21.82	0-360	301	H
4	61.11	43.18	Pk	11.3	-31.5	22.98	40	-17.02	0-360	100	V
5	191.245	38	Pk	15.2	-30.5	22.7	43.52	-20.82	0-360	100	V
3	* 277.3	35.44	Pk	17.3	-30	22.74	46.02	-23.28	0-360	99	H
6	849.1	30.2	Pk	25.8	-27.4	28.6	46.02	-17.42	0-360	299	V

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

9.4. WORST-CASE 18 to 26 GHz

SPURIOUS EMISSIONS 18 TO 26 GHz (WORST-CASE CONFIGURATION, HORIZONTAL & VERTICAL)



HORIZONTAL & VERTICAL 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	18.733	41.47	Pk	32.4	-24.7	-9.5	39.67	54	-14.33	74	-34.33
2	23.995	43.07	Pk	34	-24.4	-9.5	43.17	54	-10.83	74	-30.83
3	25.054	44.37	Pk	34.3	-25	-9.5	44.17	54	-9.83	74	-29.83
4	18.746	40.87	Pk	32.4	-24.6	-9.5	39.17	54	-14.83	74	-34.83
5	22.943	42.43	Pk	33.4	-25	-9.5	41.33	54	-12.67	74	-32.67
6	25.067	44.17	Pk	34.3	-24.8	-9.5	44.17	54	-9.83	74	-29.83

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

Line conducted data is recorded for both NEUTRAL and HOT lines.

RESULTS

EUT is powered by battery. AC line conducted emission is not applicable.