



CERTIFICATION TEST REPORT

Report Number. : 11708394-E2V3

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

Model : A1905

FCC ID : BCG-E3172A

IC : 579C-E3172A

EUT Description : SMARTPHONE

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

Date Of Issue:
August 16, 2017

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	7/25/2017	Initial Issue	Chin Pang
V2	8/08/2017	Address TCB's Question	Chin Pang
V3	8/16/2017	Address TCB's Question	Chin Pang

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: SMARTPHONE

MODEL: A1905

SERIAL NUMBER: C7CTW008J8W1

DATE TESTED: APRIL 19, 2017 – JUNE 29, 2017

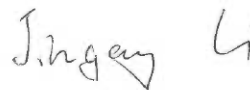
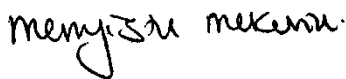
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Pass
INDUSTRY CANADA RSS-247 Issue 2	Pass
INDUSTRY CANADA RSS-GEN Issue 4	Pass

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 any government.

Approved & Released For
UL Verification Services Inc. By:

Prepared By:



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UL VERIFICATION SERVICES INC.

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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 v04, 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 (IC:2324B-1)	☒ Chamber D (IC: 22541-1)
☐ Chamber B (IC:2324B-2)	☒ Chamber E (IC: 22541-2)
☐ Chamber C (IC:2324B-3)	☐ Chamber F (IC: 22541-3)
	☐ Chamber G (IC: 22541-4)
	☐ Chamber H (IC: 22541-5)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0. 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:

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

4.3. MEASUREMENT UNCERTAINTY

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

Parameter	Uncertainty
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Worst Case Radiated Disturbance, 9KHz to 30 MHz	3.15 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	5.36 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.32 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.45 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.24 dB
Occupied Channel Bandwidth	±0.39 %
Time	±0.02 %

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The equipment under test is a mobile phone with GSM, GPRS, EGPRS, UMTS, LTE and TD-SCDMA technologies. It also supports IEEE 802.11a/b/g/n/ac, Bluetooth, GPS and NFC. The device has a built-in inductive charging receiver which is not user accessible. The rechargeable battery is not user accessible.

5.2. MAXIMUM OUTPUT POWER

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

Antenna	Configuration	Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
UAT 1	Pmax	2402 - 2480	BLE 1M	19.76	94.62
	Plow			9.92	9.82
	Pmax		BLE 2M	19.65	92.26
	Plow			9.76	9.46
LAT 3	Pmax	2402 - 2480	BLE 1M	19.98	99.54
	Plow			9.86	9.68
	Pmax		BLE 2M	19.54	89.95
	Plow			9.77	9.48

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band (GHz)	UAT1 Gain (dBi)	LAT 3 Gain (dBi)
2.4	-2.54	-1.30

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was version 15.1.40.176.

5.5. WORST-CASE CONFIGURATION AND MODE

Radiated band edge, harmonic, and spurious emissions from 1GHz to 18GHz were performed with the EUT set to transmit at highest power on Low/Middle/High channels.

Radiated emissions below 30MHz, below 1GHz, above 18GHz and power line conducted emissions were performed with the EUT transmits at the channel with the highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations, X (Flatbed), Y (Landscape), and Z (Portrait), on both primary and diversity antennas. In addition, the EUT was also investigated with and without AC/DC charger, headphones & laptop. It was determined that X (Flatbed) orientation was the worst-case orientation for both antennas without AC/DC charger, headphones, or laptop; therefore, all final radiated testing was performed with EUT only in X-orientation.

For 1 - 18GHz and 18 – 26GHz.EUT was tested without AC/DC charger and for 30MHz – 1000MHz was tested with AC/DC charger.

Worst-case data rate as provided by the client and baseline scan was:

BLE: 1 Mbps.

There are two vendors of the WiFi/Bluetooth radio modules: variant 1 and variant 2. The Wi-Fi/Bluetooth radio modules have the same mechanical outline (e.g., the same package dimension and pin-out layout), use the same on-board antenna matching circuit, have an identical antenna structure, and are built and tested to conform to the same specifications and to operate within the same tolerances.

Baseline testing was performed on the two variants to determine the worst case on all conducted power and radiated emissions.

For simultaneous transmission of multiple channels from the same antenna LAT 3 in the 2.4GHz BLE and 5GHz bands, tests were conducted for various configurations having the highest power. No noticeable new emission was found.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop AC/DC adapter	Liteon Technology	PA-1450-BA1	B123	NA
Laptop	Apple	MackBook Air 4	NA	NA
Dongle	N/A	N/A	HDG1409226823	NA

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	Shielded	1	N/A
3	AC	1	AC	Un-shielded	3	N/A

I/O CABLES (RADIATED ABOVE 1 GHZ)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
NA						

I/O CABLES (AC POWER CONDUCTED TEST AND BELOW 1 GHZ)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	3	N/A

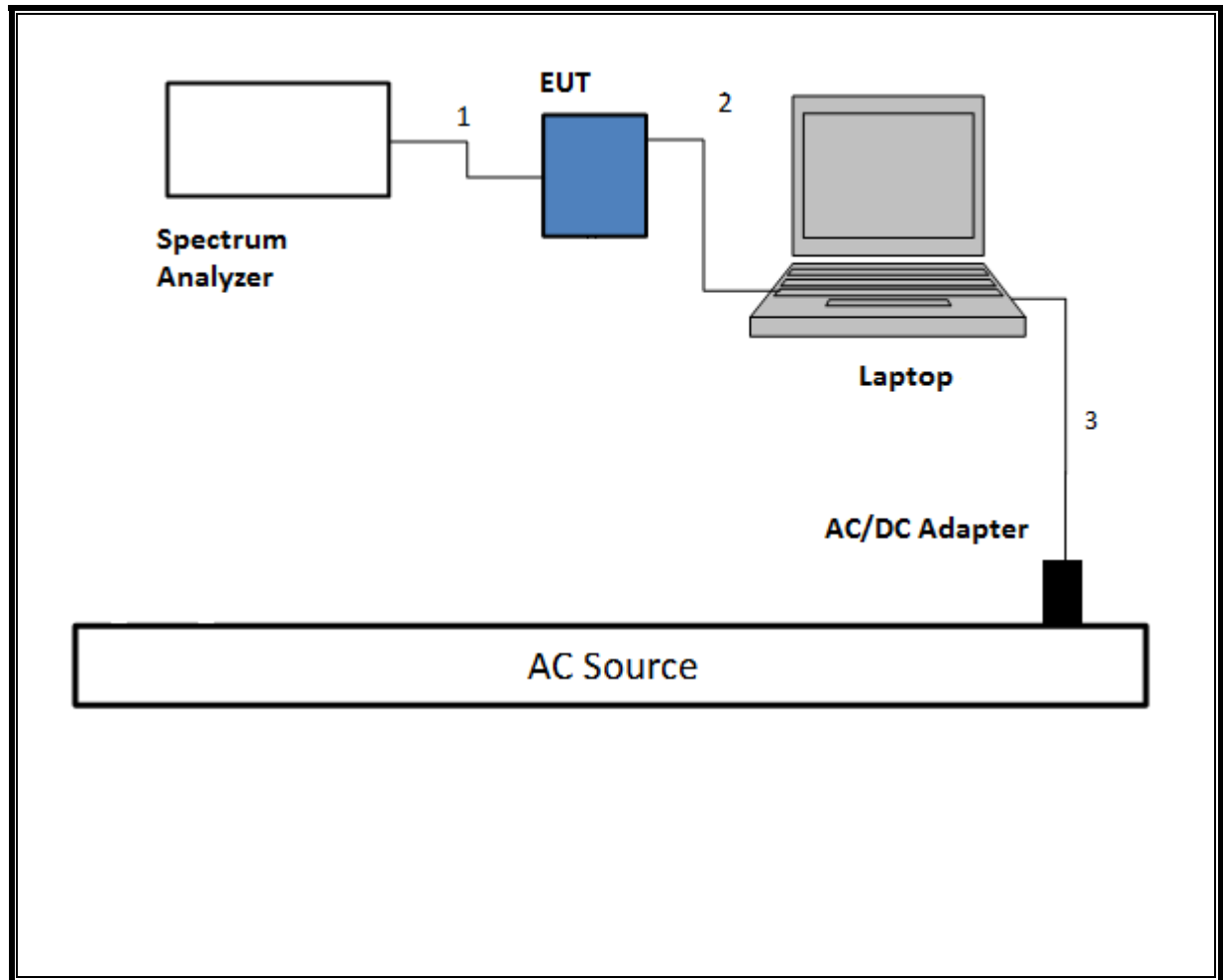
I/O CABLES (AC LINE CONDUCTED: LAPTOP CONFIGURATION)

I/O Cable List						
Cable No	Port	# of identical	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	3	N/A
2	USB	1	USB	Shielded	1	N/A

TEST SETUP

The EUT was powered by AC cord. Test software exercised the radio card.

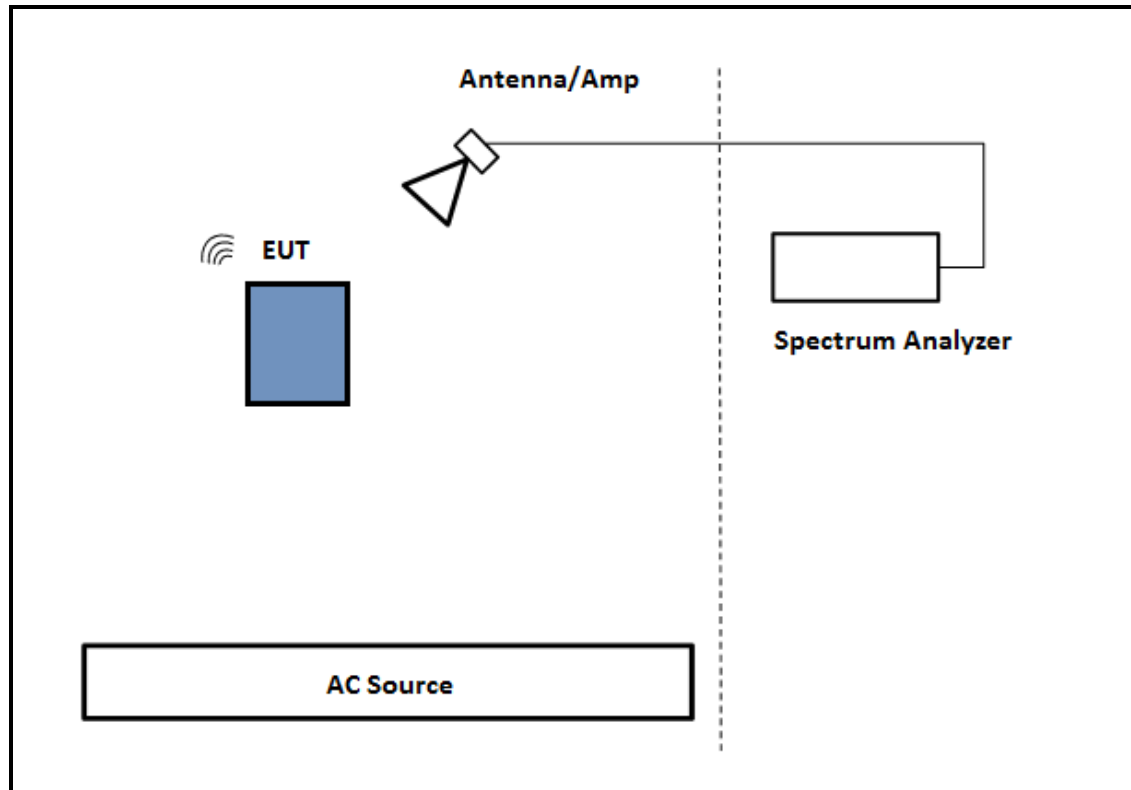
SETUP DIAGRAM



TEST SETUP- RADIATED-ABOVE 1 GHZ

The EUT was powered by AC cord. Test software exercised the EUT.

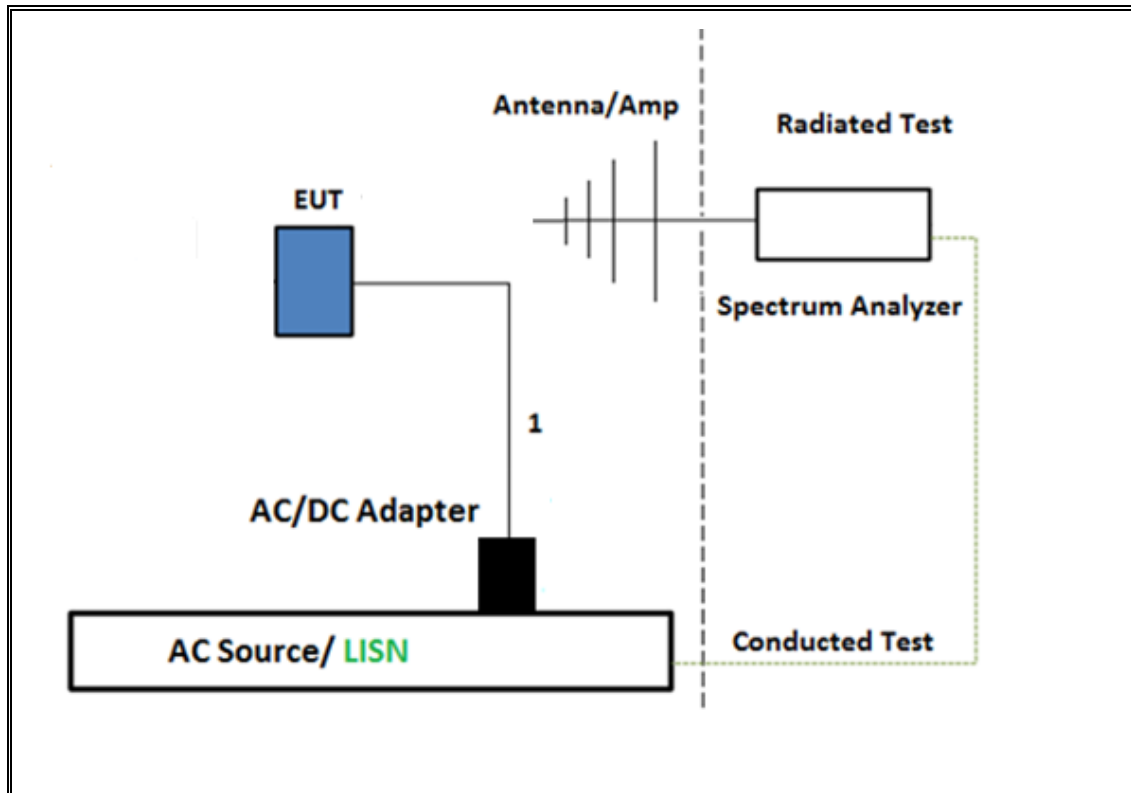
SETUP DIAGRAM



TEST SETUP- BELOW 1GHZ & AC LINE CONDUCTED TESTS

The EUT was powered by AC cord. Test software exercised the EUT.

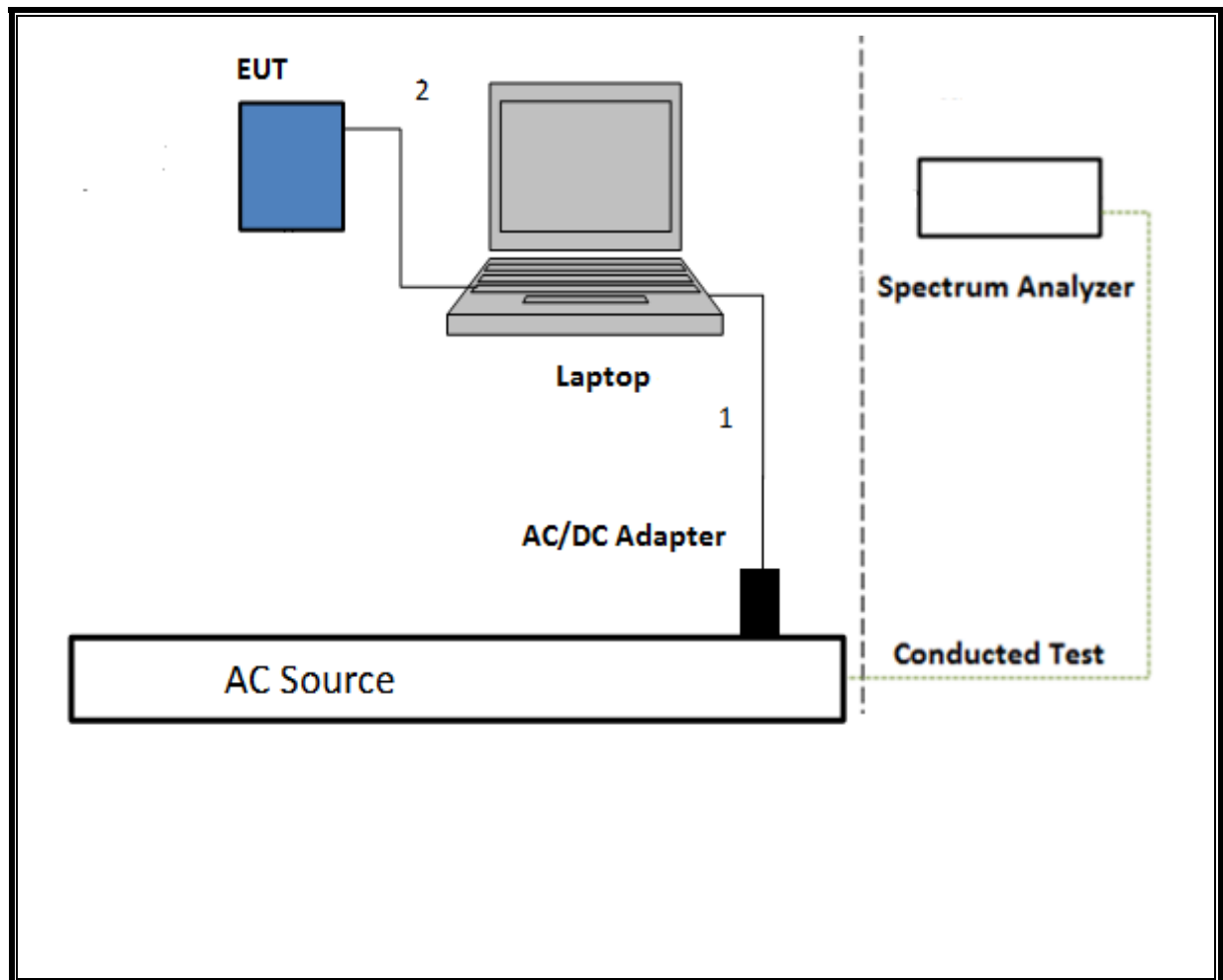
SETUP DIAGRAM



TEST SETUP- AC LINE EUT WITH LAPTOP CONDUCTED TESTS

The EUT was tested connected to a host Laptop via USB cable adapter and spectrum analyzer to antenna port. 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	Asset	Cal Due
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T119	3/28/2018
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T740	11/29/17
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T340	12/14/2017
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T862	4/20/2018
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	T243	10/11/2017
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T741	11/29/2017
*Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T285	6/20/2017
Spectrum Analyzer, PSA, 3Hz to 44GHz	Agilent (Keysight) Technologies	E4446A	T177	03/20/2018
Amplifier, 1 to 18GHz, 35dB	Amplicial	AMP1G18-35	T1569	9/15/2017
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T1613	12/2/2017
Power Sensor	Keysight	N1921A	T1225	3/29/2018
Power Meter, P-series single channel	Keysight	N1912A	T1245	1/05/2018
*Antenna Horn, 18 to 26GHz	ARA	MWH-1826	T447	6/16/2017
Spectrum Analyzer, 40GHz	Agilent	8564E	T106	9/7/2017
*Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	7/5/2017
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T340	12/14/2017
AC Line Conducted				
EMI Test Receiver 9KHz-7GHz	Rohde & Schwarz	ESC17	T1436	01/06/2018
*LISN for Conducted Emissions CISPR-16	Fischer	50/250-25-2-01	T1310	06/08/2017
Power Cable, Line Conducted Emissions	UL	PG1	T861	9/1/2017
UL AUTOMATION SOFTWARE				
Radiated Software	UL	UL EMC	Ver 9.5, April 26, 2016	
Conducted Software	UL	UL EMC	Ver 5.4, October 13, 2016	
AC Line Conducted Software	UL	UL EMC	Ver 9.5, May 26, 2015	

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

7. ANTENNA PORT TEST RESULTS

7.1. MEASUREMENT METHODS

6 dB BW: KDB 558074 D01 v04, Section 8.1.

Output Power: KDB 558074 D01 v04, Section 9.1.3.

Power Spectral Density: KDB 558074 D01 v04, Section 10.2.

Out-of-band emissions in non-restricted bands: KDB 558074 D01 v04, Section 11.0.

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

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

Conducted line emissions: C63.10, Clause 6.2

7.2. ON TIME, DUTY CYCLE

LIMITS

None; for reporting purposes only.

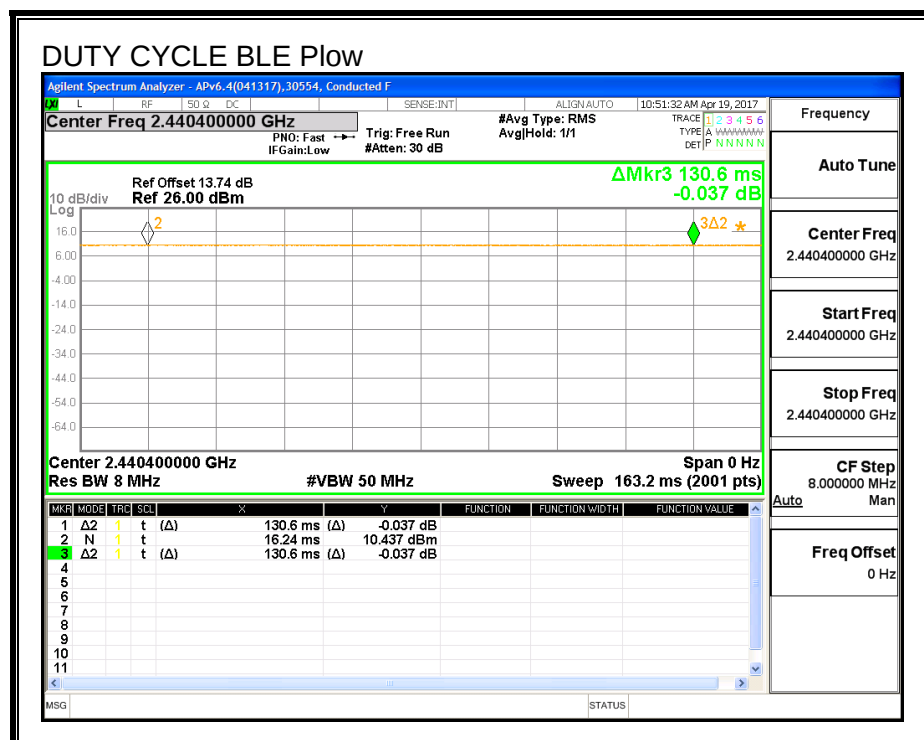
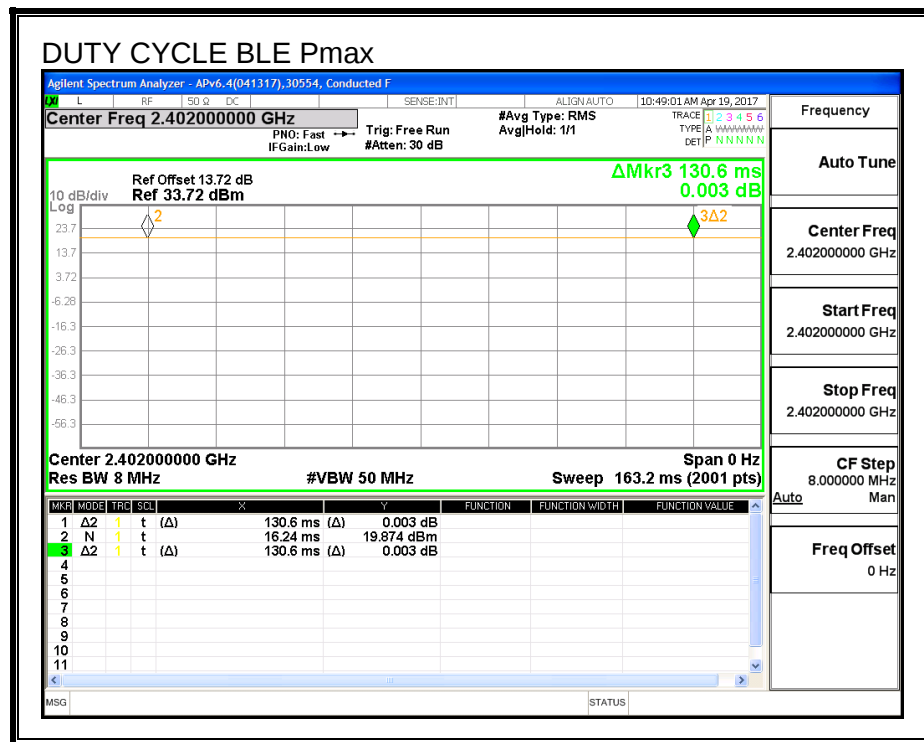
PROCEDURE

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)
BLE Pmax	130.6	130.6	1.0	100	0.0	0.10
BLE Plow	130.6	130.6	1.0	100	0.0	0.10

DUTY CYCLE PLOTS



7.3. UAT 1 BLE 1M Pmax

7.3.1. 6 dB BANDWIDTH

LIMITS

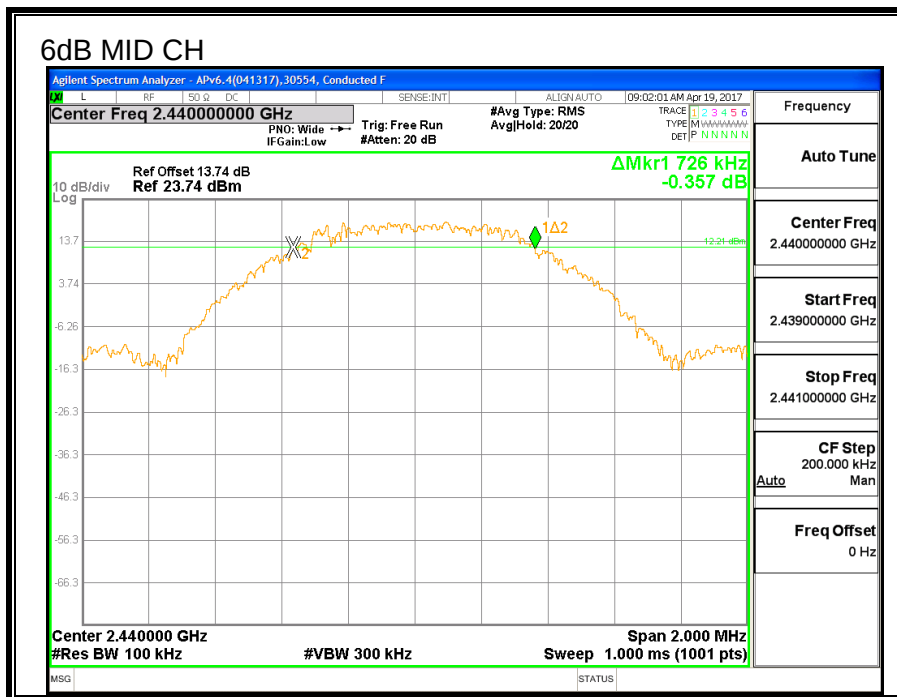
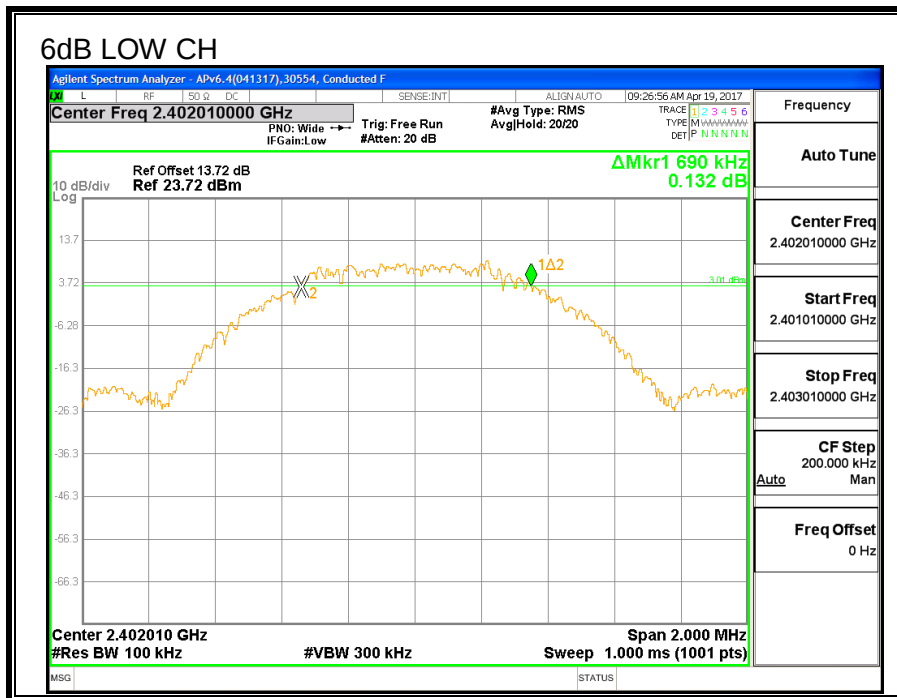
FCC §15.247 (a) (2)

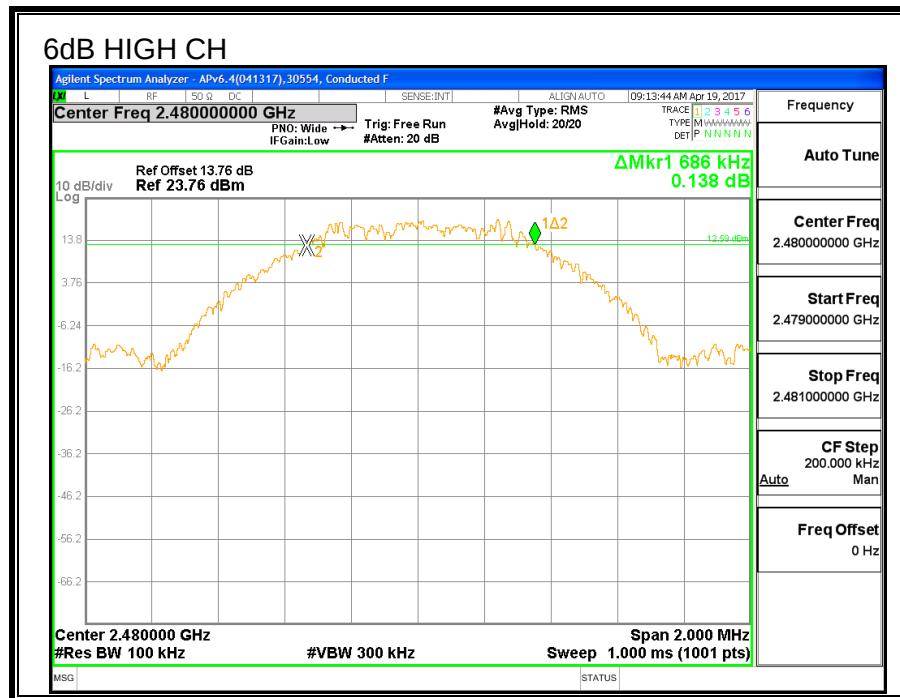
IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.690	0.5
Middle	2440	0.726	0.5
High	2480	0.686	0.5





7.3.2. 99% BANDWIDTH

LIMITS

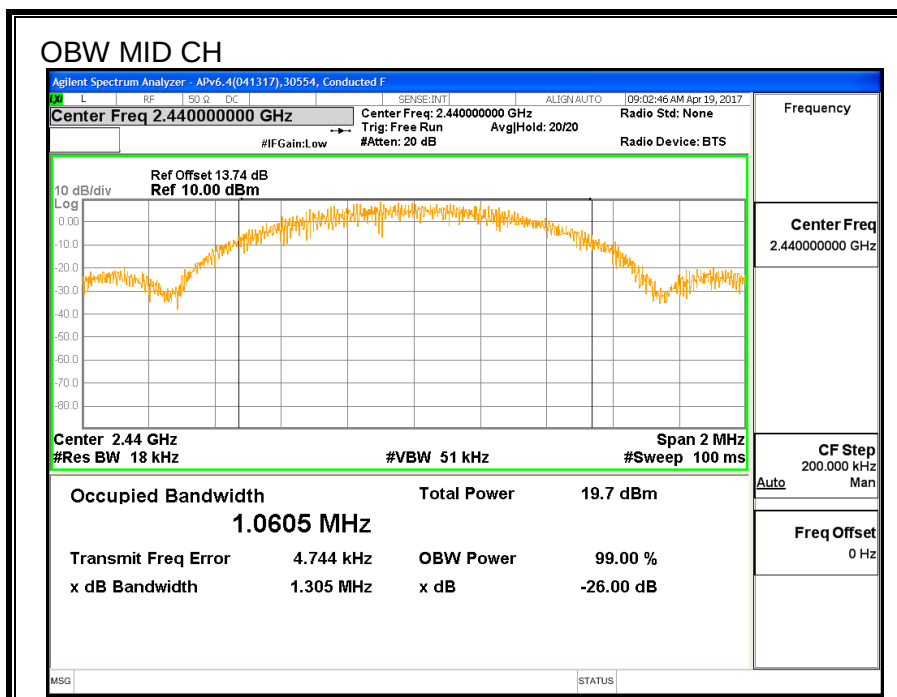
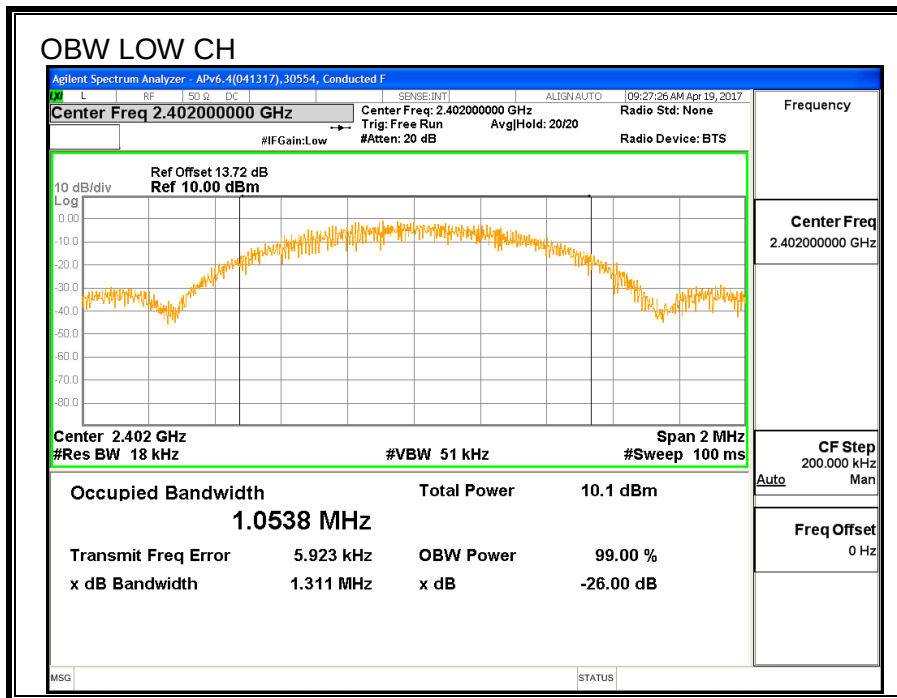
None; for reporting purposes only.

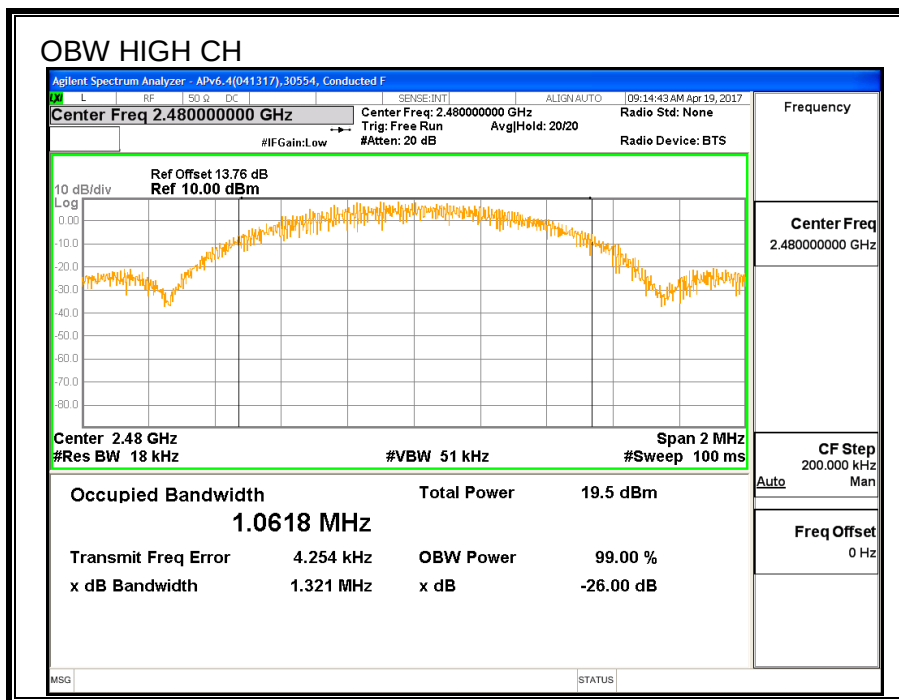
Test Procedure

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0538
Middle	2440	1.0605
High	2480	1.0618





7.3.3. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	19.40
Middle	2440	19.55
High	2480	19.39

7.3.4. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.71	30	-10.29
Middle	2440	19.73	30	-10.27
High	2480	19.76	30	-10.24

7.3.5. POWER SPECTRAL DENSITY

LIMITS

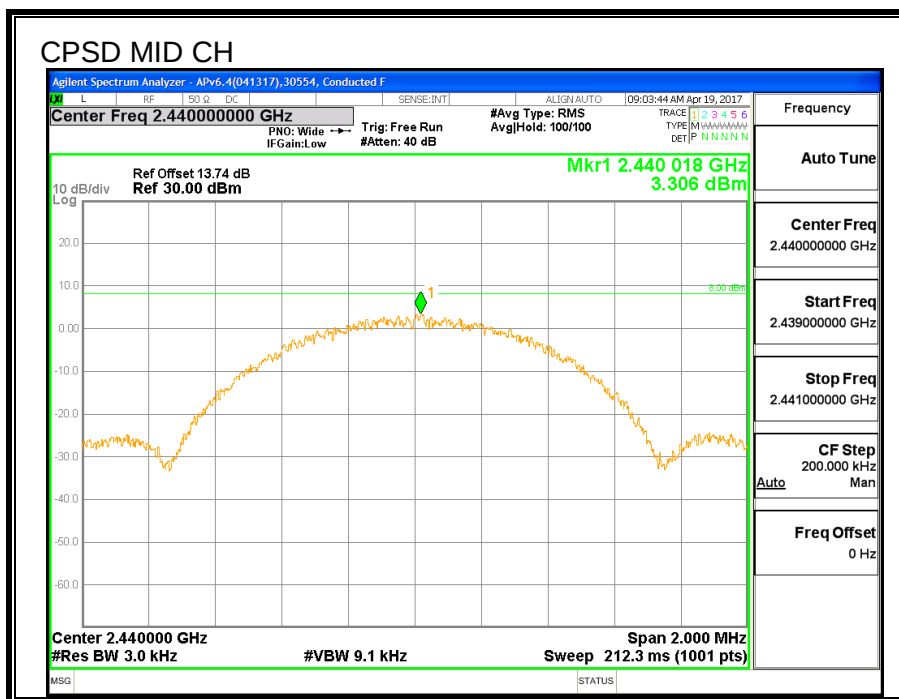
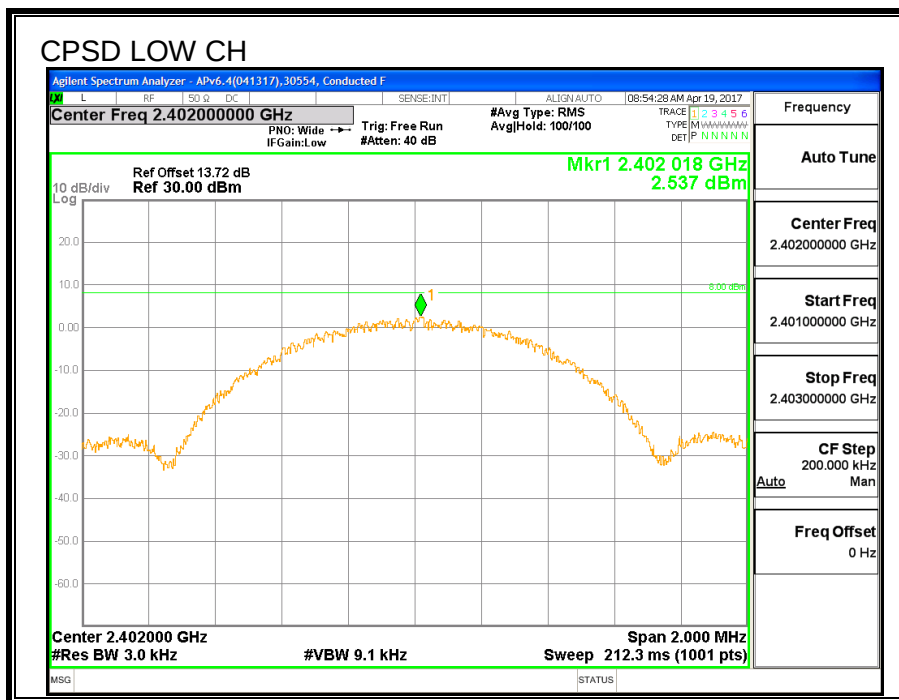
FCC §15.247 (e)

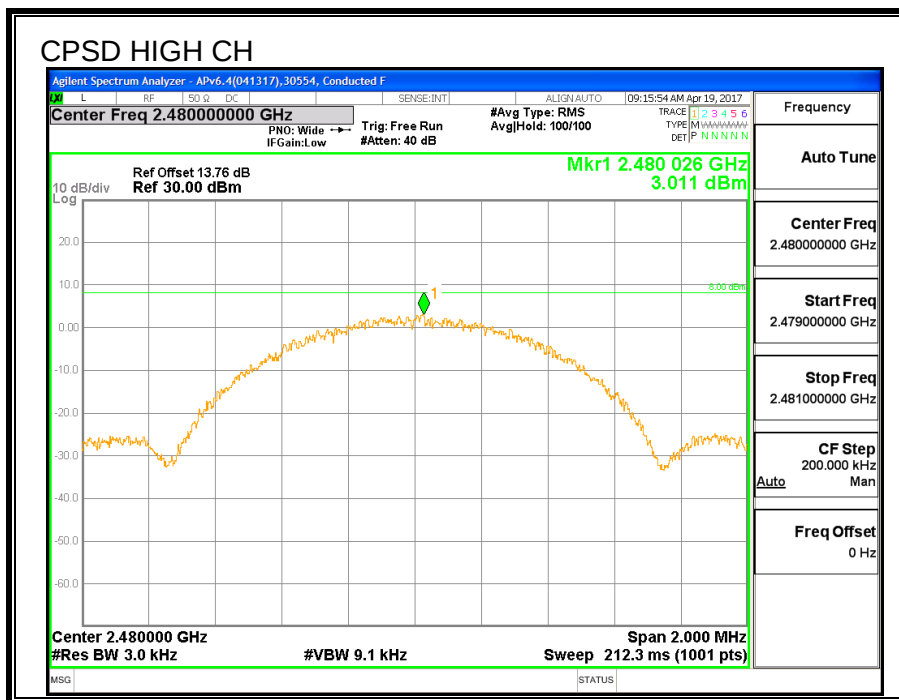
IC RSS-247 (5.2) (b)

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

RESULTS

Channel	Frequency (MHz)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)
Low	2402	2.537	8	-5.463
Middle	2440	3.306	8	-4.694
High	2480	3.011	8	-4.989





7.3.6. CONDUCTED BANEDGE AND SPURIOUS EMISSIONS

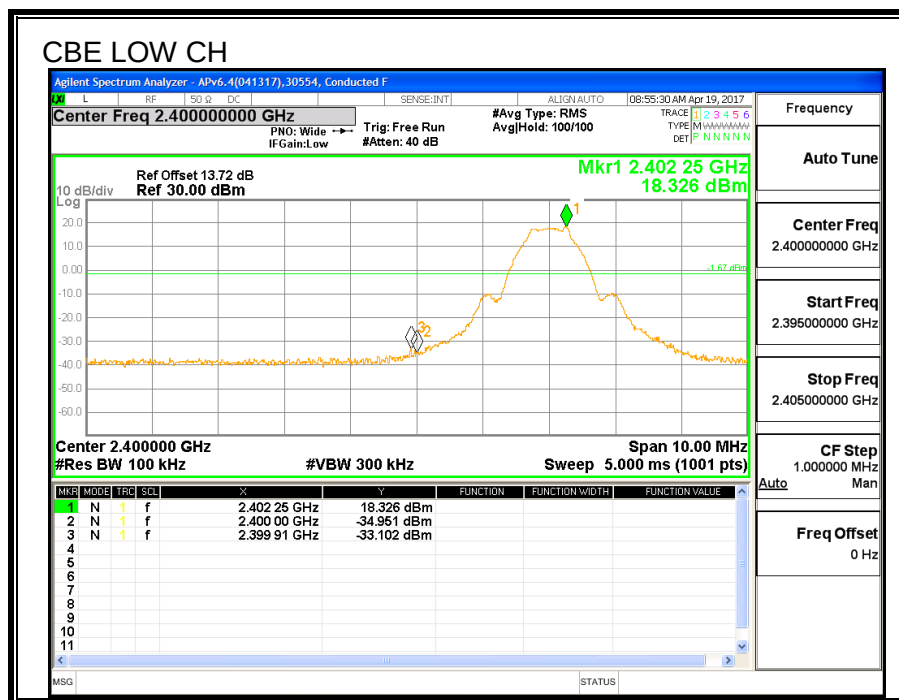
LIMITS

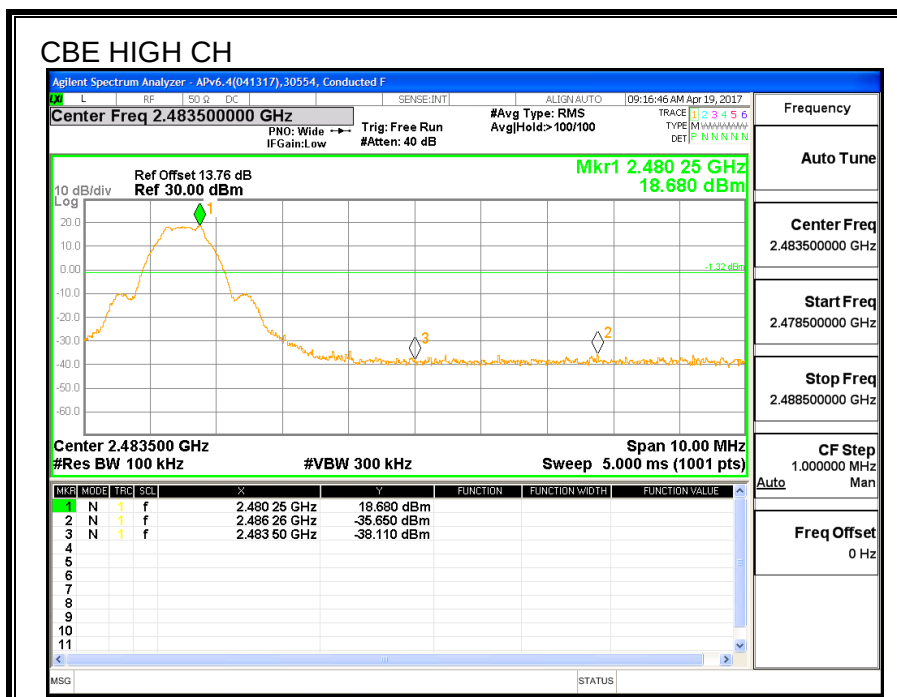
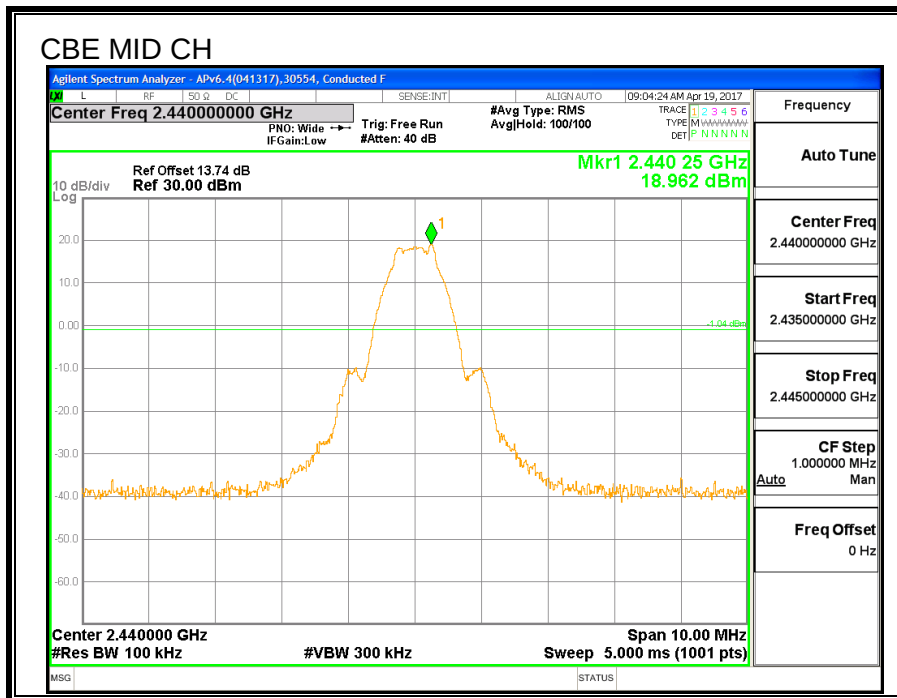
FCC §15.247 (d)

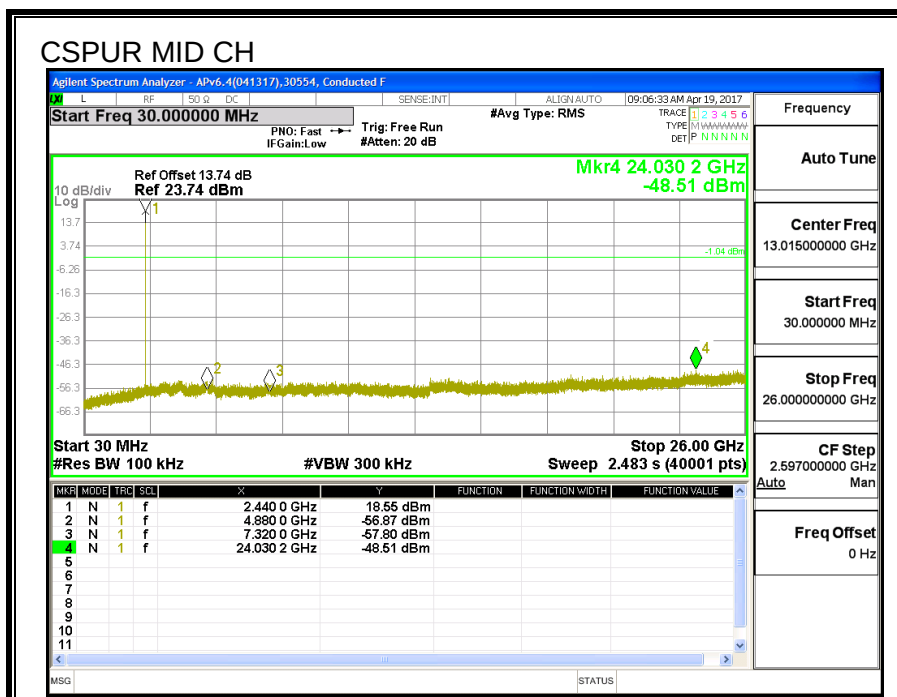
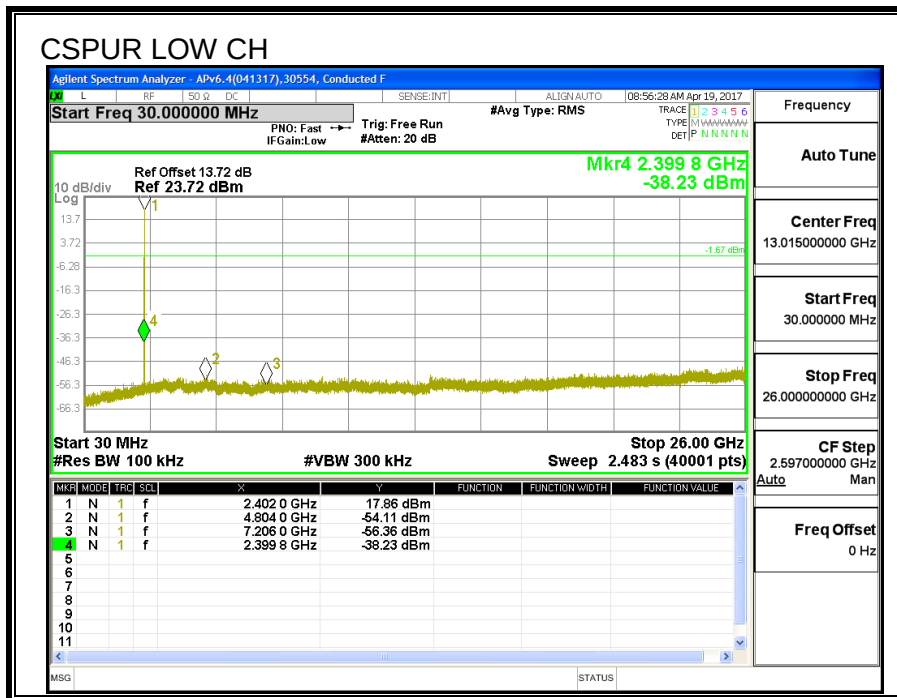
IC RSS-247 (5.5)

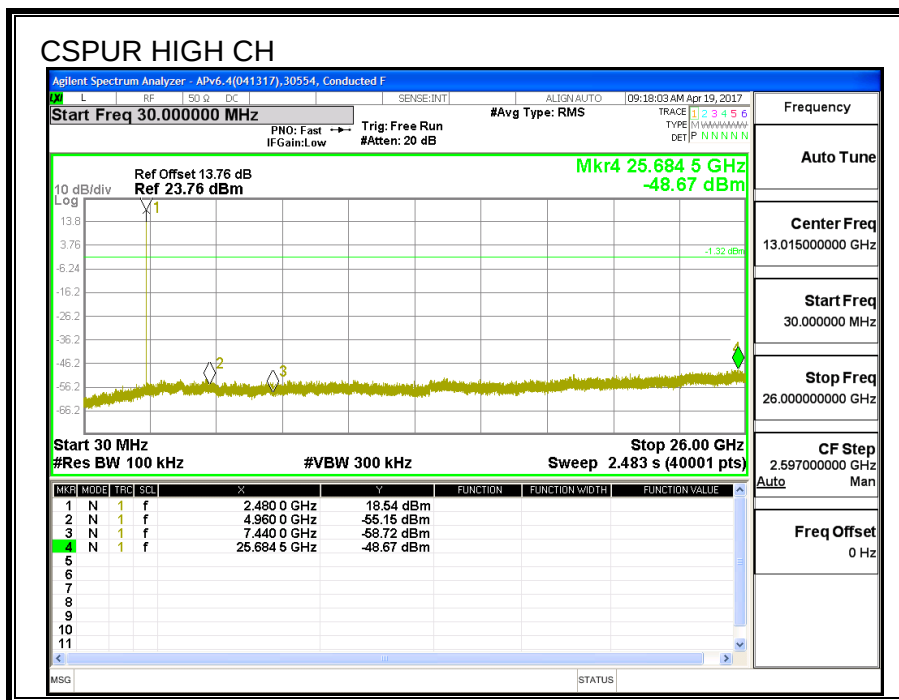
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

RESULTS









7.4. UAT 1 BLE 1M Plow

7.4.1. 6 dB BANDWIDTH

LIMITS

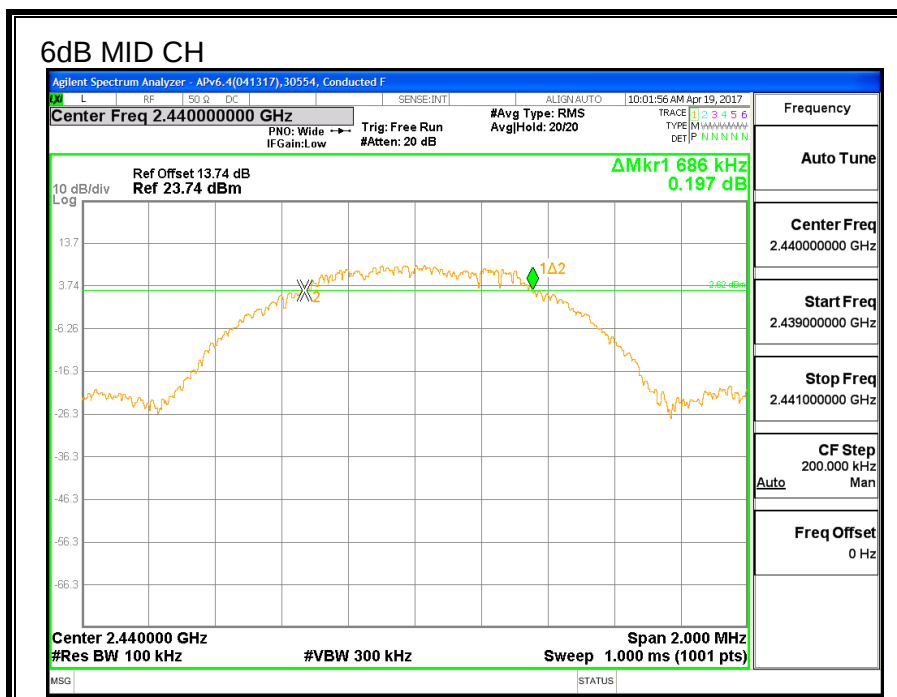
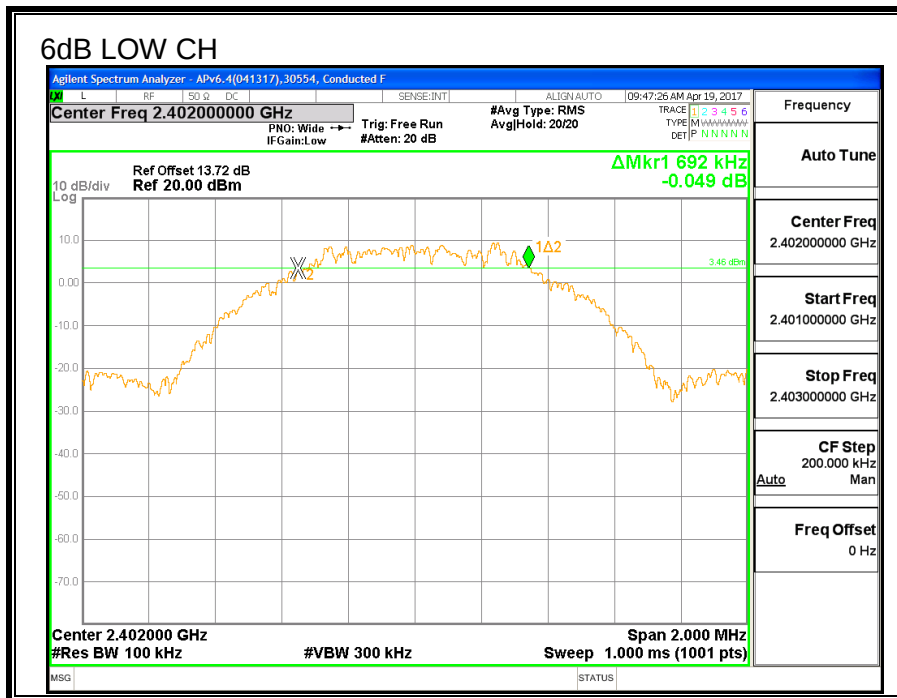
FCC §15.247 (a) (2)

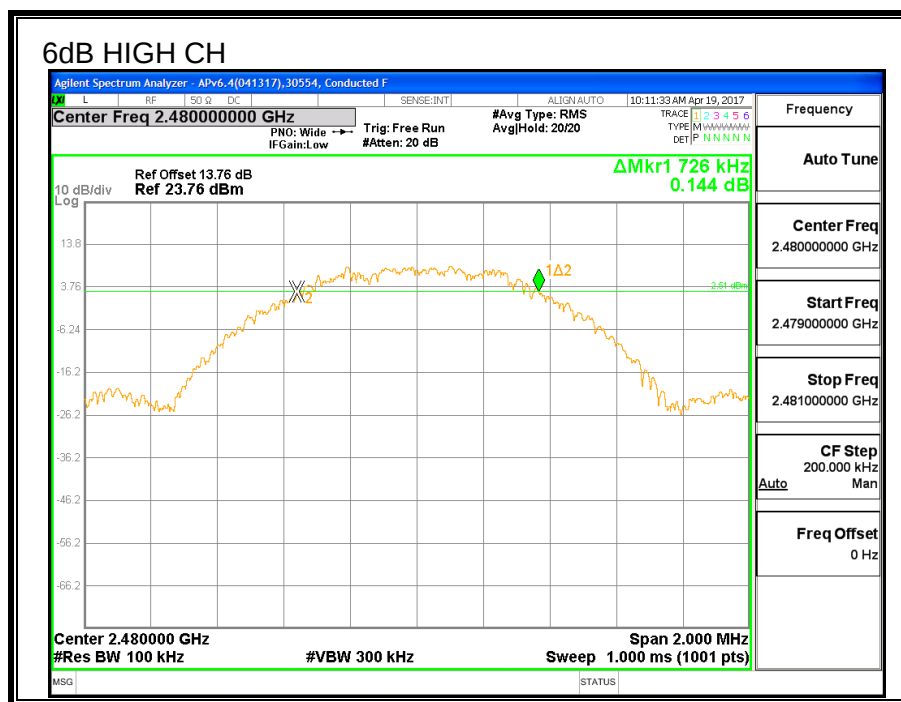
IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.692	0.5
Middle	2440	0.686	0.5
High	2480	0.726	0.5





7.4.2. 99% BANDWIDTH

LIMITS

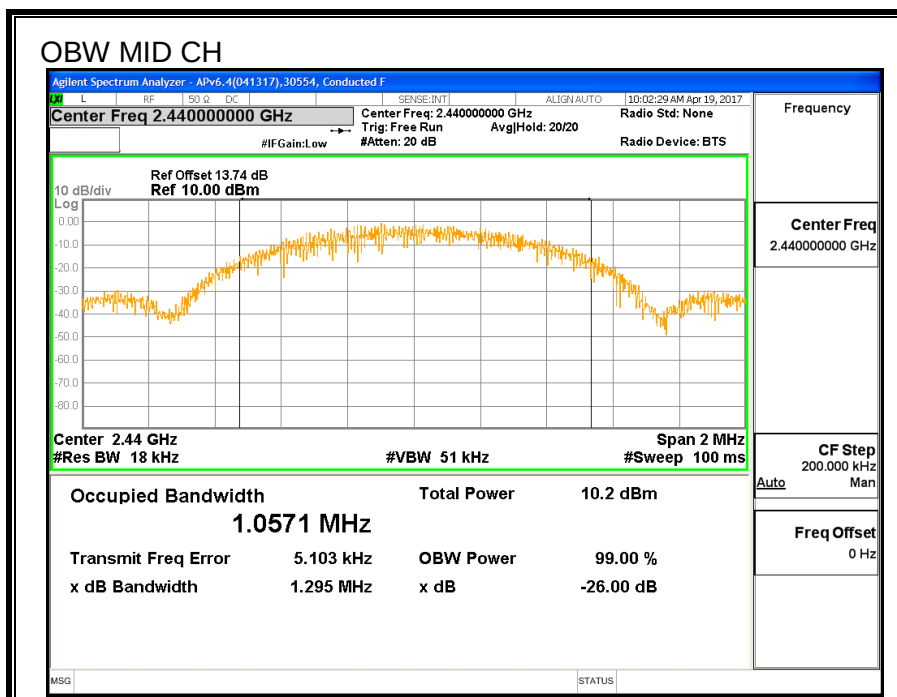
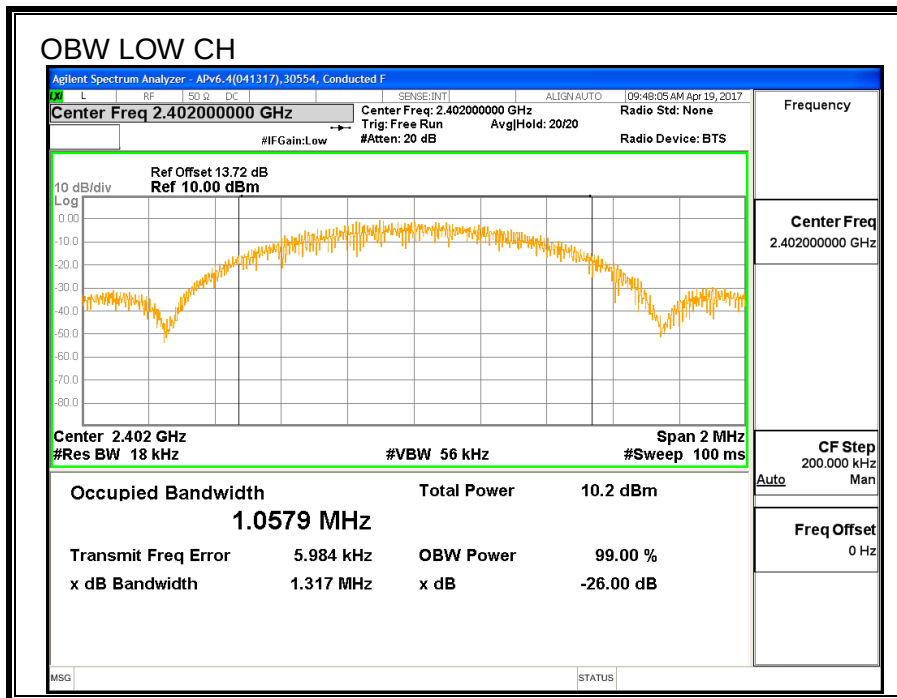
None; for reporting purposes only.

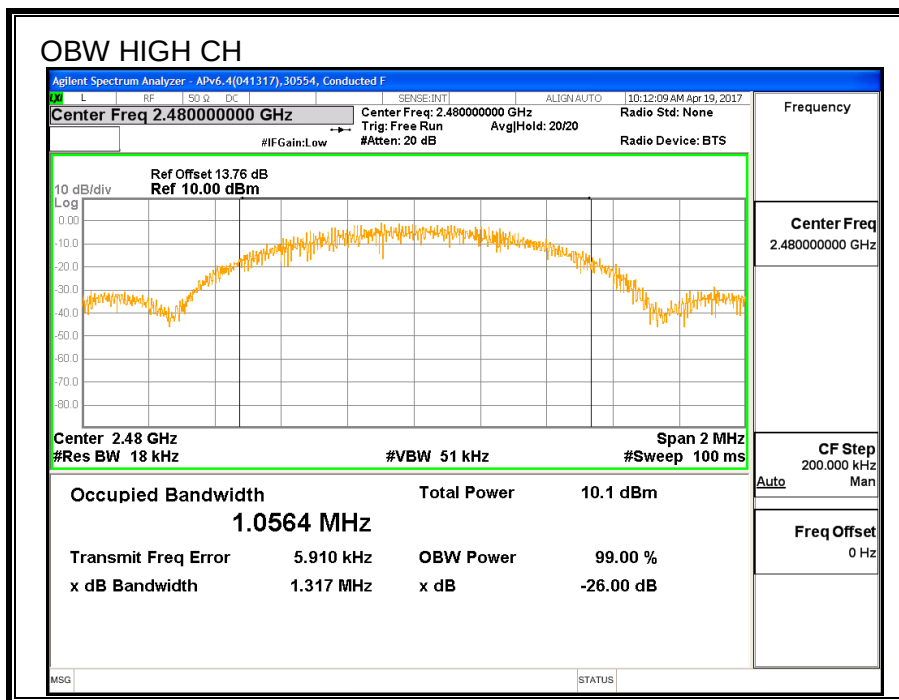
Test Procedure

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0579
Middle	2440	1.0571
High	2480	1.0564





7.4.3. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	9.49
Middle	2440	9.65
High	2480	9.52

7.4.4. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.73	30	-20.27
Middle	2440	9.92	30	-20.08
High	2480	9.89	30	-20.11

7.4.5. POWER SPECTRAL DENSITY

LIMITS

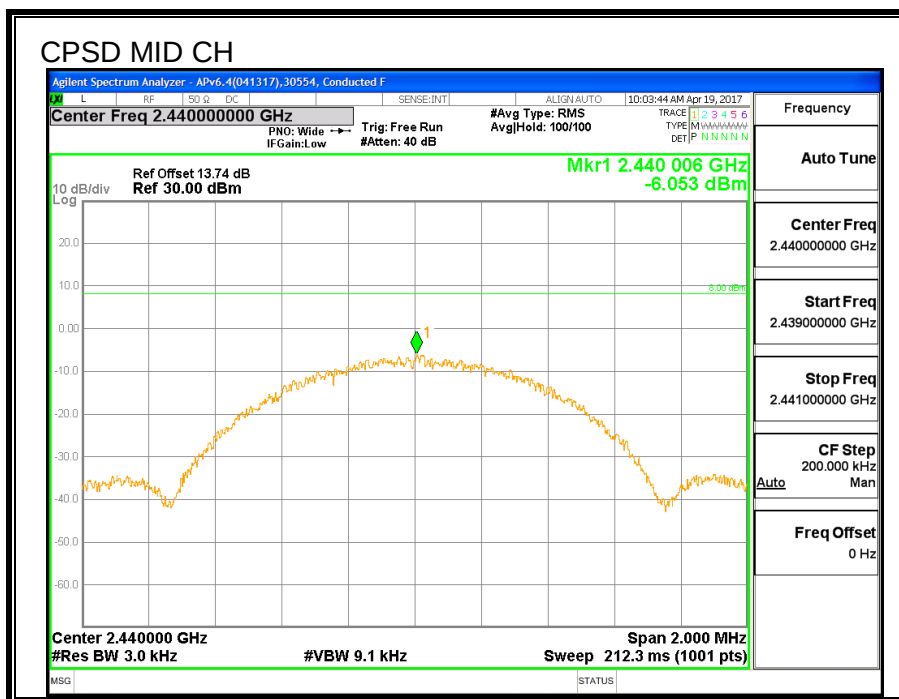
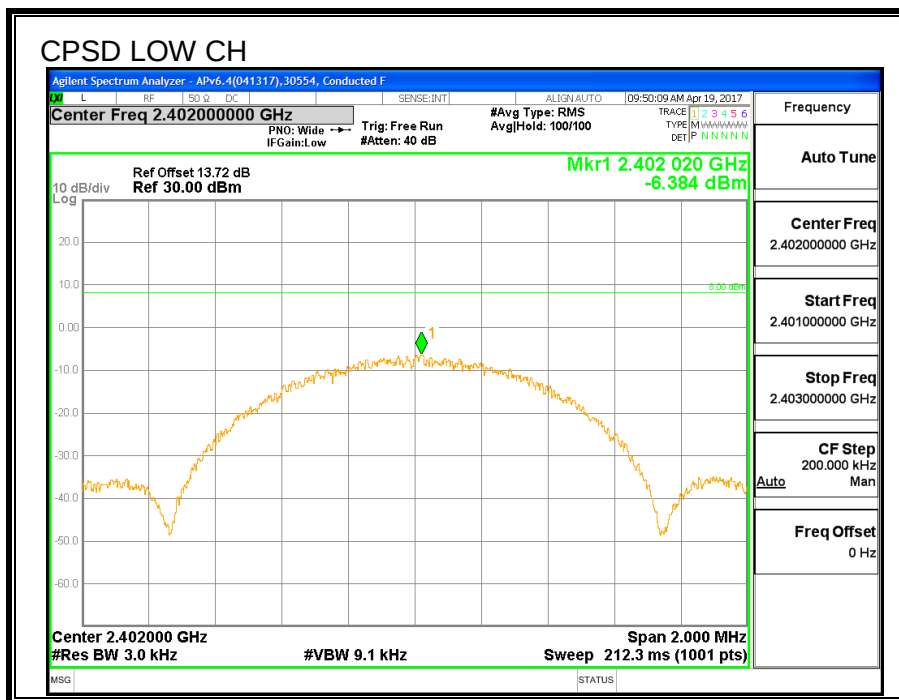
FCC §15.247 (e)

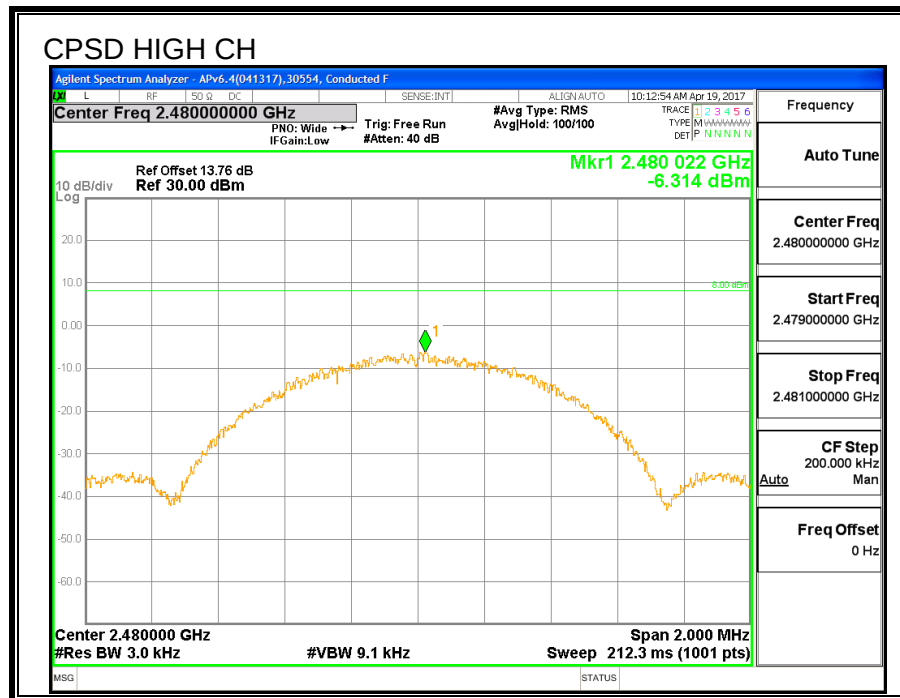
IC RSS-247 (5.2) (b)

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

RESULTS

Channel	Frequency (MHz)	PSD dBm/3KHz	Limit dBm/3KHz	Margin (dB)
Low	2402	-6.384	8	-14.384
Middle	2440	-6.053	8	-14.053
High	2480	-6.314	8	-14.314





7.4.6. CONDUCTED BANEDGE AND SPURIOUS EMISSIONS

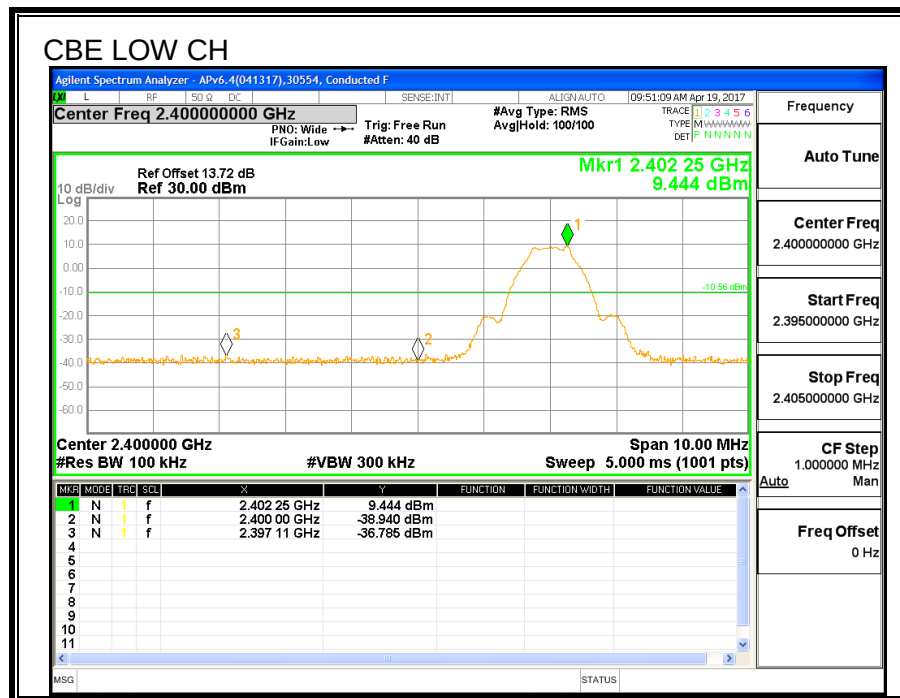
LIMITS

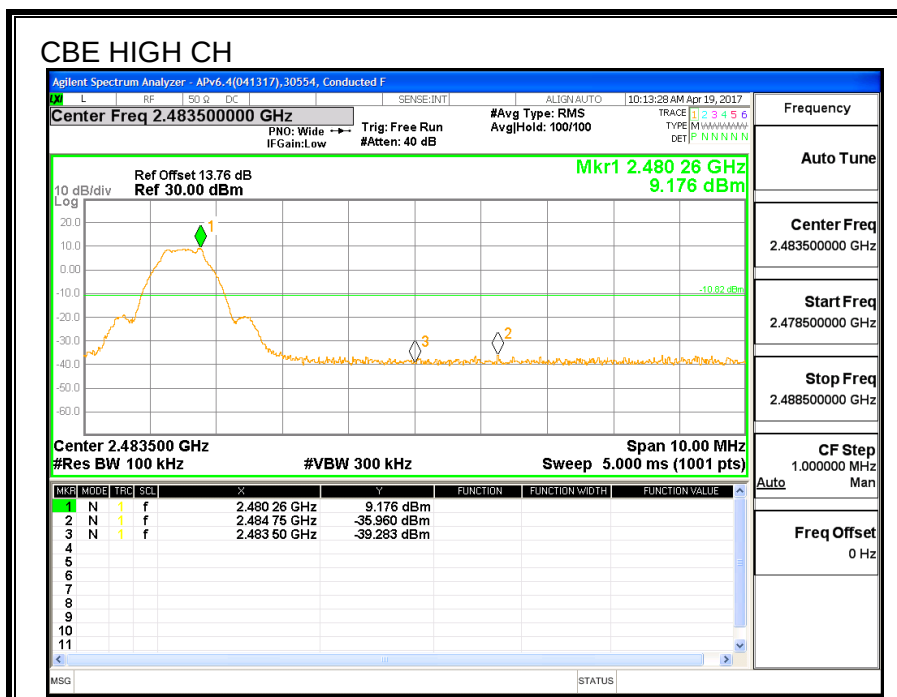
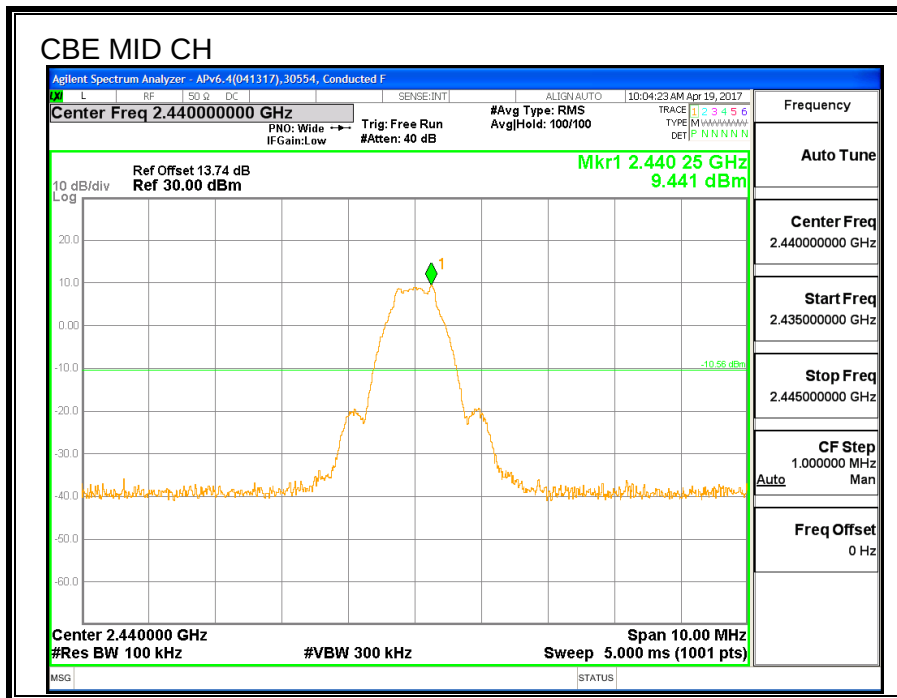
FCC §15.247 (d)

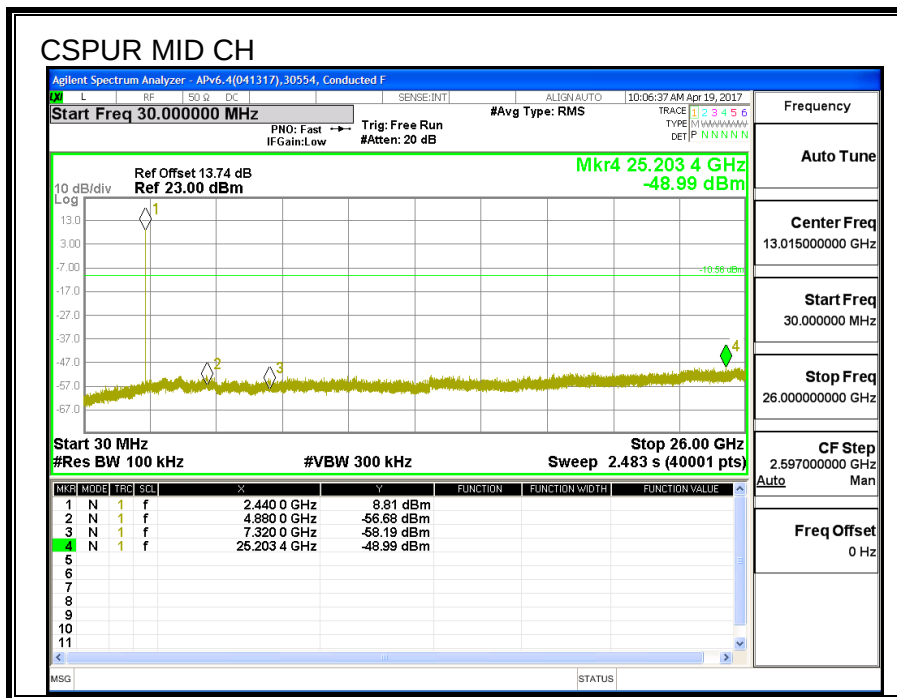
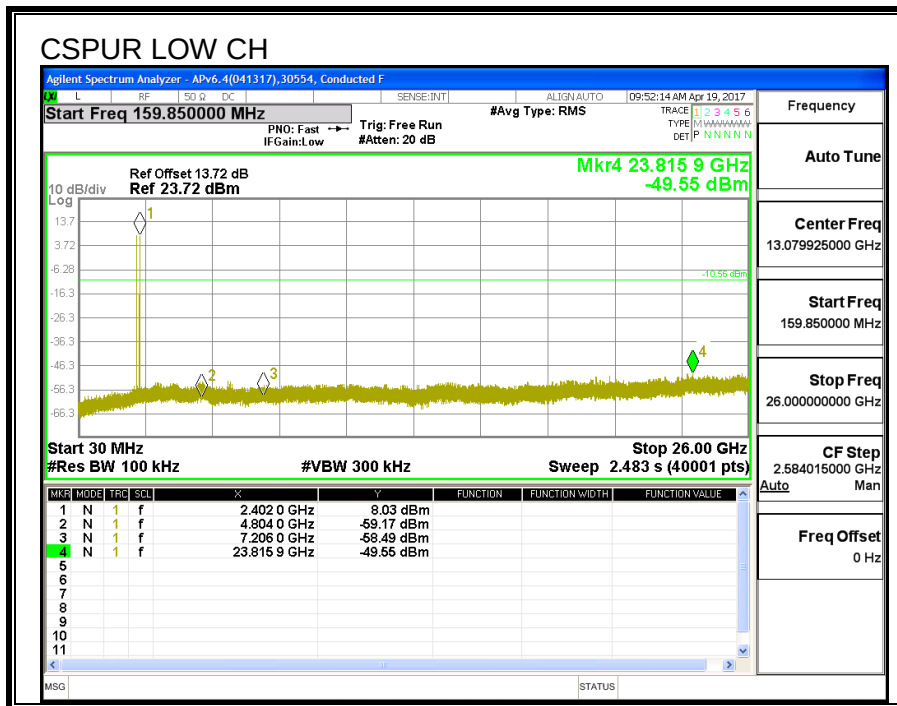
IC RSS-247 (5.5)

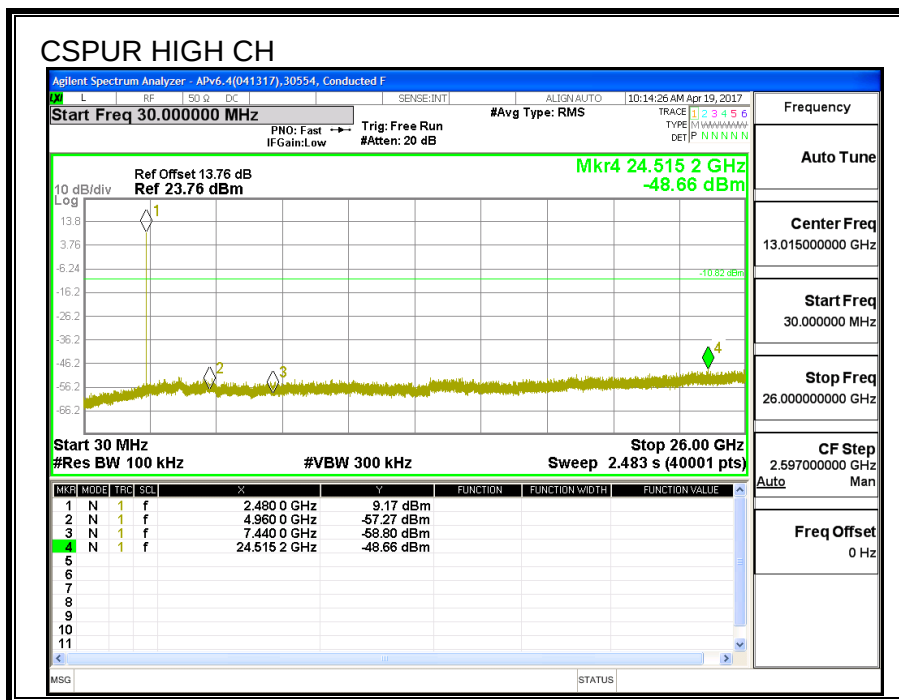
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

RESULTS









7.5. UAT 1 BLE 2M Pmax

7.5.1. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	19.30
Middle	2440	19.39
High	2480	19.32

7.5.2. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a broadband Peak/average RF power meter

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.46	30	-10.54
Middle	2440	19.65	30	-10.35
High	2480	19.54	30	-10.46

7.6. UAT 1 BLE 2M Plow

7.6.1. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	9.12
Middle	2440	9.59
High	2480	9.22

7.6.2. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a broadband Peak/average RF power meter

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.41	30	-20.59
Middle	2440	9.76	30	-20.24
High	2480	9.44	30	-20.56

7.7. LAT 3 BLE 1M Pmax

7.7.1. 6 dB BANDWIDTH

LIMITS

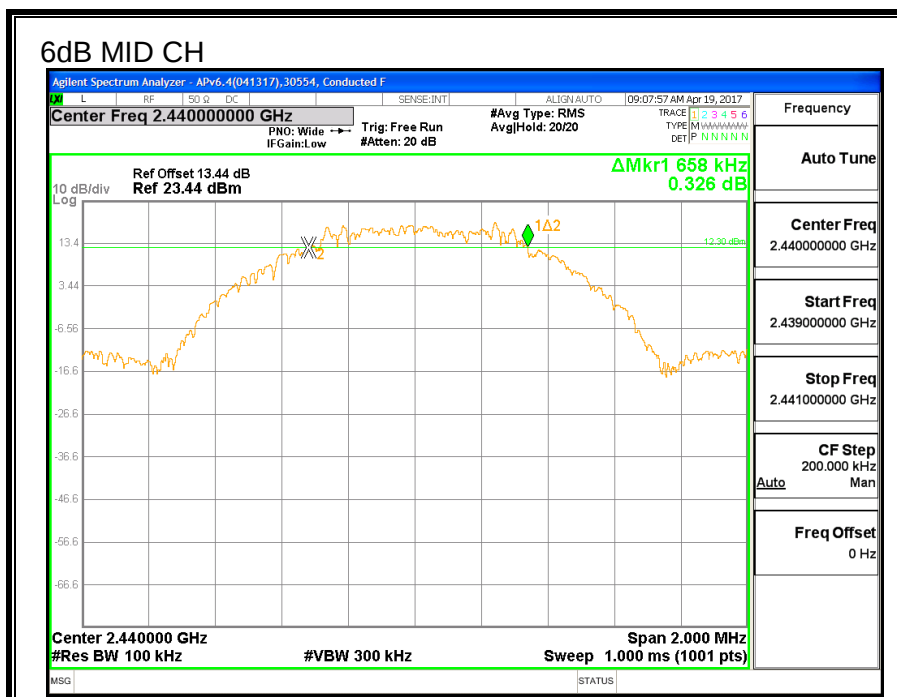
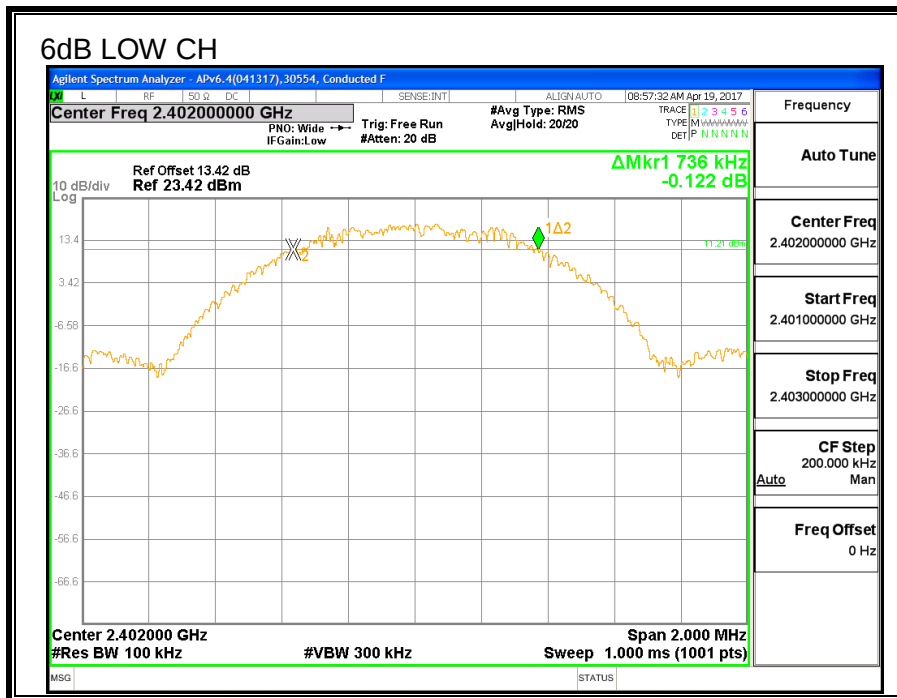
FCC §15.247 (a) (2)

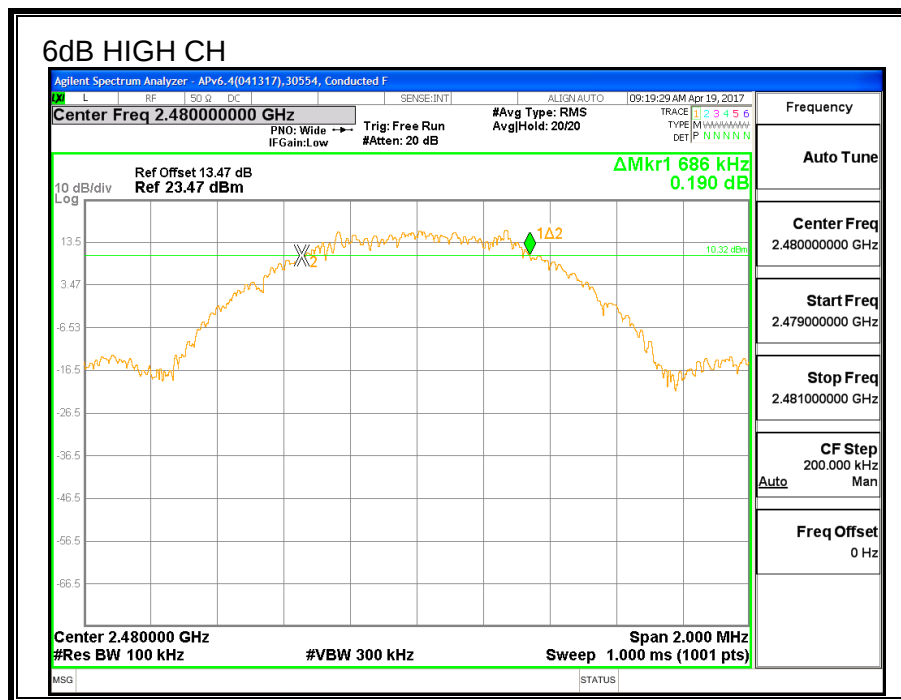
IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.736	0.5
Middle	2440	0.658	0.5
High	2480	0.686	0.5





7.7.2. 99% BANDWIDTH

LIMITS

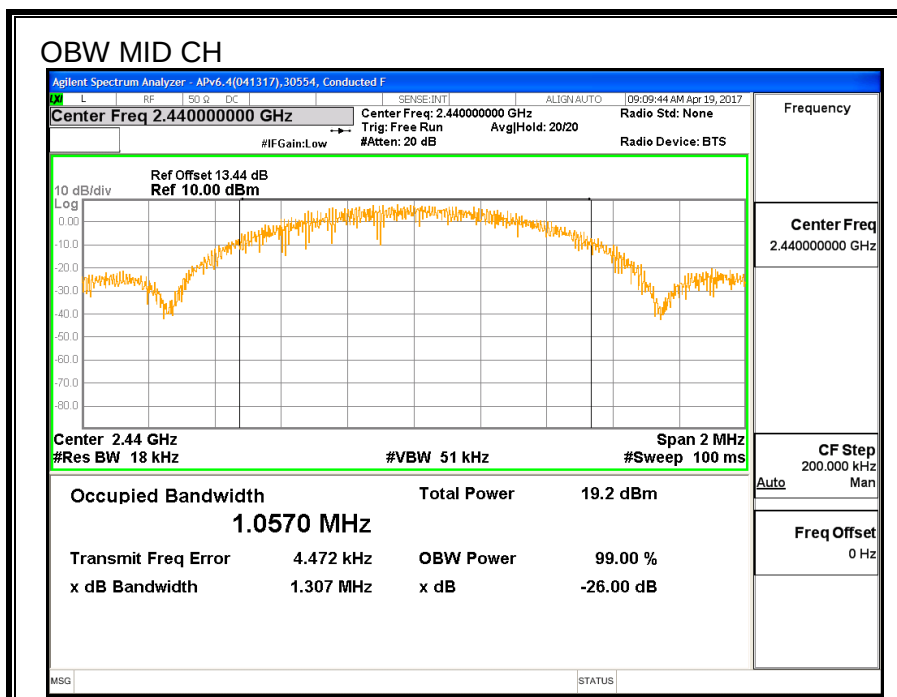
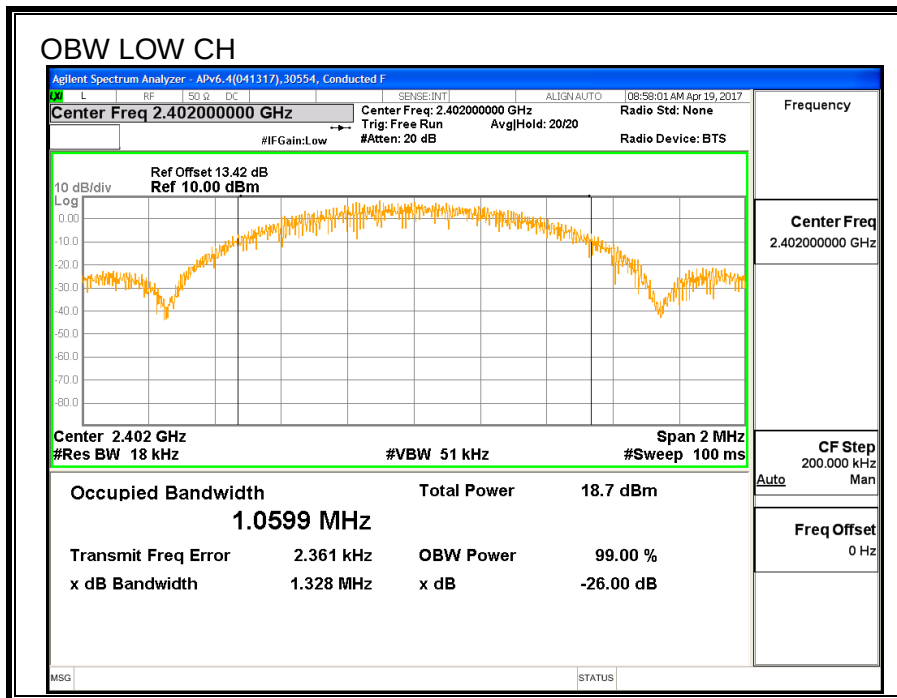
None; for reporting purposes only.

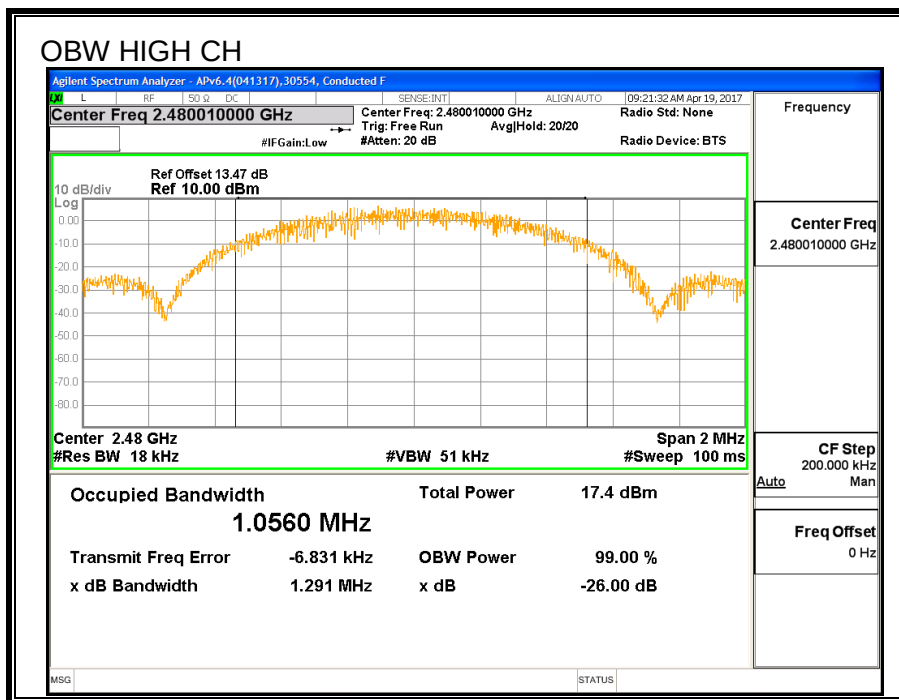
Test Procedure

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0599
Middle	2440	1.0570
High	2480	1.0560





7.7.3. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	19.48
Middle	2440	19.45
High	2480	19.38

7.7.4. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.98	30	-10.02
Middle	2440	19.92	30	-10.08
High	2480	19.82	30	-10.18

7.7.5. POWER SPECTRAL DENSITY

LIMITS

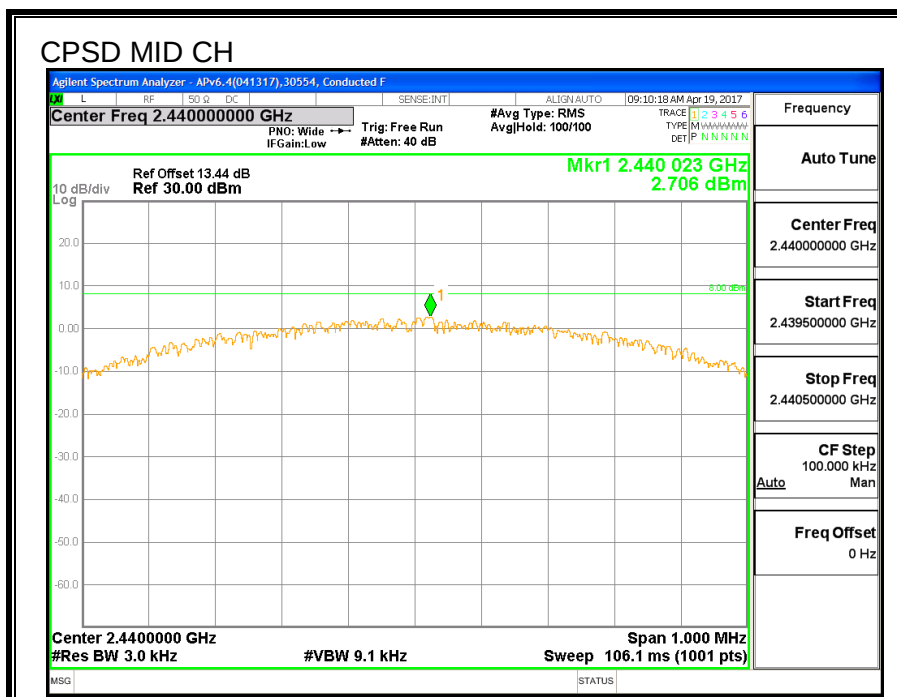
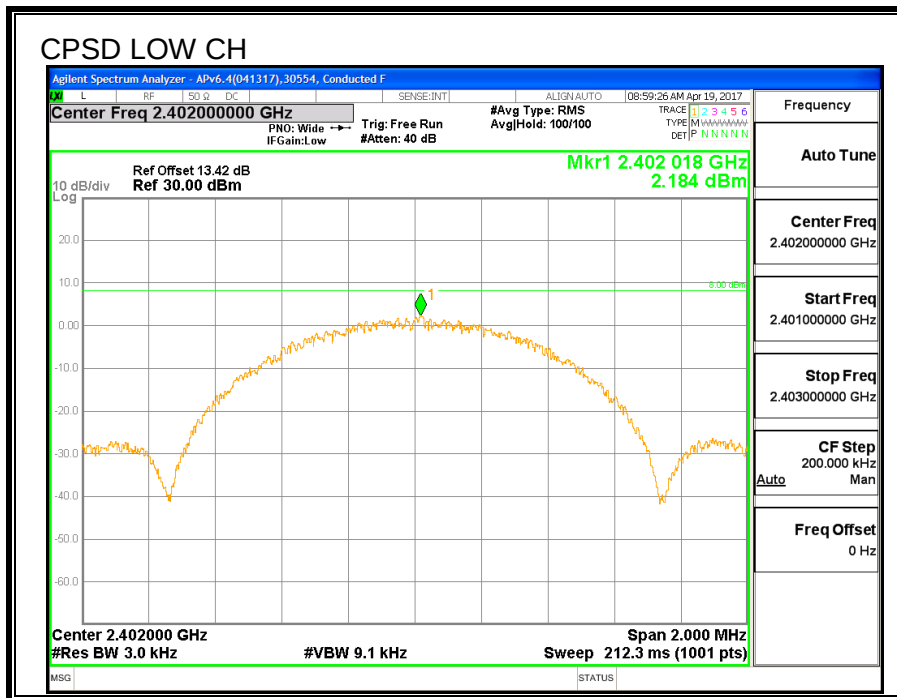
FCC §15.247 (e)

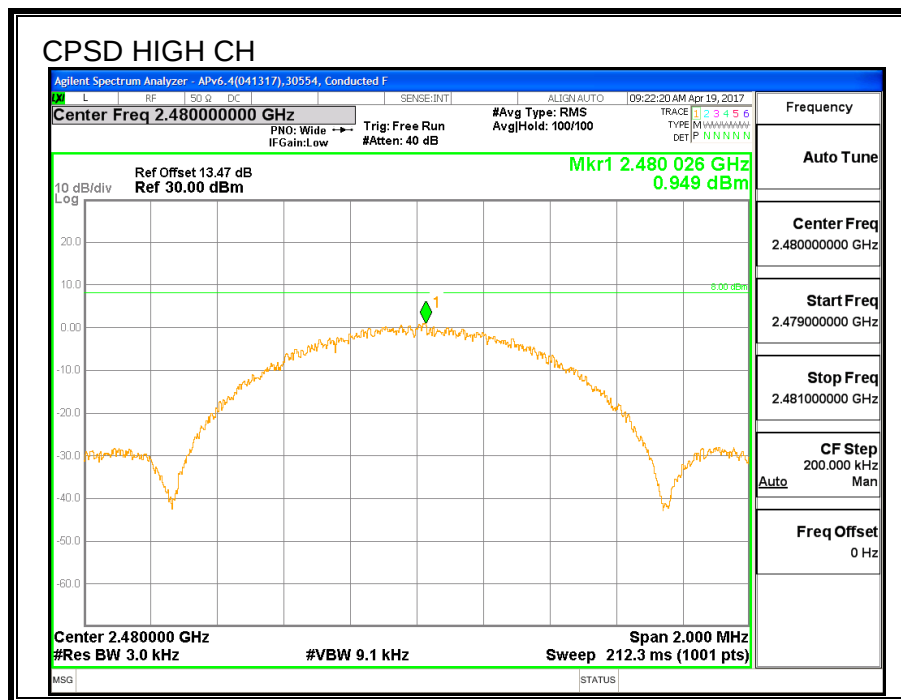
IC RSS-247 (5.2) (b)

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

RESULTS

Channel	Frequency (MHz)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)
Low	2402	2.184	8	-5.816
Middle	2440	2.706	8	-5.294
High	2480	0.949	8	-7.051





7.7.6. CONDUCTED BANEDGE AND SPURIOUS EMISSIONS

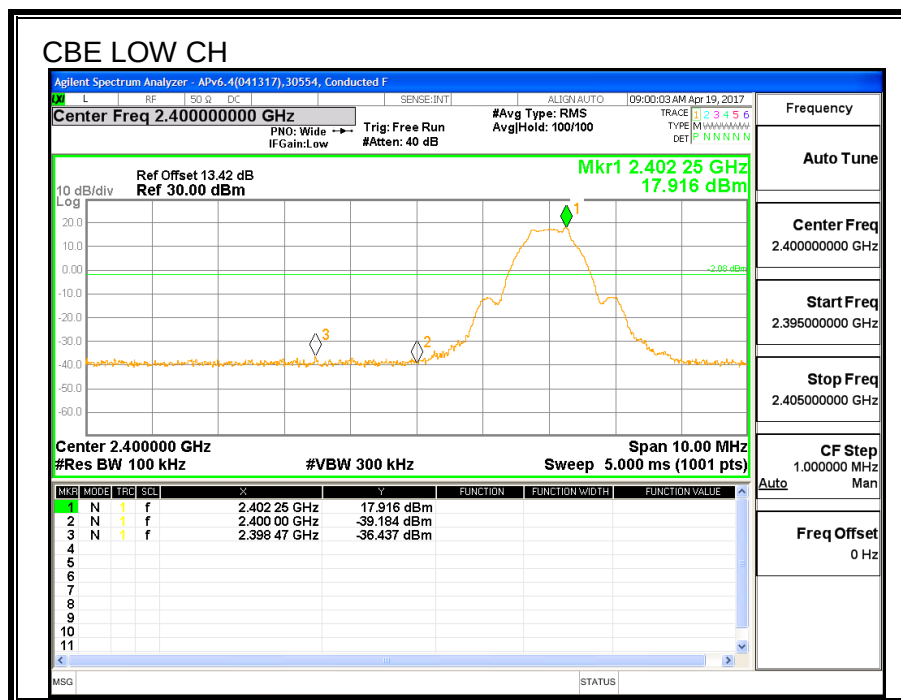
LIMITS

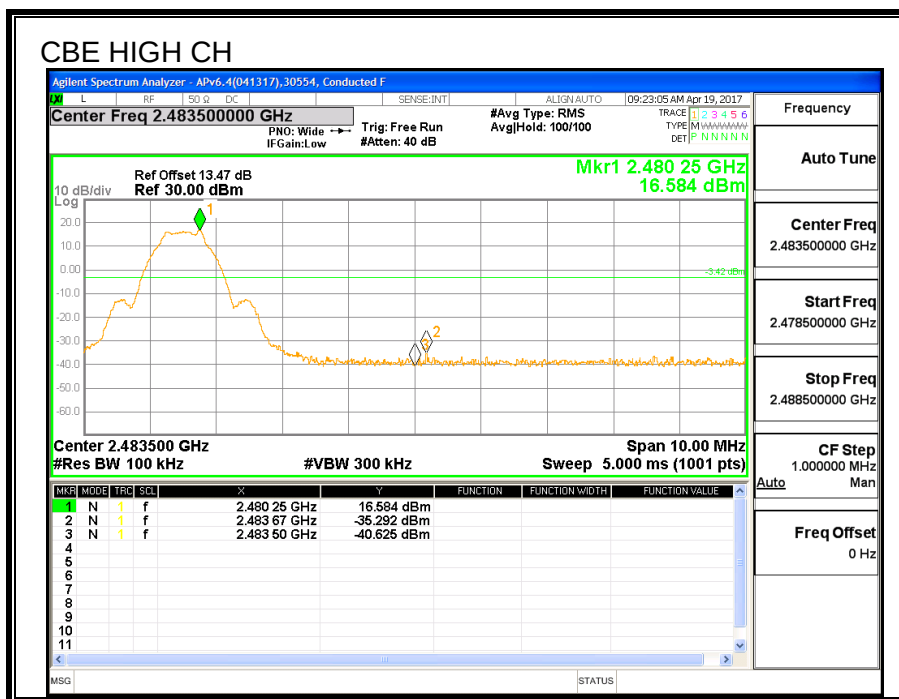
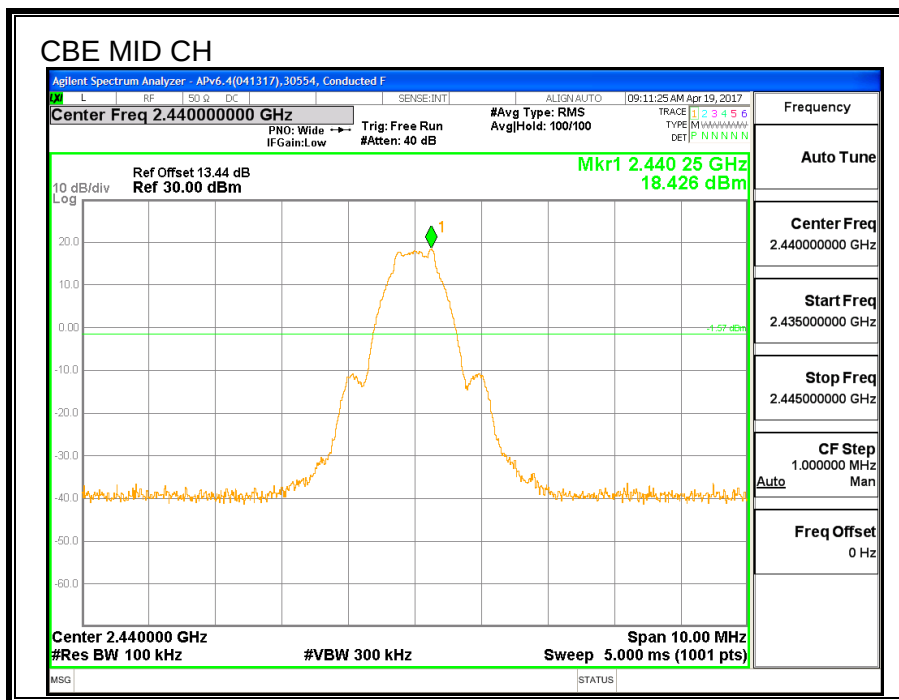
FCC §15.247 (d)

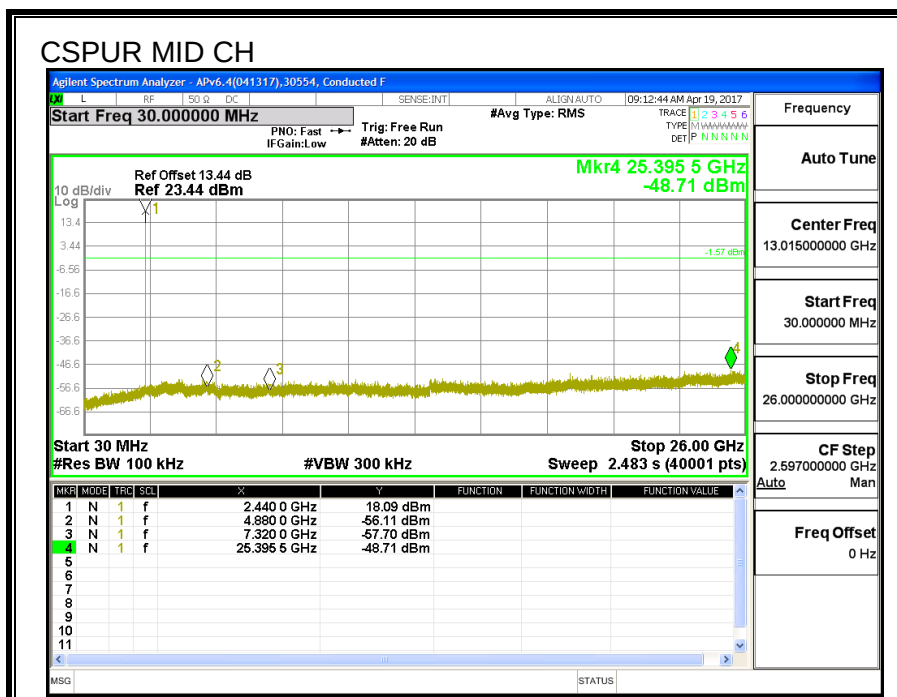
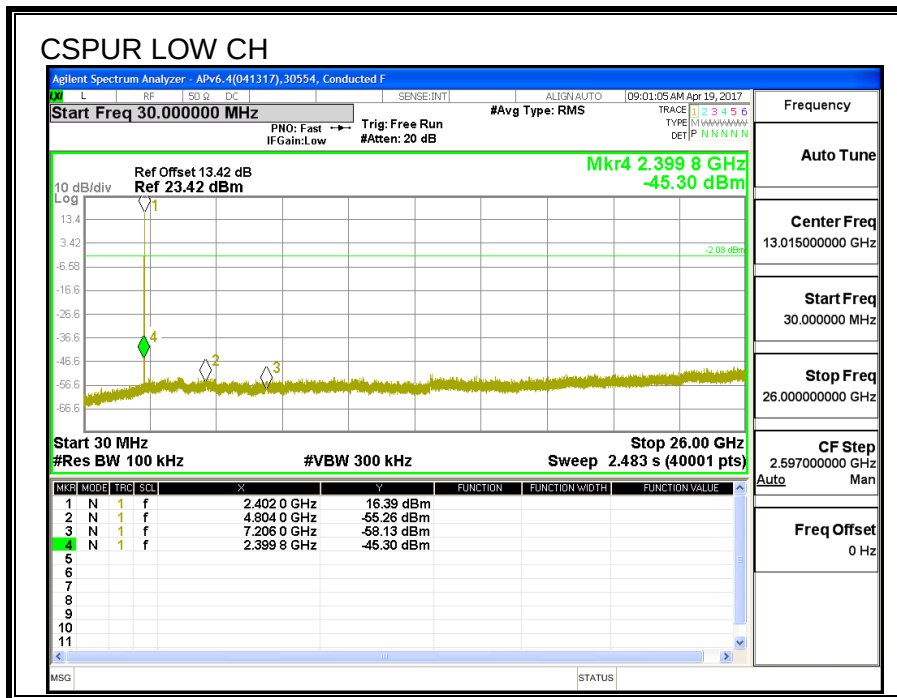
IC RSS-247 (5.5)

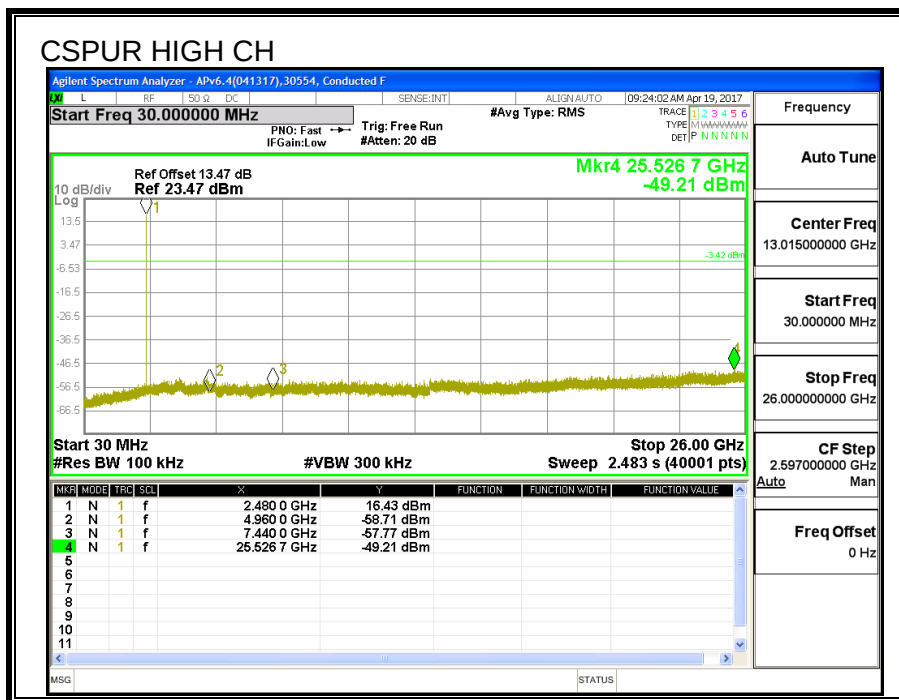
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

RESULTS









7.8. LAT 3 BLE 1M Plow

7.8.1. 6 dB BANDWIDTH

LIMITS

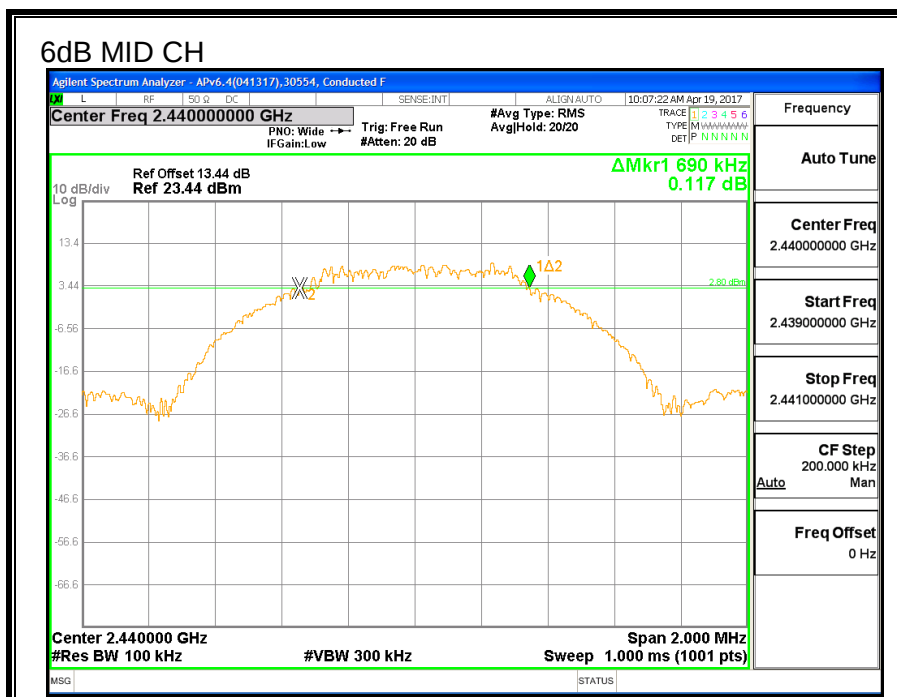
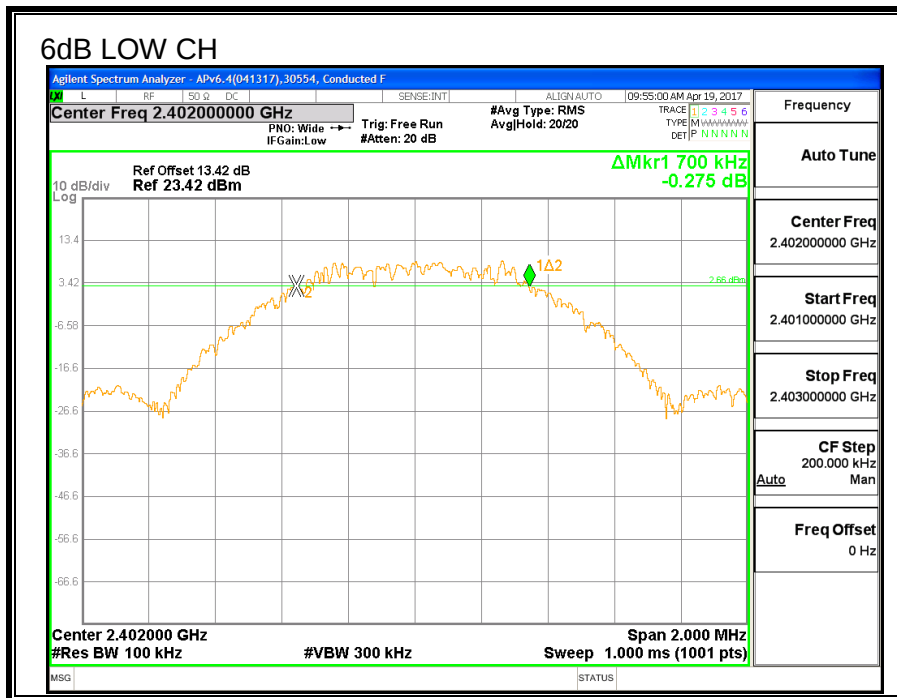
FCC §15.247 (a) (2)

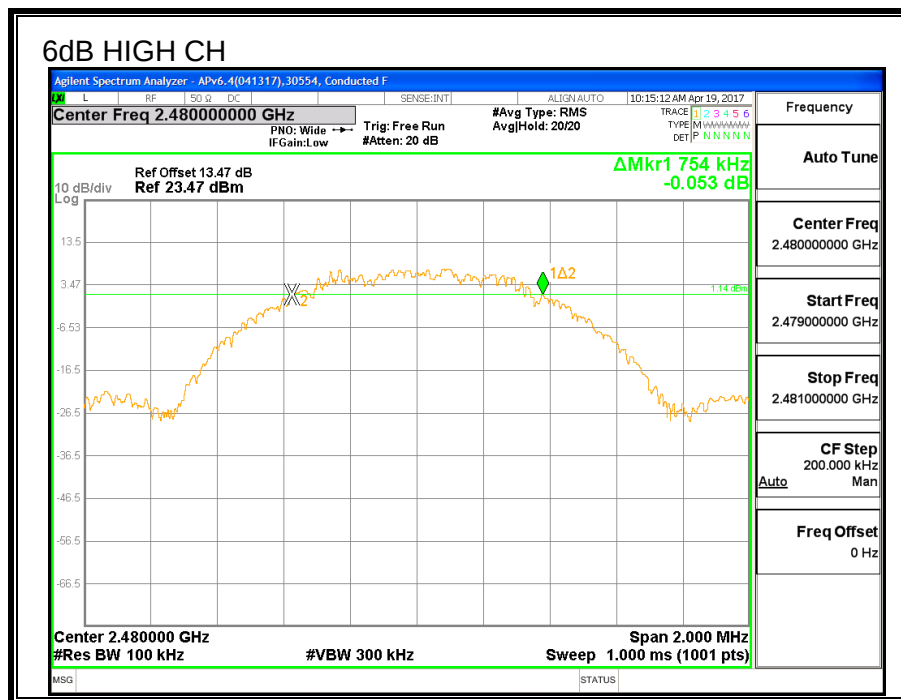
IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.700	0.5
Middle	2440	0.690	0.5
High	2480	0.754	0.5





7.8.2. 99% BANDWIDTH

LIMITS

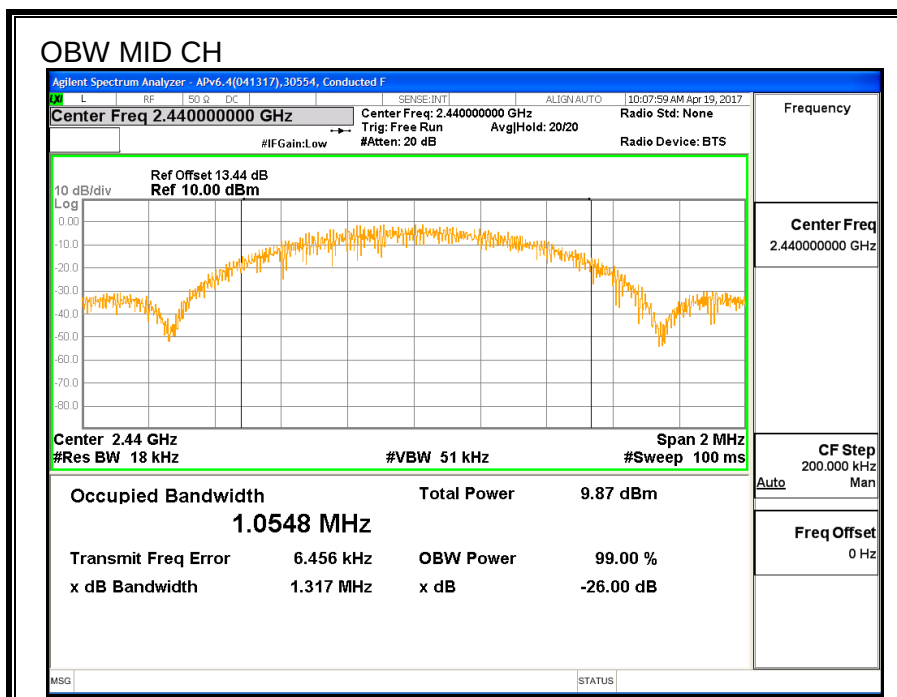
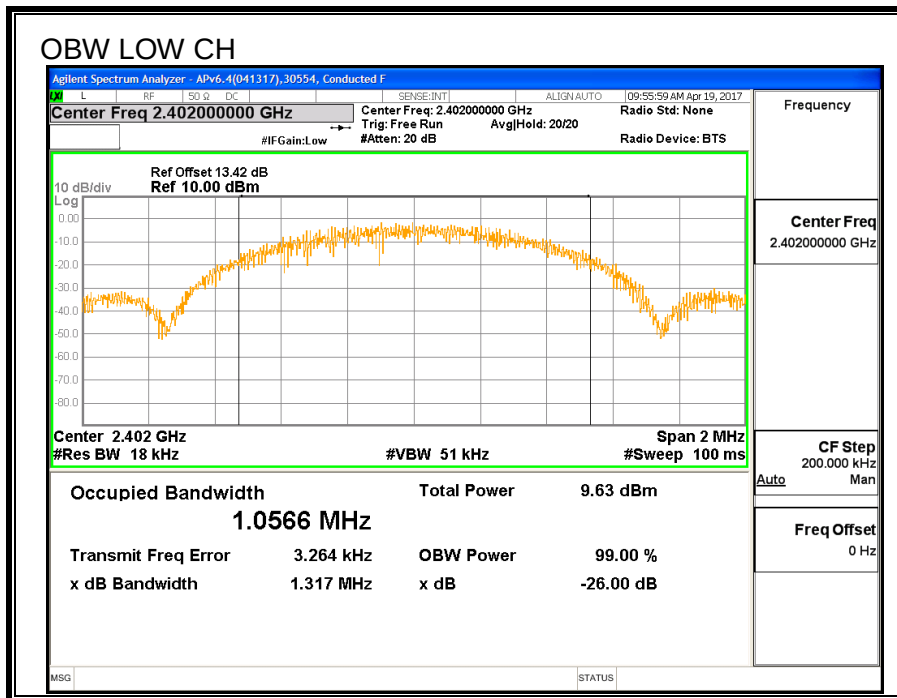
None; for reporting purposes only.

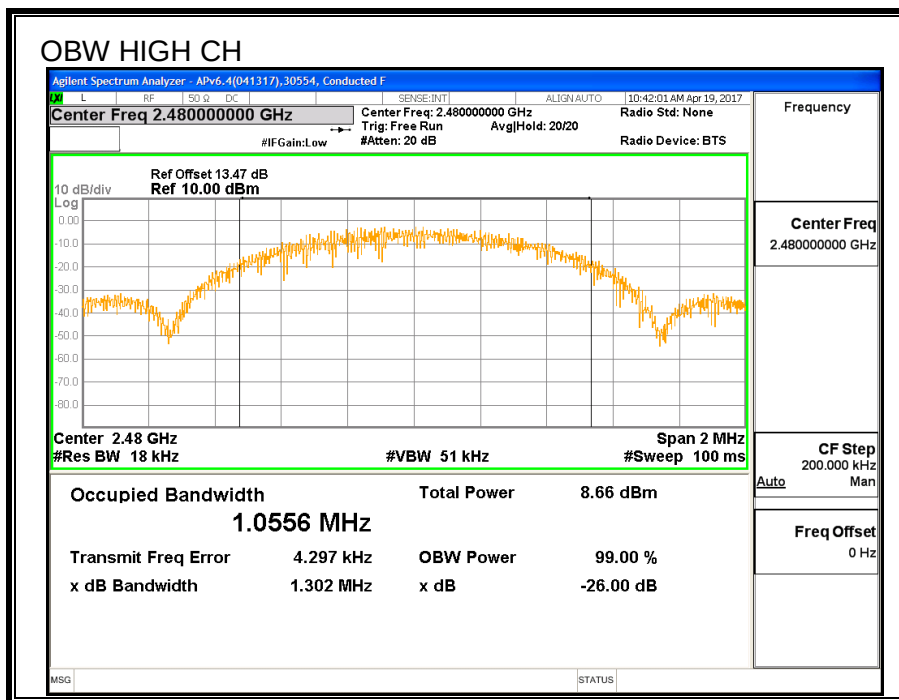
Test Procedure

The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth and to 1% of the span. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0566
Middle	2440	1.0548
High	2480	1.0556





7.8.3. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	9.56
Middle	2440	9.60
High	2480	9.51

7.8.4. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.86	30	-10.24
Middle	2440	9.84	30	-10.26
High	2480	9.82	30	-10.28

7.8.5. POWER SPECTRAL DENSITY

LIMITS

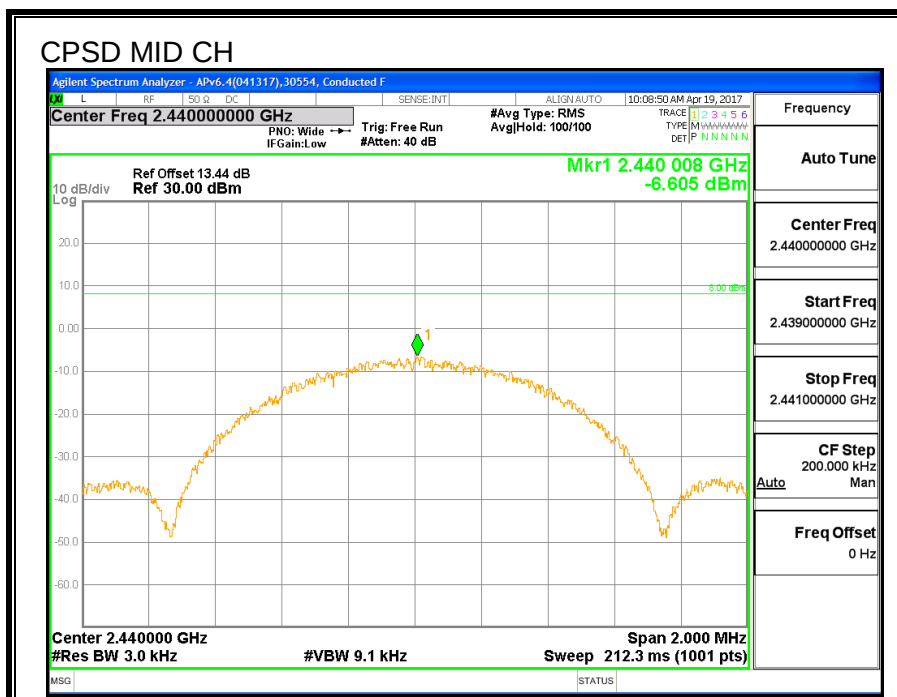
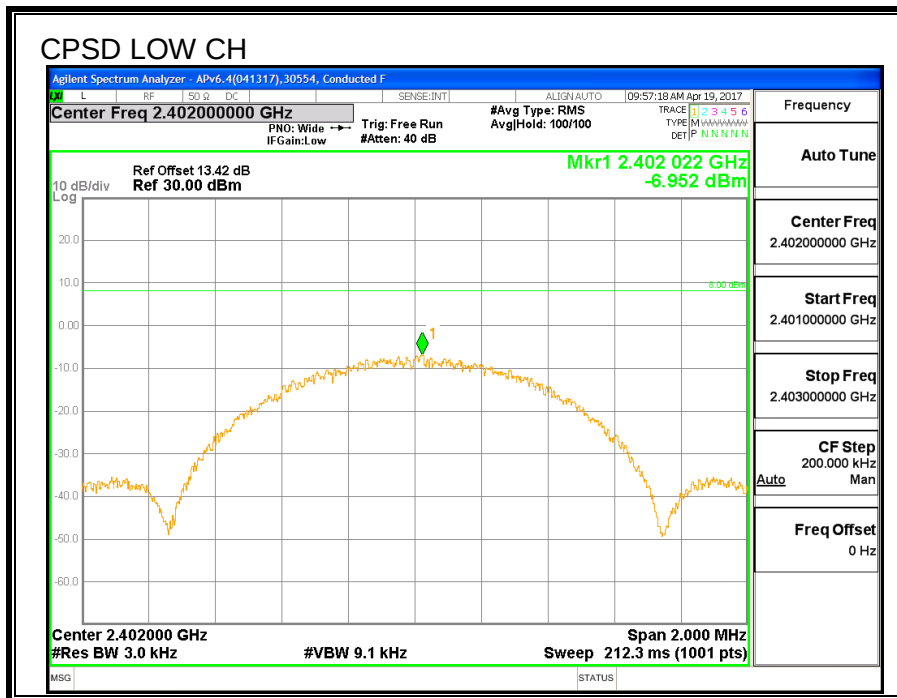
FCC §15.247 (e)

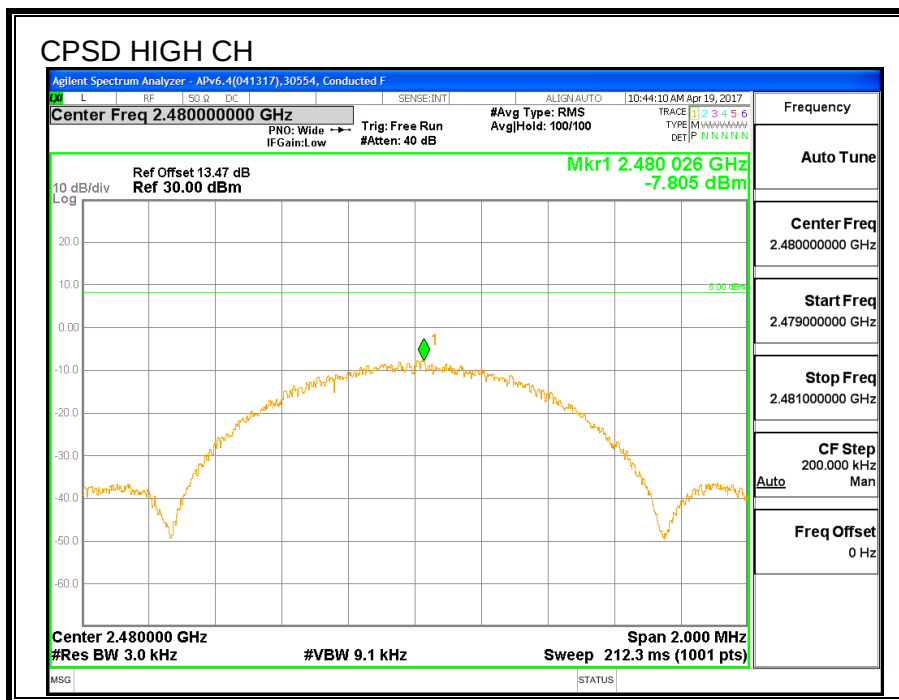
IC RSS-247 (5.2) (b)

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

RESULTS

Channel	Frequency (MHz)	PSD (dBm/3KHz)	Limit (dBm/3KHz)	Margin (dB)
Low	2402	-6.952	8	-14.952
Middle	2440	-6.605	8	-14.605
High	2480	-7.805	8	-15.805





7.8.6. CONDUCTED BANEDGE AND SPURIOUS EMISSIONS

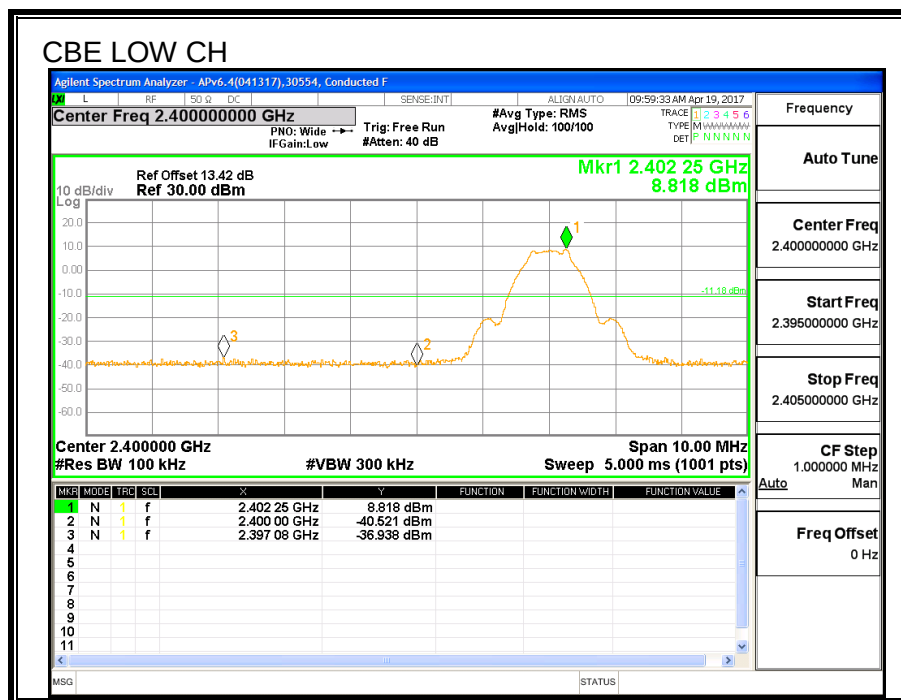
LIMITS

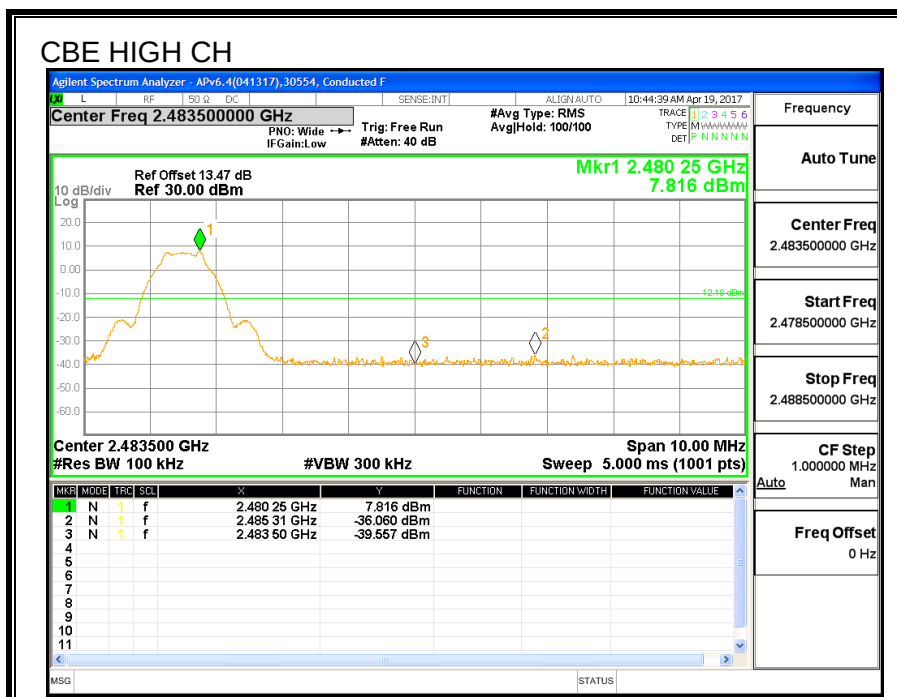
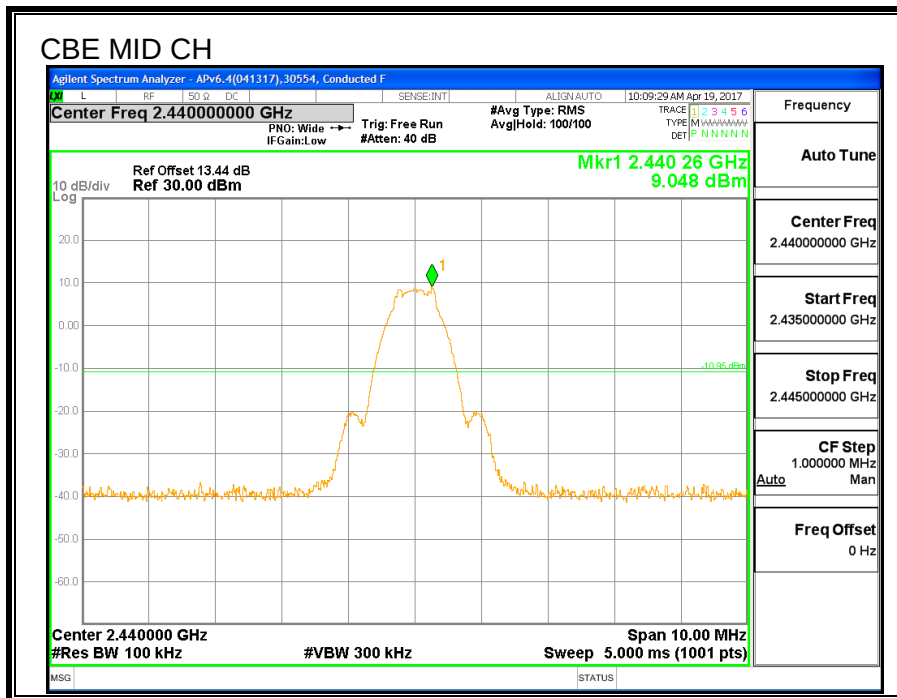
FCC §15.247 (d)

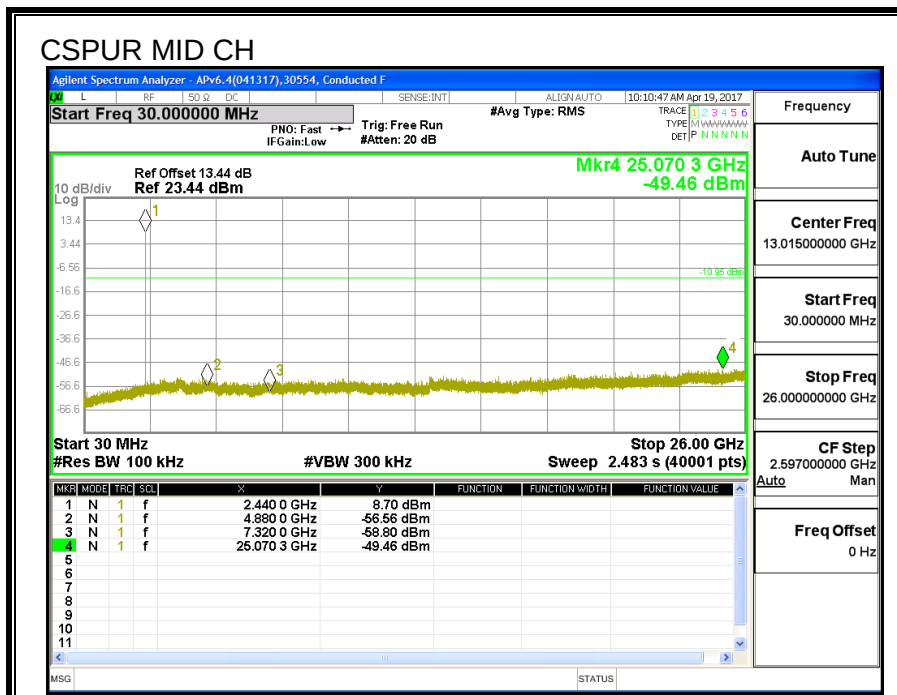
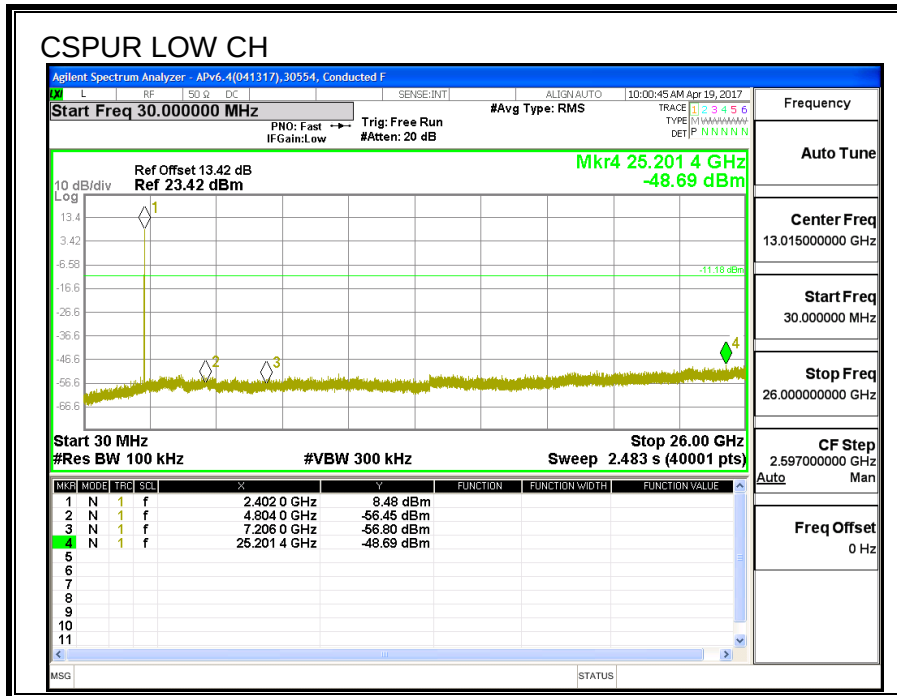
IC RSS-247 (5.5)

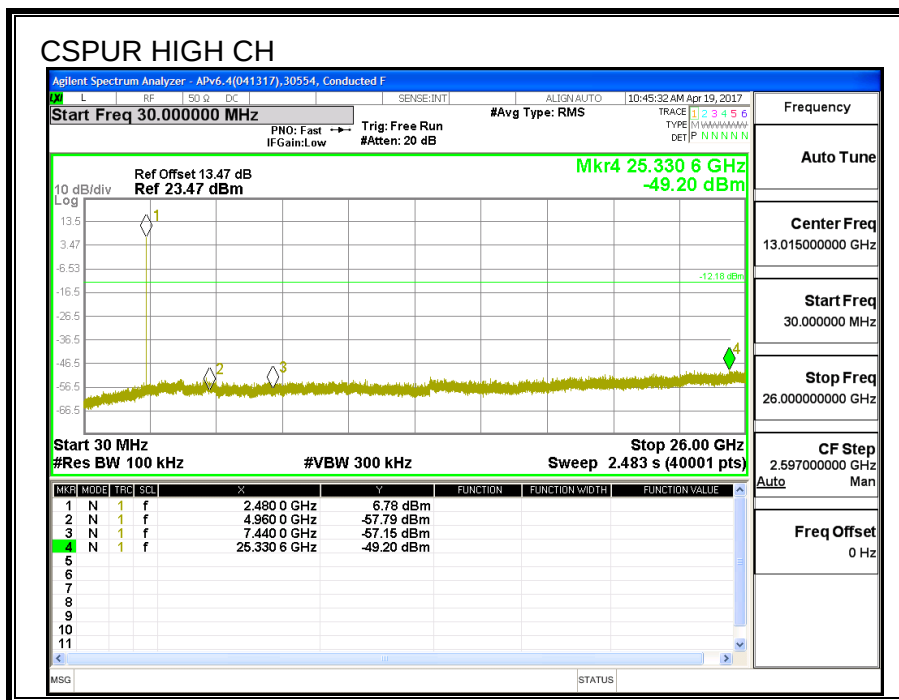
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

RESULTS









7.9. LAT 3 BLE 2M Pmax

7.9.1. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	19.21
Middle	2440	19.22
High	2480	19.19

7.9.2. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a broadband Peak/average RF power meter

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	19.54	30	-10.46
Middle	2440	19.45	30	-10.55
High	2480	19.5	30	-10.5

7.10. LAT 3 BLE 2M Plow

7.10.1. AVERAGE POWER

ID:	44366	Date:	7/14/2017
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LIMITS

None; for reporting purposes only.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

RESULTS

Channel	Frequency (MHz)	AV Power (dBm)
Low	2402	9.30
Middle	2440	9.41
High	2480	9.22

7.10.2. OUTPUT POWER

ID:	44366	Date:	7/14/2017
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LIMITS

FCC §15.247 (b)

IC RSS-247 (5.4) (d)

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

TEST PROCEDURE

The transmitter output is connected to a broadband Peak/average RF power meter

RESULTS

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	9.65	30	-20.45
Middle	2440	9.77	30	-20.23
High	2480	9.56	30	-20.44

8. RADIATED TEST RESULTS

8.1. 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 ($\mu\text{V/m}$) at 3 m	Field Strength Limit (dB $\mu\text{V/m}$) 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.

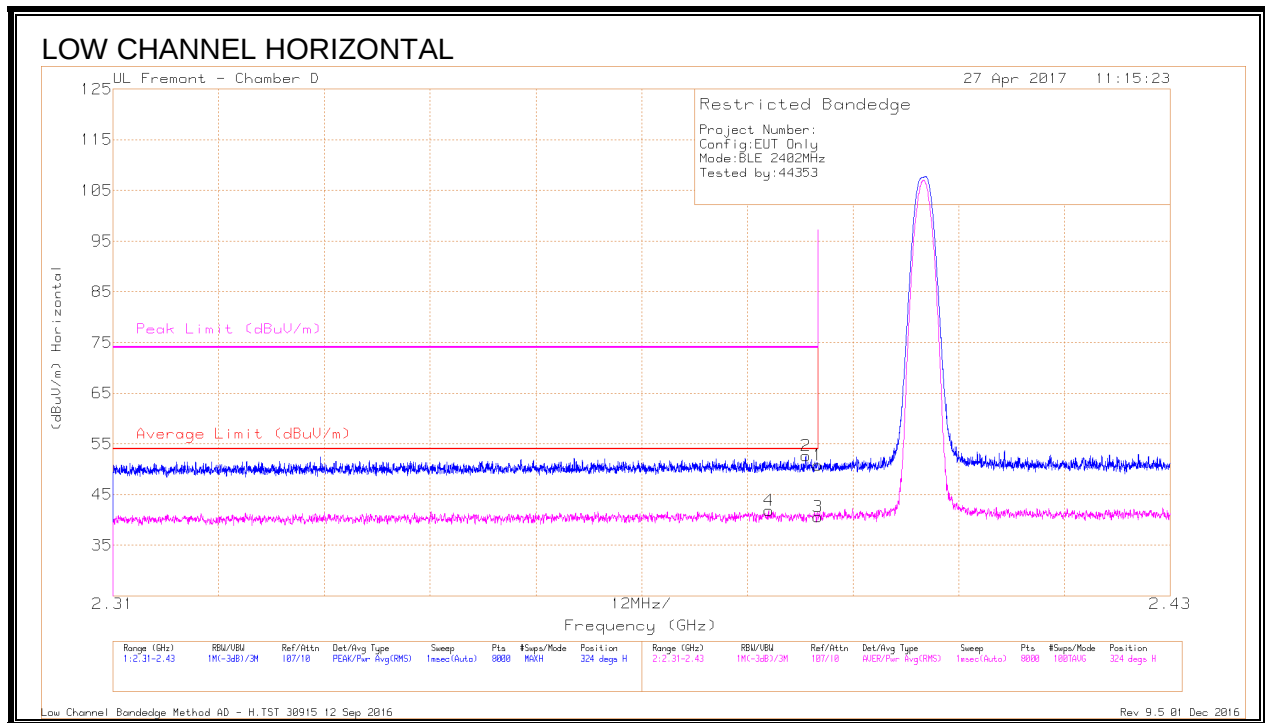
For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

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 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.

8.2. UAT 1 BLE 1M Pmax

8.2.1. RESTRICTED BANDEDGE (LOW CHANNEL)

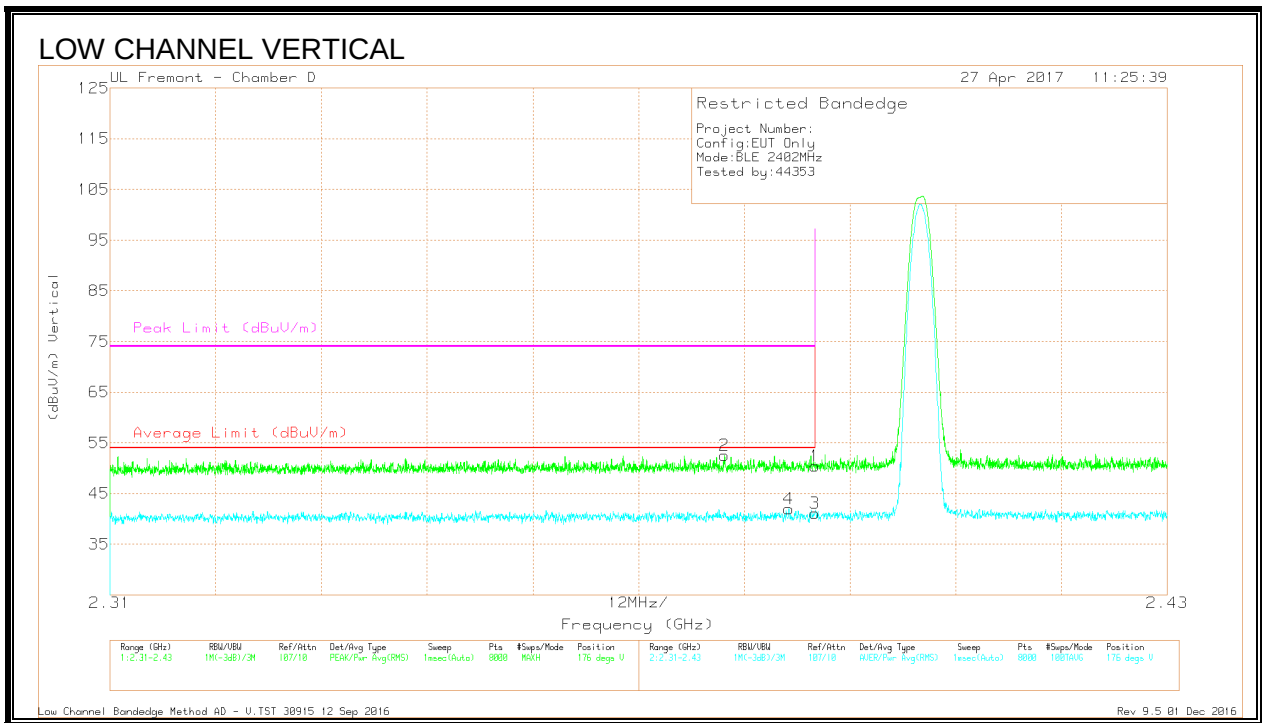


Marker	Frequ ncy (GHz)	Meter Readin g (dBuV)	Det	AF T862 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Correct ed Readin g (dBuV/ m)	Averag e Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	PK Margin (dB)	Azimat h (Degs)	Height (cm)	Polarity
1	* 2.39	39.46	Pk	32	-20.7	50.76	-	-	74	-23.24	324	234	H
2	* 2.389	41.4	Pk	32	-20.8	52.6	-	-	74	-21.4	324	234	H
3	* 2.39	29.27	RMS	32	-20.7	40.57	54	-13.43	-	-	324	234	H
4	* 2.384	30.64	RMS	32	-20.8	41.84	54	-12.16	-	-	324	234	H

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

Pk - Peak detector

RMS - RMS detection



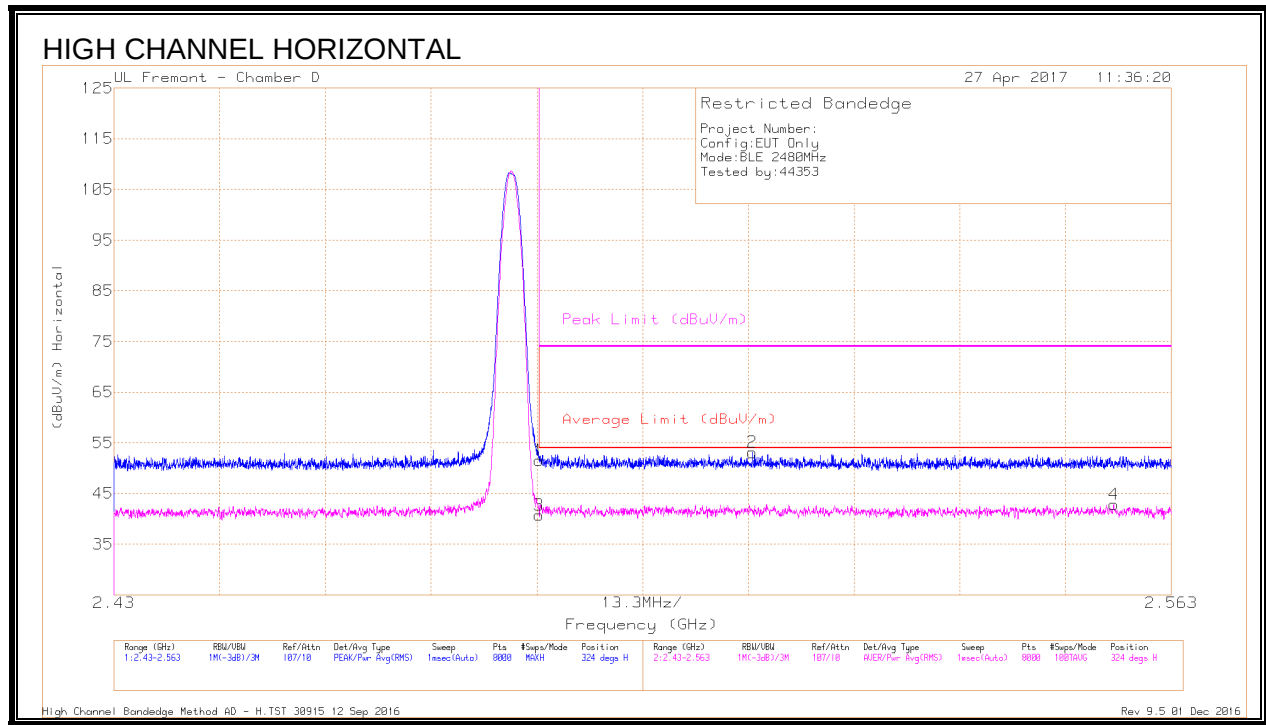
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.16	Pk	32	-20.7	50.46	-	-	74	-23.54	176	319	V
2	* 2.38	41.41	Pk	31.9	-20.8	52.51	-	-	74	-21.49	176	319	V
3	* 2.39	29.83	RMS	32	-20.7	41.13	54	-12.87	-	-	176	319	V
4	* 2.387	30.8	RMS	32	-20.8	42	54	-12	-	-	176	319	V

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

Pk - Peak detector

RMS - RMS detection

8.2.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

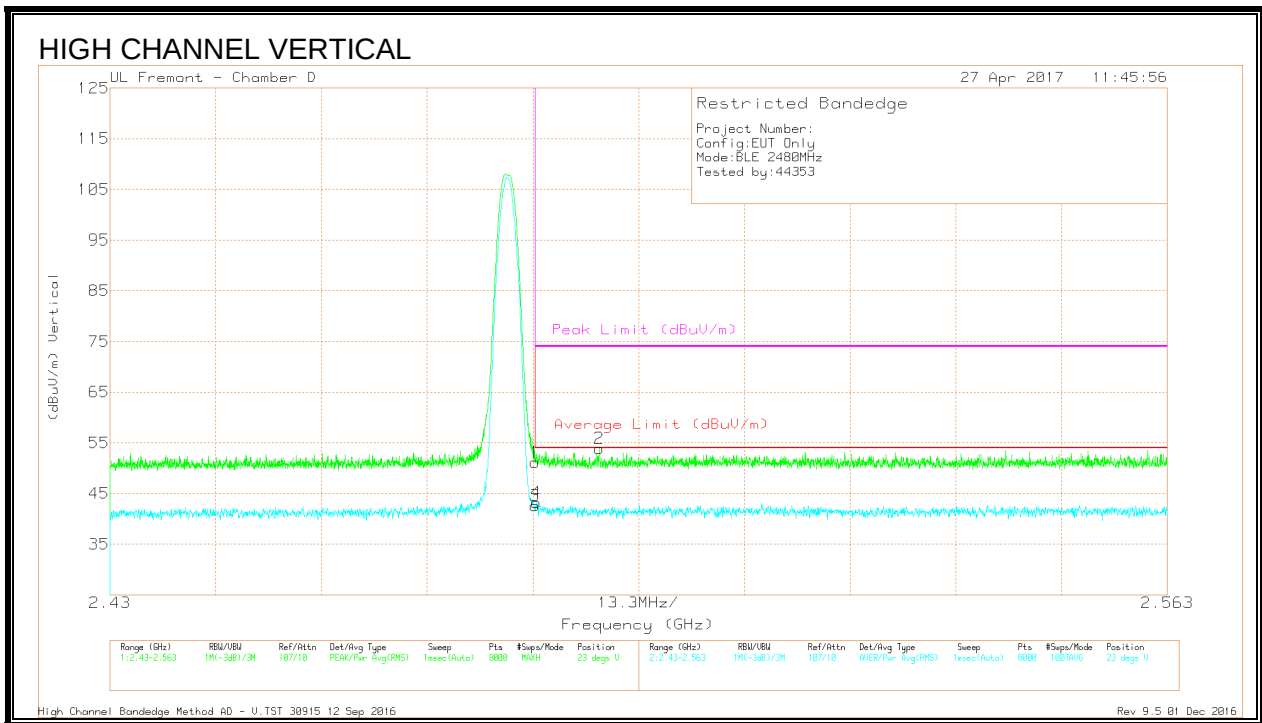


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.84	Pk	32.5	-20.8	51.54	-	-	74	-22.46	324	230	H
3	* 2.484	29.05	RMS	32.5	-20.8	40.75	54	-13.25	-	-	324	230	H
2	2.51	41.09	Pk	32.6	-20.6	53.09	-	-	74	-20.91	324	230	H
4	2.556	30.94	RMS	32.5	-20.6	42.84	54	-11.16	-	-	324	230	H

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

Pk - Peak detector

RMS - RMS detection



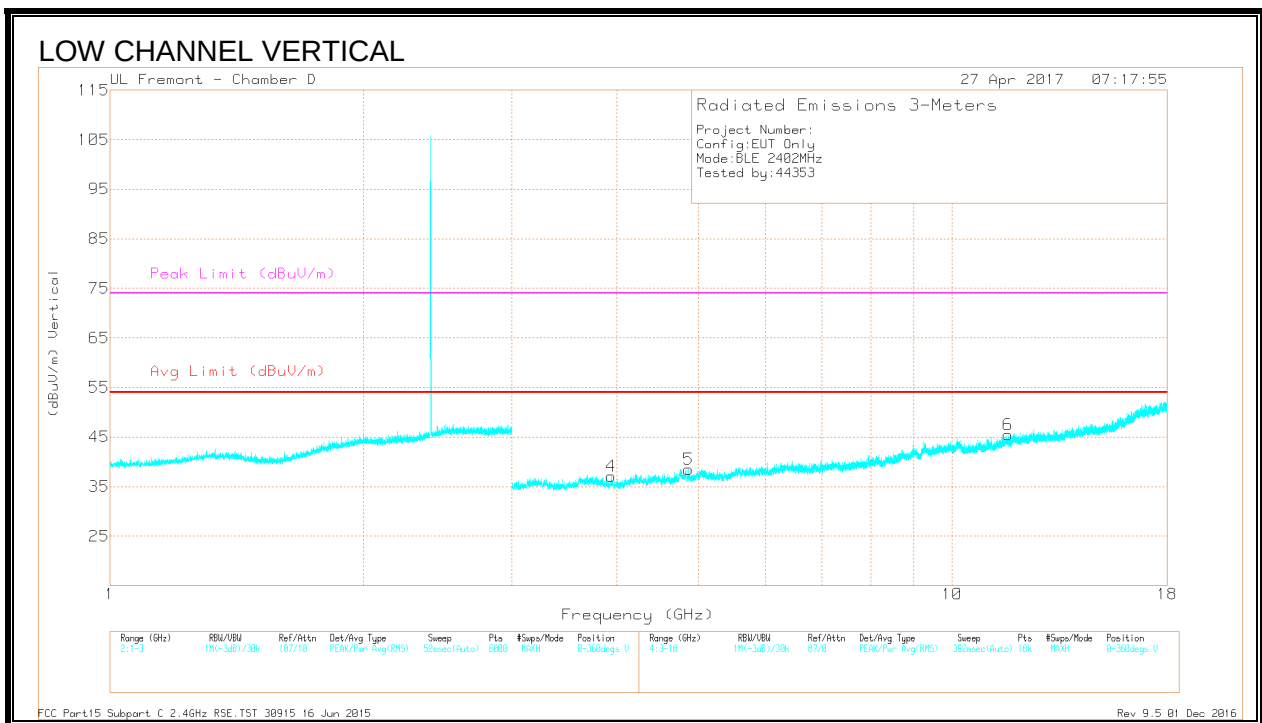
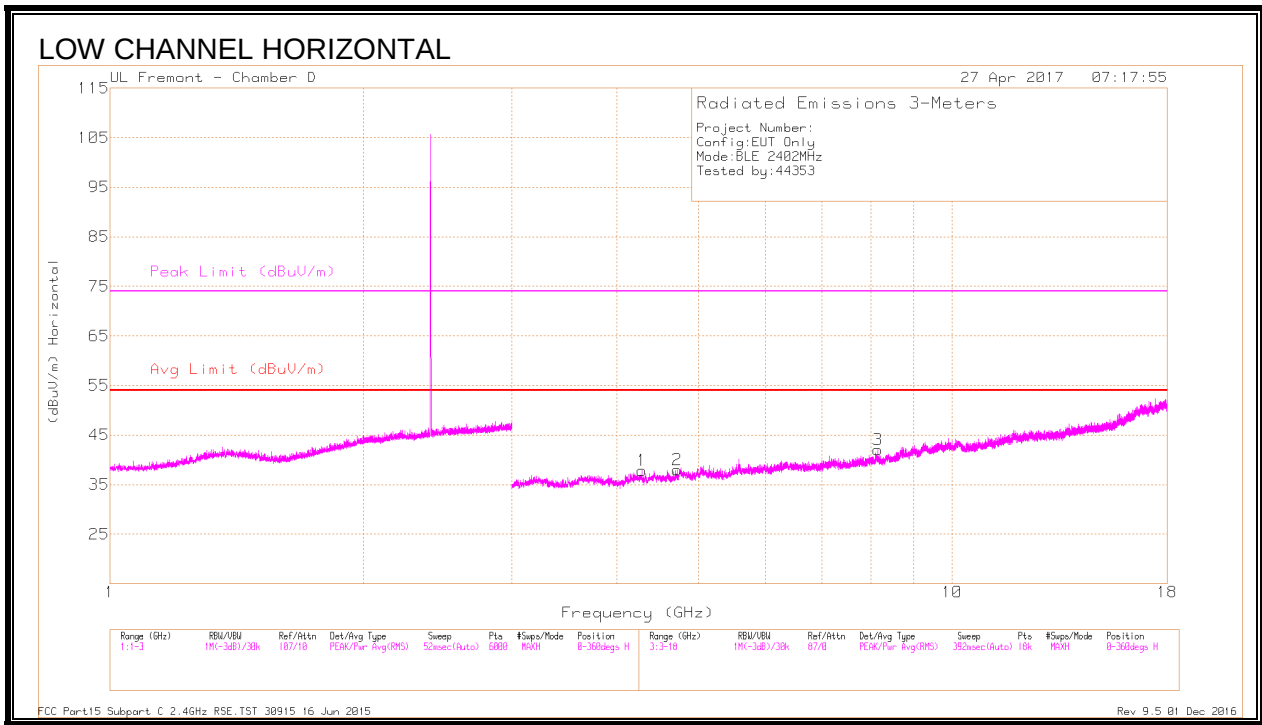
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.49	Pk	32.5	-20.8	51.19	-	-	74	-22.81	23	316	V
2	* 2.492	42.08	Pk	32.6	-20.8	53.88	-	-	74	-20.12	23	316	V
3	* 2.484	30.92	RMS	32.5	-20.8	42.62	54	-11.38	-	-	23	316	V
4	* 2.484	31.47	RMS	32.5	-20.8	43.17	54	-10.83	-	-	23	316	V

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

Pk - Peak detector

RMS - RMS detection

8.2.3. HARMONICS AND SPURIOUS EMISSIONS



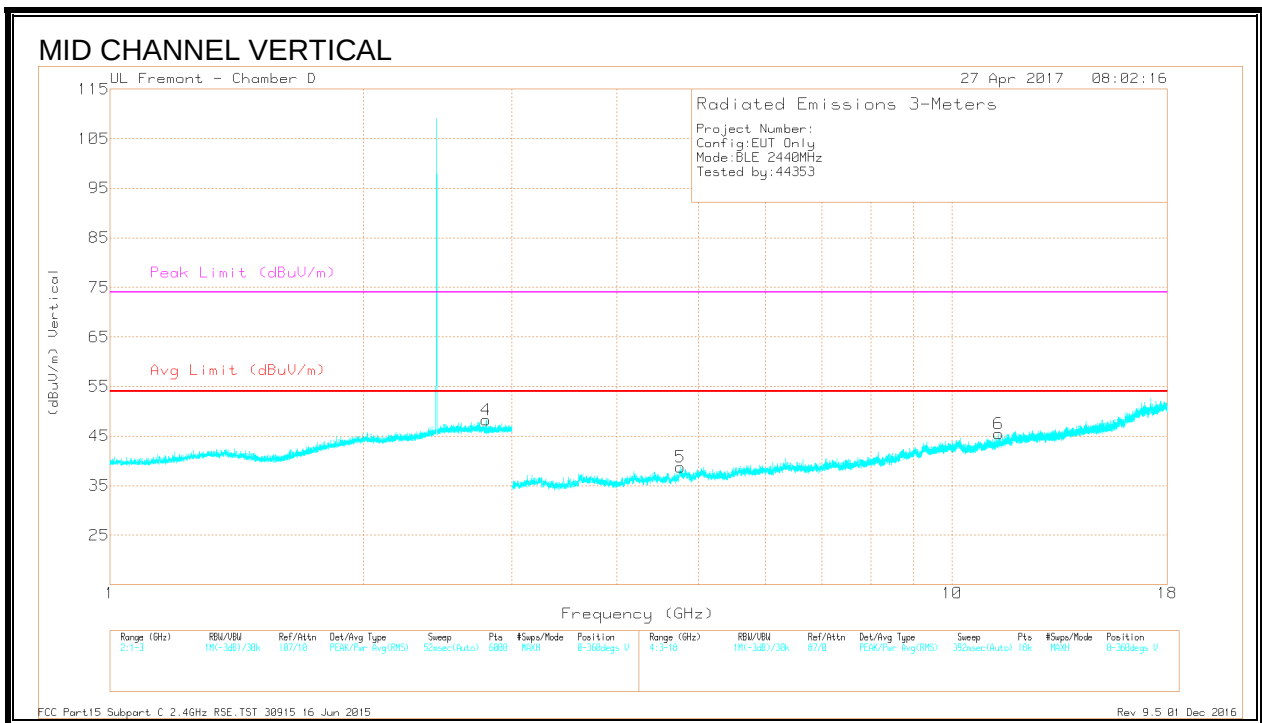
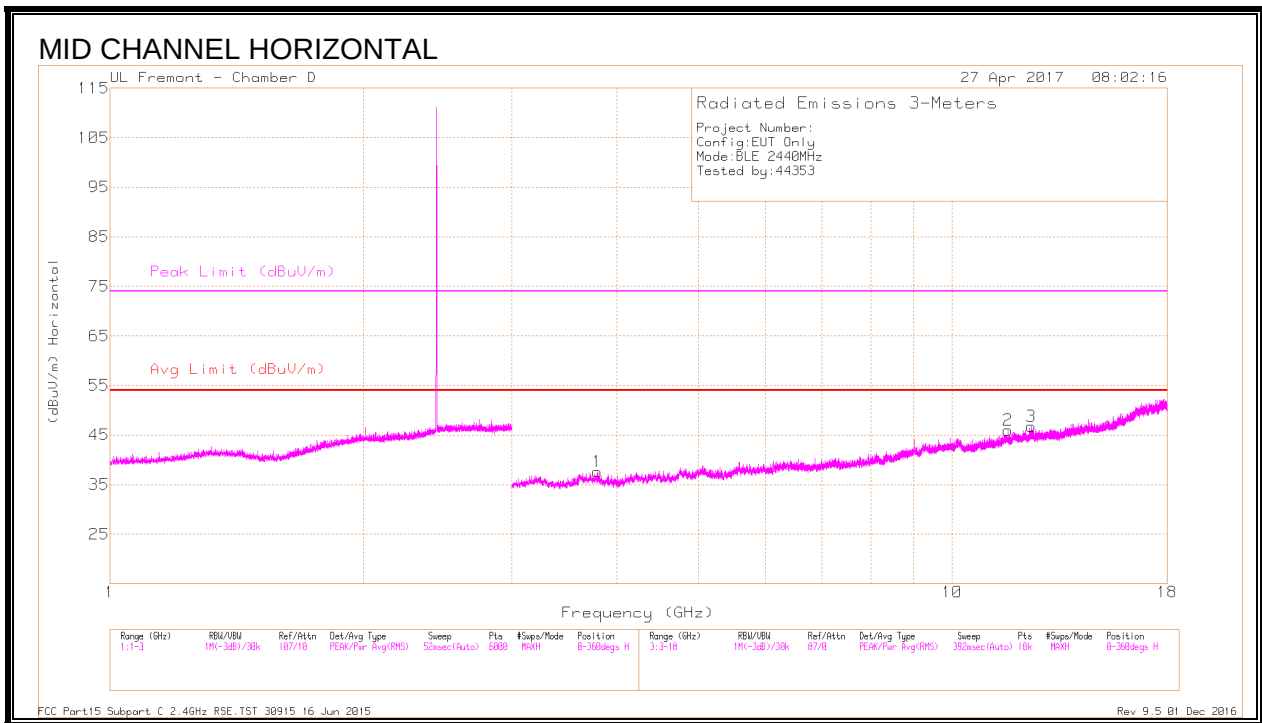
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Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.283	38.34	PK2	33.5	-28.1	43.74	-	-	74	-30.26	117	263	H
	* 4.281	27.13	MAv1	33.5	-28.1	32.53	54	-21.47	-	-	117	263	H
2	* 4.712	38.59	PK2	34	-27.3	45.29	-	-	74	-28.71	325	142	H
	* 4.712	27.33	MAv1	34	-27.3	34.03	54	-19.97	-	-	325	142	H
3	* 8.162	35.4	PK2	35.9	-23.3	48	-	-	74	-26	161	119	H
	* 8.165	24.11	MAv1	35.9	-23.2	36.81	54	-17.19	-	-	161	119	H
4	* 3.938	38.7	PK2	33.2	-28	43.9	-	-	74	-30.1	28	277	V
	* 3.938	27.51	MAv1	33.2	-28	32.71	54	-21.29	-	-	28	277	V
5	* 4.865	38.19	PK2	34.1	-28	44.29	-	-	74	-29.71	206	188	V
	* 4.864	26.96	MAv1	34.1	-28	33.06	54	-20.94	-	-	206	188	V
6	* 11.645	34.02	PK2	38.5	-20.5	52.02	-	-	74	-21.98	197	302	V
	* 11.647	22.95	MAv1	38.5	-20.5	40.95	54	-13.05	-	-	197	302	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average



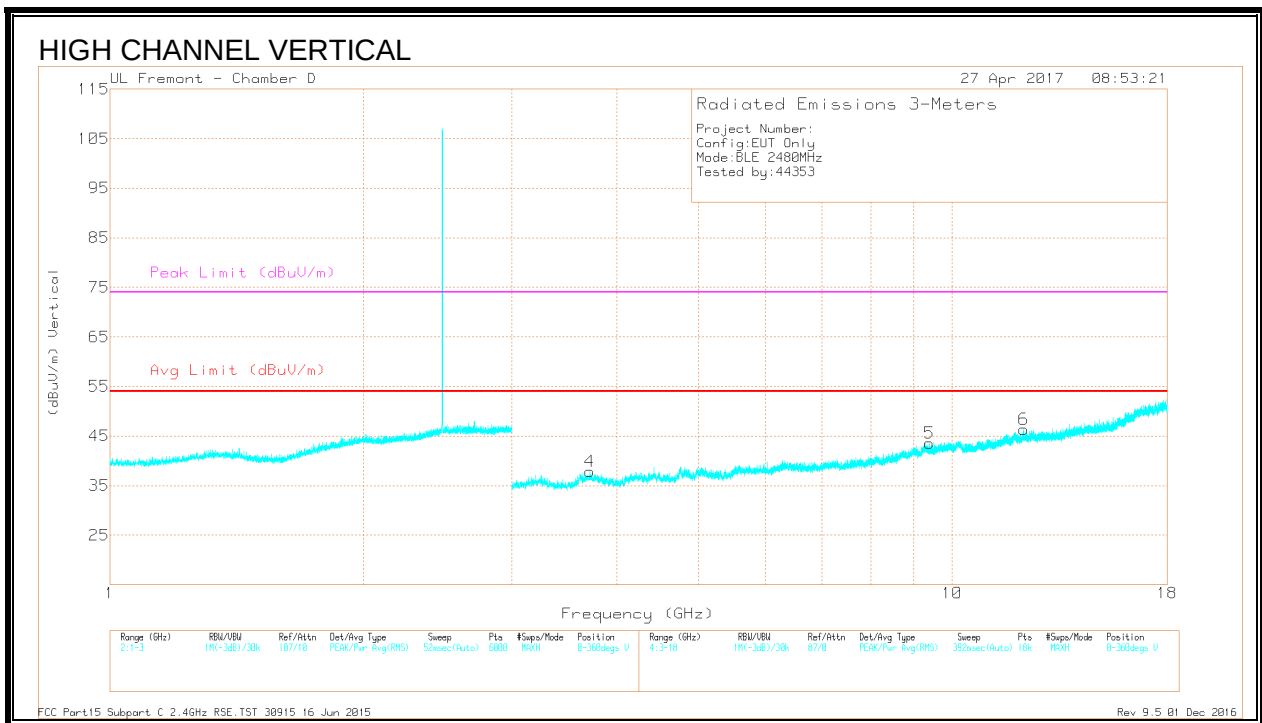
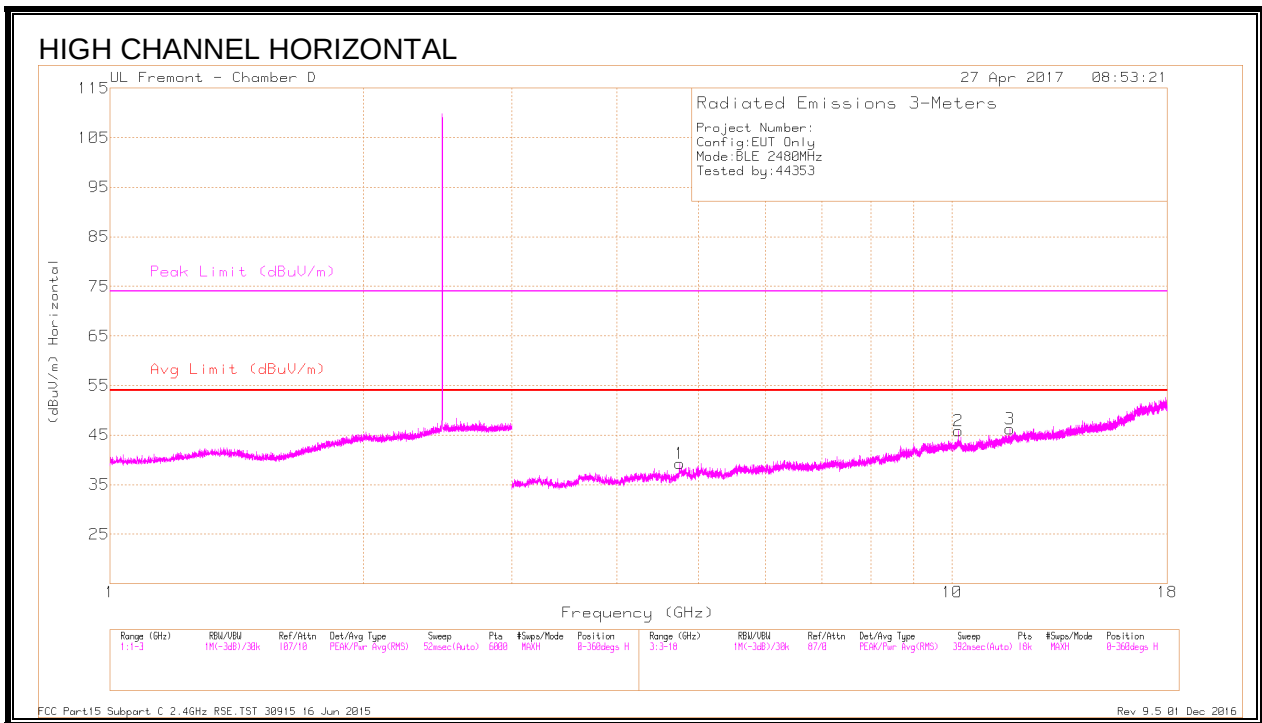
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Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.798	41.74	PK2	32.3	-20.3	53.74	-	-	74	-20.26	326	174	V
	* 2.797	30.18	MAv1	32.3	-20.3	42.18	54	-11.82	-	-	326	174	V
1	* 3.787	38.91	PK2	33.2	-28.3	43.81	-	-	74	-30.19	217	329	H
	* 3.789	27.39	MAv1	33.2	-28.3	32.29	54	-21.71	-	-	217	329	H
2	* 11.645	34.38	PK2	38.5	-20.5	52.38	-	-	74	-21.62	182	203	H
	* 11.646	23.12	MAv1	38.5	-20.5	41.12	54	-12.88	-	-	182	203	H
3	* 12.406	34.96	PK2	39	-20.8	53.16	-	-	74	-20.84	138	145	H
	* 12.407	23.52	MAv1	39	-20.8	41.72	54	-12.28	-	-	138	145	H
5	* 4.752	38.15	PK2	34	-26.5	45.65	-	-	74	-28.35	210	120	V
	* 4.753	27.29	MAv1	34	-26.5	34.79	54	-19.21	-	-	210	120	V
6	* 11.356	34.12	PK2	38.1	-21.1	51.12	-	-	74	-22.88	299	102	V
	* 11.355	23.47	MAv1	38.1	-21.1	40.47	54	-13.53	-	-	299	102	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/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	* 4.746	38.34	PK2	34	-26.5	45.84	-	-	74	-28.16	88	164	H
	* 4.746	27.12	MAv1	34	-26.5	34.62	54	-19.38	-	-	88	164	H
3	* 11.706	34.8	PK2	38.6	-21.1	52.3	-	-	74	-21.7	219	200	H
	* 11.704	23.3	MAv1	38.6	-21.1	40.8	54	-13.2	-	-	219	200	H
4	* 3.713	39.91	PK2	33.3	-28.8	44.41	-	-	74	-29.59	157	136	V
	* 3.713	27.82	MAv1	33.3	-28.8	32.32	54	-21.68	-	-	157	136	V
5	* 9.394	34.01	PK2	37	-21.7	49.31	-	-	74	-24.69	109	244	V
	* 9.394	23.41	MAv1	37	-21.7	38.71	54	-15.29	-	-	109	244	V
6	* 12.165	33.98	PK2	39	-20.9	52.08	-	-	74	-21.92	276	294	V
	* 12.163	23.19	MAv1	39	-20.9	41.29	54	-12.71	-	-	276	294	V
2	10.165	34.46	PK2	37.2	-19.8	51.86	-	-	-	-	141	300	H
	10.166	22.15	MAv1	37.2	-19.8	39.55	-	-	-	-	141	300	H

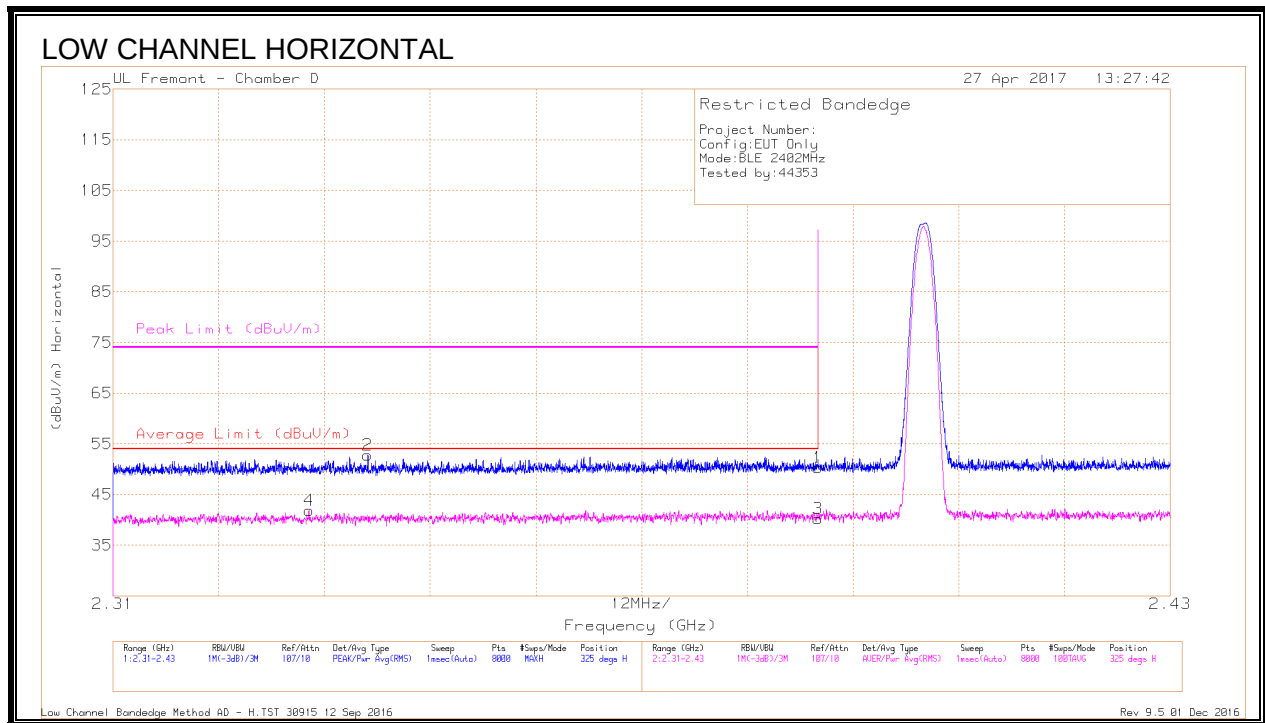
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

8.3. UAT 1 BLE 1M Plow

8.3.1. RESTRICTED BANDEDGE (LOW CHANNEL)

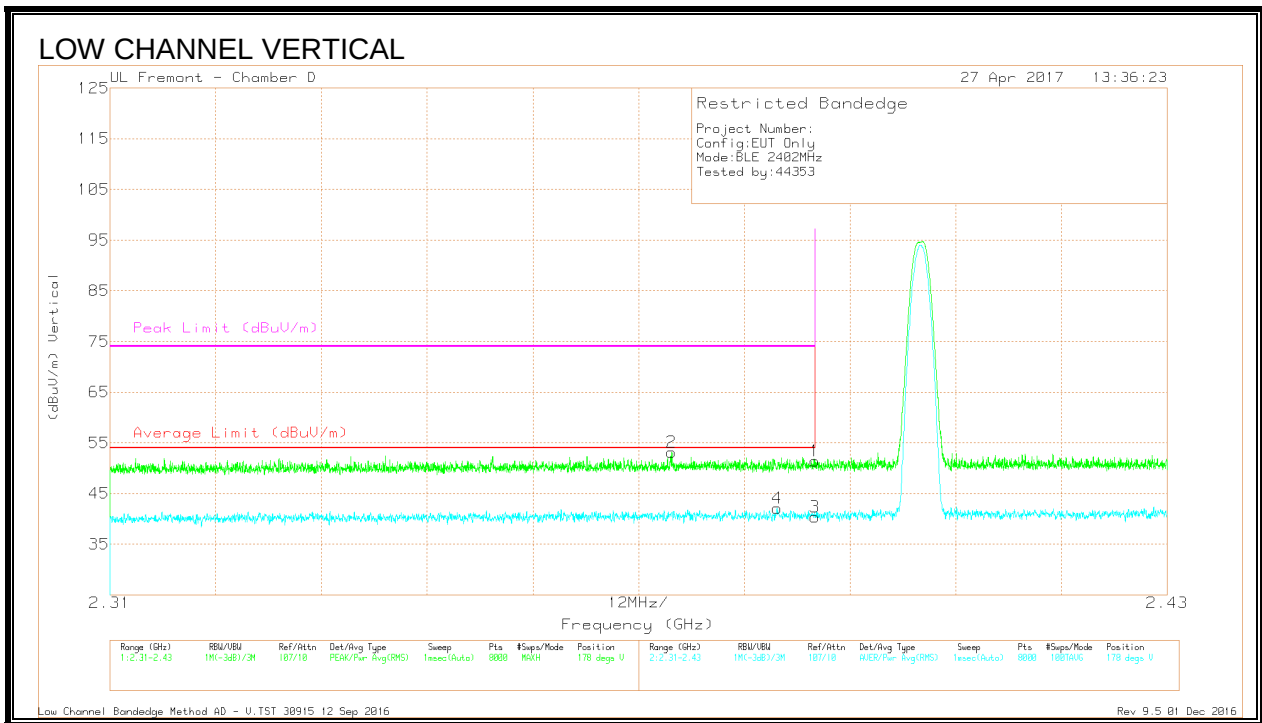


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.94	Pk	32	-20.7	50.24	-	-	74	-23.76	325	236	H
2	* 2.339	41.96	Pk	31.7	-20.9	52.76	-	-	74	-21.24	325	236	H
3	* 2.39	28.96	RMS	32	-20.7	40.26	54	-13.74	-	-	325	236	H
4	* 2.332	31.14	RMS	31.6	-20.9	41.84	54	-12.16	-	-	325	236	H

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

Pk - Peak detector

RMS - RMS detection



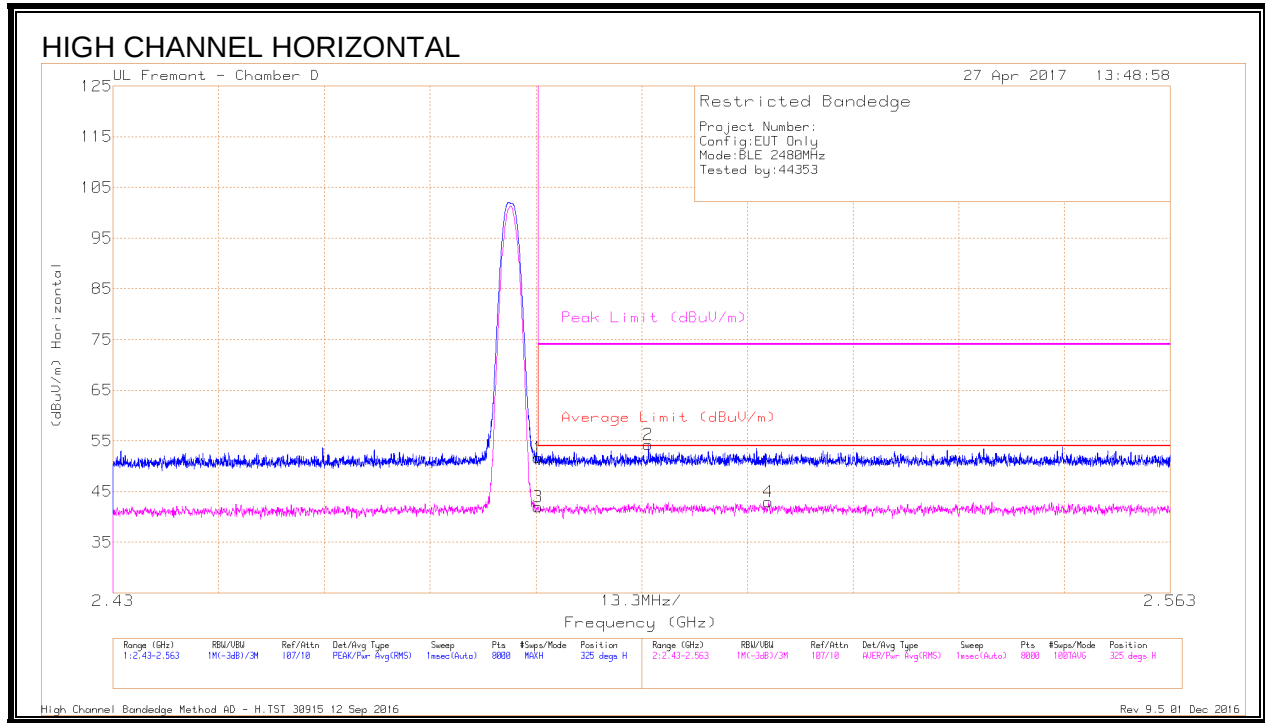
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.16	Pk	32	-20.7	51.46	-	-	74	-22.54	178	318	V
2	* 2.374	42.05	Pk	31.9	-20.8	53.15	-	-	74	-20.85	178	318	V
3	* 2.39	29.03	RMS	32	-20.7	40.33	54	-13.67	-	-	178	318	V
4	* 2.386	30.87	RMS	32	-20.8	42.07	54	-11.93	-	-	178	318	V

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

Pk - Peak detector

RMS - RMS detection

8.3.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

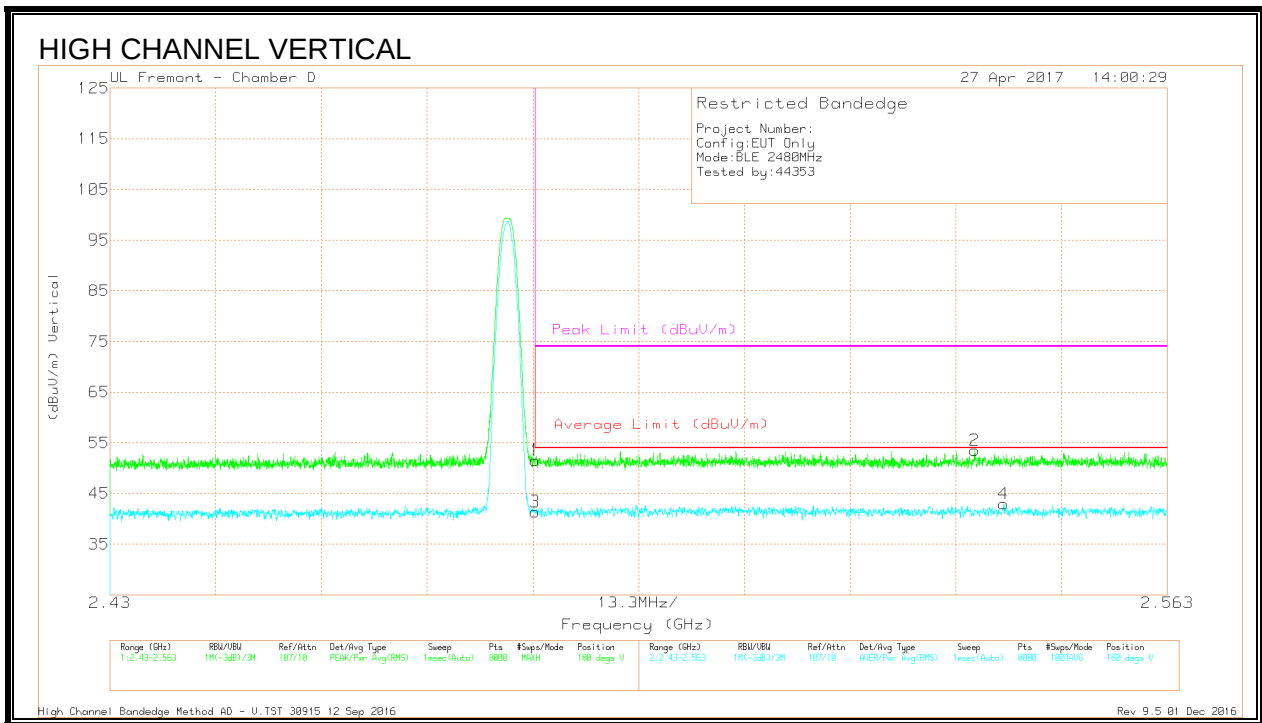


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.97	Pk	32.5	-20.8	51.67	-	-	74	-22.33	325	230	H
2	* 2.497	42.39	Pk	32.6	-20.7	54.29	-	-	74	-19.71	325	230	H
3	* 2.484	30.22	RMS	32.5	-20.8	41.92	54	-12.08	-	-	325	230	H
4	2.512	30.91	RMS	32.6	-20.6	42.91	54	-11.09	-	-	325	230	H

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

Pk - Peak detector

RMS - RMS detection



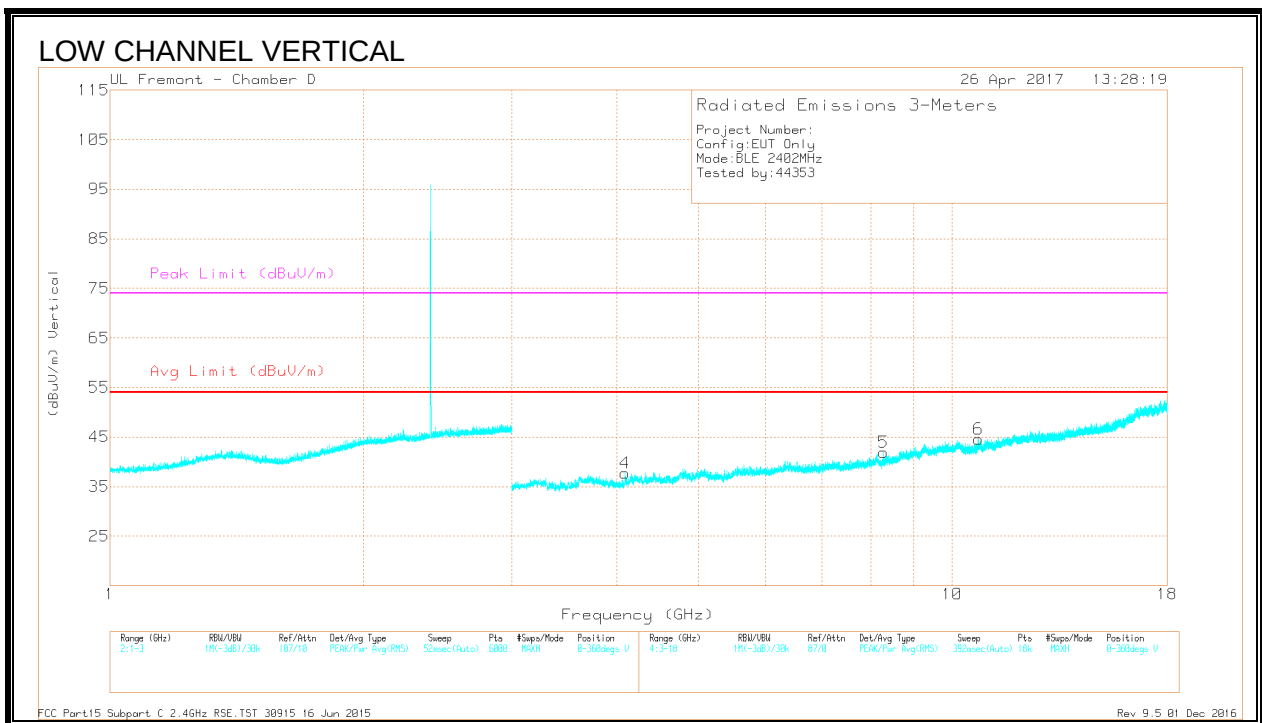
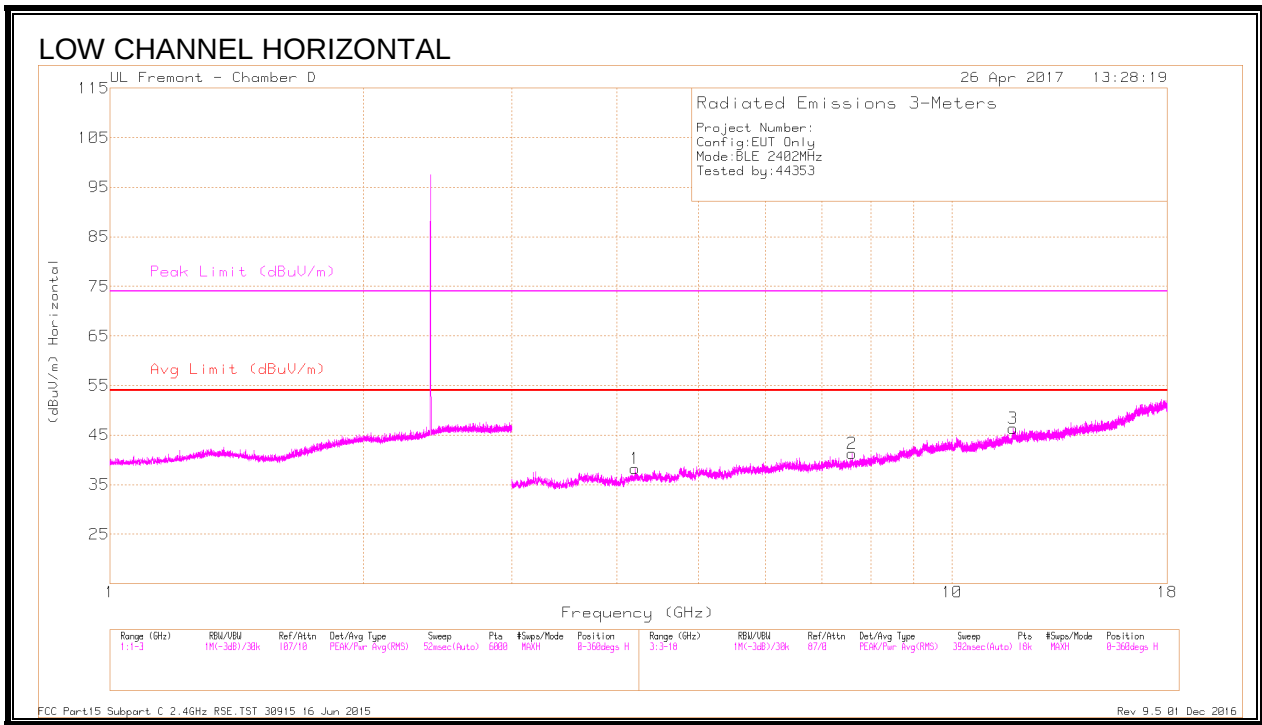
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.89	Pk	32.5	-20.8	51.59	-	-	74	-22.41	180	379	V
3	* 2.484	29.71	RMS	32.5	-20.8	41.41	54	-12.59	-	-	180	379	V
2	2.539	41.67	Pk	32.5	-20.6	53.57	-	-	74	-20.43	180	379	V
4	2.542	31.02	RMS	32.5	-20.6	42.92	54	-11.08	-	-	180	379	V

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

Pk - Peak detector

RMS - RMS detection

8.3.3. HARMONICS AND SPURIOUS EMISSIONS



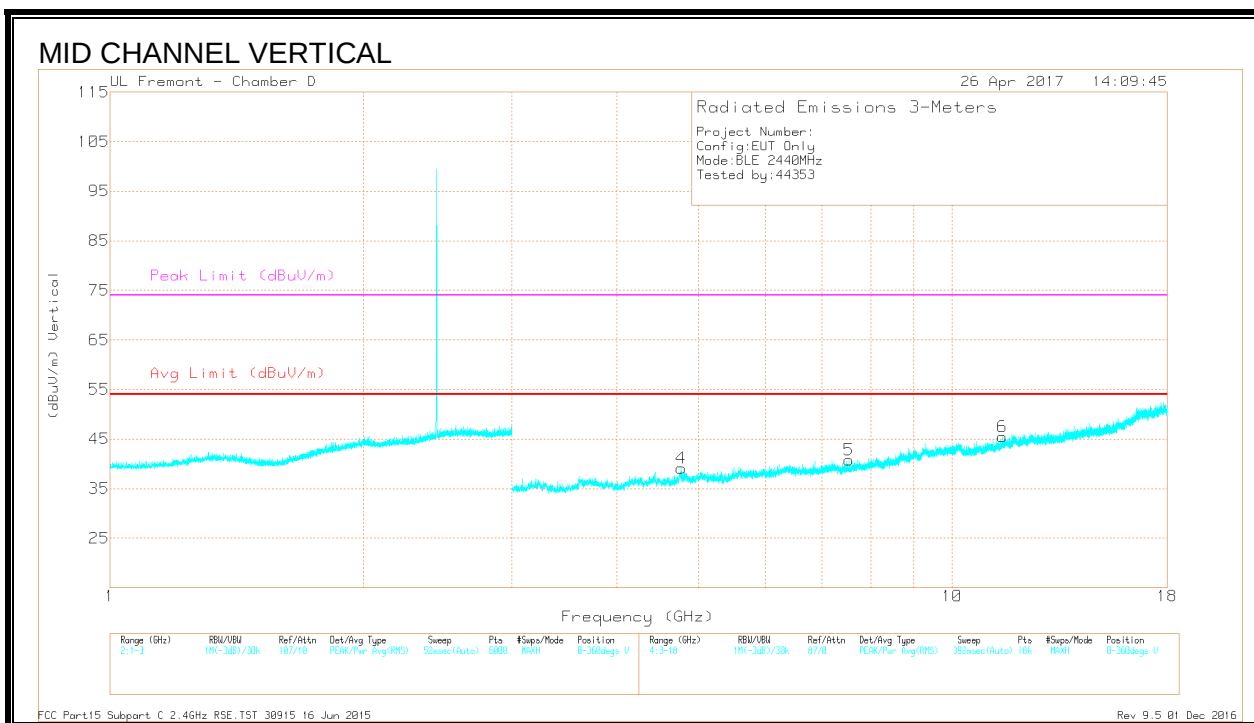
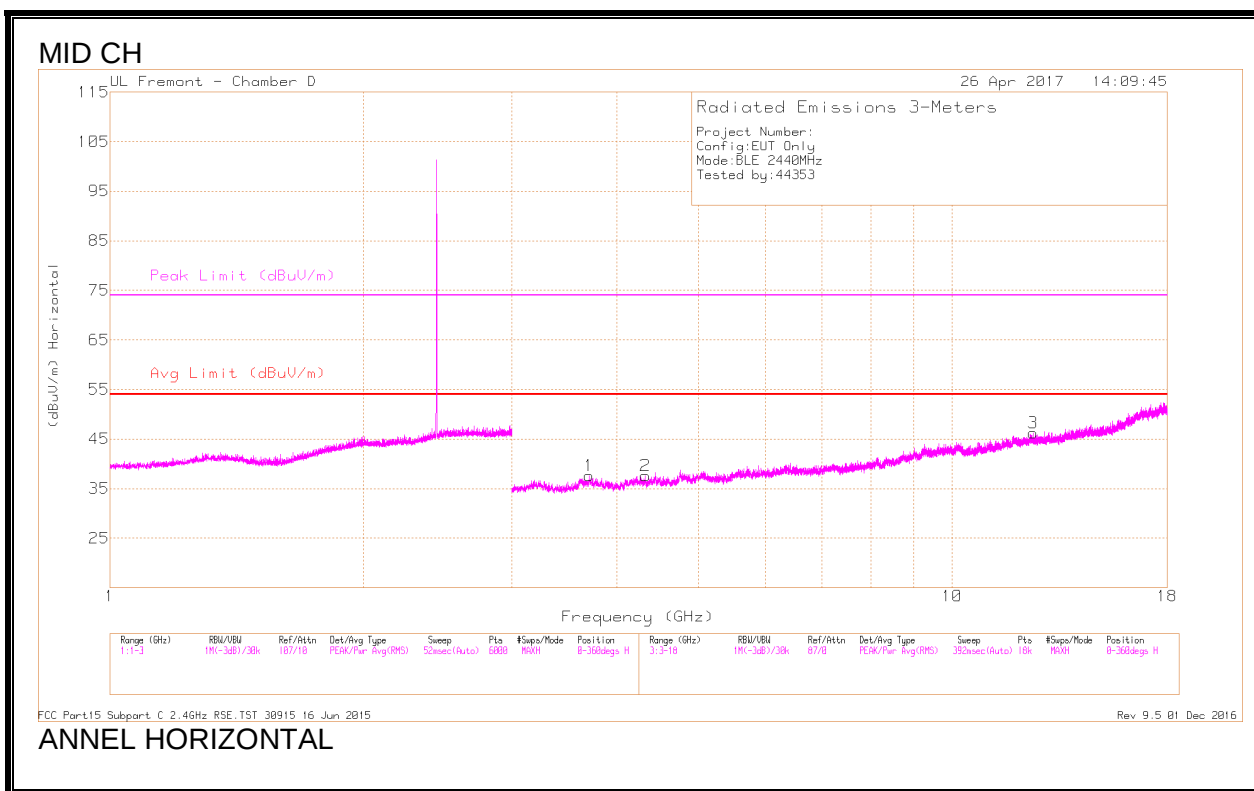
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Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 4.202	37.94	PK2	33.5	-27.5	43.94	-	-	74	-30.06	239	141	H
	* 4.204	26.85	MAv1	33.5	-27.5	32.85	54	-21.15	-	-	239	141	H
2	* 7.602	36.33	PK2	35.7	-25	47.03	-	-	74	-26.97	82	338	H
	* 7.602	25.14	MAv1	35.7	-25	35.84	54	-18.16	-	-	82	338	H
3	* 11.809	35	PK2	38.7	-20.8	52.9	-	-	74	-21.1	153	179	H
	* 11.806	23.38	MAv1	38.7	-20.8	41.28	54	-12.72	-	-	153	179	H
4	* 4.09	38.41	PK2	33.5	-28.1	43.81	-	-	74	-30.19	186	258	V
	* 4.088	27.06	MAv1	33.5	-28.1	32.46	54	-21.54	-	-	186	258	V
5	* 8.288	35.51	PK2	35.9	-24.2	47.21	-	-	74	-26.79	266	116	V
	* 8.286	24.92	MAv1	35.9	-24.2	36.62	54	-17.38	-	-	266	116	V
6	* 10.748	34.31	PK2	37.2	-20.4	51.11	-	-	74	-22.89	104	255	V
	* 10.749	22.83	MAv1	37.2	-20.4	39.63	54	-14.37	-	-	104	255	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average



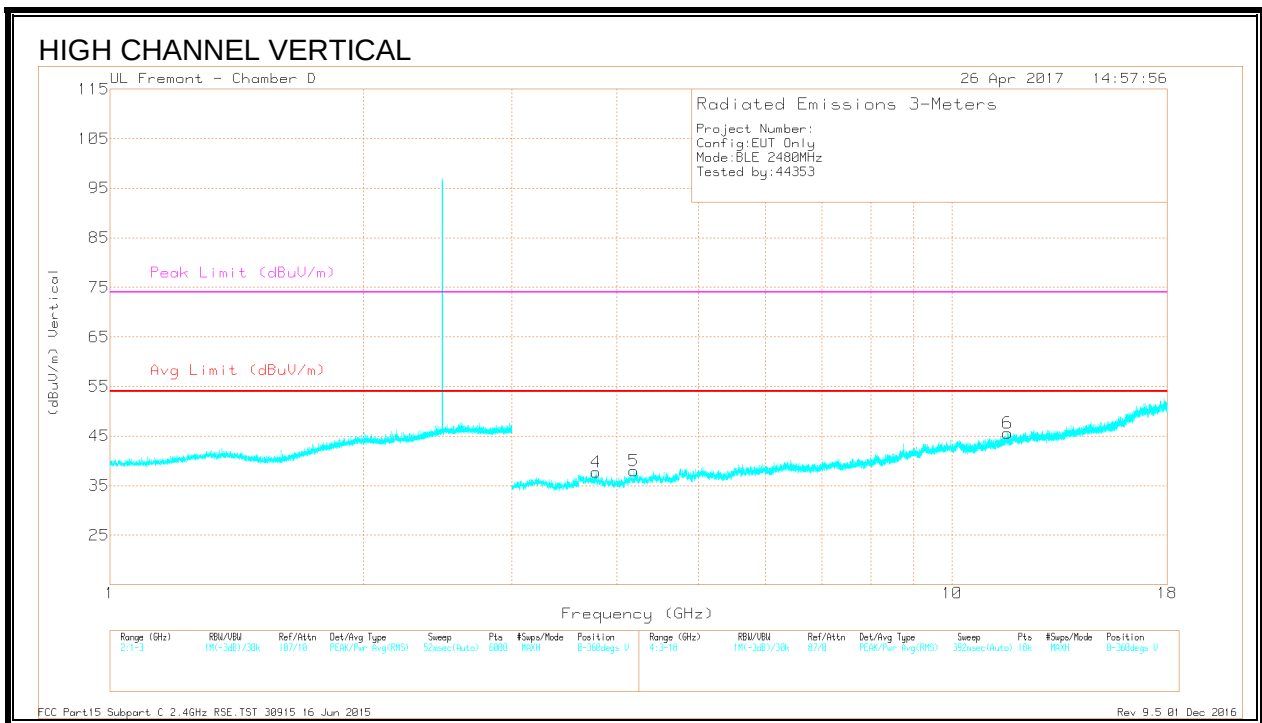
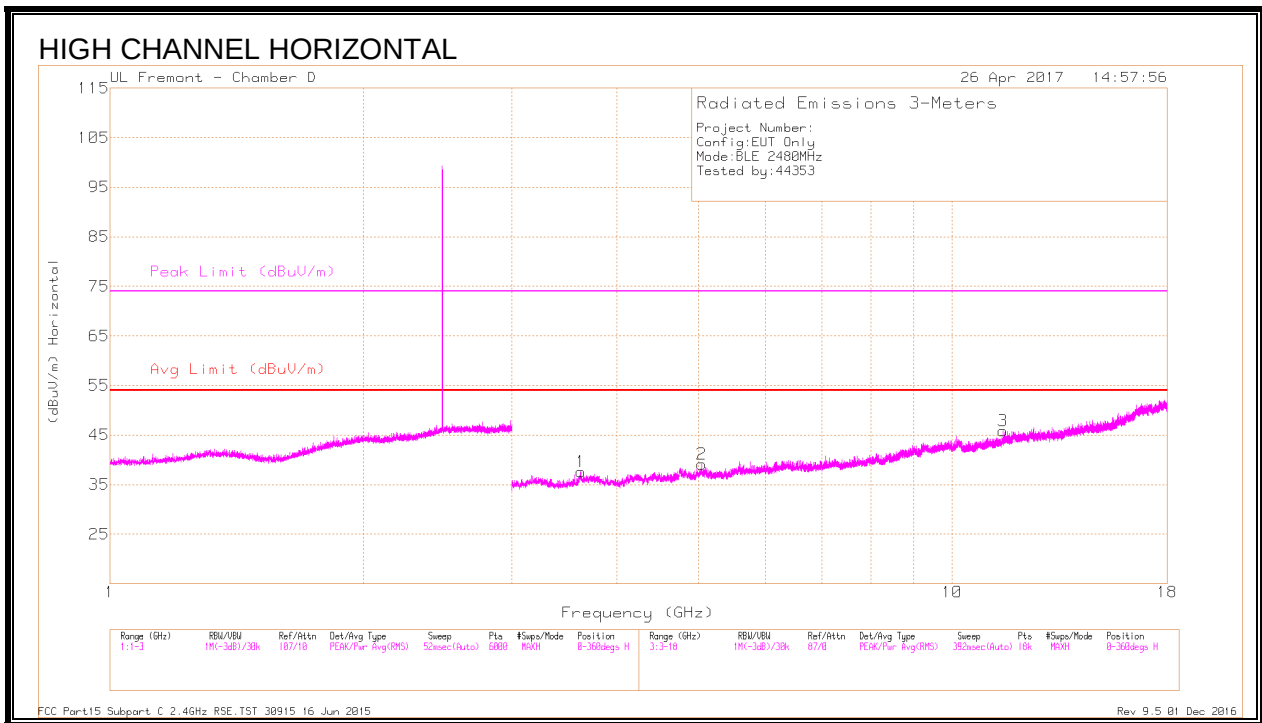
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/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	* 3.709	39.03	PK2	33.3	-28.9	43.43	-	-	74	-30.57	161	222	H
	* 3.706	27.83	MAv1	33.3	-28.8	32.33	54	-21.67	-	-	161	222	H
2	* 4.322	39.1	PK2	33.6	-28.5	44.2	-	-	74	-29.8	109	189	H
	* 4.321	27.55	MAv1	33.6	-28.4	32.75	54	-21.25	-	-	109	189	H
3	* 12.481	34.59	PK2	39.1	-21	52.69	-	-	74	-21.31	274	201	H
	* 12.482	23.6	MAv1	39.1	-21	41.7	54	-12.3	-	-	274	201	H
4	* 4.767	38.2	PK2	34	-26.6	45.6	-	-	74	-28.4	51	188	V
	* 4.767	27.01	MAv1	34	-26.6	34.41	54	-19.59	-	-	51	188	V
5	* 7.534	36.01	PK2	35.7	-25.2	46.51	-	-	74	-27.49	329	275	V
	* 7.537	24.99	MAv1	35.7	-25.2	35.49	54	-18.51	-	-	329	275	V
6	* 11.463	34.44	PK2	38.2	-21.2	51.44	-	-	74	-22.56	153	212	V
	* 11.46	23.4	MAv1	38.2	-21.2	40.4	54	-13.6	-	-	153	212	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average



DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/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	* 3.622	38.68	PK2	33.2	-28.5	43.38	-	-	74	-30.62	210	261	H
	* 3.623	27.66	MAv1	33.2	-28.6	32.26	54	-21.74	-	-	210	261	H
2	* 5.046	37.69	PK2	34.3	-26.7	45.29	-	-	74	-28.71	195	122	H
	* 5.044	26.62	MAv1	34.3	-26.6	34.32	54	-19.68	-	-	195	122	H
3	* 11.49	34.47	PK2	38.3	-21	51.77	-	-	74	-22.23	104	183	H
	* 11.487	23.37	MAv1	38.3	-21	40.67	54	-13.33	-	-	104	183	H
4	* 3.78	38.55	PK2	33.2	-28.1	43.65	-	-	74	-30.35	330	299	V
	* 3.78	27.54	MAv1	33.2	-28.1	32.64	54	-21.36	-	-	330	299	V
5	* 4.188	37.28	PK2	33.5	-27.8	42.98	-	-	74	-31.02	36	201	V
	* 4.19	26.42	MAv1	33.5	-27.8	32.12	54	-21.88	-	-	36	201	V
6	* 11.639	33.93	PK2	38.5	-20.6	51.83	-	-	74	-22.17	266	289	V
	* 11.636	23	MAv1	38.5	-20.6	40.9	54	-13.1	-	-	266	289	V

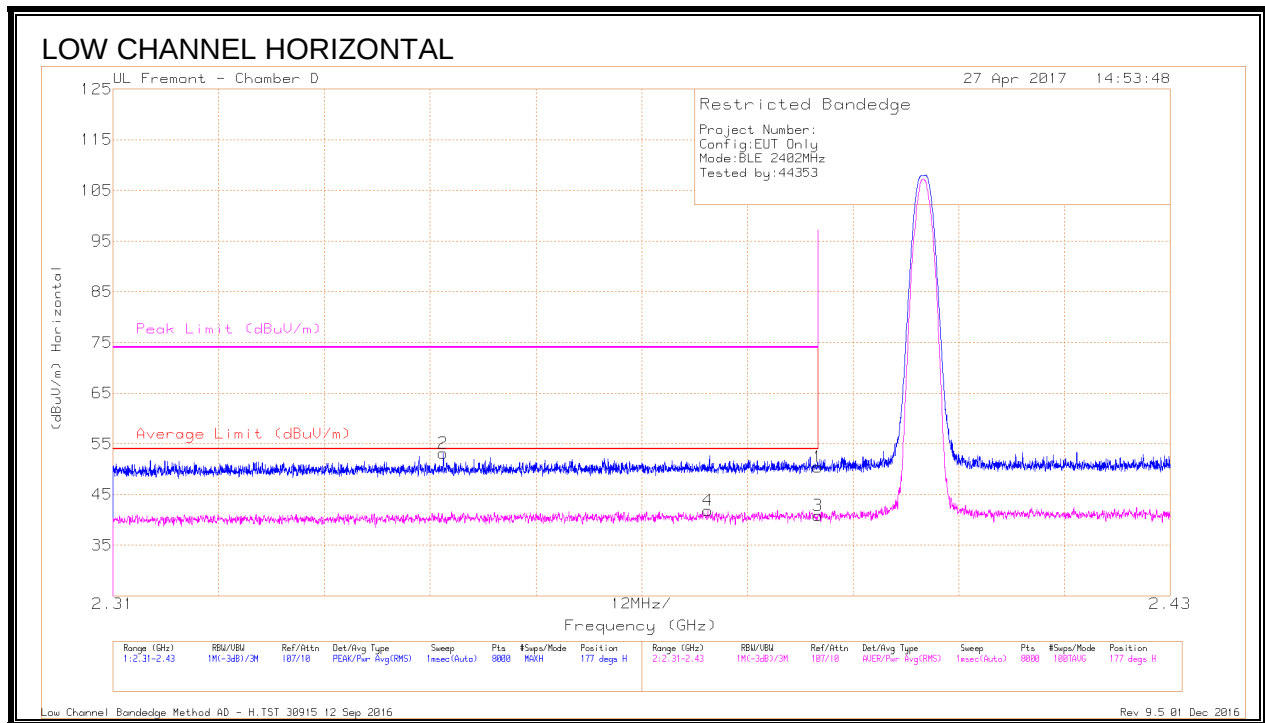
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

8.4. LAT 3 BLE 1M Pmax

8.4.1. RESTRICTED BANDEDGE (LOW CHANNEL)

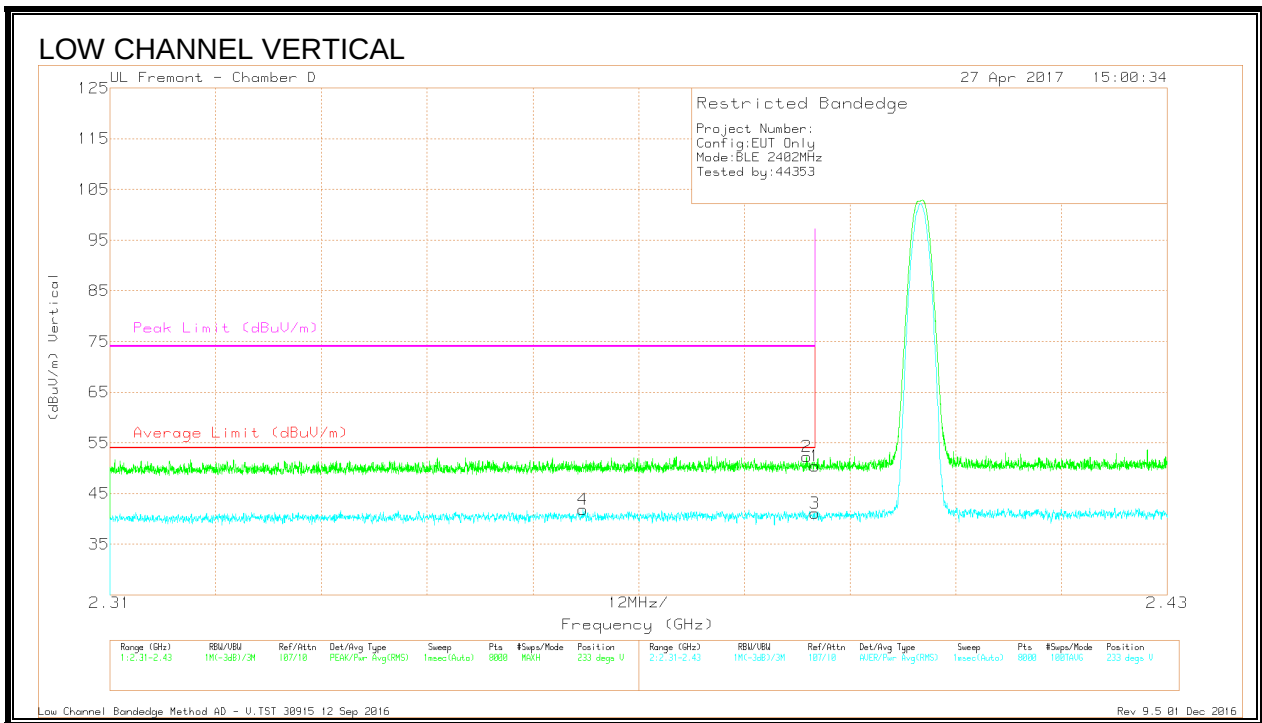


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.09	Pk	32	-20.7	50.39	-	-	74	-23.61	177	110	H
2	* 2.347	42.33	Pk	31.7	-20.9	53.13	-	-	74	-20.87	177	110	H
3	* 2.39	29.52	RMS	32	-20.7	40.82	54	-13.18	-	-	177	110	H
4	* 2.378	30.73	RMS	31.9	-20.8	41.83	54	-12.17	-	-	177	110	H

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

Pk - Peak detector

RMS - RMS detection



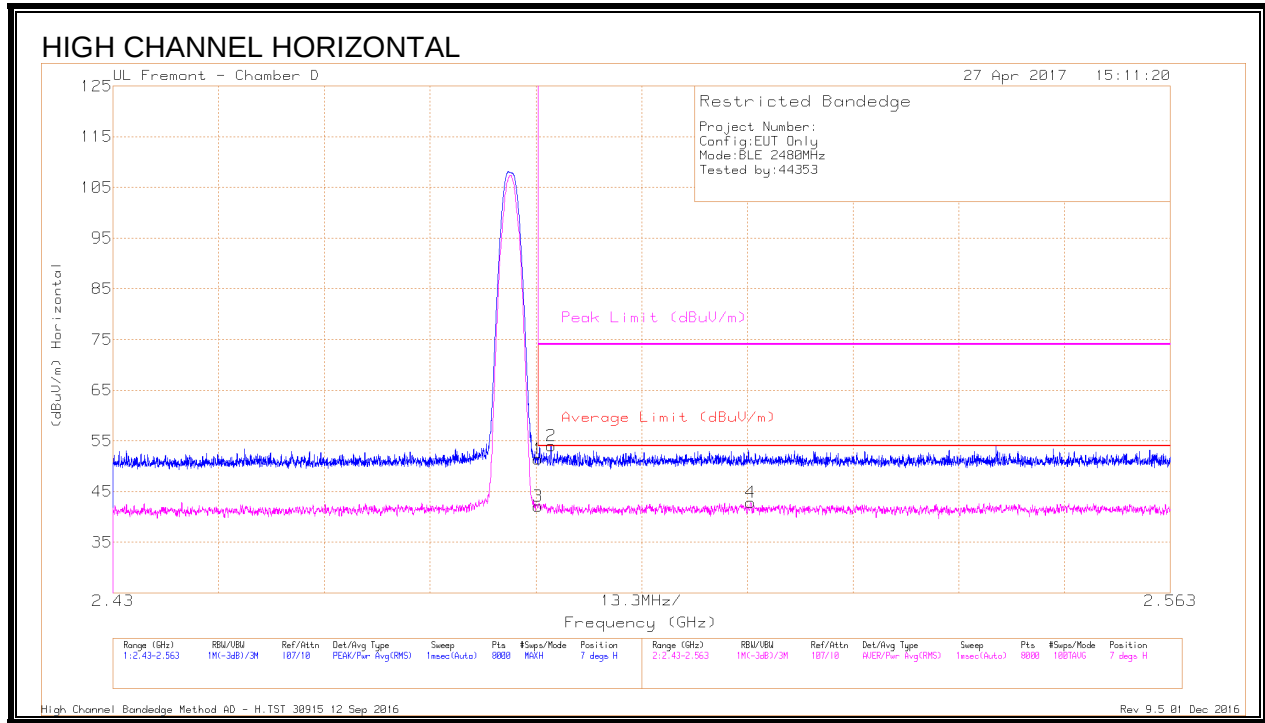
Marker	Frequ ncy (GHz)	Meter Readin g (dBuV)	Det	AF T862 (dB/m)	Amp/C bl/Filtr/ Pad (dB)	Correct ed Readin g (dBuV/ m)	Averag e Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	PK Margin (dB)	Azimat h (Degs)	Height (cm)	Polarity
1	* 2.39	39.1	Pk	32	-20.7	50.4	-	-	74	-23.6	233	335	V
2	* 2.389	41.11	Pk	32	-20.8	52.31	-	-	74	-21.69	233	335	V
3	* 2.39	29.85	RMS	32	-20.7	41.15	54	-12.85	-	-	233	335	V
4	* 2.364	30.82	RMS	31.8	-20.8	41.82	54	-12.18	-	-	233	335	V

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

Pk - Peak detector

RMS - RMS detection

8.4.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

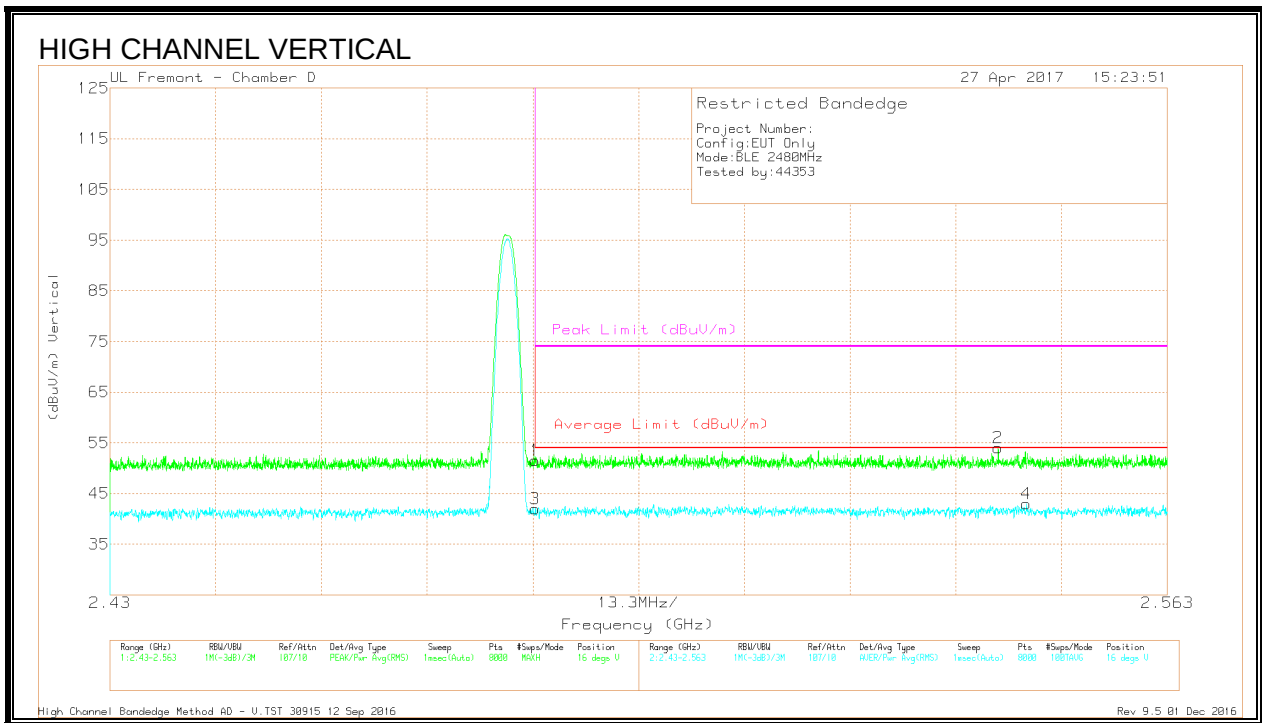


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.76	Pk	32.5	-20.8	51.46	-	-	74	-22.54	7	109	H
2	* 2.485	42.3	Pk	32.5	-20.8	54	-	-	74	-20	7	109	H
3	* 2.484	30.42	RMS	32.5	-20.8	42.12	54	-11.88	-	-	7	109	H
4	2.51	30.82	RMS	32.6	-20.6	42.82	54	-11.18	-	-	7	109	H

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

Pk - Peak detector

RMS - RMS detection



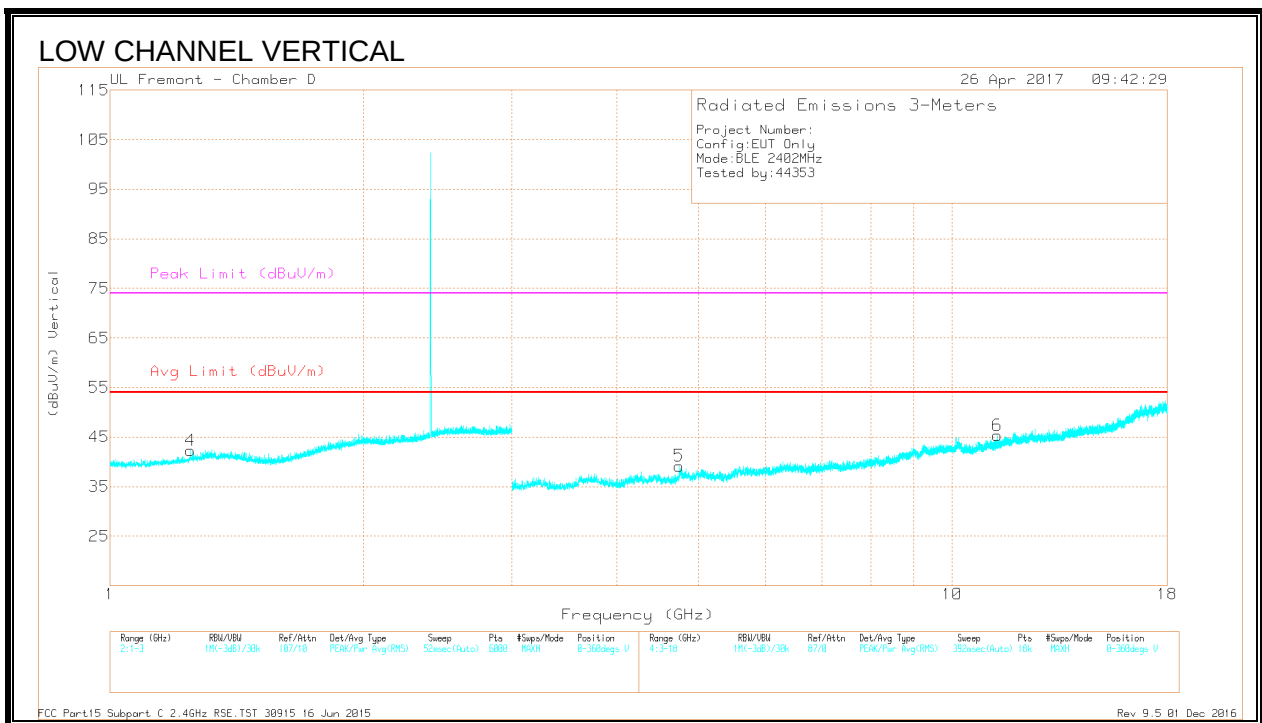
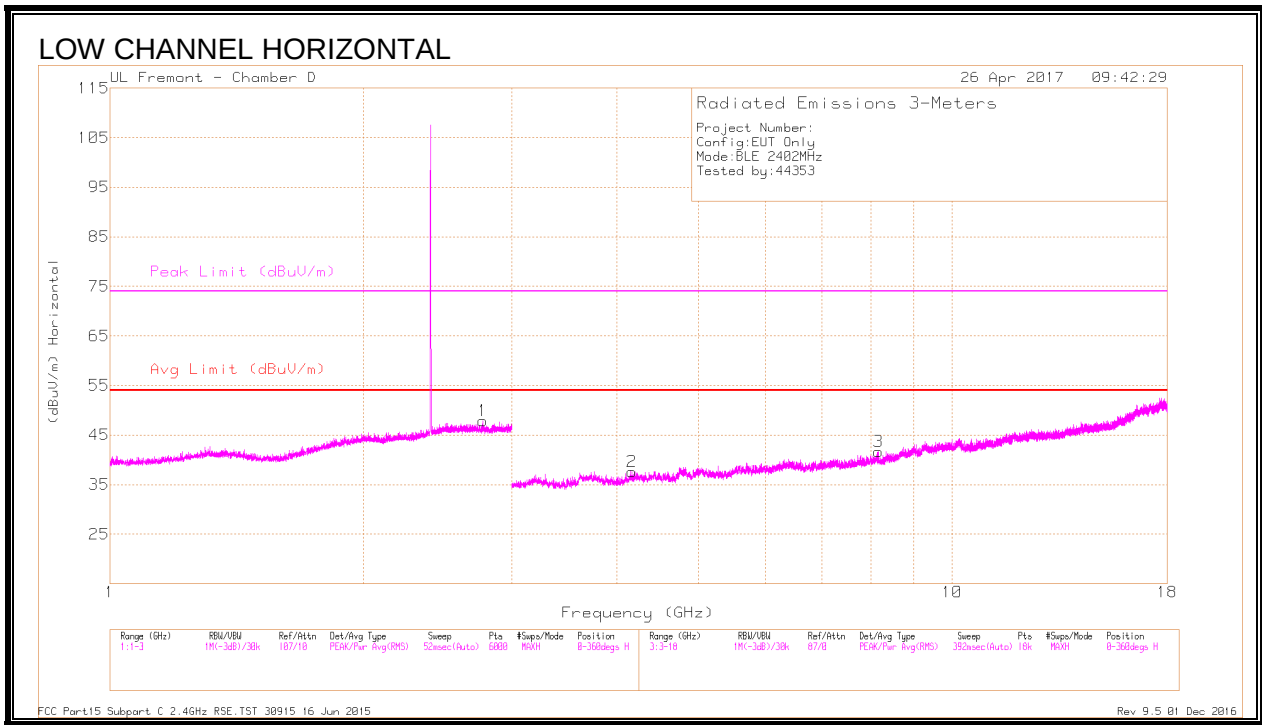
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.86	Pk	32.5	-20.8	51.56	-	-	74	-22.44	16	102	V
3	* 2.484	30.31	RMS	32.5	-20.8	42.01	54	-11.99	-	-	16	102	V
2	2.542	42.06	Pk	32.5	-20.6	53.96	-	-	74	-20.04	16	102	V
4	2.545	31.02	RMS	32.5	-20.6	42.92	54	-11.08	-	-	16	102	V

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

Pk - Peak detector

RMS - RMS detection

8.4.3. HARMONICS AND SPURIOUS EMISSIONS



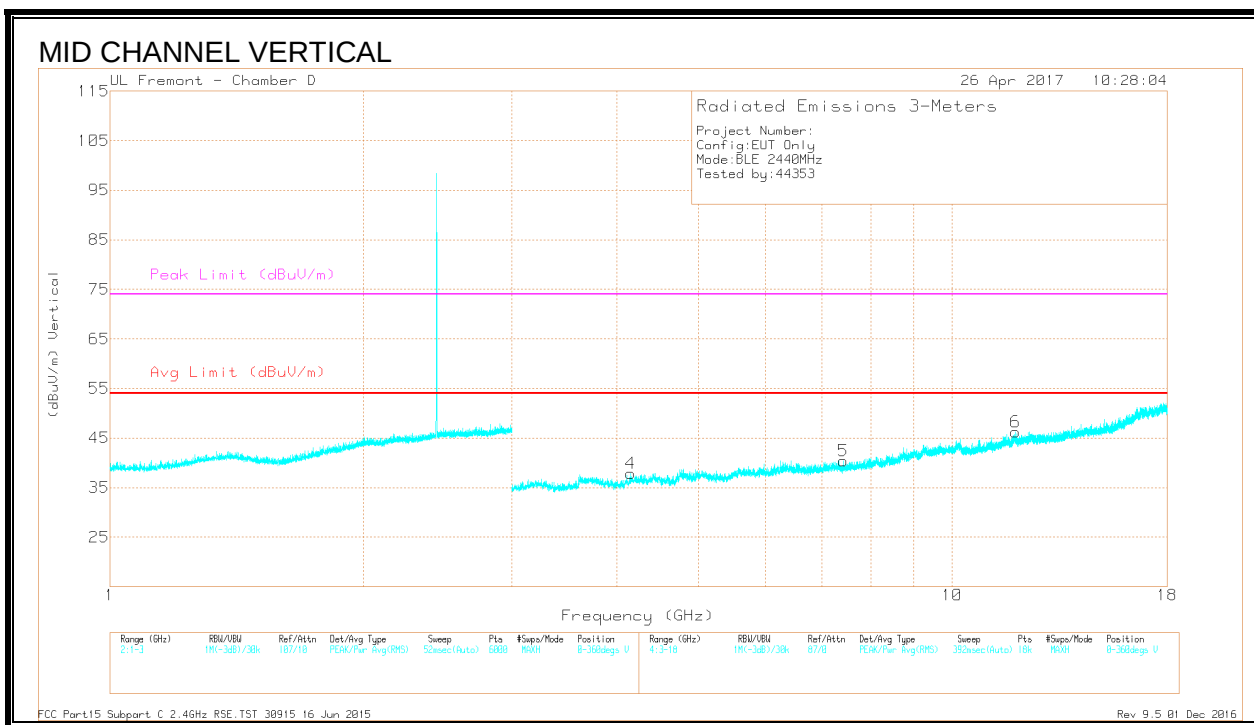
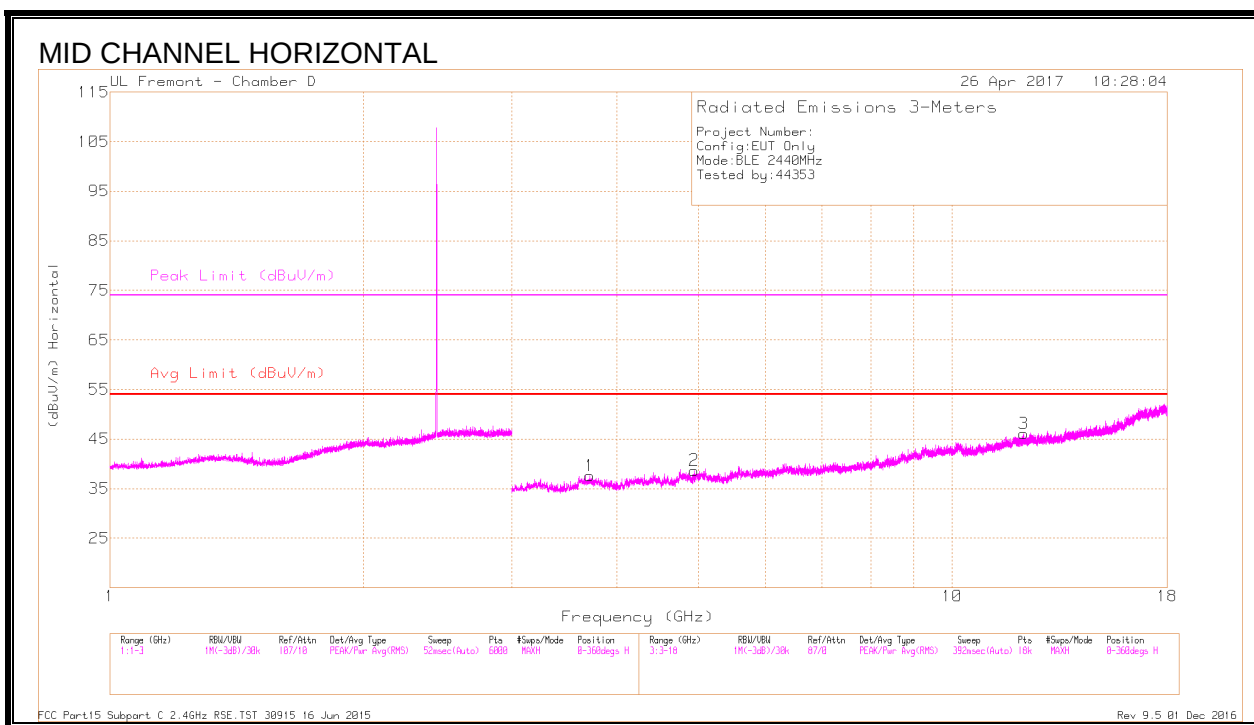
DATA

	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/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	* 2.774	41.83	PK2	32.3	-20.3	53.83	-	-	74	-20.17	250	288	H
	* 2.771	30.33	MAv1	32.4	-20.4	42.33	54	-11.67	-	-	250	288	H
4	* 1.244	42.67	PK2	28.8	-22.3	49.17	-	-	74	-24.83	118	207	V
	* 1.247	30.48	MAv1	28.9	-22.3	37.08	54	-16.92	-	-	118	207	V
2	* 4.162	38.53	PK2	33.5	-28	44.03	-	-	74	-29.97	201	320	H
	* 4.162	27.26	MAv1	33.5	-28	32.76	54	-21.24	-	-	201	320	H
3	* 8.177	35.35	PK2	35.9	-23.4	47.85	-	-	74	-26.15	85	128	H
	* 8.177	24.25	MAv1	35.9	-23.4	36.75	54	-17.25	-	-	85	128	H
5	* 4.741	37.95	PK2	34	-26.8	45.15	-	-	74	-28.85	168	110	V
	* 4.743	27.02	MAv1	34	-26.6	34.42	54	-19.58	-	-	168	110	V
6	* 11.305	34.11	PK2	38	-20.9	51.21	-	-	74	-22.79	286	261	V
	* 11.305	23.1	MAv1	38	-20.9	40.2	54	-13.8	-	-	286	261	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average



DATA

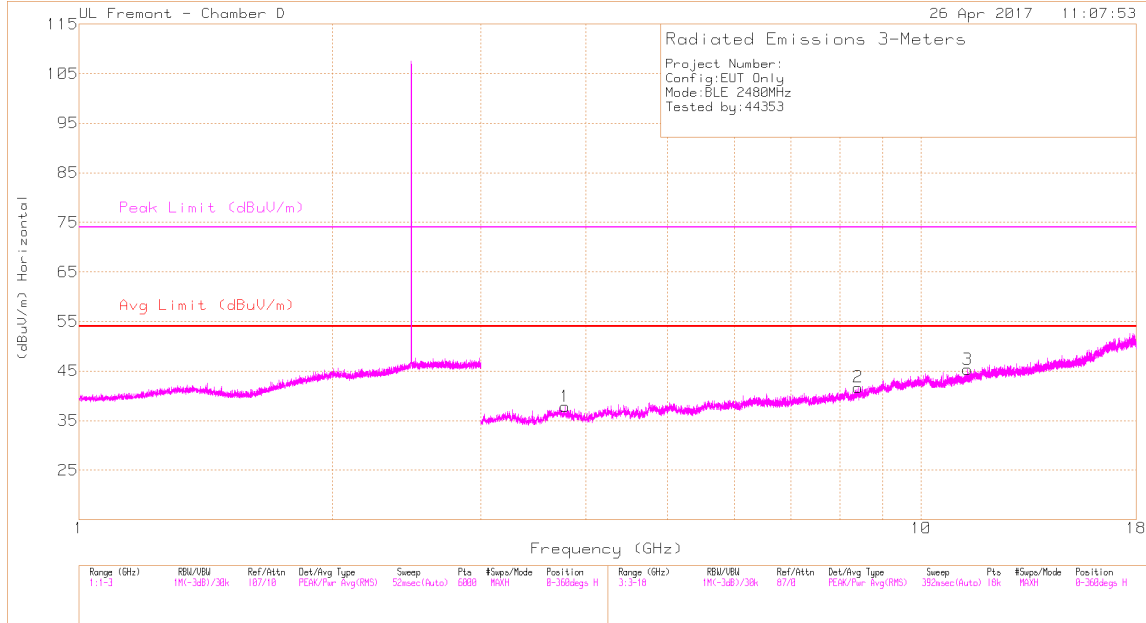
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.712	38.52	PK2	33.3	-28.8	43.02	-	-	74	-30.98	36	166	H
	* 3.711	27.79	MAv1	33.3	-28.9	32.19	54	-21.81	-	-	36	166	H
2	* 4.935	38.68	PK2	34.2	-28.1	44.78	-	-	74	-29.22	190	222	H
	* 4.937	27.02	MAv1	34.2	-28	33.22	54	-20.78	-	-	190	222	H
3	* 12.167	34.25	PK2	39	-21	52.25	-	-	74	-21.75	140	133	H
	* 12.168	23.32	MAv1	39	-21	41.32	54	-12.68	-	-	140	133	H
4	* 4.152	38.1	PK2	33.5	-28	43.6	-	-	74	-30.4	287	200	V
	* 4.153	27.3	MAv1	33.5	-28	32.8	54	-21.2	-	-	287	200	V
5	* 7.422	35.92	PK2	35.6	-24.8	46.72	-	-	74	-27.28	166	195	V
	* 7.422	24.83	MAv1	35.6	-24.8	35.63	54	-18.37	-	-	166	195	V
6	* 11.897	34.72	PK2	38.8	-20.7	52.82	-	-	74	-21.18	87	156	V
	* 11.895	23.33	MAv1	38.8	-20.7	41.43	54	-12.57	-	-	87	156	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

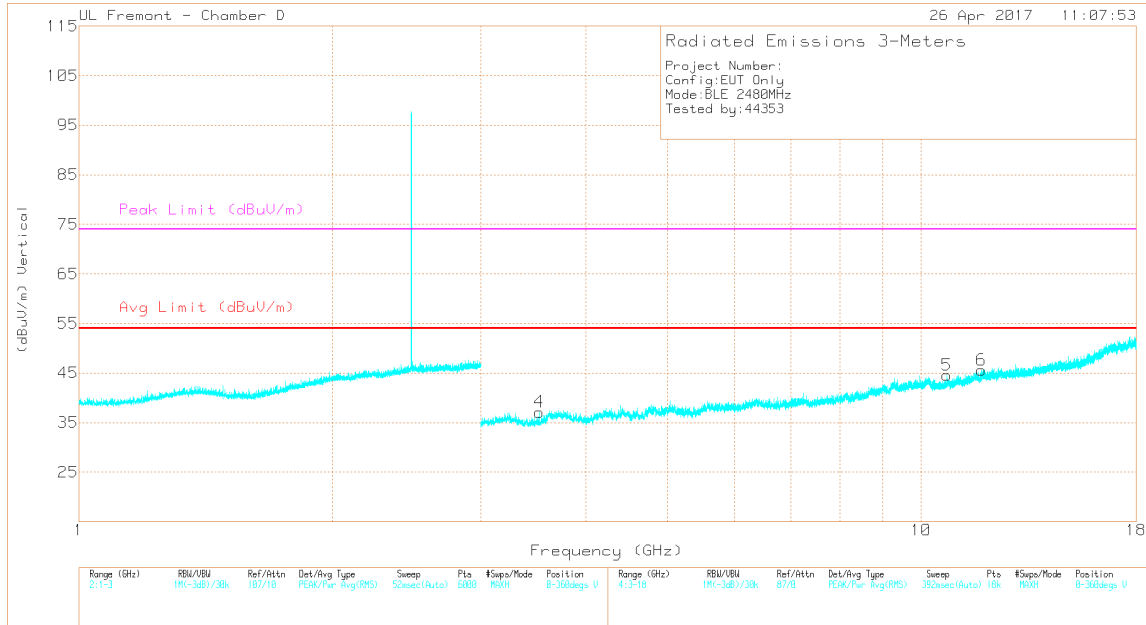
HIGH CHANNEL HORIZONTAL



FCC Part15 Subpart C 2.4GHz RSE TST 30915 16 Jun 2015

Rev 9.5 01 Dec 2016

HIGH CHANNEL VERTICAL



FCC Part15 Subpart C 2.4GHz RSE TST 30915 16 Jun 2015

Rev 9.5 01 Dec 2016

DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/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	* 3.775	38.48	PK2	33.2	-28.1	43.58	-	-	74	-30.42	210	196	H
	* 3.774	27.38	MAv1	33.2	-28.1	32.48	54	-21.52	-	-	210	196	H
2	* 8.419	34.7	PK2	36	-23.3	47.4	-	-	74	-26.6	74	180	H
	* 8.42	23.96	MAv1	36	-23.4	36.56	54	-17.44	-	-	74	180	H
3	* 11.356	35.05	PK2	38.1	-21.1	52.05	-	-	74	-21.95	191	267	H
	* 11.356	23.44	MAv1	38.1	-21.1	40.44	54	-13.56	-	-	191	267	H
4	* 3.517	38.77	PK2	33	-28.5	43.27	-	-	74	-30.73	106	311	V
	* 3.517	27.4	MAv1	33	-28.5	31.9	54	-22.1	-	-	106	311	V
5	* 10.716	34.23	PK2	37.2	-20.6	50.83	-	-	74	-23.17	270	112	V
	* 10.717	22.97	MAv1	37.2	-20.6	39.57	54	-14.43	-	-	270	112	V
6	* 11.785	34.43	PK2	38.7	-21	52.13	-	-	74	-21.87	292	200	V
	* 11.781	23.28	MAv1	38.7	-21.1	40.88	54	-13.12	-	-	292	200	V

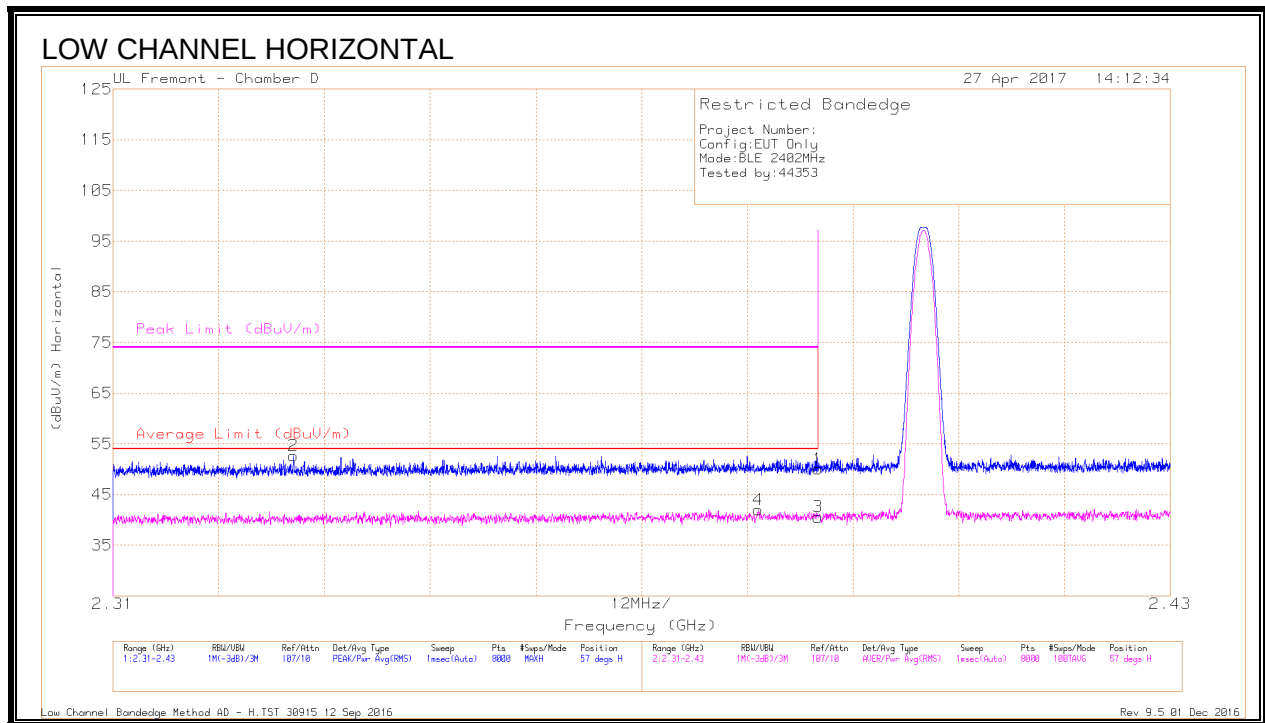
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

8.5. LAT 3 BLE 1M Plow

8.5.1. RESTRICTED BANDEDGE (LOW CHANNEL)

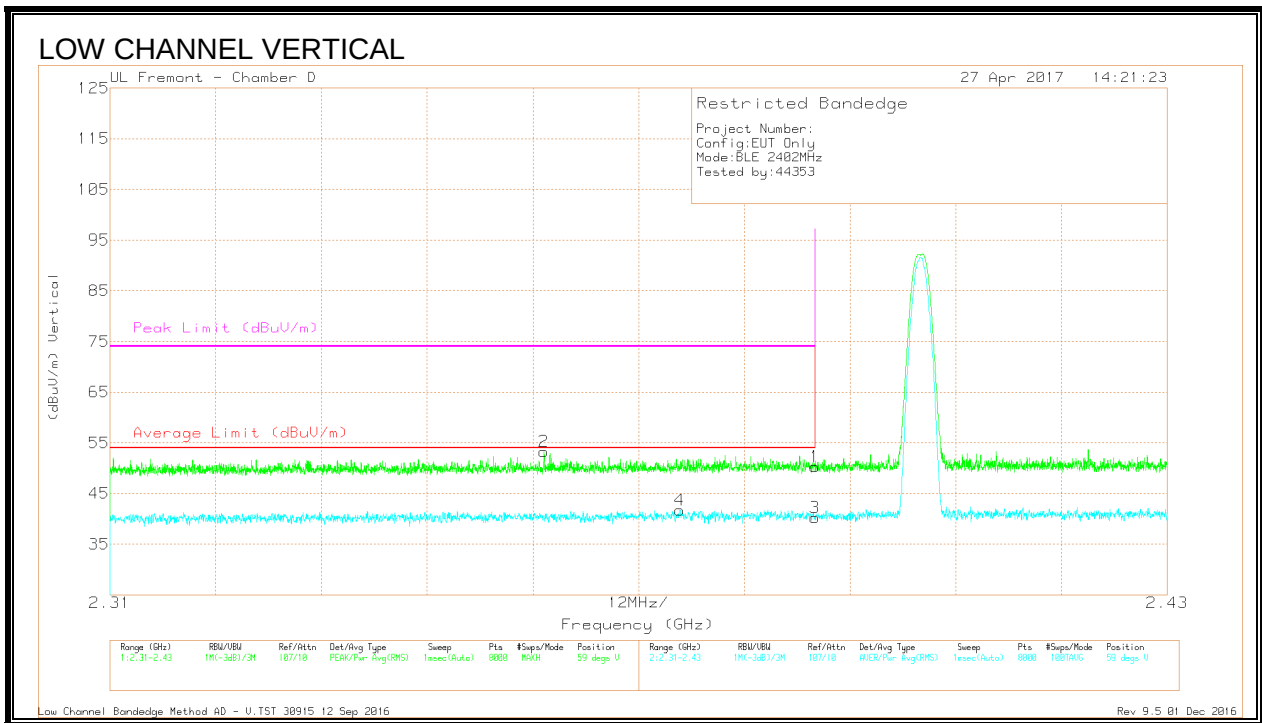


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cb/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.77	Pk	32	-20.7	50.07	-	-	74	-23.93	57	109	H
2	* 2.33	42	Pk	31.6	-20.9	52.7	-	-	74	-21.3	57	109	H
3	* 2.39	29.25	RMS	32	-20.7	40.55	54	-13.45	-	-	57	109	H
4	* 2.383	30.87	RMS	31.9	-20.8	41.97	54	-12.03	-	-	57	109	H

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

Pk - Peak detector

RMS - RMS detection



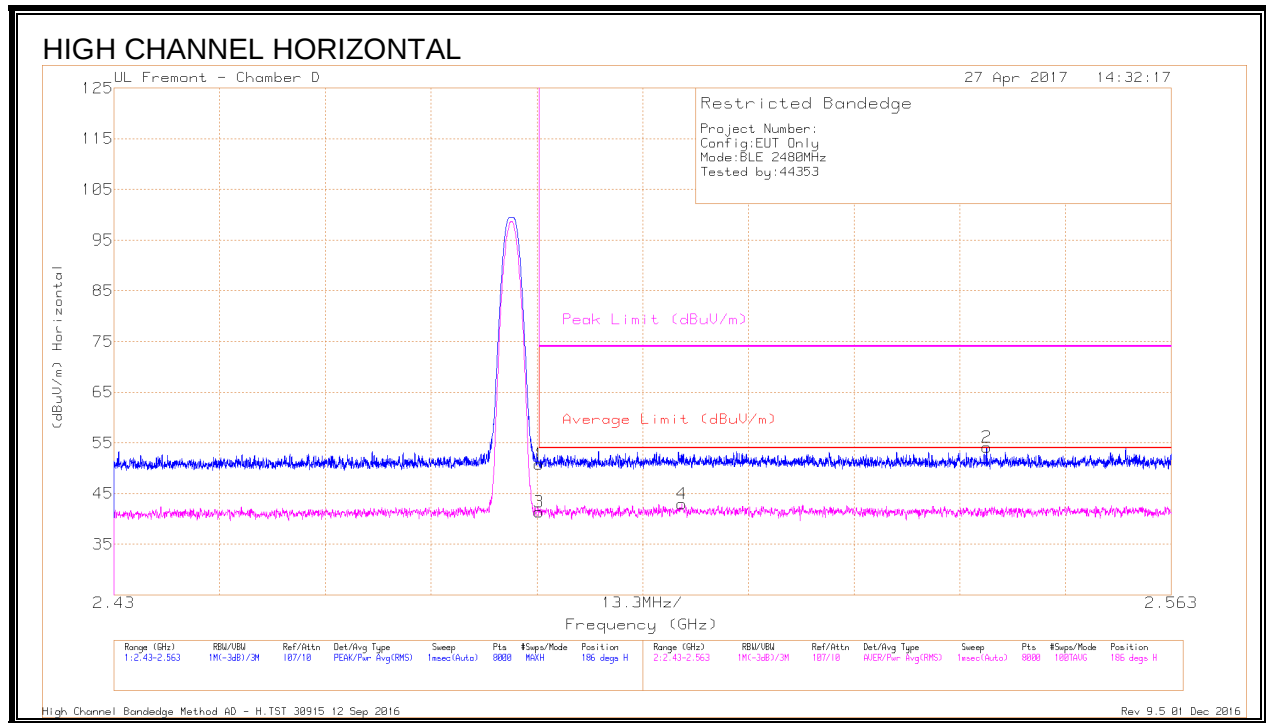
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.96	Pk	32	-20.7	50.26	-	-	74	-23.74	59	336	V
2	* 2.359	42.24	Pk	31.8	-20.8	53.24	-	-	74	-20.76	59	336	V
3	* 2.39	28.98	RMS	32	-20.7	40.28	54	-13.72	-	-	59	336	V
4	* 2.375	30.67	RMS	31.9	-20.8	41.77	54	-12.23	-	-	59	336	V

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

Pk - Peak detector

RMS - RMS detection

8.5.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

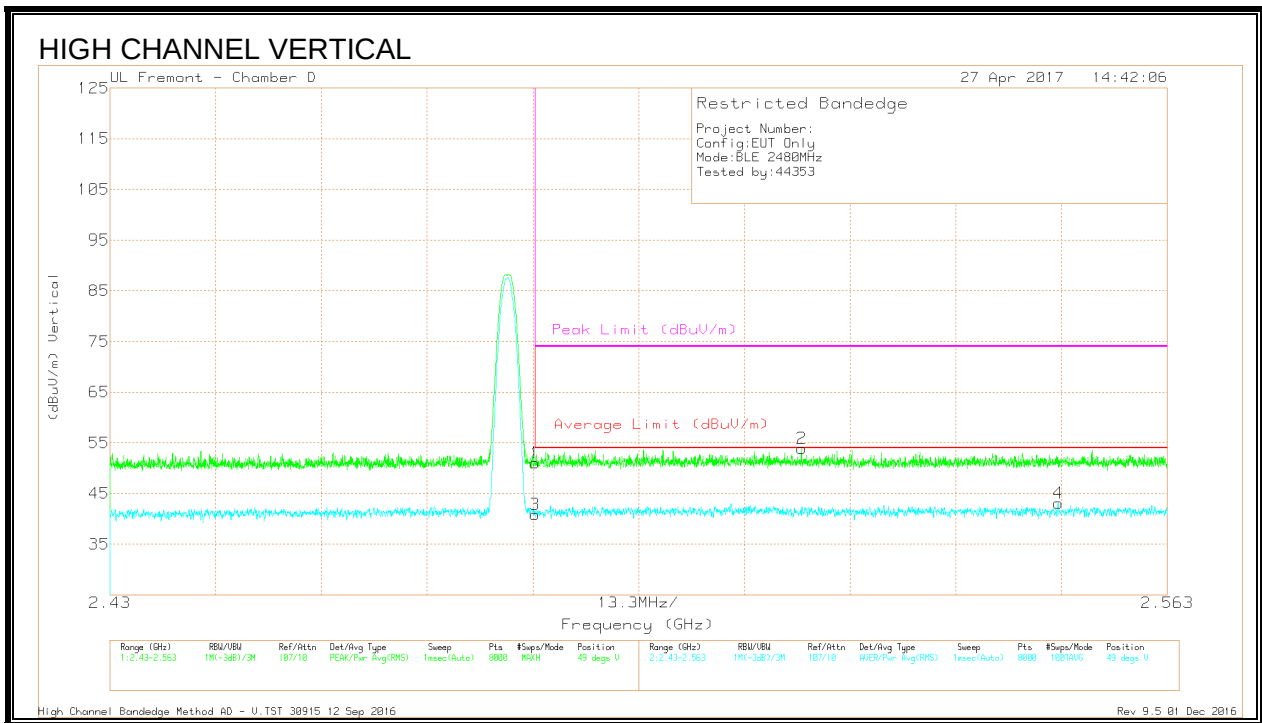


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.05	Pk	32.5	-20.8	50.75	-	-	74	-23.25	186	107	H
3	* 2.484	29.63	RMS	32.5	-20.8	41.33	54	-12.67	-	-	186	107	H
4	2.501	31.05	RMS	32.6	-20.7	42.95	54	-11.05	-	-	186	107	H
2	2.54	42.27	Pk	32.5	-20.6	54.17	-	-	74	-19.83	186	107	H

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

Pk - Peak detector

RMS - RMS detection



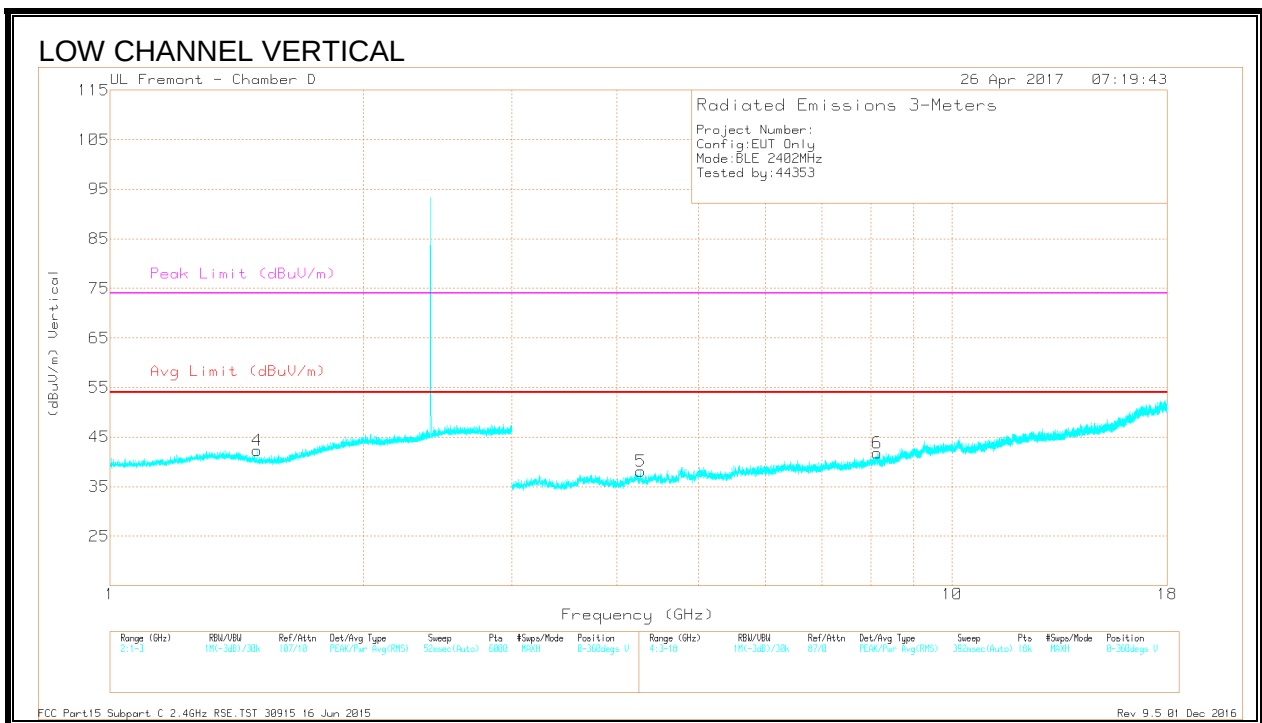
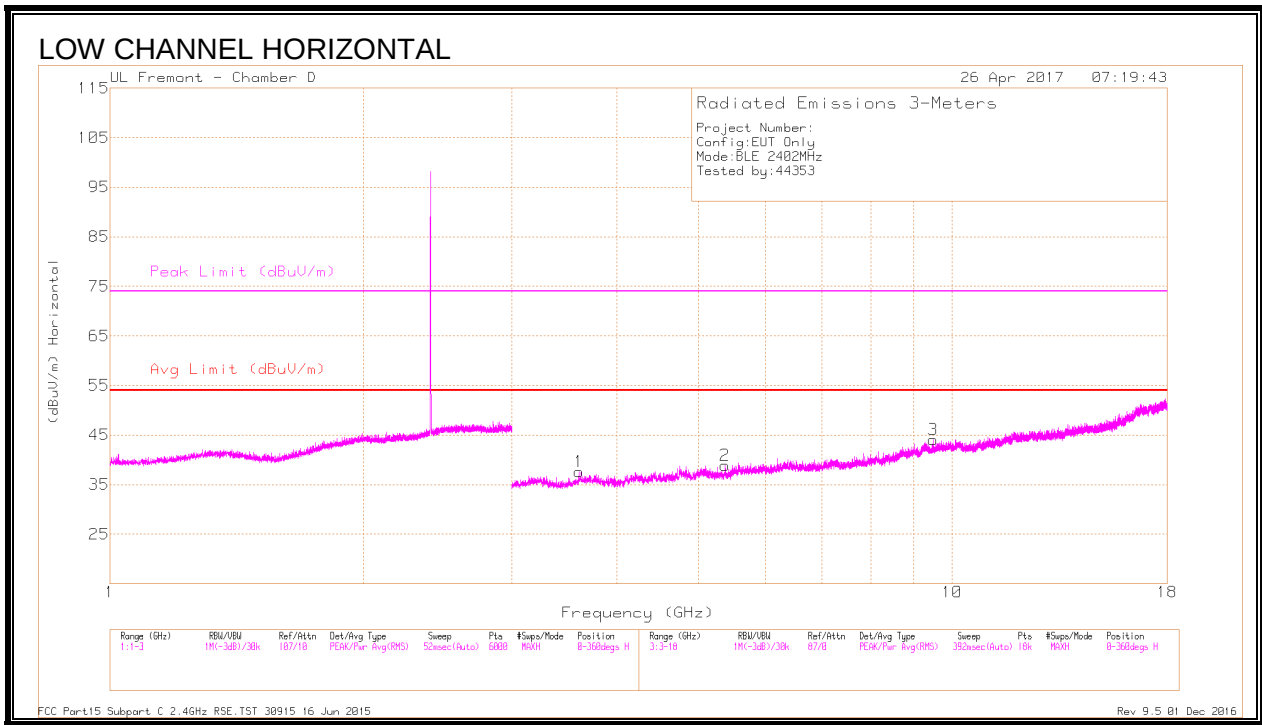
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.35	Pk	32.5	-20.8	51.05	-	-	74	-22.95	49	353	V
3	* 2.484	29.21	RMS	32.5	-20.8	40.91	54	-13.09	-	-	49	353	V
2	2.517	41.94	Pk	32.6	-20.6	53.94	-	-	74	-20.06	49	353	V
4	2.549	31.21	RMS	32.5	-20.6	43.11	54	-10.89	-	-	49	353	V

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

Pk - Peak detector

RMS - RMS detection

8.5.3. HARMONICS AND SPURIOUS EMISSIONS



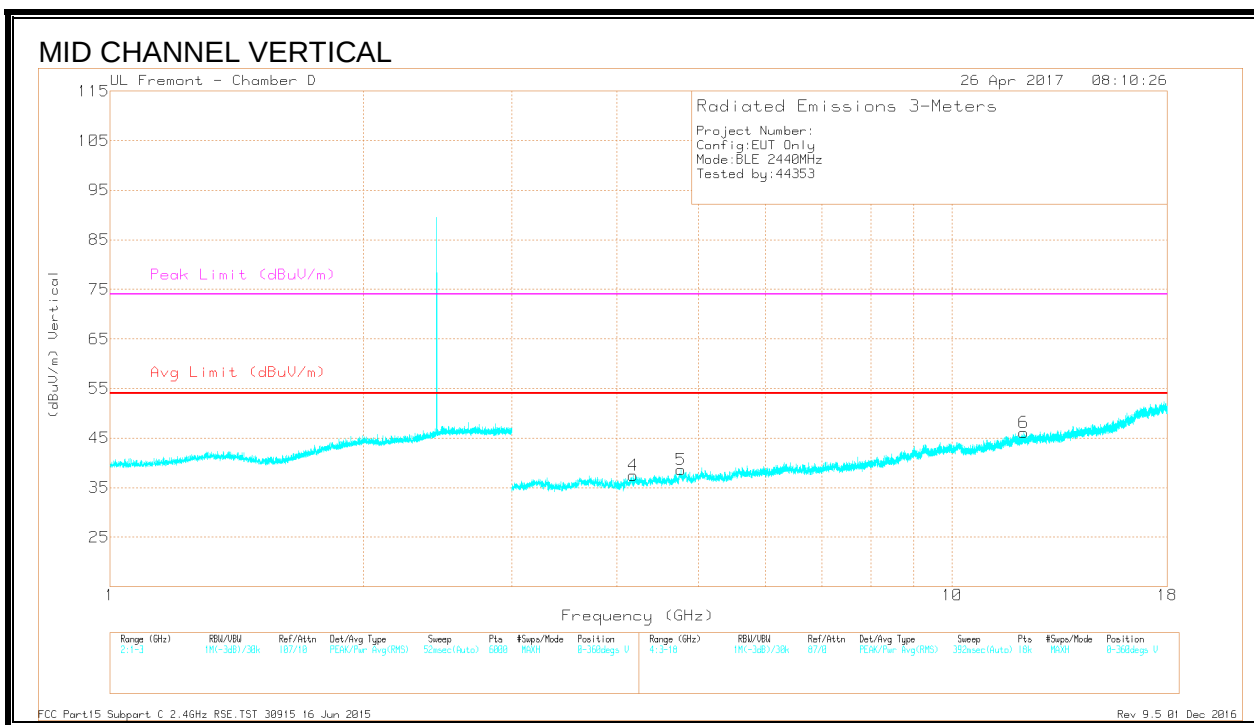
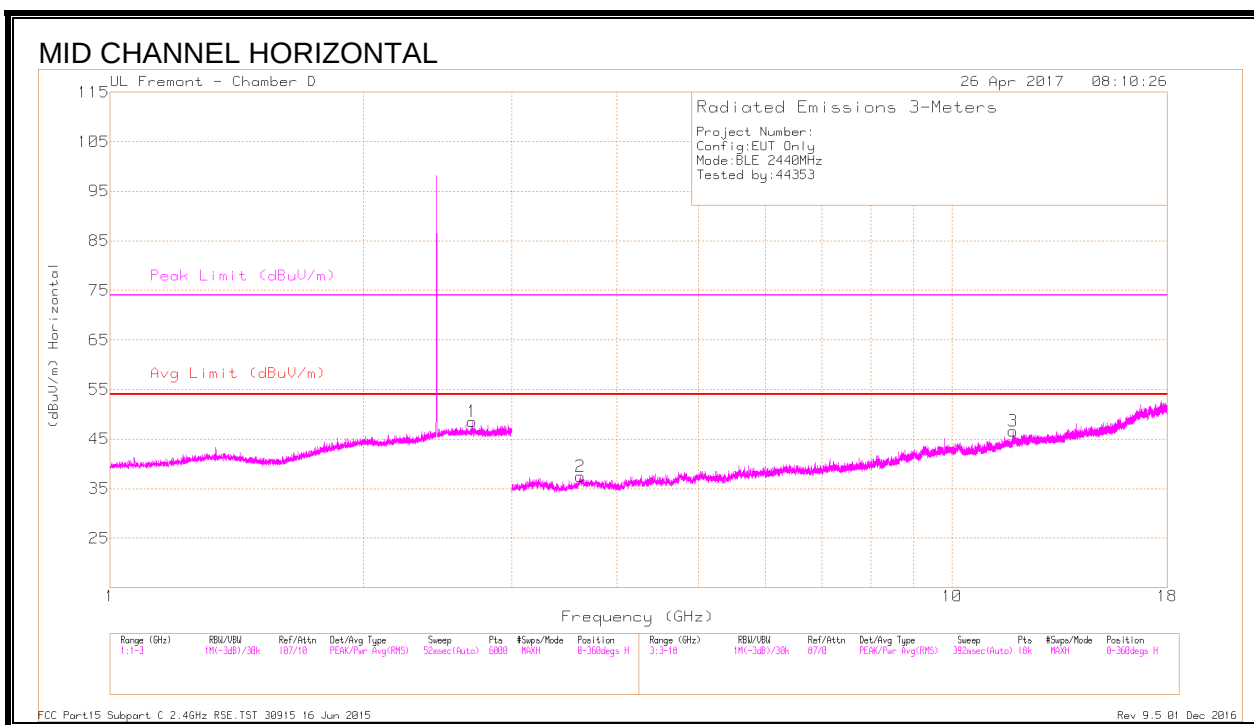
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 1.493	41.62	PK2	28.3	-21.9	48.02	-	-	74	-25.98	31	168	V
	* 1.494	30.24	MAv1	28.3	-21.9	36.64	54	-17.46	-	-	31	168	V
1	* 3.605	38.46	PK2	33.2	-28.3	43.36	-	-	74	-30.64	174	150	H
	* 3.606	27.4	MAv1	33.2	-28.4	32.2	54	-21.8	-	-	174	150	H
2	* 5.374	38.17	PK2	34.6	-27.4	45.37	-	-	74	-28.63	351	201	H
	* 5.374	26.8	MAv1	34.6	-27.4	34	54	-20	-	-	351	201	H
3	* 9.497	35.06	PK2	37	-21.2	50.86	-	-	74	-23.14	226	130	H
	* 9.495	22.79	MAv1	37	-21.2	38.59	54	-15.41	-	-	226	130	H
5	* 4.268	38.4	PK2	33.5	-27.7	44.2	-	-	74	-29.8	162	288	V
	* 4.268	27	MAv1	33.5	-27.7	32.8	54	-21.2	-	-	162	288	V
6	* 8.14	35.13	PK2	35.9	-23	48.03	-	-	74	-25.97	178	119	V
	* 8.143	24.1	MAv1	35.9	-23	37	54	-17	-	-	178	119	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average



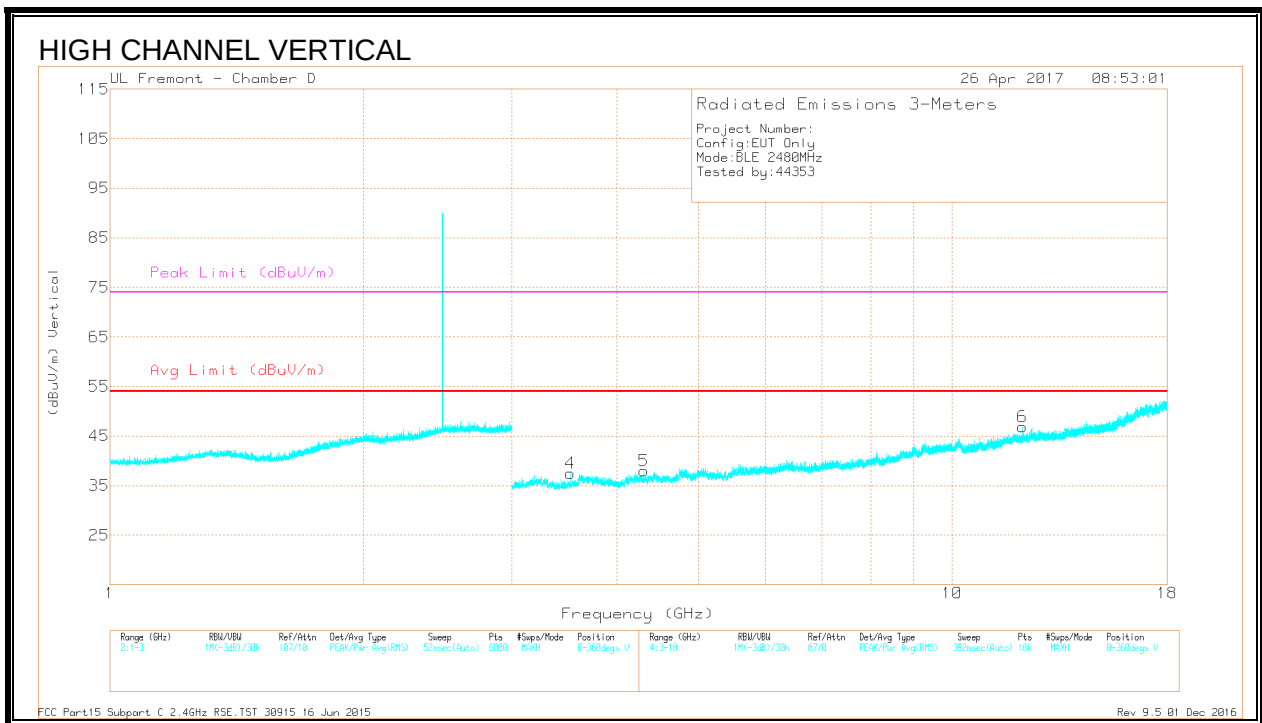
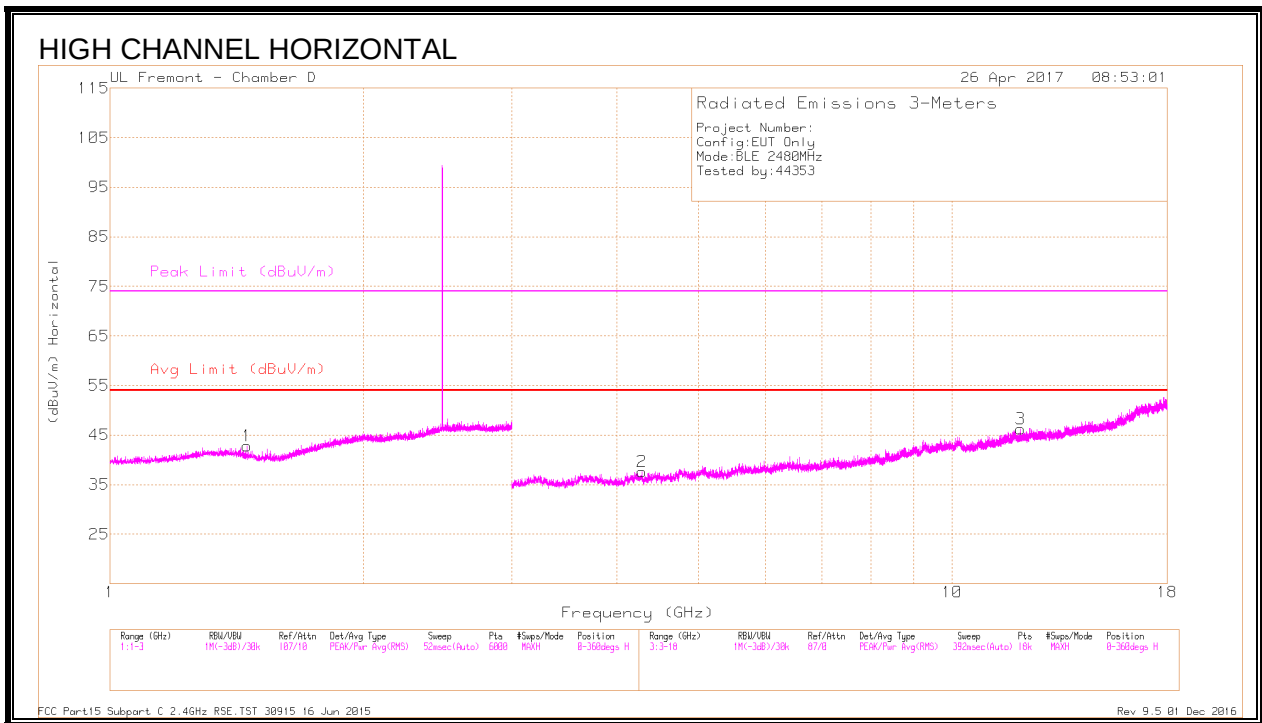
DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/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	* 2.69	42.34	PK2	32.6	-20.6	54.34	-	-	74	-19.66	117	285	H
	* 2.69	30.3	MAv1	32.6	-20.6	42.3	54	-11.7	-	-	117	286	H
2	* 3.622	38.86	PK2	33.2	-28.5	43.56	-	-	74	-30.44	236	170	H
	* 3.62	27.48	MAv1	33.2	-28.5	32.18	54	-21.82	-	-	236	170	H
3	* 11.813	34.24	PK2	38.7	-20.8	52.14	-	-	74	-21.86	124	243	H
	* 11.814	23.32	MAv1	38.7	-20.8	41.22	54	-12.78	-	-	124	243	H
4	* 4.182	37.99	PK2	33.5	-27.8	43.69	-	-	74	-30.31	39	168	V
	* 4.184	26.87	MAv1	33.5	-27.8	32.57	54	-21.43	-	-	39	168	V
5	* 4.762	38.14	PK2	34	-26.5	45.64	-	-	74	-28.36	272	321	V
	* 4.765	27.06	MAv1	34	-26.6	34.46	54	-19.54	-	-	272	321	V
6	* 12.154	33.94	PK2	39	-20.7	52.24	-	-	74	-21.76	154	207	V
	* 12.152	23.19	MAv1	39	-20.6	41.59	54	-12.41	-	-	154	207	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average



DATA

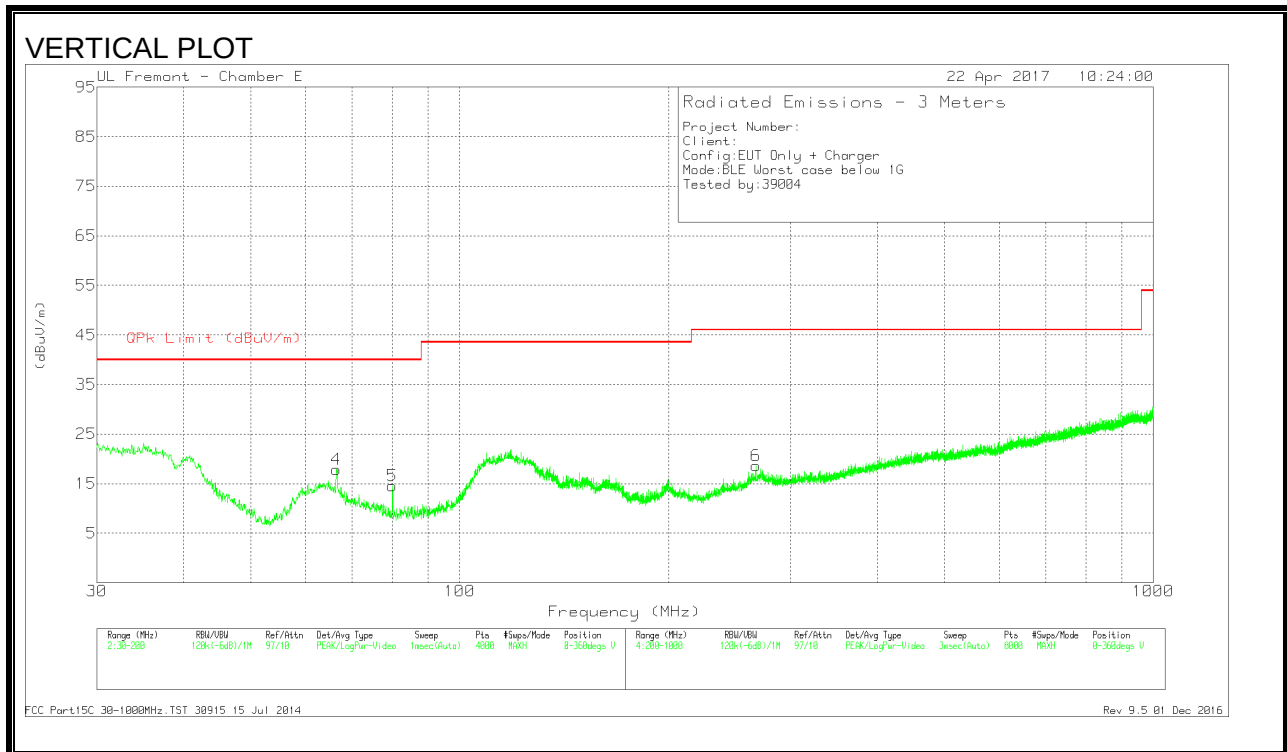
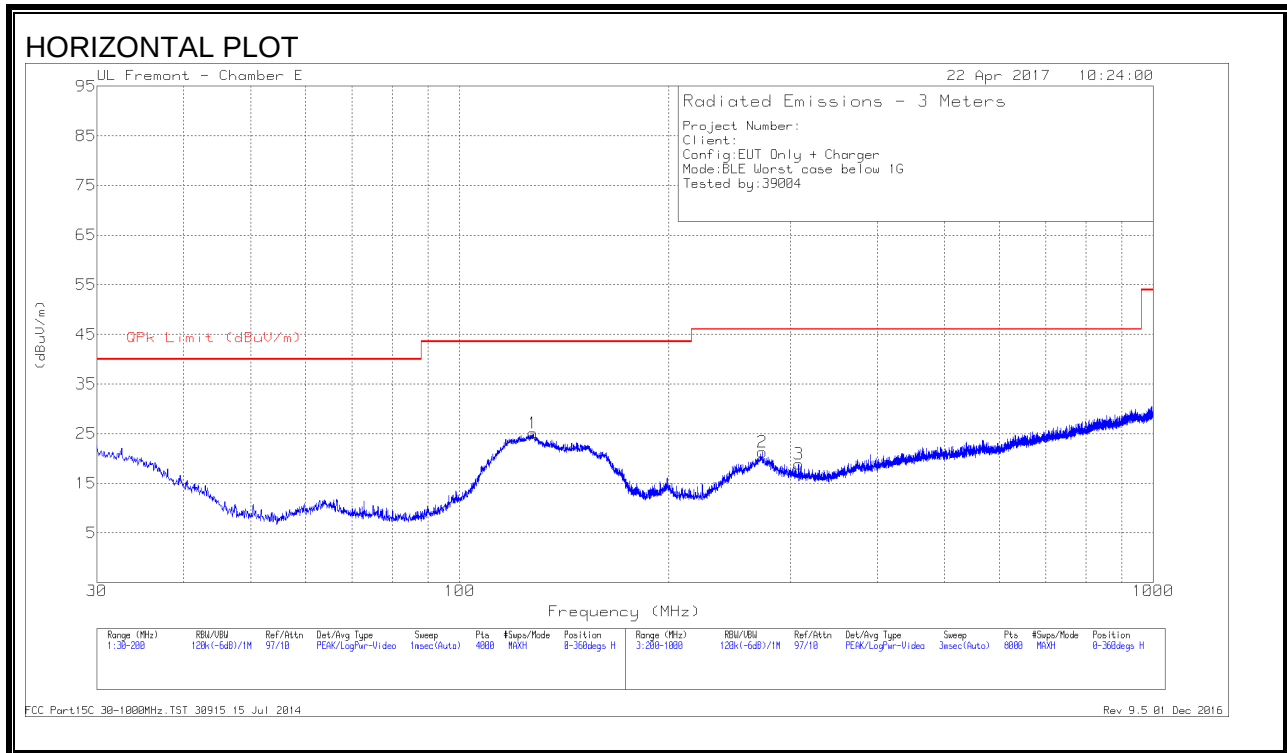
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl/FI tr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 1.454	41.97	PK2	28.7	-22	48.67	-	-	74	-25.33	138	177	H
	* 1.455	30.24	MAv1	28.7	-22	36.94	54	-17.06	-	-	138	177	H
2	* 4.279	38.59	PK2	33.5	-28	44.09	-	-	74	-29.91	8	211	H
	* 4.28	27.26	MAv1	33.5	-28	32.76	54	-21.24	-	-	8	211	H
3	* 12.057	34.61	PK2	38.9	-21.4	52.11	-	-	74	-21.89	310	166	H
	* 12.056	23.7	MAv1	38.9	-21.4	41.2	54	-12.8	-	-	310	166	H
4	* 3.518	38.68	PK2	33	-28.5	43.18	-	-	74	-30.82	241	217	V
	* 3.517	27.35	MAv1	33	-28.5	31.85	54	-22.15	-	-	241	217	V
5	* 4.306	38.85	PK2	33.6	-28.5	43.95	-	-	74	-30.05	155	102	V
	* 4.304	27.34	MAv1	33.6	-28.5	32.44	54	-21.56	-	-	155	102	V
6	* 12.117	34.42	PK2	39	-21.2	52.22	-	-	74	-21.78	197	237	V
	* 12.117	23.49	MAv1	39	-21.1	41.39	54	-12.61	-	-	197	237	V

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

PK2 - KDB558074 Method: Maximum Peak

8.6. WORST-CASE BELOW 1 GHz

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



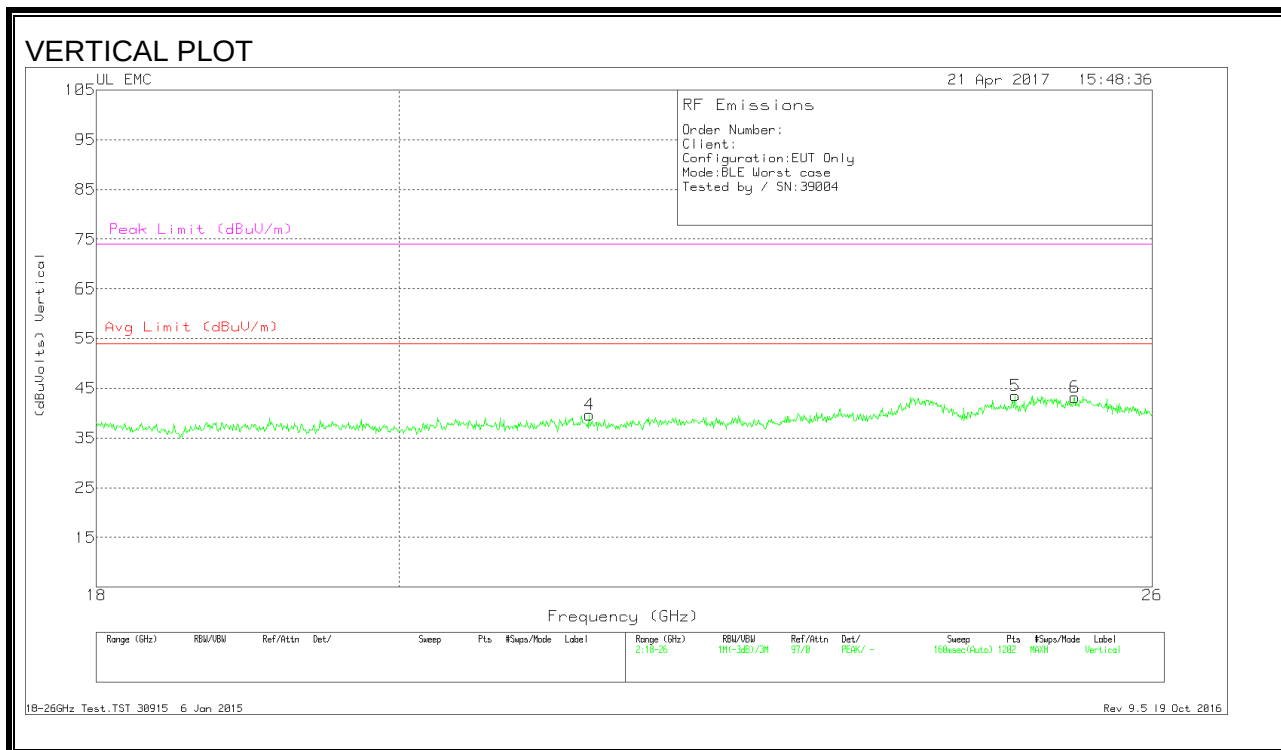
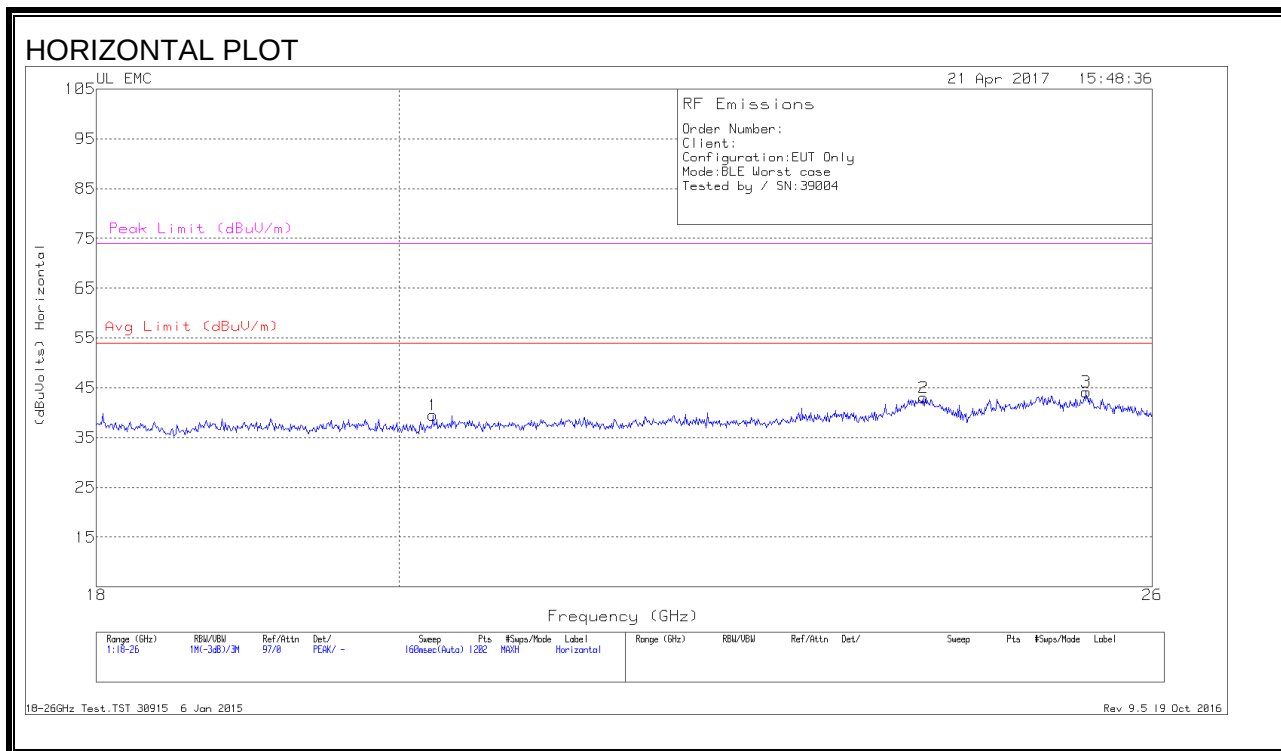
DATA

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T899 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 127.5202	37.95	Pk	17.7	-30.6	25.05	43.52	-18.47	0-360	200	H
2	* 273.0095	33.39	Pk	17.3	-29.4	21.29	46.02	-24.73	0-360	100	H
6	* 267.3087	31.14	Pk	17	-29.5	18.64	46.02	-27.38	0-360	200	V
4	66.4319	36.98	Pk	12.1	-31.2	17.88	40	-22.12	0-360	100	V
5	79.9929	34.39	Pk	11.2	-31	14.59	40	-25.41	0-360	100	V
3	308.014	30.48	Pk	17.6	-29.2	18.88	46.02	-27.14	0-360	100	H

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

8.7. WORST-CASE ABOVE 18 GHz

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



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	20.238	41.5	Pk	32.8	-25.3	-9.5	39.5	54	-14.5	74	-34.5
2	24.008	42.9	Pk	34	-24.4	-9.5	43	54	-11	74	-31
3	25.407	43.77	Pk	34.3	-24.4	-9.5	44.17	54	-9.83	74	-29.83
4	21.371	41.47	Pk	33.1	-25.4	-9.5	39.67	54	-14.33	74	-34.33
5	24.788	43.3	Pk	34.2	-24.5	-9.5	43.5	54	-10.5	74	-30.5
6	25.307	42.77	Pk	34.3	-24.4	-9.5	43.17	54	-10.83	74	-30.83

Pk - Peak detector

8.8. 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.

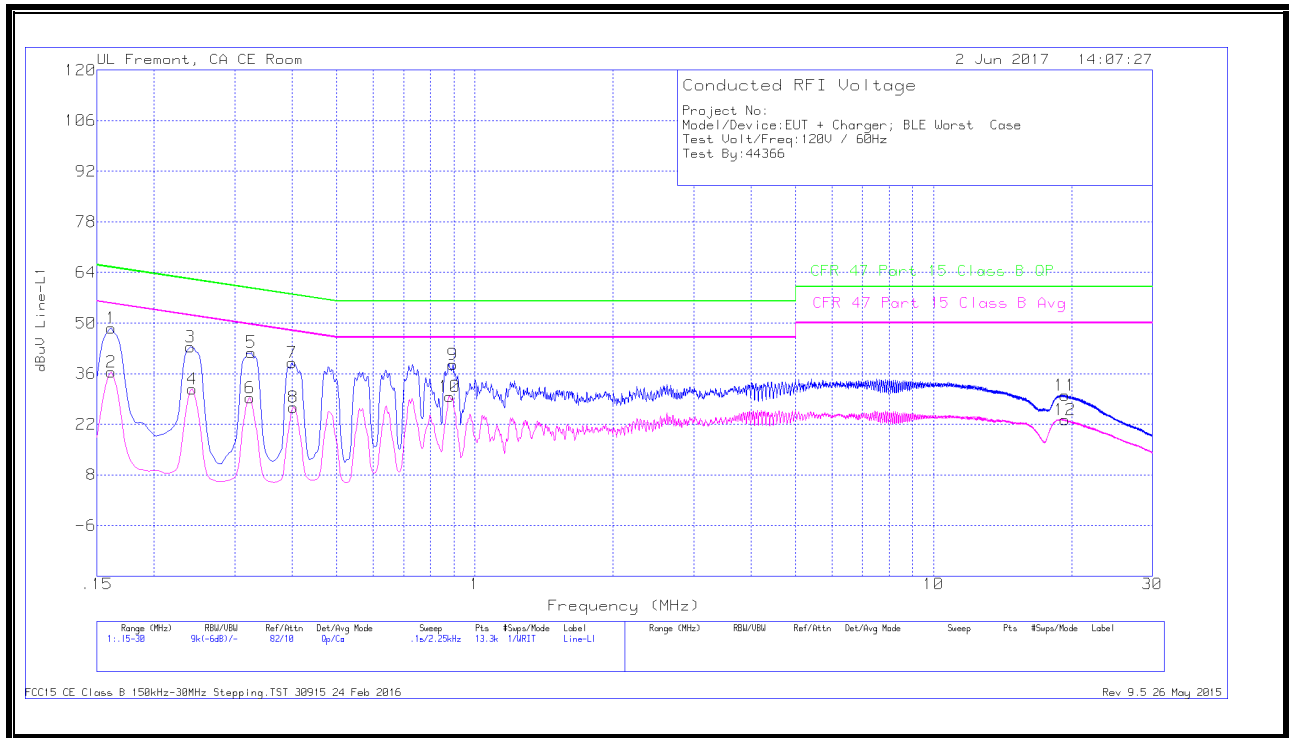
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

8.8.1. EUT POWERED BY AC/DC ADAPTER VIA USB CABLE

LINE 1 RESULTS



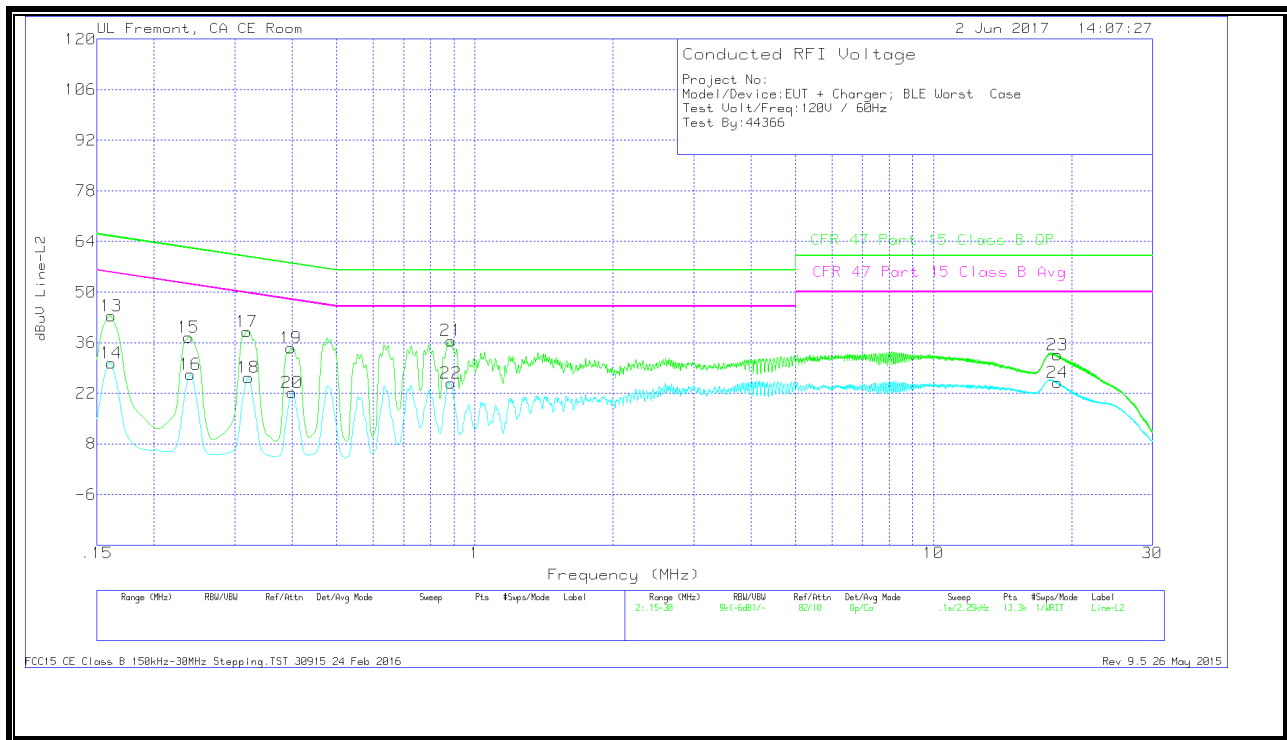
WORST EMISSIONS

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	.16125	38.39	Qp	0	.1	10.1	48.59	65.4	-16.81	-	-
2	.16125	26.19	Ca	0	.1	10.1	36.39	-	-	55.4	-19.01
3	.24	33.24	Qp	0	.1	10.1	43.44	62.1	-18.66	-	-
4	.24225	21.54	Ca	0	.1	10.1	31.74	-	-	52.02	-20.28
5	.3255	31.71	Qp	0	.1	10.1	41.91	59.57	-17.66	-	-
6	.32325	19.07	Ca	0	.1	10.1	29.27	-	-	49.62	-20.35
7	.39975	28.86	Qp	0	.1	10.1	39.06	57.86	-18.8	-	-
8	.402	16.46	Ca	0	.1	10.1	26.66	-	-	47.81	-21.15
9	.89475	28.25	Qp	0	.1	10.1	38.45	56	-17.55	-	-
10	.88125	19.47	Ca	0	.1	10.1	29.67	-	-	46	-16.33
11	19.3538	19.43	Qp	0	.3	10.3	30.03	60	-29.97	-	-
12	19.3515	12.68	Ca	0	.3	10.3	23.28	-	-	50	-26.72

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



WORST EMISSIONS

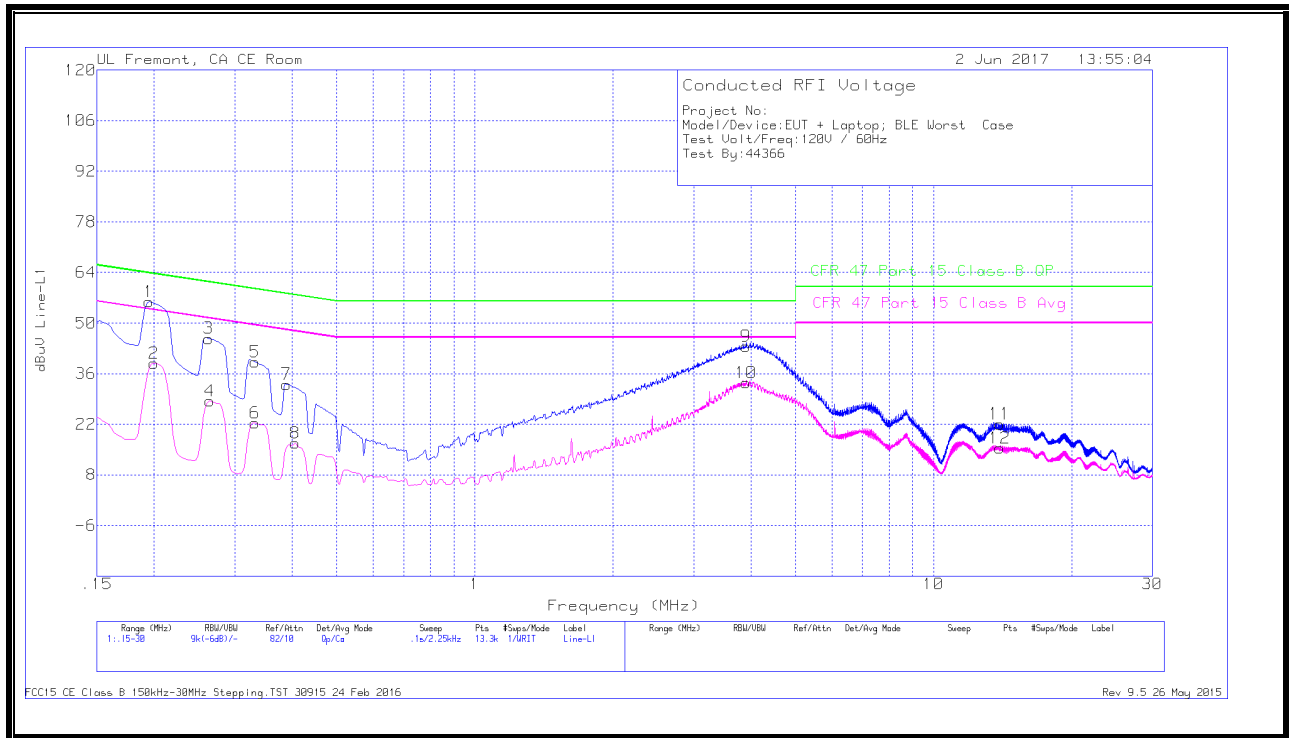
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
13	.16125	33.22	Qp	0	.1	10.1	43.42	65.4	-21.98	-	-
14	.16125	20.18	Ca	0	.1	10.1	30.38	-	-	55.4	-25.02
15	.23775	27.27	Qp	0	.1	10.1	37.47	62.17	-24.7	-	-
16	.24	17.06	Ca	0	.1	10.1	27.26	-	-	52.1	-24.84
17	.31875	28.87	Qp	0	.1	10.1	39.07	59.74	-20.67	-	-
18	.321	16.13	Ca	0	.1	10.1	26.33	-	-	49.68	-23.35
19	.3975	24.36	Qp	0	.1	10.1	34.56	57.91	-23.35	-	-
20	.39975	11.96	Ca	0	.1	10.1	22.16	-	-	47.86	-25.7
21	.888	26.33	Qp	0	.1	10.1	36.53	56	-19.47	-	-
22	.888	14.63	Ca	0	.1	10.1	24.83	-	-	46	-21.17
23	18.6405	21.99	Qp	0	.3	10.3	32.59	60	-27.41	-	-
24	18.618	14.32	Ca	0	.3	10.3	24.92	-	-	50	-25.08

Qp - Quasi-Peak detector

Ca - CISPR average detection

8.8.2. EUT POWERED BY HOST PC VIA USB CABLE

LINE 1 RESULTS



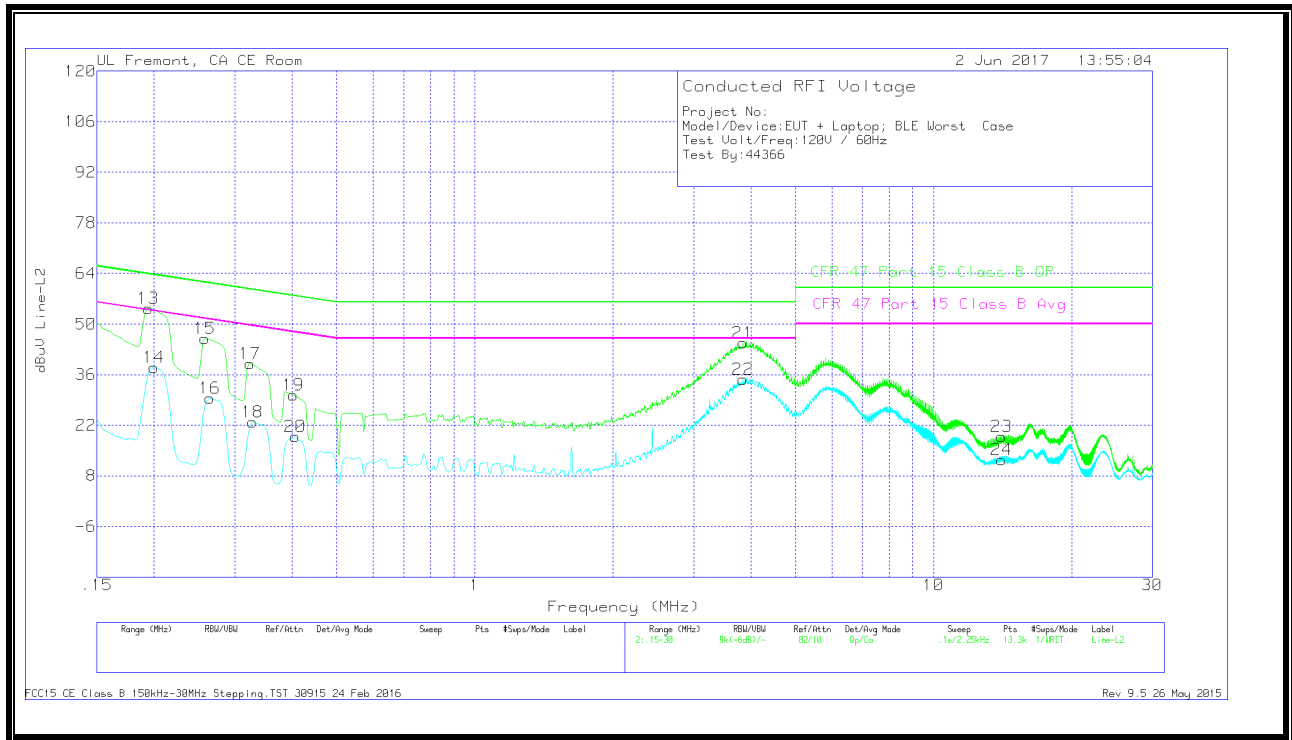
WORST EMISSIONS

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	.195	45.63	Qp	0	.1	10.1	55.83	63.82	-7.99	-	-
2	.1995	28.65	Ca	0	.1	10.1	38.85	-	-	53.63	-14.78
3	.2625	35.54	Qp	0	.1	10.1	45.74	61.35	-15.61	-	-
4	.26475	18.19	Ca	0	.1	10.1	28.39	-	-	51.28	-22.89
5	.33225	29.05	Qp	0	.1	10.1	39.25	59.39	-20.14	-	-
6	.33225	12.13	Ca	0	.1	10.1	22.33	-	-	49.39	-27.06
7	.3885	22.85	Qp	0	.1	10.1	33.05	58.1	-25.05	-	-
8	.4065	6.62	Ca	0	.1	10.1	16.82	-	-	47.72	-30.9
9	3.89625	33.4	Qp	0	.1	10.1	43.6	56	-12.4	-	-
10	3.89625	23.3	Ca	0	.1	10.1	33.5	-	-	46	-12.5
11	13.9425	11.6	Qp	.1	.2	10.2	22.1	60	-37.9	-	-
12	13.9313	4.86	Ca	.1	.2	10.2	15.36	-	-	50	-34.64

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



WORST EMISSIONS

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	.19388	44.28	Qp	0	0	10.1	54.38	63.87	-9.49	-	-
14	.1995	27.85	Ca	0	.1	10.1	38.05	-	-	53.63	-15.58
15	.258	35.87	Qp	0	.1	10.1	46.07	61.5	-15.43	-	-
16	.26475	19.26	Ca	0	.1	10.1	29.46	-	-	51.28	-21.82
17	.32325	28.85	Qp	0	.1	10.1	39.05	59.62	-20.57	-	-
18	.32775	12.74	Ca	0	.1	10.1	22.94	-	-	49.51	-26.57
19	.402	20.15	Qp	0	.1	10.1	30.35	57.81	-27.46	-	-
20	.4065	8.69	Ca	0	.1	10.1	18.89	-	-	47.72	-28.83
21	3.84	34.63	Qp	0	.1	10.1	44.83	56	-11.17	-	-
22	3.84	24.49	Ca	0	.1	10.1	34.69	-	-	46	-11.31
23	14.0775	8.32	Qp	.1	.2	10.2	18.82	60	-41.18	-	-
24	14.0764	1.88	Ca	.1	.2	10.2	12.38	-	-	50	-37.62

Qp - Quasi-Peak detector

Ca - CISPR average detection