



CERTIFICATION TEST REPORT

Report Number. : 11792137-E2V3

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

Model : A1901

FCC ID : BCG-E3175A

IC : 579C-E3175A

EUT Description : SMARTPHONE

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

Date Of Issue:
August 31, 2017

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	8/10/2017	Initial Issue	Chin Pang
V2	8/17/2017	Addressed TCB Questions	Francisco Guarnero
V3	8/31/2017	Addressed TCB Questions	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: A1901

SERIAL NUMBER: C39TX016J8QN

DATE TESTED: MAY 02, 2017 – AUGUST 31, 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.

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:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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	20.34	108.14
	Plow			10.37	10.89
	Pmax		BLE 2M	20.01	100.23
	Plow			10.09	10.21
LAT 3	Pmax	2402 - 2480	BLE 1M	20.29	106.91
	Plow			10.25	10.59
	Pmax		BLE 2M	20.00	100.00
	Plow			10.08	10.19

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band (GHz)	Antenna Gain (dBi)	
	UAT 1	LAT 3
2.4	-1.67	-4.42

5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was Firmware version 1.8 rev 55147 and Software tool version was NCI_UART_RTM4_B1_V1.07

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. And for 30-1000MHz, EUT was tested with AC/DC charger.

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

BLE: 1 Mbps.

BLE 1M mode has been verified to have the highest power.

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 in the 2.4GHz BT 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	Apple	A1344	T1580	NA
Laptop	Apple	A1278	C02HJ0A7DTY4	NA
DC power supply	Lambda	GEN 60-25	SCPV56329	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	Shielded	1	N/A
2	USB	1	USB	Shielded	1	Laptop to EUT
3	AC	1	AC	Un-shielded	3	N/A
4	Aligator clip	1	minigrabber	Un-Shielded	1	DC power supply to EUT

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

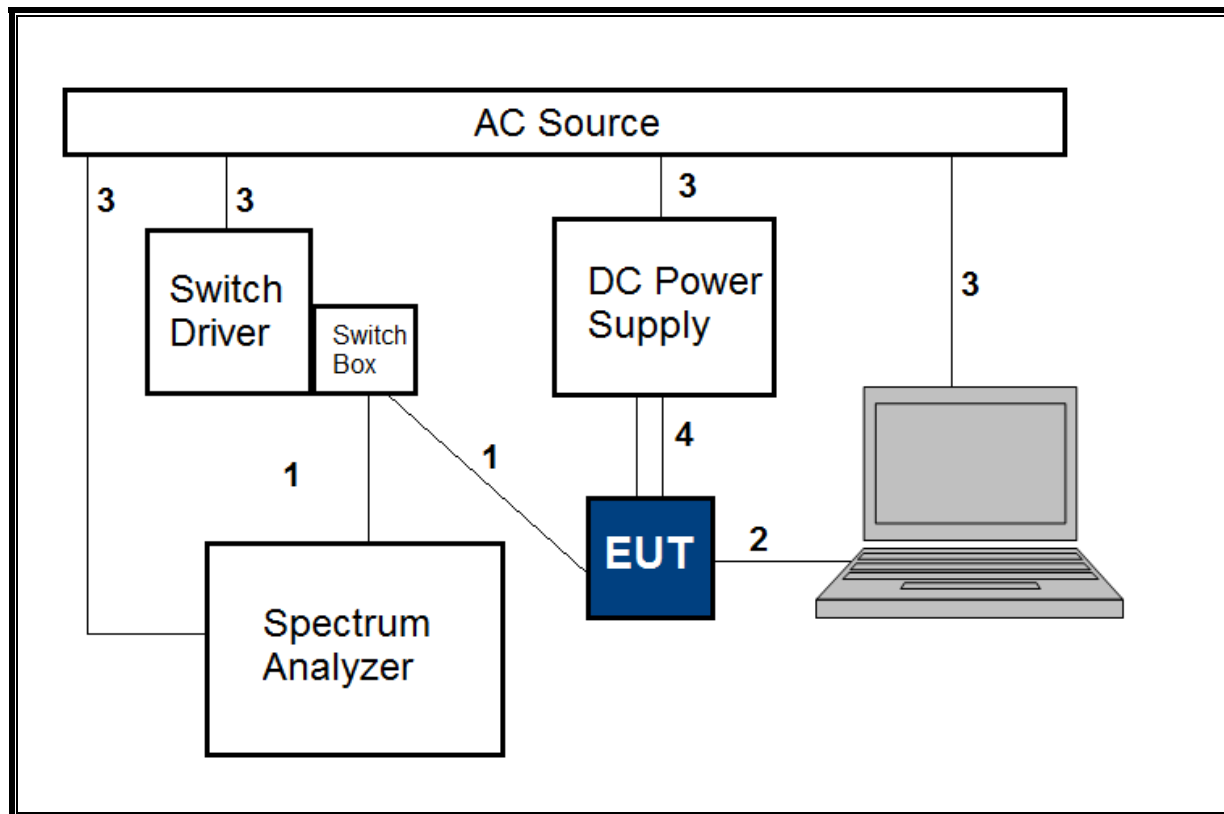
I/O CABLES (AC LINE CONDUCTED: LAPTOP CONFIGUARTION)

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 tested connected to a host Laptop via USB cable adapter and SMA cable connected to antenna port. Test software exercised the EUT.

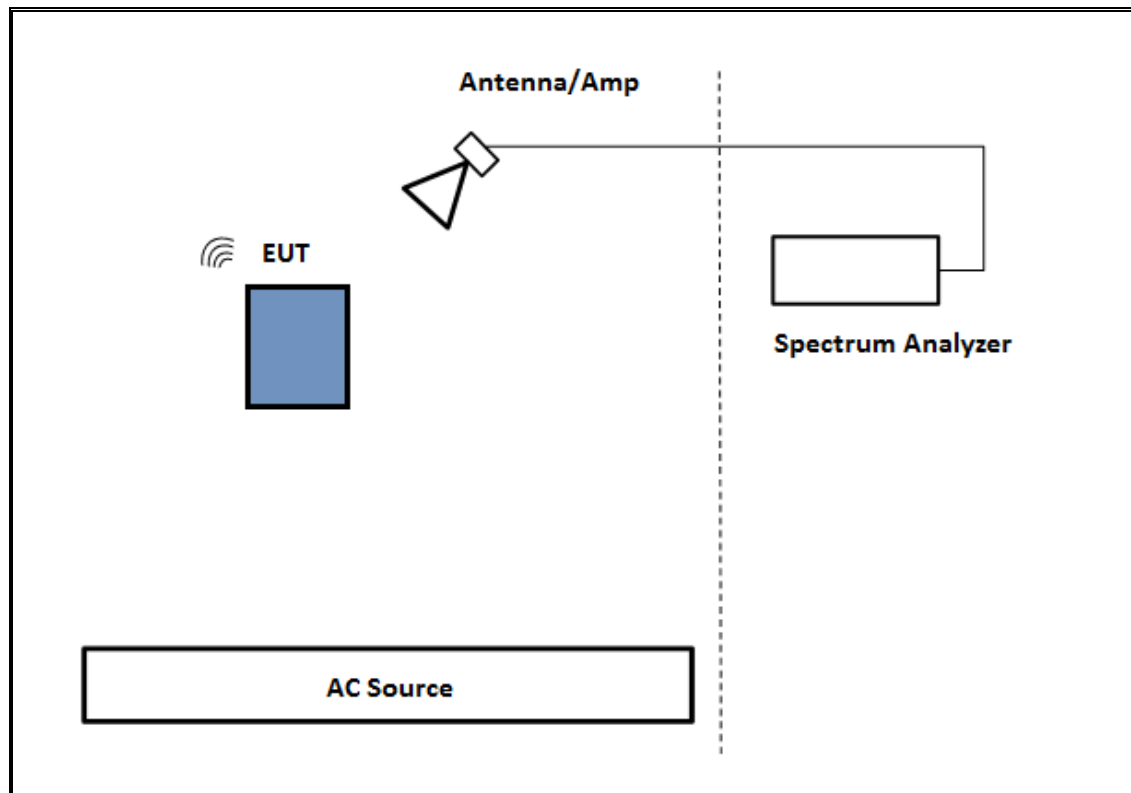
SETUP DIAGRAM



TEST SETUP- RADIATED-ABOVE 1 GHZ

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

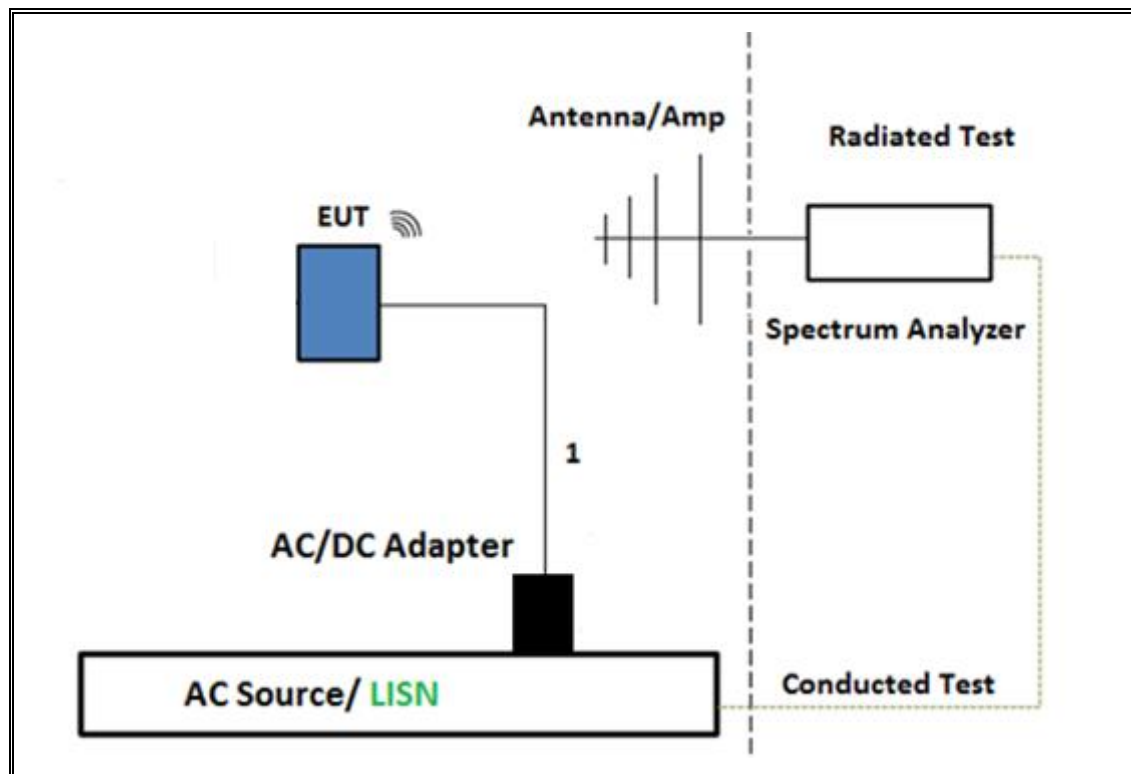
SETUP DIAGRAM



TEST SETUP- BELOW 1GHZ & AC LINE CONDUCTED TESTS

The EUT was powered by AC/DC adapter. Test software exercised the EUT.

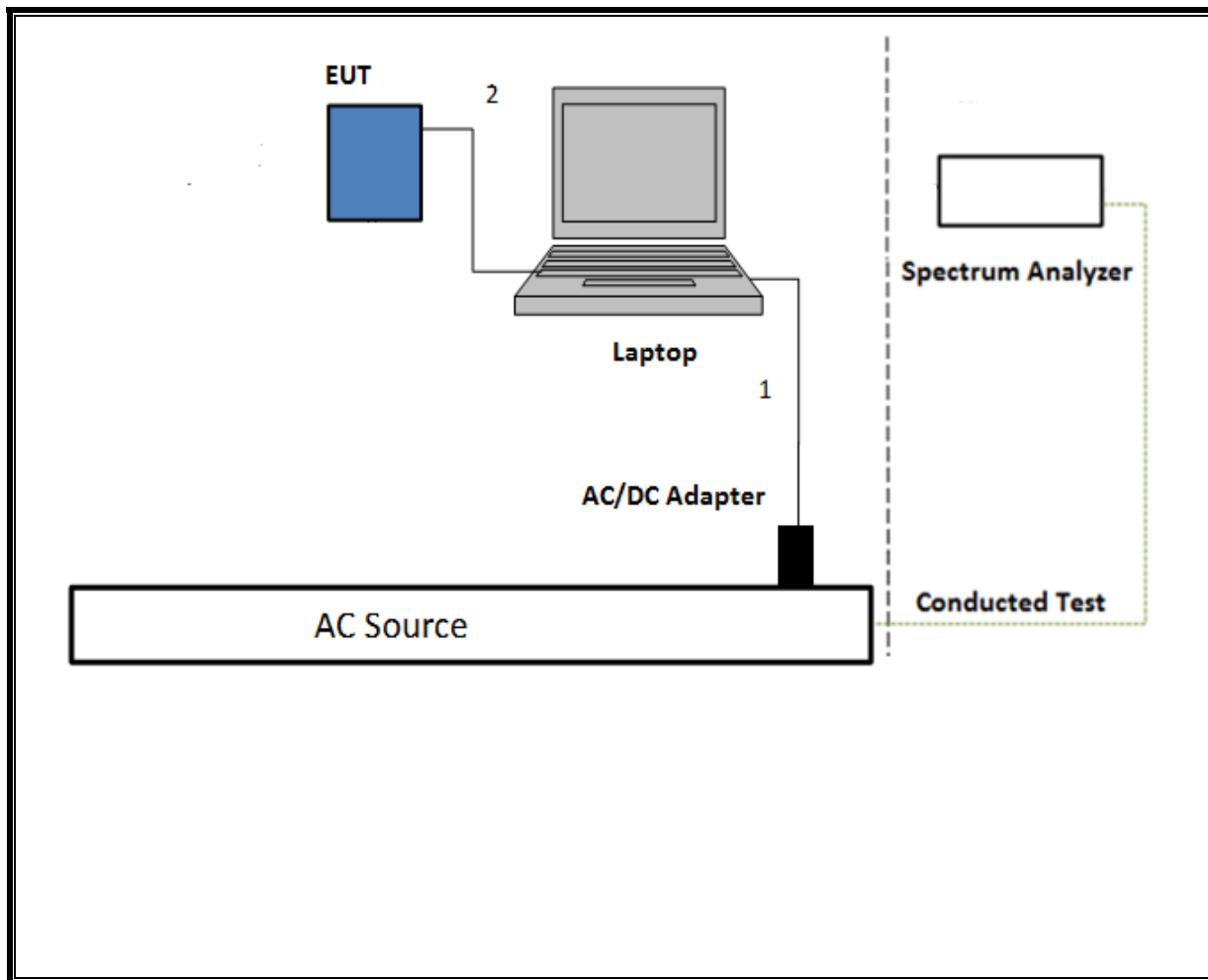
SETUP DIAGRAM



TEST SETUP- AC LINE CONDUCTED TEST (LAPTOP CONFIGURATION)

The EUT was tested connected to a host Laptop via USB cable. 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	T344	4/20/2018
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T741	11/29/2017
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T1113	12/20/2017
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB1	T122	1/31/2018
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T742	11/29/2017
*Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T173	6/17/2017
Spectrum Analyzer, PSA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A	T339	9/22/2017
*Antenna Horn, 18 to 26GHz	ARA	MWH-1826	T447	6/16/2017
Spectrum Analyzer, 40GHz	Agilent	8564E	T106	9/7/2017
Amplifier, 1 to 26.5GHz 23.5dB gain Minimum	Keysight	8449B	T402	7/5/2017
Power Meter, P-series single channel	Keysight	N1912A	T1273	07/08/2017
Power Sensor	Keysight	N1921A	T750	10/1/2017
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	06/15/2018
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: Equipment that calibrated during the testing period was set for test after the calibration.

*Testing is completed before equipment 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.

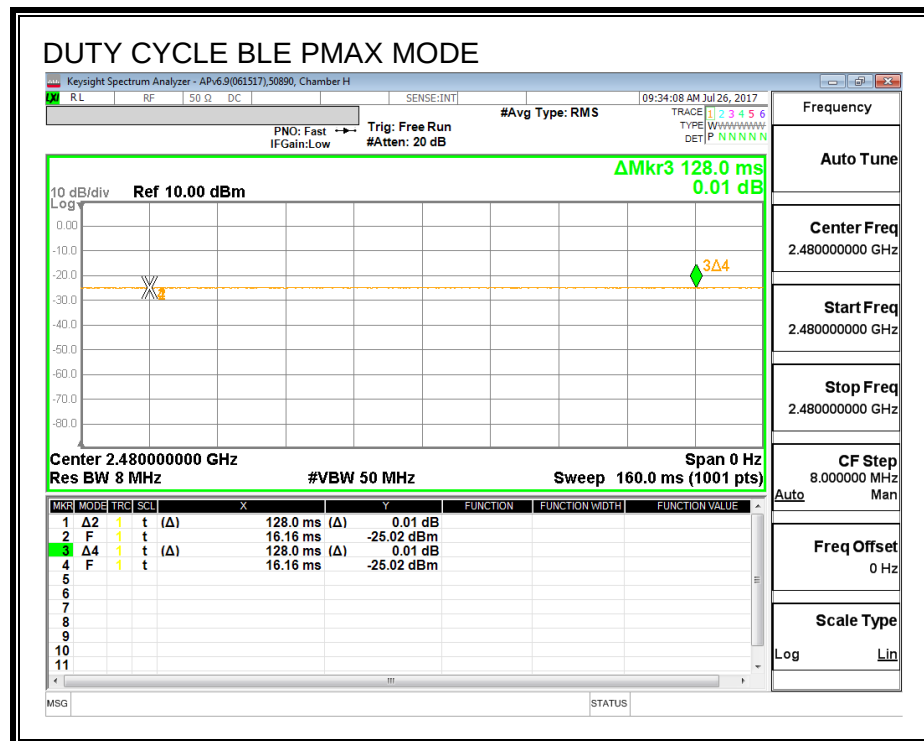
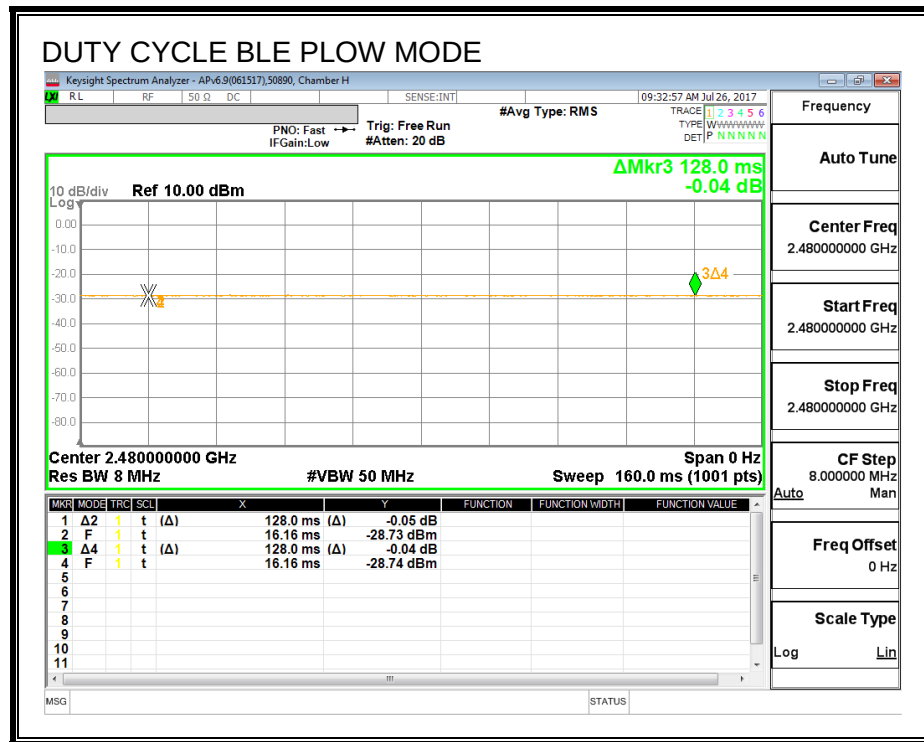
PROCEDURE

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 PLow	128	128	1.00	100%	0.00	0.010
BLE PMax	128	128	1.00	100%	0.00	0.010

DUTY CYCLE PLOTS



7.3. UAT 1 PMAX

7.3.1. 6 dB BANDWIDTH

LIMITS

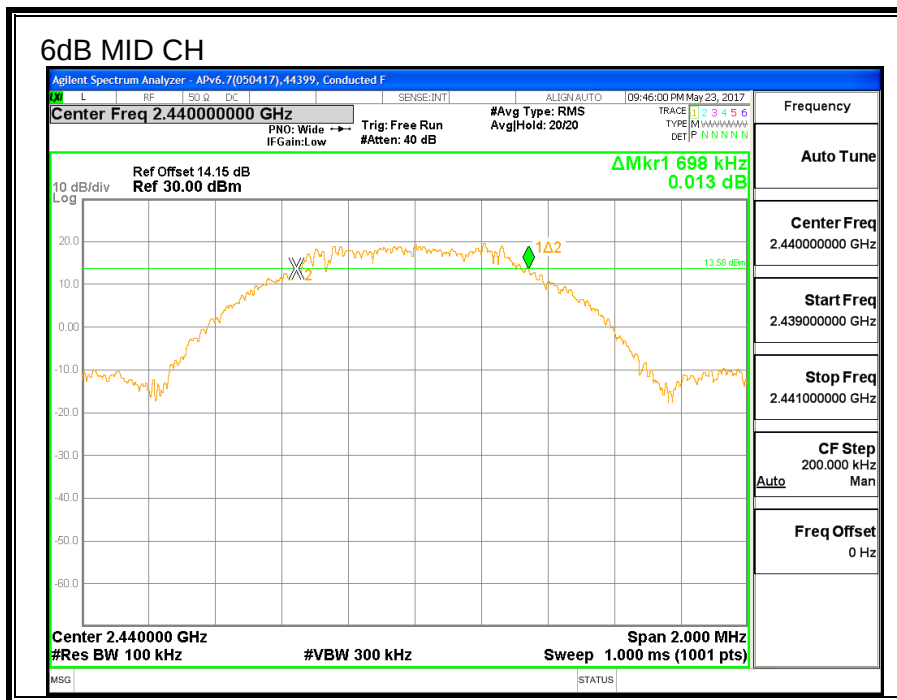
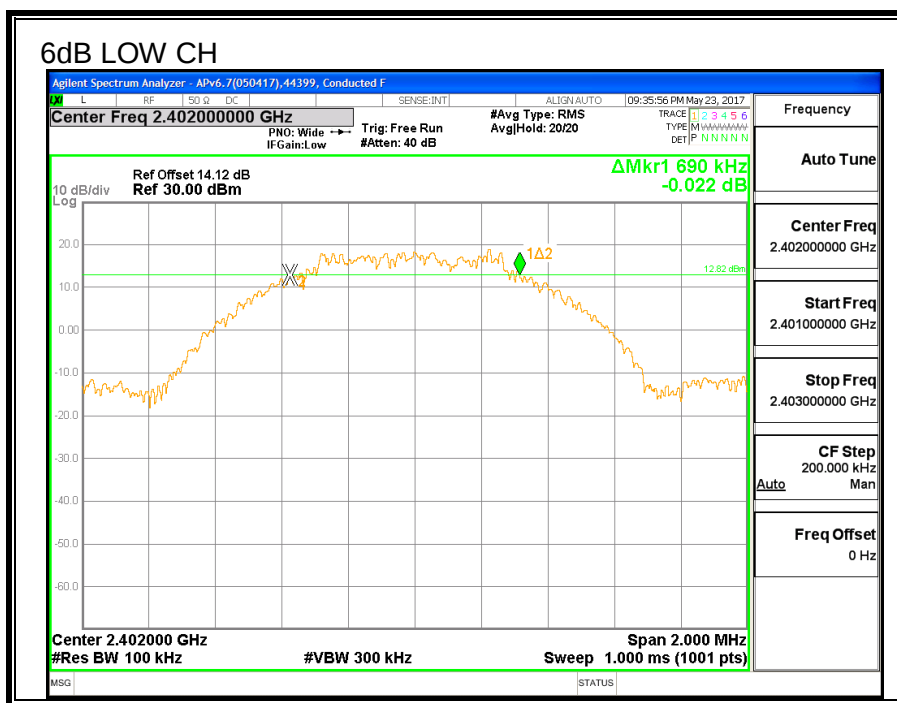
FCC §15.247 (a) (2)

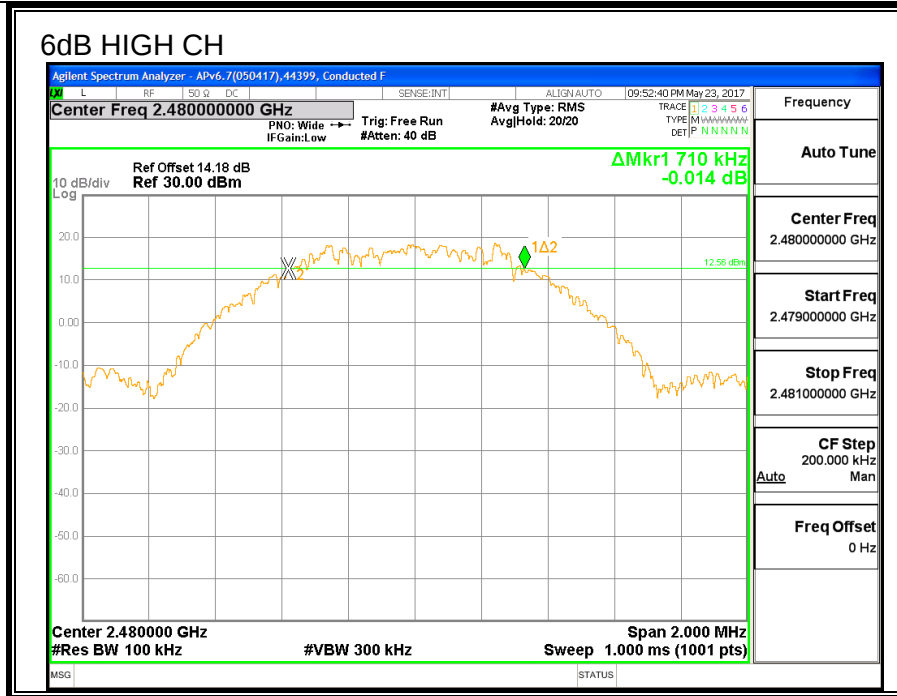
IC RSS-247 (5.2) (a)

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	0.698	0.5
High	2480	0.710	0.5





7.3.2. 99% BANDWIDTH

LIMITS

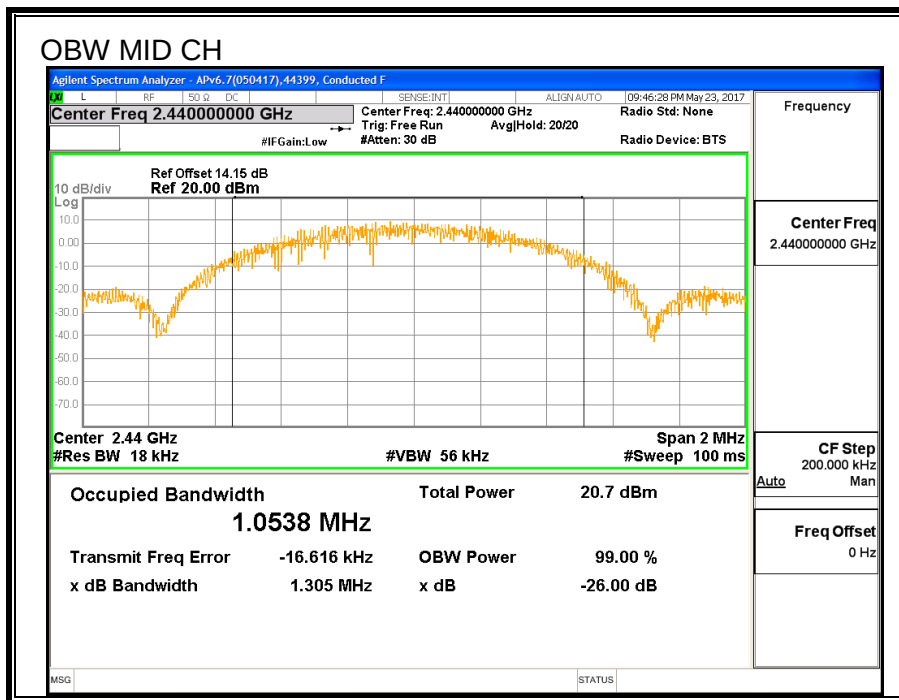
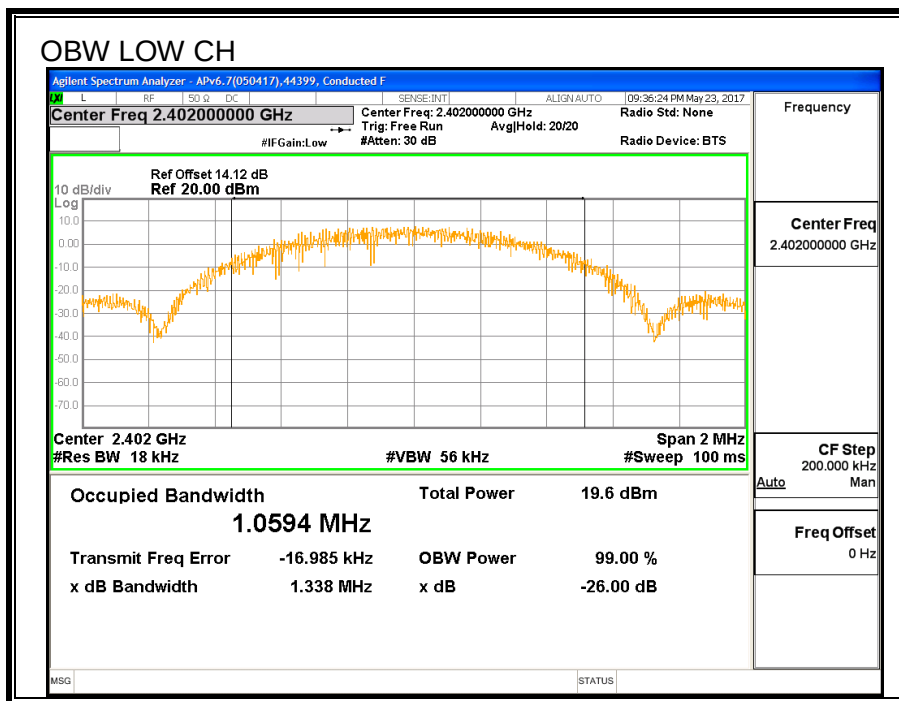
None; for reporting purposes only.

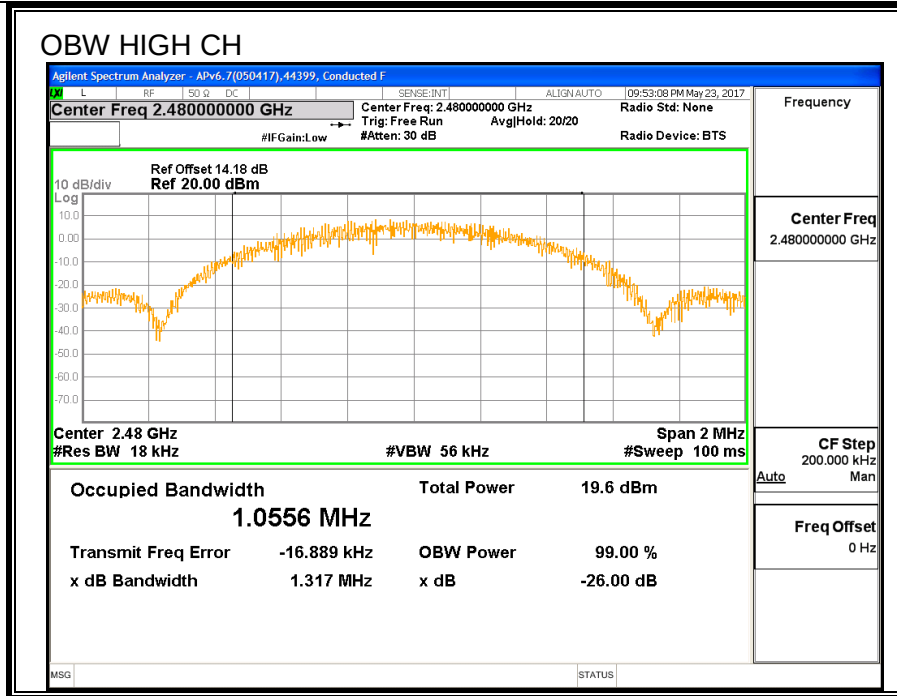
Test Procedure

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	1.059
Middle	2440	1.054
High	2480	1.056





7.3.3. AVERAGE POWER

ID:	30606	Date:	7/25/17
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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 (MHz)
Low	2402	19.92
Middle	2440	19.83
High	2480	19.88

7.3.4. OUTPUT POWER

ID:	30606	Date:	7/25/17
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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	20.34	30	-9.66
Middle	2440	20.06	30	-9.94
High	2480	20.23	30	-9.77

7.3.5. POWER SPECTRAL DENSITY

LIMITS

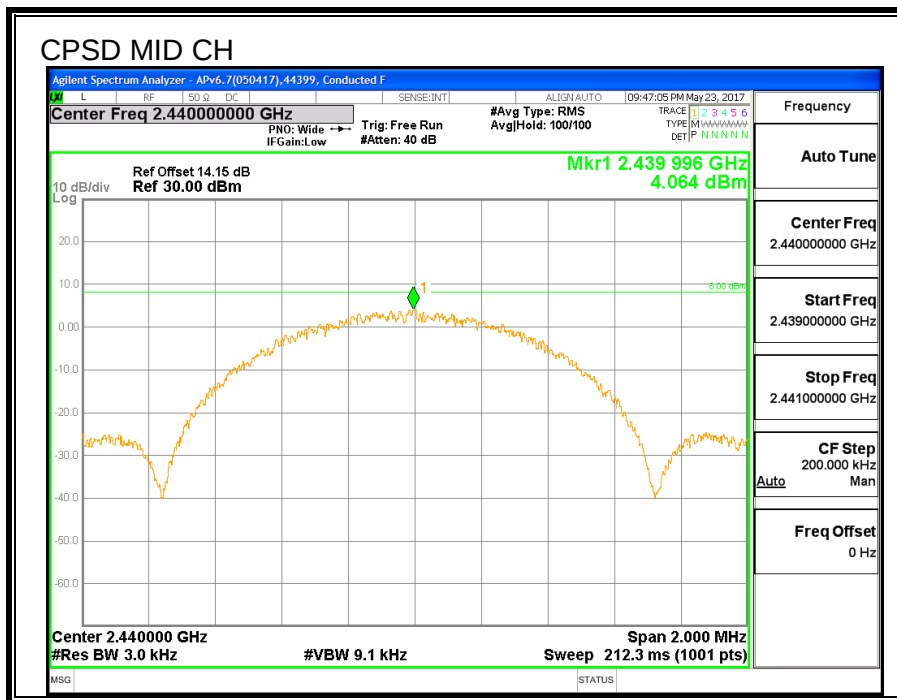
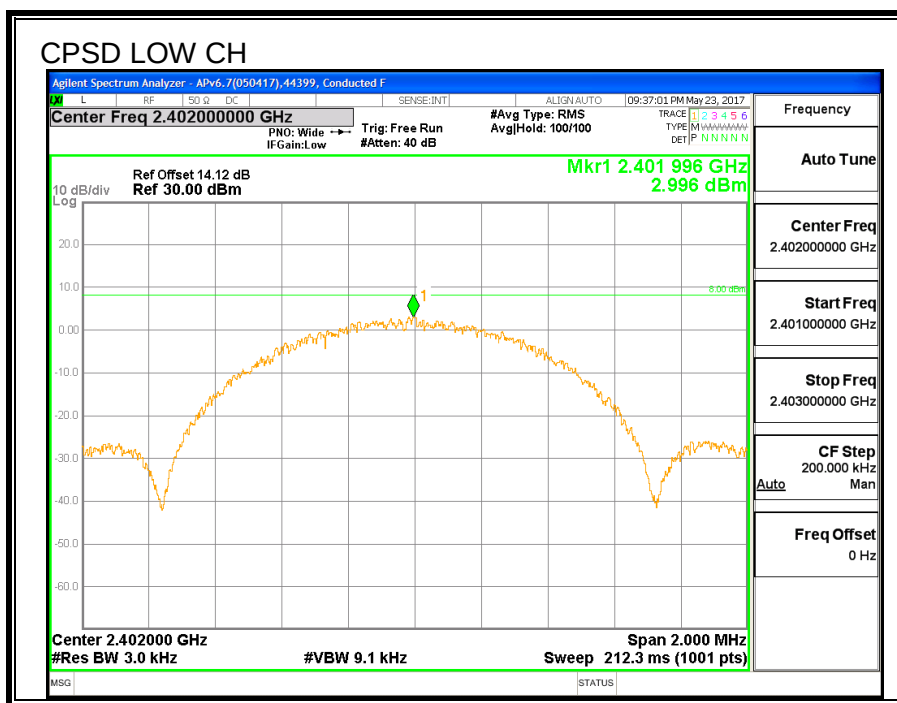
FCC §15.247 (e)

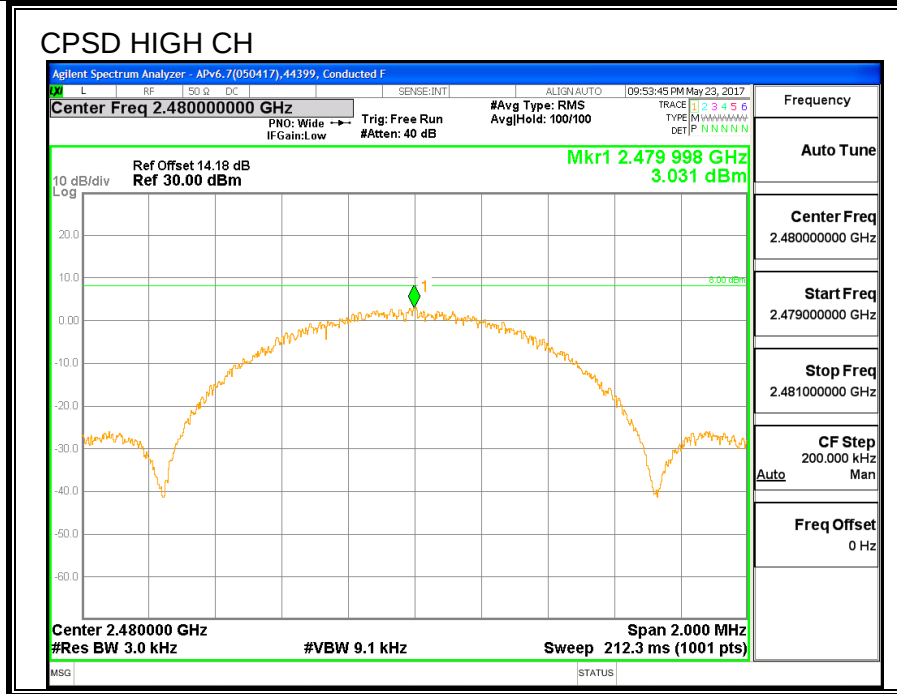
IC RSS-247 (5.2) (b)

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)	Limit (dBm)	Margin (dB)
Low	2402	3	8	-5
Middle	2440	4.059	8	-3.94
High	2480	3.03	8	-4.97





7.3.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

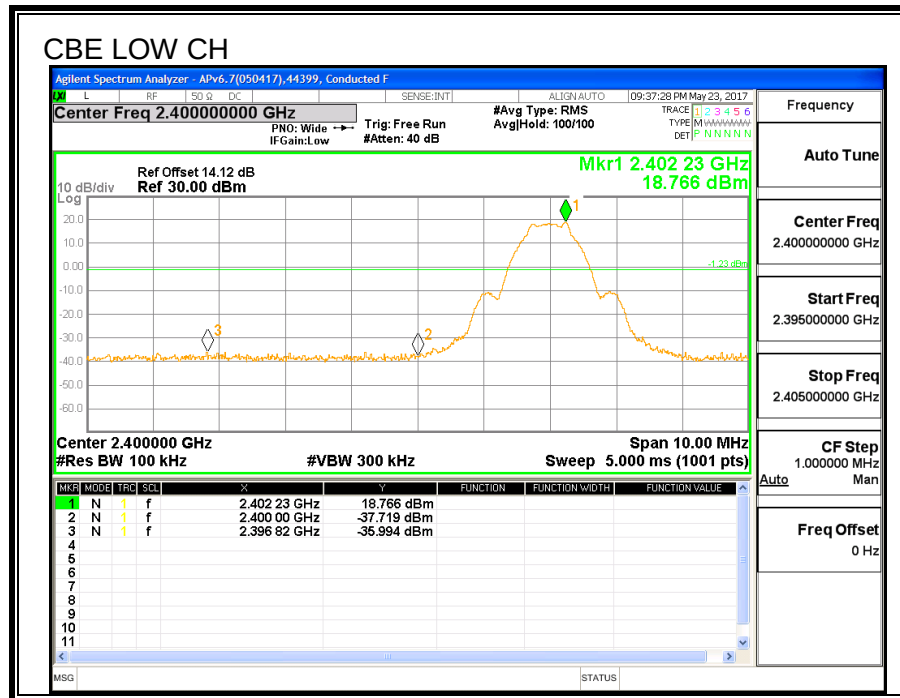
LIMITS

FCC §15.247 (d)

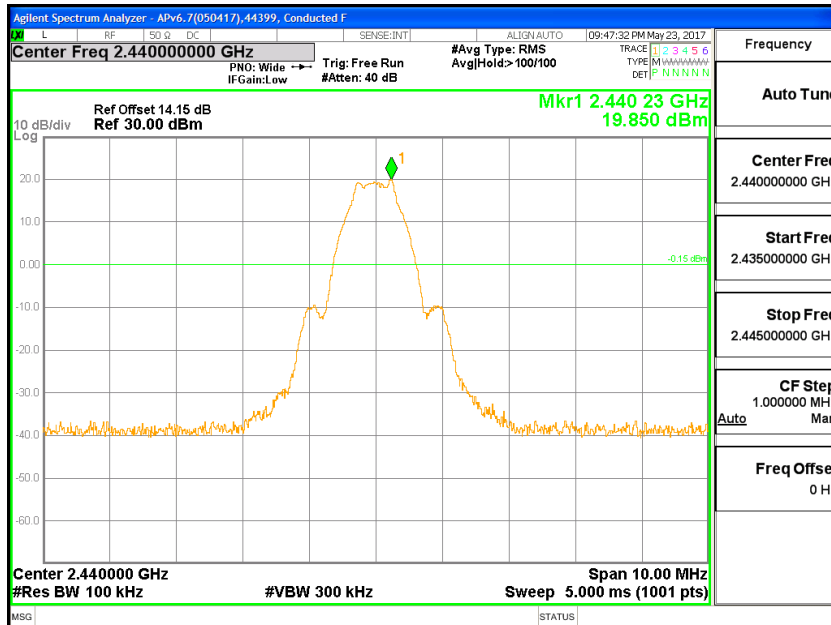
IC RSS-247 (5.5)

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

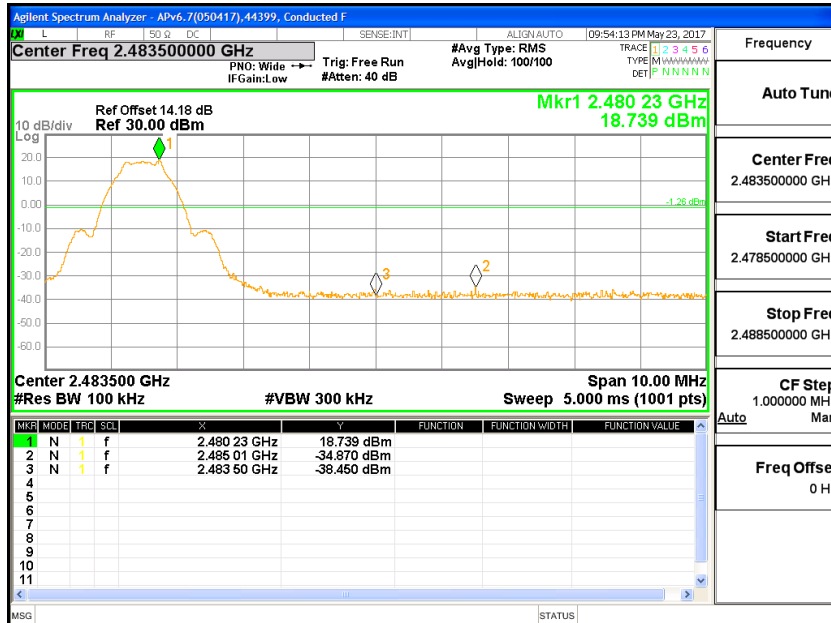
RESULTS



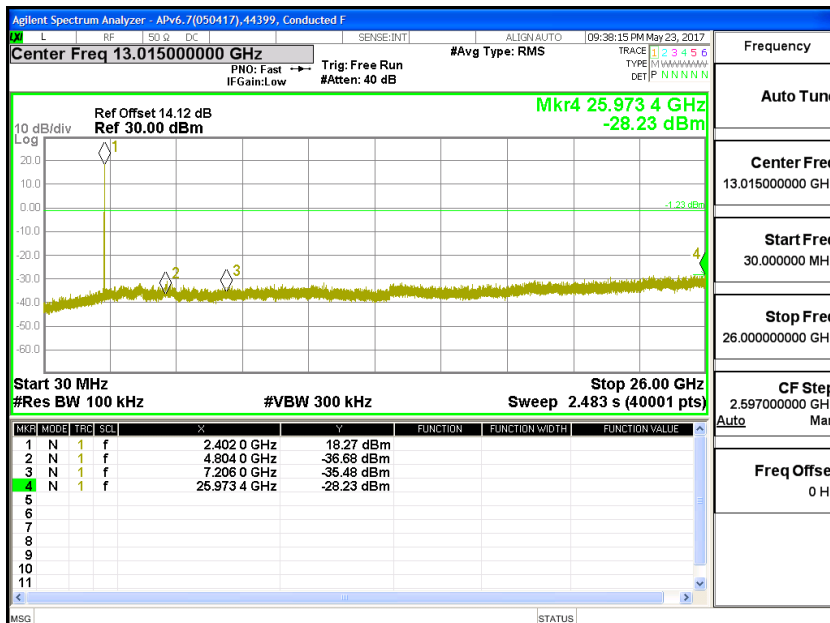
CBE MID CH



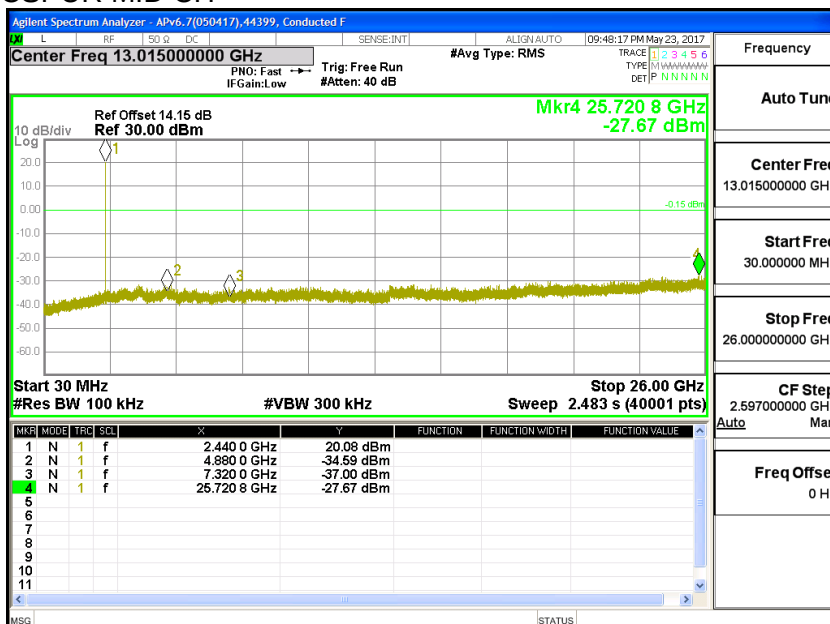
CBE HIGH CH

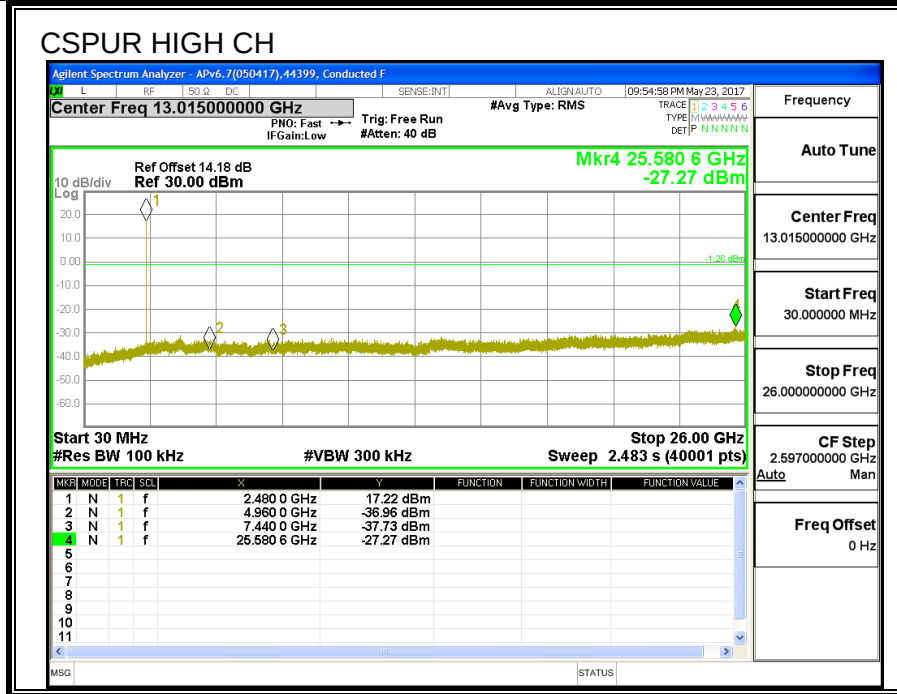


CSPUR LOW CH



CSPUR MID CH





7.4. UAT 1 PLOW

7.4.1. 6 dB BANDWIDTH

LIMITS

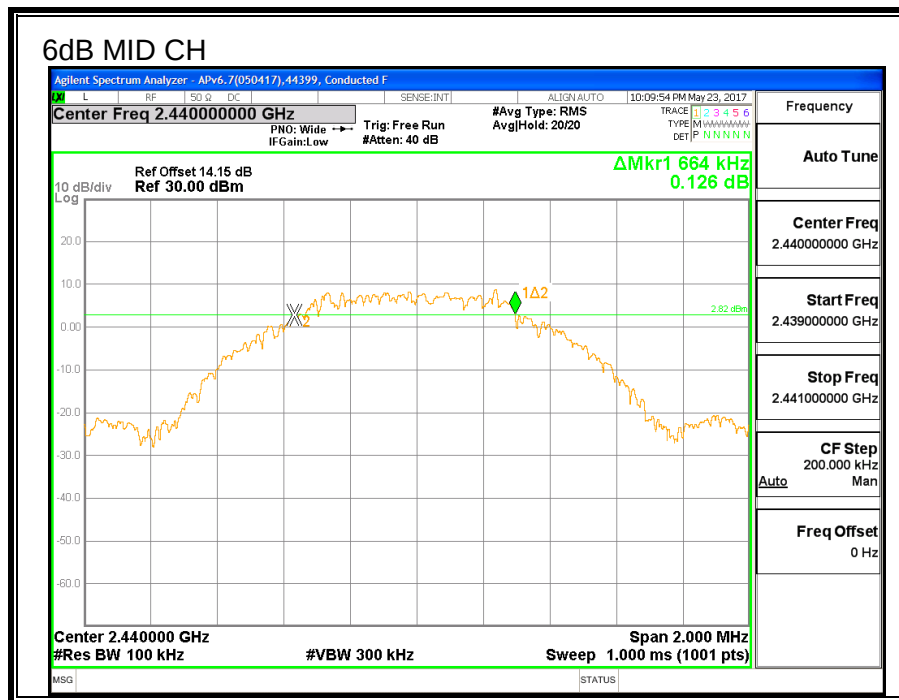
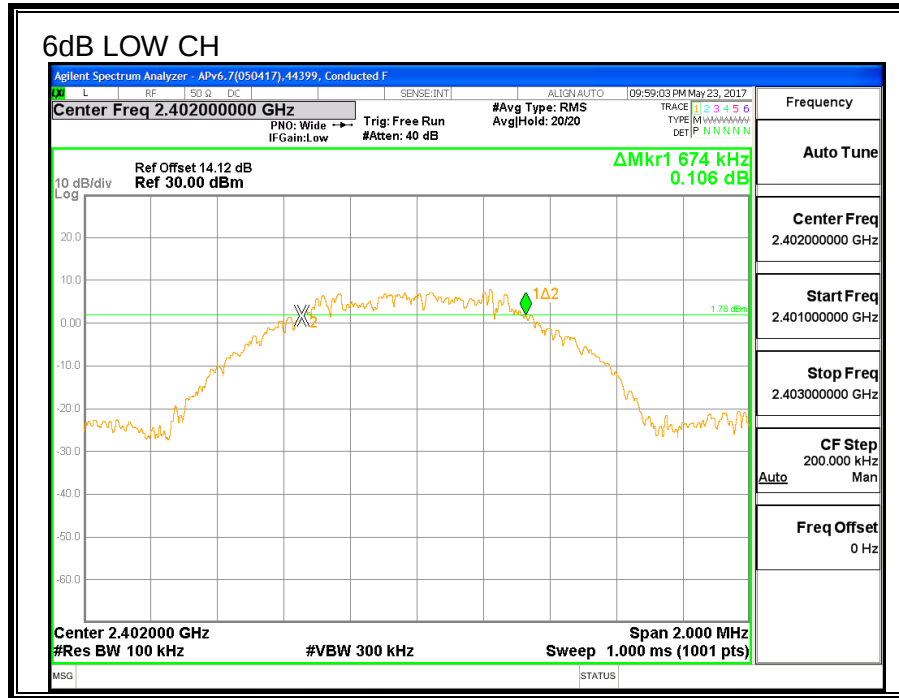
FCC §15.247 (a) (2)

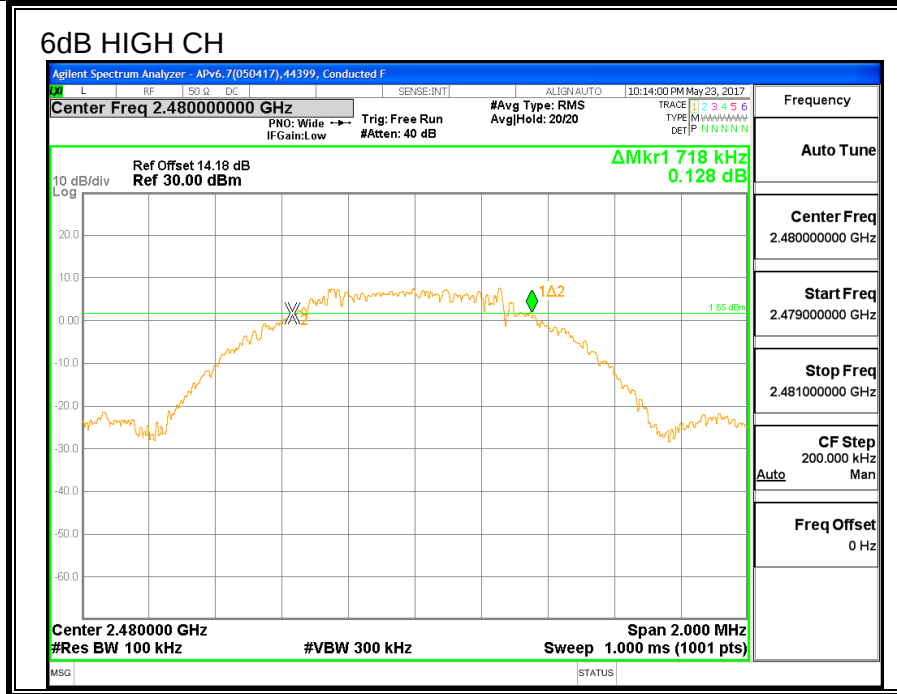
IC RSS-247 (5.2) (a)

The minimum 6 dB bandwidth shall be at least 500 kHz

RESULTS

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.674	0.5
Middle	2440	0.664	0.5
High	2480	0.718	0.5





7.4.2. 99% BANDWIDTH

LIMITS

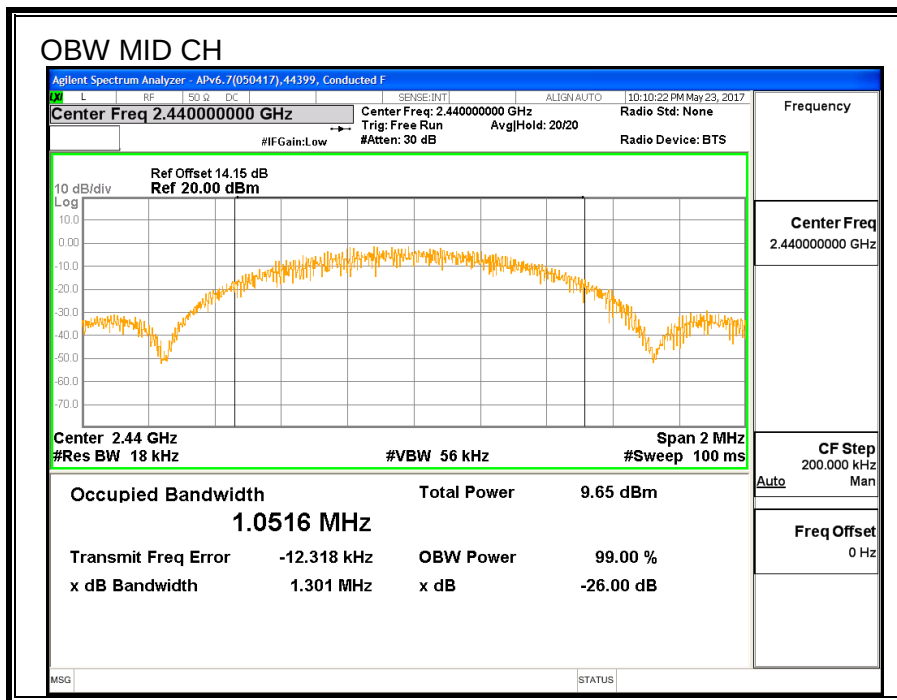
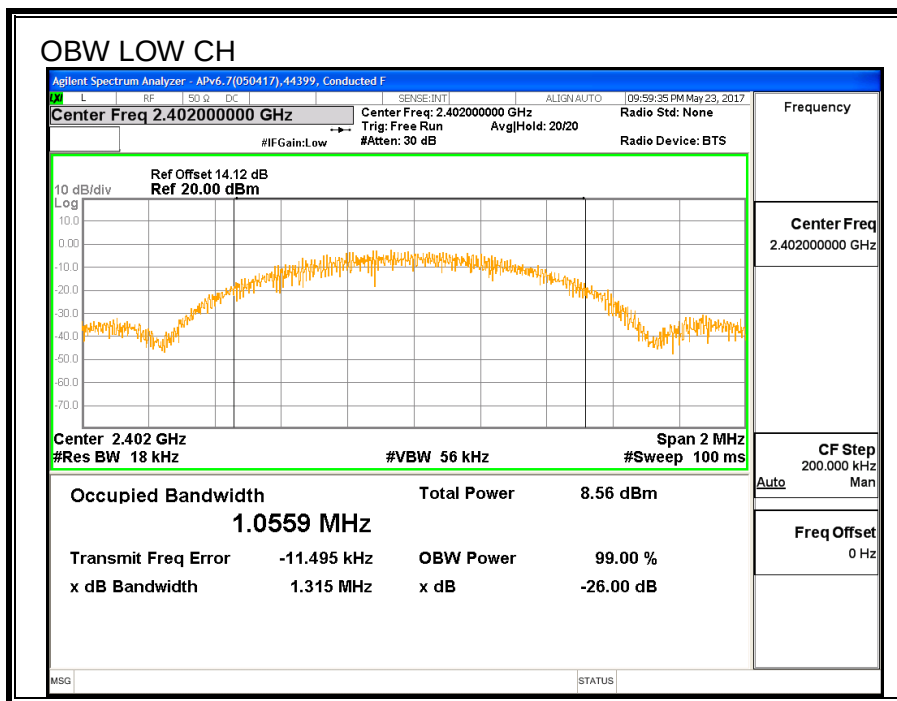
None; for reporting purposes only.

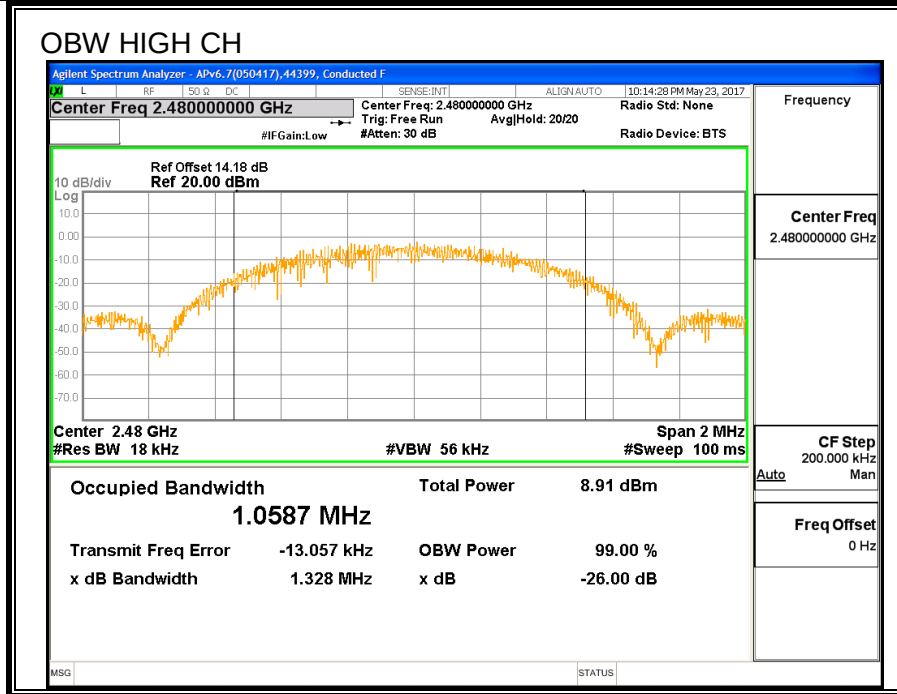
Test Procedure

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	1.056
Middle	2440	1.052
High	2480	1.059





7.4.3. AVERAGE POWER

ID:	30606	Date:	7/25/17
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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 (MHz)
Low	2402	9.99
Middle	2440	9.89
High	2480	9.97

7.4.4. OUTPUT POWER

ID:	30606	Date:	7/25/17
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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	10.23	30	-9.77
Middle	2440	10.28	30	-9.72
High	2480	10.37	30	-9.63

7.4.5. POWER SPECTRAL DENSITY

LIMITS

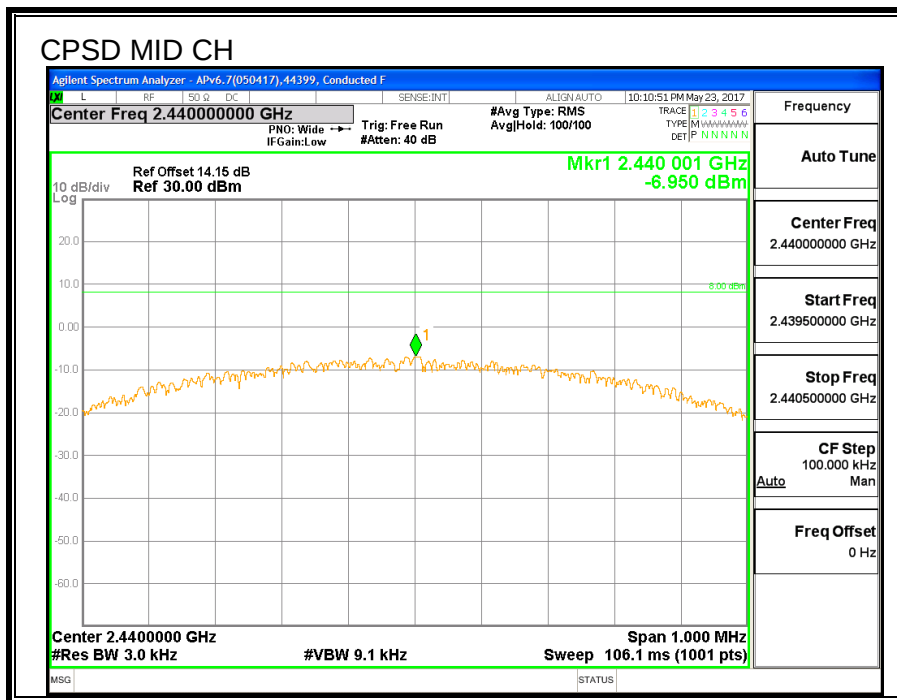
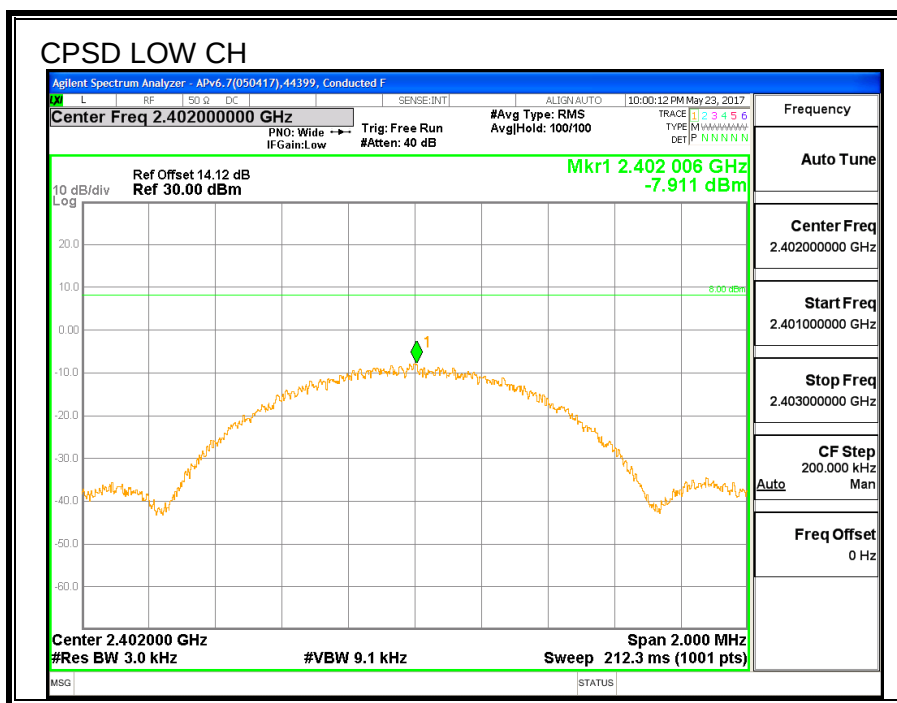
FCC §15.247 (e)

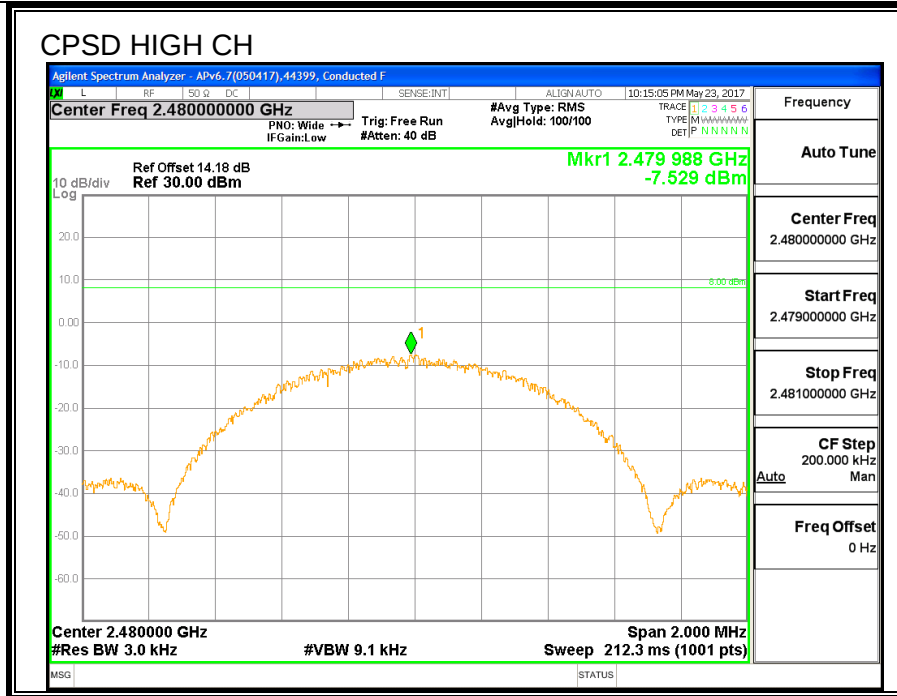
IC RSS-247 (5.2) (b)

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)	Limit (dBm)	Margin (dB)
Low	2402	-7.91	8	-15.91
Middle	2440	-6.95	8	-14.95
High	2480	-7.53	8	-15.53





7.4.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

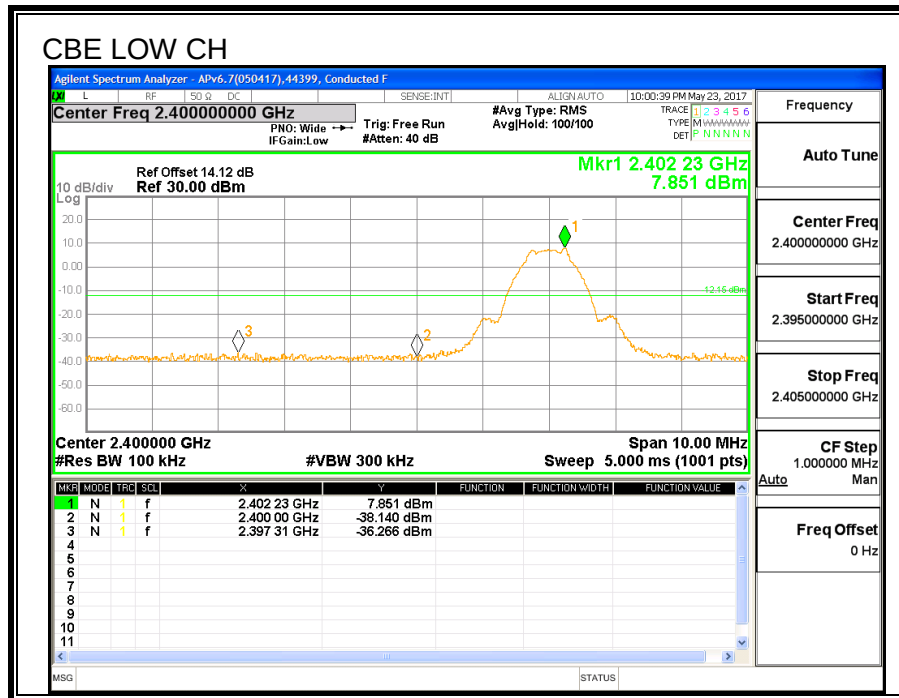
LIMITS

FCC §15.247 (d)

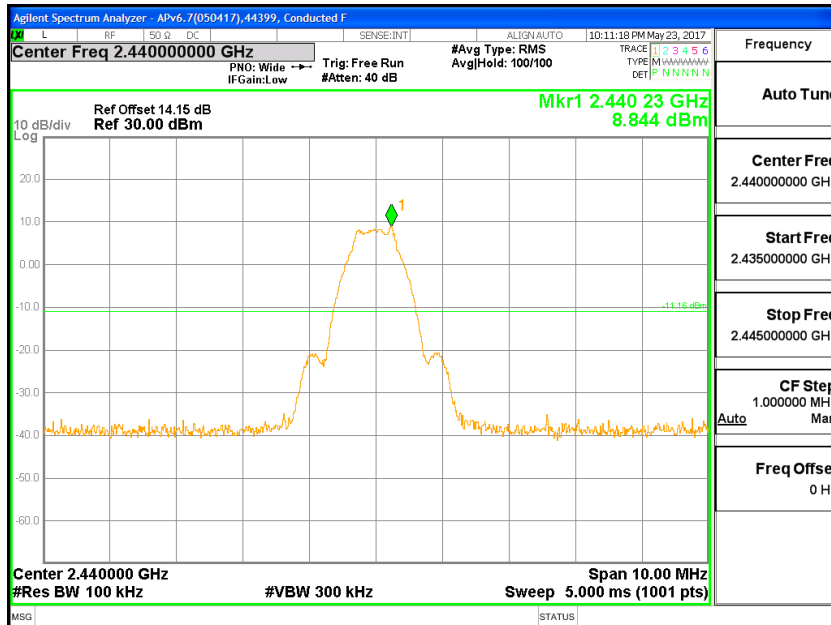
IC RSS-247 (5.5)

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

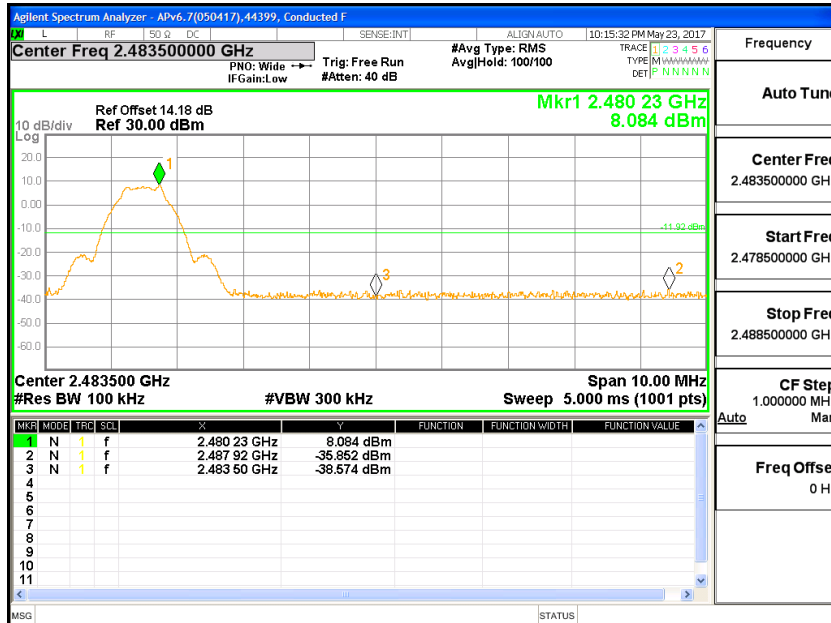
RESULTS



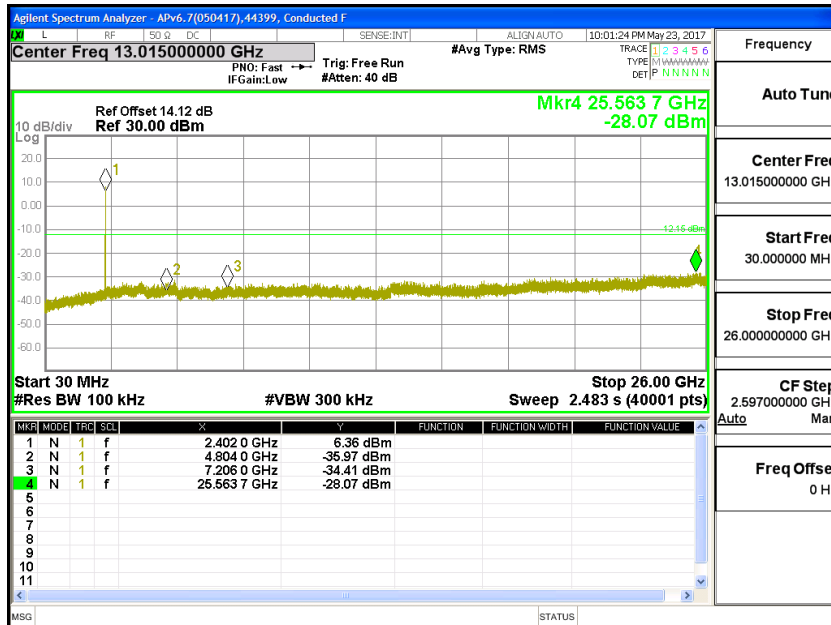
CBE MID CH



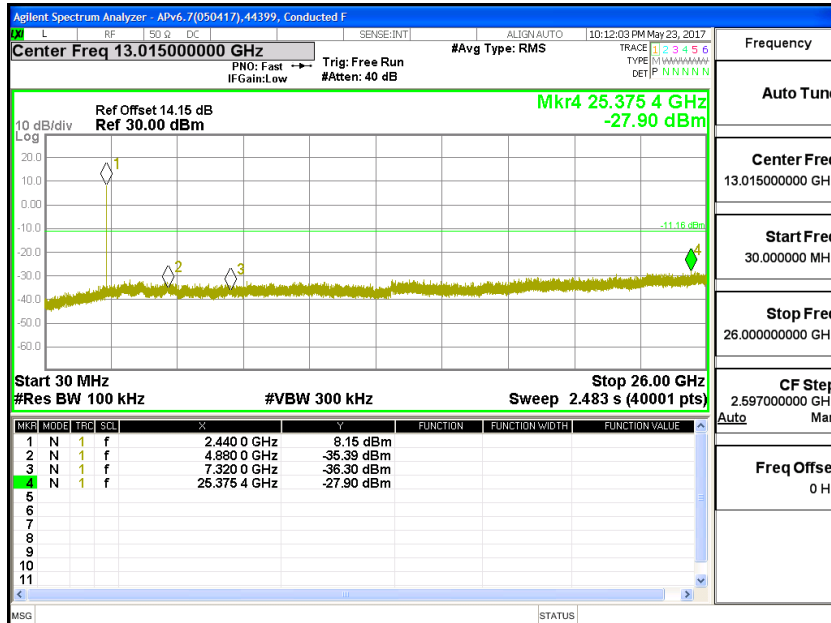
CBE HIGH CH

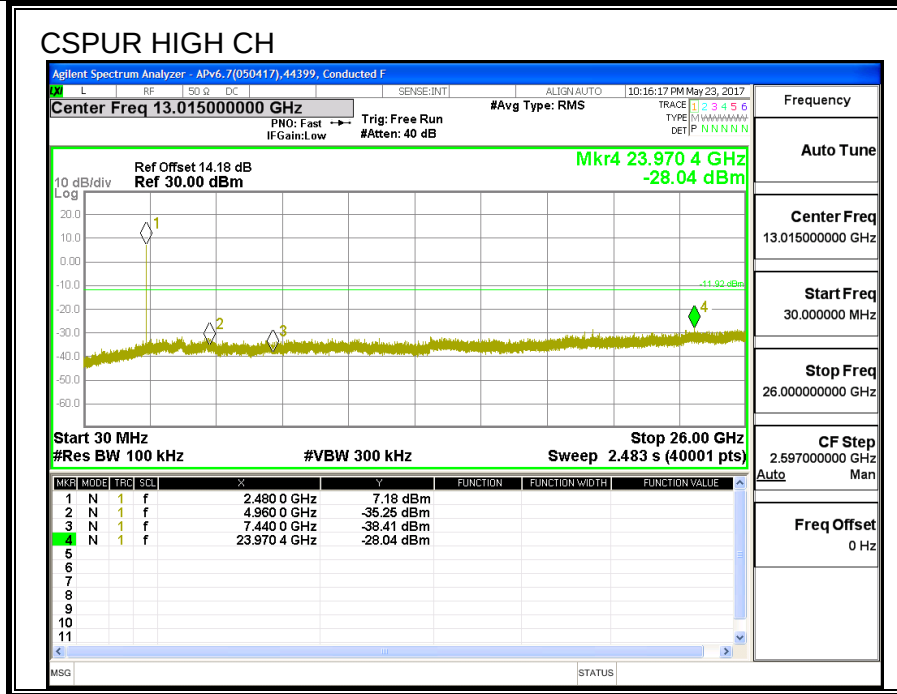


CSPUR LOW CH



CSPUR MID CH





7.5. UAT 1 BLE 2M Pmax

7.5.1. AVERAGE POWER

ID:	30606	Date:	7/27/2017
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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 (MHz)
Low	2402	19.70
Middle	2440	19.69
High	2480	19.66

7.5.2. OUTPUT POWER

ID:	30606	Date:	7/27/2017
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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	19.98	30	-10.02
Middle	2440	20.01	30	-9.99
High	2480	19.98	30	-10.02

7.6. UAT 1 BLE 2M Plow

7.6.1. AVERAGE POWER

ID:	30606	Date:	7/27/2017
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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 (MHz)
Low	2402	9.68
Middle	2440	9.59
High	2480	9.74

7.6.2. OUTPUT POWER

ID:	30606	Date:	7/27/2017
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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	9.89	30	-20.11
Middle	2440	9.91	30	-20.09
High	2480	10.09	30	-19.91

7.7. LAT 3 PMAX

7.7.1. 6 dB BANDWIDTH

LIMITS

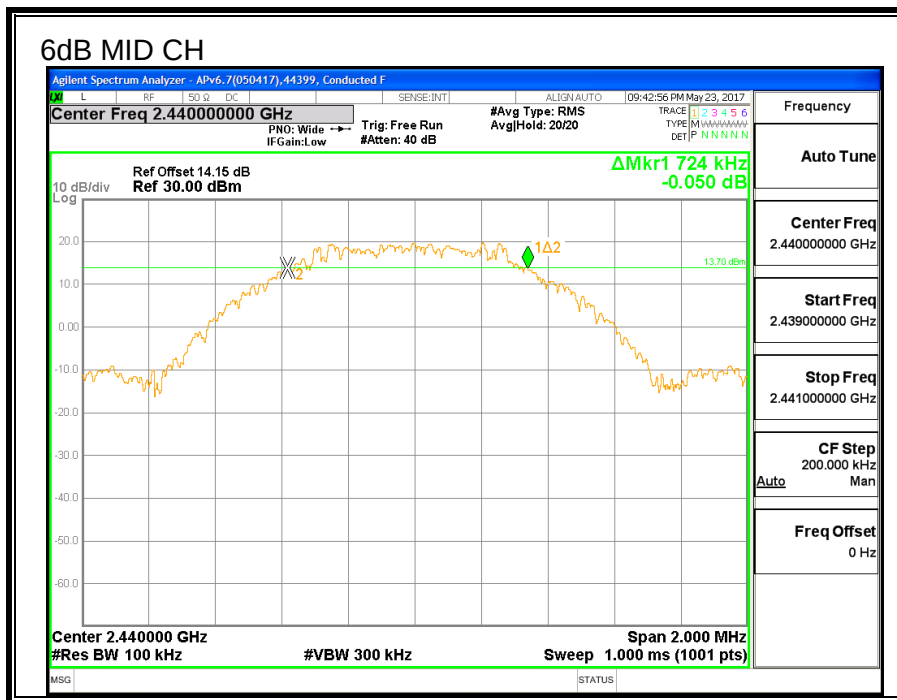
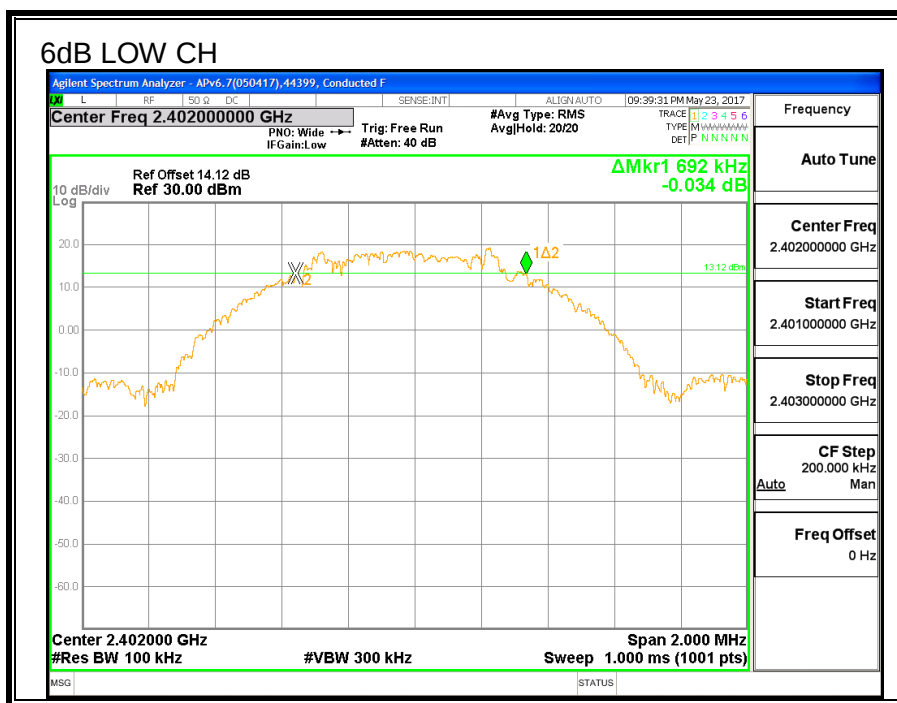
FCC §15.247 (a) (2)

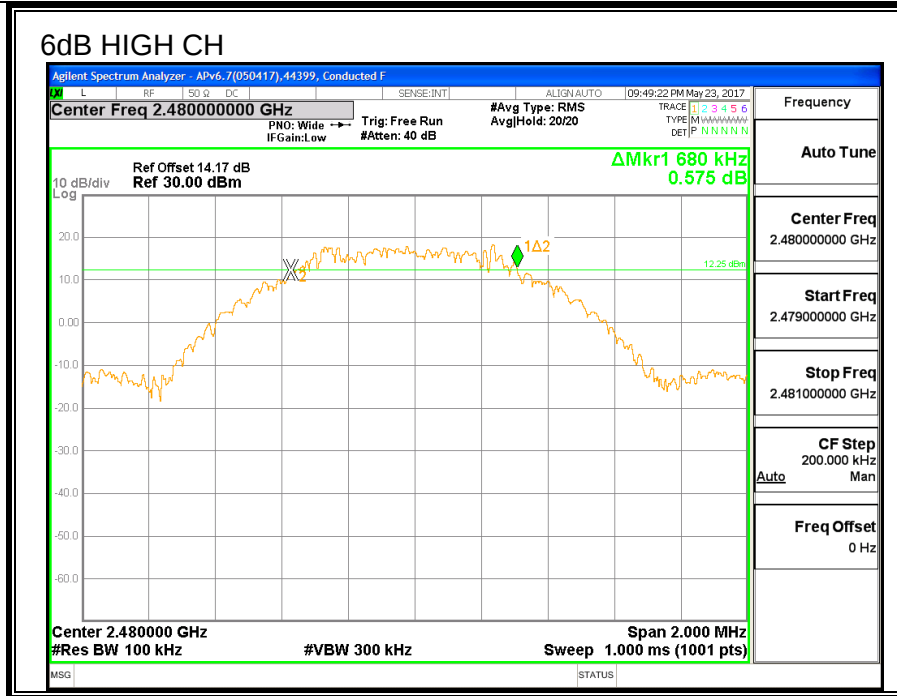
IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.692	0.5
Middle	2440	0.724	0.5
High	2480	0.68	0.5





7.7.2. 99% BANDWIDTH

LIMITS

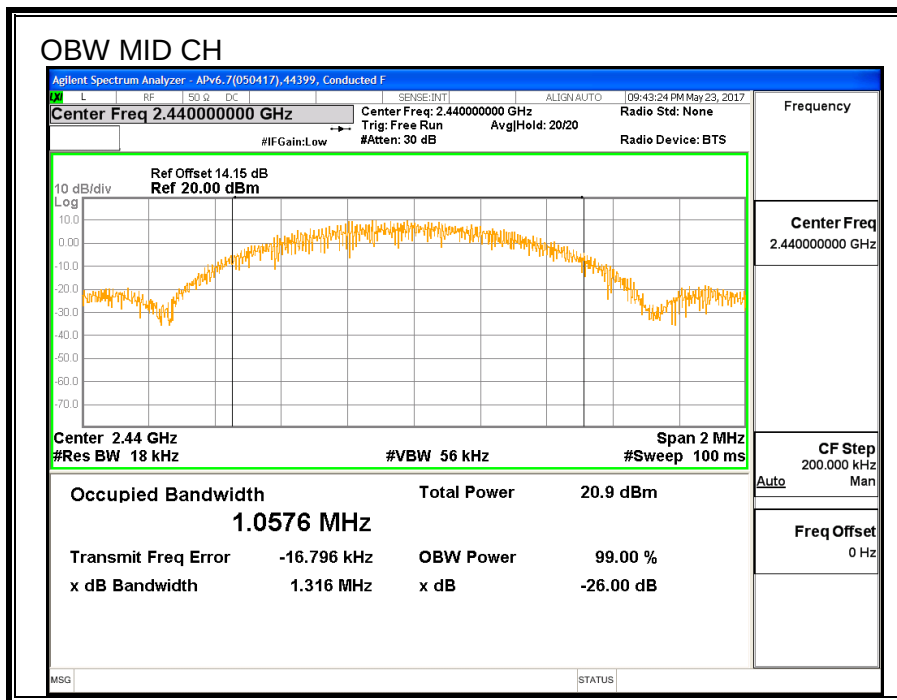
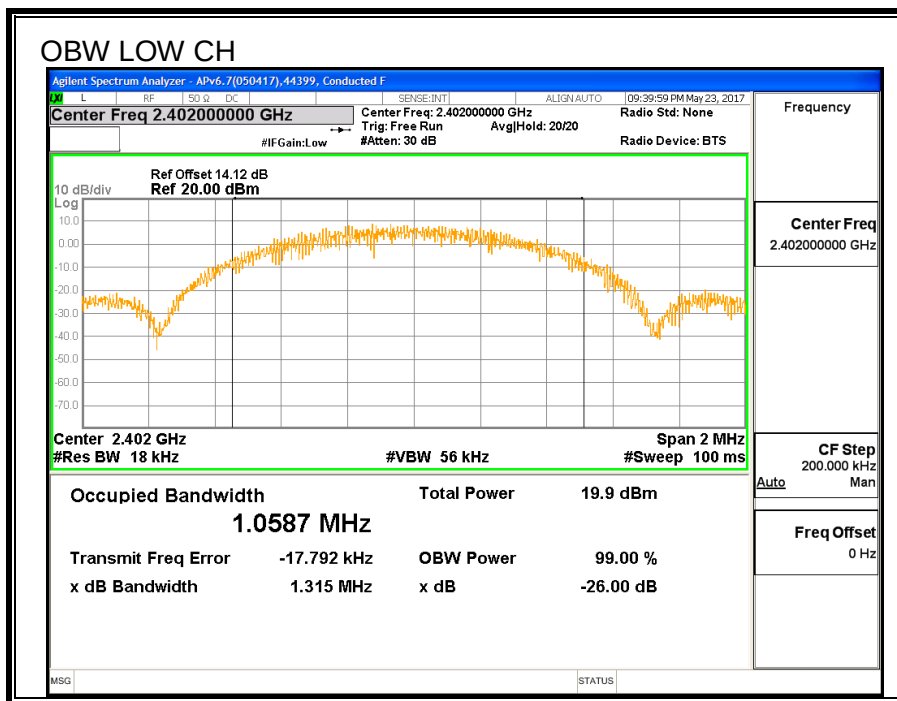
None; for reporting purposes only.

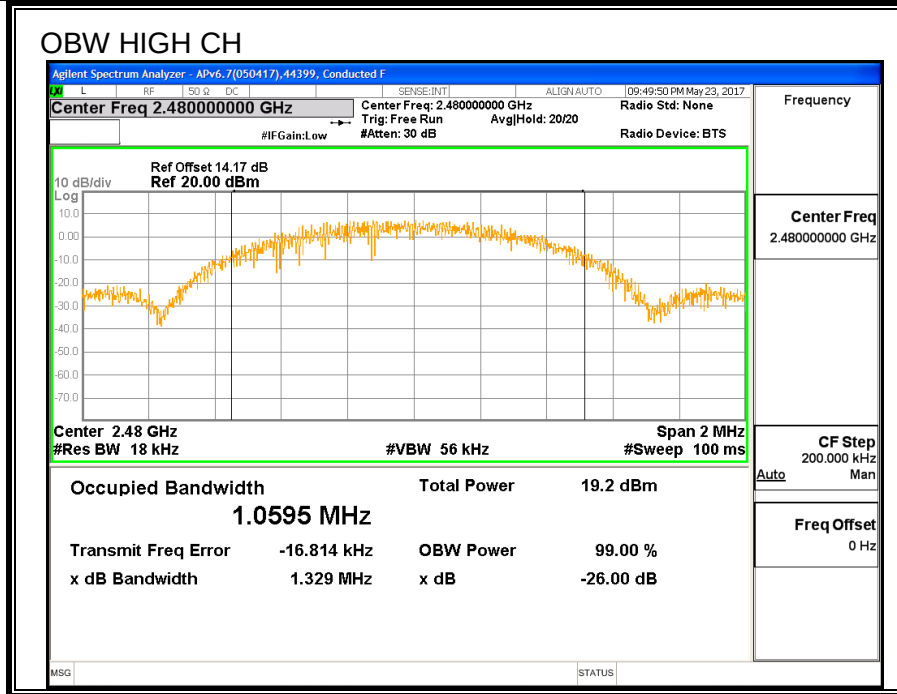
Test Procedure

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	1.059
Middle	2440	1.058
High	2480	1.06





7.7.3. AVERAGE POWER

ID:	30554	Date:	8/31/17
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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 (MHz)
Low	2402	19.85
Middle	2440	19.98
High	2480	19.82

7.7.4. OUTPUT POWER

ID:	30554	Date:	8/31/17
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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	20.17	30	-9.83
Middle	2440	20.29	30	-9.71
High	2480	20.26	30	-9.74

7.7.5. POWER SPECTRAL DENSITY

LIMITS

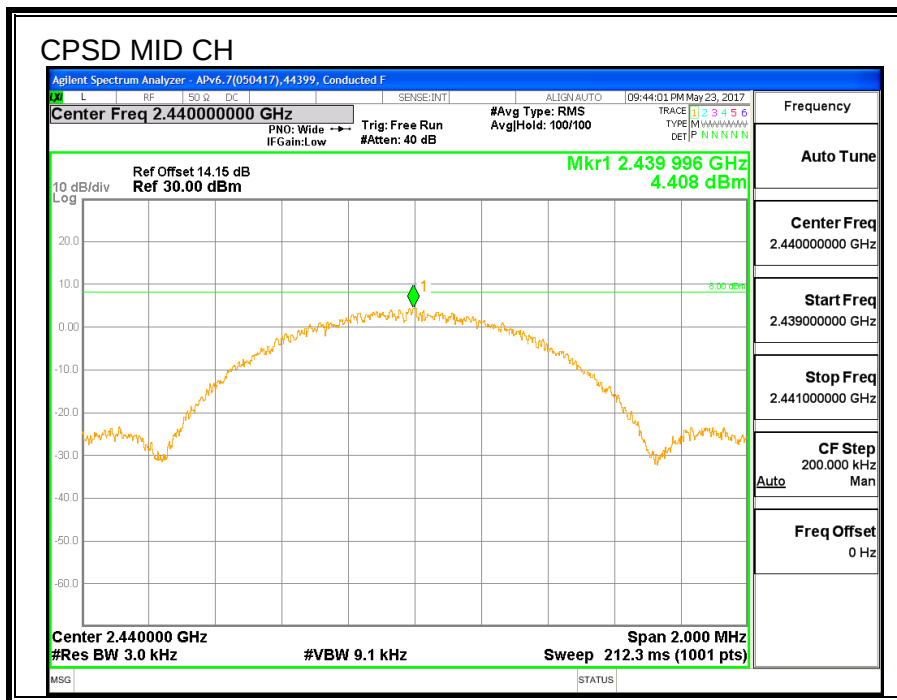
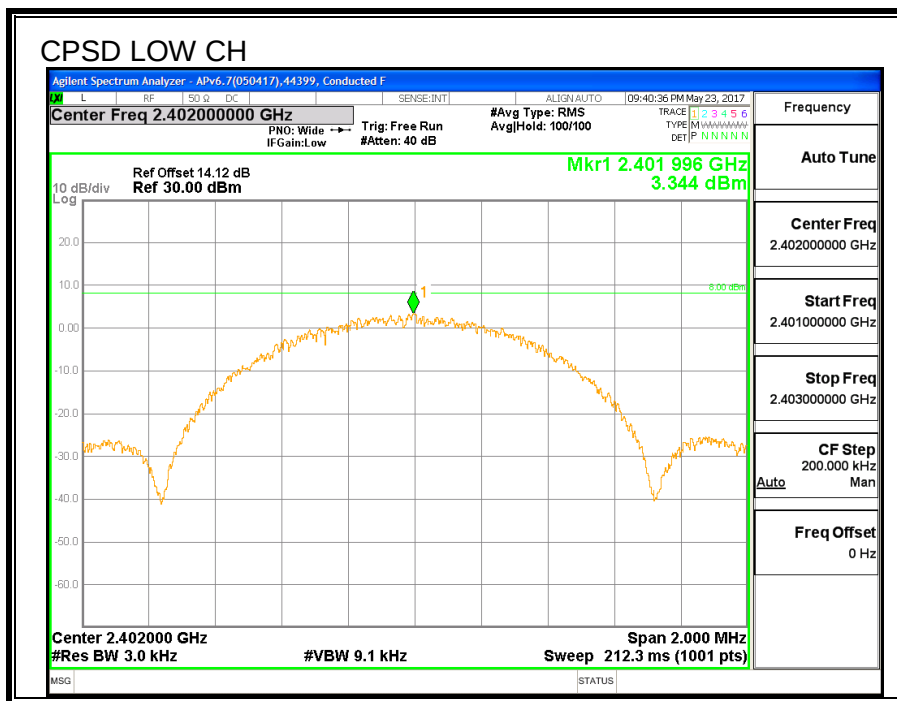
FCC §15.247 (e)

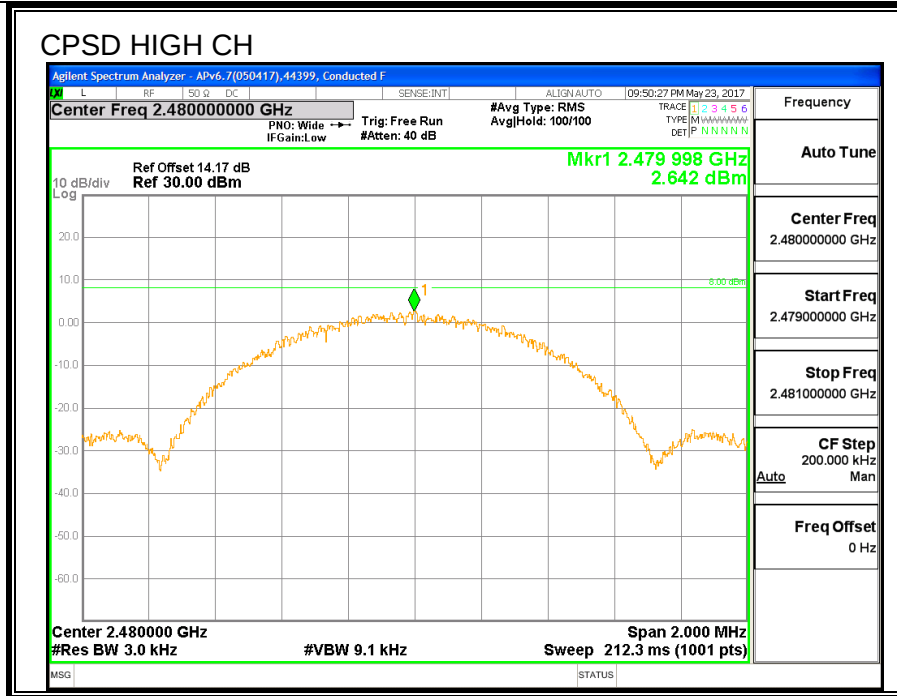
IC RSS-247 (5.2) (b)

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)	Limit (dBm)	Margin (dB)
Low	2402	3.34	8	-4.660
Middle	2440	4.41	8	-3.590
High	2480	2.64	8	-5.359





7.7.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

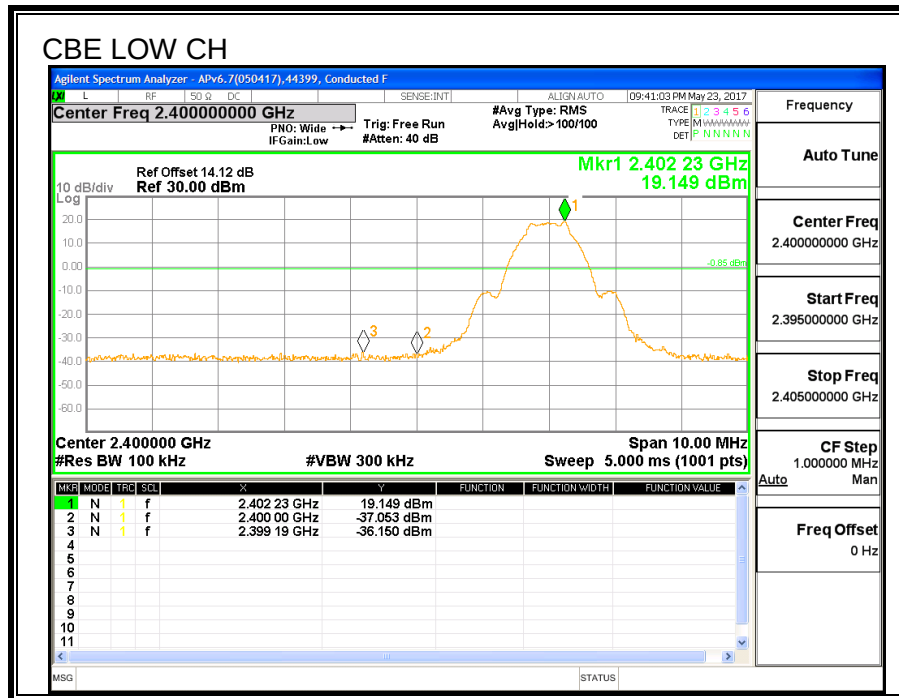
LIMITS

FCC §15.247 (d)

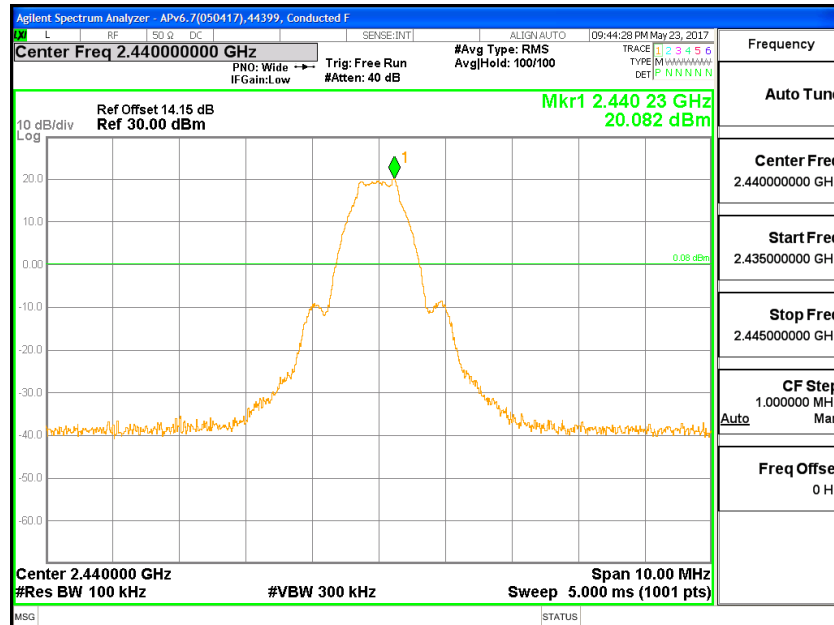
IC RSS-247 (5.5)

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

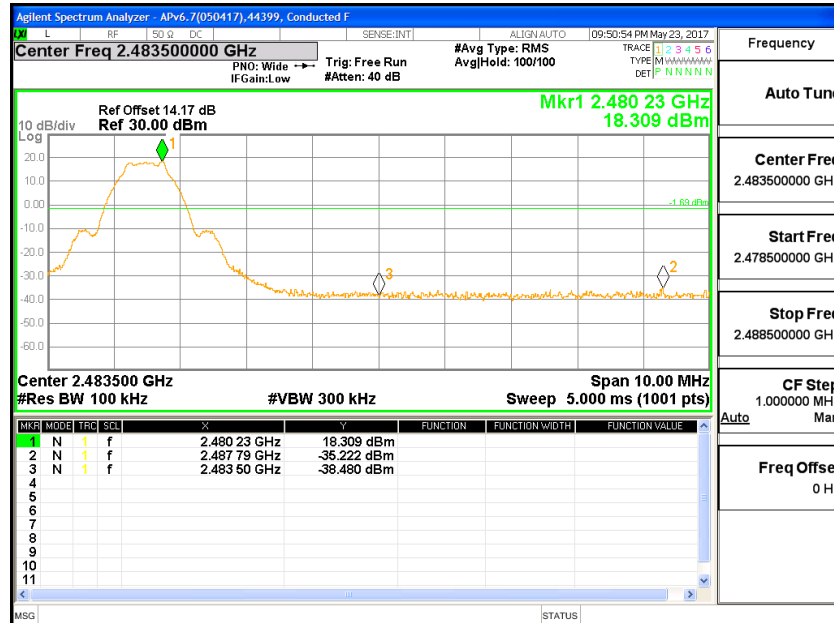
RESULTS

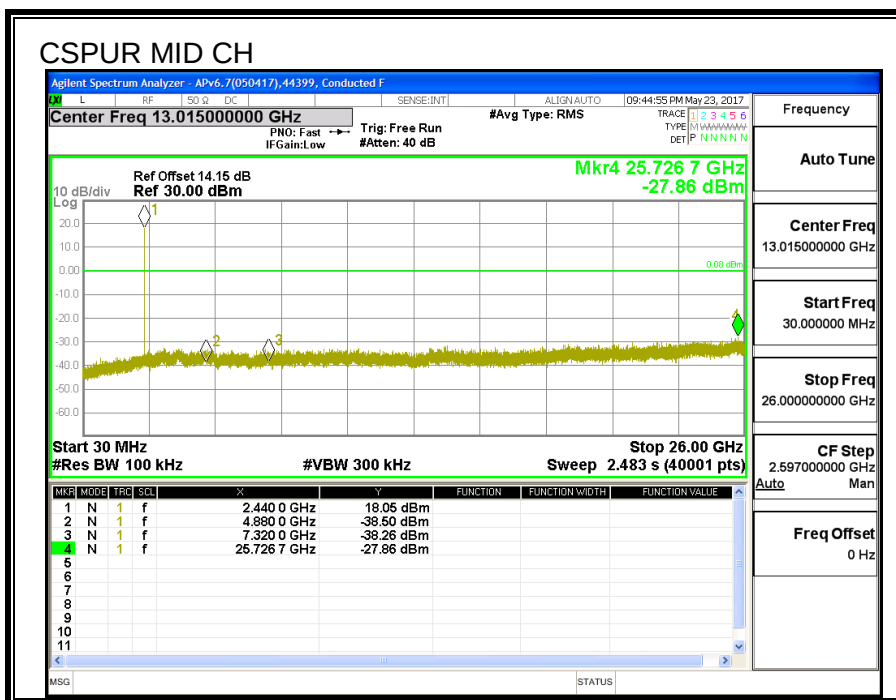
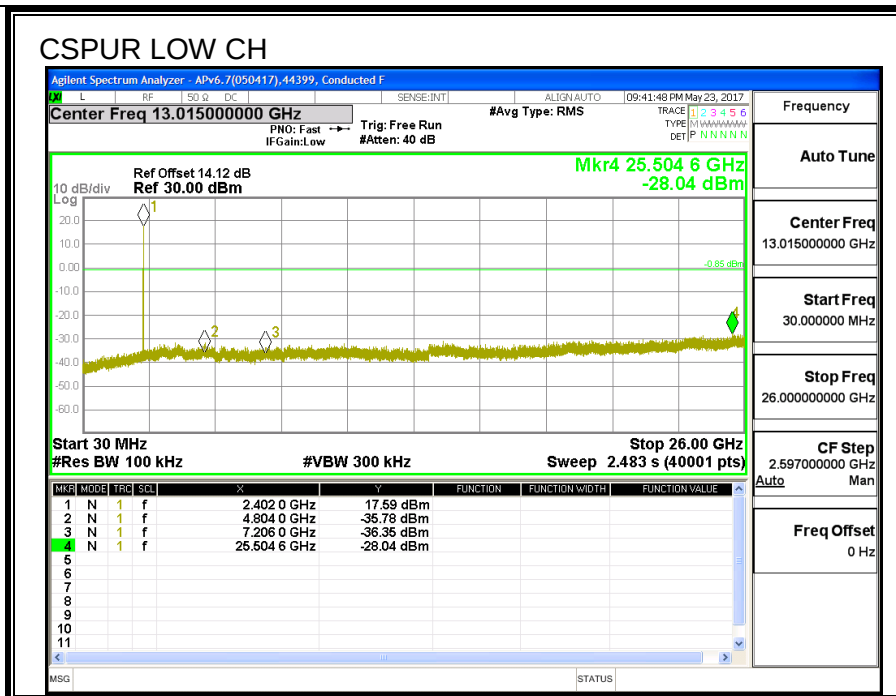


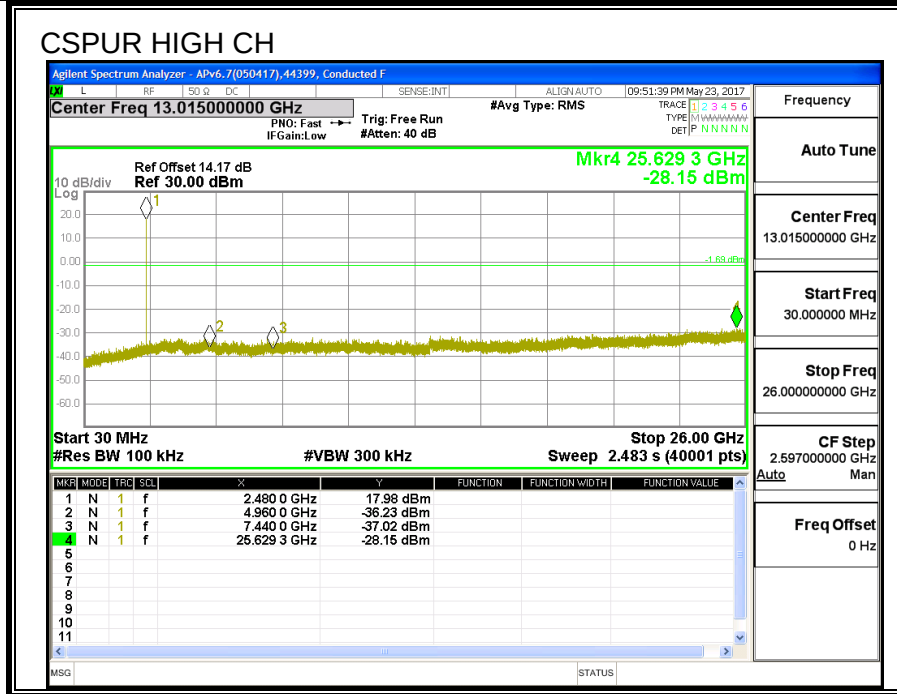
CBE MID CH



CBE HIGH CH







7.8. LAT 3 PLOW

7.8.1. 6 dB BANDWIDTH

LIMITS

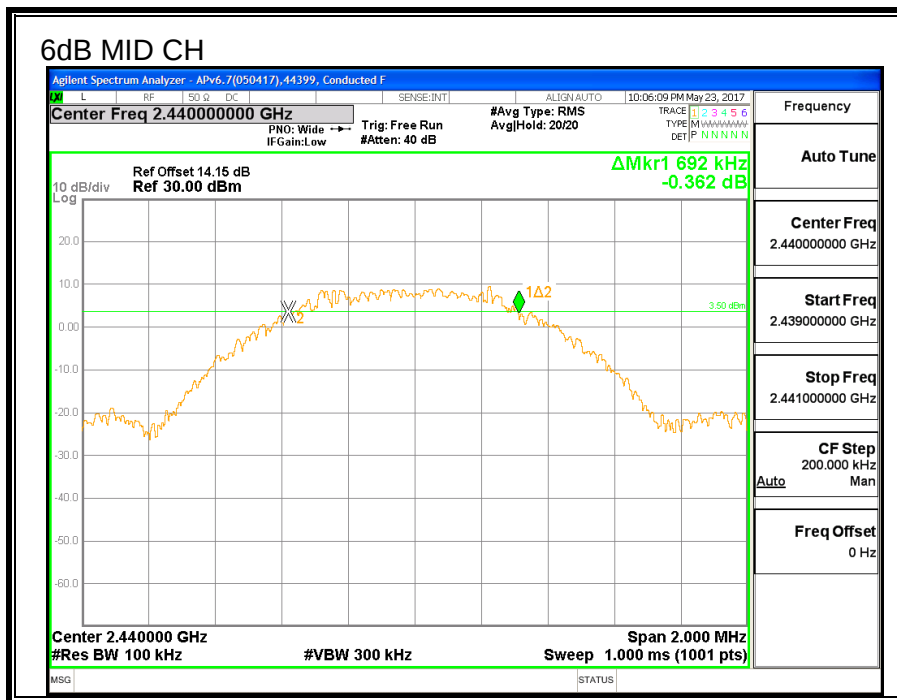
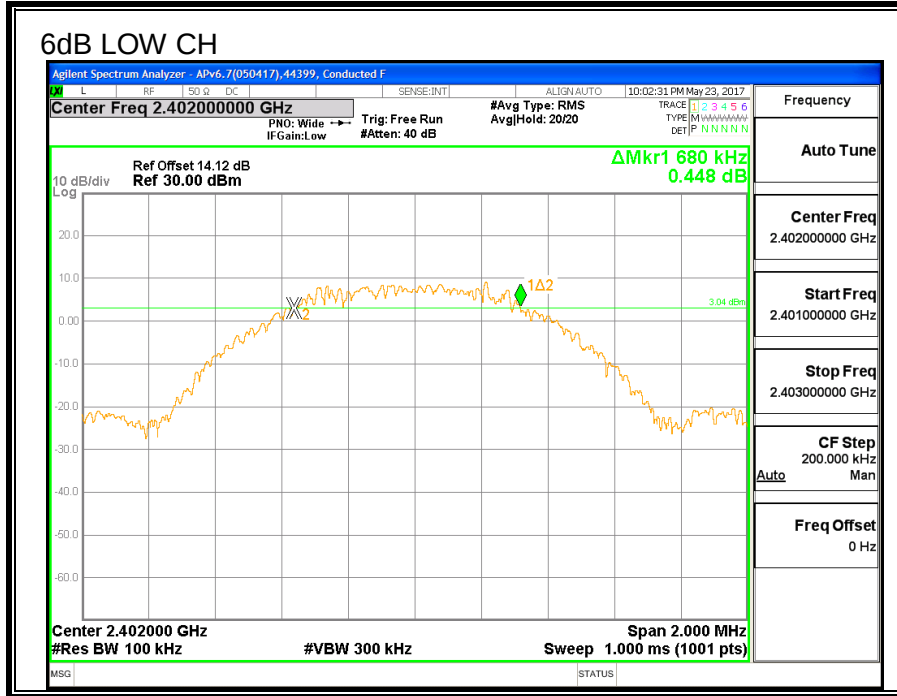
FCC §15.247 (a) (2)

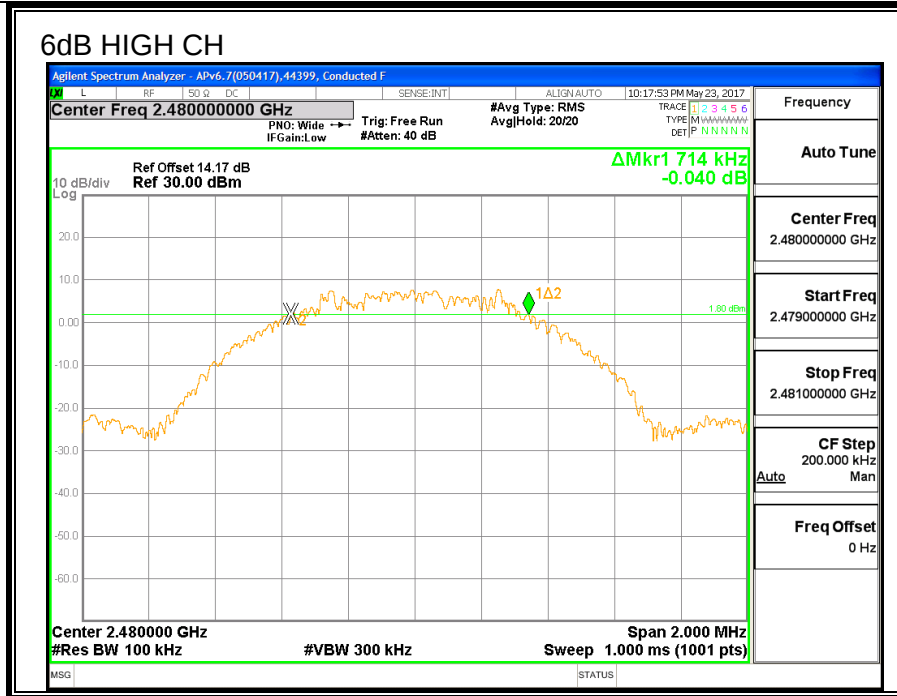
IC RSS-247 (5.2) (a)

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

RESULTS

Channel	Frequency	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.68	0.5
Middle	2440	0.692	0.5
High	2480	0.714	0.5





7.8.2. 99% BANDWIDTH

LIMITS

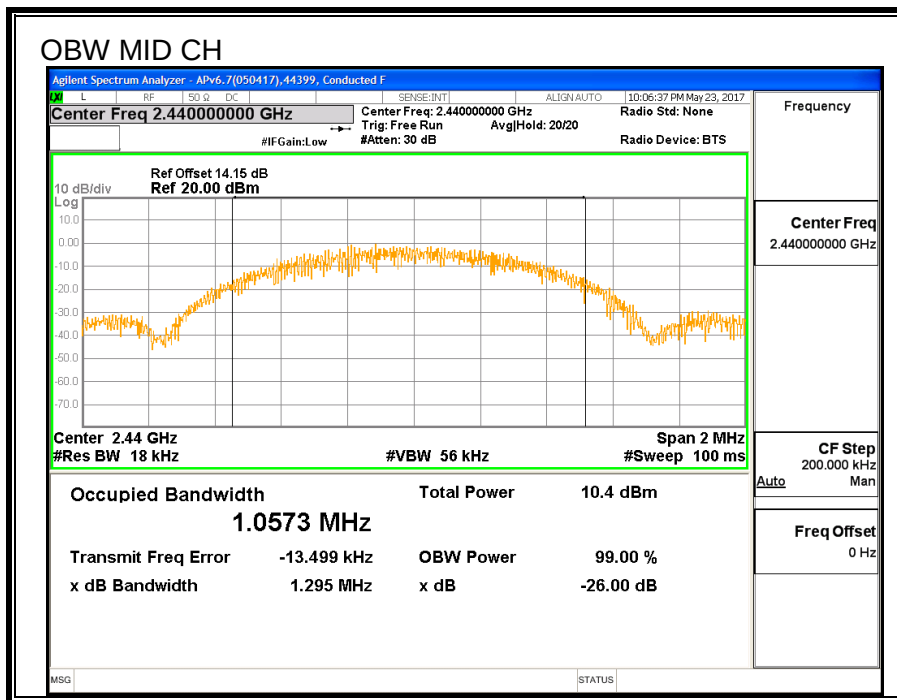
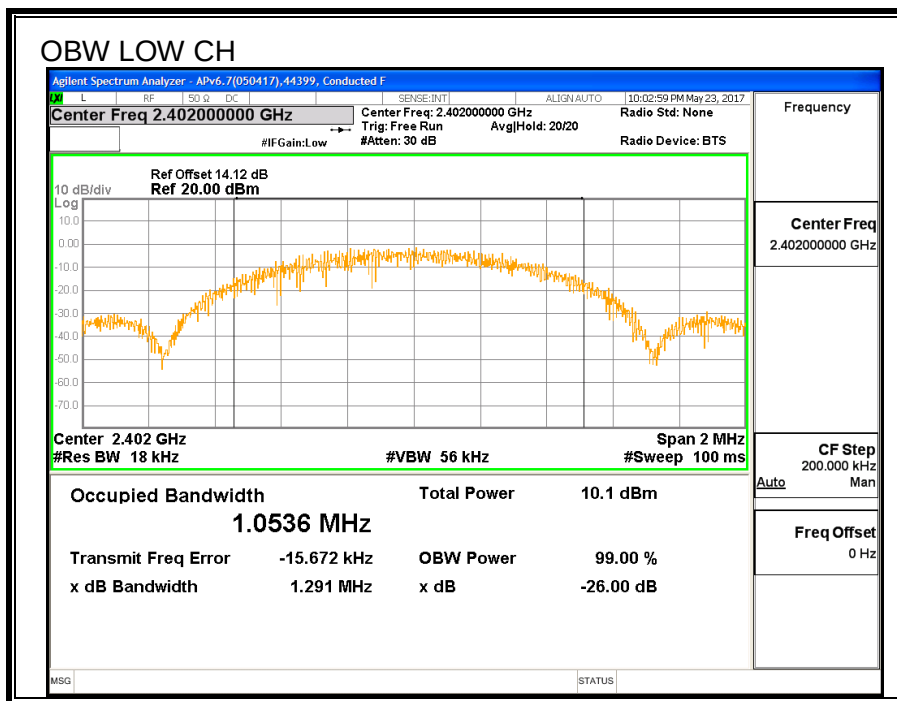
None; for reporting purposes only.

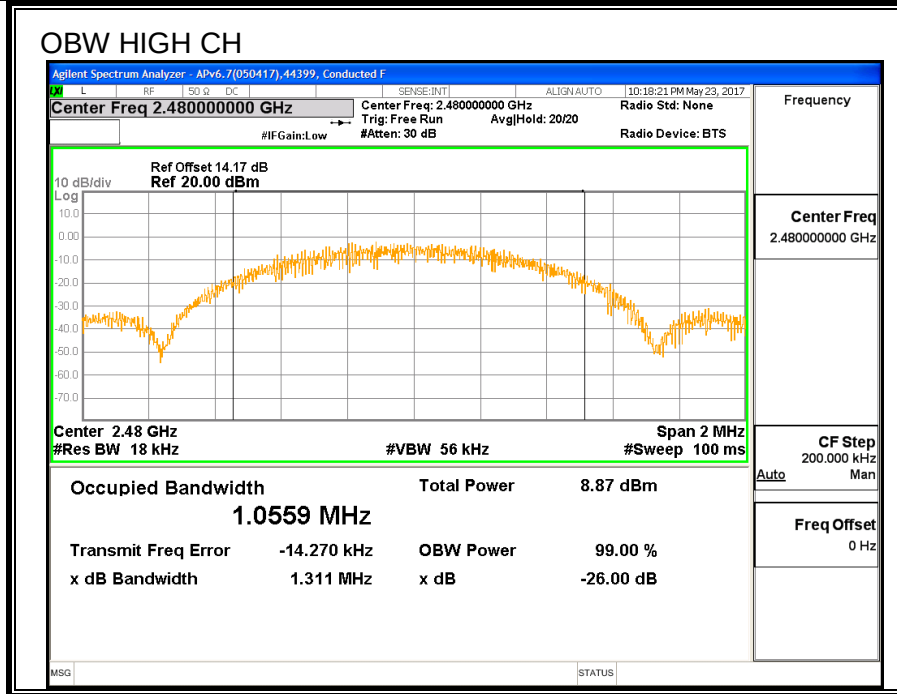
Test Procedure

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	1.054
Middle	2440	1.057
High	2480	1.056





7.8.3. AVERAGE POWER

ID:	30554	Date:	8/31/17
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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 (MHz)
Low	2402	9.88
Middle	2440	9.92
High	2480	9.82

7.8.4. OUTPUT POWER

ID:	30554	Date:	8/31/17
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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	10.21	30	-19.79
Middle	2440	10.25	30	-19.75
High	2480	10.12	30	-19.88

7.8.5. POWER SPECTRAL DENSITY

LIMITS

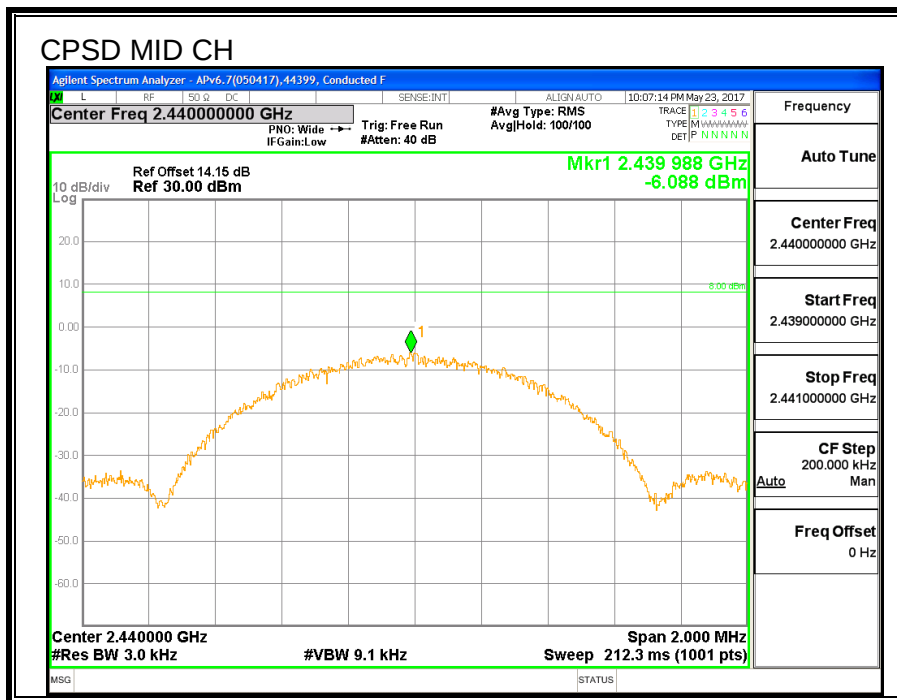
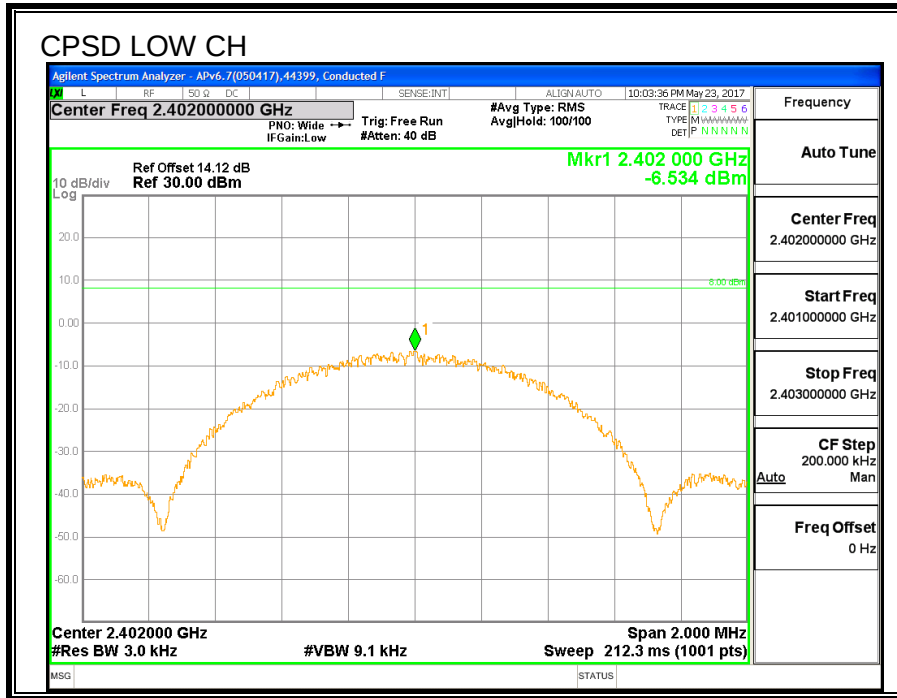
FCC §15.247 (e)

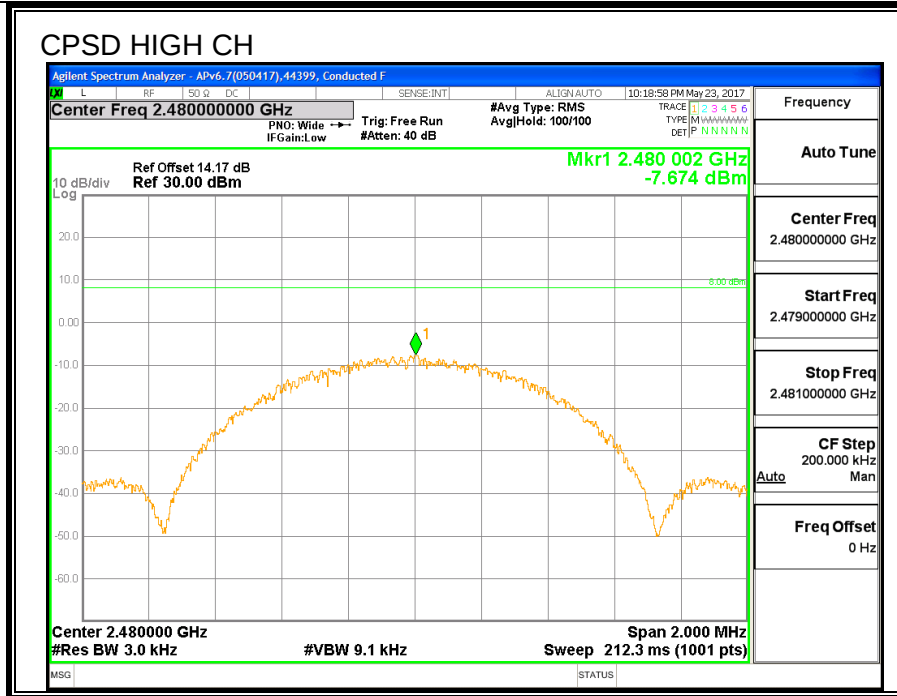
IC RSS-247 (5.2) (b)

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)	Limit (dBm)	Margin (dB)
Low	2402	-6.53	8	-14.53
Middle	2440	-6.09	8	-14.09
High	2480	-7.67	8	-15.67





7.8.6. CONDUCTED BANDEDGE AND SPURIOUS EMISSIONS

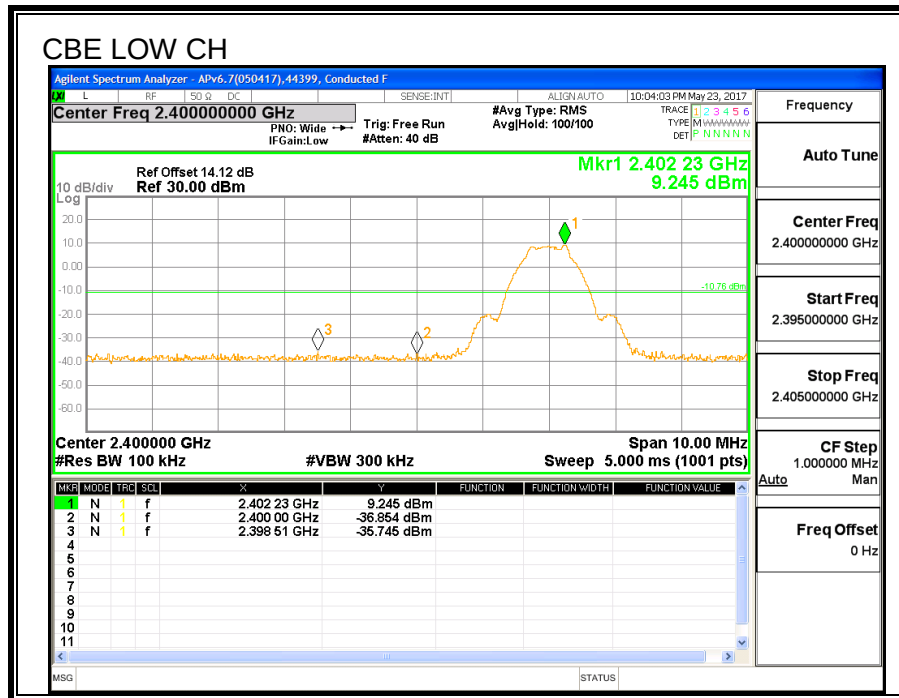
LIMITS

FCC §15.247 (d)

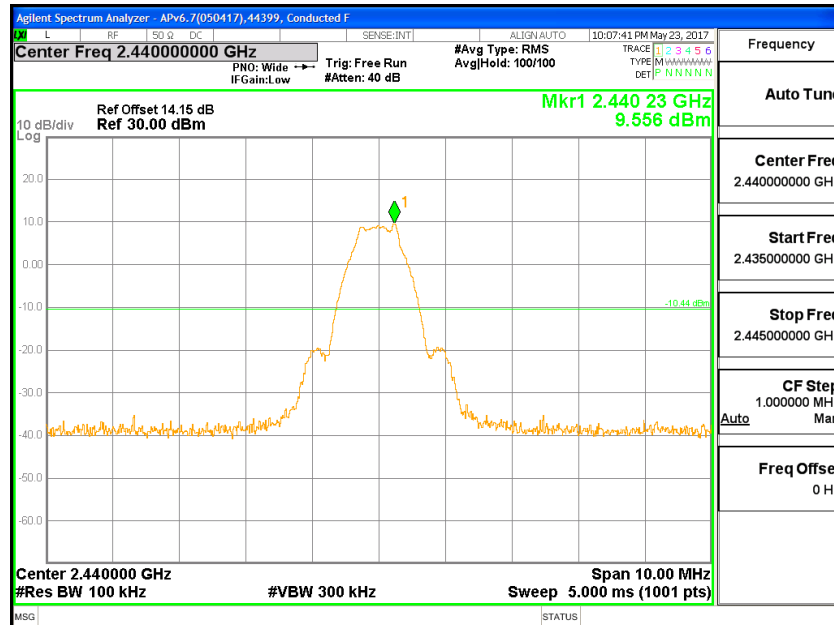
IC RSS-247 (5.5)

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

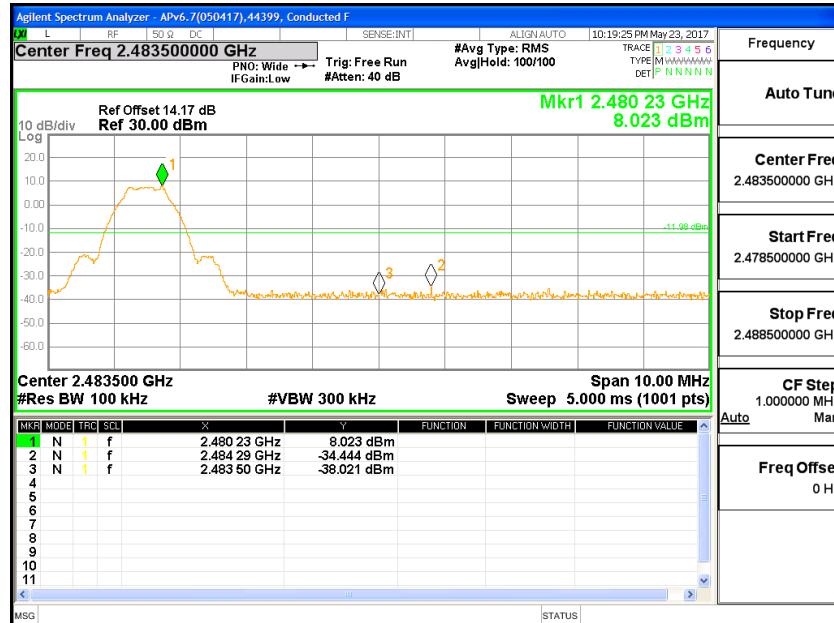
RESULTS



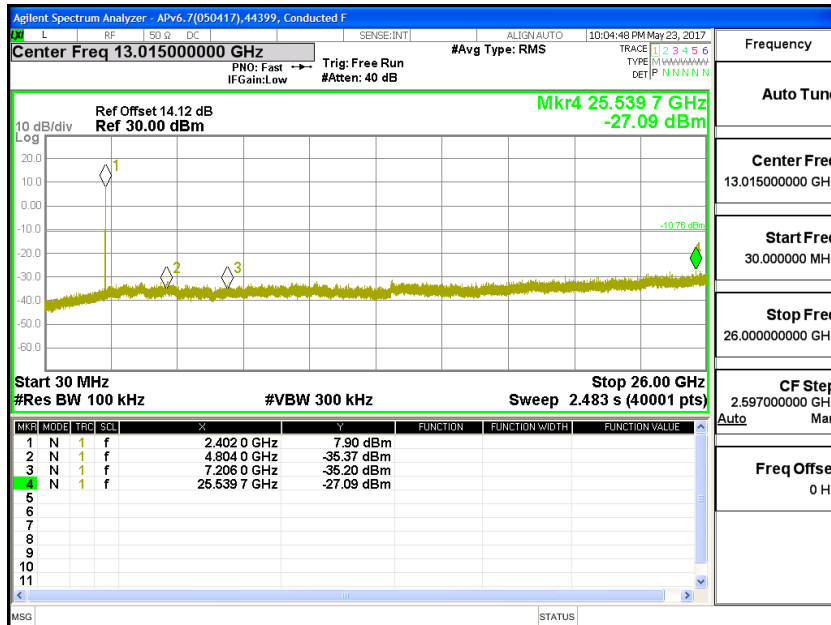
CBE MID CH



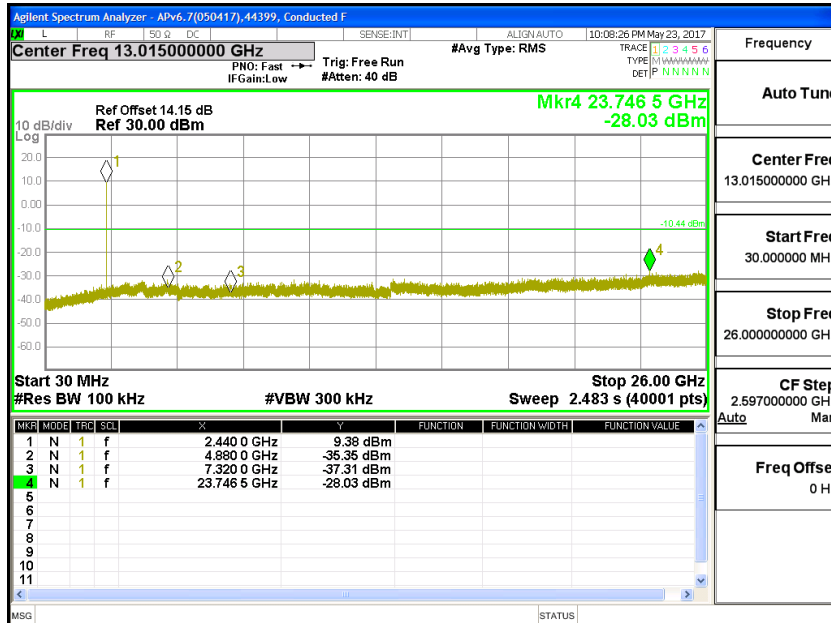
CBE HIGH CH

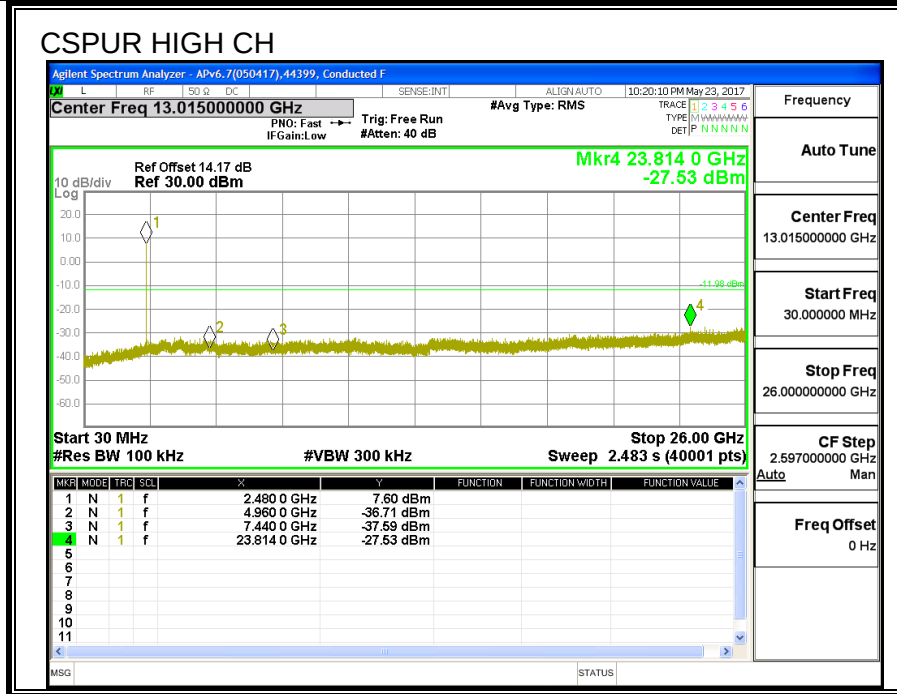


CSPUR LOW CH



CSPUR MID CH





7.9. LAT 3 BLE 2M Pmax

7.9.1. AVERAGE POWER

ID:	30606	Date:	7/27/2017
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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 (MHz)
Low	2402	19.66
Middle	2440	19.76
High	2480	19.55

7.9.2. OUTPUT POWER

ID:	30606	Date:	7/27/2017
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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	19.89	30	-10.11
Middle	2440	20.00	30	-10.00
High	2480	19.87	30	-10.13

7.10. LAT 3 BLE 2M Plow

7.10.1. AVERAGE POWER

ID:	30606	Date:	7/27/2017
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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 (MHz)
Low	2402	9.59
Middle	2440	9.64
High	2480	9.68

7.10.2. OUTPUT POWER

ID:	30606	Date:	7/25/2017
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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	9.92	30	-20.08
Middle	2440	10.08	30	-19.92
High	2480	10.00	30	-20.00

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

TEST PROCEDURE

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

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

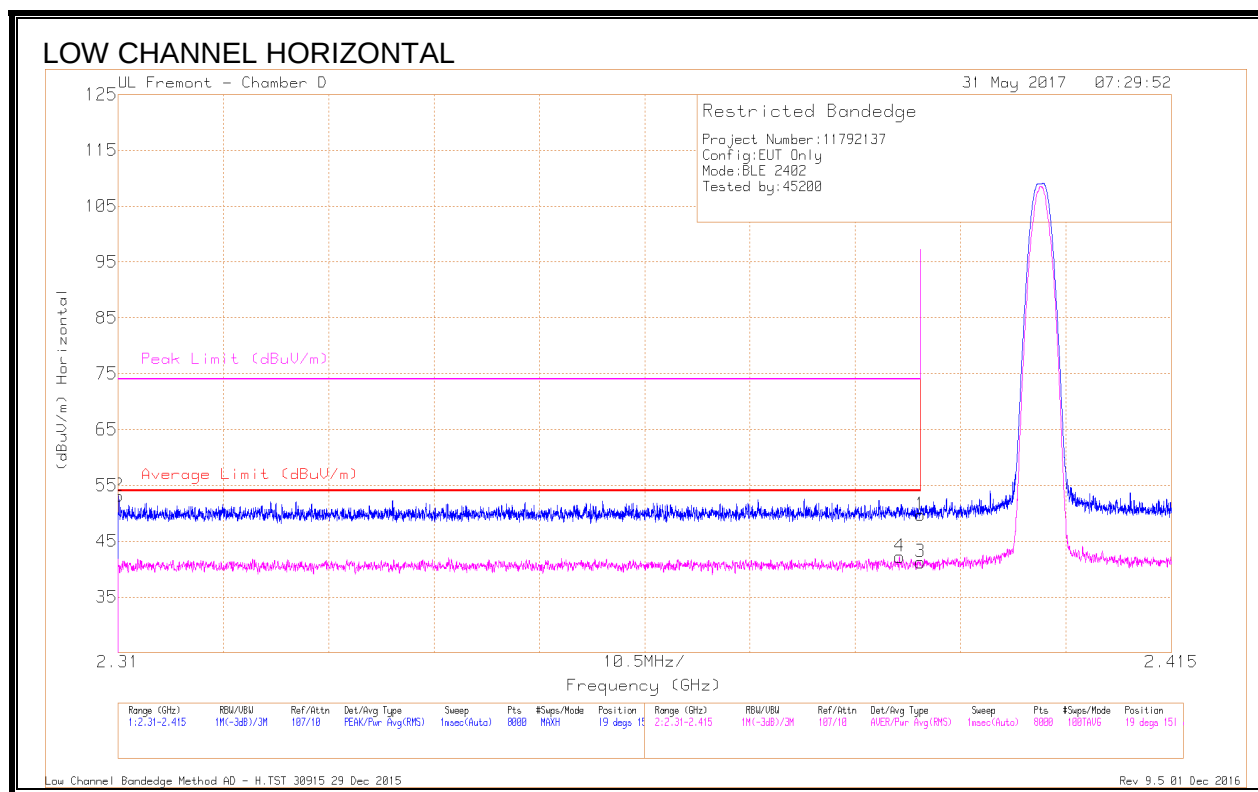
For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

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

The 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 PMAX

8.2.1. RESTRICTED BANDEDGE (LOW CHANNEL)

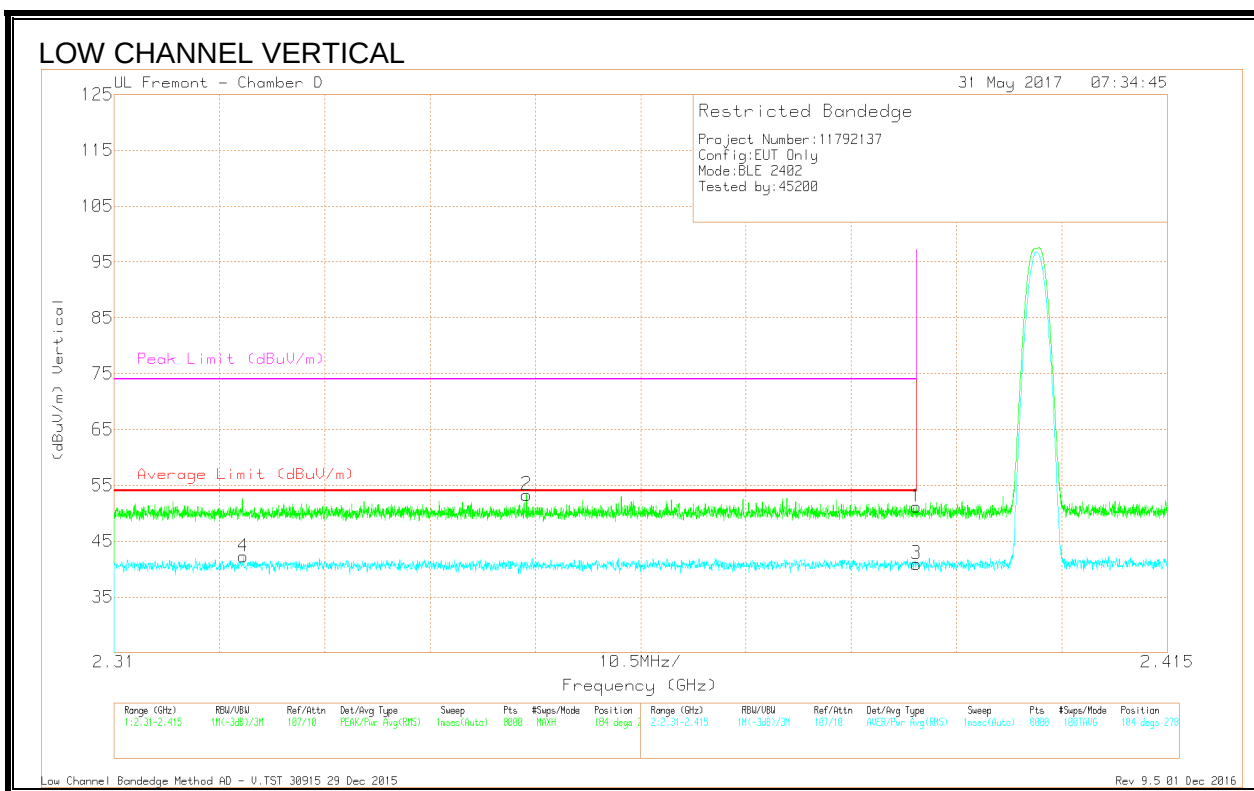


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.31	41.91	Pk	32.1	-20.9	53.11	-	-	74	-20.89	19	151	H
4	* 2.388	30.92	RMS	32.1	-20.8	42.22	54	-11.78	-	-	19	151	H
1	* 2.39	38.31	Pk	32.1	-20.7	49.71	-	-	74	-24.29	19	151	H
3	* 2.39	29.84	RMS	32.1	-20.7	41.24	54	-12.76	-	-	19	151	H

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

Pk - Peak detector

RMS - RMS detection



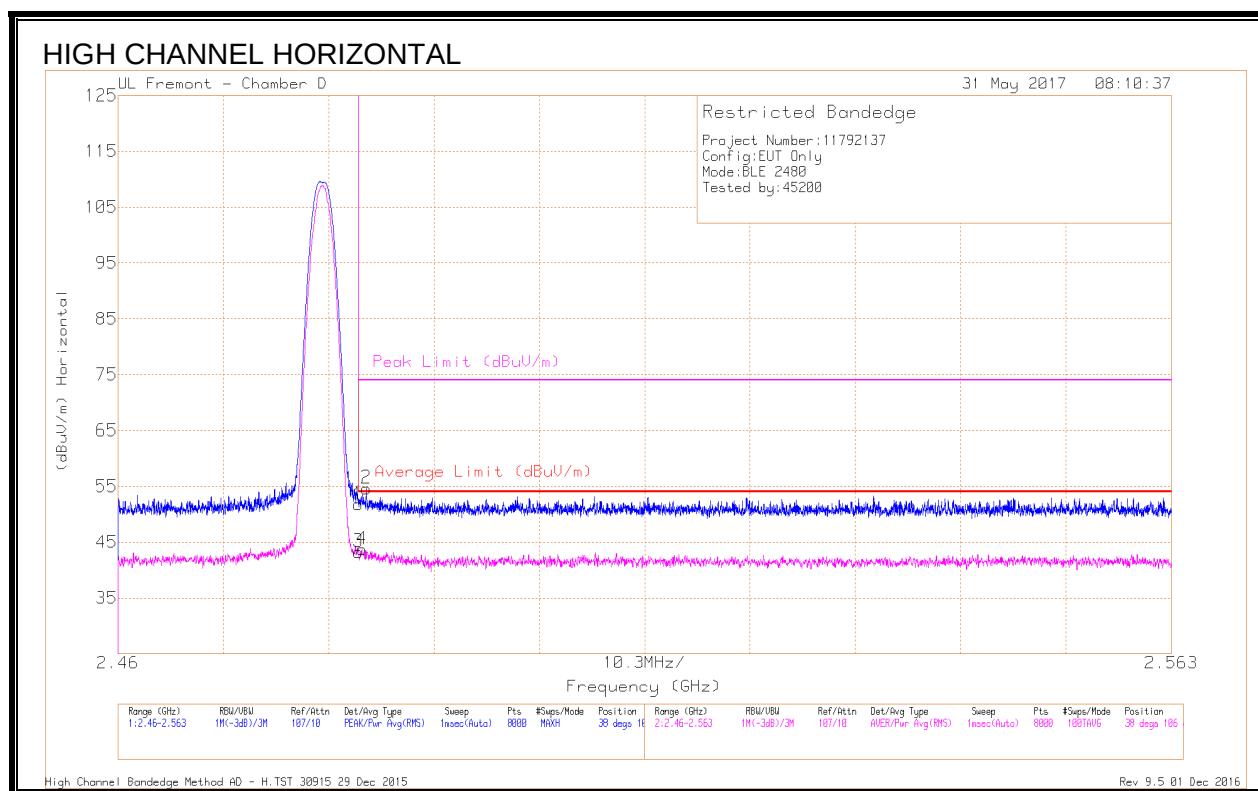
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.323	31.05	RMS	32.1	-20.9	42.25	54	-11.75	-	-	184	278	V
2	* 2.351	42.09	Pk	32.1	-20.9	53.29	-	-	74	-20.71	184	278	V
1	* 2.39	39.77	Pk	32.1	-20.7	51.17	-	-	74	-22.83	184	278	V
3	* 2.39	29.55	RMS	32.1	-20.7	40.95	54	-13.05	-	-	184	278	V

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

Pk - Peak detector

RMS - RMS detection

8.2.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

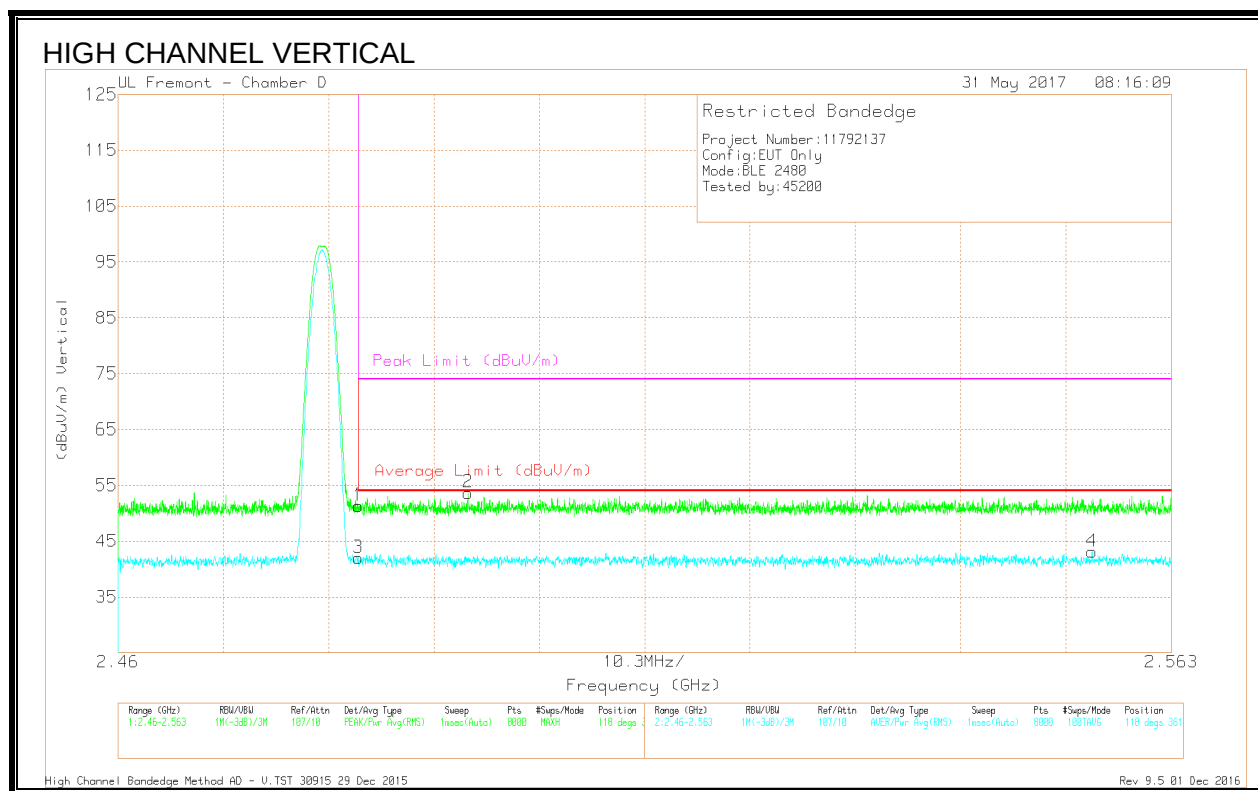


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.11	Pk	32.5	-20.8	51.81	-	-	74	-22.19	38	106	H
2	* 2.484	42.95	Pk	32.5	-20.8	54.65	-	-	74	-19.35	38	106	H
3	* 2.484	31.59	RMS	32.5	-20.8	43.29	54	-10.71	-	-	38	106	H
4	* 2.484	32	RMS	32.5	-20.8	43.7	54	-10.3	-	-	38	106	H

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

Pk - Peak detector

RMS - RMS detection



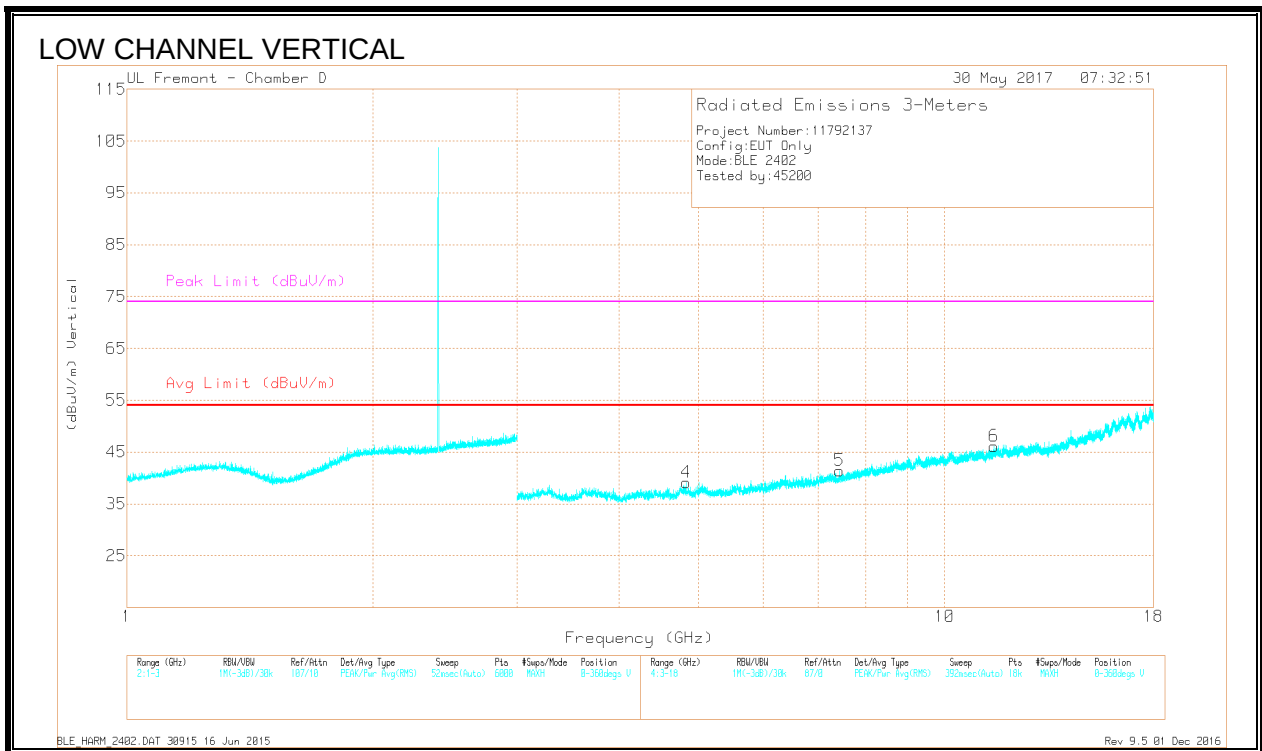
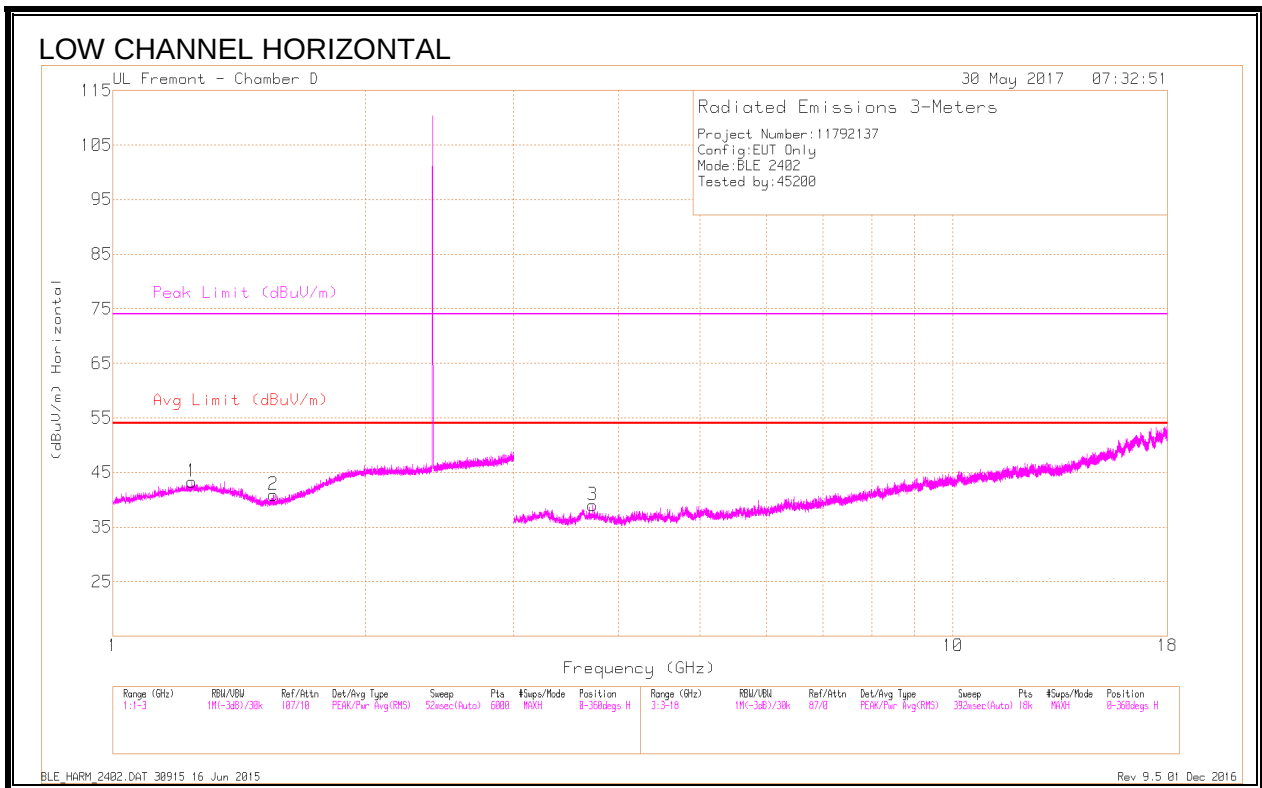
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.62	Pk	32.5	-20.8	51.32	-	-	74	-22.68	118	361	V
3	* 2.484	30.31	RMS	32.5	-20.8	42.01	54	-11.99	-	-	118	361	V
2	* 2.494	41.88	Pk	32.6	-20.8	53.68	-	-	74	-20.32	118	361	V
4	2.555	31.12	RMS	32.6	-20.6	43.12	54	-10.88	-	-	118	361	V

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

Pk - Peak detector

RMS - RMS detection

8.2.3. HARMONICS AND SPURIOUS EMISSIONS



Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.24	42.35	PK2	30.2	-22.3	50.25	-	-	74	-23.75	104	108	H
* 1.241	30.17	MAv1	30.2	-22.3	38.07	54	-15.93	-	-	104	108	H
* 1.554	41.9	PK2	27.5	-21.9	47.5	-	-	74	-26.5	285	229	H
* 1.552	29.85	MAv1	27.5	-21.9	35.45	54	-18.55	-	-	285	229	H
* 3.727	39.26	PK2	33.8	-28.7	44.36	-	-	74	-29.64	178	223	H
* 3.727	27.18	MAv1	33.8	-28.7	32.28	54	-21.72	-	-	178	223	H
* 4.826	37.99	PK2	34.2	-27.4	44.79	-	-	74	-29.21	267	373	V
* 4.829	26.32	MAv1	34.2	-27.4	33.12	54	-20.88	-	-	267	373	V
* 7.437	35.73	PK2	36.5	-24.6	47.63	-	-	74	-26.37	4	168	V
* 7.436	23.95	MAv1	36.5	-24.6	35.85	54	-18.15	-	-	4	168	V
* 11.483	34.97	PK2	39	-21.1	52.87	-	-	74	-21.13	205	107	V
* 11.483	22.75	MAv1	39	-21.1	40.65	54	-13.35	-	-	205	107	V

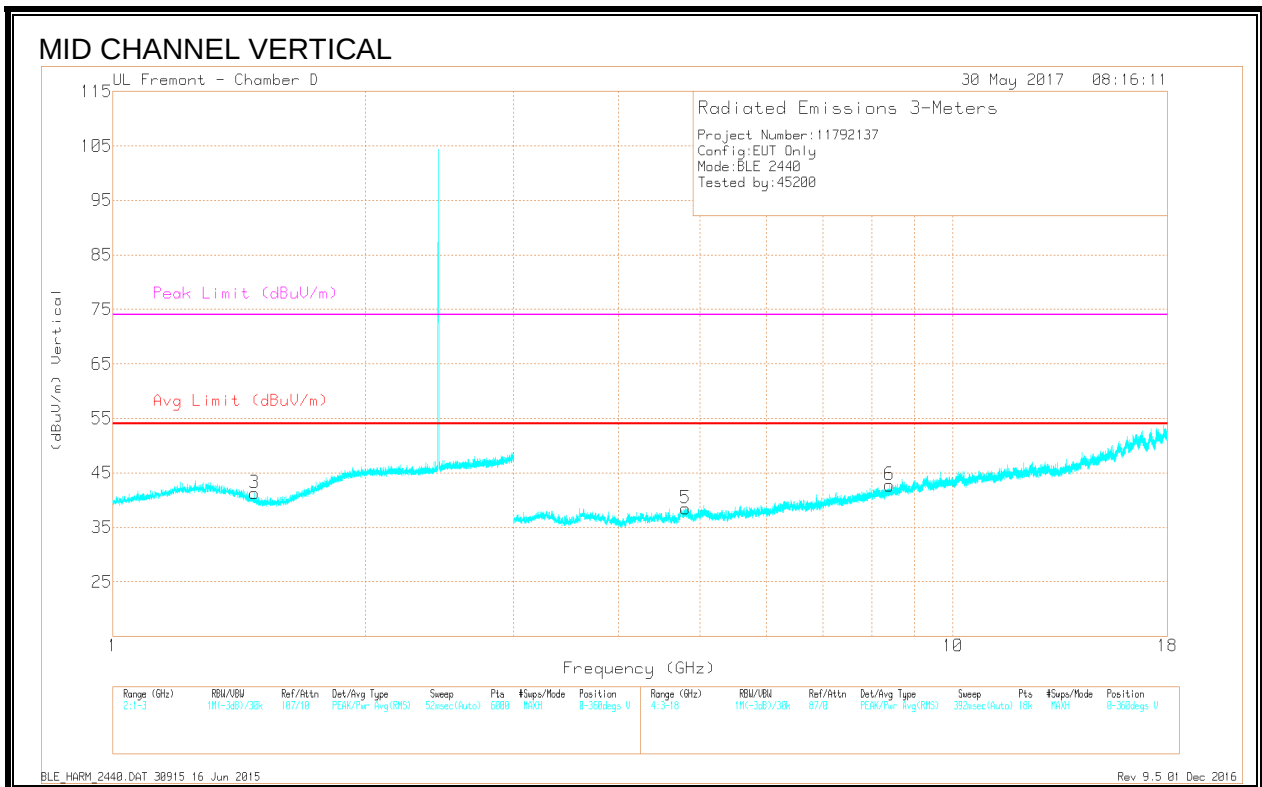
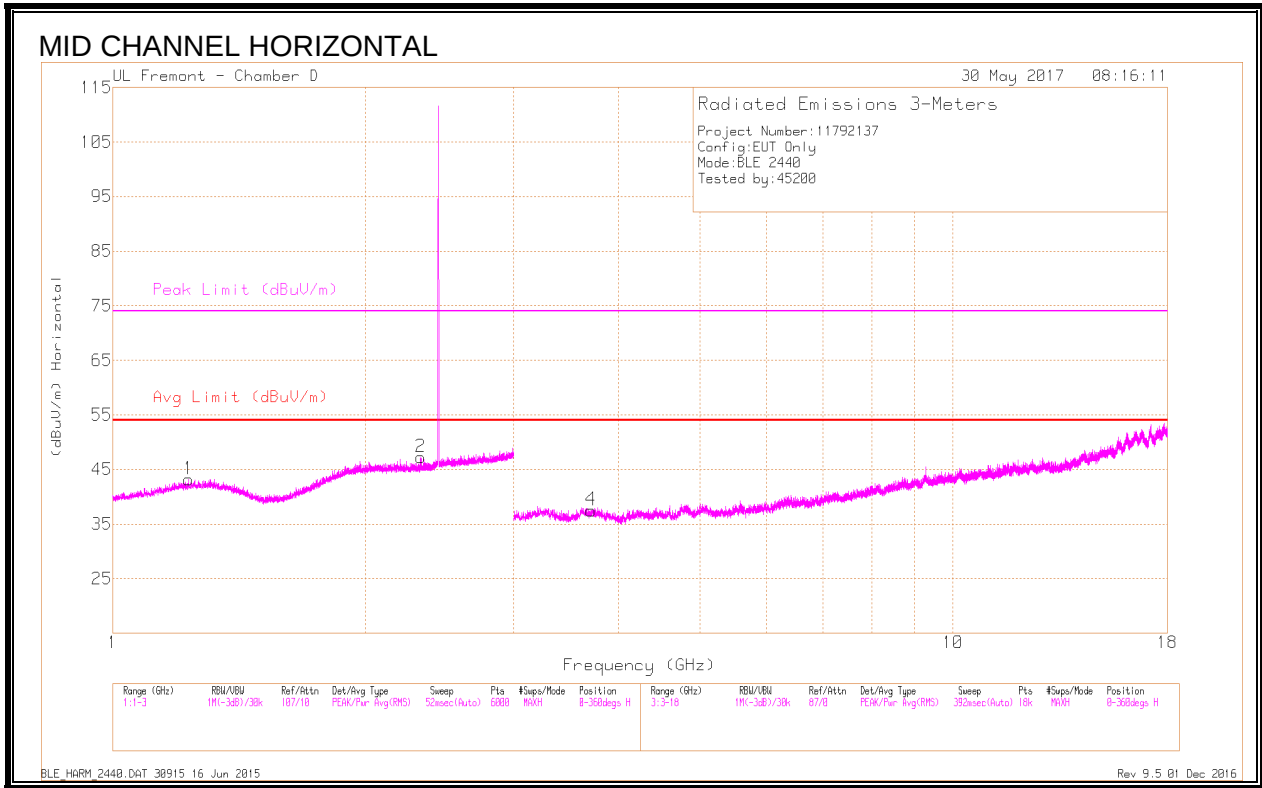
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ 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
* 1.23	42.59	PK2	30.2	-22.3	50.49	-	-	74	-23.51	86	128	H
* 1.229	30.1	MAv1	30.2	-22.3	38	54	-16	-	-	86	128	H
* 2.326	42.64	PK2	32.1	-20.9	53.84	-	-	74	-20.16	306	204	H
* 2.329	29.88	MAv1	32.1	-20.9	41.08	54	-12.92	-	-	306	204	H
* 1.473	41.71	PK2	27.9	-21.9	47.71	-	-	74	-26.29	335	281	V
* 1.476	29.91	MAv1	27.9	-21.9	35.91	54	-18.09	-	-	335	281	V
* 3.707	39.01	PK2	33.8	-28.9	43.91	-	-	74	-30.09	42	250	H
* 3.711	27.05	MAv1	33.8	-28.9	31.95	54	-22.05	-	-	42	250	H
* 4.802	37.78	PK2	34.2	-26.8	45.18	-	-	74	-28.82	10	107	V
* 4.799	25.92	MAv1	34.2	-26.7	33.42	54	-20.58	-	-	10	107	V
* 8.397	34.83	PK2	37.1	-23	48.93	-	-	74	-25.07	14	324	V
* 8.397	23.57	MAv1	37.1	-23	37.67	54	-16.33	-	-	14	324	V

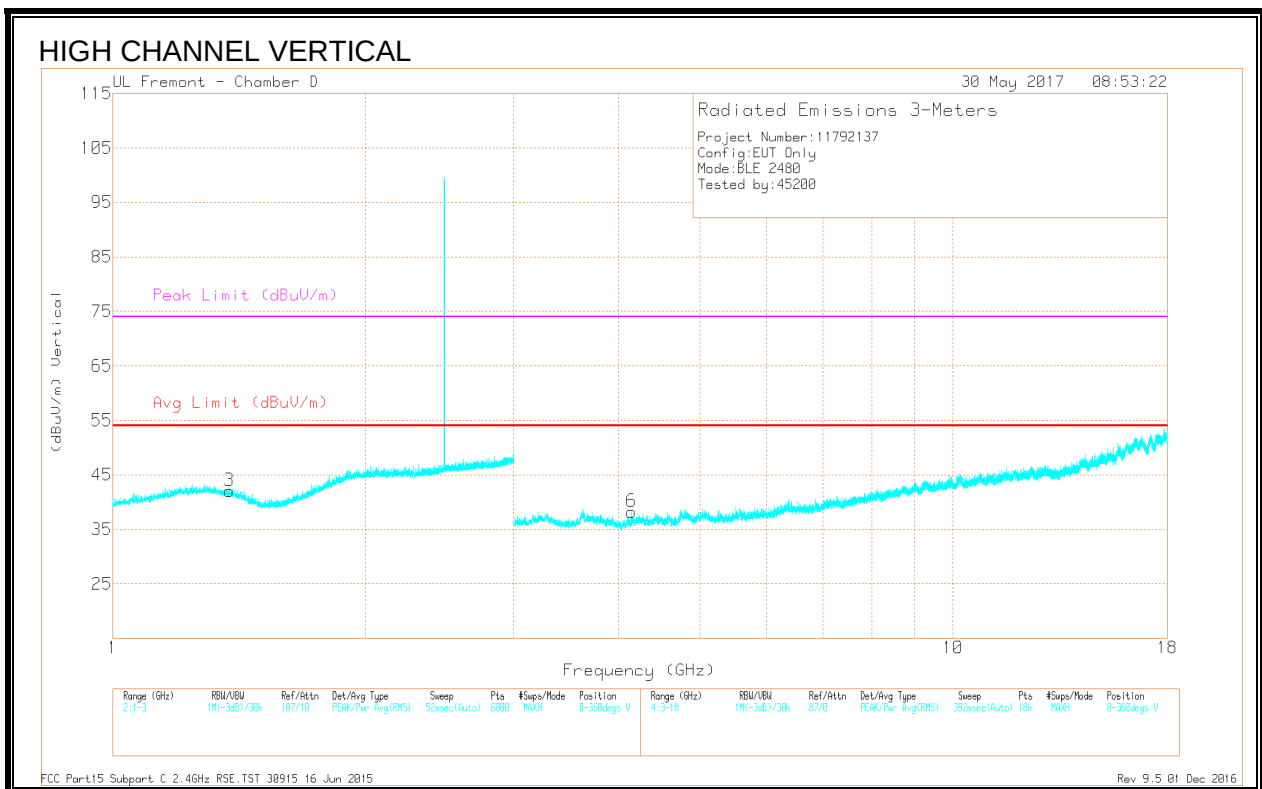
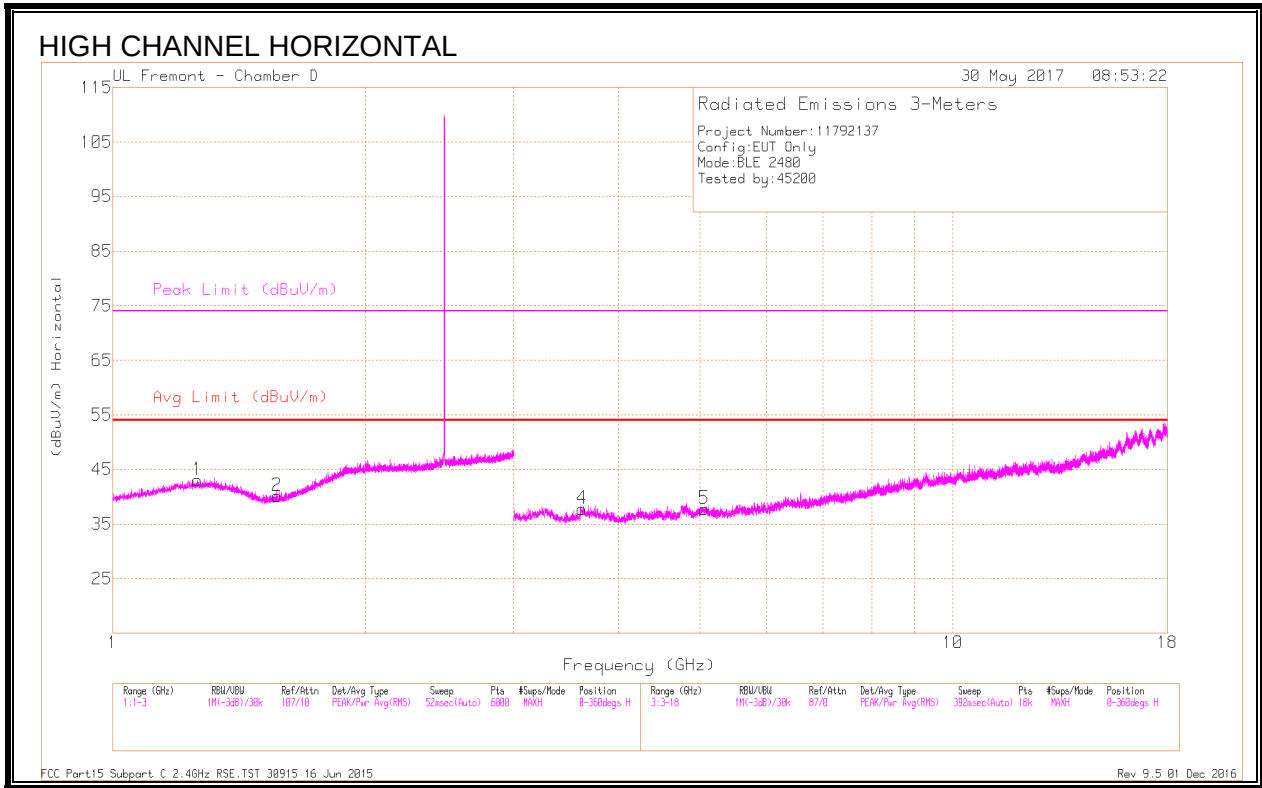
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

BLE_HARM_2440.DAT 30915 16 Jun 2015

Rev 9.5 01 Dec 2016



Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.259	42.43	PK2	30.2	-22.3	50.33	-	-	74	-23.67	143	133	H
* 1.262	30.12	MAv1	30.2	-22.3	38.02	54	-15.98	-	-	143	133	H
* 1.568	41.89	PK2	27.5	-21.8	47.59	-	-	74	-26.41	204	360	H
* 1.566	29.81	MAv1	27.5	-21.9	35.41	54	-18.59	-	-	204	360	H
* 1.379	42.27	PK2	29.6	-22.1	49.77	-	-	74	-24.23	25	183	V
* 1.377	29.99	MAv1	29.6	-22.1	37.49	54	-16.51	-	-	25	183	V
* 3.618	38.76	PK2	34.1	-28.4	44.46	-	-	74	-29.54	128	228	H
* 3.62	26.87	MAv1	34.1	-28.5	32.47	54	-21.53	-	-	128	228	H
* 5.056	37.96	PK2	34.3	-26.6	45.66	-	-	74	-28.34	283	271	H
* 5.055	25.96	MAv1	34.3	-26.5	33.76	54	-20.24	-	-	283	271	H
* 4.147	38.09	PK2	33.7	-28	43.79	-	-	74	-30.21	65	202	V
* 4.149	26.43	MAv1	33.7	-28	32.13	54	-21.87	-	-	65	202	V

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

PK2 - KDB558074 Method: Maximum Peak

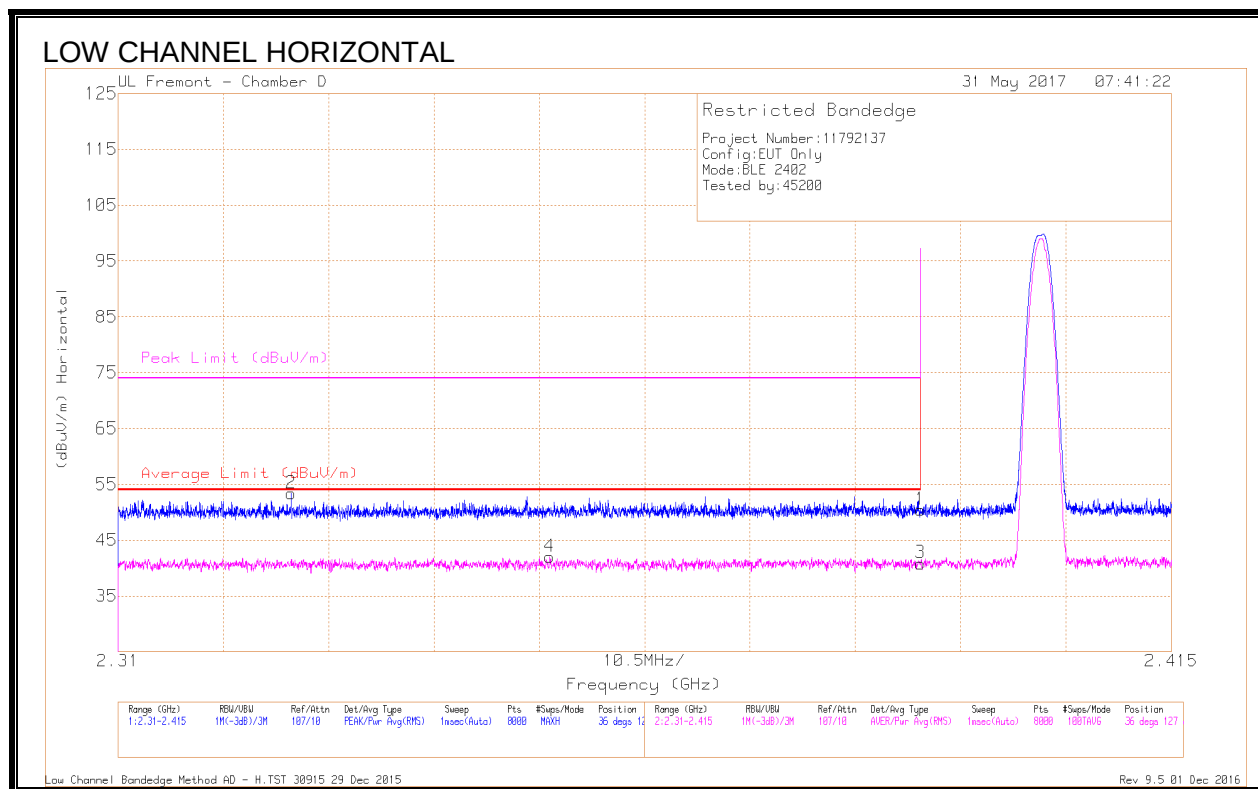
MAv1 - KDB558074 Option 1 Maximum RMS Average

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Rev 9.5 01 Dec 2016

8.3. UAT 1 PLOW

8.3.1. RESTRICTED BANDEDGE (LOW CHANNEL)

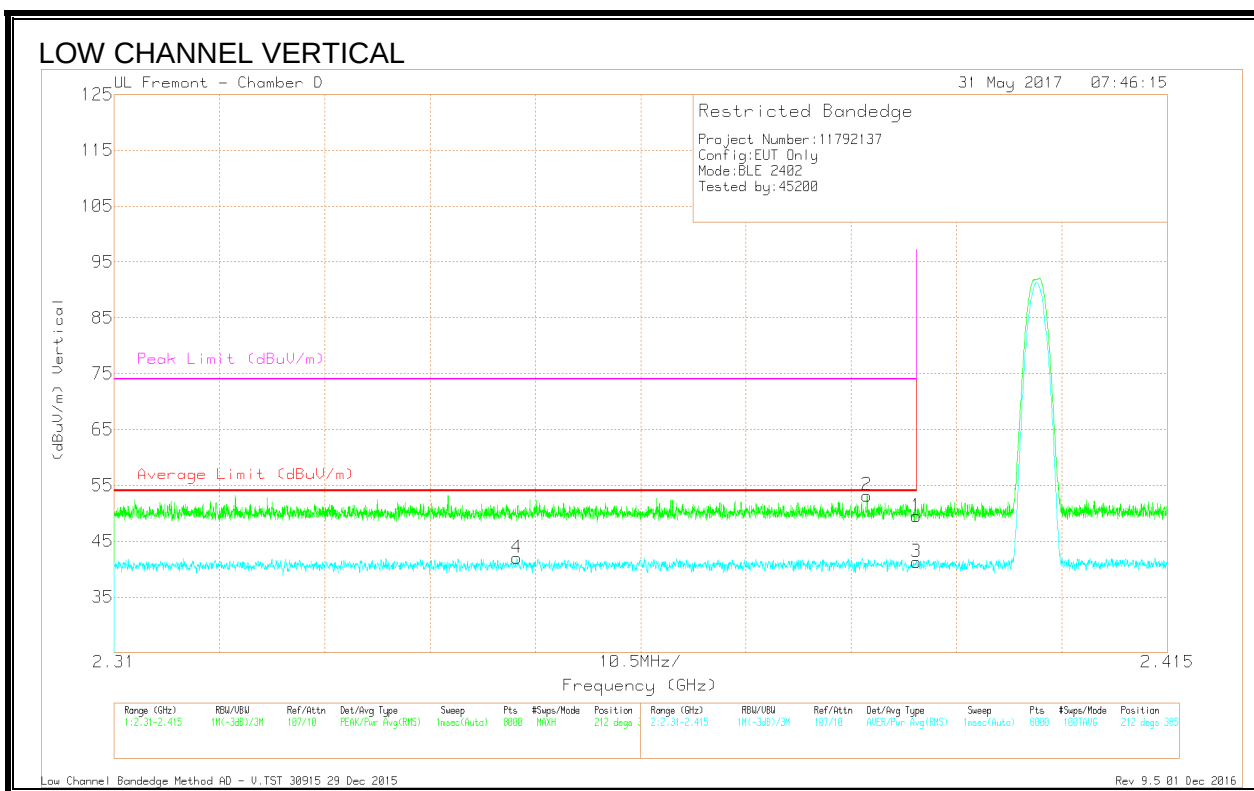


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.327	42.19	Pk	32.1	-20.9	53.39	-	-	74	-20.61	36	127	H
4	* 2.353	30.83	RMS	32.1	-20.9	42.03	54	-11.97	-	-	36	127	H
1	* 2.39	39.04	Pk	32.1	-20.7	50.44	-	-	74	-23.56	36	127	H
3	* 2.39	29.46	RMS	32.1	-20.7	40.86	54	-13.14	-	-	36	127	H

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

Pk - Peak detector

RMS - RMS detection



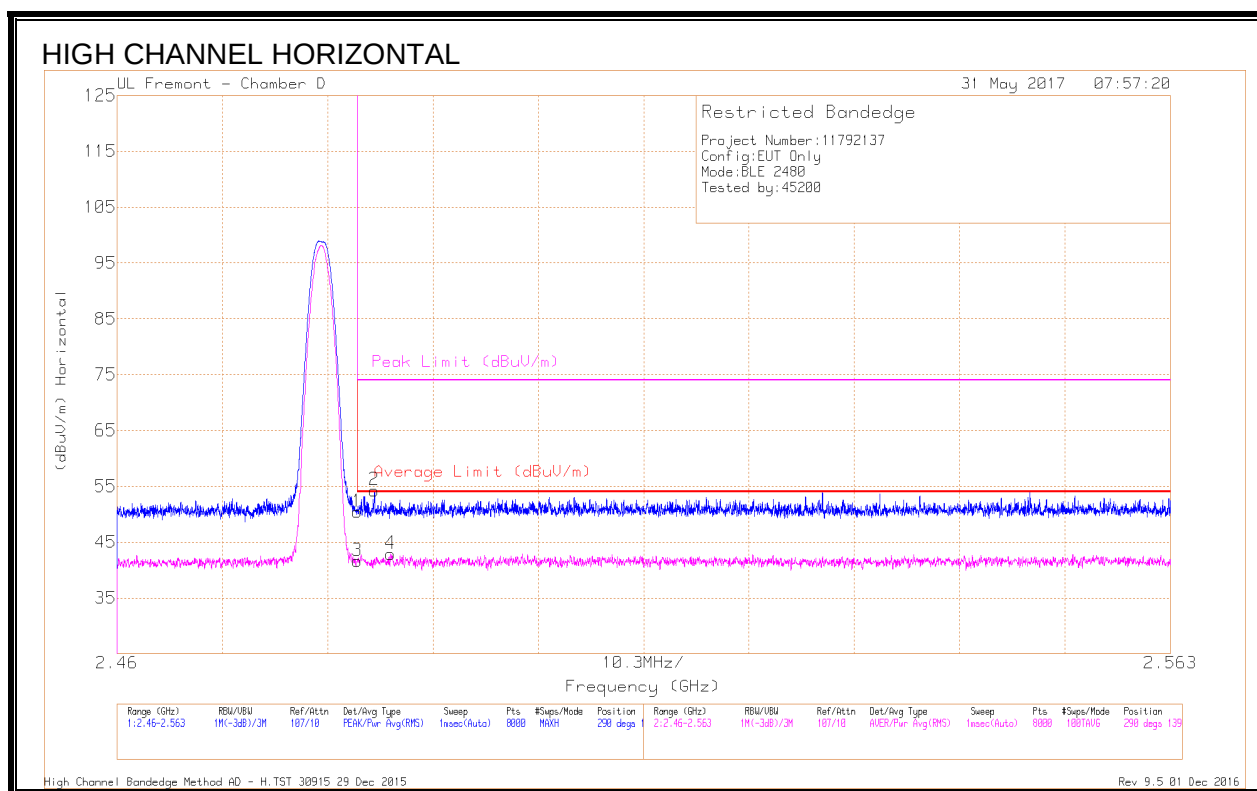
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.35	30.72	RMS	32.1	-20.8	42.02	54	-11.98	-	-	212	385	V
2	* 2.385	41.89	Pk	32.1	-20.8	53.19	-	-	74	-20.81	212	385	V
1	* 2.39	38.05	Pk	32.1	-20.7	49.45	-	-	74	-24.55	212	385	V
3	* 2.39	29.86	RMS	32.1	-20.7	41.26	54	-12.74	-	-	212	385	V

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

Pk - Peak detector

RMS - RMS detection

8.3.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

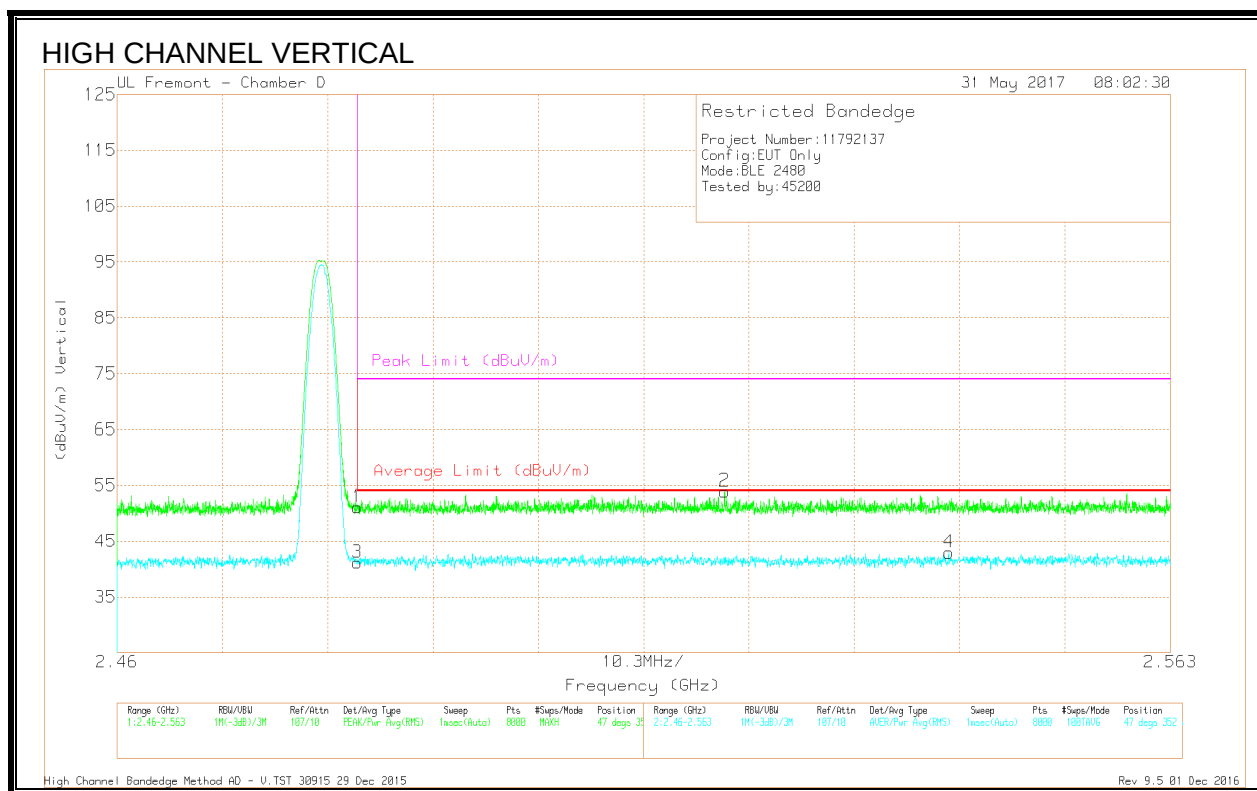


Marker	Frequency (GHz)	Meter Reading (dBUV)	Det	AF T120 (dB/m)	Amp/Cbl /Filt/Pad (dB)	Corrected Reading (dBUV/m)	Average Limit (dBUV/m)	Margin (dB)	Peak Limit (dBUV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	38.75	Pk	32.5	-20.8	50.45	-	-	74	-23.55	290	139	H
3	* 2.484	29.93	RMS	32.5	-20.8	41.63	54	-12.37	-	-	290	139	H
2	* 2.485	42.59	Pk	32.5	-20.8	54.29	-	-	74	-19.71	290	139	H
4	* 2.487	31.09	RMS	32.6	-20.8	42.89	54	-11.11	-	-	290	139	H

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

Pk - Peak detector

RMS - RMS detection



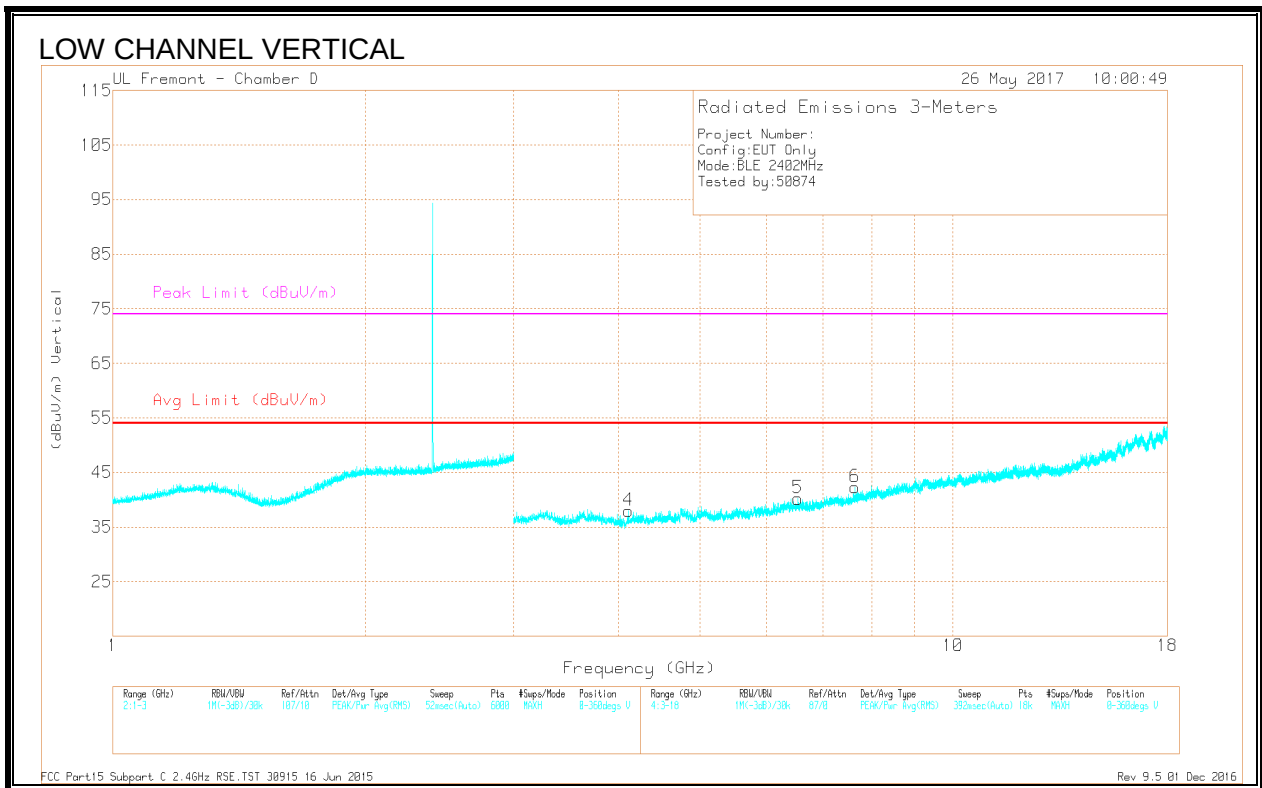
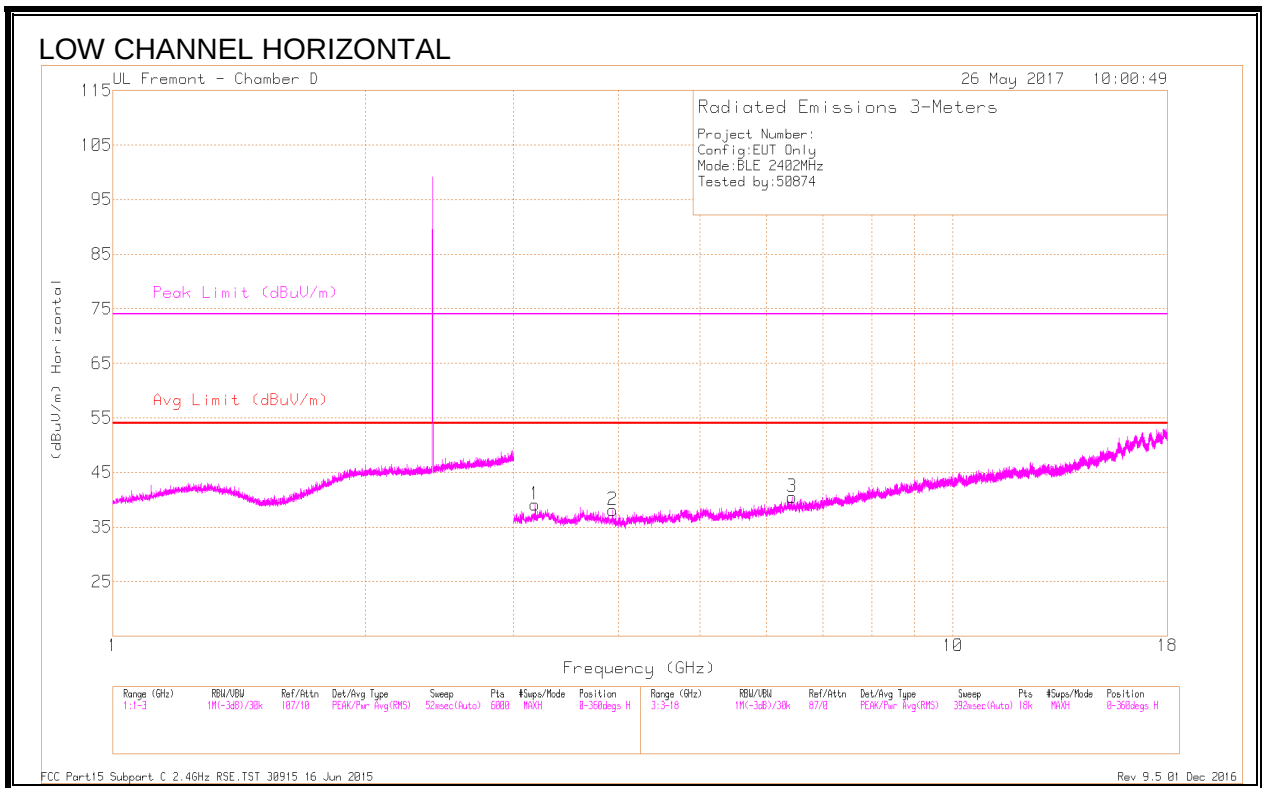
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.38	Pk	32.5	-20.8	51.08	-	-	74	-22.92	47	352	V
3	* 2.484	29.46	RMS	32.5	-20.8	41.16	54	-12.84	-	-	47	352	V
2	2.519	42.01	Pk	32.6	-20.7	53.91	-	-	74	-20.09	47	352	V
4	2.541	30.96	RMS	32.6	-20.6	42.96	54	-11.04	-	-	47	352	V

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

Pk - Peak detector

RMS - RMS detection

8.3.3. HARMONICS AND SPURIOUS EMISSIONS



Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ 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
2	* 3.935	39.12	PK2	33.8	-28	44.92			74	-29.08	12	360	H
	* 3.933	26.89	MAv1	33.8	-28	32.69	54	-21.31	-	-	12	360	H
4	* 4.11	37.82	PK2	33.7	-28	43.52			74	-30.48	3	151	V
	* 4.109	26.44	MAv1	33.7	-28	32.14	54	-21.86	-	-	3	151	V
6	* 7.645	36.1	PK2	36.7	-24.8	48			74	-26	227	102	V
	* 7.647	24.35	MAv1	36.7	-24.8	36.25	54	-17.75	-	-	227	102	V
1	3.18	40.32	PK2	34.7	-29.1	45.92			-	-	312	137	H
3	6.433	37.59	PK2	35.9	-26.5	46.99			-	-	82	246	H
5	6.533	36.84	PK2	35.9	-25.8	46.94			-	-	123	201	V

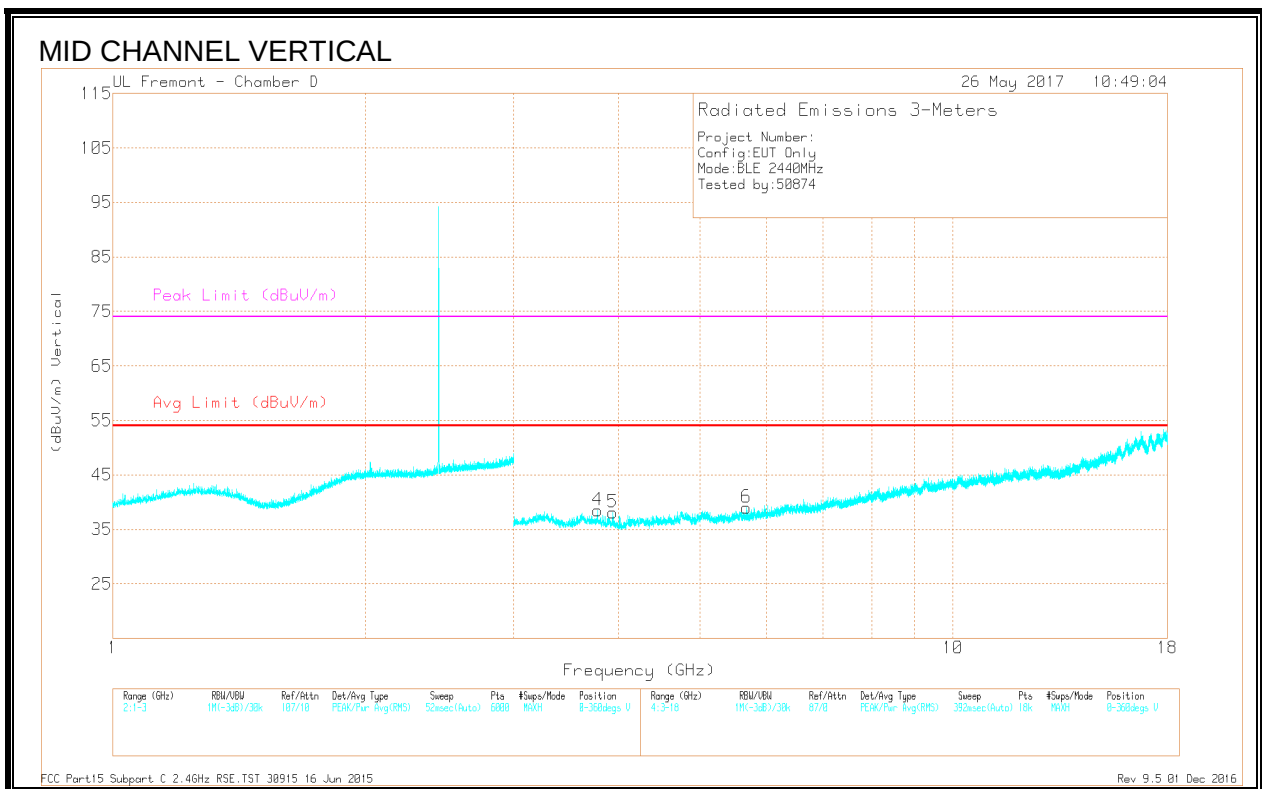
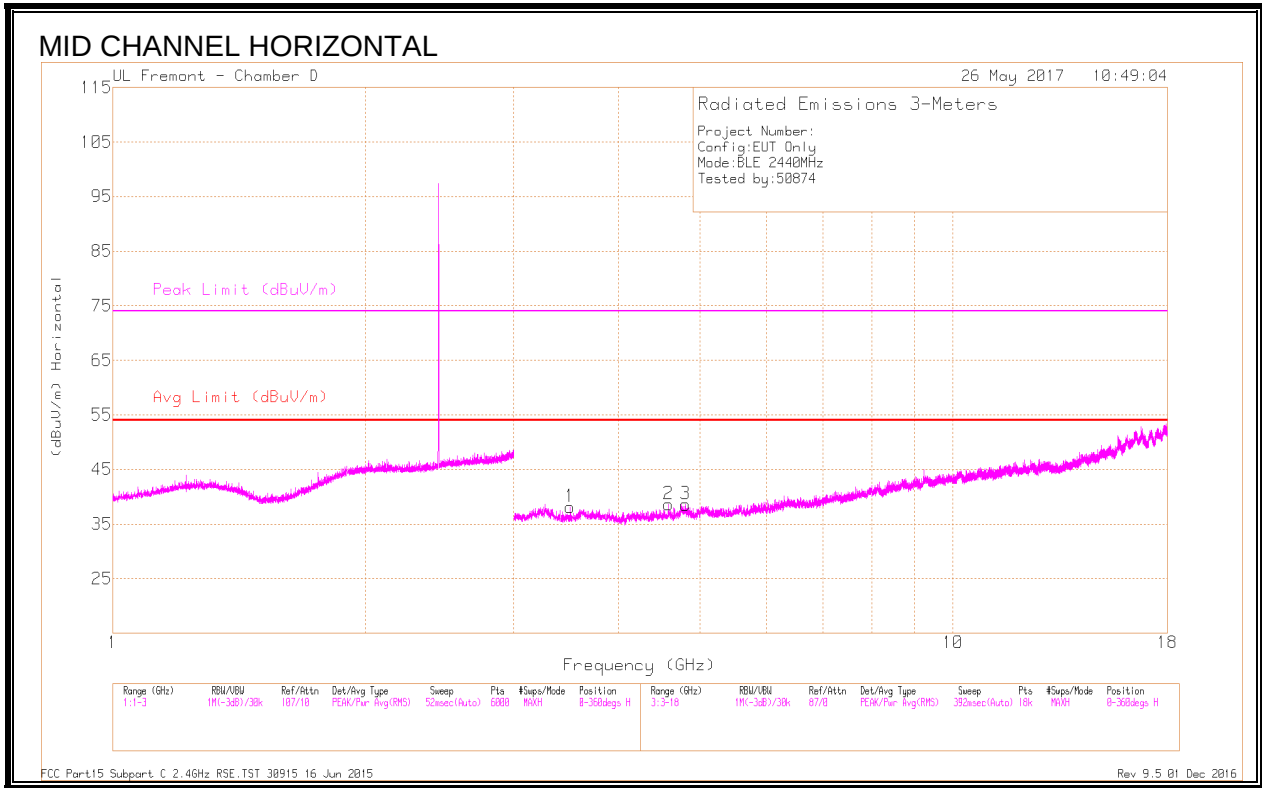
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ 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	* 3.503	39.17	PK2	33.9	-28.4	44.67			74	-29.33	343	329	H
	* 3.506	26.85	MAV1	33.9	-28.5	32.25	54	-21.75	-	-	343	329	H
2	* 4.584	38.36	PK2	34.3	-28.1	44.56			74	-29.44	183	173	H
	* 4.587	27.07	MAV1	34.3	-28.1	33.27	54	-20.63	-	-	183	173	H
3	* 4.802	37.4	PK2	34.2	-26.8	44.8			74	-29.2	61	153	H
	* 4.801	26.33	MAV1	34.2	-26.7	33.83	54	-20.17	-	-	61	153	H
4	* 3.78	38.46	PK2	33.8	-28.1	44.16			74	-29.84	216	147	V
	* 3.78	26.87	MAV1	33.8	-28.1	32.57	54	-21.43	-	-	216	147	V
5	* 3.938	38.75	PK2	33.8	-28	44.55			74	-29.45	69	151	V
	* 3.939	26.88	MAV1	33.8	-28.1	32.58	54	-21.42	-	-	69	151	V
6	5.676	36.89	PK2	34.5	-26.7	44.69			-	-	31	185	V
	5.68	25.44	MAV1	34.5	-26.7	33.24	54	-20.76	-	-	31	185	V

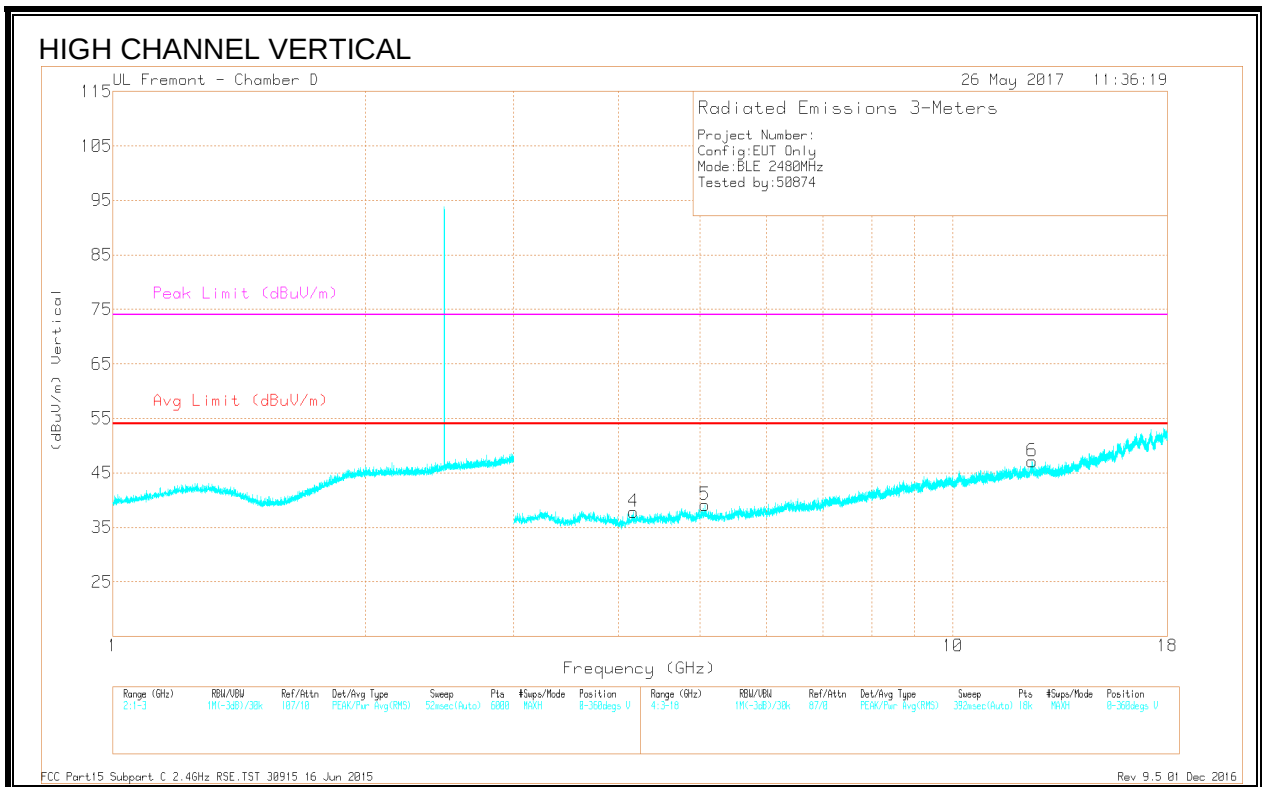
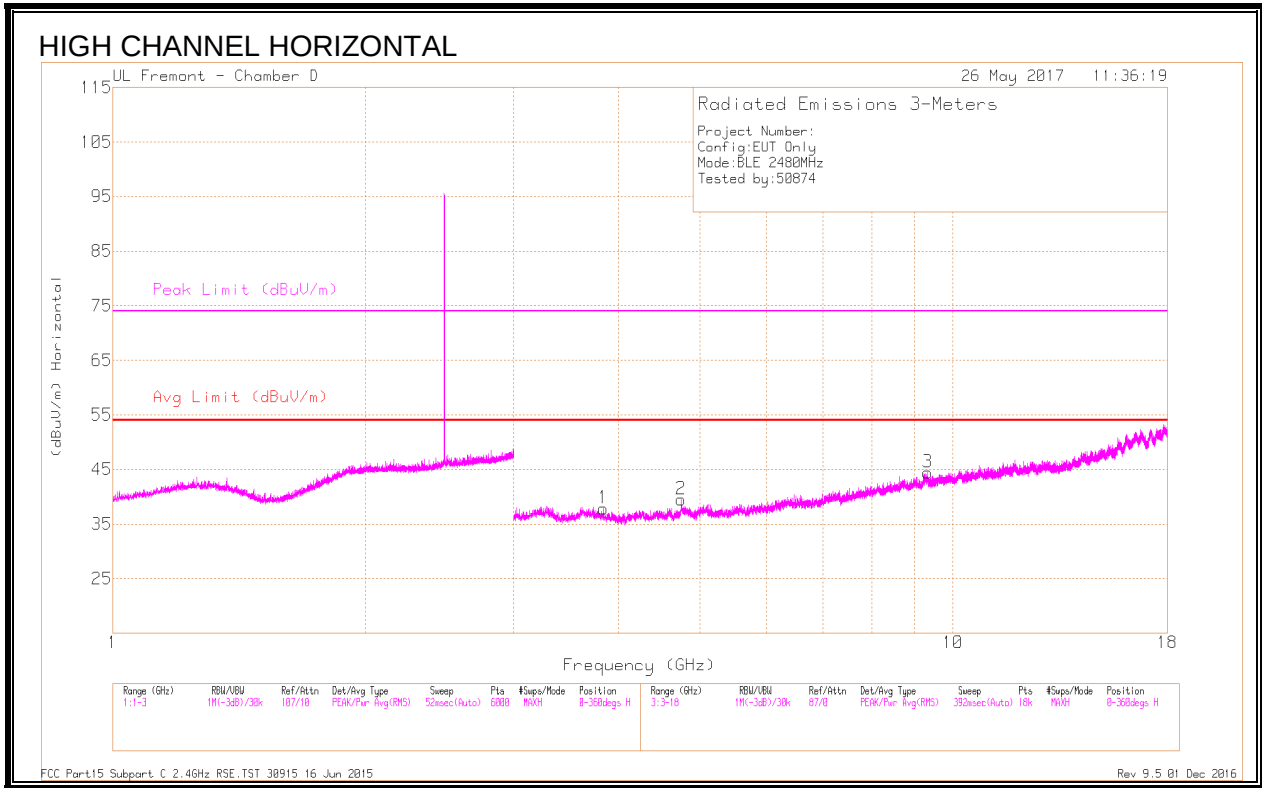
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

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Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/ 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	* 3.838	39.05	PK2	33.8	-28.6	44.25			74	-29.75	135	200	H
	* 3.838	27.49	MAv1	33.8	-28.6	32.69	54	-21.31	-	-	135	200	H
2	* 4.748	38.59	PK2	34.2	-26.5	46.29			74	-27.71	112	122	H
	* 4.745	27.13	MAv1	34.2	-26.5	34.83	54	-19.17	-	-	112	122	H
3	* 9.33	34.31	PK2	37.6	-21.3	50.61			74	-23.39	132	221	H
	* 9.331	23.42	MAv1	37.6	-21.3	39.72	54	-14.28	-	-	132	221	H
4	* 4.167	38.14	PK2	33.7	-28.1	43.74			74	-30.26	149	105	V
	* 4.17	27	MAv1	33.7	-28	32.7	54	-21.3	-	-	149	105	V
5	* 5.069	37.53	PK2	34.3	-26.9	44.93			74	-29.07	136	146	V
	* 5.069	26.73	MAv1	34.3	-26.9	34.13	54	-19.87	-	-	136	146	V
6	* 12.424	34.33	PK2	39.5	-20.5	53.33			74	-20.67	122	123	V
	* 12.423	23.45	MAv1	39.5	-20.5	42.45	54	-11.55	-	-	122	123	V

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

PK2 - KDB558074 Method: Maximum Peak

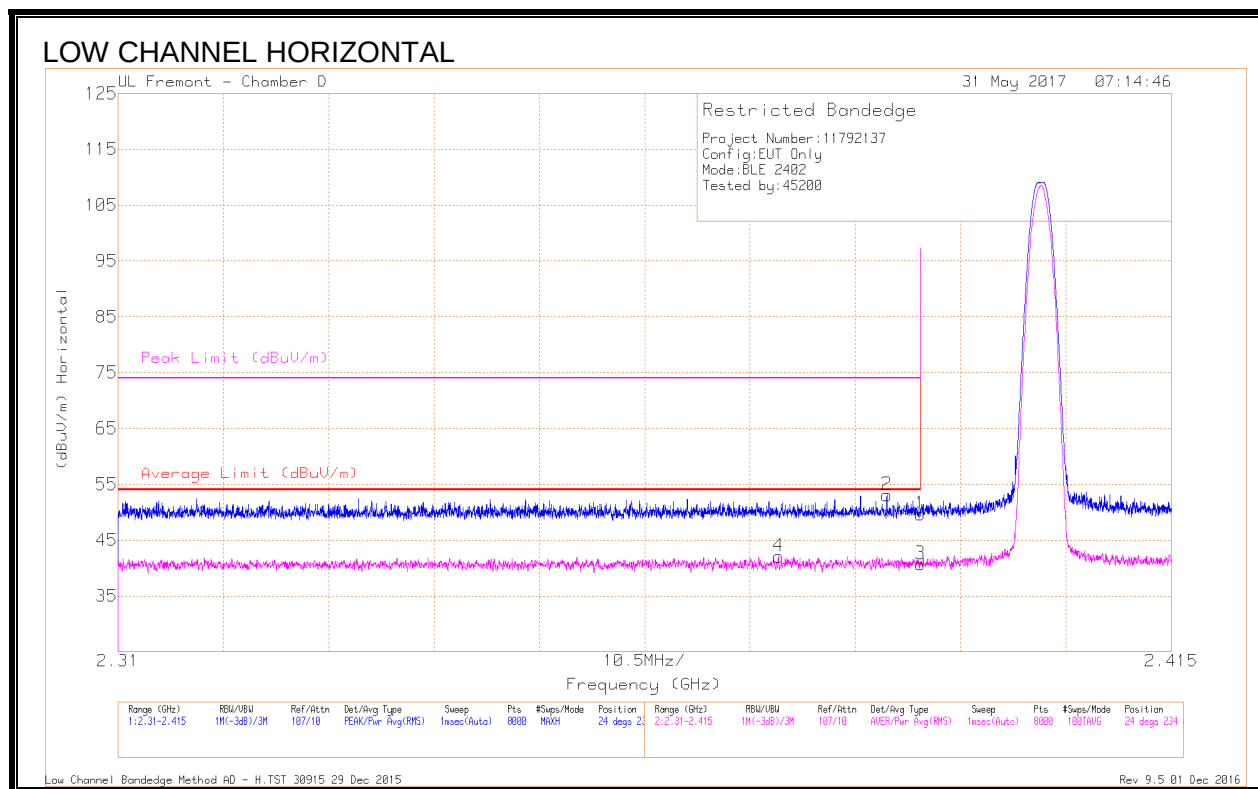
MAv1 - KDB558074 Option 1 Maximum RMS Average

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8.4. LAT 3 PMAX

8.4.1. RESTRICTED BANDEDGE (LOW CHANNEL)

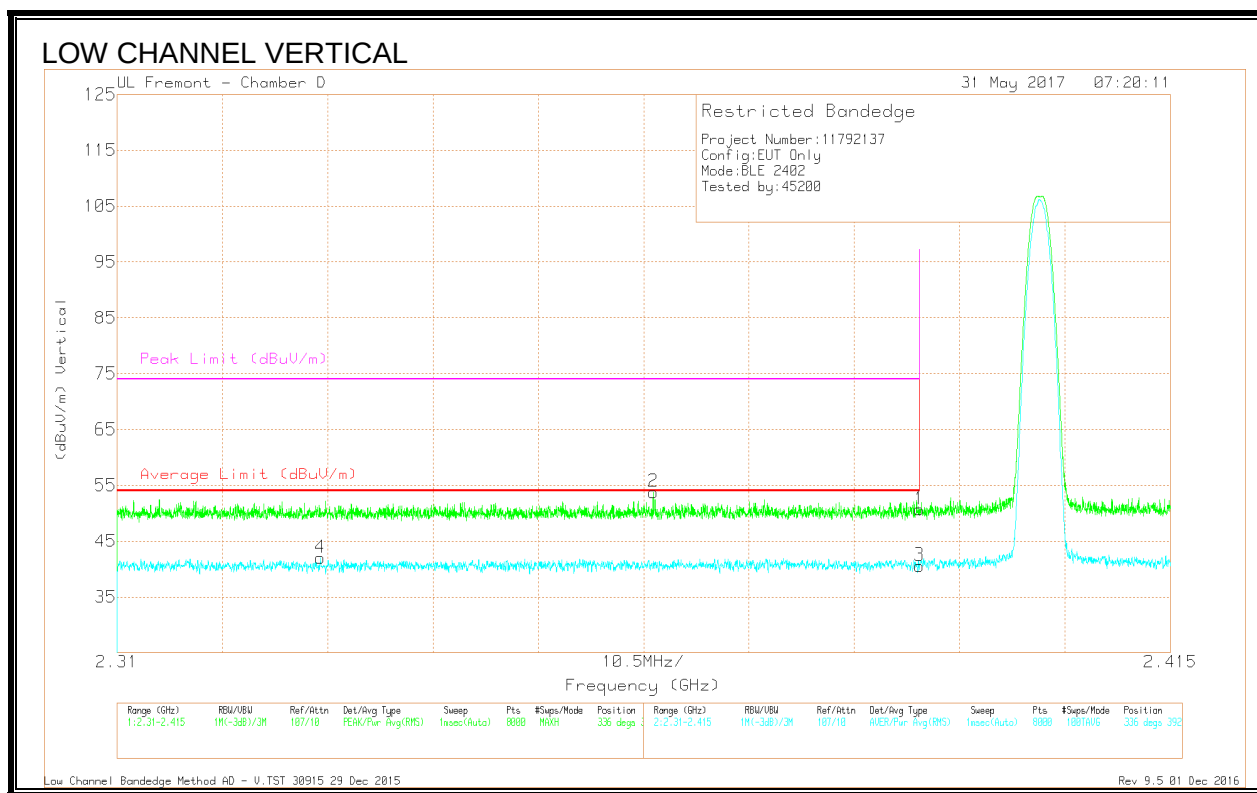


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.376	30.79	RMS	32.1	-20.8	42.09	54	-11.91	-	-	24	234	H
2	* 2.387	41.79	Pk	32.1	-20.8	53.09	-	-	74	-20.91	24	234	H
1	* 2.39	38.27	Pk	32.1	-20.7	49.67	-	-	74	-24.33	24	234	H
3	* 2.39	29.32	RMS	32.1	-20.7	40.72	54	-13.28	-	-	24	234	H

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

Pk - Peak detector

RMS - RMS detection



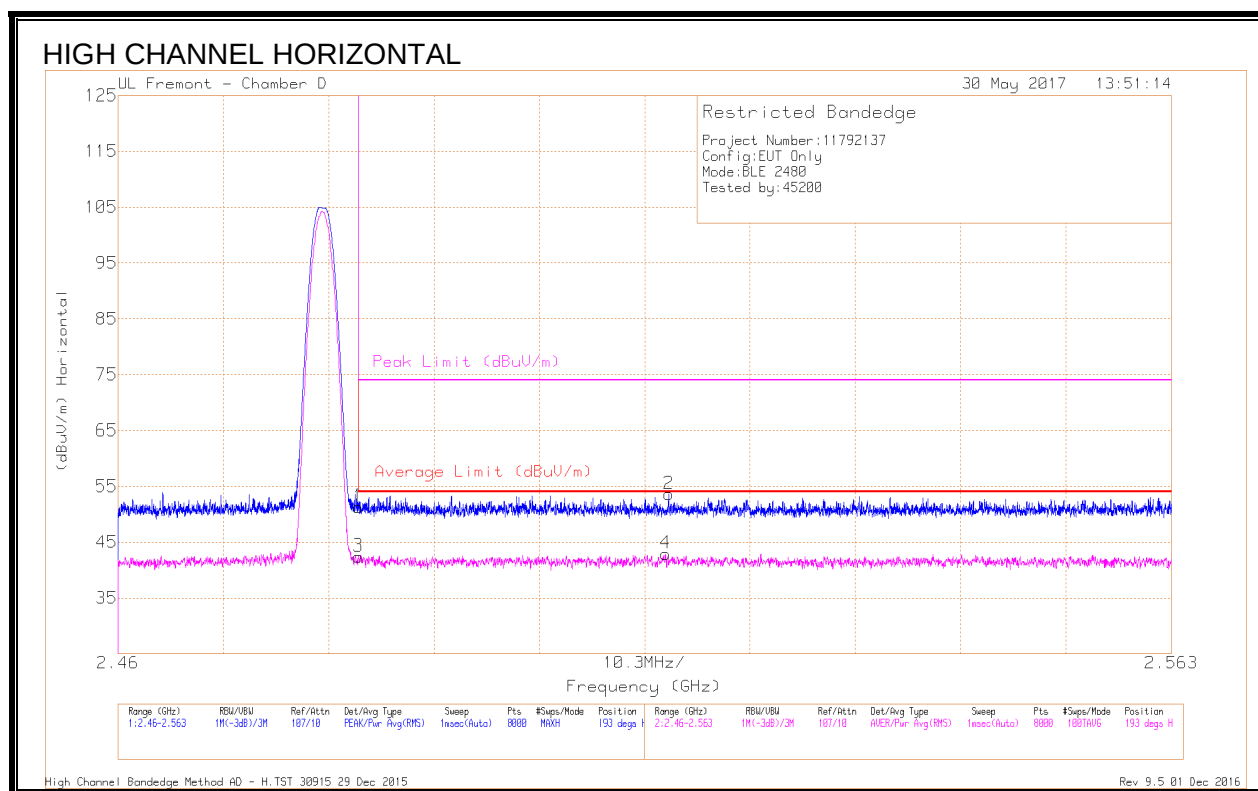
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.33	30.82	RMS	32.1	-20.9	42.02	54	-11.98	-	-	336	392	V
2	* 2.363	42.5	Pk	32.1	-20.8	53.8	-	-	74	-20.2	336	392	V
1	* 2.39	39.31	Pk	32.1	-20.7	50.71	-	-	74	-23.29	336	392	V
3	* 2.39	29.19	RMS	32.1	-20.7	40.59	54	-13.41	-	-	336	392	V

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

Pk - Peak detector

RMS - RMS detection

8.4.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)

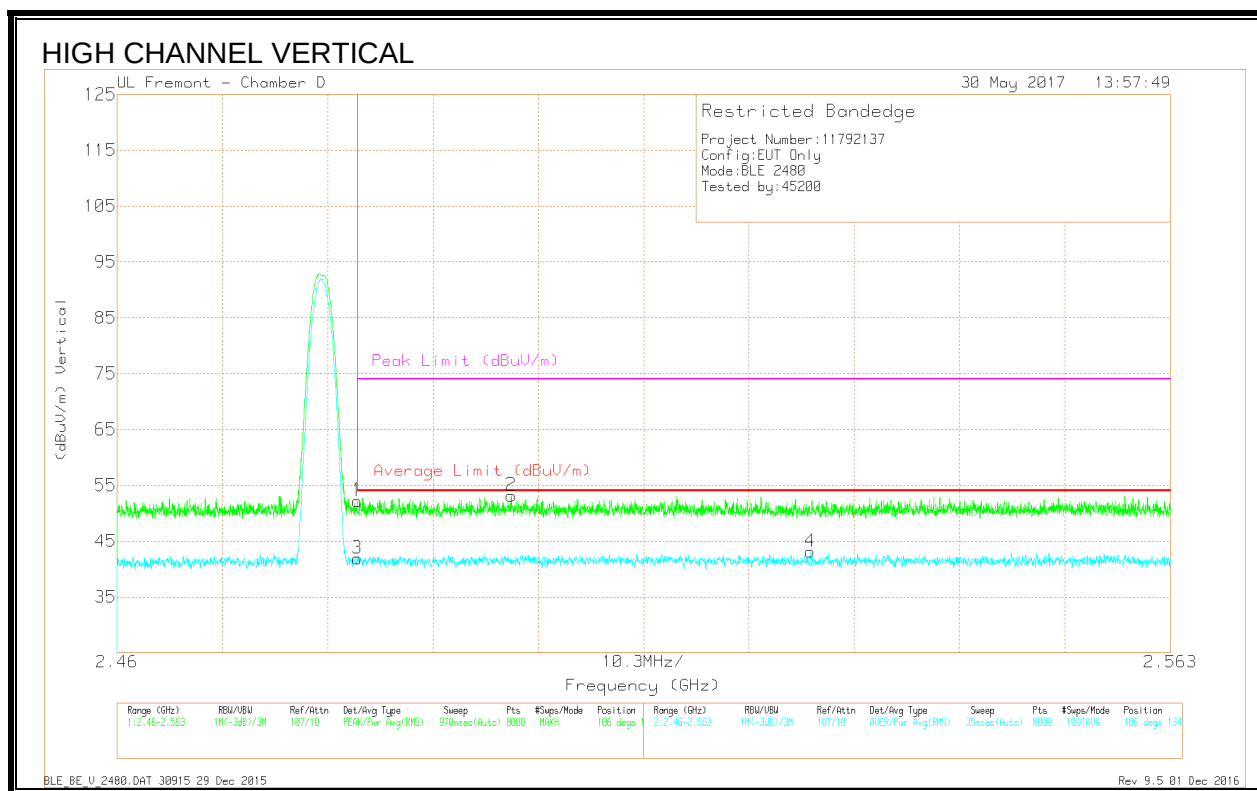


Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Ftr/Pa d (dB)	Correcte d Reading (dBuV/ m)	Average Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.62	Pk	32.5	-20.8	51.32	-	-	74	-22.68	193	146	H
3	* 2.484	30.72	RMS	32.5	-20.8	42.42	54	-11.58	-	-	193	146	H
2	2.514	41.62	Pk	32.6	-20.6	53.62	-	-	74	-20.38	193	146	H
4	2.514	30.93	RMS	32.6	-20.6	42.93	54	-11.07	-	-	193	146	H

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

Pk - Peak detector

RMS - RMS detection



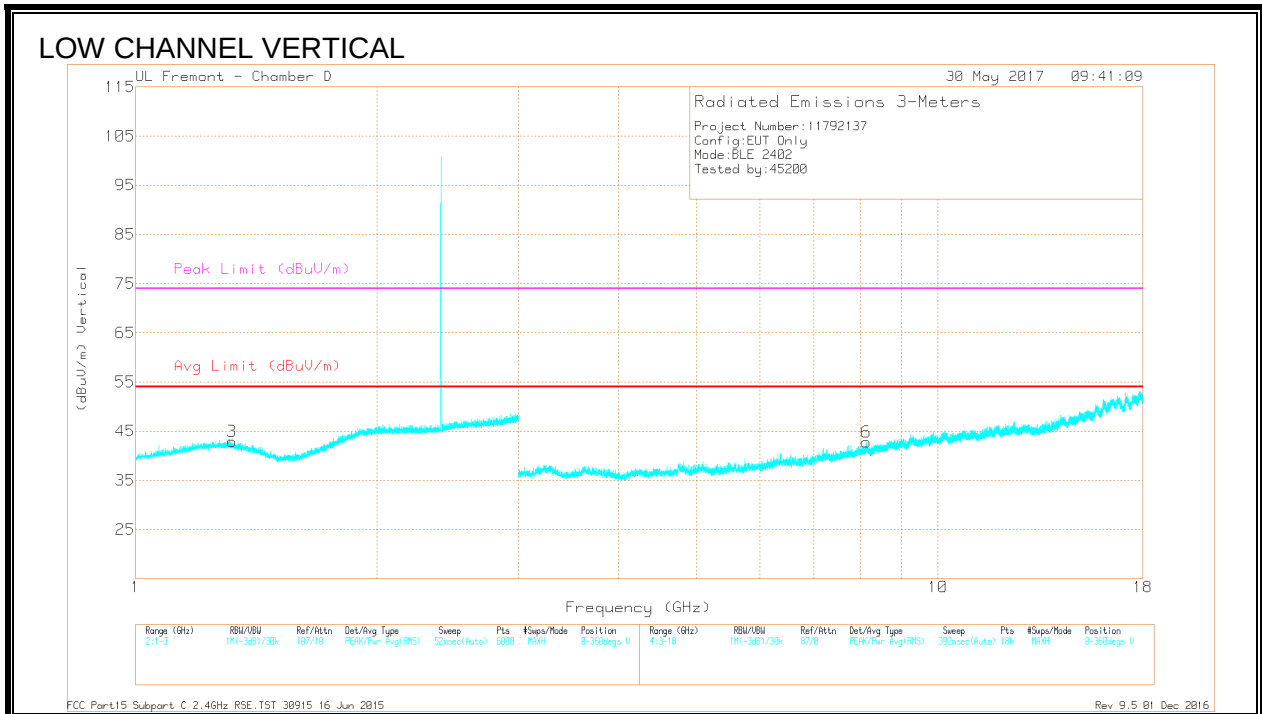
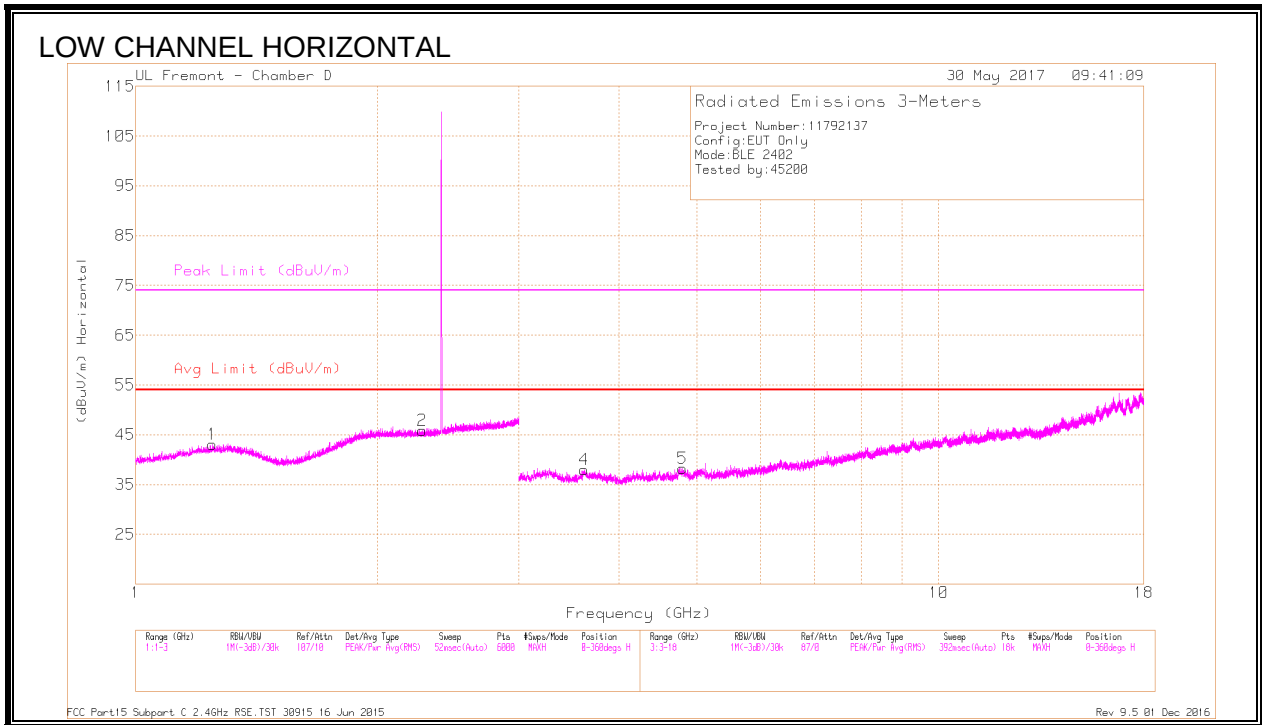
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.51	Pk	32.5	-20.8	52.21	-	-	74	-21.79	106	134	V
2	* 2.499	41.18	Pk	32.6	-20.6	53.18	-	-	74	-20.82	106	134	V
3	* 2.484	30.19	RMS	32.5	-20.8	41.89	54	-12.11	-	-	106	134	V
4	2.528	31.2	RMS	32.6	-20.7	43.1	54	-10.9	-	-	106	134	V

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

Pk - Peak detector

RMS - RMS detection

8.4.3. HARMONICS AND SPURIOUS EMISSIONS



Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/F ltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.245	41.89	PK2	30.2	-22.3	49.79	-	-	74	-24.21	201	151	H
* 1.248	30.08	MAv1	30.2	-22.3	37.98	54	-16.02	-	-	201	151	H
* 2.276	41.6	PK2	32.1	-20.9	52.8	-	-	74	-21.2	82	316	H
* 2.274	29.74	MAv1	32.1	-20.9	40.94	54	-13.06	-	-	82	316	H
* 1.316	42.31	PK2	30.2	-22.2	50.31	-	-	74	-23.69	11	380	V
* 1.318	30.02	MAv1	30.1	-22.2	37.92	54	-16.08	-	-	11	380	V
* 3.622	38.69	PK2	34.1	-28.5	44.29	-	-	74	-29.71	315	348	H
* 3.622	26.98	MAv1	34.1	-28.6	32.48	54	-21.52	-	-	315	348	H
* 4.8	39.07	PK2	34.2	-26.7	46.57	-	-	74	-27.43	144	159	H
* 4.8	26.46	MAv1	34.2	-26.7	33.96	54	-20.04	-	-	144	159	H
* 8.138	34.67	PK2	37	-22.8	48.87	-	-	74	-25.13	298	186	V
* 8.139	23.53	MAv1	37	-22.9	37.63	54	-16.37	-	-	298	186	V

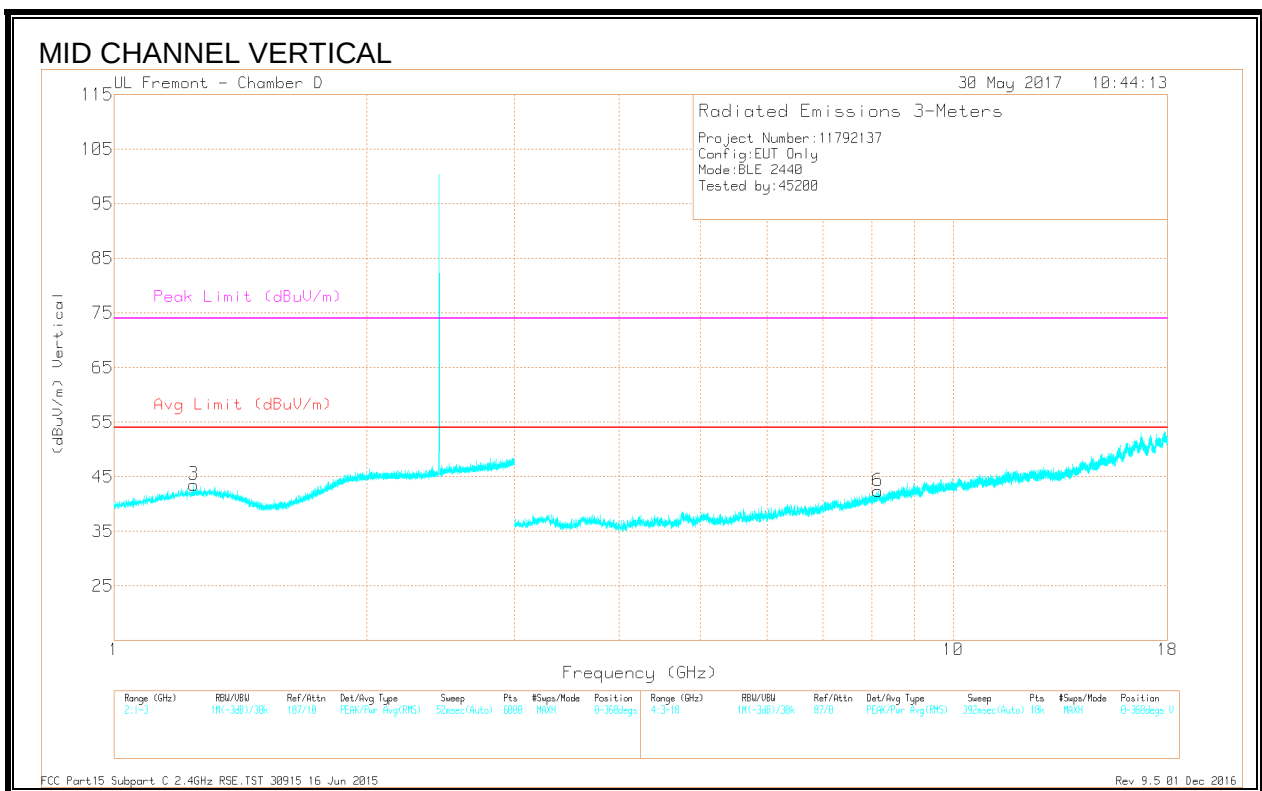
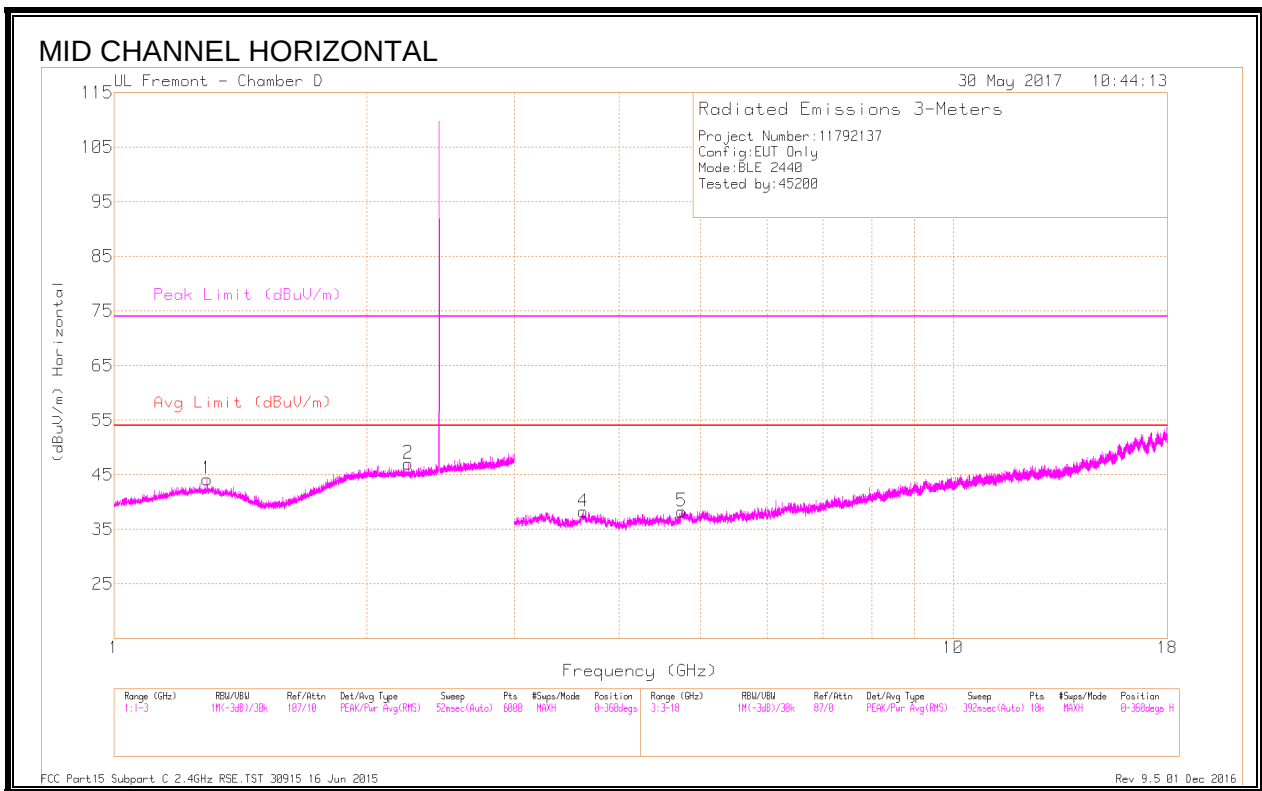
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitr/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
* 1.29	42.53	PK2	30.3	-22.3	50.53	-	-	74	-23.47	10	155	H
* 1.291	29.94	MAv1	30.3	-22.3	37.94	54	-16.06	-	-	10	155	H
* 2.244	42.18	PK2	32.1	-20.9	53.38	-	-	74	-20.62	75	321	H
* 2.243	29.8	MAv1	32.1	-20.9	41	54	-13	-	-	75	321	H
* 1.243	43.15	PK2	30.2	-22.3	51.05	-	-	74	-22.95	353	101	V
* 1.243	30.03	MAv1	30.2	-22.3	37.93	54	-16.07	-	-	353	101	V
* 3.622	38.39	PK2	34.1	-28.5	43.99	-	-	74	-30.01	56	157	H
* 3.625	26.9	MAv1	34	-28.6	32.3	54	-21.7	-	-	56	157	H
* 4.746	38.18	PK2	34.2	-26.5	45.88	-	-	74	-28.12	23	334	H
* 4.746	26.55	MAv1	34.2	-26.5	34.25	54	-19.75	-	-	23	334	H
* 8.134	34.75	PK2	37	-22.5	49.25	-	-	74	-24.75	188	113	V
* 8.136	23.28	MAv1	37	-22.5	37.78	54	-16.22	-	-	188	113	V

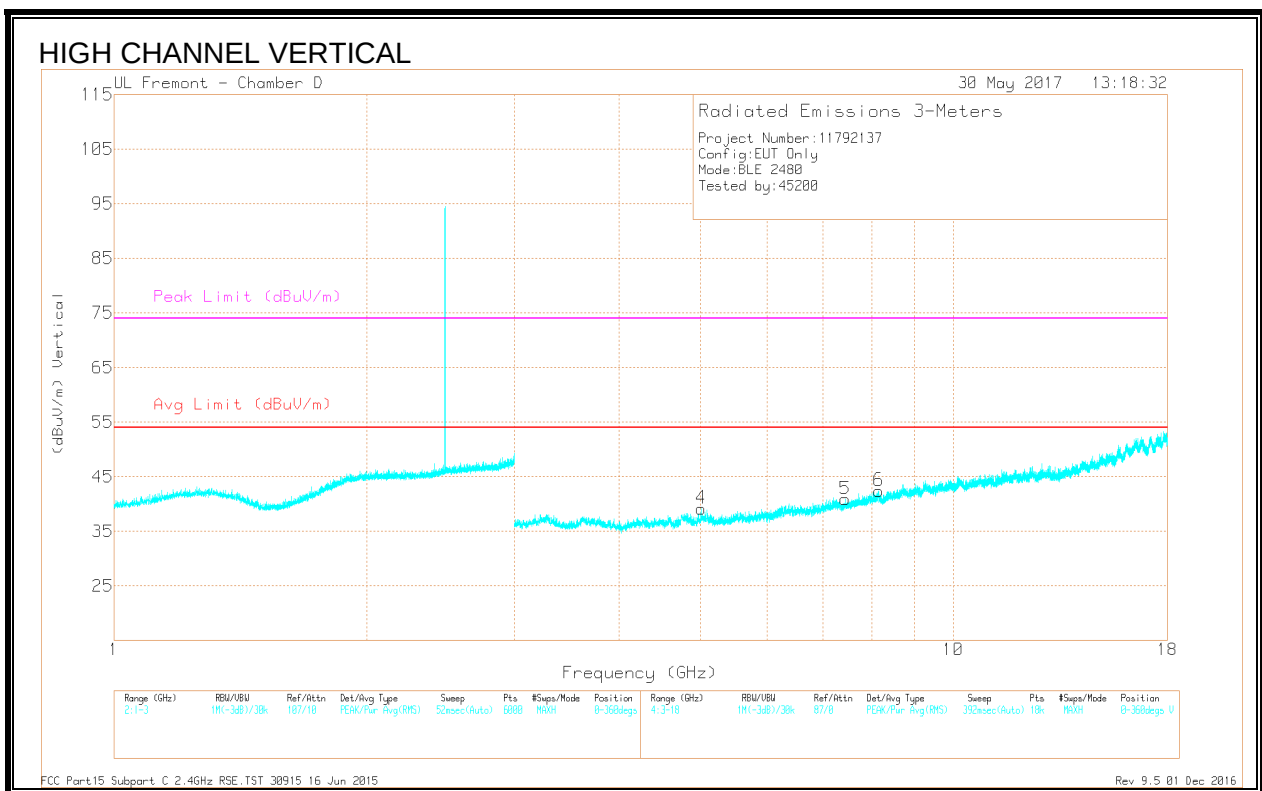
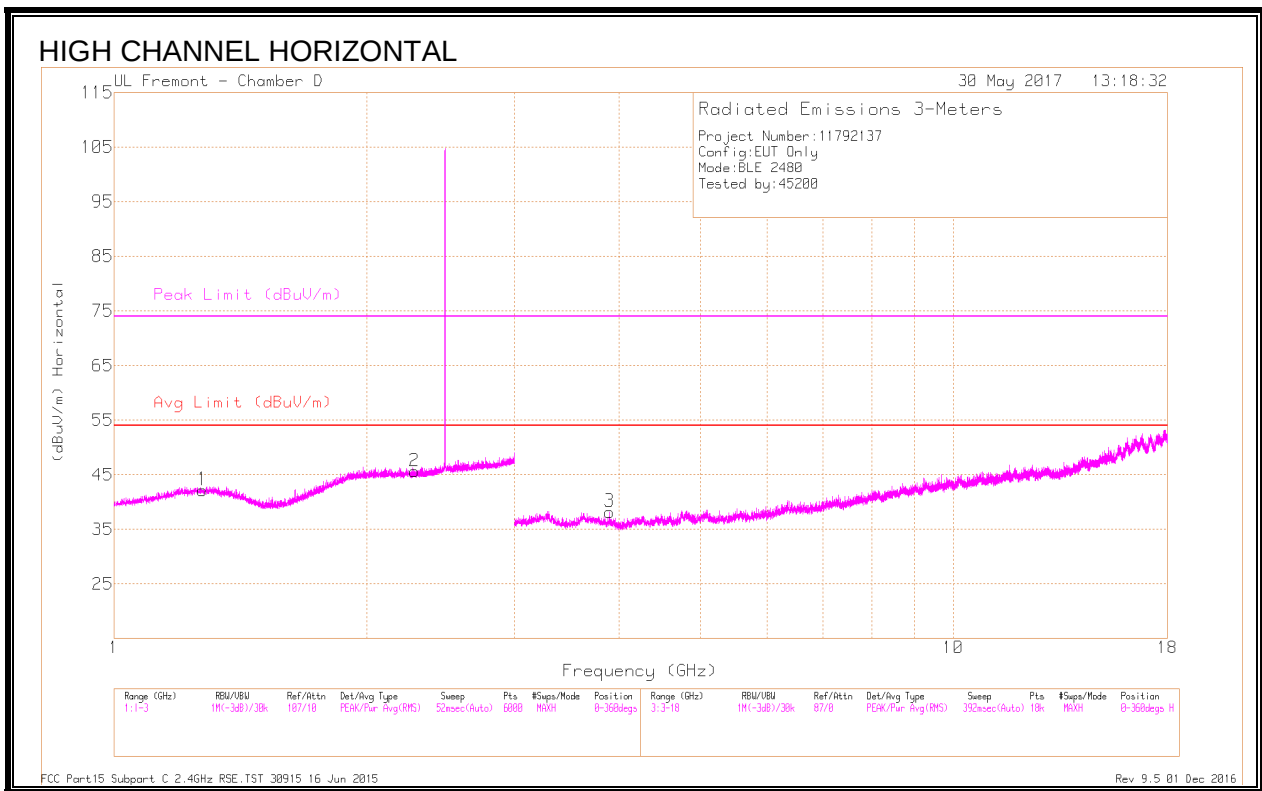
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

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Rev 9.5 01 Dec 2016



Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (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
* 1.274	42.05	PK2	30.3	-22.3	50.05	-	-	74	-23.95	137	169	H
* 1.273	29.97	MAV1	30.3	-22.3	37.97	54	-16.03	-	-	137	169	H
* 2.283	41.53	PK2	32.1	-21	52.63	-	-	74	-21.37	216	273	H
* 2.284	29.78	MAV1	32.1	-21	40.88	54	-13.12	-	-	216	273	H
* 3.897	38.67	PK2	33.8	-28.2	44.27	-	-	74	-29.73	332	116	H
* 3.898	26.76	MAV1	33.8	-28.3	32.26	54	-21.74	-	-	332	116	H
* 5.009	37.45	PK2	34.2	-26.8	44.85	-	-	74	-29.15	42	312	V
* 5.009	25.75	MAV1	34.2	-26.8	33.15	54	-20.85	-	-	42	312	V
* 7.436	35.68	PK2	36.5	-24.6	47.58	-	-	74	-26.42	274	325	V
* 7.435	23.91	MAV1	36.5	-24.6	35.81	54	-18.19	-	-	274	325	V
* 8.15	34.83	PK2	37	-23.3	48.53	-	-	74	-25.47	27	178	V
* 8.147	23.43	MAV1	37	-23.1	37.33	54	-16.67	-	-	27	178	V

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

PK2 - KDB558074 Method: Maximum Peak

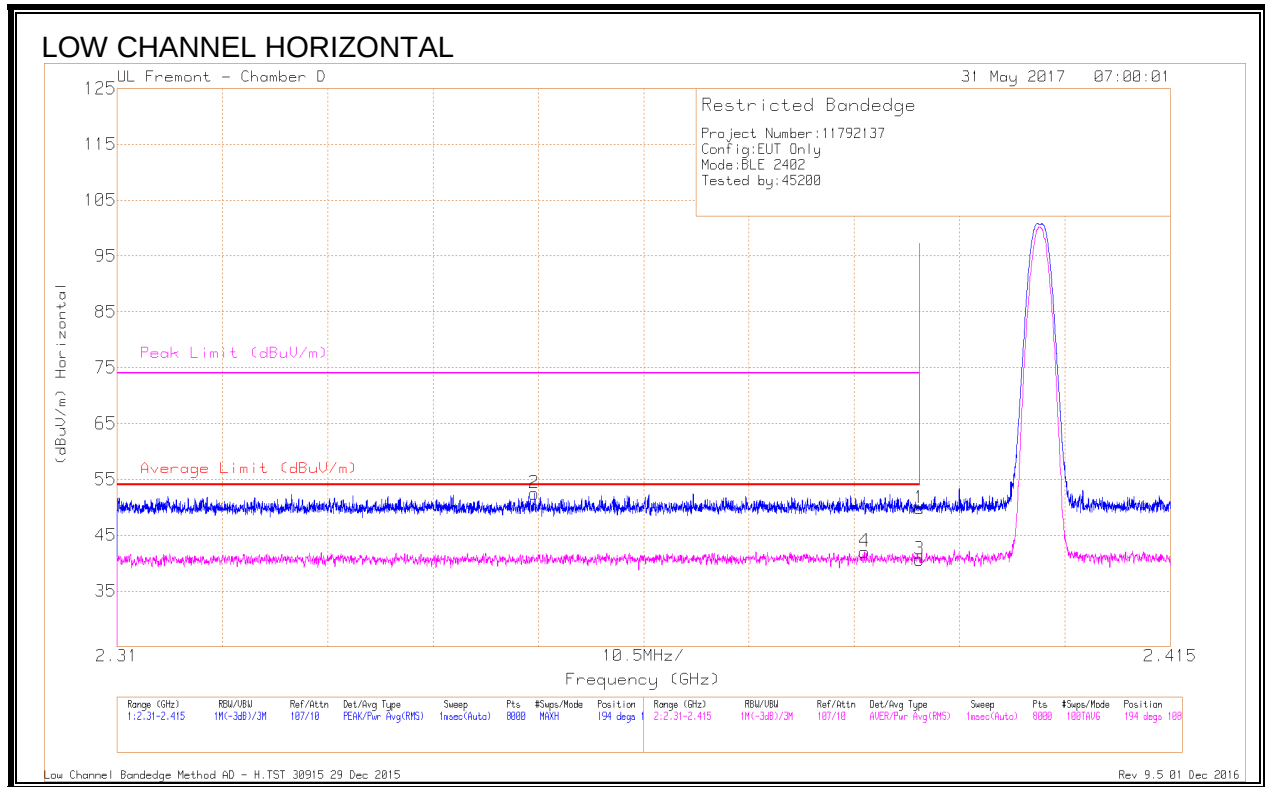
MAV1 - KDB558074 Option 1 Maximum RMS Average

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Rev 9.5 01 Dec 2016

8.5. LAT 3 PLOW

8.5.1. RESTRICTED BANDEDGE (LOW CHANNEL)

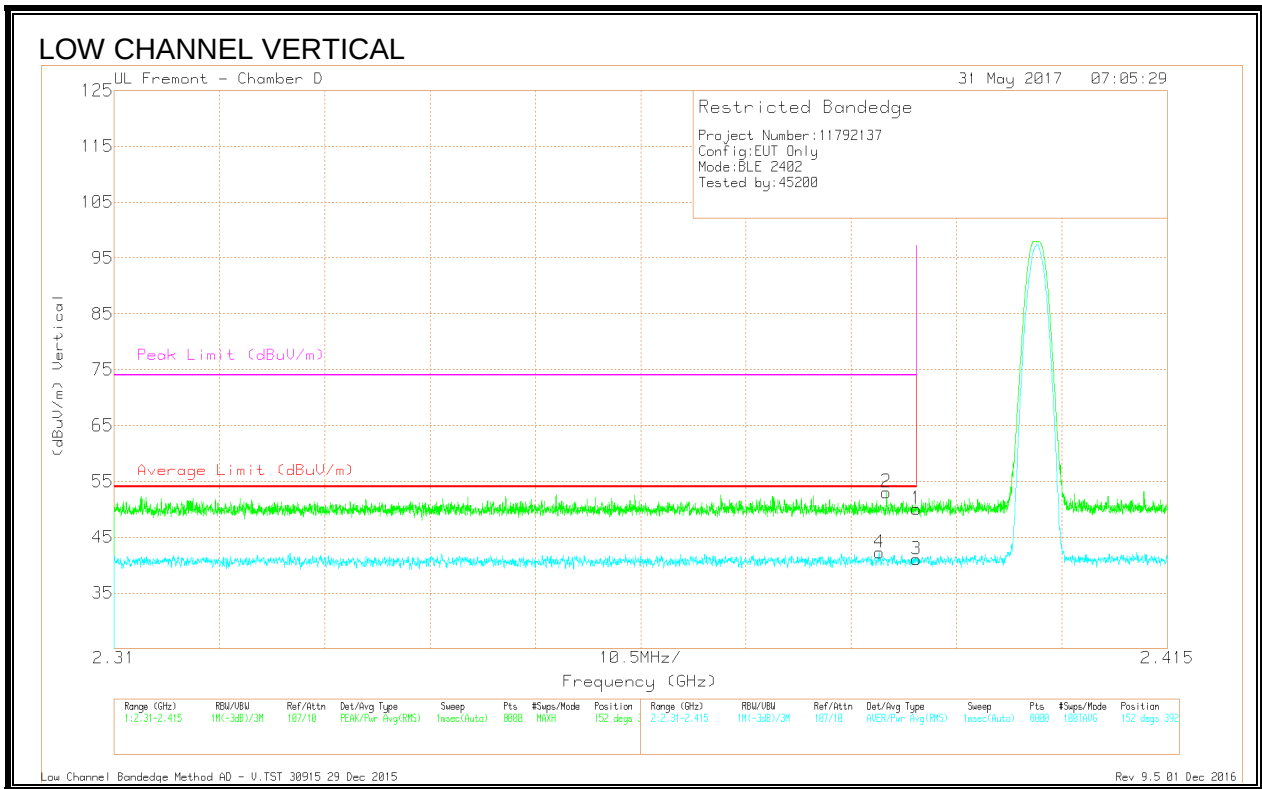


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	38.41	Pk	32.1	-20.7	49.81	-	-	74	-24.19	194	108	H
2	* 2.352	41.29	Pk	32.1	-20.9	52.49	-	-	74	-21.51	194	108	H
3	* 2.39	29.24	RMS	32.1	-20.7	40.64	54	-13.36	-	-	194	108	H
4	* 2.385	30.75	RMS	32.1	-20.8	42.05	54	-11.95	-	-	194	108	H

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

Pk - Peak detector

RMS - RMS detection



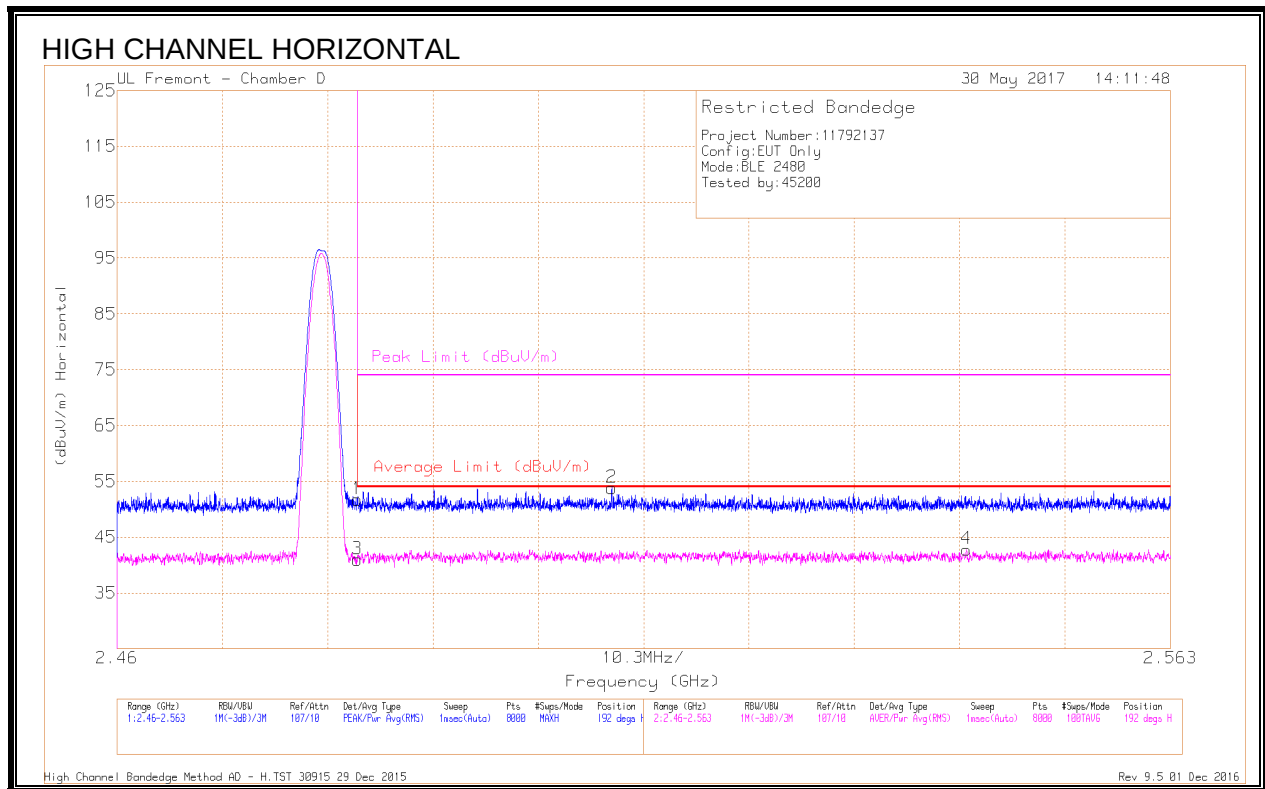
Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pad (dB)	Correcte d Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
4	* 2.386	30.93	RMS	32.1	-20.8	42.23	54	-11.77	-	-	152	392	V
2	* 2.387	41.74	Pk	32.1	-20.8	53.04	-	-	74	-20.96	152	392	V
1	* 2.39	38.66	Pk	32.1	-20.7	50.06	-	-	74	-23.94	152	392	V
3	* 2.39	29.63	RMS	32.1	-20.7	41.03	54	-12.97	-	-	152	392	V

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

Pk - Peak detector

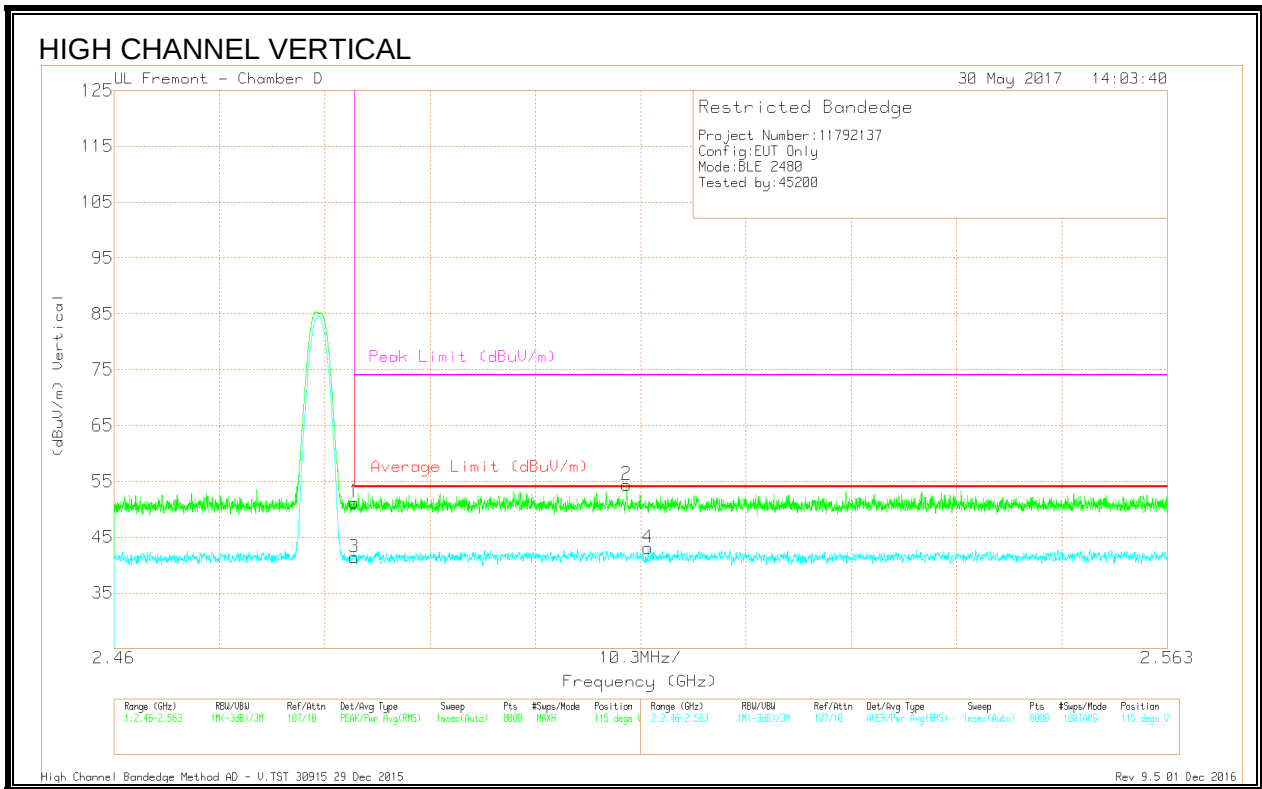
RMS - RMS detection

8.5.2. AUTHORIZED BANDEDGE (HIGH CHANNEL)



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Fitr/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	40.05	Pk	32.5	-20.8	51.75	-	-	74	-22.25	192	124	H
3	* 2.484	29.3	RMS	32.5	-20.8	41	54	-13	-	-	192	124	H
2	2.508	41.82	Pk	32.6	-20.6	53.82	-	-	74	-20.18	192	124	H
4	2.543	30.81	RMS	32.6	-20.6	42.81	54	-11.19	-	-	192	124	H

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



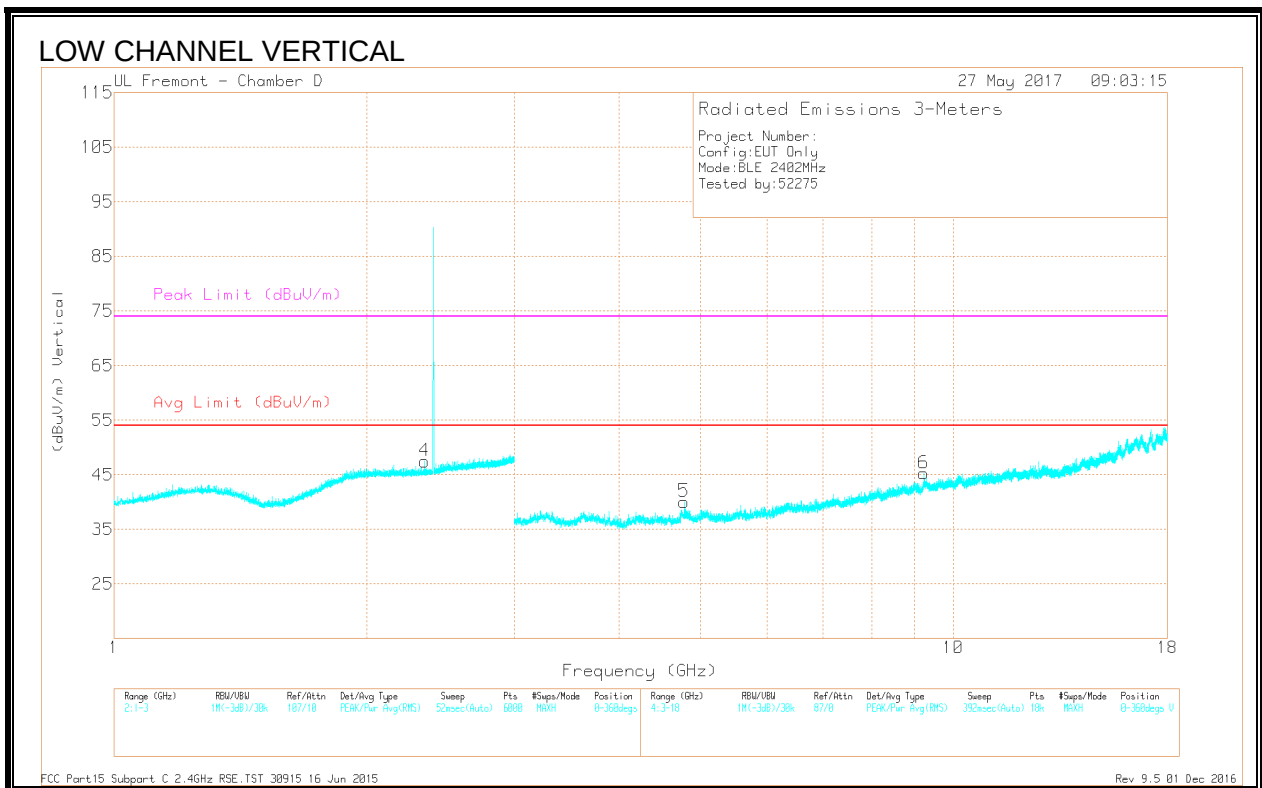
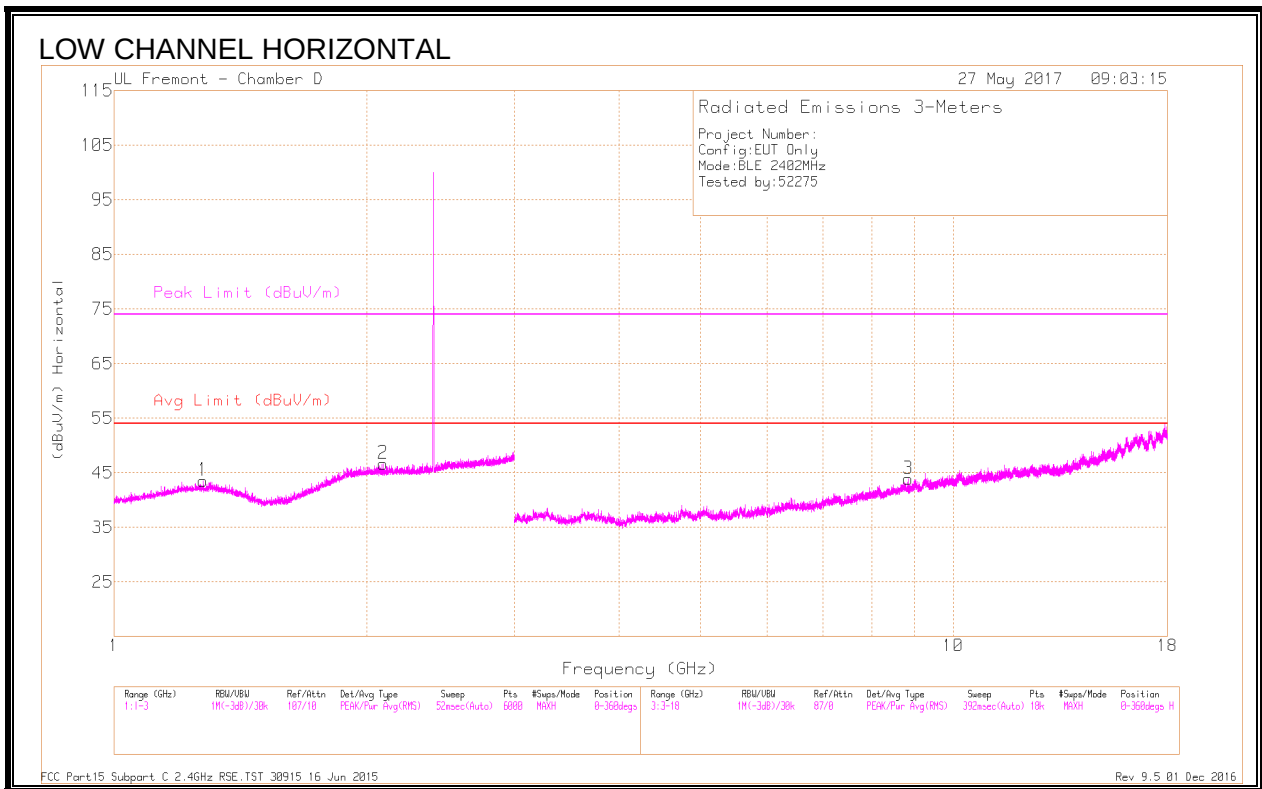
Marker	Frequen cy (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl /Filtr/Pa d (dB)	Correcte d Reading (dBuV/ m)	Average Limit (dBuV/ m)	Margin (dB)	Peak Limit (dBuV/ m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.52	Pk	32.5	-20.8	51.22	-	-	74	-22.78	115	227	V
3	* 2.484	29.72	RMS	32.5	-20.8	41.42	54	-12.58	-	-	115	227	V
2	2.51	42.4	Pk	32.6	-20.6	54.4	-	-	74	-19.6	115	227	V
4	2.512	31.07	RMS	32.6	-20.6	43.07	54	-10.93	-	-	115	227	V

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

Pk - Peak detector

RMS - RMS detection

8.5.3. HARMONICS AND SPURIOUS EMISSIONS



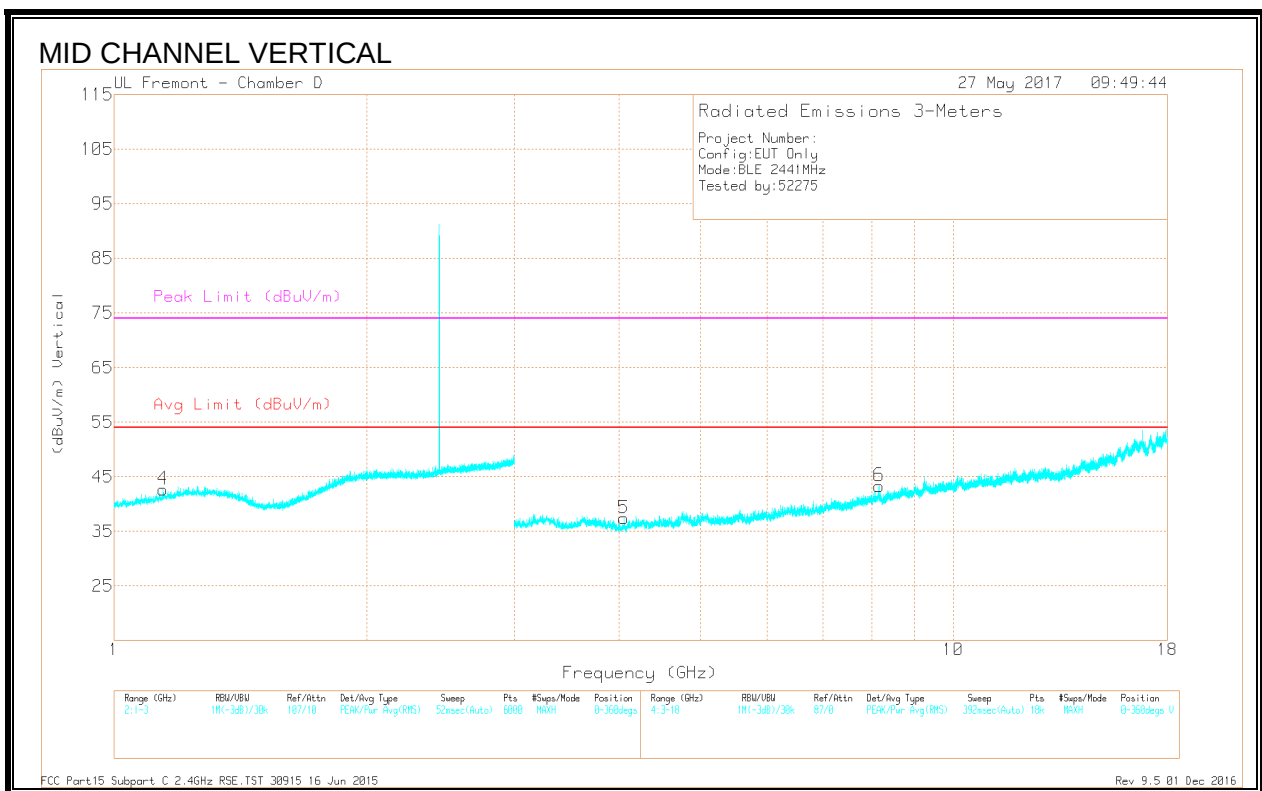
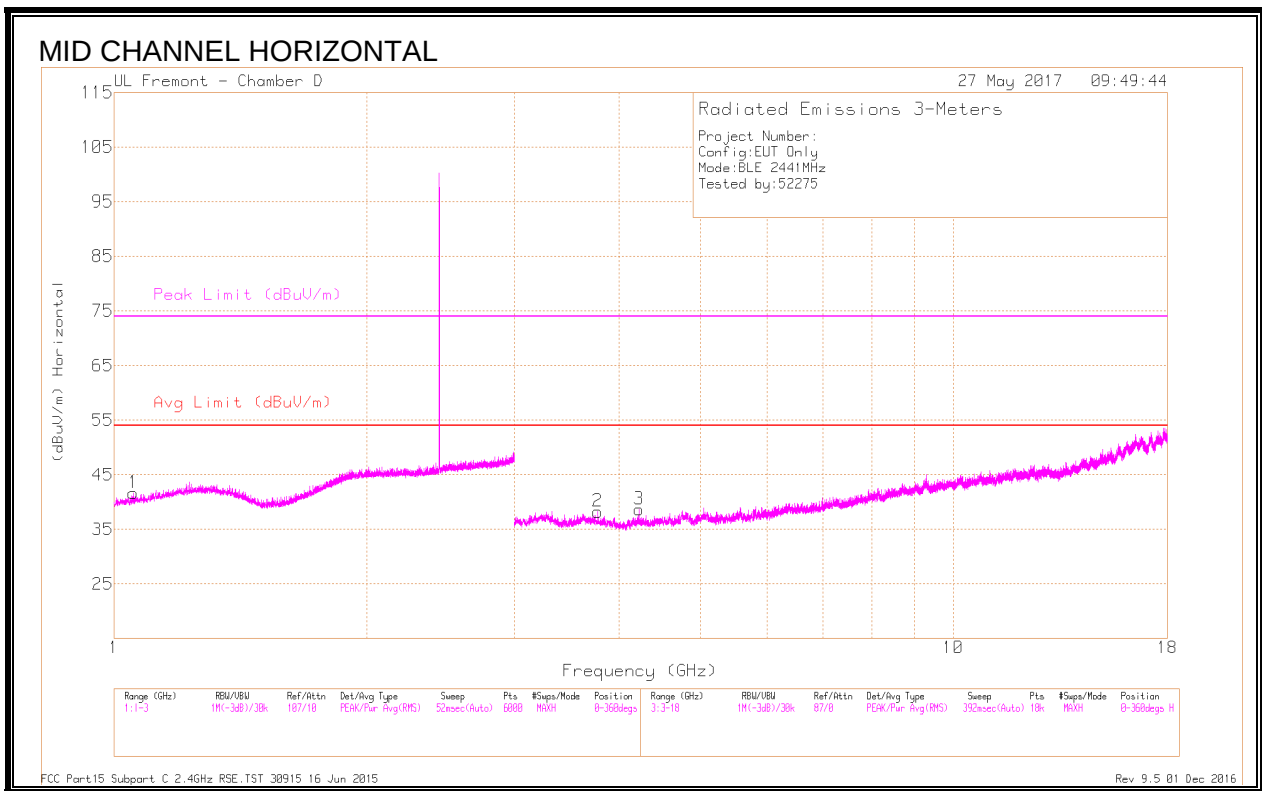
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.275	41.7	PK2	30.3	-22.3	49.7			74	-24.3	68	362	H
* 1.275	29.7	MAv1	30.3	-22.3	37.7	54	-16.3					
* 2.343	42.48	PK2	32.1	-20.9	53.68			74	-20.32	272	384	V
* 2.343	30.2	MAv1	32.1	-20.9	41.4	54	-12.6					
* 4.778	37.97	PK2	34.2	-26.6	45.57			74	-28.43	6	202	V
* 4.778	25.9	MAv1	34.2	-26.6	33.5	54	-19.5					
2.092	41.81	PK2	32.3	-21.2	52.91			-	-	260	347	H
8.834	35.09	PK2	37.3	-22.7	49.69			-	-	203	279	H
9.222	34.34	PK2	37.5	-21	50.84			-	-	305	246	V

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

PK2 - KDB558074 Method: Maximum Peak

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Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.052	42.61	PK2	28.6	-22.6	48.61			74	-25.39	285	377	H
* 1.054	30.15	MAV1	28.6	-22.6	36.15	54	-19.85	-	-	285	377	H
* 1.143	41.88	PK2	29.5	-22.4	48.98			74	-25.02	53	154	V
* 1.142	30.07	MAV1	29.5	-22.4	37.17	54	-16.83	-	-	53	154	V
* 3.771	38.49	PK2	33.8	-28.1	44.19			74	-29.81	104	154	H
* 3.771	26.78	MAV1	33.8	-28.1	32.48	54	-21.52	-	-	104	154	H
* 4.226	37.81	PK2	33.7	-27.4	44.11			74	-29.89	221	266	H
* 4.227	26.01	MAV1	33.7	-27.4	32.31	54	-21.69	-	-	221	266	H
* 4.053	38.72	PK2	33.7	-28.4	44.02			74	-29.98	137	144	V
* 4.049	26.58	MAV1	33.8	-28.5	31.88	54	-22.12	-	-	137	144	V
* 8.159	35.2	PK2	37	-23.3	48.9			74	-25.1	52	113	V
* 8.159	23.63	MAV1	37	-23.3	37.33	54	-16.67	-	-	52	113	V

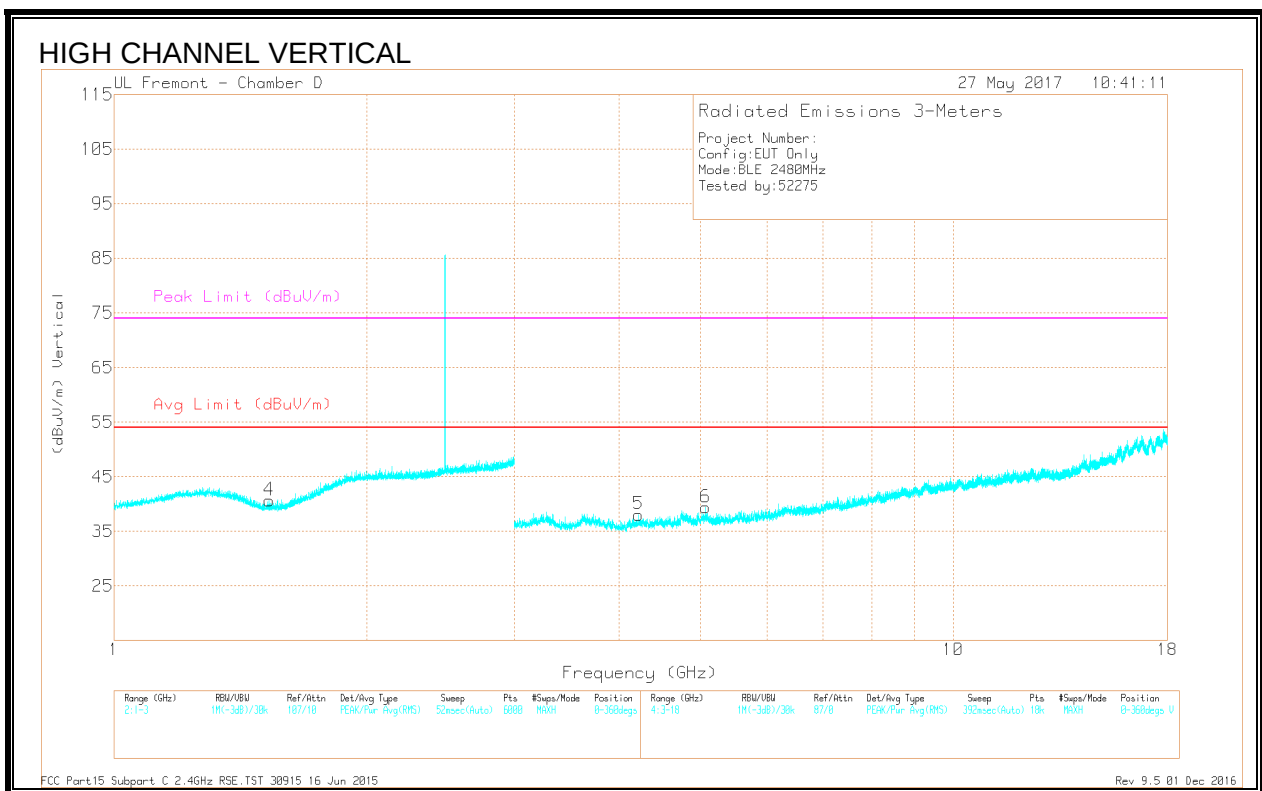
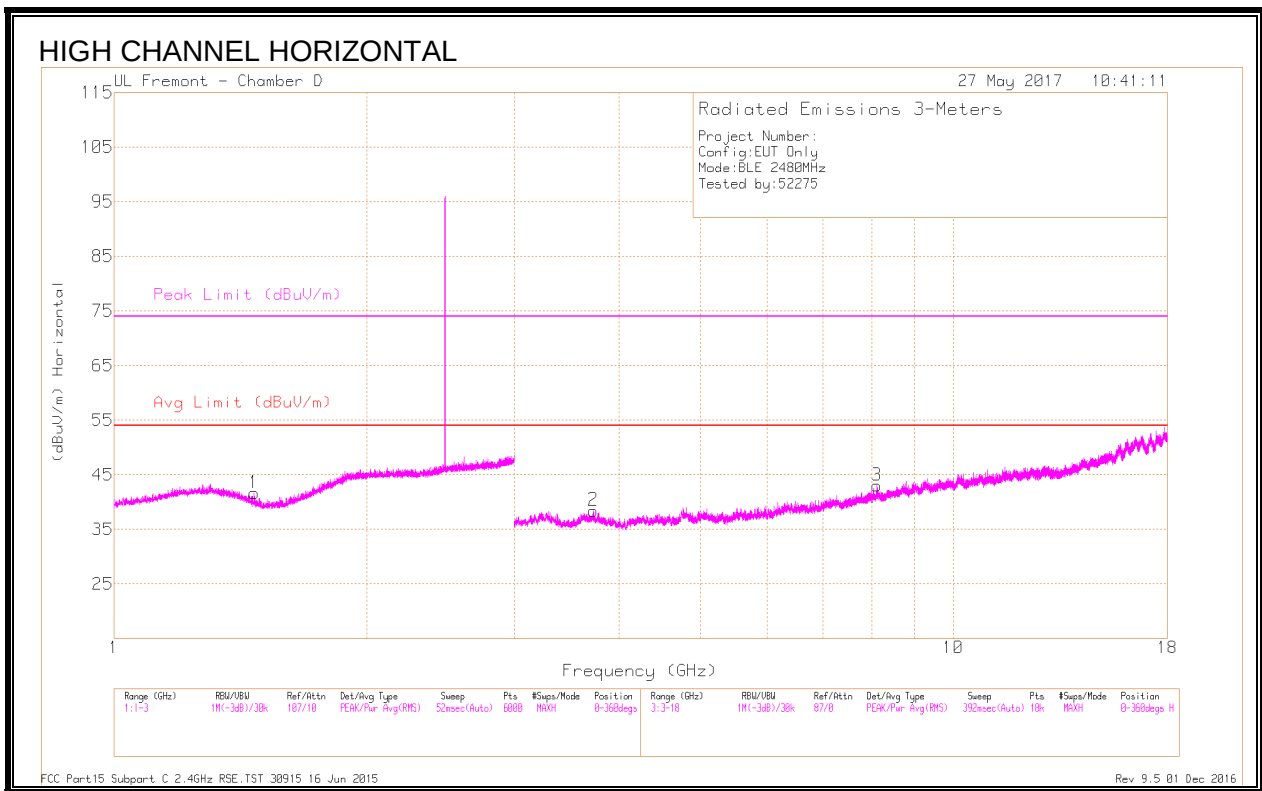
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAV1 - KDB558074 Option 1 Maximum RMS Average

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Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.467	42.12	PK2	28	-21.9	48.22			74	-25.78	179	176	H
* 1.468	29.79	MAv1	28	-21.9	35.89	54	-18.11	-	-	179	176	H
* 1.533	42.15	PK2	27.4	-21.9	47.65			74	-26.35	42	151	V
* 1.533	29.81	MAv1	27.4	-21.9	35.31	54	-18.69	-	-	42	151	V
* 3.728	39.2	PK2	33.8	-28.7	44.3			74	-29.7	23	293	H
* 3.726	27.24	MAv1	33.8	-28.7	32.34	54	-21.64	-	-	23	293	H
* 8.11	35.56	PK2	37	-23.4	49.16			74	-24.84	204	120	H
* 8.107	23.65	MAv1	37	-23.5	37.15	54	-16.85	-	-	204	120	H
* 4.216	38	PK2	33.7	-27.5	44.2			74	-29.8	263	277	V
* 4.217	26.14	MAv1	33.7	-27.6	32.24	54	-21.76	-	-	263	277	V
* 5.073	38.03	PK2	34.3	-26.7	45.63			74	-28.37	0	293	V
* 5.073	26.2	MAv1	34.3	-26.8	33.7	54	-20.3	-	-	0	293	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

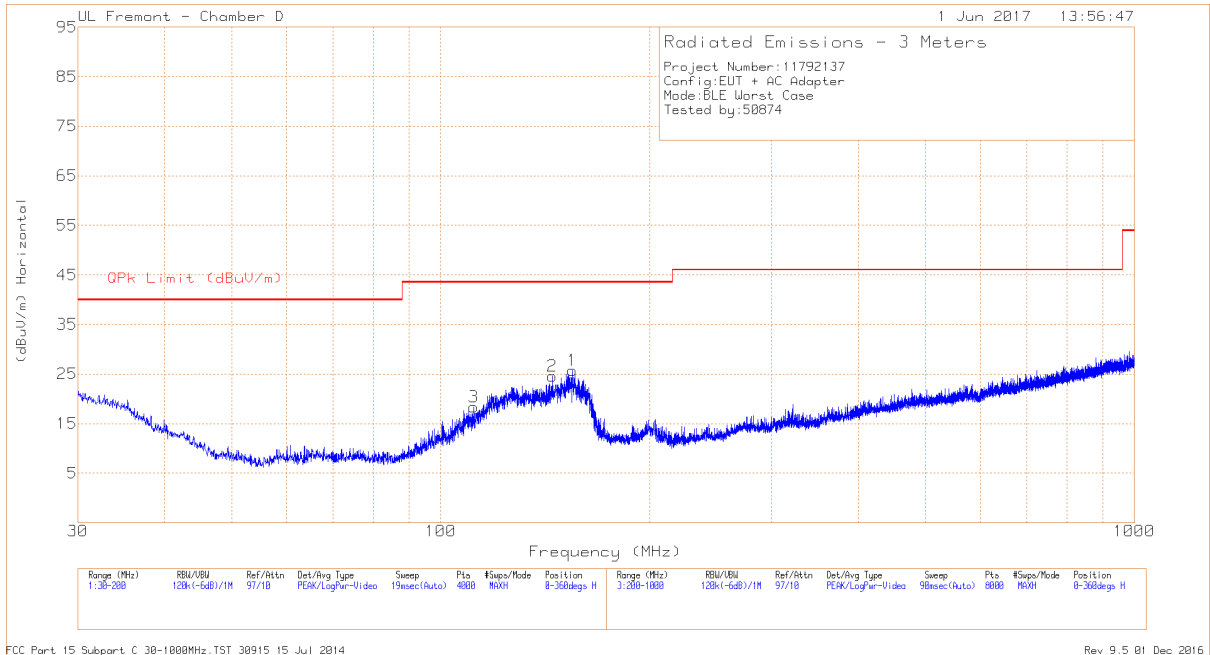
FCC Part15 Subpart C 2.4GHz RSE.TST 30915 16 Jun 2015

Rev 9.5 01 Dec 2016

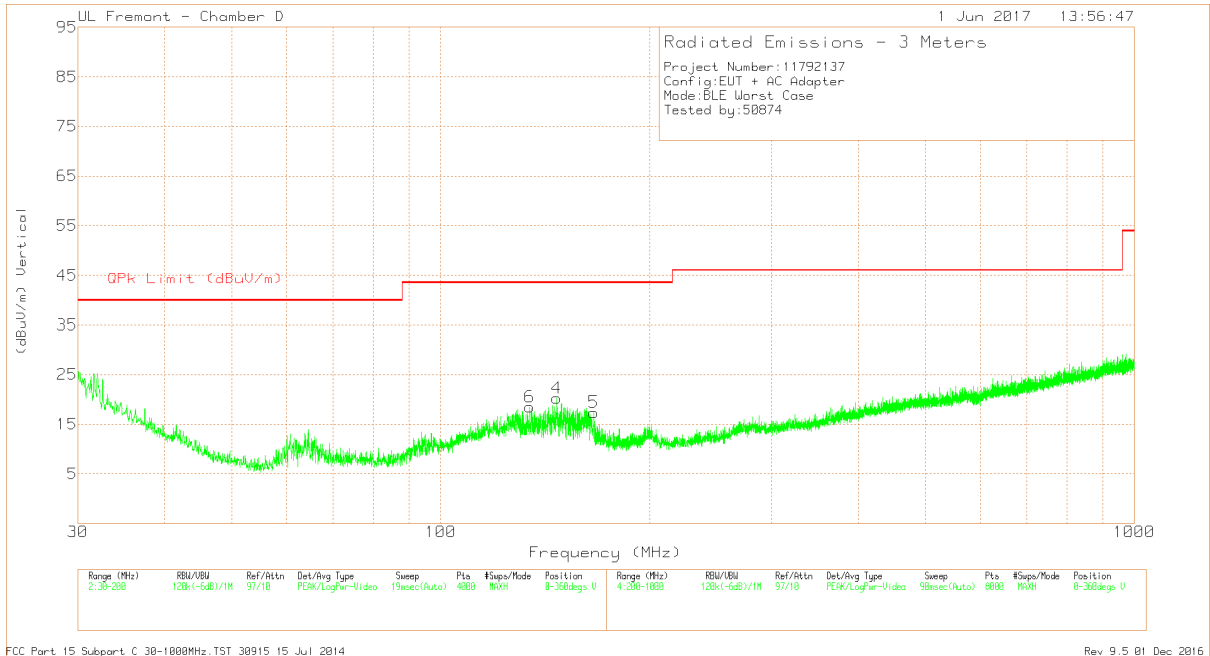
8.6. WORST-CASE BELOW 1 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T243 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3	* 111.6636	32.67	Pk	17	-31.3	18.37	43.52	-25.15	0-360	299	H
5	* 166.1627	32.41	Pk	15.9	-30.9	17.41	43.52	-26.11	0-360	100	V
6	* 134.4495	31.97	Pk	17.6	-31.1	18.47	43.52	-25.05	0-360	100	V
2	144.8222	38.97	Pk	16.7	-31.1	24.57	43.52	-18.95	0-360	199	H
4	147.0328	34.82	Pk	16.5	-31.1	20.22	43.52	-23.3	0-360	100	V
1	154.8548	40.41	Pk	16.3	-31	25.71	43.52	-17.81	0-360	199	H

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

Pk - Peak detector

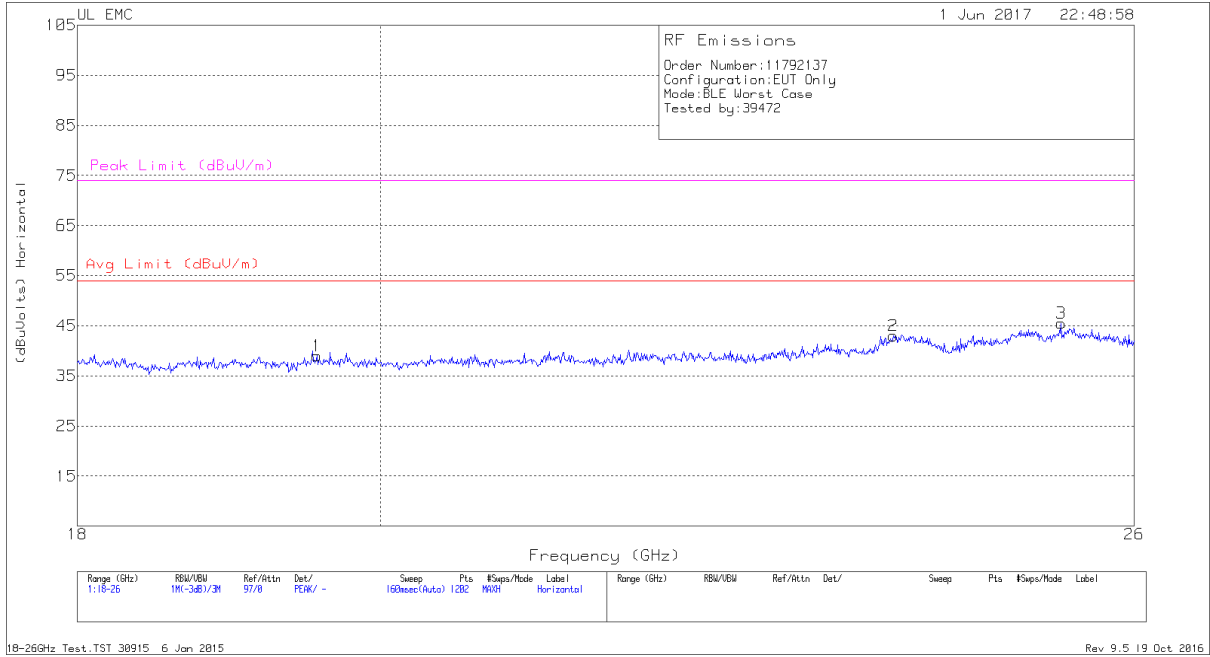
FCC Part15C 30-1000MHz.TST 30915 15 Jul 2014

Rev 9.5 01 Dec 2016

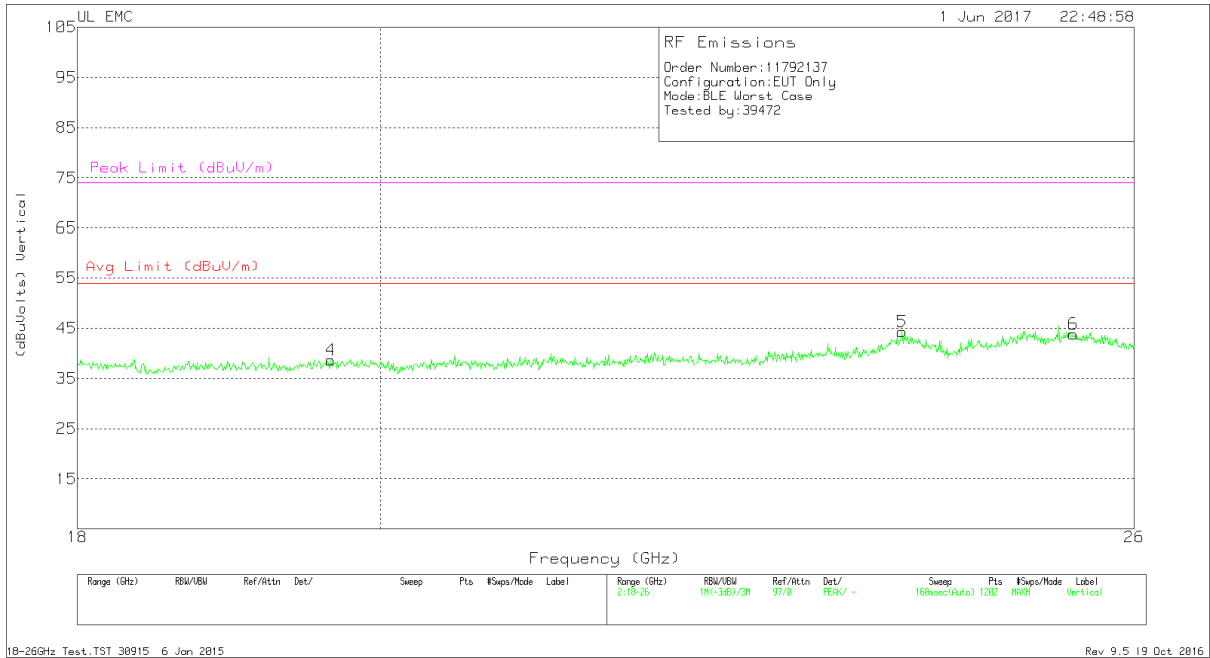
8.7. WORST-CASE ABOVE 18 GHz

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

HORIZONTAL PLOT



VERTICAL PLOT



Data

Marker	Frequenc y (GHz)	Meter Reading (dBuV)	Det	T447 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Correcte d Reading (dBuVOLT s)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	19.565	40.8	Pk	32.8	-25.1	-9.5	39	54	-15	74	-35
2	23.908	42.3	Pk	34.1	-23.9	-9.5	43	54	-11	74	-31
3	25.347	45.2	Pk	34.7	-24.9	-9.5	45.5	54	-8.5	74	-28.5
4	19.659	40.27	Pk	32.8	-24.9	-9.5	38.67	54	-15.33	74	-35.33
5	23.982	43.83	Pk	34.3	-24.3	-9.5	44.33	54	-9.67	74	-29.67
6	25.454	42.93	Pk	34.9	-24.5	-9.5	43.83	54	-10.167	74	-30.17

Pk - Peak detector

18-26GHz Test.TST 30915 6 Jan 2015

Rev 9.5 19 Oct 2016

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.

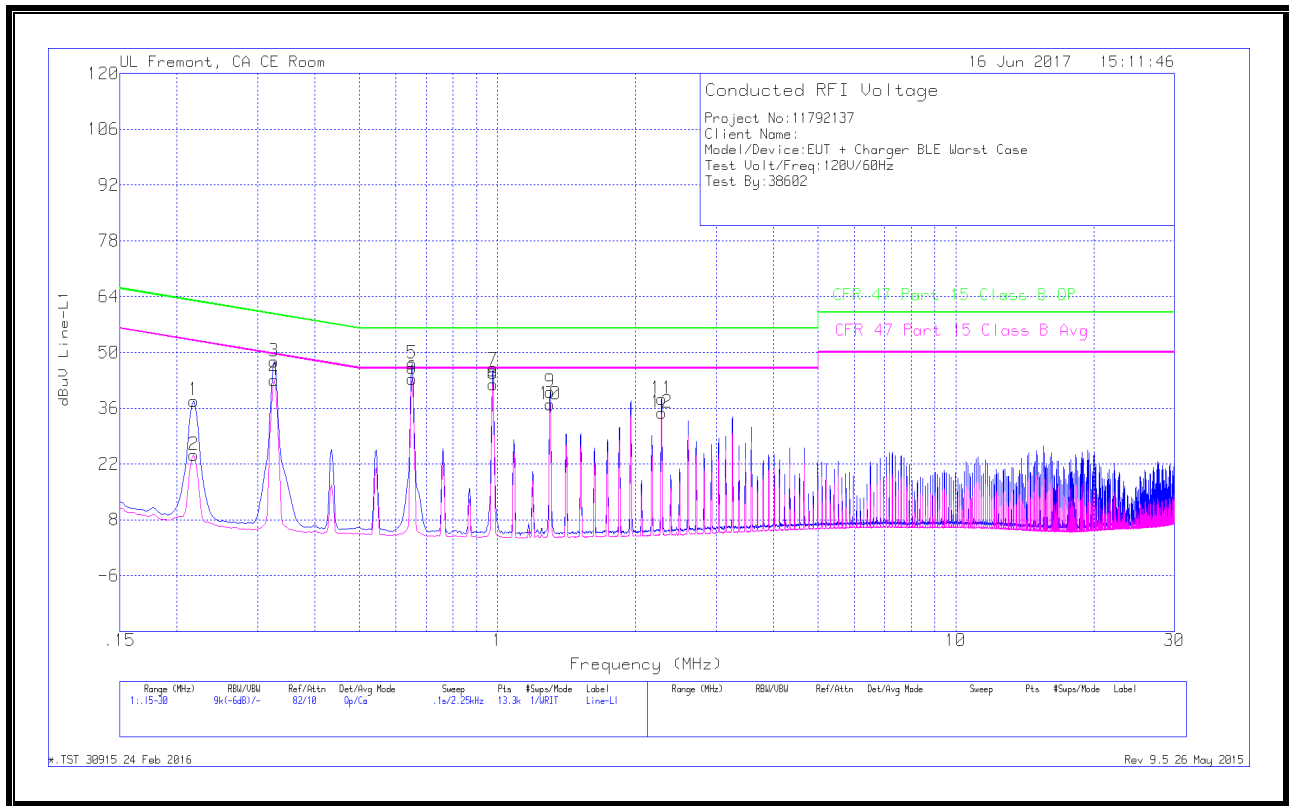
The receiver is set to a resolution bandwidth of 9 kHz. Peak detection is used unless otherwise noted as quasi-peak or average.

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

RESULTS

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

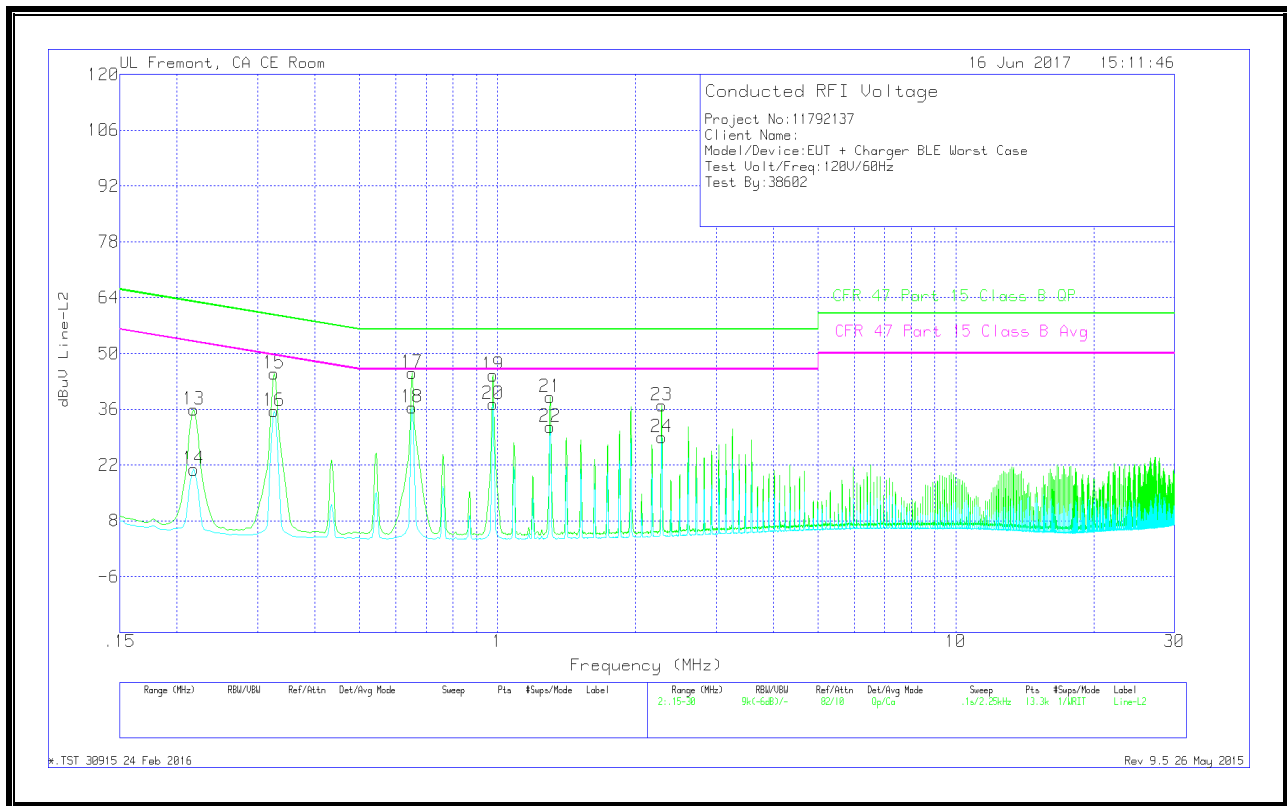
LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	.2175	27.02	Qp	.8	0	10.1	37.92	62.91	-24.99	-	-
2	.2175	13.44	Ca	.8	0	10.1	24.34	-	-	52.91	-28.57
3	.3255	36.98	Qp	.5	.1	10.1	47.68	59.57	-11.89	-	-
4	.3255	32.34	Ca	.5	.1	10.1	43.04	-	-	49.57	-6.53
5	.65175	36.7	Qp	.3	.1	10.1	47.2	56	-8.8	-	-
6	.65175	32.83	Ca	.3	.1	10.1	43.33	-	-	46	-2.67
7	.978	35.06	Qp	.2	.1	10.1	45.46	56	-10.54	-	-
8	.978	31.62	Ca	.2	.1	10.1	42.02	-	-	46	-3.98
9	1.302	29.77	Qp	.2	.1	10.1	40.17	56	-15.83	-	-
10	1.302	26.61	Ca	.2	.1	10.1	37.01	-	-	46	-8.99
11	2.28075	28	Qp	.2	.1	10.1	38.4	56	-17.6	-	-
12	2.28075	24.53	Ca	.2	.1	10.1	34.93	-	-	46	-11.07

LINE 2 RESULTS

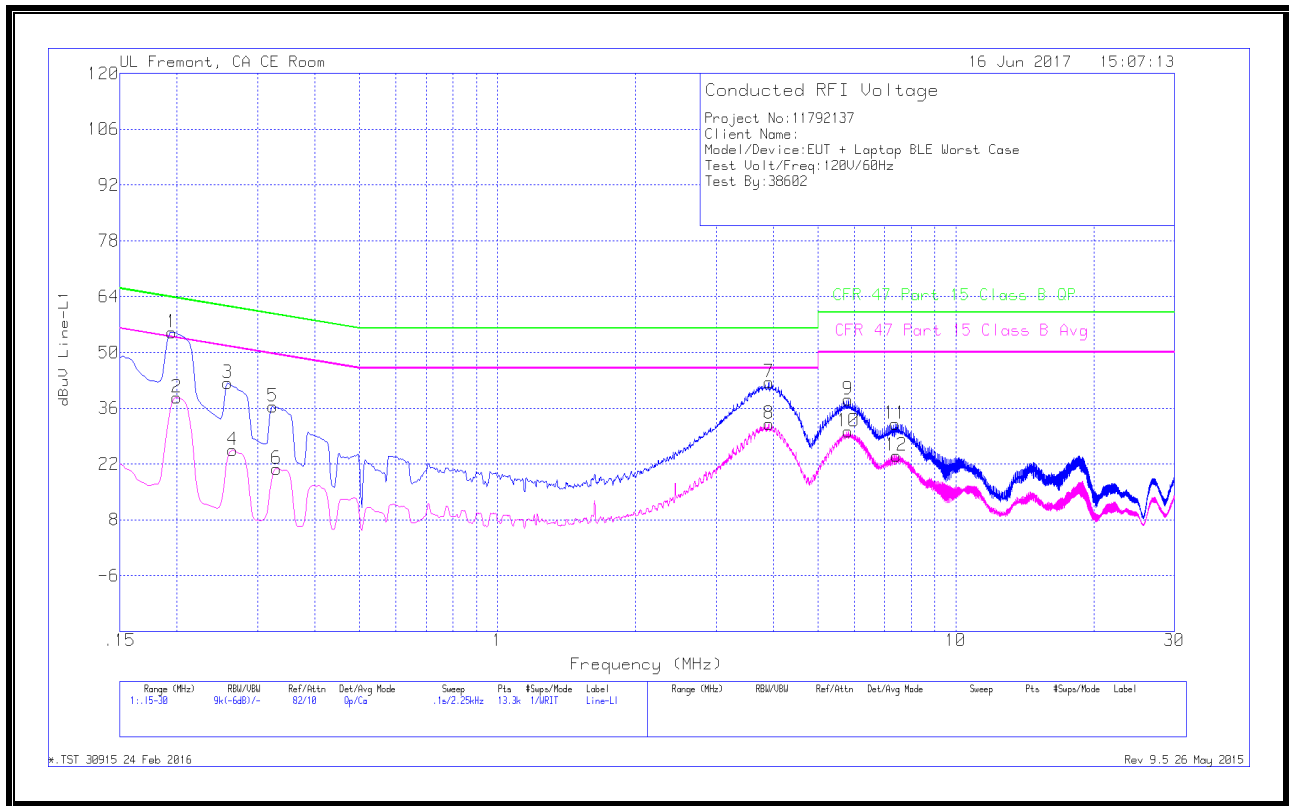


WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	.2175	24.94	Qp	.9	0	10.1	35.94	62.91	-26.97	-	-
14	.2175	9.89	Ca	.9	0	10.1	20.89	-	-	52.91	-32.02
15	.3255	34.24	Qp	.5	.1	10.1	44.94	59.57	-14.63	-	-
16	.3255	24.95	Ca	.5	.1	10.1	35.65	-	-	49.57	-13.92
17	.65175	34.59	Qp	.3	.1	10.1	45.09	56	-10.91	-	-
18	.65175	25.99	Ca	.3	.1	10.1	36.49	-	-	46	-9.51
19	.978	34.03	Qp	.3	.1	10.1	44.53	56	-11.47	-	-
20	.978	26.86	Ca	.3	.1	10.1	37.36	-	-	46	-8.64
21	1.30425	28.69	Qp	.2	.1	10.1	39.09	56	-16.91	-	-
22	1.30425	21.23	Ca	.2	.1	10.1	31.63	-	-	46	-14.37
23	2.28075	26.57	Qp	.2	.1	10.1	36.97	56	-19.03	-	-
24	2.28075	18.61	Ca	.2	.1	10.1	29.01	-	-	46	-16.99

8.10. EUT POWERED BY HOST PC VIA USB CABLE

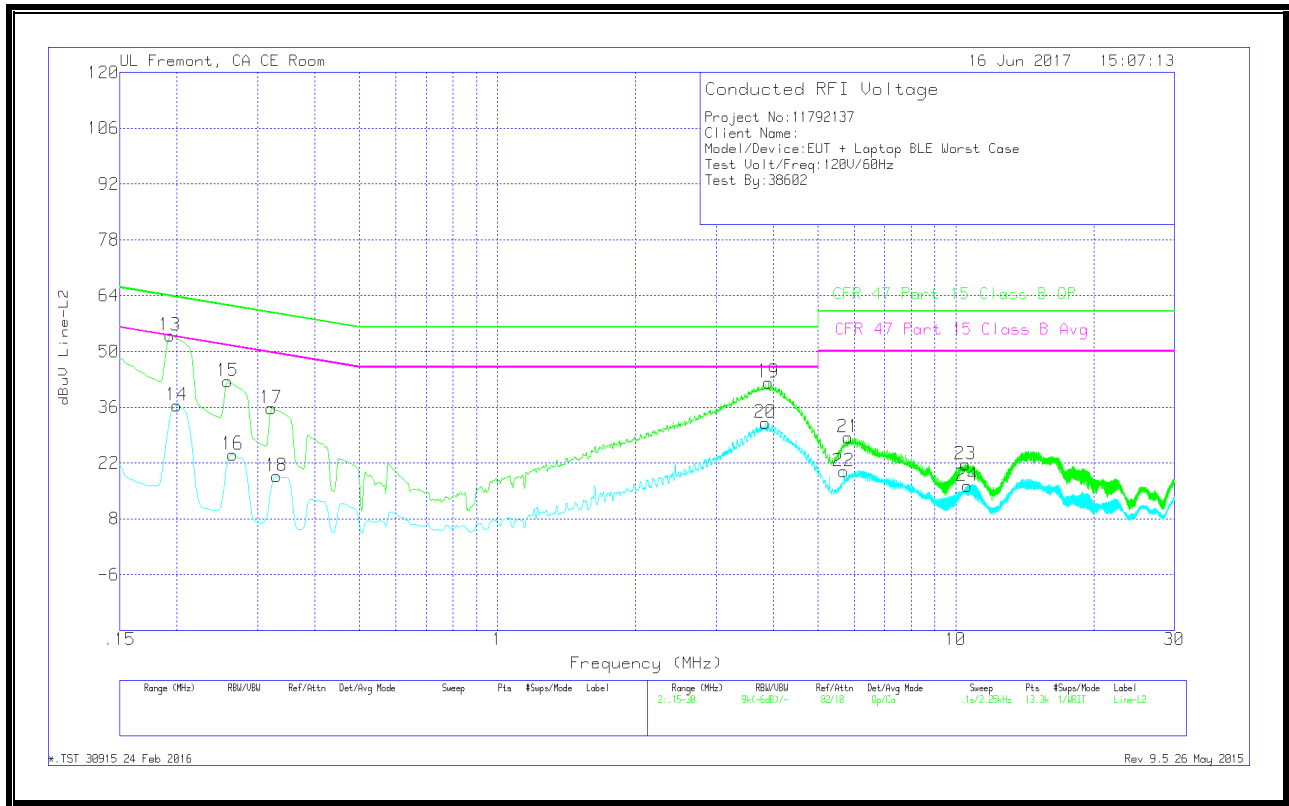
LINE 1 RESULTS



WORST EMISSIONS

Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	44	Qp	.9	.1	10.1	55.1	63.82	-8.72	-	-
2	.1995	27.53	Ca	.9	.1	10.1	38.63	-	-	53.63	-15
3	.258	31.5	Qp	.6	.1	10.1	42.3	61.5	-19.2	-	-
4	.26475	14.61	Ca	.6	.1	10.1	25.41	-	-	51.28	-25.87
5	.32325	25.67	Qp	.5	.1	10.1	36.37	59.62	-23.25	-	-
6	.33	10.09	Ca	.5	.1	10.1	20.79	-	-	49.45	-28.66
7	3.90975	32.15	Qp	.2	.1	10.1	42.55	56	-13.45	-	-
8	3.90975	21.66	Ca	.2	.1	10.1	32.06	-	-	46	-13.94
9	5.83125	27.69	Qp	.2	.1	10.2	38.19	60	-21.81	-	-
10	5.83125	19.66	Ca	.2	.1	10.2	30.16	-	-	50	-19.84
11	7.368	21.55	Qp	.2	.2	10.2	32.15	60	-27.85	-	-
12	7.41975	13.55	Ca	.2	.2	10.2	24.15	-	-	50	-25.85

LINE 2 RESULTS



WORST EMISSIONS

Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	T24 IL 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	.19275	42.72	Qp	1.1	.1	10.1	54.02	63.92	-9.9	-	-
14	.1995	25.23	Ca	1	.1	10.1	36.43	-	-	53.63	-17.2
15	.258	31.58	Qp	.7	.1	10.1	42.48	61.5	-19.02	-	-
16	.26475	13.28	Ca	.7	.1	10.1	24.18	-	-	51.28	-27.1
17	.321	24.9	Qp	.6	.1	10.1	35.7	59.68	-23.98	-	-
18	.33	8.06	Ca	.5	.1	10.1	18.76	-	-	49.45	-30.69
19	3.9075	31.86	Qp	.2	.1	10.1	42.26	56	-13.74	-	-
20	3.84225	21.67	Ca	.2	.1	10.1	32.07	-	-	46	-13.93
21	5.829	18.02	Qp	.2	.1	10.2	28.52	60	-31.48	-	-
22	5.70075	9.59	Ca	.2	.1	10.1	19.99	-	-	50	-30.01
23	10.5045	11	Qp	.3	.2	10.2	21.7	60	-38.3	-	-
24	10.608	5.59	Ca	.3	.2	10.2	16.29	-	-	50	-33.71