



CERTIFICATION TEST REPORT

Report Number. : 12742033-E2V4

Applicant : APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A2047

FCC ID : BCGA2047

IC : 579C-A2047

EUT Description : LEFT EARBUD

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
ISED RSS-247 ISSUE 2
ISED RSS-GEN ISSUE 5

Date Of Issue:

April 17, 2019

Prepared by:

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REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	4/10/2019	Initial Issue	Tony Li
V2	4/11/2019	Fixed FCC ID	Chin Pang
V3	4/16/2019	Addressed TCB Questions	Tony Li
V4	4/17/2019	Addressed TCB Questions	Chin Pang

TABLE OF CONTENTS

REPORT REVISION HISTORY	2
TABLE OF CONTENTS	3
1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. FACILITIES AND ACCREDITATION	6
4. CALIBRATION AND UNCERTAINTY	7
4.1. <i>MEASURING INSTRUMENT CALIBRATION</i>	7
4.2. <i>SAMPLE CALCULATION</i>	7
4.3. <i>MEASUREMENT UNCERTAINTY</i>	7
5. EQUIPMENT UNDER TEST	8
5.1. <i>EUT DESCRIPTION</i>	8
5.2. <i>MAXIMUM OUTPUT POWER</i>	8
5.3. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i>	8
5.4. <i>SOFTWARE AND FIRMWARE</i>	8
5.5. <i>WORST-CASE CONFIGURATION AND MODE</i>	8
5.6. <i>DESCRIPTION OF TEST SETUP</i>	9
6. MEASUREMENT METHOD	16
7. TEST AND MEASUREMENT EQUIPMENT	17
8. ANTENNA PORT TEST RESULTS	18
8.1. <i>ON TIME AND DUTY CYCLE</i>	18
8.2. <i>99% BANDWIDTH</i>	20
8.2.1. <i>BLE (1Mbps)</i>	21
8.2.2. <i>BLE (2Mbps)</i>	22
8.3. <i>6 dB BANDWIDTH</i>	23
8.3.1. <i>BLE (1Mbps)</i>	24
8.3.2. <i>BLE (2Mbps)</i>	25
8.4. <i>OUTPUT POWER</i>	26
8.4.1. <i>BLE (1Mbps)</i>	27
8.4.2. <i>BLE (2Mbps)</i>	27
8.5. <i>AVERAGE POWER</i>	28
8.5.1. <i>BLE (1Mbps)</i>	29
8.5.2. <i>BLE (2Mbps)</i>	29
8.6. <i>POWER SPECTRAL DENSITY</i>	30
8.6.1. <i>BLE (1Mbps)</i>	31

8.6.2. BLE (2Mbps).....	32
8.7. CONDUCTED SPURIOUS EMISSIONS.....	33
8.7.1. BLE (1Mbps).....	34
8.7.2. BLE (2Mbps).....	35
9. RADIATED TEST RESULTS.....	36
9.1. LIMITS AND PROCEDURE.....	36
9.2. TRANSMITTER ABOVE 1 GHZ	38
9.2.1. BLE (1Mbps).....	38
9.2.2. BLE (2Mbps).....	48
9.3. WORST CASE BELOW 1 GHZ.....	58
9.4. WORST CASE 18-26 GHz.....	60
10. AC POWER LINE CONDUCTED EMISSIONS	62
10.1.1. AC Power Line Host.....	63
10.1.2. AC Power Line Norm.....	65
11. SETUP PHOTOS	67

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: APPLE, INC.
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

EUT DESCRIPTION: Left Earbud

MODEL: A2047

SERIAL NUMBER: CC2YC0C4LYY4 (Conducted) & CC2YC0B7LYY4 (Radiated)

DATE TESTED: MARCH 20 - APRIL 4, 2019

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies
ISED RSS-247 Issue 2	Complies
ISED RSS-GEN Issue 5	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of the U.S. government.

Approved & Released For
UL Verification Services Inc. By:



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Senior Engineer
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UL Verification Services Inc.

Prepared By:



Tony Li
Test Engineer
Consumer Technology Division
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, ANSI C63.10-2013, KDB 558074 D01 15.247 Meas Guidance v05r02, RSS-GEN Issue 5, 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, and 47658 Kato Road, 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	47658 Kato Rd
<input type="checkbox"/> Chamber A (ISED:2324B-1)	<input type="checkbox"/> Chamber D (ISED:22541-1)	<input type="checkbox"/> Chamber I (ISED:2324A-5)
<input type="checkbox"/> Chamber B (ISED:2324B-2)	<input type="checkbox"/> Chamber E (ISED:22541-2)	<input type="checkbox"/> Chamber J (ISED:2324A-6)
<input type="checkbox"/> Chamber C (ISED:2324B-3)	<input type="checkbox"/> Chamber F (ISED:22541-3)	<input type="checkbox"/> Chamber K (ISED:2324A-1)
	<input checked="" type="checkbox"/> Chamber G (ISED:22541-4)	<input type="checkbox"/> Chamber L (ISED:2324A-3)
	<input type="checkbox"/> Chamber H (ISED:22541-5)	

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code

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

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

RADIATED EMISSIONS

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.
36.5 dBuV + 0 dB +10.1 dB+ 0 dB = 46.6 dBuV

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	2.52 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.24 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.37 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.17 dB

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

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

A2047 is a Bluetooth earbud for the left ear. It has an integral battery, microphone and antenna. It can charge via bottom contacts with charging case.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range (MHz)	Mode	Output Power (dBm)	Output Power (mW)
2402 - 2480	BLE (1M)	5.06	3.21
2402 - 2480	BLE (2M)	5.02	3.18

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

Frequency Band (GHz)	Antenna Gain (dBi)
2.4	-5.40

5.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was 1A610

5.5. WORST-CASE CONFIGURATION AND MODE

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

Band edge and radiated emissions between 1GHz and 18GHz were performed with the EUT set to transmit at the highest power on low, middle and high channels.

The fundamental of the EUT was investigated in three orthogonal orientations X,Y,Z, it was determined that Z (portrait) orientation was worst-case orientation; therefore, all final radiated testing was performed with the EUT in Z (portrait) orientation.

There were no emissions found below 30MHz within 20dB of the limit.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Apple	Macbook Pro	C02P41RZG086	FCC DoC
Laptop AC/DC adapter	Liteon Technology	PA-1450-BA1	B123	NA
Charger Case	Apple	A2078	CC2909500NDLYY13N	579C-A2078
10dB Fixed Attenuator	Pasternack	PE7087-10	Label ID: 178584	N/A

I/O CABLES (CONDUCTED TEST)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	2	N/A
2	USB	1	Lightning	Shielded	1	N/A
3	Antenna	1	SMA	Un-Shielded	0.3	To spectrum Analyzer / Power Meter

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						

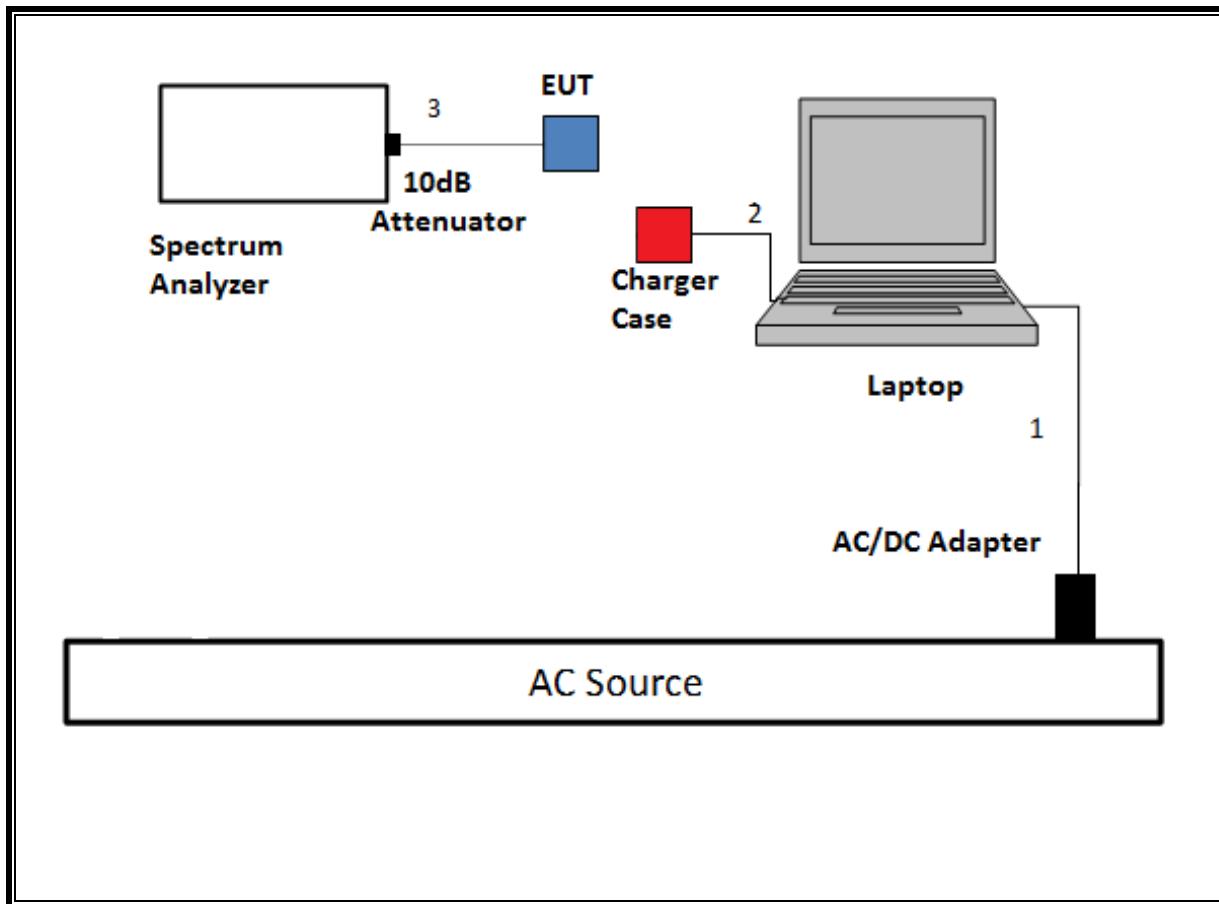
I/O CABLES (BELOW 1GHz AND AC POWER LINE TEST WITH ADAPTER AND LAPTOP)

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

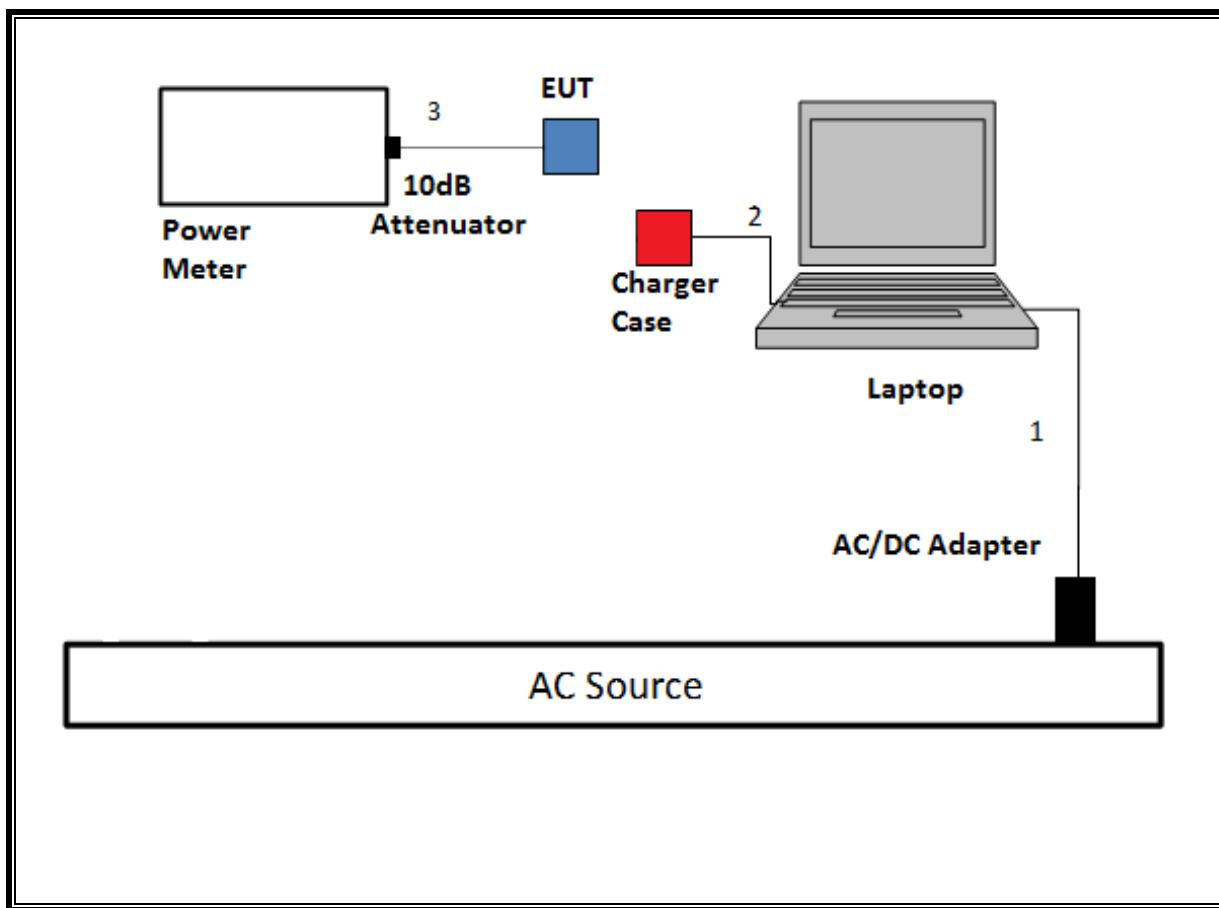
TEST SETUP

The EUT is connected to a test laptop during the tests. Test software exercised the radio card.

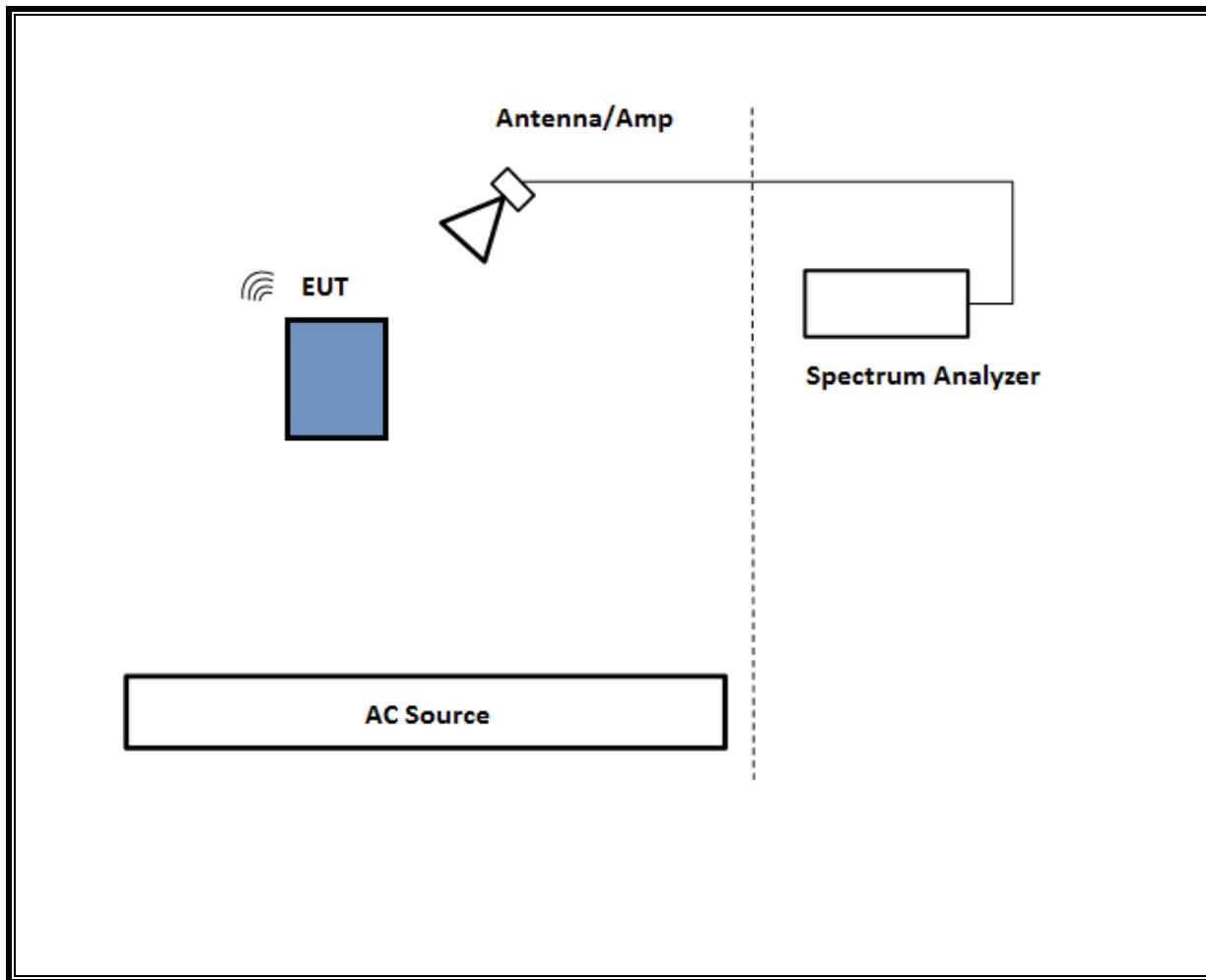
SETUP DIAGRAM FOR CONDUCTED TESTS



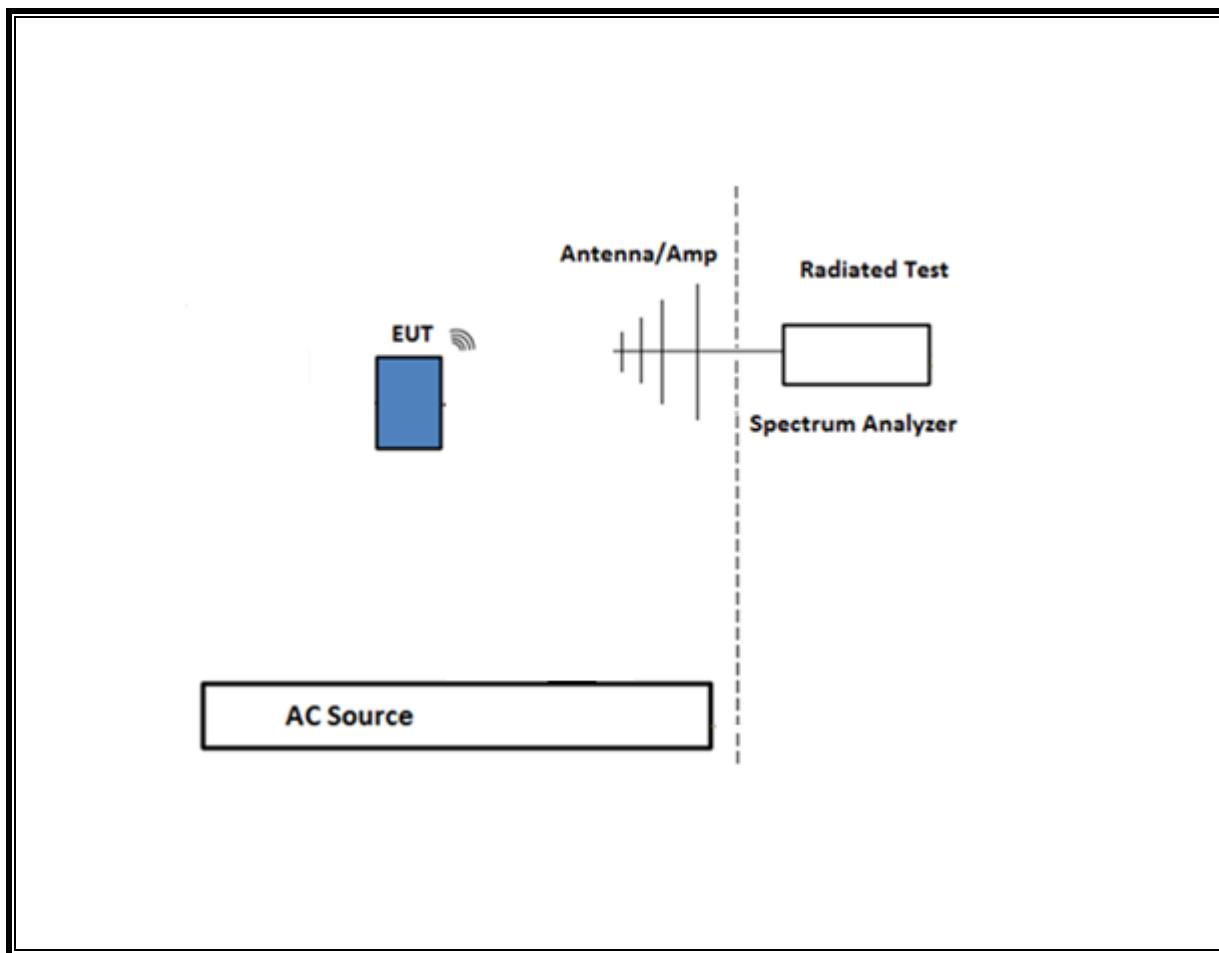
SETUP DIAGRAM FOR CONDUCTED TESTS: POWER METER CONFIGURATION



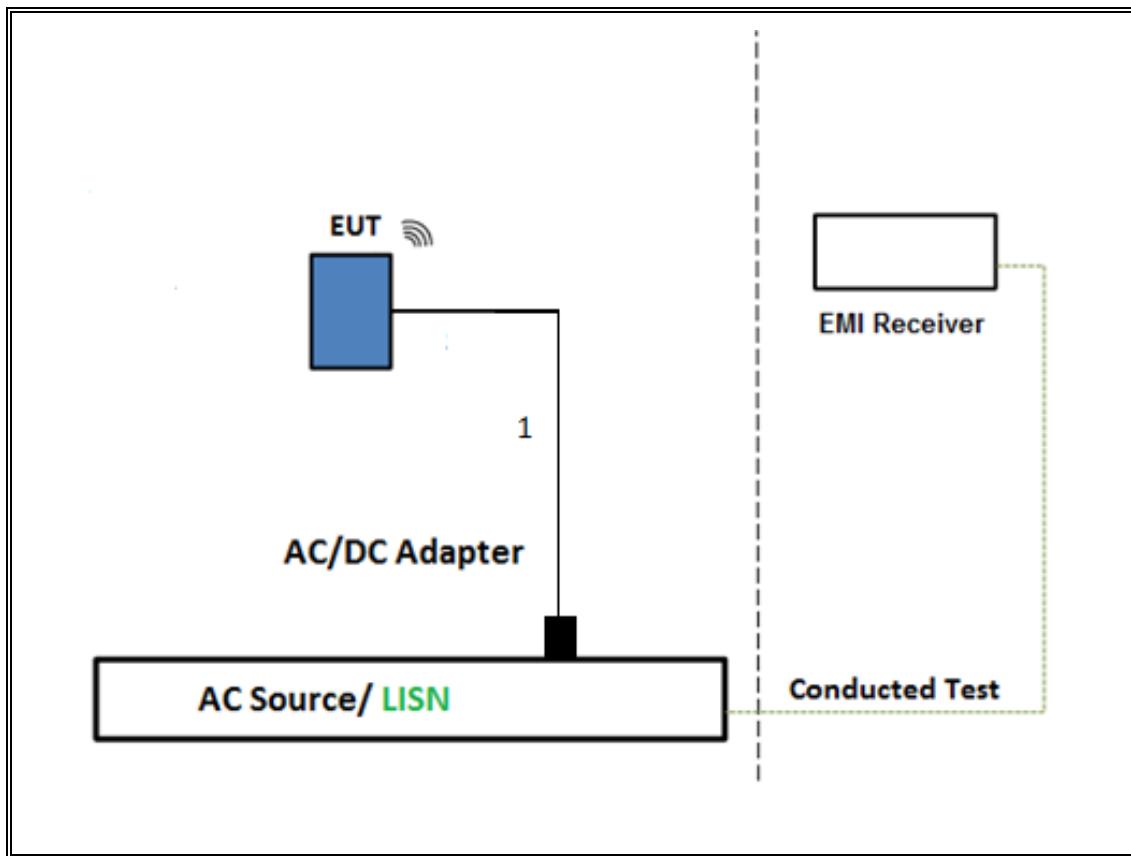
SETUP DIAGRAM FOR RADIATED TESTS ABOVE 1GHz



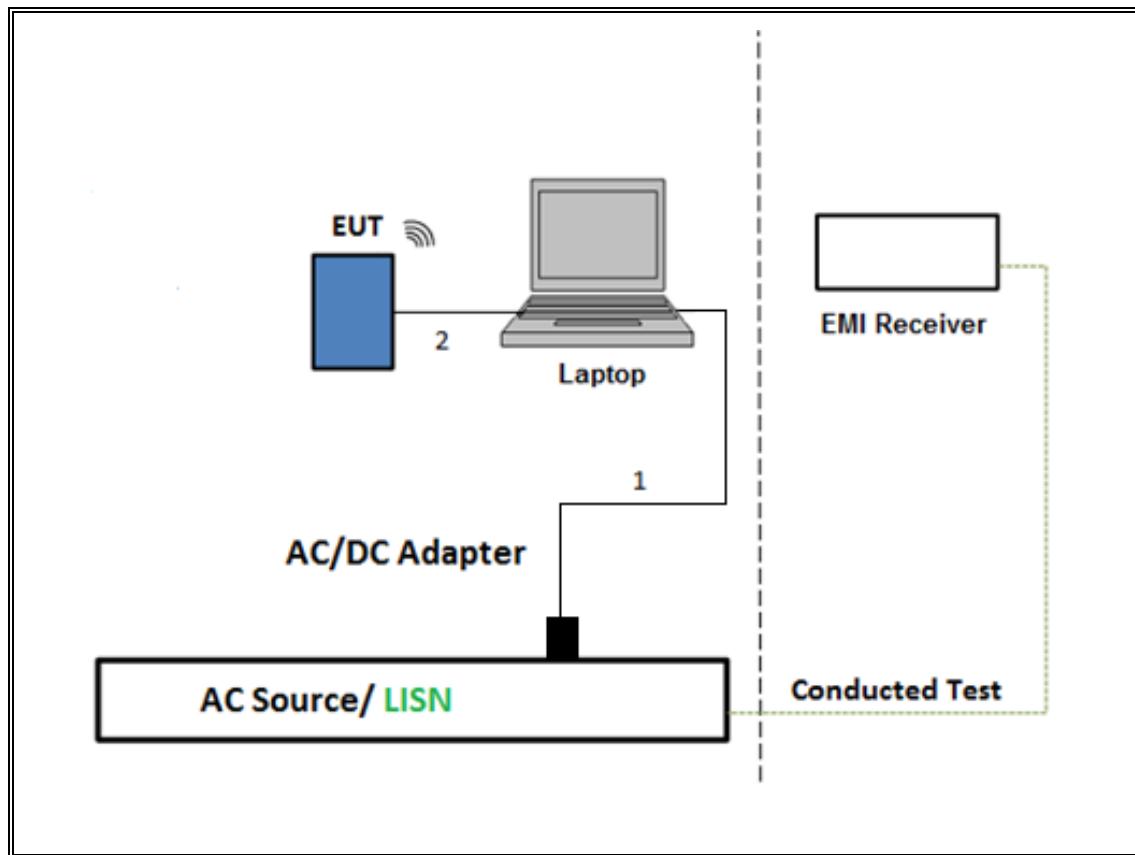
SETUP DIAGRAM FOR BELOW 1GHz



TEST SETUP- AC LINE CONDUCTED: CHARGER CONFIGURATION



TEST SETUP- AC LINE CONDUCTED: LAPTOP CONFIGURATION



6. MEASUREMENT METHOD

On Time and Duty Cycle: KDB 558074 D01 v05r02, Section 6.

6 dB BW: ANSI C63.10 Subclause -11.8.1 RBW \geq DTS BW

Occupied BW (99%): ANSI C63.10-2013 Section 6.9.3

Output Power: ANSI C63.10 Subclause -11.9.1.3 Peak power meter method

Output Power: ANSI C63.10 Subclause -11.9.2.3.1 Method AVGPM (Measurement using an RF average-reading power meter)

PSD: ANSI C63.10 Subclause -11.10.2 Method PKPSD (peak PSD)

Radiated emissions non-restricted frequency bands: ANSI C63.10 Subclause -11.11

Radiated emissions restricted frequency bands: ANSI C63.10 Subclause -11.12.1

Conducted emissions in restricted frequency bands: ANSI C63.10 Subclause -11.12.2

Band-edge: ANSI C63.10 Subclause -11.13.3.2 Integration method -Peak detection

Band-edge: ANSI C63.10 Subclause -11.13.3.3 Integration method -Trace averaging with continuous transmission at full power

AC Power Line Conducted Emissions: ANSI C63.10-2013, Section 6.2.

Radiated Spurious Emissions Below 30MHz: ANSI C63.10-2013 Section 6.4

7. 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	ID Num	Cal Due
Amplifier, 10kHz to 1GHz, 32dB	SONOMA INSTRUMENT	310N	T834	06/04/2019
Amplifier, 1 - 18GHz	MITEQ	AFS42-00101800-25-S-42	T491	05/19/2019
Antenna, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T1616	10/18/2019
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB1	T185	04/19/2019
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T120	07/02/2019
*Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	03/23/2020
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	T447	06/16/2019
Filter, HPF 3.0GHz	MICRO-TRONICS	HPM17543	T898	05/19/2019
Power Meter, P-series single channel	Agilent (Keysight) Technologies	N1911A	T227	10/29/2019
Power Sensor	Power Sensor	Keysight	T1226	02/06/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Agilent (Keysight) Technologies	N9030A-544	T1113	01/22/2020
Thermo-Hygrometer	Contact East	445703	T909	02/26/2020
AC Line Conducted				
EMI Test Receiver 9Khz-7GHz	Rohde & Schwarz	ESCI7	T1436	02/23/2020
Power Cable, Line Conducted Emissions	UL	PG1	T861	08/31/2019
**LISN for Conducted Emissions CISPR-16	Fischer	50/250-25-2-01	T1310	06/19/2019
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	

8. ANTENNA PORT TEST RESULTS

8.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

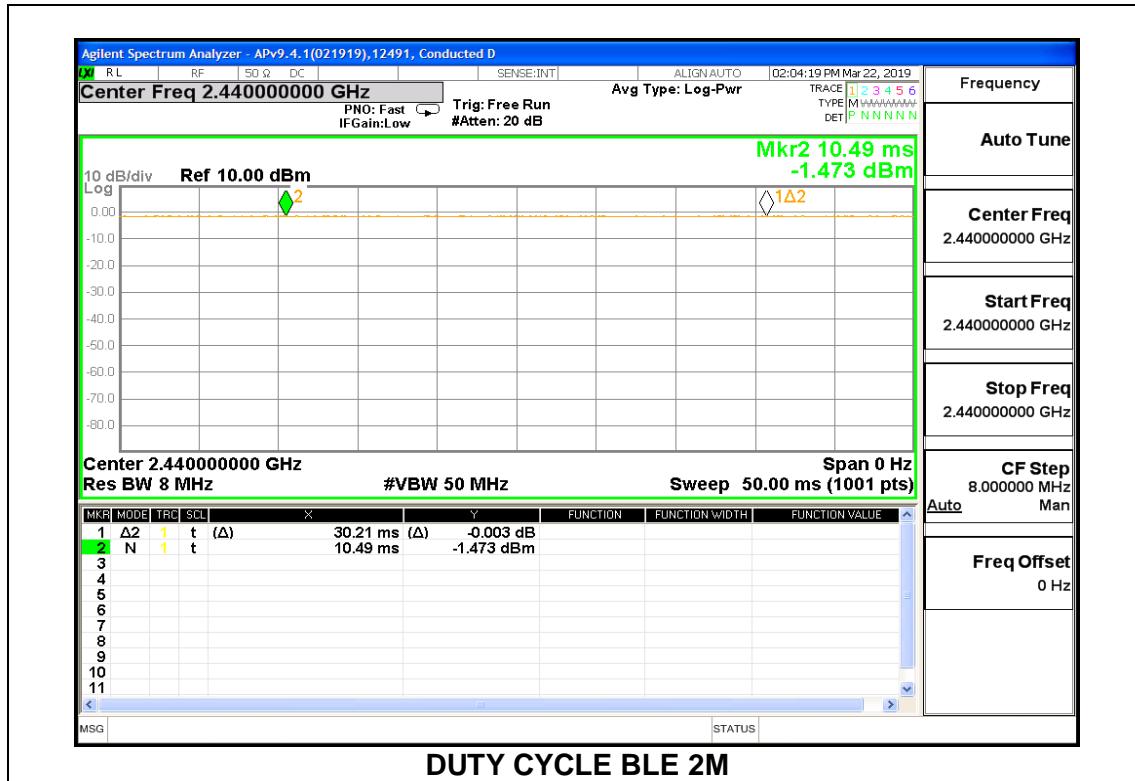
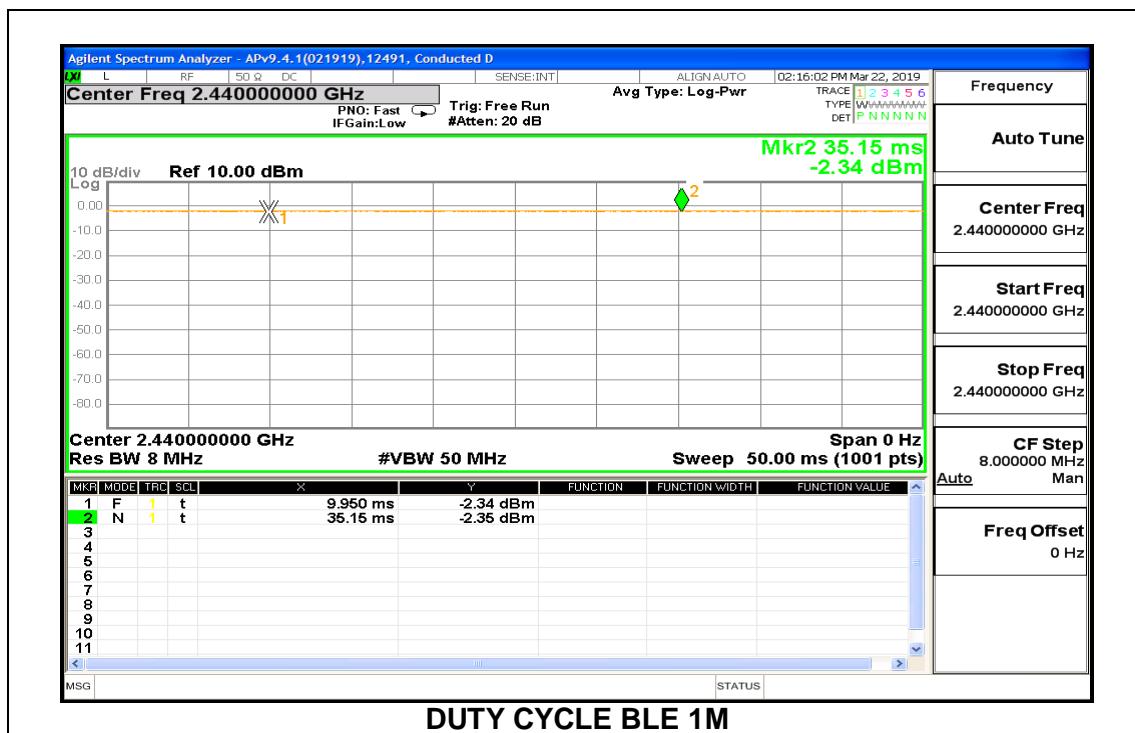
PROCEDURE

KDB 558074 Zero-Span Spectrum Analyzer Method.

ON TIME AND DUTY CYCLE RESULTS

Mode	ON Time B (msec)	Period (msec)	Duty Cycle x (linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW (kHz)
2.4GHz Band						
BLE 1M	1.000	1.000	1.000	100.00%	0.00	0.010
BLE 2M	1.000	1.000	1.000	100.00%	0.00	0.010

DUTY CYCLE PLOTS



8.2. **99% BANDWIDTH**

LIMITS

None; for reporting purposes only.

RESULTS

8.2.1. BLE (1Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0390
Middle	2440	1.0420
High	2480	1.0400



8.2.2. BLE (2Mbps)

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	2.0846
Middle	2440	2.0875
High	2480	2.0871



8.3. 6 dB BANDWIDTH

LIMITS

FCC §15.407 (e)

RSS-247 5.2 (a)

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

RESULTS

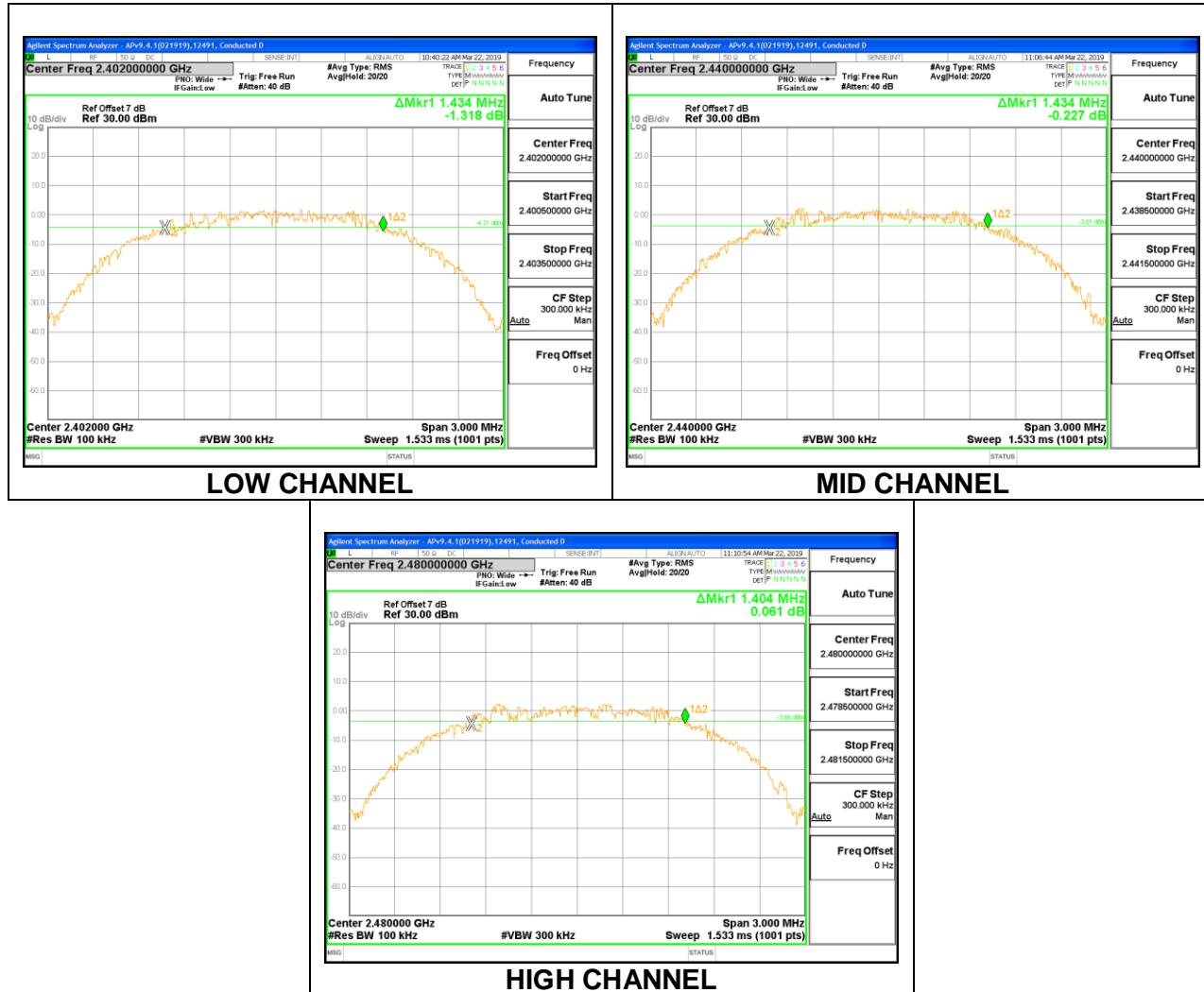
8.3.1. BLE (1Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.753	0.5
Middle	2440	0.747	0.5
High	2480	0.783	0.5



8.3.2. BLE (2Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	1.434	0.5
Middle	2440	1.434	0.5
High	2480	1.404	0.5



8.4. OUTPUT POWER

LIMITS

FCC §15.247 (b) (3)

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 power meter.

The cable assembly insertion loss of 11.0 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for a gated peak reading of power.

RESULTS

8.4.1. BLE (1Mbps)

Tested By:	12491
Date:	3/22/2019

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	5.06	30	-24.94
Middle	2440	4.96	30	-25.04
High	2480	4.99	30	-25.01

8.4.2. BLE (2Mbps)

Tested By:	12491
Date:	3/22/2019

Channel	Frequency (MHz)	Peak Power Reading (dBm)	Limit (dBm)	Margin (dB)
Low	2402	5.02	30	-24.98
Middle	2440	4.88	30	-25.12
High	2480	5.00	30	-25.00

8.5. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11.0 dB (including 10 dB pad and 1.0 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power.

RESULTS

8.5.1. BLE (1Mbps)

Tested By:	12491
Date:	3/22/2019

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	4.94
Middle	2440	4.85
High	2480	4.88

8.5.2. BLE (2Mbps)

Tested By:	12491
Date:	3/22/2019

Channel	Frequency (MHz)	AV power (dBm)
Low	2402	4.93
Middle	2440	4.78
High	2480	4.88

8.6. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

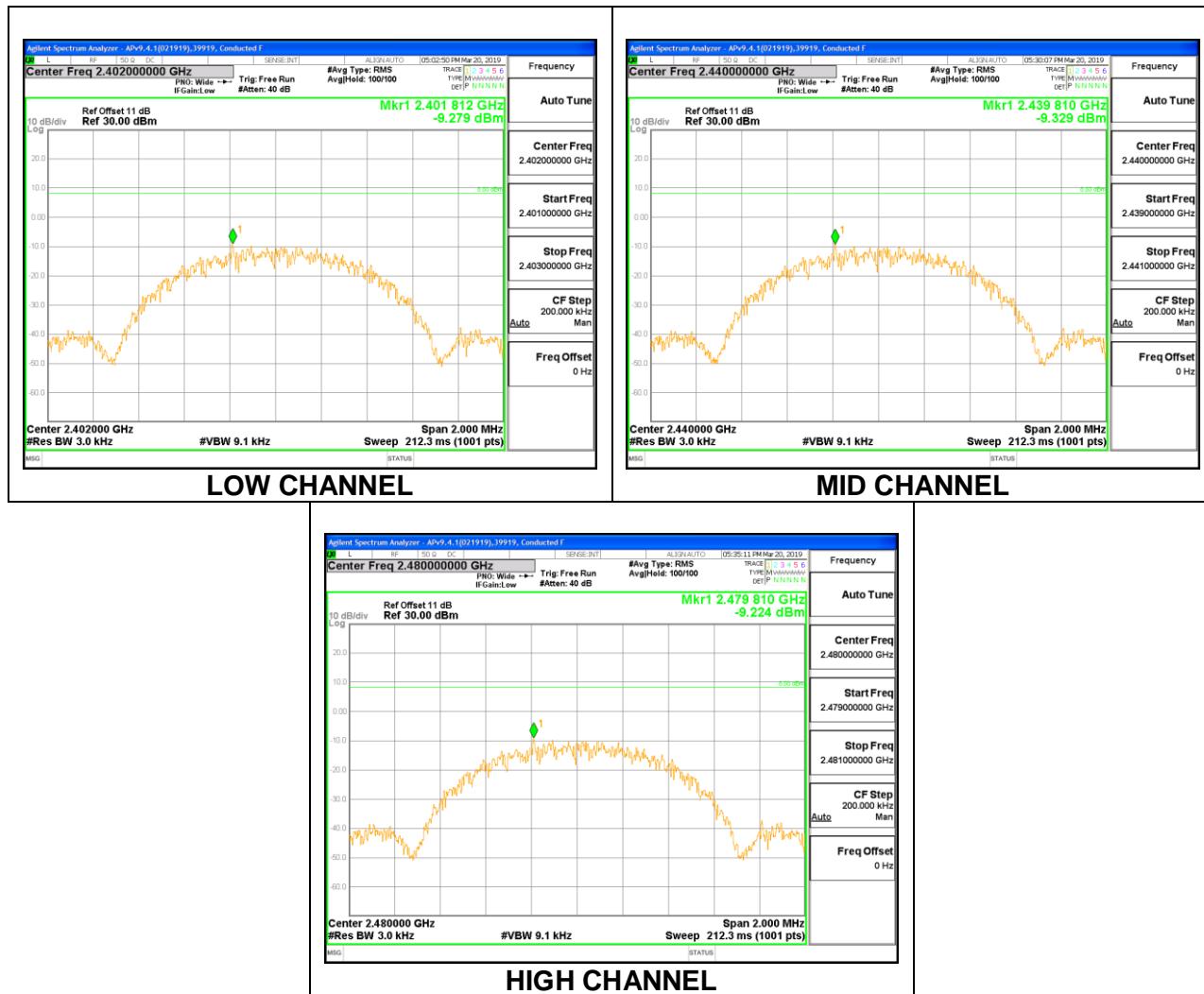
RSS-247 (5.2) (b)

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

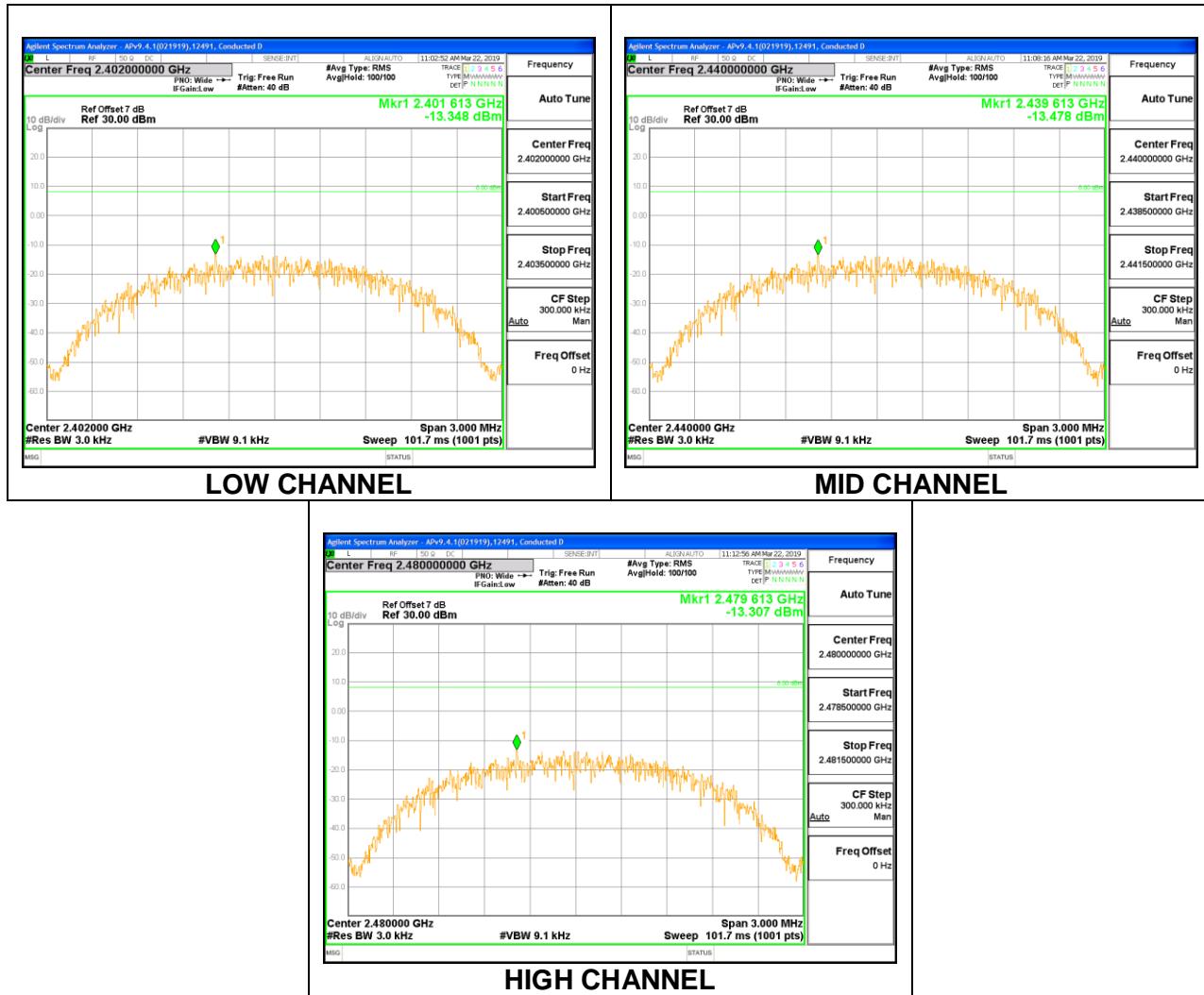
8.6.1. BLE (1Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-9.28	8	-17.28
Middle	2440	-9.33	8	-17.33
High	2480	-9.22	8	-17.22



8.6.2. BLE (2Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-13.348	8	-21.348
Middle	2440	-13.478	8	-21.478
High	2480	-13.307	8	-21.307



8.7. CONDUCTED SPURIOUS EMISSIONS

LIMITS

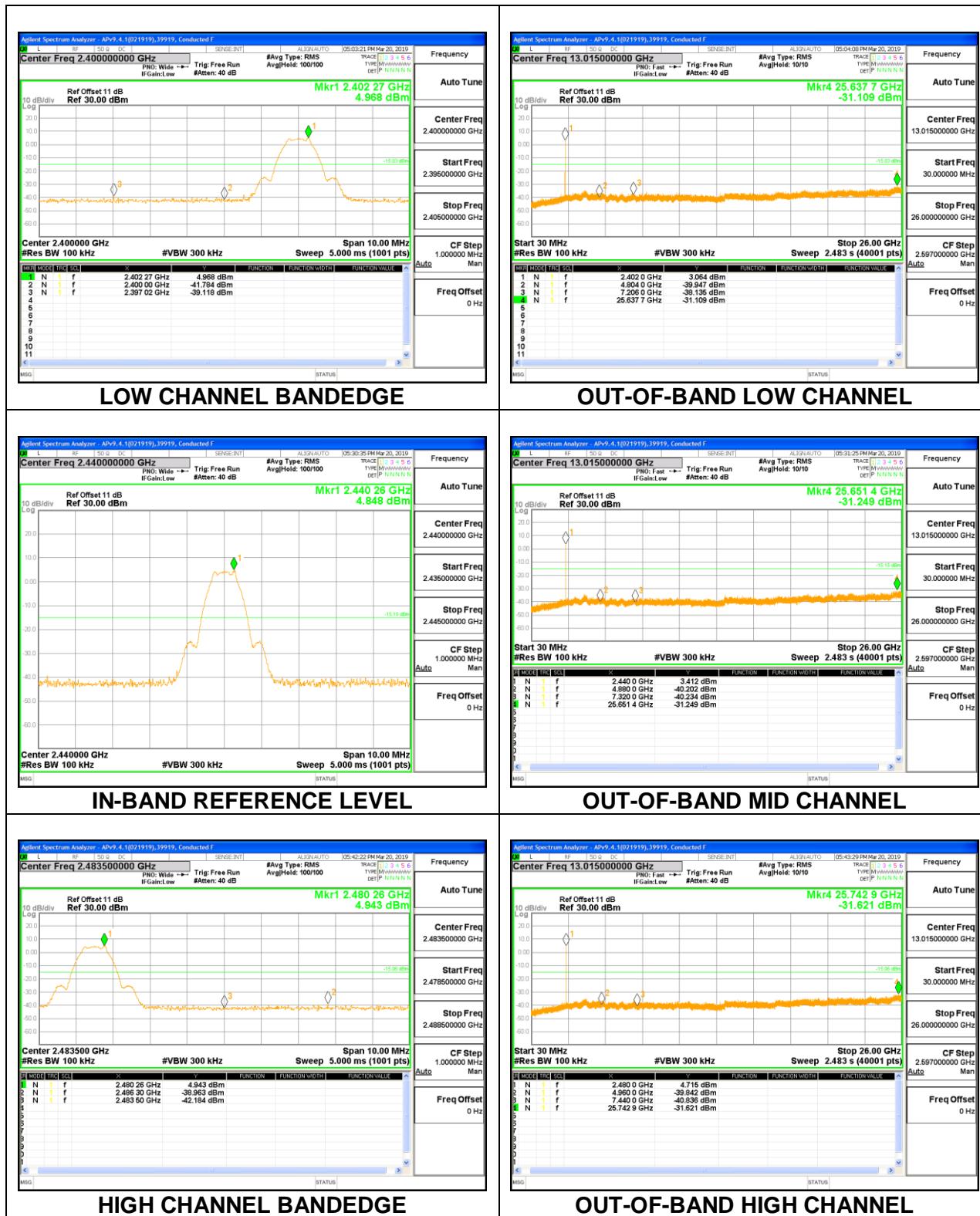
FCC §15.247 (d)

RSS-247 5.5

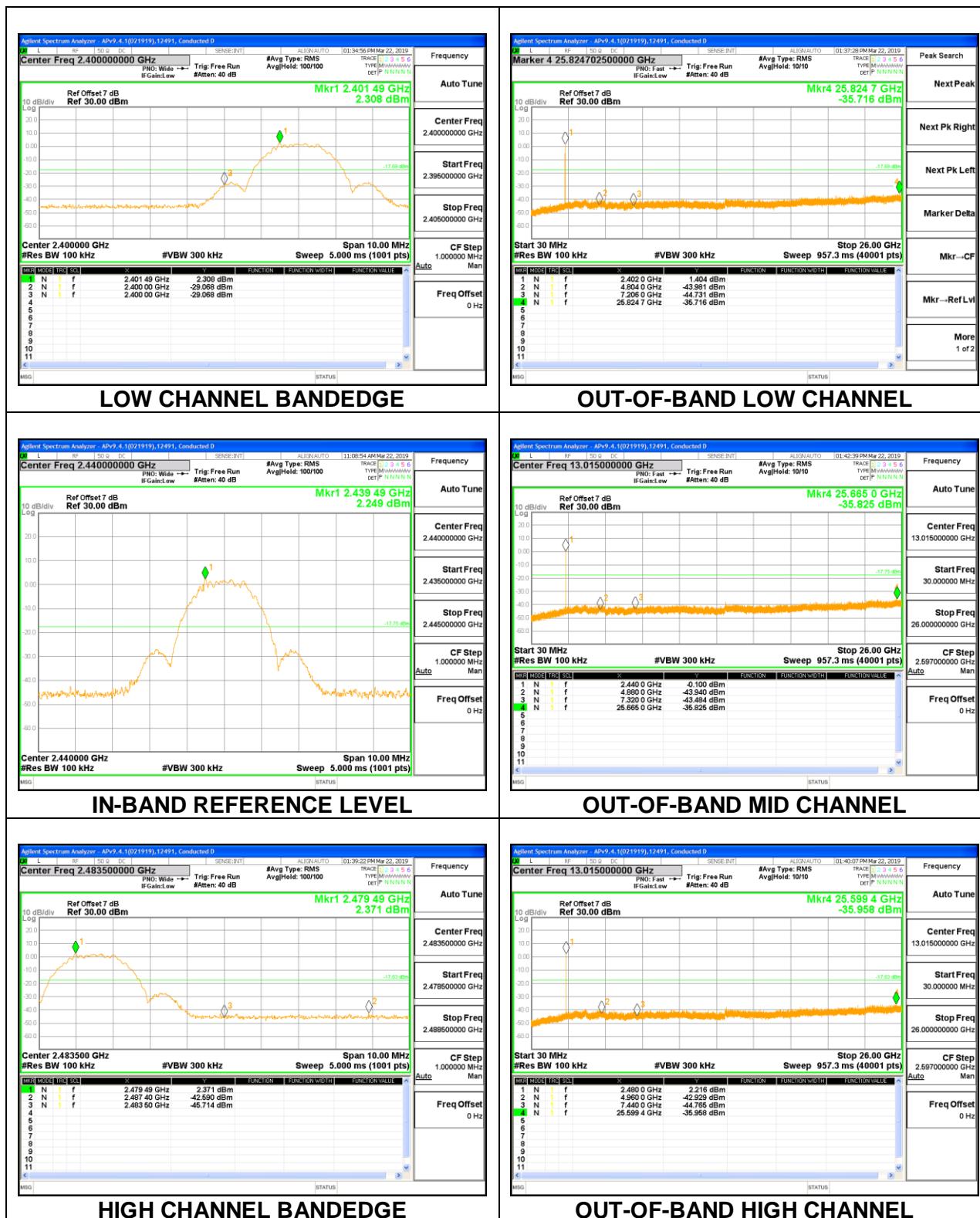
Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

RESULTS

8.7.1. BLE (1Mbps)



8.7.2. BLE (2Mbps)



9. RADIATED TEST RESULTS

9.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

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
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

TEST PROCEDURE

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

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

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

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

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

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.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification

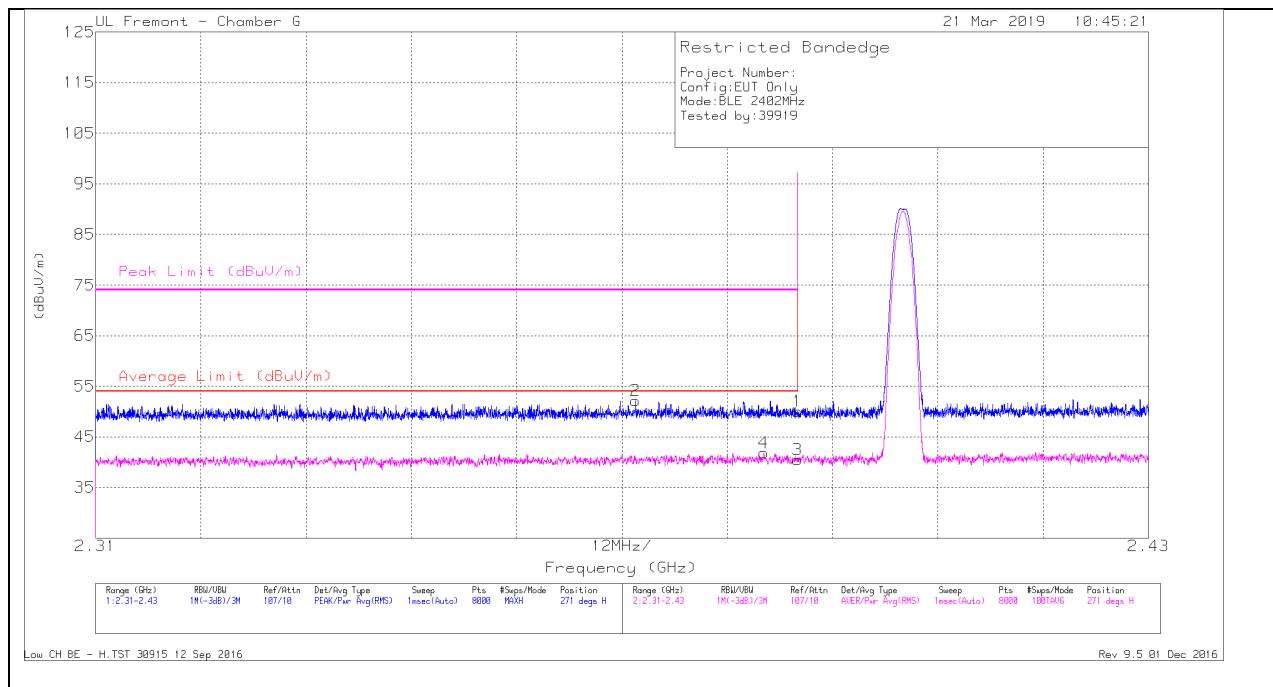
Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

9.2. TRANSMITTER ABOVE 1 GHz

9.2.1. BLE (1Mbps) BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



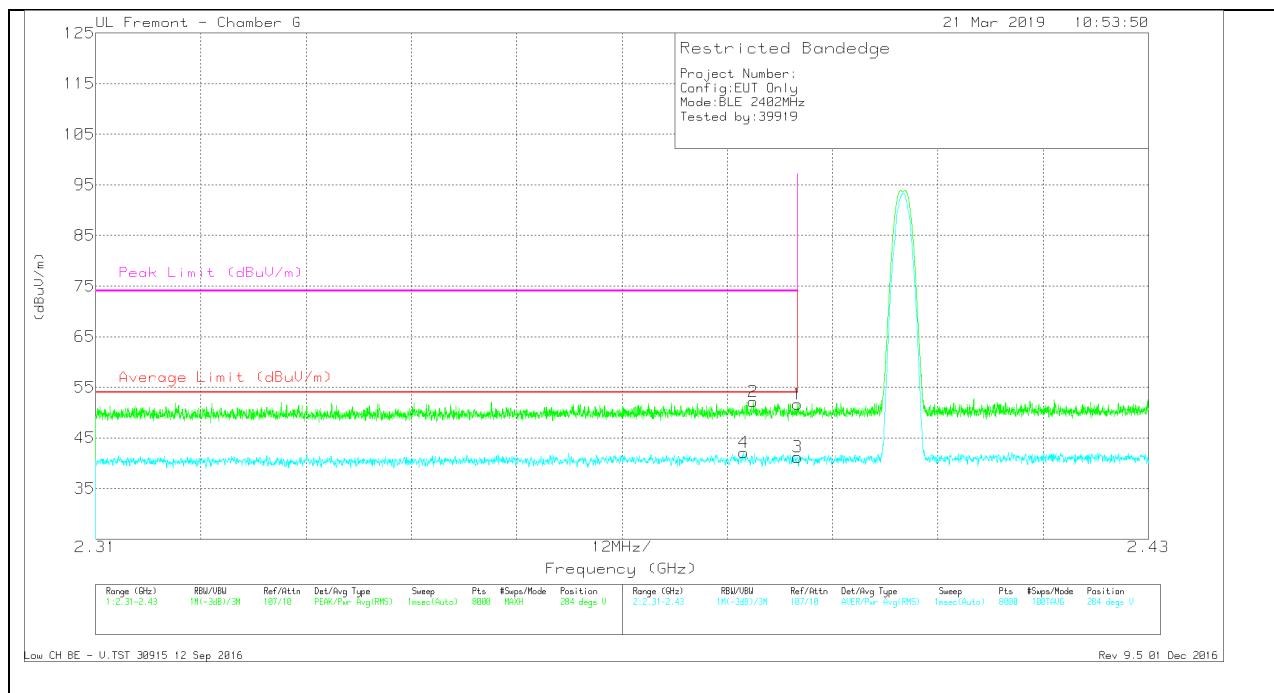
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT120 (dB/m)	Amp/Cbl/Filtz/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.5	Pk	31.9	-22.3	50.1	-	-	74	-23.9	271	158	H
2	* 2.372	42.63	Pk	31.8	-22.3	52.13	-	-	74	-21.87	271	158	H
3	* 2.39	30.91	RMS	31.9	-22.3	40.51	54	-13.49	-	-	271	158	H
4	* 2.386	32.16	RMS	31.9	-22.2	41.86	54	-12.14	-	-	271	158	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



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	42.05	Pk	31.9	-22.3	51.65	-	-	74	-22.35	284	167	V
2	* 2.385	42.61	Pk	31.9	-22.3	52.21	-	-	74	-21.79	284	167	V
3	* 2.39	31.57	RMS	31.9	-22.3	41.17	54	-12.83	-	-	284	167	V
4	* 2.384	32.45	RMS	31.9	-22.3	42.05	54	-11.95	-	-	284	167	V

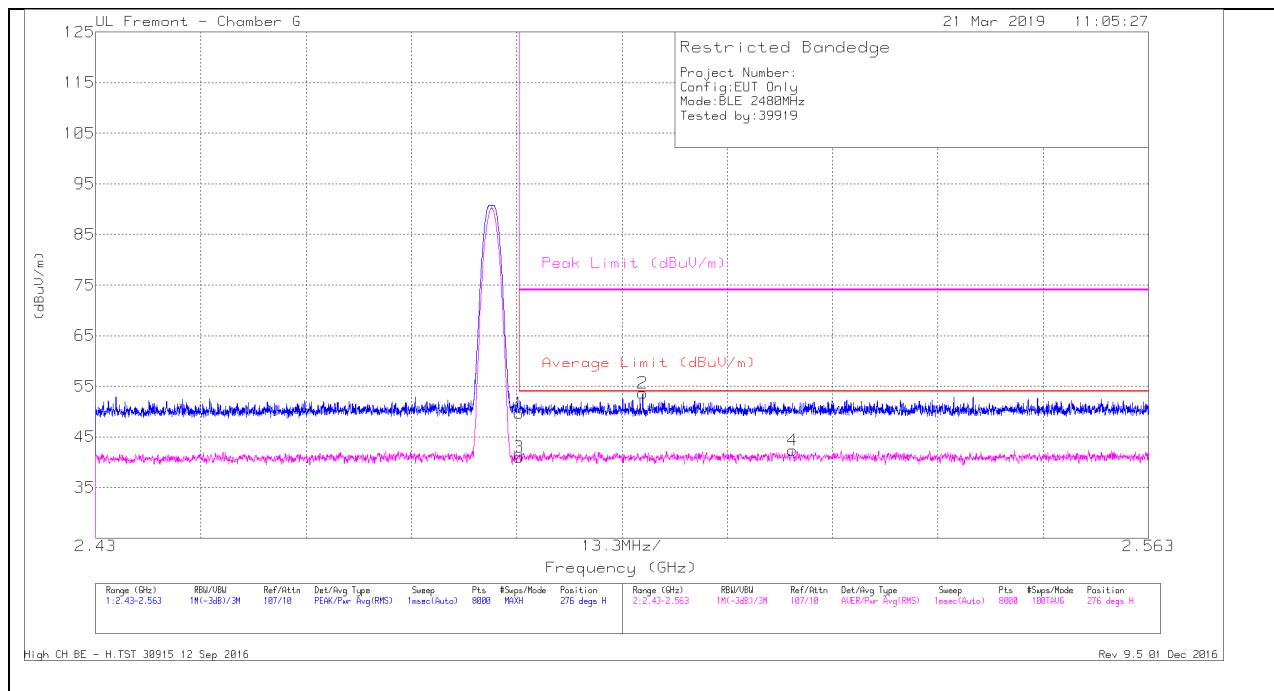
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



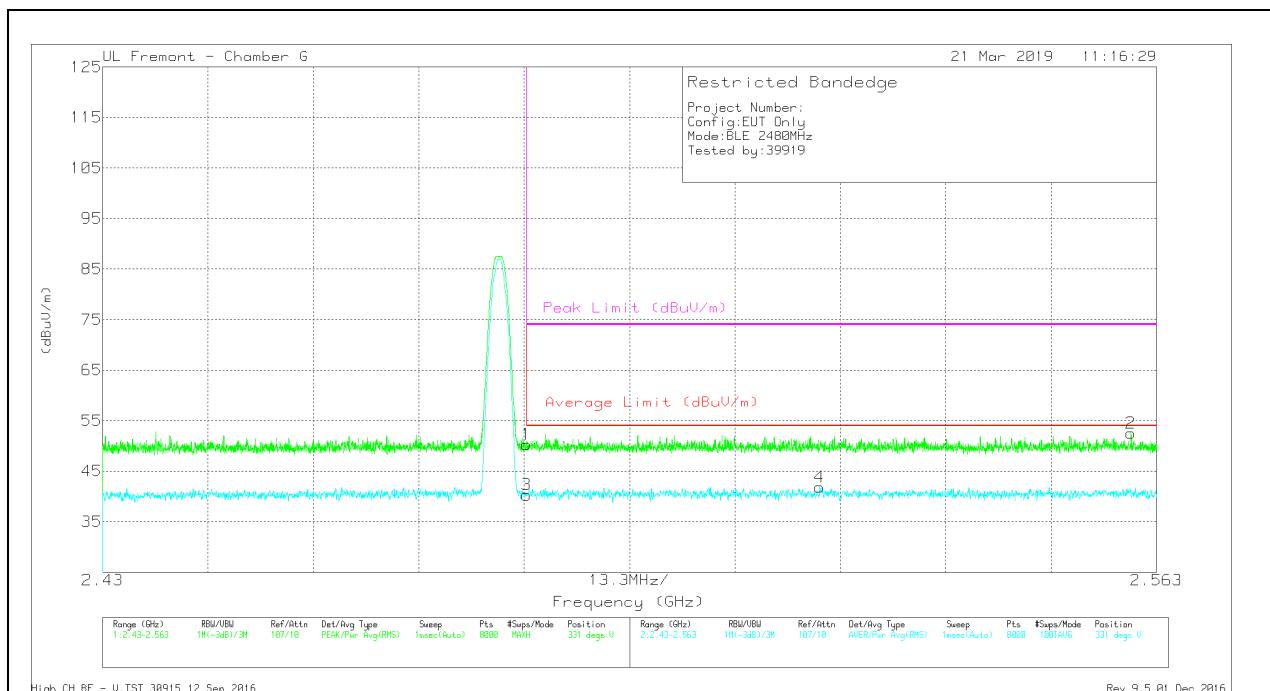
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	39.52	Pk	32.4	-22.3	49.62	-	-	74	-24.38	276	152	H
2	* 2.499	43.49	Pk	32.4	-22.3	53.59	-	-	74	-20.41	276	152	H
3	* 2.484	30.93	RMS	32.4	-22.3	41.03	54	-12.97	-	-	276	152	H
4	2.518	32.22	RMS	32.4	-22.3	42.32	54	-11.68	-	-	276	152	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



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	40.19	Pk	32.4	-22.3	50.29	-	-	74	-23.71	331	101	V
3	* 2.484	30.2	RMS	32.4	-22.3	40.3	54	-13.7	-	-	331	101	V
4	2.521	31.71	RMS	32.4	-22.3	41.81	54	-12.19	-	-	331	101	V
2	2.56	42.28	Pk	32.4	-22.2	52.48	-	-	74	-21.52	331	101	V

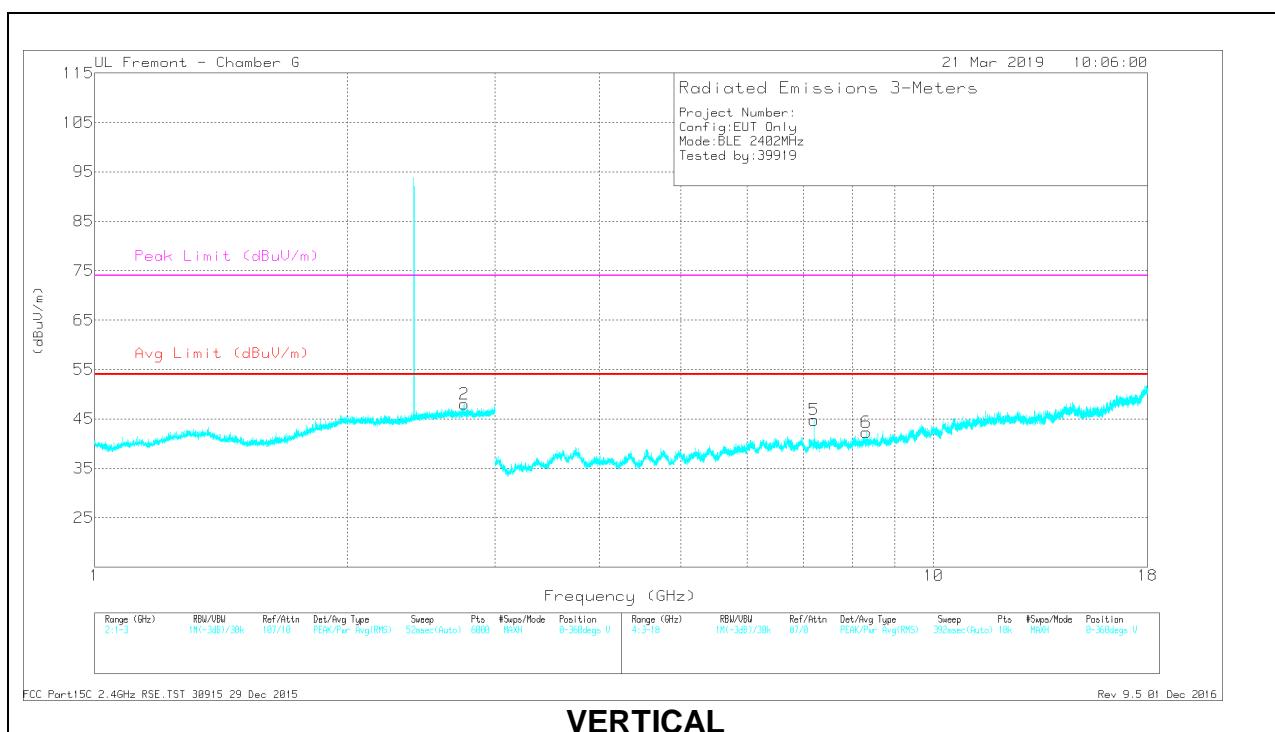
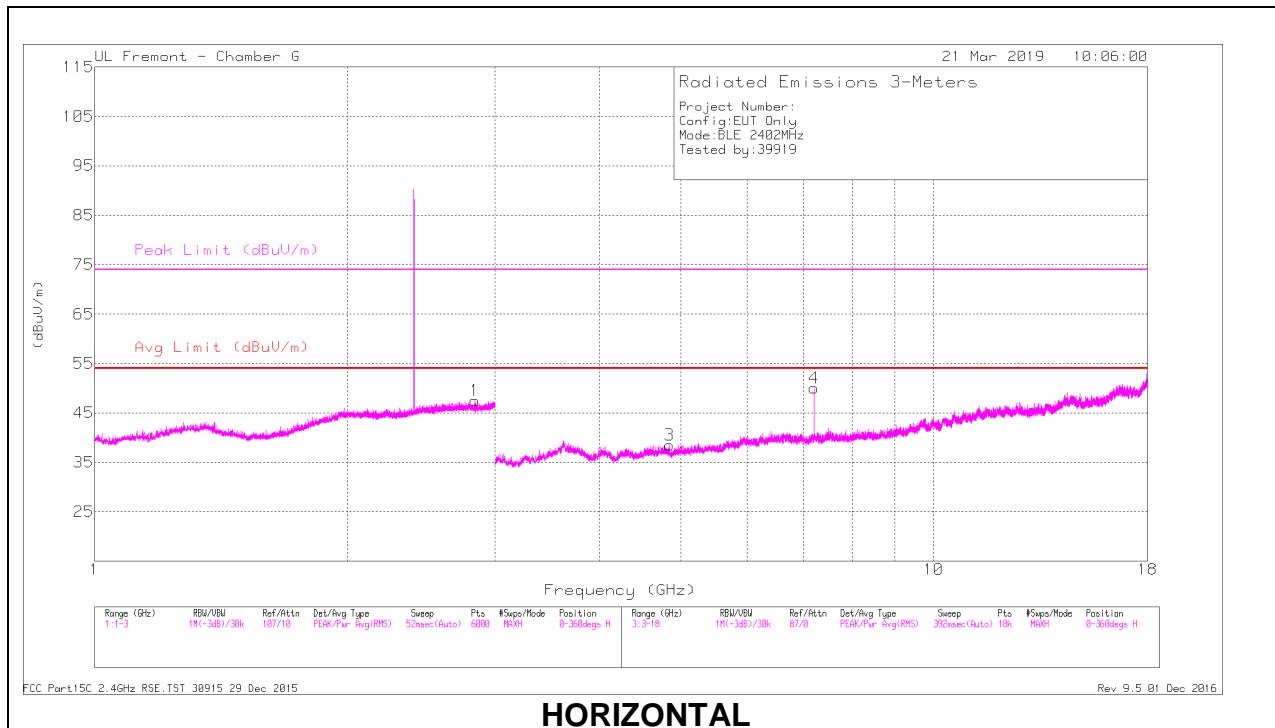
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

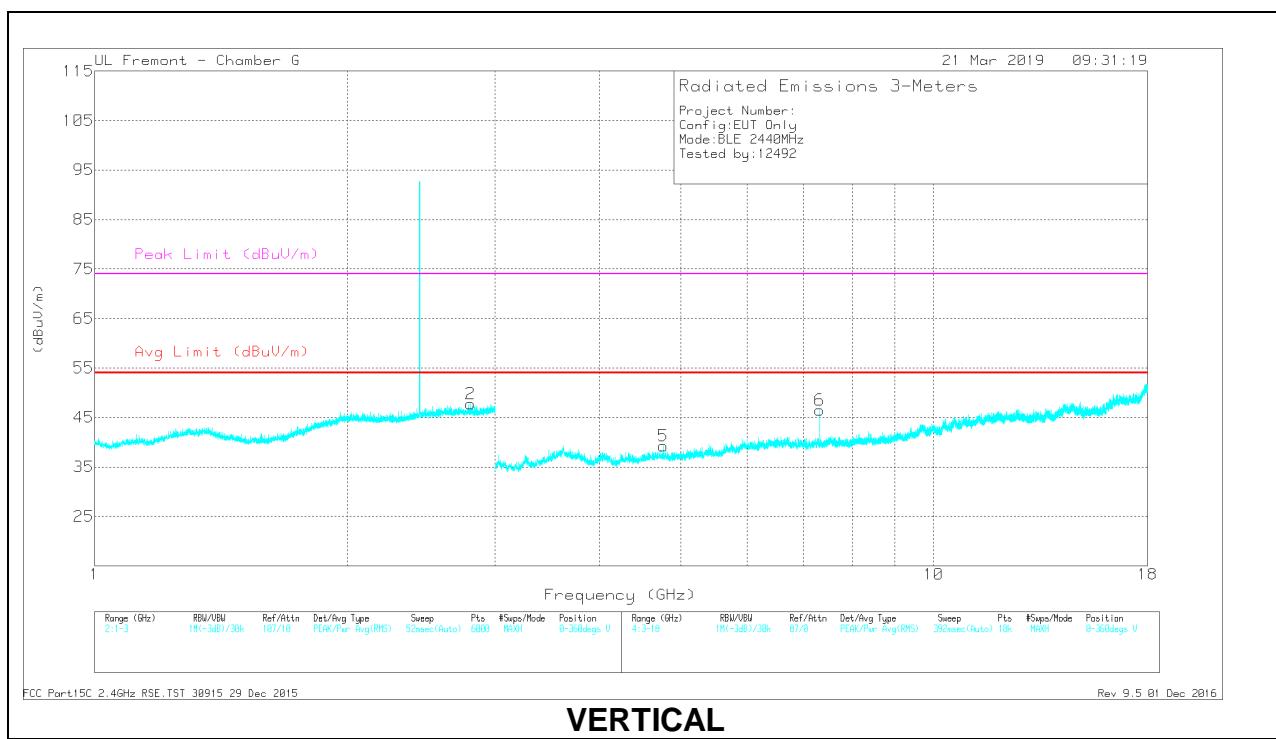
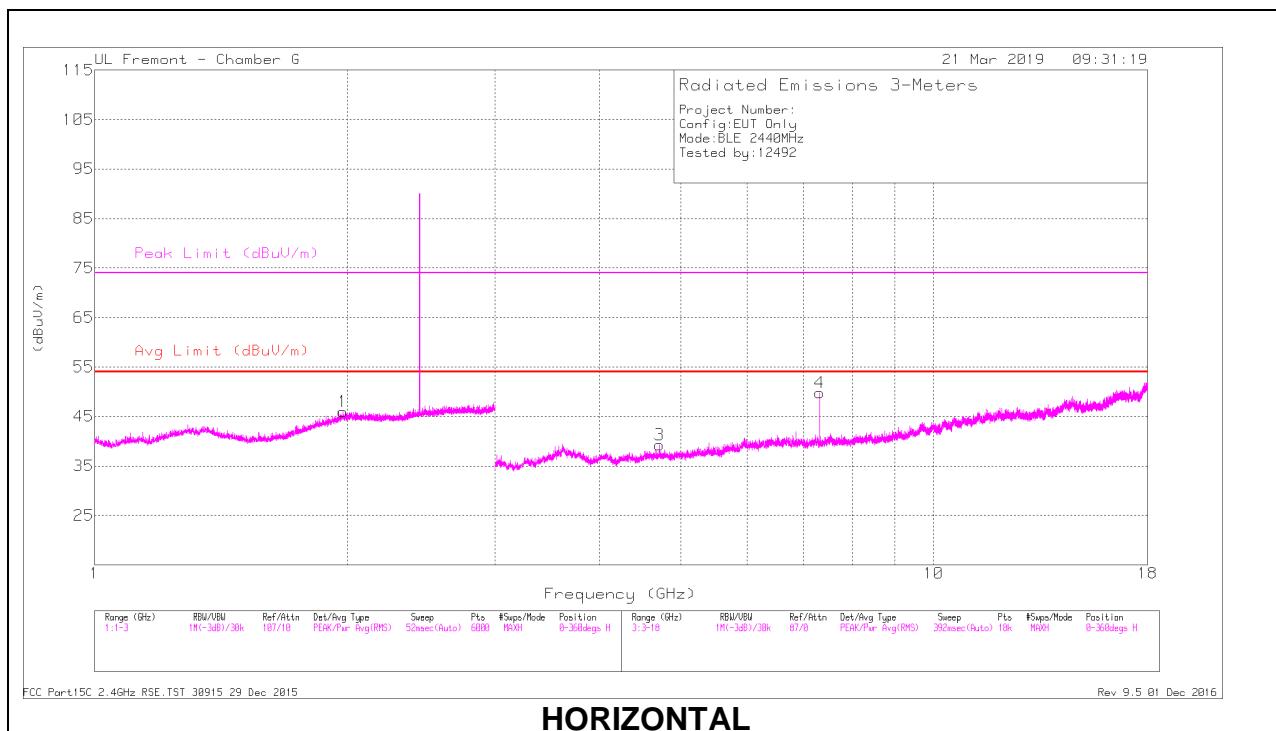
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.838	42.76	PK2	32.7	-22	53.46	-	-	74	-20.54	297	202	H
	* 2.84	31.54	MAv1	32.7	-22	42.24	54	-11.76	-	-	297	202	H
2	* 2.759	43.78	PK2	32.7	-22.1	54.38	-	-	74	-19.62	217	215	V
	* 2.76	31.82	MAv1	32.7	-22.1	42.42	54	-11.58	-	-	217	215	V
3	* 4.841	39.48	PK2	34.2	-29.8	43.88	-	-	74	-30.12	150	168	H
	* 4.841	28.43	MAv1	34.2	-29.8	32.83	54	-21.17	-	-	150	168	H
6	* 8.318	39.23	PK2	36.1	-26.9	48.43	-	-	74	-25.57	167	202	V
	* 8.317	27.3	MAv1	36.1	-26.9	36.5	54	-17.5	-	-	167	202	V
4	7.205	43.18	PK2	35.8	-27.9	51.08	-	-	-	-	321	191	V
5	7.207	46.33	PK2	35.8	-27.8	54.33	-	-	-	-	100	101	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

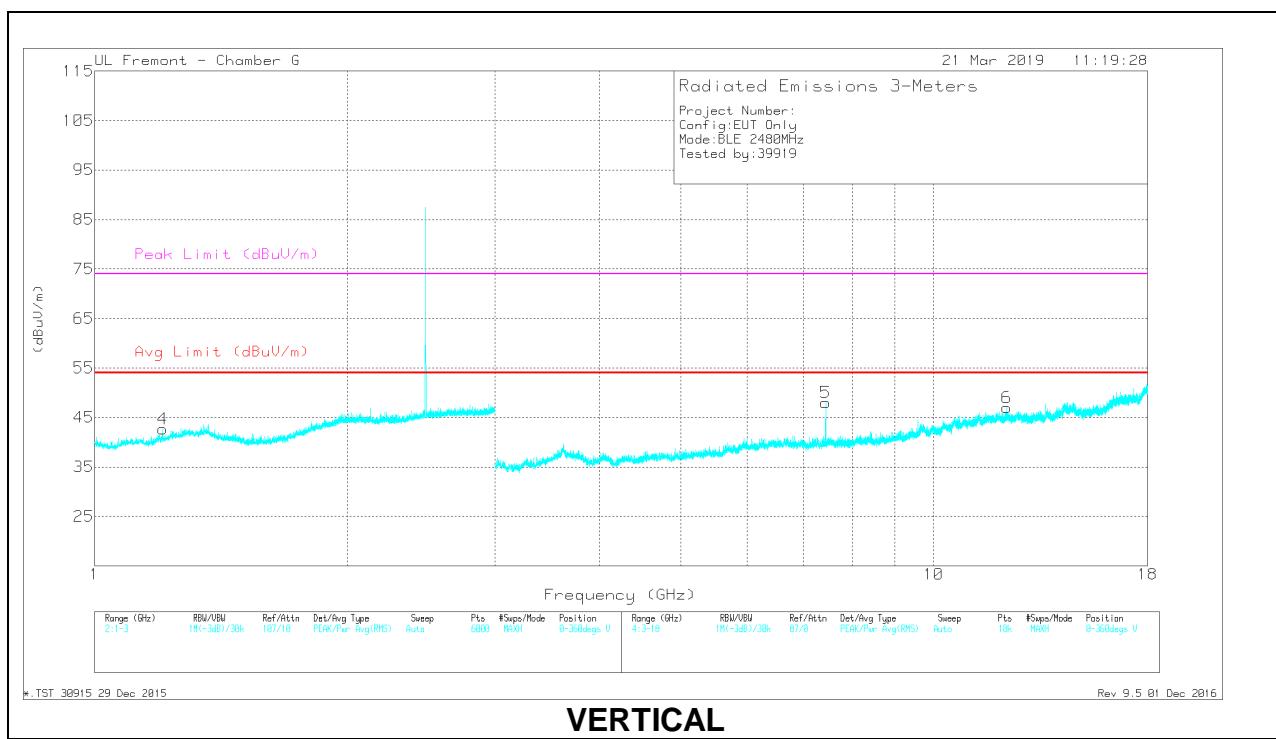
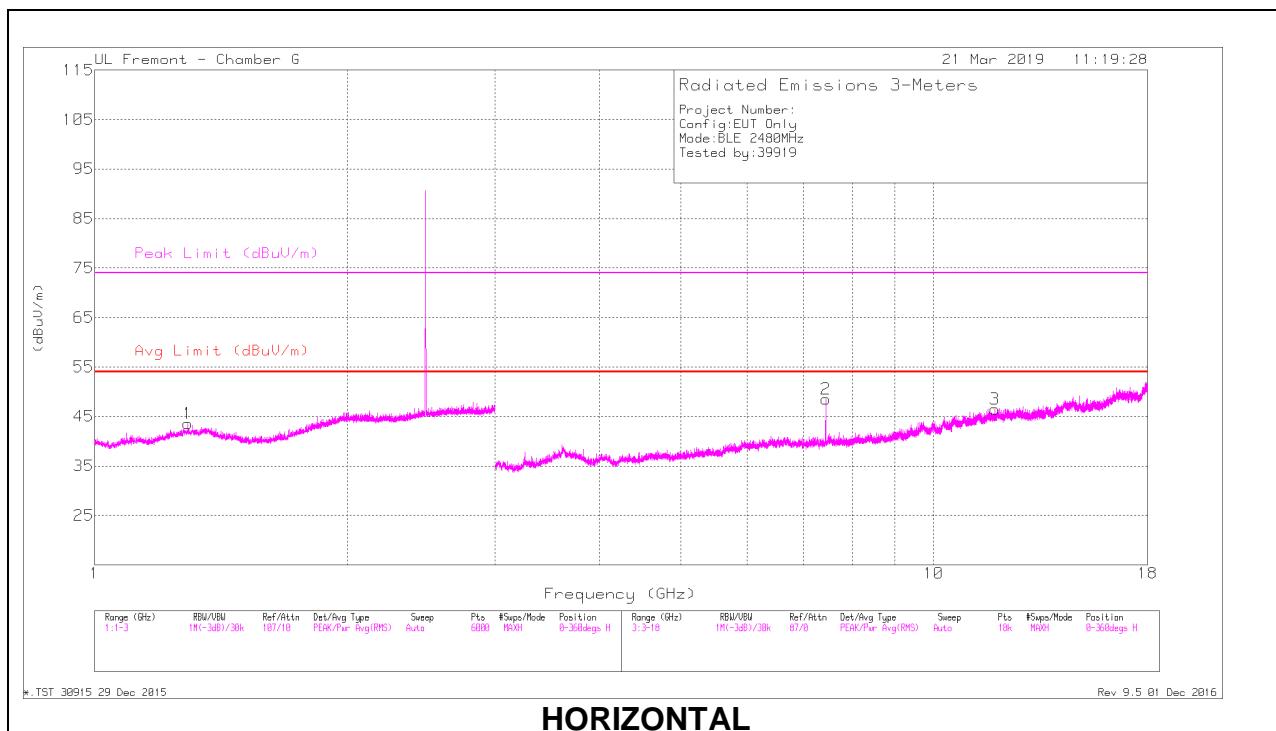
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 2.806	43.05	PK2	32.8	-22.1	53.75	-	-	74	-20.25	121	166	V
	* 2.807	31.22	MAv1	32.8	-22.1	41.92	54	-12.08	-	-	121	166	V
3	* 4.716	41.13	PK2	34.2	-29.7	45.63	-	-	74	-28.37	293	223	H
	* 4.718	29.71	MAv1	34.2	-29.6	34.31	54	-19.69	-	-	293	223	H
4	* 7.321	46.04	PK2	35.9	-27.6	54.34	-	-	74	-19.66	114	102	H
	* 7.321	39.03	MAv1	35.9	-27.6	47.33	54	-6.67	-	-	114	102	H
5	* 4.764	41.03	PK2	34.2	-29.7	45.53	-	-	74	-28.47	187	119	V
	* 4.765	29.84	MAv1	34.2	-29.7	34.34	54	-19.66	-	-	187	119	V
6	* 7.319	43.42	PK2	35.9	-27.6	51.72	-	-	74	-22.28	332	189	V
	* 7.321	34.6	MAv1	35.9	-27.6	42.9	54	-11.1	-	-	332	189	V
1	1.977	43.45	PK2	32.1	-22.9	52.65	-	-	-	-	0	203	H

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

HIGH CHANNEL RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Chl/Fltr/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	* 1.29	43.89	PK2	29.9	-23.8	49.99	-	-	74	-24.01	355	237	H
	* 1.291	32.05	MAv1	29.9	-23.8	38.15	54	-15.85	-	-	355	237	H
4	* 1.207	43.94	PK2	28.5	-23.9	48.54	-	-	74	-25.46	335	161	V
	* 1.204	32.14	MAv1	28.6	-23.9	36.84	54	-17.16	-	-	335	161	V
2	* 7.44	45.24	PK2	36	-27.9	53.34	-	-	74	-20.66	92	227	H
	* 7.439	37.68	MAv1	36	-27.9	45.78	54	-8.22	-	-	92	227	H
3	* 11.832	37.38	PK2	39.4	-23.3	53.48	-	-	74	-20.52	100	101	H
	* 11.831	25.38	MAv1	39.4	-23.4	41.38	54	-12.62	-	-	100	101	H
5	* 7.439	44.65	PK2	36	-27.9	52.75	-	-	74	-21.25	330	185	V
	* 7.439	37.21	MAv1	36	-27.9	45.31	54	-8.69	-	-	330	185	V
6	* 12.229	35.94	PK2	39.5	-22.7	52.74	-	-	74	-21.26	299	101	V
	* 12.23	24.98	MAv1	39.5	-22.7	41.78	54	-12.22	-	-	299	101	V

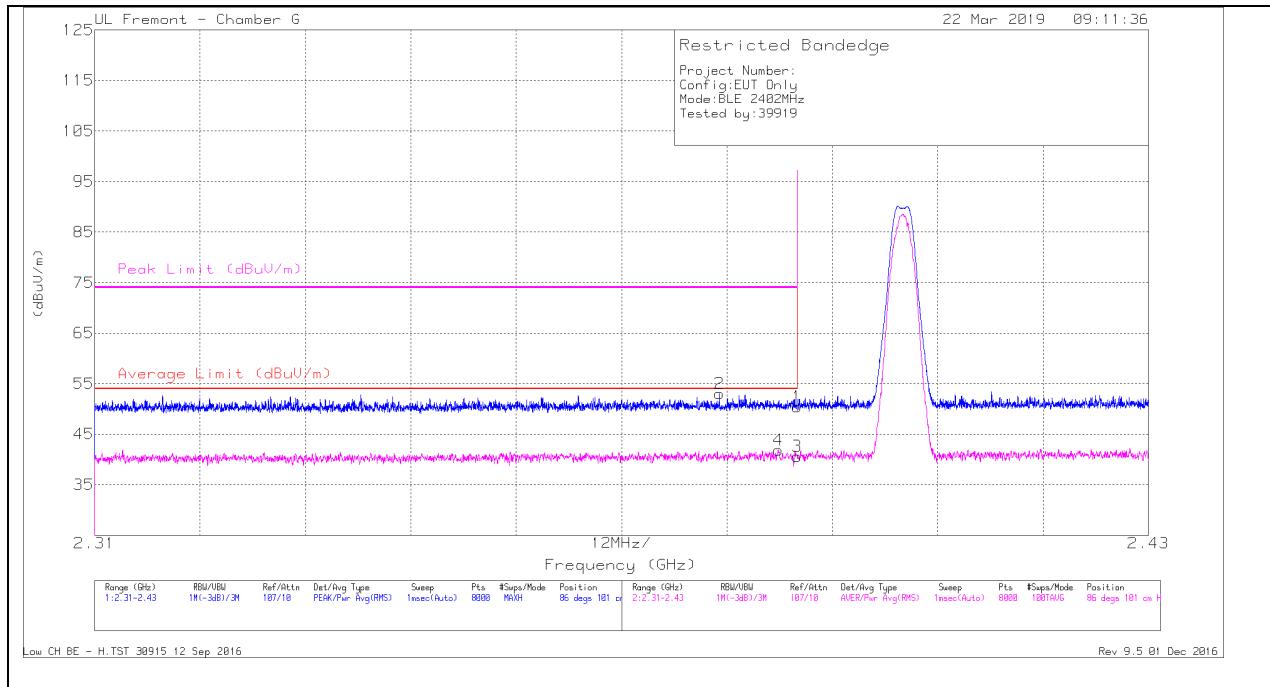
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

**9.2.2. BLE (2Mbps)
 BANDEDGE (LOW CHANNEL)**

HORIZONTAL RESULT



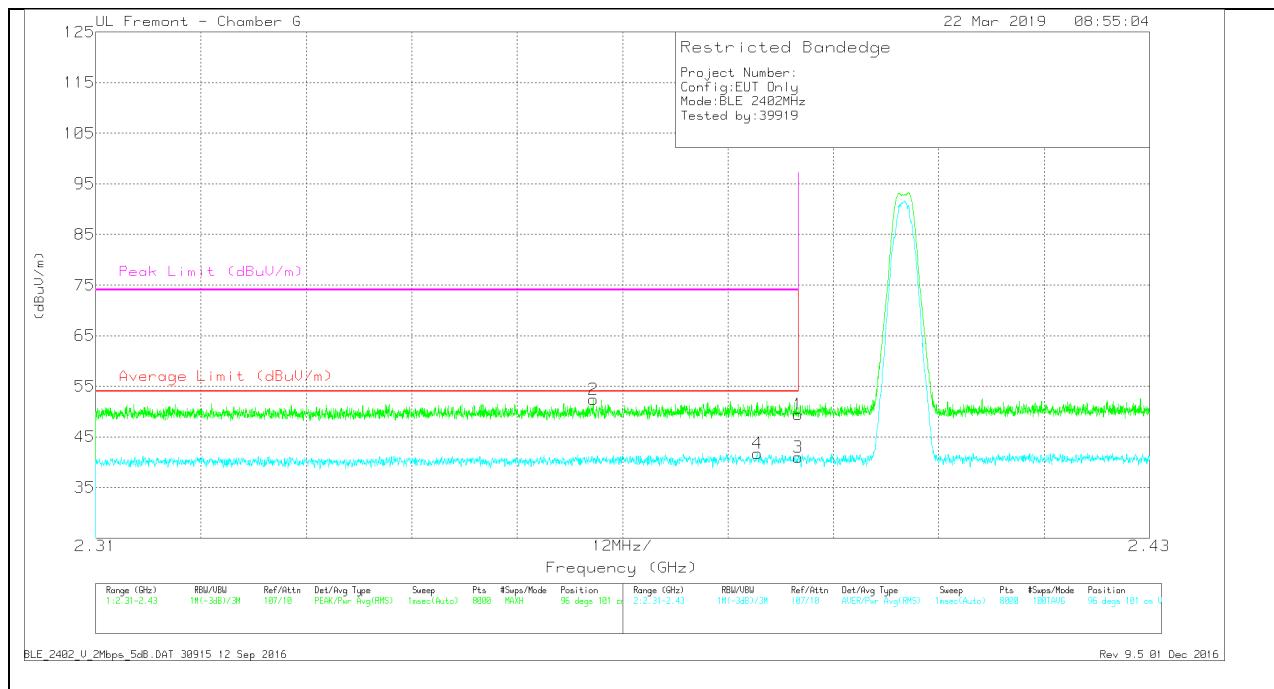
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.84	Pk	31.9	-22.3	50.44	-	-	74	-23.56	86	101	H
2	* 2.381	43.54	Pk	31.8	-22.3	53.04	-	-	74	-20.96	86	101	H
3	* 2.39	30.96	RMS	31.9	-22.3	40.56	54	-13.44	-	-	86	101	H
4	* 2.388	32.14	RMS	31.9	-22.2	41.84	54	-12.16	-	-	86	101	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBm)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBm)	Average Limit (dBm/m)	Margin (dB)	Peak Limit (dBm/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	39.8	Pk	31.9	-22.3	49.4	-	-	74	-24.6	96	101	V
2	* 2.367	42.91	Pk	31.8	-22.3	52.41	-	-	74	-21.59	96	101	V
3	* 2.39	31.35	RMS	31.9	-22.3	40.95	54	-13.05	-	-	96	101	V
4	* 2.385	31.98	RMS	31.9	-22.2	41.68	54	-12.32	-	-	96	101	V

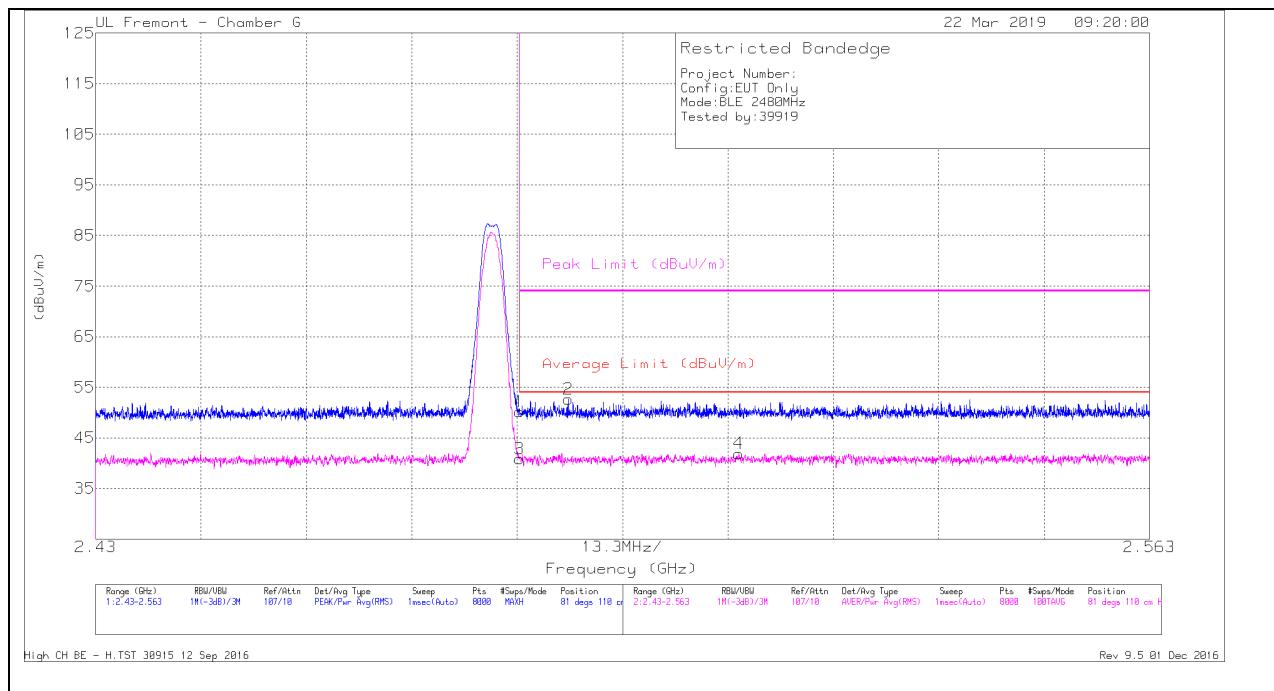
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



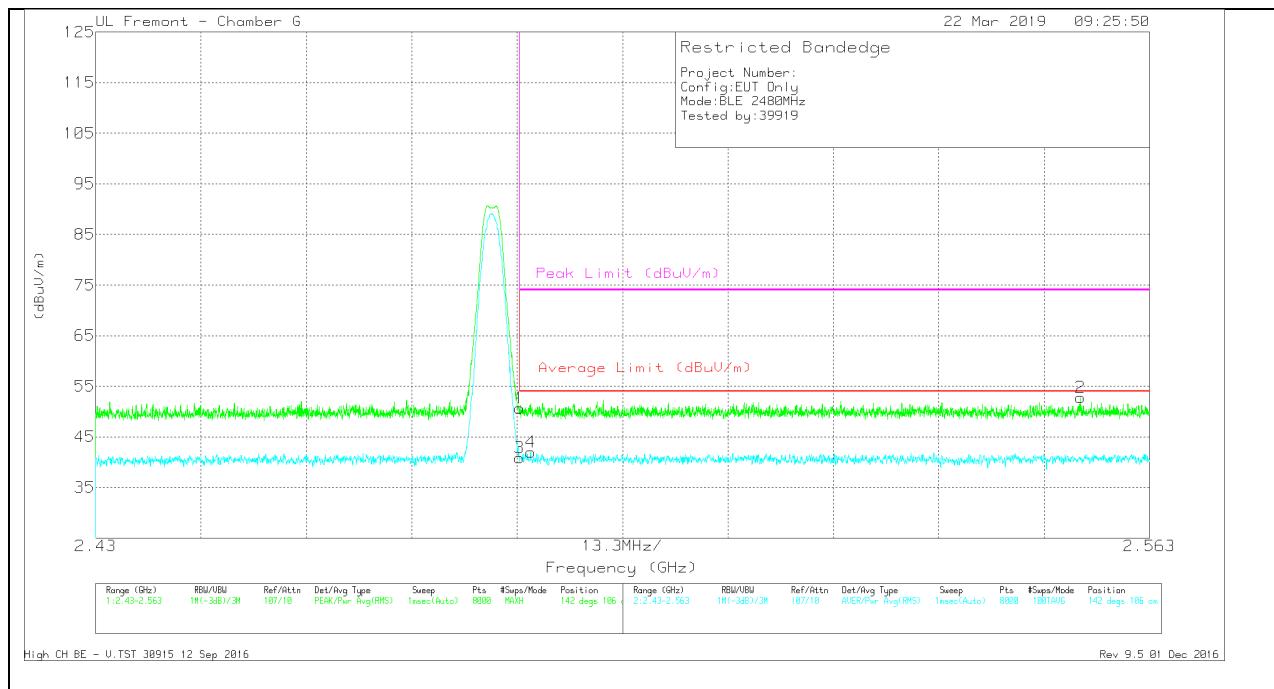
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT120 (dB/m)	Amp/Cbl/Filt/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.02	Pk	32.4	-22.3	50.12	-	-	74	-23.88	81	110	H
2	* 2.49	42.53	Pk	32.4	-22.3	52.63	-	-	74	-21.37	81	110	H
3	* 2.484	30.7	RMS	32.4	-22.3	40.8	54	-13.2	-	-	81	110	H
4	2.511	31.81	RMS	32.4	-22.3	41.91	54	-12.09	-	-	81	110	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	40.57	Pk	32.4	-22.3	50.67	-	-	74	-23.33	142	106	V
3	* 2.484	30.73	RMS	32.4	-22.3	40.83	54	-13.17	-	-	142	106	V
4	* 2.485	31.82	RMS	32.4	-22.3	41.92	54	-12.08	-	-	142	106	V
2	2.554	42.57	Pk	32.4	-22.2	52.77	-	-	74	-21.23	142	106	V

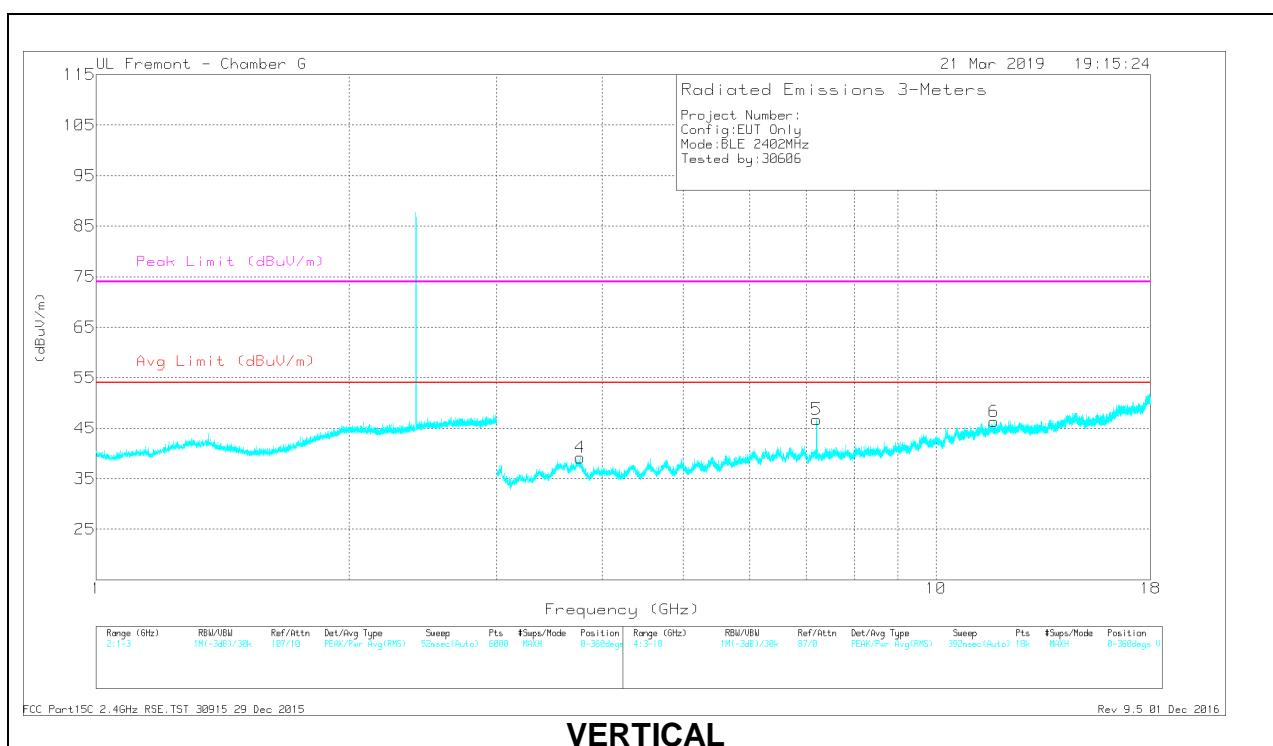
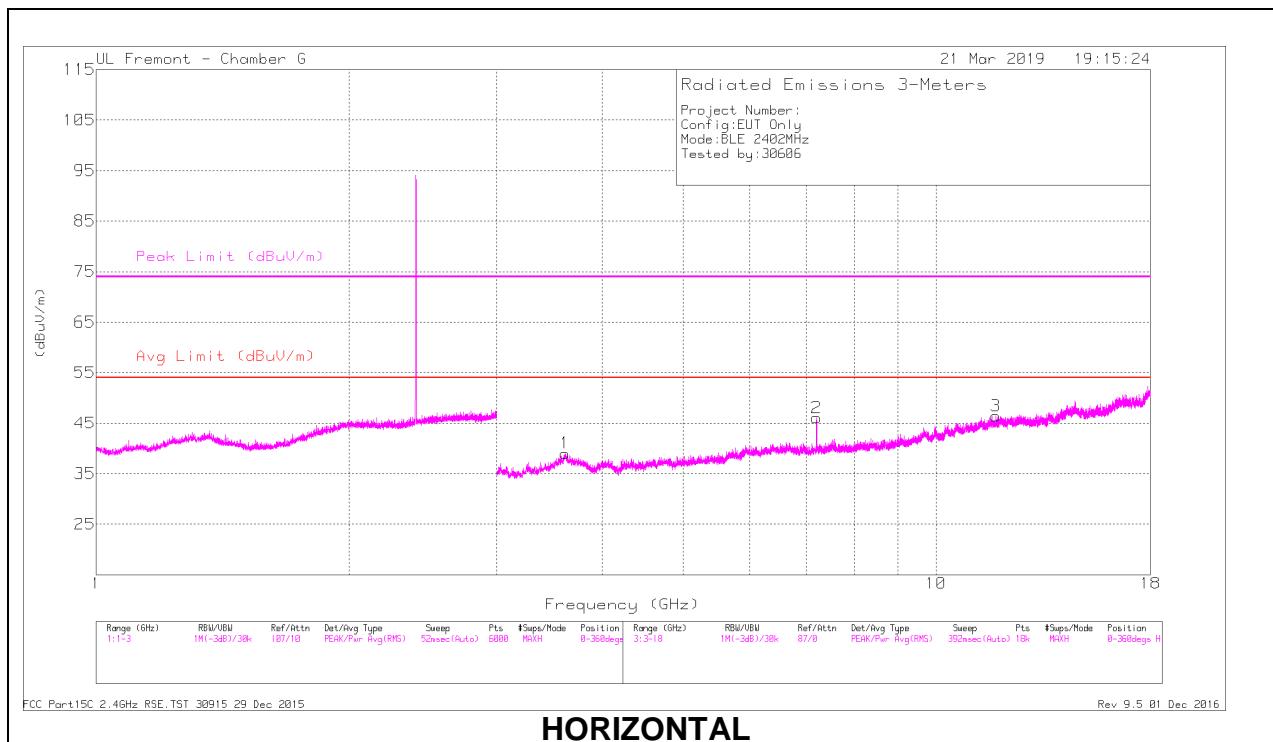
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS



RADIATED EMISSIONS

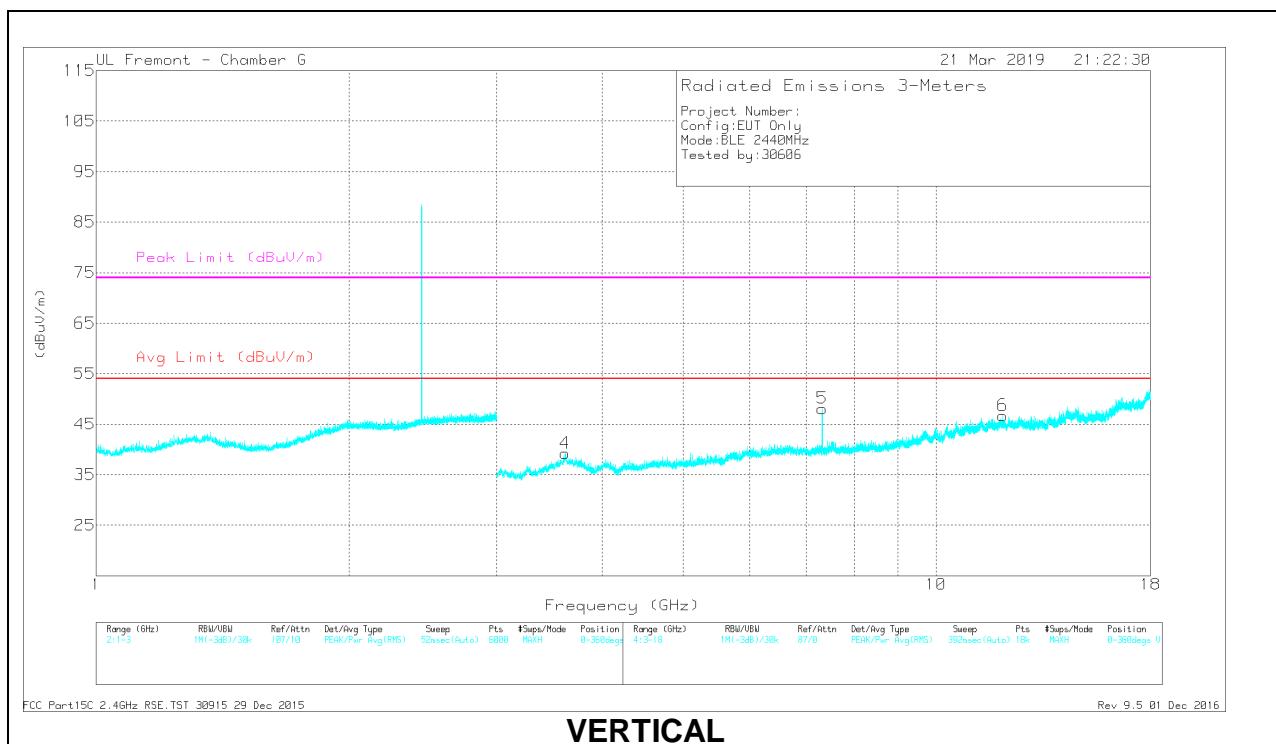
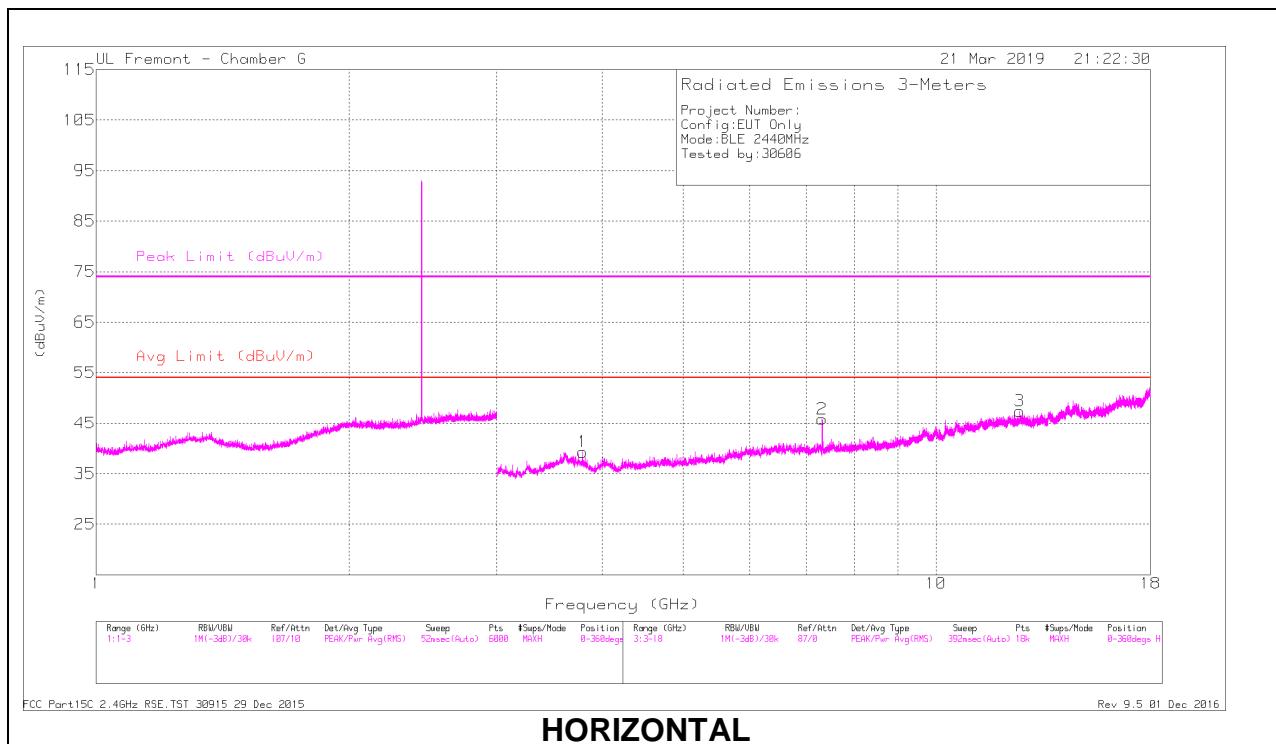
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.613	40.43	PK2	35.4	-30.4	45.43	-	-	74	-28.57	324	110	H
	* 3.617	29.06	MAv1	35.7	-30.3	34.46	54	-19.54	-	-	324	110	H
3	* 11.786	36.74	PK2	39.3	-23.4	52.64	-	-	74	-21.36	5	195	H
	* 11.788	25.04	MAv1	39.3	-23.4	40.94	54	-13.06	-	-	5	195	H
4	* 3.769	41.05	PK2	33.8	-29.5	45.35	-	-	74	-28.65	114	164	V
	* 3.771	28.87	MAv1	33.8	-29.5	33.17	54	-20.83	-	-	114	164	V
6	* 11.717	36.57	PK2	39.2	-23.5	52.27	-	-	74	-21.73	47	267	V
	* 11.717	24.99	MAv1	39.2	-23.5	40.69	54	-13.31	-	-	47	267	V
2	7.208	43.93	PK2	35.8	-27.8	51.93	-	-	-	-	130	134	H
5	7.208	45.27	PK2	35.8	-27.8	53.27	-	-	-	-	284	232	V

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

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

MID CHANNEL RESULTS



RADIATED EMISSIONS

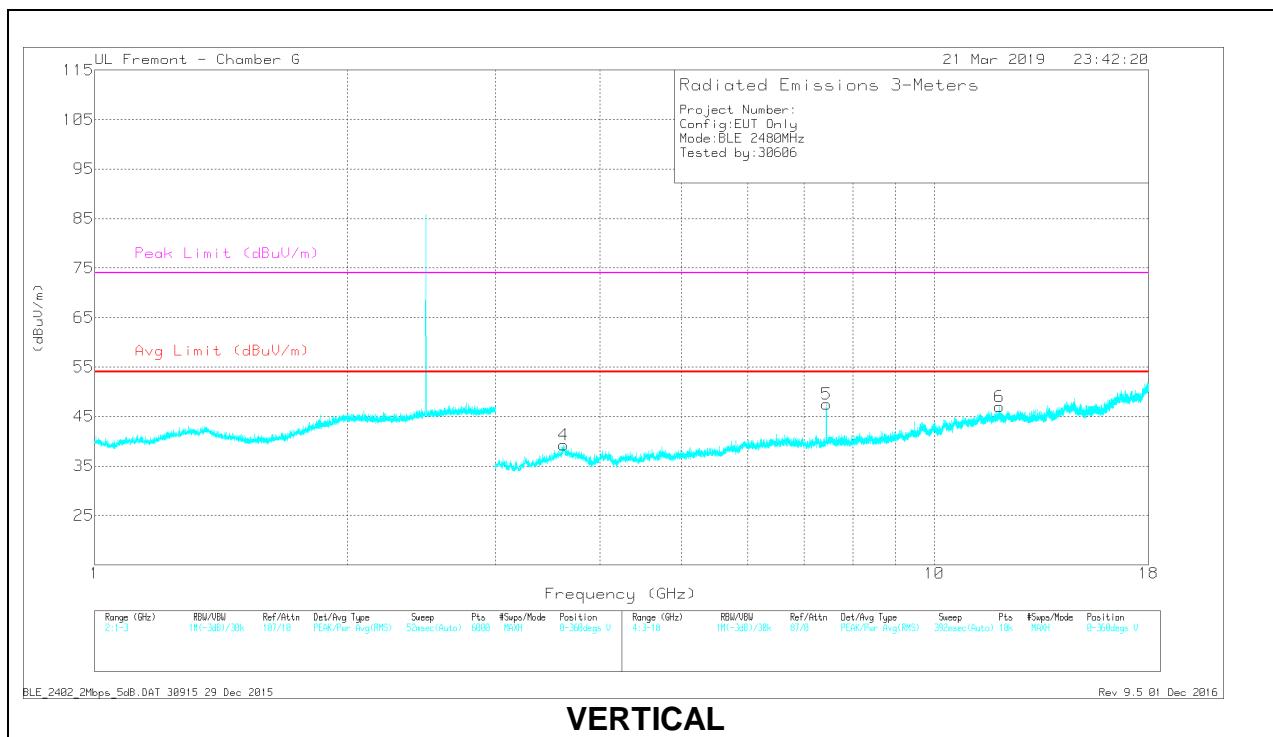
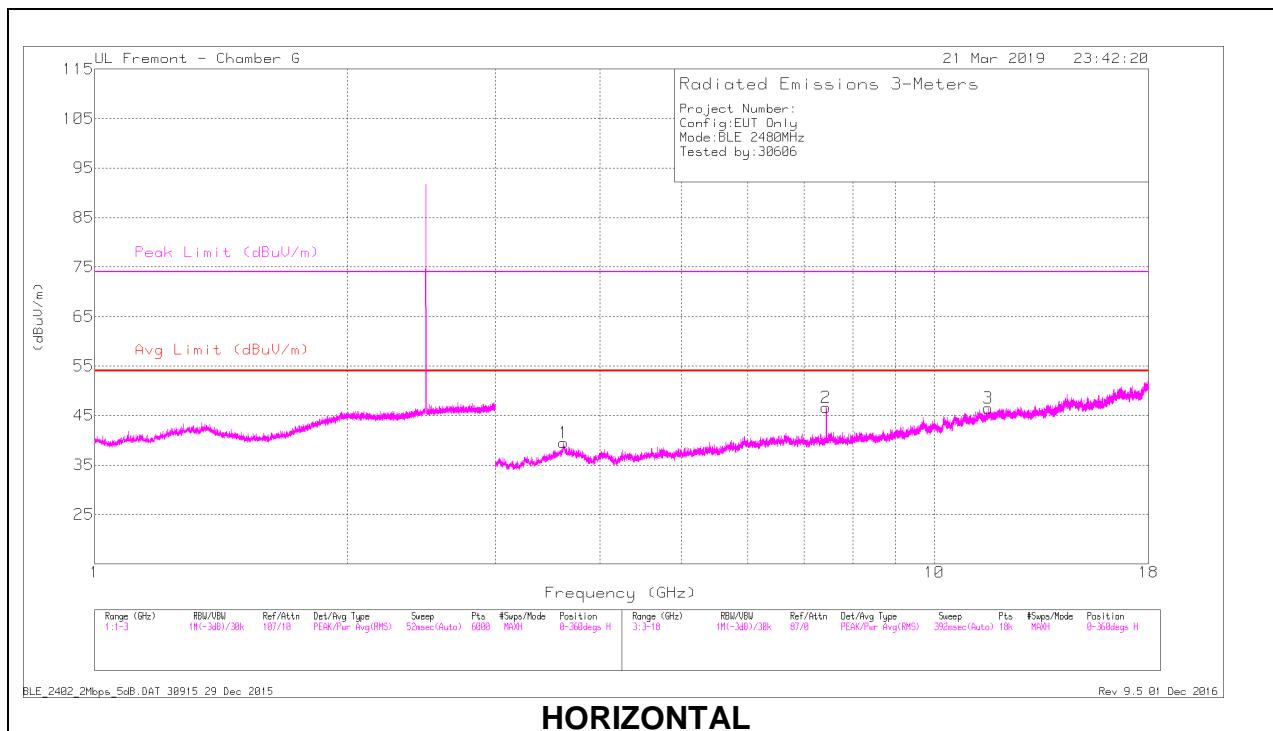
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Chl/Fltr/P ad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 3.797	41.84	PK2	33.8	-29.9	45.74	-	-	74	-28.26	50	110	H
	* 3.798	29	MAv1	33.8	-29.9	32.9	54	-21.1	-	-	50	110	H
2	* 7.318	43.91	PK2	35.8	-27.6	52.11	-	-	74	-21.89	89	136	H
	* 7.319	34.69	MAv1	35.8	-27.6	42.89	54	-11.11	-	-	89	136	H
3	* 12.579	36.74	PK2	39.6	-22.7	53.64	-	-	74	-20.36	169	128	H
	* 12.578	24.92	MAv1	39.6	-22.7	41.82	54	-12.18	-	-	169	128	H
4	* 3.619	41.05	PK2	35.7	-30.2	46.55	-	-	74	-27.45	203	207	V
	* 3.617	29.47	MAv1	35.7	-30.3	34.87	54	-19.13	-	-	203	207	V
5	* 7.322	45.82	PK2	35.9	-27.6	54.12	-	-	74	-19.88	102	244	V
	* 7.321	37.68	MAv1	35.9	-27.6	45.98	54	-8.02	-	-	102	244	V
6	* 12.003	36.43	PK2	39.5	-23	52.93	-	-	74	-21.07	215	196	V
	* 12.003	24.3	MAv1	39.4	-23	40.7	54	-13.3	-	-	215	196	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 RESULTS



RADIATED EMISSIONS

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T120 (dB/m)	Amp/Chl/Fltr/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	* 3.622	41.48	PK2	35.7	-30.1	47.08	-	-	74	-26.92	276	119	H
	* 3.622	28.9	MAv1	35.7	-30.2	34.4	54	-19.6	-	-	276	119	H
2	* 7.439	44.5	PK2	36	-27.9	52.6	-	-	74	-21.4	90	131	H
	* 7.439	35.7	MAv1	36	-27.9	43.8	54	-10.2	-	-	90	131	H
3	* 11.591	36.72	PK2	39.1	-22.6	53.22	-	-	74	-20.78	129	138	H
	* 11.589	24.86	MAv1	39.1	-22.7	41.26	54	-12.74	-	-	129	138	H
4	* 3.621	40.45	PK2	35.7	-30.2	45.95	-	-	74	-28.05	306	199	V
	* 3.62	29.26	MAv1	35.7	-30.2	34.76	54	-19.24	-	-	306	199	V
5	* 7.442	45.53	PK2	36	-27.9	53.63	-	-	74	-20.37	120	229	V
	* 7.441	37.39	MAv1	36	-27.9	45.49	54	-8.51	-	-	120	229	V
6	* 11.96	36.14	PK2	39.4	-22.3	53.24	-	-	74	-20.76	344	279	V
	* 11.961	24.2	MAv1	39.4	-22.3	41.3	54	-12.7	-	-	344	279	V

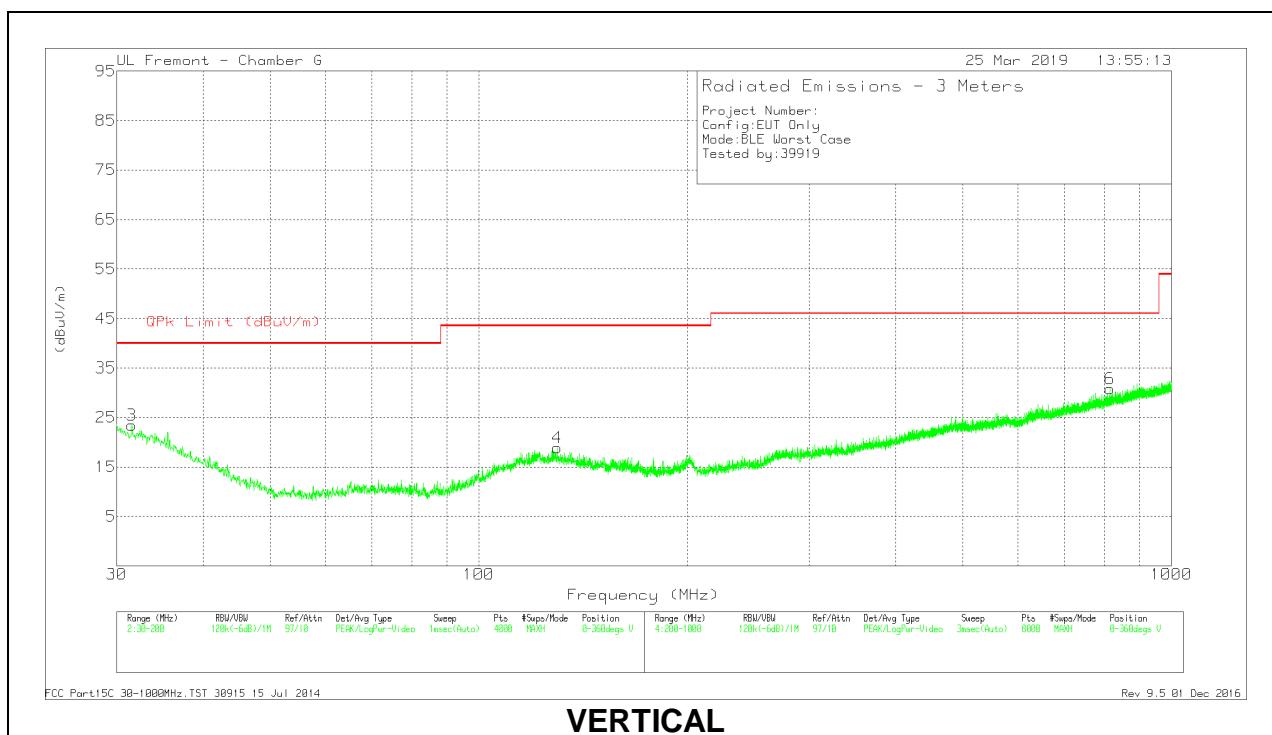
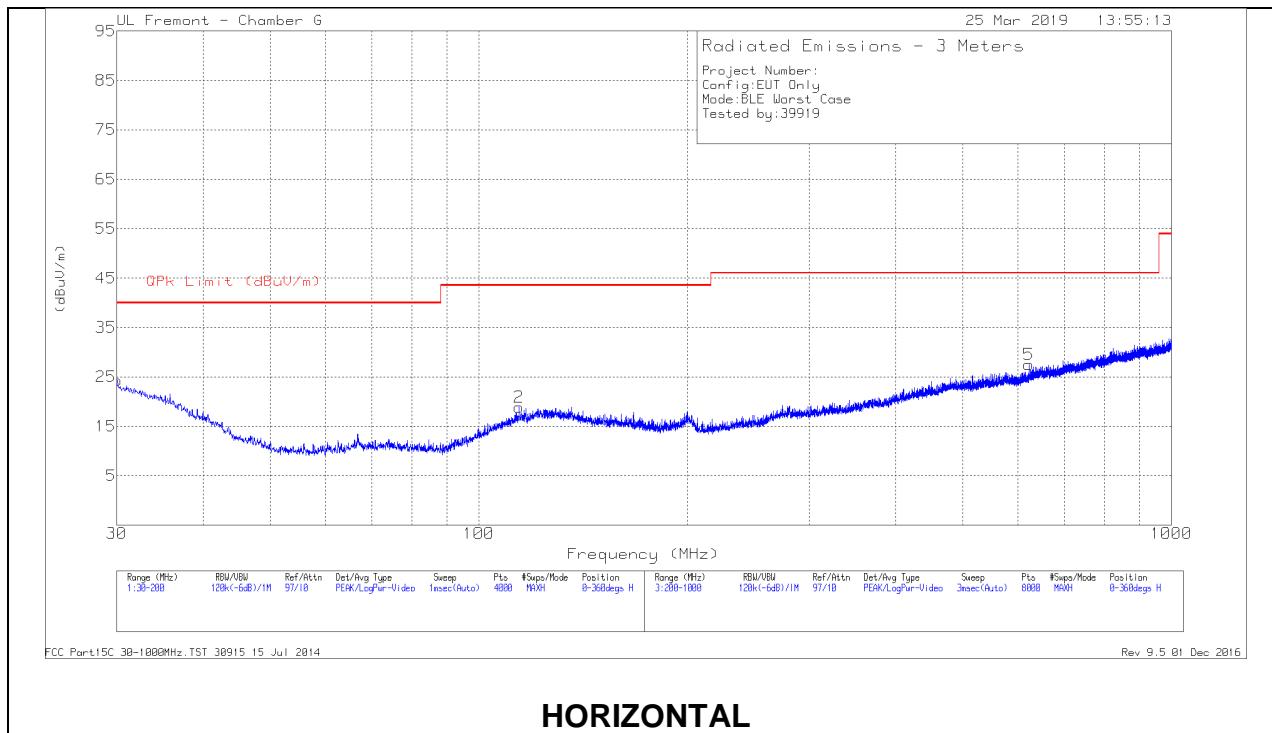
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

PK2 - KDB558074 Method: Maximum Peak

MAv1 - KDB558074 Option 1 Maximum RMS Average

9.3. WORST CASE BELOW 1 GHZ

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



Below 1GHz Data

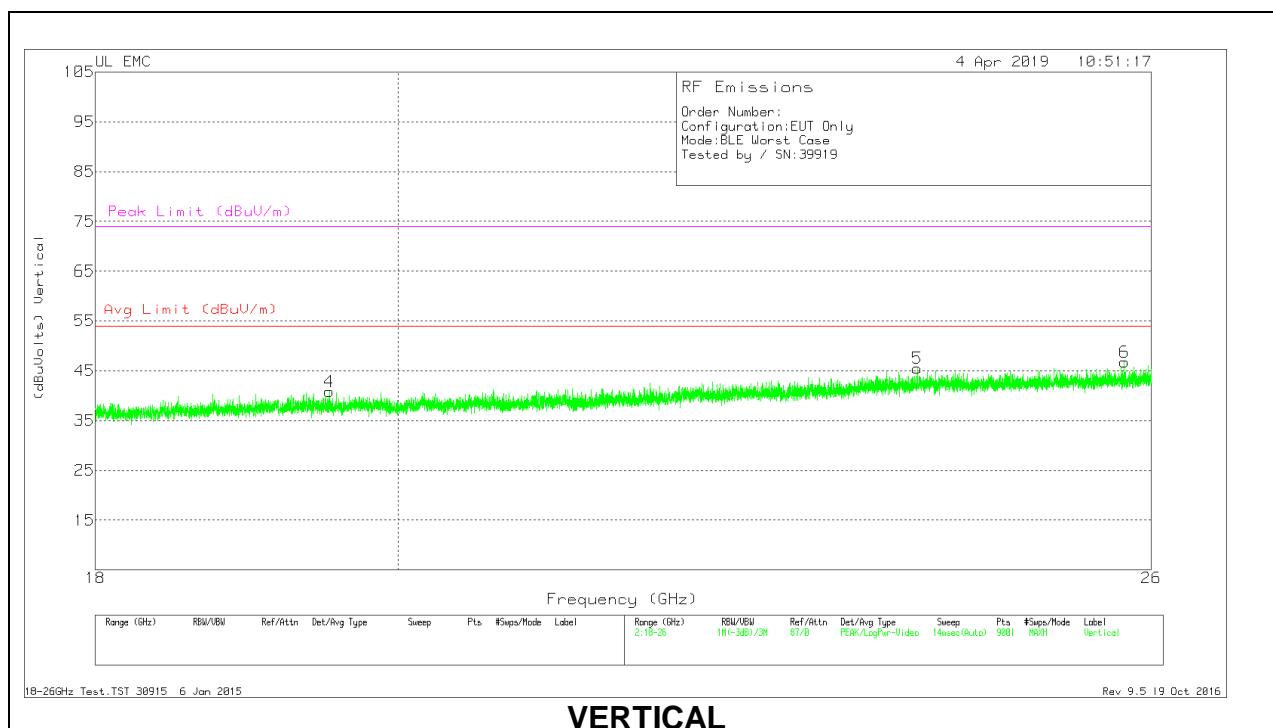
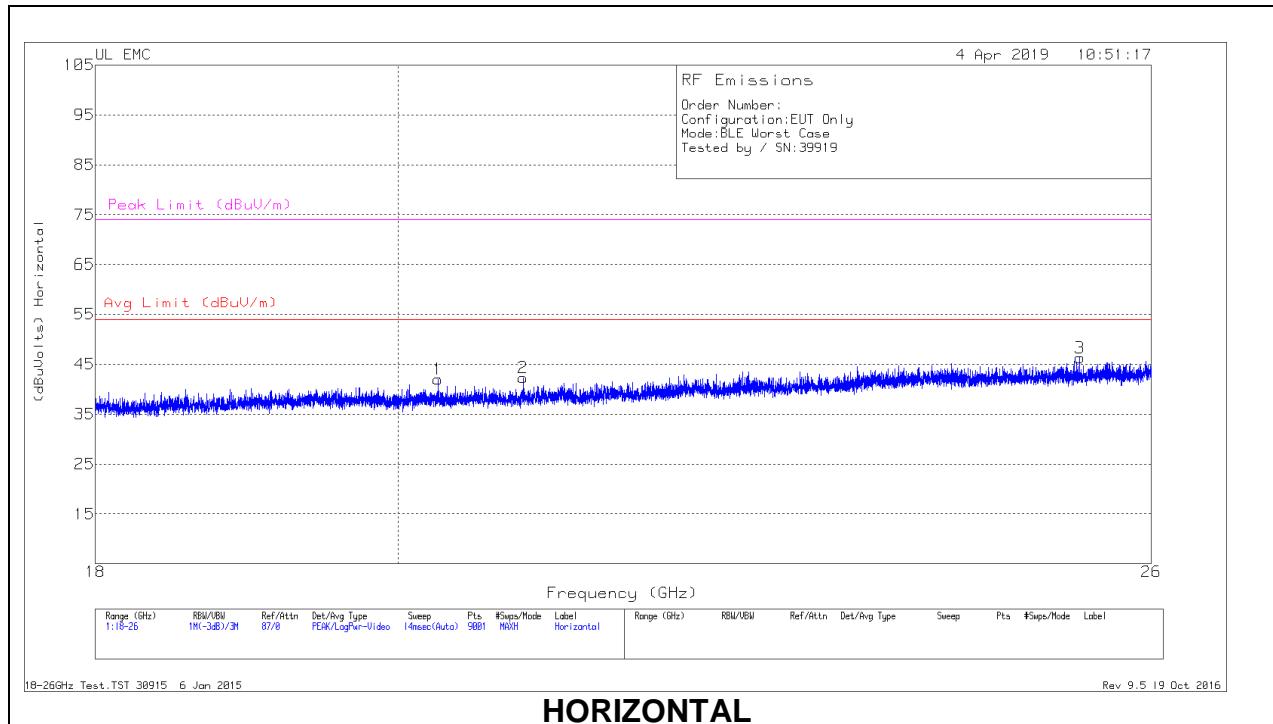
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF T185 (dB/m)	Amp Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
2	* 114.2993	29.95	Pk	19.2	-30.3	18.85	43.52	-24.67	0-360	99	H
4	* 129.8158	29.21	Pk	19.8	-30.1	18.91	43.52	-24.61	0-360	100	V
1	30.085	28.69	Pk	26.9	-31.2	24.39	40	-15.61	0-360	300	H
3	31.5304	28.99	Pk	25.8	-31.3	23.49	40	-16.51	0-360	100	V
5	622.4549	29.87	Pk	25	-27.4	27.47	46.02	-18.55	0-360	300	H
6	815.48	29.95	Pk	27.4	-26.6	30.75	46.02	-15.27	0-360	300	V

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

Pk - Peak detector

9.4. WORST CASE 18-26 GHz

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



18 – 26GHz DATA

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T447 AF (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	20.282	39.89	Pk	32.8	-21.2	-9.5	41.99	54	-12.01	74	-32.01
2	20.89	40.21	Pk	33	-21.4	-9.5	42.31	54	-11.69	74	-31.69
3	25.359	41.28	Pk	34.5	-20	-9.5	46.28	54	-7.72	74	-27.72
4	19.528	39.02	Pk	32.8	-21.5	-9.5	40.82	54	-13.18	74	-33.18
5	23.964	40.38	Pk	34.3	-19.7	-9.5	45.48	54	-8.52	74	-28.52
6	25.756	41.94	Pk	34.4	-20.1	-9.5	46.74	54	-7.26	74	-27.26

Pk - Peak detector

10. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

RSS-Gen 8.8

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

*Decreases with the logarithm of the frequency.

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

TEST PROCEDURE

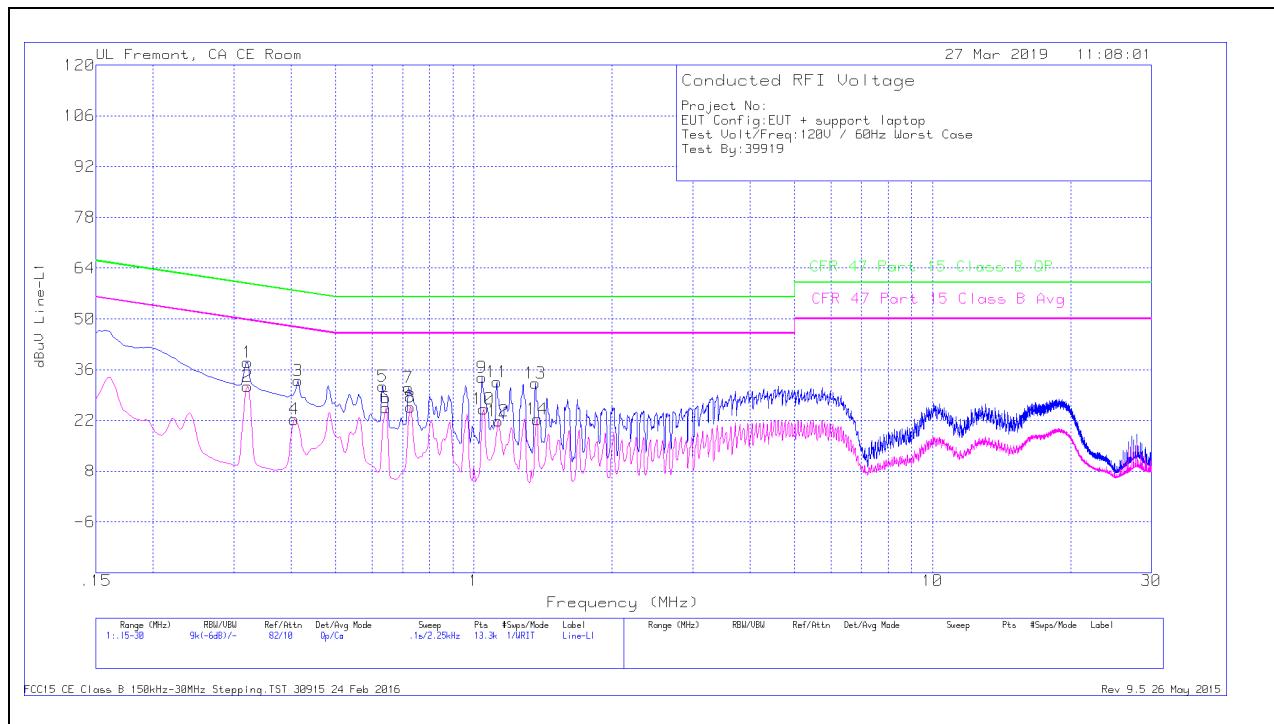
The EUT is placed on a non-conducting table 40 cm from the vertical ground plane and 80 cm above the horizontal ground plane. The EUT is configured in accordance with ANSI C63.10.

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

RESULTS

10.1.1. AC Power Line Host

LINE 1 RESULTS



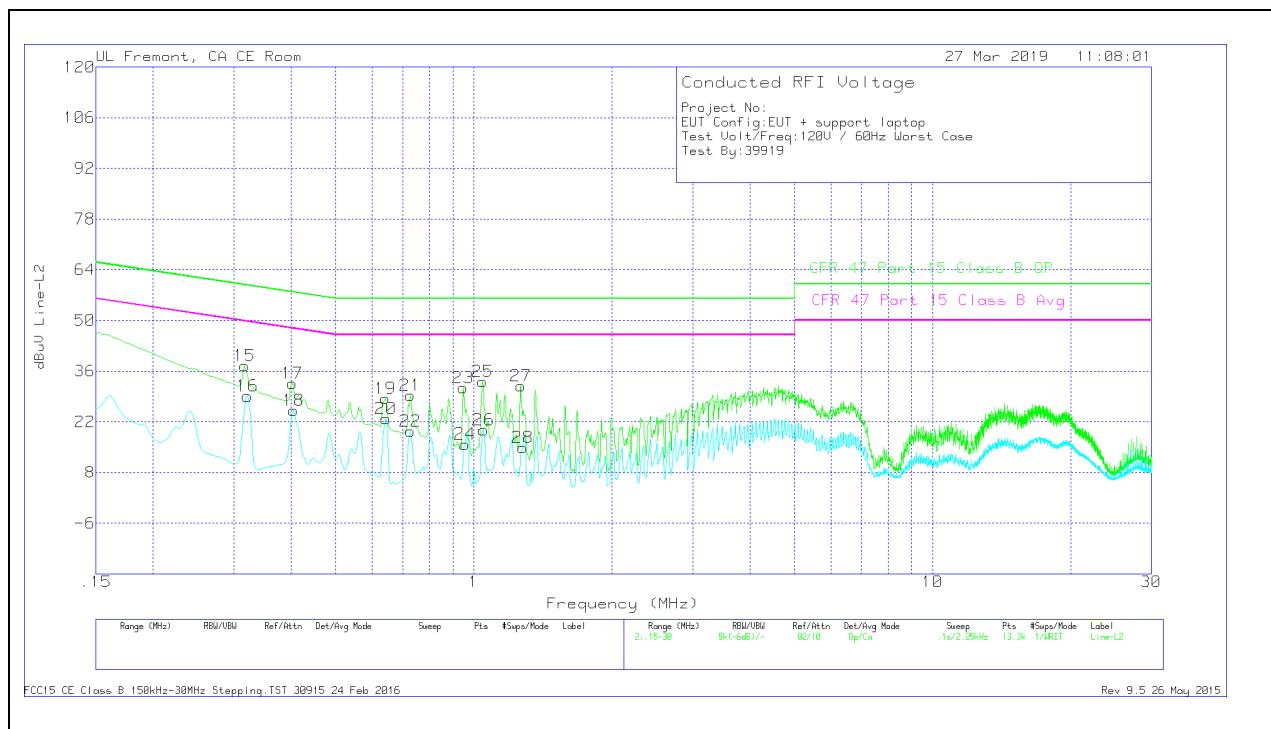
Range 1: Line-L1 .15 - 30MHz

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	.321	27.96	Qp	0	0	10.1	38.06	59.68	-21.62	-	-
2	.321	21.31	Ca	0	0	10.1	31.41	-	-	49.68	-18.27
3	.41325	22.92	Qp	0	0	10.1	33.02	57.58	-24.56	-	-
4	.4065	12.18	Ca	0	0	10.1	22.28	-	-	47.72	-25.44
5	.63375	21.27	Qp	0	0	10.1	31.37	56	-24.63	-	-
6	.64275	15.31	Ca	0	0	10.1	25.41	-	-	46	-20.59
7	.7215	21.01	Qp	0	0	10.1	31.11	56	-24.89	-	-
8	.72825	15.61	Ca	0	0	10.1	25.71	-	-	46	-20.29
9	1.041	23.63	Qp	0	.1	10.1	33.83	56	-22.17	-	-
10	1.05	14.88	Ca	0	.1	10.1	25.08	-	-	46	-20.92
11	1.122	22.43	Qp	0	.1	10.1	32.63	56	-23.37	-	-
12	1.131	11.58	Ca	0	.1	10.1	21.78	-	-	46	-24.22
13	1.36275	22.14	Qp	0	.1	10.1	32.34	56	-23.66	-	-
14	1.374	12.08	Ca	0	.1	10.1	22.28	-	-	46	-23.72

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

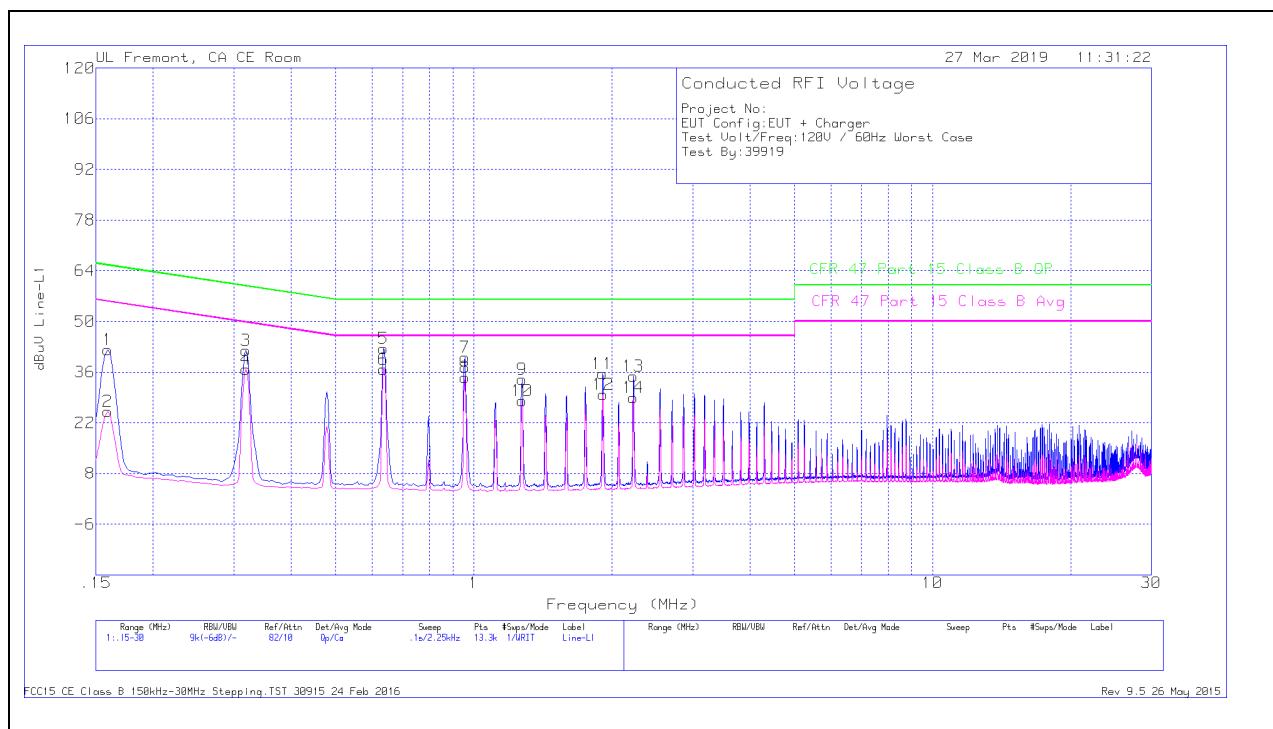
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	LISN L2	LC Cables C2&C3	Limiter (dB)	Corrected Reading dBuV	CFR 47 Part 15 Class B QP	QP Margin (dB)	CFR 47 Part 15 Class B Avg	Av(CISPR) Margin (dB)
15	.3165	27.39	Qp	0	0	10.1	37.49	59.8	-22.31	-	-
16	.321	18.96	Ca	0	0	10.1	29.06	-	-	49.68	-20.62
17	.402	22.57	Qp	0	0	10.1	32.67	57.81	-25.14	-	-
18	.40425	14.99	Ca	0	0	10.1	25.09	-	-	47.77	-22.68
19	.6405	18.31	Qp	0	0	10.1	28.41	56	-27.59	-	-
20	.64275	12.85	Ca	0	0	10.1	22.95	-	-	46	-23.05
21	.72825	19.23	Qp	0	0	10.1	29.33	56	-26.67	-	-
22	.72825	9.25	Ca	0	0	10.1	19.35	-	-	46	-26.65
23	.94875	21.16	Qp	0	.1	10.1	31.36	56	-24.64	-	-
24	.9555	5.64	Ca	0	.1	10.1	15.84	-	-	46	-30.16
25	1.0455	22.93	Qp	0	.1	10.1	33.13	56	-22.87	-	-
26	1.05	9.52	Ca	0	.1	10.1	19.72	-	-	46	-26.28
27	1.266	21.76	Qp	0	.1	10.1	31.96	56	-24.04	-	-
28	1.27725	4.74	Ca	0	.1	10.1	14.94	-	-	46	-31.06

Qp - Quasi-Peak detector

Ca - CISPR average detection

10.1.2. AC Power Line Norm

LINE 1 RESULTS



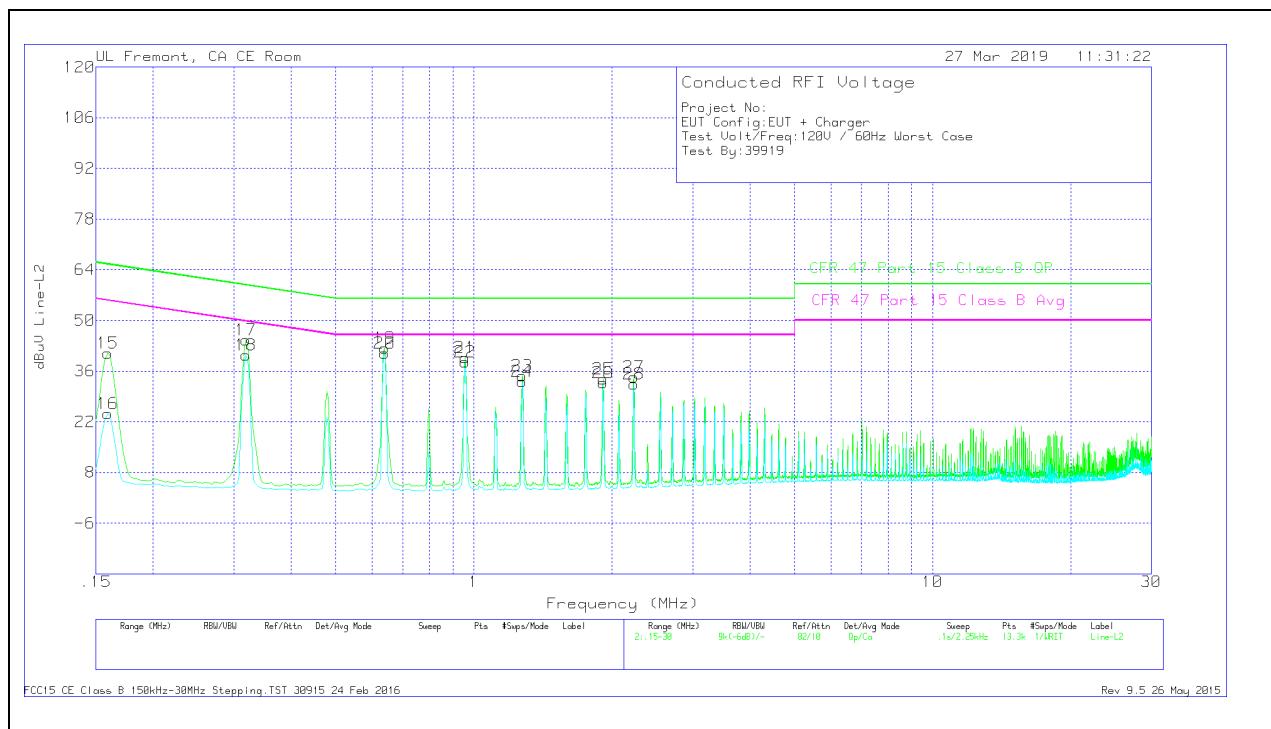
Range 1: Line-L1 .15 - 30MHz

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	.159	32.04	Qp	.1	0	10.1	42.24	65.52	-23.28	-	-
2	.159	14.87	Ca	.1	0	10.1	25.07	-	-	55.52	-30.45
3	.31875	31.91	Qp	0	0	10.1	42.01	59.74	-17.73	-	-
4	.31875	26.71	Ca	0	0	10.1	36.81	-	-	49.74	-12.93
5	.636	32.4	Qp	0	0	10.1	42.5	56	-13.5	-	-
6	.636	26.76	Ca	0	0	10.1	36.86	-	-	46	-9.14
7	.9555	29.86	Qp	0	.1	10.1	40.06	56	-15.94	-	-
8	.9555	24.37	Ca	0	.1	10.1	34.57	-	-	46	-11.43
9	1.27275	23.84	Qp	0	.1	10.1	34.04	56	-21.96	-	-
10	1.27388	17.86	Ca	0	.1	10.1	28.06	-	-	46	-17.94
11	1.9095	25.35	Qp	0	.1	10.1	35.55	56	-20.45	-	-
12	1.91175	19.7	Ca	0	.1	10.1	29.9	-	-	46	-16.1
13	2.229	24.68	Qp	0	.1	10.1	34.88	56	-21.12	-	-
14	2.229	18.81	Ca	0	.1	10.1	29.01	-	-	46	-16.99

Qp - Quasi-Peak detector

Ca - CISPR average detection

LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz

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)
15	.159	30.73	Qp	.1	0	10.1	40.93	65.52	-24.59	-	-
16	.159	14.02	Ca	.1	0	10.1	24.22	-	-	55.52	-31.3
17	.31875	34.48	Qp	0	0	10.1	44.58	59.74	-15.16	-	-
18	.31875	30.37	Ca	0	0	10.1	40.47	-	-	49.74	-9.27
19	.63825	32.29	Qp	0	0	10.1	42.39	56	-13.61	-	-
20	.63825	30.83	Ca	0	0	10.1	40.93	-	-	46	-5.07
21	.95775	29.54	Qp	0	.1	10.1	39.74	56	-16.26	-	-
22	.9555	28.3	Ca	0	.1	10.1	38.5	-	-	46	-7.5
23	1.275	24.58	Qp	0	.1	10.1	34.78	56	-21.22	-	-
24	1.275	22.91	Ca	0	.1	10.1	33.11	-	-	46	-12.89
25	1.914	23.57	Qp	0	.1	10.1	33.77	56	-22.23	-	-
26	1.914	22.61	Ca	0	.1	10.1	32.81	-	-	46	-13.19
27	2.2335	24.19	Qp	0	.1	10.1	34.39	56	-21.61	-	-
28	2.23125	22.19	Ca	0	.1	10.1	32.39	-	-	46	-13.61

Qp - Quasi-Peak detector

Ca - CISPR average detection

11. SETUP PHOTOS

Please refer to 12742033-EP1V1 for setup photos

END OF TEST REPORT