



# **TEST REPORT**

**Report Number. :** 13486961-E2V1

**Applicant :** XIAMEN NEW SOUND TECHNOLOGY CO., LTD  
NO.13 of XIANG YUE ROAD,  
TORCH HI-TECH INDUSTRIAL DEVELOPMENT ZONE,  
XIANG AN DISTRICT, XIAMEN, CHINA

**Model :** SBW01

**FCC ID :** 2A14Q-SBW

**EUT Description :** DESKTOP WIRELESS CHARGER

**Test Standard(s) :** FCC CFR 47 PART 15 SUBPART C

**Date Of Issue:**

September 18, 2020

**Prepared by:**

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## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
1	9/18/2020	Initial Issue	--

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** XIAMEN NEW SOUND TECHNOLOGY CO., LTD  
NO.13 of XIANG YUE ROAD,  
TORCH HI-TECH INDUSTRIAL DEVELOPMENT ZONE,  
XIANG AN DISTRICT, XIAMEN, CHINA

**EUT DESCRIPTION:** DESKTOP WIRELESS CHARGER

**MODEL NUMBER:** SBW01

**SERIAL NUMBER:** 2018 (Conducted); 2022 (Radiated)

**DATE TESTED:** SEPTEMBER 07, 2020 – SEPTEMBER 11, 2020

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC CFR 47 Part 15 Subpart C	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.

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UL Verification Services Inc. By:



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## 2. TEST RESULTS SUMMARY

FCC Clause	Requirement	Result	Comment
See Comment	Duty Cycle	Reporting purposes only	ANSI C63.10 Section 11.6.
-	99% OBW	Reporting purposes only	ANSI C63.10 Section 6.9.3.
15.247 (a) (2)	6dB BW		None.
15.247 (b) (3)	Output Power		None.
See Comment	Average power	Reporting purposes only	Per ANSI C63.10, Section 11.9.2.3.2.
15.247 (e)	PSD		None.
15.247 (d)	Conducted Spurious Emissions		None.
15.209, 15.205	Radiated Emissions		None.
15.207	AC Mains Conducted Emissions		None.

## 3. 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, KDB 414788 D01 Radiated Test Site v01r0.

## 4. 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 were measured at 47658 Kato Road 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	<input type="checkbox"/> Chamber D	<input type="checkbox"/> Chamber I
<input type="checkbox"/> Chamber B	<input type="checkbox"/> Chamber E	<input type="checkbox"/> Chamber J
<input type="checkbox"/> Chamber C	<input type="checkbox"/> Chamber F	<input checked="" type="checkbox"/> Chamber K
	<input type="checkbox"/> Chamber G	<input type="checkbox"/> Chamber L
	<input type="checkbox"/> Chamber H	<input type="checkbox"/> Chamber M

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: 2324B.

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

## 5. DECISION RULES AND MEASUREMENT UNCERTAINTY

### 5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

### 5.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U <sub>Lab</sub>
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.39 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.07 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	4.26 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.39 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.19 dB

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

### 5.4. SAMPLE CALCULATION

#### **RADIATED EMISSIONS**

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

#### **MAINS CONDUCTED EMISSIONS**

Where relevant, the following sample calculation is provided:

$$\text{Final Voltage (dBuV)} = \text{Measured Voltage (dBuV)} + \text{Cable Loss (dB)} + \text{Limiter Factor (dB)} + \text{LISN Insertion Loss}$$

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$



## 6. EQUIPMENT UNDER TEST

### 6.1. EUT DESCRIPTION

The EUT is a Desktop Wireless Charger. Wireless power transfer is only transmitting a continuous carrier wave signal at 917.5MHz frequency single channel when hearing aids are placed upon the top surface of the EUT and requests for charge. The charger pad uses BLE to pair with the receiving devices.

This report documents test results of the Bluetooth Low Energy radio portion of the wireless charger.

### 6.2. 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	-0.65	0.86

### 6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an inverted F antenna, with a maximum gain of 0.53dBi.

### 6.4. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was v4.1.1.46

The test utility software used during testing was WattUp app v4.0.12.

## **6.5. WORST-CASE CONFIGURATION AND MODE**

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

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

The EUT is a tabletop device and it has one USB type C port for power only. Due to applicant is only able to exercise the commands via a USB cable that connected to a laptop, therefore all final radiated and AC line emission testing were performed with the EUT in tabletop orientation powered by laptop via USB cable.

Worst-case data rate as provided by the client was:  
BLE: 1 Mbps.

BLE and WPT bands operate simultaneously, simultaneous operation results are documented in UL document 13486961-E1 WPT report.

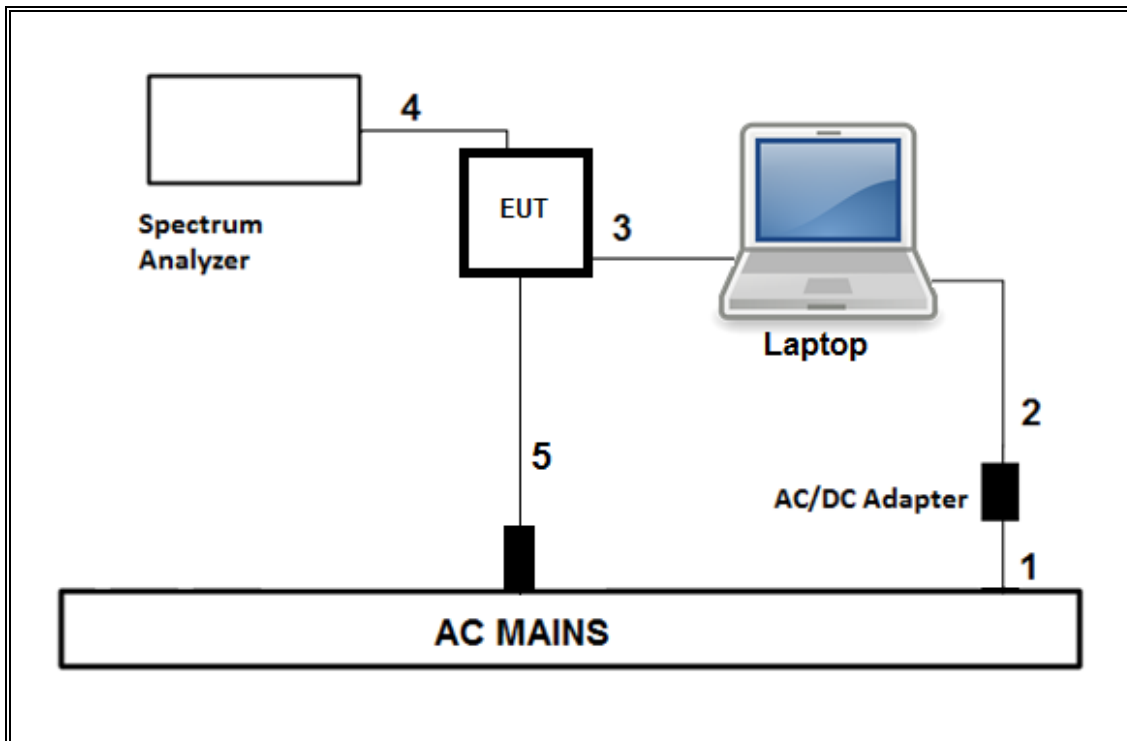
## 6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description	Manufacturer	Model	Serial Number	FCC ID/ DoC		
Laptop	Dell	Latitude E7470	3F94RC2	DoC		
Laptop AC/DC adapter	Dell	LA65NM130	CN-03NKWD-72438-38D-0F54-A00	DoC		
Faraday Cage	ETS-LINDGREN	Not available (Custom built)	ECSB-001	DoC		
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	1	AC Mains to AC/DC Adapter
2	DC	1	DC	Un-shielded	1.5	AC/DC Adapter to Laptop
3	USB	1	UART	Un-shielded	1.5	EUT to Laptop
4	Antenna	1	SMA	Un-shielded	1.1	To spectrum analyzer
5	USB	1	USB Type C	Un-shielded	1	EUT to AC/DC adapter
I/O CABLES (RF RADIATED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	1	AC	Un-shielded	1	
2	DC	1	DC	Un-shielded	1.5	AC/DC Adapter to Laptop
3	USB	1	USB Type C	Un-shielded	1	

**TEST SETUP-CONDUCTED TEST**

The EUT was connected to the test laptop via USB cable. Test software exercised the EUT.

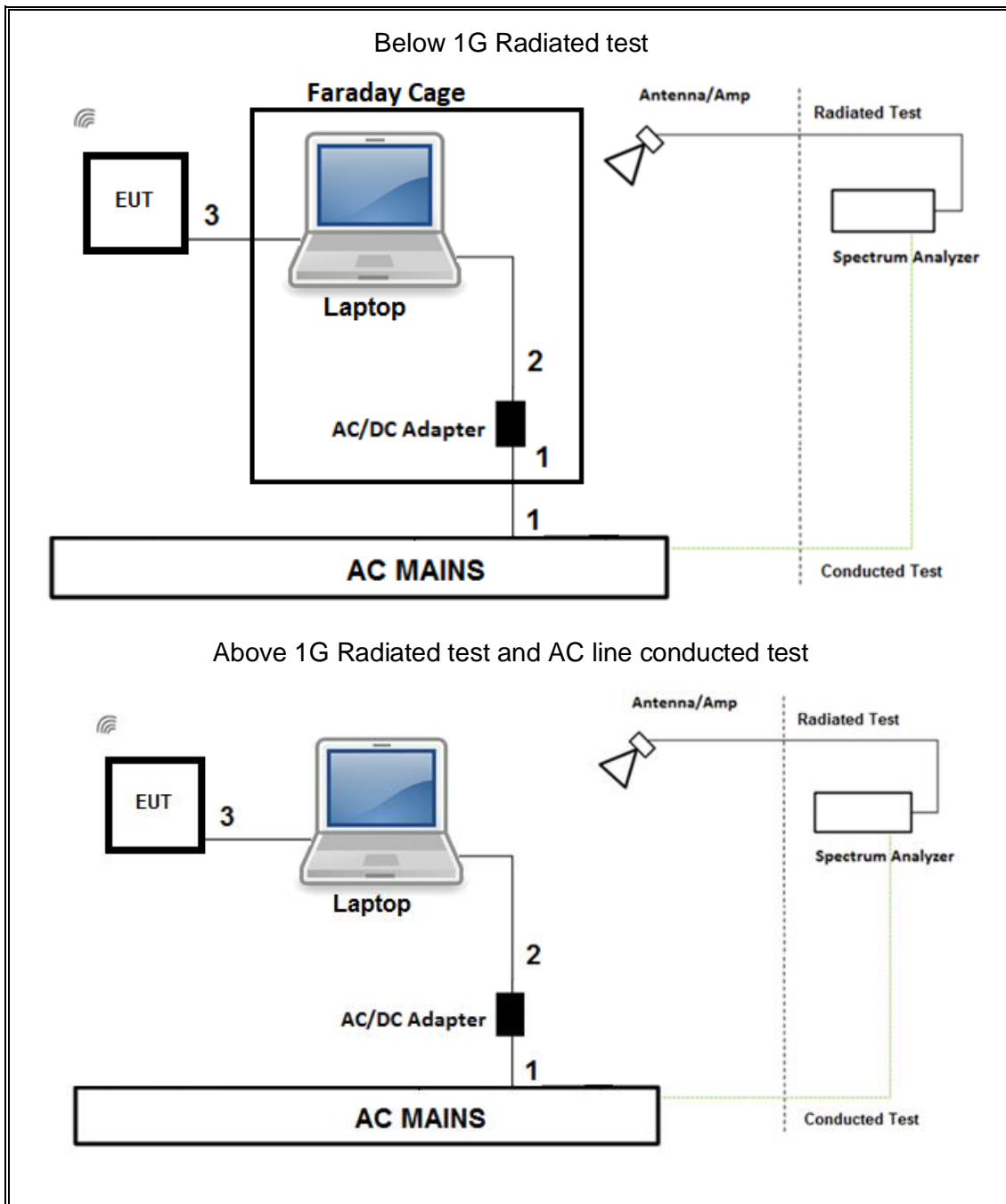
**SETUP DIAGRAM**



**TEST SETUP- RADIATED TEST / AC LINE CONDUCTED TEST**

The EUT was powered by laptop via USB cable. For below 1G radiated test, laptop was put inside a Faraday cage. Test software exercised the EUT.

**SETUP DIAGRAM**



## 7. MEASUREMENT METHOD

6 dB BW: ANSI C63.10 Subclause -11.8.1

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

Output Power: ANSI C63.10 Subclause -11.9.1.3 Method PKPM1 Peak-reading power meter

Output Power: ANSI C63.10 Subclause -11.9.2.3.2 Method AVGPM-G (Measurement using a gated 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 -11.13.3.4 Trace averaging across ON and OFF times of the EUT transmissions followed by duty cycle correction

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

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

## 8. 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, Passive Loop 30Hz - 1MHz	ELECTRO METRICS	EM-6871	PRE0179465	07/27/2021
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO METRICS	EM-6872	PRE0179467	07/27/2021
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	T863	08/31/2021
Amplifier, 100MHz-18GHz	AMPLICAL	AMP0.1G18-47-20	PRE0197319	05/04/2021
Antenna, Broadband Hybrid, 30MHz to 3GHz	SunAR rf motion	JB3	PRE0181574	10/14/2020
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	175953	01/23/2021
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179376	04/03/2021
Antenna Horn, 18 to 26GHz	ARA	SWH-28	T448	05/20/2021
Pre-Amp 18-26GHz	Agilent Technology	8449B	PRE0183142	04/08/2021
Power Meter, P-series single channel	Keysight Technologies Inc	N1911A	T1268	01/22/2021
Power Sensor, P-series, 50MHz to 18GHz, Wideband	Keysight Technologies Inc	N1921A	T413	02/26/2021
AC Line Conducted				
Description	Manufacturer	Model	ID Num	Cal Due
LISN	Fischer Custom Communications, Inc	FCC-LISN-50/250-25-2-01-480V	PRE0186446	01/21/2021
L.I.S.N	FCC INC.	FCC LISN 50/250	24	01/21/2021
EMI TEST RECEIVER	Rohde & Schwarz	ESR	T1436	02/20/2021
Transient Limiter	COM-POWER	LIT-930A	PRE0129246	01/23/2021
UL AUTOMATION SOFTWARE				
Radiated Software	UL	UL EMC	Rev 9.5, 30 Apr, 2020	
Antenna Port Software	UL	UL RF	AP2020.9.1	
AC Line Conducted Software	UL	UL EMC	Rev 9.5, 07 Jul 2020	

## 9. ANTENNA PORT TEST RESULTS

### 9.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

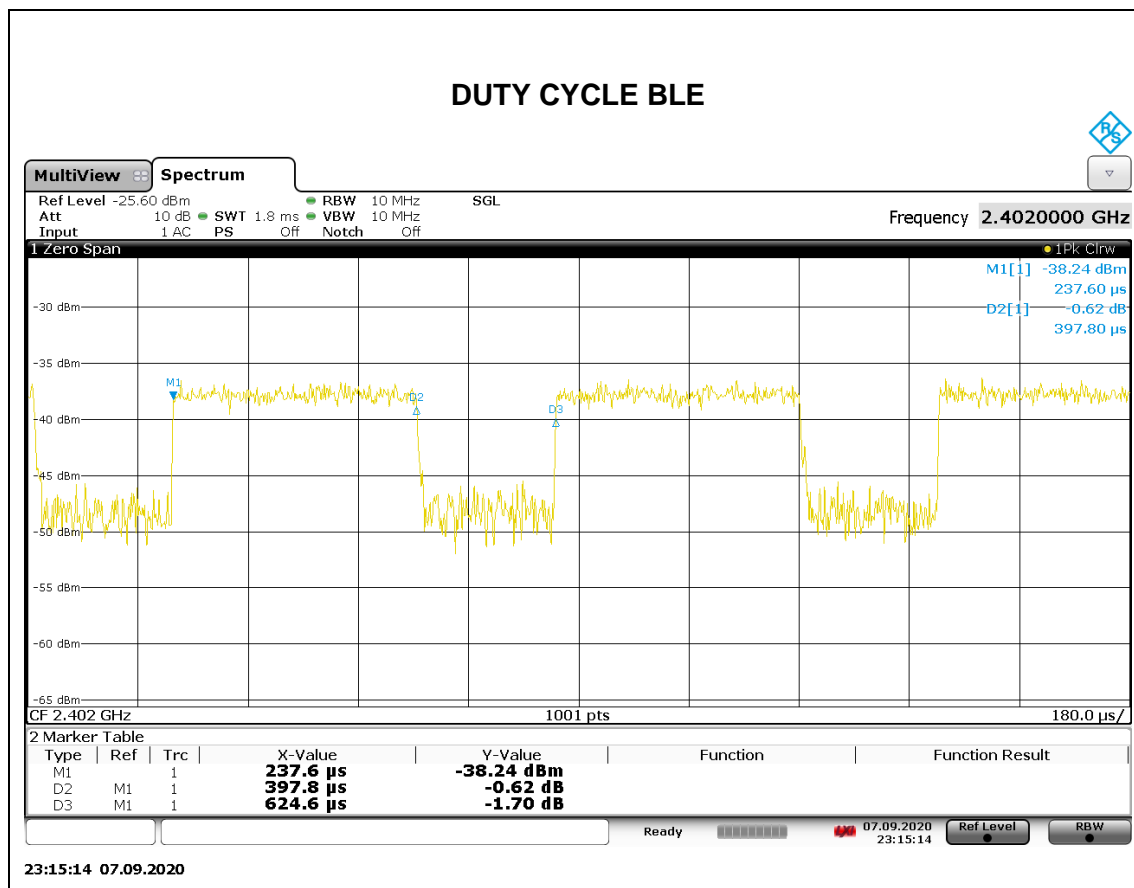
#### PROCEDURE

ANSI C63.10 Section 11.6 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)
<b>2.4GHz Band</b>						
BLE	0.398	0.625	0.637	63.69%	1.96	2.514

#### DUTY CYCLE PLOTS





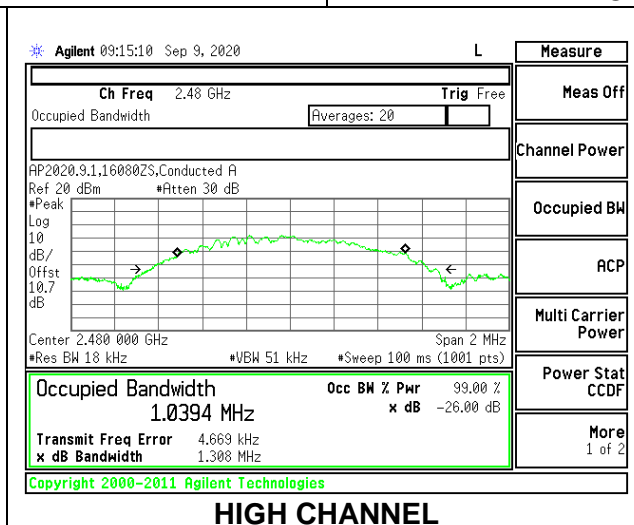
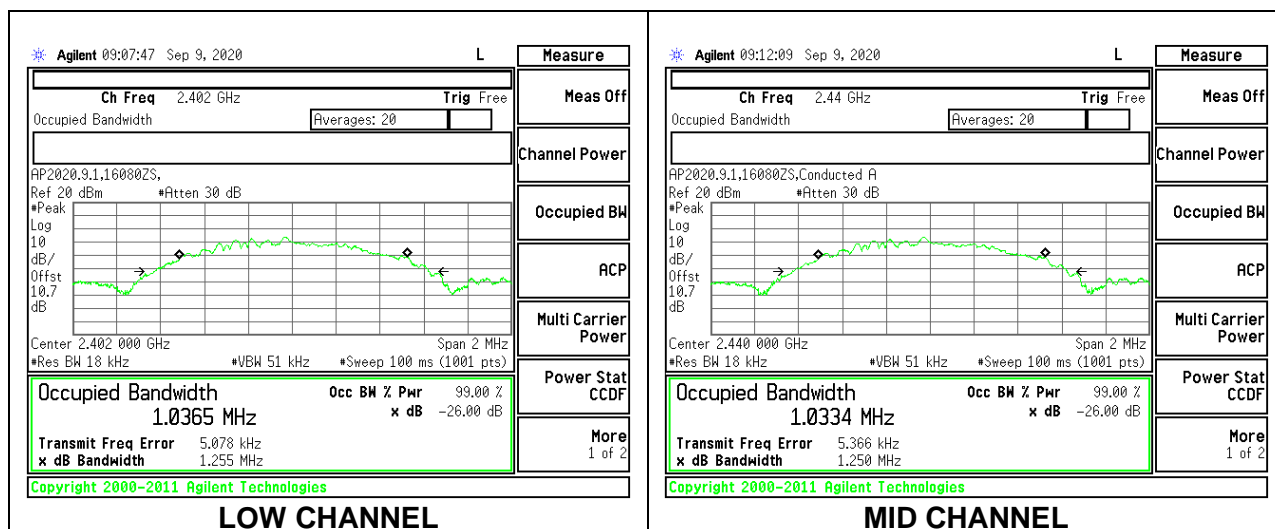
## 9.2. 99% BANDWIDTH

### LIMITS

None; for reporting purposes only.

### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0365
Middle	2440	1.0334
High	2480	1.0394



### 9.3. 6 dB BANDWIDTH

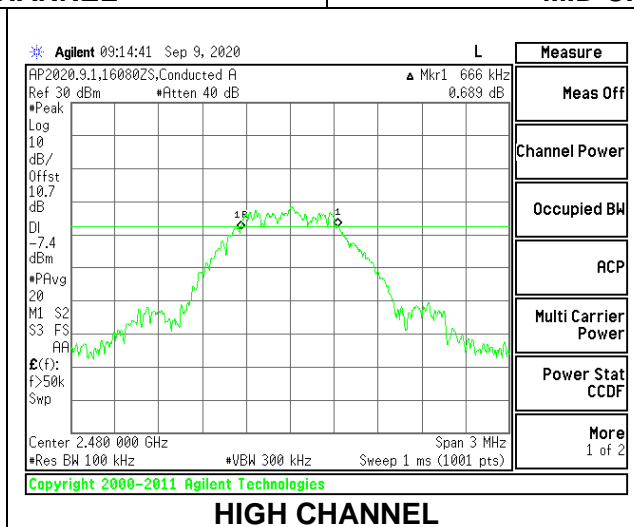
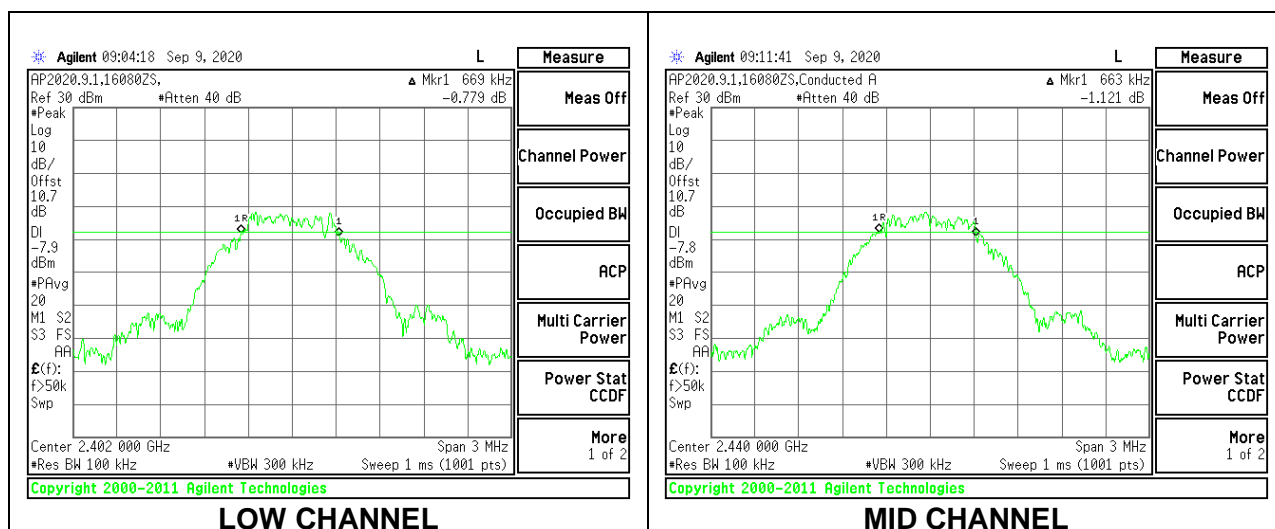
#### LIMITS

FCC §15.247 (a) (2)

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

#### RESULTS

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.669	0.5
Middle	2440	0.663	0.5
High	2480	0.666	0.5



## 9.4. OUTPUT POWER

### LIMITS

FCC §15.247 (b) (3)

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.

### RESULTS

<b>Tested By:</b>	16080ZS
<b>Date:</b>	9/9/2020

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Peak Power Reading (dBm)</b>	<b>Limit (dBm)</b>	<b>Margin (dB)</b>
Low	2402	-0.650	30	-30.650
Middle	2440	-0.930	30	-30.930
High	2480	-1.070	30	-31.070

## 9.5. AVERAGE POWER

### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

The transmitter output is connected to a power meter.

### RESULTS

<b>Tested By:</b>	16080ZS
<b>Date:</b>	9/9/2020

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>AV power (dBm)</b>
Low	2402	-0.93
Middle	2440	-1.19
High	2480	-1.31

## 9.6. POWER SPECTRAL DENSITY

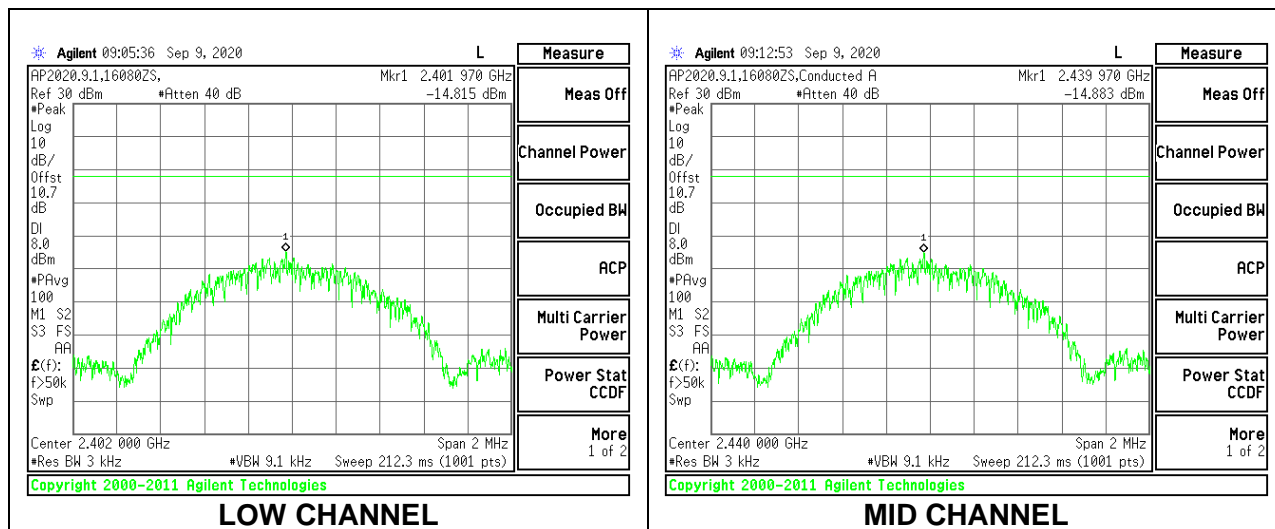
### LIMITS

FCC §15.247 (e)

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

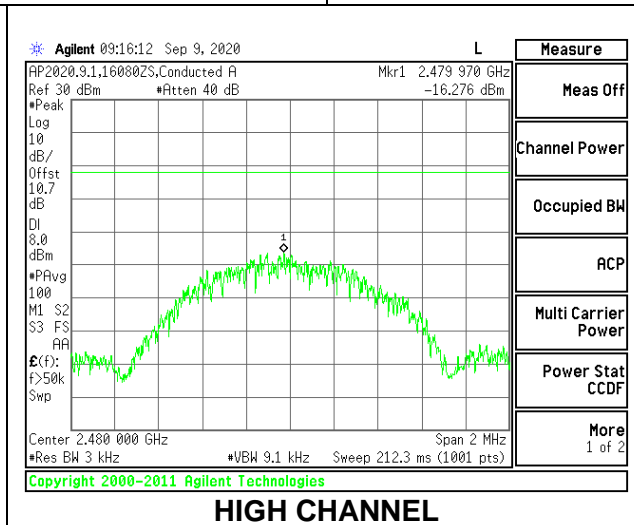
### RESULTS

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-14.82	8	-22.82
Middle	2440	-14.88	8	-22.88
High	2480	-16.28	8	-24.28



LOW CHANNEL

MID CHANNEL



HIGH CHANNEL

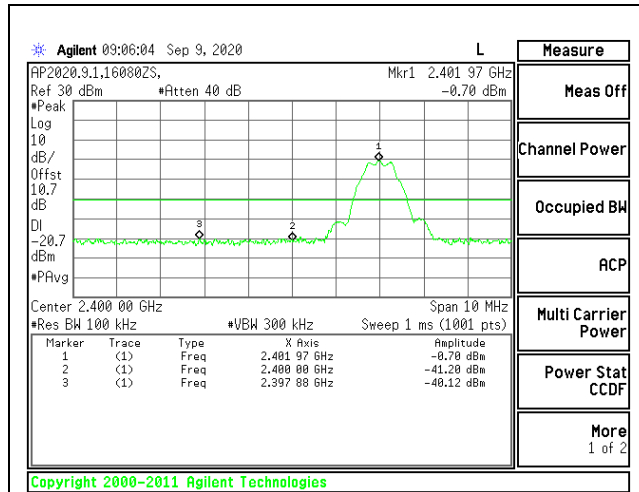
## **9.7. CONDUCTED SPURIOUS EMISSIONS**

### **LIMITS**

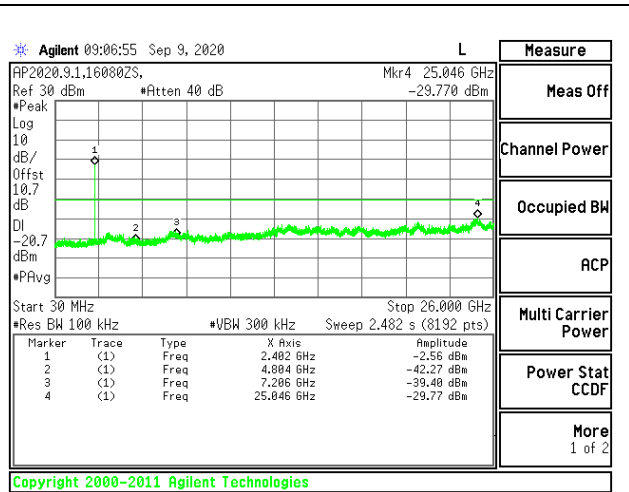
FCC §15.247 (d)

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

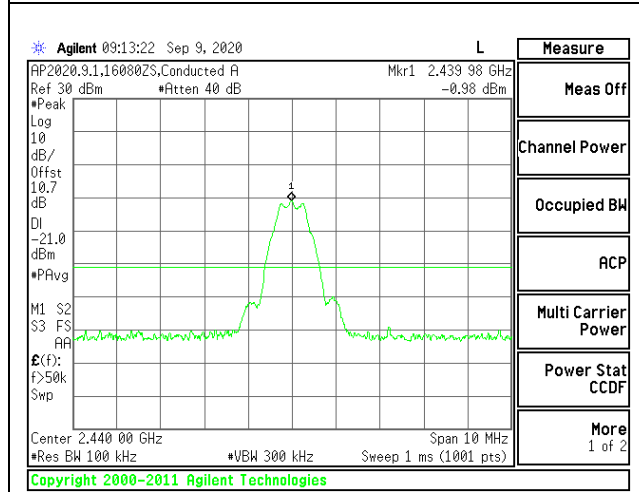
### **RESULTS**



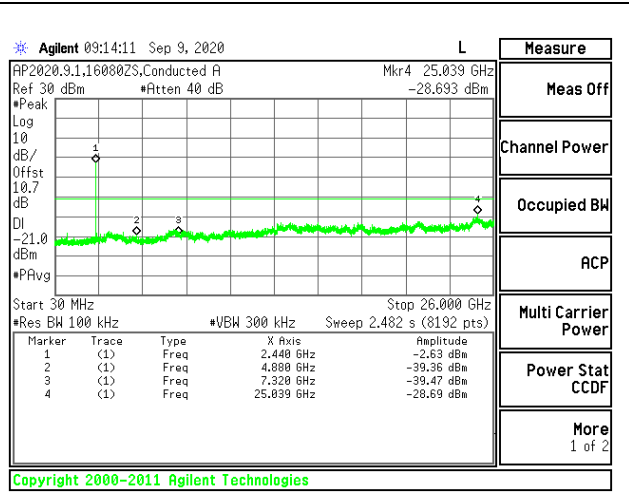
**LOW CHANNEL BANDEGE**



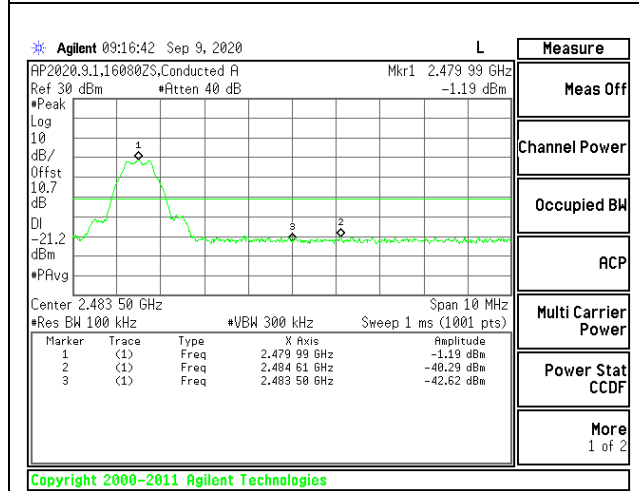
**OUT-OF-BAND LOW CHANNEL**



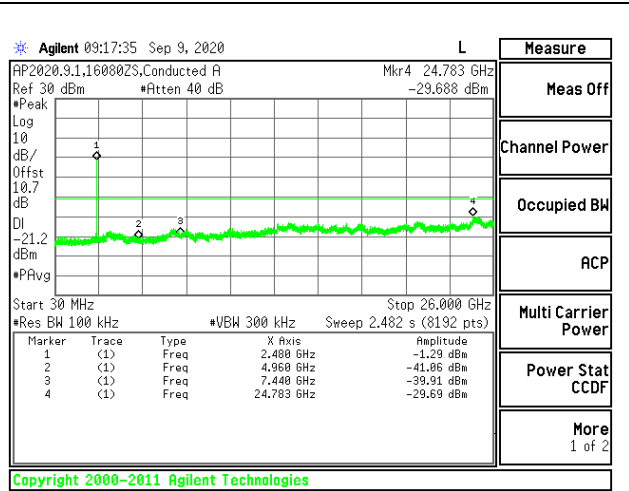
**IN-BAND REFERENCE LEVEL**



**OUT-OF-BAND MID CHANNEL**



**HIGH CHANNEL BANDEGE**



**OUT-OF-BAND HIGH CHANNEL**

## 10. RADIATED TEST RESULTS

### 10.1. LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

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

Tested in accordance with ANSI C63.10-2013

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.



2D antenna use - 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**

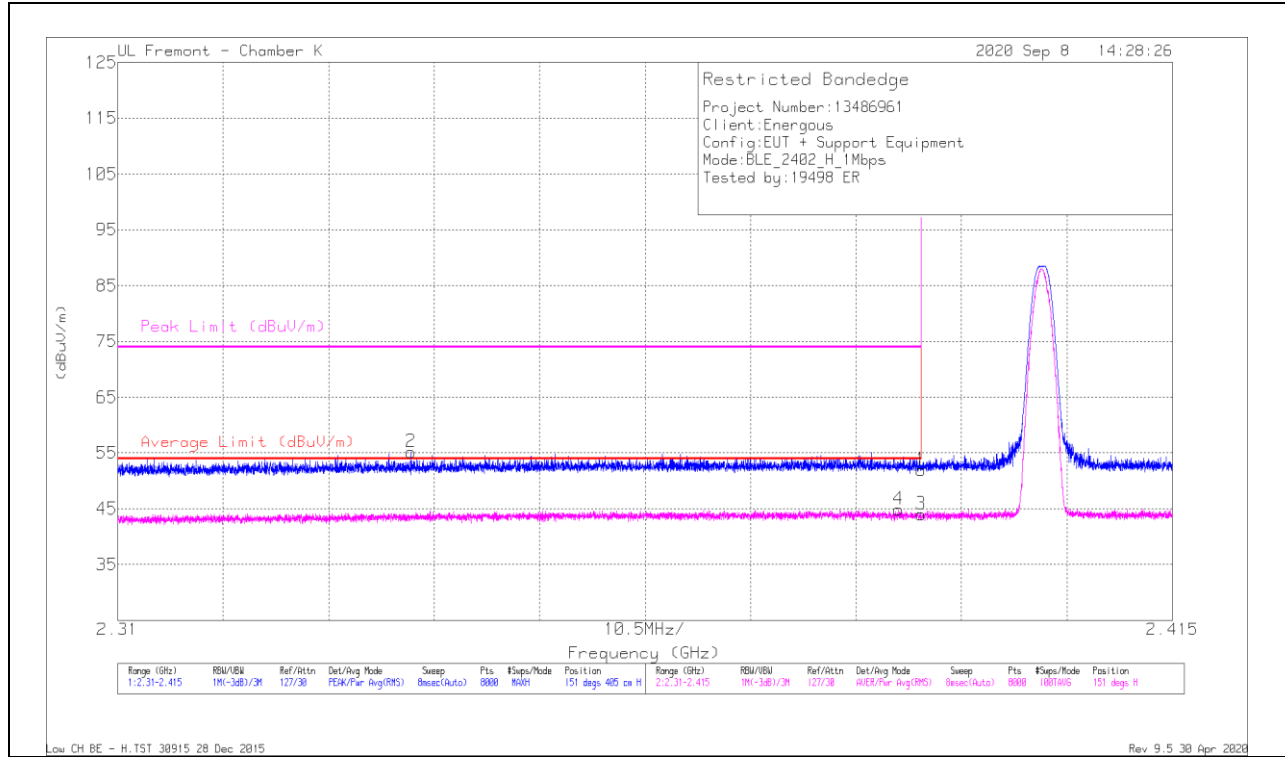
Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

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

## 10.2. TRANSMITTER ABOVE 1 GHz

### BANDEDGE (LOW CHANNEL)

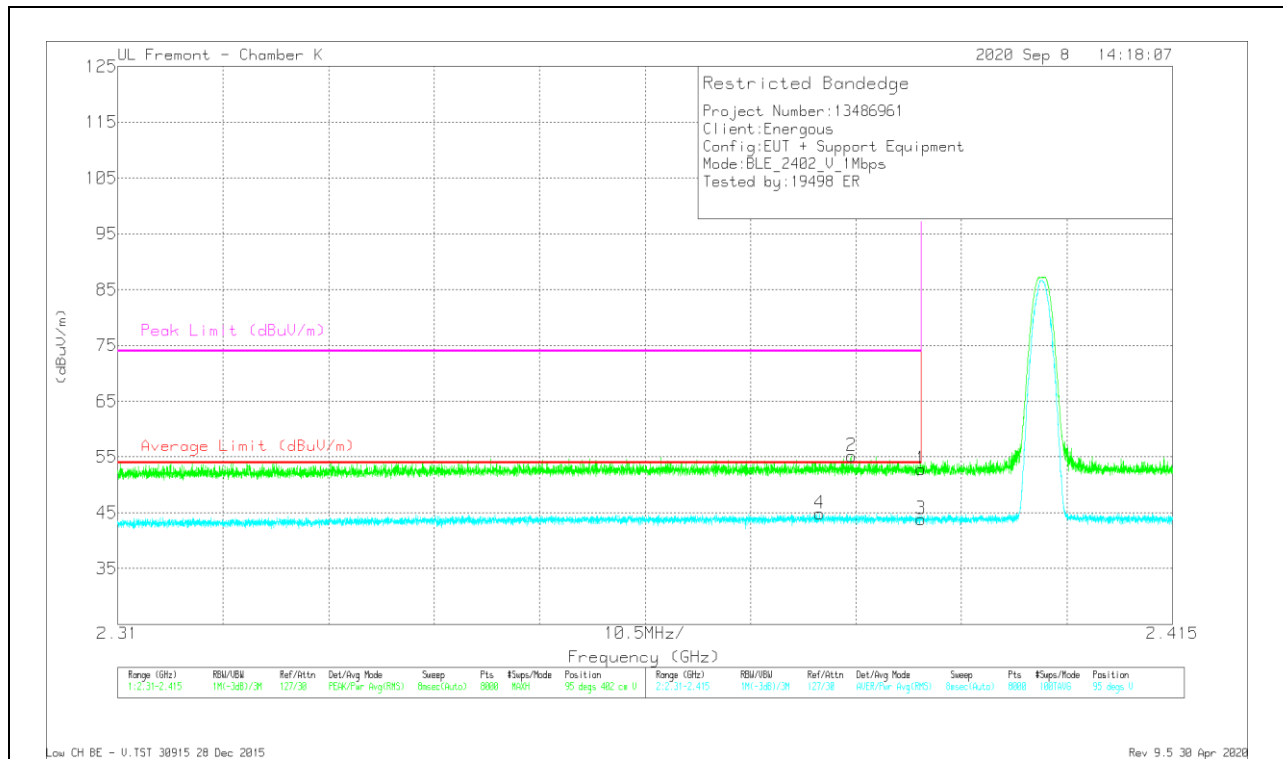
### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AFT863 (dB/m)	Amp/Cb/Fitr/Par d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Deg)	Height (cm)	Polarity
1	2.39	54.61	Pk	32.4	-35	0	52.01	-	-	74	-21.99	151	405	H
2	2.33918	58.2	Pk	32.2	-35.2	0	55.2	-	-	74	-18.8	151	405	H
3	2.39	44.65	RMS	32.4	-35	1.96	44.01	54	-9.99	-	-	151	405	H
4	2.38773	45.47	RMS	32.4	-35	1.96	44.83	54	-9.17	-	-	151	405	H

Pk - Peak detector  
 RMS - RMS detection

### VERTICAL RESULT

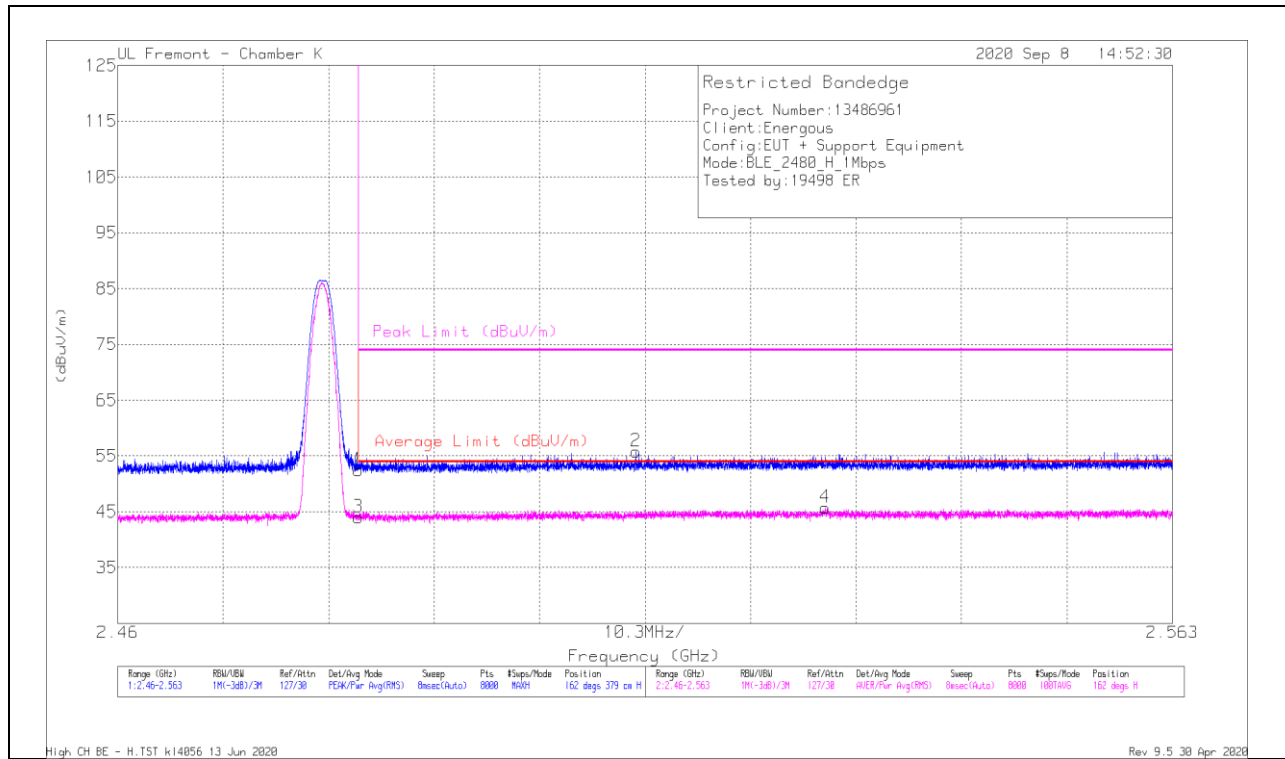


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Ch/Filt/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.39	55.48	Pk	32.4	-35	0	52.88	-	-	74	-21.12	95	402	V
2	2.38305	57.85	Pk	32.4	-35.1	0	55.15	-	-	74	-18.85	95	402	V
3	2.39	44.54	RMS	32.4	-35	1.96	43.9	54	-10.1	-	-	95	402	V
4	2.37986	45.62	RMS	32.4	-35.1	1.96	44.88	54	-9.12	-	-	95	402	V

Pk - Peak detector  
 RMS - RMS detection

**BANDEDGE (HIGH CHANNEL)**

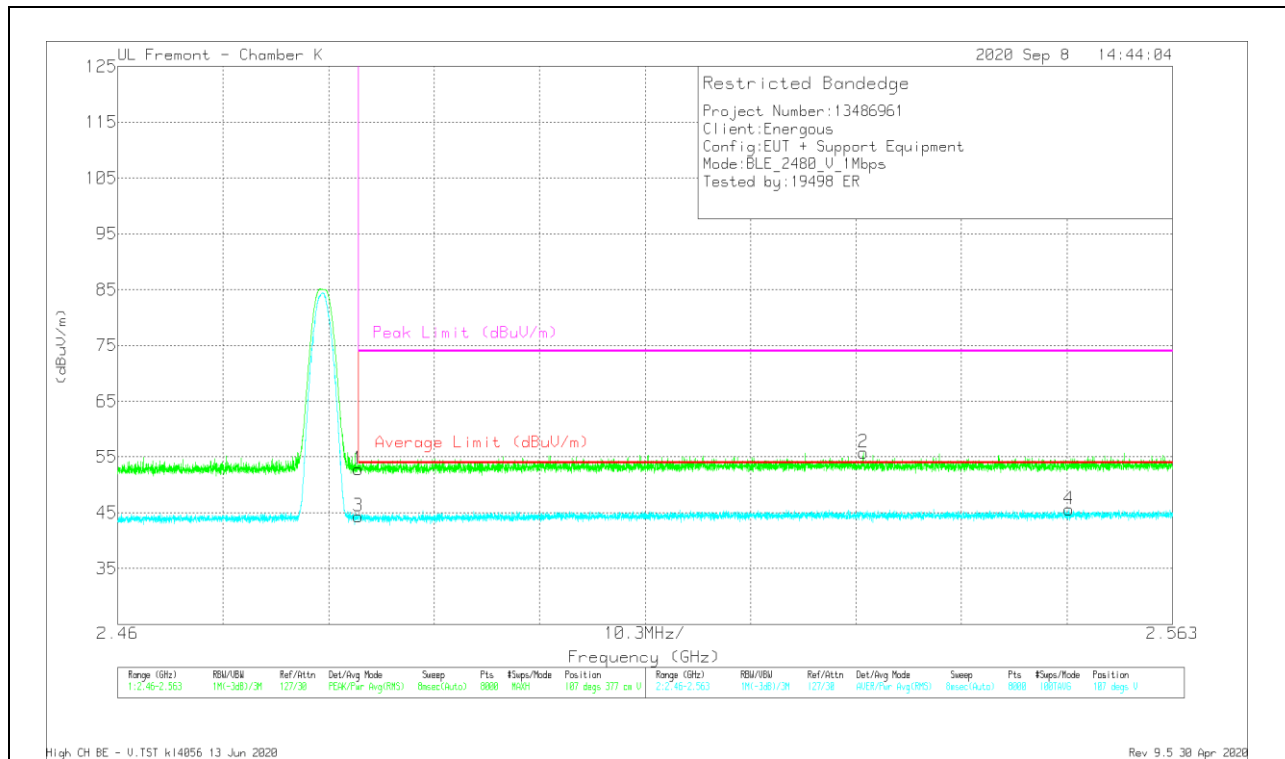
**HORIZONTAL RESULT**



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Filtr/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.4835	54.52	PK	32.5	-34.6	0	52.42	-	-	74	-21.58	162	379	H
2	2.51063	57.58	PK	32.7	-34.5	0	55.78	-	-	74	-18.22	162	379	H
3	2.4835	44.12	RMS	32.5	-34.6	1.96	43.98	54	-10.02	-	-	162	379	H
4	2.52911	45.57	RMS	32.7	-34.5	1.96	45.73	54	-8.27	-	-	162	379	H

Pk - Peak detector  
 RMS - RMS detection

### VERTICAL RESULT

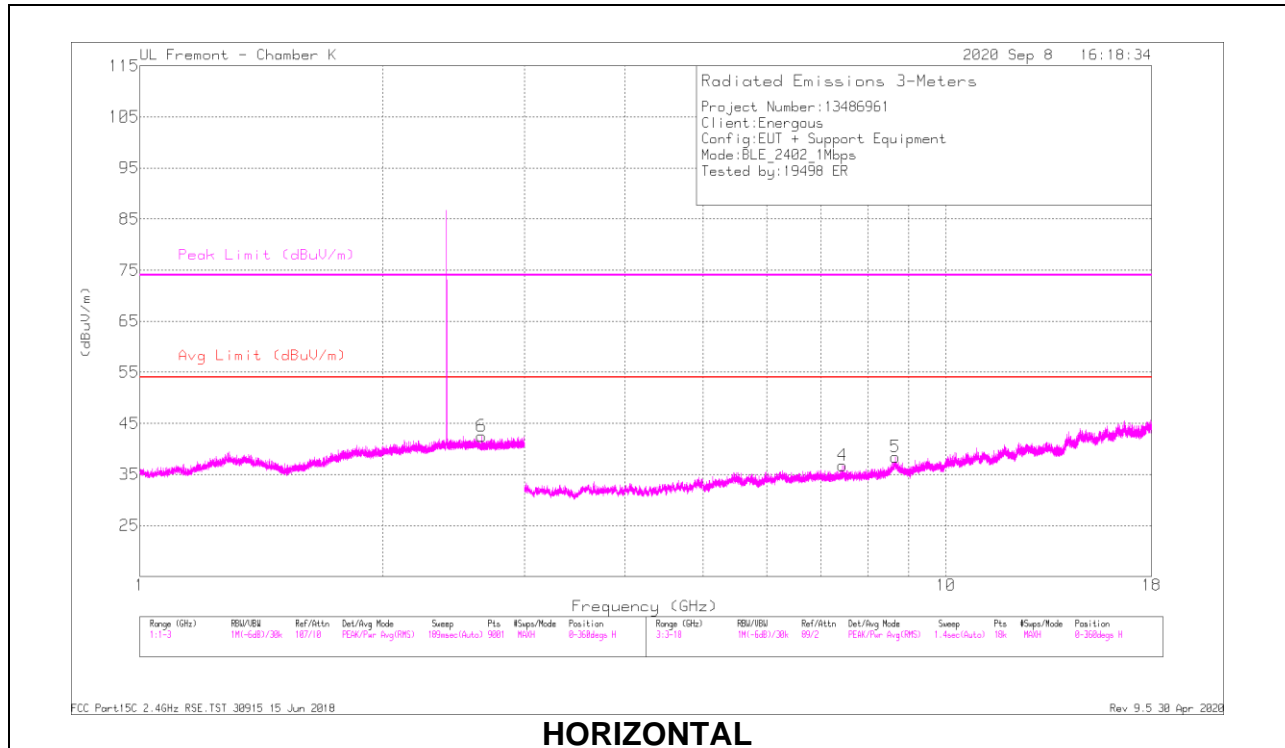


Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Clf/Ftr/Pa d (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	2.4835	54.9	Pk	32.5	-34.6	0	52.8	-	-	74	-21.2	107	377	V
2	2.53281	57.6	Pk	32.7	-34.5	0	55.8	-	-	74	-18.2	107	377	V
3	2.4835	44.51	RMS	32.5	-34.6	1.96	44.37	54	-9.63	-	-	107	377	V
4	2.55289	45.34	RMS	32.7	-34.4	1.96	45.6	54	-8.4	-	-	107	377	V

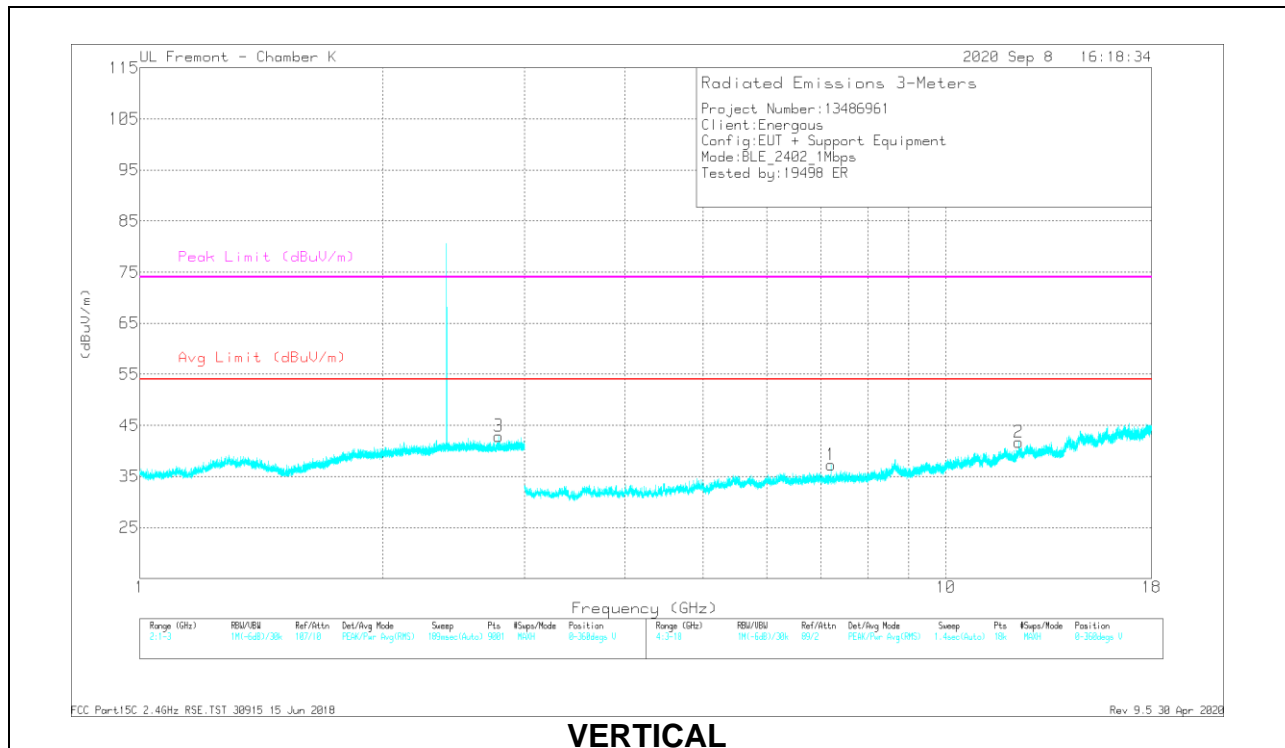
Pk - Peak detector  
 RMS - RMS detection

# HARMONICS AND SPURIOUS EMISSIONS

## LOW CHANNEL RESULTS



**HORIZONTAL**



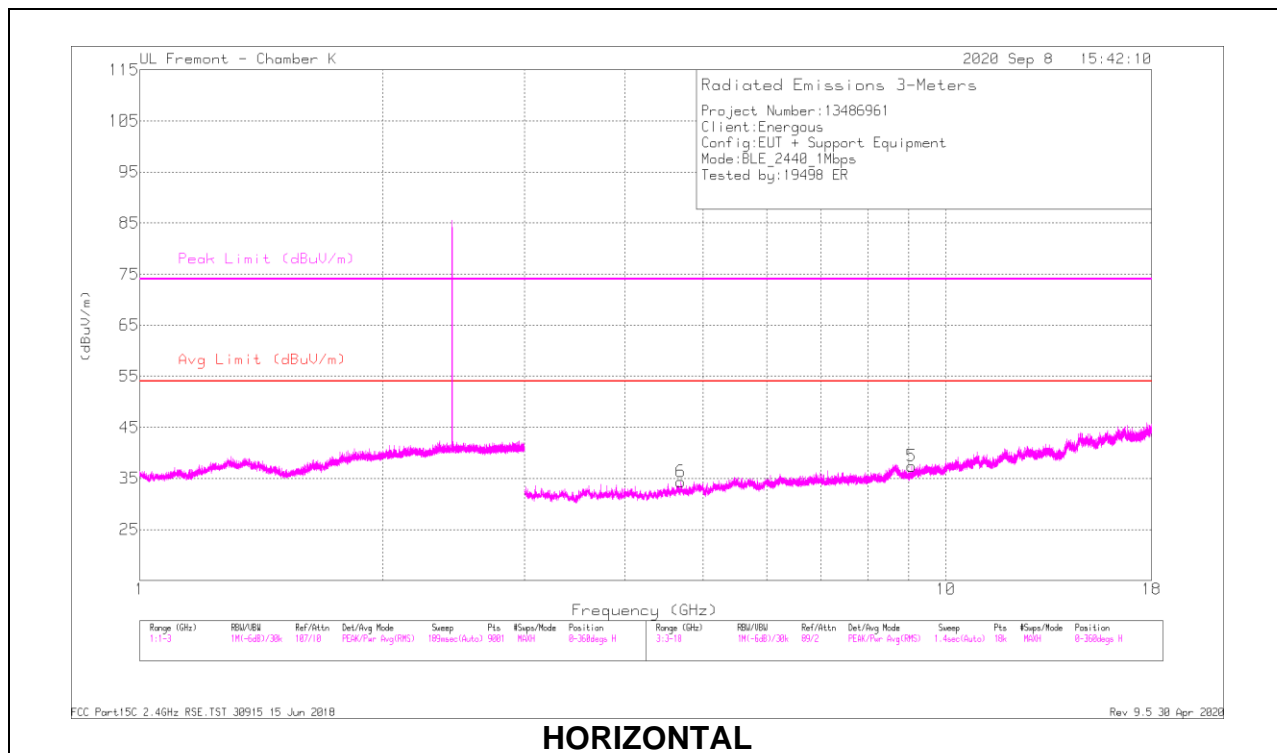
**VERTICAL**

### RADIATED EMISSIONS

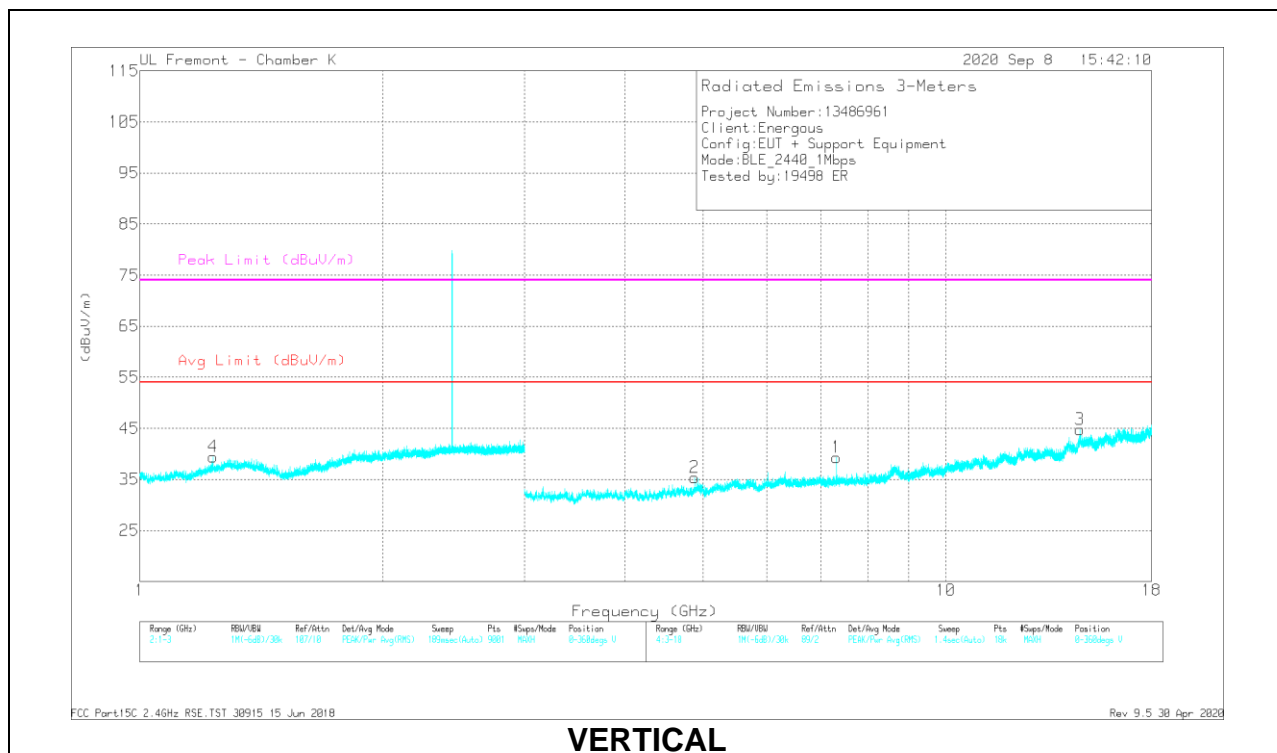
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 2.657	51.38	PK2	32.5	-34.3	0	49.58	-	-	74	-24.42	35	105	H
* 2.65647	40.53	MAv1	32.5	-34.3	1.96	40.69	54	-13.31	-	-	35	105	H
8.66112	47.41	PK2	36.3	-37.1	0	46.61	-	-	-	-	226	155	H
* 7.43525	46.49	PK2	36.1	-38	0	44.59	-	-	74	-29.41	309	136	H
* 7.43164	35.34	MAv1	36.1	-38	1.96	35.4	54	-18.6	-	-	309	136	H
* 2.781	52.41	PK2	32.5	-33.9	0	51.01	-	-	74	-22.99	168	109	V
* 2.78304	40.77	MAv1	32.5	-33.9	1.96	41.33	54	-12.67	-	-	168	109	V
7.20621	49.87	PK2	36	-38.6	0	47.27	-	-	-	-	345	127	V
* 12.31469	44.8	PK2	39.3	-34	0	50.1	-	-	74	-23.9	114	100	V
* 12.31653	33.24	MAv1	39.3	-34	1.96	40.5	54	-13.5	-	-	114	100	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



### HORIZONTAL



### VERTICAL

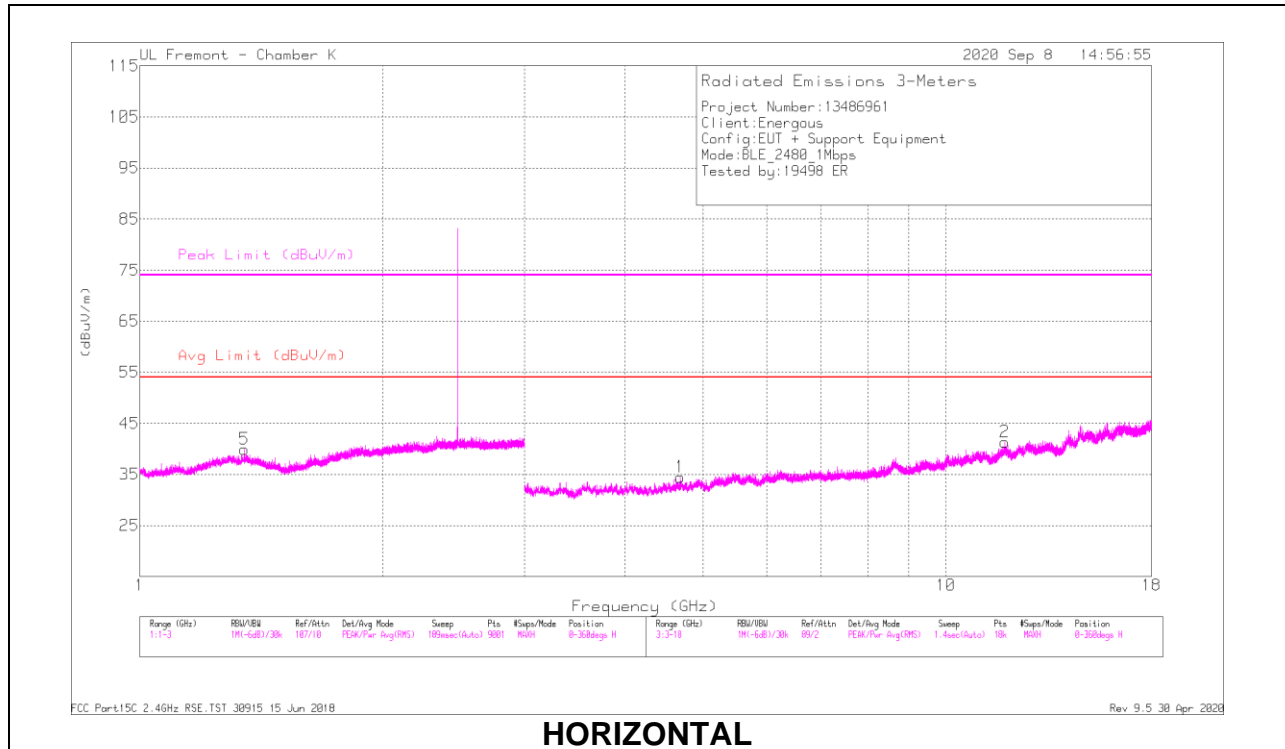


**RADIATED EMISSIONS**

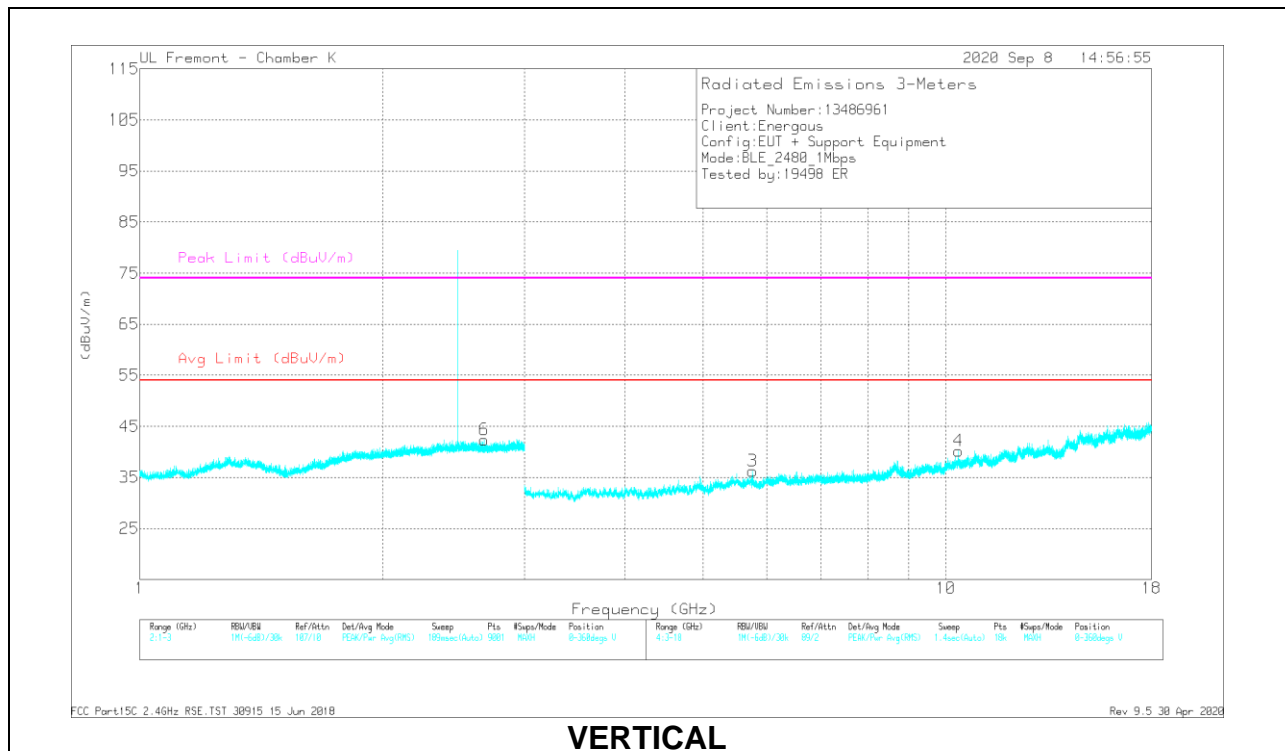
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cb/Fitr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 9.07903	46.1	PK2	36.5	-36.9	0	45.7	-	-	74	-28.3	194	254	H
* 9.08209	34.65	MAv1	36.5	-36.9	1.96	36.21	54	-17.79	-	-	194	254	H
* 4.69675	50.18	PK2	34.3	-41.4	0	43.08	-	-	74	-30.92	303	104	H
* 4.6947	38.47	MAv1	34.4	-41.4	1.96	33.43	54	-20.57	-	-	303	104	H
* 1.22513	56.16	PK2	28.7	-37	0	47.86	-	-	74	-26.14	330	140	V
* 1.23799	44.34	MAv1	28.8	-37	1.96	38.1	54	-15.9	-	-	330	140	V
* 7.3195	49.22	PK2	36	-38.2	0	47.02	-	-	74	-26.98	343	98	V
* 7.31916	38.78	MAv1	36	-38.2	1.96	38.54	54	-15.46	-	-	343	98	V
* 4.87959	50.91	PK2	34.4	-40.6	0	44.71	-	-	74	-29.29	90	105	V
* 4.87971	40.47	MAv1	34.4	-40.6	1.96	36.23	54	-17.77	-	-	90	105	V
14.67688	45	PK2	40.6	-32.5	0	53.1	-	-	-	-	217	114	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



**HORIZONTAL**



**VERTICAL**

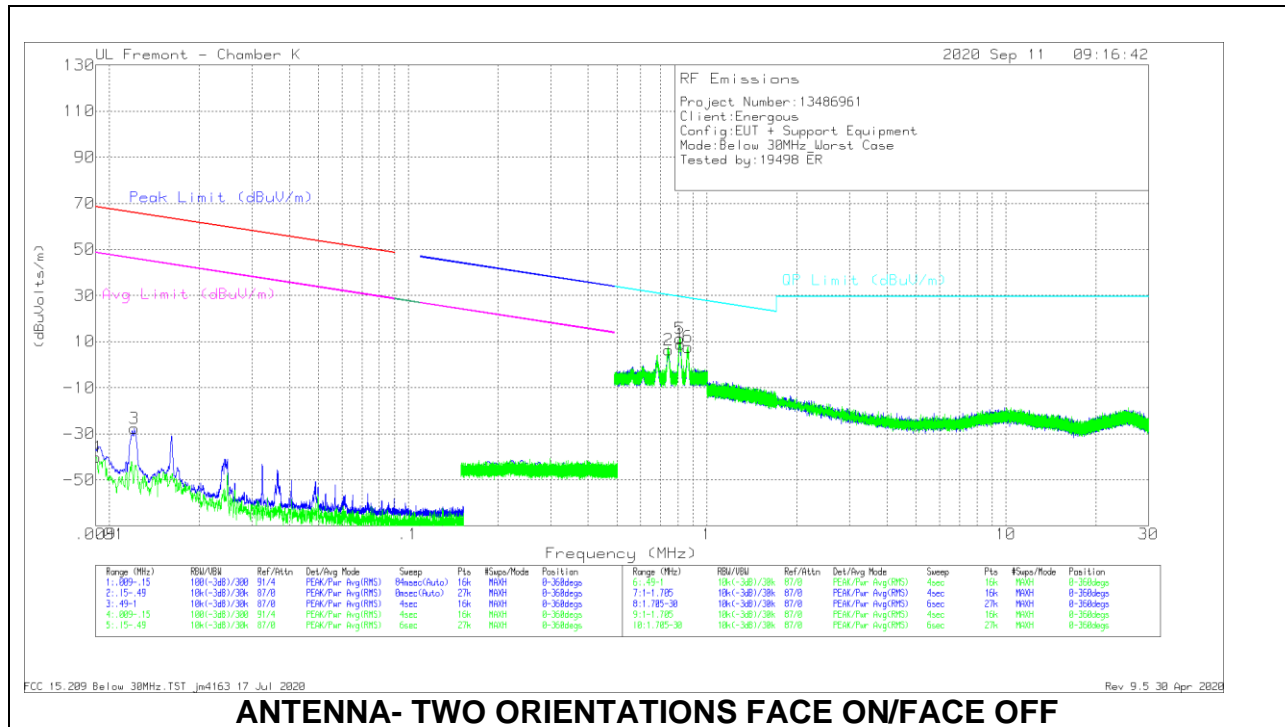
### RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/ Pad (dB)	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 1.33762	55.3	PK2	29.3	-36.6	0	48	-	-	74	-26	241	160	H
* 1.34319	44.18	MAv1	29.3	-36.6	1.96	38.84	54	-15.16	-	-	241	160	H
* 4.67315	50.29	PK2	34.4	-41.4	0	43.29	-	-	74	-30.71	164	146	H
* 4.68206	38.35	MAv1	34.4	-41.4	1.96	33.31	54	-20.69	-	-	164	146	H
* 11.8354	46.04	PK2	38.7	-34.8	0	49.94	-	-	74	-24.06	145	117	H
* 11.83939	34.49	MAv1	38.7	-34.8	1.96	40.35	54	-13.65	-	-	145	117	H
* 2.67721	52.51	PK2	32.4	-34.2	0	50.71	-	-	74	-23.29	55	311	V
* 2.6765	41.06	MAv1	32.4	-34.2	1.96	41.22	54	-12.78	-	-	55	311	V
5.75966	47.45	PK2	35.1	-39.5	0	43.05	-	-	-	-	194	218	V
10.35867	46.66	PK2	37.6	-36.5	0	47.76	-	-	-	-	51	157	V

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

### 10.3. WORST CASE BELOW 30MHZ

#### SPURIOUS EMISSIONS BELOW 30 MHz (WORST-CASE CONFIGURATION)



#### ANTENNA- TWO ORIENTATIONS FACE ON/FACE OFF

#### Below 30MHz Data

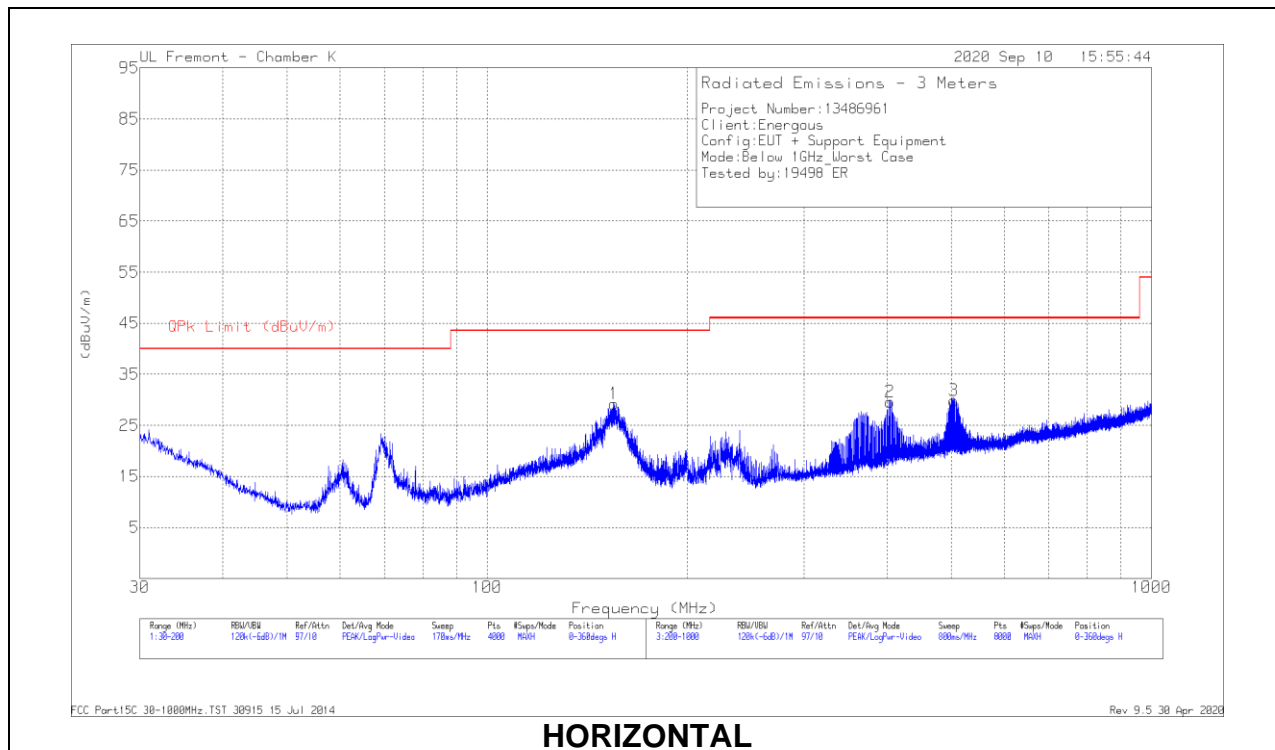
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (E ACF)	Amp/Cbl (dB)	Dist Corr 300m	Corrected Reading (dBuVolts/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.01213	24.15	Pk	59.8	-31.5	-80	-27.55	65.91	-93.46	45.91	-73.46	0-360
4	.00904	10.05	Pk	61	-31.3	-80	-40.25	68.47	-108.72	48.47	-88.72	0-360

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (E ACF)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuVolts/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.81502	24.82	Pk	56	-32.1	-40	8.72	29.39	-20.67	0-360
2	.74386	22.49	Pk	56	-32.2	-40	6.29	30.18	-23.89	0-360
5	.81115	27.49	Pk	56	-32.2	-40	11.29	29.43	-18.14	0-360
6	.86421	23.82	Pk	56	-32.2	-40	7.62	28.89	-21.27	0-360

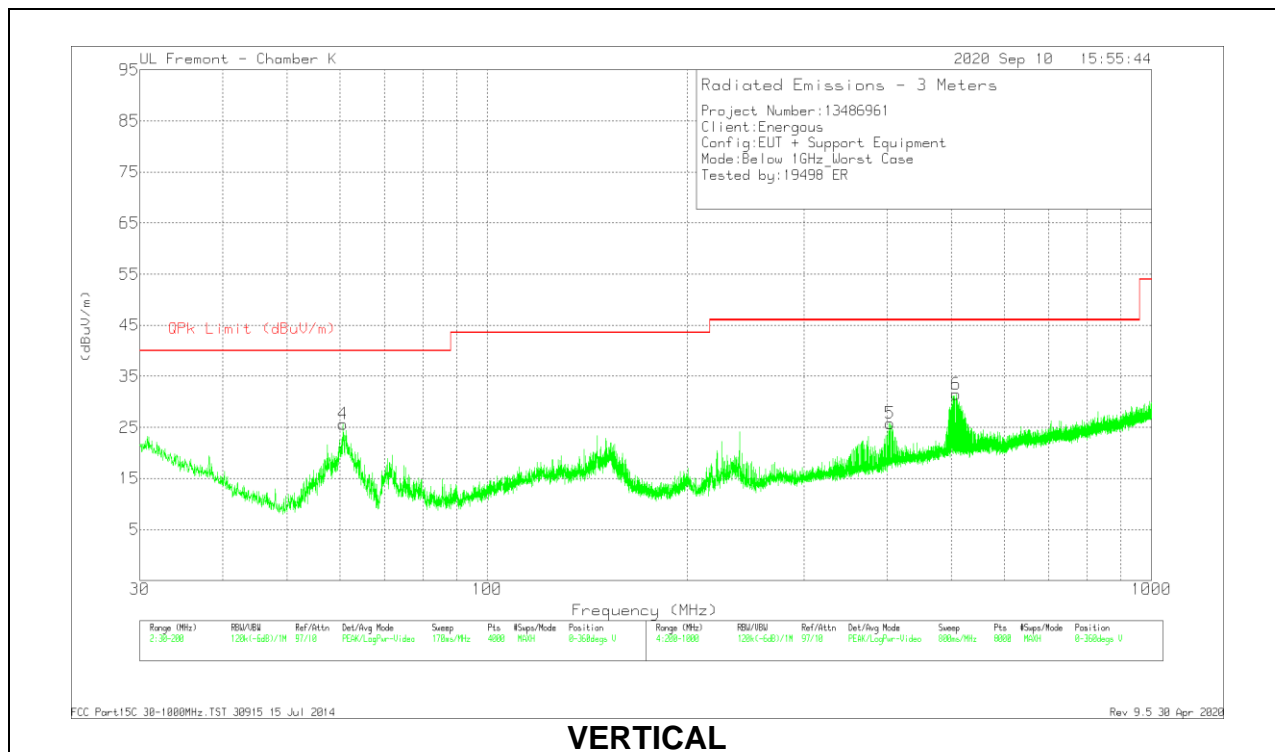
Pk - Peak detector

### 10.4. WORST CASE BELOW 1 GHZ

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



**HORIZONTAL**



**VERTICAL**

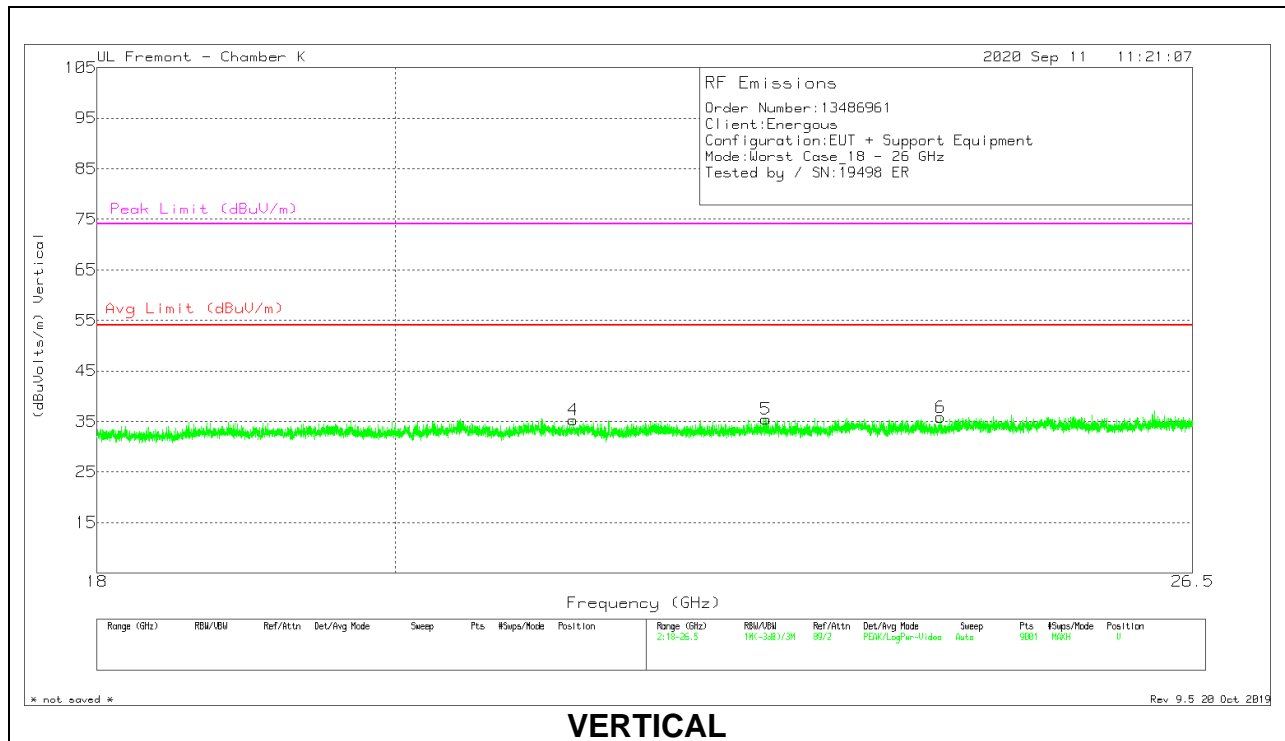
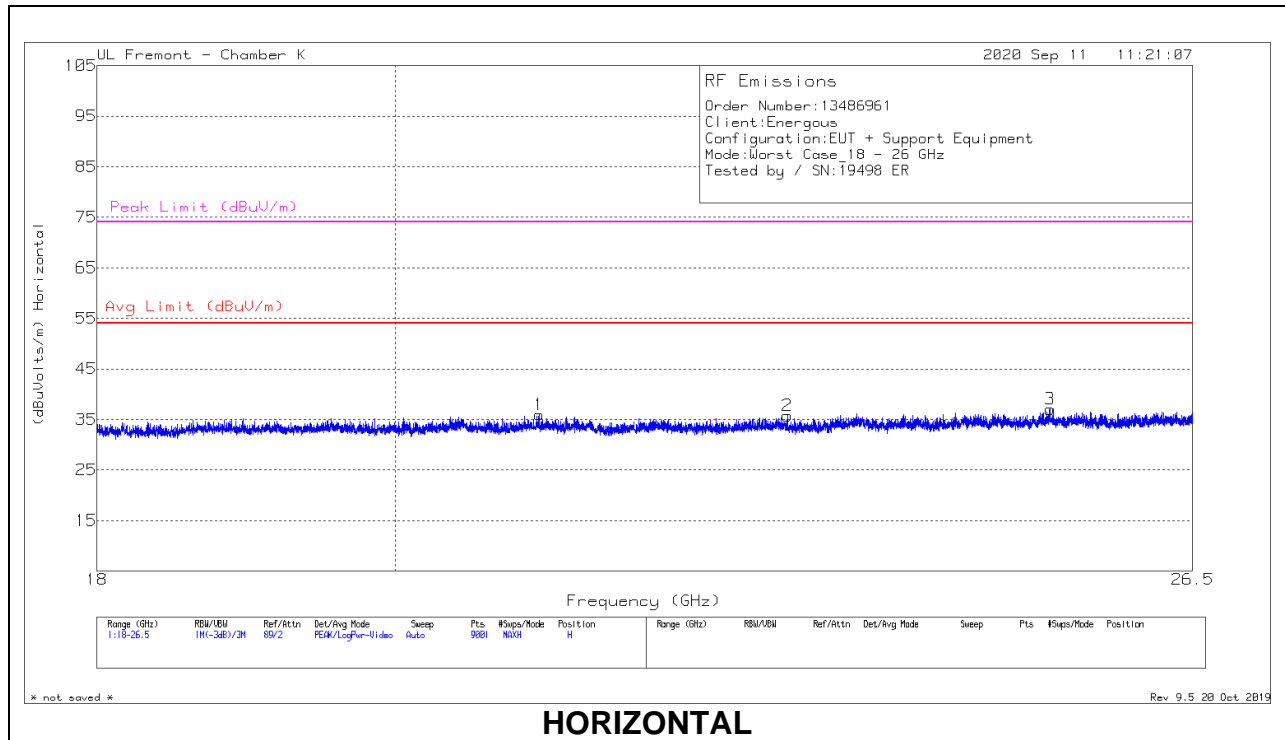
**Below 1GHz Data**

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF PRE0181574 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	154.4159	41.3	Pk	18.3	-30.6	29	43.52	-14.52	221	157	H
	155.8839	36.36	Qp	18.3	-30.6	24.06	43.52	-19.46	221	157	H
4	60.6079	43.45	Pk	13.4	-31.2	25.65	40	-14.35	0-360	100	V
2	* 403.7265	37.49	Pk	21.6	-29.5	29.59	46.02	-16.43	0-360	100	H
3	503.5395	35.59	Pk	23.5	-29.2	29.89	46.02	-16.13	0-360	200	H
5	* 403.6265	33.72	Pk	21.6	-29.5	25.82	46.02	-20.2	0-360	200	V
6	507.74	37.29	Pk	23.5	-29.3	31.49	46.02	-14.53	0-360	100	V

Pk - Peak detector  
 Qp - Quasi-Peak detector

### 10.5. WORST CASE 18-26 GHZ

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



**18 – 26GHz DATA**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	T448 AF (dB/m)	Amp/Cbl (dB)	Dist Corr (dB)	Corrected Reading (dBuVolts/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	21.04017	69.15	Pk	33.3	-57	-9.5	35.95	54	-18.05	74	-38.05
2	22.96683	69.23	Pk	33.7	-57.7	-9.5	35.73	54	-18.27	74	-38.27
3	25.1995	67.15	Pk	34.6	-55.2	-9.5	37.05	54	-16.95	74	-36.95
4	21.29517	68.89	Pk	33.1	-57.2	-9.5	35.29	54	-18.71	74	-38.71
5	22.79305	68.96	Pk	33.6	-57.6	-9.5	35.46	54	-18.54	74	-38.54
6	24.24277	67.63	Pk	34.2	-56.5	-9.5	35.83	54	-18.17	74	-38.17

Pk - Peak detector



## 11. AC POWER LINE CONDUCTED EMISSIONS

### LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dB $\mu$ 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.

### RESULTS

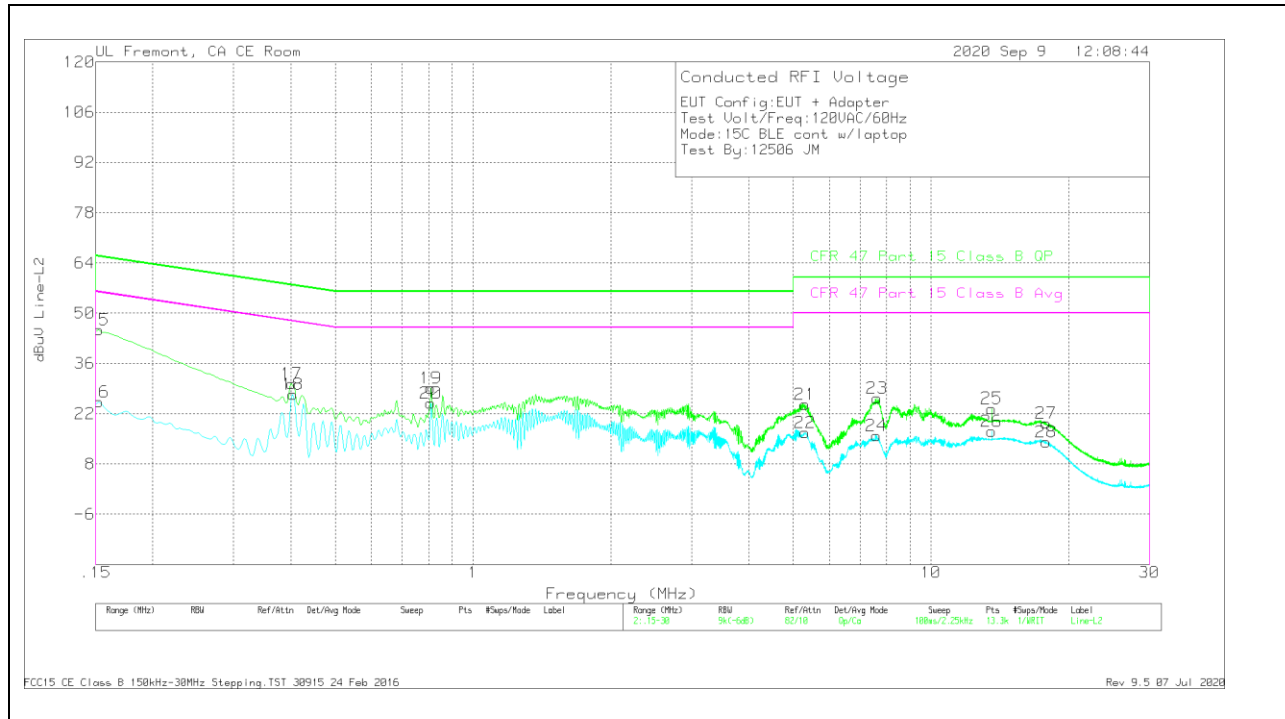
### LINE 1 RESULTS



Range 1: Line-L1 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBUV)	Det	PRE01864 46 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	.17025	33.05	Qp	0	0	10	43.05	64.95	-21.9	-	-
2	.177	8.04	Ca	0	0	10	18.04	-	-	54.63	-36.59
3	.42675	20.59	Qp	0	0	10	30.59	57.32	-26.73	-	-
4	.42675	18.9	Ca	0	0	10	28.9	-	-	47.32	-18.42
5	.80925	17.06	Qp	0	0	10	27.06	56	-28.94	-	-
6	.80925	13.09	Ca	0	0	10	23.09	-	-	46	-22.91
7	5.31375	14.09	Qp	0	.1	10.1	24.29	60	-35.71	-	-
8	5.31375	4.39	Ca	0	.1	10.1	14.59	-	-	50	-35.41
9	7.62675	17.92	Qp	0	.2	10.1	28.22	60	-31.78	-	-
10	7.629	5.98	Ca	0	.2	10.1	16.28	-	-	50	-33.72
11	13.56	12.37	Qp	.1	.2	10.1	22.77	60	-37.23	-	-
12	13.56	5.58	Ca	.1	.2	10.1	15.98	-	-	50	-34.02
13	17.8395	6.96	Qp	0	.3	10.2	17.46	60	-42.54	-	-
14	17.8125	1.57	Ca	0	.3	10.2	12.07	-	-	50	-37.93

Qp - Quasi-Peak detector  
 Ca - CISPR average detection

### LINE 2 RESULTS



Range 2: Line-L2 .15 - 30MHz											
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	PRE01864 46 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	.15225	35.35	Qp	0	0	10	45.35	65.88	-20.53	-	-
16	.15225	15.31	Ca	0	0	10	25.31	-	-	55.88	-30.57
17	.402	20.35	Qp	0	0	10	30.35	57.81	-27.46	-	-
18	.40425	17.42	Ca	0	0	10	27.42	-	-	47.77	-20.35
19	.80925	19.22	Qp	0	0	10	29.22	56	-26.78	-	-
20	.80925	14.99	Ca	0	0	10	24.99	-	-	46	-21.01
21	5.31375	14.45	Qp	0	.1	10.1	24.65	60	-35.35	-	-
22	5.307	6.51	Ca	0	.1	10.1	16.71	-	-	50	-33.29
23	7.62675	16.13	Qp	0	.2	10.1	26.43	60	-33.57	-	-
24	7.5975	5.58	Ca	0	.2	10.1	15.88	-	-	50	-34.12
25	13.56	13.07	Qp	.1	.2	10.1	23.47	60	-36.53	-	-
26	13.56	6.69	Ca	.1	.2	10.1	17.09	-	-	50	-32.91
27	17.835	8.86	Qp	0	.3	10.2	19.36	60	-40.64	-	-
28	17.83388	3.68	Ca	0	.3	10.2	14.18	-	-	50	-35.82

Qp - Quasi-Peak detector  
 Ca - CISPR average detection