



# **TEST REPORT**

**Report Number. :** 13461097-E2V2

**Applicant :** VERILY LIFE SCIENCES  
269 E GRAND AVE.,  
SOUTH SAN FRANCISCO, CA 94080, U.S.A.

**FCC ID :** 2AJ3K-990-04082-00

**EUT Description :** WEARABLE VITAL SIGNS MONITOR

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

**Date Of Issue:**  
October 05, 2020

**Prepared by:**  
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## REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	9/14/2020	Initial Issue	--
V2	10/5/2020	Updated EUT name	Tina Chu

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** VERILY LIFE SCIENCES  
269 E GRAND AVE.,  
SOUTH SAN FRANCISCO, CA 94080, U.S.A.

**EUT DESCRIPTION:** WEARABLE VITAL SIGNS MONITOR

**SERIAL NUMBER:** TPATCH-d16784db06f (Conducted Unit),  
TPVP130X2034002W ( Radiated Unit)

**DATE TESTED:** SEPTEMBER 4, 2020 TO SEPTEMBER 9, 2020

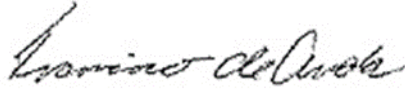
APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
CFR 47 Part 15 Subpart C	Complies

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, any agency of the Federal Government, or any agency of the U.S. government.


Approved & Released For  
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UL Verification Services Inc.

## 2. TEST RESULTS SUMMARY

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

## 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.

## 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:

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

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + 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

EUT is a wearable vital signs monitor with BLE radio. Powered by a coin cell lithium battery.

### 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	8.47	7.03

### 6.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a trace PCB antenna with a maximum gain of -6 dBi.

### 6.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was tpb\_p1\_3\_rc5.ff.tpatch.opt.

### 6.5. WORST-CASE CONFIGURATION AND MODE

Radiated emissions below 1GHz, above 18GHz 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 channel with highest output power as worst-case scenario.

The fundamental of the EUT was investigated in three orthogonal orientations X/Y/Z, it was determined that X-Flatbed orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in X-Flatbed orientation.

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

## 6.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

Description	Manufacturer	Model	Serial Number	FCC ID/ DoC
Laptop	Apple	A1502	C02MC01LFH03	DoC
Battery Pack (3 alkaline batteries)	AmazonBasics	D LR20	--	DoC
Power Board	Readix	TP2-D2	--	DoC

### 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	1.05	To spectrum analyzer
2	DC	1	DC	Unshielded	1.85	Power board to EUT
3	DC	1	DC	Unshielded	0.06	Battery pack to Power board

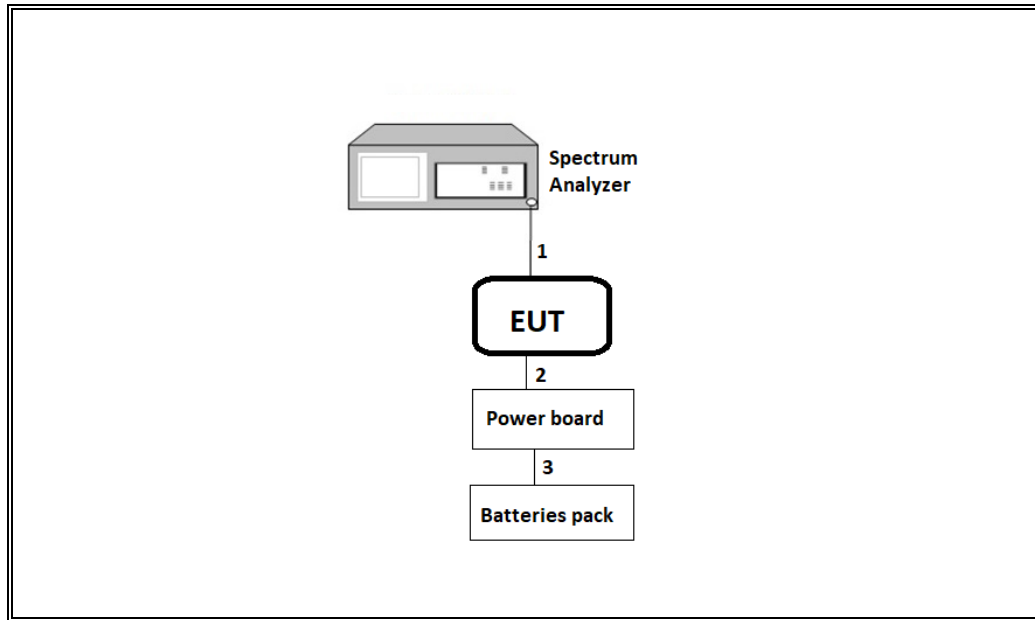
### I/O CABLES (RADIATED TEST)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length m	Remarks
1	DC	1	DC	Unshielded	1.85	Power board to EUT
2	DC	1	DC	Unshielded	0.06	Battery pack to Power board

### TEST SETUP

The EUT powered by battery pack. Laptop is used to program the test software and exercised the EUT. Laptop is removed from the testing after entered the test scripts.

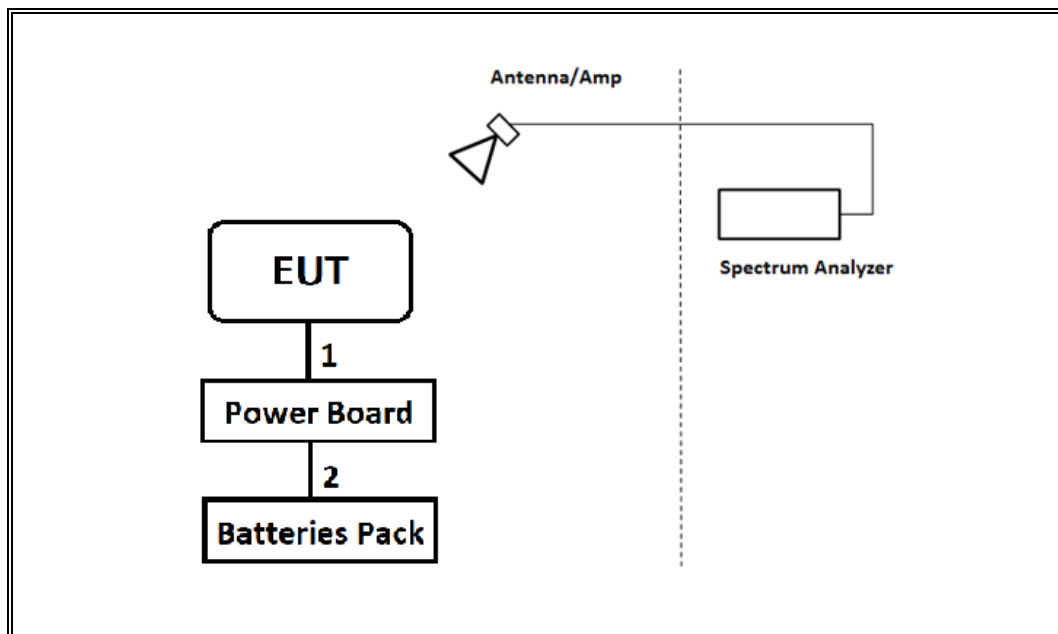
## **SETUP DIAGRAMS**



## **TEST SETUP- RADIATED TEST**

The EUT powered by battery pack. Test software exercised the EUT. Laptop was removed after test script was started.

## **SETUP DIAGRAM**



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## 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

Average 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      Integration method -Trace averaging across ON and OFF times with DC correction

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	ID Num	Cal Due	Last Cal
Antenna, Passive Loop 30Hz to 1MHz	ELETRO METRICS	EM-6871	PRE0179465	07/27/2021	07/27/2020
Antenna, Passive Loop 100kHz to 30MHz	ELETRO METRICS	EM-6872	PRE0179467	07/27/2021	07/27/2020
Amplifier, 9KHz to 1GHz, 32dB	Sonoma Instrument	310	PRE0186650	01/23/2021	01/23/2020
Antenna, BroadBand Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	PRE0181574	10/14/2020	10/14/2019
Amplifier, 100MHz-18GHz	AMPLICAL	AMP0.1G18-47-20	PRE0197319	05/04/2021	05/04/2020
Antenna 1-18G	ETS Lindgren	3117	T863	08/31/2021	08/31/2020
Antenna Horn, 18 to 26.5GHz	ARA	MWH-1826/B	T448	05/20/2021	05/20/2020
Pre-Amp 1-26.5 GHz	Agilent	8449B	T404	06/07/2021	06/07/2020
EMI Test Receiver, 2Hz – 44GHz	Rohde & Schwarz	ESW44	PRE0179376	04/03/2021	04/03/2020
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight Technologies	N9030A	T908	01/28/2021	01/28/2020
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight Technologies	N1921A	T413	02/26/2021	02/26/2020
Power Meter, P-series single channel	Keysight Technologies	N1911A	T1268	01/22/2021	01/22/2020
UL SOFTWARE					
Radiated Software	UL	UL EMC	Ver 9.5, April 30, 2020		
Conducted Software	UL	UL EMC	AP2020.8.3		

## 9. ANTENNA PORT TEST RESULTS

### 9.1. ON TIME AND DUTY CYCLE

#### LIMITS

None; for reporting purposes only.

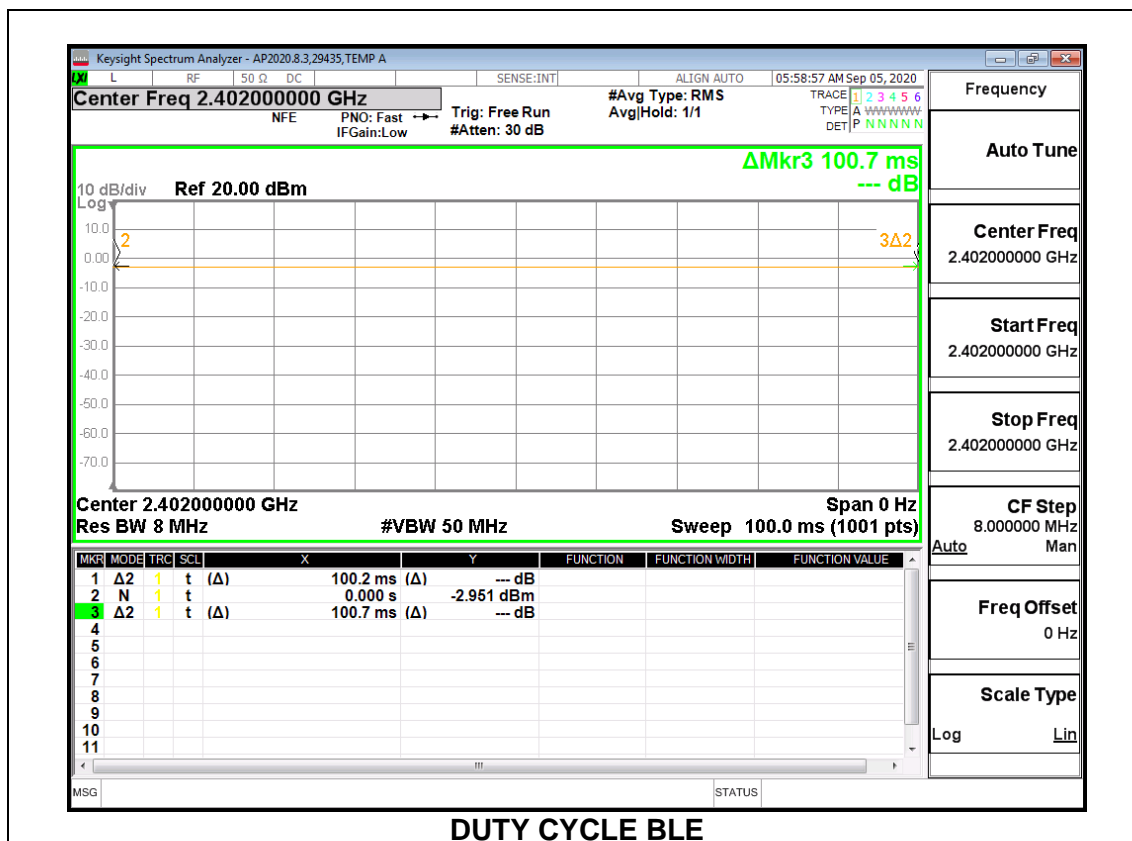
#### PROCEDURE

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)
2.4GHz Band						
BLE	100.000	100.000	1.000	100.00%	0.00	0.010

#### DUTY CYCLE PLOTS



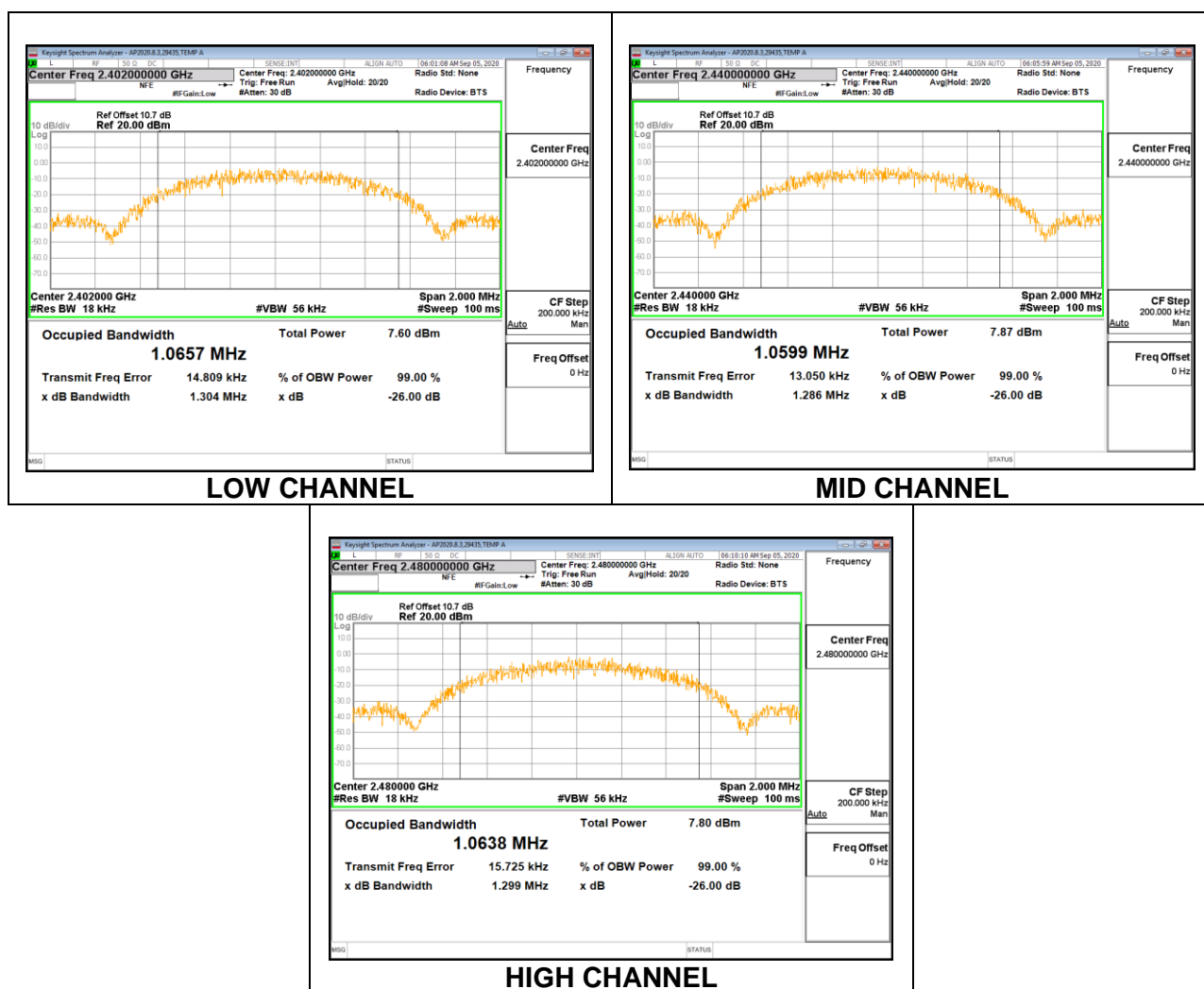
## 9.2. 99% BANDWIDTH

### LIMITS

None; for reporting purposes only.

### RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)
Low	2402	1.0657
Middle	2440	1.0599
High	2480	1.0638



### 9.3. 6 dB BANDWIDTH

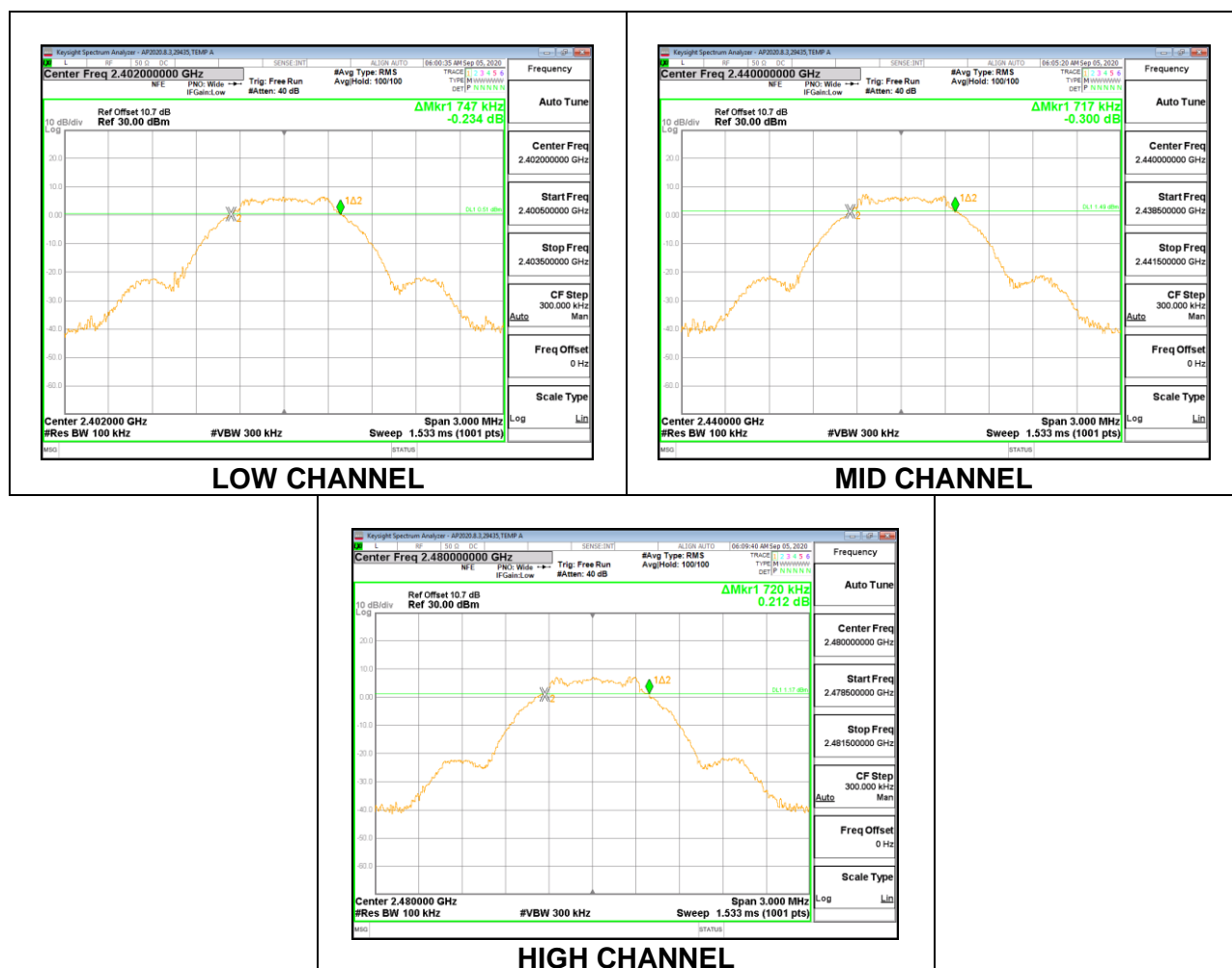
#### LIMITS

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	0.7470	0.5
Middle	2440	0.7170	0.5
High	2480	0.7200	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.

The cable assembly insertion loss of 10.7 dB (including 10 dB pad and 0.7 dB cable loss) was entered as an offset in the power meter to allow for a gated peak reading of power.

### RESULTS

<b>Tested By:</b>	29435 TC
<b>Date:</b>	9/4/2020

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Peak Power Reading (dBm)</b>	<b>Limit (dBm)</b>	<b>Margin (dB)</b>
Low	2402	8.36	30	-21.640
Middle	2440	8.40	30	-21.600
High	2480	8.47	30	-21.530

## 9.5. 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 10.7 dB (including 10 dB pad and 0.7 dB cable loss) was entered as an offset in the power meter to allow for a gated average reading of power.

### RESULTS

<b>Tested By:</b>	29435 TC
<b>Date:</b>	9/4/2020

<b>Channel</b>	<b>Frequency (MHz)</b>	<b>AV power (dBm)</b>
Low	2402	8.29
Middle	2440	8.34
High	2480	8.38

## 9.6. POWER SPECTRAL DENSITY

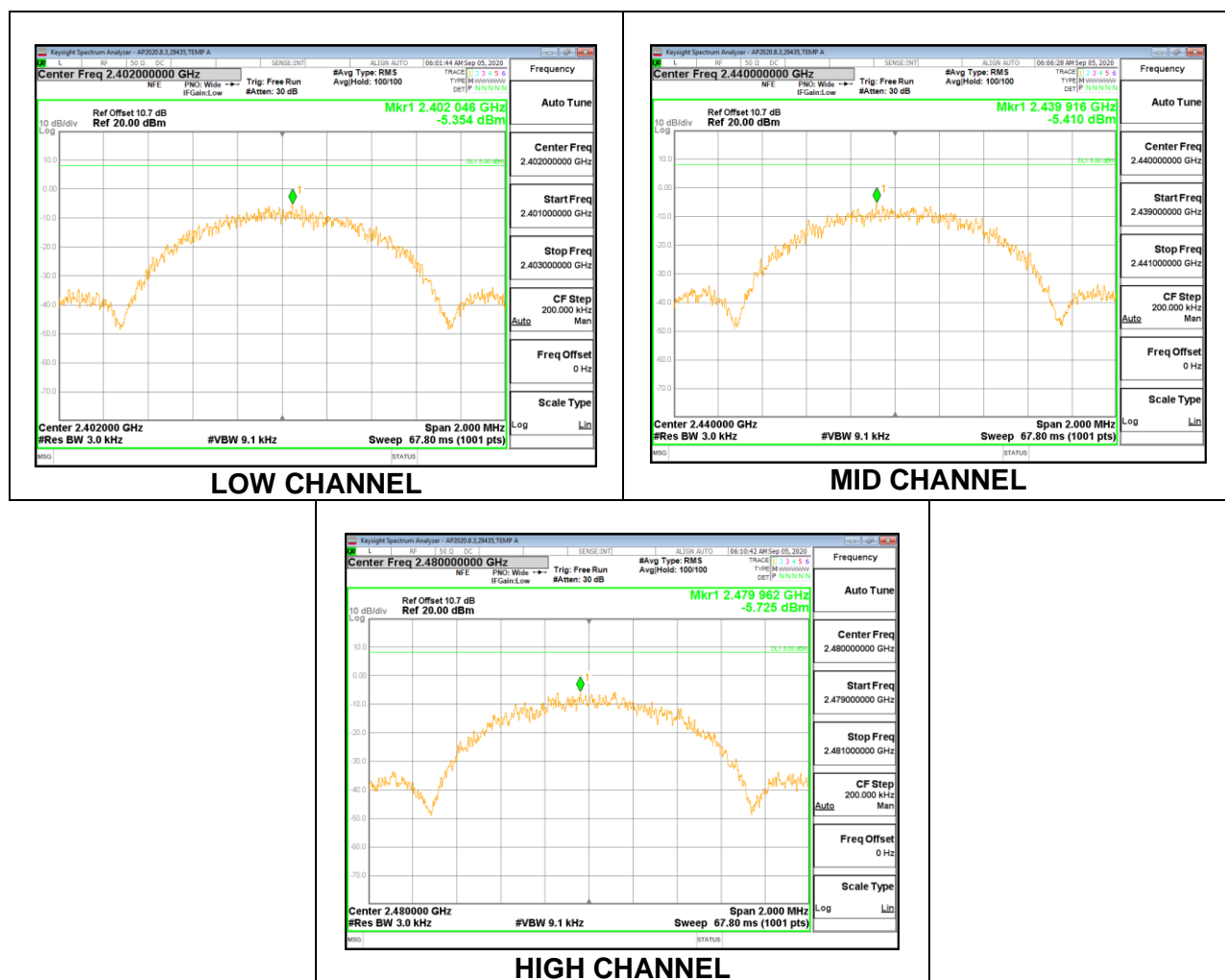
### LIMITS

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	-5.35	8	-13.35
Middle	2440	-5.41	8	-13.41
High	2480	-5.73	8	-13.73



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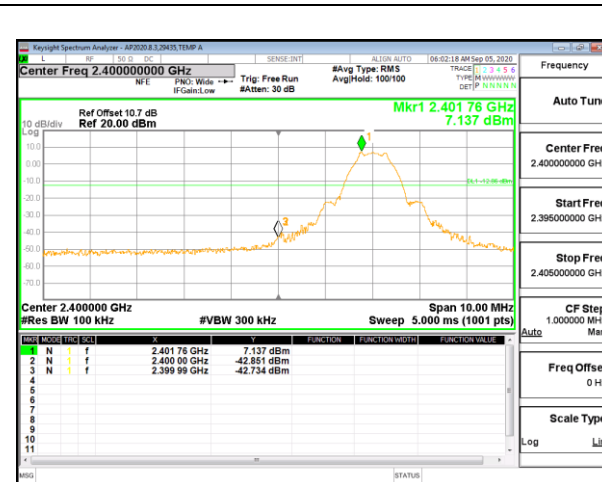
## **9.7. CONDUCTED SPURIOUS EMISSIONS**

### **LIMITS**

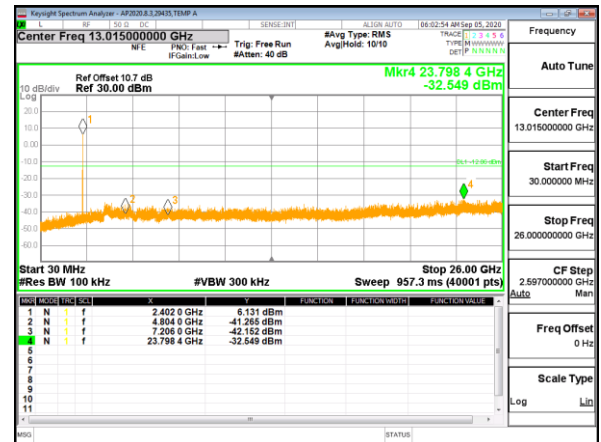
FCC §15.247 (d)

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

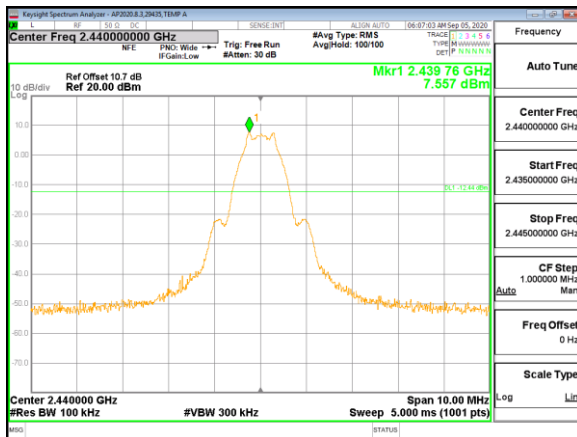
### **RESULTS**



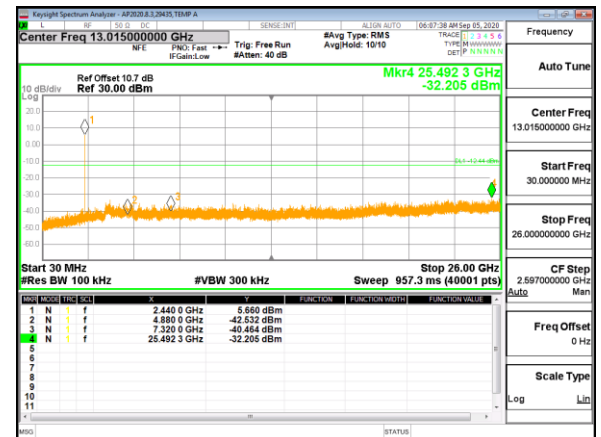
LOW CHANNEL BANDEDGE



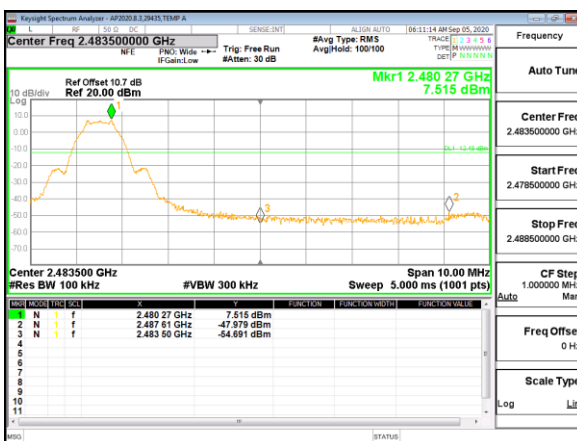
OUT-OF-BAND LOW CHANNEL



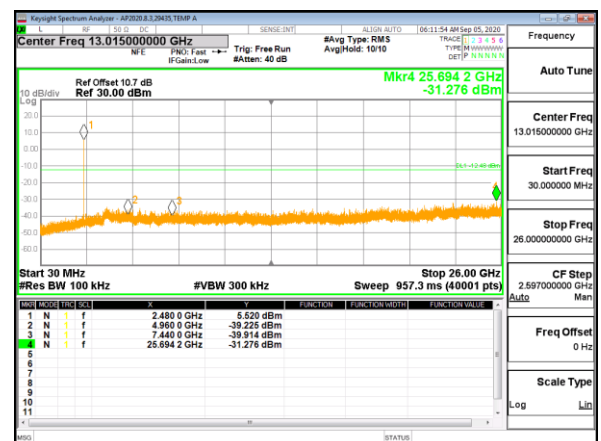
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL



HIGH CHANNEL BANDEDGE



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

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**

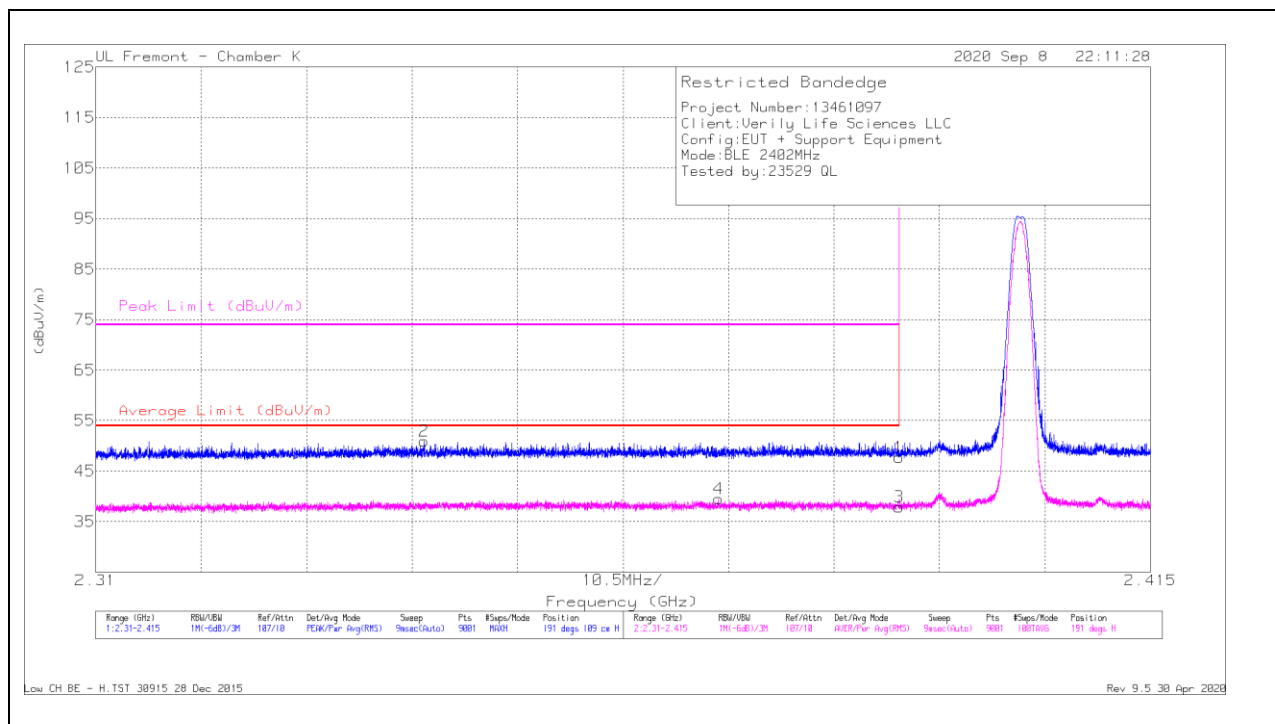
Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

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	AF T863 (dB/m)	Amp/Cbl/Filt/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.38999	50.36	Pk	32.4	-35	47.76	-	-	74	-26.24	191	109	H
2	* 2.34271	53.97	Pk	32.3	-35.3	50.97	-	-	74	-23.03	191	109	H
3	* 2.38999	40.5	RMS	32.4	-35	37.9	54	-16.1	-	-	191	109	H
4	* 2.37202	42.2	RMS	32.4	-35.1	39.5	54	-14.5	-	-	191	109	H

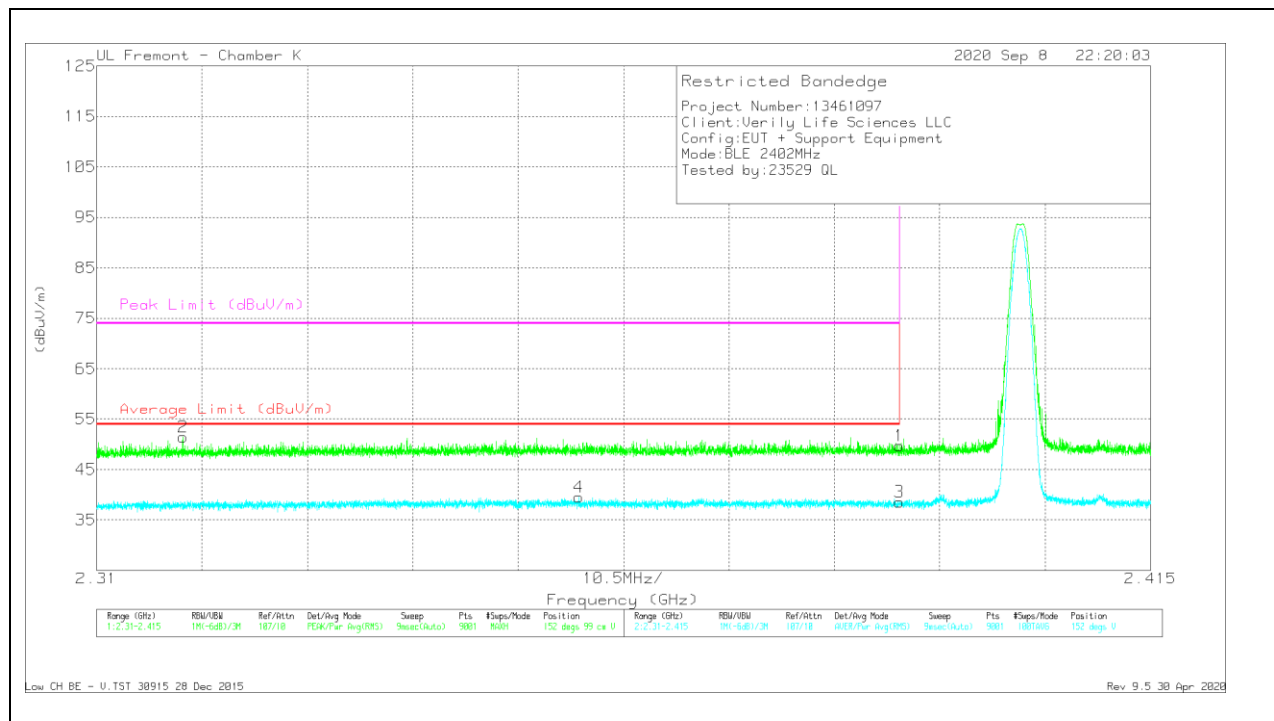
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection



## VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Dogs)	Height (cm)	Polarity
1	* 2.38999	52.3	Pk	32.4	-35	49.7	-	-	74	-24.3	152	99	V
2	* 2.31859	54.71	Pk	32	-35.3	51.41	-	-	74	-22.59	152	99	V
3	* 2.38999	41.19	RMS	32.4	-35	38.59	54	-15.41	-	-	152	100	V
4	* 2.35803	42.32	RMS	32.4	-35.2	39.52	54	-14.48	-	-	152	100	V

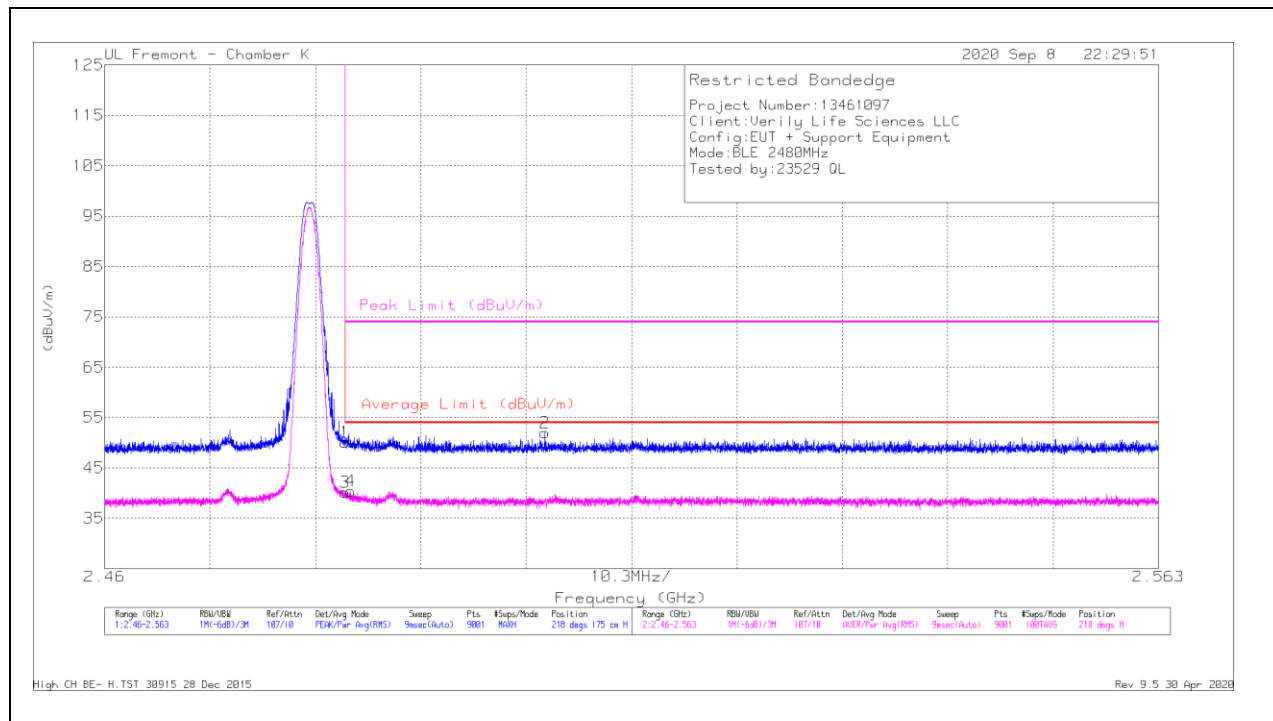
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

## BANDEDGE (HIGH CHANNEL)

### HORIZONTAL RESULT



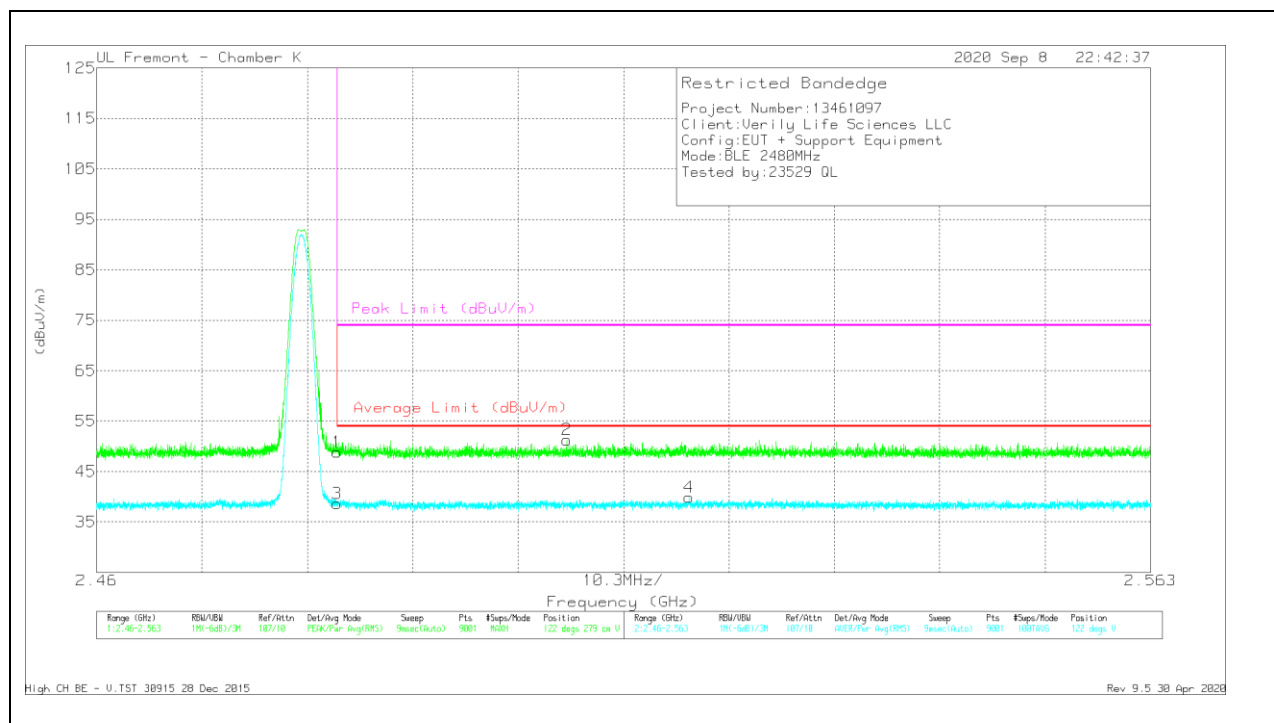
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Ftr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.48351	52.18	Pk	32.5	-34.6	50.08	-	-	74	-23.92	218	175	H
2	2.50304	53.96	Pk	32.6	-34.6	51.96	-	-	74	-22.04	218	175	H
3	* 2.48351	42.29	RMS	32.5	-34.6	40.19	54	-13.81	-	-	218	175	H
4	* 2.48408	42.49	RMS	32.5	-34.6	40.39	54	-13.61	-	-	218	175	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 T863 (dB/m)	Amp/Cbl/Ftr/Pa d (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Dogs)	Height (cm)	Polarity
1	* 2.48351	50.96	Pk	32.5	-34.6	48.86	-	-	74	-25.14	122	279	V
2	2.50597	53.27	Pk	32.6	-34.6	51.27	-	-	74	-22.73	122	279	V
3	* 2.48351	40.74	RMS	32.5	-34.6	38.64	54	-15.36	-	-	122	279	V
4	2.51791	41.56	RMS	32.8	-34.5	39.86	54	-14.14	-	-	122	279	V

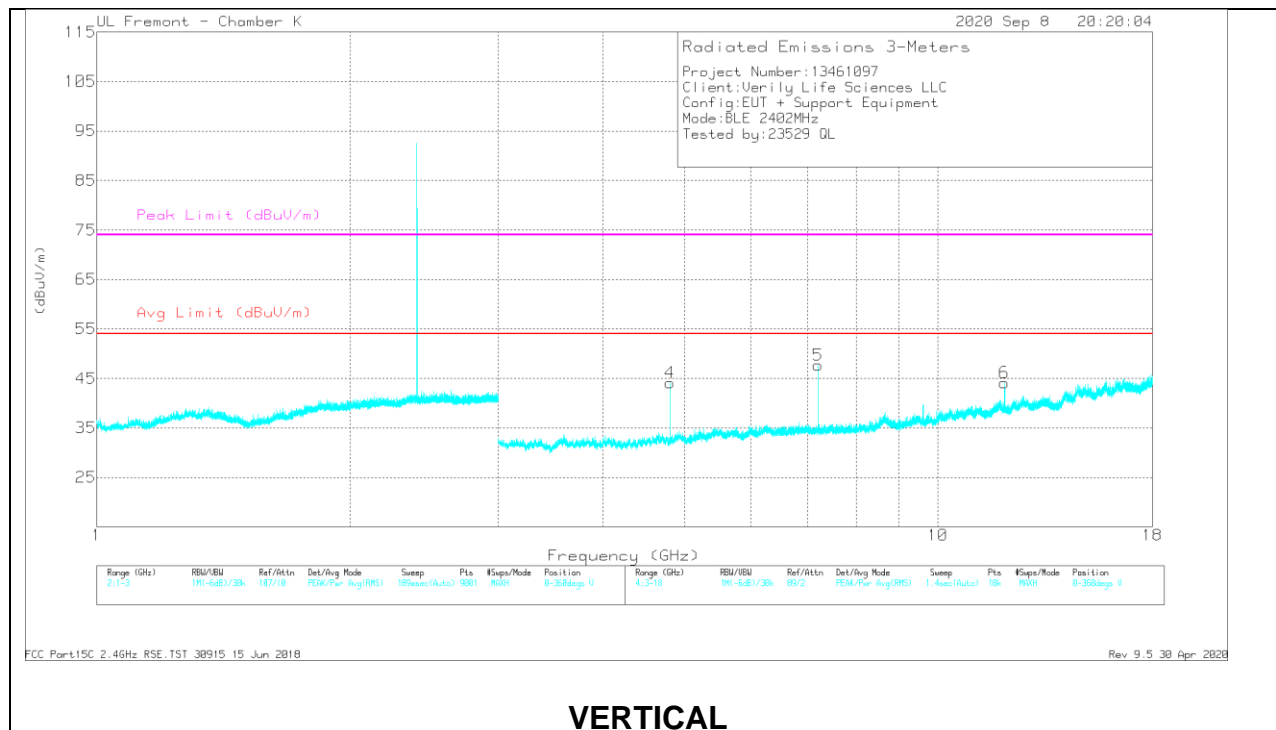
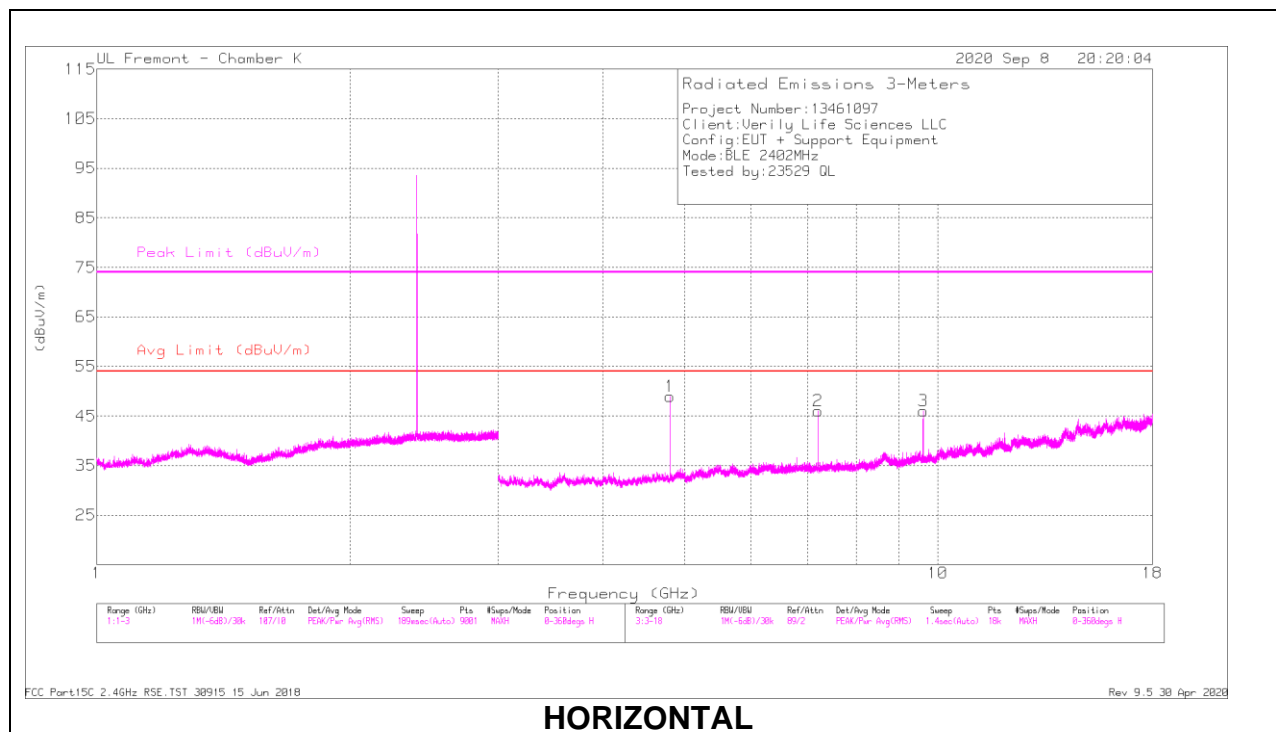
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

## HARMONICS AND SPURIOUS EMISSIONS

### LOW CHANNEL RESULTS



## RADIATED EMISSIONS

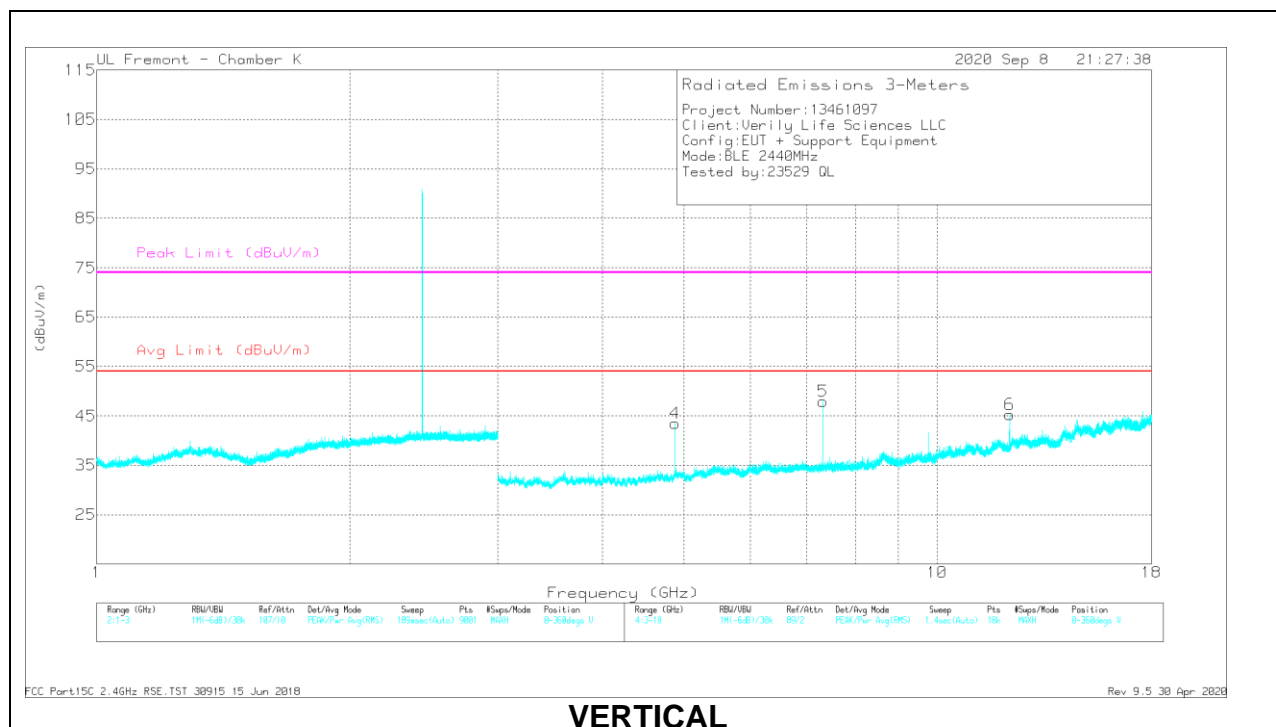
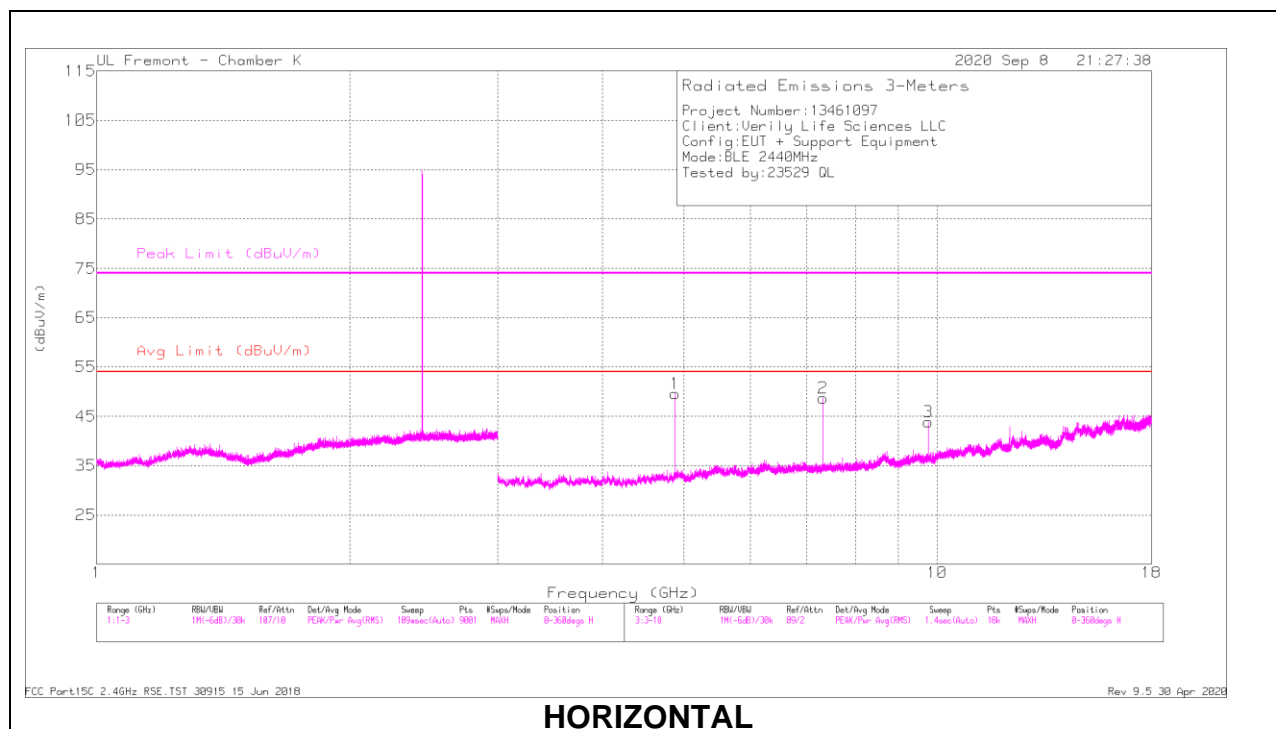
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80455	59.38	PK2	34.4	-40.7	53.08	-	-	74	-20.92	178	104	H
* 4.80417	53.61	MAv1	34.4	-40.8	47.21	54	-6.79	-	-	178	104	H
7.20525	55.28	PK2	36	-38.6	52.68	-	-	-	-	80	272	H
9.60704	50.55	PK2	36.8	-36.7	50.65	-	-	-	-	117	97	H
* 4.80453	53.5	PK2	34.4	-40.7	47.2	-	-	74	-26.8	200	102	V
* 4.80409	46.53	MAv1	34.4	-40.8	40.13	54	-13.87	-	-	200	102	V
7.20682	55.84	PK2	36	-38.6	53.24	-	-	-	-	160	101	V
* 12.00884	46.74	PK2	38.9	-35	50.64	-	-	74	-23.36	215	107	V
* 12.00891	37.31	MAv1	38.9	-35	41.21	54	-12.79	-	-	215	107	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

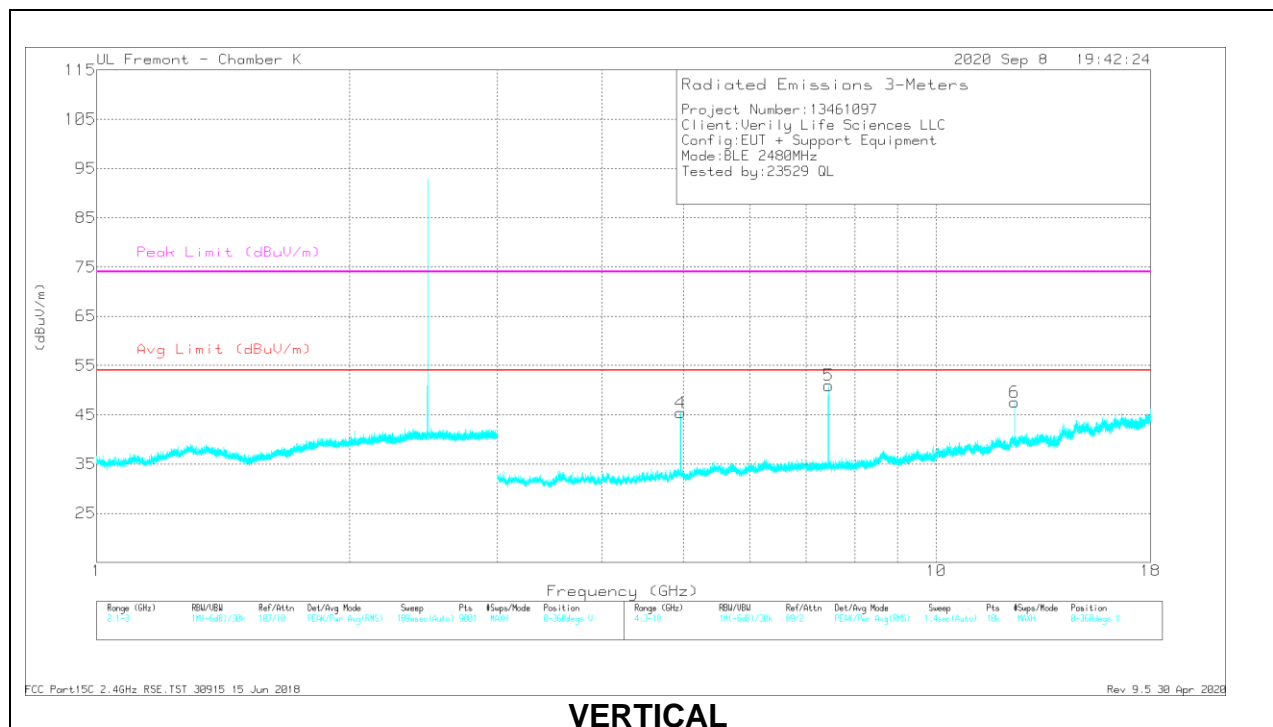
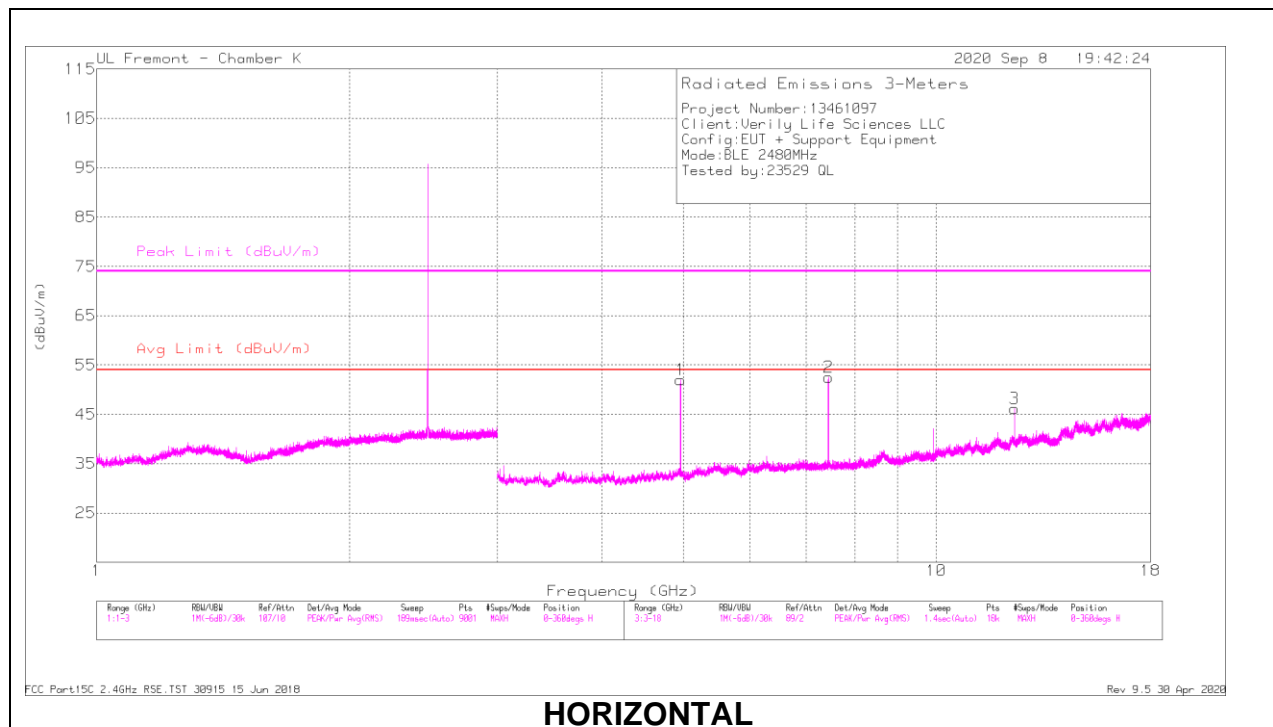
Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Fitr/Pad (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88049	59.86	PK2	34.4	-40.6	53.66	-	-	74	-20.34	177	147	H
* 4.88012	54.14	MAv1	34.4	-40.6	47.94	54	-6.06	-	-	177	147	H
* 7.32077	57.08	PK2	36	-38.2	54.88	-	-	74	-19.12	88	335	H
* 7.31945	49.93	MAv1	36	-38.2	47.73	54	-6.27	-	-	88	335	H
9.75894	49.65	PK2	37	-36.7	49.95	-	-	-	-	110	108	H
* 4.88043	54.11	PK2	34.4	-40.6	47.91	-	-	74	-26.09	195	97	V
* 4.88008	47.82	MAv1	34.4	-40.6	41.62	54	-12.38	-	-	195	97	V
* 7.31922	55.47	PK2	36	-38.2	53.27	-	-	74	-20.73	162	101	V
* 7.32065	47.54	MAv1	36	-38.2	45.34	54	-8.66	-	-	162	101	V
* 12.20132	47.26	PK2	39.2	-34.9	51.56	-	-	74	-22.44	69	102	V
* 12.20122	35.9	MAv1	39.2	-34.9	40.2	54	-13.8	-	-	69	102	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

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T863 (dB/m)	Amp/Cbl/Filtr/Pa d (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.95951	61.78	PK2	34.3	-40.6	55.48	-	-	74	-18.52	176	96	H
* 4.96003	56.16	MAv1	34.3	-40.7	49.76	54	-4.24	-	-	176	96	H
* 7.43927	58.98	PK2	36.1	-38	57.08	-	-	74	-16.92	85	114	H
* 7.44066	51.8	MAv1	36.1	-37.9	50	54	-4	-	-	85	114	H
* 12.4013	48.65	PK2	39.3	-34.5	53.45	-	-	74	-20.55	346	107	H
* 12.399	38.92	MAv1	39.3	-34.4	43.82	54	-10.18	-	-	346	107	H
* 4.96051	52.61	PK2	34.3	-40.6	46.31	-	-	74	-27.69	161	127	V
* 4.96006	45.75	MAv1	34.3	-40.7	39.35	54	-14.65	-	-	161	127	V
* 7.43931	56.78	PK2	36.1	-38	54.88	-	-	74	-19.12	145	393	V
* 7.43948	48.45	MAv1	36.1	-38	46.55	54	-7.45	-	-	145	393	V
* 12.39869	47.78	PK2	39.3	-34.4	52.68	-	-	74	-21.32	264	228	V
* 12.40117	36.86	MAv1	39.3	-34.5	41.66	54	-12.34	-	-	264	228	V

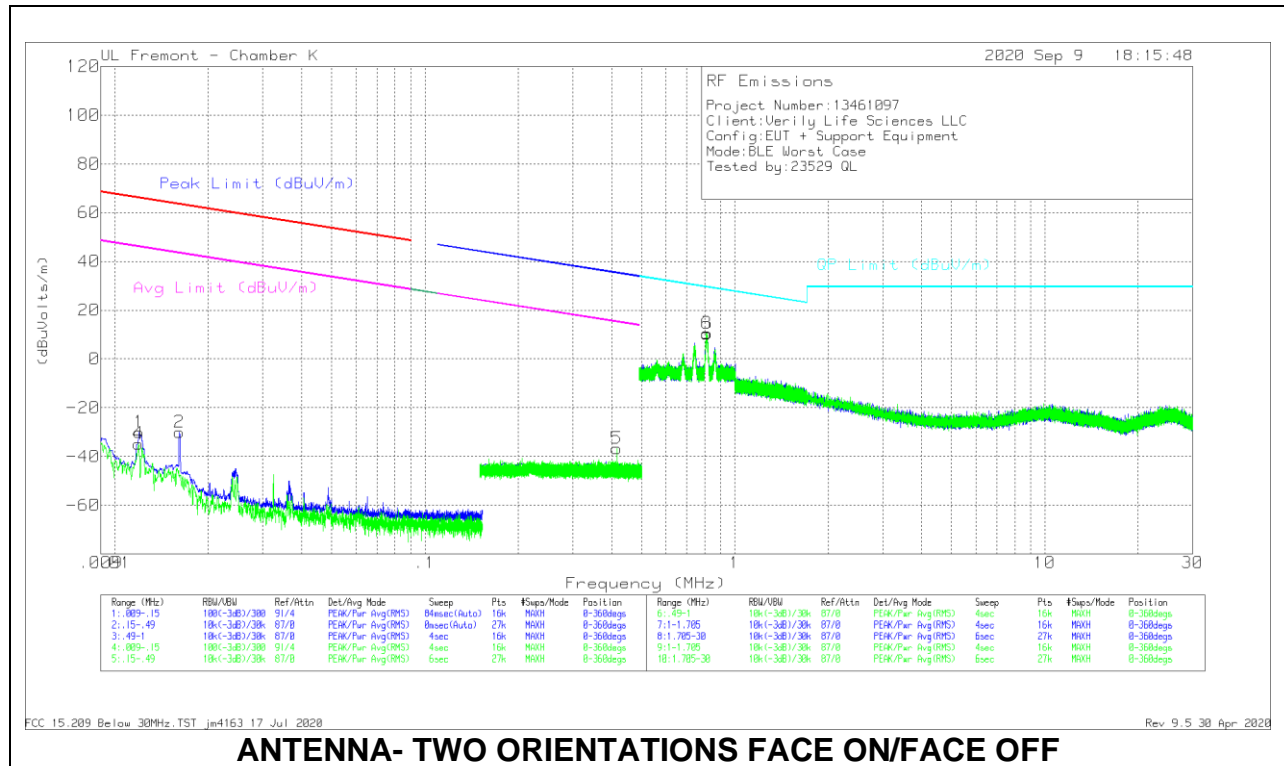
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

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 (dBuV/m)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Avg Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
1	.01198	21.62	Pk	59.8	-31.5	-80	-30.06	66.02	-96.1	46.02	-76.1	-	-	-	-	0-360
2	.01615	22.37	Pk	59.3	-31.8	-80	-30.13	63.42	-93.55	43.42	-73.55	-	-	-	-	0-360
4	.01191	16.78	Pk	59.9	-31.5	-80	-34.82	66.07	-100.89	46.07	-80.89	-	-	-	-	0-360
5	.41576	19.51	Pk	55.9	-32.2	-80	-36.79	-	-	-	-	35.23	-72.02	15.23	-52.02	0-360

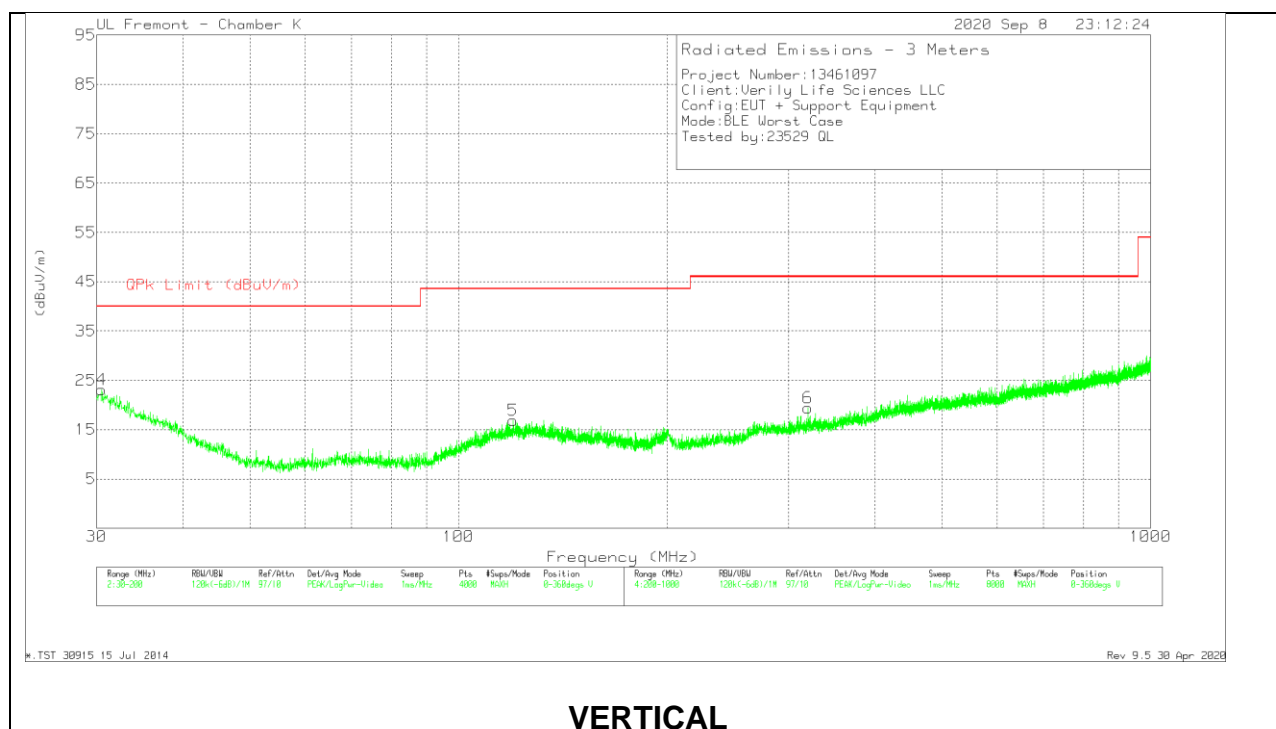
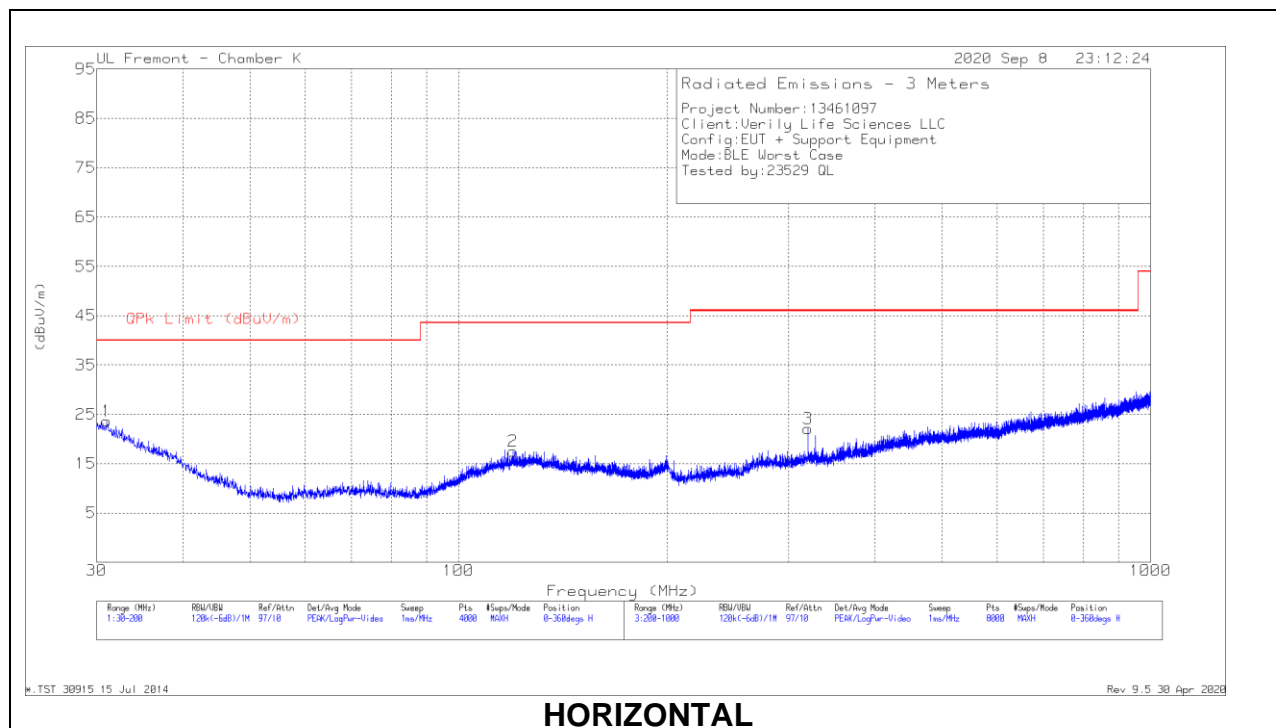
Pk - Peak detector

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	Loop Antenna (E ACF)	Amp/Cbl (dB)	Dist Corr 30m (dB) 40Log	Corrected Reading (dBuV/m)	QP Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)
3	.81138	26.57	Pk	56	-32.2	-40	10.37	29.43	-19.06	0-360
6	.81346	26.67	Pk	56	-32.2	-40	10.47	29.41	-18.94	0-360

Pk - Peak detector

## 10.4. WORST CASE BELOW 1 GHZ

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



### Below 1GHz Data

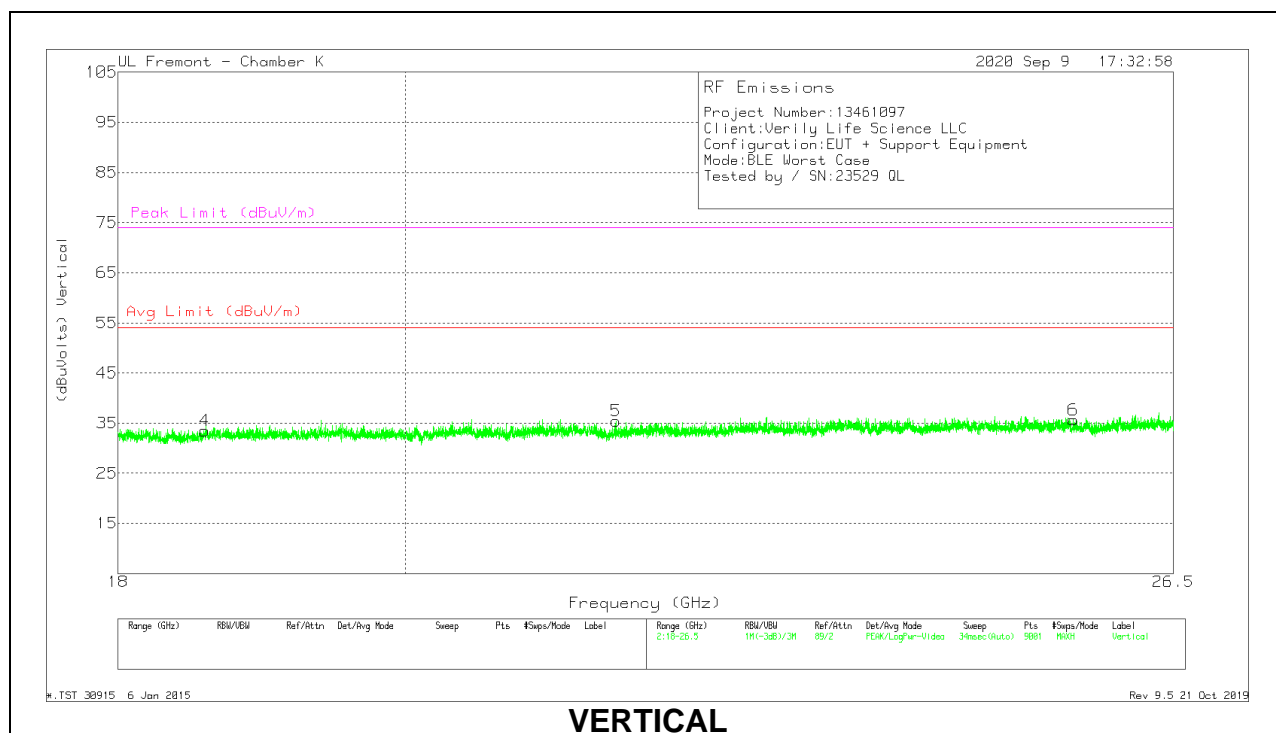
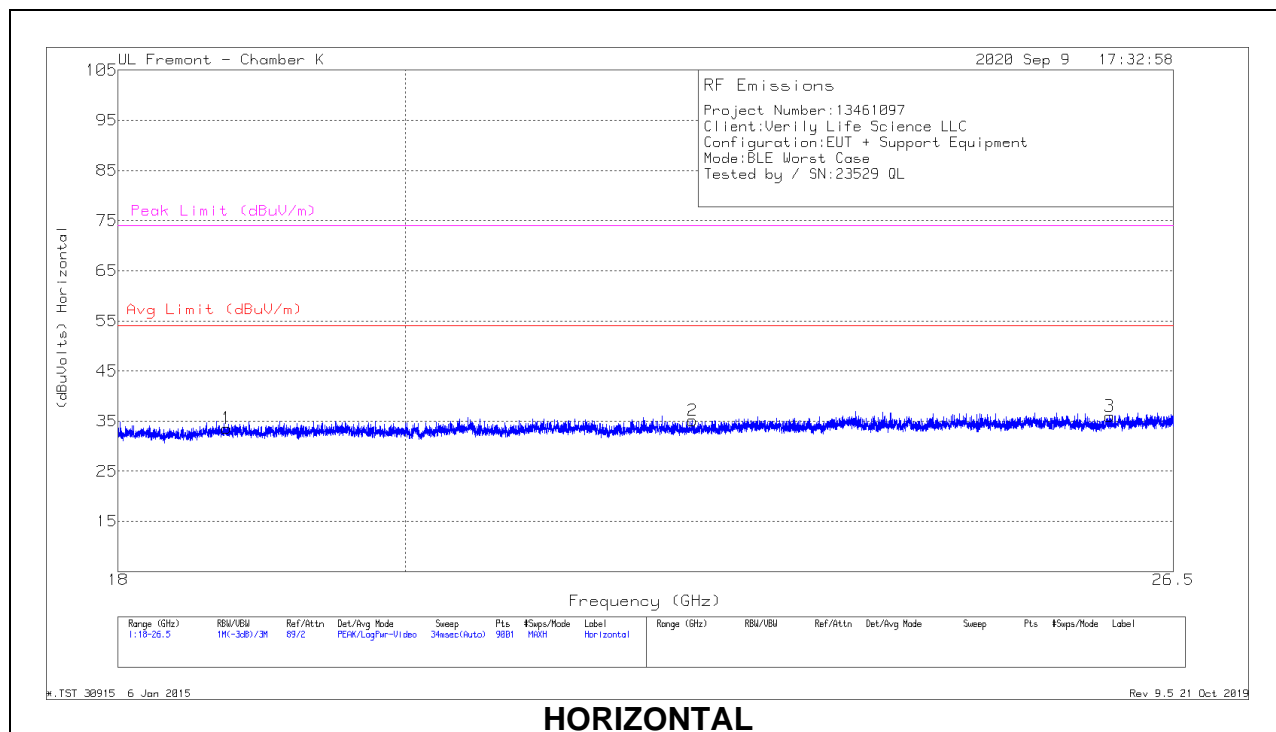
Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	AF PRE0181574 (dB/m)	Amp/Cbl (dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	31.0203	28.8	Pk	26.4	-31.6	23.6	40	-16.4	0-360	401	H
	30.8343	22.39	Qp	26.5	-31.6	17.29	40	-22.71	155	172	H
2	* 119.9533	28.65	Pk	19.7	-30.8	17.55	43.52	-25.97	0-360	401	H
4	30.5101	28.11	Pk	26.6	-31.6	23.11	40	-16.89	0-360	100	V
5	* 119.9958	28.02	Pk	19.7	-30.8	16.92	43.52	-26.6	0-360	100	V
3	320.0156	32.1	Pk	19.8	-29.8	22.1	46.02	-23.92	0-360	101	H
6	320.0156	29.4	Pk	19.8	-29.8	19.4	46.02	-26.62	0-360	301	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)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)
1	18.73006	69.18	Pk	32.4	-58.5	-9.5	33.58	54	-20.42	74	-40.42
2	22.21789	68.84	Pk	33.5	-57.7	-9.5	35.14	54	-18.86	74	-38.86
3	25.88705	66.49	Pk	34.4	-55.4	-9.5	35.99	54	-18.01	74	-38.01
4	18.58083	69.56	Pk	32.4	-59	-9.5	33.46	54	-20.54	74	-40.54
5	21.60305	69.03	Pk	33.2	-57.3	-9.5	35.43	54	-18.57	74	-38.57
6	25.54516	66.15	Pk	34.5	-55.5	-9.5	35.65	54	-18.35	74	-38.35

Pk - Peak detector