



CERTIFICATION TEST REPORT

Report Number. : 4789501210-FR1V2

Applicant : I.M.LAB Inc.
Haesung Bldg, 7F 165, Yeoksam-ro, Gangnam, Seoul, 06247,
South Korea

Model : AK1G-TE

FCC ID : 2ASY3AK1G-TE

EUT Description : CPR Add-on Kit

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

Date Of Issue:
August 03, 2020

Prepared by:
UL Korea, Ltd.
26th floor, 152, Teheran-ro, Gangnam-gu Seoul, 06236, Korea

Suwon Test Site: UL Korea, Ltd. Suwon Laboratory
218 Maeyeong-ro, Yeongtong-gu,
Suwon-si, Gyeonggi-do, 16675, Korea
TEL: (031) 337-9902
FAX: (031) 213-5433



REPORT REVISION HISTORY

Rev.	Issue Date	Revisions	Revised By
V1	07/14/20	Initial issue	Robby Lee
V2	08/03/20	Updated the description about the TCB's question	Robby Lee

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. DECISION RULES AND MEASUREMENT UNCERTAINTY	7
4.1. METROLOGICAL TRACEABILITY.....	7
4.2. SAMPLE CALCULATION.....	7
4.3. DECISION RULES.....	7
4.4. MEASUREMENT UNCERTAINTY.....	7
5. EQUIPMENT UNDER TEST.....	8
5.1. EUT DESCRIPTION.....	8
5.2. MAXIMUM OUTPUT POWER.....	8
5.3. DESCRIPTION OF AVAILABLE ANTENNAS	8
5.4. WORST-CASE CONFIGURATION AND MODE	9
5.5. DESCRIPTION OF TEST SETUP.....	10
6. MEASUREMENT METHOD.....	12
7. TEST AND MEASUREMENT EQUIPMENT	13
8. TEST RESULTS SUMMARY.....	14
9. ANTENNA PORT TEST RESULTS.....	15
9.1. ON TIME AND DUTY CYCLE	15
9.2. 6 dB BANDWIDTH.....	16
9.2.1. BLE (1Mbps).....	17
9.3. OUTPUT POWER.....	18
9.3.1. BLE (1 Mbps).....	19
9.4. AVERAGE POWER	20
9.5. POWER SPECTRAL DENSITY	21
9.5.1. BLE (1Mbps).....	22
9.6. CONDUCTED SPURIOUS EMISSIONS	23
9.6.1. BLE (1Mbps).....	24
10. RADIATED TEST RESULTS	25

10.1.	LIMITS AND PROCEDURE	25
10.2.	TRANSMITTER ABOVE 1 GHz	27
10.2.1.	BLE (1Mbps)	27
10.3.	WORST CASE BELOW 1 GHZ.....	37
11.	AC POWER LINE CONDUCTED EMISSIONS	39

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: I.M.LAB Inc.
EUT DESCRIPTION: CPR Add-on Kit
MODEL: AK1G-TE
SERIAL NUMBER: Prototype (CONDUCTED)
Prototype (RADIATED);
DATE TESTED: JUL 1, 2020 – JUL 9, 2020;

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

UL Korea, Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Korea, Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Korea, Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Korea, Ltd. 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 IAS, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Korea, Ltd. By:



CY Choi
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Robby Lee
Suwon Lab Engineer
UL Korea, Ltd.

2. TEST METHODOLOGY

1. FCC CFR 47 Part 2.
2. FCC CFR 47 Part 15.
3. KDB 558074 D01 15.247 Meas Guidance v05r02.
4. ANSI C63.10-2013.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea. Line conducted emissions are measured only at the 218 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.

218 Maeyeong-ro	
<input type="checkbox"/>	Chamber 1
<input type="checkbox"/>	Chamber 2
<input checked="" type="checkbox"/>	Chamber 3

UL Korea, Ltd. is accredited by IAS, Laboratory Code TL-637. The full scope of accreditation can be viewed at <https://www.iasonline.org/wp-content/uploads/2017/05/TL-637-cert-New.pdf>.

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. METROLOGICAL TRACEABILITY

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

4.3. DECISION RULES

Decision rule for statement(s) of conformity is based on Procedure 1, Clause 4.4.2 in IEC Guide 115:2007.

4.4. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	2.35 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.49 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.82 dB
Radiated Disturbance, 18 GHz to 40 GHz	5.49 dB

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

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a CPR Add-on Kit with Bluetooth LE.
This test report addresses the DTS operational mode.

5.2. MAXIMUM OUTPUT POWER

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

Frequency Range [MHz]	Mode	Power Mode	Output Power [dBm]	Output Power [mW]
2 402 ~ 2 480	1Mbps	Peak	-4.45	0.36
		Average	-4.70	0.34

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

**The internal antenna was Permanently attached.
Therefore this E.U.T Complies with the requirement of §15.203.**

The radio utilizes an internal antenna, with a maximum gain of -0.84 dBi

5.4. WORST-CASE CONFIGURATION AND MODE

Radiated emission below 1GHz was performed with the EUT set to transmit at the channel with highest output power as worst-case scenario.

Radiated emission above 1GHz was performed with the EUT set to transmit low/mid/high channels.

i. Worst Axis condition

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

Note 1 : All radiated tests were performed attached with battery for the worst case condition mode.

Note 2 : This EUT may be installed to body kits. Therefore, the body kit installation and the stand-alone condition were compared and reported on the stand-alone condition because the stand-alone status is worst. (The material of body kit is rubber, and spring exists in the middle.)

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
None	None	None	None	None

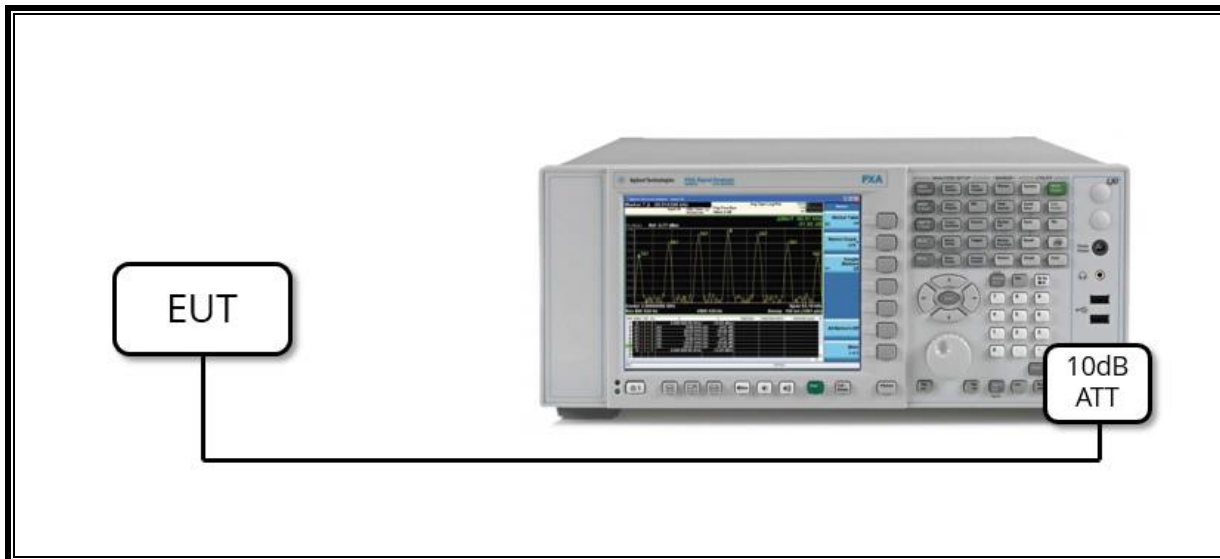
I/O CABLE

Cable No	Port	# of identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC	1	Pin type	Un-shielded	0.6 m	N/A

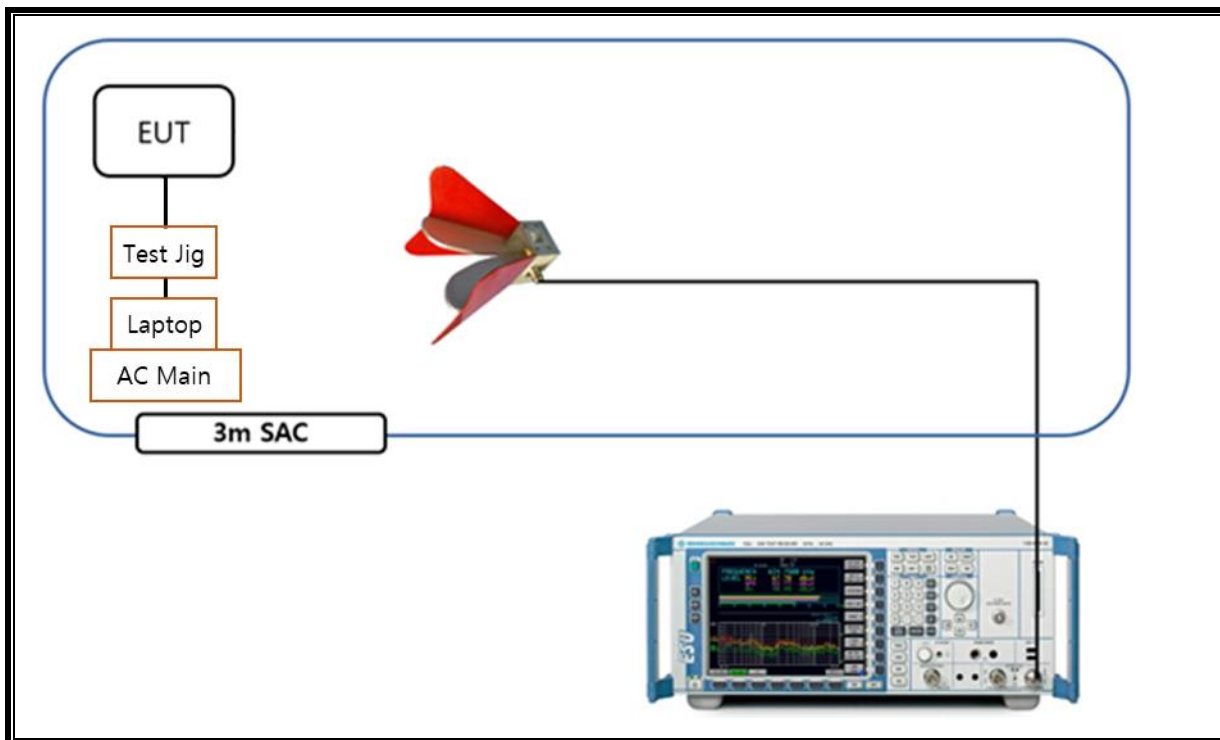
TEST SETUP

The EUT is a unit with test jig during the tests.
Test software in BLE menu exercised the EUT to enable BLE mode.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. MEASUREMENT METHOD

6 dB BW : KDB 558074 D01 v05r02, Section 8.2.

OUTPUT POWER : KDB 558074 D01 v05r02, Section 8.3.1.1

POWER SPECTRAL DENSITY : KDB 558074 D01 v05r02, Section 8.4.

Out-of-band Emissions (Conducted) : KDB 558074 D01 v05r02, Section 8.5.

Out-of-band Emissions in Non-restricted Bands: KDB 558074 D01 v05r02, Section 8.5.

Out-of-band Emissions in Restricted Bands : KDB 558074 D01 v05r02, Section 8.6.

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

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	S/N	Cal Due
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	WLB9163	750	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	WLB9163	749	08-04-20
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	WLB9163	845	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00167211	08-04-20
Antenna, Horn, 18 GHz	ETS	3115	00161451	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168724	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00168717	08-04-20
Antenna, Horn, 18 GHz	ETS	3117	00205959	08-04-20
Antenna, Horn, 40 GHz	ETS	3116C	00166155	08-14-20
Antenna, Horn, 40 GHz	ETS	3116C	00168645	10-02-21
Preamplifier	ETS	3116C-PA	00168841	08-08-20
Preamplifier, 1000 MHz	Sonoma	310N	341282	08-05-20
Preamplifier, 1000 MHz	Sonoma	310N	351741	08-05-20
Preamplifier, 1000 MHz	Sonoma	310N	370599	08-05-20
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	08-06-20
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	08-06-20
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	08-06-20
Spectrum Analyzer, 44 GHz	Keysight	N9030B	MY57143717	01-20-21
Spectrum Analyzer, 44 GHz	Agilent/HP	N9030A	MY54170614	08-06-20
Spectrum Analyzer, 44 GHz	Agilent/HP	N9030A	MY54490312	08-06-20
Spectrum Analyzer, 43.5 GHz	R&S	FSW43	104089	08-06-20
Average Power Sensor	Agilent/HP	U2000	MY54270007	08-09-20
Attenuator	PASTERNAK	PE7087-10	A001	08-08-20
Attenuator	PASTERNAK	PE7087-10	A008	08-08-20
Attenuator	PASTERNAK	PE7004-10	2	08-06-20
Attenuator	PASTERNAK	PE7087-10	A009	08-08-20
Attenuator	WEINSCHL	54A-10	74560	08-08-20
EMI Test Receive, 40 GHz	R&S	ESU40	100439	08-06-20
EMI Test Receive, 40 GHz	R&S	ESU40	100457	08-06-20
EMI Test Receive, 44 GHz	R&S	ESW44	101590	08-05-20
EMI Test Receive, 3 GHz	R&S	ESR3	101832	08-05-20
EMI Test Receive, 3 GHz	R&S	ESR3	102592	06-28-20
LowPass Filter 5GHz	Micro-Tronics	LPS17541	009	08-06-20
LowPass Filter 5GHz	Micro-Tronics	LPS17541	015	08-06-20
LowPass Filter 5GHz	Micro-Tronics	LPS17541	020	08-06-20
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	08-06-20
High Pass Filter 3GHz	Micro-Tronics	HPM17543	015	08-06-20
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	08-06-20
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	08-06-20
High Pass Filter 6GHz	Micro-Tronics	HPS17542	016	08-06-20
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	08-06-20
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100900	09-30-20
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	10-02-21
Bias Unit	R&S	IN600	100974	09-30-20
Software				
Description	Manufacturer	Model	Version	
Radiated software	UL	UL EMC	Ver 9.5	

8. TEST RESULTS SUMMARY

FCC Part Section	Test Description	Test Limit	Test Condition	Test Result
15.247 (a)(2)	Occupied Band width (6dB)	>500KHz	Conducted	Pass
2.1051, 15.247 (d)	Band Edge / Conducted Spurious Emission	-20dBc		Pass
15.247 (b)(3)	TX conducted output power	<30dBm		Pass
15.247 (e)	PSD	<8dBm		Pass
15.207 (a)	AC Power Line conducted emissions	Section 10	Power Line conducted	N/A note1
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m(Av)	Radiated	Pass

Note1 : This EUT does only supplied by DC power.

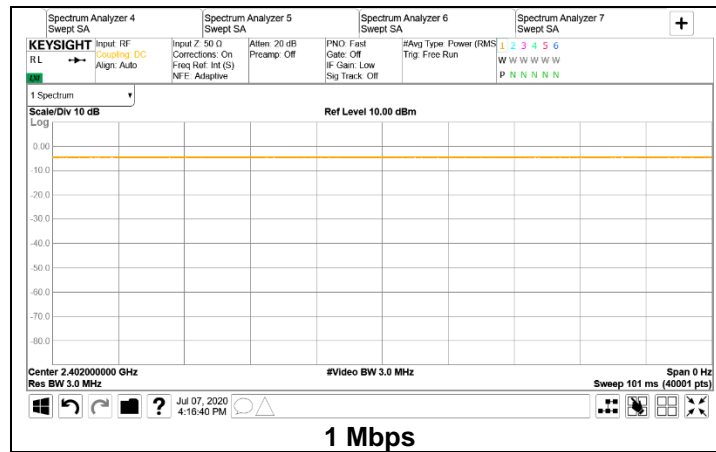
9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

Mode	ON Time B [msec]	Period [msec]	Duty Cycle x [linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
2400MHz Bands						
BLE 1 Mbps	101.000	101.000	1.000	100.0%	0.00	0.010



9.2. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

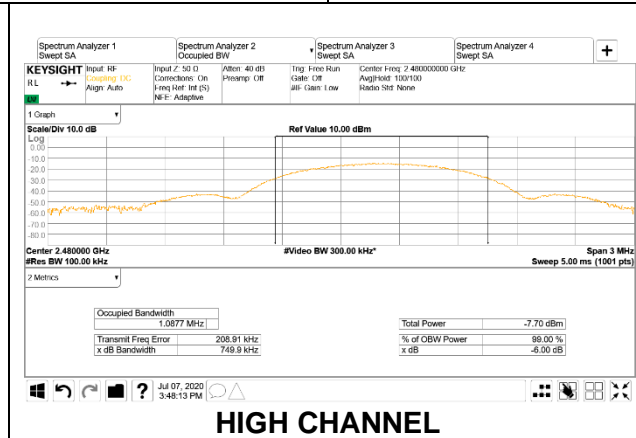
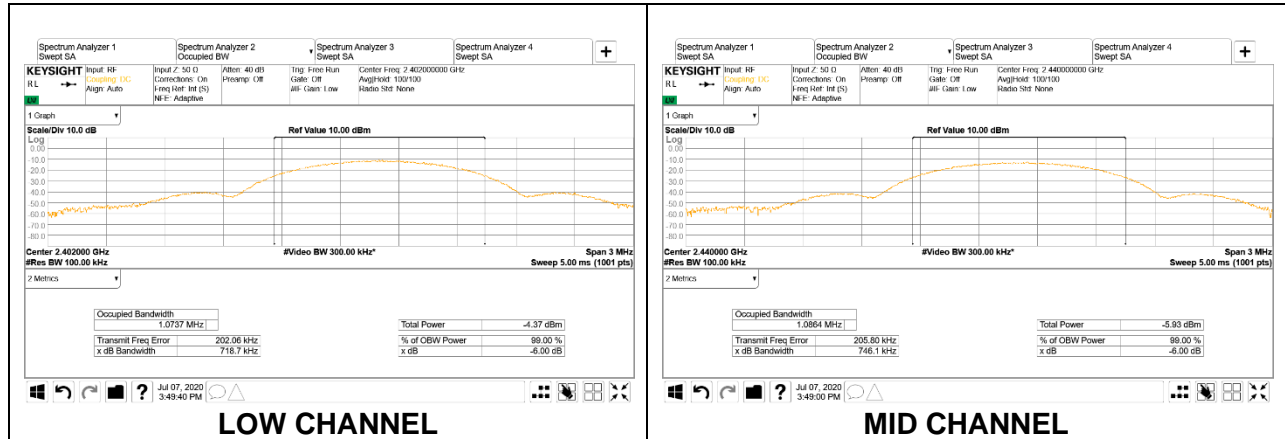
RSS-247 5.2 (a)

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

RESULTS

9.2.1. BLE (1Mbps)

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)
Low	2402	0.7187	0.5
Middle	2440	0.7461	0.5
High	2480	0.7499	0.5



9.3. 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

Peak power is measured using ANSI C63.10(2013) under section 11.9.1.1 utilizing spectrum analyzer.

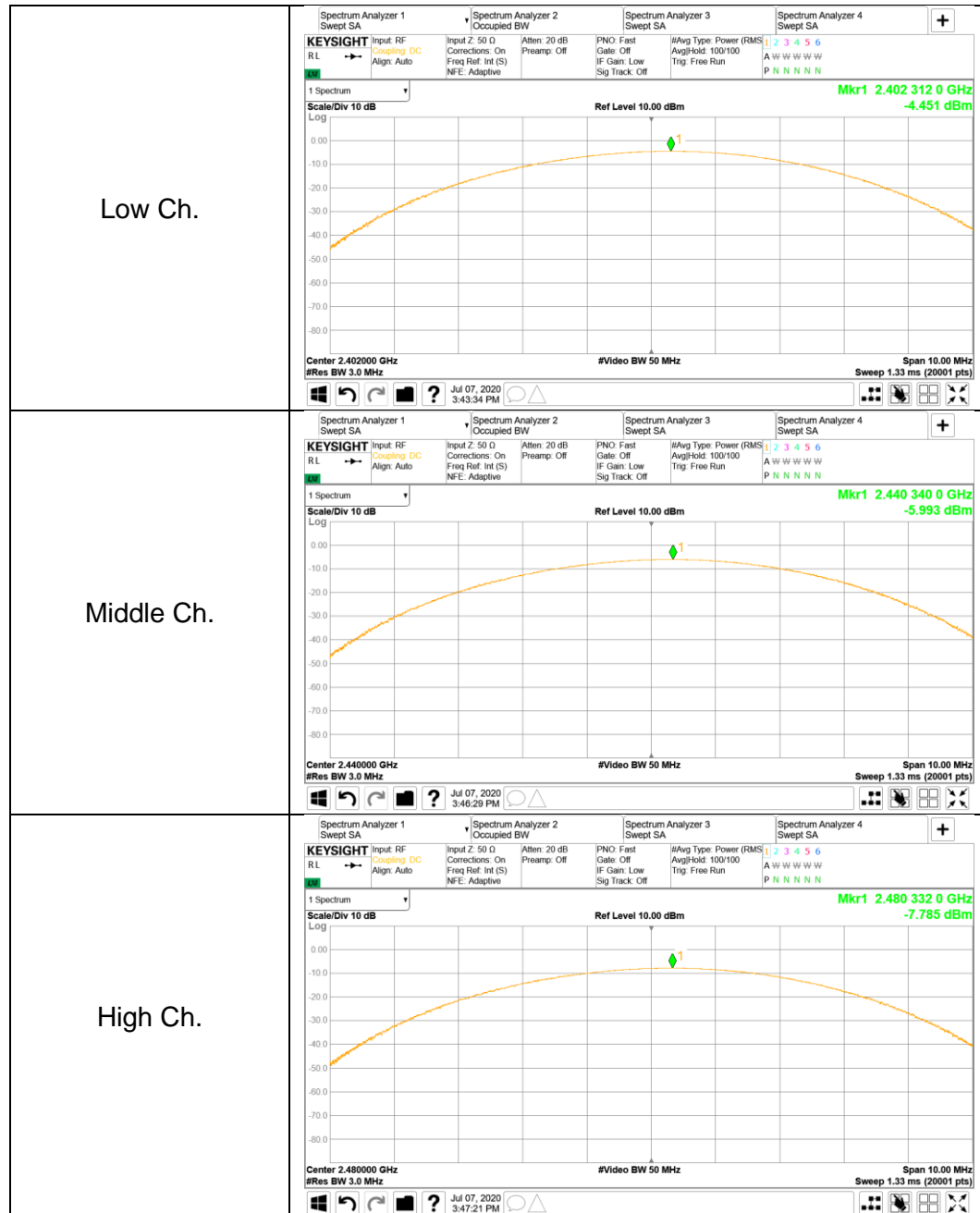
RESULTS

- 1 Mbps

Channel	Frequency [MHz]	Peak Power [dBm]	Limit [dBm]	Margin [dB]
Low	2402	-4.45	30.00	-34.45
Mid	2440	-5.99	30.00	-35.99
High	2480	-7.79	30.00	-37.79
Worst		-4.45	30.00	-34.45

9.3.1. BLE (1 Mbps)

PEAK OUTPUT POWER PLOTS



9.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss was entered as an offset in the power meter to allow for direct reading of power. The duty factor already has been added.

- 1 Mbps

Channel	Frequency [MHz]	AV Power [dBm]	AV Power [mW]
Low	2402	-4.70	0.34
Mid	2440	-6.04	0.25
High	2480	-7.80	0.17

9.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

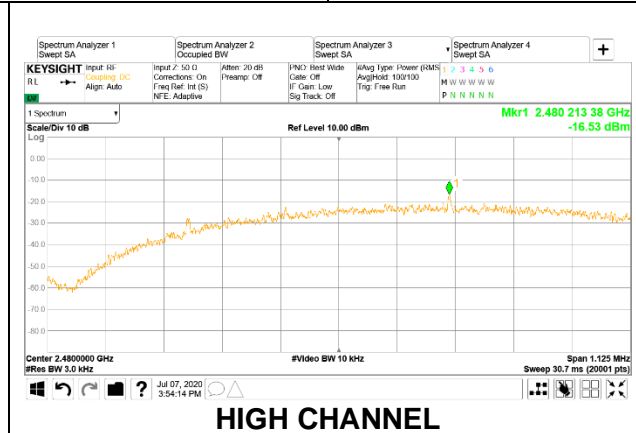
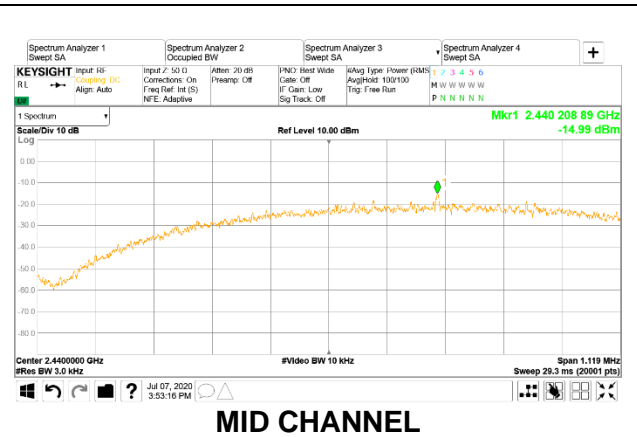
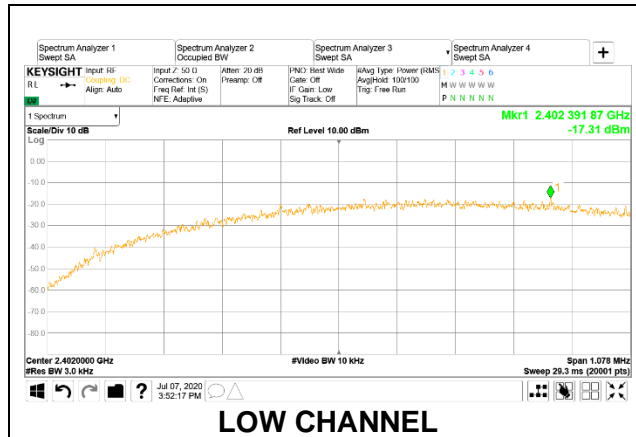
RSS-247 (5.2) (b)

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

9.5.1. BLE (1Mbps)

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Low	2402	-17.31	8	-25.31
Middle	2440	-14.99	8	-22.99
High	2480	-16.53	8	-24.53



9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

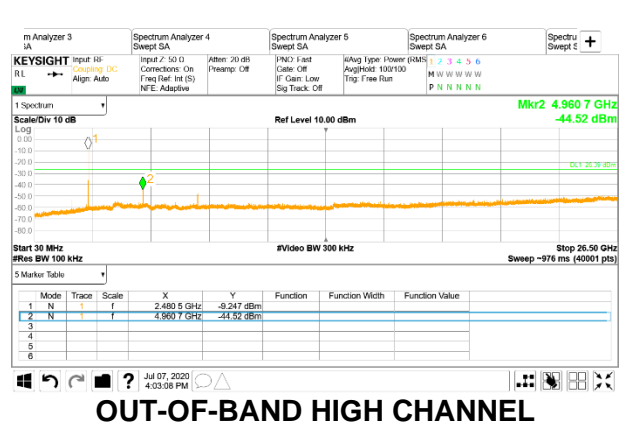
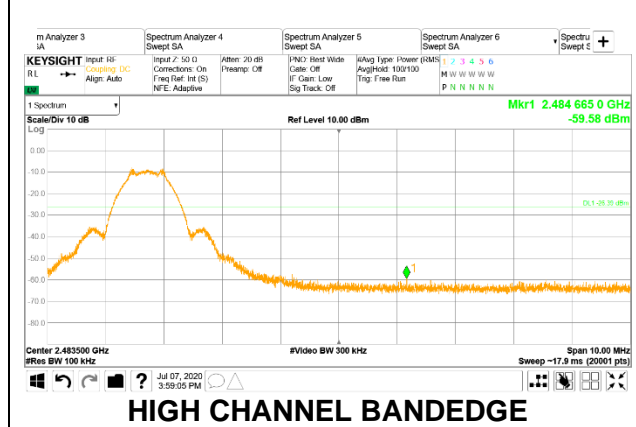
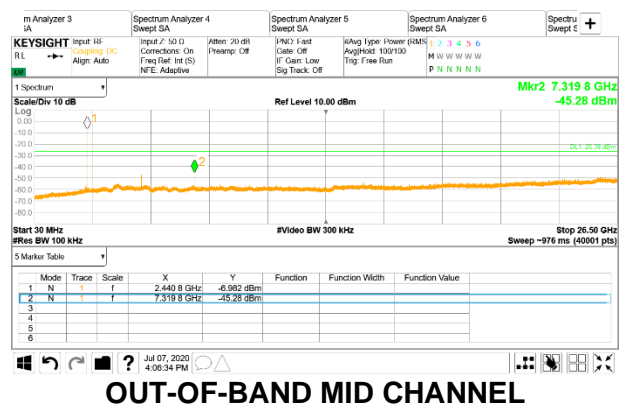
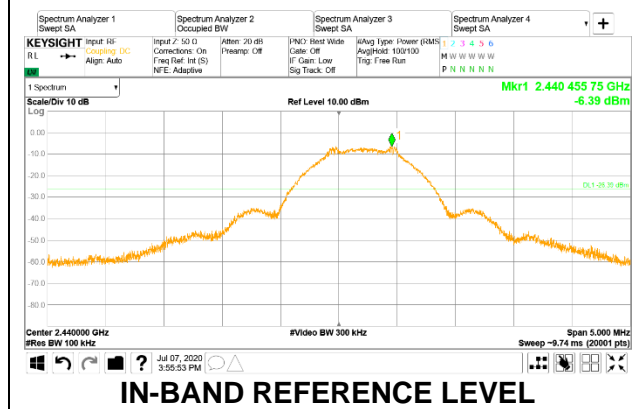
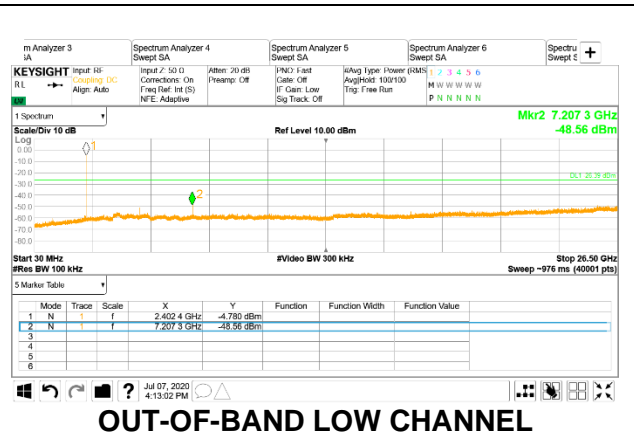
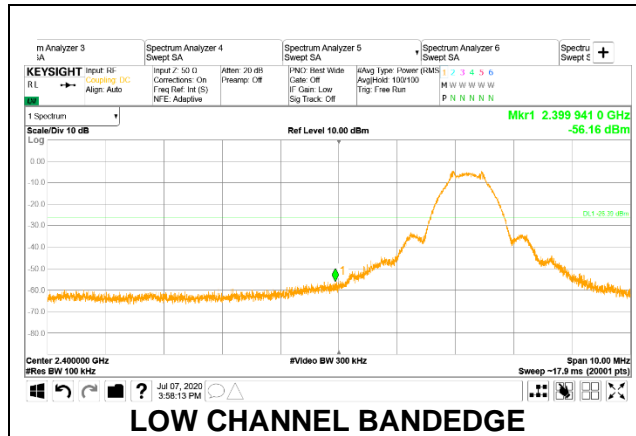
FCC §15.247 (d)

RSS-247 5.5

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

RESULTS

9.6.1. BLE (1Mbps)



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits (µV/m)	Measurement Distance (m)
0.009 – 0.490	2400 / F (kHz)	300
0.490 – 1.705	24000 / F (kHz)	30
1.705 – 30.0	30	30
30 – 88	100**	3
88 - 216	150**	3
216 – 960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g. §§ 15.231 and 15.241.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for below 1GHz and 150 cm for 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 measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and add duty cycle factor for average measurements. (Restricted band-edge, Final detection of spurious harmonic emissions) Duty cycle factor = $10 \log(1/x)$. But this EUT operated on a duty cycle of over 98% during test. Therefore, duty cycle factor is not applied.

Pre-scans to detect harmonic and spurious emissions, the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

The spectrum from 1 GHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.
(From 30MHz to 1GHz, test was performed with the EUT set to transmit at the channel with highest output power)

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.

Note : Emission was pre-scanned from 9KHz to 30MHz; No emissions were detected which was at least 20dB below the specification limit (consider distance correction factor).
Per FCC part 15.31(o), test results were not reported.

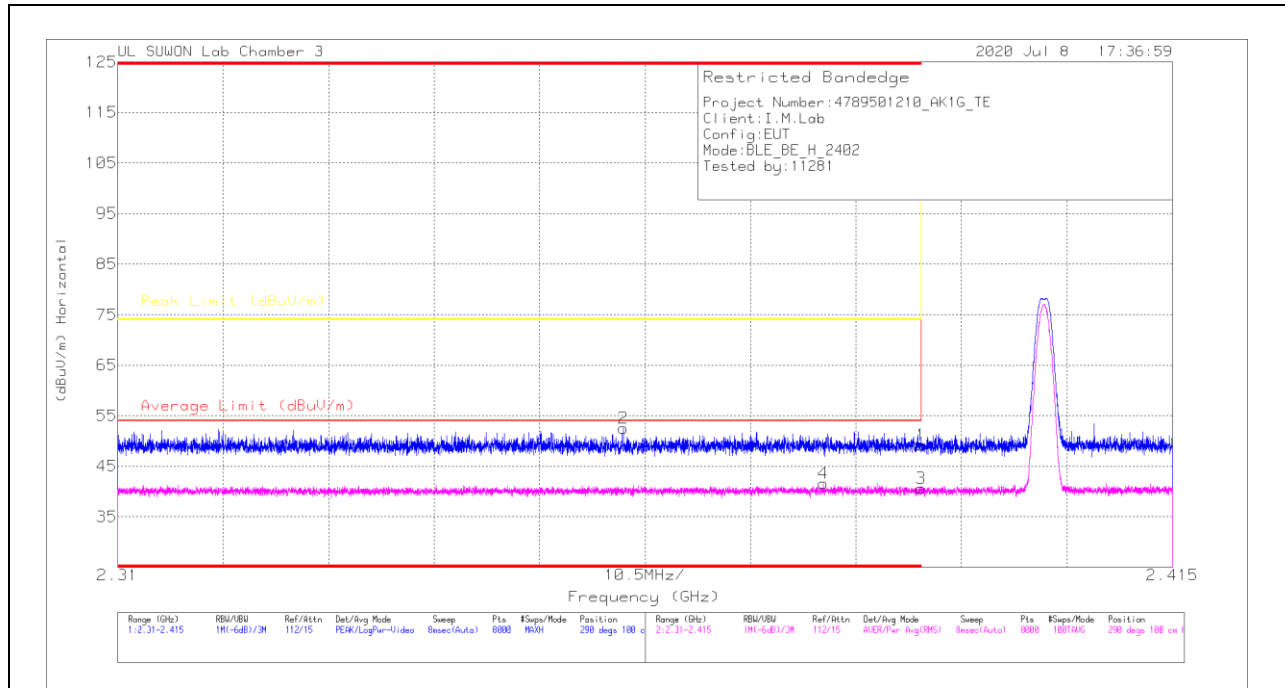
Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field based on KDB 414788.

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. BLE (1Mbps)

BANDEDGE (LOW CHANNEL)

HORIZONTAL RESULT



Trace Markers

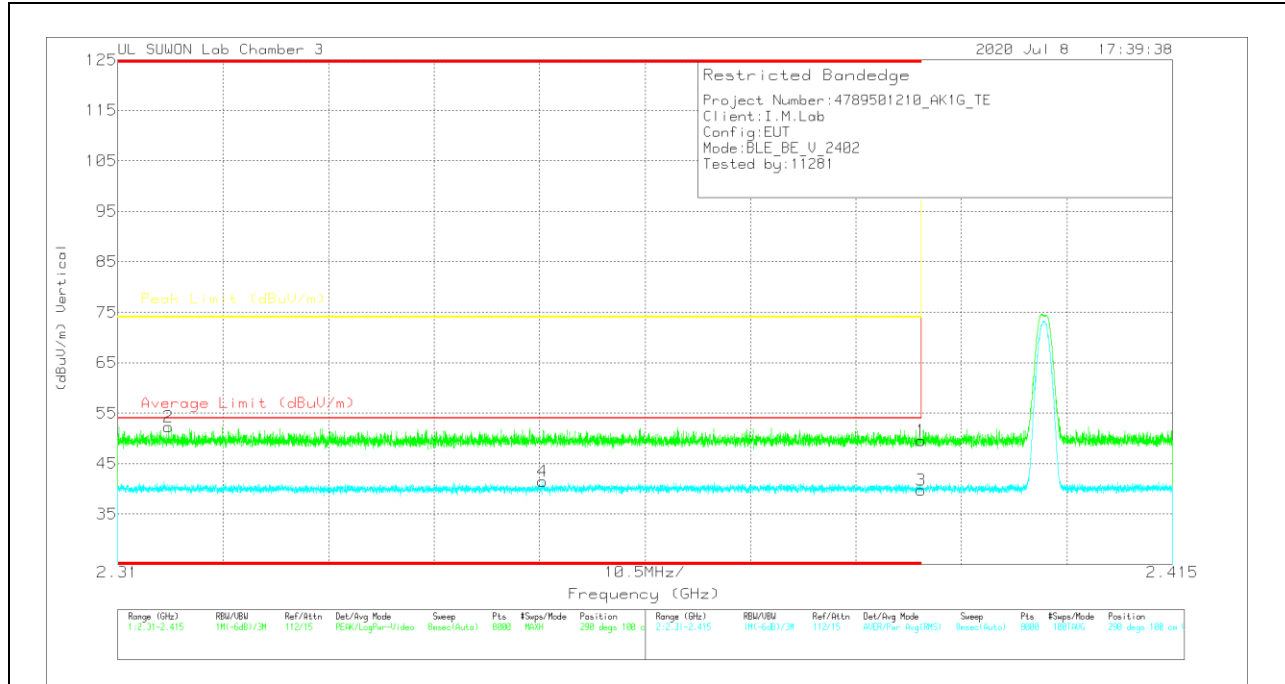
Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	10dB_ATT[dB]	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.39	40.32	Pk	31.7	-22.9	49.12	-	-	74	-24.88	290	100	H
2	* 2.36034	43.84	Pk	31.6	-22.9	52.54	-	-	74	-21.46	290	100	H
3	* 2.39	31.78	RMS	31.7	-22.9	40.58	54	-13.42	-	-	290	100	H
4	* 2.38026	32.88	RMS	31.6	-22.9	41.58	54	-12.42	-	-	290	100	H

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

Pk - Peak detector

RMS - RMS detection

VERTICAL RESULT



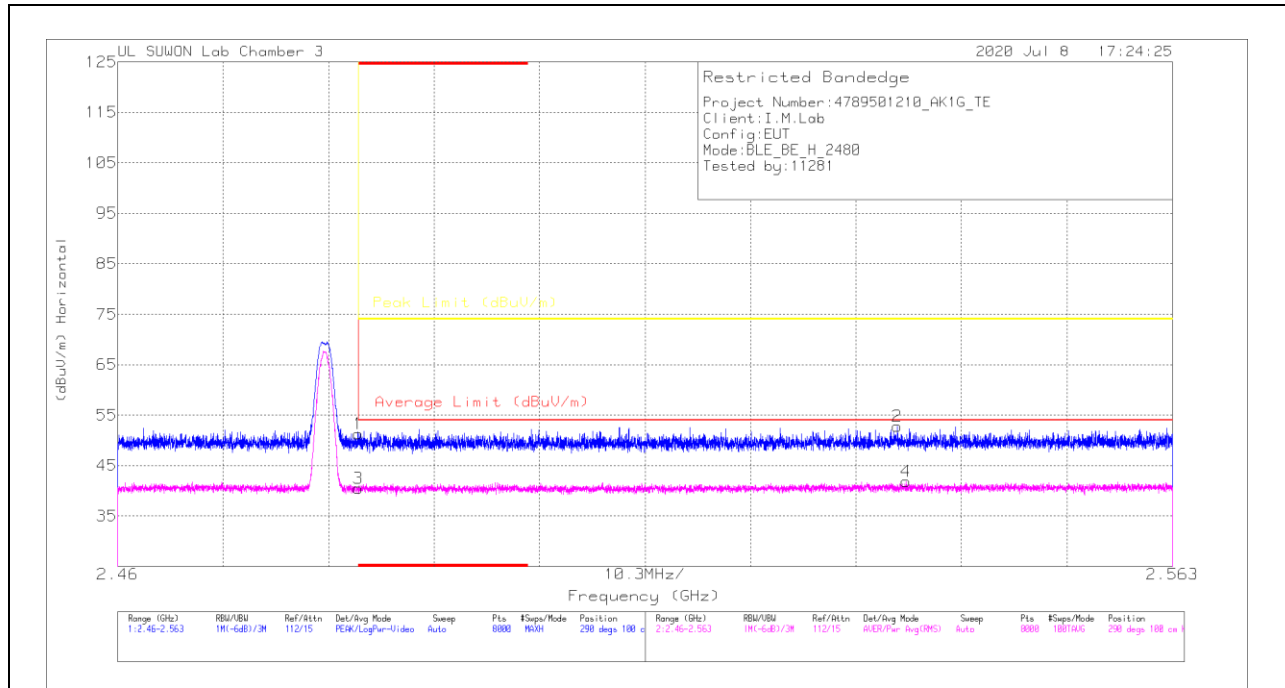
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	10dB_ATT[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	40.73	Pk	31.7	-22.9	49.53	-	-	74	-24.47	290	100	V
2	* 2.31505	43.63	Pk	31.5	-22.8	52.33	-	-	74	-21.67	290	100	V
3	* 2.39	30.95	RMS	31.7	-22.9	39.75	54	-14.25	-	-	290	100	V
4	* 2.35228	32.78	RMS	31.6	-22.9	41.48	54	-12.52	-	-	290	100	V

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

BANDEDGE (HIGH CHANNEL)

HORIZONTAL RESULT



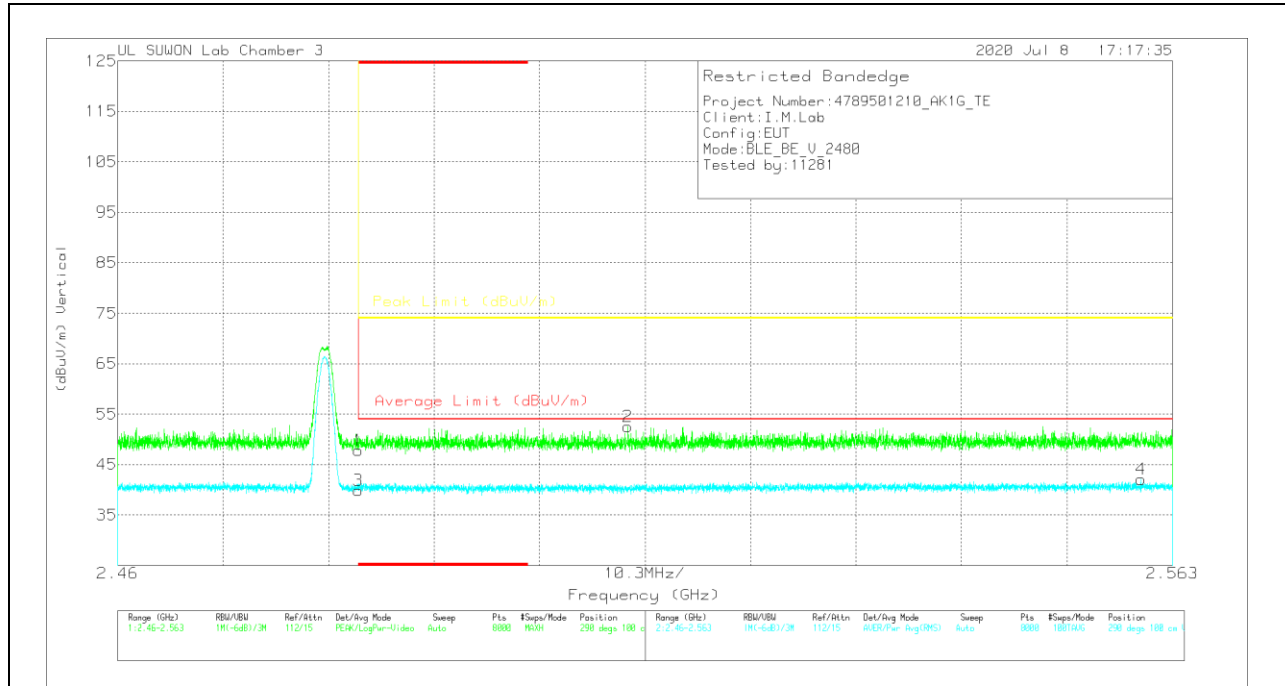
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	10dB_ATT[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	42.18	Pk	31.9	-22.8	51.28	-	-	74	-22.72	290	100	H
2	2.53615	43.52	Pk	32	-22.8	52.72	-	-	74	-21.28	290	100	H
3	* 2.4835	31.4	RMS	31.9	-22.8	40.5	54	-13.5	-	-	290	100	H
4	2.53698	32.53	RMS	32	-22.7	41.83	54	-12.17	-	-	290	100	H

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

Pk - Peak detector
 RMS - RMS detection

VERTICAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00205959	10dB_ATT[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	38.71	Pk	31.9	-22.8	47.81	-	-	74	-26.19	290	100	V
2	2.50983	43.38	Pk	32	-22.8	52.58	-	-	74	-21.42	290	100	V
3	* 2.4835	30.76	RMS	31.9	-22.8	39.86	54	-14.14	-	-	290	100	V
4	2.55991	32.74	RMS	32	-22.7	42.04	54	-11.96	-	-	290	100	V

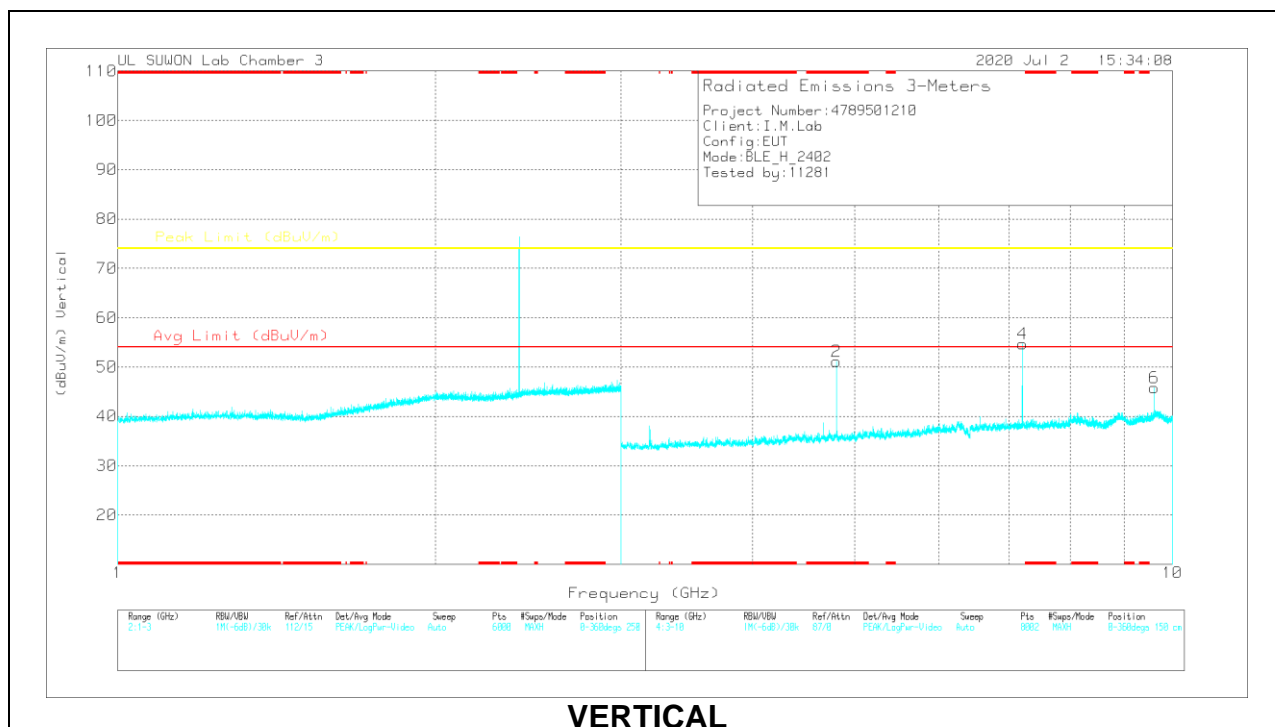
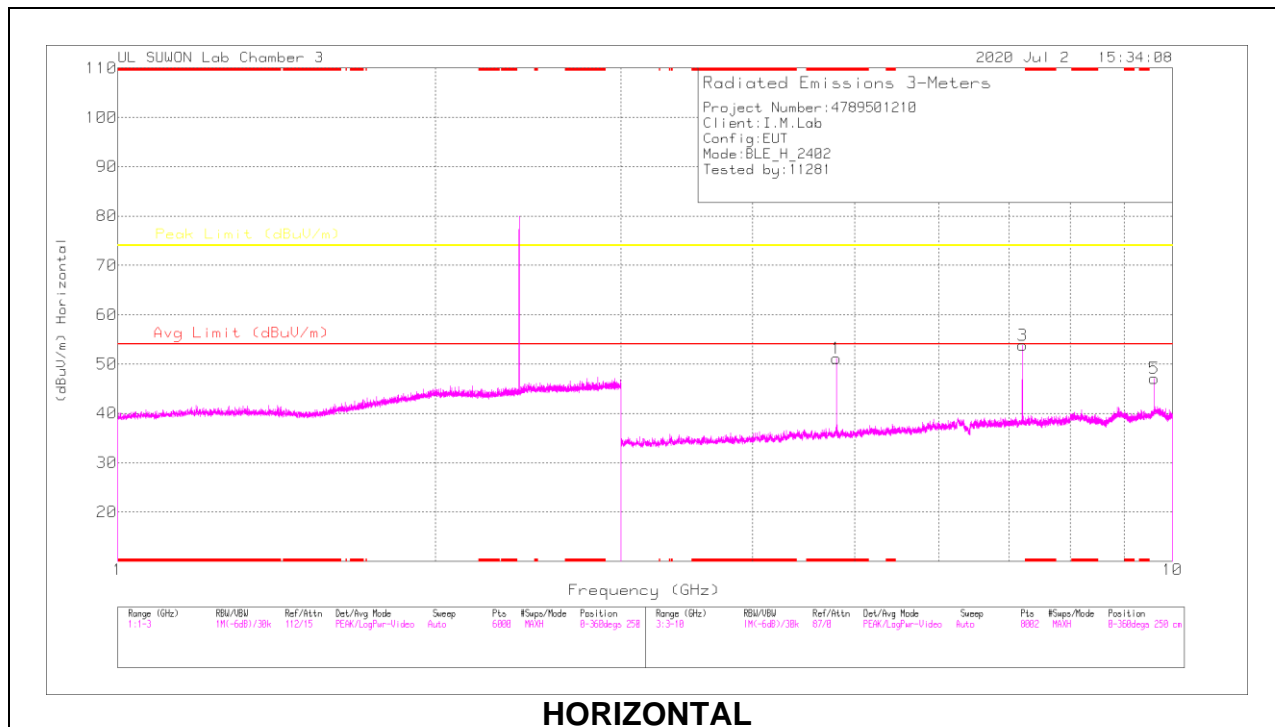
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

LOW CHANNEL RESULTS

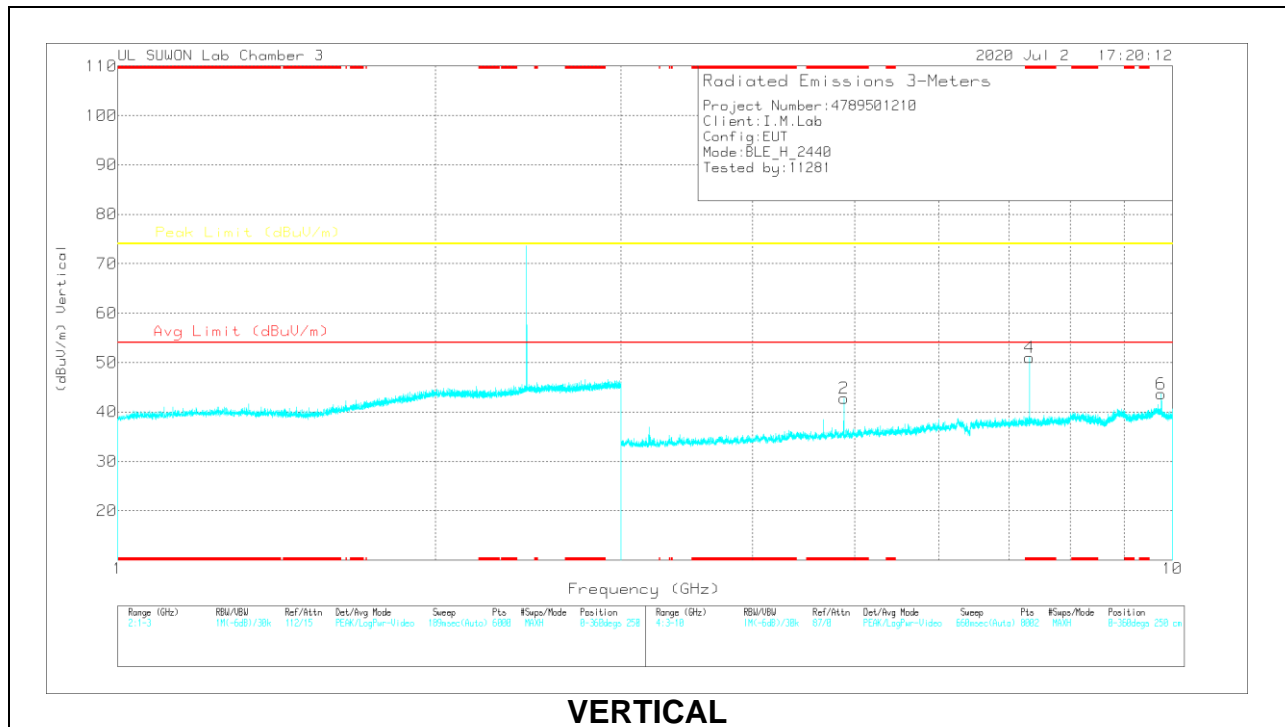
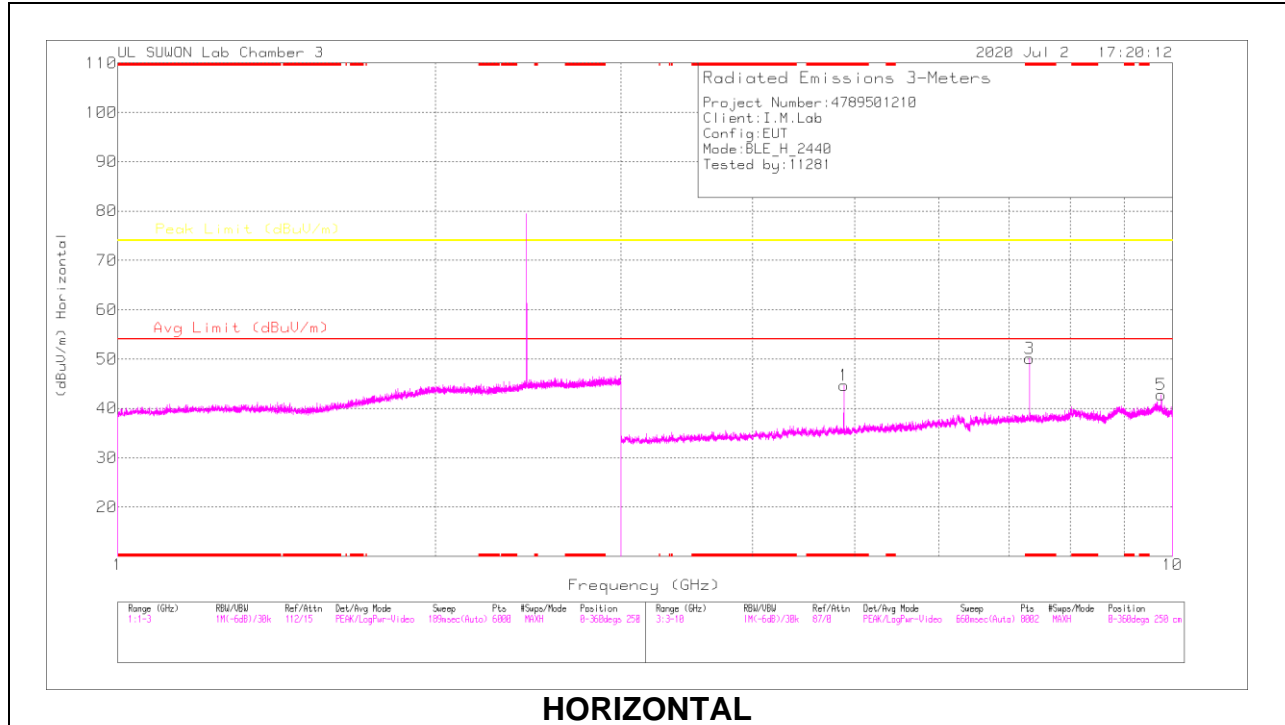


RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80389	49.43	PK2	33.9	-27.9	55.43	-	-	74	-18.57	231	369	V
* 4.80399	44.4	MAv1	33.9	-27.9	50.4	54	-3.6	-	-	231	369	V
* 4.8048	48.17	PK2	33.9	-27.9	54.17	-	-	74	-19.83	101	393	H
* 4.80463	42.48	MAv1	33.9	-27.9	48.48	54	-5.52	-	-	101	393	H
7.20579	45.95	PK2	35.6	-23.7	57.85	-	-	74	-16.15	69	205	H
7.20731	45.94	PK2	35.6	-23.7	57.84	-	-	74	-16.16	159	300	V
9.60783	36.49	PK2	36.7	-19.7	53.49	-	-	74	-20.51	96	349	H
9.60989	36.84	PK2	36.7	-19.7	53.84	-	-	74	-20.16	61	206	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

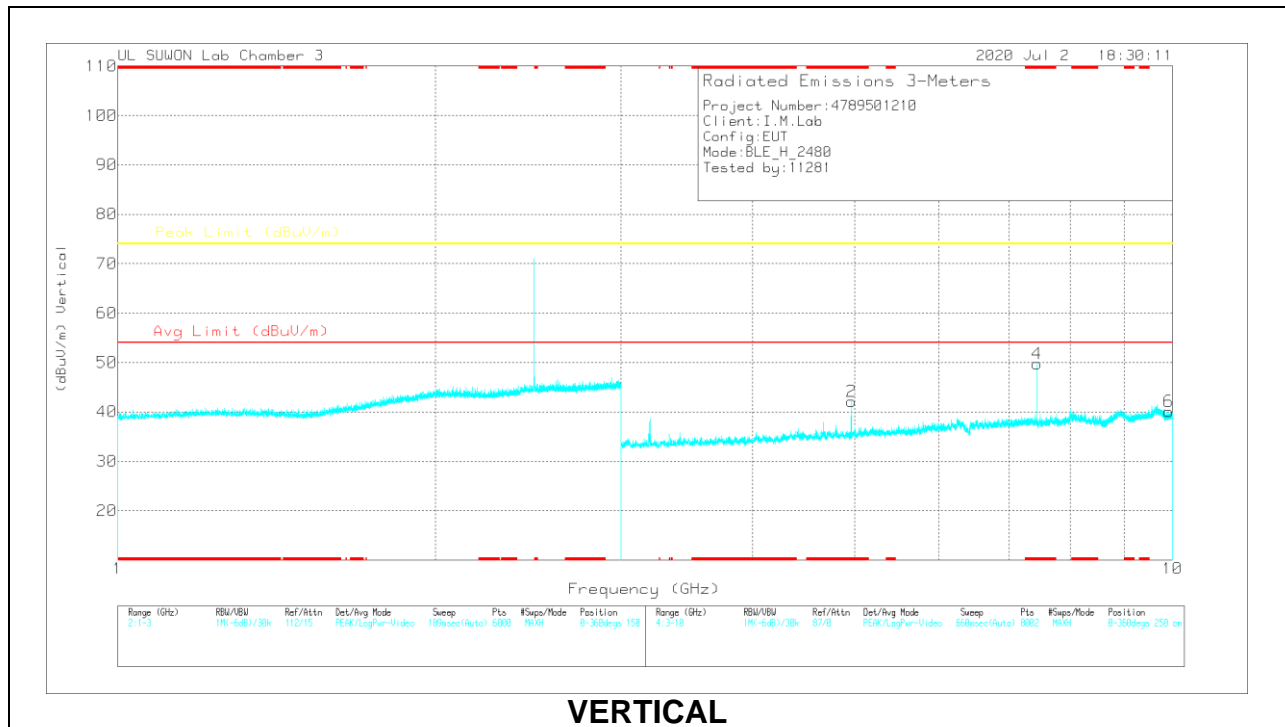
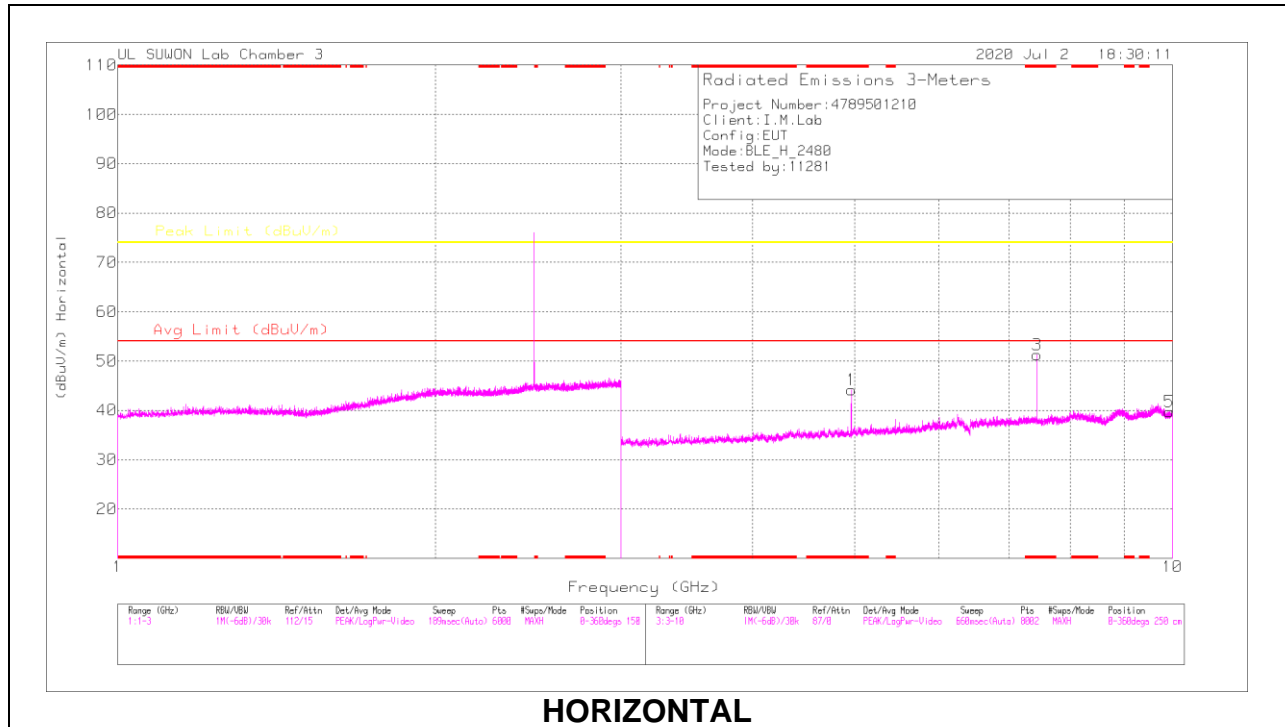


RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117(00205959)	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.88081	46.41	PK2	34	-28.7	51.71	-	-	74	-22.29	91	357	H
* 4.88077	40.23	MAv1	34	-28.7	45.53	54	-8.47	-	-	91	357	H
* 7.31984	43.39	PK2	35.6	-23.2	55.79	-	-	74	-18.21	178	202	H
* 7.31992	37.61	MAv1	35.6	-23.2	50.01	54	-3.99	-	-	178	202	H
9.76094	34.33	PK2	36.9	-19.3	51.93	-	-	74	-22.07	100	192	H
9.76174	23.58	MAv1	36.9	-19.3	41.18	-	-	-	-	100	192	H
* 4.88091	43.75	PK2	34	-28.7	49.05	-	-	74	-24.95	0	161	V
* 4.88054	35.37	MAv1	34	-28.7	40.67	54	-13.33	-	-	0	161	V
* 7.31984	42.83	PK2	35.6	-23.2	55.23	-	-	74	-18.77	254	330	V
* 7.32127	36.41	MAv1	35.6	-23.1	48.91	54	-5.09	-	-	254	330	V
9.76176	33.98	PK2	36.9	-19.3	51.58	-	-	74	-22.42	22	330	V
9.76179	24.3	MAv1	36.9	-19.3	41.9	-	-	-	-	22	330	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak

HIGH CHANNEL RESULTS



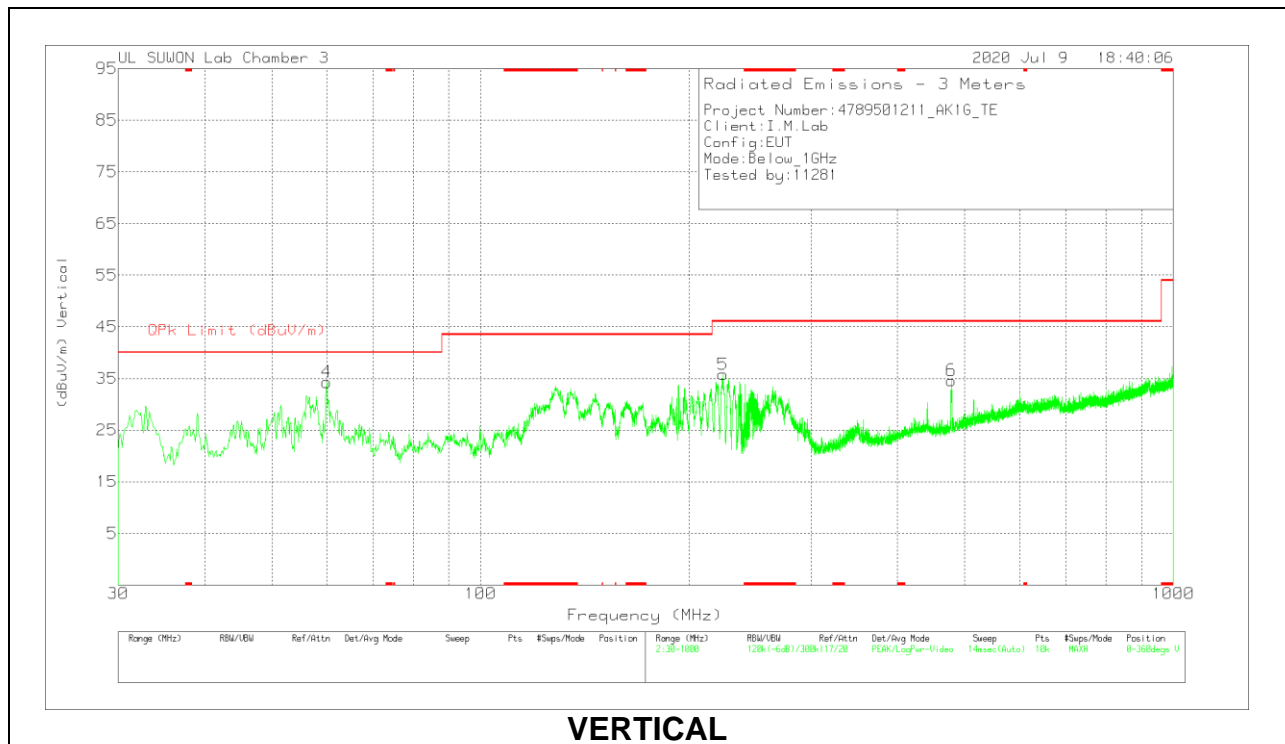
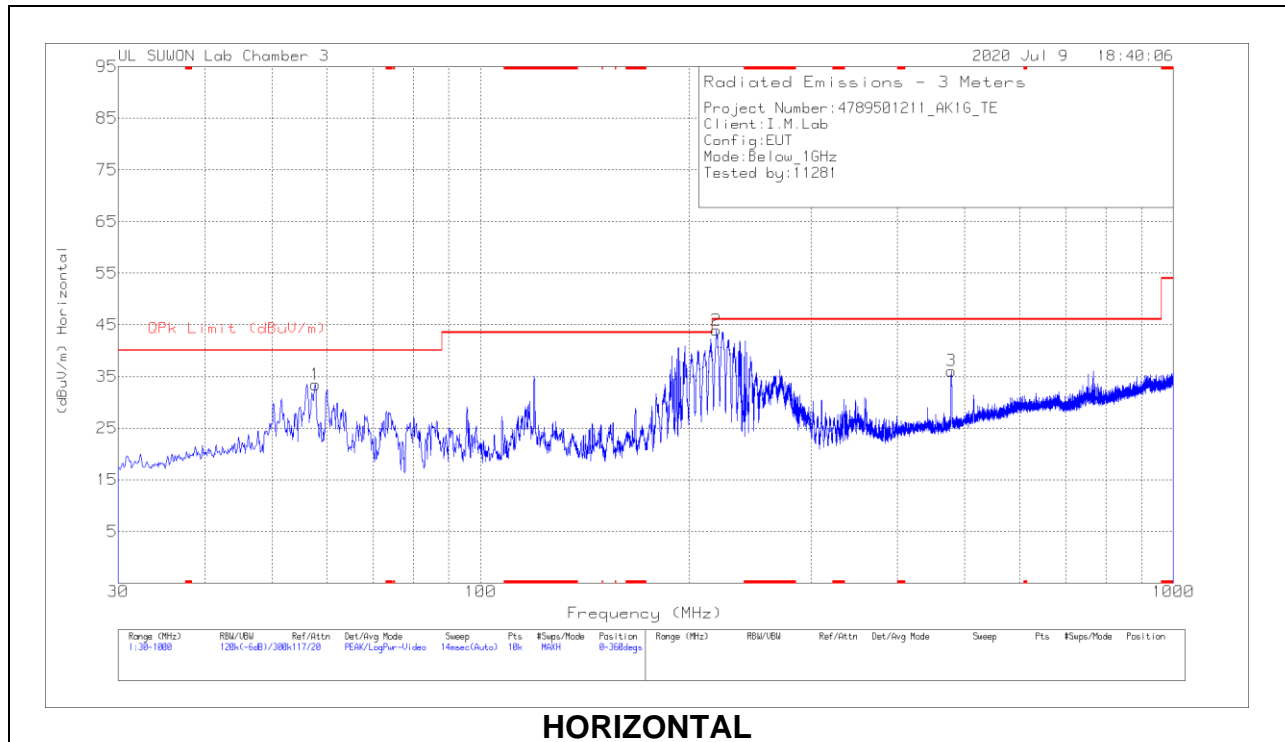
RADIATED EMISSIONS

Frequency (GHz)	Meter Reading (dBuV)	Det	3117[00205959]	3GHz_HP[dB]	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.95977	42.79	PK2	34.1	-28.5	48.39	-	-	74	-25.61	41	121	V
* 4.96093	43.09	PK2	34.1	-28.4	48.79	-	-	74	-25.21	275	289	H
* 7.44134	43.57	PK2	35.6	-23	56.17	-	-	74	-17.83	260	398	V
* 7.43999	37.55	MAv1	35.6	-23	50.15	54	-3.85	-	-	260	398	V
* 7.44136	42.55	PK2	35.6	-23	55.15	-	-	74	-18.85	80	217	H
* 7.44134	36.12	MAv1	35.6	-23	48.72	54	-5.28	-	-	80	217	H
9.92189	31.87	PK2	37	-19.5	49.37	-	-	74	-24.63	8	100	V
9.92545	29.62	PK2	37	-19.5	47.12	-	-	74	-26.88	80	100	H

* - 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 1 GHZ

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



Below 1GHz Data

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163-845	Below_1G[dB]	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	57.7449	46.44	Pk	19	-32	33.44	40	-6.56	0-360	400	H
2	219.1695	57.92	Pk	17.1	-31.1	43.92	46.02	-2.1	0-360	200	H
3	478.5742	43.79	Pk	22.7	-30.4	36.09	46.02	-9.93	0-360	200	H
4	59.9761	47.88	Pk	18.5	-32.1	34.28	40	-5.72	0-360	100	V
5	223.923	49.39	Pk	17.4	-31	35.79	46.02	-10.23	0-360	200	V
6	478.1862	42.3	Pk	22.7	-30.4	34.6	46.02	-11.42	0-360	100	V

Pk - Peak detector

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	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

This EUT is only supplied by DC power.

END OF TEST REPORT