



CERTIFICATION TEST REPORT

Report Number. : 4790736850-E3V4

Applicant : SEGI LIMITED
Unit J2, 4/F, Block 1, Kinho Industrial Building, 14-24 Au Pui Wan Street, Shatin, New Territories HONGKONG, China

Model : DR-X2MAX

FCC ID : VA5CMT348-X2MAX
IC : 7087A-CMT348X2M

EUT Description : MODEM

Test Standard(s) : FCC 47 CFR PART 15 SUBPART C
INDUSTRY CANADA RSS-Gen Issue 5
INDUSTRY CANADA RSS-247 Issue 2

Date Of Issue:
2023-04-13

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



Rev.	Issue Date	Revisions	Revised By
V1	2023-03-06	Initial issue	Sungeun Lee
V2	2023-04-07	Updated to address TCB's question	Sungeun Lee
V3	2023-04-11	Updated to address TCB's question	Sungeun Lee
V4	2023-04-13	Updated to address TCB's question	Sungeun Lee

TABLE OF CONTENTS

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. MEASUREMENT UNCERTAINTY	7
4.4. DECISION RULES.....	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	8
5.5. DESCRIPTION OF TEST SETUP.....	9
6. MEASUREMENT METHOD.....	11
7. TEST AND MEASUREMENT EQUIPMENT	12
8. TEST RESULTS SUMMARY	13
9. ANTENNA PORT TEST RESULTS.....	14
9.1. ON TIME AND DUTY CYCLE	14
9.2. 6 dB & 99% BANDWIDTH.....	15
9.2.1. Test data.....	15
9.2.2. 6 dB & 99% BANDWIDTH PLOTS.....	16
9.3. OUTPUT POWER.....	17
9.3.1. Test data.....	17
9.3.2. PEAK POWER PLOTS.....	18
9.4. AVERAGE POWER	19
9.4.1. Test data.....	19
9.5. POWER SPECTRAL DENSITY	20
9.5.1. Test data.....	20
9.5.2. PSD TEST PLOTS	21
9.6. CONDUCTED SPURIOUS EMISSIONS	22
9.6.1. Test plot.....	23

10. RADIATED TEST RESULTS	24
10.1. LIMITS AND PROCEDURE	24
10.2. TRANSMITTER ABOVE 1 GHz	26
10.2.1. 1 Mbps	26
10.3. WORST CASE BELOW 1 GHz	33
11. AC POWER LINE CONDUCTED EMISSIONS	34

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SEGI LIMITED
EUT DESCRIPTION: MODEM
MODEL NUMBER: DR-X2MAX
SERIAL NUMBER: Proto type (Conducted, Radiated)
DATE TESTED: 2023-02-13 ~ 2023-03-06

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



Seokhwan Hong
Suwon Lab Engineer
UL Korea, Ltd.

Tested By:



Sungeun 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.
5. IC RSS-Gen Issue 5
6. IC RSS-247 Issue 2

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 checked="" type="checkbox"/>	Chamber 1(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 2(3m semi-anechoic chamber)
<input checked="" type="checkbox"/>	Chamber 3(3m semi-anechoic chamber)
<input type="checkbox"/>	Chamber 4(3m Full-anechoic chamber)
<input type="checkbox"/>	Chamber 5(3m Full-anechoic chamber)

Used ISED Test Site Reg.(company number): 2324L
CAB Identifier: KR0161

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:

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

$$\begin{aligned} \text{AC Corrected Reading (dBuV)} &= \text{Measured Voltage (dBuV)} + \text{Extension Cord} \\ &\text{Loss (dB)} + \text{Cable Loss (dB)} \\ 44.72 \text{ dBuV} &= 34.72 \text{ dBuV} + 9.9 \text{ dB} + 0.1 \text{ dB} \end{aligned}$$

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
RF Output Power	1.30 dB
Power Spectral Density	1.30 dB
Occupied Bandwidth	0.20 %
Conducted Spurious Emissions	1.30 dB
Conducted Disturbance, 0.15 to 30 MHz	2.80 dB
Radiated Disturbance, 30 MHz to 1 GHz	3.92 dB
Radiated Disturbance, 1 GHz to 18 GHz	5.06 dB
Radiated Disturbance, 18 GHz to 40 GHz	6.02 dB

Uncertainty figures are valid to a confidence level of 95%, $k = 2$.

4.4. DECISION RULES

Decision rule for statement(s) of conformity is based on Procedure 2, Clause 4.4.3 in IEC Guide 115:2021.

5. EQUIPMENT UNDER TEST

5.1. EUT DESCRIPTION

The EUT is a Modem with CAT M.1 + BLE
This test report addresses the DTS (BLE) 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 (37pkt)	Peak	0.490	1.119
		Average	0.289	1.069

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 antennas, with ANT maximum gain of 1.69 dBi.

5.4. WORST-CASE CONFIGURATION AND MODE

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

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 : Radiated test was performed attached with battery for the worst case condition mode.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacture	Model	Serial Number	FCC ID
Battery	SEGI	Proto type	Proto type	N/A

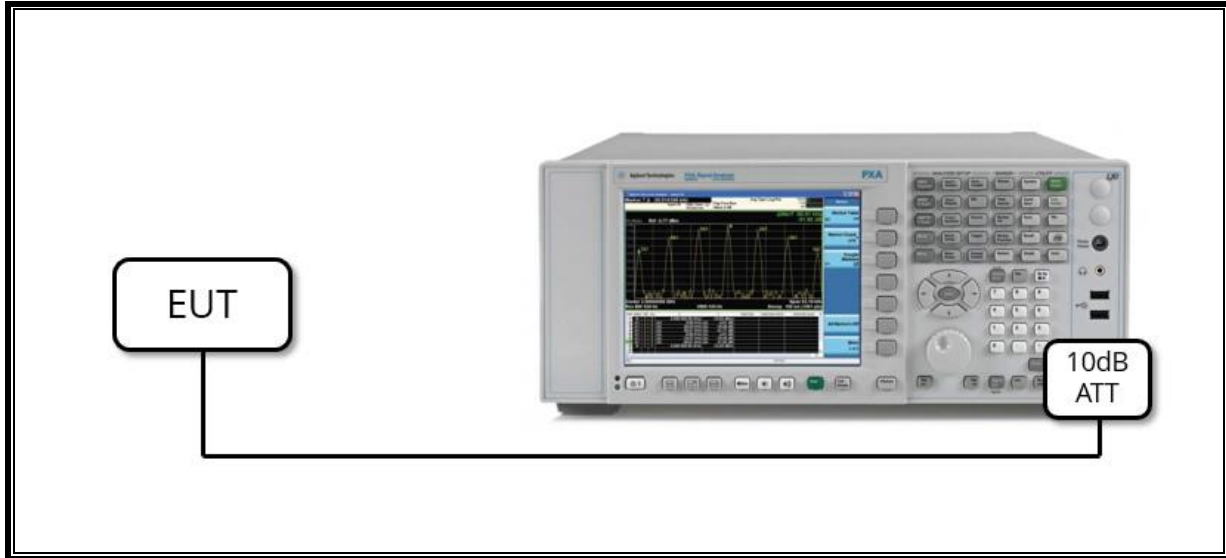
I/O CABLE

I/O Cable List						
Cable No.	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	DC Power	1	4 pin	DC Cable	1.1 m	N/A

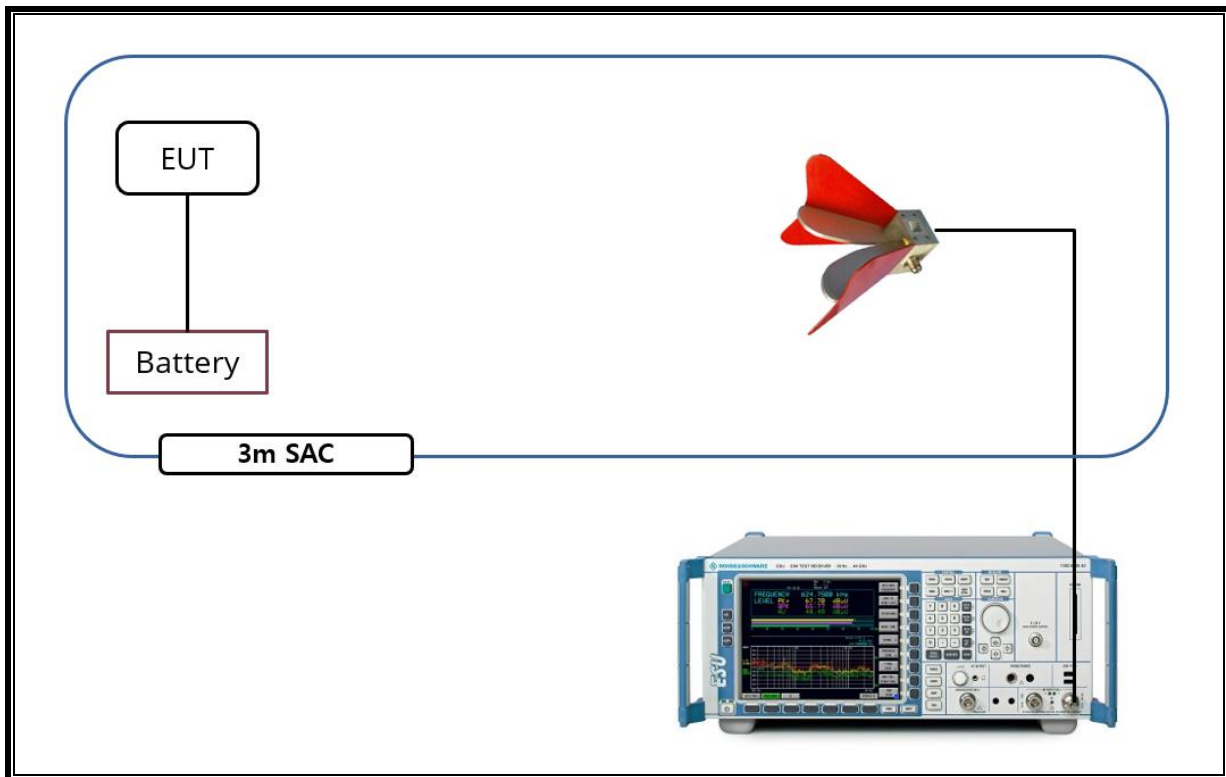
TEST SETUP

The EUT is a stand-alone unit during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



6. MEASUREMENT METHOD

6 dB BW : ANSI C63.10-2013, Section 11.8.2 Option 2

OUTPUT POWER : ANSI C63.10-2013, Section 11.9.1.1 RBW \geq DTS bandwidth (Peak Power)
ANSI C63.10-2013, Section 11.9.2.3 Using PM (Average Power)

POWER SPECTRAL DENSITY : ANSI C63.10-2013, Section 11.10.2 Method PKPSD (peak PSD)

Out-of-band Emissions (Conducted) : ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Non-restricted Bands: ANSI C63.10-2013, Section 11.11 Emissions in nonrestricted frequency bands

Out-of-band Emissions in Restricted Bands : ANSI C63.10-2013, Section 11.12 Emissions in restricted frequency bands

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	VULB9163	750	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	749	2024-08-15
Antenna, Bilog, 30MHz-1GHz	SCHWARZBECK	VULB9163	845	2024-08-15
Antenna, Horn, 18 GHz	ETS	3115	00167211	2024-08-04
Antenna, Horn, 18 GHz	ETS	3115	00161451	2024-08-21
Antenna, Horn, 18 GHz	ETS	3117	00168724	2024-08-04
Antenna, Horn, 18 GHz	ETS	3117	00168717	2024-08-21
Antenna, Horn, 40 GHz	ETS	3116C	00166155	2024-08-02
Preamplifier	ETS	3116C-PA	00168841	2023-08-04
Preamplifier, 1000 MHz	Sonoma	310N	341282	2023-08-02
Preamplifier, 1000 MHz	Sonoma	310N	351741	2023-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1876511	2023-08-02
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	1896138	2023-08-01
Preamplifier, 18 GHz	Miteq	AFS42-00101800-25-S-42	2029169	2023-08-01
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54170614	2023-08-03
Spectrum Analyzer, 44 GHz	Agilent / HP	N9030A	MY54490312	2023-08-01
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9030B	MY60070693	2024-01-09
Spectrum Analyzer, 44 GHz	KEYSIGHT	N9040B	MY60080268	2024-01-09
Average Power Sensor	Agilent / HP	U2000A	MY54270007	2023-08-03
Average Power Sensor	Agilent / HP	U2000A	MY54260010	2023-08-03
Attenuator	PASTERNAK	PE7087-10	A001	2023-08-03
Attenuator	PASTERNAK	PE7087-10	A008	2023-08-03
Attenuator	PASTERNAK	PE7004-10	2	2023-08-01
Attenuator	PASTERNAK	PE7087-10	A009	2023-08-03
EMI Test Receive, 40 GHz	R&S	ESU40	100439	2023-08-02
EMI Test Receive, 40 GHz	R&S	ESU40	100457	2023-07-29
EMI Test Receive, 3 GHz	R&S	ESR3	101832	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	009	2023-08-02
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	015	2023-08-01
Low Pass Filter 5GHz	Micro-Tronics	LPS17541	020	2023-08-01
High Pass Filter 3GHz	Micro-Tronics	HPM17543	010	2023-08-02
High Pass Filter 3GHz	Micro-Tronics	HPM17543	020	2023-08-01
High Pass Filter 6GHz	Micro-Tronics	HPS17542	009	2023-08-02
High Pass Filter 6GHz	Micro-Tronics	HPS17542	021	2023-08-01
LISN	R&S	ENV-216	101837	2023-08-04
Antenna, Loop, 9kHz-30MHz	R&S	HFH2-Z2	100418	2023-10-06
UL 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 Bandwidth(6dB)	> 500kHz	Conducted	Complies
2.1051, 15.247(d)	Band Edge / Conducted Spurious Emission	-20 dBc		Complies
15.247 (b)(3)	TX conducted output power	< 30 dBm		Complies
15.247(e)	PSD	< 8 dBm/3kHz		Complies
15.207(a)	AC Power Line conducted emissions	Section 11	Power Line conducted	N/A
15.205, 15.209	Radiated Spurious Emission	< 54dBuV/m(Av)	Radiated	Complies

Note: The AC Power Line Conducted Emission test is exempted because DC power is used.

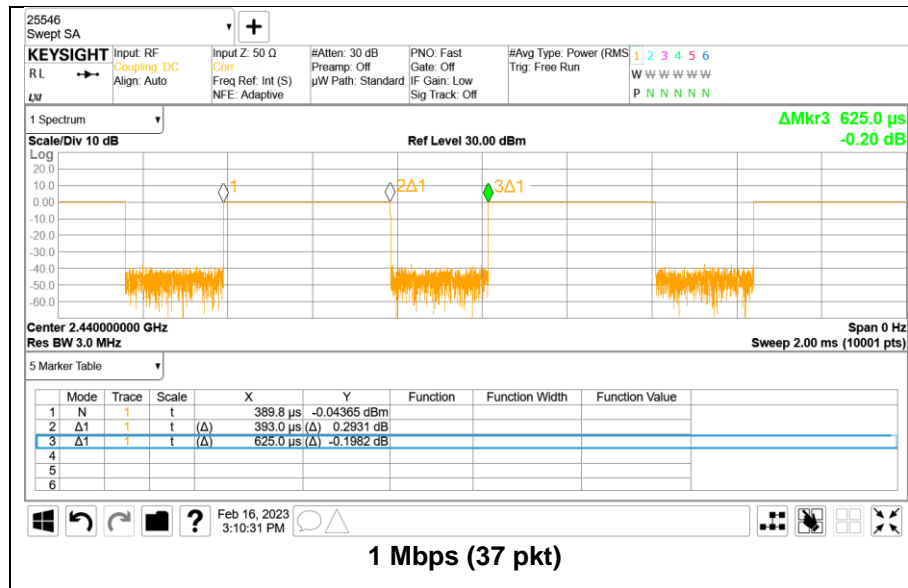
9. ANTENNA PORT TEST RESULTS

9.1. ON TIME AND DUTY CYCLE

LIMITS

None; for reporting purposes only.

Mode	On time [msec]	Period [msec]	Duty cycle x [Linear]	Duty Cycle [%]	Duty Cycle Correction Factor [dB]	1/T Minimum VBW [kHz]
2 400 ~ 2 483.5 MHz Bands						
1 Mbps [37pkt]	0.393	0.625	0.629	62.880	2.010	2.545



9.2. 6 dB & 99% BANDWIDTH

LIMITS

6dB Bandwidth

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

Occupied Bandwidth

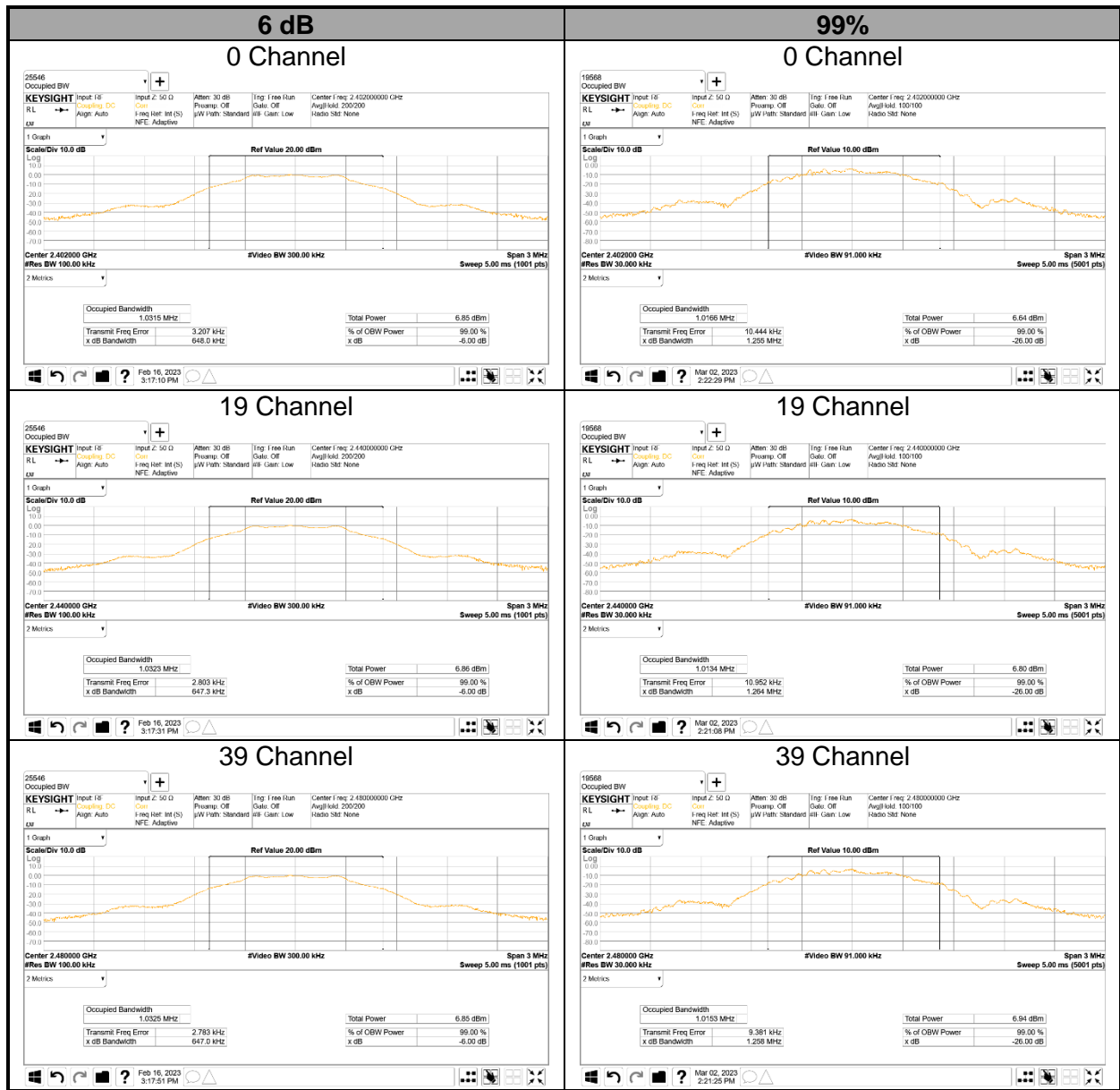
None; for reporting purposes only.

RESULTS

9.2.1. Test data

Mode	Channel	Frequency [MHz]	6 dB Bandwidth [kHz]	Minimum Limit [kHz]	99% Bandwidth [kHz]
1Mbps (37pkt)	0	2 402	648.0	500.0	1016.6
	19	2 440	647.3	500.0	1013.4
	39	2 480	647.0	500.0	1015.3
Worst			647.0	500.0	1016.6

9.2.2. 6 dB & 99% BANDWIDTH PLOTS



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.

RSS-247 (5.4) (d)

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

TEST PROCEDURE

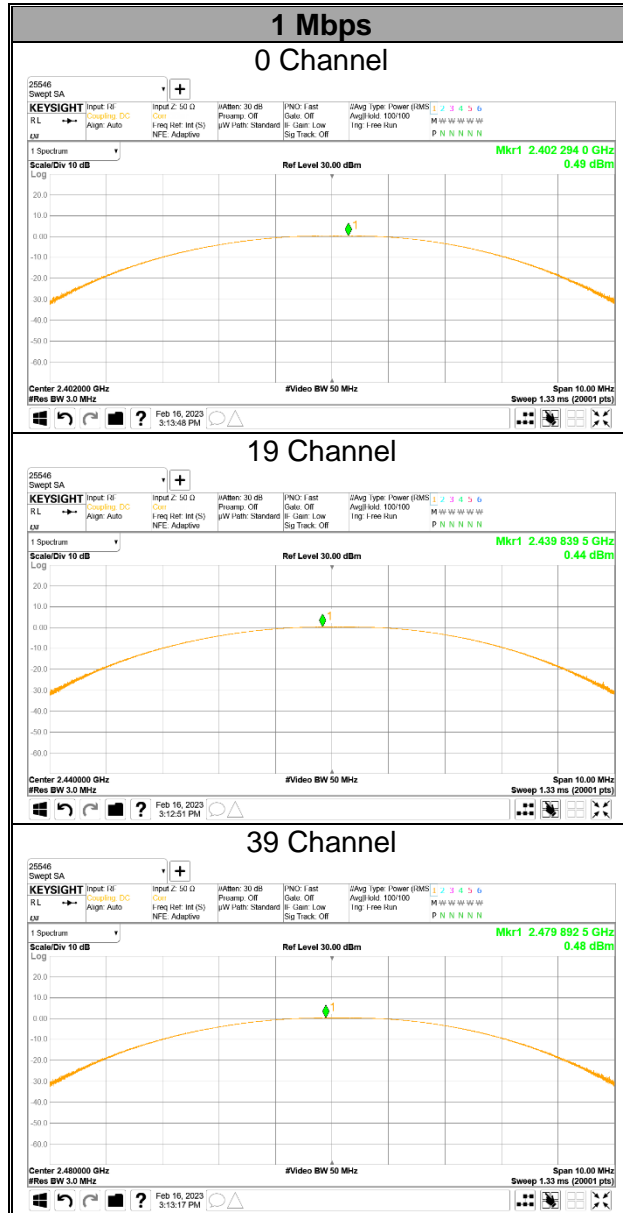
Peak power is measured using ANSI C63.10(2013) under section 11.9.1.1 utilizing spectrum analyzer(RBW \geq DTS bandwidth).

RESULTS

9.3.1. Test data

Mode	Channel	Frequency [MHz]	Peak Output Power [dBm]	Limit [dBm]	Margin [dB]
1 Mbps (37 pkt)	0	2 402	0.490	30.000	-29.510
	19	2 440	0.440		-29.560
	39	2 480	0.480		-29.520
Worst			0.490		-29.510

9.3.2. PEAK POWER PLOTS



9.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

Measurements perform using a wideband RF frame average power sensor. The cable assembly insertion loss and duty cycle correction factor were entered as an offset in the power meter to allow for direct reading of power.

RESULTS

9.4.1. Test data

Mode	Channel	Frequency [MHz]	Average Output Power [dBm]	Average Output Power [mW]
1 Mbps (37pkt)	0	2 402	0.289	1.069
	19	2 440	0.183	1.043
	39	2 480	0.265	1.063

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.

TEST PROCEDURE

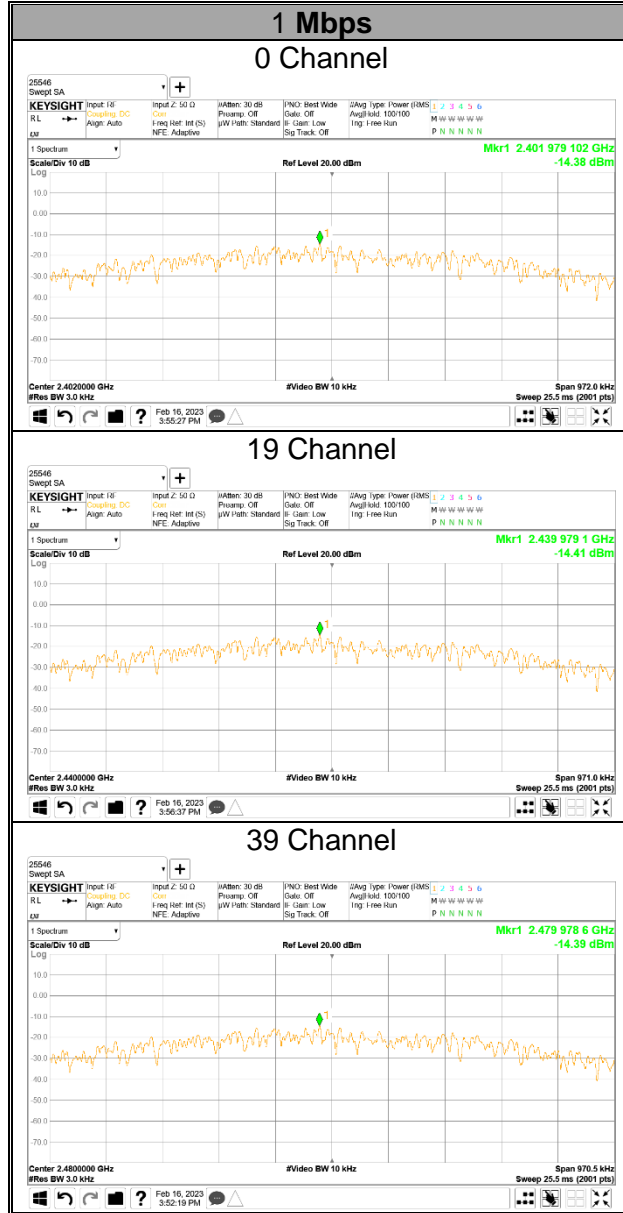
ANSI C63.10-2013, Section 11.10.2 Method PKPSD (peak PSD)

RESULTS

9.5.1. Test data

Mode	Channel	Frequency [MHz]	PSD [dBm/3kHz]	Limit [dBm/3kHz]	Margin [dB]
1 Mbps (37pkt)	0	2 402	-14.38	8.00	-22.38
	19	2 440	-14.41		-22.41
	39	2 480	-14.39		-22.39
Worst			-14.38		-22.38

9.5.2. PSD TEST PLOTS



9.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

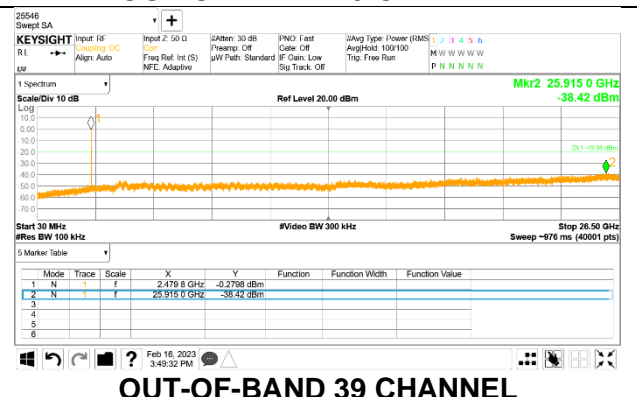
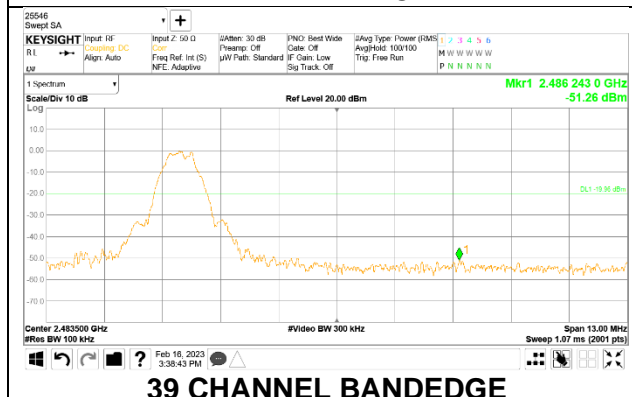
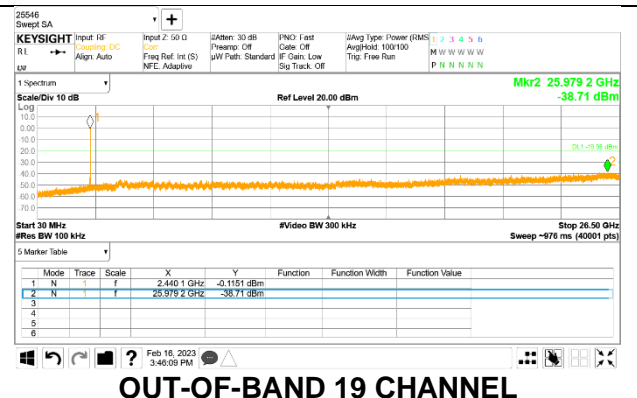
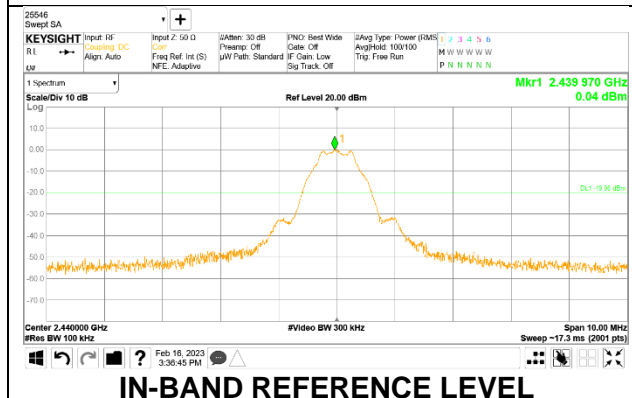
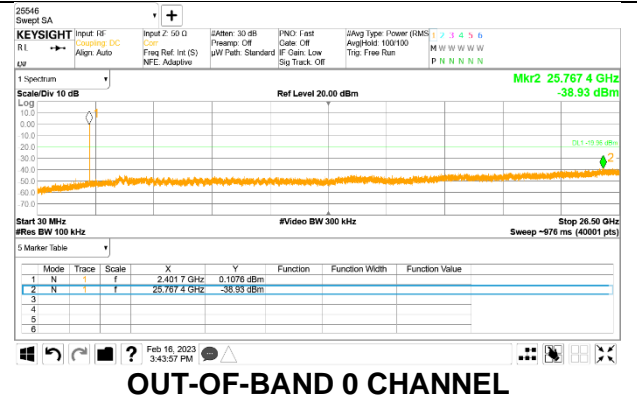
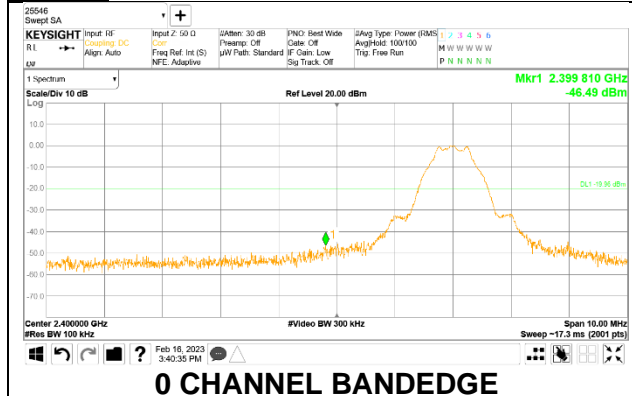
FCC §15.247 (d)
RSS-247 (5.5)

Output power was measured based on the use of a peak measurement.
Therefore, spurious emissions are required to be 20 dBc.

RESULTS

9.6.1. Test plot

1 Mbps



10. RADIATED TEST RESULTS

10.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209
IC RSS-Gen (8.9) & (8.10) /

Limits for radiated disturbance of an intentional radiator		
Frequency range (MHz)	Limits ($\mu\text{V}/\text{m}$)	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 = $10 \log(1/x)$. For this sample: For 1 Mbps, DCF = $10\log(1/0.629)=2.01\text{dB}$
(Spectrum Analyzer round it up to 2.01 dB)

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.

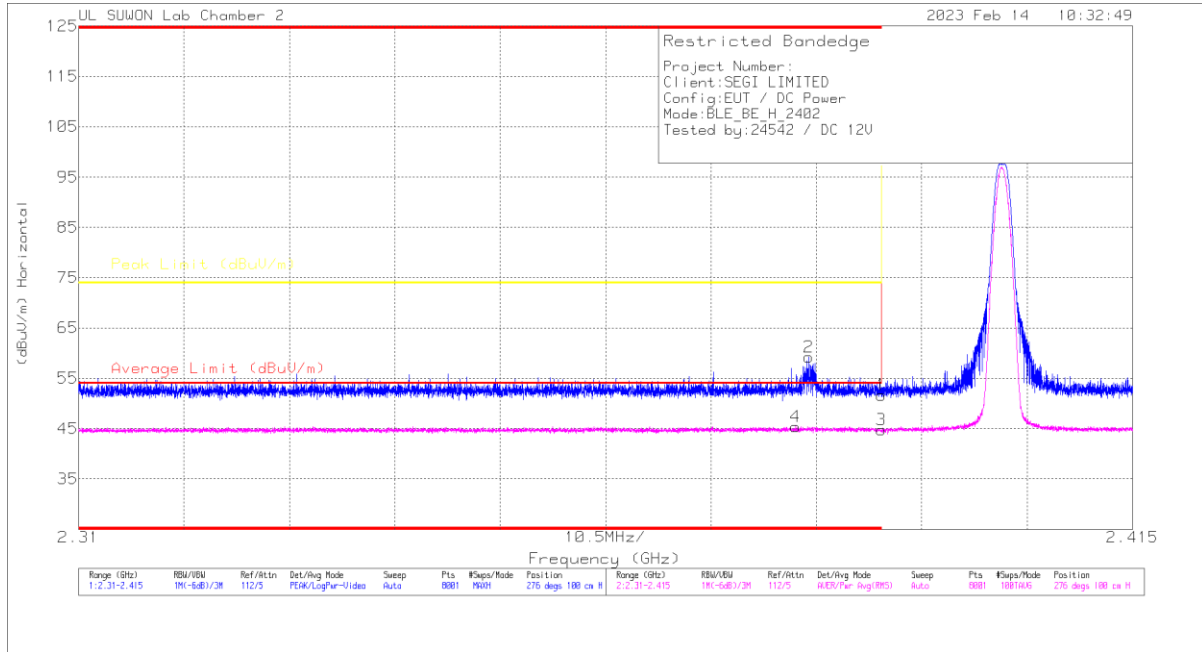
Although these tests were performed other than open field test site, adequate comparison measurements were confirmed against 30 m open are test site.
Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the one of tests made in an open field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

10.2. TRANSMITTER ABOVE 1 GHz

10.2.1. 1 Mbps

BANDEDGE (0 CHANNEL)

HORIZONTAL RESULT



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[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	39.69	Pk	31.7	-19.7	0	51.69	-	-	74	-22.31	276	100	H
2	* 2.38271	47.11	Pk	31.7	-19.6	0	59.21	-	-	74	-14.79	276	100	H
3	* 2.39	30.73	RMS	31.7	-19.7	2.01	44.74	54	-9.26	-	-	276	100	H
4	* 2.38143	31.34	RMS	31.7	-19.6	2.01	45.45	54	-8.55	-	-	276	100	H

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

VERTICAL RESULT



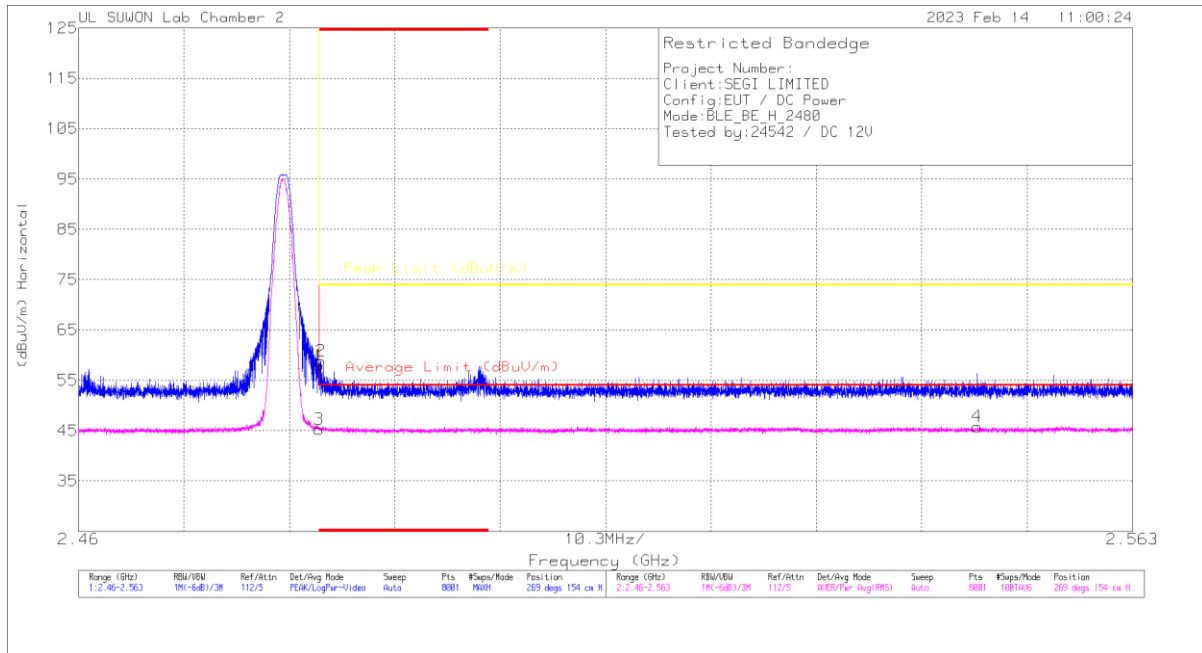
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[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	40.27	Pk	31.7	-19.7	0	52.27	-	-	74	-21.73	162	315	V
2	* 2.38648	43.98	Pk	31.7	-19.6	0	56.08	-	-	74	-17.92	162	315	V
3	* 2.39	30.31	RMS	31.7	-19.7	2.01	44.32	54	-9.68	-	-	162	315	V
4	* 2.37699	31.31	RMS	31.7	-19.6	2.01	45.42	54	-8.58	-	-	162	315	V

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

BANDEDGE (39 CHANNEL)

HORIZONTAL RESULT

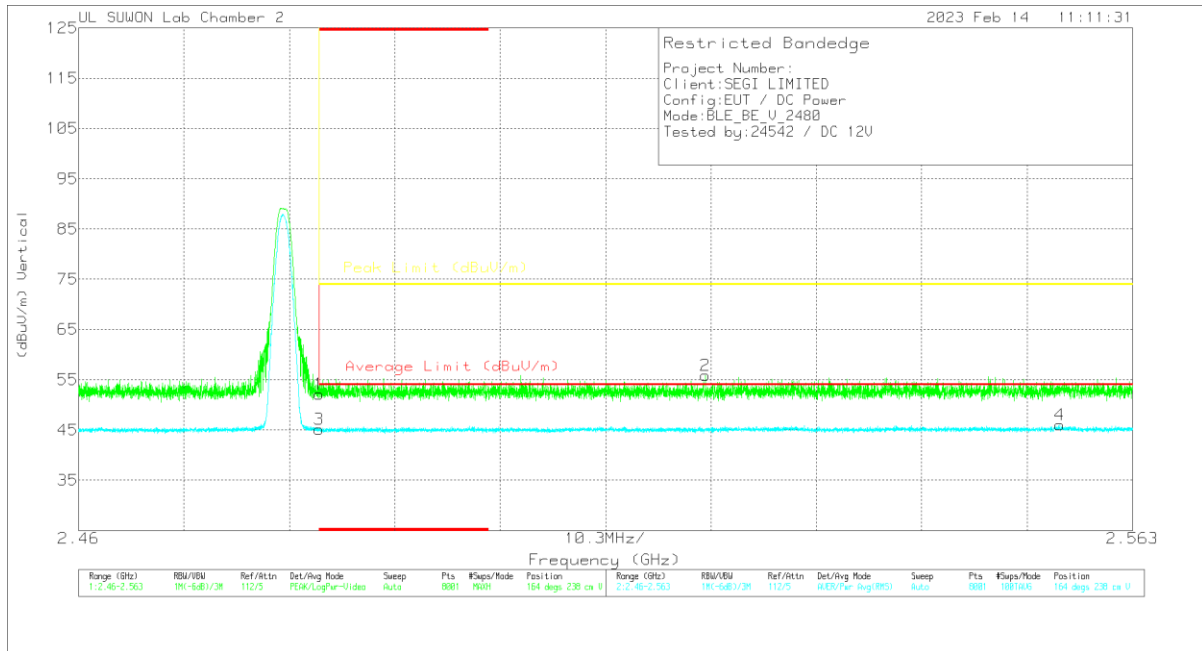


Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[dB]	DC Cor (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	45.65	PK	31.9	-19.6	0	57.95	-	-	74	-16.05	269	154	H
2	* 2.48355	46.54	PK	31.9	-19.6	0	58.84	-	-	74	-15.16	269	154	H
3	* 2.48351	30.91	RMS	31.9	-19.6	2.01	45.22	54	-8.78	-	-	269	154	H
4	2.54782	31.32	RMS	32	-19.5	2.01	45.83	54	-8.17	-	-	269	154	H

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

VERTICAL RESULT



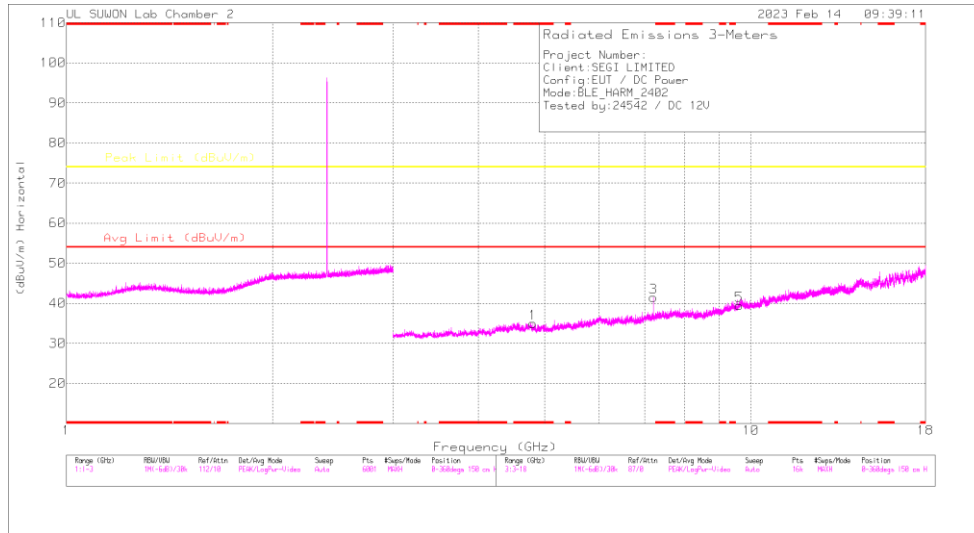
Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	3117_00168724	10dB_ATT[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	* 2.48351	39.82	Pk	31.9	-19.6	0	52.12	-	-	74	-21.88	164	238	V
2	2.52126	43.51	Pk	31.9	-19.5	0	55.91	-	-	74	-18.09	164	238	V
3	* 2.48351	30.84	RMS	31.9	-19.6	2.01	45.15	54	-8.85	-	-	164	238	V
4	2.55591	31.27	RMS	32	-19.3	2.01	45.98	54	-8.02	-	-	164	238	V

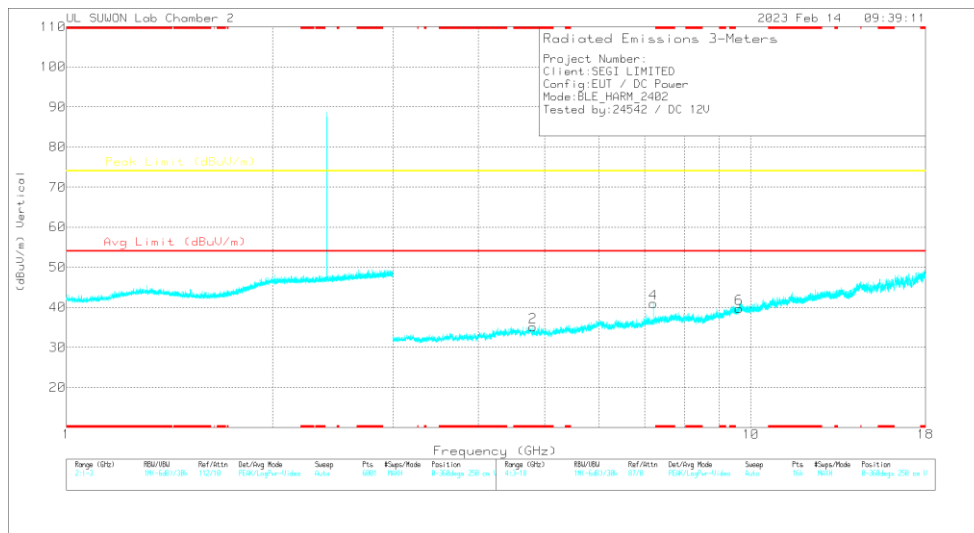
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 Pk - Peak detector
 RMS - RMS detection

HARMONICS AND SPURIOUS EMISSIONS

0 CHANNEL RESULTS



HORIZONTAL



VERTICAL

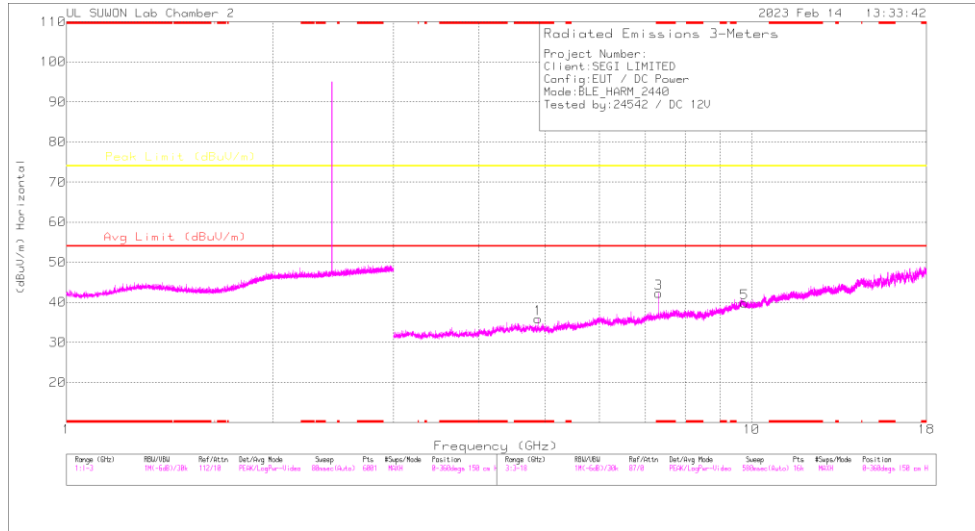
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

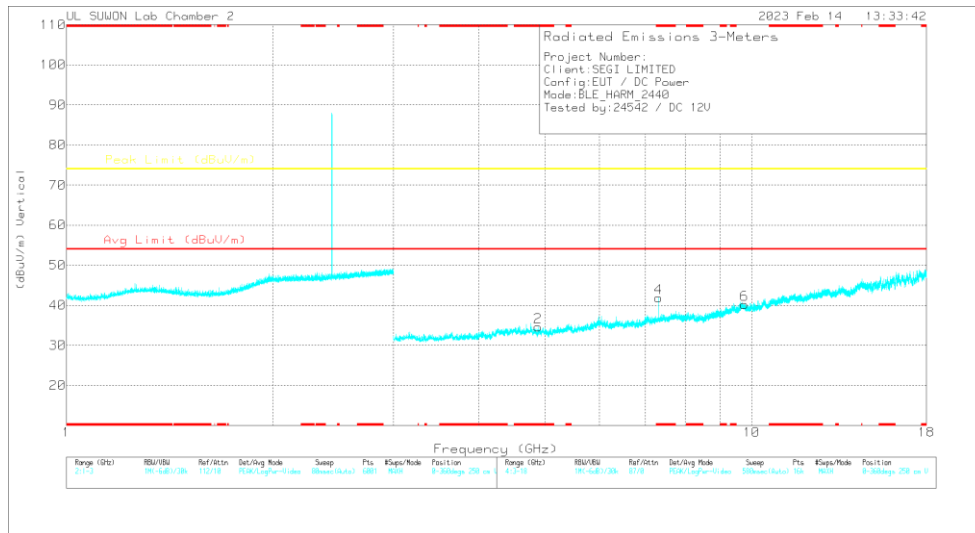
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016872 4	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.80368	37.63	PK2	34	-27.7	0	43.93	-	-	74	-30.07	152	374	H
* 4.80371	25.45	MAV1	34	-27.7	2.01	33.76	54	-20.24	-	-	152	374	H
* 4.80449	37.45	PK2	34	-27.7	0	43.75	-	-	74	-30.25	96	130	V
* 4.80373	25.95	MAV1	34	-27.7	2.01	34.26	54	-19.74	-	-	96	130	V
7.2068	38.51	PK2	35.7	-25	0	49.21	-	-	74	-24.79	4	256	H
7.20595	39.98	PK2	35.7	-25	0	50.68	-	-	74	-23.32	90	100	V
9.6079	33.22	PK2	36.9	-21.3	0	48.82	-	-	74	-25.18	4	100	H
9.61042	32.83	PK2	36.9	-21.2	0	48.53	-	-	74	-25.47	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

19 CHANNEL RESULTS



HORIZONTAL



VERTICAL

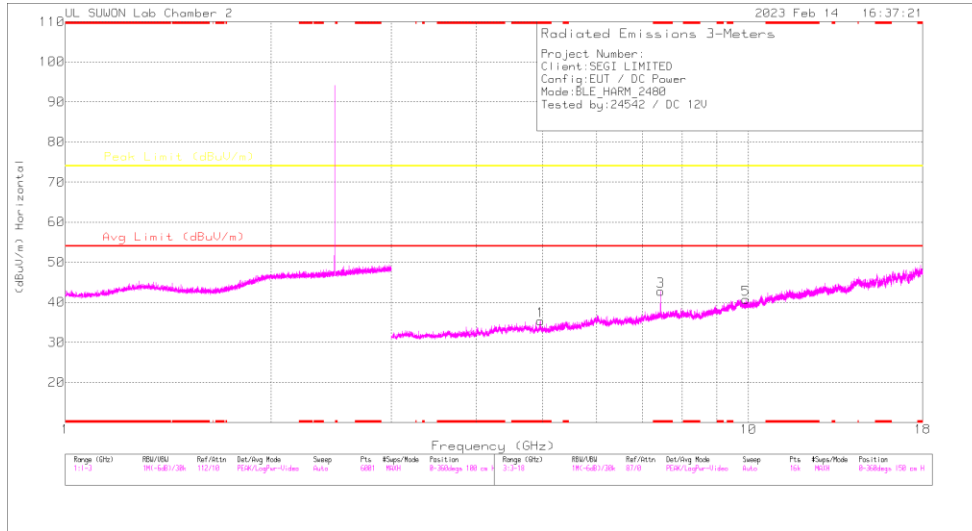
Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

Radiated Emissions

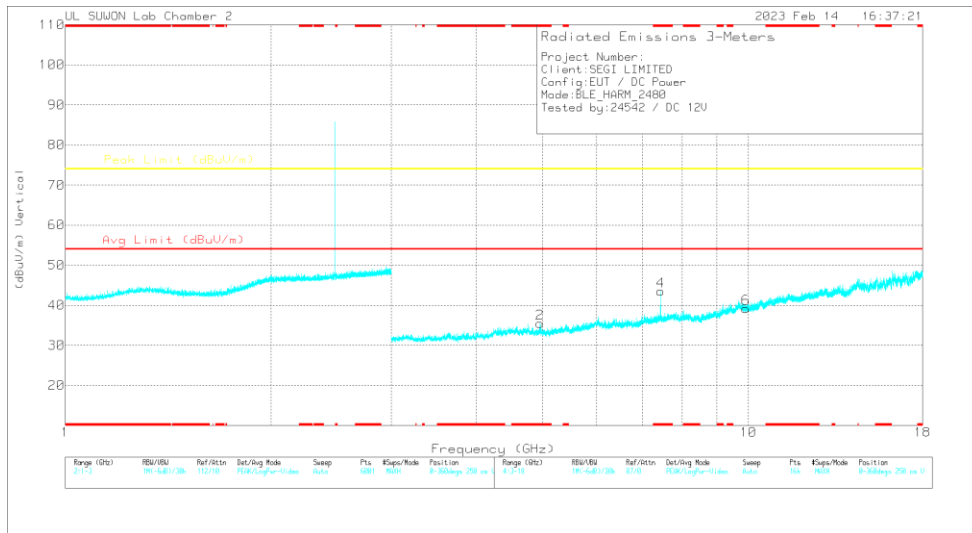
Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016872 4	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.87952	37.17	PK2	34	-27.7	0	43.47	-	-	74	-30.53	219	100	H
* 4.87987	26.53	MAV1	34	-27.7	2.01	34.87	54	-19.13	-	-	219	100	H
* 4.88011	38.34	PK2	34	-27.7	0	44.64	-	-	74	-29.36	186	101	V
* 4.87988	27	MAV1	34	-27.7	2.01	35.34	54	-18.66	-	-	186	101	V
* 7.32002	38.61	PK2	35.7	-24.6	0	49.71	-	-	74	-24.29	0	349	H
* 7.31942	28.86	MAV1	35.7	-24.6	2.01	42	54	-12	-	-	0	349	H
* 7.31918	40.11	PK2	35.7	-24.6	0	51.21	-	-	74	-22.79	86	103	V
* 7.31941	30.37	MAV1	35.7	-24.6	2.01	43.51	54	-10.49	-	-	86	103	V
9.78061	33.4	PK2	37.1	-21	0	49.5	-	-	74	-24.5	0	100	H
9.75938	32.24	PK2	37.1	-20.9	0	48.44	-	-	74	-25.56	0	100	V

* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

39 CHANNEL RESULTS



HORIZONTAL



VERTICAL

Note: Emission was scanned up to 26GHz; No emissions were detected above the noise floor which was at least 20dB below the specification limit.

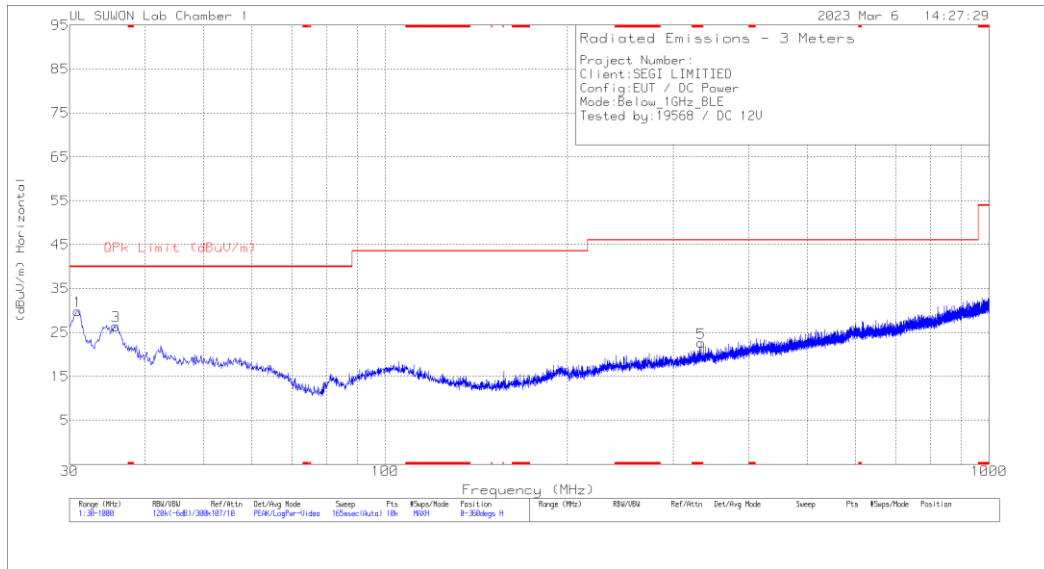
Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	3117_0016872 4	3GHz_HP[dB]	DC Corr (dB)	Corrected Reading (dBuV/m)	Avg Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
* 4.95486	37.29	PK2	34	-27	0	44.29	-	-	74	-29.71	274	213	H
* 4.9601	26.05	MAV1	34	-27	2.01	35.09	54	-18.91	-	-	274	213	H
* 4.95939	36.75	PK2	34	-27	0	43.75	-	-	74	-30.25	20	100	V
* 4.95992	26	MAV1	34	-27	2.01	35.04	54	-18.96	-	-	20	100	V
* 7.43968	37.33	PK2	35.7	-23.7	0	49.33	-	-	74	-24.67	230	132	H
* 7.43926	27.47	MAV1	35.7	-23.7	2.01	41.51	54	-12.49	-	-	230	132	H
* 7.44082	39.03	PK2	35.7	-23.7	0	51.03	-	-	74	-22.97	93	100	V
* 7.43938	29.62	MAV1	35.7	-23.7	2.01	43.66	54	-10.34	-	-	93	100	V
9.91481	32.6	PK2	37.3	-21.1	0	48.8	-	-	74	-25.2	0	100	H
9.92351	32.56	PK2	37.3	-21	0	48.86	-	-	74	-25.14	0	100	V

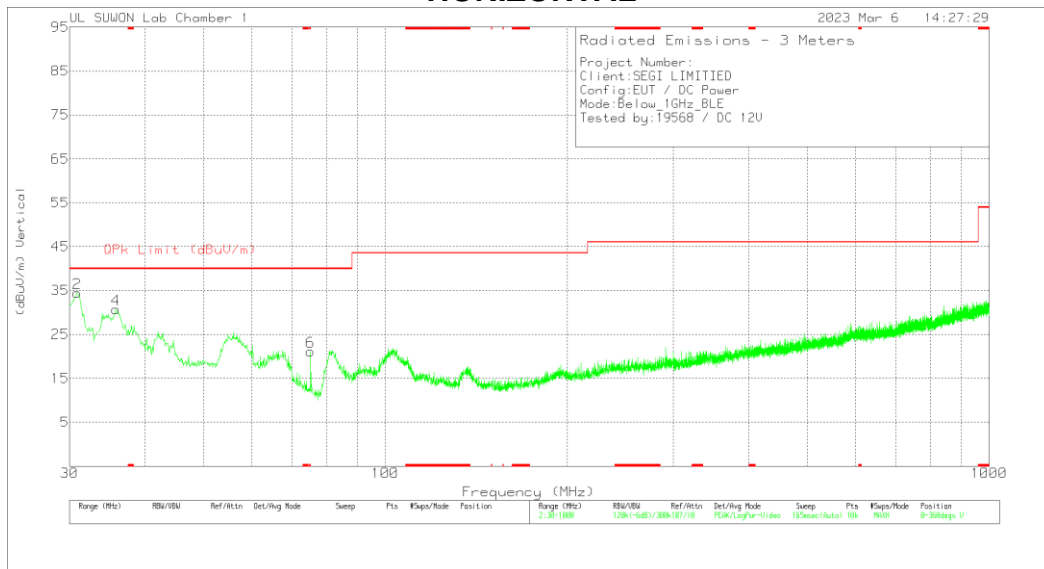
* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band
 PK2 - KDB558074 Method: Maximum Peak
 MAV1 - KDB558074 Option 1 Maximum RMS Average

10.3. WORST CASE BELOW 1 GHz

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



HORIZONTAL



VERTICAL

Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	VULB9163_750	Below_1G(dB)	Corrected Reading (dBuV/m)	QPk Limit (dBuV/m)	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	30.97	45.6	Pk	15.6	-31.3	29.9	40	-10.1	0-360	100	H
2	30.873	50.16	Pk	15.6	-31.3	34.46	40	-5.54	0-360	100	V
3	35.82	40.83	Pk	16.8	-31.2	26.43	40	-13.57	0-360	200	H
4	35.82	45.07	Pk	16.8	-31.2	30.67	40	-9.33	0-360	100	V
5	* 333.707	31.34	Pk	19.8	-28.5	22.64	46.02	-23.38	0-360	100	H
6	75.202	38.75	Pk	12.9	-30.5	21.15	40	-18.85	0-360	100	V

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

11. AC POWER LINE CONDUCTED EMISSIONS

LIMITS

FCC §15.207 (a)
IC RSS-Gen (7) & (8.8)

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.

TEST PROCEDURE

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

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

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

RESULTS

N/A

END OF TEST REPORT