



APPLIED TEST LAB INC.

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FCC15.209, 247d, 22H, 24E, 27.53, 202 TEST REPORT

Limits Applied: **FCC 15.209, 247d, 22H, 24E, 27.53,**

Report#: **B002E017-56**

Manufacturer:**Blackline Safety**

Model:**103989**

Serial Number:**3585000017**

EUT Received Date:**2021-05-18**

Test Start Date:**2021-05-17**

Test Completion Date:**2021-05-21**

Test Result: **PASS**

Report Issue Date:**2021-06-03**

Tested by	Approved by:
Jaeheon Yun, Test specialist <i>Jaeheon</i>	Adishesu Nyshadham, Quality Prime <i>Adishesu N</i>

Report Issued to	Report Issued by
Blackline Safety Unit 100, 803 24 Avenue SE Calgary, AB Canada, T2G 1P5	Applied Test Lab Inc. Unit 4174-3961 52 Ave NE Calgary, AB, T3J 0J8

Report Revision History		
Rev	Description of Change	Date
Draft01	Initial	06/02/2021
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This report contains 32 pages



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1.0 General

1.1 Purpose

The purpose of this report is to document conformance with FCC 15.209, 247d, 22H, 24E, 27.53, 202 and to detail the results of testing performed on the sample Model: **103989** manufactured by **Blackline Safety**. The test sample was received in good condition. Testing began **2021-05-17** on and was completed on **2021-05-21**.

1.2 Relevant Standards and References

One or more of the following standards were used to evaluate the EUT:

1. **ANSI C63.4-2014:** American National Standard for Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9 kHz to 40 GHz
2. **CFR Title 47 FCC Part 15** - Radio Frequency Devices, Subpart C – Intentional Radiators.
 - 15.202 Certified operating frequency range
 - 15.209 Radiated emission limits; general requirements
 - 15.247 Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz
3. **CFR Title 47 FCC Part 22** – Public Mobile services
4. **CFR Title 47 FCC Part 24** – Personal Communications services
5. **CFR Title 47 FCC Part 25** – Satellite Communications
6. **CFR Title 47 FCC Part 27** – Miscellaneous wireless Communications services
7. **RSS-132**-Cellular Telephone Systems Operation in the Bands 824-849MHz and 869-894MHz
8. **RSS-133** – 2GHz Personal Communications Services
9. **RSS139** – Advanced Wireless Services(AWS) Equipment Operating in the Bands 1710 – 1780MHz and 2110 - 2180MHz
10. **RSS130** – Equipment Operation in the frequency Bands 617-652MHz, 663-668MHz,609 – 756MHz and 777-778MHz
11. **RSS170** – Mobile Earth Stations(MESs) and Ancillary Terrestrial Component (ATC) Equipment Operating in the Mobile-satellite Service(mss) Bands
12. **RSS-247 Issue 2 2017-02**– Digital Transmission System(DTSs), Frequency Hopping System(FHSs) and Licence - Exempt Local Area Network(LE-LAN) Devices
13. **ANSI C63.10-2013**, “American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices”
14. **FCC KDB 558074 D01 DTS Meas Guidance v05**, “GUIDANCE FOR PERFORMING COMPLIANCE MEASUREMENTS ON DIGITAL TRANSMISSION SYSTEMS (DTS) OPERATING UNDER SECTION 15.247”

1.3 Performance Requirement

The EUT is marketed as **FCC 15.209, 247d, 22H, 24E, 27.53, 202** equipment and must comply with the **FCC 15.209, 247d, 22H, 24E, 27.53, 202** emission limits and requirements.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which



may result in increase emission levels should be checked and verified to ensure continuous compliance has been maintained (i.e., printed circuit board layout changes, changes to filter performance, power supply changes, I/O cable and interface changes, critical component changes etc.)



1.4 Measurement Uncertainty

Test Case	Uncertainty
Radiated Spurious Emissions	± 3.44 dB
Temperature	±2 °C
Humidity	±5%

The measurement uncertainties are evaluated for tests performed on the EUT as specified in CISPR 16-4-2.

The measurement uncertainties reported above relates to the measurement setups and procedures. It does not take into account EUT performance variations from sample to sample.

1.5 Test Results Summary

Test Type	Basic Standard	Result
Radiated Spurious Emissions	FCC Subpart C 15.209, 247d, 22H, 24E, 27.53, 202	PASS

1.6 Test Facility Information

Name	Applied Test Lab Inc.		
Address	Unit 4174-3961 52 nd Avenue NE, Calgary, Alberta, T3J 0J8, Canada		
Telephone	403 590 8701	Fax	403 590 8570
Email	emctest@appliedtestlab.com	Website	www.appliedtestlab.com
FCC Registration	950875	IC Recognition	10988A

1.7 Client Information

Name	Blackline Safety		
Address	Unit 100, 803 24 Avenue SE Calgary, AB T2G 1P5		
Telephone	403-451-0327	Website	www.blacklinesafety.com
Contact Name		Contact Email	



2.0 Test Sample Information

The **103989** was only operated and exercised in the mode(s) and configuration(s) described in this report. All inputs and outputs to and from support equipment associated with the **103989** were provided or simulated under the direction and responsibility of **Blackline Safety**. A description of these signals and their provision is included in Appendix A.

2.1 Equipment Under Test (EUT)

Product Description	Wireless Network Bridge
Manufacturer	Blackline Safety Corp.
Trade Name	G7 Bridge
Model Number	103989
Serial Number	3585000017
Model discrepancy/ Variations	None
FCC ID	Cellular: XPY1EIQ24NN, Iridium: Q639603N, ISM: KQNMLINK900 or 2AZEH-AMU900
IC ID	Cellular: XPY1EIQ24NN, Iridium: Q639603N, ISM: 2361A-MLINK900 or 27118-AMU900
Power Supply and Requirements	3.0-4.2V, nominal 3.7VDC
Firmware Version	N/A
Software Version	N/A
Antenna Type and Gain	No information
Operation Frequency Range	Cellular: 699MHz, 824MHz ISM band: 915MHz, Iridium: 1616MHz 1700MHz
Modulation type(s)	No information
Number of TX Chains	3
Product Manufacturing Status	<input type="checkbox"/> Production Unit <input checked="" type="checkbox"/> Pre-Production Unit



2.2 Support Equipment and Details

Applicable

Manufacturer	Description	Model No.	Serial Number	Other Info

2.3 I/O Ports and Details

Applicable

Port Type	Description	Filter Info	Shielding Info	Other Info
Power port	Power	N/A	Unshielded	

2.4 I/O Cable Descriptions

Applicable

Cable Description	Length (m)	Port From	Port To	Cable Type	Remarks
Power cable	1	EUT	Power outlet	Power	



3.0 Test Facilities

Laboratory Location

The radiated and conducted emission test sites are located at the following address:

Applied Test Lab,
Unit 4174, 3961-52 Ave N.E., Calgary, AB T3J 0J8

Laboratory Accreditation/Recognitions/Certifications

The Semi-Anechoic Chamber Test Site and Conducted Emission Site have been fully described, submitted to, and accepted by the FCC and Industry Canada for testing Interference by information technology equipment. In addition, ATL has implemented an interim in-house quality system which is based on the ISO 17025 standard and is actively pursuing to achieve its accreditation. The following certification numbers have been issued in recognition of the certifications:

FCC Registration Number: 950875
Industry Canada Lab Code: IC 10988A

Country	Agency	Accreditation/Certification	LOGO
USA	FCC	3 (m) Semi-Anechoic Chamber to perform FCC Part 15/18 measurements	
Canada	Industry Canada	3 (m) Semi-Anechoic Chamber to perform ICES-004 and RSS measurements	

Note: Unless otherwise specified, ATL performs the tests using standard test methods to evaluate the EUT for compliance to the defined International standards. However, the report is not to be used to claim compliance, certification or endorsement by FCC or Industry Canada or any other government agency unless specifically submitted to such agency for such purpose.



3.1 Semi-Anechoic Chamber Test Site Description

The Semi-Anechoic Chamber Test Site consists of a 6.24 x 9.144 x 5.79 (m) shielded enclosure. The chamber is lined with SAMWAH Ferrite Grid Absorber, model number SN-20. The ferrite tile grid is 100 x 100x 6.7 (mm) thick and weighs approximately 200 (grams). These tiles are mounted on steel panels and installed directly on the inner walls of the chamber. Inner side Wall is lined by 600H Foam Absorber with White Cap. Chamber is illuminated by set of 12 LED Bulbs.

The turntable is 198 (cm) in diameter and is located 160 (cm) from the back wall of the chamber. The chamber is grounded via Utility Ground installed at the side of the back East wall, it is bound to the Chamber ground Stud using 1/2" copper braided cable.

The turntable is all aluminum, flush mounted table installed in an all steel frame. The table is remotely operated from the control area located outside the Semi Anechoic Chamber. The turntable is electrically bonded to the surrounding ground plane via steel fingers installed on the edge of the turn table. The steel fingers make constant contact with the ground plane during operation.

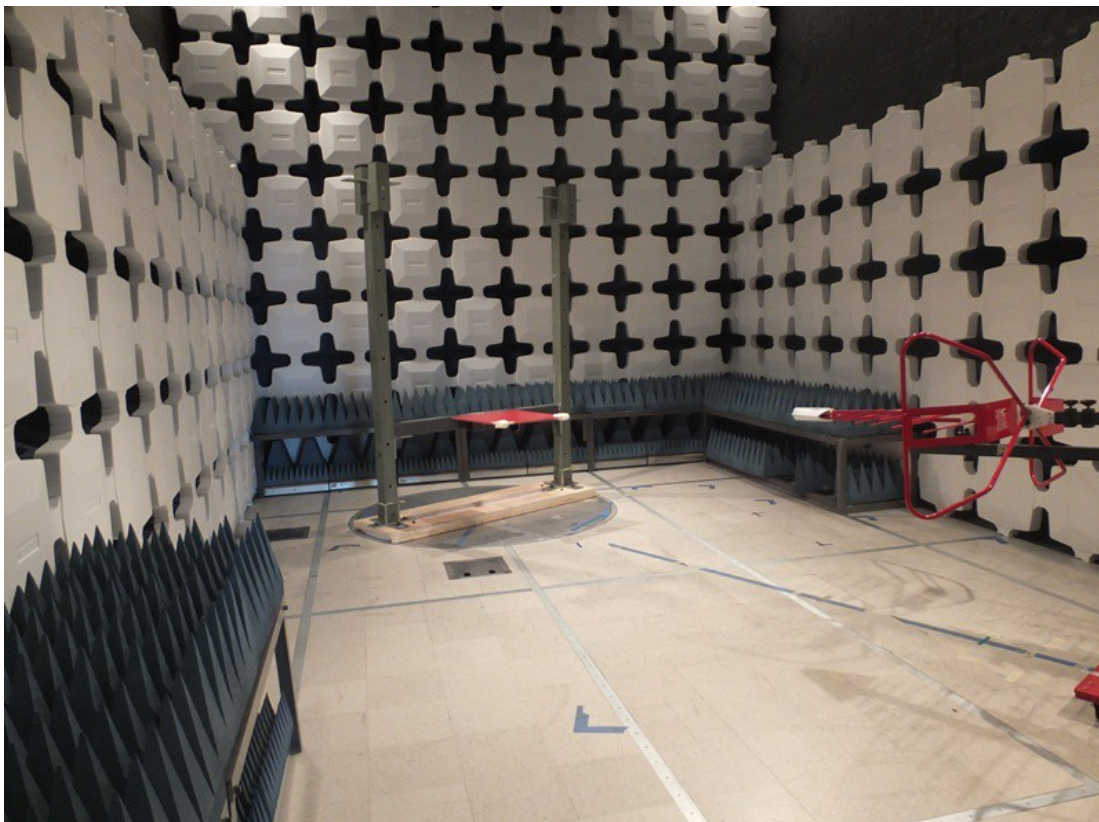


Figure 3.1 - Test Facility (Setup for 30MHz - 1000MHz)



Figure 3.2 - Test Facility (Setup for 1GHz – 18GHz)



3.2 A diagram of the Semi-Anechoic Chamber Test Site

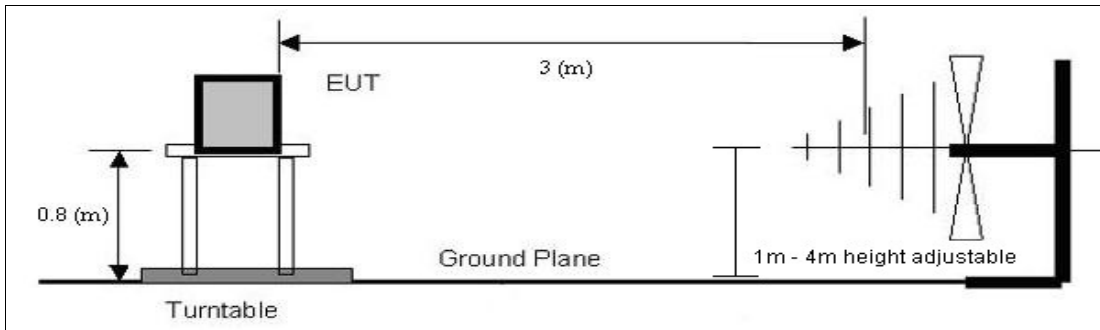


Figure 3.3 - Semi- Anechoic chamber diagram(30MHz - 1000MHz)

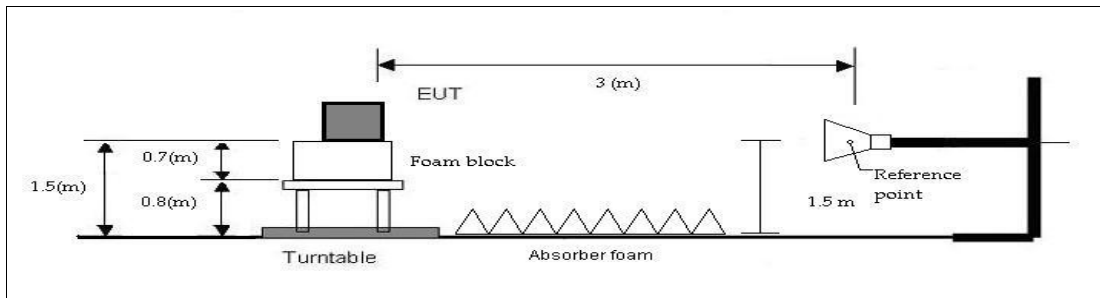


Figure 3.4 - Semi- Anechoic chamber diagram(1GHz - 18GHz)



3.3 Test Equipment List

Table 3.1 - Test Equipment used for Radiated Emission

Description	Manufacturer	Model Number	Serial Number	Next Cal
Bi-Log antenna	ETS Lindgren	3142E	144761	Aug 31, 2021
Double Ridged Horn	ETS Lindgren	3117	143094	October 1, 2021
Spectrum Analyzer	Hewlett Packard	Hp8593EM	3639A00172	April 24, 2023
EMI Receiver & RF filter section	Hewlett Packard	8546A, 85460A	3448A00267, 3448A00245	June 26, 2021
MXA Signal Analyzer	Keysight	N9020B-526	SG56080714	August 23, 2023
Cable	Micro Coax UTIFLEX	UFB293C	303	PV
Cable	Micro Coax UTIFLEX	UFB311A	SFC220863	PV
Cable	Micro Coax UTIFLEX	UFA210B-0-0120-50250	96G1557	PV
Turntable	ETS Lindgren	2187	NA	NCR
Antenna Bore-sight Mast	ETS Lindgren	2071B	136243	NCR
Multi Device Controller	ETS Lindgren	ETS 2090	148017	NCR
3 Meter chamber	ETS Lindgren	FACT 3-2.0	N/A	July 18, 2022
LNA	MITEQ	AMF-7D-01001800-22-10P	1782797	PV
High Pass Filter	Hewlett Parkard	F11725	9512	PV
DC power supply	Instek	PC-3030	9503310	PV
Test SW	DVT Solutions Inc	REDvtAtIV3p29.exe - (20210414)		

NCR: No Calibration required.

PV: Periodic Verification



4.0 Test Setup Description

4.1 EUT System Block Diagram and Support Equipment

Applicable

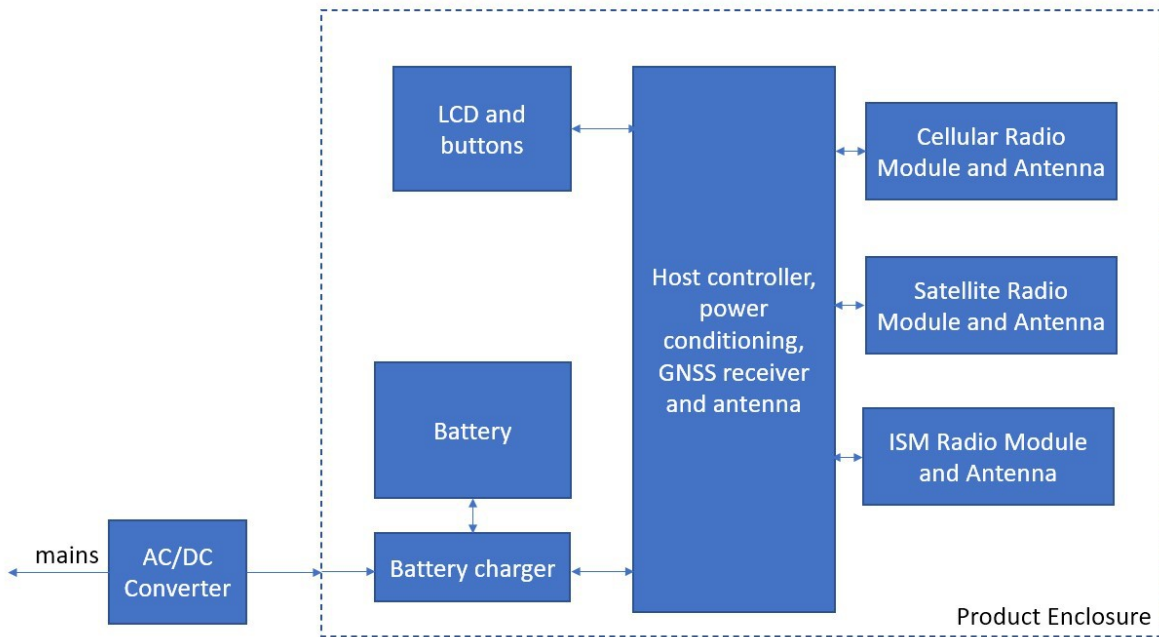


Figure 4.1 – System Block Diagram



4.2 Test Setup Photographs Radiated Emission(30MHz - 1000MHz)

Applicable



Figure 4.2 - Radiated Emission Test Setup - Front View



Figure 4.3 - Radiated Emission Test Setup - Side View



4.3 Test Setup Photographs Radiated Emission(Above 1000MHz)

Applicable

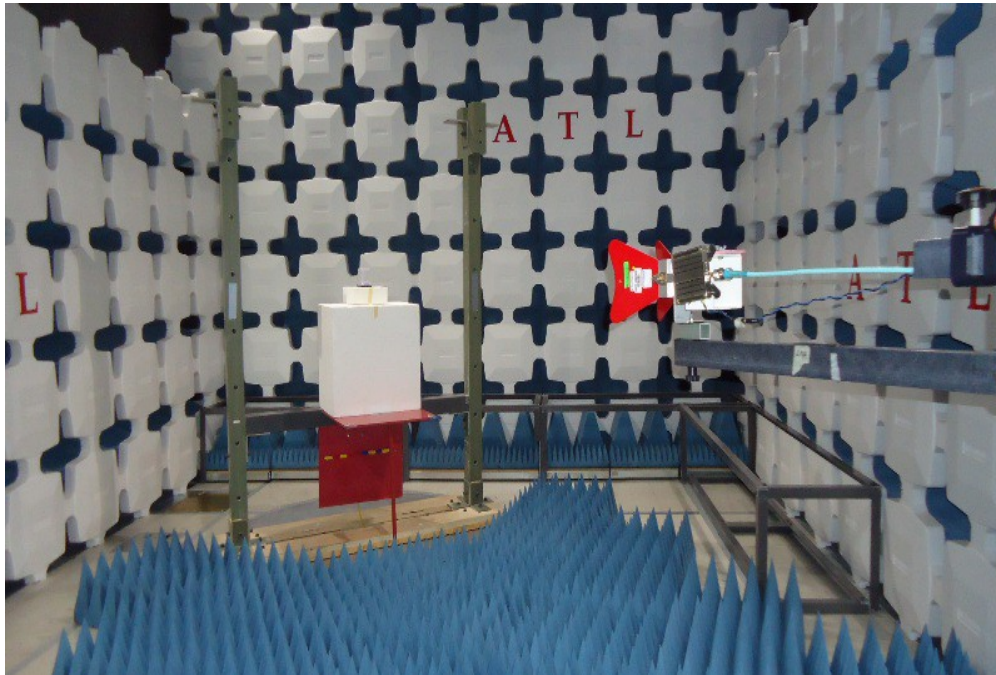


Figure 4.4 - Radiated Emission Test Setup - Front View

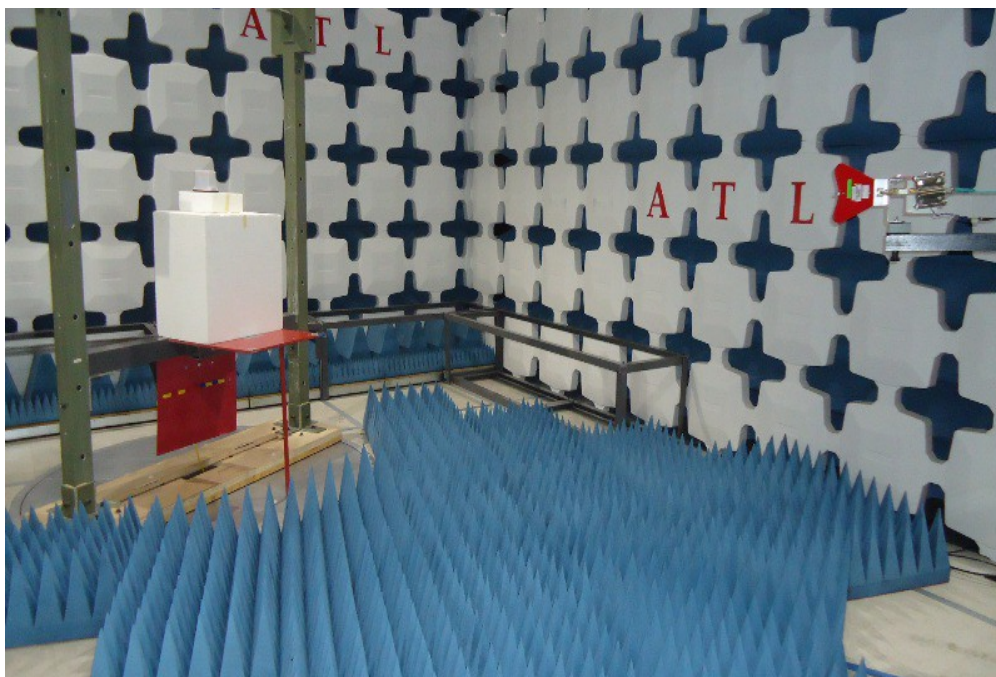


Figure 4.5 - Radiated Emission Test Setup - Side View



5.0 Test Methodology

5.1 Method of measurement of Radiated Spurious Emissions

Below 30MHz :

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the test antenna (loop antenna). The test antenna is positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop is adjusted to 1 m above the ground. Additional tests are performed by placing the the loop antenna plane positioned horizontally at the specified distance from the EUT.

Above 30MHz :

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the test antenna. The maximal emission value is acquired by adjusting the antenna height, polarization and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarization Vertical (V) and Horizontal (H).

As per FCC 15C, section 15.225

- a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15,848 $\mu\text{V/m}$ (84 dB $\mu\text{V/m}$) at 30 m.
- b) Within the bands 13.410–13.553 MHz and 13.567–13.710 MHz, the field strength of any emissions shall not exceed 334 $\mu\text{V/m}$ (50.5 dB $\mu\text{V/m}$) at 30 m.
- c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106 $\mu\text{V/m}$ (40.5 dB $\mu\text{V/m}$) at 30 m.
- d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in § 15.209. The limits are shown below in Table 5.2:

As per RSS-247-Issue 2, RSS-Gen Issue 5, FCC Subpart C 15.205, 15.209 & 15.247

According to FCC Part15.205, the level of any transmitter spurious emission in Restricted bands shown in the following table shall not exceed the level of the emission specified in the Table 5.2

According to FCC Part15.205, Restricted bands

Table 5.1: FCC 15. 205 – Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4



8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	>38.6
13.36-13.41			

Table 5.2: FCC 15. 209 – Radiated Emission limits.

Frequency (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	67 – 20 x Log 10(F)	300
0.490 – 1.705	24000/F(kHz)	87 – 20 x Log 10(F)	30
1.705 – 30	30	29.5	30
30 – 88	100	40	3
88 – 216	150	43.5	3
216 – 960	200	46.0	3
Above 960	500	54.0	3

FCC Part 15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Testing Setup/Configuration

Unless otherwise indicated, the following configuration steps are used for the equipment setup: The cable(s) were routed consistent with the typical application and installation instructions provided with the test sample. Interface cables were connected to the available ports of the test unit. The effect of varying the position of the cable(s) was investigated to find the configuration that produced maximum emissions. Cable(s) were of the type and length as specified in the individual requirements. The length(s) of cable(s) that produced maximum emissions was selected.

The equipment under test (EUT) was set up in a manner that is represented its normal use, as shown in the setup photographs. Any special conditions required for the EUT to operate normally are identified in the comments that accompany the emissions tables.

The emissions data was measured with a spectrum analyzer or receiver using the applicable correction factors for distance, antenna, cable loss and amplifier gain, the data was reduced as shown below. The corrected data



was then compared to the applicable emission limits. Preliminary and final measurements were performed in order to ensure that all emissions from the EUT were detected and maximized.

Correction Factors and sample calculation

The highest emission reading from spectrum analyzer was converted using correction factors as shown (Analyzer/Receiver) in the formula. For radiated emissions in dBuV/m, the spectrum analyzer reading in dBuV was corrected by using the following formula. This corrected reading was then compared to the applicable specification limit and the results are presented in the margin column. The margin was calculated based on subtracting the specification limit value from the corrected measurement data; a positive margin represents a measurement exceeding the specification limit, while a negative margin represents a measurement less the the specification limit.

$$\text{Corrected Reading (dBuV/m)} = \text{Analyzer/Receiver Reading(dBuV)} + \text{Correction Factor(dB/m)}$$

$$\text{Correction Factor (dB/m)} = \text{Cable Loss(dB)} + \text{Antenna Factor(dB/m)} - ((\text{Preamplifier Gain})(\text{dB}))$$

$$\text{Margin (dB)} = \text{Corrected Reading(dBuV/m)} - \text{Applicable Limit(dBuV/m)}$$

Test Instrumentation and Analyzer settings

The test instrumentation and equipment listed were used to collect the emissions data. A spectrum analyzer or receiver was used for all measurements. Unless otherwise specified, the following table shows the measuring equipment bandwidth settings that were in designated frequency bands. For testing emissions, an appropriate reference level and a vertical scale size of 10dB per division were used.

Measuring equipment bandwidth setting per frequency range			
Test	Start	Stop	Band width setting
Conducted Emissions	150kHz	30MHz	9kHz
Radiated Emissions	9kHz	150kHz	200Hz
Radiated Emissions	150kHz	30MHz	9kHz
Radiated Emissions	30MHz	1000MHz	120kHz
Radiated Emissions	1000MHz	>1GHz	1MHz

Spectrum Analyzer / Receiver Detector Functions

The notes that accompany the measurements contained in the emissions tables indicate the type of the detector function used to obtain the given readings. Unless otherwise noted, all readings were made in the “positive peak” detector mode. Whenever a “quasi-peak” or “average” reading was recorded, the measurement was annotated with a “QP or an “AVG” on appropriate rows of the data sheets. In case where quasi-peak or average limits were employed and exits for multiple measurement types for the same frequency then the peak measurement was retained in the report for reference.



6.0 Test Results

6.1 Radiated Spurious Emissions

 Applicable**Table 6.1.1** – Radiated Spurious Emission Test Setup Information

CLIENT:	Blackline Safety	TEST STANDARD:	FCC 15.209, 247d, 22H, 24E, 27.53, 202
MODEL NUMBER:	103989	PRODUCT:	G7 Bridge
SERIAL NUMBER:	3585000017	CLASS:	
TEMPERATURE:	27°C	HUMIDITY:	24%
TESTED BY:	Jaehoon Yun	DATE OF TEST:	2021-05-18 - 2021-05-21
TEST REFERENCE:	FCC 15.209, 247d, 22H, 24E, 27.53, 202		
TEST VOLTAGE:	120VAC, range		
SETUP:	ANSI C63.4-2014		
FREQUENCY RANGE	30MHz -18GHz		
FREQUENCY TESTED:	Cellular: 699MHz, 824MHz ISM band: 915MHz, Iridium: 1616MHz		
FIRMWARE POWER SETTING	24dBm(cellular), 30dBm(ISM), 33dBm(Iridium)		
EUT FIRMWARE	N/A		
MODULATION/DATA RATE	N/A		
ANTENNA TYPE/GAIN	Internal		
DUTY CYCLE	N/A		
DECISION RULE	Decision rule support document: <input checked="" type="checkbox"/> Data obtained <input type="checkbox"/> Video <input type="checkbox"/> Email conversation <input type="checkbox"/> inherent in the requested specification standard <input type="checkbox"/> other		
RESULTS:	PASS		



Radiated Spurious Emissions Data

FCC ID: Q639603N(1616MHz),XPY1EIQ24NN(826.4MHz), 2AZEH-AMU900(915MHz)

Table 6.1.2a - Radiated Emission - Horizontal Polarization Quasi-peak

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
701.0018	233.4	114.1	13.95	30.32	44.27	105.23	-60.96
739.1993	336.9	103.9	6.46	29.98	36.44	105.23	-68.79
790.3115	197.6	100.4	15.21	30.51	45.72	105.23	-59.51
860.2175	312.8	100.3	10.57	31.06	41.63	105.23	-63.60
949.8818	335.3	100	1.98	33.46	35.44	105.23	-69.79

Table 6.1.2b - Radiated Emission - Vertical Polarization Quasi-peak

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
87.1043	269	100.1	23.43	13.35	36.78	105.23	-68.45
213.9528	254.5	249.3	1.05	17.48	18.53	105.23	-86.70
701.0275	316.7	151.9	11.47	30.33	41.8	105.23	-63.43
789.9255	237.3	125.4	19.47	30.52	49.99	105.23	-55.24
866.4015	240.6	113.1	12.08	31.12	43.2	105.23	-62.03

Table 6.1.2c - Radiated Emission - Horizontal Polarization AVG

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
4058	268	160.8	54.77	-20.57	34.20	53.98	-19.78
4136	15	294.6	60.72	-20.97	39.75	53.98	-14.23
3268	219.2	317.2	49.74	-22.5	27.24	105.23	-77.99
8080	253.5	104	46.44	-14.85	31.59	53.98	-22.39

Table 6.1.2d - Radiated Emission - Vertical Polarization AVG

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
4058	33.6	100	55.04	-20.57	34.47	105.23	-70.76
4136	33.6	121.1	57.57	-20.97	36.60	105.23	-68.63
3268	187.5	298.5	50.45	-22.5	27.95	105.23	-77.28

Note: The emissions with peak detector were measured and found to meet average limits. Only Average detector measurements were shown in the above tables.



Radiated Spurious Emissions Data

FCC ID: Q639603N(1616MHz), XPY1EIQ24NN(826.4MHz), KQNMLINK900(915MHz)

Table 6.1.3a - Radiated Emission - Horizontal Polarization Quasi-peak

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
701.018	237.1	110.3	22.65	30.58	53.23	105.23	-52.00
735.8795	63.7	116.6	11.53	30.09	41.62	105.23	-63.61
788.0905	198.8	106.4	11.66	30.54	42.2	105.23	-63.03
912.493	211	100.4	11.15	32.15	43.3	105.23	-61.93
860.9895	304.8	100	9.02	31.08	40.1	105.23	-65.13
755.0423	239.6	100.4	-0.55	30.22	29.67	105.23	-75.56

Table 6.1.3b - Radiated Emission - Vertical Polarization Quasi-peak

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
701.0425	314.9	146.5	24.27	30.33	54.6	105.23	-50.63
736.646	341.5	167.1	11.03	30.07	41.1	105.23	-64.13
790.8473	239.3	123.1	17.03	30.5	47.53	105.23	-57.70
861.8635	238.7	114.4	11.62	31.11	42.73	105.23	-62.50
950.3363	235.5	100	7.41	33.44	40.85	105.23	-64.38

Table 6.1.3c - Radiated Emission - Horizontal Polarization AVG

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
4057.6	253.3	116.8	51.96	-20.56	31.40	53.98	-22.58
4147	292.6	178.7	52.09	-21.11	30.98	53.98	-23.00
8080	253	104.2	44.9	-14.85	30.05	53.98	-23.93
4216	295.3	175.3	61.7	-20.83	40.87	53.98	-13.11
12810	22.6	142.7	48.45	-11.86	36.59	52.23	-15.64

Table 6.1.3d - Radiated Emission - Vertical Polarization AVG

Frequency (MHz)	Azimuth Angle (deg)	Antenna Height (cm)	Measured Reading (dBuV)	Correction Factor (dB)	Corrected Reading (dBuV/m)	FCC Limit (dBuV/m)	Margin (dB)
4058	180.9	231.2	54.53	-20.56	33.97	52.23	-18.26
4216.5	160.9	331.6	61.15	-20.83	40.32	52.23	-11.91
4147	220.3	100	50.85	-21.11	29.74	52.23	-22.49
3356	205.9	224.8	47.76	-22.65	25.11	52.23	-27.12
14640	303.9	291.8	49.11	-8.93	40.18	52.23	-12.05

Note: The emissions with peak detector were measured and found to meet average limits. Only Average detector measurements were shown in the above tables.

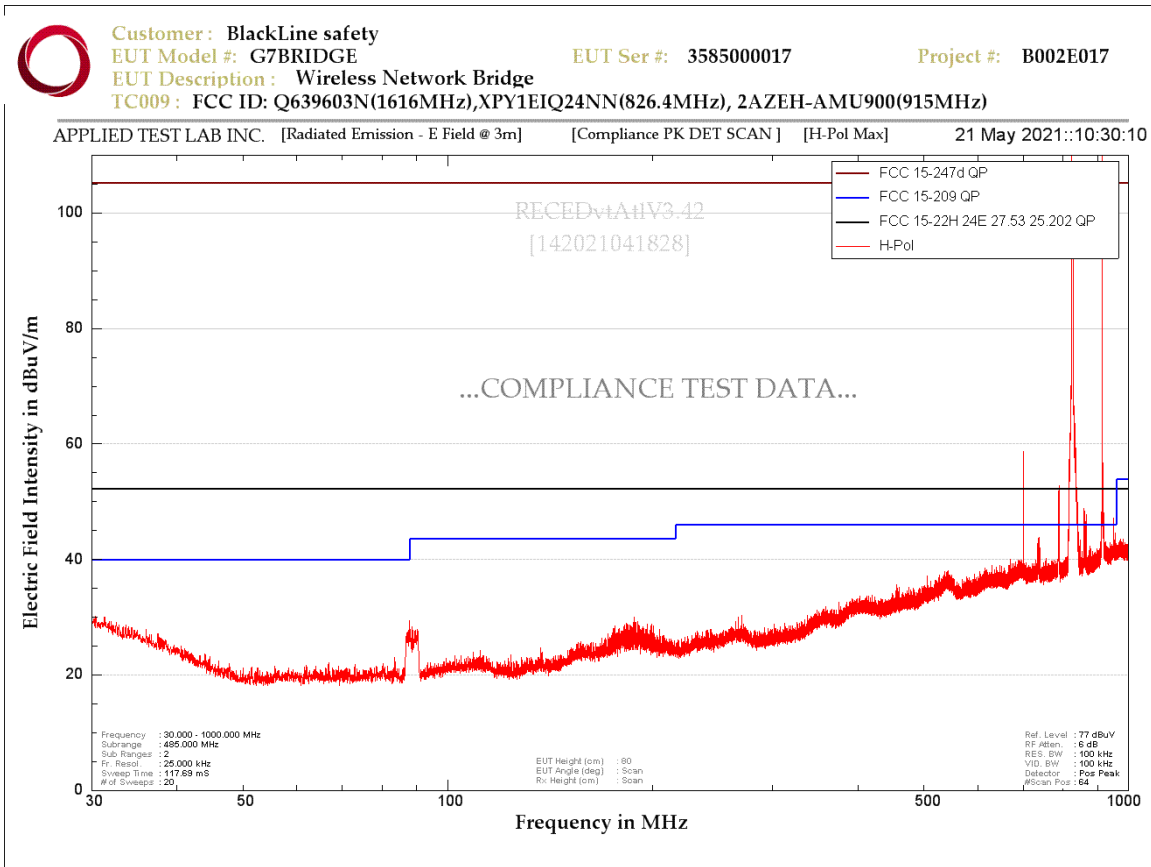


Figure 6.1.1a - Radiated Spurious Emission data-H-Pol-(30MHz - 1000MHz)

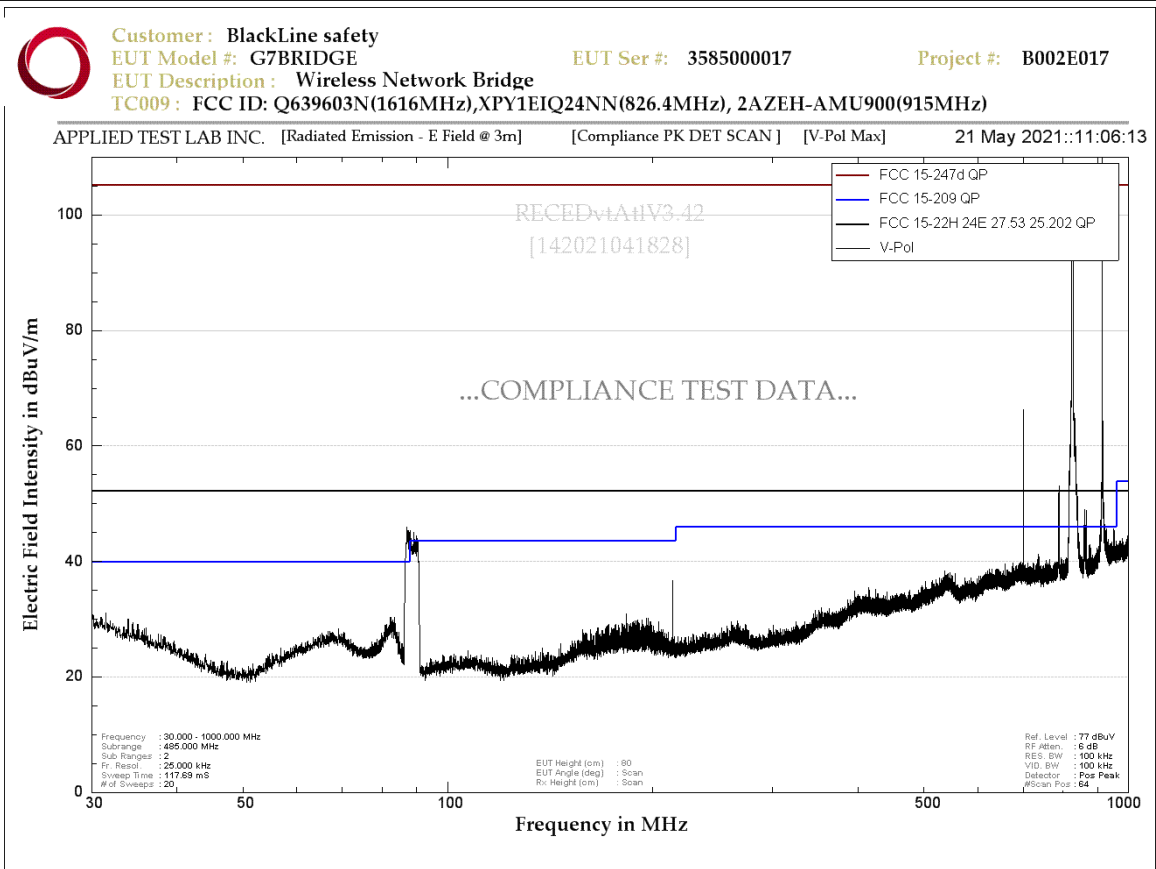


Figure 6.1.1b - Radiated Spurious Emission data – V-pol-(30MHz - 1000MHz)

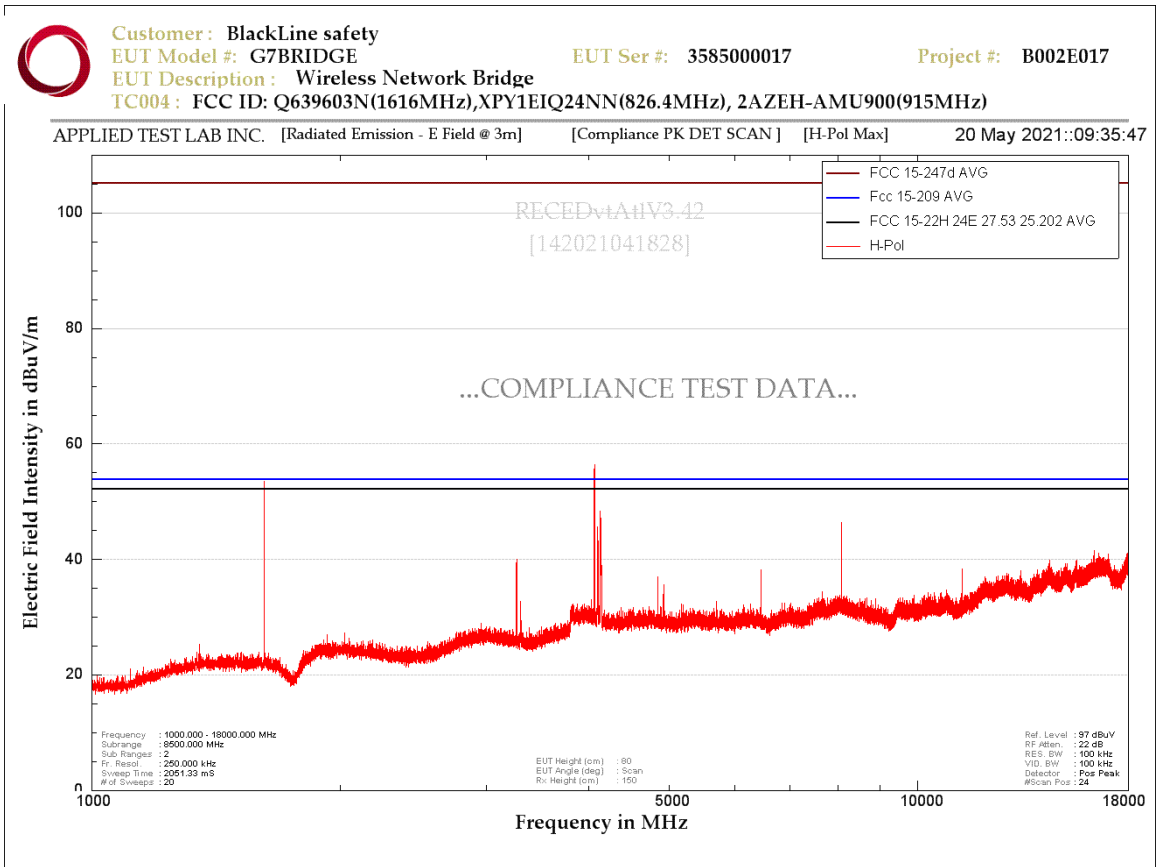


Figure 6.1.1c - Radiated Spurious Emission data -H-Pol-(1GHz – 18GHz)

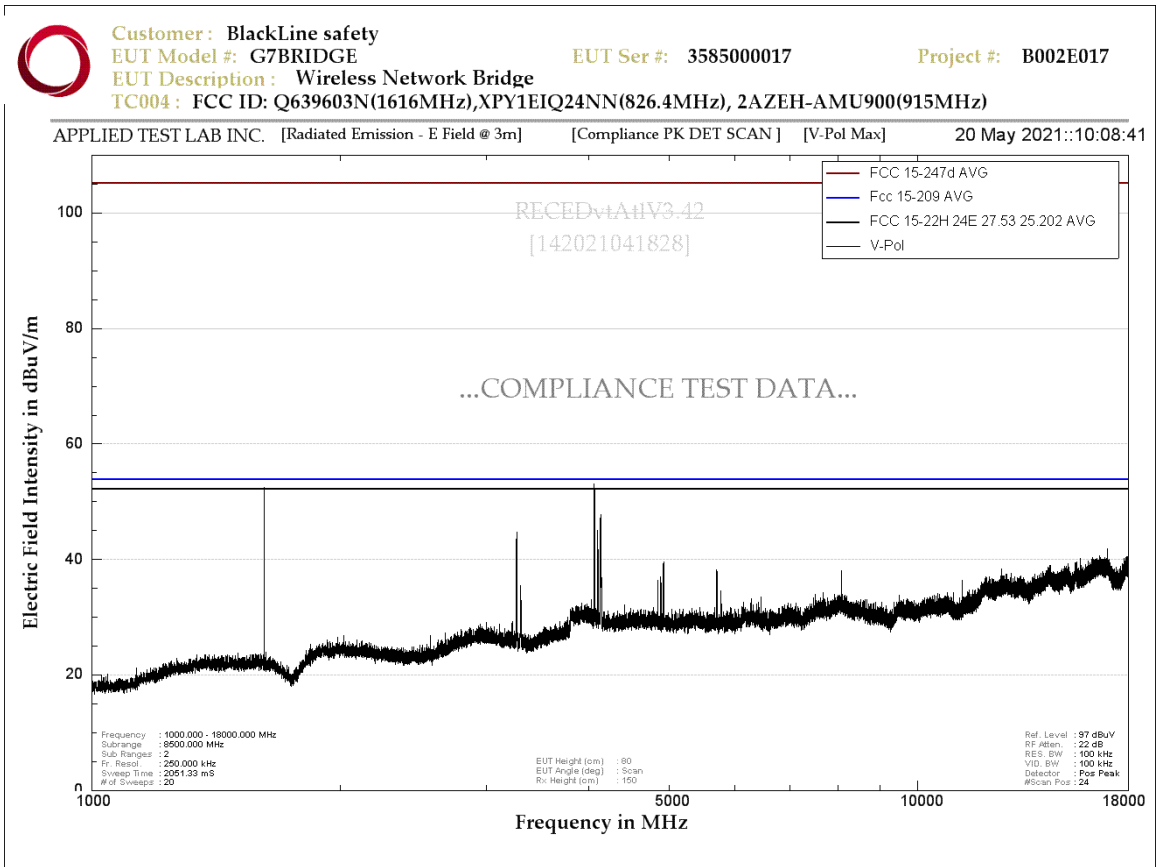


Figure 6. 1.1d - Radiated Spurious Emission data – V-pol-(1GHz - 18GHz)

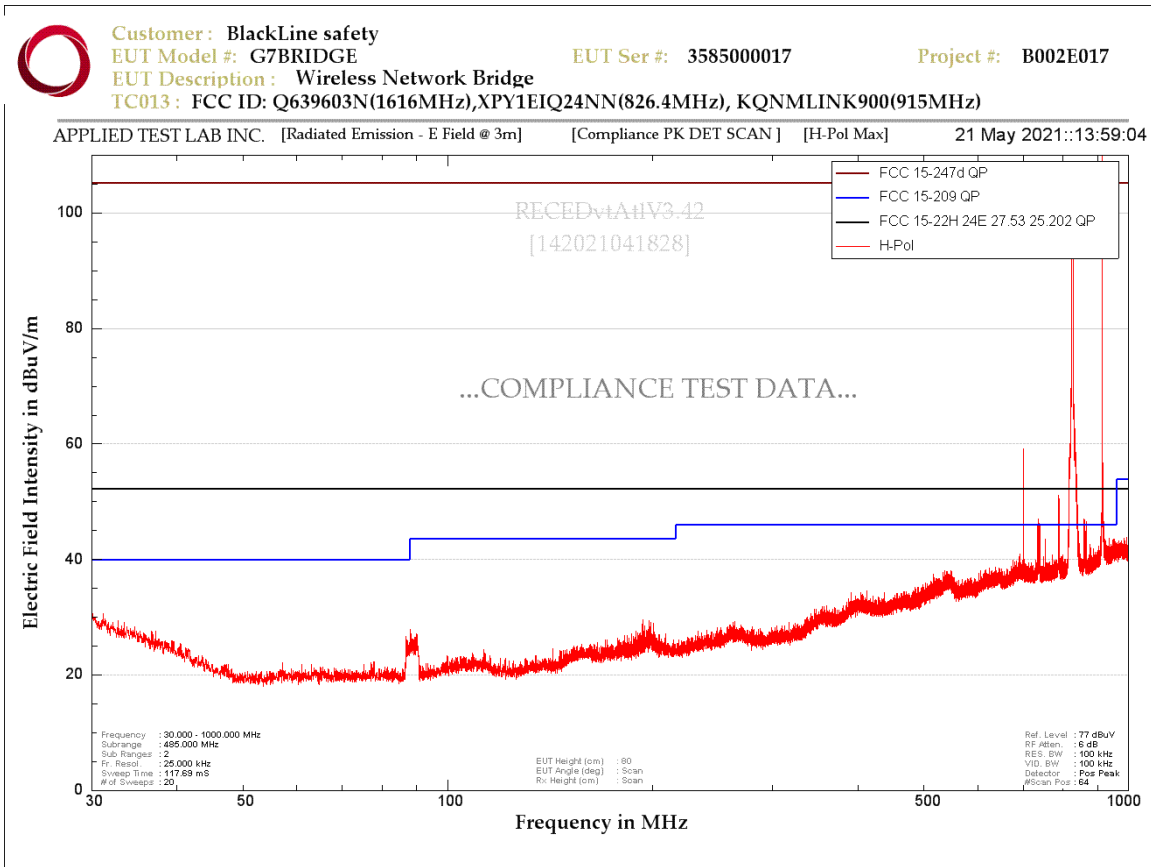


Figure 6.1.2a - Radiated Spurious Emission data-H-Pol-(30MHz - 1000MHz)

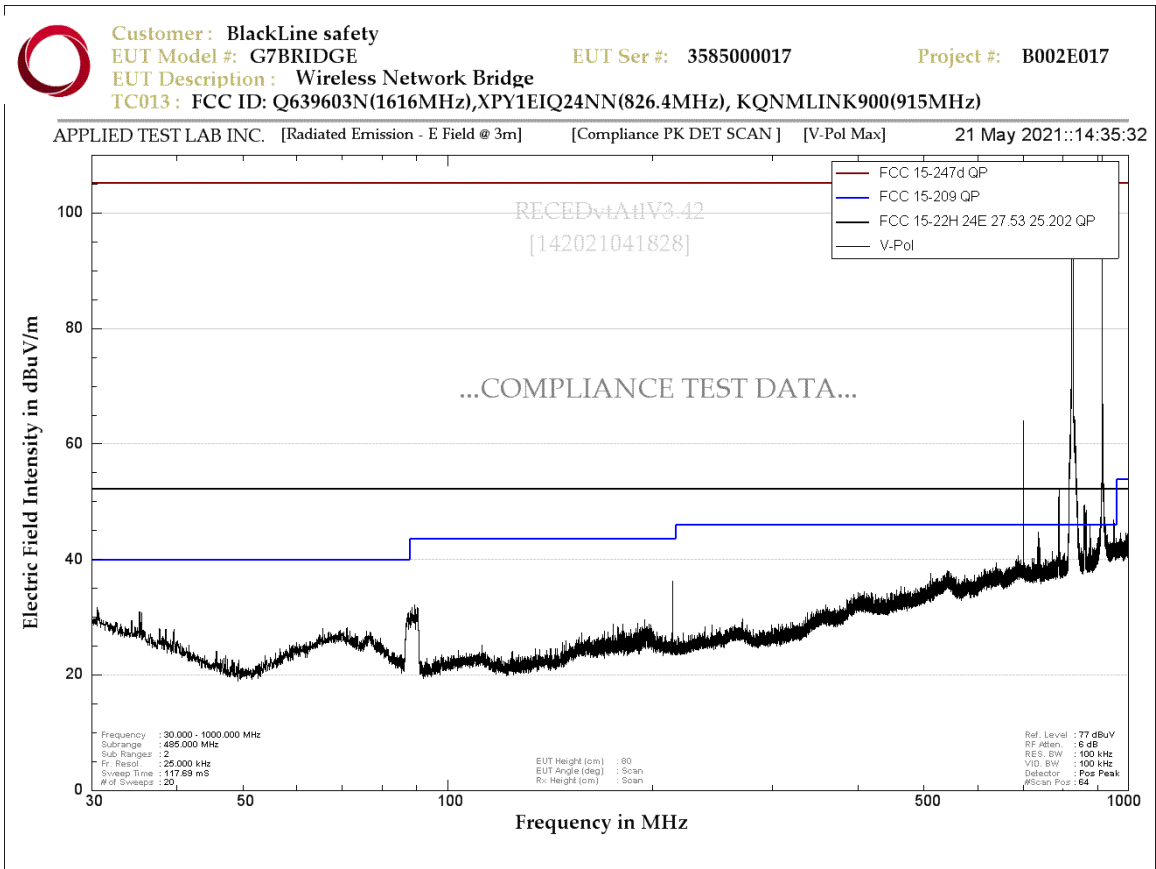


Figure 6.1.2b - Radiated Spurious Emission data – V-pol-(30MHz - 1000MHz)

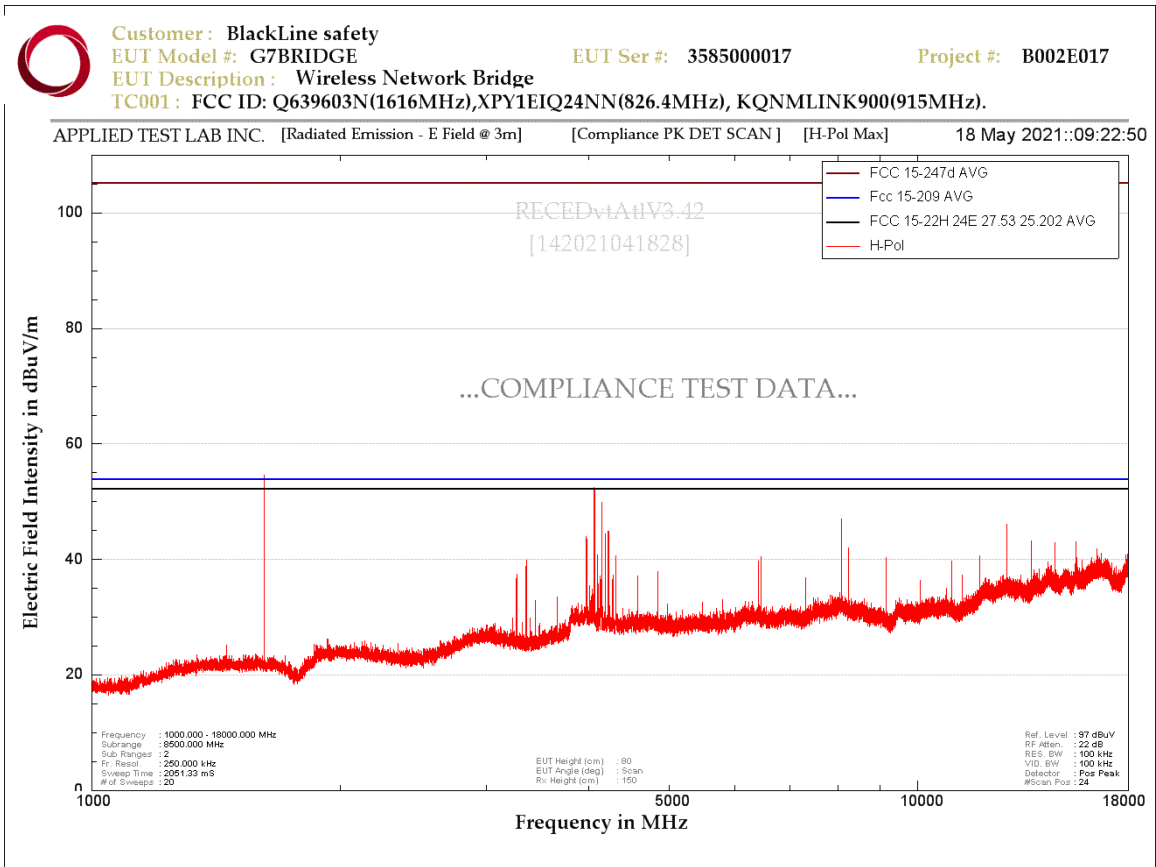


Figure 6.1.2c - Radiated Spurious Emission data -H-Pol-(1GHz – 18GHz)

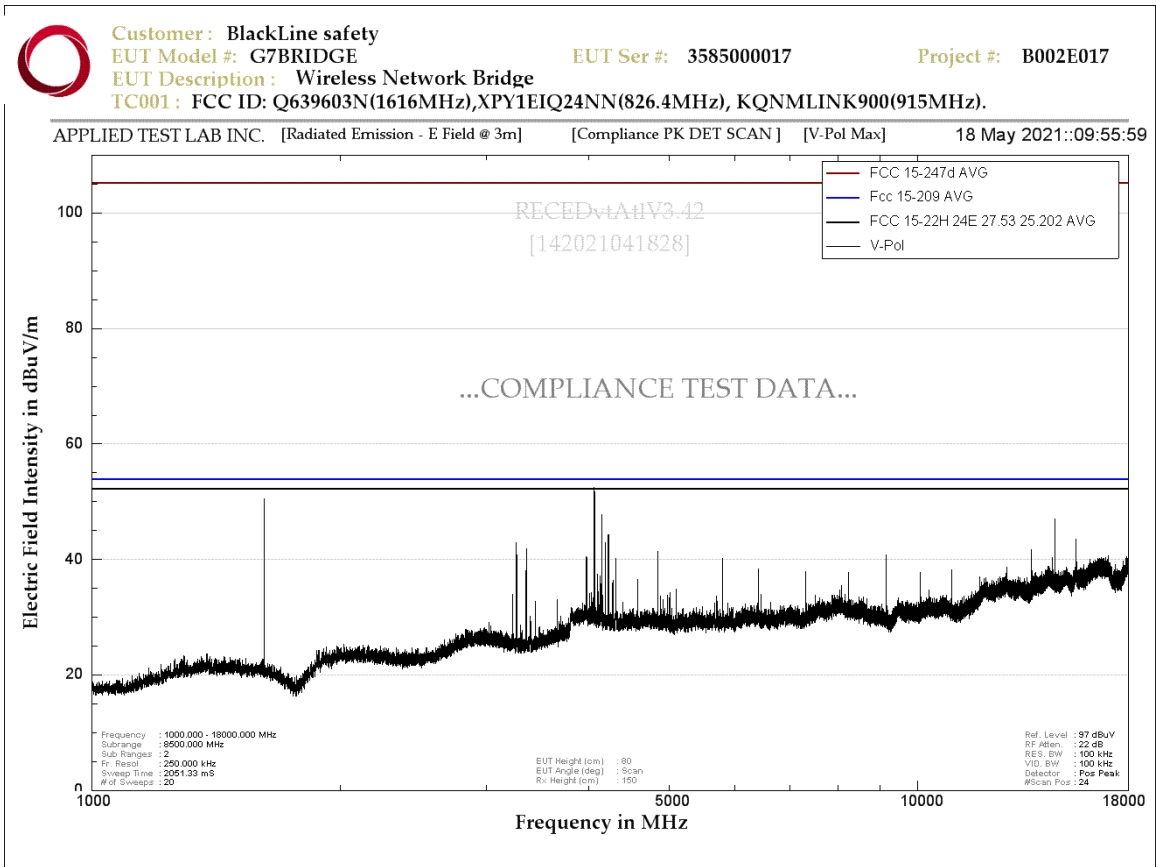


Figure 6. 1.2d - Radiated Spurious Emission data – V-pol-(1GHz - 18GHz)



7.0 Appendix A – Test Sample Description

(From Data Provided by the Customer)

Wireless network bridge



8.0 Appendix B – List of Abbreviations and Acronyms

Industrial, scientific and medical (ISM) applications (of radio frequency energy)

operation of equipment or appliances designed to generate and use locally radio frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications

ISM equipment and appliances

equipment or appliances designed to generate and/or use locally radio-frequency energy for industrial, scientific, medical, domestic or similar purposes, excluding applications in the field of telecommunications and information technology and other applications covered by other CISPR publications

Electromagnetic radiation

1. phenomenon by which energy in the form of electromagnetic waves emanates from a source into space
2. energy transferred through space in the form of electromagnetic waves

Boundary of the equipment under test

imaginary straight line periphery describing a simple geometric configuration encompassing the equipment under test. All interconnecting cables are included within this boundary

Electro-discharge machining (EDM) equipment

all the necessary units for the spark erosion process including the machine tool, the generator, control circuits, the working fluid container and integral devices

Spark erosion

removal of material in a dielectric working fluid by electro-discharges, which are separated in time and randomly distributed in space, between two electrically conductive electrodes (the tool electrode and the work piece electrode), and where the energy in the discharge is controlled

Arc welding equipment

equipment for applying current and voltage and having the required characteristics suitable for arc welding and allied processes

Equipment for resistance welding and allied processes

all equipment associated with carrying out the processes of resistance welding or allied processes consisting of e.g. power source, electrodes, tooling and associated control equipment, which may be a separate unit or part of a complex machine

Low voltage LV

a set of voltage levels used for the distribution of electricity and whose upper limit is generally accepted to be 1 000 V a.c.



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