

FCC

EMC

TEST REPORT

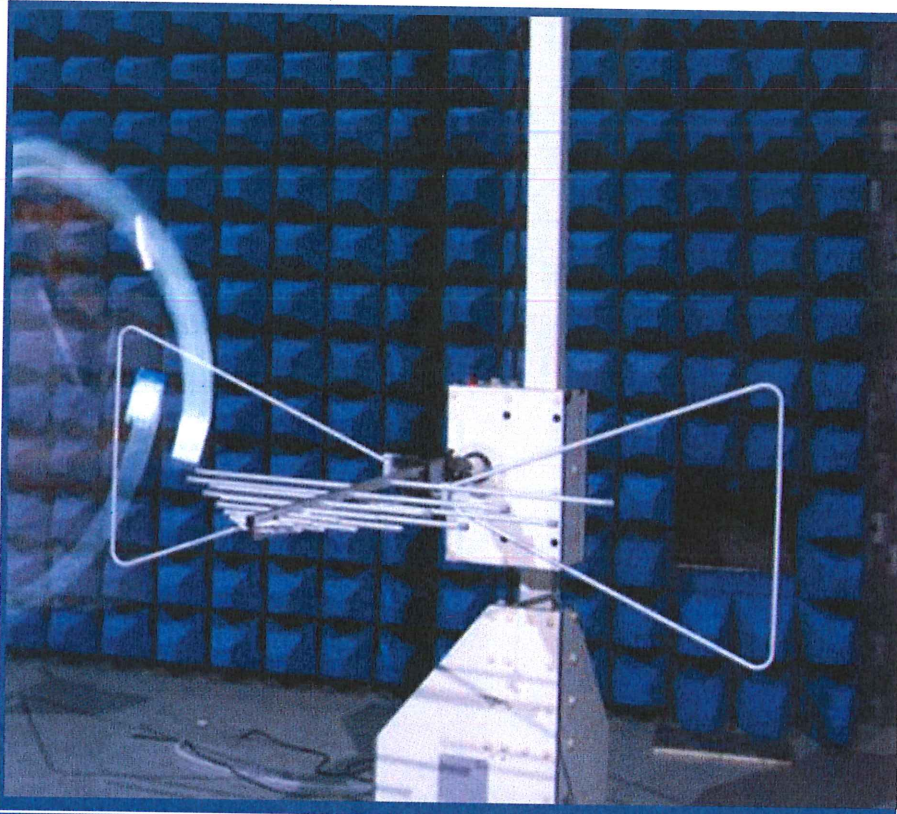
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
**CENTAURI 200 Enterprise/
Industrial IoT Gateway**

ISSUED TO
Volansys Technologies Pvt Ltd

Block A-7th Floor, Safal Profitaire, Corporate Road, Prahladnagar,
Ahmedabad-380015, Gujarat, India



Tested by: Xiong Chong
Xiong Chong

Date Nov. 24, 2020

Approved by: Liao Jianming
Liao Jianming
(Technical Director)

Date Nov. 24, 2020

Report No.: BL-SZ2090079-401

EUT Name: CENTAURI 200 Enterprise/
Industrial IoT Gateway

Model Name: CT200-LTE-10

Brand Name: Volansys

Test Standard: 47 CFR Part 15 Subpart B

FCC ID: 2AKNO-VOLCT200LTE

ISED Number: 22256-VOLCT200LTE

Test Conclusion: Pass

Test Date: Nov. 23, 2020 ~ Nov. 24, 2020

Date of Issue: Nov. 24, 2020

NOTE: This test report of test results only related to testing samples, which can be duplicated completely for the legal use with the approval of the applicant; it shall not be reproduced except in full, without the written approval of Shenzhen BALUN Technology Co., Ltd. Any objections should be raised within thirty days from the date of issue. To validate the report, please contact us.

Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Oct. 26, 2020</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Nov. 02, 2020</u>	<u>Update the Applicant Information;</u> <u>Add the FCC ID and ISED Number</u>
<u>Rev. 03</u>	<u>Nov. 18, 2020</u>	<u>Updated the Ancillary Equipment in</u> <u>section 2.5, Updated the test and</u> <u>Replace the data</u>
<u>Rev. 04</u>	<u>Nov. 24, 2020</u>	<u>Updated the test and Replace the data</u>

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co.,Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196. The laboratory is a testing organization accredited by American Association for Laboratory Accreditation(A2LA) according to ISO/IEC 17025.The accreditation certificate is 4344.01. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Laboratory Condition

Ambient Temperature	20°C to 25°C
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

- (1) The test report refer to the BALUN report mode v6.8.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Volansys Technologies Pvt Ltd
Address	Block A-7th Floor, Safal Profitaire, Corporate Road, Prahladnagar, Ahmedabad-380015, Gujarat, India

2.2 Manufacturer Information

Manufacturer	Volansys Technologies Pvt Ltd
Address	Ratana Business Hub, 207, 2nd Floor, Opp Bharat Petrol Pump, Sanathal Chokdi, Changodar Highway, Ahmedabad 382210, Gujarat.

2.3 Factory Information

Factory	Volansys Technologies Pvt Ltd
Address	Ratana Business Hub, 207, 2nd Floor, Opp Bharat Petrol Pump, Sanathal Chokdi, Changodar Highway, Ahmedabad 382210, Gujarat.

2.4 General Description for Equipment under Test (EUT)

EUT Name	CENTAURI 200 Enterprise/Industrial IoT Gateway
Model Name Under Test	CT200-LTE-10
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	3.0
Software Version	RC4
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	Adapter	
	Brand Name	Volansys
	Model No.	XS-0503000S/SK01T8
	Serial No.	N/A
	Rated Input	100-240 V~, 0.5 A, 50/60 Hz
	Rated Output	5 V= 3 A
Ancillary Equipment 2	Antenna	
	Model No.	N/A
	Length (Approx.)	0.14 m

2.6 Technical Information

Network and Wireless connectivity	3G Network WCDMA Band 2/4/5 4G Network FDD LTE Band2/4/5/12/13 Bluetooth, WIFI
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3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	FCC 47 CFR Part 15 Subpart B (10-1-19 Edition)	Unintentional Radiators
2	ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

3.2 Verdict

No.	Description	FCC Rule	Test Verdict	Result
1	Radiated Emission	15.109	Pass	Annex A .1
2	Conducted Emission, AC Ports	15.107	Pass	Annex A .2

3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Conducted emissions (9 kHz-30 MHz)	2.96 dB
Radiated emissions (30 MHz-1 GHz)	3.66 dB
Radiated emissions (1 GHz-18 GHz)	5.57 dB
Radiated emissions (18 GHz-40 GHz)	6.12 dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

Environment Parameter	Selected Values During Tests			
	Temperature	Voltage	Relative Humidity	Ambient Pressure
Normal Temperature, Normal Voltage (NTNV)	23°C to 25°C	AC 120 V/60 Hz or AC 240 V/50 Hz	50% to 55%	100 kPa to 102 kPa

4.2 Test Equipment List

Radiated Emission Test For Frequency Below 1 GHz (10 m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE&SCHWA RZ	ESRP	101036	2020.06.09	2021.06.08	☐
Test Antenna- Bi-Log	SCHWARZBECK	VULB 9168	9168-0883	2020.05.11	2022.05.10	☐
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60 *7.35m	N/A	2018.08.08	2021.08.07	☐
Test Software	BALUN	BL410_E	V19.918	--	--	☐

Radiated Emission Test For Frequency Below 1 GHz (3 m)						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2019.10.29	2020.10.28	☒
Test Antenna- Bi-Log	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2021.07.01	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.27	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

Radiated Emission Test For Frequency 1 GHz-18 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2019.10.29	2020.10.28	☒
Test Antenna- Horn	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2021.07.01	☒
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.17	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

Radiated Emission Test For Frequency Above 18 GHz						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	ROHDE & SCHWARZ	FSV40	101544	2020.02.19	2021.02.18	☐
Test Antenna-Horn	A-INFOMW	LB-180400K F	J211060273	2019.01.05	2021.01.04	☐
Anechoic Chamber	YIHENG	9m*6m*6m	N/A	2018.07.18	2021.07.17	☐
Test Software	BALUN	BL410_E	V19.918	--	--	☐

Conducted disturbance Test						
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due	Use
EMI Receiver	KEYSIGHT	N9010B	MY57110309	2020.06.09	2021.06.08	☒
LISN	SCHWARZBECK	NSLK 8127	8127-687	2020.06.09	2021.06.08	☒
Shielded Enclosure	YiHeng Electronic Co., Ltd	3.4m*3.1m*2.8m	N/A	2018.08.16	2021.08.15	☒
Test Software	BALUN	BL410_E	V19.918	--	--	☒

4.3 Test Enclosure list

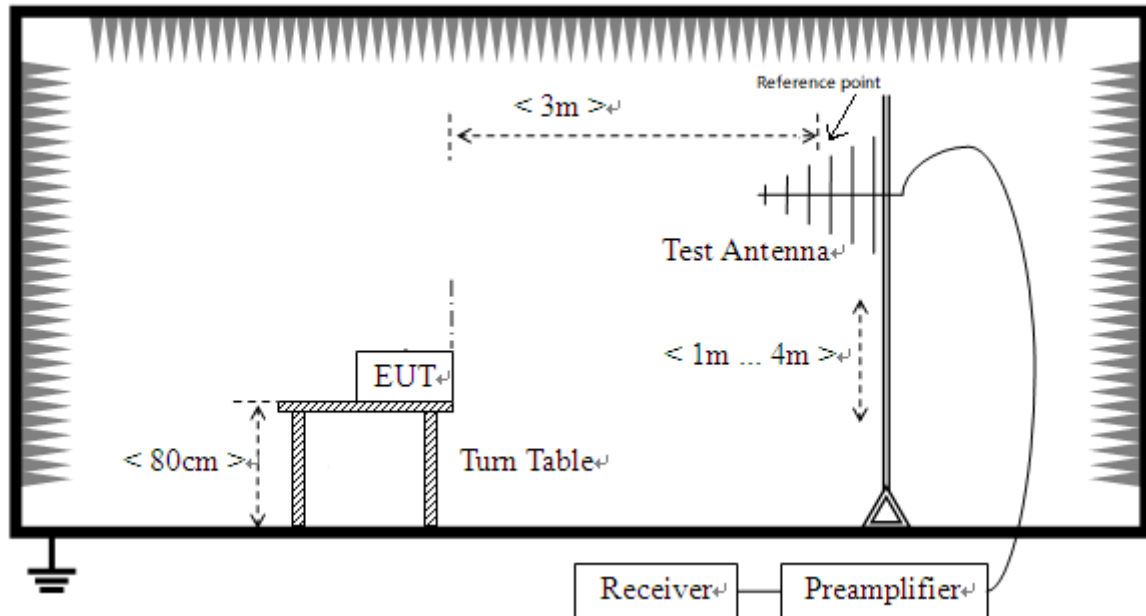
Description	Manufacturer	Model	Serial No.	Length	Description	Use
Laptop	Lenovo	N/A	N/A	N/A	N/A	☒
Printer	HP	DESKJET 1000	N/A	N/A	N/A	☒
Keyboard	Logitech	Y-BP62a	N/A	N/A	N/A	☒
Mouse	Logitech	M100	N/A	N/A	N/A	☒
USB disk	Kingston	N/A	N/A	N/A	N/A	☒
HDMI Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☒
USB Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☒
USB Connector	N/A	N/A	N/A	N/A	N/A	☒
Screen	AOC	N/A	N/A	N/A	N/A	☒
WIFI Router	TP-LINK	N/A	N/A	N/A	N/A	☒
POE Adapter	GELEITE	GRT-480050	N/A	N/A	N/A	☒
RJ45 Cable	N/A	N/A	N/A	1.5 m	Shielded with core	☒

4.4 Test Configurations

Test Configurations (TC) No.	Description
TC01	<u>The Working Test Mode (AC Adapter Power Supply)</u> EUT + Antenna + AC Adapter + RJ45 Cable + USB disk + Laptop + WIFI Router + USB Connector + Mouse + Keyboard + Screen + USB Cable + HDMI Cable
TC01	<u>The Working Test Mode (POE Adapter Power Supply)</u> EUT + Antenna + POE Adapter + RJ45 Cable + USB disk + Laptop + USB Connector + Mouse + Keyboard + Screen + USB Cable + HDMI Cable

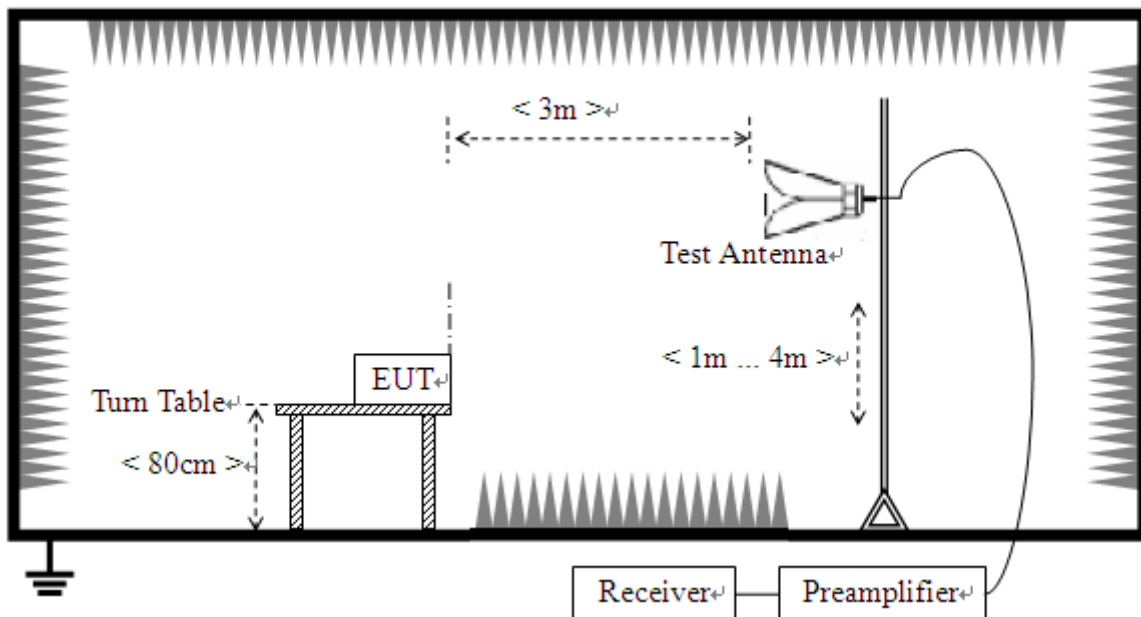
4.5 Test Setups

Test Setup 1



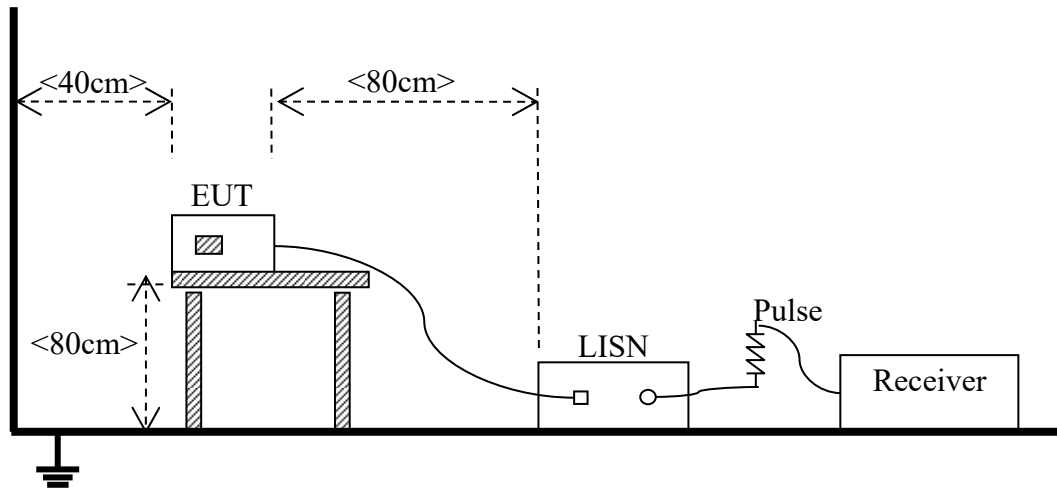
(For Radiated Emission Test (30 MHz-1 GHz))

Test Setup 2



(For Radiated Emission Test (above 1 GHz))

Test Setup 3



(For Conducted Emission, AC Ports Test)

4.6 Test Conditions

Test Case	Test Conditions	
Radiated Emission	Test Env.	NTNV
	Test Setup	Test Setup 1&2
	Test Configuration	TC01~TC02 ^{Note}
Conducted Emission, AC Ports	Test Env.	NTNV
	Test Setup	Test Setup 3
	Test Configuration	TC01~TC02 ^{Note}
Note: Based on client request, all normal using modes of the normal function were tested.		

5 TEST ITEMS

5.1 Emission Tests

5.1.1 Radiated Emission

5.1.1.1 Limit

Frequency range (MHz)	Class B (at 3 m)		Class B (at 10 m)	Class A (at 10 m)	
	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)	Field Strength ($\mu\text{V/m}$)	Field Strength (dB $\mu\text{V/m}$)
30 - 88	100	40	30	90	39
88 - 216	150	43.5	33.5	150	43.5
216 - 960	200	46	36	210	46.4
Above 960	500	54	44	300	49.5

NOTE:

- 1) Field Strength (dB $\mu\text{V/m}$) = $20 \cdot \log [\text{Field Strength } (\mu\text{V/m})]$.
- 2) In the emission tables above, the tighter limit applies at the band edges.

5.1.1.2 Test Setup

Refer to 4.5 section (test setup 1) for radiated emission test, the photo of test setup please refer to ANNEX B.

5.1.1.3 Test Procedure

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

5.1.1.4 Test Result

Please refer to ANNEX A.1.

NOTE:

1. Results (dB $\mu\text{V/m}$) = Reading (dB μV) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain (dB)

3. Over limit = Results – Limit.

5.1.2 Conducted Emission

5.1.2.1 Test Limit

Frequency range (MHz)	Class A	
	Quasi-peak (dBμV)	Average (dBμV)
0.15 - 0.50	79	66
0.50 - 30	73	60

Frequency range (MHz)	Class B	
	Quasi-peak (dBμV)	Average (dBμV)
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
5 - 30	60	50

NOTE:

- 1) The lower limit shall apply at the band edges.
- 2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50 MHz.

5.1.2.2 Test Setup

Refer to 4.5 section test (test setup 3) for conducted emission, the photo of test setup please refer to ANNEX B.

5.1.2.3 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50 Ω/50 μH of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

5.1.2.4 Test Result

Please refer to ANNEX A.2.

NOTE:

1. Results (dBuV/m) = Reading (dBuV) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor = Insertion loss + Cable loss

3. Over limit = Results – Limit.

ANNEX A TEST RESULTS

A.1 Radiated Emission

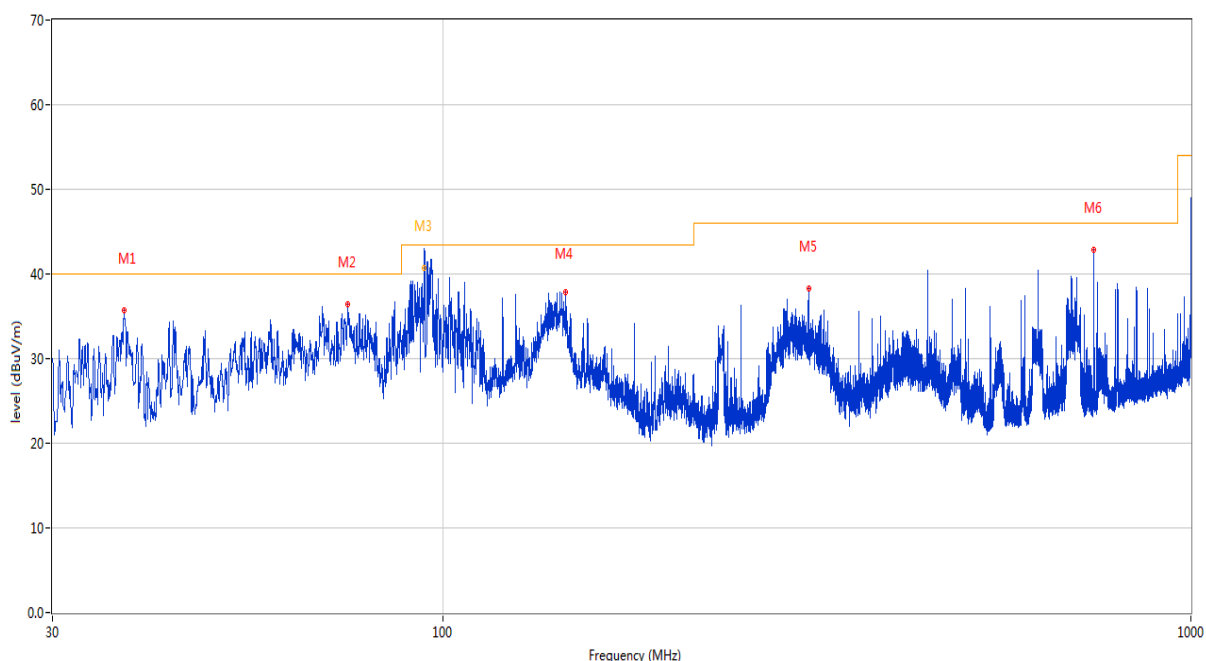
Note 1: The symbol of "--" in the table which means not application.

Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Test Data and Plots

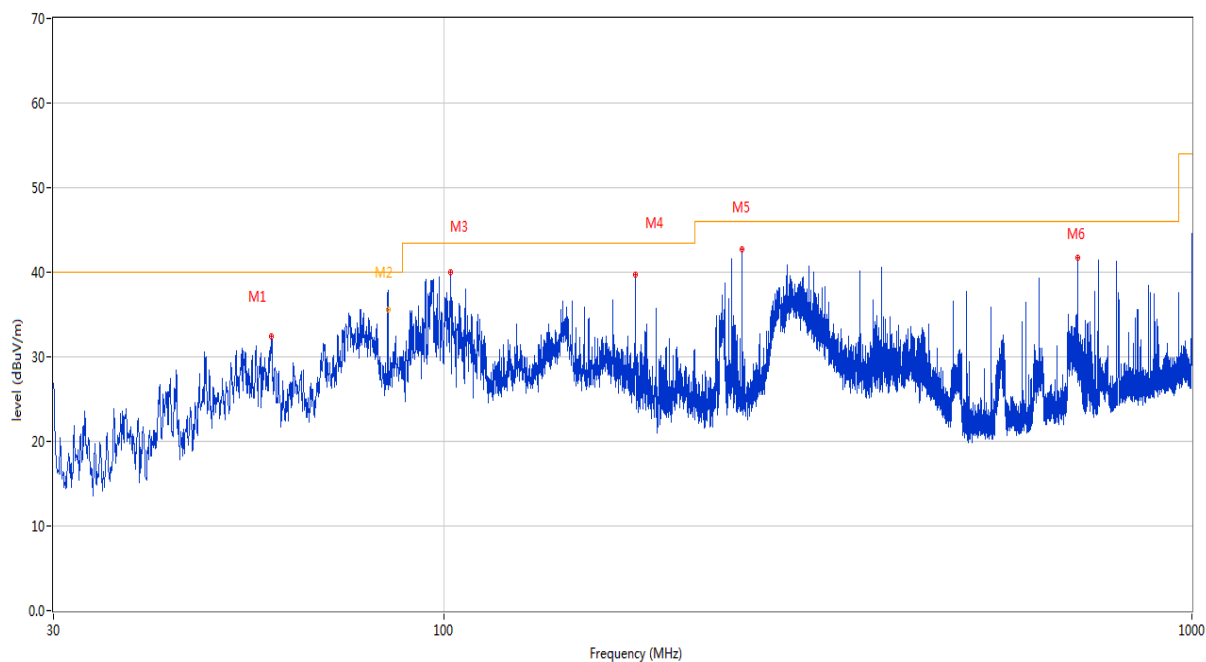
The Working Test Mode (AC Adapter Power Supply)

A.1.1 Test Antenna Vertical, 30 MHz – 1 GHz



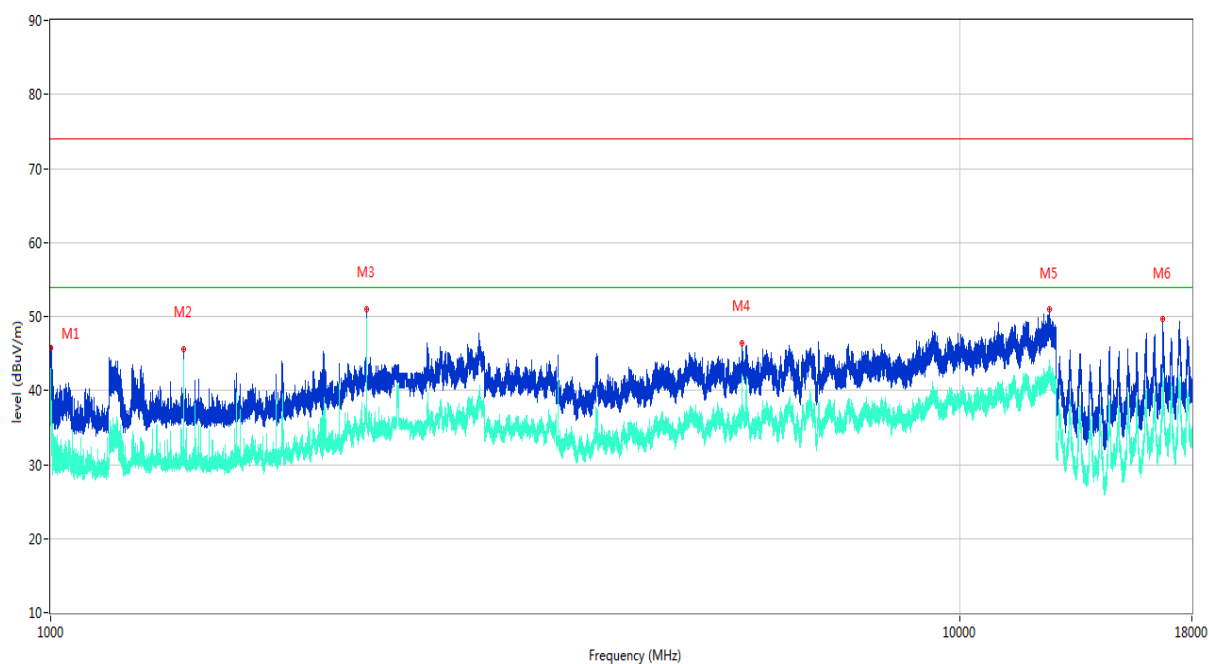
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	37.372	35.67	-24.58	40.0	-4.33	Peak	281.90	100	Vertical	Pass
2	74.572	36.43	-28.52	40.0	-3.57	Peak	239.30	100	Vertical	Pass
3	94.360	43.32	-25.21	43.5	-0.18	Peak	269.10	100	Vertical	N/A
3*	94.360	40.65	-25.21	43.5	-2.85	QP	269.10	100	Vertical	Pass
4	145.770	37.88	-27.59	43.5	-5.62	Peak	0.00	200	Vertical	Pass
5	308.245	38.23	-21.58	46.0	-7.77	Peak	154.60	100	Vertical	Pass
6	741.737	42.79	-12.46	46.0	-3.21	Peak	120.70	100	Vertical	Pass

A.1.2 Test Antenna Horizontal, 30 MHz – 1 GHz



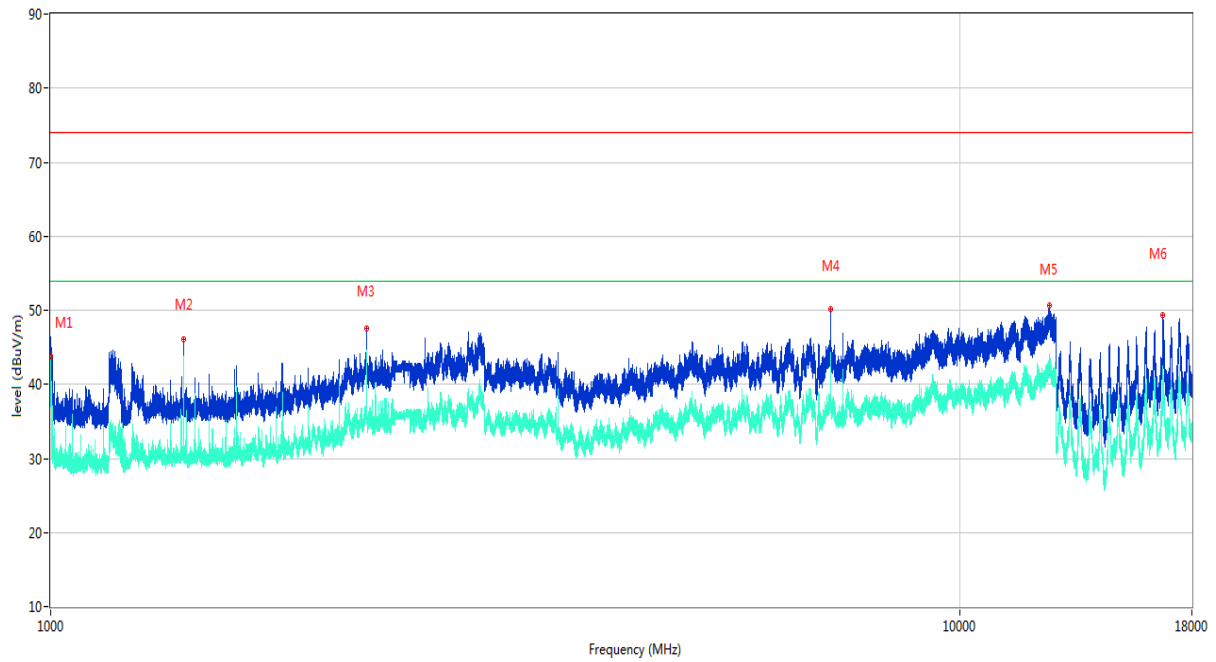
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	58.712	32.42	-24.05	40.0	-7.58	Peak	156.20	200	Horizontal	Pass
2	84.029	37.80	-27.82	40.0	-2.20	Peak	156.20	200	Horizontal	N/A
2*	84.029	35.53	-27.82	40.0	-4.47	QP	156.20	200	Horizontal	Pass
3	101.925	40.06	-24.54	43.5	-3.44	Peak	60.10	200	Horizontal	Pass
4	180.059	39.67	-26.04	43.5	-3.83	Peak	167.60	100	Horizontal	Pass
5	249.996	42.71	-22.91	46.0	-3.29	Peak	253.00	100	Horizontal	Pass
6	704.005	41.73	-13.08	46.0	-4.27	Peak	206.60	200	Horizontal	Pass

A.1.3 Test Antenna Vertical, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.100	45.73	-15.39	74.0	-28.27	Peak	359.80	100	Vertical	Pass
1**	1000.100	42.78	-15.39	54.0	-11.22	AV	359.80	100	Vertical	Pass
2	1400.000	45.67	-15.14	74.0	-28.33	Peak	0.00	100	Vertical	Pass
2**	1400.000	43.63	-15.14	54.0	-10.37	AV	0.00	100	Vertical	Pass
3	2225.400	51.02	-8.99	74.0	-22.98	Peak	90.60	100	Vertical	Pass
3**	2225.400	45.01	-8.99	54.0	-8.99	AV	90.60	100	Vertical	Pass
4	5760.200	46.44	-2.98	74.0	-27.56	Peak	78.90	100	Vertical	Pass
4**	5760.200	41.82	-2.98	54.0	-12.18	AV	78.90	100	Vertical	Pass
5	12541.563	51.04	21.70	74.0	-22.96	Peak	174.40	100	Vertical	Pass
5**	12541.563	41.26	21.70	54.0	-12.74	AV	174.40	100	Vertical	Pass
6	16723.988	49.65	25.51	74.0	-24.35	Peak	225.50	100	Vertical	Pass
6**	16723.988	42.03	25.51	54.0	-11.97	AV	225.50	100	Vertical	Pass

A.1.4 Test Antenna Horizontal, 1 GHz – 18GHz

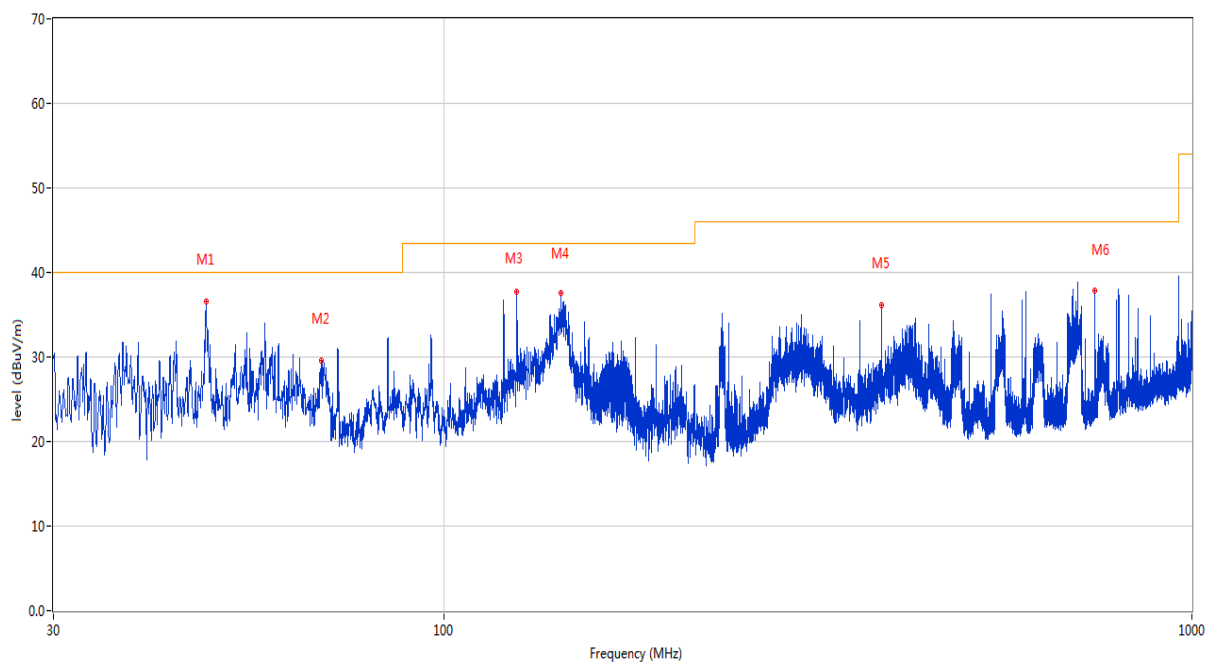


No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1005.000	43.88	-15.55	74.0	-30.12	Peak	83.50	100	Horizontal	Pass
1**	1005.000	29.48	-15.55	54.0	-24.52	AV	83.50	100	Horizontal	Pass
2	1399.900	46.06	-15.15	74.0	-27.94	Peak	295.50	100	Horizontal	Pass
2**	1399.900	42.85	-15.15	54.0	-11.15	AV	295.50	100	Horizontal	Pass
3	2225.400	47.62	-8.99	74.0	-26.38	Peak	79.10	100	Horizontal	Pass
3**	2225.400	44.36	-8.99	54.0	-9.64	AV	79.10	100	Horizontal	Pass
4	7205.562	50.15	16.87	74.0	-23.85	Peak	131.50	100	Horizontal	Pass
4**	7205.562	42.25	16.87	54.0	-11.75	AV	131.50	100	Horizontal	Pass
5	12547.025	50.69	21.82	74.0	-23.31	Peak	106.40	100	Horizontal	Pass
5**	12547.025	42.66	21.82	54.0	-11.34	AV	106.40	100	Horizontal	Pass
6	16729.762	49.36	25.32	74.0	-24.64	Peak	159.40	100	Horizontal	Pass
6**	16729.762	40.77	25.32	54.0	-13.23	AV	159.40	100	Horizontal	Pass

Test Data and Plots

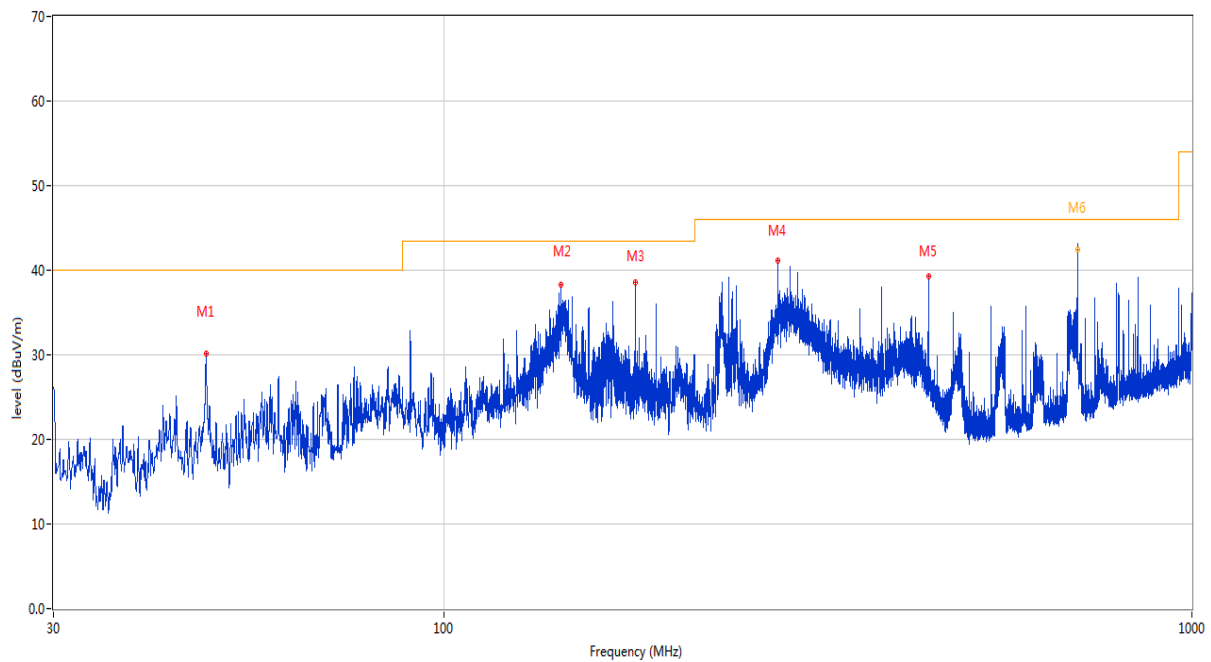
The Working Test Mode (POE Adapter Power Supply)

A.1.5 Test Antenna Vertical, 30 MHz – 1 GHz



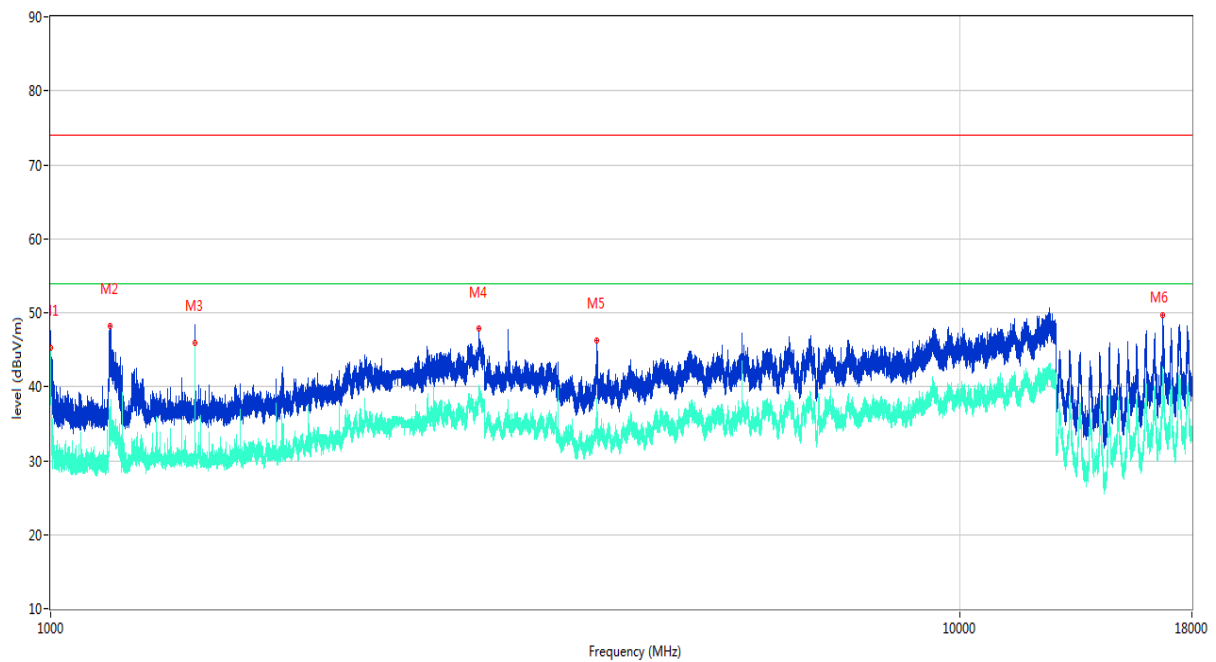
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	47.993	36.56	-22.64	40.0	-3.44	Peak	138.70	100	Vertical	Pass
2	68.558	29.53	-26.18	40.0	-10.47	Peak	167.70	100	Vertical	Pass
3	125.011	37.71	-26.53	43.5	-5.79	Peak	122.10	200	Vertical	Pass
4	143.344	37.61	-27.81	43.5	-5.89	Peak	50.60	100	Vertical	Pass
5	384.874	36.12	-19.54	46.0	-9.88	Peak	20.60	100	Vertical	Pass
6	741.786	37.92	-12.45	46.0	-8.08	Peak	80.10	100	Vertical	Pass

A.1.6 Test Antenna Horizontal, 30 MHz – 1 GHz



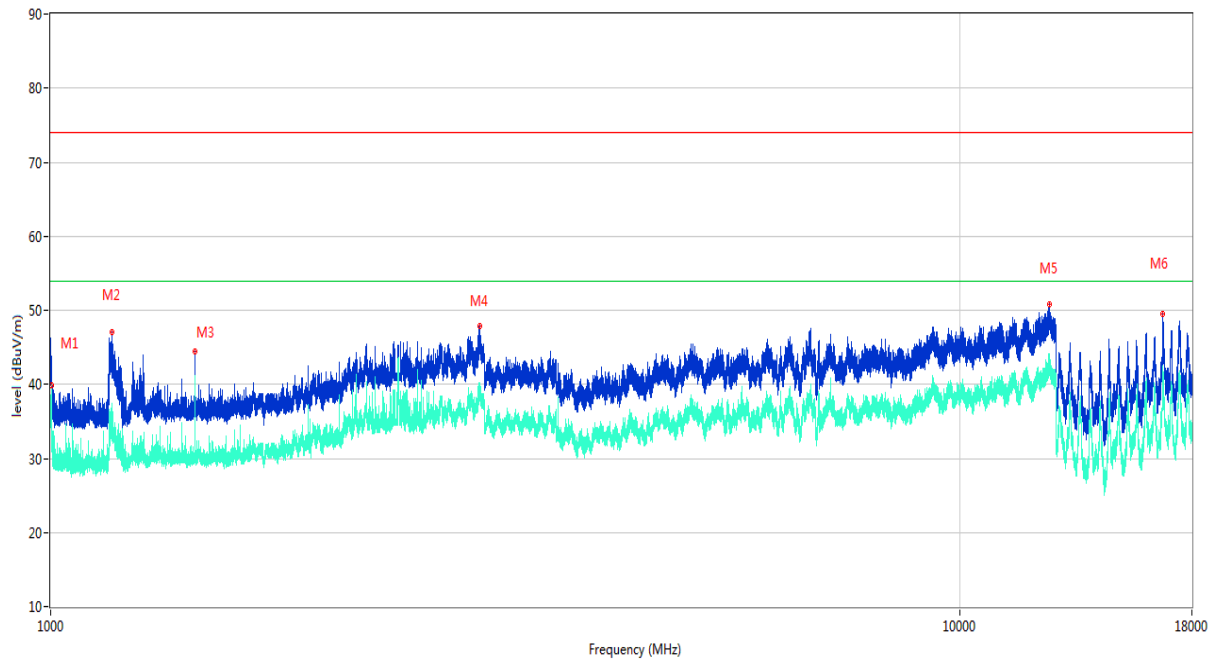
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	47.993	30.17	-22.64	40.0	-9.83	Peak	360.00	200	Horizontal	Pass
2	143.296	38.25	-27.82	43.5	-5.25	Peak	311.50	200	Horizontal	Pass
3	180.059	38.54	-26.04	43.5	-4.96	Peak	162.60	100	Horizontal	Pass
4	279.435	41.15	-21.83	46.0	-4.85	Peak	120.00	100	Horizontal	Pass
5	445.063	39.34	-17.82	46.0	-6.66	Peak	52.80	100	Horizontal	Pass
6	703.990	43.84	-13.08	46.0	-2.16	Peak	187.30	103	Horizontal	N/A
6*	703.990	42.47	-13.08	46.0	-3.53	QP	187.30	103	Horizontal	Pass

A.1.7 Test Antenna Vertical, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1000.400	46.30	-15.42	74.0	-27.70	Peak	287.40	100	Vertical	Pass
1**	1000.400	45.19	-15.42	54.0	-8.81	AV	287.40	100	Vertical	Pass
2	1163.700	48.27	-15.90	74.0	-25.73	Peak	324.60	100	Vertical	Pass
2**	1163.700	34.42	-15.90	54.0	-19.58	AV	324.60	100	Vertical	Pass
3	1440.600	48.36	-15.20	74.0	-25.64	Peak	143.40	100	Vertical	Pass
3**	1440.600	45.88	-15.20	54.0	-8.12	AV	143.40	100	Vertical	Pass
4	2960.400	47.90	-4.78	74.0	-26.10	Peak	245.10	100	Vertical	Pass
4**	2960.400	38.73	-4.78	54.0	-15.27	AV	245.10	100	Vertical	Pass
5	3984.000	46.30	-5.94	74.0	-27.70	Peak	33.20	100	Vertical	Pass
5**	3984.000	34.43	-5.94	54.0	-19.57	AV	33.20	100	Vertical	Pass
6	16731.863	49.66	25.23	74.0	-24.34	Peak	59.60	100	Vertical	Pass
6**	16731.863	42.23	25.23	54.0	-11.77	AV	59.60	100	Vertical	Pass

A.1.8 Test Antenna Horizontal, 1 GHz – 18 GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1001.200	40.16	-15.50	74.0	-33.84	Peak	91.80	100	Horizontal	Pass
1**	1001.200	39.90	-15.50	54.0	-14.10	AV	91.80	100	Horizontal	Pass
2	1168.100	47.10	-15.97	74.0	-26.90	Peak	358.90	100	Horizontal	Pass
2**	1168.100	34.50	-15.97	54.0	-19.50	AV	358.90	100	Horizontal	Pass
3	1440.300	44.53	-15.20	74.0	-29.47	Peak	179.90	100	Horizontal	Pass
3**	1440.300	39.25	-15.20	54.0	-14.75	AV	179.90	100	Horizontal	Pass
4	2966.100	47.84	-5.44	74.0	-26.16	Peak	249.10	100	Horizontal	Pass
4**	2966.100	39.37	-5.44	54.0	-14.63	AV	249.10	100	Horizontal	Pass
5	12558.238	50.83	21.88	74.0	-23.17	Peak	214.70	100	Horizontal	Pass
5**	12558.238	42.08	21.88	54.0	-11.92	AV	214.70	100	Horizontal	Pass
6	16727.400	49.57	25.40	74.0	-24.43	Peak	253.30	100	Horizontal	Pass
6**	16727.400	40.54	25.40	54.0	-13.46	AV	253.30	100	Horizontal	Pass

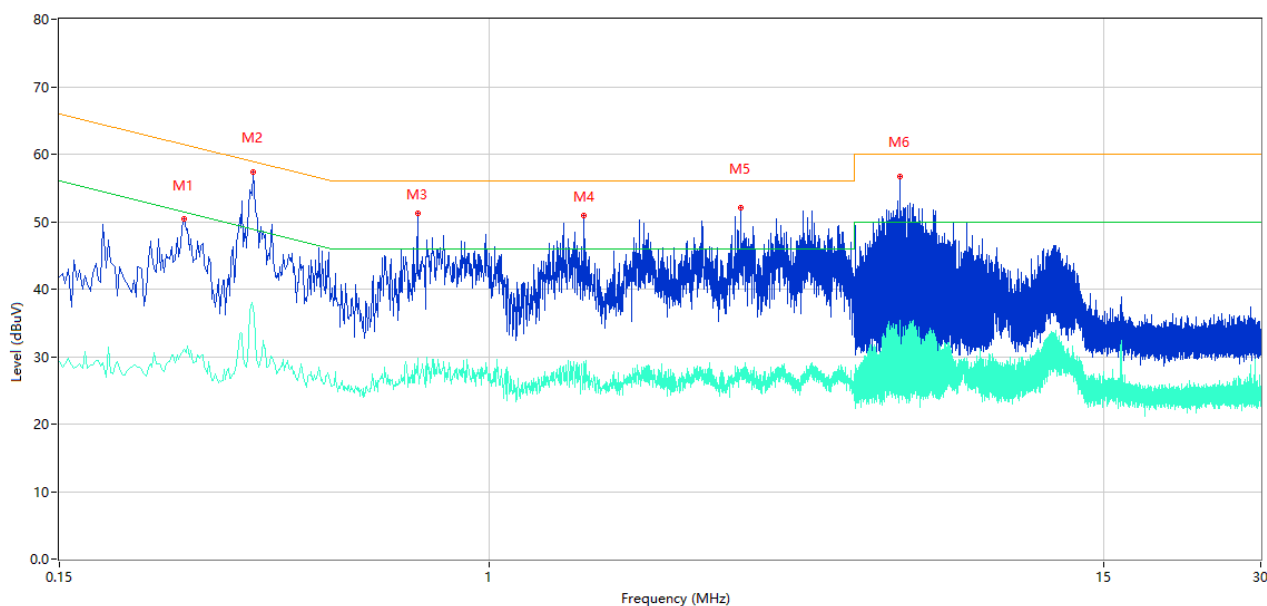
A.2 Conducted Emission

Note: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (240 VAC, 50 Hz) shown here.

Test Data and Plots

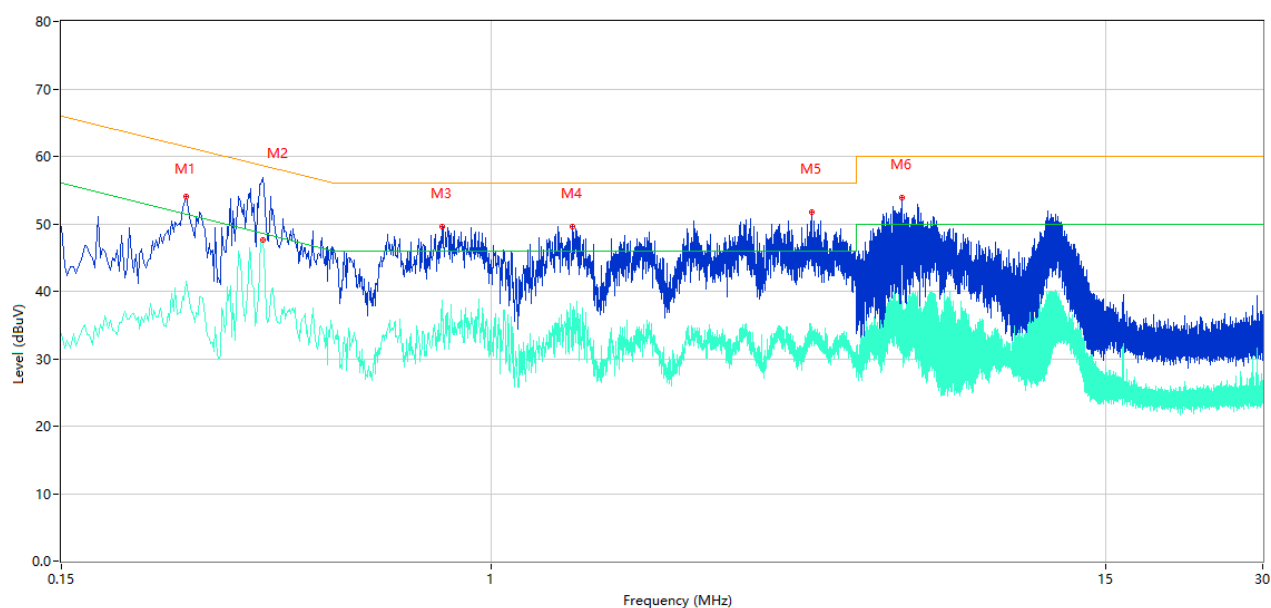
The Working Test Mode (AC Adapter Power Supply)

A.2.1 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.260	50.33	10.34	61.43	-11.10	Peak	L	Pass
1**	0.260	31.10	10.34	51.43	-20.33	AV	L	Pass
2	0.352	57.42	10.31	58.92	-1.50	Peak	L	N/A
2*	0.352	52.83	10.31	58.92	-6.09	QP	L	Pass
2**	0.352	37.39	10.31	48.92	-11.53	AV	L	Pass
3	0.728	51.19	10.27	56.00	-4.81	Peak	L	Pass
3**	0.728	29.81	10.27	46.00	-16.19	AV	L	Pass
4	1.518	50.90	10.25	56.00	-5.10	Peak	L	Pass
4**	1.518	29.17	10.25	46.00	-16.83	AV	L	Pass
5	3.028	52.14	10.28	56.00	-3.86	Peak	L	Pass
5**	3.028	28.15	10.28	46.00	-17.85	AV	L	Pass
6	6.104	56.76	10.33	60.00	-3.24	Peak	L	Pass
6**	6.104	35.34	10.33	50.00	-14.66	AV	L	Pass

A.2.2 N Phase

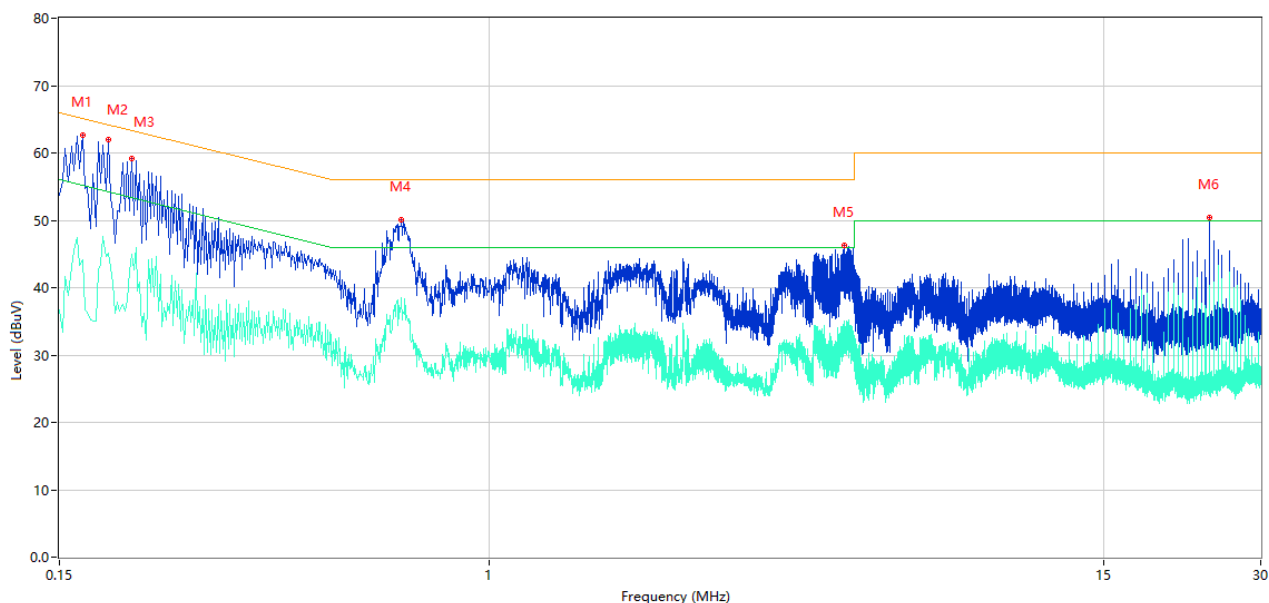


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.260	54.12	10.34	61.43	-7.31	Peak	N	Pass
1**	0.260	41.41	10.34	51.43	-10.02	AV	N	Pass
2	0.364	56.93	10.30	58.64	-1.71	Peak	N	N/A
2*	0.364	54.87	10.30	58.64	-3.77	QP	N	Pass
2**	0.364	47.61	10.30	48.64	-1.03	AV	N	Pass
3	0.804	49.60	10.27	56.00	-6.40	Peak	N	Pass
3**	0.804	38.68	10.27	46.00	-7.32	AV	N	Pass
4	1.432	49.60	10.25	56.00	-6.40	Peak	N	Pass
4**	1.432	37.26	10.25	46.00	-8.74	AV	N	Pass
5	4.114	51.66	10.31	56.00	-4.34	Peak	N	Pass
5**	4.114	34.71	10.31	46.00	-11.29	AV	N	Pass
6	6.098	53.85	10.33	60.00	-6.15	Peak	N	Pass
6**	6.098	38.50	10.33	50.00	-11.50	AV	N	Pass

Test Data and Plots

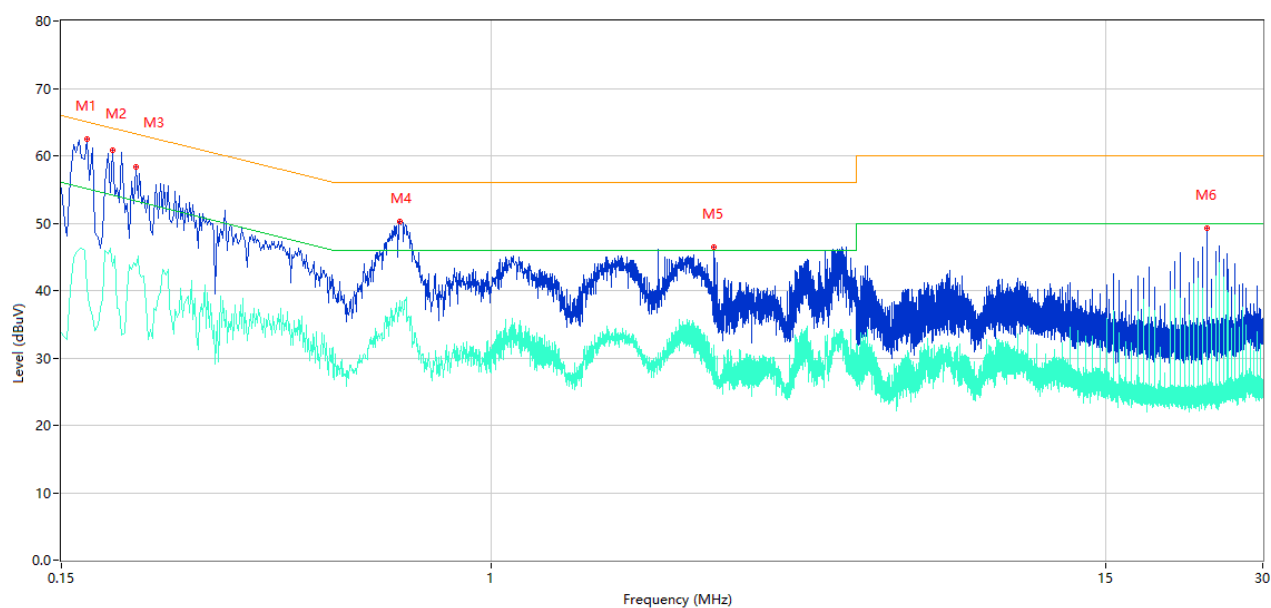
The Working Test Mode (POE Adapter Power Supply)

A.2.3 L Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.166	62.59	10.40	65.16	-2.57	Peak	L	N/A
1*	0.166	61.56	10.40	65.16	-3.60	QP	L	Pass
1**	0.166	44.14	10.40	55.16	-11.02	AV	L	Pass
2	0.186	61.97	10.39	64.21	-2.24	Peak	L	N/A
2*	0.186	59.92	10.39	64.21	-4.29	QP	L	Pass
2**	0.186	45.17	10.39	54.21	-9.04	AV	L	Pass
3	0.206	59.10	10.38	63.37	-4.27	Peak	L	Pass
3**	0.206	44.96	10.38	53.37	-8.41	AV	L	Pass
4	0.678	50.10	10.27	56.00	-5.90	Peak	L	Pass
4**	0.678	38.52	10.27	46.00	-7.48	AV	L	Pass
5	4.784	46.30	10.31	56.00	-9.70	Peak	L	Pass
5**	4.784	35.08	10.31	46.00	-10.92	AV	L	Pass
6	23.968	50.39	10.64	60.00	-9.61	Peak	L	Pass
6**	23.968	39.30	10.64	50.00	-10.70	AV	L	Pass

A.2.4 N Phase



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.168	62.45	10.40	65.06	-2.61	Peak	N	N/A
1*	0.168	60.72	10.40	65.06	-4.34	QP	N	Pass
1**	0.168	40.35	10.40	55.06	-14.71	AV	N	Pass
2	0.188	60.86	10.38	64.12	-3.26	Peak	N	Pass
2**	0.188	43.57	10.38	54.12	-10.55	AV	N	Pass
3	0.208	58.43	10.38	63.28	-4.85	Peak	N	Pass
3**	0.208	43.58	10.38	53.28	-9.70	AV	N	Pass
4	0.666	50.23	10.28	56.00	-5.77	Peak	N	Pass
4**	0.666	38.58	10.28	46.00	-7.42	AV	N	Pass
5	2.668	46.49	10.28	56.00	-9.51	Peak	N	Pass
5**	2.668	31.96	10.28	46.00	-14.04	AV	N	Pass
6	23.490	49.29	10.62	60.00	-10.71	Peak	N	Pass
6**	23.490	30.16	10.62	50.00	-19.84	AV	N	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document "BL-SZ2090079-AE.PDF".

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document "BL-SZ2090079-AW.PDF".

ANNEX D EUT INTERNAL PHOTOS

Please refer the document "BL-SZ209079-AI.PDF".

--END OF REPORT--