FCC RF TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.

FOR

LED Bulb 6:Multi-Colour

ISSUED TO
AEOTEC LIMITED

FLAT/RM 704, 7/F, BRIGHT WAY TOWER, 33 MONG KOK ROAD, MONG KOK, KL, HK

Tested by: Hu Chao
Hu Chao
(Engineer)
Date Mar. 18. 2018

Approved by:
Wei Yanquan
(Chief Engineer)
Date Mar. 18. 2018

Report No.:	BL-SZ17C0138-601
EUT Name:	LED Bulb 6:Multi-Colour
Model Name:	ZWA002-A
Brand Name:	AEOTEC
Test Standard:	47 CFR Part 15 Subpart C
FCC ID:	2AOGIZWA002
Test conclusion:	Pass
Test Date:	Jan. 30, 2018 ~ Feb. 05, 2018
Date of Issue:	Mar. 26, 2018

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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Mar. 26, 2018	Initial Issue

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1 ADMINISTRATIVE DATA (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

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 to 25℃
Ambient Relative Humidity	45% - 55%
Ambient Pressure	100 kPa - 102 kPa

1.4 Announce

(1) The test report reference to the report template version v2.4

(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.

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	AEOTEC LIMITED
Address	FLAT/RM 704, 7/F, BRIGHT WAY TOWER, 33 MONG KOK ROAD, MONG KOK, KL, HK

2.2 Manufacturer Information

Manufacturer	AEOTEC LIMITED
Address	FLAT/RM 704, 7/F, BRIGHT WAY TOWER, 33 MONG KOK ROAD, MONG KOK, KL, HK

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Type	LED Bulb 6:Multi-Colour
Model Name Under Test	ZWA002-A
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A
Network and Wireless connectivity	Z-WAVE 902MHz-928MHz

2.5 Ancillary Equipment

Note: Not applicable.

2.6 Technical Information

The requirement for the following technical information of the EUT was tested in this report:

Modulation Type	Z-WAVE
Product Type	☒ Mobile ☐ Portable ☐ Fix Location
Frequency Range	902 MHz to 928 MHz
Tested Channel	Low (908.4 MHz), Middle (908.42 MHz), High (916 MHz)
Antenna Type	Dipole Antenna
Antenna Gain	-2.34 dBi (In test items related to antenna gain, the final results reflect this figure.)

2.7 Additional Instructions

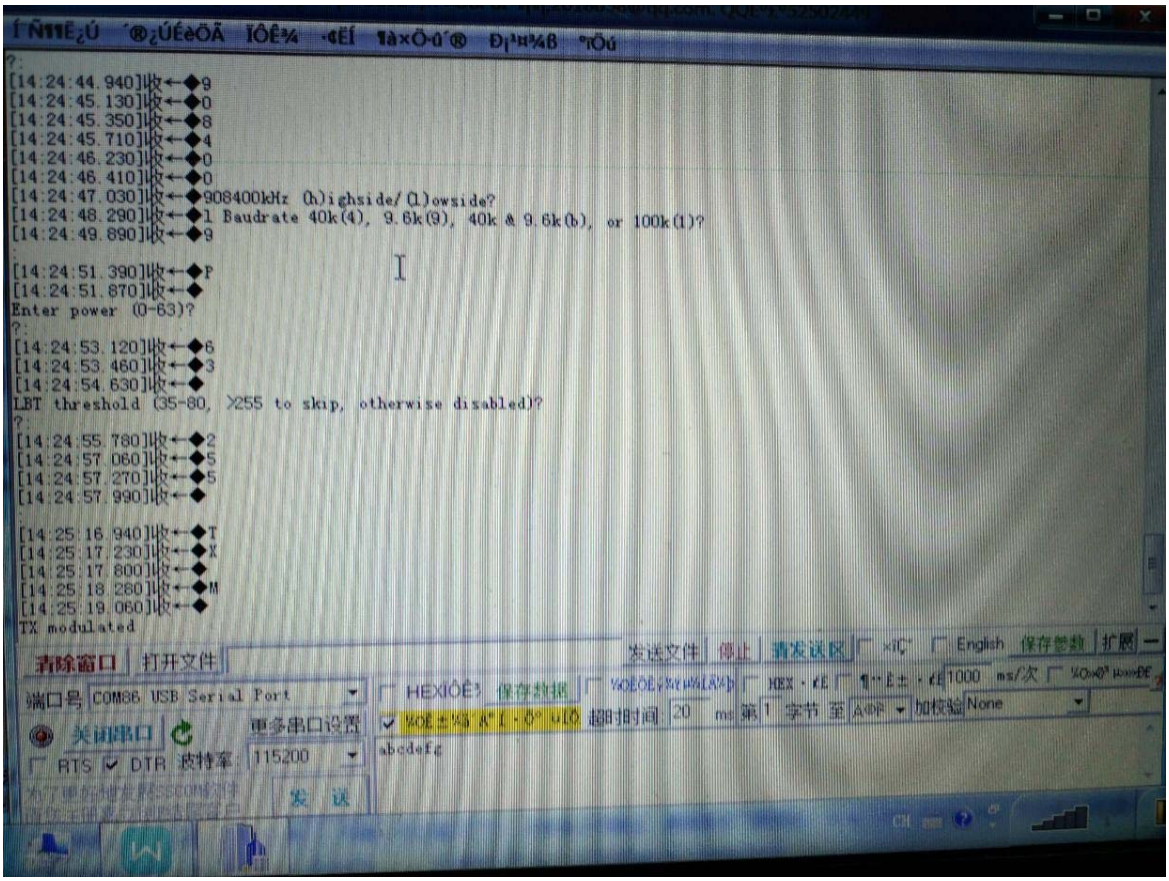
EUT Software Settings:

Mode	☒ Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Power level setup in software			
Test Software Version	SSCOM4.2		
Support Units (Software installation media)	Description	Manufacturer	Model
	Laptop	Lenovo	X220
Mode	Channel	Frequency (MHz)	Soft Set
GFSK	High	916	Power parameter Settings is 63
FSK	Middle	908.42	
	Low	908.4	

Run Software:



3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C (10-1-16 Edition)	Intentional Radiators
2	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC Part No.	ISED Part No.	Test Result	Verdict	Remark
1	Antenna Requirement	15.203	RSS-Gen 8.3	--	Pass	Note[1]
2	20 dB and 99% Bandwidth	15.215(c)	RSS-Gen 6.6	ANNEX A.1	Pass	--
3	AC Conducted Emission	15.207	RSS-Gen 8.8	ANNEX A.2	N/A	--
4	Radiated Emission Test Band Edge Measurement	15.249(a) 15.249(d) 15.209	RSS-210 B.10 RSS-Gen 8.9 RSS-Gen 8.10	ANNEX A.3	Pass	Note[2]

Note[1]: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

Note[2:] the limit is 50dB less than the peak value of fundamental frequency or meet radiated emission limit in section 15.209

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	45% - 55%	
Atmospheric Pressure	100 kPa - 102 kPa	
Temperature	NT (Normal Temperature)	+22℃ to +25℃
Working Voltage of the EUT	NV (Normal Voltage)	120 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-30	103118	2017.06.12	2018.06.11
Vector Signal Generator	ROHDE&SCHWARZ	SMBV100A	260592	2017.06.12	2018.06.11
Signal Generator	ROHDE&SCHWARZ	SMB100A	177746	2017.06.12	2018.06.11
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2017.06.12	2018.06.11
Spectrum Analyzer	AGILENT	E4440A	MY45304434	2017.11.08	2018.11.07
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2017.06.22	2018.06.21
LISN	SCHWARZBECK	NSLK 8127	8127-687	2017.06.22	2018.06.21
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101005	2017.06.12	2018.06.11
Power Splitter	KMW	DCPD-LDC	1305003215	--	--
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2017.06.12	2018.06.11
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2017.06.22	2018.06.21
Temperature Chamber	ANGELANTIONI SCIENCE	NTH64-40A	1310	2017.06.27	2018.06.26
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2017.11.07	2019.11.06
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2017.07.22	2019.07.21
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2016.07.12	2018.07.11
Test Antenna-Horn(15-26.5 GHz)	SCHWARZBECK	BBHA 9170	9170-305	2017.06.22	2018.06.21
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2019.02.20
Anechoic Chamber	EMC TECHNOLOGY LTD	21.1m*11.6m*7.35m	N/A	2016.08.09	2018.08.08
Shielded Enclosure	ChangNing	CN-130701	130703	--	--
Signal Generator	ROHDE&SCHWARZ	SMB100A	177746	2017.06.12	2018.06.11
Power Amplifier	OPHIR RF	5225F	1037	2017.02.17	2019.02.16

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Power Amplifier	OPHIR RF	5273F	1016	2017.02.17	2019.02.16
Directional Coupler	Werlantone	C5982-10	109275	N/A	N/A
Directional Coupler	Werlantone	CHP-273E	S00801z-01	N/A	N/A
Feld Strength Meter	Narda	EP601	511WX51129	2017.05.22	2018.05.21
Mouth Simulator	B&K	4227	2423931	2017.11.16	2018.11.15
Sound Calibrator	B&K	4231	2430337	2017.11.16	2018.11.15
Sound Level Meter	B&K	NL-20	00844023	2017.11.16	2018.11.15
Ear Simulator	B&K	4185	2409449	2017.11.16	2018.11.15
Ear Simulator	B&K	4195	2418189	2017.11.16	2018.11.15
Audio analyzer	B&K	UPL 16	100129	2017.11.16	2018.11.15

4.3 Measurement Uncertainty

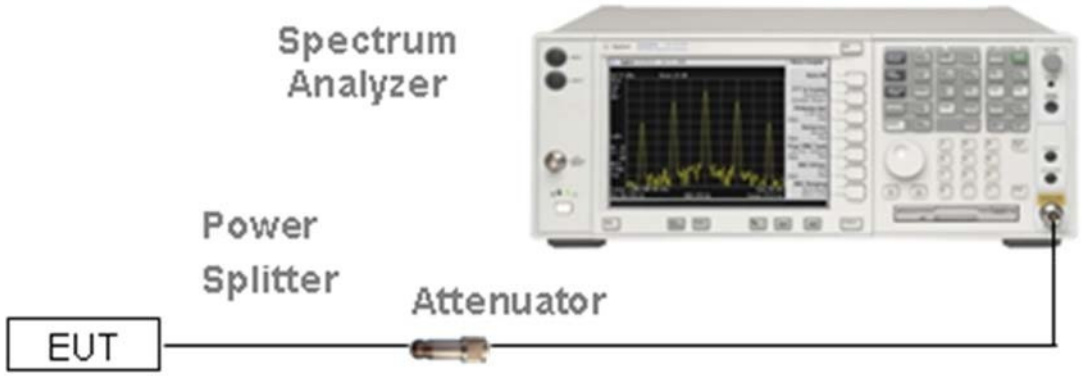
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Occupied Channel Bandwidth	±4%
RF output power, conducted	±1.4 dB
Power Spectral Density, conducted	±2.5 dB
Unwanted Emissions, conducted	±2.8 dB
All emissions, radiated	±5.4 dB
Temperature	±1°C
Humidity	±4%

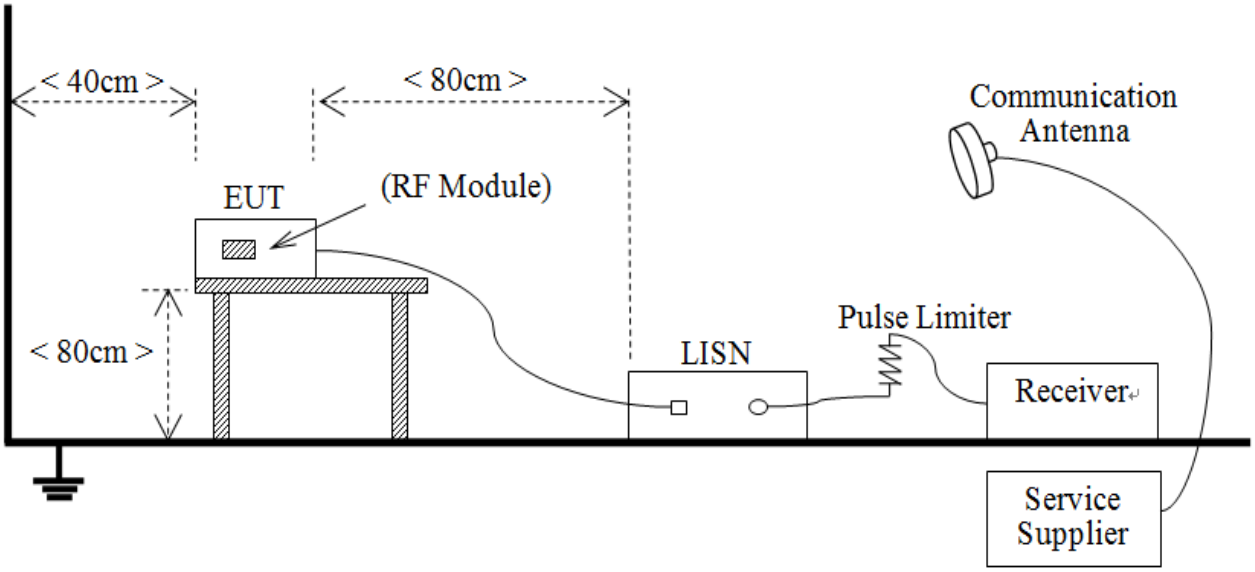
4.4 Description of Test Setup

4.4.1 For Antenna Port Test



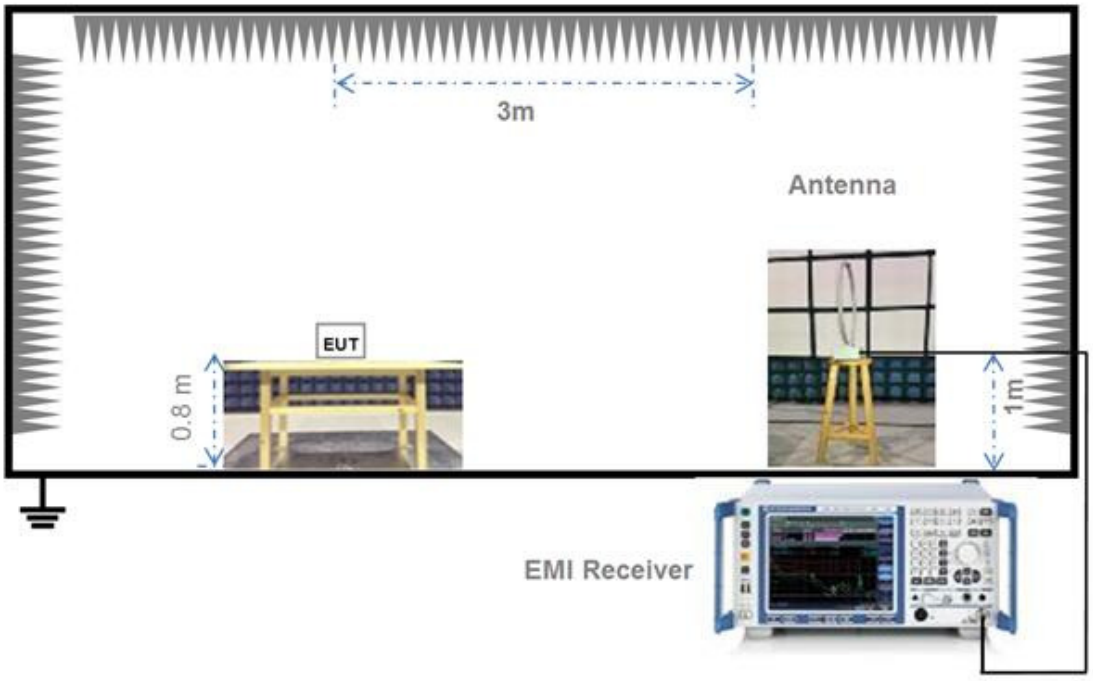
(Diagram 1)

4.4.2 For AC Power Supply Port Test



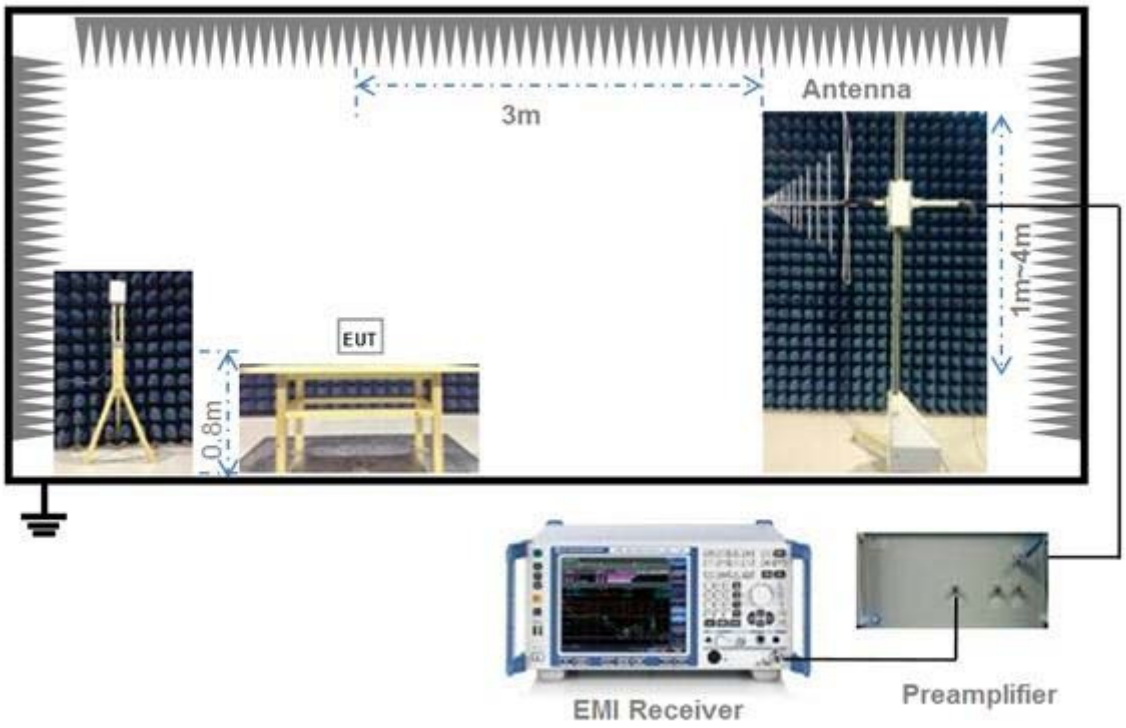
(Diagram 2)

4.4.3 For Radiated Test (Below 30 MHz)



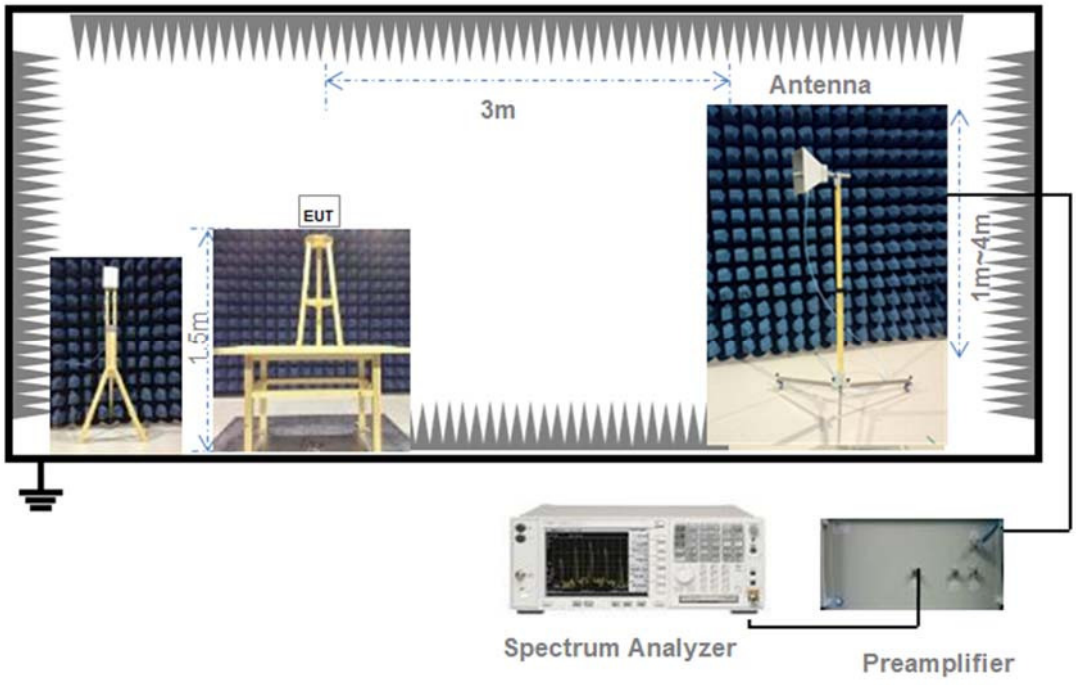
(Diagram 3)

4.4.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.4.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

5 TEST ITEMS

5.1 Antenna Requirements

5.1.1 Relevant Standards

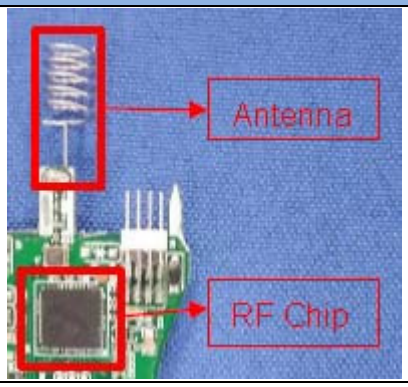
FCC §15.203 & 15.247(b)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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 manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.
If directional gain of transmitting antennas is greater than 6 dBi, the power shall be reduced by the same level in dB comparing to gain minus 6 dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. 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 FCC rule.

5.1.2 Antenna Anti-Replacement Construction

The Antenna Anti-Replacement as following method:

Protected Method	Description
The antenna is embedded in the product.	An embedded-in antenna design is used.

Reference Documents	Item
Photo	

5.1.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

5.2 20 dB and 99% Bandwidth

5.2.1 Limit

FCC §15.215(c)

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.2.2 Test Setups

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

Use the following spectrum analyzer settings:

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW ≥ 1% of the 20 dB bandwidth

VBW ≥ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.2.4 Test Result

Please refer to ANNEX A.1.

5.3 AC Conducted Emission

5.3.1 Limit

FCC §15.207

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBμV)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.3.2 Test Setups

See section 4.1.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels 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.

5.3.4 Test Result

Please refer to ANNEX A.2.

5.4 Radiated Spurious Emission and bandedge measurement

5.4.1 Limit

FCC §15.249(a)

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μV/m)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (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

Note:

1. For Above 1000 MHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

2. For above 1000 MHz, limit field strength of harmonics: 54dBuV/m@3m (AV) and 74dBuV/m@3m (PK).

5.4.2 Test Setups

See section 4.1.2-4.4.5 for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The measurement frequency range is from 9 kHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented. The power of the EUT transmitting frequency should be ignored.

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.
Use the following spectrum analyzer settings:
Span = wide enough to fully capture the emission being measured
RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz
VBW ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

5.4.4 Test Result

Please refer to ANNEX A.3.

ANNEX A TEST RESULT

A.1 20dB bandwidth and 99% bandwidth

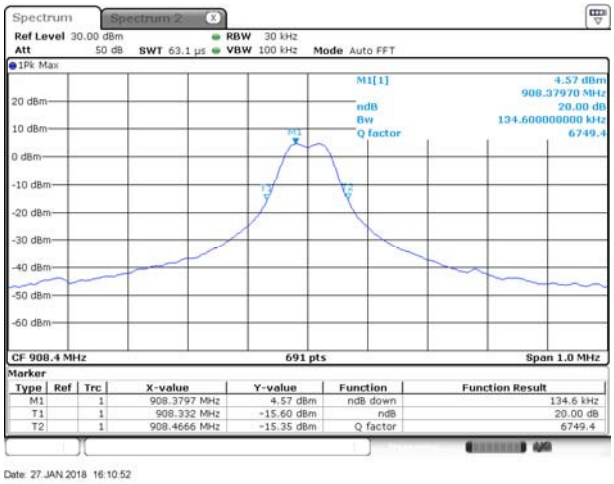
Test Data

Channel	Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	908.4	0.1346	0.0899
Middle	908.42	0.1592	0.1056
High	916	0.1563	0.1035

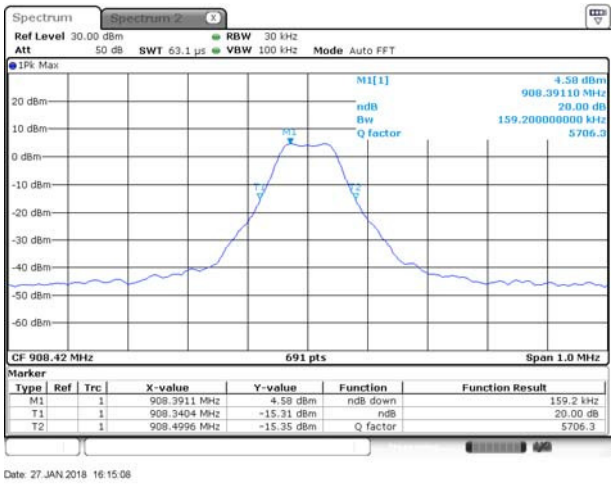
Test plots

20 dB Bandwidth

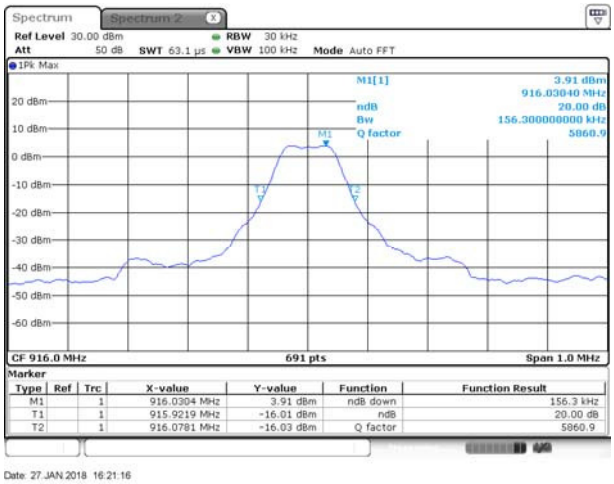
LOW CHANNEL



MIDDLE CHANNEL

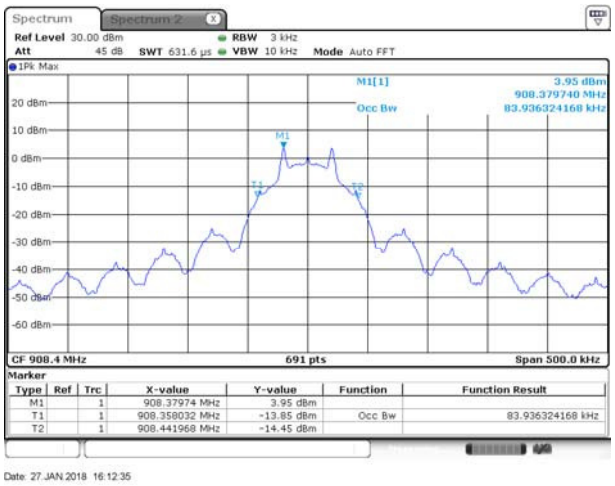


HIGH CHANNEL

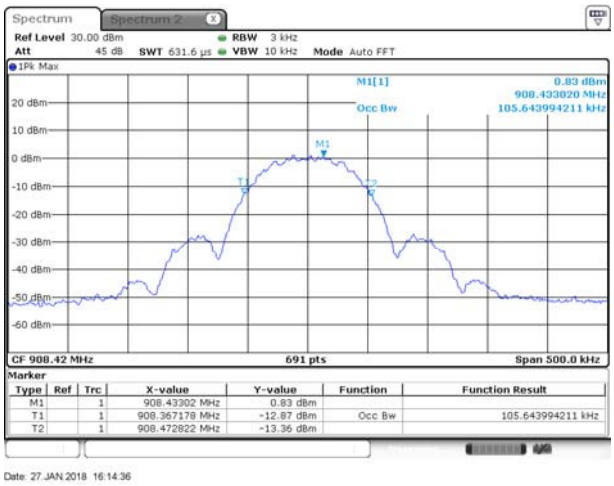


99% Bandwidth

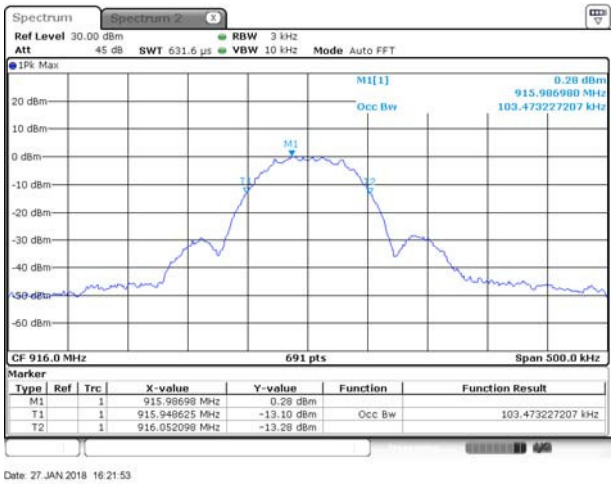
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL

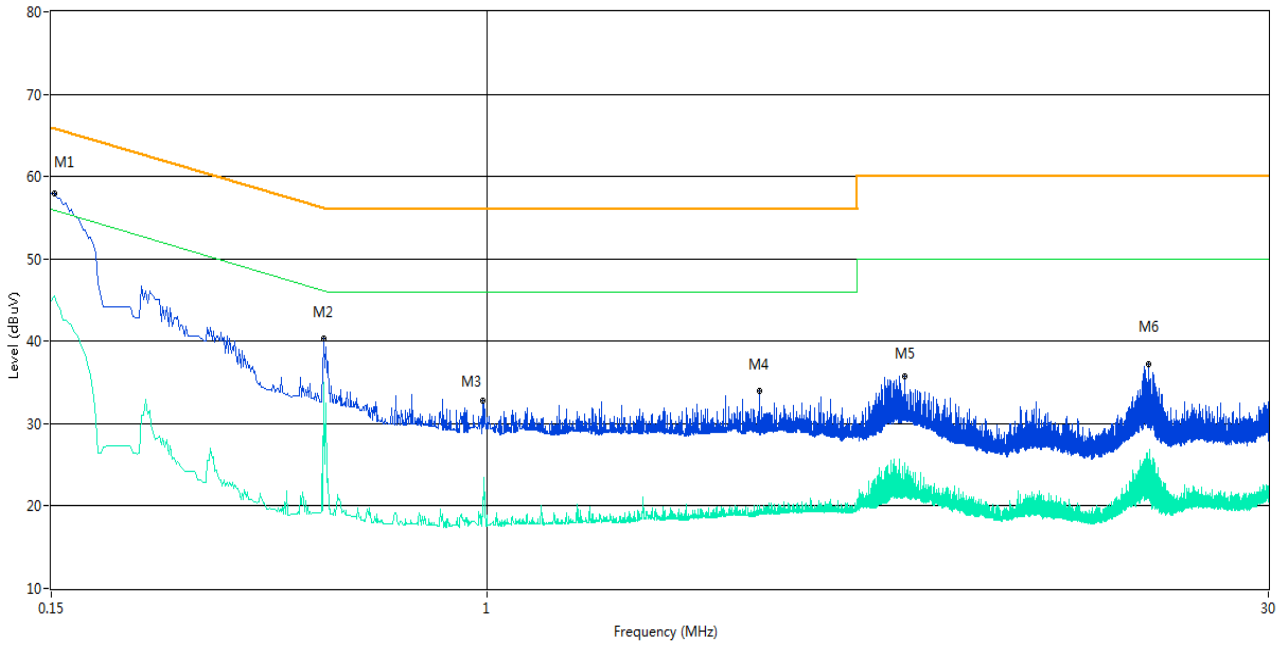


A.2 AC Conducted Emission

Note [1]: The EUT is working in the Normal link mode.

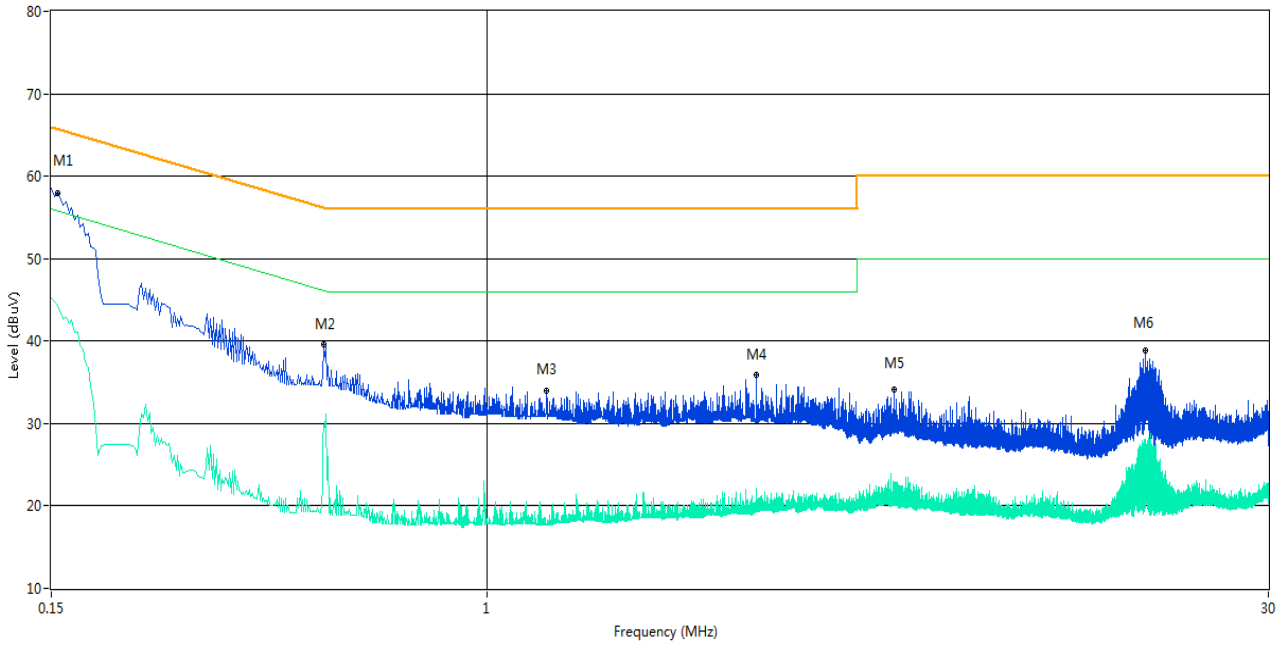
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.152	58.0	10.04	65.9	7.90	Peak	L Line	Pass
1**	0.152	45.5	10.04	55.9	10.40	AV	L Line	Pass
2	0.492	40.3	10.05	56.1	15.80	Peak	L Line	Pass
2**	0.492	35.0	10.05	46.1	11.10	AV	L Line	Pass
3	0.982	32.8	10.06	56.0	23.20	Peak	L Line	Pass
3**	0.982	20.9	10.06	46.0	25.10	AV	L Line	Pass
4	3.266	34.0	10.12	56.0	22.00	Peak	L Line	Pass
4**	3.266	20.1	10.12	46.0	25.90	AV	L Line	Pass
5	6.152	35.7	10.20	60.0	24.30	Peak	L Line	Pass
5**	6.152	21.9	10.20	50.0	28.10	AV	L Line	Pass
6	17.816	37.2	10.53	60.0	22.80	Peak	L Line	Pass
6**	17.816	22.4	10.53	50.0	27.60	AV	L Line	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.154	58.0	10.04	65.8	7.80	Peak	N Line	Pass
1**	0.154	44.3	10.04	55.8	11.50	AV	N Line	Pass
2	0.492	39.6	10.05	56.1	16.50	Peak	N Line	Pass
2**	0.492	29.8	10.05	46.1	16.30	AV	N Line	Pass
3	1.296	34.0	10.07	56.0	22.00	Peak	N Line	Pass
3**	1.296	17.5	10.07	46.0	28.50	AV	N Line	Pass
4	3.230	35.9	10.12	56.0	20.10	Peak	N Line	Pass
4**	3.230	22.1	10.12	46.0	23.90	AV	N Line	Pass
5	5.878	34.2	10.20	60.0	25.80	Peak	N Line	Pass
5**	5.878	22.8	10.20	50.0	27.20	AV	N Line	Pass
6	17.526	38.9	10.52	60.0	21.10	Peak	N Line	Pass
6**	17.526	26.3	10.52	50.0	23.70	AV	N Line	Pass

A.3 Radiated Emission and Bandedge Measurement

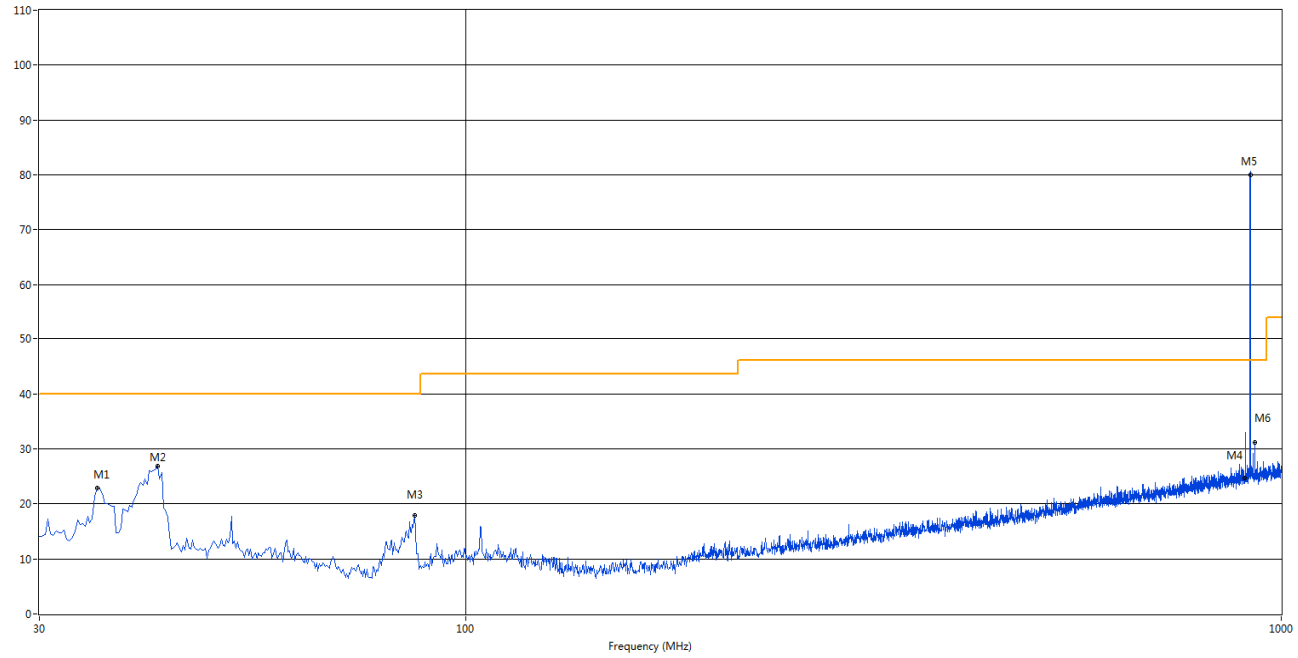
The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Test Data and Plots (30 MHz ~ 1 GHz)

Note : The bold frequency is the fundamental.

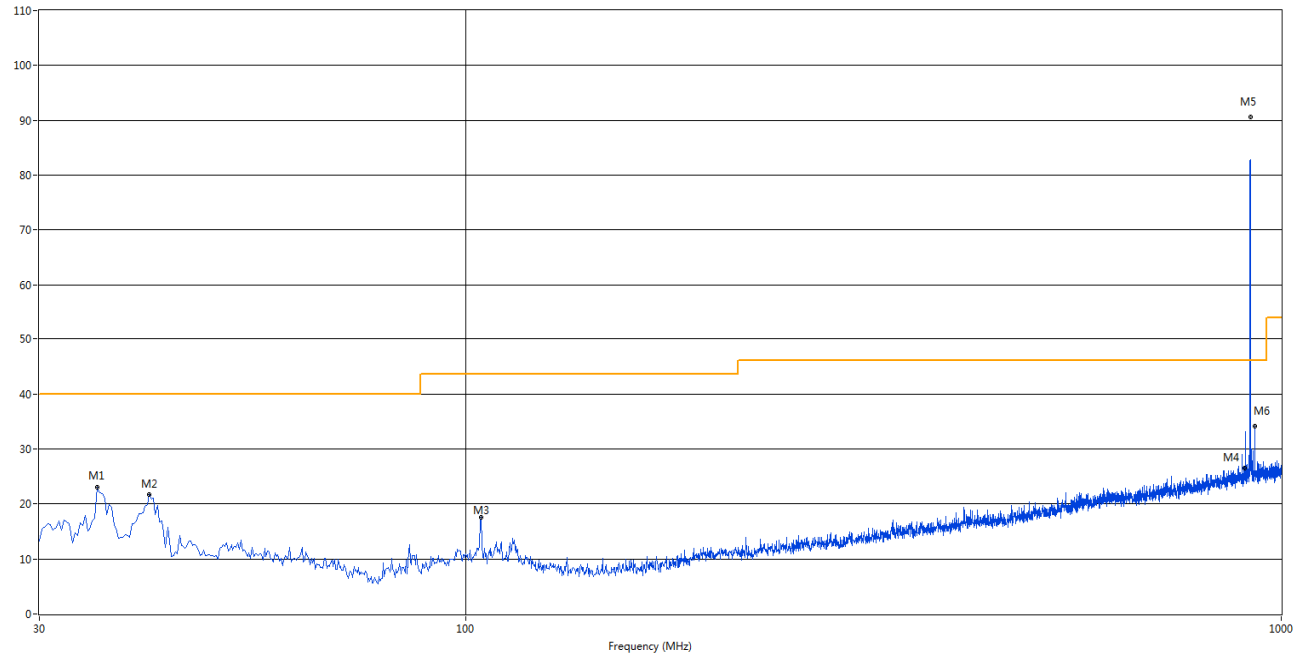
Note : The bolded part indicates that the test value with allowed-Bandedge.

Low Channel 30 MHz to 1 GHz, ANT V



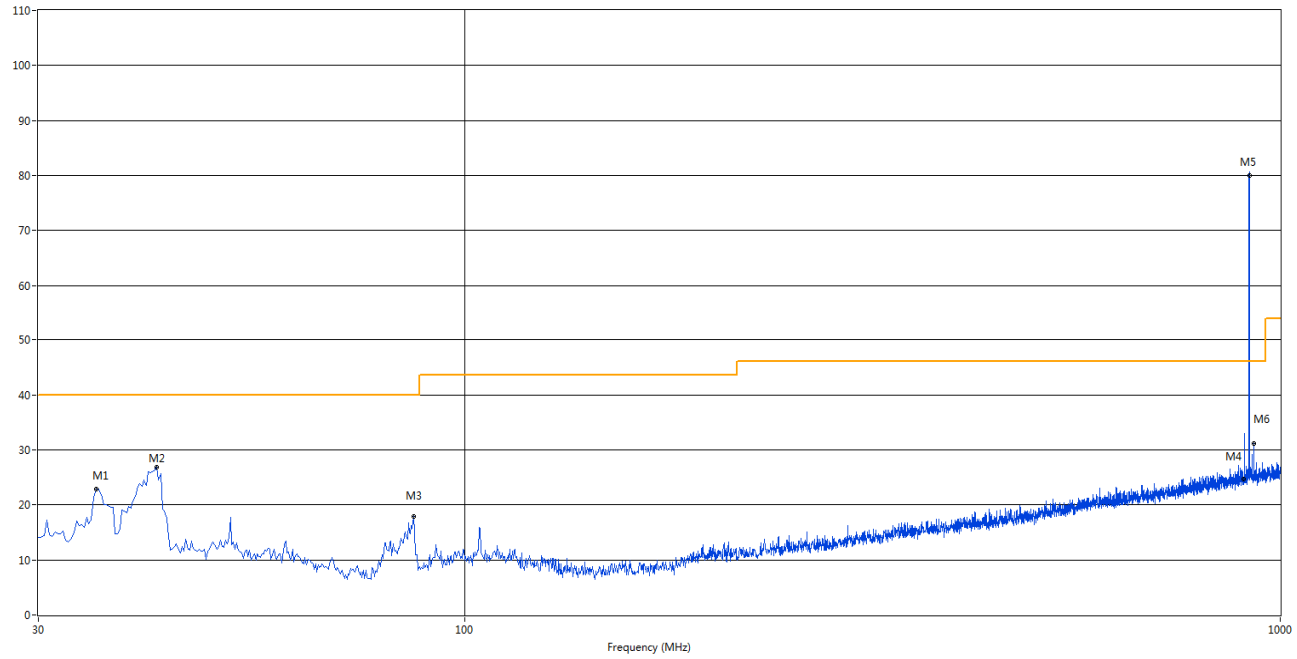
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	35.335	22.94	-25.19	40.0	17.06	Peak	356.50	200	Vertical	Pass
2	41.883	26.84	-23.00	40.0	13.16	Peak	37.40	100	Vertical	Pass
3	86.503	17.87	-26.47	40.0	22.13	Peak	140.20	100	Vertical	Pass
4	**902.000**	24.62	-9.62	46.0	21.38	Peak	91.10	200	Vertical	Pass
5	908.402	80.13	-9.22	114.0	33.87	Peak	67.30	100	Vertical	Pass
5*	908.402	80.04	-9.22	94.0	13.96	QP	67.30	100	Vertical	Pass
6	**928.000**	30.87	-9.38	46.0	15.13	Peak	289.85	100	Vertical	Pass

Low Channel 30 MHz to 1 GHz, ANT H



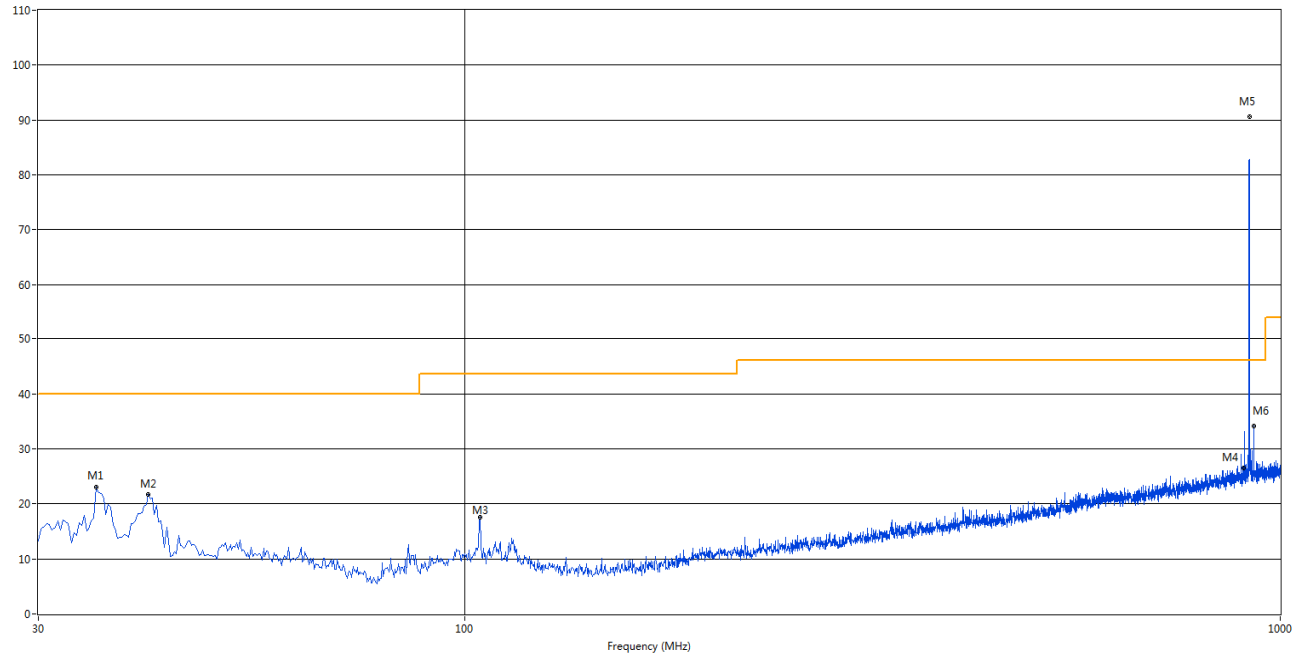
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	35.335	22.96	-25.19	40.0	17.04	Peak	167.10	200	Horizontal	Pass
2	40.913	21.71	-23.36	40.0	18.29	Peak	333.30	200	Horizontal	Pass
3	104.448	17.54	-23.49	43.5	25.96	Peak	312.80	100	Horizontal	Pass
4	**902.000**	26.31	-9.62	46.0	19.69	Peak	149.92	100	Horizontal	Pass
5	908.414	90.74	-9.22	114.0	23.26	Peak	135.30	143	Horizontal	Pass
5*	908.414	90.54	-9.22	94.0	3.46	QP	135.30	143	Horizontal	Pass
6	**928.000**	33.83	-9.38	46.0	12.17	Peak	136.39	191	Horizontal	Pass

Middle Channel 30 MHz to 1 GHz, ANT V



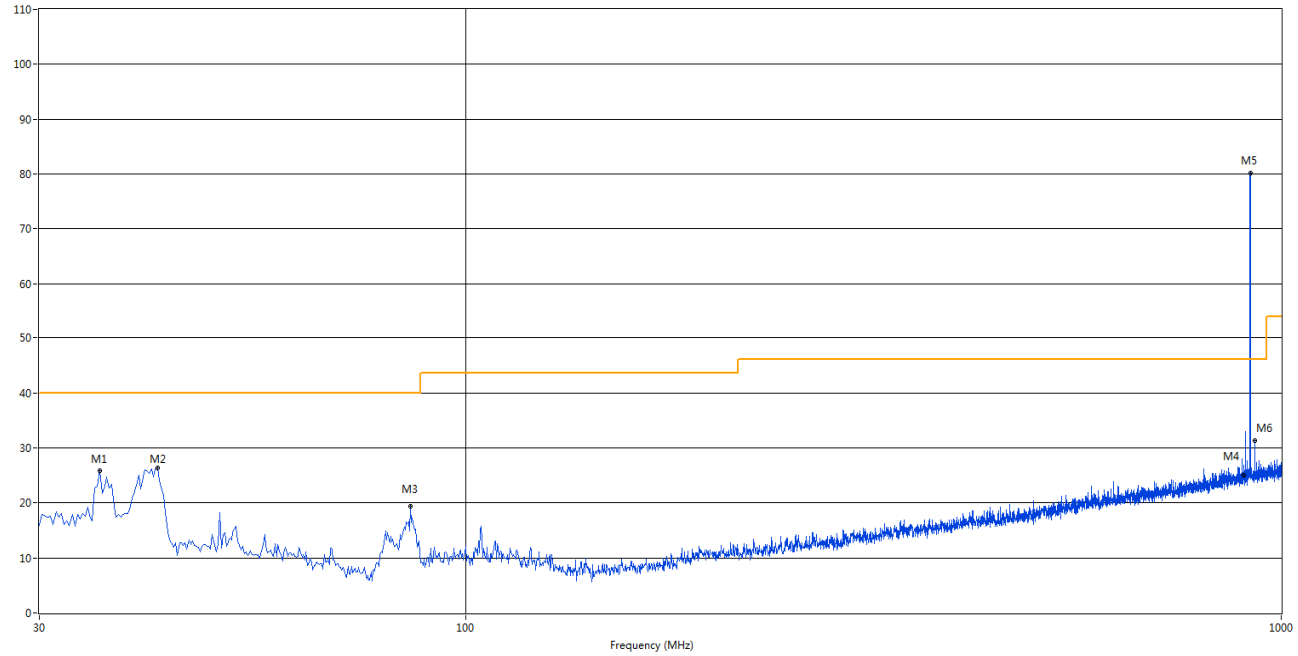
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	35.335	22.94	-25.19	40.0	17.06	Peak	356.50	200	Vertical	Pass
2	41.883	26.84	-23.00	40.0	13.16	Peak	37.40	100	Vertical	Pass
3	86.503	17.87	-26.47	40.0	22.13	Peak	140.20	100	Vertical	Pass
4	**902.000**	24.62	-9.62	46.0	21.38	Peak	91.10	200	Vertical	Pass
5	908.402	80.13	-9.22	114.0	33.87	Peak	67.30	100	Vertical	Pass
5*	908.402	80.04	-9.22	94.0	13.96	QP	67.30	100	Vertical	Pass
6	**928.000**	30.87	-9.38	46.0	15.13	Peak	289.85	100	Vertical	Pass

Middle Channel 30 MHz to 1 GHz, ANT H



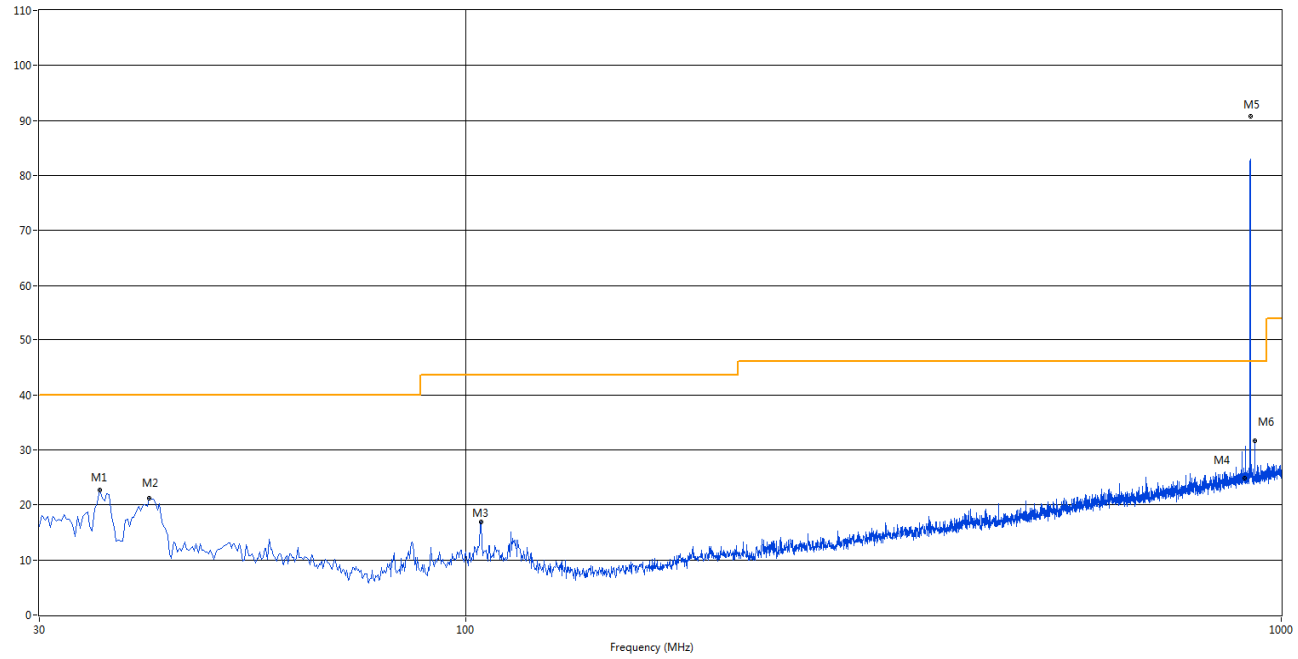
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	35.335	22.96	-25.19	40.0	17.04	Peak	167.10	200	Horizontal	Pass
2	40.913	21.71	-23.36	40.0	18.29	Peak	333.30	200	Horizontal	Pass
3	104.448	17.54	-23.49	43.5	25.96	Peak	312.80	100	Horizontal	Pass
4	**902.000**	26.31	-9.62	46.0	19.69	Peak	149.92	100	Horizontal	Pass
5	908.414	90.74	-9.22	114.0	23.28	Peak	135.30	143	Horizontal	Pass
5*	908.414	90.54	-9.22	94.0	3.46	QP	135.30	143	Horizontal	Pass
6	**928.000**	33.83	-9.38	46.0	12.17	Peak	136.39	191	Horizontal	Pass

High Channel 30 MHz to 1 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	35.578	25.89	-25.11	40.0	14.11	Peak	33.90	100	Vertical	Pass
2	41.883	26.29	-23.00	40.0	13.71	Peak	360.70	100	Vertical	Pass
3	85.533	19.36	-26.68	40.0	20.64	Peak	286.20	100	Vertical	Pass
4	**902.000**	25.04	-9.62	46.0	20.96	Peak	68.03	112	Vertical	Pass
5	916.006	80.29	-9.22	114.0	33.71	Peak	72.50	100	Vertical	Pass
5*	916.006	80.23	-9.22	94.0	13.77	QP	72.50	100	Vertical	Pass
6	**928.000**	31.09	-9.38	46.0	14.91	Peak	327.28	100	Vertical	Pass

High Channel 30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	35.578	22.71	-25.11	40.0	17.29	Peak	95.70	200	Horizontal	Pass
2	40.913	21.16	-23.36	40.0	18.84	Peak	336.40	100	Horizontal	Pass
3	104.448	16.86	-23.49	43.5	26.64	Peak	280.50	100	Horizontal	Pass
4	**902.000**	24.81	-9.62	46.0	21.19	Peak	175.79	100	Horizontal	Pass
5	916.015	91.03	-9.22	114.0	22.97	Peak	322.20	143	Horizontal	Pass
5*	916.015	90.86	-9.22	94.0	3.14	QP	322.20	143	Horizontal	Pass
6	**928.000**	31.45	-9.38	46.0	14.55	Peak	325.67	191	Horizontal	Pass

Test Data and Plots (1 GHz ~ 10th Harmonic)

Note [1]: The marked is the harmonic signal.

Note [2]: Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

Note [3]: Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Note [4]: Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Note [5]: Radiated emissions measured in frequency above 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.

1G-10G ANT H channel 908.4Mhz

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1317.500	37.67	-13.86	74.0	36.33	Peak	269.90	150	Horizontal	Pass
2	1668.500	45.16	-14.79	74.0	28.84	Peak	60.60	150	Horizontal	Pass
3	2128.000	43.77	-10.47	74.0	30.23	Peak	64.30	150	Horizontal	Pass
4	2879.000	44.10	-6.93	74.0	29.90	Peak	215.30	150	Horizontal	Pass
5	3997.500	46.78	-4.15	74.0	27.22	Peak	285.70	150	Horizontal	Pass
6	5688.750	50.79	1.02	74.0	23.21	Peak	35.60	150	Horizontal	Pass

1G-10G ANT V channel 908.4Mhz

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1373.000	40.43	-14.17	74.0	33.57	Peak	241.00	150	Vertical	Pass
2	1681.500	46.99	-14.69	74.0	27.01	Peak	152.40	150	Vertical	Pass
3	2345.000	41.73	-9.89	74.0	32.27	Peak	273.50	150	Vertical	Pass
4	3315.000	45.18	-6.65	74.0	28.82	Peak	97.80	150	Vertical	Pass
5	4032.000	48.11	-3.50	74.0	25.89	Peak	292.40	150	Vertical	Pass
6	5688.750	50.74	1.02	74.0	23.26	Peak	62.60	150	Vertical	Pass

1G-10G ANT H channel 908.42Mhz

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1328.500	38.34	-13.90	74.0	35.66	Peak	188.70	150	Horizontal	Pass
2	1665.000	41.42	-14.77	74.0	32.58	Peak	75.80	150	Horizontal	Pass
3	2370.000	42.71	-9.38	74.0	31.29	Peak	39.20	150	Horizontal	Pass
4	3597.000	45.99	-5.48	74.0	28.01	Peak	144.10	150	Horizontal	Pass
5	4479.750	47.64	-2.43	74.0	26.36	Peak	27.50	150	Horizontal	Pass
6	5073.000	48.97	-0.67	74.0	25.03	Peak	0.10	150	Horizontal	Pass

1G-10G ANT V channel 908.42Mhz

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1532.500	49.54	-14.28	74.0	24.46	Peak	112.40	150	Vertical	Pass
2	1691.500	49.81	-14.67	74.0	24.19	Peak	145.20	150	Vertical	Pass
3	2680.500	43.09	-7.56	74.0	30.91	Peak	97.40	150	Vertical	Pass
4	3186.750	47.51	-6.94	74.0	26.49	Peak	102.30	150	Vertical	Pass
5	4542.750	48.30	-3.43	74.0	25.70	Peak	137.20	150	Vertical	Pass Note 1
6	5904.000	50.81	0.94	74.0	23.19	Peak	242.70	150	Vertical	Pass

1G-10G ANT H channel 916.0Mhz

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1325.500	37.55	-14.10	74.0	36.45	Peak	338.70	150	Horizontal	Pass
2	1683.500	42.61	-14.65	74.0	31.39	Peak	358.60	150	Horizontal	Pass
3	2406.500	41.78	-9.71	74.0	32.22	Peak	166.30	150	Horizontal	Pass
4	3707.250	45.59	-4.34	74.0	28.41	Peak	226.10	150	Horizontal	Pass
5	4574.250	50.09	-2.58	74.0	23.91	Peak	0.80	150	Horizontal	Pass Note 1
6	5757.000	51.07	1.22	74.0	22.93	Peak	253.50	150	Horizontal	Pass

1G-10G ANT V channel 916.0Mhz

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1284.000	39.58	-14.07	74.0	34.42	Peak	130.70	150	Vertical	Pass
2	1642.000	47.19	-14.85	74.0	26.81	Peak	119.80	150	Vertical	Pass
3	2127.500	44.15	-10.50	74.0	29.85	Peak	359.90	150	Vertical	Pass
4	3314.250	42.39	-6.66	74.0	31.61	Peak	360.60	150	Vertical	Pass
5	4570.500	47.97	-2.68	74.0	26.03	Peak	15.90	150	Vertical	Pass Note 1
6	5336.250	48.26	-0.56	74.0	25.74	Peak	47.60	150	Vertical	Pass

Note: The restricted-band bandedge is far from the main frequency, and all of them are bottom noise, so they are not reported.

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ17C0138-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL- SZ17C0138-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL- SZ17C0138-AI.PDF”.

--END OF REPORT--