

FCC

RF

TEST REPORT

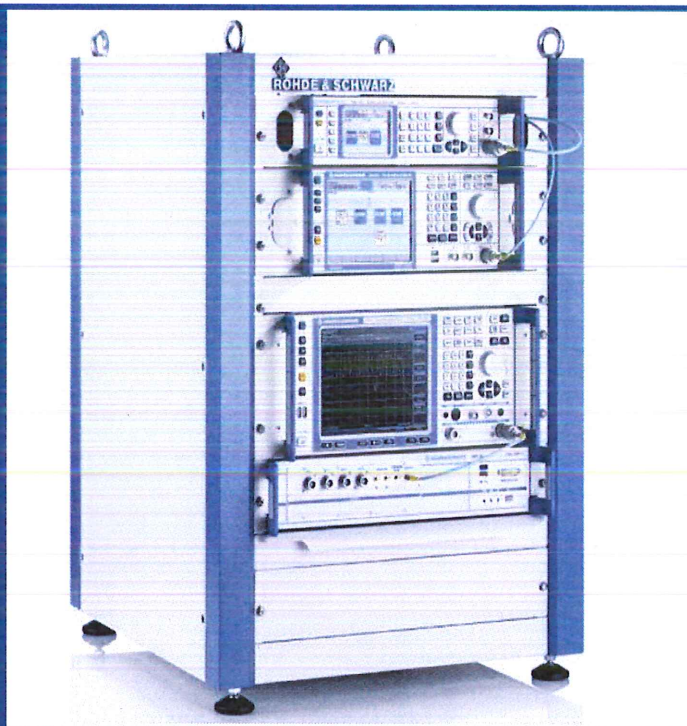
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
iApartments Thermostat Node

ISSUED TO
iApartments, LLC

201 East Kennedy Blvd Suite 1925, Tampa, FL 33602



Tested by: Ye Hongji
Date: May 18, 2020



Report No.: BL-SZ19C0523-602
EUT Name: iApartments Thermostat Node
Model Name: TN100/24/BK
Brand Name: iApartments
Test Standard: 47 CFR Part 15 Subpart C
FCC ID: 2AVIHTN12A

Test Conclusion: Pass
Test Date: Dec. 10, 2019 ~ Dec. 24, 2019
Date of Issue: May 18, 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

<u>Version</u>	<u>Issue Date</u>	<u>Revisions Content</u>
<u>Rev. 01</u>	<u>May 18, 2020</u>	<u>Initial Issue</u>

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

1.4 Announce

- (1) The test report reference to the report template version v2.5.
- (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	iApartments, LLC
Address	201 East Kennedy Blvd Suite 1925, Tampa, FL 33602

2.2 Manufacturer Information

Manufacturer	SUN WEALTH TECHNOLOGY CORPORATION LIMITED
Address	ROOM 605, NO.1, QIANJIN ROAD, THE ORIENTAL PEARL BUSINESS BUILDING, BAOAN DISTRICT, SHENZHEN CITY, CHINA

2.3 Factory Information

Factory	PROPCBA TECHNOLOGY CO, LTD.
Address	2F-3, NO.66, SEC.2, NANKAN RD., LUZHU DIST., TAOYUAN CITY 33855 TAIWAN.

2.4 General Description for Equipment under Test (EUT)

EUT Name	iApartments Thermostat Node
Model Name Under Test	TN100/24/BK
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	V1.6
Software Version	1.4.0
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Technical Information

Network and Wireless connectivity	WIFI 802.11b, 802.11g, 802.11n Z-WAVE
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The requirement for the following technical information of the EUT was tested in this report:

Modulation Type	ASK
Product Type	☐ Mobile ☐ Portable ☒ Fix Location
Frequency Range	The frequency range used is 902 MHz to 928 MHz.
Number of channel	1
Tested Channel	916 MHz
Antenna Type	Helical Antenna
Antenna Gain	-3.7 dBi (In test items related to antenna gain, the final results reflect this figure.)

2.6 Additional Instructions

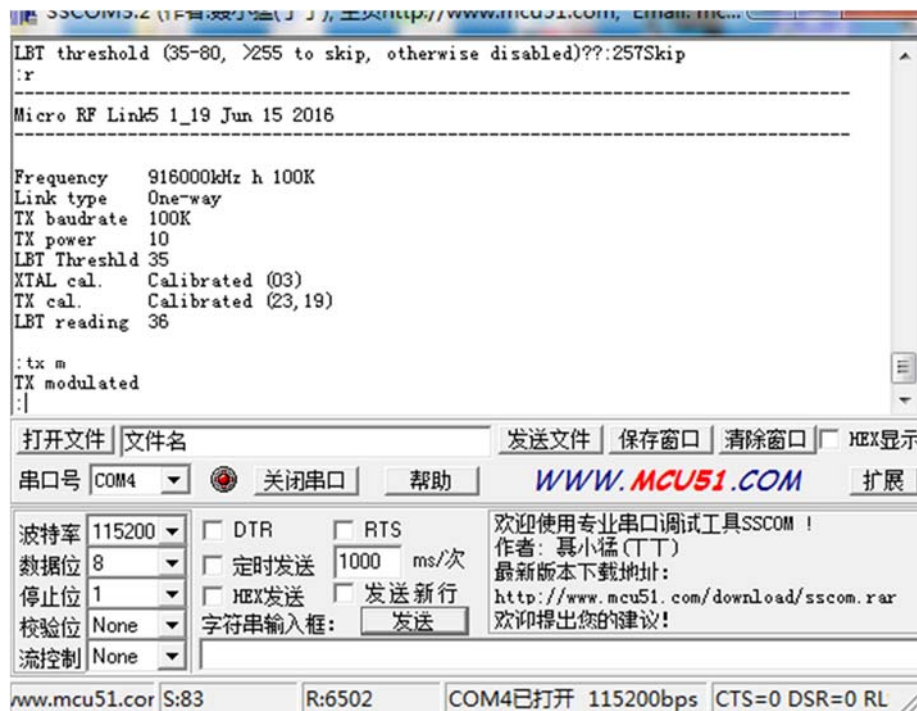
EUT Software Settings:

Mode	☒ Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.
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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	SSCOM		
Support Units (Software installation media)	Description	Manufacturer	Model
	Notebook	Asus	N/A
Mode	Channel	Soft Set	
Z-WAVE	ALL	10	

Run Software



3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15, Subpart C	Miscellaneous Wireless Communications Services
2	ANSI C63.10-2013	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC Part No.	Test Result	Verdict	Remark
1	Antenna Requirement	15.203	--	Pass	Note ¹
2	20 dB and 99% Bandwidth	15.215(c)	ANNEX A.1	Pass	--
3	AC Conducted Emission	15.207	ANNEX A.2	Pass	--
4	Field Strength of Fundamental Emissions	15.249(a)	ANNEX A.3	Pass	--
5	Radiated Emission Test Band Edge Measurement	15.249(a) 15.249(d) 15.209	ANNEX A.4	Pass	Note ²

Note¹: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

Note²: 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% to 55%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+22°C to +25°C
Working Voltage of the EUT	NV (Normal Voltage)	24 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-30	103118	2019.06.13	2020.06.12
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2019.06.13	2020.06.12
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2019.10.29	2020.10.28
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2019.06.13	2020.06.12
LISN	SCHWARZBECK	NSLK 8127	8127-687	2019.06.13	2020.06.12
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101005	2019.06.15	2020.06.14
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2019.06.18	2020.06.17
Power Splitter	KMW	DCPD-LDC	1305003215	--	--
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2019.06.15	2020.06.14
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
Temperature Chamber	AHK	SP20	1412	2019.06.24	2020.06.23
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2017.11.09	2020.11.08
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2018.08.22	2020.08.21
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2019.07.22	2021.07.21
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400KF	J211060273	2019.01.06	2021.01.05
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2022.02.20
Anechoic Chamber	EMC Electronic Co., Ltd	20.10*11.60*7.35m	N/A	2018.07.19	2020.07.18
Shielded Enclosure	ChangNing	CN-130701	130703	--	--
Signal Generator	ROHDE&SCHWARZ	SMB100A	177746	2019.08.23	2020.08.22
Power Amplifier	OPHIR RF	5225F	1037	2020.02.19	2021.02.18
Power Amplifier	OPHIR RF	5273F	1016	2020.02.19	2021.02.18
Directional Coupler	Werlantone	C5982-10	109275	N/A	N/A
Directional Coupler	Werlantone	CHP-273E	S00801z-01	N/A	N/A
Sound Level Meter	B&K	NL-20	00844023	2019.11.12	2020.11.11
Ear Simulator	B&K	4185	2409449	2019.11.12	2020.11.11

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Ear Simulator	B&K	4195	2418189	2019.11.12	2020.11.11
Audio analyzer	B&K	UPL 16	100129	2019.11.12	2020.11.11

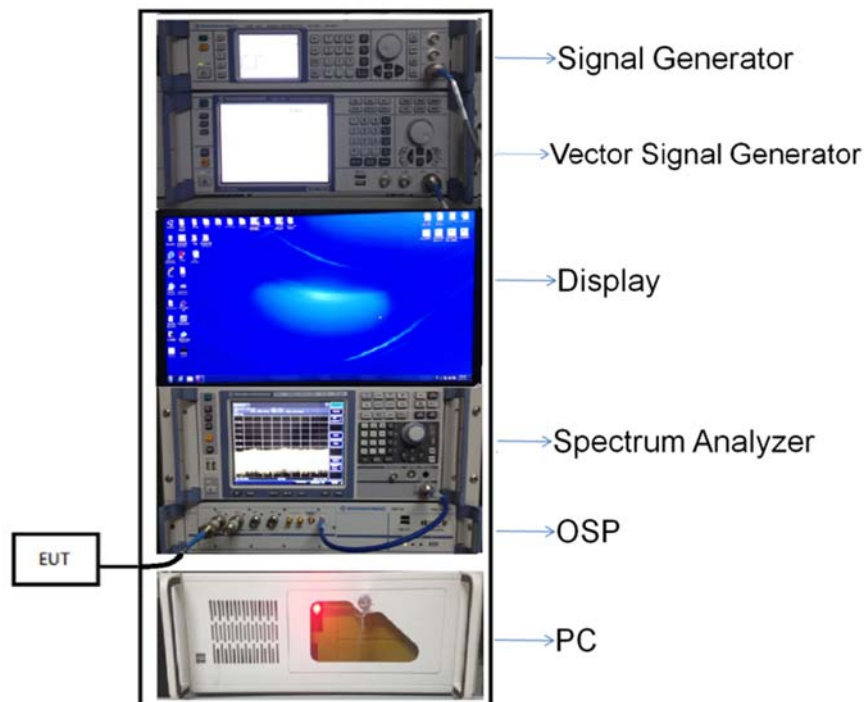
4.3 Description of Test Setup

4.3.1 For Antenna Port Test

Conducted value (dBm) = Measurement value (dBm) + cable loss (dB)

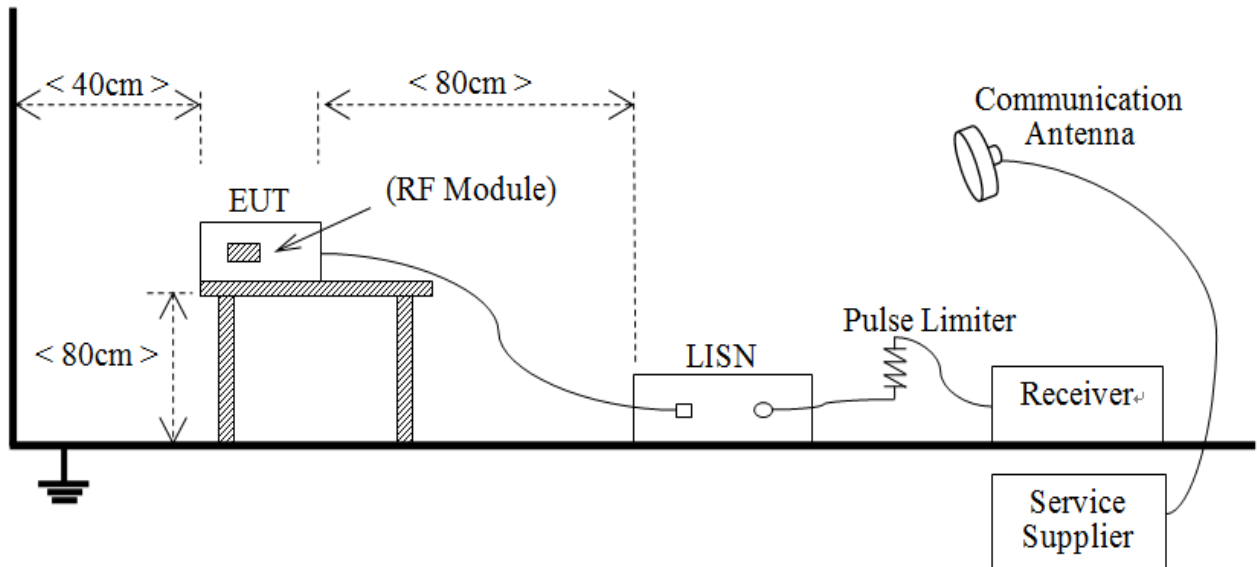
For example: the measurement value is 10 dBm and the cable 0.5dBm used, then the final result of EUT:

Conducted value (dBm) = 10 dBm + 0.5 dB = 10.5 dBm



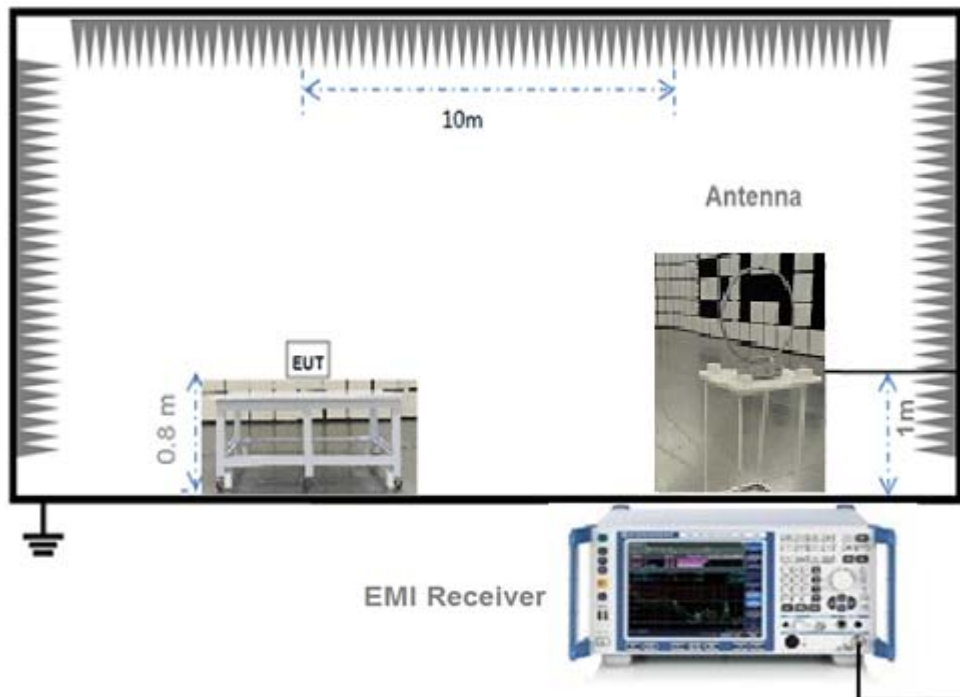
(Diagram 1)

4.3.2 For AC Power Supply Port Test



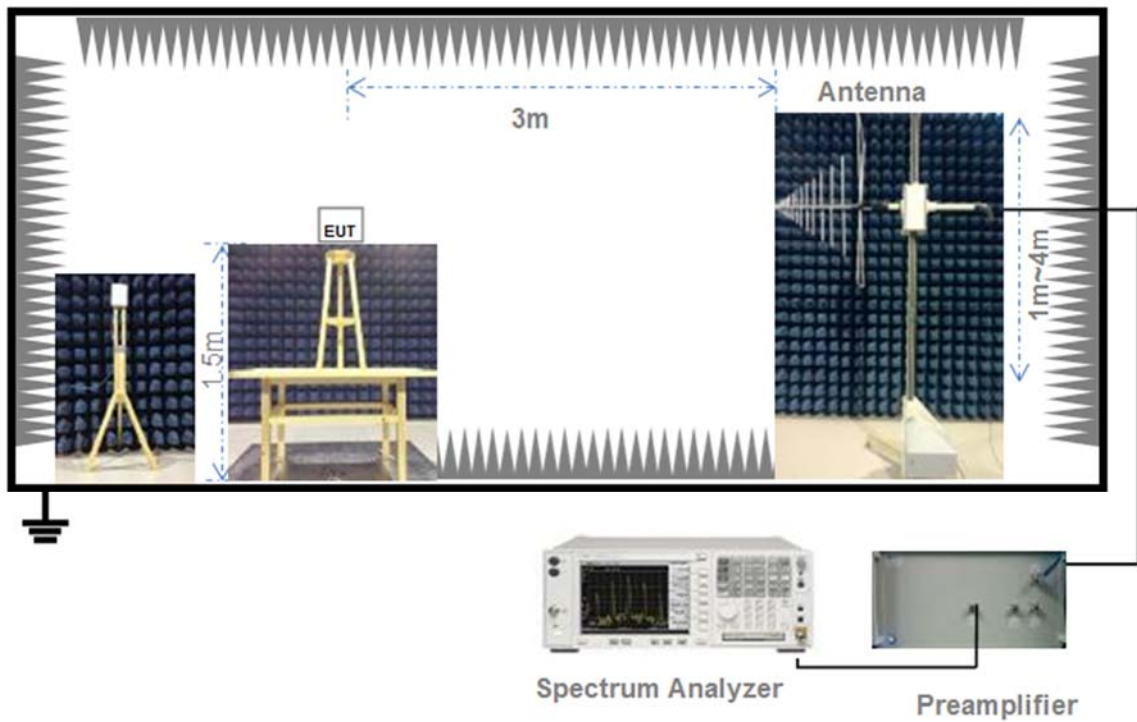
(Diagram 2)

4.3.3 For Radiated Test (Below 30 MHz)



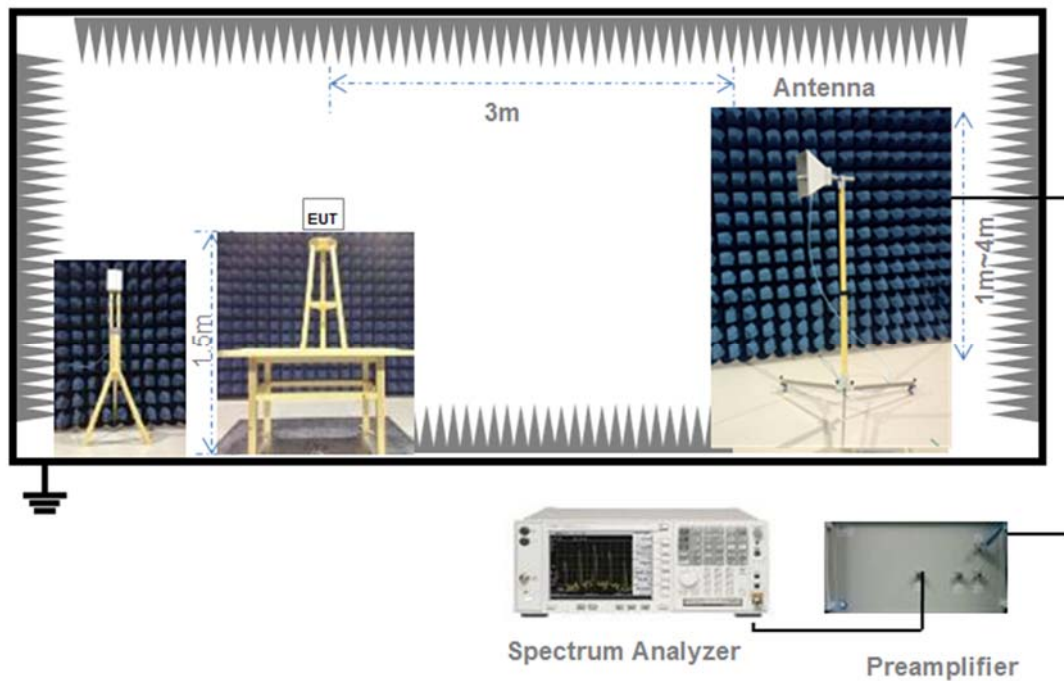
(Diagram 3)

4.3.4 For Radiated Test (30 MHz-1 GHz)



(Diagram 4)

4.3.5 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	Please refer to the EUT Photo documents.

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 $\geq$ 1% of the 20 dB bandwidth

VBW $\geq$ 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 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15 - 0.50	66 to 56*	56 to 46*
0.50 - 5	56	46
5 - 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 field strength of Fundamental emissions

5.4.1 Limit

FCC&15.249(a)

Except as provided in paragraph (b) 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 (μ V/m)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500
24000-24250	250	2500

As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.

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 $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.4.4 Test Result

Please refer to ANNEX A.3.

5.5 Radiated Spurious Emission and Bandedge Measurement

5.5.1 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:

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

5.5.2 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.

5.5.3 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 $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.5.4 Test Result

Please refer to ANNEX A.4.

ANNEX A TEST RESULT

A.1 20dB bandwidth and 99% bandwidth

Test Data

Z-WAVE			
Channel	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)	Verdict
916MHz	0.162354	0.150507	Pass

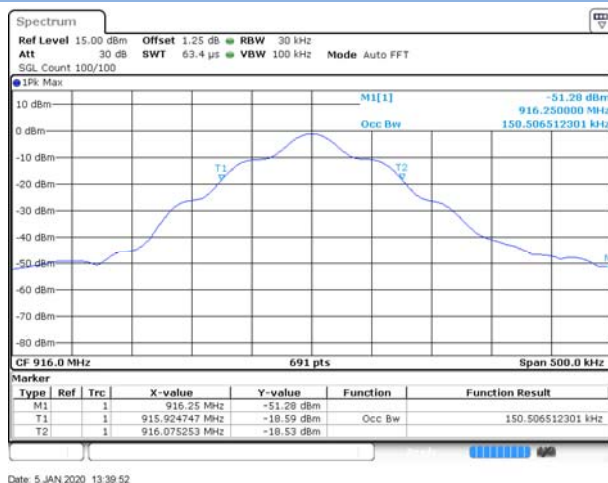
Test plots (20 dB Bandwidth)

916MHz CHANNEL



Test plots (99% Bandwidth)

916MHz CHANNEL



A.2 AC Conducted Emission

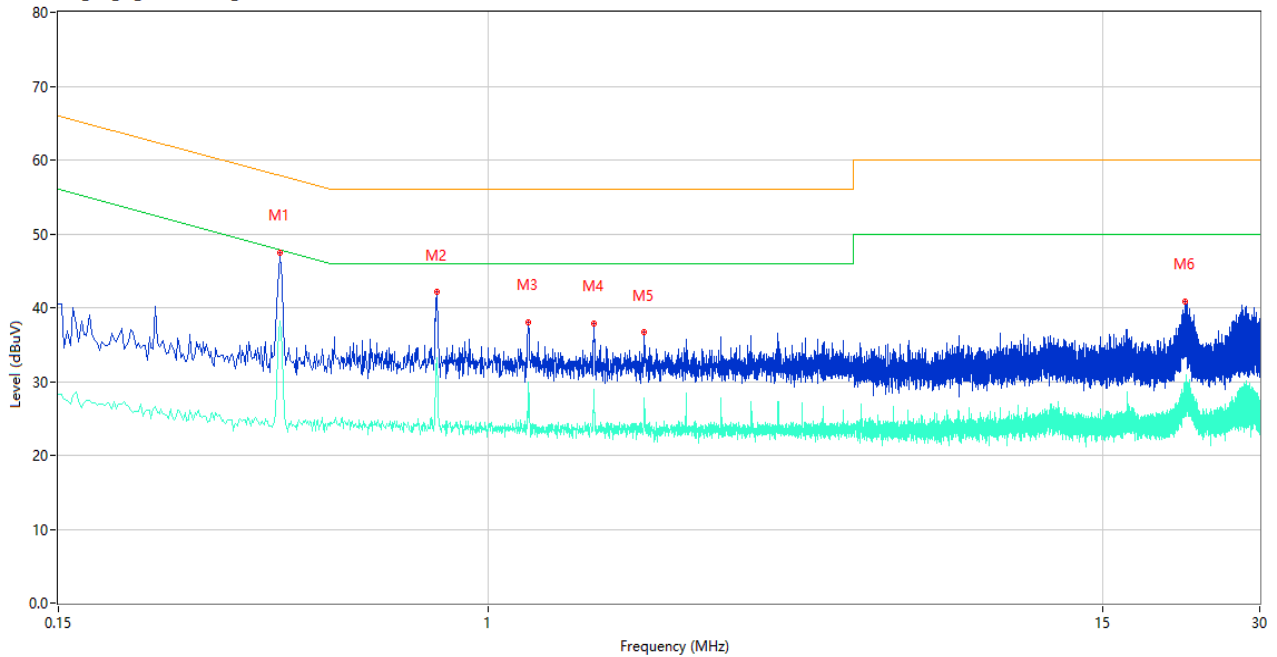
Note¹: The EUT is working in the Normal link mode. All modes have been tested and normal link mode is worst.

Note²: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 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 (120 VAC, 60 Hz) shown here.

Test Data and Plots

PHASE L

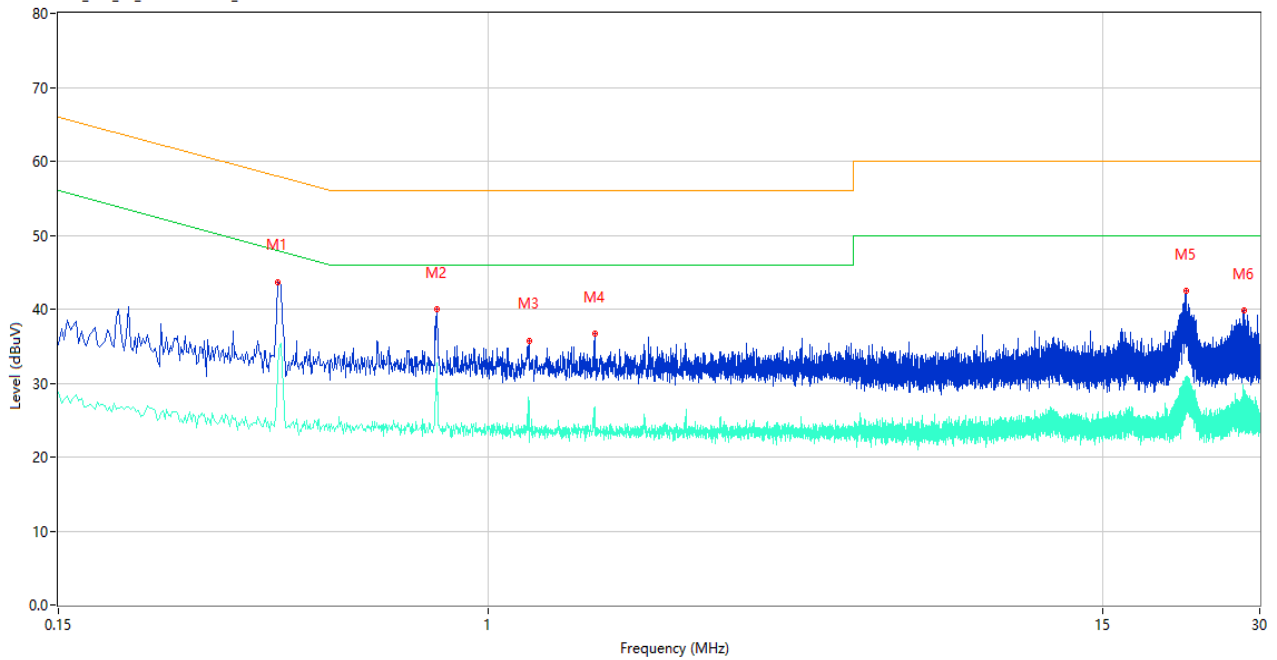
CE Test case_FCC_CE_FCC PART 15B_ Class B



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.398	47.50	10.31	57.90	-10.40	Peak	L	Pass
1**	0.398	38.19	10.31	47.90	-9.71	AV	L	Pass
2	0.798	42.07	10.27	56.00	-13.93	Peak	L	Pass
2**	0.798	32.54	10.27	46.00	-13.46	AV	L	Pass
3	1.192	38.07	10.24	56.00	-17.93	Peak	L	Pass
3**	1.192	29.98	10.24	46.00	-16.02	AV	L	Pass
4	1.588	37.91	10.25	56.00	-18.09	Peak	L	Pass
4**	1.588	28.63	10.25	46.00	-17.37	AV	L	Pass
5	1.990	36.70	10.27	56.00	-19.30	Peak	L	Pass
5**	1.990	26.06	10.27	46.00	-19.94	AV	L	Pass
6	21.564	40.90	10.59	60.00	-19.10	Peak	L	Pass
6**	21.564	26.71	10.59	50.00	-23.29	AV	L	Pass

PHASE N

CE Test case_FCC_CE_FCC PART 15B_Class B



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.394	43.70	10.30	57.98	-14.28	Peak	N	Pass
1**	0.394	31.62	10.30	47.98	-16.36	AV	N	Pass
2	0.796	40.02	10.27	56.00	-15.98	Peak	N	Pass
2**	0.796	32.75	10.27	46.00	-13.25	AV	N	Pass
3	1.196	35.78	10.25	56.00	-20.22	Peak	N	Pass
3**	1.196	27.64	10.25	46.00	-18.36	AV	N	Pass
4	1.596	36.67	10.25	56.00	-19.33	Peak	N	Pass
4**	1.596	26.71	10.25	46.00	-19.29	AV	N	Pass
5	21.688	42.47	10.59	60.00	-17.53	Peak	N	Pass
5**	21.688	28.05	10.59	50.00	-21.95	AV	N	Pass
6	27.974	39.86	10.71	60.00	-20.14	Peak	N	Pass
6**	27.974	29.05	10.71	50.00	-20.95	AV	N	Pass

A.3 Field Strength of Fundamental Emissions

Note¹: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note²: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

Note³: According the ANSI C63.10-2013, 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.

Note⁴: The Level (dBuV/m) has been corrected by factor.

Note⁵: The adjacent to the restricted frequency band (608-614MHz and 960-1240MHz) is far away the fundamental, it is noise only. Please refer to Section A.8 for test data.

Test Data

Frequency (MHz)	Field Strength (dBuV)	Limit (dBuV/m)	Verdict
916	56.04	500	Pass

A.4 Radiated Emission and Bandedge Measurement

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

Note 2: For the test data above 1 GHz, according the ANSI C63.10-2013, 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.

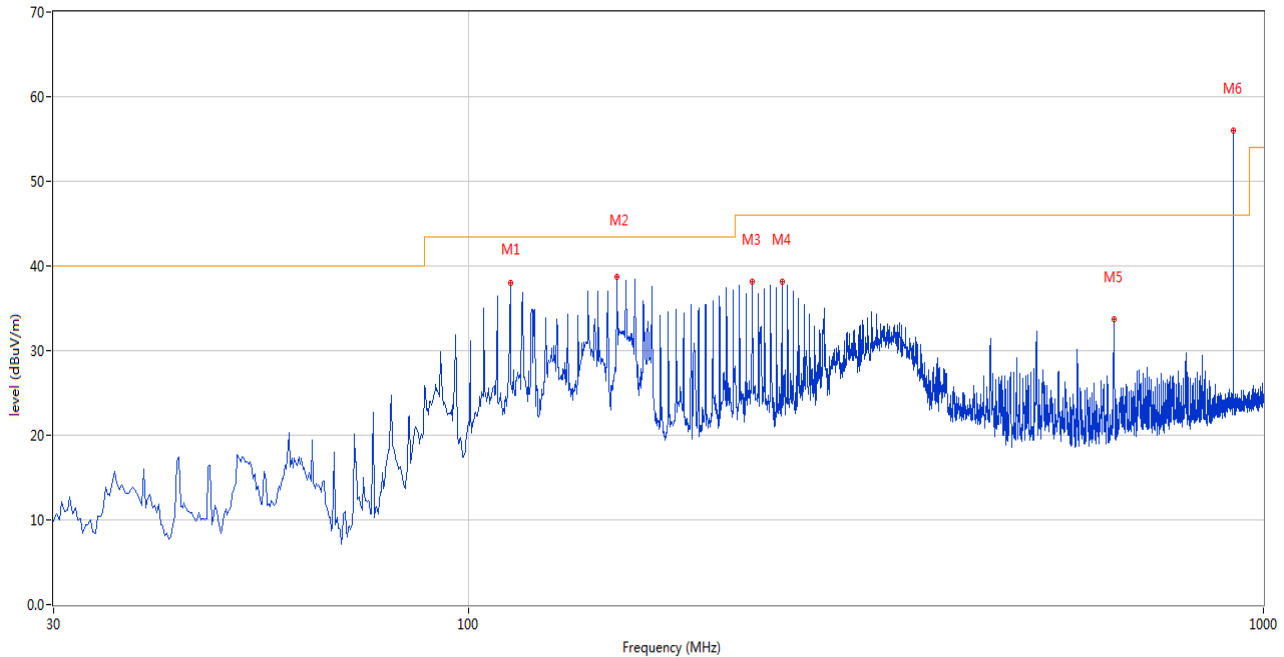
Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

Note 4: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and normal link mode is worst.

Test Data and Plots

30 MHz to 1 GHz, ANT H

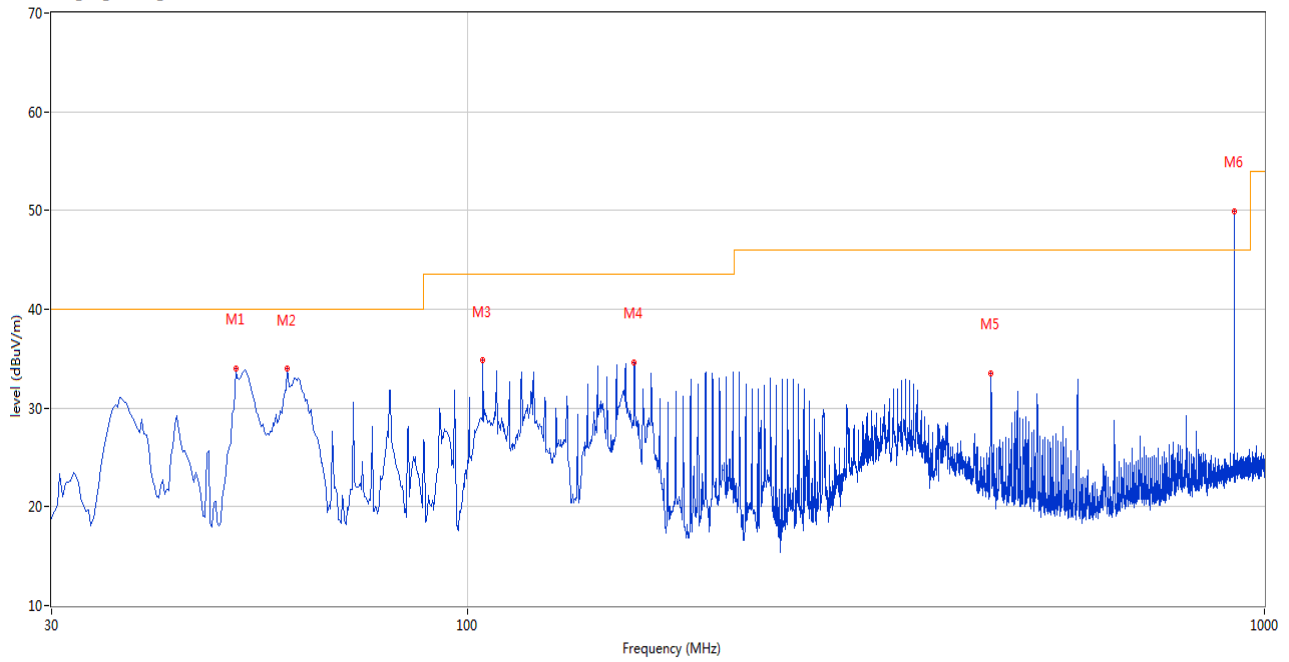
RE Test case_FCC_Part 15B_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	112.692	37.95	-28.12	43.5	-5.55	Peak	226.00	200	Horizontal	Pass
2	153.675	38.69	-24.84	43.5	-4.81	Peak	219.00	200	Horizontal	Pass
3	227.395	38.15	-27.02	46.0	-7.85	Peak	192.00	100	Horizontal	Pass
4	247.765	38.16	-26.02	46.0	-7.84	Peak	165.00	100	Horizontal	Pass
5	647.890	33.75	-15.56	46.0	-12.25	Peak	150.00	100	Horizontal	Pass
6	916.095	56.04	-10.76	46.0	10.04	Peak	280.00	100	Horizontal	N/A

30 MHz to 1 GHz, ANT V

RE Test case_FCC_Part 15B_FCC Part 15B Class B 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	51.097	34.02	-26.61	40.0	-5.98	Peak	13.00	100	Vertical	Pass
2	59.343	33.94	-27.50	40.0	-6.06	Peak	270.00	100	Vertical	Pass
3	104.448	34.80	-28.72	43.5	-8.70	Peak	76.00	100	Vertical	Pass
4	161.678	34.57	-24.87	43.5	-8.93	Peak	316.00	100	Vertical	Pass
5	453.405	33.52	-19.64	46.0	-12.48	Peak	328.00	100	Vertical	Pass
6	916.095	49.92	-10.76	46.0	3.92	Peak	154.00	100	Vertical	N/A

1 GHz to 10 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1526.000	37.93	-15.20	74.0	-36.07	Peak	192.00	150	Horizontal	Pass
1**	1526.000	32.59	-15.20	54.0	-21.41	AV	192.00	150	Horizontal	Pass
2	2748.500	47.49	-8.99	74.0	-26.51	Peak	207.00	150	Horizontal	Pass
2**	2748.500	45.47	-8.99	54.0	-8.53	AV	207.00	150	Horizontal	Pass
3	3406.000	45.08	-6.80	74.0	-28.92	Peak	124.00	150	Horizontal	Pass
3**	3406.000	28.89	-6.80	54.0	-25.11	AV	124.00	150	Horizontal	Pass
4	4117.000	46.52	-4.08	74.0	-27.48	Peak	60.00	150	Horizontal	Pass
4**	4117.000	30.13	-4.08	54.0	-23.87	AV	60.00	150	Horizontal	Pass
5	5311.000	50.05	0.07	74.0	-23.95	Peak	320.00	150	Horizontal	Pass
5**	5311.000	33.37	0.07	54.0	-20.63	AV	320.00	150	Horizontal	Pass
6	6943.000	53.71	4.27	74.0	-20.29	Peak	258.00	150	Horizontal	Pass
6**	6943.000	36.72	4.27	54.0	-17.28	AV	258.00	150	Horizontal	Pass

1 GHz to 10 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1447.000	38.15	-14.76	74.0	-35.85	Peak	49.00	150	Vertical	Pass
1**	1447.000	20.78	-14.76	54.0	-33.22	AV	49.00	150	Vertical	Pass
2	1951.500	40.46	-13.43	74.0	-33.54	Peak	260.00	150	Vertical	Pass
2**	1951.500	22.51	-13.43	54.0	-31.49	AV	260.00	150	Vertical	Pass
3	2748.000	44.77	-9.09	74.0	-29.23	Peak	1.00	150	Vertical	Pass
3**	2748.000	32.16	-9.09	54.0	-21.84	AV	1.00	150	Vertical	Pass
4	3451.000	45.94	-6.57	74.0	-28.06	Peak	0.00	150	Vertical	Pass
4**	3451.000	28.12	-6.57	54.0	-25.88	AV	0.00	150	Vertical	Pass
5	5218.000	50.38	-0.25	74.0	-23.62	Peak	28.00	150	Vertical	Pass
5**	5218.000	33.56	-0.25	54.0	-20.44	AV	28.00	150	Vertical	Pass
6	7606.000	55.55	18.34	74.0	-18.45	Peak	360.00	150	Vertical	Pass
6**	7606.000	38.65	18.34	54.0	-15.35	AV	360.00	150	Vertical	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ19C0523-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL- SZ19C0523-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL- SZ19C0523-AI.PDF”.

--END OF REPORT--