

FCC

RF

TEST REPORT

ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
SKY ROVER KING

ISSUED TO
Alpha Group Co., Ltd.

Alpha Animation Industrial Area, Jinhong Road East & Fengxiang Road
North, Chenghai District, Shantou, Guangdong, P.R. China



Tested by: Ye Hongji

Date: Apr. 21, 2021

Approved by: Wei Yanquan

(Chief Engineer)

Date: Apr. 21, 2021

Report No.: BL-SZ2140204-601

EUT Name: SKY ROVER KING

Model Name: US858952

Brand Name: Sky Rover

Test Standard: 47 CFR Part 15 Subpart C

FCC ID: 2AIRP-858951

Test Conclusion: Pass

Test Date: Apr. 13, 2021 ~ Apr. 16, 2021

Date of Issue: Apr. 21, 2021

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>Apr. 21, 2021</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1	ADMINISTRATIVE DATA (GENERAL INFORMATION)	4
1.1	Identification of the Testing Laboratory	4
1.2	Identification of the Responsible Testing Location	4
1.3	Laboratory Condition	4
1.4	Announce	4
2	PRODUCT INFORMATION	5
2.1	Applicant Information	5
2.2	Manufacturer Information	5
2.3	Factory Information	5
2.4	General Description for Equipment under Test (EUT)	5
2.5	Technical Information	6
2.6	Additional Instructions	7
3	SUMMARY OF TEST RESULTS.....	8
3.1	Test Standards.....	8
3.2	Verdict.....	8
4	GENERAL TEST CONFIGURATIONS.....	9
4.1	Test Environments	9
4.2	Test Equipment List	9
4.3	Measurement Uncertainty	10
4.4	Description of Test Setup.....	11
4.4.1	For Antenna Port Test	11
4.4.2	For AC Power Supply Port Test	11
4.4.3	For Radiated Test (Below 30 MHz)	12
4.4.4	For Radiated Test (30 MHz-1 GHz)	12
4.4.5	For Radiated Test (Above 1 GHz).....	13
5	TEST ITEMS.....	14

5.1	Antenna Requirements	14
5.1.1	Relevant Standards	14
5.1.2	Antenna Anti-Replacement Construction	14
5.1.3	Antenna Gain	14
5.2	20 dB and 99% Bandwidth	15
5.2.1	Limit	15
5.2.2	Test Setups	15
5.2.3	Test Procedure	15
5.2.4	Test Result	15
5.3	AC Conducted Emission	16
5.3.1	Limit	16
5.3.2	Test Setups	16
5.3.3	Test Procedure	16
5.3.4	Test Result	16
5.4	Radiated Spurious Emission	17
5.4.1	Limit	17
5.4.2	Test Setups	17
5.4.3	Test Procedure	17
5.4.4	Test Result	18
5.5	Band Edge (Restricted-band band-edge)	19
5.5.1	Limit	19
5.5.2	Test Setups	19
5.5.3	Test Procedure	19
5.5.4	Test Result	19
ANNEX A	TEST RESULT	20
A.1	20 dB and 99% Bandwidth	20
A.2	AC Conducted Emission	22
A.3	Radiated Emission	23
A.4	Band Edge(Restricted-band band-edge)	28
ANNEX B	TEST SETUP PHOTOS	29
ANNEX C	EUT EXTERNAL PHOTOS	29
ANNEX D	EUT INTERNAL PHOTOS	29

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.
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 v6.7.
- (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	Alpha Group Co., Ltd.
Address	Alpha Animation Industrial Area, Jinhong Road East & Fengxiang Road North, Chenghai District, Shantou, Guangdong, P.R. China

2.2 Manufacturer Information

Manufacturer	Alpha Group Co., Ltd.
Address	Alpha Animation Industrial Area, Jinhong Road East & Fengxiang Road North, Chenghai District, Shantou, Guangdong, P.R. China

2.3 Factory Information

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	SKY ROVER KING
Model Name Under Test	US858952
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	YW858050GTX-G02
Software Version	FC298TX_TX_heli_V1.00
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Technical Information

Network and Wireless connectivity	2.4G ISM Band (GFSK modulation)
-----------------------------------	---------------------------------

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

Modulation Technology	FHSS
Modulation Type	GFSK
Product Type	☐ Mobile ☒ Portable ☐ Fix Location
Transfer Rate	1 Mbps
Frequency Range	The frequency range used is 2405 MHz to 2480 MHz.
Number of channel	73 (at intervals of 1 MHz)
Tested Channel	5 (2405 MHz), 42 (2442 MHz), 80 (2480 MHz)
Antenna Type	Dipole Antenna
Antenna Gain	2.3 dBi (In test items related to antenna gain, the final results reflect this figure. This value is provided by the applicant.)

All channel was listed on the following table:

Channel number	Freq. (MHz)	Channel number	Freq. (MHz)	Channel number	Freq. (MHz)	Channel number	Freq. (MHz)
5	2405	26	2426	46	2446	66	2466
7	2407	27	2427	47	2447	67	2467
8	2408	28	2428	48	2448	68	2468
9	2409	29	2429	49	2449	69	2469
10	2410	30	2430	50	2450	70	2470
11	2411	31	2431	51	2451	71	2471
12	2412	32	2432	52	2452	72	2472
13	2413	33	2433	53	2453	73	2473
14	2414	34	2434	54	2454	74	2474
15	2415	35	2435	55	2455	75	2475
16	2416	36	2436	56	2456	76	2476
17	2417	37	2437	57	2457	77	2477
18	2418	38	2438	58	2458	80	2480
19	2419	39	2439	59	2459	-	-
20	2420	40	2440	60	2460	-	-
21	2421	41	2441	61	2461	-	-
22	2422	42	2442	62	2462	-	-
23	2423	43	2443	63	2463	-	-
24	2424	44	2444	64	2464	-	-
25	2425	45	2445	65	2465	-	-

2.6 Additional Instructions

EUT Software Settings:

Mode	☒ The product is tested by pressing the button to control the frequency.
------	--

Power level setup in software			
Test Software Version	N/A		
Mode	Channel	Frequency (MHz)	Soft Set
GFSK	5	2405	TX LEVEL is built-in set parameters and cannot be changed and selected.
	42	2442	
	80	2480	

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	N/A	Note ²
4	Radiated Spurious Emission	15.249(a)	ANNEX A.3	Pass	--
5	Band Edge(Restricted-band band- edge)	15.249(a)	ANNEX A.4	Pass	--

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

Note 2: The EUT only powered by battery, so the Conducted Emission test is not applicable.

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)	3.7 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-30	103118	2020.06.08	2021.06.07
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2020.06.08	2021.06.07
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2020.06.09	2021.06.08
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2020.06.09	2021.06.08
LISN	SCHWARZBECK	NSLK 8127	8127-687	2020.06.09	2021.06.08
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101005	2020.06.08	2021.06.07
Bluetooth Signaling Unit	ROHDE&SCHWARZ	CMW270	100607	2020.06.08	2021.06.07
Bluetooth Signaling Unit	ROHDE&SCHWARZ	CMW500	142028	2020.06.08	2021.06.07
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2020.06.08	2021.06.07
Power Splitter	KMW	DCPD-LDC	1305003215	--	--
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2020.06.08	2021.06.07
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
Temperature Chamber	AHK	SP20	1412	2020.06.10	2021.06.09
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2019.10.29	2021.10.28
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2019.07.02	2021.07.01
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1917	2019.07.02	2021.07.01
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400KF	J211060273	2021.01.05	2023.01.04
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	2018.08.08	2021.08.07
Shielded Enclosure	ChangNing	CN-130701	130703	--	--
Signal Generator	ROHDE&SCHWARZ	SMB100A	177746	2020.06.08	2021.06.07
Power Amplifier	OPHIR RF	5225F	1037	2021.02.18	2022.02.17
Power Amplifier	OPHIR RF	5273F	1016	2021.02.18	2022.02.17
Directional Coupler	Werlantone	C5982-10	109275	N/A	N/A

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Directional Coupler	Werlantone	CHP-273E	S00801z-01	N/A	N/A
Sound Level Meter	B&K	NL-20	00844023	2020.10.23	2021.10.22
Ear Simulator	B&K	4192-L-001	3038758	2021.02.18	2022.02.17
Audio analyzer	B&K	UPL 16	100129	2021.02.27	2022.02.26

4.3 Measurement Uncertainty

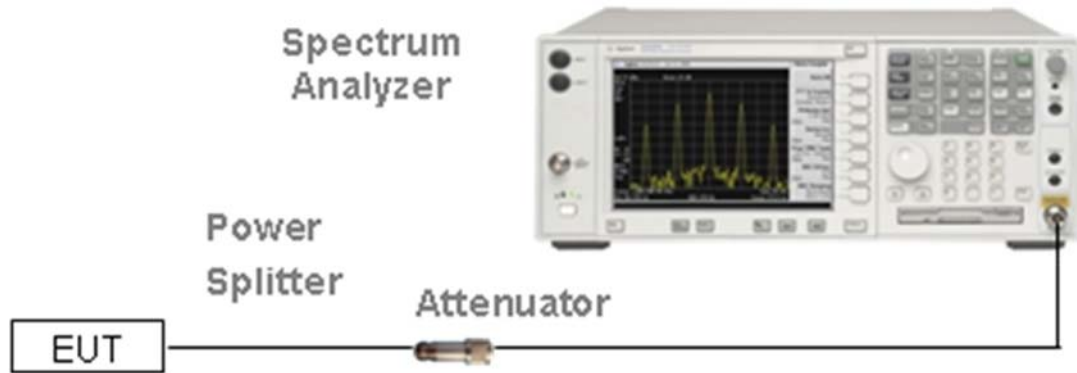
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

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	$\pm 4\%$
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	$\pm 1^\circ\text{C}$
Humidity	$\pm 4\%$

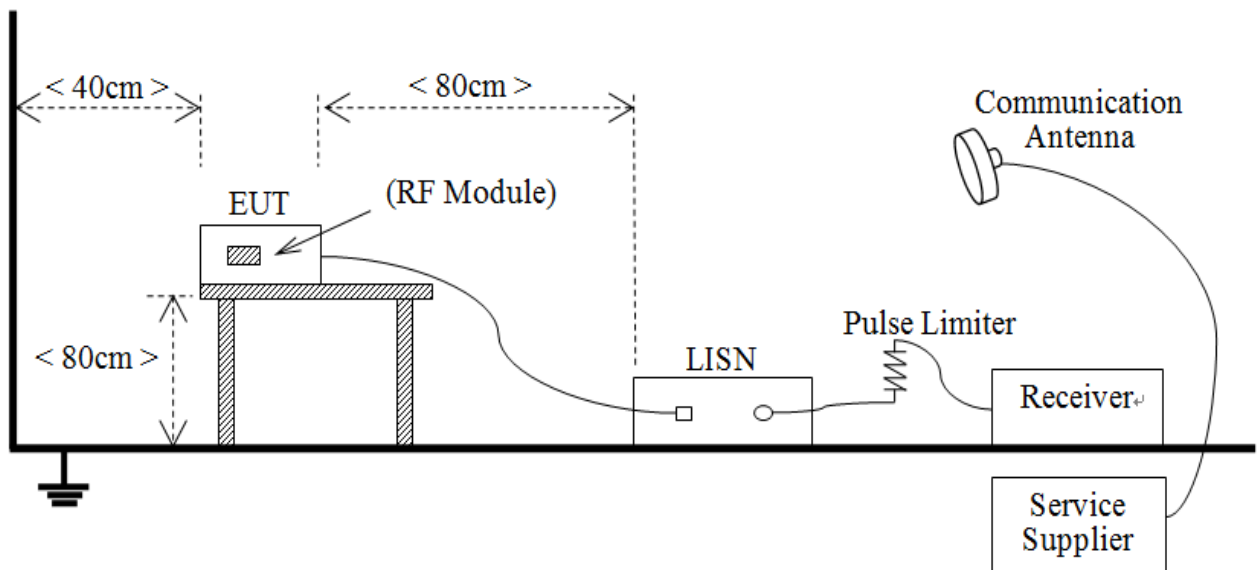
4.4 Description of Test Setup

4.4.1 For Antenna Port Test



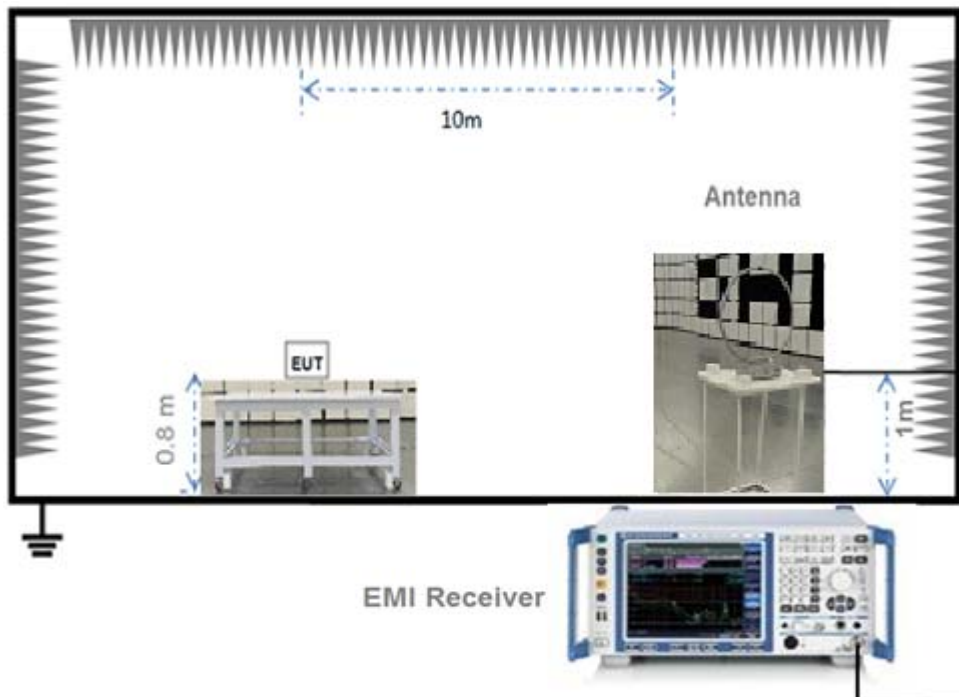
(Diagram 1)

4.4.2 For AC Power Supply Port Test



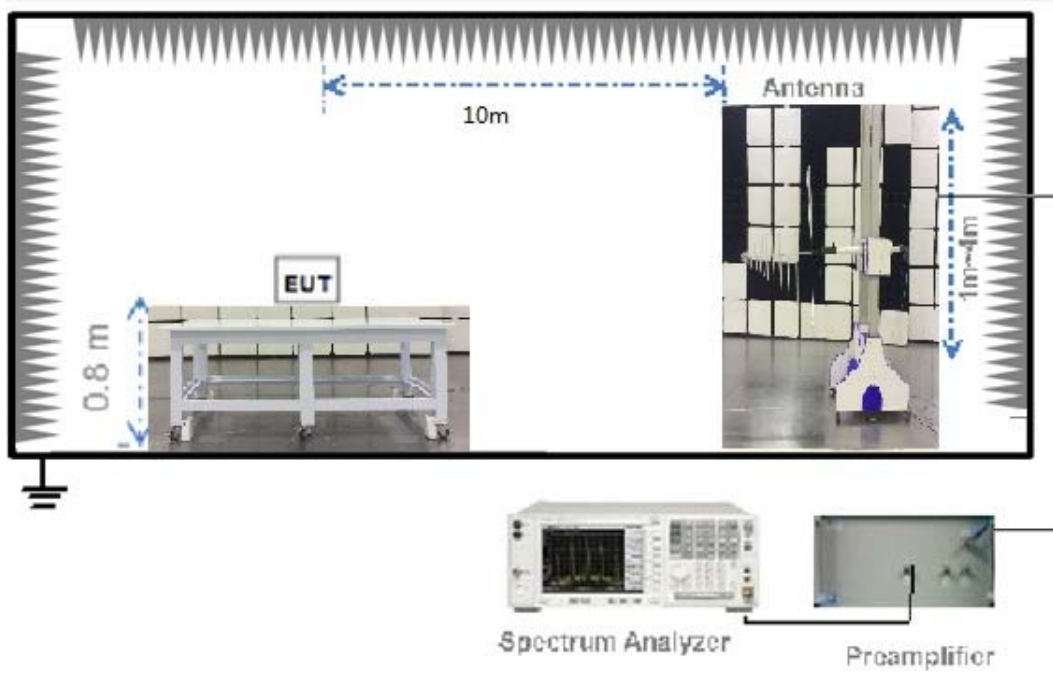
(Diagram 2)

4.4.3 For Radiated Test (Below 30 MHz)



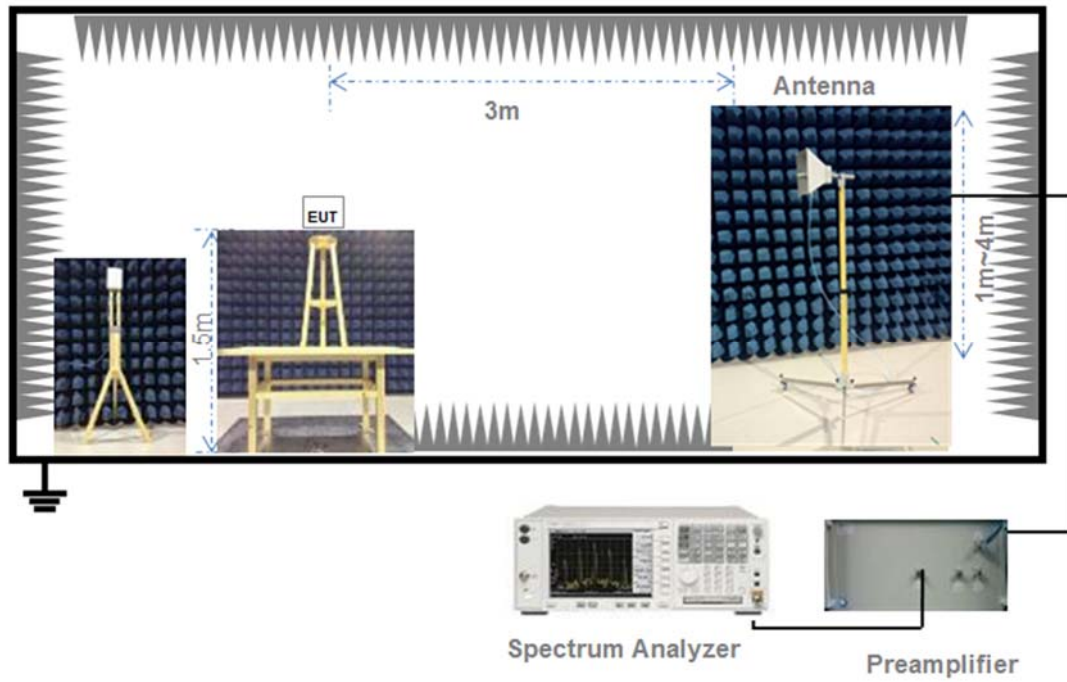
(Diagram 3)

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); RSS-Gen 8.3

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.

RSS-Gen 6.6

The emission bandwidth (×dB) is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated × dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3× the resolution bandwidth.

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth, as calculated or measured

5.2.2 Test Setups

See section 4.4.1 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; RSS-Gen 8.8

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)	
	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 4.4.1 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

5.4.1 Limit

FCC §15.249(a); RSS-210 B.10& RSS-Gen 8.9

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

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 4.4.2-4.4.5 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 Band Edge (Restricted-band band-edge)

5.5.1 Limit

FCC §15.249(a); RSS-210 B.10&RSS-Gen 8.10

Radiated emission outside the frequency band attenuation below the general limits specified in FCC section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in FCC section 15.205(a), must also comply with the radiated emission limits specified in FCC section 15.209(a).

5.5.2 Test Setups

See section 4.4.3 to 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

For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported, Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

5.5.4 Test Result

Please refer to ANNEX A.4.

ANNEX A TEST RESULT

A.1 20 dB and 99% Bandwidth

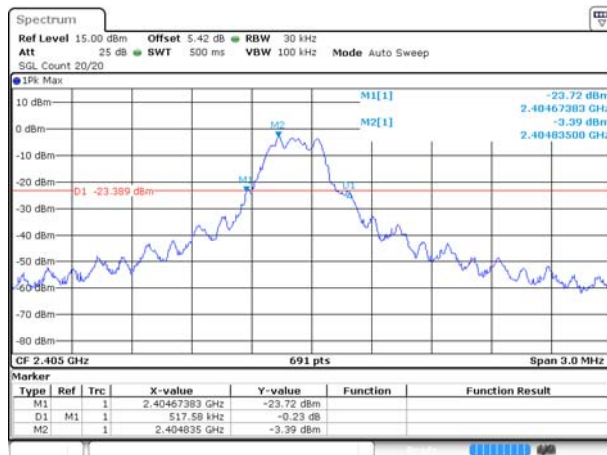
Test Data

Frequency (MHz)	20 dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low	0.517578	0.395080
Middle	0.525879	0.416787
High	0.539062	0.460203

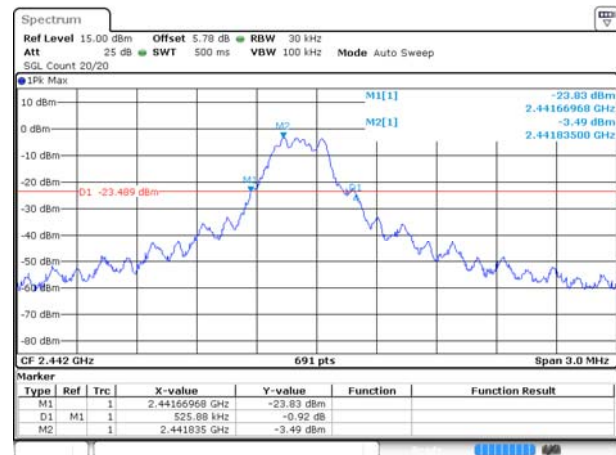
Test plots

20 dB Bandwidth

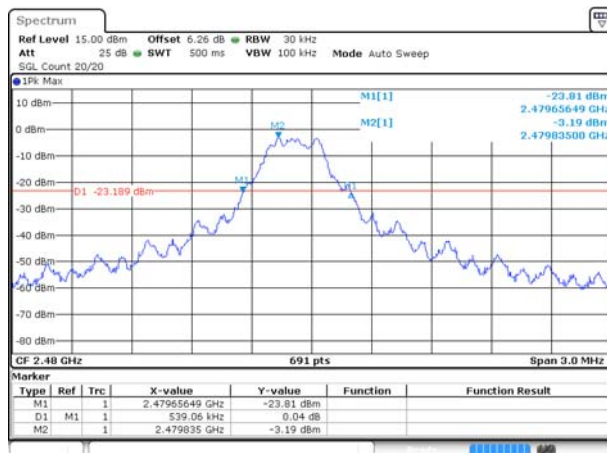
LOW CHANNEL



MIDDLE CHANNEL

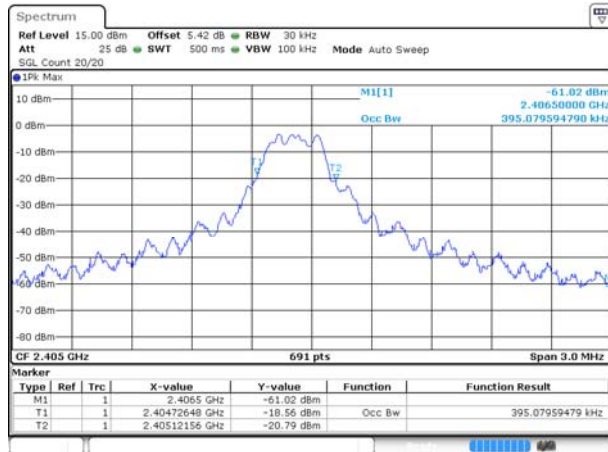


HIGH CHANNEL

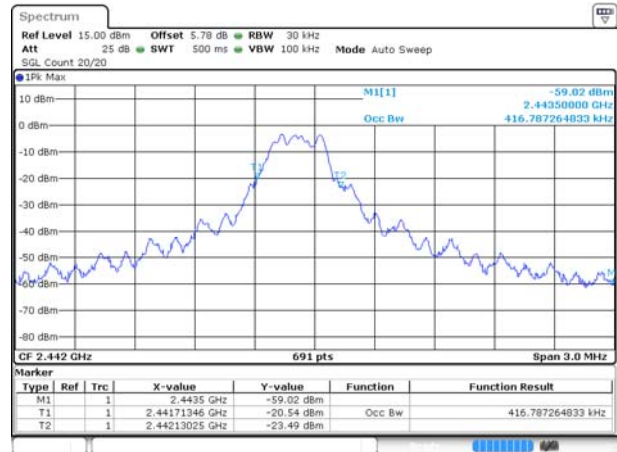


99% Bandwidth

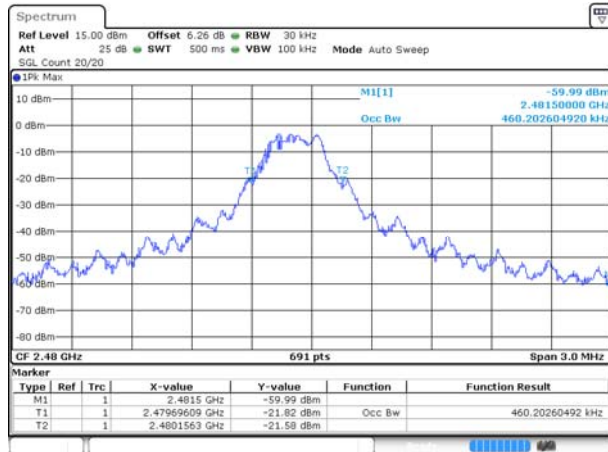
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



A.2 AC Conducted Emission

Note: Not applicable.

A.3 Radiated Emission

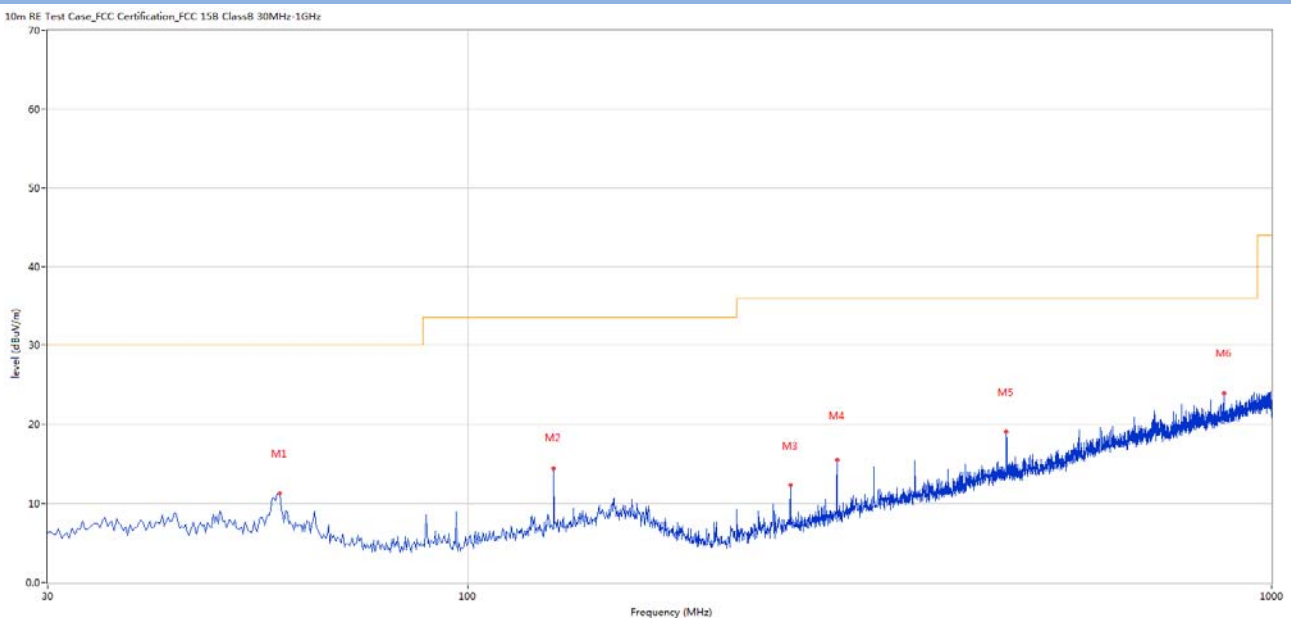
Note¹: The symbol of “--” in the table which means not application.

Note²: 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.

Note³: 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.

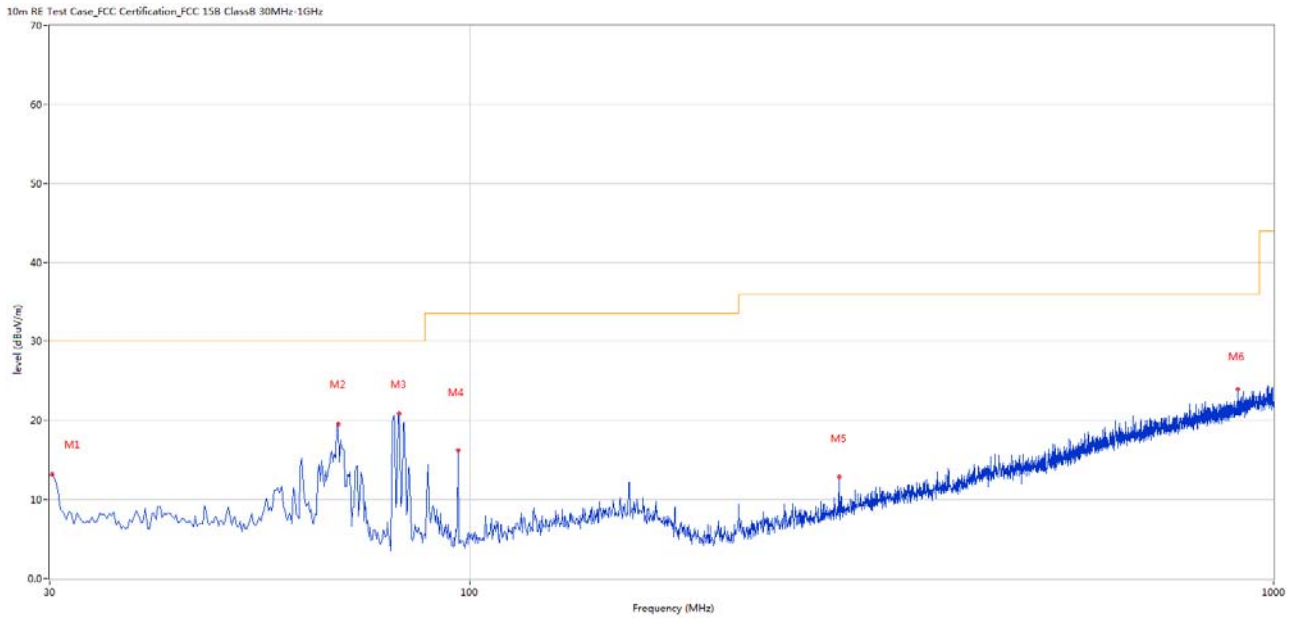
Note⁴: The EUT is working in the Normal link mode below 1 GHz. All modes have been tested and normal link mode is worst.

30 MHz to 1 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	58.365	11.21	-27.78	30.0	-18.79	Peak	360.00	200	Horizontal	Pass
2	127.946	14.40	-27.34	33.5	-19.10	Peak	360.00	200	Horizontal	Pass
3	251.832	12.27	-27.31	36.0	-23.73	Peak	280.00	200	Horizontal	Pass
4	287.956	15.47	-26.09	36.0	-20.53	Peak	280.00	200	Horizontal	Pass
5	467.846	19.01	-21.45	36.0	-16.99	Peak	250.00	200	Horizontal	Pass
6	872.719	23.94	-12.89	36.0	-12.06	Peak	134.00	200	Horizontal	Pass

30 MHz to 1 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	30.242	13.12	-27.46	30.0	-16.88	Peak	231.00	100	Vertical	Pass
2	68.548	19.52	-29.45	30.0	-10.48	Peak	40.00	100	Vertical	Pass
3	81.640	20.85	-31.25	30.0	-9.15	Peak	174.00	200	Vertical	Pass
4	96.671	16.24	-30.43	33.5	-17.26	Peak	164.00	200	Vertical	Pass
5	287.956	12.89	-26.09	36.0	-23.11	Peak	231.00	100	Vertical	Pass
6	901.570	23.95	-12.41	36.0	-12.05	Peak	225.00	200	Vertical	Pass

Note 1: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious above 18G is noise only, do not show on the report.

1 GHz to 18 GHz, ANT H Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1313.700	37.51	-14.70	114.0	-128.70	Peak	230.00	150	Horizontal	Pass
1**	1313.700	27.06	-14.70	94.0	-108.70	AV	230.00	150	Horizontal	Pass
2	2404.900	82.67	-10.76	114.0	-124.76	Peak	223.00	150	Horizontal	Pass
2**	2404.900	82.65	-10.76	94.0	-104.76	AV	223.00	150	Horizontal	Pass
3	2514.700	49.37	-9.92	114.0	-123.92	Peak	172.00	150	Horizontal	Pass
3**	2514.700	48.66	-9.92	94.0	-103.92	AV	172.00	150	Horizontal	Pass
4	4810.000	48.17	-1.41	114.0	-115.41	Peak	154.00	150	Horizontal	Pass
4**	4810.000	42.38	-1.41	94.0	-95.41	AV	154.00	150	Horizontal	Pass
5	11614.950	49.14	20.21	114.0	-93.79	Peak	284.00	150	Horizontal	Pass
5**	11614.950	37.33	20.21	94.0	-73.79	AV	284.00	150	Horizontal	Pass
6	17860.088	56.12	24.25	114.0	-89.75	Peak	360.00	150	Horizontal	Pass
6**	17860.088	45.50	24.25	94.0	-69.75	AV	360.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1658.400	37.29	-15.28	114.0	-76.71	Peak	0.00	150	Vertical	Pass
1**	1658.400	26.03	-15.28	94.0	-67.97	AV	0.00	150	Vertical	Pass
2	2404.900	80.72	-10.76	114.0	-33.28	Peak	201.00	150	Vertical	Pass
2**	2404.900	80.16	-10.76	94.0	-13.84	AV	201.00	150	Vertical	Pass
3	2515.200	47.80	-9.96	114.0	-66.20	Peak	233.00	150	Vertical	Pass
3**	2515.200	46.59	-9.96	94.0	-47.41	AV	233.00	150	Vertical	Pass
4	5303.800	48.58	0.34	114.0	-65.42	Peak	184.00	150	Vertical	Pass
4**	5303.800	39.29	0.34	94.0	-54.71	AV	184.00	150	Vertical	Pass
5	10477.887	49.88	18.63	114.0	-64.12	Peak	214.00	150	Vertical	Pass
5**	10477.887	36.54	18.63	94.0	-57.46	AV	214.00	150	Vertical	Pass
6	17871.374	55.85	24.35	114.0	-58.15	Peak	278.00	150	Vertical	Pass
6**	17871.374	46.15	24.35	94.0	-47.85	AV	278.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1145.100	36.57	-15.06	114.0	-77.43	Peak	300.00	150	Horizontal	Pass
1**	1145.100	23.71	-15.06	94.0	-70.29	AV	300.00	150	Horizontal	Pass
2	2442.000	83.14	-10.50	114.0	-30.86	Peak	237.00	150	Horizontal	Pass
2**	2442.000	82.99	-10.50	94.0	-11.01	AV	237.00	150	Horizontal	Pass
3	2515.400	48.21	-9.98	114.0	-65.79	Peak	136.00	150	Horizontal	Pass
3**	2515.400	47.15	-9.98	94.0	-46.85	AV	136.00	150	Horizontal	Pass
4	4883.800	49.08	-1.12	114.0	-64.92	Peak	334.00	150	Horizontal	Pass
4**	4883.800	42.72	-1.12	94.0	-51.28	AV	334.00	150	Horizontal	Pass
5	7548.550	47.58	17.59	114.0	-66.42	Peak	74.00	150	Horizontal	Pass
5**	7548.550	37.64	17.59	94.0	-56.36	AV	74.00	150	Horizontal	Pass
6	17859.824	55.96	24.24	114.0	-58.04	Peak	193.00	150	Horizontal	Pass
6**	17859.824	45.09	24.24	94.0	-48.91	AV	193.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1436.000	37.56	-14.79	114.0	-76.44	Peak	143.00	150	Vertical	Pass
1**	1436.000	25.84	-14.79	94.0	-68.16	AV	143.00	150	Vertical	Pass
2	2441.800	82.03	-10.51	114.0	-31.97	Peak	190.00	150	Vertical	Pass
2**	2441.800	80.65	-10.51	94.0	-13.35	AV	190.00	150	Vertical	Pass
3	2514.700	49.49	-9.92	114.0	-64.51	Peak	209.00	150	Vertical	Pass
3**	2514.700	48.43	-9.92	94.0	-45.57	AV	209.00	150	Vertical	Pass
4	4884.000	47.88	-1.10	114.0	-66.12	Peak	262.00	150	Vertical	Pass
4**	4884.000	44.98	-1.10	94.0	-49.02	AV	262.00	150	Vertical	Pass
5	10999.987	49.33	19.02	114.0	-64.67	Peak	203.00	150	Vertical	Pass
5**	10999.987	37.18	19.02	94.0	-56.82	AV	203.00	150	Vertical	Pass
6	17876.099	56.16	24.39	114.0	-57.84	Peak	73.00	150	Vertical	Pass
6**	17876.099	46.68	24.39	94.0	-47.32	AV	73.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1752.000	37.21	-15.07	114.0	-76.79	Peak	307.00	150	Vertical	Pass
1**	1752.000	30.34	-15.07	94.0	-63.66	AV	307.00	150	Vertical	Pass
2	2479.800	82.51	-10.36	114.0	-31.49	Peak	191.00	150	Vertical	Pass
2**	2479.800	81.24	-10.36	94.0	-12.76	AV	191.00	150	Vertical	Pass
3	2515.300	49.92	-9.97	114.0	-64.08	Peak	146.00	150	Vertical	Pass
3**	2515.300	48.58	-9.97	94.0	-45.42	AV	146.00	150	Vertical	Pass
4	4959.800	48.76	-1.76	114.0	-65.24	Peak	261.00	150	Vertical	Pass
4**	4959.800	46.64	-1.76	94.0	-47.36	AV	261.00	150	Vertical	Pass
5	12283.388	49.86	20.19	114.0	-64.14	Peak	42.00	150	Vertical	Pass
5**	12283.388	37.59	20.19	94.0	-56.41	AV	42.00	150	Vertical	Pass
6	17742.488	55.79	23.91	114.0	-58.21	Peak	212.00	150	Vertical	Pass
6**	17742.488	44.57	23.91	94.0	-49.43	AV	212.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT V High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (Degree)	Height (cm)	Antenna	Verdict
1	1343.400	37.70	-14.65	114.0	-76.30	Peak	198.00	150	Horizontal	Pass
1**	1343.400	25.91	-14.65	94.0	-68.09	AV	198.00	150	Horizontal	Pass
2	2479.800	83.39	-10.36	114.0	-30.61	Peak	237.00	150	Horizontal	Pass
2**	2479.800	82.16	-10.36	94.0	-11.84	AV	237.00	150	Horizontal	Pass
3	2515.300	52.13	-9.97	114.0	-61.87	Peak	161.00	150	Horizontal	Pass
3**	2515.300	50.23	-9.97	94.0	-43.77	AV	161.00	150	Horizontal	Pass
4	4960.000	48.38	-1.74	114.0	-65.62	Peak	327.00	150	Horizontal	Pass
4**	4960.000	45.44	-1.74	94.0	-48.56	AV	327.00	150	Horizontal	Pass
5	9665.988	49.14	18.75	114.0	-64.86	Peak	184.00	150	Horizontal	Pass
5**	9665.988	36.00	18.75	94.0	-58.00	AV	184.00	150	Horizontal	Pass
6	17843.550	56.12	24.08	114.0	-57.88	Peak	261.00	150	Horizontal	Pass
6**	17843.550	44.69	24.08	94.0	-49.31	AV	261.00	150	Horizontal	Pass

A.4 Band Edge(Restricted-band band-edge)

Test Data

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

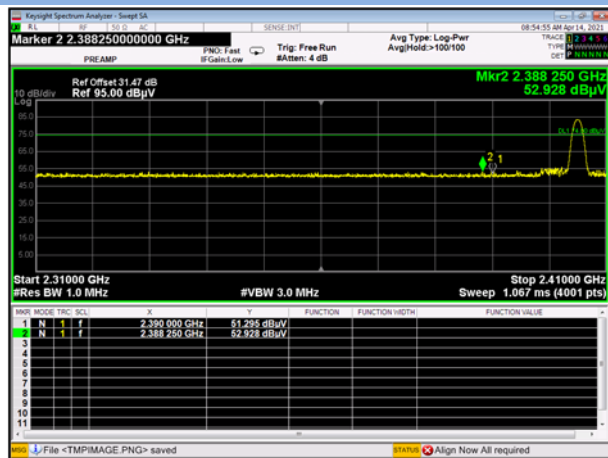
Note²: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

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.

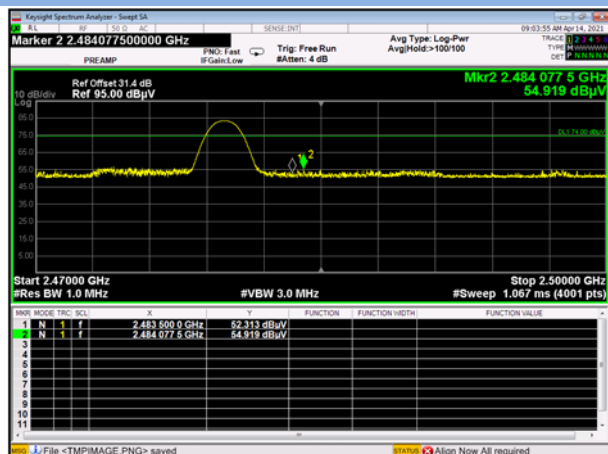
Test Mode	Test Channel	Frequency (MHz)	Level (dBuV/m)	Factor (dB)	Limit Line (dBuV/m)	Margin (dB)	Remark	Verdict
GFSK	Low	2390	52.928	31.47	114	61.072	PEAK	Pass
		2390	N/A	N/A	94	N/A	AVERAGE	Pass
	HIGH	2483.5	54.919	31.4	114	59.081	PEAK	Pass
		2483.5	42.723	31.4	94	51.277	AVERAGE	Pass

Test plots

LOW CHANNEL, PEAK



HIGH CHANNEL, PEAK



HIGH CHANNEL, AV



ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ2140204-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ2140204-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ2140204-AI.PDF”.

--END OF REPORT--