



Shenzhen Global Test Service Co.,Ltd.

No.7-101 and 8A-104,Building 7 and 8,DCC Cultural and Creative Garden No.98,Pingxin North Road,Shangmugu,Pinghu Street, Longgang District,Shenzhen,Guangdong,China

TEST REPORT

47 CFR FCC Part 15 Subpart B (Class B)

Radio Frequency Devices – Unintentional Radiators – Limits and methods of measurement

ANSI C63.4: 2014

American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Report Reference No.....: GTS20201103032-1-2

FCC ID.....: 2AX35-T5

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Date of issue.....: Nov.03, 2020

Testing Laboratory Name: Shenzhen Global Test Service Co.,Ltd.

Address: No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road, Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

Applicant's name: Shenzhen Mushi Technology Co., Ltd.

Address: Room 701C, Building B, Guanghong Meiju, No.163, Pingxin North Road, Hehua Community, Pinghu Street, Longgang District, Shenzhen

Test specification:

Standard: 47 CFR FCC Part 15 Subpart B (Class B)
ANSI C63.4: 2014

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Test item description: Walkie Talkie

Trade Mark : N/A

Manufacturer : Shenzhen Beijia Electronic Technology Co., Ltd.

Model/Type reference : T5

Listed Models: B088H1BKDX, B088GQMX45, B07XQ77X9N

Ratings: DC 6.0V

Result.....: Pass

TEST REPORT

Test Report No. : GTS20201103032-1-2	Nov.03, 2020 Date of issue
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Equipment under Test : Walkie Talkie

Model /Type : T5

Listed Models : B088H1BKDX, B088GQMX45, B07XQ77X9N

Applicant : **Shenzhen Mushi Technology Co., Ltd.**

Address : Room 701C, Building B, Guanghong Meiju, No.163, Pingxin North Road, Hehua Community, Pinghu Street, Longgang District, Shenzhen

Manufacturer **Shenzhen Beijia Electronic Technology Co., Ltd.**

Address 201, No. 20 Xinkang 2nd Road, Shatian Community, Kengzi Street, Pingshan District, Shenzhen, Guangdong, China

Test Result	Pass
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

Contents

1.	<u>TEST STANDARDS</u>	<u>4</u>
2.	<u>SUMMARY</u>	<u>5</u>
2.1.	General Remarks	5
2.2.	Product Description	5
2.3.	Equipment Under Test	5
2.4.	EUT operation mode	5
2.5.	Block Diagram of Test Setup	5
2.6.	EUT configuration	6
3.	<u>TEST ENVIRONMENT</u>	<u>7</u>
3.1.	Address of the test laboratory	7
3.2.	Test Facility	7
3.3.	Environmental conditions	7
3.4.	Test Description	7
3.5.	Statement of the measurement uncertainty	7
3.6.	Equipments Used during the Test	9
4.	<u>TEST CONDITIONS AND RESULTS</u>	<u>10</u>
4.1.	Radiated Emission	10
4.2.	Conducted disturbance	14
5.	<u>THE TEST PHOTOS OF THE EUT</u>	<u>15</u>
6.	<u>EXTERNAL AND INTERNAL PHOTOS OF THE EUT</u>	<u>16</u>

1. TEST STANDARDS

The tests were performed according to following standards:

[47 CFR FCC Part 15 Subpart B \(Class B\)](#) Radio Frequency Devices – Unintentional Radiators – Limits and methods of measurement

[ANSI C63.4: 2014](#) American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Oct.18, 2020
Testing commenced on	:	Oct.18, 2020
Testing concluded on	:	Nov.03, 2020

2.2. Product Description

Name of EUT	Walkie Talkie
Model Number	T5
Power Supply	DC 6.0V from battery
Frequency Range	462.5500MHz~462.7250MHz; 462.5625MHz~462.7125MHz; 467.5625MHz~467.7125MHz
Rate Power	0.5W
Modulation Type	FM
Channel Separation	12.5KHz
Antenna Type	Integral antenna
Antennal Gain	-9.7dBi
Sample ID:	GTS20201103032-1-1-1#(Engineer sample) GTS20201103032-1-1-2#(Normal sample)

2.3. Equipment Under Test

Power supply system utilised

Power supply voltage	:	☐ 120V / 60 Hz	☐ 230V / 50Hz
		☐ 12 V DC	☐ 24 V DC
		☒ Other (specified in blank below)	

DC 6V

2.4. EUT operation mode

Operation mode	
Mode 1	Receiving

2.5. Block Diagram of Test Setup



2.6. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

○ - supplied by the manufacturer

○ - Supplied by the lab

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3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Global Test Service Co.,Ltd.
No.7-101 and 8A-104, Building 7 and 8, DCC Cultural and Creative Garden, No.98, Pingxin North Road,
Shangmugu Community, Pinghu Street, Longgang District, Shenzhen, Guangdong

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

FCC-Registration No.: 165725

Shenzhen Global Test Service Co.,Ltd EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

A2LA-Lab Cert. No.: 4758.01

Shenzhen Global Test Service Co.,Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

CNAS-Lab Code: L8169

Shenzhen Global Test Service Co.,Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories. Date of Registration: Dec. 11, 2015. Valid time is until Dec. 10, 2024.

3.3. Environmental conditions

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

Radiated Emission:

Temperature:	25 ° C
Humidity:	45 %
Atmospheric pressure:	950-1050mbar

3.4. Test Description

Emission Measurement		
Radiated Emission	47 CFR FCC Part 15 Subpart B Class B ANSI C63.4 2014	PASS
Conducted Disturbance	47 CFR FCC Part 15 Subpart B Class B ANSI C63.4 2014	N/A

Remark: N/A means “not applicable”.

The measurement uncertainty is not included in the test result.

3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements”

and is documented in the Shenzhen Global Test Service Co.,Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for GTS laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24dB	(1)
Conducted Disturbance	0.15~30MHz	3.12dB	(1)

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

3.6. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	R&S	ENV216	3560.6550.08	2020/09/19	2021/09/18
LISN	R&S	ESH2-Z5	893606/008	2020/09/19	2021/09/18
EMI Test Receiver	R&S	ESPI3	101841-cd	2020/09/19	2021/09/18
EMI Test Receiver	R&S	ESCI7	101102	2020/09/19	2021/09/18
Spectrum Analyzer	Agilent	N9020A	MY48010425	2020/09/19	2021/09/18
Spectrum Analyzer	R&S	FSV40	100019	2020/09/19	2021/09/18
Vector Signal generator	Agilent	N5181A	MY49060502	2020/09/19	2021/09/18
Signal generator	Agilent	E4421B	3610AO1069	2020/09/19	2021/09/18
Climate Chamber	ESPEC	EL-10KA	A20120523	2020/09/19	2021/09/18
Controller	EM Electronics	Controller EM 1000	N/A	N/A	N/A
Horn Antenna	Schwarzbeck	BBHA 9120D	01622	2020/09/19	2021/09/18
Active Loop Antenna	Beijing Da Ze Technology Co.,Ltd.	ZN30900C	15006	2020/10/11	2021/10/10
Bilog Antenna	Schwarzbeck	VULB9163	000976	2020/05/26	2021/05/25
Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	791	2020/09/19	2021/09/18
Amplifier	Schwarzbeck	BBV 9743	#202	2020/09/19	2021/09/18
Amplifier	Schwarzbeck	BBV9179	9719-025	2020/09/19	2021/09/18
Amplifier	EMCI	EMC051845B	980355	2020/09/19	2021/09/18
Temperature/Humidity Meter	Gangxing	CTH-608	02	2020/09/19	2021/09/18
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	KL142031	2020/09/19	2021/09/18
High-Pass Filter	K&L	41H10-1375/U12750-O/O	KL142032	2020/09/19	2021/09/18
RF Cable(below 1GHz)	HUBER+SUHNER	RG214	RE01	2020/09/19	2021/09/18
RF Cable(above 1GHz)	HUBER+SUHNER	RG214	RE02	2020/09/19	2021/09/18
Data acquisition card	Agilent	U2531A	TW53323507	2020/09/19	2021/09/18
Power Sensor	Agilent	U2021XA	MY5365004	2020/09/19	2021/09/18
Test Control Unit	Tonscend	JS0806-1	178060067	2020/06/19	2021/06/18
Automated filter bank	Tonscend	JS0806-F	19F8060177	2020/06/19	2021/06/18
EMI Test Software	Tonscend	JS1120-1	Ver 2.6.8.0518	/	/
EMI Test Software	Tonscend	JS1120-3	Ver 2.5.77.0418	/	/
EMI Test Software	Tonscend	JS32-CE	Ver 2.5	/	/
EMI Test Software	Tonscend	JS32-RE	Ver 2.5.1.8	/	/

Note: The Cal.Interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. Radiated Emission

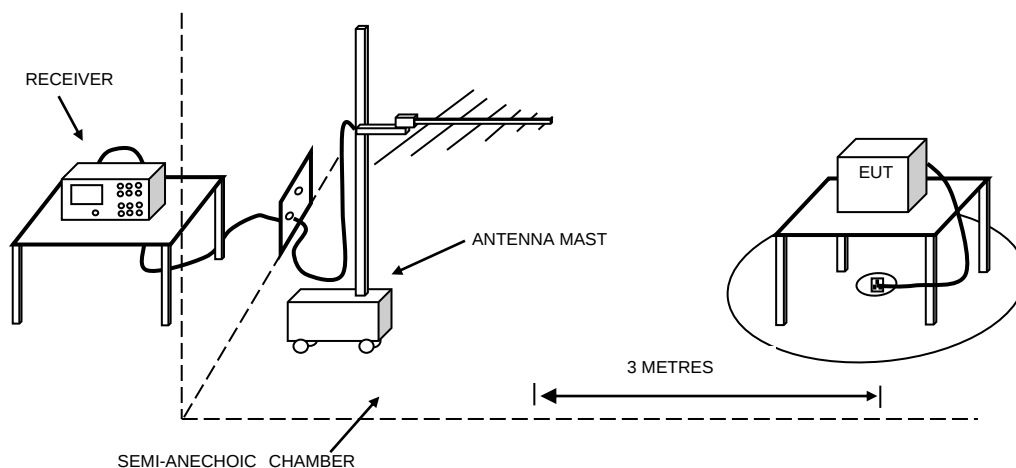
4.1.1. LIMITS OF DISTURBANCE (Class B)

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dB μ V/m)
30 ~ 88	3	40
88~216	3	43.5
216 ~ 960	3	46
960 ~1000	3	54

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

4.1.2. TEST CONFIGURATION



4.1.3. TEST PROCEDURE

EUT is tested in Semi-Anechoic Chamber. EUT is placed on a nonmetal table which is 0.8 meter above a grounded turntable. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level. EUT is set 3 meters away from the center of receiving antenna. The antenna can move up and down from 1 to 4 meter to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set on the test.

4.1.4. CLIMATIC CONDITIONS

- ambient temperature : 24 °C
- relative humidity: 48%
- atmospheric pressure: 960 mbar

4.1.5. TEST RESULTS

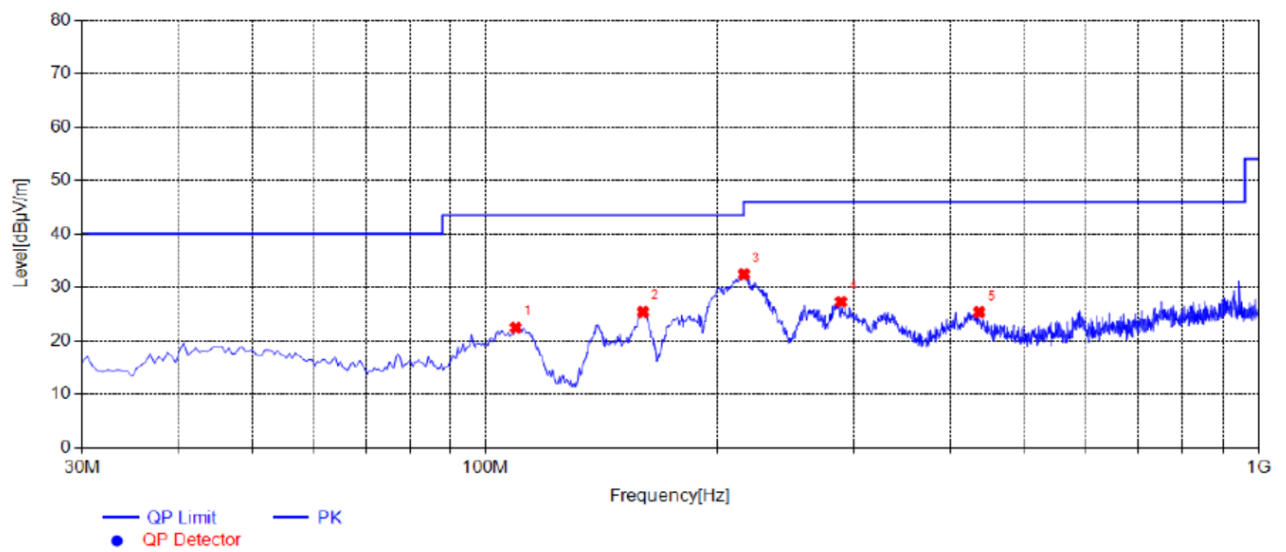
Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

Test mode:

Mode 1

Polarization

Horizontal

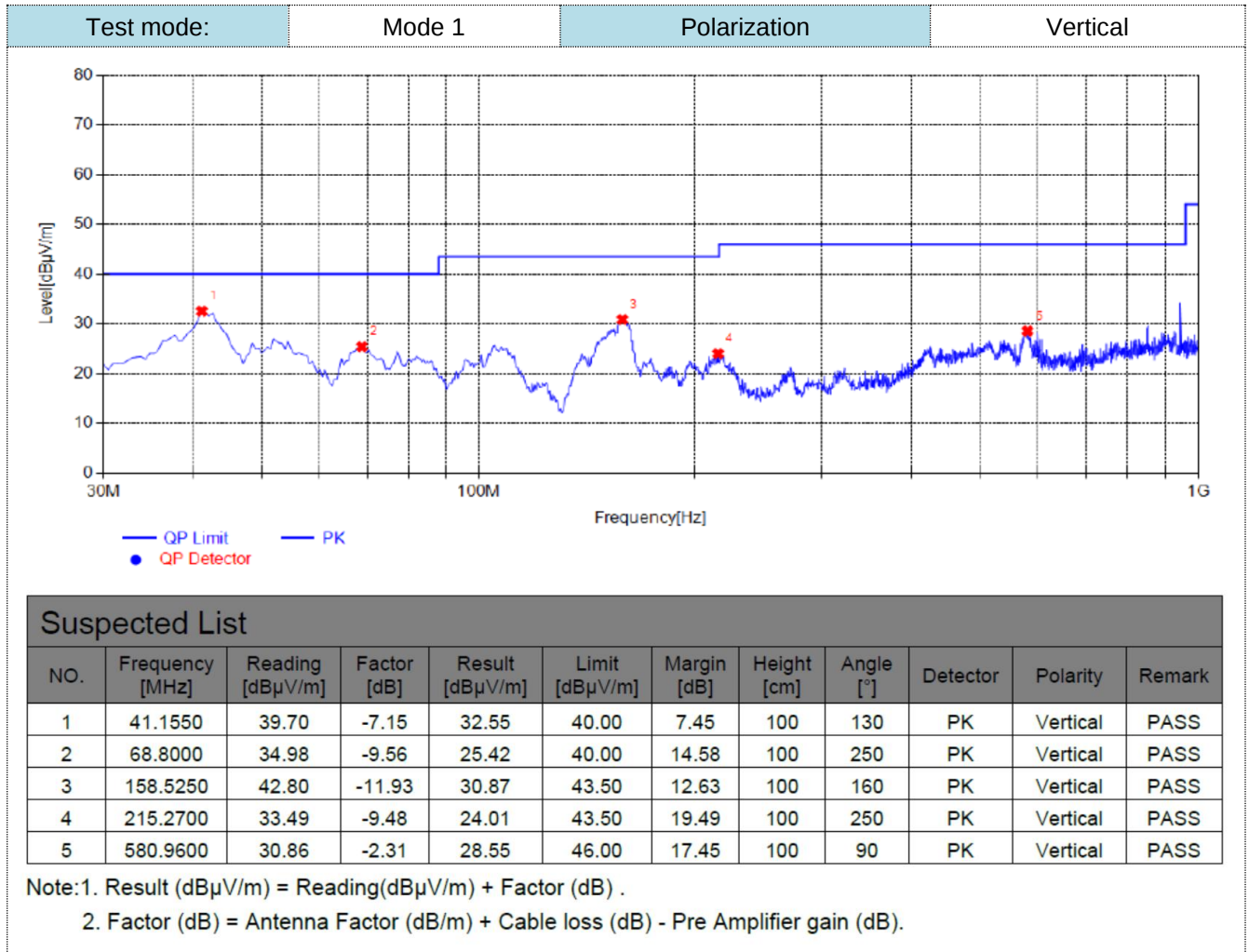


Suspected List

NO.	Frequency [MHz]	Reading [dBμV/m]	Factor [dB]	Result [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity	Remark
1	109.5400	31.00	-8.56	22.44	43.50	21.06	100	20	PK	Horizontal	PASS
2	159.9800	37.33	-11.92	25.41	43.50	18.09	100	170	PK	Horizontal	PASS
3	216.2400	41.90	-9.44	32.46	46.00	13.54	100	280	PK	Horizontal	PASS
4	288.9900	34.87	-7.58	27.29	46.00	18.71	100	40	PK	Horizontal	PASS
5	436.4300	30.09	-4.70	25.39	46.00	20.61	100	40	PK	Horizontal	PASS

Note:1. Result (dBμV/m) = Reading(dBμV/m) + Factor (dB) .

2. Factor (dB) = Antenna Factor (dB/m) + Cable loss (dB) - Pre Amplifier gain (dB).



Test mode:		Mode 1		Polarization		Horizontal	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
1149.82	62.26	-3.64	58.62	74	-15.38	peak	
1149.82	46.19	-3.64	42.55	54	-11.45	AVG	
3705.12	58.55	-0.95	57.6	74	-16.4	peak	
3705.12	44.49	-0.95	43.54	54	-10.46	AVG	
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---	---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

Test mode:		Mode 1		Polarization		Vertical	
Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
1152.16	61.39	-3.64	57.75	74	-16.25	peak	
1152.16	46.87	-3.64	43.23	54	-10.77	AVG	
3708.31	57.23	-0.95	56.28	74	-17.72	peak	
3708.31	42.01	-0.95	41.06	54	-12.94	AVG	
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

Notes:

1). Measuring frequencies from 9 KHz~5th harmonic

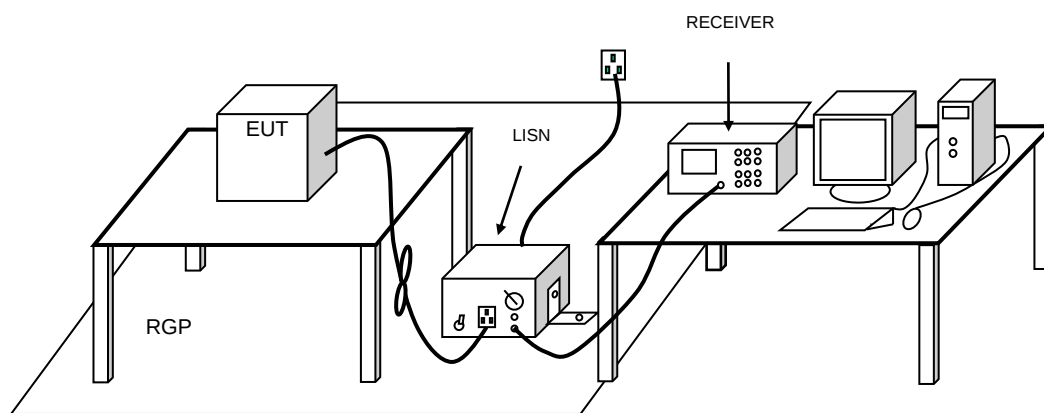
4.2. Conducted disturbance

4.2.1. LIMITS OF DISTURBANCE (Class B)

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.000	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

4.2.2. TEST CONFIGURATION



4.2.3. TEST PROCEDURE

EUT is placed on a nonmetal table which is 0.8 meter (or 0.1 meter for floor-stood equipments) above the grounded reference plane. Connect the power line of the EUT to the LISN. Voltage of the power supply is varied over a range of 0.9 to 1.1 times of the rated voltage in order to check whether the level of disturbance varies considerably with the supply voltage at the selected frequency about 160KHz. Perform an initial measurement on each line with peak detector to identify the frequencies where the maximum disturbances may occur. Then measure and record the maximum disturbances with quasi-peak and average detector.

4.2.4. CLIMATIC CONDITIONS

- ambient temperature : 25 °C
- relative humidity: 52%
- atmospheric pressure: 960 mbar

4.2.5. TEST RESULTS

Note : The EUT is powered by Battery, So this test item is not applicable for the EUT.

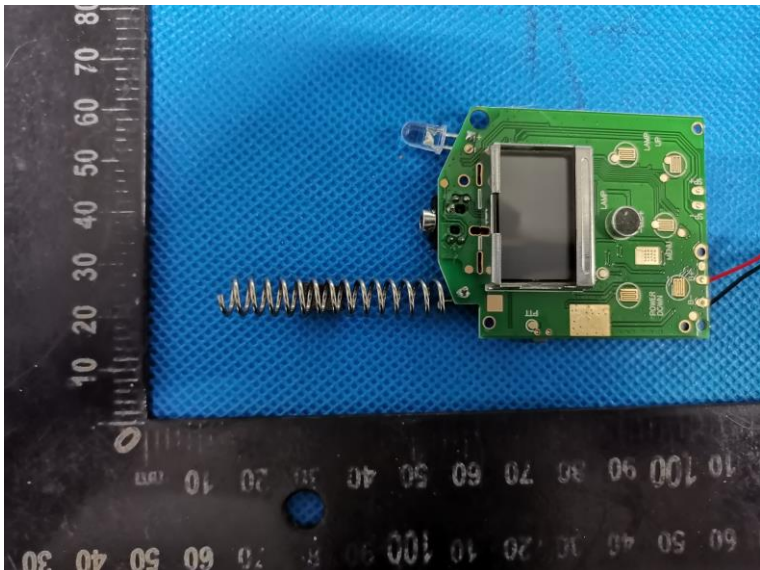
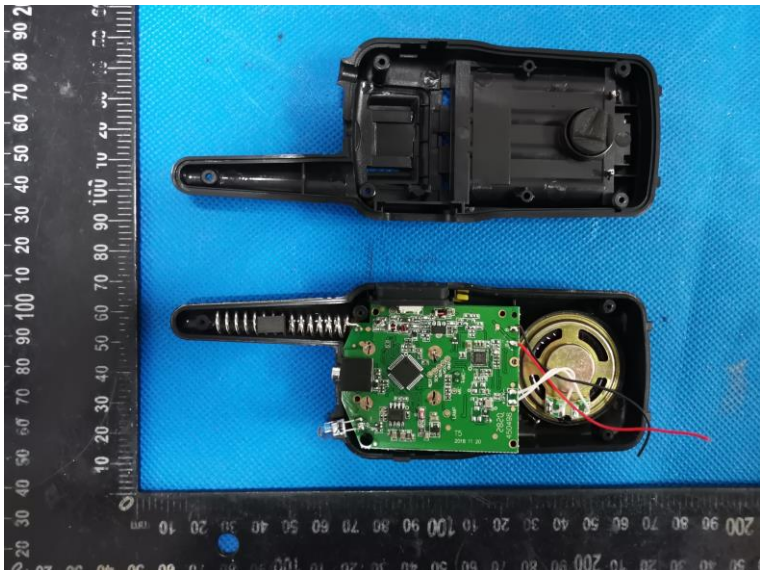
5. The Test Photos of the EUT

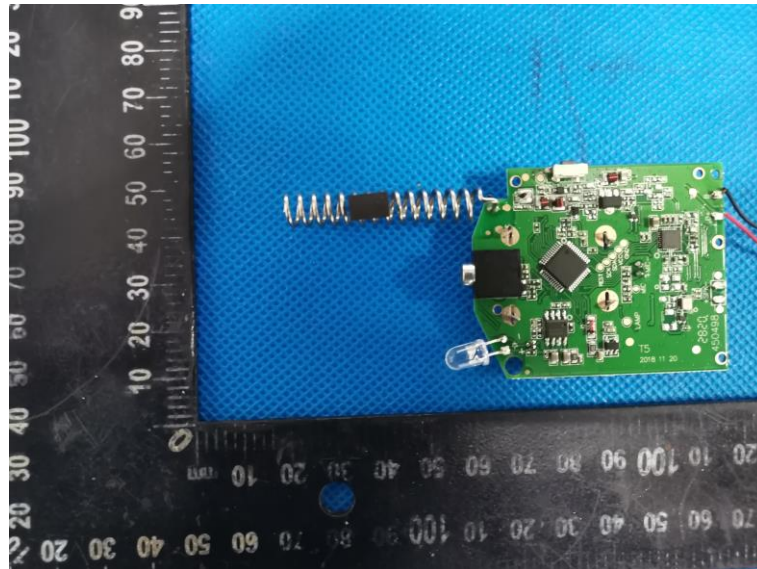


6. External and Internal Photos of the EUT









.....End of Report.....