
FCC Test Report

Report No.: AGC00723191101FE01

FCC ID : YMURF1XG9
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : RF1XG9
BRAND NAME : RFRemotech
MODEL NAME : RF1XG9
APPLICANT : RFRemotech Company
DATE OF ISSUE : Dec. 10, 2019
STANDARD(S) : 47 CFR FCC Part 15 Subpart B
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd

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Attestation of Global Compliance

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REPORT REVISE RECORD

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Dec. 10, 2019	Valid	Initial release



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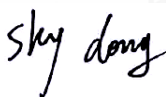
1. VERIFICATION OF CONFORMITY

Applicant	RFRemotech Company
Address	Room G210, Building G, Guangzhou International Business Incubator, No.3, Lanyue Rd., Guangzhou Science Park, Guangzhou, China
Manufacturer	RFRemotech Company
Address	Room G210, Building G, Guangzhou International Business Incubator, No.3, Lanyue Rd., Guangzhou Science Park, Guangzhou, China
Factory	RFRemotech Company
Address	Room G210, Building G, Guangzhou International Business Incubator, No.3, Lanyue Rd., Guangzhou Science Park, Guangzhou, China
Product Designation	RF1XG9
Brand Name	RFRemotech
Test Model	RF1XG9
Measurement Procedure	ANSI C63.4: 2014
Date of test	Dec. 03, 2019 to Dec. 10, 2019
Deviation	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Report Template	AGCRT-US-IT/AC

The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, the measurement procedure according to ANSI C63.4:2014. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

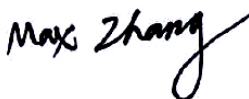
Prepared By



Sky Dong
(Project Engineer)

Dec. 10, 2019

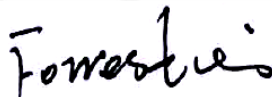
Reviewed By



Max Zhang
(Reviewer)

Dec. 10, 2019

Approved By



Forrest Lei
(Authorized Officer)

Dec. 10, 2019

2. SYSTEM DESCRIPTION

TEST MODE DESCRIPTION		
NO.	TEST MODE DESCRIPTION	WORST
1	Receiving mode with load	V
Note:1. V means EMI worst mode.		

3. MEASUREMENT UNCERTAINTY

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in measurement” (GUM) published by CISPR and ANSI.

- Uncertainty of Conducted Emission, $U_c = \pm 3.2$ dB
- Uncertainty of Radiated Emission below 1GHz, $U_c = \pm 3.9$ dB
- Uncertainty of Radiated Emission above 1GHz, $U_c = \pm 4.8$ dB



4. PRODUCT INFORMATION

Housing Type	Plastic and metal
Hardware Version	V1.8.1Lo
Software Version	V1.8.1Lo
Highest Operate Frequency	Receiving at 433.92MHz
Power Supply	DC 9V by battery

I/O Port Information (☒Applicable ☐Not Applicable)

I/O Port of EUT			
I/O Port Type	Number	Specific	Tested With
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Note:

1. All the above "--" means that EUT has no cable.
2. All the cables were provided by AGC Lab.

5. SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
--	--	--	--	--	--



6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

TEST EQUIPMENT OF RADIATED EMISSION TEST

Equipment	Manufacturer	Model	S/N	Cal. Date	Cal. Due
TEST RECEIVER	R&S	ESCI	10096	Jun. 12, 2019	Jun. 11, 2020
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec. 20, 2018	Dec. 19, 2019
Attenuator	ZHINAN	E-002	N/A	Sep. 09, 2019	Sep. 08, 2020
Double-Ridged Waveguide Horn	ETS LINDGREN	3117	00034609	May. 26, 2018	May. 25, 2020
Broadband Preamplifier	ETS LINDGREN	3117PA	00225134	Oct. 15, 2019	Oct. 16, 2020
ANTENNA	SCHWARZBECK	VULB9168	494	Jan. 09, 2018	Jan. 08, 2020
Test software	FARA	EZ-EMC (Ver RA-03A)	N/A	N/A	N/A



7. TEST ITEMS AND THE RESULTS

Test item	Test Requirement	Test Method	Class/Severity	Result
RADIATED EMISSION	FCC Part 15 Rules	ANSI C63.4	Class B	Pass
CONDUCTED EMISSION	FCC Part 15 Rules	ANSI C63.4	Class B	N/A

Note: The conducted limits are not required for devices which only employ battery power for operation.



8. RADIATED EMISSION TEST

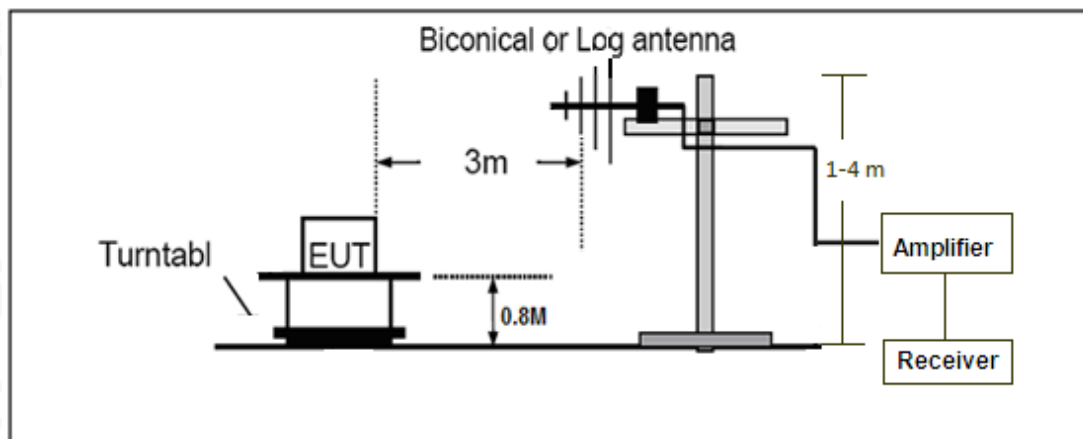
8.1. LIMITS OF RADIATED EMISSION TEST

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30~88	3	40.0
88~216	3	43.5
216~960	3	46.0
Above 960	3	54.0

Note: The lower limit shall apply at the transition frequency.

8.2. BLOCK DIAGRAM OF TEST SETUP

System Diagram of Connections between EUT and Simulators



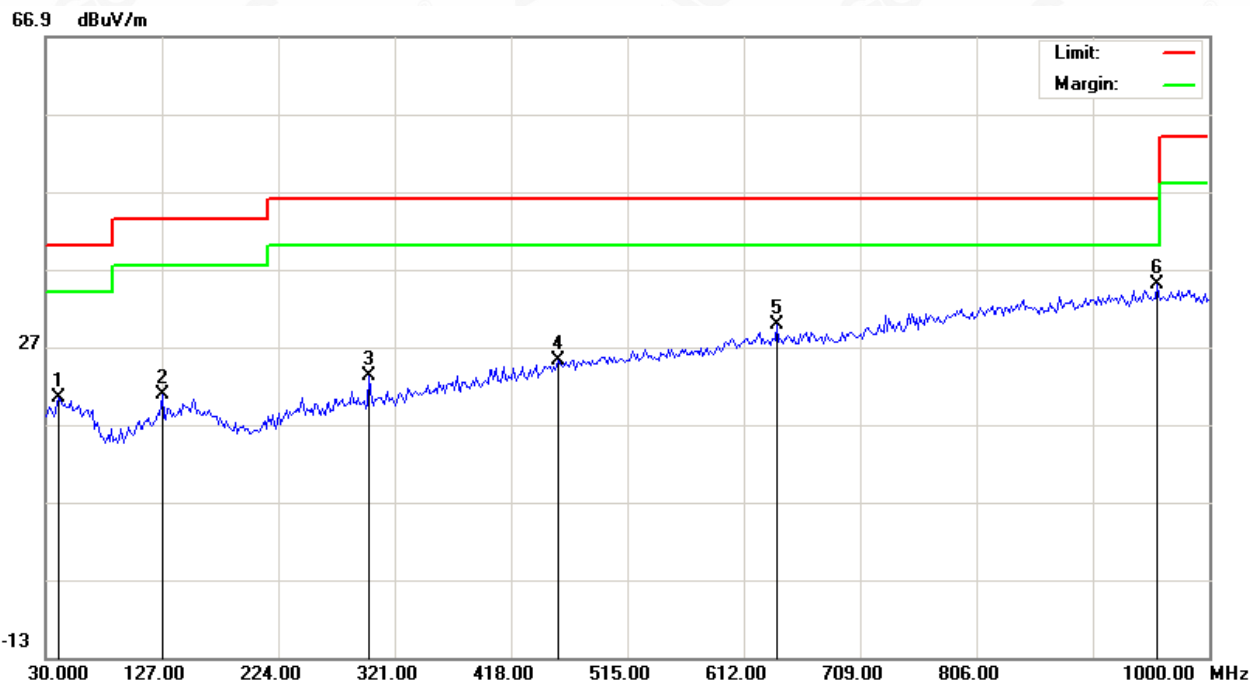
8.3. PROCEDURE OF RADIATED EMISSION TEST

- (1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- (2) Support equipment, if needed, was placed as per ANSI C63.4.
- (3) All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
- (4) All support equipments received AC120V/60Hz power from socket under the turntable, if any.
- (5) The antenna was placed at 3 meter away from the EUT as stated in FCC Part 15. The antenna connected to the Analyzer via a cable and at times a pre-amplifier would be used.
- (6) The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.
- (7) The test mode(s) were scanned during the test:
- (8) Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and Q.P./Peak reading is presented.



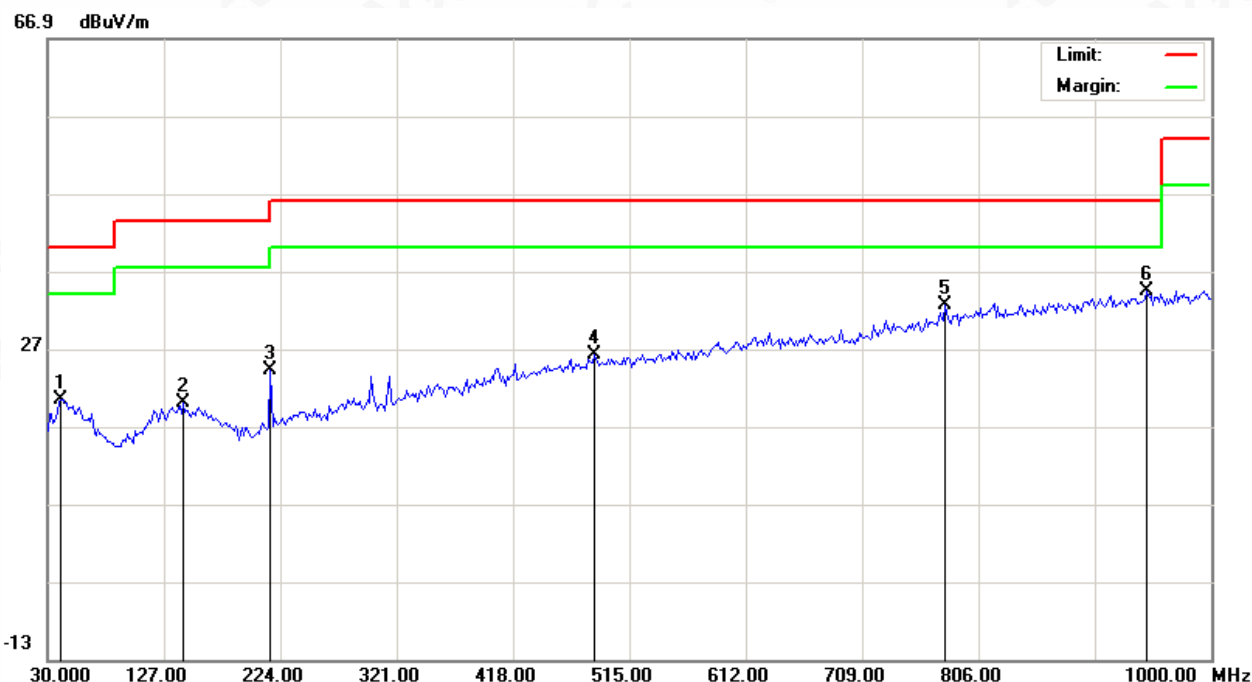
8.4. TEST RESULT OF RADIATED EMISSION TEST

Radiated Emission below 1GHz Test at 3m Distance-Horizontal



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		41.3167	0.34	20.04	20.38	40.00	-19.62	peak			
2		127.0000	2.31	18.41	20.72	43.50	-22.78	peak			
3		299.9833	3.65	19.47	23.12	46.00	-22.88	peak			
4		456.8000	1.09	24.12	25.21	46.00	-20.79	peak			
5		639.4833	2.42	27.42	29.84	46.00	-16.16	peak			
6	*	956.3500	2.81	32.18	34.99	46.00	-11.01	peak			

Radiated Emission below 1GHz Test at 3m Distance-Vertical



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		41.3167	0.41	20.04	20.45	40.00	-19.55	peak			
2		143.1667	0.82	19.22	20.04	43.50	-23.46	peak			
3		215.9167	7.20	17.00	24.20	43.50	-19.30	peak			
4		485.9000	1.52	24.71	26.23	46.00	-19.77	peak			
5		778.5167	2.67	29.92	32.59	46.00	-13.41	peak			
6	*	946.6500	2.22	32.10	34.32	46.00	-11.68	peak			

RESULT: PASS

Note:

$$\text{Level(dBuV/m)} = \text{Reading(dBuV)} + \text{Factor(dB/m)}$$

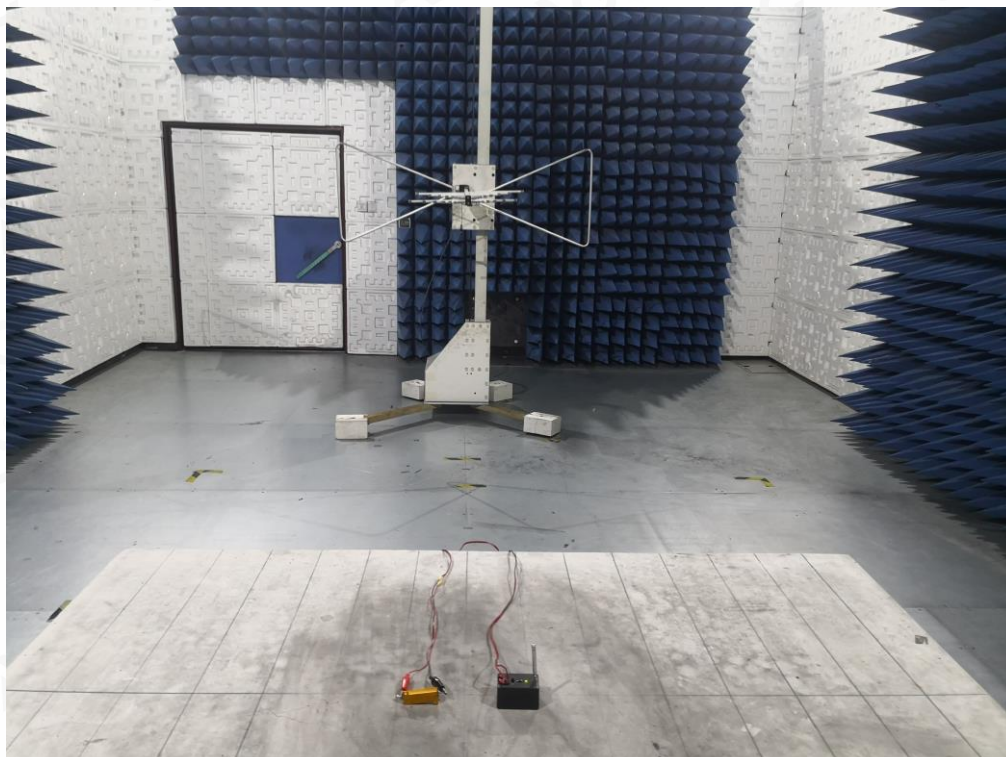
$$\text{Factor(dB/m)} = \text{Antenna Factor(dB/m)} + \text{Cable loss(dB)} + \text{Attenuation(dB) for Attenuator}$$

$$\text{Margin} = \text{Level} - \text{Limit}$$

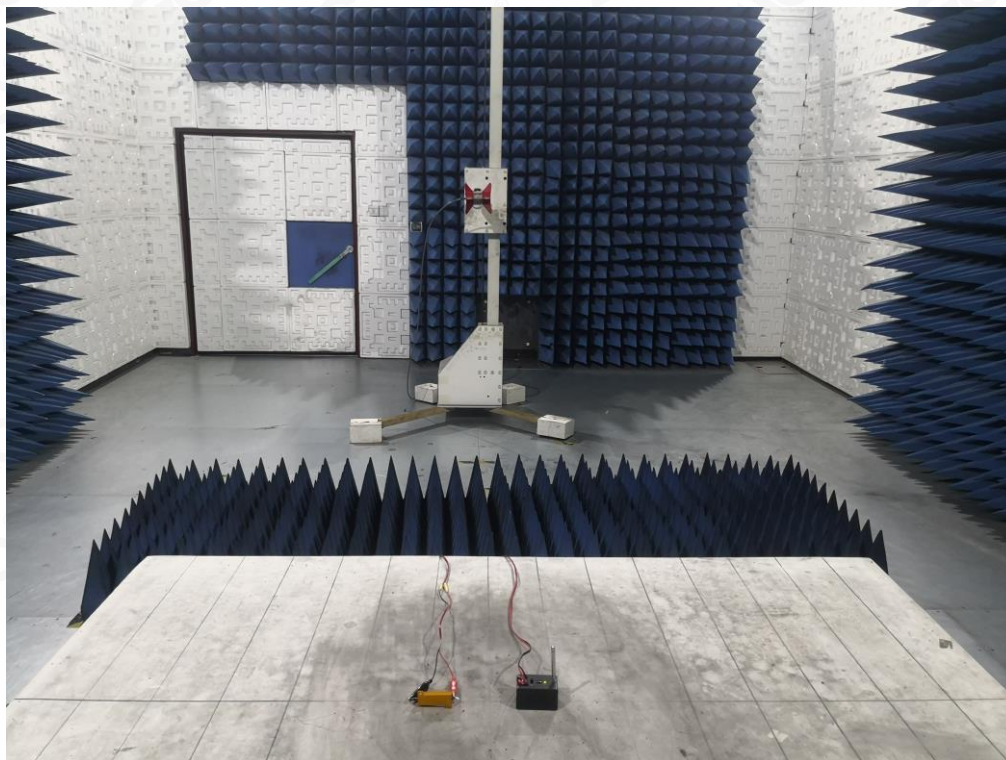
Remark: which 1GHz -2GHz are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC RADIATED EMISSION BELOW 1G TEST SETUP

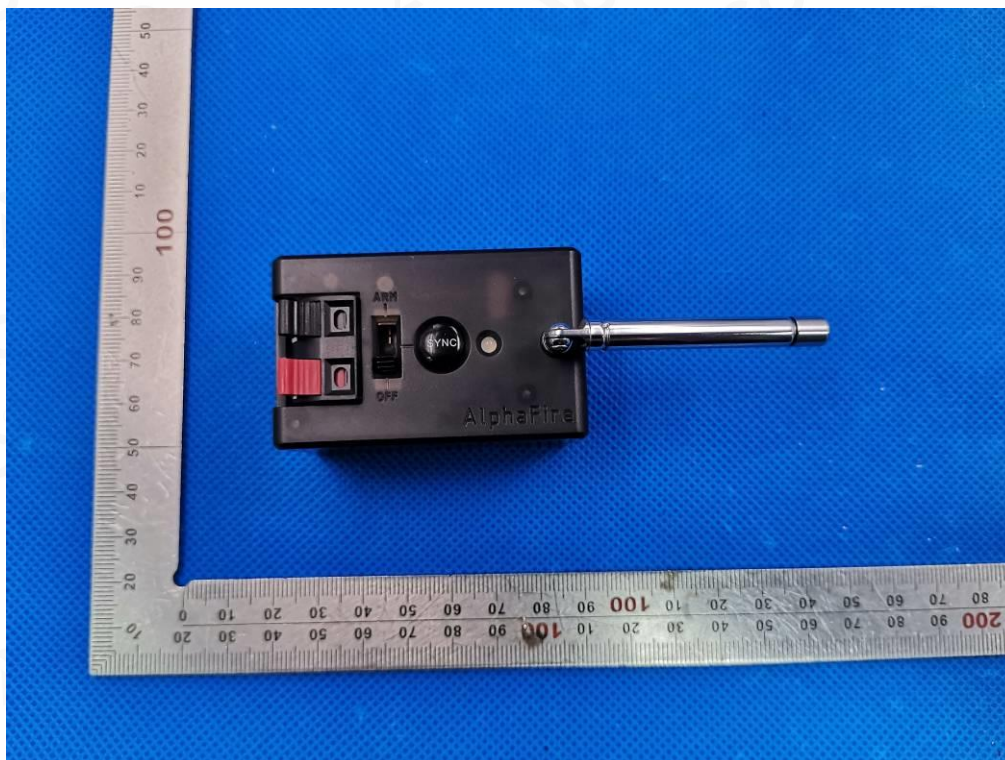


FCC RADIATED EMISSION ABOVE 1G TEST SETUP

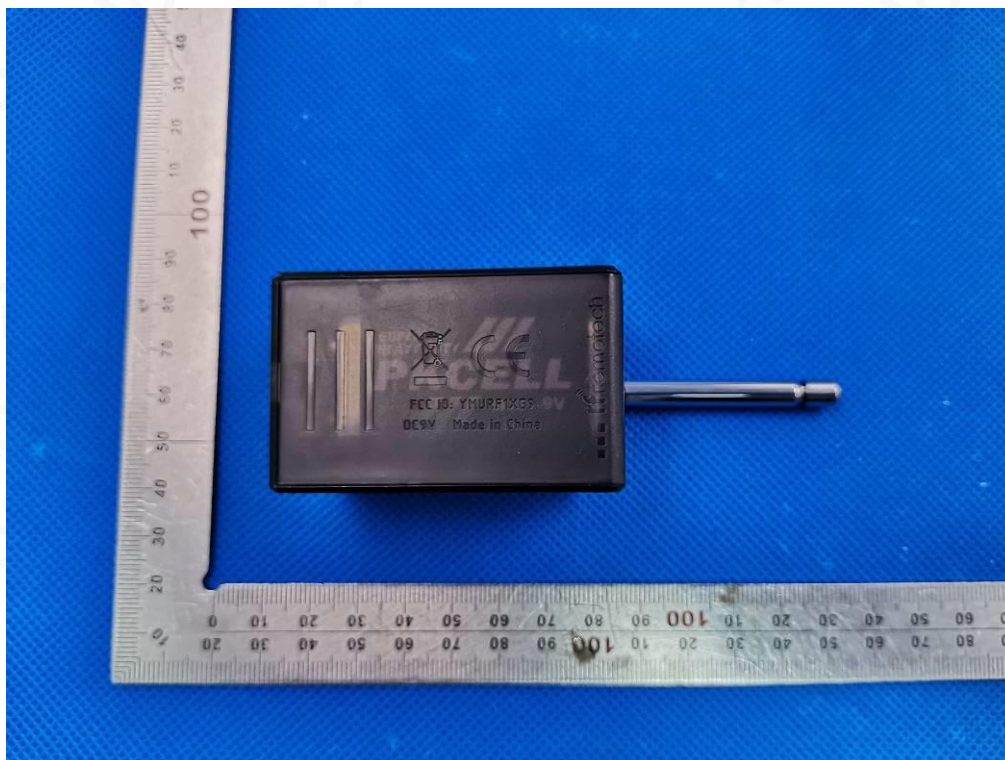


APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



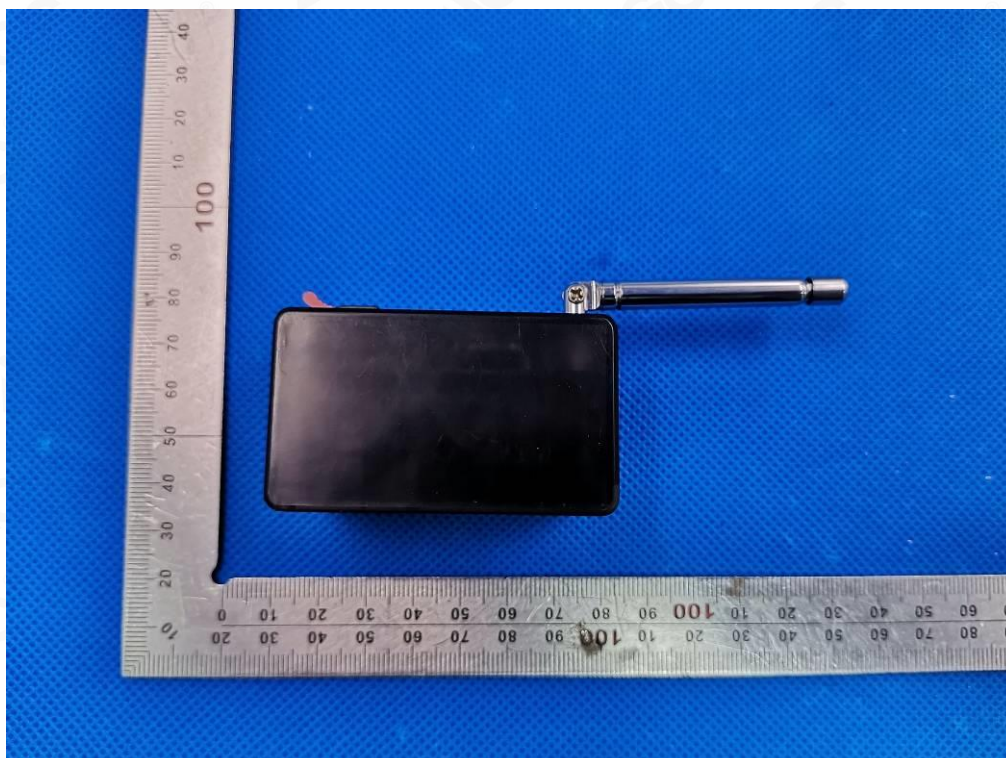
BACK VIEW OF EUT



LEFT VIEW OF EUT



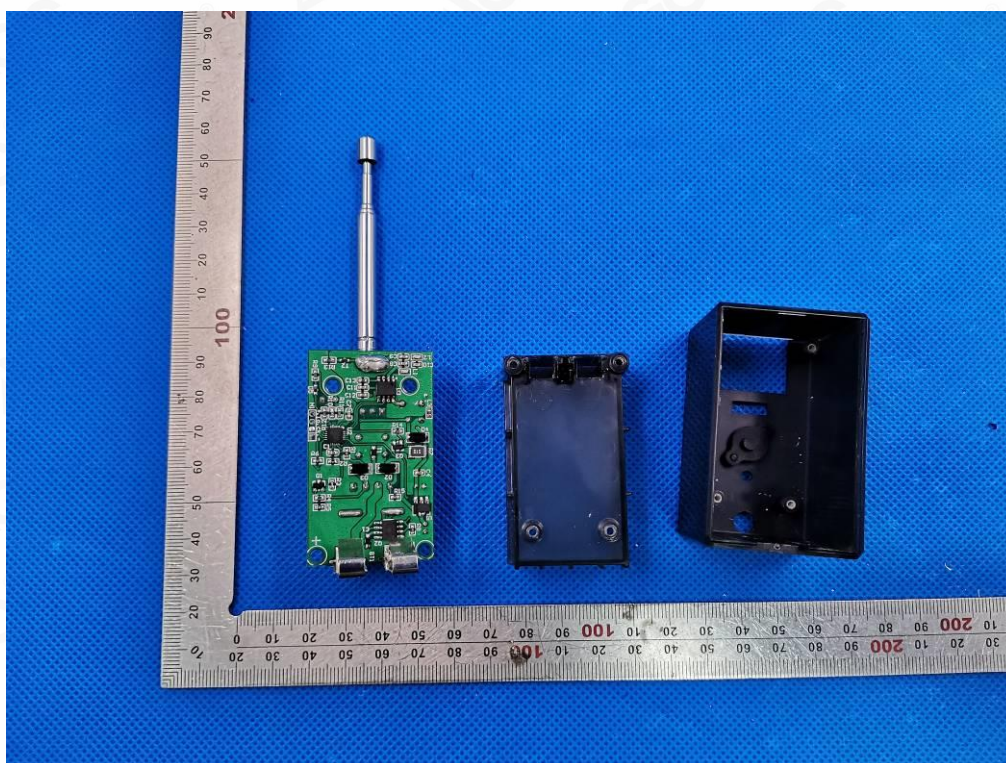
RIGHT VIEW OF EUT



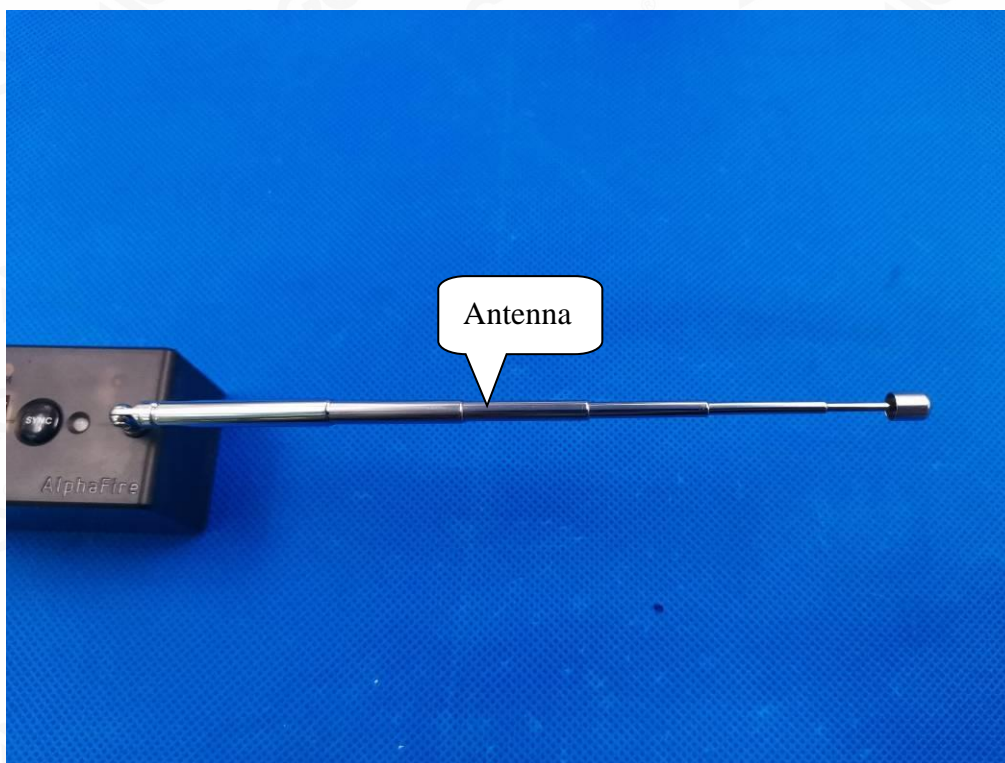
OPEN VIEW OF EUT-1



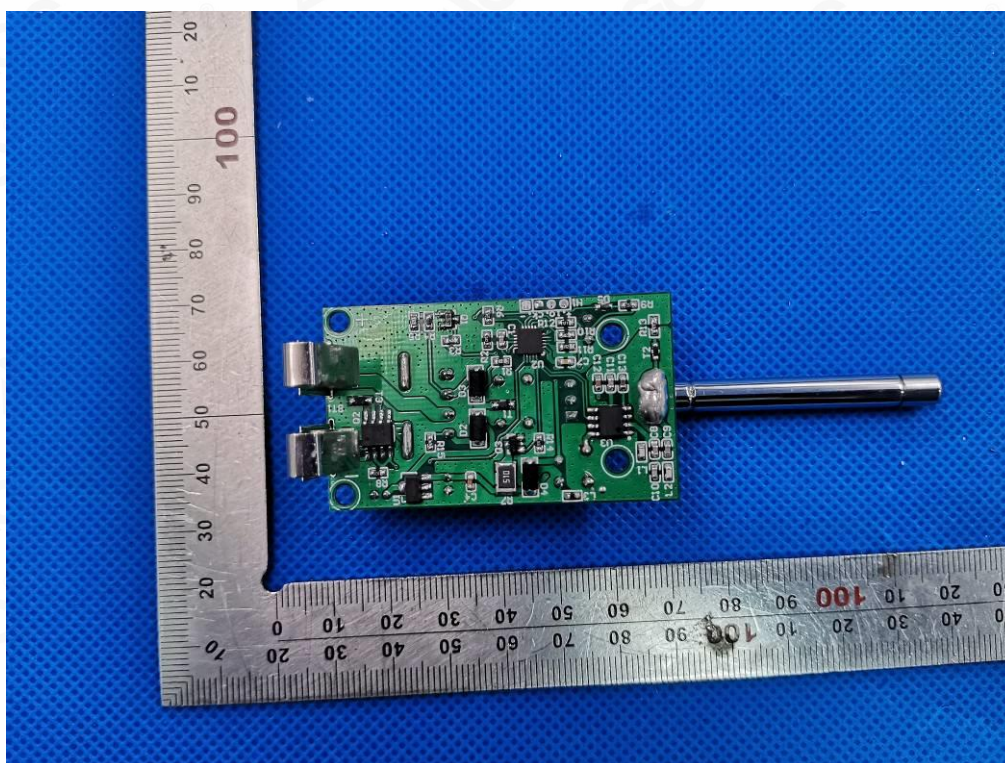
OPEN VIEW OF EUT-2



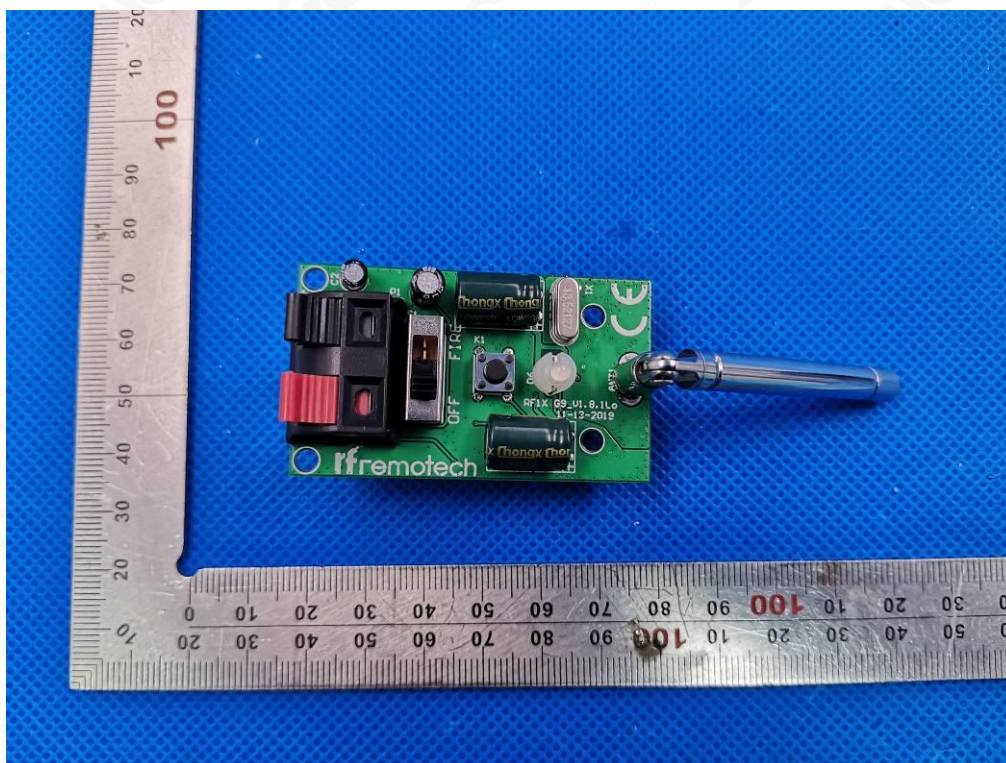
OPEN VIEW OF EUT-3



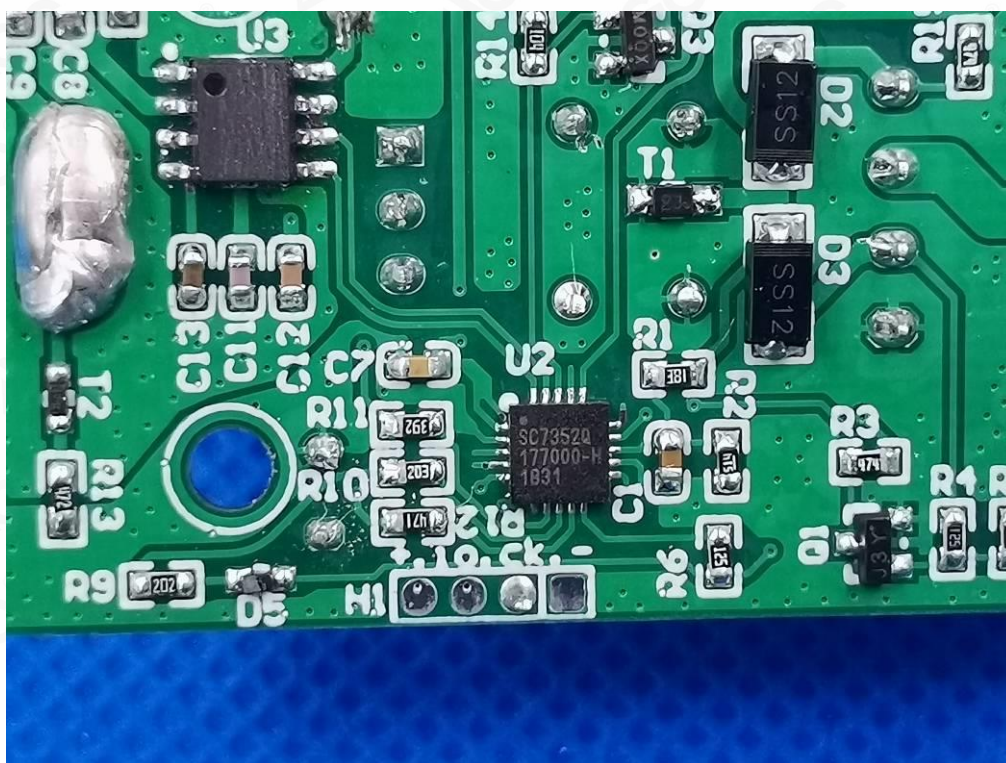
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



VIEW OF BATTERY



----END OF REPORT----



Attestation of Global Compliance

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