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Test Report

Report No.: CQASZ20250601401E-01
Applicant: Shenzhen ISAKE electronic co., LTD
Address of Applicant: 501, Unit 2, Building 3, Yongfeng Fourth Road. Baishixia Community, Fuyong Street, Baoan District, shenzhen
Equipment Under Test (EUT):
EUT Name: Dog Training Collar
Model No.: XG02, XG05, XG11, XG09, XG10, XG12, XG13
Test Model No.: XG02
Brand Name: N/A
FCC ID: 2BDU7-XG02
Standards: 47 CFR Part 15, Subpart C
Date of Receipt: 2025-06-25
Date of Test: 2025-06-25 to 2025-07-07
Date of Issue: 2025-07-09
Test Result : **PASS***

*In the configuration tested, the EUT complied with the standards specified above

Tested By:

Lewis Zhou

(Lewis Zhou)

Reviewed By:

Timo Lei

(Timo Lei)

Approved By:

Jack Ai

(Jack Ai)



The test report is effective only with both signature and specialized stamp, The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CQA, this report can't be reproduced except in full.

1 Version

Revision History Of Report

Report No.	Version	Description	Issue Date
CQASZ20250601401E-01	Rev.01	Initial report	2025-07-09

Modle:XG02, XG05, XG11, XG09, XG10, XG12, XG13

Their electrical circuit design, layout, components used and internal wiring are identical

Only the model names are different.

Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203	ANSI C63.10 (2013)	PASS
Conducted Emission (150KHz to 30MHz)	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 2013	PASS
Field Strength of the Fundamental Signal	47 CFR Part 15, Subpart C Section 15.231 (b)	ANSI C63.10 (2013)	PASS
Spurious Emissions	47 CFR Part 15, Subpart C Section 15.231 (b)/15.209	ANSI C63.10 (2013)	PASS
20dB Bandwidth	47 CFR Part 15, Subpart C Section 15.231 (c)	ANSI C63.10 (2013)	PASS
Dwell Time	47 CFR Part 15, Subpart C Section 15.231 (a)	ANSI C63.10 (2013)	PASS

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3 General Information

3.1 Client Information

Applicant:	Shenzhen ISAKE electronic co., LTD
Address of Applicant:	501, Unit 2, Building 3, Yongfeng Fourth Road.Baishixia Community, Fuyong Street, Baoan District, shenzhen
Manufacturer:	Shenzhen ISAKE electronic co., LTD
Address of Manufacturer:	501, Unit 2, Building 3, Yongfeng Fourth Road.Baishixia Community, Fuyong Street, Baoan District, shenzhen
Factory:	Shenzhen ISAKE electronic co., LTD
Address of Factory:	501, Unit 2, Building 3, Yongfeng Fourth Road.Baishixia Community, Fuyong Street, Baoan District, shenzhen

3.2 General Description of EUT

Product Name:	Dog Training Collar
Model No.:	XG02, XG05, XG11, XG09, XG10, XG12, XG13
Test Model No.:	XG02
Trade Mark:	N/A
Software Version:	V1.0
Hardware Version:	XG02_V7
Sample Type:	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable
Operation Frequency:	433.92MHz
Channel Numbers:	1
Modulation Type:	FSK
Antenna Type:	Spring antenna
Antenna Gain:	3 dBi
Power Supply:	Li-ion battery: DC 3.7V 300mAh, Charge by DC 5V for adapter

3.3 Test Environment and Mode

Operating Environment:	
Radiated Emissions:	
Temperature:	25.4 °C
Humidity:	54 % RH
Atmospheric Pressure:	1009 mbar
Radio conducted item test (RF Conducted test room):	
Temperature:	25.5 °C
Humidity:	55 % RH
Atmospheric Pressure:	1009 mbar
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with modulation.

3.4 Description of Support Units

The EUT has been tested independently.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
/	/	/	/	/

2) Cable

Cable No.	Description	Manufacturer	Cable Type/Length	Supplied by
/	/	/	/	/

3.5 Test Location

All tests were performed at:

Shenzhen Huaxia Testing Technology Co., Ltd.,

1F., Block A of Tongsheng Technology Building, Huahui Road, Dalang Street, Longhua New District, Shenzhen, Guangdong, China

3.6 Test Facility

- **A2LA (Certificate No. 4742.01)**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 4742.01.

- **FCC Registration No.: 522263**

Shenzhen Huaxia Testing Technology Co., Ltd., Shenzhen 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. Registration No.:522263

3.7 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 Huaxia Testing Technology 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 CQA laboratory is reported:

Test	Range	Uncertainty	Notes
Radiated Emission	Below 1GHz	5.12dB	(1)
Radiated Emission	Above 1GHz	4.60dB	(1)
Conducted Disturbance	0.15~30MHz	3.34dB	(1)

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

3.8 Deviation from Standards

None.

3.9 Abnormalities from Standard Conditions

None.

3.10 Other Information Requested by the Customer

None.

3.11 Equipment List

Test Equipment	Manufacturer	Model No.	Instrument No.	Calibration Date	Calibration Due Date
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Spectrum analyzer	R&S	FSU26	CQA-038	2024/9/2	2025/9/1
Preamplifier	MITEQ	AFS4-00010300-18-10P-4	CQA-035	2024/9/2	2025/9/1
Preamplifier	MITEQ	AMF-6D-02001800-29-20P	CQA-036	2024/9/2	2025/9/1
Preamplifier	EMCI	EMC184055SE	CQA-089	2024/9/2	2025/9/1
Loop antenna	Schwarzbeck	FMZB1516	CQA-060	2023/9/8	2026/9/7
Bilog Antenna	R&S	HL562	CQA-011	2023/11/01	2026/10/31
Horn Antenna	R&S	HF906	CQA-012	2023/11/01	2026/10/31
Horn Antenna	Schwarzbeck	BBHA 9170	CQA-088	2023/9/7	2026/9/6
Coaxial Cable (Above 1GHz)	CQA	N/A	C007	2024/9/2	2025/9/1
Coaxial Cable (Below 1GHz)	CQA	N/A	C013	2024/9/2	2025/9/1
Antenna Connector	CQA	RFC-01	CQA-080	2024/9/2	2025/9/1
RF cable(9KHz~40GHz)	CQA	RF-01	CQA-079	2024/9/2	2025/9/1
Power divider	MIDWEST	PWD-2533-02-SMA-79	CQA-067	2024/9/2	2025/9/1
LISN	R&S	ENV216	CQA-003	2024/9/2	2025/9/1
EMI Test Receiver	R&S	ESR7	CQA-005	2024/9/2	2025/9/1
Coaxial cable	CQA	N/A	CQA-C009	2024/9/2	2025/9/1

Test software:

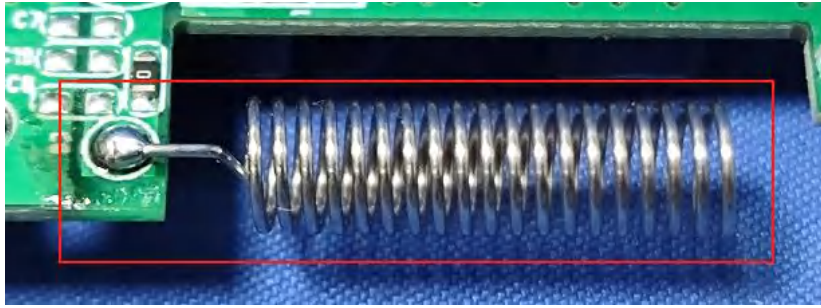
	Manufacturer	Software brand
Radiated Emissions test software	Tonscend	JS1120-3
Conducted Emissions test software	Audix	e3
RF Conducted test software	Audix	e3

Note:

The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

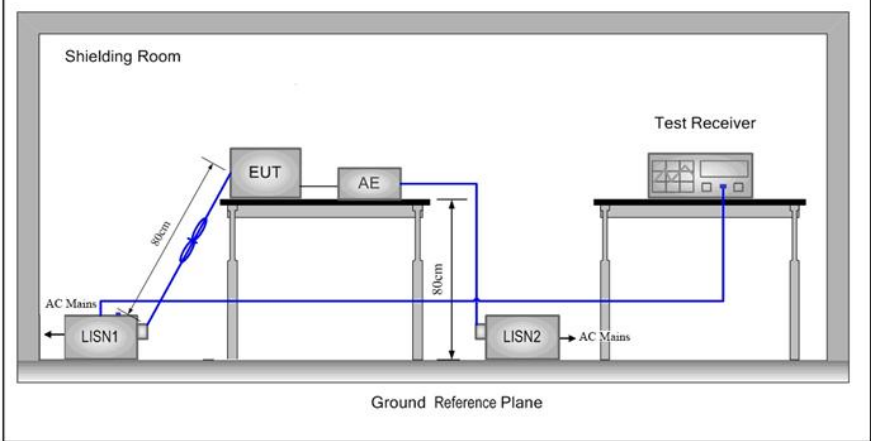
4 Test results and Measurement Data

4.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203
<p>15.203 requirement:</p> <p>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, 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.</p>	
EUT Antenna:	
The antenna is Spring antenna. The best case gain of the antenna is 3dBi.	

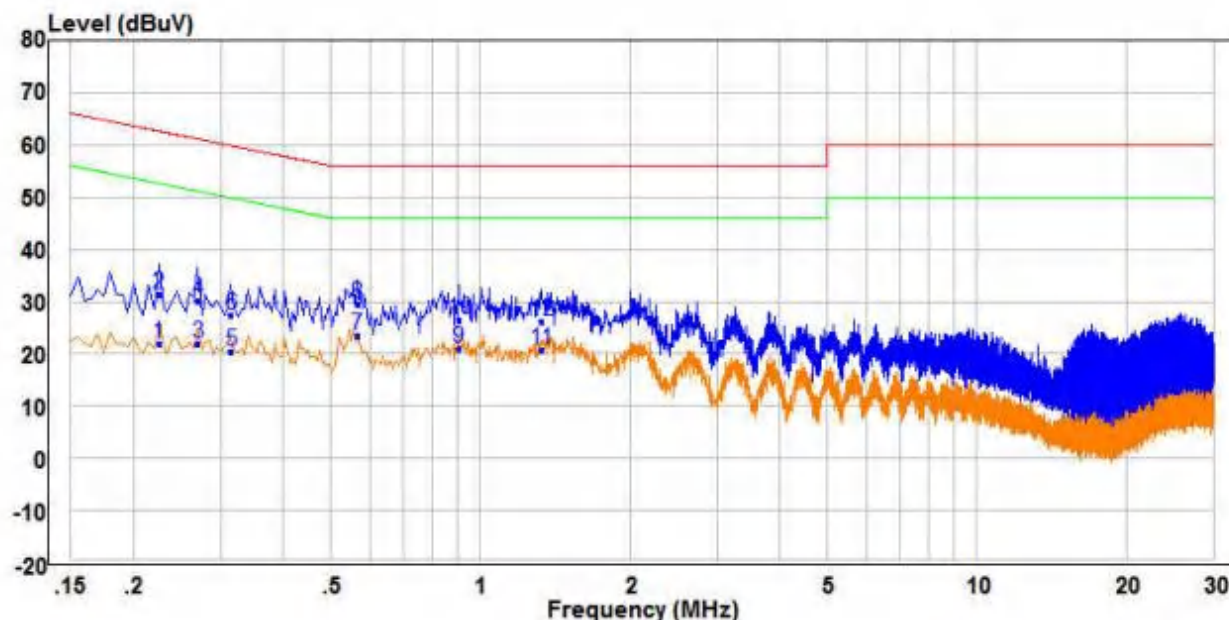
4.2 Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.207		
Test Method:	ANSI C63.10: 2013		
Test Frequency Range:	150kHz to 30MHz		
Limit:	Frequency range (MHz)	Limit (dBuV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
* Decreases with the logarithm of the frequency.			
Test Procedure:	<ol style="list-style-type: none"> 1) The mains terminal disturbance voltage test was conducted in a shielded room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a $50\Omega/50\mu\text{H} + 5\Omega$ linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement. 		

Test Setup:	
Test Mode:	Charge mode
Test Voltage:	AC 120V/60Hz
Test Results:	Pass

Measurement Data

Live line:

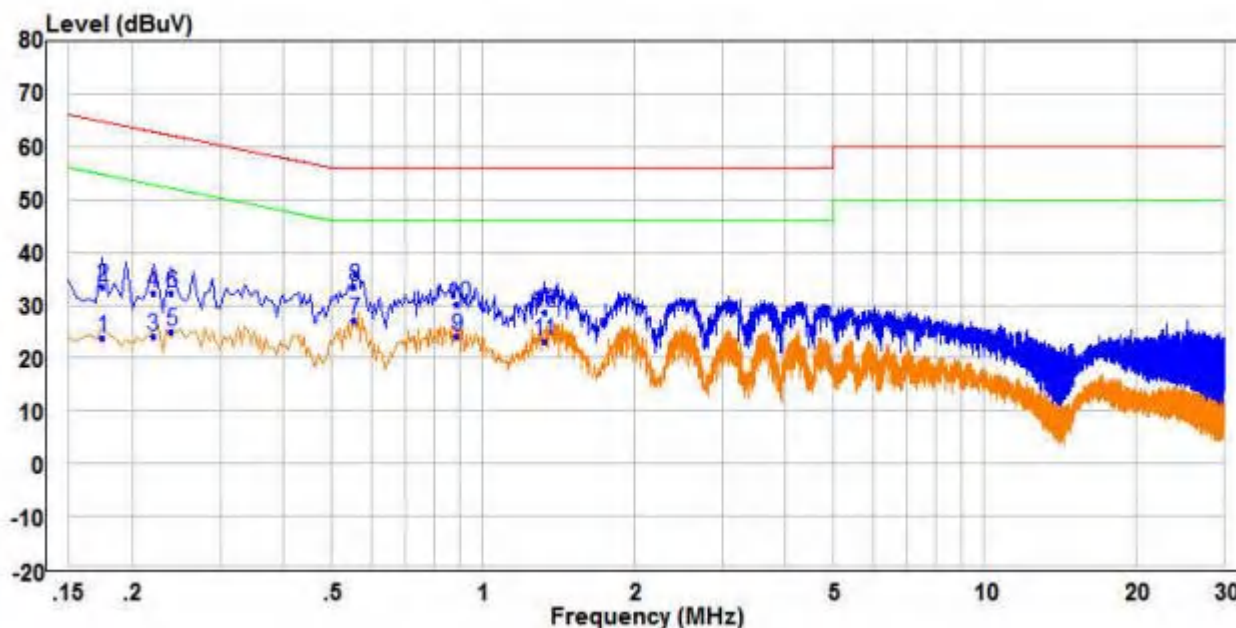


		Read		Limit	Over			
	Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.225	12.39	9.58	21.97	52.63	-30.66	Average	Line
2	0.225	21.95	9.58	31.53	62.63	-31.10	QP	Line
3	0.270	12.43	9.52	21.95	51.12	-29.17	Average	Line
4	0.270	20.69	9.52	30.21	61.12	-30.91	QP	Line
5	0.315	10.98	9.51	20.49	49.84	-29.35	Average	Line
6	0.315	17.91	9.51	27.42	59.84	-32.42	QP	Line
7 PP	0.565	13.71	9.77	23.48	46.00	-22.52	Average	Line
8 QP	0.565	19.64	9.77	29.41	56.00	-26.59	QP	Line
9	0.905	11.33	9.76	21.09	46.00	-24.91	Average	Line
10	0.905	16.77	9.76	26.53	56.00	-29.47	QP	Line
11	1.325	10.39	10.49	20.88	46.00	-25.12	Average	Line
12	1.325	15.62	10.49	26.11	56.00	-29.89	QP	Line

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

Neutral line:



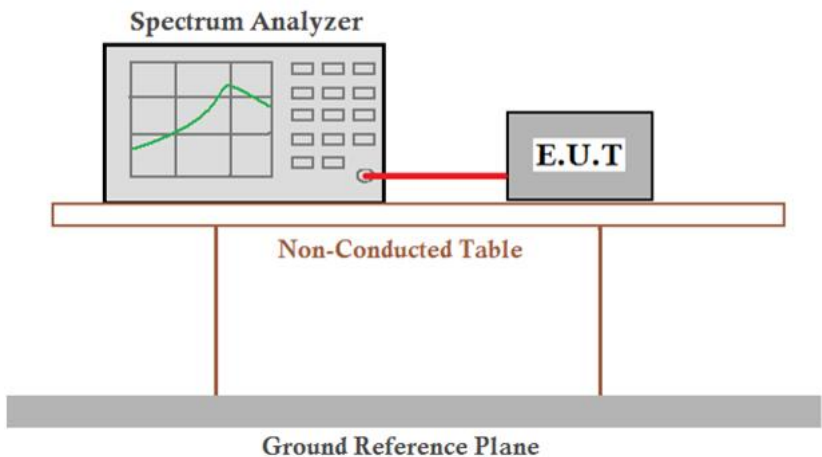
	Freq	Read	Factor	Level	Limit	Over	Remark	Pol/Phase
	MHz	dBuV	dB	dBuV	dBuV	dB		
1	0.175	14.22	9.65	23.87	54.72	-30.85	Average	Neutral
2	0.175	23.92	9.65	33.57	64.72	-31.15	QP	Neutral
3	0.220	14.37	9.58	23.95	52.82	-28.87	Average	Neutral
4	0.220	22.77	9.58	32.35	62.82	-30.47	QP	Neutral
5	0.240	15.31	9.55	24.86	52.10	-27.24	Average	Neutral
6	0.240	22.78	9.55	32.33	62.10	-29.77	QP	Neutral
7 PP	0.555	17.45	9.76	27.21	46.00	-18.79	Average	Neutral
8 QP	0.555	23.64	9.76	33.40	56.00	-22.60	QP	Neutral
9	0.890	14.22	9.77	23.99	46.00	-22.01	Average	Neutral
10	0.890	20.39	9.77	30.16	56.00	-25.84	QP	Neutral
11	1.325	13.45	9.72	23.17	46.00	-22.83	Average	Neutral
12	1.325	18.90	9.72	28.62	56.00	-27.38	QP	Neutral

Remark:

1. The following Quasi-Peak and Average measurements were performed on the EUT:
2. Final Test Level = Receiver Reading + LISN Factor + Cable Loss.
3. If the Peak value under Average limit, the Average value is not recorded in the report.

4.3 Spurious Emissions

4.3.1 Duty Cycle

Test Requirement:	47 CFR Part 15C Section 15.35 (c)
Test Method:	ANSI C63.10:2013
Test Setup:	
Limit:	N/A
Test Mode:	Transmitting mode
Test Results:	Pass

T period (ms)	T on time (ms)	Duty cycle
100	32.61	32.61%

Note:

Duty cycle=T on time / T period

$$=[(0.497 \times 39) + (1.47 \times 9)] / 100$$

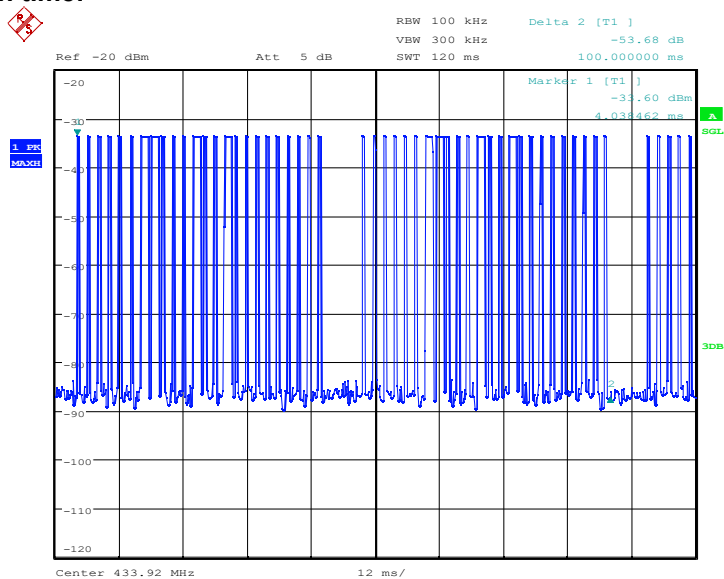
$$=[(19.38) + (13.23)] / 100$$

$$=32.61 / 100$$

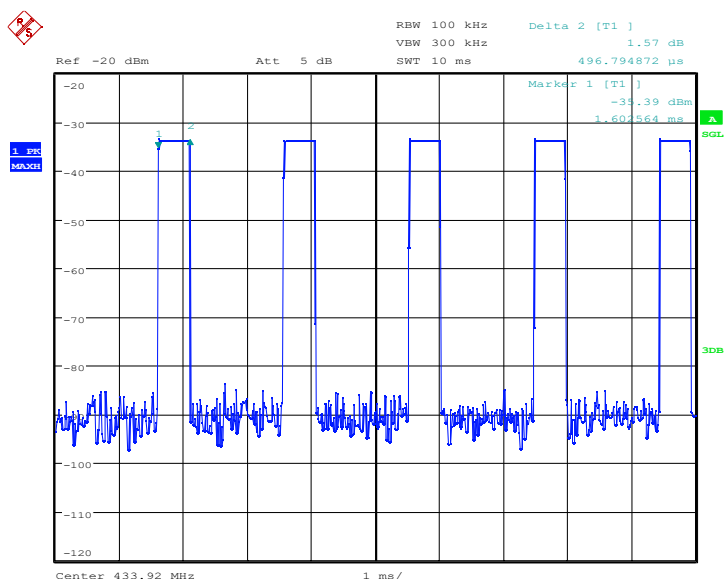
$$=0.3261$$

Test plot as follows:

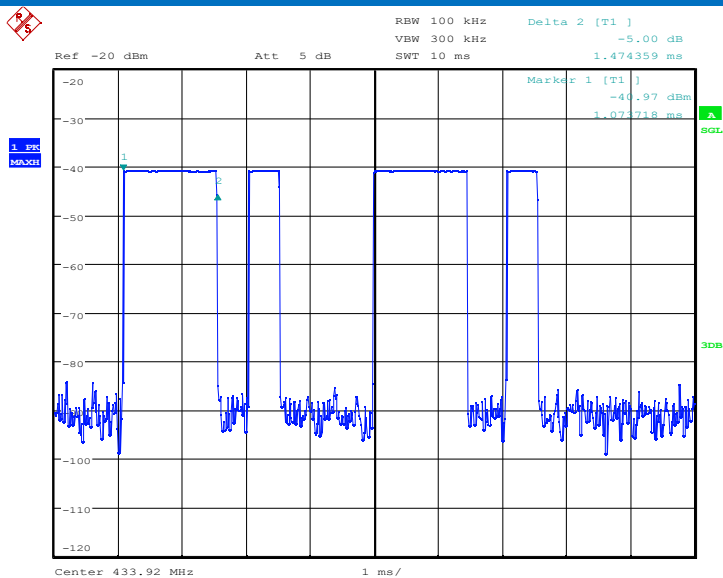
T period and T on time:



Date: 4.JUL.2025 15:13:54



Date: 4.JUL.2025 15:14:29



Date: 4.JUL.2025 15:14:52

4.3.2 Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.231(b) and 15.209				
Test Method:	ANSI C63.10: 2013				
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber)				
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100 kHz	300kHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
Peak		1MHz	10Hz	Average	
Limit: (Spurious Emissions)	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	-	-	300
	0.490MHz-1.705MHz	24000/F(kHz)	-	-	30
	1.705MHz-30MHz	30	-	-	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Note: 15.35(b), Unless otherwise specified, the limit on peak radio frequency emissions is 20dB above the maximum permitted average emission limit applicable to the equipment under test. This peak limit applies to the total peak emission level radiated by the device.				
Limit: (Field strength of the fundamental signal)	Frequency	Limit (dBuV/m @3m)		Remark	
	433.92MHz	80.8		Average Value	
		100.8		Peak Value	
Test Procedure:	a. 1) Below 1G: The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2) Above 1G: The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360				

degrees to determine the position of the highest radiation.

Note: For the radiated emission test above 1GHz:

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.

- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- g. The radiation measurements are performed in X, Y, Z axis positioning. And found the Z axis positioning which it is worse case, Only the test worst case mode is recorded in the report.

Test Setup:

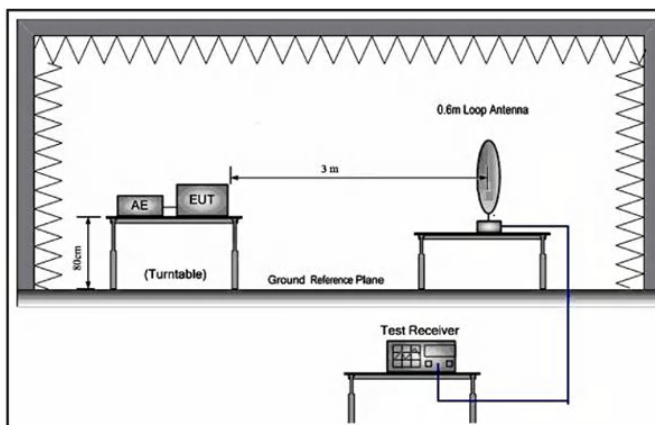


Figure 1. Below 30MHz

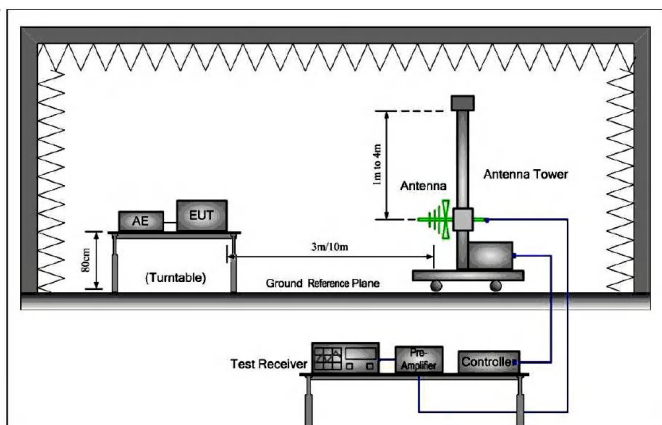


Figure 2. 30MHz to 1GHz

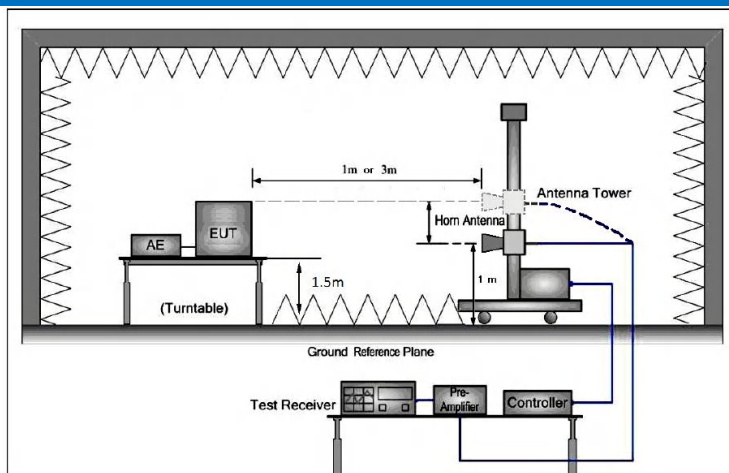


Figure 3. Above 1 GHz

Test Mode:	Transmitting mode
Test Results:	Pass

Measurement Data

4.3.2.1 Field Strength Of The Fundamental Signal

Average value:	
Calculate Formula:	Average value=Peak value + PDCF
	PDCF=20 log(Duty cycle)
	Duty cycle= T on time / T period
Test data:	T on time =32.61ms
	T period =100ms
	PDCF=-9.73

Antenna polarization: Horizontal						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
434.07	55.71	19.93	75.64	100.8	-25.16	Peak
434.07	-	-	65.91	80.8	-14.89	Average
869.13	24.97	29.34	54.31	80.8	-26.49	Peak
869.13	-	-	44.58	60.8	-16.22	Average

Antenna polarization: Vertical						
Frequency (MHz)	Read Level (dBuV)	Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
434.07	50.51	19.93	70.44	100.8	-30.36	Peak
434.07	-	-	60.71	80.8	-20.09	Average
869.13	21.92	29.34	51.26	80.8	-29.54	Peak
869.13	-	-	41.53	60.8	-19.27	Average

Remark:

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor

4.3.2.2 Spurious Emissions

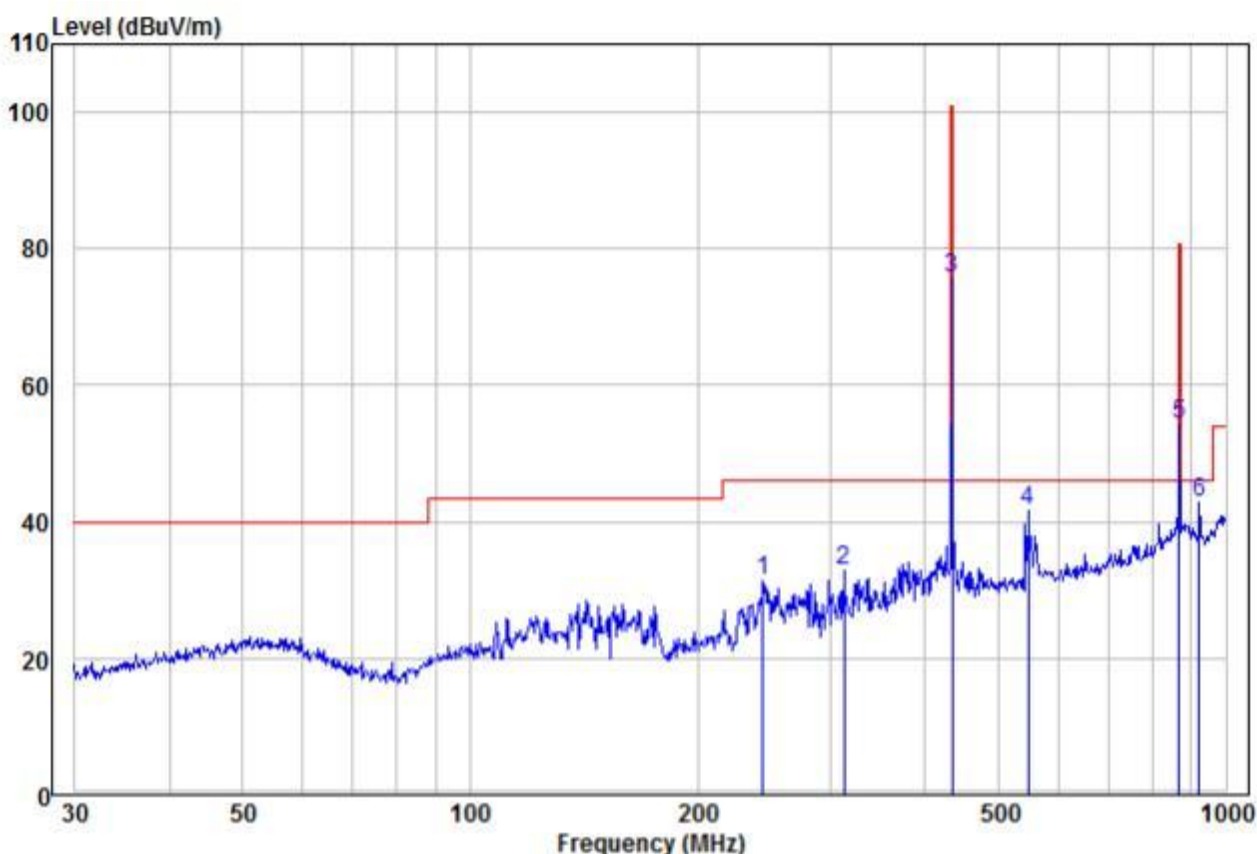
9KHz-30MHz

9 kHz~30 MHz Field Strength of Unwanted Emissions. Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

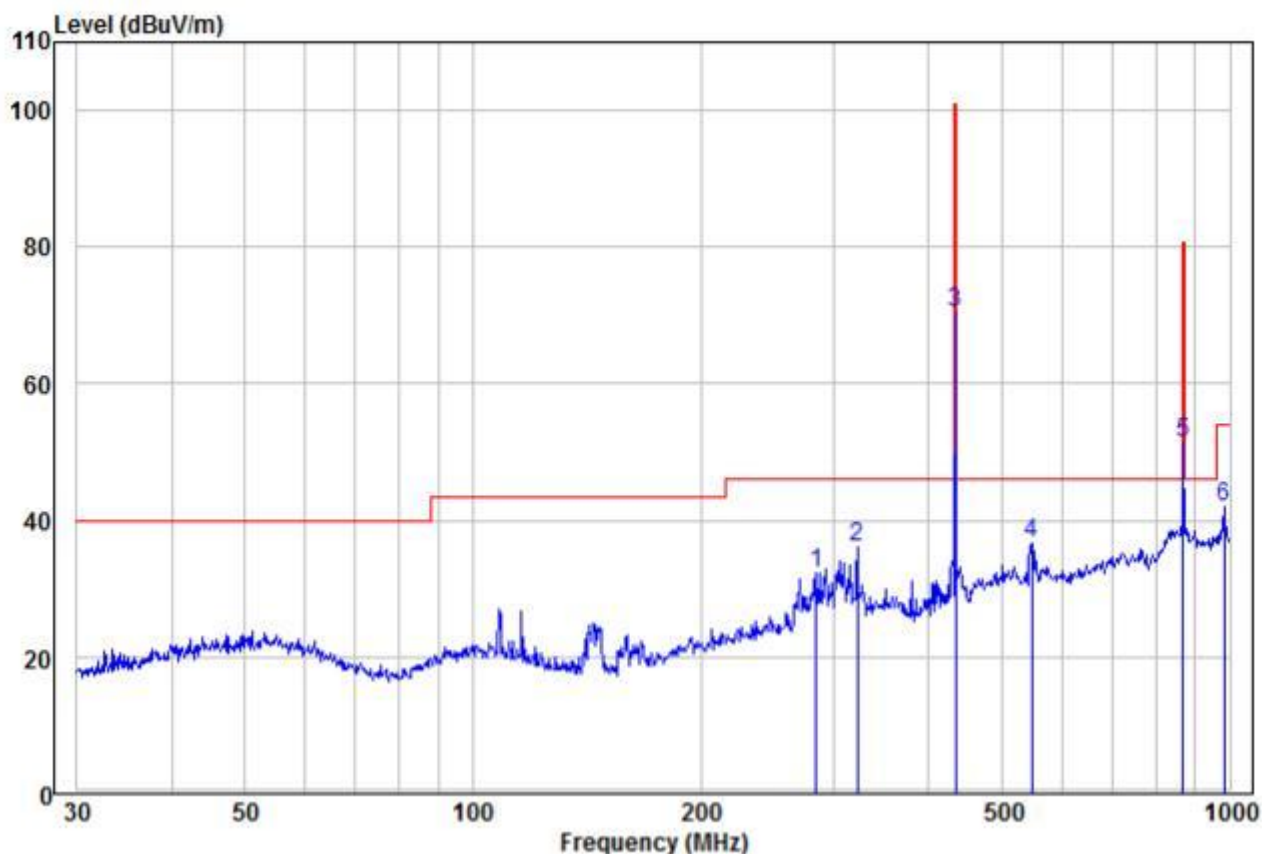
Below 1GHz (30MHz-1GHz)

Horizontal



	Read			Limit	Over				APos	TPos
Freq	Level	Factor	Level	Line	Limit	Remark	Pol/Phase		cm	deg
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB					
1	244.23	15.22	16.19	31.41	46.00	-14.59 Peak	HORIZONTAL	100	42	
2	312.18	14.78	18.07	32.85	46.00	-13.15 Peak	HORIZONTAL	100	37	
3 qp	434.07	55.71	19.93	75.64	100.80	-25.16 QP	HORIZONTAL	100	57	
4	547.10	19.49	22.28	41.77	46.00	-4.23 Peak	HORIZONTAL	100	89	
5	869.13	24.97	29.34	54.31	80.80	-26.49 Peak	HORIZONTAL	100	128	
6 pp	922.52	14.24	28.48	42.72	46.00	-3.28 Peak	HORIZONTAL	100	169	

Vertical



	Freq	Read Level	Factor	Level	Limit	Over Limit	Remark	Pol/Phase	APos	TPos
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB			cm	deg
1	283.98	15.01	17.32	32.33	46.00	-13.67	Peak	VERTICAL	100	66
2	322.19	17.73	18.32	36.05	46.00	-9.95	Peak	VERTICAL	100	81
3	434.07	50.51	19.93	70.44	100.80	-30.36	Peak	VERTICAL	100	102
4 pp	547.10	14.46	22.28	36.74	46.00	-9.26	Peak	VERTICAL	100	136
5	869.13	21.92	29.34	51.26	80.80	-29.54	Peak	VERTICAL	100	77
6	982.62	13.06	29.03	42.09	54.00	-11.91	Peak	VERTICAL	100	215

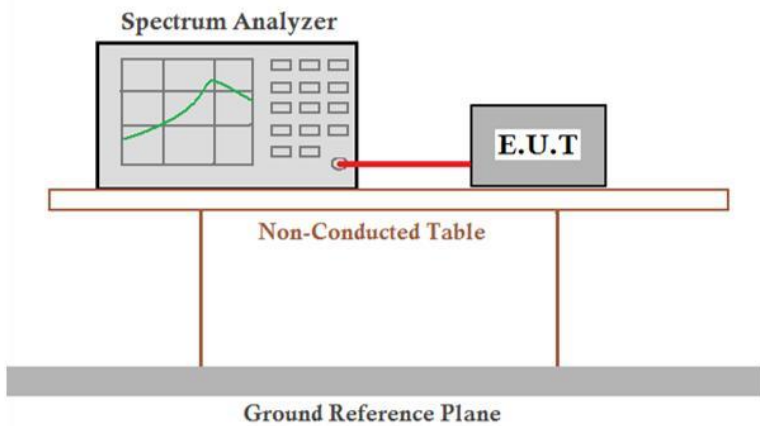
Above 1GHz(1GHz-5GHz)

Worse case mode:		FSK							
Frequency	Meter Reading	Factor	Emission Level	Limits	Over	Detect or Type	Ant. Pol.	Antenna Height	Table Angle
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		H/V	(m)	(Degree)
1432.17	55.81	-9.2	46.61	74	-27.39	Peak	H	1.5	328
2136.42	55.46	-9.39	46.07	74	-27.93	Peak	H	1.5	309
4442.48	53.77	-4.33	49.44	74	-24.56	Peak	H	1.5	351
1617.22	48.40	1.01	49.41	74	-24.59	Peak	H	1.5	99
2357.63	53.65	-9.2	44.45	74	-29.55	Peak	V	1.5	72
4898.81	51.57	-9.39	42.18	74	-31.82	Peak	V	1.5	226
1437.51	54.14	-4.33	49.81	74	-24.19	Peak	V	1.5	64
2183.07	48.85	1.01	49.86	74	-24.14	Peak	V	1.5	305

Remark:

- 1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:
Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Preamplifier Factor
- 2) The disturbance above 5GHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 3) As shown in this section, for frequencies above 1GHz, the field the strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted aver average limits. Specified above by more than 20dB under any condition of modulation. So, only the peak measurements were show in the report.

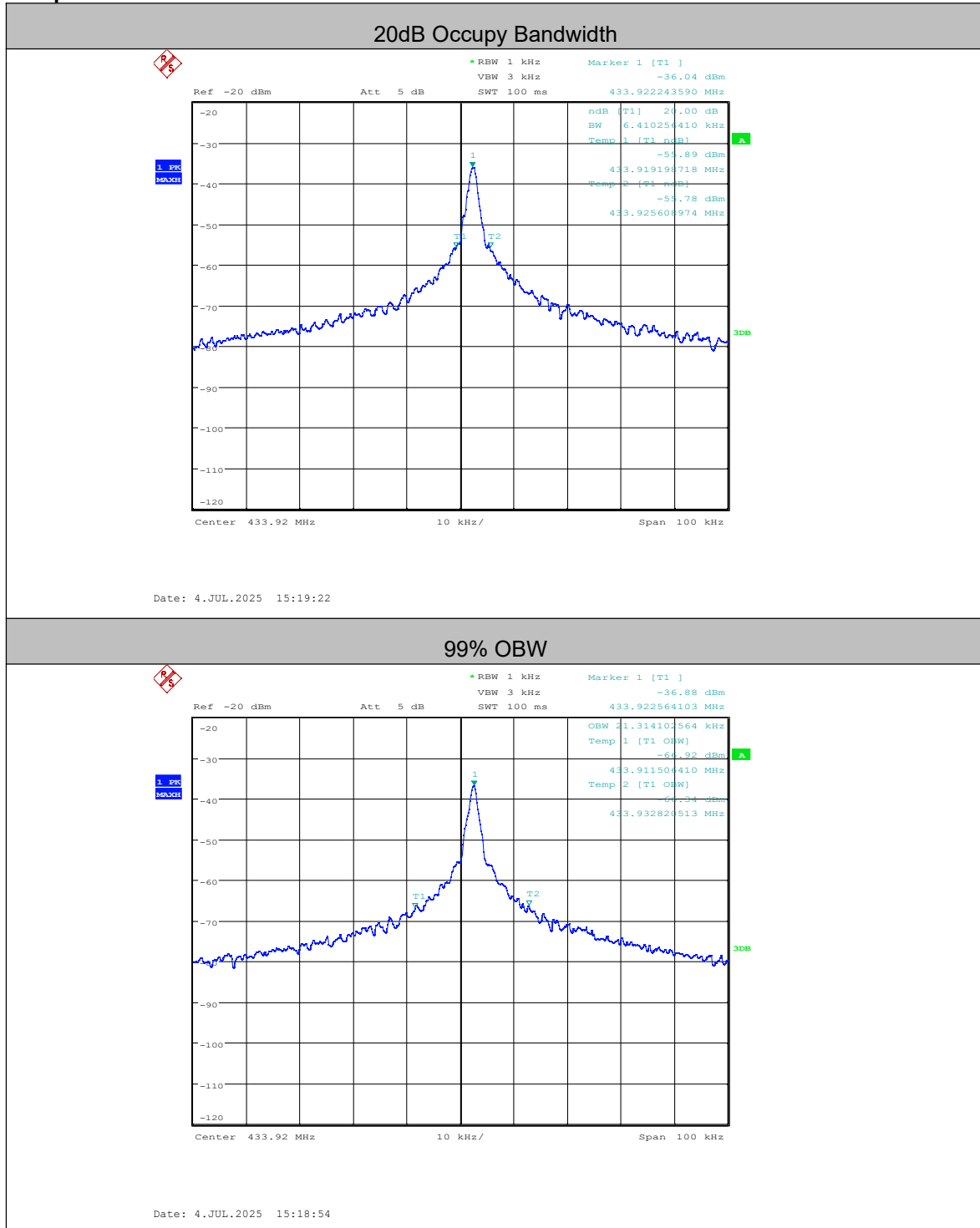
4.4 20dB Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.231 (c)
Test Method:	ANSI C63.10:2013
Limit:	The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.
Test Setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Mode:	Transmitting mode
Test Results:	Pass

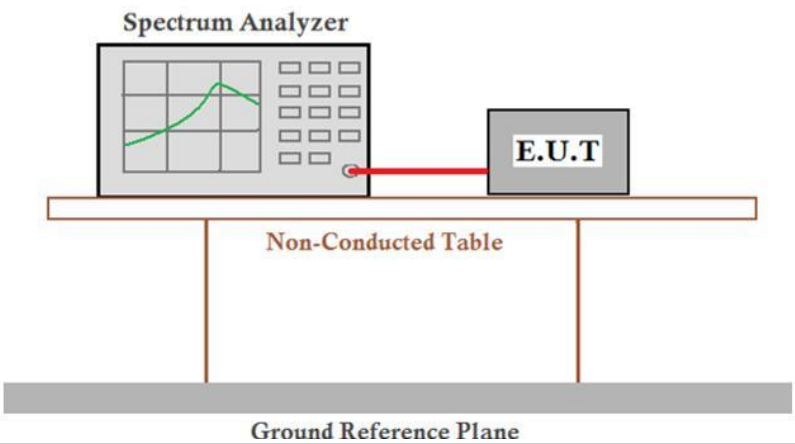
Measurement Data

20dB bandwidth (kHz)	Limit (kHz)	Results
6.41	1084.8	PASS

Test plot as follows:



4.5 Dwell time

Test Requirement:	47 CFR Part 15C Section 15.231 (a)
Test Method:	ANSI C63.10:2013
Test Setup:	
Test Mode:	Transmitting mode
Test Results:	Pass

Requirements:

1. Regulation 15.231 (a) The provisions of this Section are restricted to periodic operation within the band 40.66~40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this Section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Radio control of toys is not permitted. Continuous transmissions, such as voice or video, and data transmissions are not permitted. The prohibition against data transmissions does not preclude the use of recognition codes. Those codes are used to identify the sensor that is activated or to identify the particular component as being part of the system.

Result:

The EUT is a remote switch without audio or video transmitted.

The EUT meets the requirements of this section.

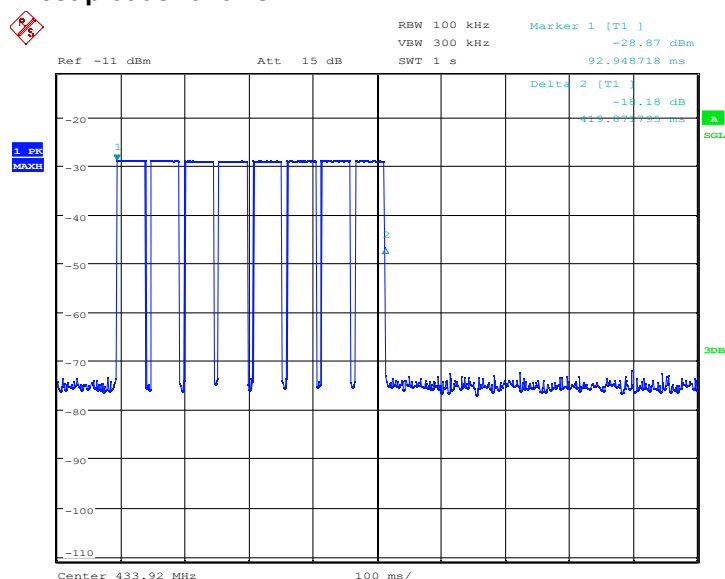
2.Regulation 15.231 (a1)

A manually operated transmitter shall be equipped with a push-to-operate switch and be under manual control at all times during transmission. When released, the transmitter shall cease transmission within no more than 5 seconds of being released.

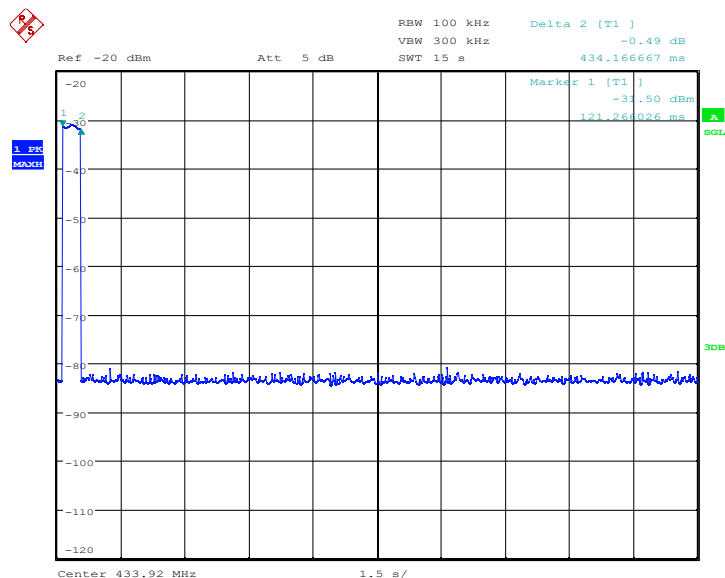
Result:

Test item	Limit (MHz)	Results
Transmission time	≤5S	0.42S

Test plot as follows:



Date: 7.JUL.2025 15:20:33



Date: 4.JUL.2025 15:17:16

3. Regulation 15.231 (a2) A transmitter that has been activated automatically shall cease transmission within 5 seconds of activation.

Result:

The EUT does not have automatic transmission.

4.Regulation15.231 (a3)

Periodic transmissions at regular, predetermined intervals are not allowed, except as specified in section A.1.5. Nonetheless, polling or supervision transmissions that determine system integrity of transmitters used in security or safety applications are permitted as long as the total duration of transmission does not exceed 2 seconds per hour for each transmitter.

In addition, devices operated under the provisions of this section shall be capable of automatically limiting their operation so that the duration of each transmission is not greater than 1 second and the silent period between transmissions is at least 30 times the duration of the transmission, but not less than 10 seconds under any circumstances. However, devices that are designed for limited use for the purpose of initial programming, reprogramming or installing, and not for regular operations, may operate for up to 5 seconds provided such devices are used only occasionally in connection with each unit being programmed or installed.

Result:

The EUT does not employ periodic transmission.

5. Regulation 15.231 (a4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.

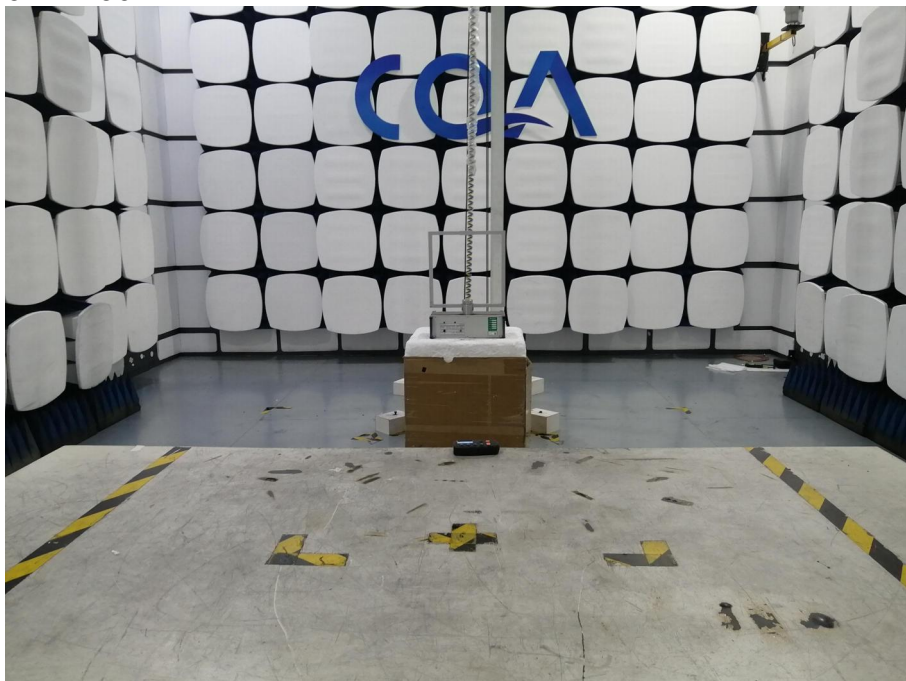
Result:

This section is not applicable to the EUT.

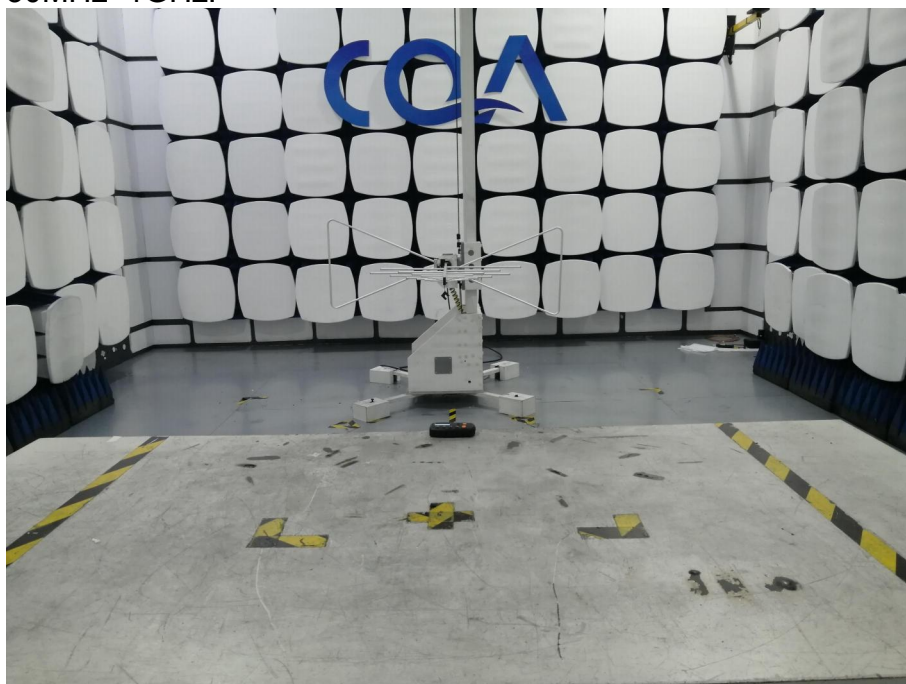
5 Photographs - EUT Test Setup

5.1 Radiated Emission

9kHz~30MHz:



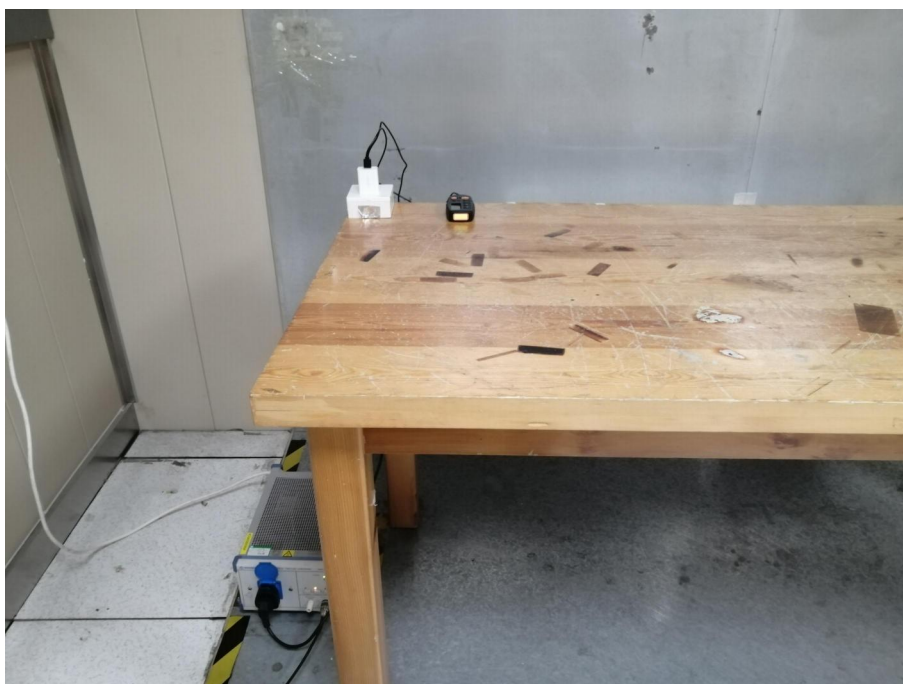
30MHz~1GHz:



Above 1GHz:



5.2 Conducted Emissions Test Setup



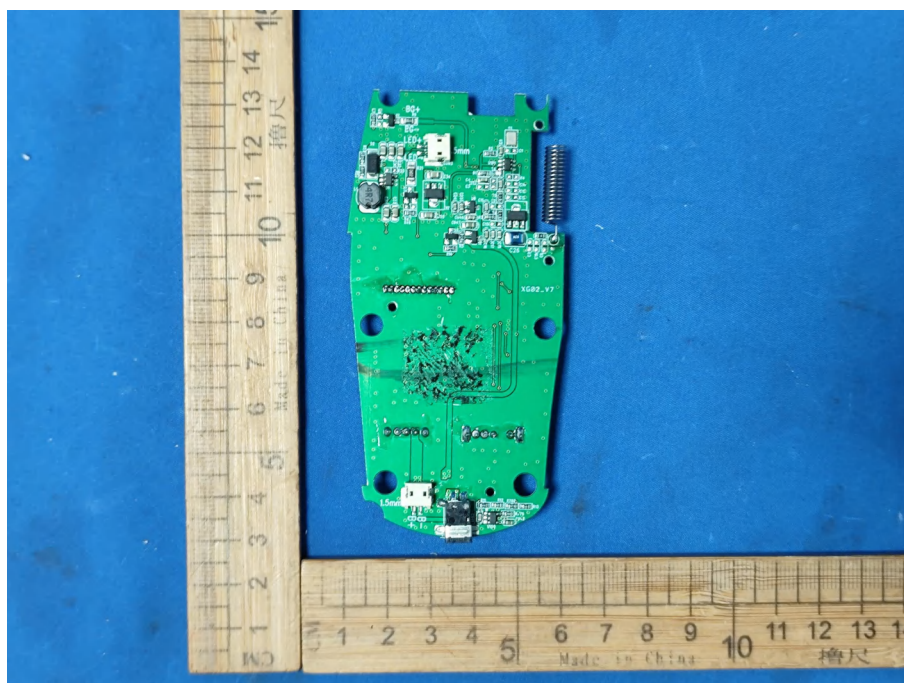
6 Photographs - EUT Constructional Details

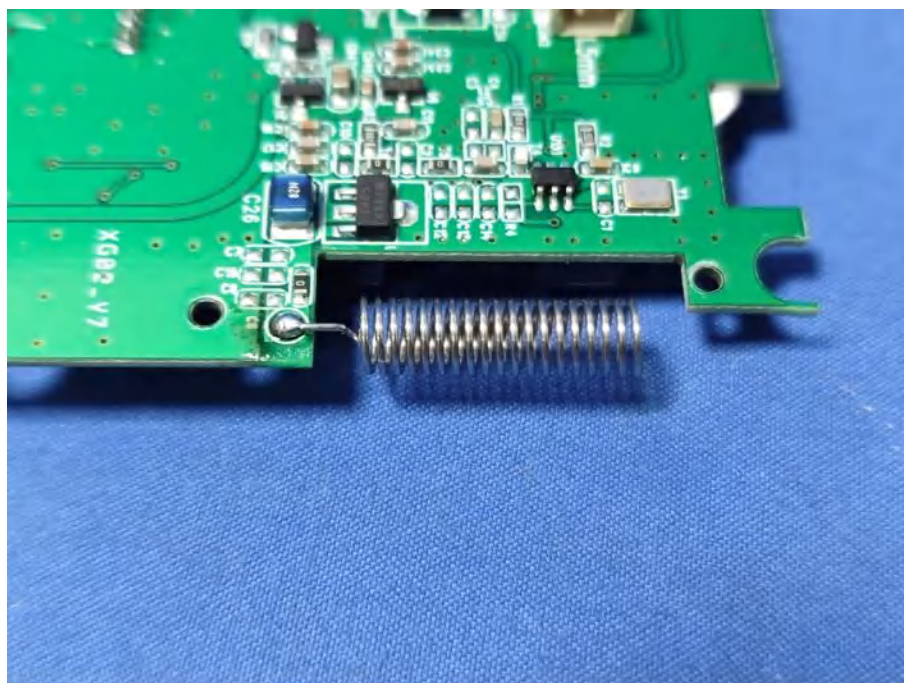
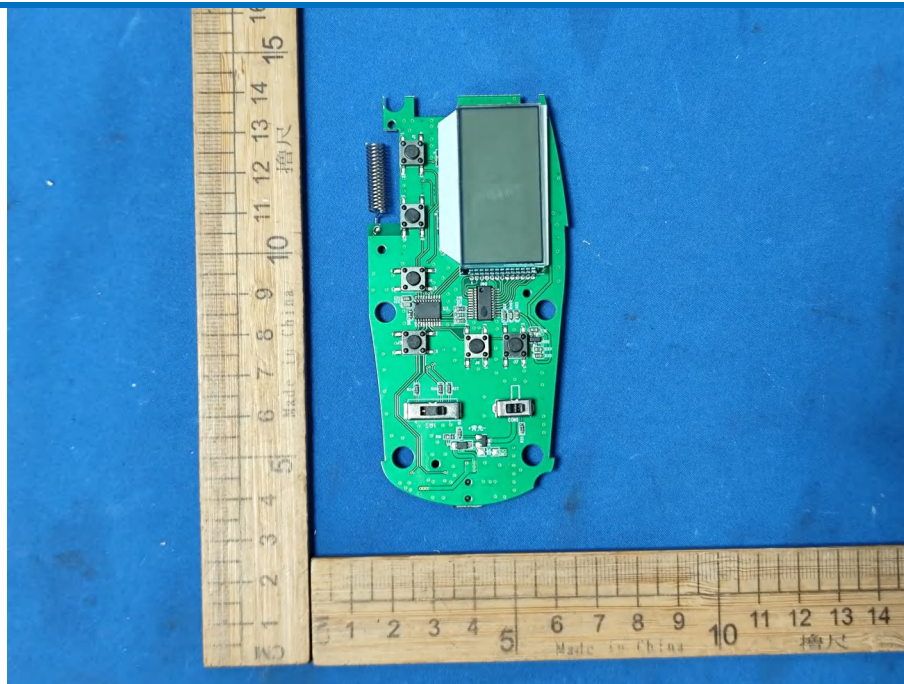


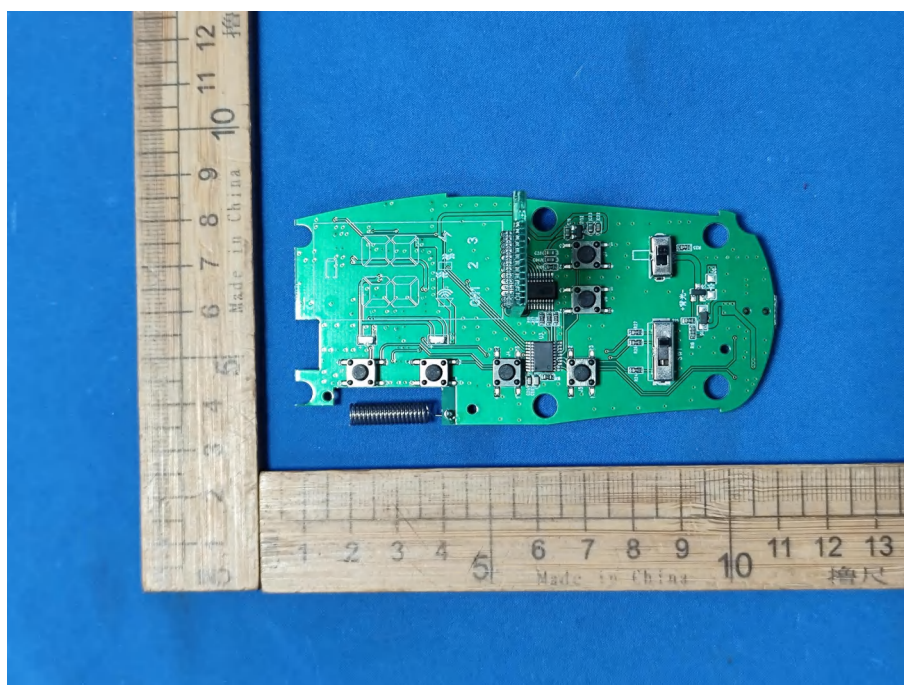
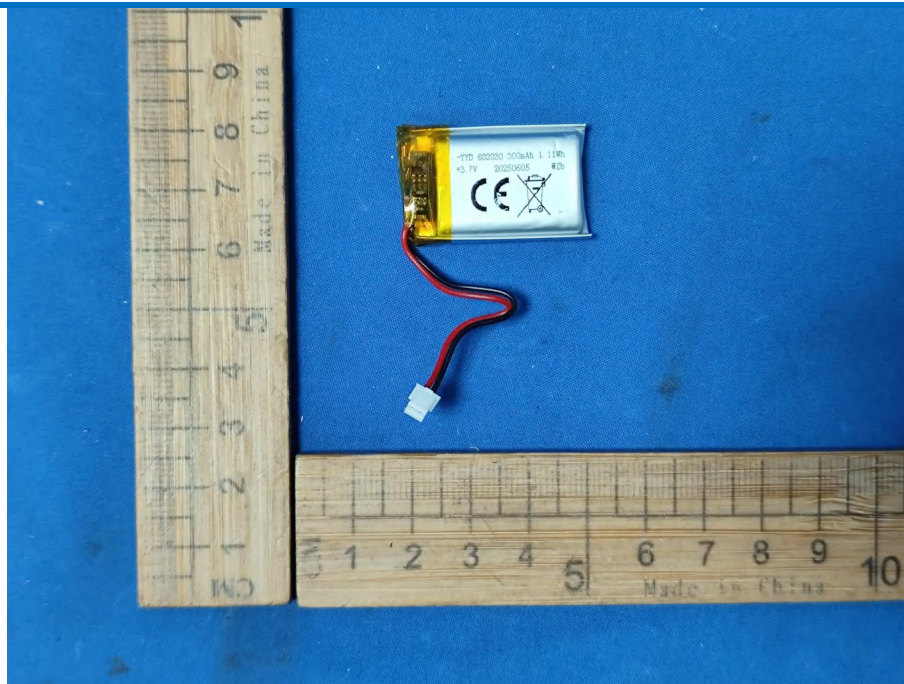












*** End of Report ***