EMC Test Report

Report Reference No.....: AiTSZ-240814007E1

Applicant's name.....: Shenzhen Jingweixin Technology Co;Ltd

Address .....: 101, Building E, No. 21, Nanling Road, Xinqiao Street, Bao'an District, Shenzhen

Test item description:

Product name .....: Compressed Air Duster

Trademark .....: N/A

Model and/or type reference ...: FT03

Serial Model .....: FT01, FT02,FT05, FT06, FT-X3, FT-S2

Standards .....: EN IEC 55014-1:2021
EN IEC 55014-2:2021

Testing Laboratory information:

Testing Laboratory Name .....: Guangdong Asia Hongke Test Technology Limited

Address .....: B1/F, Building 11, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

This device described above has been tested by Guangdong Asia Hongke Test Technology Limited, and the test results show that the equipment under test (EUT) is in compliance with the CE requirements. And it is applicable only to the tested sample identified in the report.

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Testing.....:

Date of receipt of test item.....: Aug.14, 2024

Date (s) of performance of tests .....: Aug.14, 2024~ Aug.21, 2024

Date of Issue .....: Aug.21, 2024

Test Result .....: **Pass**

Reviewed by: Leon Yi
Leon.yi

Approved by: Sean She
Sean She

1 CONTENTS

2 TEST SUMMARY

Electromagnetic Interference (EMI)				
Test	**Test Requirement**	**Test Method**	**Class / Severity**	**Result**
Conducted Emission on AC (150kHz to 30MHz)	EN IEC 55014-1:2021	CISPR 14-1:2016	Table 1 Columns 2&3	N/A
Radiated Emissions (30MHz to 1GHz)	EN IEC 55014-1:2021	CISPR 14-1:2016	Class B	PASS
Discontinuous Interference on AC (150kHz to 30MHz)	EN IEC 55014-1:2021	CISPR 14-1:2016	Clause 4.2 of EN 55014-1	N/A
Electromagnetic Susceptibility(EMS) 1)				
Test	**Test Requirement**	**Test Method**	**Class / Severity**	**Result**
ESD (Electrostatic Discharge)	EN IEC 55014-2:2021	EN 61000-4-2	Contact ±4 kV Air ±8 kV	PASS
Radio frequency electromagnetic fields	EN IEC 55014-2:2021	EN 61000-4-3	80 MHz to 1 000 MHz 3 V/m (r.m.s.) (unmodulated)	PASS
Electrical Fast Transients (EFT) on AC	EN IEC 55014-2:2021	EN 61000-4-4	AC ± 1.0kV	N/A
Surge Immunity on AC	EN IEC 55014-2:2021	EN 61000-4-5	±1kV D.M.†	N/A
Injected Currents on AC (150kHz to 230MHz)	EN IEC 55014-2:2021	EN 61000-4-6	3V r.m.s (emf) 80%, 1kHz Amp. Mod.	N/A
Voltage Dips and Interruptions on AC	EN IEC 55014-2:2021	EN 61000-4-11	0 % U_T* for 0.5per 40 % U_T* for 10per 70 % U_T* for 25per	N/A
REMARK :				
1) **:** The EUT belongs to **Category II apparatus of EN 55014-1:2017+A11:2020**.				
* U_T is the nominal supply voltage.				
† D.M. – Differential Mode.				
N/A: Not applicable.				

2.1 MEASUREMENT UNCERTAINTY

The report uncertainty of measurement **y** ± **U**, where expended uncertainty **U** is based on a standard uncertainty Multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately 95%.

No.	Item	Frequency Range	U , Value
1	Power Line Conducted Emission	150KHz~30MHz	1.20 dB
2	Disturbance Power Emission	30MHz~300MHz	2.96 dB
3	Radiated Emission Test	30MHz~1GHz	3.30 dB
4	Radiated Emission Test	1GHz~18GHz	3.30 dB

3 TEST FACILITY

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

FCC-Registration No.: 251906 Designation Number: CN1376

Guangdong Asia Hongke Test Technology Limited 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.

IC —Registration No.: 31737 CAB identifier: CN0165

The 3m Semi-anechoic chamber of Guangdong Asia Hongke Test Technology Limited has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 31737

A2LA-Lab Cert. No.: 7133.01

Guangdong Asia Hongke Test Technology Limited has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

3.1 DEVIATION FROM STANDARD

None

3.2 ABNORMALITIES FROM STANDARD CONDITIONS

None

4 GENERAL INFORMATION

4.1 GENERAL DESCRIPTION OF EUT

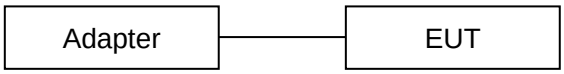
Manufacturer:	Shenzhen Jingweixin Technology Co;Ltd
Manufacturer Address:	101, Building E, No. 21, Nanling Road, Xinqiao Street, Bao'an District, Shenzhen
EUT Name:	Compressed Air Duster
Model No:	FT03
Brand Name:	N/A
Serial Model No:	FT01, FT02,FT05, FT06, FT-X3, FT-S2
Power Supply Range:	DC 5V⎓2A

4.2 EUT TEST MODE

Mode 1	The EUT in working mode.

4.3 DESCRIPTION OF TEST SETUP

EUT was tested in normal configuration (Please See following Block diagrams)

1. Block diagram of EUT configuration-EMI
Mode1: 
2. Block diagram of EUT configuration-EMS
The same as above.

4.3 TEST PERIPHERAL LIST

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	Adapter	HNT	N/A	HNT-QC 530	N/A	N/A	N/A

4.4 EUT PERIPHERAL LIST

No.	Equipment	Manufacturer	EMC Compliance	Model No.	Serial No.	Power cord	signal cable
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

5 EQUIPMENTS LIST FOR ALL TEST ITEMS

☒ Radiation Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	EMI Measuring Receiver	R&S	ESPI	100771	2023-09-13	2024-09-12
2	Low Noise Pre Amplifier	SCHWARZBECK	BBV 9745	00282	2023-09-13	2024-09-12
3	TRILOG Super Broadband test Antenna	SCHWARZBECK	VULB9168	01434	2023-04-28	2025-04-27
4	Spectrum Analyzer	R&S	FSV40	101470	2023-09-08	2024-09-07
5	Low Noise Pre Amplifier	Tsj	MLA-0120-A02-34	2648A04738	2023-09-08	2024-09-07
6	Broadband Horn Antenna	SCHWARZBECK	BBHA 9120D	452	2023-08-29	2025-08-28

☒ ESD Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	ESD Simulator	Schloder	SESD 30000	509325	2023-09-14	2024-09-13

☒ R/S Test Equipment						
No	Test Equipment	Manufacturer	Model No	Serial No	Cal. Date	Cal. Due Date
1	MXG analog signal generator	Agilent	N5181A	MY46240859	2023-09-08	2024-09-07
2	Power Amplifier	Schaffner	CBA9429	T43605	2023-09-08	2024-09-07
3	Power Amplifier	Micotop	MPA-3000-6000-50	MPA03724	2023-09-08	2024-09-07
4	Logarithmic-periodic Antenna	Schwarzbeck	VULP9118E	820	2023-09-04	2025-09-03
5	Broadband Horn Antenna	Schwarzbeck	BBHA 9120LF	255	2023-09-04	2025-09-03
6	Power meter	Agilent	E4419B	MY45102079	2023-09-08	2024-09-07
7	Power sensor	Agilent	8481A	MY41097696	2023-09-08	2024-09-07
8	Power sensor	Agilent	8481A	MY41097697	2023-09-08	2024-09-07
9	RF Relay matrix	Tsj	RFM-S621	04261	2023-09-08	2024-09-07

Note:

1. ☐ is not applicable in this Test Report. ☒ is applicable in this Test Report.

6 EMISSION TEST RESULTS

6.1 RADIATED EMISSION MEASUREMENT

Limits of Radiated Emission Measurement (Below 1GHz)

Frequency (MHz)	3m
	Quasi-Peak dB(μV/m)
30 ~ 230	40
230 ~ 1000	47

Limits of Radiated Emission Measurement (Above 1GHz)

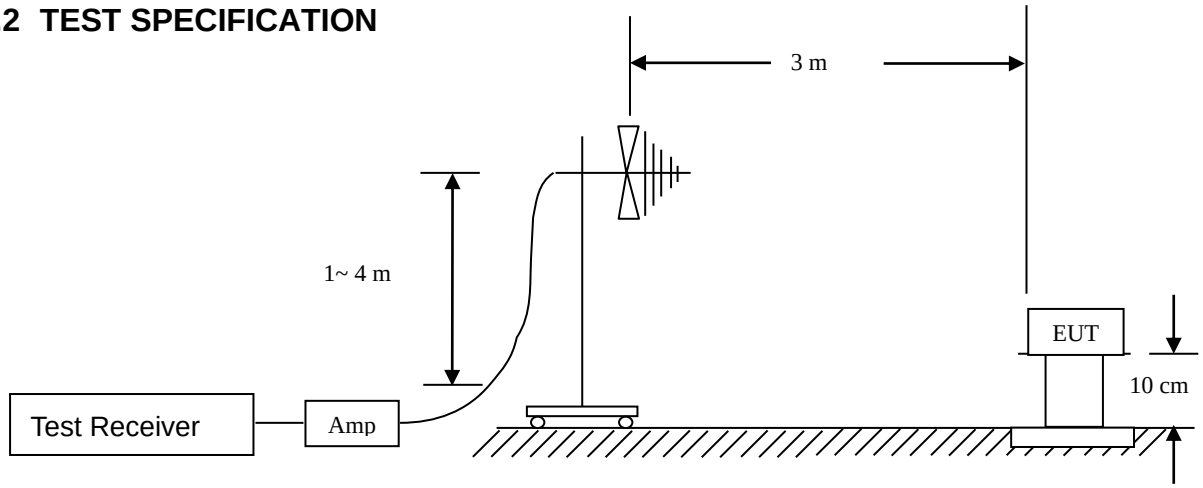
Frequency (MHz)	3m	
	Peak dB(μV/m)	Average dB(μV/m)
1000~3000	70	50
3000~6000	74	54

Detector:	Peak for pre-scan (120kHz resolution bandwidth) Quasi-Peak if maximum peak within 6dB of limit

6.1.1 E.U.T. OPERATION

Temperature:	25°C	Humidity:	55% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	Mode1			The Worst Mode:	Mode 1	

6.1.2 TEST SPECIFICATION



EUT was placed upon a wooden test table which was placed on the turn table 0.1m above the horizontal metal ground plane, and operating in the mode as mentioned above. A receiving antenna was placed 3m away from the EUT. During testing, turn around the turn table and move the antenna from 1m to 4m to find the maximum field-strength reading. All peripherals were placed at a distance of 10cm between each other. Both horizontal and vertical antenna polarities were tested.

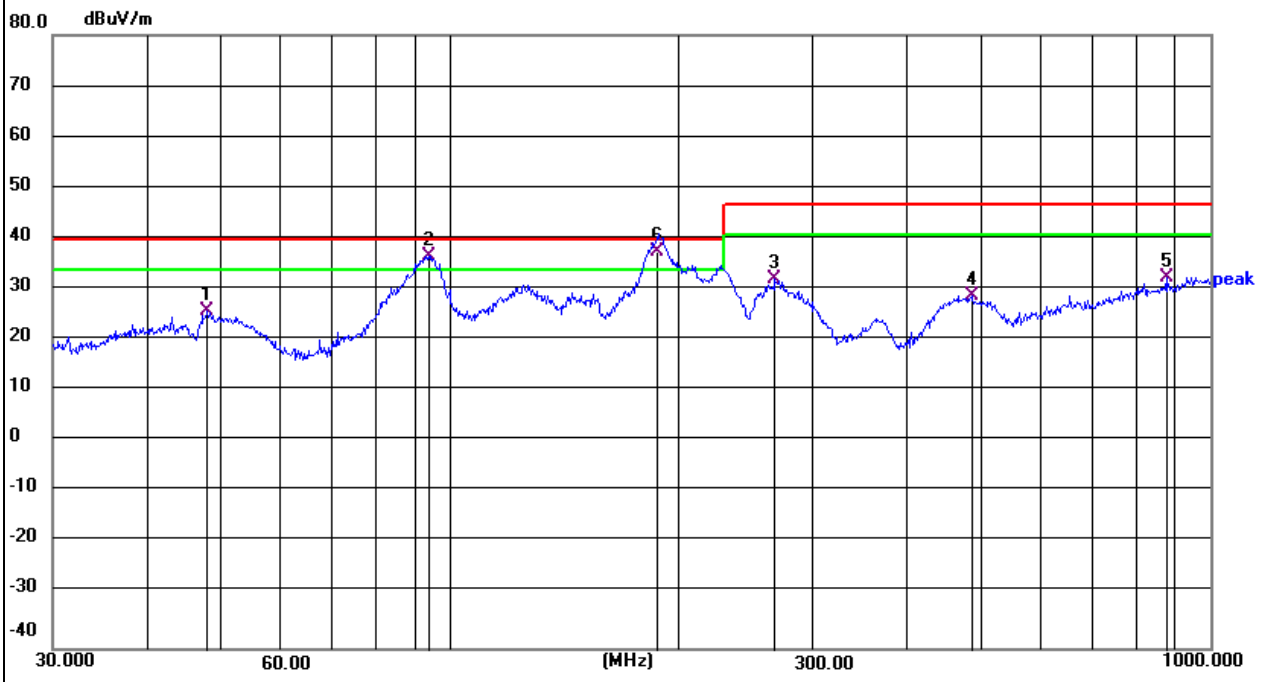
6.1.3 MEASUREMENT DATA

An initial pre-scan was performed in the 3m chamber using the spectrum analyzers in peak detection mode. The EUT was measured by Biology antenna with 2 orthogonal polarities and peak emissions from the EUT were detected within 6dB of the class B limit line.

The following quasi-peak measurements were performed on the EUT.

Between 30 MHz - 1000 MHz

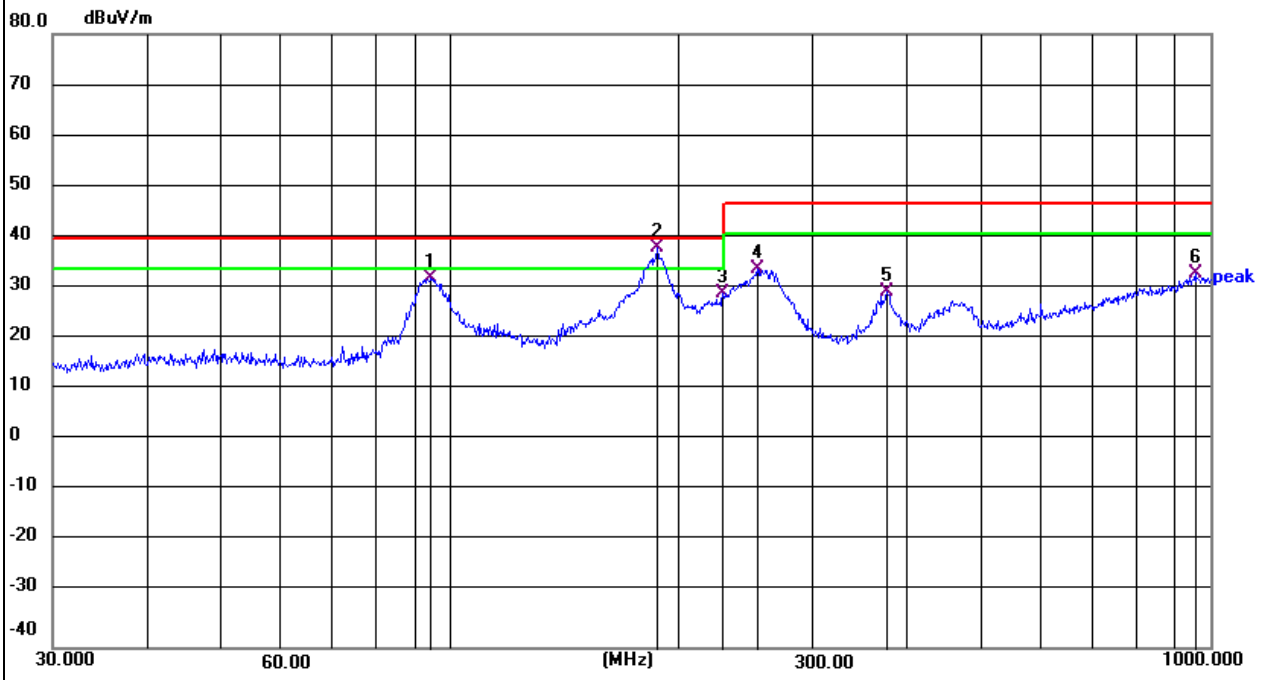
Test Mode:	Mode 1	Test Date :	2024-08-18
Test Voltage ：	AC230V50Hz	Polarization :	Vertical



Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Measurement Result=Reading Level +Correct Factor;
Over Limit= Measurement Result- Limit;

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	47.9940	42.68	-16.63	26.05	40.00	-13.95	QP
2	93.7685	57.65	-20.73	36.92	40.00	-3.08	QP
3	267.5455	50.14	-17.93	32.21	47.00	-14.79	QP
4	485.6093	41.84	-12.72	29.12	47.00	-17.88	QP
5	875.2470	37.73	-5.11	32.62	47.00	-14.38	QP
6 *	187.6181	56.80	-19.19	37.61	40.00	-2.39	QP

Test Mode:	Mode 1	Test Date :	2024-08-18
Test Voltage：	AC230V50Hz	Polarization :	Horizontal

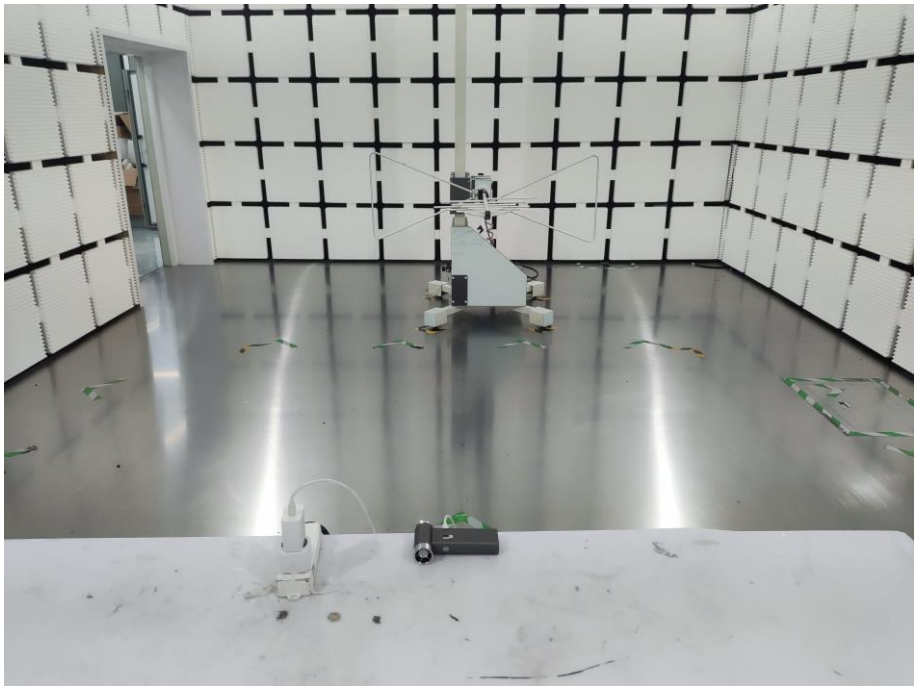


Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.
Measurement Result=Reading Level +Correct Factor;
Over Limit= Measurement Result- Limit;

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.
1	94.4284	53.14	-20.69	32.45	40.00	-7.55	QP
2 *	187.0958	57.36	-19.12	38.24	40.00	-1.76	QP
3	228.4904	49.35	-19.95	29.40	40.00	-10.60	QP
4	253.8367	52.42	-18.44	33.98	47.00	-13.02	QP
5	375.9385	44.61	-15.08	29.53	47.00	-17.47	QP
6	955.4381	36.67	-3.49	33.18	47.00	-13.82	QP

6.1.4 TEST SETUP PHOTOGRAPH

Between 30 MHz - 1000 MHz



7 IMMUNITY TEST RESULTS

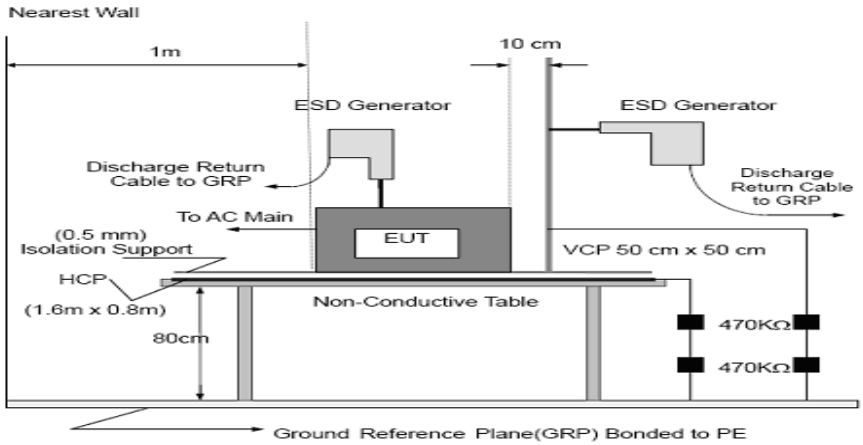
7.1 ELECTROSTATIC DISCHARGE IMMUNITY TEST

Acceptable Performance Criterion:	B	
Discharge Impedance:	330 Ω / 150 pF	
Discharge Voltage:	Air Discharge:	±2 kV, ±4 KV, ±8 kV
	Contact Discharge:	±4 kV
	VCP, HCP:	±4 kV
Polarity:	Positive & Negative	
Minimum discharge Interval:	1 second	

7.1.1 E.U.T. OPERATION

Temperature:	25°C	Humidity:	53% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	Mode1					

7.1.2 TEST SPECIFICATION



EUT was operated in the mode as mentioned above. Both contact and air discharge was executed. Contact discharge to the conductive surfaces and to coupling planes; air discharge at insulating surfaces. Each test point shall be subjected to 25 discharges at least (For each voltage and polarity).

7.1.3 MEASUREMENT DATA

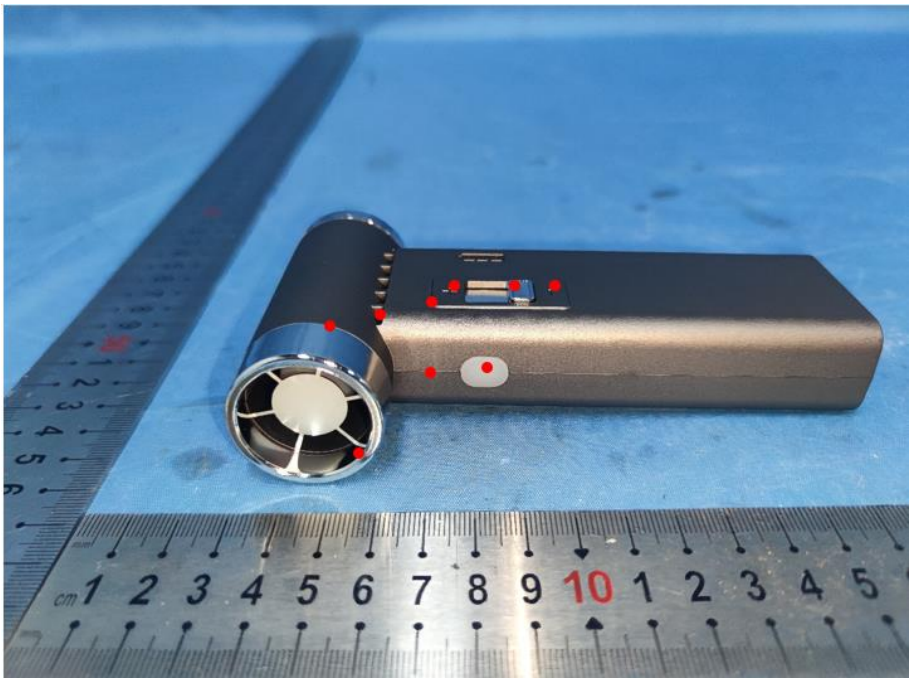
Test Record

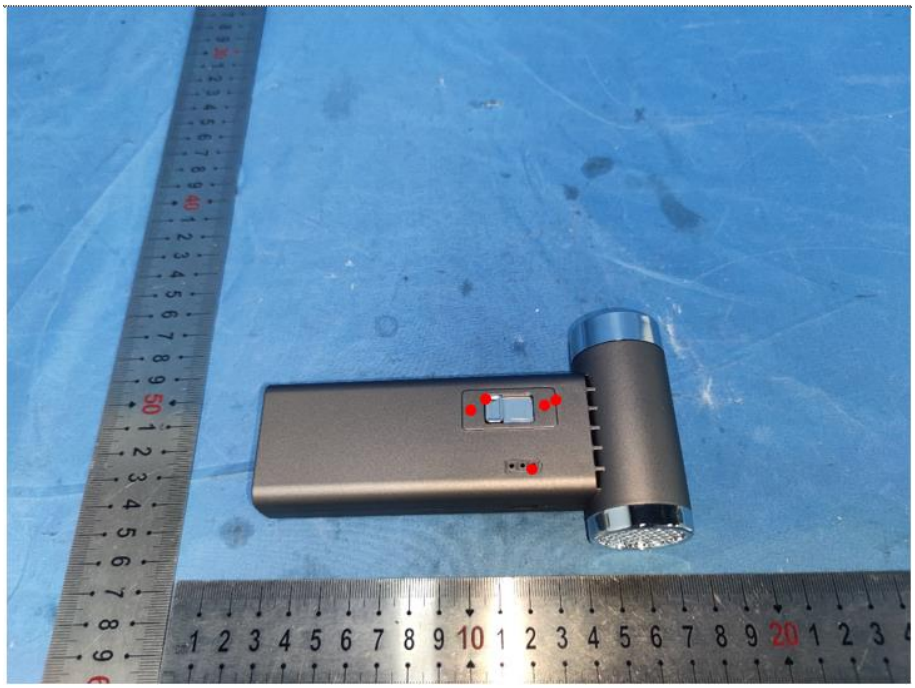
Electrostatic Discharge Test Results		
M/N:	FT03	Test Result: ☒ Pass ☐ Fail
Test Voltage:	AC230V50Hz	Test date: 2024-08-18
Test Mode:	Mode 1	

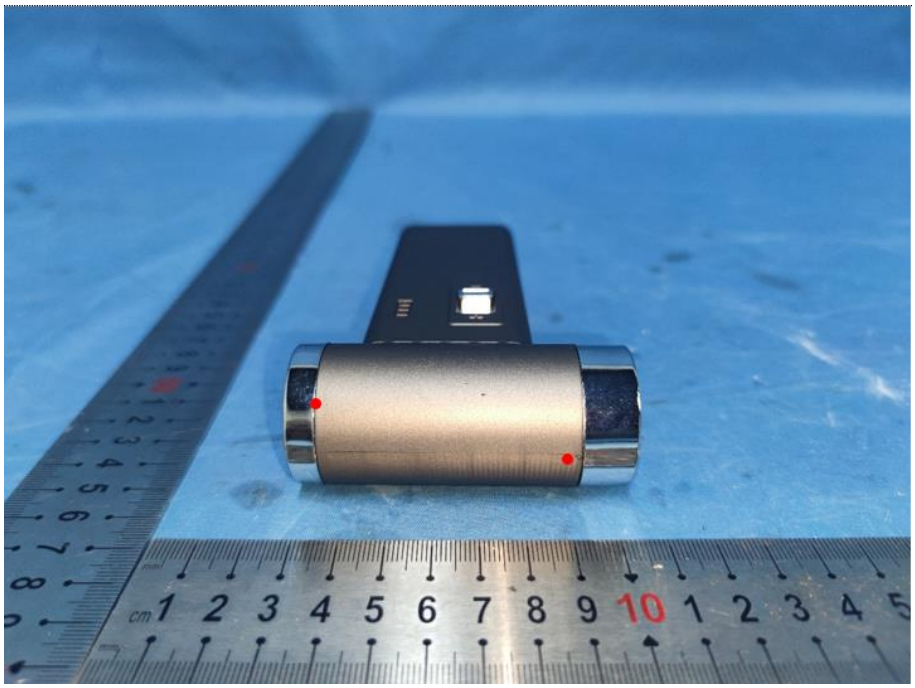
Discharge Level/KV	Polarity	Test Points	Contact Discharge	Air Discharge	Criterion	Test Result
4	+/-	HCP/VCP	Note1	NA	B	A
4	+/-	Green Dot	Note1	NA	B	A
2,4,8	+/-	Red Dot	NA	Note1	B	A

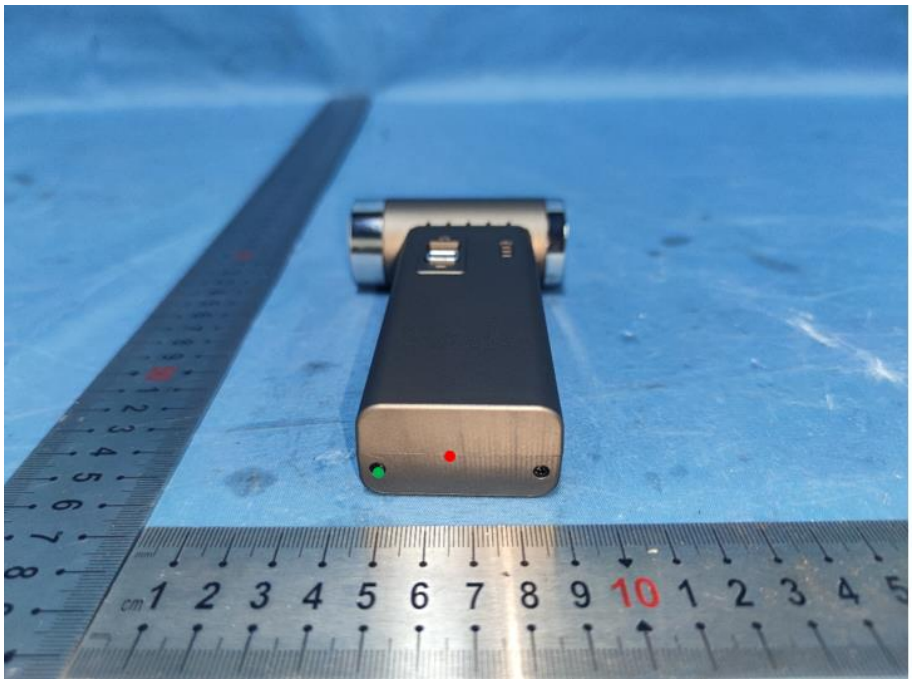
Note1：The EUT function was correct during the test.
Note2：Red Dot —Air Discharged
Green Dot —Contact Discharged

The Photo for Discharge Points of EUT

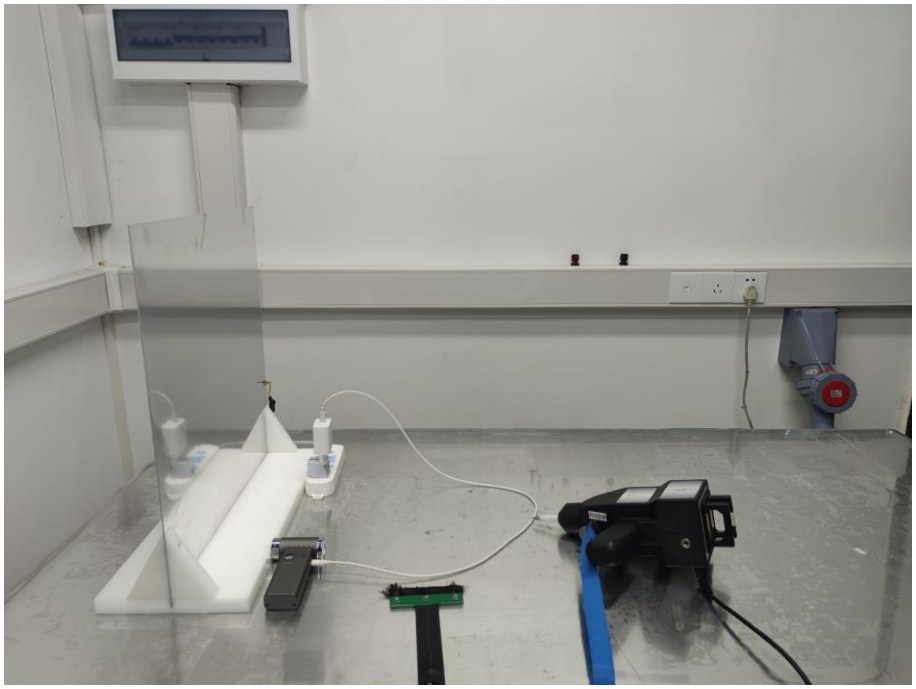








7.1.4 TEST SETUP PHOTOGRAPH



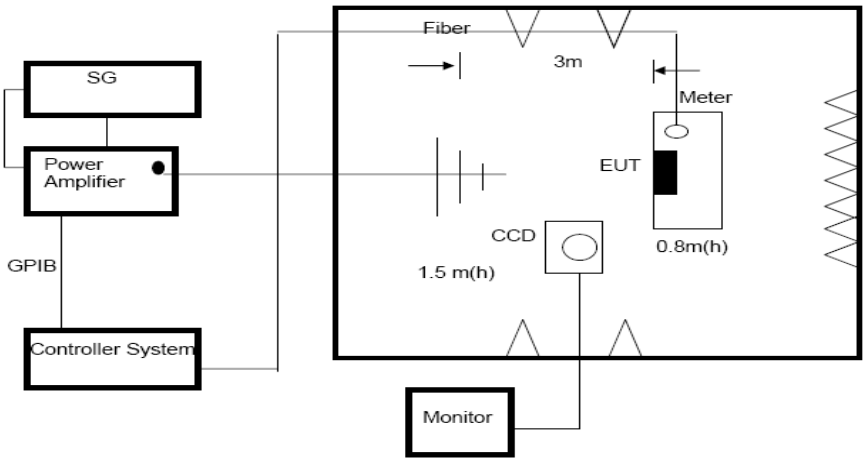
7.2 RF FIELD STRENGTH IMMUNITY TEST

Acceptable Performance Criterion:	A
Frequency Range & Test Level	80MHz~1000MHz, 3V/m
Test Distance	3 m
Polarity:	Horizontal & Vertical

7.2.1 E.U.T. OPERATION

Temperature:	25°C	Humidity:	53% RH	Atmospheric Pressure:	101	Kpa
Test Mode:	Mode1					

7.2.2 TEST SPECIFICATION



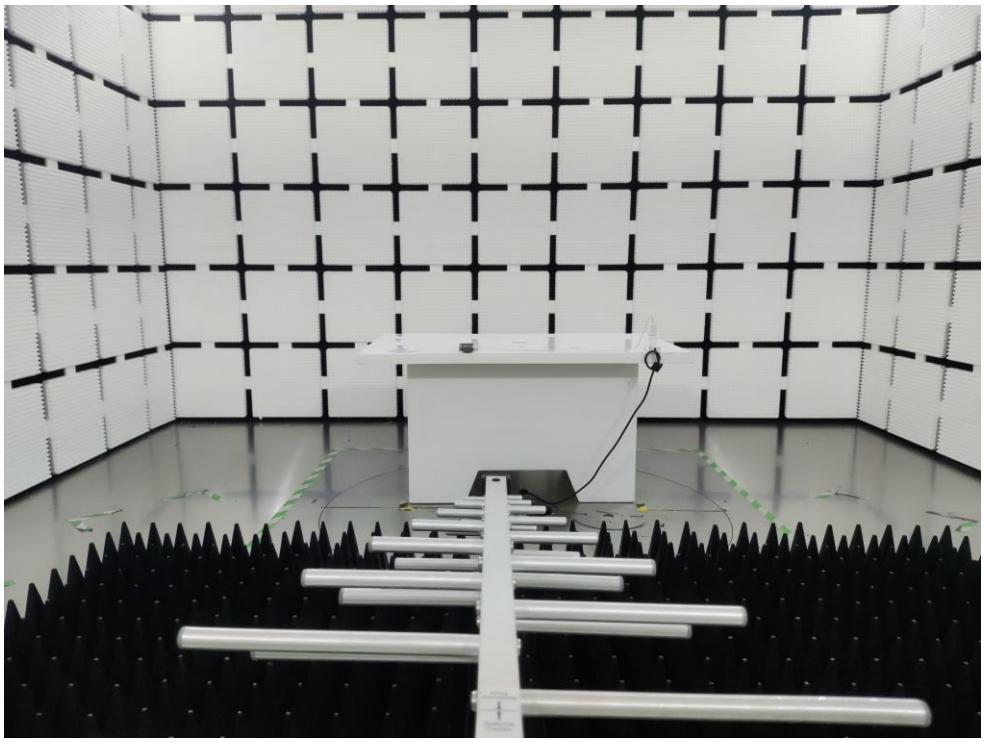
Test was executed in a fully Anechoic chamber. An antenna was used to transmit interference signal. EUT was placed upon a wooden table above the reference ground 0.1m, and was positioned so that the four sides of the EUT shall be exposed to the electromagnetic field in a sequence. In each position the performance of the EUT was investigated. A camera was used to monitor the loss of function or degradation of performance of the EUT.

7.2.3 MEASUREMENT DATA

Test Record

Radiated Frequency Field Strength Susceptibility Results				
M/N:	FT03	Test Result: ☒ Pass ☐ Fail		
Test Voltage:	AC230V50Hz	Test date: 2024-08-18		
Test Port	Enclosure			
Operating Mode	Mode1			
Test Level	3 V/m(r.m.s) (unmodulated)		Criterion	A
Frequency Range(MHz)	Antenna polarity	Modulation	EUT position	Result
80~1000	Horizontal	1KHz, 80% AM	Front	Pass
			Rear	Pass
			Left	Pass
			Right	Pass
			Top	Pass
			Bottom	Pass
80~1000	Vertical	1KHz, 80% AM	Front	Pass
			Rear	Pass
			Left	Pass
			Right	Pass
			Top	Pass
			Bottom	Pass
Note: During the test no deviation was detected to the selected operation mode(s).				

7.2.4 TEST SETUP PHOTOGRAPH



8 APPENDIX-Photographs of EUT Constructional Details

Photo 1

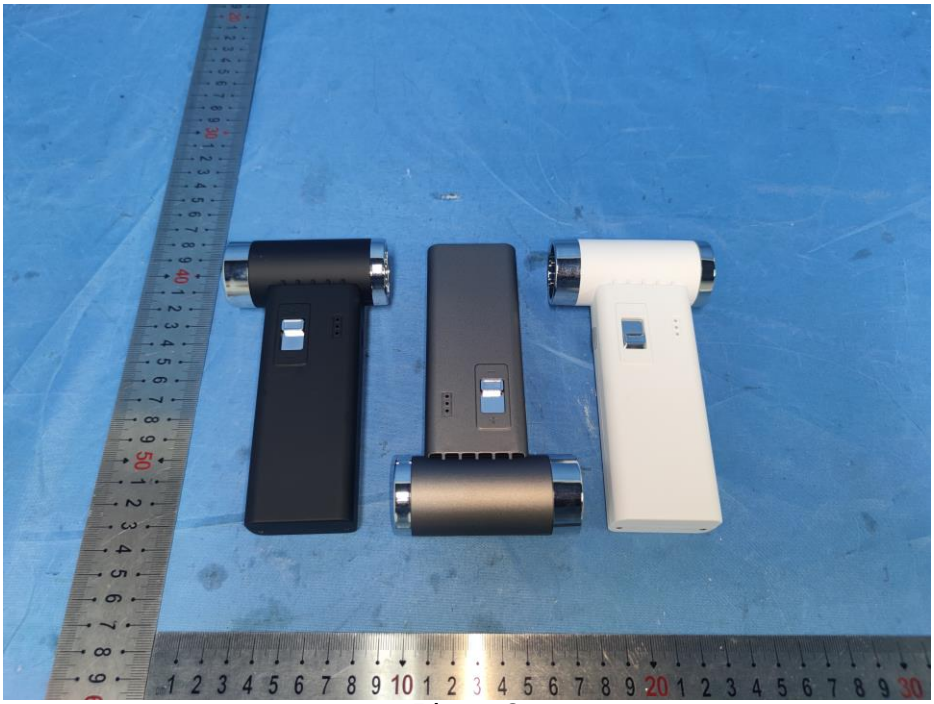


Photo 2

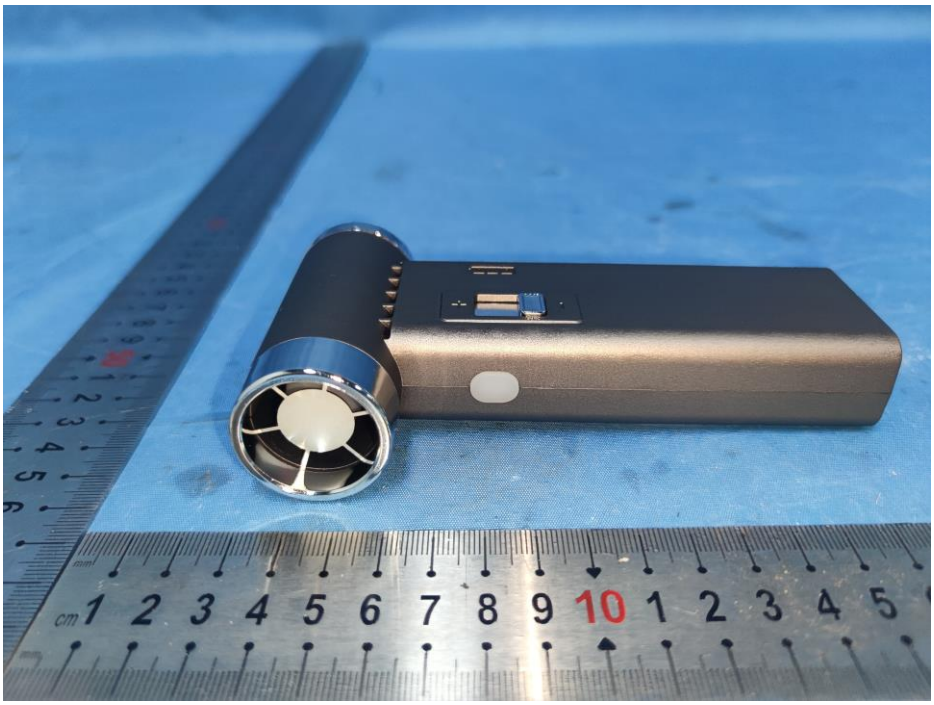


Photo 3

Photo 4

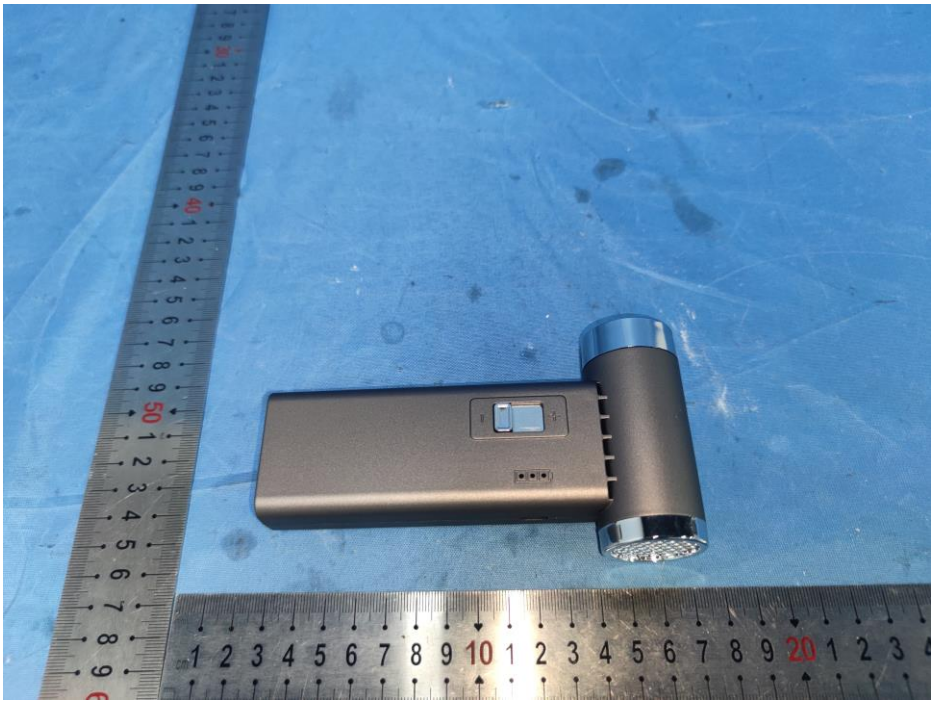


Photo 5

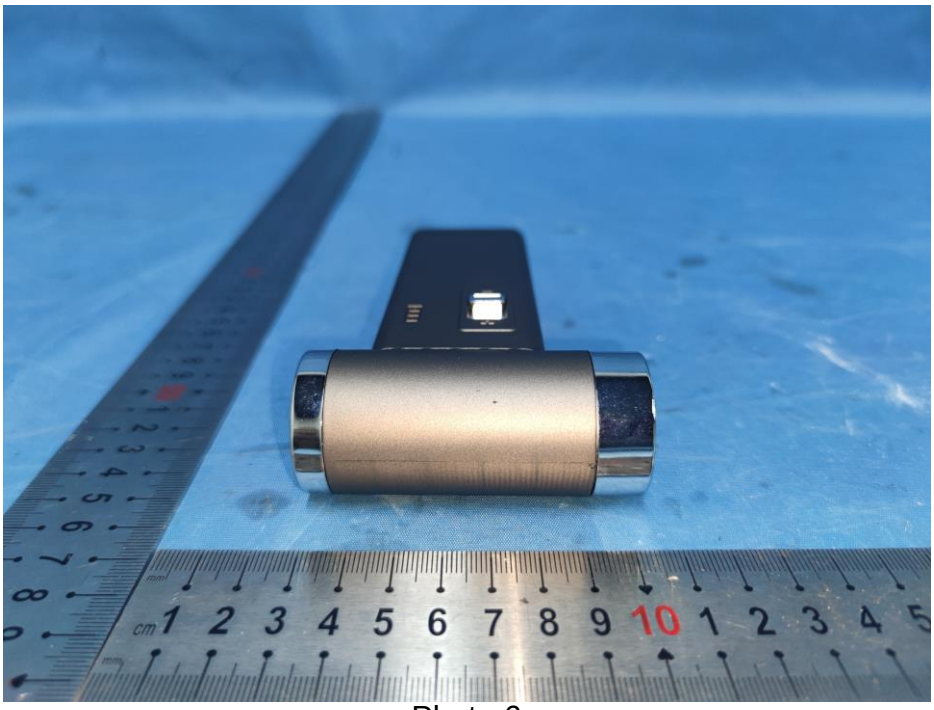


Photo 6

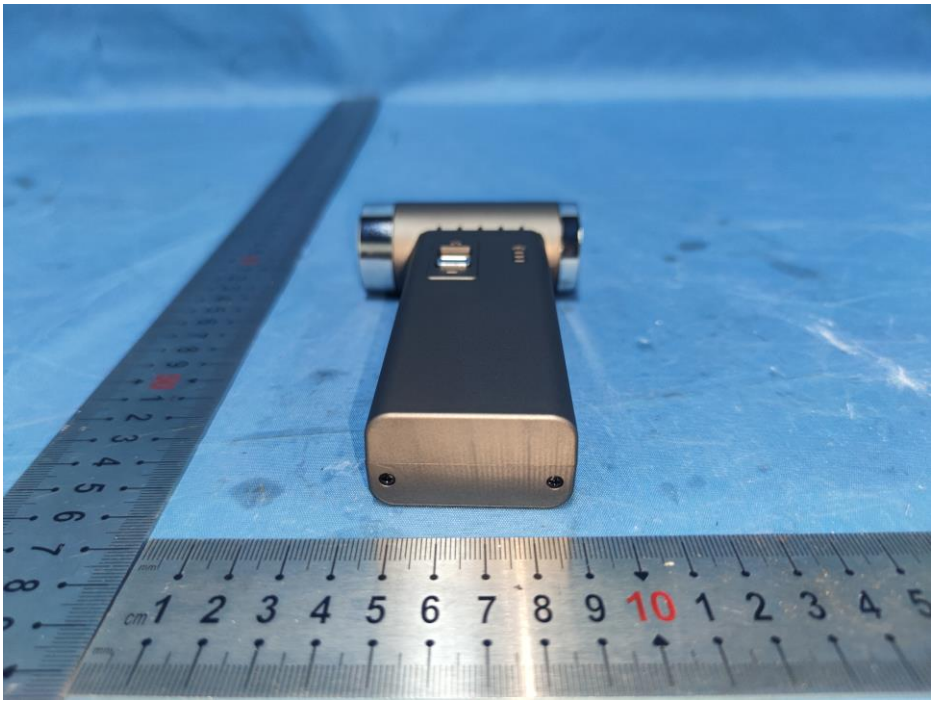


Photo 7

Photo 8

Photo 9

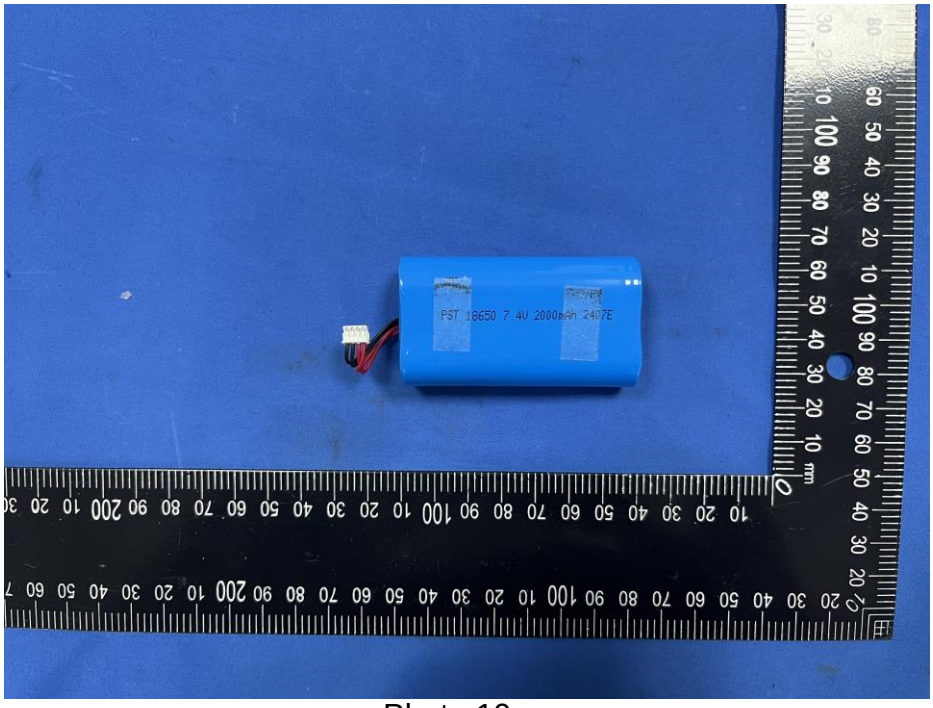


Photo 10

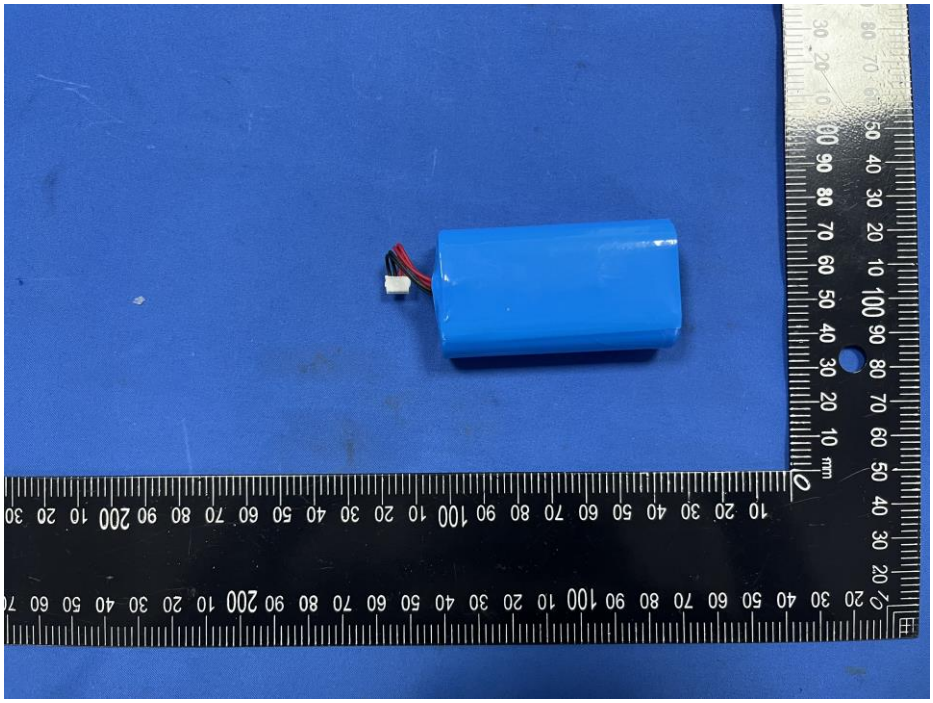


Photo 11

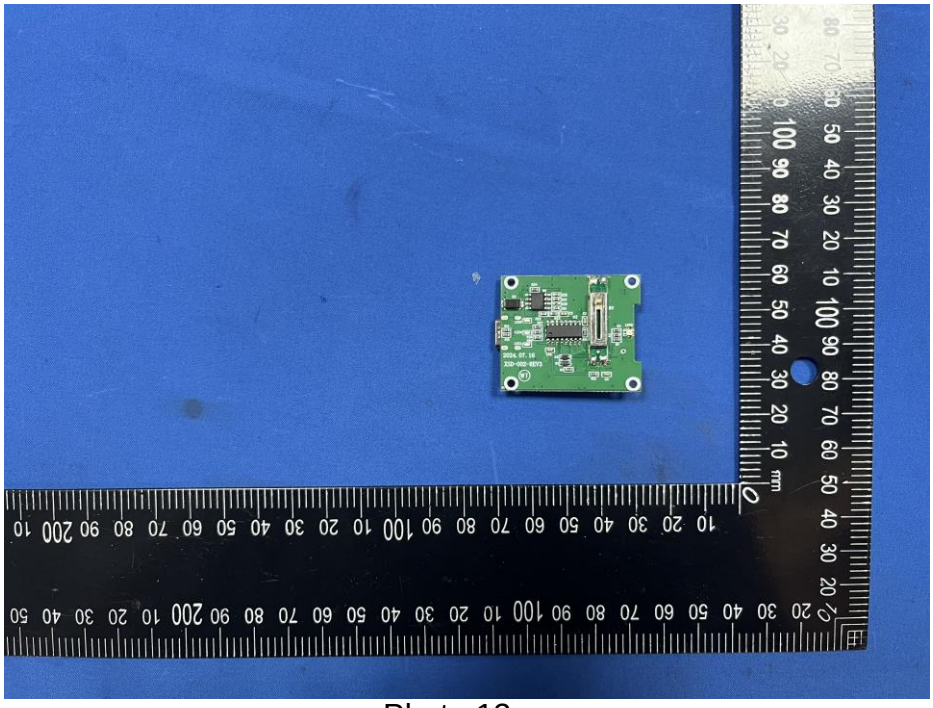
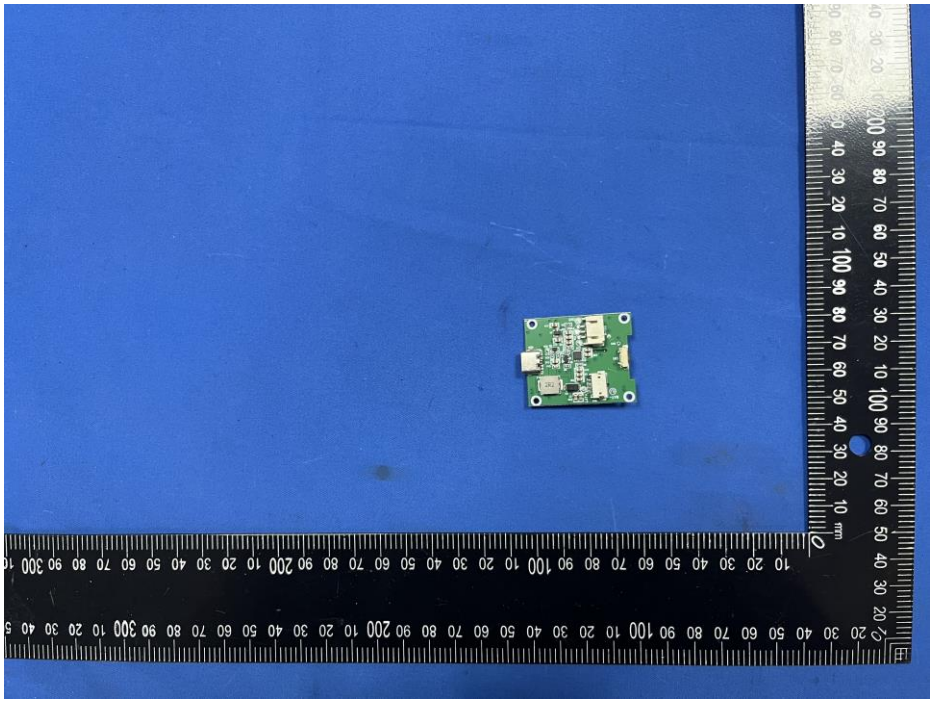


Photo 12



End of report