



FCC TEST REPORT

FCC ID: 2A7J6-TCB1

Product Name : TCB1 Electric Toothbrush
Model Name : TCB1 Electric Toothbrush
Additional Model : N/A
Brand Name : N/A
Report No. : PTC22070406901E-FC01

Prepared for

GUANGDONG ACE-TEC CO., LTD
No.420, Jinxing Road, Xixi Industrial Park, Liaobu Town, DongGuan City

Prepared by

Precise Testing & Certification Co., Ltd
Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China



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1 TEST RESULT CERTIFICATION

Applicant's name : GUANGDONG ACE-TEC CO., LTD
Address : No.420, Jinxing Road, Xixi Industrial Park, Liaobu Town, DongGuan City
Manufacture's name : GUANGDONG ACE-TEC CO., LTD
Address : No.420, Jinxing Road, Xixi Industrial Park, Liaobu Town, DongGuan City
Product name : TCB1 Electric Toothbrush
Model name : TCB1 Electric Toothbrush
Standards : FCC CFR47 Part 18
Test procedure : MP-5
Test Date : Jul. 05 , 2022 to Jul. 13, 2022
Date of Issue : Jul. 13, 2022
Test Result : Pass

This device described above has been tested by PTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Test Engineer:

A handwritten signature in black ink that reads "Simon Pu".

Simon Pu / Engineer

Technical Manager:

A handwritten signature in black ink that reads "Ronnie Liu".

Ronnie Liu / Manager



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2 Test Summary

Test Items	Test Requirement	Result
Conduct Emission	18.307	N/A
Field Strength	18.305	PASS



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3 TEST FACILITY

Precise Testing & Certification Co., Ltd

Address: Building 1, No. 6, Tongxin Road, Dongcheng Street, Dongguan, Guangdong, China

A2LA Certificate No.: 4408.01

FCC Registration Number: 790290

FCC Designation Number: CN1219

IC Registration Number: 12191A

CAB identifier: CN0080



4 General Information

4.1 General Description of E.U.T.

Product Name	:	TCB1 Electric Toothbrush
Model Name	:	TCB1 Electric Toothbrush
Power supply	:	Input:5V/1A DC Li-ion Battery : 14500CY Rated Voltage: 3.7V Capacity:750mAh
Hardware Version	:	N/A
Software Version	:	N/A



4.2 Test Mode

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode or test configuration mode mentioned above was evaluated respectively.

This EUT is tested with an adapter, the adapter is checked and only the worst case is recorded with the adaptor GaN Mini I.

Pretest Mode	Description
Mode 1	CLEAN
Mode 2	SENSITIVE
Mode 3	DE-PLAQUE
Mode 4	MASSAGE
Mode 5	POLISH



5 Equipment During Test

5.1 Equipments List

Remark: 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.
Radiated Emissions

Name of Equipment	Manufacturer	Model	Serial No.	Last calibration	Calibration Due	Calibration period
EMI Test Receiver	Rohde&Schwarz	ESCI	101417	Aug. 21, 2021	Aug. 22, 2022	1 year
Loop Antenna	Schwarzbeck	FMZB 1519	012	Aug. 21, 2021	Aug. 22, 2022	1 year
Bilog Antenna	SCHWARZBECK	VULB9160	9160-3355	Aug. 21, 2021	Aug. 22, 2022	1 year
Preamplifier (low frequency)	SCHWARZBECK	BBV 9475	9745-0013	Aug. 21, 2021	Aug. 22, 2022	1 year
Cable	Schwarzbeck	PLF-100	549489	Aug. 21, 2021	Aug. 22, 2022	1 year
Spectrum Analyzer	Agilent	E4407B	MY45109572	Aug. 21, 2021	Aug. 22, 2022	1 year
Horn Antenna	SCHWARZBECK	9120D	9120D-1246	Aug. 21, 2021	Aug. 22, 2022	1 year
Power Amplifier	LUNAR EM	LNA1G18-40	J10100000081	Aug. 21, 2021	Aug. 22, 2022	1 year
Horn Antenna	SCHWARZBECK	BBHA 9170	9170-181	Aug. 21, 2021	Aug. 22, 2022	1 year
Amplifier	SCHWARZBECK	BBV 9721	9721-205	Aug. 21, 2021	Aug. 22, 2022	1 year
Cable	H+S	CBL-26	N/A	Aug. 21, 2021	Aug. 22, 2022	1 year
RF Cable	R&S	R204	R21X	Aug. 21, 2021	Aug. 22, 2022	1 year



5.2 Measurement Uncertainty

Parameter	Uncertainty
RF output power, conducted	$\pm 1.0\text{dB}$
Power Spectral Density, conducted	$\pm 2.2\text{dB}$
Radio Frequency	$\pm 1 \times 10^{-6}$
Bandwidth	$\pm 1.5 \times 10^{-6}$
Time	$\pm 2\%$
Duty Cycle	$\pm 2\%$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 3\%$
Conducted Emissions (150kHz~30MHz)	$\pm 3.64\text{dB}$
Radiated Emission(9KHz~30MHz)	$\pm 2.54\text{dB}$
Radiated Emission(30MHz~1GHz)	$\pm 5.03\text{dB}$
Radiated Emission(1GHz~25GHz)	$\pm 4.74\text{dB}$
Remark: The coverage Factor (k=2), and measurement Uncertainty for a level of Confidence of 95%	



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5.3 Description of Support Units

Equipment	Model No.	Series No.
N/A	N/A	N/A



6 Field strength

Test Requirement : FCC CFR47 Part 18 Section 18.305
 Test Method : FCC MP- 5
 Test Result : PASS
 Measurement Distance : 3m
 Limit : See the follow table

6.1 EUT Operation

Operating Environment :

Temperature : 23.5 °C
 Humidity : 51.1 % RH
 Atmospheric Pressure : 101.2kPa

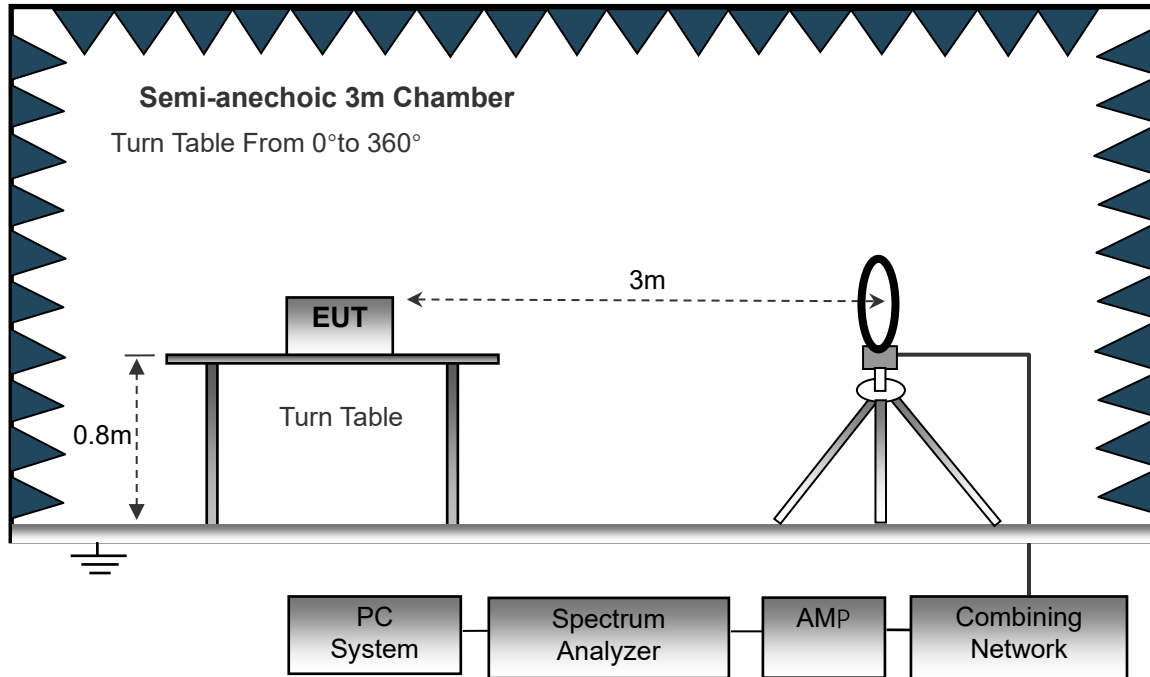
Limit:

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field strength limit (uV/m)
Any type unless otherwise specified (miscellaneous)	Any ISM frequency	Below 500 500 or more	25 $25 \times \text{SQRT}(\text{power}/500)$
	Any non-ISM frequency	Below 500 500 or more	15 $15 \times \text{SQRT}(\text{power}/500)$
Industrial heaters and RF stabilized arc welders	On or below 5,725 MHz Above 5,725 MHz	Any Any	10 (2)
Medical diathermy	Any ISM frequency Any non-ISM frequency	Any Any	25 15
Ultrasonic	Below 490 kHz	Below 500 500 or more	$2,400/F(\text{kHz})$ $2,400/F(\text{kHz}) \times \text{SQRT}(\text{power}/500)$
	490 to 1,600 kHz Above 1,600 kHz	Any Any	$24,000/F(\text{kHz})$ 15
Induction cooking ranges	Below 90 kHz On or above 90 kHz	Any Any	1,500 300 1,500 300

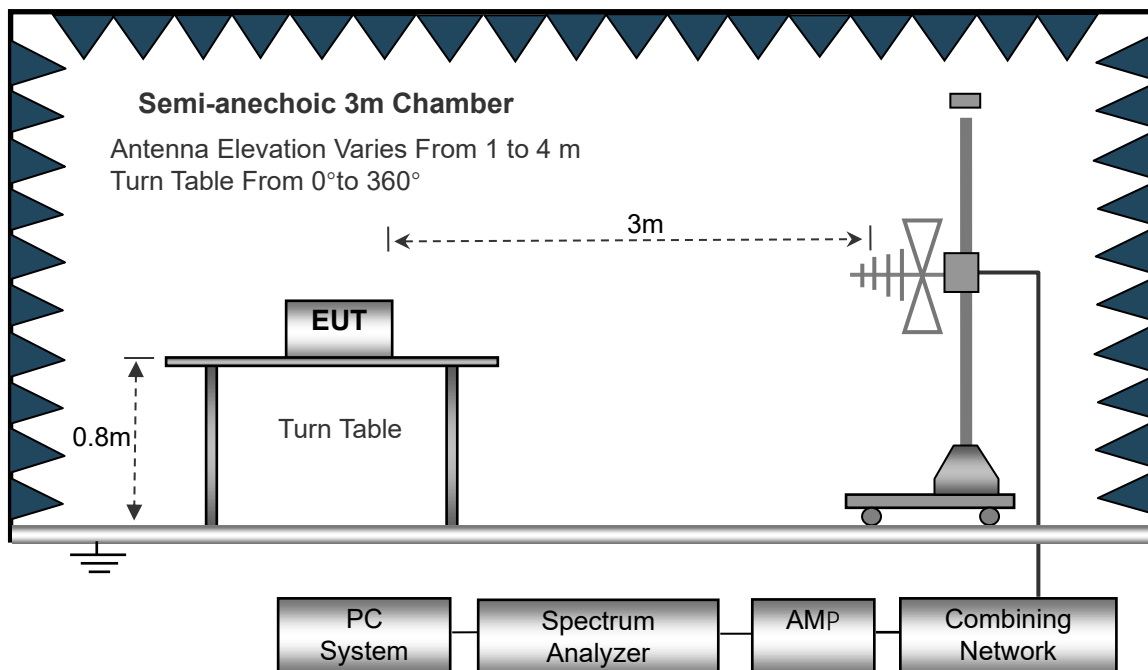
6.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.





6.3 Spectrum Analyzer Setup

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



6.4 Test Procedure

1. The testing follows the guidelines in MP-5.
2. Below 30MHz, the loop antenna was positioned with its plane vertical from the EUT and rotated about its vertical axis for maximum response at each azimuth position around the EUT. And the loop antenna also is positioned with its plane horizontal at the specified distance from the EUT. The center of the loop is 2 m above the ground .



6.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Test Mode(Mode 5_POLISH):

Frequency (MHz)	Read Level (dBuV)	Polar	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
1.72	14.62	Loop	20.1	2.53	0	37.41	63.52	-26.11	QP
2.135	15.85	Loop	20.1	2.53	0	38.48	63.52	-25.04	QP
3.123	14.77	Loop	20.2	2.54	0	37.51	63.52	-26.01	QP
6.232	5.84	Loop	20.3	2.59	0	28.73	63.52	-34.79	QP
8.936	2.83	Loop	20.4	2.59	0	25.82	63.52	-37.70	QP
18.134	1.90	Loop	21.5	2.59	0	25.99	63.52	-37.53	QP

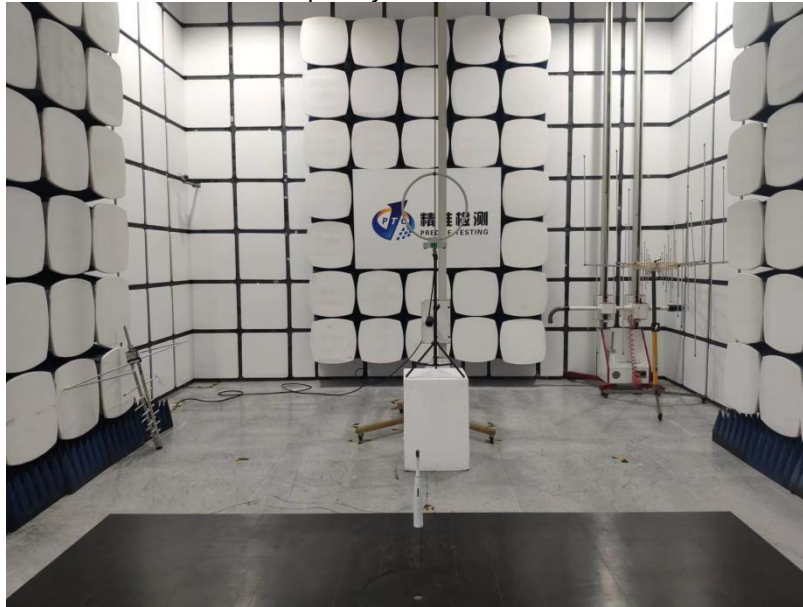
Remark: Final Level=Receiver level+Factor.

Note:1.only the worst case recorded in the report.



8 TEST PHOTOS

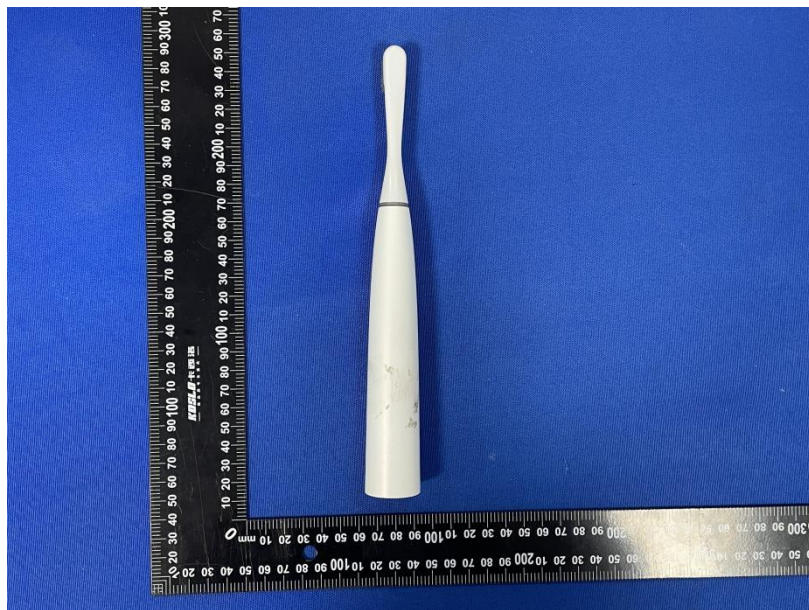
Radiated Spurious Emissions
Test Frequency From 9KHz-30MHz

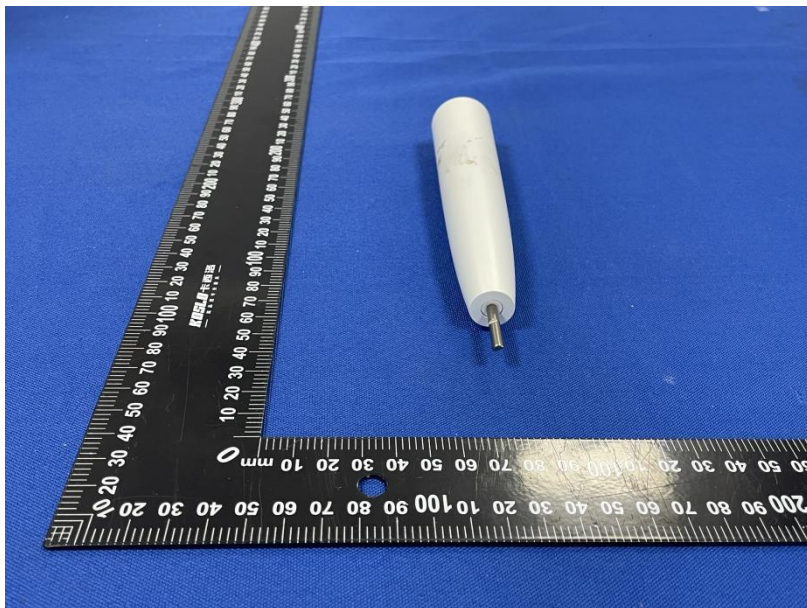


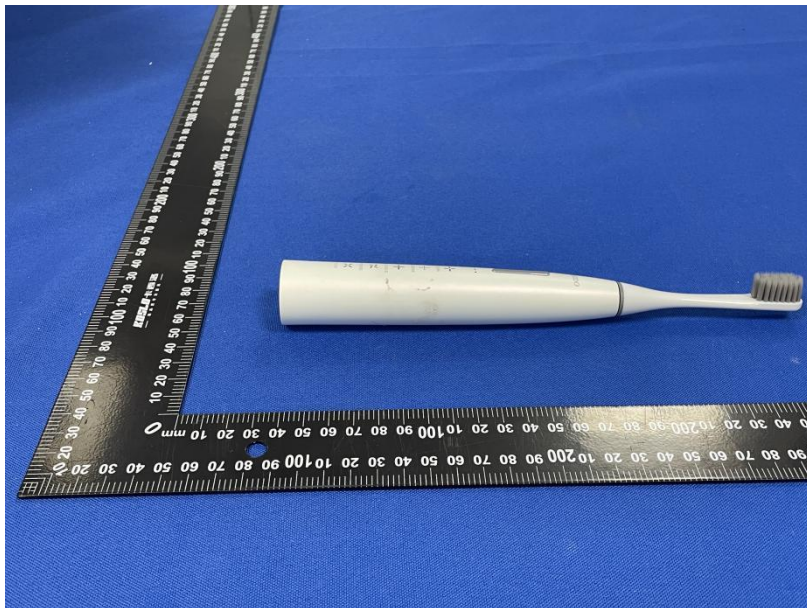
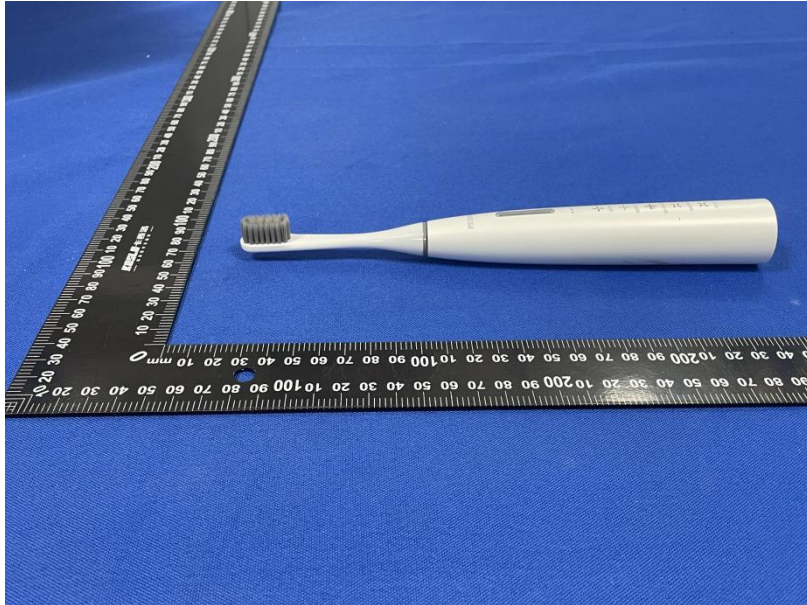


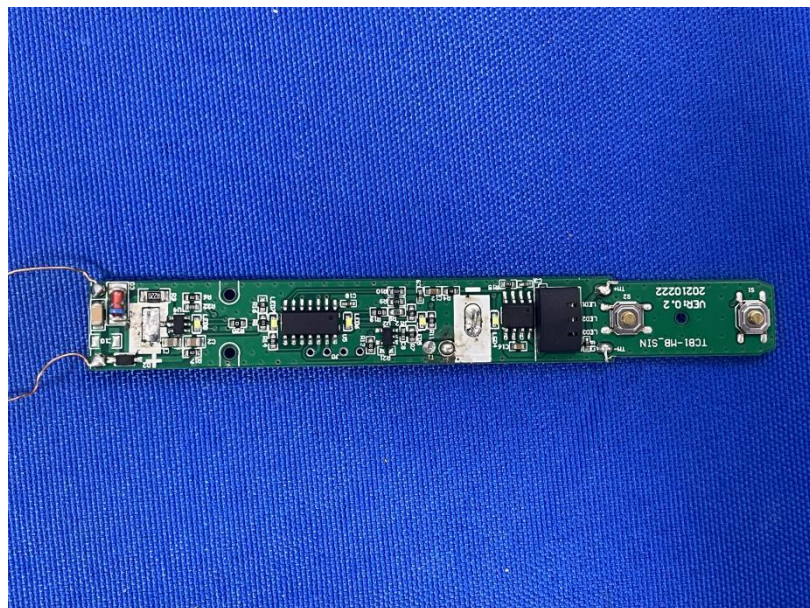
Report No.: PTC22070406901E-FC01

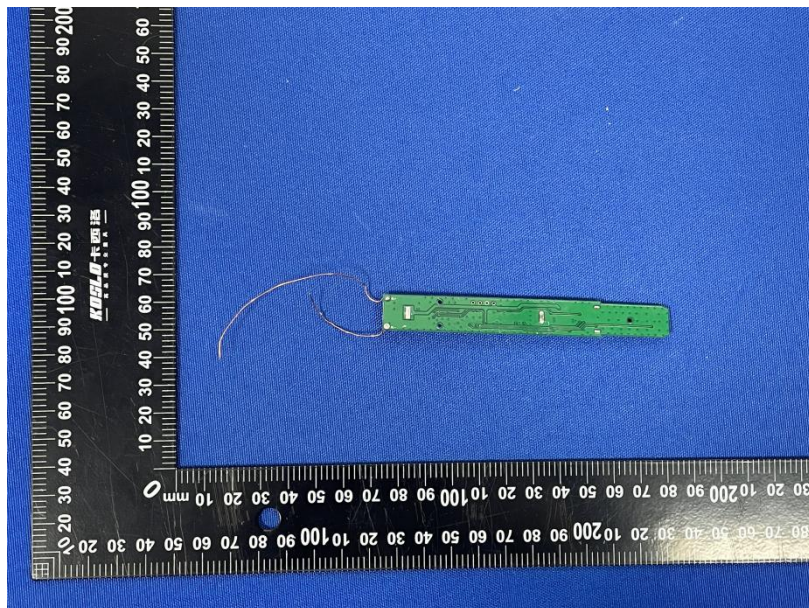
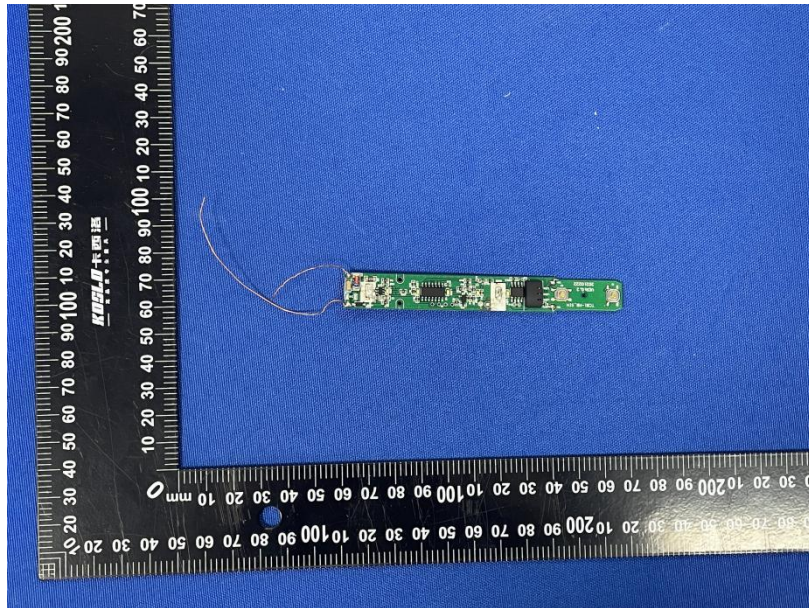
9 EUT PHOTOS











*****THE END REPORT*****