FCC TEST REPORT

FCC ID: 2A44B-K10

Applicant:	Shenzhen Ruidian Technology Co., Ltd.
Address:	Room314-B01, Building 4, Qidi Xiexin, No.333 Longfei Avenue, Huanggekeng Community, Longcheng Street, Longgang District, Shenzhen
Manufacturer:	Shenzhen Ruidian Technology Co., Ltd.
Address:	Room314-B01, Building 4, Qidi Xiexin, No.333 Longfei Avenue, Huanggekeng Community, Longcheng Street, Longgang District, Shenzhen
EUT:	Active Stylus
Trade Mark:	N/A
Model Number:	K10, K11, ID716, ID718, KD503
Date of Receipt:	Feb. 23, 2022
Test Date:	Feb. 23, 2022 - Feb. 28, 2022
Date of Report:	Feb. 28, 2022
Prepared By:	Shenzhen DL Testing Technology Co., Ltd.
Address:	101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China
Applicable Standards:	FCC Part 15 Subpart B ANSI C63.4:2019
Test Result:	Pass
Report Number:	DL-20220226009E

Prepared (Test Engineer):	Alisa Song
Reviewer (Supervisor):	Jack Bu
Approved (Manager):	Jade Yang

This test report is based on a single evaluation of one sample of above mentioned products. It is not permitted to be duplicated in extracts without written approval of Shenzhen DL Testing Technology Co., Ltd.

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1. VERSION

Version No.	Date	Description
00	Feb. 28, 2022	Original

2. TEST SUMMARY

EMC Emission				
Standard	Test Item	Limit	Result	Remark
FCC PART 15 B	Conducted Emission at power ports	Class B	PASS	
	Radiated Emission below 1GHz	Class B	PASS	
	Radiated Emission above 1GHz	Class B	N/A	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2) Test Facility: Shenzhen DL Testing Technology Co., Ltd.
Address: 101-201, Building C, Shuanghuan, No.8, Baoqing Road, Baolong Industrial Zone, Baolong Street, Longgang District, Shenzhen, Guangdong, China

3. GENERAL INFORMATION

3.1 Description of Device (EUT)

EUT:	Active Stylus
Trade Mark:	N/A
Model Number:	K10, K11, ID716, ID718, KD503
Model difference:	All samples are the same except the model name, so we prepare " K10" for test only.
Power Supply:	DC 5V from charger DC 3.7V from battery
Working Frequency:	Below 108MHz

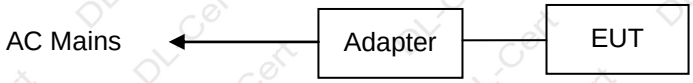
3.2 Tested System Details

None.

3.3 Block Diagram of Test Set-up

Radiated Spurious Emission Test

Conducted Spurious Emission Test



3.4 Test Mode Description

Mode1. Charging Mode Mode2. On Mode

3.5 Test Auxiliary Equipment

Adapter (Provide by test lab):
Manufacturer: HAIWEI
Model: HW-0501000E
I/P: AC 100-240V 50/60Hz
O/P: DC 5V 1A

3.6 Test Uncertainty

Conducted Emission Uncertainty : ±2.56dB

Radiated Emission Uncertainty : ±3.65dB

4. TEST INSTRUMENT USED

For Conducted Emission Test (843 Shielded Room)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
843 Shielded Room	ChengYu	843 Room	843	Nov. 25, 2019	Nov. 24, 2022
EMI Receiver	R&S	ESR	101421	Nov. 06, 2021	Nov. 05, 2022
LISN	R&S	ENV216	102417	Nov. 06, 2021	Nov. 05, 2022
Clamp	COM-POWER	CLA-050	431071	Nov. 06, 2021	Nov. 05, 2022
3-Loop Antenna	DAZE	ZN30401	13021	Nov. 06, 2021	Nov. 05, 2022
ISN T8	Schwarzbeck	NTFM 8158	101135	Nov. 06, 2021	Nov. 05, 2022
ISN T5	Schwarzbeck	NTFM 8158	101136	Nov. 06, 2021	Nov. 05, 2022
843 Cable 1#	ChengYu	CE Cable	001	Nov. 06, 2021	Nov. 05, 2022
843 Cable 1#	ChengYu	CE Cable	002	Nov. 06, 2021	Nov. 05, 2022

For Radiated Emission Test (966 chamber)

Equipment	Manufacturer	Model	Serial	Last Cal.	Next Cal.
966 Chamber	ChengYu	966 Room	966	Nov. 25, 2019	Nov. 24, 2022
Spectrum Analyzer	Agilent	E4408B	MY50140780	Nov. 06, 2021	Nov. 05, 2022
EMI Receiver	R&S	ESRP7	101393	Nov. 06, 2021	Nov. 05, 2022
Amplifier	Schwarzbeck	BBV9743B	00153	Nov. 06, 2021	Nov. 05, 2022
Amplifier	EMEC	EM01G8GA	00270	Nov. 06, 2021	Nov. 05, 2022
Broadband Trilog Antenna	Schwarzbeck	VULB9162	00306	Nov. 06, 2021	Nov. 05, 2023
Horn Antenna	Schwarzbeck	BBHA9120D	02139	Nov. 06, 2021	Nov. 05, 2023
966 Cable 1#	ChengYu	966	004	Nov. 06, 2021	Nov. 05, 2022
966 Cable 2#	ChengYu	966	003	Nov. 06, 2021	Nov. 05, 2022

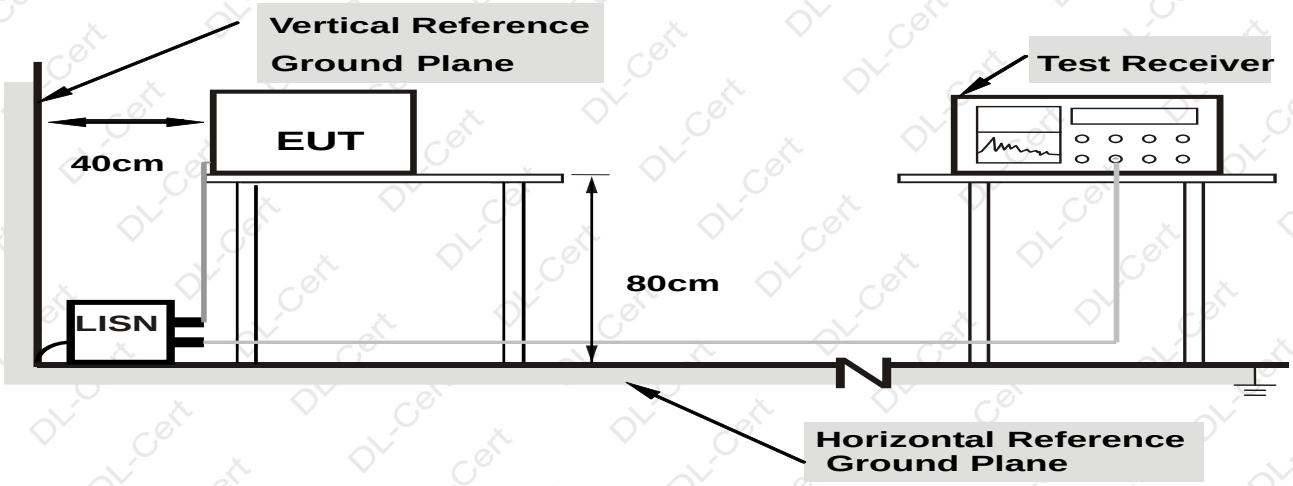
Other

Name	Manufacturer	Model	Software version
EMC Conduction Test System	FALA	EZ_EMC	EMC-CON 3A1.1
EMC radiation test system	FALA	EZ_EMC	FA-03A2
RF test system	MAIWEI	MTS8310	2.0.0.0
RF communication test system	MAIWEI	MTS8200	2.0.0.0

5. CONDUCTED EMISSION TEST

5.1 Block Diagram of Test Setup

For Mains Terminals Test



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

5.2 Test Standard and Limit

FCC PART 15 B

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15~0.50	66 ~ 56*	55 ~ 46*
0.50~5.00	56	46
5.00~30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

5.3 EUT Configuration on Test

The following equipment's are installed on conducted emission test to meet FCC PART 15 B requirement and operating in a manner which tends to maximize its emission characteristics in a normal application.

5.4 Operating Condition of EUT

5.4.1 Setup the EUT and simulators as shown in Section 5.1.

5.4.2 Turn on the power of all equipments.

5.4.3 Let the EUT work in test modes and test it.

5.5 Test Procedure

The EUT is put on the table and connected to the AC mains through a Artificial Mains Network (AMN) or ISN. This provided a 50ohm coupling impedance for the tested equipments. Both sides of AC line are checked to find out the maximum conducted emission levels according to the **ANSI C63.4** regulations during conducted emission test.

The bandwidth of the test receiver (R&S Test Receiver ESR) is set at 10KHz.

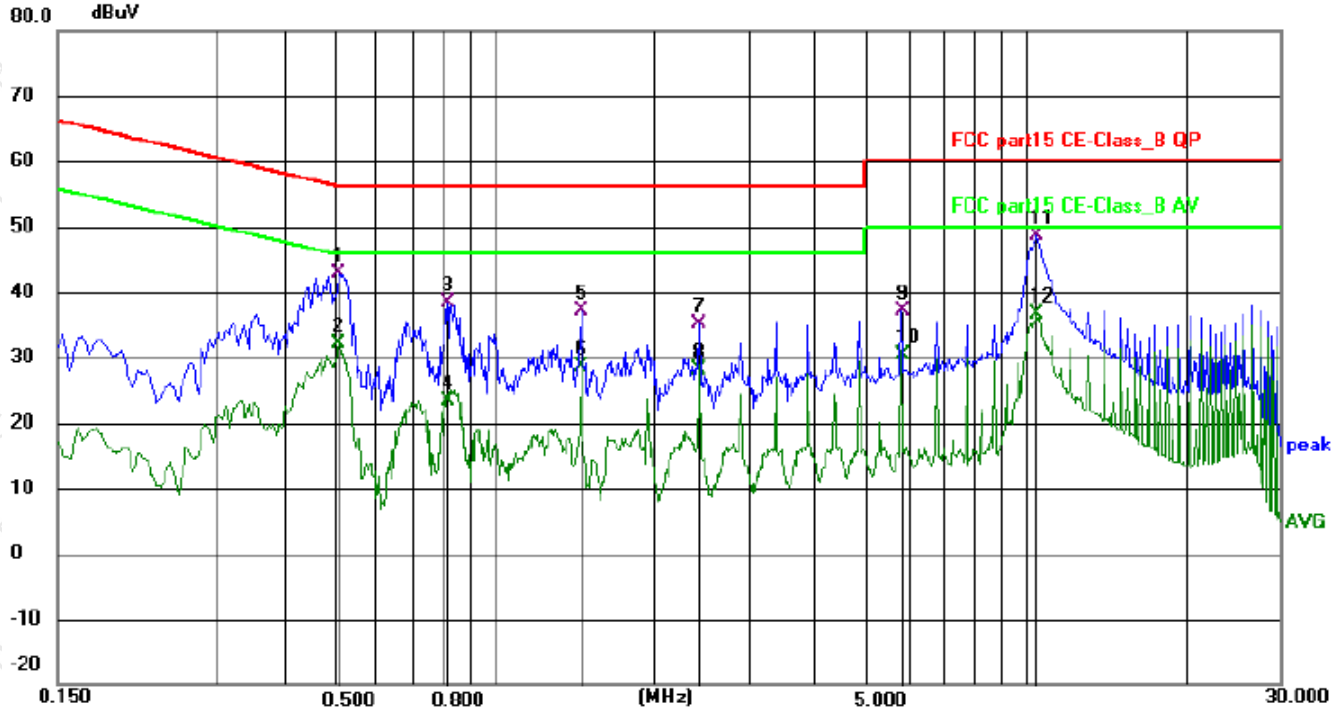
The frequency range from 150 KHz to 30 MHz is investigated.

5.6 Test Result

PASS

Please refer to the following page.

Conducted Emission Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Line
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1

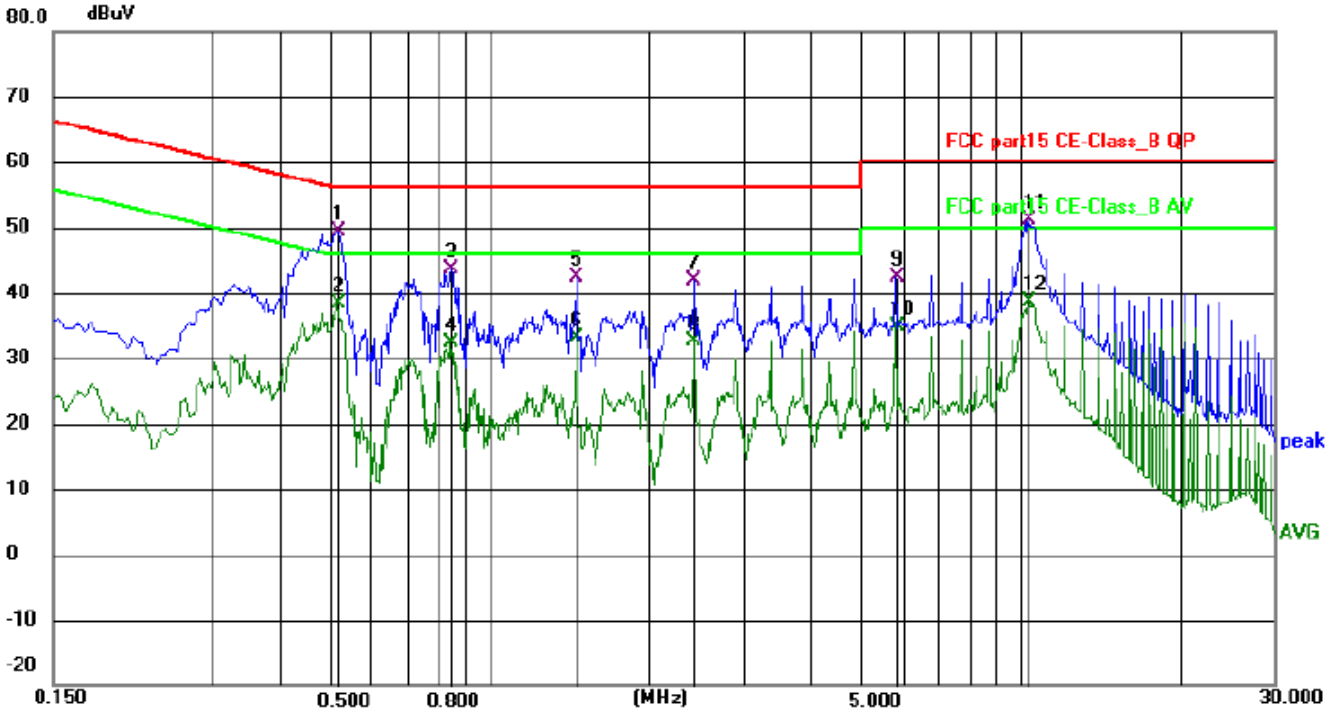


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.5100	33.79	9.19	42.98	56.00	13.02	QP	P	
2	0.5100	22.89	9.19	32.08	46.00	13.92	AVG	P	
3	0.8158	28.97	9.34	38.31	56.00	17.69	QP	P	
4	0.8158	14.07	9.34	23.41	46.00	22.59	AVG	P	
5	1.4549	27.58	9.54	37.12	56.00	18.88	QP	P	
6	1.4549	19.01	9.54	28.55	46.00	17.45	AVG	P	
7	2.4224	25.81	9.32	35.13	56.00	20.87	QP	P	
8	2.4224	18.90	9.32	28.22	46.00	17.78	AVG	P	
9	5.8110	27.55	9.70	37.25	60.00	22.75	QP	P	
10	5.8110	20.80	9.70	30.50	50.00	19.50	AVG	P	
11 *	10.4730	38.71	9.90	48.61	60.00	11.39	QP	P	
12	10.4730	26.73	9.90	36.63	50.00	13.37	AVG	P	

Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

Conducted Emission Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Phase:	Neutral
Test Voltage:	AC 120V/60Hz	Test Mode:	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1 *	0.5190	39.92	9.36	49.28	56.00	6.72	QP	P	
2	0.5190	28.99	9.36	38.35	46.00	7.65	AVG	P	
3	0.8474	34.33	9.29	43.62	56.00	12.38	QP	P	
4	0.8474	23.12	9.29	32.41	46.00	13.59	AVG	P	
5	1.4504	32.84	9.60	42.44	56.00	13.56	QP	P	
6	1.4504	23.51	9.60	33.11	46.00	12.89	AVG	P	
7	2.4224	32.14	9.83	41.97	56.00	14.03	QP	P	
8	2.4224	22.74	9.83	32.57	46.00	13.43	AVG	P	
9	5.8110	32.44	9.82	42.26	60.00	17.74	QP	P	
10	5.8110	25.11	9.82	34.93	50.00	15.07	AVG	P	
11	10.3784	41.10	10.08	51.18	60.00	8.82	QP	P	
12	10.3784	28.66	10.08	38.74	50.00	11.26	AVG	P	

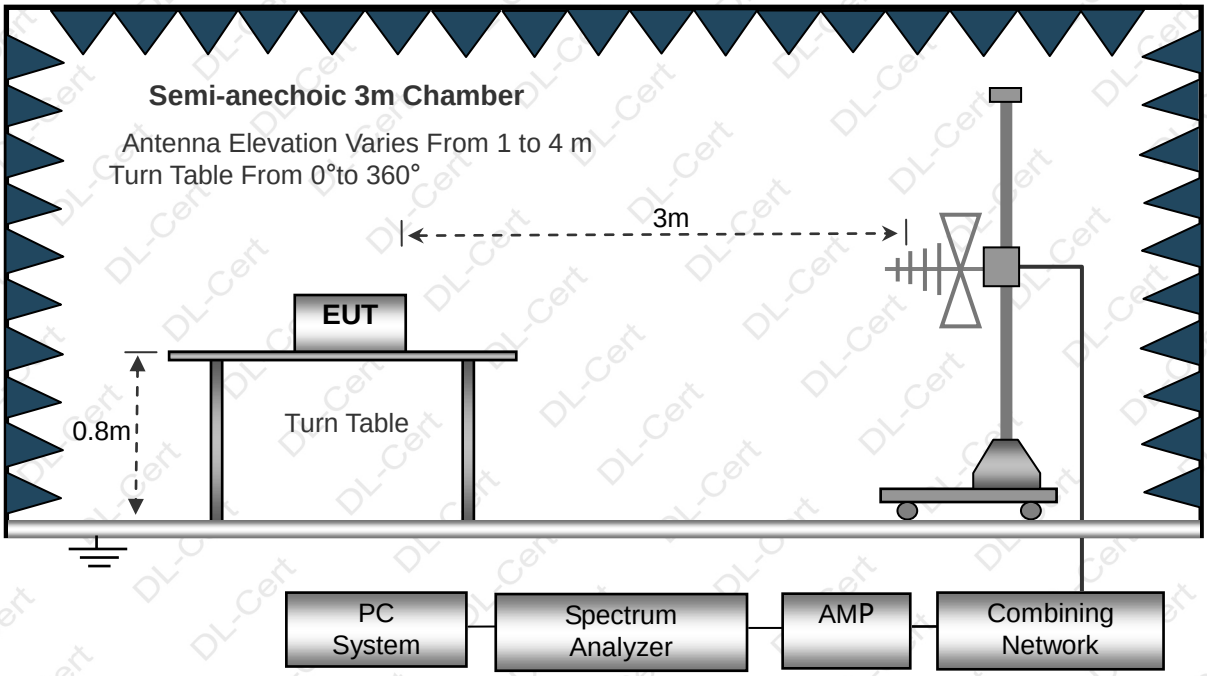
Remark:

Margin = Limit – Level, Correct Factor = Cable lose + LISN insertion loss, Level= Reading + Correct factor

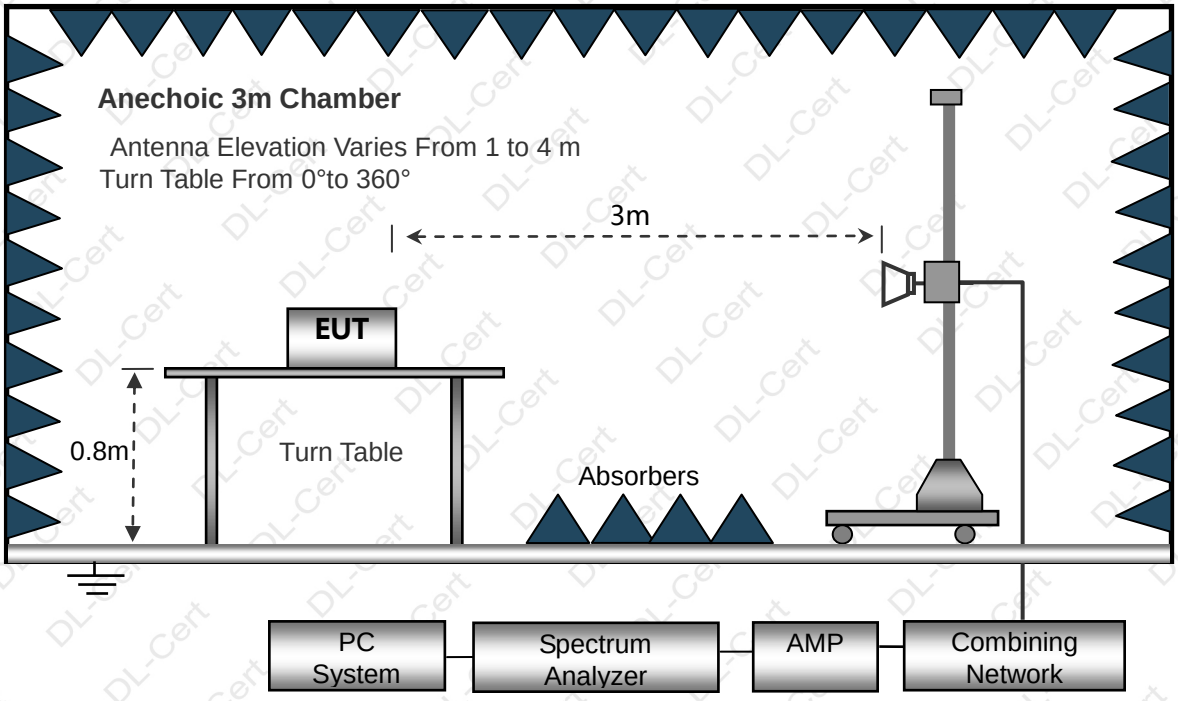
6. RADIATION EMISSION TEST

6.1 Block Diagram of Test Setup

Below 1GHz



Above 1GHz



6.2 Test Standard and Limit

FCC PART 15 B

Below 1GHz

Frequency (MHz)	Distance (Meters)	Field Strengths Limits (dBμV/m)
30 ~ 88	3	40.0
88 ~ 216	3	43.5
216 ~ 960	3	46.0
960 ~ 1000	3	54.0

Above 1GHz

Frequency MHz	Distance (Meters)	Field Strengths Limits dB(μV)/m	Detector
1000～6000	3	74.0	PEAK
1000～6000	3	54.0	AVERAGE

Remark:

(1) The smaller limit shall apply at the cross point between two frequency bands.

(2) Distance refers to the distance in meters between the measuring instrument, antenna and the closed point of any part of the device or system.

6.3 EUT Configuration on Test

The FCC PART 15 B regulations test method must be used to find the maximum emission during radiated emission test.

The configuration of EUT is the same as used in conducted emission test.

Please refer to Section 5.3.

6.4 Operating Condition of EUT

Same as conducted emission test, which is listed in Section 5.4 except the test set up replaced as Section 6.2.

6.5 Test Procedure

1) The radiated emissions test was conducted in a semi-anechoic chamber.

2) 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, but separated from metallic contact with the ground reference plane by 0.1m of insulation.

3) Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emissions spectrum plots of the EUT.

4) The frequencies of maximum emission were determined in the final radiated emissions measurement. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 meters in order to determine the maximum disturbance. Measurements were performed for both horizontal and vertical antenna polarization.

5) The bandwidth setting on the field strength meter (R&S Test Receiver ESCI) is set at 120KHz.

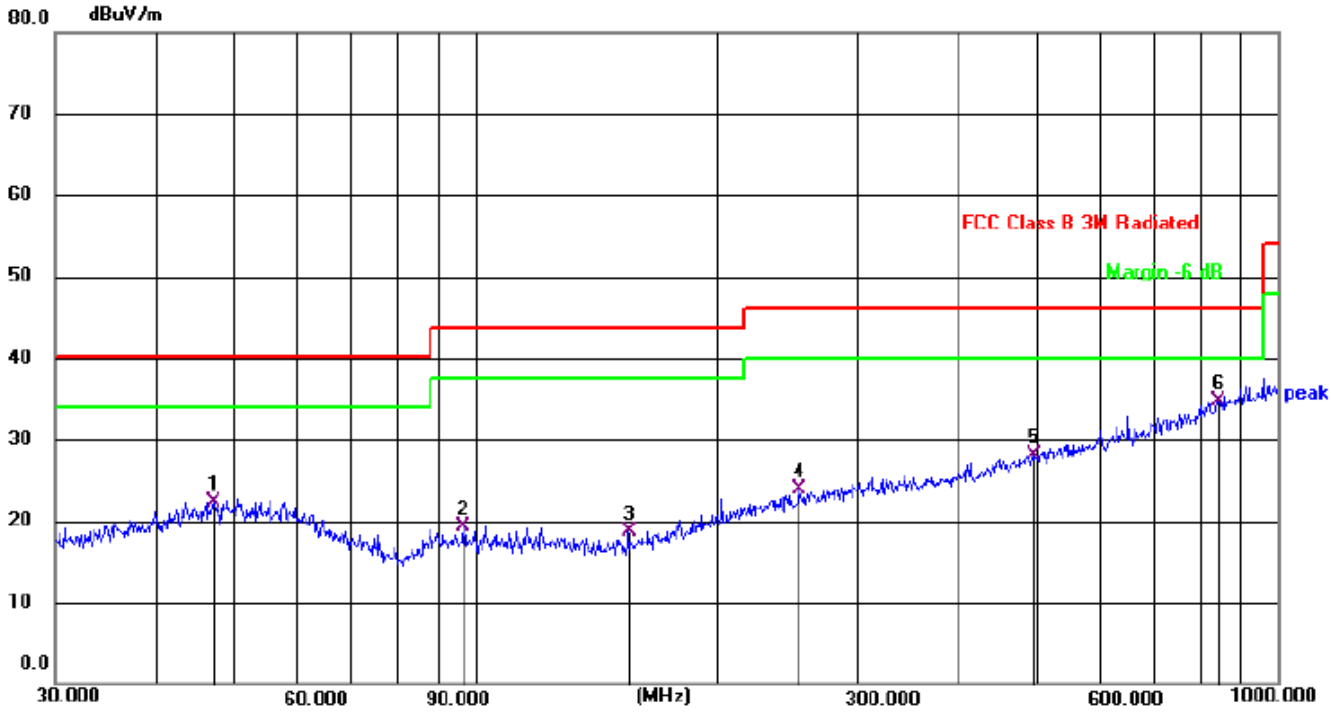
6) The frequency range from 30MHz to 1000MHz is checked.

6.6 Test Result

PASS

Please refer to the following page.

Radiation Emission Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Horizontal
Test Voltage:	DC 3.7V	Test Mode:	Mode 2



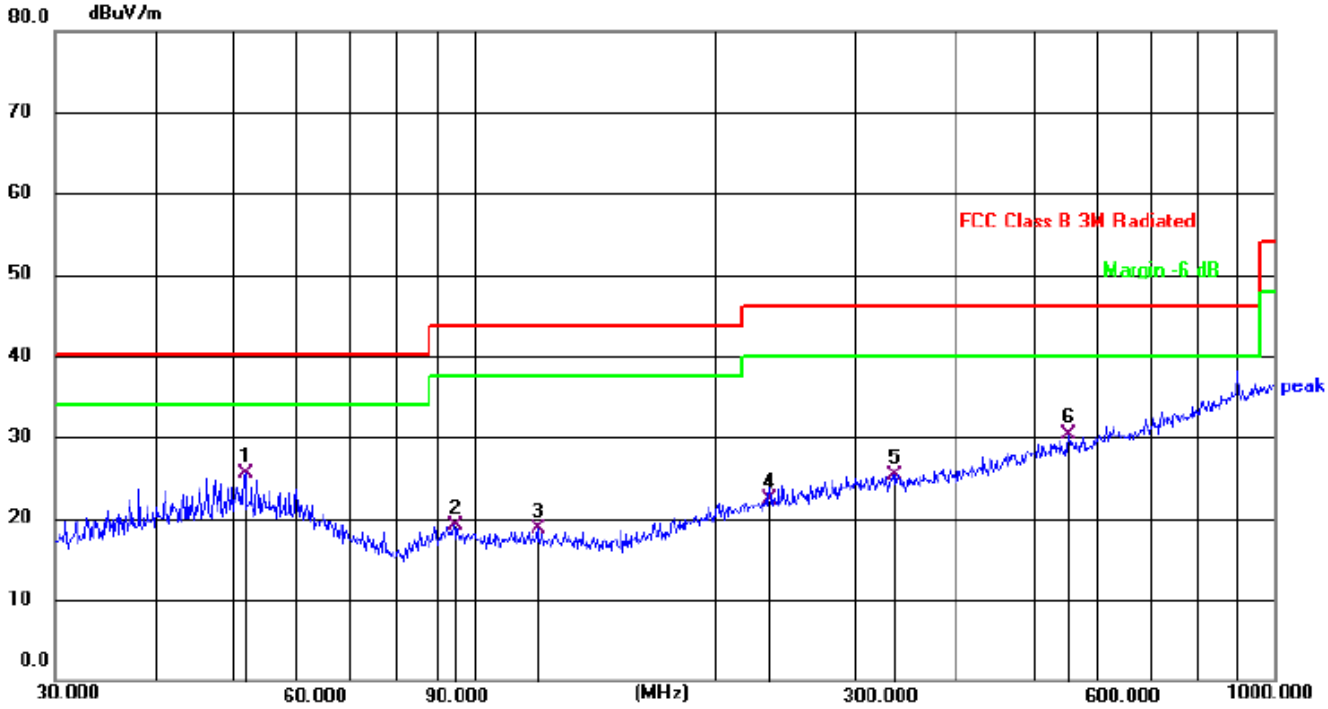
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		47.3255	34.03	-11.66	22.37	40.00	17.63	QP
2		96.7749	34.57	-15.27	19.30	43.50	24.20	QP
3		155.3644	34.62	-15.98	18.64	43.50	24.86	QP
4		252.9482	35.51	-11.69	23.82	46.00	22.18	QP
5		495.9344	35.04	-6.86	28.18	46.00	17.82	QP
6	*	842.1296	36.50	-1.75	34.75	46.00	11.25	QP

Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

Level = Reading Level + Correct Factor; Margin = Limit – Level;

Radiation Emission Test Data			
Temperature:	24.5℃	Relative Humidity:	54%
Pressure:	1009hPa	Polarization:	Vertical
Test Voltage:	DC 3.7V	Test Mode:	Mode 2



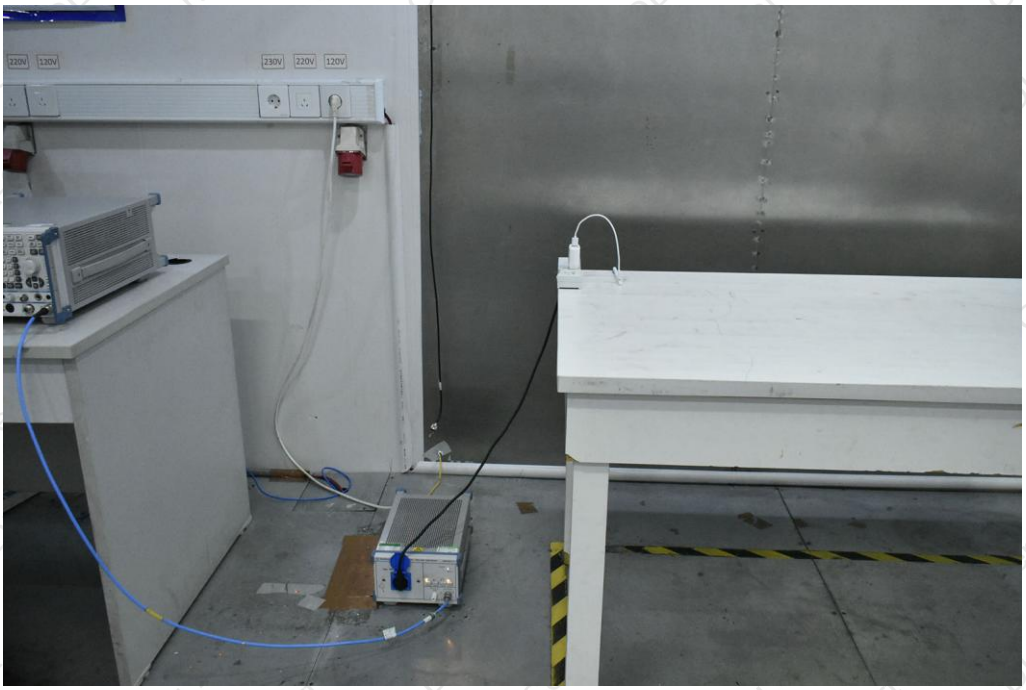
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1	*	51.8430	36.72	-11.26	25.46	40.00	14.54	QP
2		94.4284	34.27	-15.10	19.17	43.50	24.33	QP
3		120.2766	34.20	-15.55	18.65	43.50	24.85	QP
4		233.3487	33.91	-11.63	22.28	46.00	23.72	QP
5		333.6867	34.48	-9.16	25.32	46.00	20.68	QP
6		552.8832	35.54	-5.24	30.30	46.00	15.70	QP

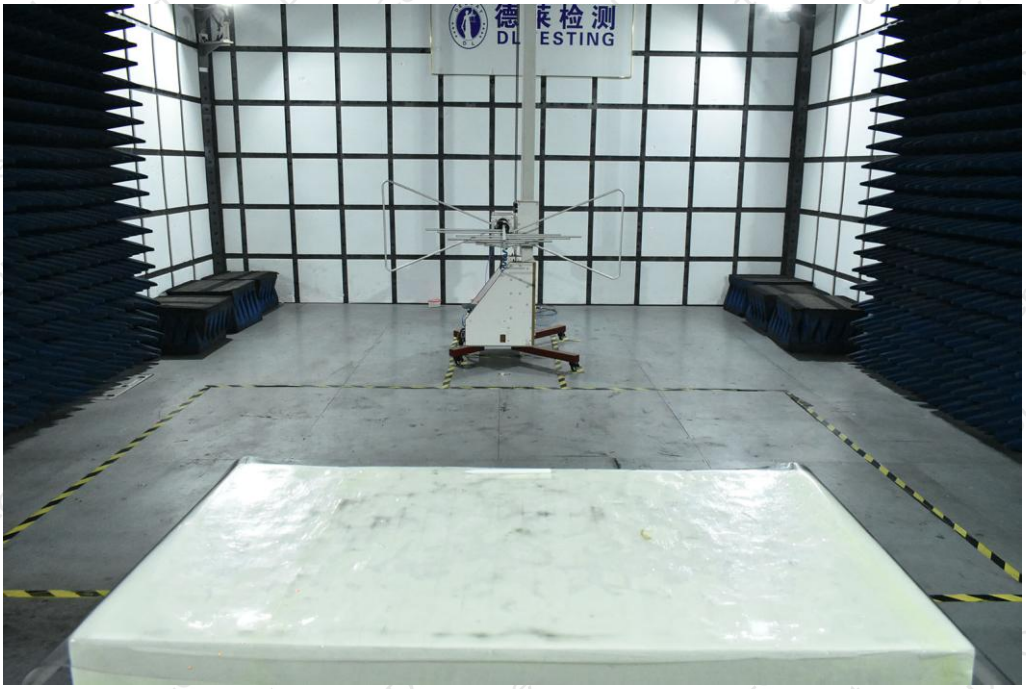
Remark:

Correct Factor = Cable loss + Antenna factor – Preamplifier;

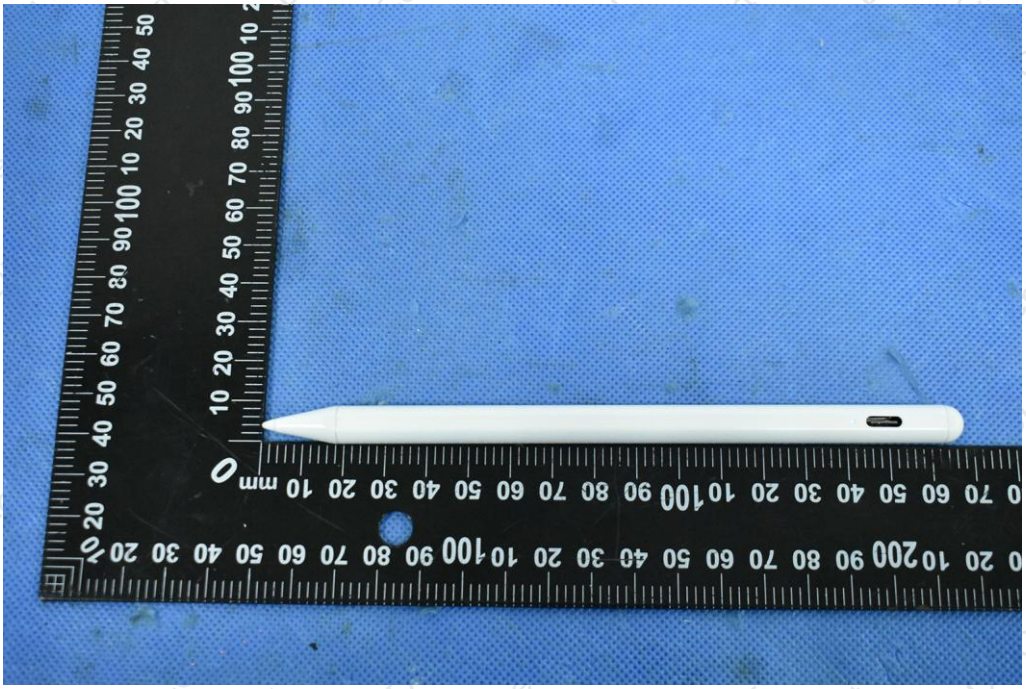
Level = Reading Level + Correct Factor; Margin = Limit – Level;

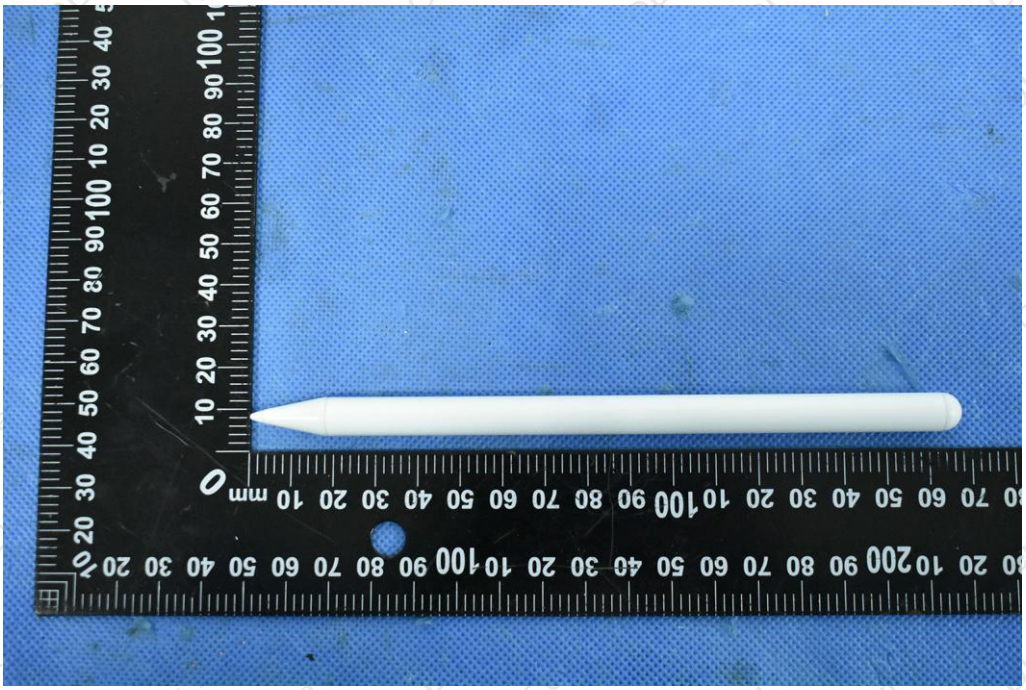
7. SETUP PHOTOGRAPHS

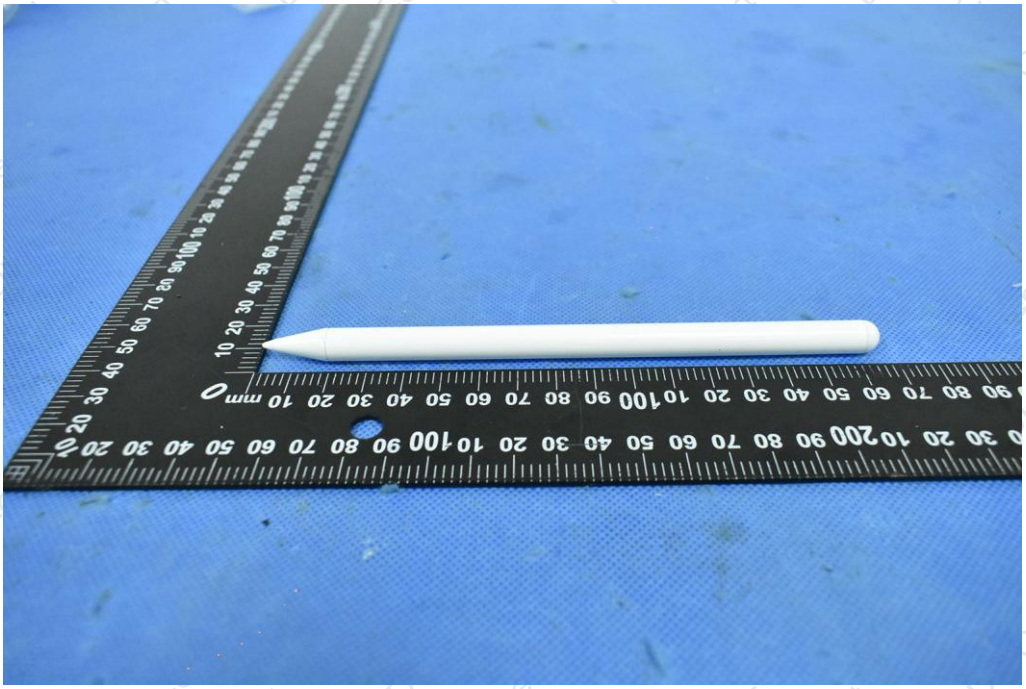


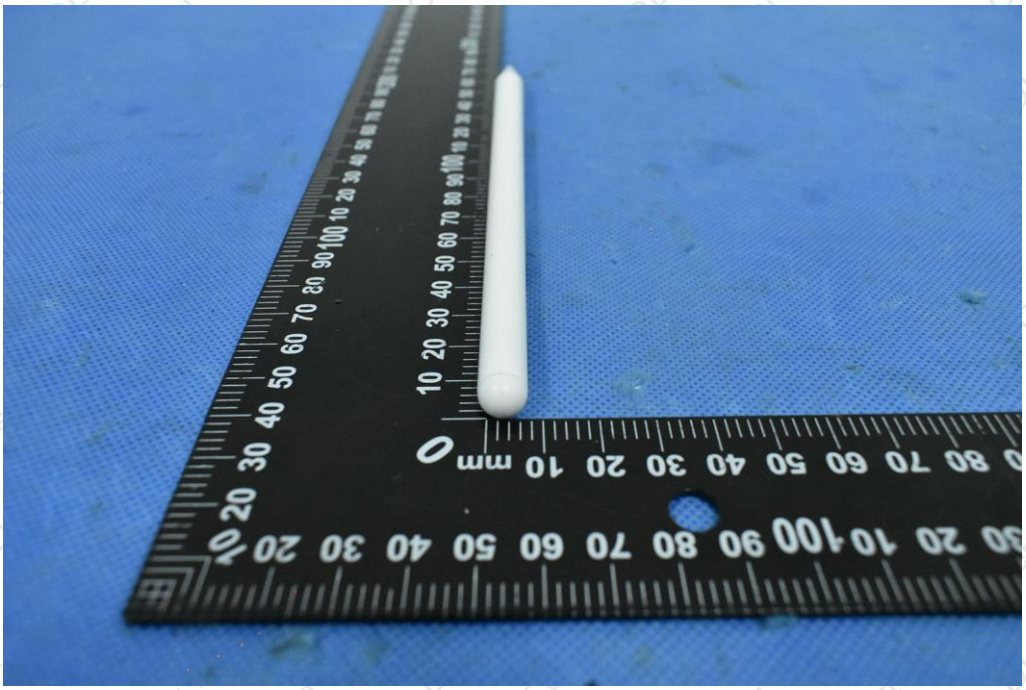


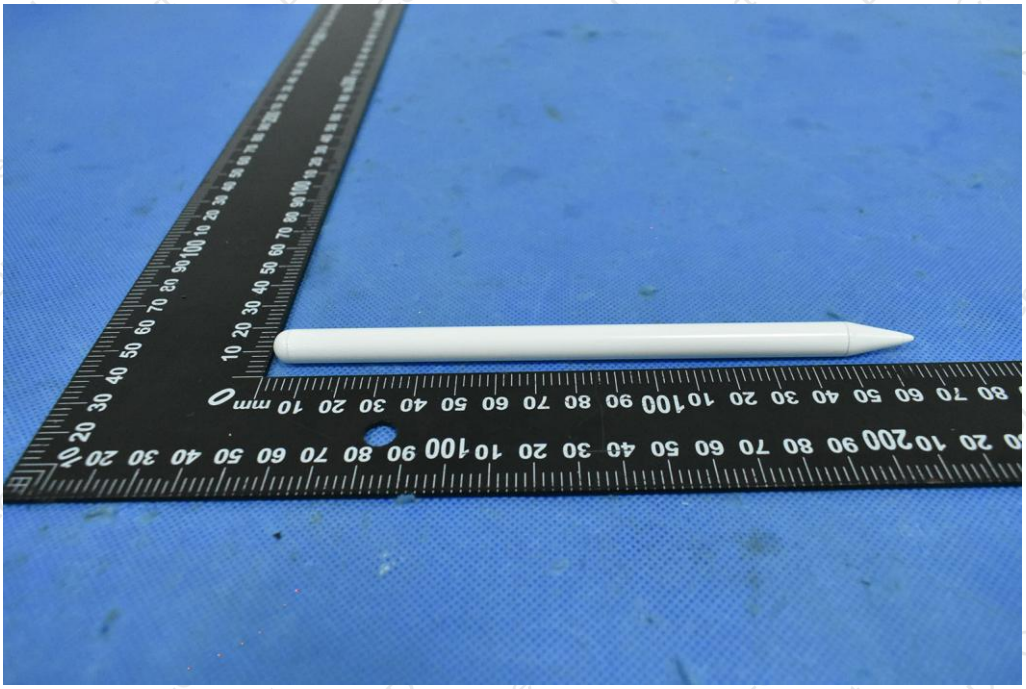
8. EUT PHOTOGRAPHS

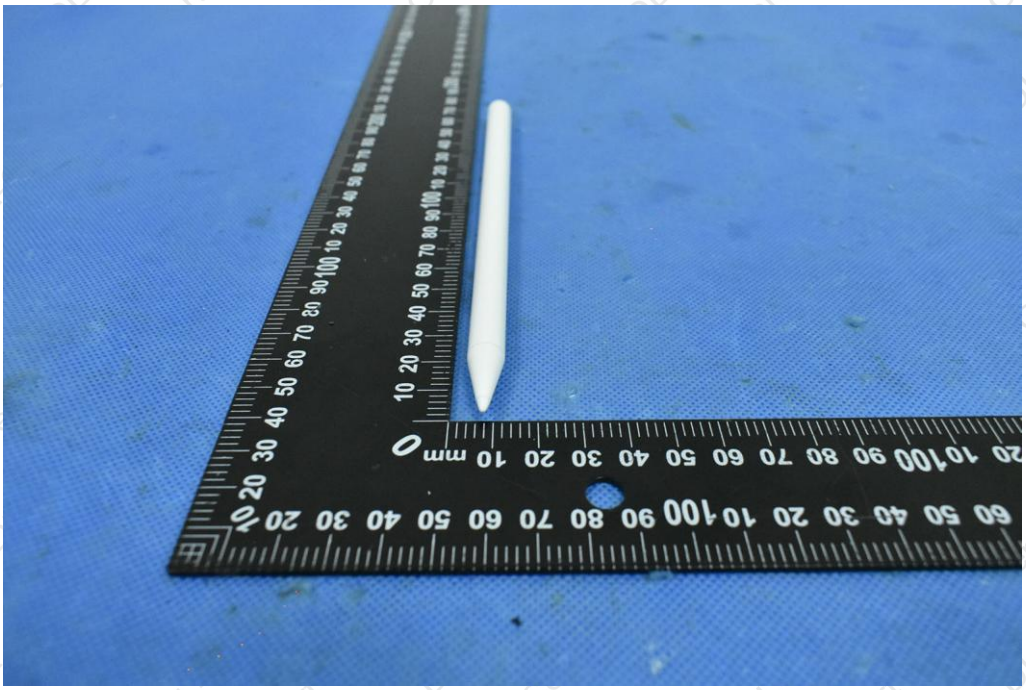


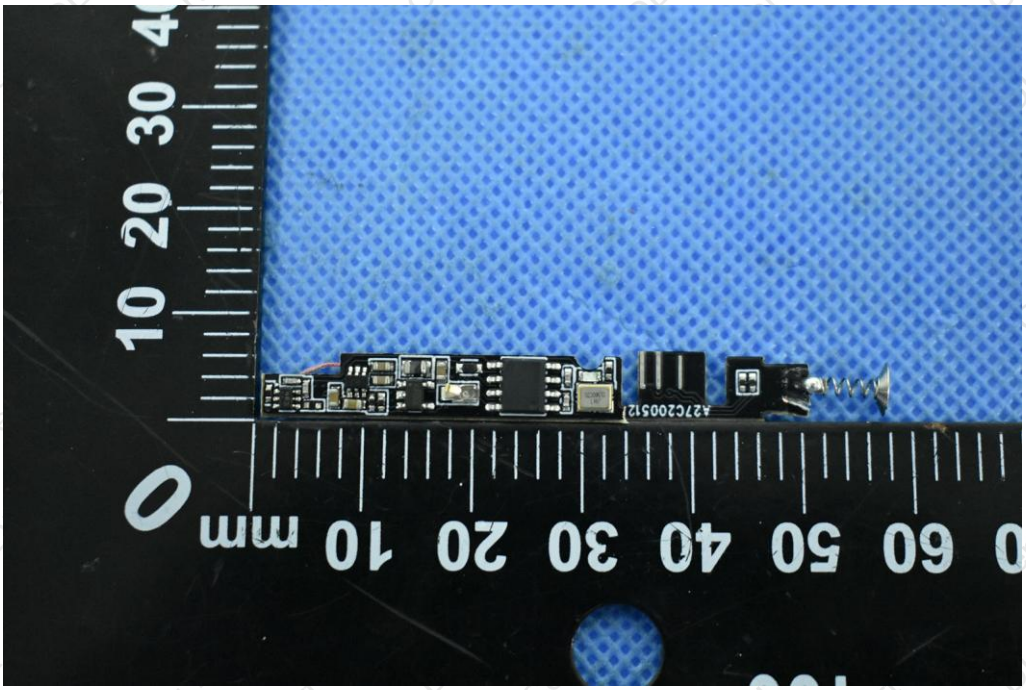


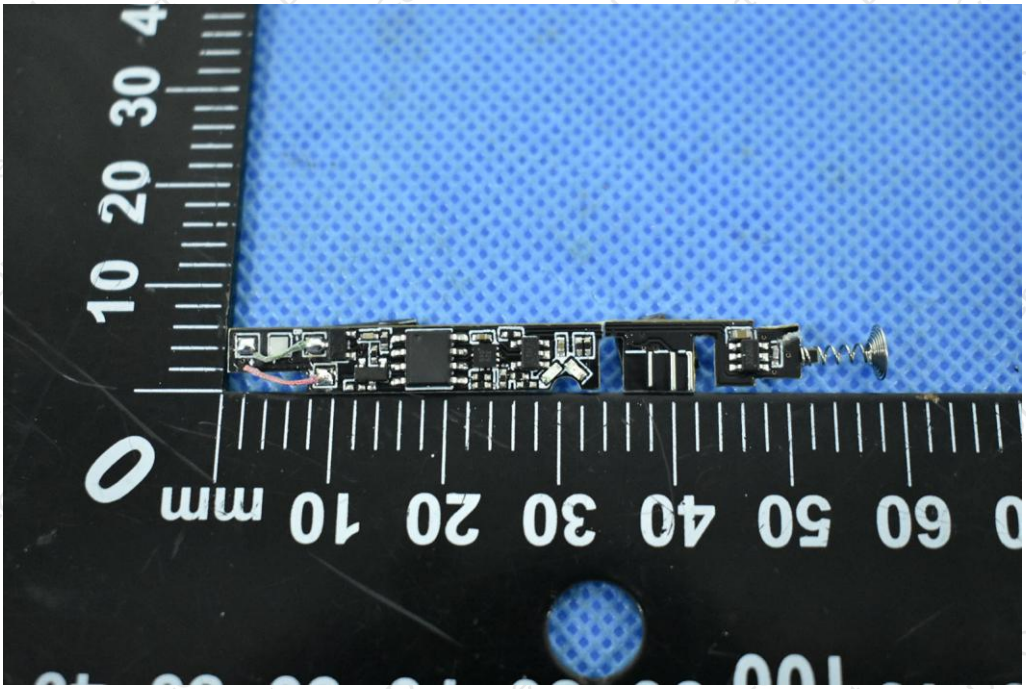


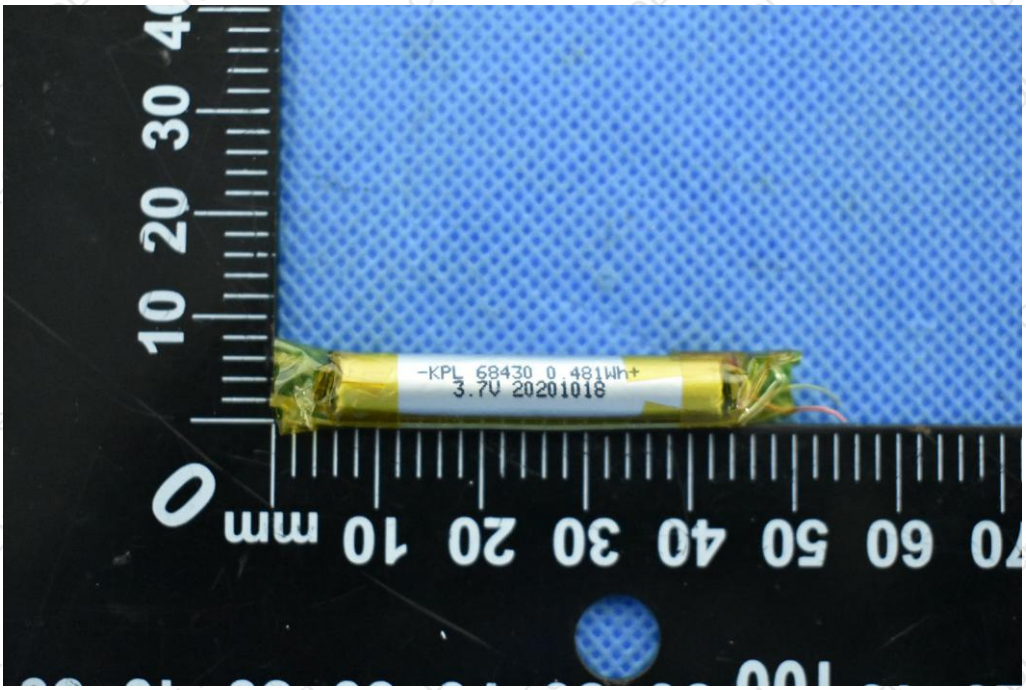








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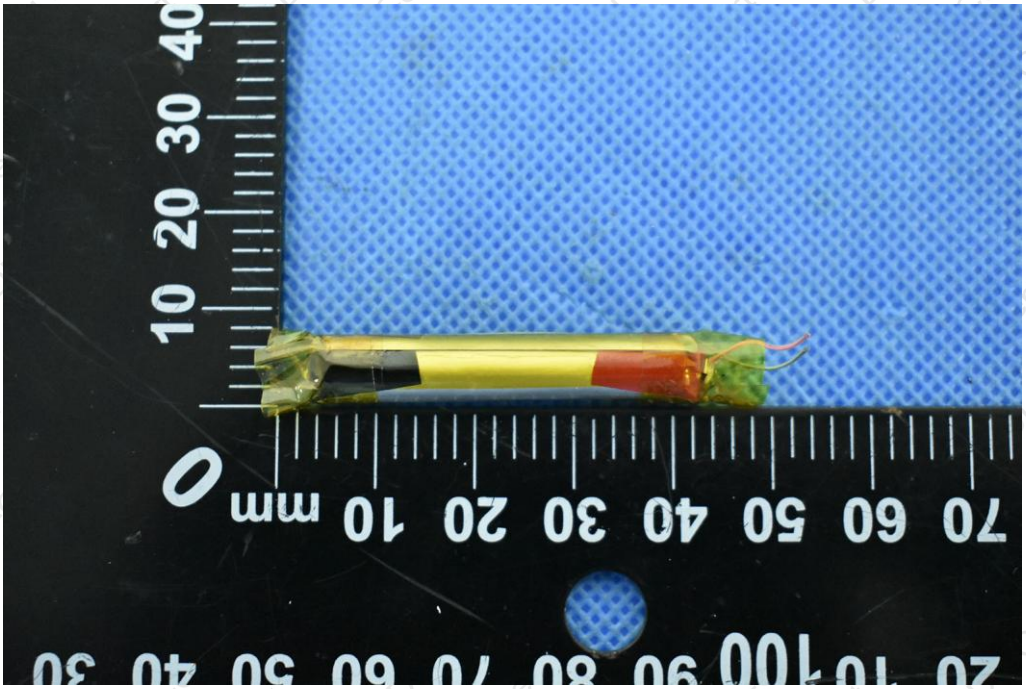

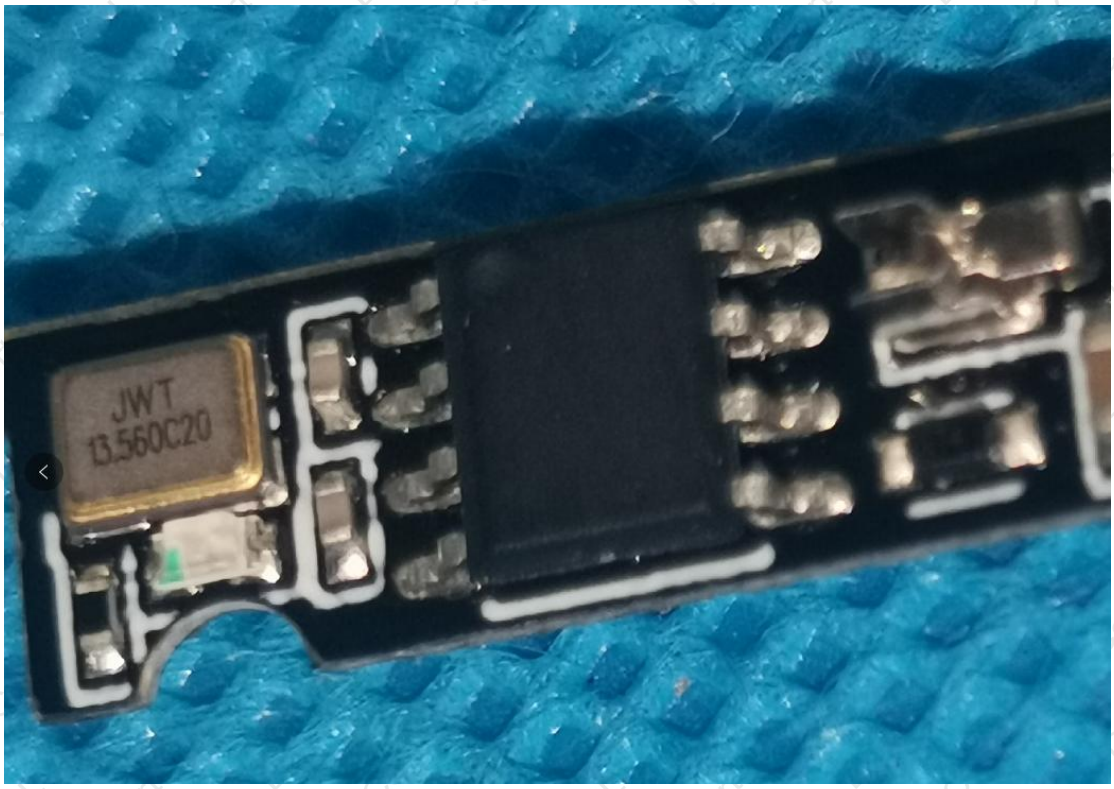

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