

FCC REPORT

Applicant: PAX Technology Limited

Address of Applicant: Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong

Equipment Under Test (EUT)

Product Name: POS Terminal

Model No.: IM30

FCC ID: V5PIM30

Trade mark: PAX

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.225

Date of sample receipt: 11 Jul., 2019

Date of Test: 11 Jul., to 13 Aug., 2019

Date of report issue: 30 Aug., 2019

Test Result: PASS*

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

Authorized Signature:



Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

2 Version

Version No.	Date	Description
00	14 Aug., 2019	Original
01	22 Aug., 2019	Update page 11~13
02	30 Aug., 2019	Update page 11~13

Tested by:

Mike.Ou

Date:

30 Aug., 2019

Test Engineer

Reviewed by:

Winner Zhang

Date:

30 Aug., 2019

Project Engineer

3 Contents

	Page
1 COVER PAGE.....	1
2 VERSION.....	2
3 CONTENTS.....	3
4 TEST SUMMARY.....	4
5 GENERAL INFORMATION.....	5
5.1 CLIENT INFORMATION.....	5
5.2 GENERAL DESCRIPTION OF E.U.T.....	5
5.3 TEST MODE	5
5.4 MEASUREMENT UNCERTAINTY.....	5
5.5 DESCRIPTION OF SUPPORT UNITS.....	5
5.6 LABORATORY FACILITY.....	6
5.7 LABORATORY LOCATION	6
5.8 TEST INSTRUMENTSLIST.....	7
6 TEST RESULTS ANDMEASUREMENT DATA.....	8
6.1 ANTENNA REQUIREMENT	8
6.2 RADIATED EMISSION	9
6.3 20DB BANDWIDTH.....	16
6.4 FREQUENCY TOLERANCE	18
6.5 CONDUCTED EMISSION	20
7 TEST SETUP PHOTOS.....	23
8 EUT CONSTRUCTIONAL DETAILS	25

4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
Field strength of the fundamental signal	15.225 (a)	Pass
Spurious emissions	15.225(d)& 15.209	Pass
20dB Bandwidth	15.215(c)	Pass
Frequency tolerance	15.225 (e)	Pass
Conducted Emission	15.207	Pass

Remark:

1. Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	PAX Technology Limited
Address:	Room 2416, 24/F., Sun Hung Kai Centre, 30 Harbour Road, Wanchai, Hong Kong
Manufacturer:	PAX Computer Technology(Shenzhen) Co. Ltd.
Address:	401-402 No.3 Building, Software Park, Nanshan district, Shenzhen, Guangdong, P.R.C.

5.2 General Description of E.U.T.

Product Name:	POS Terminal
Model No.:	IM30
Operation Frequency:	13.56MHz
Channel numbers:	1
Modulation type:	ASK
IC Card Type:	Support: Type A, Type B, Type M
Antenna Type:	Induction Coil Antenna
Power supply:	DC 12V-48V
Test Sample Condition:	The test samples were provided in good working order with no visible defects.

5.3 Test mode

Transmitting mode:	Keep the EUT in transmitting mode with modulation					
Pre-Test Mode:						
CCIS has verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:						
Axis	X	Y	Z			
Field Strength(dBuV/m)	59.52	60.00	59.71			
Final Test Mode:						
According to ANSI C63.4 standards, the test results are both the "worst case" and "worst setup": Y axis (see the test setup photo).						

5.4 Measurement Uncertainty

Parameters	Expanded Uncertainty
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB (k=2)
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB (k=2)
Radiated Emission (30MHz ~ 1000MHz)	±4.32 dB (k=2)

5.5 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
SHENZHEN HONOR ELECTRONIC CO., LTD.	AC ADAPTER	ADS-65H1-19A-2	200310110000128	N/A

5.6 Laboratory Facility

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

● **FCC - Designation No.: CN1211**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC(Federal Communications Commission). The test firm Registration No. is 727551.

● **ISED – CAB identifier.: CN0021**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

● **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

● **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: <https://portal.a2la.org/scopepdf/4346-01.pdf>

5.7 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China

Tel: +86-755-23118282, Fax: +86-755-23116366

Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

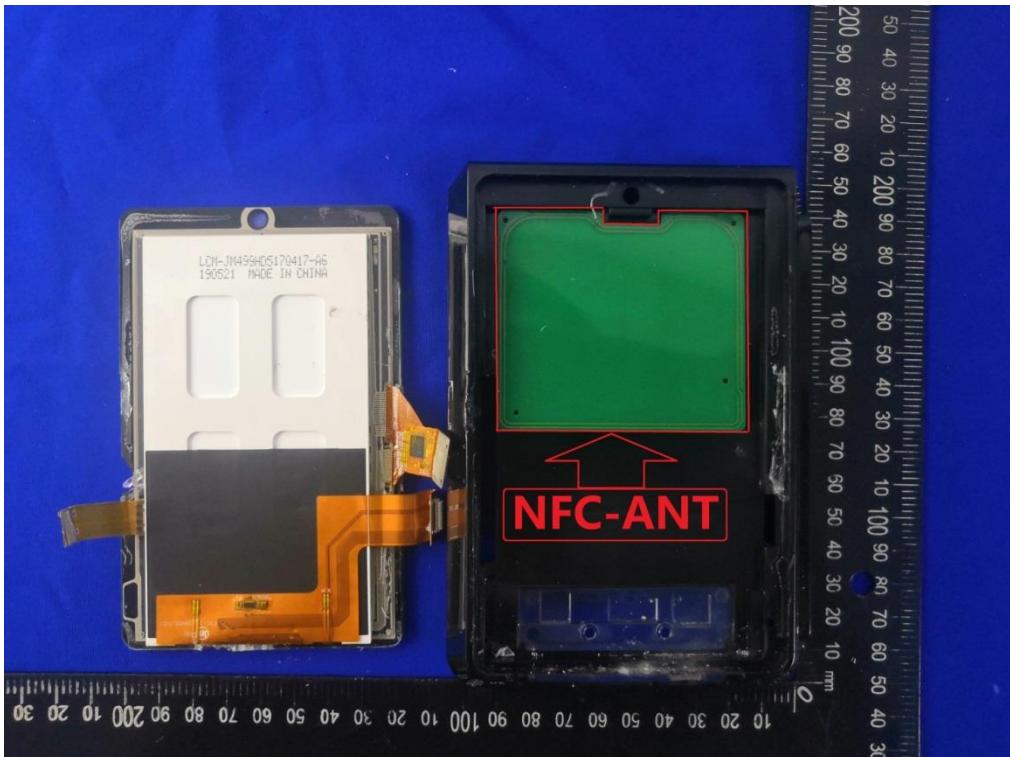
5.8 Test Instrumentslist

Radiated Emission:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
3m SAC	SAEMC	9m*6m*6m	966	07-22-2017	07-21-2020
BiConiLog Antenna	SCHWARZBECK	VULB9163	497	03-18-2019	03-17-2020
Biconical Antenna	SCHWARZBECK	VUBA9117	359	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	916	03-18-2019	03-17-2020
Horn Antenna	SCHWARZBECK	BBHA9120D	1805	06-22-2017	06-21-2020
Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170582	11-21-2018	11-20-2019
Loop Antenna	SCHWARZBECK	FMZB 1519 B	00044	03-18-2019	03-17-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		
Pre-amplifier	HP	8447D	2944A09358	03-18-2019	03-17-2020
Pre-amplifier	CD	PAP-1G18	11804	03-18-2019	03-17-2020
Spectrum analyzer	Rohde & Schwarz	FSP30	101454	03-18-2019	03-17-2020
Spectrum analyzer	Rohde & Schwarz	FSP40	100363	11-21-2018	11-20-2019
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-18-2019	03-17-2020
Signal Generator	Rohde & Schwarz	SMX	835454/016	03-18-2019	03-17-2020
Signal Generator	R&S	SMR20	1008100050	03-18-2019	03-17-2020
Cable	ZDECL	Z108-NJ-NJ-81	1608458	03-18-2019	03-17-2020
Cable	MICRO-COAX	MFR64639	K10742-5	03-18-2019	03-17-2020
Cable	SUHNER	SUCOFLEX100	58193/4PE	03-18-2019	03-17-2020

Conducted Emission:					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	07-22-2017	07-21-2020
EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-18-2019	03-17-2020
LISN	CHASE	MN2050D	CCIS0074	03-18-2019	03-17-2020
LISN	Rohde & Schwarz	ESH3-Z5	8438621/010	07-21-2018 07-21-2019	07-20-2019 07-20-2020
Coaxial Cable	CCIS	N/A	CCIS0086	03-18-2019	03-17-2020
EMI Test Software	AUDIX	E3	Version: 6.110919b		

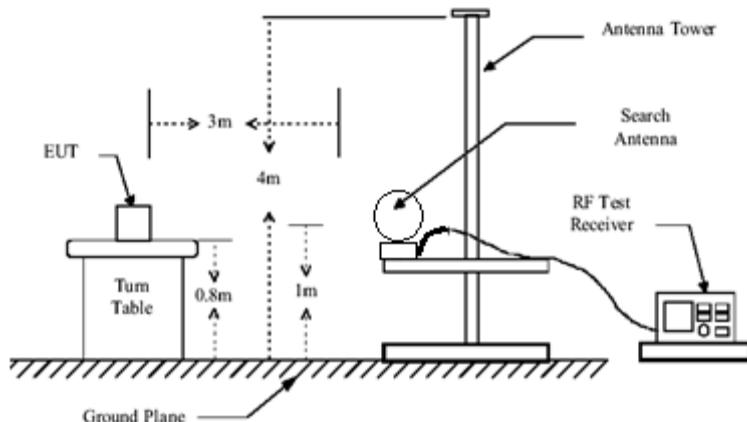
6 Test results and Measurement Data

6.1 Antenna requirement

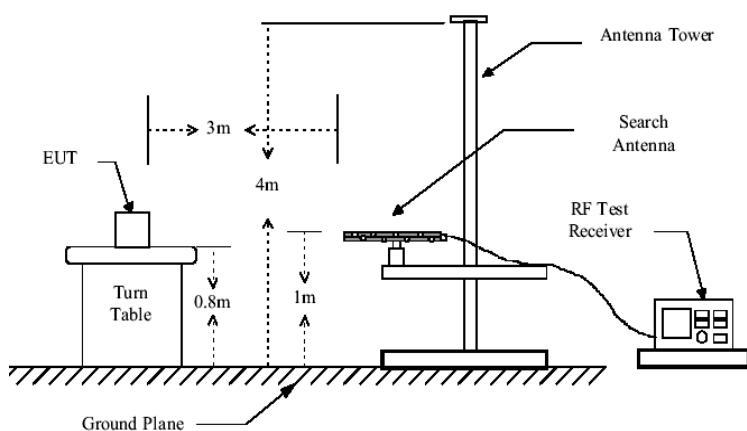
Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement:	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling 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.
E.U.T Antenna:	The EUT make use of an Induction coil antenna. 

6.2 Radiated Emission

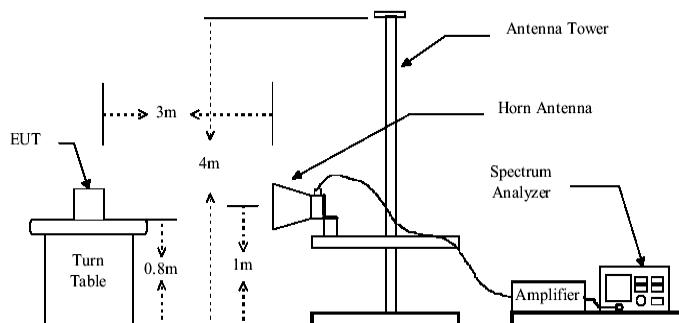
Test Requirement:	FCC Part15 C Section 15.225(a) and 15.209								
Test Method:	ANSI C63.10: 2013								
Test Frequency Range:	9 kHz to 1000MHz								
Test site:	Measurement Distance: 3m(Semi-Anechoic Chamber)								
Receiver setup:	Frequency	Detector	RBW	VBW	Remark				
	9kHz-150kHz	Quasi-peak	200Hz	600Hz	Quasi-peak Value				
	150kHz-30MHz	Quasi-peak	9kHz	30kHz	Quasi-peak Value				
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value				
	Above 1GHz	Peak	1MHz	3MHz	Peak Value				
Limit: (Field strength of the fundamental signal)	Frequency	Limit (uV/m @30m)		Limit (dBuV/m @3m)					
	13.553MHz-13.567MHz	15848		124.0					
	13.410MHz-13.553MHz & 13.567MHz-13.710MHz	334		90.5					
	13.110MHz-13.410MHz & 13.710MHz-14.010MHz	106		80.5					
Remark: Per FCC part 15.31, when performing measurements at a distance which is closer than specified, the field strength results shall be extrapolated to the specified distance by using the square of an inverse linear distance extrapolation factor (i.e., 40 dB/decade) in conjunction with the slant-range distance defined in §15.3(hh) of this part.									
Limit: (Spurious Emissions)	Frequency (MHz)	Limit (uV/m @3m)		Distance (m)					
	0.009-0.490	2400/F(kHz)		300					
	0.490-1.705	24000/F(kHz)		30					
	1.705-30	30		30					
	30-88	100		3					
	88-216	150		3					
	216-960	200		3					
	Above 1GHz	500		3					
Test Procedure:	<ol style="list-style-type: none"> The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 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. 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 and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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. 								
Test setup:	9kHz-30MHz								



30MHz-1GHz



Above 1GHz



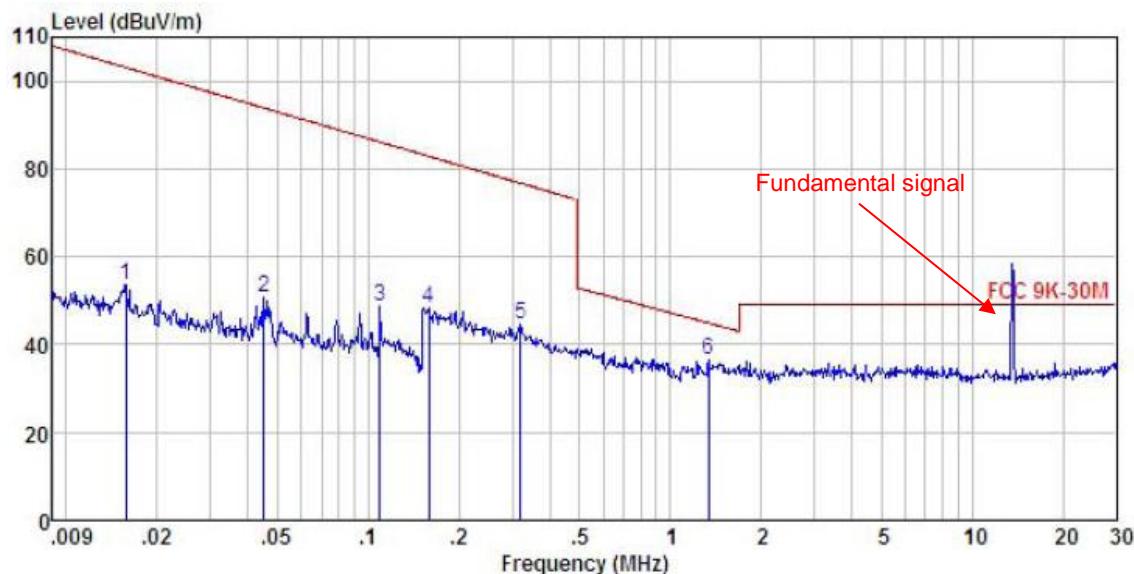
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

Measurement Data:**Field Strength of fundamental signal:**

Product Name:	POS Terminal	Product Model:	IM30																														
Test By:	Mike	Test mode:	NFC Tx mode																														
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Huni: 57%																														
<hr/>																																	
<table border="1"> <thead> <tr> <th>Freq</th> <th>Read Level</th> <th>Antenna Factor</th> <th>Cable Loss</th> <th>Aux Factor</th> <th>Preamplifier Factor</th> <th>Limit Level</th> <th>Line Limit</th> <th>Over Line Limit</th> <th>Remark</th> </tr> <tr> <th>MHz</th> <th>dBuV</th> <th>dB/m</th> <th>dB</th> <th>dB</th> <th>dB</th> <th>dBuV/m</th> <th>dBuV/m</th> <th>dB</th> <th></th> </tr> </thead> <tbody> <tr> <td>1</td> <td>13.560</td> <td>34.33</td> <td>-26.47</td> <td>0.64</td> <td>51.50</td> <td>0.00</td> <td>60.00</td> <td>124.00</td> <td>-64.00 Peak</td> </tr> </tbody> </table>				Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamplifier Factor	Limit Level	Line Limit	Over Line Limit	Remark	MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB		1	13.560	34.33	-26.47	0.64	51.50	0.00	60.00	124.00	-64.00 Peak
Freq	Read Level	Antenna Factor	Cable Loss	Aux Factor	Preamplifier Factor	Limit Level	Line Limit	Over Line Limit	Remark																								
MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB																									
1	13.560	34.33	-26.47	0.64	51.50	0.00	60.00	124.00	-64.00 Peak																								
Remark: 1. Final Level = Receiver Read level + Antenna Factor + Cable Loss + AUX Factor – Preamplifier Factor.																																	

Spurious Emissions:**Test frequency range: 9 kHz- 30 MHz**

Product Name:	POS Terminal	Product Model:	IM30
Test By:	Mike	Test mode:	NCF Tx mode
Test Frequency:	9 kHz ~ 30 MHz	Polarization:	Vertical
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Huni: 57%

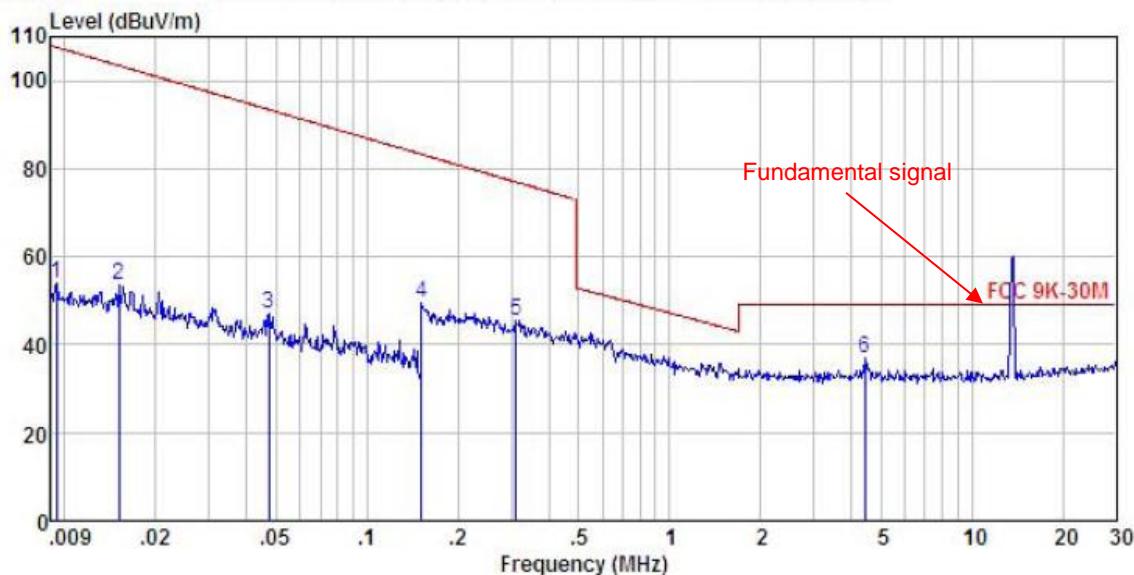


Freq	ReadAntenna		Cable	Aux	Preampl	Limit Level	Over Line	Over Limit	Remark
	Freq	Level	Antenna Factor	Cable Loss	Preampl Factor				
MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	0.016	27.85	-25.87	0.05	51.50	0.00	53.53	103.10	-49.57 Peak
2	0.045	24.91	-25.99	0.16	51.50	0.00	50.58	93.87	-43.29 Peak
3	0.109	23.13	-26.11	0.20	51.50	0.00	48.72	86.12	-37.40 Peak
4	0.159	22.54	-26.17	0.28	51.50	0.00	48.15	82.86	-34.71 Peak
5	0.319	19.12	-26.25	0.36	51.50	0.00	44.73	76.75	-32.02 Peak
6	1.342	10.93	-26.38	0.63	51.50	0.00	36.68	44.92	-8.24 Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss + AUX Factor – Preamplifier Factor.

Product Name:	POS Terminal	Product Model:	IM30
Test By:	Mike	Test mode:	NFC Tx mode
Test Frequency:	9 kHz ~ 30 MHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Huni: 57%

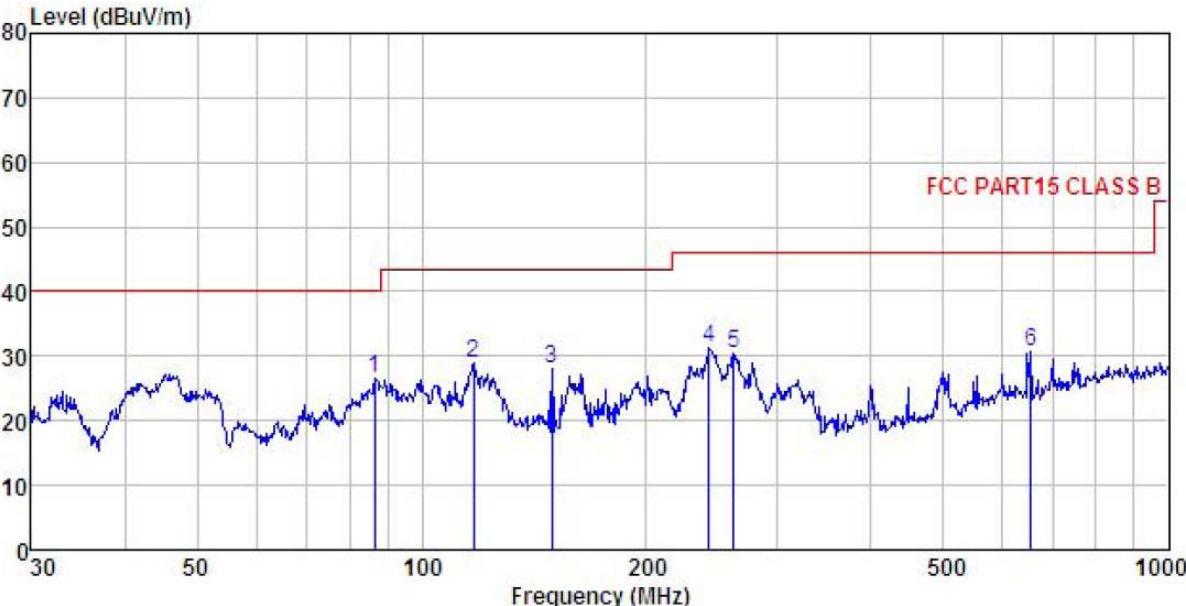


Freq MHz	Read	Antenna	Cable	Aux	Preamp	Limit Line Level dBuV/m	Over Limit dB	Remark
	Freq	Level dBuV	Factor dB/m	Loss dB	Factor dB			
1	0.009	28.02	-25.68	0.02	51.50	0.00	53.86	107.64 -53.78 Peak
2	0.015	27.72	-25.86	0.05	51.50	0.00	53.41	103.45 -50.04 Peak
3	0.047	21.58	-25.99	0.17	51.50	0.00	47.26	93.44 -46.18 Peak
4	0.151	23.72	-26.16	0.27	51.50	0.00	49.33	83.28 -33.95 Peak
5	0.312	20.00	-26.25	0.36	51.50	0.00	45.61	76.96 -31.35 Peak
6	4.423	11.51	-26.59	0.62	51.50	0.00	37.04	49.00 -11.96 Peak

Remark:

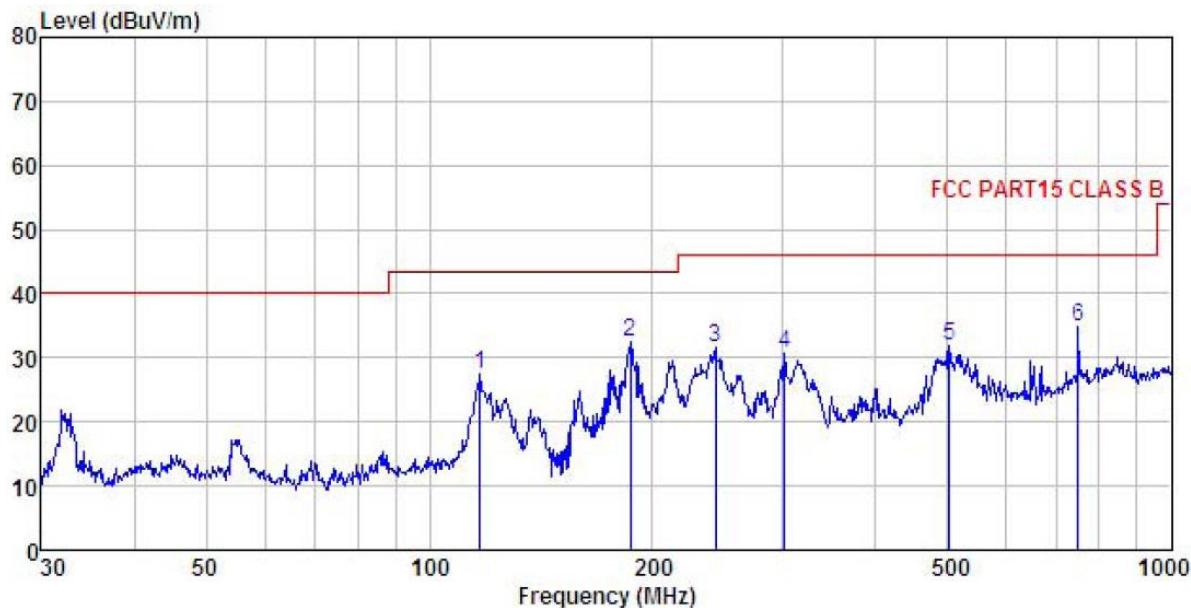
- Final Level = Receiver Read level + Antenna Factor + Cable Loss + AUX Factor – Preamplifier Factor.

Test frequency range: 30MHz-1000MHz

Product Name:	POS Terminal		Product Model:	IM30																			
Test By:	Mike		Test mode:	NFC Tx mode																			
Test Frequency:	30 MHz ~ 1 GHz		Polarization:	Vertical																			
Test Voltage:	AC 120/60Hz		Environment:	Temp: 24°C Huni: 57%																			
FCC PART15 CLASS B																							
																							
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Freq</th> <th style="text-align: left;">Read Level</th> <th style="text-align: left;">Antenna Factor</th> <th style="text-align: left;">Cable Loss</th> <th style="text-align: left;">Preamp Factor</th> <th style="text-align: left;">Level</th> <th style="text-align: left;">Limit Line</th> <th style="text-align: left;">Over Limit</th> <th style="text-align: left;">Remark</th> </tr> </thead> <tbody> <tr> <td>MHz</td> <td>dBuV</td> <td>dB/m</td> <td>dB</td> <td>dB</td> <td>dBuV/m</td> <td>dBuV/m</td> <td>dB</td> <td></td> </tr> </tbody> </table>						Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark															
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB																
1	86.503	45.31	9.07	1.91	29.59	26.70	40.00	-13.30 QP															
2	117.360	45.04	11.07	2.13	29.41	28.83	43.50	-14.67 QP															
3	149.486	45.90	8.94	2.51	29.22	28.13	43.50	-15.37 QP															
4	242.525	44.77	12.42	2.82	28.58	31.43	46.00	-14.57 QP															
5	261.975	43.03	12.93	2.84	28.52	30.28	46.00	-15.72 QP															
6	654.232	35.80	19.78	3.89	28.77	30.70	46.00	-15.30 QP															

					Remark:					
1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.										
2. The emission levels of other frequencies are very lower than the limit and not show in test report.										

Product Name:	POS Terminal	Product Model:	IM30
Test By:	Mike	Test mode:	NFC Tx mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 120/60Hz	Environment:	Temp: 24°C Huni: 57%

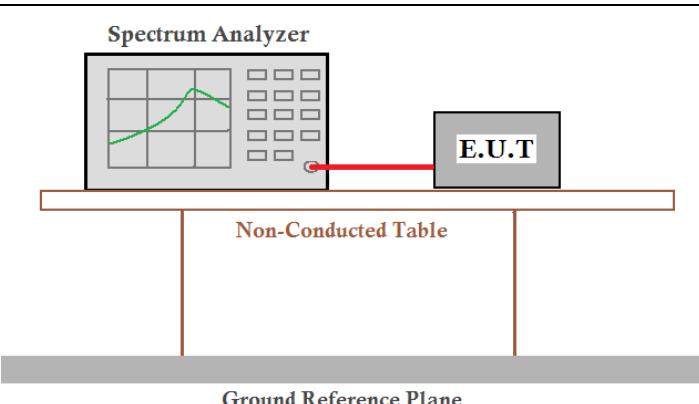


Freq MHz	Read	Antenna Level Factor	Cable Loss Factor	Preamp Level dB	Limit Line dBuV/m	Over Line dBuV/m	Over Limit dB	Remark
	Freq MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1 116.950	43.60	11.11	2.13	29.41	27.43	43.50	-16.07	QP
2 186.441	48.56	10.18	2.77	28.93	32.58	43.50	-10.92	QP
3 243.377	45.02	12.42	2.82	28.58	31.68	46.00	-14.32	QP
4 301.422	42.51	13.63	2.94	28.45	30.63	46.00	-15.37	QP
5 502.940	39.07	18.21	3.64	28.96	31.96	46.00	-14.04	QP
6 750.108	38.30	20.60	4.36	28.48	34.78	46.00	-11.22	QP

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor.
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

6.3 20dB Bandwidth

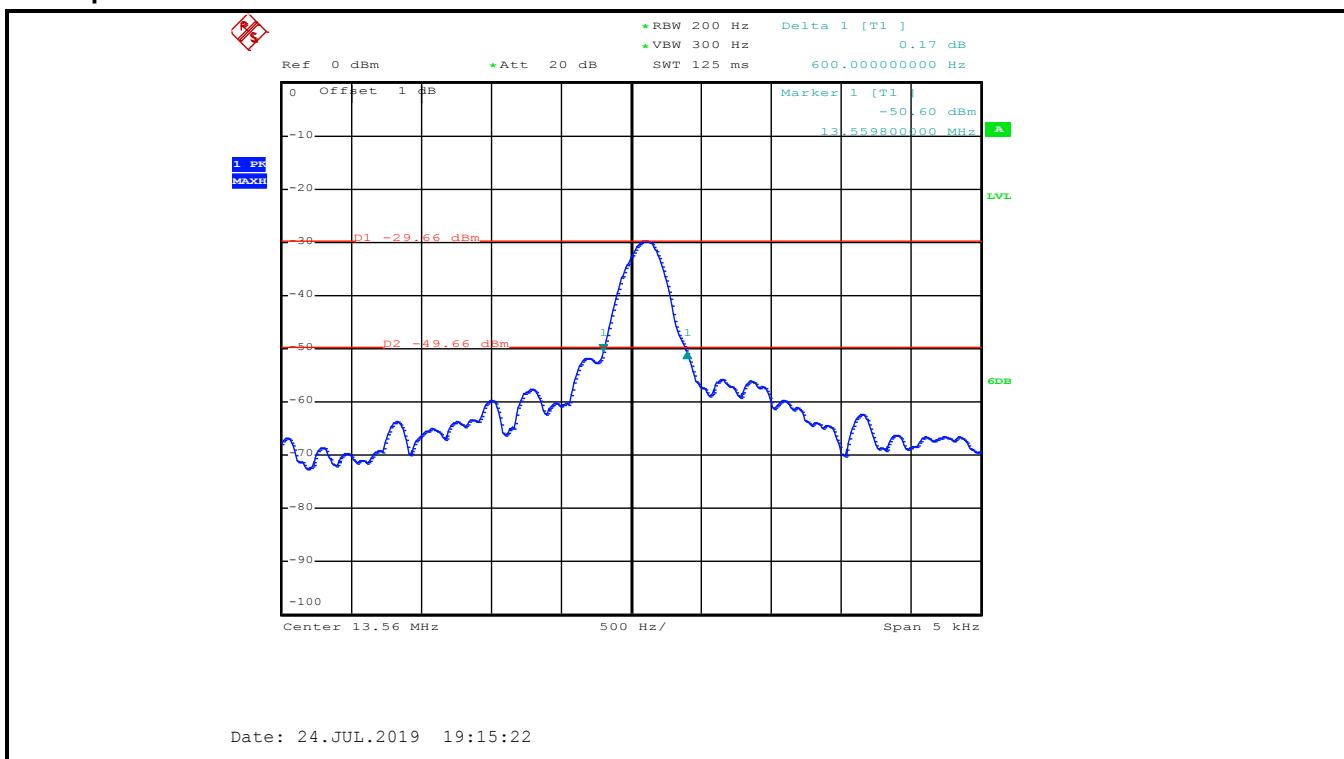
Test Requirement:	FCC Part15 C Section 15.215 (c)
Test Method:	ANSI C63.10: 2013
Receiver setup:	RBW=200Hz, VBW=300Hz, detector: Peak
Limit:	The fundamental emission be kept within at least the central 80% of the permitted band
Test Procedure:	<ol style="list-style-type: none"> According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT. Set the EUT to proper test channel. Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points. Read 20dB bandwidth.
Test setup:	 <p>The diagram shows a Spectrum Analyzer with a green waveform on its screen. A red line connects the analyzer to a grey rectangular box labeled 'E.U.T'. This assembly sits on a horizontal brown bar labeled 'Non-Conducted Table'. Below the table is a grey horizontal bar labeled 'Ground Reference Plane'.</p>
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

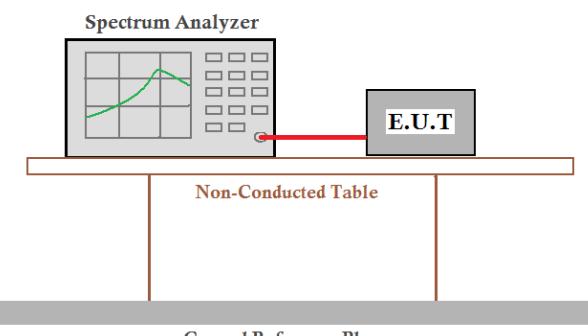
20dB bandwidth (kHz)	Limit (kHz)	Results
0.600	11.2	Passed

Note: For 13.56MHz, permitted Band is 14 kHz, so the Limit is 11.2 kHz.

Test plot as follows:



6.4 Frequency Tolerance

Test Requirement:	FCC Part15 C Section 15.225 (e)
Test Method:	ANSI C63.10: 2013
Receiver setup:	RBW=200Hz, VBW=300Hz, span=14kHz, detector: Peak
Limit:	$\pm 0.01\%$ of the operating frequency
Test mode:	Transmitting mode
Test Procedure:	<p>Frequency stability V.S. Temperature measurement</p> <ol style="list-style-type: none"> 1. The equipment under test was powered by a fresh battery. 2. RF output was connected to spectrum analyzer via feed through attenuators. 3. The EUT was placed inside the temperature chamber. 4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. 5. Turn EUT off and set the chamber temperature to -20°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. 6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached <p>Frequency stability V.S. Voltage measurement</p> <ol style="list-style-type: none"> 1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage. 2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. <p>Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.</p>
Test setup:	
Test Instruments:	Refer to section 5.8 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:**a) Frequency stability V.S. Temperature measurement**

Voltage (Vdc)	Temperature (°C)	Frequency Tolerance (MHz)	Frequency Error (%)	Limit (%)	Results
24.0	-20	0.078	0.0058	±0.01	Pass
	-10	0.085	0.0063	±0.01	Pass
	0	-0.074	-0.0055	±0.01	Pass
	+10	0.079	0.0058	±0.01	Pass
	+20	-0.066	-0.0049	±0.01	Pass
	+30	0.084	0.0062	±0.01	Pass
	+40	0.067	0.0049	±0.01	Pass
	+50	-0.036	-0.0027	±0.01	Pass

b) Frequency stability V.S. Voltage measurement

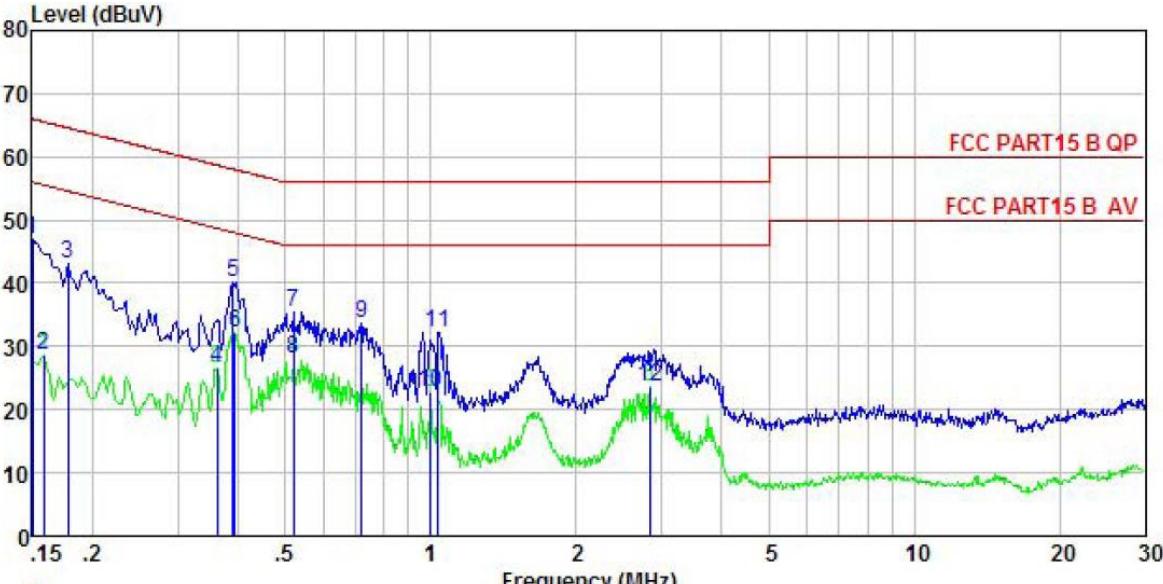
Temperature (°C)	Voltage (Vdc)	Frequency Tolerance (MHz)	Frequency Error (%)	Limit (%)	Results
25.0	10.2	-0.085	-0.0063	±0.01	Pass
	24.0	0.071	0.0052	±0.01	Pass
	55.2	0.092	0.0068	±0.01	Pass

6.5 Conducted Emission

Test Requirement:	FCC Part15 B Section 15.207		
Test Method:	ANSI C63.4:2014		
Test Frequency Range:	150kHz to 30MHz		
Class / Severity:	Class B		
Receiver setup:	RBW=9kHz, VBW=30kHz		
Limit:	Frequency range (MHz)	Limit (dB _μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	0.5-30	60	50
* Decreases with the logarithm of the frequency.			
Test setup:	<p style="text-align: center;">Reference Plane</p> <p><i>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</i></p>		
Test procedure	<ol style="list-style-type: none"> 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). It provide a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement. 		
Test Instruments:	Refer to section 5.8 for details		
Test mode:	Refer to section 5.3 for details		
Test results:	Pass		

Measurement Data:

Product name:	POS Terminal	Product model:	IM30
Test by:	Mike	Test mode:	NFC Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Line
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%



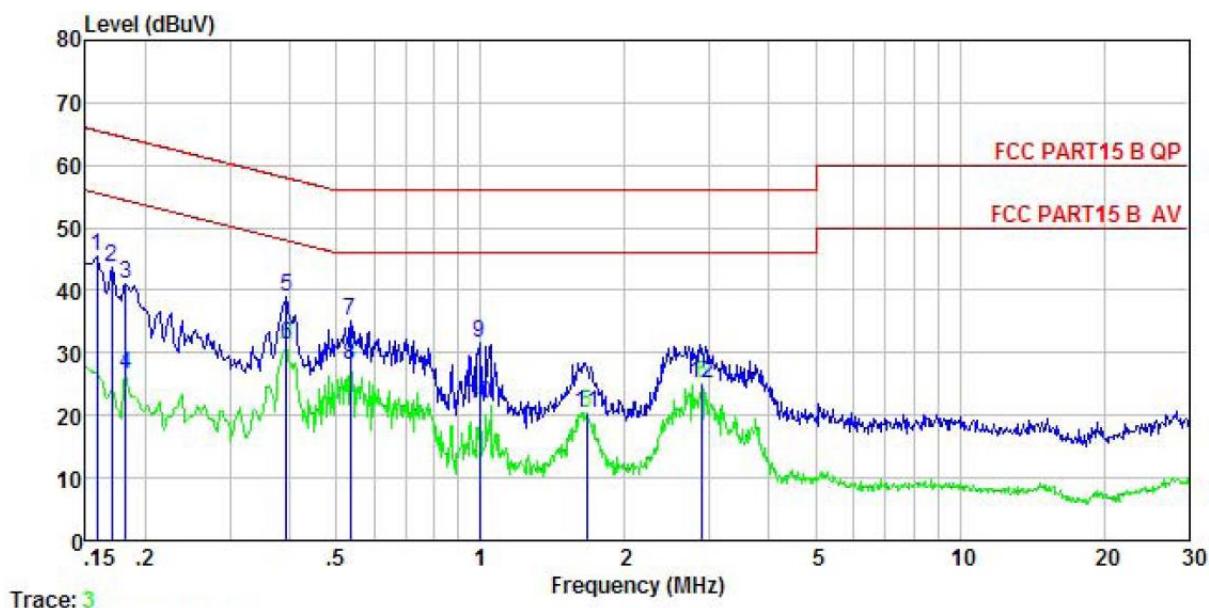
Trace: 1

Freq	Read	LISN	Cable	Limit	Over	Remark	
	Freq	Level	Factor				Loss
MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.150	36.56	-0.45	10.78	46.89	66.00	-19.11 QP
2	0.158	18.33	-0.44	10.77	28.66	55.56	-26.90 Average
3	0.178	32.74	-0.43	10.77	43.08	64.59	-21.51 QP
4	0.361	16.08	-0.38	10.73	26.43	48.69	-22.26 Average
5	0.389	29.79	-0.37	10.72	40.14	58.08	-17.94 QP
6	0.393	21.97	-0.37	10.72	32.32	47.99	-15.67 Average
7	0.521	25.14	-0.39	10.76	35.51	56.00	-20.49 QP
8	0.521	17.59	-0.39	10.76	27.96	46.00	-18.04 Average
9	0.720	23.38	-0.38	10.78	33.78	56.00	-22.22 QP
10	1.000	12.29	-0.38	10.87	22.78	46.00	-23.22 Average
11	1.032	21.82	-0.38	10.87	32.31	56.00	-23.69 QP
12	2.839	13.17	-0.44	10.93	23.66	46.00	-22.34 Average

Notes:

- An initial pre-scan was performed on the line and neutral lines with peak detector.
- Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level = Receiver Read level + LISN Factor + Cable Loss.

Product name:	POS Terminal	Product model:	IM30
Test by:	Mike	Test mode:	NFC Tx mode
Test frequency:	150 kHz ~ 30 MHz	Phase:	Neutral
Test voltage:	AC 120 V/60 Hz	Environment:	Temp: 22.5°C Huni: 55%



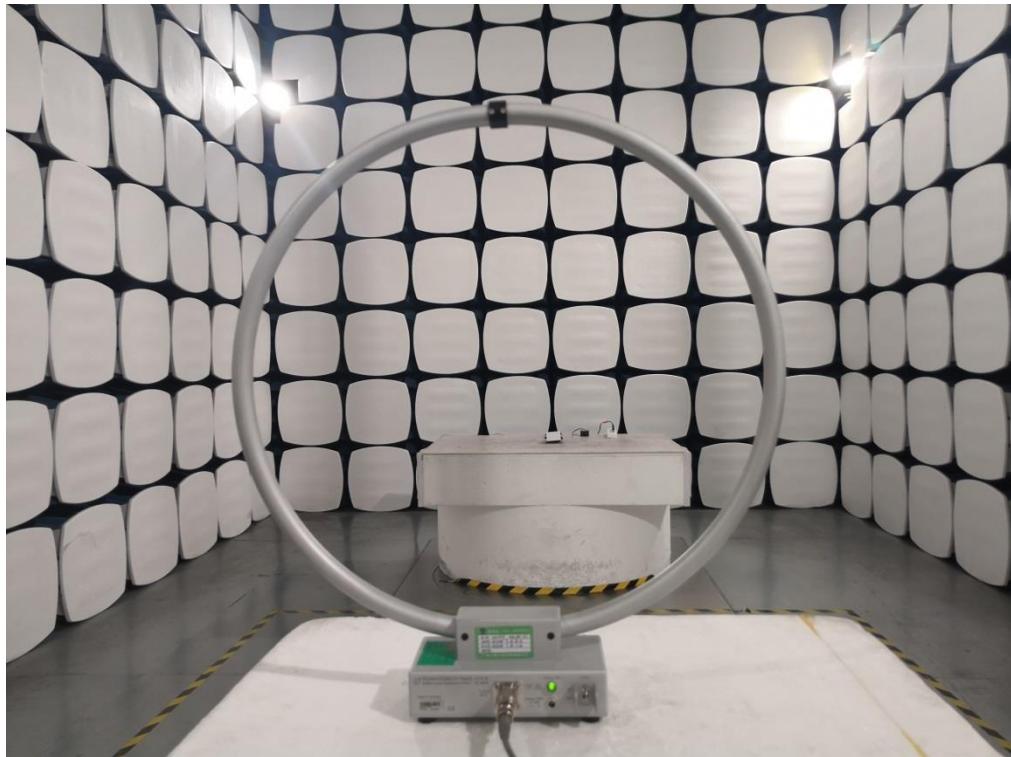
Freq MHz	Read Level dBuV	LISN Factor	Cable Loss dB	Level dBuV	Limit Line dBuV	Over Limit dB	Over Remark
	MHz	dBuV	dB	dB	dBuV	dB	dB
1	0.158	35.27	-0.68	10.77	45.36	65.56	-20.20 QP
2	0.170	33.62	-0.68	10.77	43.71	64.94	-21.23 QP
3	0.182	30.97	-0.69	10.77	41.05	64.42	-23.37 QP
4	0.182	16.38	-0.69	10.77	26.46	54.42	-27.96 Average
5	0.393	28.84	-0.64	10.72	38.92	57.99	-19.07 QP
6	0.393	21.14	-0.64	10.72	31.22	47.99	-16.77 Average
7	0.535	24.88	-0.65	10.76	34.99	56.00	-21.01 QP
8	0.535	17.83	-0.65	10.76	27.94	46.00	-18.06 Average
9	0.994	21.42	-0.63	10.87	31.66	56.00	-24.34 QP
10	1.000	11.60	-0.63	10.87	21.84	46.00	-24.16 Average
11	1.662	10.22	-0.66	10.94	20.50	46.00	-25.50 Average
12	2.900	14.84	-0.67	10.92	25.09	46.00	-20.91 Average

Notes:

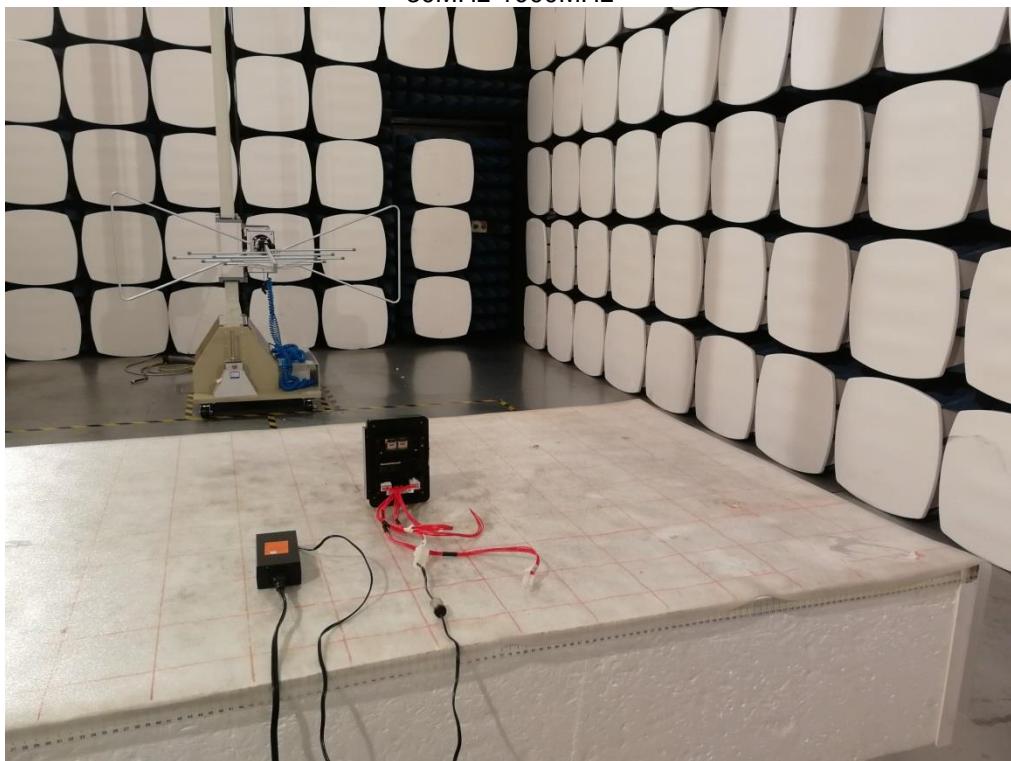
- An initial pre-scan was performed on the line and neutral lines with peak detector.
- Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- Final Level = Receiver Read level + LISN Factor + Cable Loss.

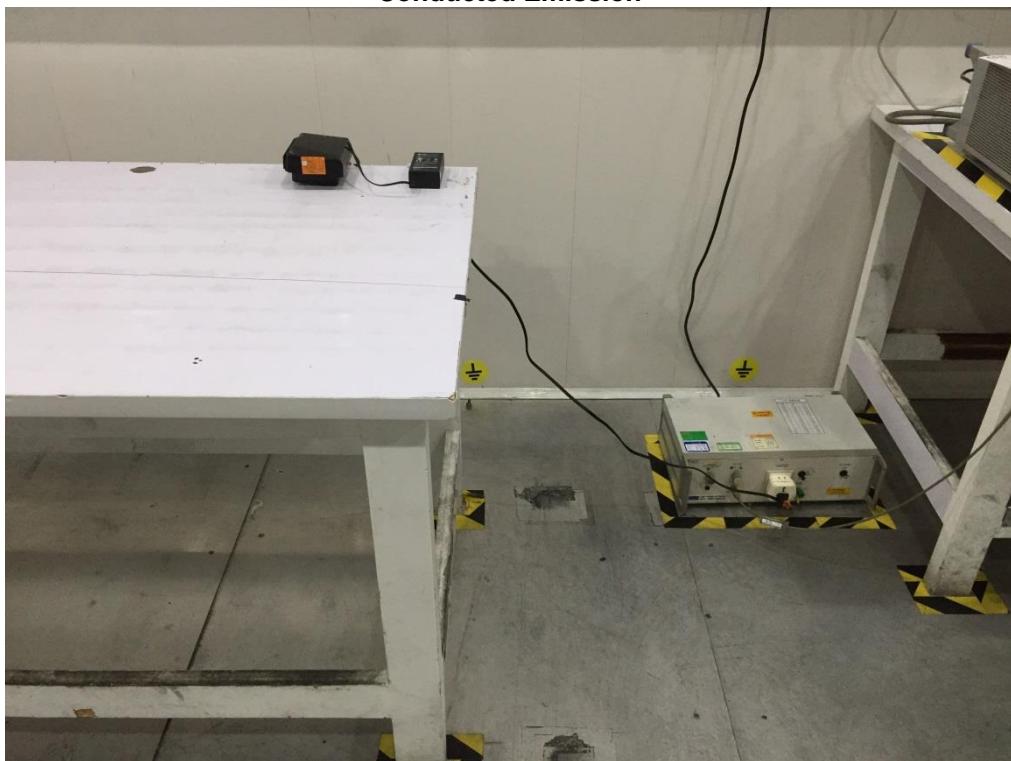
7 Test Setup Photos

Radiated Emission
9kHz-30MHz



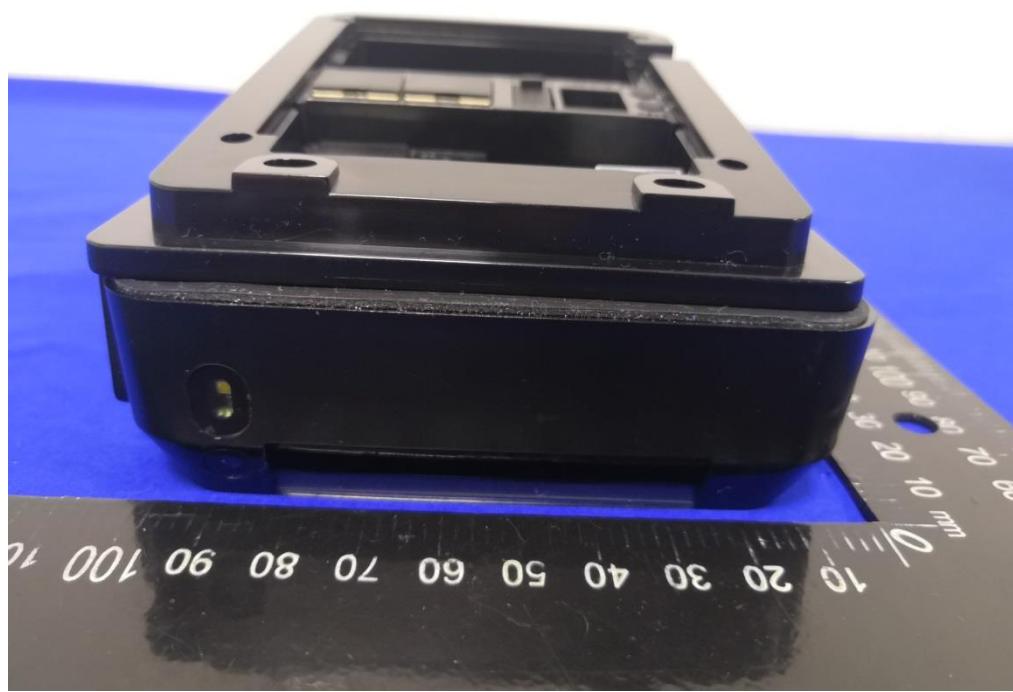
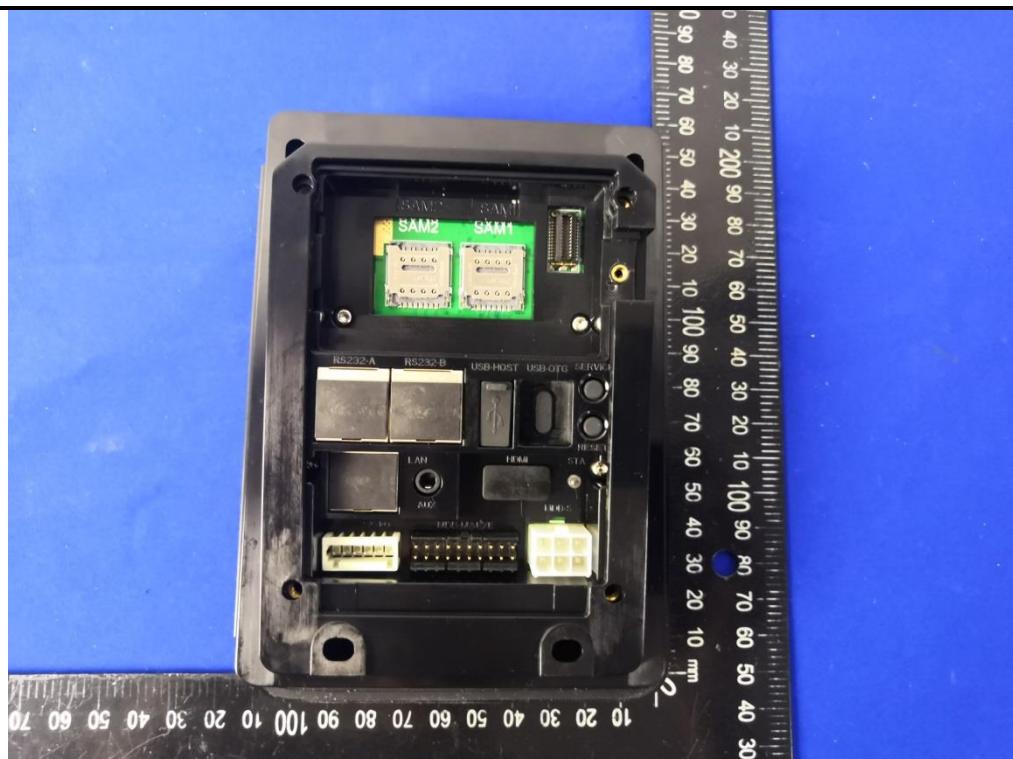
30MHz-1000MHz

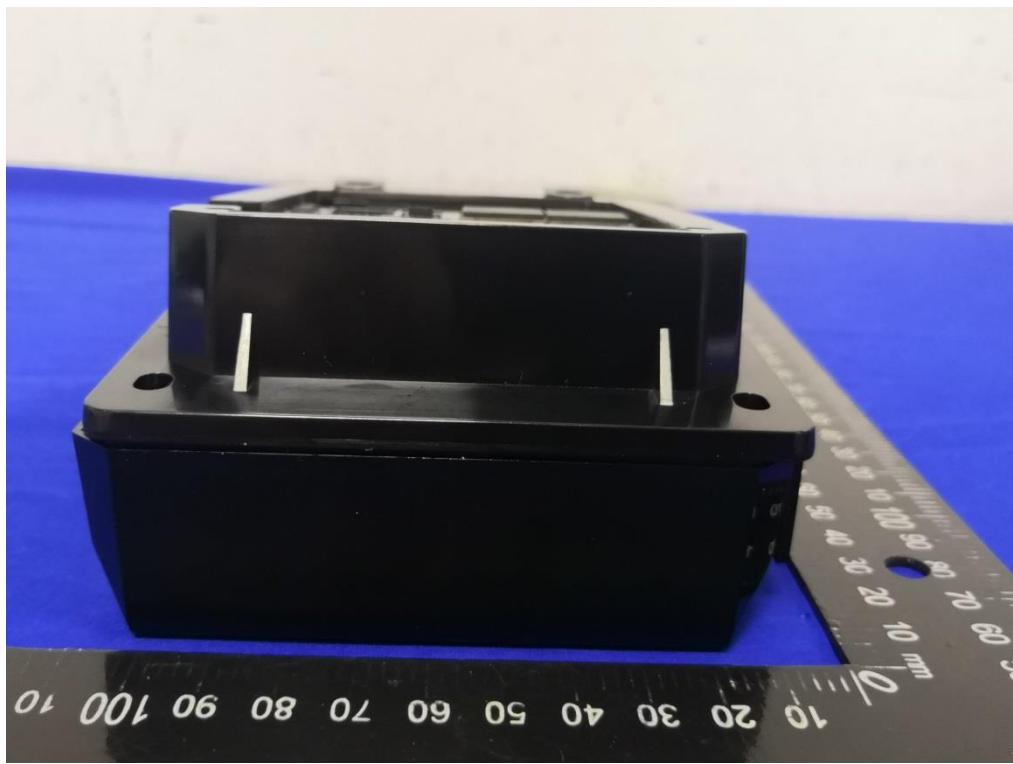


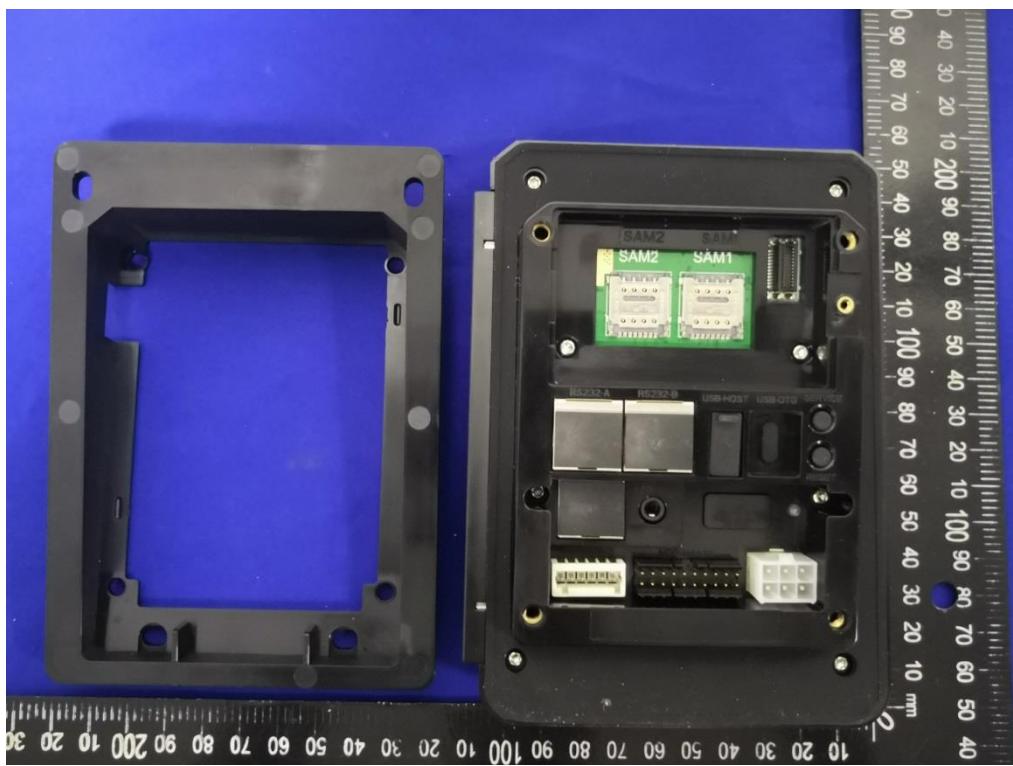
Conducted Emission

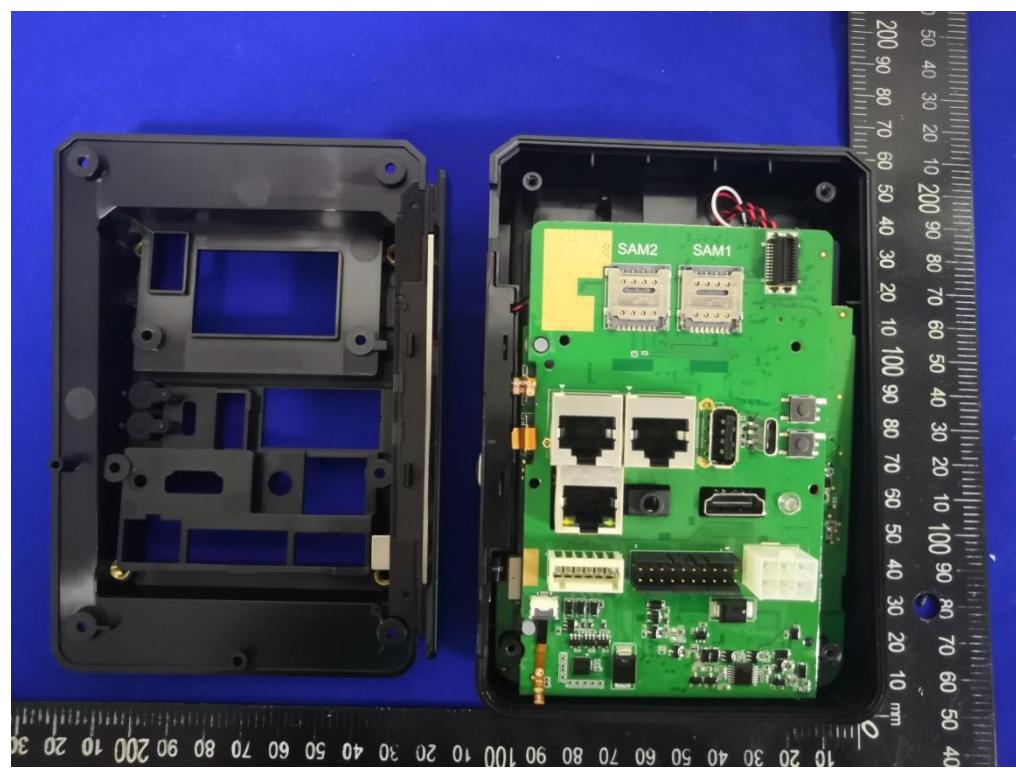
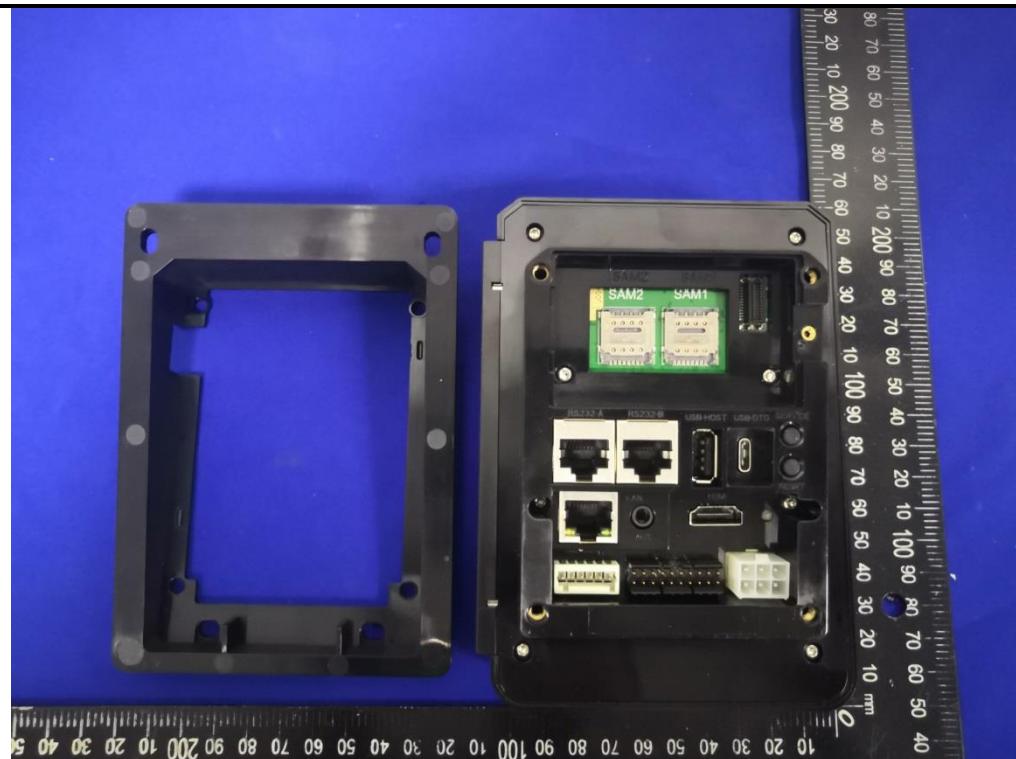
8 EUT Constructional Details

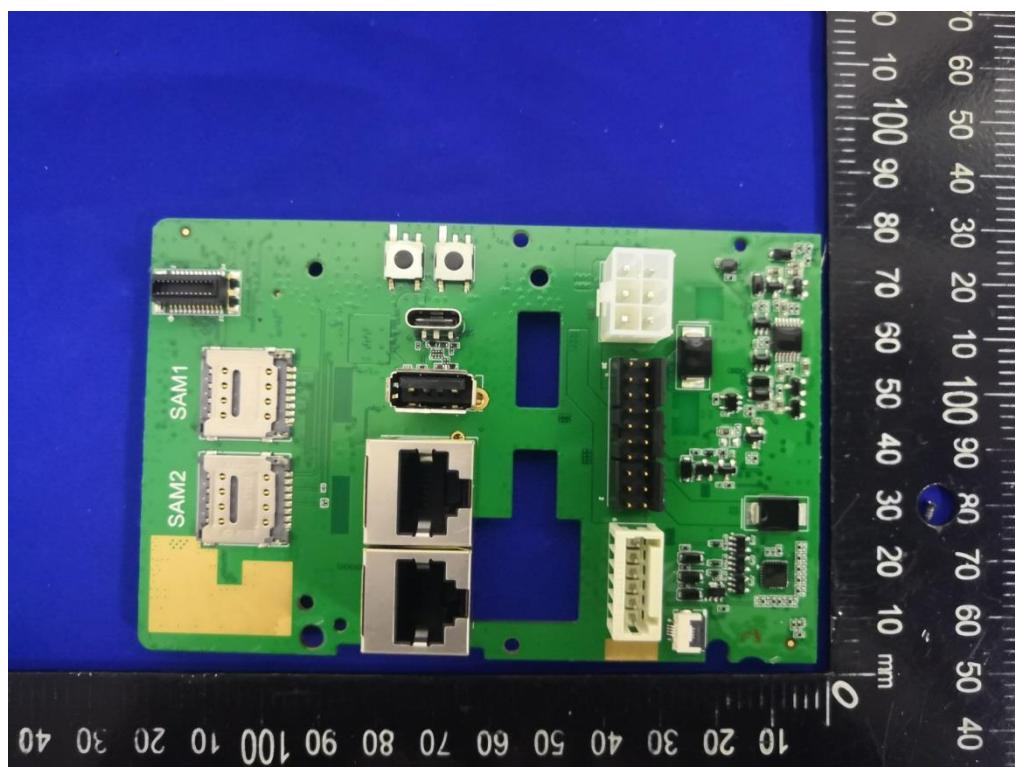
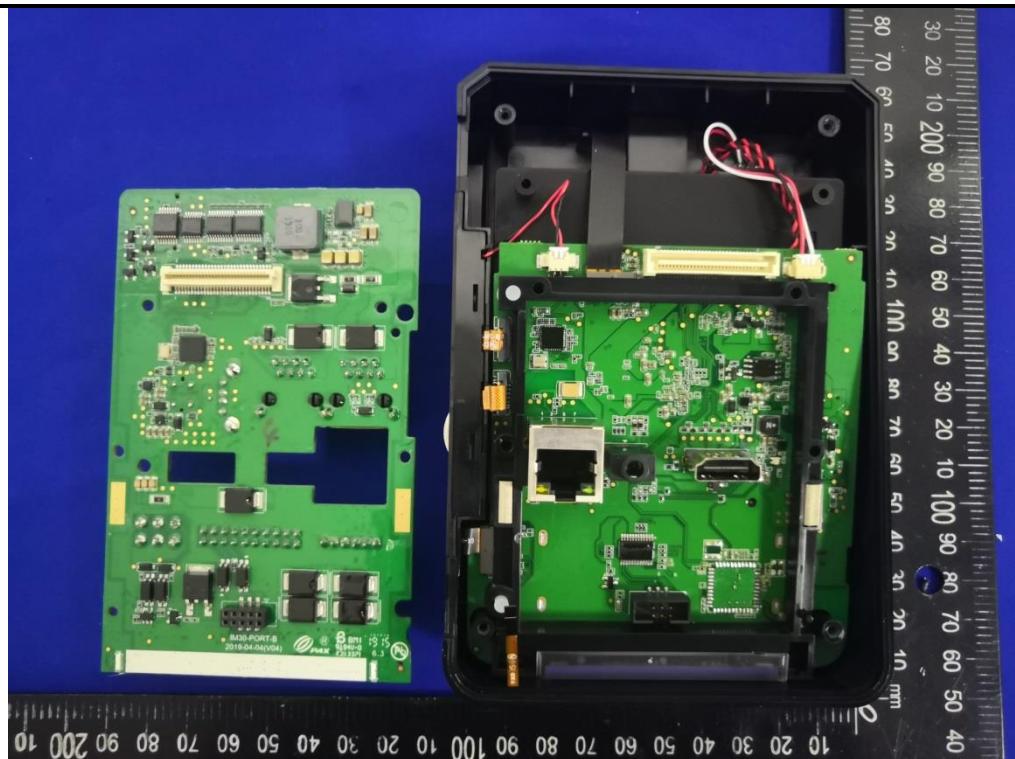


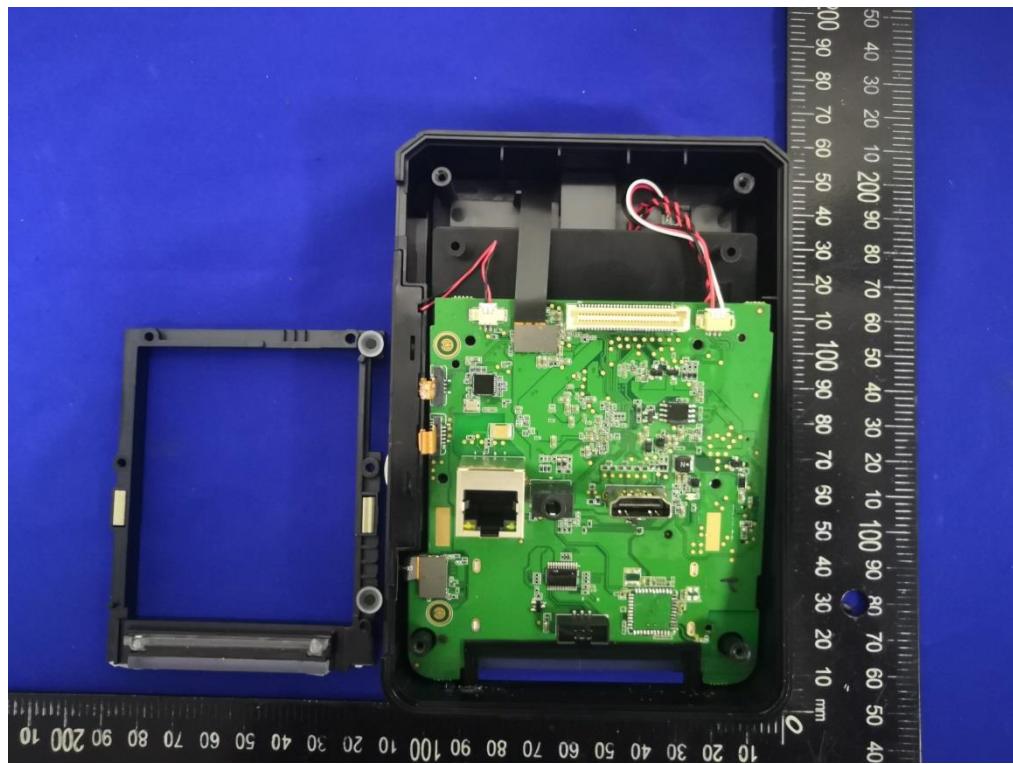
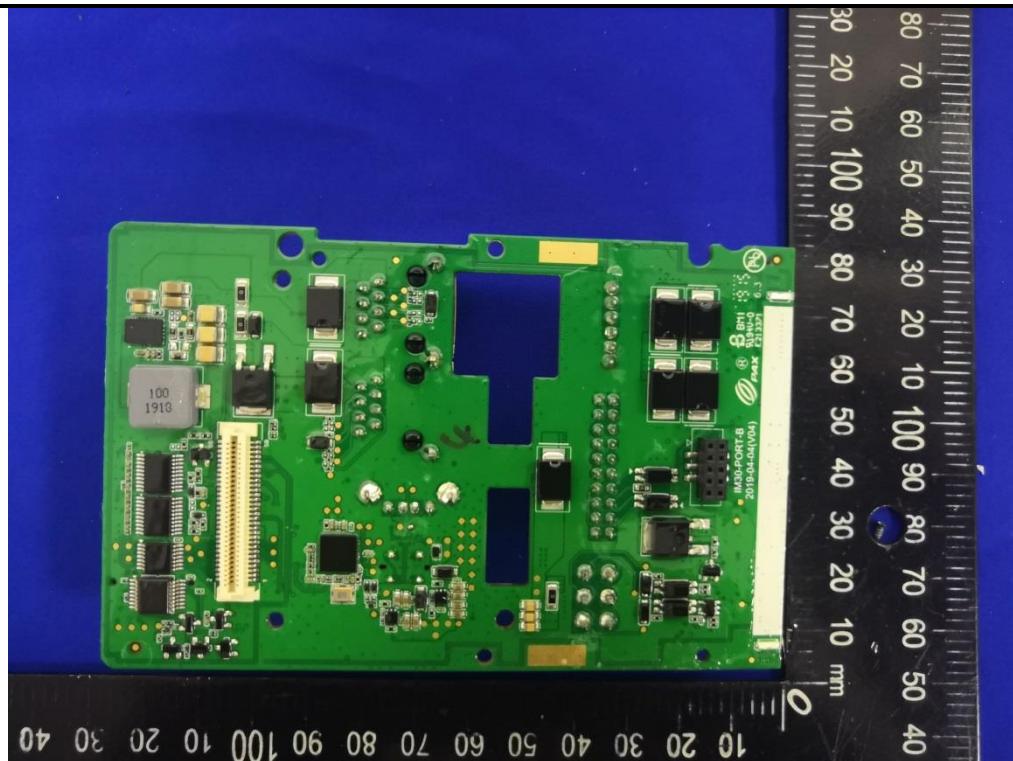


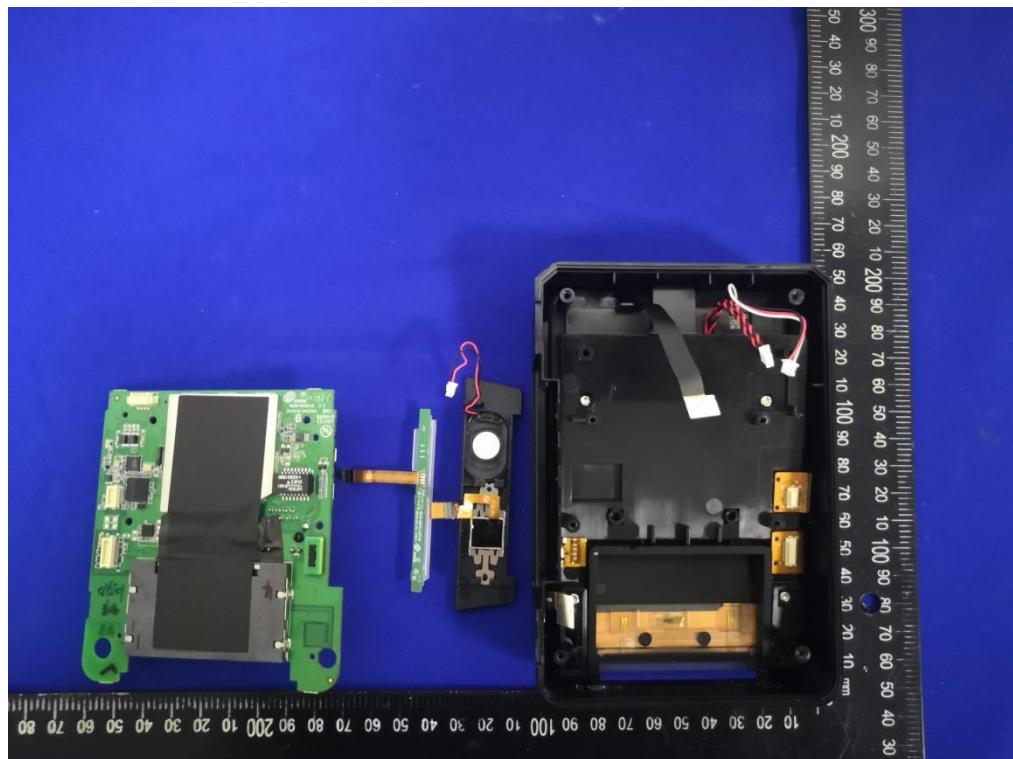
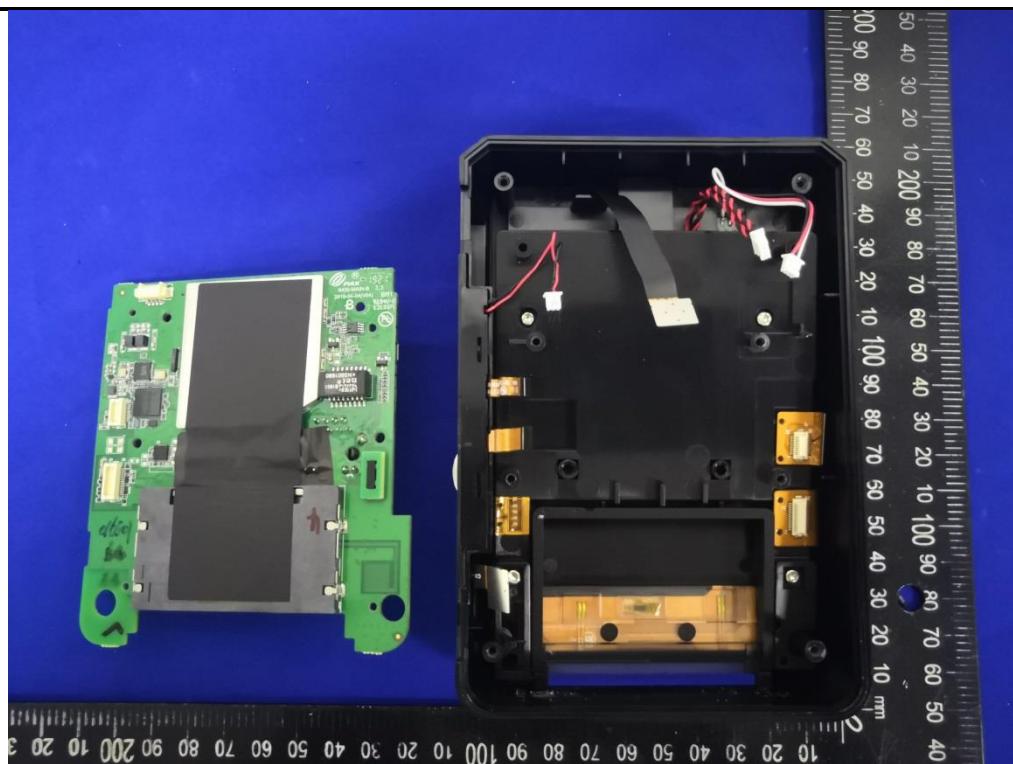


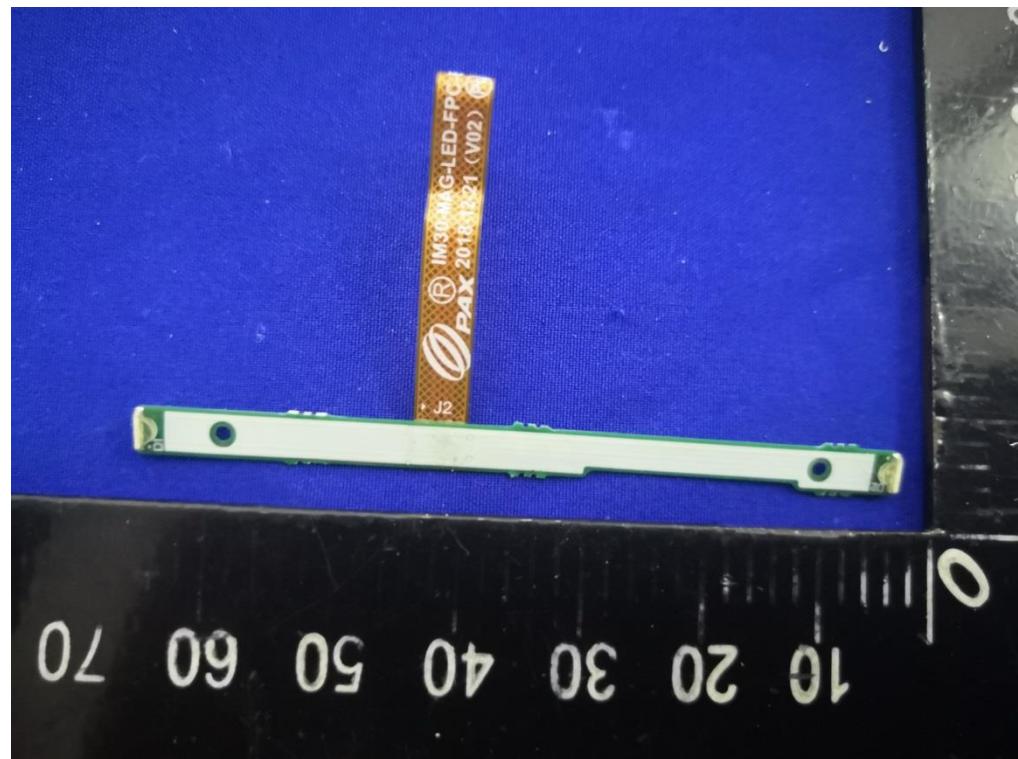
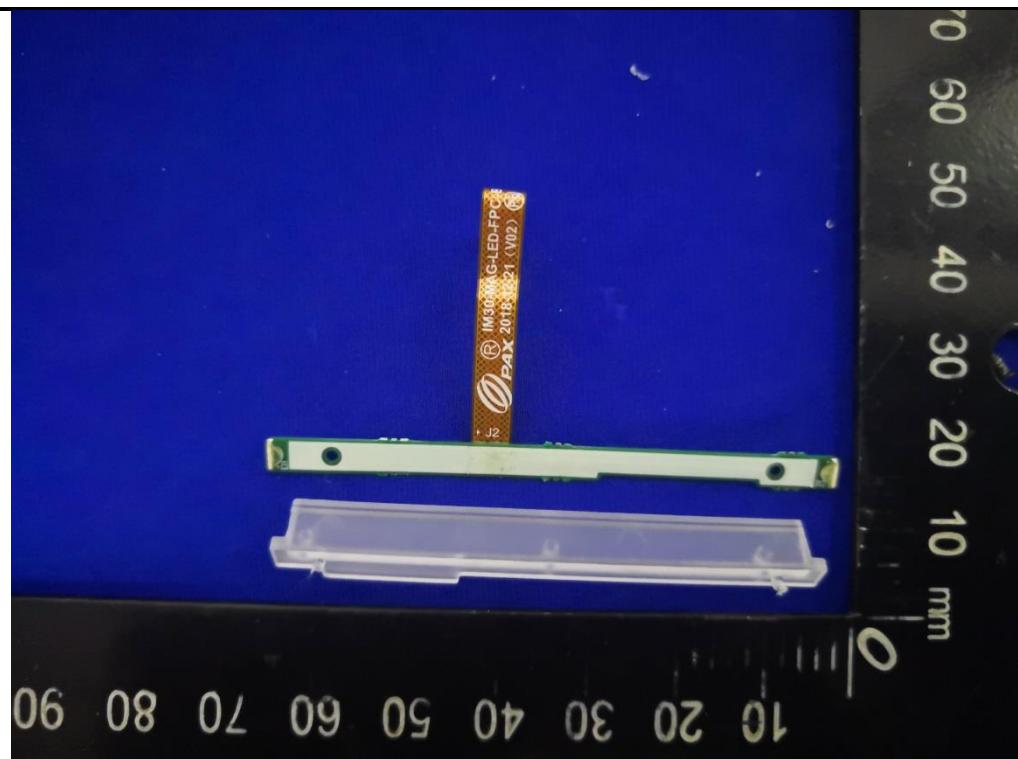


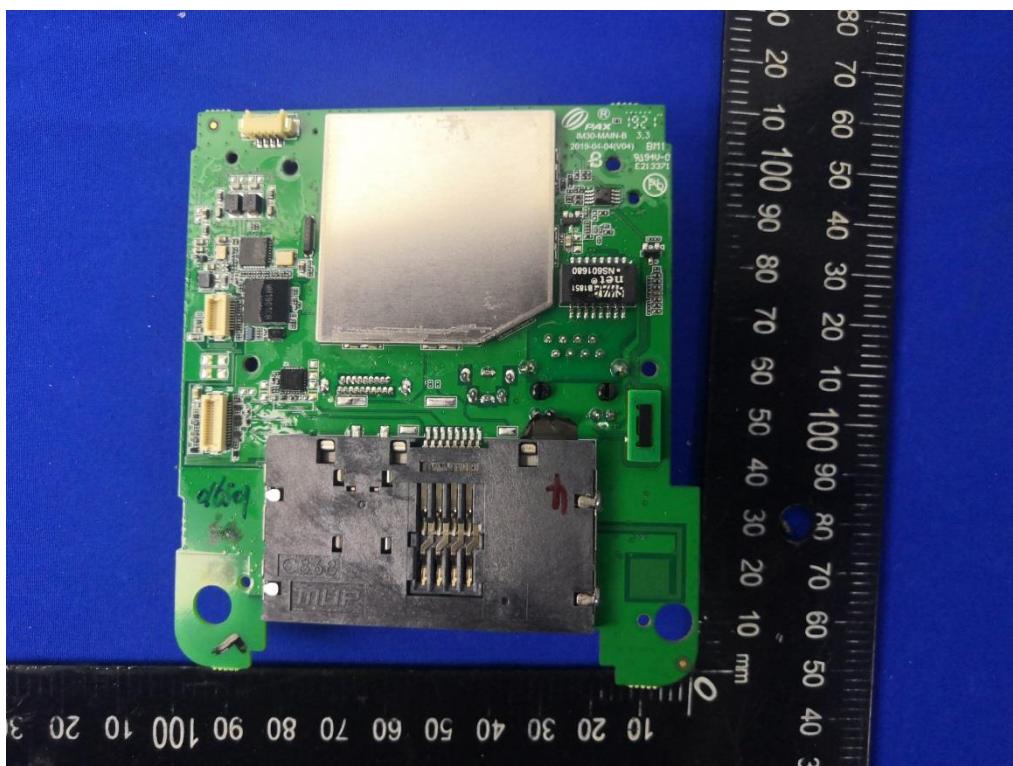
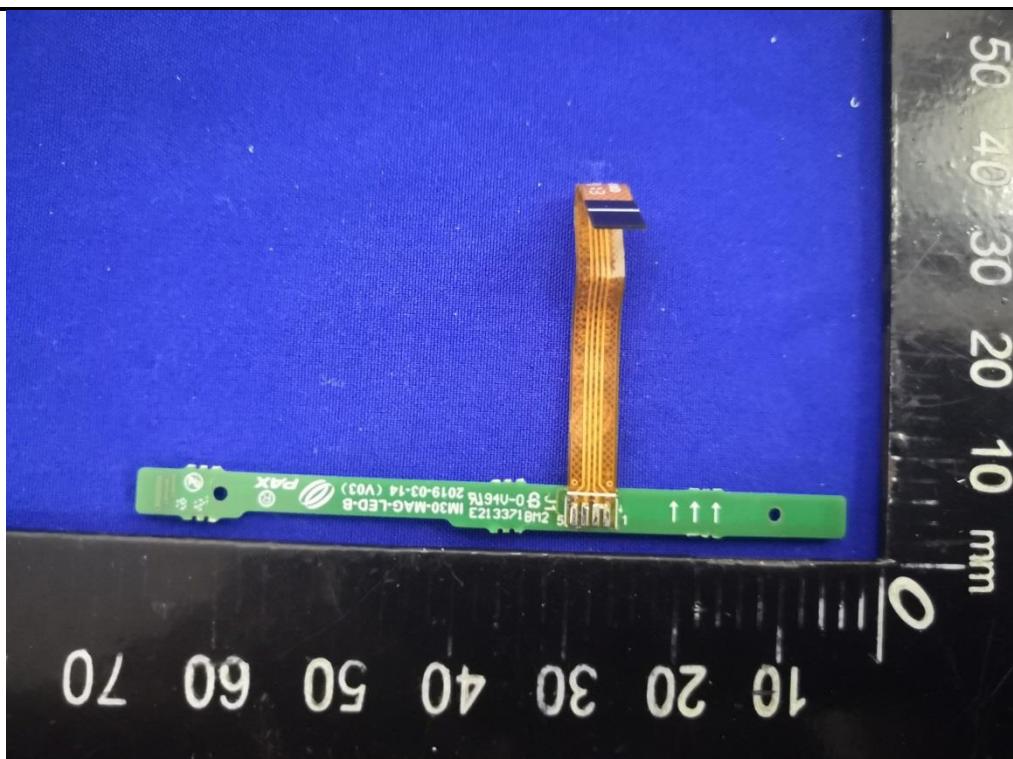


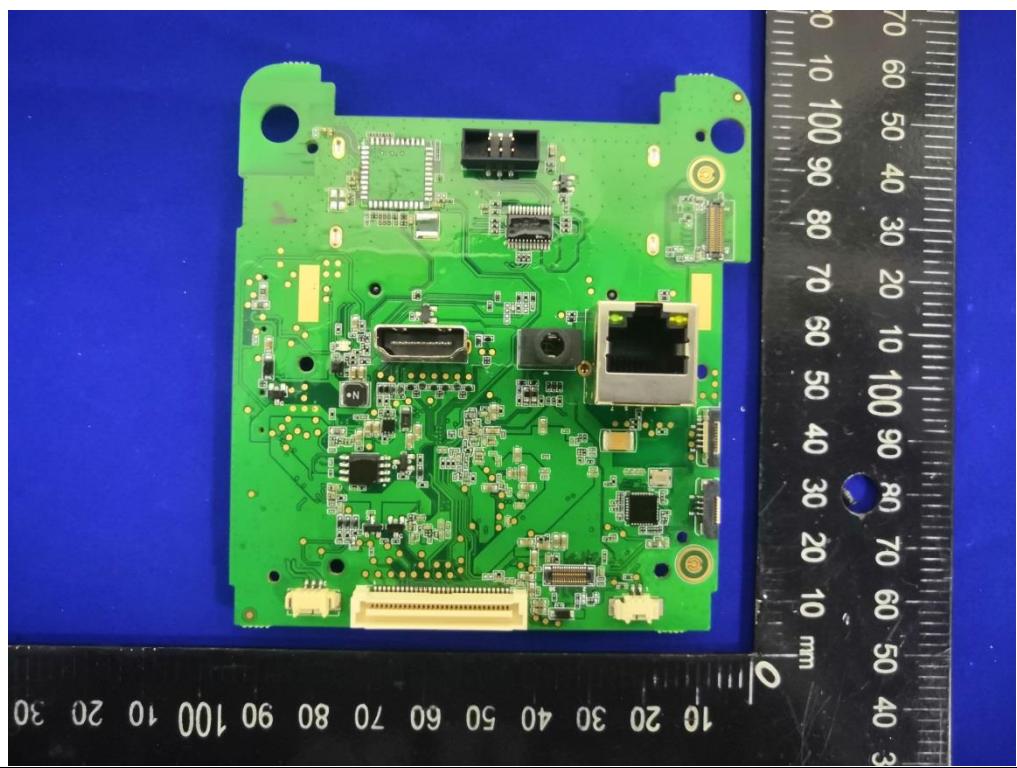
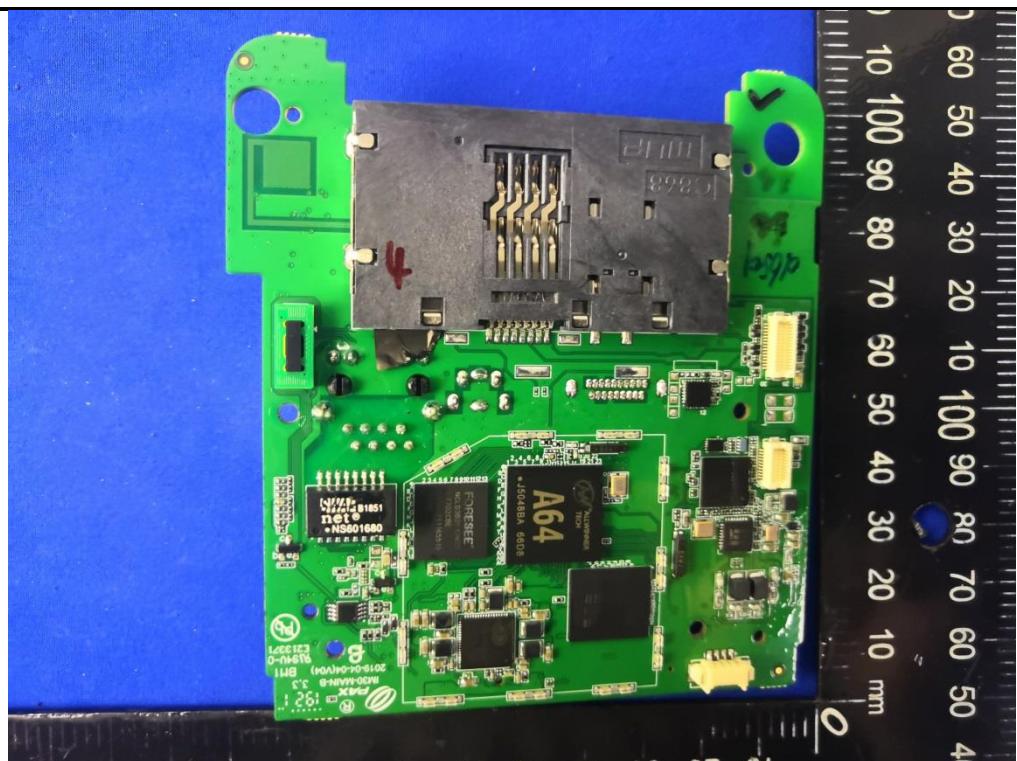


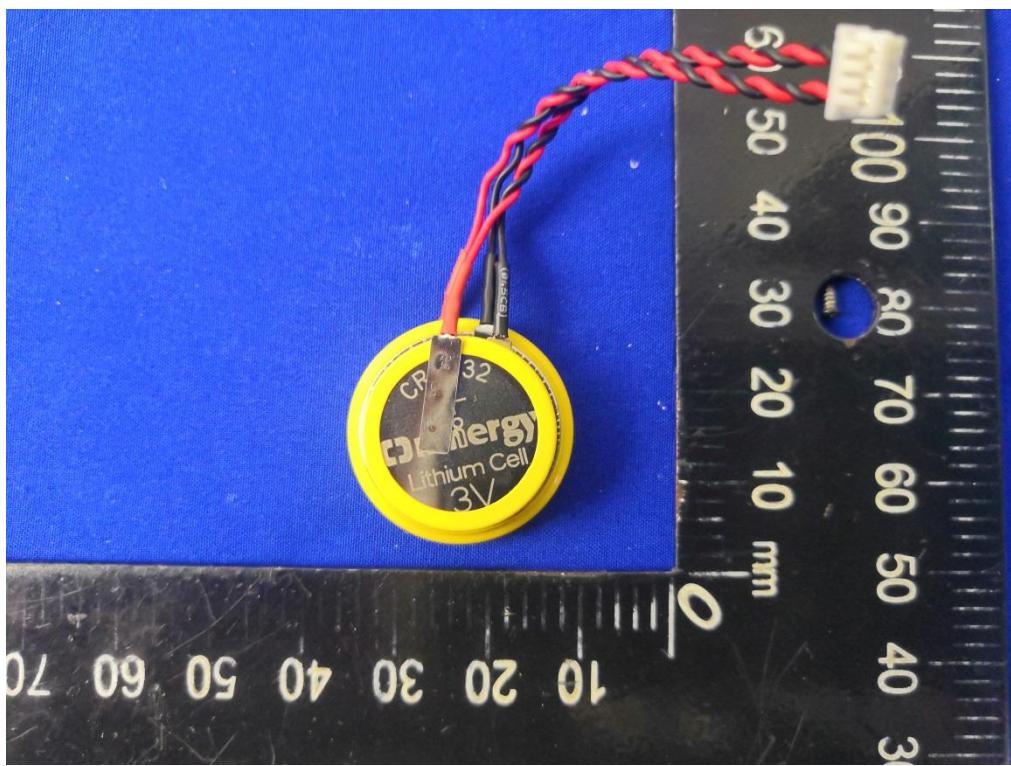
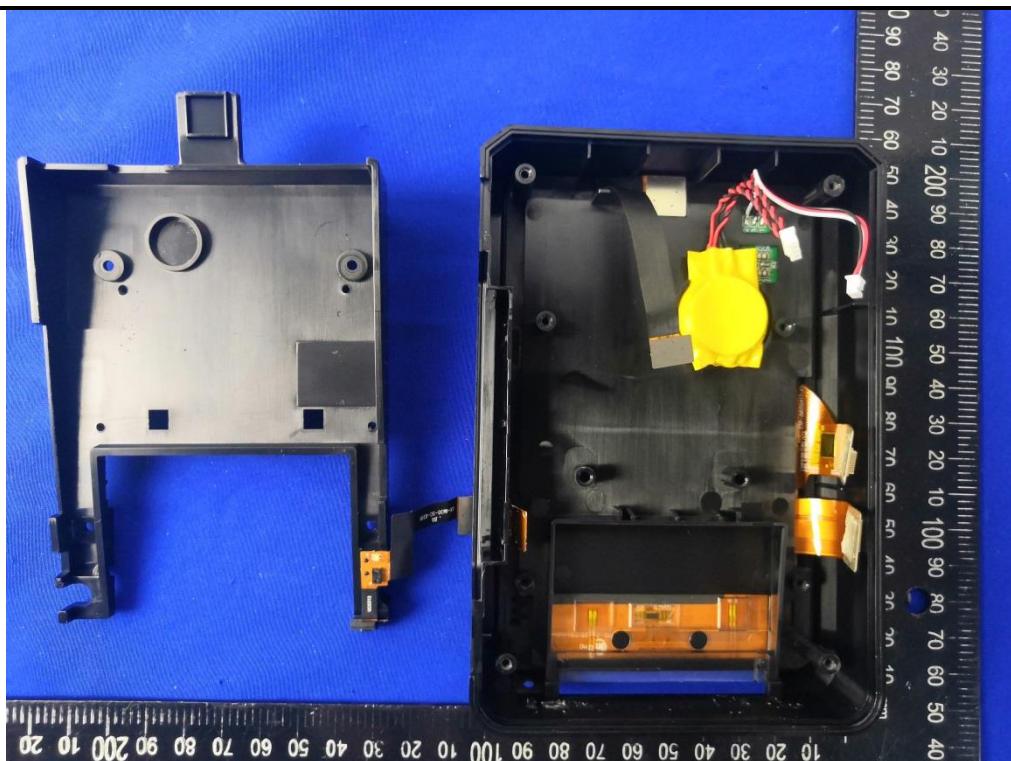


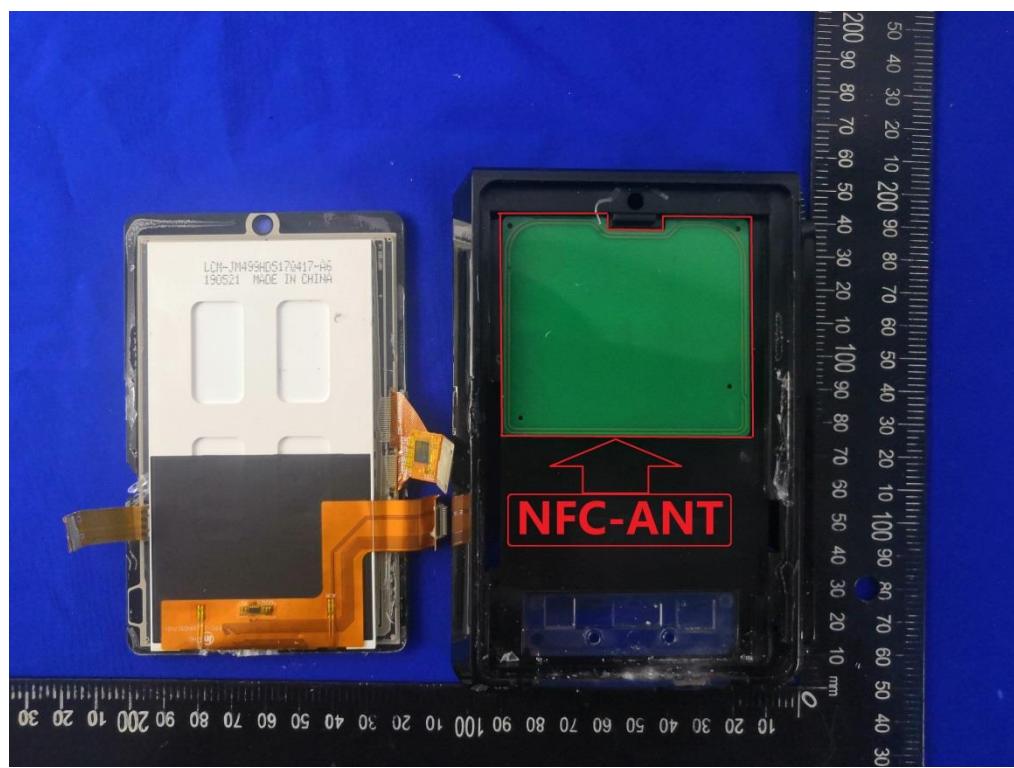
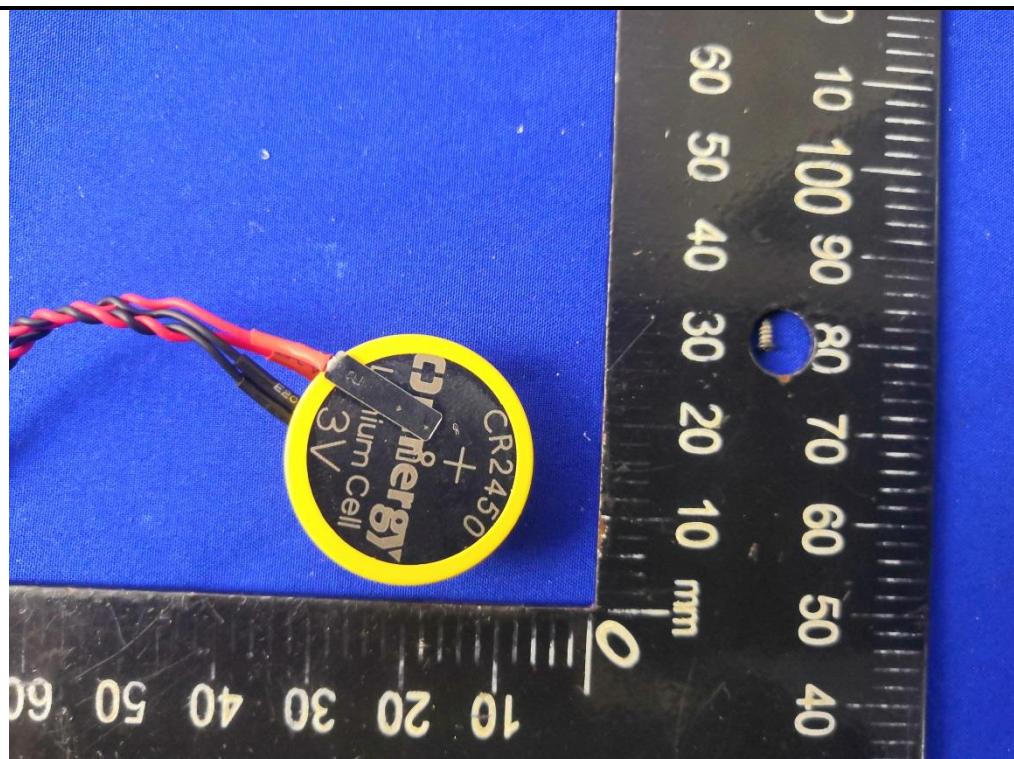


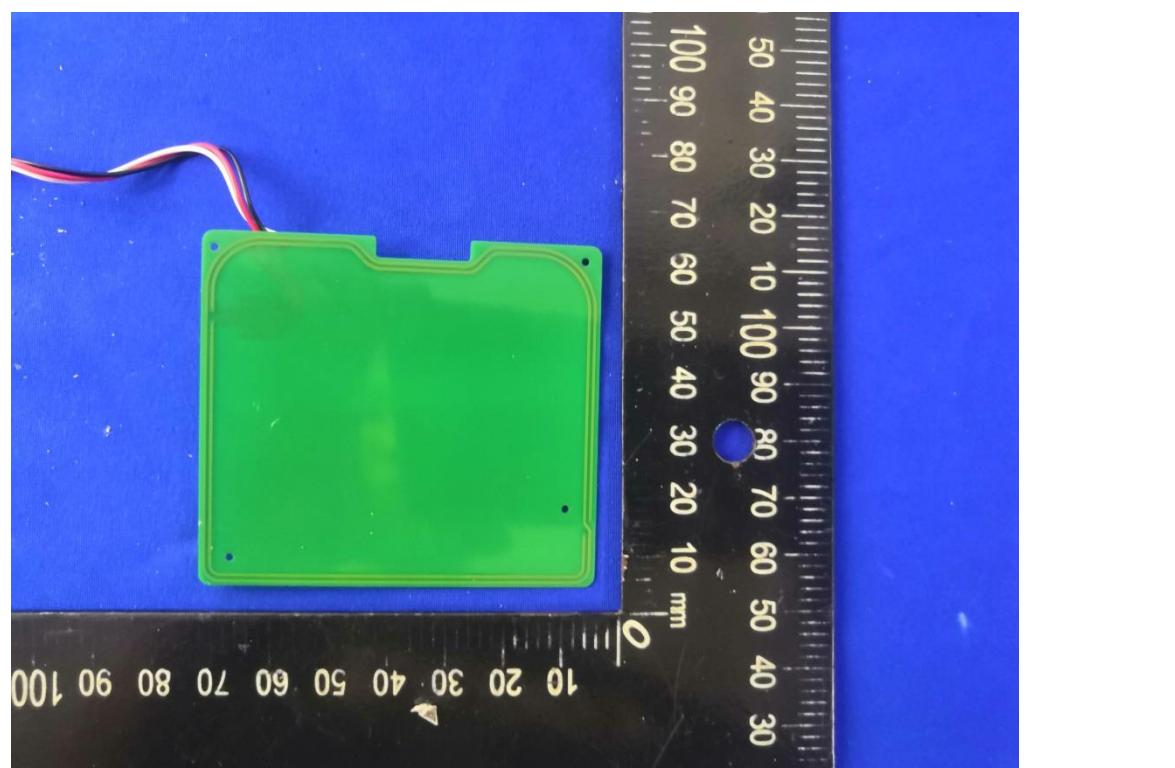


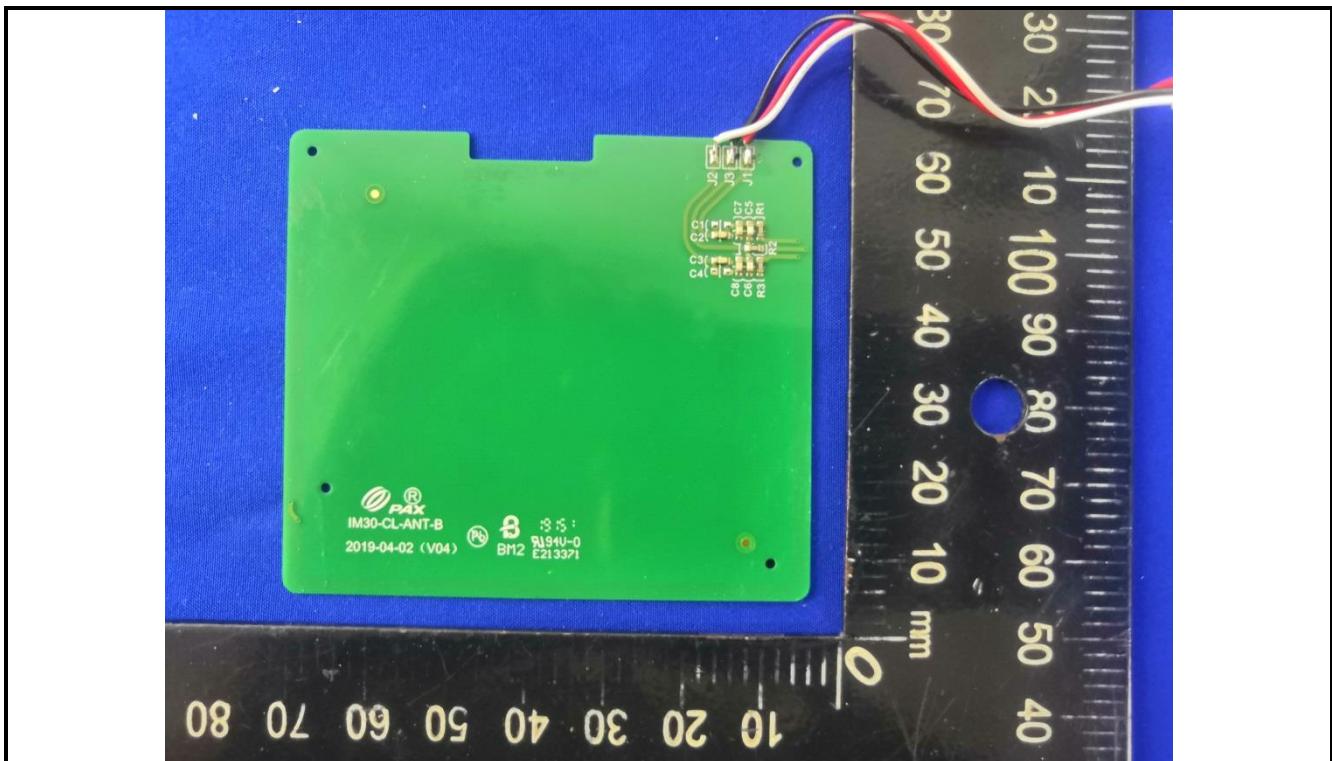












-----End of report-----