

## FCC REPORT

**Applicant:** Autel Intelligent Tech. Corp., Ltd.

**Address of Applicant:** 6th - 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd., Xili,  
Nanshan, Shenzhen, China

**Equipment Under Test (EUT)**

Product Name: MAXIPROGRAMMER 201

Model No.: XP201

Trade Mark: AUTEL

**FCC ID:** WQ8MXPRGXP201

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C:2015

**Date of sample receipt:** November 10, 2016

**Date of Test:** November 11-17, 2016

**Date of report issued:** November 18, 2016

**Test Result :** PASS \*

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

Authorized Signature:



**Robinson Lo**

**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 GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

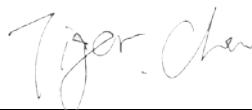
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## 2 Version

Version No.	Date	Description
00	November 18, 2016	Original

Prepared By:

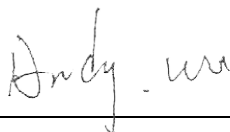


Date:

November 18, 2016

Project Engineer

Check By:



Date:

November 18, 2016

Reviewer

## 3 Contents

Page

1	COVER PAGE.....	1
2	VERSION.....	2
3	CONTENTS .....	3
4	TEST SUMMARY .....	4
4.1	MEASUREMENT UNCERTAINTY .....	4
5	GENERAL INFORMATION.....	5
5.1	CLIENT INFORMATION .....	5
5.2	GENERAL DESCRIPTION OF EUT .....	5
5.3	TEST MODE .....	6
5.4	DESCRIPTION OF SUPPORT UNITS .....	6
5.5	TEST FACILITY.....	6
5.6	TEST LOCATION .....	6
5.7	OTHER INFORMATION REQUESTED BY THE CUSTOMER .....	6
6	TEST INSTRUMENTS LIST .....	7
7	TEST RESULTS AND MEASUREMENT DATA.....	9
7.1	ANTENNA REQUIREMENT:.....	9
7.2	CONDUCTED EMISSIONS .....	10
7.3	RADIATED EMISSION METHOD .....	13
7.4	20dB OCCUPY BANDWIDTH .....	18
8	TEST SETUP PHOTO .....	19
9	EUT CONSTRUCTIONAL DETAILS .....	21

## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Radiated Emission	15.209	Pass
20dB Bandwidth	15.205	Pass

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

*Remark: Test according to ANSI C63.10 2013 and ANSI C63.4: 2014*

### 4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	$\pm 4.34\text{dB}$	(1)
Radiated Emission	30MHz ~ 1000MHz	$\pm 4.24\text{dB}$	(1)
Radiated Emission	1GHz ~ 26.5GHz	$\pm 4.68\text{dB}$	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	$\pm 3.45\text{dB}$	(1)

Note (1): The measurement uncertainty is for coverage factor of  $k=2$  and a level of confidence of 95%.

## 5 General Information

### 5.1 Client Information

Applicant:	Autel Intelligent Tech. Corp., Ltd.
Address of Applicant:	6th - 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd., Xili, Nanshan, Shenzhen, China
Manufacturer/ Factory:	Autel Intelligent Tech. Corp., Ltd.
Address of Manufacturer/ Factory:	6th - 10th Floor, Bldg. B1, Zhiyuan, Xueyuan Rd., Xili, Nanshan, Shenzhen, China

### 5.2 General Description of EUT

Product Name:	MAXIPROGRAMMER 201
Model No.:	XP201
Operation Frequency:	125KHz
Modulation type:	ASK
Antenna Type:	Integral antenna
Antenna gain:	0dBi (declared by manufacturer)
Power supply:	DC 5.0V,0.5A

Note:

In section 15.31(m), regards to the operating frequency range less than 1 MHz, only the middle frequency of channel was selected to perform the test, and the selected channel see below:

Channel	Frequency
Test channel	125KHz

### 5.3 Test mode

Transmitting mode	Keep the EUT in continuously transmitting and charging mode
-------------------	---

### 5.4 Description of Support Units

Manufacturer	Description	Model	Serial Number	FCC Approval
Autel	MaxiSys mini C	MY905C	N/A	WQ8MAXISYSMY905 C

### 5.5 Test Facility

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

- **FCC —Registration No.: 600491**

Global United Technology Services 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 files. Registration 600491, June 22, 2016.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

### 5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

### 5.7 Other Information Requested by the Customer

None.

## 6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.0(L)*6.0(W)* 6.0(H)	GTS250	July. 03 2015	July. 02 2020
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	Spectrum Analyzer	Agilent	E4440A	GTS533	Jun. 29 2016	Jun. 28 2017
4	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	Jun. 29 2016	Jun. 28 2017
5	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	Jun. 29 2016	Jun. 28 2017
6	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	Jun. 29 2016	Jun. 28 2017
7	Horn Antenna	ETS-LINDGREN	3160	GTS217	Jun. 29 2016	Jun. 28 2017
8	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
9	Coaxial Cable	GTS	N/A	GTS213	Jun. 29 2016	Jun. 28 2017
10	Coaxial Cable	GTS	N/A	GTS211	Jun. 29 2016	Jun. 28 2017
11	Coaxial cable	GTS	N/A	GTS210	Jun. 29 2016	Jun. 28 2017
12	Coaxial Cable	GTS	N/A	GTS212	Jun. 29 2016	Jun. 28 2017
13	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	Jun. 29 2016	Jun. 28 2017
14	Amplifier(2GHz-20GHz)	HP	8349B	GTS206	Jun. 29 2016	Jun. 28 2017
15	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	Jun. 29 2016	Jun. 28 2017
16	Band filter	Amindeon	82346	GTS219	Jun. 29 2016	Jun. 28 2017


Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	GTS252	May.16 2014	May.15 2019
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 29 2016	June. 28 2017
3	Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June. 29 2016	June. 28 2017
4	Artificial Mains Network	SCHWARZBECK MESS	NSLK8127	GTS226	June. 29 2016	June. 28 2017
5	Coaxial Cable	GTS	N/A	GTS227	N/A	N/A
6	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
7	Thermo meter	KTJ	TA328	GTS233	June. 29 2016	June. 28 2017

General used equipment:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	Barometer	ChangChun	DYM3	GTS257	Jun. 29 2016	Jun. 28 2017



## 7 Test results and Measurement Data

### 7.1 Antenna requirement:

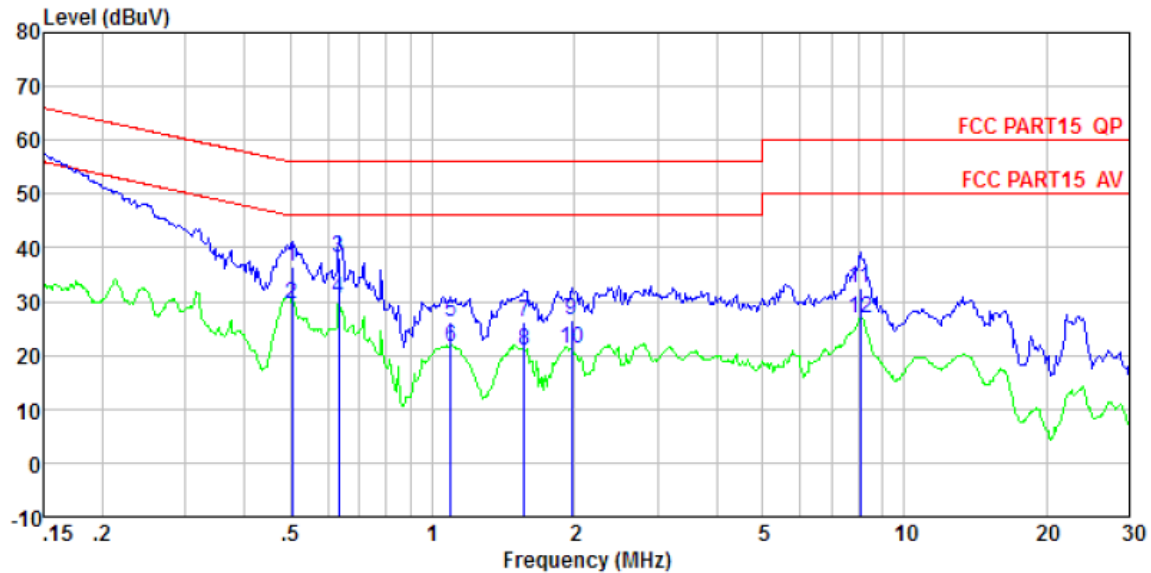
<b>Standard requirement:</b>	FCC Part15 C Section 15.203
<b>15.203 requirement:</b> An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses 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.	
<b>E.U.T Antenna:</b> <p><i>The antenna is Integral Antenna, the best case gain of the antenna is 0dBi</i></p> 	

## 7.2 Conducted Emissions

Test Requirement:	FCC Part15 C Section 15.207			
Test Method:	ANSI C63.10:2013			
Test Frequency Range:	150KHz to 30MHz			
Class / Severity:	Class B			
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto			
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 setup:	<div><p style="text-align: center;"><b>Reference Plane</b></p><p>Remark: E.U.T: Equipment Under Test LISN: Line Impedance Stabilization Network Test table height=0.8m</p></div>			
Test procedure:	<div><ol style="list-style-type: none"><li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li><li>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).</li><li>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 C63.10:2013 on conducted measurement.</li></ol></div>			
Test Instruments:	Refer to section 6.0 for details			
Test mode:	Refer to section 5.3 for details			
Test results:	Pass			

## Measurement data

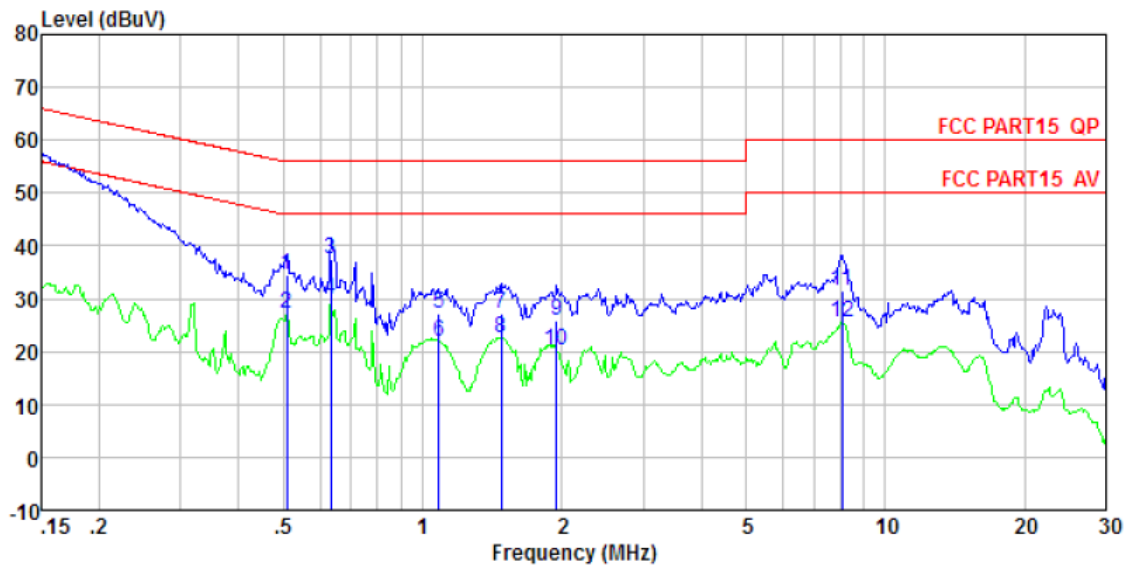
Line:



Site : Shielded room  
 Condition : FCC PART15 QP LISN-2016 LINE  
 Job No. : GTS201611000101  
 Test mode : Transmitting mode (125KHz)  
 Test Engineer: Boy

	Freq	Read	Cable	LISN	Level	Limit	Over	
	MHz	Level	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.505	35.88	0.11	0.38	36.37	56.00	-19.63	QP
2	0.505	29.18	0.11	0.38	29.67	46.00	-16.33	Average
3	0.634	37.63	0.13	0.30	38.06	56.00	-17.94	QP
4	0.634	30.13	0.13	0.30	30.56	46.00	-15.44	Average
5	1.094	25.95	0.13	0.25	26.33	56.00	-29.67	QP
6	1.094	21.33	0.13	0.25	21.71	46.00	-24.29	Average
7	1.568	25.92	0.14	0.21	26.27	56.00	-29.73	QP
8	1.568	20.61	0.14	0.21	20.96	46.00	-25.04	Average
9	1.970	26.23	0.14	0.20	26.57	56.00	-29.43	QP
10	1.970	21.03	0.14	0.20	21.37	46.00	-24.63	Average
11	8.062	32.16	0.18	0.22	32.56	60.00	-27.44	QP
12	8.062	26.43	0.18	0.22	26.83	50.00	-23.17	Average

Neutral:



Site : Shielded room  
Condition : FCC PART15 QP LISN-2016 NEUTRAL  
Job No. : GTS201611000101  
Test mode : Transmitting mode (125KHz)  
Test Engineer: Boy

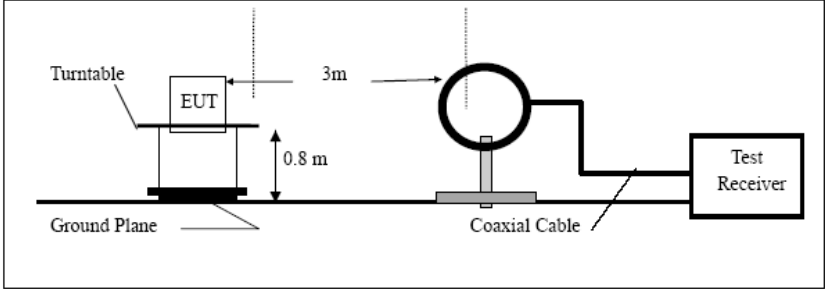
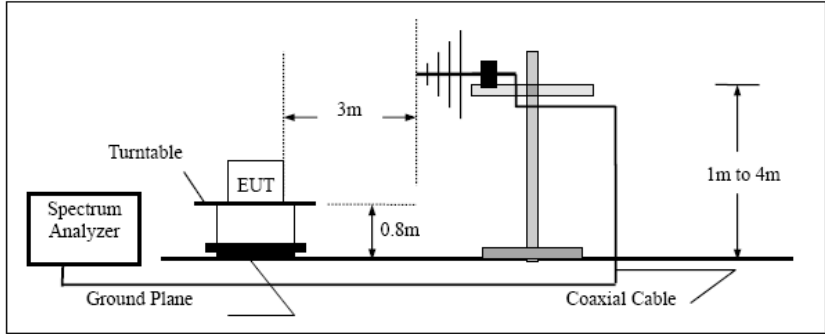
	Read	Cable	LISN	Limit	Over	
Freq	Level	Loss	Factor	Line	Limit	Remark
MHz	dBuV	dB	dB	dBuV	dB	
1	0.510	34.05	0.11	0.34	34.50	56.00 -21.50 QP
2	0.510	26.76	0.11	0.34	27.21	46.00 -18.79 Average
3	0.634	37.16	0.13	0.26	37.55	56.00 -18.45 QP
4	0.634	29.37	0.13	0.26	29.76	46.00 -16.24 Average
5	1.082	26.70	0.13	0.21	27.04	56.00 -28.96 QP
6	1.082	21.65	0.13	0.21	21.99	46.00 -24.01 Average
7	1.480	27.00	0.13	0.20	27.33	56.00 -28.67 QP
8	1.480	22.08	0.13	0.20	22.41	46.00 -23.59 Average
9	1.949	25.65	0.14	0.20	25.99	56.00 -30.01 QP
10	1.949	19.91	0.14	0.20	20.25	46.00 -25.75 Average
11	8.062	31.25	0.18	0.22	31.65	60.00 -28.35 QP
12	8.062	24.99	0.18	0.22	25.39	50.00 -24.61 Average

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level =Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

## 7.3 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.4:2014				
Test Frequency Range:	9kHz to 1GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz - 30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
	Remark: For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission test in these three bands are based on measurements employing an average detector.				
Limit: (Spurious Emissions)	<b>Limits for frequency below 30MHz</b>				
	Frequency	Limit (uV/m)	Measurement Distance(m)	Remark	
	0.009-0.490	2400/F(kHz)	300	Quasi-peak Value	
	0.490-1.705	24000/F(kHz)	30	Quasi-peak Value	
	1.705-30	30	30	Quasi-peak Value	
	<b>Limits for frequency Above 30MHz</b>				
	Frequency	Limit (dBuV/m @3m)	Remark		
	30MHz-88MHz	40.00	Quasi-peak Value		
	88MHz-216MHz	43.50	Quasi-peak Value		
	216MHz-960MHz	46.00	Quasi-peak Value		
960MHz-1GHz	54.00	Quasi-peak Value			
Above 1GHz	54.00	Average Value			
	74.00	Peak Value			
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.					
Test Procedure:	<div>1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</div> <div>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</div> <div>3. 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.</div> <div>4. 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 rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>6. 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</div>				

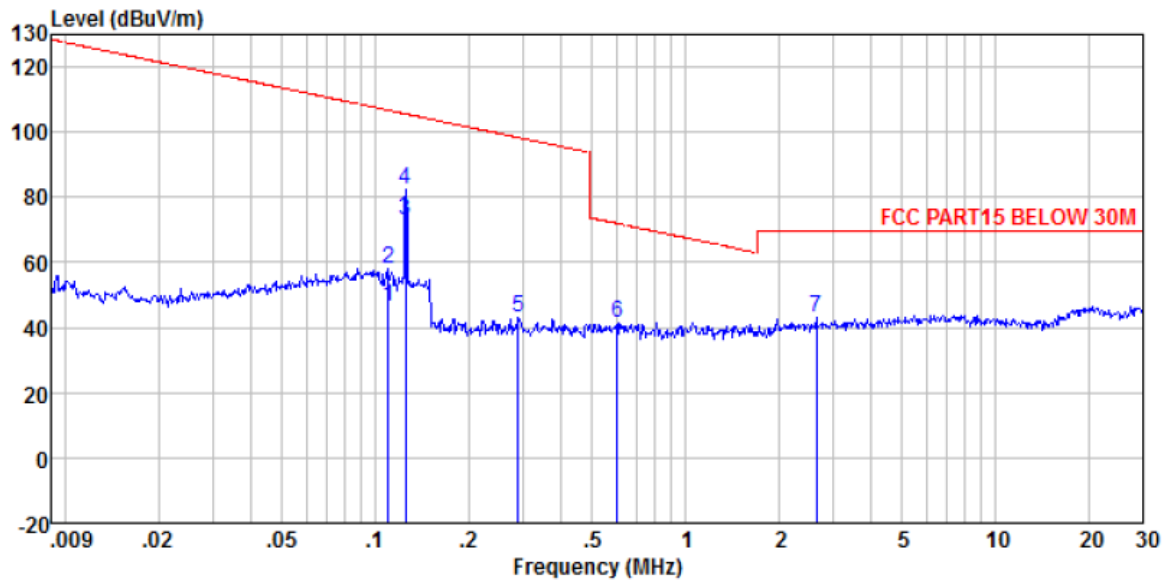
	<p>10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</p> <p>7. The radiation measurements are performed in X, Y, Z axis positioning. And found the Y axis positioning which it is worse case, only the test worst case mode is recorded in the report.</p>
Test setup:	<p>Below 30MHz</p>  <p>30MHz ~ 1000MHz</p> 
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

## Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

## 9kHz ~ 30MHz



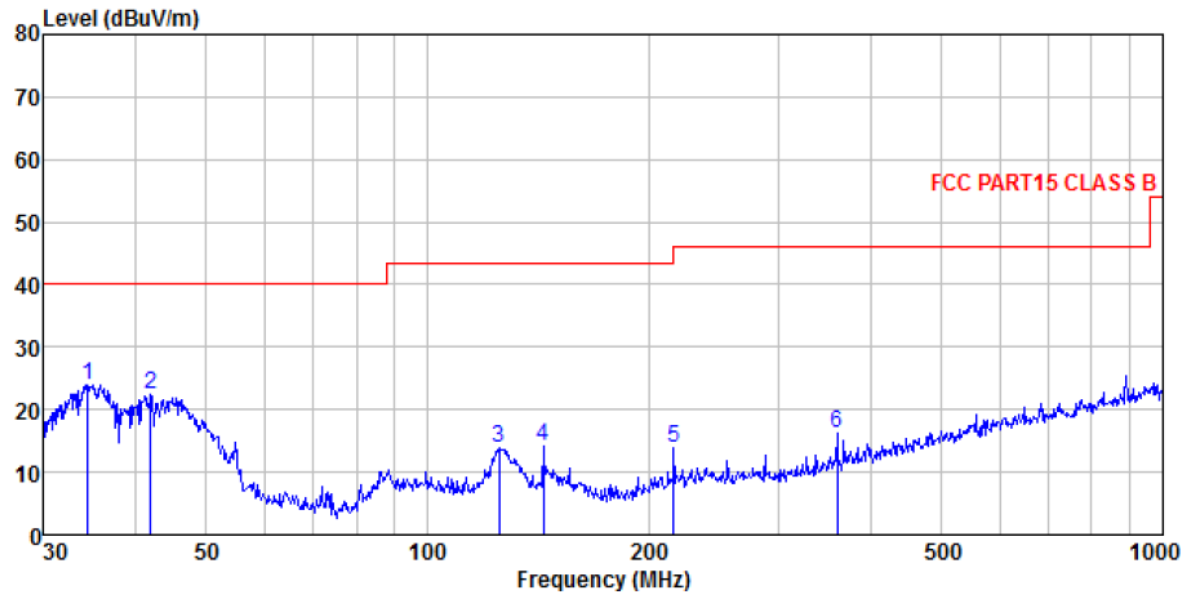
Site : 3m chamber  
Condition : FCC PART15 BELOW 30M 3m  
Job No. : 11000101  
Test Mode : Transmitting mode  
Test Engineer: Sky

	Freq	ReadAntenna	Cable	Level	Limit	Over	
	MHz	Level	Factor	Loss	dBuV/m	dBuV/m	dB
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB
1	0.110	21.90	24.12	0.17	46.19	106.78	-60.59 Average
2	0.110	33.61	24.12	0.17	57.90	106.78	-48.88 Peak
3	0.125	49.24	23.64	0.18	73.06	105.66	-32.60 Average
4	0.125	58.31	23.64	0.18	82.13	105.66	-23.53 Peak
5	0.289	21.56	21.49	0.24	43.29	98.38	-55.09 Peak
6	0.604	20.73	20.65	0.29	41.67	71.98	-30.31 Peak
7	2.650	21.91	21.05	0.39	43.35	69.54	-26.19 Peak



30MHz~1GHz

Vertical:

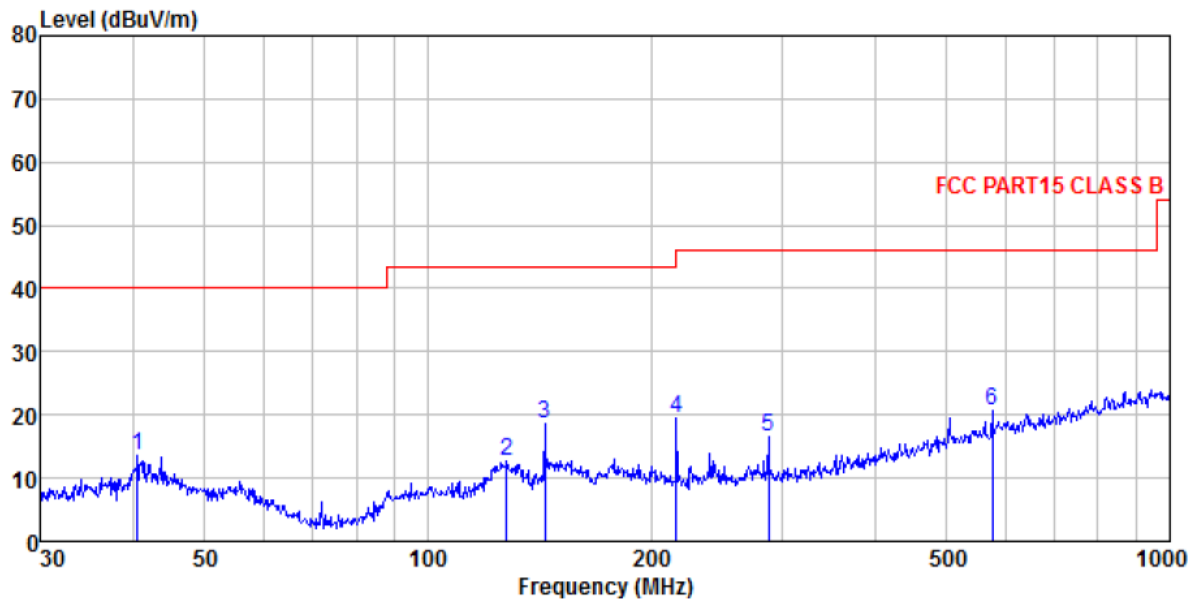


Site : 3m chamber  
Condition : FCC PART15 CLASS B 3m VERTICAL  
Job No. : 11000101  
Test Mode : Transmitting mode  
Test Engineer: Sky

	Freq	Read	Antenna	Cable	Preamp	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	34.517	42.26	11.20	0.60	30.10	23.96	40.00	-16.04 QP
2	42.007	39.51	12.27	0.69	30.10	22.37	40.00	-17.63 QP
3	125.007	33.40	8.75	1.40	29.71	13.84	43.50	-29.66 QP
4	143.830	34.96	7.37	1.53	29.62	14.24	43.50	-29.26 QP
5	216.024	30.61	10.78	1.93	29.52	13.80	46.00	-32.20 QP
6	360.448	28.83	14.68	2.67	29.84	16.34	46.00	-29.66 QP



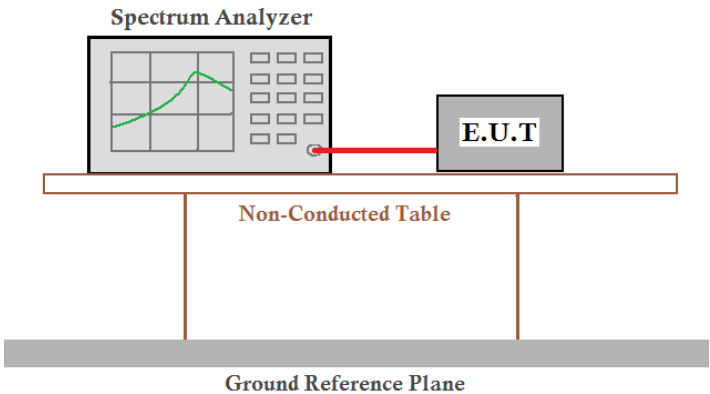
**Horizontal:**



Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m HORIZONTAL  
 Job No. : 11000101  
 Test Mode : Transmitting mode  
 Test Engineer: Sky

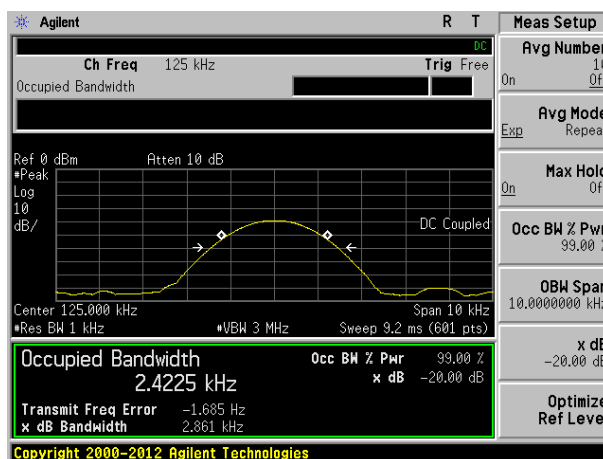
	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	40.559	30.72	12.27	0.67	30.10	13.56	40.00	-26.44	QP
2	127.665	32.40	8.43	1.42	29.69	12.56	43.50	-30.94	QP
3	143.830	39.41	7.37	1.53	29.62	18.69	43.50	-24.81	QP
4	216.024	36.39	10.78	1.93	29.52	19.58	46.00	-26.42	QP
5	287.990	31.19	13.11	2.31	30.10	16.51	46.00	-29.49	QP
6	576.644	27.58	18.88	3.63	29.42	20.67	46.00	-25.33	QP

## 7.4 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.215
Test Method:	ANSI C63.10: 2013
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected via a red cable to an E.U.T. (Equipment Under Test). Both are placed on a Non-Conducted Table. Below the table is a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass

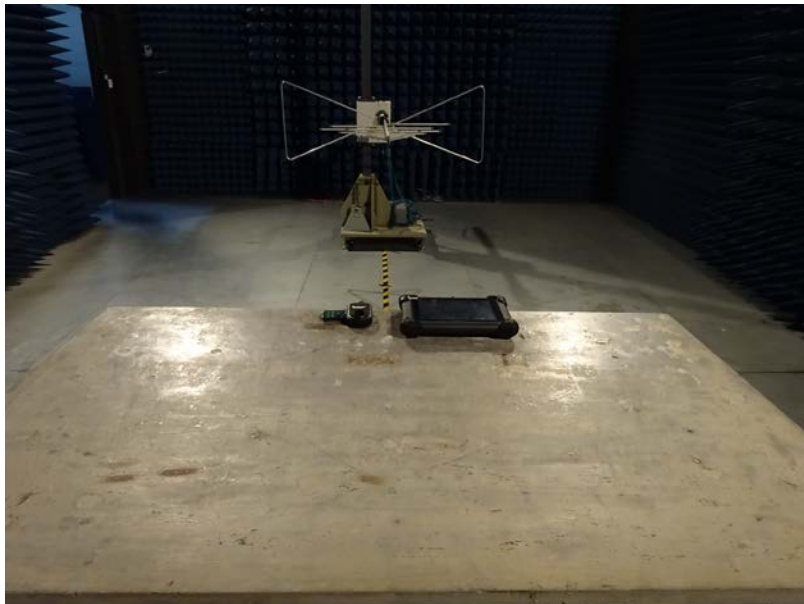
### Measurement Data

Test frequency	20dB bandwidth(KHz)	Detector	Result
125KHz	2.861	Peak	Pass



## 8 Test Setup Photo

Radiated Emission



## Conducted Emission



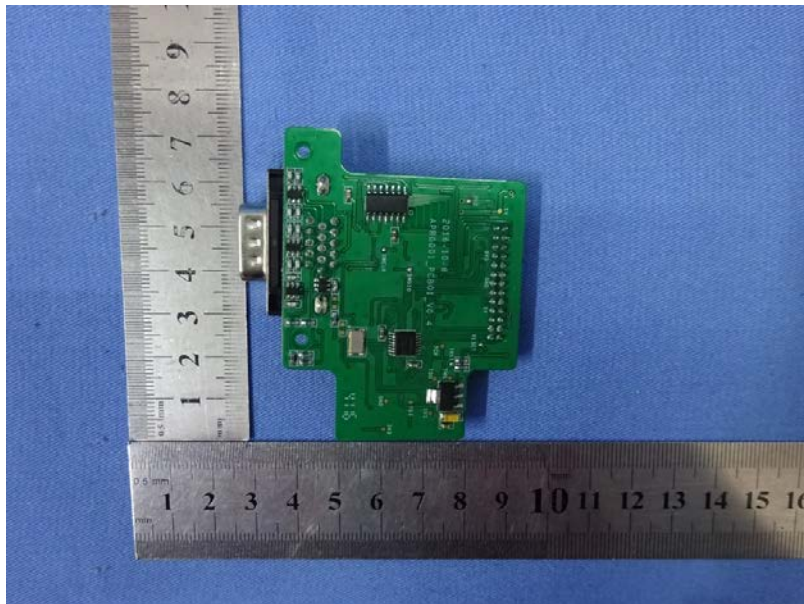
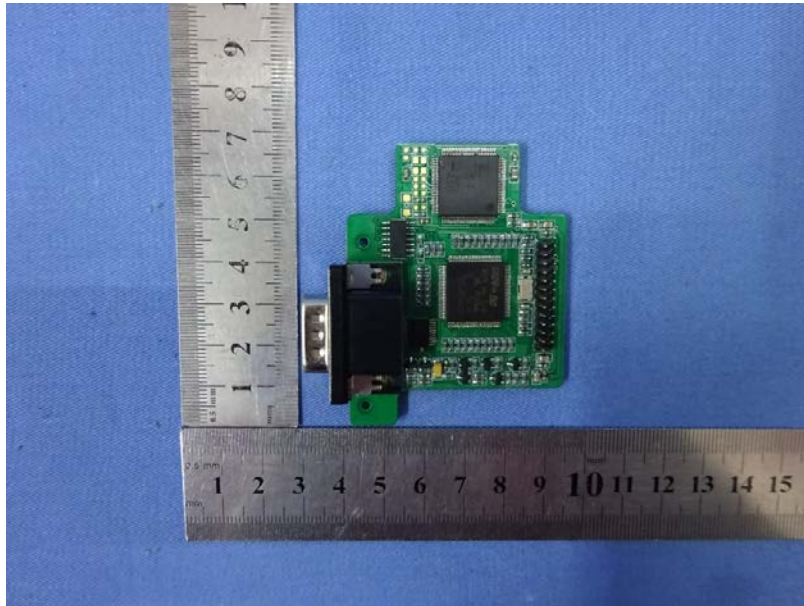
## 9 EUT Constructional Details



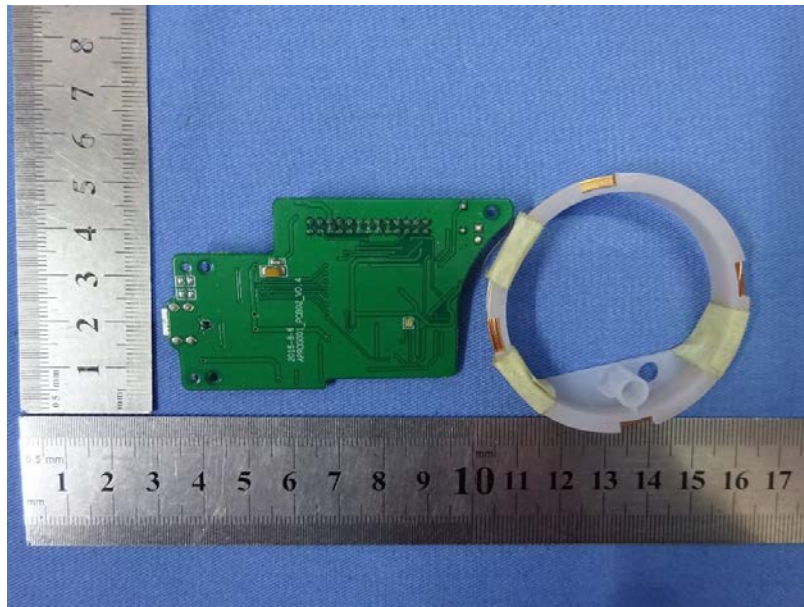
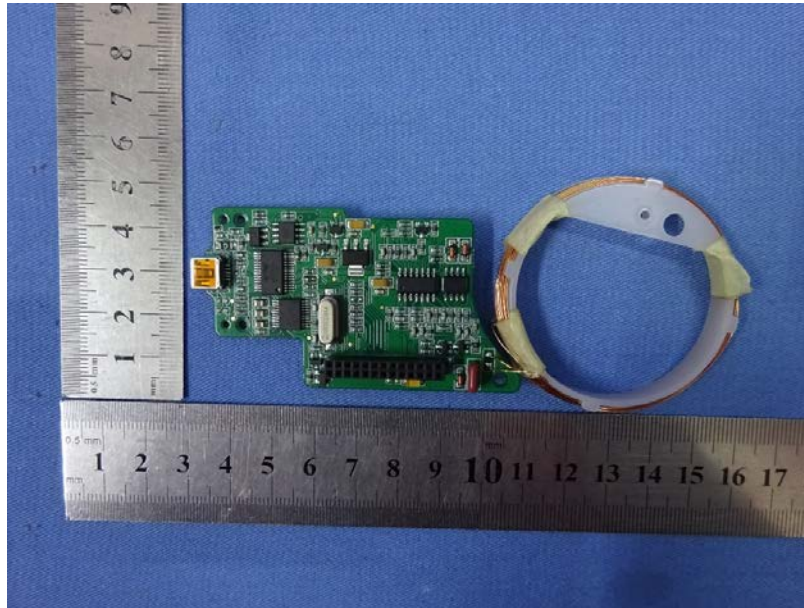


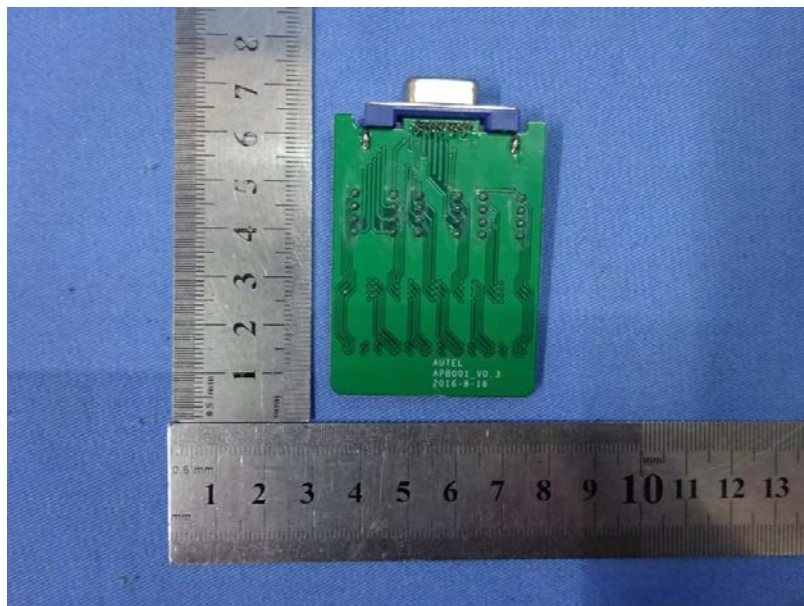
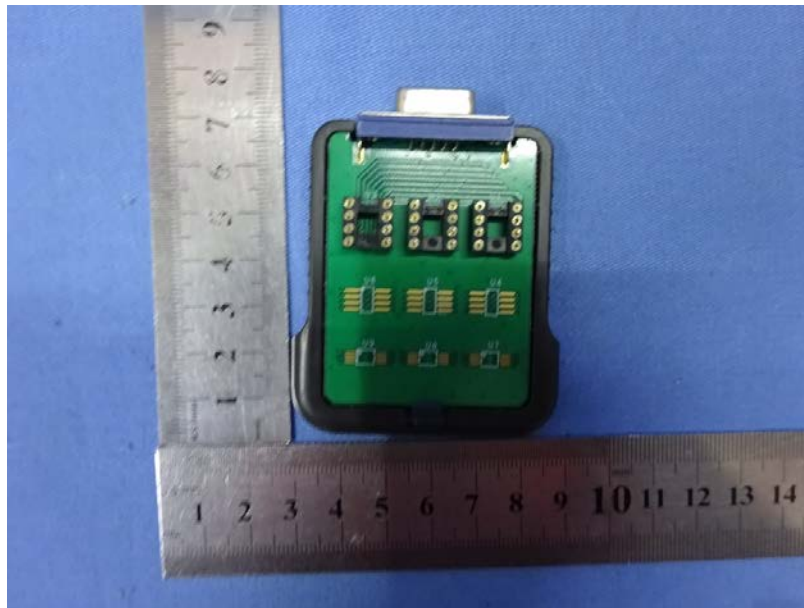


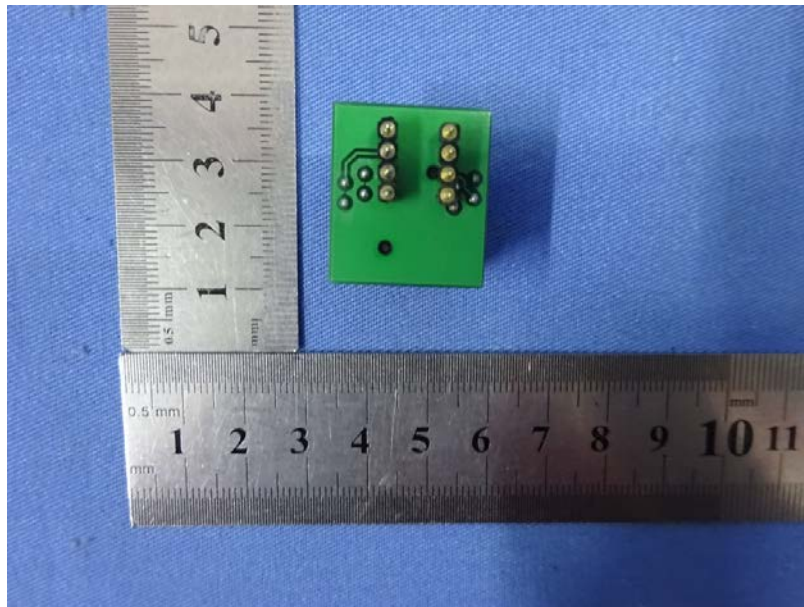
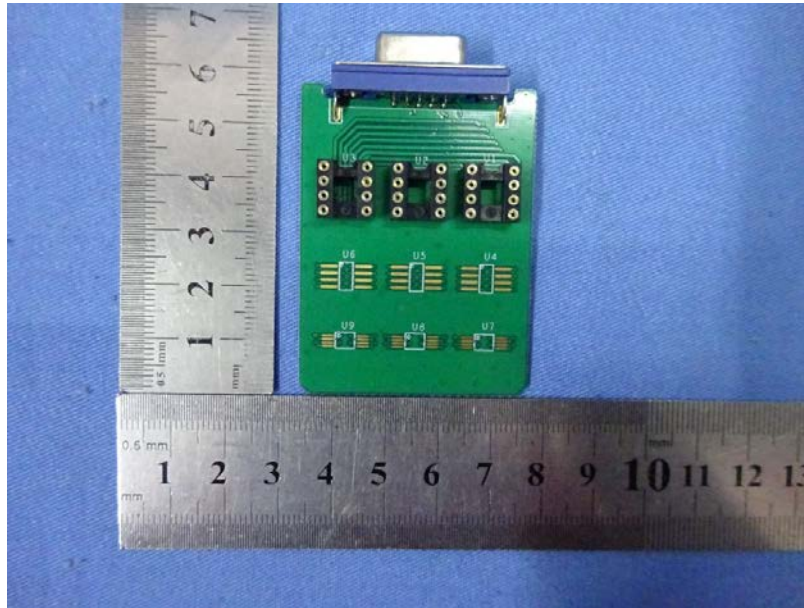




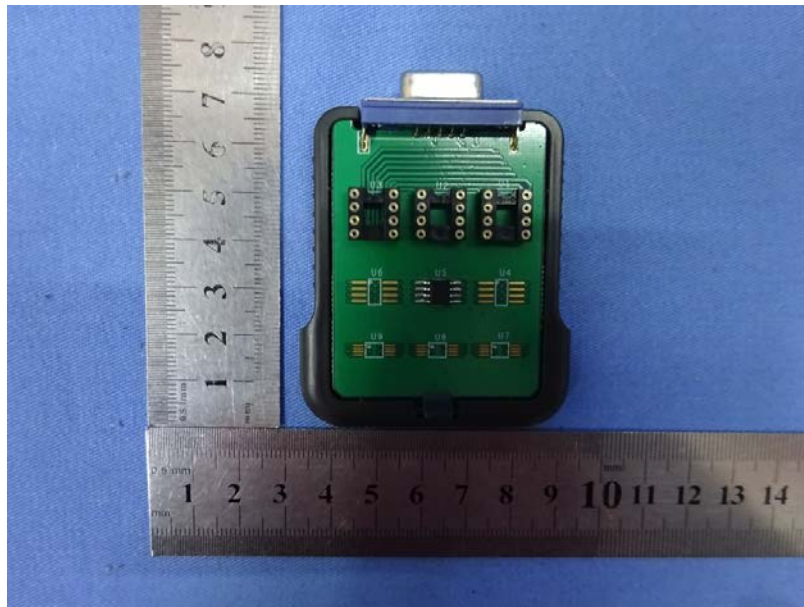
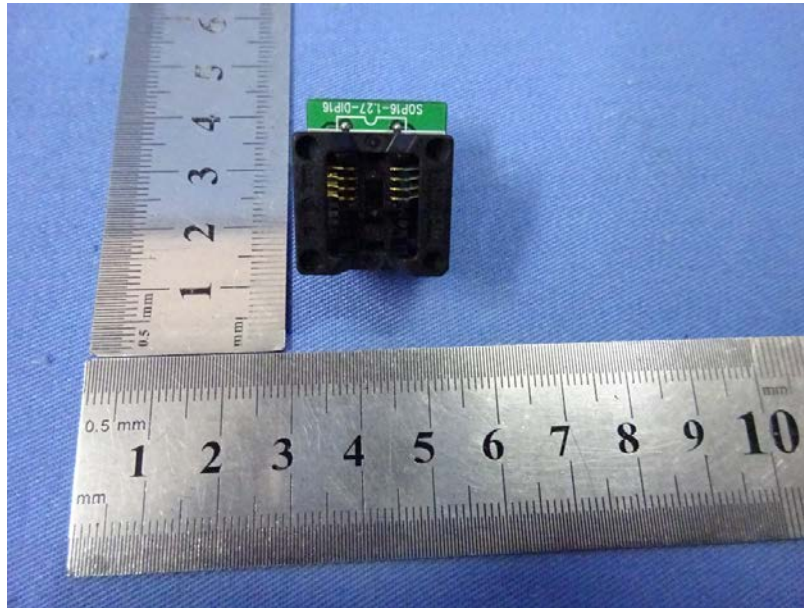


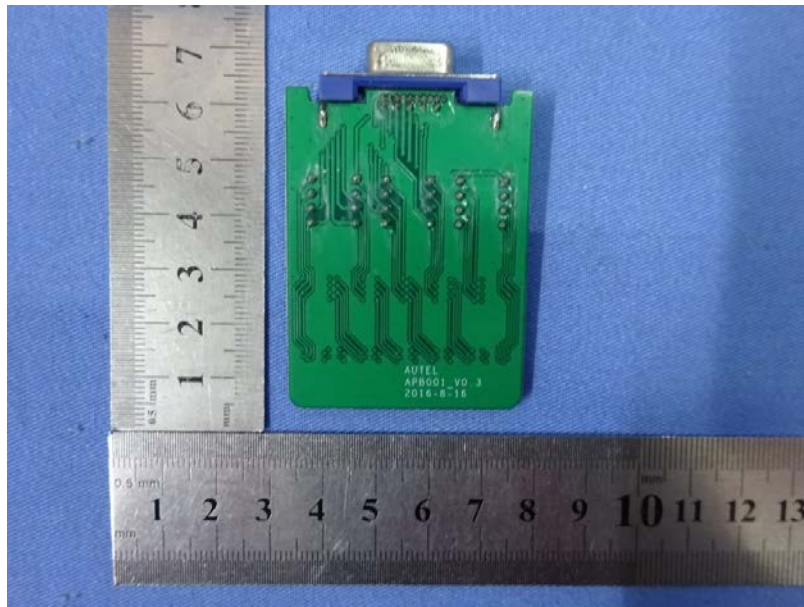
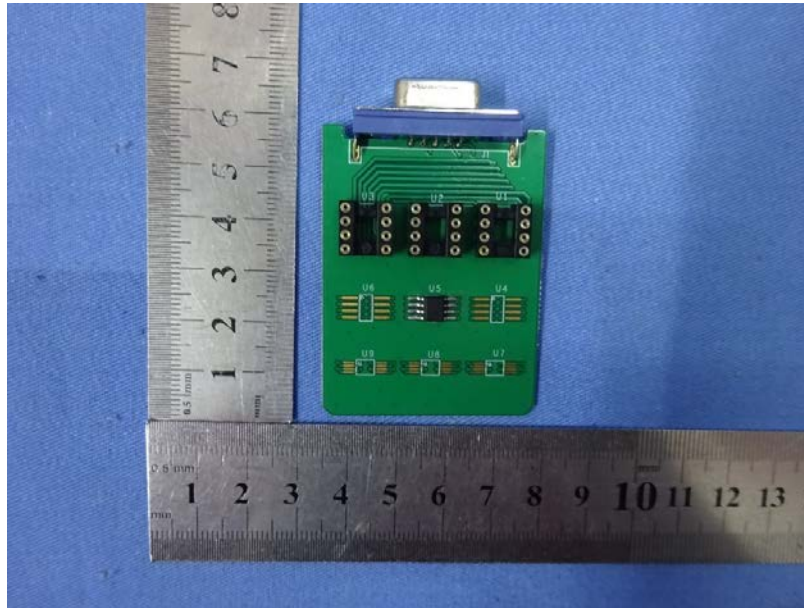












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