

# TEST REPORT

**Applicant:** Nebra Ltd

**Address of Applicant:** Unit 4 Bells Yew Green Business Court, Bells Yew Green, Kent,  
TN3 9BJ, United Kindgom

**Equipment Under Test (EUT)**

Product Name: PiJuice Zero pHAT

Model No.: v1.0

**Applicable standards:** EN 61000-6-1:2019  
EN 61000-6-3:2007+A1:2011+AC:2012

**Date of sample receipt:** 11 Jun., 2019

**Date of Test:** 12 Jun., to 20 Jun., 2019

**Date of report issue:** 21 Jun., 2019

**Test Result:** PASS\*

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

The CE mark as shown below can be used, under the responsibility of the manufacturer, after completion of an EC Declaration of Conformity and compliance with all relevant EC Directives. The protection requirements with respect to electromagnetic compatibility contained in Directive 2014/30/EU are considered.



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	21 Jun., 2019	Original

Tested by:

*Yoro Wu*

**Test Engineer**

Date:

21 Jun., 2019

Reviewed by:

*Winner Zhang*

**Project Engineer**

Date:

21 Jun., 2019

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## 4 Test Summary

Test	Test Requirement	Test Method	Class / Severity	Result
Radiated Emission	EN 61000-6-3	EN 61000-6-3	See Table 1	PASS
Conducted Emission	EN 61000-6-3	EN 61000-6-3	See Table 1	N/A
ESD	EN 61000-6-1	EN61000-4-2:2009	Contact $\pm 4$ kV Air $\pm 8$ kV	PASS
Continuous RF electromagnetic radiated field disturbances	EN 61000-6-1	EN61000-4-3: 2006+A1:2007+A2:2010	80MHz-1.0 GHz: 3V/m 1.4 GHz-2.0 GH: 3V/m 2.0 GHz-2.7 GH: 1V/m 80%, 1kHz Amp. Mod.	PASS
Electrical Fast Transients (EFT)	EN 61000-6-1	EN 61000-4-4:2012	AC $\pm 1.0$ kV	N/A
Surge	EN 61000-6-1	EN 61000-4-5: 2014+A1:2017	Line-line: $\pm 1$ kV Line-earth: $\pm 2$ kV	N/A
Continuous induced RF disturbances	EN 61000-6-1	EN61000-4-6: 2014+AC:2015	0.15-80MHz: 3V 80%, 1kHz, AM	N/A
Power frequency magnetic field	EN 61000-6-1	EN 61000-4-8:2010	50/60 Hz 3A/m	N/A
Voltage Dips and Interruptions	EN 61000-6-1	EN61000-4-11: 2004+A1:2017	0 % $U_T^*$ for 0.5per 0 % $U_T^*$ for 250per 70 % $U_T^*$ for 25per	N/A
Remark: * $U_T$ is the nominal supply voltage. Pass: Meet the requirements, N/A: not applicable.				

## 5 General Information

### 5.1 Client Information

Applicant:	Nebra Ltd
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Kent, TN3 9BJ, United Kindgom
Manufacturer:	Nebra Ltd
Address:	Unit 4 Bells Yew Green Business Court, Bells Yew Green, Kent, TN3 9BJ, United Kindgom
Factory	Sunsoar Tech Co. Ltd
Address:	9F, A block, Nanchang Huafeng The Second Industrial Zone, Hangkong Road, Xixiang Town, Bao'an District, Shenzhen City, China

### 5.2 General Description of E.U.T.

Product Name:	PiJuice Zero pHAT
Model No.:	v1.0
Hardware version:	v1.0
Software version:	v1.5
Power supply:	DC 4.2V-10V

### 5.3 Test mode and voltage

On mode:	Keep the EUT in working mode
Test voltage:	AC 230V/50Hz

### 5.4 Description of Support Units

Manufacturer	Description	Model	S/N	FCC ID/DoC
RS Components Ltd	Switching Adapter	DSA-13PFC-05 FCA	N/A	N/A

### 5.5 Measurement Uncertainty

Parameter	Expanded Uncertainty (Confidence of 95%)
Conducted Emission (9kHz ~ 30MHz)	±1.60 dB
Radiated Emission (9kHz ~ 30MHz)	±3.12 dB
Radiated Emission (30MHz ~ 1000MHz)	±4.54 dB
Radiated Emission (1GHz ~ 18GHz)	±5.84 dB
Radiated Emission (18GHz ~ 26.5GHz)	±3.36 dB

### 5.6 Description of Cable Used

Cable Type	Description	Length	From	To
N/A	N/A	N/A	N/A	N/A

## 5.7 Laboratory Facility

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

- **FCC - Registration No.: 727551**

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

- **IC - Registration No.: 10106A-1**

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>

## 5.8 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>

## 5.9 Monitoring of EUT for the Immunity Test

Visual:	Monitored the LED display of EUT
Sound:	N/A
Other:	Monitored the data link of EUT

## 5.10 Test Instruments list

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
Horn Antenna	SCHWARZBECK	BBHA9120D	916	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
EMI Test Receiver	Rohde & Schwarz	ESRP7	101070	03-18-2019	03-17-2020
Simulated Station	Anritsu	MT8820C	6201026545	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

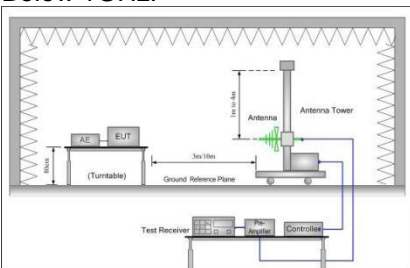
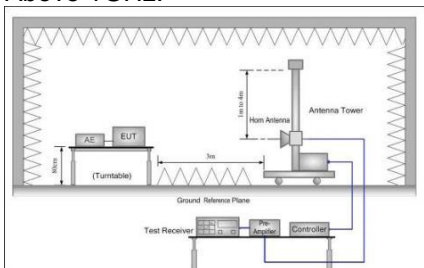
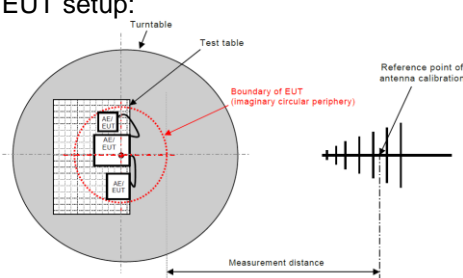
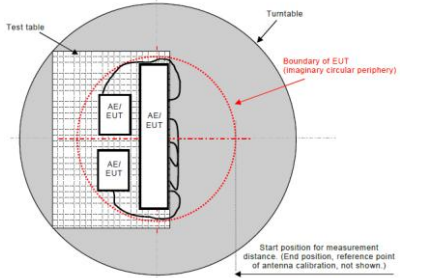
ESD:					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
ESD Simulator	Haefely	ONYX30	183900	03-19-2019	03-18-2020

Continuous RF electromagnetic radiated field disturbances					
Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
Signal Generator	Rohde & Schwarz	SMR27	1104.002.20	03-18-2019	03-17-2020
RF Amplifier 80M-1GHz	Amplifier Research	AR 150W1000	115243	03-18-2019	03-17-2020
RF Amplifier 1GHz-4.2GHz	Amplifier Research	AR 25S1G4AM1	145863	03-18-2019	03-17-2020
RF Amplifier 4GHz-6GHz	Amplifier Research	35S4G8A	247443	03-18-2019	03-17-2020
Power Meter	Rohde & Schwarz	NRVS	1020.1809.02	03-18-2019	03-17-2020
Power Sensor	Rohde & Schwarz	URV5-Z2	N/A	03-18-2019	03-17-2020
Power Sensor	Rohde & Schwarz	URV5-Z2	3654	03-18-2019	03-17-2020
Software EMC32	Rohde & Schwarz	EMC32-S	7412	N/A	N/A
Log-periodic Antenna	Amplifier Research	AT1080	6987	03-18-2019	03-17-2020
Antenna Tripod	Amplifier Research	TP1000A	3003552	N/A	N/A
High Gain Horn Antenna	Amplifier Research	AT4002A	N/A	03-18-2019	03-17-2020
Nexus Conducting Amplifier	B&K	2690	N/A	N/A	N/A
MUTH Simulator	B&K	4227	100150	N/A	N/A
Sound Level Calibrator	B&K	4231	1104.002.20	N/A	N/A
Audio Analyzer	Rohde & Schwarz	UPL 16	115243	03-18-2019	03-17-2020

## 6 Test Results

### 6.1 EMI (Emission)

#### 6.1.1 Radiated Emission

Test Requirement:	EN 61000-6-3				
Test Method:	EN 61000-6-3				
Test Frequency Range:	30MHz to 6GHz				
Test Distance:	3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	30MHz-1GHz	Quasi-peak	100kHz	300kHz	QP Value
	Above 1GHz	Peak	1MHz	3MHz	PK Value
		Average	1MHz	3MHz	AV Value
Limit:	Frequency	Limit (dBuV/m @3m)			Remark
	30MHz-230MHz	40.0			QP Value
	230MHz-1GHz	47.0			QP Value
	1GHz-3GHz	50.0			AV Value
		70.0			PK Value
	3GHz-6GHz	54.0			AV Value
74.0			PK Value		
Test setup:	Below 1GHz:		Above 1GHz:		
					
EUT setup:					
Test Procedure:	<p><b>30MHz to 1GHz:</b></p> <ol style="list-style-type: none"><li>1. The radiated emissions test was conducted in a semi-anechoic chamber.</li><li>2. The table top 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.</li><li>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.</li><li>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.</li></ol> <p><b>Above 1GHz:</b></p> <ol style="list-style-type: none"><li>1. The radiated emissions test was conducted in a fully-anechoic chamber.</li><li>2. The table top EUT was placed upon anon-metallic table 0.8m above the</li></ol>				

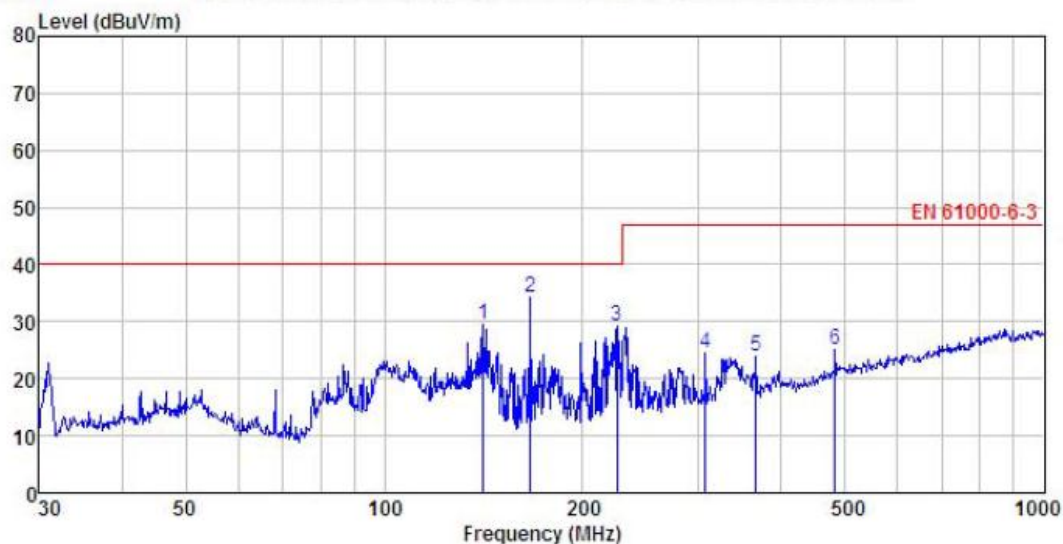


	<p>ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane, but separated from metallic contact with the ground reference plane by 0.1m of insulation.</p> <ol style="list-style-type: none"> <li>Before final measurements of radiated emissions, a pre-scan was performed in the spectrum mode with the peak detector to find out the maximum emission spectrum plots of the EUT.</li> <li>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.</li> </ol>
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

## Measurement Data:

### Below 1GHz:

Product Name:	PiJuice Zero pHAT	Product Model:	v1.0
Test By:	Yaro	Test mode:	On mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Vertical
Test Voltage:	AC 230/50Hz	Environment:	Temp: 24℃ Humi: 57%

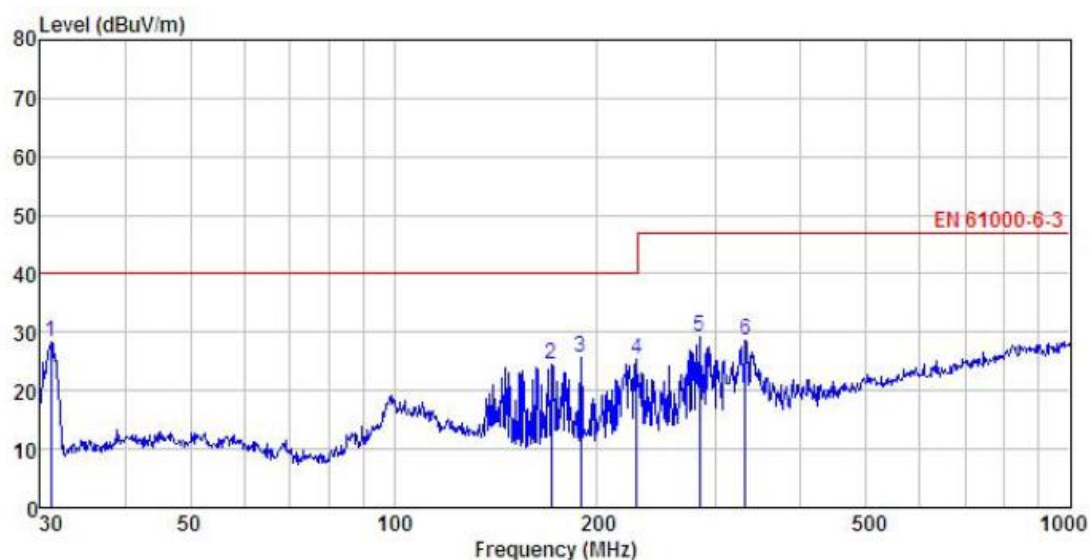


	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	141.330	46.86	9.42	2.42	29.27	29.43	40.00	-10.57	QP
2	166.651	51.20	9.52	2.64	29.08	34.28	40.00	-5.72	QP
3	225.308	43.24	11.71	2.84	28.68	29.11	40.00	-10.89	QP
4	306.754	36.29	13.76	2.96	28.47	24.54	47.00	-22.46	QP
5	365.539	34.65	14.82	3.09	28.63	23.93	47.00	-23.07	QP
6	482.216	32.90	17.59	3.47	28.92	25.04	47.00	-21.96	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:	PiJuice Zero pHAT	Product Model:	v1.0
Test By:	Yaro	Test mode:	On mode
Test Frequency:	30 MHz ~ 1 GHz	Polarization:	Horizontal
Test Voltage:	AC 230/50Hz	Environment:	Temp: 24°C Humi: 57%



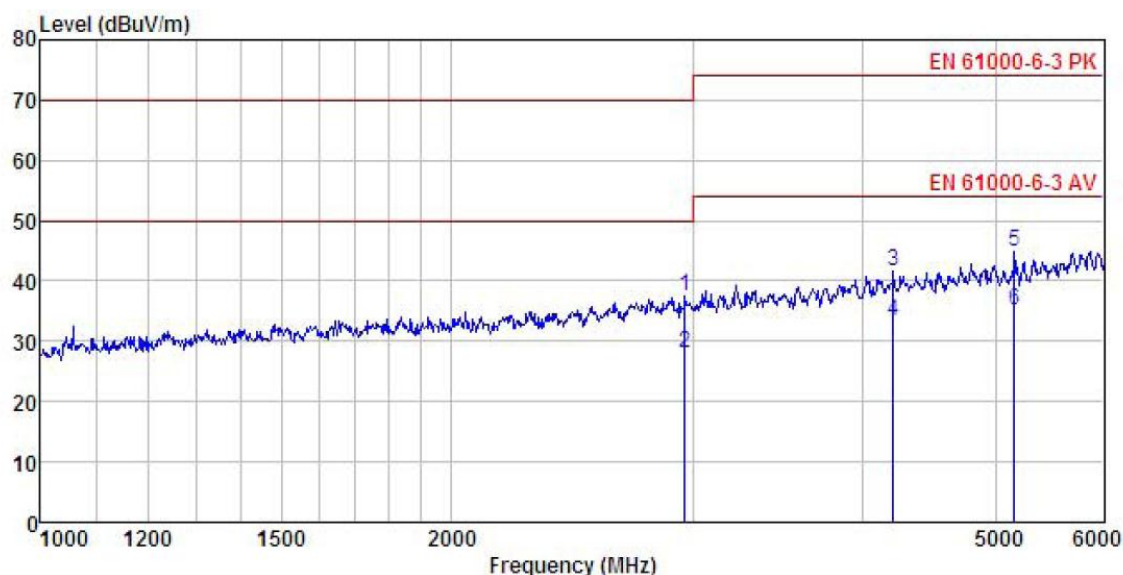
	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	31.071	46.65	10.73	0.78	29.97	28.19	40.00	-11.81	QP
2	170.793	41.09	9.66	2.66	29.04	24.37	40.00	-15.63	QP
3	189.074	41.66	10.26	2.79	28.91	25.80	40.00	-14.20	QP
4	228.490	39.49	11.83	2.84	28.66	25.50	40.00	-14.50	QP
5	282.985	41.56	13.31	2.89	28.48	29.28	47.00	-17.72	QP
6	331.355	39.80	14.25	3.04	28.52	28.57	47.00	-18.43	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.

**Above 1GHz:**

<b>Product Name:</b>	PiJuice Zero pHAT	<b>Product Model:</b>	v1.0
<b>Test By:</b>	Yaro	<b>Test mode:</b>	On mode
<b>Test Frequency:</b>	1 GHz ~ 6 GHz	<b>Polarization:</b>	Vertical
<b>Test Voltage:</b>	AC 230/50Hz	<b>Environment:</b>	Temp: 24°C      Humi: 57%

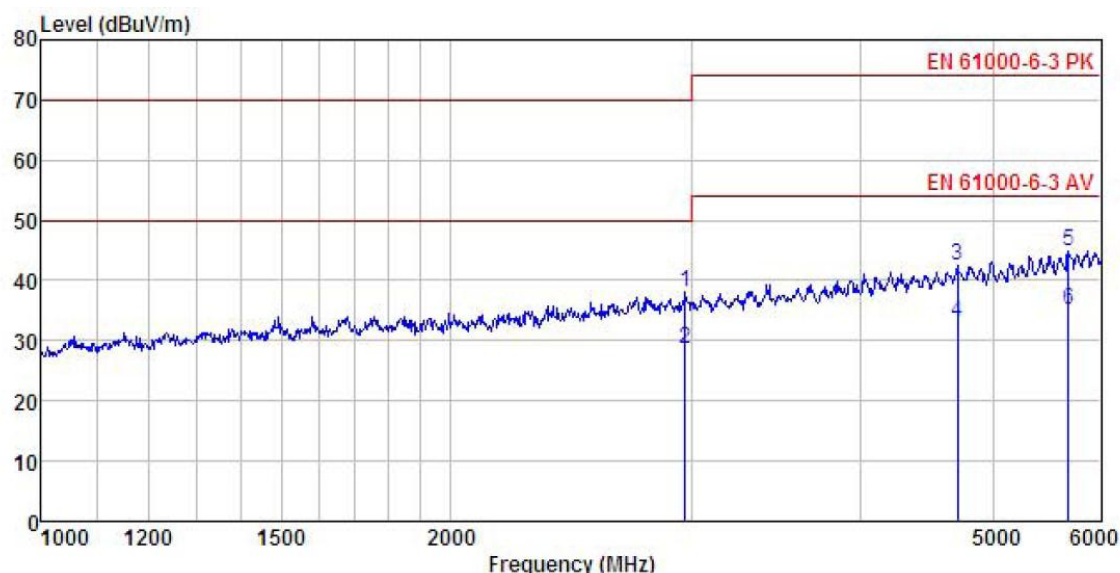


	Freq	Read	Antenna	Cable	Preamp	Level	Limit	Over	Remark
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2961.827	45.15	28.43	5.31	41.53	37.36	70.00	-32.64	Peak
2	2961.827	35.72	28.43	5.31	41.53	27.93	50.00	-22.07	Average
3	4208.015	46.63	30.34	6.41	41.81	41.57	74.00	-32.43	Peak
4	4208.015	38.51	30.34	6.41	41.81	33.45	54.00	-20.55	Average
5	5161.626	47.86	31.80	7.06	41.94	44.78	74.00	-29.22	Peak
6	5161.626	38.21	31.80	7.06	41.94	35.13	54.00	-18.87	Average

**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.

<b>Product Name:</b>	PiJuice Zero pHAT	<b>Product Model:</b>	v1.0	
<b>Test By:</b>	Yaro	<b>Test mode:</b>	On mode	
<b>Test Frequency:</b>	1 GHz ~ 6 GHz	<b>Polarization:</b>	Horizontal	
<b>Test Voltage:</b>	AC 230/50Hz	<b>Environment:</b>	Temp: 24°C	Huni: 57%



	Freq	Read Level	Antenna Factor	Cable Loss	Preamp	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2972.460	45.94	28.44	5.32	41.53	38.17	70.00	-31.83	Peak
2	2972.460	36.32	28.44	5.32	41.53	28.55	50.00	-21.45	Average
3	4710.867	46.76	30.83	6.85	41.96	42.48	74.00	-31.52	Peak
4	4710.867	37.20	30.83	6.85	41.96	32.92	54.00	-21.08	Average
5	5685.998	46.62	32.64	7.55	41.89	44.92	74.00	-29.08	Peak
6	5685.998	36.93	32.64	7.55	41.89	35.23	54.00	-18.77	Average

*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.*

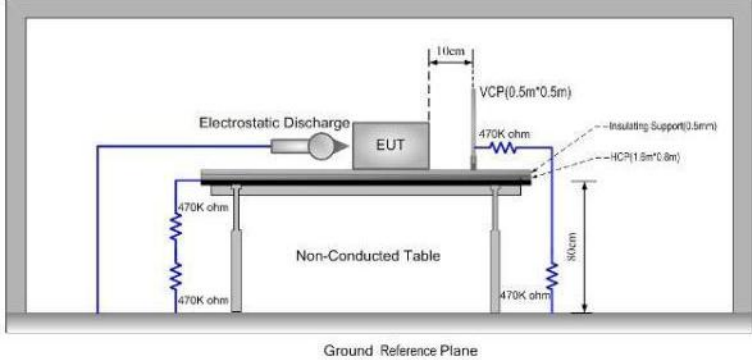
## 6.2 EMS (Immunity)

### 6.2.1 Performance Criteria Description in EN 61000-6-1

Criterion A:	The equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed below a performance level specified by the manufacturer when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance. If the minimum performance level or the permissible performance loss is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.
Criterion B:	<p>After the test, the equipment shall continue to operate as intended without operator intervention. No degradation of performance or loss of function is allowed, after the application of the phenomena below a performance level specified by the manufacturer, when the equipment is used as intended. The performance level may be replaced by a permissible loss of performance.</p> <p>During the test, degradation of performance is allowed. However, no change of operating state or stored data is allowed to persist after the test.</p> <p>If the minimum performance level (or the permissible performance loss) is not specified by the manufacturer, then either of these may be derived from the product description and documentation, and by what the user may reasonably expect from the equipment if used as intended.</p>
Criterion C:	<p>Loss of function is allowed, provided the function is self-recoverable, or can be restored by the operation of the controls by the user in accordance with the manufacturer's instructions.</p> <p>Functions, and/or information stored in non-volatile memory, or protected by a battery backup, shall not be lost.</p>



## 6.2.2 Electrostatic Discharge

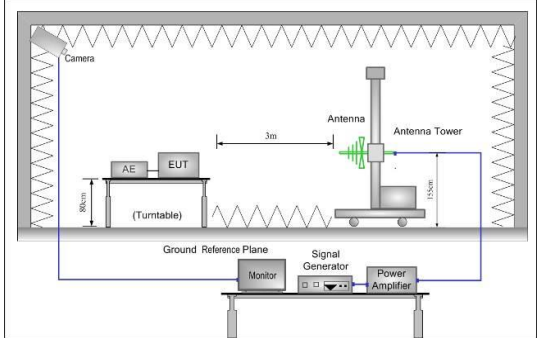
Test Requirement:	EN 61000-6-1
Test Method:	EN 61000-4-2
Discharge Voltage:	Contact Discharge, HCP and VCP: $\pm 2\text{kV}$ , $\pm 4\text{kV}$ , Air Discharge: $\pm 2\text{kV}$ , $\pm 4\text{kV}$ , $\pm 8\text{kV}$
Polarity:	Positive & Negative
Number of Discharge:	Contact Discharge: Minimum 25 times at each test point, Air Discharge: Minimum 10 times at each test point.
Discharge Mode:	Single Discharge
Discharge Period:	1 second minimum
Testsetup:	
Test Procedure:	<p><b>1) Air discharge:</b> The test was applied on non-conductive surfaces of EUT. The round discharge tip of the discharge electrode was approached as fast as possible to touch the EUT. After each discharge, the discharge electrode was removed from the EUT. The generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. This procedure was repeated until all the air discharge completed</p> <p><b>2) Contact discharge:</b> The test was applied on conductive surfaces of EUT. the generator was re-triggered for a new single discharge and repeated 10 times for each pre-selected test point. the tip of the discharge electrode was touch the EUT before the discharge switch was operated.</p> <p><b>3) Indirect discharge for horizontal coupling plane</b> At least 10 single discharges shall be applied at the front edge of each HCP opposite the centre point of each unit of the EUT and 0.1m from the front of the EUT. The long axis of the discharge electrode shall be in the plane of the HCP and perpendicular to its front edge during the discharge. Consideration should be given to exposing all sides of the EUT.</p> <p><b>4) Indirect discharge for vertical coupling plane</b> At least 10 single discharges were applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m X 0.5m, was placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges were applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.</p>
Test environment:	Temp.: 26°C    Humid.: 54%    Press.: 101kPa
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Measurement Record:**

Test points:	I: N/A			
	II: N/A			
Direct discharge				
Discharge Voltage (KV)	Type of discharge	Test points	Observations (Performance Criterion)	Result
$\pm 2, \pm 4$	Contact	II	N/A	N/A
$\pm 2, \pm 4, \pm 8$	Air	I	N/A	N/A
Indirect discharge				
Discharge Voltage (KV)	Type of discharge	Test points	Observation Performance	Result
$\pm 2, \pm 4$	HCP-Bottom/Top/ Front/Back/Left/Right	Edge of the HCP	A	Pass
$\pm 2, \pm 4$	VCP-Front/Back /Left/Right	Center of the VCP	A	Pass
Remark:				
1. A: No degradation in performance of the EUT was observed.				



## 6.2.3 Continuous RF electromagnetic radiated field disturbances

Test Requirement:	EN 61000-6-1
Test Method:	EN 61000-4-3
Frequency range:	80 MHz to 1 GHz, 1.4 GHz to 2.0 GHz, 2.0 GHz to 2.7 GHz
Test Level:	80 MHz to 1 GHz and 1.4 GHz to 2.0 GHz: 3V/m 2.0 GHz to 2.7 GHz: 1V/m
Modulation:	80%, 1kHz Amplitude Modulation
Performance Criterion:	Criteria A
Test setup:	
Test Procedure:	<ol style="list-style-type: none"> <li>For table-top equipment, the EUT was placed in the chamber on a non-conductive table 0.8m high. For arrangement of floor-standing equipment, the EUT was mounted on a non-conductive support 0.1m above the supporting plane. For human body-mounted equipment, the EUT may be tested in the same manner as table top items.</li> <li>If possible, a minimum of 1 m of cable is exposed to the electromagnetic field. Excess length of cables interconnecting units of the EUT shall be bundled low-inductively in the approximate center of the cable to form a bundle 30 cm to 40 cm in length.</li> <li>The EUT was initially placed with one face coincident with the calibration plane. The EUT face being illuminated was contained within the UFA (Uniform Field Area).</li> <li>The frequency ranges to be considered were swept with the signal modulated and pausing to adjust the RF signal level or to switch oscillators and antennas as necessary. Where the frequency range was swept incrementally, the step size was not exceed 1 % of the preceding frequency value.</li> <li>The dwell time of the amplitude modulated carrier at each frequency was not be less than the time necessary for the EUT to be exercised and to respond, and was not less than 5 s.</li> <li>The test normally was performed with the generating antenna facing each side of the EUT.</li> <li>The polarization of the field generated by each antenna necessitates testing each selected side twice, once with the antenna positioned vertically and again with the antenna positioned horizontally.</li> <li>The EUT was performed in a configuration to actual installation conditions, a video camera and/or a audio monitor were used to monitor the performance of the EUT.</li> </ol>
Test environment:	Temp.: 25 °C Humid.: 52% Press.: 1 012mbar
Test Instruments:	Refer to section 5.10 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

**Measurement Record:**

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	Result
80 MHz-1 GHz 1.4 GHz-2.0 GHz	3 V/m	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=5seconds	V	Front	A	Pass
			H		A	Pass
			V	Rear	A	Pass
			H		A	Pass
			V	Left	A	Pass
			H		A	Pass
			V	Right	A	Pass
			H		A	Pass
			V	Top	A	Pass
			H		A	Pass
			V	Bottom	A	Pass
			H		A	Pass
Remarks: A: No degradation in the performance of the E.U.T. was observed.						

Frequency	Level	Modulation	Antenna Polarization	EUT Face	Observations (Performance Criterion)	Result
2.0 GHz-2.7 GHz	1 V/m	1 kHz, 80 % Amp. Mod, 1 % increment, dwell time=5seconds	V	Front	A	Pass
			H		A	Pass
			V	Rear	A	Pass
			H		A	Pass
			V	Left	A	Pass
			H		A	Pass
			V	Right	A	Pass
			H		A	Pass
			V	Top	A	Pass
			H		A	Pass
			V	Bottom	A	Pass
			H		A	Pass
Remarks: A: No degradation in the performance of the E.U.T. was observed.						

## 7 Test Setup Photo

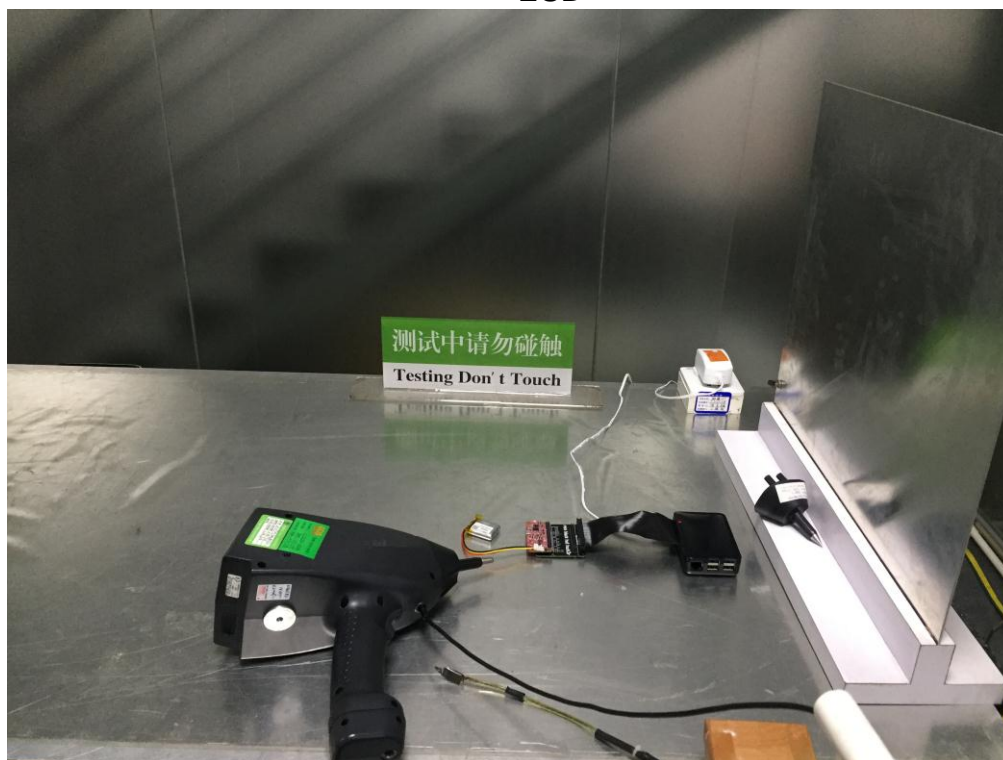
Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



ESD

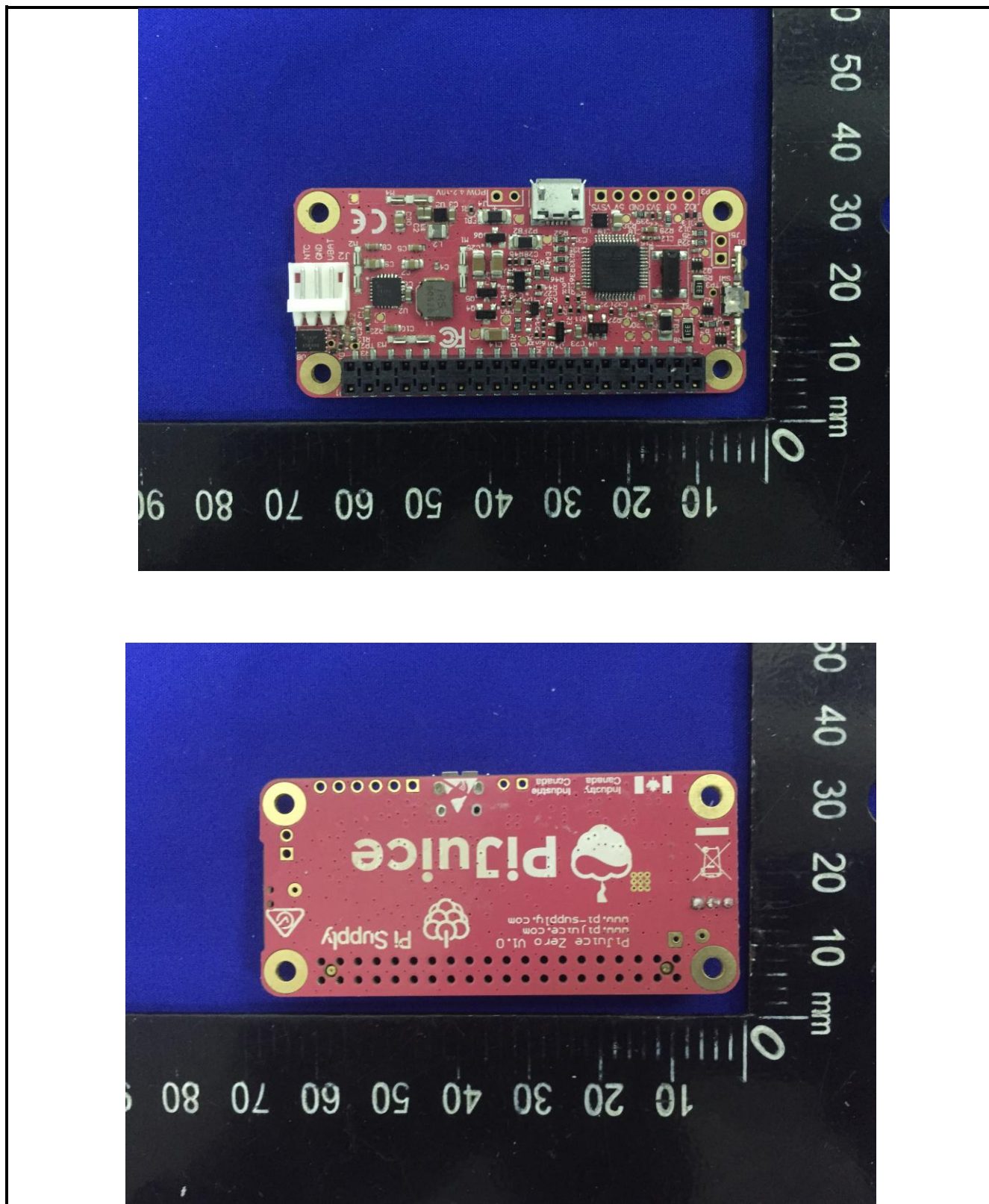


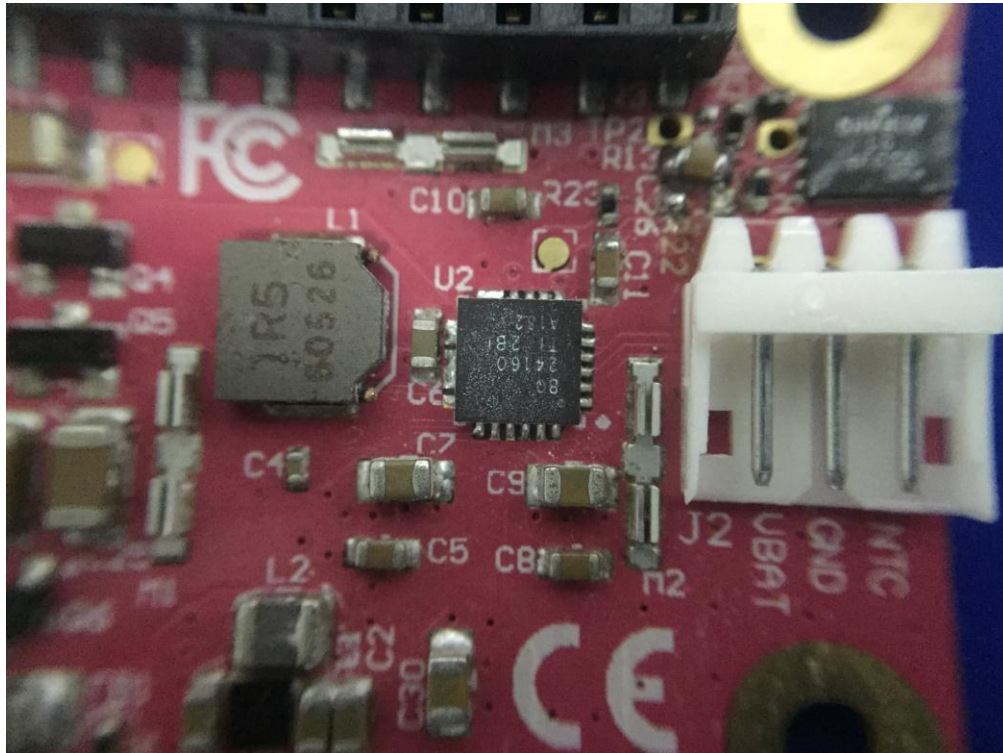
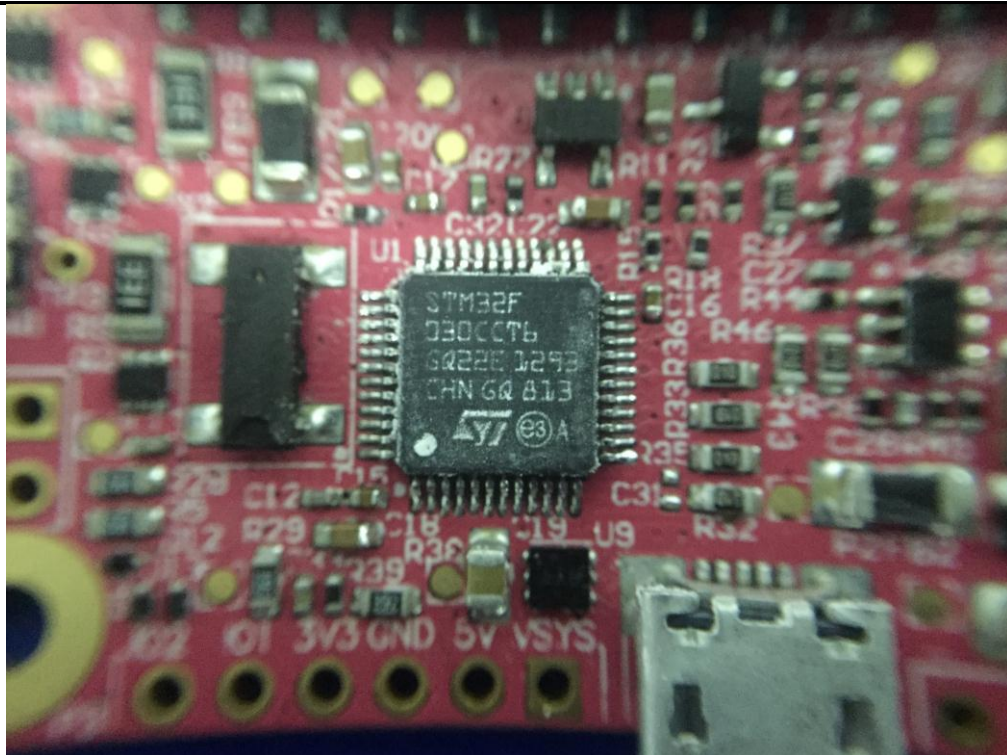
R/S



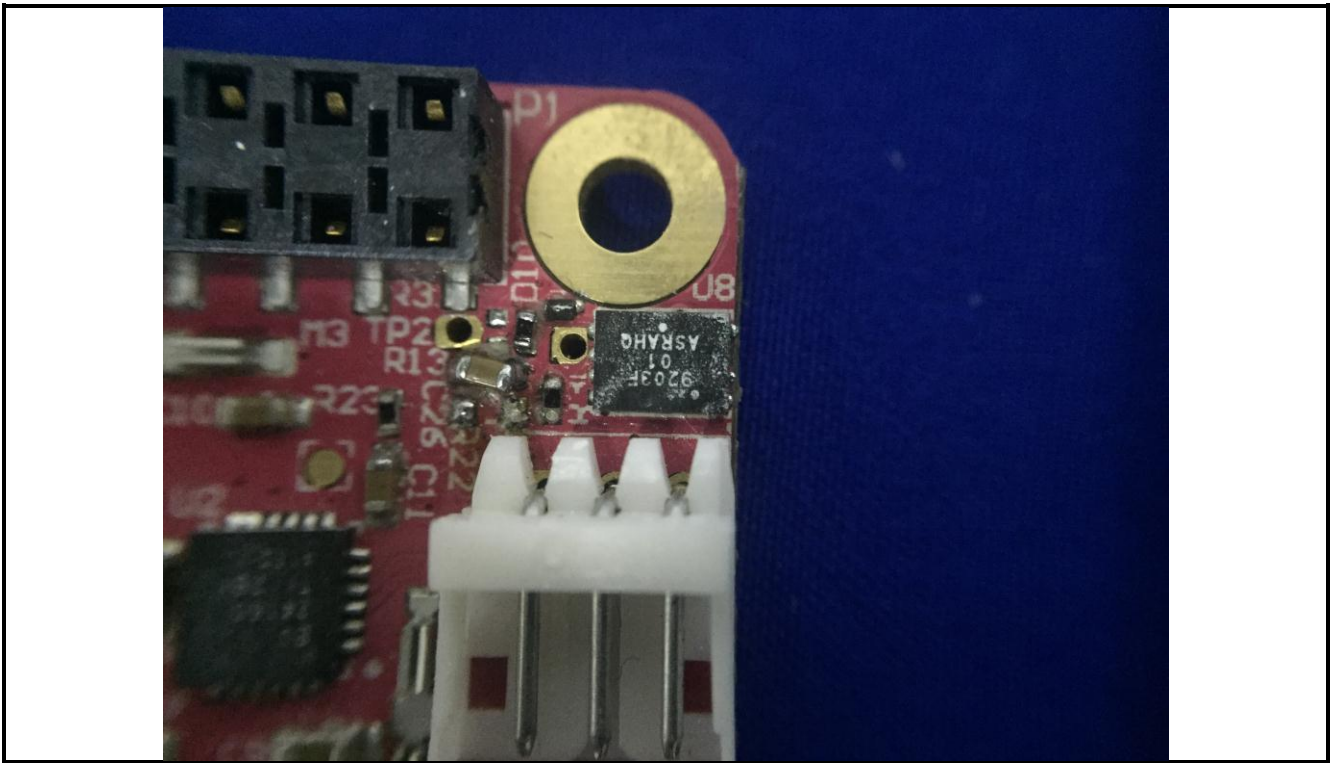


## 8 EUT Constructional Details









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