

# Test Report

Report No.: MTi170816E121

Date of issue: Aug. 16, 2017

Sample Description: Vogue fabric speaker and powerbank

Model(s): P326.842

Applicant: \_\_\_\_\_

Address: \_\_\_\_\_

Date of Test: Aug. 10, 2017 to Aug. 16, 2017

Shenzhen Microtest Co., Ltd.  
<http://www.mtitest.com>



## Table of Contents

<b>Table of Contents</b> .....	<b>2</b>
<b>1 General description</b> .....	<b>5</b>
1.1 Feature of equipment under test (EUT).....	5
1.2 Test mode.....	5
1.3 Test conditions.....	5
1.4 Ancillary equipment list.....	5
1.5 Measurement Uncertainty .....	6
<b>2 Testing site</b> .....	<b>6</b>
<b>3 List of test equipment</b> .....	<b>7</b>
<b>4 EMC emission test</b> .....	<b>8</b>
4.1 Conducted emission .....	8
4.2 Radiated emission.....	9
<b>5 Immunity test</b> .....	<b>14</b>
5.1 Electrostatic discharge immunity (ESD) .....	14
5.2 RF electromagnetic field immunity (RS) .....	17
<b>Photographs of the Test Setup</b> .....	<b>19</b>
<b>Photographs of the EUT</b> .....	<b>21</b>

<b>Test Result Certification</b>	
<b>Applicant's name:</b>	
Address:	
<b>Manufacture's Name:</b>	
Address:	
<b>Product name:</b>	Vogue fabric speaker and powerbank
<b>Trademark:</b>	<b>N/A</b>
<b>Model name:</b>	P326.842
<b>Standards:</b>	EN 301 489-1 V2.1.1 (2017-02) EN 301 489-17 V3.1.1 (2017-02) EN 55032:2015 EN 55024:2010

*This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the Radio equipment directive requirements. And it is applicable only to the tested sample identified in the report.*

Tested by:

*Amy Lu*

Amy Lu

Aug. 16, 2017

Reviewed by:

*Smith Chen*

Smith Chen

Aug. 16, 2017

Approved by:

*Tom Xue*

Tom Xue

Aug. 16, 2017

### Summary of Test Result

Item	Description of Test	Result
EMC emission		
1	Conducted emission	N/A*
2	Radiated emission	Pass
3	Harmonic current emission	N/A*
4	Voltage fluctuations & flicker	N/A*
Immunity		
1	Electrostatic discharge immunity (ESD)	Pass
2	Radiated electromagnetic field immunity (RS)	Pass
3	Fast transients / burst immunity (EFT)	N/A*
4	Surge immunity	N/A*
5	Conducted disturbance immunity (CS)	N/A*
6	Voltage interruptions & voltage Dips immunity	N/A*

\*Not Applicable.

## 1 General description

### 1.1 Feature of equipment under test (EUT)

Product name:	Vogue fabric speaker and powerbank
Model name:	P326.842
Power source:	DC 5V form adapter
BT	
Bluetooth version:	V4.2
Antenna designation:	PCBA antenna (Antenna Gain: -0.68dBi)

### 1.2 Test mode

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

Test mode	Description
Mode 1	Charging + BT Playing+ Full Load
Mode 2	Charging + Aux in Playing+ Full Load

NOTE: The test modes were carried out for all operation modes. The final test mode of the EUT was the worst test mode for EMI, and its test data was showed.

Note: Pre-scan above all test mode, found below test mode which it was worse case mode.

Test item	Test mode (Worse case mode)
Radiated emission below 1GHz	Mode 1
Radiated emission above 1GHz	Mode 1

### 1.3 Test conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 20°C~30°C
- Humidity: 30%~70% (30%~60% for ESD test)
- Atmospheric pressure: 98kPa~101kPa

### 1.4 Ancillary equipment list

Equipment	Model	S/N	Manufacturer
Adapter	HW-050100E01	/	Huawei

## 1.5 Measurement Uncertainty

Measurement Uncertainty for a Level of Confidence of 95 %,  $U=2xUc(y)$

Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %

## 2 Testing site

Test laboratory:	Shenzhen Microtest Co., Ltd.
Laboratory location:	No.102A & 302A, East Block, Hengfang Industrial Park, Xingye Road, Xixiang, Bao'an District, Shenzhen, Guangdong, China
CNAS Registration No.:	L5868
Telephone:	(86-755)88850135
Fax:	(86-755)88850136

### 3 List of test equipment

Emission test:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
LISN	Schwarzbeck	NSLK8127	#841	2017/9/25
LISN	Laplace	LISN-16A	003420	2017/11/4
EMI Test Receiver	Rohde&schwarz	ESCI3	101368	2017/11/4
Broadband TRILOG Antenna	Schwarabeck	VULB9163	9163-872	2017/11/14
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-1145	2017/11/14
Amplifier	HP	8447D	3113A06150	2017/11/4
Amplifier	Agilent	8449B	3008A02400	2018/7/4
Test Receiver	Schwarabeck	ESPI7	100314	2017/11/4
Spectrum analyzer	Agilent	N9020A	MY49100060	2018/3/3
Harmonics, Flicker & Power Analyser	Laplace	AC 2000A	311216	2017/11/4

Immunity test:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
ESD Generator	Schloder	SESD 3000	509325	2017/11/14
Surge Generator	HTEC	HCWG 51	153702	2017/11/17
EFT Generator	HTEC	HEFT 51	153701	2017/11/17
Cycle SAG Simulator	Prima	DRP61011AG	PR15056303	2017/11/4
Conducted Disturbances Test System	Schloder	CDG-6000-25	126A1343/2015	2017/11/4
CDN	Schloder	CDN-M2+3	A2210332/2015	2017/11/4
Log-Bicon Antenna	MESS-ELEKTRONIK	VULB 9160	3058	2017/11/14
Signal Generator	Agilent	E4438C	MY49070163	2017/11/4
Power Amplifier	AR	SESD 3000	509325	2017/11/4

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

## 4 EMC emission test

### 4.1 Conducted emission

#### 4.1.1 Limits

Frequency (MHz)	Class A (dB $\mu$ V)		Class B (dB $\mu$ V)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79	66	66 - 56 *	56 - 46 *
0.5 -5	73	60	56	46
5 -30	73	60	60	50

#### 4.1.2 Test Procedures

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through an Artificial mains networks (AMN). All other support equipment powered from additional AMN. The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

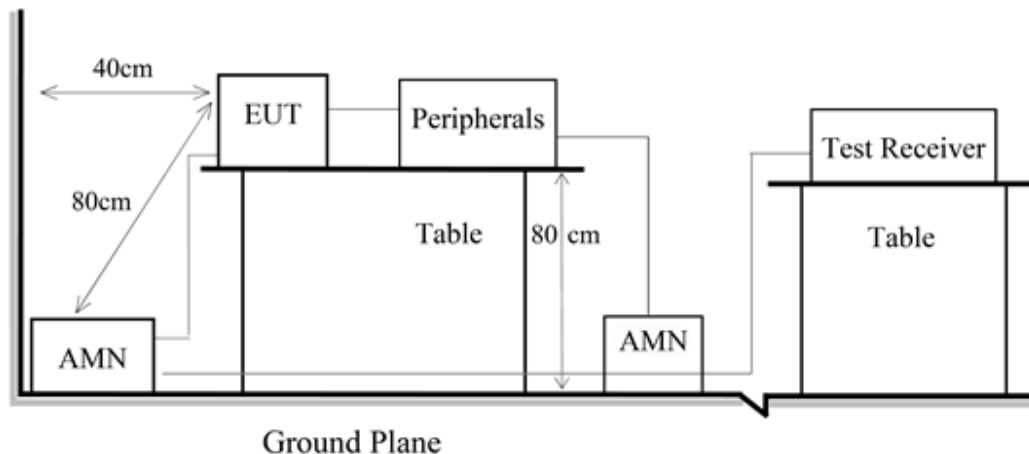
I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

AMN is at least 80 cm from nearest part of EUT chassis.

Setup of the receiver

Frequency	Detector	Setting
0.15MHz – 30MHz	QP	IF bandwidth: 9kHz

#### 4.1.3 Test setup



#### 4.1.4 Test Result

N/A.



## 4.2 Radiated emission

### 4.2.1 Limits

Frequency (MHz)	Class B Limit (dB $\mu$ V/m)		Class A Limit (dB $\mu$ V/m)	
	Quasi-peak/Peak	Average	Quasi-peak/Peak	Average
30 ~ 230	40 (at 3m)	/	50 (at 3m)	/
230 ~ 1000	47 (at 3m)	/	57 (at 3m)	/
1000 ~ 3000	70 (at 3m)	50 (at 3m)	76 (at 3m)	56 (at 3m)
3000 ~ 6000	74 (at 3m)	54 (at 3m)	80 (at 3m)	60 (at 3m)

### 4.2.2 Test Procedures

The radiated emission tests were performed in the 3 meters.

The EUT was placed on the top of a rotating table 0.8 meters above the ground. The table was rotated 360 degrees to determine the position of the highest radiation.

The height of the test antenna shall vary between 1m to 4m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

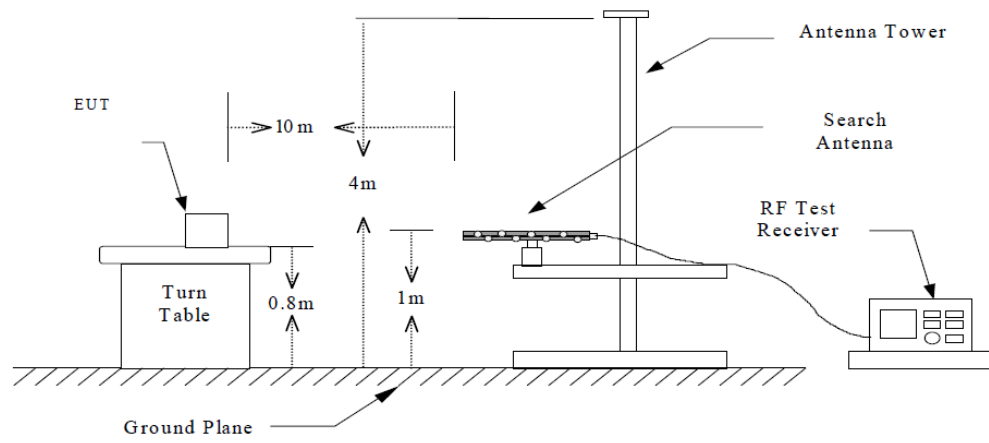
If the peak mode measured value compliance with and lower than quasi peak mode limit, the EUT shall be deemed to meet QP limits and then no additional QP mode measurement performed.

If the peak mode measured value compliance with and lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.

Setup of receiver

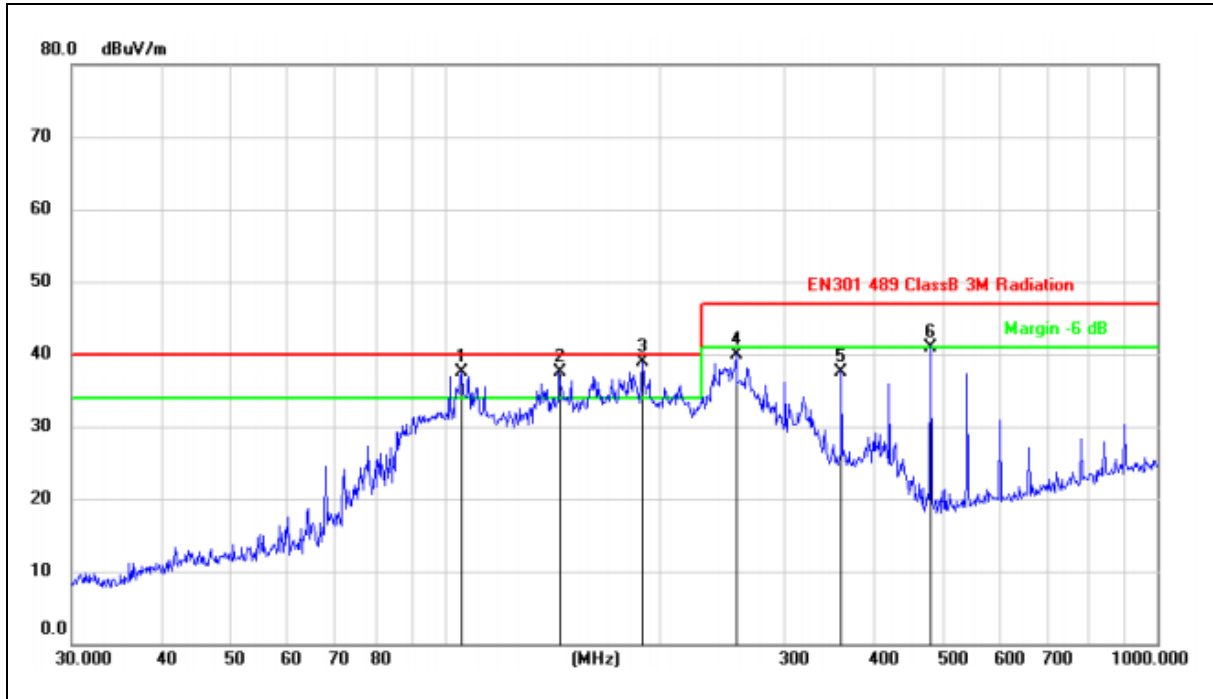
Frequency	Detector	Setting
30MHz – 1GHz	QP	IF bandwidth: 120kHz
Above 1GHz	Peak	RBW: 1MHz, VBW: 3MHz
	AV	RBW: 1MHz, VBW: 10Hz

### 4.2.3 Test Setup



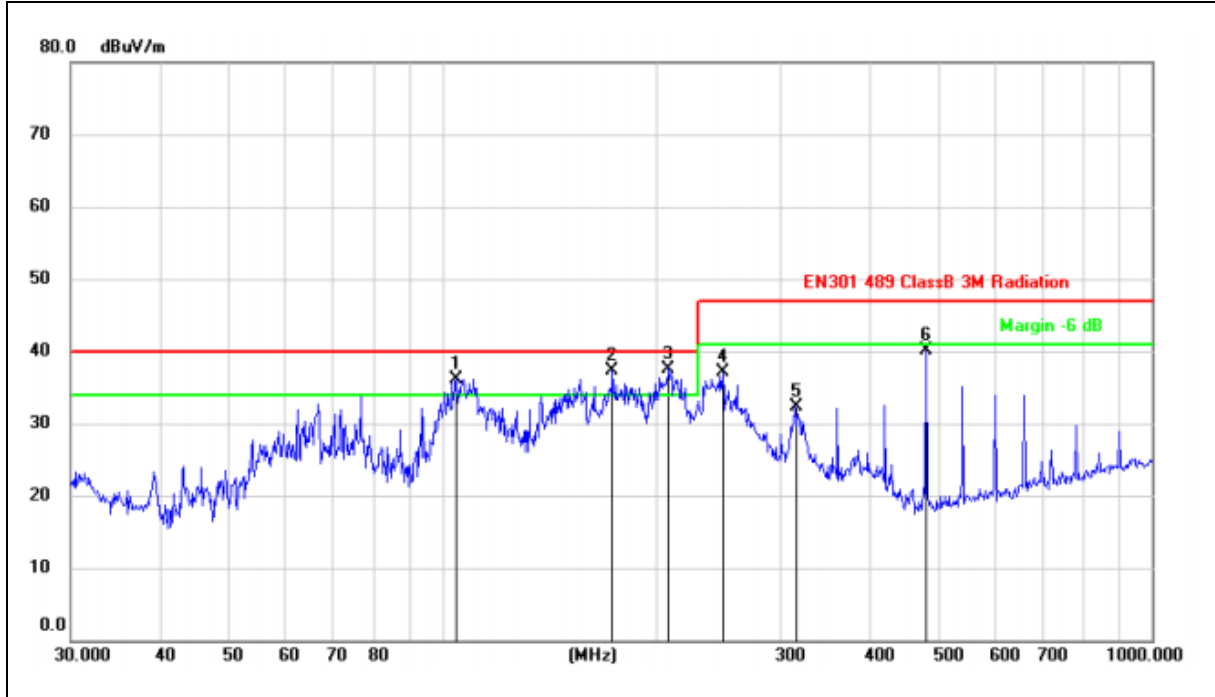
### 4.2.4 Test Result

Temperature:	25°C	Relative Humidity:	56%
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	AC 230V/50Hz	Test mode:	Mode 1



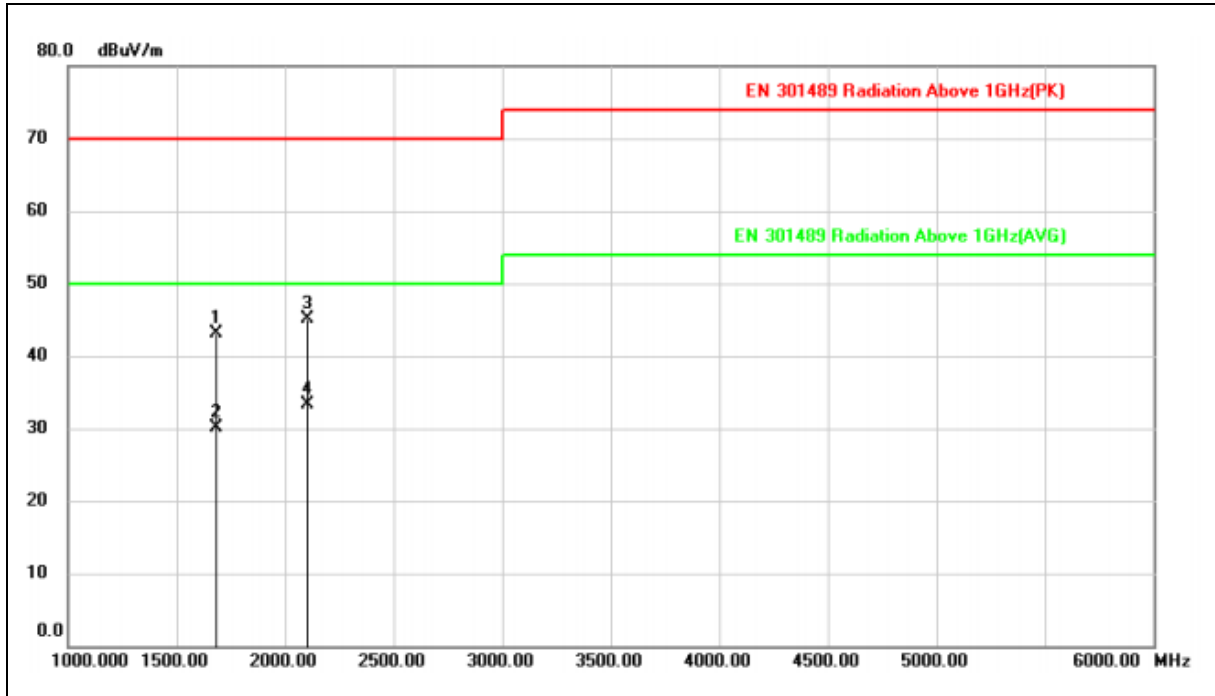
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dBuV/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	!	105.6414	51.95	-14.45	37.50	40.00	-2.50	QP		
2	!	144.8418	55.20	-17.70	37.50	40.00	-2.50	QP		
3	*	189.7384	53.68	-14.78	38.90	40.00	-1.10	QP		
4		256.5210	51.84	-11.84	40.00	47.00	-7.00	QP		
5		360.4476	46.97	-9.37	37.60	47.00	-9.40	QP		
6		480.5276	48.36	-7.36	41.00	47.00	-6.00	QP		

Temperature:	25°C	Relative Humidity:	56%
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	AC 230V/50Hz	Test mode:	Mode 1



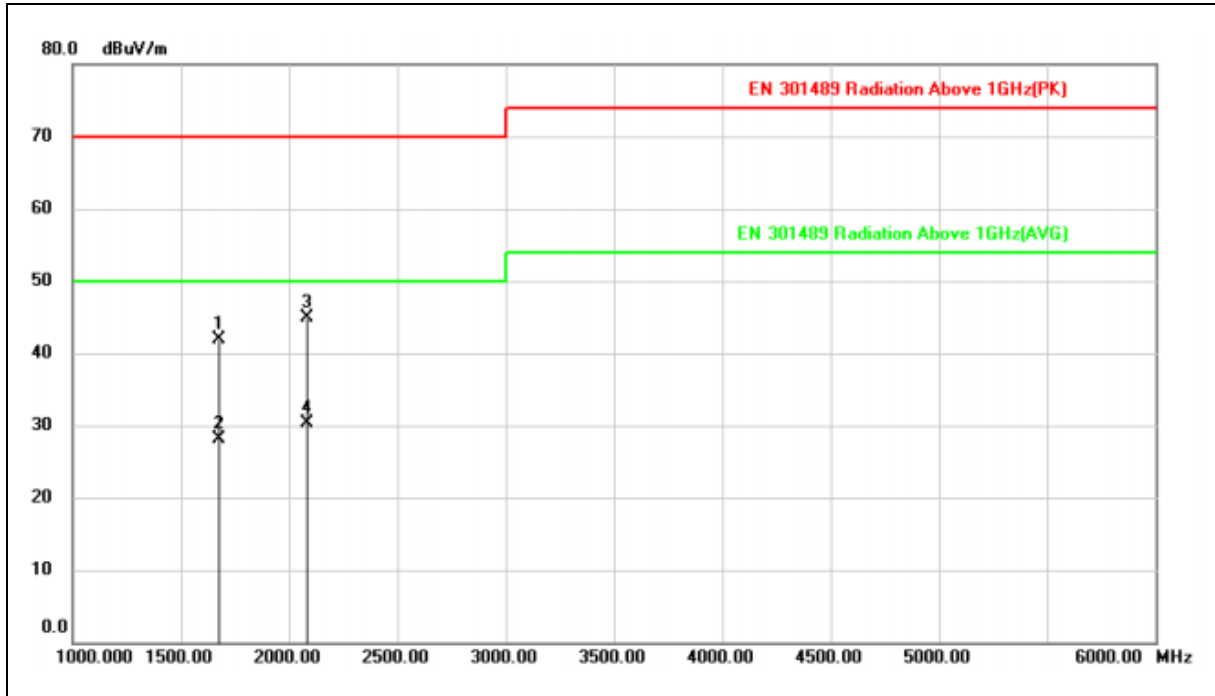
No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	cm	degree	Comment
1	!	104.5361	50.64	-14.44	36.20	40.00	-3.80	QP		
2	!	173.8135	53.47	-16.17	37.30	40.00	-2.70	QP		
3	*	208.5801	51.04	-13.44	37.60	40.00	-2.40	QP		
4		248.5518	49.18	-12.08	37.10	47.00	-9.90	QP		
5		314.3765	42.72	-10.32	32.40	47.00	-14.60	QP		
6		480.5276	47.46	-7.36	40.10	47.00	-6.90	QP		

Temperature:	25°C	Relative Humidity:	56%
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	AC 230V/50Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		1684.340	58.40	-15.22	43.18	70.00	-26.82			peak
2		1684.340	45.33	-15.22	30.11	50.00	-19.89			AVG
3		2103.680	57.49	-12.40	45.09	70.00	-24.91			peak
4	*	2103.680	45.61	-12.40	33.21	50.00	-16.79			AVG

Temperature:	25°C	Relative Humidity:	56%
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	AC 230V/50Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB	cm	degree	Comment
1		1672.140	57.08	-15.26	41.82	70.00	-28.18			peak
2		1672.140	43.41	-15.26	28.15	50.00	-21.85			AVG
3		2084.680	57.37	-12.52	44.85	70.00	-25.15			peak
4	*	2084.680	42.76	-12.52	30.24	50.00	-19.76			AVG

## 5 Immunity test

### 5.1 Electrostatic discharge immunity (ESD)

#### 5.1.1 Test Method

The test method shall be in accordance with EN 61000-4-2.

For radio equipment and ancillary equipment the following requirements and evaluation of test results shall apply.

The test severity level for contact discharge shall be 4 kV and for air discharge 8kV. All other details, including intermediate test levels, are contained within EN 61000-4-2.

Electrostatic discharges shall be applied to all exposed surfaces of the EUT except where the user documentation specifically indicates a requirement for appropriate protective measures (see EN 61000-4-2).

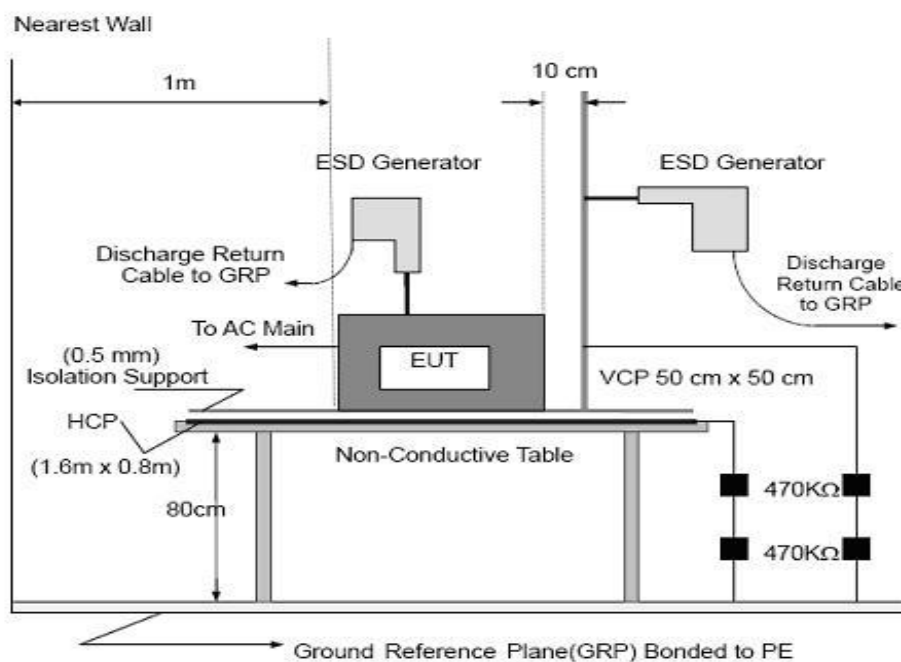
#### 5.1.2 Performance criteria

For transmitters the performance criteria for transient phenomena for transmitter shall apply.

For receivers the performance criteria for transient phenomena for receivers shall apply.

For ancillary equipment the pass/failure criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with a receiver or transmitter in which case the corresponding performance criteria above shall apply.

#### 5.1.3 Test Setup



**5.1.4 Test Result**

Temperature:	24°C	Relative Humidity:	47%
Pressure:	101kPa	Test mode:	Mode 1,2

**Indirect discharge**

Test Point	Contact discharge level (kV)	Number and polarity	Criterion met	Criterion Required
1. VCP-Front side	<input type="checkbox"/> ..2 <input checked="" type="checkbox"/> ..4	25 (+)	A	B
	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	25 (-)	A	
2.VCP-Rear side	<input type="checkbox"/> ..2 <input checked="" type="checkbox"/> ..4	25 (+)	A	
	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	25 (-)	A	
3.VCP-Left side	<input type="checkbox"/> ..2 <input checked="" type="checkbox"/> ..4	25 (+)	A	
	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	25 (-)	A	
4. VCP-Right side	<input type="checkbox"/> ..2 <input checked="" type="checkbox"/> ..4	25 (+)	A	
	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	25 (-)	A	
5. HCP	<input type="checkbox"/> ..2 <input checked="" type="checkbox"/> ..4	25 (+)	A	
	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	25 (-)	A	

**Result: Compliance.**

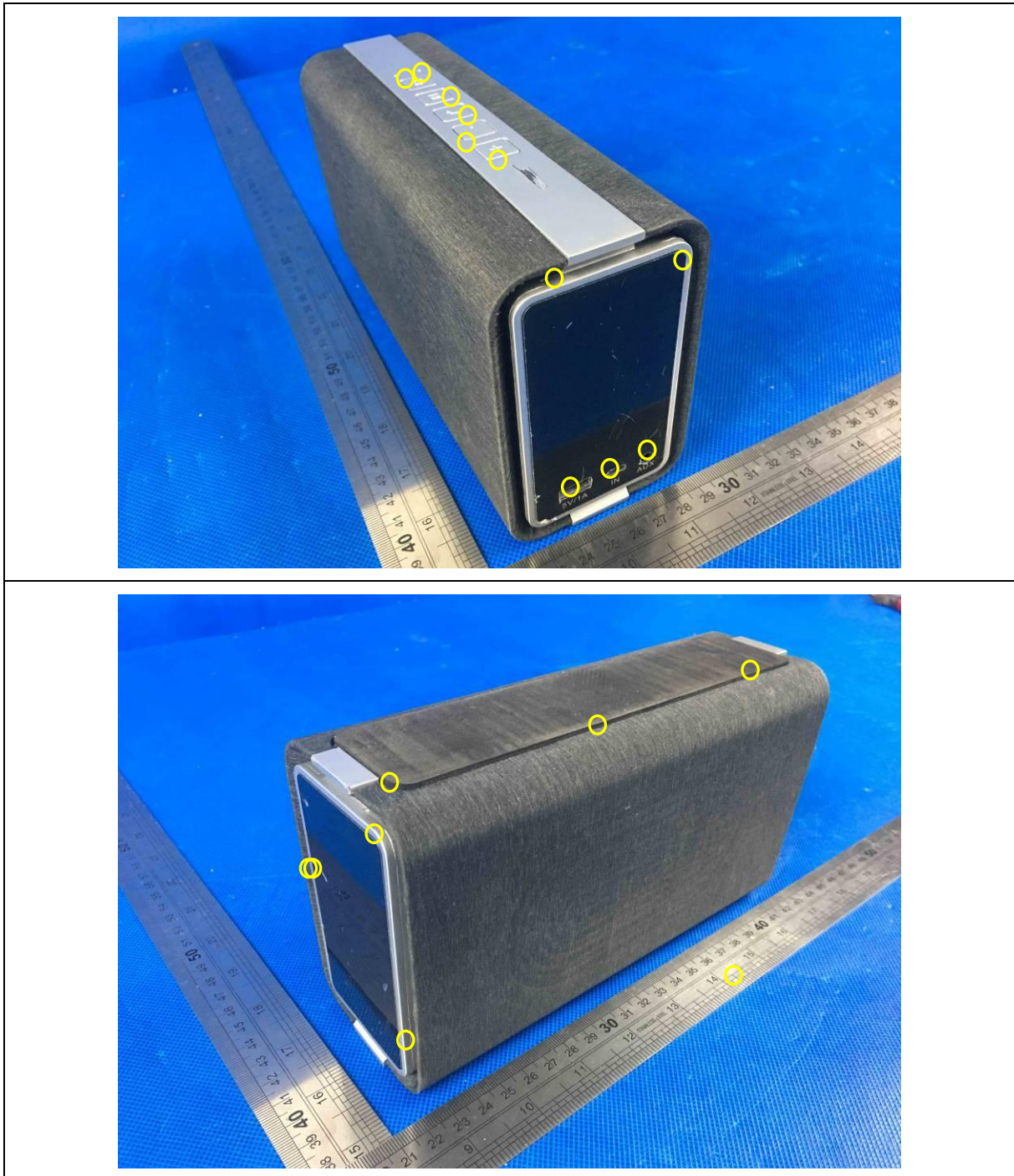
**Direct discharge**

Test Point	discharge level (kV)	Air discharge level (kV)	Number and polarity	Criterion met	Criterion Required
1. Each nonconductive location touchable by hand	<input type="checkbox"/> ..2 <input type="checkbox"/> ..4	<input type="checkbox"/> ..2 <input type="checkbox"/> ..4	25 (+)	A	B
	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	<input type="checkbox"/> ..6 <input checked="" type="checkbox"/> ..8	25 (-)	A	
1. Each conductive location touchable by hand	<input type="checkbox"/> ..2 <input type="checkbox"/> ..4	<input type="checkbox"/> ..2 <input type="checkbox"/> ..4	25 (+)	A	
	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	<input type="checkbox"/> ..6 <input type="checkbox"/> ..8	25 (-)	A	

**Result: compliance.**

Note1: Please see the photographs below about the details of test points.

**Test location**



Note: Yellow circle for Air Discharge, Red circle for Contact Discharge



## 5.2 RF electromagnetic field immunity (RS)

### 5.2.1 Test Method

The test method shall be in accordance with EN 61000-4-3.

The following requirements and evaluation of test results shall apply:

- the test level shall be 3V/m (measured unmodulated). The test signal shall be amplitude modulated to a depth of 80% by a sinusoidal audio signal of 1000Hz. If the wanted signal is modulated at 1000Hz, then an audio signal of 400Hz shall be used;
- the test shall be performed over the frequency range 80MHz to 1000MHz and 1400MHz to 2700MHz with the exception of the exclusion band for transmitters, receivers and duplex transceivers, as appropriate;
- for receivers and transmitters the stepped frequency increments shall be 1% frequency increment of the momentary used frequency;
- responses on receivers occurring at discrete frequencies, which are narrow band responses, shall be disregarded from the test;

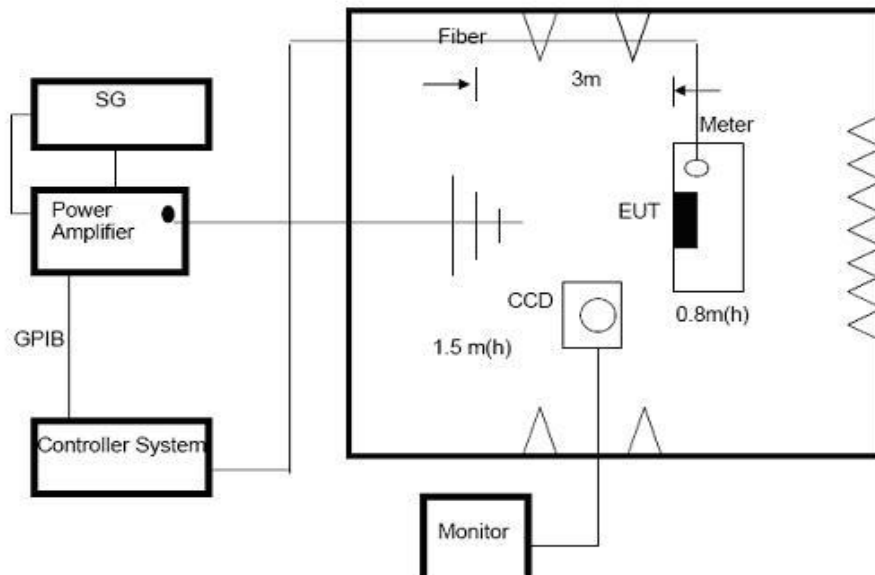
### 5.2.2 Performance criteria

For transmitters the performance criteria for continuous phenomena for transmitters shall apply.

For receivers the performance criteria for continuous phenomena for receivers shall apply.

For ancillary equipment the pass/failure criteria supplied by the manufacturer shall apply, unless the ancillary equipment is tested in connection with a receiver or transmitter in which case the corresponding performance criteria above shall apply.

### 5.2.3 Test setup



**5.2.4 Test Result**

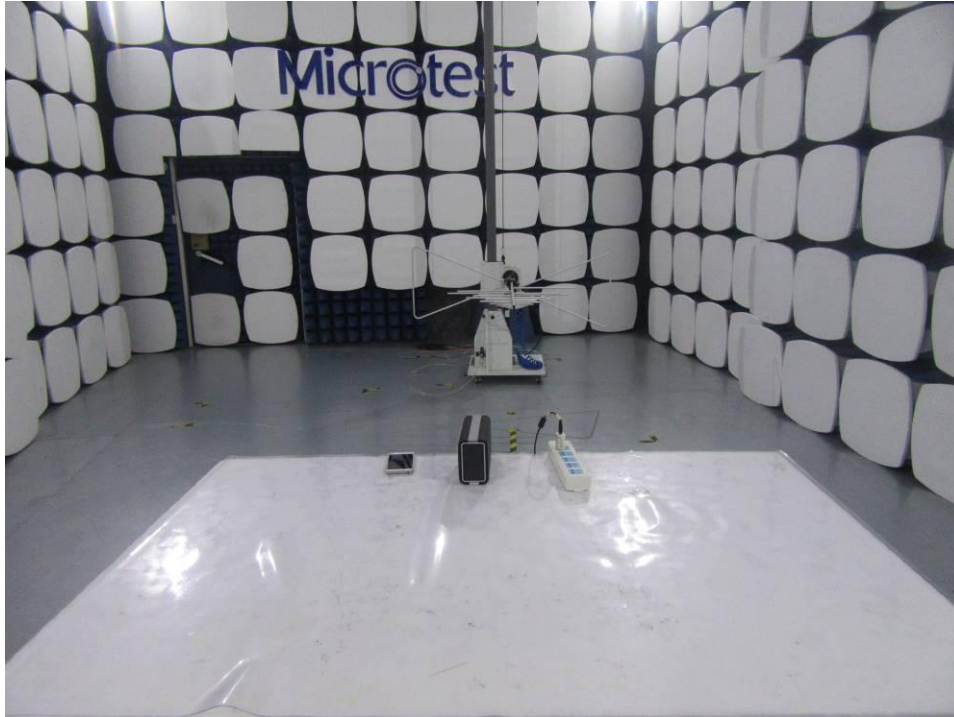
Temperature:	25°C	Relative Humidity:	46%
Pressure:	101kPa	Test mode:	Mode 1,2

Frequency Range (MHz)	RF Field Position	R.F. Field Strength	Azimuth	Criterion met	Criterion Required
80~1000 1400-2700	H / V	3 V/m (rms) AM Modulated 1000Hz, 80%	Front	A	A
			Rear		
			Left		
			Right		

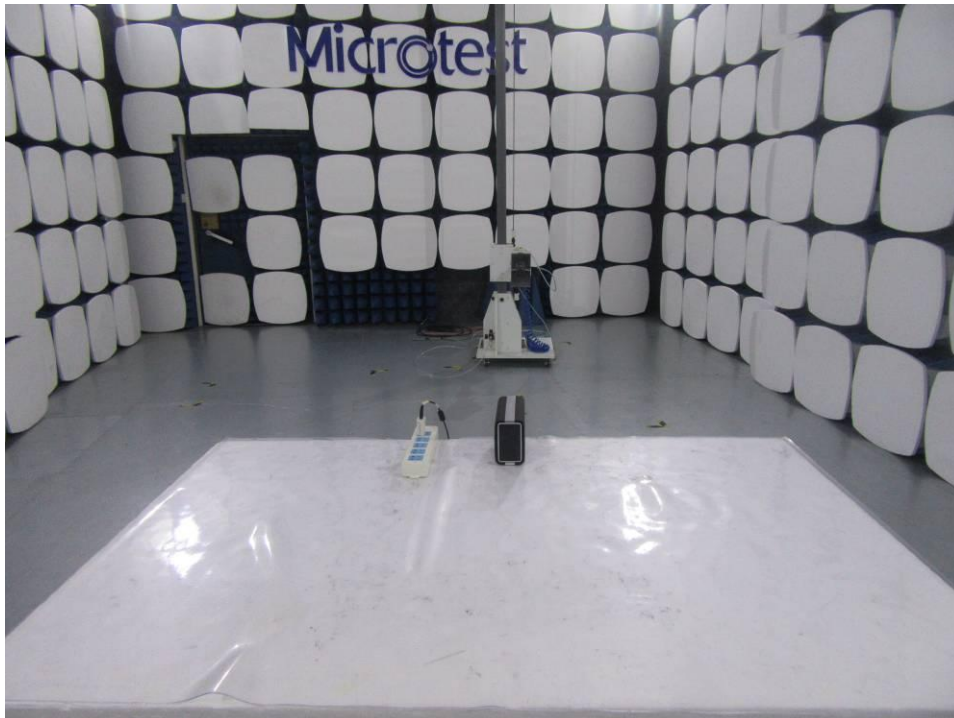
**Result: compliance.**

## Photographs of the Test Setup

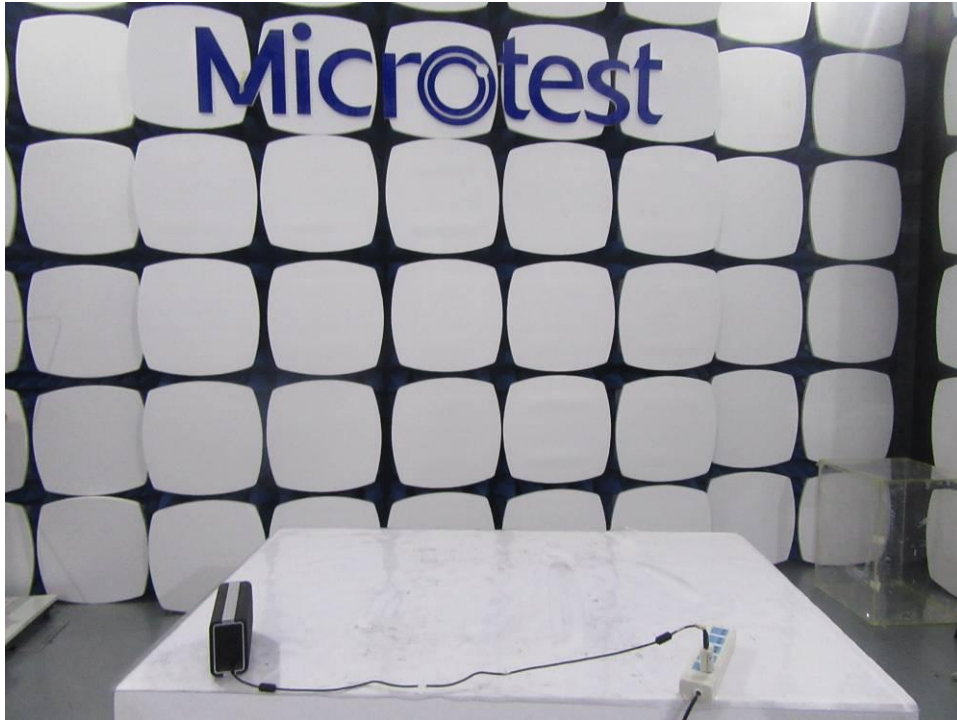
Radiated emission-below 1GHz



Radiated emission – above 1GHz



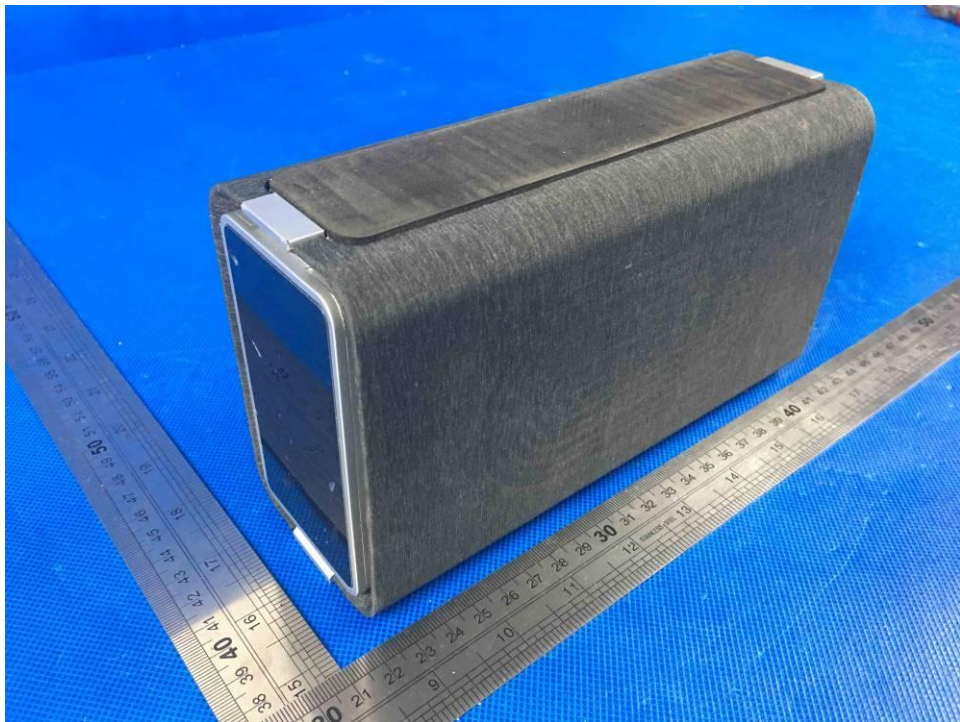
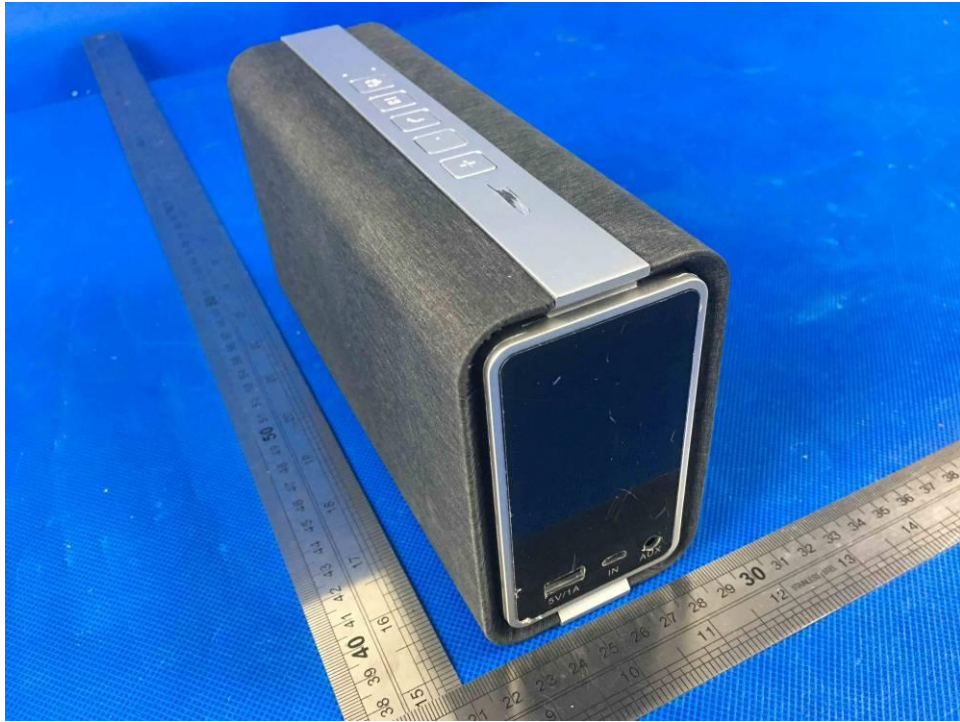
RS



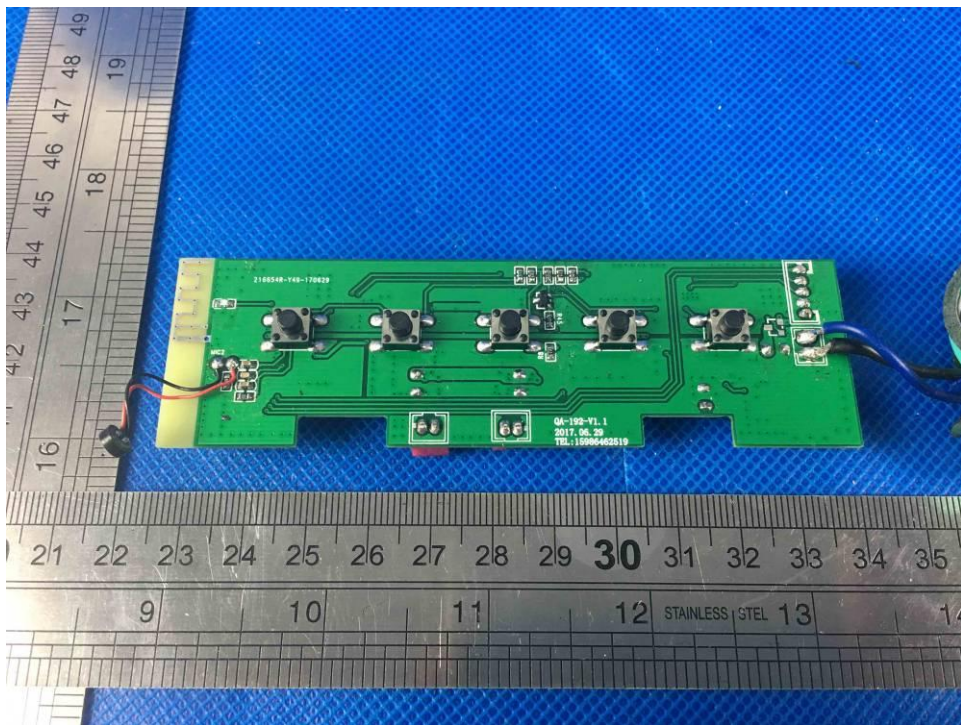
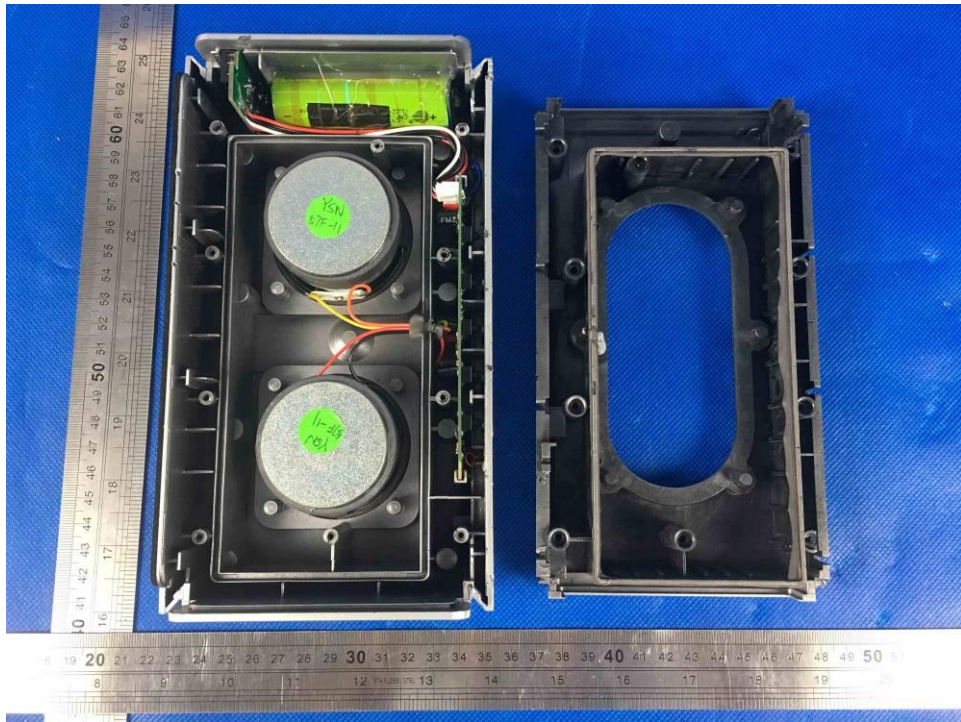
ESD

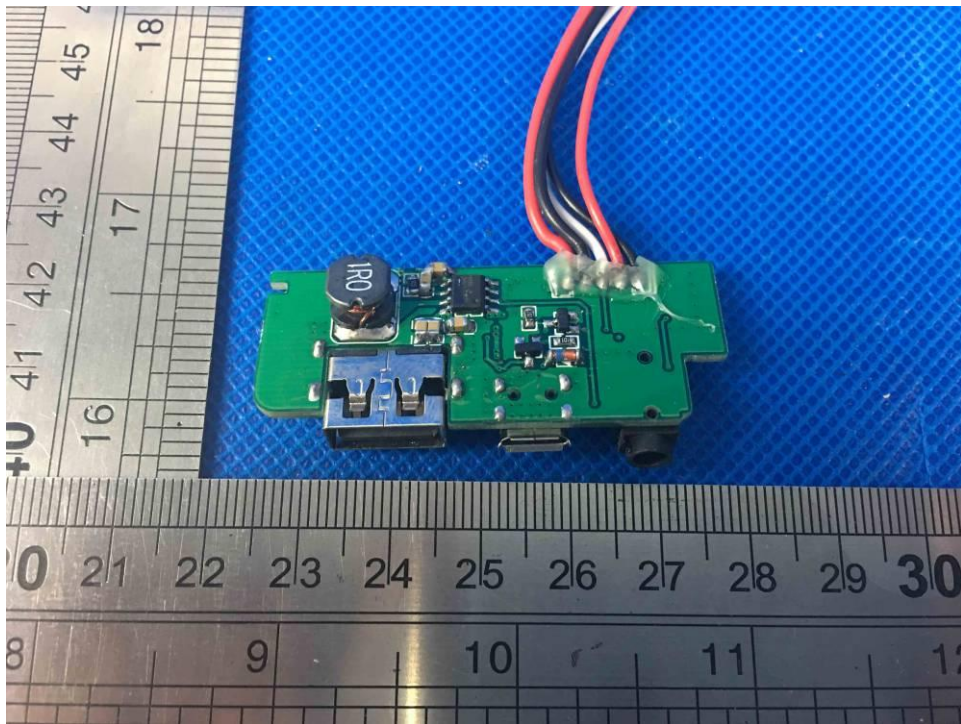
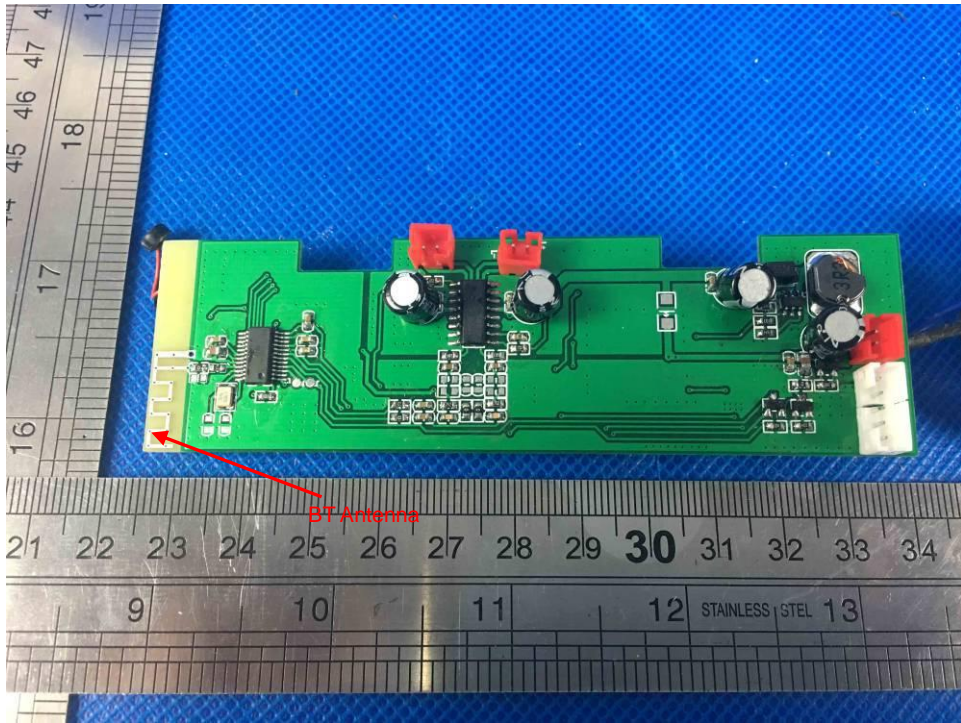


## Photographs of the EUT

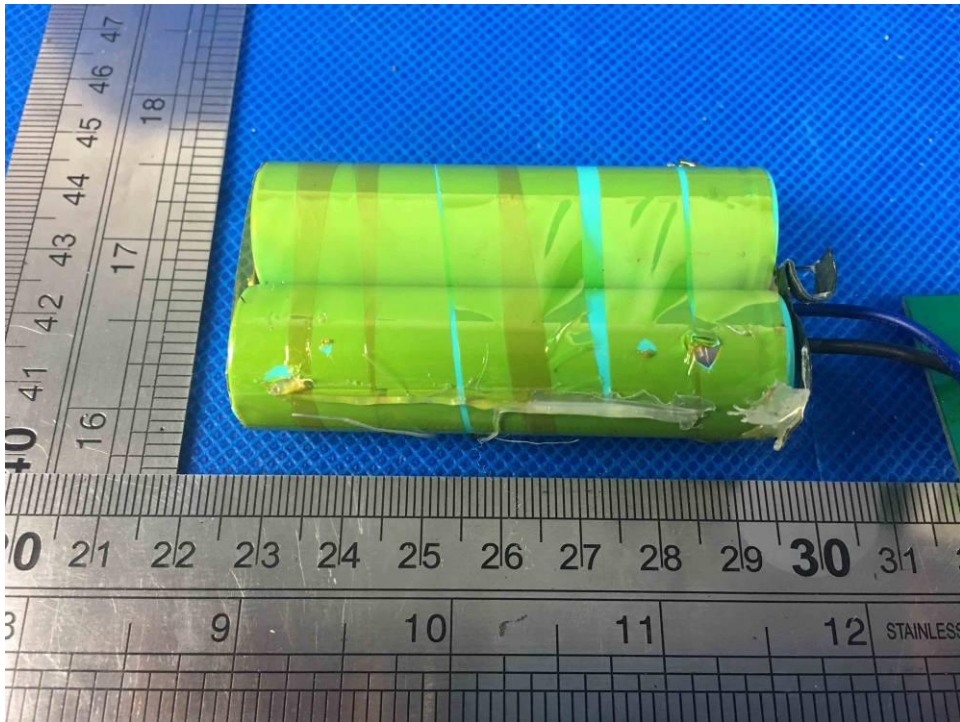
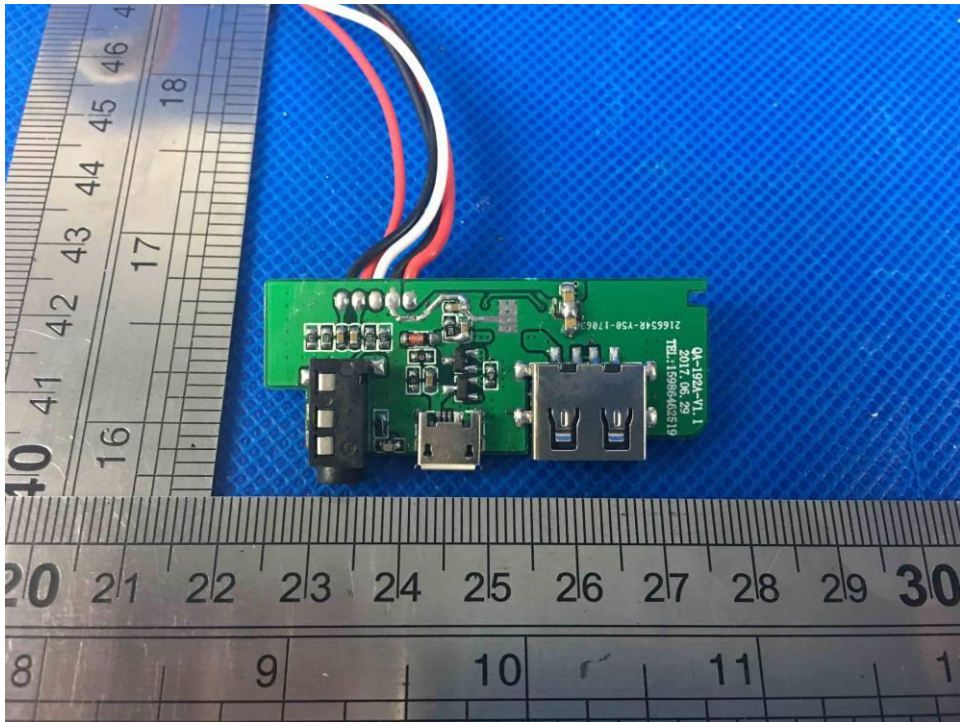












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