



TEST REPORT

Reference No. : WTF19S19120313E
Manufacturer* : DIGIVIEW TECHNOLOGY LIMITED
Address : West of 2/F, Building B1, Gaoxinjian Industrial Park,
Fuyuan 1st Road, FuYong, Baoan, Shenzhen
Factory : DIGIVIEW TECHNOLOGY LIMITED
Product : ABS Wheat Straw BT 5.0 speaker
Model(s) : DSBT002-W
Standards : EN 55032: 2015
EN 55024:2010/A1:2015
EN 61000-3-2: 2014
EN 61000-3-3: 2013
Date of Receive sample : 2019-11-18
Date of Test : 2019-11-18 to 2019-12-02
Date of Issue : 2019-12-03
Test Result : Pass

Remarks:

1. The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.
2. "*" **manufacturer** means any natural or legal person who manufactures radio equipment or has radio equipment designed or manufactured, and markets that equipment under his name or trade mark.

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTF19S19120 313E	2019-11-18	2019-11-18 to 2019-12-02	2019-12-03	original	-	Valid



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4 General Information

4.1 General Description of E.U.T.

Product	ABS Wheat Straw BT 5.0 speaker
Model(s)	DSBT002-W
Model	N/A
Description	Bluetooth V5.0+EDR
Bluetooth	V1.0
Version	2.3.1
Hardware version	

4.2 Details of E.U.T.

Software Version	
Ratings	Battery DC 3.7V 300mAh

4.3 Standards Applicable for Testing

EN 55032	Electromagnetic compatibility of multimedia equipment - Emission Requirements
EN 55024 EN	Information technology equipment - Immunity characteristics - Limits and methods of measurement
61000-3-2	Electromagnetic compatibility (EMC) -- Part 3-2: Limits - Limits for harmonic current emissions (equipment input current up to and including 16 A per phase)
EN 61000-3-3	Electromagnetic compatibility (EMC) -- Part 3-3: Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

4.4 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs

☐ Yes ☒ No

If Yes, list the related test items and lab information

Test Lab: N/A Lab address:

N/A Test items: N/A



4.5 Abnormalities from Standard Conditions

None.

4.6 Test Mode Description

Radiated Emissions	
TM1*	Bluetooth link+USB
Electrostatic Discharge(ESD)	
TM1*	Bluetooth link+USB
Radiated Immunity(R/S)	
TM1*	Bluetooth link+USB
** shows the worst case mode which were recorded in this report.	





5 Test Summary

EMISSION (EN 55032)		
Test Items	Test Requirement	Result
Conducted Disturbance at Mains Terminal,	EN 55032: 2012+AC: 2013	N/A
Conducted Common Mode (asymmetric mode) Disturbance at Telecommunication Ports	EN 55032: 2012+AC: 2013	N/A
Radiation Emission, 30MHz to 1000MHz	EN 55032: 2012+AC: 2013	PASS
Radiation Emission, Above 1GHz	EN 55032: 2012+AC: 2013	PASS
Harmonic Current	EN 61000-3-2:2014	N/A
Voltage Fluctuation and Flicker	EN 61000-3-3:2013	N/A
IMMUNITY (EN 55024)		
Test Items	Test Requirement	Result
Electrostatic Discharge(ESD)	IEC 61000-4-2:2008	PASS
Radiation Immunity (80MHz to 1GHz)	IEC 61000-4-3:2010	PASS
Electrical Fast Transients (EFT)	IEC 61000-4-4:2012	N/A
Surges	IEC 61000-4-5:2005	N/A
Injected Currents, 0.15MHz to 80MHz	IEC 61000-4-6:2008	N/A
Power-frequency magnetic fields	IEC 61000-4-8:2009	N/A
Voltage Dips	IEC 61000-4-11:2004	N/A
Voltage interruptions	IEC 61000-4-11:2004	N/A
Remark: PASS: Test item meets the requirement N/A: Not Applicable		



6 Equipment Used during Test

6.1 Equipment List

Conducted Emissions						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	EMI Test Receiver	R&S	ESCI	101155	2019-09-12	2020-09-11
2	LISN	SCHWARZBECK	NSLK 8128	8128-289	2019-09-12	2020-09-11
3	Limiter	York	MTS-IMP-136	261115-001-0024	2019-09-12	2020-09-11
4	Cable	LARGE	RF300	-	2019-09-12	2020-09-11
3m Semi-anechoic Chamber for Radiation Emissions						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSP	100091	2019-04-29	2020-04-28
2	Amplifier	Agilent	8447D	2944A10178	2019-01-13	2020-01-12
3	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	2019-10-17	2020-10-16
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2019-04-09	2020-04-08
5	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2019-09-12	2020-09-11
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2019-04-09	2020-04-08
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2019-04-13	2020-04-12
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2019-04-13	2020-04-12
Harmonic/ Flicker						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Digital Power Analyzer	SCHAFFNER	CCN 1000-1	72625	2019-04-13	2020-04-12
2	Power Source	SCHAFFNER	NSG 1007	58477	2019-04-13	2020-04-12
Electrostatic Discharge						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Electrostatic Discharge Simulator	HAEFELY	PESD 1610	20011086	2019-05-31	2020-05-30
Conducted Immunity						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	RF Generator	TESEQ	NSG4070	25781	2019-09-12	2020-09-11
2	CDN M-Type	TESEQ	CDN M016	25112	2019-09-12	2020-09-11
3	EM-Clamp	TESEQ	KEMZ 801	25453	2019-09-12	2020-09-11
4	Attenuator 6dB	TESEQ	ATN6050	25365	2019-09-12	2020-09-11

**Surge, EFT, Voltage dips and Interruption**

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	All Modules Generator	SCHAFFNER	6150	34579	2019-09-22	2020-09-21
2	EMS Modules Generator	EMC PARTNER TRANSIENT	2000	494	2019-09-22	2020-09-21
3	Capacitive Coupling Clamp	SCHAFFNER	CDN 8014	25311	2019-09-22	2020-09-21
4	Signal and Data Line Coupling Network	SCHAFFNER	CDN 117	25627	2019-09-22	2020-09-21

Radio-frequency electromagnetic fields

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Signal Generator	R&S	SMB100A	105942	2019-09-12	2020-09-11
2	RF Power Amplifier	BONN Elektronik	BLWA0830-160/100/40D	128740	2019-09-12	2020-09-11
3	Gestockte Breitband (S tacked) Log.-per.Antenna	SCHWARZBECK	STLP9128D	043	2019-09-12	2020-09-11
4	Power Meter	R&S	NRP2	102031	2019-09-12	2020-09-11

3m Semi-anechoic Chamber for Radiation(TDK)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	2019-04-13	2020-04-12
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2019-04-09	2020-04-08
3	Amplifier	ANRITSU	MH648A	M43381	2019-04-13	2020-04-12
4	Cable	HUBER+SUHNER	CBL2	525178	2019-04-13	2020-04-12

6.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/

6.3 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±3.64dB	(1)
Radiation	30MHz~1000MHz	±5.08dB	(1)
	1000MHz~6000MHz	±4.99dB	(1)

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



7 Emission Test Results

7.1 Radiation Emission, 30MHz to 1000MHz

Test Requirement..... : EN 55032
Test Method..... : EN 55032
Test Result : Pass
Frequency Range..... : 30MHz to 1000MHz
Class/Severity : Class B/ Table A.4 and A.6 of EN 55032

7.1.1 E.U.T. Operation

Operating Environment:

Temperature : 23°C
Humidity..... : 53.8%RH
Atmospheric Pressure : 101.5kPa

EUT Operation:

Input Voltage..... : (1)DC 5V by Adapter Input AC 230V/50Hz
(2)DC 5V by PC
(3)DC 3.7V by Battery

Operating Mode..... : Refer to section 5.6.

Remark : The worst case is under the condition of AC 230V/50Hz adapter input and the data is shown as follow.

7.1.2 Block Diagram of Test Setup

The Radiation Emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the EN 55032.

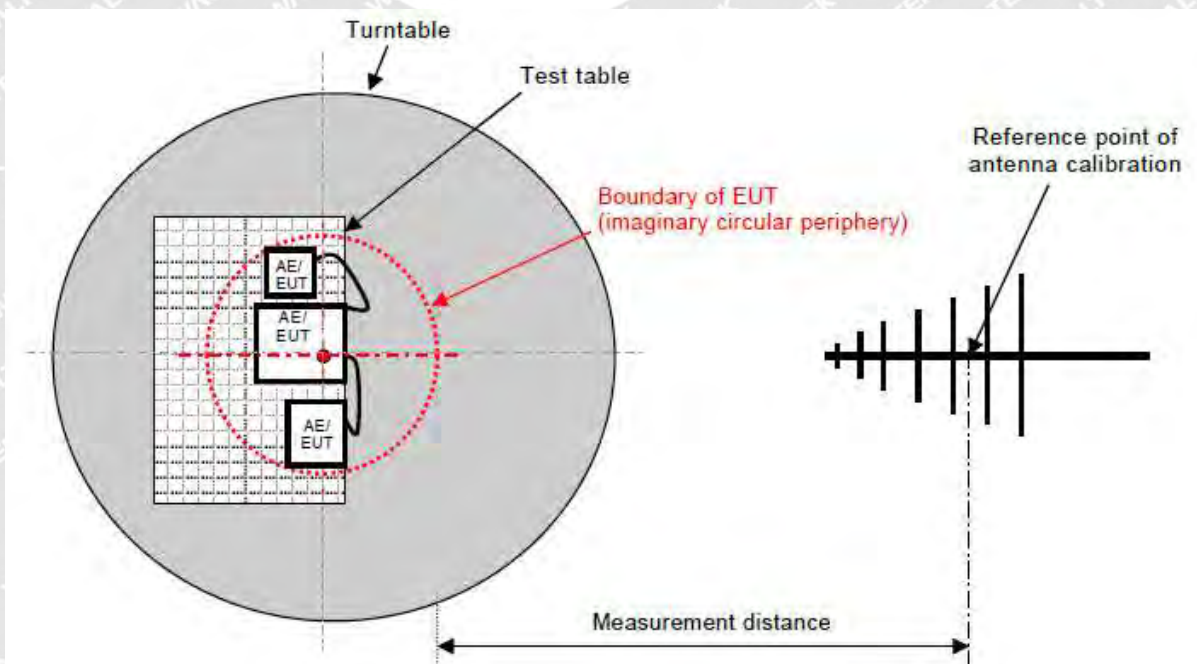


Figure C.1 – Measurement distance

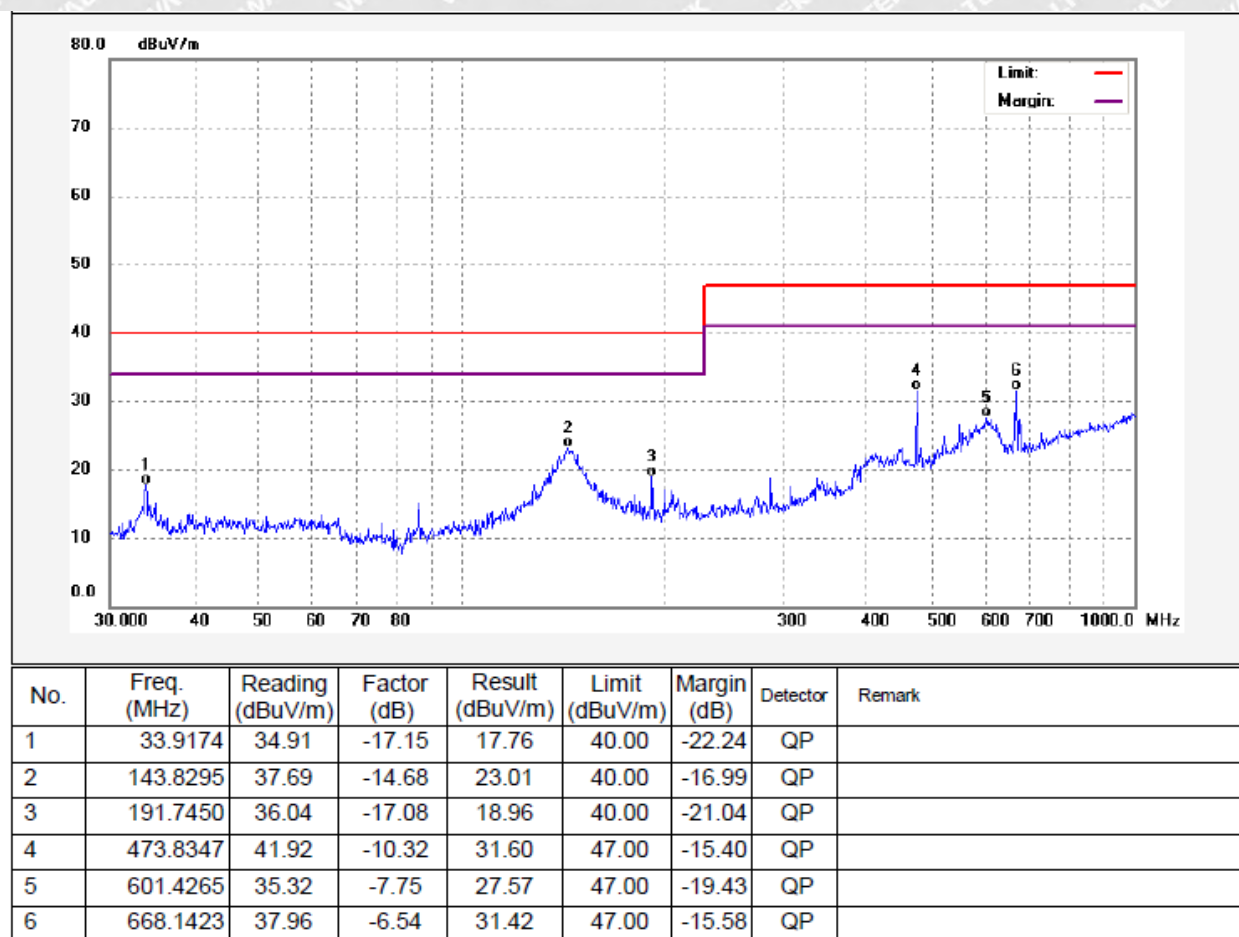


7.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Quasi-peak measurements were performed if peak emissions were within 6dB of the Quasi-peak limit line.

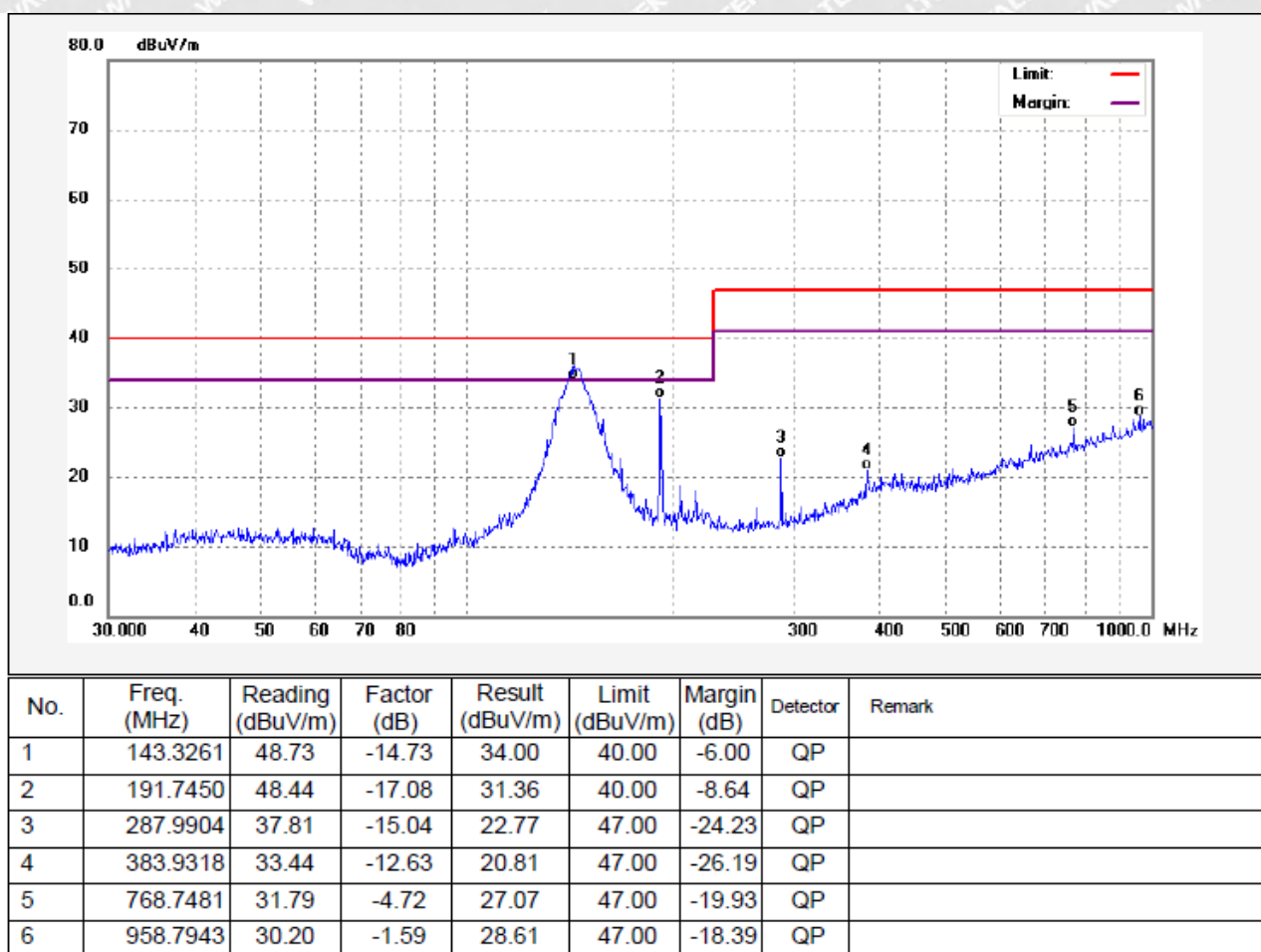
7.1.4 Radiation Emission Test Data, 30MHz to 1000MHz

Antenna polarization: Vertical





Antenna polarization: Horizontal





7.2 Radiation Emission, Above 1000MHz

Test Requirement..... : EN 55032
Test Method..... : EN 55032
Test Result : Pass
Frequency Range..... : 1000MHz to 6000MHz
Class/Severity : Class B/ A.5 of EN 55032

7.2.1 E.U.T. Operation

Operating Environment:

Temperature..... : 23.3°C
Humidity..... : 52.9%RH
Atmospheric Pressure : 101.3kPa

EUT Operation:

Input Voltage : (1)DC 5V by Adapter Input AC 230V/50Hz
(2)DC 5V by PC
(3)DC 3.7V by Battery

Operating Mode..... : Refer to section 5.6.

Remark..... : The worst case is under the condition of AC 230V/50Hz adapter input and the data is shown as follow.

7.2.2 Block Diagram of Test Setup

The Radiation emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the EN 55032.

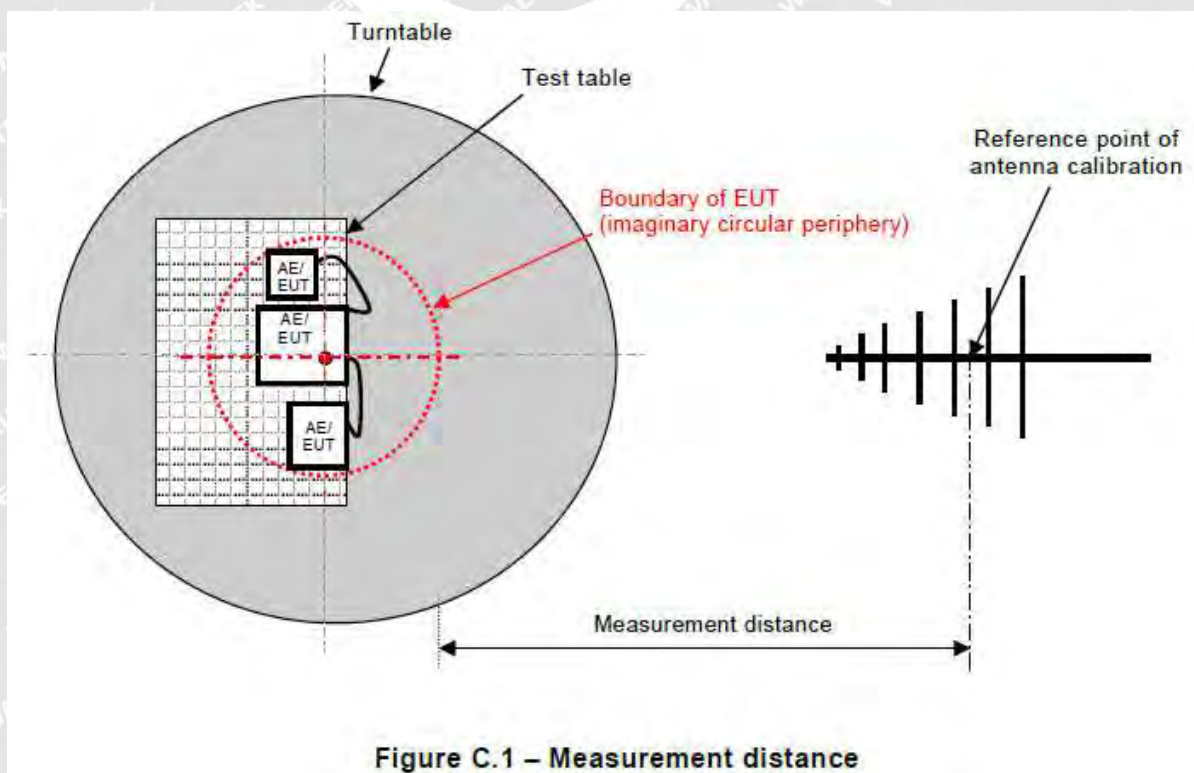


Figure C.1 – Measurement distance



7.2.3 Frequency Range of Measurement

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Average measurements were performed if peak emissions were within 6dB of the average limit line.

The test Frequency range judgment basis:

If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz.

If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz.

If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz.

If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 6 GHz, whichever is less.

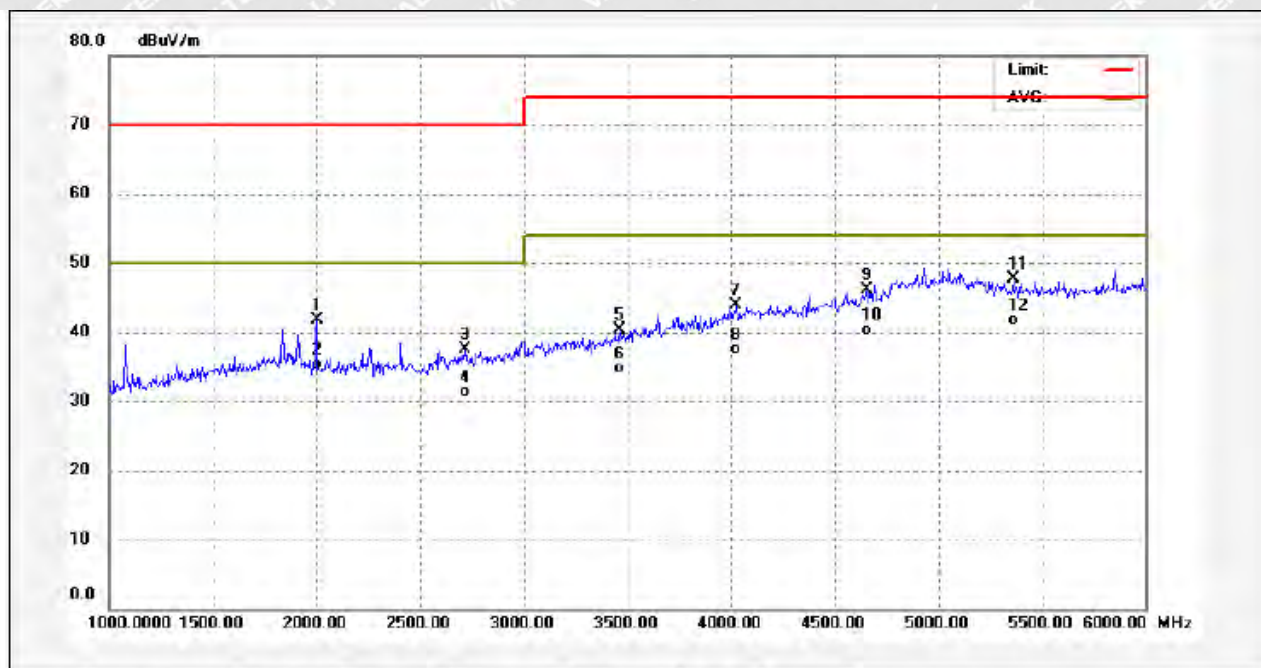


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7.2.4 Radiation Emission Test Data, Above 1000MHz

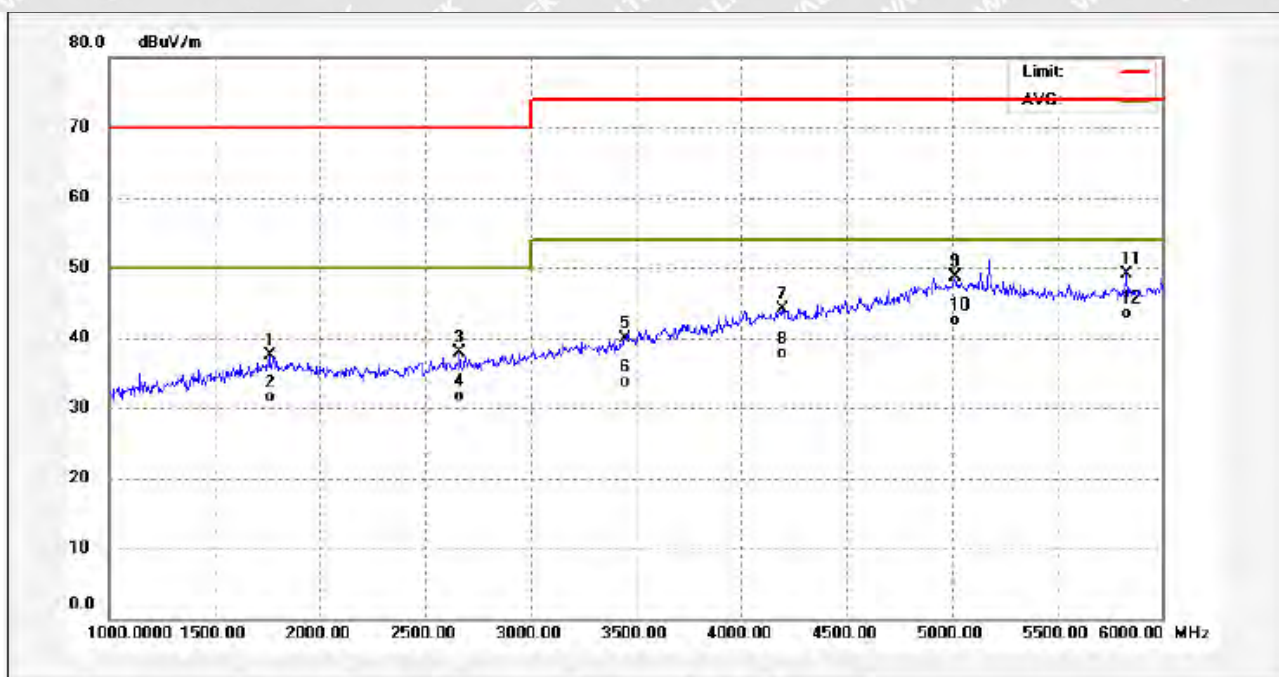
Antenna polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	2000.000	54.11	-12.48	41.63	70.00	-28.37	peak	
2	2000.000	47.85	-12.48	35.37	50.00	-14.63	AVG	
3	2715.000	48.64	-11.15	37.49	70.00	-32.51	peak	
4	2715.000	42.43	-11.15	31.28	50.00	-18.72	AVG	
5	3460.000	48.69	-8.41	40.28	74.00	-33.72	peak	
6	3460.000	43.10	-8.41	34.69	54.00	-19.31	AVG	
7	4025.000	49.29	-5.33	43.96	74.00	-30.04	peak	
8	4025.000	42.85	-5.33	37.52	54.00	-16.48	AVG	
9	4655.000	48.53	-2.44	46.09	74.00	-27.91	peak	
10	4655.000	42.78	-2.44	40.34	54.00	-13.66	AVG	
11	5360.000	48.80	-1.08	47.72	74.00	-26.28	peak	
12	5360.000	42.74	-1.08	41.66	54.00	-12.34	AVG	



Antenna polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1760.000	47.26	-9.84	37.42	70.00	-32.58	peak	
2	1760.000	41.42	-9.84	31.58	50.00	-18.42	AVG	
3	2665.000	45.30	-7.34	37.96	70.00	-32.04	peak	
4	2665.000	39.08	-7.34	31.74	50.00	-18.26	AVG	
5	3450.000	45.99	-6.18	39.81	74.00	-34.19	peak	
6	3450.000	39.83	-6.18	33.65	54.00	-20.35	AVG	
7	4195.000	48.62	-4.60	44.02	74.00	-29.98	peak	
8	4195.000	42.22	-4.60	37.62	54.00	-16.38	AVG	
9	5015.000	50.95	-2.33	48.62	74.00	-25.38	peak	
10	5015.000	44.82	-2.33	42.49	54.00	-11.51	AVG	
11	5830.000	50.49	-1.35	49.14	74.00	-24.86	peak	
12	5830.000	44.87	-1.35	43.52	54.00	-10.48	AVG	



7.3 Electrostatic Discharge (ESD)

Test Requirement.....	: EN 55024
Test Method.....	: IEC 61000-4-2
Test Result	: Pass
Discharge Impedance	: 330Ω / 150pF
Discharge Voltage	Air Discharge: ±8kV Contact Discharge: ±4kV HCP & VCP: ±4kV
Polarity.....	: Positive & Negative
Number of Discharge	: Minimum 50 times at each test point(25 of each polarity)
Discharge Mode	: Single Discharge
Discharge Period.....	: 1 second minimum

7.3.1 E.U.T. Operation

Operating Environment:

Temperature

Humidity

Atmospheric Pressure

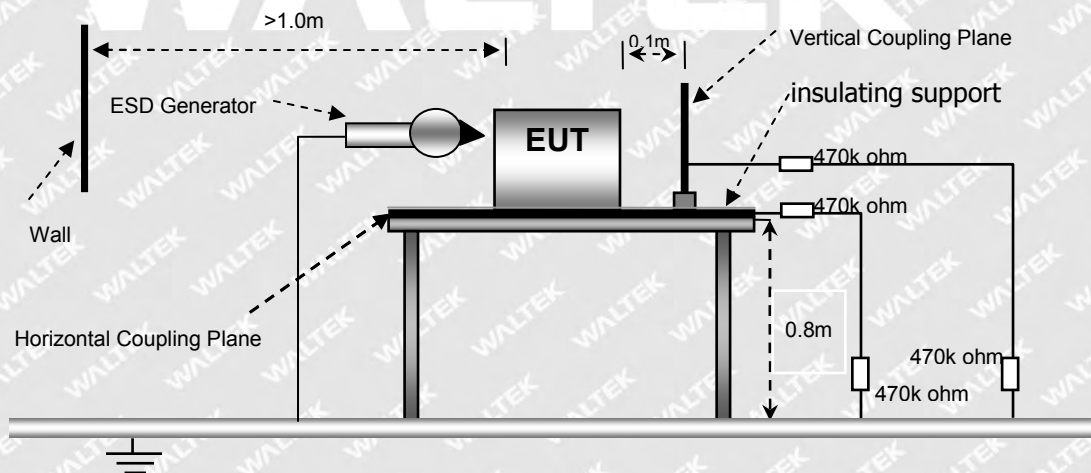
EUT Operation:

Input Voltage..... : (1)DC 5V by Adapter Input AC 230V/50Hz
(2)DC 5V by PC
(3)DC 3.7V by Battery

Operating Mode

7.3.2 Block Diagram of Setup

The ESD test was performed in accordance with the IEC 61000-4-2.





7.3.3 Direct Discharge Test Results

Observations:

Test points:

1. All Exposed Surface & Seams;
2. All metallic part

Direct Discharge			Test Results	
Applied Voltage (kV)	Performance Criterion	Test Point	Contact Discharge	Air Discharge
±8	B	1	N/A	Pass*
±4	B	2	Pass*	N/A
Remark: * During the test no deviation was detected to the selected operation mode(s)				

7.3.4 Indirect Discharge Test Results

Observations:

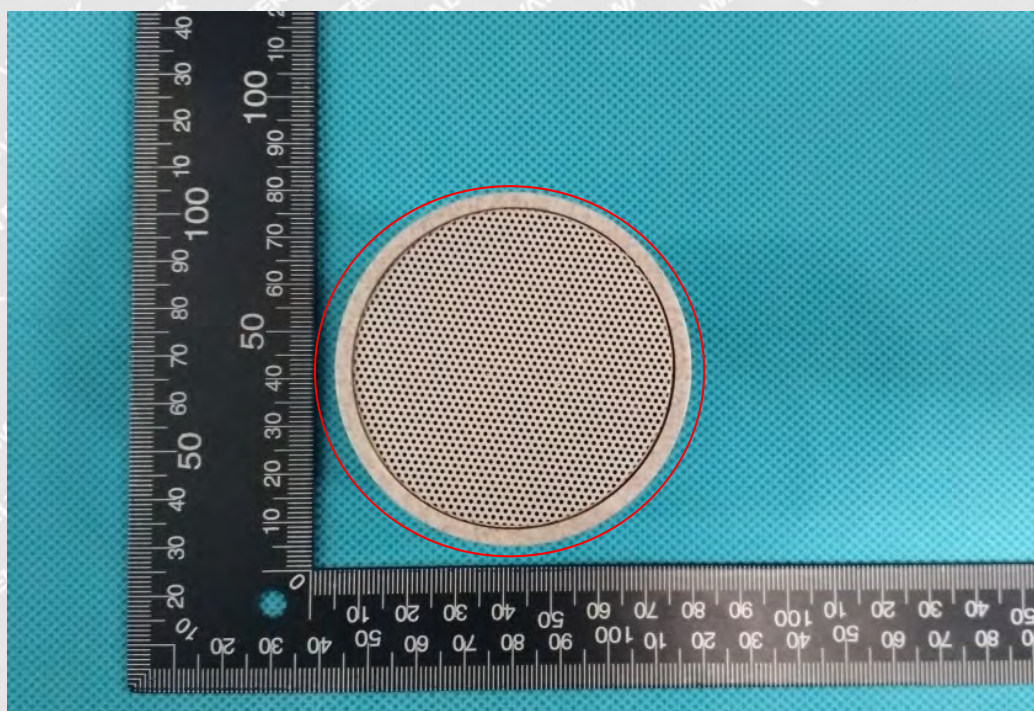
Test points: 1. All sides.

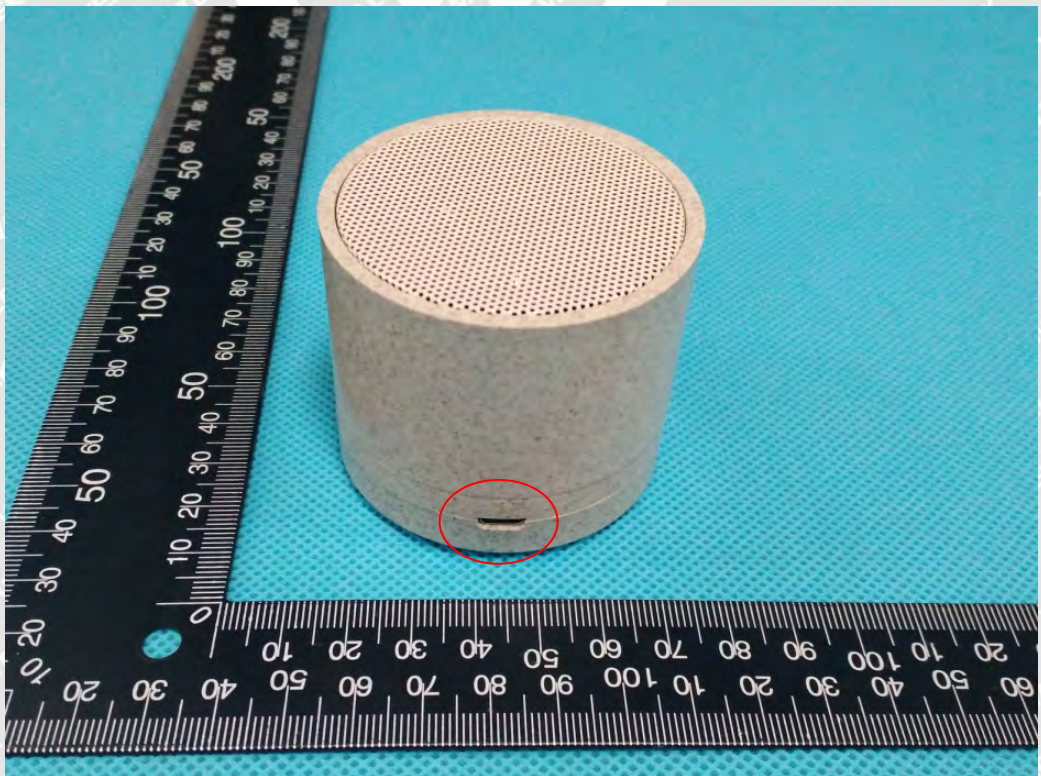
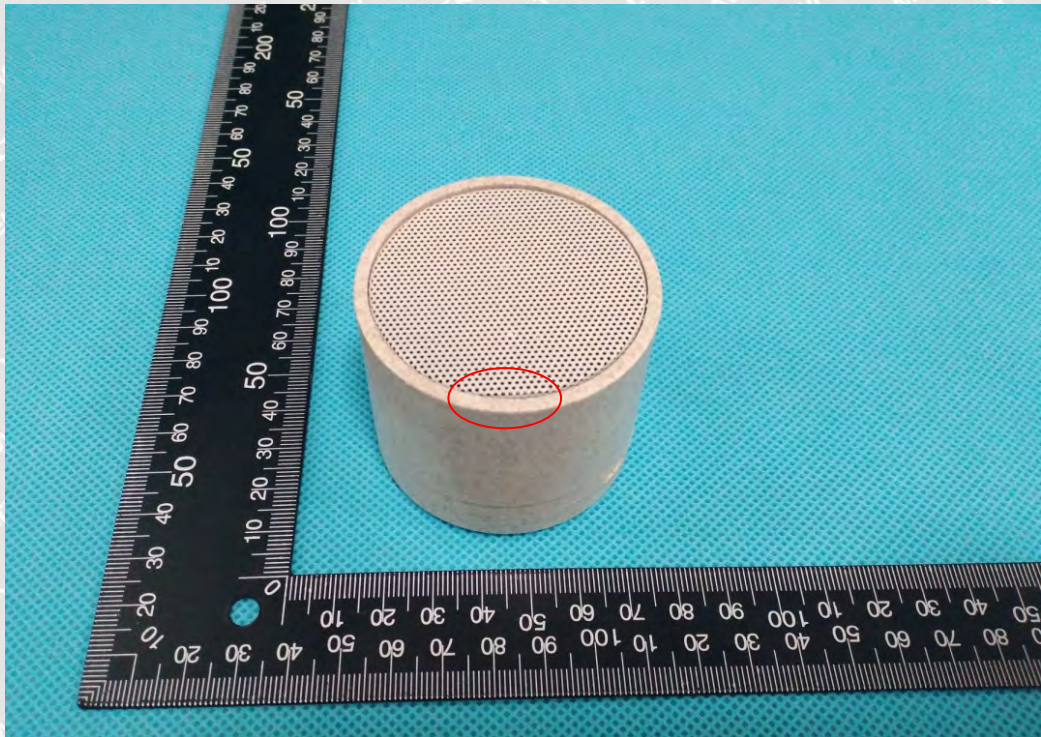
Indirect Discharge			Test Results	
Applied Voltage (kV)	Performance Criterion	Test Point	Horizontal Coupling	Vertical Coupling
±4	B	1	Pass*	Pass*
Remark: * During the test no deviation was detected to the selected operation mode(s)				

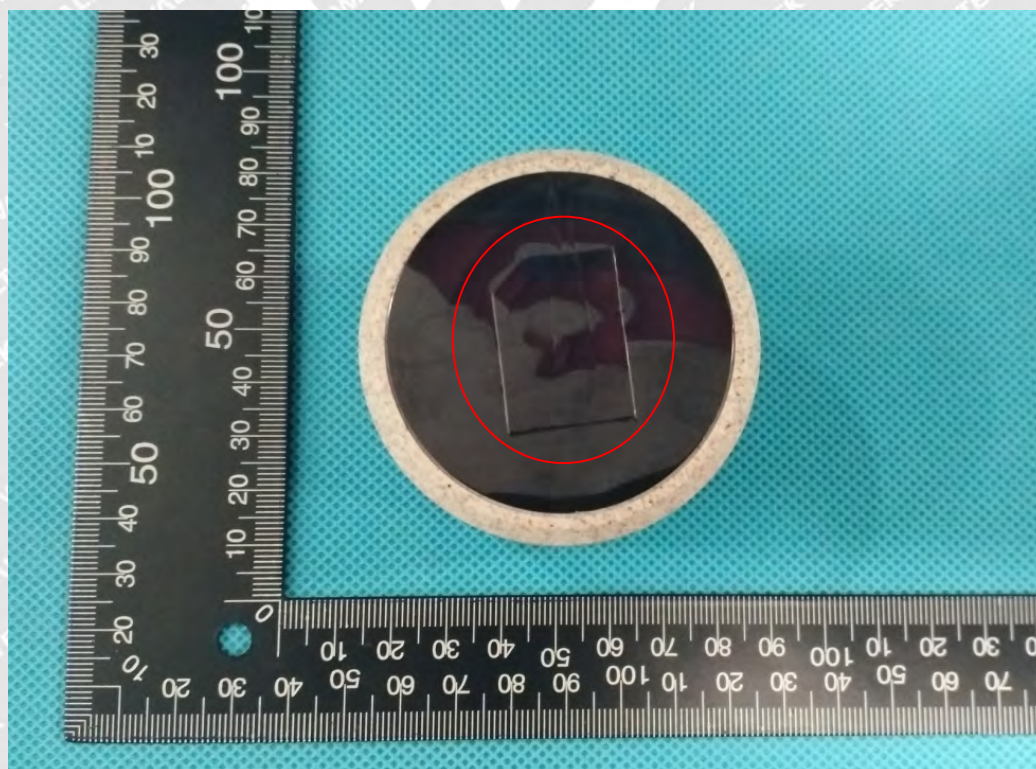
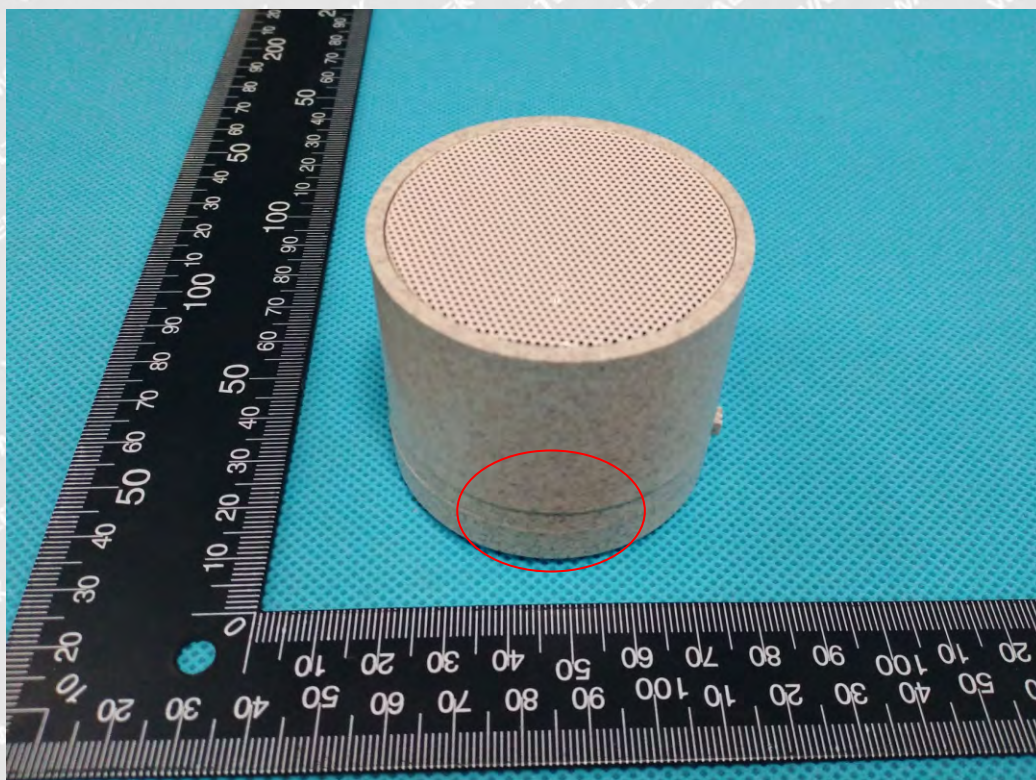
Air discharge ○

Contact discharge △

Discharge Points







7.4 Radio-frequency electromagnetic fields

Test Requirement.....	: EN 55024
Test Method.....	: IEC 61000-4-3
Test Result.....	: Pass
Frequency Range	: 80MHz to 1GHz
Test level	: 3V/m
Modulation	: 80%, 1kHz Amplitude Modulation.
Face of EUT.....	: Front, Back, Left, Right
Antenna polarisation.....	: Horizontal & Vertical

7.4.1 E.U.T. Operation

Operating Environment:

Temperature

: 23°C

Humidity.....

: 53.0% RH

Barometric Pressure.....

: 101.1kPa

EUT Operation:

Input Voltage.....

: (1)DC 5V by Adapter Input AC 230V/50Hz

(2)DC 5V by PC

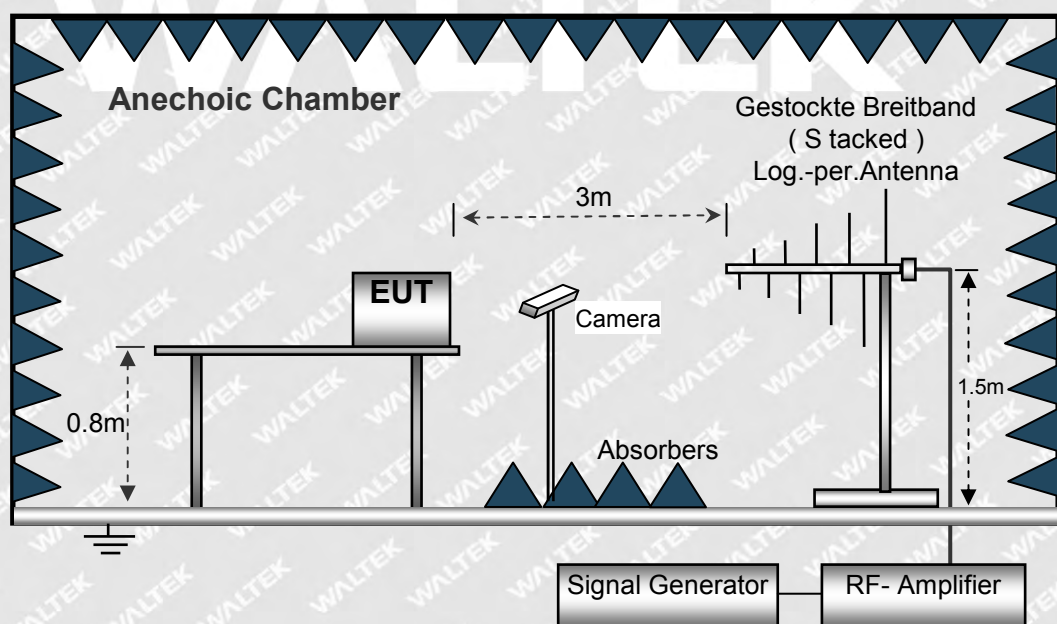
(3)DC 3.7V by Battery

Operating Mode.....

: Refer to section 5.6.

7.4.2 Block Diagram of Setup

The Radio-frequency electromagnetic fields Immunity test was performed in accordance with the IEC 61000-4-3.





7.4.3 Test Results

Frequency	Face of EUT	Antenna polarisation	Test Level	Step Size	Dwell Time	Performance Criterion	Result
80MHz to 1GHz	Front, Back, Left, Right	Horizontal	3V/m	1%	1s	A	Pass*
80MHz to 1GHz	Front, Back, Left, Right	Vertical	3V/m	1%	1s	A	Pass*
Remark: ** During the test no deviation was detected to the selected operation mode(s)							



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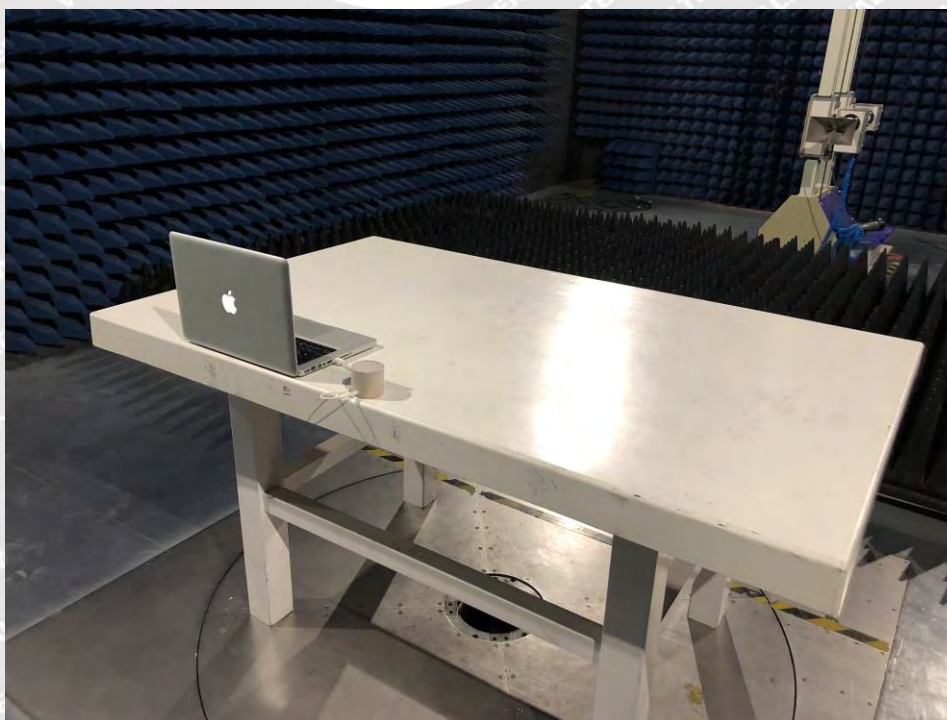


8 Photographs – Test Setup

8.1 Photograph –Radiation Emission Test Setup for Below 1GHz



8.2 Photograph –Radiation Emission Test Setup for Above 1GHz





8.3 Photograph – ESD Immunity Test Setup



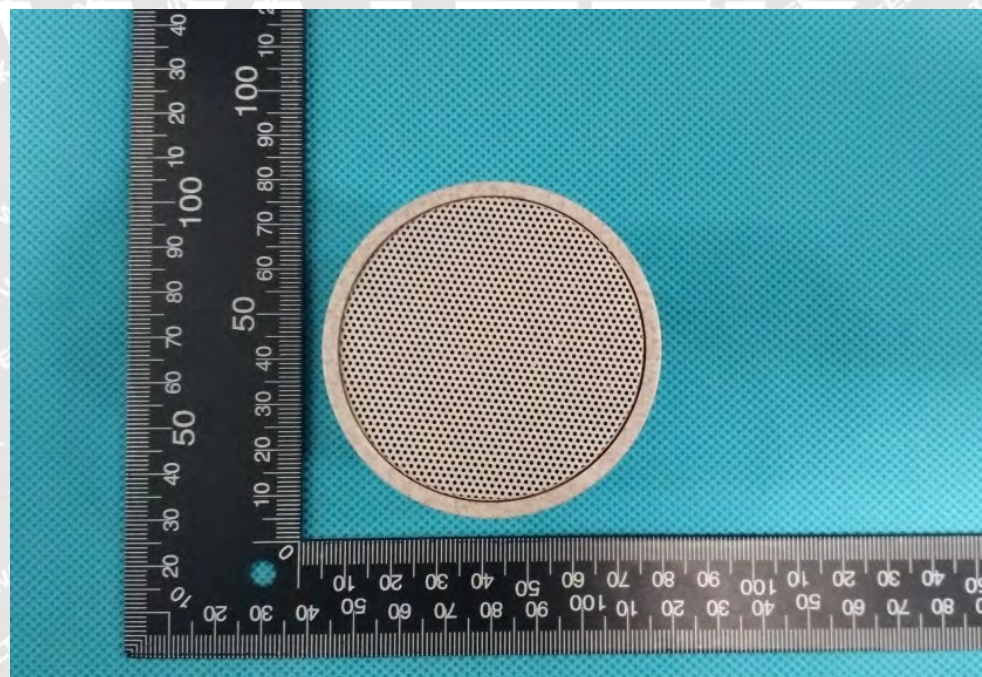
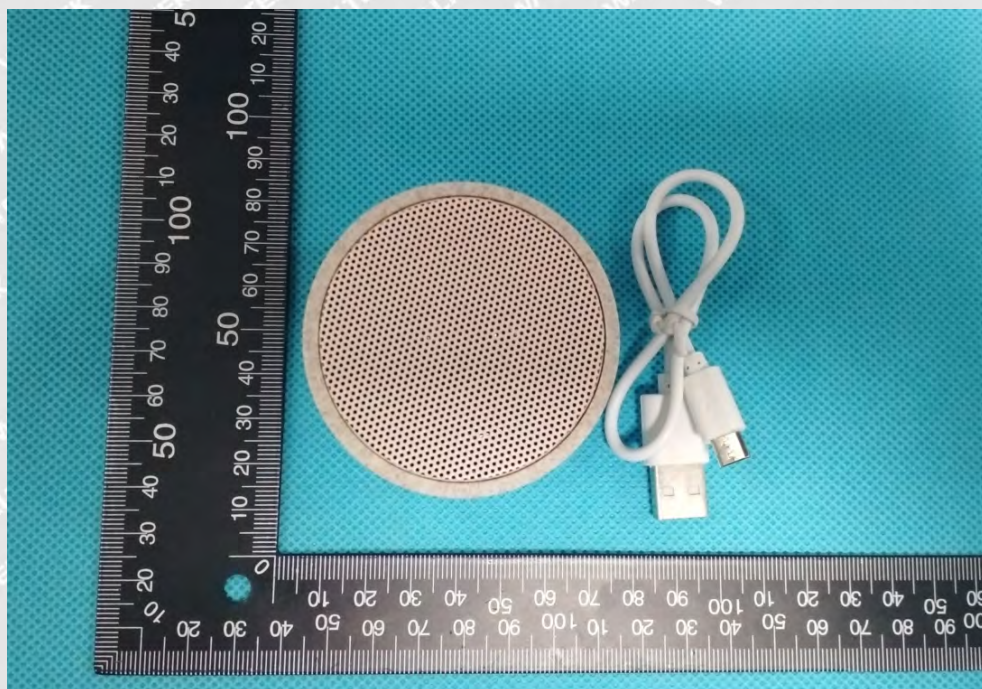
8.4 Photograph – Radio-frequency electromagnetic fields Test Setup

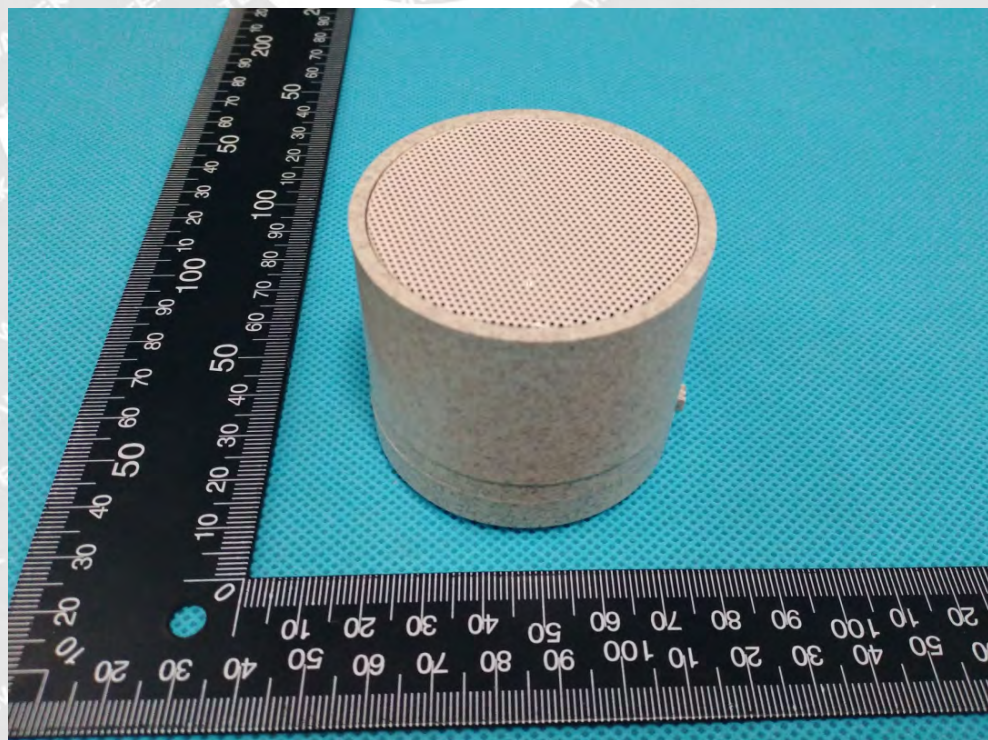
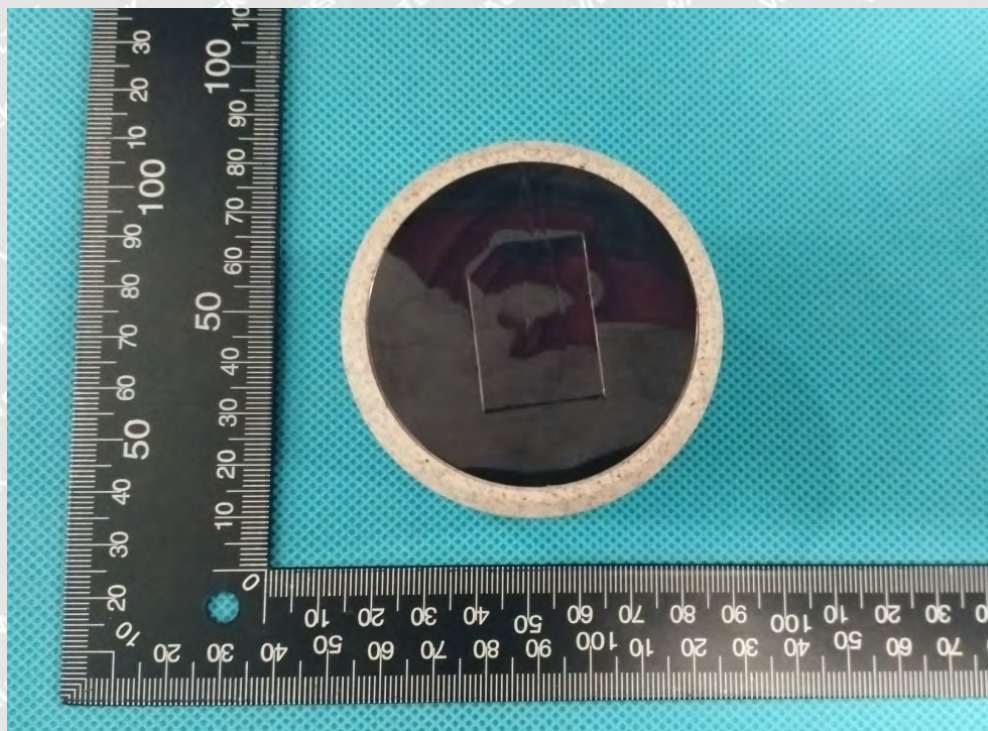


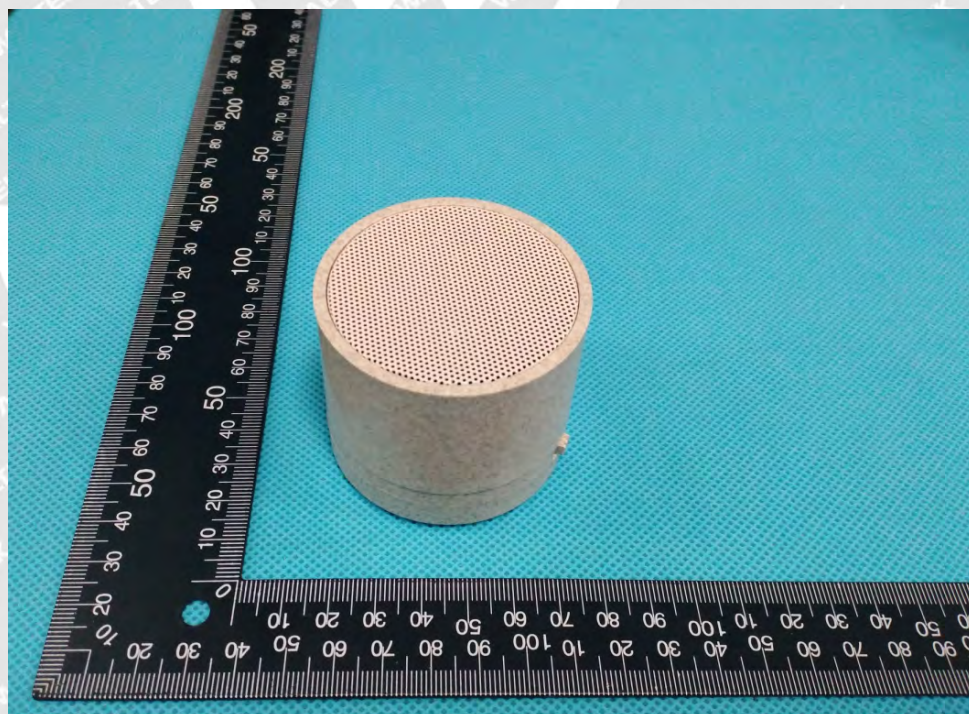
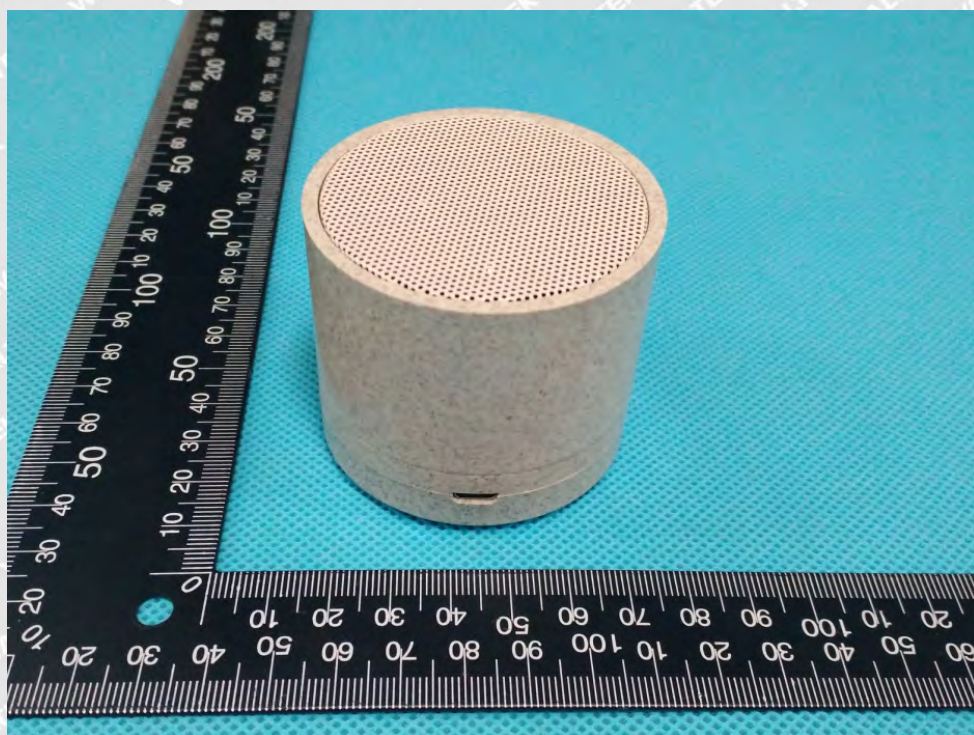


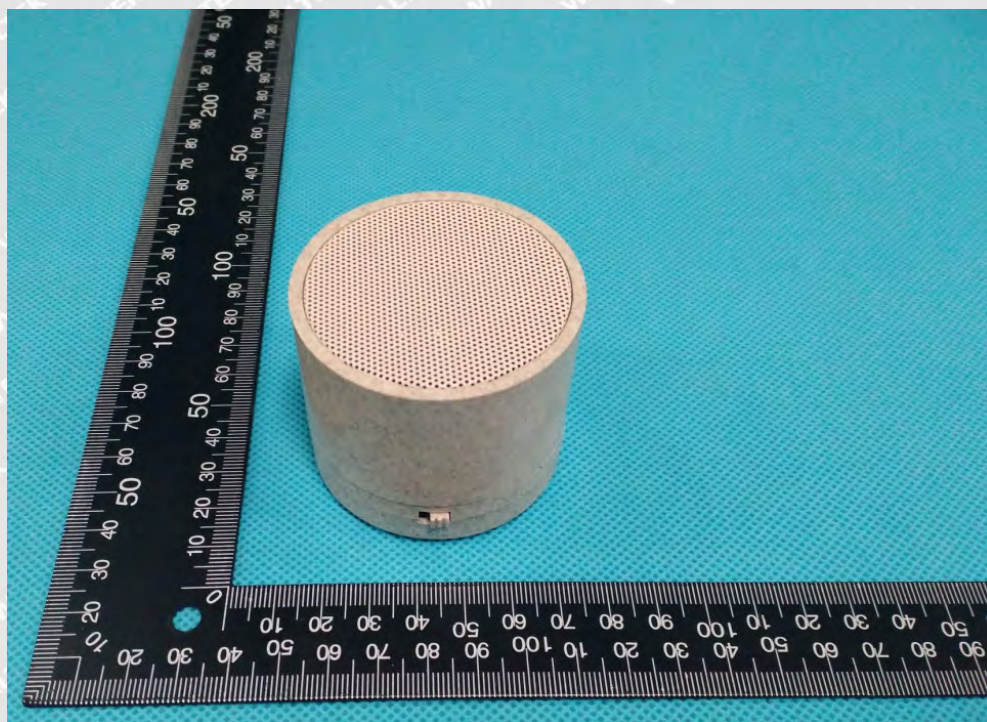
9 Photographs of EUT

9.1 EUT – Appearance View Model: DSBT002-W



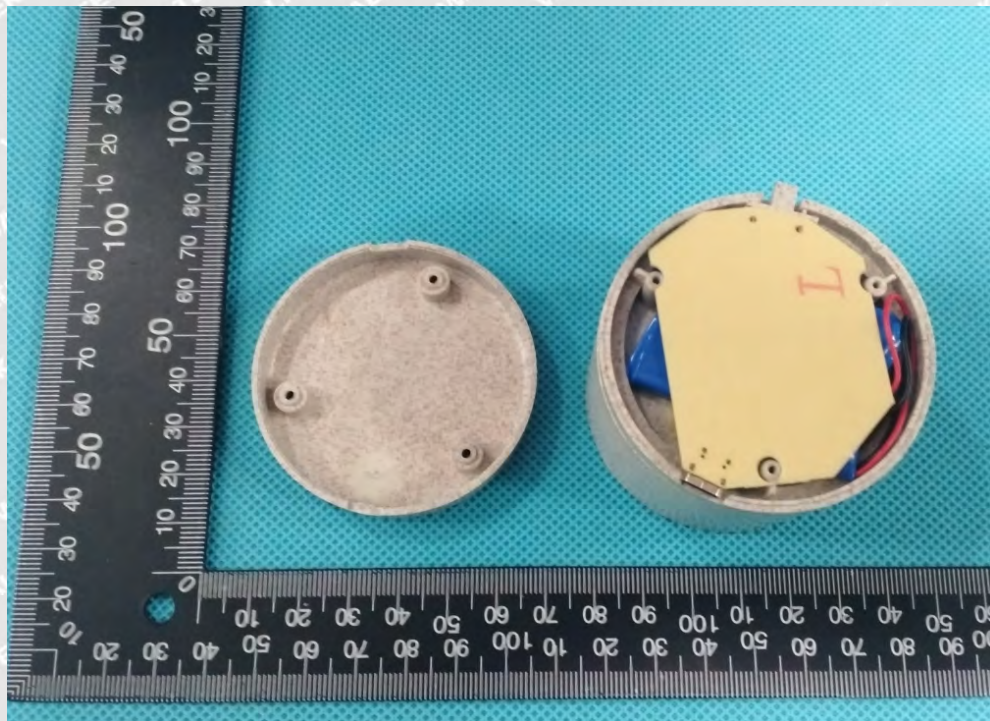




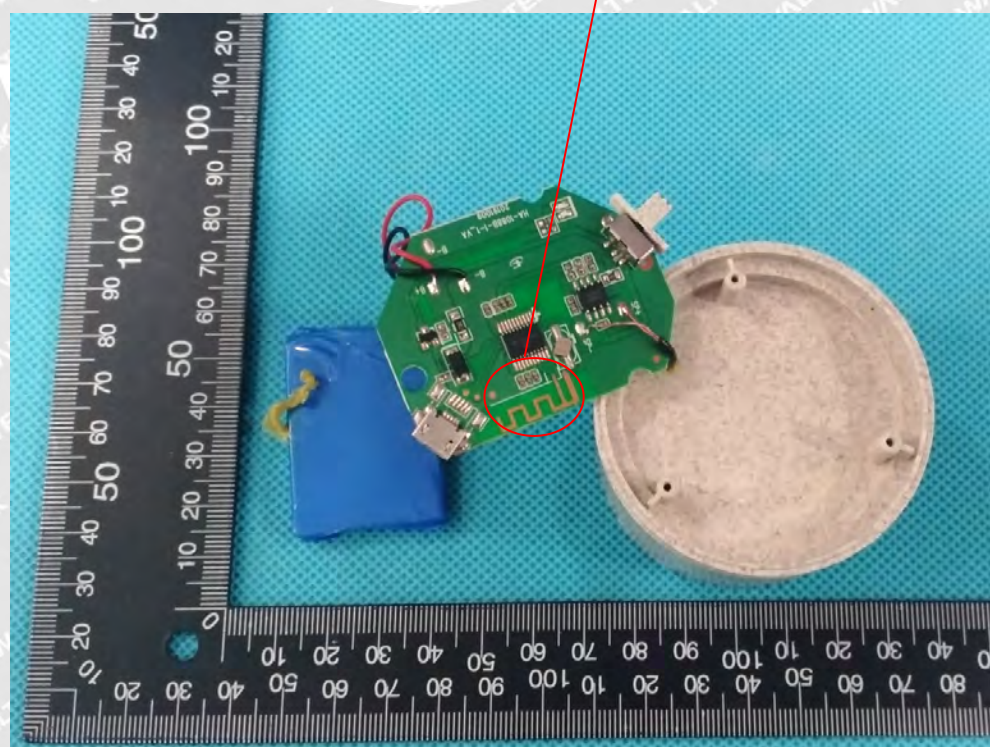


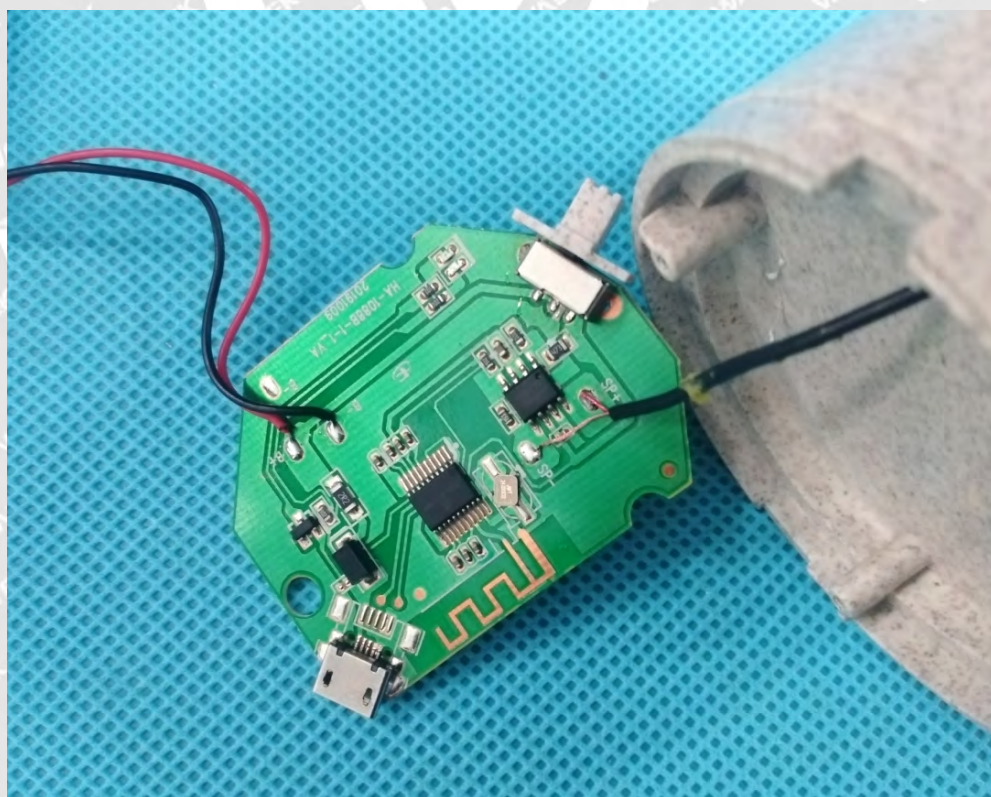
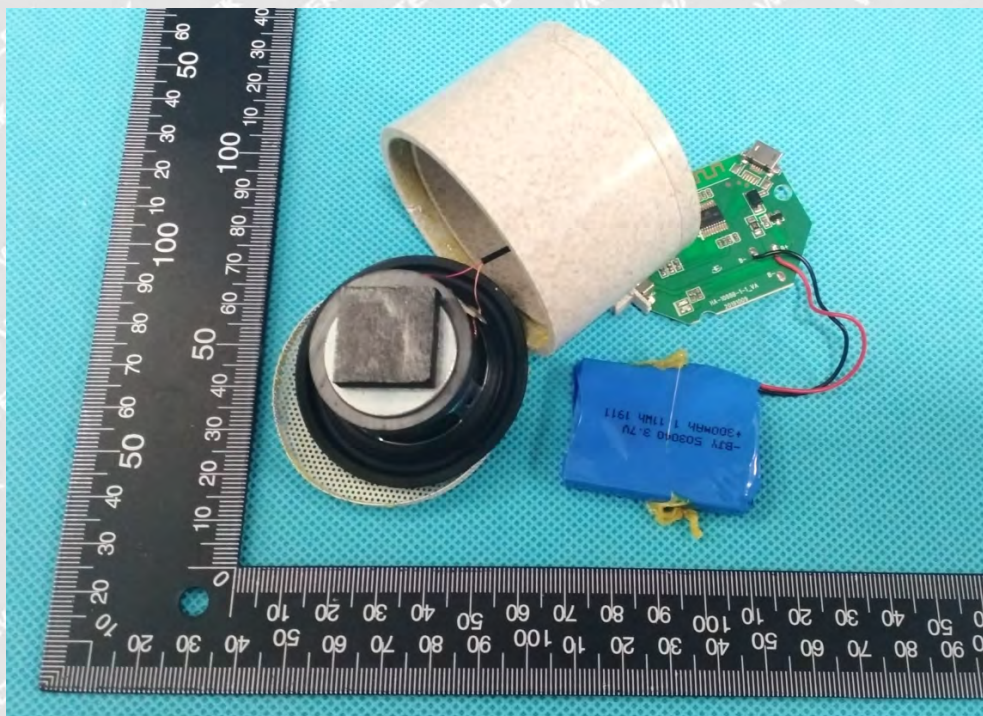


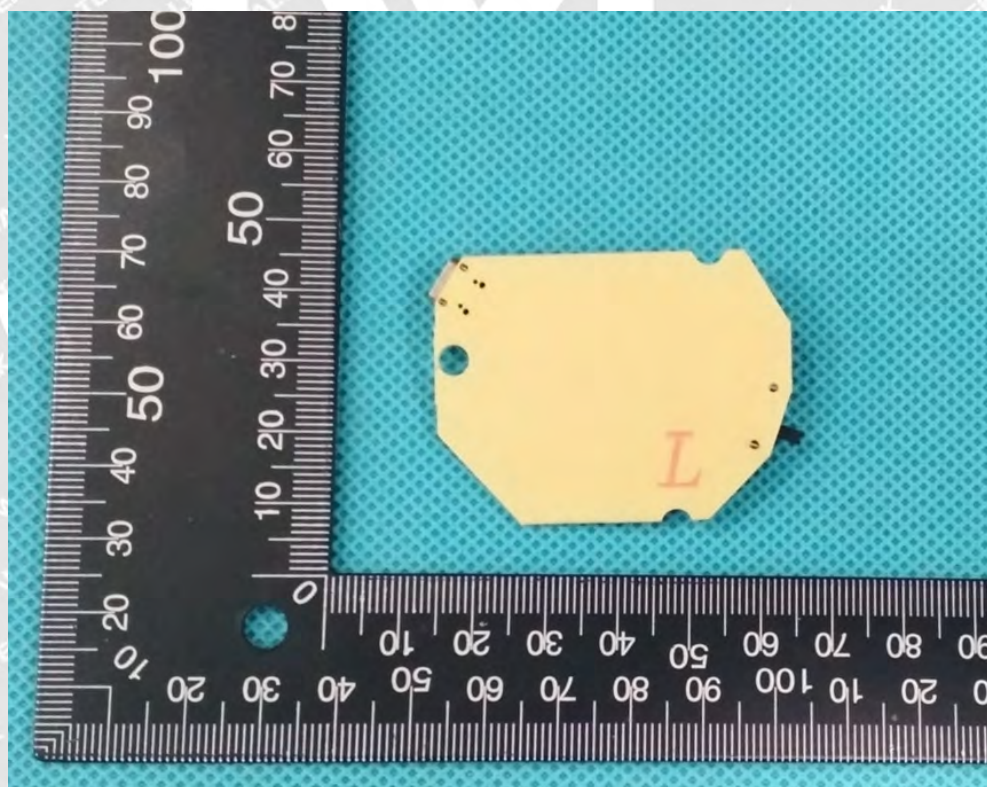
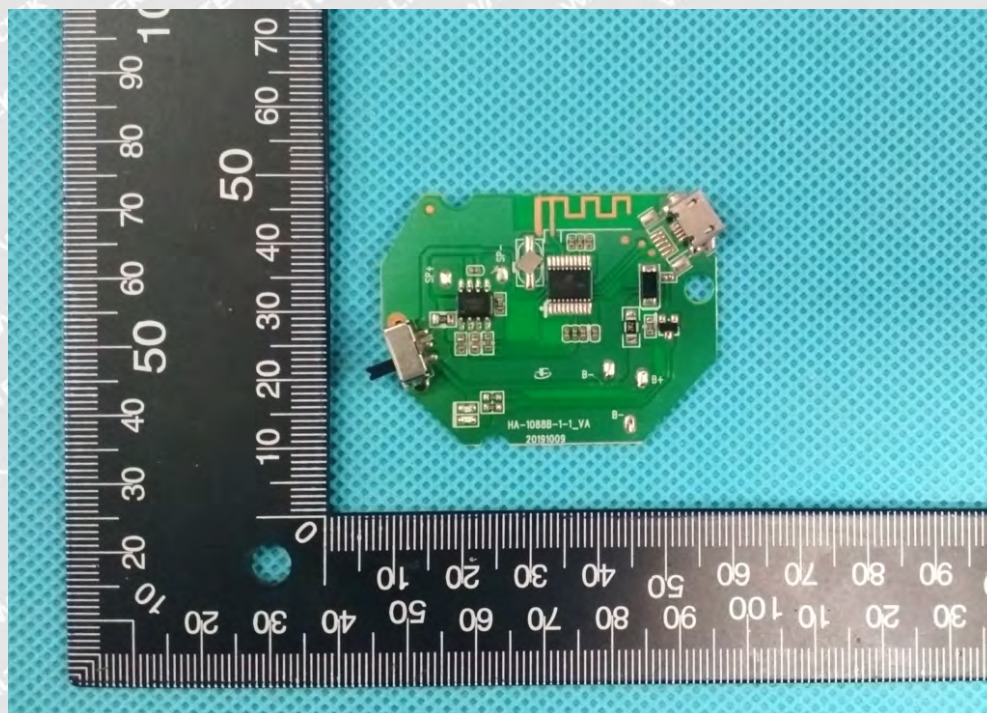
9.2 EUT – Open View Model: DSBT002-W

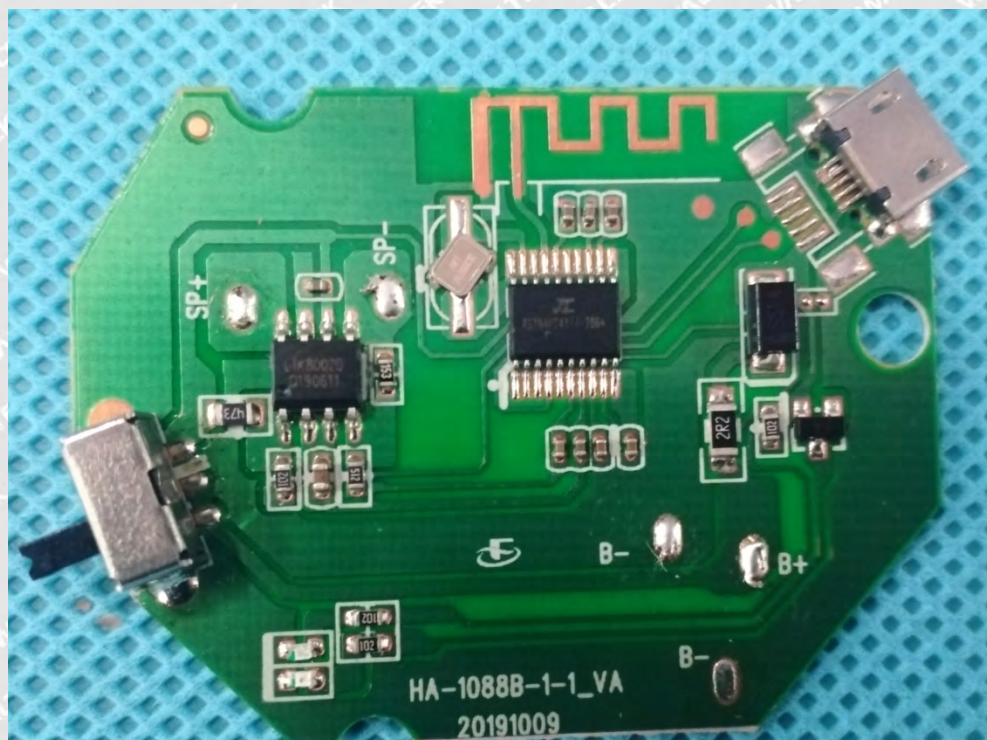


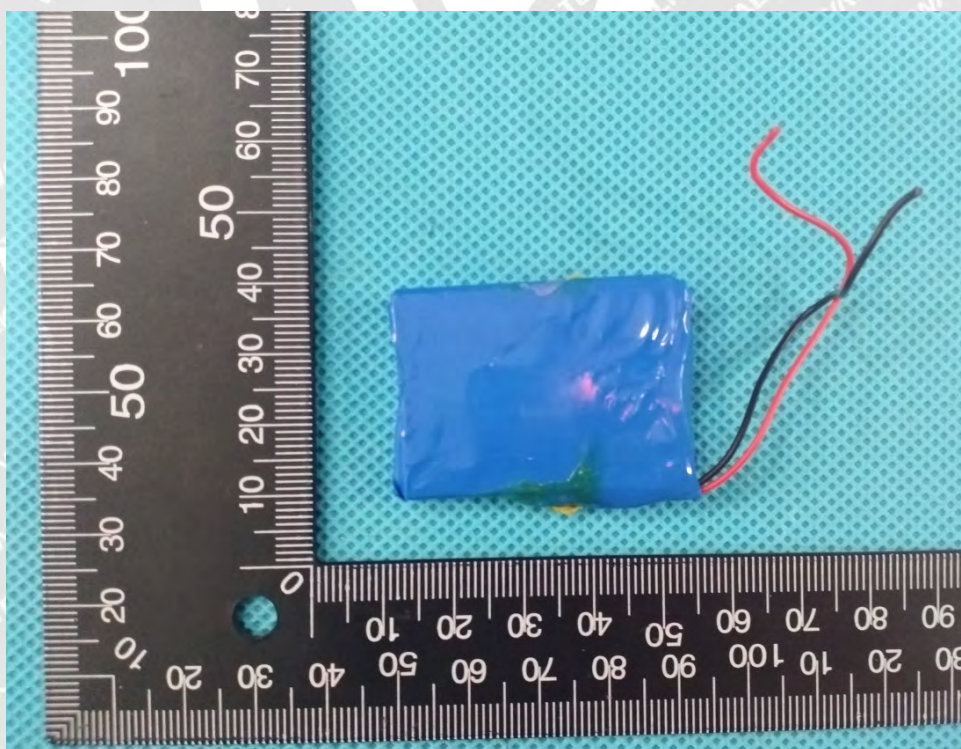
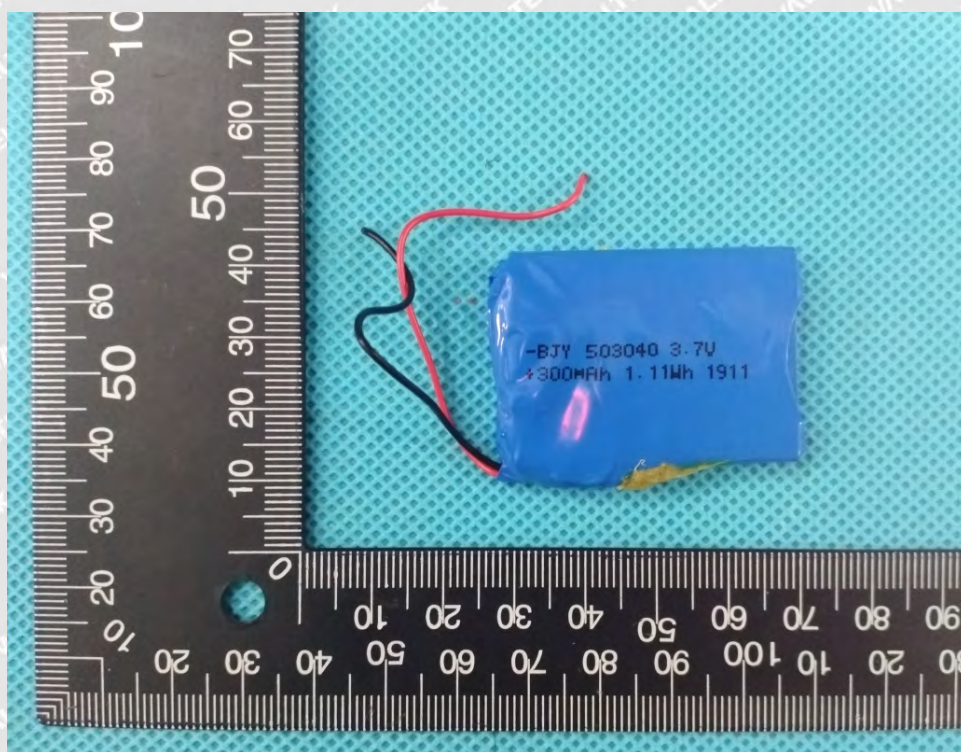
BT ANT.











=====End of Report=====