TEST REPORT

Reference No.	:	WTS17S0683061E
FCC ID	:	2AMQVSUNSHINE201707
Applicant	:	Piping Rock Health Products
Address	:	2040 EXPRESS DRIVE SOUTH HAUPPAUGE, New York, NY 11788, United States
Manufacturer	:	Guangzhou Sunshine Electronic Technology Co.,Ltd.
Address	:	Room3111-3114,Onelink International plaza, JiefangNan Road, Yuexiu District, Guangzhou, Guangdong, China
Product Name	:	NT Ultrasonic bluetooth diffuser
Model No.	:	NT60236DIF, LJ-105B
Brand Name	:	Nature's Truth ®
Standards	:	FCC PART18: 2016
Date of Receipt sample	:	Jun. 26, 2017
Date of Test	:	Jun. 27 – Jul. 07, 2017
Date of Issue	:	Jul. 11, 2017
Test Result	:	**Pass**

Remarks:
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.

Prepared By:
Waltek Services (Shenzhen) Co., Ltd.
Address: 1/F., Fukangtai Building, West Baima Road, Songgang Street, Baoan District, Shenzhen, Guangdong, China
Tel :+86-755-83551033
Fax:+86-755-83552400

Compiled by:

Robin Zhou / Test Engineer

Approved by:

Philo Zhong / Manager

1 Contents

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2 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS17S0683061E	Jun. 26, 2017	Jun. 27 – Jul. 07, 2017	Jul. 11, 2017	original	-	Valid

3 General Information

3.1 General Description of E.U.T.

Product Name	: NT Ultrasonic bluetooth diffuser
Model No.	: NT60236DIF, LJ-105B
Model Differences	: The above models are the same in PCB circuit, PCB Layout, components and internal structure. Only the different model names due to different market's requirement. The model NT60236DIF is the tested sample.
Ultra Sonic frequency	: 2.4MHz

3.2 Details of E.U.T.

Technical Data	: DC 24V by POWER SUPPLY (POWER SUPPLY: MODEL: SW-240065, INPUT: AC100-240V, 50/60Hz; OUTPUT: 24VDC 650mA)

3.3 Standards Applicable for Testing

The tests were performed according to following standards:

FCC PART 18: 2016 INDUSTRIAL, SCIENTIFIC, AND MEDICAL EQUIPMENT

3.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A-1**

Waltek Services(Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A-1, October 15, 2015.

- **FCC – Registration No.: 328995**

Waltek Services(Shenzhen) Co., Ltd. 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 our files. Registration 328995 December 3, 2014.

3.5 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 Equipment Used during Test

4.1 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	Sep.12, 2016	Sep.11, 2017
2	LISN	SCHWARZBECK	NSLK 8128	8128-289	Sep.12, 2016	Sep.11, 2017
3	Limiter	York	MTS-IMP-136	261115-001-0024	Sep.12, 2016	Sep.11, 2017
4	Cable	Laplace	RF300	-	Sep.12, 2016	Sep.11, 2017
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	Apr. 07, 2017	Apr. 06, 2018
2	Amplifier	Agilent	8447D	2944A10178	Jan. 12, 2017	Jan. 11, 2018
3	Active Loop Antenna	Beijing Dazhi	ZN30900A	0703	Oct. 17, 2016	Oct. 16, 2017
4	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr. 07, 2017	Apr. 06, 2018
5	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.12, 2016	Sep.11, 2017
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr. 07, 2017	Apr. 06, 2018
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Apr. 07, 2017	Apr. 06, 2018
8	Coaxial Cable (above 1GHz)	Top	1GHz-18GHz	EW02014-7	Apr. 07, 2017	Apr. 06, 2018
9	Test Receiver	R&S	ESCI	101296	Apr. 06, 2017	Apr. 05, 2018
10	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Apr. 07, 2017	Apr. 06, 2018
11	Amplifier	ANRITSU	MH648A	M43381	Apr. 07, 2017	Apr. 06, 2018
12	Cable	HUBER+SUHNER	CBL2	525178	Apr. 07, 2017	Apr. 06, 2018

4.2 Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Conduction disturbance	150kHz~30MHz	±3.64dB	(1)
Radiation Emission	30MHz~1GHz	±5.03dB	(1)
	1GHz~6GHz	±5.47dB	(1)

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

5 Test Summary

Test Item	Test Requirement	Test Method	Test Result
Conduction Emission (9kHz to 30MHz)	18.307(a)	ANSI C63.4:2014 FCC Measurement Procedure MP-5	C
Radiated Emission (9KHz to 1000MHz)	18.305(b)	ANSI C63.4:2014 FCC Measurement Procedure MP-5	C
Note: C=Compliance; NC=Not Compliance; NT=Not Tested; N/A=Not Applicable			

6 Emission Test Results

6.1 Conducted Emission, 9 KHz to 30 MHz

Test Requirement ..... : FCC CFR 47 Part 18 Section 18.307(a)

Test Method ..... : ANSI C63.4:2014 and FCC Measurement Procedure MP-5

Test Result ..... : Pass

Frequency Range ..... : 9 kHz to 30 MHz

Limit ..... :

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.009-0.05	110	—
0.05-0.15	90-80*	—
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.

6.1.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 23°C

Humidity ..... : 53.6%RH

Atmospheric Pressure ..... : 101kPa

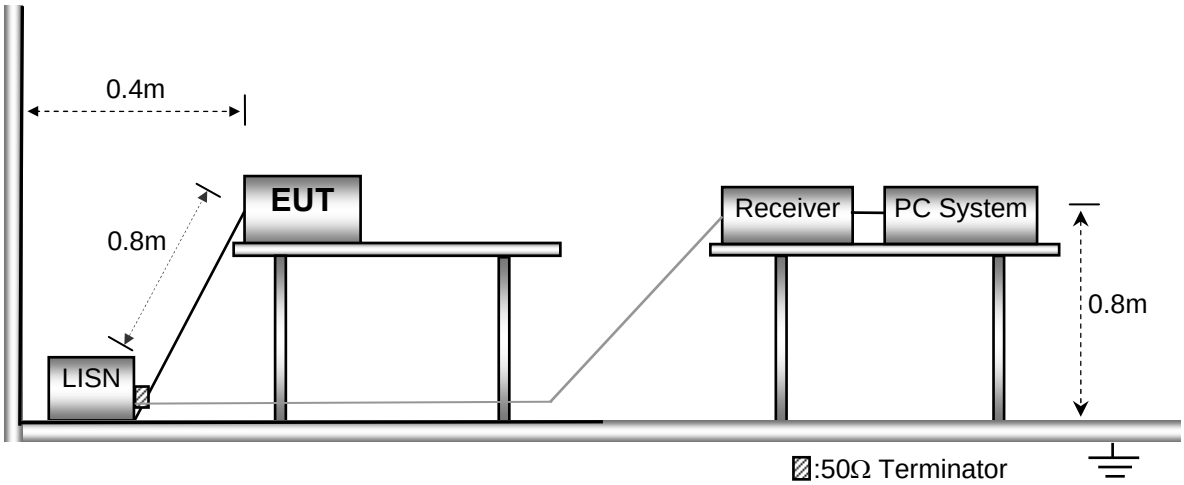
EUT Operation:

Input Voltage ..... : AC 120V/60Hz

Operating Mode ..... : Mist on

6.1.2 Block Diagram of Test Setup

The Mains Terminals Disturbance Voltage tests were performed in accordance with the ANSI C63.4 .

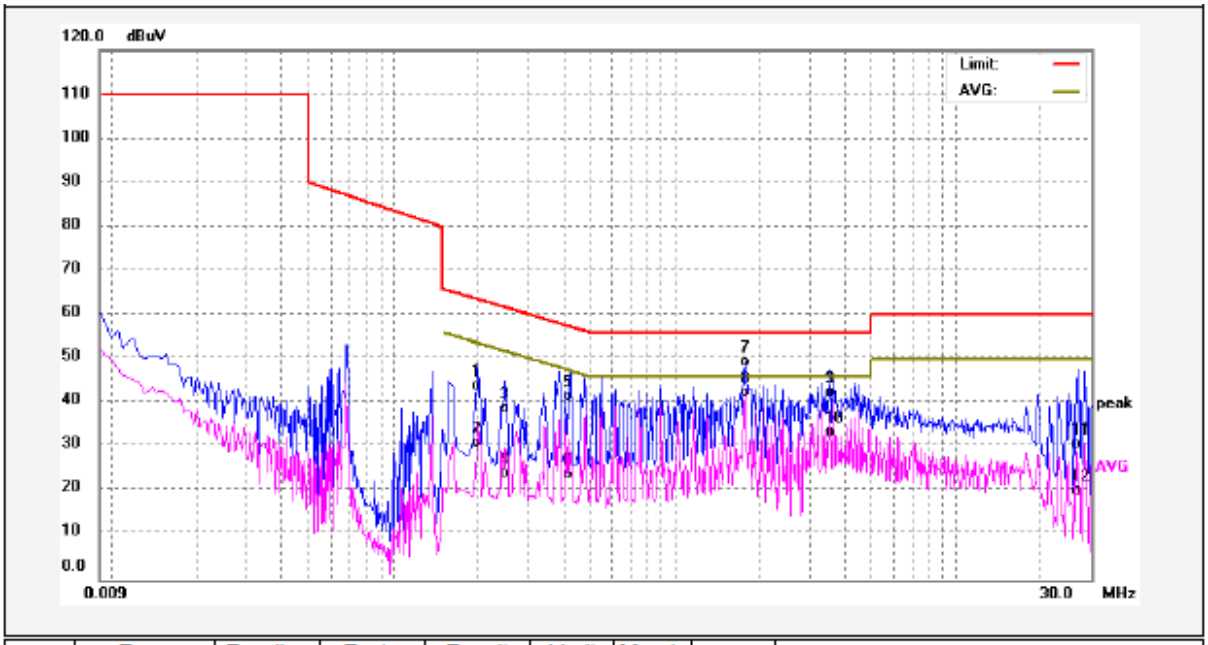


6.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line. According to the data in section 5.1.4, the EUT complied with the FCC PART 15, SUBPART B standards.

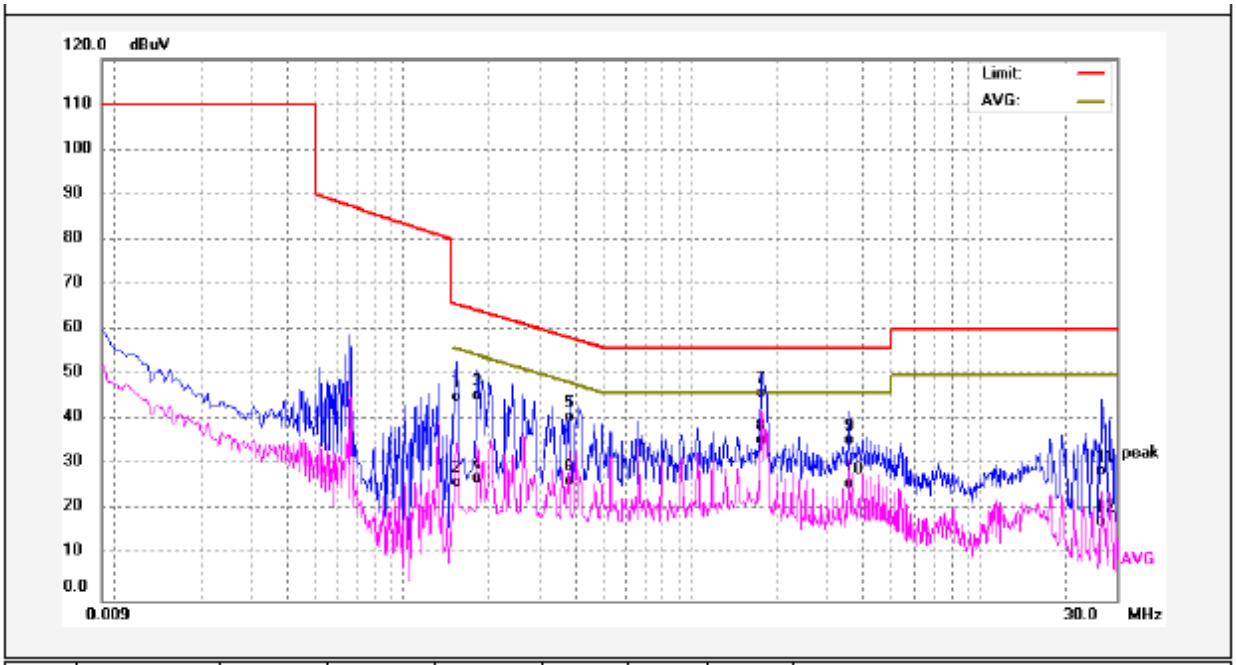
6.1.4 Power Line Conducted Emission Test Data

Live Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1980	34.09	9.91	44.00	63.60	-19.60	QP	
2	0.1980	21.21	9.91	31.12	53.69	-22.57	AVG	
3	0.2500	28.91	10.01	38.92	61.69	-22.77	QP	
4	0.2500	14.20	10.01	24.21	51.75	-27.54	AVG	
5	0.4260	31.46	10.04	41.50	57.31	-15.81	QP	
6	0.4260	13.69	10.04	23.73	47.33	-23.60	AVG	
7	1.7740	39.20	10.18	49.38	56.00	-6.62	QP	
8	1.7740	32.42	10.18	42.60	46.00	-3.40	AVG	
9	3.5540	32.16	10.26	42.42	56.00	-13.58	QP	
10	3.5540	23.18	10.26	33.44	46.00	-12.56	AVG	
11	26.9180	20.03	10.60	30.63	60.00	-29.37	QP	
12	26.9180	9.76	10.60	20.36	50.00	-29.64	AVG	

Neutral Line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1539	35.23	10.02	45.25	65.67	-20.42	QP	
2	0.1539	16.13	10.02	26.15	55.78	-29.63	AVG	
3	0.1819	35.65	9.88	45.53	64.30	-18.77	QP	
4	0.1819	17.30	9.88	27.18	54.39	-27.21	AVG	
5	0.3780	30.48	10.04	40.52	58.30	-17.78	QP	
6	0.3780	16.42	10.04	26.46	48.32	-21.86	AVG	
7	1.7660	36.01	10.18	46.19	56.00	-9.81	QP	
8	1.7660	25.24	10.18	35.42	46.00	-10.58	AVG	
9	3.5460	25.42	10.26	35.68	56.00	-20.32	QP	
10	3.5460	15.80	10.26	26.06	46.00	-19.94	AVG	
11	26.5940	17.99	10.60	28.59	60.00	-31.41	QP	
12	26.5940	6.98	10.60	17.58	50.00	-32.42	AVG	

6.2 Radiation Emission, 9 KHz to 1000 MHz

Test Requirement ..... : FCC CFR 47 Part 18 Section 18.305(b)

Test Method ..... : ANSI C63.4:2014 and FCC Measurement Procedure MP-5

Test Result ..... : Pass

Frequency Range ..... : 9 KHz to 1000MHz

Limit

Equipment	Operating frequency	RF Power generated by equipment (watts)	Field Strength Limit at 30m Measurement (uV/m)	Field Strength Limit at 30m Measurement (dBuV/m)
Ultrasonic	Above 1,600 kHz	Any	15	23.5

6.2.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 23°C

Humidity ..... : 54.1%RH

Atmospheric Pressure ..... : 101kPa

EUT Operation:

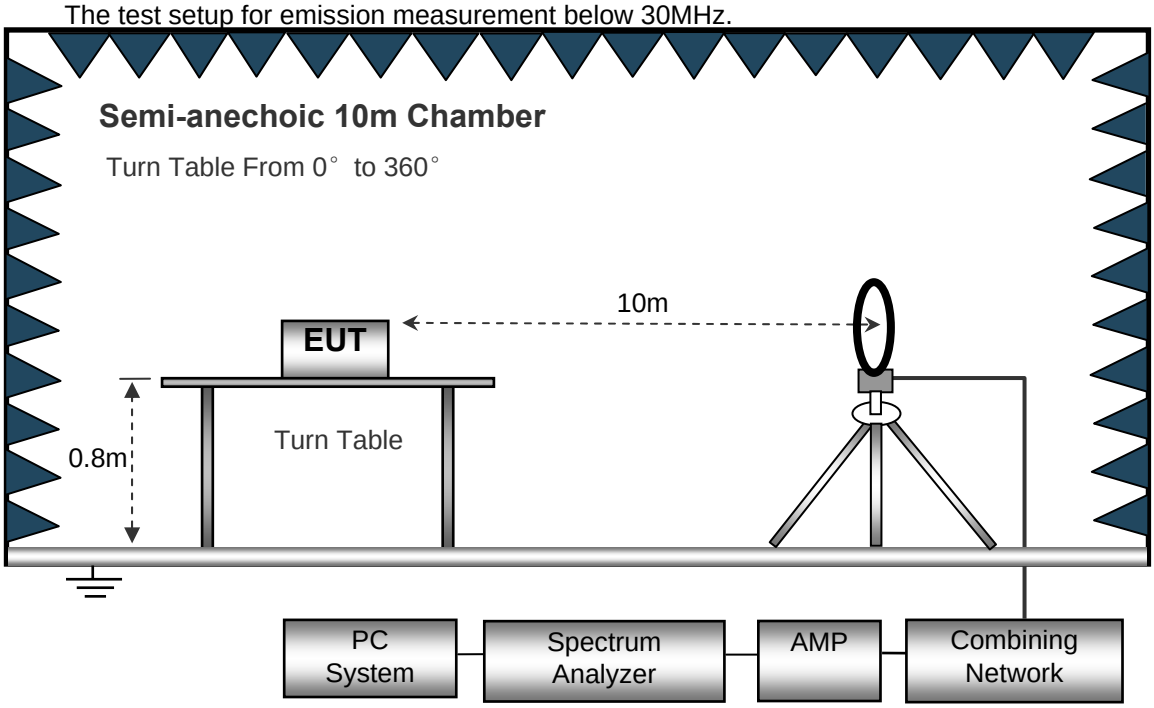
Input Voltage ..... : AC 120V/60Hz

Operating Mode ..... : Mist on

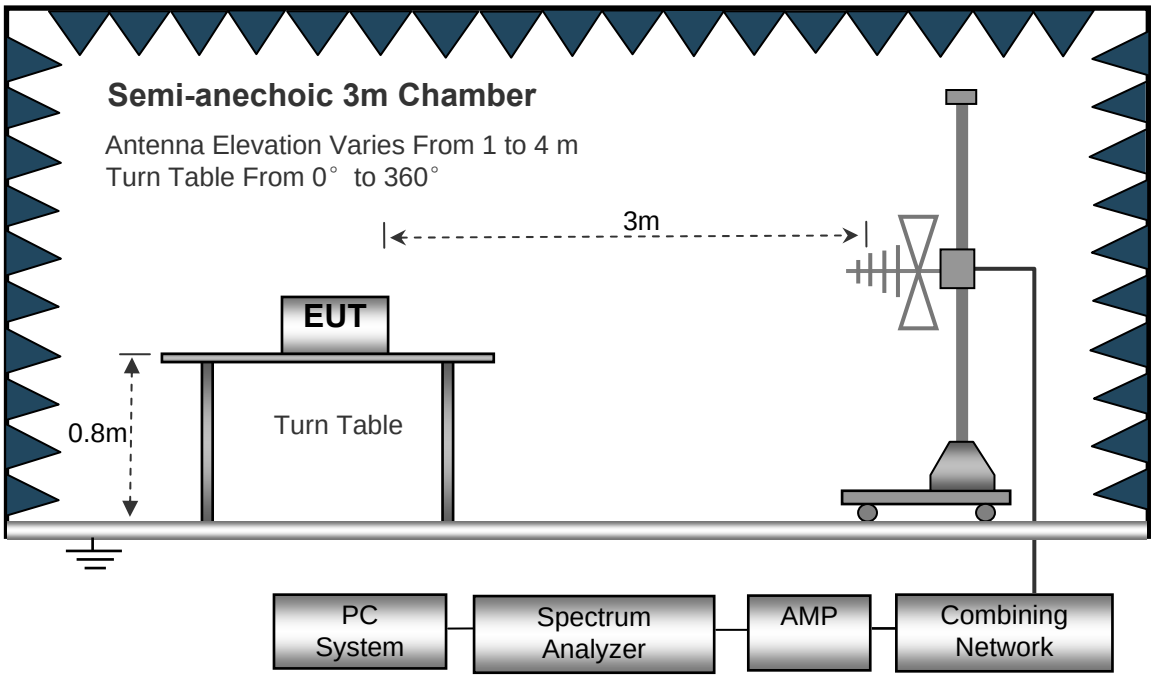
6.2.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 10m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



6.2.3 Test Procedure

1. The EUT is placed on a turntable. the EUT is 0.8m above ground plane;

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

3. EUT is set 10m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.

4. 18.309 Frequency range of measurements.

(a) For field strength measurements:

Frequency band in which device operates (MHz)	Range of frequency measurements	
	Lowest frequency	Highest frequency
Below 1.705	Lowest frequency generated in the device, but not lower than 9 kHz	30 MHz.
1.705 to 30	Lowest frequency generated in the device, but not lower than 9 kHz	400 MHz.
30 to 500	Lowest frequency generated in the device or 25 MHz, whichever is lower	Tenth harmonic or 1,000 MHz, whichever is higher.
500 to 1,000	Lowest frequency generated in the device or 100 MHz, whichever is lower	Tenth harmonic.
Above 1,000	.....do	Tenth harmonic or highest detectable emission.

5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.

6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

7. Repeat above procedures until the measurements for all frequencies are complete.

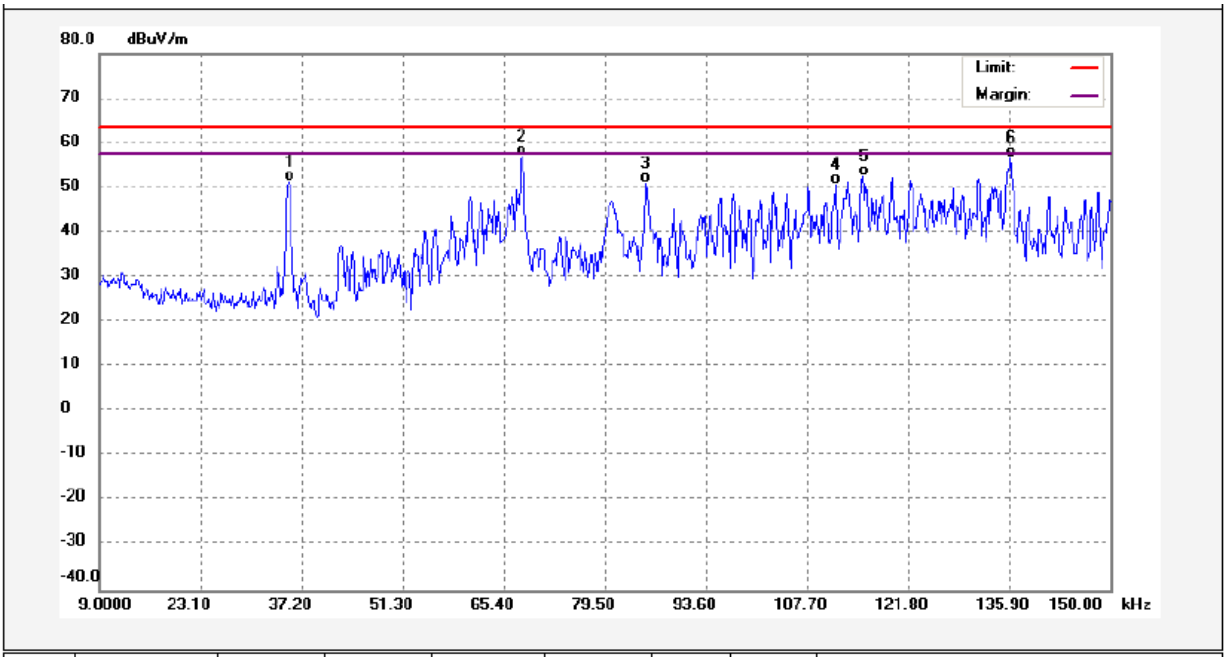
8. The radiation measurements are tested under 3-axes(X, Y, Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), after pre-test, It was found that the worse radiation emission was get at the Z position. So the data shown was the Z position only.

6.2.4 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.

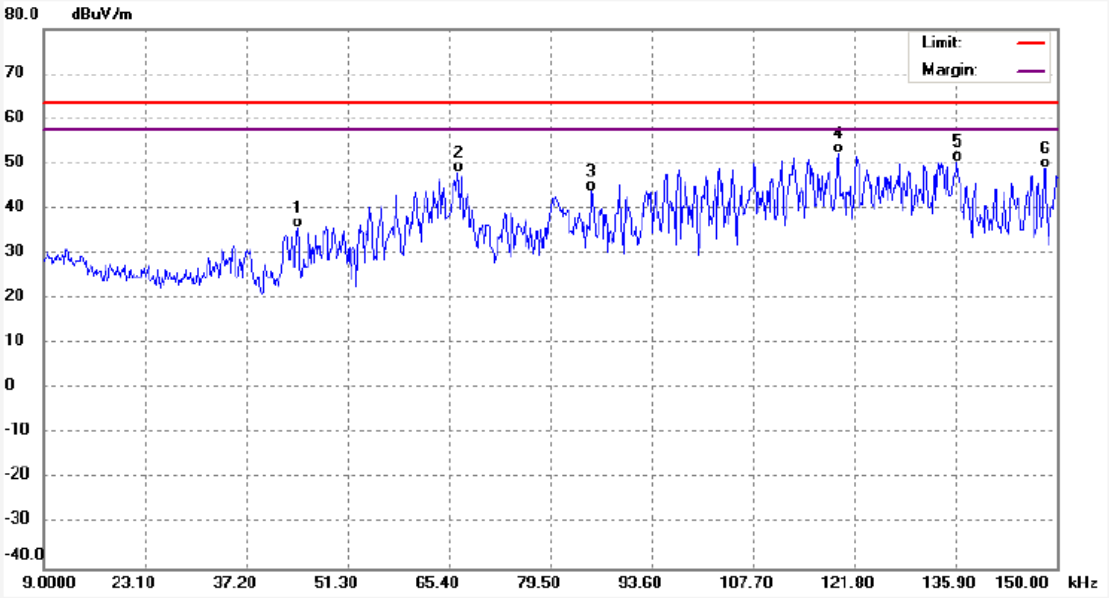
6.2.5 Radiated Emission Test Data,9KHz to 1000MHz at @3m

0.009MHz to 0.150MHz Antenna Polarization: Vertical



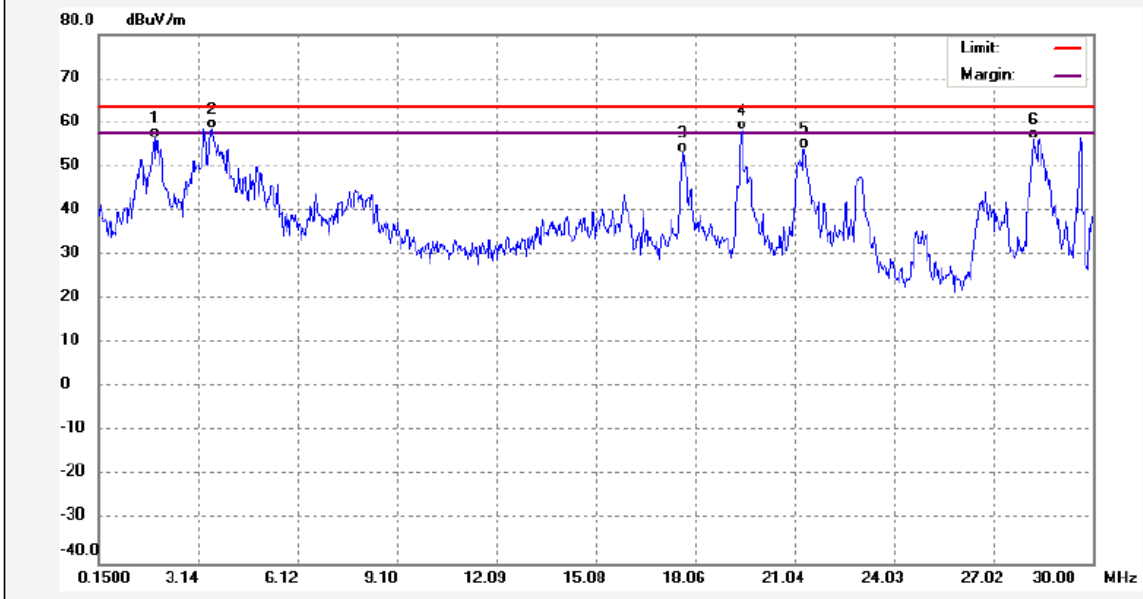
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	0.0354	27.98	23.29	51.27	63.50	-12.23	QP	
2	0.0679	34.20	22.97	57.17	63.50	-6.33	QP	
3	0.0853	27.83	23.17	51.00	63.50	-12.50	QP	
4	0.1116	27.22	23.52	50.74	63.50	-12.76	QP	
5	0.1155	28.95	23.56	52.51	63.50	-10.99	QP	
6	0.1360	33.06	23.76	56.82	63.50	-6.68	QP	

0.009MHz to 0.150MHz Antenna Polarization: Horizontal



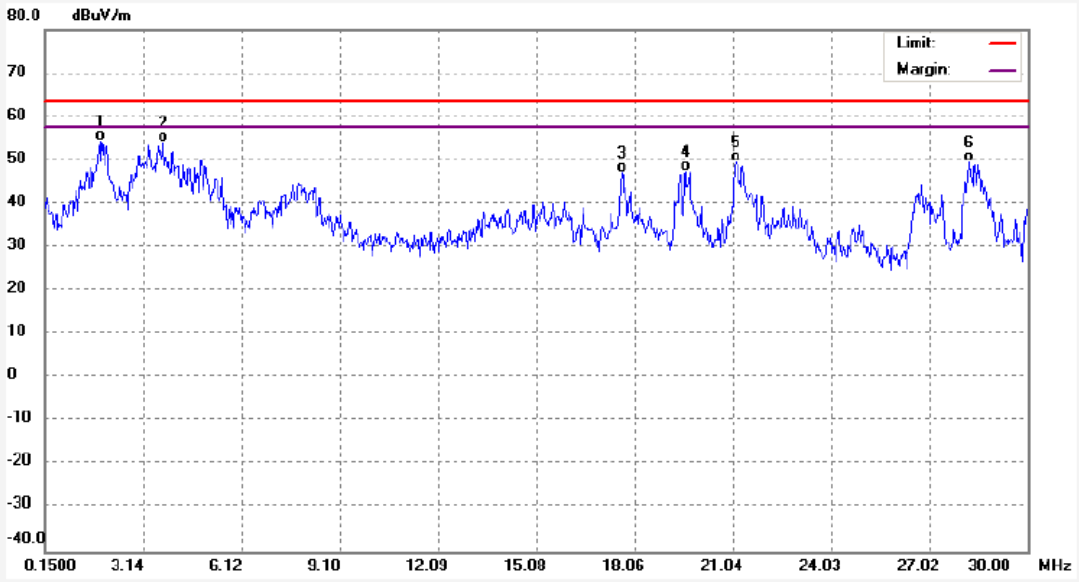
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	0.0442	12.81	23.05	35.86	63.50	-27.64	QP	
2	0.0666	25.18	22.97	48.15	63.50	-15.35	QP	
3	0.0850	20.84	23.16	44.00	63.50	-19.50	QP	
4	0.1194	28.80	23.59	52.39	63.50	-11.11	QP	
5	0.1360	26.56	23.76	50.32	63.50	-13.18	QP	
6	0.1481	25.04	23.88	48.92	63.50	-14.58	QP	

0.15MHz to 30MHz Antenna Polarization: Vertical



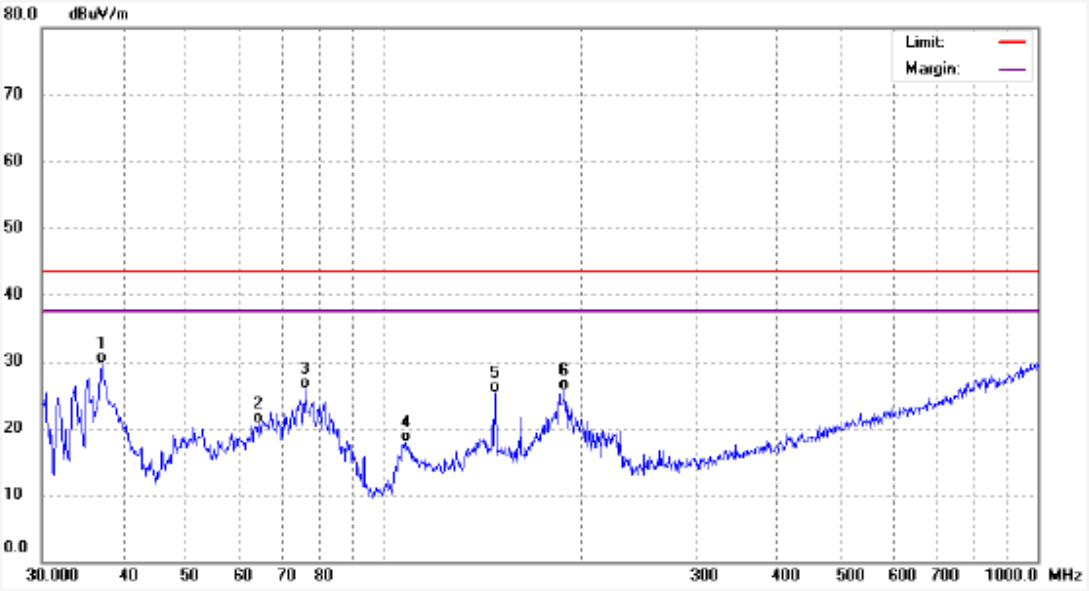
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1.8216	32.23	24.12	56.35	63.50	-7.15	QP	
2	3.5529	34.21	24.36	58.57	63.50	-4.93	QP	
3	17.6719	28.32	24.69	53.01	63.50	-10.49	QP	
4	19.4629	33.53	24.62	58.15	63.50	-5.35	QP	
5	21.3435	29.53	24.55	54.08	63.50	-9.42	QP	
6	28.2388	31.08	24.98	56.06	63.50	-7.44	QP	

0.15MHz to 30MHz Antenna Polarization: Horizontal



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	1.8216	30.23	24.12	54.35	63.50	-9.15	QP	
2	3.7320	29.57	24.37	53.94	63.50	-9.56	QP	
3	17.6719	22.32	24.69	47.01	63.50	-16.49	QP	
4	19.6122	22.87	24.62	47.49	63.50	-16.01	QP	
5	21.1341	24.99	24.55	49.54	63.50	-13.96	QP	
6	28.2388	24.58	24.98	49.56	63.50	-13.94	QP	

30MHz to 1000MHz Antenna Polarization: Vertical



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	37.0248	46.43	-16.79	29.64	43.50	-13.86	QP	
2	64.4330	37.92	-17.28	20.64	43.50	-22.86	QP	
3	75.9773	45.29	-19.32	25.97	43.50	-17.53	QP	
4	108.2666	35.97	-18.05	17.92	43.50	-25.58	QP	
5	147.9214	40.28	-15.01	25.27	43.50	-18.23	QP	
6	189.0743	42.42	-16.72	25.70	43.50	-17.80	QP	

30MHz to 1000MHz Antenna Polarization: Horizontal

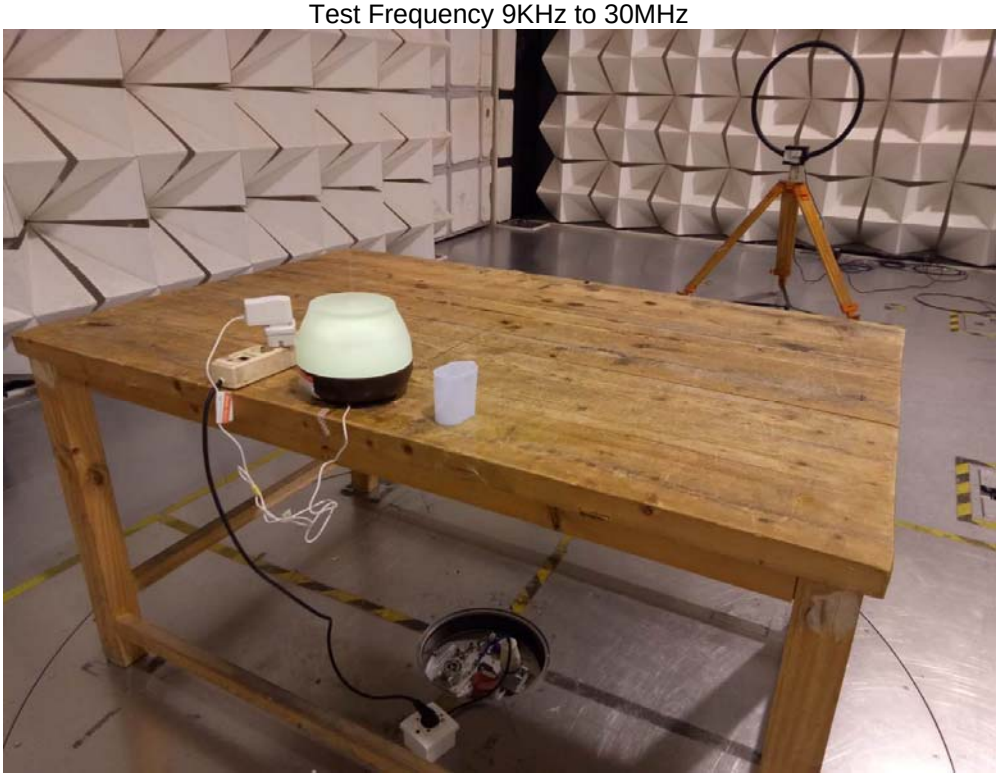
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Remark
1	83.2298	43.08	-20.33	22.75	43.50	-20.75	QP	
2	147.9214	40.51	-15.01	25.50	43.50	-18.00	QP	
3	176.8878	42.85	-15.72	27.13	43.50	-16.37	QP	
4	222.1698	40.59	-16.29	24.30	43.50	-19.20	QP	
5	492.4685	30.62	-8.80	21.82	43.50	-21.68	QP	
6	993.0114	30.31	0.49	30.80	43.50	-12.70	QP	

7 Photographs –Model NT60236DIF Test Setup

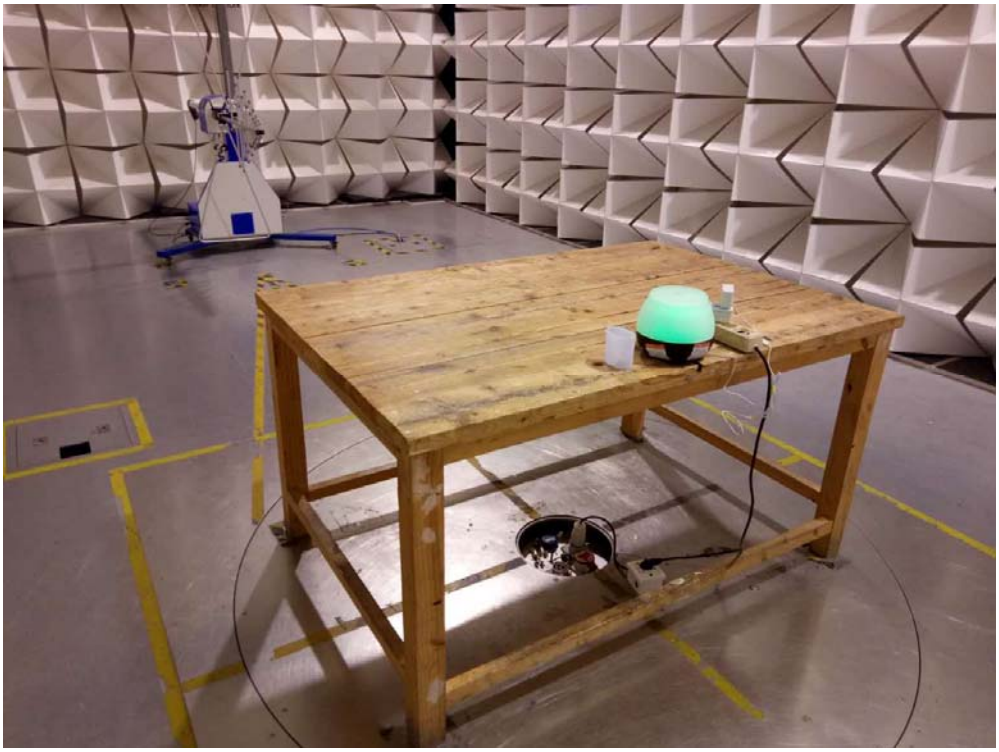
7.1 Photograph –Conducted Emission

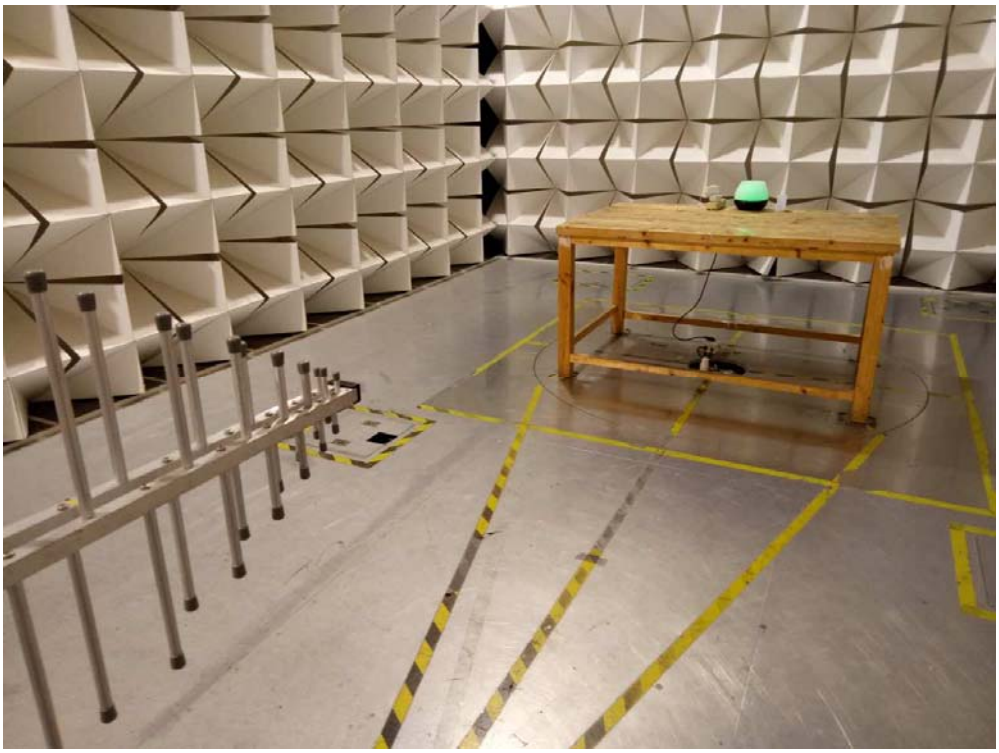
7.2 Photograph-Radiated Emissions

Test Frequency 9KHz to 30MHz



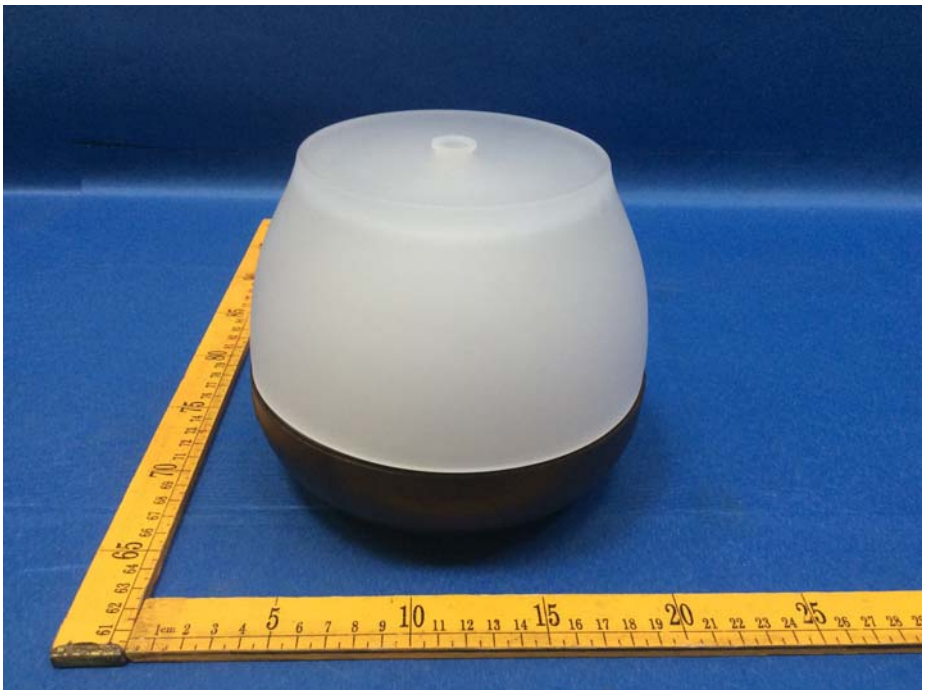
Test Frequency 30MHz to 1000MHz

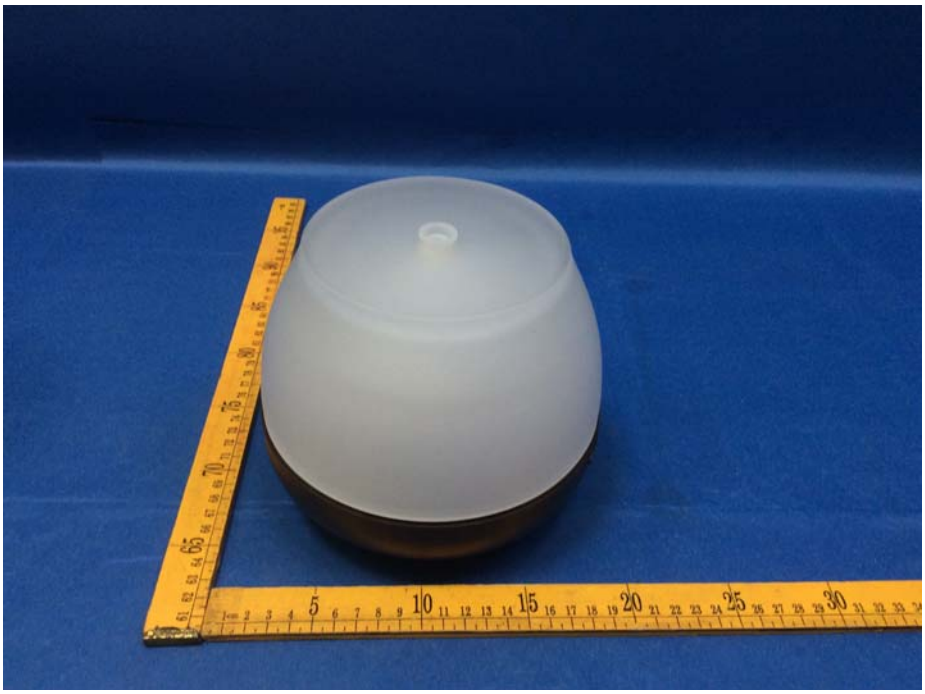


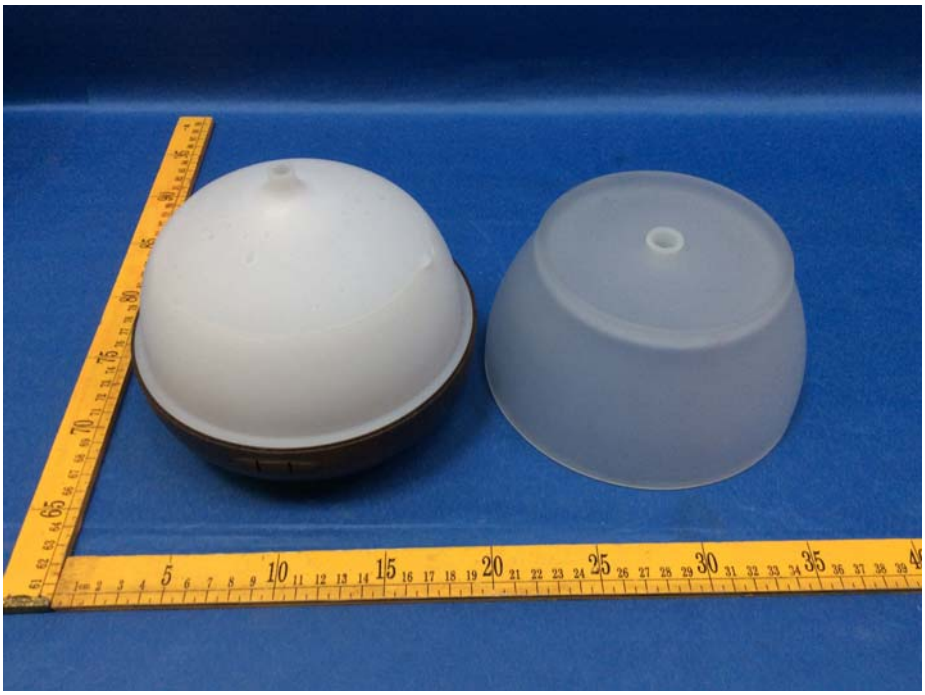


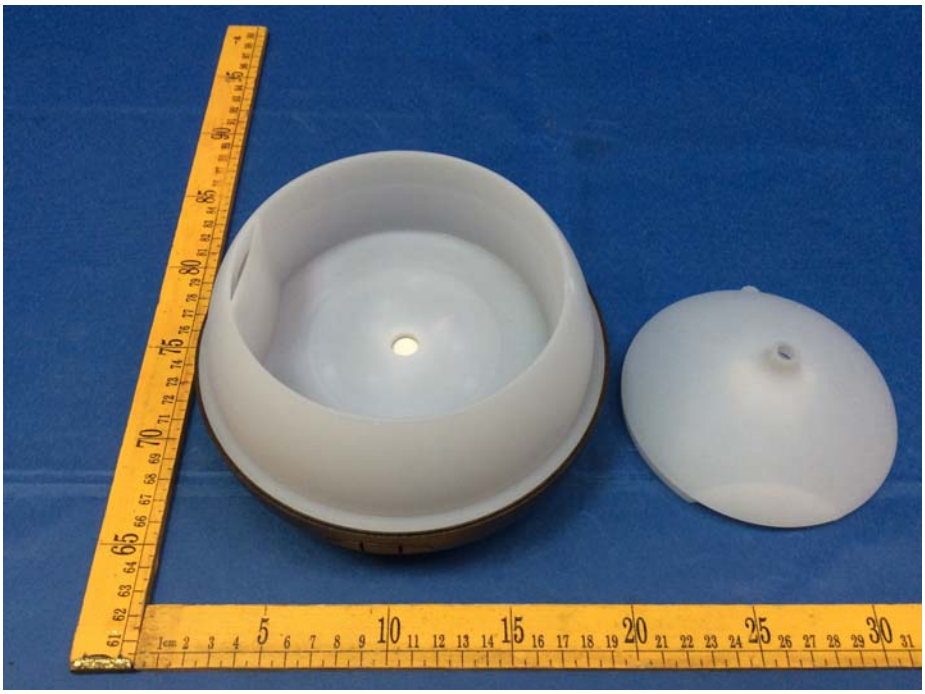
8 Photographs – Constructional Details

8.1 Model NT60236DIF – External Photos



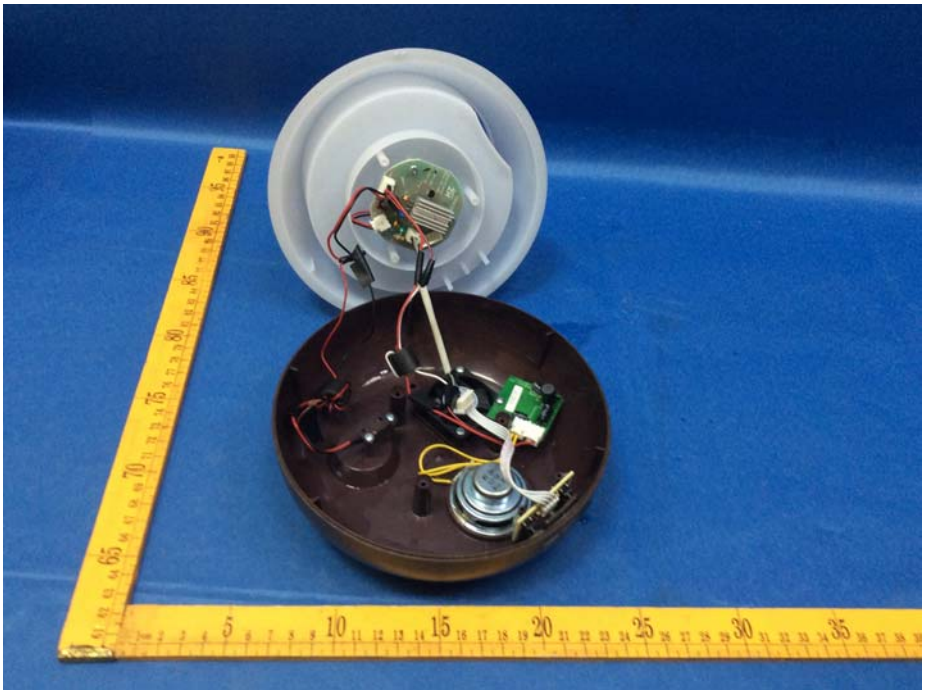


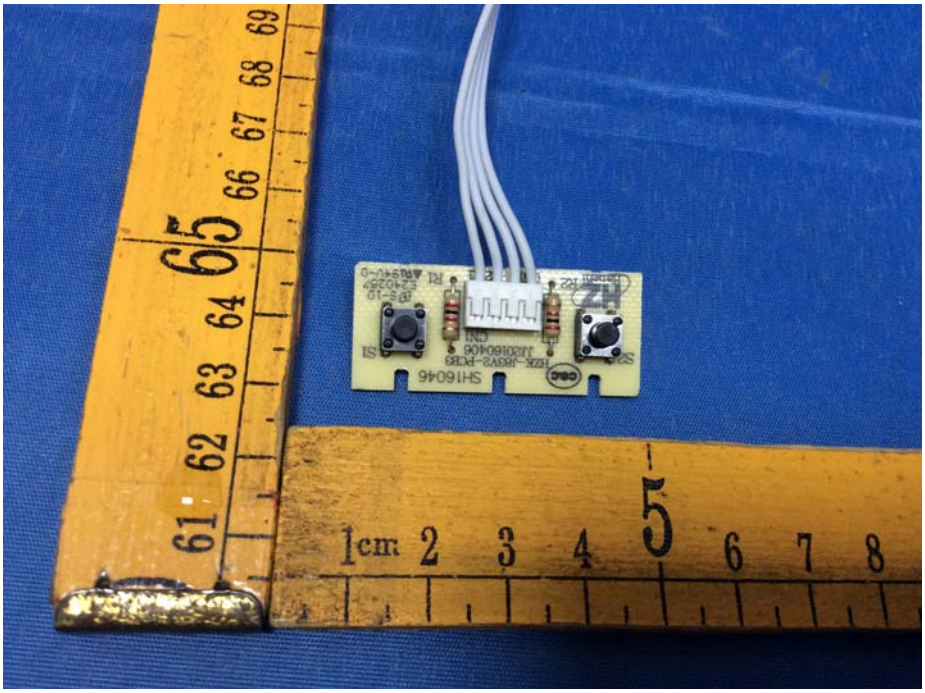


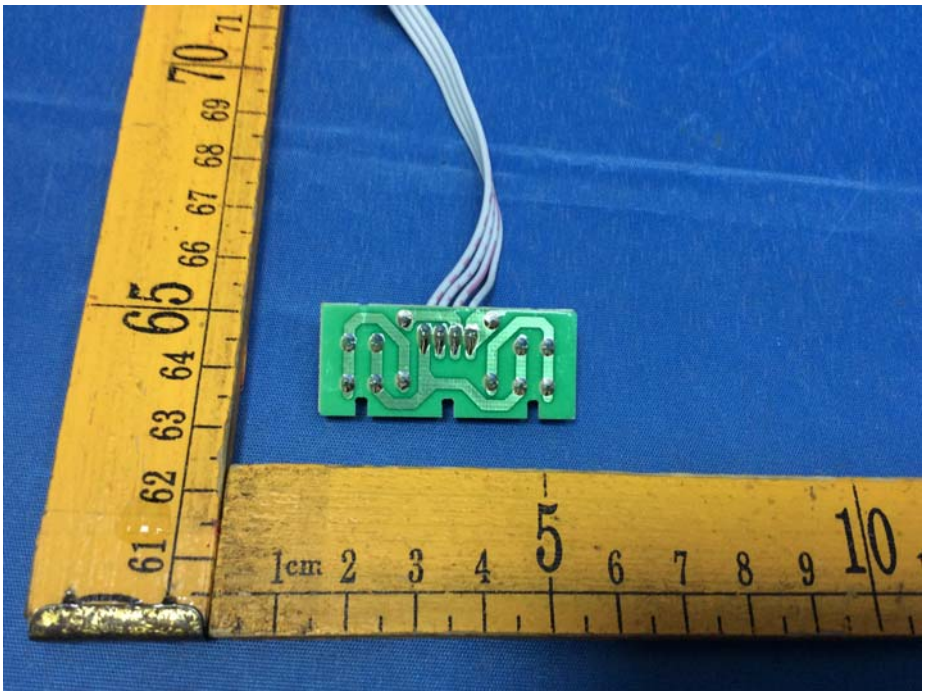


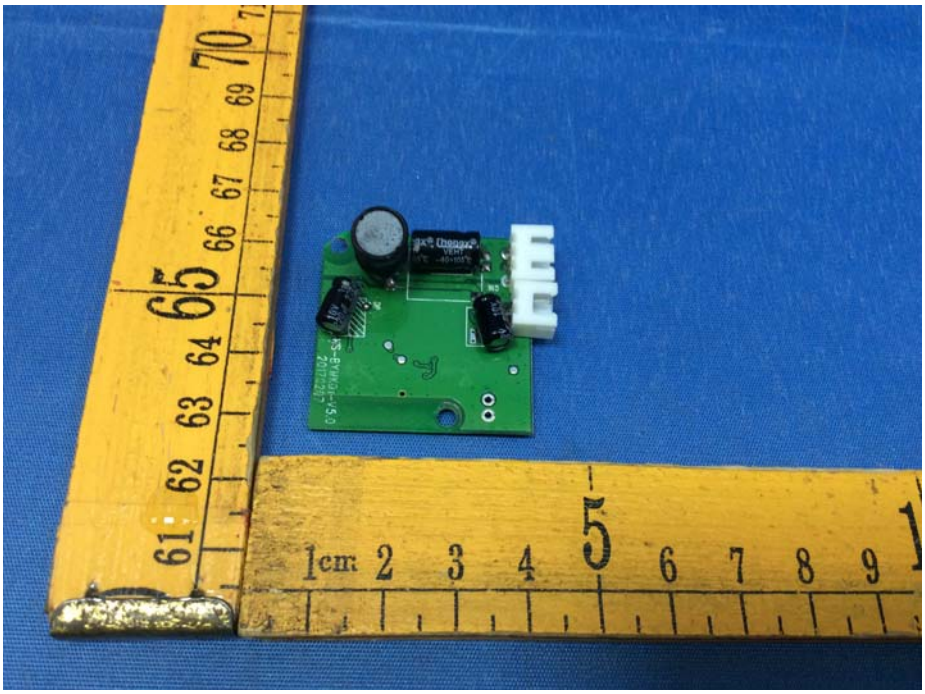

POWER SUPPLY
MODEL:SW-240065
INPUT:100-240V-50/60Hz
OUTPUT:24VDC 650mA
LISTED
3TJ6
E335663
MADE IN CHINA

8.2 Model NT60236DIF – Internal Photos






1cm 2 3 4 5 6 7 8 9 10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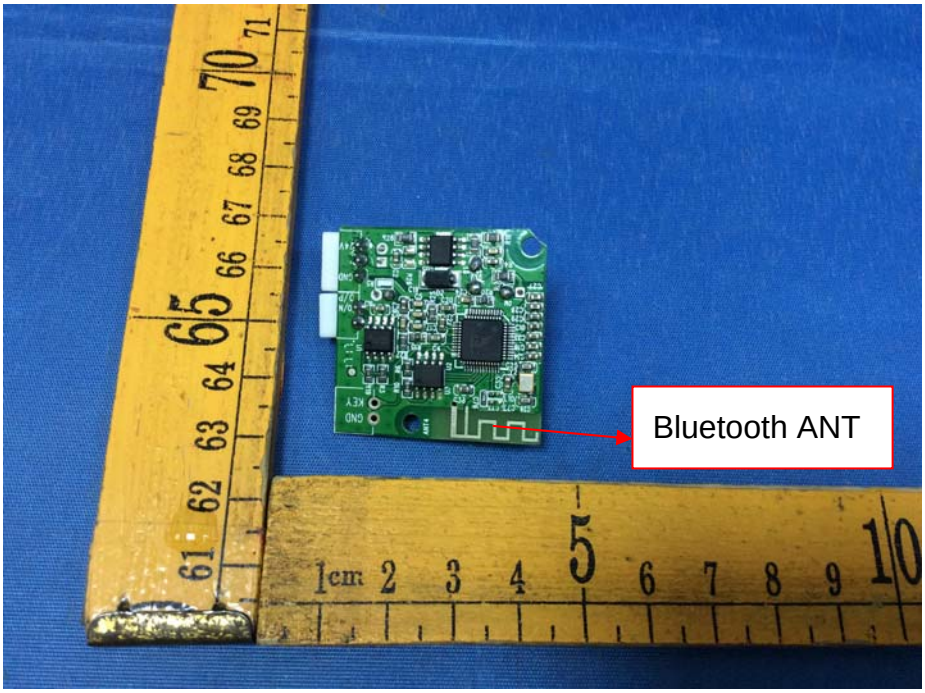
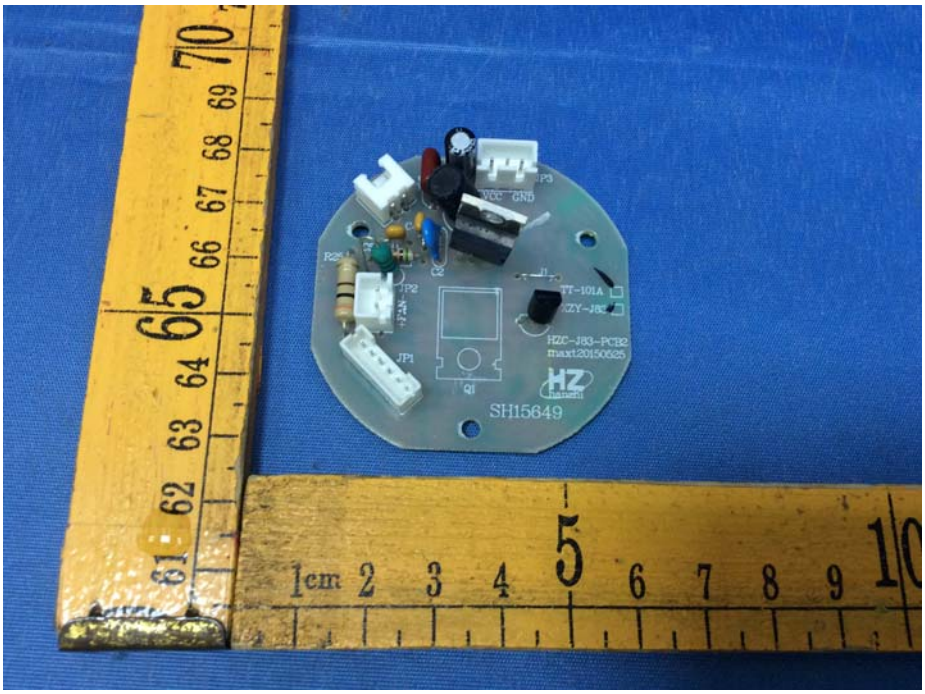
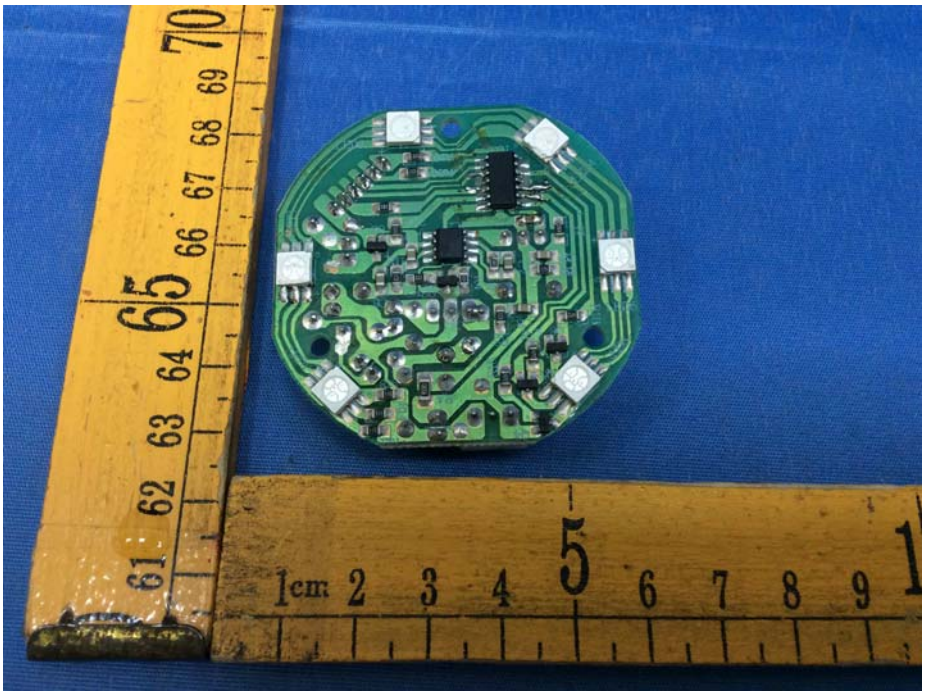

Bluetooth ANT


SH15649



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