TEST REPORT

Reference No.	:	WTS17S0683494-1E
FCC ID	:	2AIPV-BH70900
Applicant	:	Hoover, Inc.
Address	:	7005 Cochran Road, Glenwillow Ohio 44139, United States
Manufacturer	:	Shenzhen Silver Star Intelligent Technology Co., Ltd.
Address	:	Building D, Huiqing Science-park, Dafu Industrial Areas, Guanguang Road, Guanlan Town, Longhua District, Shenzhen, China
Product Name	:	Vacuum Cleaner
Model No. .	:	BH70950, BH70950CA, BH70970, BH709XX
Standards	:	FCC CFR47 Part 15 C Section 15.247:2016
Date of Receipt sample	:	Jun. 29, 2017
Date of Test	:	Jun.30, 2017 ~ Jul. 10, 2017
Date of Issue	:	Jul. 12, 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.
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Compiled by:

Jack Wen / Test Engineer

Approved by:

Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207(a)	PASS
Radiated Emissions	15.247 15.205(a) 15.209(a)	PASS
6dB Bandwidth	15.247(a)(2)	PASS
Maximum Peak Output Power	15.247(b)(3),(4)	PASS
Power Spectral Density	15.247(e)	PASS
Band Edge	15.247(d)	PASS
Antenna Requirement	15.203	PASS
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

3 Contents

4 General Information

4.1 General Description of E.U.T

Product Name:	Vacuum Cleaner
Model No.:	BH70950, BH70950CA, BH70970, BH709XX
Model Description:	Only the Colors and model names are different.
Operation Frequency:	2402-2480MHz
The Lowest Oscillator:	32.768kHz
Antenna type:	PCB printed antenna
Antenna Gain:	0dBi
Type of modulation:	GFSK

4.2 Details of E.U.T

Technical Data:	Adapter:Input:100-240V,50/60Hz 0.6 Max Output:18.0V ⎓ 1.0A Battery:14.52V 2550mAh 37.03Wh
Adapter	Model: NLD100180W1A4
Manufacturer	SHENZHEN NALIN ELEC. TECH. CO., LTD

4.3 Channel List

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2404	2	2406	3	2408
4	2410	5	2412	6	2414	7	2416
8	2418	9	2420	10	2422	11	2424
12	2426	13	2428	14	2430	15	2432
16	2434	17	2436	18	2438	19	2440
20	2442	21	2444	22	2446	23	2448
24	2450	25	2452	26	2454	27	2456
28	2458	29	2460	30	2462	31	2464
32	2466	33	2468	34	2470	35	2472
36	2474	37	2476	38	2478	39	2480

4.4 Test Mode

Table 1 Tests Carried Out Under FCC part 15.247

Test Items	Mode	Data Rate	Channel	TX/RX
Maximum Peak Output Power	BLE	1 Mbps	0/19/39	TX
Power Spectral Density	BLE	1 Mbps	0/19/39	TX
6dB Bandwidth	BLE	1 Mbps	0/19/39	TX
Band Edge	BLE	1 Mbps	0/19/39	TX
Transmitter Spurious Emissions	BLE	1 Mbps	0/19/39	TX

Note :Parameters set by test software during channel & power tests, the software provided by the customer was used to set the operating channels as well as the output power level. The RF output power set is the power expected by the manufacturer and is going to be fixed on the firmware of the final product .

Table 2 Tests Carried Out Under FCC part 15.207 & FCC part 15.209

Test Item	Test Mode
Conduction Emission, 0.15MHz to 30MHz	Communication

4.5 Test Facility

Waltek Services (Shenzhen) Co., Ltd.

Accreditations for Conformity Assessment			
Country/Region	Accreditation Body	Scope	Note
USA	A2LA (Certificate No.: 4243.01) CNAS (Registration No. : L3110)	FCC ID\DOC\VOC	1
Canada		IC ID\VOC	2
Japan		MIC-T\MIC-R \ PSE	-
Europe		EMCD\LVD\RED	-
Taiwan		BSMI\NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
South Korea		KC	-
Thailand		NTC	-
Singapore		IDA	-
Note: 1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476, test Firm Registration No.: 328995. 2. IC Canada Registration No.: 7760A			

5 Equipment Used during Test

5.1 Equipments List

Conducted Emissions Test Site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	100947	Sep.14,2016	Sep.13,2017
2.	LISN	R&S	ENV216	101215	Sep.14,2016	Sep.13,2017
3.	Cable	Top	TYPE16(3.5M)	-	Sep.14,2016	Sep.13,2017
Conducted Emissions Test Site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	Sep.14,2016	Sep.13,2017
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Sep.14,2016	Sep.13,2017
3.	Limiter	York	MTS-IMP-136	261115-001-0024	Sep.14,2016	Sep.13,2017
4.	Cable	LARGE	RF300	-	Sep.14,2016	Sep.13,2017
3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.14,2016	Sep.13,2017
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.14,2016	Sep.13,2017
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.07, 2017	Apr.06, 2018
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.12, 2016	Sep.11, 2017
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Sep.14,2016	Sep.13,2017
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Sep.14,2016	Sep.13,2017
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Sep.14,2016	Sep.13,2017
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	Sep.14,2016	Sep.13,2017
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	Sep.14,2016	Sep.13,2017
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	Sep.14,2016	Sep.13,2017
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	Sep.14,2016	Sep.13,2017
4	Cable	HUBER+SUHNER	CBL2	525178	Sep.14,2016	Sep.13,2017

RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Sep.14,2016	Sep.13,2017
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Sep.14,2016	Sep.13,2017
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	Sep.14,2016	Sep.13,2017

5.2 Description of Support Units

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

5.3 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (30M~1000MHz)
	± 5.47 dB (1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TEST CO., L TD. address is No.163, Pingyun Rd. West of Huangpu Ave,Tianhe District, Guangzhou, Guangdong, China.

6 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.10:2013
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class/Severity:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

6.1 E.U.T. Operation

Operating Environment **:**

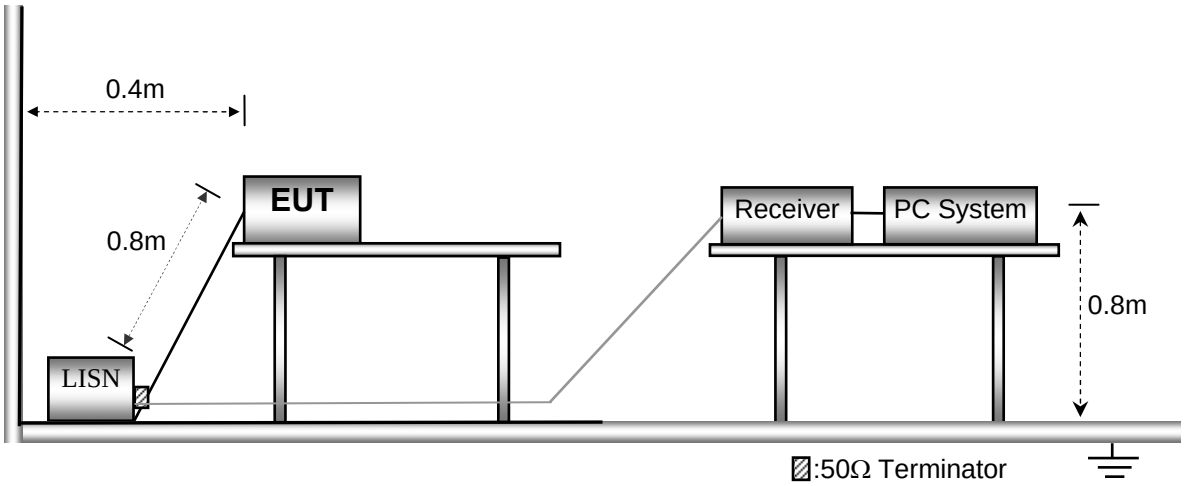
Temperature:	21.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa

EUT Operation **:**

The test was performed in transmitting mode, the test data were shown in the report.

6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10.



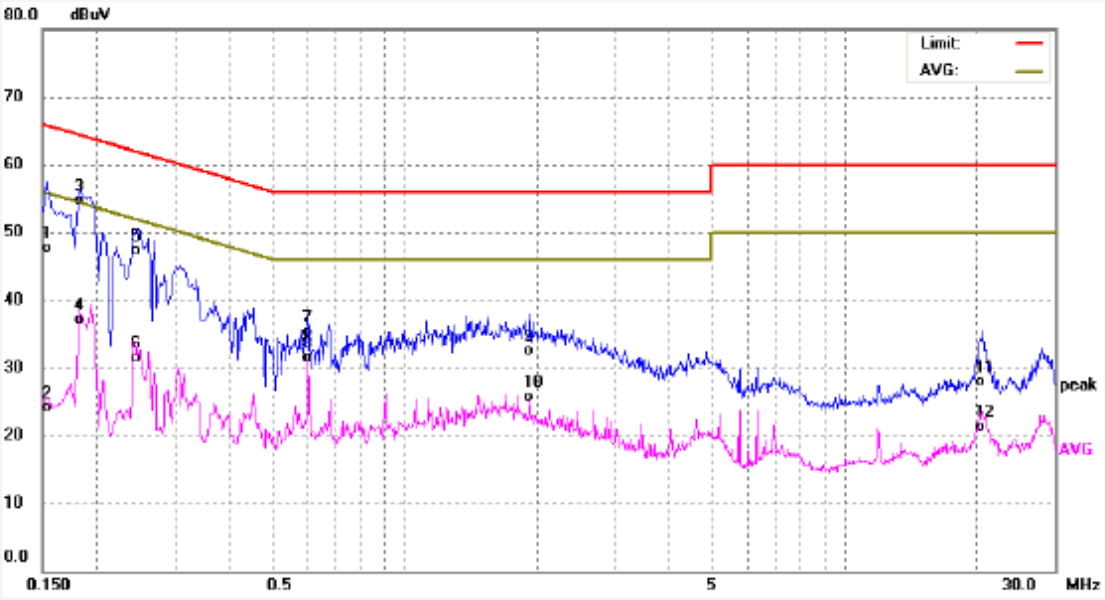
6.3 Measurement Description

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.

6.4 Conducted Emission Test Result

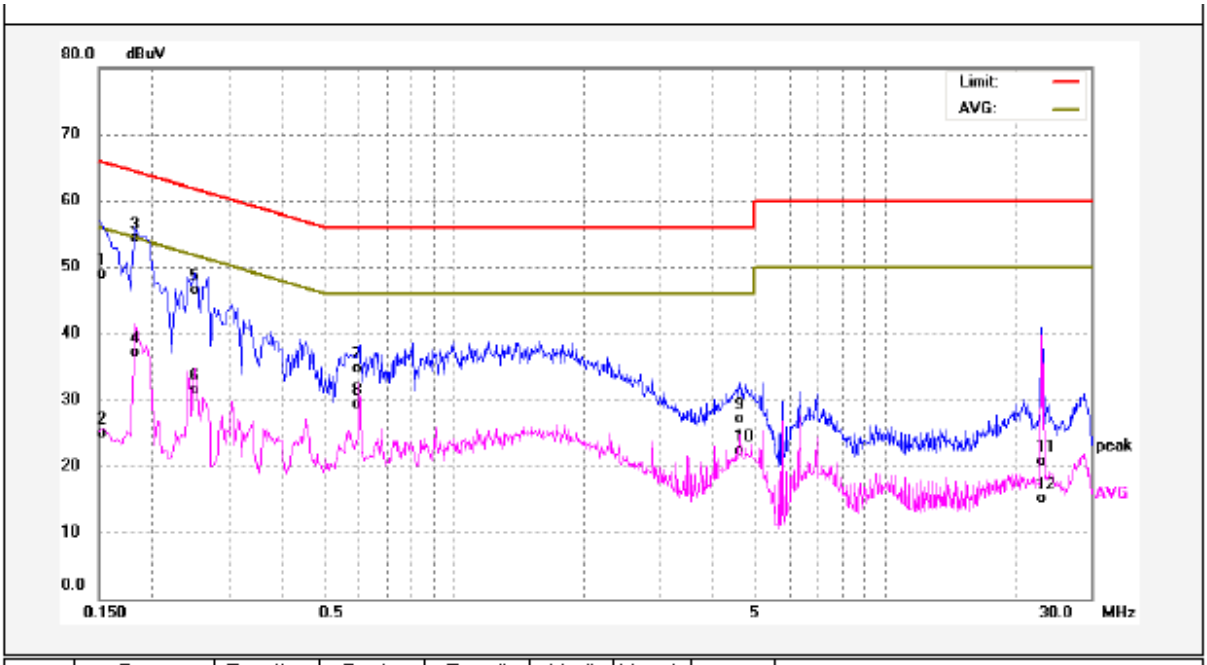
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1539	37.82	10.02	47.84	65.78	-17.94	QP	
2	0.1539	14.10	10.02	24.12	55.78	-31.66	AVG	
3	0.1819	44.80	9.88	54.68	64.39	-9.71	QP	
4	0.1819	27.31	9.88	37.19	54.39	-17.20	AVG	
5	0.2460	37.44	10.00	47.44	61.89	-14.45	QP	
6	0.2460	21.58	10.00	31.58	51.89	-20.31	AVG	
7	0.6020	25.27	10.06	35.33	56.00	-20.67	QP	
8	0.6020	21.35	10.06	31.41	46.00	-14.59	AVG	
9	1.9260	22.39	10.19	32.58	56.00	-23.42	QP	
10	1.9260	15.55	10.19	25.74	46.00	-20.26	AVG	
11	20.6940	17.52	10.48	28.00	60.00	-32.00	QP	
12	20.6940	10.79	10.48	21.27	50.00	-28.73	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	38.76	10.06	49.02	65.99	-17.17	QP	
2	0.1500	14.87	10.06	24.93	55.99	-31.06	AVG	
3	0.1819	44.43	9.88	54.31	64.39	-10.08	QP	
4	0.1819	27.15	9.88	37.03	54.39	-17.36	AVG	
5	0.2500	36.56	10.01	46.57	61.75	-15.18	QP	
6	0.2500	21.50	10.01	31.51	51.75	-20.24	AVG	
7	0.6060	24.72	10.06	34.78	56.00	-21.22	QP	
8	0.6060	19.30	10.06	29.36	46.00	-16.64	AVG	
9	4.6140	16.71	10.26	27.17	56.00	-29.03	QP	
10	4.6140	11.99	10.26	22.25	46.00	-23.75	AVG	
11	23.1299	10.34	10.53	20.87	60.00	-39.13	QP	
12	23.1299	4.65	10.53	15.18	50.00	-34.82	AVG	

7 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method: ANSI C63.10:2013

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

7.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

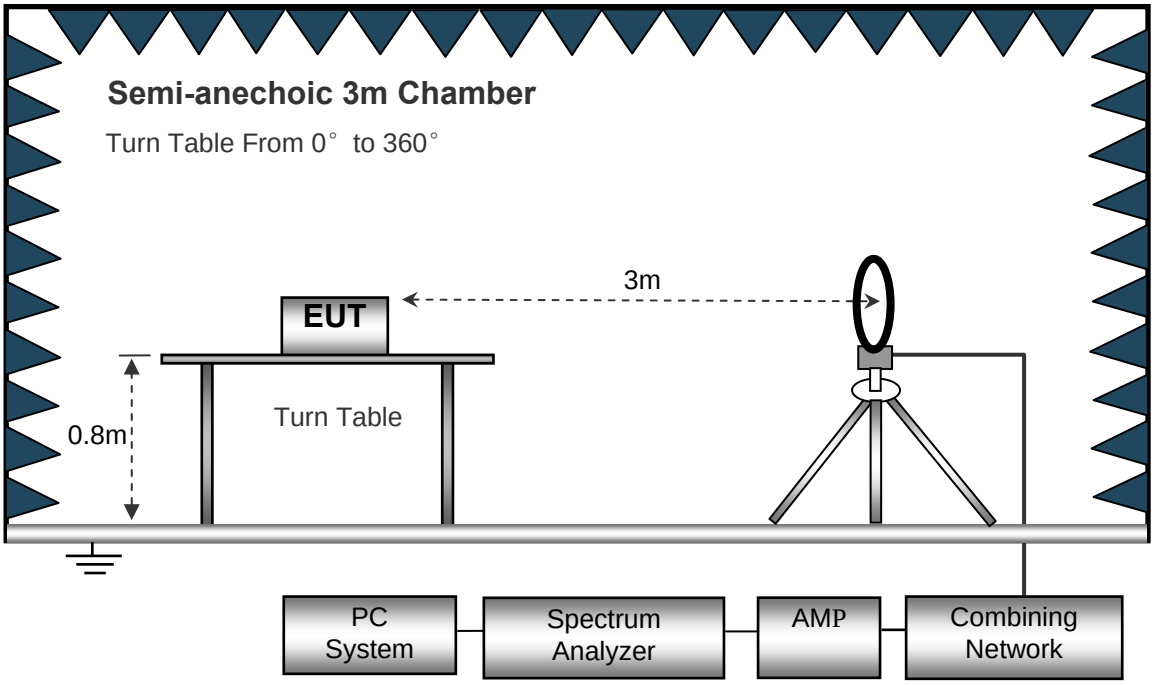
EUT Operation **:**

The test was performed in transmitting mode, the test data were shown in the report.

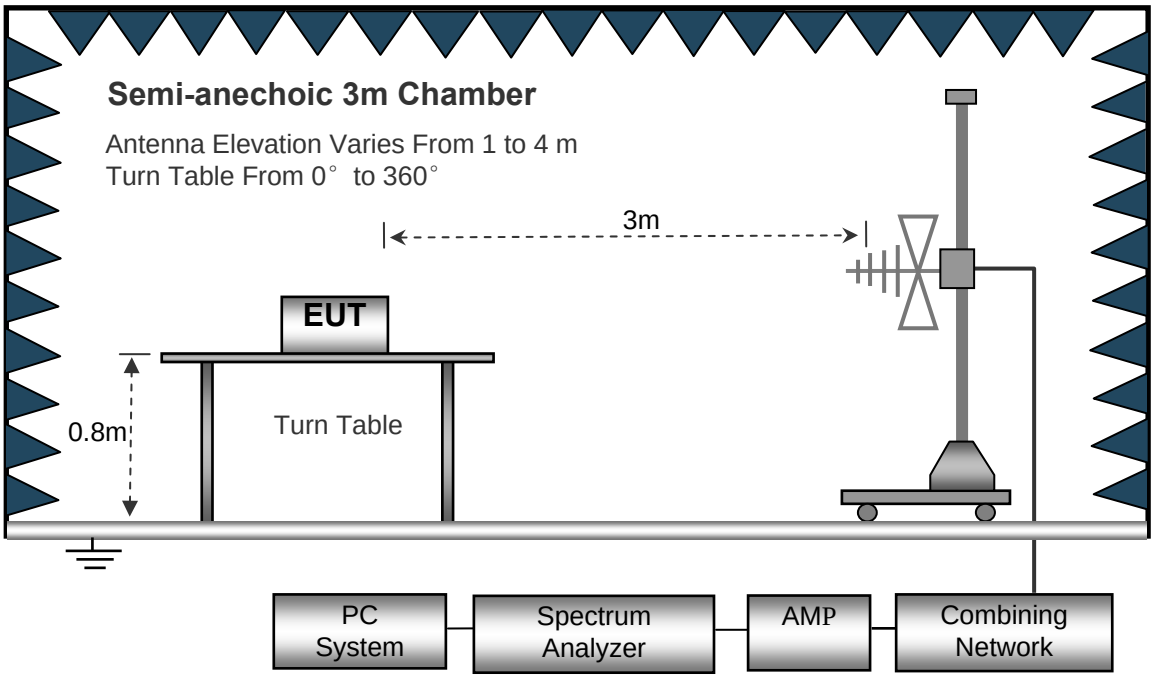
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

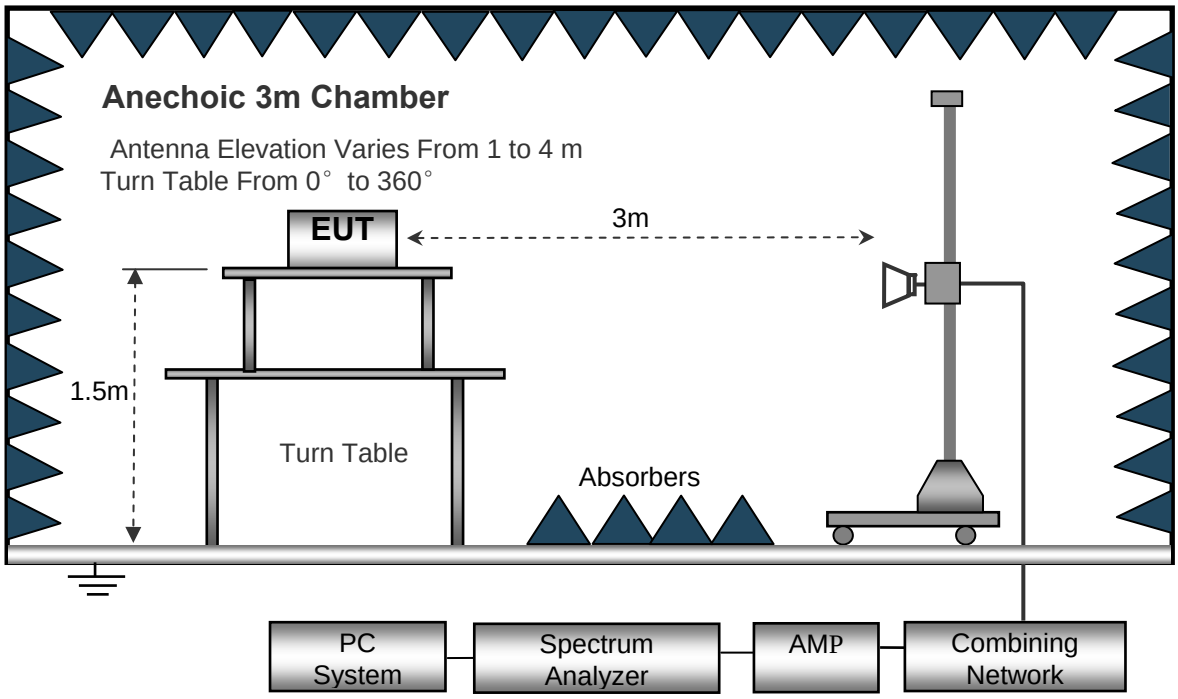
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed ..... Auto
IF Bandwidth..... 10kHz
Video Bandwidth..... 10kHz
Resolution Bandwidth..... 10kHz

30MHz ~ 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 100kHz
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed ..... Auto
Detector ..... PK
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 3MHz
Detector ..... Ave.
Resolution Bandwidth..... 1MHz
Video Bandwidth..... 10Hz

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

7.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

7.6 Summary of Test Results

Test Frequency: 32.768kHz ~ 30MHz

The measurements were more than 20 dB below the limit and not reported.

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
GFSK Low Channel 2402MHz									
266.53	35.26	QP	28	1.7	H	-13.35	21.91	46.00	-24.09
266.53	42.15	QP	3	1.5	V	-13.35	28.80	46.00	-17.20
4804.00	45.29	PK	232	1.8	V	-1.06	44.23	74.00	-29.77
4804.00	40.15	Ave	232	1.8	V	-1.06	39.09	54.00	-14.91
7206.00	40.23	PK	134	1.3	H	1.33	41.56	74.00	-32.44
7206.00	35.12	Ave	134	1.3	H	1.33	36.45	54.00	-17.55
2327.91	46.69	PK	195	1.6	V	-13.19	33.50	74.00	-40.50
2327.91	38.96	Ave	195	1.6	V	-13.19	25.77	54.00	-28.23
2370.08	44.27	PK	22	1.1	H	-13.14	31.13	74.00	-42.87
2370.08	37.44	Ave	22	1.1	H	-13.14	24.30	54.00	-29.70
2492.82	44.12	PK	337	1.6	V	-13.08	31.04	74.00	-42.96
2492.82	37.22	Ave	337	1.6	V	-13.08	24.14	54.00	-29.86
GFSK middle Channel 2440MHz									
266.53	34.22	QP	294	1.5	H	-13.35	20.87	46.00	-25.13
266.53	43.14	QP	291	1.4	V	-13.35	29.79	46.00	-16.21
4880.00	44.48	PK	182	1.7	V	-0.62	43.86	74.00	-30.14
4880.00	38.81	Ave	182	1.7	V	-0.62	38.19	54.00	-15.81
7320.00	38.80	PK	22	1.4	H	2.21	41.01	74.00	-32.99
7320.00	33.72	Ave	22	1.4	H	2.21	35.93	54.00	-18.07
2328.02	45.50	PK	298	1.5	V	-13.19	32.31	74.00	-41.69
2328.02	39.27	Ave	298	1.5	V	-13.19	26.08	54.00	-27.92
2383.33	44.65	PK	151	1.1	H	-13.14	31.51	74.00	-42.49
2383.33	36.33	Ave	151	1.1	H	-13.14	23.19	54.00	-30.81

2483.75	43.01	PK	285	1.8	V	-13.08	29.93	74.00	-44.07
2483.75	36.74	Ave	285	1.8	V	-13.08	23.66	54.00	-30.34
GFSK High Channel 2480MHz									
266.53	35.13	QP	188	1.1	H	-13.35	21.78	46.00	-24.22
266.53	43.46	QP	173	1.5	V	-13.35	30.11	46.00	-15.89
4960.00	45.42	PK	29	1.2	V	-0.24	45.18	74.00	-28.82
4960.00	37.60	Ave	29	1.2	V	-0.24	37.36	54.00	-16.64
7440.00	38.62	PK	67	1.5	H	2.84	41.46	74.00	-32.54
7440.00	33.55	Ave	67	1.5	H	2.84	36.39	54.00	-17.61
2344.14	46.41	PK	186	1.1	V	-13.19	33.22	74.00	-40.78
2344.14	37.50	Ave	186	1.1	V	-13.19	24.31	54.00	-29.69
2368.61	43.24	PK	266	1.8	H	-13.14	30.10	74.00	-43.90
2368.61	38.06	Ave	266	1.8	H	-13.14	24.92	54.00	-29.08
2486.26	44.55	PK	344	1.1	V	-13.08	31.47	74.00	-42.53
2486.26	36.05	Ave	344	1.1	V	-13.08	22.97	54.00	-31.03

Test Frequency: 18GHz~25GHz

The measurements were more than 20 dB below the limit and not reported.

8 Band Edge Measurement

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	KDB 558074 D01 DTS Meas Guidance v04
Test Limit:	Regulation 15.247 (d),In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
Test Mode:	Transmitting

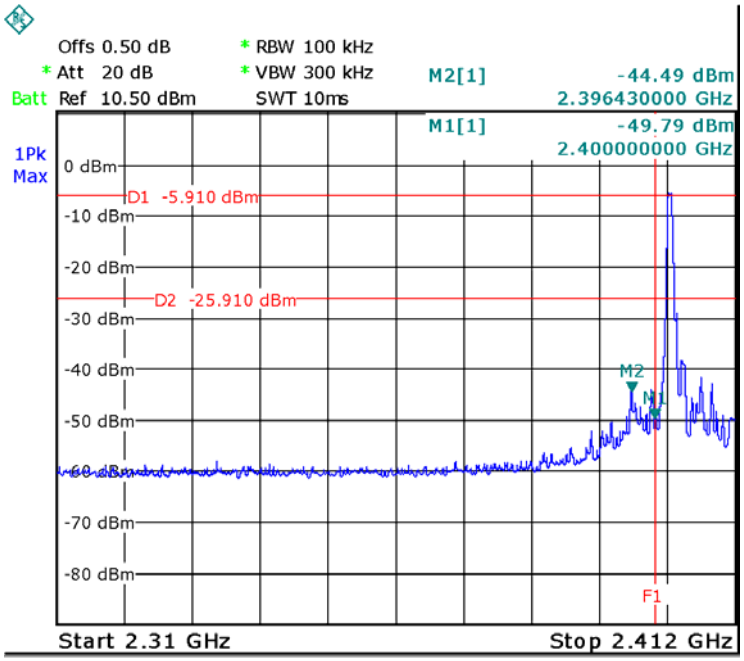
8.1 Test Produce

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

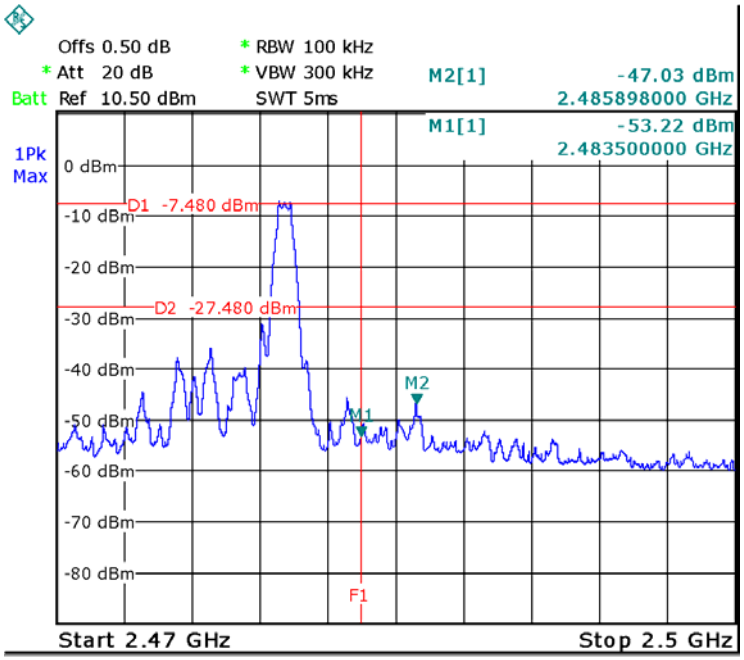
8.2 Test Result

Test result plots shown as follows:

Band edge-left side



Band edge-right side



9 6 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 DTS Meas Guidance v04

9.1 Test Procedure:

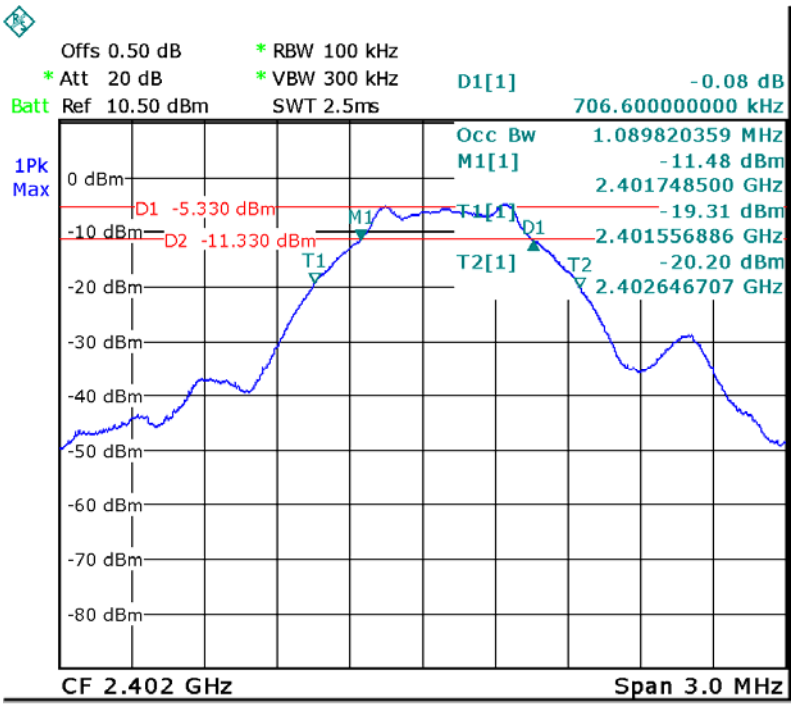
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

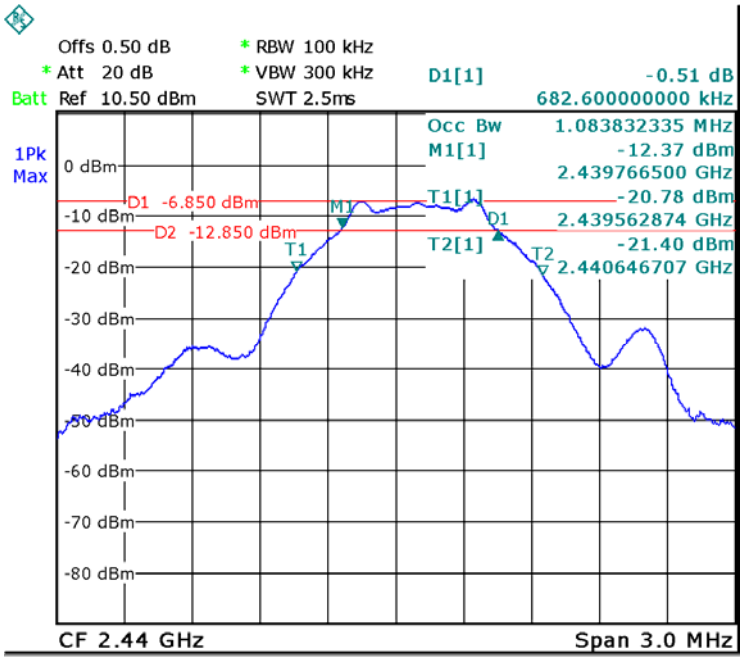
9.2 Test Result:

ANT	Operation mode	Bandwidth (MHz)		
		Low	Middle	High
	BLE	0.707	0.683	0.689

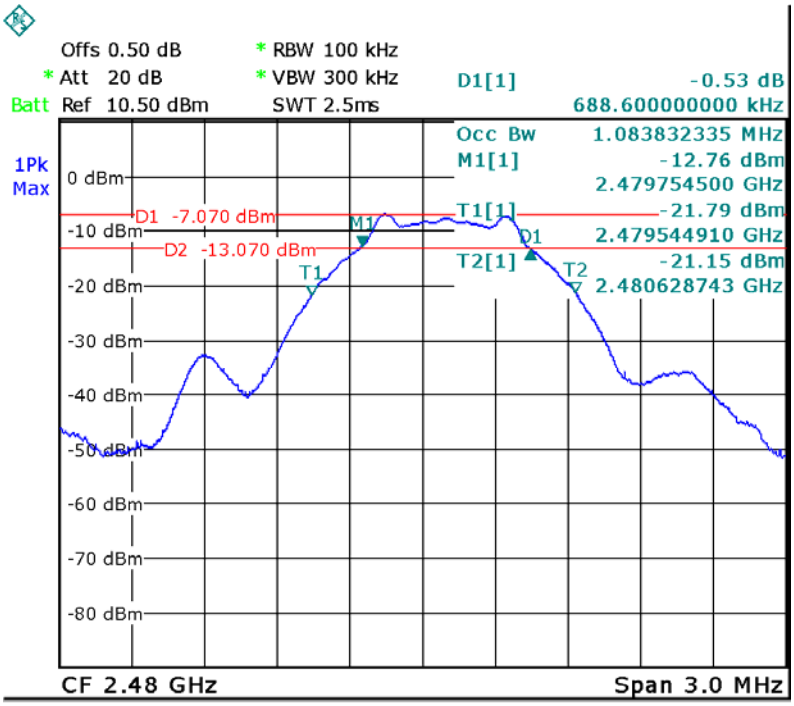
Mode: Low channel



Mode: Middle channel



Mode: High channel



10 Maximum Peak Output Power

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 DTS Meas Guidance v04

10.1 Test Procedure:

KDB 558074 D01 DTS Meas Guidance v03r04 section 9.1.2

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = Peak, Set the span to fully encompass the DTS bandwidth.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

10.2 Test Result:

Wifi:

Operation mode	ANT	Maximum Peak Output Power (dBm)		
		Low	Middle	High
BLE	ANT	-4.87	-6.60	-6.79
Limit				
1W/30dBm				

11 Power Spectral density

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 DTS Meas Guidance v04

11.1 Test Procedure:

KDB 558074 D01 DTS Meas Guidance v03r04 section 10.2

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

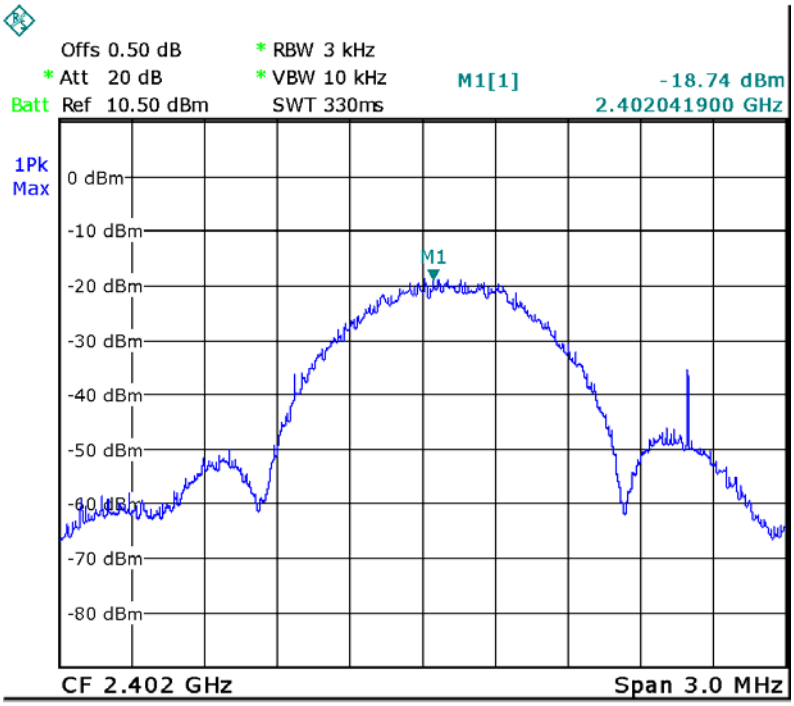
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.

3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

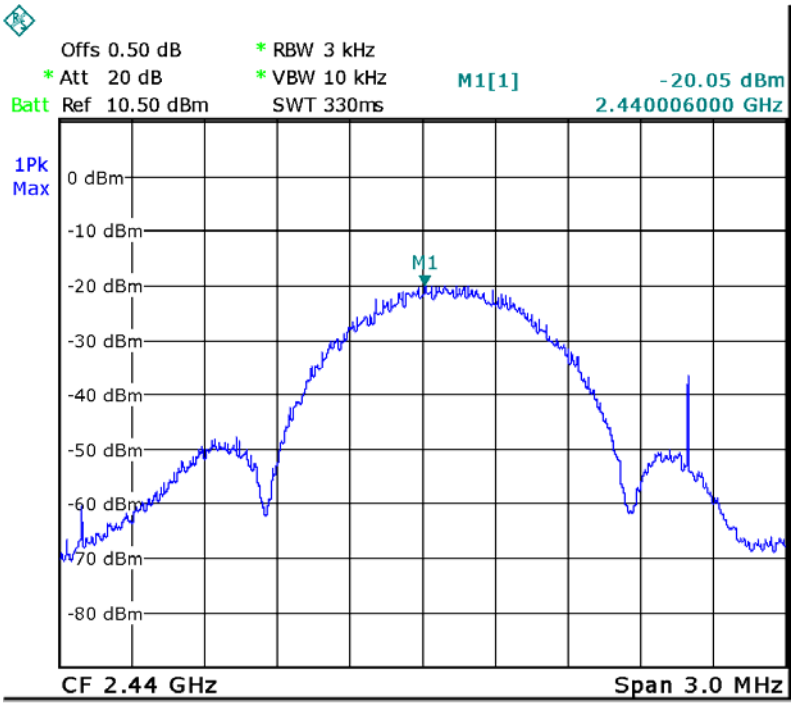
11.2 Test Result:

Operation mode	ANT	Maximum Peak Output Power (dBm per 3kHz)		
		Low	Middle	High
BLE	ANT	-18.74	-20.05	-18.89
Limit				
8dBm per 3kHz				

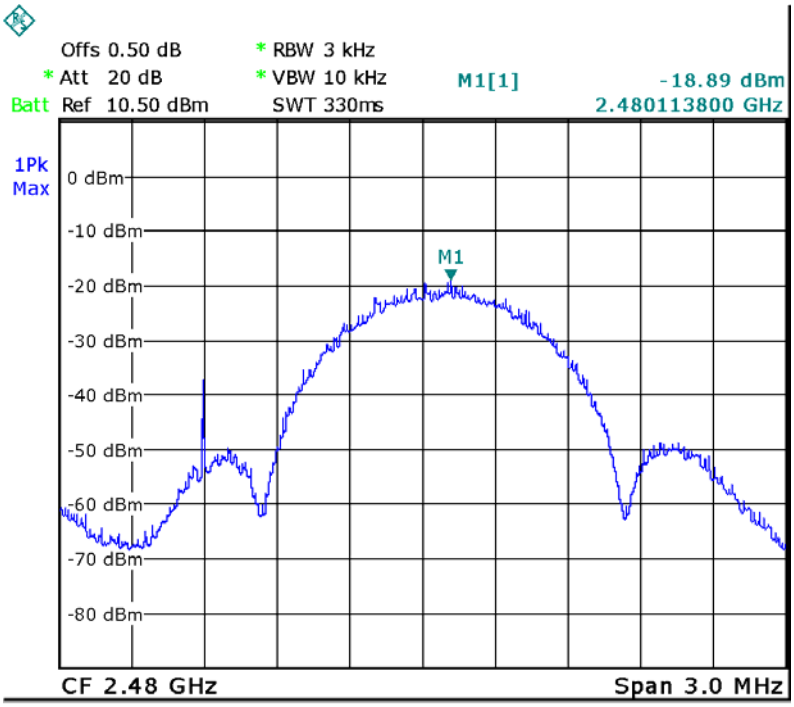
Test mode: Low channel



Test mode: Middle channel

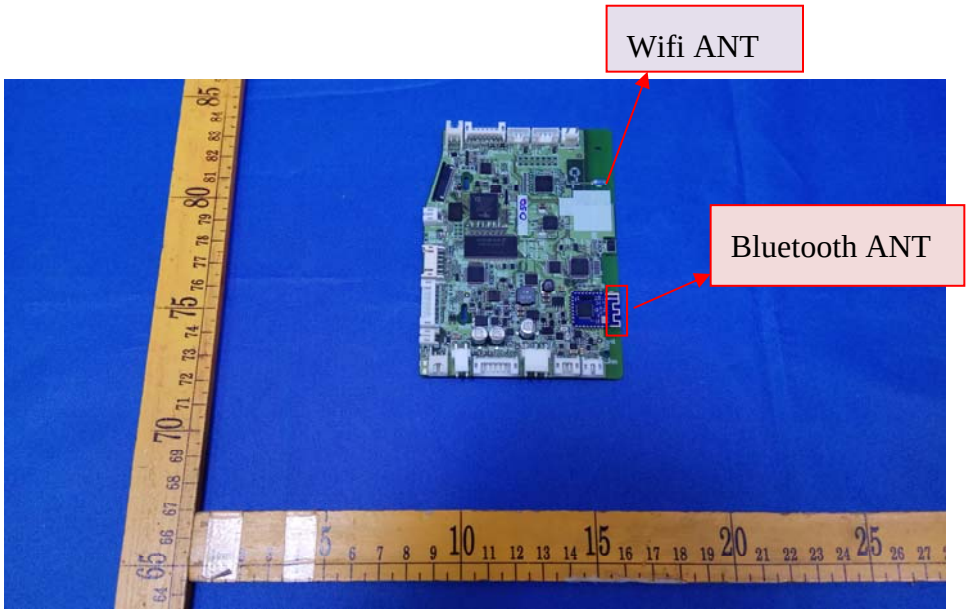


Test mode: High channel



12 Antenna Requirement

According to the FCC Part 15 Paragraph 15.203, 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. This product has ceramic antenna fulfill the requirement of this section.



13 RF Exposure

Test Requirement: FCC Part 1.1307

Evaluation Method: FCC Part 2.1091

13.1 Requirements

Systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess limit for maximum permissible exposure. In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as a mobile device whereby a distance of 0.2 m normally can be maintained between the user and the device.

13.2 The procedures / limit

(A) Limits for Occupational / Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842 / f	4.89 / f	(900 / f)*	6
30-300	61.4	0.163	1.0	6
300-1500			F/300	6
1500-100,000			5	6

(B) Limits for General Population / Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/ cm^2)	Averaging Time $\|E\|^2$,$\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f)*	30
30-300	27.5	0.073	0.2	30
300-1500			F/1500	30
1500-100,000			1.0	30

Note: f = frequency in MHz ; *Plane-wave equivalent power density

13.3 MPE Calculation Method

$$\text{E (V/m)} = \frac{\sqrt{30 \times P \times G}}{d} \qquad \text{Power Density: } Pd \text{ (W/m}^2\text{)} = \frac{E^2}{377}$$

E = Electric field (V/m)
P = Peak RF output power (W)
G = EUT Antenna numeric gain (numeric)
d = Separation distance between radiator and human body (m)
The formula can be changed to

$$\boldsymbol{Pd} = \frac{30 \times P \times G}{377 \times d^2}$$

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna, the RF power density can be obtained.

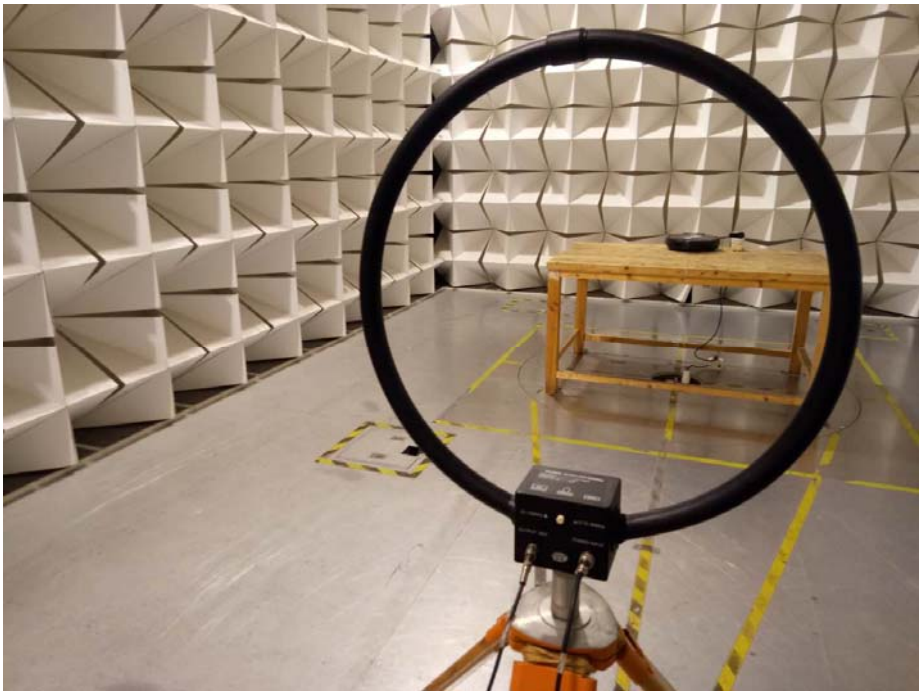
Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Peak Output Power (mW)	Power Density (mW/cm2)	Limit of Power Density (mW/cm2)
0.00	1.000	-4.87	0.33	0.000065	1

14 Photographs – Model BH70970 Test Setup

14.1 Conducted Emission

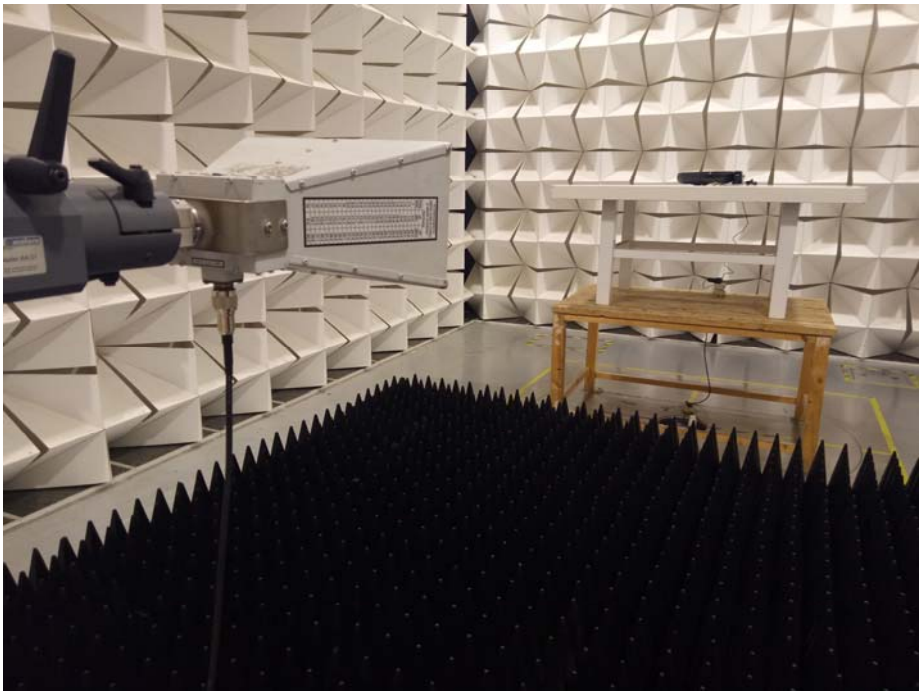
14.2 Radiated Emission

Below 30MHz



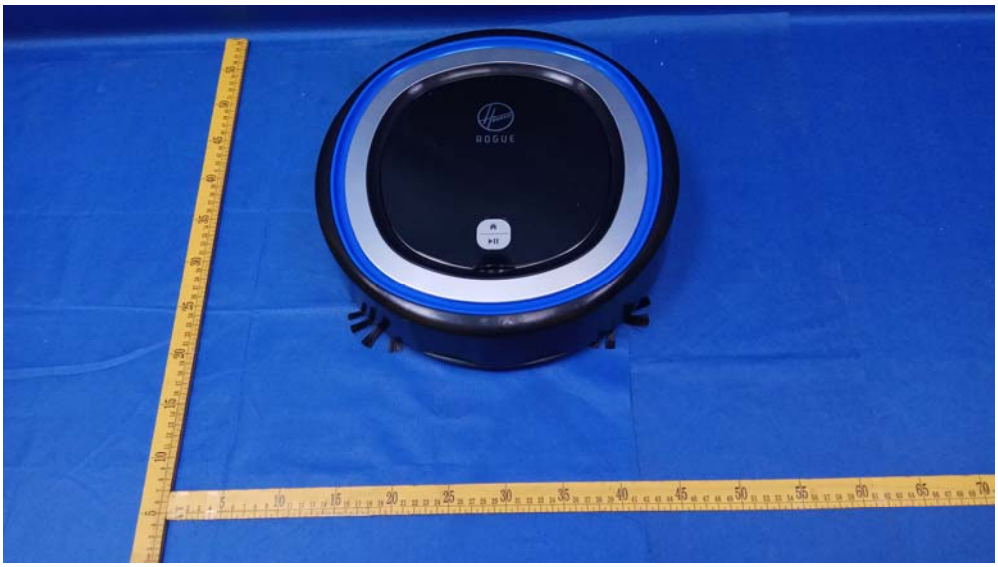
Test frequency from 30MHz to 1GHz

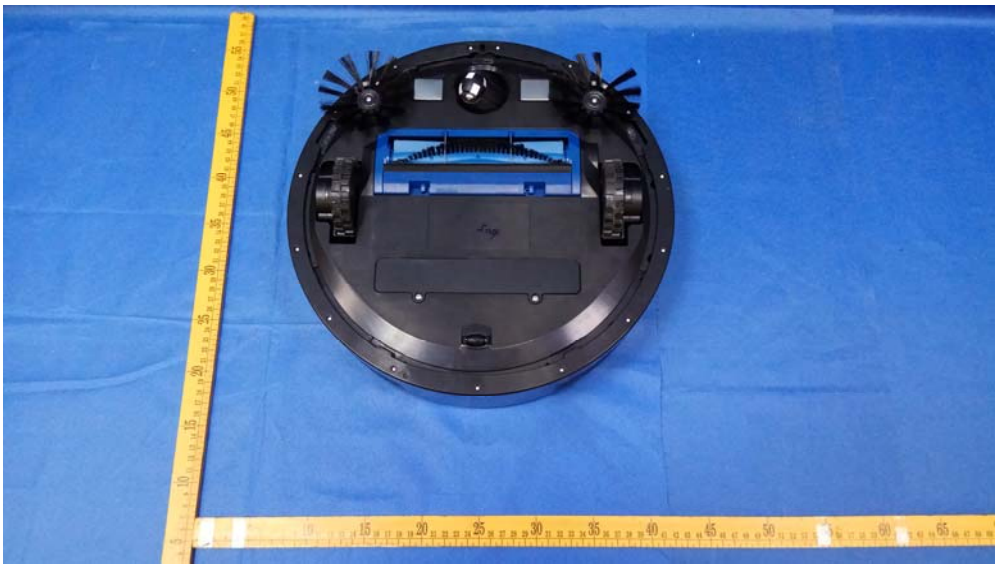
Test frequency above 1GHz

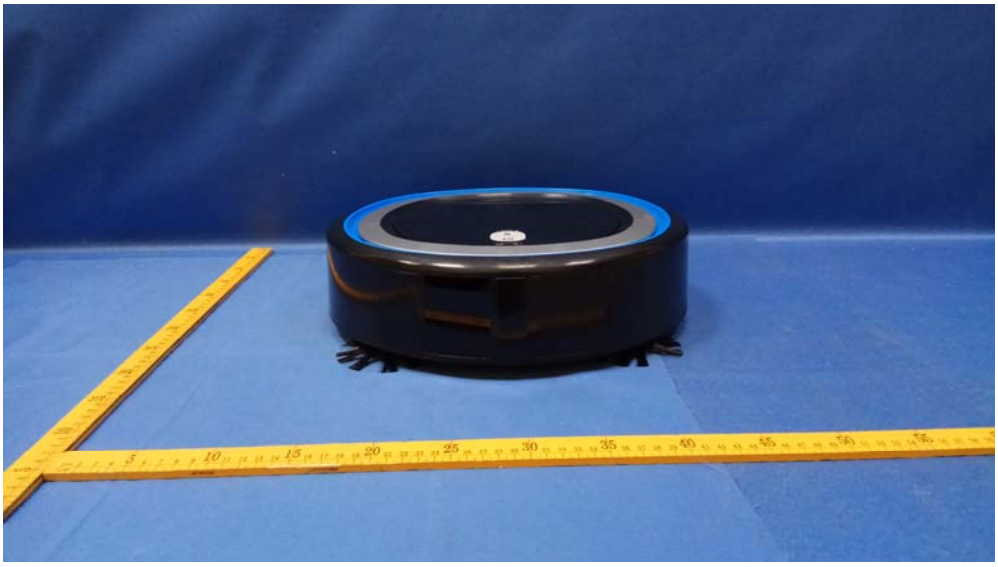


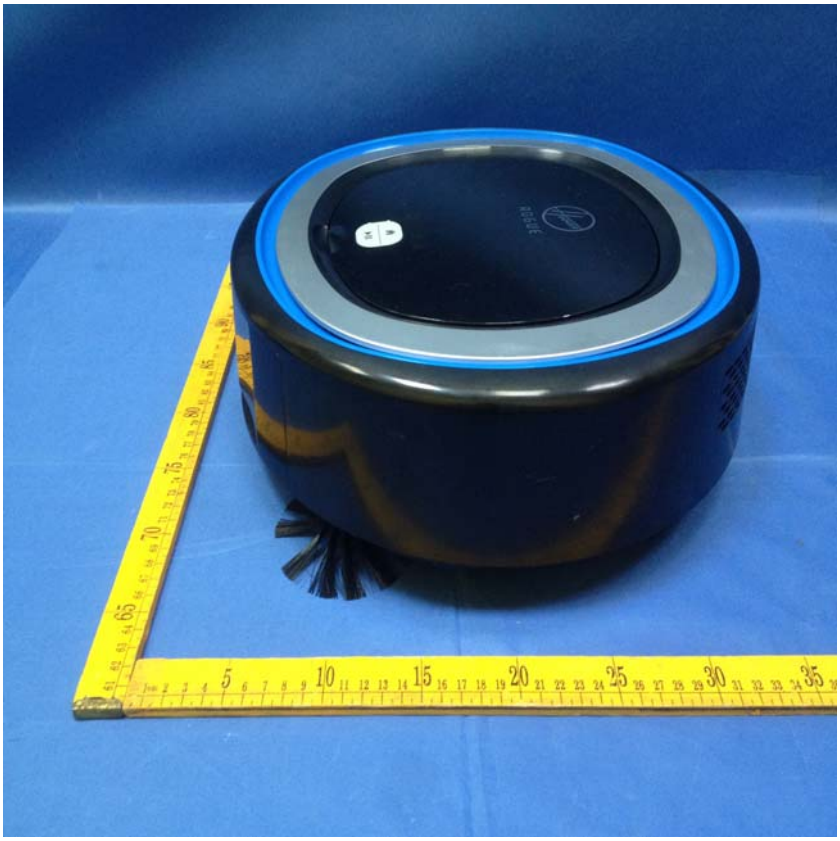
15 Photographs - Constructional Details

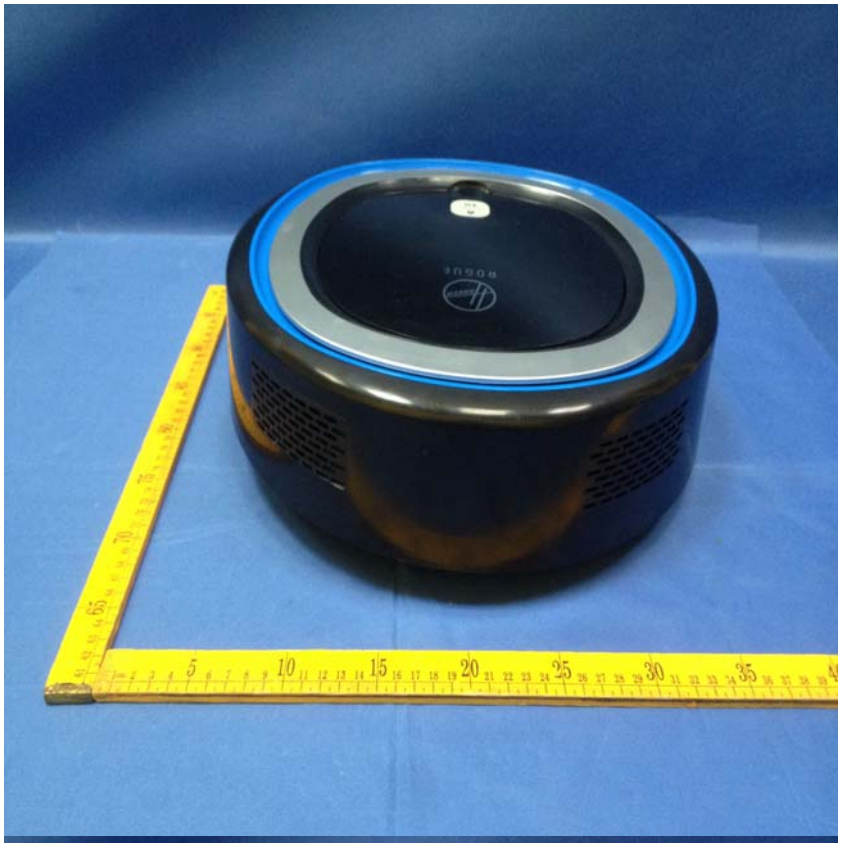
15.1 Model BH70970 External View

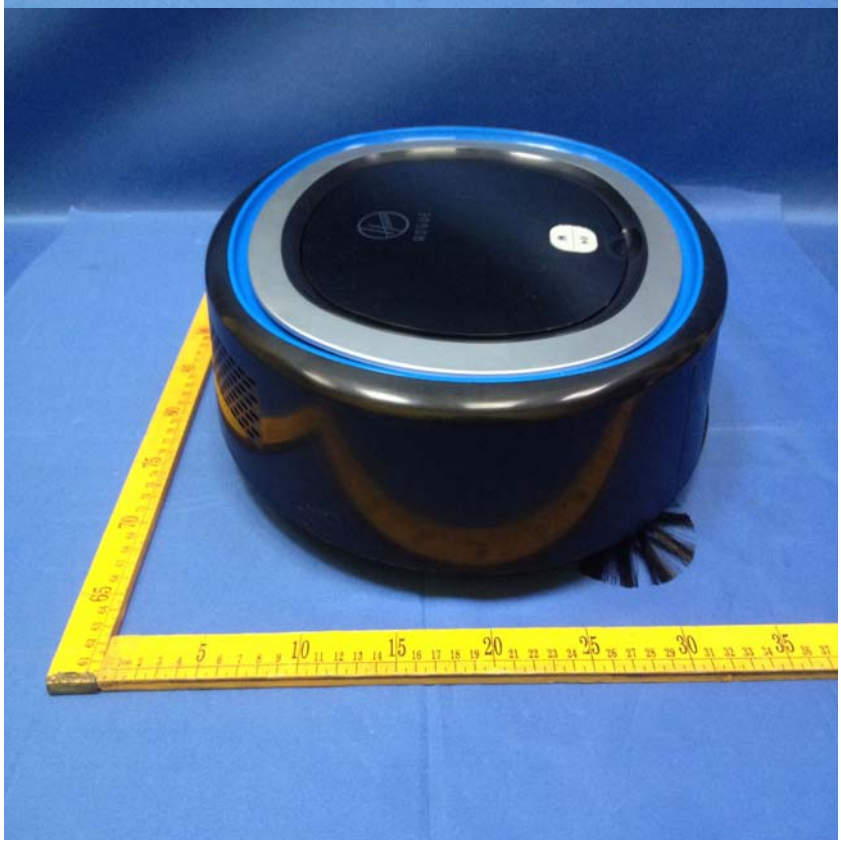


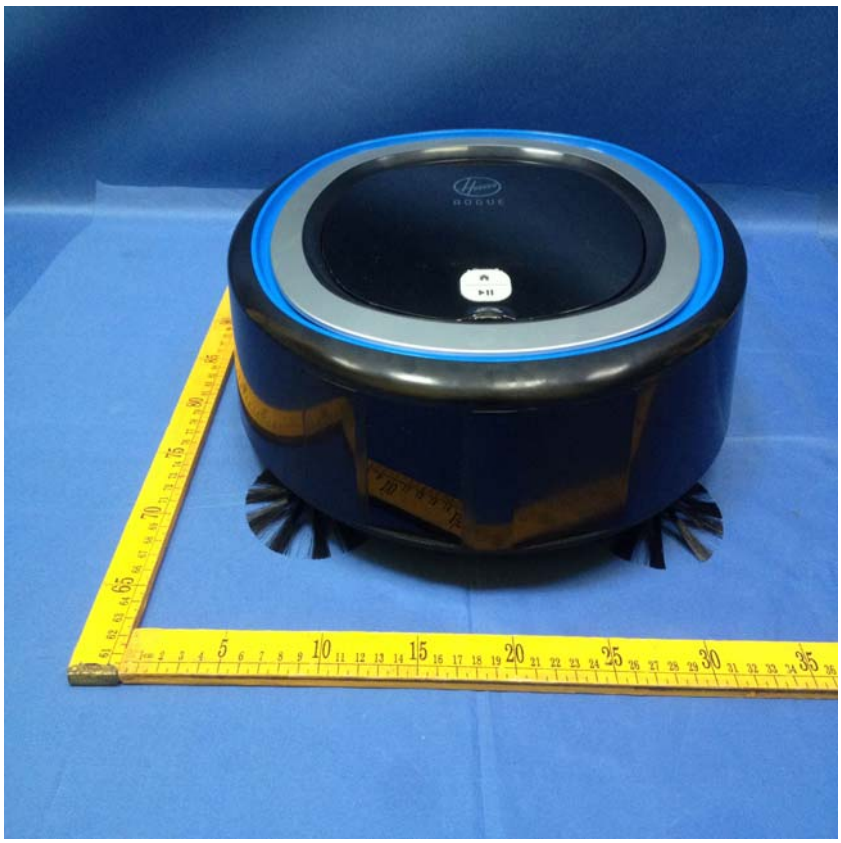






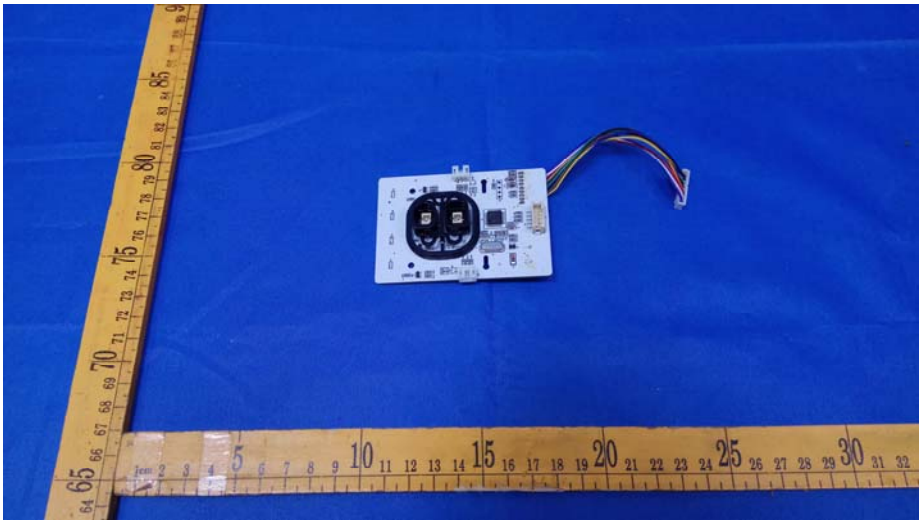


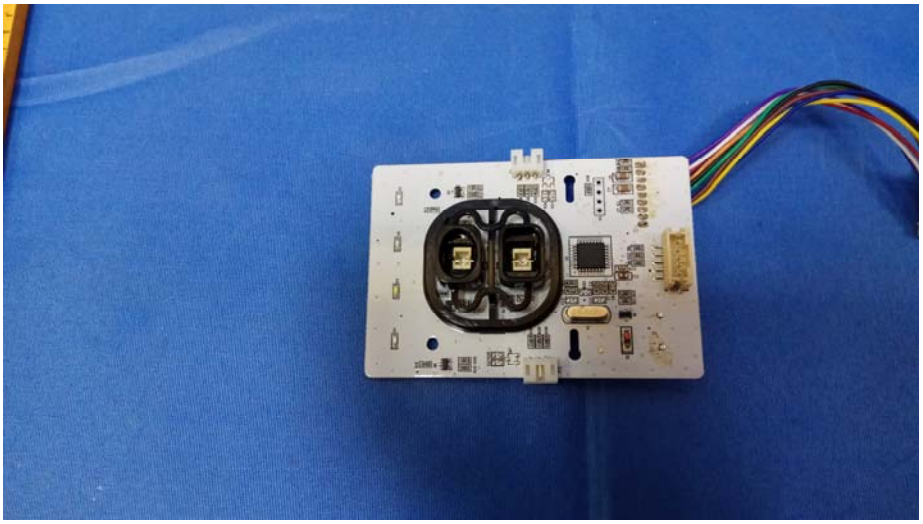


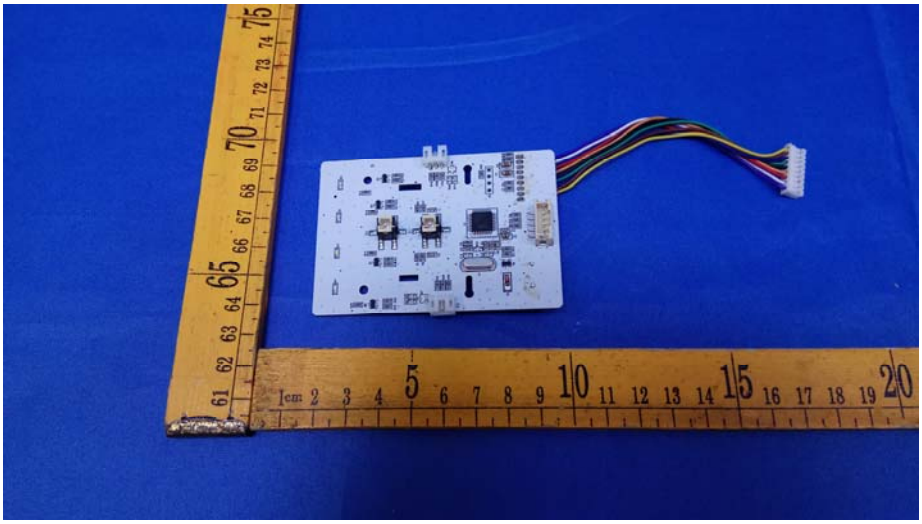


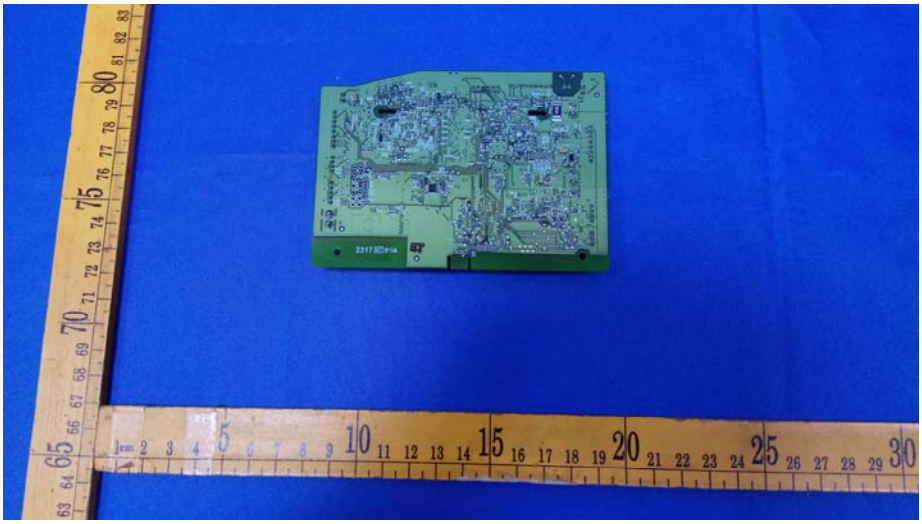

Class 2 power supply
MODEL:NLD10018OW1A4
INPUT:100-240V~50/60Hz
0.6A Max
OUTPUT:18V ⎓ 1A
CAUTION/ATTENTION
Risk of Electric Shock
DRY LOCATION USE ONLY
POUR UTILISATION A
L'INTERIEUR SEULEMENT
1718
MADE IN CHINA

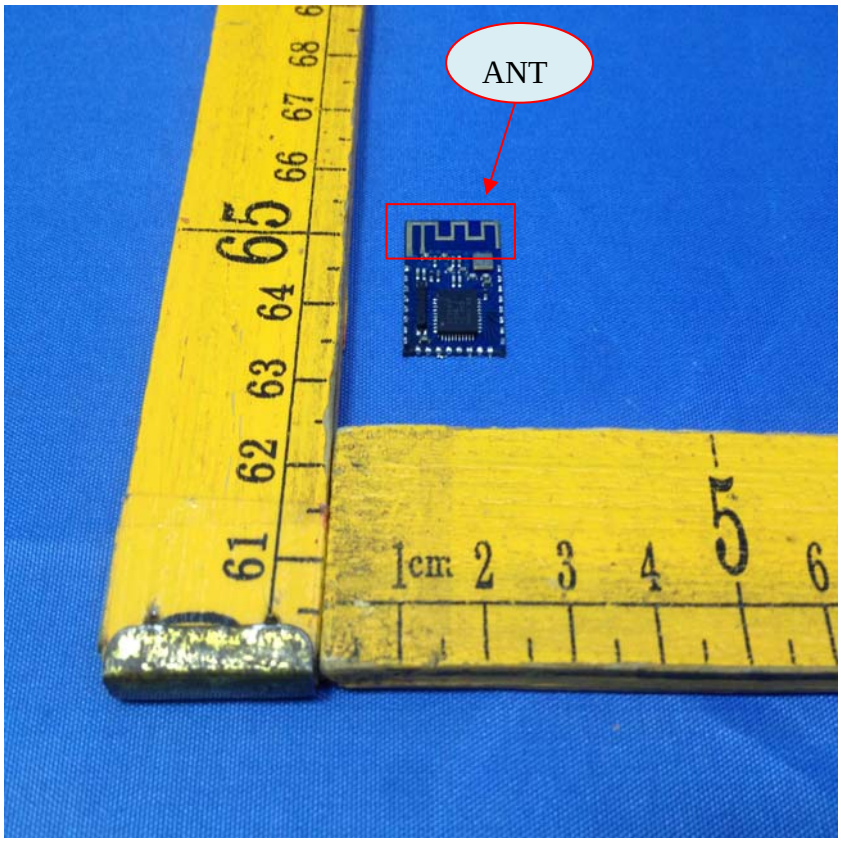
15.2 Model BH70970 Internal View







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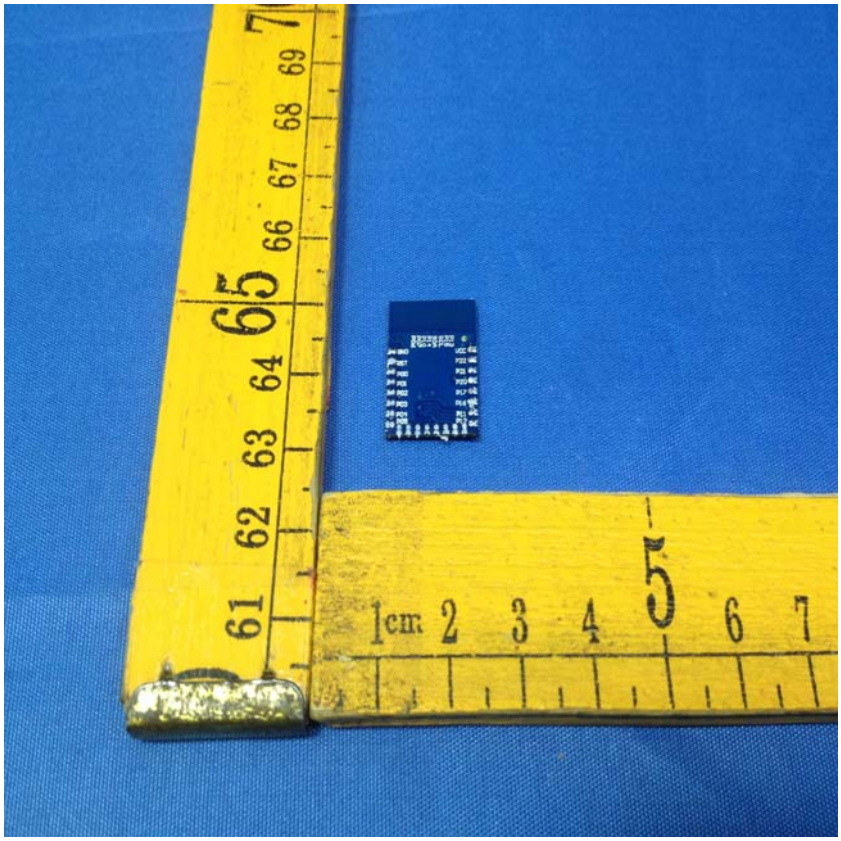
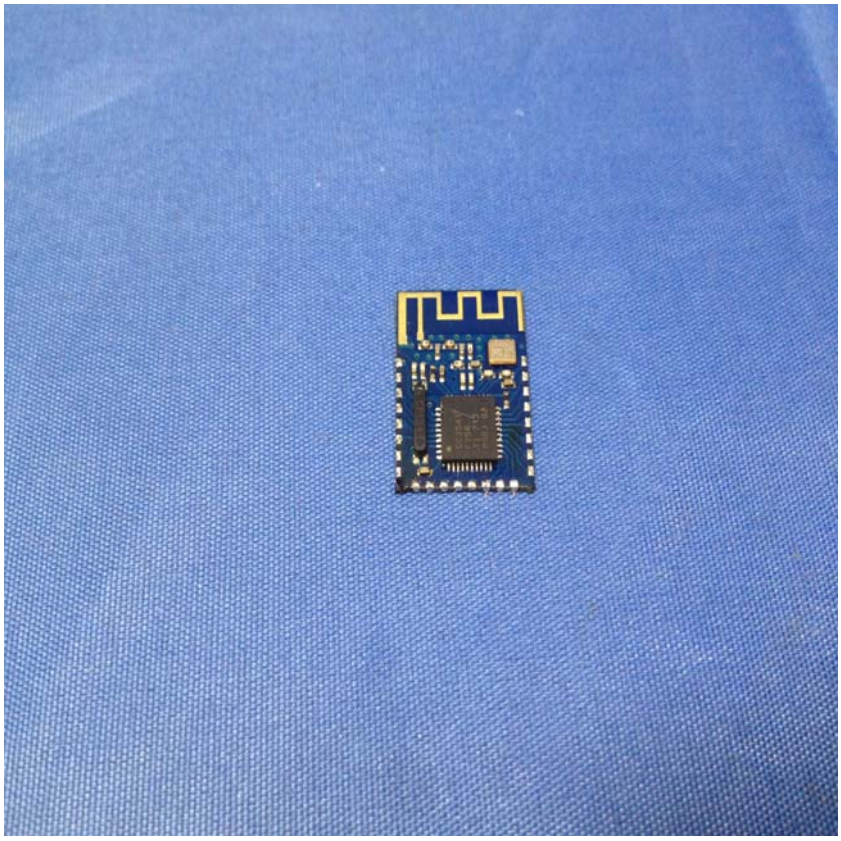
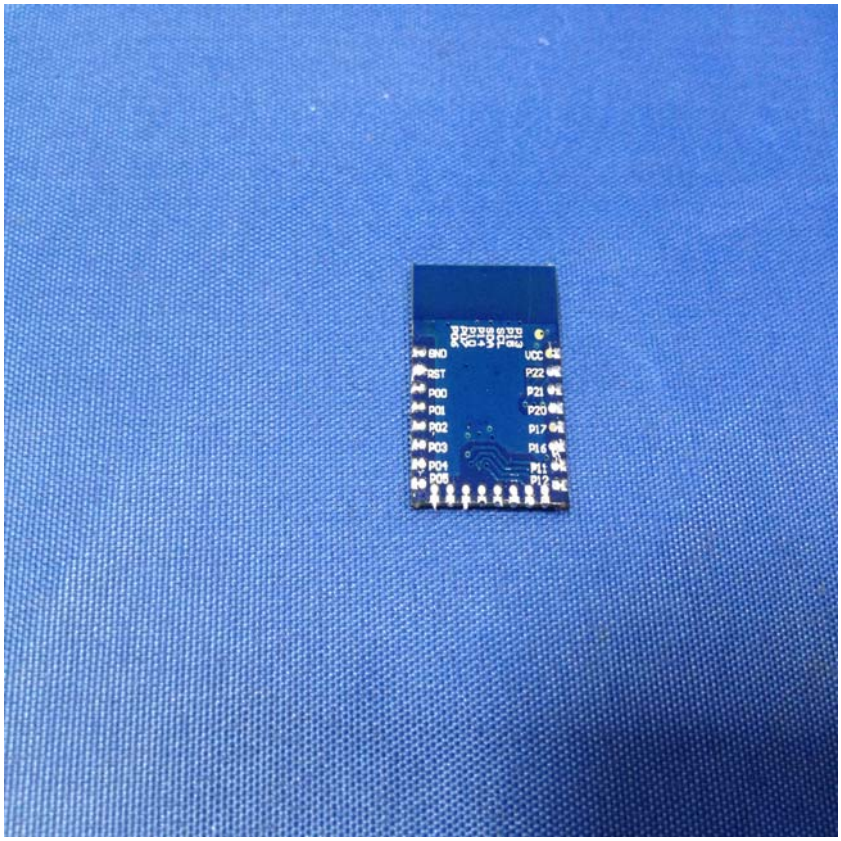
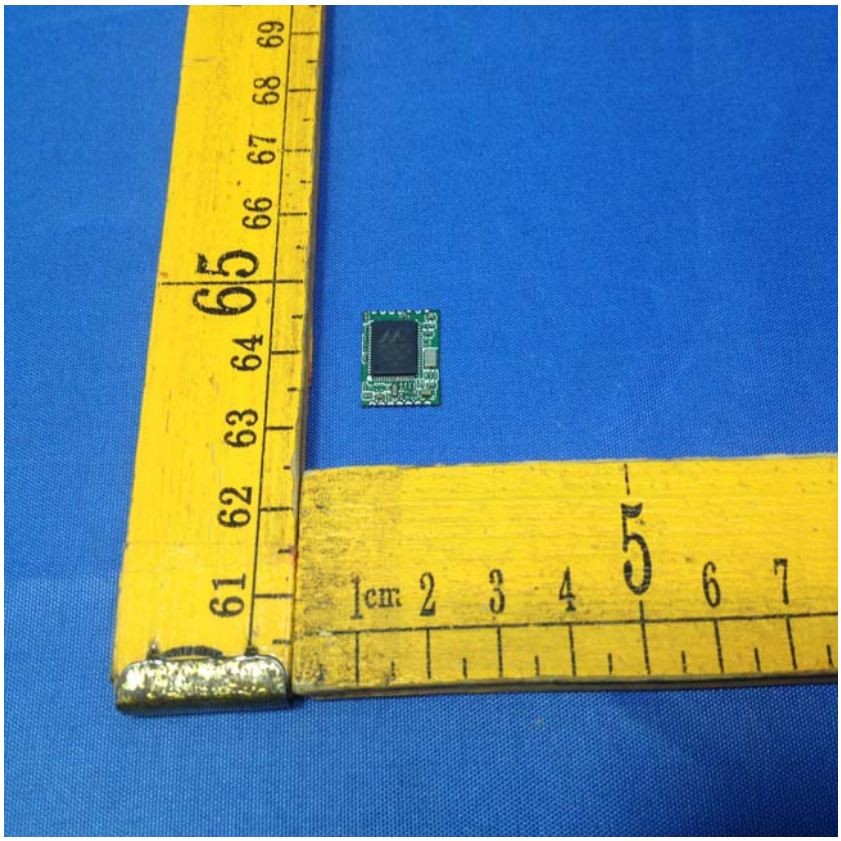

61
62
63
64
65
66
67
68
69
1cm
2
3
4
5
6
7




GND
RST
P00
P01
P02
P03
P04
P05
VCC
P22
P21
P20
P17
P16
P11
P12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1cm
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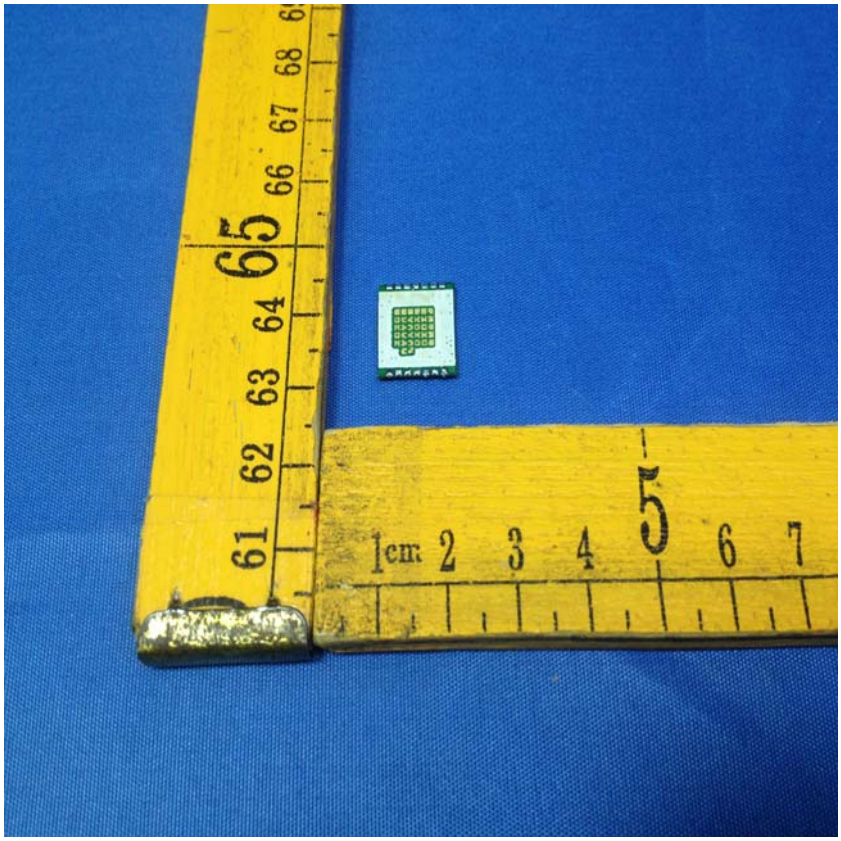
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1cm
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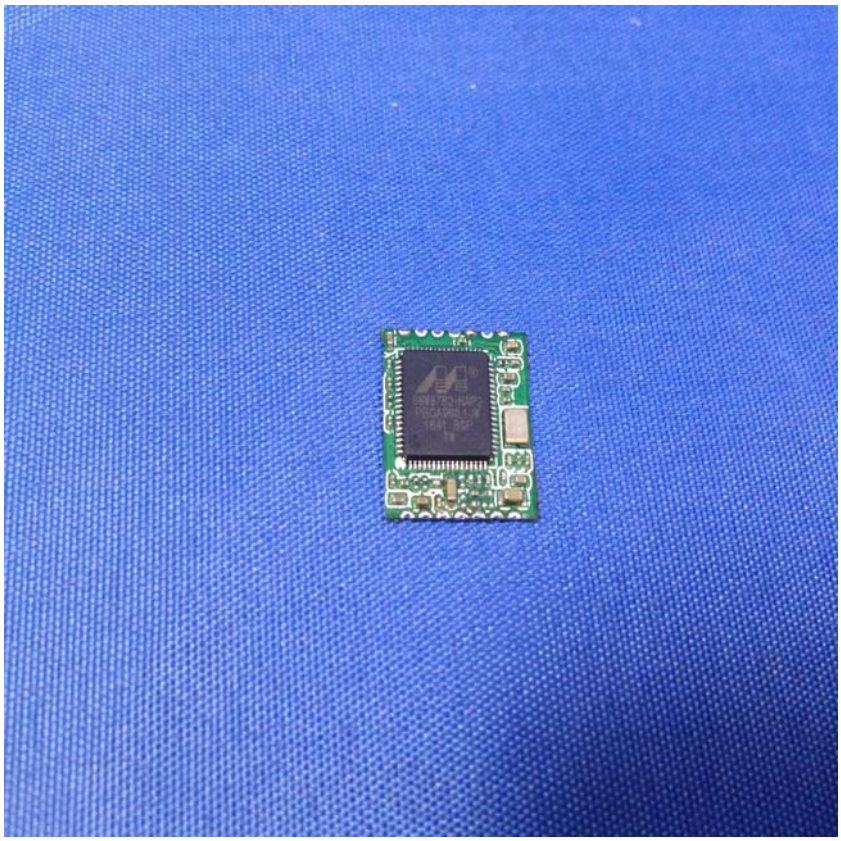

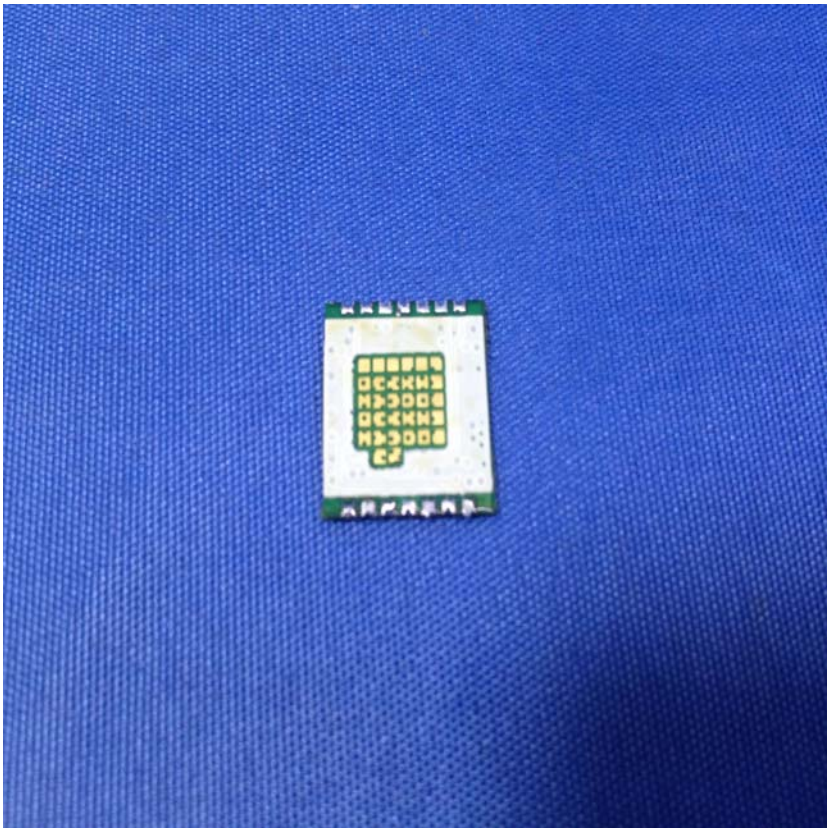

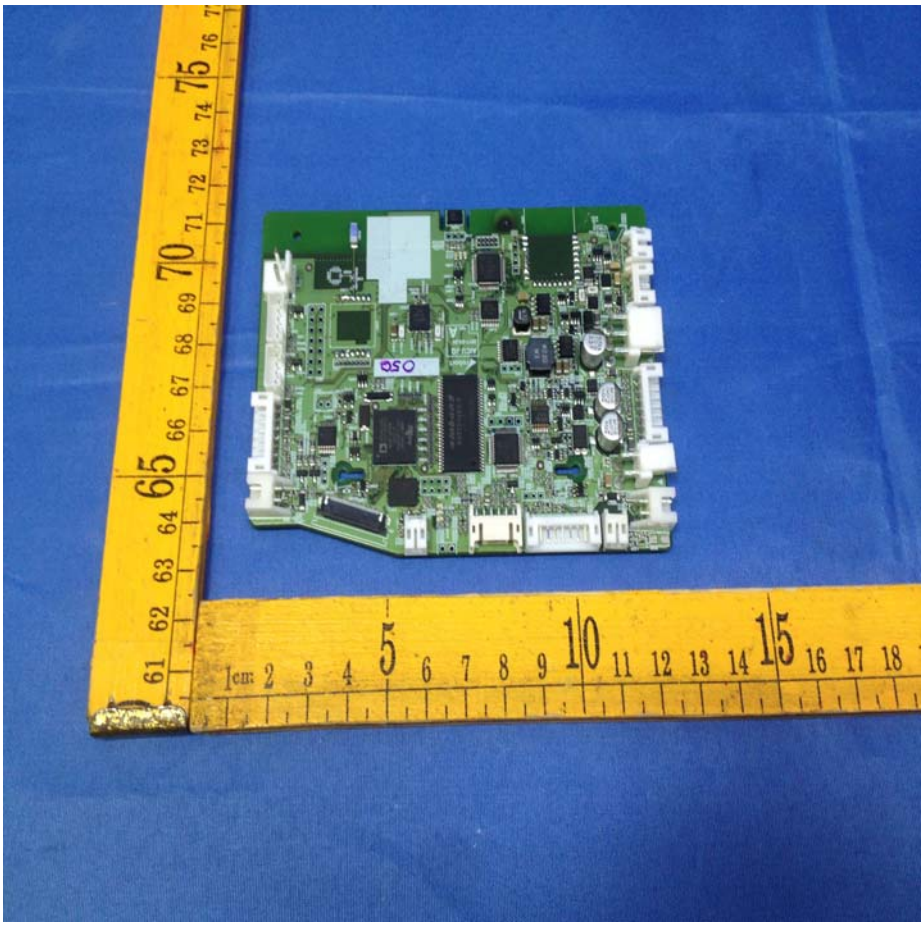

======End of Report======