FCC TEST REPORT
for
Shenzhen Leadfar Industry Co., Ltd.

Bluetooth Multi-Media Player Stand
Model No.: LY-MMPS08, LYB-012

Prepared for	:	Shenzhen Leadfar Industry Co., Ltd.
Address	:	No.73 ShaTian North Road, ShaTian, KengZi, PingShan, ShenZhen, China 518122
Prepared By	:	Shenzhen Anbotek Compliance Laboratory Limited
Address	:	1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China Tel: (86) 755-26066544 Fax: (86) 755-26014772
Report Number	:	201309874F
Date of Test	:	Sep. 20~ 25, 2013
Date of Report	:	Sep.25, 2013

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TEST REPORT

Applicant	:	Shenzhen Leadfar Industry Co., Ltd.
Manufacturer	:	Shenzhen Leadfar Industry Co., Ltd.
EUT	:	Bluetooth Multi-Media Player Stand
Model No.	:	LY-MMPS08, LYB-012
Serial No.	:	N/A
Rating	:	DC 5V, 2A Via Adapter (AC 100-240V, 50-60Hz, 0.4A)
Trade Mark	:	N/A

Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.247 & 15.209

The device described above is tested by Shenzhen Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Shenzhen Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.
This report applies to above tested sample only and shall not be reproduced in part without written approval of Shenzhen Anbotek Compliance Laboratory Limited.

Date of Test : Sep. 20~ 25, 2013

Prepared by : Rock zeng
(Tested Engineer / Rock Zeng)

Reviewer : Sally. zhang
(Project Manager / Sally Zhang)

Approved & Authorized Signer : Tom Chen
(Manager / Tom Chen)

1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	:	Bluetooth Multi-Media Player Stand
Model Number	:	LY-MMPS08, LYB-012 (Note: The above samples are same except the model number, so we prepare "LY-MMPS08" for FCC test only.)
Test Power Supply	:	DC 5V (Powered by Adapter or PC)
Adapter	:	Model: W&T-AD18W050200 Input: AC 100-240V, 50-60Hz, 0.4A Output: DC 5V, 2A
Frequency	:	2402~2480MHz
Antenna Specification	:	Printed Antenna:0dBi
Modulation	:	GFSK, π/4DQPSK, 8DPSK
Applicant	:	Shenzhen Leadfar Industry Co., Ltd.
Address	:	No.73 ShaTian North Road, ShaTian, KengZi, PingShan, ShenZhen, China 518122
Manufacturer	:	Shenzhen Leadfar Industry Co., Ltd.
Address	:	No.73 ShaTian North Road, ShaTian, KengZi, PingShan, ShenZhen, China 518122
Date of receiver	:	Sep. 20, 2013
Date of Test	:	Sep. 20~ 25, 2013

1.2 Auxiliary Equipment Used during Test

PC	:	Manufacturer: DELL M/N: OPTIPLEX 380 S/N: 1J63X2X CE , FCC: DOC
MONITOR	:	Manufacturer: DELL M/N: E170Sc S/N: CN-00V539-64180-055-0UPS CE , FCC: DOC
KEYBOARD	:	Manufacturer: DELL M/N: SK-8115 S/N: CN-0DJ313-71616-06C-02XN CE , FCC: DOC Cable: 1m, unshielded
MOUSE	:	Manufacturer: DELL M/N: M-UARDEL7 S/N: N/A CE , FCC: DOC Cable: 1m, unshielded
Printer	:	Manufacturer:Brother M/N: MFC-3360C S/N: N/A CE, FCC:DOC
Power Line	:	Non-Shielded, 1.5m
VGA Cable	:	Non-Shielded, 1.5m
Network Cable	:	Non-Shielded, 1.5m

1.3 Description of Test Facility

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

CNAS - LAB Code: L3503
Shenzhen Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

FCC-Registration No.: 752021
Shenzhen Anbotek Compliance Laboratory Limited, EMC Laboratory has been registed 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 752021, July 10, 2013.

IC-Registration No.: 8058A-1
Shenzhen Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, Feb. 22, 2013.

Test Location
All Emissions tests were performed at
Shenzhen Anbotek Compliance Laboratory Limited. At 1/F., Building 1, SEC Industrial Park, No.0409 Qianhai Road, Nanshan District, Shenzhen, Guangdong, China

1.4 Measurement Uncertainty

Radiation Uncertainty	:	Ur = 4.3dB
Conduction Uncertainty	:	Uc = 3.4dB

2. Test Procedure

GENERAL: This report shall NOT be reproduced except in full without the written approval of Shenzhen Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

FORMULA OF CONVERSION FACTORS: The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

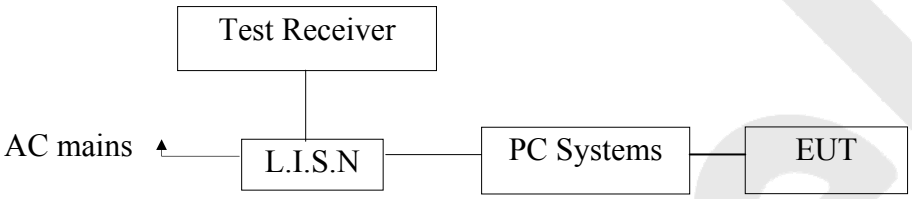
Example:
Freq (MHz) METER READING + ACF = FS
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES: The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.

3. Conducted Emission

3.1 Block Diagram of Test Setup

3.1.1. Block diagram of connection between the EUT and simulators



(EUT: Bluetooth Multi-Media Player Stand)

3.2 Power Line Conducted Emission Measurement Limits (15.207)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

3.3 Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

EUT : Bluetooth Multi-Media Player Stand
Model Number : LY-MMPS08
Applicant : Shenzhen Leadfar Industry Co., Ltd.

3.4 Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown as Section 3.1.

3.4.2. Turn on the power of all equipment.

3.4.3. Let the EUT work in test mode (Charging) and measure it.

3.5 Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC ANSI C63.4-2003 on Conducted Emission Measurement.

The bandwidth of test receiver (ESCI) set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test results are reported on Section 3.6.

Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Two-Line V-network	Rohde & Schwarz	ENV216	100055	Apr. 23, 2013	1 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100627	Apr. 23, 2013	1 Year
3.	RF Switching Unit	Compliance Direction	RSU-M2	38303	Apr. 23, 2013	1 Year

Conduction Uncertainty : Uc = 3.4dB

3.6 Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150KHz to 30 MHz is investigated.

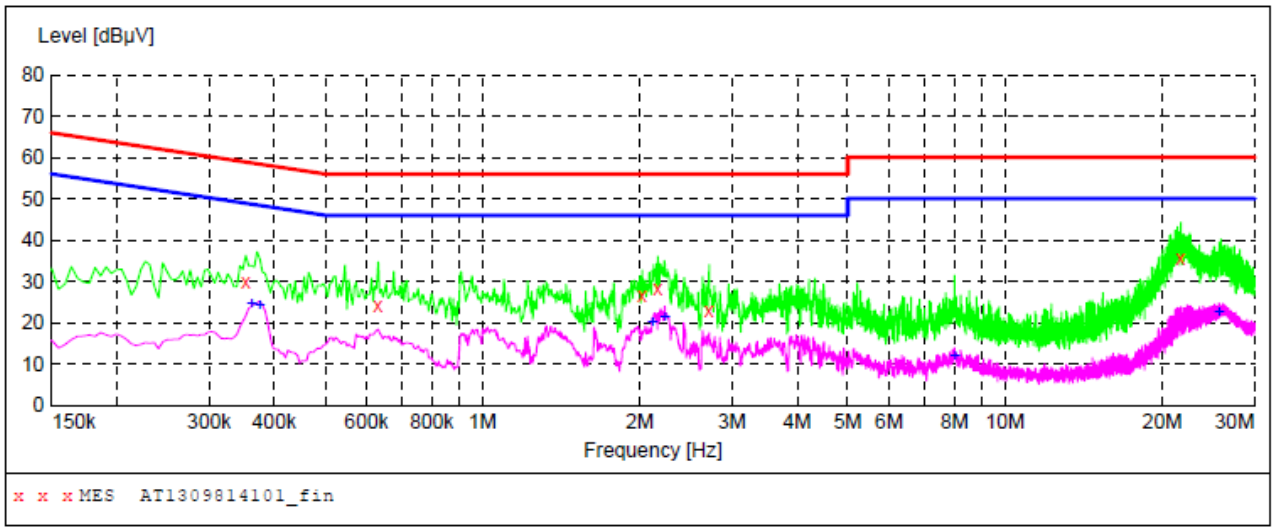
Please refer the following pages.

CONDUCTED EMISSION TEST DATA

EUT:	Bluetooth Multi-Media Player Stand M/N: LY-MMPS08
Operating Condition:	Charging
Test Site:	1# Shielded Room
Operator:	Finley Li
Test Specification:	DC 5V Via PC
Comment:	Live Line
	Tem:25℃ Hum:50%

SCAN TABLE: "Voltage(150K~30M)FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1309814101_fin"

9/20/2013 10:59AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.352500	29.70	20.1	59	29.2	QP	L1	GND
0.631500	24.00	20.1	56	32.0	QP	L1	GND
2.021500	26.50	20.3	56	29.5	QP	L1	GND
2.165500	28.30	20.3	56	27.7	QP	L1	GND
2.714500	23.00	20.4	56	33.0	QP	L1	GND
21.673000	35.50	20.8	60	24.5	QP	L1	GND

MEASUREMENT RESULT: "AT1309814101_fin2"

9/20/2013 10:59AM

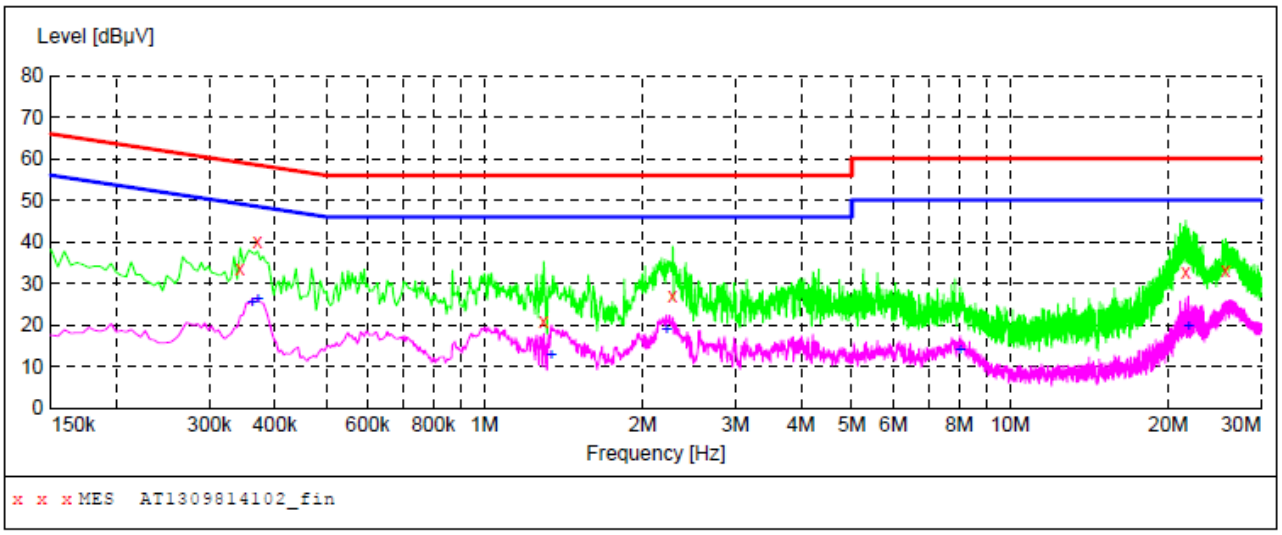
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.361500	24.40	20.1	49	24.3	AV	L1	GND
0.375000	24.20	20.1	48	24.2	AV	L1	GND
2.116000	20.10	20.3	46	25.9	AV	L1	GND
2.233000	21.40	20.3	46	24.6	AV	L1	GND
8.006500	11.80	20.5	50	38.2	AV	L1	GND
25.651000	22.70	20.9	50	27.3	AV	L1	GND

CONDUCTED EMISSION TEST DATA

EUT:	Bluetooth Multi-Media Player Stand M/N: LY-MMPS08
Operating Condition:	Charging
Test Site:	1# Shielded Room
Operator:	Finley Li
Test Specification:	DC 5V Via PC
Comment:	Neutral Line
	Tem:25℃ Hum:50%

SCAN TABLE: "Voltage(150K~30M)FIN"

Short Description: 150K-30M Disturbance Voltages



MEASUREMENT RESULT: "AT1309814102_fin"

9/20/2013 11:01AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.343500	33.50	20.1	59	25.6	QP	N	GND
0.370500	40.10	20.1	59	18.4	QP	N	GND
1.297000	20.80	20.2	56	35.2	QP	N	GND
2.282500	27.10	20.3	56	28.9	QP	N	GND
21.583000	32.90	20.8	60	27.1	QP	N	GND
25.691500	33.30	20.9	60	26.7	QP	N	GND

MEASUREMENT RESULT: "AT1309814102_fin2"

9/20/2013 11:01AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.361500	25.20	20.1	49	23.5	AV	N	GND
0.370500	26.20	20.1	49	22.3	AV	N	GND
1.342000	12.90	20.2	46	33.1	AV	N	GND
2.219500	18.80	20.3	46	27.2	AV	N	GND
8.029000	14.00	20.5	50	36.0	AV	N	GND
21.812500	19.70	20.8	50	30.3	AV	N	GND

4. Radiation Interference

4.1 Requirements (15.247, 15.209):

FIELD STRENGTH	FIELD STRENGTH	S15.209	
of Fundamental:	of Harmonics	30 - 88 MHz	40 dBuV/m @3M
902-928 MHZ		88 - 216 MHz	43.5
2.4-2.4835 GHz		216 - 960 MHz	46
94 dBμV/m @3m	54 dBμV/m @3m	ABOVE 960 MHz	54dBuV/m

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

4.2 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9*6*6 Chamber.
The test results are listed in Section 4.3.

Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 09, 2013	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 09, 2013	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 23, 2013	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Aug. 09, 2013	3 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 23, 2013	3 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 23, 2013	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

Radiation Uncertainty : Ur = 4.3dB

4.3 Test Results

PASS.

Please refer the following pages.

Data:

Horizontal
CH Low (2402MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
308.190	1.58	13.50	38.90	56.23	32.41	46.00	-13.59	QP
2402.000	2.17	31.21	35.30	91.09	89.17	114.0	-24.83	Peak
2402.000	2.17	31.21	35.30	84.12	82.20	94.0	-11.80	AV
4804.040	2.56	34.01	34.71	41.75	43.61	74.0	-30.39	Peak
4804.040	2.56	34.01	34.71	38.46	40.32	54.0	-13.68	AV
7207.980	2.98	36.16	35.15	39.19	43.18	74.0	-30.82	Peak
7207.980	2.98	36.16	35.15	30.05	34.04	54.0	-19.96	AV
9608.000	---	---	---	---	---	---	---	---
12010.00	---	---	---	---	---	---	---	---
14412.00	---	---	---	---	---	---	---	---
16814.00	---	---	---	---	---	---	---	---

Vertical
CH Low (2402MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
42.950	1.43	12.13	38.45	52.04	27.15	40.00	-11.85	QP
2402.000	2.17	31.21	35.30	92.12	90.20	114.0	-23.80	Peak
2402.000	2.17	31.21	35.30	81.35	79.43	94.0	-14.57	AV
4804.100	2.56	34.01	34.71	41.79	43.65	74.0	-30.35	Peak
4804.100	2.56	34.01	34.71	38.62	40.48	54.0	-13.52	AV
7207.930	2.98	36.16	35.15	37.44	41.43	74.0	-32.57	Peak
7207.930	2.98	36.16	35.15	34.95	38.94	54.0	-15.06	AV
9608.000	---	---	---	---	---	---	---	---
12010.00	---	---	---	---	---	---	---	---
14412.00	---	---	---	---	---	---	---	---
16814.00	---	---	---	---	---	---	---	---

Horizontal
CH Middle (2441MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
372.110	1.60	13.52	38.82	52.07	28.37	46.00	-17.63	QP
2441.000	2.19	31.22	34.60	94.29	93.10	114.0	-20.90	Peak
2441.000	2.19	31.22	34.60	80.58	79.39	94.0	-14.61	AV
4882.080	2.57	35.00	34.58	40.76	43.75	74.0	-30.25	Peak
4882.080	2.57	35.00	34.58	37.21	40.20	54.0	-13.80	AV
7323.050	3.00	36.17	35.14	35.44	39.47	74.0	-34.53	Peak
7323.050	3.00	36.17	35.14	28.77	32.80	54.0	-21.20	AV
9764.000	---	---	---	---	---	---	---	---
12205.00	---	---	---	---	---	---	---	---
14646.00	---	---	---	---	---	---	---	---
17087.00	---	---	---	---	---	---	---	---

Vertical
CH Middle (2441MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
191.580	1.50	13.40	38.89	52.09	28.10	43.50	-15.40	QP
2441.010	2.19	31.22	34.60	92.33	91.14	114.0	-22.86	Peak
2441.010	2.19	31.22	34.60	81.54	80.35	94.0	-13.65	AV
4882.110	2.57	35.00	34.58	43.65	46.64	74.0	-27.36	Peak
4882.110	2.57	35.00	34.58	35.72	38.71	54.0	-15.29	AV
7323.020	3.00	36.17	35.14	37.44	41.47	74.0	-32.53	Peak
7323.020	3.00	36.17	35.14	38.89	42.92	54.0	-11.08	AV
9764.000	---	---	---	---	---	---	---	---
12205.00	---	---	---	---	---	---	---	---
14646.00	---	---	---	---	---	---	---	---
17087.00	---	---	---	---	---	---	---	---

Horizontal
CH High (2480MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
507.290	1.60	13.52	38.82	51.36	27.66	46.00	-18.34	QP
2480.000	2.20	31.65	36.00	97.46	95.31	114.0	-18.69	Peak
2480.000	2.20	31.65	36.00	88.21	86.06	94.0	-7.94	AV
4960.050	2.58	35.06	34.79	43.33	46.18	74.0	-27.82	Peak
4960.050	2.58	35.06	34.79	32.82	35.67	54.0	-18.33	AV
7439.990	3.02	36.19	34.90	41.37	45.68	74.0	-28.32	Peak
7439.990	3.02	36.20	35.20	27.10	31.12	54.0	-22.88	AV
9920.00	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---
14880.00	---	---	---	---	---	---	---	---
17360.00	---	---	---	---	---	---	---	---

Vertical
CH High (2480MHz)

Frequency MHz	Cable Loss dB	Ant Factor dB/m	Preamp Factor dB	Read Level dBμV	Level dBμV/m	Limit dBμV/m	Over Limit dB	Remark
394.120	1.62	13.54	38.45	53.94	30.65	46.00	-15.35	QP
2480.000	2.20	31.65	36.00	83.65	81.50	114.0	-32.50	Peak
2480.000	2.20	31.65	36.00	82.72	80.57	94.0	-13.43	AV
4960.100	2.58	35.06	34.79	45.44	48.29	74.0	-25.71	Peak
4960.100	2.58	35.06	34.79	32.09	34.94	54.0	-19.06	AV
7439.960	3.02	36.19	34.90	38.88	43.19	74.0	-30.81	Peak
7439.960	3.02	36.20	35.20	27.91	31.93	54.0	-22.07	AV
9920.000	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---
14880.00	---	---	---	---	---	---	---	---
17360.00	---	---	---	---	---	---	---	---

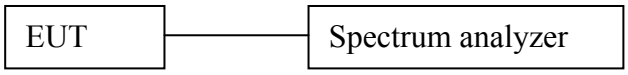
NOTE: " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
The results of different modulations are the same.

5. CHANNEL SEPARATION TEST

5.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

5.2 Test SET-UP



5.3 Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analysis	Agilent	E4407B	US39390582	Aug. 09, 2013	1 Year
2.	Preamplifier	Instruments corporation	EMC011830	980100	Aug. 09, 2013	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESPI	101604	Apr. 23, 2013	1 Year
4.	Double Ridged Horn Antenna	Instruments corporation	GTH-0118	351600	Aug. 09, 2013	3 Year
5.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	VULB 9163-289	Apr. 23, 2013	3 Year
6.	Pre-amplifier	SONOMA	310N	186860	Apr. 23, 2013	1 Year
7.	EMI Test Software EZ-EMC	SHURPLE	N/A	N/A	N/A	N/A

5.4 Test Results

Product	:	Bluetooth Multi-Media Player Stand	Test Mode	:	CH Low ~ CH High
Test Item	:	Frequency Separation	Temperature	:	24℃
Test Voltage	:	DC 5V	Humidity	:	55%RH
Test Result	:	PASS			

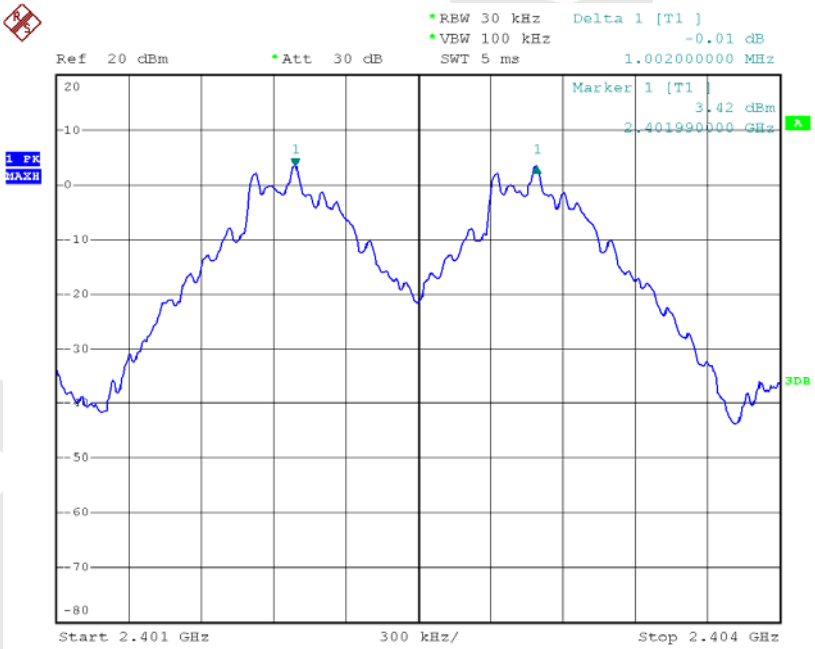
Channel	Frequency (MHz)	Separation Read Value (kHz)	Limit (kHz)	Modulation Mode
Low	2401	1002	792	GFSK
Mid	2441	1002	798	GFSK
High	2480	1002	792	GFSK
Low	2401	1008	820	π /4DQPSK
Mid	2441	1002	844	π /4DQPSK
High	2480	1002	844	π /4DQPSK
Low	2401	1008	820	8DPSK
Mid	2441	1002	844	8DPSK
High	2480	1002	844	8DPSK

Remark:

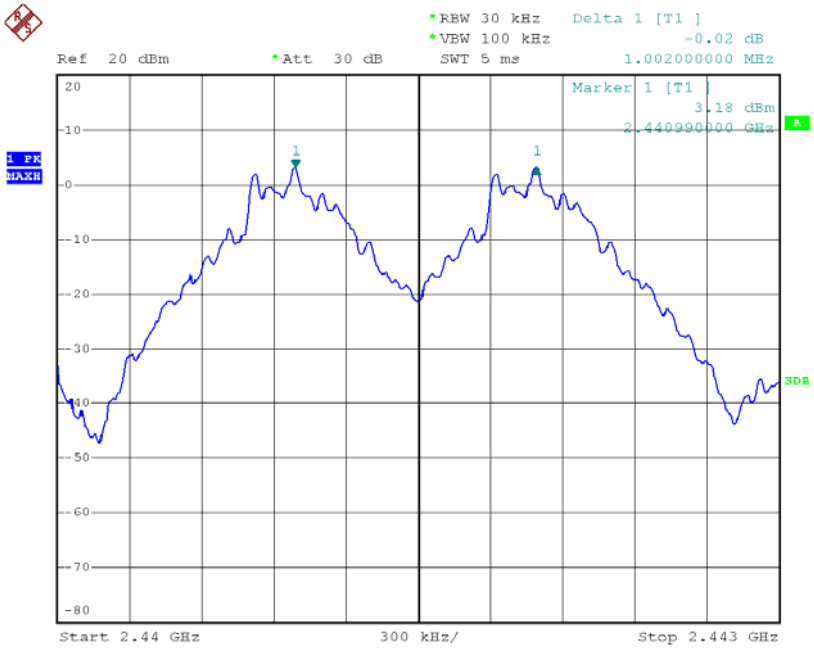
1. The limit of modulation (π /4DQPSK, 8DPSK) is 2/3 of 20dB BW;

Modulation Mode: GFSK

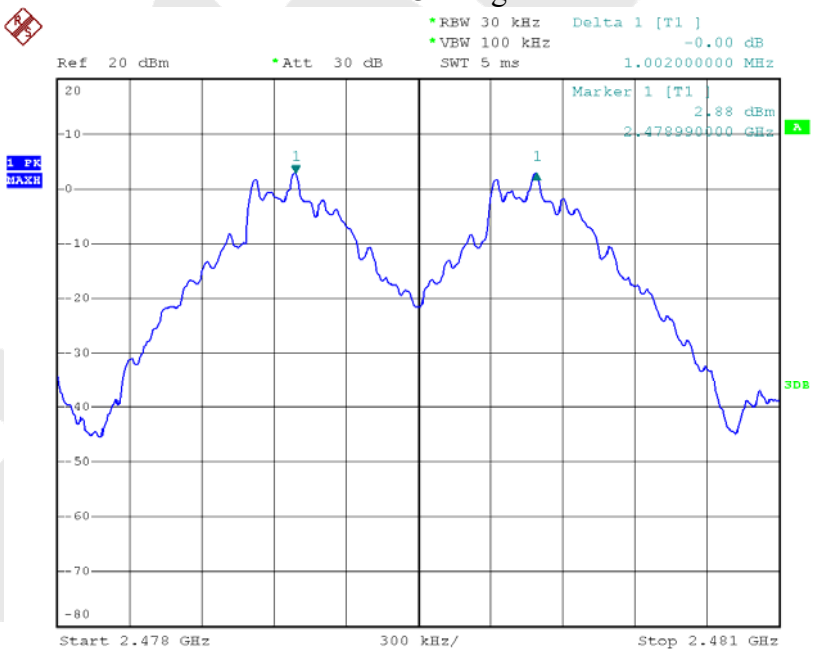
CH Low



CH Mid

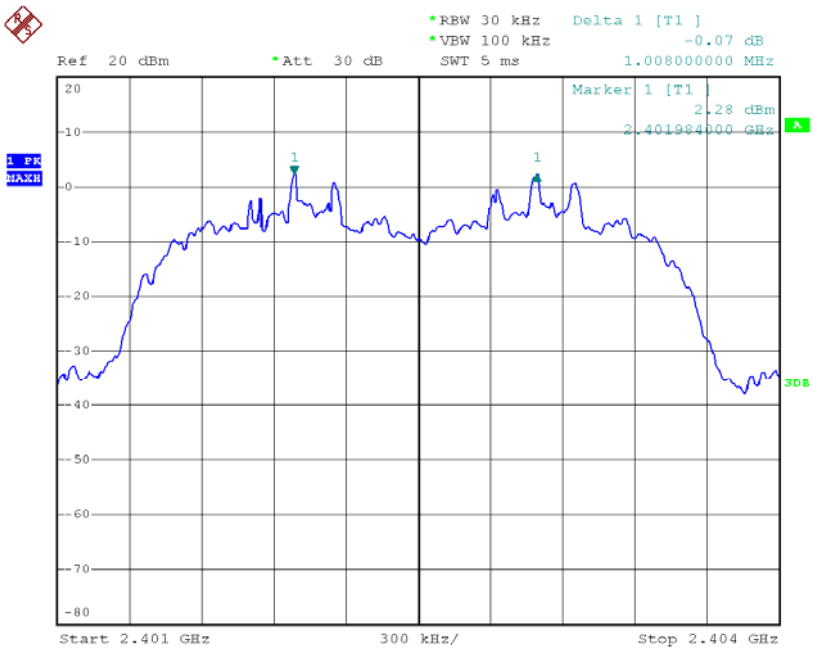


CH High

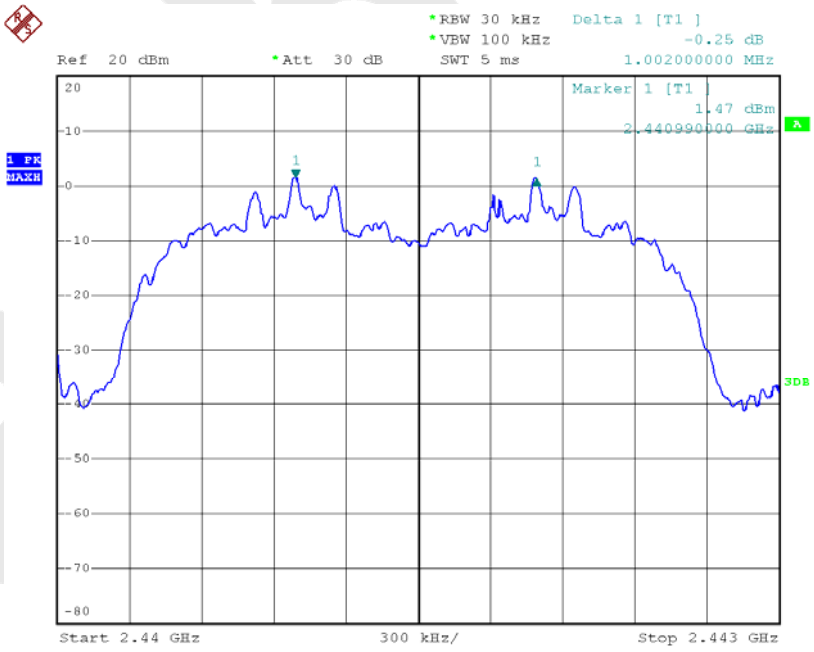


Modulation Mode: π/4DQPSK & 8DPSK

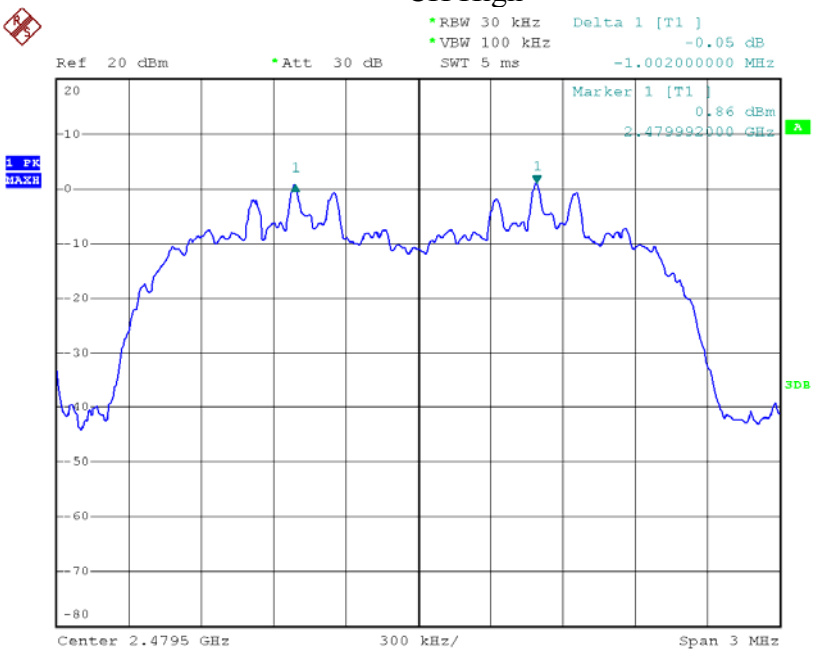
CH Low



CH Mid



CH High

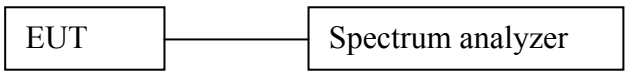

RBW 30 kHz
VBW 100 kHz
SWT 5 ms
Delta 1 [T1]
-0.05 dB
-1.002000000 MHz
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
0.86 dBm
2.479992000 GHz
1 PK MAXH
3DB
Center 2.4795 GHz
300 kHz/
Span 3 MHz

6. 20DB BANDWIDTH TEST

6.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

6.2 Test SET-UP



6.3 Test Equipment

Same as the equipment listed in 5.3.

6.4 Test Results

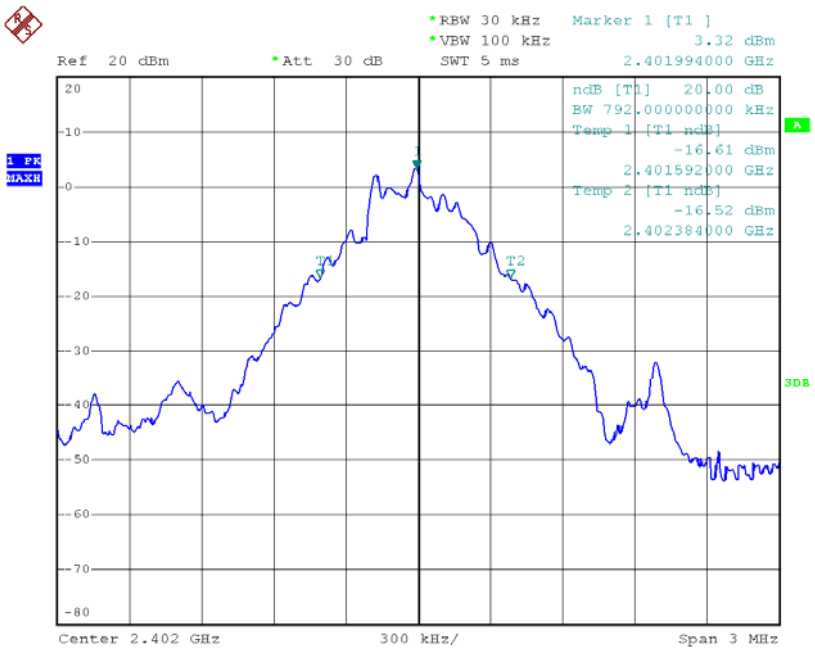
Product	:	Bluetooth Multi-Media Player Stand	Test Mode	:	CH Low ~ CH High
Test Item	:	20dB BW	Temperature	:	24℃
Test Voltage	:	DC 5V	Humidity	:	55%RH
Test Result	:	PASS			

Channel	Frequency (MHz)	20dB Down BW(kHz)	Modulation Mode
Low	2401	792	GFSK
Mid	2441	798	GFSK
High	2480	792	GFSK
Low	2401	1230	π /4DQPSK
Mid	2441	1266	π /4DQPSK
High	2480	1266	π /4DQPSK
Low	2401	1230	8DPSK
Mid	2441	1266	8DPSK
High	2480	1266	8DPSK

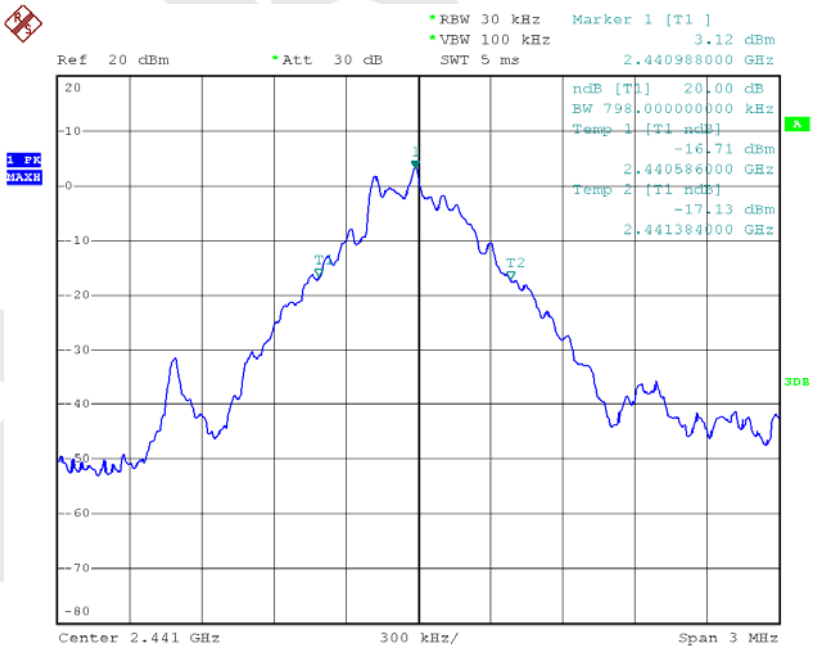
Remark: The results of modulations π /4DQPSK and 8DPSK are the same.

Modulation Mode: GFSK

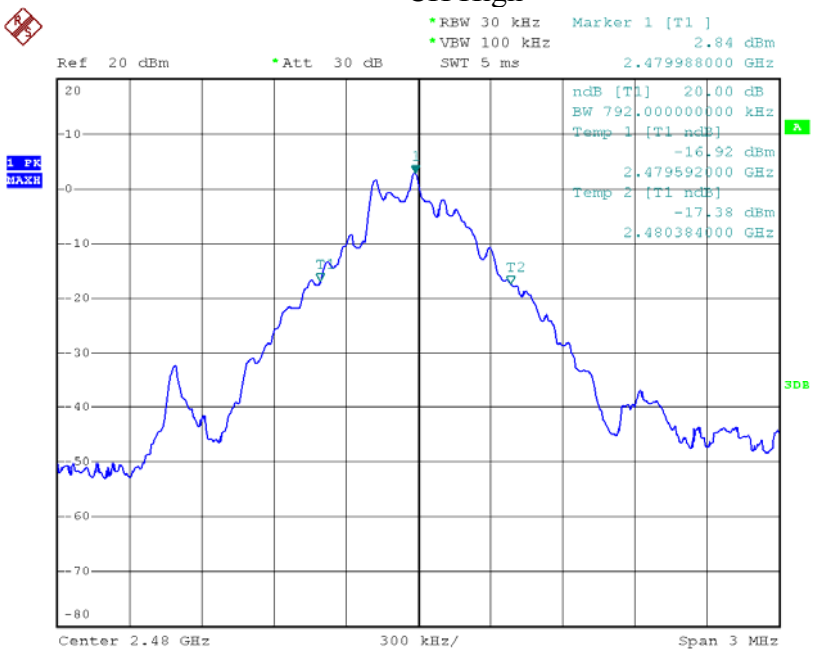
CH Low



CH Mid

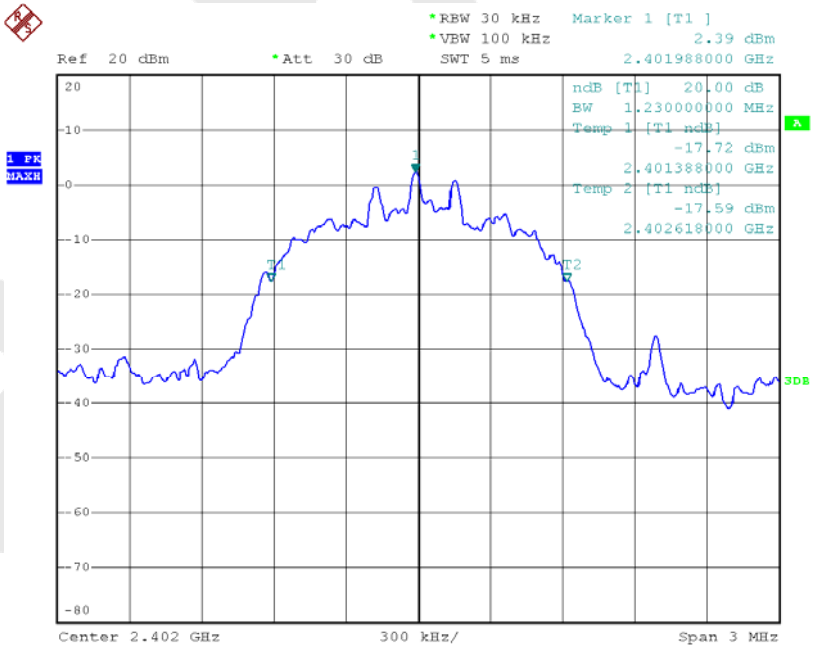


CH High

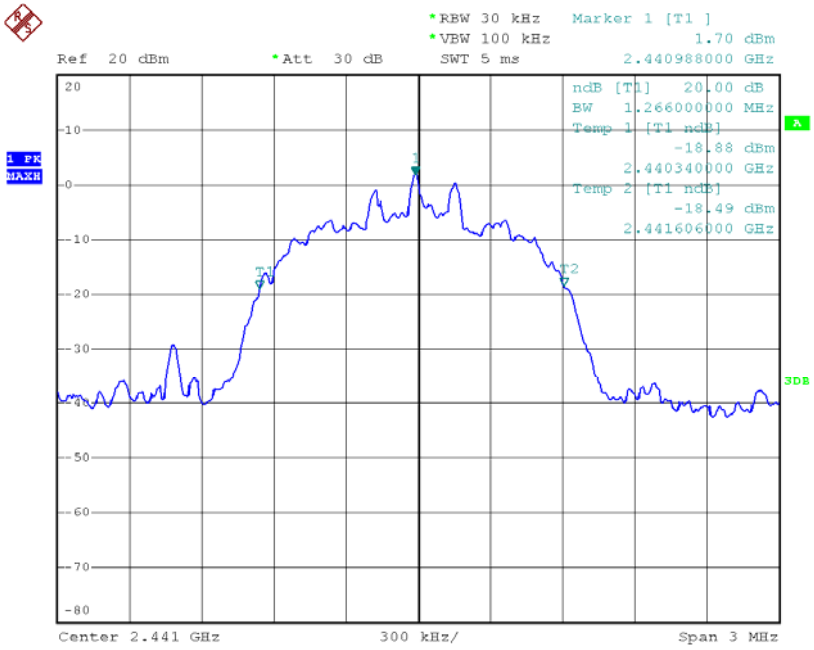


Modulation Mode: π/4DQPSK & 8DPSK

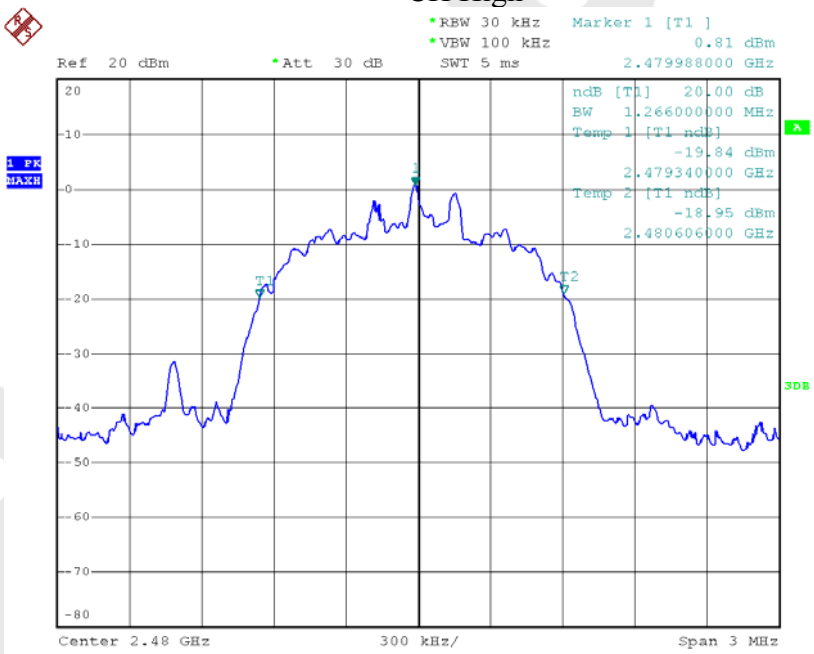
CH Low



CH Mid



CH High

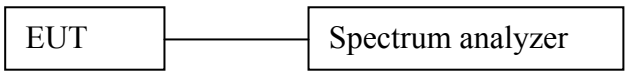


7. QUANTITY OF HOPPING CHANNEL TEST

7.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

7.2 Test SET-UP



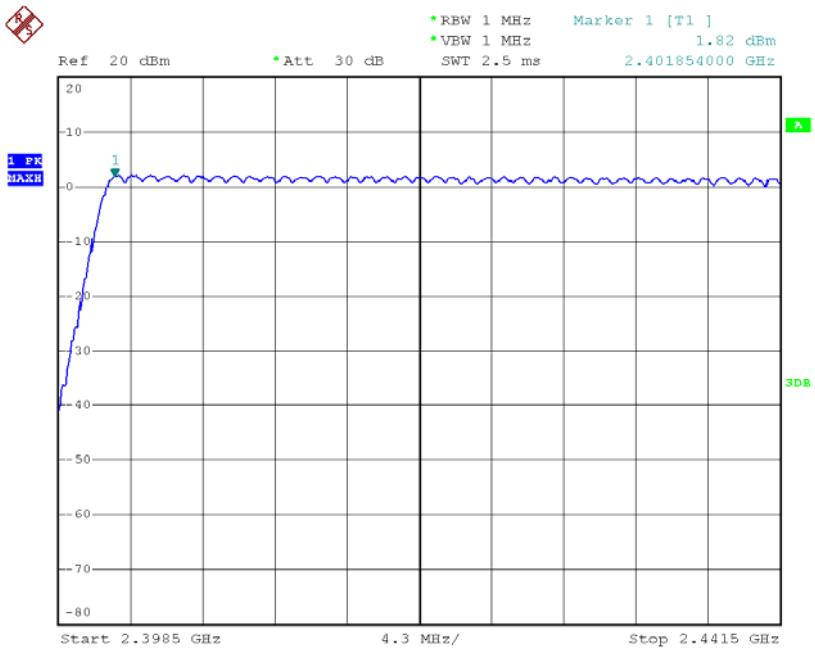
7.3 Test Equipment

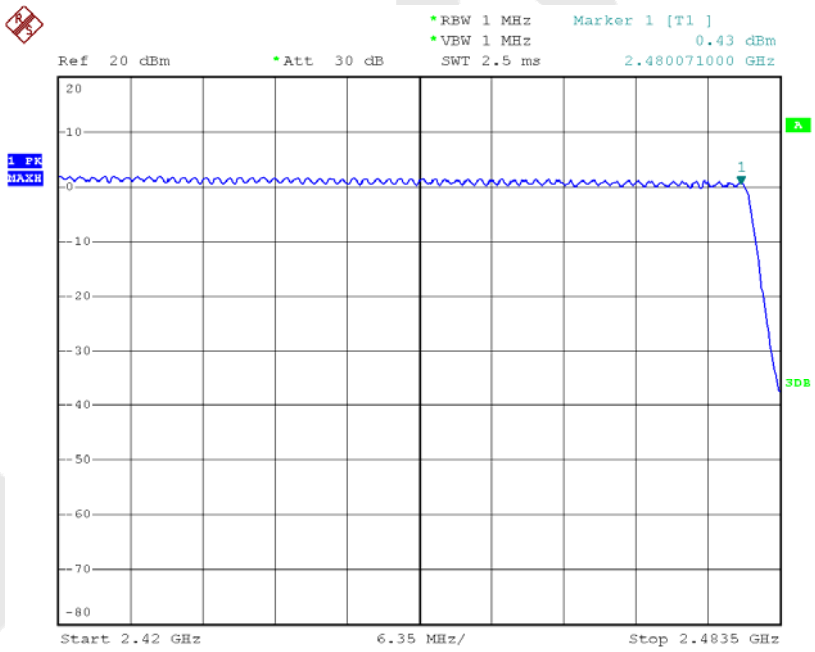
Same as the equipment listed in 5.3.

7.4 Test Results

Product	:	Bluetooth Multi-Media Player Stand	Test Mode	:	CH Low ~ CH High
Test Item	:	Number of Hopping Frequency	Temperature	:	24℃
Test Voltage	:	DC 5V	Humidity	:	55%RH
Test Result	:	PASS			

Hopping Channel Frequency Range	Quantity of Hopping Channel	Quantity of Hopping Channel
2402-2480	79	＞15


RBW 1 MHz
VBW 1 MHz
SWT 2.5 ms
Marker 1 [T1]
1.82 dBm
2.401854000 GHz
Ref 20 dBm
Att 30 dB
1 PK
MAXH
3DB
Start 2.3985 GHz
4.3 MHz/
Stop 2.4415 GHz

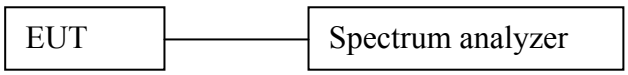

RBW 1 MHz
VBW 1 MHz
SWT 2.5 ms
Marker 1 [T1]
0.43 dBm
2.480071000 GHz
Ref 20 dBm
Att 30 dB
1 PK
MAXH
3DB
Start 2.42 GHz
6.35 MHz/
Stop 2.4835 GHz

8. DWELL TIME TEST

8.1 Measurement Procedure

The EUT was operating in hopping mode or could be controlled its channel. Printed out the test result from the spectrum by hard copy function.

8.2 Test SET-UP



8.3 Test Equipment

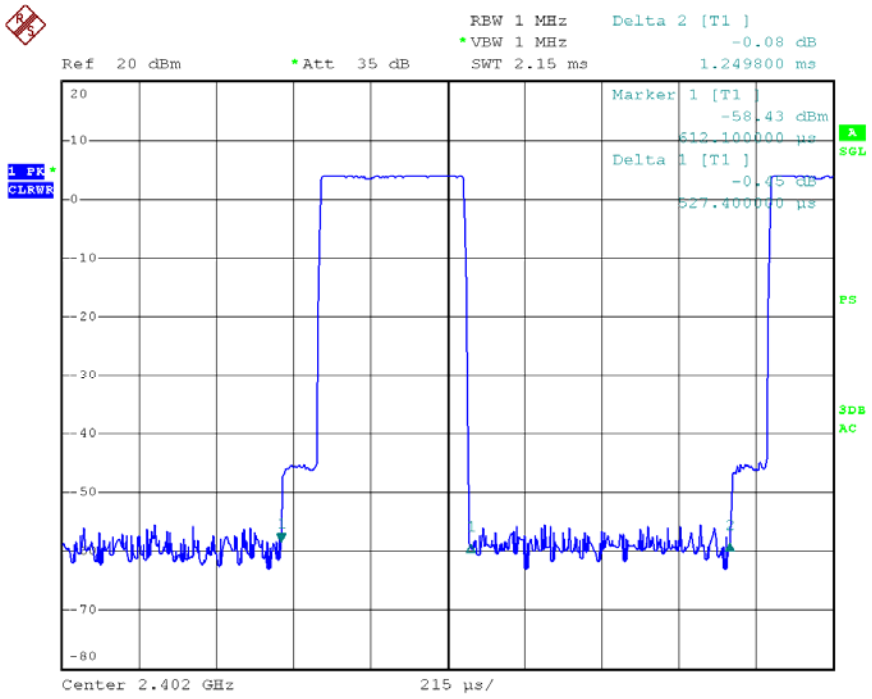
Same as the equipment listed in 5.3.

8.4 Test Results

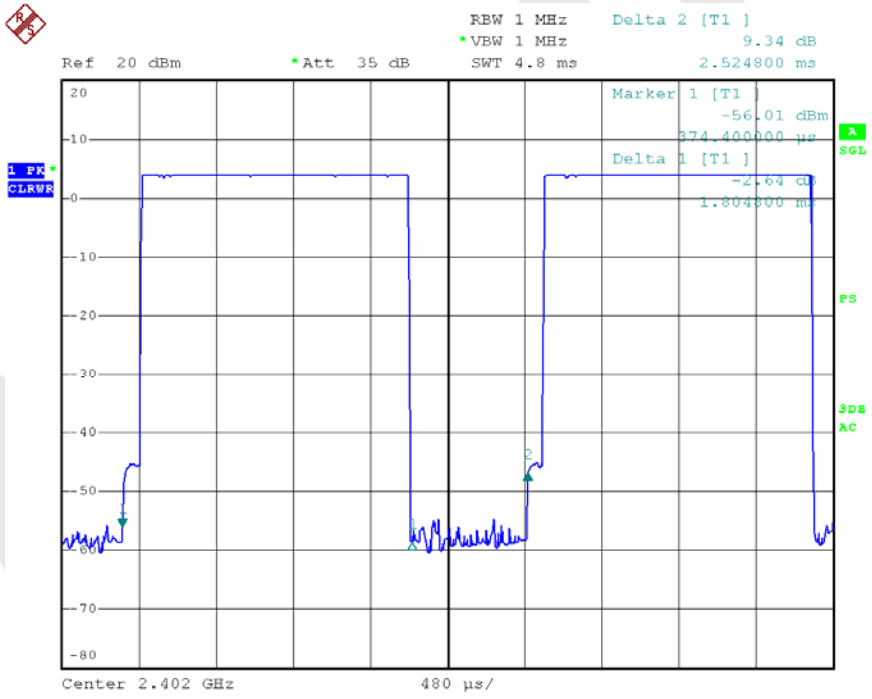
Product	:	Bluetooth Multi-Media Player Stand	Test Mode	:	CH Low ~ CH High
Test Item	:	Time of Occupancy	Temperature	:	24℃
Test Voltage	:	DC 5V	Humidity	:	55%RH
Test Result	:	PASS			

Channel	***Pulse width (ms)***	**Time slot length(ms)**	**Dwell time (s)**	**Limit (s)**
Low Channel	0.5274	time slot length *1600/2 /79 * 31.6	168.768	*0.4*
Mid Channel	1.8048	time slot length *1600/4 /79 * 31.6	288.768	*0.4*
High Channel	3.0464	time slot length *1600/6 /79 * 31.6	324.949	*0.4*

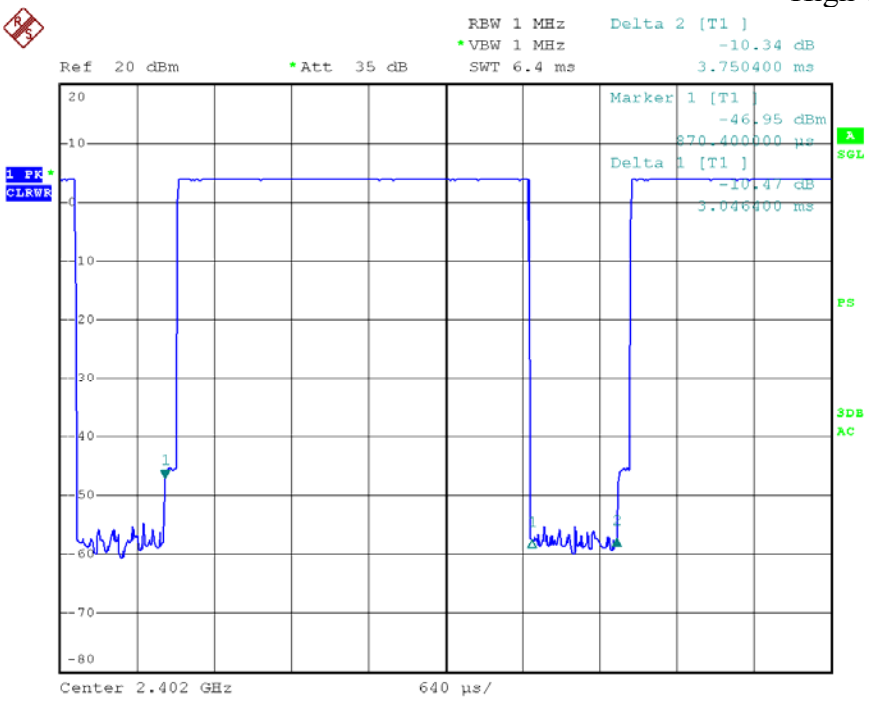
Low Channel



Mid Channel



High Channel

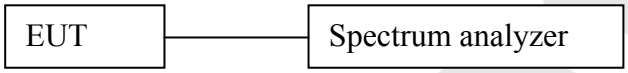


9. MAX IMUM PEAK OUTPUT POWER TEST

9.1 Measurement Procedure

a. Check the calibration of the measuring instrument(SA) using either an internal calibrator or a known signal from an external generator.
b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
c. The center frequency of the spectrum analyzer is set to the fundamental frequency and using proper RBW and VBW setting.
d. Measure the captured power within the band and recording the plot.
e. Repeat above procedures until all frequencies required were complete.

9.2 Test SET-UP



9.3 Test Equipment

Same as the equipment listed in 5.3.

9.4 Test Results

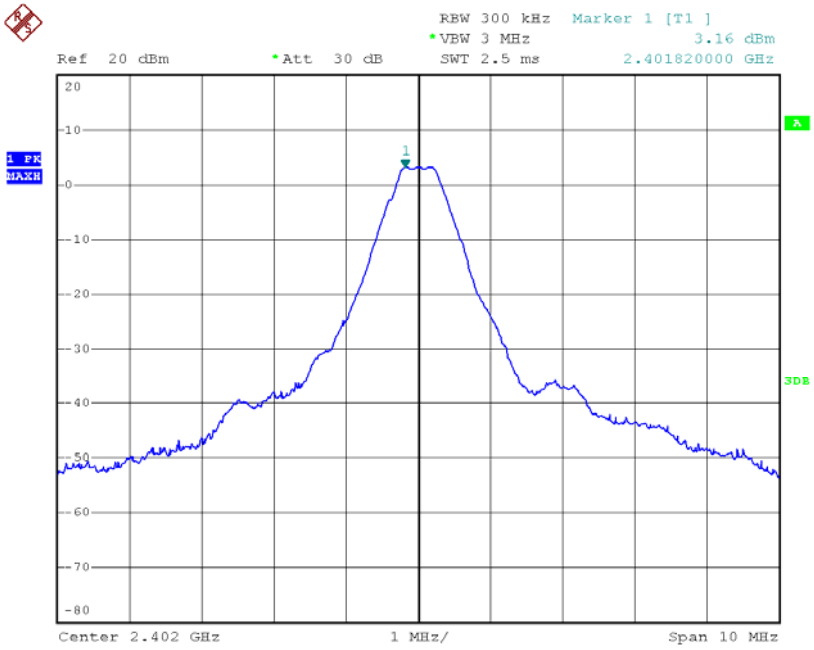
Product	:	Bluetooth Multi-Media Player Stand	Test Mode	:	CH Low ~ CH High
Test Item	:	Max. peak output power	Temperature	:	24℃
Test Voltage	:	DC 5V	Humidity	:	55%RH
Test Result	:	PASS			

Channel Frequency (MHz)	Peak Power output(mW)	Peak Power output(dBm)	Peak Power Limit(mW)	Results	Modulation
2402	**2.07**	**3.16**	125	PASS	GFSK
2441	1.97	2.94	125	PASS	GFSK
2480	1.87	2.70	125	PASS	GFSK
2402	**1.67**	2.21	125	PASS	π/4DQPSK
2441	1.41	1.47	125	PASS	π/4DQPSK
2480	1.18	0.71	125	PASS	π/4DQPSK
2402	1.67	2.21	125	PASS	8DPSK
2441	1.41	1.47	125	PASS	8DPSK
2480	1.18	0.71	125	PASS	8DPSK

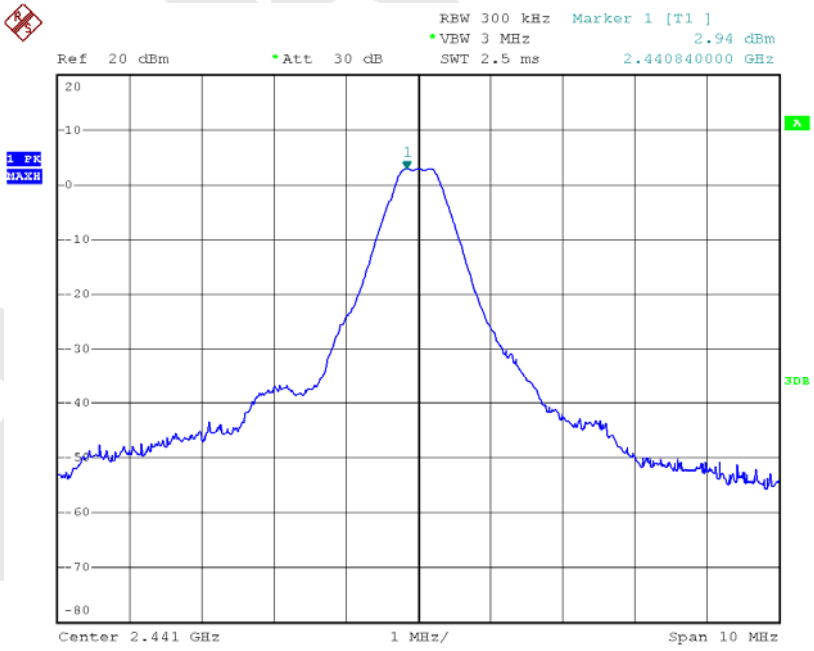
Remark: The results of modulations π/4DQPSK and 8DPSK are the same.

Modulation Mode: GFSK

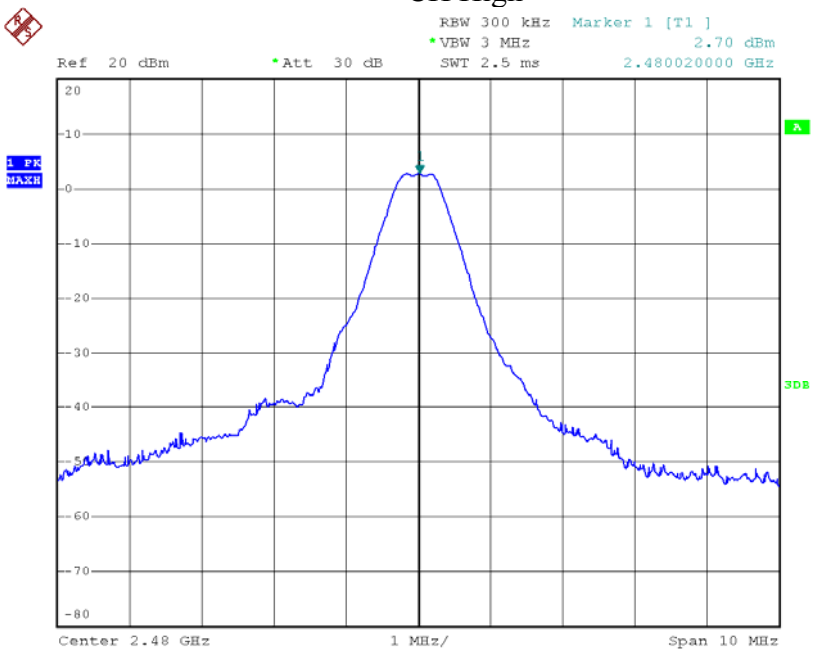
CH Low



CH Mid

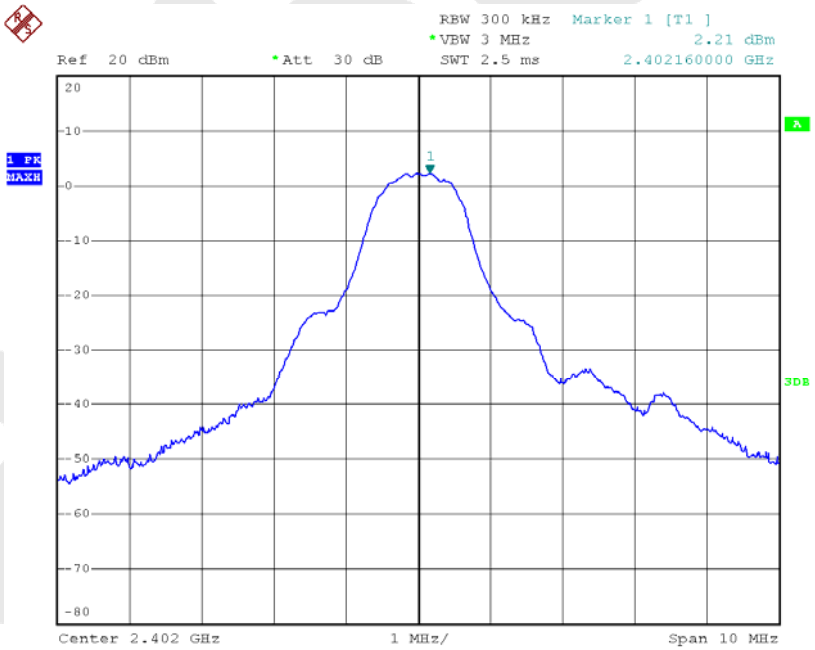


CH High

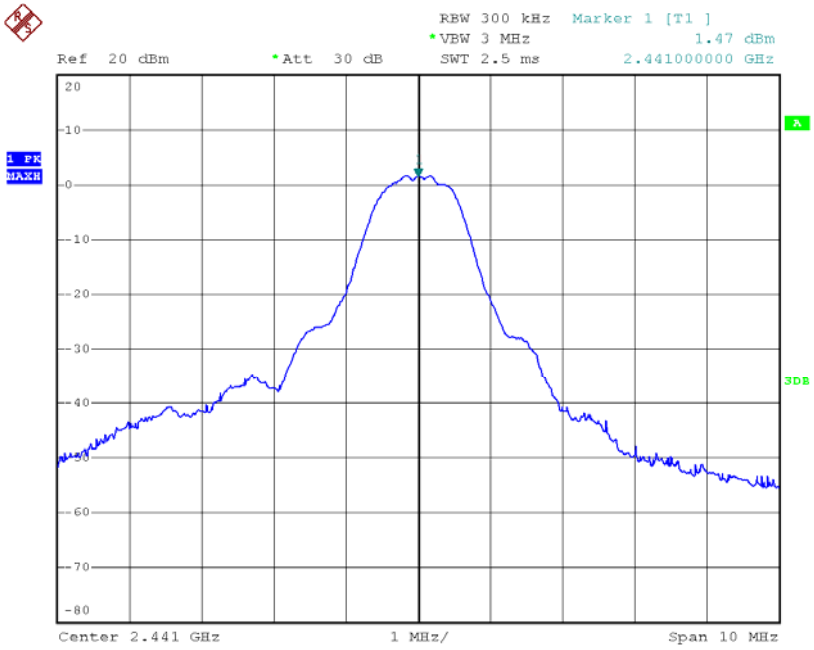


Modulation Mode: π/4DQPSK & 8DPSK

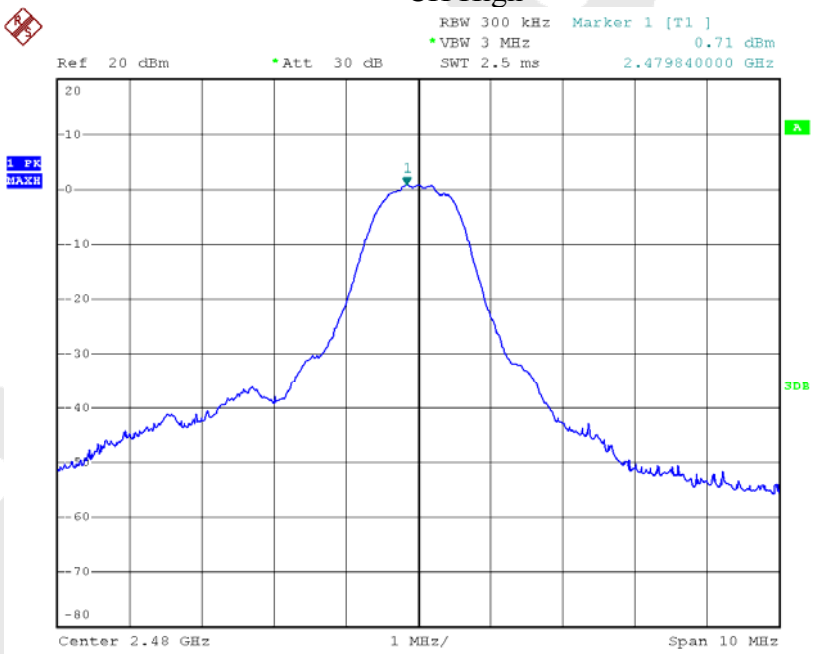
CH Low



CH Mid



CH High



10. BAND EDGE TEST

10.1 Measurement Procedure

1. The EUT was Operating in hopping mode or could be controlled its channel. Printed out test result from the spectrum by hard copy function.
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Repeat above procedures until all frequency measured were complete.

10.2 Test SET-UP

Same as the radiated emission test.

10.3 Test Equipment

Same as the equipment listed in 5.3.

10.4 Test Results

Pass.

Please refer the following data.

Product	:	Bluetooth Multi-Media Player Stand	Test Mode	:	CH Low ~ CH High
Test Item	:	Band eadge	Temperature	:	24℃
Test Voltage	:	DC 5V	Humidity	:	55%RH
Test Result	:	PASS			

1. Conducted Test

Frequency (MHz)	Peak Power Output(dBm)	Emission read Value(dBm)	Result of Band edge(dBc)	Band edge Limit(dBc)	Modulation
<2400	3.55	-44.74	48.29	>20dBc	GFSK
	2.45	-43.87	46.32	>20dBc	π /4DQPSK
	2.45	-43.87	46.32	>20dBc	8DPSK
>2483.5	3.01	-49.32	52.33	>20dBc	GFSK
	0.90	-50.32	51.22	>20dBc	π /4DQPSK
	0.90	-50.32	51.22	>20dBc	8DPSK

2. Radiated emission Test

Frequency (MHz)	Antenna polarization (H/V)	Emission (dBuV/m)		Band edge Limit (dBuV/m)		Modulation
		PK	AV	PK	AV	
<2400	V	54.19	37.56	74.00	54.00	GFSK
	V	58.33	38.19	74.00	54.00	π /4DQPSK
	V	52.04	36.58	74.00	54.00	8DPSK
>2483.5	V	52.35	38.77	74.00	54.00	GFSK
	V	54.13	36.11	74.00	54.00	π /4DQPSK
	V	47.69	38.94	74.00	54.00	8DPSK

11. ANTENNA APPLICATION

11.1 Antenna requirement

The EUT'S antenna is met the requirement of FCC part 15C section 15.203 and 15.247.

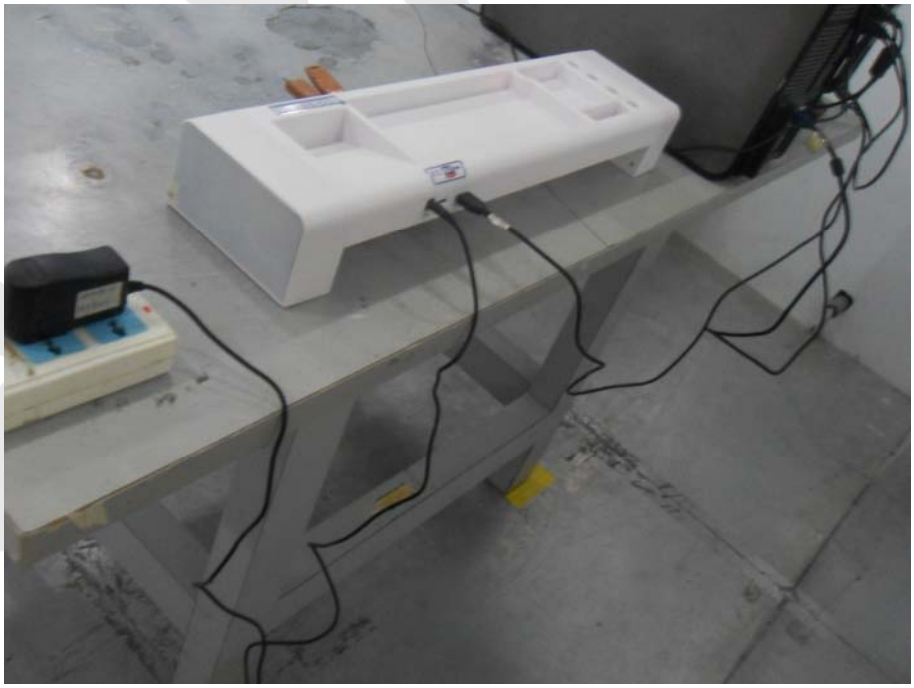
FCC part 15C section 15.247 requirements:
Systems operating in the 2402-2480MHz band that are used exclusively for fixed, point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum peak output power of the intentional radiator is reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

11.2 Result

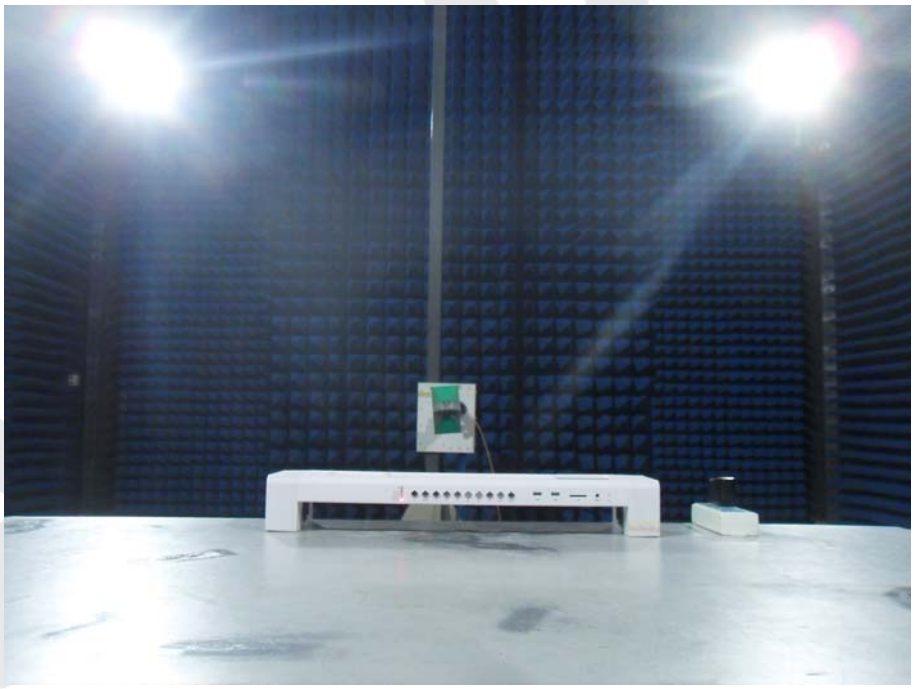
The EUT's antenna used a chip antenna and integrated on PCB, The antenna's gain is 0dBi and meets the requirement.

12. PHOTOGRAPH

12.1 Photo of Power Line Conducted Emission Measurement



12.2 Photo of Radiation Emission Test



APPENDIX I (External Photos)

Figure 1
The EUT-Overall View

Figure 2
The EUT-Front View

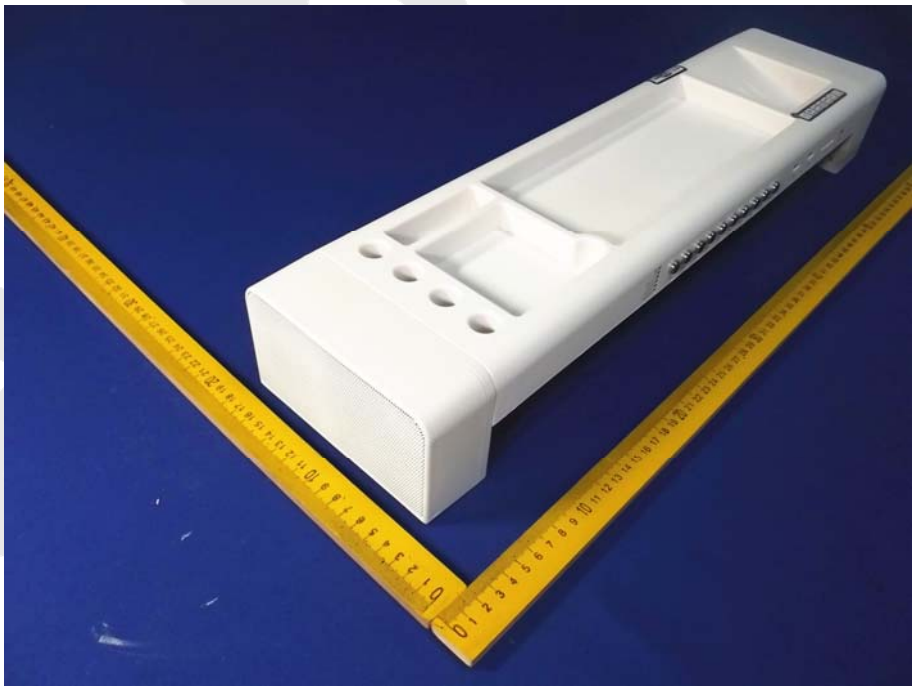


Figure 3
The EUT-Back View

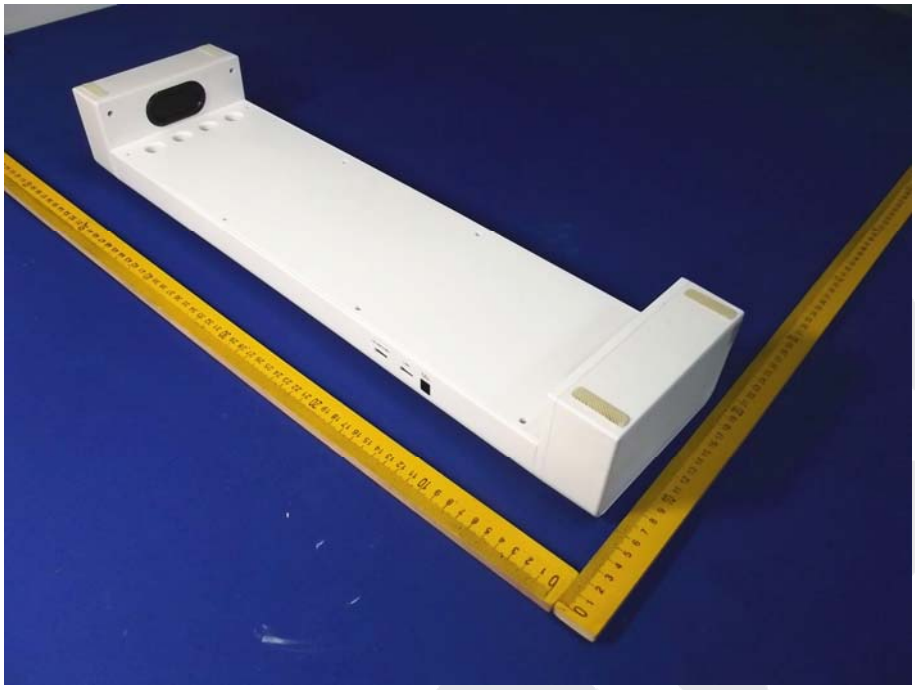


Figure 4
The EUT-Port View

Figure 5
The EUT-Port View

Figure 6
The EUT-Overall View (Model: LYB-012)

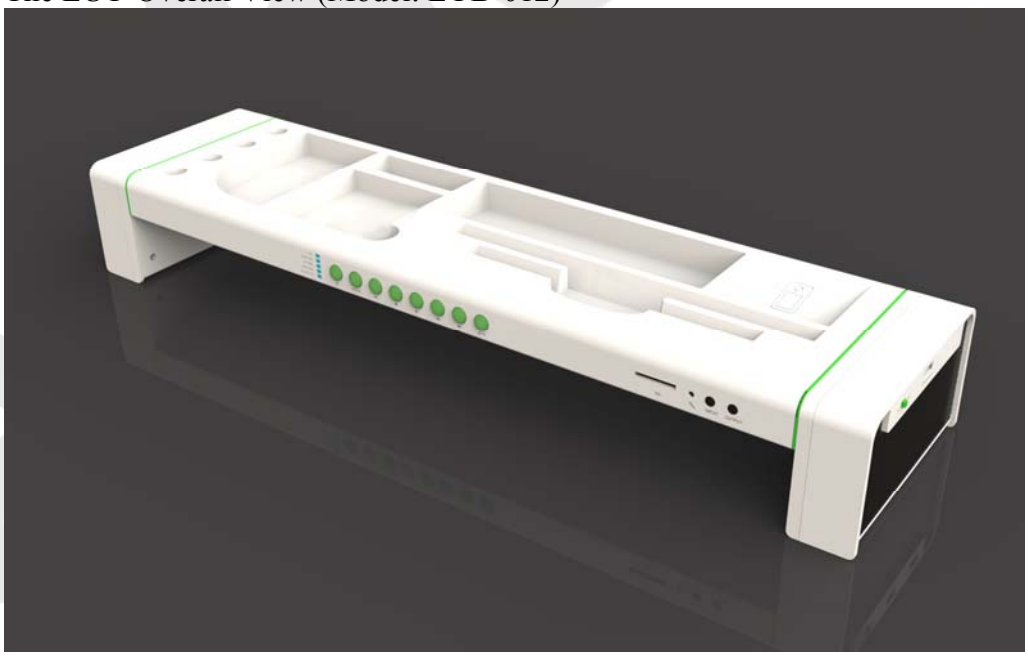


Figure 7
The EUT-Overall View (Model: LYB-012)

APPENDIX Ⅱ (Internal Photos)

Figure 8

The EUT-Inside View

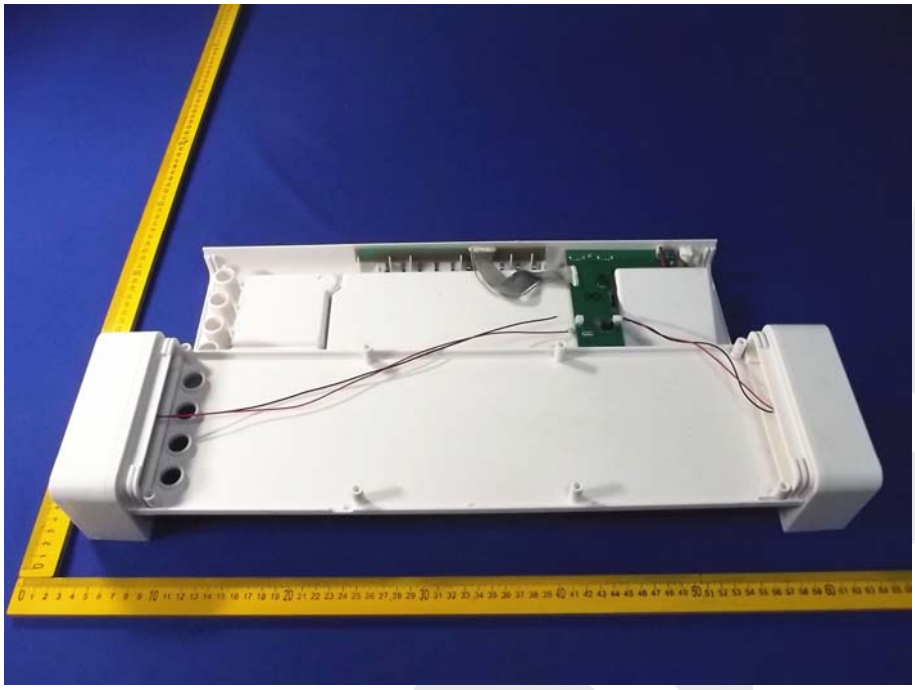


Figure 9

PCB of the EUT-Front View

Figure 10
PCB of the EUT-Back View

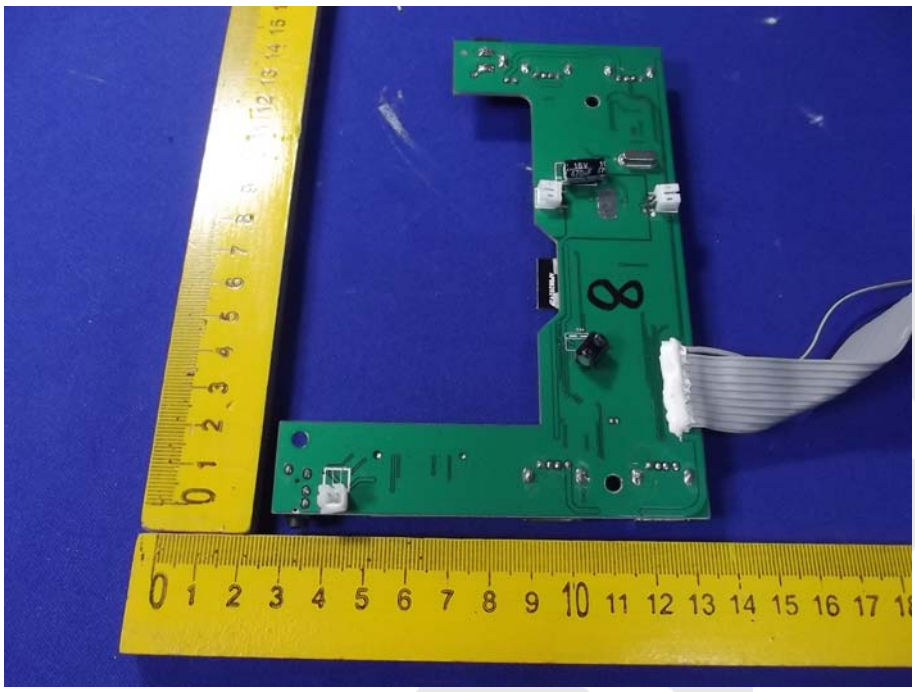


Figure 11
PCB of the EUT-Front View

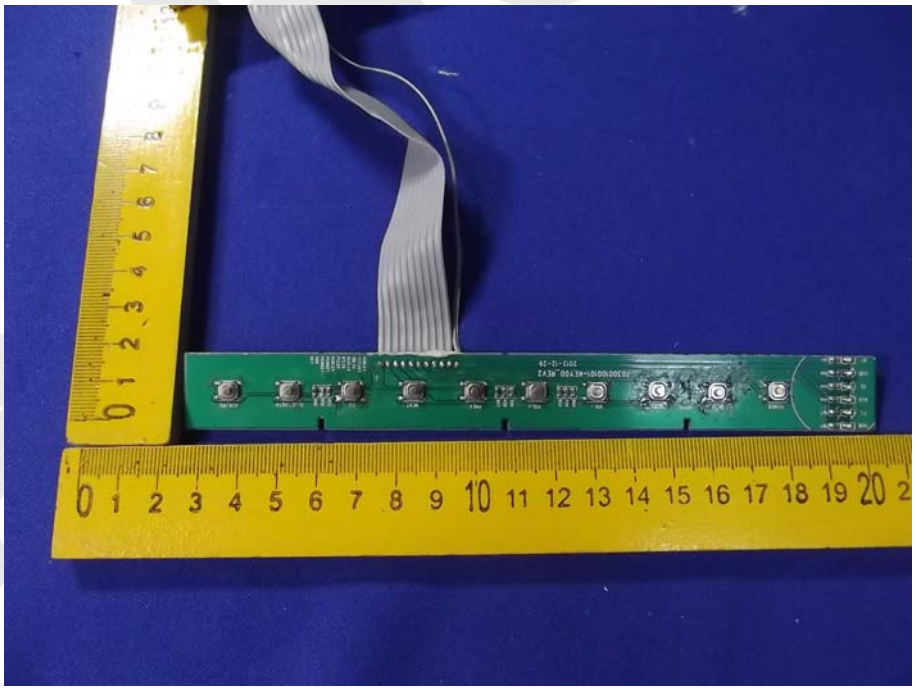


Figure 12
PCB of the EUT-Back View

Figure 13
PCB of the BT Module View

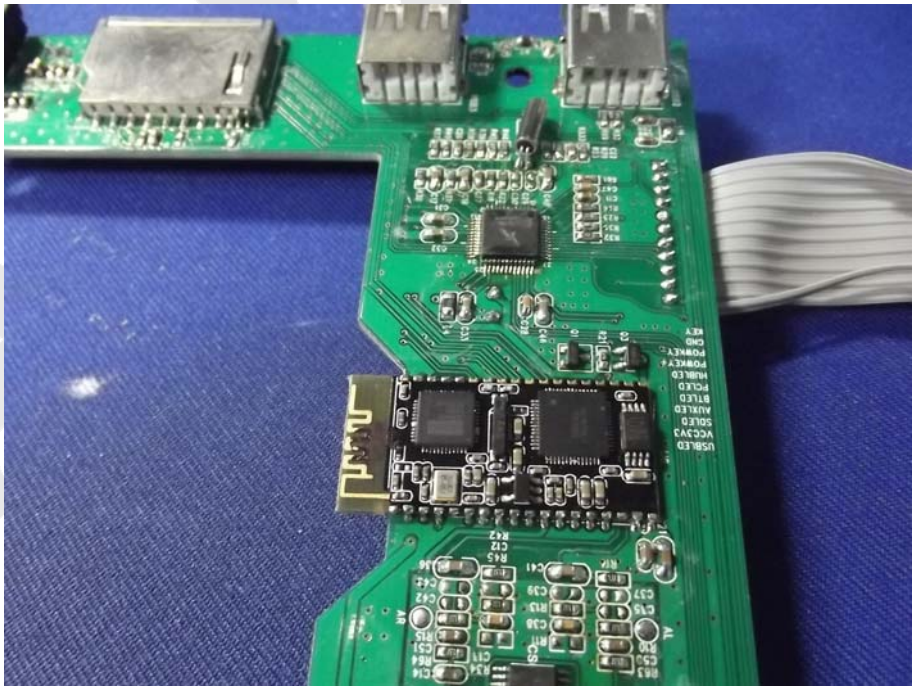


Figure 14
PCB of the BT Module-Front View

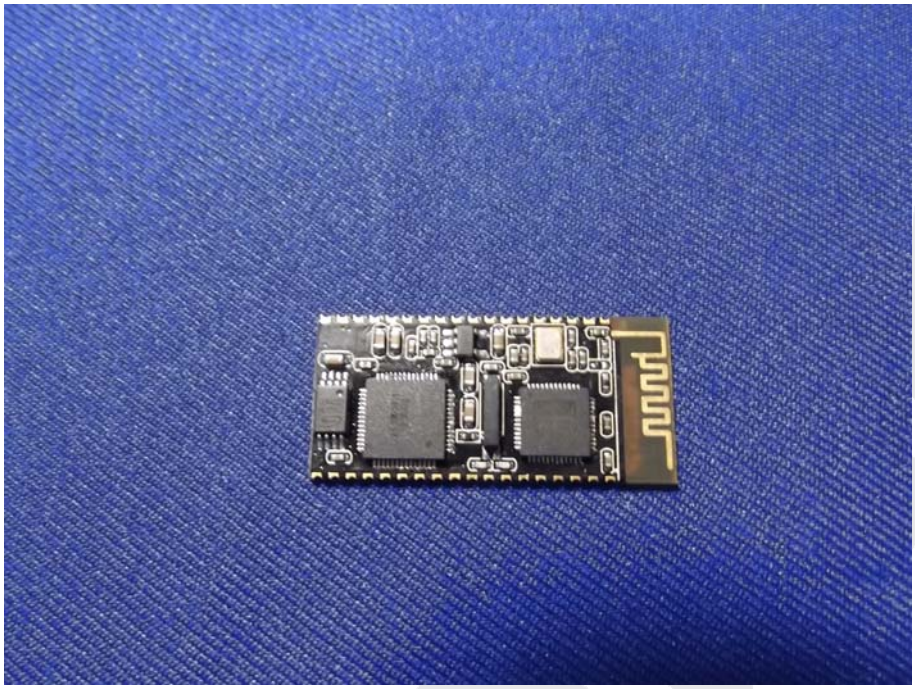


Figure 15
PCB of the BT Module-Back View