

APPLICATION CERTIFICATION
On Behalf of
Radiopaq Limited

Bluetooth Soundbook
Model No.: Bayan Soundbook

FCC ID: ROF-SOUNDBOOK

Prepared for : Radiopaq Limited
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Test Report Certification

Applicant	: Radiopaq Limited
Manufacturer	: Musilab Electronic (DongGuan) Co., Ltd
EUT Description	: Bluetooth Soundbook
	(A) MODEL NO.: Bayan Soundbook
	(B) SERIAL NO.: N/A
	(C) POWER SUPPLY: DC 3.7V (Li-polymer battery) & AC 120V/60HZ (Supplied from Adapter)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247
ANSI C63.4- 2009

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test : July 11-13, 2013

Prepared by : Bob Wang
(Engineer)

Approved & Authorized Signer : 

(Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Bluetooth Soundbook
Model Number	:	Bayan Soundbook
Frequency Band	:	2402MHz-2480MHz
Number of Channels	:	79
Modulation type	:	GFSK
Antenna Gain	:	0dBi
Power Supply	:	DC 3.7V (Li-polymer battery) & AC 120V/60HZ (supplied from Adapter)
Adapter	:	Model: Soundbook Input: 100-240V 50/60Hz 0.3A Output: 5V/2100mA
Applicant	:	Radiopaq Limited
Address	:	5 The Pavilions, Brighton Road, Pease Pottage, West Sussex, RH11 9BJ United Kingdom
Manufacturer	:	Musilab Electronic (DongGuan) Co., Ltd
Address	:	A2, LinDong 3 Road, LinCun, TangXia Twon, DongGuan City, Guangdong, China
Date of sample received	:	July 5, 2013
Date of Test	:	July 11-13, 2013

1.2. Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC
The Registration Number is 752051

Listed by Industry Canada
The Registration Number is 5077A-2

Accredited by China National Accreditation Committee
for Laboratories
The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.
Science & Industry Park, Nanshan, Shenzhen, Guangdong
P.R. China

1.3. Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2
(Above 1GHz)

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 12, 2013	Jan. 11, 2014
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 12, 2013	Jan. 11, 2014
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 12, 2013	Jan. 11, 2014
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 12, 2013	Jan. 11, 2014
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Feb. 06, 2013	Feb. 05, 2014
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Feb. 06, 2013	Feb. 05, 2014
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Feb. 06, 2013	Feb. 05, 2014
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Feb. 06, 2013	Feb. 05, 2014
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 12, 2013	Jan. 11, 2014
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 12, 2013	Jan. 11, 2014

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode

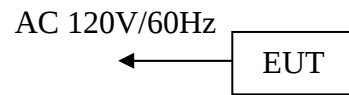
Low Channel: 2402MHz

Middle Channel: 2441MHz

High Channel: 2480MHz

Hopping

3.2.Configuration and peripherals



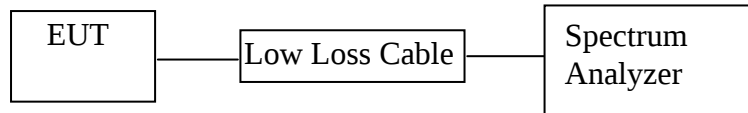
(EUT: Bluetooth Soundbook)

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission Test	Compliant
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	Maximum Peak Output Power Test	Compliant
Section 15.247(d) Section 15.209	Radiated Emission Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. 20DB BANDWIDTH TEST

5.1. Block Diagram of Test Setup



(EUT: Bluetooth Soundbook)

5.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.3. EUT Configuration on Measurement

The following equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1. Bluetooth Soundbook (EUT)

Model Number	:	Bayan Soundbook
Serial Number	:	N/A
Manufacturer	:	Musilab Electronic (DongGuan) Co., Ltd

5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

5.5. Test Procedure

5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2. Set RBW of spectrum analyzer to 30 kHz and VBW to 100 kHz.

5.5.3. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

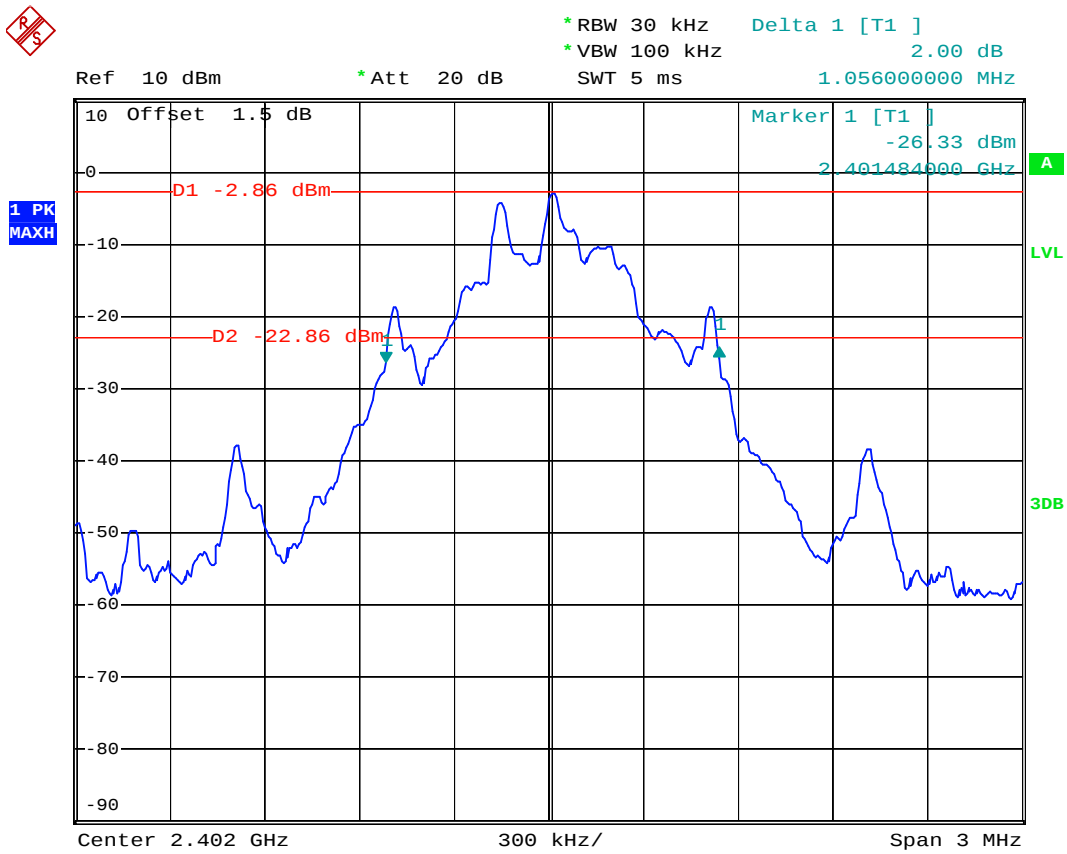
5.6. Test Result

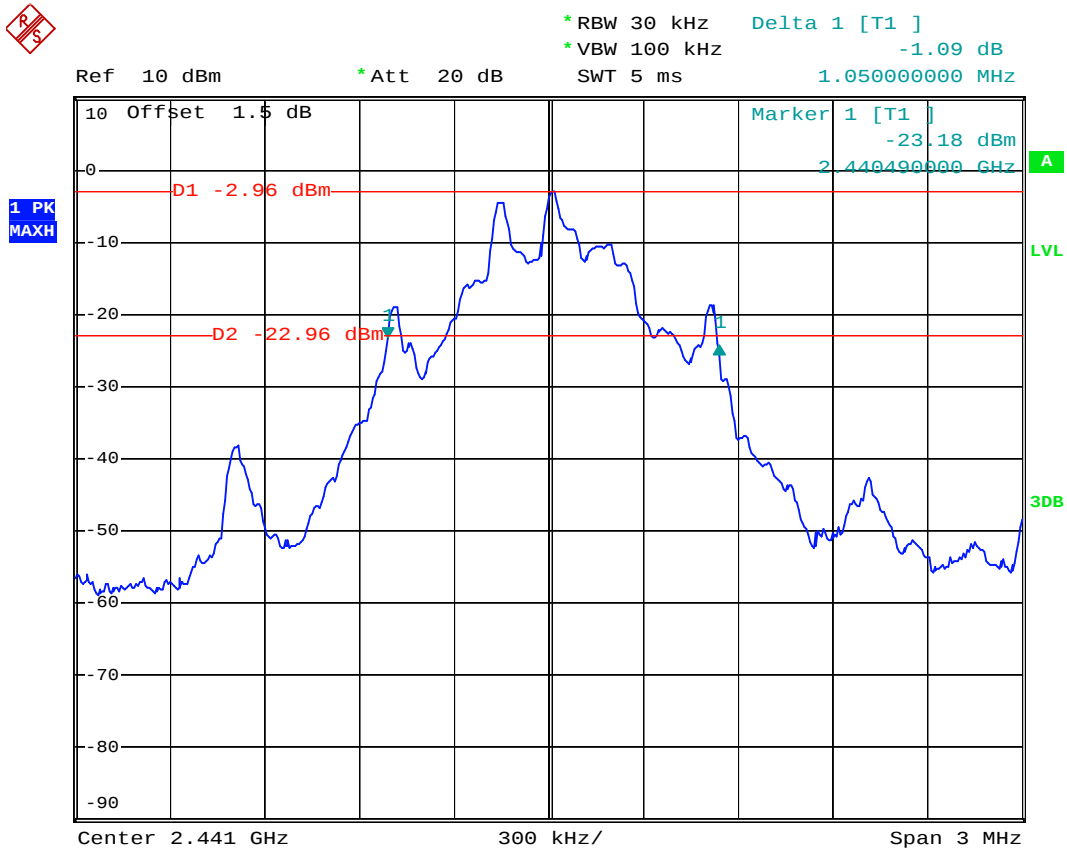
PASS.

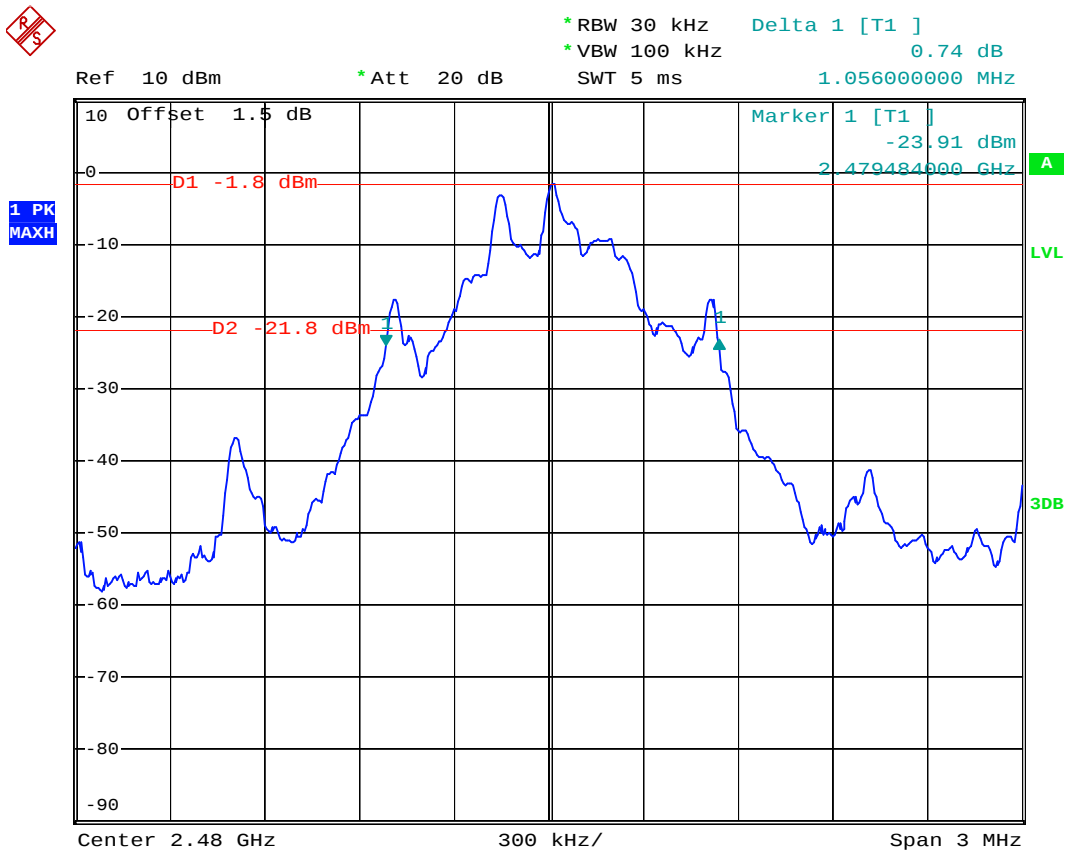
Date of Test:	<u>July 11, 2013</u>	Temperature:	<u>25°C</u>
EUT:	<u>Bluetooth Soundbook</u>	Humidity:	<u>50%</u>
Model No.:	<u>Bayan Soundbook</u>	Power Supply:	<u>AC 120V/60HZ</u>
Test Mode:	<u>TX</u>	Test Engineer:	<u>Rickey</u>

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	Limit (MHz)
Low	2402	1.056	---
Middle	2441	1.050	---
High	2480	1.056	---

The spectrum analyzer plots are attached as below.

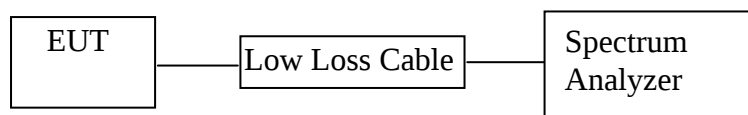






6. CARRIER FREQUENCY SEPARATION TEST

6.1. Block Diagram of Test Setup



(EUT: Bluetooth Soundbook)

6.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

6.3. EUT Configuration on Measurement

The following equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.3.1. Bluetooth Soundbook (EUT)

Model Number	:	Bayan Soundbook
Serial Number	:	N/A
Manufacturer	:	Musilab Electronic (DongGuan) Co., Ltd

6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

6.5. Test Procedure

- 6.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 6.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz. Adjust Span to 3 MHz.
- 6.5.3. Set the adjacent channel of the EUT maxhold another trace.
- 6.5.4. Measurement the channel separation

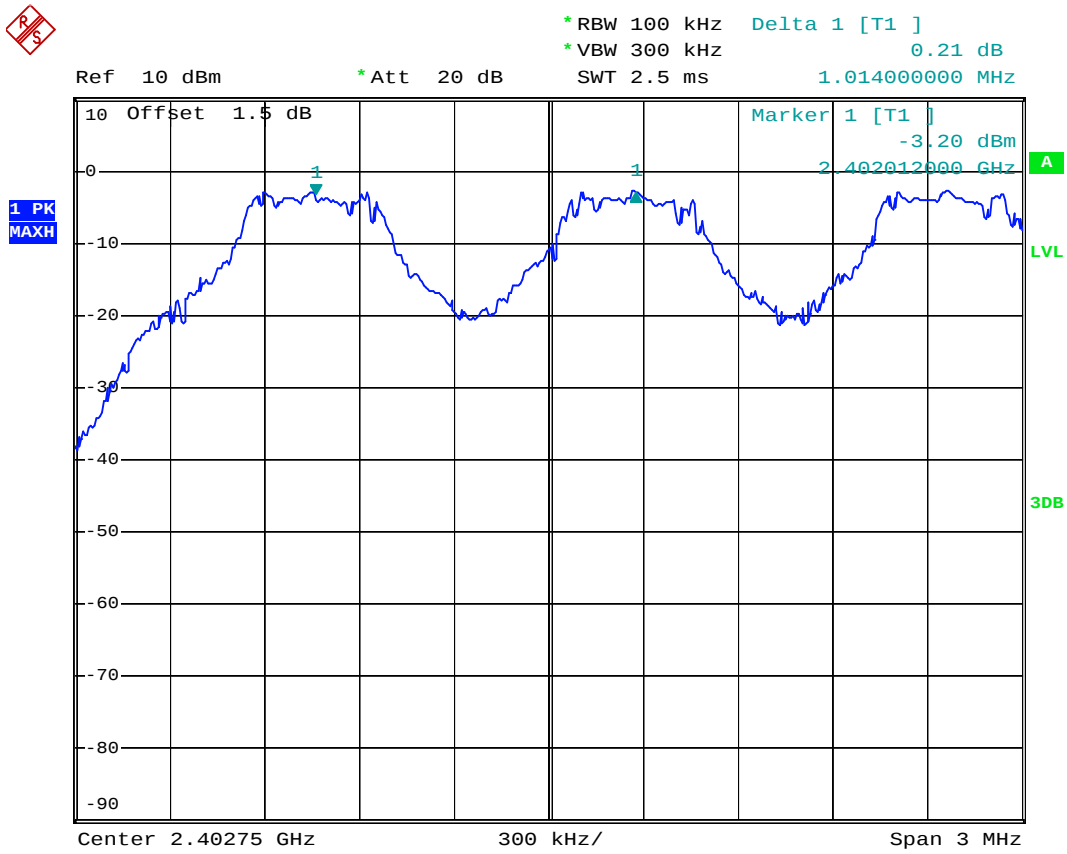
6.6. Test Result

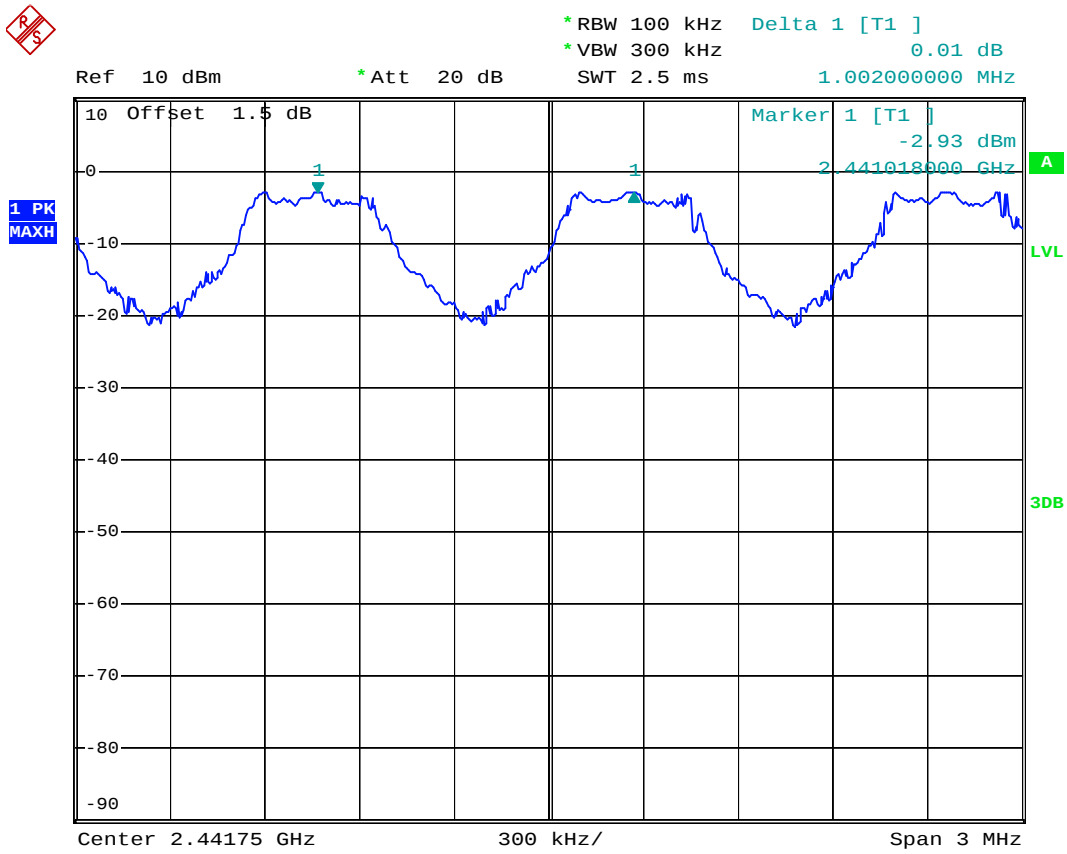
PASS.

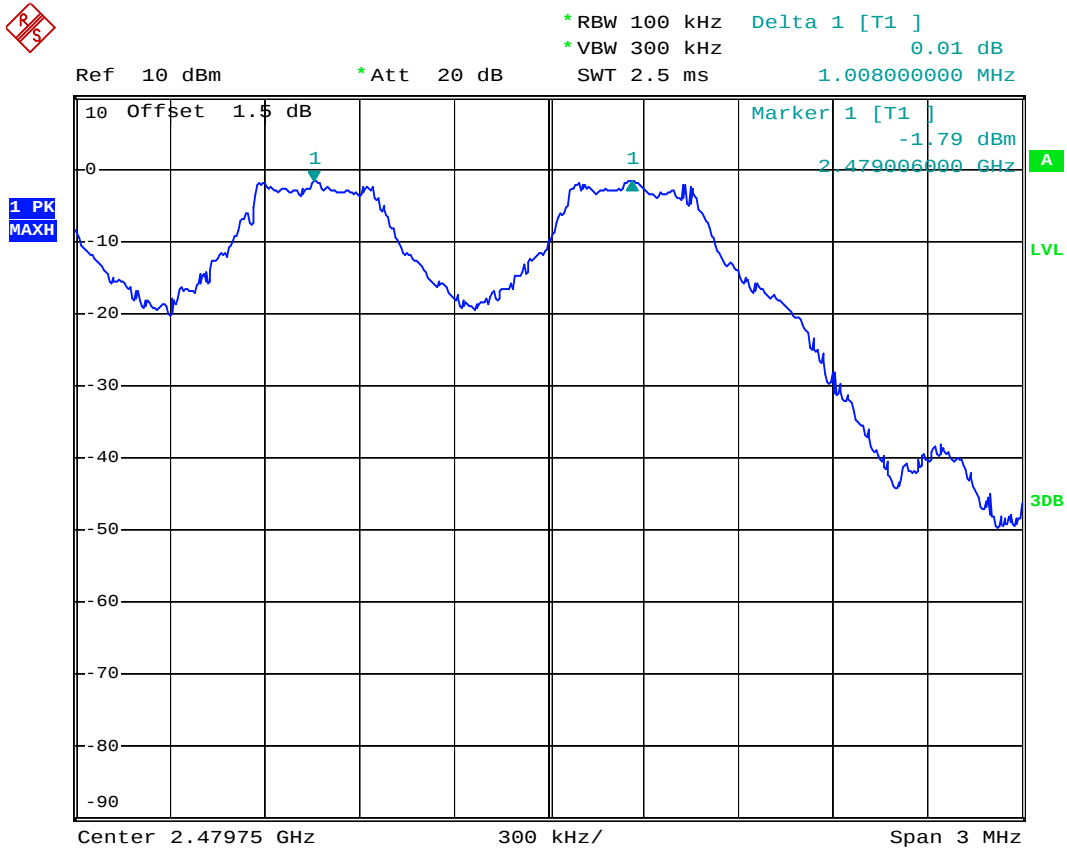
Date of Test:	July 11, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60Hz
Test Mode:	TX	Test Engineer:	Rickey

Channel	Channel Frequency (MHz)	Channel separation (MHz)	Limit (MHz)
Low	2402	1.014	0.704
Middle	2441	1.002	0.700
High	2480	1.008	0.704

The spectrum analyzer plots are attached as below.

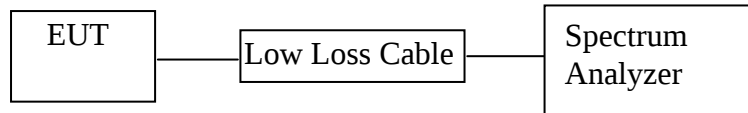






7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: Bluetooth Soundbook)

7.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

7.3. EUT Configuration on Measurement

The following equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

7.3.1. Bluetooth Soundbook (EUT)

Model Number	:	Bayan Soundbook
Serial Number	:	N/A
Manufacturer	:	Musilab Electronic (DongGuan) Co., Ltd

7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX (Hopping on) modes measure it.

7.5. Test Procedure

7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2. Set the spectrum analyzer as Span=83.5MHz, RBW=100 kHz, VBW=300 kHz.

7.5.3. Max hold, view and count how many channel in the band.

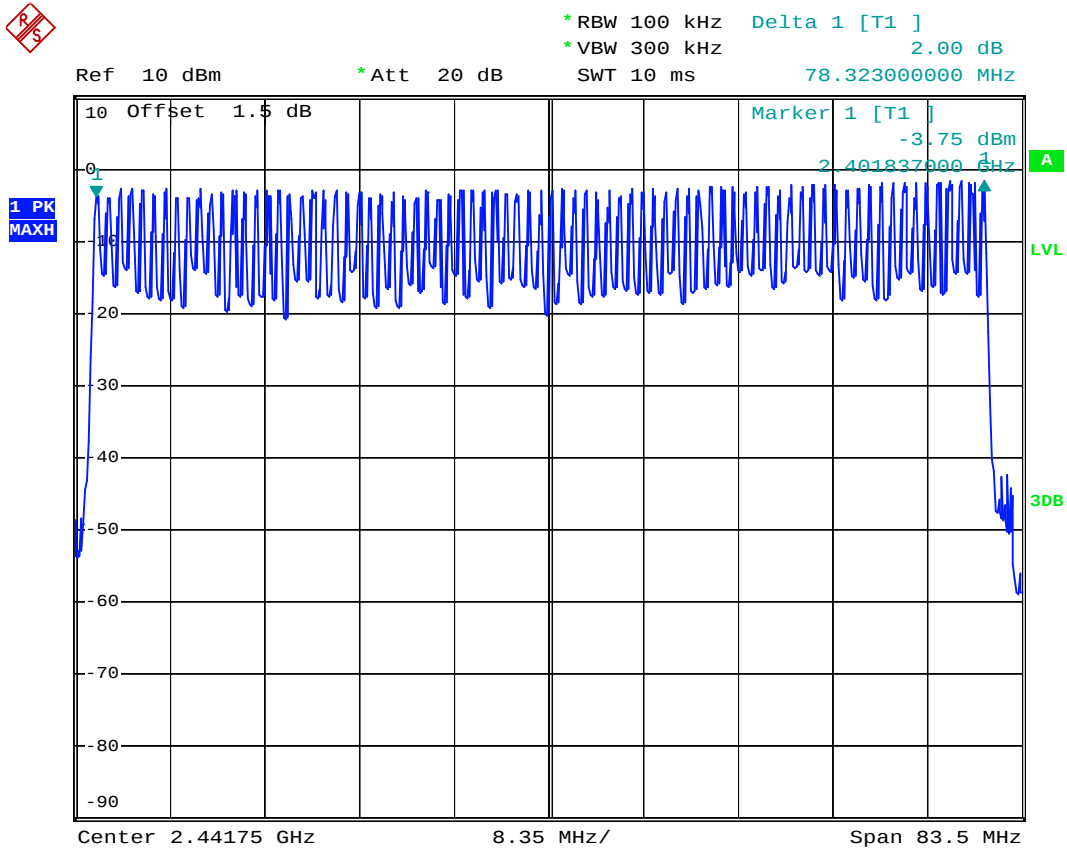
7.6. Test Result

PASS.

Date of Test:	<u>July 11, 2013</u>	Temperature:	<u>25°C</u>
EUT:	<u>Bluetooth Soundbook</u>	Humidity:	<u>50%</u>
Model No.:	<u>Bayan Soundbook</u>	Power Supply:	<u>AC 120V/60HZ</u>
Test Mode:	<u>Hopping</u>	Test Engineer:	<u>Rickey</u>

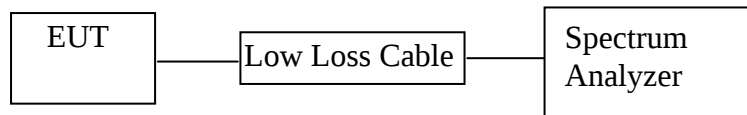
Total number of hopping channel	Measurement result (CH)	Limit (CH)
	79	>15

The spectrum analyzer plots are attached as below.



8. DWELL TIME TEST

8.1. Block Diagram of Test Setup



(EUT: Bluetooth Soundbook)

8.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

8.3. EUT Configuration on Measurement

The following equipment are installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

8.3.1. Bluetooth Soundbook (EUT)

Model Number	:	Bayan Soundbook
Serial Number	:	N/A
Manufacturer	:	Musilab Electronic (DongGuan) Co., Ltd

8.4. Operating Condition of EUT

8.4.1. Setup the EUT and simulator as shown as Section 8.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX (Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

8.5. Test Procedure

- 8.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 8.5.2. Set center frequency of spectrum analyzer = operating frequency.
- 8.5.3. Set the spectrum analyzer as RBW=100 kHz, VBW=300 kHz, Span=0Hz, Adjust Sweep=1s. Get the burst (in 1 sec.).
- 8.5.4. Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span=0Hz, Adjust Sweep=2ms. Get the pulse time.
- 8.5.5. Repeat above procedures until all frequency measured were complete.

8.6. Test Result

PASS.

Date of Test:	<u>July 11, 2013</u>	Temperature:	<u>25°C</u>
EUT:	<u>Bluetooth Soundbook</u>	Humidity:	<u>50%</u>
Model No.:	<u>Bayan Soundbook</u>	Power Supply:	<u>AC 120V/60HZ</u>
Test Mode:	<u>TX</u>	Test Engineer:	<u>Rickey</u>

DH1:

A period transmit time = $0.4 \times 79 = 31.6$

Dwell time = pulse time $\times (1600/(2 \times 79)) \times 31.6$

Channel	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
Low	2402	0.534	170.88	400
Middle	2441	0.540	172.80	400
High	2480	0.534	170.88	400

DH3:

A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(4 \times 79)) \times 31.6$

Channel	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
Low	2402	1.797875	287.66	400
Middle	2441	1.815875	290.54	400
High	2480	1.815875	290.54	400

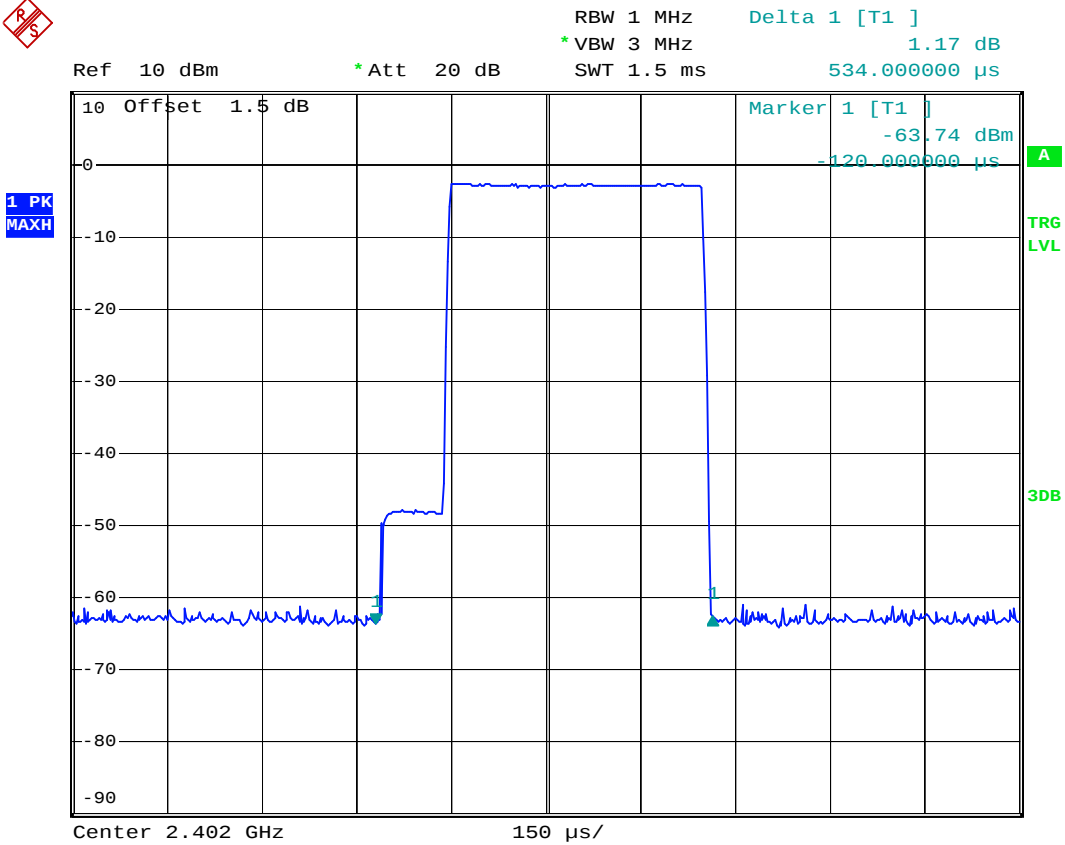
DH5:

A period transmit time = $0.4 \times 79 = 31.6$ Dwell time = pulse time $\times (1600/(6 \times 79)) \times 31.6$

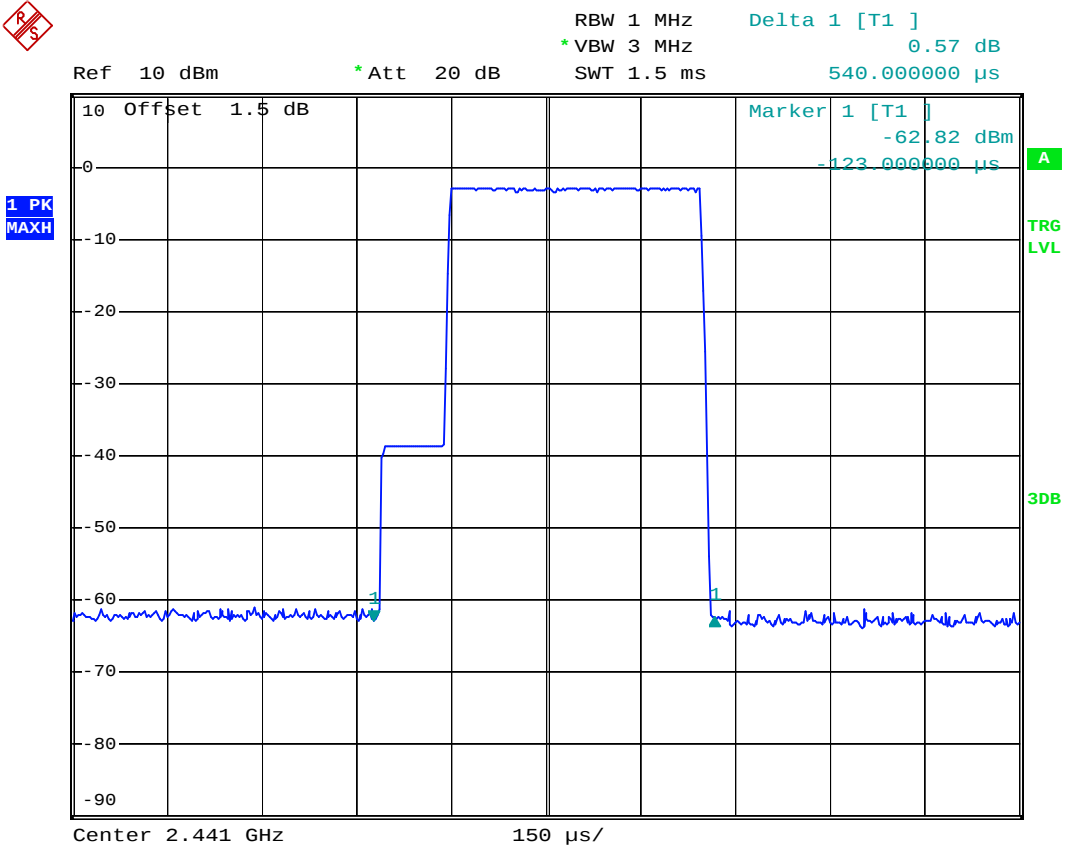
Channel	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
Low	2402	3.073	327.7867	400
Middle	2441	3.097	330.3467	400
High	2480	3.081	328.6400	400

The spectrum analyzer plots are attached as below.

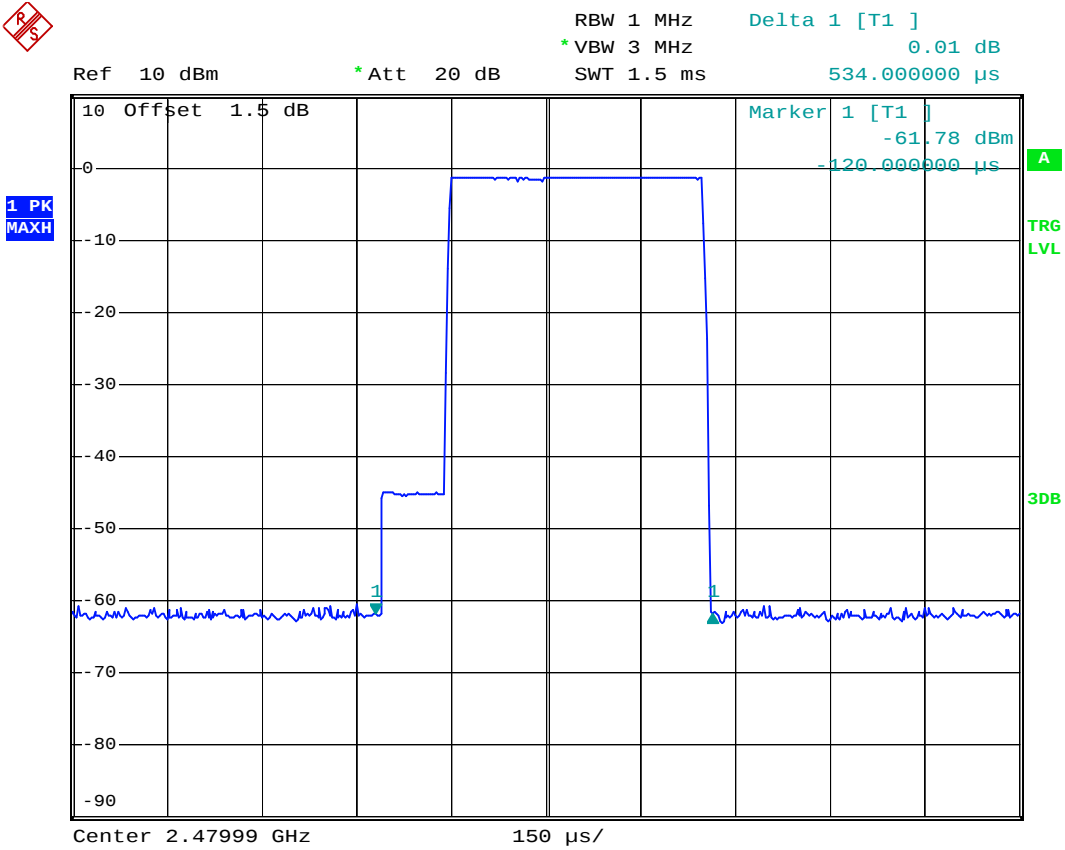
DH1:



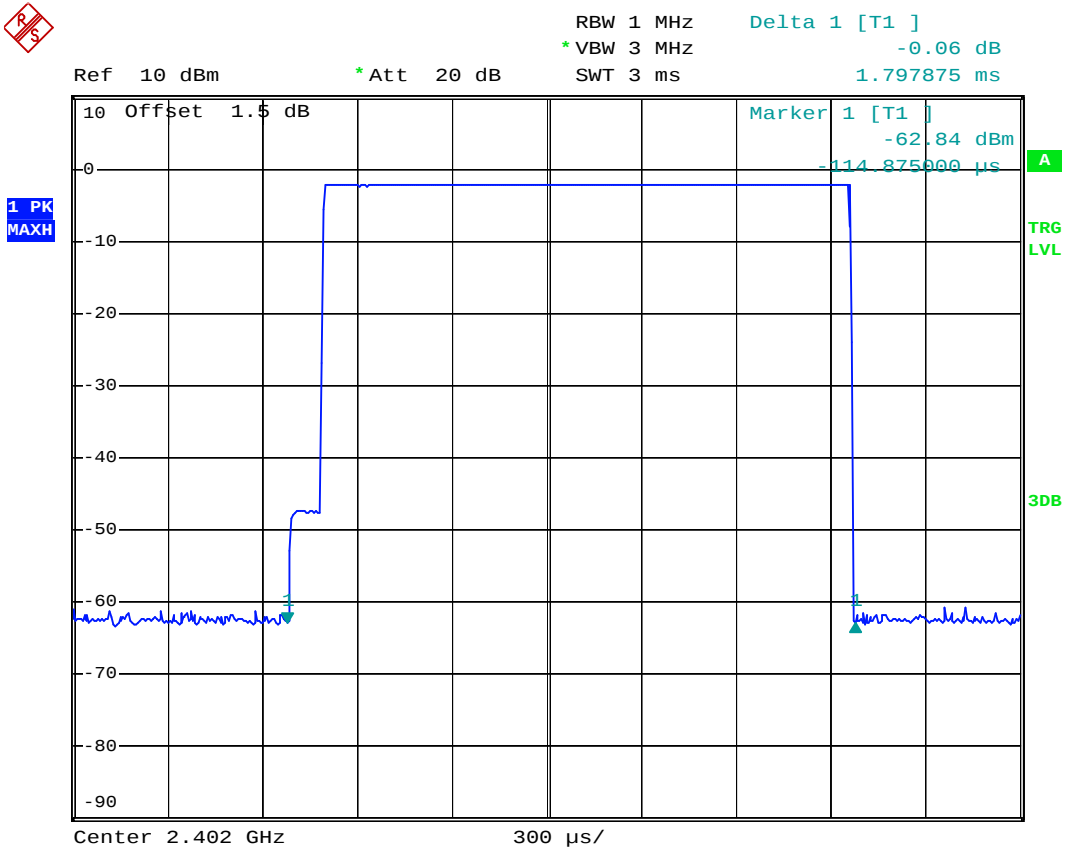
DH1:



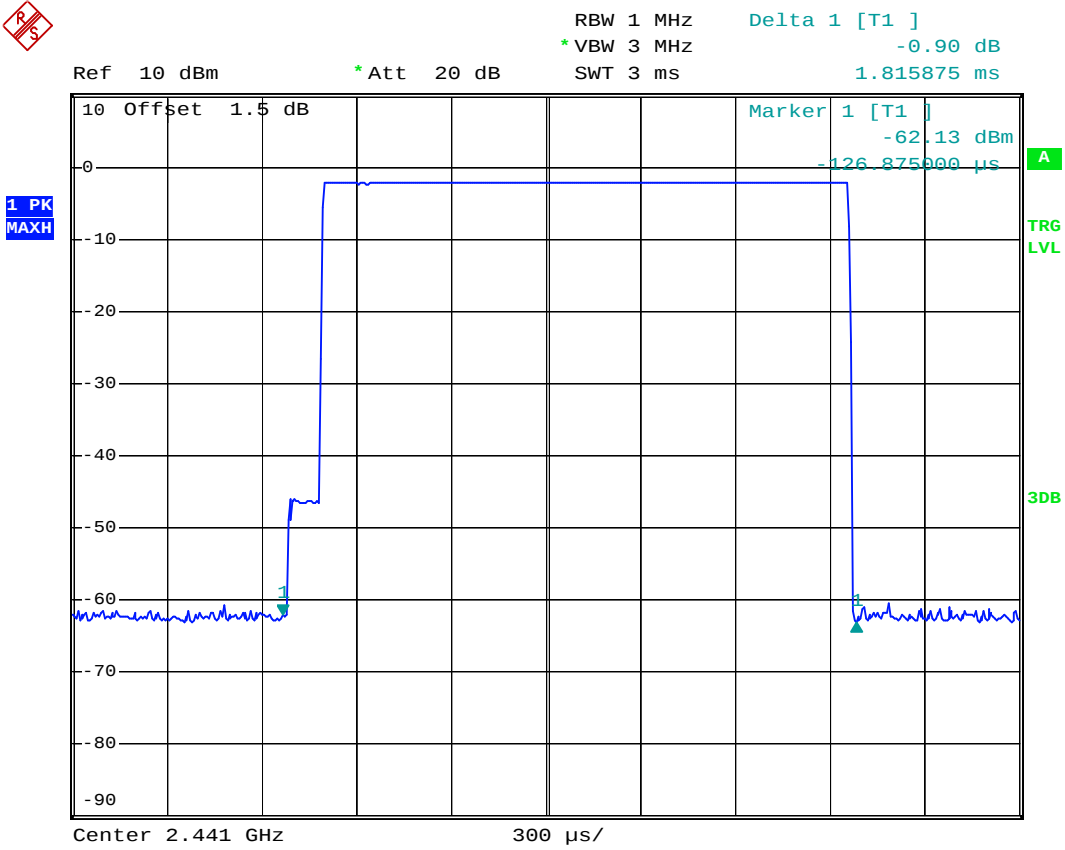
DH1:



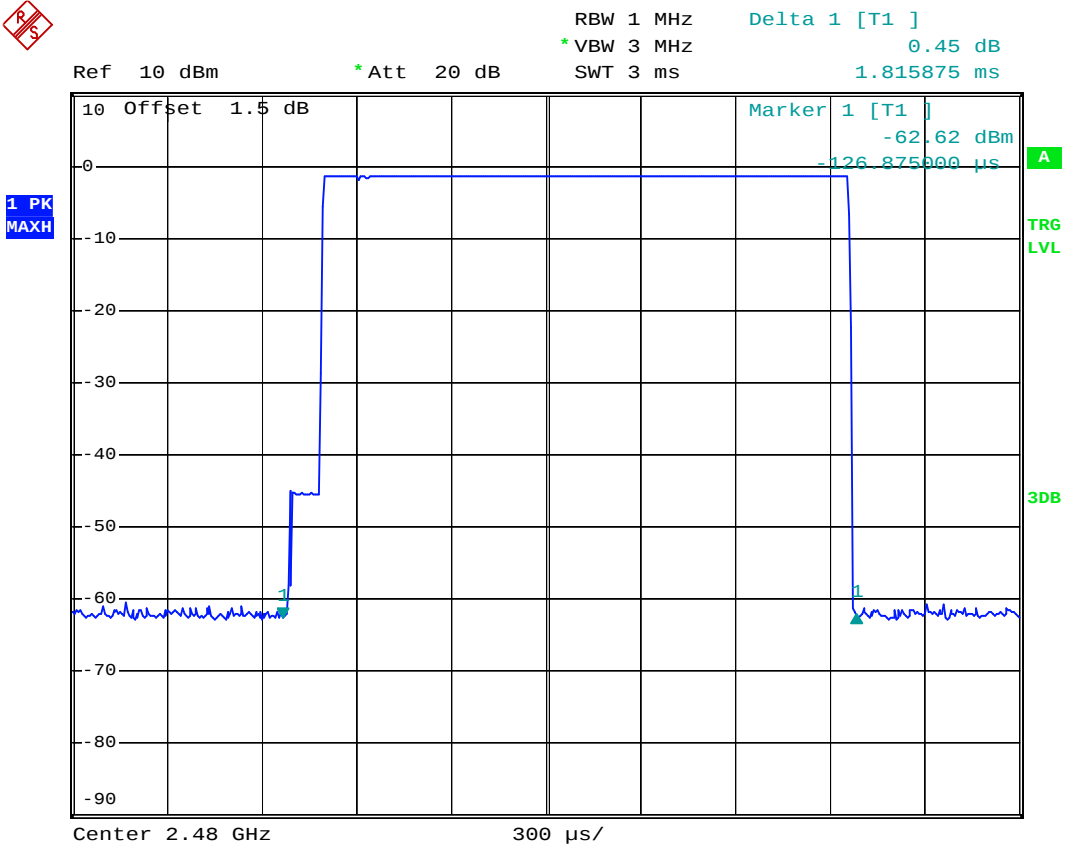
DH3:



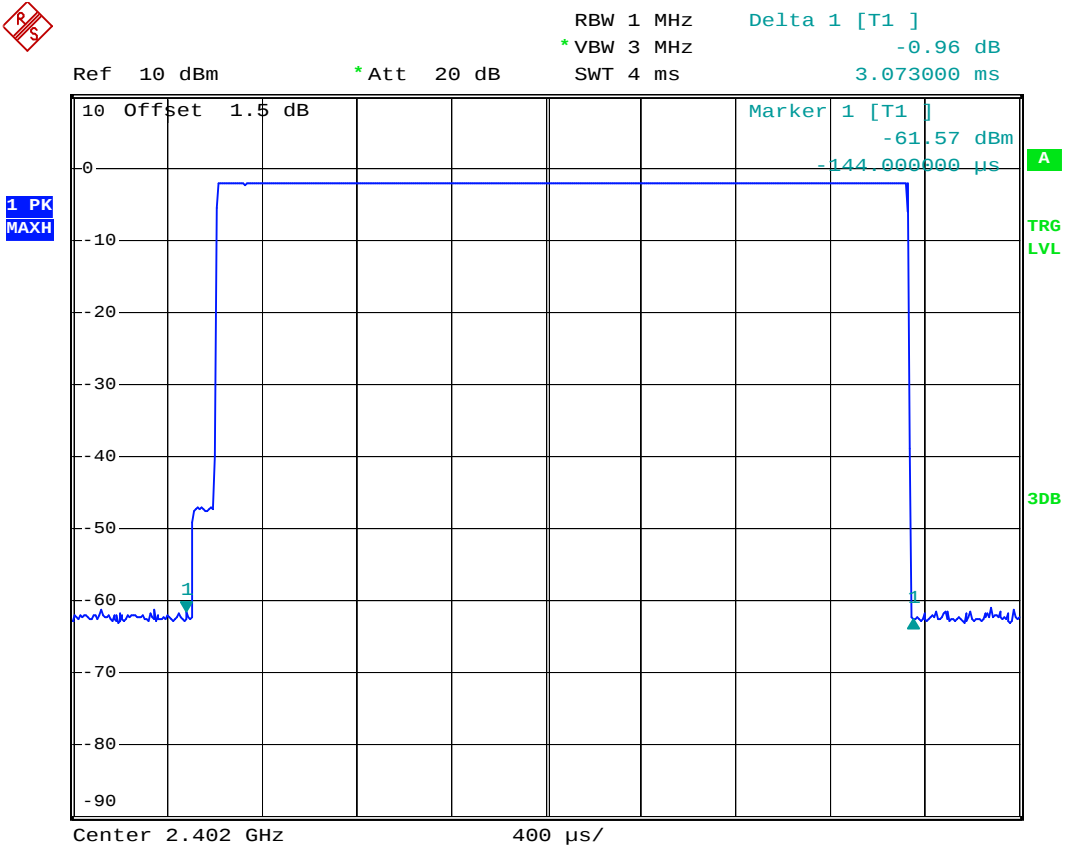
DH3:



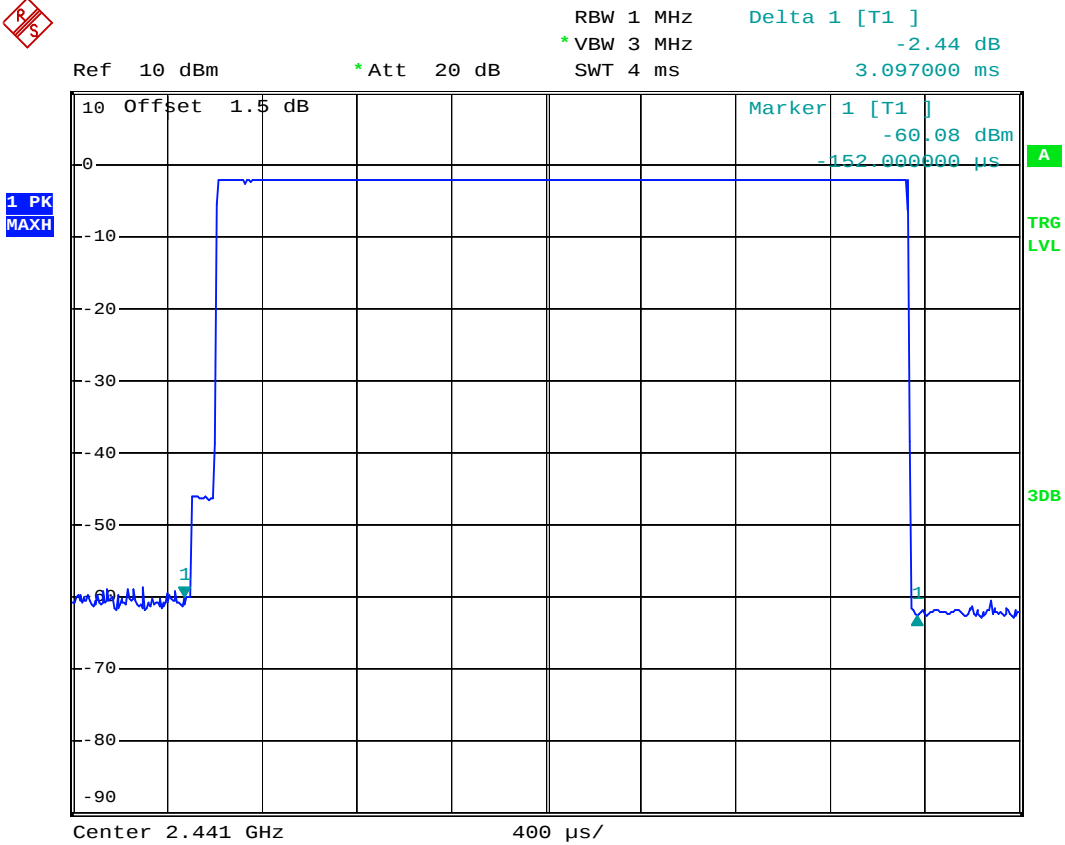
DH3:



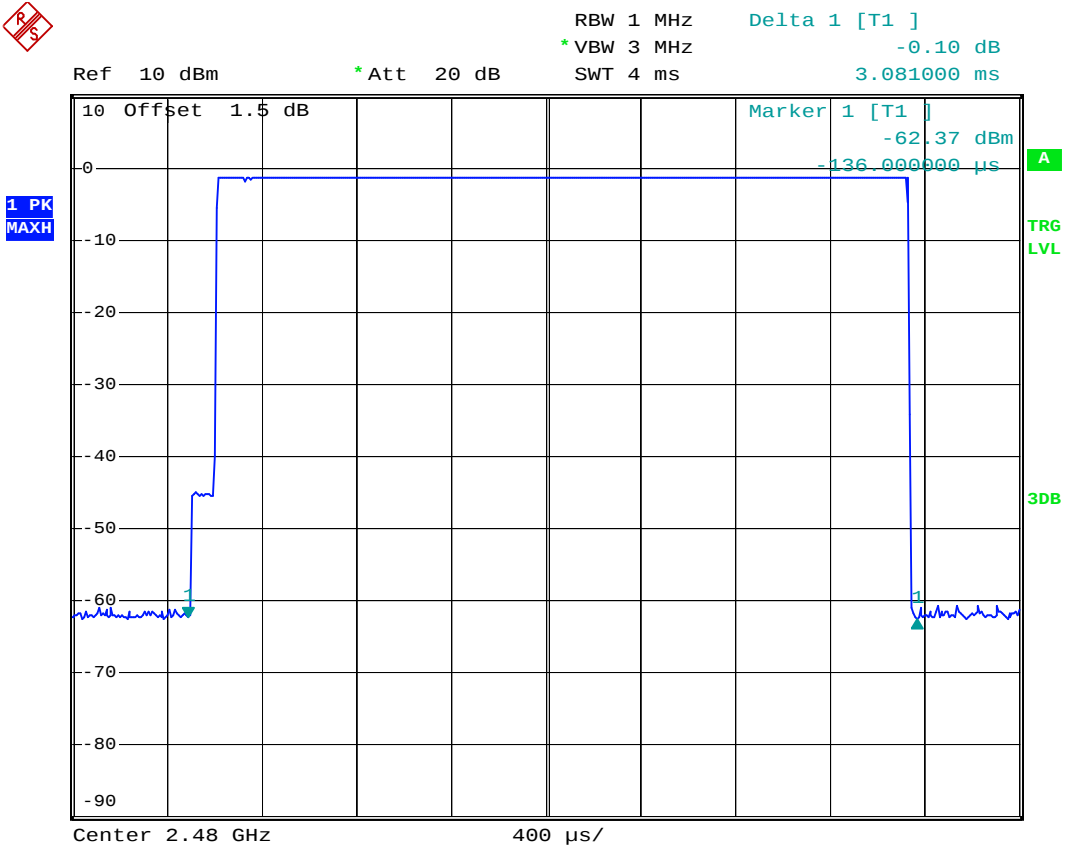
DH5:



DH5:

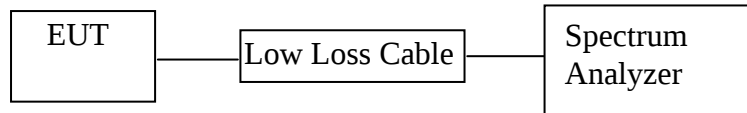


DH5:



9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: Bluetooth Soundbook)

9.2. The Requirement For Section 15.247(b)(1)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3. EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

9.3.1. Bluetooth Soundbook (EUT)

Model Number	:	Bayan Soundbook
Serial Number	:	N/A
Manufacturer	:	Musilab Electronic (DongGuan) Co., Ltd

9.4. Operating Condition of EUT

9.4.1. Setup the EUT and simulator as shown as Section 9.1.

9.4.2. Turn on the power of all equipment.

9.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2441MHz, and 2480MHz TX frequency to transmit.

9.5. Test Procedure

9.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

9.5.2. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz.

9.5.3. Measurement the maximum peak output power.

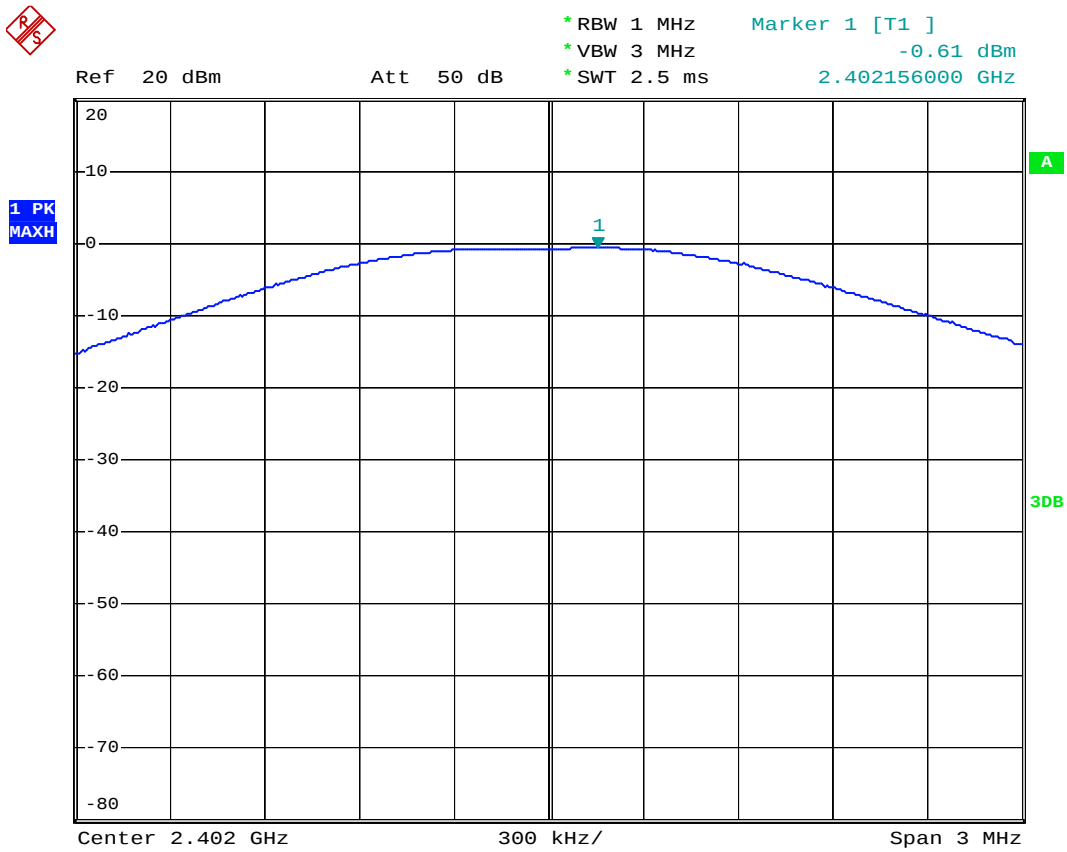
9.6. Test Result

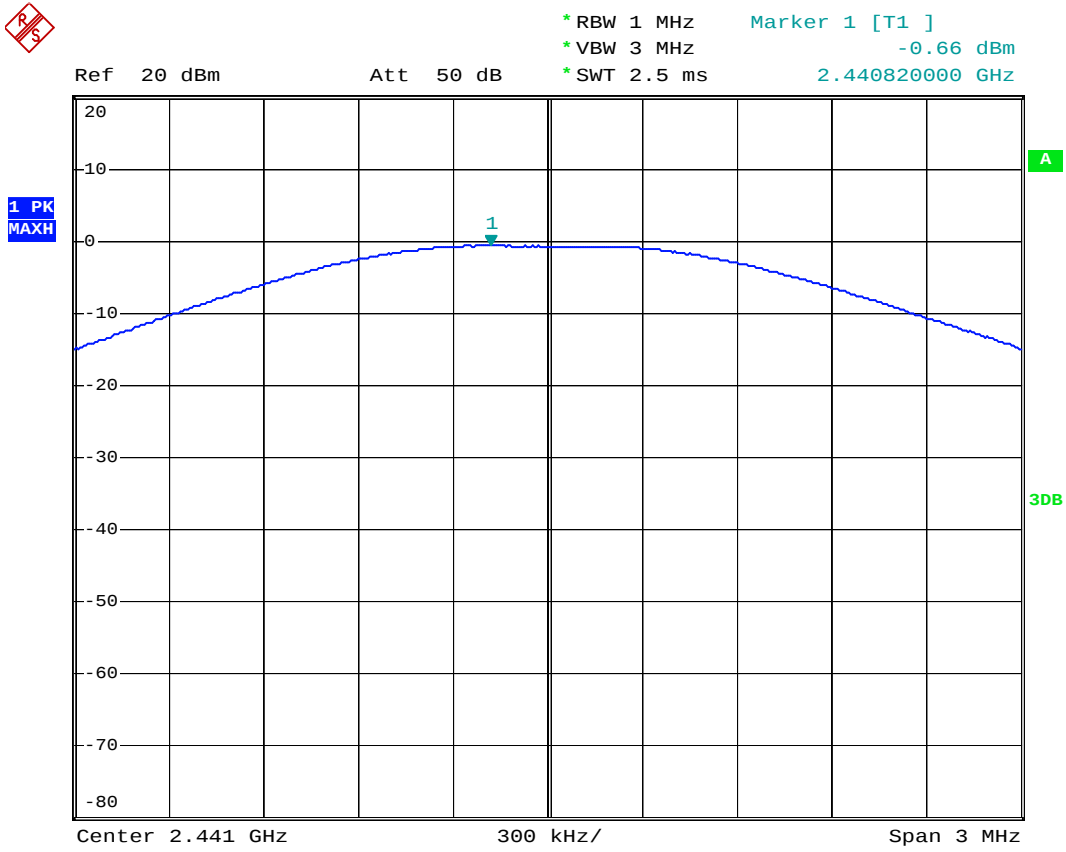
PASS.

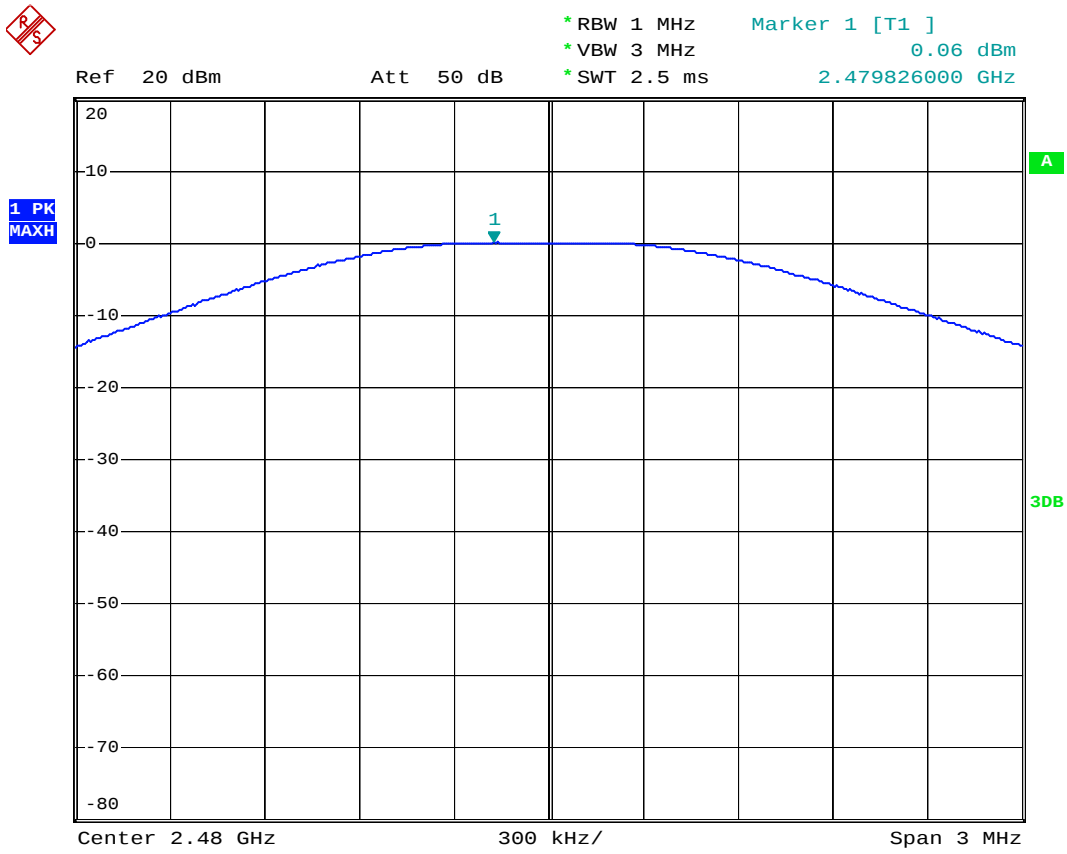
Date of Test:	<u>July 11, 2013</u>	Temperature:	<u>25°C</u>
EUT:	<u>Bluetooth Soundbook</u>	Humidity:	<u>50%</u>
Model No.:	<u>Bayan Soundbook</u>	Power Supply:	<u>AC 120V/60HZ</u>
Test Mode:	<u>TX</u>	Test Engineer:	<u>Rickey</u>

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / mW
Low	2402	-0.61	0.87	21 dBm / 125 mW
Middle	2441	-0.66	0.86	21 dBm / 125 mW
High	2480	0.06	1.01	21 dBm / 125 mW

The spectrum analyzer plots are attached as below.



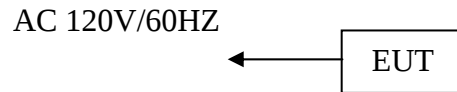




10. RADIATED EMISSION TEST

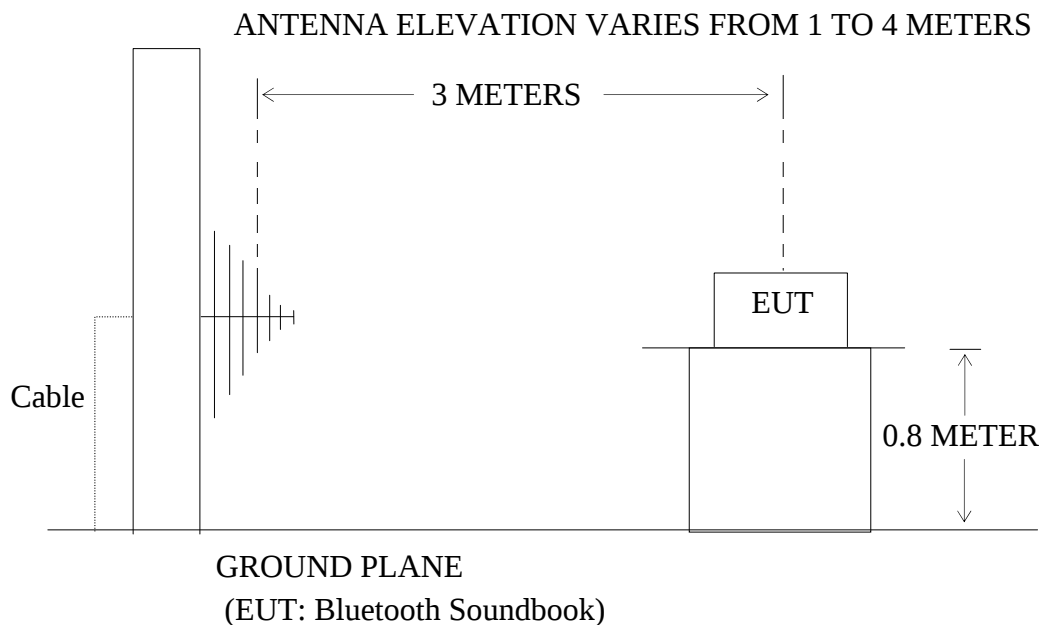
10.1. Block Diagram of Test Setup

10.1.1. Block diagram of connection between the EUT and simulators



(EUT: Bluetooth Soundbook)

10.1.2. Anechoic Chamber Test Setup Diagram



(EUT: Bluetooth Soundbook)

10.2. The Limit For Section 15.247(d)

Section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

10.4.Configuration of EUT on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

10.4.1.Bluetooth Soundbook (EUT)

Model Number : Bayan Soundbook
 Serial Number : N/A
 Manufacturer : Musilab Electronic (DongGuan) Co., Ltd

10.5.est Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4- 2009 on radiated emission measurement.

The bandwidth of test receiver (R&S ESI26) is set at 120 KHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 25000MHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

10.6.The Field Strength of Radiation Emission Measurement Results

PASS.

Date of Test:	July 13, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60HZ
Test Mode:	TX (2402MHz)	Test Engineer:	Rickey

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Factor Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
76.2442	40.05	-21.56	18.49	40.00	-21.51	Horizontal
168.4138	45.33	-21.96	23.37	43.50	-20.13	Horizontal
205.6750	53.64	20.05	33.59	43.50	-9.91	Horizontal
34.2760	43.24	-19.26	23.98	40.00	-16.02	Vertical
75.1822	45.93	-21.61	24.32	40.00	-15.68	Vertical
212.2694	47.22	-20.00	27.22	43.50	-16.28	Vertical

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBμV/m)		Factor Corr. (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin(dBμV/m)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

Note: 1. The emission emitted by the EUT is too low to be measured except the emission listed above.

2. *: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots.

Date of Test:	July 13, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60HZ
Test Mode:	TX (2441MHz)	Test Engineer:	Rickey

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Factor Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
166.0680	46.50	-22.21	24.29	43.50	-19.21	Horizontal
206.3976	52.47	-20.04	32.43	43.50	-11.07	Horizontal
274.1939	43.31	-18.58	-24.73	46.50	-21.77	Horizontal
34.3963	42.22	-19.30	22.92	40.00	-17.08	Vertical
75.1822	45.63	-21.61	24.02	40.00	-15.98	Vertical
207.1226	48.55	-20.04	28.51	43.50	-14.99	Vertical

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBμV/m)		Factor Corr. (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin(dBμV/m)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

Note: 1. The emission emitted by the EUT is too low to be measured except the emission listed above.**2. *** Denotes restricted band of operation.**3.** The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots.

Date of Test:	July 13, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60HZ
Test Mode:	TX (2480MHz)	Test Engineer:	Rickey

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBμV/m)	Factor Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
165.4866	46.73	-22.28	24.45	43.50	-19.05	Horizontal
205.6751	53.22	-20.05	33.17	43.50	-10.33	Horizontal
276.1235	42.39	-18.49	23.90	46.50	-22.60	Horizontal
34.3963	42.54	-19.30	23.24	40.00	-16.76	Vertical
75.1822	45.81	-21.61	24.20	40.00	-15.80	Vertical
210.7860	49.66	-20.01	29.65	43.50	-13.85	Vertical

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBμV/m)		Factor Corr. (dB)	Result(dBμV/m)		Limit(dBμV/m)		Margin(dBμV/m)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

Note: 1.The emission emitted by the EUT is too low to be measured except the emission listed above.**2. *: Denotes restricted band of operation.****3. The fundamental radiated emissions were reduced by 2.4G Band Reject Filter in the attached plots.**



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Fax:+86-0755-26503396

Job No.: star #2033

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Bluetooth Soundbook

Mode: TX 2402MHz

Model: Bayan Soundbook

Manufacturer: Musibal

Polarization: Vertical

Power Source: AC 120V/60Hz

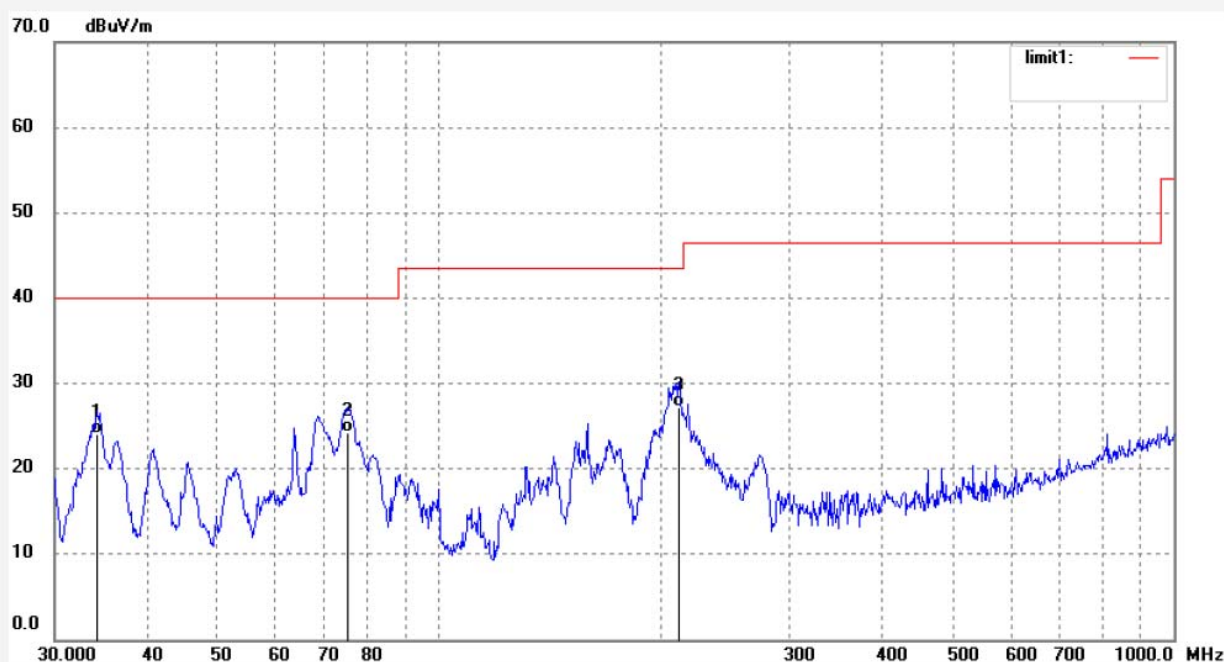
Date: 13/07/13/

Time: 15/56/22

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.2760	43.24	-19.26	23.98	40.00	-16.02	QP			
2	75.1822	45.93	-21.61	24.32	40.00	-15.68	QP			
3	212.2694	47.22	-20.00	27.22	43.50	-16.28	QP			



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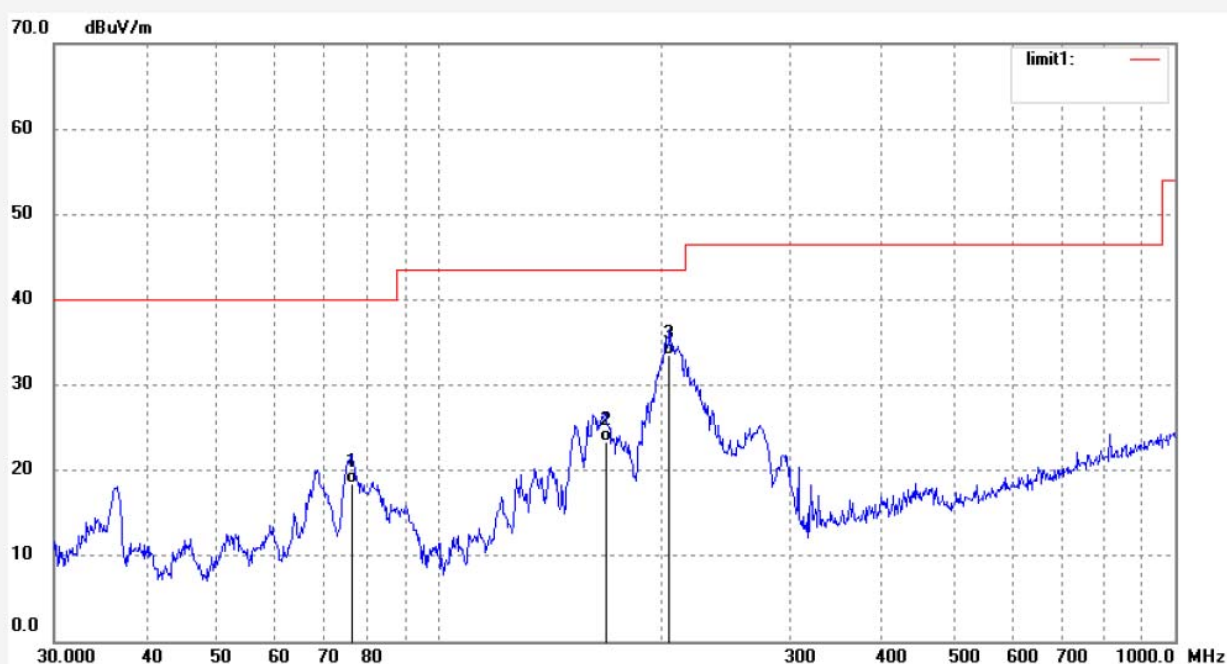
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: star #2034
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Soundbook
Mode: TX 2402MHz
Model: Bayan Soundbook
Manufacturer: Musibal

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 13/07/13/
Time: 16/01/11
Engineer Signature: STAR
Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	76.2442	40.05	-21.56	18.49	40.00	-21.51	QP			
2	168.4138	45.33	-21.96	23.37	43.50	-20.13	QP			
3	205.6750	53.64	-20.05	33.59	43.50	-9.91	QP			



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Job No.: star #2035

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Bluetooth Soundbook

Mode: TX 2441MHz

Model: Bayan Soundbook

Manufacturer: Musibal

Polarization: Horizontal

Power Source: AC 120V/60Hz

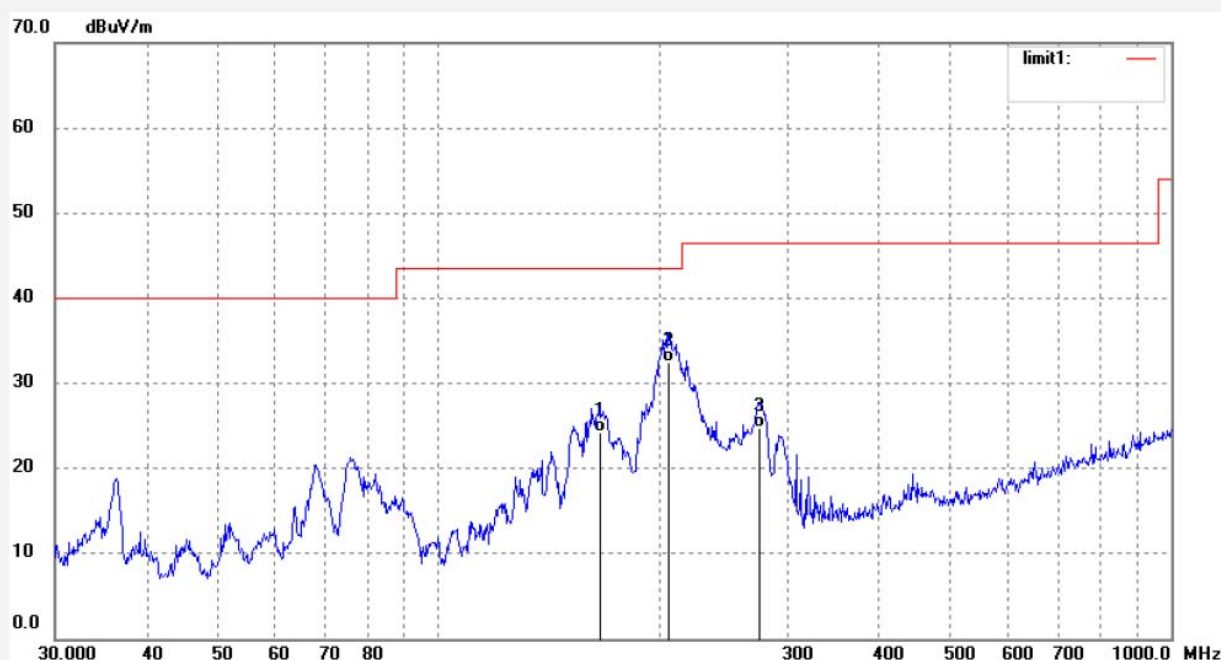
Date: 13/07/13/

Time: 16/06/28

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	166.0680	46.50	-22.21	24.29	43.50	-19.21	QP			
2	206.3976	52.47	-20.04	32.43	43.50	-11.07	QP			
3	274.1939	43.31	-18.58	24.73	46.50	-21.77	QP			



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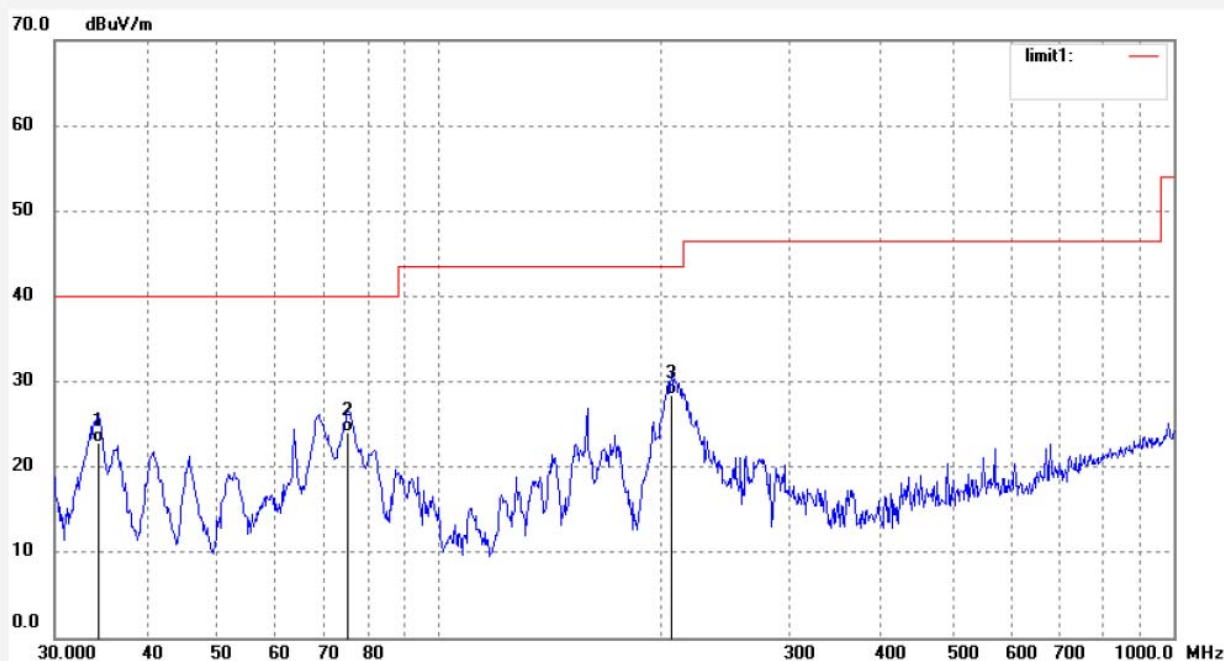
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
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Site: 966 Chamber
Tel:+86-0755-26503290
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Job No.: star #2036
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Bluetooth Soundbook
Mode: TX 2441MHz
Model: Bayan Soundbook
Manufacturer: Musibal

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 13/07/13/
Time: 16/10/12
Engineer Signature: STAR
Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.3963	42.22	-19.30	22.92	40.00	-17.08	QP			
2	75.1822	45.63	-21.61	24.02	40.00	-15.98	QP			
3	207.1226	48.55	-20.04	28.51	43.50	-14.99	QP			



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Job No.: star #2037

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Bluetooth Soundbook

Mode: TX 2480MHz

Model: Bayan Soundbook

Manufacturer: Musibal

Polarization: Vertical

Power Source: AC 120V/60Hz

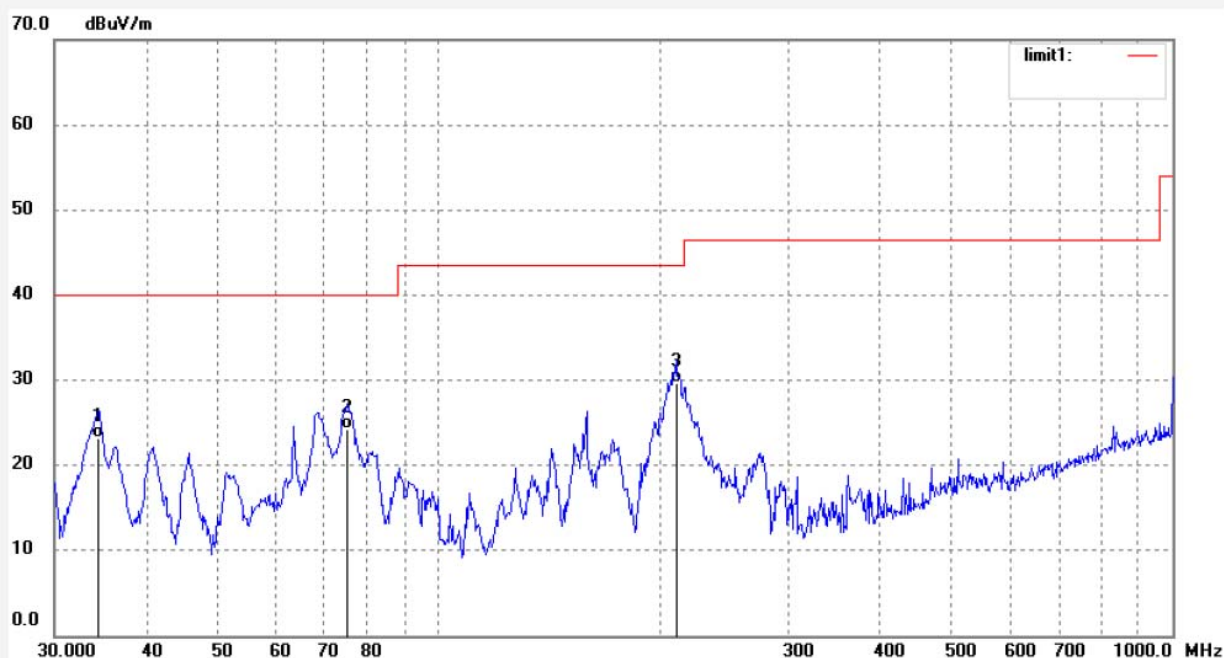
Date: 13/07/13/

Time: 16/15/38

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.3963	42.54	-19.30	23.24	40.00	-16.76	QP			
2	75.1822	45.81	-21.61	24.20	40.00	-15.80	QP			
3	210.7860	49.66	-20.01	29.65	43.50	-13.85	QP			



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Job No.: star #2038

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Bluetooth Soundbook

Mode: TX 2480MHz

Model: Bayan Soundbook

Manufacturer: Musibal

Polarization: Horizontal

Power Source: AC 120V/60Hz

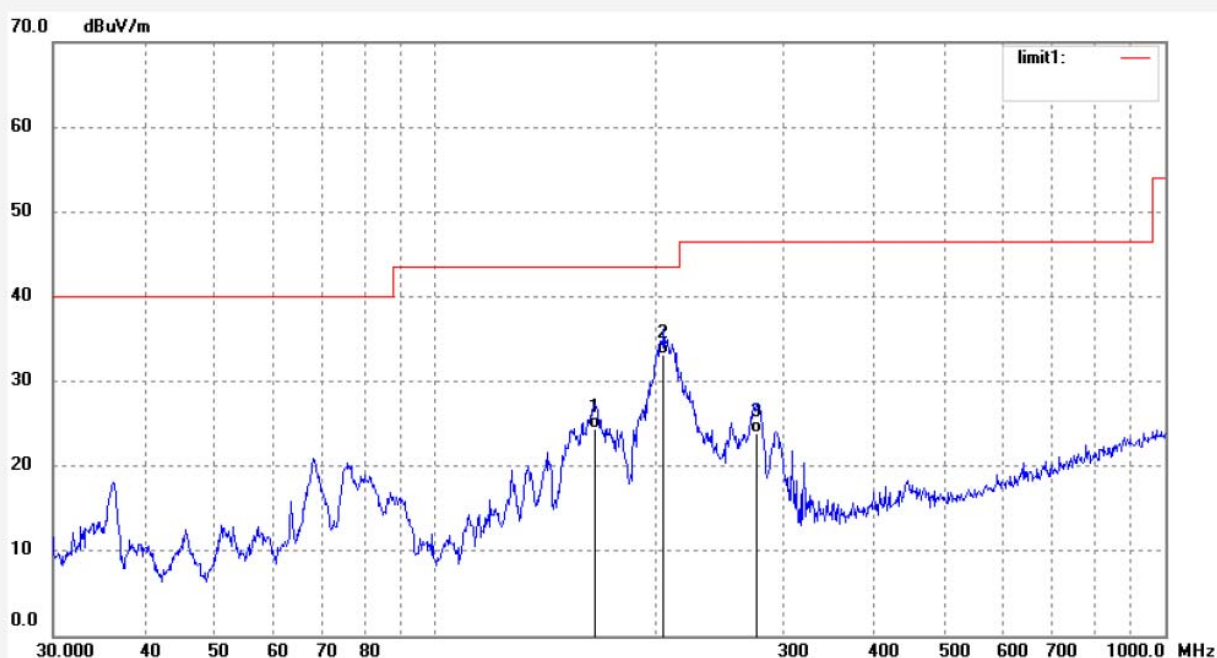
Date: 13/07/13/

Time: 16/19/14

Engineer Signature: STAR

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	165.4866	46.73	-22.28	24.45	43.50	-19.05	QP			
2	205.6751	53.22	-20.05	33.17	43.50	-10.33	QP			
3	276.1235	42.39	-18.49	23.90	46.50	-22.60	QP			


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Job No.: STAR #2699

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: Bluetooth Soundbook

Mode: TX 2402MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Horizontal

Power Source: AC 120V/60Hz

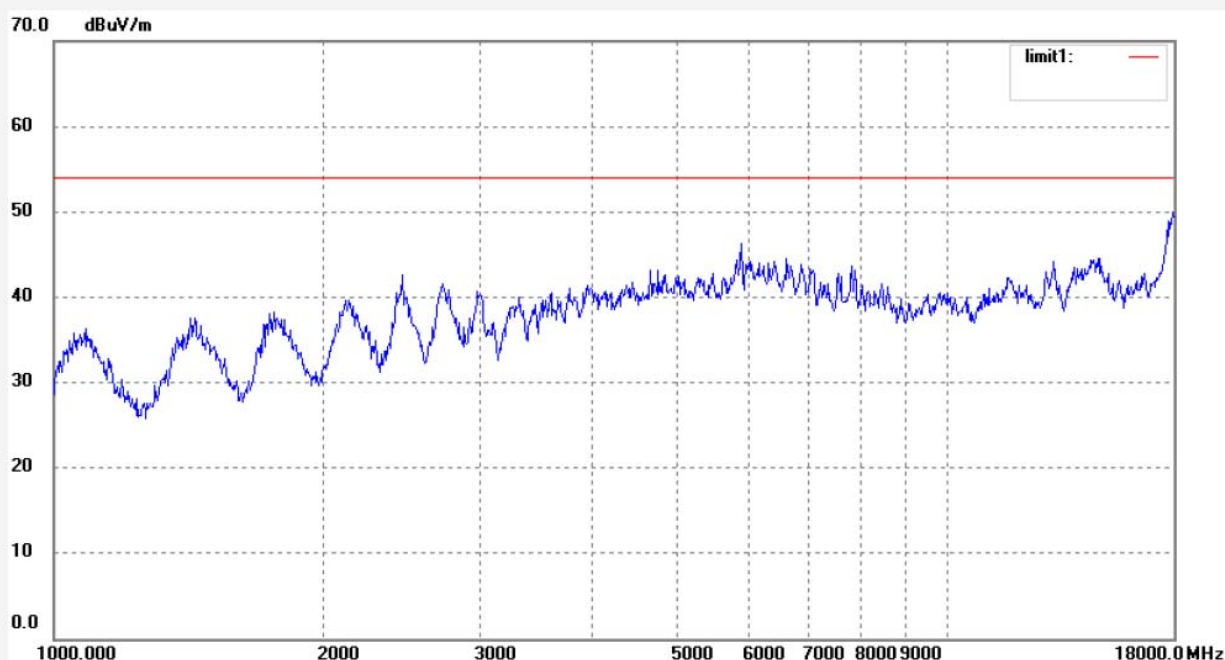
Date: 2013/07/12

Time: 22:19:04

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Job No.: STAR #2700

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: Bluetooth Soundbook

Mode: TX 2402MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Vertical

Power Source: AC 120V/60Hz

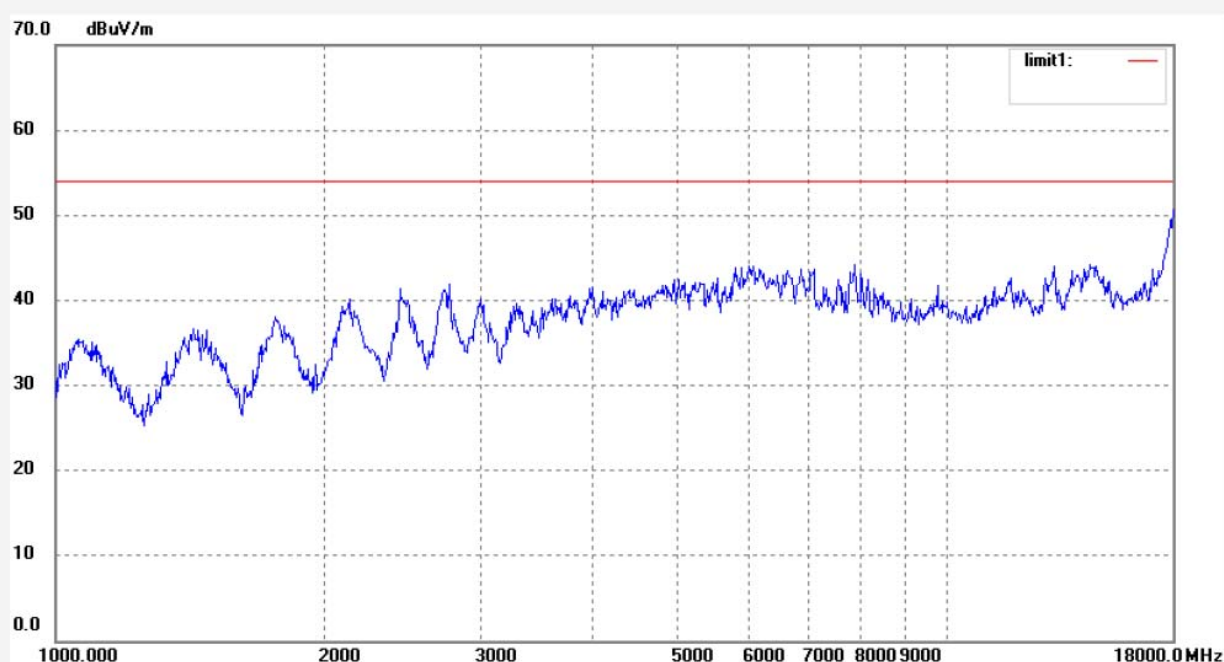
Date: 2013/07/12

Time: 22:23:52

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Fax:+86-0755-26503396

Job No.: STAR #2701

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: Bluetooth Soundbook

Mode: TX 2441MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Vertical

Power Source: AC 120V/60Hz

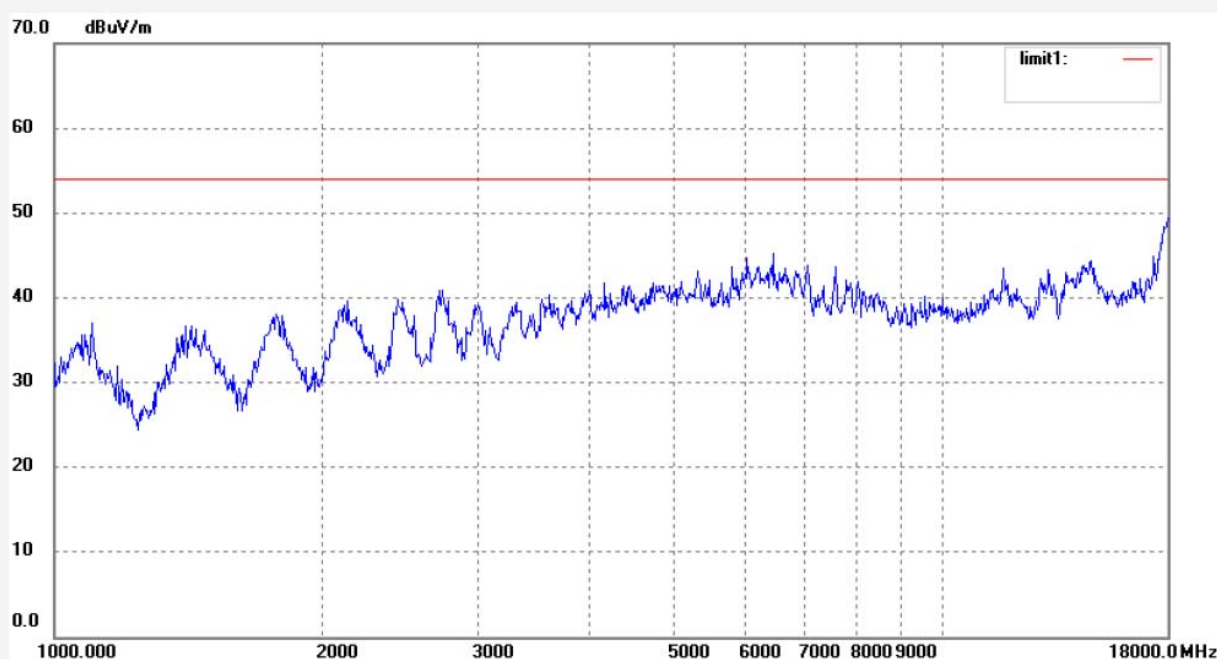
Date: 2013/07/12

Time: 22:25:09

Engineer Signature:

Distance: 3m

Note: Report No.: ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------



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Site: 966 chamber
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Job No.: STAR #2702

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: Bluetooth Soundbook

Mode: TX 2441MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Horizontal

Power Source: AC 120V/60Hz

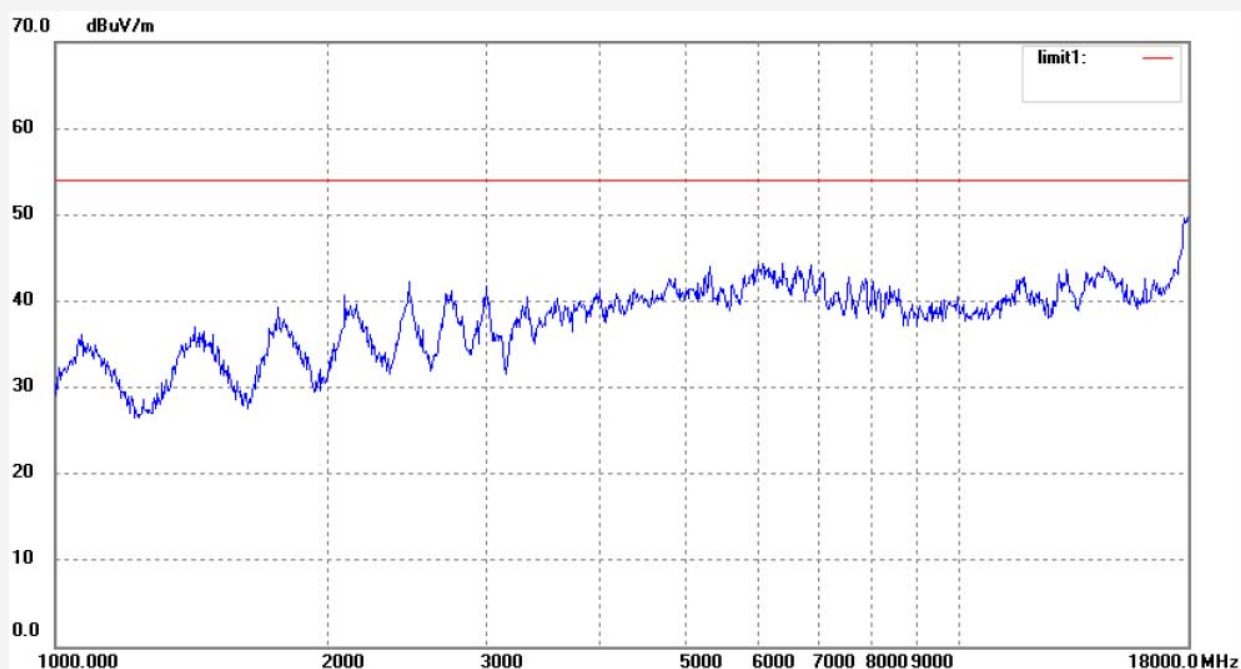
Date: 2013/07/12

Time: 22:29:56

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------

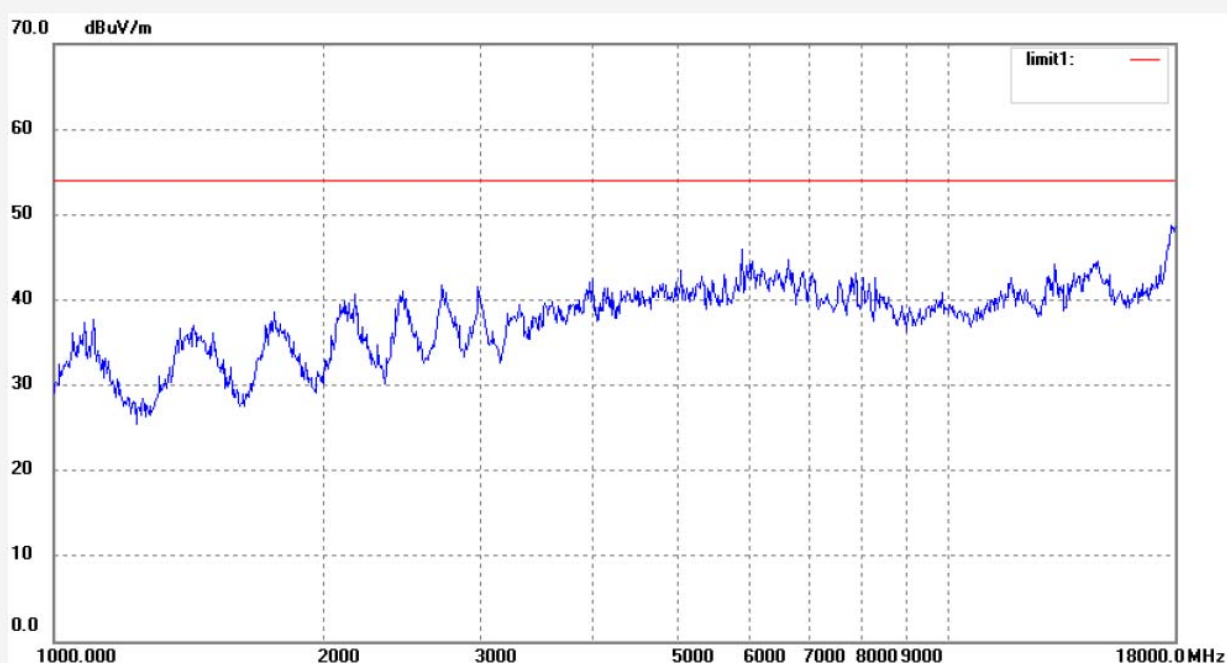

ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2703	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2013/07/12
Temp.(C)/Hum.(%) 23 C / 49 %	Time: 22:32:31
EUT: Bluetooth Soundbook	Engineer Signature:
Mode: TX 2480MHz	Distance: 3m
Model: Bayan Soundbook	
Manufacturer: Musilab	

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------



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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR #2704

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 49 %

EUT: Bluetooth Soundbook

Mode: TX 2480MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Vertical

Power Source: AC 120V/60Hz

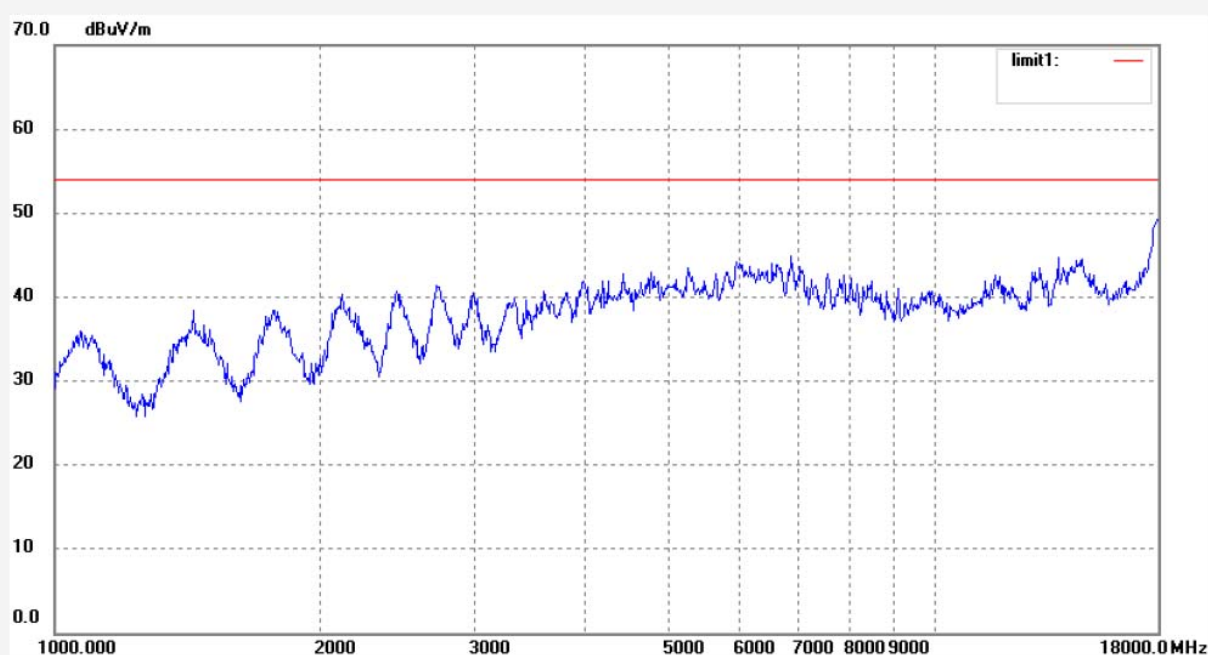
Date: 2013/07/12

Time: 22:34:28

Engineer Signature:

Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------


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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star #886

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 51 %

EUT: Bluetooth Soundbook

Mode: TX 2402MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Vertical

Power Source: AC 120V/60Hz

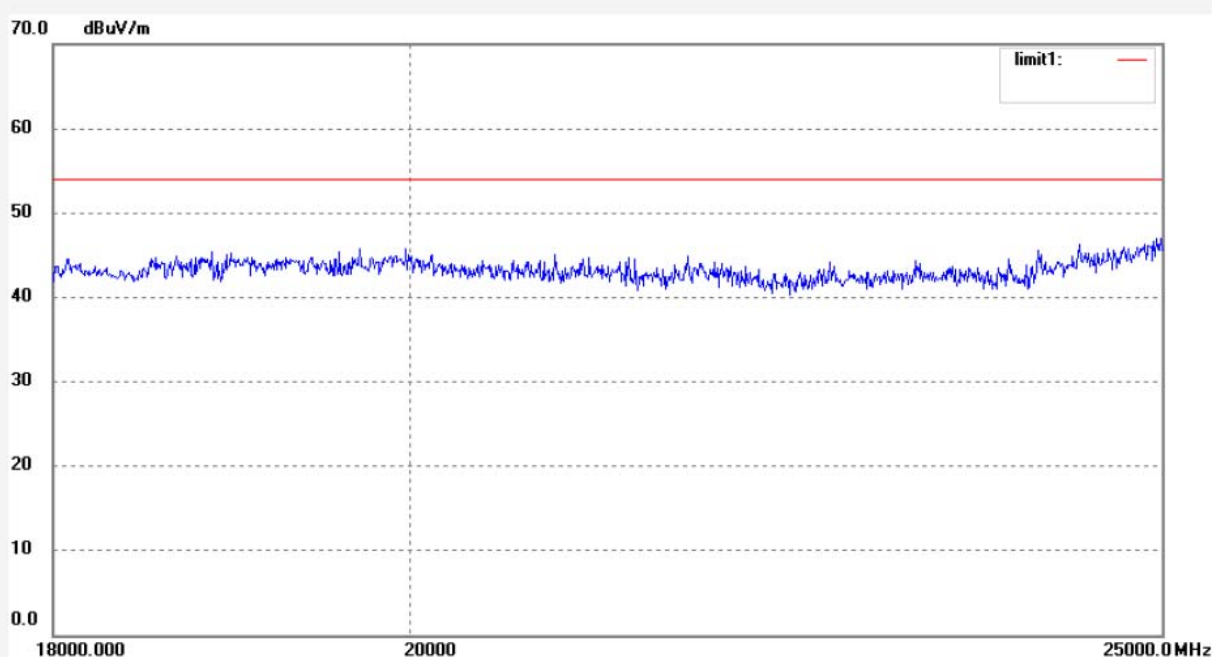
Date: 2013/07/12

Time: 20:41:55

Engineer Signature: Star

Distance:

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star #887

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 51 %

EUT: Bluetooth Soundbook

Mode: TX 2402MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Horizontal

Power Source: AC 120V/60Hz

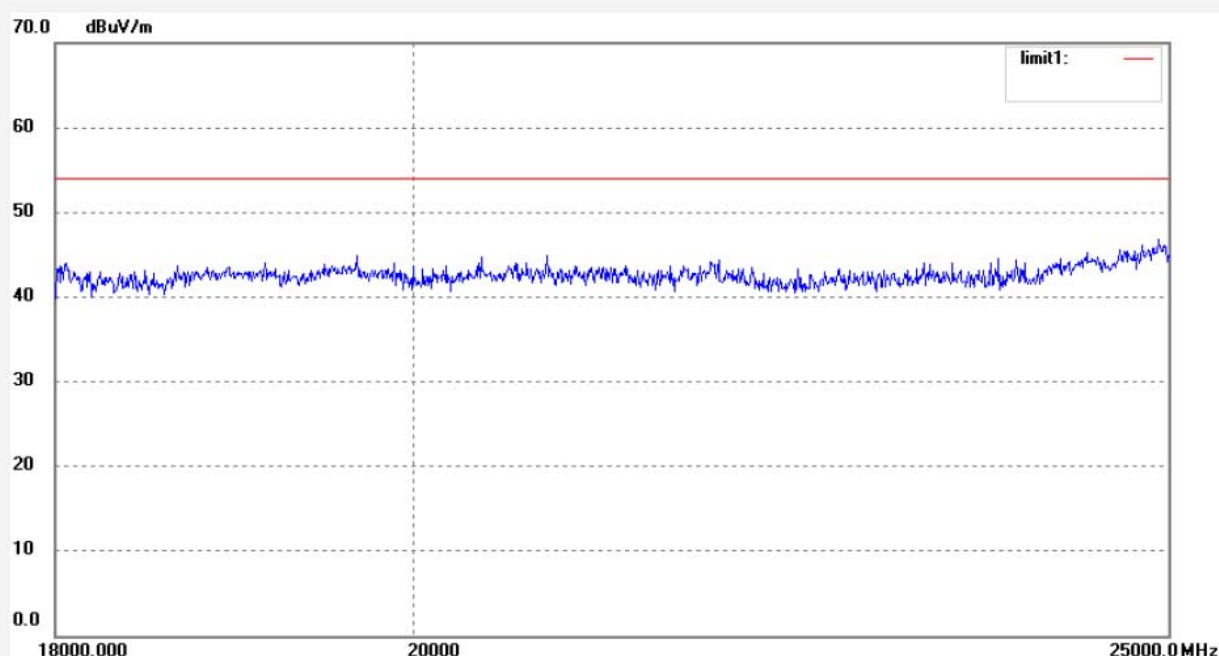
Date: 2013/07/12

Time: 20:45:16

Engineer Signature: Star

Distance:

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------


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 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star #888

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 51 %

EUT: Bluetooth Soundbook

Mode: TX 2441MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Horizontal

Power Source: AC 120V/60Hz

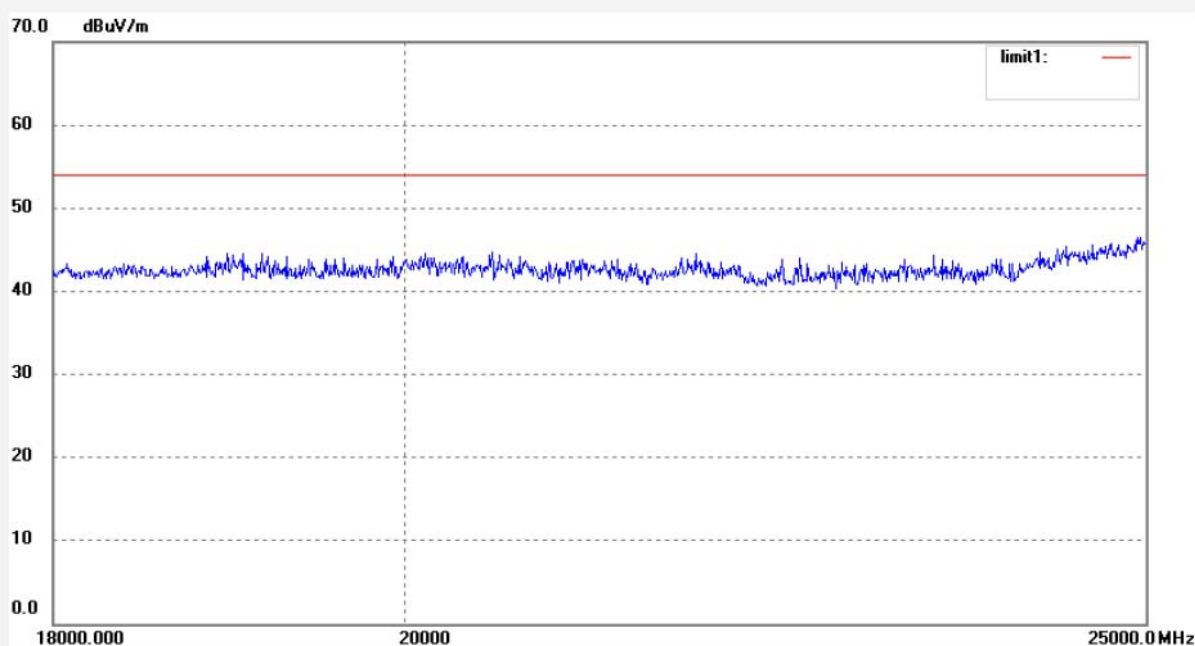
Date: 2013/07/12

Time: 20:47:35

Engineer Signature: Star

Distance:

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------


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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: star #889

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 51 %

EUT: Bluetooth Soundbook

Mode: TX 2441MHz

Model: Bayan Soundbook

Manufacturer: Musilab

Polarization: Vertical

Power Source: AC 120V/60Hz

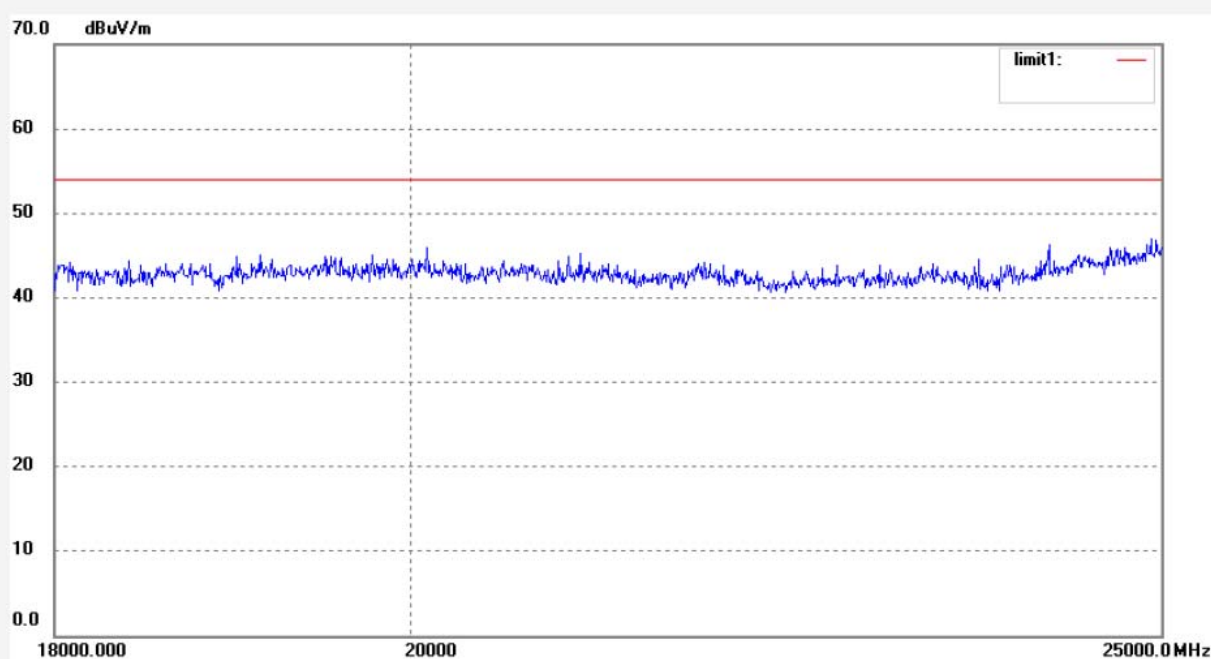
Date: 2013/07/12

Time: 20:50:54

Engineer Signature: Star

Distance:

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------

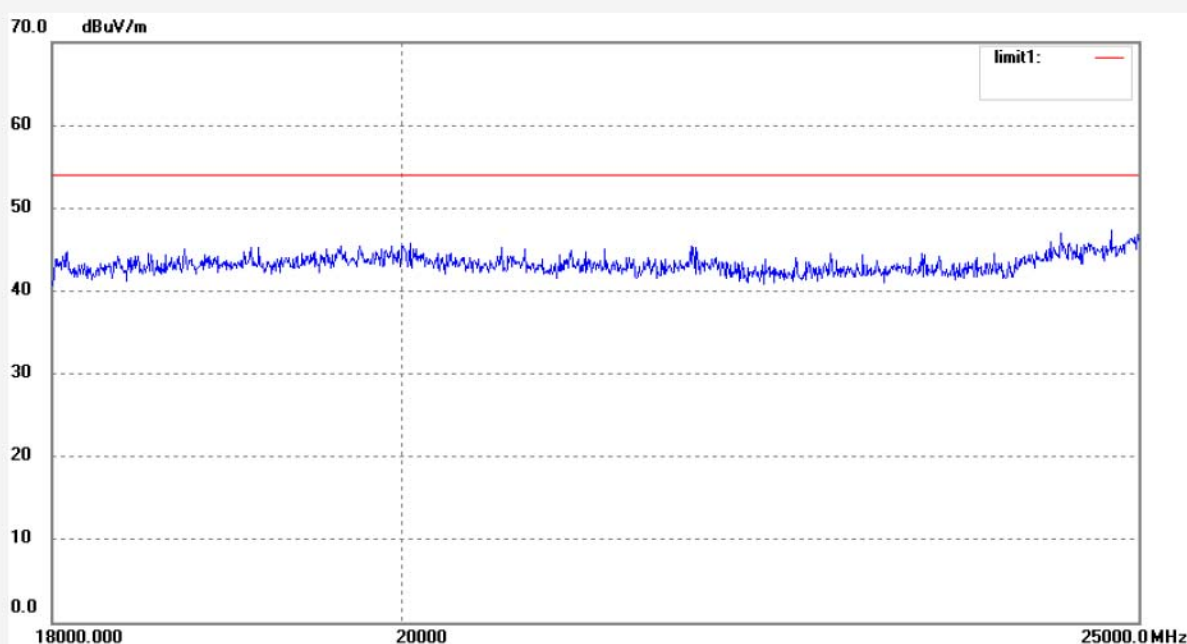

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 Science & Industry Park,Nanshan Shenzhen,P.R.China

 Site: 966 chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: star #890	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 2013/07/12
Temp.(C)/Hum.(%) 25 C / 51 %	Time: 20:53:10
EUT: Bluetooth Soundbook	Engineer Signature: Star
Mode: TX 2480MHz	Distance:
Model: Bayan Soundbook	
Manufacturer: Musilab	

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------


ACCURATE TECHNOLOGY CO., LTD.

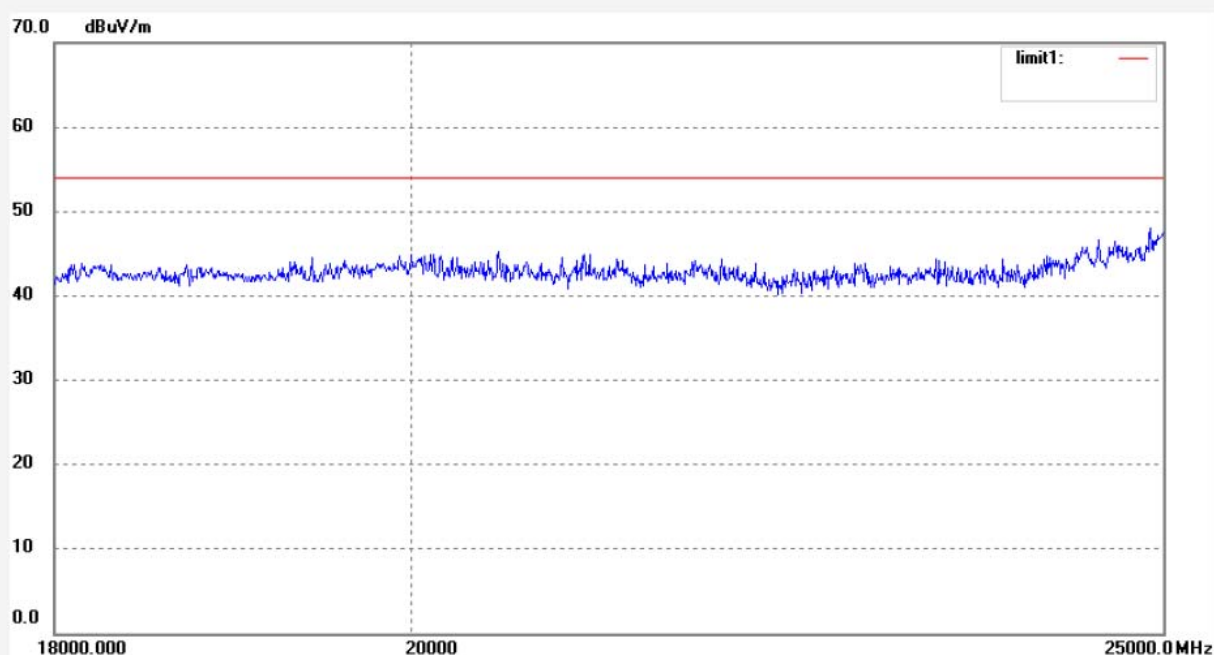
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: star #891
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 51 %
EUT: Bluetooth Soundbook
Mode: TX 2480MHz
Model: Bayan Soundbook
Manufacturer: Musilab

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2013/07/12
Time: 20:59:21
Engineer Signature: Star
Distance:

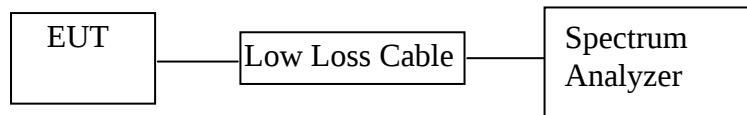
Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
-----	----------------	---------------------	----------------	--------------------	-------------------	----------------	----------	----------------	------------------	--------

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Bluetooth Soundbook)

11.2.The Requirement For Section 15.247(d)

Section 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

11.3.EUT Configuration on Measurement

The following equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

11.3.1.Bluetooth Soundbook (EUT)

Model Number	:	Bayan Soundbook
Serial Number	:	N/A
Manufacturer	:	Musilab Electronic (DongGuan) Co., Ltd

11.4. Operating Condition of EUT

11.4.1. Setup the EUT and simulator as shown as Section 10.1.

11.4.2. Turn on the power of all equipment.

11.4.3. Let the EUT work in TX (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

11.5. Test Procedure

Conducted Band Edge:

11.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

11.5.2. Set RBW of spectrum analyzer to 300kHz and VBW to 1MHz.

Radiate Band Edge:

11.5.3. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

11.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

11.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

11.5.6. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

RBW=1MHz, VBW=1MHz

11.5.7. The band edges was measured and recorded.

11.6. Test Result

Pass

Date of Test:	July 12, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60HZ
Test Mode:	TX (Hopping off)	Test Engineer:	Rickey

Conducted test

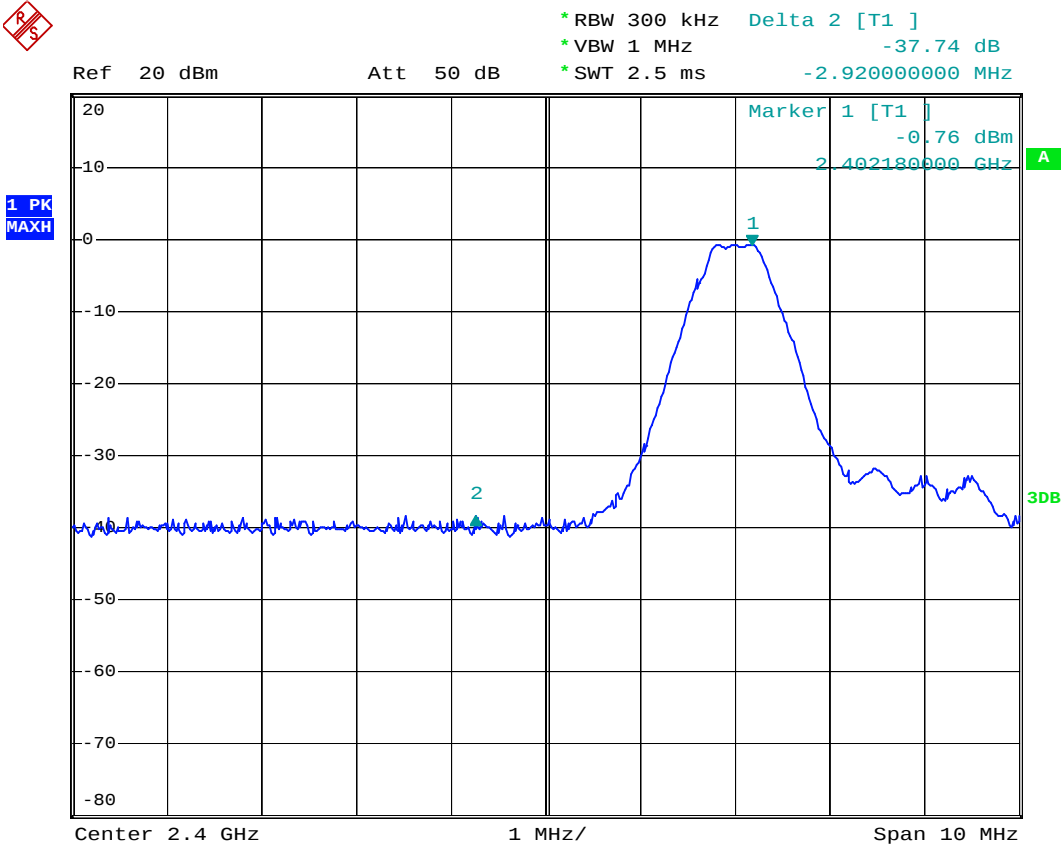
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2402	37.74	> 20dBc
2480	38.25	> 20dBc

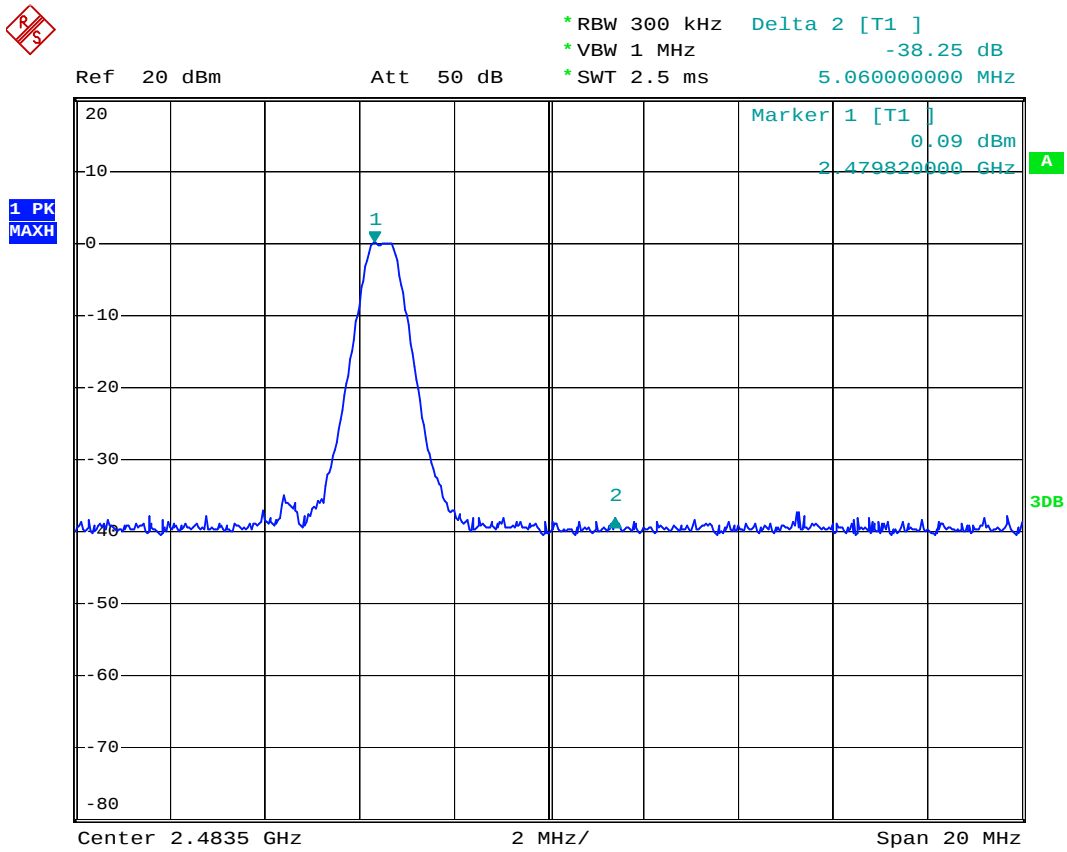
Date of Test:	July 12, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60HZ
Test Mode:	TX (Hopping on)	Test Engineer:	Rickey

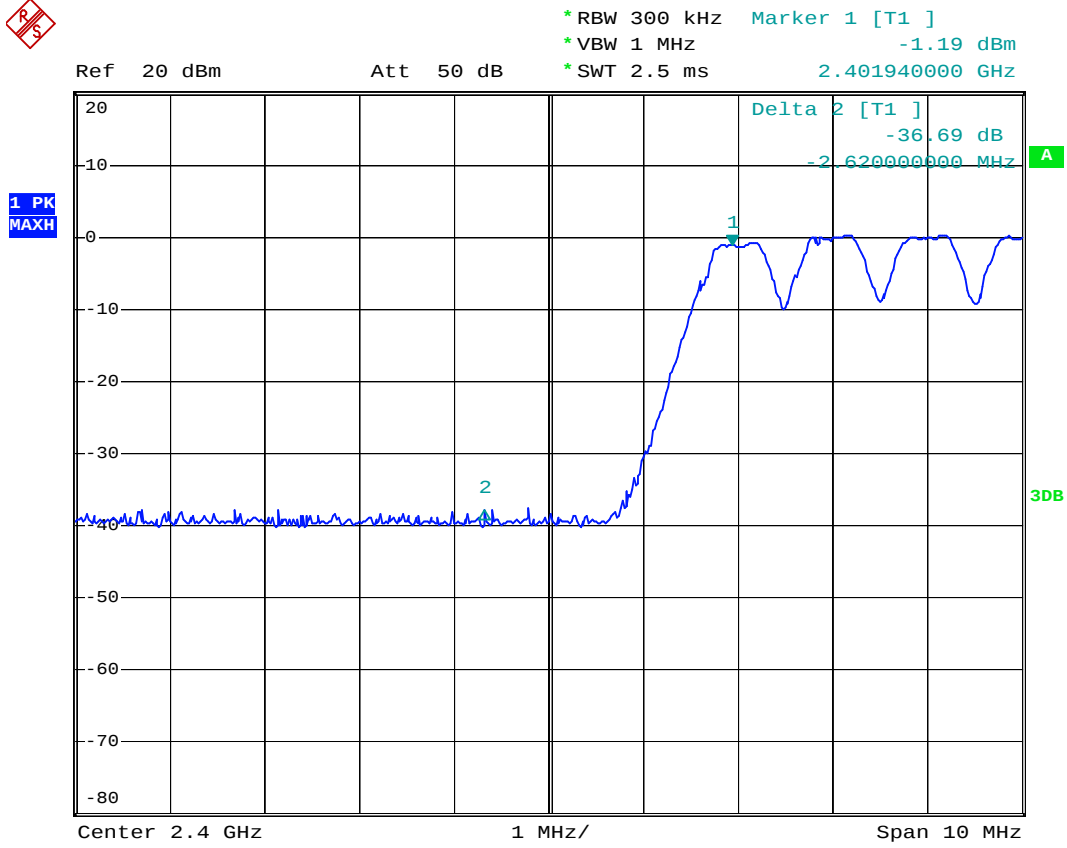
Conducted test

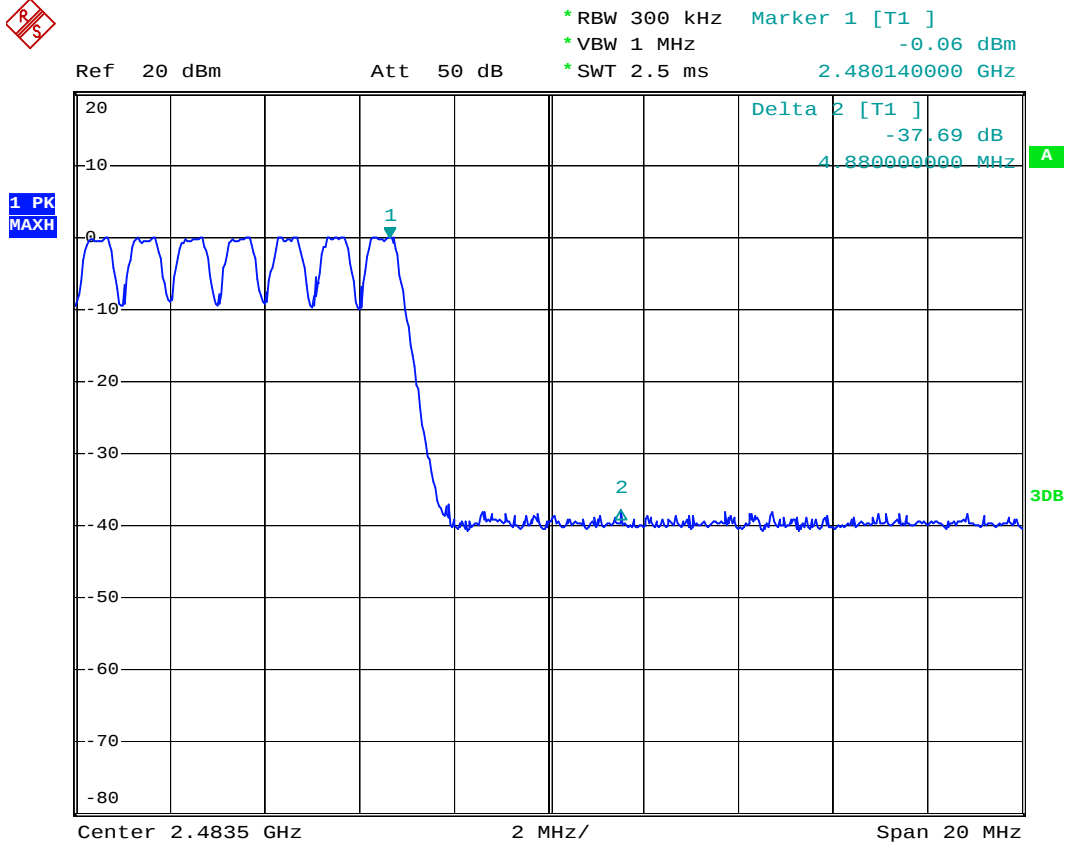
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2402	36.69	> 20dBc
2480	37.69	> 20dBc

"Spectrum analyzer" is R/S









Radiated Band Edge Result

Date of Test:	July 12, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60HZ
Test Mode:	TX (2402MHz)	Test Engineer:	Rickey

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2310.000	37.25	43.87	-7.81	29.44	36.06	54.00	74.00	-24.56	-37.94	Horizontal
2380.073	41.36	47.22	-7.59	33.77	39.63	54.00	74.00	-20.23	-34.37	Horizontal
2390.000	37.99	43.50	-7.53	30.46	35.97	54.00	74.00	-23.54	-38.03	Horizontal
2310.000	38.92	44.81	-7.81	31.11	37.00	54.00	74.00	-22.89	-37.00	Vertical
2371.773	41.71	47.48	-7.64	34.07	39.84	54.00	74.00	-19.93	-34.16	Vertical
2390.000	40.02	45.49	-7.53	32.49	37.96	54.00	74.00	-21.51	-36.04	Vertical

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$
3. Display the measurement of peak values.

Date of Test:	July 12, 2013	Temperature:	25°C
EUT:	Bluetooth Soundbook	Humidity:	50%
Model No.:	Bayan Soundbook	Power Supply:	AC 120V/60HZ
Test Mode:	TX (2480MHz)	Test Engineer:	Rickey

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	38.91	44.28	-7.37	31.54	36.91	54.00	74.00	-22.46	-37.09	Vertical
2494.324	41.02	46.16	-7.39	33.63	38.77	54.00	74.00	-20.37	-35.23	Vertical
2500.000	37.39	43.74	-7.40	29.99	36.34	54.00	74.00	-21.01	-37.66	Vertical
2483.500	40.15	45.39	-7.37	32.78	38.02	54.00	74.00	-21.22	-35.98	Horizontal
2489.725	39.61	45.40	-7.39	32.22	38.01	54.00	74.00	-21.78	-35.99	Horizontal
2500.000	37.99	43.63	-7.40	30.59	36.23	54.00	74.00	-23.41	-37.77	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
Result = Reading + Corrected Factor
3. Display the measurement of peak values.



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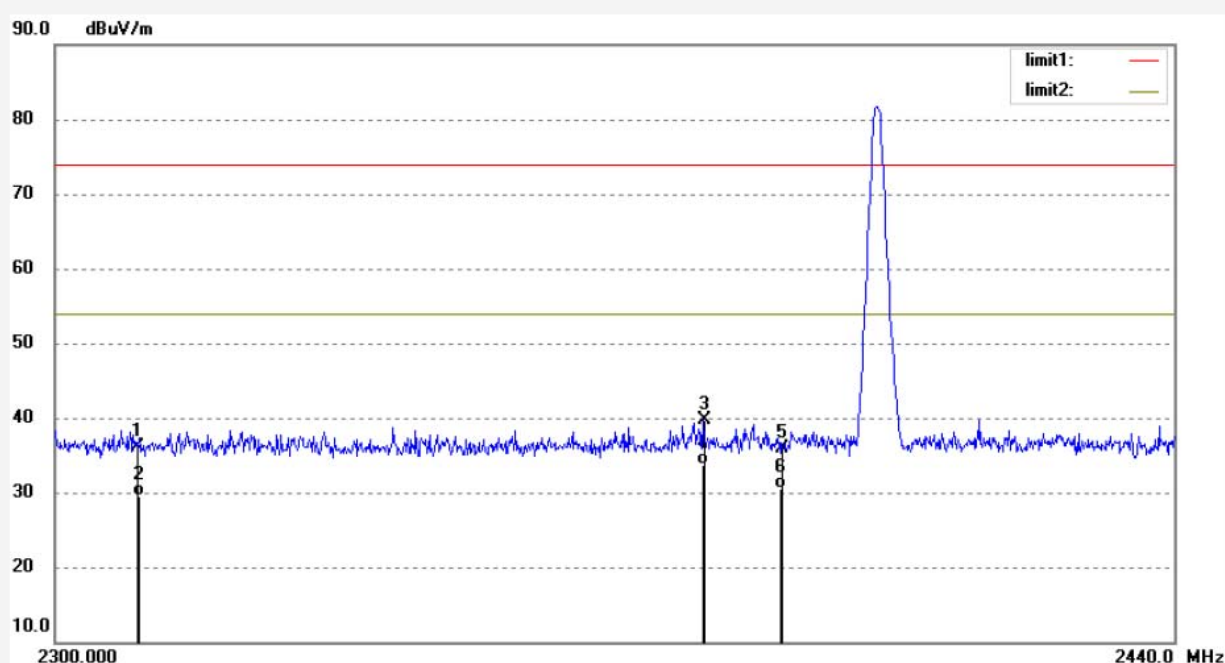
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2773
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: Bluetooth Soundbook
Mode: TX 2402MHz
Model: Bayan Soundbook
Manufacturer: Musilab

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2013/07/12
Time: 13:35:23
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	43.87	-7.81	36.06	74.00	-37.94	peak			
2	2310.000	37.25	-7.81	29.44	54.00	-24.56	AVG			
3	2380.073	47.22	-7.59	39.63	74.00	-34.37	peak			
4	2380.073	41.36	-7.59	33.77	54.00	-20.23	AVG			
5	2390.000	43.50	-7.53	35.97	74.00	-38.03	peak			
6	2390.000	37.99	-7.53	30.46	54.00	-23.54	AVG			


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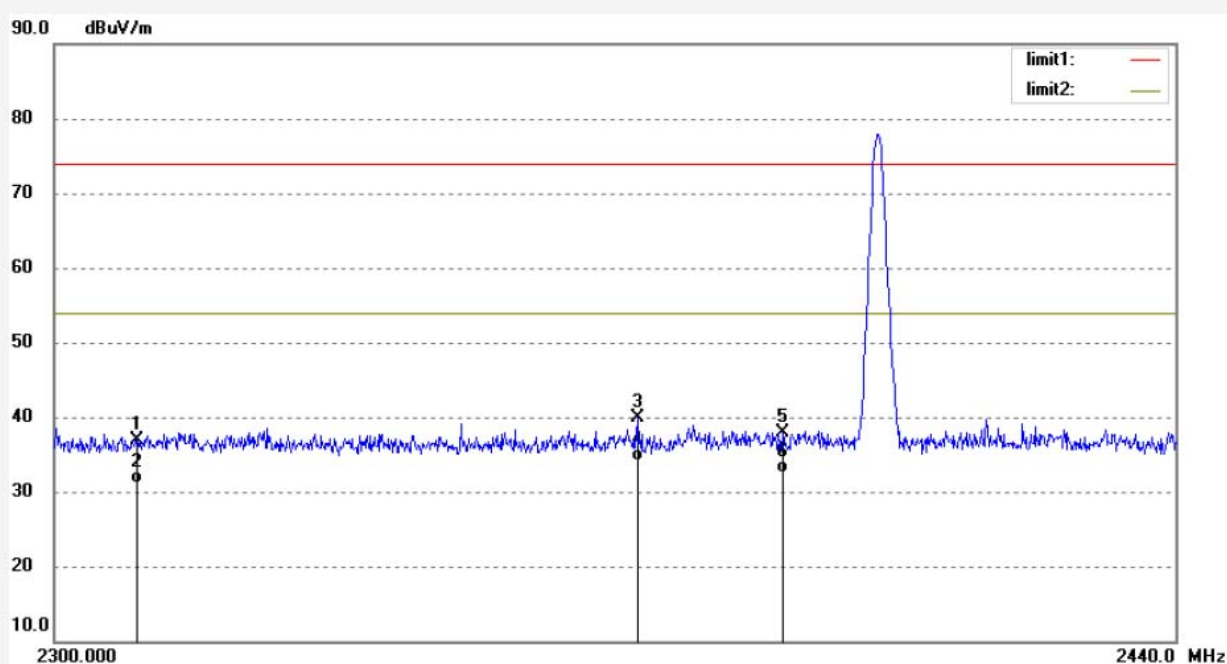
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2774
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: Bluetooth Soundbook
Mode: TX 2402MHz
Model: Bayan Soundbook
Manufacturer: Musilab

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2013/07/12
Time: 13:39:35
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20131464



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.81	-7.81	37.00	74.00	-37.00	peak			
2	2310.000	38.92	-7.81	31.11	54.00	-22.89	AVG			
3	2371.773	47.48	-7.64	39.84	74.00	-34.16	peak			
4	2371.773	41.71	-7.64	34.07	54.00	-19.93	AVG			
5	2390.000	45.49	-7.53	37.96	74.00	-36.04	peak			
6	2390.000	40.02	-7.53	32.49	54.00	-21.51	AVG			



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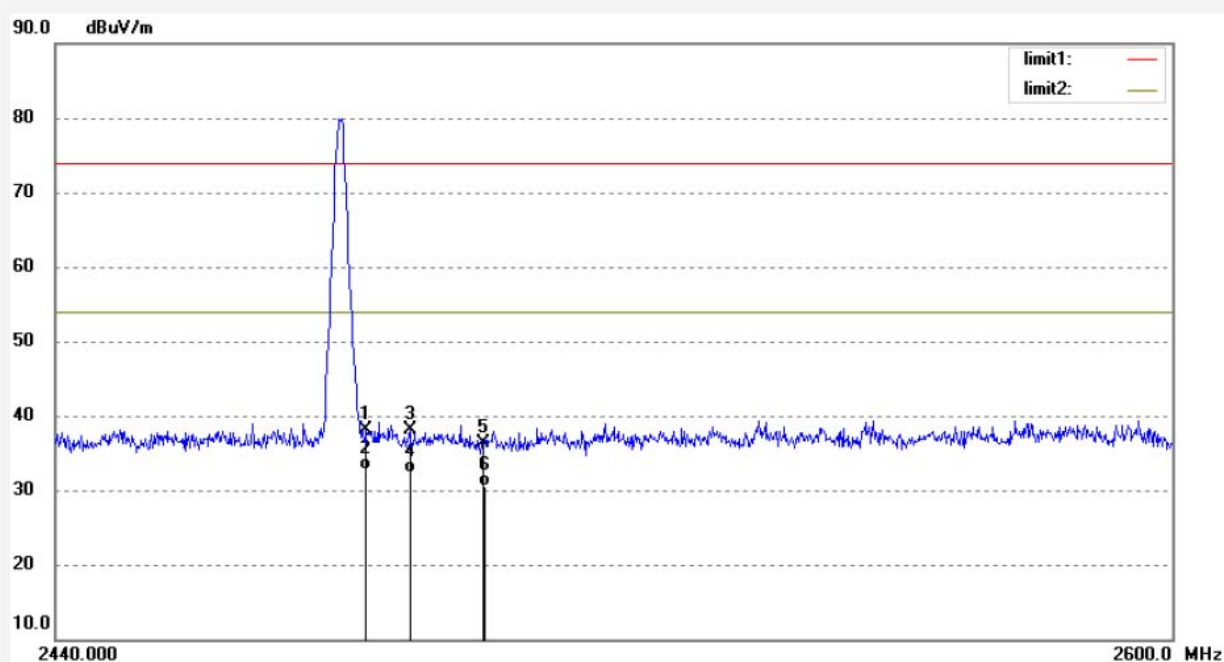
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR #2776
Standard: FCC 15C PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 49 %
EUT: Bluetooth Soundbook
Mode: TX 2480MHz
Model: Bayan Soundbook
Manufacturer: Musilab

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2013/07/12
Time: 13:47:19
Engineer Signature:
Distance: 3m

Note: Report No.:ATE20131464



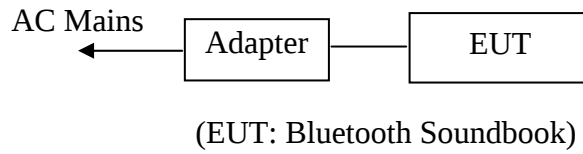
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.39	-7.37	38.02	74.00	-35.98	peak			
2	2483.500	40.15	-7.37	32.78	54.00	-21.22	AVG			
3	2489.725	45.40	-7.39	38.01	74.00	-35.99	peak			
4	2489.725	39.61	-7.39	32.22	54.00	-21.78	AVG			
5	2500.000	43.63	-7.40	36.23	74.00	-37.77	peak			
6	2500.000	37.99	-7.40	30.59	54.00	-23.41	AVG			

12.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

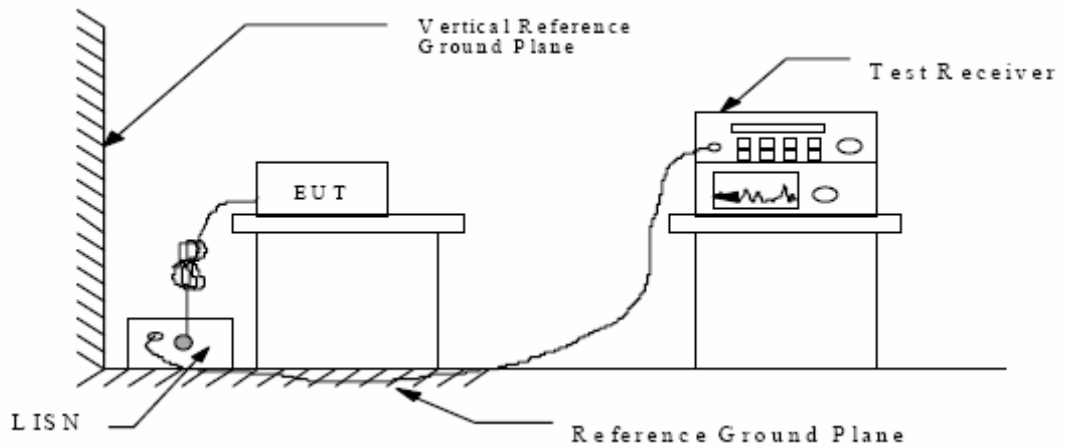
15 SECTION 15.207(A)

12.1.Block Diagram of Test Setup

12.1.1.Block diagram of connection between the EUT and simulators



12.1.2.Shielding Room Test Setup Diagram



(EUT: Bluetooth Soundbook)

12.2.The Emission Limit

12.2.1.Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

* Decreases with the logarithm of the frequency.

12.3.Configuration of EUT on Measurement

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

12.3.1. Bluetooth Soundbook (EUT)

Model Number : Bayan Soundbook
Serial Number : N/A
Manufacturer : Musilab Electronic (DongGuan) Co., Ltd

12.4.Operating Condition of EUT

12.4.1.Setup the EUT and simulator as shown as Section 11.1.

12.4.2.Turn on the power of all equipment.

12.4.3.Let the EUT work in TX (Operation) mode measure it.

12.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and 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 lines 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 ANSI C63.4- 2009 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9 kHz.

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

12.6.Power Line Conducted Emission Measurement Results

PASS.

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

Date of Test:	<u>July 11, 2013</u>	Temperature:	<u>25°C</u>
EUT:	<u>Bluetooth Soundbook</u>	Humidity:	<u>50%</u>
Model No.:	<u>Bayan Soundbook</u>	Power Supply:	<u>AC 120V/60HZ</u>
Test Mode:	<u>operation</u>	Test Engineer:	<u>Rickey</u>

Frequency (MHz)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector	Line
0.496827	49.60	56	-6.5	QP	Neutral
0.618813	45.40	56	-10.6	QP	
1.613059	42.40	56	-13.6	QP	
4.913107	42.00	56	-14.0	QP	
0.510906	40.10	46	-5.9	AV	
0.618813	35.60	46	-10.4	AV	
1.186191	33.60	46	-12.4	AV	
0.488957	48.30	56	-7.9	QP	Live
1.459848	40.60	56	-15.4	QP	
4.893533	44.10	56	-11.9	QP	
0.488957	40.70	46	-5.5	AV	
1.090804	35.20	46	-10.8	AV	
1.459848	38.70	46	-7.3	AV	

Emissions attenuated more than 20 dB below the permissible value are not reported.
The spectral diagrams are attached as below.

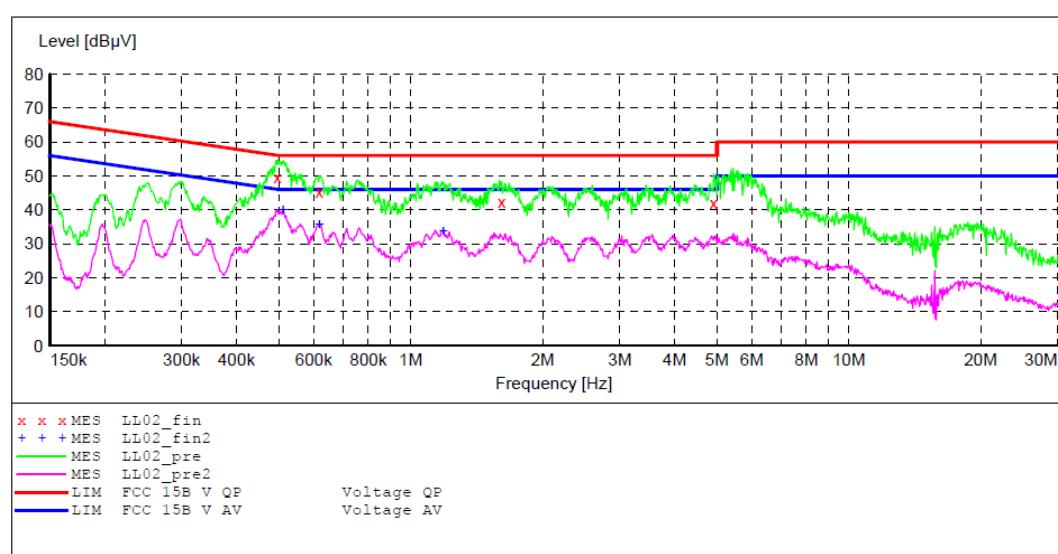
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Bluetooth Soundbook M/N:Bayan Soundbook
 Manufacturer: Musilab
 Operating Condition: ON
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: N 120V/60Hz
 Comment: Report No.:ATE20131464
 Start of Test: 7/11/2013 / 8:54:32AM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "LL02_fin"

7/11/2013 8:56AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.496827	49.60	12.6	56	6.5	QP	N	GND
0.618813	45.40	12.6	56	10.6	QP	N	GND
1.613059	42.40	12.4	56	13.6	QP	N	GND
4.913107	42.00	12.3	56	14.0	QP	N	GND

MEASUREMENT RESULT: "LL02_fin2"

7/11/2013 8:56AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.510906	40.10	12.6	46	5.9	AV	N	GND
0.618813	35.60	12.6	46	10.4	AV	N	GND
1.186191	33.60	12.5	46	12.4	AV	N	GND

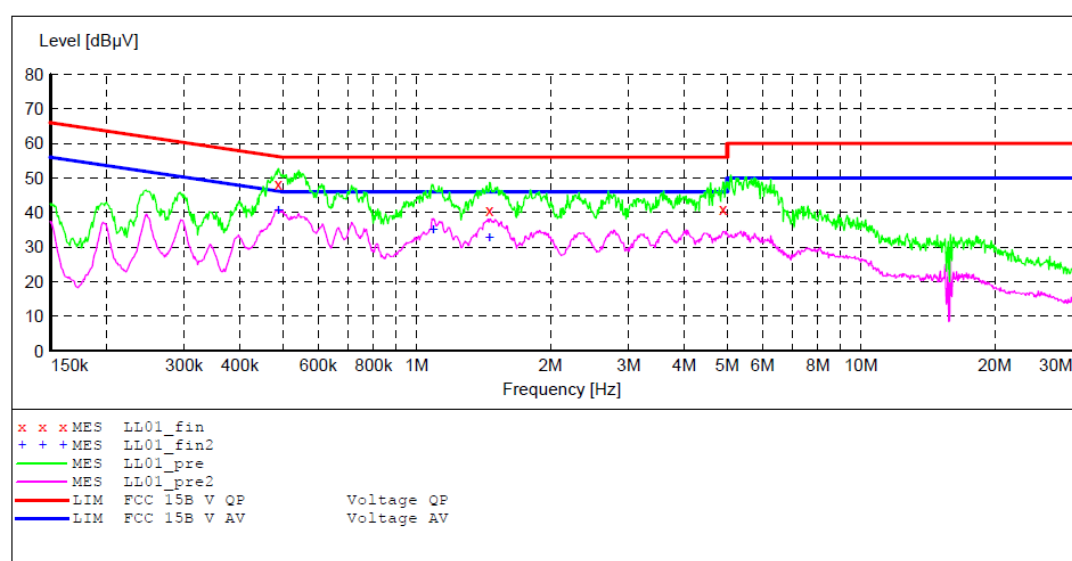
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Bluetooth Soundbook M/N: Bayan Soundbook
 Manufacturer: Musilab
 Operating Condition: ON
 Test Site: 1#Shielding Room
 Operator: star
 Test Specification: L 120V/60Hz
 Comment: Report No.: ATE20131464
 Start of Test: 7/11/2013 / 8:51:20AM

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "LL01_fin"

7/11/2013 8:53AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.488957	48.30	12.6	56	7.9	QP	L1	GND
1.459848	40.60	12.4	56	15.4	QP	L1	GND
4.893533	44.10	12.3	56	11.9	QP	L1	GND

MEASUREMENT RESULT: "LL01_fin2"

7/11/2013 8:53AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.488957	40.70	12.6	46	5.5	AV	L1	GND
1.090804	35.20	12.5	46	10.8	AV	L1	GND
1.459848	38.70	12.4	46	7.3	AV	L1	GND

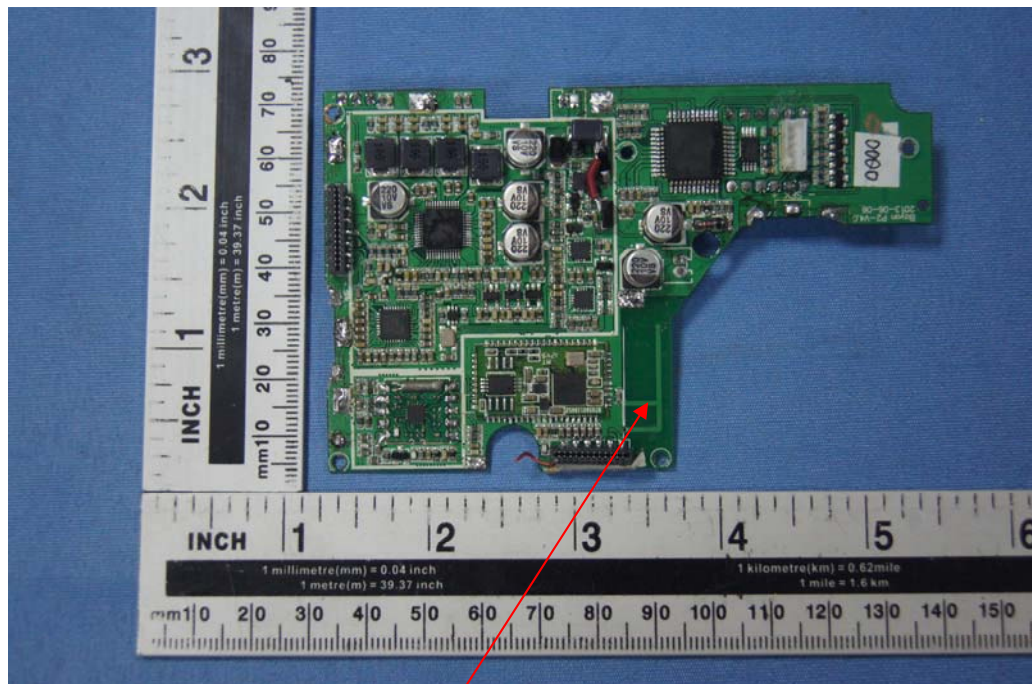
13.ANTENNA REQUIREMENT

13.1.The Requirement

According to Section 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.

13.2.Antenna Construction

The antenna is PCB Layout antenna, no consideration of replacement. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna