

APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Klipsch L.L.C.

RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Model No.: RSB-11

FCC ID: STI-RSB11

Prepared for : Klipsch L.L.C.
Address : 3502 Woodview Trace, Suite 200 Indianapolis,
Indiana 46268, USA

Prepared by : ACCURATE TECHNOLOGY CO., LTD
Address : F1, Bldg. A, Chan Yuan New Material Port, Keyuan
Rd. Science & Industry Park, Nan Shan, Shenzhen,
Guangdong P.R. China

Tel: (0755) 26503290
Fax: (0755) 26503396

Report No. : ATE20161173
Date of Test : Jun 06, 2016--Aug 04, 2016
Date of Report : Aug 05, 2016

TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	5
1.1. Description of Device (EUT).....	5
1.2. Carrier Frequency of Channels	6
1.3. Special Accessory and Auxiliary Equipment	6
1.4. Description of Test Facility	7
1.5. Measurement Uncertainty	7
2. MEASURING DEVICE AND TEST EQUIPMENT	8
3. OPERATION OF EUT DURING TESTING	9
3.1. Operating Mode	9
3.2. Configuration and peripherals	9
4. TEST PROCEDURES AND RESULTS	10
5. POWER LINE CONDUCTED MEASUREMENT	11
5.1. Block Diagram of Test Setup.....	11
5.2. Power Line Conducted Emission Measurement Limits.....	11
5.3. Configuration of EUT on Measurement	11
5.4. Operating Condition of EUT	11
5.5. Test Procedure	12
5.6. Power Line Conducted Emission Measurement Results	12
6. 6DB BANDWIDTH MEASUREMENT	19
6.1. Block Diagram of Test Setup.....	19
6.2. The Requirement For Section 15.247(a)(2).....	19
6.3. EUT Configuration on Measurement	19
6.4. Operating Condition of EUT	19
6.5. Test Procedure	19
6.6. Test Result	20
7. MAXIMUM PEAK OUTPUT POWER	22
7.1. Block Diagram of Test Setup.....	22
7.2. The Requirement For Section 15.247(b)(3).....	22
7.3. EUT Configuration on Measurement	22
7.4. Operating Condition of EUT	22
7.5. Test Procedure	22
7.6. Test Result	23
8. POWER SPECTRAL DENSITY MEASUREMENT.....	25
8.1. Block Diagram of Test Setup.....	25
8.2. The Requirement For Section 15.247(e).....	25
8.3. EUT Configuration on Measurement	25
8.4. Operating Condition of EUT	25
8.5. Test Procedure	26
8.6. Test Result	27
9. BAND EDGE COMPLIANCE TEST	29
9.1. Block Diagram of Test Setup.....	29
9.2. The Requirement For Section 15.247(d)	29
9.3. EUT Configuration on Measurement	29
9.4. Operating Condition of EUT	29

9.5.	Test Procedure	30
9.6.	Test Result	30
10.	RADIATED SPURIOUS EMISSION TEST	37
10.1.	Block Diagram of Test Setup.....	37
10.2.	The Limit For Section 15.247(d)	38
10.3.	Restricted bands of operation	39
10.4.	Configuration of EUT on Measurement	39
10.5.	Operating Condition of EUT	40
10.6.	Test Procedure	40
10.7.	The Field Strength of Radiation Emission Measurement Results	41
11.	ANTENNA REQUIREMENT.....	54
11.1.	The Requirement	54
11.2.	Antenna Construction	54

Test Report Certification

Applicant : Klipsch L.L.C
Manufacturer : Klipsch L.L.C
Factory : Zhao Yang Electronic(Shenzhen) Co., Ltd
EUT Description : RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
(A) MODEL NO.: RSB-11
(B) TRADE NAME.: Klipsch
(C) Adapter Input Voltage: AC 100~240V 50/60Hz

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247:2015
ANSI C63.10: 2013

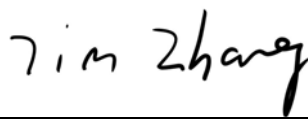
The EUT was tested according to DTS test procedure of Apr 08, 2016 KDB558074 D01 DTS Meas Guidance v03r05 for compliance to FCC 47CFR 15.247 requirements

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 : Jun 06, 2016--Aug 04, 2016
Date of Report: Aug 05, 2016

Prepared by :


(Tim.zhang, Engineer)

Approved & Authorized Signer :


(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Model Number	:	RSB-11
Bluetooth version	:	BT V4.0 Dual Mode This report is for BT V4.0 LE mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	40 for BT V4.0 LE 79 for BT classic mode
Antenna Gain(Max)	:	4.93dBi
Antenna type	:	Internal Antenna
Trade Name	:	Klipsch
Adapter Input Voltage	:	AC 100~240V 50/60Hz
Adapter	:	Model: DYS902-240400W Input: AC100-240V; 50/60Hz 1.5A MAX Output: DC 24.0V; 4.0A
Modulation mode	:	GFSK for BT V4.0 LE GFSK, $\pi/4$ DQPSK, 8DPSK for BT classic mode
Applicant	:	Klipsch L.L.C
Address	:	3502 Woodview Trace, Suite 200 Indianapolis, Indiana 46268, USA.
Manufacturer	:	Klipsch L.L.C
Address	:	3502 Woodview Trace, Suite 200 Indianapolis, Indiana 46268, USA.
Factory	:	Zhao Yang Electronic(Shenzhen) Co., Ltd.
Address	:	Building 2, De Yong Jia Industrial Park, Guang Qiao Road, Yu Lv Community, Gong Ming Street, Guang Ming New District, Shenzhen , 518132, China
Date of sample received	:	Jun 06, 2016
Date of Test	:	Jun 06, 2016--Aug 04, 2016

1.2.Carrier Frequency of Channels

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

1.3.Special Accessory and Auxiliary Equipment

PC

Manufacturer: LENOVO

M/N: 4290-RT8

S/N: R9-FW93G 11/08

1.4. 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

1.5. 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. 10, 2016	Jan. 09, 2017
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 10, 2016	Jan. 09, 2017
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 10, 2016	Jan. 09, 2017
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 10, 2016	Jan. 09, 2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 14, 2016	Jan. 13, 2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 14, 2016	Jan. 12, 2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 14, 2016	Jan. 13, 2017
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 10, 2016	Jan. 09, 2017
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 10, 2016	Jan. 09, 2017
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 10, 2016	Jan. 09, 2017
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 10, 2016	Jan. 09, 2017

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

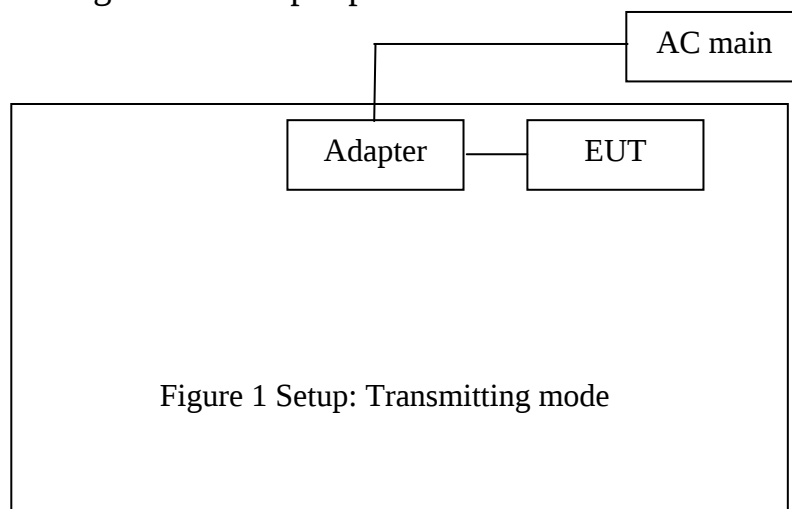
The mode is used: **BLE Transmitting mode**

Low Channel: 2402MHz

Middle Channel: 2440MHz

High Channel: 2480MHz

3.2.Configuration and peripherals

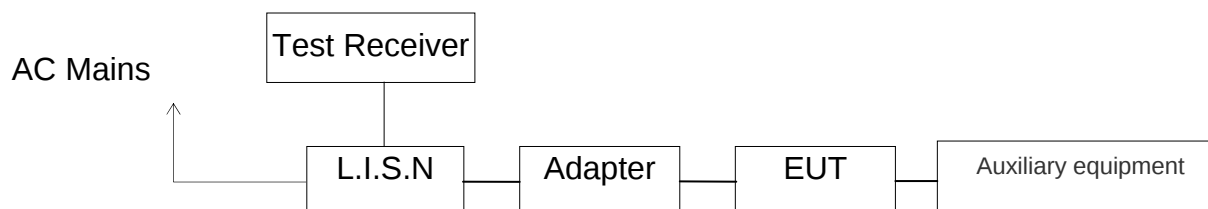


4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. POWER LINE CONDUCTED MEASUREMENT

5.1. Block Diagram of Test Setup



(EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER)

5.2. Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μ V)	
	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

NOTE1: The lower limit shall apply at the transition frequencies.
 NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

5.3. 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.

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 test mode and measure it.

5.5.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 C63.10: 2013 on Conducted Emission Measurement.

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

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

5.6.Power Line Conducted Emission Measurement Results

PASS.

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

Test mode : BT communicating(AC 120V/60Hz)

MEASUREMENT RESULT: "ZY627024_fin"

2016-6-27 11:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.158000	40.30	10.4	66	25.3	QP	L1	GND
0.878000	31.10	11.6	56	24.9	QP	L1	GND
11.153000	33.20	11.9	60	26.8	QP	L1	GND

MEASUREMENT RESULT: "ZY627024_fin2"

2016-6-27 11:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.508000	23.80	11.5	46	22.2	AV	L1	GND
4.443500	15.20	11.8	46	30.8	AV	L1	GND
10.788500	26.50	11.9	50	23.5	AV	L1	GND

MEASUREMENT RESULT: "ZY627023_fin"

2016-6-27 10:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.156000	40.80	10.4	66	24.9	QP	N	GND
0.878000	31.10	11.6	56	24.9	QP	N	GND
11.445500	32.70	11.9	60	27.3	QP	N	GND

MEASUREMENT RESULT: "ZY627023_fin2"

2016-6-27 10:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.506000	23.90	11.5	46	22.1	AV	N	GND
4.974500	16.30	11.8	46	29.7	AV	N	GND
10.820000	26.60	11.9	50	23.4	AV	N	GND

Test mode : BT communicating(AC 240V/60Hz)

MEASUREMENT RESULT: "ZY627017_fin"

2016-6-27 10:42

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.344000	38.60	11.1	59	20.5	QP	L1	GND
0.894000	35.00	11.6	56	21.0	QP	L1	GND
11.652500	31.70	11.9	60	28.3	QP	L1	GND

MEASUREMENT RESULT: "ZY627017_fin2"

2016-6-27 10:42

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.510000	23.80	11.5	46	22.2	AV	L1	GND
4.556000	16.10	11.8	46	29.9	AV	L1	GND
10.658000	25.60	11.9	50	24.4	AV	L1	GND

MEASUREMENT RESULT: "ZY627018_fin"

2016-6-27 10:45

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.378000	39.10	11.2	58	19.2	QP	N	GND
0.894000	34.70	11.6	56	21.3	QP	N	GND
10.968500	32.40	11.9	60	27.6	QP	N	GND

MEASUREMENT RESULT: "ZY627018_fin2"

2016-6-27 10:45

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.514000	24.00	11.5	46	22.0	AV	N	GND
4.911500	16.40	11.8	46	29.6	AV	N	GND
11.058500	26.00	11.9	50	24.0	AV	N	GND

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

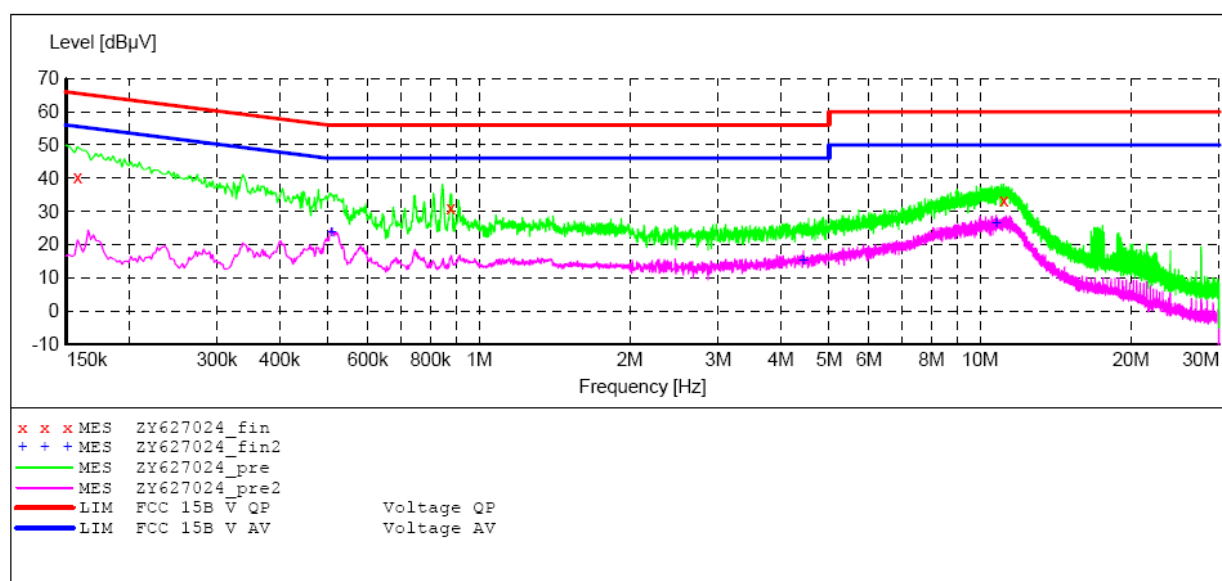
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
 Manufacturer: Klipsch L.L.C.
 Operating Condition: BT operation
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20161173
 M/N:RSB-11

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 LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "ZY627024_fin"

2016-6-27 11:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.158000	40.30	10.4	66	25.3	QP	L1	GND
0.878000	31.10	11.6	56	24.9	QP	L1	GND
11.153000	33.20	11.9	60	26.8	QP	L1	GND

MEASUREMENT RESULT: "ZY627024_fin2"

2016-6-27 11:02

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.508000	23.80	11.5	46	22.2	AV	L1	GND
4.443500	15.20	11.8	46	30.8	AV	L1	GND
10.788500	26.50	11.9	50	23.5	AV	L1	GND

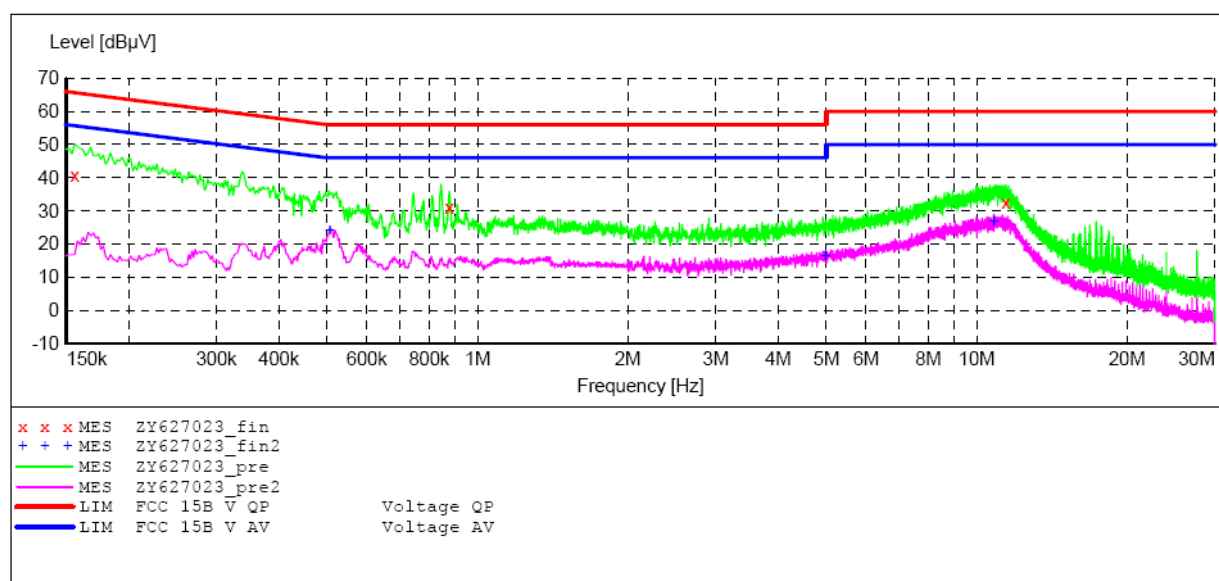
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
 Manufacturer: Klipsch L.L.C.
 Operating Condition: BT operation
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20161173
 M/N:RSB-11

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 LISN (ESH3-Z5)
 Average



MEASUREMENT RESULT: "ZY627023_fin"

2016-6-27 10:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.156000	40.80	10.4	66	24.9	QP	N	GND
0.878000	31.10	11.6	56	24.9	QP	N	GND
11.445500	32.70	11.9	60	27.3	QP	N	GND

MEASUREMENT RESULT: "ZY627023_fin2"

2016-6-27 10:59

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.506000	23.90	11.5	46	22.1	AV	N	GND
4.974500	16.30	11.8	46	29.7	AV	N	GND
10.820000	26.60	11.9	50	23.4	AV	N	GND

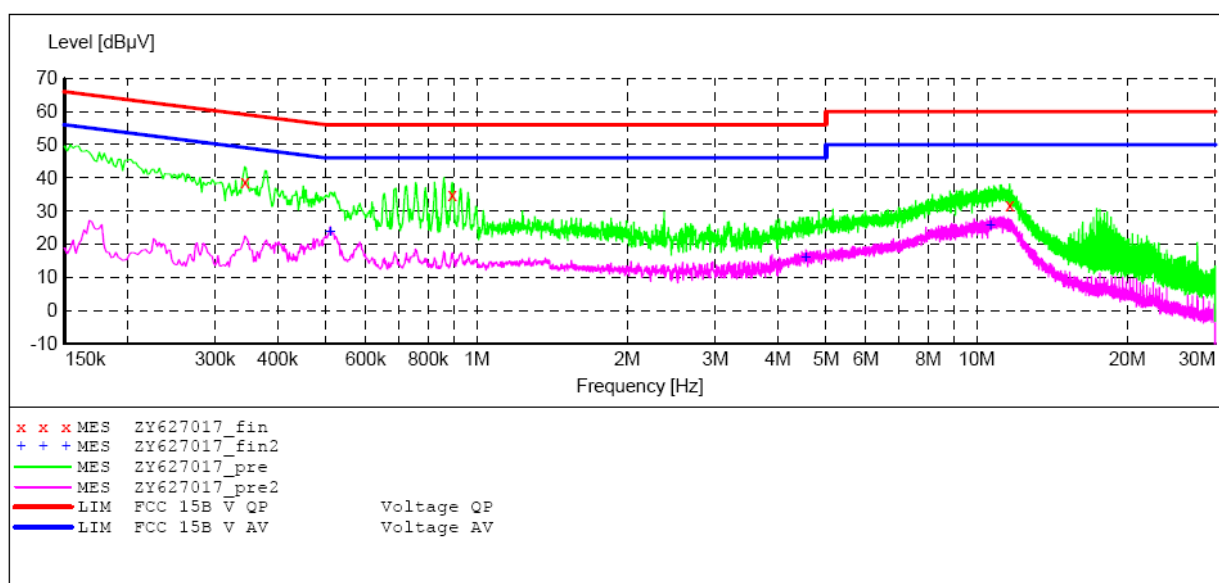
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
 Manufacturer: Klipsch L.L.C.
 Operating Condition: BT operation
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20161173
 M/N:RSB-11

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 LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "ZY627017_fin"

2016-6-27 10:42

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.344000	38.60	11.1	59	20.5	QP	L1	GND
0.894000	35.00	11.6	56	21.0	QP	L1	GND
11.652500	31.70	11.9	60	28.3	QP	L1	GND

MEASUREMENT RESULT: "ZY627017_fin2"

2016-6-27 10:42

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.510000	23.80	11.5	46	22.2	AV	L1	GND
4.556000	16.10	11.8	46	29.9	AV	L1	GND
10.658000	25.60	11.9	50	24.4	AV	L1	GND

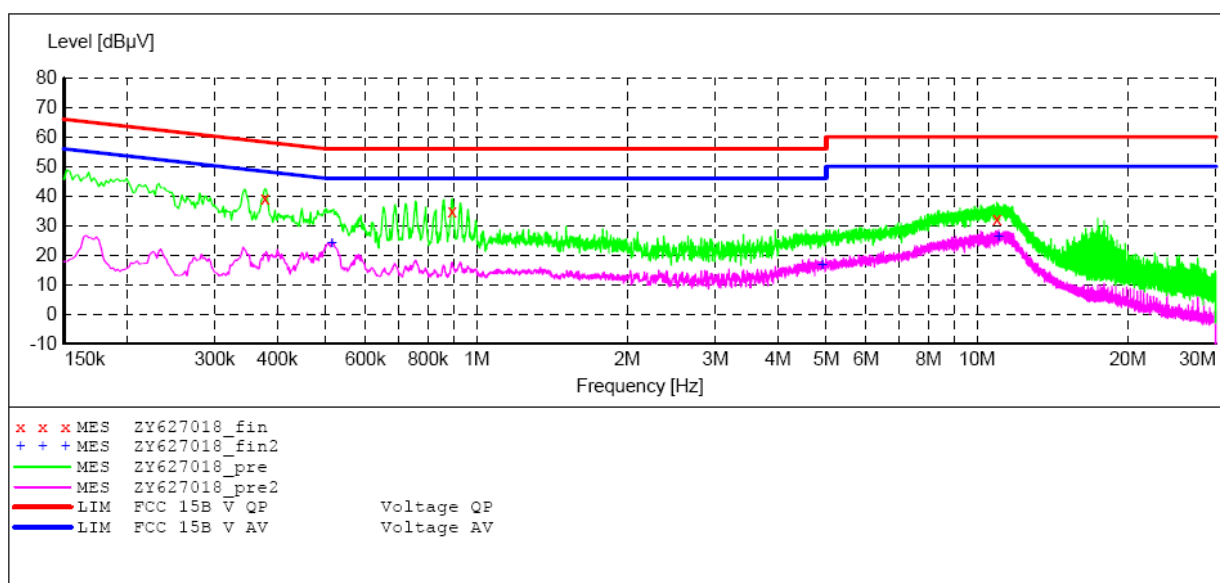
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
 Manufacturer: Klipsch L.L.C.
 Operating Condition: BT operation
 Test Site: 2#Shielding Room
 Operator: star
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20161173
 M/N:RSB-11

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 LISN(ESH3-Z5)
 Average



MEASUREMENT RESULT: "ZY627018_fin"

2016-6-27 10:45

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.378000	39.10	11.2	58	19.2	QP	N	GND
0.894000	34.70	11.6	56	21.3	QP	N	GND
10.968500	32.40	11.9	60	27.6	QP	N	GND

MEASUREMENT RESULT: "ZY627018_fin2"

2016-6-27 10:45

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.514000	24.00	11.5	46	22.0	AV	N	GND
4.911500	16.40	11.8	46	29.6	AV	N	GND
11.058500	26.00	11.9	50	24.0	AV	N	GND

6. 6DB BANDWIDTH MEASUREMENT

6.1. Block Diagram of Test Setup



(EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER)

6.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.3. EUT Configuration on Measurement

The equipment is 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.

6.4. 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 modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, 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.

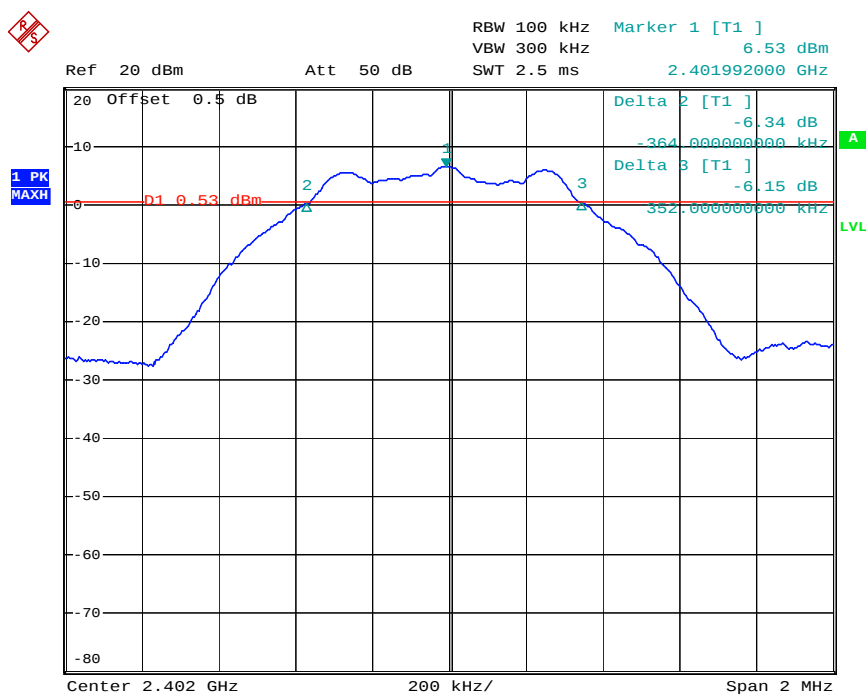
6.5.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

6.6.Test Result

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit(MHz)	PASS/FAIL
0	2402	0.716	0.5	PASS
19	2440	0.712	0.5	PASS
39	2480	0.696	0.5	PASS

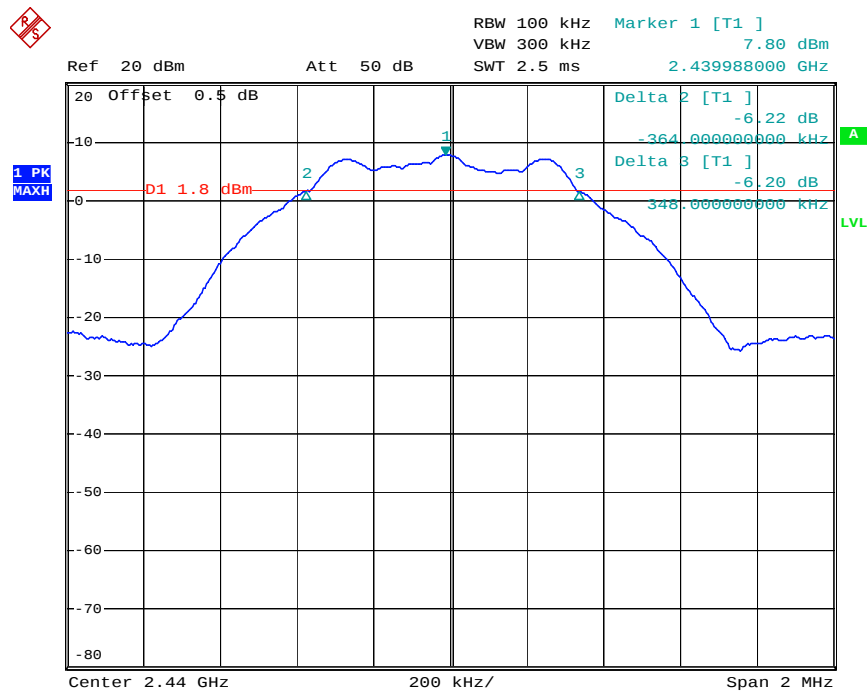
The spectrum analyzer plots are attached as below.

channel 0



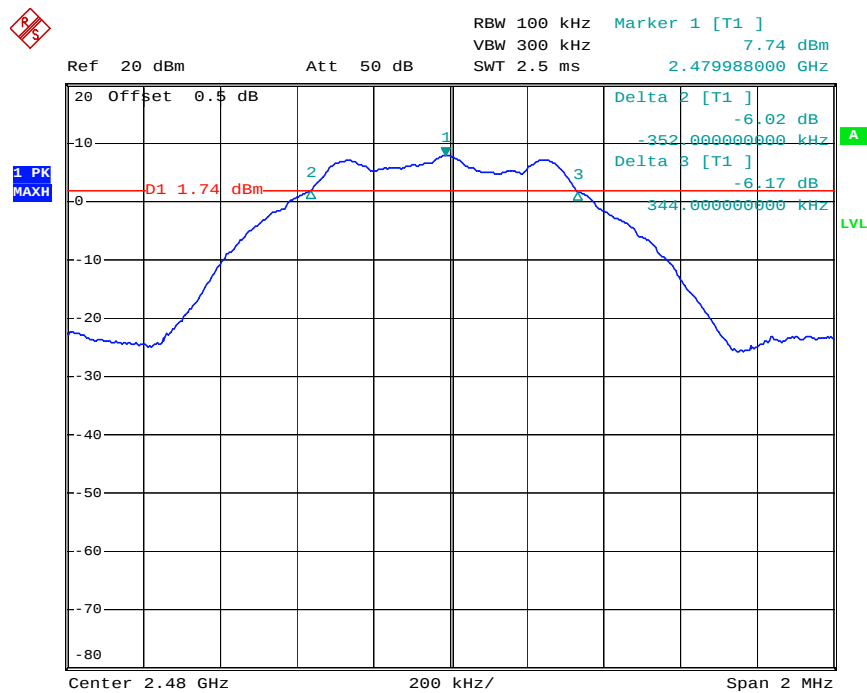
Date: 14. JUN. 2016 10:18:28

channel 19



Date: 14. JUN. 2016 10:19:45

channel 39



Date: 14. JUN. 2016 10:16:12

7. MAXIMUM PEAK OUTPUT POWER

7.1. Block Diagram of Test Setup



(EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER)

7.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

7.3. EUT Configuration on Measurement

The 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.

7.4. 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 modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

7.5. Test Procedure

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

7.5.2. Test method is options 1 from KDB558074 D01 DTS Meas Guidance v03r05

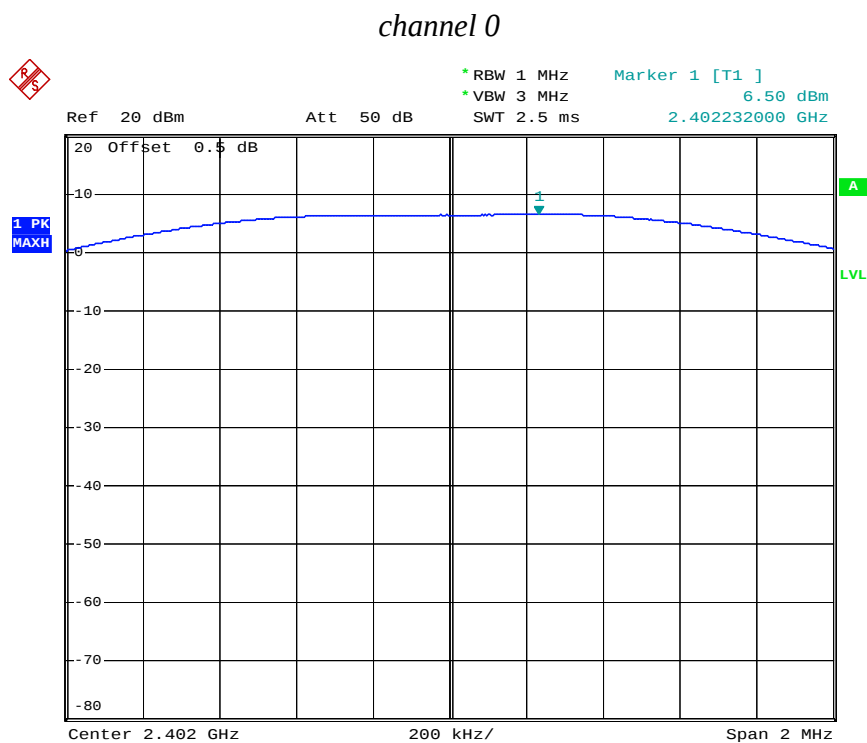
7.5.3. Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz.

7.5.4. Measurement the maximum peak output power.

7.6.Test Result

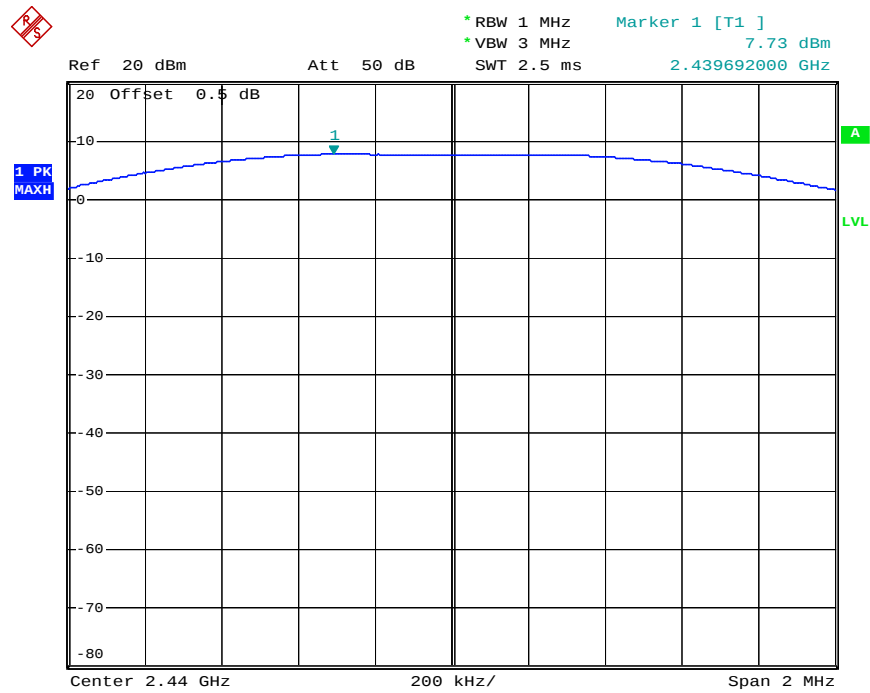
Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
0	2402	6.50	30	PASS
19	2440	7.73	30	PASS
39	2480	7.71	30	PASS

The spectrum analyzer plots are attached as below.



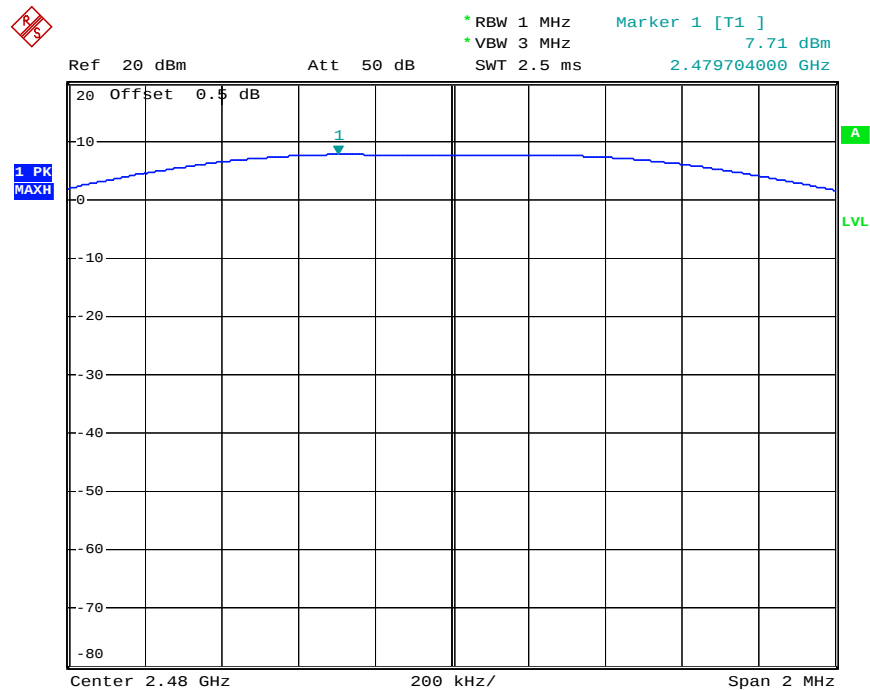
Date: 14. JUN. 2016 10:24:43

channel 19



Date: 14.JUN.2016 10:24:22

channel 39



Date: 14.JUN.2016 10:23:39

8. POWER SPECTRAL DENSITY MEASUREMENT

8.1. Block Diagram of Test Setup



(EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER)

8.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

8.3. EUT Configuration on Measurement

The 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.

8.4. 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 modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

8.5. Test Procedure

8.5.1. The EUT was tested according to DTS test procedure of Apr 08, 2016 KDB558074 D01 DTS Meas Guidance v03r05 for compliance to FCC 47CFR 15.247 requirements.

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

8.5.3. Measurement Procedure PKPSD:

8.5.4. This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

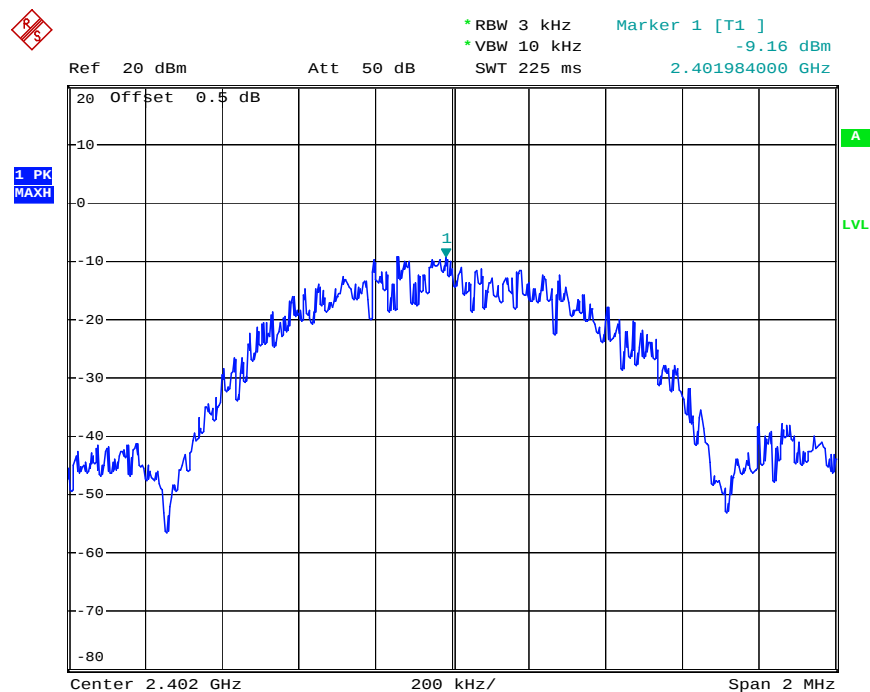
8.5.5. Measurement the maximum power spectral density.

8.6.Test Result

CHANNEL NUMBER	FREQUENCY (MHz)	PSD (dBm/3KHz)	LIMIT (dBm/3KHz)	PASS/FAIL
0	2402	-9.16	8	PASS
19	2440	-7.68	8	PASS
39	2480	-7.84	8	PASS

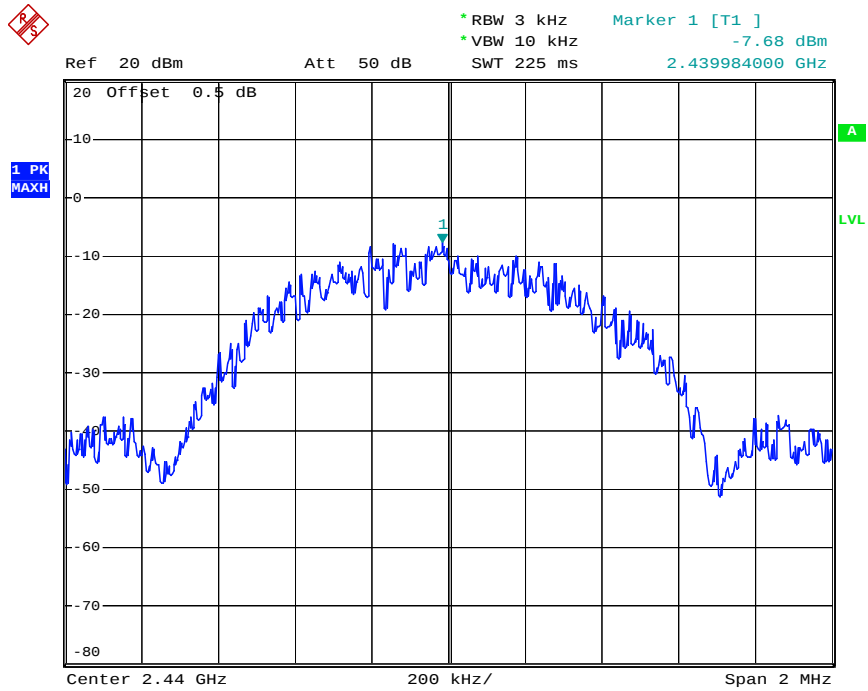
The spectrum analyzer plots are attached as below.

channel 0



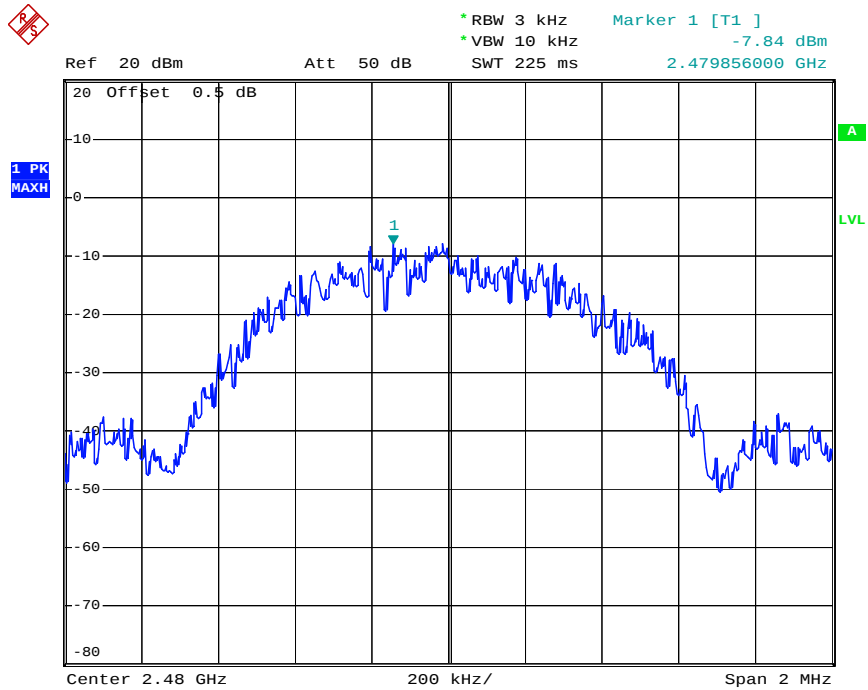
Date: 14.JUN.2016 10:25:44

channel 19



Date: 14.JUN.2016 10:26:19

channel 39



Date: 14.JUN.2016 10:26:49

9. BAND EDGE COMPLIANCE TEST

9.1. Block Diagram of Test Setup



(EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER)

9.2. 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).

9.3. EUT Configuration on Measurement

The 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.

9.4. 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 modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2480MHz TX frequency to transmit.

9.5. Test Procedure

Conducted Band Edge:

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

9.5.2. Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.

9.5.3. Radiate Band Edge:

9.5.4. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.

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

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

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

9.5.8. RBW=1MHz, VBW=1MHz

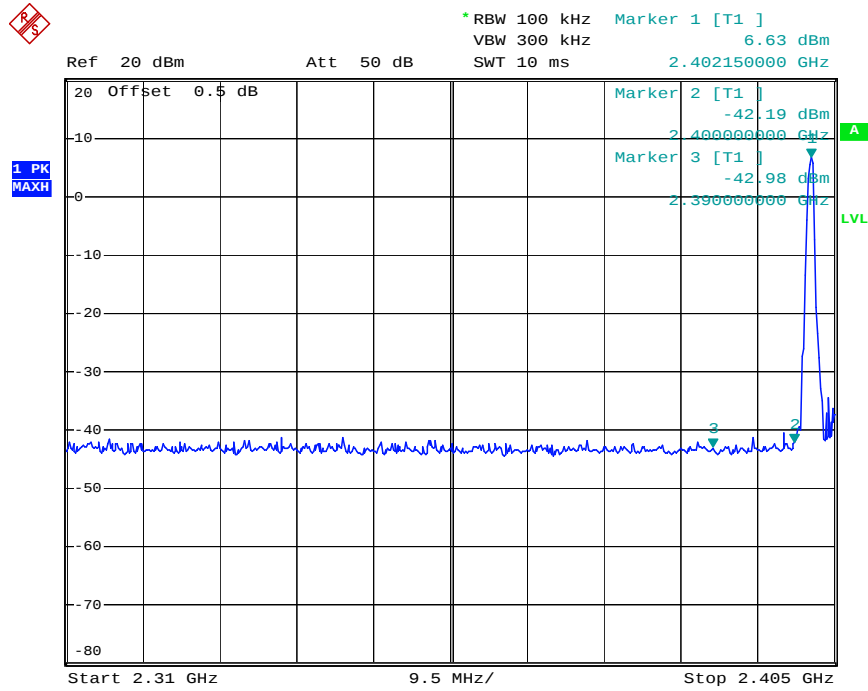
9.5.9. The band edges was measured and recorded.

9.6. Test Result

Pass

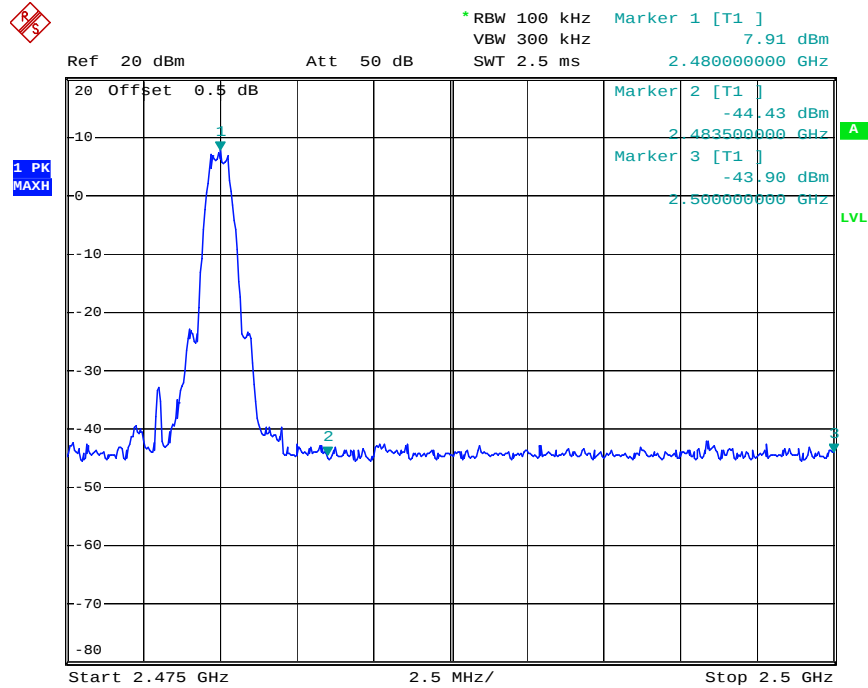
Channel	Frequency	Delta peak to band emission	Limit(dBc)
0	2.4GHz	48.82	20
39	2.4835GHz	52.34	20

channel 0



Date: 14.JUN.2016 10:21:38

channel 39



Date: 14.JUN.2016 10:22:50

Radiated Band Edge Result

Date of Test:	Jun 14, 2016	Temperature:	25°C
EUT:	RSB-11 SOUND BAR AND WIRELESS SUBWOOFER	Humidity:	50%
Model No.:	RSB-11	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2402MHz) GFSK	Test Engineer:	Star

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	
2390.000	33.67	41.70	-7.64	26.03	34.06	54.00	74.00	-27.97	-39.94	Vertical
2400.000	47.06	65.74	-7.61	39.45	58.13	54.00	74.00	-14.55	-15.87	Vertical
2390.000	33.67	40.10	-7.64	26.03	32.46	54.00	74.00	-27.97	-41.54	Horizontal
2400.000	57.04	65.76	-7.61	49.43	58.15	54.00	74.00	-4.57	-15.85	Horizontal

Date of Test:	Jun 14, 2016	Temperature:	25°C
EUT:	RSB-11 SOUND BAR AND WIRELESS SUBWOOFER	Humidity:	50%
Model No.:	RSB-11	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2480MHz) GFSK	Test Engineer:	Star

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	40.40	47.54	-7.37	33.03	40.17	54.00	74.00	-20.97	-33.83	Vertical
2500.000	32.65	39.42	-7.32	25.33	32.10	54.00	74.00	-28.67	-41.90	Vertical
2483.500	41.00	49.55	-7.37	33.63	42.18	54.00	74.00	-20.37	-31.82	Horizontal
2500.000	32.70	40.53	-7.32	25.38	33.21	54.00	74.00	-28.62	-40.79	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.

Job No.: STAR2016 #1142

Standard: FCC PK

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2402MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

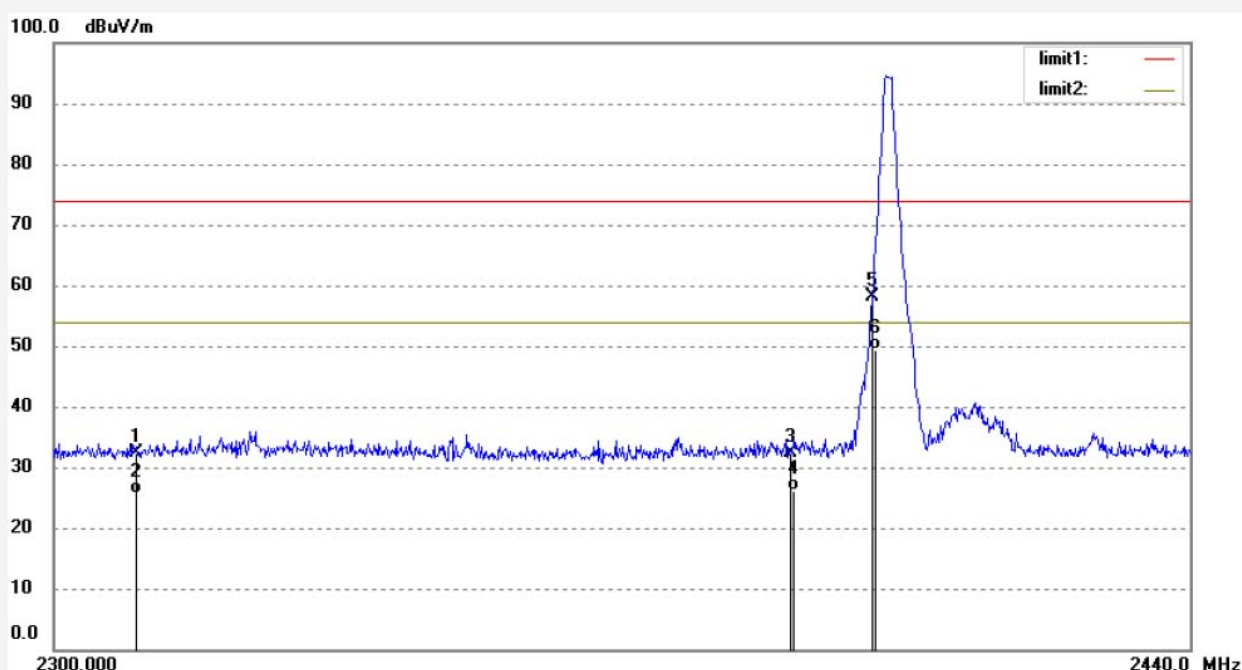
Date: 16/06/14/

Time: 17/13/43

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



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	40.19	-7.87	32.32	74.00	-41.68	peak			
2	2310.000	33.50	-7.87	25.63	54.00	-28.37	AVG			
3	2390.000	40.10	-7.64	32.46	74.00	-41.54	peak			
4	2390.000	33.67	-7.64	26.03	54.00	-27.97	AVG			
5	2400.000	65.76	-7.61	58.15	74.00	-15.85	peak			
6	2400.000	57.04	-7.61	49.43	54.00	-4.57	AVG			

Job No.: STAR2016 #1143

Standard: FCC PK

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2402MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

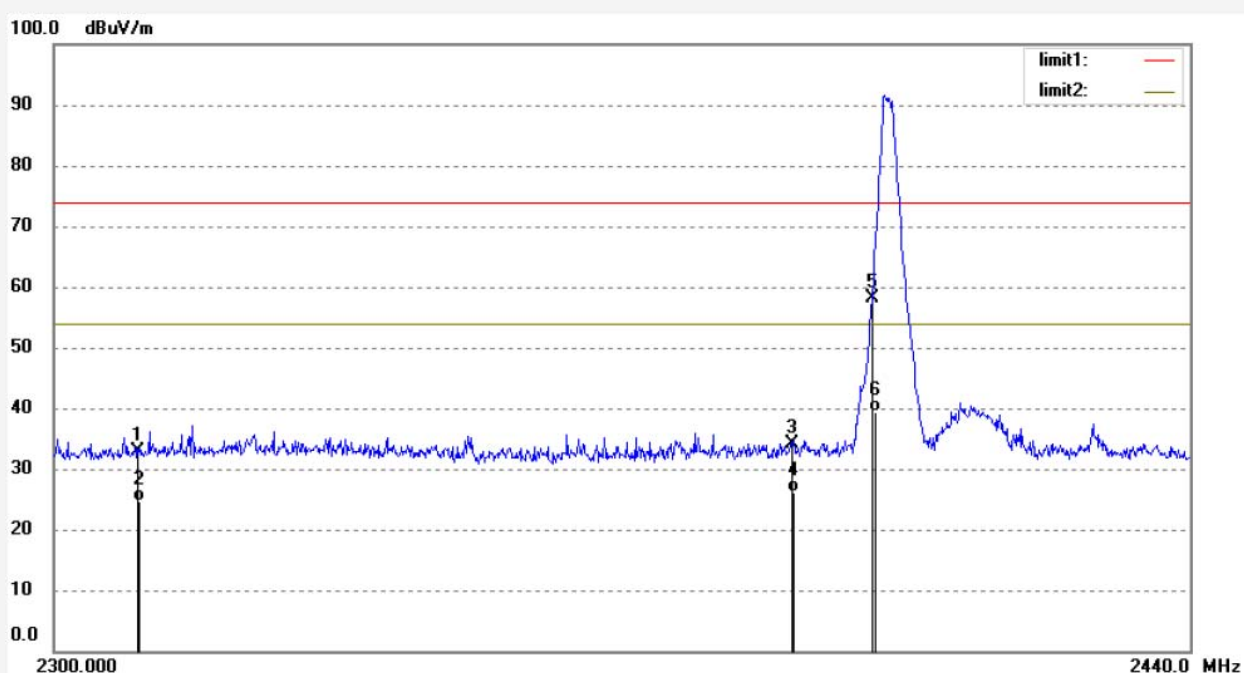
Date: 16/06/14/

Time: 17/14/55

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



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	40.86	-7.87	32.99	74.00	-41.01	peak			
2	2310.000	32.52	-7.87	24.65	54.00	-29.35	AVG			
3	2390.000	41.70	-7.64	34.06	74.00	-39.94	peak			
4	2390.000	33.67	-7.64	26.03	54.00	-27.97	AVG			
5	2400.000	65.74	-7.61	58.13	74.00	-15.87	peak			
6	2400.000	47.06	-7.61	39.45	54.00	-14.55	AVG			

Job No.: STAR2016 #1145

Standard: FCC PK

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2480MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

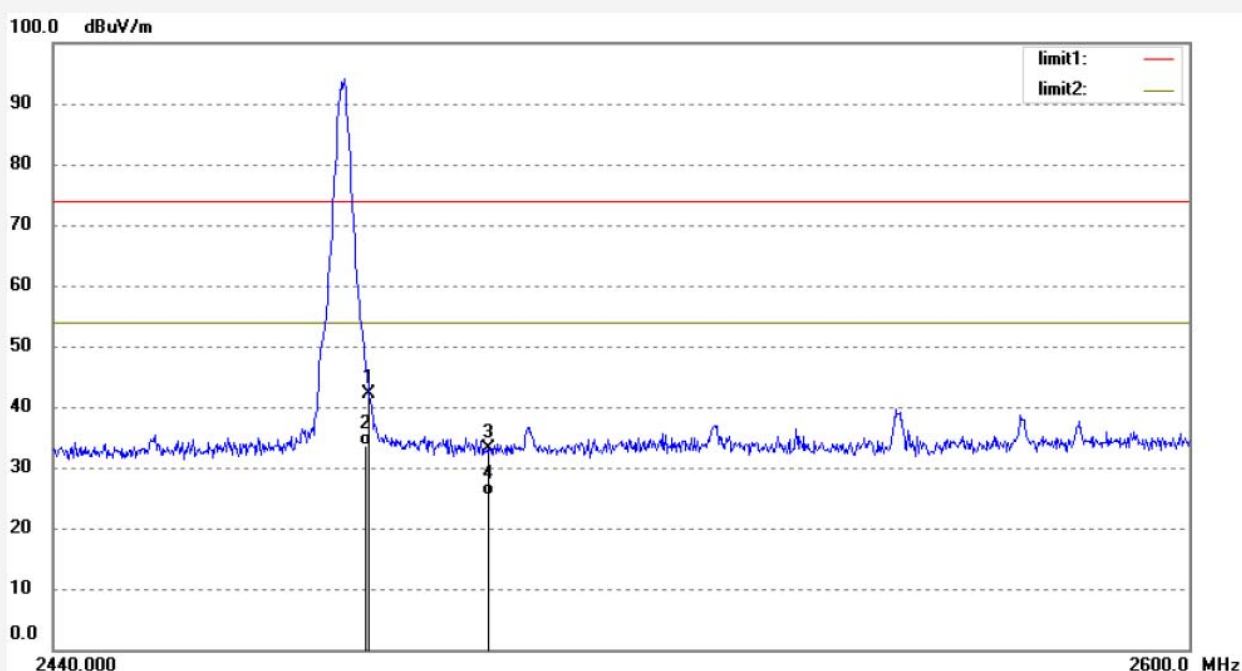
Date: 16/06/14/

Time: 17/18/21

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



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	49.55	-7.37	42.18	74.00	-31.82	peak			
2	2483.500	41.00	-7.37	33.63	54.00	-20.37	AVG			
3	2500.000	40.53	-7.32	33.21	74.00	-40.79	peak			
4	2500.000	32.70	-7.32	25.38	54.00	-28.62	AVG			

Job No.: STAR2016 #1144

Standard: FCC PK

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2480MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

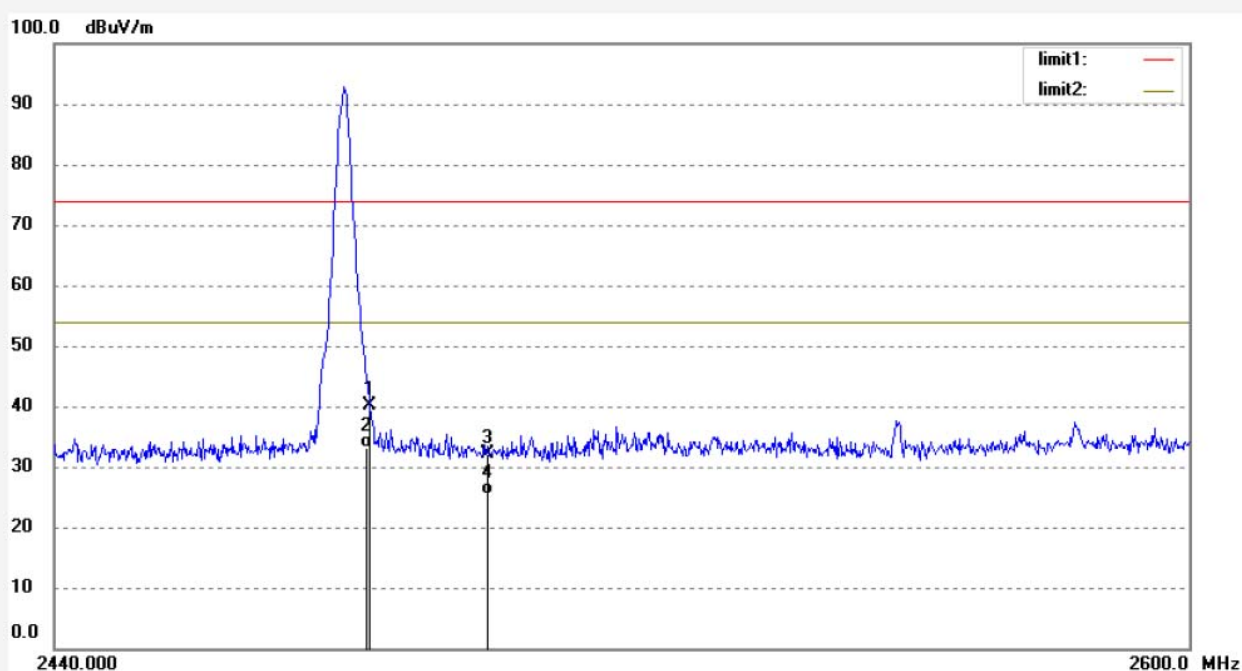
Date: 16/06/14/

Time: 17/17/13

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173

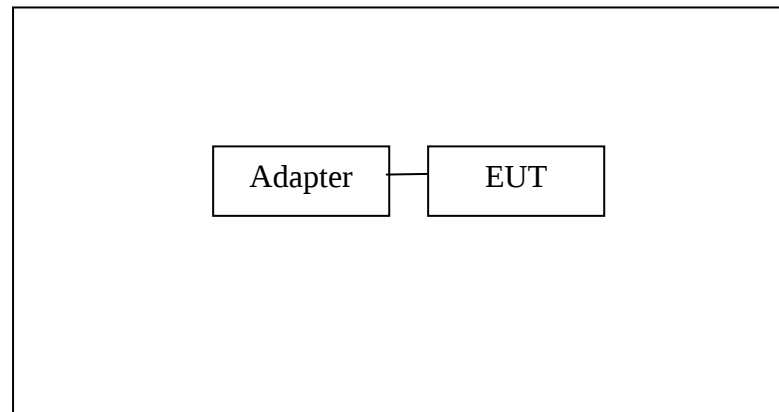


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	47.54	-7.37	40.17	74.00	-33.83	peak			
2	2483.500	40.40	-7.37	33.03	54.00	-20.97	AVG			
3	2500.000	39.42	-7.32	32.10	74.00	-41.90	peak			
4	2500.000	32.65	-7.32	25.33	54.00	-28.67	AVG			

10.RADIATED SPURIOUS EMISSION TEST

10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

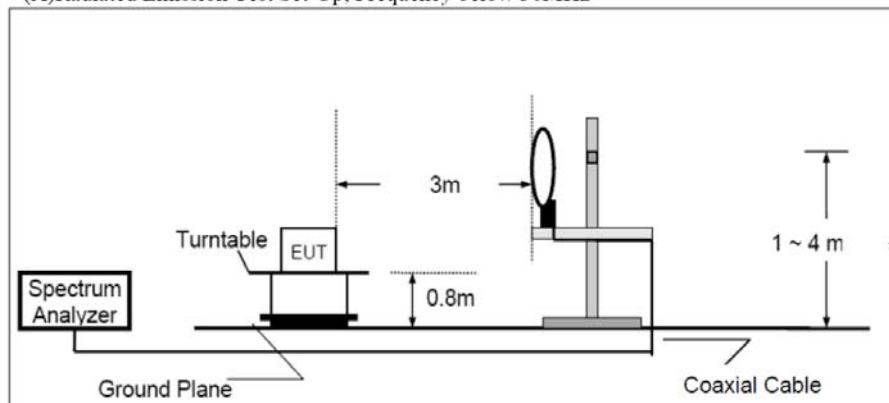


Setup: Transmitting mode

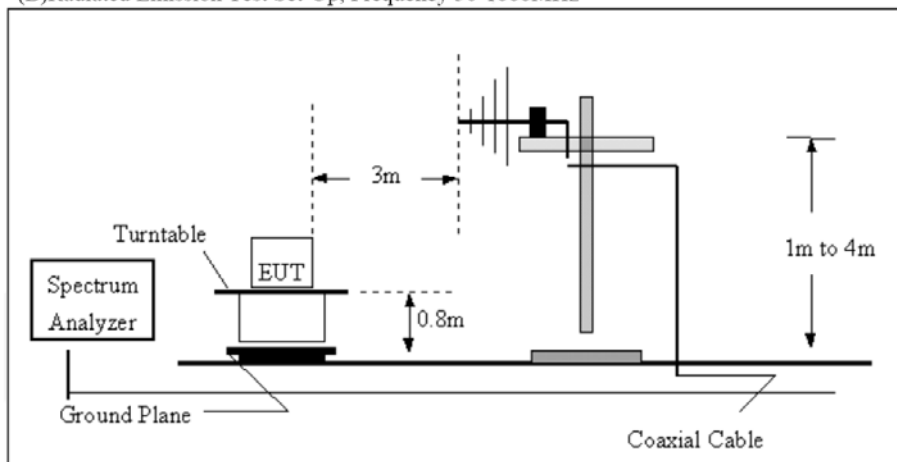
(EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER)

10.1.2.Semi-Anechoic Chamber Test Setup Diagram

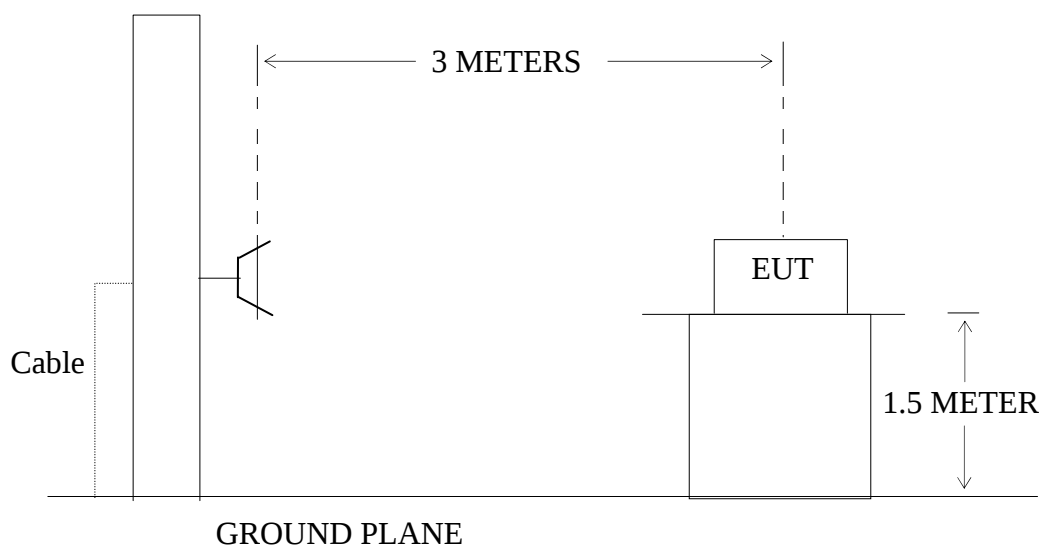
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency 30-1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



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 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.

10.5. Operating Condition of EUT

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

10.5.2. Turn on the power of all equipment.

10.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

10.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground (Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground (Above 1GHz). 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 bi-log 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 EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz 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

10.7.The Field Strength of Radiation Emission Measurement Results

PASS.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. *: Denotes restricted band of operation.

3.The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.

Job No.: STAR2016 #1662

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2402MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

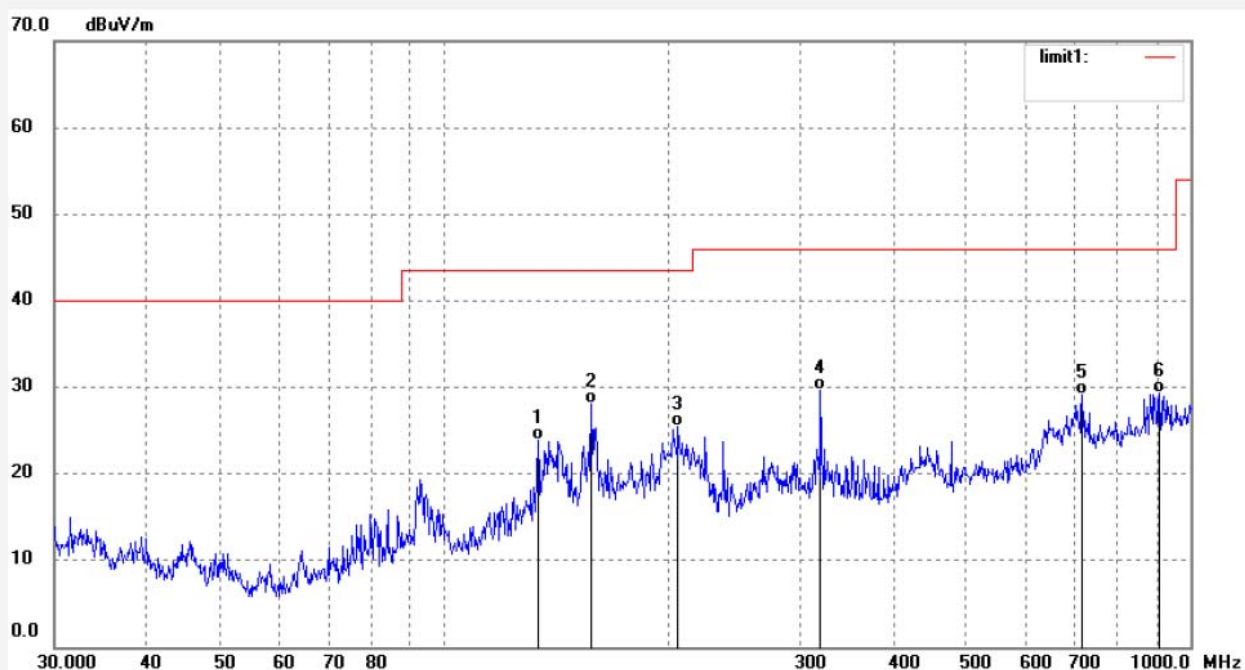
Date: 16/07/29/

Time: 8/48/39

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	133.5491	45.79	-21.86	23.93	43.50	-19.57	QP			
2	157.5289	49.67	-21.61	28.06	43.50	-15.44	QP			
3	205.7458	43.96	-18.52	25.44	43.50	-18.06	QP			
4	319.2071	45.42	-15.82	29.60	46.00	-16.40	QP			
5	716.2038	36.71	-7.58	29.13	46.00	-16.87	QP			
6	909.4941	33.36	-4.02	29.34	46.00	-16.66	QP			



ACCURATE TECHNOLOGY CO., LTD.

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

Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2016 #1661

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2402MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

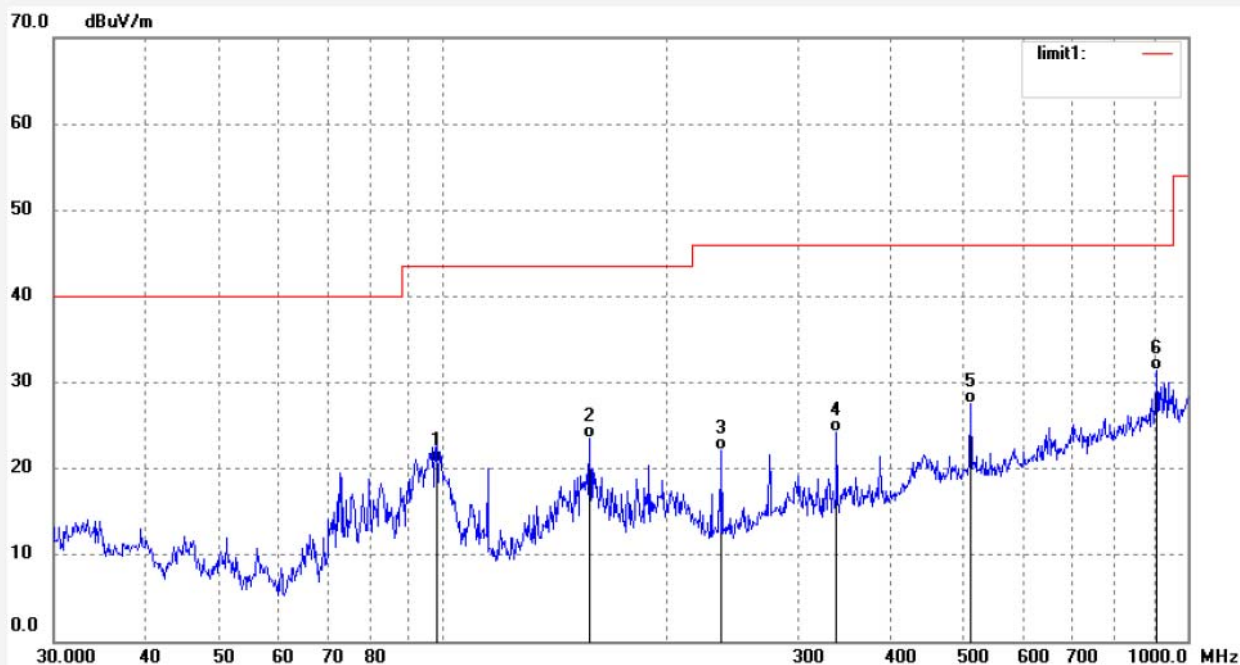
Date: 16/07/29/

Time: 8/47/24

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	98.0301	42.31	-21.61	20.70	43.50	-22.80	QP			
2	157.5289	45.22	-21.61	23.61	43.50	-19.89	QP			
3	236.7926	40.38	-18.27	22.11	46.00	-23.89	QP			
4	337.6660	39.37	-15.07	24.30	46.00	-21.70	QP			
5	511.1487	39.47	-11.97	27.50	46.00	-18.50	QP			
6	909.4941	35.44	-4.02	31.42	46.00	-14.58	QP			

Job No.: STAR2016 #1663

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2440MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

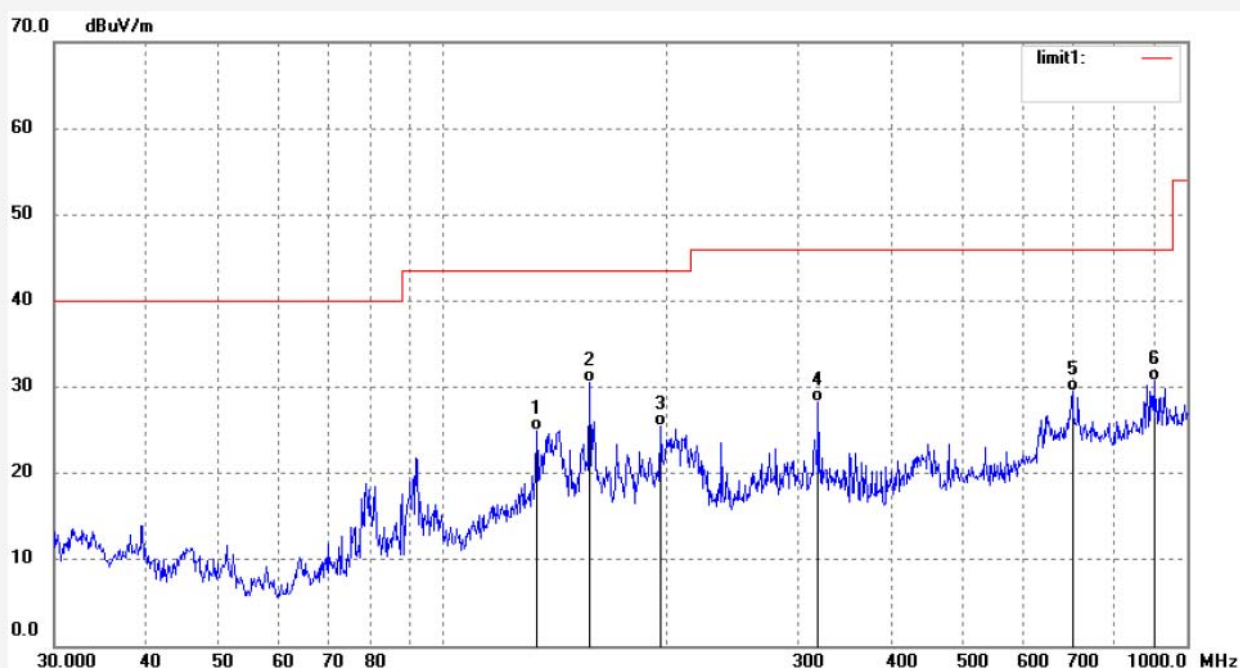
Date: 16/07/29/

Time: 8/50/00

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	133.5491	46.83	-21.86	24.97	43.50	-18.53	QP			
2	157.5289	52.16	-21.61	30.55	43.50	-12.95	QP			
3	195.8701	44.41	-18.93	25.48	43.50	-18.02	QP			
4	319.2071	44.12	-15.82	28.30	46.00	-17.70	QP			
5	701.2631	37.41	-7.96	29.45	46.00	-16.55	QP			
6	903.1253	34.75	-4.11	30.64	46.00	-15.36	QP			

Job No.: STAR2016 #1664

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2440MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

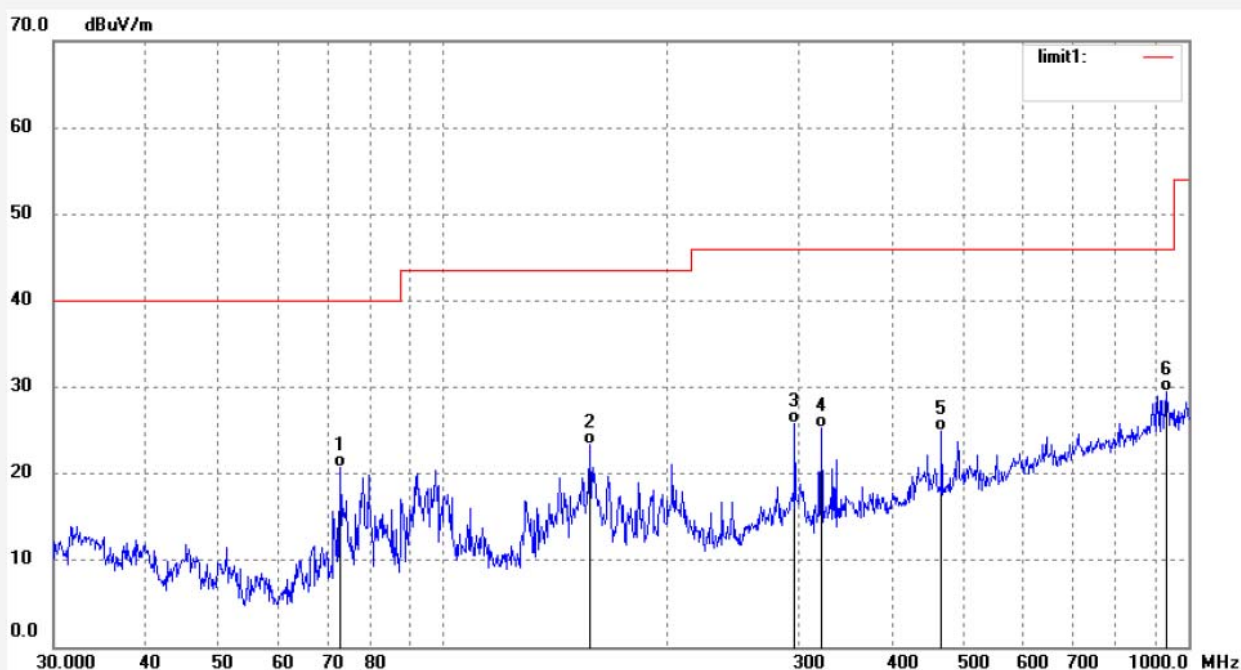
Date: 16/07/29/

Time: 8/50/46

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	72.7202	43.79	-23.00	20.79	40.00	-19.21	QP			
2	157.5289	45.02	-21.61	23.41	43.50	-20.09	QP			
3	296.5022	42.15	-16.34	25.81	46.00	-20.19	QP			
4	321.4581	41.06	-15.73	25.33	46.00	-20.67	QP			
5	466.5230	37.63	-12.61	25.02	46.00	-20.98	QP			
6	935.4213	33.12	-3.63	29.49	46.00	-16.51	QP			

Job No.: STAR2016 #1666

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2480MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

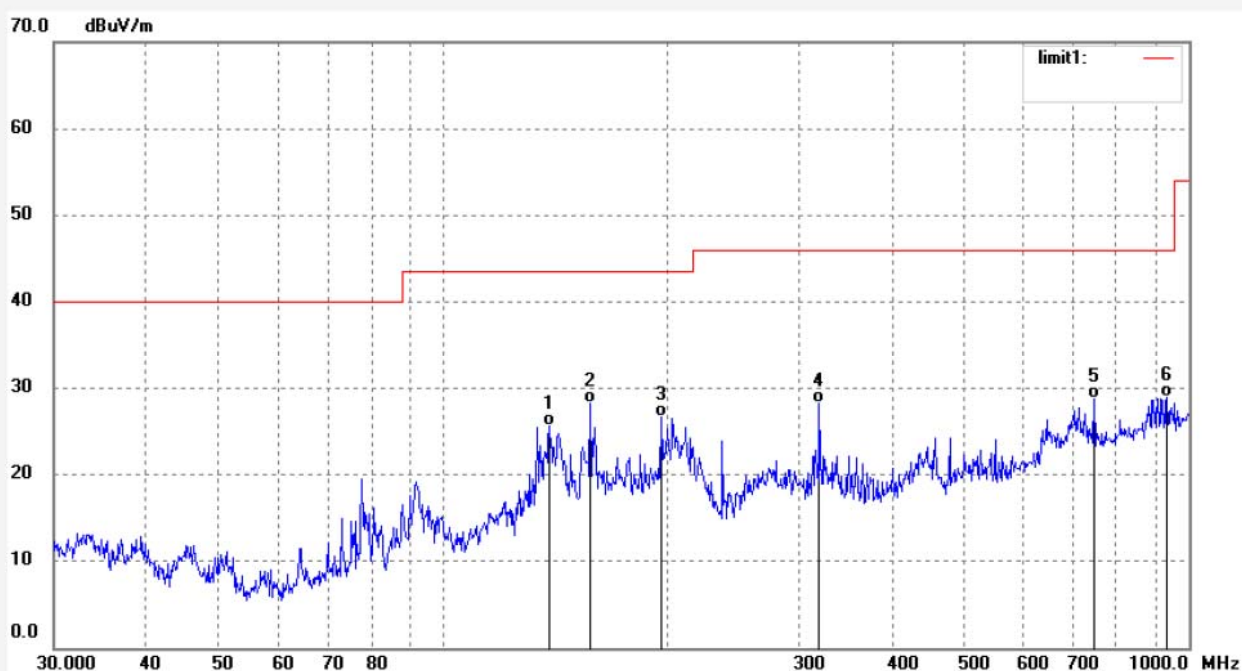
Date: 16/07/29/

Time: 8/52/53

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	138.8120	47.70	-22.04	25.66	43.50	-17.84	QP			
2	157.5289	49.93	-21.61	28.32	43.50	-15.18	QP			
3	195.8701	45.57	-18.93	26.64	43.50	-16.86	QP			
4	319.2071	44.09	-15.82	28.27	46.00	-17.73	QP			
5	747.0465	35.54	-6.82	28.72	46.00	-17.28	QP			
6	935.4212	32.65	-3.63	29.02	46.00	-16.98	QP			

Job No.: STAR2016 #1665

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2480MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

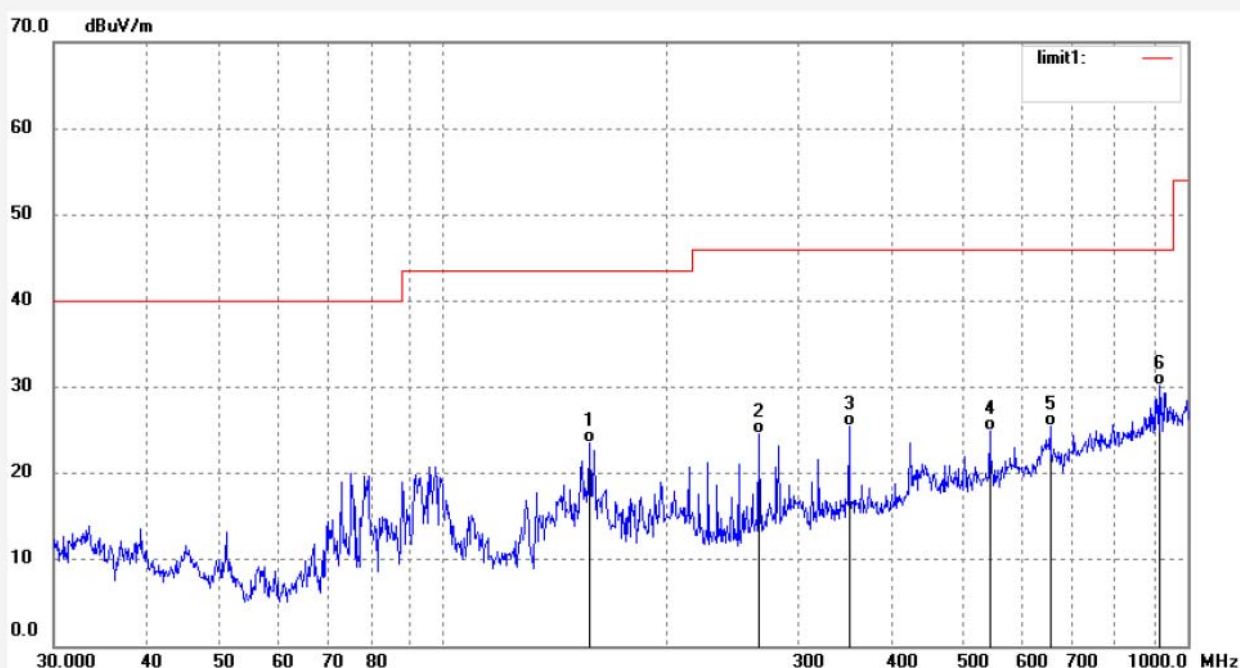
Date: 16/07/29/

Time: 8/51/29

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	157.5288	45.21	-21.61	23.60	43.50	-19.90	QP			
2	265.9035	41.92	-17.25	24.67	46.00	-21.33	QP			
3	350.9721	40.02	-14.59	25.43	46.00	-20.57	QP			
4	542.6104	36.28	-11.28	25.00	46.00	-21.00	QP			
5	653.6757	34.25	-8.79	25.46	46.00	-20.54	QP			
6	915.9077	34.14	-3.92	30.22	46.00	-15.78	QP			

Job No.: star2016 #1118

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2402MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

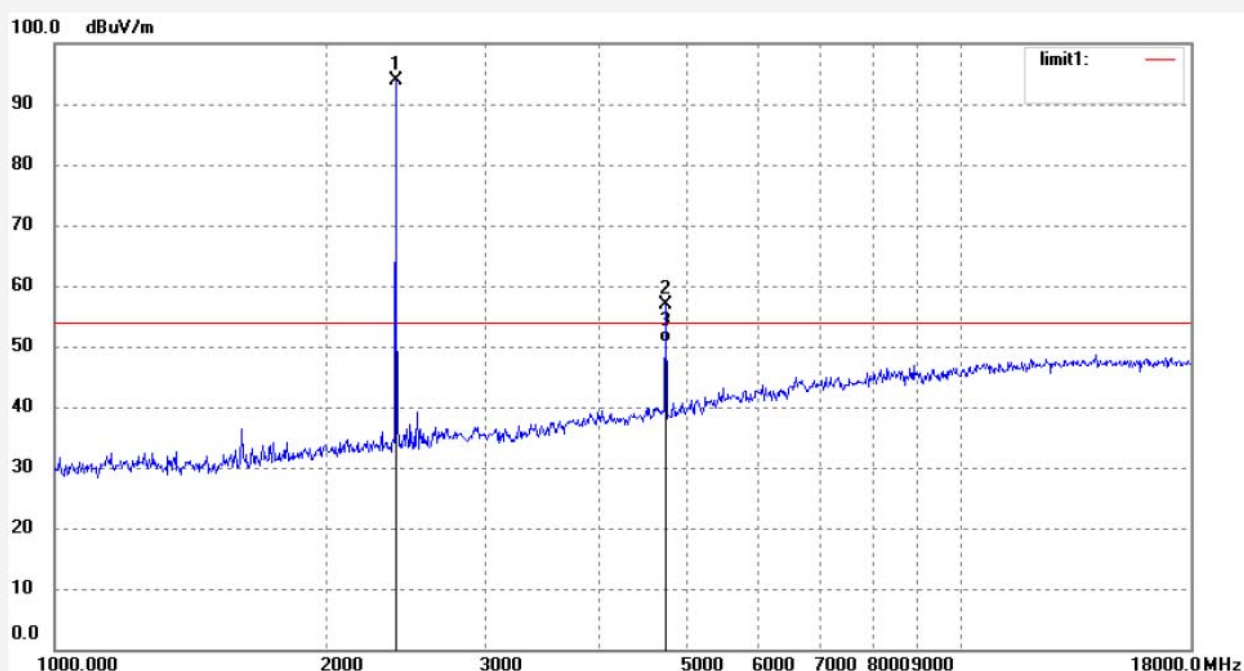
Date: 16/06/14/

Time: 15/50/43

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	101.59	-7.67	93.92			peak			
2	4804.000	58.68	-1.77	56.91	74.00	-17.09	peak			
3	4804.000	52.40	-1.77	50.63	54.00	-3.37	AVG			

Job No.: star2016 #1119

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2402MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

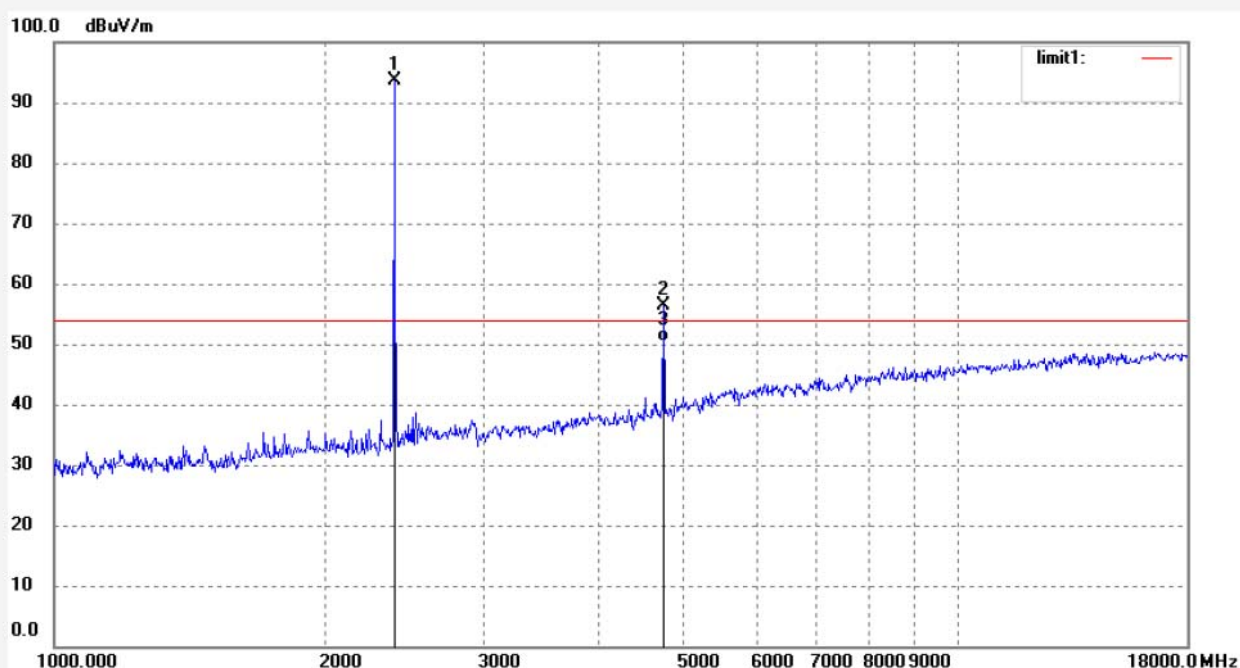
Date: 16/06/14/

Time: 15/52/41

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	101.19	-7.67	93.52			peak			
2	4804.000	58.16	-1.77	56.39	74.00	-17.61	peak			
3	4804.000	52.10	-1.77	50.33	54.00	-3.67	AVG			

Job No.: star2016 #1121

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2440MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

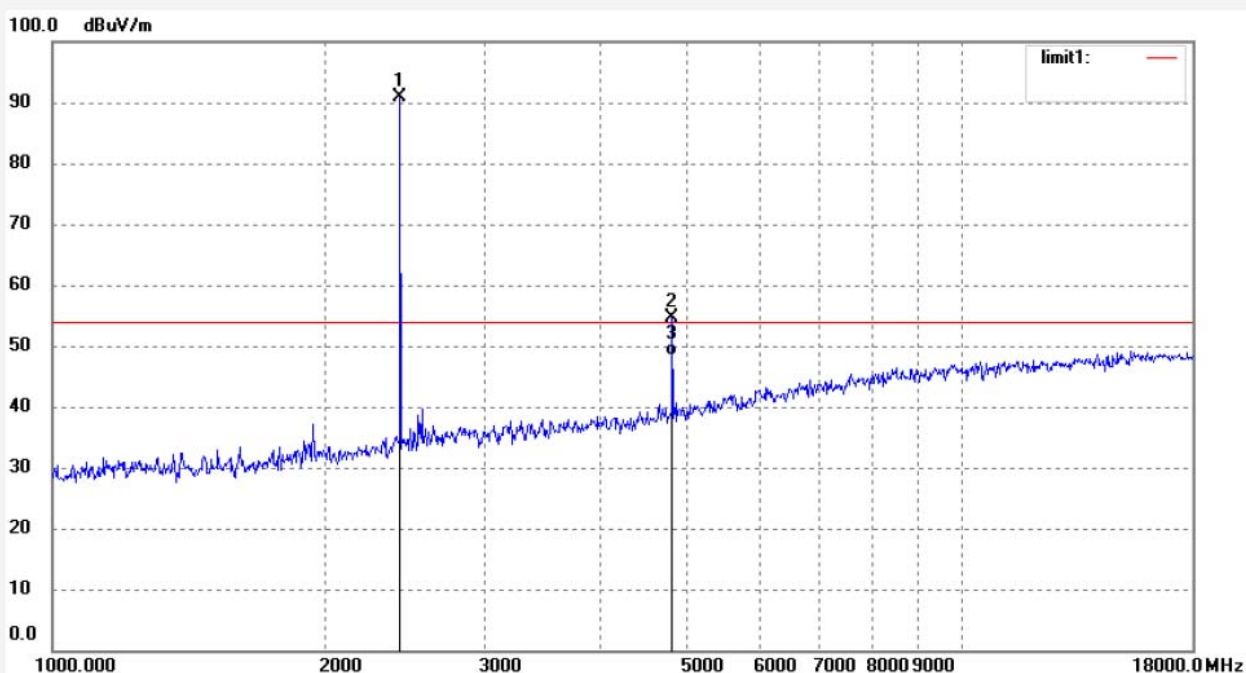
Date: 16/06/14/

Time: 15/55/21

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	98.55	-7.56	90.99			peak			
2	4880.000	56.21	-1.50	54.71	74.00	-19.29	peak			
3	4880.000	50.00	-1.50	48.50	54.00	-5.50	AVG			

Job No.: star2016 #1120

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2440MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

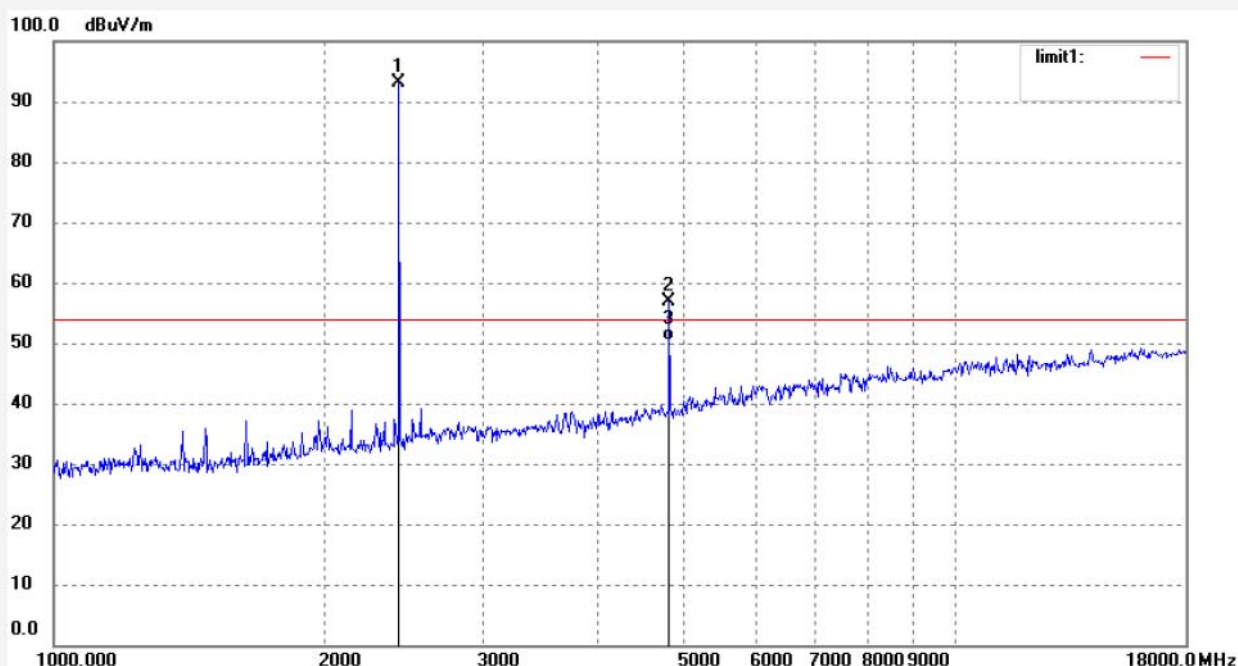
Date: 16/06/14/

Time: 15/54/10

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2440.000	100.63	-7.56	93.07			peak			
2	4880.000	58.40	-1.50	56.90	74.00	-17.10	peak			
3	4880.000	51.97	-1.50	50.47	54.00	-3.53	AVG			

Job No.: star2016 #1122

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2480MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Horizontal

Power Source: AC 120V/60Hz

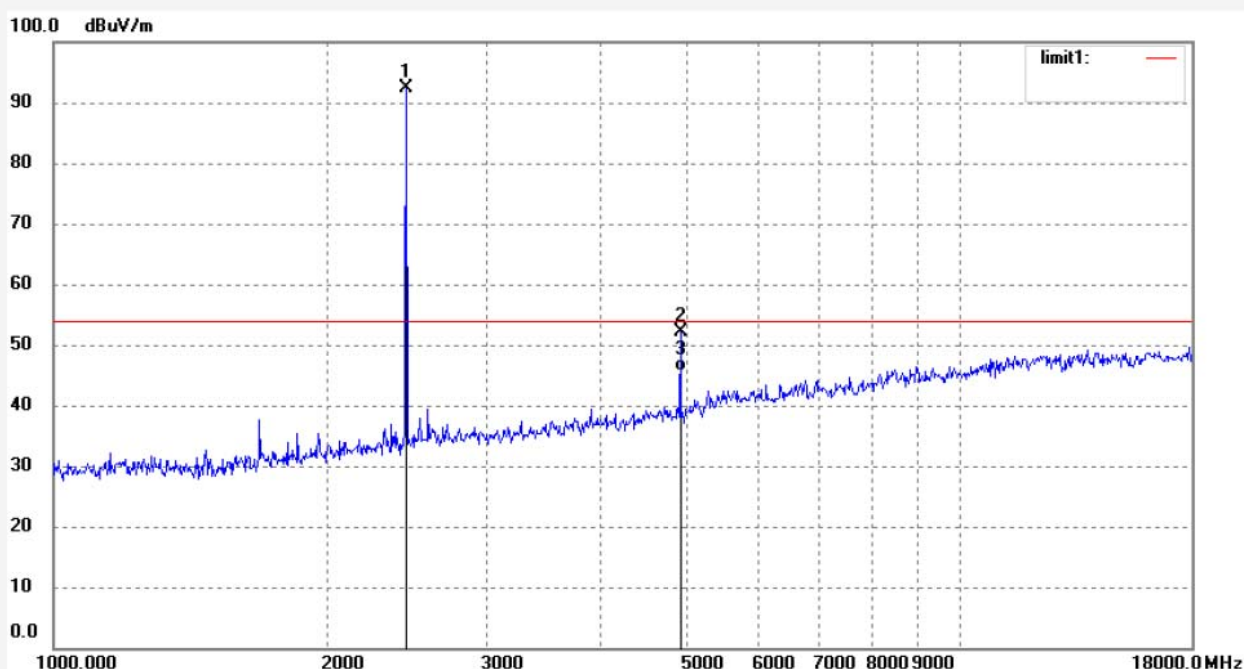
Date: 16/06/14/

Time: 15/56/56

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	99.94	-7.47	92.47			peak			
2	4960.000	53.34	-1.17	52.17	74.00	-21.83	peak			
3	4960.000	46.82	-1.17	45.65	54.00	-8.35	AVG			

Job No.: star2016 #1123

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER

Mode: TX 2480MHz

Model: RSB-11

Manufacturer: Klipsch L.L.C.

Polarization: Vertical

Power Source: AC 120V/60Hz

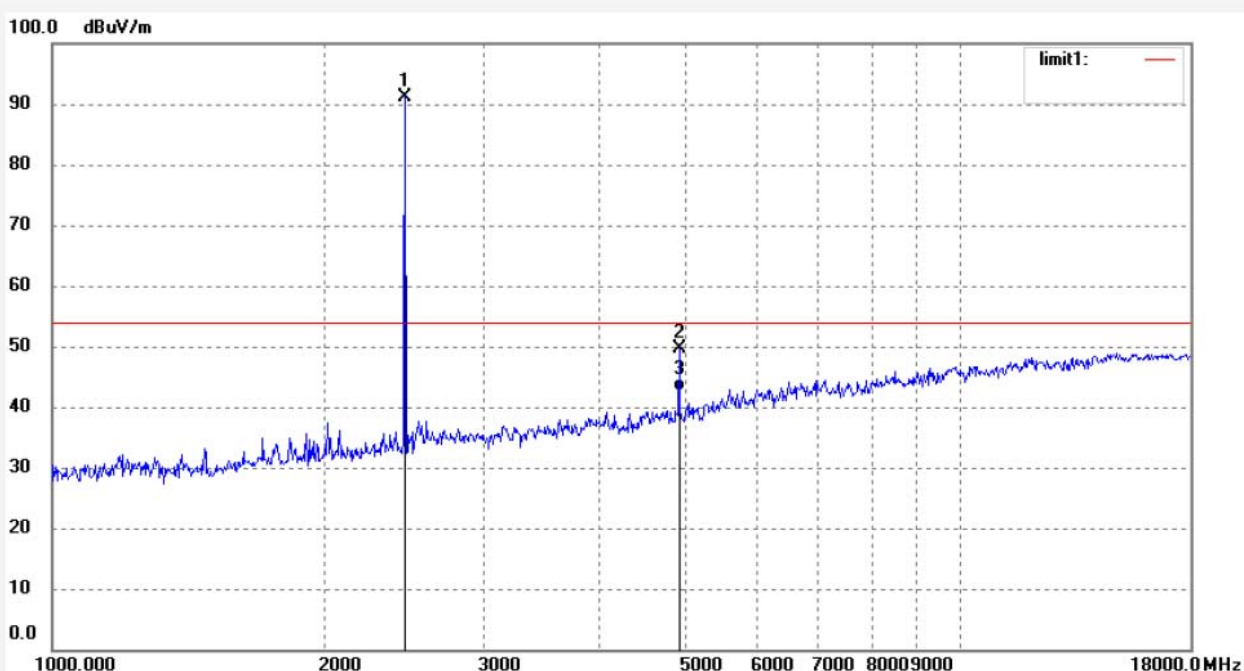
Date: 16/06/14/

Time: 15/58/11

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161173



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	98.72	-7.47	91.25			peak			
2	4960.000	50.77	-1.17	49.60	74.00	-24.40	peak			
3	4960.000	43.75	-1.17	42.58	54.00	-11.42	AVG			

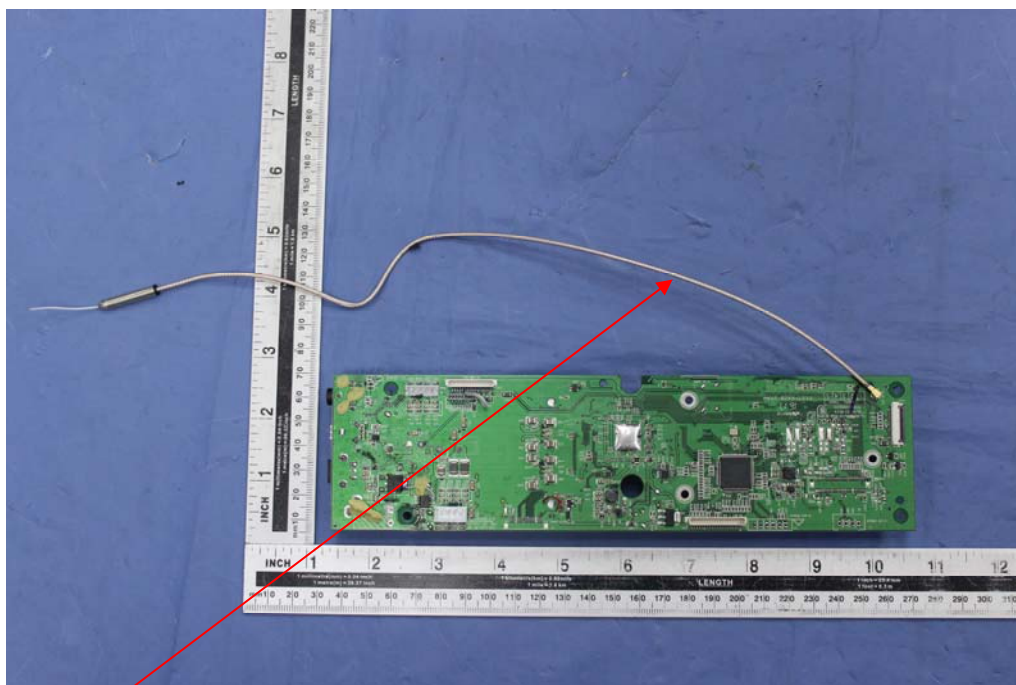
11.ANTENNA REQUIREMENT

11.1.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.

11.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Max Antenna gain of EUT is 4.93dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna