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.
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Report No.	:	ATE20161174
Date of Test	:	Jun 06, 2016--Aug 04, 2016
Date of Report	:	Aug 05, 2016

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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 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

(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 classic 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, π/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.Accessory and Auxiliary Equipment

PC	Manufacturer: LENOVO M/N: 4290-RT8 S/N: R9-FW93G 11/08

1.3.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

1.4.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2

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	CBLU1183540-01	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	WHKX3.6/18G-10SS	N/A	Jan. 10, 2016	Jan. 09, 2017
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 10, 2016	Jan. 09, 2017

3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: Transmitting mode
Low Channel: 2402MHz
Middle Channel: 2441MHz
High Channel: 2480MHz
Hopping

3.2.Configuration and peripherals

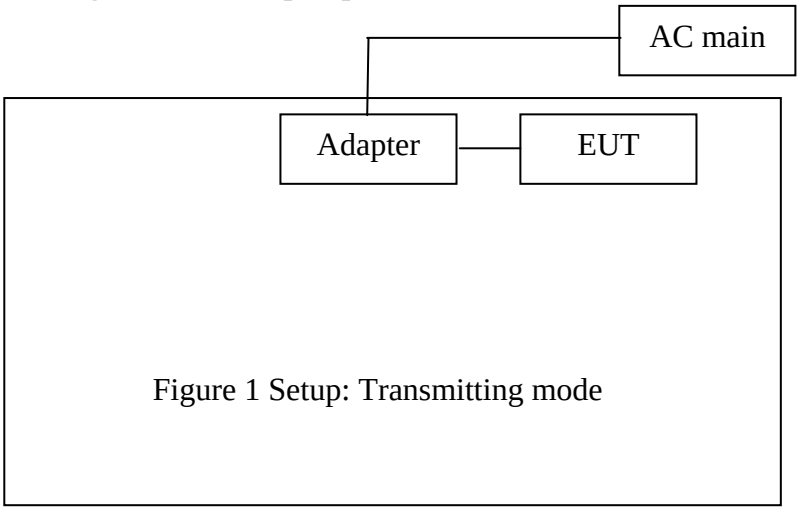


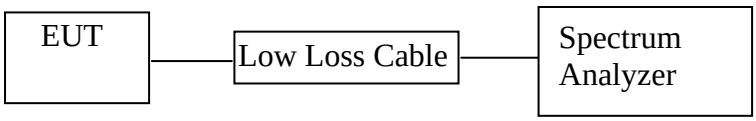
Figure 1 Setup: Transmitting mode

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: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER)

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 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.

5.4.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.

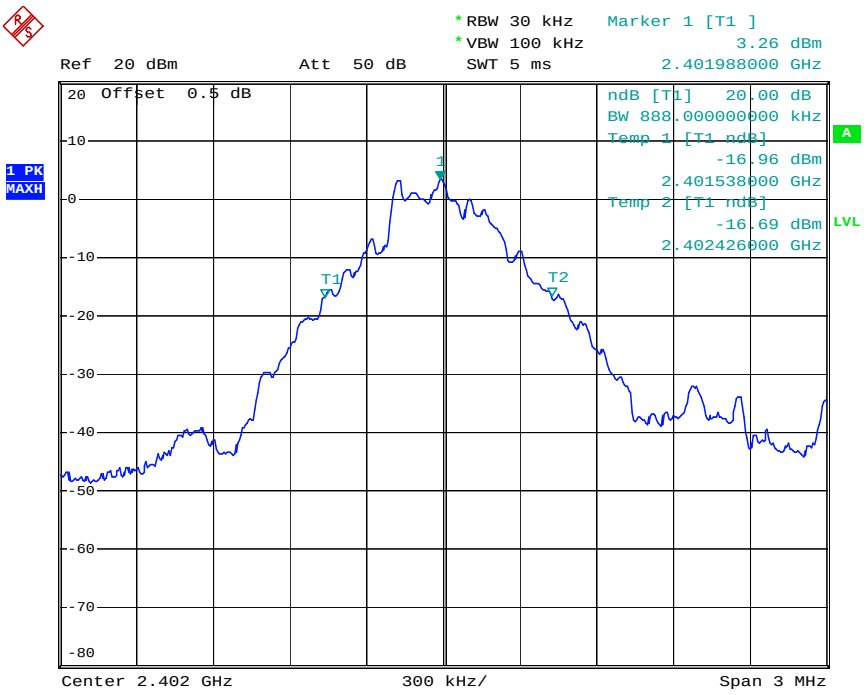
5.6.Test Result

Channel	Frequency (MHz)	GFSK 20dB Bandwidth (MHz)	Π/4-DQPSK 20dB Bandwidth (MHz)	8DPSK 20dB Bandwidth (MHz)	Result
Low	2402	0.888	1.254	1.242	Pass
Middle	2441	0.894	1.260	1.266	Pass
High	2480	0.894	1.254	1.266	Pass

The spectrum analyzer plots are attached as below.

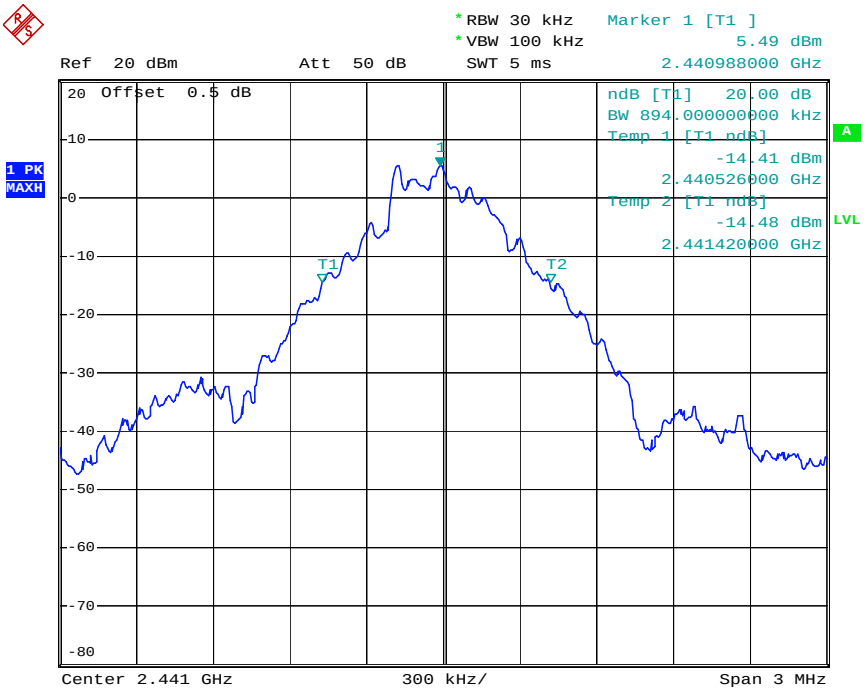
GFSK Mode

Low channel



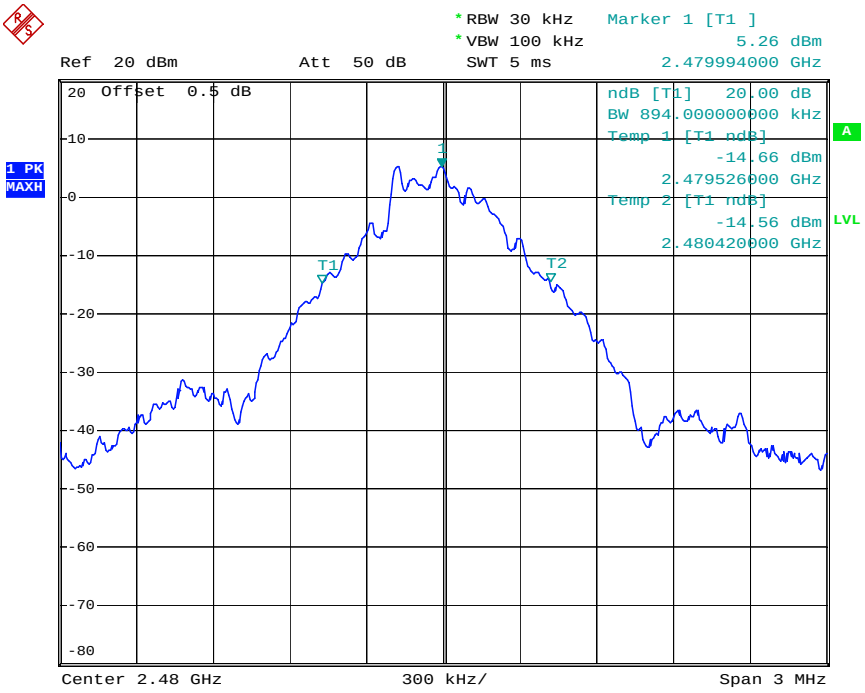
Date: 14.JUN.2016 10:30:50

Middle channel



Date: 14.JUN.2016 10:31:40

High channel



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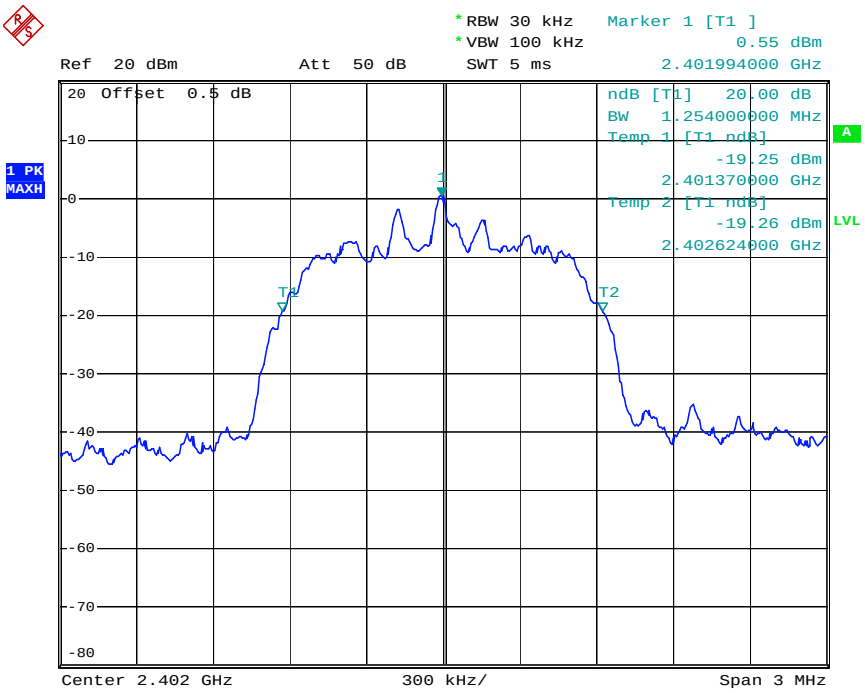
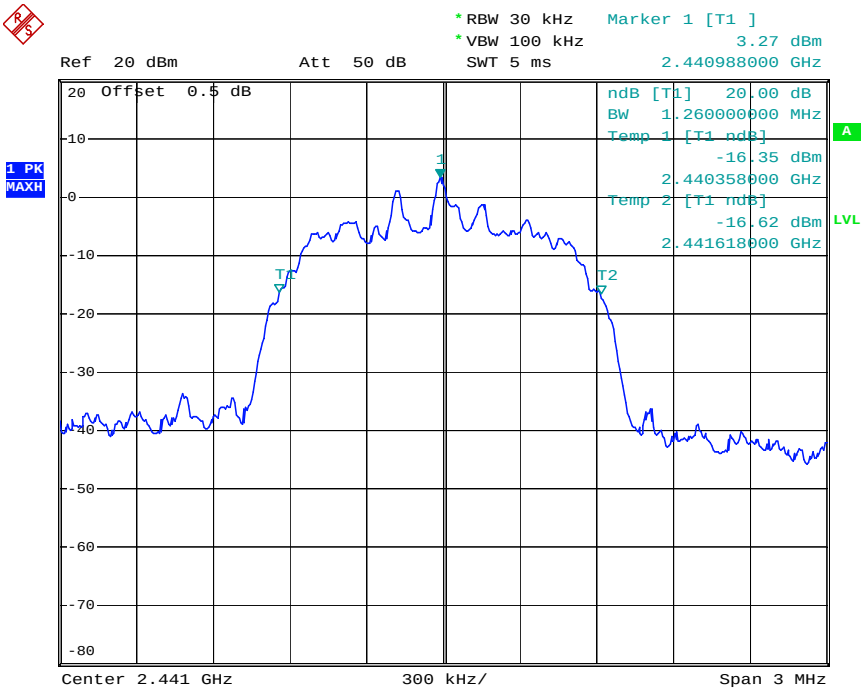
Π/4-DQPSK Mode

Low channel



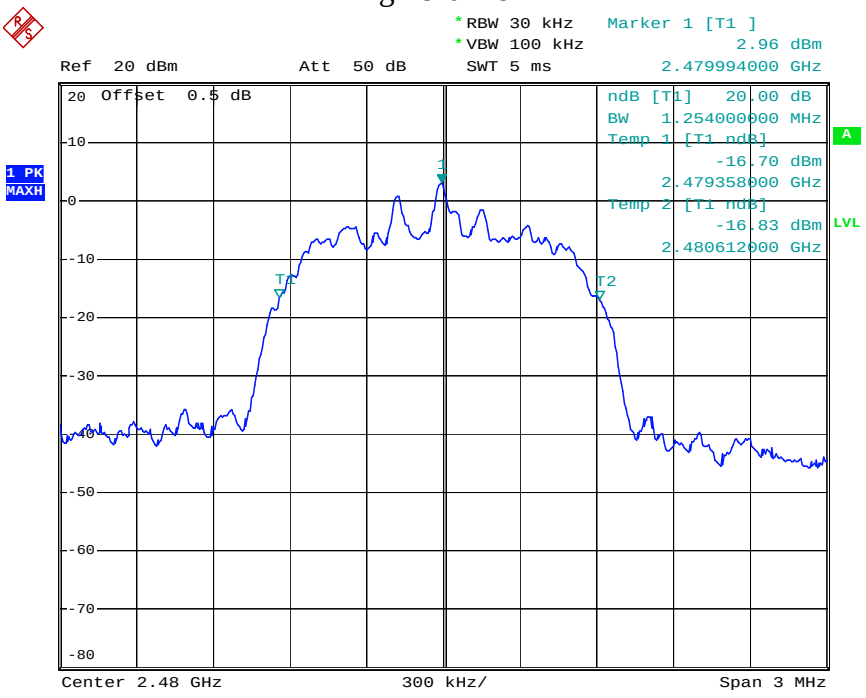
Date: 14.JUN.2016 10:34:50

Middle channel



Date: 14.JUN.2016 10:35:34

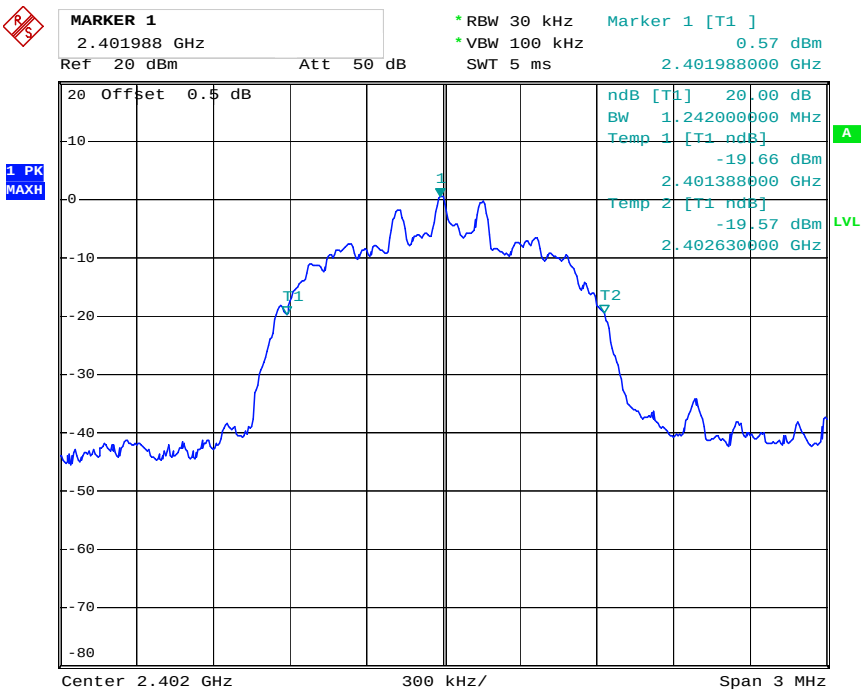
High channel



Date: 14.JUN.2016 10:36:12

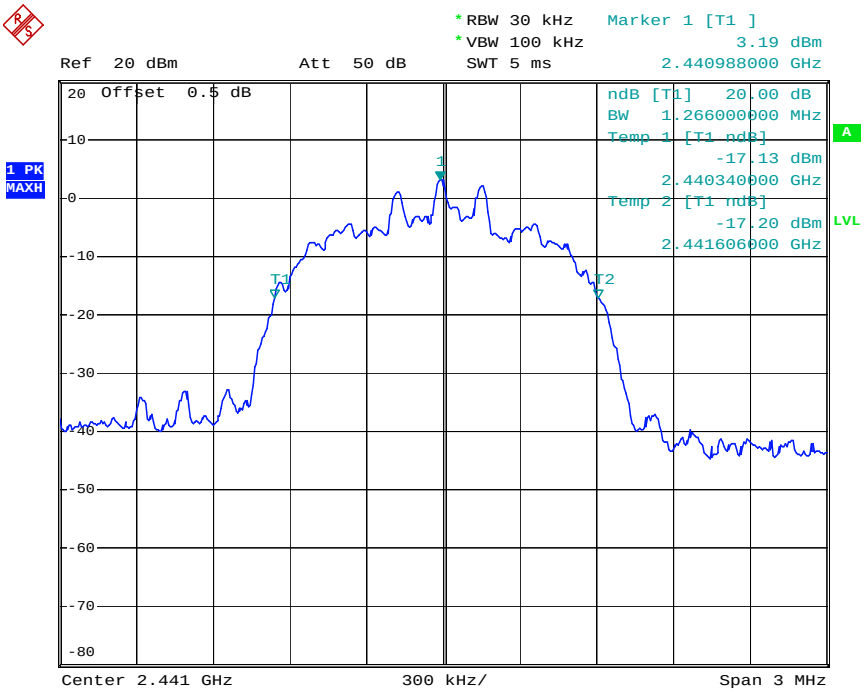
8DPSK Mode

Low channel



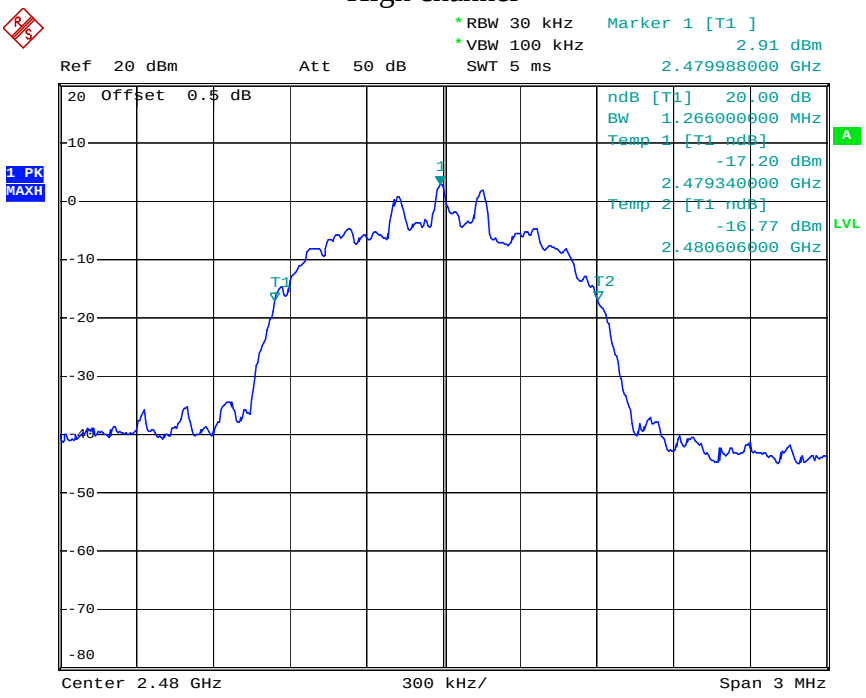
Date: 14.JUN.2016 10:37:32

Middle channel



Date: 14.JUN.2016 10:38:19

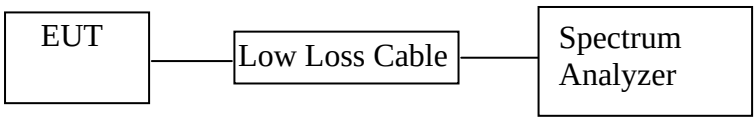
High channel



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

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



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

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 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.

6.4.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 30 kHz and VBW to 100 kHz. Adjust Span to 2MHz.

6.5.3.Set the adjacent channel of the EUT Maxhold another trace.

6.5.4.Measurement the channel separation

6.6.Test Result

GFSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 20dB bandwidth	PASS
	2403			
Middle	2440	1.014	25KHz or20dB bandwidth	PASS
	2441			
High	2479	1.008	25KHz or 20dB bandwidth	PASS
	2480			

Π/4-DQPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2480			

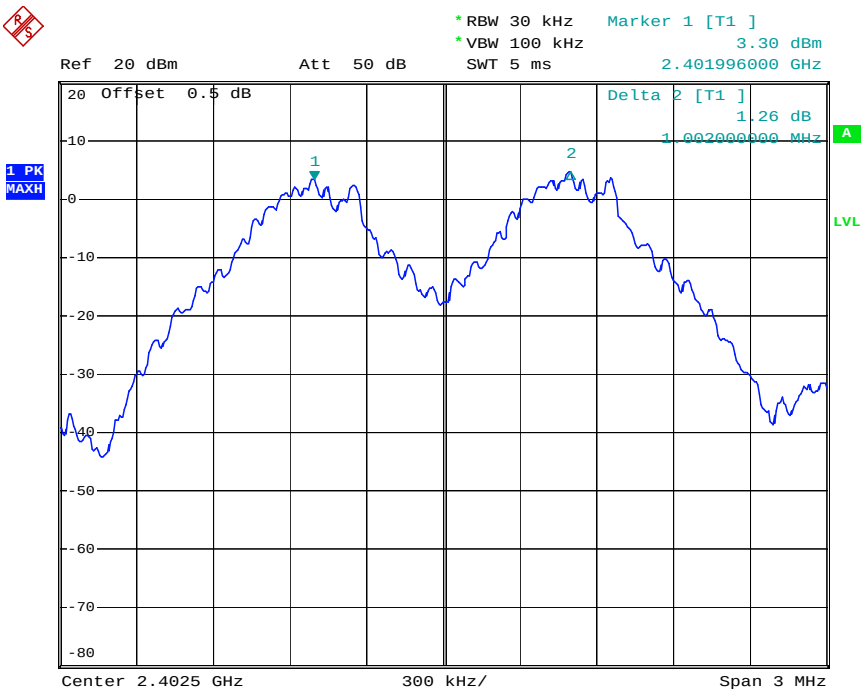
8DPSK

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.002	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.008	25KHz or 2/3*20dB bandwidth	PASS
	2480			

The spectrum analyzer plots are attached as below.

GFSK Mode

Low channel



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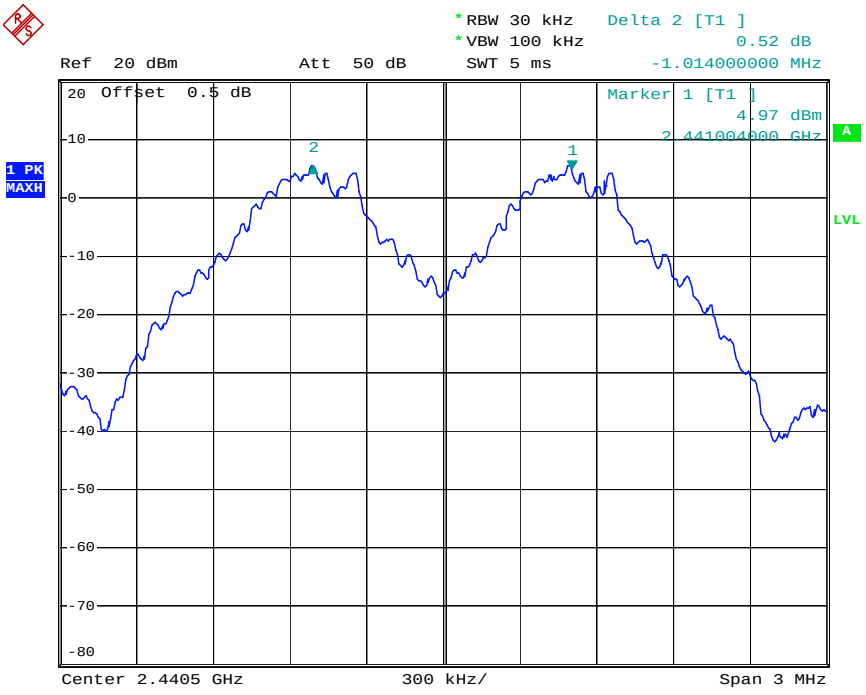
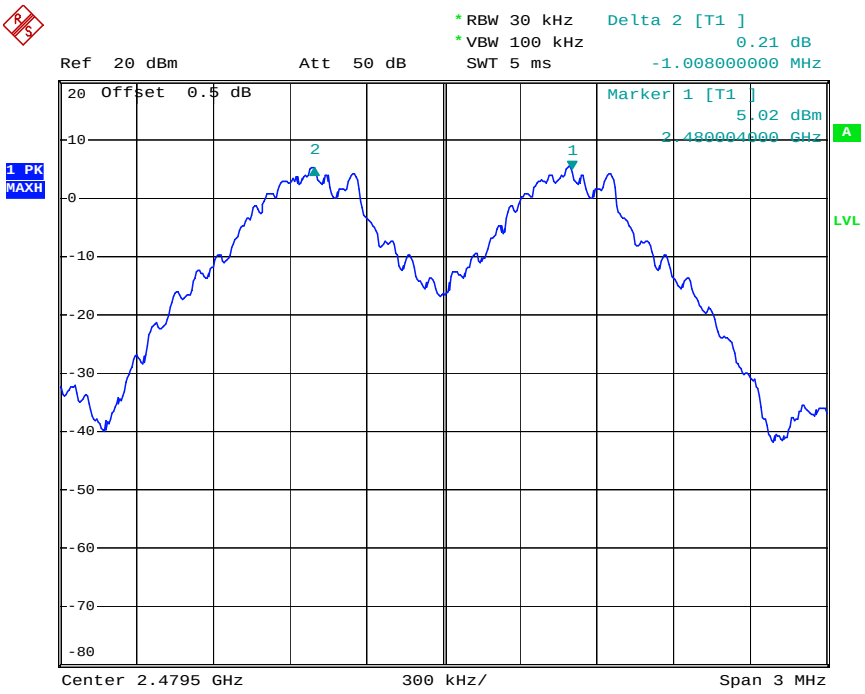
Middle channel



Date: 14.JUN.2016 11:17:13

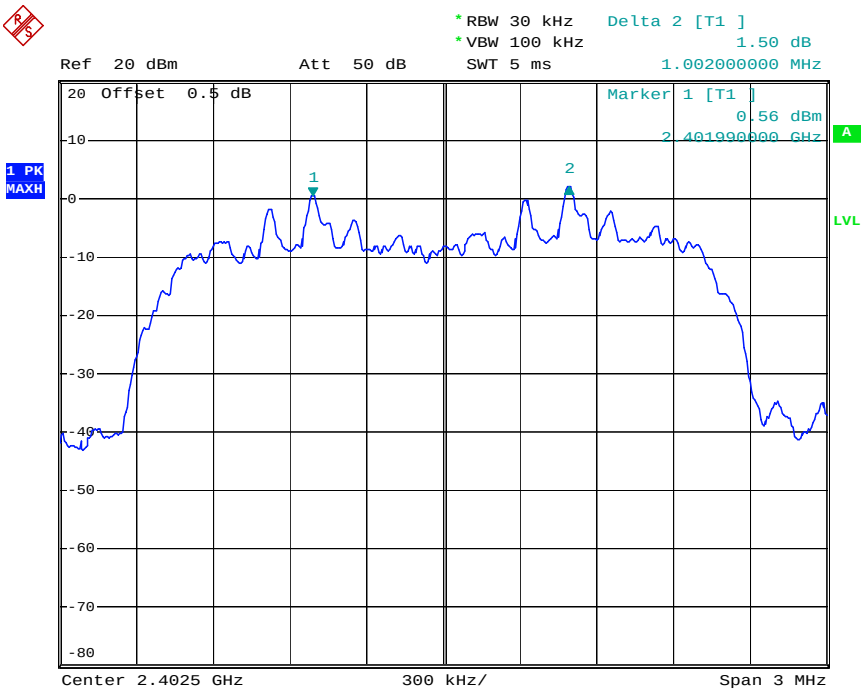
High channel



Date: 14.JUN.2016 11:18:38

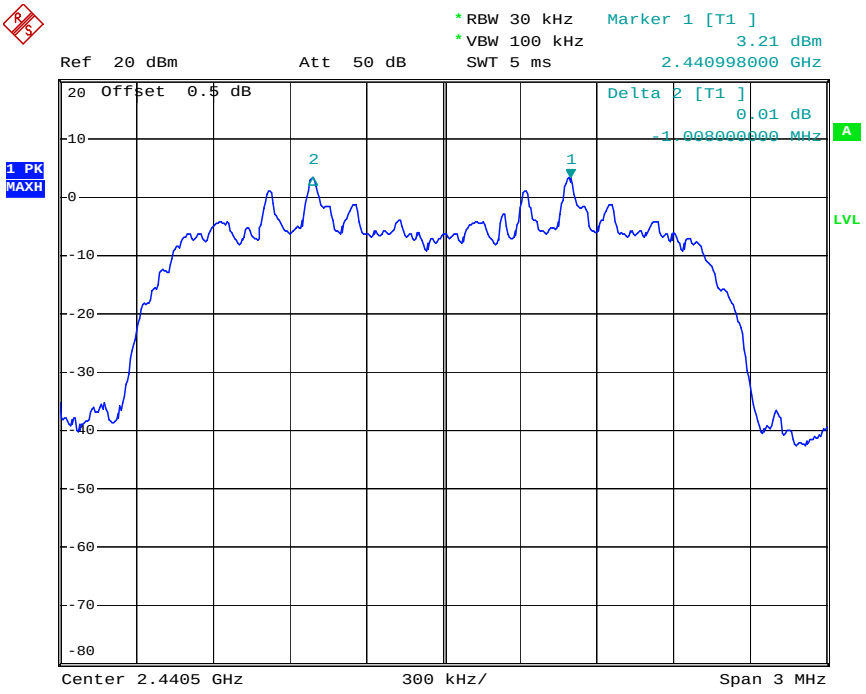
Π/4-DQPSK Mode

Low channel



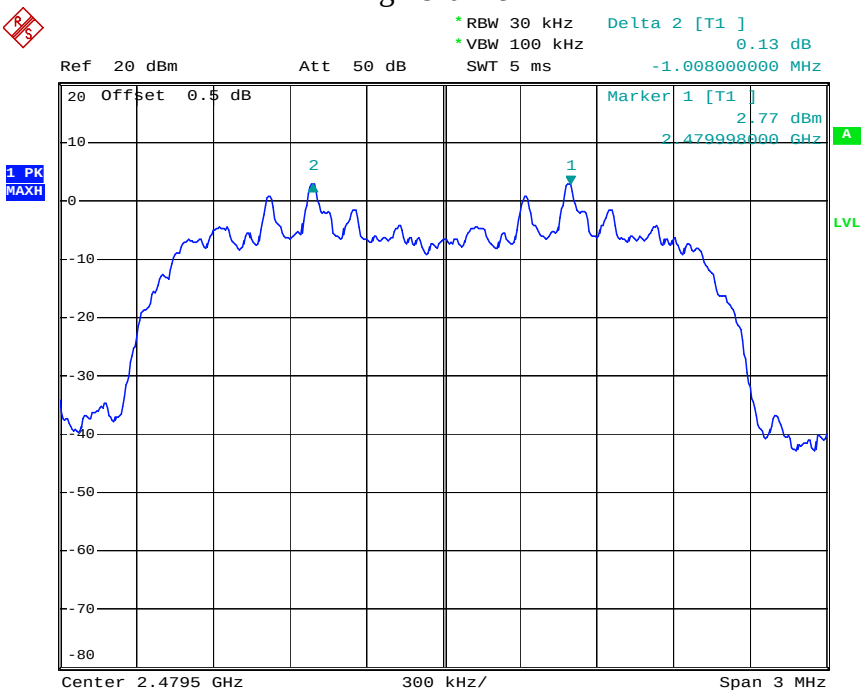
Date: 14.JUN.2016 11:21:06

Middle channel



Date: 14.JUN.2016 11:22:30

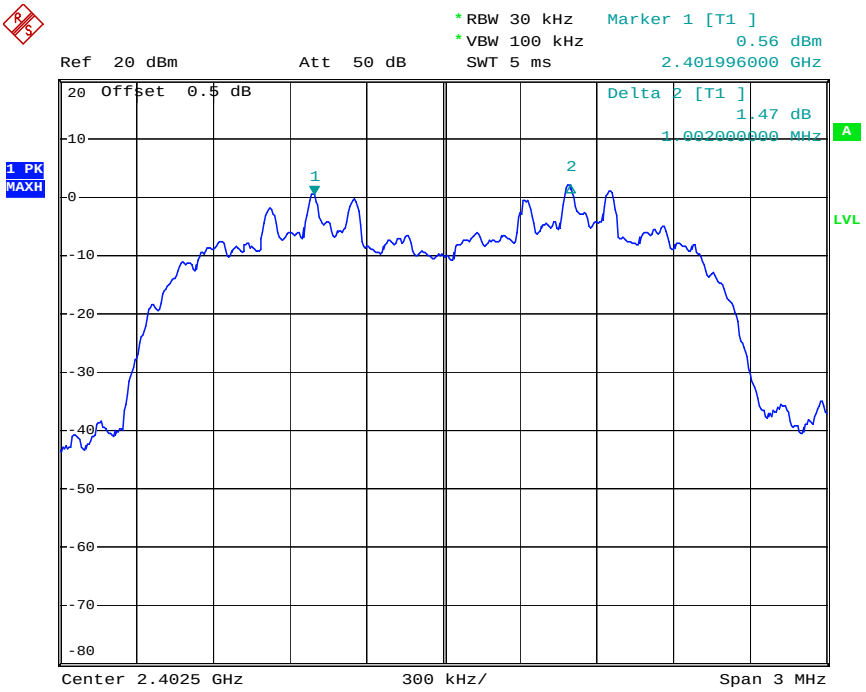
High channel



Date: 14.JUN.2016 11:23:41

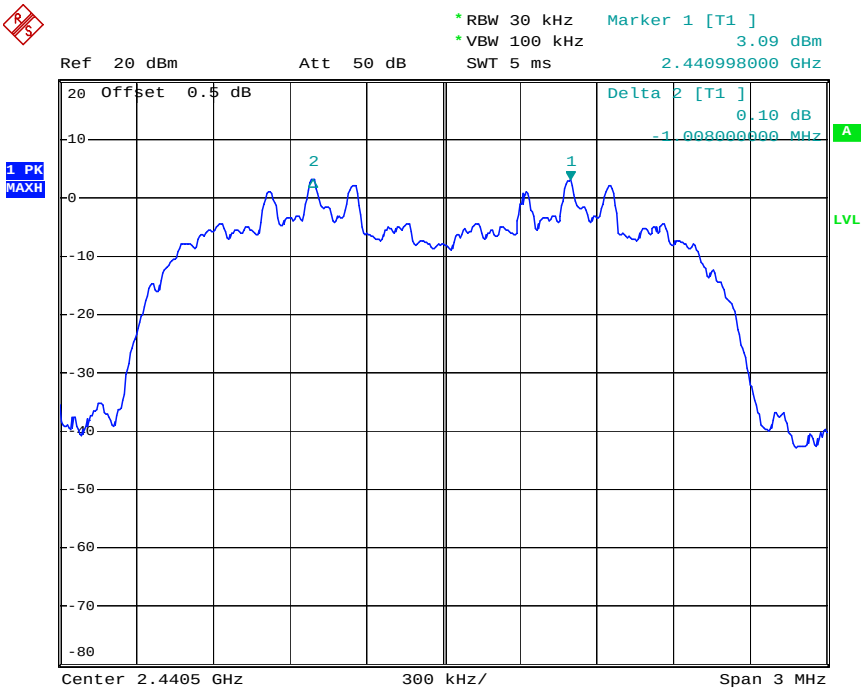
8DPSK Mode

Low channel



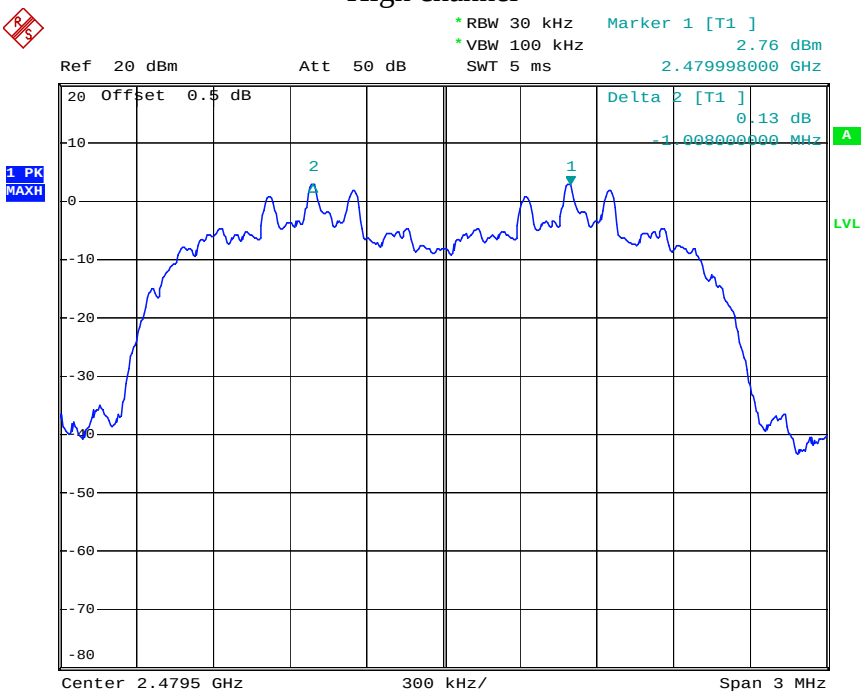
Date: 14.JUN.2016 11:30:00

Middle channel



Date: 14.JUN.2016 11:28:40

High channel



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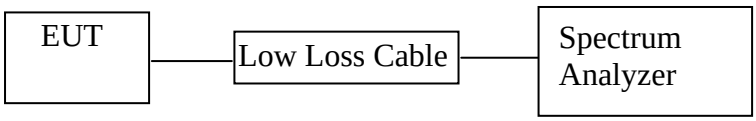
7. NUMBER OF HOPPING FREQUENCY TEST

7.1.Block Diagram of Test Setup



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

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 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 (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.

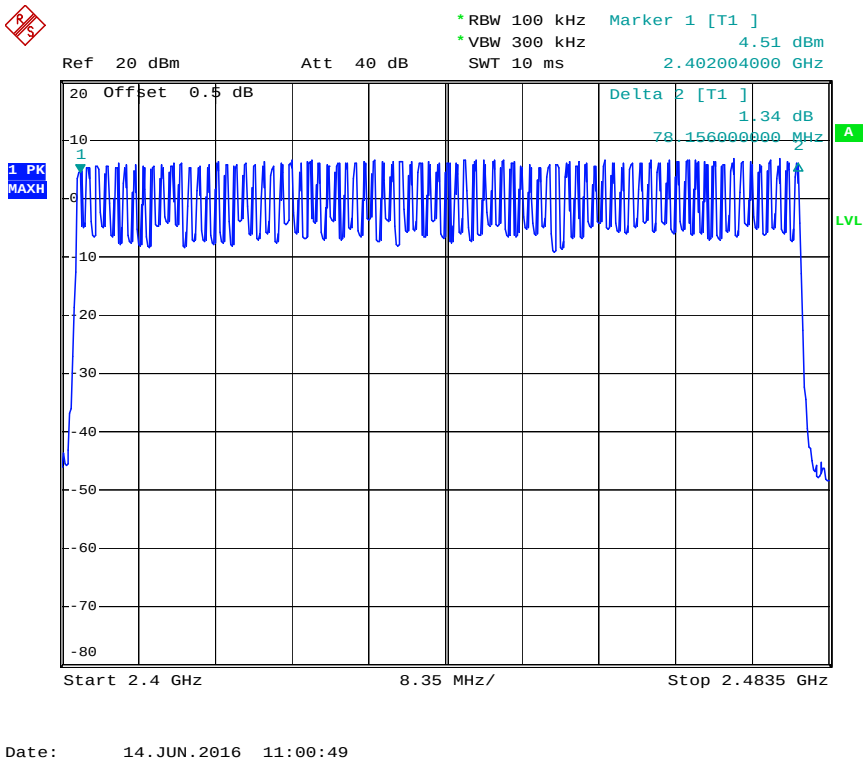
7.5.3.Max hold, view and count how many channel in the band.

7.6.Test Result

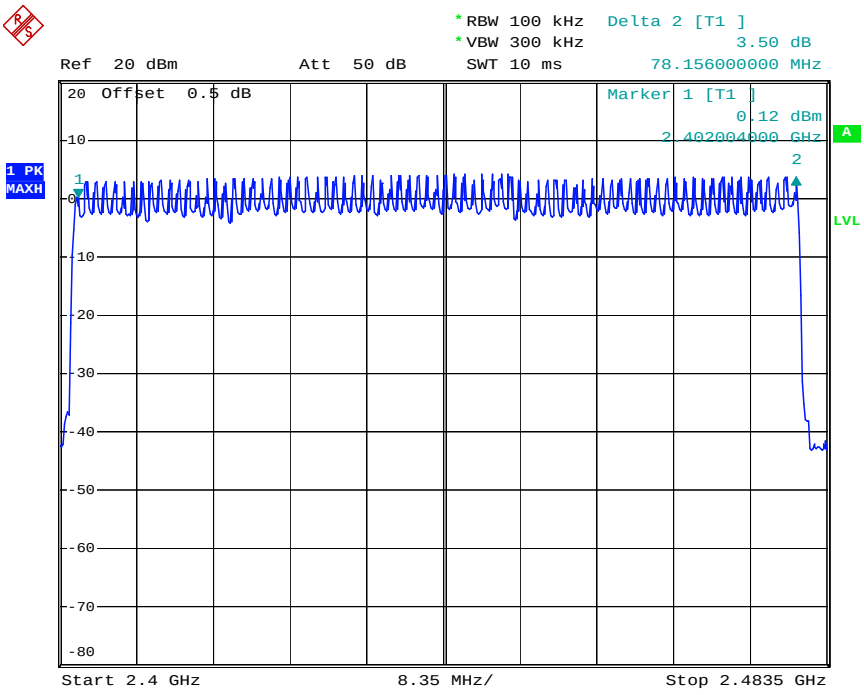
Total number of hopping channel	Measurement result(CH)	Limit(CH)
	79	⩾15

The spectrum analyzer plots are attached as below.

Number of hopping channels(GFSK)

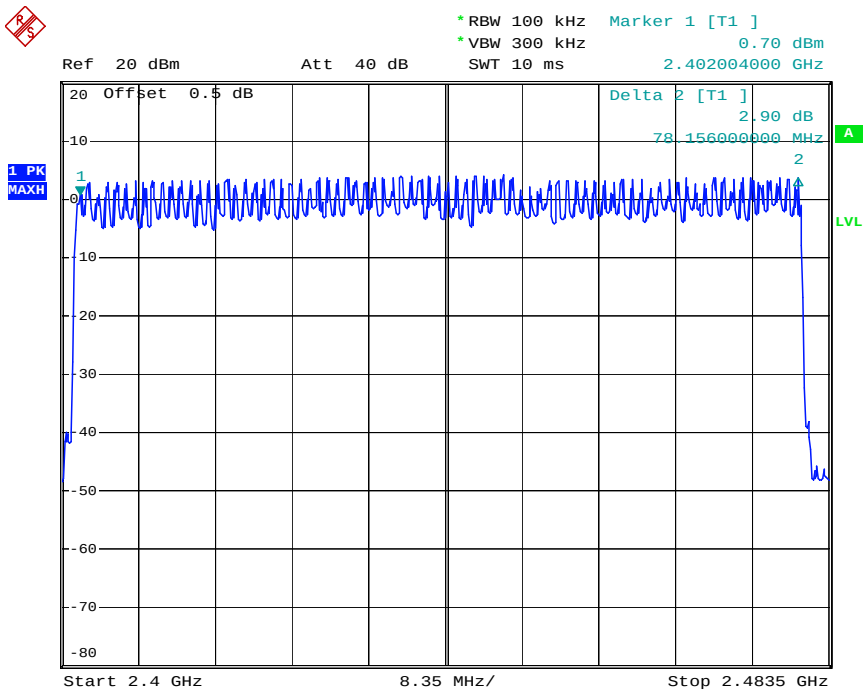


Number of hopping channels(Π/4-DQPSK)



Date: 14.JUN.2016 11:37:41

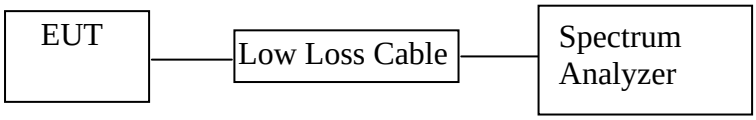
Number of hopping channels(8DPSK)



Date: 14.JUN.2016 11:06:42

8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



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

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 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 (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=1MHz, VBW=3MHz, Span=0Hz, Adjust Sweep=5ms, 10ms, 15ms. Get the pulse time.

8.5.4.Repeat above procedures until all frequency measured were complete.

8.6.Test Result

GFSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.450	144.00	400
	2441	0.460	147.20	400
	2480	0.450	144.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.710	273.60	400
	2441	1.710	273.60	400
	2480	1.710	273.60	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.030	323.20	400
	2441	3.070	327.47	400
	2480	3.070	327.47	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

Π/4-DQPSK

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.460	147.20	400
	2441	0.450	144.00	400
	2480	0.460	147.20	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.760	281.60	400
	2441	1.720	275.20	400
	2480	1.760	281.60	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.040	324.27	400
	2441	3.040	324.27	400
	2480	3.000	320.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

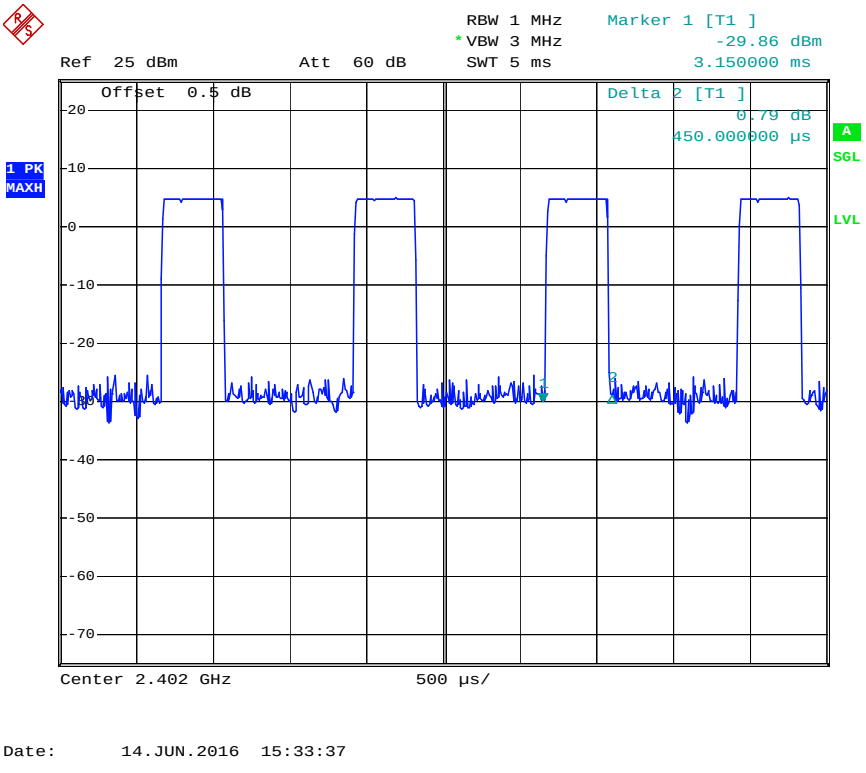
8DPSK Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.460	147.20	400
	2441	0.450	144.00	400
	2480	0.450	144.00	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.730	276.80	400
	2441	1.730	276.80	400
	2480	1.730	276.80	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	3.010	321.07	400
	2441	3.050	325.33	400
	2480	3.050	325.33	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

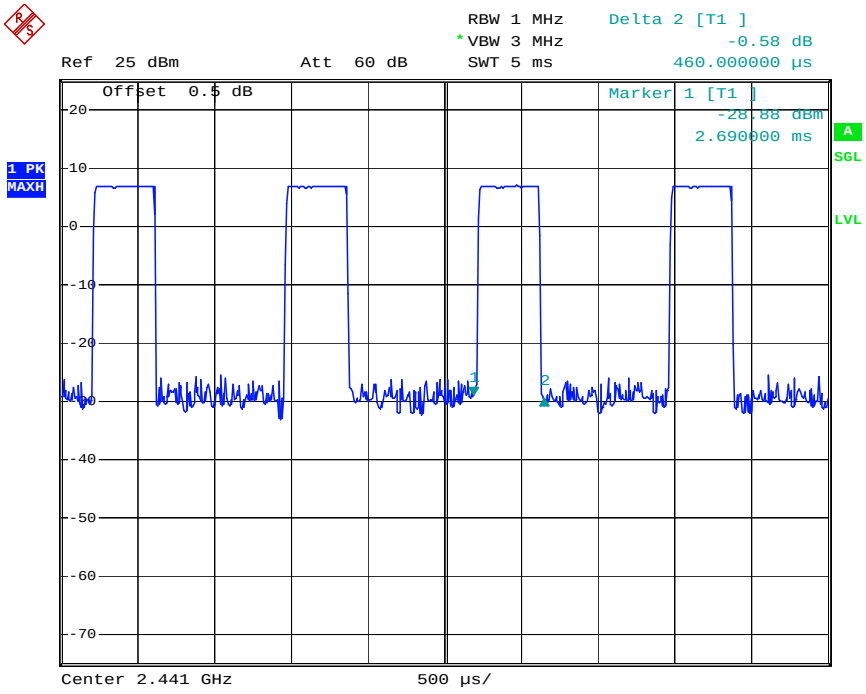
The spectrum analyzer plots are attached as below.

GFSK Mode

DH1 Low channel

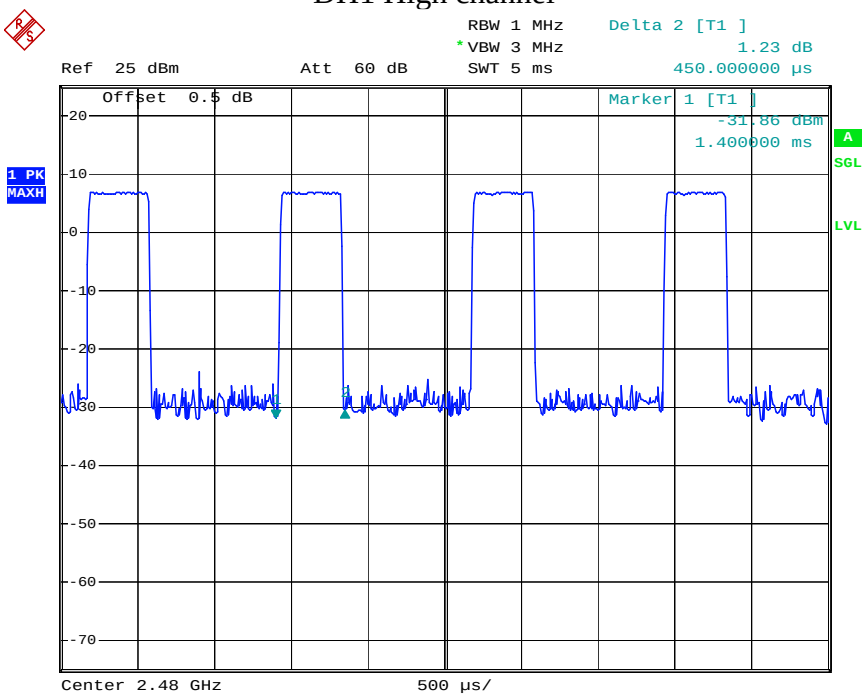


DH1 Middle channel



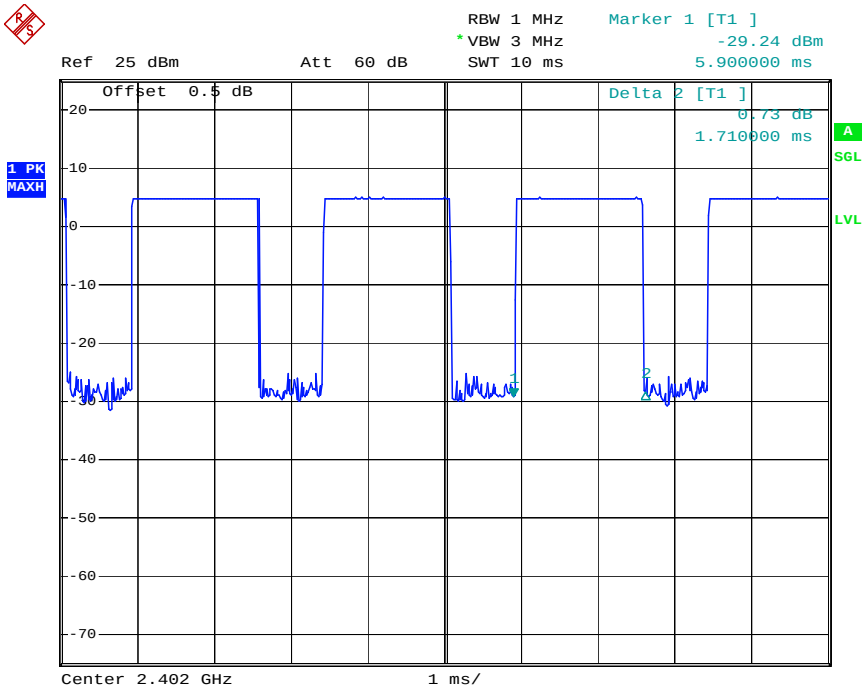
Date: 14.JUN.2016 15:34:52

DH1 High channel



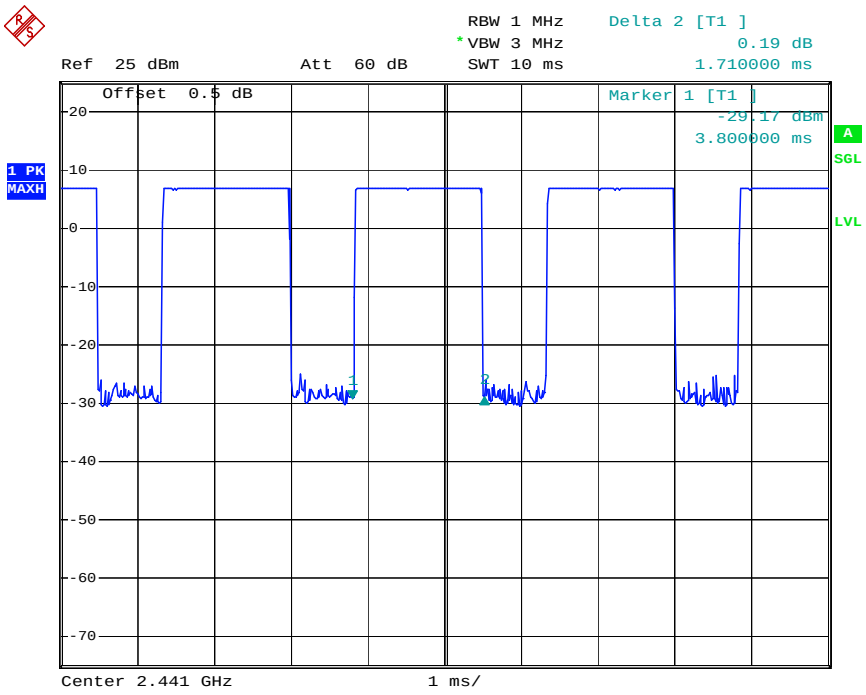
Date: 14.JUN.2016 15:35:49

DH3 Low channel



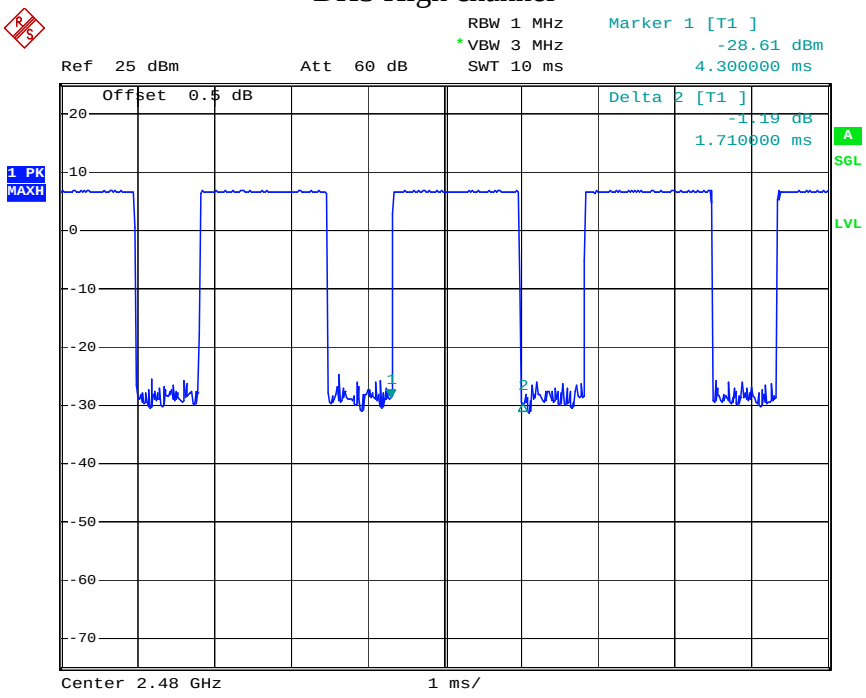
Date: 14.JUN.2016 15:38:49

DH3 Middle channel



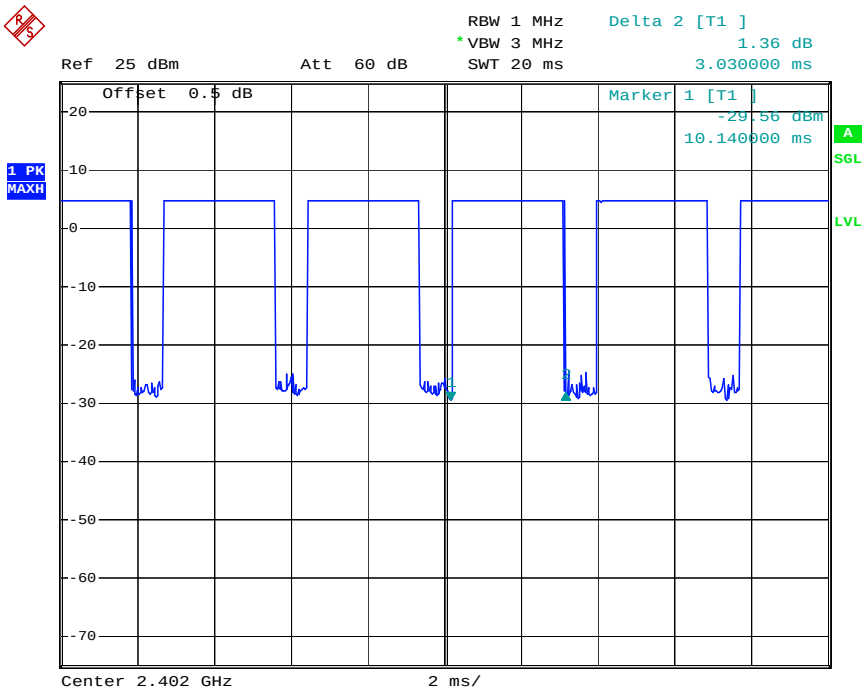
Date: 14.JUN.2016 15:40:09

DH3 High channel



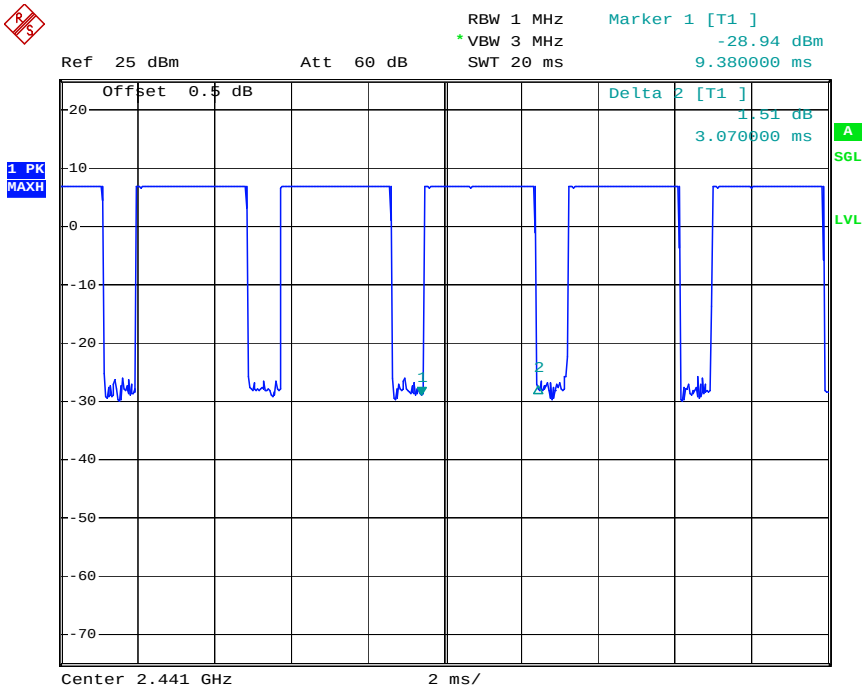
Date: 14.JUN.2016 15:40:40

DH5 Low channel



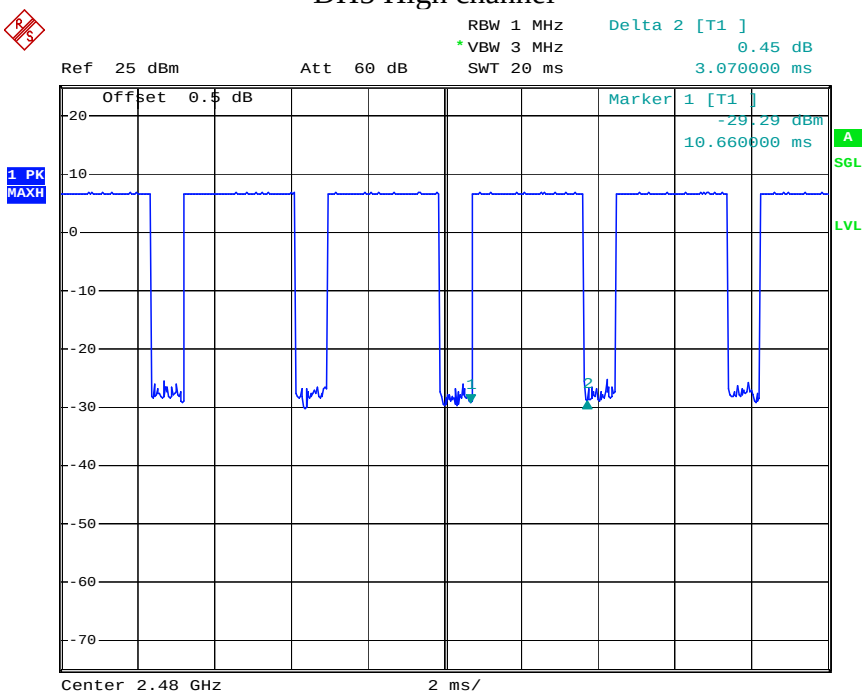
Date: 14.JUN.2016 15:43:03

DH5 Middle channel



Date: 14.JUN.2016 15:43:58

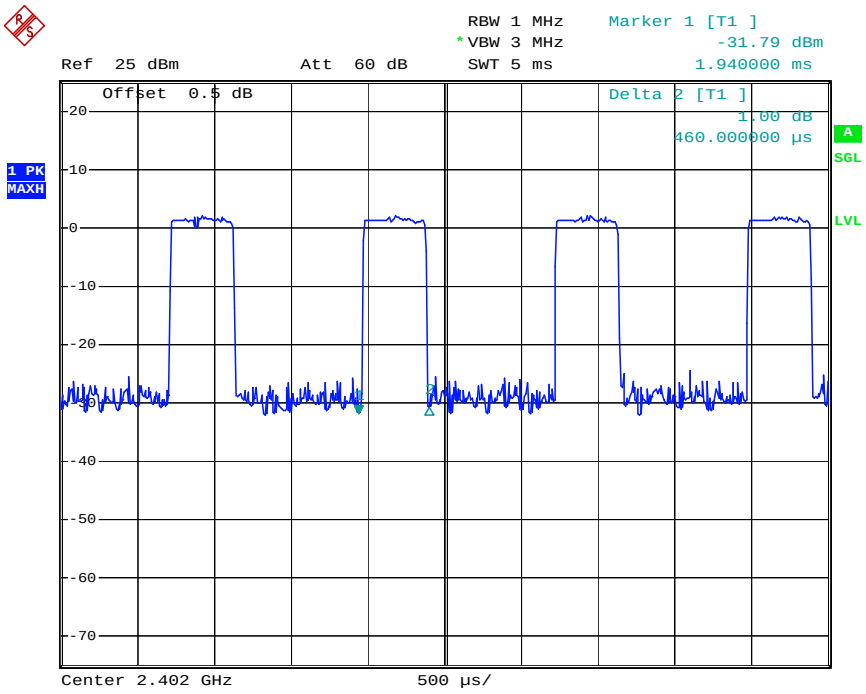
DH5 High channel



Date: 14.JUN.2016 15:45:14

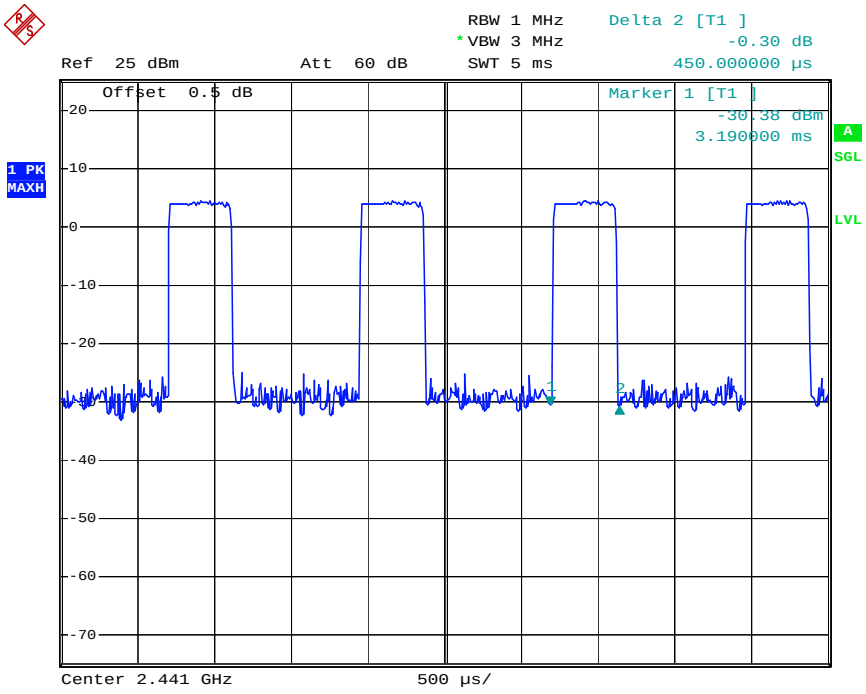
Π/4-DQPSK

2DH1 Low channel



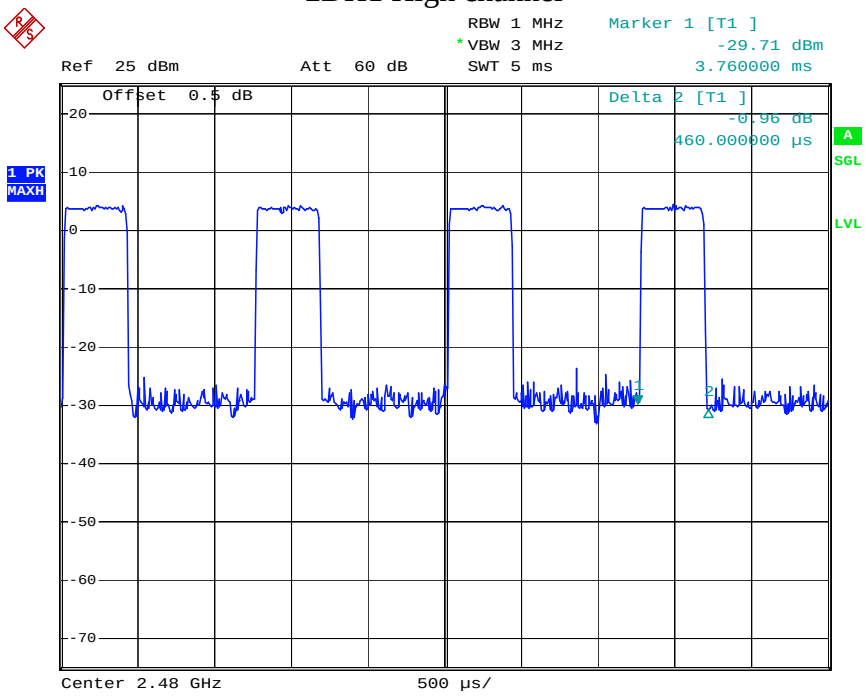
Date: 14.JUN.2016 15:46:12

2DH1 Middle channel



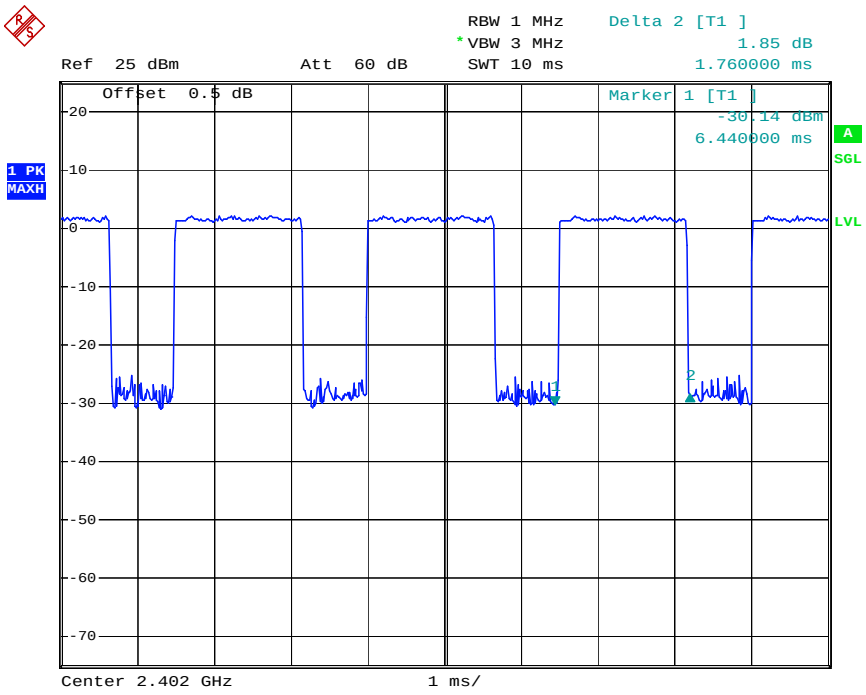
Date: 14.JUN.2016 15:47:13

2DH1 High channel



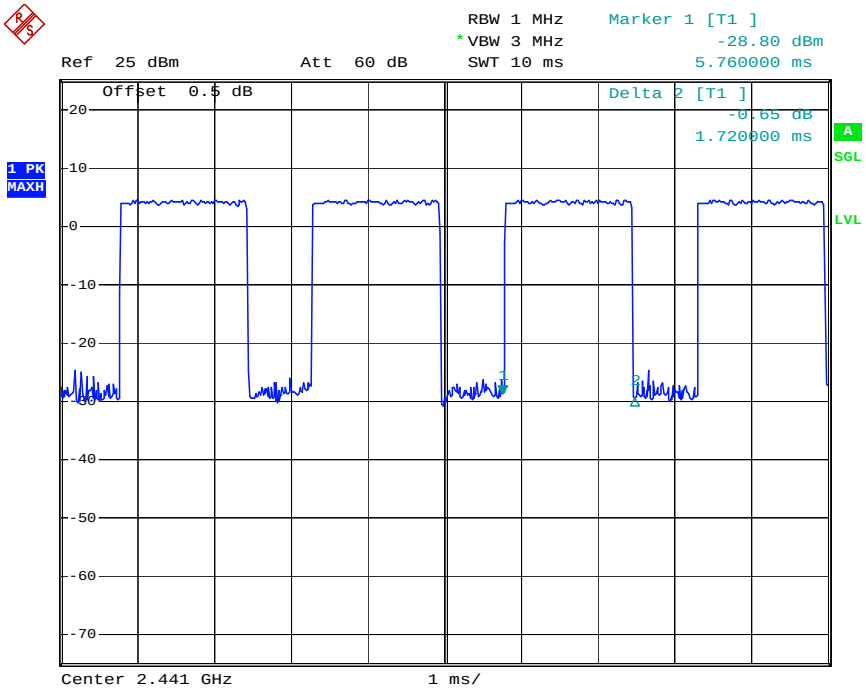
Date: 14.JUN.2016 15:48:07

2DH3 Low channel



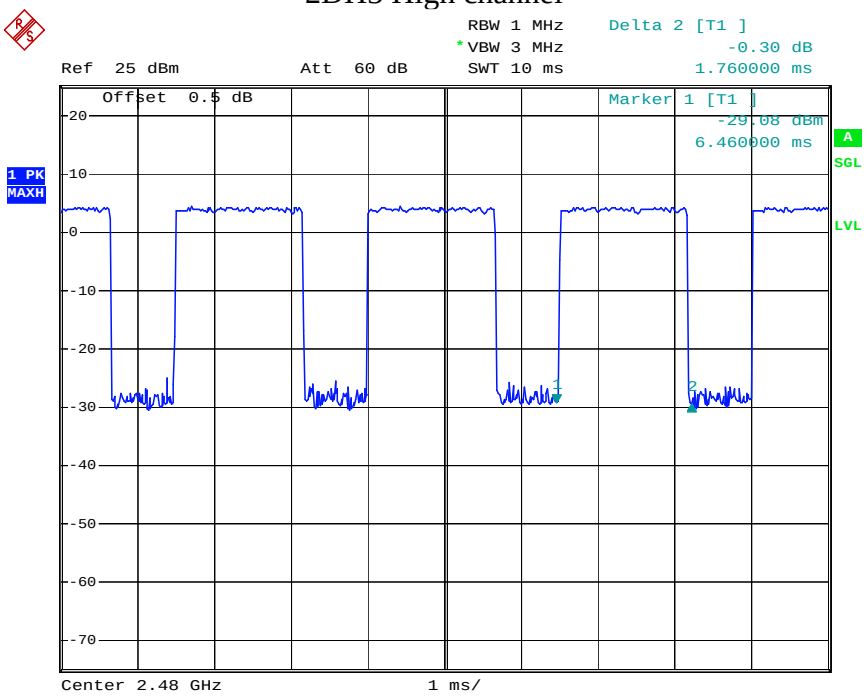
Date: 14.JUN.2016 15:49:26

2DH3 Middle channel



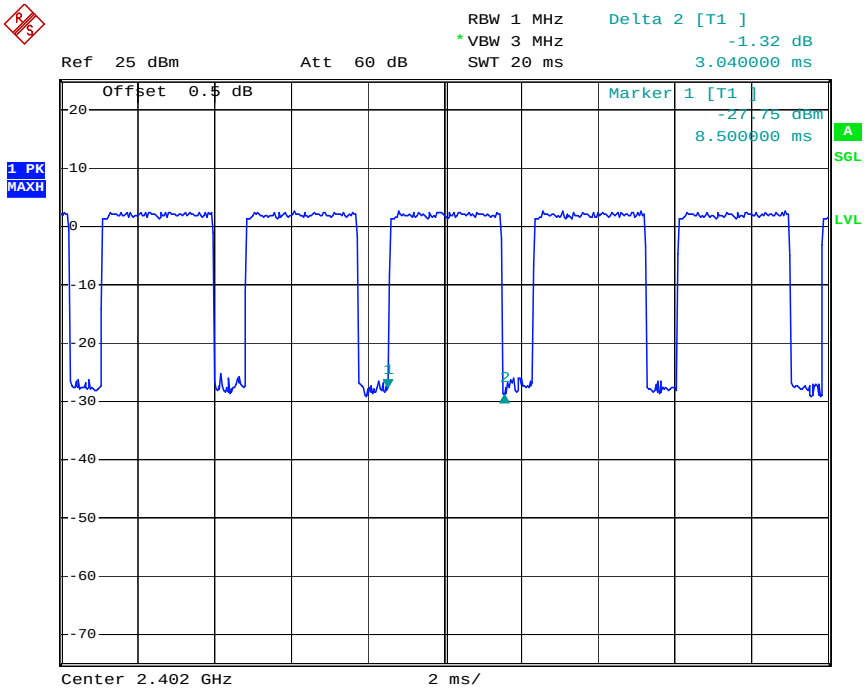
Date: 14.JUN.2016 15:50:31

2DH3 High channel



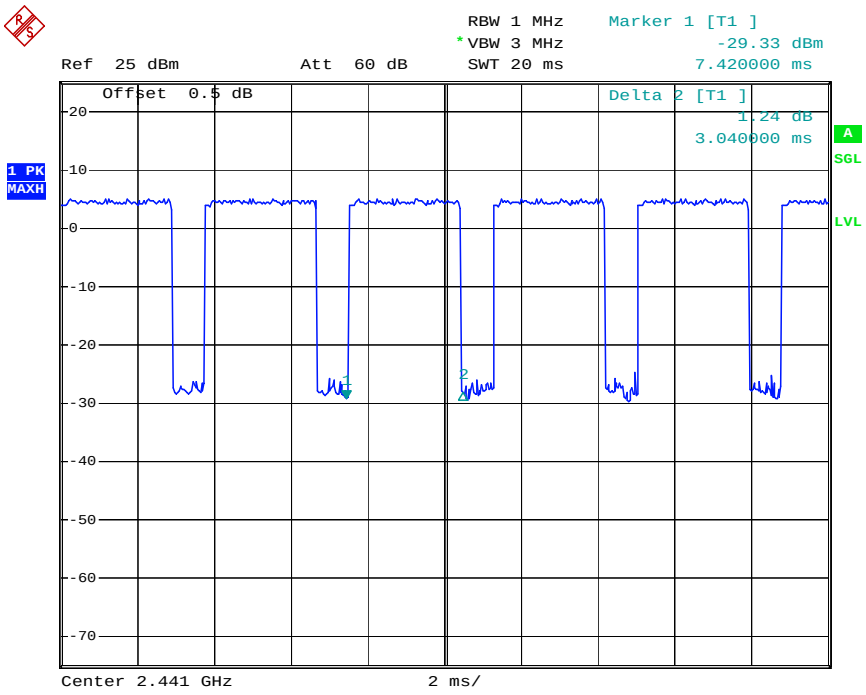
Date: 14.JUN.2016 15:51:05

2DH5 Low channel



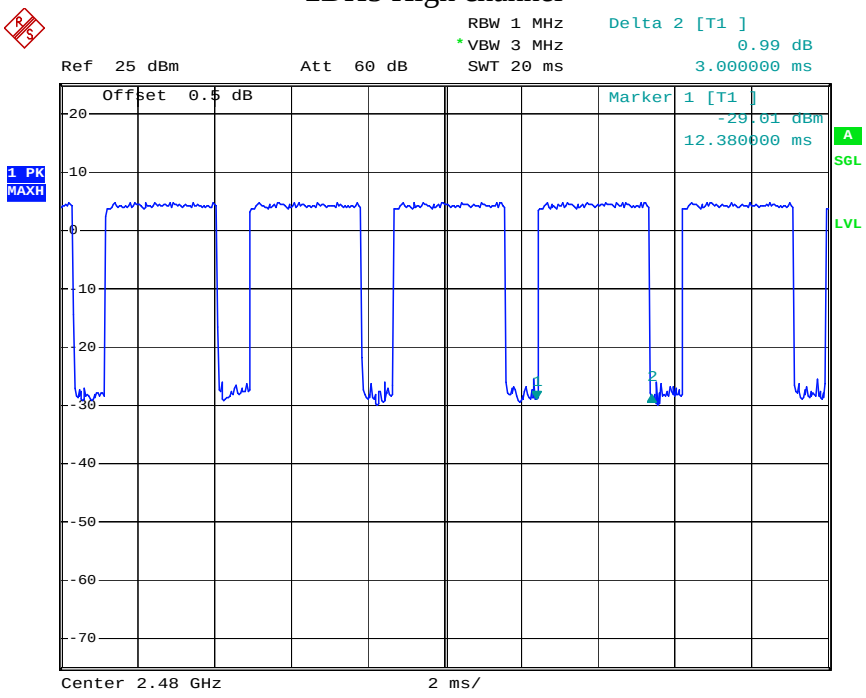
Date: 14.JUN.2016 15:53:47

2DH5 Middle channel



Date: 14.JUN.2016 15:54:41

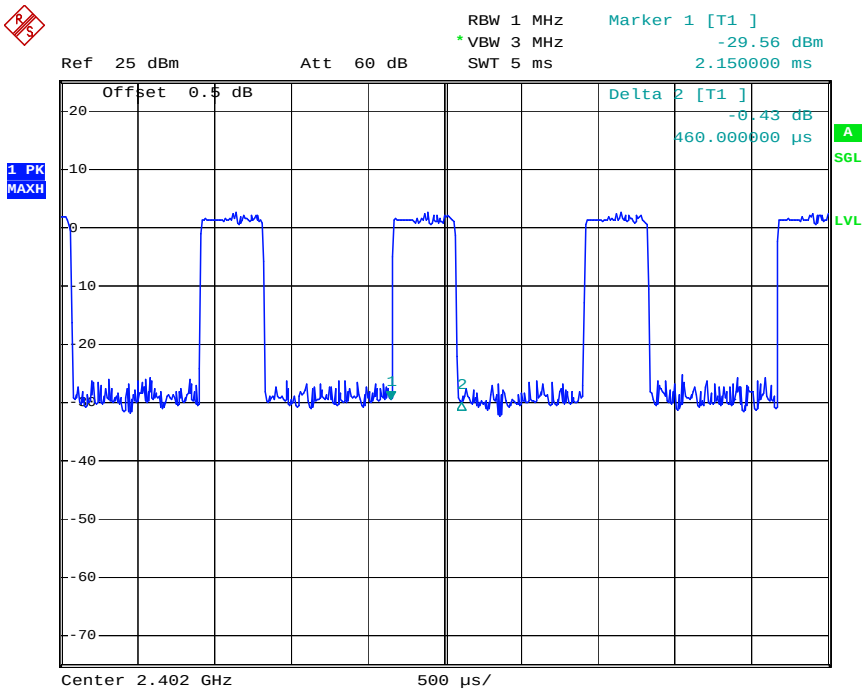
2DH5 High channel



Date: 14.JUN.2016 15:55:41

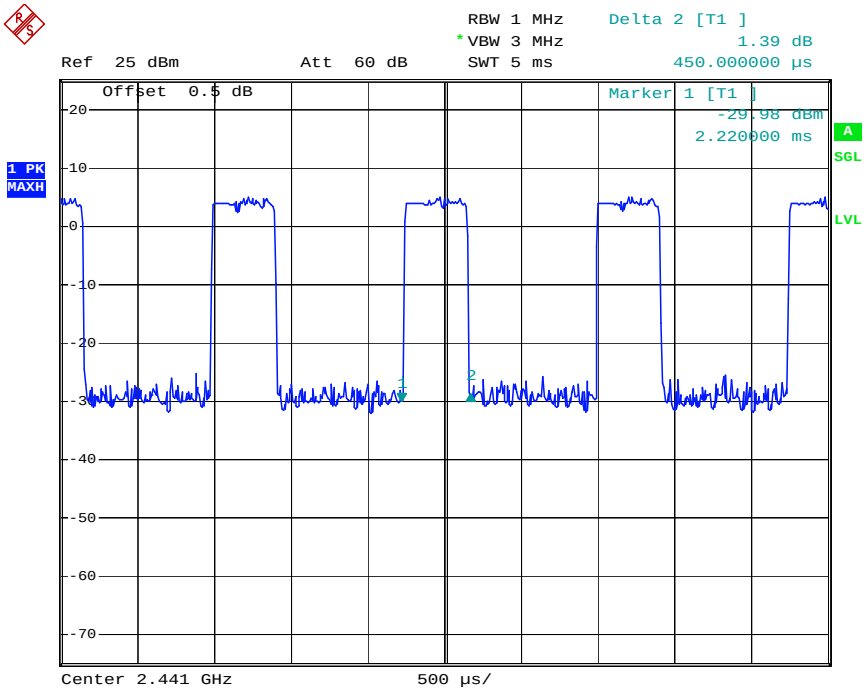
8DPSK Mode

3DH1 Low channel



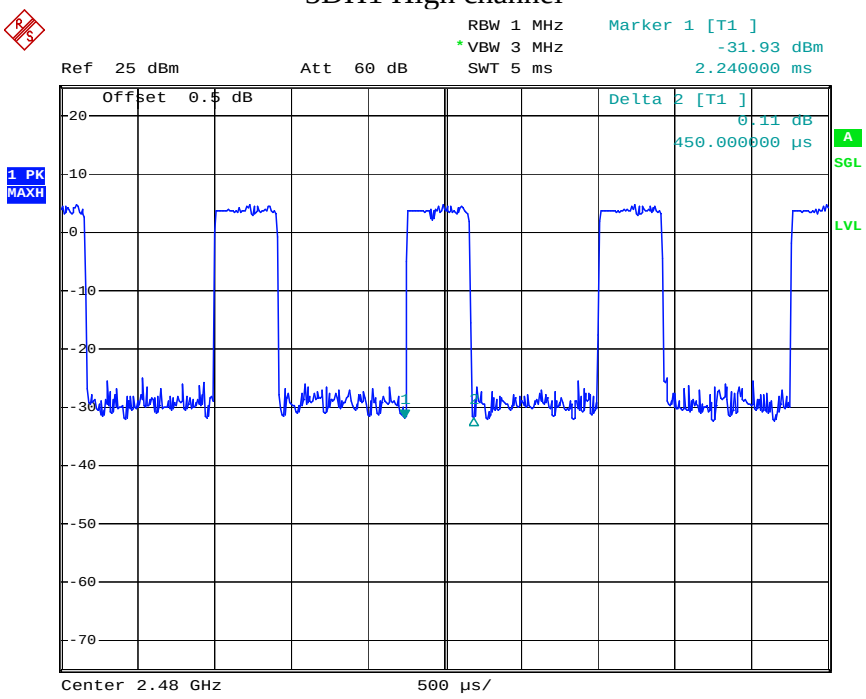
Date: 14.JUN.2016 15:56:52

3DH1 Middle channel



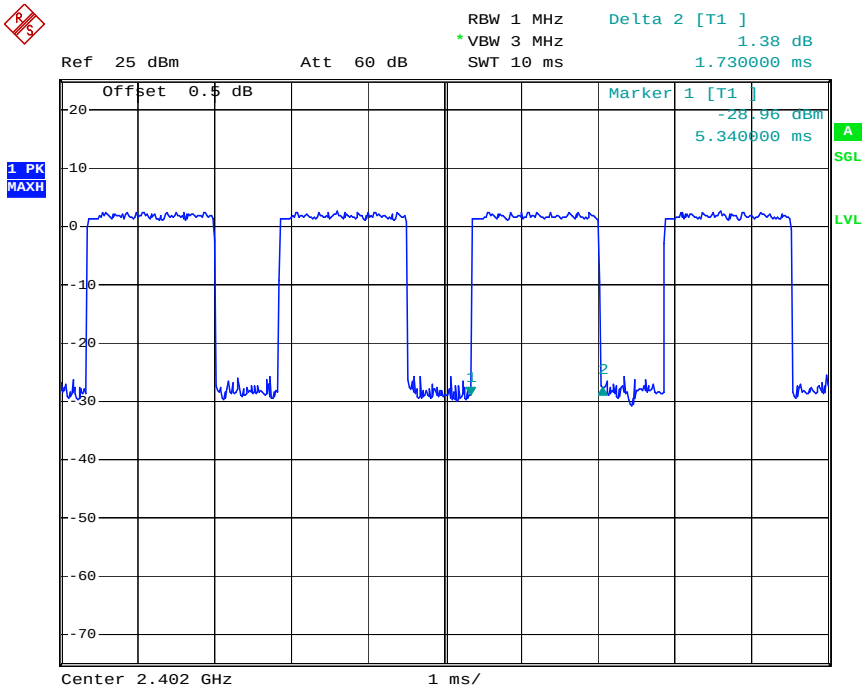
Date: 14.JUN.2016 15:57:34

3DH1 High channel



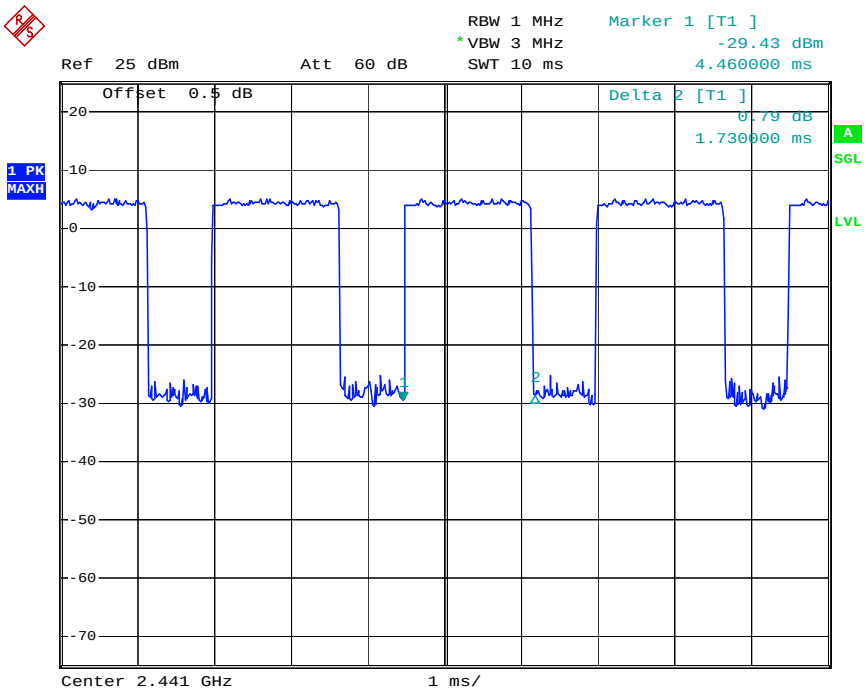
Date: 14.JUN.2016 15:58:02

3DH3 Low channel



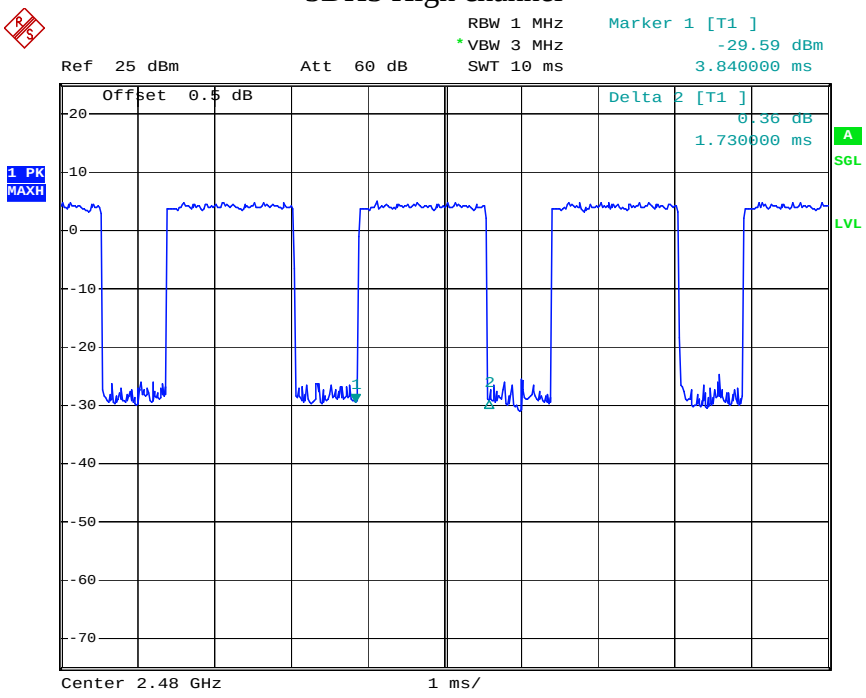
Date: 14.JUN.2016 15:59:23

3DH3 Middle channel



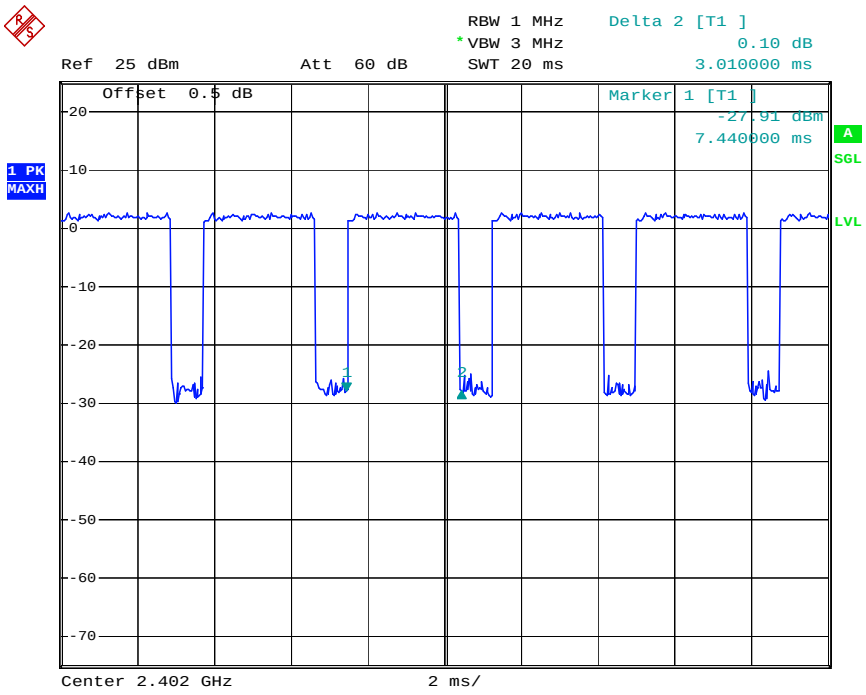
Date: 14.JUN.2016 16:01:17

3DH3 High channel



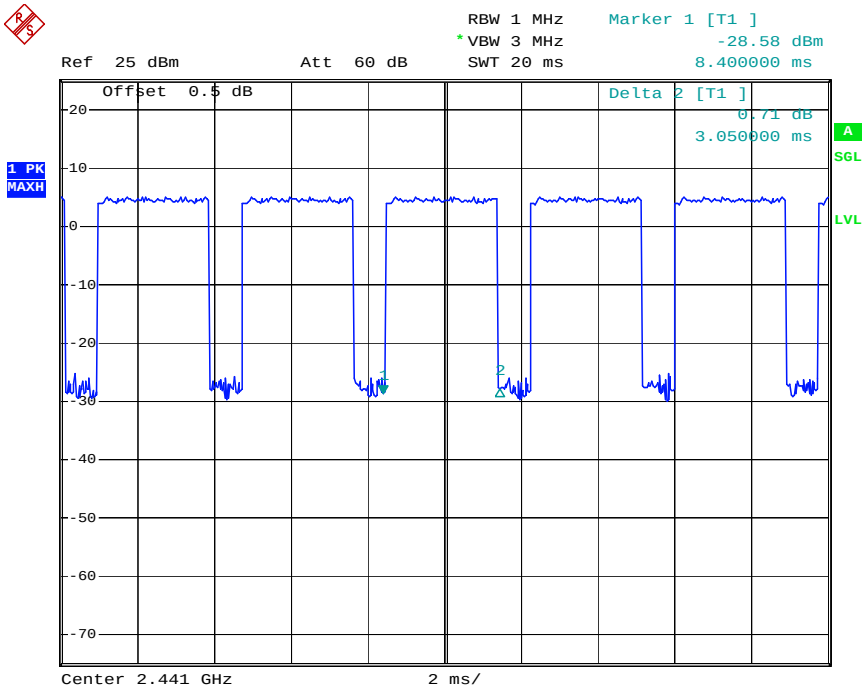
Date: 14.JUN.2016 16:02:33

3DH5 Low channel



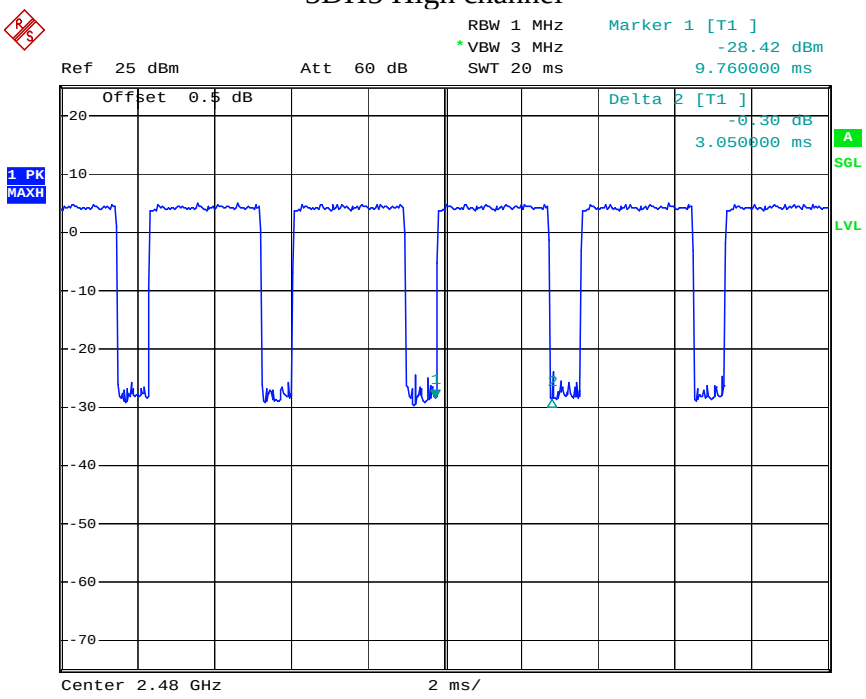
Date: 14.JUN.2016 16:04:17

3DH5 Middle channel



Date: 14.JUN.2016 16:05:14

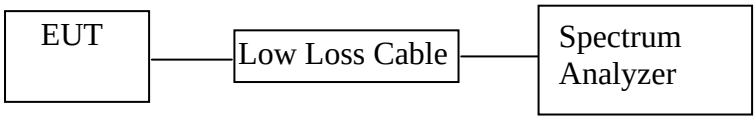
3DH5 High channel



Date: 14.JUN.2016 16:06:15

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1.Block Diagram of Test Setup



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

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 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 (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 for GFSK mode

9.5.3.Set RBW of spectrum analyzer to 3MHz and VBW to 3MHz for other mode

9.5.4.Measurement the maximum peak output power.

9.6.Test Result

GFSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	4.63/0.0029	30 / 1.0
Middle	2441	6.72/0.0047	30 / 1.0
High	2480	6.55/0.0045	30 / 1.0

Π/4-DQPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	4.67/0.0029	21 / 0.125
Middle	2441	6.75/0.0047	21 / 0.125
High	2480	6.64/0.0046	21 / 0.125

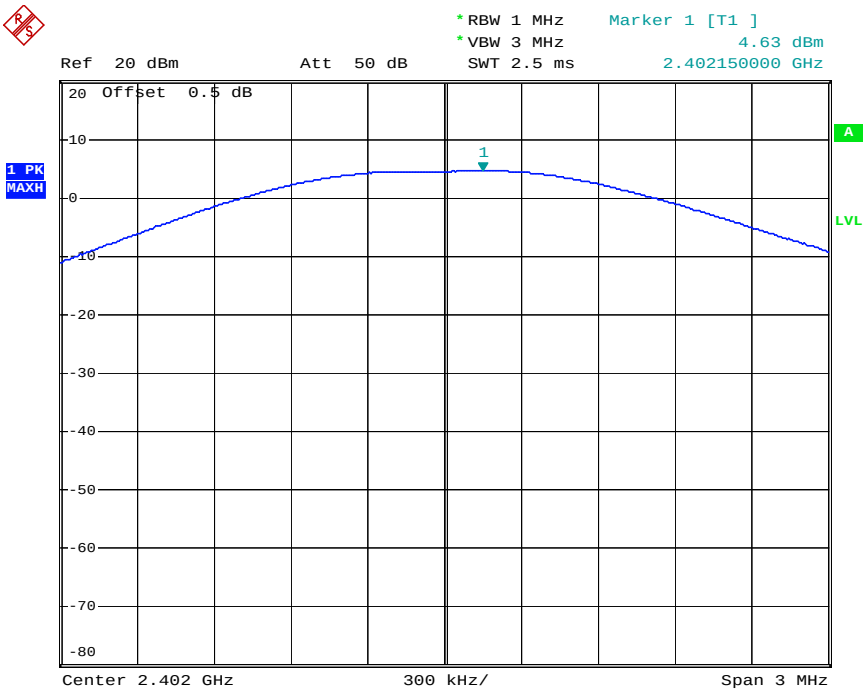
8DPSK Mode

Channel	Frequency (MHz)	Peak Output Power (dBm/W)	Limits dBm / W
Low	2402	2.34/0.0017	21 / 0.125
Middle	2441	4.89/0.0031	21 / 0.125
High	2480	4.59/0.0029	21 / 0.125

The spectrum analyzer plots are attached as below.

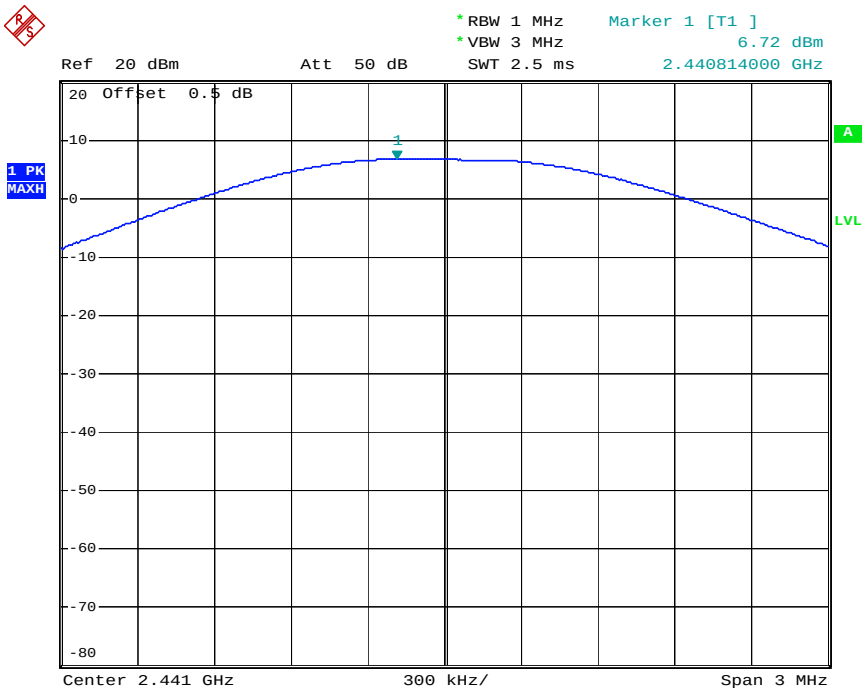
GFSK Mode

Low channel



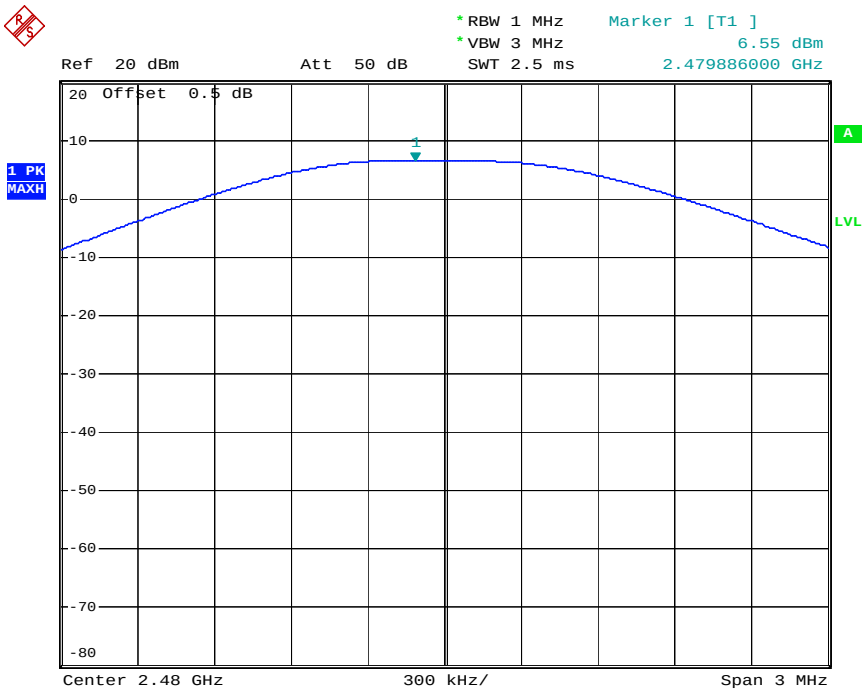
Date: 14.JUN.2016 11:41:09

Middle channel



Date: 14.JUN.2016 11:41:27

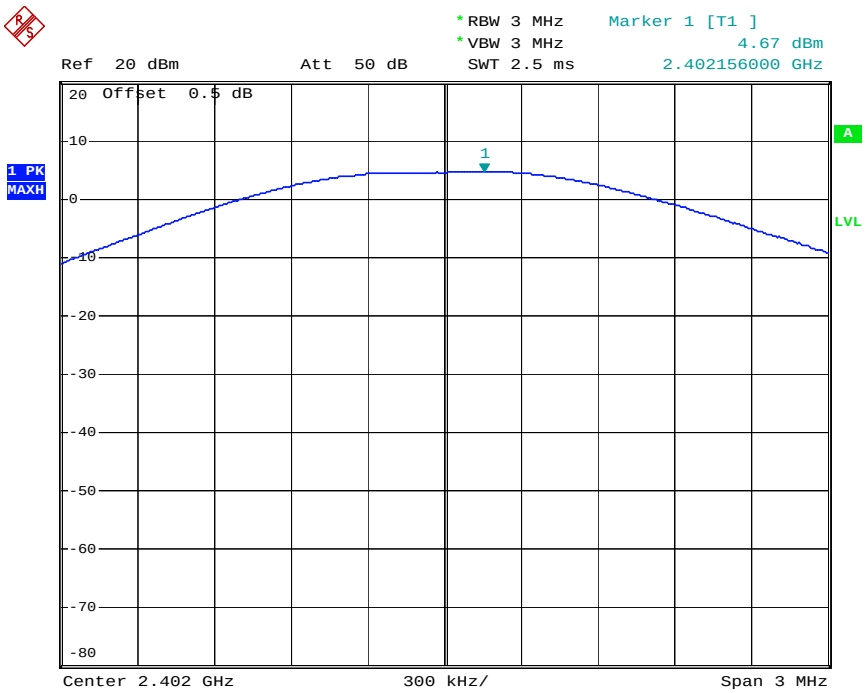
High channel



Date: 14.JUN.2016 11:41:44

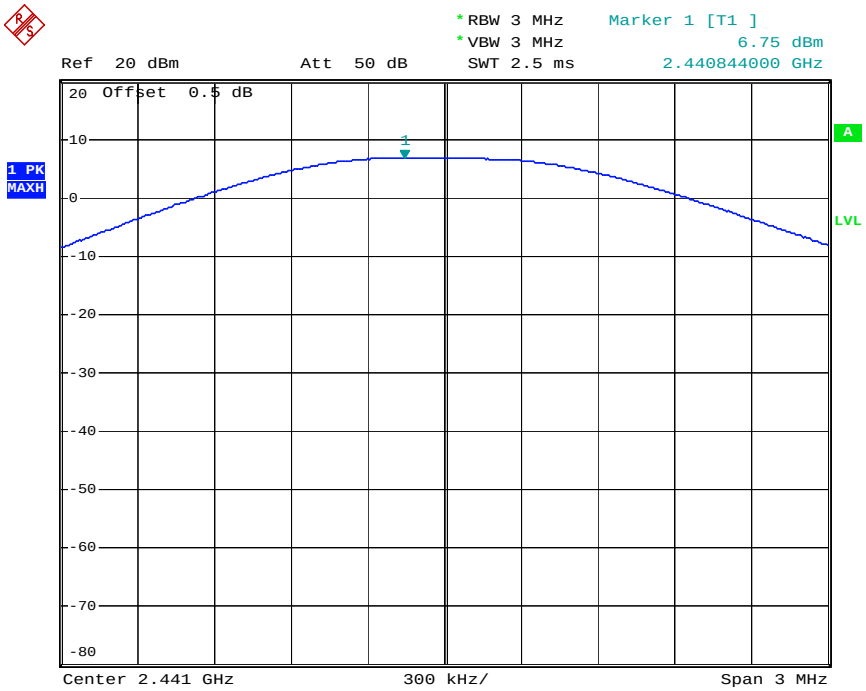
Π/4-DQPSK Mode

Low channel



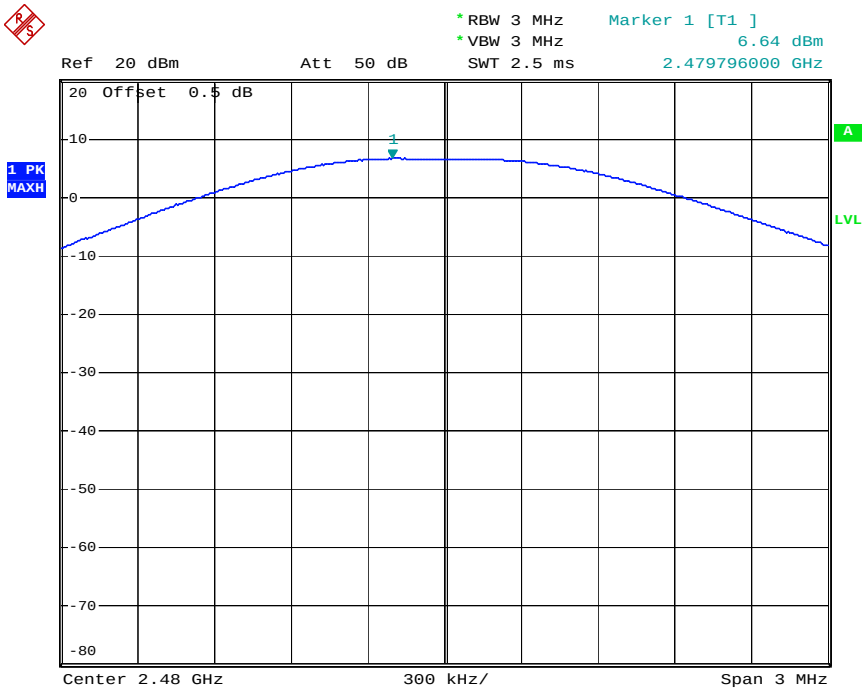
Date: 14.JUN.2016 11:39:38

Middle channel



Date: 14.JUN.2016 11:40:08

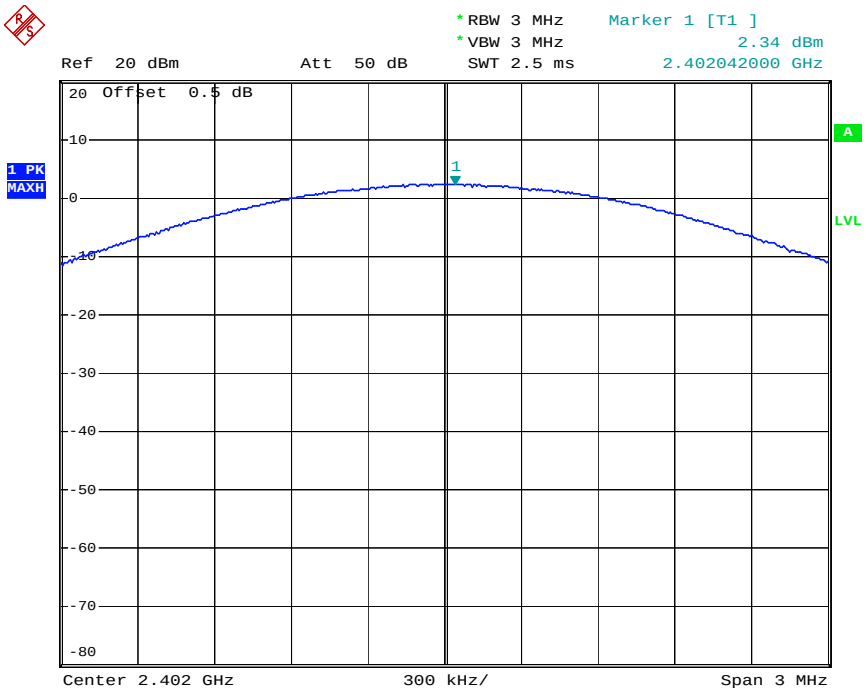
High channel



Date: 14.JUN.2016 11:40:29

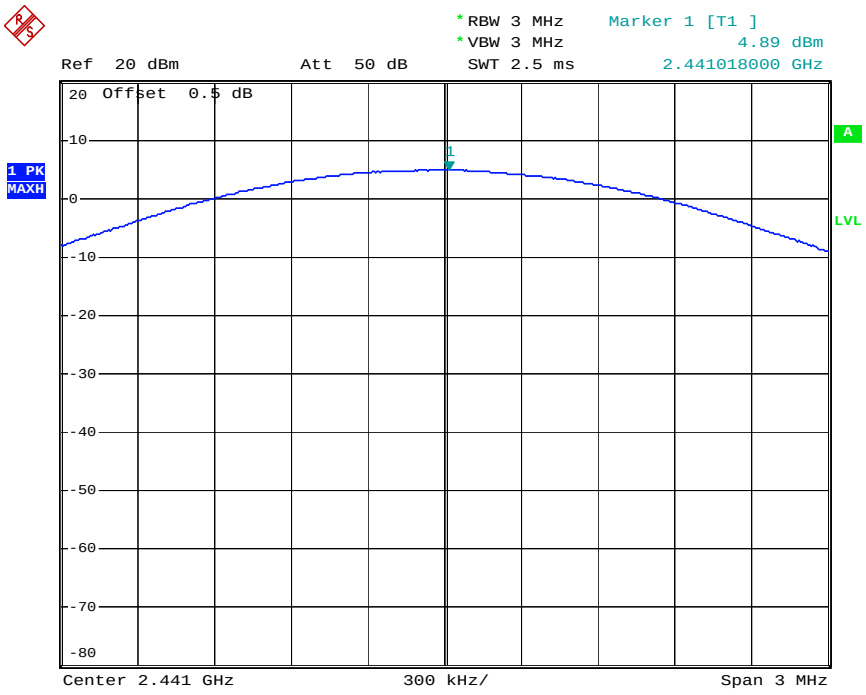
8DPSK Mode

Low channel



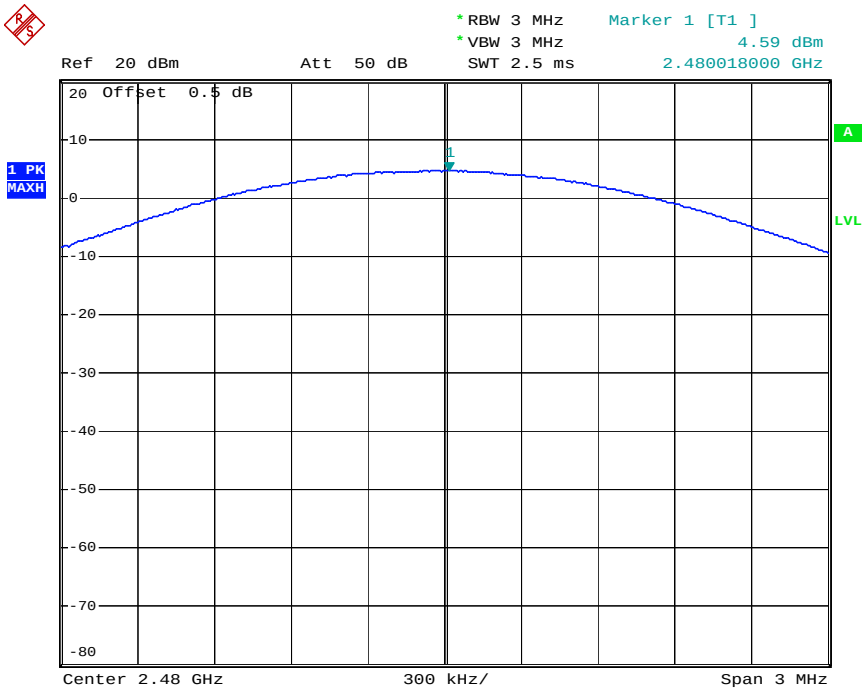
Date: 14.JUN.2016 11:43:04

Middle channel



Date: 14.JUN.2016 11:43:51

High channel



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10.RADIATED EMISSION TEST

10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

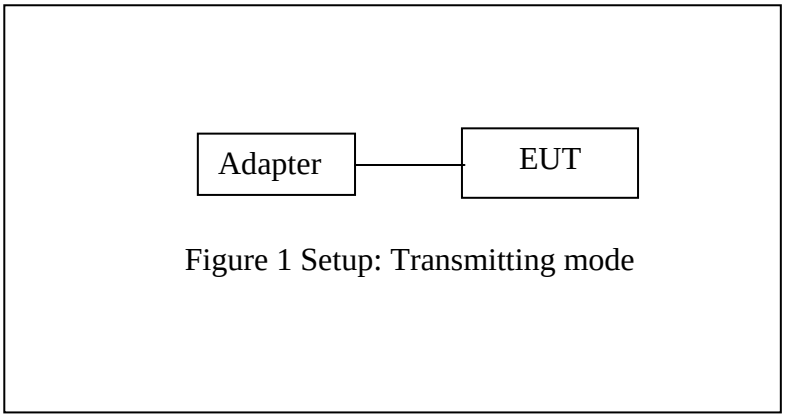
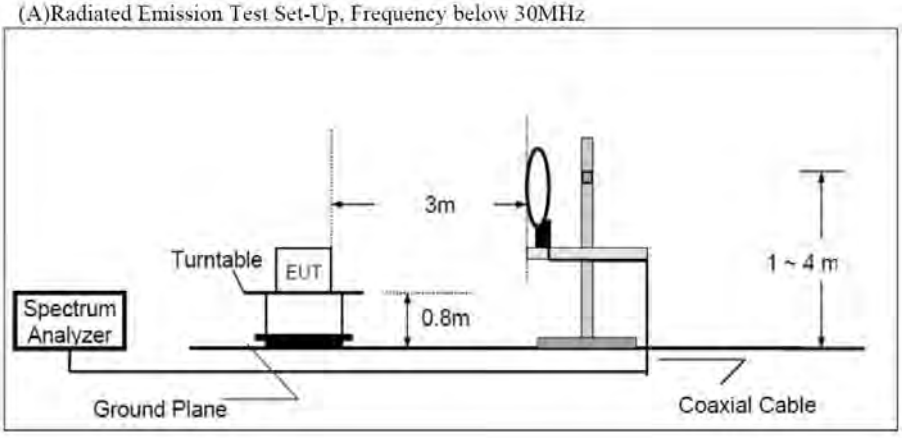


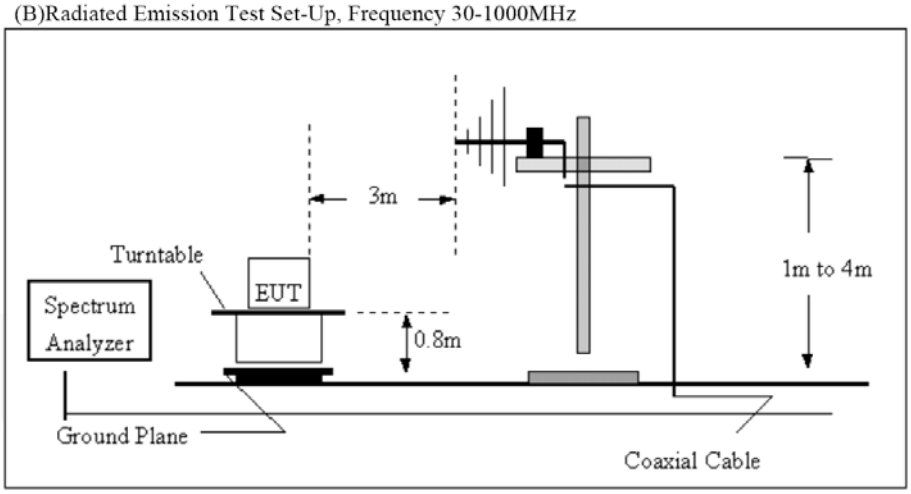
Figure 1 Setup: Transmitting mode

10.1.2.Semi-Anechoic Chamber Test Setup Diagram

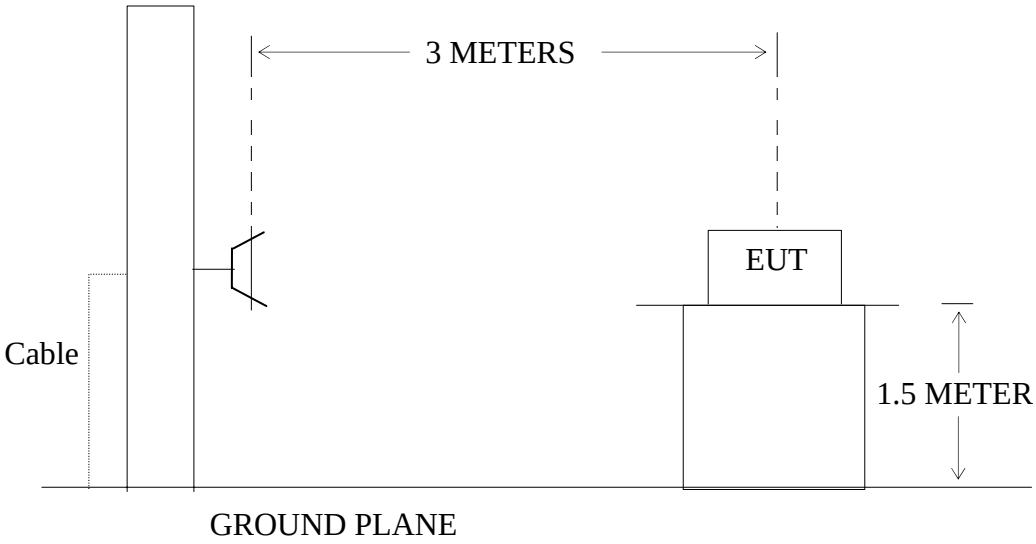
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



(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			

[1]Until February 1, 1999, this restricted band shall be 0.490-0.510
[2]Above 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 Section15.209 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 is 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.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.

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

10.6.The Field Strength of Radiation Emission Measurement Results

Note: 1.We tested GFSK mode, Π/4-DQPSK Mode & 8QPSK mode and recorded the worst case data (GFSK mode) for all test mode.

2. The test frequency is from 30MHz to 25GHz, The 18-25GHz emissions are not reported, because the levels are too low against the limit.

Below 1GHz

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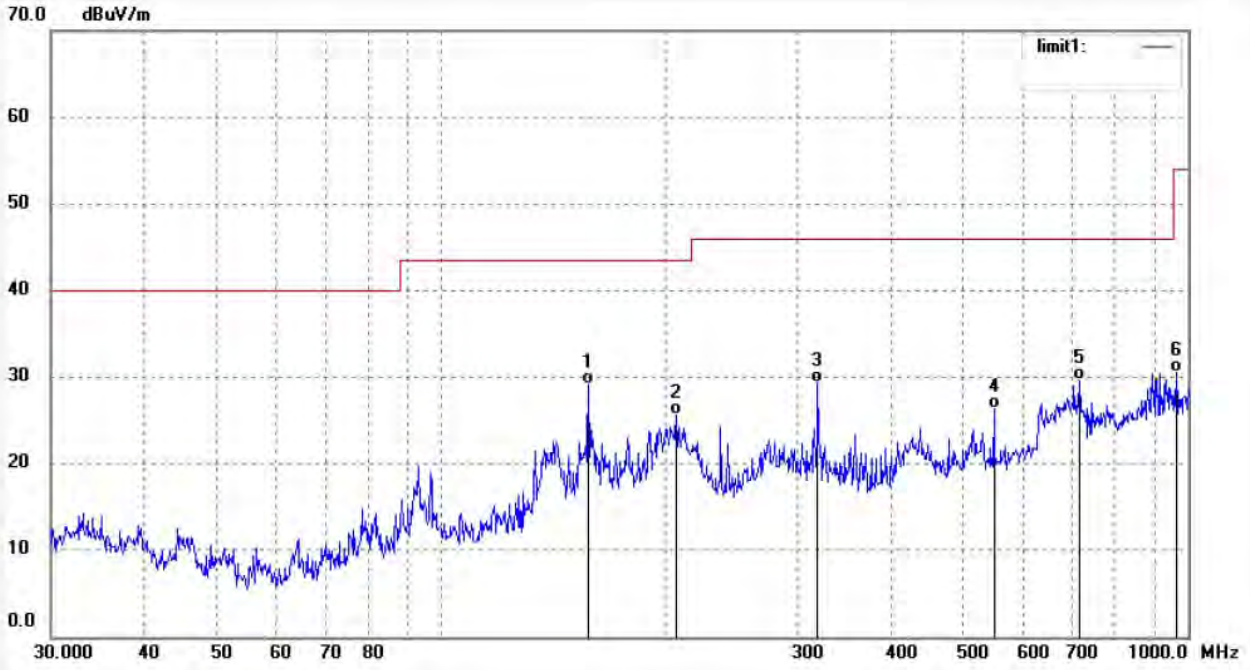
Job No.: STAR2016 #1655
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/07/29/
Time: 8/40/05
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	157.5290	50.78	-21.61	29.17	43.50	-14.33	QP			
2	206.4701	44.12	-18.51	25.61	43.50	-17.89	QP			
3	319.2071	45.11	-15.82	29.29	46.00	-16.71	QP			
4	550.2902	37.35	-11.09	26.26	46.00	-19.74	QP			
5	716.2038	37.20	-7.58	29.62	46.00	-16.38	QP			
6	965.4741	33.81	-3.20	30.61	54.00	-23.39	QP			

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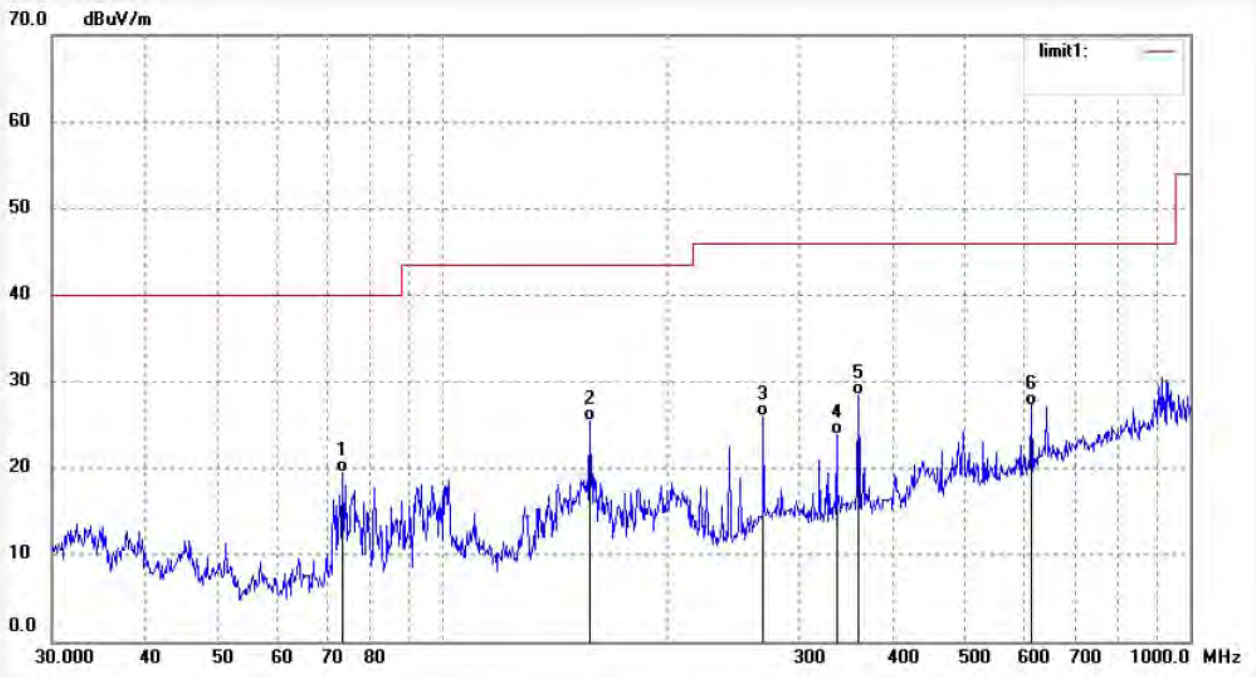
Job No.: STAR2016 #1656
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/07/29/
Time: 8/40/51
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	73.4907	42.63	-23.04	19.59	40.00	-20.41	QP			
2	157.5289	47.03	-21.61	25.42	43.50	-18.08	QP			
3	268.7212	43.08	-17.16	25.92	46.00	-20.08	QP			
4	336.4816	39.05	-15.09	23.96	46.00	-22.04	QP			
5	359.7114	42.69	-14.30	28.39	46.00	-17.61	QP			
6	613.6145	36.92	-9.62	27.30	46.00	-18.70	QP			

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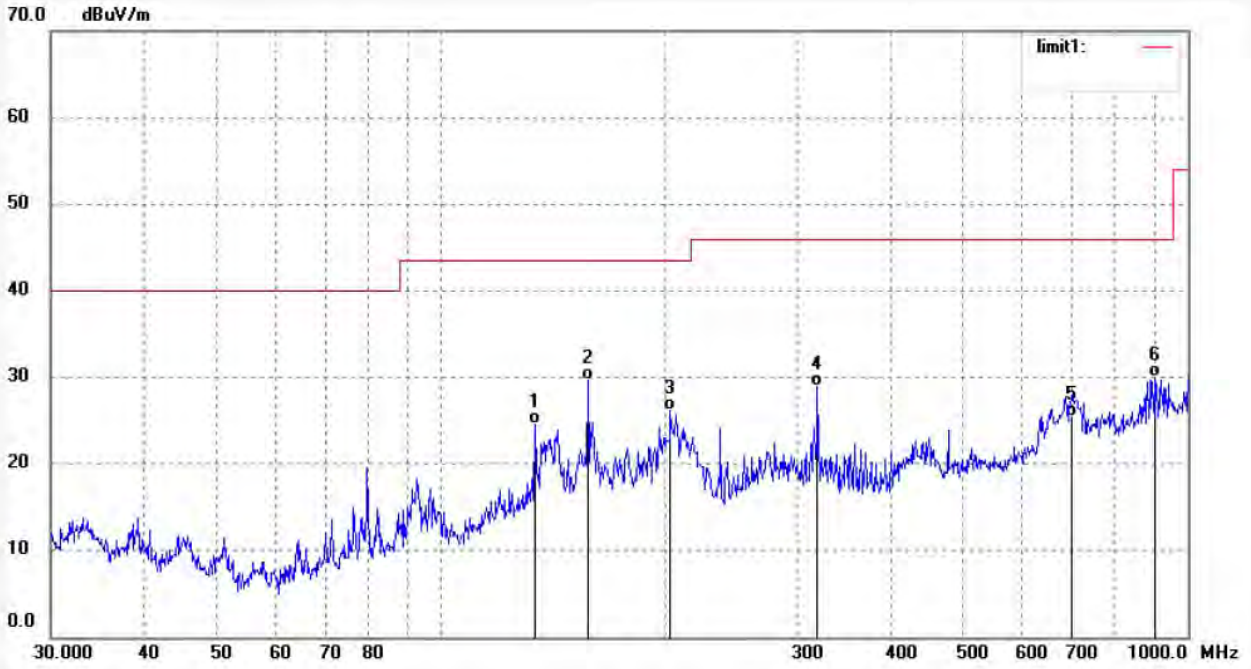
Job No.: STAR2016 #1658
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2441MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/07/29/
Time: 8/43/42
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	46.40	-21.86	24.54	43.50	-18.96	QP			
2	157.5289	51.25	-21.61	29.64	43.50	-13.86	QP			
3	202.8745	44.72	-18.60	26.12	43.50	-17.38	QP			
4	319.2071	44.77	-15.82	28.95	46.00	-17.05	QP			
5	698.8034	33.40	-8.01	25.39	46.00	-20.61	QP			
6	903.1253	34.06	-4.11	29.95	46.00	-16.05	QP			

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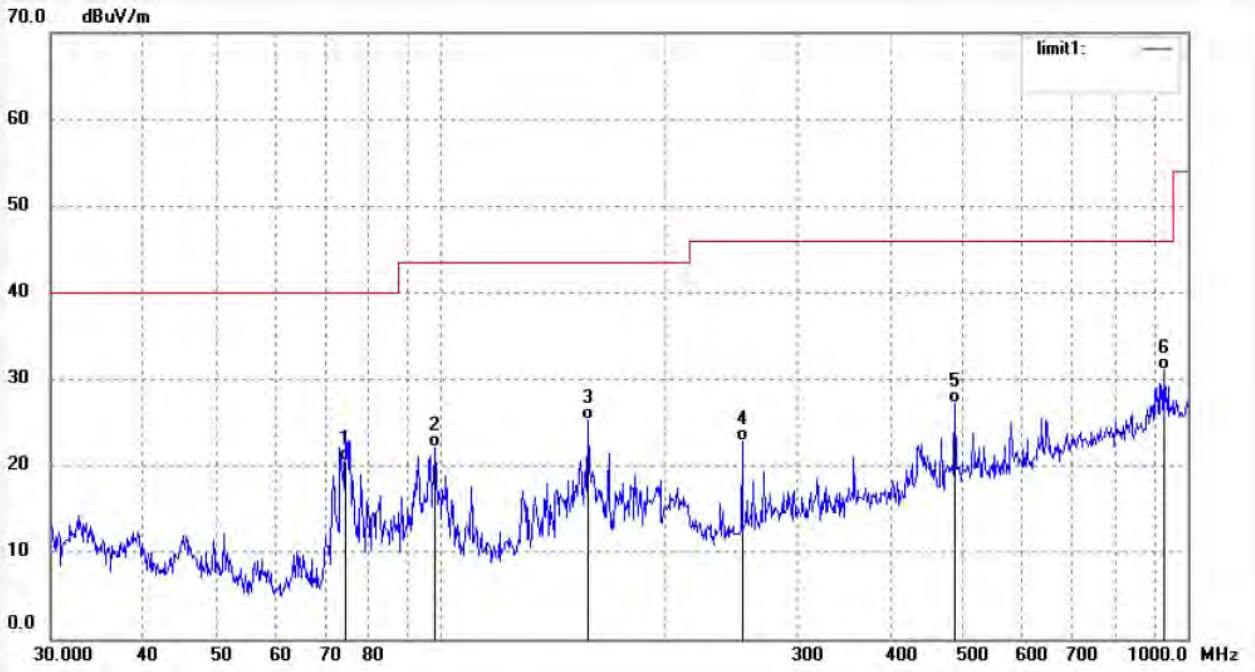
Job No.: STAR2016 #1657
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2441MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/07/29/
Time: 8/41/33
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	74.5310	43.70	-23.10	20.60	40.00	-19.40	QP			
2	98.0301	43.70	-21.61	22.09	43.50	-21.41	QP			
3	157.5289	46.98	-21.61	25.37	43.50	-18.13	QP			
4	253.1400	40.81	-18.00	22.81	46.00	-23.19	QP			
5	488.3263	39.61	-12.36	27.25	46.00	-18.75	QP			
6	928.8709	34.80	-3.74	31.06	46.00	-14.94	QP			

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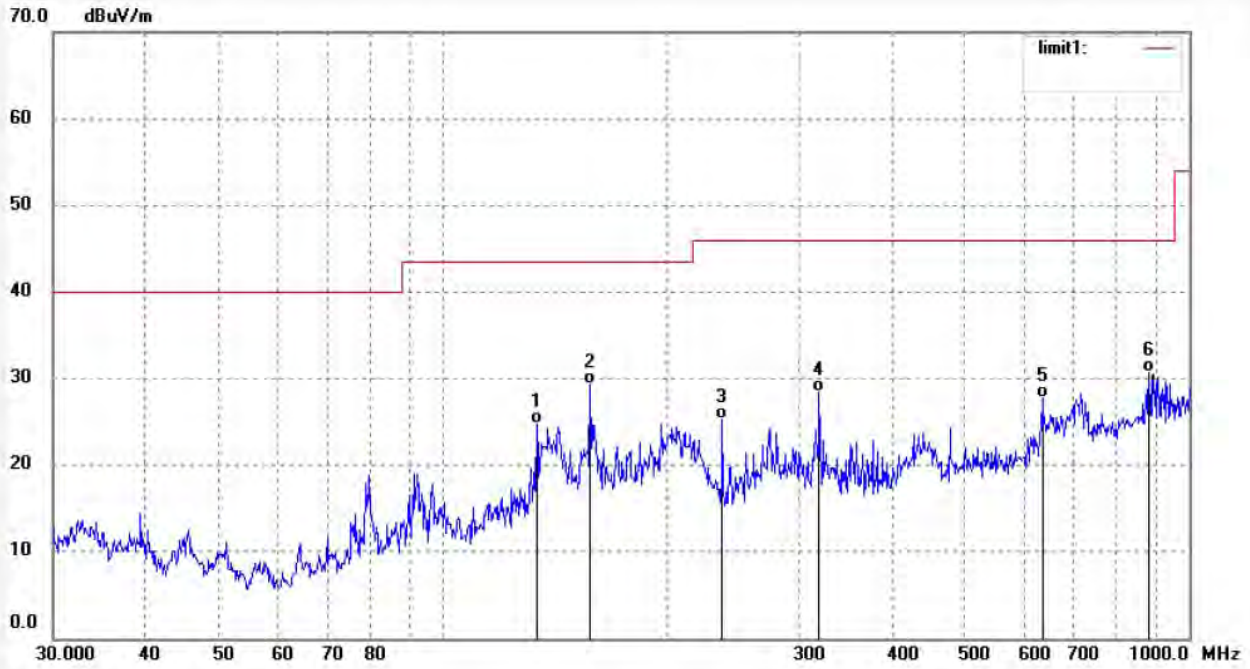
Job No.: STAR2016 #1659
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/07/29/
Time: 8/44/56
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	46.67	-21.86	24.81	43.50	-18.69	QP			
2	157.5289	50.97	-21.61	29.36	43.50	-14.14	QP			
3	236.7926	43.53	-18.27	25.26	46.00	-20.74	QP			
4	319.2071	44.21	-15.82	28.39	46.00	-17.61	QP			
5	635.5575	36.98	-9.17	27.81	46.00	-18.19	QP			
6	884.2853	35.19	-4.44	30.75	46.00	-15.25	QP			

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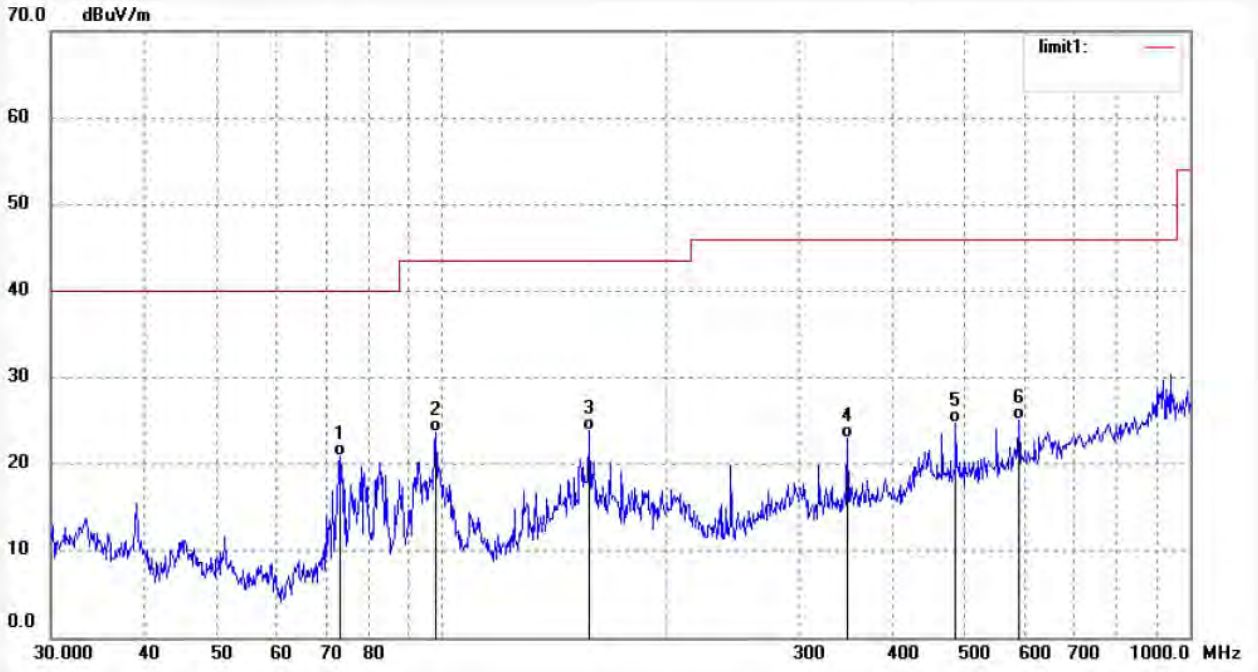
Job No.: STAR2016 #1660
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/07/29/
Time: 8/45/43
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	72.9762	43.85	-23.01	20.84	40.00	-19.16	QP			
2	98.0301	45.39	-21.61	23.78	43.50	-19.72	QP			
3	157.5289	45.51	-21.61	23.90	43.50	-19.60	QP			
4	348.5144	37.62	-14.67	22.95	46.00	-23.05	QP			
5	486.6136	37.14	-12.39	24.75	46.00	-21.25	QP			
6	590.3510	35.18	-10.12	25.06	46.00	-20.94	QP			

Above 1GHz

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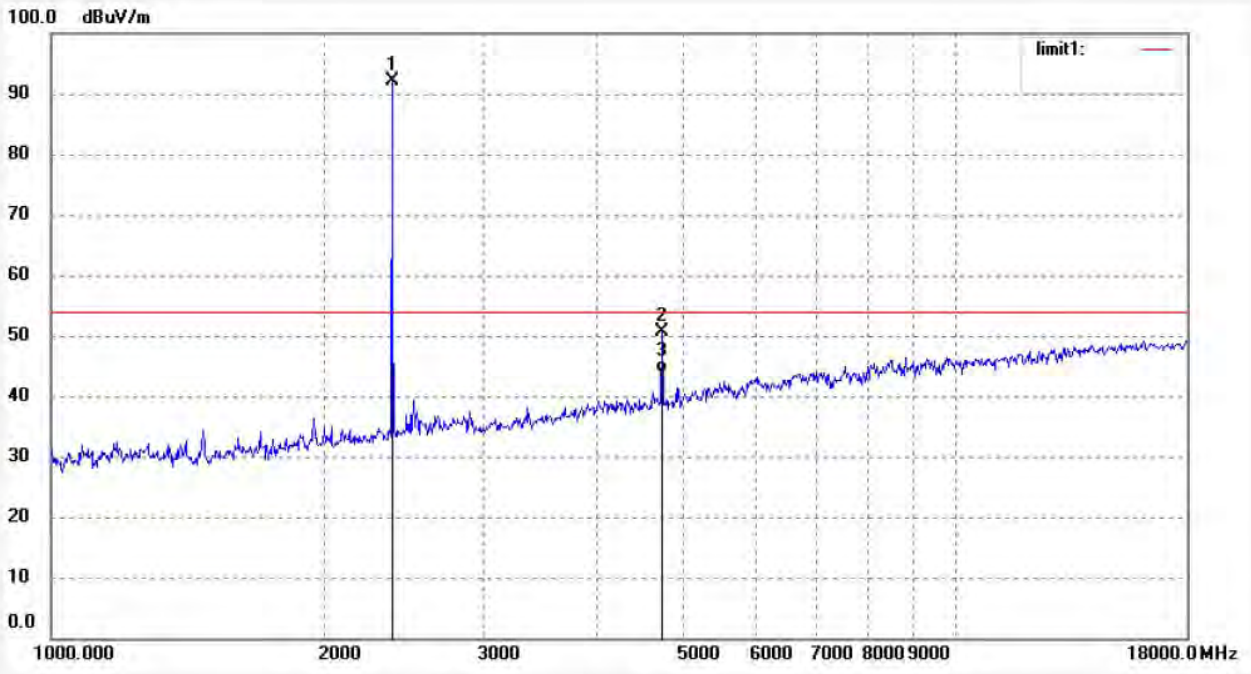
Job No.: star2016 #1113	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/06/14/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 15/35/05
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER	Engineer Signature: star
Mode: TX 2402MHz	Distance: 3m
Model: RSB-11	
Manufacturer: Klipsch L.L.C.	

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	99.73	-7.67	92.06			peak			
2	4804.000	52.38	-1.77	50.61	74.00	-23.39	peak			
3	4804.000	45.67	-1.77	43.90	54.00	-10.10	AVG			

Note: Average measurement with peak detection at No.3

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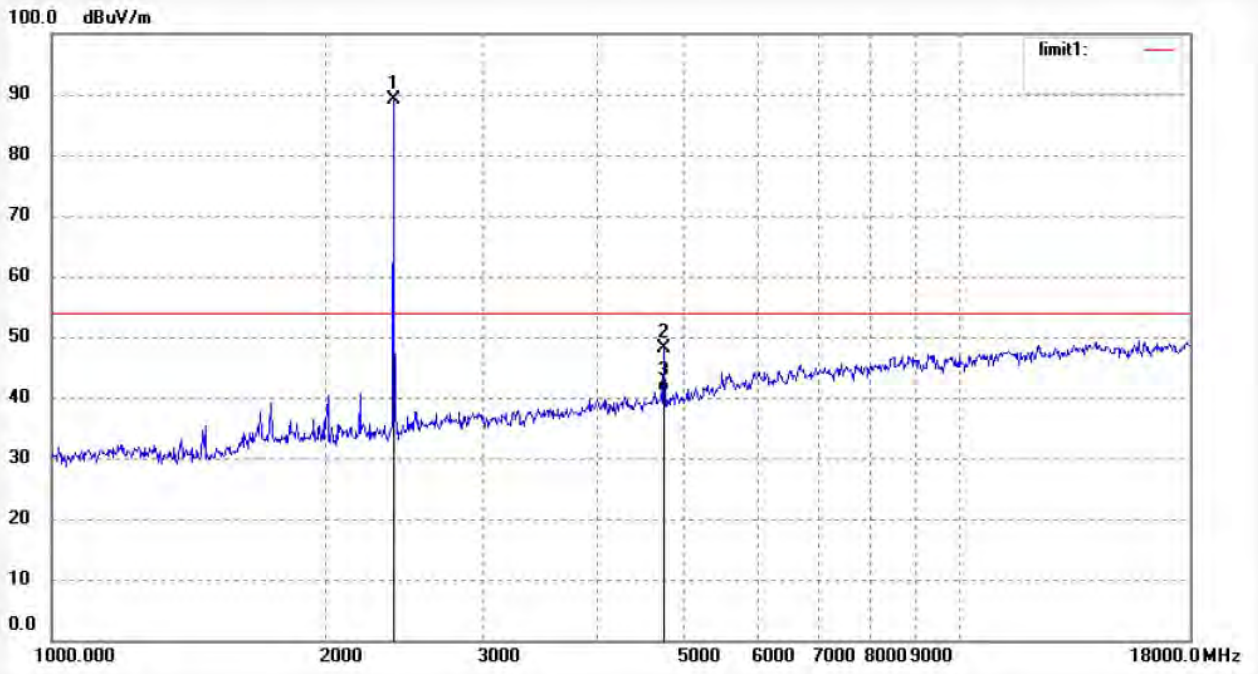
Job No.: star2016 #1112
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 15/32/23
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	96.91	-7.67	89.24			peak			
2	4804.000	49.79	-1.77	48.02	74.00	-25.98	peak			
3	4804.000	42.64	-1.77	40.87	54.00	-13.13	AVG			

Note: Average measurement with peak detection at No.3

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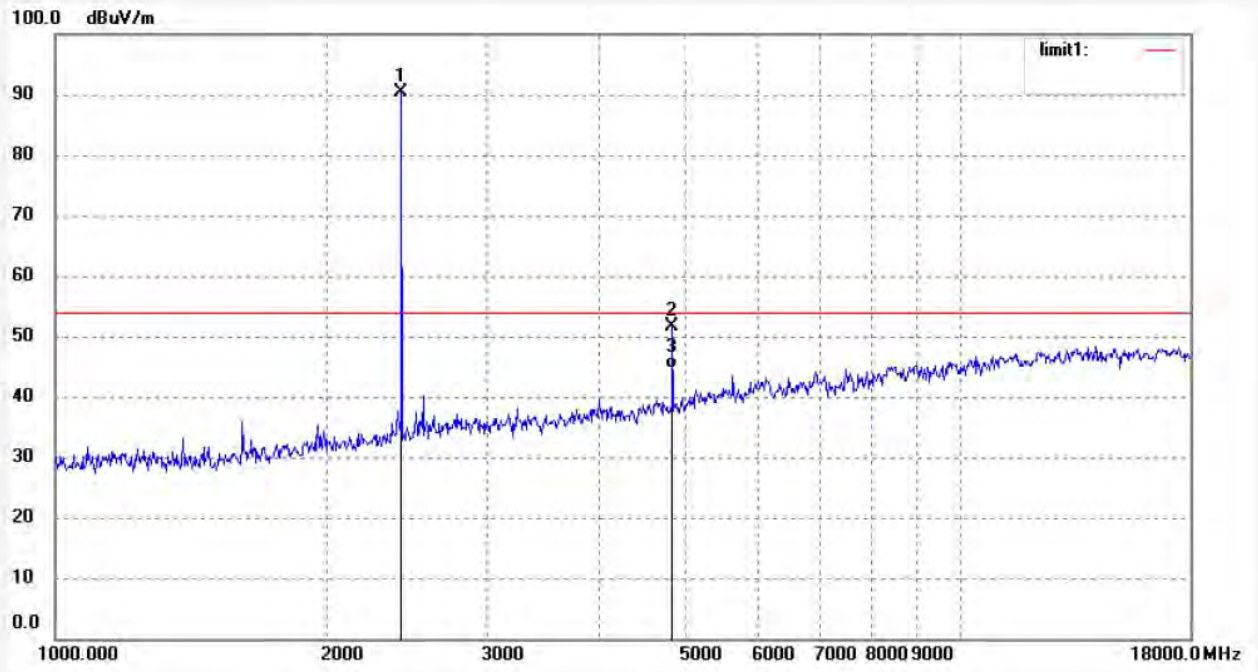
Job No.: star2016 #1114
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2441MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 15/37/18
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	2441.000	97.95	-7.56	90.39			peak			
2	4882.000	53.17	-1.50	51.67	74.00	-22.33	peak			
3	4882.000	46.07	-1.50	44.57	54.00	-9.43	AVG			

Note: Average measurement with peak detection at No.3

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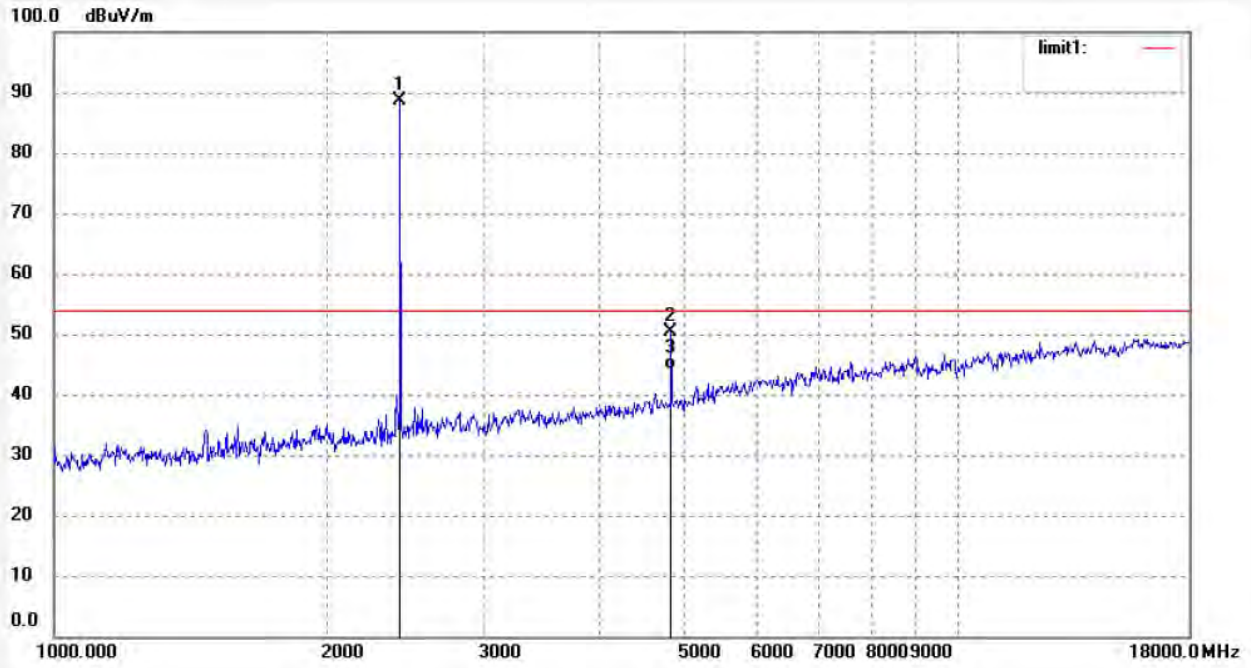
Job No.: star2016 #1115
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2441MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 15/38/33
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	2441.000	96.16	-7.56	88.60			peak			
2	4882.000	51.99	-1.50	50.49	74.00	-23.51	peak			
3	4882.000	45.70	-1.50	44.20	54.00	-9.80	AVG			

Note: Average measurement with peak detection at No.3

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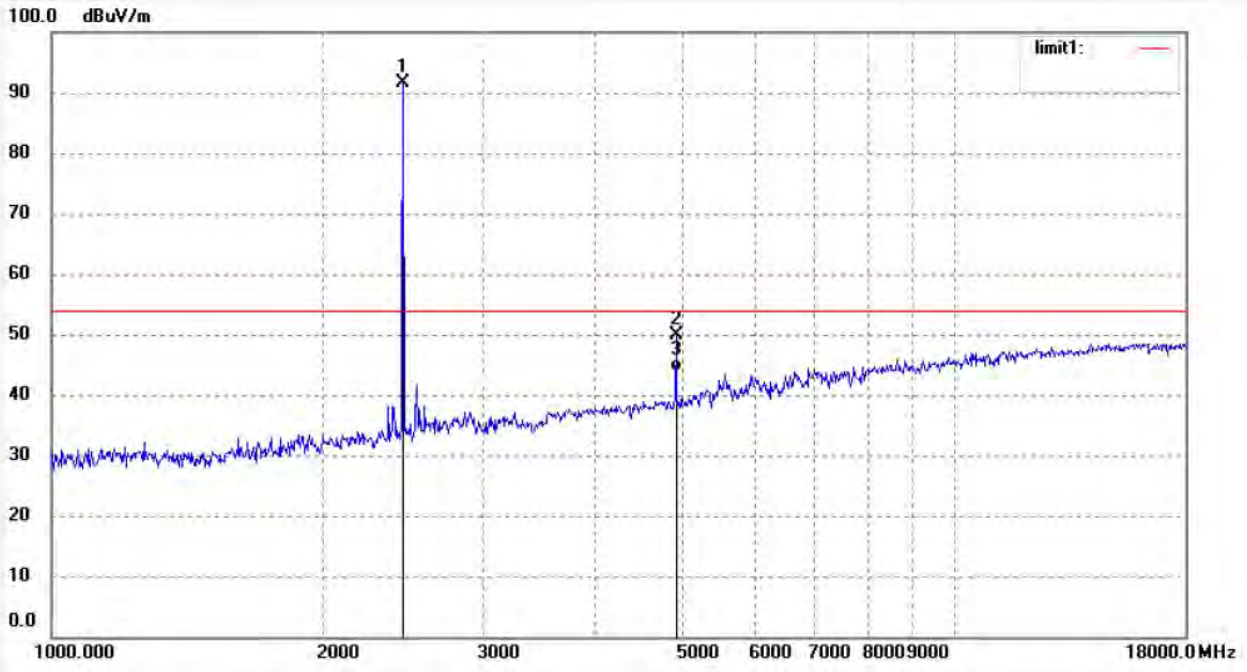
Job No.: star2016 #1117	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/06/14/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 15/42/25
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER	Engineer Signature: star
Mode: TX 2480MHz	Distance: 3m
Model: RSB-11	
Manufacturer: Klipsch L.L.C.	

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	99.21	-7.47	91.74			peak			
2	4960.000	51.04	-1.17	49.87	74.00	-24.13	peak			
3	4960.000	45.17	-1.17	44.00	54.00	-10.00	AVG			

Note: Average measurement with peak detection at No.3

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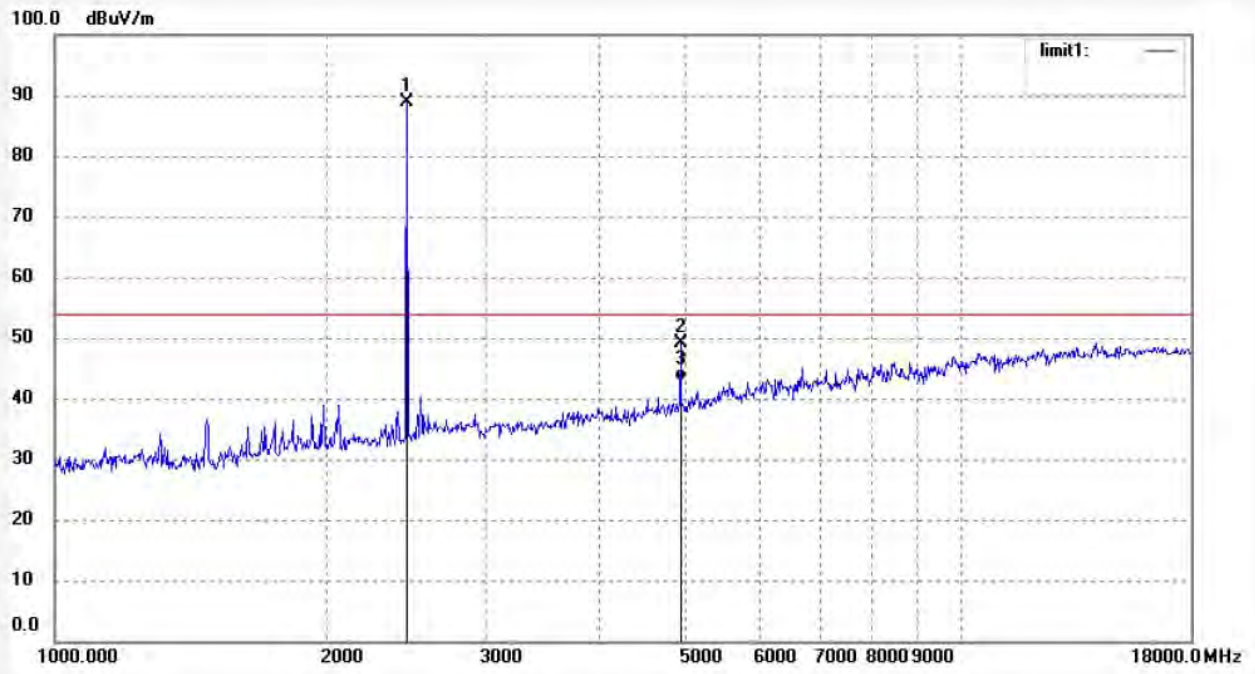
Job No.: star2016 #1116
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 15/40/54
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161173

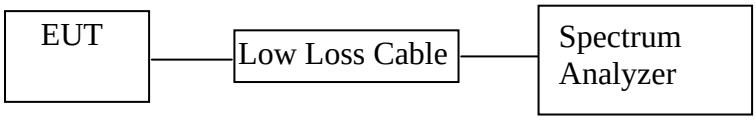


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	96.40	-7.47	88.93			peak			
2	4960.000	50.22	-1.17	49.05	74.00	-24.95	peak			
3	4960.000	44.06	-1.17	42.89	54.00	-11.11	AVG			

Note: Average measurement with peak detection at No.3

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



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

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 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.

11.4.Operating Condition of EUT

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

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

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

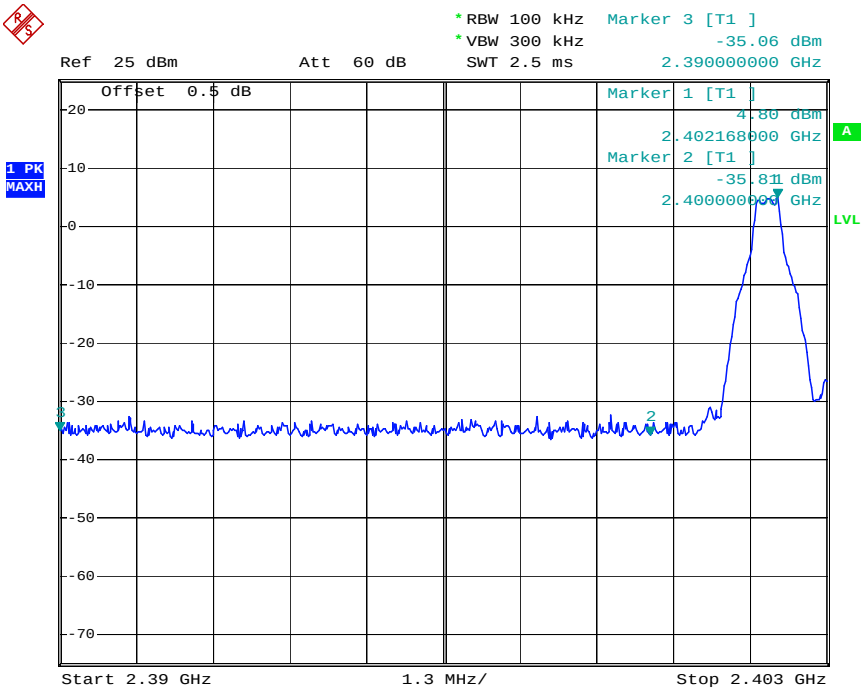
11.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz with convenient frequency span including 100 kHz bandwidth from band edge.

11.5.3.The band edges was measured and recorded.

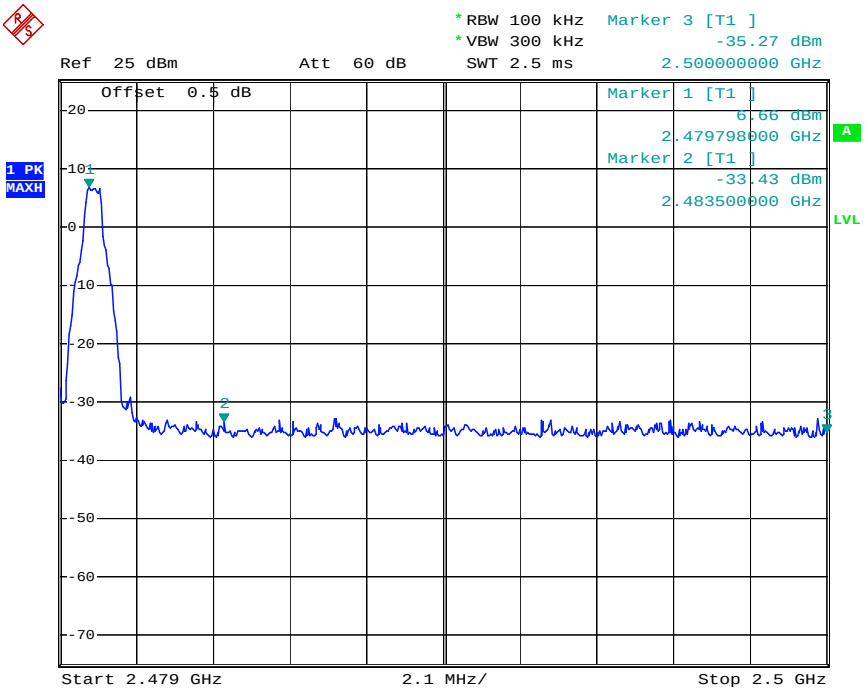
11.6.Test Result

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
GFSK		
2400.00	40.61	> 20dBc
2483.50	40.09	> 20dBc
Π/4-DQPSK Mode		
2400.00	35.86	> 20dBc
2483.50	38.07	> 20dBc
8DPSK		
2400.00	34.97	> 20dBc
2483.50	38.40	> 20dBc

GFSK

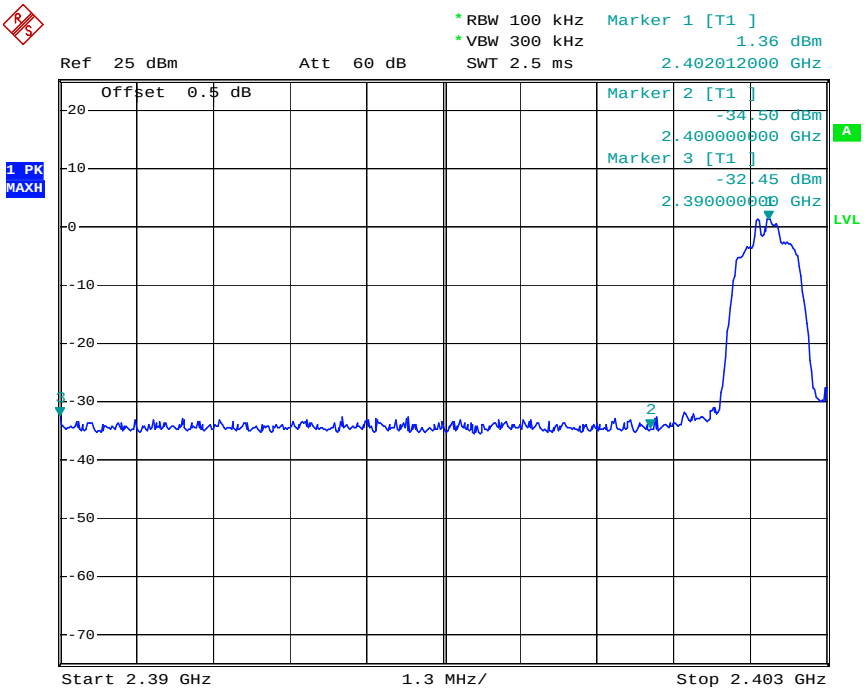


Date: 14.JUN.2016 11:47:04



Date: 14.JUN.2016 11:48:21

Π/4-DQPSK Mode



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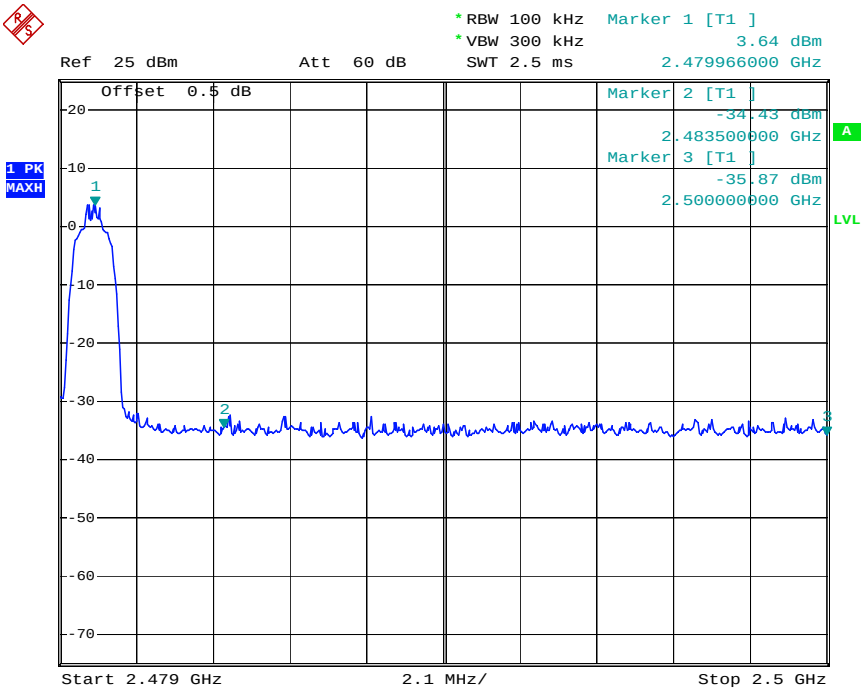
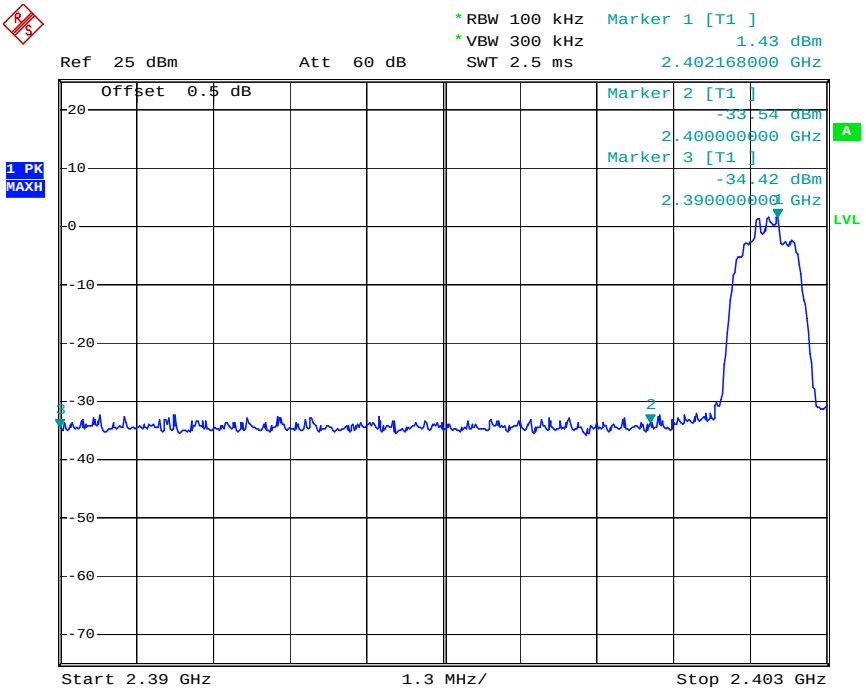


Date: 14.JUN.2016 11:49:24

8DPSK



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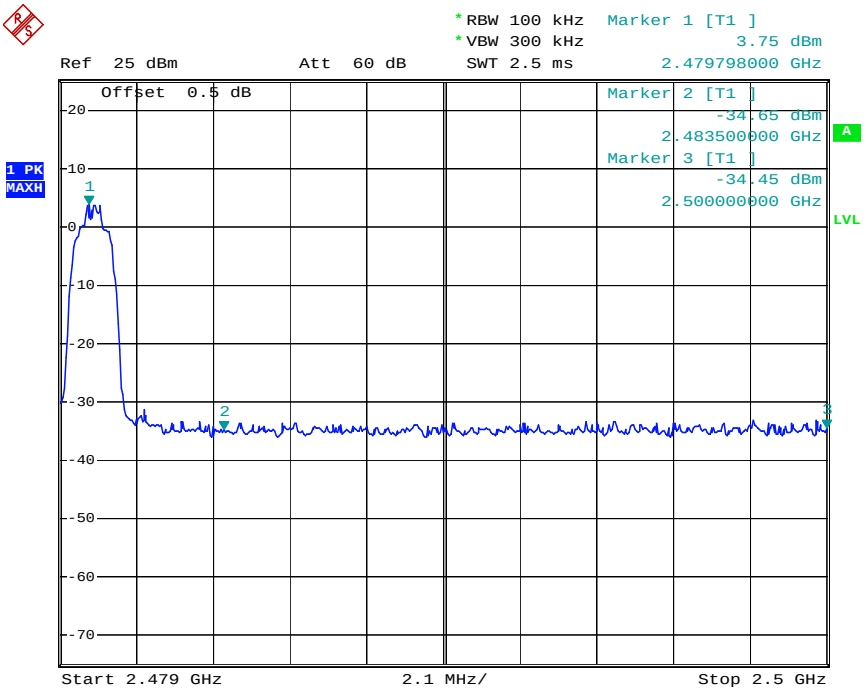

Date: 14.JUN.2016 11:53:37

Radiated Band Edge Result

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.

Test Procedure:

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.

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

During the radiated emission test, the spectrum analyzer was set with the following configurations:
1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
3.All modes of operation were investigated and the worst-case emissions are reported.

Non-hopping mode

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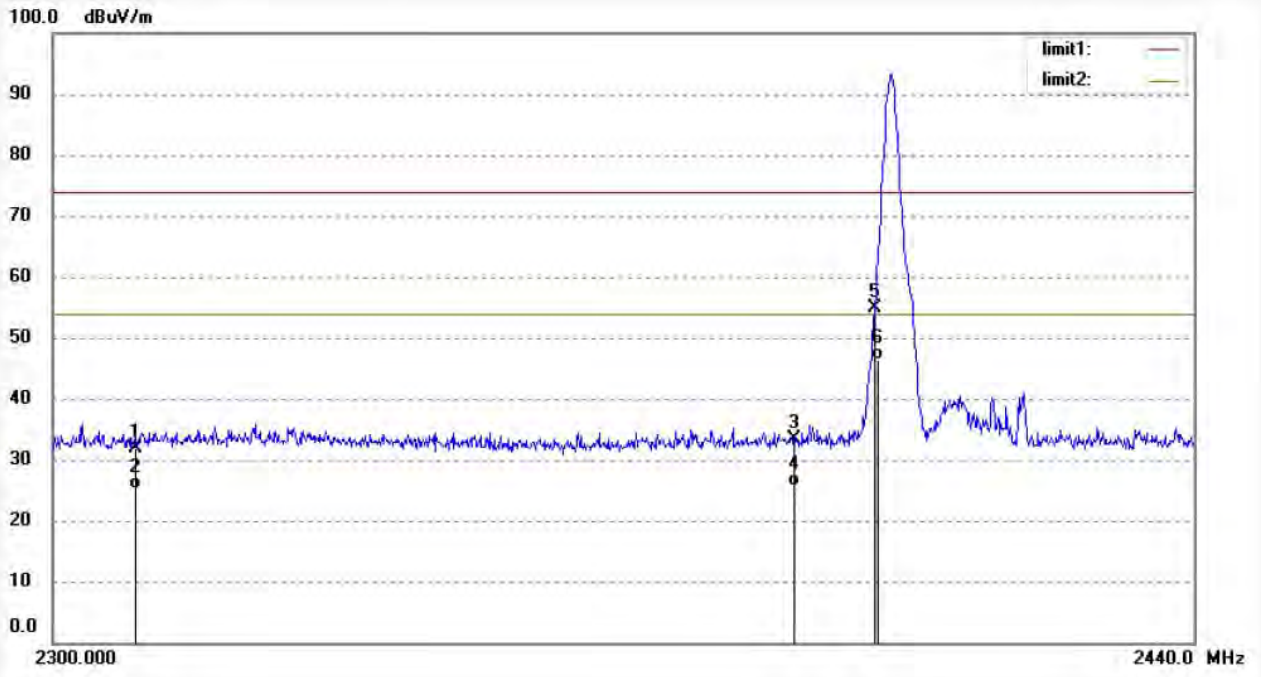
Job No.: STAR2016 #1125	Polarization: Horizontal
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/06/14/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 16/30/47
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER	Engineer Signature: star
Mode: TX 2402MHz(GFSK)	Distance: 3m
Model: RSB-11	
Manufacturer: Klipsch L.L.C.	

Note: Report No.:ATE20161174



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	39.85	-7.87	31.98	74.00	-42.02	peak			
2	2310.000	32.99	-7.87	25.12	54.00	-28.88	AVG			
3	2390.000	41.13	-7.64	33.49	74.00	-40.51	peak			
4	2390.000	33.17	-7.64	25.53	54.00	-28.47	AVG			
5	2400.000	62.40	-7.61	54.79	74.00	-19.21	peak			
6	2400.000	54.00	-7.61	46.39	54.00	-7.61	AVG			

Note: Average measurement with peak detection at No.2&4&6

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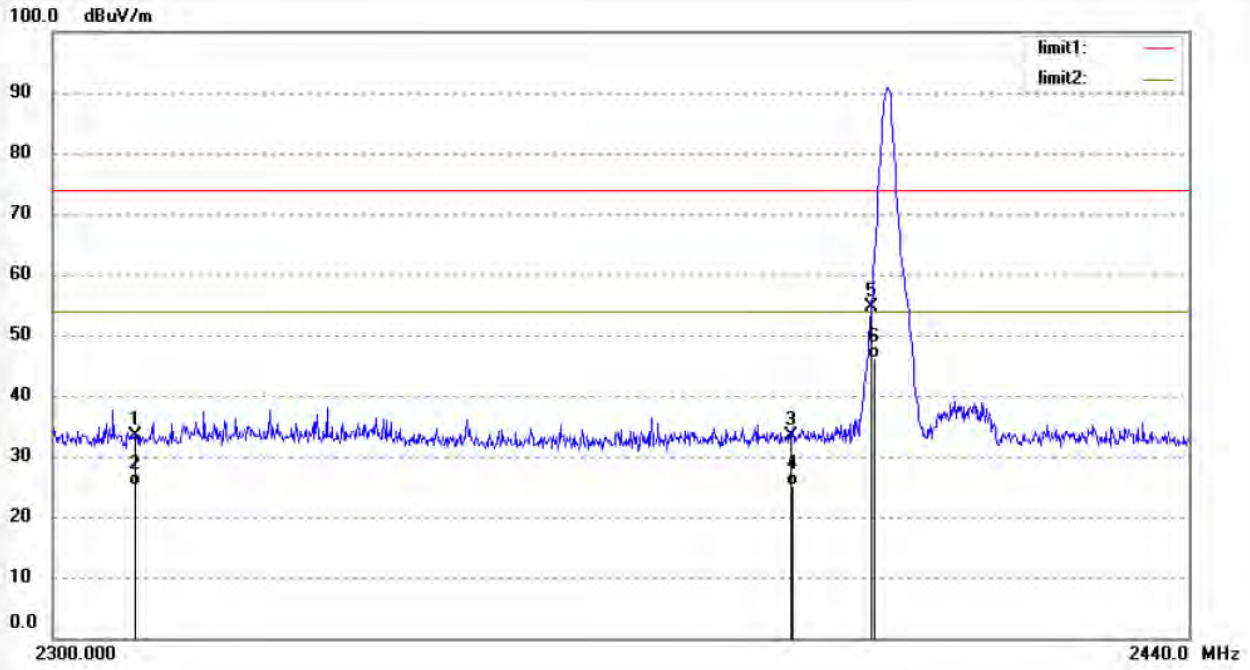
Job No.: STAR2016 #1124
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz(GFSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/29/20
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	41.16	-7.87	33.29	74.00	-40.71	peak			
2	2310.000	33.07	-7.87	25.20	54.00	-28.80	AVG			
3	2390.000	41.05	-7.64	33.41	74.00	-40.59	peak			
4	2390.000	32.79	-7.64	25.15	54.00	-28.85	AVG			
5	2400.000	62.32	-7.61	54.71	74.00	-19.29	peak			
6	2400.000	53.71	-7.61	46.10	54.00	-7.90	AVG			

Note: Average measurement with peak detection at No.2&4&6

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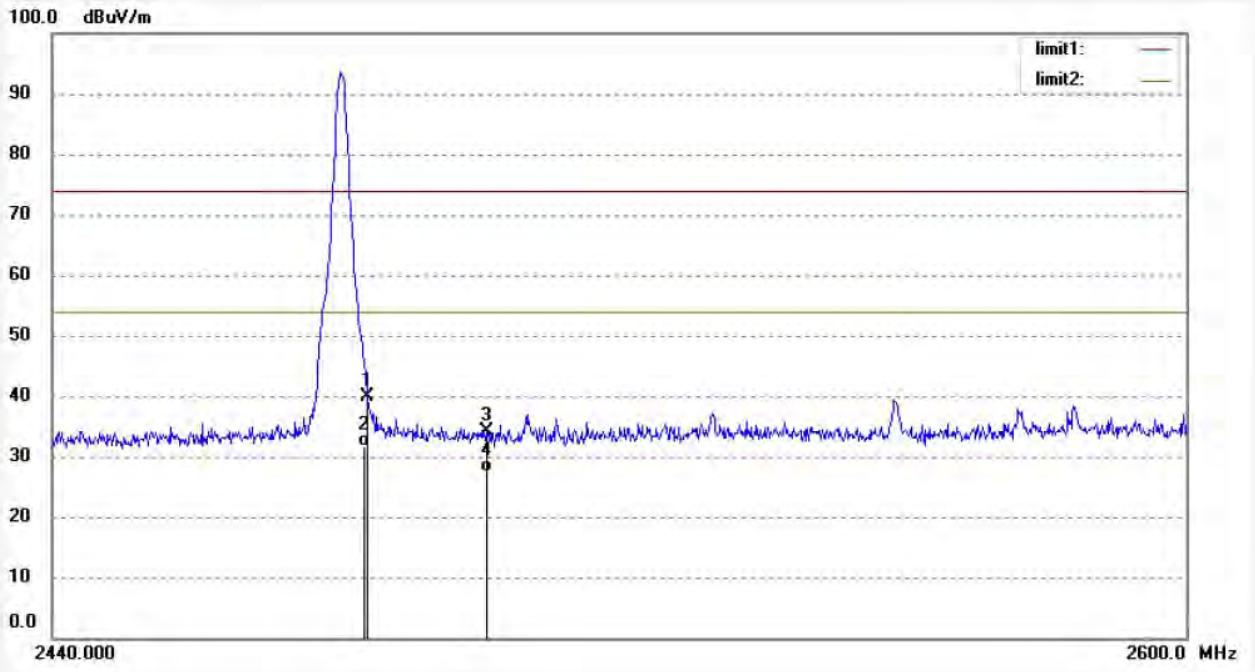
Job No.: STAR2016 #1126
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz(GFSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/32/21
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	47.13	-7.37	39.76	74.00	-34.24	peak			
2	2483.500	39.10	-7.37	31.73	54.00	-22.27	AVG			
3	2500.000	41.34	-7.32	34.02	74.00	-39.98	peak			
4	2500.000	34.70	-7.32	27.38	54.00	-26.62	AVG			

Note: Average measurement with peak detection at No.2&4

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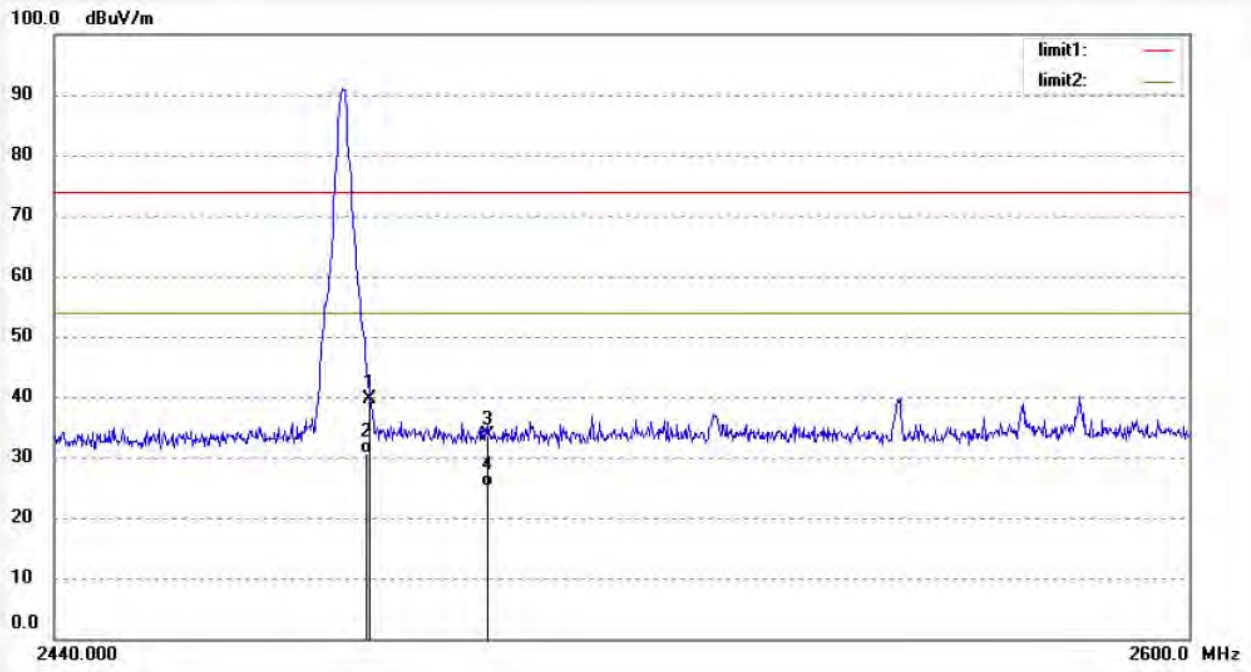
Job No.: STAR2016 #1127
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz(GFSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/33/36
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	46.93	-7.37	39.56	74.00	-34.44	peak			
2	2483.500	38.06	-7.37	30.69	54.00	-23.31	AVG			
3	2500.000	40.93	-7.32	33.61	74.00	-40.39	peak			
4	2500.000	32.57	-7.32	25.25	54.00	-28.75	AVG			

Note: Average measurement with peak detection at No.2&4

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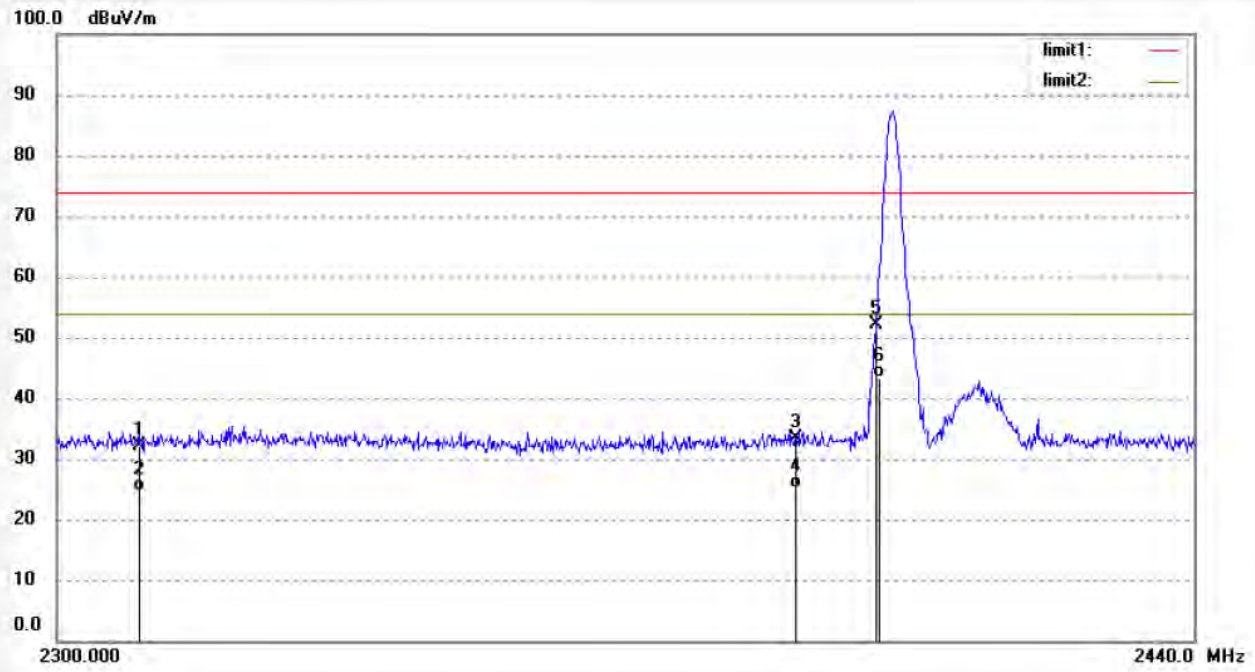
Job No.: STAR2016 #1130
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz(pi/4DQPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/38/58
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	40.06	-7.87	32.19	74.00	-41.81	peak			
2	2310.000	32.55	-7.87	24.68	54.00	-29.32	AVG			
3	2390.000	40.93	-7.64	33.29	74.00	-40.71	peak			
4	2390.000	32.67	-7.64	25.03	54.00	-28.97	AVG			
5	2400.000	59.66	-7.61	52.05	74.00	-21.95	peak			
6	2400.000	51.07	-7.61	43.46	54.00	-10.54	AVG			

Note: Average measurement with peak detection at No.2&4&6

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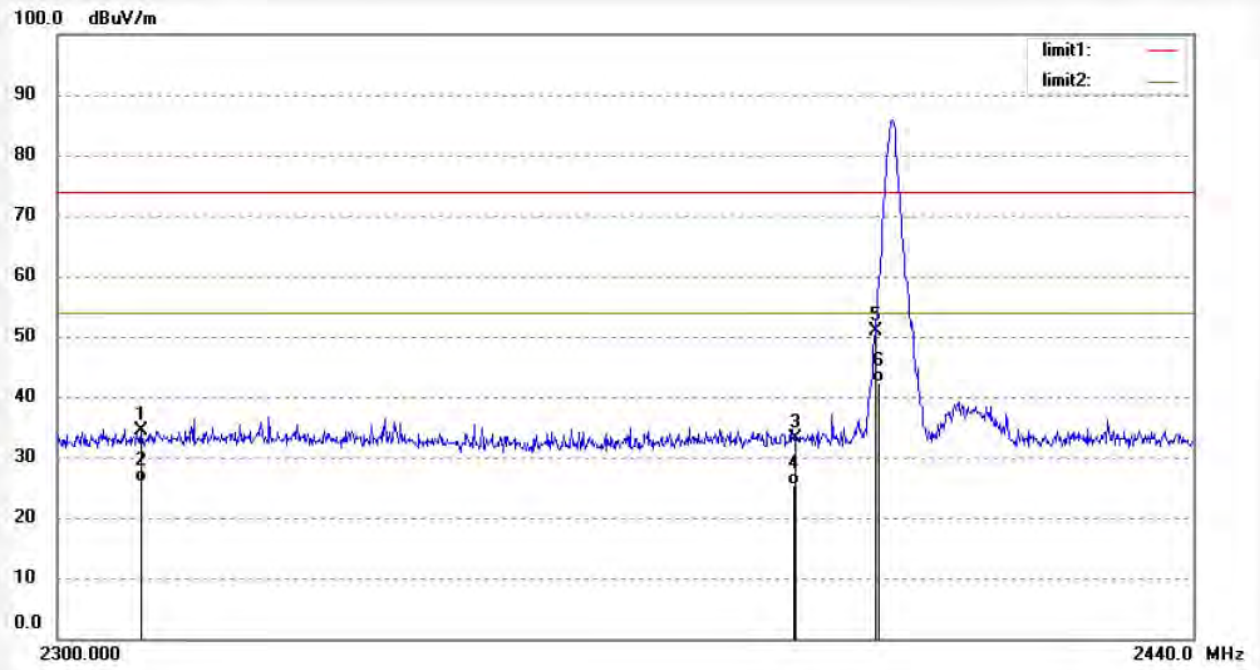
Fax:+86-0755-26503396

Job No.: STAR2016 #1131
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz(pi/4DQPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/40/10
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	42.14	-7.87	34.27	74.00	-39.73	peak			
2	2310.000	33.66	-7.87	25.79	54.00	-28.21	AVG			
3	2390.000	40.76	-7.64	33.12	74.00	-40.88	peak			
4	2390.000	33.07	-7.64	25.43	54.00	-28.57	AVG			
5	2400.000	58.54	-7.61	50.93	74.00	-23.07	peak			
6	2400.000	50.00	-7.61	42.39	54.00	-11.61	AVG			

Note: Average measurement with peak detection at No.2&4&6

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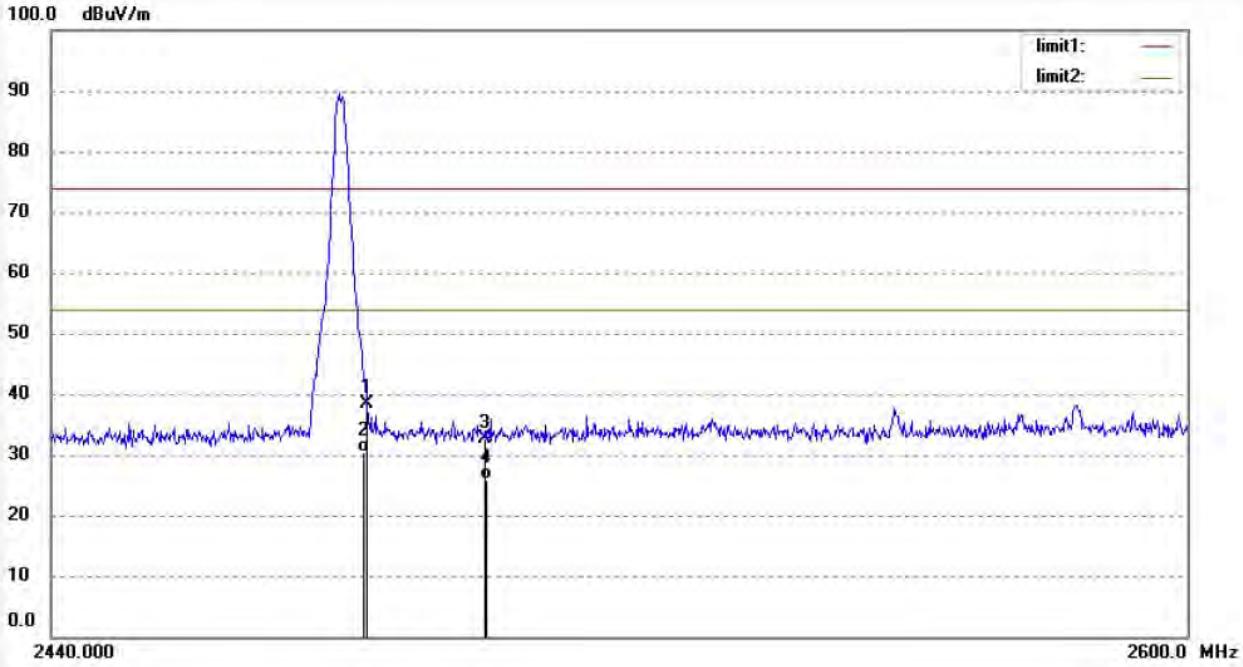
Job No.: STAR2016 #1129
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz(pi/4DQPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/37/39
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	45.77	-7.37	38.40	74.00	-35.60	peak			
2	2483.500	37.78	-7.37	30.41	54.00	-23.59	AVG			
3	2500.000	40.00	-7.32	32.68	74.00	-41.32	peak			
4	2500.000	33.10	-7.32	25.78	54.00	-28.22	AVG			

Note: Average measurement with peak detection at No.2&4

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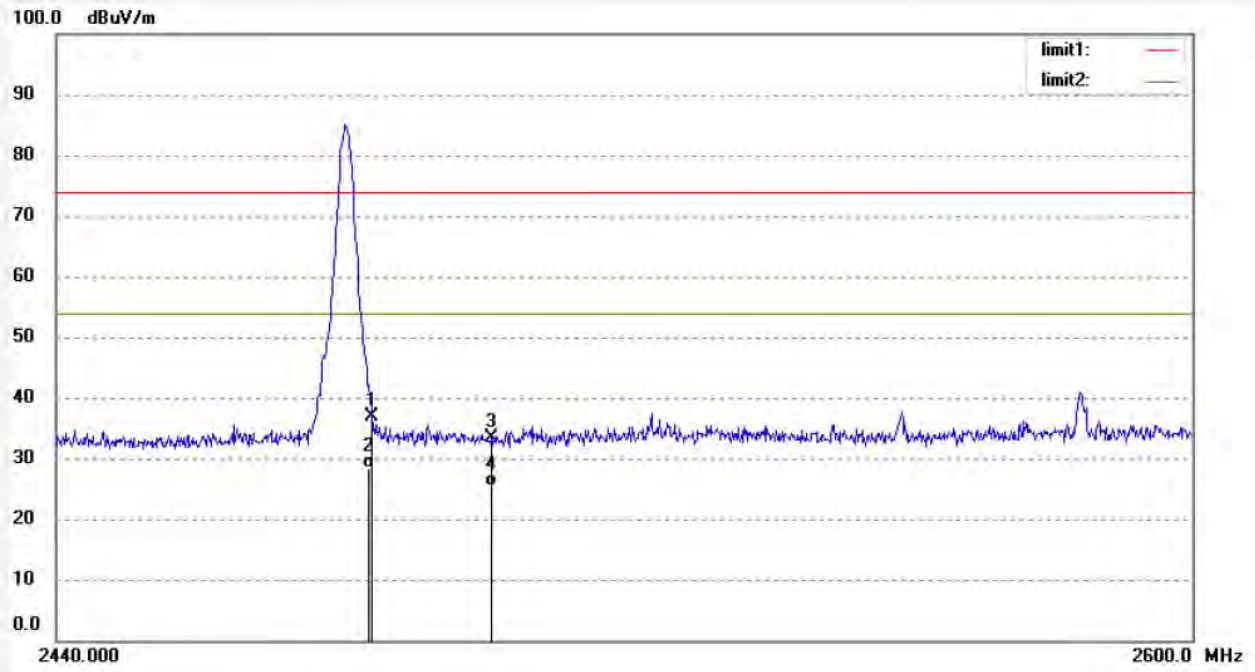
Job No.: STAR2016 #1128
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz(pi/4DQPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/36/26
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	44.27	-7.37	36.90	74.00	-37.10	peak			
2	2483.500	35.70	-7.37	28.33	54.00	-25.67	AVG			
3	2500.000	40.67	-7.32	33.35	74.00	-40.65	peak			
4	2500.000	32.69	-7.32	25.37	54.00	-28.63	AVG			

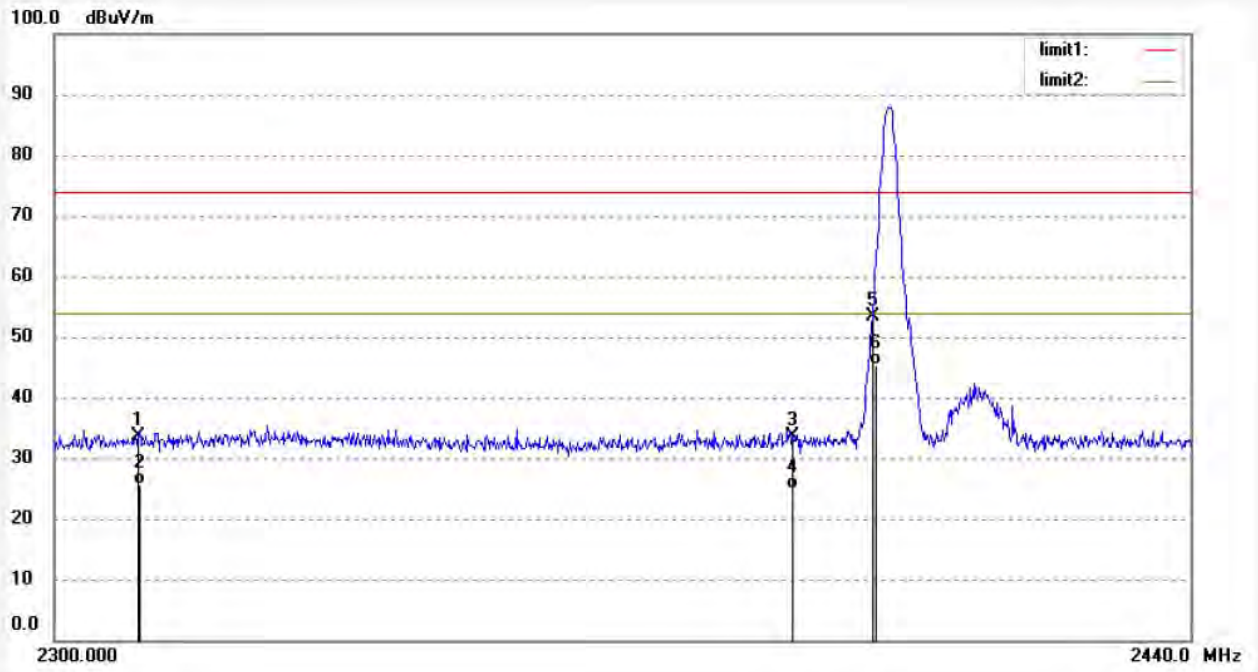
Note: Average measurement with peak detection at No.2&4

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 #1133
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz(8DPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/43/13
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	41.51	-7.87	33.64	74.00	-40.36	peak			
2	2310.000	33.57	-7.87	25.70	54.00	-28.30	AVG			
3	2390.000	41.22	-7.64	33.58	74.00	-40.42	peak			
4	2390.000	32.60	-7.64	24.96	54.00	-29.04	AVG			
5	2400.000	61.10	-7.61	53.49	74.00	-20.51	peak			
6	2400.000	53.00	-7.61	45.39	54.00	-8.61	AVG			

Note: Average measurement with peak detection at No.2&4&6

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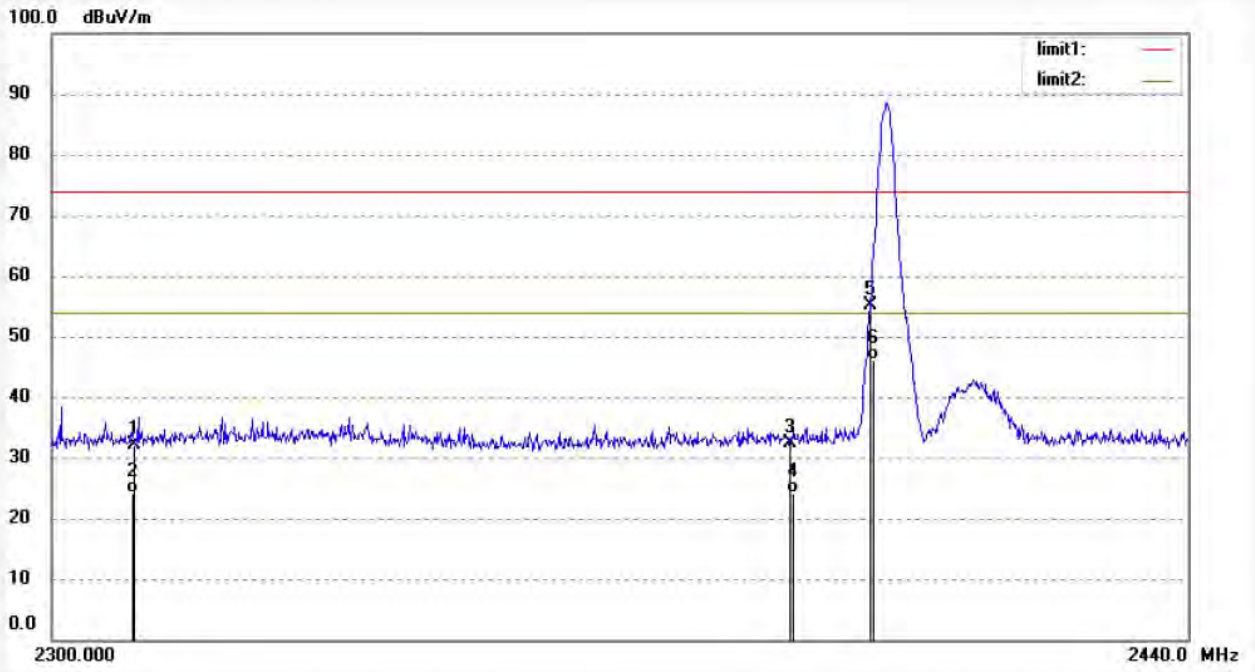
Fax:+86-0755-26503396

Job No.: STAR2016 #1132
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2402MHz(8DPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/42/07
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	39.88	-7.87	32.01	74.00	-41.99	peak			
2	2310.000	32.00	-7.87	24.13	54.00	-29.87	AVG			
3	2390.000	39.98	-7.64	32.34	74.00	-41.66	peak			
4	2390.000	31.81	-7.64	24.17	54.00	-29.83	AVG			
5	2400.000	62.69	-7.61	55.08	74.00	-18.92	peak			
6	2400.000	53.71	-7.61	46.10	54.00	-7.90	AVG			

Note: Average measurement with peak detection at No.2&4&6

ACCURATE TECHNOLOGY CO., LTD.
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Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 1# Chamber
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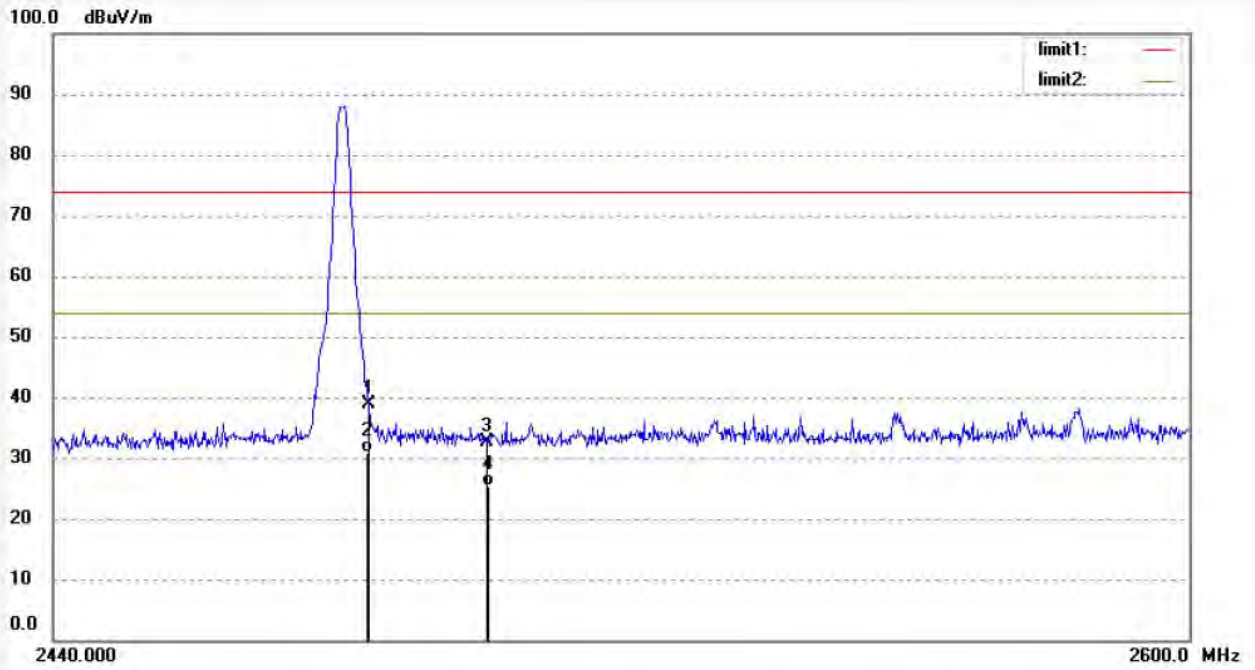
Fax:+86-0755-26503396

Job No.: STAR2016 #1134
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz(8DPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/45/01
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	46.32	-7.37	38.95	74.00	-35.05	peak			
2	2483.500	38.14	-7.37	30.77	54.00	-23.23	AVG			
3	2500.000	40.04	-7.32	32.72	74.00	-41.28	peak			
4	2500.000	32.69	-7.32	25.37	54.00	-28.63	AVG			

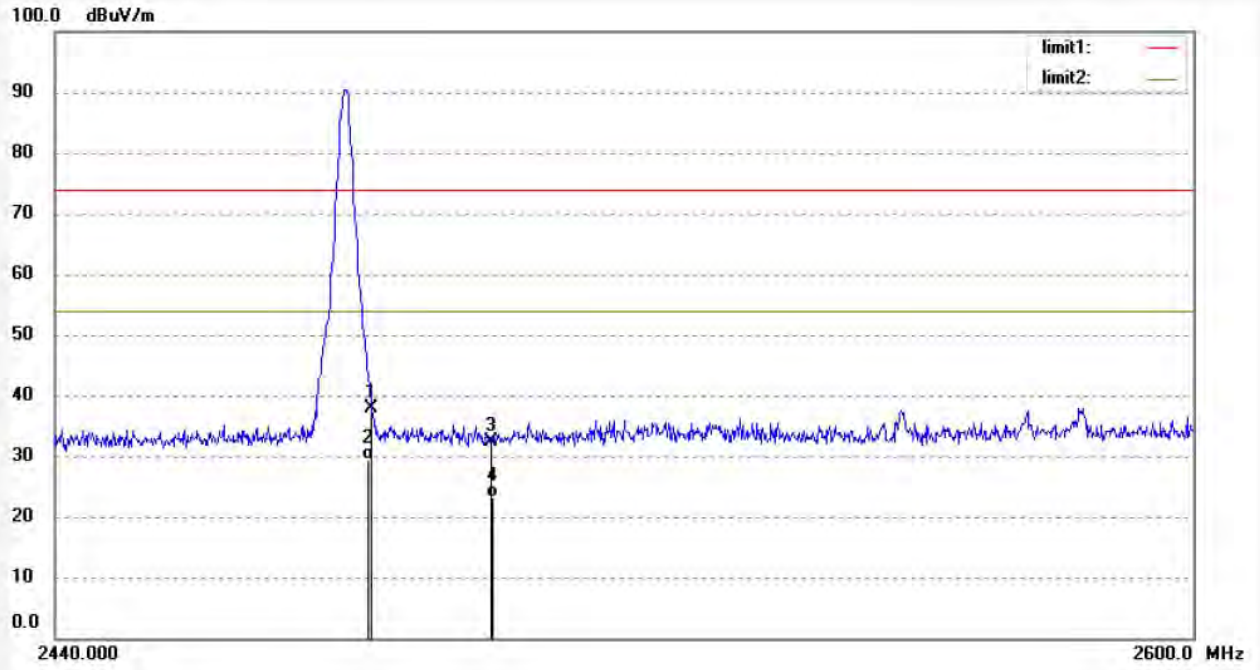
Note: Average measurement with peak detection at No.2&4

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 #1135
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: TX 2480MHz(8DPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/46/02
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	45.24	-7.37	37.87	74.00	-36.13	peak			
2	2483.500	36.70	-7.37	29.33	54.00	-24.67	AVG			
3	2500.000	39.75	-7.32	32.43	74.00	-41.57	peak			
4	2500.000	30.51	-7.32	23.19	54.00	-30.81	AVG			

Note: Average measurement with peak detection at No.2&4

Hopping mode

ACCURATE TECHNOLOGY CO., LTD.
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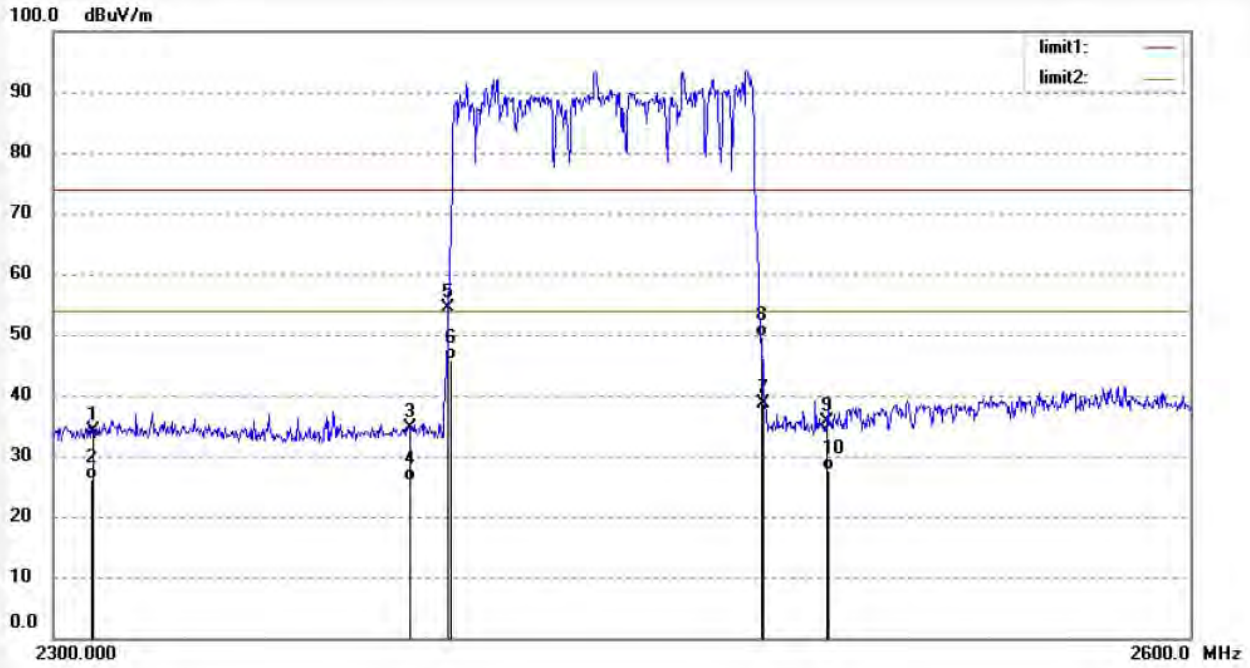
Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR2016 #1141
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: HOPPING (GFSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 17/10/14
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	42.06	-7.87	34.19	74.00	-39.81	peak			
2	2310.000	34.06	-7.87	26.19	54.00	-27.81	AVG			
3	2390.000	42.37	-7.64	34.73	74.00	-39.27	peak			
4	2390.000	33.47	-7.64	25.83	54.00	-28.17	AVG			
5	2400.000	61.98	-7.61	54.37	74.00	-19.63	peak			
6	2400.000	53.60	-7.61	45.99	54.00	-8.01	AVG			
7	2483.500	46.05	-7.37	38.68	74.00	-35.32	peak			
8	2483.500	57.00	-7.37	49.63	54.00	-4.37	AVG			
9	2500.000	42.85	-7.32	35.53	74.00	-38.47	peak			
10	2500.000	34.84	-7.32	27.52	54.00	-26.48	AVG			

Note: Average measurement with peak detection at No.2&4&6&8&10

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
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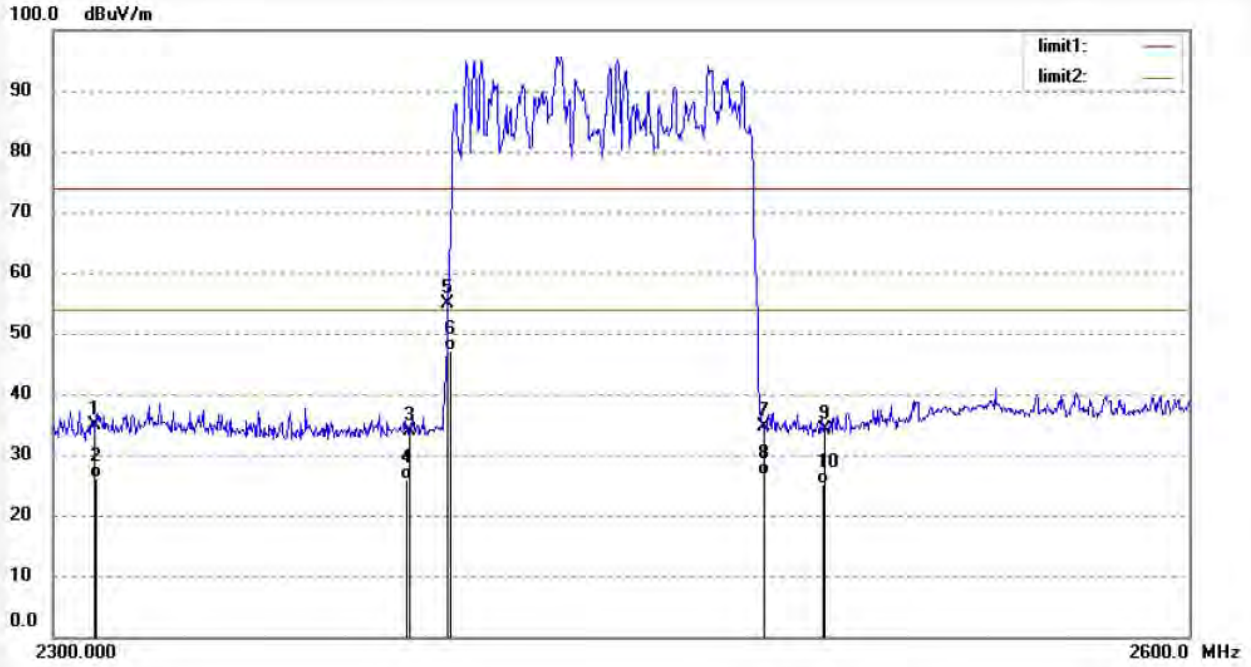
Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR2016 #1140
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: HOPPING (GFSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 17/05/13
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	42.64	-7.87	34.77	74.00	-39.23	peak			
2	2310.000	34.06	-7.87	26.19	54.00	-27.81	AVG			
3	2390.000	41.60	-7.64	33.96	74.00	-40.04	peak			
4	2390.000	33.61	-7.64	25.97	54.00	-28.03	AVG			
5	2400.000	62.59	-7.61	54.98	74.00	-19.02	peak			
6	2400.000	54.70	-7.61	47.09	54.00	-6.91	AVG			
7	2483.500	42.12	-7.37	34.75	74.00	-39.25	peak			
8	2483.500	34.07	-7.37	26.70	54.00	-27.30	AVG			
9	2500.000	41.35	-7.32	34.03	74.00	-39.97	peak			
10	2500.000	32.57	-7.32	25.25	54.00	-28.75	AVG			

Note: Average measurement with peak detection at No.2&4&6&8&10

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
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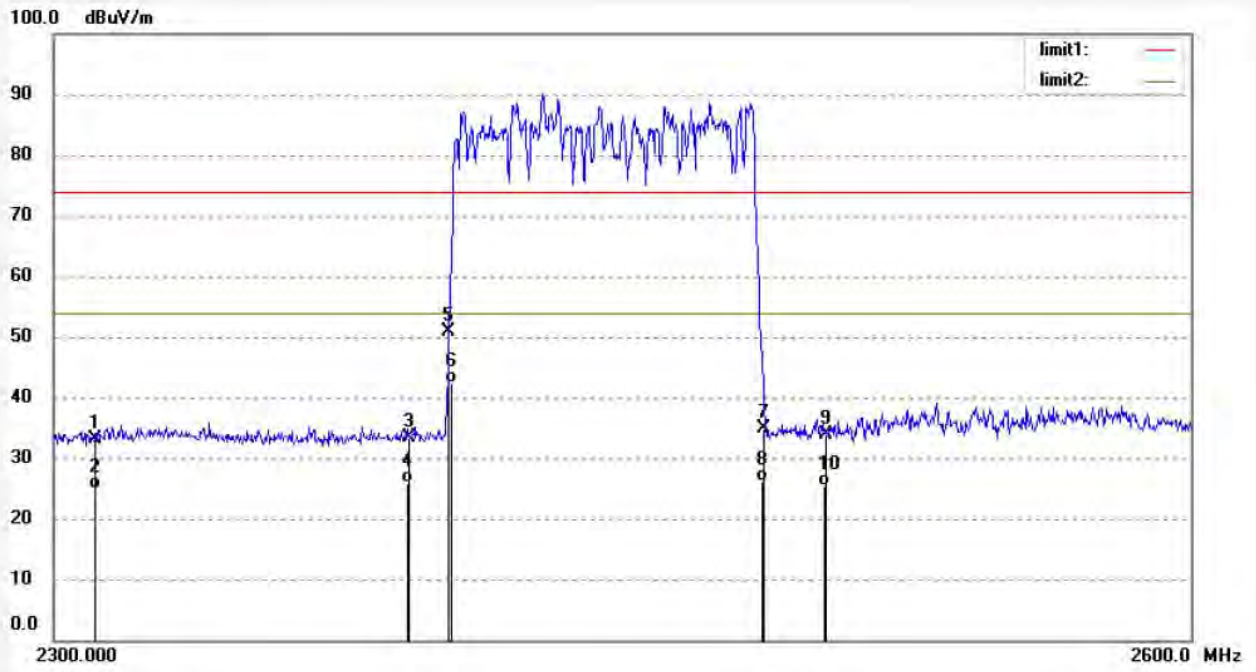
Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: STAR2016 #1138
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: HOPPING (pi/4DQPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/56/06
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	40.93	-7.87	33.06	74.00	-40.94	peak			
2	2310.000	32.75	-7.87	24.88	54.00	-29.12	AVG			
3	2390.000	41.06	-7.64	33.42	74.00	-40.58	peak			
4	2390.000	33.40	-7.64	25.76	54.00	-28.24	AVG			
5	2400.000	58.56	-7.61	50.95	74.00	-23.05	peak			
6	2400.000	50.00	-7.61	42.39	54.00	-11.61	AVG			
7	2483.500	42.28	-7.37	34.91	74.00	-39.09	peak			
8	2483.500	33.40	-7.37	26.03	54.00	-27.97	AVG			
9	2500.000	41.25	-7.32	33.93	74.00	-40.07	peak			
10	2500.000	32.79	-7.32	25.47	54.00	-28.53	AVG			

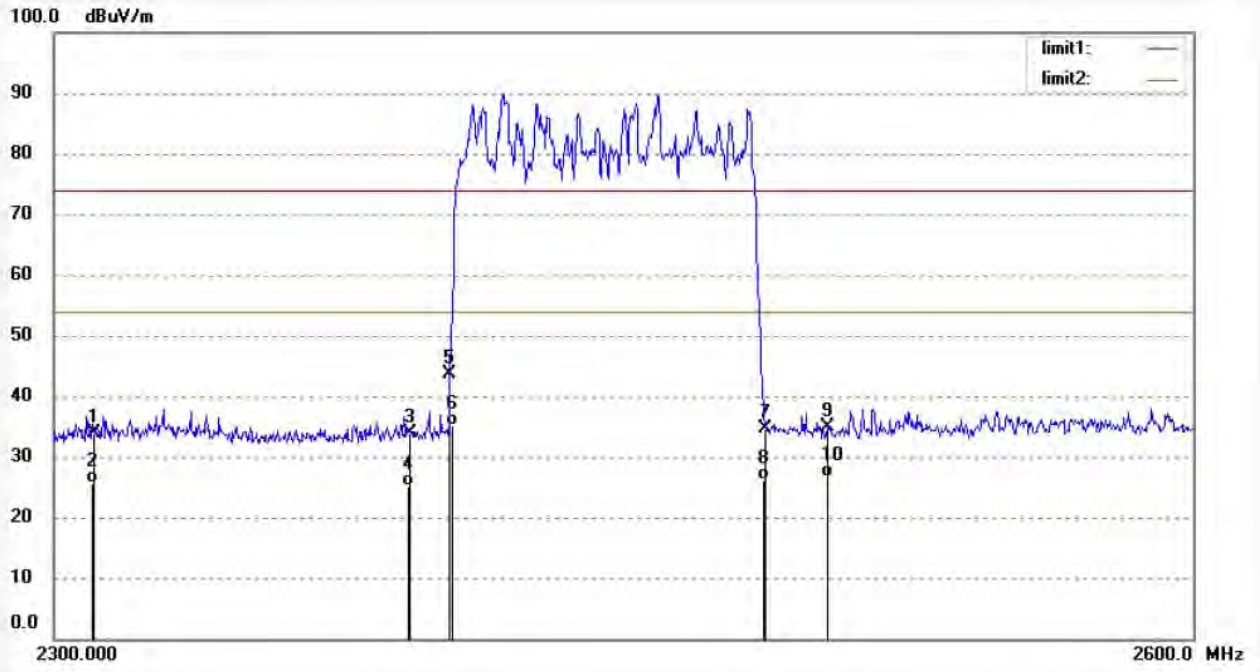
Note: Average measurement with peak detection at No.2&4&6&8&10

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 #1139
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: HOPPING (pi/4DQPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 17/00/00
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	41.78	-7.87	33.91	74.00	-40.09	peak			
2	2310.000	33.40	-7.87	25.53	54.00	-28.47	AVG			
3	2390.000	41.54	-7.64	33.90	74.00	-40.10	peak			
4	2390.000	32.75	-7.64	25.11	54.00	-28.89	AVG			
5	2400.000	51.32	-7.61	43.71	74.00	-30.29	peak			
6	2400.000	42.78	-7.61	35.17	54.00	-18.83	AVG			
7	2483.500	41.90	-7.37	34.53	74.00	-39.47	peak			
8	2483.500	33.52	-7.37	26.15	54.00	-27.85	AVG			
9	2500.000	42.26	-7.32	34.94	74.00	-39.06	peak			
10	2500.000	34.06	-7.32	26.74	54.00	-27.26	AVG			

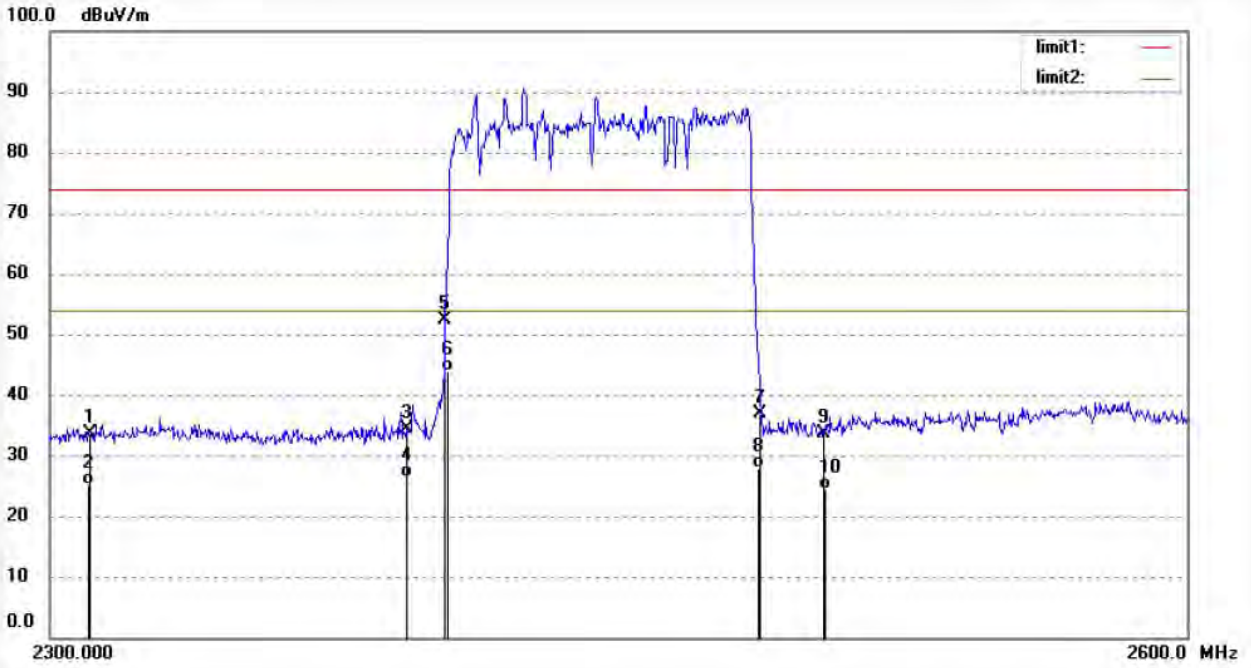
Note: Average measurement with peak detection at No.2&4&6&8&10

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 #1137
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: HOPPING (8DPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/51/45
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174



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	41.55	-7.87	33.68	74.00	-40.32	peak			
2	2310.000	33.05	-7.87	25.18	54.00	-28.82	AVG			
3	2390.000	42.01	-7.64	34.37	74.00	-39.63	peak			
4	2390.000	34.07	-7.64	26.43	54.00	-27.57	AVG			
5	2400.000	59.94	-7.61	52.33	74.00	-21.67	peak			
6	2400.000	51.40	-7.61	43.79	54.00	-10.21	AVG			
7	2483.500	44.25	-7.37	36.88	74.00	-37.12	peak			
8	2483.500	35.27	-7.37	27.90	54.00	-26.10	AVG			
9	2500.000	40.93	-7.32	33.61	74.00	-40.39	peak			
10	2500.000	31.77	-7.32	24.45	54.00	-29.55	AVG			

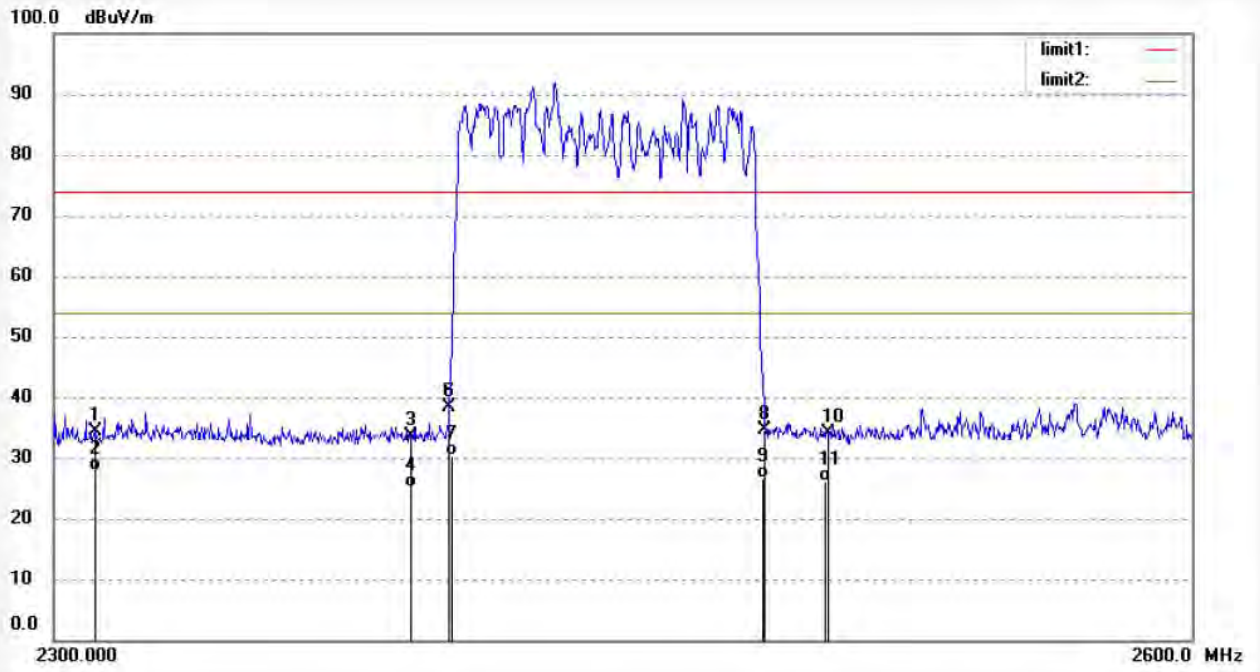
Note: Average measurement with peak detection at No.2&4&6&8&10

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 #1136
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: RSB-11 SOUND BAR AND WIRELESS SUBWOOFER
Mode: HOPPING (8DPSK)
Model: RSB-11
Manufacturer: Klipsch L.L.C.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 16/06/14/
Time: 16/49/30
Engineer Signature: star
Distance: 3m

Note: Report No.:ATE20161174

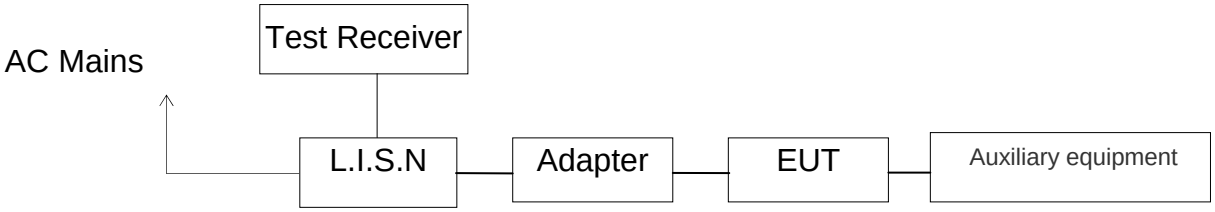


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	42.13	-7.87	34.26	74.00	-39.74	peak			
2	2310.000	35.70	-7.87	27.83	54.00	-26.17	AVG			
3	2390.000	41.18	-7.64	33.54	74.00	-40.46	peak			
4	2390.000	32.78	-7.64	25.14	54.00	-28.86	AVG			
5	2400.000	46.04	-7.61	38.43	74.00	-35.57	peak			
6	2400.000	38.00	-7.61	30.39	54.00	-23.61	AVG			
7	2483.500	41.95	-7.37	34.58	74.00	-39.42	peak			
8	2483.500	34.00	-7.37	26.63	54.00	-27.37	AVG			
9	2500.000	41.35	-7.32	34.03	74.00	-39.97	peak			
10	2500.000	33.45	-7.32	26.13	54.00	-27.87	AVG			

Note: Average measurement with peak detection at No.2&4&6&8&10

12. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

12.1. Block Diagram of Test Setup



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

12.2. Power Line Conducted Emission Measurement Limits

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
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.		

12.3. 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.

12.4. Operating Condition of EUT

12.4.1. Setup the EUT and simulator as shown as Section 12.1.

12.4.2. Turn on the power of all equipment.

12.4.3. Let the EUT work in test mode and 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 C63.10: 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.

12.6.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.

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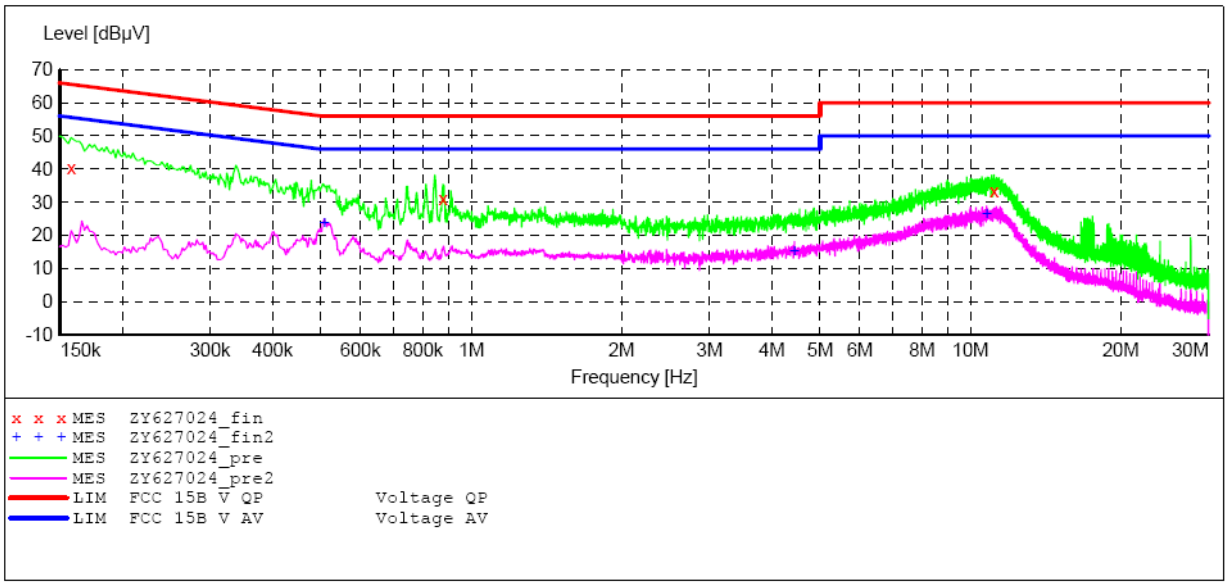
CONDUCTED EMISSION STANDARD FCC PART 15B

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.:ATE20161174
M/N:RSB-11

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

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



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

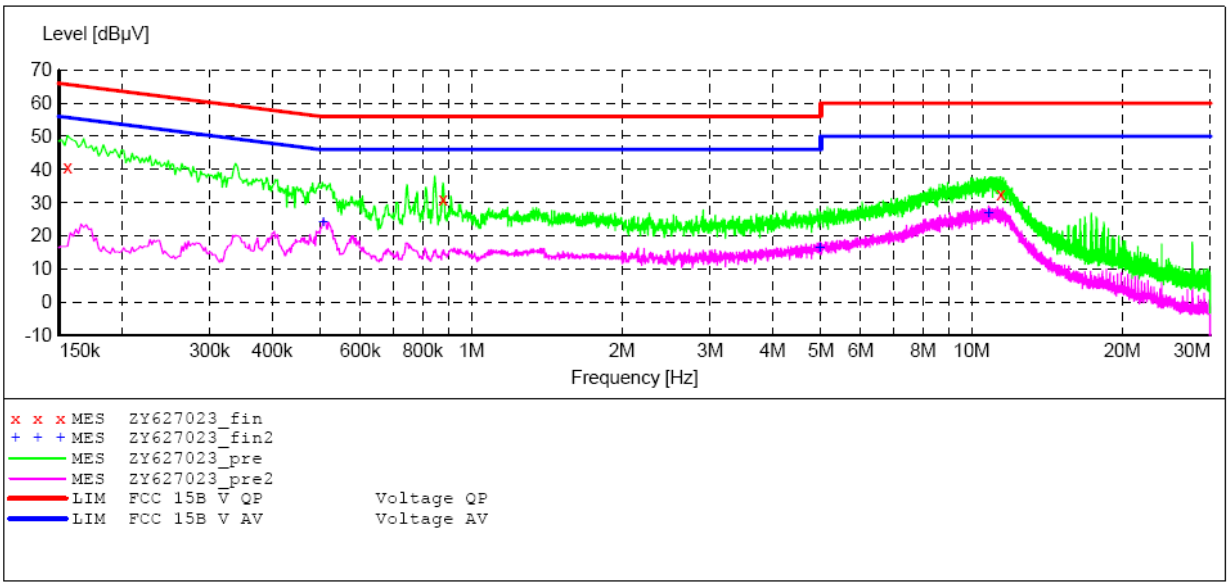
CONDUCTED EMISSION STANDARD FCC PART 15B

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.:ATE20161174
M/N:RSB-11

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

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



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

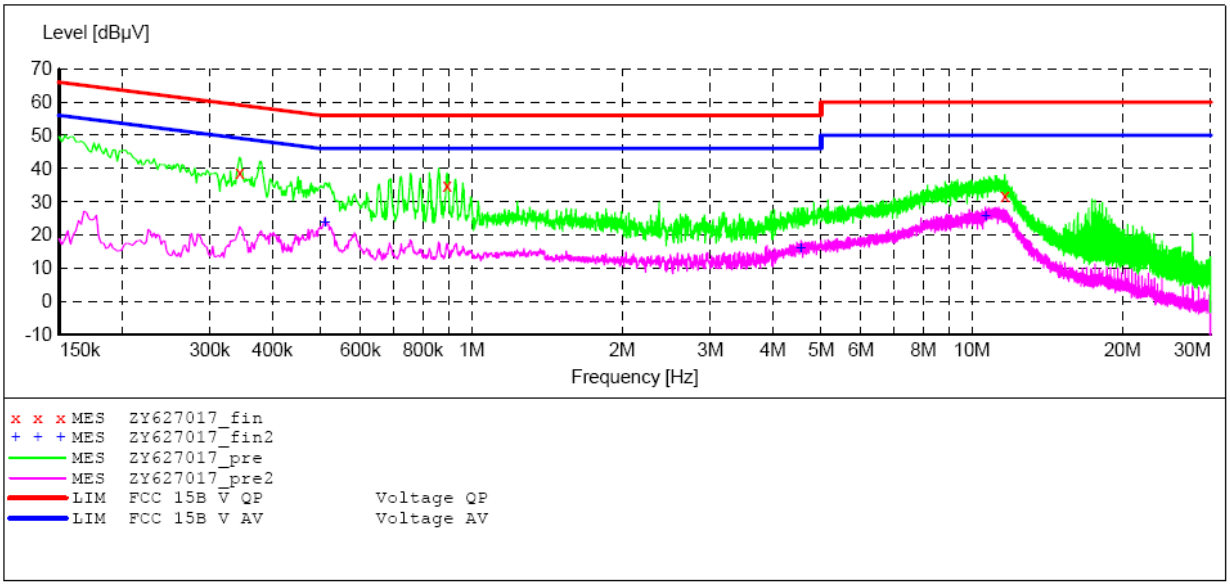
CONDUCTED EMISSION STANDARD FCC PART 15B

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.:ATE20161174
M/N:RSB-11

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

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



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

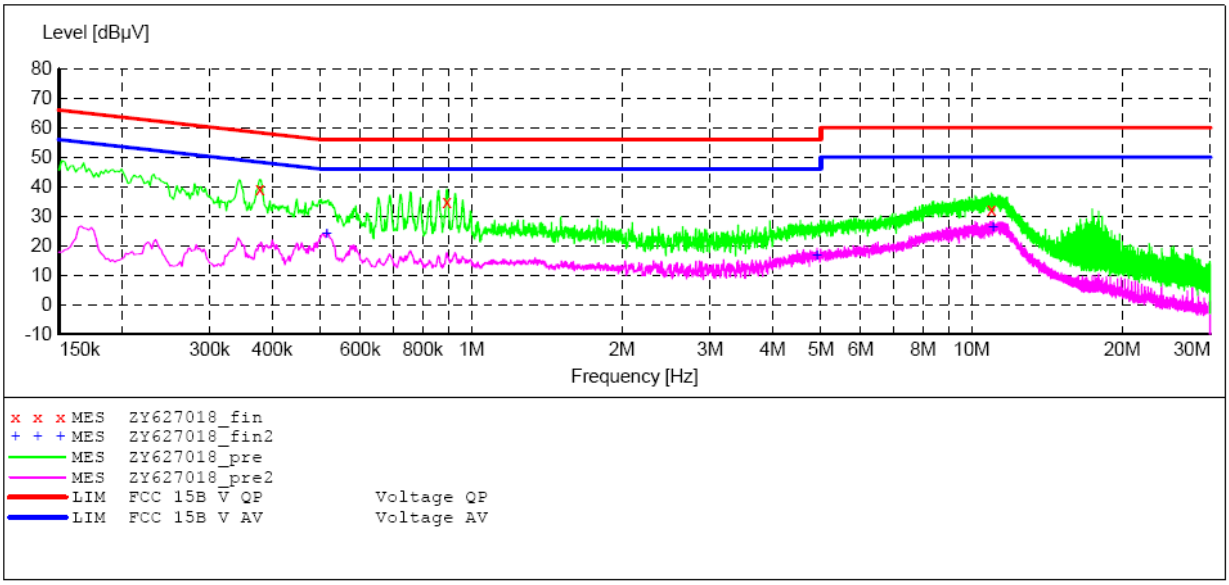
CONDUCTED EMISSION STANDARD FCC PART 15B

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.:ATE20161174
M/N:RSB-11

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

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak Average	1.0 s	9 kHz	LISN(ESH3-Z5)



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"

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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

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

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.