APPLICATION CERTIFICATION FCC Part 15C
On Behalf of
Lightcomm Technology Co., Ltd.

Bluetooth Speaker with Powerbank
Model No.: BTD16-E, NS-SPBTBRICK2,
NS-SPBTBRICK2-XX (XX=A-Z, a-z, 0-9, or blank) XX represents different color

FCC ID: XMF-SPBTBRICK2

Prepared for	:	Lightcomm Technology Co., Ltd.
Address	:	RM 1808 18/F FO TAN INDUSTRIAL CENTRE NOS. 26-28 AU PUI WAN STREET FO TAN SHATIN NEW TERRITORIES
Prepared by	:	Shenzhen Accurate Technology Co., Ltd.
Address	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.
		Tel: (0755) 26503290 Fax: (0755) 26503396

Report No.	:	ATE20180323
Date of Test	:	Feb. 7--Mar. 1, 2018
Date of Report	:	Mar. 8, 2018

TABLE OF CONTENTS

Description Page

Test Report Certification

Applicant	:	Lightcomm Technology Co., Ltd.
Address	:	RM 1808 18/F FO TAN INDUSTRIAL CENTRE NOS. 26-28 AU PUI WAN STREET FO TAN SHATIN NEW TERRITORIES
Manufacturer	:	Lightcomm Technology Co., Ltd.
Address	:	RM 1808 18/F FO TAN INDUSTRIAL CENTRE NOS. 26-28 AU PUI WAN STREET FO TAN SHATIN NEW TERRITORIES
Product	:	Bluetooth Speaker with Powerbank
Model No.	:	BTD16-E, NS-SPBTBRICK2, NS-SPBTBRICK2-XX (XX=A-Z, a-z, 0-9, or blank) XX represents different color

Measurement Procedure Used:

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

The device described above is tested by Shenzhen 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 Shenzhen 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 Shenzhen Accurate Technology Co., Ltd.

Date of Test :	Feb. 7--Mar. 1, 2018
Date of Report:	Mar. 8, 2018
Prepared by :	(Star Yang, Engineer)
Approved & Authorized Signer :	(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Bluetooth Speaker with Powerbank
Model Number	:	BTD16-E, NS-SPBTBRICK2, NS-SPBTBRICK2-XX (XX=A-Z, a-z, 0-9, or blank) XX represents different color (Note: Above models are identical in schematic, structure and critical components except for model name, So we prepare NS-SPBTBRICK2-BK for test.)
Bluetooth version	:	V4.1 classic mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	79
Antenna Gain(Max)	:	0dBi
Antenna type	:	PCB Antenna
Modulation mode	:	GFSK, π/4 DQPSK, 8DPSK
Trade Name	:	n.a
Rating	:	DC 3.7V (Powered by Lithium battery) or DC 5V (Powered by USB port)
Applicant	:	Lightcomm Technology Co., Ltd.
Address	:	RM 1808 18/F FO TAN INDUSTRIAL CENTRE NOS. 26-28 AU PUI WAN STREET FO TAN SHATIN NEW TERRITORIES
Manufacturer	:	Lightcomm Technology Co., Ltd.
Address	:	RM 1808 18/F FO TAN INDUSTRIAL CENTRE NOS. 26-28 AU PUI WAN STREET FO TAN SHATIN NEW TERRITORIES
Date of sample received	:	Feb. 24, 2018
Date of Test	:	Feb. 7--Mar. 1, 2018

1.2.Accessory and Auxiliary Equipment

Notebook PC:	Manufacturer: Lenovo M/N: ThinkPad X240 S/N:n.a

1.3.Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358 Listed by Innovation, Science and Economic Development Canada (ISEDC) The Registration Number is 5077A-2 Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	:	Shenzhen Accurate Technology Co., Ltd.
Site Location	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, 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. 06, 2018	Jan. 05, 2019
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 06, 2018	Jan. 05, 2019
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 06, 2018	Jan. 05, 2019
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 06, 2018	Jan. 05, 2019
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 06, 2018	Jan. 05, 2019
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 12, 2018	Jan. 11, 2019
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 12, 2018	Jan. 11, 2019
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 12, 2018	Jan. 11, 2019
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 12, 2018	Jan. 11, 2019
Open Switch and Control Unit	Rohde&Schwarz	OSP120 + OSP-B157	101244 + 100866	Jan. 06, 2018	Jan. 05, 2019
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 06, 2018	Jan. 05, 2019
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 06, 2018	Jan. 05, 2019
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 06, 2018	Jan. 05, 2019
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375/2510-60/11SS	N/A	Jan. 06, 2018	Jan. 05, 2019

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

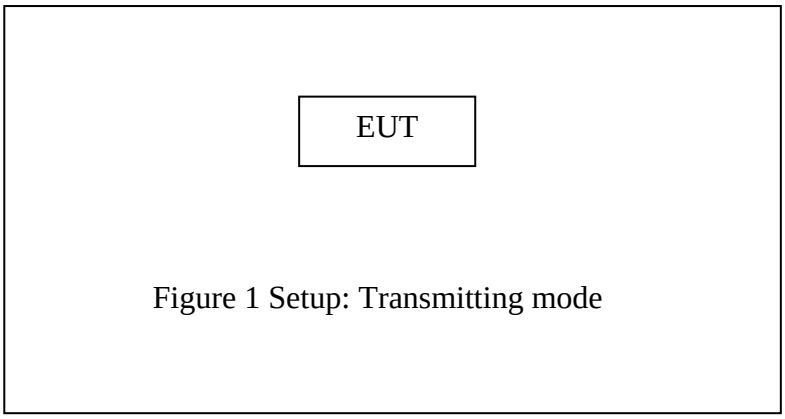


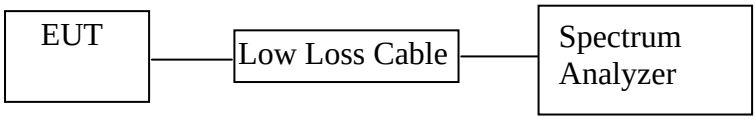
Figure 1 Setup: Transmitting mode

4. TEST PROCEDURES AND RESULTS

FCC&IC Rules	Description of Test	Result
Section 15.207	AC Power Line 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 15.247(d)	Conducted Spurious Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. 20DB BANDWIDTH TEST

5.1.Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

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.The RBW should be 1%~5% of OBW.

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

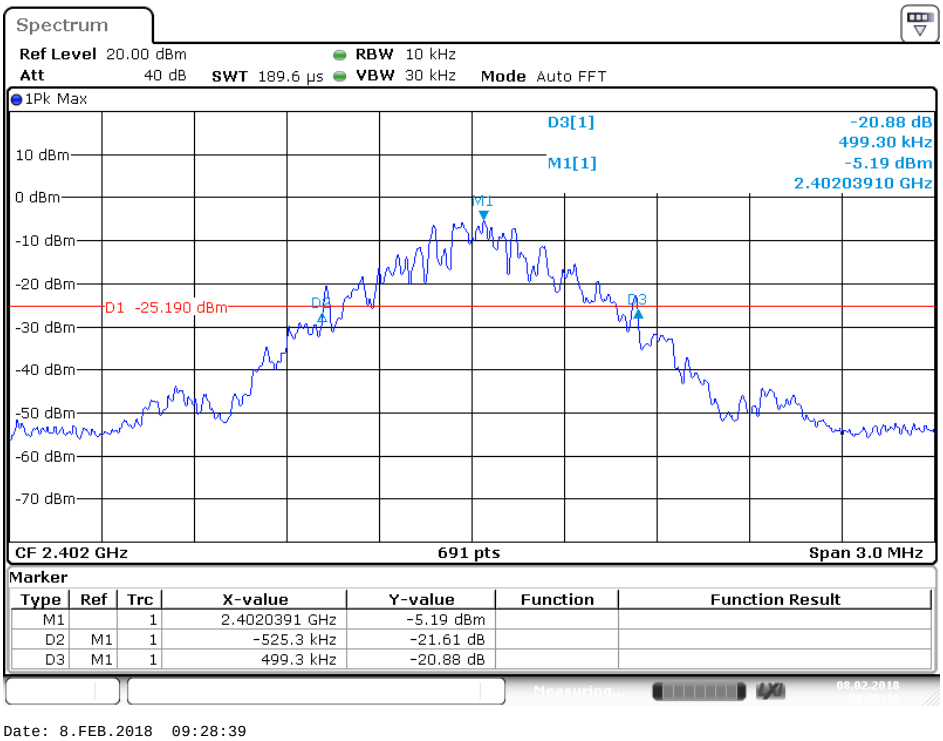
5.6.Test Result

Channel	Frequency (MHz)	BDR mode 20dB Bandwidth (MHz)	EDR mode 20dB Bandwidth (MHz)	Result
Low	2402	1.0246	1.3198	Pass
Middle	2441	1.0246	1.3242	Pass
High	2480	1.0246	1.3242	Pass

The spectrum analyzer plots are attached as below.

BDR Mode

Low channel



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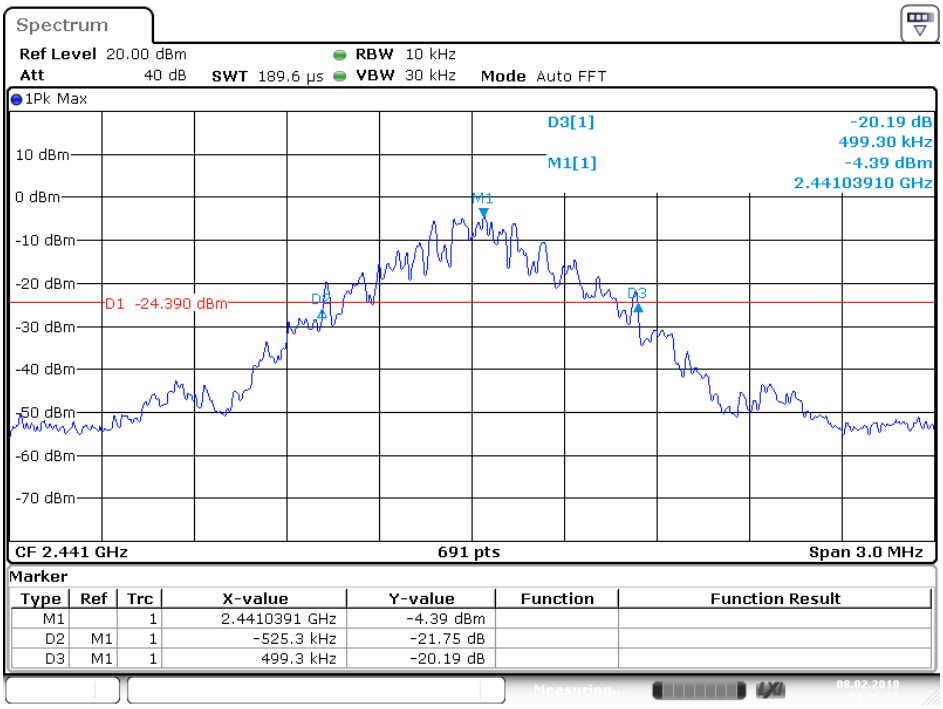
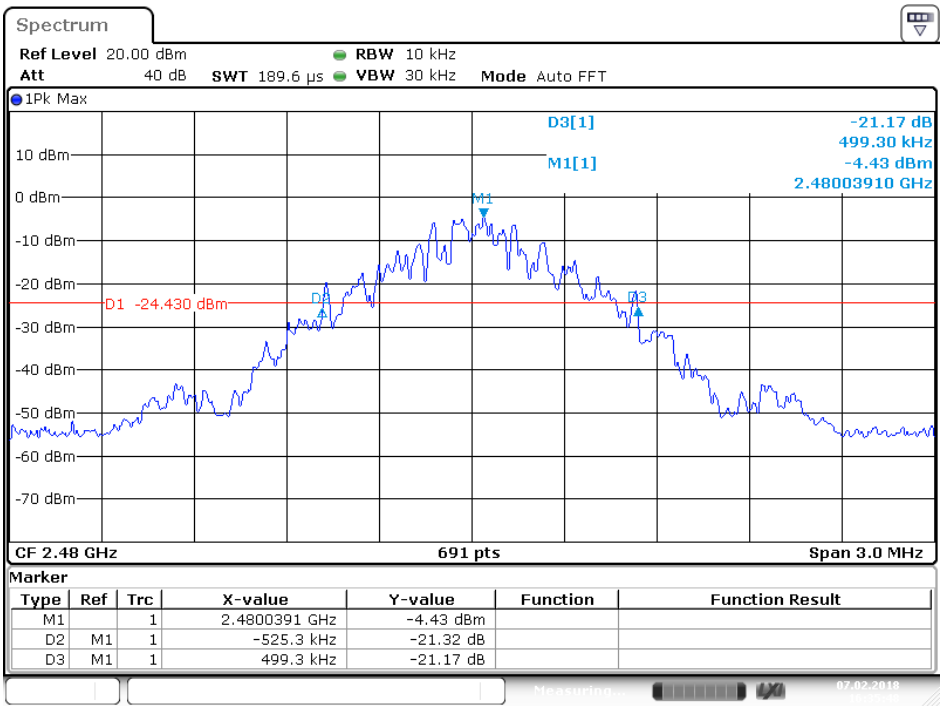
Middle channel



Date: 8.FEB.2018 09:26:57

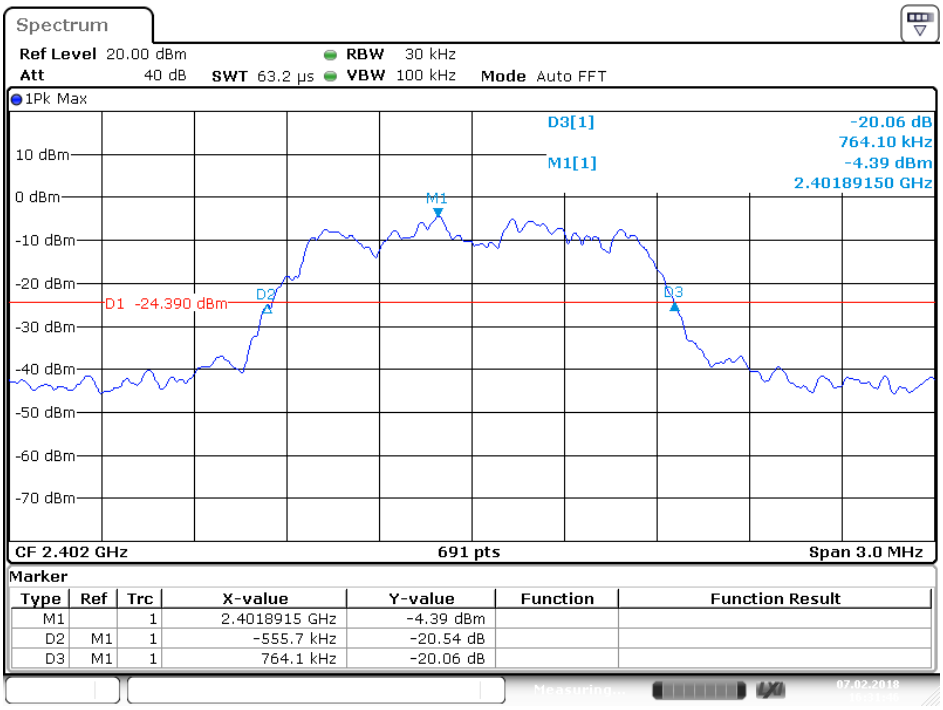
High channel



Date: 7.FEB.2018 16:35:49

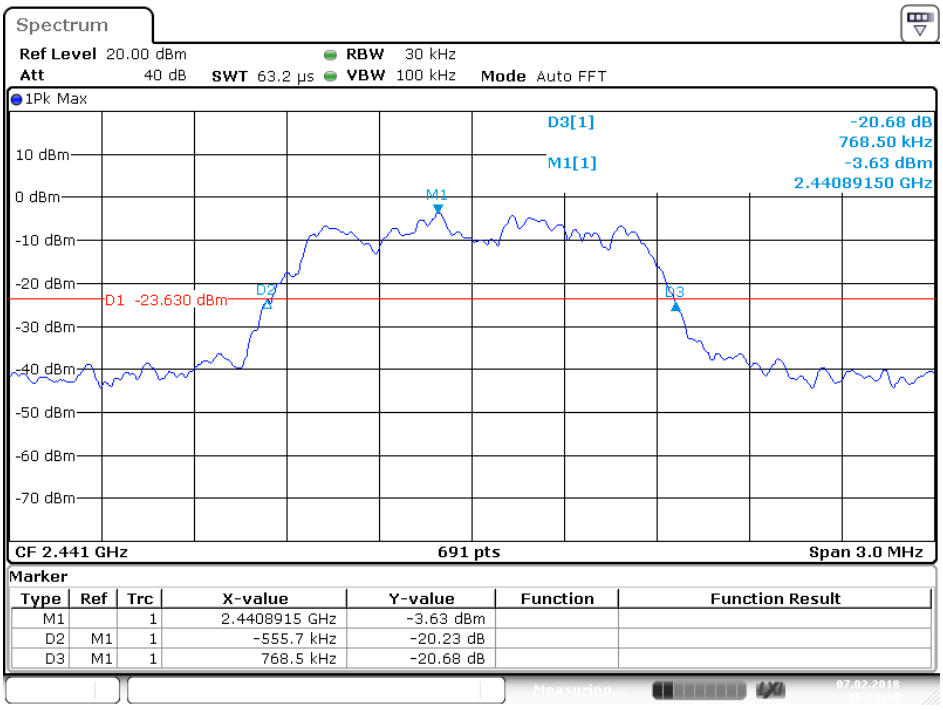
EDR Mode

Low channel



Date: 7.FEB.2018 16:31:46

Middle channel



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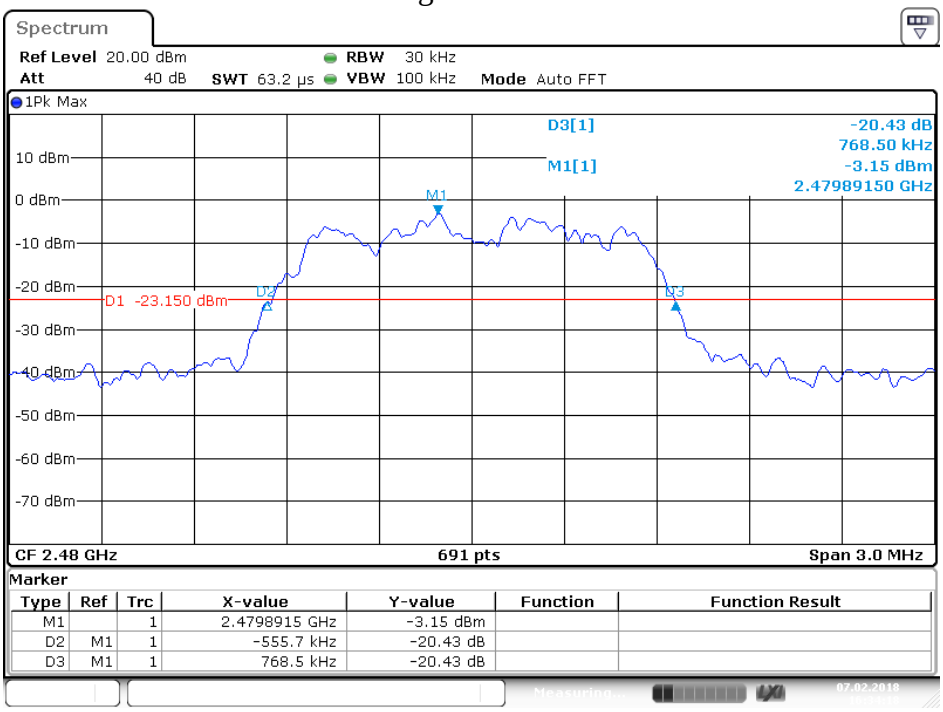
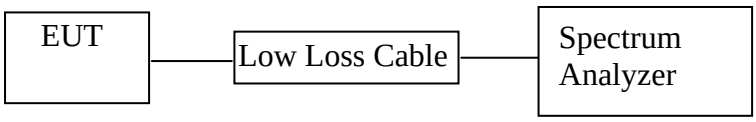
High channel



Date: 7.FEB.2018 16:34:18

6. CARRIER FREQUENCY SEPARATION TEST

6.1.Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

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 100 kHz and VBW to 300 kHz. Adjust Span to 3MHz.

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

6.5.4. Measurement the channel separation

6.6. Test Result

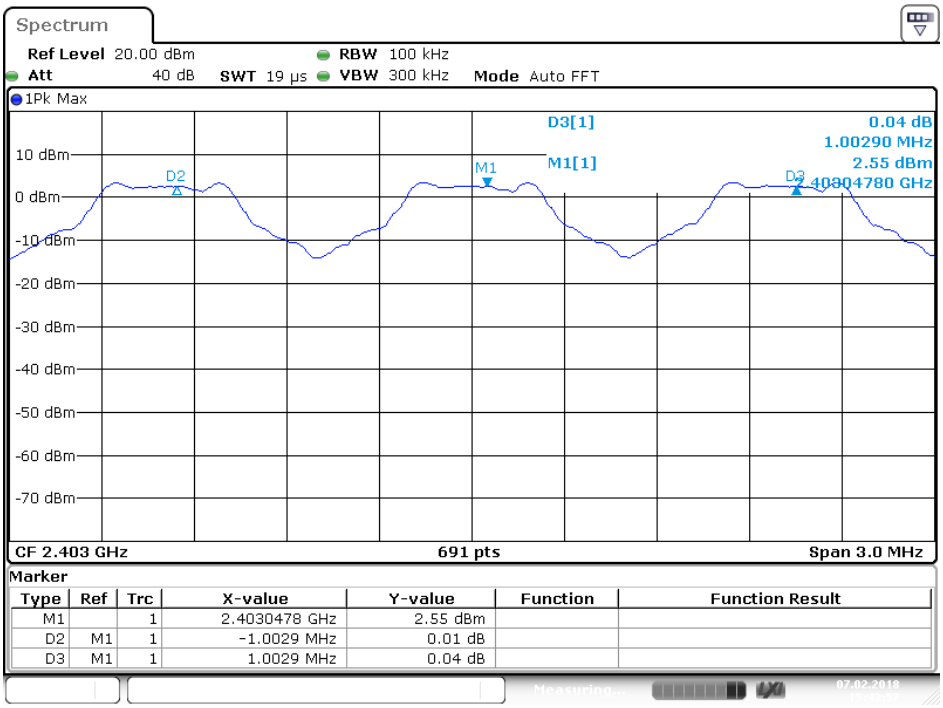
EDR mode (Worse case)

Channel	Frequency (MHz)	Channel Separation(MHz)	Limit (MHz)	Result
Low	2402	1.0029	25KHz or 2/3*20dB bandwidth	PASS
	2403			
Middle	2440	1.0029	25KHz or 2/3*20dB bandwidth	PASS
	2441			
High	2479	1.0029	25KHz or 2/3*20dB bandwidth	PASS
	2480			

The spectrum analyzer plots are attached as below.

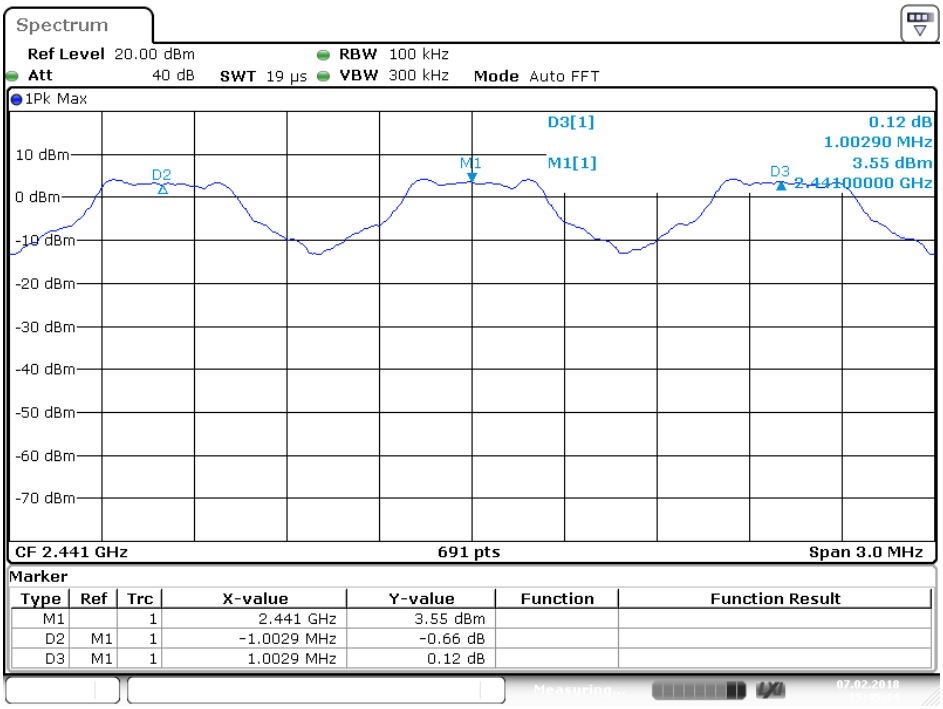
EDR Mode

Low channel



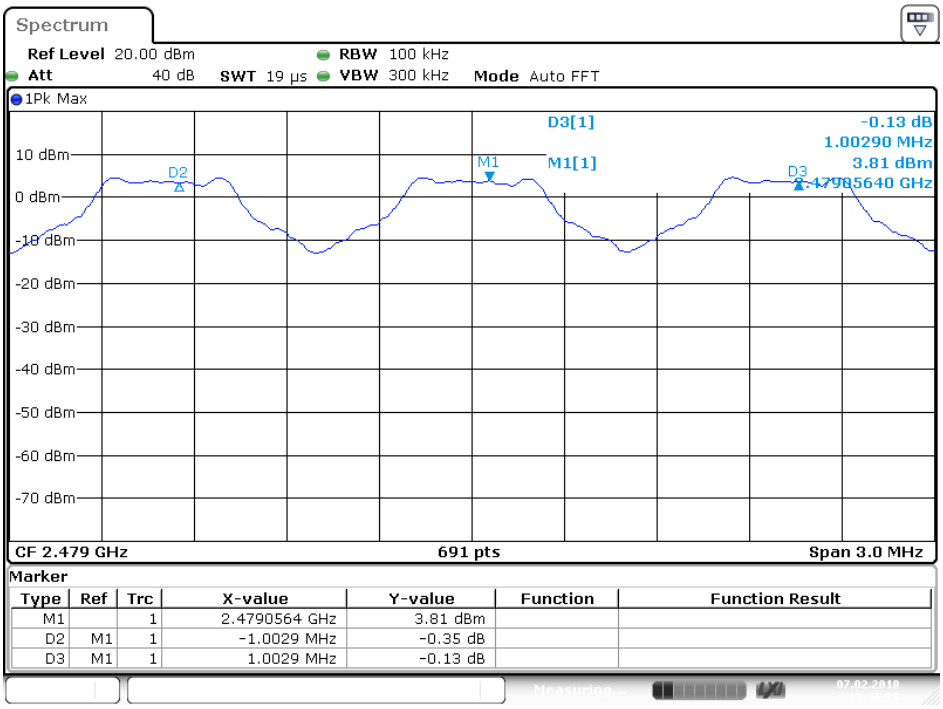
Date: 7.FEB.2018 15:43:57

Middle channel



Date: 7.FEB.2018 15:45:14

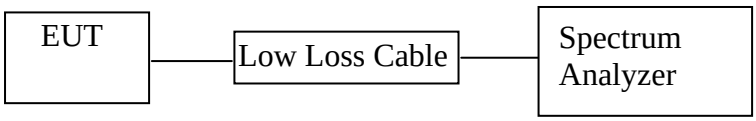
High channel



Date: 7.FEB.2018 15:46:28

7. NUMBER OF HOPPING FREQUENCY TEST

7.1.Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

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=90MHz, RBW=100 kHz, VBW=300 kHz.

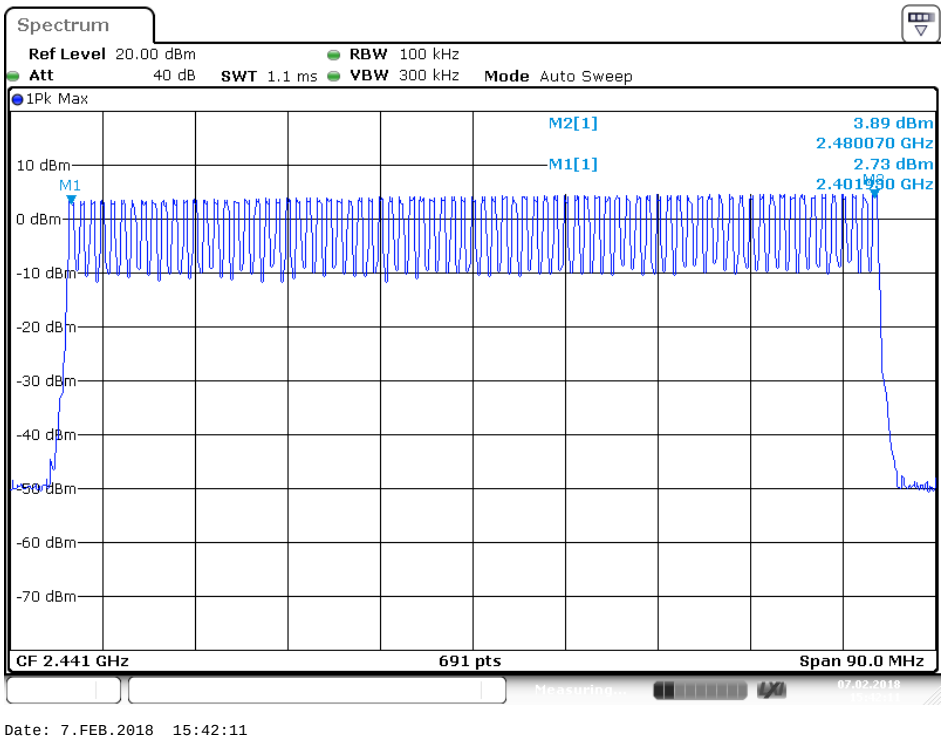
7.5.3.Max hold, view and count how many channel in the band.

7.6.Test Result

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

The spectrum analyzer plots are attached as below.

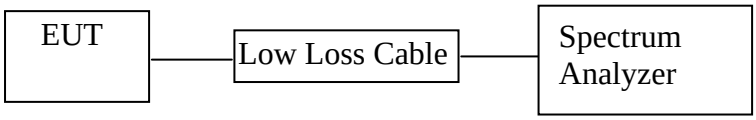
Number of hopping channels(GFSK)



Date: 7.FEB.2018 15:42:11

8. DWELL TIME TEST

8.1.Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

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

BDR Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.413	132.16	400
	2441	0.413	132.16	400
	2480	0.420	134.40	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.696	271.36	400
	2441	1.681	268.96	400
	2480	1.681	268.96	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	2.935	313.07	400
	2441	2.957	315.41	400
	2480	2.957	315.41	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

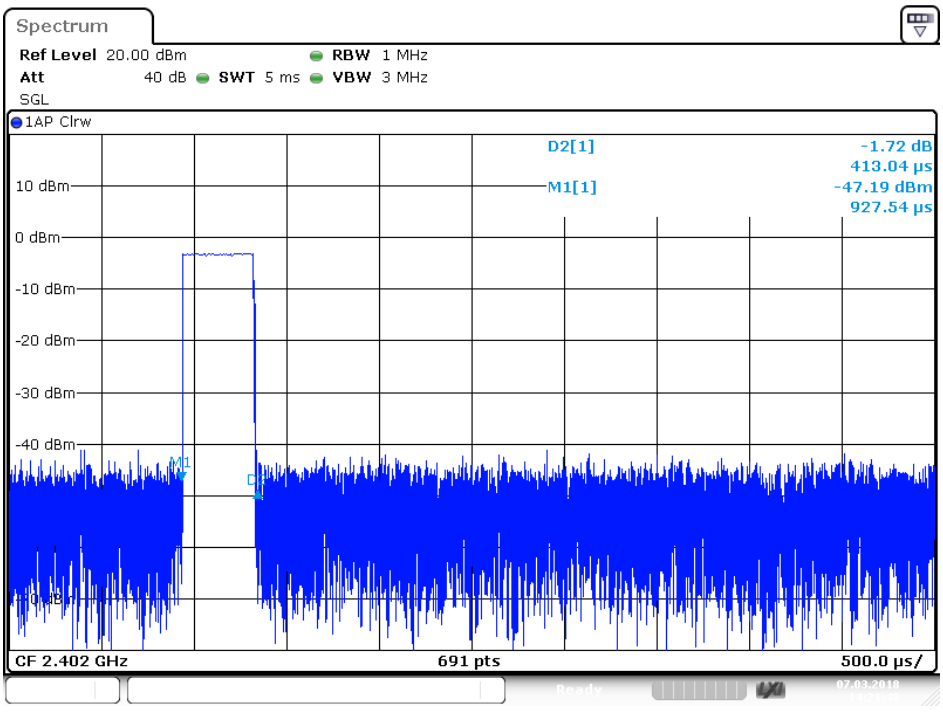
EDR Mode

Mode	Channel Frequency (MHz)	Pulse Time (ms)	Dwell Time (ms)	Limit (ms)
DH1	2402	0.428	136.96	400
	2441	0.435	139.20	400
	2480	0.428	136.96	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(2*79))×31.6				
DH3	2402	1.696	271.36	400
	2441	1.696	271.36	400
	2480	1.696	271.36	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(4*79))×31.6				
DH5	2402	2.957	315.41	400
	2441	2.957	315.41	400
	2480	2.957	315.41	400
A period transmit time = 0.4 × 79 = 31.6 Dwell time = pulse time × (1600/(6*79))×31.6				

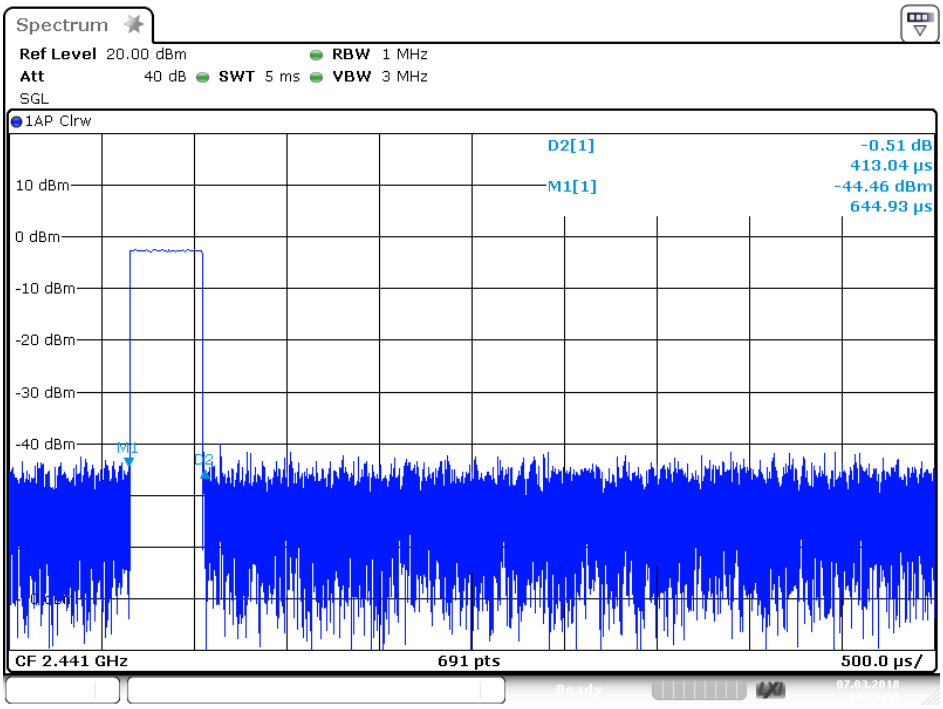
The spectrum analyzer plots are attached as below.

BDR Mode

DH1 Low channel

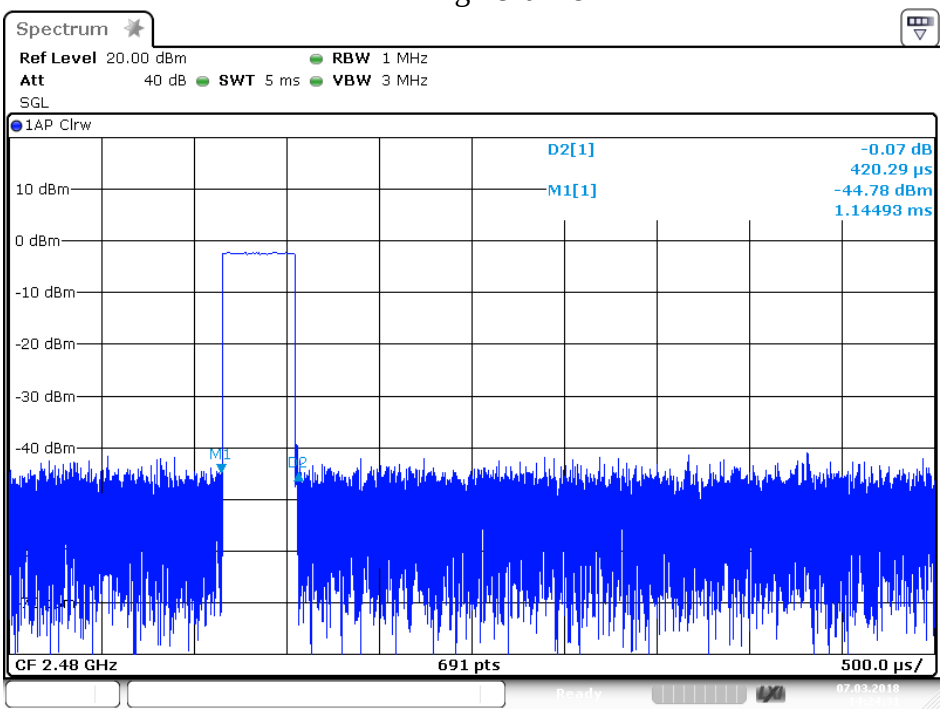


DH1 Middle channel



Date: 7.MAR.2018 14:23:50

DH1 High channel



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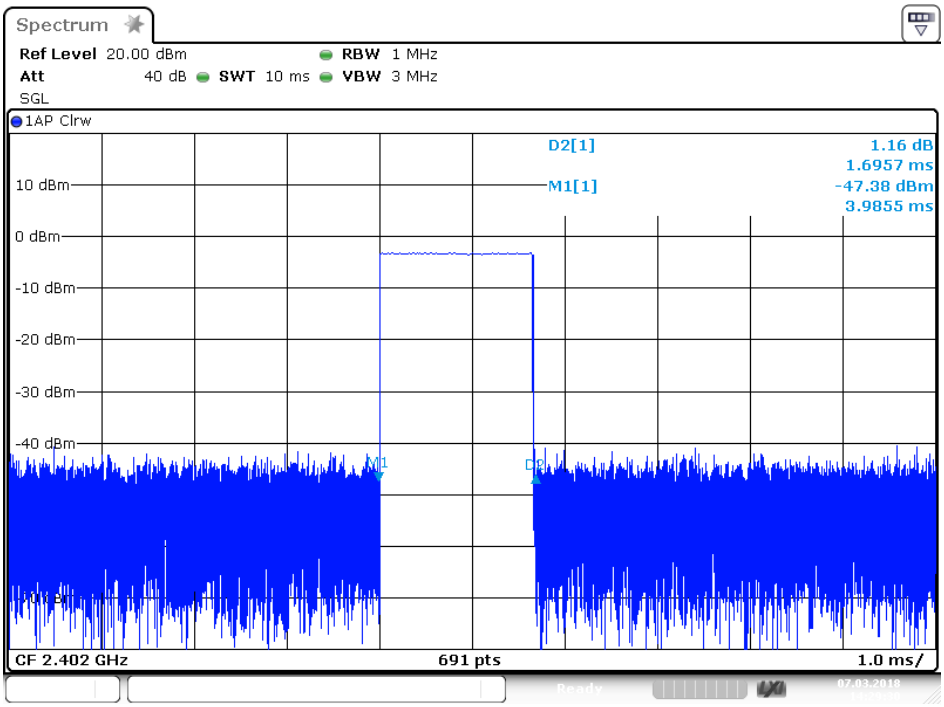
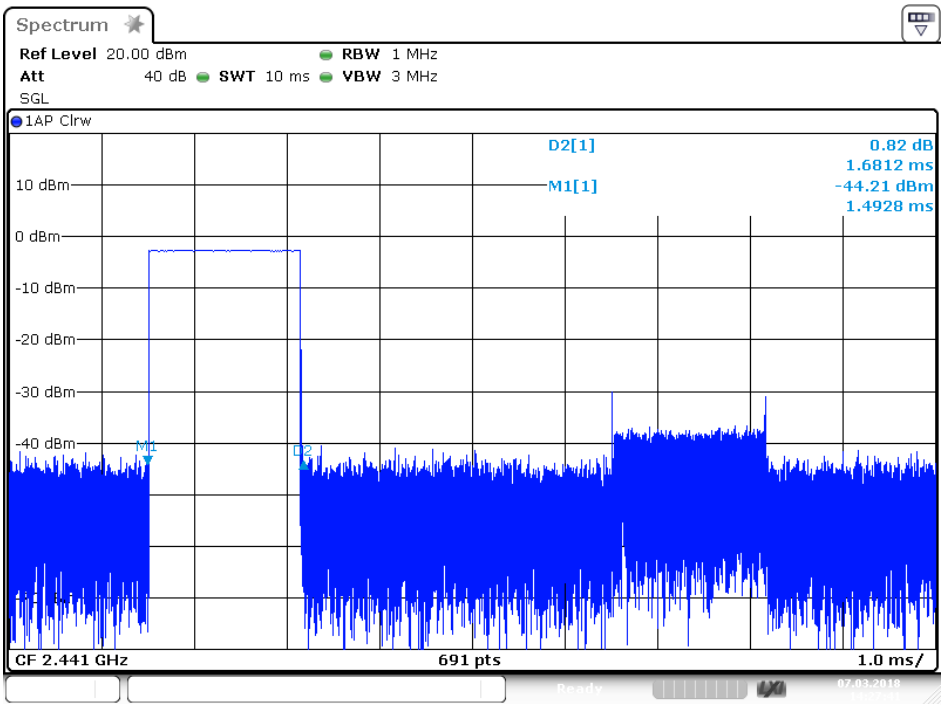
DH3 Low channel



Date: 7.MAR.2018 14:29:31

DH3 Middle channel



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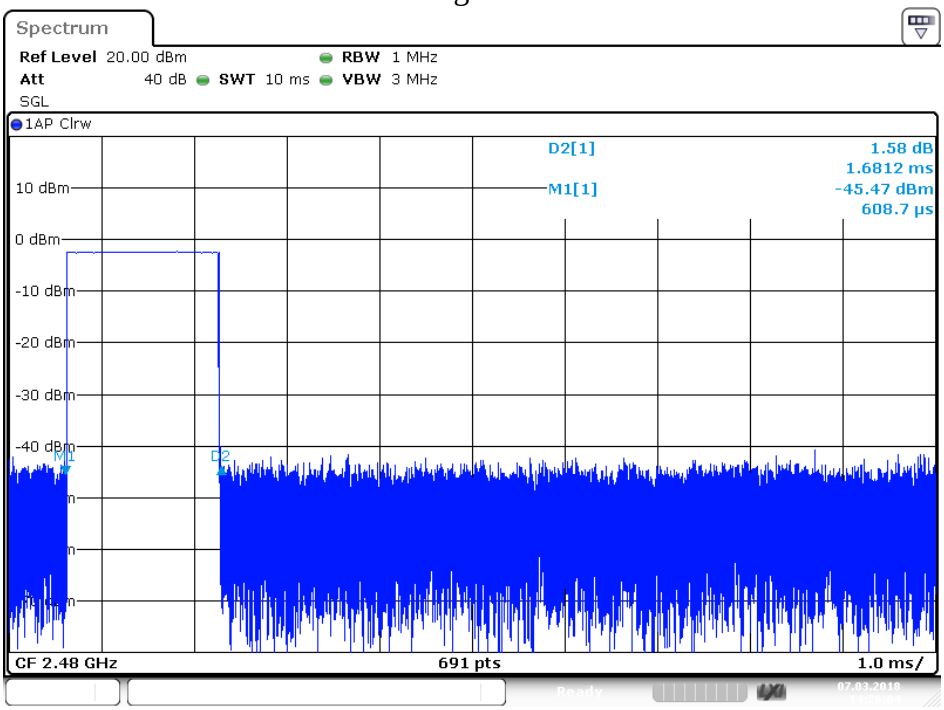
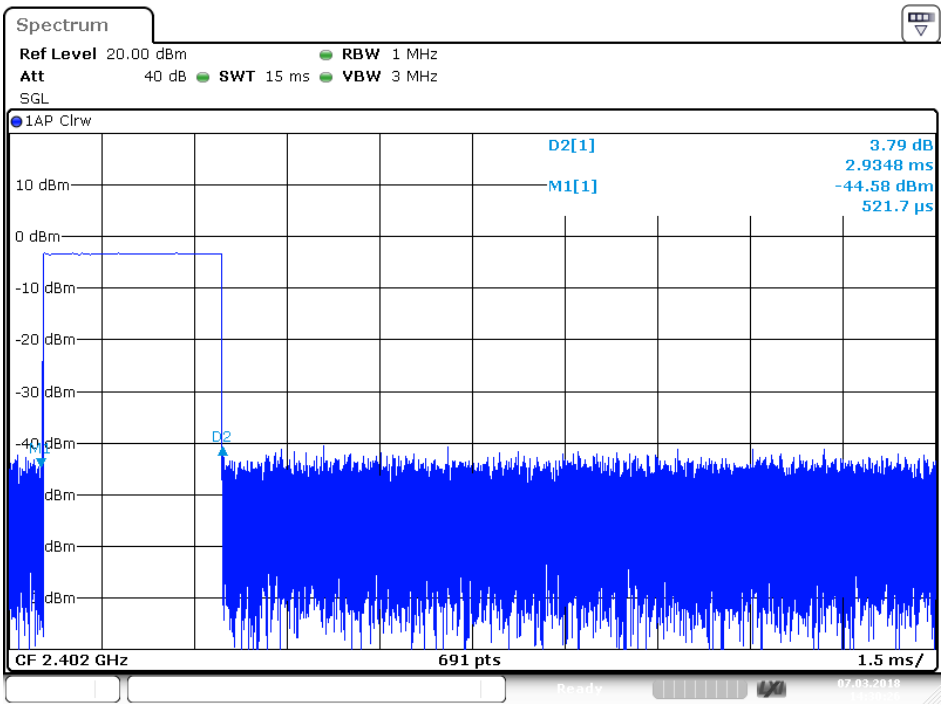
DH3 High channel



Date: 7.MAR.2018 14:26:05

DH5 Low channel



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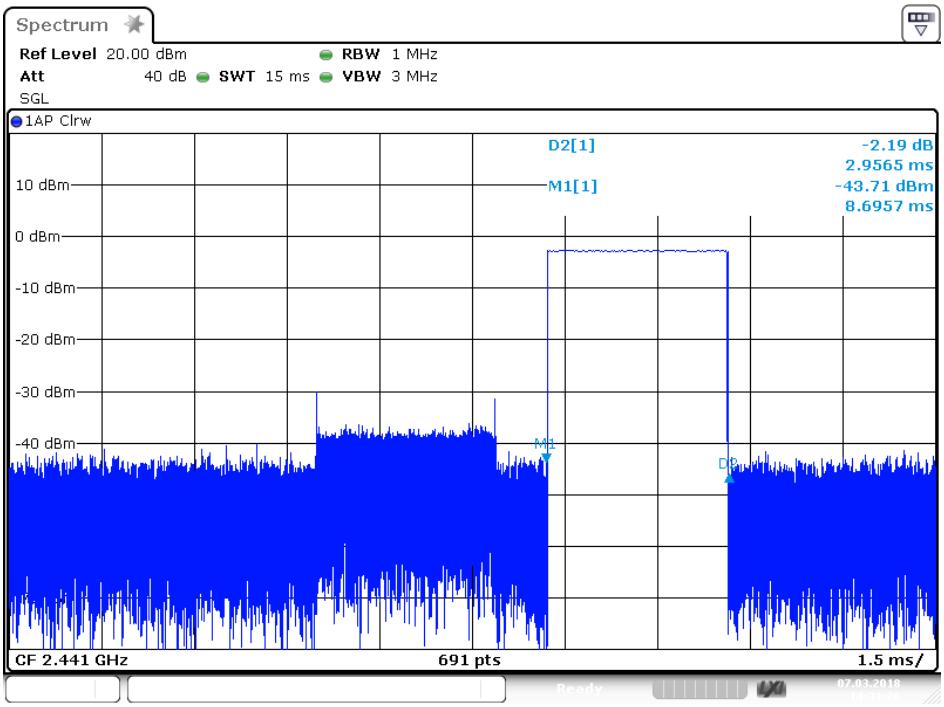
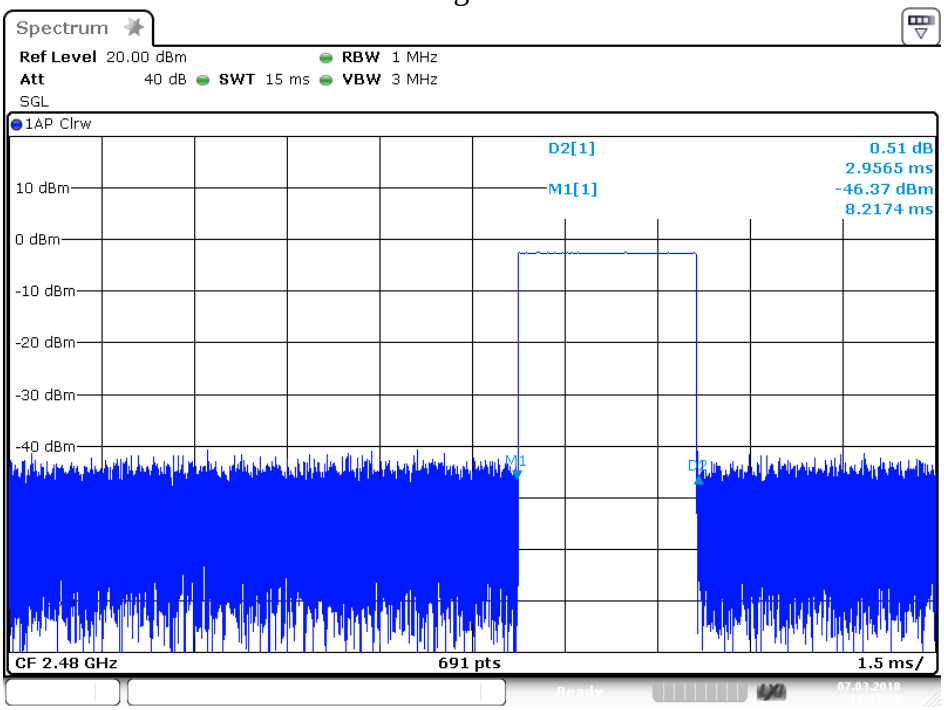
DH5 Middle channel



Date: 7.MAR.2018 14:31:27

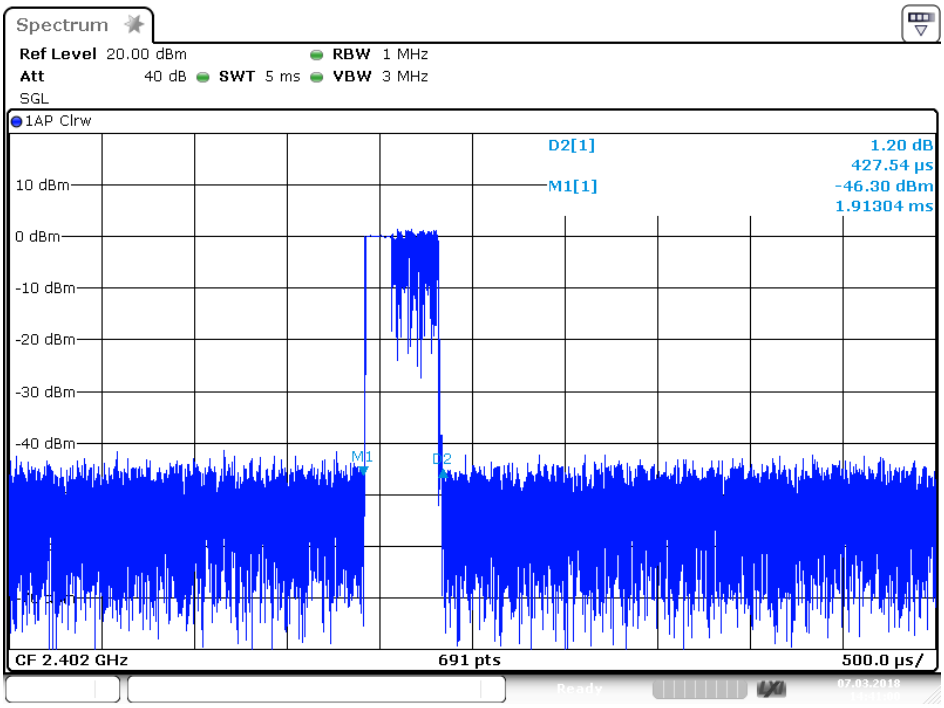
DH5 High channel



Date: 7.MAR.2018 14:32:47

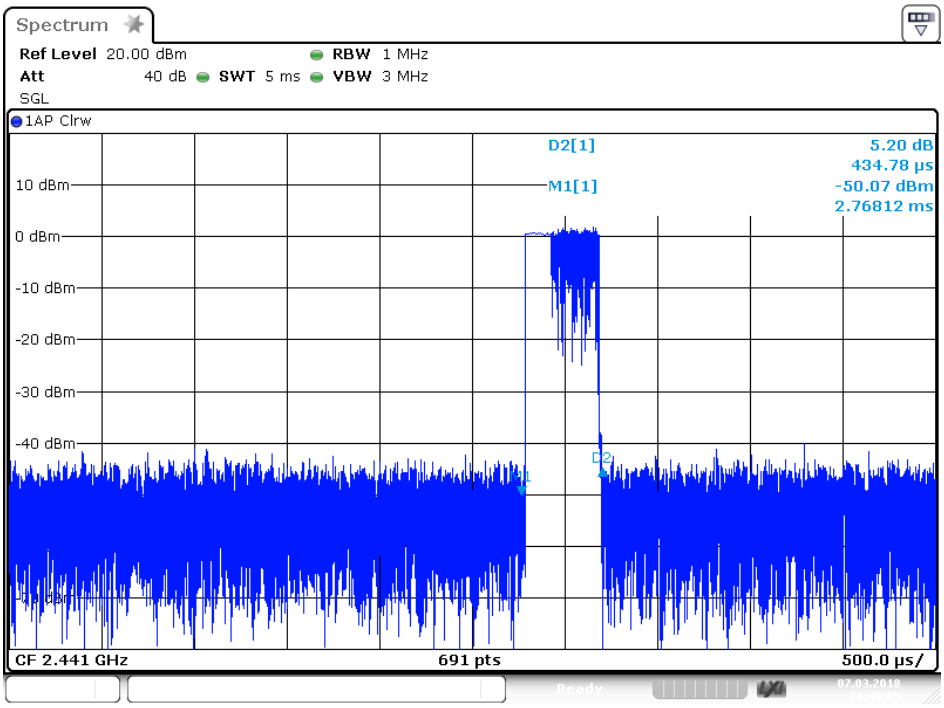
EDR Mode

3DH1 Low channel



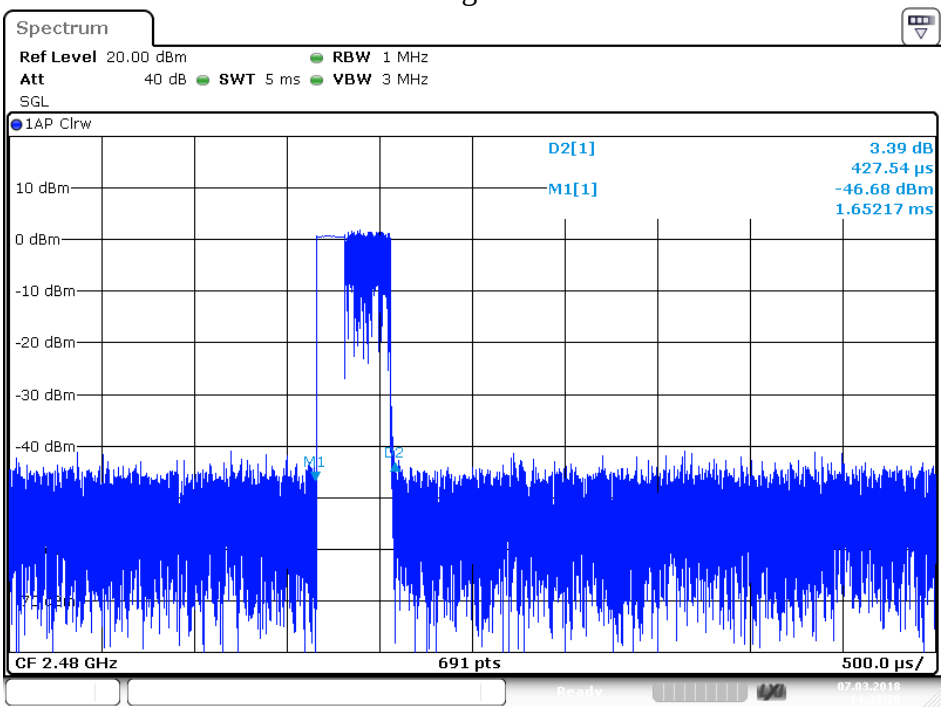
Date: 7.MAR.2018 14:41:00

3DH1 Middle channel



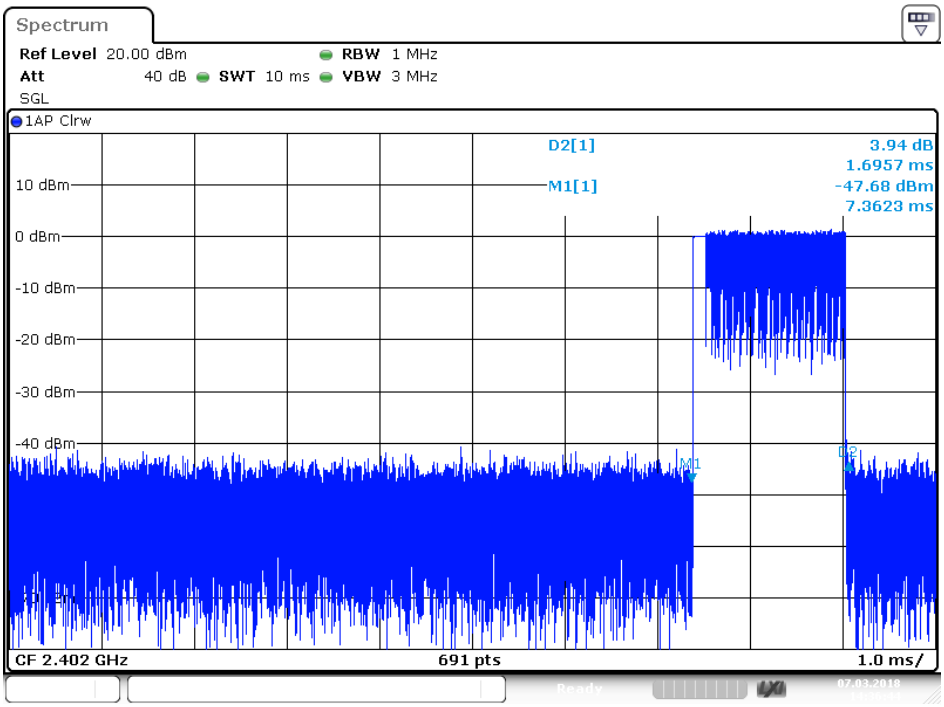
Date: 7.MAR.2018 14:40:05

3DH1 High channel



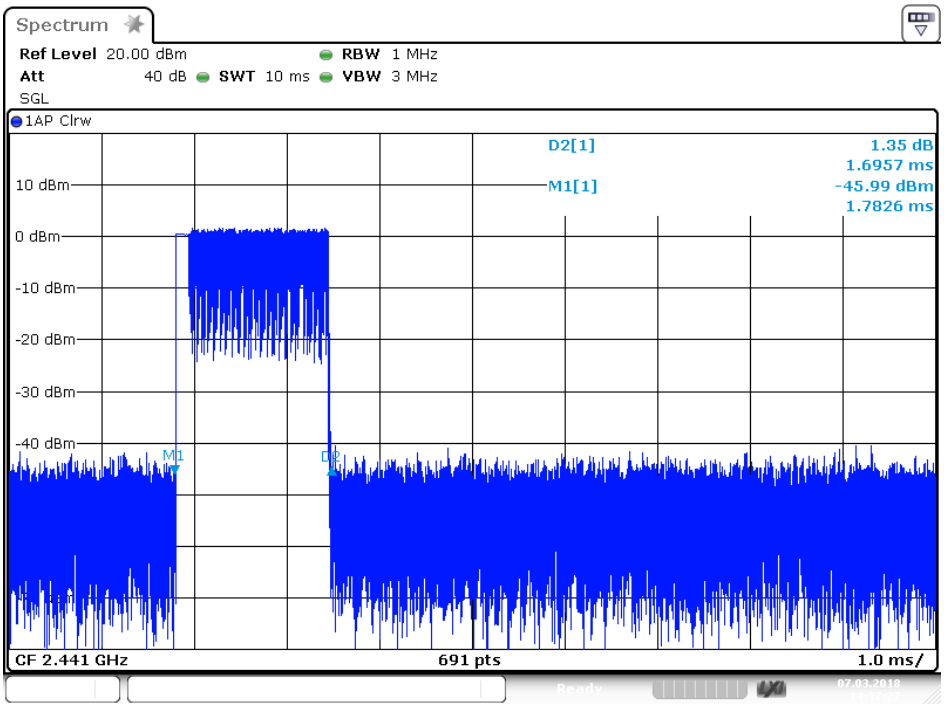
Date: 7.MAR.2018 14:39:21

3DH3 Low channel



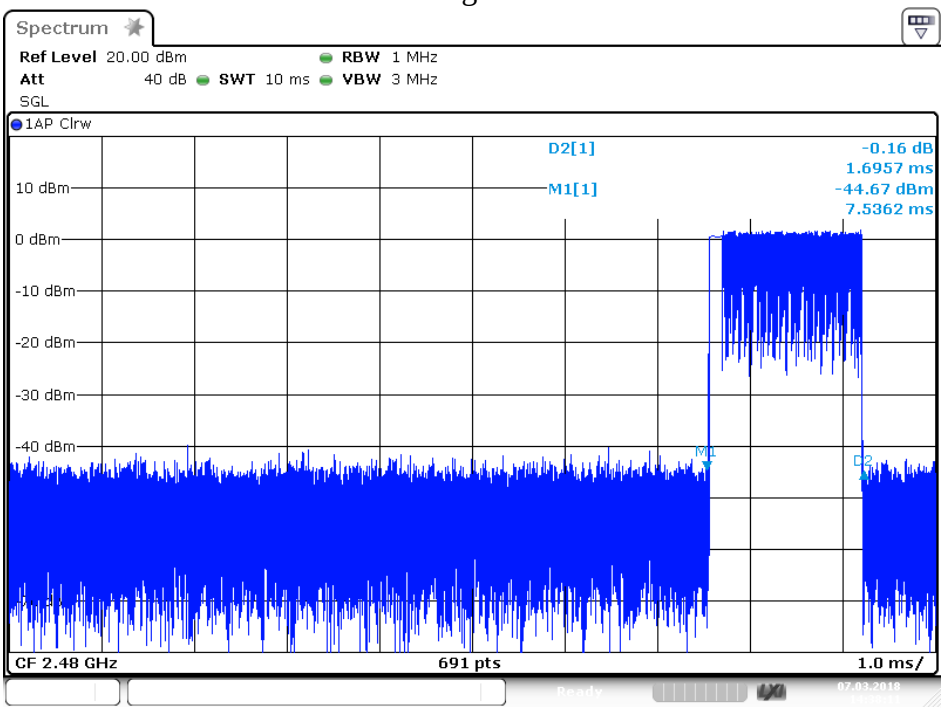
Date: 7.MAR.2018 14:36:44

3DH3 Middle channel



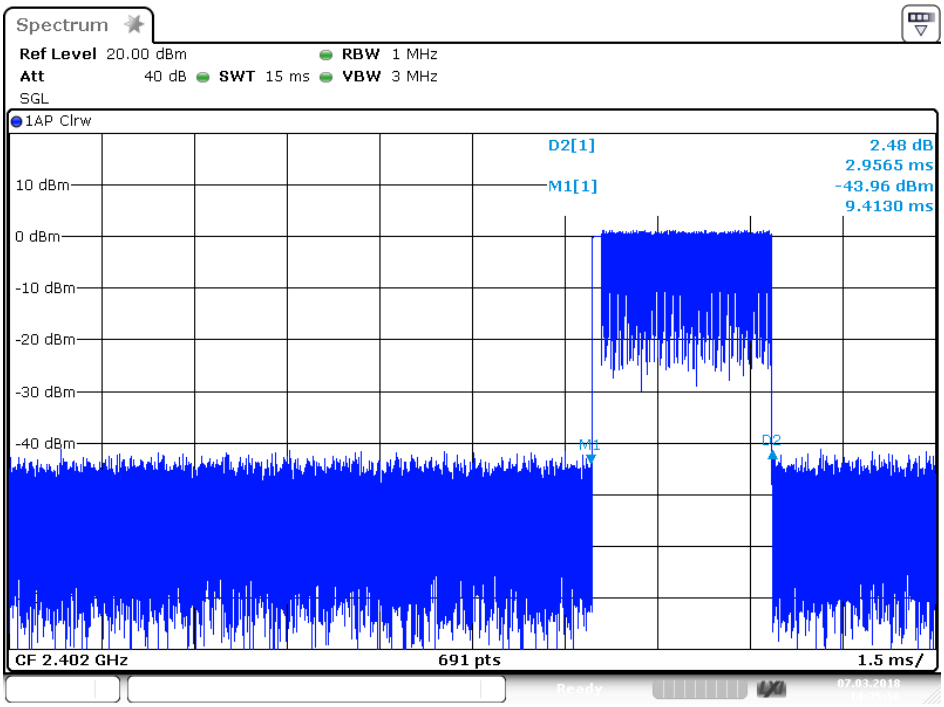
Date: 7.MAR.2018 14:37:28

3DH3 High channel



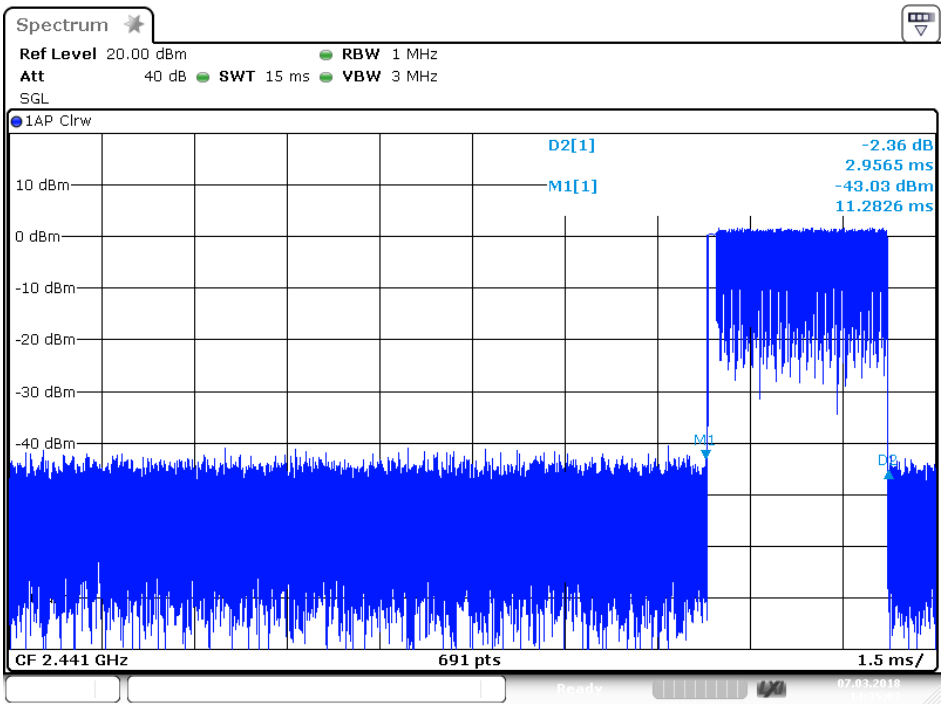
Date: 7.MAR.2018 14:38:12

3DH5 Low channel



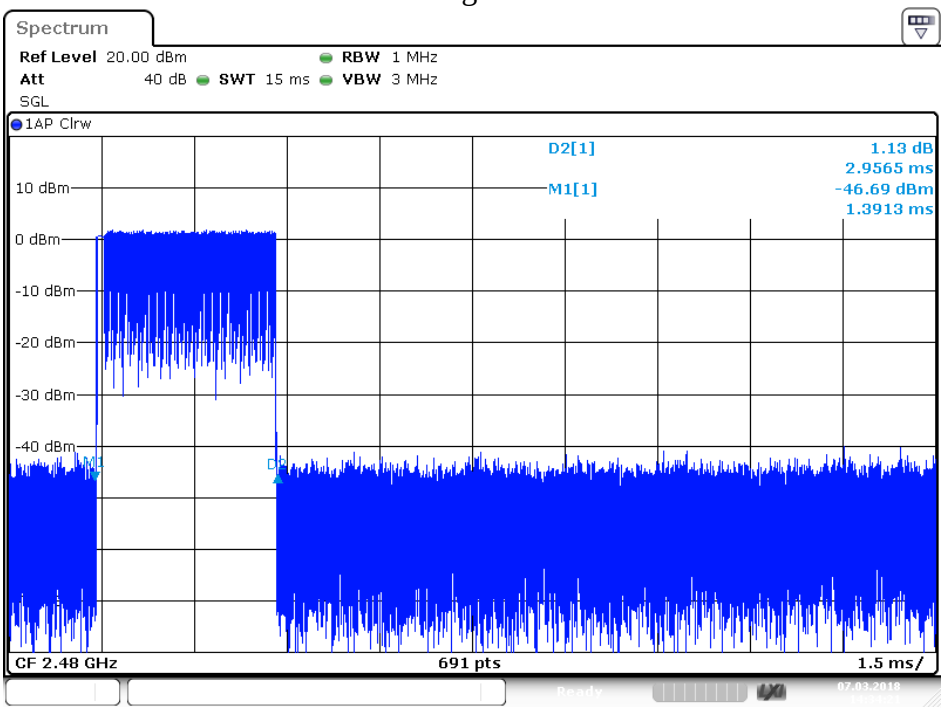
Date: 7.MAR.2018 14:35:56

3DH5 Middle channel



Date: 7.MAR.2018 14:35:03

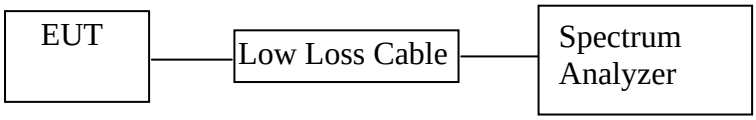
3DH5 High channel



Date: 7.MAR.2018 14:34:22

9. MAXIMUM PEAK OUTPUT POWER TEST

9.1.Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

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 BDR mode

9.5.3.Set RBW of spectrum analyzer to 3MHz and VBW to 10MHz for EDR mode

9.5.4.Measurement the maximum peak output power.

9.6.Test Result

BDR Mode

Frequency (MHz)	Maximum peak conducted output power (dBm/W)	e.i.r.p. (dBm/W)	Limits dBm / W
2402	3.69/0.0023	3.69/0.0023	21 / 0.125
2441	4.41/0.0026	4.41/0.0026	21 / 0.125
2480	4.98/0.0031	4.98/0.0031	21 / 0.125

EDR Mode

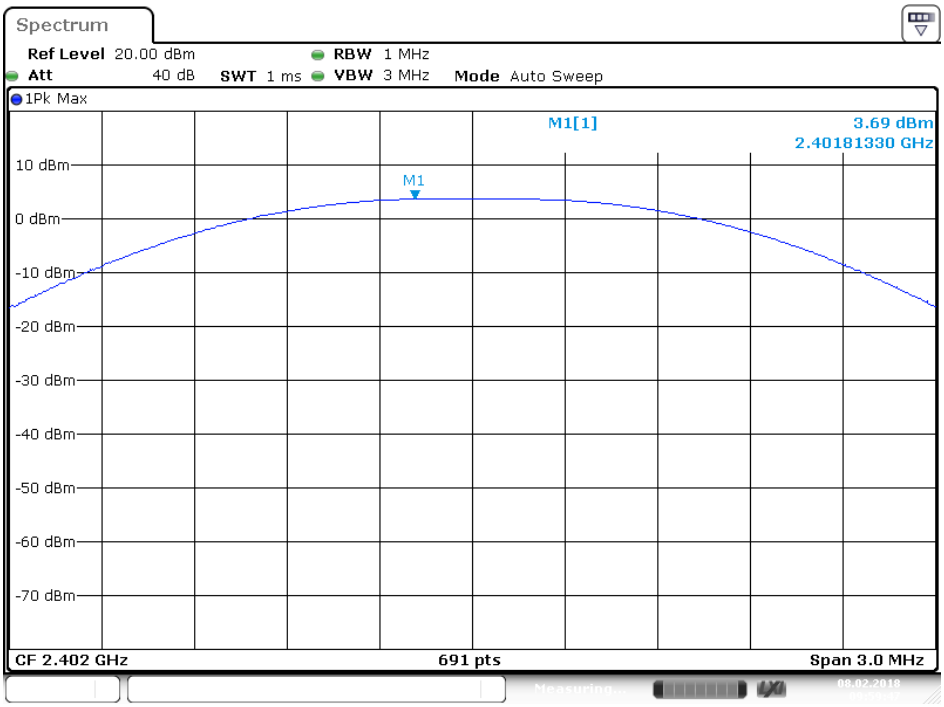
Frequency (MHz)	Maximum peak conducted output power (dBm/W)	e.i.r.p. (dBm/W)	Limits dBm / W
2402	5.51/0.0036	5.51/0.0036	21 / 0.125
2441	6.22/0.0042	6.22/0.0042	21 / 0.125
2480	6.60/0.0046	6.60/0.0046	21 / 0.125

Note: e.i.r.p= Maximum peak conducted output power+Antenna gain(0dBi)

The spectrum analyzer plots are attached as below.

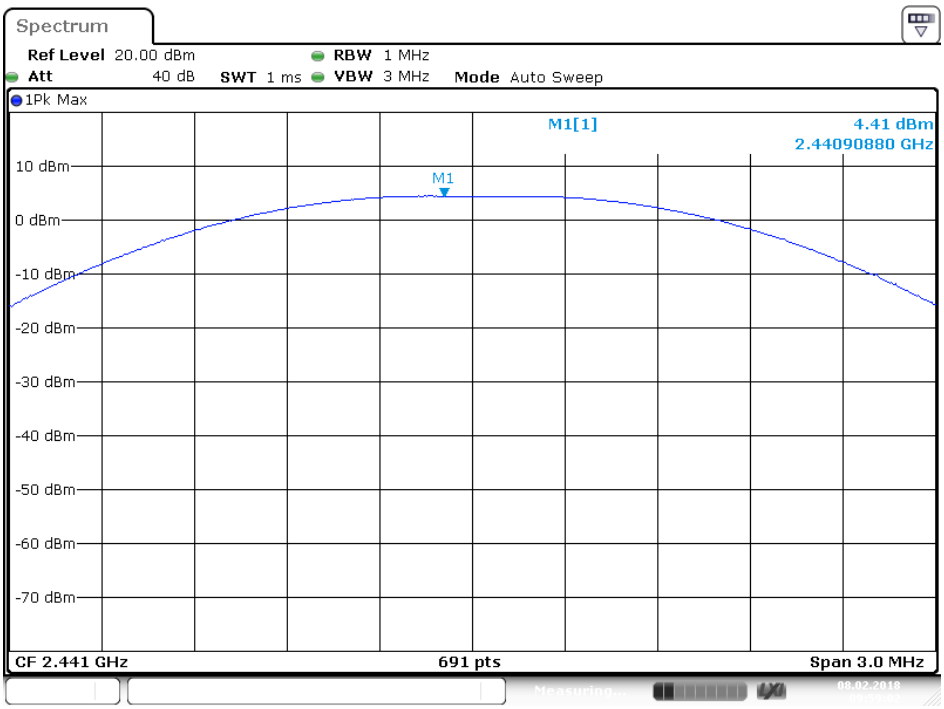
BDR Mode

Low channel



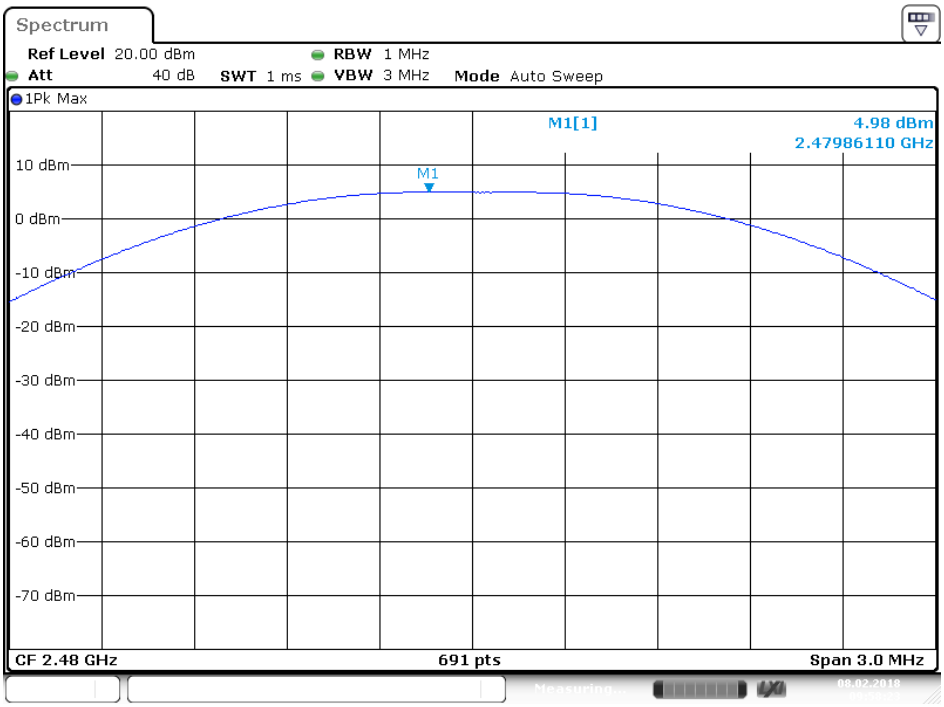
Date: 8.FEB.2018 09:59:47

Middle channel



Date: 8.FEB.2018 09:59:02

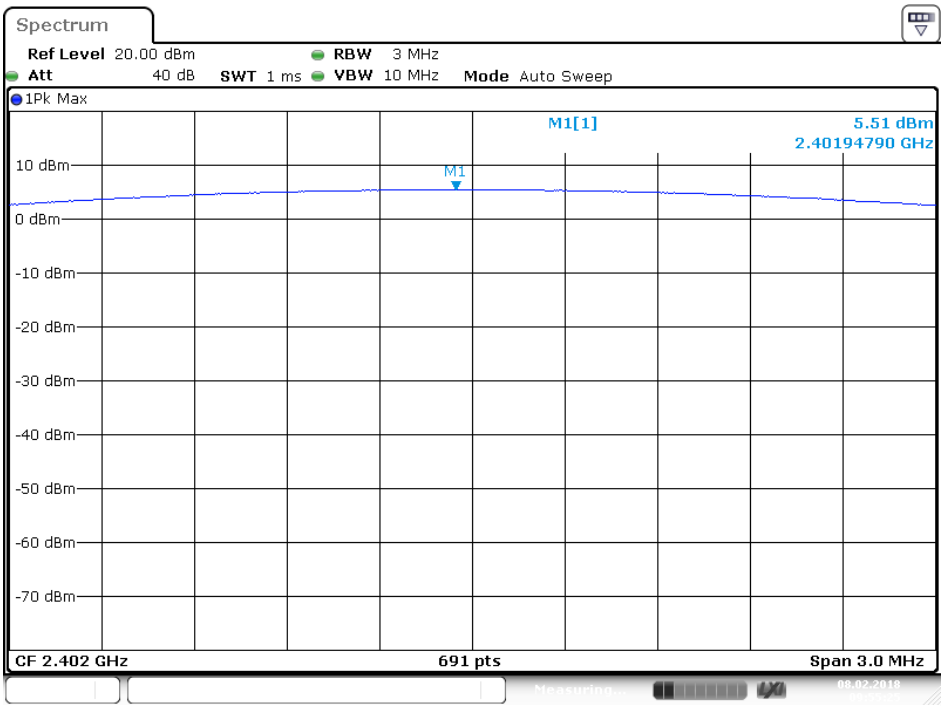
High channel



Date: 8.FEB.2018 09:58:23

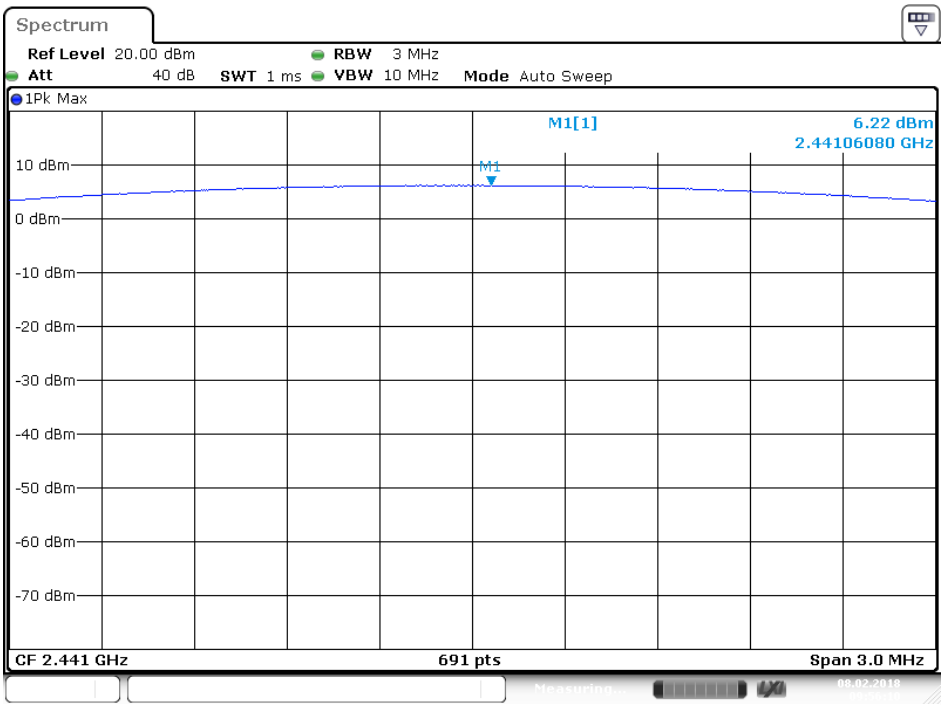
EDR Mode

Low channel



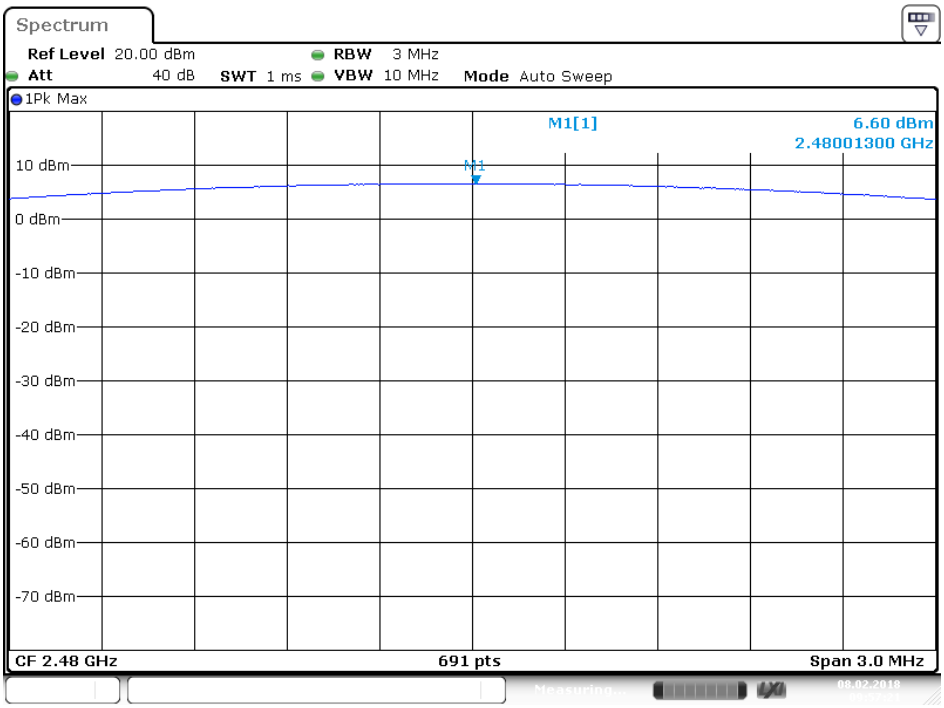
Date: 8.FEB.2018 09:55:25

Middle channel



Date: 8.FEB.2018 09:56:11

High channel



Date: 8.FEB.2018 09:57:21

10.RADIATED EMISSION TEST

10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

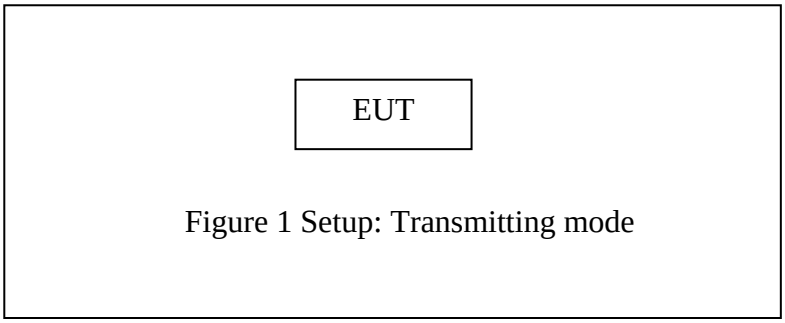
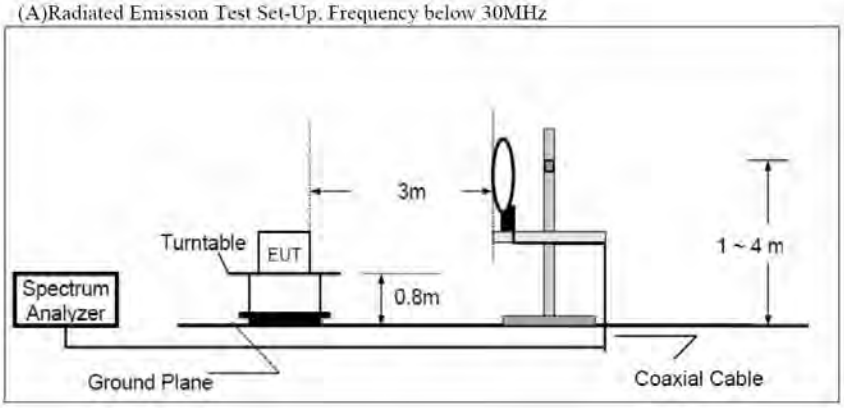


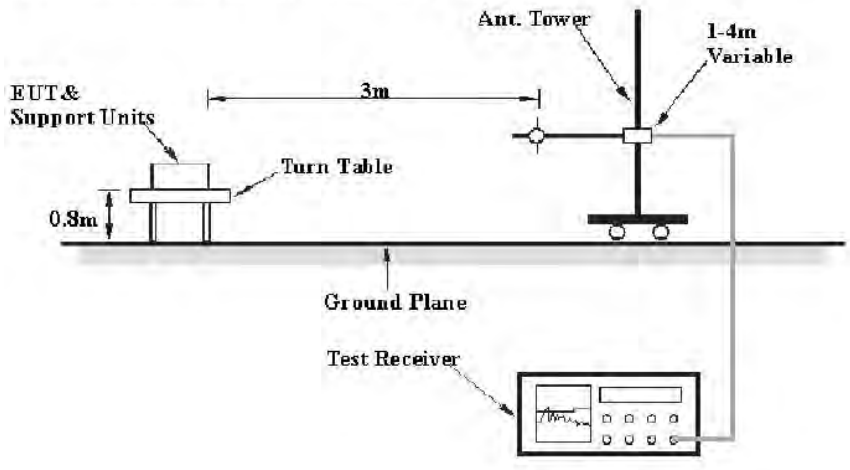
Figure 1 Setup: Transmitting mode

10.1.2.Semi-Anechoic Chamber Test Setup Diagram

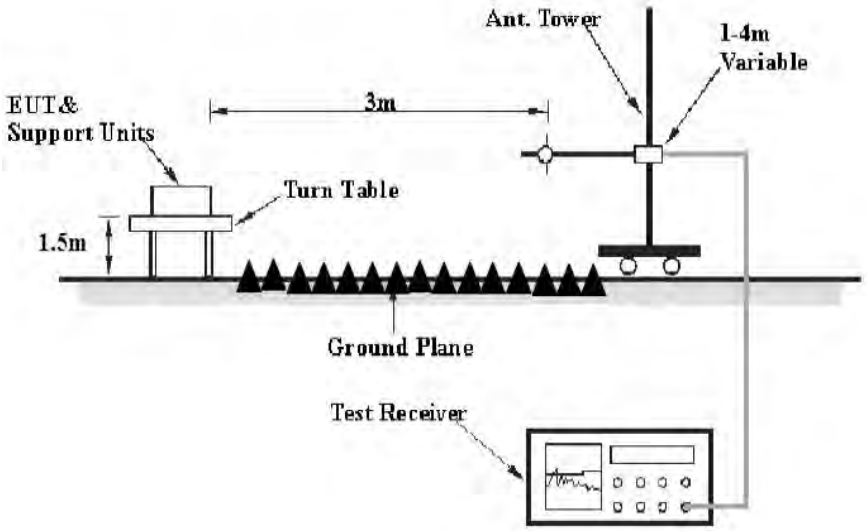
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



(B)Radiated Emission Test Set-Up, Frequency 30MHz-1GHz



(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. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

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.Data Sample

Frequency (MHz)	Reading (dBμv)	Factor (dB/m)	Result (dBμv/m)	Limit (dBμv/m)	Margin (dB)	Remark
X.XX	48.69	-13.35	35.34	46	-10.66	QP

Frequency(MHz) = Emission frequency in MHz
Reading(dBμv) = Uncorrected Analyzer/Receiver reading
Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain
Result(dBμv/m) = Reading(dBμv) + Factor(dB/m)
Limit (dBμv/m) = Limit stated in standard
Margin (dB) = Result(dBμv/m) - Limit (dBμv/m)
QP = Quasi-peak Reading

Calculation Formula:
Margin(dB) = Result (dBμV/m)–Limit(dBμV/m)
Result(dBμV/m)= Reading(dBμV)+ Factor(dB/m)
The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

10.7.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.

The spectrum analyzer plots are attached as below.

9kHz-30MHz test data

ACCURATE TECHNOLOGY CO.,LTD

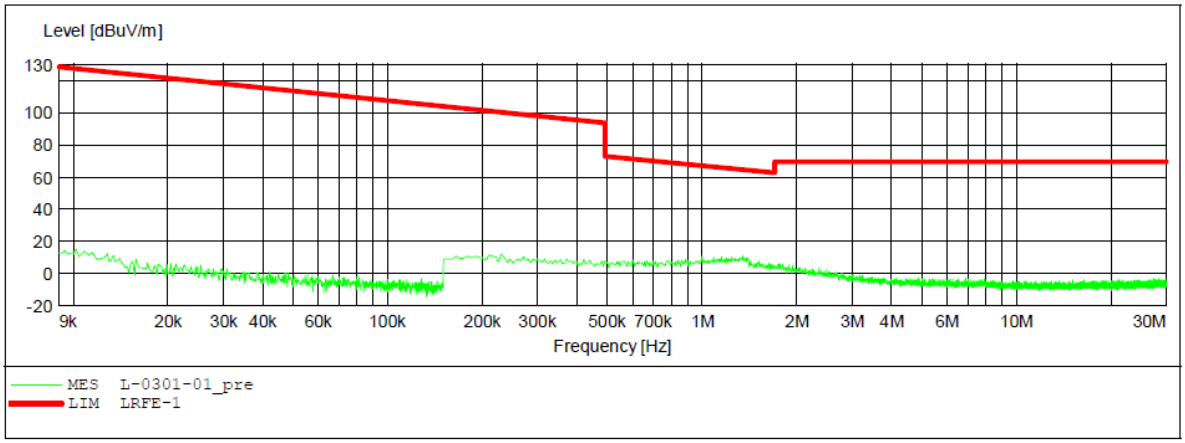
FCC Class B 3M Radiated

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: TX 2402MHz (Bluetooth)
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 3.7V
Comment: X
Start of Test: 2018-3-1 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

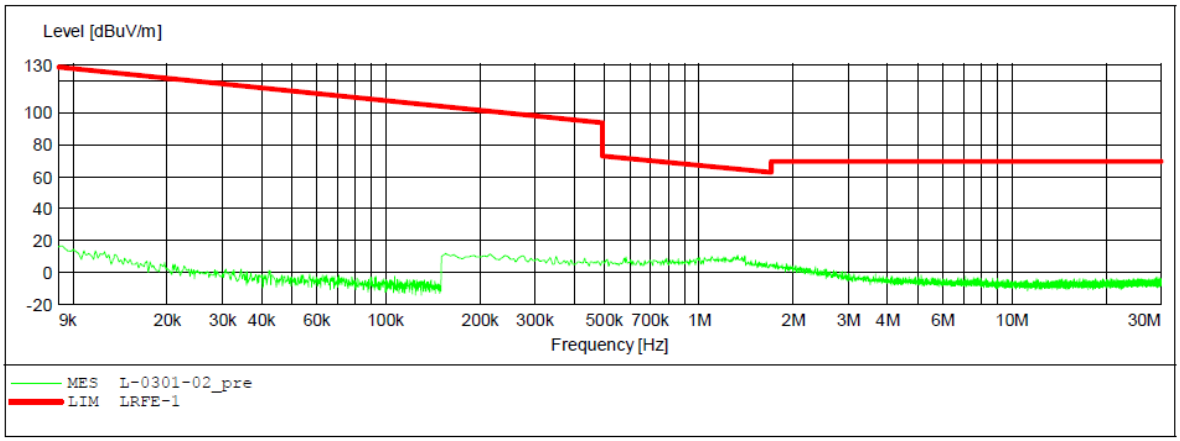
FCC Class B 3M Radiated

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: TX 2402MHz (Bluetooth)
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 3.7V
Comment: Y
Start of Test: 2018-3-1 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

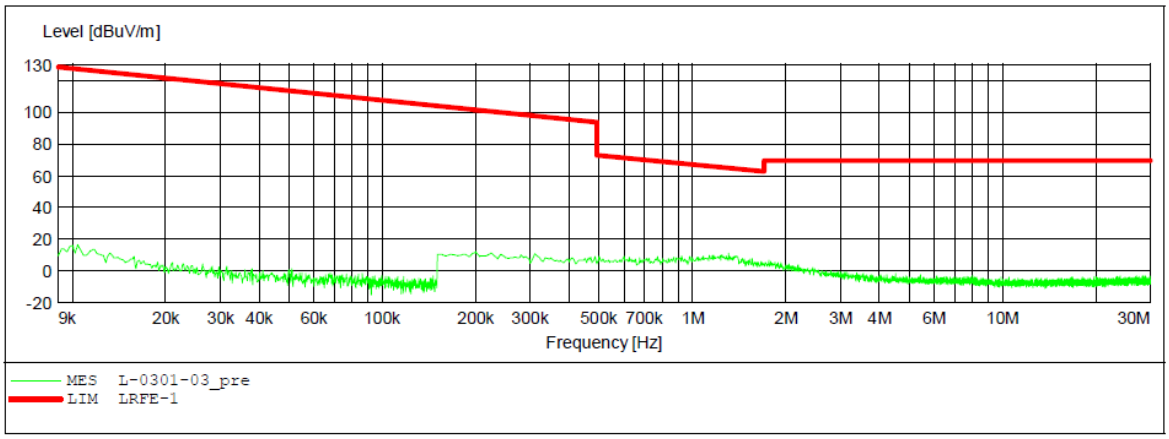
FCC Class B 3M Radiated

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: TX 2402MHz (Bluetooth)
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 3.7V
Comment: Z
Start of Test: 2018-3-1 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

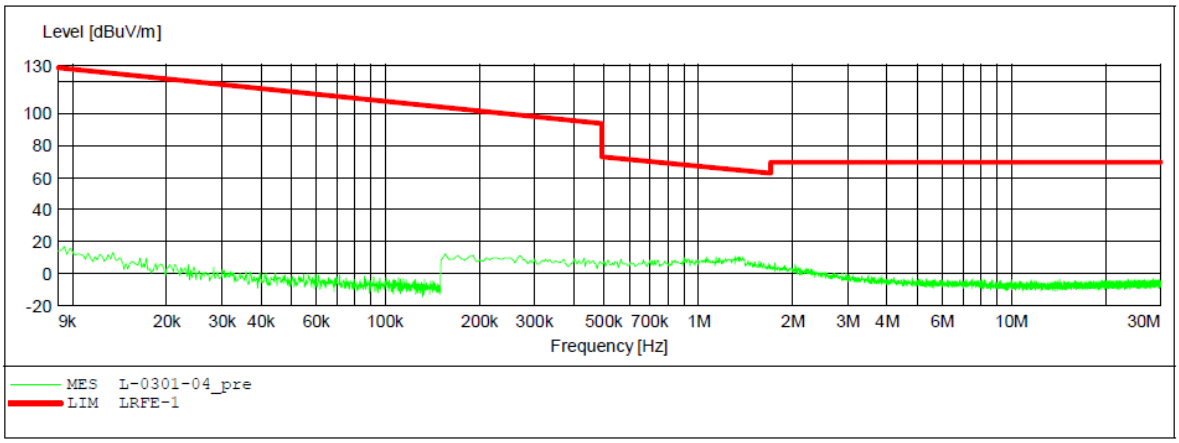
FCC Class B 3M Radiated

```
EUT:                  Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer:         Lightcomm Technology Co., Ltd.
Operating Condition:  TX 2441MHz (Bluetooth)
Test Site:            2# Chamber
Operator:             WADE
Test Specification:   DC 3.7V
Comment:              X
Start of Test:        2018-3-1 /
```

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

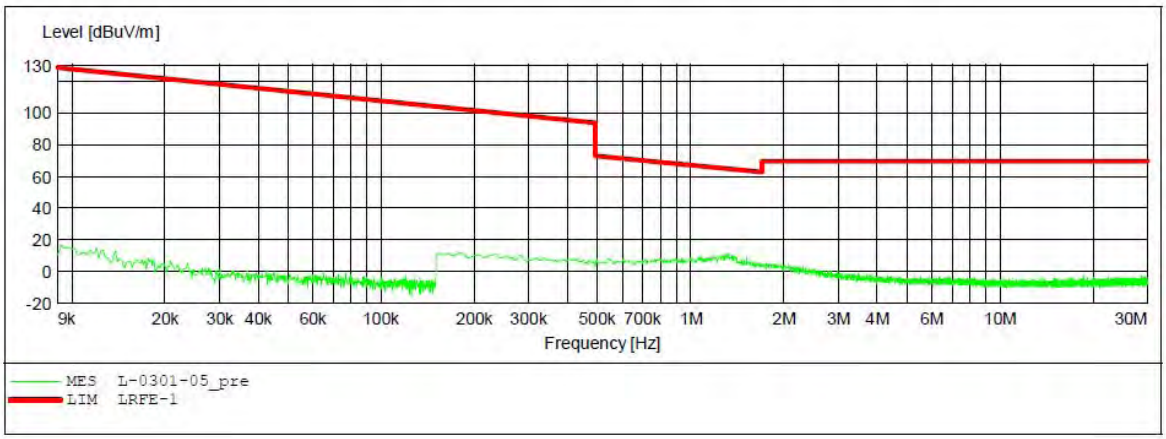
FCC Class B 3M Radiated

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: TX 2441MHz (Bluetooth)
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 3.7V
Comment: Y
Start of Test: 2018-3-1 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

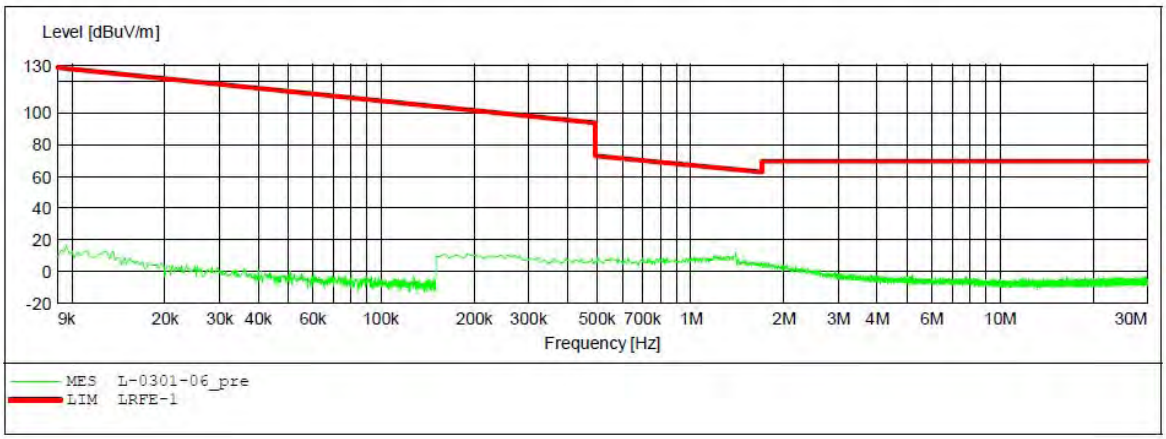
FCC Class B 3M Radiated

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: TX 2441MHz (Bluetooth)
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 3.7V
Comment: Z
Start of Test: 2018-3-1 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

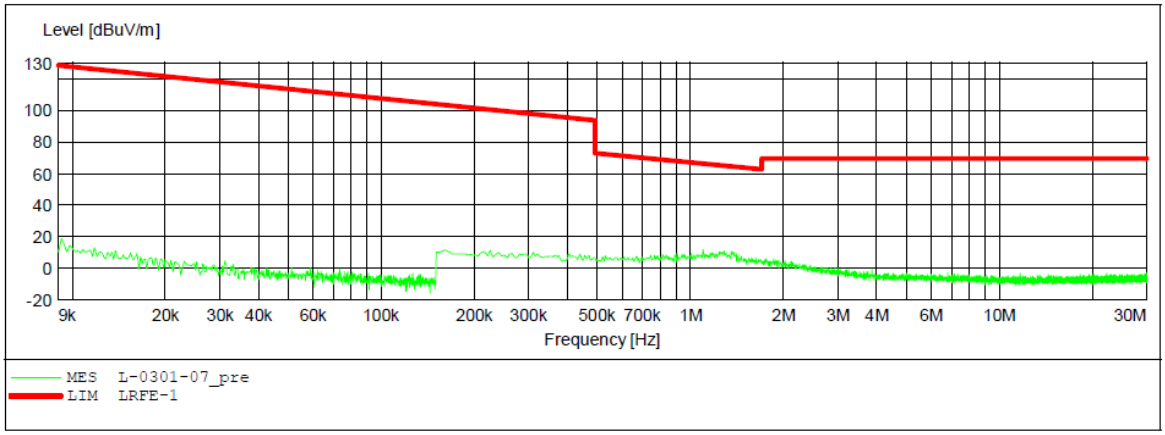
FCC Class B 3M Radiated

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: TX 2480MHz (Bluetooth)
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 3.7V
Comment: X
Start of Test: 2018-3-1 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

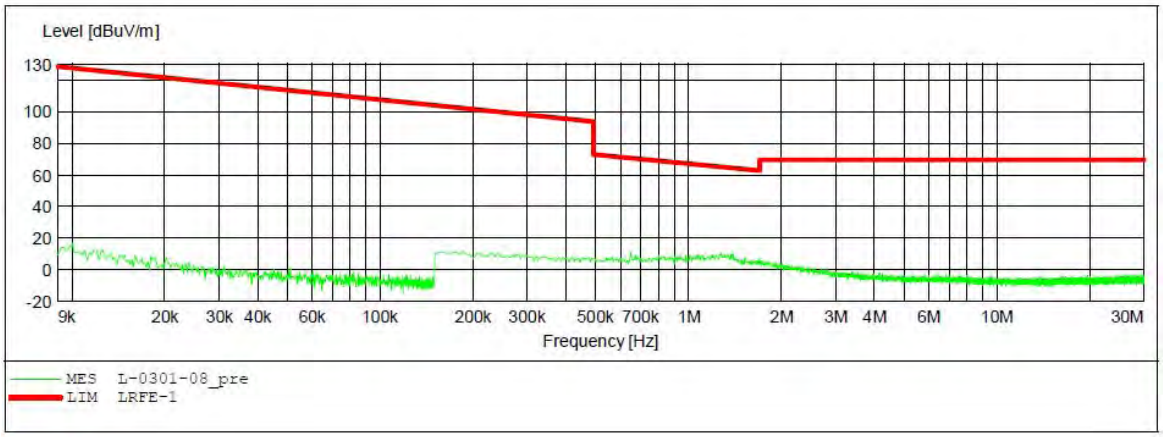
FCC Class B 3M Radiated

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: TX 2480MHz (Bluetooth)
Test Site: 2# Chamber
Operator: WADE
Test Specification: DC 3.7V
Comment: Y
Start of Test: 2018-3-1 /

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M



ACCURATE TECHNOLOGY CO.,LTD

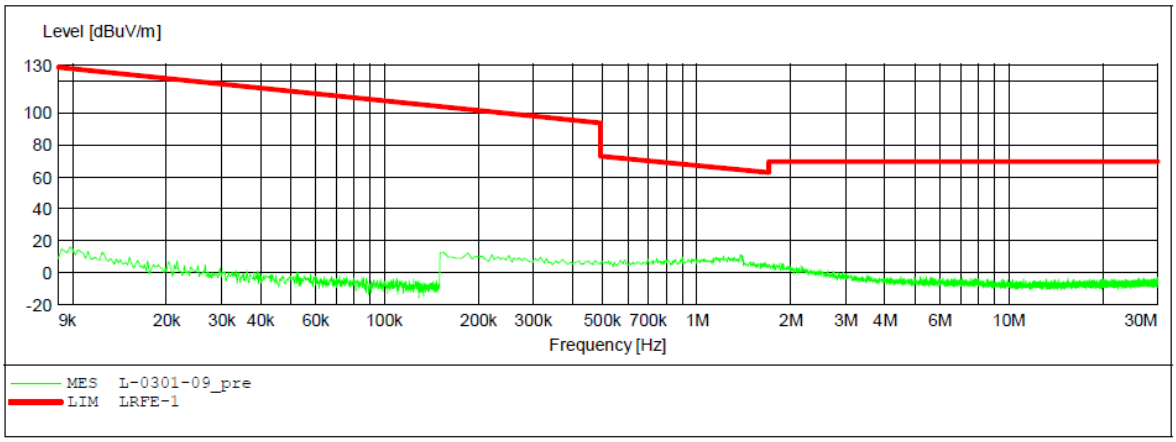
FCC Class B 3M Radiated

```
EUT:                  Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer:         Lightcomm Technology Co., Ltd.
Operating Condition:  TX 2480MHz (Bluetooth)
Test Site:            2# Chamber
Operator:             WADE
Test Specification:   DC 3.7V
Comment:              Z
Start of Test:        2018-3-1 /
```

SCAN TABLE: "LFRE Fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak	1.0 s	200 Hz	1516M
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak	1.0 s	9 kHz	1516M

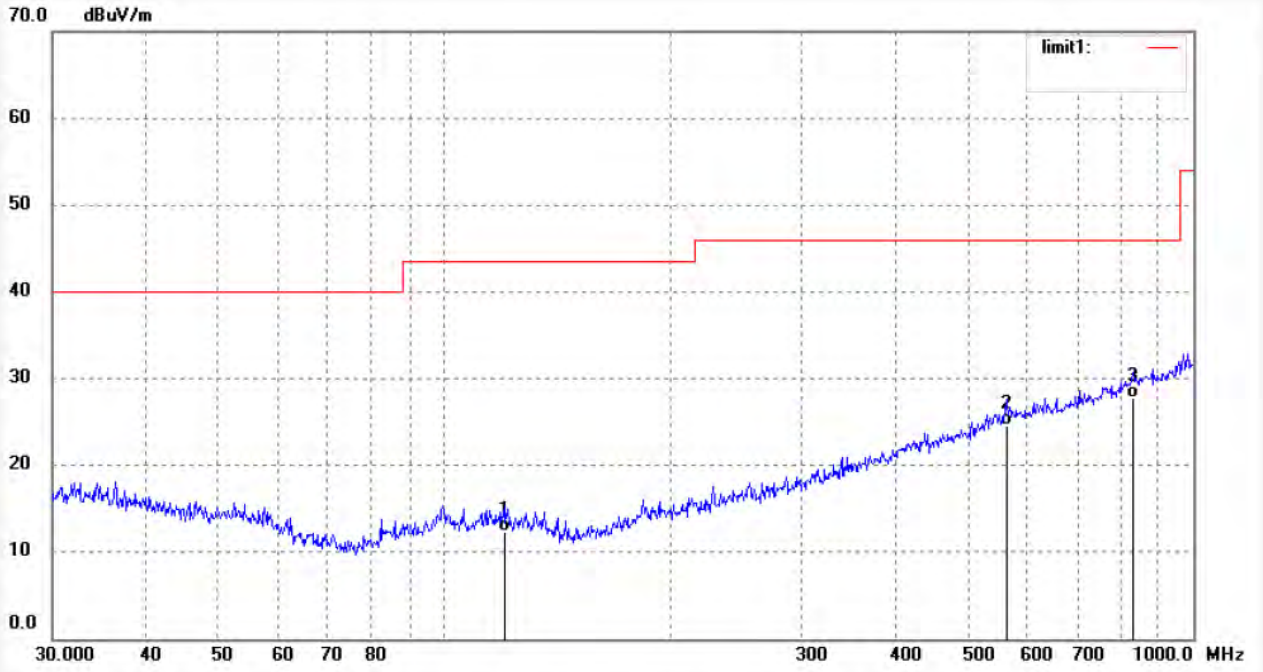


30MHz-1000MHz test data

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2018 #442	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2402MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	120.2766	25.46	-13.09	12.37	43.50	-31.13	QP			
2	562.6624	27.48	-2.87	24.61	46.00	-21.39	QP			
3	830.4002	26.38	1.37	27.75	46.00	-18.25	QP			

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Site: 2# Chamber
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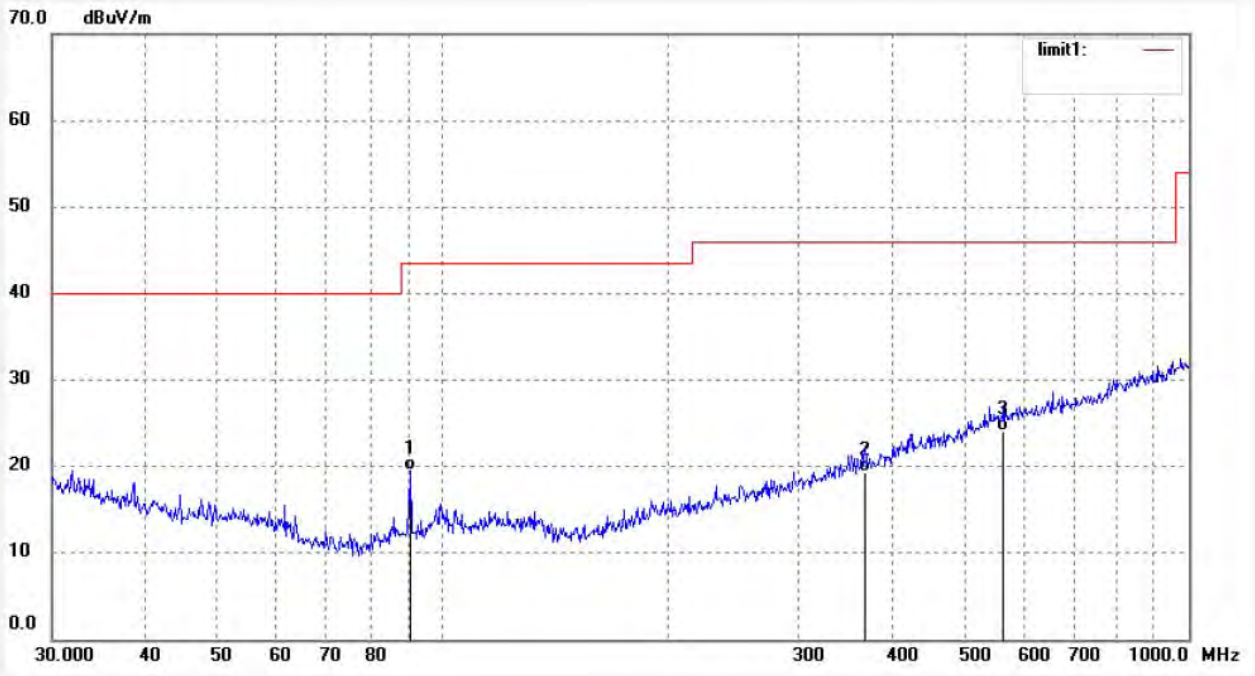
Fax:+86-0755-26503396

Job No.: LGW2018 #441
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2402MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Vertical
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	90.5374	34.51	-14.98	19.53	43.50	-23.97	QP			
2	368.1116	26.55	-7.17	19.38	46.00	-26.62	QP			
3	564.6389	26.82	-2.84	23.98	46.00	-22.02	QP			

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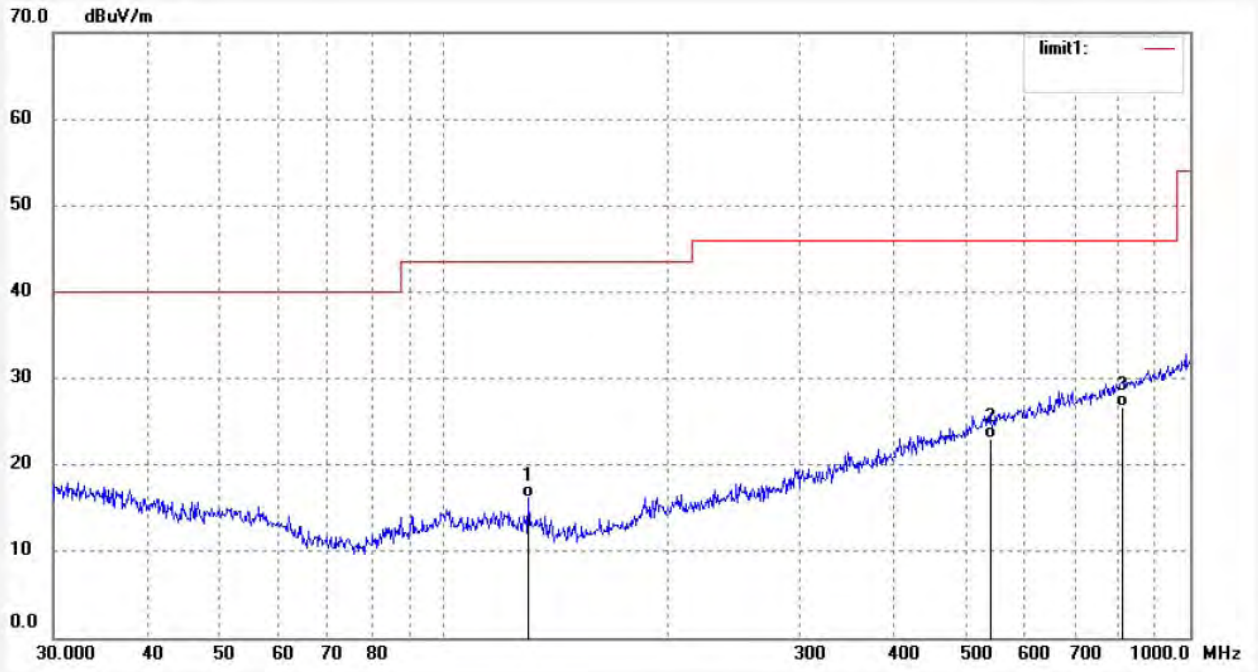
Fax:+86-0755-26503396

Job No.: LGW2018 #443
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2441MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Horizontal
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	129.9225	29.94	-13.76	16.18	43.50	-27.32	QP			
2	539.4774	26.32	-3.35	22.97	46.00	-23.03	QP			
3	813.1115	25.68	1.04	26.72	46.00	-19.28	QP			

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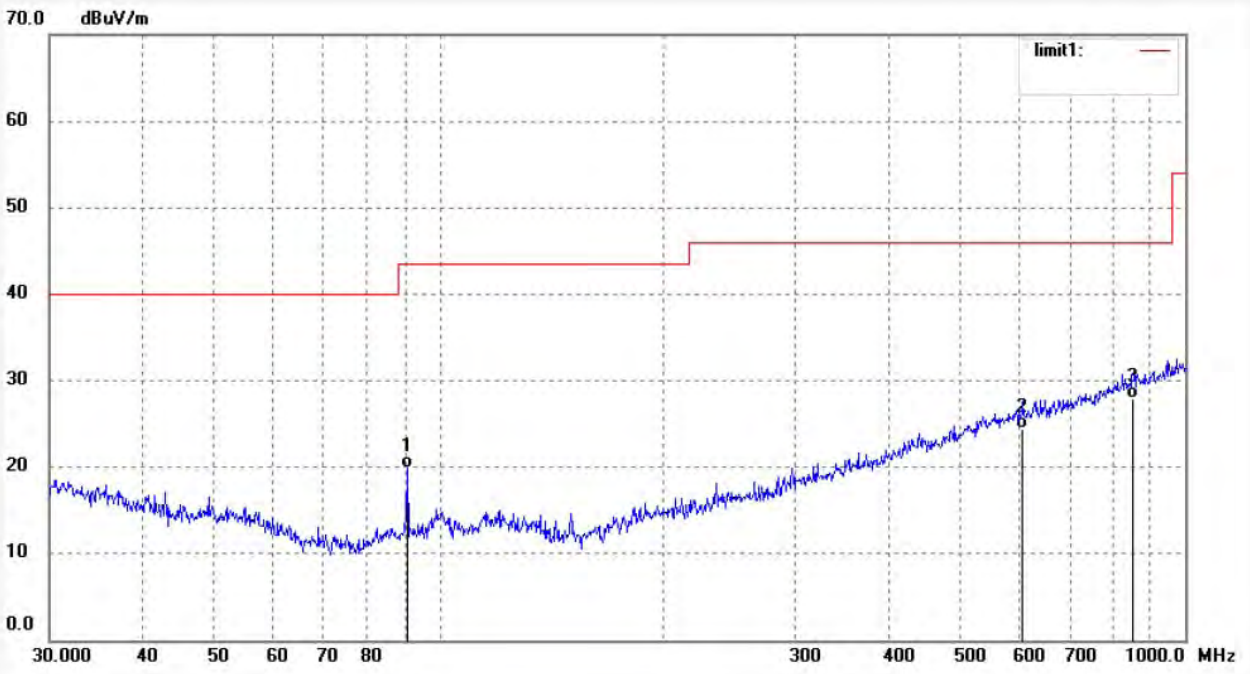
Fax:+86-0755-26503396

Job No.: LGW2018 #444
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2441MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Vertical
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	90.5374	34.86	-14.98	19.88	43.50	-23.62	QP			
2	605.6592	26.79	-2.31	24.48	46.00	-21.52	QP			
3	851.0353	26.26	1.57	27.83	46.00	-18.17	QP			

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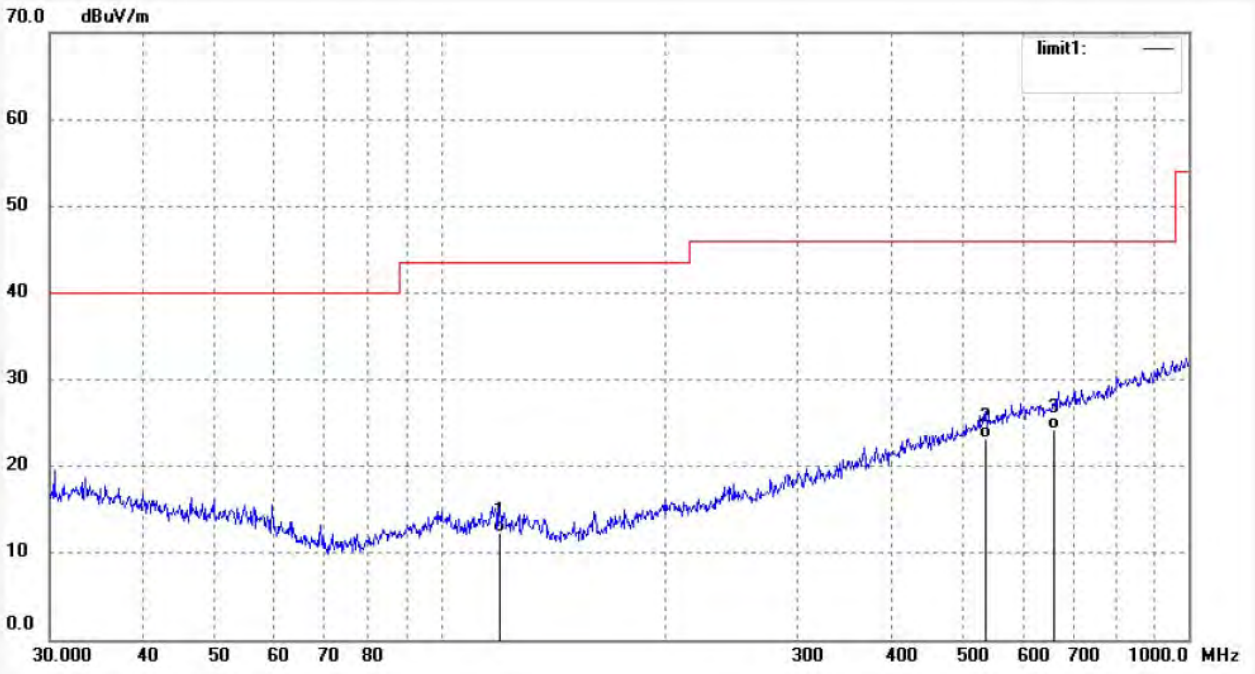
Job No.: LGW2018 #446	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2480MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	119.8555	25.41	-13.06	12.35	43.50	-31.15	QP			
2	535.7073	26.67	-3.40	23.27	46.00	-22.73	QP			
3	661.1504	25.85	-1.59	24.26	46.00	-21.74	QP			

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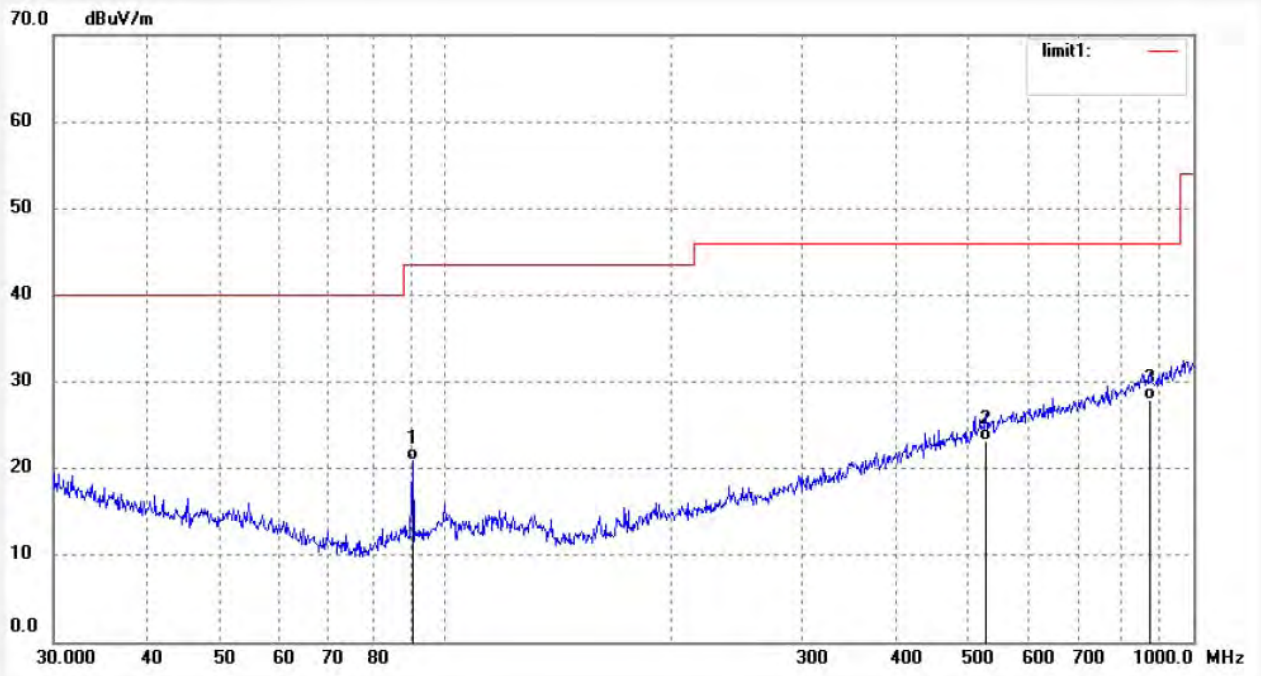
Fax:+86-0755-26503396

Job No.: LGW2018 #445
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2480MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Vertical
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	90.5374	35.86	-14.98	20.88	43.50	-22.62	QP			
2	528.2458	26.98	-3.71	23.27	46.00	-22.73	QP			
3	875.2469	26.00	1.98	27.98	46.00	-18.02	QP			

1GHz-18GHz test data

ACCURATE TECHNOLOGY CO., LTD.
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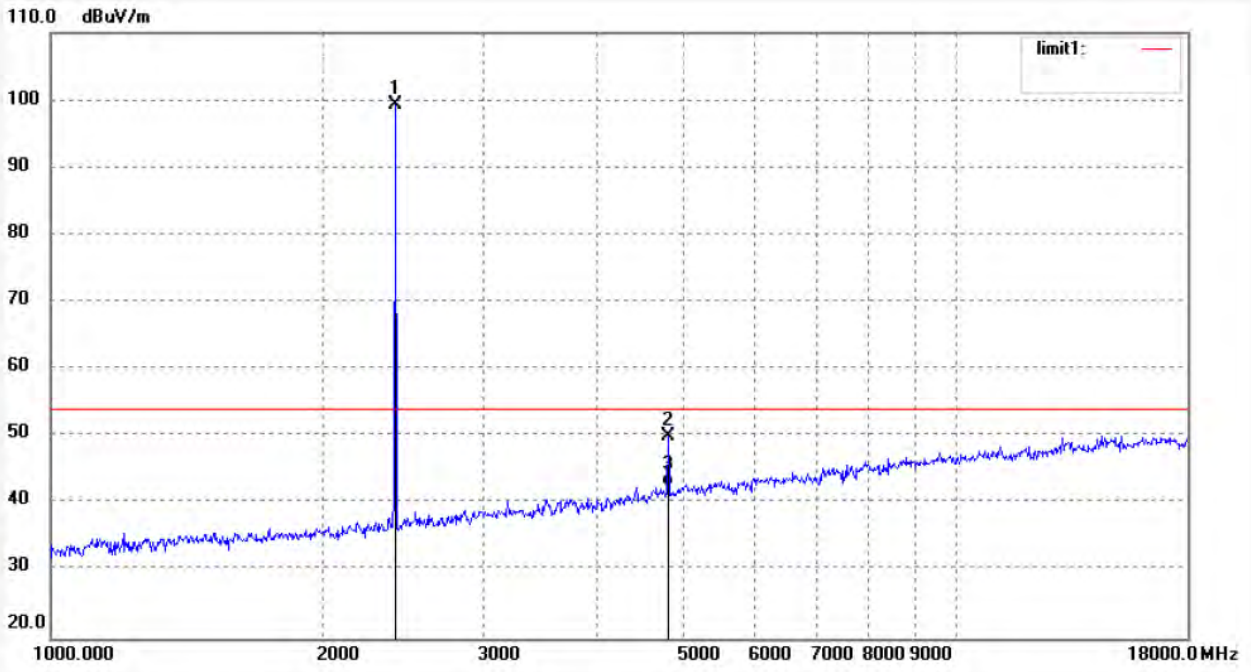
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2018 #404	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2402MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth



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	98.32	0.89	99.21	/	/	peak			
2	4804.025	42.61	7.40	50.01	74.00	-23.99	peak			
3	4804.025	35.16	7.40	42.56	54.00	-11.44	AVG			

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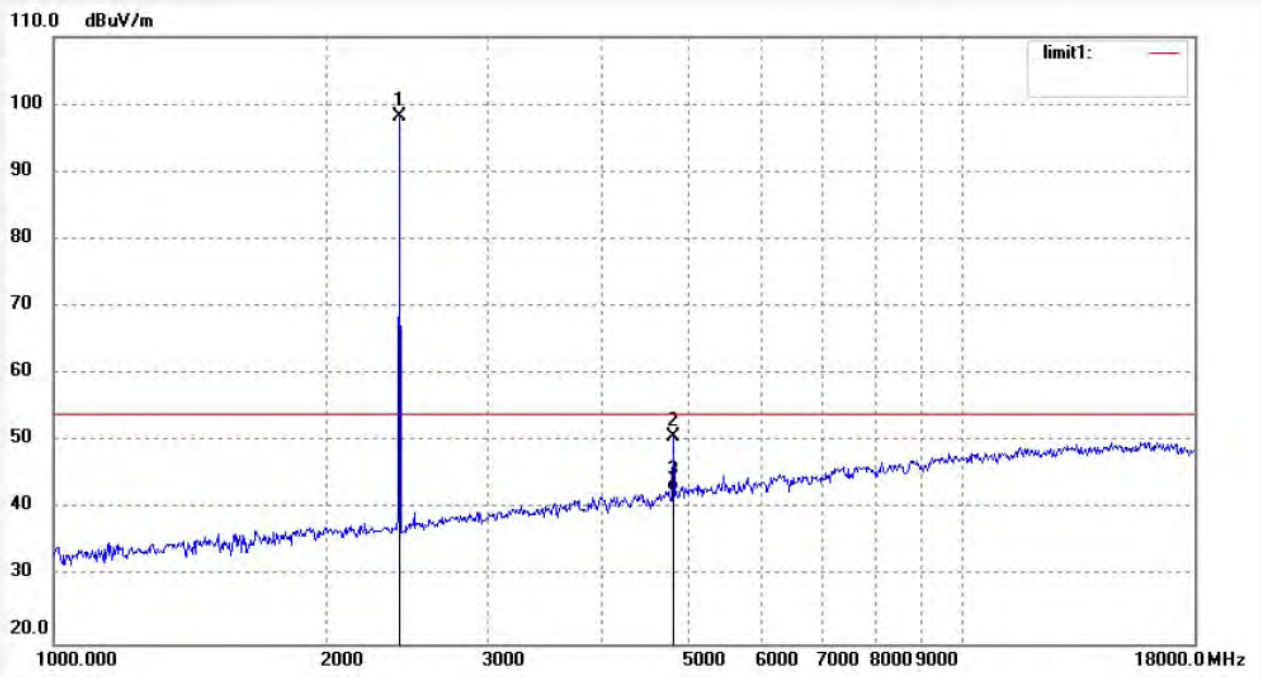
Fax:+86-0755-26503396

Job No.: LGW2018 #403
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2402MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Vertical
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



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	97.39	0.89	98.28	/	/	peak			
2	4804.023	43.27	7.40	50.67	74.00	-23.33	peak			
3	4804.023	35.16	7.40	42.56	54.00	-11.44	AVG			

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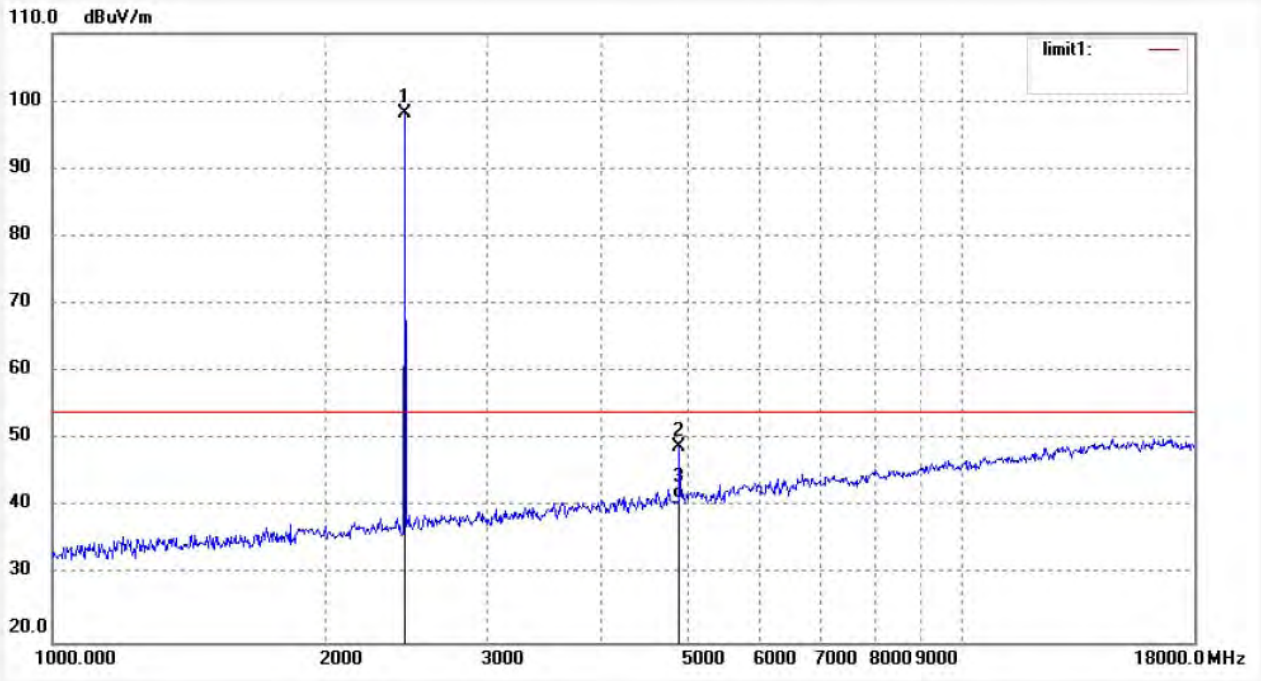
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2018 #408	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2441MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth

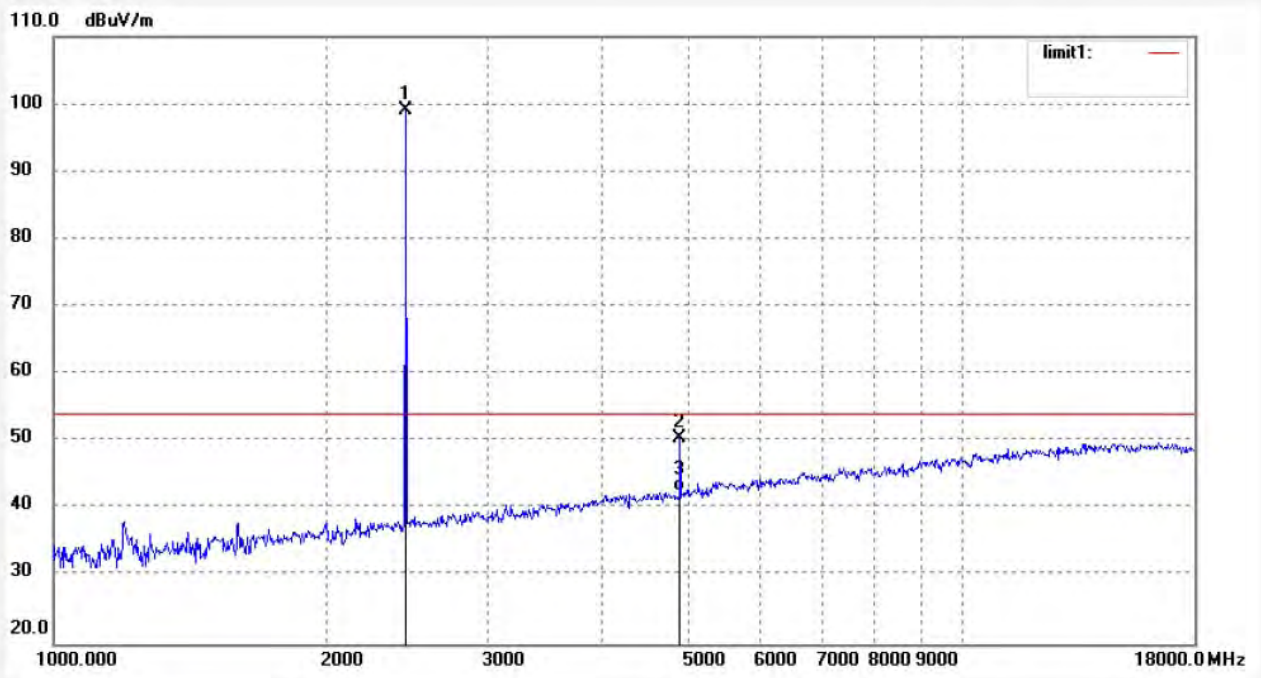


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	97.05	1.06	98.11	/	/	peak			
2	4882.027	40.89	8.11	49.00	74.00	-25.00	peak			
3	4882.027	33.14	8.11	41.25	54.00	-12.75	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2018 #407	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2441MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth



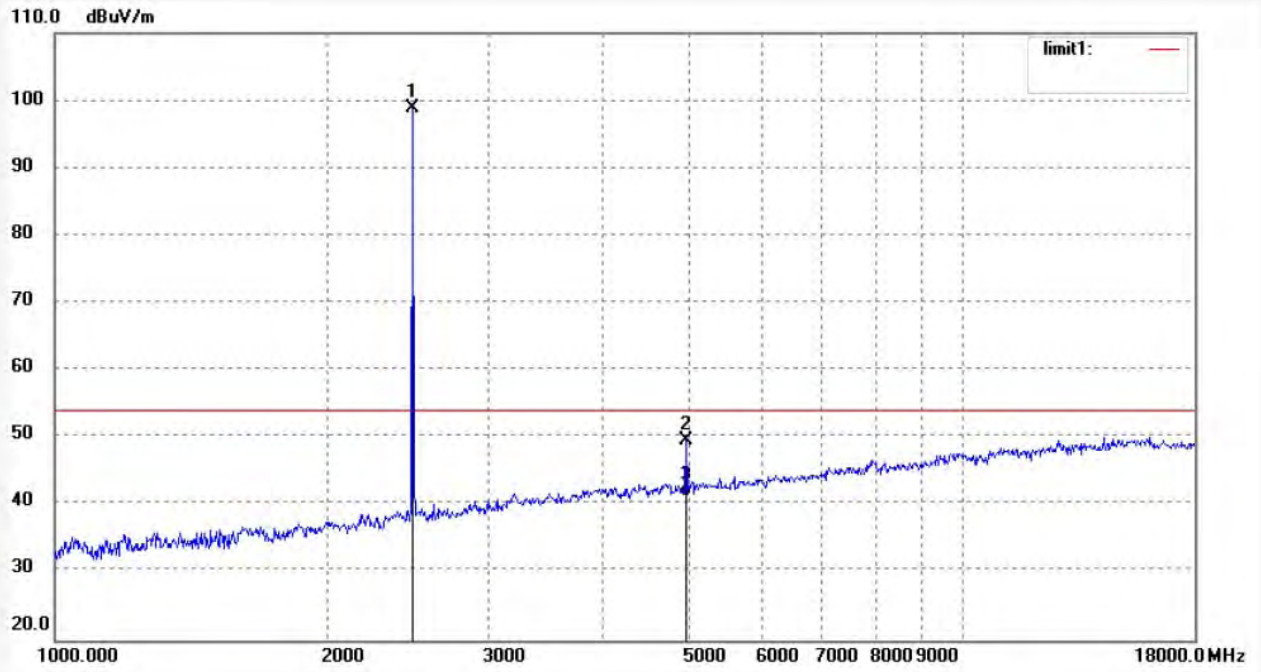
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	97.94	1.06	99.00	/	/	peak			
2	4882.026	42.27	8.11	50.38	74.00	-23.62	peak			
3	4882.026	34.45	8.11	42.56	54.00	-11.44	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2018 #409
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2480MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Horizontal
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



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	97.73	1.10	98.83	/	/	peak			
2	4960.029	40.92	8.60	49.52	74.00	-24.48	peak			
3	4960.029	32.64	8.60	41.24	54.00	-12.76	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
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Site: 2# Chamber
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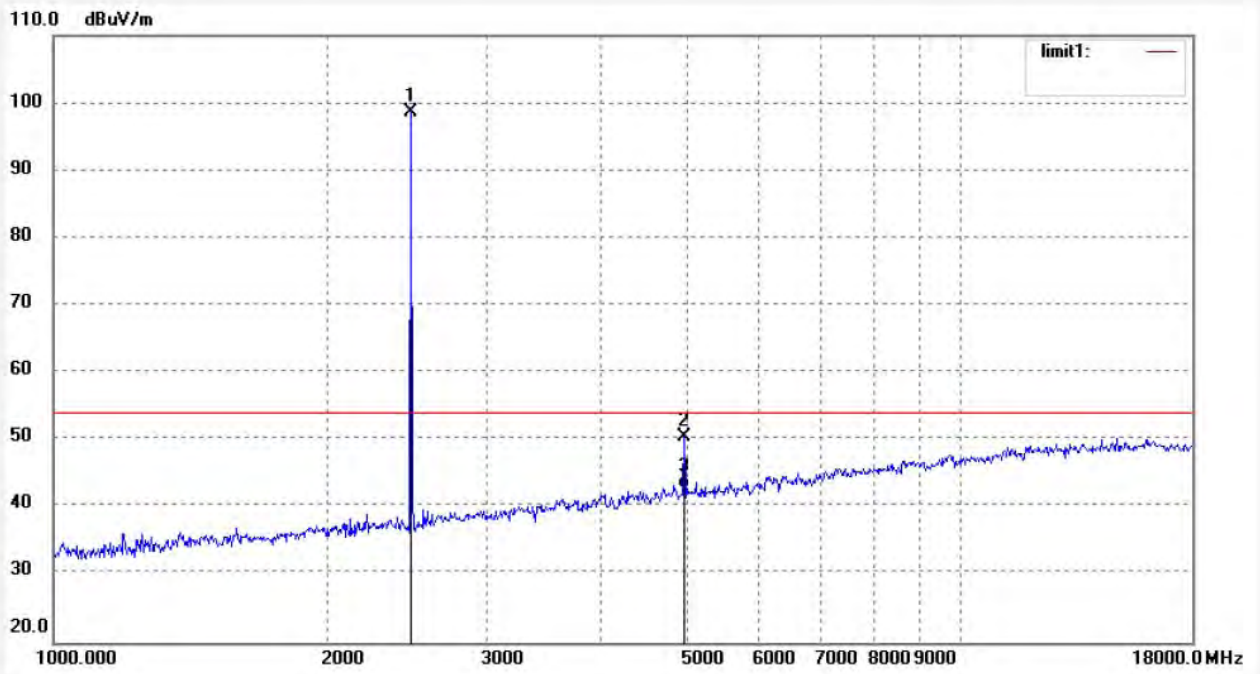
Fax:+86-0755-26503396

Job No.: LGW2018 #410
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2480MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Vertical
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



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	97.49	1.10	98.59	/	/	peak			
2	4960.028	41.95	8.60	50.55	74.00	-23.45	peak			
3	4960.028	34.16	8.60	42.76	54.00	-11.24	AVG			

18GHz-26.5GHz test data

ACCURATE TECHNOLOGY CO., LTD.
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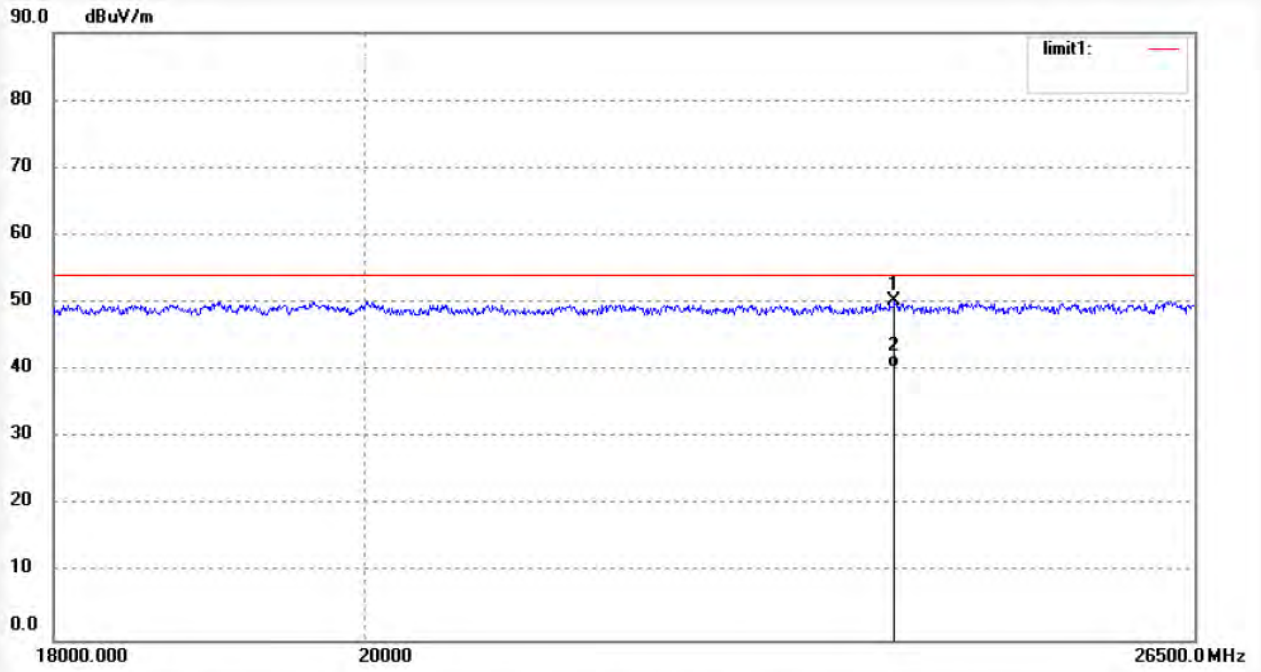
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: LGW2018 #413
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2402MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Horizontal
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	23936.954	9.81	40.37	50.18	74.00	-23.82	peak			
2	23936.954	0.07	40.37	40.44	54.00	-13.56	AVG			

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China
Site: 2# Chamber
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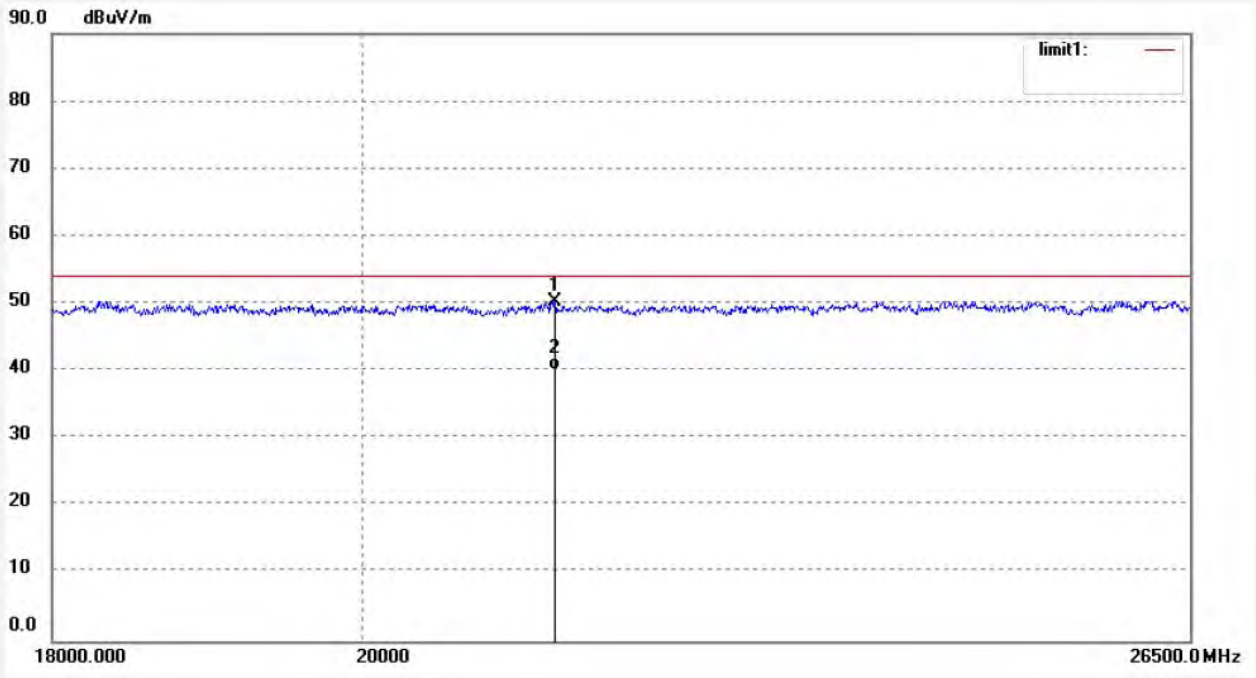
Fax:+86-0755-26503396

Job No.: LGW2018 #414	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2402MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21355.844	10.92	39.31	50.23	74.00	-23.77	peak			
2	21355.844	0.93	39.31	40.24	54.00	-13.76	AVG			

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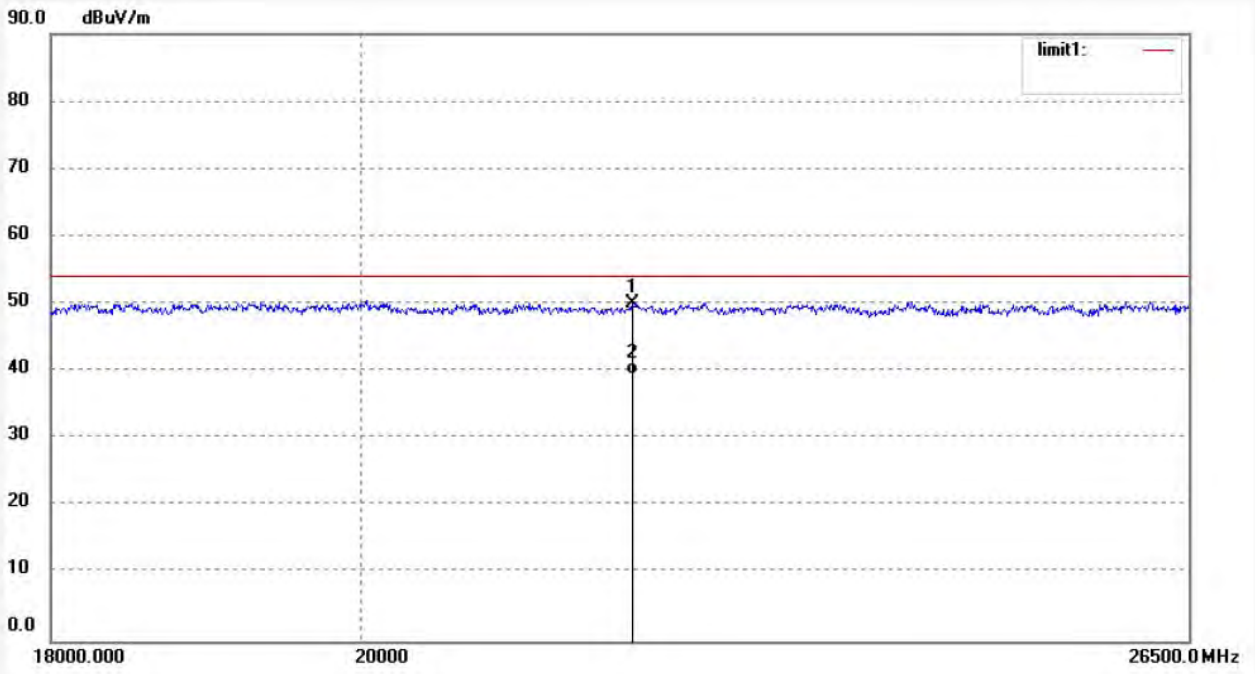
Job No.: LGW2018 #416
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2441MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Horizontal
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21933.447	10.70	39.29	49.99	74.00	-24.01	peak			
2	21933.447	0.25	39.29	39.54	54.00	-14.46	AVG			

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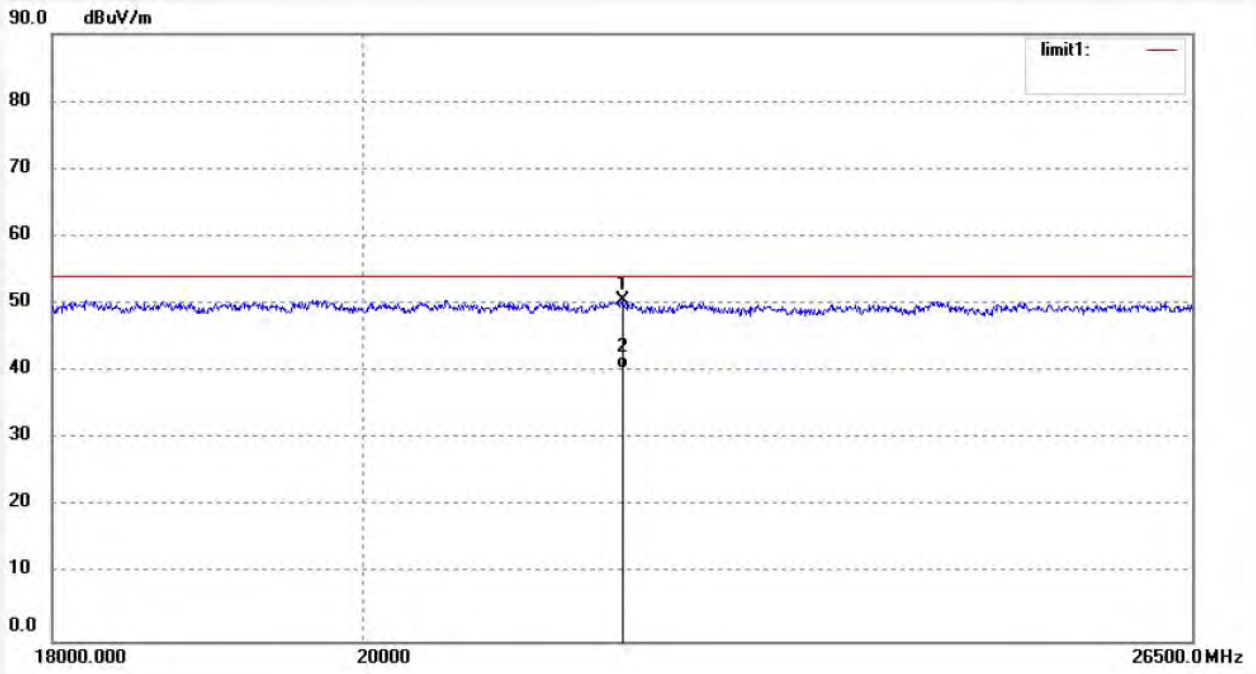
Job No.: LGW2018 #415	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2441MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	21840.330	11.27	39.24	50.51	74.00	-23.49	peak			
2	21840.330	1.17	39.24	40.41	54.00	-13.59	AVG			

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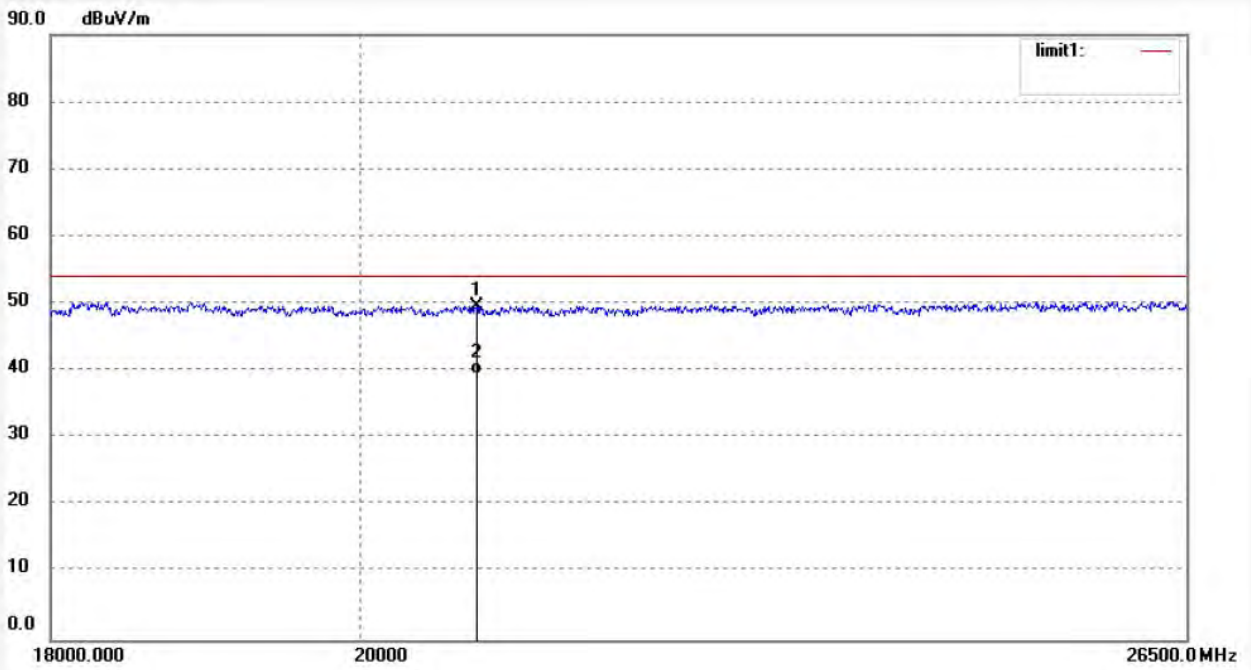
Job No.: LGW2018 #417
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2480MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Horizontal
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	20809.542	11.28	38.36	49.64	74.00	-24.36	peak			
2	20809.542	1.09	38.36	39.45	54.00	-14.55	AVG			

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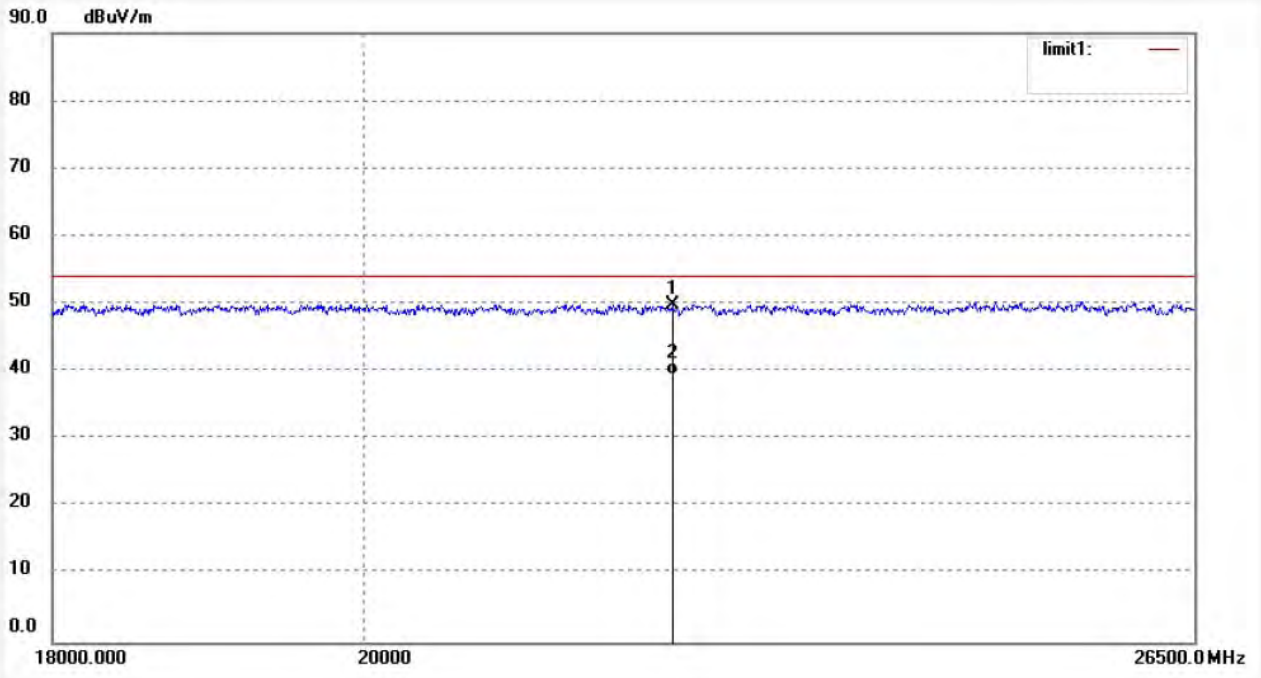
Job No.: LGW2018 #418	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2480MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

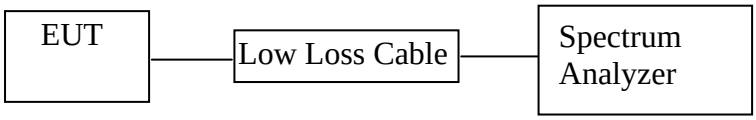
Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	22206.599	10.49	39.28	49.77	74.00	-24.23	peak			
2	22206.599	0.26	39.28	39.54	54.00	-14.46	AVG			

11.BAND EDGE COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

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

Non-hopping mode

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
BDR mode		
2400.00	45.53	> 20dBc
2486.38	54.80	> 20dBc
EDR mode		
2400.00	45.22	> 20dBc
2483.5	50.19	> 20dBc

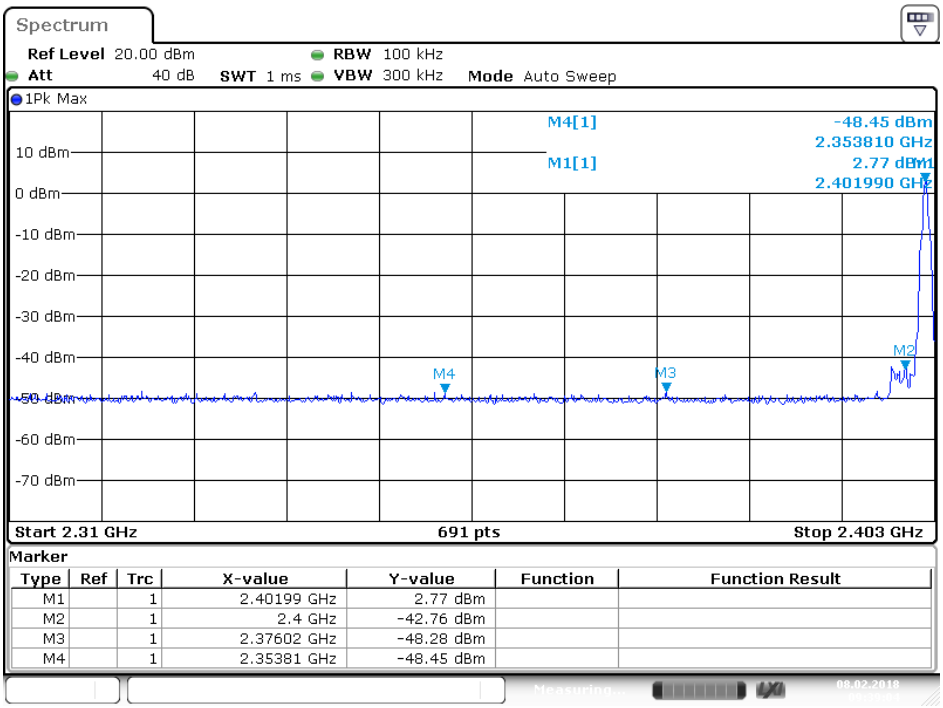
Hopping mode

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
BDR mode		
2361.49	46.50	> 20dBc
2487.73	49.21	> 20dBc
EDR mode		
2363.96	49.56	> 20dBc
2486.76	47.84	> 20dBc

The spectrum analyzer plots are attached as below.

Non-hopping mode

BDR mode



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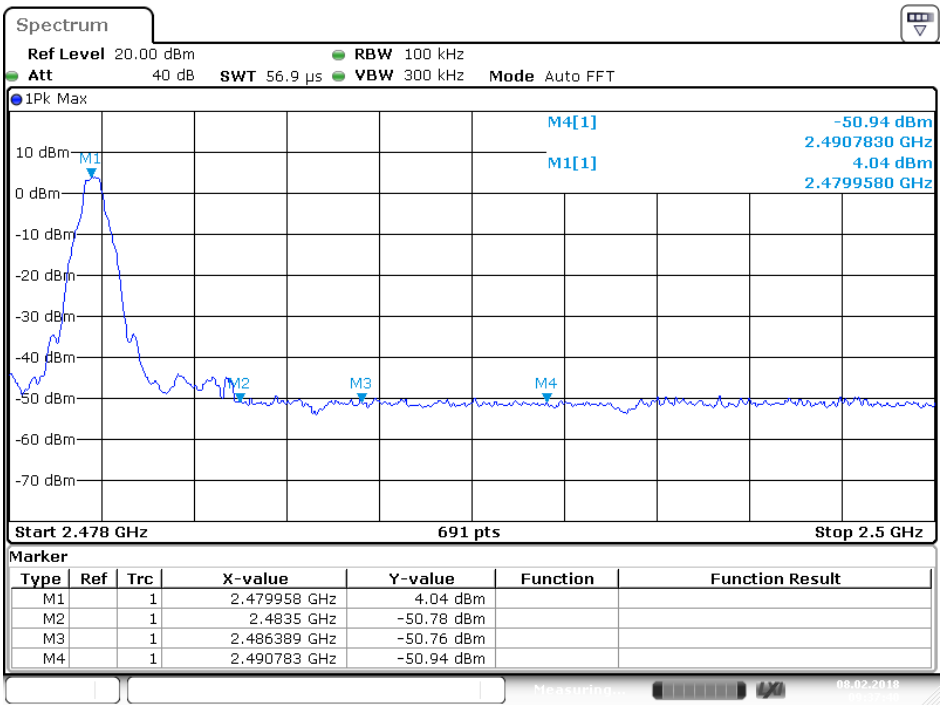
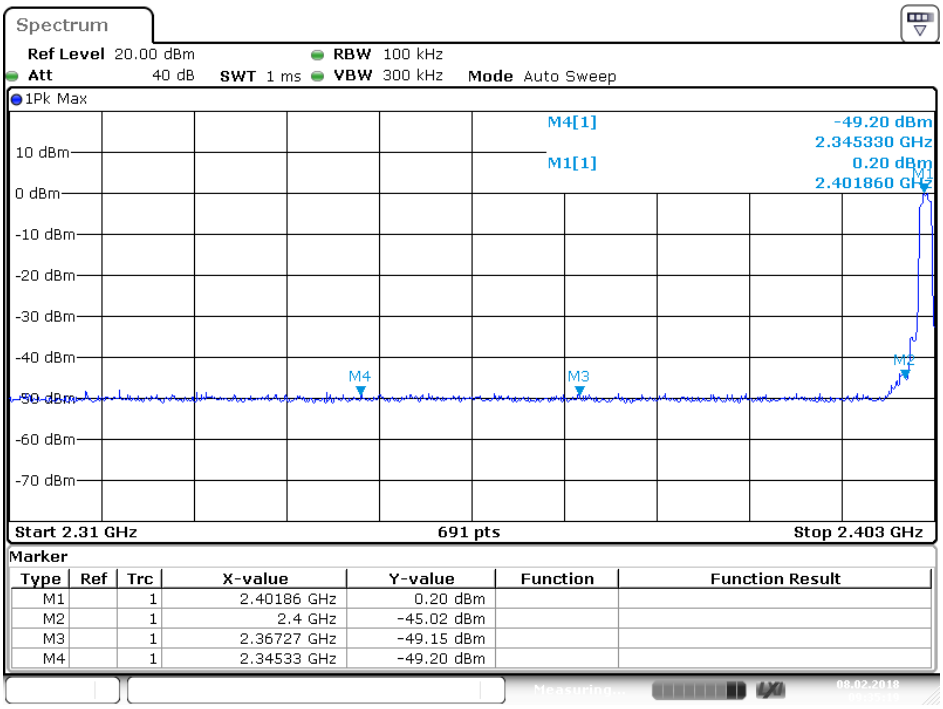


Date: 8.FEB.2018 09:37:40

EDR mode



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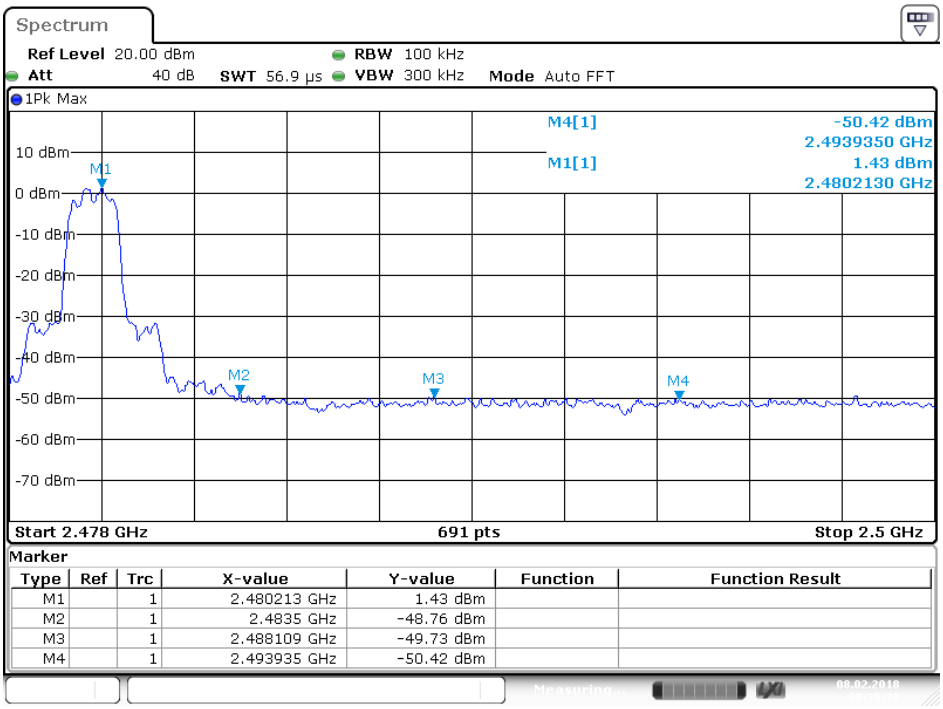
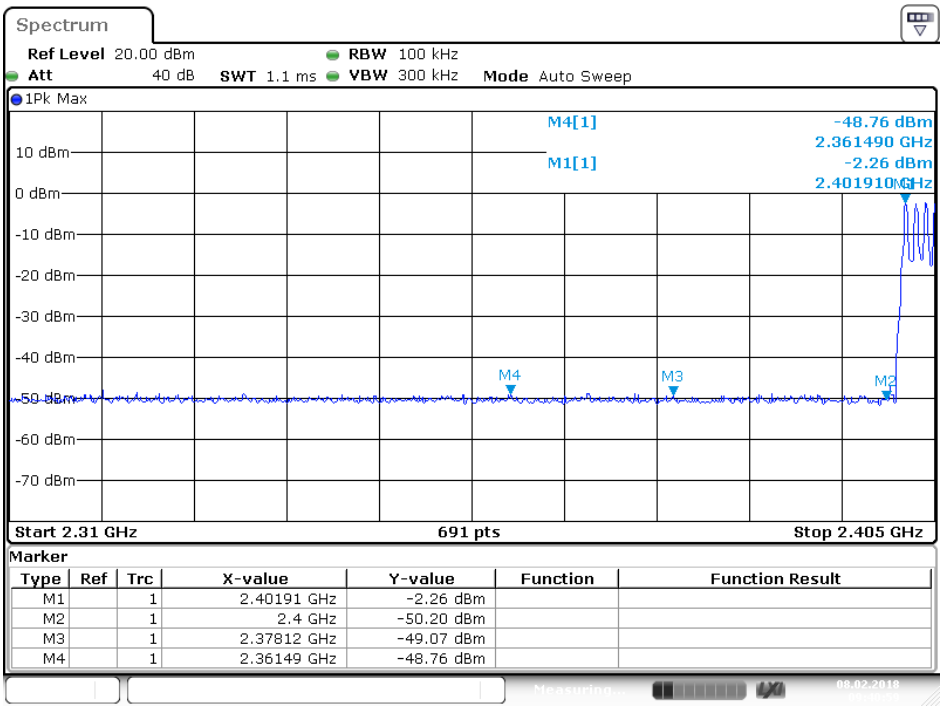


Date: 8.FEB.2018 09:36:38

hopping mode

BDR mode



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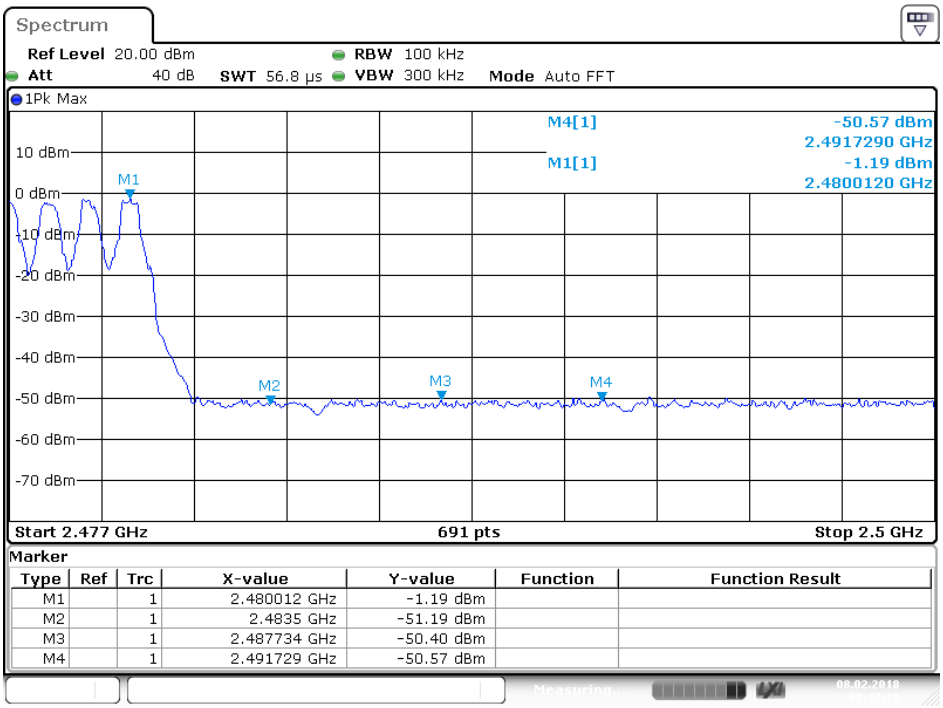
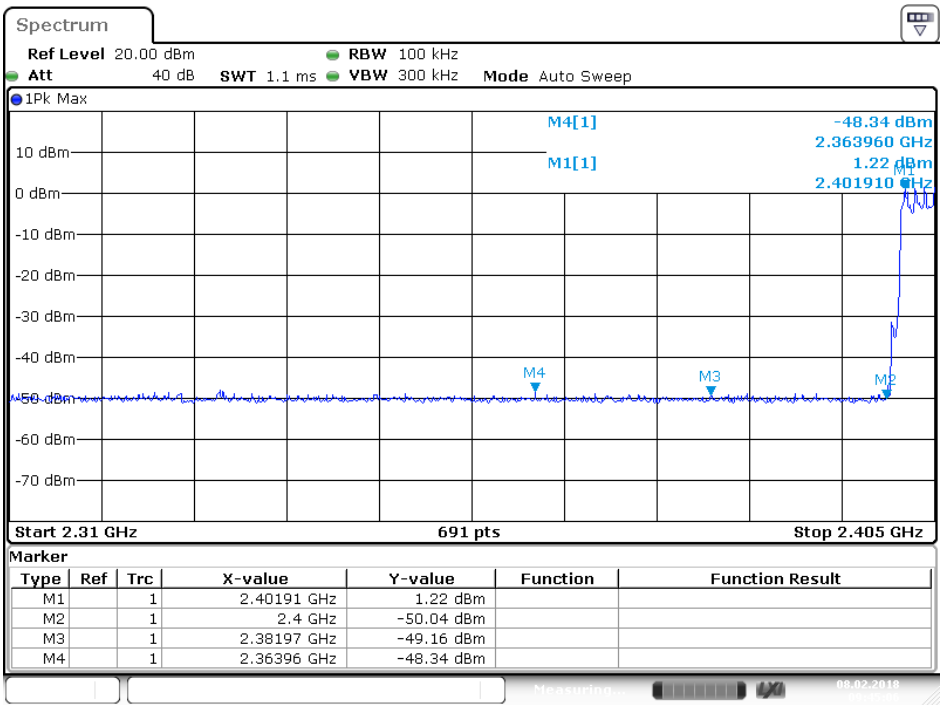


Date: 8.FEB.2018 09:42:19

EDR mode



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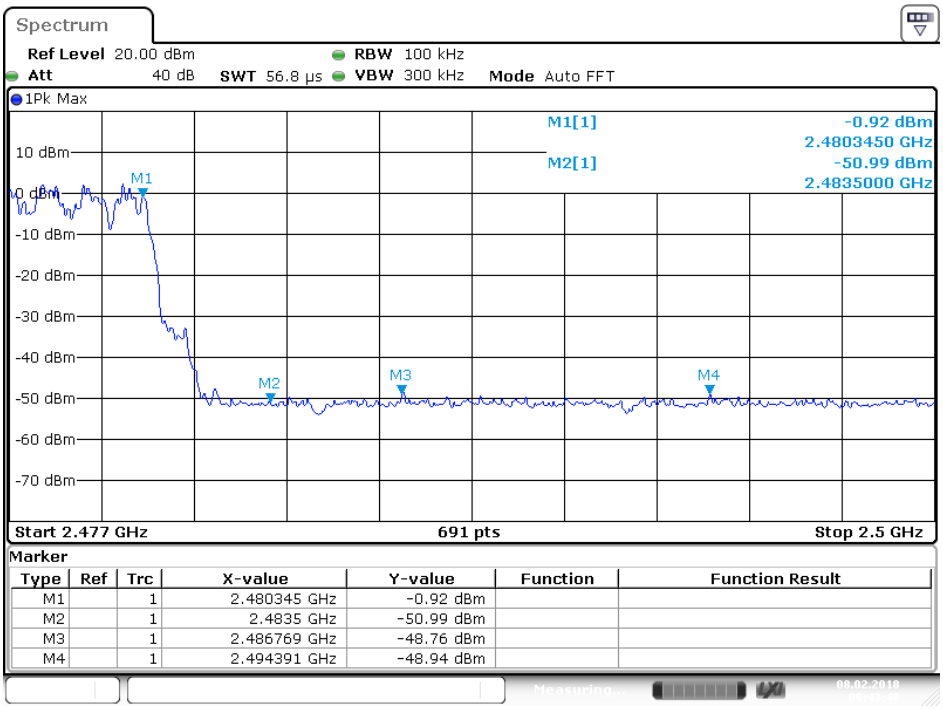

Date: 8.FEB.2018 09:43:40

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. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

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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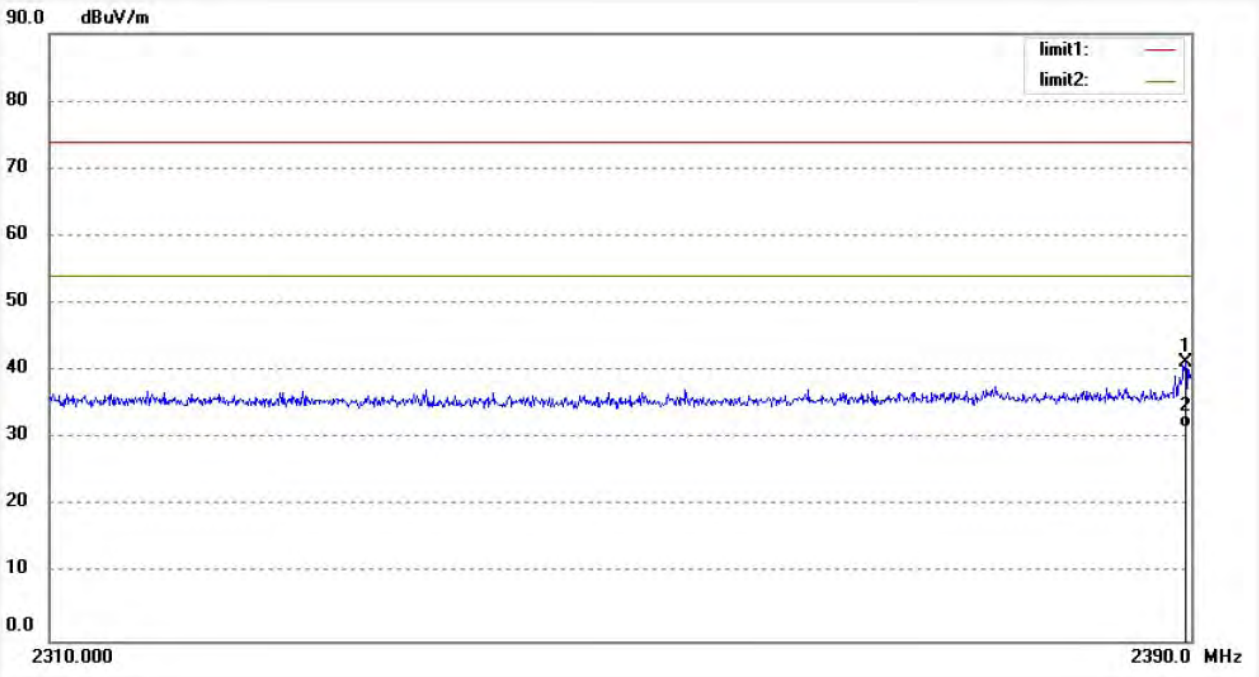
Job No.: LGW2018 #405	Polarization: Horizontal
Standard: FCC (Band Edge)	Power Source: DC 3.7V
Test item: Radiation Test	Date: 18/02/08/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Bluetooth Speaker with Powerbank	Engineer Signature: WADE
Mode: TX 2402MHz	Distance: 3m
Model: NS-SPBTBRICK2-BK	
Manufacturer: Lightcomm Technology Co., Ltd.	

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2389.600	40.40	0.79	41.19	74.00	-32.81	peak			
2	2389.600	30.75	0.79	31.54	54.00	-22.46	AVG			

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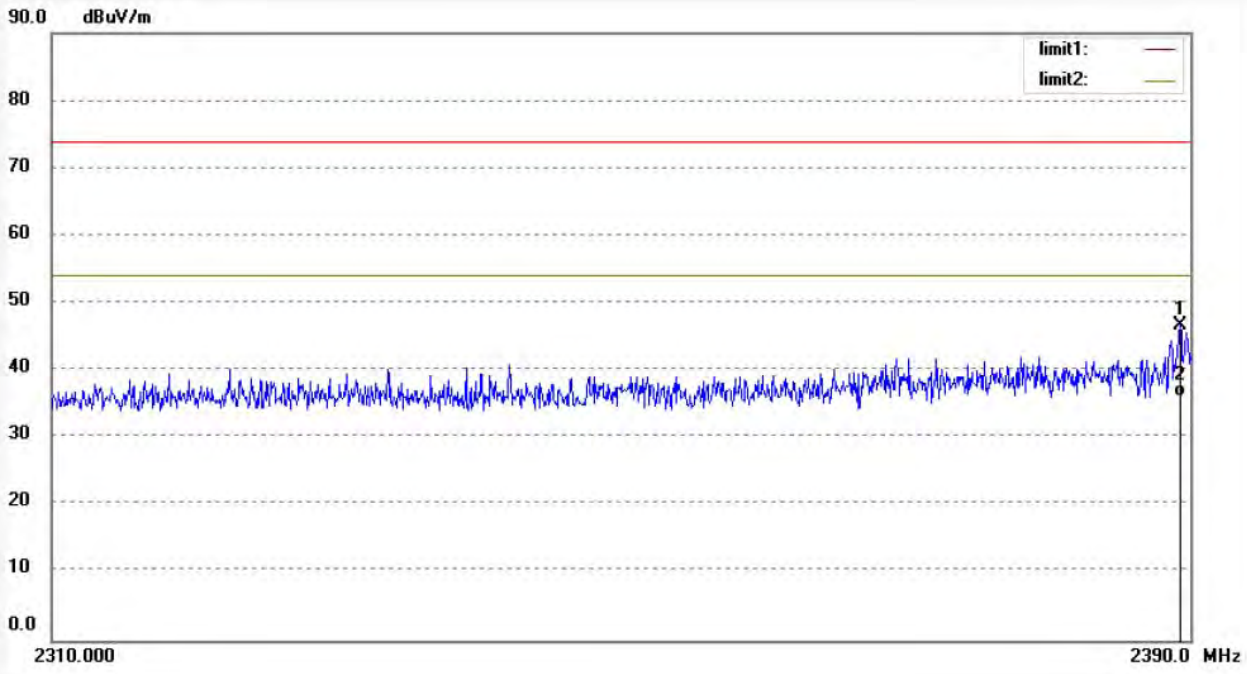
Job No.: LGW2018 #406
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2402MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Vertical
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2389.280	46.00	0.79	46.79	74.00	-27.21	peak			
2	2389.280	35.33	0.79	36.12	54.00	-17.88	AVG			

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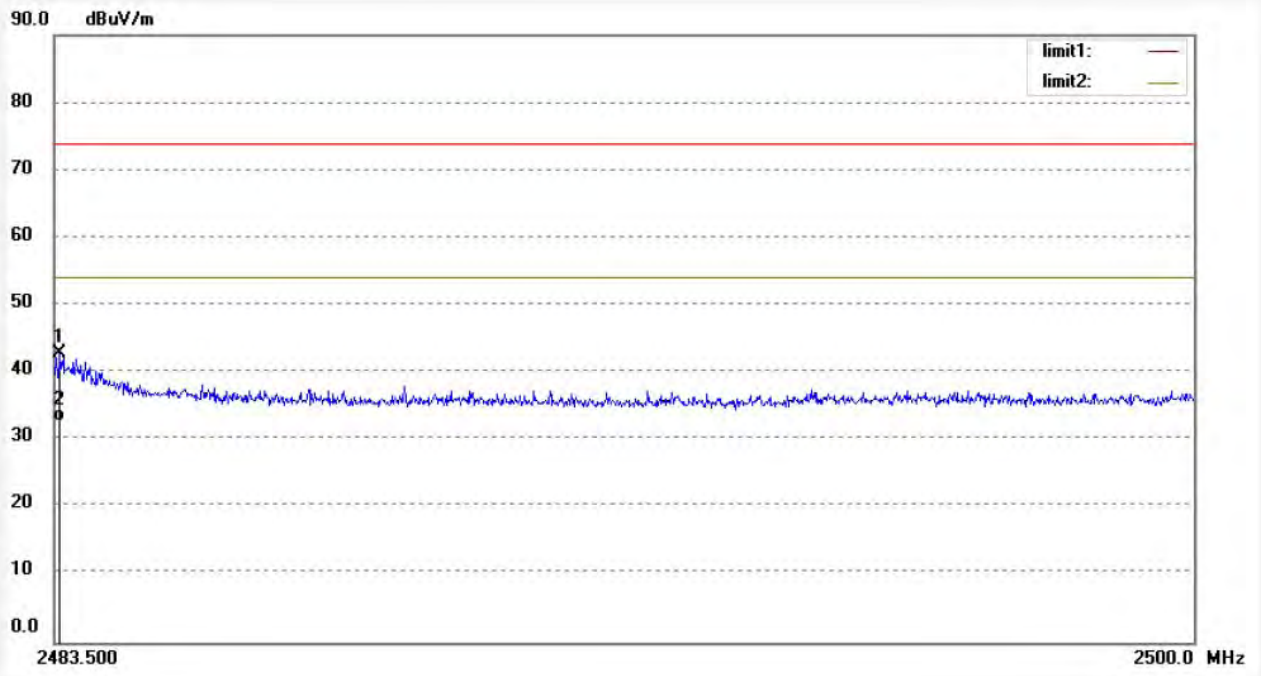
Job No.: LGW2018 #412
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2480MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Horizontal
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.582	41.84	1.10	42.94	74.00	-31.06	peak			
2	2483.582	31.61	1.10	32.71	54.00	-21.29	AVG			

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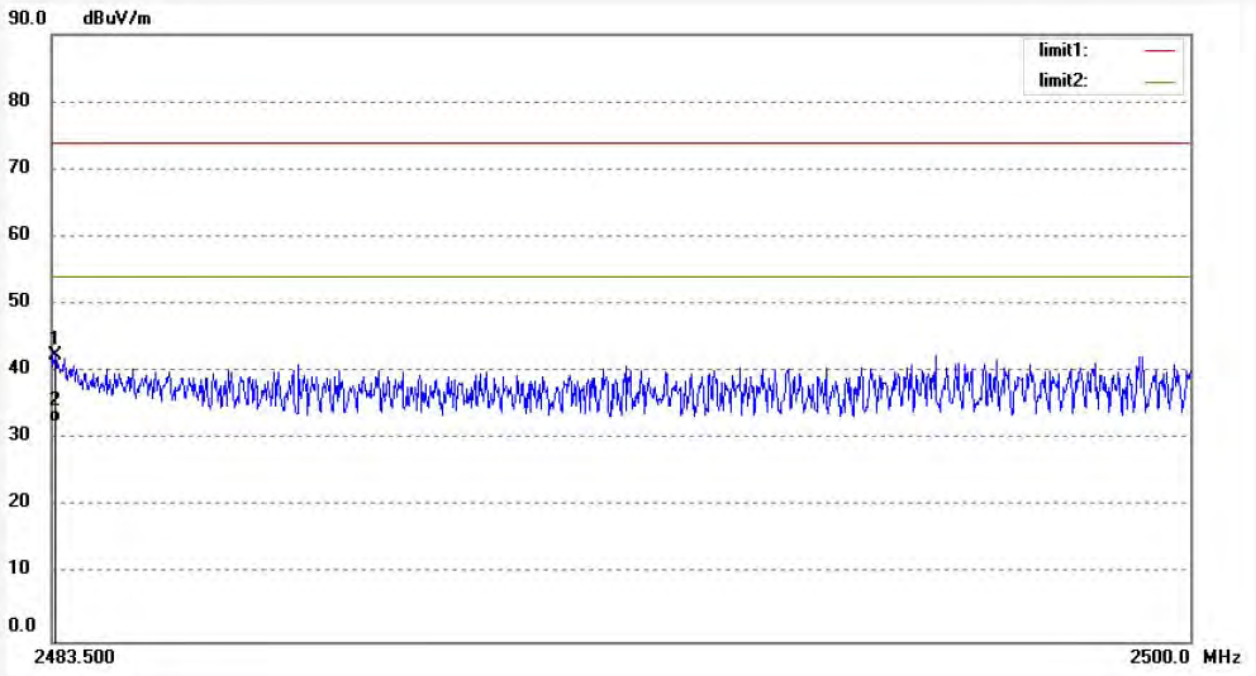
Job No.: LGW2018 #411
Standard: FCC (Band Edge)
Test item: Radiation Test
Temp.(C)/Hum.(%) 23 C / 48 %
EUT: Bluetooth Speaker with Powerbank
Mode: TX 2480MHz
Model: NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.

Polarization: Vertical
Power Source: DC 3.7V
Date: 18/02/08/
Time:
Engineer Signature: WADE
Distance: 3m

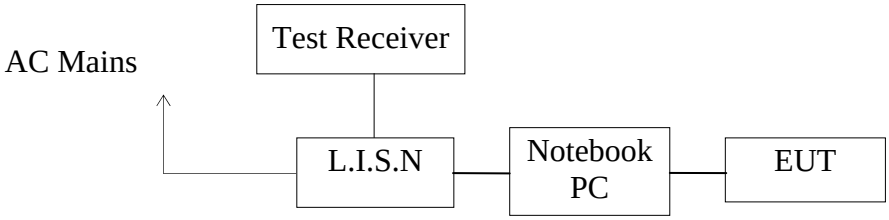
Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.550	41.28	1.10	42.38	74.00	-31.62	peak			
2	2483.550	31.44	1.10	32.54	54.00	-21.46	AVG			

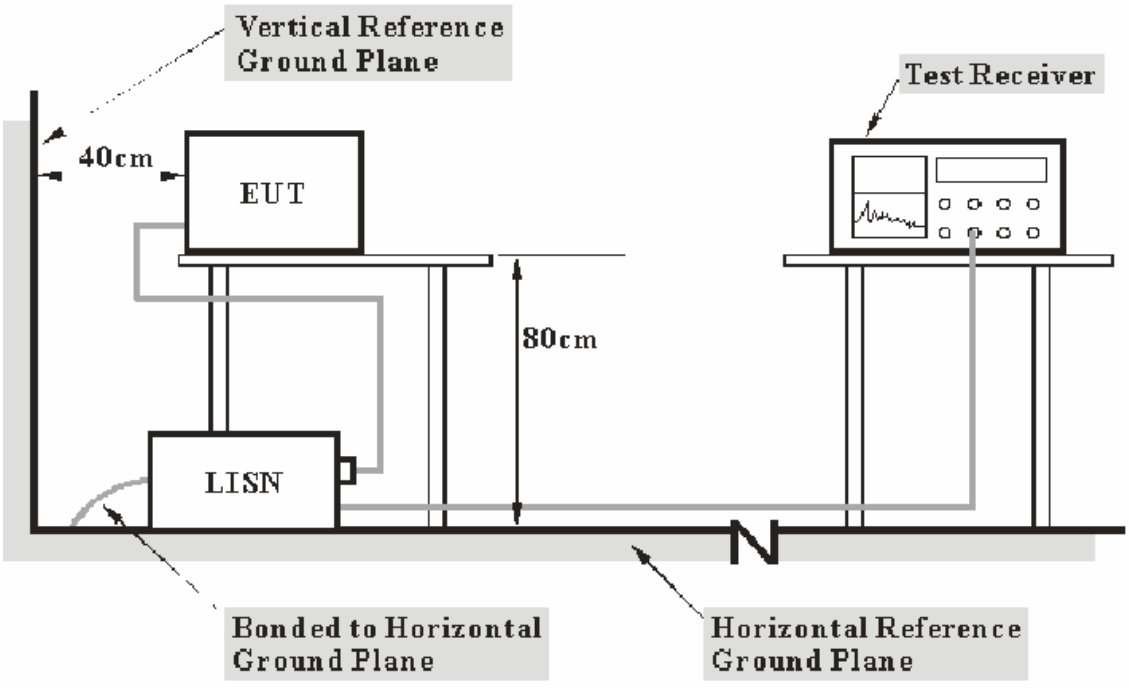
12. AC POWER LINE CONDUCTED EMISSION FOR FCC PART 15 SECTION 15.207(A)

12.1. Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

12.2. Test System Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

12.3.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.		

12.4.Configuration of EUT on Measurement

The 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.

12.5.Operating Condition of EUT

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

12.5.2.Turn on the power of all equipment.

12.5.3.Let the EUT work in test mode and measure it.

12.6.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 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.

12.7.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBμV)	Average Level (dBμV)	QuasiPeak Limit (dBμV)	Average Limit (dBμV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	10.5	51.1	34.2	56.0	46.0	4.9	11.8	Pass

Frequency(MHz) = Emission frequency in MHz
Transducer value(dB) = Insertion loss of LISN + Cable Loss
Level(dBμV) = Quasi-peak Reading/Average Reading + Transducer value
Limit (dBμV) = Limit stated in standard
Margin = Limit (dBμV) - Level (dBμV)

Calculation Formula:
Margin = Limit (dBμV) - Level (dBμV)

12.8.Power Line Conducted Emission Measurement Results

PASS.

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

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

MEASUREMENT RESULT: "TUV-0227-05_fin"

2/27/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.175000	47.50	10.5	65	17.2	QP	N	GND
0.495000	40.60	10.7	56	15.5	QP	N	GND
3.740000	31.10	11.1	56	24.9	QP	N	GND

MEASUREMENT RESULT: "TUV-0227-05_fin2"

2/27/2018

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.490000	36.70	10.7	46	9.5	AV	N	GND
1.880000	27.00	11.0	46	19.0	AV	N	GND
24.175000	14.70	11.5	50	35.3	AV	N	GND

MEASUREMENT RESULT: "TUV-0227-06_fin"

2/27/2018

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	45.50	10.5	64	18.3	QP	L1	GND
0.475000	38.50	10.7	56	17.9	QP	L1	GND
4.360000	29.00	11.1	56	27.0	QP	L1	GND

MEASUREMENT RESULT: "TUV-0227-06_fin2"

2/27/2018

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.495000	37.30	10.7	46	8.8	AV	L1	GND
1.895000	27.10	11.0	46	18.9	AV	L1	GND
26.215000	16.70	11.5	50	33.3	AV	L1	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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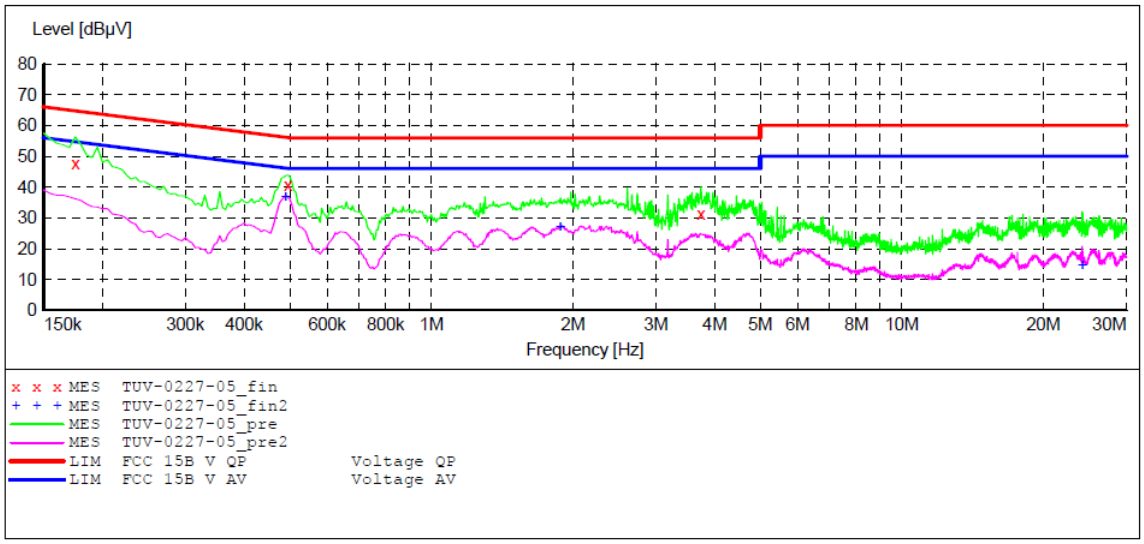
CONDUCTED EMISSION STANDARD FCC PART 15 C

EUT: Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer: Lightcomm Technology Co., Ltd.
Operating Condition: BT Communication
Test Site: 1#Shielding Room
Operator: WADE
Test Specification: N 120V/60Hz
Comment: Mains port
Start of Test: 2/27/2018 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "TUV-0227-05_fin"

2/27/2018

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.175000	47.50	10.5	65	17.2	QP	N	GND
0.495000	40.60	10.7	56	15.5	QP	N	GND
3.740000	31.10	11.1	56	24.9	QP	N	GND

MEASUREMENT RESULT: "TUV-0227-05_fin2"

2/27/2018

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.490000	36.70	10.7	46	9.5	AV	N	GND
1.880000	27.00	11.0	46	19.0	AV	N	GND
24.175000	14.70	11.5	50	35.3	AV	N	GND

ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 C

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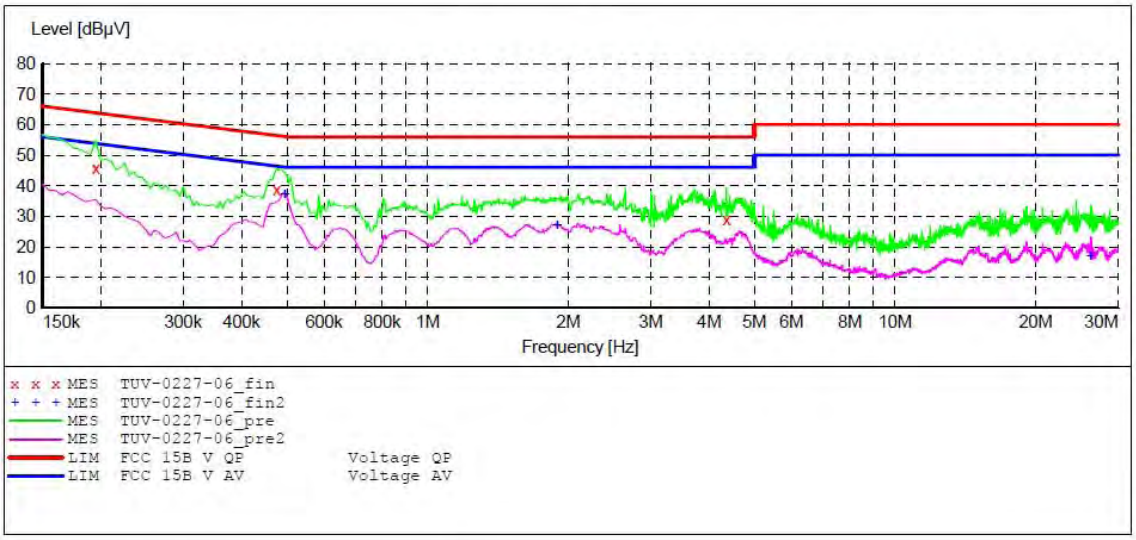
EUT:                 Bluetooth Speaker with Powerbank M/N:NS-SPBTBRICK2-BK
Manufacturer:        Lightcomm Technology Co., Ltd.
Operating Condition: BT Communication
Test Site:           1#Shielding Room
Operator:            WADE
Test Specification:  L 120V/60Hz
Comment:             Mains port
Start of Test:       2/27/2018 /
```

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70

Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
9.0 kHz	150.0 kHz	100.0 Hz	QuasiPeak Average	1.0 s	200 Hz	NSLK8126 2008
150.0 kHz	30.0 MHz	5.0 kHz	QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008



MEASUREMENT RESULT: "TUV-0227-06_fin"

2/27/2018

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195000	45.50	10.5	64	18.3	QP	L1	GND
0.475000	38.50	10.7	56	17.9	QP	L1	GND
4.360000	29.00	11.1	56	27.0	QP	L1	GND

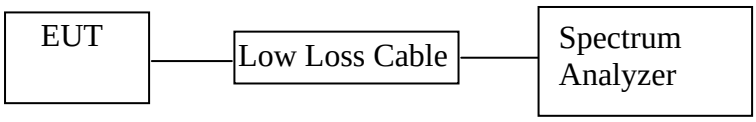
MEASUREMENT RESULT: "TUV-0227-06_fin2"

2/27/2018

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.495000	37.30	10.7	46	8.8	AV	L1	GND
1.895000	27.10	11.0	46	18.9	AV	L1	GND
26.215000	16.70	11.5	50	33.3	AV	L1	GND

13. CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

13.1. Block Diagram of Test Setup



(EUT:Bluetooth Speaker with Powerbank)

13.2. 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).

13.3. 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.

13.4. Operating Condition of EUT

13.4.1. Setup the EUT and simulator as shown as Section 14.1.

13.4.2. Turn on the power of all equipment.

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

13.5.Test Procedure

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

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

13.5.3.The Conducted Spurious Emission was measured and recorded.

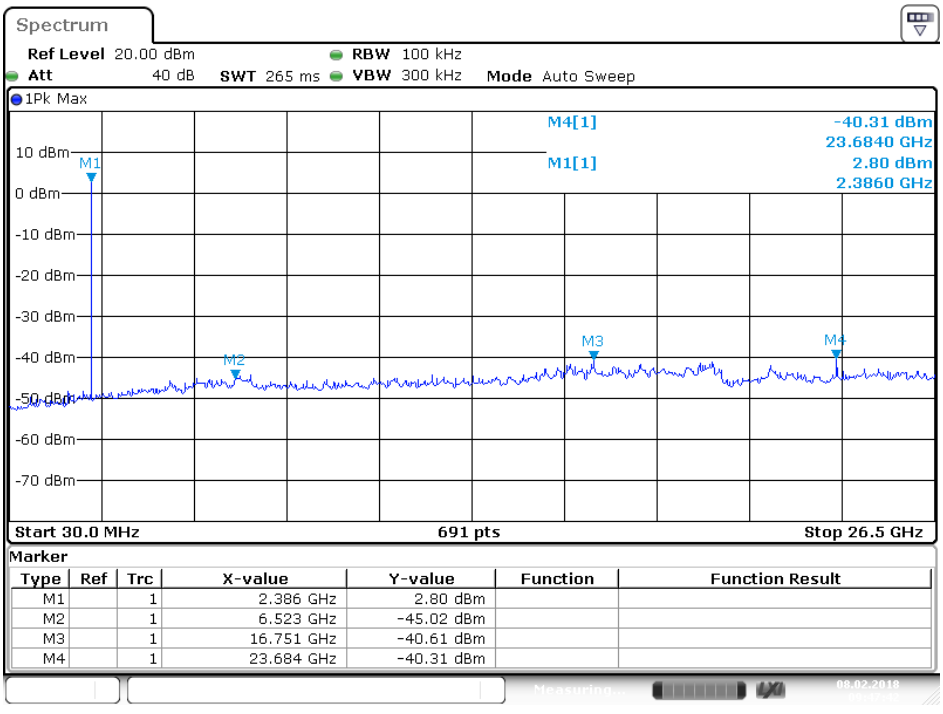
13.6.Test Result

Pass.

The spectrum analyzer plots are attached as below.

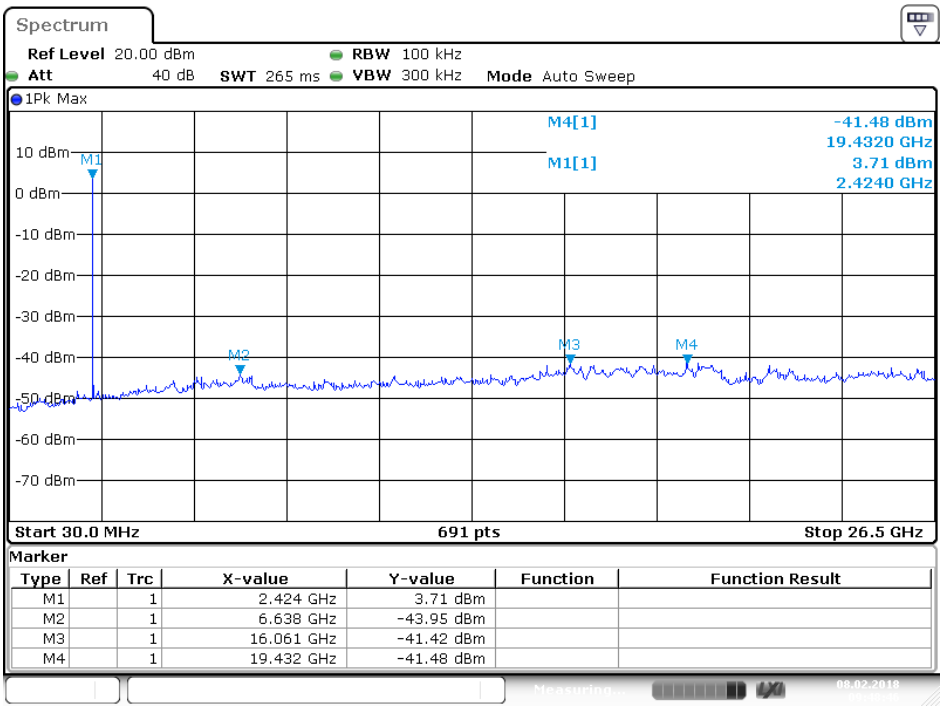
BDR mode

Low Channel 2402MHz



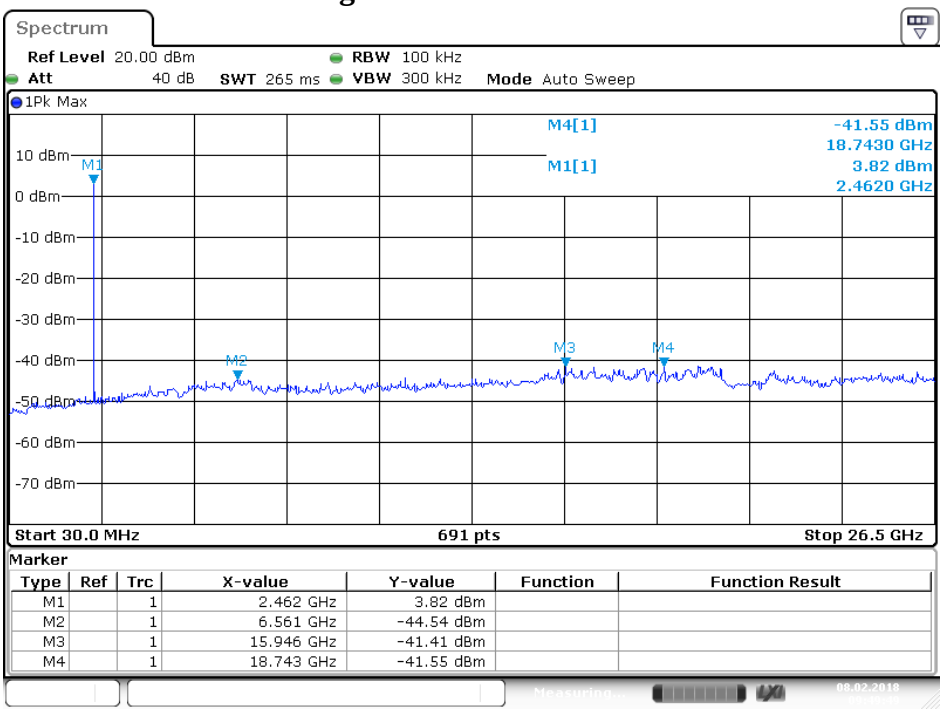
Date: 8.FEB.2018 09:47:42

Middle Channel 2441MHz



Date: 8.FEB.2018 09:48:46

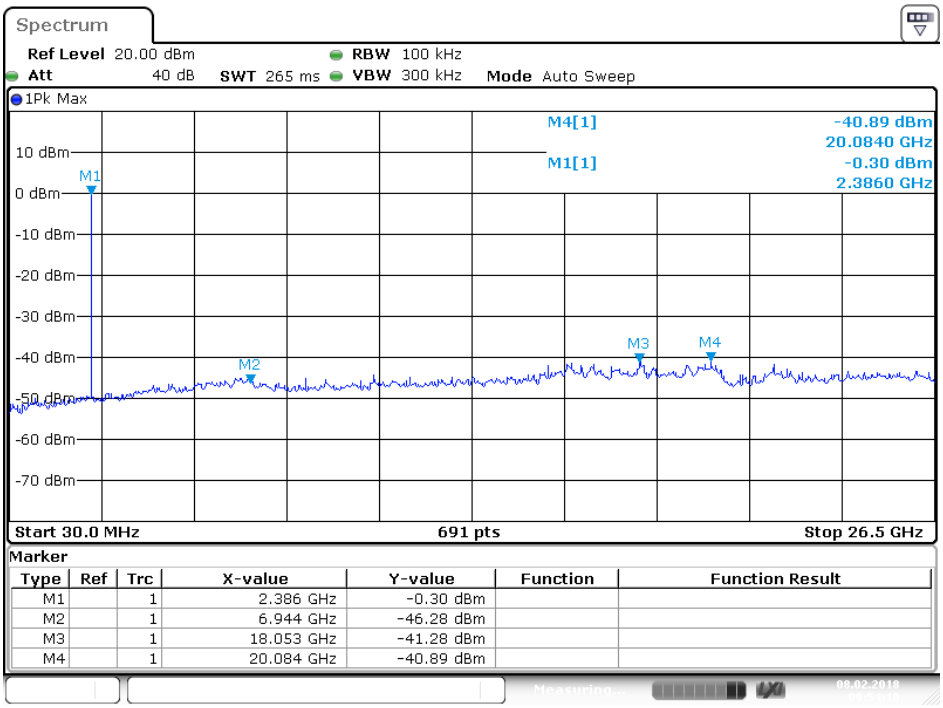
High Channel 2480MHz



Date: 8.FEB.2018 09:49:49

EDR mode

Low Channel 2402MHz



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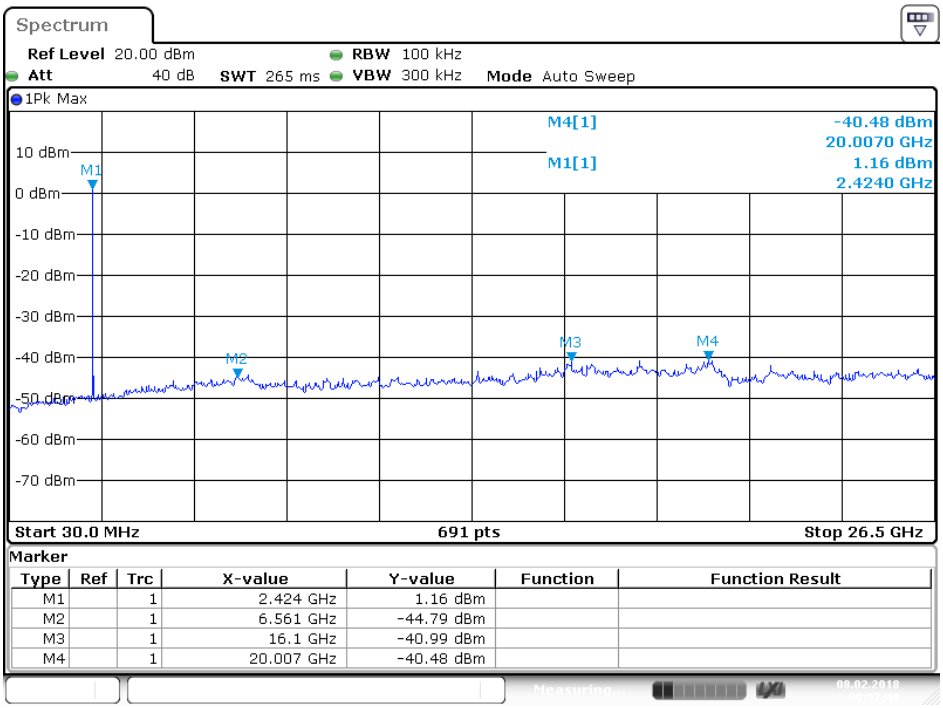
Middle Channel 2441MHz



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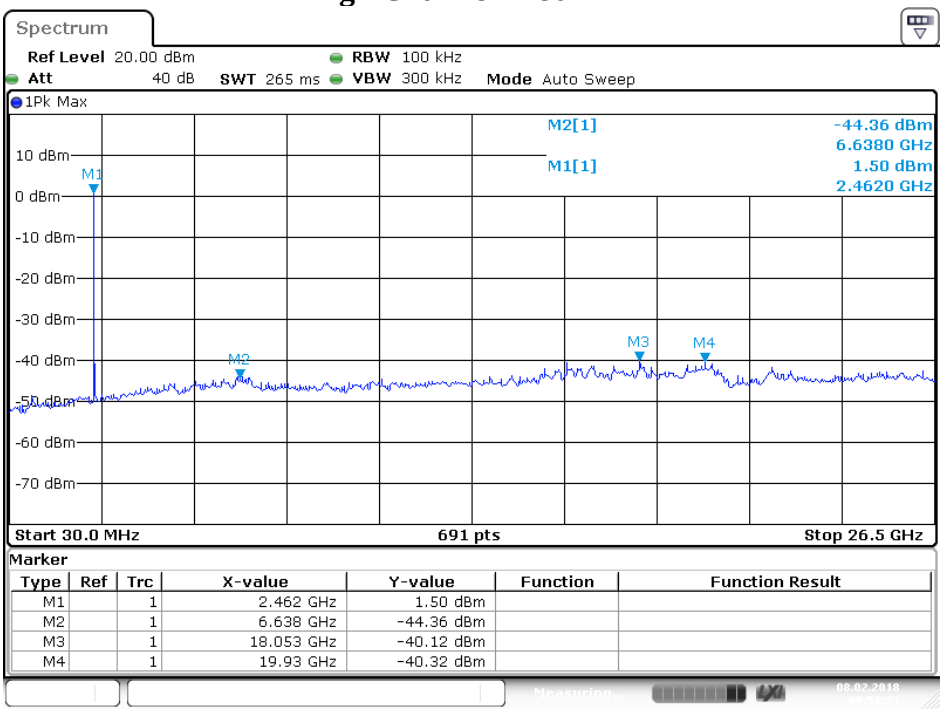
High Channel 2480MHz



Date: 8.FEB.2018 09:51:23

14. ANTENNA REQUIREMENT

14.1. 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.

14.2. Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Max Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.

******* End of Test Report *******