

withdrawal at



of

Report No: FCC 1412191 File reference No: 2015-01-09 Applicant: Digiview Technology Limited Product: Bluetooth speaker Model No: DSBT010 Trademark: N/A Test Standards: FCC Part 15.247 It is herewith confirmed and found to comply with the Test result: requirements set up by ANSI C63.4, ,FCC Part 15 Subpart C, Paragraph 15.247 regulations for the evaluation electromagnetic compatibility Approved By Jack Chung Jack Chung Manager Dated: January 09, 2015 **Results appearing herein relate only to the sample tested** The technical reports is issued errors and omissions exempt and is subject to

SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO LTD

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Special Statement:

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19.

The testing quality system of our laboratory meets with ISO/IEC-17025 requirements, which is approved by CNAS. This approval result is accepted by MRA of APLAC.

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

CNAS-LAB Code: L2292

The EMC Laboratory has been assessed and in compliance with CNAS-CL01 accreditation criteria for testing Laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of testing Laboratories.

FCC-Registration No.: 899988

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission. The acceptance letter from the FCC is maintained in our files. Registration No.:899988.

IC- Registration No.: IC5205A-02

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration No.: IC 5205A-02.

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1.0 General Details

Test Lab Details 1.1

Name : SHENZHEN TIMEWAY TECHNOLOGY CONSULTING CO., LTD Address: 5/F,Block 4, Anhua Industrial Zone.,No.8 TaiRan Rd.CheGongMiao,FuTian District, Shenzhen, CHINA. Telephone: (755) 83448688 Fax: (755) 83442996

Site on File with the Federal Communications Commission – United Sates
Registration Number: 899988
For 3m & 10 m OATS
Site Listed with Industry Canada of Ottawa, Canada
Registration Number: IC: 5205A-02
For 3m & 10 m OATS
Applicant Details

1.2 pp

Digiview Technology Limited Applicant: Address: F3, Building B1,GaoXinJian Industrial Park,FuYuan 1st Road, HePing Vallage,FuYong Town,BaoAn District,ShenZhen,GuangDong, China +86-755-36984300 Telephone: Fax: +86-755-29768490-605

1.3 Description of EUT

Product:	Bluetooth speaker
Manufacturer:	Digiview Technology Limited
Address:	F3, Building B1,GaoXinJian Industrial Park,FuYuan 1st Road, HePing
	Vallage,FuYong Town,BaoAn District,ShenZhen,GuangDong, China
Brand Name:	N/A
Additional Brand Name:	: N/A
Model Number:	DSBT010
Additional Model Numb	per: N/A
Type of Modulation	GFSK, JI/4-DQPSK, 8DPSK for Bluetooth
Frequency range	2402-2480MHz for Bluetooth
Channel Spacing	1MHz for Bluetooth
Frequency Selection	By software
Channel Number	79 channel for Bluetooth
Antenna:	PCB Printed Antenna used, the antenna gain is 0.0dBi
Rating:	Input: 5V, 500mA; Output: 3W
Submitted Semples 2 Sev	malas

1.4 Submitted Sample: 2 Samples

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- 1.5 Test Duration 2014-12-24 to 2015-01-09
- 1.6 Test Uncertainty Conducted Emissions Uncertainty =3.6dB Radiated Emissions Uncertainty =4.7dB
- 1.7 Test Engineer

Terry Tang

The sample tested by

Print Name: Terry Tang

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2.0 Test Equipments					
Instrument Type	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
ESPI Test Receiver	R&S	ESPI 3	100379	2014-08-21	2015-08-20
TWO Line-V-NETW	R&S	EZH3-Z5	100294	2014-08-22	2015-08-21
TWO Line-V-NETW	R&S	EZH3-Z5	100253	2014-08-22	2015-08-21
Ultra Broadband ANT	R&S	HL562	100157	2014-08-23	2015-08-22
ESDV Test Receiver	R&S	ESDV	100008	2014-08-22	2015-08-21
Impuls-Begrenzer	R&S	ESH3-Z2	100281	2014-08-21	2015-08-20
System Controller	СТ	SC100	-		
Printer	EPSON	РНОТО ЕХЗ	CFNH234850		
Computer	IBM	8434	1S8434KCE99BLXLO*	-	-
Loop Antenna	EMCO	6502	00042960	2014-08-22	2015-08-21
ESPI Test Receiver	R&S	ESI26	838786/013	2014-08-22	2015-08-21
3m OATS			N/A	2014-08-21	2015-08-20
Horn Antenna	R&S	BBHA 9170	BBHA9170265	2014-08-23	2015-08-22
Horn Antenna	R&S	BBHA 9120D	9120D-631	2014-08-23	2015-08-22
Power meter	Anritsu	ML2487A	6K00003613	2014-08-22	2015-08-21
Power sensor	Anritsu	MA2491A	32263	2014-08-22	2015-08-21
Bilog Antenna	Schwarebeck	VULB9163	9163/340	2014-08-23	2015-08-22
LISN	AFJ	LS16C	10010947251	2014-08-21	2015-08-20
LISN (Three Phase)	Schwarebeck	NSLK 8126	8126453	2014-08-22	2015-08-21
9*6*6 Anechoic			N/A	2014-08-21	2015-08-20
EMI Test Receiver	RS	ESCS30	100139	2014-08-22	2015-08-21

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3.0 Technical Details

3.1 Summary of test results

Requirement	CFR 47 Section	Result	Notes
Antenna Requirement	15.203, 15.247(b)(4)	PASS	Complies
Maximum Peak Out Power	15.247 (b)(1), (4)	PASS	Complies
Carrier Frequency Separation	15.247(a)(1)	PASS	Complies
20dB Channel Bandwidth	15.247 (a)(1)	PASS	Complies
Number of Hopping Channels	15.247(a)(iii), 15.247(b)(1)	PASS	Complies
Time of Occupancy (Dwell Time)	15.247(a)(iii)	PASS	Complies
purious Emission, Band Edge, and	15.247(d),15.205(a),	PASS	Complies
Restricted bands	15.209 (a),15.109		
Conducted Emissions	15.207(a), 15.107	PASS	Complies
RF Exposure	15.247(i), 1.1307(b)(1)	PASS	Complies

3.2 Test Standards

FCC Part 15 Subpart & Subpart C, Paragraph 15.247

4.0 EUT Modification

No modification by Shenzhen Timeway Technology Consulting Co., Ltd

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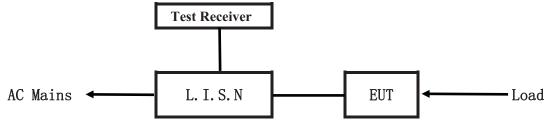
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5. **Power Line Conducted Emission Test**

5.1 Schematics of the test

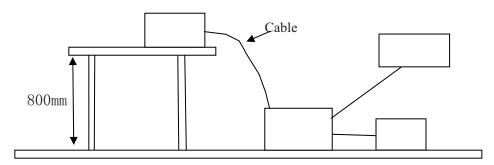
5.2



EUT: Equipment Under Test

Test Method and test Procedure The EUT was tested according to ANSI C63.4-2003. The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 500hm/50uH as specified by section 5.1 of ANSI C63.4 –2003. Test Voltage: 120V~60Hz

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below. 79 channels are provided to the EUT

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A. EUT

Device	Device Manufacturer Model		FCC ID
Bluetooth speaker	Digiview Technology Limited	DSBT010	2ADWNDSBT010

B. Internal Device

Device	Manufacturer	Model	Rating

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
Power	RCL	RCL091500	VOC	
Supply				
Mobile	RM-835	RM-835	QTLRM-835	
Phone				

5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.107,15.207

		<u> </u>	1 ,			
Frequency	Class A Lim	its (dB µ V)	Class B Limits (dB µ V)			
(MHz)	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level		
$0.15~\sim~0.50$	79.0	66.0	66.0~56.0*	56.0~46.0*		
$0.50~\sim~5.00$	73.0	60.0	56.0	46.0		
$5.00~\sim~30.00$	73.0	60.0	60.0	50.0		

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

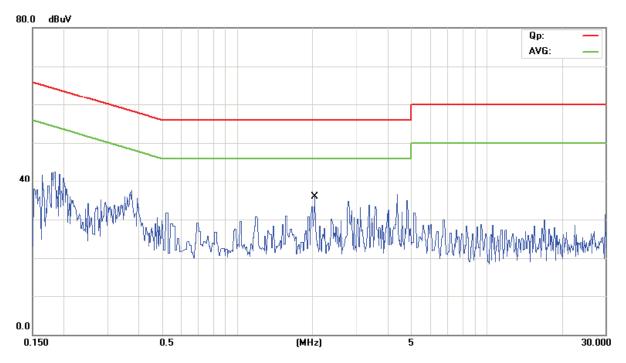
The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

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A: Conducted Emission on Live Terminal (150kHz to 30MHz) EUT Operating Environment Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa EUT set Condition: Keep BT Transmitting and Charging Equipment Level: Class B Results: PASS Please refer to following diagram for individual



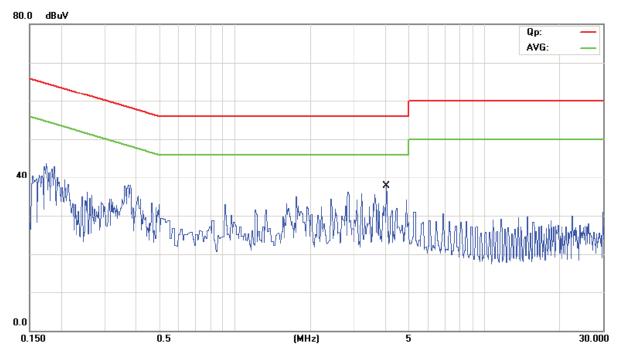
No. Mk.	Freq.			Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1 *	2.0273	3.40	12.31	15.71	56.00	-40.29	QP	
2	2.0273	-10.30	12.31	2.01	46.00	-43.99	AVG	

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B: Conducted Emission on Neutral Terminal (150kHz to 30MHz) EUT Operating Environment Temperature: 26°C Humidity: 65%RH Atmospheric Pressure: 101 KPa EUT set Condition: Keep BT Transmitting and Charging Equipment Level: Class B Results: Pass Please refer to following diagram for individual



No. Mk.	Freq.			Measure- ment	Limit	Over		
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	4.0433	13.70	13.12	26.82	56.00	-29.18	QP	
2 *	4.0433	4.70	13.12	17.82	46.00	-28.18	AVG	

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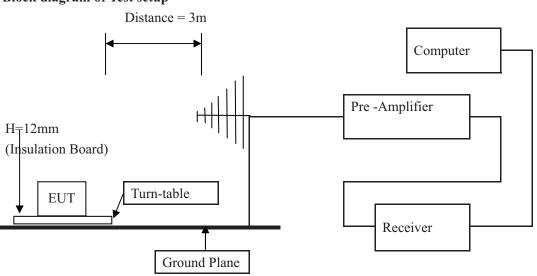
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6 Radiated Emission Test

6.1 Test Method and test Procedure:

- The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at Timeway Laboratory. This site is on file with the FCC laboratory division, Registration No.899988
- (2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.
- (3) The frequency spectrum from 30 MHz to 1 GHz was investigated. All readings from 30 MHz to 1 GHz are quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=VBW=1MHz and PK detector. AV value with RBW=1MHz, VBW=10Hz and PK detector. Measurements were made at 3 meters.
- (4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.
- (5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.
- (6) The antenna polarization : Vertical polarization and Horizontal polarization.



Block diagram of Test setup

- 6.2 Configuration of The EUT Same as section 5.3 of this report
- 6.3 EUT Operating Condition

Same as section 5.4 of this report.

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6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted ba	nd are complied to limit on	Paragraph 15.209 and 15.109

Frequency Range (MHz)	Distance (m)	Field strength (dB μ V/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage (dBuV) = $20 \log RF$ Voltage (uV)

2. In the Above Table, the higher limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

4. GFSK mode has the highest peak output power. It was selected to select to conduct the radiated emissions test and it was the worst case

5. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

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Test result General Radiated Emission Data and Harmonics Radiated Emission Data

Radiated Emission In Horizontal /Vertical (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Pass

Results:

Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)	
685.560	37.34	Н	46.00	
870.560	39.40	Н	46.00	
692.120	37.47	V	46.00	
870.880	42.19	V	46.00	

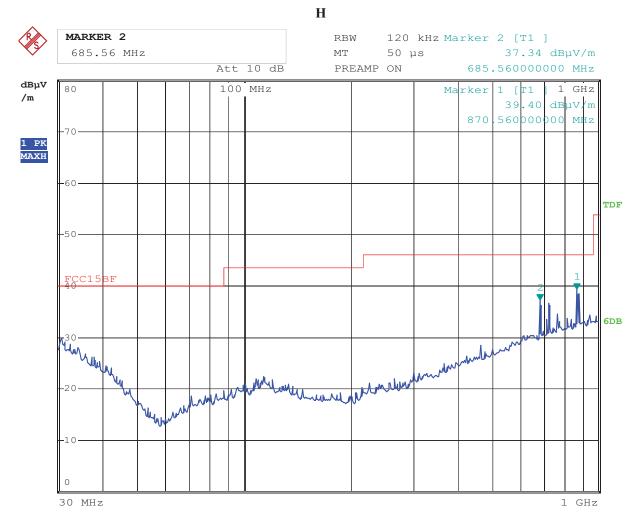
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Test Figure:



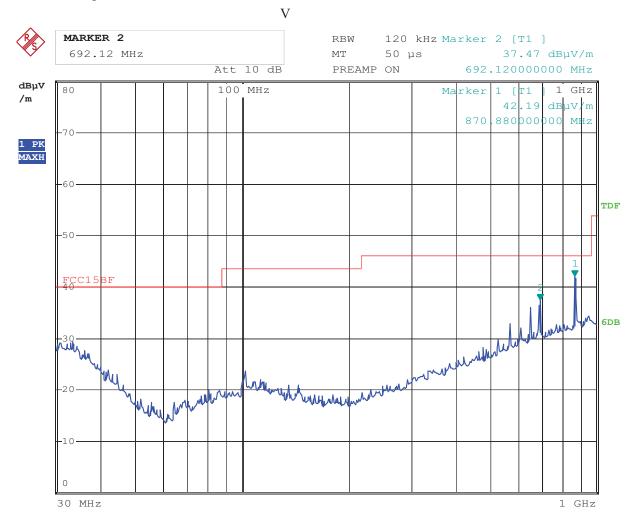
Date: 26.DEC.2014 10:03:25

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Test Figure:



Date: 26.DEC.2014 10:10:59

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Frequency (MHz)	Level@3m (dB μ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4804		Н	74(Peak)/ 54(AV)
4804		V	74(Peak)/ 54(AV)
7206		H/V	74(Peak)/ 54(AV)
9608		H/V	74(Peak)/ 54(AV)
12010		H/V	74(Peak)/ 54(AV)
14412		H/V	74(Peak)/ 54(AV)
16814		H/V	74(Peak)/ 54(AV)
19216		H/V	74(Peak)/ 54(AV)
21618		H/V	74(Peak)/ 54(AV)
24020		H/V	74(Peak)/ 54(AV)

Operation Mode: Transmitting under Low Channel (2402MHz)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "---" means that the emissions level is too low to be measured

Frequency (MHz)	Level@3m (dB µ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4882		Н	74(Peak)/ 54(AV)
4882		V	74(Peak)/ 54(AV)
7323		H/V	74(Peak)/ 54(AV)
9764		H/V	74(Peak)/ 54(AV)
12205		H/V	74(Peak)/ 54(AV)
14646		H/V	74(Peak)/ 54(AV)
17087		H/V	74(Peak)/ 54(AV)
19528		H/V	74(Peak)/ 54(AV)
21969		H/V	74(Peak)/ 54(AV)
24410		H/V	74(Peak)/ 54(AV)

Operation Mode: Transmitting g under Middle Channel (2441MHz)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark "----" means that the emissions level is too low to be measured

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Operation Mode: Transmitting under High Channel (2480MHz)

Frequency (MHz)	Level@3m (dB µ V/m)	Antenna Polarity	Limit@3m (dB µ V/m)
4960		Н	74(Peak)/ 54(AV)
4960		V	74(Peak)/ 54(AV)
7440		H/V	74(Peak)/ 54(AV)
9920		H/V	74(Peak)/ 54(AV)
12400		H/V	74(Peak)/ 54(AV)
14880		H/V	74(Peak)/ 54(AV)
17360		H/V	74(Peak)/ 54(AV)
19840		H/V	74(Peak)/ 54(AV)
22320		H/V	74(Peak)/ 54(AV)
24800		H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit 2. Remark "---" means that the emissions level is too low to be measured

The report refers only to the sample tested and does not apply to the bulk.

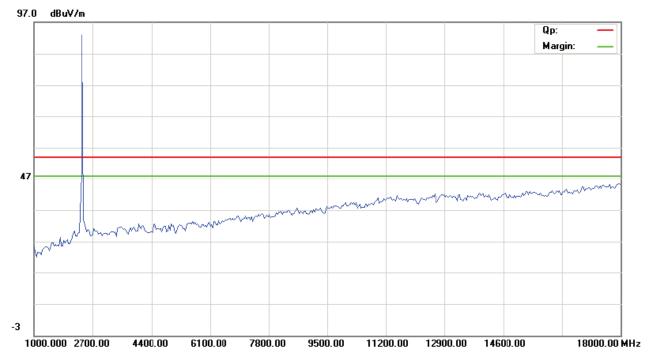
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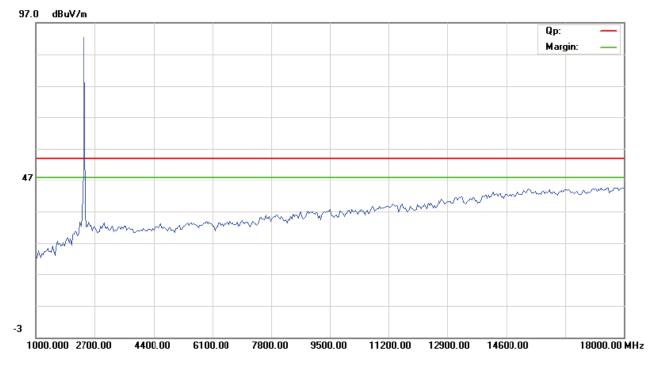


Please refer to the following test plots for details:

Low Channel: Horizontal



Low Channel : Vertical

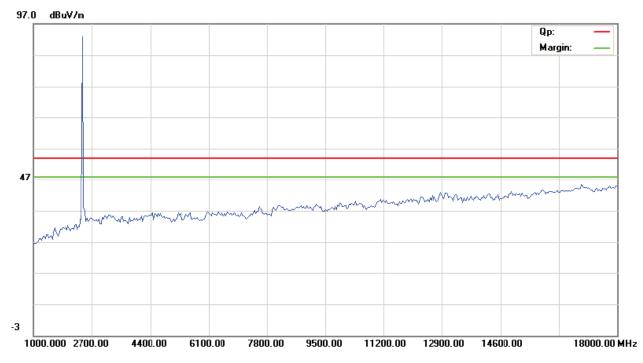


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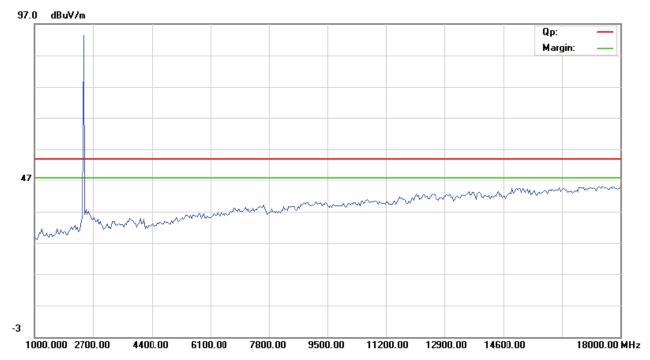
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Middle Channel : Vertical

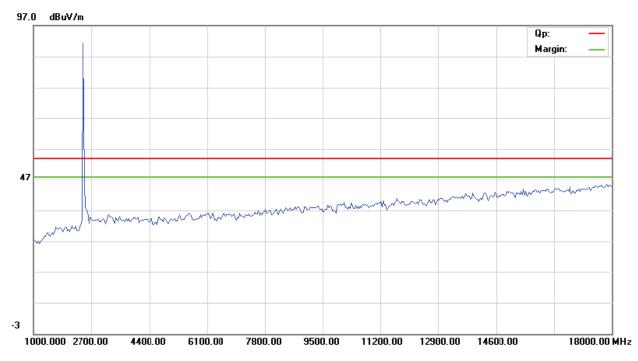


The report refers only to the sample tested and does not apply to the bulk.

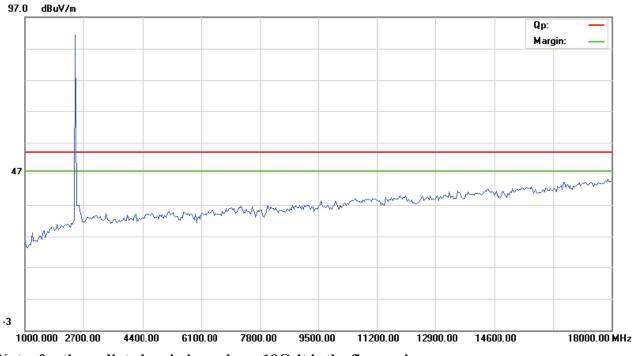
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High Channel : Vertical



Note: for the radiated emissions above 18G, it is the floor noise.

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7.0 20dB Bandwidth Measurement

7.1 Regulation

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

7.2 Limits of 20dB Bandwidth Measurement

N/A

7.3 Test Procedure.

1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.

2. Set the spectrum analyzer as follows: Span =3MHz, RBW =30 kHz, VBW=100 kHz, Sweep = auto Detector function = peak, Trace = max hold

3. Measure the highest amplitude appearing on spectral display and record the level to calculate results. 6. Repeat above procedures until all frequencies measured were complete.

7.4 Test Result

Type of Modulation: GFSK

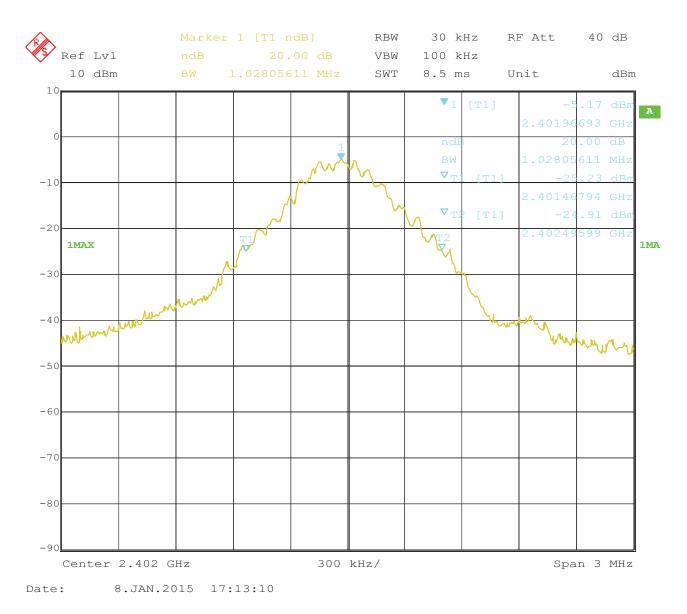
EU	Т	Bluetooth speaker		Model			DSBT010	
Mo	de	Keep T	ransmitting	In	Input Voltage		DC3.7V	
Temper	rature	24	deg. C, Humidity		Humidity		56% RH	
Channel	Freq	annel Juency IHz)	20 dB Bandwidth (kHz)		Maximum Limit (kHz)		Pass/ Fail	
Low	24	402	1028.06				Pass	
Middle	24	441	1064.13				Pass	
High	24	480	1058.12	2			Pass	

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Test Figure: 1. Condition: Low Channel

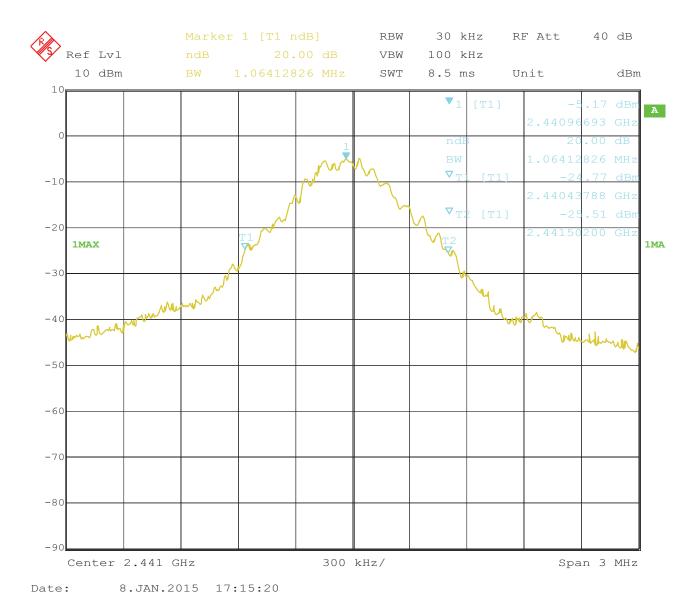


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2. Condition: Middle Channel

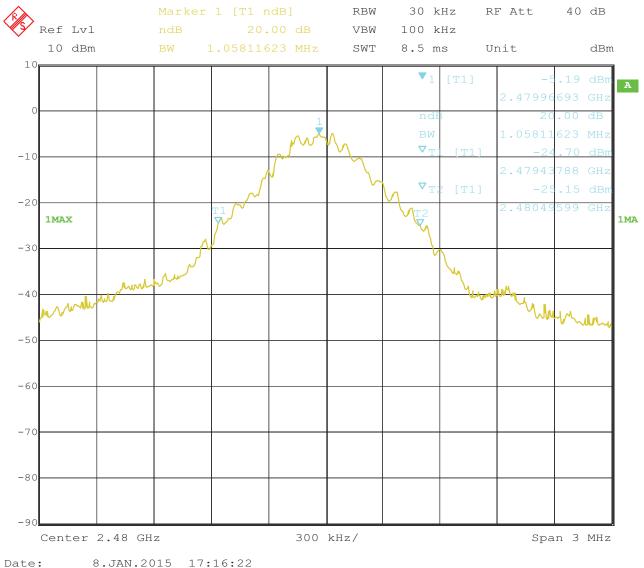


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3. High Channel



Date: 0.0/m.201

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Test Result Type of Modulation: Л/4-DQPSK

EUT		Bluetooth sp	eaker		Model DSBT010	
Mode		Keep Transm	uitting Inp		put Voltage	DC3.7V
Temperat	ure	24 deg. (, Humidit		Humidity 56% RH	
Channel	Cha	annel Frequency (MHz)	20 dB Bandwidth (kHz)		Maximum Limit (kHz)	Pass/ Fail
Low		2402	1352.71			Pass
Middle		2441	1358.72			Pass
High		2480	1346	.69		Pass

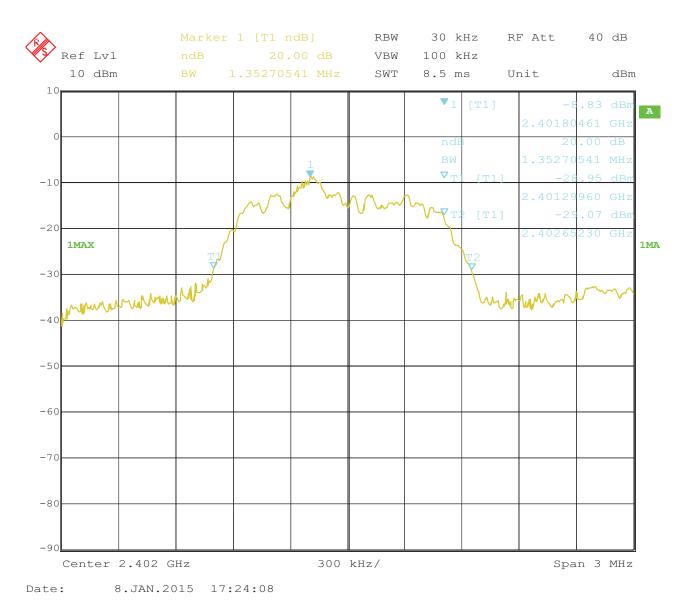
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Test Figure: 1. Condition: Low Channel

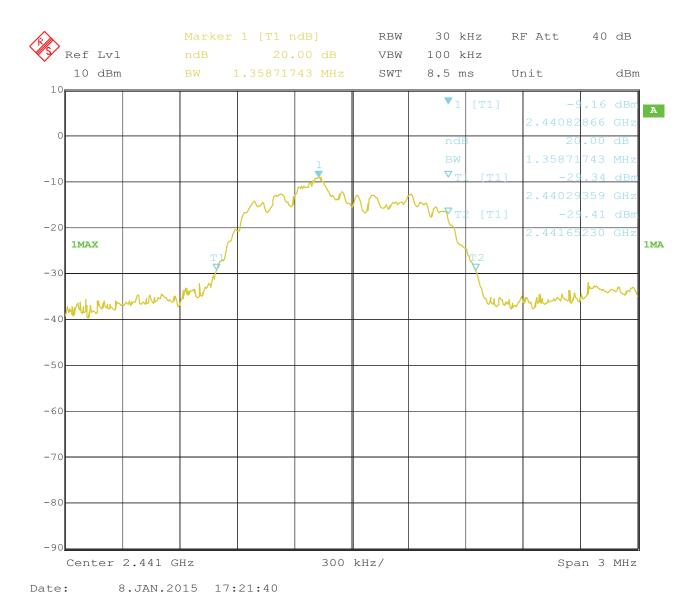


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2. Condition: Middle Channel

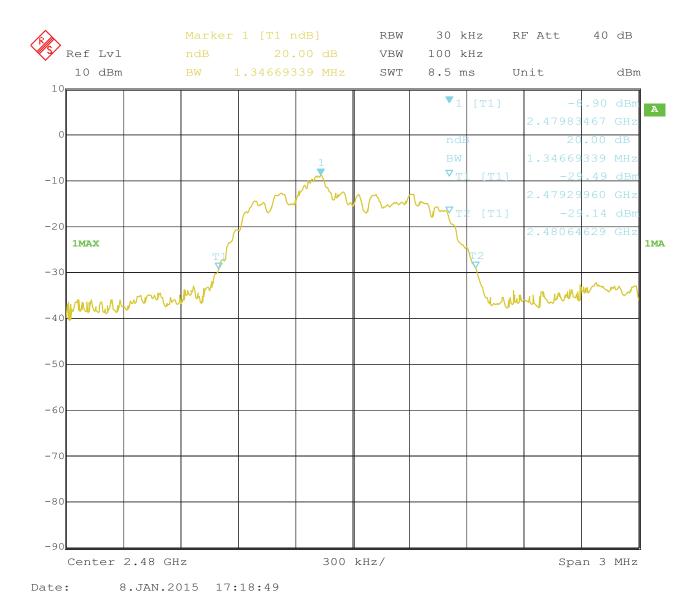


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3. High Channel



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Test Result Type of Modulation: 8DPSK

EUT		Bluetooth spe	speaker		Model	DSBT010
Mode		Keep Transmi	tting Ir		nput Voltage	DC3.7V
Temperat	ure	24 deg. C	, Н		Humidity	56% RH
Channel	Cł	nannel Frequency (MHz)	20 dB Bandwidth (kHz)		Maximum Limit (kHz)	Pass/ Fail
Low		2402	1340.68			Pass
Middle		2441	1340.68			Pass
High		2480	1340.	68		Pass

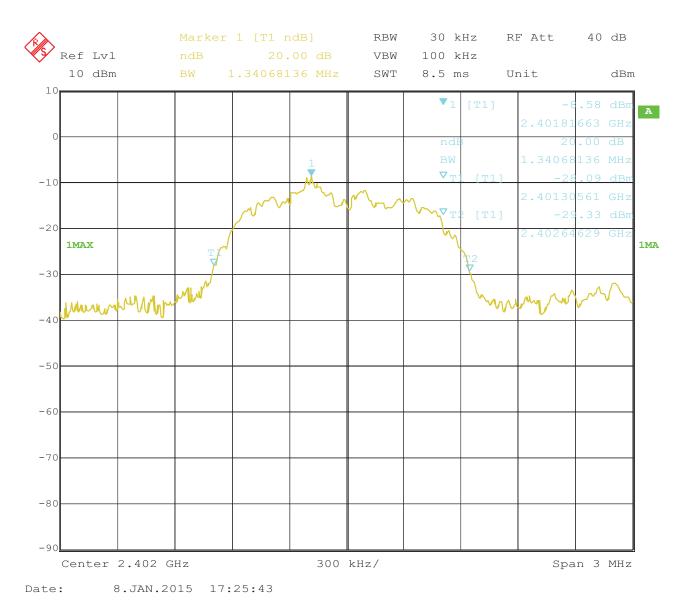
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Test Figure: 1. Condition: Low Channel

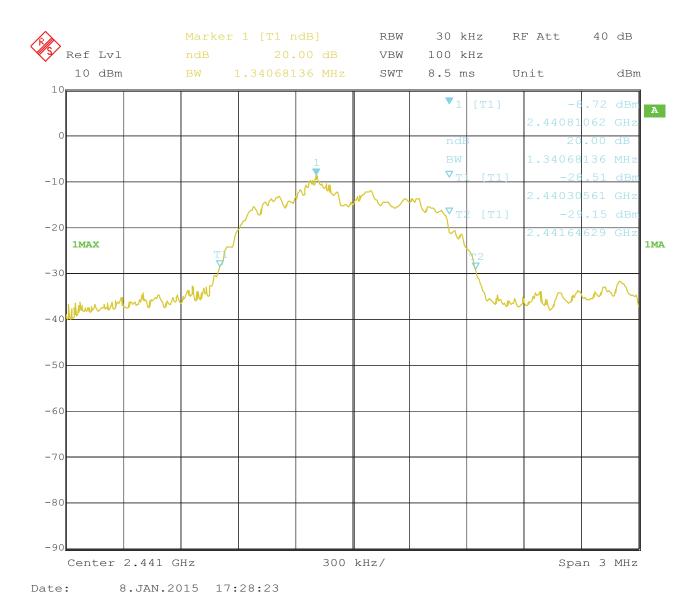


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2. Condition: Middle Channel



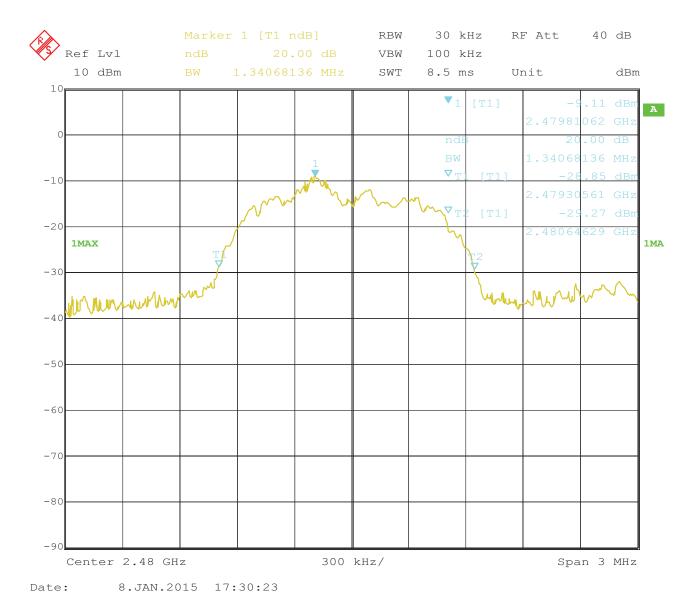
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3. High Channel



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8. Maximum Peak Output Power

8.1 Regulation

According to \$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 2400-2483.5MHz band:0.125 watts. According to \$15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

8.3 Test Procedure

1. Check the calibration of the measuring instrument (spectrum analyzer) using either an internal calibrator or a known signal from an external generator.

2. Set the spectrum analyzer as follows: Span = 10MHz, centered on a hopping channel; RBW > the 20 dB bandwidth of the emission being measured; VBW =10MHz, RBW=3MHz;

Sweep = auto; Detector function = peak; Trace = max hold

3. Measure the highest amplitude appearing on spectral display and record the level to calculate results.

4. Repeat above procedures until all frequencies measured were complete.

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8.4Test Results Type of Modulation: GFSK

EUT		Bluetoot	Model		DSBT010		
Mode		Keep Tra	Input Voltage			DC3.7V	
Temperatur	re	24 de	Humidi	ty	y 56% RH		
Channel	Cł	nannel Frequency (MHz)	Peak Power Outp	out (dBm)	Peak Power Limit (dBm)		Pass/ Fail
Low		2402	-2.56		30		Pass
Middle		2441	-2.56		30		Pass
High		2480	-2.56			30	Pass

Note: 1. the result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. The worse case was recorded

Type of Modulation: $\pi/4$ -DQPSK

EUT		Bluetooth speaker		Model			DSBT010	
Mode		Keep Transmittin	g	Input Voltage			DC3.7V	
Temperatur	re	24 deg. C,	Humidity			56% RH		
Channel	el Channel Frequency (MHz)		-	Peak Power Output (dBm) Peak Power Limit (dBm)			Pass/ Fail	
Low		2402		-2.56	30		Pass	
Middle		2441		-2.68	30		Pass	
High		2480		-2.68	30		Pass	

Note: 1. the result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. The worse case was recorded

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Type of Modulation: 8DPSK

EUT	Bluetoot	n speaker	Model	DSBT010
Mode	Keep Tra	nsmitting	Input Voltage	DC3.7V
Temperatu	re 24 de	24 deg. C, Humidity 56% R		56% RH
Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Lin (dBm)	mit Pass/ Fail
Low	Low 2402 -2.56		30	Pass
Middle	2441 -2.56		30	Pass
High	2480	-2.68	30	Pass

Note: 1. the result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

2. The worse case was recorded

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9. Carrier Frequency Separation

9.1 Regulation

According to §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.

9.2 Limits of Carrier Frequency Separation

The minimum Carrier Frequency Separation is 25kHz or two-thirds of the 20dB bandwidth of the hopping Channel which is great.

9.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

2. Set the spectrum analyzer as follows: Span = wide enough to capture the peaks of two adjacent channels: Resolution (or IF) Bandwidth (RBW) $\geq 1\%$ of the span; Video (or Average) Bandwidth (VBW) \geq RBW; Sweep = auto; Detector function = peak; Trace = max hold

3. Measure the separation between the peaks of the adjacent channels using the marker-delta function.

4. Repeat above procedures until all frequencies measured were complete.

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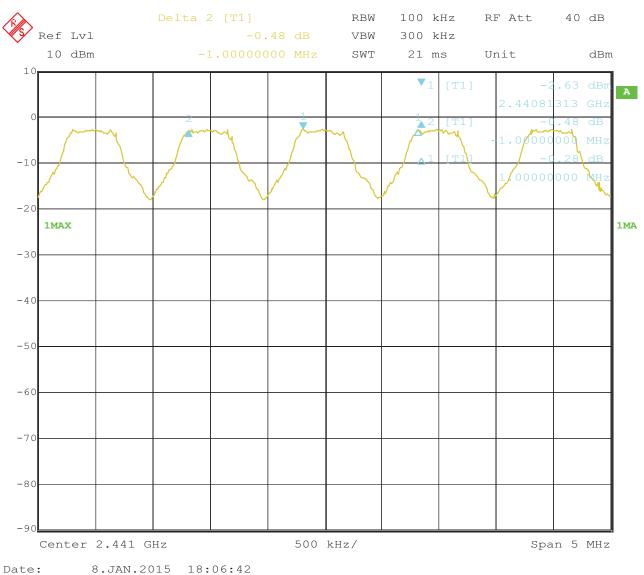


9.4Test Result

Type of Modulation: GFSK

EUT	Bluetooth speaker	Model		DSBT010		
Mode	Hopping On	Input Voltage			DC3.7V	
Temperature	24 deg. C,	Humidity			56% RH	
Carrier I	Frequency Separation		Limit		Pass/ Fail	
	1000kHz		\geq 25 kHz or 2/3 of 20 dB		Pass	
			bandw	idth		

Test Plots



The report refers only to the sample tested and does not apply to the bulk.

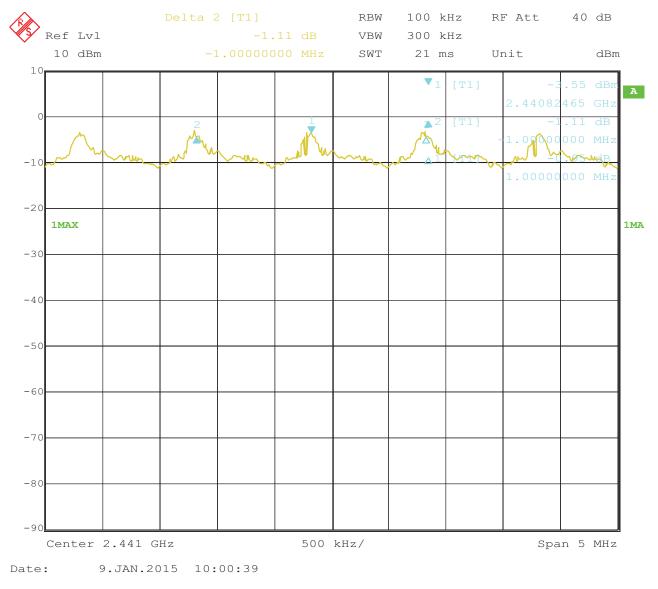
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Type of Modulation: Л/4-DQPSK

EUT	Bluetooth speaker		Model	D	SBT010	
Mode	Hopping On		Input Voltage	Ι	DC3.7V	
Temperature	24 deg. C,		Humidity	56% RH		
Carrier Frequency Separation			Limit		Pass/ Fail	
1.000MHz		≥ 25 kHz or 2/3 of 20 dB bandwidth			Pass	

Test Plots



The report refers only to the sample tested and does not apply to the bulk.

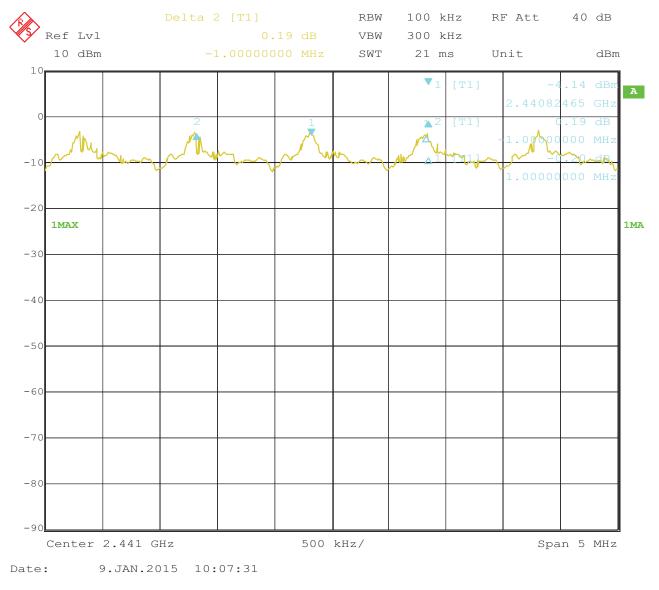
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Type of Modulation: 8DPSK

EUT	Bluetooth speaker	Model DSBT010		SBT010
Mode	Hopping On	Input Voltage	DC3.7V	
Temperature	24 deg. C,	Humidity	56% RH	
Carrier Frequency Separation		Limit		Pass/ Fail
1.000MHz		\geq 25 kHz or 2/3 of 2	20 dB bandwidth	Pass

Test Plots



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10. Number of Hopping Channels

10.1 Regulation

According to §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. According to §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.

10.2 Limits of Number of Hopping Channels

The frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

10.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

2. Set the spectrum analyzer as follows: Span = the frequency band of operation; RBW=100 kHz, VBW=300 kHz; Sweep = auto; Detector function = peak; Trace = max hold

3. Record the number of hopping channels.

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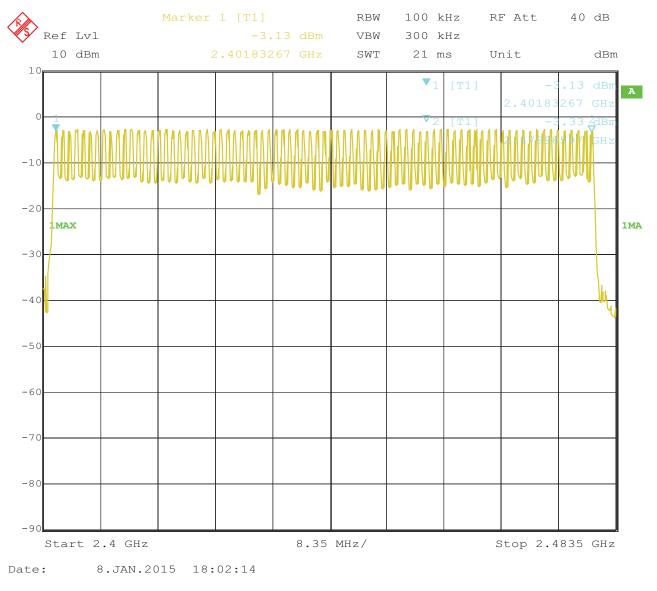


10.4Test Result

Type of Modulation: GFSK

EUT	Bluetooth speaker		Model		DSBT010		
Mode	Hopping On		Input Voltage		DC3.7V		
Temperature	24 deg. C,		Humidity	56% RH			
Operating Frequ	Operating Frequency		oing channels	Limit	Pass/ Fail		
2402-2480M	2402-2480MHz 79			≥15	Pass		

Test Plot



The report refers only to the sample tested and does not apply to the bulk.

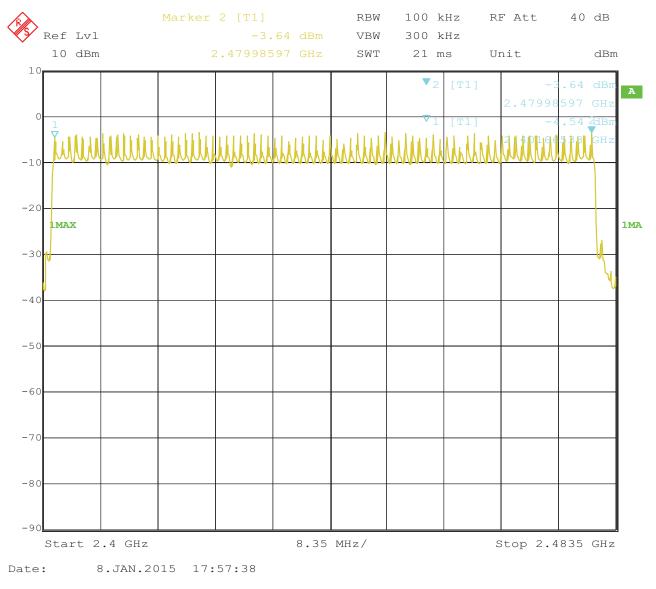
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Type of Modulation: $\pi/4$ -DQPSK

EUT	Bluetooth speaker		Model			DSBT010
Mode	Hopping On		Input Voltage			DC3.7V
Temperature	24 deg. C,		Humidity		56% RH	
Operating Frequ	Operating Frequency		oing	Lir	nit	Pass/ Fail
2402-2480MHz		79		\geq	15	Pass

Test Plot



The report refers only to the sample tested and does not apply to the bulk.

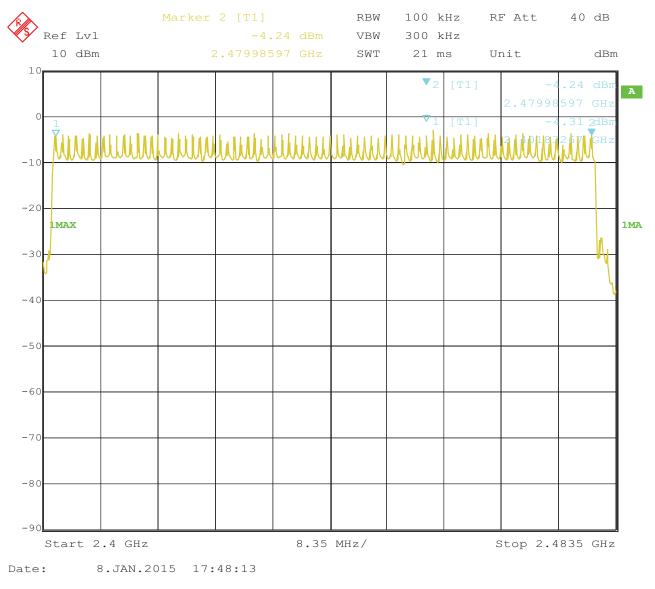
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Type of Modulation: 8DPSK

EUT	Bluetooth speaker		Model			DSBT010
Mode	Hopping On		Input Voltage			DC3.7V
Temperature	24 deg. C,		Humidity			56% RH
Operating Frequency		Number of hopp channels	oing	Liı	nit	Pass/ Fail
2402-2480MHz 7		79		2	15	Pass

Test Plot



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11. Time of Occupancy (Dwell Time)

11.1 Regulation

According to §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.

11.2 Limits of Carrier Frequency Separation

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

11.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

2. Set the spectrum analyzer as follows: Span = zero span, centered on a hopping channel; RBW = 1 MHz; VBW

RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold

3. Measure the dwell time using the marker-delta function.

4. Repeat above procedures until all frequencies measured were complete.

5. Repeat this test for different modes of operation (e.g., data rate, modulation format, etc.), if applicable.

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11.4 Test Result

Type of Modulation: GFSK

EUT		Bluetooth speaker		Model		DSBT010		
Mode		Keep Transmit	Keep Transmitting		Input Voltage		120V~	
Temperatur	re	24 deg. C,		Humidit	ty 56% RH		56% RH	
Channel		Reading	Но	Hoping Rate		tual	Limit	
Low		3.03ms	266	.667 hop/s	0.3	23s	0.4s	
Middle		3.05ms	266.667 hop/s		0.325s		0.4s	
High		2.89ms	266.667 hop/s		0.3	08s	0.4s	

Actual = Reading × (Hopping rate / Number of channels) × Test period, Test period = 0.4 [seconds / channel] × 79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625µs with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

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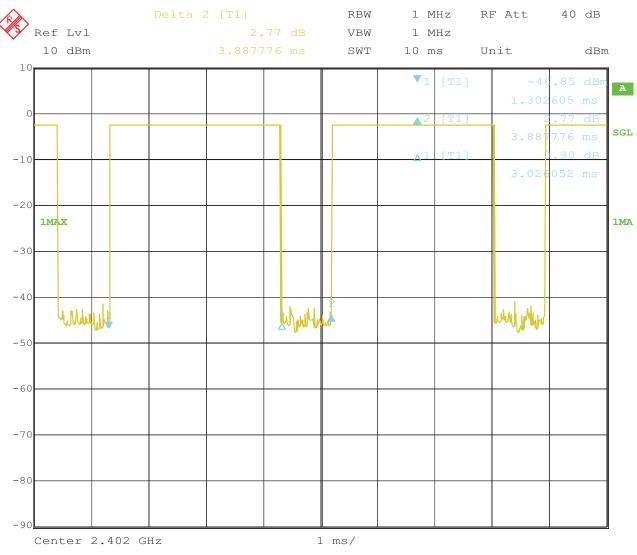
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Test Plots: Low Channel:



Date:

9.JAN.2015 11:07:00

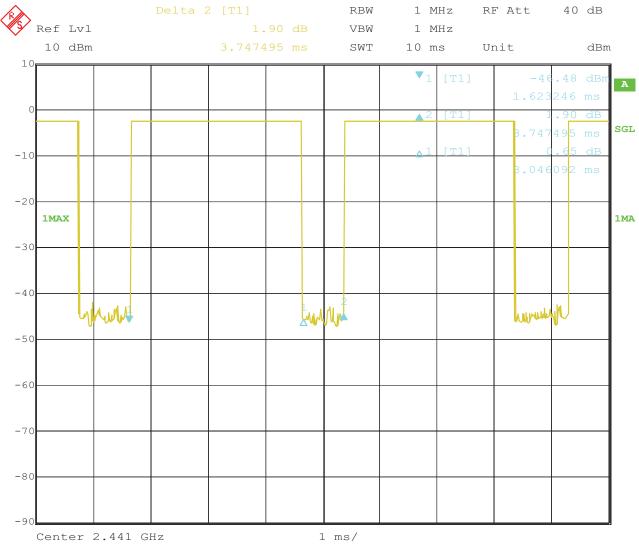
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Middle Channel:





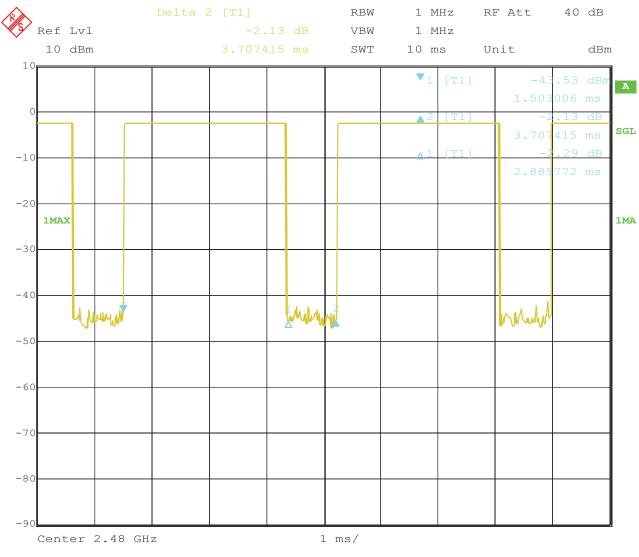
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High Channel



Date:

9.JAN.2015 11:10:11

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Test Result

Type of Modulation: Л/4-DQPSK

EUT	Bluetooth	peaker	beaker Model		DSBT010	
Mode	Mode Keep Transr		Input Voltage			DC3.7V
Temperatu	re 24 deg.	g. C, Humidity		56% RH		
Channel	Reading	Hoping	Hoping Rate		ctual	Limit
Low	3.11ms	266.667	hop/s	0.	332s	0.4s
Middle	2.89ms	266.667	266.667 hop/s		308s	0.4s
High	2.91ms	266.667	hop/s	s 0.310s		0.4s

Actual = Reading × (Hopping rate / Number of channels) × Test period, Test period = 0.4 [seconds / channel] × 79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625µs with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

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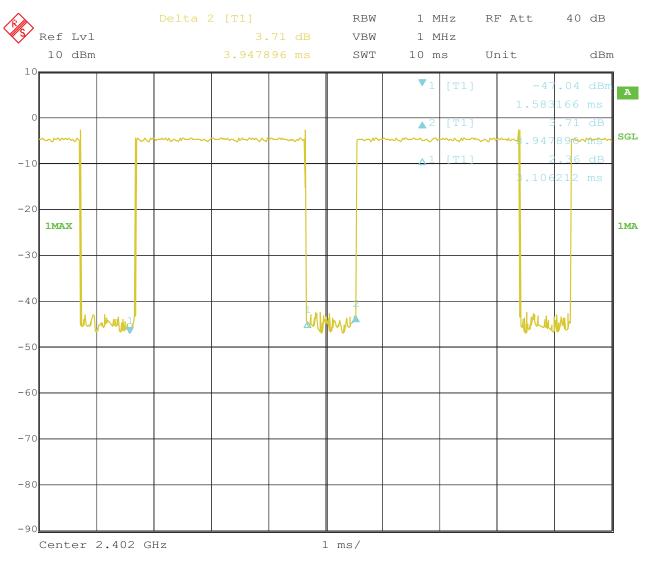
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Test Plots: Low Channel:



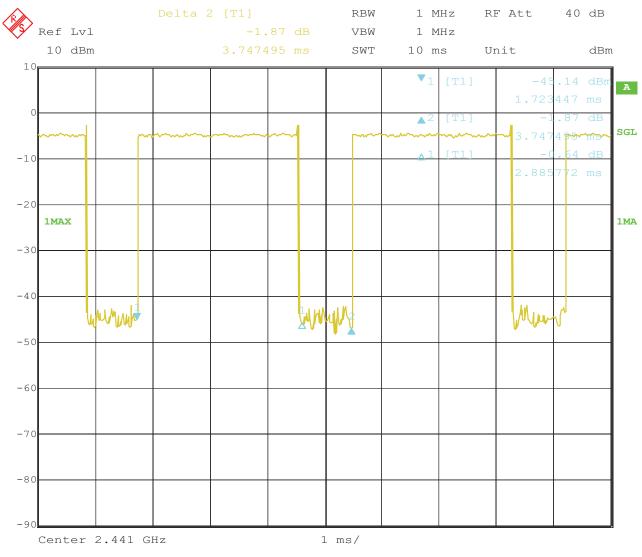
Date: 9.JAN.2015 11:06:08

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Middle Channel:



Date:

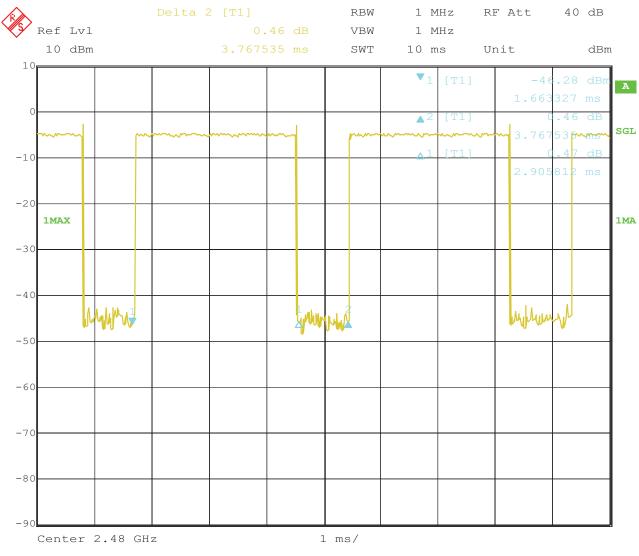
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High Channel





9.JAN.2015 11:09:33

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Type of Modulation: 8DPSK

EUT	Bluetooth sp	Bluetooth speaker		Model		DSBT010		
Mode	Keep Transn	itting Input Voltage			DC3.7V			
Temperatur	re 24 deg. (C,	Humidity			56% RH		
Channel	Reading	Hoping	Rate Actua		al	Limit		
Low	2.85 ms	266.667	hop/s 0.304		4 s	0.4s		
Middle	3.01 ms	266.667	' hop/s	hop/s 0.32		0.4s		
High	3.04 ms	266.667 hop/s		0.32	4 s	0.4s		

Actual = Reading × (Hopping rate / Number of channels) × Test period, Test period = 0.4 [seconds / channel] × 79 [channel] = 31.6 [seconds] NOTE: The EUT makes worst case 1600 hops per second or 1 time slot has a length of 625µs with 79 channels. A DH5 Packet needs 5 time slot for transmitting and 1 time slot for receiving. Then the EUT makes worst case 266.667 hops per second with 79 channels.

Note: DH5 was the worse case

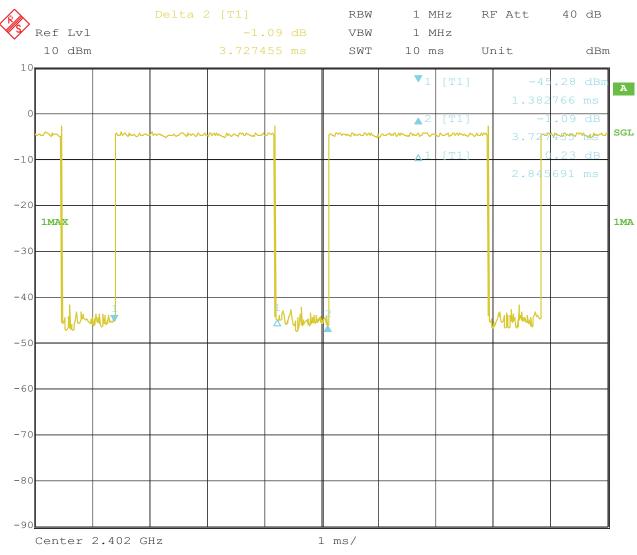
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Test Plots: Low Channel:



Date:

9.JAN.2015 11:05:12

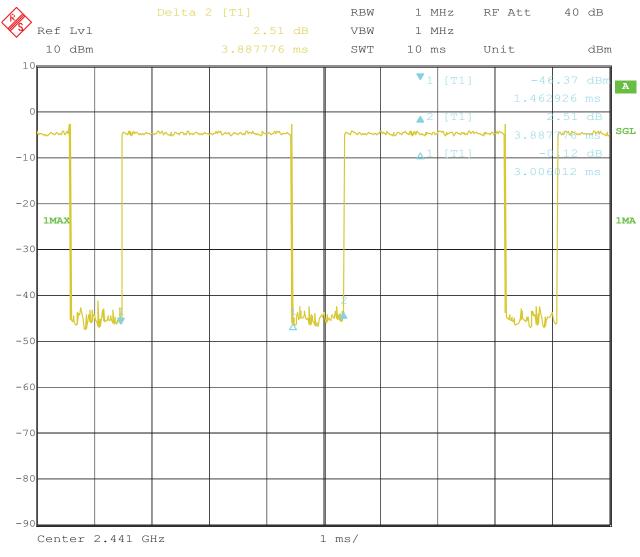
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Middle Channel:





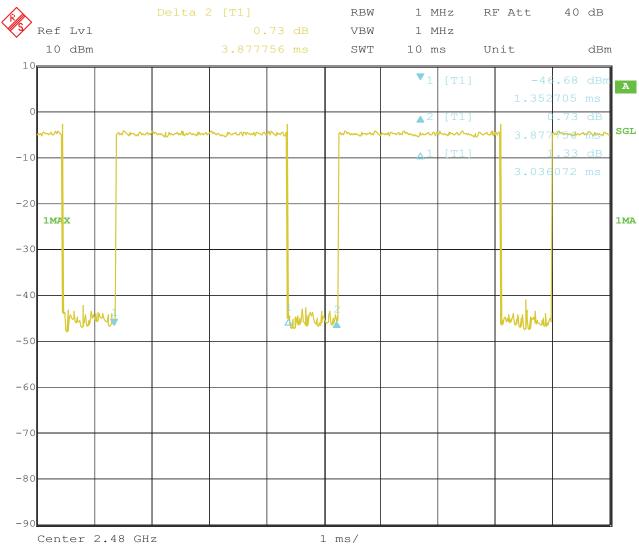
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High Channel



Date:

9.JAN.2015 11:03:53

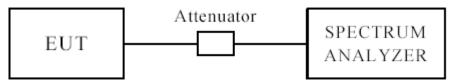
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12 Out of Band Measurement

12.1 Test Setup



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

12.2 Limits of Out of Band Emissions Measurement

- 1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
- 2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

12.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test. Peak values with RBW=VBW=1MHz and PK detector. For bandage test, the spectrum set as follows: RBW=100, VBW=300 kHz. A conducted measurement used

Note: 1. For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

2. This is a handhold device. The radiated emissions should be tested under 3-axes position (Lying, Side, and Stand), After pre-test. It was found that the worse radiated emission was get at the lying position.

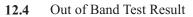
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Type of Modulation: GFSK



Product:		uetooth speaker		Test Mode:	Low Channel		
Mode	Keej	ping Transmitting		Input Voltage	DC3.7V		
Temperature		24 deg. C		Humidity	56% RH		
Test Result:		Pass		Detector	РК		
The Max. FS in	PK (dBµV/m)	37.6			$74(dB\mu V/m)$		
Restrict Band	$AV(dB\mu V/m)$			Limit	54(dBµV/m)		
2390MHz							
Test Figure:							
	Marker		RBW		FAtt 40 dB		
Ref Lvl		-2.98 dBm	VBW	300 kHz			
10 dBm	2	.40218437 GHz	SWT	21 ms U	nit dBm		
10				▼1 [T1]	-2.98 dBm		
					2.40218437 GHz		
0				▼2 [T1]	¹ / _₹ 37.71 dBm		
					2.4000000 GHz		
-10				▼ _{3 [T1]}	-46.61 dBm		
					2.39000000 GHz		
-20							
-20 1MAX					11		
-30							
					2		
-40							
				3	Wilde .		
-50 minum	mounder	allamand down and	martin	white here			
-50							
-60							
-70							
-80							
-90							
Start 2.	35 GHz	6 MHz	/		Stop 2.41 GHz		



9.JAN.2015 10:39:13

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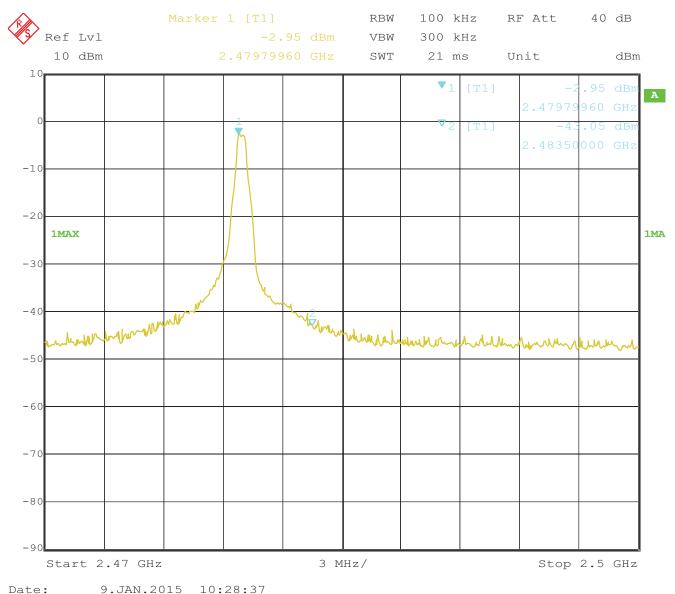


Type of Modulation: GFSK

12.4 Out of Band Test Result

Product:	Bl	uetooth speaker	Test Mode:	High Channel
Mode	Keej	ping Transmitting	Input Voltage	DC3.7V
Temperature		24 deg. C,	Humidity	56% RH
Test Result:	Pass		Detector	РК
The Max. FS in	PK (dBµV/m)	39.2		74(dBµV/m)
Restrict Band	AV(dBµV/m)		Limit	54(dBµV/m)
2483.5MHz				

Test Figure:



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Type of Modulation: GFSK

Out of Band Test Result 12.4

Product:	Bl	Bluetooth speaker				Hopping mode	
Mode		Hopping On		Input Vo	ltage	DC3.7V	
Temperature		24 deg. C,		Humic	lity	56% RH	
Test Result:		Pass	Detec	tor	РК		
The Max. FS in	PK (dBµV/m)	36.9)			74(dBµV/m)	
Restrict Band	AV(dBµV/m)			Lim	it	54(dBµV/m)	
2390MHz							
est Figure:							
	Marker 1		RBW	100 kHz	RF At	t 40 dB	
Ref Lvl		-2.98 dBm	VBW	300 kHz			
10 dBm 10	2.	40987976 GHz	SWT	21 ms	Unit	dBm	
				▼1 [T1]		-2.98 dBm	
0					2.4	0987976 GHz	
				▼2 [T1]	2.4		
1.0				▼ ₃ [T1]			
-10					2.3	9000000 GHA	
						100.0.00.	
-20						11	
ITTA							
-30							
					2		
-40				3			
unduronen	marganne	manumenter	mun	Mul manhall	mall "		
-50							
-60							
-70							
-80							
-90							
Start 2.3	5 GHz	6 M	Hz/		St	op 2.41 GHz	

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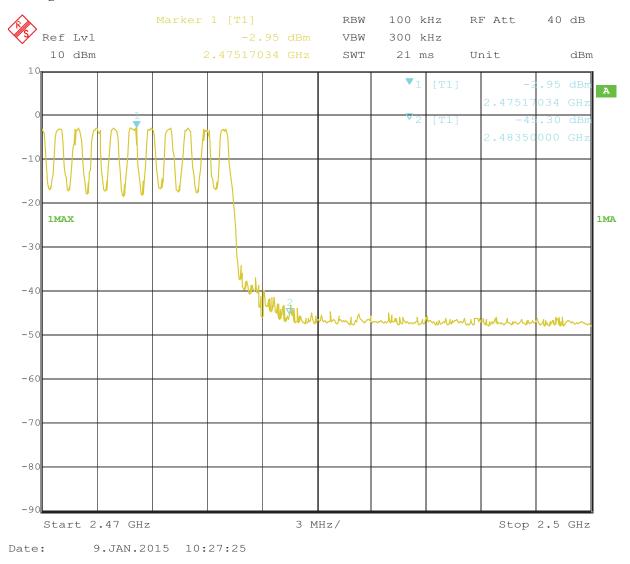


Type of Modulation: GFSK

12.4 Out of Band Test Result

Product:	Bluetooth speaker		Test Mode:	Hopping mode
Mode	Hopping On		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	РК
The Max. FS in	PK (dBµV/m)	38.8		74(dBµV/m)
Restrict Band	AV(dBµV/m)		Limit	54(dBµV/m)
2483.5MHz				

Test Figure:

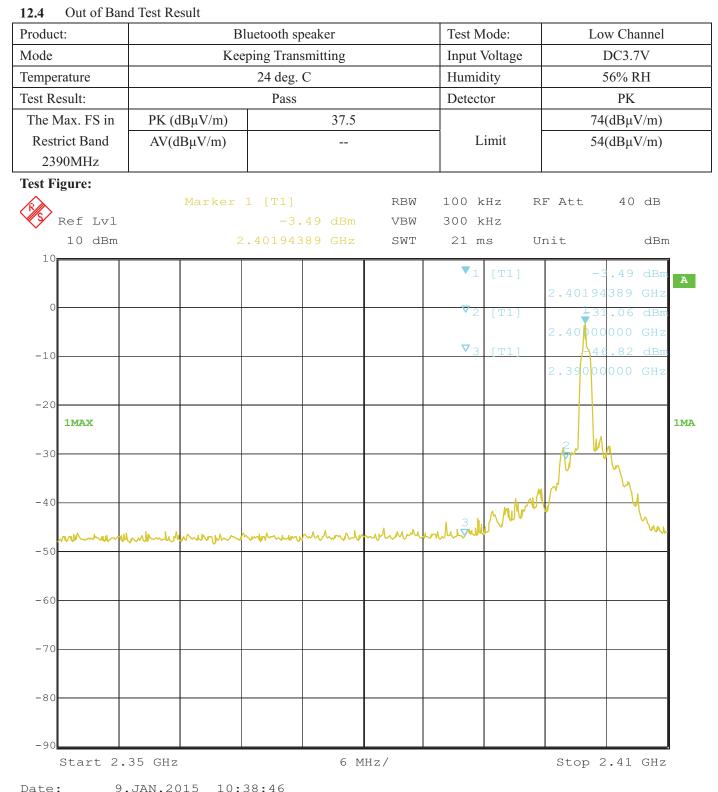


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Type of Modulation: $\pi/4DQPSK$



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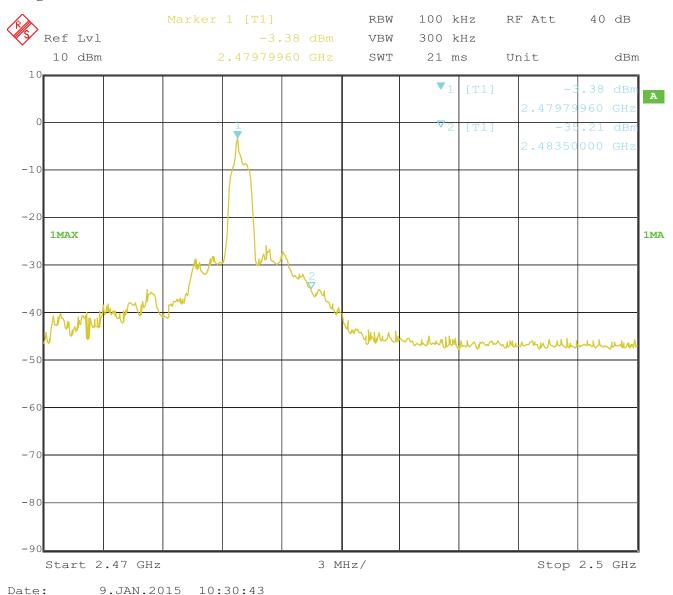


Type of Modulation: $\pi/4DQPSK$

12.4 Out of Band Test Result

Product:	Bluetooth speaker		Test Mode:	High Channel
Mode	Keeping Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	РК
The Max. FS in	PK (dBµV/m) 38.7			74(dBµV/m)
Restrict Band	AV(dBµV/m)		Limit	54(dBµV/m)
2483.5MHz				

Test Figure:



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Type of Modulation: Π /**4DQPSK**

Out of Band Test Result 12.4

Product:	Bl	uetooth speaker		Test	Mode:	Hopping mode
Mode	Hopping On			Input	Voltage	DC3.7V
Temperature	24 deg. C,			Hur	nidity	56% RH
Test Result:		Pass		Det	ector	РК
The Max. FS in	PK (dBµV/m)	36.8				74(dBµV/m)
Restrict Band	AV(dBµV/m)			L	imit	54(dBµV/m)
2390MHz						
est Figure:						
Ŕ	Marker 1	[T1]	RBW	100 kHz	RF A	tt 40 dB
🛛 Ref Lvl		-3.98 dBm	VBW	300 kHz		
10 dBm	2.	40386774 GHz	SWT	21 ms	Unit	dBm
10				▼1 [T	1]	-3.98 dBm
						40386774 GHz
0				₹2 [1	1]	-30.92 dBm
					2.4	40000000 GHZ
-10				∇ 3 [1	11	
					2.3	39000000 GHz
-20						
1MAX						1M
-30						
-30					2	ľ
-40						<u> </u>
monding	nenwerthunkerne	uhm un monten	mennen	montant	tuhlille	
-50						
-60						
-70						
, ŭ						
-80						
-90						
Start 2.3	5 GHZ	6 M	HZ/		St	cop 2.41 GHz

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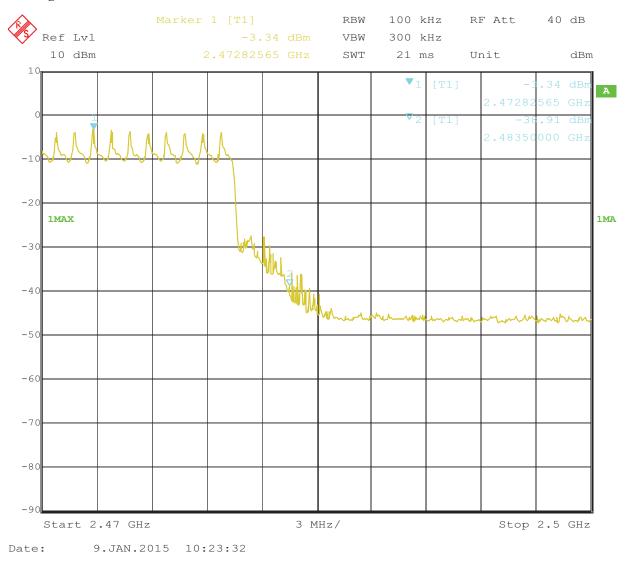


Type of Modulation: $\Pi/4DQPSK$

12.4 Out of Band Test Result

Product:	Bluetooth speaker		Test Mode:	Hopping mode
Mode	Hopping On I		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	РК
The Max. FS in	PK (dBµV/m)	38.7		74(dBµV/m)
Restrict Band	AV(dBµV/m)		Limit	54(dBµV/m)
2483.5MHz				

Test Figure:

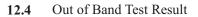


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Type of Modulation: 8DPSK



Product:	Bluetooth speaker		Test Mode:	Low Channel	
Mode	Keeping Transmitting		Input Voltage	DC3.7V	
Temperature		24 deg. C	Humidity	56% RH	
Test Result:		Pass	Detector	РК	
The Max. FS in	PK (dBµV/m)	36.5		74(dBµV/m)	
Restrict Band	$AV(dB\mu V/m)$		Limit	54(dBµV/m)	
2390MHz					
Fest Figure:					
	Marker			RF Att 40 dB	
Ref Lvl			VBW 300 kHz		
10 dBm	2	.40182365 GHz	SWT 21 ms	Unit dBm	
10			▼1 [T1]	-3.37 dBm	
				2.40182365 GHz	
0			▼2 [T1]	1-30.74 dBm	
				2.40000000 GHz	
-10			▼ ₃ [<u>T1</u>]	45.69 dBm	
				2.39000000 GHz	
-20 1MAX				11	
INAX				2. 4.	
-30					
-40					
			Man Man Mark		
mannen	ul manum	mennineannal	min man and a		
-50					
-60					
-70					
-80					
-90					
Start 2.	35 GHz	6 MHz/		Stop 2.41 GHz	



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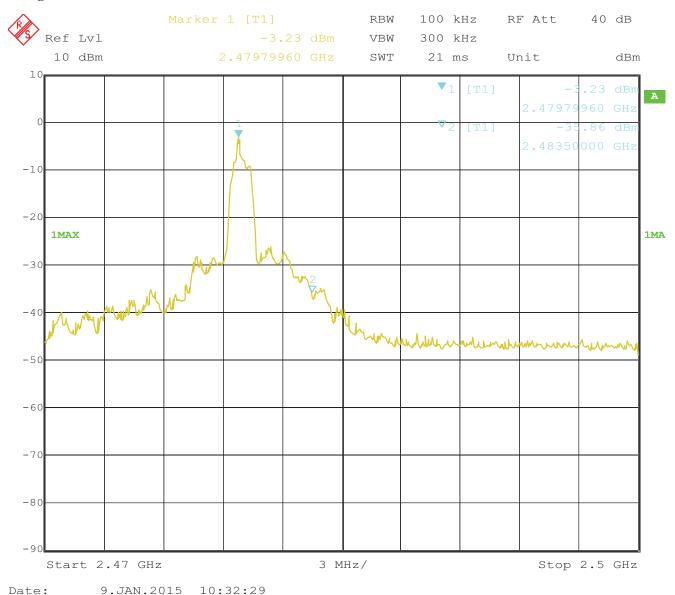


Type of Modulation: 8DPSK

12.4 Out of Band Test Result

Product:	Bluetooth speaker		Test Mode:	High Channel
Mode	Keeping Transmitting		Input Voltage	DC3.7V
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	РК
The Max. FS in	PK (dBµV/m) 38.2			74(dBµV/m)
Restrict Band	AV(dBµV/m)		Limit	54(dBµV/m)
2483.5MHz				

Test Figure:



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Type of Modulation: 8DPSK

Out of Band Test Result 12.4

Product:	Bl	uetooth speaker		Test Mode:	Hopping mode
Mode	Hopping On		Input Voltage	DC3.7V	
Temperature		24 deg. C,			56% RH
Test Result:		Pass		Detector	РК
The Max. FS in	PK (dBµV/m)	36.7	7		74(dBµV/m)
Restrict Band	$AV(dB\mu V/m)$			Limit	54(dBµV/m)
2390MHz					
est Figure:					
	Marker 1		RBW	100 kHz RF	Att 40 dB
Ref Lvl		-4.46 dBm	VBW	300 kHz	10
10 dBm 10	2.	40386774 GHz	SWT	21 ms Uni	t dBm
				▼1 [T1]	-4.46 dBm
0					40386774 GHz
Ĭ				▼2 [T1]	-34.87 dBm 4000000 GHz
1.0				▼ ₃ [T1]	400000 GHZ
-10					.39000000 GHz
-20 1MAX					11M
THAY					
-30					
					ên.
-40				. L Nb/	
	unner house has	- In In Internet	AL AMA LIA	manuth	
-50	And allow administry			*·····.	
-60					
-70					
-80					
-90			IHz/		Stop 2.41 GHz

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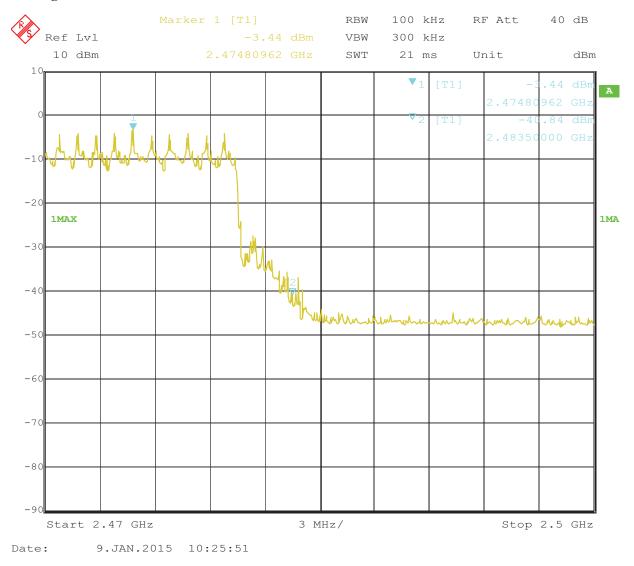


Type of Modulation: 8DPSK

12.4 Out of Band Test Result

Product:	Bluetooth speaker		Test Mode:	Hopping mode
Mode	Hopping On I		Input Voltage	DC3.7V
Temperature	24 deg. C, 1		Humidity	56% RH
Test Result:	Pass		Detector	РК
The Max. FS in	PK (dBµV/m)	37.8		74(dBµV/m)
Restrict Band	AV(dBµV/m)		Limit	54(dBµV/m)
2483.5MHz				

Test Figure:



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13.0 Antenna Requirement

13.1 Standard Applicable

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

13.2 Antenna Connected constructions

PCB Printed antenna used. The maximum Gain of the antennas is 0.0dBi.

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14.0 FCC ID Label

FCC ID: 2ADWNDSBT010

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

Mark Location:



FCC ID Label Location

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15.0 Photo of testing

Conducted Emission Test Setup:



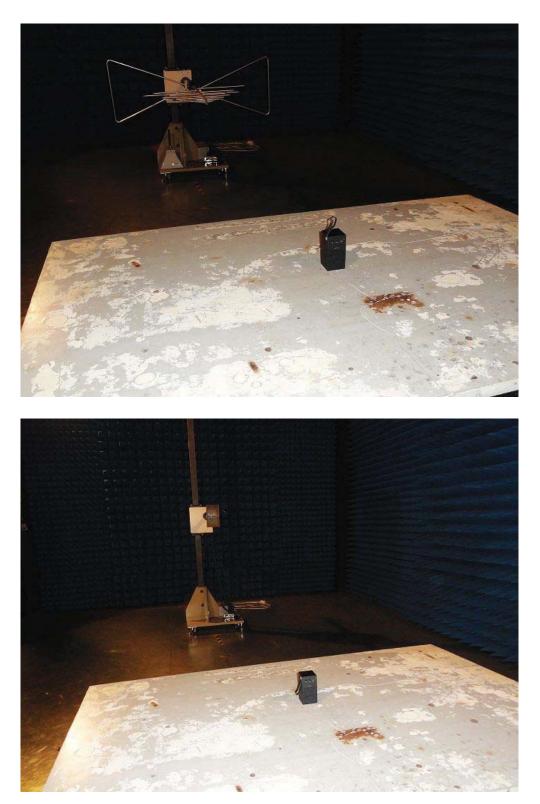
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Radiated Emission Test Setup:



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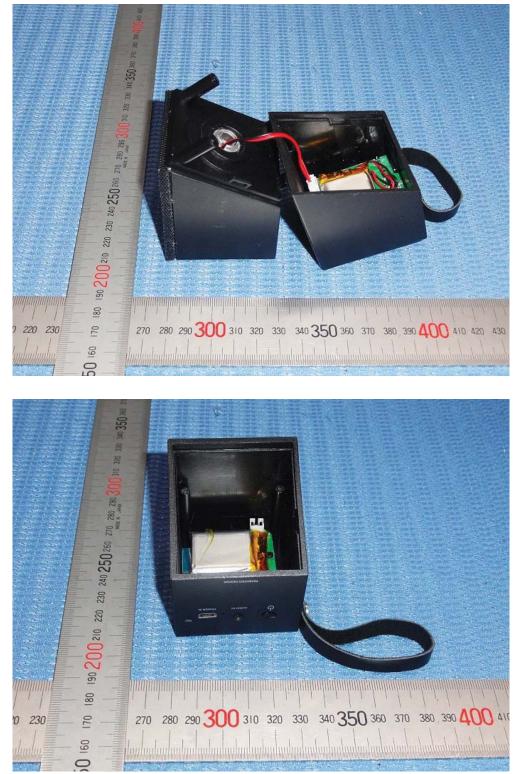


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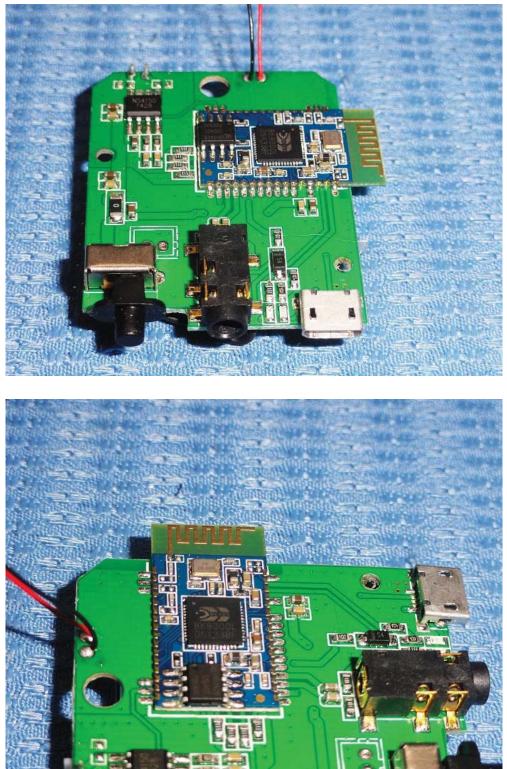


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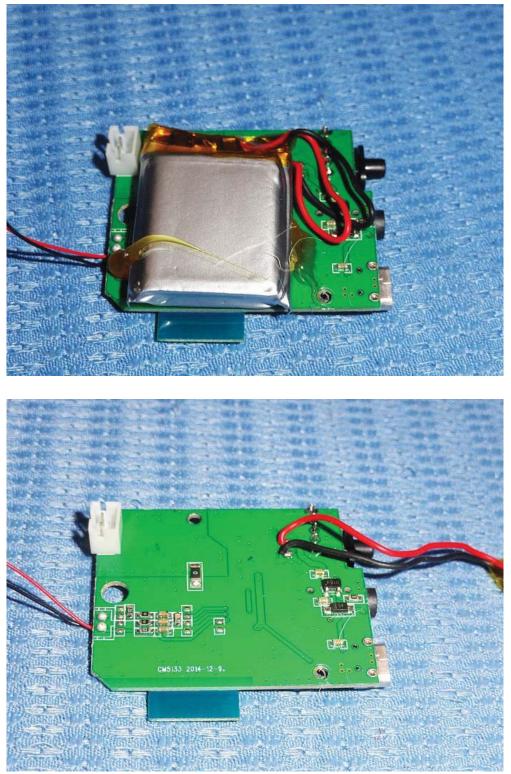


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