

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Report No: CCIS15080062502

FCC REPORT (BLE)

Applicant: DUBGEAR Inc.

Address of Applicant: 53 Burrows Ave. Etobicoke, Ontario, Canada. M9B 4W8.

Equipment Under Test (EUT)

Product Name: Bluetooth Speaker

Model No.: Dubstein

FCC ID: 2AFON-DUBSTEIN

Applicable standards: FCC CFR Title 47 Part 15 Subpart C Section 15.247

Date of sample receipt: 04 Aug., 2015

Date of Test: 04 Aug., 2015 to 31 Aug., 2015

Date of report issued: 31 Aug., 2015

Test Result: PASS *

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



Bruce Zhang Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the CCIS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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2 Version

Version No.	Date	Description
00	31 Aug., 2015	Original

Prepared by:	may liu	Date:	31 Aug., 2015
	Report Clerk		
Reviewed by:	Carrey Chen	Date:	31 Aug., 2015
	Project Engineer		

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4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203/15.247 (c)	Pass
AC Power Line Conducted Emission	15.207	Pass
Conducted Peak Output Power	15.247 (b)(3)	Pass
6dB Emission Bandwidth	15.247 (a)(2)	Pass
Power Spectral Density	15.247 (e)	Pass
Band Edge	15.247(d)	Pass
Spurious Emission	15.205/15.209	Pass

Pass: The EUT complies with the essential requirements in the standard.





5 General Information

5.1 Client Information

Applicant:	DUBGEAR Inc.
Address of Applicant:	53 Burrows Ave. Etobicoke, Ontario, Canada. M9B 4W8.
Manufacturer & Factory:	SHENZHEN SHI KISB ELECTRONIC CO., LTD
Address of Manufacturer & Factory:	3-5/F, A Building, Shanghe Industrial Park, Nanchang Road, Xixiang Town, Bao'an District, Shenzhen, Guangdong,518103 P.R.China

5.2 General Description of E.U.T.

Product Name:	Bluetooth Speaker
Model No.:	Dubstein
Operation Frequency:	2402-2480 MHz
Channel numbers:	40
Channel separation:	2 MHz
Modulation technology:	GFSK
Data speed :	1Mbps
Antenna Type:	Internal Antenna
Antenna gain:	0 dBi
Power supply:	Rechargeable Li-ion Battery DC3.7V-2200mAh





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

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency
The lowest channel	2402MHz
The middle channel	2442MHz
The Highest channel	2480MHz



Report No: CCIS15080062502

5.3 Test environment and mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Operation mode	Keep the EUT in continuous transmitting with modulation

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.

5.4 Description of Support Units

N/A

5.5 Laboratory Facility

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

• FCC - Registration No.: 817957

Shenzhen Zhongjian Nanfang Testing Co., Ltd. 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 out files. Registration 817957, February 27, 2012.

• IC - Registration No.: 10106A-1

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

• CNAS - Registration No.: CNAS L6048

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

5.6 Laboratory Location

Shenzhen Zhongjian Nanfang Testing Co., Ltd.

Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,

Bao'an District, Shenzhen, Guangdong, China

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5.7 Test Instruments list

Rad	Radiated Emission:					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	SAEMC	9(L)*6(W)* 6(H)	CCIS0001	08-23-2014	08-22-2017
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	03-28-2015	03-28-2016
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	03-28-2015	03-28-2016
4	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
5	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	04-01-2015	03-31-2016
6	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	04-01-2015	03-31-2016
7	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	04-01-2015	03-31-2016
8	Horn Antenna	ETS-LINDGREN	3160	GTS217	04-01-2015	03-31-2016
9	Printer	HP	HP LaserJet P1007	N/A	N/A	N/A
10	Positioning Controller	UC	UC3000	CCIS0015	N/A	N/A
11	Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	03-28-2015	03-28-2016
12	EMI Test Receiver	Rohde & Schwarz	ESRP	CCIS0167	03-28-2015	03-28-2016
13	Loop antenna	Laplace instrument	RF300	EMC0701	04-01-2015	03-31-2016
14	Signal Analyzer	Rohde & Schwarz	FSIQ3	CCIS0088	04-08-2015	04-08-2016

Con	Conducted Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)	
1	Shielding Room	ZhongShuo Electron	11.0(L)x4.0(W)x3.0(H)	CCIS0061	11-10-2012	11-09-2015	
2	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-28-2015	03-28-2016	
3	LISN	CHASE	MN2050D	CCIS0074	03-28-2015	03-28-2016	
4	Coaxial Cable	CCIS	N/A	CCIS0086	04-01-2015	03-31-2016	
5	EMI Test Software	AUDIX	E3	N/A	N/A	N/A	



6 Test results and Measurement Data

6.1 Antenna requirement:

Standard requirement:

FCC Part 15 C Section 15.203 /247(c)

15.203 requirement:

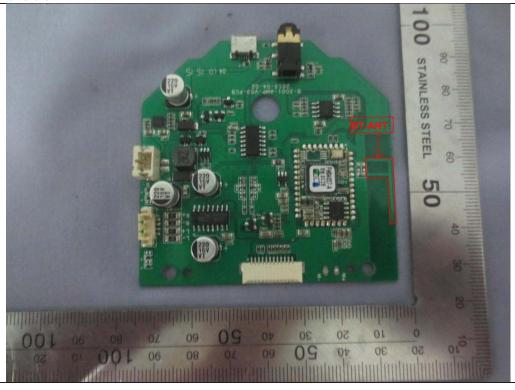
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The BLE antenna is an internal antenna which cannot replace by end-user, the best case gain of the antenna is 0 dBi.







6.2 Conducted Emission

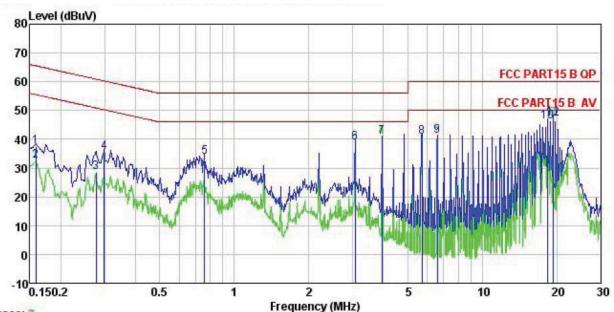
Test Method: ANSI C63.4: 2009 Test Frequency Range: Class Severity: Class B Receiver setup: RBW=9kHz, VBW=30kHz Limit: Frequency range (MHz) Ouasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 530 60 50 *Decreases with the logarithm of the frequency. Test procedure 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane Remark E.U.T Equipment Under Test LISN Imaginary Linder Test LISN Imaginary L	T. (D	500 D 145 0 0 11 45 00	7		
Test Frequency Range: Class J Severity: Class B Receiver setup: RBW=9kHz, VBW=30kHz Limit: Frequency range (MHz) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 *Decreases with the logarithm of the frequency. 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducter interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducter measurement. Test setup: Reference Plane	Test Requirement:	FCC Part 15 C Section 15.207	<u>'</u>		
Class B Receiver setup: RBW=9kHz, VBW=30kHz Limit: Frequency range (MHz) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 * Decreases with the logarithm of the frequency. 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducter interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducter measurement. Test setup: Reference Plane	Test Method:	ANSI C63.4: 2009			
Receiver setup: RBW=9kHz, VBW=30kHz Limit: Frequency range (MHz) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 * Decreases with the logarithm of the frequency. 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane Reference Plane Remark EUT Equipment Under Test LISN Line impedence Stabilization Network	Test Frequency Range:	150 kHz to 30 MHz			
Limit: Frequency range (MHz)	Class / Severity:	Class B			
Test procedure 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance for the measuring equipment. 3. Both sides of A.C. line are checked for maximum conducter interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane Reference Plane Remark E.U.T. Equipment Under Test LISN Line impedence Stabilization Network	Receiver setup:	RBW=9kHz, VBW=30kHz			
Test procedure 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane Regulipment Lish 40cm 80cm LISN Filter AC power EUT. Equipment Under Test LISN Line impedence Stabilization Network	Limit:	Fraguency range (MHz)	Limit (d	dBuV)	
Test procedure 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane		Quasi-peak Average			
* Decreases with the logarithm of the frequency. 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: **Reference Plane** **LISN** Lisn** Lisn** Lisn** Receiver** **Remark** E.U.T. Equipment Under Test Lisn** Lisn** Line impedence Stabilization Network**					
* Decreases with the logarithm of the frequency. 1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 500hm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main powe through a LISN that provides a 500hm/50uH coupling impedance with 500hm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane					
1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane Reference Plane Remark E.U.T LISN LISN Line Impedence Stabilization Network				50	
a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. 2. The peripheral devices are also connected to the main powe through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). 3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted measurement. Test setup: Reference Plane Reference Plane Requipment Under Test LISN LISN Equipment Under Test LISN Line impedence Stabilization Network					
LISN 40cm 80cm Filter AC power Equipment E.U.T EMI Receiver Remark: E.U.T: Equipment Under Test LISN: Line Impedence Stabilization Network	·	 a line impedance stabilization network (L.I.S.N.), which provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2009 on conducted 			
Test table height=0.8m	Test setup:	AUX Equipment Test table/Insulation pla Remark E.U.T. Equipment Under Test LISN: Line Impedence Stabilization	J.T EMI Receiver	er — AC power	
Test Instruments: Refer to section 5.7 for details	Test Instruments:	Refer to section 5.7 for details			
Test mode: Refer to section 5.3 for details	Test mode:	Refer to section 5.3 for details			
Test results: Passed	Test results:	Passed			

Measurement Data





Neutral:



Trace: 3

: CCIS Shielding Room : FCC PART15 B QP LISN NEUTRAL : Bluetooth Speaker : Dubstein Site Condition

EUT

Model Test Mode : BLE mode
Power Rating : AC 120/60Hz
Environment : Temp: 23 °C Huni:56% Atmos:101KPa
Test Engineer: YT

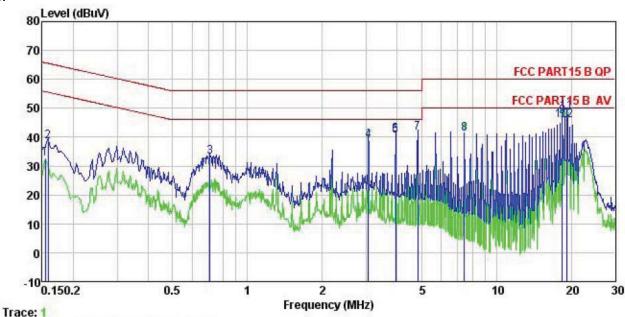
Remark

HOMELE	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
-	MHz	dBu∜	<u>dB</u>	₫B	dBu₹	dBu∀	<u>dB</u>	
1	0.158	26.35	0.25	10.78	37.38	65.56	-28.18	QP
2	0.158	21.45	0.25	10.78	32.48	55.56	-23.08	Average
3	0.277	17.42	0.26	10.74	28.42	50.90	-22.48	Average
4	0.299	24.66	0.26	10.74	35.66	60.28	-24.62	QP
1 2 3 4 5 6 7 8 9	0.759	22.69	0.19	10.80	33.68	56.00	-22.32	QP
6	3.074	27.61	0.29	10.92	38.82	46.00	-7.18	Average
7	3.943	29.79	0.29	10.89	40.97	46.00		Average
8	5.713	29.67	0.27	10.83	40.77	60.00	-19.23	QP
9	6.592	30.13	0.26	10.81	41.20	50.00	-8.80	Average
10	18.426	35.04	0.26	10.91	46.21	60.00	-13.79	QP
11	19.326	36.43	0.26	10.92	47.61	60.00	-12.39	QP
12	19.326	35.85	0.26	10.92	47.03	50.00	-2.97	Average





Line:



: CCIS Shielding Room : FCC PART15 B QP LISN LINE Site

Condition EUT : Bluetooth Speaker

Model : Dubstein Test Mode : BLE mode

Power Rating: AC 120/60Hz Environment: Temp: 23 °C Huni:56% Atmos:101KPa

Test Engineer: YT

Remark

Nemark								
	Freq	Read Level	LISN Factor	Cable Loss		Limit Line	Over Limit	Remark
	MHz	—dBu∀	<u>dB</u>		dBu∇	—dBu∇		
1_	0.154	21.45	0.27	10.78	32.50	55.78	-23.28	Average
1 2 3 4 5 6 7 8 9	0.158	27.46	0.27	10.78	38.51	65.56	-27.05	QP
3	0.708	22.31	0.22	10.77	33.30	56.00	-22.70	QP
4	3.058	27.71	0.27	10.92	38.90	46.00	-7.10	Average
5	3.943	29.35	0.28	10.89	40.52	56.00	-15.48	QP
6	3.943	29.78	0.28	10.89	40.95	46.00	-5.05	Average
7	4.822	30.26	0.29	10.86	41.41	56.00	-14.59	QP
8	7.446	29.91	0.32	10.82	41.05	50.00	-8.95	Average
9	18.426	35.84	0.33	10.91	47.08	60.00	-12.92	QP
10	18.426	34.53	0.33	10.91	45.77	50.00	-4.23	Average
11	19.224	37.41	0.34	10.92	48.67	60.00	-11.33	QP
12	19.224	34.69	0.34	10.92	45.95	50.00	-4.05	Average

Notes:

- 1. An initial pre-scan was performed on the live and neutral lines with peak detector.
- 2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
- 3. Final Level =Receiver Read level + LISN Factor + Cable Loss





6.3 Conducted Output Power

Test Requirement:	FCC Part 15 C Section 15.247 (b)(3)					
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 9.2.2					
Limit:	30dBm					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

Measurement Data

Test CH	Max PK Conducted Output Power (dBm)	Limit(dBm)	Result
Lowest	5.75		
Middle	6.41	30.00	Pass
Highest	5.89		

Test plot as follows:







6.4 Occupy Bandwidth

Test Requirement:	FCC Part 15 C Section 15.247 (a)(2)					
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 8.1					
Limit:	>500kHz					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

Measurement Data

Test CH	6dB Emission Bandwidth (MHz)	Limit(kHz)	Result
Lowest	0.782		
Middle	0.782	>500	Pass
Highest	0.776		

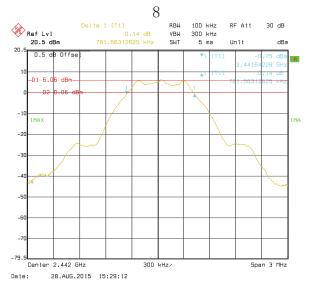
Test CH	99% Occupy Bandwidth (MHz)	Limit(kHz)	Result
Lowest	1.058		
Middle	1.058	N/A	N/A
Highest	1.058		

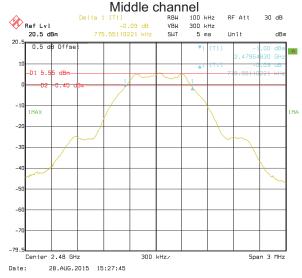
Test plot as follows:





Lowest channel

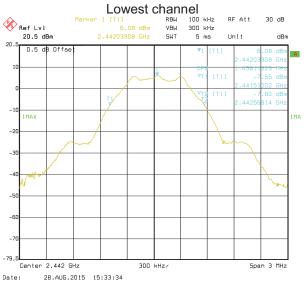


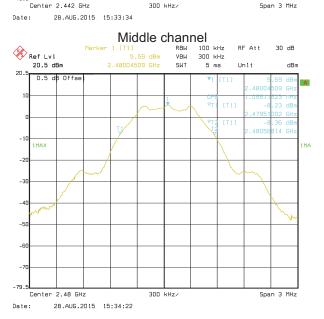


Highest channel









Highest channel





6.5 Power Spectral Density

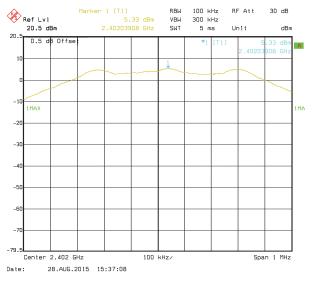
Test Requirement:	FCC Part 15 C Section 15.247 (e)					
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 10.2					
Limit:	8 dBm					
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

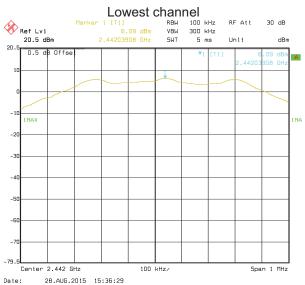
Measurement Data

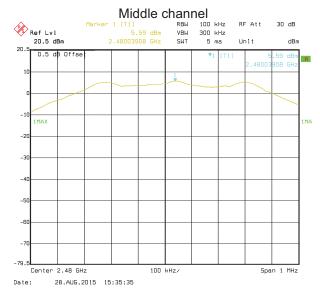
Test CH	Power Spectral Density (dBm)	Limit(dBm)	Result
Lowest	5.33		
Middle	6.09	8.00	Pass
Highest	5.59		

Test plots as follow:









Highest channel





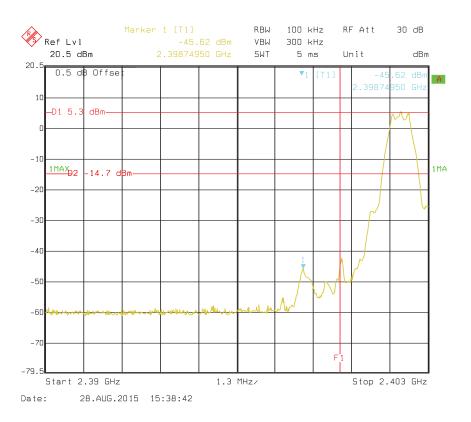
6.6 Band Edge

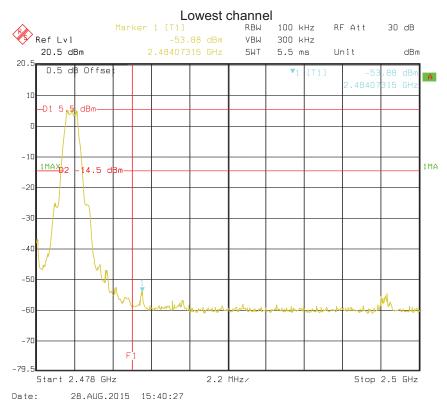
6.6.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)					
Test Method:	ANSI C63.10:2009 and KDB558074v03r03 section 13					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.					
Test setup:						
	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane					
Test Instruments:	Refer to section 5.7 for details					
Test mode:	Refer to section 5.3 for details					
Test results:	Passed					

Test plots as follow:







Highest channel





6.6.2 Radiated Emission Method

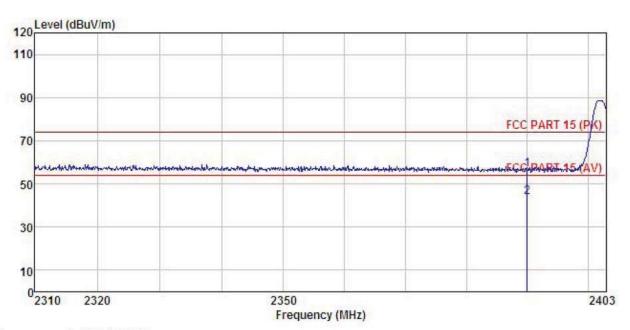
Test Requirement: FCC Part 15 C Section 15.209 and 15.205 Test Method: ANSI C63.10: 2009 and KDB 558074v03r03 section 12.1 Test site: Measurement Distance: 3m Receiver setup: Frequency Detector RBW VBW Remark Above 1GHz Peak 1MHz 3MHz Peak Value RMS 1MHz 3MHz Average Value Limit: Frequency Limit (dBuV/im @3m) Remark Above 1GHz Faw 100 Peak Value Faw 100 Peak Peak Peak Peak Peak Peak Peak Peak									
Test Frequency Range: Test site: Measurement Distance: 3m Frequency Detector RBW VBW Remark Above 1GHz RMS 1MHz 3MHz Peak Value RMS 1MHz 3MHz Average Value RMS 1MHz 3MHz Average Value Above 1GHz Frequency Limit (dBuV/m @3m) Remark Above 1GHz 74.00 Average Value Average Value Above 1GHz The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak value of the EUT would be reported. Otherwise the emissions the did not have 10 dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet. Test setup: Test Instruments: Refer to section 5.7 for details Refer to section 5.3 for details									
Test site: Receiver setup: Frequency Detector RBW VBW Remark Above 1GHz RMS 1MHz 3MHz Average Value Above 1GHz 74.00 Peak Value Average Value RMS Above 1GHz 74.00 Peak Value Average Value Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet. Test setup: Test Instruments: Refer to section 5.7 for details Refer to section 5.3 for det	Test Meth	od:	ANSI C63.10: 2	009 and KDB	558074v03r0	03 section 1	12.1		
Frequency	Test Frequ	uency Range:	2.3GHz to 2.5G	Hz					
Frequency Detector RBW VBW Remark Peak Value RMS 1MHz 3MHz Peak Value Average Value	Test site:		Measurement D	istance: 3m					
Limit: Frequency Limit (dBuV/m @3m) Remark Above 1GHz 54.00 Peak Value Frequency Limit (dBuV/m @3m) Remark Above 1GHz 54.00 Peak Value Frequency Limit (dBuV/m @3m) Remark Above 1GHz 74.00 Peak Value Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet. Test setup: Test setup: Refer to section 5.7 for details Refer to section 5.3 for details	Receiver s	setup:		Datastan	DDW	\/D\//	Damada		
Limit: Frequency					+				
Frequency Above 1GHz 54.00 Average Value 74.00 Peak Value Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.7 for details Refer to section 5.3 for details			Above 1GHz						
Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet. Test setup: Test Instruments: Refer to section 5.7 for details Refer to section 5.3 for details	Limit:								
Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.7 for details Refer to section 5.3 for details			Freque	ncy					
Test Procedure: 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was turned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasipeak or average method as specified and then reported in a data sheet. Test setup: Refer to section 5.7 for details Refer to section 5.3 for details			Above 1	GHz			-		
Test Instruments: Refer to section 5.7 for details Test mode: Refer to section 5.3 for details	Test Proce	edure:	 The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not 						
Test mode: Refer to section 5.3 for details	Test setup	D:	NOOM PRODUCTION OF THE PRODUCT	rntable) Ground	3en		wer		
	Test Instru	uments:	Refer to section 5.7 for details						
Test results: Passed	Test mode	e:	Refer to section	5.3 for details					
	Test result	ts:	Passed						





Test channel: Lowest

Horizontal:



Site : 3m chamber

: FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL Condition

EUT : Bluetooth Speaker

: Dubstein Model Test mode : BLE-L Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5 C Huni:55%

Test Engineer: YT REMARK :

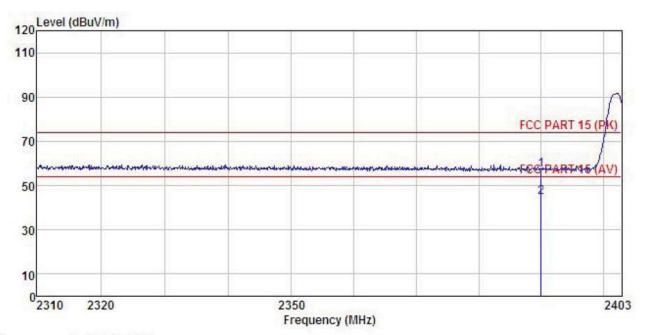
T HEAT	- 15: 		Antenna Factor						
	MHz	dBu∜		dB	<u>dB</u>	dBuV/m	dBuV/m	<u>dB</u>	
1 2	2390.000 2390.000								





Test channel: Lowest

Vertical:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL : Bluetooth Speaker Condition

EUT

Model : Dubstein Test mode : BLE-L Mode Power Rating : AC 120V/60Hz

Environment : Temp: 25.5°C Huni: 55%

Test Engineer: YT REMARK

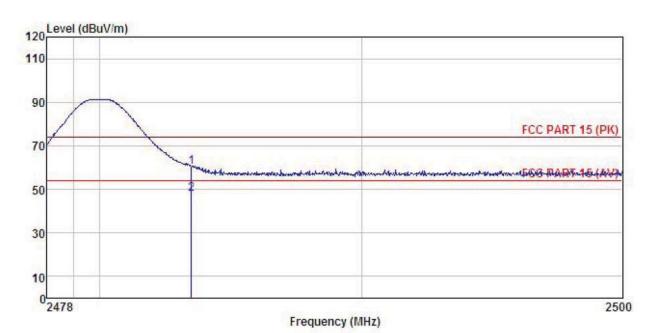
CIIIAI	r :	Read	Intenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
-	MHz	dBu∀			<u>dB</u>	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>	
1	2390.000	22.77	27.58	6.63	0.00	56.98	74.00	-17.02	Peak
2	2390,000	10.60	27.58	6.63	0.00	44.81	54.00	-9.19	Average





Test channel: Highest

Horizontal:



Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) HORIZONTAL Condition

: Bluetooth Speaker

Model : Dubstein
Test mode : BLE-H Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: YT
REMARK :

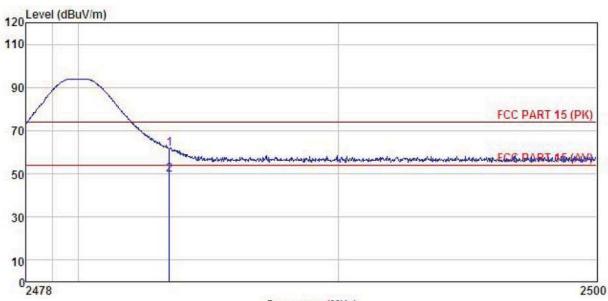
		Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
,	MHz	dBu∜	dB/m	<u>dB</u>	dB	dBu√/m	dBu√/m	<u>dB</u>	
1	2483.500	25.78	27.52	6.85	0.00	60.15	74.00	-13.85	Peak
2	2483.500	13.57	27.52	6.85	0.00	47.94	54.00	-6.06	Average





Test channel: Highest

Vertical:



Frequency (MHz)

Site

: 3m chamber : FCC PART 15 (PK) 3m BBHA9120(1G18) VERTICAL Condition

EUT : Bluetooth Speaker

Test mode : BLE-H Mode
Power Rating : AC 120V/60Hz
Environment : Temp:25.5°C Huni:55%
Test Engineer: YT
REMARK

REMARK

	Freq		Antenna Factor						
-	MHz	dBu₹	dB/m	d <u>B</u>	<u>dB</u>	dBuV/m	dBu√/m	dB	
	2483.500 2483.500								





6.7 Spurious Emission

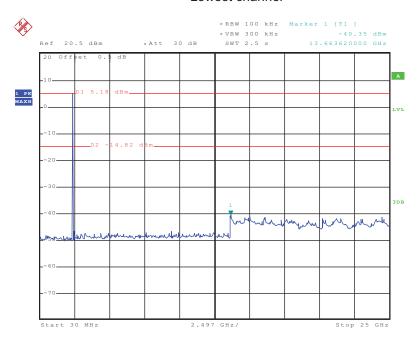
6.7.1 Conducted Emission Method

Test Requirement:	FCC Part 15 C Section 15.247 (d)						
Test Method:	ANSI C63.10:2009 and KDB558074 section 11						
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.						
Test setup:							
	Spectrum Analyzer E.U.T Non-Conducted Table						
Test Instruments:	Refer to section 5.7 for details						
Test mode:	Refer to section 5.3 for details						
Test results:	Passed						
rest resuits.	rasseu						

Test plot as follows:



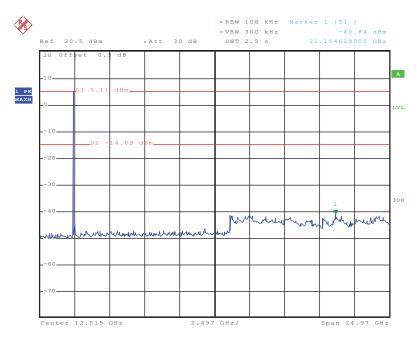
Lowest channel



Date: 28.AUG.2015 19:54:21

30MHz~25GHz

Middle channel



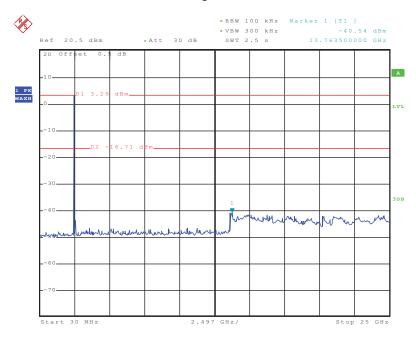
Date: 28.AUG.2015 19:56:08

30MHz~25GHz

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Highest channel



Date: 28.AUG.2015 20:00:08

30MHz~25GHz



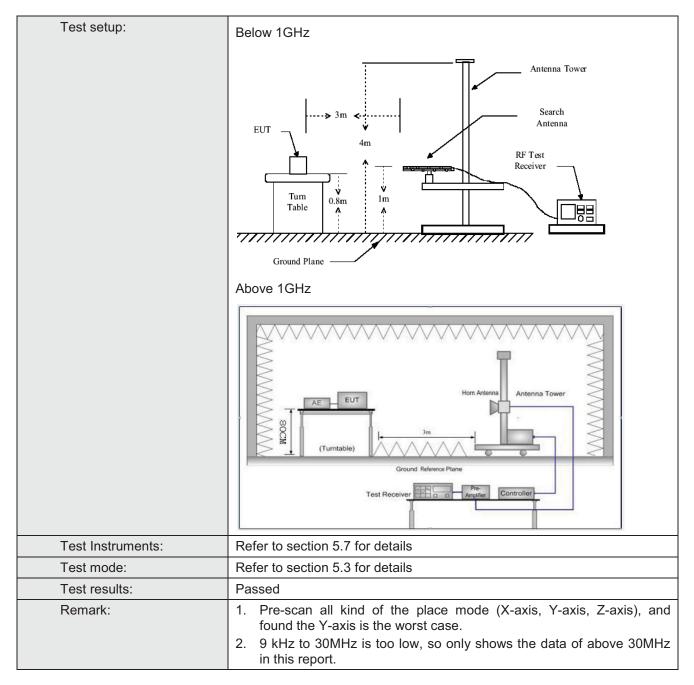


6.7.2 Radiated Emission Method

Test Requirement:	FCC Part 15 C Section 15.209 and 15.205							
Test Method:	ANSI C63.10:20	09						
Test Frequency Range:	9kHz to 25GHz							
Test site:	Measurement D	istance: 3m						
Receiver setup:								
	Frequency Detector RBW VBW Remark							
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value			
	Above 1GHz	Peak	1MHz	3MHz	Peak Value			
	Above IGIIZ	RMS	1MHz	3MHz	Average Value			
Limit:								
	Frequency		_imit (dBuV/m	@3m)	Remark			
	30MHz-88MHz		10.0		Quasi-peak Value			
	88MHz-216MHz		13.5		Quasi-peak Value			
	216MHz-960MH		16.0		Quasi-peak Value			
	960MHz-1GHz		54.0		Quasi-peak Value			
	Above 1GHz	_	54.0		Average Value			
			74.0		Peak Value			
Test Procedure:	the ground to determin 2. The EUT of antenna, we tower. 3. The antenre the ground Both horizon make the make the make the make the make to find the meters and to find the make the limit specified B for the EUT have 10 dB	at a 3 meter of the position was set 3 months was mounted and the position was mounted and the position and the rota table maximum reactions and width with sion level of the position would be reputation.	camber. The of the highes eters away for the maximum cal polarizate awas turned ling. In was set of Maximum He EUT in peresting could be orted. Other in the interest of the could be re-tested.	table was a st radiation. The incomposition of a variance meter to the important of the state of	le 0.8 meters above rotated 360 degrees terference-receiving able-height antenna of four meters above of the field strength, antenna are set to the franged to its worst is from 1 meter to 4 rees to 360 degrees etect. Function and as 10 dB lower than and the peak values in issions that did not e using peak, quasi-in reported in a data			





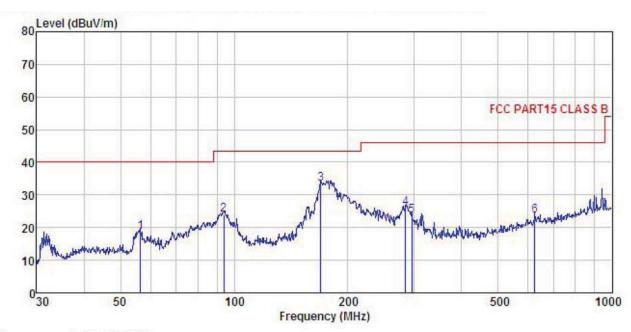






Below 1GHz

Horizontal:



Site

: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) HORIZONTAL Condition

EUT : Bluetooth Speaker

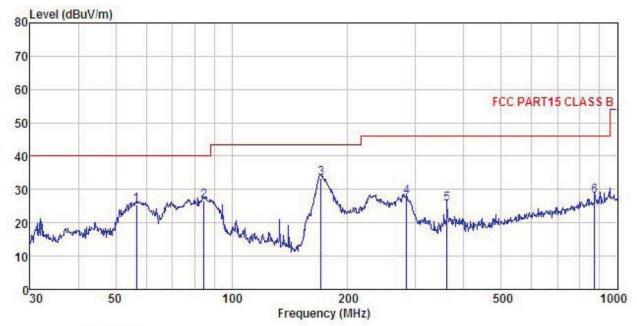
: Dubstein : BLE(TX)Mode Model Test mode Power Rating: AC 120V/60Hz
Environment: Temp:25.5°C Huni:55%
Test Engineer: YT
REMARK:

WWKK	:									
		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark	
-	MHz	dBu∜	$\overline{dB}/\overline{m}$		dB	$\overline{dBuV/m}$	$\overline{dBuV/m}$	<u>dB</u>		-
1	56.395	34.83	12.95	0.66	29.79	18.65	40.00	-21.35	QP	
1 2 3	93.768	39.88	12.58	0.93	29.56	23.83	43.50	-19.67	QP	
3	169.599	52.18	8.95	1.35	29.05	33.43	43.50	-10.07	QP	
4	283.979	39.98	12.75	1.72	28.48	25.97	46.00	-20.03	QP	
4 5	295.147	37.39	12.95	1.76	28.46	23.64	46.00	-22.36	QP	
6	625.078	31.32	18.54	2.71	28.86	23.71	46.00	-22.29	QP	





Vertical:



: 3m chamber : FCC PART15 CLASS B 3m VULB9163(30M1G) VERTICAL Site Condition

EUT : Bluetooth Speaker

Model : Dubstein Test mode : BLE(TX) Mode Power Rating : AC 120V/60Hz

Environment : Temp: 25.5°C Huni: 55%

Test Engineer: YT REMARK :

EMAKK									
	Freq		Antenna Factor				Limit Line	Over Limit	
-	MHz	dBu₹	$\overline{-}\overline{dB}/\overline{m}$	<u>d</u> B	dB	$\overline{dBuV/m}$	$\overline{dBuV/m}$	dB	
1	56.593	41.62	12.93	0.66	29.79	25.42	40.00	-14.58	QP
2	84.702	45.28	10.16	0.88	29.60	26.72	40.00	-13.28	QP
2	170.195	52.13	8.97	1.35	29.05	33.40	43.50	-10.10	QP
4	283.979	41.75	12.75	1.72	28.48	27.74	46.00	-18.26	QP
5	361.714	37.80	14.43	1.98	28.61	25.60	46.00	-20.40	QP
6	872.183	31.79	20.82	3.29	27.95	27.95	46.00	-18.05	QP



Above 1GHz

Т	Test channel:			Lowest		vel:	Peak		
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
4804.00	50.42	31.53	10.57	40.24	52.28	74.00	-21.72	Vertical	
4804.00	47.91	31.53	10.57	40.24	49.77	74.00	-24.23	Horizontal	

Т	Test channel:			Lowest		vel:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4804.00	40.53	31.53	10.57	40.24	42.39	54.00	-11.61	Vertical
4804.00	37.46	31.53	10.57	40.24	39.32	54.00	-14.68	Horizontal

Т	Test channel:			Middle		vel:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4884.00	53.54	31.58	10.66	40.15	53.02	74.00	-20.98	Vertical
4884.00	50.93	31.58	10.66	40.15	50.41	74.00	-23.59	Horizontal

Т	Test channel:			Middle		vel:	Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4884.00	45.39	31.58	10.66	40.15	47.48	54.00	-6.52	Vertical
4884.00	40.16	31.58	10.66	40.15	42.25	54.00	-11.75	Horizontal

Т	Test channel:			Highest		vel:	Peak	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	53.06	31.69	10.73	40.03	55.45	74.00	-18.55	Vertical
4960.00	52.81	31.69	10.73	40.03	55.20	74.00	-18.80	Horizontal

Test channel:			Highest		Level:		Average	
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
4960.00	46.36	31.69	10.73	40.03	48.75	54.00	-5.25	Vertical
4960.00	43.57	31.69	10.73	40.03	45.96	54.00	-8.04	Horizontal

Remark:

- 1. Final Level =Receiver Read level + Antenna Factor + Cable Loss Preamplifier Factor
- 2. The emission levels of other frequencies are very lower than the limit and not show in test report.

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