

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC144834

Page: 1 of 84

FCC Radio Test Report FCC ID: 2AFIH-BND501

Original Grant

Report No. : TB-FCC144834

Applicant: Brand New Days Limited

Equipment Under Test (EUT)

EUT Name : Bluetooth Wireless Speaker

Model No. : BND501 BOBBY

Series No. : N/A

Receipt Date : 2015-07-15

Test Date : 2015-07-15 to 2015-07-29

Issue Date : 2015-07-30

Standards : FCC Part 15: 2014, Subpart C(15.247)

Test Method : ANSI C63.10:2013

Conclusions : PASS

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

The EUT technically complies with the FCC requirements

Test/Witness Engineer :

Approved& Authorized :

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. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0



Contents

COI	NTENTS	2
1.	GENERAL INFORMATION ABOUT EUT	4
	1.1 Client Information	4
	1.2 General Description of EUT (Equipment Under Test)	
	1.3 Block Diagram Showing the Configuration of System Tested	
	1.4 Description of Support Units	6
	1.5 Description of Test Mode	6
	1.6 Description of Test Software Setting	7
	1.7 Measurement Uncertainty	7
	1.8 Test Facility	
2.	TEST SUMMARY	9
3.	TEST EQUIPMENT	10
4.	CONDUCTED EMISSION TEST	11
	4.1 Test Standard and Limit	11
	4.2 Test Setup	
	4.3 Test Procedure	
	4.4 EUT Operating Mode	12
	4.5 Test Data	
5.	RADIATED EMISSION TEST	21
	5.1 Test Standard and Limit	21
	5.2 Test Setup	
	5.3 Test Procedure	23
	5.4 EUT Operating Condition	24
	5.5 Test Data	24
6.	RESTRICTED BANDS REQUIREMENT	41
	6.1 Test Standard and Limit	41
	6.2 Test Setup	41
	6.3 Test Procedure	41
	6.4 EUT Operating Condition	42
	6.5 Test Data	42
7.	NUMBER OF HOPPING CHANNEL	55
	7.1 Test Standard and Limit	55
	7.2 Test Setup	55
	7.3 Test Procedure	55
	7.4 EUT Operating Condition	55
	7.5 Test Data	55
8.	AVERAGE TIME OF OCCUPANCY	57
	8.1 Test Standard and Limit	57
	8.2 Test Setup	57



Page: 3 of 84

11	8.3 Test Procedure	57
	8.4 EUT Operating Condition	
	8.5 Test Data	
9.	CHANNEL SEPARATION AND BANDWIDTH TEST	70
	9.1 Test Standard and Limit	70
	9.2 Test Setup	
	9.3 Test Procedure	70
	9.4 EUT Operating Condition	70
	9.5 Test Data	71
10.	PEAK OUTPUT POWER TEST	79
	10.1 Test Standard and Limit	79
	10.2 Test Setup	79
	10.3 Test Procedure	79
	10.4 EUT Operating Condition	79
	10.5 Test Data	80
11.	ANTENNA REQUIREMENT	84
	11.1 Standard Requirement	84
	11.2 Antenna Connected Construction	84



Page: 4 of 84

1. General Information about EUT

1.1 Client Information

Applicant : Brand New Days Limited

Address : Flat B, 6/F, Tong Yuen Factory Building, 505 Castle Peak Road, Lai

Chi Kok, Kowloon, Hongkong

Manufacturer : Shenzhen Casun Electronic Co, Ltd.

Address : 4/F, B Building, No.8 Eastern Zone, Shangxue Technology Park,

Bantian, ShenZhen, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Bluetooth Wireless Speake	er CONSTRUCTION
Models No.	lels No. : BND501 BOBBY		
Model Difference		N/A	
A LOND		Operation Frequency: Bluetooth:2402~2480MHz	LON LON
Product	W	Number of Channel:	Bluetooth:79 Channels see note (2)
Description	:	Max Peak Output Power:	GFSK: -0.56dBm
		Antenna Gain:	-0.68 dBi PCB Antenna
		Modulation Type:	GFSK 1Mbps(1 Mbps) π /4-DQPSK(2 Mbps)
Power Supply	:	DC Voltage supplied from Host System by USB cable DC power by Li-ion Battery	
Power Rating	-	DC 5V by USB Cable from PC system. DC 3.7V by Li-ion Battery.	
Connecting I/O Port(S)	:	Please refer to the User's	Manual

Note:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) This Test Report is FCC Part 15.247 for Bluetooth, and test procedure in accordance with Public Notice: DA 00-705.

(3) Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458



Page: 5 of 84

	ACIN T	ETITIES.	- 41		
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

(4) The Antenna information about the equipment is provided by the applicant.

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode	
	EUT



Page: 6 of 84

1.4 Description of Support Units

	Ea	uipment Informatio	on				
Name Model FCC ID/DOC Manufacturer Used "√"							
339	THE PARTY OF THE P		9 - 61	100			
		Cable Information					
Number	Number Shielded Type Ferrite Core Length Note						
			2 000				

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test		
Final Test Mode	Description	
Mode 1	USB Charging with TX GFSK Mode	

For Radiated Test		
Final Test Mode	Description	
Mode 1	USB Charging with TX GFSK Mode	
Mode 2	TX Mode(GFSK) Channel 00/39/78	
Mode 3	TX Mode(π /4-DQPSK) Channel 00/39/78	
Mode 4	Hopping Mode(GFSK)	
Mode 5	Hopping Mode(π /4-DQPSK)	

Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate. We have pretested all these test mode above.

According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

TX Mode: GFSK (1 Mbps)
TX Mode: π /4-DQPSK (2 Mbps)

(2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane as the normal use. Therefore only the test data of this X-plane was used for radiated emission measurement test.



Page: 7 of 84

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of Bluetooth mode.

Test Software Version	FCCAssist_1.4		
Frequency	2402 MHz	2441MHz	2480 MHz
GFSK	DEF	DEF	DEF
π /4-DQPSK	DEF	DEF	DEF

1.7 Measurement Uncertainty

The reported uncertainty of measurement y \pm U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U _{Lab})	
	Level Accuracy:		
Conducted Emission	9kHz~150kHz	±3.42 dB	
THU:	150kHz to 30MHz	±3.42 dB	
Dedicted Engineer	Level Accuracy:	14 CO 4D	
Radiated Emission	9kHz to 30 MHz	±4.60 dB	
Dadiated Emission	Level Accuracy:	±4.40 dB	
Radiated Emission	30MHz to 1000 MHz		
Dadiated Emission	Level Accuracy:	14 20 dB	
Radiated Emission	Above 1000MHz	±4.20 dB	



Page: 8 of 84

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

May 22, 2014 certificated by TUV Rheinland(China) Co., Ltd. with TUV certificate No.: UA 50282953 0001 and report No.: 17026822 002. The certificate is valid until the next scheduled audit or up to 18 months, at the discretion of TUV Rhineland.



Report No.: TB-FCC144834
Page: 9 of 84

Page:

2. Test Summary

	FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1					
Standard Section						
FCC	IC	Test Item	Judgment	Remark		
15.203		Antenna Requirement	PASS	N/A		
15.207	RSS-GEN 7.2.2	Conducted Emission	PASS	N/A		
15.205	RSS-Gen 7.2.3	Restricted Bands	PASS	N/A		
15.247(a)(1)	RSS 247 5.1 (2)	Hopping Channel Separation	PASS	N/A		
15.247(a)(1)	RSS 247 5.1 (4)	Dwell Time	PASS	N/A		
15.247(b)(1)	RSS 247 5.4 (2)	Peak Output Power	PASS	N/A		
15.247(b)(1)	RSS 247 5.1 (4)	Number of Hopping Frequency	PASS	N/A		
15.247(c)	RSS 247 5.5	Radiated Spurious Emission	PASS	N/A		
15.247(a)	RSS 247 5.1 (1)	99% Occupied Bandwidth & 20dB Bandwidth	PASS	99%OBW GFSK:942.00kHz π/4-DQPSK: 1230.00kHz		



Page: 10 of 84

3. Test Equipment

AC Main C	onducted Emis	ssion			
Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	ROHDE& SCHWARZ	ESCI	100321	Aug. 08, 2014	Aug. 07, 2015
50ΩCoaxial Switch	Anritsu	MP59B	X10321	Aug. 08, 2014	Aug. 07, 2015
L.I.S.N	Rohde & Schwarz	ENV216	101131	Aug. 08, 2014	Aug. 07, 2015
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 08, 2014	Aug. 07, 2015
Radiation Description	Spurious Emiss Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4407B	MY45106456	Sep. 01, 2014	Aug. 31, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 08, 2014	Aug.07, 2015
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Aug. 08, 2014	Aug.07, 2015
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 06, 2015	Mar.05, 2016
Pre-amplifier	Sonoma	310N	185903	Mar. 06, 2015	Mar.05, 2016
Pre-amplifier	HP	8447B	3008A00849	Mar. 06, 2015	Mar.05, 2016
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 06, 2015	Mar.05, 2016
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna C	onducted Emis	ssion			
Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Sep. 01, 2014	Aug. 31, 2015
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 08, 2014	Aug. 07, 2015



Page: 11 of 84

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard FCC 15.207

4.1.2 Test Limit

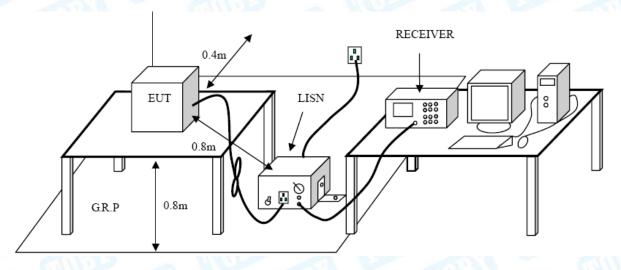
Conducted Emission Test Limit

Eroguanov	Maximum RF Line Voltage (dBμV)				
Frequency	Quasi-peak Level	Average Level			
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *			
500kHz~5MHz	56	46			
5MHz~30MHz	60	50			

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



Report No.: TB-FCC144834 Page: 12 of 84

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 EUT Operating Mode

Please refer to the description of test mode.

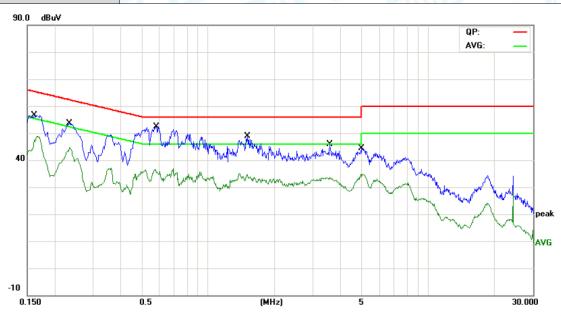
4.5 Test Data

Please see the next page.





EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY				
Temperature	: 25 °C	Relative Humidity:	55%				
Test Voltage:	: AC 120V/50 Hz		733				
Terminal:	Line	Line					
Test Mode:	AC Charging with TX GFS	AC Charging with TX GFSK Mode 2402 MHz					
Remark:	Only worse case is report	ed					
90.0 dp.M							

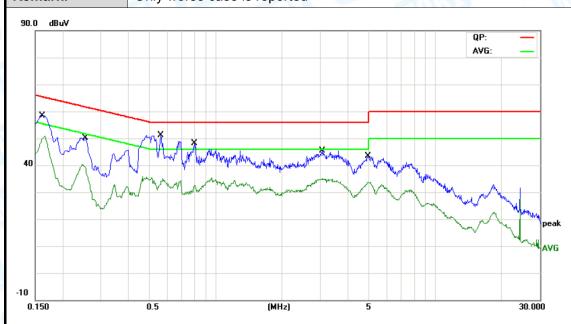


No. N	/lk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB	dBuV	dBu∀	dB	Detector
1	0.	1620	46.63	10.12	56.75	65.36	-8.61	QP
2	0.	1620	38.76	10.12	48.88	55.36	-6.48	AVG
3	0.	2340	43.58	10.11	53.69	62.30	-8.61	QP
4	0.	2340	34.61	10.11	44.72	52.30	-7.58	AVG
5 *	· 0.	5819	42.46	10.02	52.48	56.00	-3.52	QP
6	0.	5819	26.94	10.02	36.96	46.00	-9.04	AVG
7	1.	5100	38.65	10.11	48.76	56.00	-7.24	QP
8	1.	5100	24.96	10.11	35.07	46.00	-10.93	AVG
9	3.	5739	35.86	10.06	45.92	56.00	-10.08	QP
10	3.	5739	23.59	10.06	33.65	46.00	-12.35	AVG
11	4.	9939	34.31	10.06	44.37	56.00	-11.63	QP
12	4.	9939	24.75	10.06	34.81	46.00	-11.19	AVG





EUT: **BND501 BOBBY** Bluetooth Wireless Speaker **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% AC 120V/50 Hz **Test Voltage:** Terminal: Neutral **Test Mode:** AC Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported

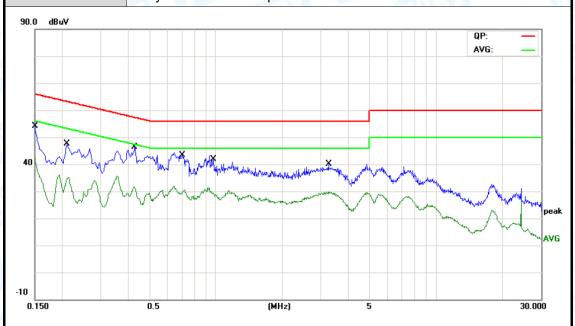


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector
1		0.1620	48.21	10.12	58.33	65.36	-7.03	QP
2	*	0.1620	40.75	10.12	50.87	55.36	-4.49	AVG
3		0.2540	40.09	10.10	50.19	61.62	-11.43	QP
4		0.2540	29.90	10.10	40.00	51.62	-11.62	AVG
5		0.5620	41.16	10.02	51.18	56.00	-4.82	QP
6		0.5620	25.00	10.02	35.02	46.00	-10.98	AVG
7		0.7980	38.00	10.07	48.07	56.00	-7.93	QP
8		0.7980	22.67	10.07	32.74	46.00	-13.26	AVG
9		3.0579	35.36	10.06	45.42	56.00	-10.58	QP
10		3.0579	24.96	10.06	35.02	46.00	-10.98	AVG
11		4.9298	33.39	10.06	43.45	56.00	-12.55	QP
12		4.9298	23.68	10.06	33.74	46.00	-12.26	AVG

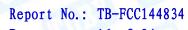




EUT: **BND501 BOBBY** Bluetooth Wireless Speaker **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% AC 120V/60 Hz **Test Voltage:** Terminal: Line **Test Mode:** AC Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported



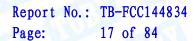
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBu∀	dB	dBuV	dBuV	dB	Detector
1	0.1500	38.13	10.12	48.25	65.99	-17.74	QP
2 *	0.1500	30.75	10.12	40.87	55.99	-15.12	AVG
3	0.2100	30.61	10.12	40.73	63.20	-22.47	QP
4	0.2100	24.92	10.12	35.04	53.20	-18.16	AVG
5	0.4260	31.67	10.04	41.71	57.33	-15.62	QP
6	0.4260	21.03	10.04	31.07	47.33	-16.26	AVG
7	0.7019	27.81	10.02	37.83	56.00	-18.17	QP
8	0.7019	19.59	10.02	29.61	46.00	-16.39	AVG
9	0.9740	24.40	10.15	34.55	56.00	-21.45	QP
10	0.9740	18.31	10.15	28.46	46.00	-17.54	AVG
11	3.2580	24.00	10.06	34.06	56.00	-21.94	QP
12	3.2580	18.72	10.06	28.78	46.00	-17.22	AVG
							-





Page: 16 of 84

UT:	Blueto	oth Wireless S	Speaker	Model Name	:	BND501	BOBBY
emperature:	25 ℃			Relative Hum	nidity:	55%	HALL
est Voltage:	AC 1	20V/60 Hz			a	CAST.	
erminal:	Neutr	al	(UII)		1 1/1		1
est Mode:	AC C	harging with	TX GFSK	Mode 2402 N	ЛHz	- 1	Milion
Remark:	Only	worse case	is reported	The second	- TOTO	27	
90.0 dBuV							
						QP: AVG:	
×	X						+
40	Not Market	May to make the state of the st	الساد السامة	ware the ware	X		
Λ		ANT CAST THE	n mare this highway		water and production	many	What I
	N (VV.	, M. M. V.	and and freely solved filter for any office of the	~ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	None	ANT WAR	pe per
							AV
0.150	0.5		(MHz)	5			30.000
		D 1"					
				R A			
No Mk	Frea	Reading Level	Correct	Measure- ment	Limit	O∨er	
No. Mk.	Freq.	Level	Factor	ment			Detector
	MHz	Level dBuV	Factor dB	ment dBuV	dBuV	dB	
1	MHz 0.1500	dBuV 37.67	Factor dB 10.12	ment dBuV 47.79	dBu∨ 65 .99	dB -18.20	QP
1 2 *	MHz 0.1500 0.1500	dBuV 37.67 30.25	## Factor dB 10.12 10.12	ment dBu∀ 47.79 40.37	dBu∨ 65.99 55.99	dB -18.20 -15.62	QP AVG
1	0.1500 0.1500 0.2340	dBuV 37.67 30.25 27.97	Factor dB 10.12 10.12 10.11	ment dBuV 47.79	dBuV 65.99 55.99 62.30	dB -18.20 -15.62 -24.22	QP AVG QP
1 2 *	MHz 0.1500 0.1500	dBuV 37.67 30.25	## Factor dB 10.12 10.12	ment dBu∀ 47.79 40.37	dBuV 65.99 55.99 62.30	dB -18.20 -15.62	AVG
1 2 * 3	0.1500 0.1500 0.2340	dBuV 37.67 30.25 27.97	Factor dB 10.12 10.12 10.11	ment dBu∀ 47.79 40.37 38.08	dBuV 65.99 55.99 62.30 52.30	dB -18.20 -15.62 -24.22	QP AVG QP
1 2 * 3 4	0.1500 0.1500 0.2340 0.2340	dBuV 37.67 30.25 27.97 13.98	Factor dB 10.12 10.12 10.11 10.11	ment dBuV 47.79 40.37 38.08 24.09	dBuV 65.99 55.99 62.30 52.30 57.33	dB -18.20 -15.62 -24.22 -28.21	QP AVG QP AVG
1 2 * 3 4 5	0.1500 0.1500 0.2340 0.2340 0.4260	dBuV 37.67 30.25 27.97 13.98 31.20	Factor dB 10.12 10.12 10.11 10.11 10.04	ment dBuV 47.79 40.37 38.08 24.09 41.24	dBuV 65.99 55.99 62.30 52.30 57.33 47.33	dB -18.20 -15.62 -24.22 -28.21 -16.09	QP AVG QP AVG
1 2 * 3 4 5 6 7	0.1500 0.1500 0.2340 0.2340 0.4260 0.4260 0.9620	Level dBu√ 37.67 30.25 27.97 13.98 31.20 20.24 25.67	Factor dB 10.12 10.12 10.11 10.11 10.04 10.04 10.14	ment dBuV 47.79 40.37 38.08 24.09 41.24 30.28 35.81	dBuV 65.99 55.99 62.30 52.30 57.33 47.33	-18.20 -15.62 -24.22 -28.21 -16.09 -17.05 -20.19	QP AVG QP AVG QP AVG
1 2 * 3 4 5 6 7 8	0.1500 0.1500 0.2340 0.2340 0.4260 0.4260 0.9620 0.9620	Level dBu∀ 37.67 30.25 27.97 13.98 31.20 20.24 25.67 18.24	Factor dB 10.12 10.12 10.11 10.11 10.04 10.04 10.14	ment dBuV 47.79 40.37 38.08 24.09 41.24 30.28 35.81 28.38	dBuV 65.99 55.99 62.30 52.30 57.33 47.33 56.00 46.00	-18.20 -15.62 -24.22 -28.21 -16.09 -17.05 -20.19 -17.62	QP AVG QP AVG QP AVG
1 2 * 3 4 5 6 7 8 9	0.1500 0.1500 0.2340 0.2340 0.4260 0.4260 0.9620 0.9620 3.5220	Level dBuV 37.67 30.25 27.97 13.98 31.20 20.24 25.67 18.24 22.62	Factor dB 10.12 10.12 10.11 10.11 10.04 10.04 10.14 10.14 10.06	ment dBuV 47.79 40.37 38.08 24.09 41.24 30.28 35.81 28.38 32.68	dBuV 65.99 55.99 62.30 57.33 47.33 56.00 46.00	-18.20 -15.62 -24.22 -28.21 -16.09 -17.05 -20.19 -17.62 -23.32	QP AVG QP AVG QP AVG
1 2 * 3 4 5 6 7 8 9 10	MHz 0.1500 0.1500 0.2340 0.2340 0.4260 0.4260 0.9620 0.9620 3.5220 3.5220	Level dBuV 37.67 30.25 27.97 13.98 31.20 20.24 25.67 18.24 22.62 17.42	Factor dB 10.12 10.12 10.11 10.11 10.04 10.04 10.14 10.06 10.06	ment dBuV 47.79 40.37 38.08 24.09 41.24 30.28 35.81 28.38 32.68 27.48	dBuV 65.99 55.99 62.30 57.33 47.33 56.00 46.00 46.00	dB -18.20 -15.62 -24.22 -28.21 -16.09 -17.05 -20.19 -17.62 -23.32 -18.52	QP AVG QP AVG QP AVG
1 2 * 3 4 5 6 7 8 9	0.1500 0.1500 0.2340 0.2340 0.4260 0.4260 0.9620 0.9620 3.5220	Level dBuV 37.67 30.25 27.97 13.98 31.20 20.24 25.67 18.24 22.62	Factor dB 10.12 10.12 10.11 10.11 10.04 10.04 10.14 10.14 10.06	ment dBuV 47.79 40.37 38.08 24.09 41.24 30.28 35.81 28.38 32.68	dBuV 65.99 55.99 62.30 57.33 47.33 56.00 46.00 46.00	-18.20 -15.62 -24.22 -28.21 -16.09 -17.05 -20.19 -17.62 -23.32	QP AVG QP AVG QP AVG QP





EUT: Bluetooth Wireless Speaker Model Name: BND501 BOBBY

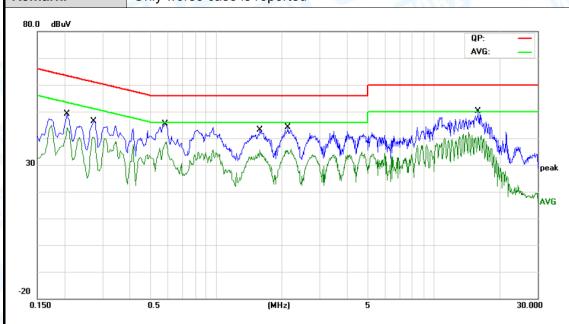
Temperature: 25 ℃ Relative Humidity: 55%

Test Voltage: AC 240V/50 Hz

Terminal: Line

Test Mode: AC Charging with TX GFSK Mode 2402 MHz

Remark: Only worse case is reported

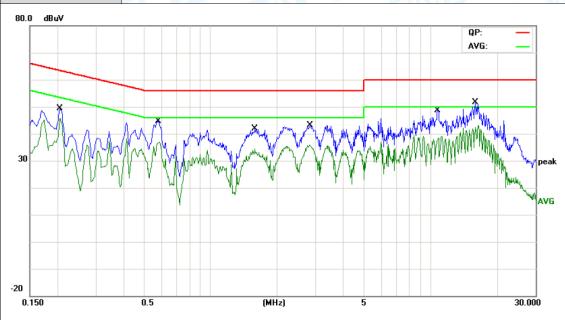


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB	dBu∀	dBu∀	dB	Detector
1		0.2058	39.12	10.02	49.14	63.37	-14.23	QP
2		0.2058	33.92	10.02	43.94	53.37	-9.43	AVG
3		0.2740	36.39	10.02	46.41	60.99	-14.58	QP
4		0.2740	30.39	10.02	40.41	50.99	-10.58	AVG
5		0.5818	35.21	10.06	45.27	56.00	-10.73	QP
6	*	0.5818	28.53	10.06	38.59	46.00	-7.41	AVG
7		1.5859	33.09	10.06	43.15	56.00	-12.85	QP
8		1.5859	25.48	10.06	35.54	46.00	-10.46	AVG
9		2.1339	33.99	10.06	44.05	56.00	-11.95	QP
10		2.1339	25.89	10.06	35.95	46.00	-10.05	AVG
11		16.0059	39.84	10.24	50.08	60.00	-9.92	QP
12		16.0059	30.97	10.24	41.21	50.00	-8.79	AVG





EUT: **BND501 BOBBY** Bluetooth Wireless Speaker **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% AC 240V/50 Hz **Test Voltage:** Terminal: Neutral **Test Mode:** AC Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported

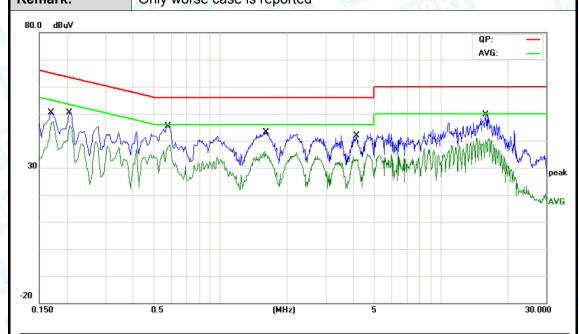


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBu∨	dB	dBu∀	dBu∨	dB	Detector
1	0.2059	39.27	10.12	49.39	63.37	-13.98	QP
2	0.2059	35.51	10.12	45.63	53.37	-7.74	AVG
3	0.5779	34.58	10.02	44.60	56.00	-11.40	QP
4	0.5779	26.77	10.02	36.79	46.00	-9.21	AVG
5	1.5859	31.86	10.10	41.96	56.00	-14.04	QP
6	1.5859	24.19	10.10	34.29	46.00	-11.71	AVG
7	2.8260	33.06	10.06	43.12	56.00	-12.88	QP
8	2.8260	25.79	10.06	35.85	46.00	-10.15	AVG
9	10.7499	38.38	10.15	48.53	60.00	-11.47	QP
10	10.7499	28.96	10.15	39.11	50.00	-10.89	AVG
11	16.0059	41.61	10.06	51.67	60.00	-8.33	QP
12 *	16.0059	33.13	10.06	43.19	50.00	-6.81	AVG

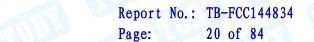




EUT: **BND501 BOBBY** Bluetooth Wireless Speaker **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% AC 240V/60 Hz **Test Voltage:** Terminal: Line **Test Mode:** AC Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported

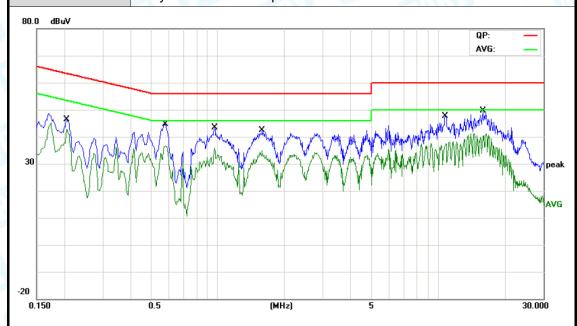


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB	dBuV	dBu∨	dB	Detector
1		0.1700	40.26	10.12	50.38	64.96	-14.58	QP
2		0.1700	37.08	10.12	47.20	54.96	-7.76	AVG
3		0.2058	40.26	10.12	50.38	63.37	-12.99	QP
4		0.2058	35.19	10.12	45.31	53.37	-8.06	AVG
5		0.5778	35.31	10.02	45.33	56.00	-10.67	QP
6	*	0.5778	28.44	10.02	38.46	46.00	-7.54	AVG
7		1.6019	33.11	10.10	43.21	56.00	-12.79	QP
8		1.6019	26.02	10.10	36.12	46.00	-9.88	AVG
9		4.1417	31.94	10.06	42.00	56.00	-14.00	QP
10		4.1417	24.13	10.06	34.19	46.00	-11.81	AVG
11		16.0537	39.55	10.06	49.61	60.00	-10.39	QP
12		16.0537	30.83	10.06	40.89	50.00	-9.11	AVG





EUT: **BND501 BOBBY** Bluetooth Wireless Speaker **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% AC 240V/60 Hz **Test Voltage:** Terminal: Neutral **Test Mode:** AC Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB	dBuV	dBu∀	dB	Detector
1		0.2058	36.27	10.12	46.39	63.37	-16.98	QP
2		0.2058	32.51	10.12	42.63	53.37	-10.74	AVG
3		0.5777	34.58	10.02	44.60	56.00	-11.40	QP
4		0.5777	26.55	10.02	36.57	46.00	-9.43	AVG
5		0.9657	33.18	10.14	43.32	56.00	-12.68	QP
6		0.9657	25.69	10.14	35.83	46.00	-10.17	AVG
7		1.5859	32.36	10.10	42.46	56.00	-13.54	QP
8		1.5859	24.69	10.10	34.79	46.00	-11.21	AVG
9		10.7499	37.38	10.15	47.53	60.00	-12.47	QP
10		10.7499	27.96	10.15	38.11	50.00	-11.89	AVG
11		16.0059	39.61	10.06	49.67	60.00	-10.33	QP
12	*	16.0059	31.13	10.06	41.19	50.00	-8.81	AVG



Page: 21 of 84

5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard FCC 15.209

5.1.2 Test Limit

Radiated Emission Limit (9 kHz~1000MHz)

Frequency (MHz	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Radiated Emission Limit (Above 1000MHz)

Frequency	(dBuV/m)(at 3m)			
(MHz)	Peak	Average		
Above 1000	74	54		

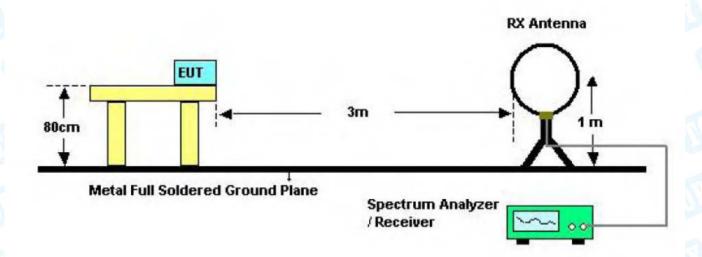
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m)

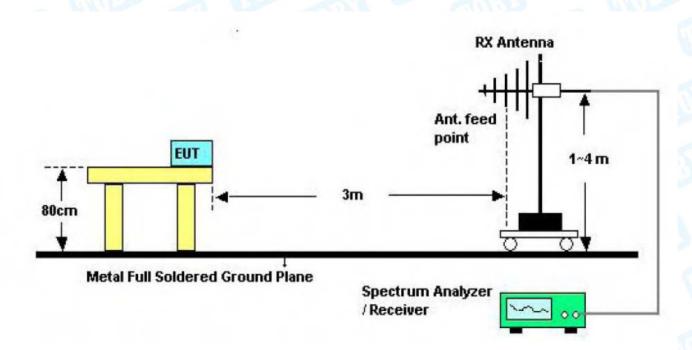


Page: 22 of 84

5.2 Test Setup



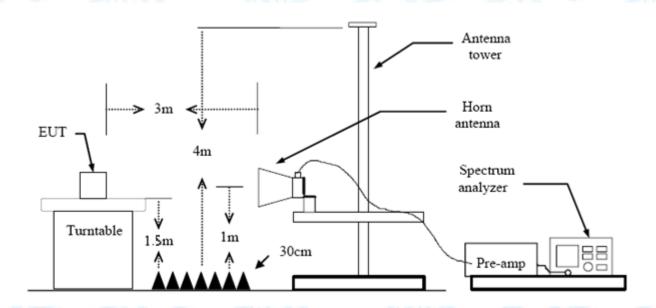
Bellow 30MHz Test Setup



Bellow 1000MHz Test Setup



Page: 23 of 84



Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.



Report No.: TB-FCC144834 Page: 24 of 84

Page: 24 of

5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power in TX mode.

5.5 Test Data

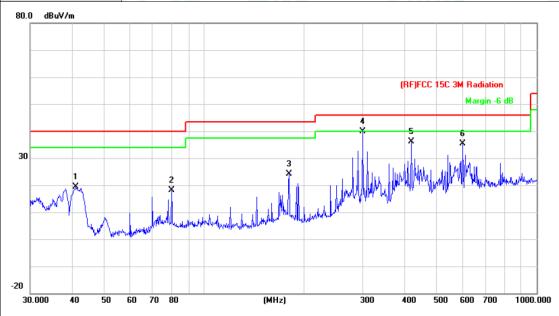
Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=1 KHz with Peak Detector for Average Values.

Test data please refer the following pages.



Page: 25 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY					
Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	DC 5V		187					
Ant. Pol.	Horizontal	N Comments						
Test Mode:	TX GFSK Mode 2402MH	TX GFSK Mode 2402MHz						
Remark:	Only worse case is reported							



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		41.1320	39.94	-20.64	19.30	40.00	-20.70	peak
2		79.8003	41.37	-23.28	18.09	40.00	-21.91	peak
3		180.0165	44.82	-20.57	24.25	43.50	-19.25	peak
4	*	299.3158	56.87	-17.10	39.77	46.00	-6.23	peak
5		420.5803	48.98	-12.90	36.08	46.00	-9.92	peak
6		599.3212	44.81	-9.48	35.33	46.00	-10.67	peak

^{*:}Maximum data x:Over limit !:over margin



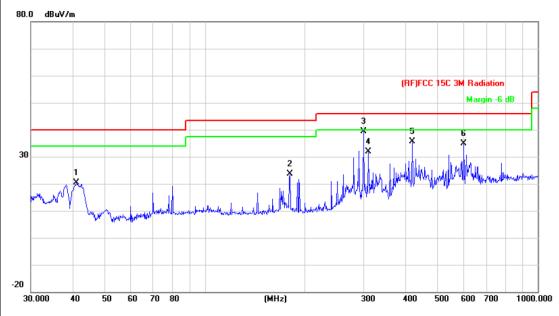
Page: 26 of 84

EUT:	Bluetooth Wireless Speaker Model Name :			BND501 BOBBY				
Temperature:	25 °C Relative Humidity:					55%		
Гest Voltage:	DC 5\	V		TEND				
Ant. Pol.	Vertic	al	a W		1			
Test Mode:	TX GI	FSK Mode	2402MH	Z	33	- W	Miles.	
Remark:	Only	worse case	e is repor	ted		3.1		
80.0 dBuV/m								
30 1 2						C 15C 3M Radiatio		
	may problem house	3 ************************************	t Action with		MANAMAN X	Warthand Wild War	ry and the	
20 30.000 40 50	60 70	3 3 3 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	(мнг		00 400	500 600 700		
30.000 40 50	60 70 eq.	w/hw/\	(MHz Correc	ct Measure	00 400			
30.000 40 50	eq.	80 Reading	Corre	ct Measure	00 400	500 600 700 Over		
30.000 40 50 No. Mk. Fr	eq .	Reading Level	Corre Facto	ct Measure or ment dBuV/m	00 400 Limit	500 600 700 Over	1000.00	
No. Mk. Fr	eq. ⊬z 541	Reading Level	Corre Facto	ot Measure or ment dBuV/m 3 26.38	00 400 Limit	Over dB 0 -13.62	Detecto	
No. Mk. Fr	eq. Hz 541 347	Reading Level dBuV 44.21	Correct Factor dB/m	dBuV/m 3 26.38 2 24.72	00 400 Limit dBuV/r 40.00	Over m dB 0 -13.62 0 -15.28	Detector peak	
No. Mk. Fr M 1 * 36.2 2 40.1	eq. Hz 541 347 870	Reading Level dBuV 44.21 44.94	Correct Factor dB/m -17.83	dBuV/m 3 26.38 2 24.72 5 21.71	Limit 40.00 40.00	Over m dB 0 -13.62 0 -21.79	Detector peak peak	
No. Mk. Fr Mi 1 * 36.2 2 40.1 3 92.7	eq. Hz 541 347 870 3875	Reading Level dBuV 44.21 44.94 44.16	Correct Factor dB/m -17.83 -20.22 -22.45	dBuV/m 3 26.38 2 24.72 5 21.71 6 19.40	Limit dBuV/r 40.00 43.50	Over m dB 0 -13.62 0 -15.28 0 -21.79 0 -24.10	Detecto peak peak peak	



Page: 27 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 5V		133				
Ant. Pol.	Horizontal	N Control					
Test Mode:	TX π /4-DQPSK Mode 2402MHz						
Remark:	Only worse case is reported						



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		41.1319	40.94	-20.64	20.30	40.00	-19.70	peak
2		180.0165	44.32	-20.57	23.75	43.50	-19.75	peak
3	*	299.3158	56.37	-17.10	39.27	46.00	-6.73	peak
4		309.9977	48.62	-16.70	31.92	46.00	-14.08	peak
5		420.5803	48.49	-12.91	35.58	46.00	-10.42	peak
6		599.3211	44.31	-9.48	34.83	46.00	-11.17	peak

^{*:}Maximum data x:Over limit !:over margin



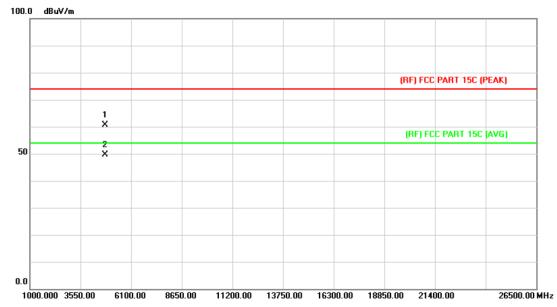
Page: 28 of 84

UT:	Bluetoot	h Wireless Speake	Model Name	:	BND501 BO	BBY
emperature:	erature: 25 °C Relative Humidity:					4
est Voltage:		- N	19.77			
nt. Pol.	0.00	6.83				
est Mode:	TX π /4	-DQPSK Mode	2402MHz	3 6		1777
emark:	Only wo	orse case is rep	orted		O BA	
80.0 dBuV/m						
30 1 2 3		4 *	5	6	15C 3M Radiation Margin -6	
20 20 40 50	50 70 8				500 S00 Z00	
30.000 40 50			4Hz) 300		600 600 700	1000.0
30.000 40 50		Reading Cor	4Hz) 300			
30.000 40 50 No. Mk. Fr	F	Reading Cor	rect Measure- ctor ment	400 5	000 600 700 Over	
30.000 40 50 No. Mk. Fr	Feq.	Reading Cor Level Fac	rect Measure- ctor ment	400 5 Limit	000 600 700 Over	1000.0
No. Mk. Fr	Feq. Hz	Reading Cor Level Fac	rect Measure- ctor ment dBuV/m .83 26.88	400 5 Limit dBuWm	000 600 700 Over	1000.0
No. Mk. Fr	Feq. Hz 2541 347	Reading Cor Level Fac dBuV dB/ 44.71 -17.	rect Measure- ctor ment dBuV/m 83 26.88 .22 25.22	400 5 Limit dBuV/m 40.00	Over dB -13.12	1000.0
No. Mk. Fr M 1 * 36.2 2 40.1	Feq. Hz 2541 347 (496	Reading Corn Level Face dBuV dB/ 44.71 -17. 45.44 -20.	rect Measure- ctor ment dBuV/m .83 26.88 .22 25.22 .32 23.98	400 5 Limit dBuV/m 40.00 40.00	Over dB -13.12 -14.78	Detection peal peal
No. Mk. Fr M 1 * 36.2 2 40.1 3 42.7 4 92.7	Feq. Hz 2541 347 496	Reading Corn Level Face dBuV dB/ 44.71 -17. 45.44 -20. 45.30 -21. 45.16 -22.	rect Measurement Max 26.88 22 25.22 32 23.98 45 22.71	400 5 Limit dBuV/m 40.00 40.00 43.50	Over dB -13.12 -14.78 -16.02 -20.79	Detection peal peal peal
No. Mk. Fr M 1 * 36.2 2 40.1 3 42.7 4 92.7 5 176.8	Feq. Hz 2541 347 (496	Reading Corn Level Face dBuV dB/ 44.71 -17. 45.44 -20. 45.30 -21.	rect Measurement Max 26.88 22 25.22 32 23.98 45 22.71 76 20.40	400 5 Limit dBuV/m 40.00 40.00	Over dB -13.12 -14.78 -16.02	Detection peal peal



Page: 29 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V		AB19 -				
Ant. Pol.	Horizontal	A PARTIES					
Test Mode:	TX GFSK Mode 2402MH	z	- TULL				
Remark:							

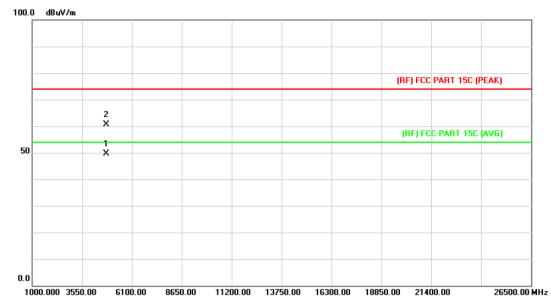


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4804.150	47.13	13.44	60.57	74.00	-13.43	peak
2	*	4804.530	36.20	13.44	49.64	54.00	-4.36	AVG



Page: 30 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY						
Temperature:	25 ℃	Relative Humidity:	55%						
Test Voltage:	DC 3.7V	DC 3.7V							
Ant. Pol.	Vertical	W Co							
Test Mode:	TX GFSK Mode 2402MHz		THE PERSON NAMED IN						
Remark: No report for the emission which more than 10 dB below the prescribed limit.									

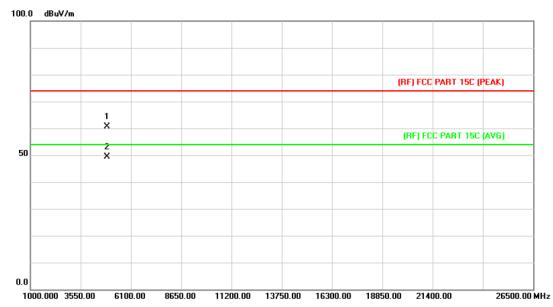


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4804.350	36.11	13.44	49.55	54.00	-4.45	AVG
2		4804.655	47.27	13.44	60.71	74.00	-13.29	peak



Page: 31 of 84

Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY					
25 ℃	Relative Humidity:	55%					
DC 3.7V							
Horizontal							
TX GFSK Mode 2441MHz		CHILL STREET					
No report for the emission prescribed limit.	which more than 10 dB	below the					
	25 ℃ DC 3.7V Horizontal TX GFSK Mode 2441MHz No report for the emission	25 °C Relative Humidity: DC 3.7V Horizontal TX GFSK Mode 2441MHz No report for the emission which more than 10 dB					

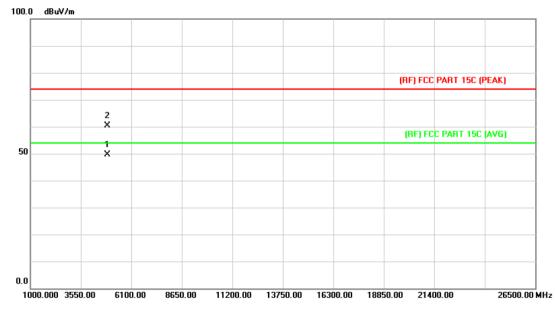


N	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4882.338	46.61	13.90	60.51	74.00	-13.49	peak
2	*	4882.545	35.57	13.90	49.47	54.00	-4.53	AVG



Page: 32 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY					
Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	DC 3.7V	DC 3.7V						
Ant. Pol.	Vertical	W Co						
Test Mode:	TX GFSK Mode 2441MHz	CU1372	LINE TO SERVICE STATE OF THE PERSON AND PERS					
Remark:	No report for the emission prescribed limit.	which more than 10 dB	below the					

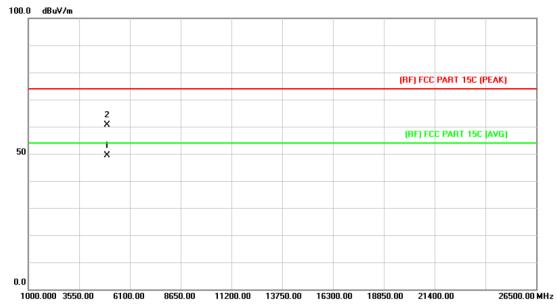


N	lo.	Mk.	Freq.	_	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		*	4882.355	35.61	13.90	49.51	54.00	-4.49	AVG
2			4882.625	46.59	13.90	60.49	74.00	-13.51	peak



Page: 33 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		TO SERVICE STATE OF THE SERVIC
Ant. Pol.	Horizontal	The same of the	
Test Mode:	TX GFSK Mode 2480MH	z	- Chillian
Remark:	No report for the emission prescribed limit.	n which more than 10 dE	3 below the

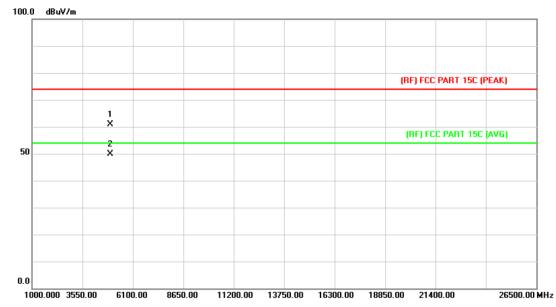


No	o. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4960.478	35.02	14.36	49.38	54.00	-4.62	AVG
2		4960.514	46.22	14.36	60.58	74.00	-13.42	peak



Page: 34 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical	The same of the	
Test Mode:	TX GFSK Mode 2480MH	z	THU
Remark:	No report for the emissio prescribed limit.	n which more than 10 o	dB below the

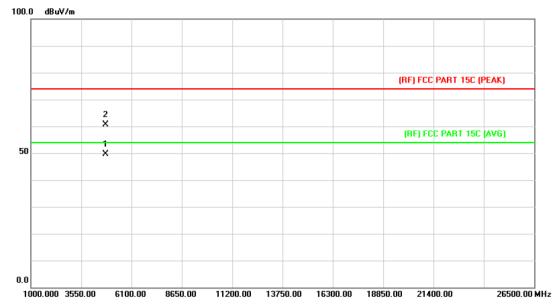


No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4960.460	46.42	14.36	60.78	74.00	-13.22	peak
2	*	4960.780	35.49	14.36	49.85	54.00	-4.15	AVG



Page: 35 of 84

Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY				
25 ℃	Relative Humidity:	55%				
DC 3.7V		133				
Horizontal	A VI					
TX π/4-DQPSK Mode 24	402MHz	THE PARTY OF THE P				
No report for the emission which more than 10 dB below the						
prescribed limit.						
1	25 °C DC 3.7V Horizontal ΓX π/4-DQPSK Mode 2- No report for the emission	Relative Humidity: DC 3.7V Horizontal ΓΧ π /4-DQPSK Mode 2402MHz No report for the emission which more than 10 dE				

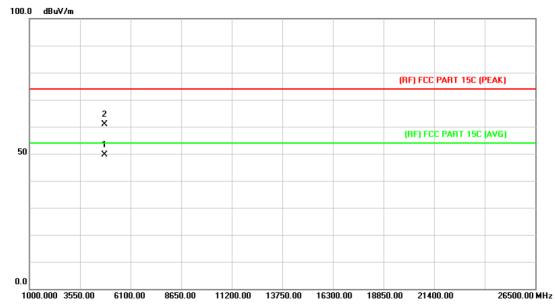


No. Mk.		κ. Freq.	Reading Level		Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4804.365	36.14	13.44	49.58	54.00	-4.42	AVG
2		4804.625	47.25	13.44	60.69	74.00	-13.31	peak



Page: 36 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V	TV TO	(34)
Ant. Pol.	Vertical		
Test Mode:	TX π/4-DQPSK Mode 24	02MHz	LINE TO SERVICE
Remark:	No report for the emission prescribed limit.	which more than 10 dB	below the

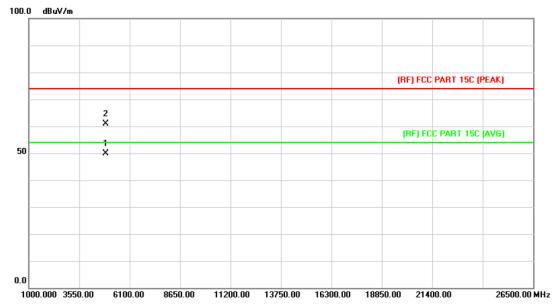


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4804.335	36.23	13.44	49.67	54.00	-4.33	AVG
2		4804.485	47.44	13.44	60.88	74.00	-13.12	peak



Page: 37 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY					
Temperature:	25 ℃	Relative Humidity:	55%					
Test Voltage:	DC 3.7V	DC 3.7V						
Ant. Pol.	Horizontal							
Test Mode:	TX π/4-DQPSK Mode 24	41MHz	- THURS					
Remark:	No report for the emission which more than 10 dB below the prescribed limit.							

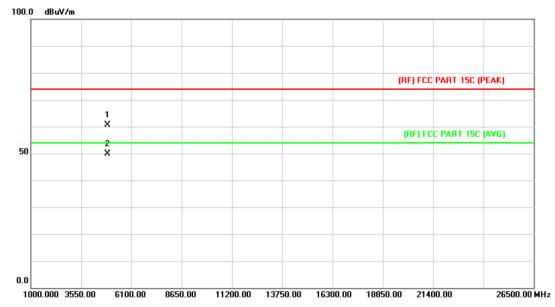


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4882.358	35.88	13.90	49.78	54.00	-4.22	AVG
2		4882.685	46.94	13.90	60.84	74.00	-13.16	peak



Page: 38 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY				
Temperature:	25 ℃ Relative Humidity: 55%						
Test Voltage:	DC 3.7V						
Ant. Pol.	Vertical						
Test Mode:	TX π/4-DQPSK Mode 2441	MHz	LINE .				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						

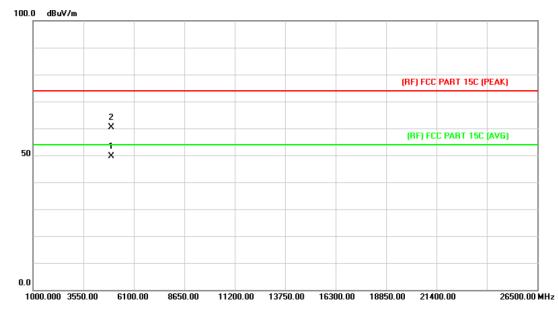


No	. Mk	. Freq.	_		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4882.575	46.68	13.90	60.58	74.00	-13.42	peak
2	*	4882.785	35.87	13.90	49.77	54.00	-4.23	AVG



Page: 39 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V	DC 3.7V					
Ant. Pol.	Horizontal						
Test Mode:	TX π/4-DQPSK Mode 2480	MHz	CHILL STREET				
Remark:	No report for the emission who prescribed limit.	No report for the emission which more than 10 dB below the					

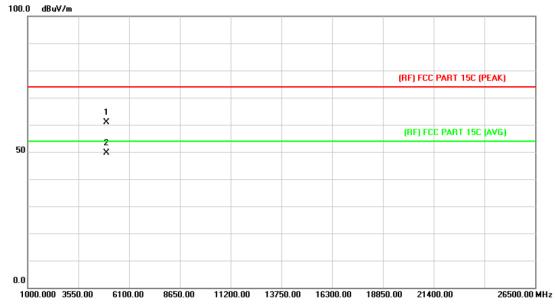


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4960.330	35.15	14.36	49.51	54.00	-4.49	AVG
2		4960.480	46.02	14.36	60.38	74.00	-13.62	peak



Page: 40 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 3.7V						
Ant. Pol.	Vertical						
Test Mode:	TX π/4-DQPSK Mode 2480I	MHz	LITTLE OF				
Remark:	No report for the emission wh prescribed limit.	ich more than 10 dB be	elow the				



No	. Mk	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4960.250	46.41	14.36	60.77	74.00	-13.23	peak
2	*	4960.650	35.30	14.36	49.66	54.00	-4.34	AVG



Page: 41 of 84

6. Restricted Bands Requirement

6.1 Test Standard and Limit

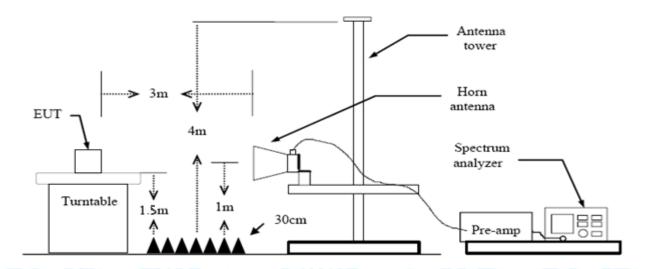
6.1.1 Test Standard FCC Part 15.209 FCC Part 15.205

6.1.2 Test Limit

Restricted Frequency	Class B (dE	BuV/m)(at 3m)
Band (MHz)	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

Note: All restriction bands have been tested, only the worst case is reported.

6.2 Test Setup



6.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.



Report No.: TB-FCC144834
Page: 42 of 84

(4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

6.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.5 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=1 KHz with Peak Detector for Average Values.

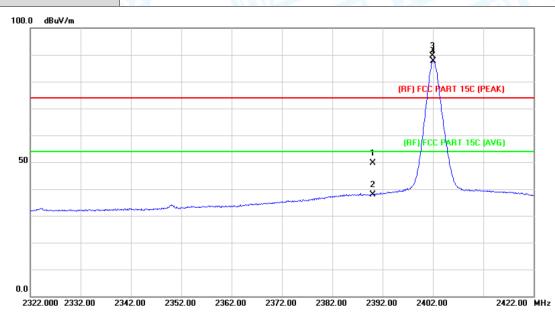
All restriction bands have been tested, only the worst case is reported.



Page: 43 of 84

(1) Radiation Test

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Horizontal		THU LE
Test Mode:	TX GFSK Mode 2402MHz	The same of the sa	
Remark:	N/A		

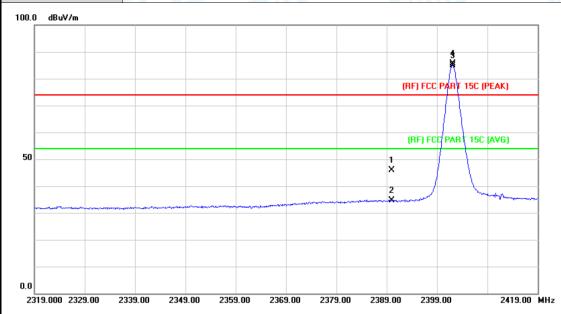


No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	48.80	0.77	49.57	74.00	-24.43	peak
2		2390.000	36.99	0.77	37.76	54.00	-16.24	AVG
3	Х	2401.900	88.82	0.82	89.64	Fundamenta	I Frequeny	peak
4	*	2402.100	86.85	0.82	87.67	Fundamenta	I Frequeny	AVG



Page: 44 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V	The same	18.0
Ant. Pol.	Vertical		
Test Mode:	TX GFSK Mode 2402MHz		LITTLE OF
Remark:	N/A		

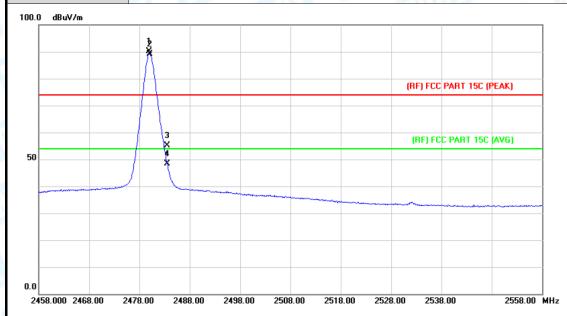


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	45.23	0.77	46.00	74.00	-28.00	peak
2		2390.000	33.95	0.77	34.72	54.00	-19.28	AVG
3	*	2402.100	83.95	0.82	84.77	Fundamental	Frequeny	AVG
4	Χ	2402.200	84.86	0.82	85.68	Fundamental	Frequeny	peak



Page: 45 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		33
Ant. Pol.	Horizontal		
Test Mode:	TX GFSK Mode 2480 MHz		LITTLE OF
Remark:	N/A	The same	

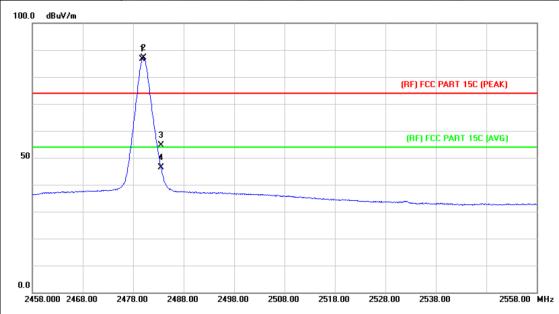


N	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2479.900	89.09	1.15	90.24	Fundamental	Frequeny	peak
2	*	2480.000	88.02	1.15	89.17	Fundamental	Frequeny	AVG
3		2483.500	53.90	1.17	55.07	74.00	-18.93	peak
4		2483.500	47.30	1.17	48.47	54.00	-5.53	AVG



Page: 46 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		13.0
Ant. Pol.	Vertical		
Test Mode:	TX GFSK Mode 2480 MHz	CO 133	LITTLE OF
Remark:	N/A		

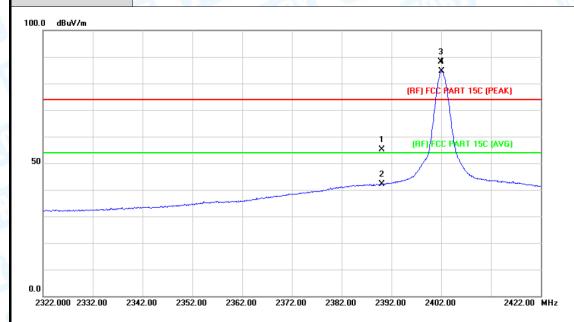


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Χ	2479.800	85.39	1.15	86.54	Fundamental	Frequeny	peak
2	*	2480.000	85.94	1.15	87.09	Fundamental	Frequeny	AVG
3		2483.500	53.46	1.17	54.63	74.00	-19.37	peak
4		2483.500	45.27	1.17	46.44	54.00	-7.56	AVG



Page: 47 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V	The same	33
Ant. Pol.	Horizontal		
Test Mode:	TX π /4-DQPSK Mode 2402N	1Hz	LINE TO
Remark:	N/A	The same	

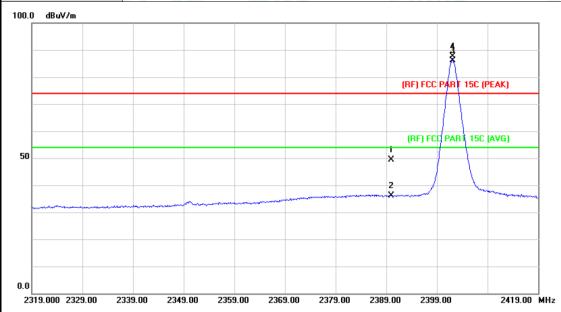


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	54.48	0.77	55.25	74.00	-18.75	peak
2		2390.000	41.30	0.77	42.07	54.00	-11.93	AVG
3	Х	2401.900	87.31	0.82	88.13	Fundamental	Frequeny	peak
4	*	2402.100	83.75	0.82	84.57	Fundamental	Frequeny	AVG



Page: 48 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		
Ant. Pol.	Vertical		
Test Mode:	TX π /4-DQPSK Mode 2402N	lHz	
Remark:	N/A		

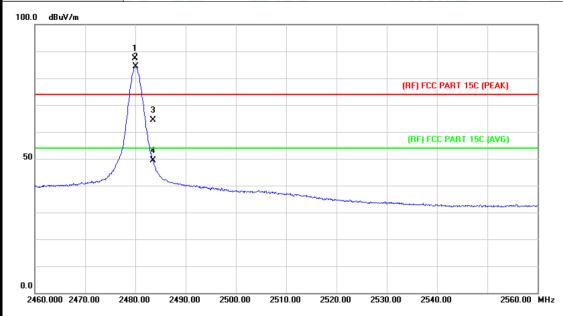


No.	Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	48.54	0.77	49.31	74.00	-24.69	peak
2		2390.000	35.45	0.77	36.22	54.00	-17.78	AVG
3	*	2402.100	85.34	0.82	86.16	Fundamental	I Frequeny	AVG
4	Х	2402.200	86.87	0.82	87.69	Fundamental	I Frequeny	peak



Page: 49 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		180
Ant. Pol.	Horizontal		
Test Mode:	TX π /4-DQPSK Mode 2480M	Hz	LITTLE OF
Remark:	N/A		



No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2479.900	86.23	1.15	87.38	Fundamenta	I Frequeny	peak
2	*	2480.100	83.11	1.15	84.26	Fundamenta	I Frequeny	AVG
3		2483.500	63.14	1.17	64.31	74.00	-9.69	peak
4		2483.500	48.11	1.17	49.28	54.00	-4.72	AVG



Page: 50 of 84

EUT:			Blu	etoot	h Wire	less S	Speak	er		Мо	del 1	Nan	ne :			BND	01 BO	BBY
Tempe	ratur	e:	25	$^{\circ}$ C						Re	lativ	е Н	umi	dity	:	55%	MA	٤
Test Vo	oltage) :	DC	3.7	V	والإيا			S.					A	1	N		
Ant. Po	ol.		Ve	rtical			(6)		y	ð		A			Į.			
Test M	ode:		TX	π/4	4-DQI	PSK	Mod	e 248	30N	Hz	M'	'n.			_	- 6	MIL	
Remar	k:		N/A	A				A.	L	N	34			1				K
100.0	dBuV/m																	
			2 X X															1
			Ă		-								(B	F) FCC	PAR	r 15C (P	EAK)	+
																-		
			3															
			4										(RF) FC	C PAI	RT 15C (AVG)	4
50			X															
~~	A STATE OF THE PERSON NAMED IN	anno de la companya della companya d		Marine Marine	بريسيهمي	********	-	**********										-
														*****		Market Market	hymm-ne.	_
0.0																		
	000 247	2.00 2	2482.0	0 2	492.00	2502	2.00	2512.0	0	2522	2.00	2532	.00	254	2.00		2562.0	 0 MH:
No.	Mk.	Fr	eq.	F	Readi Leve	_		rect ctor	Λ		sure ent	<u>-</u>	Lin	nit	(O∨er		
M		Hz		dBu∀		dE	∛m		dBı	uV/m		dΒι	ıV/m	l	dB	Det	ector	
1	*	2480	.000)	80.9	1	1.	15		82.06		F	Fundamental Fre		equeny	A	VG	
2			200			1	15	85.17			Fundamental Frequeny			peak				

1.17

1.17

74.00

54.00

62.33

47.96

-11.67

-6.04

peak

AVG

Emission Level= Read Level+ Correct Factor

61.16

46.79

2483.500

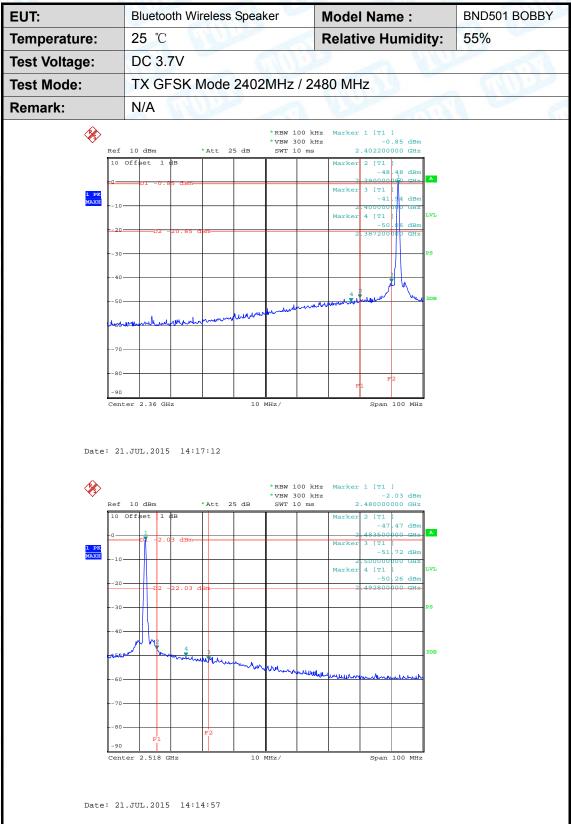
2483.500

4





(2) Conducted Test





EUT: Bluetooth Wireless Speaker **Model Name: BND501 BOBBY** Temperature: 25 ℃ **Relative Humidity:** 55% DC 3.7V **Test Voltage: Test Mode: GFSK Hopping Mode** Remark: N/A *RBW 100 kHz *VBW 300 kHz Center 2.362 GHz Span 100 MHz Date: 21.JUL.2015 14:23:20 **%** *RBW 100 kHz Marker 1 [T1]

*VBW 300 kHz -2.00 dBm
SWT 10 ms 2.476000000 GHz Ref 10 dBm * Att 25 dB Date: 21.JUL.2015 14:30:58

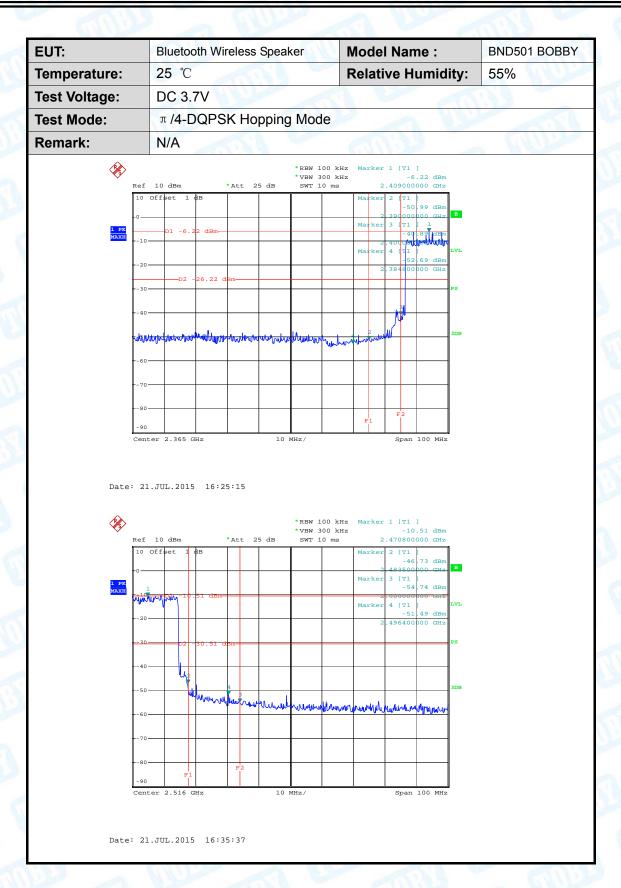


EUT: **BND501 BOBBY** Bluetooth Wireless Speaker **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% **Test Voltage:** DC 3.7V **Test Mode:** TX π /4-DQPSK Mode 2402MHz / 2480 MHz Remark: N/A *RBW 100 kHz Marker 1 [T1] *VBW 300 kHz -9.: *Att 25 dB Span 100 MHz Center 2.363 GHz 10 MHz/ Date: 21.JUL.2015 16:13:35 **%** *RBW 100 kHz Marker 1 [T1]

*VBW 300 kHz -10.01 dBm
SWT 10 ms 2.480000000 GHz 10 dBm *Att 25 dB Ref 10 Offset 3 [T1 -53 1 PK MAXH 00000000 GHz 4 [T1 -51 Center 2.52 GHz Date: 21.JUL.2015 16:07:50



Page: 54 of 84





Page: 55 of 84

7. Number of Hopping Channel

7.1 Test Standard and Limit

7.1.1 Test Standard FCC Part 15.247 (a)(1)

7.1.2 Test Limit

Section	Test Item	Limit
15.247	Number of Hopping Channel	>15

7.2 Test Setup



7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=100 KHz, VBW=100 KHz, Sweep time= Auto.

7.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

7.5 Test Data

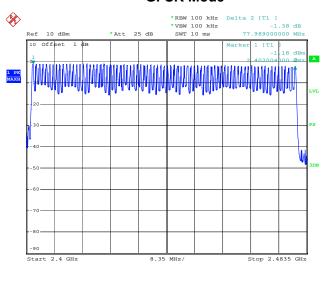


Page: 56 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		18.0
Test Mode:	Hopping Mode (GFSK/ π/4-I	DQPSK)	

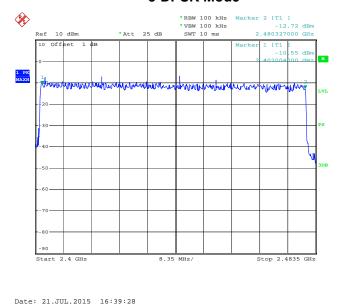
Frequency Range	Quantity of Hopping Channel	Limit
2402MHz~2480MHz	79	>15
2402WH2~2460WH2	79	>15

GFSK Mode



Date: 21.JUL.2015 14:34:15

8-DPSK Mode





Page: 57 of 84

8. Average Time of Occupancy

8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247 (a)(1)

8.1.2 Test Limit

Section	Test Item	Limit
15.247(a)(1)/ RSS-210	Average Time of	0.4.202
Annex 8(A8.1d)	Occupancy	0.4 sec

8.2 Test Setup



8.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=1MHz, VBW=1MHz.
- (3) Use video trigger with the trigger level set to enable triggering only on full pulses.
- (4) Sweep Time is more than once pulse time.
- (5) Set the center frequency on any frequency would be measure and set the frequency span to zero.
- (6) Measure the maximum time duration of one single pulse.
- (7) Set the EUT for packet transmitting.
- (8) Measure the maximum time duration of one single pulse.

8.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

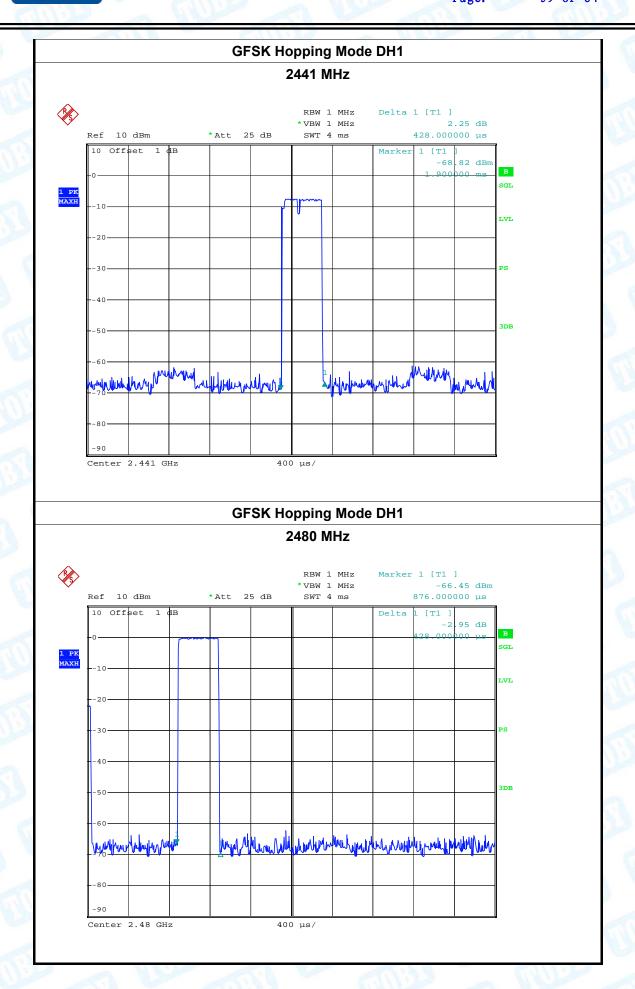


Page: 58 of 84

8.5 Test Data

EUT:			Bluetooth	n Wirele	ss Spea	ker	Mod	del Nan	ne :		BND501 BOBBY
Temper	ature:		25 ℃	10	A SECOND		Rela	ative H	umidi	ty:	55%
Test Vo	Itage:		DC 3.7\	/	a 1	11/10		1			
Test Mo	de:		Hopping	g Mode	(GFS	K DH1)	11115	1		A British
Chan			se Time	То	tal of [Peri	iod Tin		.imit	Result
(MH	-		(ms)		(ms)			(s)	(ms)	
240	2	(0.428		136.9	6					
244	1	(0.428		136.9	6		31.60	4	400	PASS
248	0	(0.428		136.9	6					
				GF	SK Ho	pping	Mode	DH1			
					2	402 M	Hz				
\$ \$		dBm		*Att 2	5 dB	RBW 1 *VBW 1 SWT 4	MHz		428.000	.20 dB	7
	10 Off	set :	1 dB					Marker] .08 dBm	
1 200	-0								2.468	000 ms	B SGL
1 PK MAXH	10							7			
	20										LVL
	-20										
	30										PS
	40										
	50										3DB
	50										
	1-60-W			Mill M.M.Ju	100/161/4V4	الماران الراب المراا		idruh Mari	ullw M Nuw	m Mily	
	70-		4 24 1						# - V W - W		
	80										
		1									
	-90										

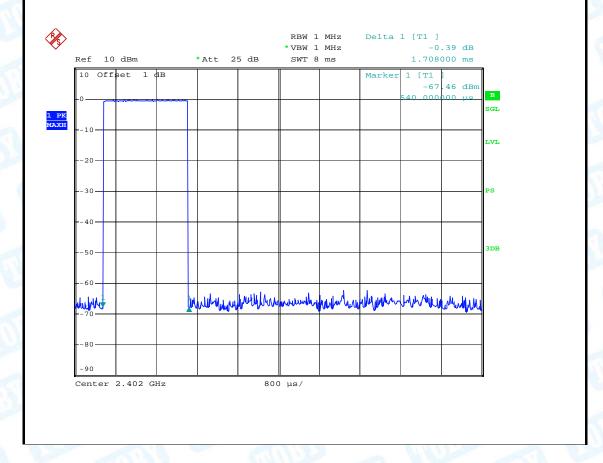




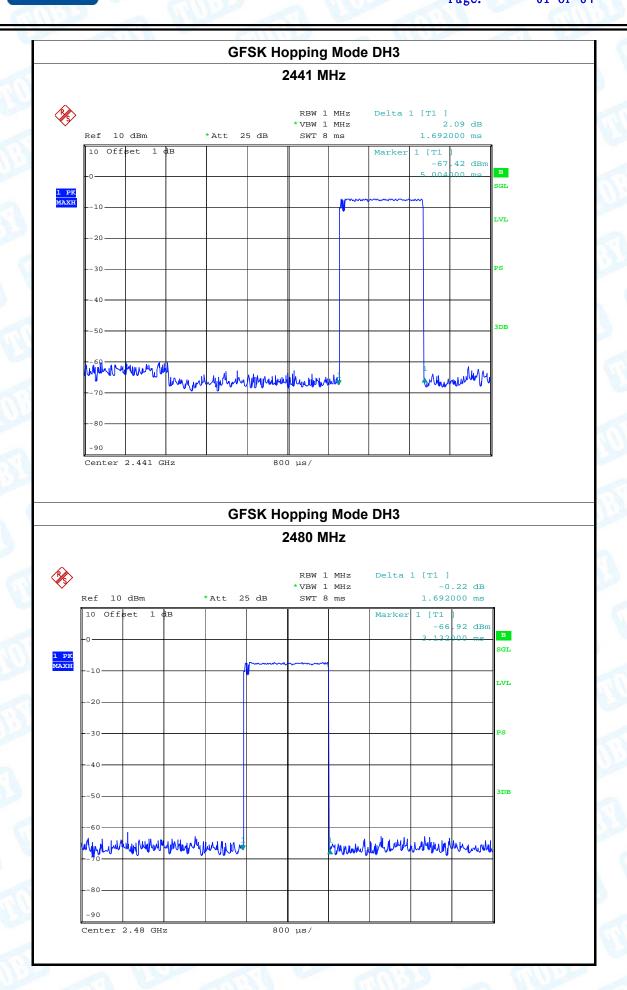


Page: 60 of 84

EUT:		Bluetooth V	Vireless Speaker	Model Name	:	BND501 BOBBY
Temperature	:	25 ℃		Relative Hum	idity:	55%
Test Voltage:		DC 3.7V			-	3.9
Test Mode:		Hopping N	Mode (GFSK DH3)	H. W.	
Channel	Pu	lse Time	Total of Dwell	Period Time	Limit	Dec. 14
(MHz)		(ms)	(ms)	(s)	(ms)	Result
2402		1.708	273.28			
2441		1.692	270.72	31.60	400	PASS
2480		1.692	270.72			
	1		GFSK Hopping	Mode DH3		ı
			2402 MI	Hz		









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Center 2.402 GHz

Report No.: TB-FCC144834

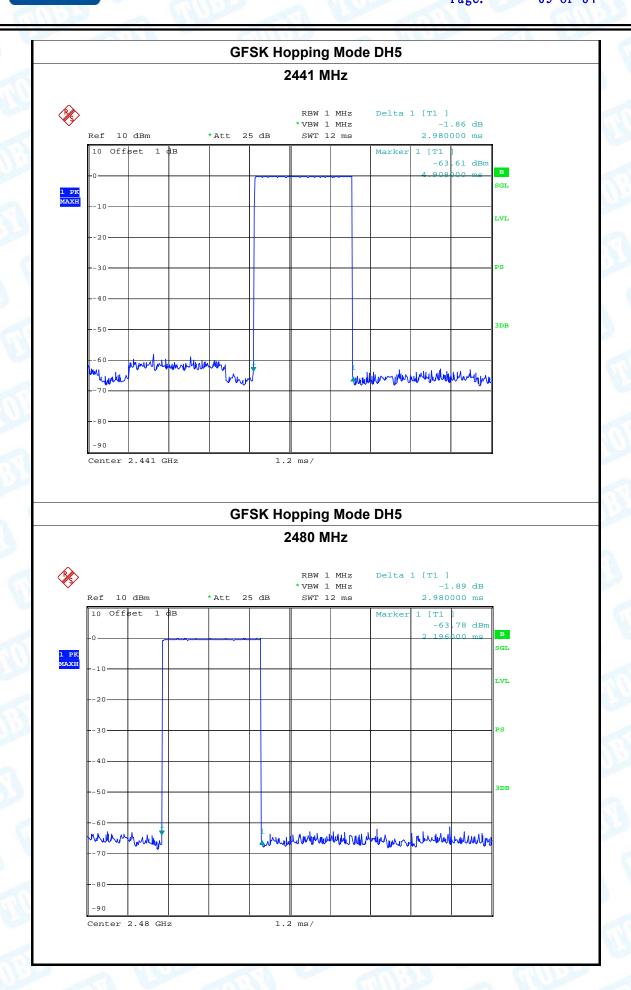
Page: 62 of 84

EUT:			Blueto	ooth \	Virele	ess Sp	eaker	Mode	el Name	:		BND501 BOBBY
Temper	rature:		25 °C	C				Relat	tive Hun	nidity	:	55%
Test Vo	Itage:		DC 3	.7V	13	الخال					-	19.9
Test Mo	ode:		Hopp	oing l	Mode	e (GF	SK DH	5)		1		
Chan	nel	Pu	lse Ti	me	Tot	tal of	Dwell	Perio	d Time	Lii	mit	Result
(MH	z)		(ms)			(ms	s)		(s)	(m	ıs)	Result
240	2		2.980			317.	87					
244	1		2.980			317.	87	3	1.60	40	00	PASS
248	0		2.980			317.	87					
					GF	SK F	lopping	g Mode	e DH5			
	Ref 10	dBm		* A	tt 2	5 dB	* VBW	1 MHz 1 MHz 12 ms	Delta 1	-2	.05 dE	
	10 Offs	et 1	L dB						Marker	1 [T1]	
•	-0	ſ				1					.44 dE	В
1 PK MAXH	10											SGL
	10											LVL
	20											
												PS
	30											750
•	40											

Jan mary Maria Mar

1.2 ms/



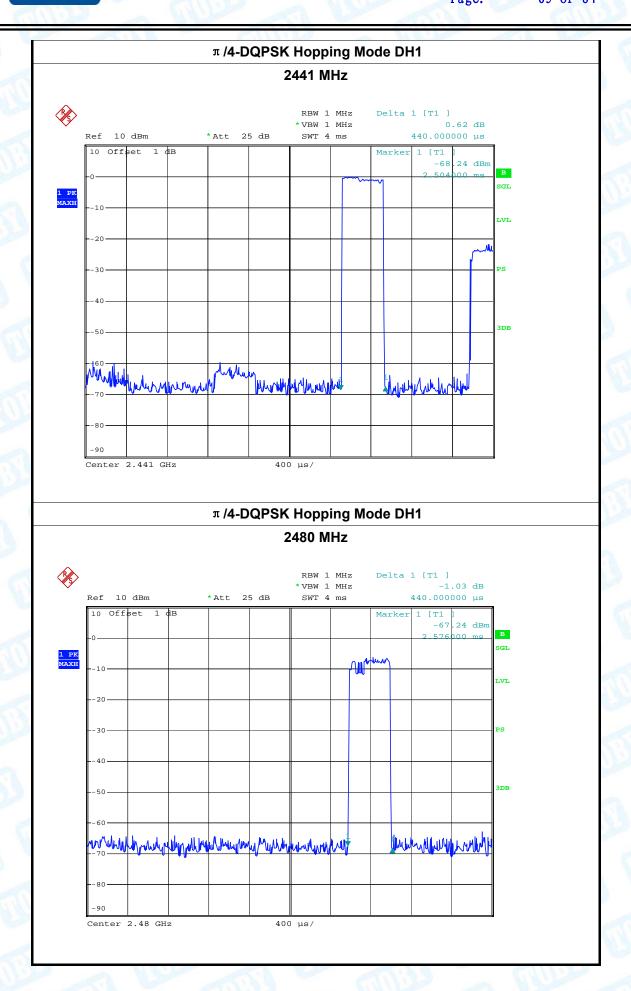




Page: 64 of 84

EUT:	Bluetooth V	Vireless Speaker	Model Name	:	BND501 BOBBY
Temperature	: 25 ℃		Relative Hum	idity:	55%
Test Voltage:	DC 3.7V	A A LIVE	A DE	-0	19.9
Test Mode:	Hopping I	Mode (π/4-DQPS	SK DH1)	Alle	
Channel	Pulse Time	Total of Dwell	Period Time	Limit	Decell
(MHz)	(ms)	(ms)	(s)	(ms)	Result
2402	0.440	140.80			
2441	0.440	140.80	31.60	400	PASS
2480	0.440	140.80			
	π	/4-DQPSK Hopp	oing Mode DH1		
		2402 N	1Hz		
R		PRW	1 MHz Delta 1 [r1 l	
		KDW	rinz Derca I [.		

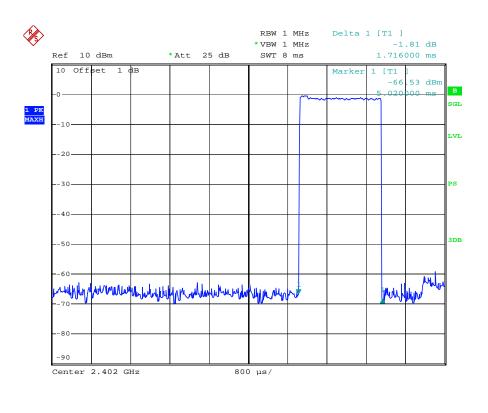




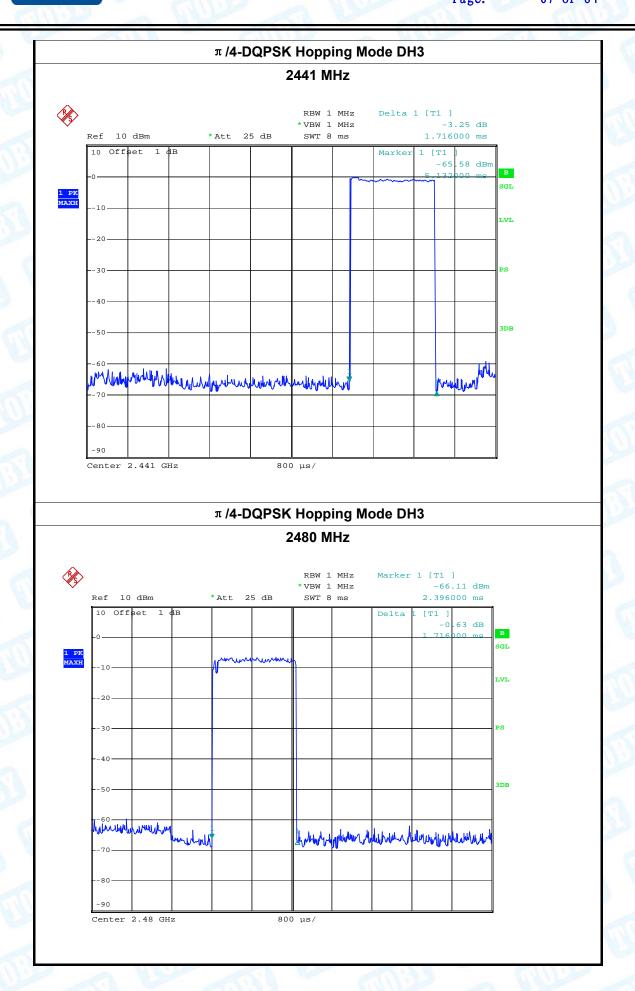


Page: 66 of 84

- W W 1				4 1 M III		
EUT:		Bluetooth V	Vireless Speaker	Model Name		BND501 BOBBY
Temperature:		25 ℃		Relative Hum	idity:	55%
Test Voltage:		DC 3.7V	N. C.		-00	33
Test Mode:		Hopping N	Mode (π/4-DQPSI	CDH3)	Hilli	
Channel	Pu	lse Time	Total of Dwell	Period Time	Limit	Result
(MHz)		(ms)	(ms)	(s)	(ms)	Result
2402		1.716	274.56			
2441		1.716	274.56	31.60	400	PASS
2480		1.716	274.56			
		π	/4-DQPSK Hoppi	ng Mode DH3		
			2402 MI	-lz		







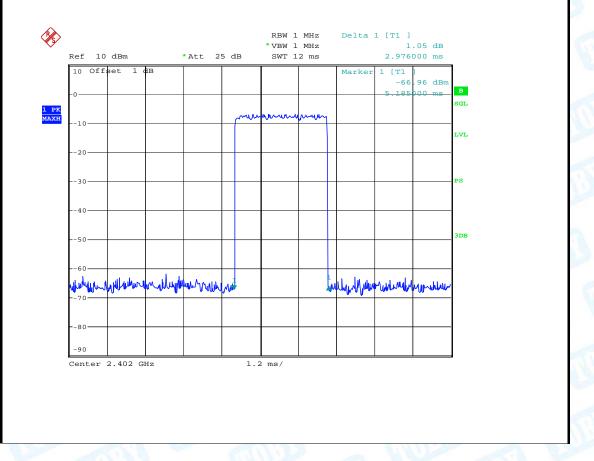


Page: 68 of 84

EUT:		Bluetooth V	Vireless Speaker	Model Name	-	BND501 BOBBY
Temperature:		25 ℃		Relative Hum	idity:	55%
Test Voltage:		DC 3.7V	N. S. C.	W North	-0	18.0
Test Mode:		Hopping N	Mode (π/4-DQPS	K DH5)	H.a.	
Channel	Pu	lse Time	Total of Dwell	Period Time	Limit	Result
(MHz)		(ms)	(ms)	(s)	(ms)	Result
2402		2.976	317.44			
2441		2.980	317.87	31.60	400	PASS
2480		2.956	317.31			

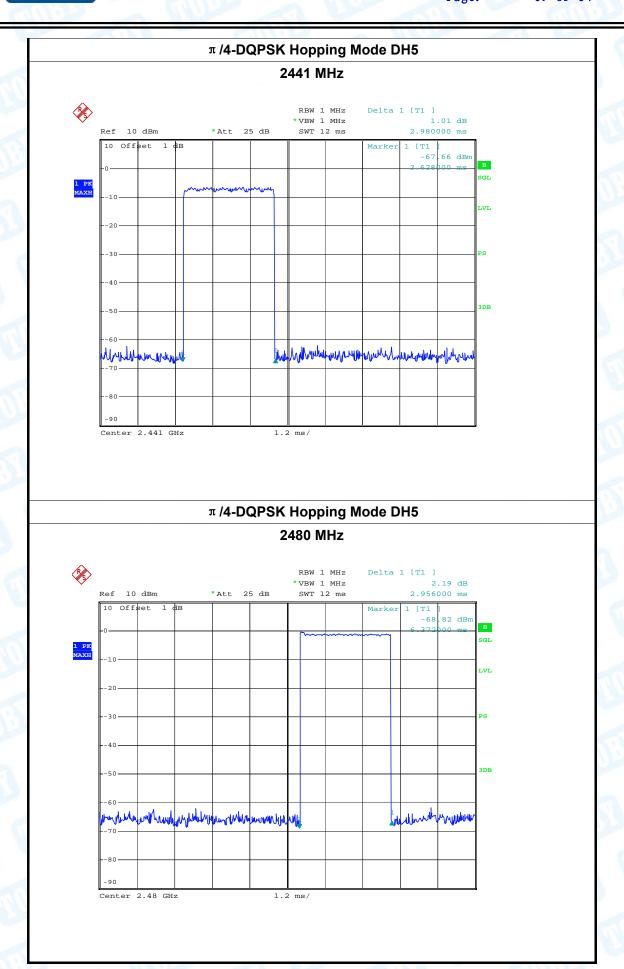
π /4-DQPSK Hopping Mode DH5

2402 MHz





69 of 84 Page:





Report No.: TB-FCC144834 Page: 70 of 84

9. Channel Separation and Bandwidth Test

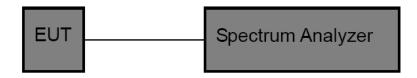
9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247

9.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)
Bandwidth	<=1 MHz (20dB bandwidth)	2400~2483.5
Channel Separation	>25KHz or >two-thirds of the 20 dB bandwidth Which is greater	2400~2483.5

9.2 Test Setup



9.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Channel Separation: RBW=30 kHz, VBW=100 kHz.

Bandwidth: RBW=30 kHz, VBW=100 kHz.

- (3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
 - (4) Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:30 kHz, and Video Bandwidth:100 kHz. Sweep Time set auto.

9.4 EUT Operating Condition

The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Bandwidth Test.



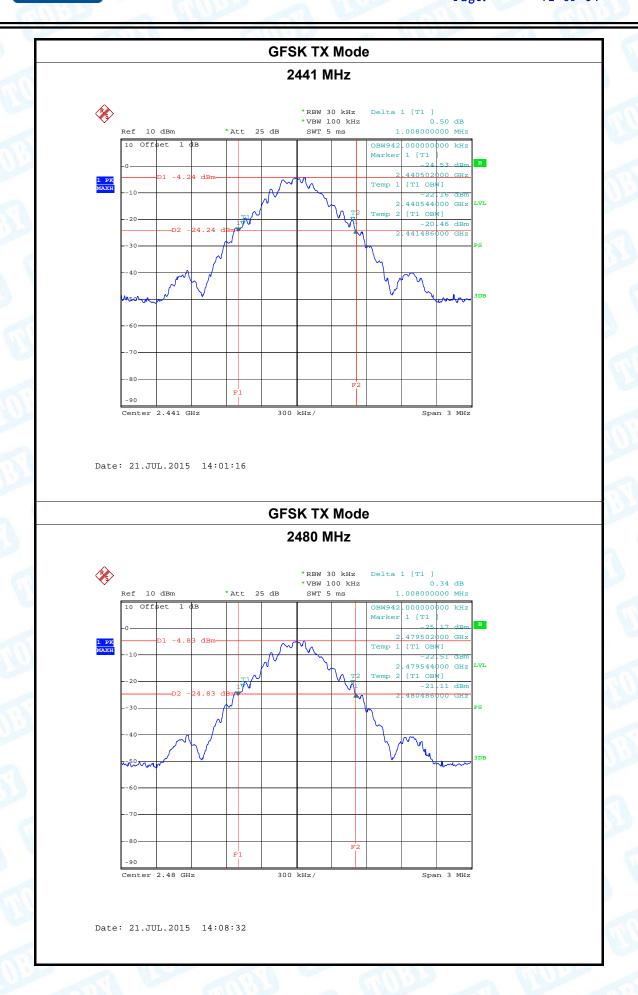
Page: 71 of 84

9.5 Test Data

EUT:	Blu	uetooth Wireless Speake	er Model Nai	me:	BND501 BOBBY
Temperature:	25	5 °C	Relative H	lumidity:	55%
Test Voltage:	DO	C 3.7V	With	A W	
Test Mode:	TX	(Mode (GFSK)	CHIP?		A MARINE
Channel freque	ency	99% OBW	20dB Band	lwidth	20dB Bandwidt
(MHz)		(kHz)	(kHz)		*2/3 (kHz)
2402		942.00	1044.0	00	696.00
2441		942.00	1008.0	00	672.00
2480		942.00	1008.0	00	672.00
		GFSK	TX Mode	·	
		24	02 MHz		
	10 dBm Offset	*Att 25 dB	VBW 100 kHz SWT 5 ms 1.044 OBW942.000 Marker 1 [ı
		*Att 25 dB	SWT 5 ms 1.044 OBW942.000 Marker 1 [Temp 1 [T1]	0000000 MHz 0000000 kHz T1 =23 15 dBm 472000 GHz OBW 544000 GHz LVI OBW	
10 -0	Offset	*Att 25 dB 1 dB 3.6 dBm	SWT 5 ms 1.044 OBW942.000 Marker 1 [2.401 Temp 1 [T1 T2 Temp 2 [T1	000000 MHz 000000 kHz T1	
10 PK MAXH10-	0ff bet	*Att 25 dB 1 dB 3.6 dBm	SWT 5 ms 1.044 OBW942.000 Marker 1 [2.401 Temp 1 [T1 T2 Temp 2 [T1	000000 MHz 000000 kHz T1	
10 -0	0ff bet	*Att 25 dB 1 dB 3.6 dBm	SWT 5 ms 1.044 OBW942.000 Marker 1 [2.401 Temp 1 [T1 T2 Temp 2 [T1	0000000 MHz 0000 000 kHz T1 B 122 15 dBm 172 100 GHz 0BN1 -21 12 dBm 544 000 GHz 0BN1 -19 77 dBm 486 000 GHz	
10 -0	0ff bet	*Att 25 dB 1 dB 3.6 dBm	SWT 5 ms 1.044 OBW942.000 Marker 1 [2.401 Temp 1 [T1 T2 Temp 2 [T1	0000000 MHz 0000 000 kHz T1 B 122 15 dBm 172 100 GHz 0BN1 -21 12 dBm 544 000 GHz 0BN1 -19 77 dBm 486 000 GHz	
	0ff bet	*Att 25 dB 1 dB 3.6 dBm	SWT 5 ms 1.044 OBW942.000 Marker 1 [0000000 MHz 0000 000 kHz T1 B 122 15 dBm 172 100 GHz 0BN1 -21 12 dBm 544 000 GHz 0BN1 -19 77 dBm 486 000 GHz	

Date: 21.JUL.2015 13:52:39







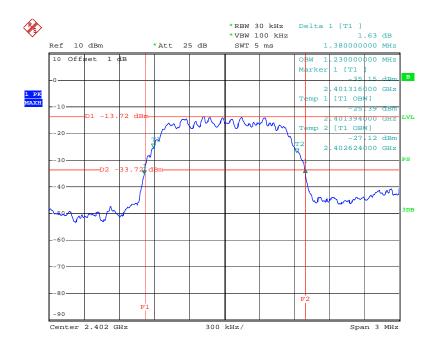
Page: 73 of 84

EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V	M CO	199
Test Mode:	TX Mode (π /4-DQPSK)		

Channel frequency	99% OBW	20dB Bandwidth	20dB
(MHz)	(kHz)	(kHz)	Bandwidth
			*2/3 (kHz)
2402	1230.00	1380.00	920.00
2441	1218.00	1380.00	920.00
2480	1230.00	1380.00	920.00

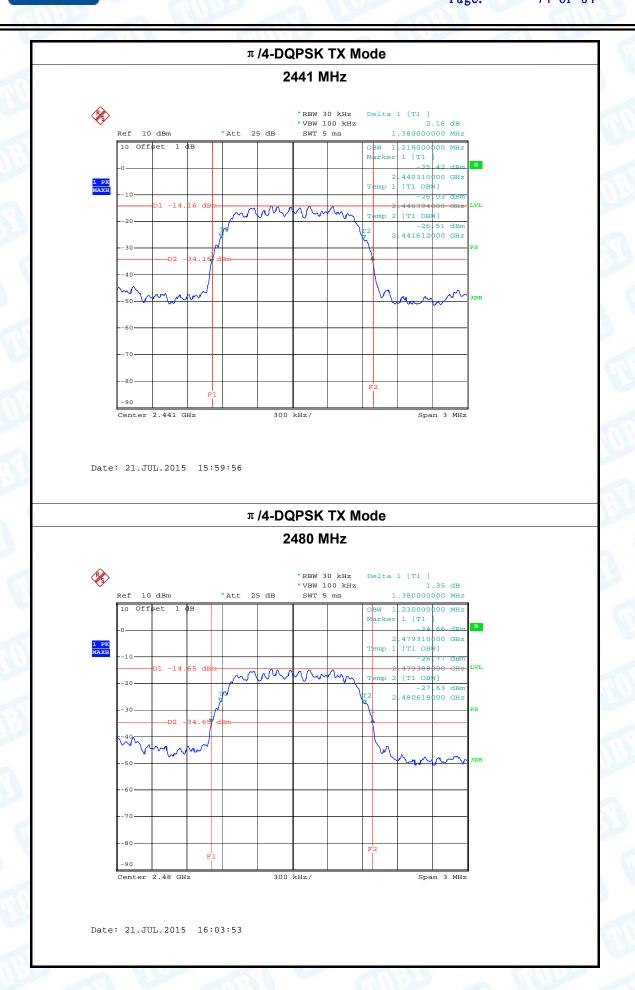
π/4-DQPSK TX Mode

2402 MHz



Date: 21.JUL.2015 15:55:57







Page: 75 of 84

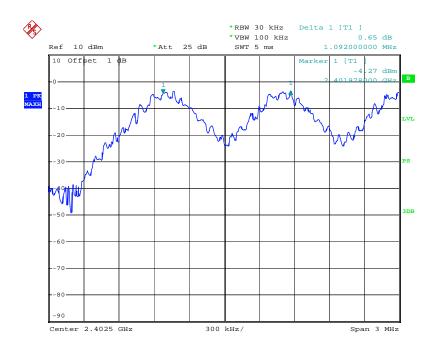
EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		33

Test Mode: Hopping Mode (GFSK)

того по	(
Channel frequency	Separation Read Value	Separation Limit
(MHz)	(kHz)	(kHz)
2402	1.092	696.00
2441	1.074	672.00
2480	1.086	672.00

GFSK Hopping Mode

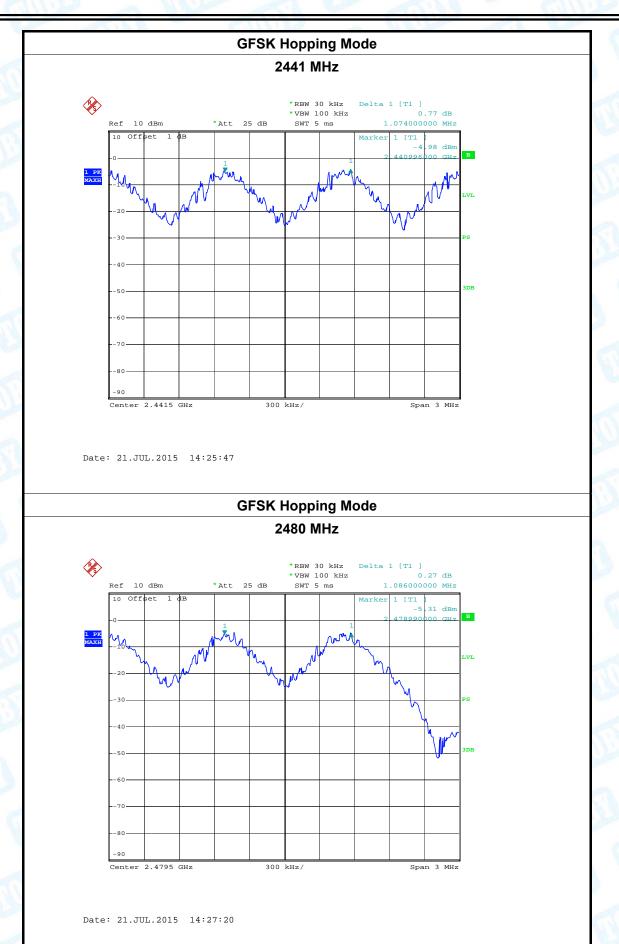
2402 MHz



Date: 21.JUL.2015 14:19:35



TOBY Report No.: TB-FCC144834 76 of 84 Page:





Page: 77 of 84

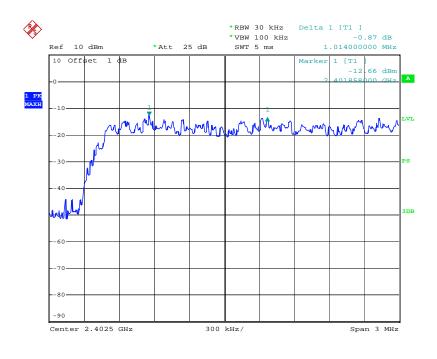
EUT:	Bluetooth Wireless Speaker	Model Name :	BND501 BOBBY
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		33

Test Mode: Hopping Mode (π /4-DQPSK)

Channel frequency	Separation Read Value	Separation Limit	
(MHz)	(kHz)	(kHz)	
2402	1.014	920.00	
2441	0.990	920.00	
2480	0.996	920.00	

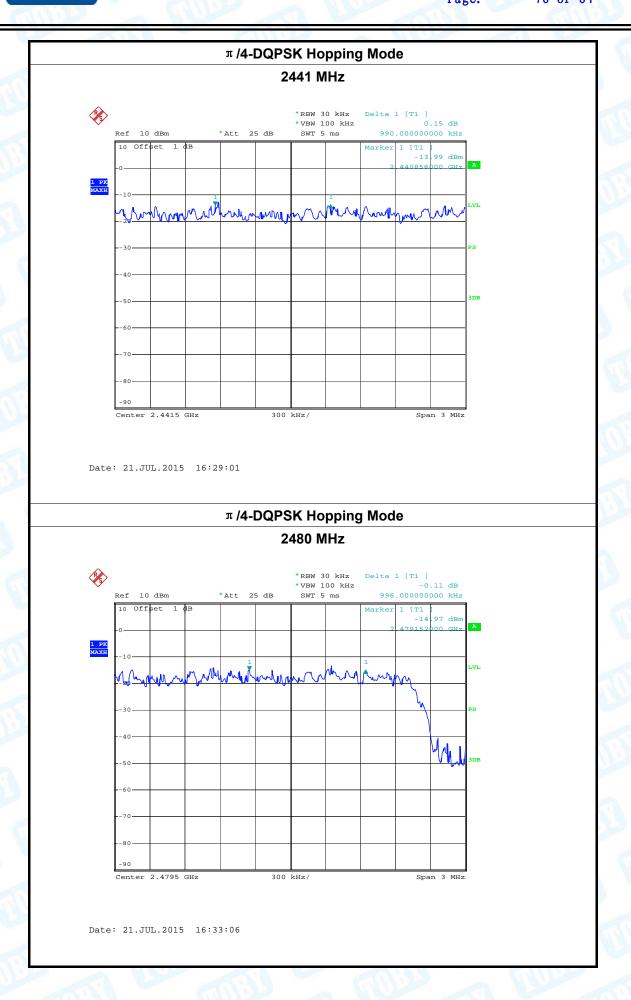
π /4-DQPSK Hopping Mode

2402 MHz



Date: 21.JUL.2015 16:23:21







Page: 79 of 84

10. Peak Output Power Test

10.1 Test Standard and Limit

10.1.1 Test Standard FCC Part 15.247 (b) (1)

10.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)
Peak Output Power	Hopping Channels>75 Power<1W(30dBm) Other <125 mW(21dBm)	2400~2483.5

10.2 Test Setup



10.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

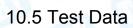
Peak Detector: RBW=1 MHz, VBW=3 MHz for bandwidth less than 1MHz. RBW=3 MHz, VBW=3 MHz for bandwidth more than 1MHz.

10.4 EUT Operating Condition

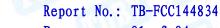
The EUT was set to continuously transmitting in the max power during the test.



Report No.: TB-FCC144834
Page: 80 of 84

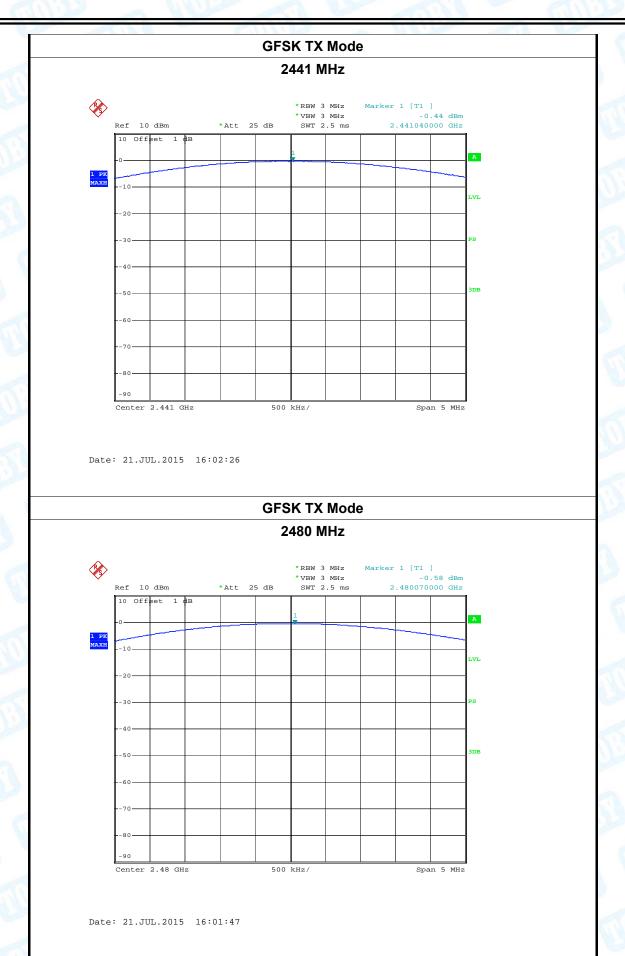


-0.13 -0.44 -0.58 K TX Mode) Li	imit (dBm)
-0.13 -0.44 -0.58 K TX Mode	WEST COLUMN	imit (dBm)
-0.13 -0.44 -0.58 SK TX Mode) Li	
-0.13 -0.44 -0.58 SK TX Mode) Li	
-0.44 -0.58 SK TX Mode		21
-0.58		21
K TX Mode		
	<u> </u>	
		-
402 MHz		
*RBW 3 MHz M	Marker 1 [T1] -0.13 dBm	
SWT 2.5 ms	2.402140000 GHz	
1		A
		_
		LVL
	1	PS
	i i	3DB
	*VBW 3 MHz	*VBW 3 MHz





Page: 81 of 84





2480

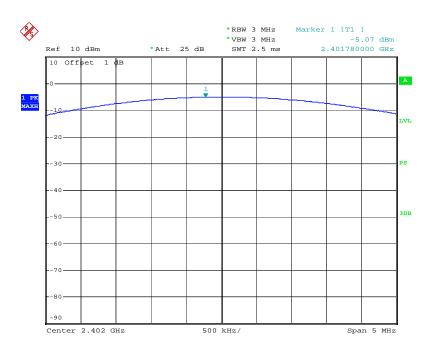
Report No.: TB-FCC144834

Page: 82 of 84

EUT:	Bluetooth V	Vireless Speaker Model Name :		BND501 BOBBY	
Temperature:	25 ℃		Relative H	lumidity:	55%
Test Voltage:	DC 3.7V	W. Comment			
Test Mode:	TX Mode (π /4-DQPSK)				
Channel frequency (MHz)		Test Result (dBm)	Lin	nit (dBm)
2402		-5.07			
2441		-5.49			21

-5.89 π /**4-DQPSK TX Mode**

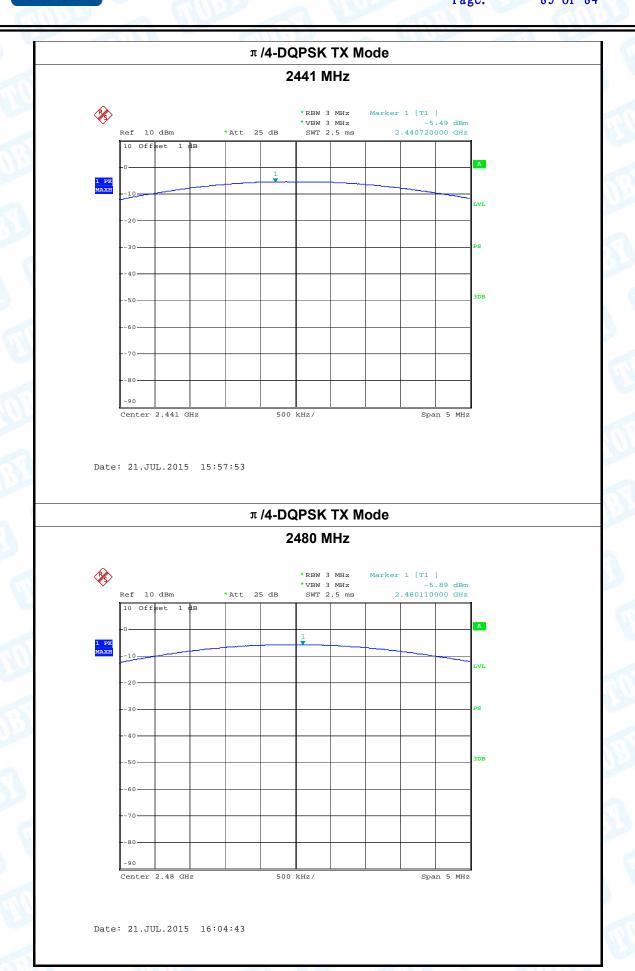
2402 MHz



Date: 21.JUL.2015 15:56:58



83 of 84 Page:





Page: 84 of 84

11. Antenna Requirement

11.1 Standard Requirement

11.1.1 Standard FCC Part 15.203

11.1.2 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 shall be considered sufficient to comply with the provisions of this Section. 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.

11.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is -0.68 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

Result

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

	Antenna Type
000	▼ Permanent attached antenna
33	□ Unique connector antenna
400	□ Professional installation antenna