FCC Radio Test Report

FCC ID: ALEJB101

For

Bluetooth Headset

Model Name: JB101

Brand Name: Jabees

Report No.: ENC111230GZ72F1

Date of Issue: Jan.6, 2012

Prepared For

FreeTek International Co.,Ltd.

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1. CERTIFICATION

Applicant:	FreeTek International Co.,Ltd.
Address:	4th Floor, Building 15, Phrase II, Fuan Industrial Park,Dayantian, Fuyong, Bao'an District, Shenzhen, Guangdong,China
Product Description:	Bluetooth Headset
Brand Name:	Jabees
Model Number:	JB101
FCC ID:	ALEJB101
Report Number:	ENC111230GZ72F1
Date of Test:	Dec.30, 2011~Jan.6, 2012
Standards:	FCC Part15, Subpart C(15.247)/ANSI C63.4: 2003

WE HEREBY CERTIFY THAT:

The above equipment was tested by East Notice Certification Service Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.247.

Checked By_____ Yemig

Yemig Jan.6, 2012

Authorized By_____ Ray Zhou

Ray Zhou Jan.6, 2012

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247), Subpart C			
Standard Section	**Test Item**	**Judgment**	**Remark**
15.203	Antenna Requirement	PASS	
15.205	Restricted Bands	PASS	
15.207	Conducted Emission	PASS	
15.247(a)(1)	Occupied Bandwidth	PASS	
15.247(a)(2)	Bandwidth	PASS	
15.247 (a)(1)	Number of Hopping Channels	PASS	
15.247(a)(1)(i)	Time of Occupancy	PASS	
15.247(b)(2)	Output Power	PASS	
15.247(c)	Antenna Gain > 6 dBi	N/A	
15.247(d)	Conducted Spurious Emissions	PASS	
15.209;15.247(d)	Radiated Spurious Emissions	PASS	
15.247(e)	Power Spectral Density	N/A	
15.247(f)	Hybrid System Requirement	N/A	
15.247(g)	Hopping Capability	PASS	
15.247(h)	Hopping Coordination Requirement	PASS	
15.247(i)	RF Exposure requirement	PASS	
15.247(d)	100KHz Bandwidth of Frequency Band Edge	PASS	
RSSGen(A4.8)	Receiver Spurious Emissions	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **GZ-C03/ GZ-C02** at the location of CGEL. 45 Cunnan Street, Shayongnan, Sanyuanli District, Guangzhou, Guangdong, China, 510400.
FCC register No.: 597719

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The reported uncertainty of measurement **y** ± **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** %.

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
GZ-C03	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)	NOTE
GZ-C02	CISPR	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth Headset
Brand Name	Jabees
Model Name	JB101
OEM Brand/Model Name	N/A
Model Difference	N/A
Product Description	The EUT is a Bluetooth Headset Operation Frequency: 2402~2480 MHz Modulation Type: GFSK(1Mbps) Number Of Channel 79 CH Antenna Designation: Please see Note 3.3. Antenna Gain(Peak) Please see Note 3.3. Output Power: -1.53 dBm (1Mbps) Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Channel List	Please refer to the Note 3.2.
Power Source	DC Voltage supplied from AC/DC adapter & Li-ion battery
Power Rating	#AC/DC Adapter : Model name:LW001 I/P AC 100-240V~ 50/60Hz, 0.2A O/P 5.0~5.5V, 130mA # Li-ion battery 3.7Vdc
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	N/A

Note:

1. *For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.*

3.2. Channel List

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
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		

3.3.

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
-	-	-	PRINTED ANT	N/A	1.80	BT Antenna

3.2 DESCRIPTION OF TEST MODES

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 above was evaluated respectively.

Pretest Mode	Description
Mode 1	CH00 (1Mbps) EUT only
Mode 2	CH39(1Mbps) EUT only
Mode 3	CH78(1Mbps) EUT only
Mode 4	Charger Mode

The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following:

For Conducted Emission	
Final Test Mode	**Description**
Mode 4	Charger Mode

For Radiated Emission	
Final Test Mode	**Description**
Mode 1	CH00 (1Mbps) EUT only
Mode 2	CH39(1Mbps) EUT only
Mode 3	CH78(1Mbps) EUT only

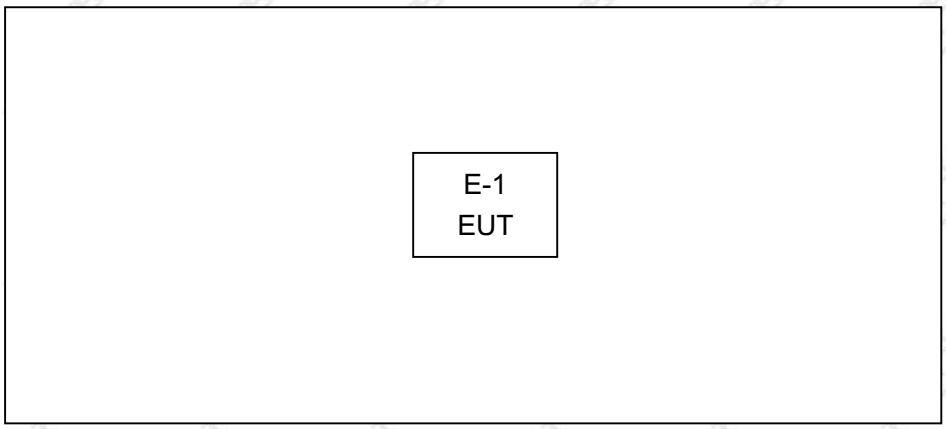
Note:
(1) The measurements are performed at the highest, middle, lowest available channels.

3.3 TABLE OF PARAMETERS OF TEXT 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 FHSS

Test software Version	Test program: Bluetest.exe		
Frequency	2402 MHz	2441 MHz	2480 MHz
Parameters-1Mbps	3	3	3

3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Bluetooth Headset	Jabees	JB101	ALEJB101	N/A	EUT

Item	Shielded Type	Ferrite Core	Length Note	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15-0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50-5.0	73.00	60.00	56.00	46.00	CISPR
5.0-30.0	73.00	60.00	60.00	50.00	CISPR

0.15-0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50-5.0	73.00	60.00	56.00	46.00	FCC
5.0-30.0	73.00	60.00	60.00	50.00	FCC

Note:
(1) The tighter limit applies at the band edges.
*(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.*

4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	05/29/2012
2	LISN	Rolf Heine	NNB-2-16Z	99044	05/29/2012
3	50Ω Terminator	SHX	TF2-3G-A	08122901	05/29/2012
4	Transient Limiter	Agilent	11947A	3107A03668	05/29/2012
5	Test Cable	N/A	C-06_C03	N/A	05/29/2012
6	Emi Test Receiver	R&S	ESCS30	8333641017	05/29/2012

Remark: " N/A" denotes No Model No. , Serial No. or No Calibration specified.

Receiver Parameters Setting

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

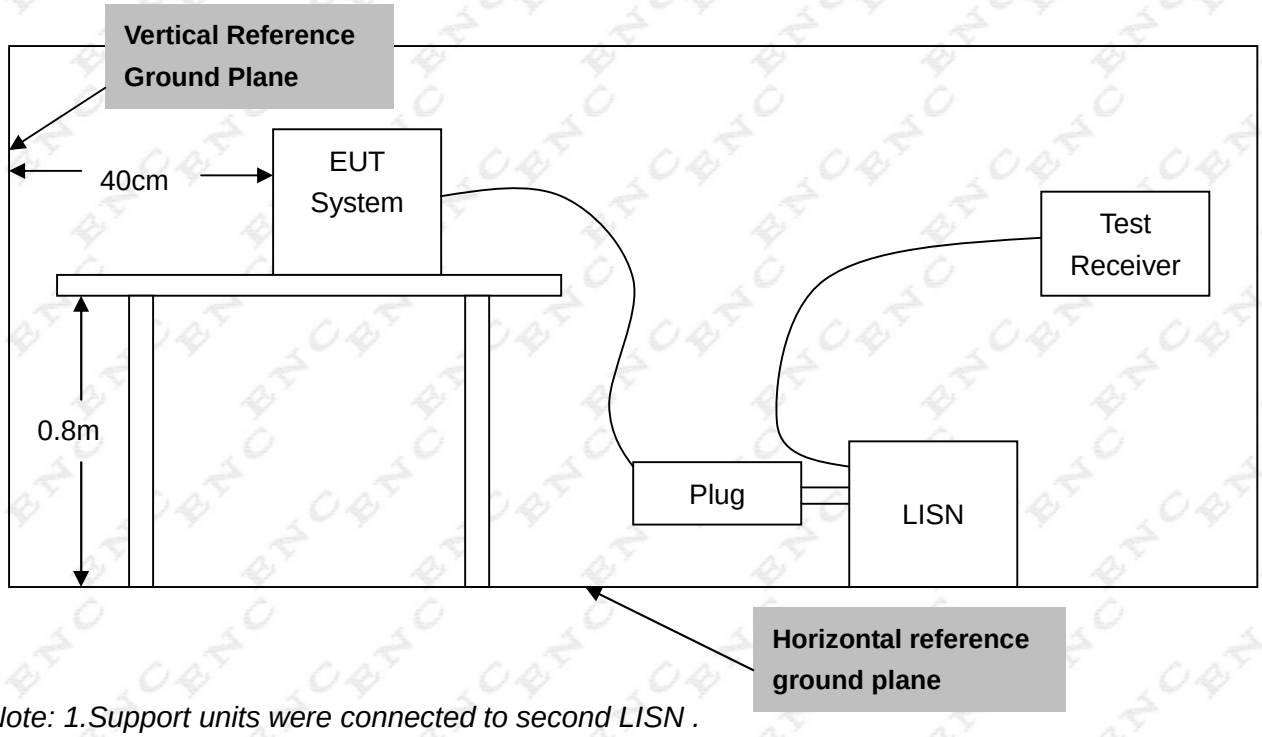
4.1.3 TEST PROCEDURE

a. 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 TEST SETUP



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

4.1.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

4.1.7 TEST RESULTS

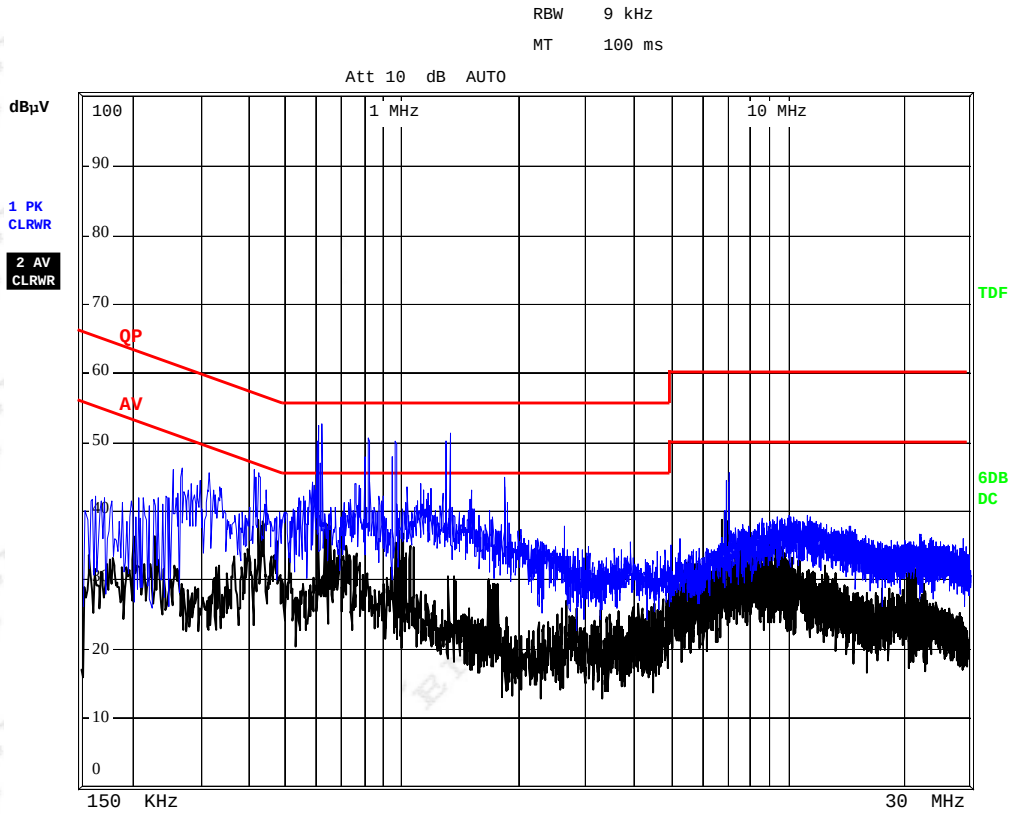
EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Charger Mode		

Freq. (MHz)	Termina l L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.614	Line	52.88	42.88	56.00	46.00	-3.12	(QP)
0.808	Line	50.98	40.98	56.00	46.00	-5.02	(QP)
0.978	Line	50.02	40.02	56.00	46.00	-5.98	(QP)
1.417	Line	51.30	41.30	56.00	46.00	-4.70	(QP)
1.901	Line	45.78	35.78	56.00	46.00	-10.22	(QP)
6.932	Line	44.42	34.42	60.00	50.00	-15.58	(QP)

Remark:

(1) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.

(2) Measuring frequency range from 150KHz to 30MHz.



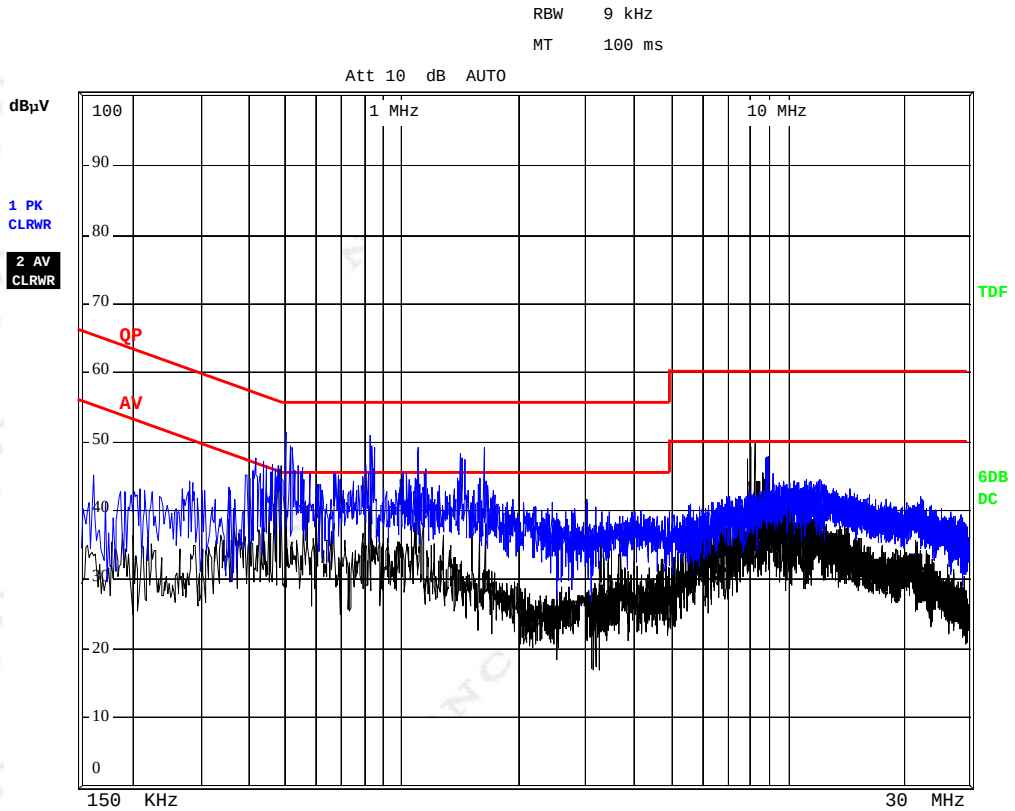
EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	AC 120V/60Hz
Test Mode：	Charger Mode		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.520	Neutral	49.94	39.94	56.00	46.00	-6.06	(QP)
0.829	Neutral	50.73	40.73	56.00	46.00	-5.27	(QP)
1.141	Neutral	49.17	39.17	56.00	46.00	-6.83	(QP)
1.494	Neutral	48.39	38.39	56.00	46.00	-7.61	(QP)
1.719	Neutral	49.20	39.20	56.00	46.00	-6.80	(QP)
8.967	Neutral	47.27	37.27	60.00	50.00	-12.73	(QP)

Remark:

(1) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.

(2) Measuring frequency range from 150KHz to 30MHz.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed. Frequencies

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

Frequencies (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.
(2) The tighter limit applies at the band edges.
(3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5_{th} harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	ETS	3115	00075789	05/29/2012
2	Amplifier	Agilent	8449B 3	008A02274	05/29/2012
3	Spectrum	Agilent	E4408B	US39240143	05/29/2012
4	Test Cable	HUBER+SUHNER	GZ02 High Fre	N/A	05/29/2012
5	Antenna	Schwarbeck	VULB9160	9160-3232	05/29/2012
6	Amplifier	HP	8447D	2944A09673	05/29/2012
7	Test Receiver	R&S	ESCI	100895	05/29/2012
8	Test Cable	N/A	C-01_GZ02	N/A	05/29/2012
9	Controller	CT	SC100	N/A	N/A

Remark: ” N/A” denotes No Model Name / Serial No. and No Calibration specified.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.2.3 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. 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.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

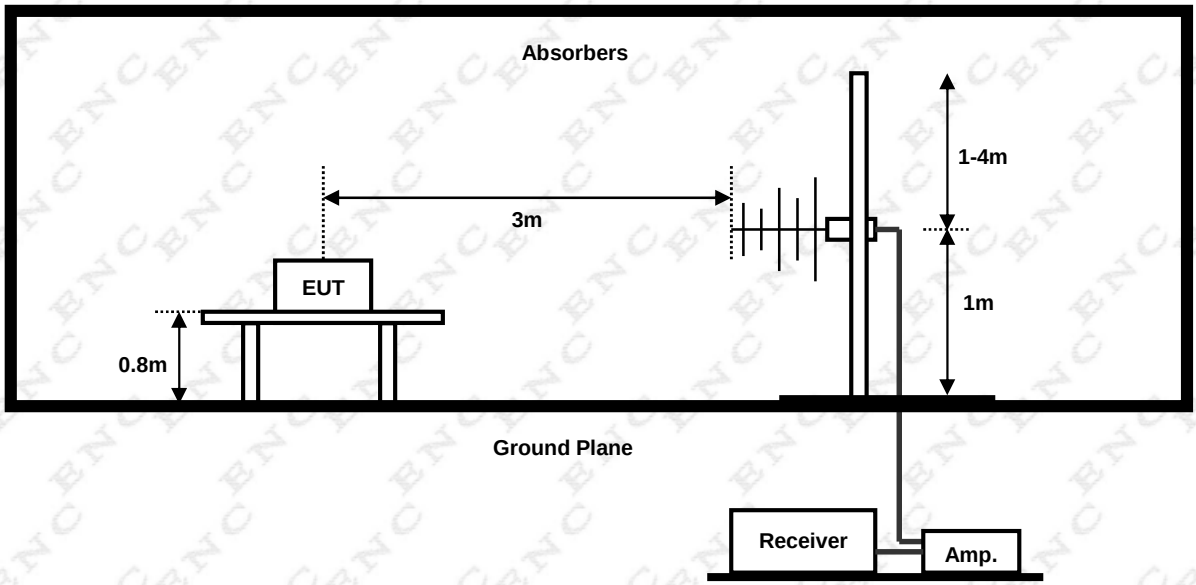
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

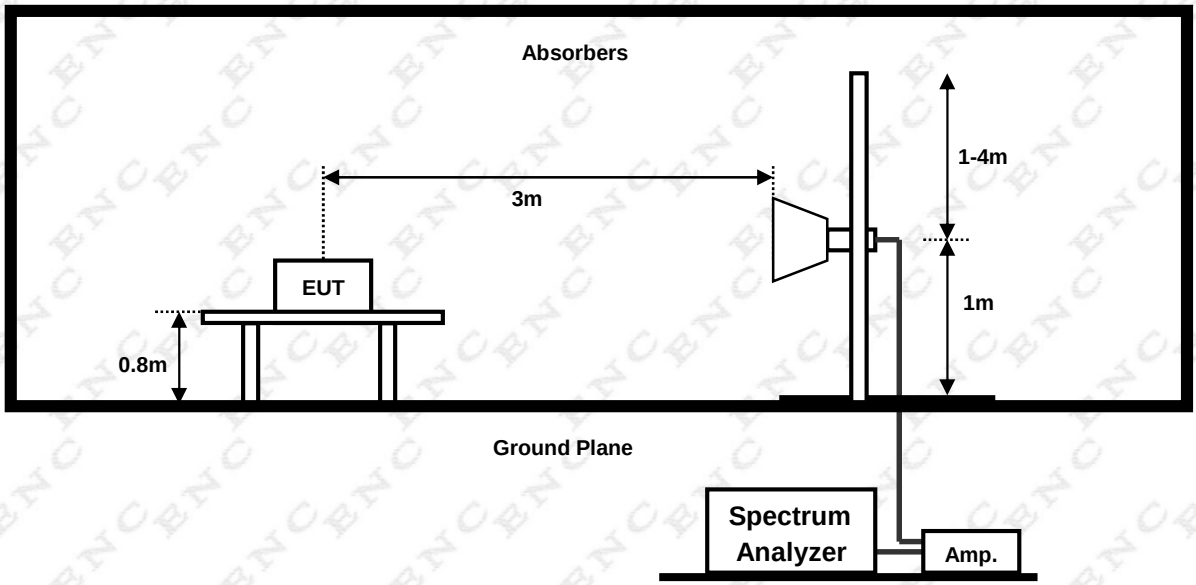
No deviation

4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (BETWEEN30 – 1000 MHZ)

EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	TX 2402MHz –CH00-1Mbps		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
38.30	H	27.76	-1.21	26.55	40.00	-13.45	
149.17	H	26.63	-1.22	25.41	43.50	-18.09	
172.63	H	28.59	-1.61	26.98	43.50	-16.52	
502.19	H	30.86	-2.13	28.73	46.00	-17.27	
38.39	V	27.24	-1.67	25.57	40.00	-14.43	
199.43	V	28.37	-1.75	26.62	43.50	-16.88	
311.30	V	26.41	-2.09	24.32	46.00	-21.68	
501.15	V	31.14	-2.45	28.69	46.00	-17.31	

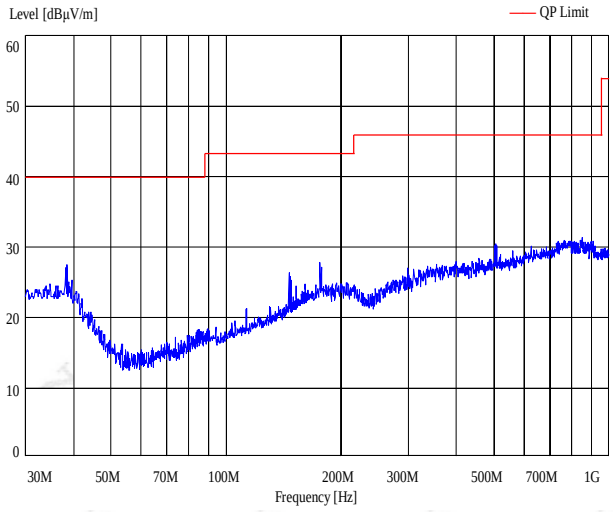
Remark:

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.

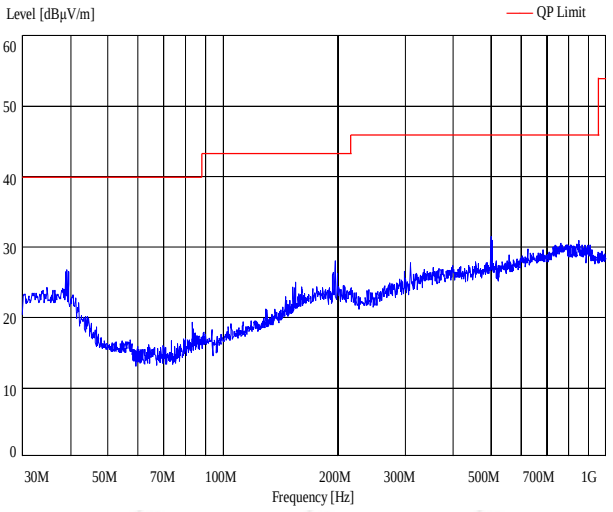
(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(3) Measuring frequency range from 30MHz to 1000MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.



Antenna Horizontal



Antenna Vertical

EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	TX 2441MHz –CH39-1Mbps		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
38.85	H	26.64	-1.04	25.60	40.00	-14.40	
154.93	H	23.65	-1.45	22.20	43.50	-21.30	
194.31	H	27.34	-1.37	25.97	43.50	-17.53	
337.99	H	28.73	-1.13	27.60	46.00	-18.40	
40.11	V	28.55	-1.81	26.74	40.00	-13.26	
203.04	V	25.54	-1.85	23.69	43.50	-19.81	
292.23	V	30.92	-1.52	29.40	46.00	-16.60	
810.13	V	36.37	-0.68	35.69	46.00	-10.31	

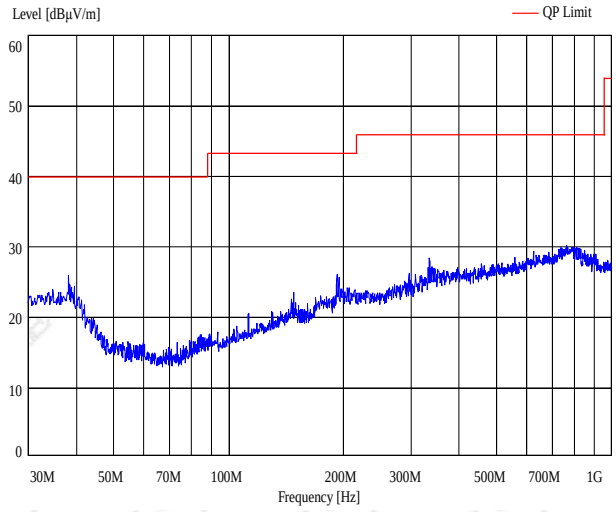
Remark

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.

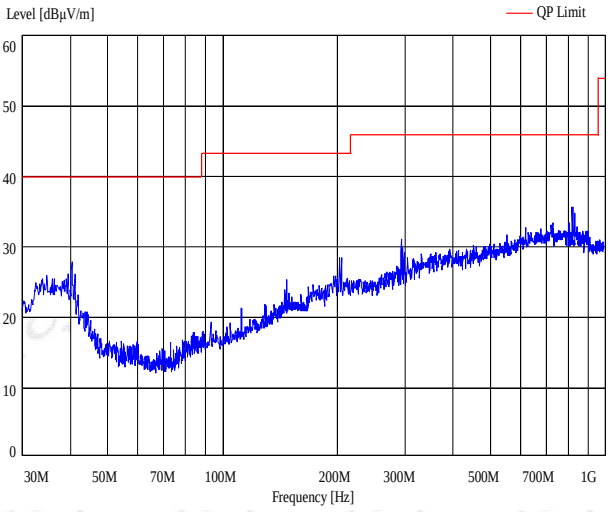
(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(3) Measuring frequency range from 30MHz to 1000MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.



Antenna Horizontal



Antenna Vertical

EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	TX 2480MHz –CH78-1Mbps		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
41.28	H	23.89	-1.44	22.45	40.00	-17.55	
166.05	H	24.90	-1.39	23.51	43.50	-19.99	
317.40	H	27.80	-1.33	26.47	46.00	-19.53	
702.69	H	28.87	-0.43	28.44	46.00	-17.56	
36.16	V	27.12	-1.43	25.69	40.00	-14.31	
170.17	V	26.51	-1.27	25.24	43.50	-18.26	
331.14	V	29.75	-1.01	28.74	46.00	-17.26	
620.15	V	31.15	-0.47	30.68	46.00	-15.32	

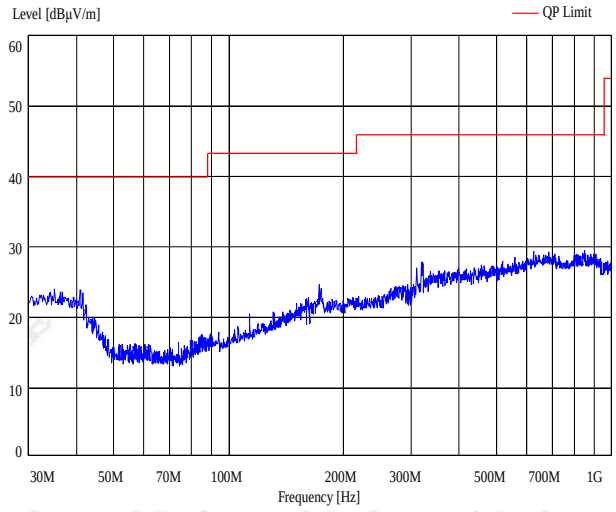
Remark

(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.

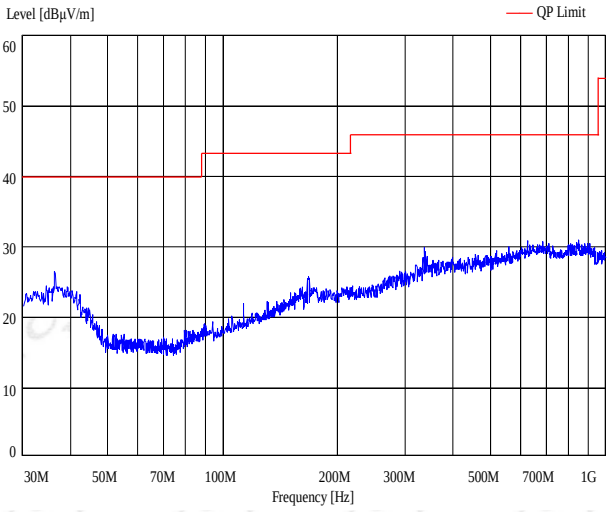
(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(3) Measuring frequency range from 30MHz to 1000MHz.

(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.



Antenna Horizontal



Antenna Vertical

4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

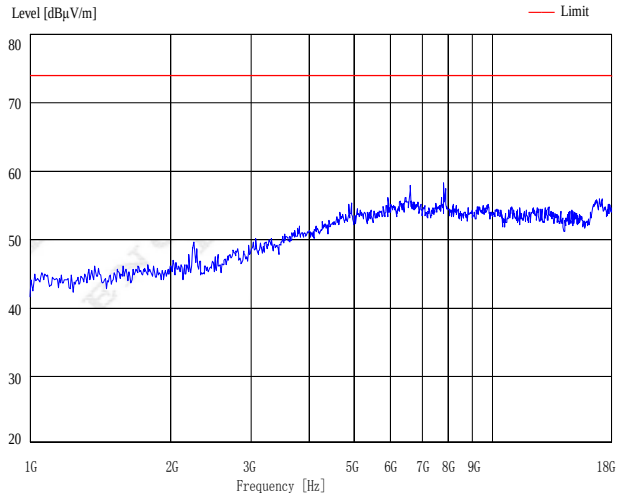
EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	TX 2402MHz – CH00-1Mbps		

Freq. (MHz)	Ant. H/V	Level (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
4906.05	H	54.94	1.78	56.72	74.00	-17.28	Peak
5924.29	H	56.90	1.89	58.79	74.00	-15.21	Peak
6571.71	H	57.39	2.19	59.58	74.00	-14.42	Peak
7856.22	H	58.37	2.40	60.77	74.00	-13.23	Peak
6054.35	V	56.24	1.94	58.18	74.00	-15.82	Peak
5949.41	V	58.25	1.90	60.15	74.00	-13.85	Peak
6456.07	V	58.55	2.19	60.74	74.00	-13.26	Peak
8230.12	V	59.59	2.87	62.46	74.00	-11.54	Peak

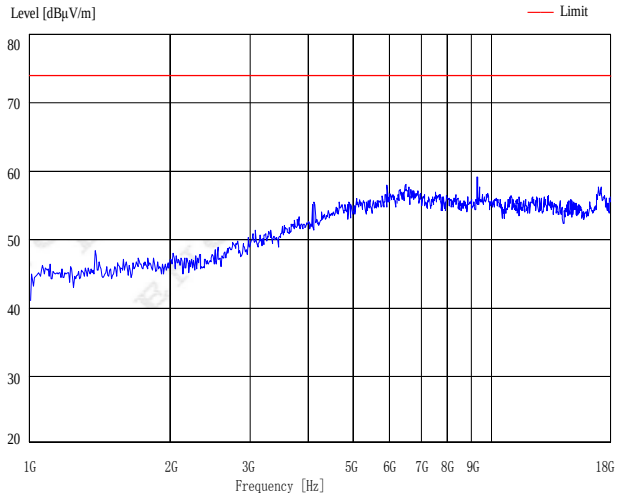
Remark:

(1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No emission detected above 18GHz



Antenna Horizontal



Antenna Vertical

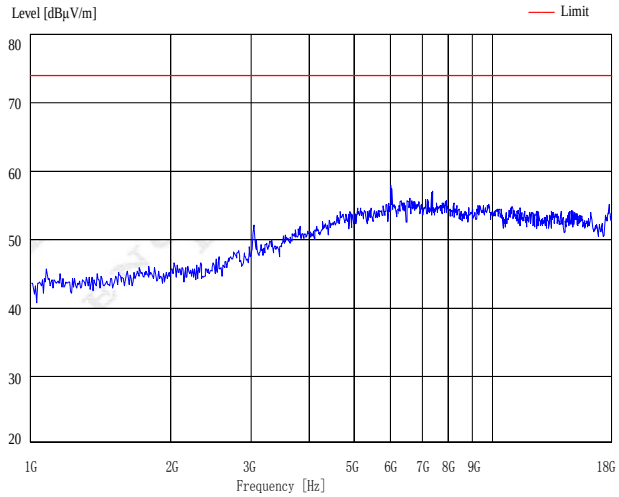
EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	TX 2441MHz – CH39-1Mbps		

Freq. (MHz)	Ant. H/V	Level (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
3080.43	H	52.28	1.51	53.79	74.00	-20.21	Peak
6008.45	H	58.36	1.86	60.22	74.00	-13.78	Peak
7382.20	H	57.86	2.26	60.12	74.00	-13.88	Peak
7917.85	H	56.13	2.48	58.61	74.00	-15.39	Peak
3821.35	V	51.62	1.68	53.30	74.00	-20.70	Peak
5852.04	V	54.66	1.76	56.42	74.00	-17.58	Peak
6540.23	V	58.65	1.97	60.62	74.00	-13.38	Peak
7210.48	V	55.69	2.13	57.82	74.00	-16.18	Peak

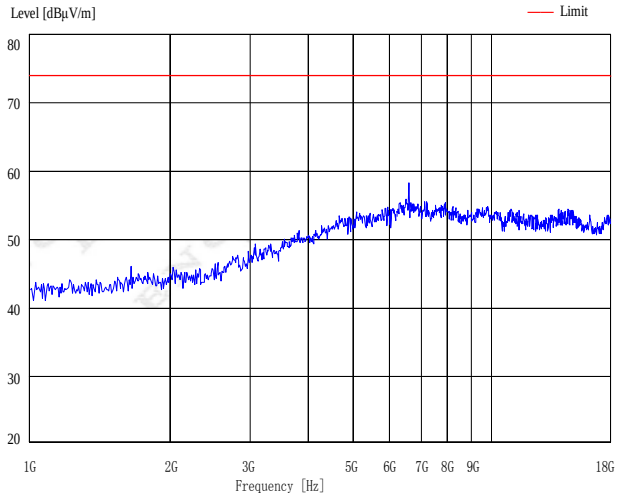
Remark:

(1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No emission detected above 18GHz



Antenna Horizontal



Antenna Vertical

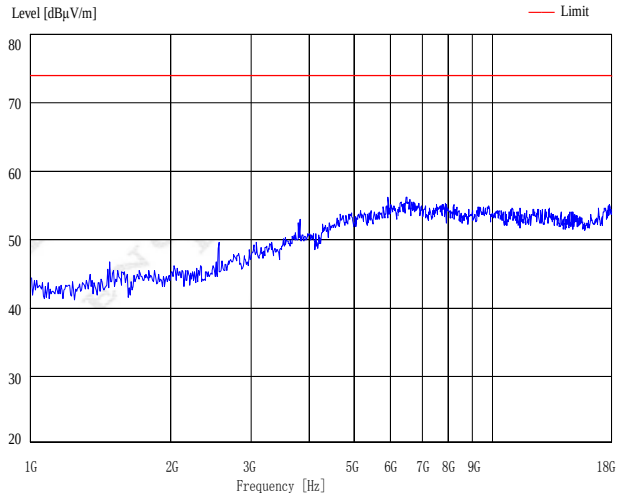
EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	TX 2480MHz – CH78-1Mbps		

Freq. (MHz)	Ant. H/V	Level (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
2574.69	H	49.42	1.41	50.83	74.00	-23.17	Peak
3796.10	H	53.19	1.67	54.86	74.00	-19.14	Peak
5971.16	H	56.87	1.77	58.64	74.00	-15.36	Peak
6471.34	H	56.60	2.11	58.71	74.00	-15.29	Peak
2868.70	V	52.66	1.49	54.15	74.00	-19.85	Peak
4168.47	V	53.68	1.66	55.34	74.00	-18.66	Peak
6269.71	V	58.93	1.97	60.90	74.00	-13.10	Peak
9774.84	V	57.57	2.36	59.93	74.00	-14.07	Peak

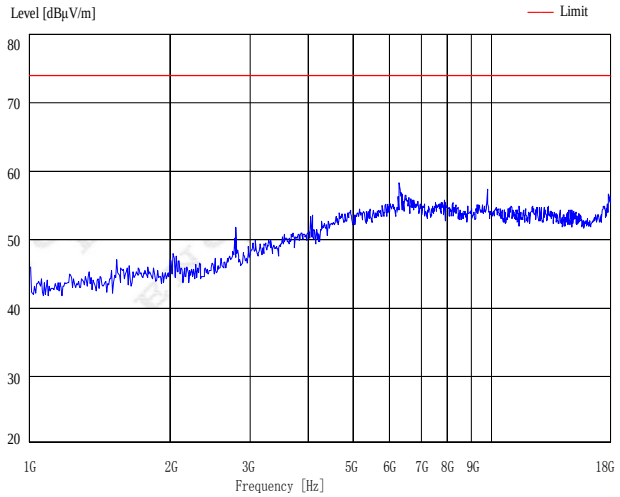
Remark:

(1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No emission detected above 18GHz



Antenna Horizontal



Antenna Vertical

4.2.9 BAND EDGE

No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1 *	2390.00	H	CH00	45.76	74.00	-28.24	Peak
2	2400.00	H	CH00	80.63	74.00	6.63	Peak
3	2401.87	H	CH00	104.59	74.00	30.59	Peak

No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1 *	2390.00	V	CH00	45.86	74.00	-28.14	Peak
2	2400.00	V	CH00	87.79	74.00	13.79	Peak
3	2401.61	V	CH00	101.88	74.00	27.88	Peak

No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1 *	2390.00	H	CH00	31.14	54.00	-22.86	Avg
2	2400.00	H	CH00	89.13	54.00	35.13	Avg
3	2401.87	H	CH00	91.17	54.00	37.17	Avg

No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1 *	2390.00	V	CH00	31.39	54.00	-22.61	Avg
2	2400.00	V	CH00	89.20	54.00	35.20	Avg
3	2401.86	V	CH00	90.27	54.00	36.27	Avg

No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1	2479.99	H	CH78	99.04	74.00	25.04	Peak
2 *	2483.50	H	CH78	50.31	74.00	-23.69	Peak

No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1	2479.98	V	CH78	101.71	74.00	27.71	Peak
2 *	2483.50	V	CH78	45.55	74.00	-28.45	Peak

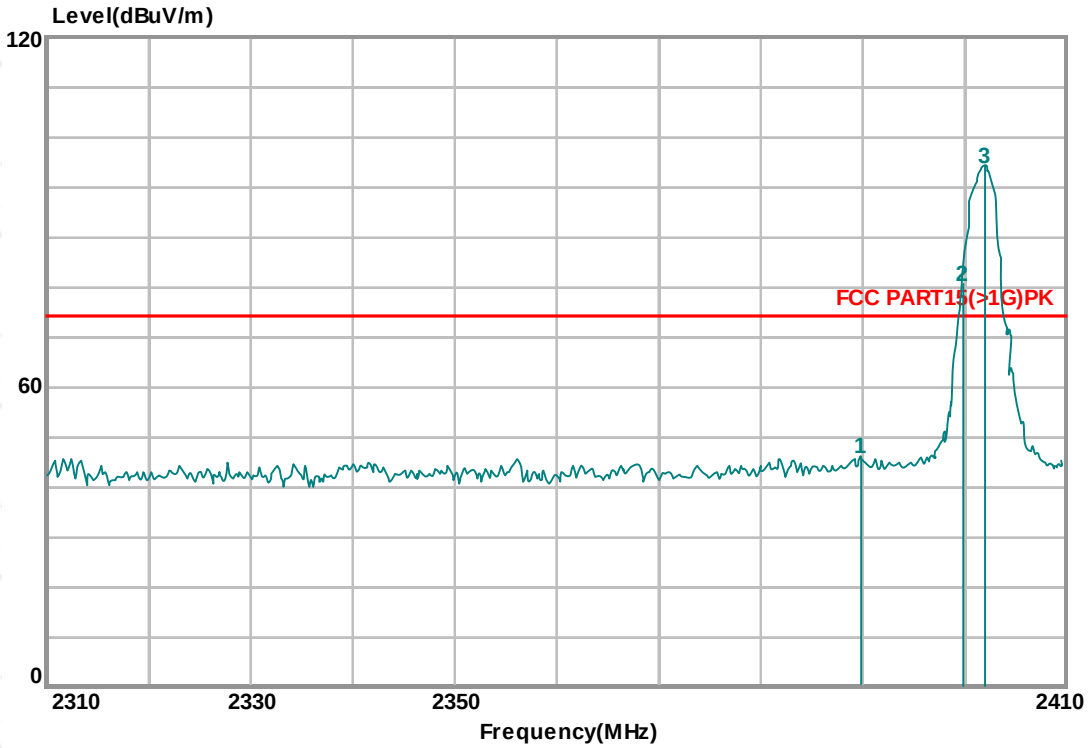
No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1	2479.98	H	CH78	99.40	54.00	45.40	Avg
2 *	2483.50	H	CH78	51.36	54.00	-2.64	Avg

No.	Frequency	Ant.	Frequency	Result	Limit	Margin	Note
1	2479.99	V	CH78	94.61	54.00	40.61	Avg
2 *	2483.50	V	CH78	49.65	54.00	-4.35	Avg

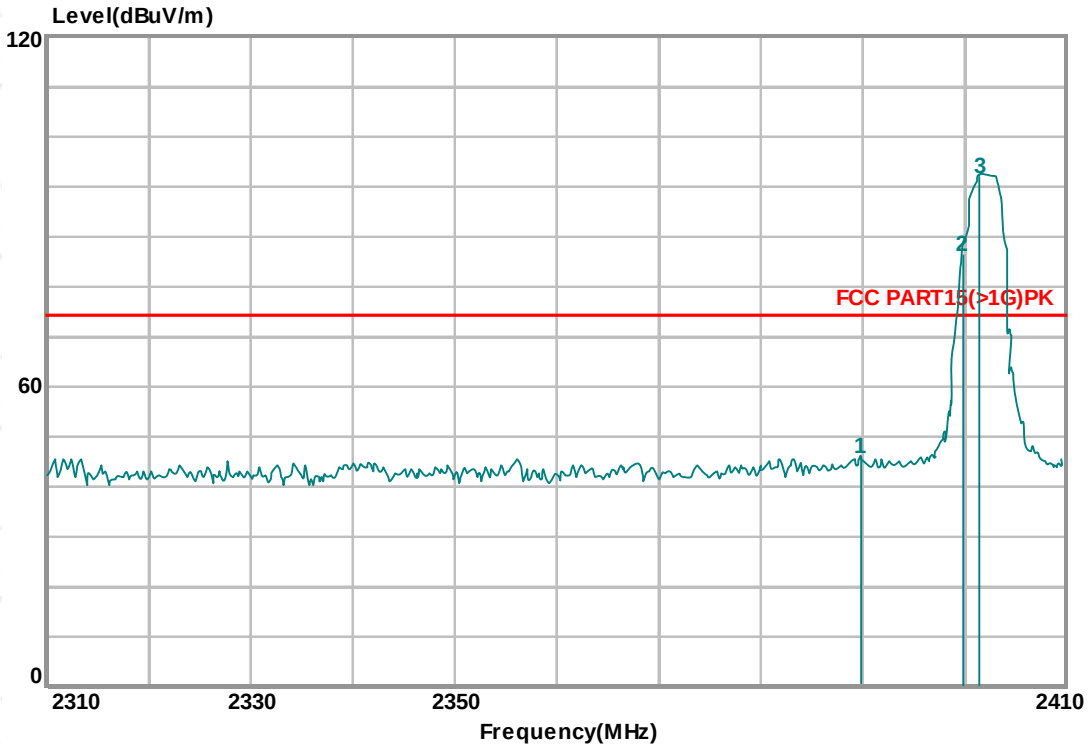
Refer to the attached plots.

CH00 (Lower) -1Mbps

Horizontal:

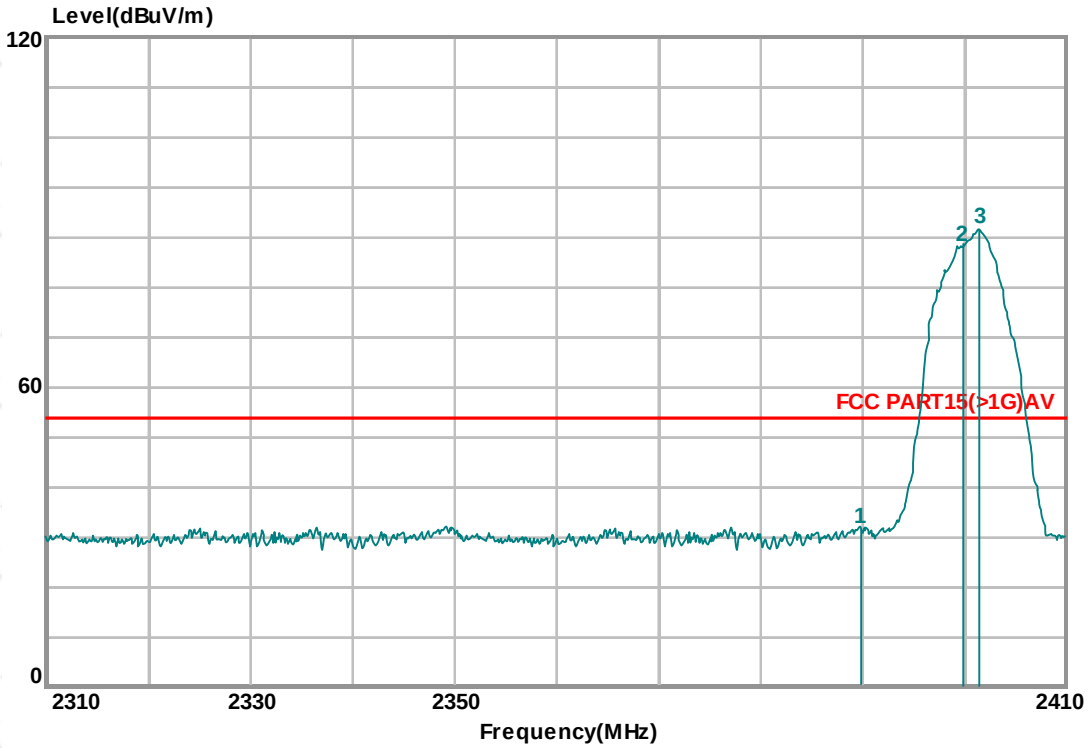


Vertical:

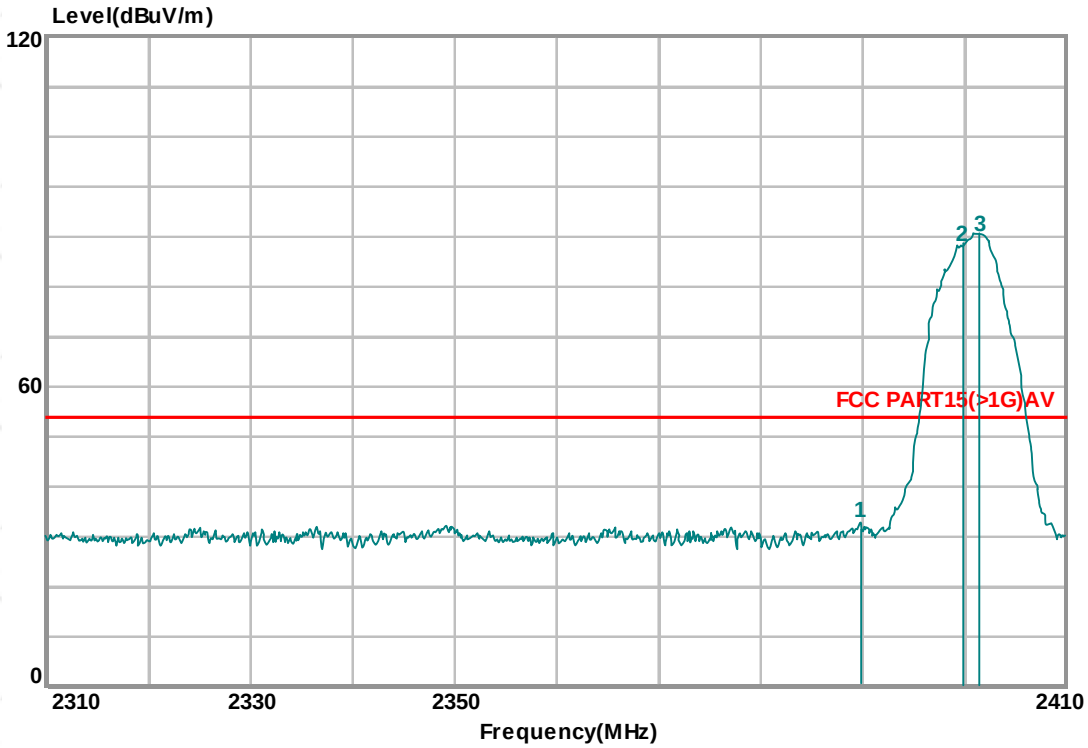


CH00 (Lower) -1Mbps

Horizontal:

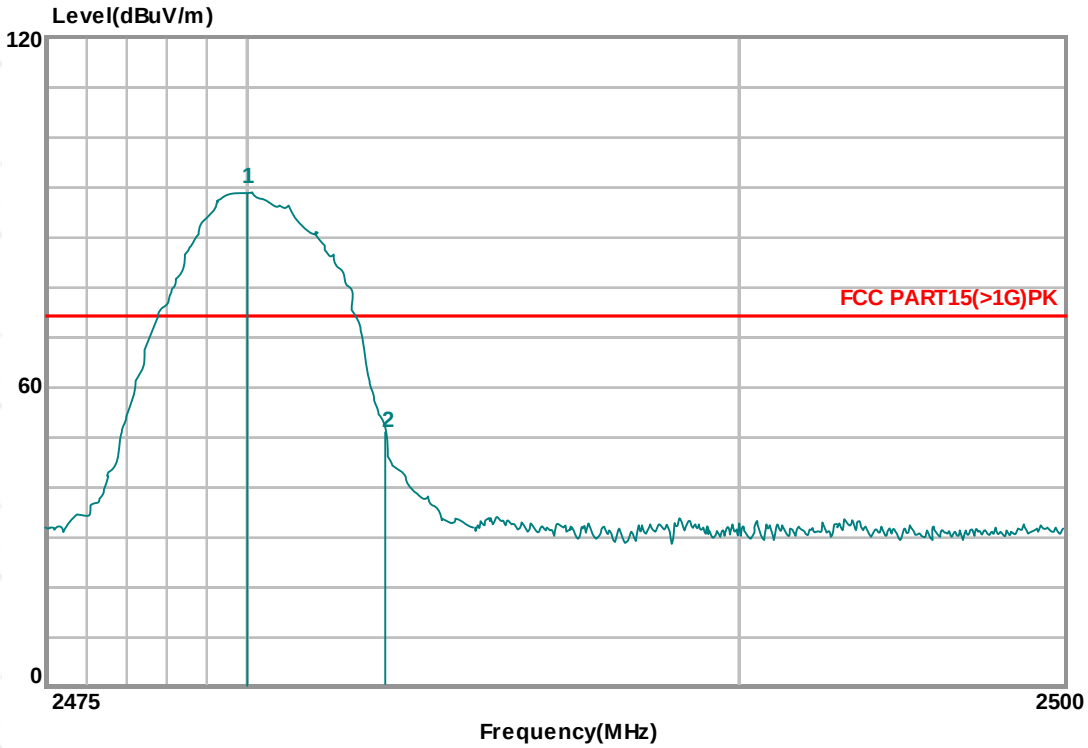


Vertical:

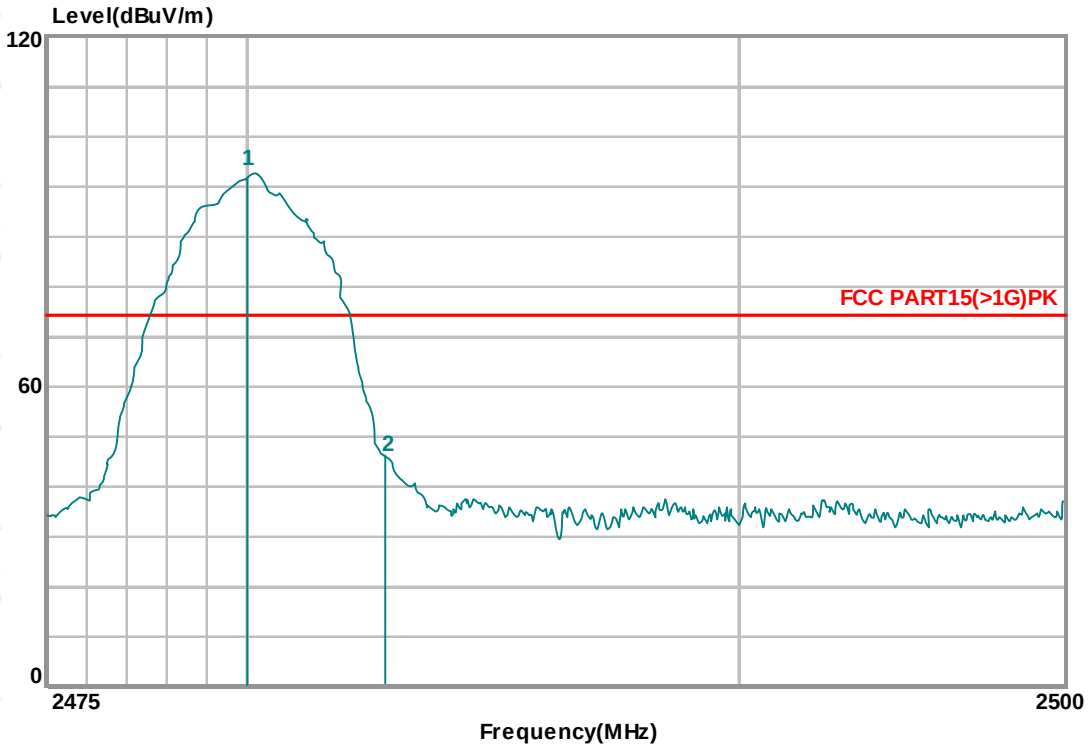


CH 78 (Upper) -1Mbps

Horizontal:

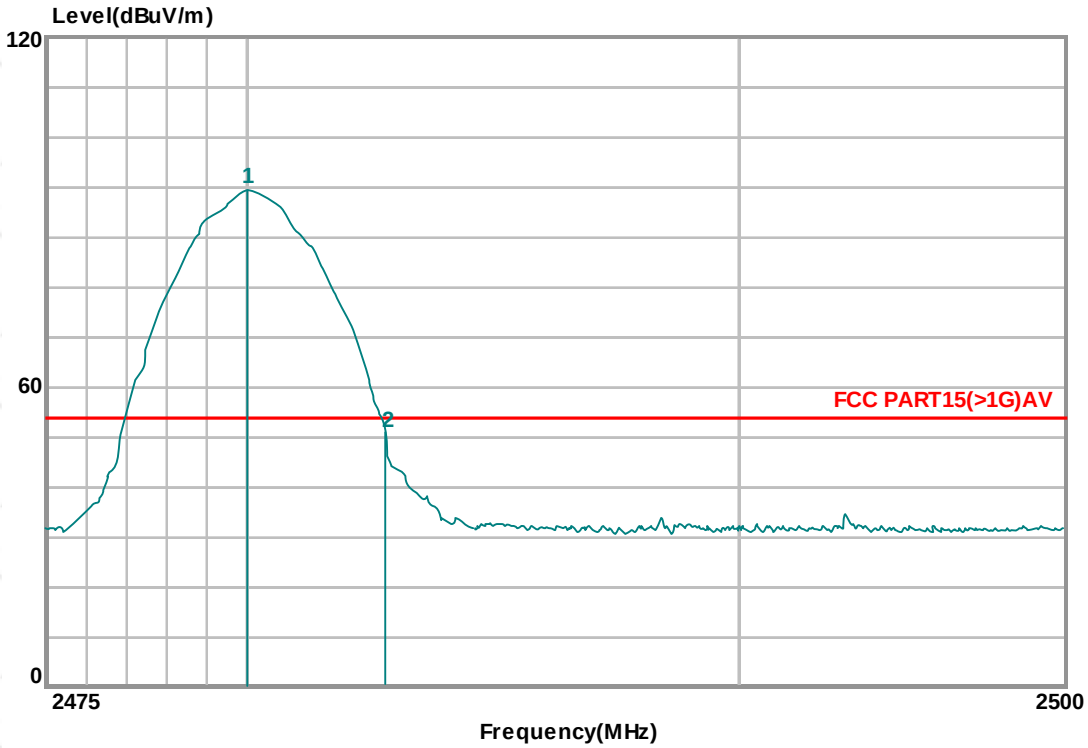


Vertical:

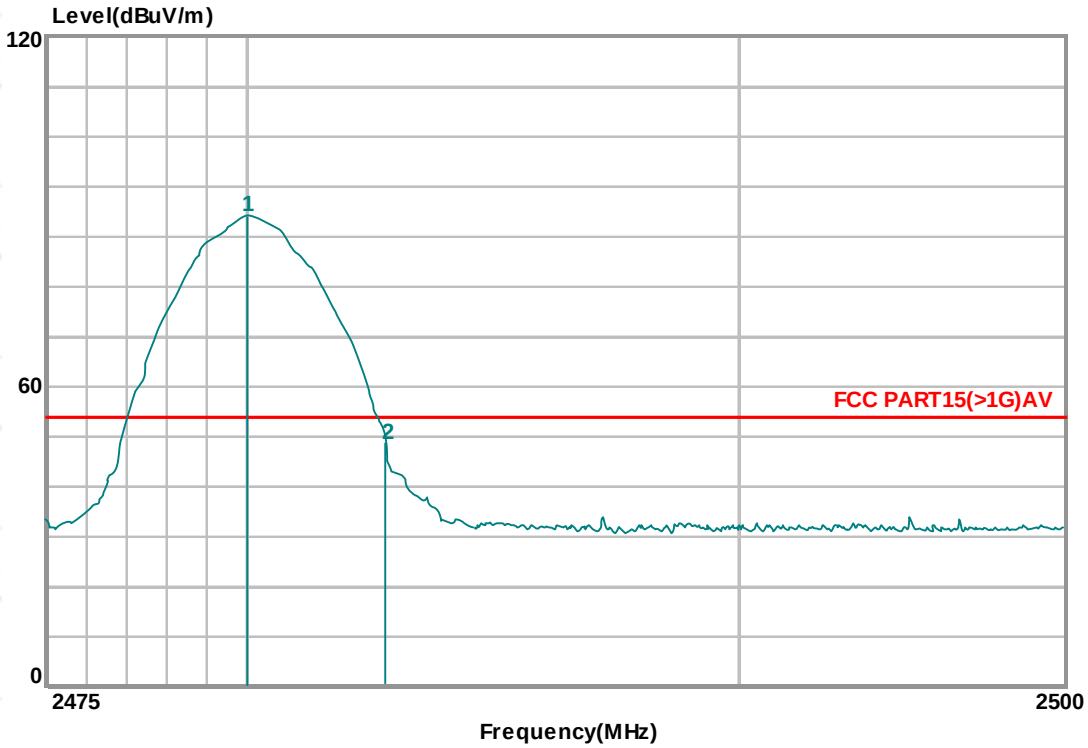


CH 78 (Upper) -1Mbps

Horizontal:



Vertical:



5. NUMBER OF HOPPING CHANNEL

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Number of Hopping Channel	2400-2483.5	PASS

5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	05/28/2012

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.1.2 TEST PROCEDURE

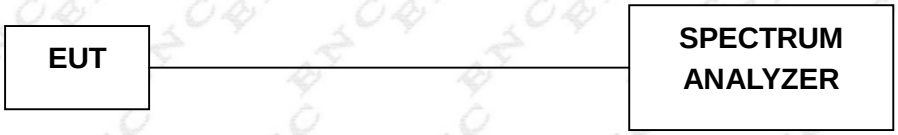
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP



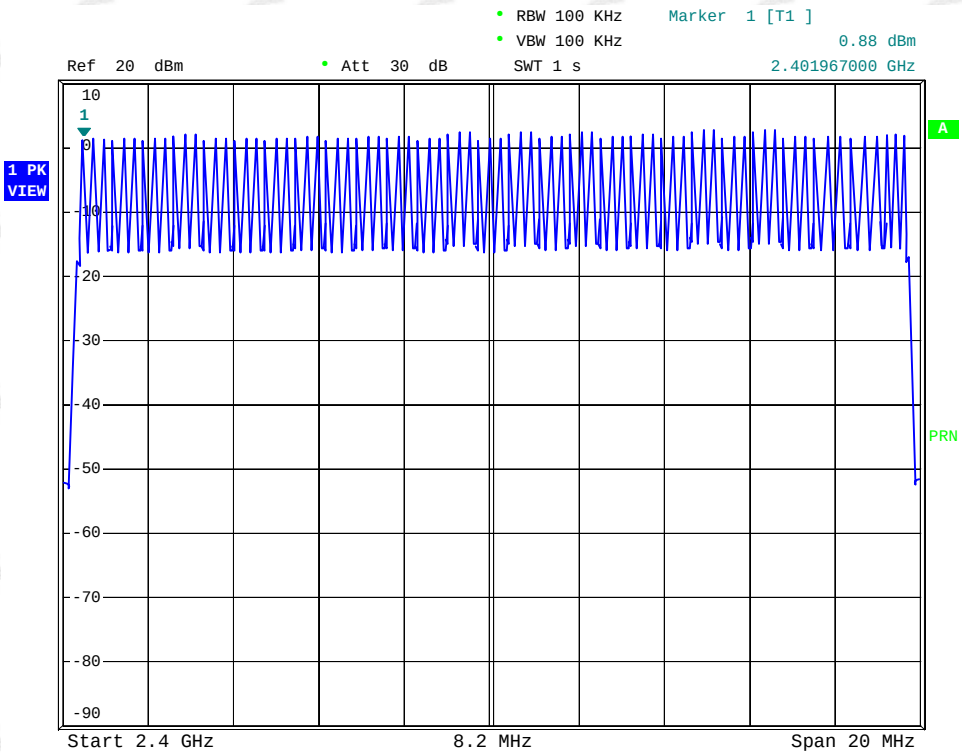
5.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.6 TEST RESULTS

EUT:	Bluetooth Headset	Model Name :	JB101
Temperature:	23 ℃	Relative Humidity:	65 %
Pressure:	1015hPa	Test Voltage :	DC 3.7V
Test Mode:	Hopping Mode -1Mbps		

Number of Hopping Channel	79



6. AVERAGE TIME OF OCCUPANCY

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

6.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	05/28/2012

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

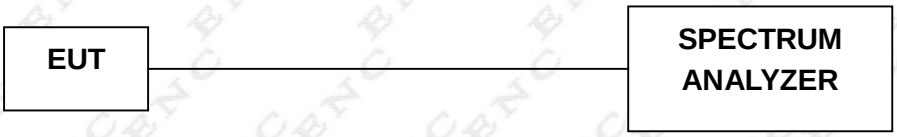
6.1.2 TEST PROCEDURE

a. The transmitter output (antenna port) was connected to the spectrum analyzer
b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
d. Sweep Time is more than once pulse time.
e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
f. Measure the maximum time duration of one single pulse.
g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
h. Measure the maximum time duration of one single pulse.
i. DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 3.37 x 31.6 = 106.6 within 31.6 seconds.
j. DH3 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (3 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 5.06 x 31.6 = 160 within 31.6 seconds.
k. DH1 Packet permit maximum 1600 / 79 /2 = 10.12 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 10.12 x 31.6 = 320 within 31.6 seconds.

6.1.3 DEVIATION FROM STANDARD

No deviation.

6.1.4 TEST SETUP



6.1.5 EUT OPERATION CONDITIONS

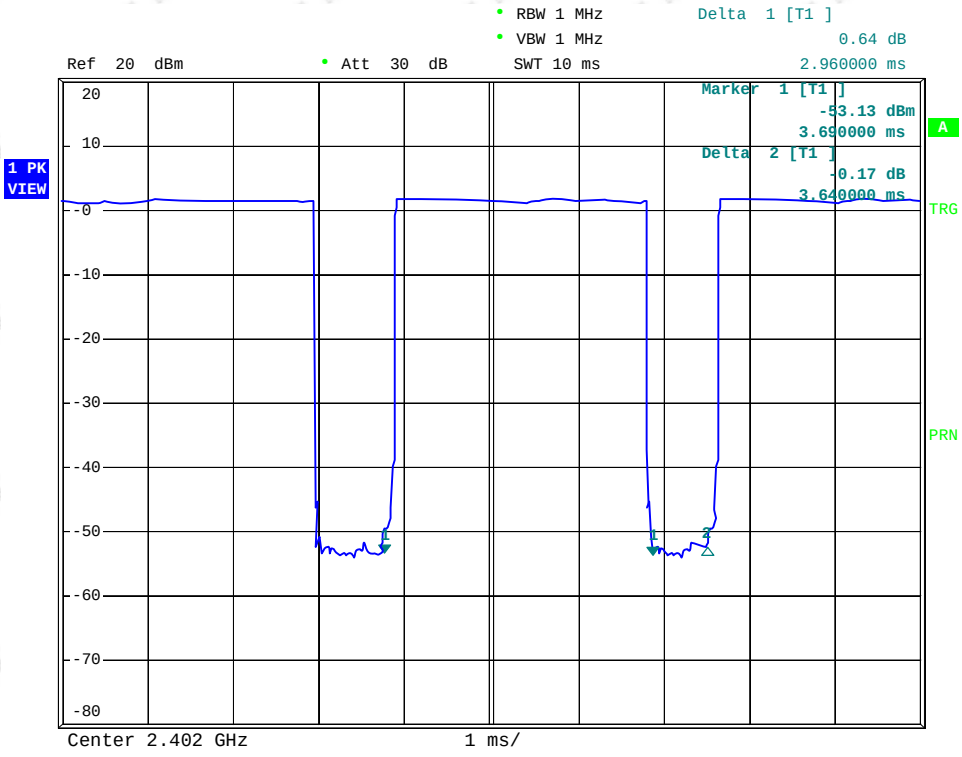
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.6 TEST RESULTS

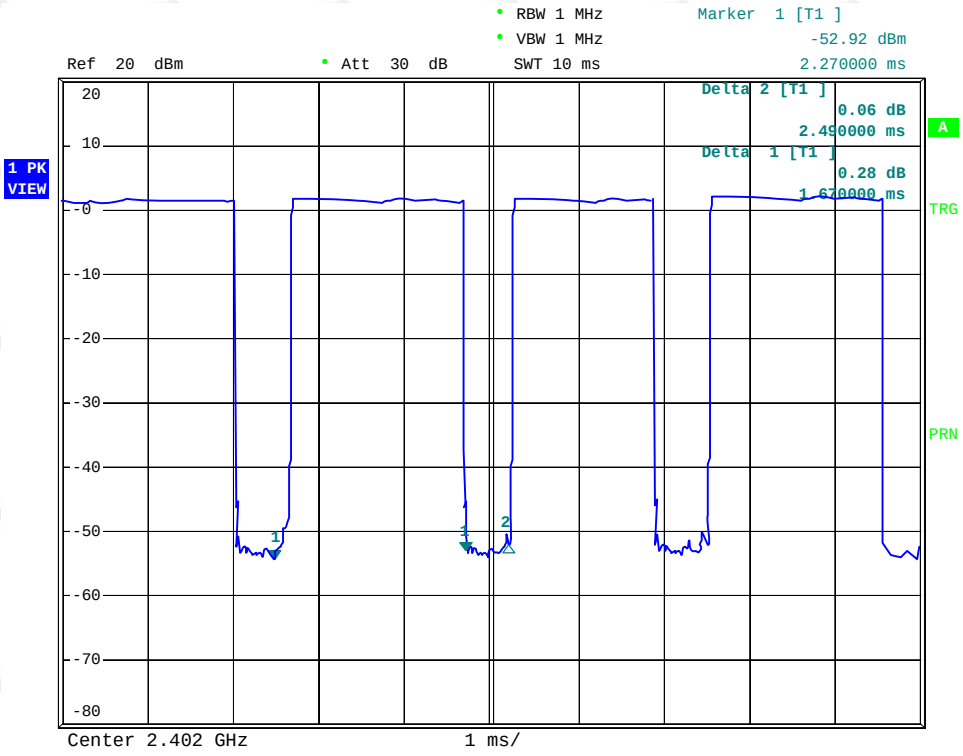
EUT:	Bluetooth Headset	Model Name :	JB101
Temperature:	23 ℃	Relative Humidity:	65 %
Pressure:	1012hPa	Test Voltage :	DC 3.7V
Test Mode:	CH00H1/DH3/DH5 -1Mbps		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402MHz	2.960	0.3157	0.4000
DH3	2402MHz	1.670	0.2672	0.4000
DH1	2402MHz	0.540	0.1728	0.4000

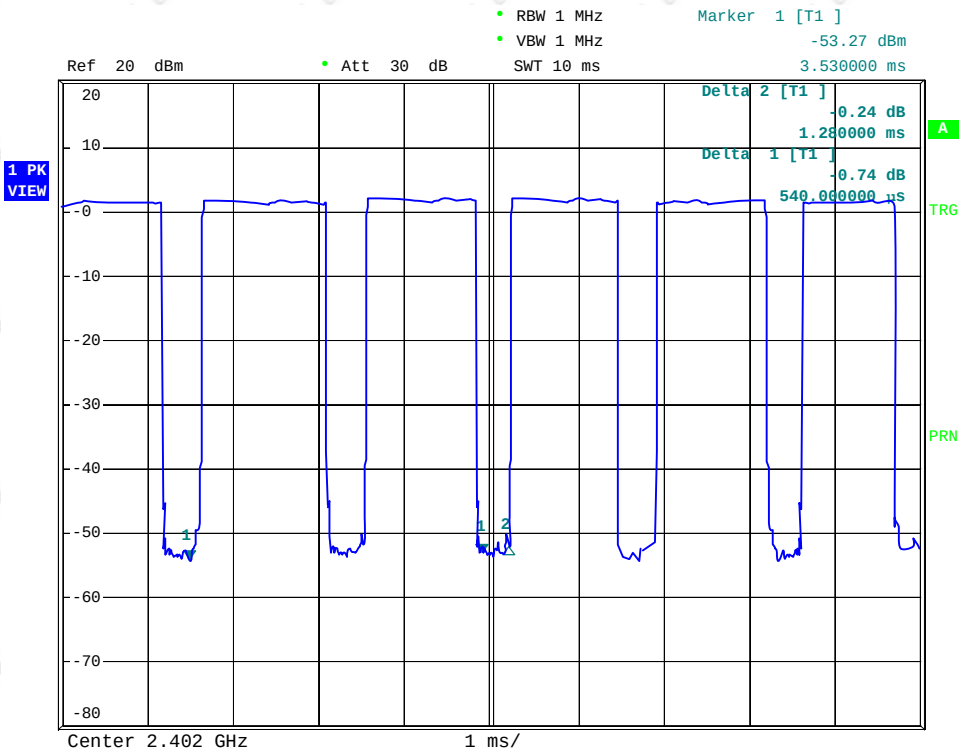
CH00-DH5



CH00-DH3



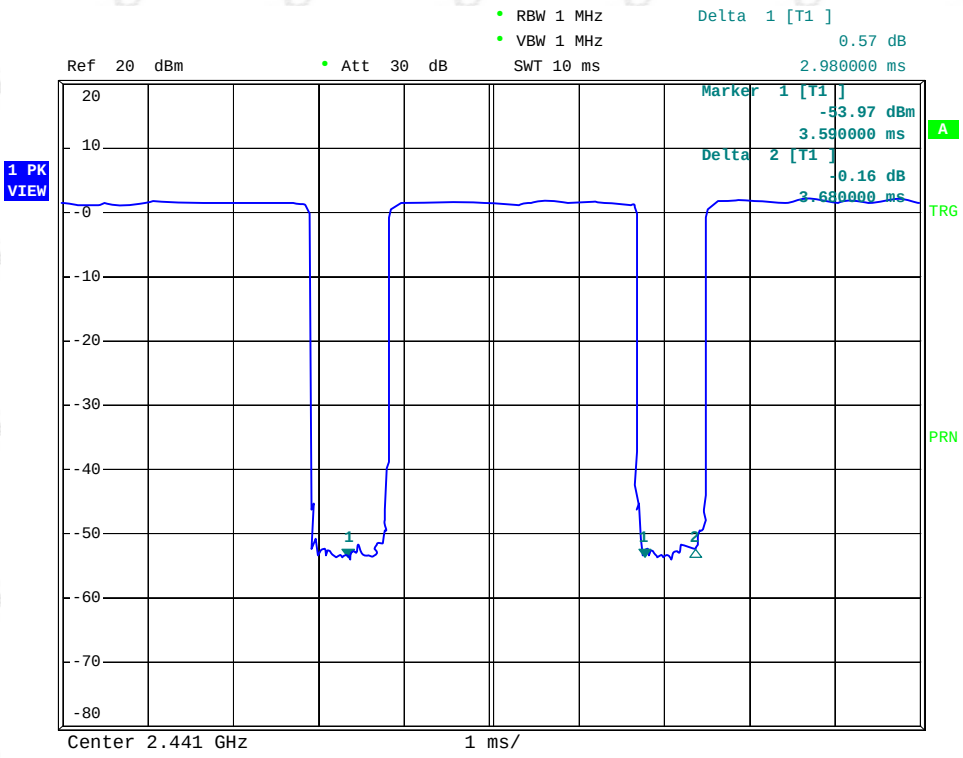
CH00-DH1



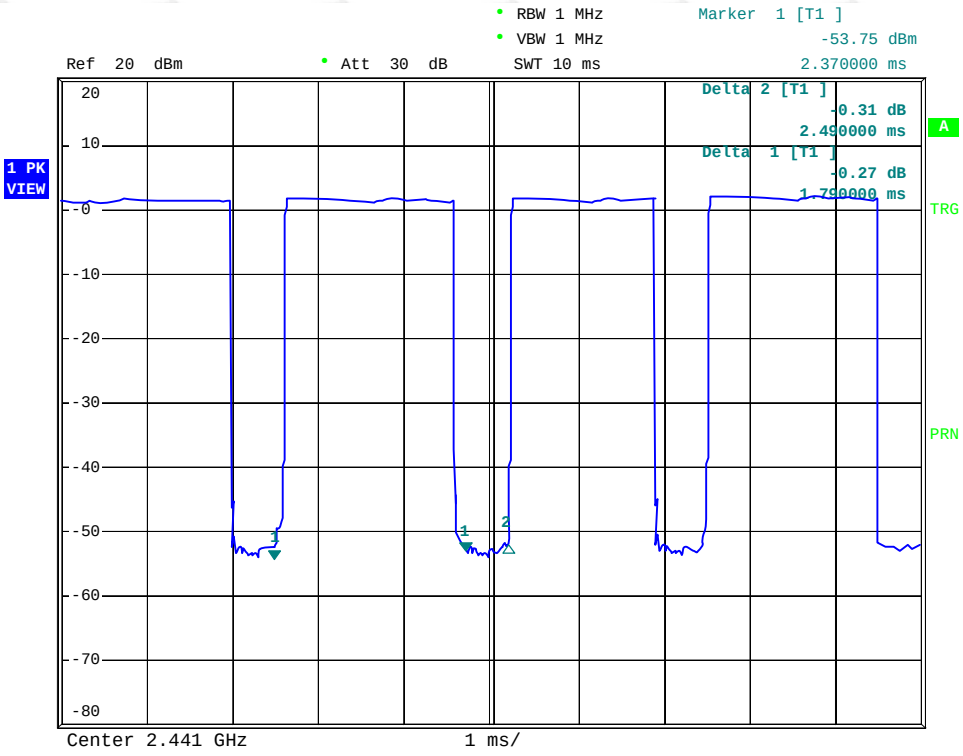
EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	CH39H1/DH3/DH5 -1Mbps		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2441MHz	2.980	0.3179	0.4000
DH3	2441MHz	1.790	0.2864	0.4000
DH1	2441MHz	0.520	0.1664	0.4000

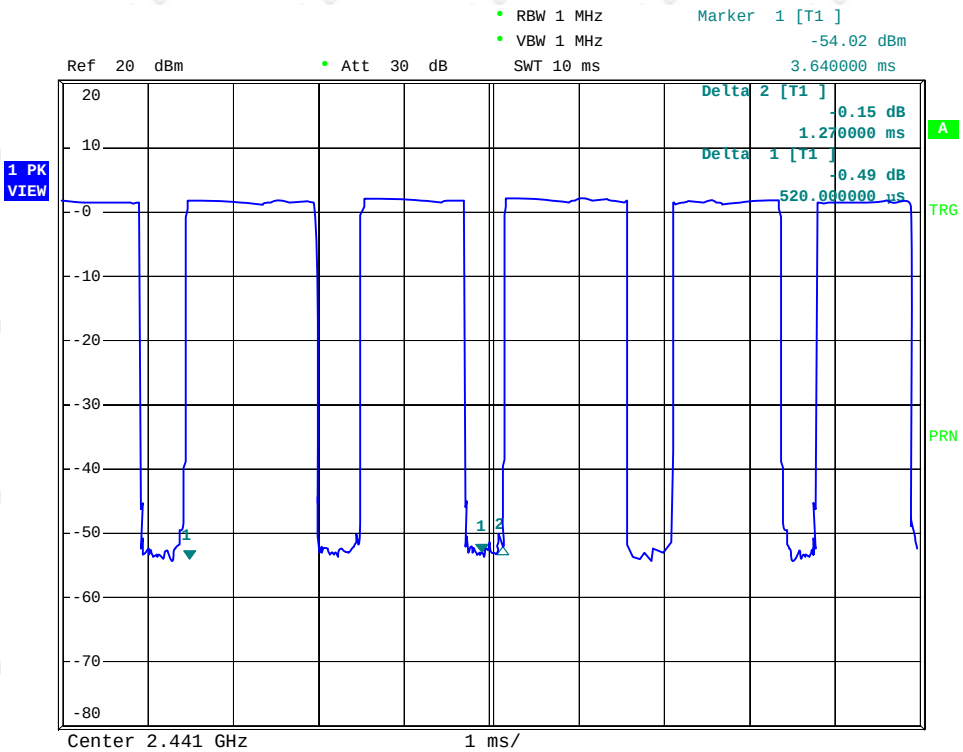
CH39-DH5



CH39-DH3



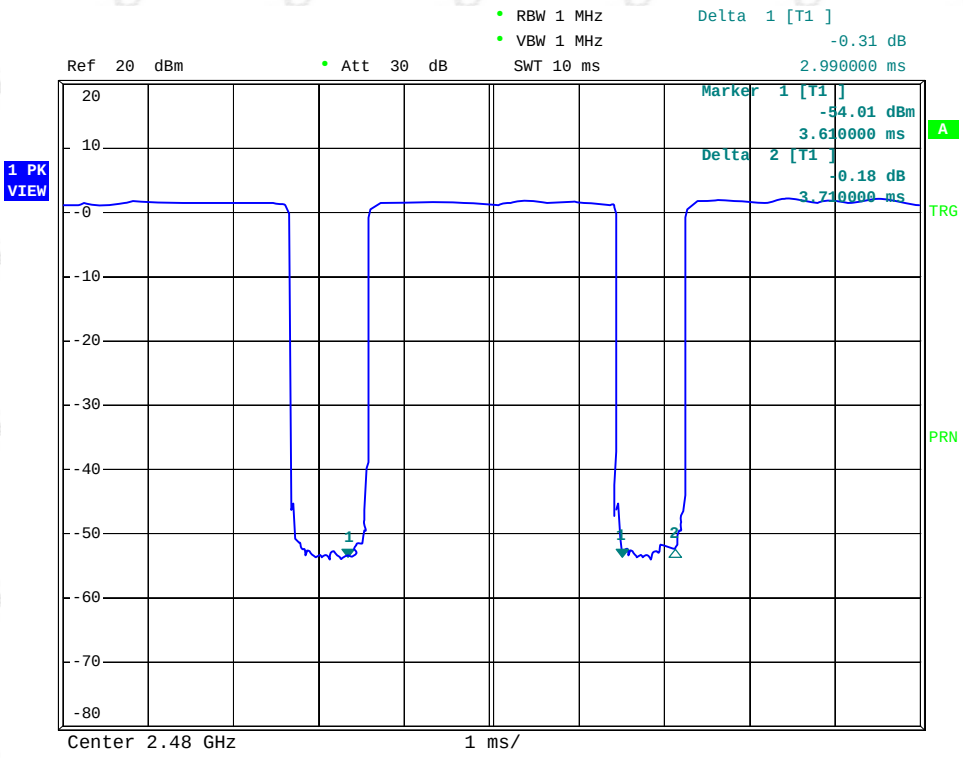
CH39-DH1



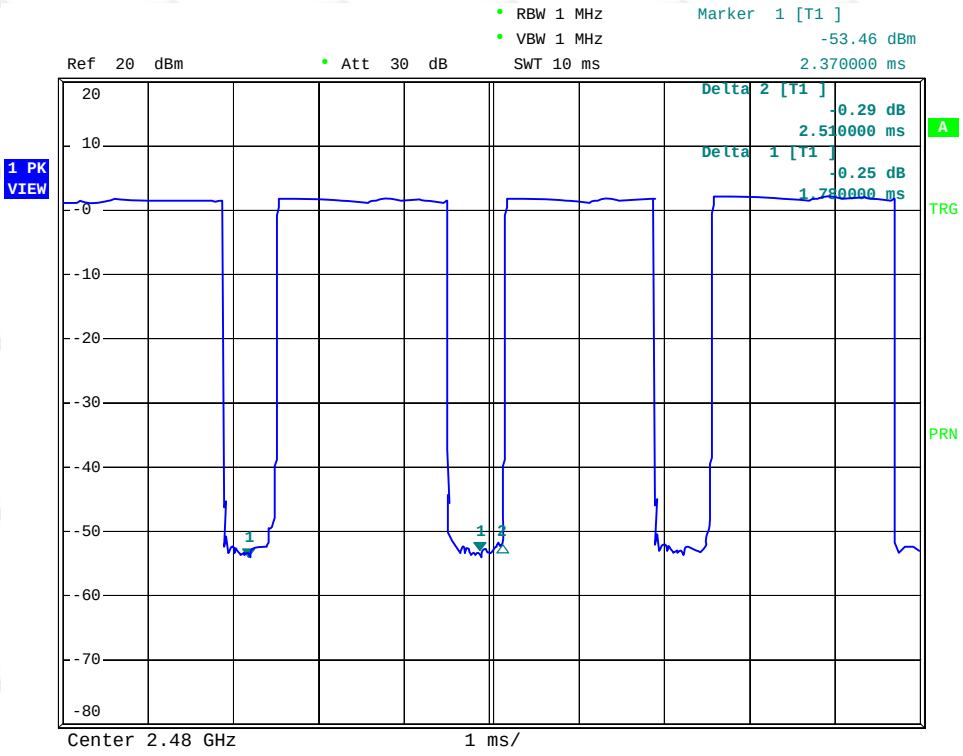
EUT：	Bluetooth Headset	Model Name ：	JB101
Temperature：	23 ℃	Relative Humidity：	65 %
Pressure：	1012hPa	Test Voltage ：	DC 3.7V
Test Mode：	CH78H1/DH3/DH5 -1Mbps		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2480MHz	2.990	0.3189	0.4000
DH3	2480MHz	1.780	0.2848	0.4000
DH1	2480MHz	0.520	0.1664	0.4000

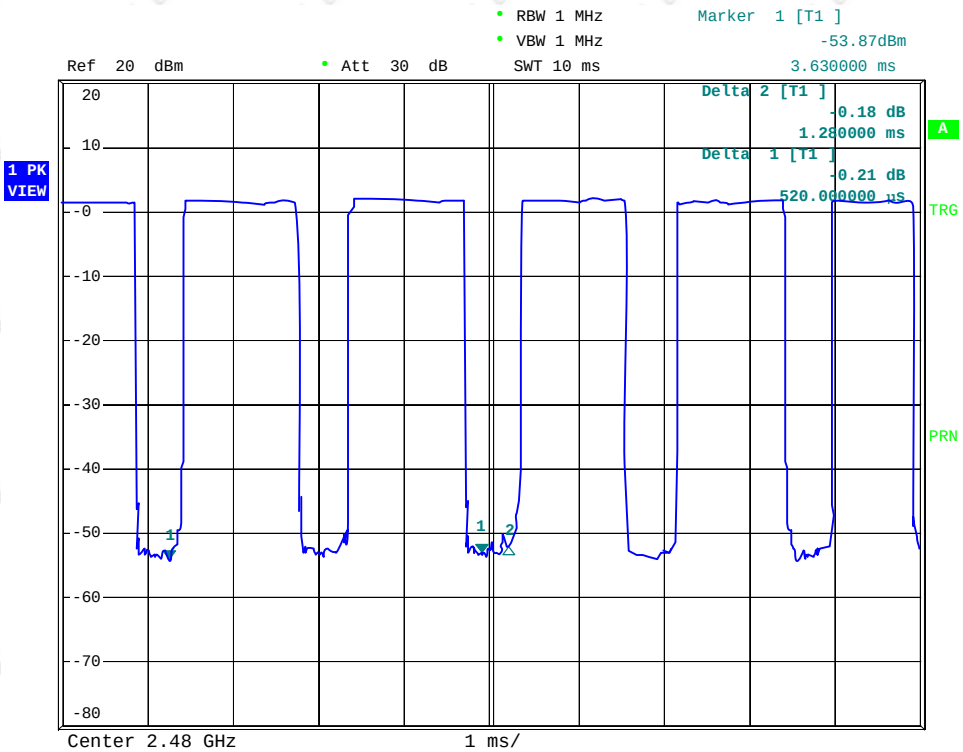
CH78-DH5



CH78-DH3



CH78-DH1



7. HOPPING CHANNEL SEPARATION MEASUREMENT

7.1 APPLIED PROCEDURES / LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	05/28/2012

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector Peak Trace	Max Hold
Sweep Time	Auto

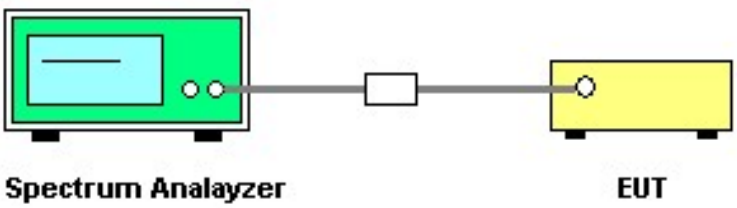
7.1.2 TEST PROCEDURE

a. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
b. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
c. The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were utilised for channel separation measurement.

7.1.3 DEVIATION FROM STANDARD

No deviation.

7.1.4 TEST SETUP



7.1.5 EUT OPERATION CONDITIONS

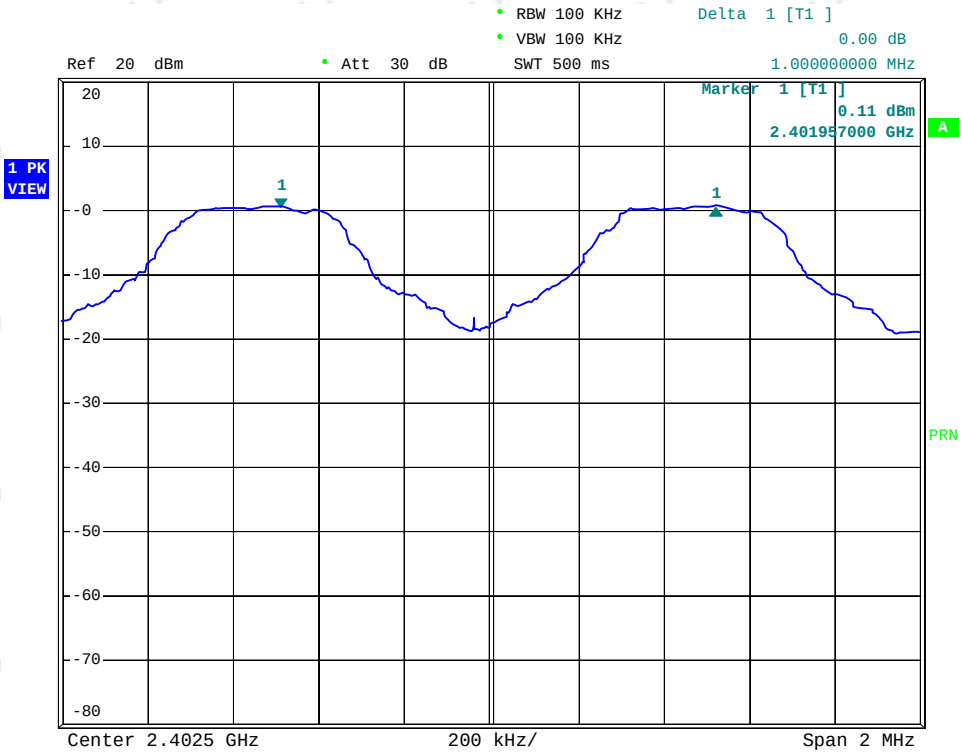
The EUT was programmed to be in continuously transmitting mode.

7.1.6 TEST RESULTS

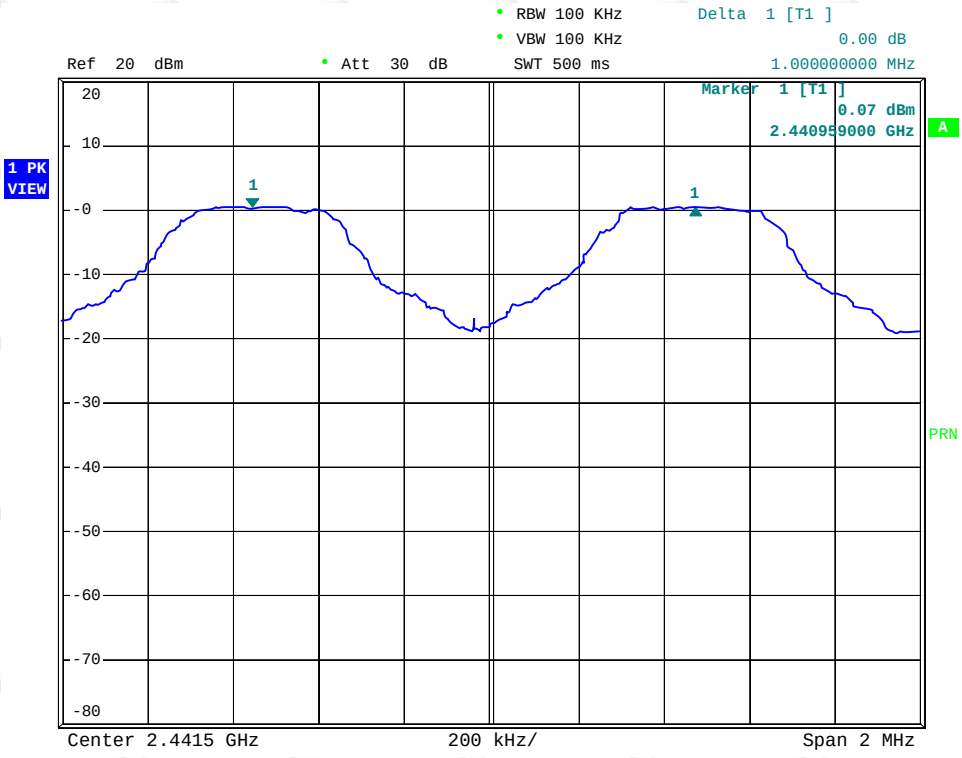
EUT:	Bluetooth Headset	Model Name :	JB101
Temperature:	23 ℃	Relative Humidity:	65 %
Pressure:	1012hPa	Test Voltage :	DC 3.7V
Test Mode:	CH00 / CH39 /CH78-1Mbps		

Frequency	Ch. Separation (kHz)	20d Bandwidth B (kHz)	Result
2402MHz	1000.00	946.00	Complies
2441MHz	1000.00	955.00	Complies
2480MHz	1000.00	947.00	Complies

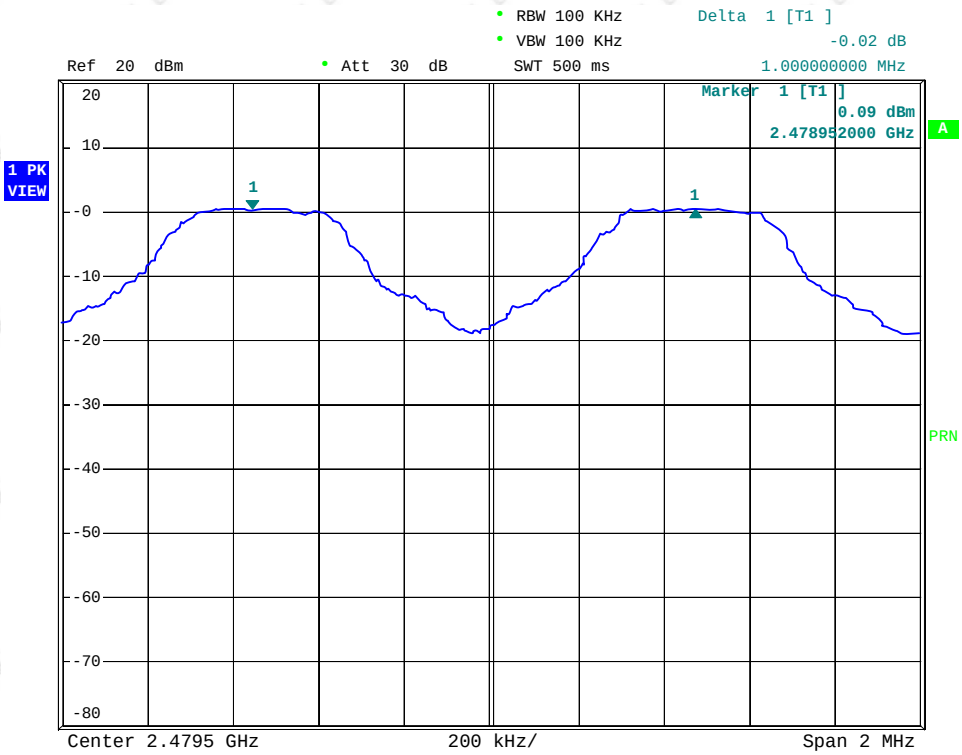
Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth



CH39 -1Mbps



CH78 -1Mbps



8. BANDWIDTH TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(2)	Bandwidth	<= 1 MHz (20dB bandwidth)	2400-2483.5	PASS

8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	05/28/2012

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

8.1.2 TEST PROCEDURE

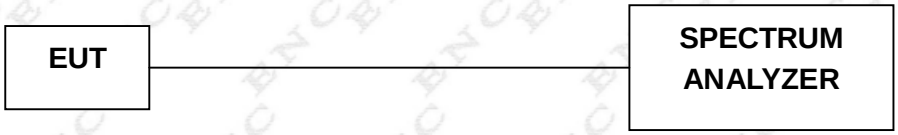
a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,

b. Spectrum Setting: RBW= 30KHz, VBW=100KHz, Sweep time = Auto.

8.1.3 DEVIATION FROM STANDARD

No deviation.

8.1.4 TEST SETUP



8.1.5 EUT OPERATION CONDITIONS

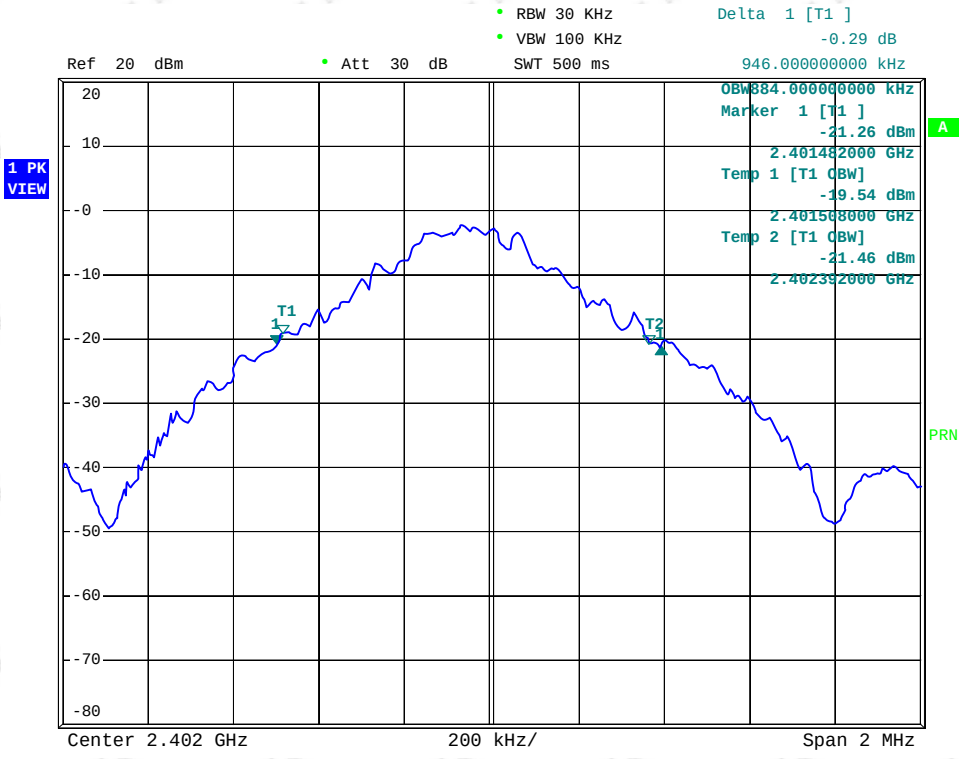
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.6 TEST RESULTS

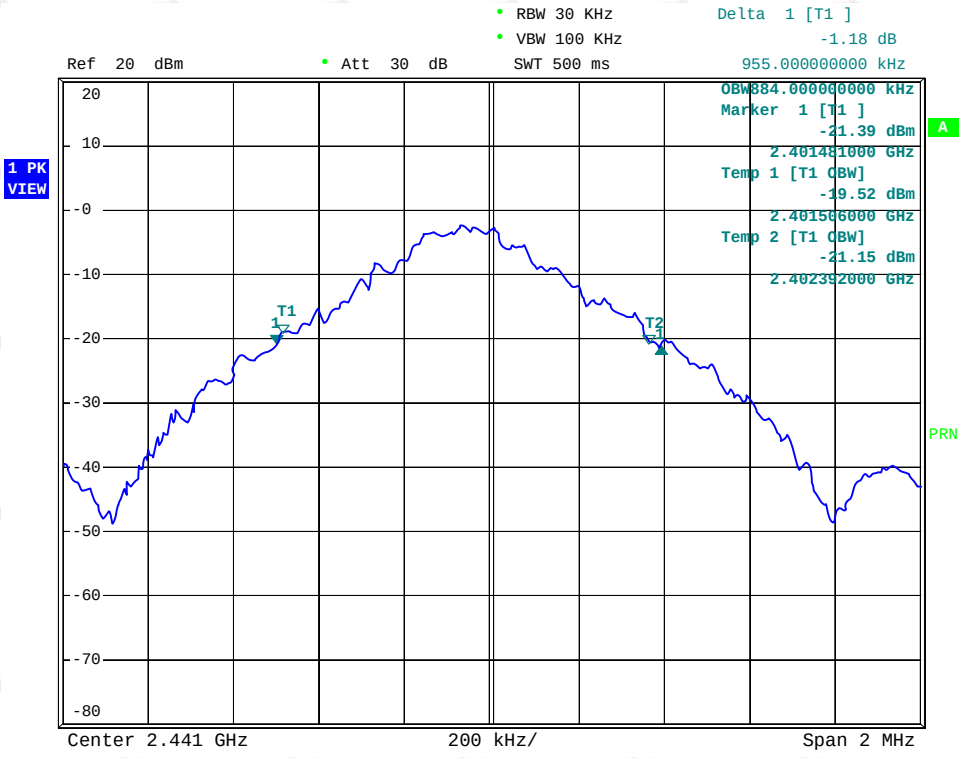
EUT:	Bluetooth Headset	Model Name :	JB101
Temperature:	23 ℃	Relative Humidity:	65 %
Pressure:	1012hPa	Test Voltage :	DC 3.7V
Test Mode:	CH00 / CH39 /CH78-1Mbps		

Frequency	20dB Bandwidth (KHz)	99% Channel Bandwidth (KHz)	Result
2402MHz	946.00	884.00	**PASS**
2441MHz	955.00	884.00	**PASS**
2480MHz	947.00	888.00	**PASS**

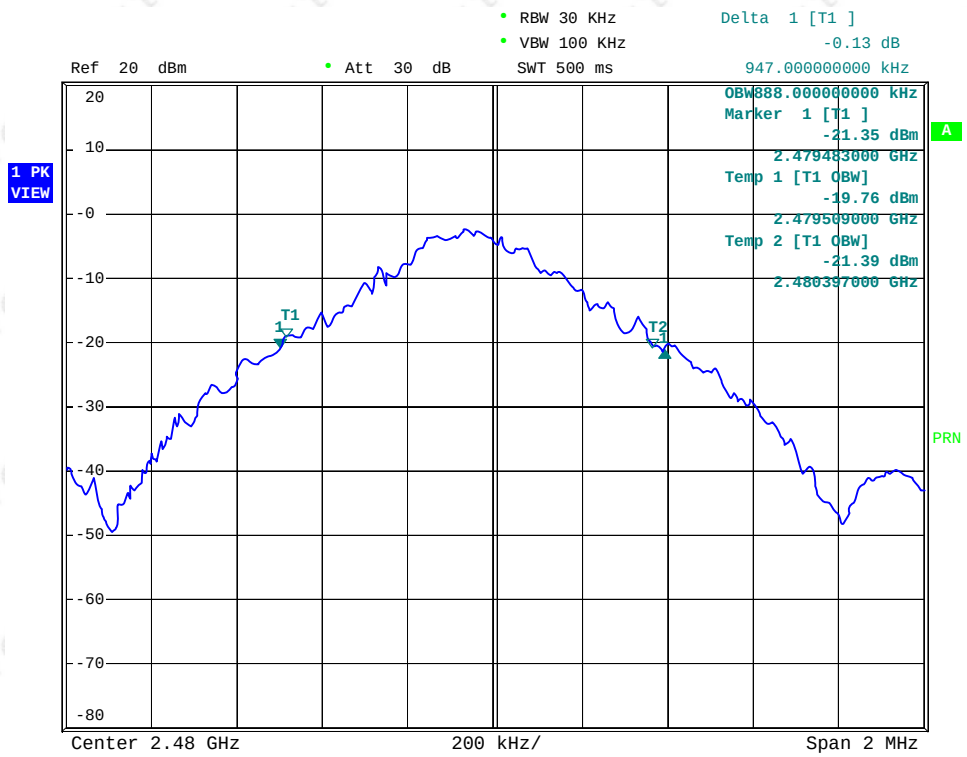
CH00 -1Mbps



CH39 -1Mbps



CH78 -1Mbps



9. PEAK OUTPUT POWER TEST

9.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (b)(1)	Peak Output Power	1 W or 30dBm	2400-2483.5	PASS

9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	05/28/2012

Remark: ” N/A” denotes No Model Name , Serial No. or No Calibration specified.

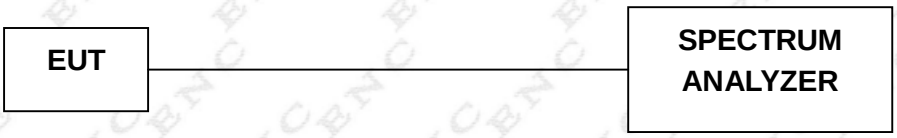
9.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting: RBW= 1MHz, VBW= 1MHz, Sweep time = Auto.

9.1.3 DEVIATION FROM STANDARD

No deviation.

9.1.4 TEST SETUP



9.1.5 EUT OPERATION CONDITIONS

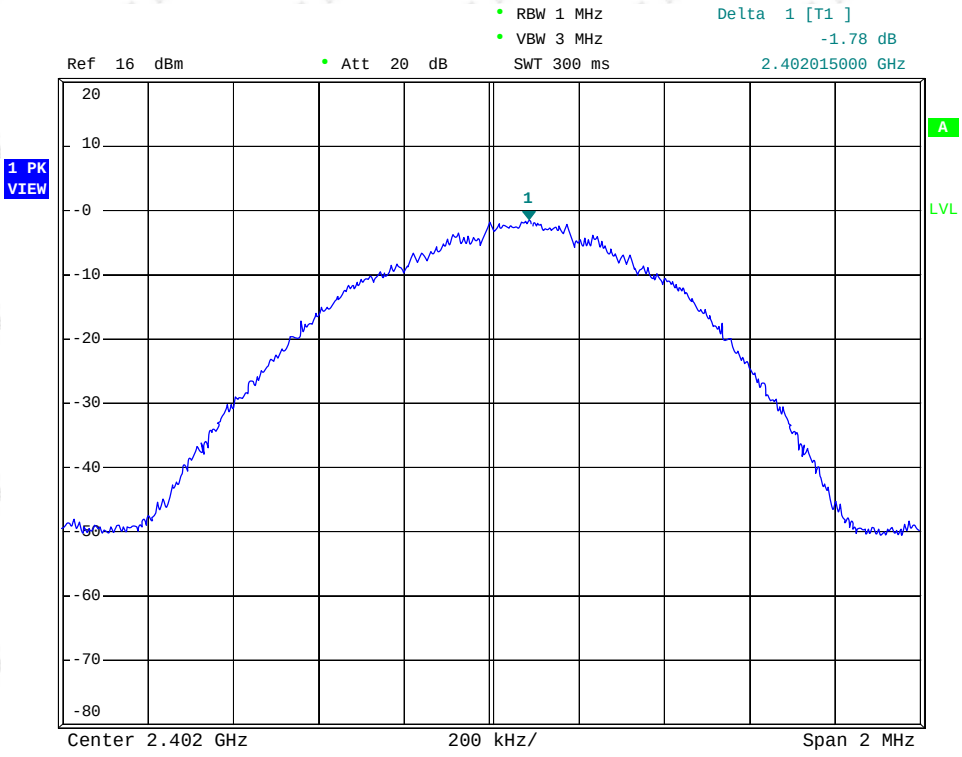
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

9.1.6 TEST RESULTS

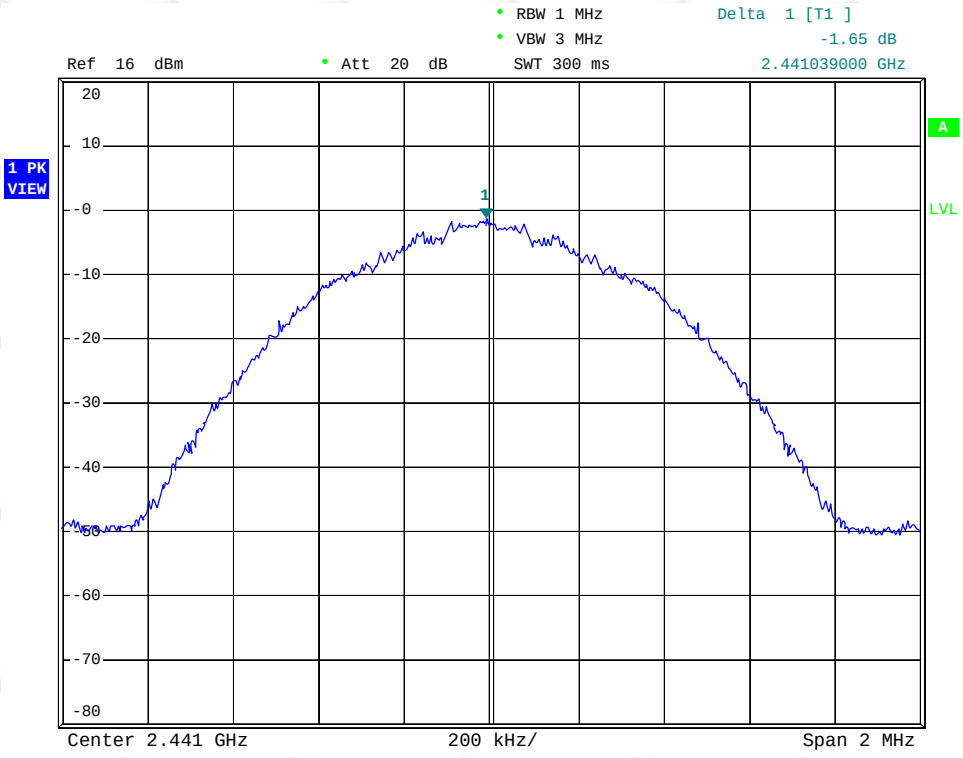
EUT:	Bluetooth Headset	Model Name :	JB101
Temperature:	23 ℃	Relative Humidity:	65 %
Pressure:	1012hPa	Test Voltage :	DC 3.7V
Test Mode:	CH00/ CH39 /CH78 -1Mbps		

Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH00	2402	-1.78	30	1
CH39	2441	-1.65	30	1
CH78	2480	-1.53	30	1

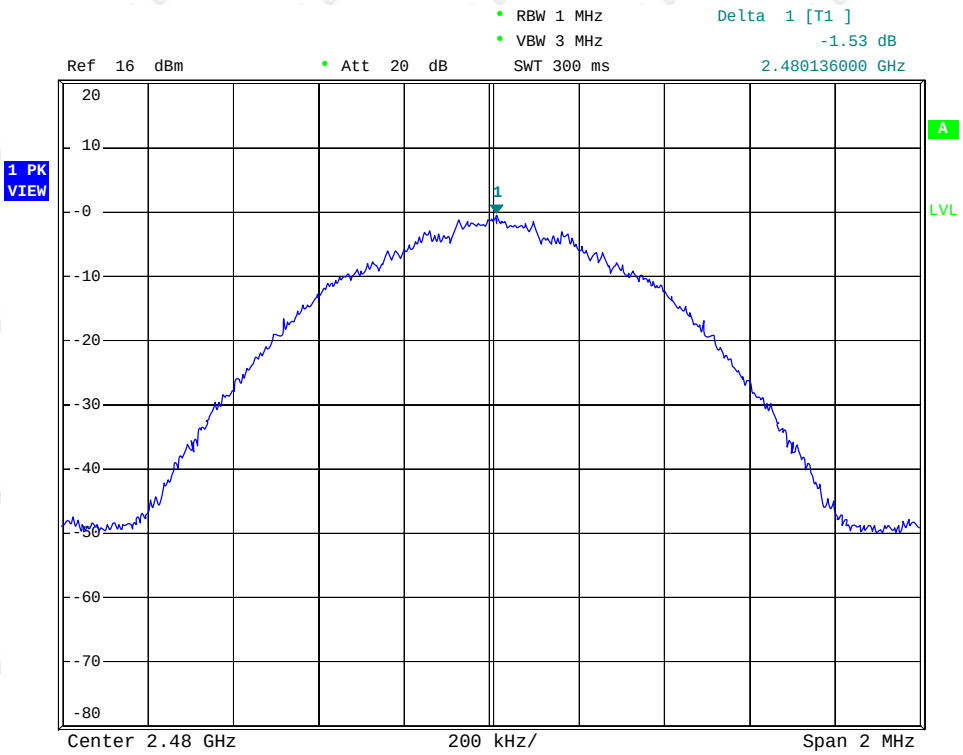
CH00 -1Mbps



CH39 -1Mbps



CH78 -1Mbps



10. ANTENNA REQUIREMENTS

10.1 LIMIT

Except for special regulations, the Low-power Radio-frequency Devices must not be equipped with any jacket for installing an antenna with extension cable. 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 the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited.

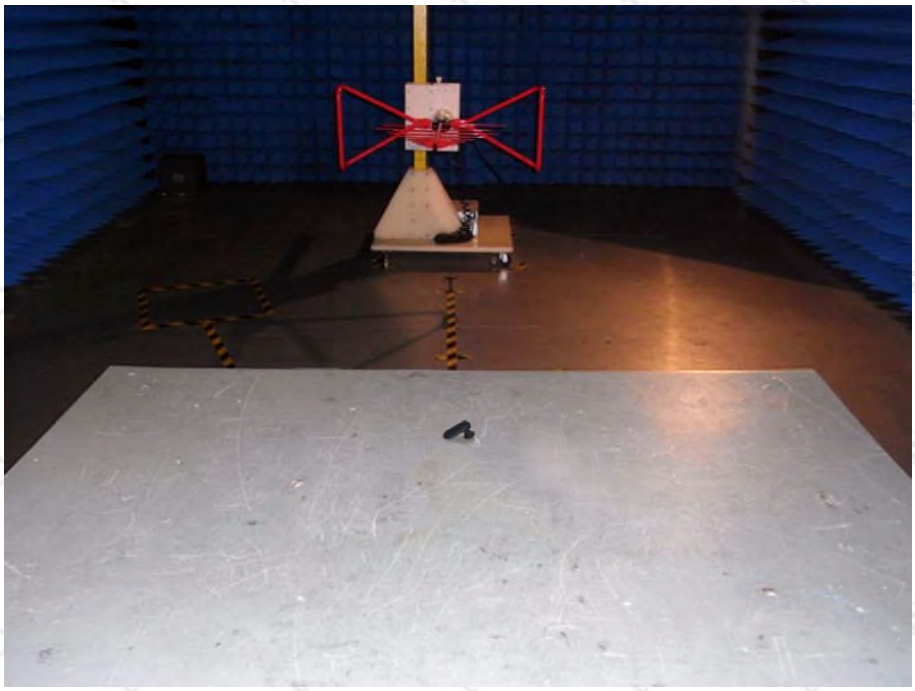
10.2 ANTENNA CONNECTOR CONSTRUCTION

Please refer to section 3.3 in this test report; antenna connector complied with the requirements.

APPENDIX I
PHOTOGRAPHS OF TEST SETUP

CONDUCTED EMISSION TEST SETUP

RADIATED EMISSION TEST SETUP



RADIATED EMISSION TEST SETUP

----END OF REPORT----